

**The 2050  
ProVantage™  
Network  
Controller**

**OPERATION MANUAL**

# The 2050 ProVantage™ Network Controller

The 2050 control assemblies are now being shipped with four new pieces of literature. They cover the new software incorporated in the 2050. They have been appended to the 2045 manual (literature number 9P 590) and, in conjunction with this manual, will comprise the 2050 manual.

These new pieces of literature are:

9ES 805, Parameter Codes  
(replaces appendix PC, 2045 manual)

9ES 806, Command Summary  
(Replaces appendix CS, 2045 manual)

9ES 811, Menu Structure  
(Replaces appendix MS, 2045 manual)

9ES 817, Software, Standard and Prime  
(Replaces appendix PS, 2045 manual)

The ES prefix indicates that this literature is in a dual language format, those languages being English and Spanish. The literature is also available in English and French (9EF 805, 9EF 806, 9EF 811 and 9EF 817) and in English and German (9EG 805, 9EG 806, 9EG 811 and 9EG 817).

**Agri-comp® 2045**  
**FARM Management Computer**  
**Operation Manual**

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# **TABLE OF CONTENTS**



# Agri-comp 2050 Table of Contents

<b>Introduction .....</b>	<b>Chapter 1</b>
<b>Getting Started .....</b>	<b>Chapter 2</b>
<b>Installing Software .....</b>	<b>Chapter 3</b>
<b>System Basics .....</b>	<b>Chapter 4</b>
<b>Feeding .....</b>	<b>Chapter 5</b>
<b>Automatic ID .....</b>	<b>Chapter 6</b>
<b>Reproduction .....</b>	<b>Chapter 7</b>
<b>Milking .....</b>	<b>Chapter 8</b>
<b>Appendices</b>	
<b>Glossary</b>	
<b>Index</b>	
<b>Notes</b>	



# **INTRODUCTION**



## Table of Contents

Overview .....	1-1
1 Manual Contents .....	1-2
1.1 Understanding the Manual's Format .....	1-2
1.2 Understanding Terminology .....	1-4
2 Data Entry Methods .....	1-5
2.1 Understanding Command Mode .....	1-5
2.2 Understanding Menu Mode .....	1-13
3 Agri-comp Checklist .....	1-16
3.1 Startup Procedure .....	1-16
3.1.1 General System Functions .....	1-16
3.1.2 Feeding .....	1-17
3.1.3 Milking .....	1-19
3.1.4 Automatic ID .....	1-20
3.1.5 Reproduction .....	1-21
3.2 After Each Milking .....	1-22
3.3 Daily Checklist .....	1-22
3.3.1 Feeding .....	1-22
3.3.2 Milking .....	1-23
3.4 Weekly Checklist .....	1-23
3.4.1 General .....	1-23
3.4.2 Feeding .....	1-24
3.4.3 Milking .....	1-24
3.4.4 Reproduction .....	1-25
3.5 Monthly Checklist .....	1-25
3.5.1 General .....	1-25
3.5.2 Feeding .....	1-25
3.6. As Required .....	1-26
3.6.1 As A Cow Freshens .....	1-26
3.6.2 As A Cow Is Dried Off .....	1-26
3.6.3 As A Cow Is Bred .....	1-26
3.6.4 As You Prepare To Cull Cows .....	1-26
3.6.5 As Feed Types Change .....	1-27
3.6.6 As Your Milk Payments Change .....	1-27
3.6.7 As Milk Quality Changes .....	1-27

# Introduction

## Overview

The Agri-comp 2045 (and 2045+) herd management computer is an extremely powerful herd management and dairy farm operations system, which integrates computerized feeding, computerized milk production recording, and an easy-to-use reproductive calendar into a single system.

Both computers, model 2045 (having memory capacity to store 500 cow records) and model 2045+ (capable of storing 1000 cow records), can automatically process, update, and store over 100 different pieces of data that they receive directly from the integrated system components, from entries made by the dairyman, or from calculations they make with data obtained through the previously mentioned sources. And the dairyman can review all data and change most of it, at virtually any time.

The particular data that gets processed, updated, and stored by the computers depends on and is managed by one of the FARM programs—Feeding, Automatic ID, Reproduction, or Milking—designed for the system.

Whether the system is complete (with full integration of all system components and all programs) or not (partial integration with some system components and some programs), the Agri-comp computer has a number of features, functions, and capabilities—some that apply only to a particular FARM program, others applying to more than one program—that can help the dairyman more efficiently manage the dairy and make the best management decisions. (For an explanation of the features, functions, and capabilities each program includes, refer to the appropriate program chapter.) Clearly, full integration of all programs offers the dairyman the greatest ability in managing the herd, as certain up-to-the-minute data stored under one program is used by the computers in calculations for data stored under other programs (eliminating the need for other computers and dairy management programs).

# Introduction

## 1 Manual Contents

This section briefly explains what information you'll find in this manual to familiarize you with it.

### 1.1 Understanding the Manual's Format

To orient you with the information you will read in this manual, in addition to the Table of Contents at the beginning of the manual and those which precede each chapter of the manual, the following paragraphs briefly summarize what information you'll find in Chapters 2-8 and the appendices, when the procedures should be carried out, and who is responsible for carrying them out.

Chapter 2, "GETTING STARTED," explains how to install the 2045 computer and connect it to other system components. You won't need to read this chapter right away, since the installation will be performed by your dealer, but you should be aware of the information in this chapter in case you experience problems with the 2045.

Chapter 3, "INSTALLING SOFTWARE," explains how to load the system disk and program disks as well as replacement and upgrade system disks. Again, you probably don't need to read this chapter right away, so long as your dealer installs the software and explains the reason for and importance of keeping the system disk in the disk drive, following software installation. However, read this chapter during the first week or two to learn the difference between the system and program disks and how to write (back up) data to disk, as you will need to make backup copies of the data stored in the 2045 on a regular basis, and should you lose power at some point, you may need to reload software.

Chapter 4, "SYSTEM BASICS," contains information about general system functions and some functions that apply to two or more programs. It should be the first chapter that you read. The Setup section of this chapter explains how to set the various parameters that will enable the 2045 to perform system functions that affect many or,

in some cases, all of the operations of the 2045 in the manner you desire. The Data section of this chapter explains how to create and delete cow records; add, change, and review certain data in cow records; and write (back up) and read (reload) data to and from the 'backup' system disks. The Reports section of this chapter explains how to print the various system reports.

Chapters 5, 6, and 7—FEEDING, AUTOMATIC ID, REPRODUCTION—each have three sections entitled Setup, Data, and Reports. Chapter 8, "MILKING" has those three sections plus a section entitled Milking Procedures. The Setup section of each chapter explains how to set the various parameters that will enable the 2045 to perform that program's functions in the manner you desire. The Data section of each chapter explains the meaning of commands and codes, the data entry methods available, and the individual values that can be entered for each cow for that particular function. The Reports section of each chapter explains how to print the various reports that are specific to each program. Your dealer will probably perform some of the necessary setup procedures, but you should read and be familiar with the chapters for each program that you are using.

The APPENDICES include summaries of all command and parameter codes, helpful hints on connecting a PC to the 2045, and an explanation of how you can design your own reports, among other things.

As you see, the manual presents information in a two-column format. In general, all explanations, instructions, responses, and helpful information appear in the wide column on each page, and all examples used to aid you in understanding entries and responses appear in the narrow column.

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The best way to learn about all the features and functions of the Agri-comp 2045 is to start reading at the beginning of the manual and work your way through to the end, trying out each function as you read about it. You don't have to read the entire manual in one sitting, of course, but you should become familiar with those functions that need your immediate attention first and eventually read all the way through the manual, at least once. (To aid in proper setup and effective use of

# Introduction

the 2045, the “Agri-comp Checklist,” included at the end of this chapter, briefly suggests, according to program category, things to be checked at start-up, after milking, daily, weekly, monthly, every six months, and as required.)

No prior knowledge of computers is necessary to use the 2045, but it is assumed that the user is familiar with dairy farm operations. Don't be overwhelmed by the size of the manual; it's thick because each subsection explains in careful detail the step-by-step procedures you will follow, the 2045 responses, and, in certain cases, the action to take if the proper results are not achieved. Crucial details have been repeated wherever necessary, so that you won't have to search through the manual to find information relative to more than one chapter. And brief reminders (identified by the symbol “☞”) about certain information have been provided throughout the manual for your convenience.

## 1.2 Understanding Terminology

As you read this manual, you will discover that certain terms have specific meanings, as follows:

- The word “you,” when used anywhere but in Chapter 4, means the dairyman (though the dealer may also perform procedural steps in other chapters that address the dairyman).
- The numbers “2045,” when used alone will always mean Agri-comp 2045 computer (*or 2045+, unless a distinction is made between the two*).
- The word “terminal” will always mean terminal or personal computer (PC—with a program installed to allow it to act as a terminal), unless a distinction is made between the two.
- the word “printer” will always mean parallel or serial printer, unless a distinction is made between the two.

You will also come to discover (especially when reading instructions in the setup and data entry sections of Chapters 5-8), that an abbreviation is often used in place of a parameter name when a name is mentioned more than once in the instructions. In addition to conserving text space and simplifying sentences so as to bring out a more important point, the abbreviations serve to familiarize you with the column

 **Reminder**

Refer to Appendix PC for a list of all parameter name abbreviations, their code numbers, their purpose, in which chapter they are set, assigned or entered, in which reports they appear, and in which chapter the reports can be obtained.

headings that appear in many records and most reports. Abbreviations are also frequently used to express the type of value to be specified (for a particular field of data) within certain commands and the type of value that the 2045 displays in prompt and setting/data review responses. You'll get a better feel for the use of abbreviations in instructions once you've read Section 2 of this chapter. Refer to Appendix PC for a list of all parameter name abbreviations and each parameter's corresponding code number and purpose, or press the question mark [?] key to have the 2045 display a list of valid parameter codes at the terminal (the ? key will not work with C-level software).

Throughout this manual, there will be references to C-level software and D-level software. The D-level software is a newer enhanced version with more powerful features. The C-level software is still in use and will be supported, but no new features will be added. This manual assumes that D-level software is installed.

## 2 Data Entry Methods

This section introduces all the data entry methods, or *modes*, that can be used to set parameters, enter data, and generate reports.

### 2.1 Understanding Command Mode

When operating in Command mode, the 2045 accepts various number-symbol sequences of keystrokes, called *commands*, that cause it (or prepare it to accept more data that will cause it) to perform a *function or action*. Basically, a command is a series of numbers that are separated by asterisks (\*) to distinguish entry mode codes, parameter codes, values, and other data from one another and followed at the end with a pound (#) sign. The # signals the 2045 to execute the command. Commands can be entered at a terminal through Basic Command Entry mode, Single Entry mode, Prompt Entry mode, or Group Entry mode—the meanings of which will be explained later in this subsection. Certain Basic Command Entry mode commands can also be entered at detach keypad. (Note that unless instructions specifically state that a command can be entered at a detach keypad, they will imply

# Introduction

that it can only be used at the terminal.) Command mode is the 2045's most direct data entry method, since its simple sequence of (generally fewer) keystrokes allows the 2045 to process information more quickly than is usually possible through Menu mode.

Some 2045 functions can be set or executed only through Command mode. These include parameters that

- are used only once or very infrequently, such as that for setting the unit of measure (pounds or kilograms) you will be using.
- should have restricted use, such as that for instructing the 2045 to read a backup disk (so that you don't accidentally erase all data currently in memory).
- are used to set advanced features or special options not used by all users. This includes reports that allow an extra parameter to limit the report to a specific group of cows, such as only those cows in a specific lot or zone number. An example would be if you enter the command 18\*40\*3#, which would print a report listing the feed ration only for those cows in feed zone 3.

To activate any of the Command modes, simply enter the command (unless Menu mode is awaiting entry of a number in response to a previous function). The first digit of the command will cause the 2045 to switch to Command mode automatically.

To simplify instructions throughout the manual, commands are specified using asterisk (\*) and pound (#) signs; however, if you prefer (at a terminal only), you can separate numbers using a period (.) in place of the asterisk (provided a decimal point is not expected somewhere within the command) or signal the 2045 to execute the command by pressing the ENTER or RETURN key instead of the pound key. Look for reminders “” about this information throughout the manual.

The following subsections (identified with mini 'entry mode' headings) explain the differences between these modes. (The same mini headings used here can be found throughout the manual to help you quickly find instructions for the entry mode you wish to use.)

## Basic Command Entry Mode

A command entered in Basic Command Entry mode (often begun with an entry mode code of 15 or 17) would cause a single action to occur (for instance, that of setting a system function, enabling/disabling a system mode, adjusting data in all cow records according to a particular parameter value, or printing a report). Some basic commands will be a complete (predefined) number-symbol sequence, while instructions for entering others will specify in parentheses a range of valid values or a word or abbreviation that describe the data required in a particular field of data. When you enter data through Basic Command Entry mode, you need only enter the command once. (Note that all 2045 functions and modes have default settings, which means that they were factory-set with commonly used values or for practical situations. Thus, you may only need to change a few settings at start-up and others, now and then, as desired. Note also that the current setting of many functions and modes can be reviewed through Command mode using a command similar to that used to set the function or mode. Unless caution against reviewing a setting or data is advised in instructions, you may assume that it can and should be reviewed either before or after set. Refer to Appendix CS for a list of setting and data review commands.)

### *Example:*

To set the 2045 unit of measure to pounds, you would enter 15\*42\*0#

Examples of Basic Entry mode commands follow:

```
15 * 60 * (minutes, 0-59) #  
15 * 42 * 0 #  
17 * 15 #
```

Upon entry of this type of command (assuming no entry errors are made), the 2045 will immediately execute the expected action.

The following list describes how the 2045 and peripheral components respond to data entry errors made through this mode and explains ways you can correct errors and obtain proper results.

- If you specify an invalid entry mode code (e.g. code 13) or parameter code (e.g. code 10, 17, 18), value (e.g. 61 minutes, 25 hours, or any value that doesn't exist in memory), or symbol and press the ENTER key, the terminal's alarm will alert you with an error beep and, in certain cases, the 2045 will alert you with a "Command Error" message. If you specify a valid

# Introduction

code, value, and symbols but otherwise incorrectly enter a command (e.g. you enter 15\*42\*1# to set the 2045 unit of measure to kilograms instead of 15\*42\*0# to set it to pounds) or specify an incorrect value (e.g. you enter 15\*60\*15# instead of 15\*60\*25#), the terminal and 2045 may not alert you to the error. For this reason, we urge you to use extreme care in entering commands and to review settings and data entries in memory (as explained under applicable entry modes), once made, if you feel they may be incorrect.

- If you discover an error within a command (in which no periods are used) while entering it, you can either type six zeros (000000) then the command starting where the error was made or you can type two periods (.) or two asterisks (\*) then the command starting at the beginning.
- If you realize you made an error in a command after pressing the pound (#) or ENTER key, you must reenter the command.

## Single Entry Mode

A command entered in Single Entry mode would cause a single record to be updated (for instance, that of assigning a value to a cow record) for the specified parameter. Single Entry mode commands will specify in parentheses a range of valid values or a word or abbreviation that describe the data required in a particular field of data. When you enter data through Single Entry mode, you must enter the command for each assignment you want to make. Thus, this method of data entry is most beneficial to a user who has only one or two assignments to make and who does not need to review current assignments.

An example of a Single Entry mode command follows:

```
2 2 * (NUMB) * (CIDN) #  
3 0 * (NUMB) * (LOT) #
```

Upon entry of this type of command (assuming no entry errors are made), the 2045 will immediately execute the expected action. Note that the abbreviations NUMB and CIDN (shown in parentheses in the command), which stand for 'cow number' and 'cow ID tag number,' are report column headings typical of abbreviations used throughout the manual.

## Examples:

- To correct the partially completed command 15\*41, changing the 41 to 42, you could continue by entering 00000042\*0#—for a complete command string of 15\*4100000042\*0#
- To correct the above command, by starting it over, after the 1, you would enter \*\*15\*42\*0#—for a complete command string of 15\*41\*\*15\*42\*0#

## Example:

To assign ID number 39682 to cow #1, you would enter 22\*1\*39682#

The following list describes how the 2045 and peripheral components respond to data entry errors made through this mode and explains ways you can correct errors and obtain proper results.

*Examples:*

- To correct the partially completed command `22*1*3967`, changing the 3967 to 39682, you could continue, entering `00000039682#`—for a complete command string of `22*1*396700000039682#`
  - To correct the above command, by starting it over, after the 7, you would enter `**22*1*39682#`—for a complete command string of `22*1*3967**22*1*39682#`
- If you specify an invalid parameter code (e.g. code 10, 17, 18), value (e.g. ID tag number 262145 or any value that doesn't exist in memory), or symbol and press the ENTER key, the terminal's alarm will alert you with an error beep and, in certain cases, the 2045 will alert you with a "Command Error" message. If you specify a valid code, value, and symbols but otherwise incorrectly enter a command (e.g. you enter `20*1015*1#` instead of `30*1015*1#`) or specify an incorrect value (e.g. you enter `22*1015*15871#` instead of `22*1015*15371#`), the terminal and 2045 may not alert you to the error. For this reason, we urge you to use extreme care in entering commands and to review settings and data entries in memory (as explained under applicable entry modes), once made, if you feel they may be incorrect.
  - If you discover an error within a command (in which no periods are used) while entering it, you can either type six zeros (000000) then the command starting where the error was made or you can type two periods (.) or two asterisks (\*) then the command starting at the beginning.
  - If you realize you made an error in a command after pressing the pound (#) or ENTER key, you must reenter the command.

### Prompt Entry Mode

A command entered in Prompt Entry mode (always begun with an entry mode code of 16) would cause all assignments stored in memory for the specified parameter to be displayed at the terminal, one at a time, for you to review or change. Thus, this method of data entry is most beneficial to a user who has several assignments to make for records that will appear in consecutive order and who needs or wants to review current assignments.

The current assignments will be displayed in order of the most recent sort of data, which you can specify with a Sort command before entering any Prompt Entry command. (See Appendix SC for an explanation of the Sort command.) If the most recent sort of data would cause the 2045 to first display several assignments that you do not wish to affect, you can specify the first assignment you want to change by including the appropriate data (specified in parentheses where applicable) in the command, as shown in the second command below.

### **Reminder**

To sort first, you would enter  
`4*(parm code)#`                      ...or  
`4*(parm code)*(parm code)#`

# Introduction

Examples of Prompt Entry mode commands follow:

```
1 6 * 2 2 #  
1 6 * 2 2 * (NUMB) #
```

Upon entry of this type of command (assuming no entry errors are made), the 2045 will respond with a prompt. Though specific for the particular parameter specified in the command, the prompt will always contain three general elements (the C-level software will not display the abbreviation as part of the first element). The first element, the parameter abbreviation for the parameter (see Appendix PC) followed by “P:”, indicates Prompt Entry mode; the second element (followed by a colon) will always be the particular record (cow number, feeder address, detacher zone, etc.) to which a value is assigned; and the third element, which this mode allows you to change (followed by an equal sign), will always be the value currently assigned to the record. (In the examples, the ‘second element’ numbers 1-4 and 100-103 represent cow numbers, and the ‘third element’ value 0 for all cows indicates that no ID tag number assignments had been previously made.) After the prompt, you can type a new value or accept the current value and, in either case, press the ENTER key to have the 2045 accept the assignment and advance to the next record. (Keep in mind that the ENTER, RETURN, and pound keys are interchangeable.) The 2045 will continue to respond with prompts until you’ve affected all records for the parameter specified or until you exit the mode by pressing the Escape key.

The following list describes how the 2045 and peripheral components respond to data entry errors made through this mode and explains ways you can correct errors and obtain proper results.

### *Correction of Errors in Commands*

- If you specify an invalid parameter code (e.g. code 10, 17, 18), value (e.g. ID tag number 262145 or any value that doesn’t exist in memory), or symbol and press the ENTER (or equivalent) key, the terminal’s alarm will alert you with an error beep and, in certain cases, the 2045 will alert you with a “Command Error” message. If you specify a valid code, value, and symbols but otherwise incorrectly enter a command (e.g. you enter 16\*20# instead of command 16\*30#) or entry string or you specify an incorrect value (e.g. you enter 15871# for prompt P: 1015: 0: instead of 15371#), the terminal and 2045 may not alert you to the error. For this

### *Examples:*

- To assign ID tag numbers to cows, you would enter 16\*22#
- To assign them starting with cow 100, you would enter 16\*22\*100#

### *Examples:*

If you enter 16\*22# and cow 1 is the first to appear, having a previously assigned CIDN (ID tag number) of 0, the 2045 would respond with:

```
CIDN P: 1: 0=
```

The following entries would would change CIDN numbers of 0 for cows 1-3 to 39682, 30269, and 1023, respectively:

```
CIDN P: 1: 0=39682
```

```
CIDN P: 2: 0=30269
```

```
CIDN P: 3: 0=1023
```

```
CIDN P: 4: 0=
```

The following entries (made after entry of command 16\*22\*100# to start with cow 100) would change CIDN numbers of 0 for cows 100-102 to 233, 9028 & 697, respectively:

```
CIDN P: 100: 0= 233
```

```
CIDN P: 101: 0= 9028
```

```
CIDN P: 102: 0= 697
```

```
CIDN P: 103: 0=
```

reason, we urge you to use extreme care in entering commands and data entry strings and to review settings and data entries in memory (as explained under applicable entry modes), once made, if you feel they may be incorrect.

- If you discover an error within a command while entering it, you can correct it in either way explained for a Single Entry mode command error.
- If you realize you made an error in a command after pressing ENTER, you must exit that mode, then reenter the command.

### Group Entry Mode

A command entered in Group Entry mode (always begun with the parameter code for the particular function) would allow you to enter data for one parameter on any number of applicable records that you desire and randomly specify rather than repeatedly entering a command (as with single entry) or displaying and advancing through several consecutively ordered records (as with prompt entry). Thus, this method of data entry is most beneficial to a user who has several assignments to make for records that will not appear in consecutive order and who does not need to review current assignments. An example of a Group Entry mode command follows:

**2 2 \* #**

Upon entry of this type of command (assuming no entry errors are made), the 2045 will respond with a reminder (NUMB. plus the parameter abbreviation) that you are to enter the cow number, then the parameter value (this does not occur in C-level software) followed by an 'E=' prompt to allow you to enter data for the specified parameter for any applicable record you desire and specify. (This mode does not display current values, so you must be certain about the entries you will be making.) After the prompt, in most cases, you will type the cow number for the first data field; an asterisk (\*) or period (.) to separate data fields; the value you wish to assign that cow; then a pound (#) sign. (Keep in mind that the ENTER, RETURN, and pound keys are interchangeable.) The 2045 will continue to respond with a prompt after each entry. You can make as many entries as you wish in any order, and you can exit the mode at any time by pressing the Escape key, as necessary.

#### Example:

The following entries (made after entry of command 22\*#) would assign the same ID number and cow number combinations used in the previous Prompt Entry example; however, as you can see, Group Entry allows the user to determine the cow number entry order.

```
NUMB.CIDN E=1*39682#  
NUMB.CIDN E=3*1023#  
NUMB.CIDN E=2*30269#  
NUMB.CIDN E=
```

# Introduction

The following list describes how the 2045 and peripheral components respond to data entry errors made through this mode and explains ways you can correct errors and obtain proper results.

## *Correction of Errors in Commands*

- If you specify an invalid parameter code (e.g. code 13), value (e.g. 61 minutes or 25 hours), or symbol and press the ENTER key, the terminal's alarm will alert you with an error beep and, in certain cases, the 2045 will alert you with a "Command Error" message. If you specify a valid code, value, and symbols but otherwise incorrectly enter a command (e.g. you enter 15\*61\*3# instead of 15\*60\*3#) or specify an incorrect value (e.g. you enter 15\*30\*1# instead of 15\*30\*2#), the terminal and 2045 may not alert you to the error. For this reason, we urge you to use extreme care in entering commands and to review data entries in memory (as explained under applicable entry modes), once made, if you feel they may be incorrect.
- If you discover an error within a command while entering it, you can correct it in either way explained for a Single Entry mode command error.
- If you realize you made an error in a command after pressing ENTER, you must reenter the command.

## *Correction of Errors in Edit Record Strings*

- If you discover an error within a Group Entry edit record string before pressing ENTER, type six zeros (000000) then the entry string starting where the error was made. If you type two periods (.), two asterisks (\*), or press the Escape key, the 2045 will exit the mode.
- If you realize you made an error within an edit record string after pressing ENTER, simply reenter the entry string.

The Data Entry sections in the menus are an alternate method of entering Group Entry mode data. Once you activate one of these menu choices, you will see the normal Group Entry prompt, and you can enter data as described above.

As you can see, these Command modes allow you some flexibility in entering data. The three example commands used in the Single Entry, Prompt Entry and Group Entry explanations accomplish the same data entry—that of assigning an ID tag number to a cow number in memory. Compare the Single Entry mode example (shown in the narrow column) with the first record of the Prompt Entry and Group Entry mode examples, and notice that all three examples show the assignment of ID tag number 39682 to cow number 1. Then compare all entries in the Prompt Entry mode example with those in the Group

## ☛ Reminders

### *Interchangeable Keyboard Keys*

- asterisk(\*) = period (.) in commands and Prompt or Group Entry edit record strings, except when period is decimal point.
- pound (#) = ENTER = RETURN in commands and Prompt or Group Entry edit record strings.
- ENTER = RETURN in menu responses.

### *Error Responses*

- Error (terminal) beeps and Command Error messages alert you to data entry errors made through any mode.
- Parlor (alarm) beeps alert you to events and problems in the parlor.

### *Data Entry Error Corrections*

- To correct error within command or Prompt or Group Entry edit record strings, type 6 zeros, then continue command or string.
- To correct error made through Menu mode, erase it with Backspace key.
- To correct error once action is executed (entered),
  - repeat Single Entry command.
  - exit Prompt Entry mode, then repeat data entry process for entry in error.
  - repeat entry in another Group Entry edit record string.
  - repeat data entry process for Menu Mode.

Entry mode example, and notice that, although the order of entry differs, all entries are the same.

The command entry methods used by the Agri-comp 2045 are the same methods used by our earlier Agri-comp computer models (2020, 2025, 2030, and 2040). New commands and extensions to some existing commands have been added to the 2045 software (and will continue to be added with future upgrades) to allow the dairyman to use new features. (Compatibility with the earlier command sets was maintained to ease the transition for owners of the earlier systems to use the 2045 and to allow computer programs written to work with the 2030 and 2040 to be used with the 2045.)

## 2.2 Understanding Menu Mode

When operating in Menu mode, the 2045 is capable of displaying (at the terminal) several hierarchies of menus, each beginning with a common main menu but branching through uniquely structured compartment-like recesses of 2045 memory (as selected by the user), at whose eventual end the 2045 performs a function. While Menu mode's step-by-step data entry method is not as direct as Command mode's, it may be easier for the inexperienced user of the 2045, who may have difficulty remembering the many 2045 commands. (Note: the C-level software does not display the summary of the basic commands to the bottom of the main menu, as shown on the right).

To activate Menu mode, simply press any letter key (unless Command mode is awaiting entry of a letter in response to a previous function). The 2045 will display the main menu and prompt you to enter a menu letter that will allow you to access lower level menus within the hierarchy. (Valid menu letters are indicated in each menu to the left of their corresponding descriptions, and either upper or lower case letters can be used.)

The main menu (head of each hierarchy), as shown, offers you five items from which to choose: Feeding, Automatic ID, Reproduction, Milking, and System. In order to access menus for the first four items (letters F, A, R, and M), the program for the particular menu you want

# Introduction

to access must be loaded into the 2045. (See Chapter 3 for details on loading programs.) The System menu can be accessed at any time, without programs loaded. This menu is used to set up 2045 system functions that are not directly related to any one program.

When you press an appropriate key to select one of the main menu items, the 2045 will display a second-level menu that corresponds to your main menu selection, as shown in our example that begins the branch into the Feeding program (selected with the F key), and again prompt you to enter a menu letter that will allow you to access the next lower level menu. This menu and the second-level menu for all programs have three items from which to choose: Setup, Data Entry or Edit, and Reports. Menus structured under “Setup” basically allow you to review and set parameters that the 2045 needs to manage your herd and equipment. Menus under “Data Entry or Edit” allow you to enter new values for individual cows or to review and edit all pertinent data for each cow. And menus under “Reports” allow you to view or print the 2045 reports available for each program. (User-defined reports can be created by the user, as explained in Chapter 4.)

All lower level menus are accessed and displayed in the same manner explained above—through entry of a menu letter offered in the last displayed menu and always one menu at a time. (The examples shown here illustrate third-level menus—one of which would follow the Feeding menu, shown above, depending on which menu letter is entered at the prompt.) The number of menu levels within a menu hierarchy and the number of items in each menu vary for each program. After making your last menu selection within a hierarchy, the 2045 will either prompt you to enter a value for the parameter you want to set, to execute the command/function, or to do both. In addition to the prompts for entering values, the 2045 will periodically ask for other information, such as a cow number or whether you want data to be sorted. (Appropriate responses to the prompts and additional information requests are explained in the chapters covering the programs or parameters they relate to.)

## **\* Agri-comp 2045 \***

**F** - Feeding  
**A** - Automatic ID  
**R** - Reproduction  
**M** - Milking  
**S** - System

## Command Summary:

0? Parameter List  
8\* Diagnostics  
11\* Scatter Graphs  
14\* Parameter Recall  
15\* System Parameters  
16\* Prompt Entry  
17\* Summaries  
18\* Reports

## **\*\* Agri-comp 2045 Feeding \*\***

**S** - Setup  
**D** - Data Entry or Edit  
**R** - Reports

## \*\*\* Agri-comp 2045 Feeding Setup \*\*\*

- A - Assign/Delete Calibration Tags
- C - Calibrate Feeder
- Z - Assign Feed Zones
- T - Assign Feed Types
- N - Assign Feed Names
- P - Assign Feed Prices

## \*\*\* Agri-comp 2045 Feeding Data \*\*\*

- F - Feeding Data Entry
- E - Edit Cow Record

## \*\*\* Agri-comp 2045 Feeding Reports \*\*\*

- R - Feed Ration Report
- E - Feed Exception Report
- T - Ration Target Report
- V - Feed Visits Report
- S - Feed System Summary - Today
- Y - Feed System Summary - Yesterday
- N - Feed Name Summary
- I - ID Tag Number List

Note that the main menu has one asterisk (\*) on each side of its heading and the second-level menu has two asterisks on each side of its heading. Each subsequent menu level will have an additional asterisk to help orient you within a menu structure. Also note that the menus that appear on your terminal may differ slightly from those shown in the examples, as a result of software upgrades released after this manual was printed.

If you select a wrong menu item and would like to correct the selection or you complete an entry through Menu mode and would like to perform another entry within a different menu structure or (in some cases) within the same menu structure, you can exit from a menu and return to the previous menu by simply pressing the Escape (ESC) key. If you continue pressing the ESC key (as instructions will suggest to exit a mode), the 2045 will continue to display the menus in reverse order until the main menu reappears.

A quicker method of exiting modes is to press the zero key (to switch to Command mode), then press any letter key to return to the main menu.

For a quick reference of the menu structure, refer to Appendix MS— Menu Structure.

# Introduction

## 3 Agri-comp Checklist

The following lists are intended to be used as a guide to setting up and using your Agri-comp computer. We have broken down the most important commands into groups that fit most management needs. You may want to skip some steps, do some steps more often, or do some steps less often than is recommended in these lists. It is helpful to set aside some fixed time each day, week, or month to perform each of these steps. The consistency helps you remember to do each step, and makes it easier to compare data collected on different days, weeks, or months.

The steps to be followed are only described briefly. Please refer to the appropriate sections of this Operation Manual for details on how to perform these functions.

### 3.1 Startup Procedure

The following steps should be used to set up your computer, and will probably not be used again unless you have to change some setting.

#### 3.1.1 General System Functions

All installations should perform the following steps when first starting up your computer. Note that you should have all optional programs installed before you start this list.

- 1) Set the Time and Date from the System Setup menu. You may want to reset the time when Daylight Savings starts and ends, but this is not necessary.
- 2) Type in your Dairy name from the System Setup menu.
- 3) If you will be using Pounds as your unit of weight for Milking and Feeding, proceed to step 4). If you will be using Kilograms, enter the command 15\*42\*1# to set Metric mode.
- 4) Set the beeper to alert you to the desired Parlor conditions or Feed communications.

- 5) Select the correct printer from the System Setup menu.
- 6) If you are using a serial printer, you may need to set the end-of-line delay if you find that you are losing characters at the beginning of lines. This will generally only be necessary for older serial printers.
- 7) If you want the printer to advance the paper automatically at the end of reports, so that you can read the last lines printed on the printer, set the number of blank lines from the Printer setup menu. Generally 5 to 10 lines is enough. If you do not want the paper to advance, leave the number of blank lines at the default setting of zero.
- 8) If you do not want your reports paged to the screen or printer, turn off Page Mode with the command 15\*56\*0#. If your printer does not recognize the form feed character, you will want to turn off page mode. If you want your reports printed double-spaced on your printer, use the command 15\*56\*2#.
- 9) Add cows to your computer's memory from the System Data Entry menu.

## 3.1.2 Feeding

If you have installed the Feeding program, you should perform the following steps to set up your feed system.

- 1) Assign Feeding Calibration Tags for each feed from the Feeding Setup menu.
- 2) Calibrate your feeders according to the procedure described in the Operation Manual, and establish the calibration factors for each feeder as described.
- 3) Assign a feed zone to each feeder if you have feeders in more than one lot or area on your farm. If you have only one feed zone, you should assign it zone number 1. Cows that have not eaten, or have been dried off are automatically assigned to zone 0 until they eat.
- 4) Assign feed types to each zone. This will allow the computer to calculate feed costs accurately. Feed types 1, 2, 3, and 4 are set by default on startup.
- 5) Assign Feed Names and Prices to each feed type. This allows the 2045 to keep track of what you are feeding and calculate feed costs accurately.
- 6) Set the threshold for the Feed Exception report.

# Introduction

- 7) If you are pasturing your cows, you may want to change the Allocation Offset hours to 8 or 12, depending on when your cows go out to pasture at night. If your cows have access to the feeders all night, do not change the offset. The command is 15\*38\*(hours)#. You may also need to change the Maximum Amount Per Visit, if your cows have very limited access to the feeders.
- 8) If you are not using the Milking program, set the price that you are paid for one hundred pounds (or kilograms) of milk with the command 15\*99\*(price)#. For example, if you are paid \$10.65 per hundredweight, you would enter the command as 15\*99\*10.65#. This milk price, along with each cow's average daily milk production, allows the Agri-comp computer to calculate a daily Income Over Feed Cost (IOFC) value.
- 9) Enter the cost per day for bunk feeding for each group, or Lot, of cows. This is entered as the cost per cow in each Lot. For example, if you have 40 cows in Lot 3, and your monthly bunk feed cost for that lot is \$4000, you would enter a daily per cow cost as:  
$$\$4000 / (40 * 30 \text{ days}) = \$3.33$$

The command to enter the bunk cost is 16\*94#. Follow the instructions in Chapter 5, Feeding.

The computer uses the bunk cost to calculate the total feed cost, and to calculate the Income Over Feed Cost.
- 10) Enter an ID Tag number and feed rations for each cow, using the Edit Cow Record selection from the Feeding menu. If you have any cows that you want to automatically change rations using the Target Feed feature, enter the target rations and number of days for each cow.
- 11) Print a Feeder System Summary (17\*40#) to keep in your permanent records. This will give you a record of your feeder address, zone, and calibration factor assignments.
- 12) Print a Ration Target Report (18\*45#) to keep in your permanent records. This will give you a record of the rations and targets assigned when you first started using the system.
- 13) Print a Feed Type Summary (17\*37#) to keep in your permanent records. This will give you a record of your initial feed types and prices.
- 14) If your system is not using the Milk program, enter the average daily milk production for each cow. You can use your DHIA monthly summary for this data. This information will be used to calculate the Income Over Feed Cost.

- 15) Write a backup copy of your data to your System disk with the command 15\*25#. This will prevent you from losing the data you have entered so far.

### 3.1.3 Milking

If you have installed the Milking program, you should perform the following steps to set up your milking system.

- 1) If you are using Automatic ID, you need to display the cow number when you press the Attach button at a detacher. Enter the command 15\*5\*0#. If you do not change this, the detacher will display the time since attach.
- 2) If you do not want to use the takeoff delay and rate set in the detachers, set the desired rate and delay. See Chapter 8 for details on how to set these.
- 3) If you milk three times a day, set the Automatic End of Day to three with the command 15\*8\*3#. If you are milking twice a day, you do not need to change this value.
- 4) If your next milking will not be milking #1, set the current milking number. If the next milking will be #2, use the command 15\*1\*1#. If the next milking number will be #3, use the command 15\*1\*2#. In general, Milking #1 should be the first milking of the day and milking #2 or #3 the last milking of the day. This allows you to review milking and feeding performance on a complete 24 hour day where all of the data viewed took place on the same day.
- 5) If you want to calculate your milking averages based on fewer than seven days, set the Average Interval with the command 15\*4\*(days)#. For example, to use only three days data for the milk averages, use the command 15\*4\*3#.
- 6) Set the number of milkings to hold milk from fresh cows. You can do this from the Milking Setup menu.
- 7) If you have not already done so, set the price per hundredweight that you are paid for your milk with the command 15\*99\*(price)#. For example, if you are paid \$10.65 per hundredweight, you would enter the command as 15\*99\*10.65#. This milk price, along with each cows average daily milk production, allows the Agri-comp computer to calculate a daily Income Over Feed Cost (IOFC) value.

# Introduction

- 8) If you have not already done so, enter the cost per day for bunk feeding for each group, or Lot, of cows. This is entered as the cost per cow in each Lot. For example, if you have 40 cows in Lot 3, and your monthly bunk feed cost for that lot is \$4000, you would enter a daily per cow cost as:

$$\$4000/(40*30 \text{ days}) = \$3.33$$

The command to enter the bunk cost is 16\*94#. Follow the instructions in Chapter 4.

- 9) Using Edit Cow Record from the Milking menu, set the Lot number, Attention codes, Days in Milk, current milk production to date (LACT), Breed type (BRD), and any other milking data that you have for each cow.
- 10) Write a backup copy of your data to your System disk with the command 15\*25#. This will prevent you from losing the data you have entered so far.

## 3.1.4 Automatic ID

If you are using Automatic ID to identify your cows as they enter the parlor, you should perform the following steps to set up your ID system.

- 1) Set the number of ID zones. The Agri-comp computer assumes that you are using all 16 possible zones.
- 2) Set the number of meters in each ID zone.
- 3) Set the detacher addresses in each zone. This can be done manually, or by using the Parlor Initialization procedure described in Chapter 6. Save the Parlor Summary that is printed for your permanent records.
- 4) If you do not want the parlor beeper to signal when you close the entrance gate with too few cows, enter the command 15\*46\*0#.
- 5) If you want the computer to ignore ID tag numbers that are not assigned to cows, enter the command 15\*44\*1#.
- 6) If you want the computer to ignore all milk weights in a group of cows with a missing ID tag, enter the command 15\*41\*1#. This may be necessary if your milkers are unable to correctly identify misread cows.

- 7) If you have not already done so, assign ID tag numbers to every cow with Edit Cow Record from the Automatic ID menu.
- 8) Print the ID Tag Number List with the command 18\*1# for your permanent records.
- 9) Write a backup copy of your data to your System disk with the command 15\*25#. This will prevent you from losing the data you have entered so far.

### 3.1.5 Reproduction

Perform the following steps to set up your Cow Calendar system. Note that the default values are generally correct for Holstein cows, but may have to be changed to fit your management methods or if you do not have Holsteins.

- 1) If you do not want to breed your cows after 45 days, set the Ready to Breed days from the Reproduction Setup menu.
- 2) If you do not want to check your cows for pregnancy 45 days after they are bred, set the Pregnancy Check days from the Reproduction Setup menu.
- 3) If you do not want to dry cows off 220 days after they are bred, set the Dry Off Days from the Reproduction Setup Menu.
- 4) If you do not want cows to show up on the Cows to Calve report after 265 days, set the Gestation Length from the Reproduction Setup menu.
- 5) Use Edit Cow Record from the Reproduction menu to set the correct values for Days in Milk, Reproductive Status, Days since Bred, etc.

When you have completed all of the steps listed above, write a copy of your data to both system disks with the 15\*25# command. Then print out the System Setup Report (17\*15#) and keep this in your permanent records.

# Introduction

## 3.2 After Each Milking

If you are using the Milk Program, the following steps should be performed after each milking to maximize the benefit you receive from your Agri-comp computer.

- 1) Close all of the entrance gates. This will prepare the Automatic ID system for the next milking.
- 2) End the milking with the 15\*1# command. This can be done either from the parlor or at the computer, but it must only be done one place.
- 3) Review the summary at the end of the milking report (this summary should always be printed to a printer and kept for reference). Any cows listed as Unmilked should be checked to see if they were really un milked or just identified incorrectly. Cows listed as Unread should have their tags checked. Tags may be missing, improperly entered into the computer, or faulty. Cows that show up regularly as Unread should have their tags checked and/or replaced.

## 3.3 Daily Checklist

The following steps should be performed every day to maximize the benefit you receive from your Agri-comp computer.

### 3.3.1 Feeding

If you are using the Feed Program, perform the following steps each day.

- 1) Print the Feed System Summary for Yesterday (17\*140#). Check to see that the feeders have the correct calibration factors, and that all feeders are being used. Generally, all feeders located together in a zone will have very similar numbers of visits and amounts fed. If any feeder has an unusually large or small number of visits, it should be checked. If one feeder has an unusually small amount fed of one feed, the auger for that feed may be blocked. Check the Last Comm Time for each feeder; they should all be similar and fairly close to the present time (unless the cows are out in the pasture). If any feeder has 0000 for the Last Comm Time, it must be checked. The total percent fed for each group should be between 85% and 100%. If nothing else seems wrong, but the percent is low, you may have too few feeders for the combination of access time and feed amounts that you are using.

- 2) Print the Feed System Summary for Today (17\*40#). Look for the same kind of problems described above for Yesterday's summary, except that the percent fed will naturally be lower.
- 3) Print the Feed Exception Report (18\*140#). Cows that have 0% fed may not be accessing the feeders, or they may have a tag problem (missing tag, tag not assigned, faulty tag). Cows with a higher than usual number of visits and a low percent fed may be coming into heat. Once a cow has had a few days to get used to the feed system, she should be eating at least 50% of her ration every day. Some cows with low percent fed values may have too high a ration allocated.

### 3.3.2 Milking

If you are using the Milk Program, perform the following steps each day.

- 1) Print the Deviation Report (18\*25#). Cows that are down significantly (5-9 pounds or more) for the day may indicate a problem. Some possible causes of high deviations are: missed a milking (check the end of the milk reports), mastitis, and low feed consumption. Cows that are coming into heat often have low milk production one day followed by a high production the next day.
- 2) Print the Lot Summary (17\*30#). This report can indicate the effectiveness of heat detection and changing feeds. It can also be used to calculate bunk feed rations. This report should be run after the last milking of the day.

### 3.4 Weekly Checklist

The following steps should be performed at least once each week to maximize the benefit you receive from your Agri-comp computer.

#### 3.4.1 General

You should alternate your System Disks at least once each week, if not more often. This way you can never lose more than one week's data in case of an accident or problem.

# Introduction

## 3.4.2 Feeding

If you are using the Feed Program, perform the following steps each week.

- 1) Cows that have not yet reached their peak production should have their Feed Rations and Target Rations reviewed at least once each week. It is helpful to use seven (7) days for the Target Days value on these cows, to make it easy to sort these cows out for review each week.
- 2) Print the Feed System Summary for Yesterday on the printer and store this report in your permanent records.
- 3) Print the Feed Visits Report (18\*250#). This report will help you track the cows' activity at the feeders for the past week. It can help point out cows with problems or cows going into heat.

## 3.4.3 Milking

If you are using the Milk Program, perform the following steps each week.

- 1) Print the Herd Summary (17\*0#) on the printer for your permanent records. Compare the herd's performance to your production goals.
- 2) Print the Lot Summary (17\*30#) on the printer for your permanent records. This report can indicate the effectiveness of heat detection and changing feeds. It can also be used to calculate bunk feed rations. This report should be run after the last milking of the day.
- 3) Print the Weekly Production Report (18\*105#). Cows that show a variation of more than plus or minus 5 to 9 pounds (2 to 4 kg) from the average production should be checked for problems. This may be caused by: missed milkings, feed problems, illness, or coming into heat.

## 3.4.4 Reproduction

If you are using the Reproduction Program, perform the following steps each week.

- 1) Print the Reproduction Summary (17\*77#) for your permanent records. These reports help you to keep track of your breeding program. Compare these results to your management goals.
- 2) Print the Cows to Heat Check Report (17\*77\*2#). The estrous cycle for cows can vary from 18 to 24 days, so this report is designed to allow a day or two extra so you don't miss cows.

## 3.5 Monthly Checklist

The following steps should be performed at least once each month to maximize the benefit you receive from your Agri-comp computer.

### 3.5.1 General

Print the Income Report (18\*97#) for your permanent records each month. This helps to keep track of how much each cow is costing you versus how much income you receive for her milk.

### 3.5.2 Feeding

If you are using the Feeding program, perform the following steps each month.

- 1) Cows that have passed their peak production should have their Feed Rations and Target Rations reviewed at least once each month. It is helpful to use thirty (30) days for the Target Days value on these cows, to make it easy to sort these cows out for review each month.
- 2) If you are not using the Milk program, you should adjust the Average Daily Milk Production value (AVG) for each cow based on your DHIA monthly summary.
- 3) Review and/or adjust the Body Weight/Condition Code value for each cow. This value, along with Average Milk Production, are extremely useful in determining Feed Rations.

# Introduction

## **3.6. As Required**

Various events that do not occur at regular intervals should result in data entry or the generation of reports. This is a recommended list of actions for some of these events.

### **3.6.1 As A Cow Freshens**

When you freshen a cow, print the Cow Record for the lactation just completed on the printer for your permanent records.

### **3.6.2 As A Cow Is Dried Off**

When you dry off a cow, print the Cow Record for your permanent records. If you are entering milk income and feed costs accurately, one common factor for determining when to dry off a cow is that her Income Over Feed Cost (IOFC) goes to zero or negative (it is costing more to feed her than she is bringing in). The Cows to Dry List (17\*77\*4#) and the Income Report (18\*97#) are helpful in making the decision to dry off a cow.

### **3.6.3 As A Cow Is Bred**

When you breed a cow, enter the Days Since Bred and the Sire code into the cow's record. The Cows to Breed (17\*77\*1#), Cows to Heat Check (17\*77\*2#), and the Cows to Pregnancy Check (17\*77\*3#) reports are useful tools when you are breeding cows.

### **3.6.4 As You Prepare To Cull Cows**

When you want to decide which cows to cull, you may find the following reports useful: Production List (18\*5#), Lot List (18\*30#), Weekly Production Report (18\*105#), Income Report (18\*97#), and the Cows to Cull List (17\*77\*0#).

### 3.6.5 As Feed Types Change

When your feed types change, you should do the following steps.

- 1) Recalibrate your feeders, so that the system can deliver the feeds accurately.
- 2) Review and/or change your feed rations and targets.
- 3) Correct your Feed Type names and prices.

### 3.6.6 As Your Milk Payments Change

When the amount you are paid for your milk changes, set the milk price with the `15*99*(price)#` command.

### 3.6.7 As Milk Quality Changes

As cows progress through the lactation, the quality of the milk changes due to changes in butterfat and other constituents. To calculate milk income accurately, you must adjust the Milk Price Adjustment Factor (MPA%) for each cow. The MPA% value is just used as a multiplier factor to the milk price. If a cow is producing average quality milk, her MPA% should be 100 (the default value), which would just use the entered milk price. A cow with high butterfat or protein might have an MPA% value of 105, which means that if the milk price entered was \$10.00, her milk would be valued at \$10.50 per hundredweight ( $\text{price} \times 1.05$ ). A cow with mild mastitis or low butterfat might have an MPA% value of 95 which means that in this example her milk would be valued at \$9.50 per hundredweight. A more accurate value for MPA% means a more accurate value for Milk Income and Income Over Feed Cost.

# Introduction

# **GETTING STARTED**



## Table of Contents

Introduction .....	2-1
1 System Setup Preparation .....	2-2
1.1 Verifying Part and Tool Requirements .....	2-2
1.2 Reviewing Installation Specifications .....	2-3
2045 Computer & Power Supply .....	2-3
ADDS 1010 Terminal .....	2-3
Parallel Printer .....	2-4
Detachers .....	2-4
Agri-comp ID .....	2-5
Feeder Control .....	2-5
External Alarm .....	2-6
General Specifications .....	2-6
1.3 Setting Up the System Components .....	2-7
1.4 Installing Data Line Protection Modules .....	2-7
2 Power Supply and 2045 Installation .....	2-9
2.1 Installing the Power Supply .....	2-9
2.2 Installing the Agri-comp 2045 Computer .....	2-9
3 Peripheral Component Installation .....	2-12
3.1 Installing the ADDS 1010 (RS232) Terminal .....	2-12
Terminal Cable Connections .....	2-13
Agri-comp 2045 and Terminal Start-up .....	2-14
Terminal Communications Checkout and Troubleshooting .....	2-16
3.2 Installing the Printer .....	2-16
Parallel Printer Cable Connections .....	2-17
Parallel Printer Start-up .....	2-17
Parallel Printer Troubleshooting .....	2-18
4 Bou-Matic System Component Installation .....	2-19
4.1 Installing the Detachers With Meters .....	2-19
Detacher Cable Connections .....	2-19
Detacher/Meter Mounting .....	2-20
Detacher Communications Checkout and Troubleshooting .....	2-20
4.2 Installing the Agri-comp ID System .....	2-22
Agri-comp ID Cable Connections .....	2-22
ID Control Mounting .....	2-23
ID Communications Checkout and Troubleshooting .....	2-24

# Getting Started

4.3 Installing the Computerized Feeders .....	2-25
Feeder Control Cable Connections .....	2-25
Feeder Control Mounting .....	2-26
Feeder Communications Checkout and Troubleshooting ...	2-27
4.4 Installing the External Alarms .....	2-29
External Alarm Mounting .....	2-30
External Alarm Cable Connections .....	2-30
Alarm Communications Checkout .....	2-31

## Introduction

This section of the manual provides the dealer and other professionals (as may be required) with instructions that cover preparations for installing Agri-comp 2045 system components, that reference instruction packets and manuals for the installation of other system components, that explain cable and wire connections between the 2045 and system component, and that suggest troubleshooting tips should communication problems arise during installation. Maintenance and/or service instructions for the 2045 are covered in an Appendix. (For maintenance and service instructions dealing with other Bou-Matic system components, refer to the appropriate instruction packet.)

The Table of Contents which precedes this introduction lists the sections of this chapter in the order in which they should be read and procedures should be carried out by the dealer and other professionals.

# Getting Started

## 1 System Setup Preparation

### 1.1 Verifying Part and Tool Requirements

Each Bou-Matic product used with the Agri-comp system includes an instruction packet, which lists or in some way explains the parts required to assemble the product. To ensure that you have everything you need for the complete installation, check to see that the items and the quantity of them listed in the appropriate instructions agree with the items you take out of the packing boxes.

A list of required Agri-comp 2045 system parts (available from Bou-Matic) is shown below:

Description	Quantity
Computer, 2045 (or 2045+) .....	1
Software, System, 2045 (or 2045+) .....	1
Software, DEMO, 2045 .....	1
Software, FARM program(s) .....	as reqd
<sup>1</sup> Power Supply .....	1
<sup>1</sup> Terminal, ADDS 1010 (or equivalent) .....	1
RS-232 Kit, (PN#3555514) .....	1
Cables (for various connections) .....	as reqd
Lightning Arrestor .....	as reqd

Note:

1. Refer to subsection 1.2 for details explaining the need for, quantity of, and/or other requirements of this part.

In the unlikely event that something is missing, contact your authorized Bou-Matic dealer immediately.

Optional system parts (available from Bou-Matic) are listed below:

Description	Quantity
Protector, Keyboard, ADDS 1010 .....	1
Printer, Dot Matrix, 80-Column, 120V .....	1
Stand, Printer .....	1
Various Cables .....	as reqd
Kit, Agri-comp Alarm (external) .....	as reqd

When installing parts, the dealer should be equipped with standard installation tools. All nonstandard tools will be so indicated where appropriate.

## 1.2 Reviewing Installation Specifications

Plan the system installation according to the following guidelines:

### 2045 Computer & Power Supply

- The 2045 computer is rated at one detacher unit load, meaning that either a 1-unit power supply, 1/12 of the capacity of a 12-unit power supply, or 1/16 of the capacity of a 16-unit power supply is required for this product to operate properly. To determine what type of power supply to connect to the Agri-comp 2045, refer to the instruction packets for the individual Bou-Matic system components and specifications below for the 2045, determine the electrical load requirements for the entire system, then consider the following:
- If certain components in the system installation require the use of a 12- or 16-unit power supply and the power supply will have excess capacity to power the 2045, you can connect the 2045 to that power supply, as long as the 2045 and the power supply will be located in the same building.
  - If a 12- or 16-unit power supply will be connected to the 2045, use 16 AWG (12- to 14-MWG) wire for connecting them together. The only wire color requirement is that the chassis (AC) ground connection be made with a green wire. We suggest using black wire for DC Common and red for +11V.
- To operate properly, the maximum recommended cable length between the 2045 and a 12- or 16-unit power supply is 200 feet (60 meters).
- If the 2045 will be located in a building other than that which the parlor is located in or if only the Feeding program will be used, you should consider installing a special, 1-unit power supply to power just the Agri-comp 2045.
  - Connect the 1-unit power supply to the 2045 only with the cable supplied with the power supply.

### ADDS 1010 Terminal

- A terminal (or personal computer) is required as part of the Agri-comp 2045 system to allow the dairyman to set parameters, review data, and print reports. The terminal we recommend and have made available for use with the Agri-comp 2045 is the ADDS 1010 terminal, as it has been tested and properly performs all 2045 functions. If the dairyman opts to use an alternate information-retrieval system, make certain that it is a terminal equivalent to the ADDS 1010, or a personal computer (PC) with terminal emulator software, and be aware that any alternate system that you use (even an ADDS 1010-equivalent terminal or PC) may not perform all 2045 functions properly. Note that Bou-Matic sells a software program (AgriTerm, part number 0091003 or 0091004) for IBM-compatible PC's that will make the PC work like an ADDS 1010 terminal (and adds a few extra features, as well).

# Getting Started

- Communications cable 3555514 (RS232 Terminal Cable) should be used to connect the 2045 to the terminal if they are located in the same building and the distance between the two is 10 feet or less. If they are located in the same building and the distance between the two is more than 10 feet but no more than 50 feet, you can add 40 feet of cable to bring the length up to 50 feet. If the 2045 and terminal are located in different buildings or a distance from each other greater than 50 feet, two short-haul modems must be used. (The installation of these modems is explained in Appendix SM.)

*For specifications dealing with other terminals or PCs, see Appendices.*

## **Caution**

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications.

- If the 2045 and terminal will be located in different buildings and short-haul modems will be installed, lightning arrestors must also be installed, as explained in Appendix LP.

## **Parallel Printer**

- A printer can be connected to the terminal to provide the dairyman with a hard copy (paper print-out) of the data stored in the 2045.
- A standard printer cable (3555019) is available from Bou-Matic that will accommodate the interfacing of the terminal and most parallel printers; however, some printers (such as those from Tandy/Radio Shack) require a special cable, available from Radio Shack. In any case, the printer cable used with parallel printers must be no more than 10 feet (3 meters) in length.

## **Detachers**

- A maximum of 32 detachers (with meters) can be connected to each of the two communications branches of the 2045—a 64 detacher total. (If a parlor setup requires more than 64 detacher/meters, contact the Bou-Matic Customer Service Department for details on the Agri-comp 2040, which can support 128 detacher/meters.) Thus, all detachers in a double-16, herringbone-type parlor can be connected to one branch with a single communications cable or detachers on each side of the parlor can be connected to separate branches to simplify troubleshooting detacher communications problems.
- Communications cable 3554330 (500 ft/150 m spools), 3554348 (100 ft/30 m spools), or equivalent (same type and number of conductors), must be used to connect the detachers together and to the 2045. Connections are to be made in a daisy-chain fashion. (This connection is made by connecting a single cable between the 2045 and a detacher, then connecting that detacher to the next detacher, and so on, rather than connecting separate cables between the 2045 and each detacher. The maximum cable length we recommend between the 2045 and the detacher farthest from the 2045 within a branch is 1000 feet (300 meters).

## **Caution**

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications.

- When the 2045 and detacher/meters are located in different buildings, data line protection modules must be installed on the communications lines. Refer to Appendix LP for wiring details.

## **Agri-comp ID**

- A maximum of 16 ID controls can be connected to the 2045. Note that this includes standard Parlor ID units, Activity Tag ID, and Sort/Weigh Scale ID controls.
- Communications cable 3554330 (500 ft/150 m spools), 3554348 (100 ft/30 m spools), or equivalent (same type and number of conductors), must be used to connect the ID controls together and to the 2045. Connections are to be made in a daisy-chain fashion. (This connection is made by connecting a single cable between the 2045 and an ID control, then connecting that ID control to the next control, and so on, rather than connecting separate cables between the 2045 and each control. The maximum cable length we recommend between the 2045 and the ID control farthest from the 2045 is 1000 feet (300 meters).

## **Caution**

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications.

- When the 2045 and the ID controls are located in different buildings, data line protection modules must be installed on the communication lines. Refer to Appendix LP for wiring details.

## **Feeder Control**

- A maximum of 32 computerized feeders can be connected to the 2045.
- Communications cable 3554522 (500 ft/150 m spools), 3554547 (100 ft/30 m spools) or equivalent (same type and number of conductors), must be used to connect the feeders together and to the 2045. Connections are to be made in a daisy-chain fashion. (This connection is made by connecting a single cable between the 2045 and a feeder control, then connecting that feeder control to the next control, and so on, rather than connecting separate cables between the 2045 and each control. The maximum cable length we recommend between the 2045 and the feeder farthest from the 2045 is 4000 feet (1200 meters).

## **Caution**

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications.

# Getting Started

- Line protection against damage from lightning strikes has been built into the 2045 and feeder controls, so cables can be routed between buildings without adding extra protection modules.

## External Alarm

- An external alarm can be installed in the parlor to provide an audible sound that will indicate communications between the 2045 and detachers as well as cow identification events.
- Communications cable 3554522 (500 ft/150 m spools), 3554547 (100 ft/30 m spools), or equivalent (same type and number of conductors), must be used to connect the alarm to the 2045. The maximum cable length we recommend between the 2045 and the alarm is 1000 feet (300 meters).

### Caution

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor performance.

## General Specifications

- Agri-comp 2045 system components require uninterrupted AC power to communicate and operate properly. In an effort to ensure that the components will not experience poor communications or intermittent operation, we recommend that a qualified (or licensed, if applicable) electrician evaluate the load on the farm and barn electrical service entrances before you install and use the system to ensure that the Agri-comp system components will have adequate electrical power.
- We recommend that all wire connections be made with setscrew-type wire nuts.
- For best protection against voltage drop, keep wiring for all products as short as possible.
- To prevent the recirculation of currents in two parallel ground lines, the power supplies for all detacher/meters and ID controls must have the ground lead disconnected. The ground lead for the power supply connected to the 2045 must be connected.

### Caution

All wiring must be placed in conduit. AC and DC carrying wires must not be routed together in the same conduit. If routed together, poor or intermittent communications may occur between the 2045 and other system components. Parallel conduits must be located a minimum of 12 inches from each other.

Carefully read all installation instructions in this manual and the manuals supplied with the computer hardware being installed before you connect the system components together or plug the power cords of the computer hardware into electrical outlets.

## 1.3 Setting Up the System Components

The first step in setting up the Agri-comp system is to arrange items in the dairyman's office/desk area. Ideally, the office will include the following computer system hardware:

- Agri-comp 2045 computer
- Terminal (and/or PC) and keyboard
- Printer, printer stand, and paper storage

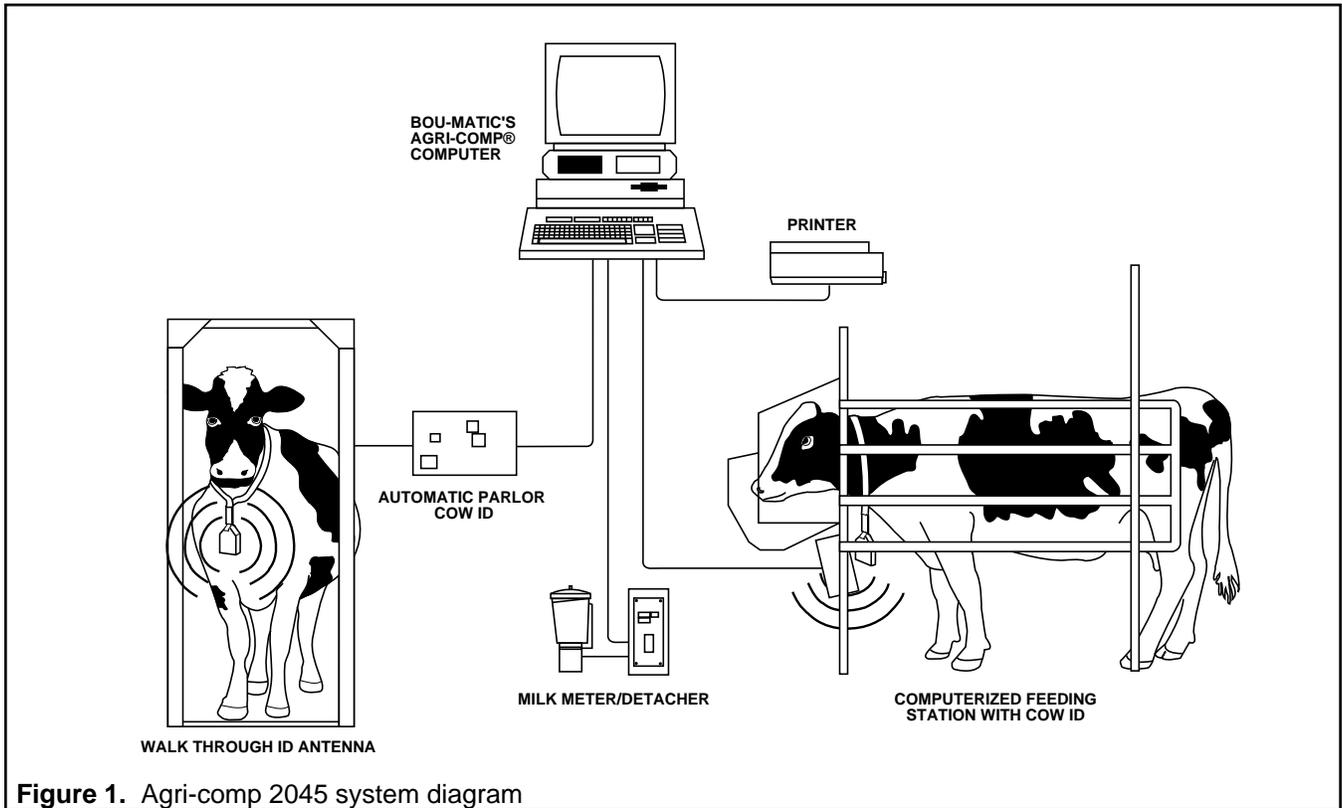
Choose a sturdy place for your computer equipment—surfaces where the hardware will not be tipped or knocked over. The 2045 can be mounted on a desk top or on a wall. When wall mounting the 2045, position it so that its disk drive door can be accessed from either the left or the right side. Do not mount it so that disk access is on the top or bottom. Avoid placing equipment where direct sunlight could impair your ability to read data at the terminal screen. Next, determine where the other system components will be placed. (Figure 1, on the next page, illustrates the arrangement of system components.)

Then, organize the cables that enable communications between the equipment, allowing for any planned future expansion of the system. (Figure 2 shows the arrangement of these cables and wires for a typical dairy automation system, as viewed from the back of the Agri-comp 2045.) Six conduit openings, located along the back of the chassis, are available for routing cables into the 2045. These openings may be enlarged for 3/4 inch conduit, if necessary.

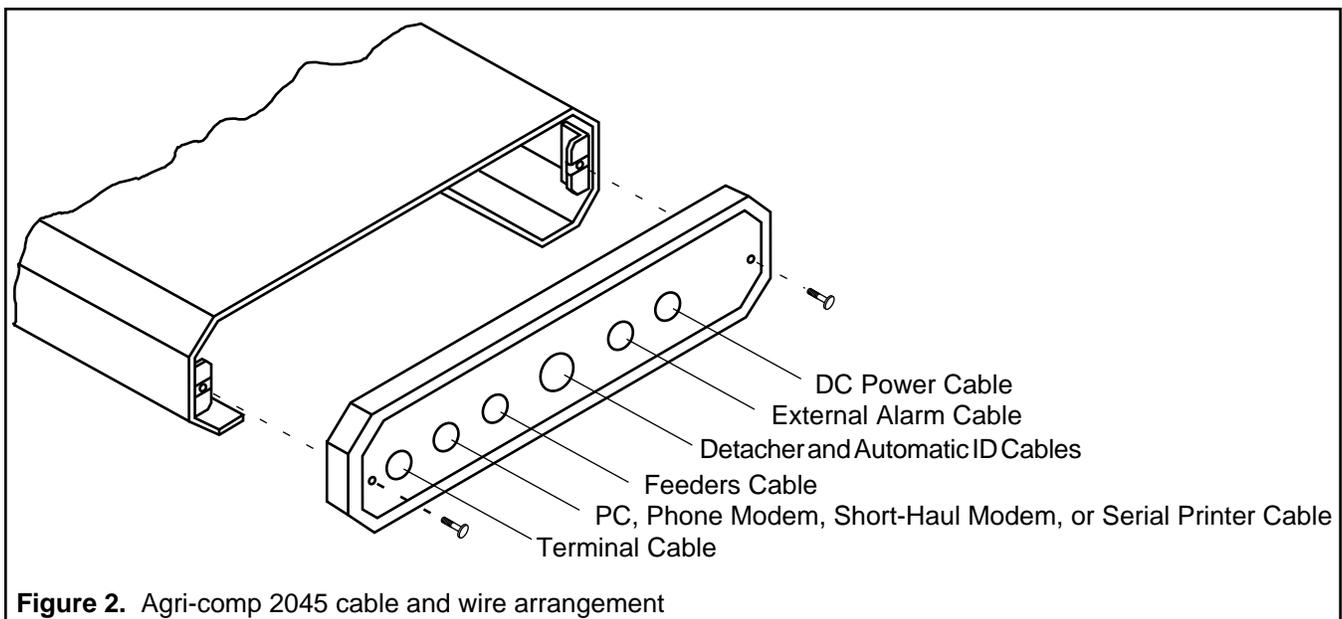
## 1.4 Installing Data Line Protection Modules

To protect the Agri-comp system from damage that may result from high voltages caused by the accidental electrical surge of a lightning strike, protection modules must be installed at various locations along communications cables (data lines) within the system. Where applicable, a note will appear in the wiring specifications for a component, explaining the conditions for which protection is necessary and in which appendix you'll find installation details on protection modules.

# Getting Started



**Figure 1.** Agri-comp 2045 system diagram



**Figure 2.** Agri-comp 2045 cable and wire arrangement

## 2 Power Supply and 2045 Installation

### 2.1 Installing the Power Supply

A power supply is required to convert 120 volts AC to 11 volts DC, which the Agri-comp 2045 requires for operation. If a power supply, serving other products in the parlor, has available power to accommodate the requirements of the 2045 (as specified in subsection 1.3), proceed immediately to the wiring procedure in subsection 2.2. Otherwise, at this time, install the power supply according to the appropriate literature packet, listed below:

12-Unit Power Supply	Lit. #9P-496
16-Unit Power Supply	Lit. #9P-509
1-Unit, Plug-In, Power Supply	Lit. #9P-597

Note that in order for the 2045 to operate properly with a 12- or 16-unit power supply, slight modifications must be made to the power supply, as explained in the appropriate power supply installation instructions.

#### **CAUTION**

Before connecting the 2045 to the power supply, turn off the power supply. Failure to turn off power could result in an inadvertent short, which may burn out a fuse in the power supply or cause other damage to the Agri-comp computer.

### 2.2 Installing the Agri-comp 2045 Computer

You are now ready to install the Agri-comp 2045 computer. To become familiar with the Agri-comp 2045 circuit board connections discussed throughout this chapter, first remove the screws and cover plate on the back of the 2045. Next, slide the circuit board and base plate out from inside the enclosure, and take a look at the circuit board. (Figure 3 shows the circuit board and connector locations.)

To provide DC power to the 2045, you must route and connect the three wires (+11V, DC ground, and AC ground) from the power

# Getting Started

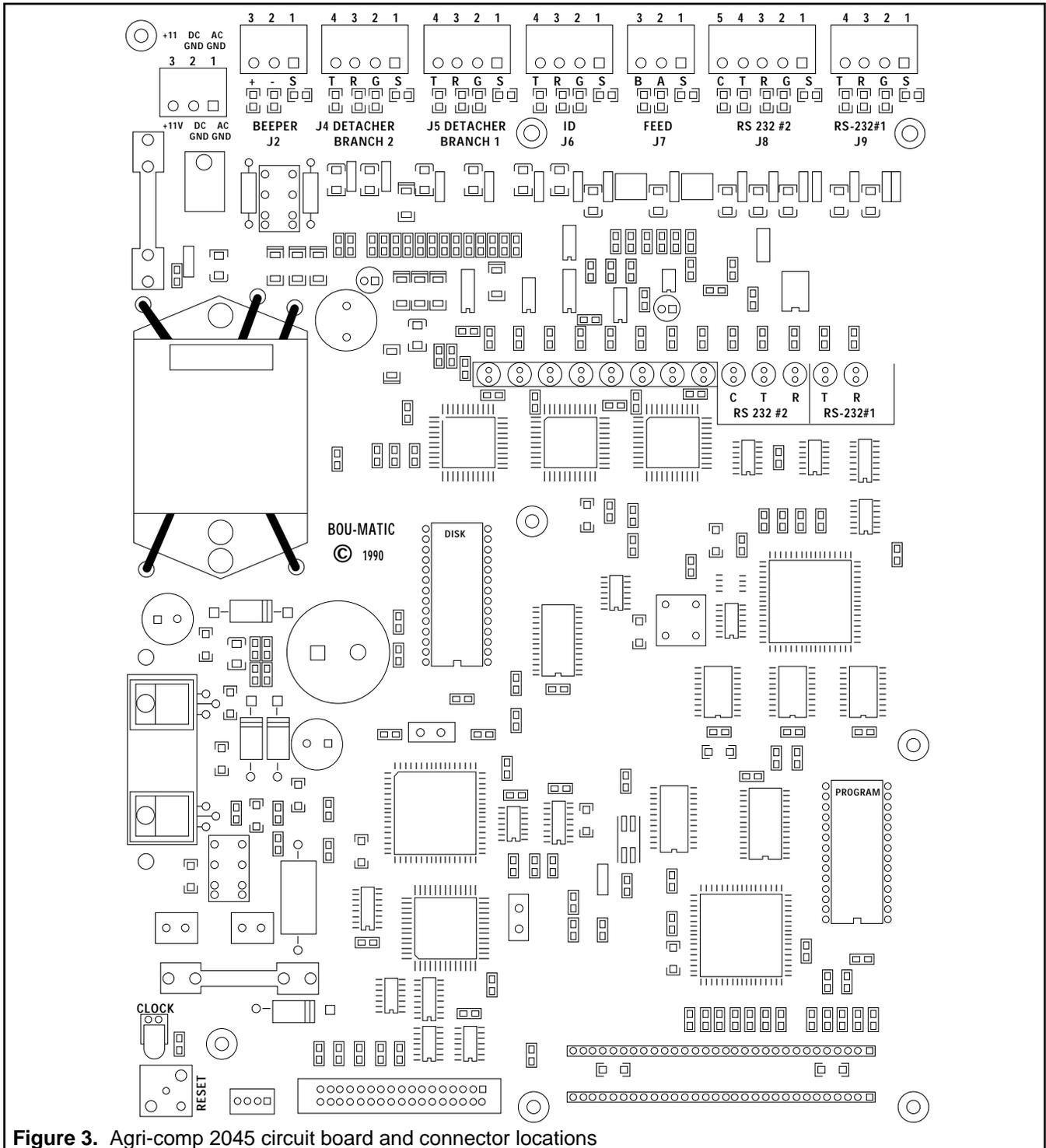
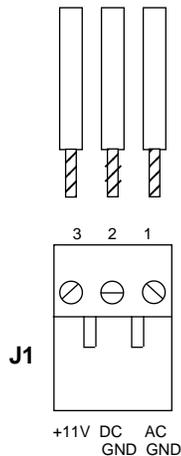


Figure 3. Agri-comp 2045 circuit board and connector locations

# Getting Started

supply to connector J1 on the circuit board inside the 2045. These instructions apply only to 12- and 16-unit power supplies. Refer to literature no. 9P-597 for instructions on connecting the 2045 to the 1-unit power supply.



To connect the wires to connector J1, use the following procedure:

1. **Strip the wire insulations back 1/4 inch (6 mm).**
2. **Remove connector J1 and connect the wires to it, as shown.**

#### Note

Do not plug J1 back in at this time. You will be instructed to do so later.

Once the power supply wiring is connected to the 2045, turn on the power supply and verify at the disconnected J1 connector that the voltages at the power supply agree with those in the table below. If the voltages do not agree, take action at once to correct them.

Place Measured	J1 Disconnected
DC Gnd (pin 2) to +11V (pin 3)	9.5V to 14.0V
AC Gnd (pin 1) to DC Gnd (pin 2)	Less than 2.0V

After verifying proper voltages at the Agri-comp 2045, turn off the power supply, and leave it off until you are instructed to turn it back on. Then, proceed to the next section of this chapter and connect a terminal (or PC) to the 2045, as explained in subsection 3.1. The terminal will indicate any error conditions that might occur during 2045 start-up or program loading, as described in Chapter 3.

# Getting Started

## 3 Peripheral Component Installation

Carefully install the peripheral components and verify that each component communicates to the Agri-comp 2045 and operates properly before you set parameters, enter data, or operate the entire system.

### 3.1 Installing the ADDS 1010 (RS232) Terminal

An information-retrieval system, such as the ADDS 1010 terminal, must be connected to the Agri-comp 2045 to allow the dairyman to set parameters, review data, and print reports. Although the dairyman may opt to use an alternate information-retrieval system, we recommend use of the ADDS 1010 terminal with the 2045 and discourage use of other terminals and personal computers, because the ADDS 1010 properly performs all 2045 functions and other retrieval systems may not. For these reasons, the instructions in this subsection will pertain only to the installation of the ADDS 1010 terminal (and equivalents). If the dairyman opts to use a PC, refer to the instructions in Appendix CP.

#### **Caution**

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications.

Two connectors (J8 and J9) are located on the Agri-comp 2045 circuit board for interfacing the computer to a terminal and a printer. If a serial printer will be used with the terminal, the printer must be connected to connector J8 on the circuit board inside the 2045 and the terminal will have to be connected to J9. When a parallel printer is used with a terminal, the connection is made between the printer and the terminal—not between the printer and the 2045—so the terminal can be connected to either J8 or J9 on the 2045; however, we recommend that the terminal be connected to J9. (Note that J8 has six baud rates—600, 1200, 2400, 4800, 9600, and 19200—and that J9 has only three baud rates—4800, 9600, and 19200.)

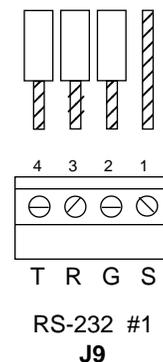
## Terminal Cable Connections

To provide communications between the 2045 and the terminal, connect the communications cable to RS-232 #1 connector J9 on the circuit board inside the 2045, using the following procedure:

1. Strip the cable jacket back 2 inches (50 mm).
2. Strip the wire insulations back 1/4 inch (6 mm).
3. Secure a strain-relief connector to the appropriate conduit hole in the back of the 2045 chassis.
4. Route the cable through the strain-relief connector.
5. Unplug connector J9 and connect wires, as shown in Figure 4 . This figure shows the cable's pin-to-pin connections between the 2045 and the terminal and provides an illustration of connector J9 inside the 2045.
6. Then, plug J9 back into place.
7. Plug the opposite end of the communications cable into the appropriate connector on the terminal.

If phone modems or short-haul modems are to be part of the installation, connect them to the terminal and 2045 at this time, as instructed in Appendix SM. Then, return to this subsection to start up the 2045 and terminal and to check communications between them.

<u>2045 Location</u>	<u>Wire Color</u>	<u>Terminal Location</u>
1 - (S) Shield -----	Bare Wire ----	(DB25P) Pin 1
2 - (G) DC Ground ----	Black Wire ---	(DB25P) Pin 7
3 - (R) Receive -----	Red Wire -----	(DB25P) Pin 2
4 - (T) Transmit -----	White Wire ---	(DB25P) Pin 3



**Figure 4.** RS232 terminal connections at the Agri-comp 2045

# Getting Started

## **Agri-comp 2045 and Terminal Start-up**

To ensure that the terminal starts up and communicates properly to the Agri-comp 2045 computer, use the following procedure:

1. Plug the terminal's power cord into a nearby grounded AC outlet.
2. Ensure that the terminal's communications configuration is set for 8 data bits, no parity, 1 stop bit, and a baud rate of 9600, and save these settings (as explained in the terminal owner's manual). Refer to Figure 5.

The ADDS 1010 terminal may already be set to this configuration. Saving these settings will prevent the terminal from reverting to default settings in case of power failure. The terminal must be set to the same baud rate as that of the 2045 connector it is connected to in order to permit communications between the components. Connectors J8 and J9 are factory set at 9600 baud. (Refer to the terminal owner's manual for details on setting its baud rate.) After verifying proper communications between the 2045 and all peripheral components, if you prefer a baud rate other than 9600, you can change the baud rates, as explained in Chapter 4.

3. Turn on power to the terminal. Refer to the terminal owner's manual for details on applying power to the terminal.
4. Apply power to the Agri-comp 2045, install the system software and program software that will be used with this installation, and verify proper communications between the 2045 and terminal.

Note that proper communications will be indicated by the appearance of software loading messages and the resulting main menu at the terminal screen. If, during the loading procedure, you do not see the messages and main menu, return to this subsection and verify proper communications between the 2045 and the terminal, as explained in the following troubleshooting instructions.

# Getting Started

To enter the setup menu, hold down the control (CTRL) key and press the F1 key.

---

1 Mode	MODE	PARITY	PRINT
8 Baud	0= A1	0= Odd	0= Off
3 Parity	1 A2	1 Evn	1 CR/LF
N Show Error	2 3A	2 Mrk	2 CR
Y FDX	3 3A+	3 Spc	3 None
Y Scroll	SCRN TYPE	LANGUAGE	
N Auto LF	0= Normal	0= US	
N Light Screen	1 24 Lines	1 Fr	
N Cursor =UL	2 25 Lines	2 Ger/Sws	
Y =BLINK		3 Swe/Fin	
N Keyclick		4 Den/Nor	
Y CRT Save	BAUD	5 Spn/Por	
N 50Hz	0= 110	6 UK	
0 Language	1 150		
N 3A Mode CTRL-Z	2 300		
N Spc Adv	3 600		
0 Scrn Type	4 1200		
Y Xon/Xoff	5 1800	UP/DOWN - to select	
0 Print	6 2400	HOME - exits & saves	
	7 4800	ESC - exits no save	
	8 9600		
	9 19200		

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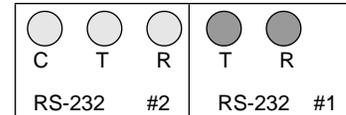
To program function keys, hold CTRL and press F2. Then, press the Function key you want to program.

**Figure 5.** ADDS 1010 Setup Menu

# Getting Started

## Terminal Communications Checkout and Troubleshooting

During normal operation, the receive (R) and transmit (T) LEDs for RS-232 #1, located a few inches below J9 on the 2045 circuit board and shown darkened in the example, should flash whenever you press a key at the terminal to indicate communications between the terminal and 2045; the receive LED should flash (very quickly and dimly) when the 2045 receives information from the terminal, and the transmit LED should flash when the 2045 sends information to the terminal. To verify communications, press any key and check to see that the LEDs flash as explained above. If the LEDs do not flash appropriately, reverse the receive and transmit wires connected at J9, positions 3 and 4, and again verify communications. If the LEDs still do not flash, check the wire connections and review the software installation procedure, because information is not getting to the Agri-comp 2045 computer.



If the terminal does not communicate properly, verify that the voltages at 2045 connector J9 agree with those in the table below. If the voltages do not agree, take action at once to correct them.

Place Measured	Terminal Connected	Terminal Disconnected
DC Gnd (pin 2) to Receive (pin 3)	-5.0V to -12.0V	0.05V to 0.10V
DC Gnd (pin 2) to Transmit (pin 4)	-8.0V to -9.8V	-8.0V to -9.8V
Shield (pin 1) to DC Gnd (pin 2)	Less than 1.0V	Less than 1.0V

## 3.2 Installing the Printer

A printer should be used with the terminal to provide the dairyman with a hard copy (paper print-out) of the data stored in the Agri-comp 2045 computer. The printer must be capable of printing a minimum of 80 columns of characters, since the 2045 uses an 80-column format to print reports. Although the dairyman may opt to use a serial printer with the 2045, we recommend the use of parallel printers, as they are generally less expensive, more readily available, and easier to setup and use than serial printers. For these reasons, the instructions in this subsection will pertain only to the installation of parallel printers. If the dairyman opts to use a serial printer, refer to the instructions in Appendix SP.

## Parallel Printer Cable Connections

To provide communications between the terminal and the printer, connect one end of the printer cable to the output connector on the back of the terminal and the other end to the printer. The two connectors are different so they cannot be connected backwards.

## Parallel Printer Start-up

To ensure that the printer starts properly, use the following procedure:

1. Set the printer switch(es) to produce an automatic line feed. The auto-line-feed feature, which causes the printer to advance the paper after a carriage return, must be set in the printer, as the 2045 does not send a line-feed character after a carriage return. (Refer to the printer owner's manual for details.) If you have a printer that cannot be set to produce automatic line feeds, you may be able to configure your terminal to produce the line feeds or you can enter the auto-line-feed command (15\*57\*1#) to make the 2045 generate line feeds. If entering this command causes the terminal to print blank lines between lines of text, however, you must turn off the terminal's auto-line-feed feature, because in addition to the appearance of blank lines, the conflicting auto-line-feed settings will prevent you from using the Page mode option (explained in Chapter 4).
2. Place paper in the printer, turn the printer's power switch on, and place the printer on-line. Refer to the printer owner's manual for more details.
3. Enable the Transparent Print mode in the 2045 (to print data at the printer) by entering the following command:

**1 5 \* 5 2 \* 2 #**

4. Perform the Printer Test by entering the command:

**8 \* 0 #**

The entire printable character set used by the Agri-comp 2045 should print out several times. Note that instructions on enabling and disabling the Transparent Print mode and other printer settings are explained in more detail in Chapter 4.

# Getting Started

## **Parallel Printer Troubleshooting**

If the printer does not operate properly, determine the cause and take action at once to correct it. The following is a list of possible problems and suggestions for correcting printer problems:

- If the printer does not operate at all, verify that the printer is turned on and on-line, that the printer cable is connected properly, and that the terminal is set up properly.
- If the printer is turned on, on-line, and properly connected to the terminal, ensure that the printer ribbon is installed properly.
- If lines of text print on top of each other, you may be able to resolve the problem by entering the auto-line-feed command (15\*57\*1#).

## 4 Bou-Matic System Component Installation

### 4.1 Installing the Detachers With Meters

Detachers indicate at their displays and send to the Agri-comp 2045 computer (in addition to other data) the individual weights of milk drawn from cows and measured by the milk meters.

#### **Caution**

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications. Do not use a tee-type connection to connect detachers together. If used, this type of connection could cause poor or intermittent communications between the 2045 and detachers on that branch.

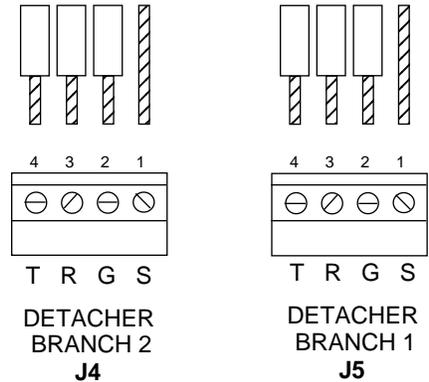
#### **Detacher Cable Connections**

To provide communications between the Agri-comp 2045 computer and the detachers, connect the communications cable to connector J4 and/or J5 inside the 2045, using the following procedure:

1. Either secure 3/4" flexible conduit or a strain-relief connector to the appropriate conduit hole on the back of the 2045 chassis. This size conduit will have sufficient room for the Agri-comp ID communications cable and the alarm cable, should you decide to route them together with the detacher/meter cable.
2. Route the cable(s) through the conduit or connector.
3. Strip the cable jacket back 2 inches (50 mm).
4. Strip the wire insulations back 1/4 inch (6 mm).
5. Unplug the appropriate connector(s) and connect the wires, as shown in Figure 6. This figure shows the cable connections between the 2045 and the detachers and provides an illustration of the DETACHER BRANCH connectors (J4 and J5) in the 2045.
6. Then, plug the connector(s) back into place.

# Getting Started

2045 Location	Wire Color
1 - (S) Shield -----	Bare Wire ----to Detachers
2 - (G) DC Ground----	Black Wire ---to Detachers
3 - (R) Receive -----	White Wire ---to Detachers
4 - (T) Transmit -----	Red Wire -----to Detachers



**Figure 6.** Detacher connections at the Agri-comp 2045

## Detacher/Meter Mounting

At this time, mount and wire the detachers and meters according to the appropriate literature packet, listed below.

2000VM Installation Instructions	Lit. #9P-448
2100M Installation Instructions	Lit. #9P-501
2101M Installation Instructions	Lit. #9P-566

### Note

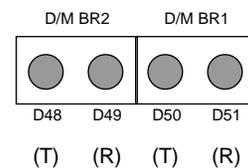
Ensure that the communications cable shield wire is insulated with electrical tape and cannot touch the chassis. If the shield wire does touch the chassis, it may cause intermittent or poor communications between the 2045 and detachers.

Then, return to this chapter to check communications between the 2045 and the detachers.

## Detacher Communications Checkout and Troubleshooting

To ensure that the detachers communicate properly to the Agri-comp 2045 computer, first turn to Appendix DA and change the detacher address settings on each detacher. (Changes to other switch settings will be discussed in later chapters of this manual.)

During normal operation, the receive (R) and transmit (T) LEDs, located a few inches below J5 on the 2045 circuit board and shown darkened in the example, should flash whenever communications occur between the detachers and the 2045 and should remain off at all other times. The receive LED for the appropriate branch (labeled



# Getting Started

“D/M BR1” and “D/M BR2”) should flash when the 2045 receives information from a detacher within that branch. (That is, if detachers are connected to the 2045 by two branches, data sent to the 2045 through branch 1 will cause the receive LED of D/M BR1 to flash and data sent through branch 2 will cause the receive LED of D/M BR2 to flash.) The receive LED of a branch not used should remain off at all other times. The transmit LEDs should respond in one of two ways as determined by the use of one or two branches. If detachers are connected to the 2045 by two branches, data sent to a detacher of branch 1 will cause the transmit LED of D/M BR1 to flash and data sent to a detacher of branch 2 will cause the transmit LED of D/M BR2 to flash.

To verify communications, press 9\*# at the detacher and check to see that the LEDs flash as explained above. If the LEDs do not flash appropriately, reverse the receive and transmit wires connected at J4 and/or J5, positions 3 and 4, and again verify communications. If the LEDs still do not flash, check the wire connections and review the software installation procedure.

If the detachers do not communicate properly, verify that the voltages at 2045 connector J4 and/or J5 agree with those in the table below. If the voltages do not agree, take action at once to correct them.

<b>Place Measured</b>	<b>Connected or Disconnected</b>
Black (pin 2) to Red (pin 3)	3.1V to 3.6V
Black (pin 2) to White (pin 4)	3.1V to 3.6V
Shield (pin 1) to Black (pin 2)	Less than 1.0V

If, after attempting to correct the problem, the voltages still do not agree, unplug the detacher communications cable at the 2045 and measure them again at the 2045 end of the cable. If the voltage measures zero, check for a short in the wiring or a faulty detacher on that branch.

If the voltage measures less than 3.1 volts at the 2045 with the communications cable disconnected, the 2045 circuit is damaged. Connect the detacher communications cable to the unused DETACHER BRANCH connector, if it is available, and again verify that the voltages agree with those in the table. If after connecting to the unused

# Getting Started

branch you still do not obtain the proper voltage, return the Agri-comp 2045 computer to Bou-Matic for repair.

If the voltage at the 2045 measures more than 3.1 volts with the communications cable disconnected and drops below 3.1 volts when the cable is connected, there is a problem with that cable or one of the detachers on that branch. (Loose wire strands at the connectors are often the cause of shorted wires.) Check each of the detachers for proper voltages and wire connections.

After verifying proper voltages, verify that each detacher displays its programmed address by entering at each detacher the command:

**9 \* #**

If proper communications exist between the 2045 and detachers, each detacher display will respond with a “9” in the CODE window, indicating the parameter code used to display data at the detacher (specifically, 9 means display detacher address); the detacher’s address in the COW NO./DATA window; and a “0” in the PRODUCTION window. (The example illustrates a detacher display for address 14.)



## 4.2 Installing the Agri-comp ID System

The Agri-comp ID system is a cow identification system that allows the Agri-comp 2045 to identify cows and update their personal cow records automatically with data relative to their milking activity. An explanation of the Automatic ID process is provided in Chapter 6.

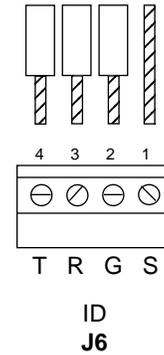
### Caution

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications. Do not use a tee-type connection to connect ID controls together. If used, this type of connection could cause poor or intermittent communications between the 2045 and ID controls on that branch.

### Agri-comp ID Cable Connections

To provide communications between the Agri-comp 2045 and the ID controls, connect the communications cable to ID connector J6 on the

<u>2045 Location</u>	<u>Wire Color</u>
1 - (S) Shield -----	Bare Wire ----to ID controls
2 - (G) DC Ground ----	Black Wire ---to ID controls
3 - (R) Receive -----	Red Wire -----to ID controls
4 - (T) Transmit -----	White Wire ---to ID controls



**Figure 7.** Automatic ID connections at the Agri-comp 2045

circuit board inside the 2045, using the following procedure:

1. Either route the ID communications cable through the conduit or bushing used for the detacher cables or secure 1/2" flexible conduit or a strain-relief connector to a different conduit hole on the back of the 2045 chassis and route the ID cable through it.
2. Strip the cable jacket back 2 inches (50 mm).
3. Strip the wire insulation back 1/4 inch (6 mm).
4. Unplug J6 and connect wires, as shown in Figure 7. This shows the cable connections between the 2045 and the ID controls and provides an illustration of the ID connector (J6) inside the 2045.
5. Then, plug J6 back into place.

### **ID Control Mounting**

At this time, mount and wire the necessary ID controls according to literature number 9P-493, Agri-comp ID Installation Instructions.

#### **Note**

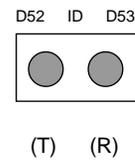
Ensure that the communications cable shield wire is insulated with electrical tape and cannot touch the chassis. If the shield wire does touch the chassis, it may cause intermittent or poor communications between the 2045 and ID controls.

Then, return to this chapter to check communications between the Agri-comp 2045 and the ID controls.

# Getting Started

## ID Communications Checkout and Troubleshooting

To ensure that the ID controls communicate properly to the Agri-comp 2045, first set the ID zone number and parlor type, as explained in Section 1 of Chapter 6. During normal operation, the receive (R) and transmit (T) LEDs, located below J6 on the 2045 circuit board and shown darkened in the example, should flash whenever communications occur between the ID controls and the 2045. The receive LED should flash regularly, and the transmit LED should be on most of the time. Note that a short to ground or incorrect setting of switches in an ID control will cause the LEDs to remain on at all times. To verify communications, check to see that the LEDs flash as explained above. If the LEDs do not flash appropriately, reverse the receive and transmit wires connected at J6, positions 3 and 4. If the LEDs still do not flash, check the wire connections and review the software installation procedure.



If the ID controls do not communicate properly, verify that the voltages at 2045 connector J6 agree with those in the table below. If the voltages do not agree, take action at once to correct them. The table lists normal DC-voltage measurements at J6 with connected or disconnected cable at the 2045 and communications cable connected at the ID controls. Note that ID strobing must be stopped to accurately read voltages. You can temporarily disable ID and strobing, to make your voltage measurements, with the command:

**1 5 \* 4 3 \* 1 #**

<b>Place Measured</b>	<b>Connected or Disconnected</b>
Black (pin 2) to Red (pin 3)	3.1V to 3.6V
Black (pin 2) to White (pin 4)	3.1V to 3.6V
Shield (pin 1) to Black (pin 2)	Less than 1.0V

To enable ID and strobing, after measurements have been taken, enter the command:

**1 5 \* 4 3 \* 0 #**

If the voltages do not agree, unplug J6 and measure them again at the 2045 end of the cable. If the voltage measures zero, check for a short in the wiring or a faulty ID control.

The Direct Tag Read report will list tag numbers and ID zone numbers in the order that you pass tags through the antennas, as illustrated by the example shown below.

Direct Tag Read			
Tag	93696	Zone	0
Tag	93909	Zone	0
Tag	103864	Zone	1
Tag	103921	Zone	0
Tag	73526	Zone	1
Tag	203835	Zone	1
Tag	94246	Zone	0
Tag	33853	Zone	0
Tag	3502	Zone	1
Tag	83982	Zone	0

If the voltage measures less than 3.1 volts at the 2045 with the cable disconnected, the 2045 circuit is damaged. Return the Agri-comp 2045 to Bou-Matic for repair.

If the voltage at the 2045 measures more than 3.1 volts with the cable disconnected, and drops below 3.1 volts when you connect the cable, there is a problem with the cable or one of the ID controls. (Loose wire strands at the connectors are often the cause of shorted wires.) Check each of the ID controls for proper voltages and wire connections.

*After verifying proper voltages*, perform the Direct Tag Read Test with several ID tags at each ID zone (as explained in literature 9P-493, Agri-comp ID Installation Instructions), verifying that each ID control antenna properly reads tags and ensuring proper communications between the 2045 and the feeders. Instructions on printing the Direct Tag Read report can also be found in Chapter 6 of this manual.

### 4.3 Installing the Computerized Feeders

Computerized feeders are used to supply controlled amounts of feeds to animals in the herd on an individualized basis. An explanation of the feeding process is provided in Chapter 5.

#### **Caution**

Failure to use the cable type and lengths recommended by Bou-Matic may result in poor communications. Do not use a tee-type connection to connect feeders together. If used, this type of connection could cause poor or intermittent communications between the 2045 and feeders on that branch.

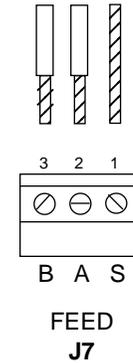
#### **Feeder Control Cable Connections**

To provide communications between the Agri-comp 2045 and the feeders, connect the communications cable to FEED connector J7 on the circuit board inside the 2045, using the following procedure:

1. Either secure 1/2" flexible conduit or a strain-relief connector to the appropriate conduit hole on the back of the 2045 chassis.
2. Route the cable through the conduit or connector.

# Getting Started

<u>2045 Location</u>	<u>Wire Color</u>
1 - (S) Shield -----	Bare Wire ----- to feeders
2 - (A) XMT/RCV -----	Red Wire ----- to feeders
3 - (B) XMT/RCV -----	Black Wire ----- to feeders



**Figure 8.** Feeder connections at the Agri-comp 2045

- Strip the cable jacket back 2 inches (50 mm).
- Strip the wire insulation back 1/4 inch (6 mm).
- Unplug connector J7 and connect wires, as shown in Figure 8. This figure shows the cable connections between the 2045 and the feeder control and provides an illustration of the FEED connector (J7) inside the 2045.
- Then, plug J7 back into place.

## Feeder Control Mounting

At this time, install the feeder controls and feed stalls, as explained in literature no. 9P-519, Bou-Matic Model FC1 Computerized Feeder Control: Installation and Service Instructions, initially connecting the communications cable to the feeder that is closest to the 2045, setting its feeder address switches, then checking communications between that feeder and the 2045, as explained below. (Note that cables to all other feeders must not be connected at this time and that programming feeder addresses from 0-31 will help the dairyman to identify feeder controls more readily (since the 2045 has a 32-feeder limit). When you've successfully completed the checkout procedure with the first feeder, daisy chain the first feeder to the next feeder, program it with a feeder address, and check communications between it and the 2045. Continue connecting and checking feeders one at a time until they have all been tested.

**Note:**

Address 0 is a valid feeder address.

## **Feeder Communications Checkout and Troubleshooting**

Proper communications must be made and verified between the Agri-comp 2045 and the feeders before feeder calibrations can be done.

**Note:**

The feeder control contains an motor monitoring circuit which may not operate properly with non Bou-Matic motors. Feeders will not operate correctly without the proper motors.

Before testing the feeders, assign calibration tag(s) for each feed being used (A, B, C, and/or D) at the terminal or PC, according to the instructions in Chapter 5.

To test feeder communications, hold a calibration tag in front of the control at a feeder. The auger motor, activated by that tag, should dispense feed. Repeat this step with all calibration tags at the same feeder, and ensure that each tag activates a different motor. If all motors operate properly, you have verified that communications to the 2045 are working for that feeder control.

If, however, the same auger motor turns on for more than one calibration tag, verify that the calibration tags have all been assigned to different feeds and that switch SW1 positions 8, 9, and 10 in the feeder control are switched off. If the switch positions have not been turned off, turn them off at this time. Then, turn off AC power to the feeder control for at least 10 seconds. Then, turn AC power back on so that the new switch settings can be read by the feeder control. (Whenever you change any of the 10 positions on SW1 while the feeder control power is on, the control will not respond to the new switch setting until you turn AC power off, then on, as explained above.) Also, check wiring at the feeder control to make sure the auger motors are connected in the proper sequence. Then, repeat the test.

If an auger motor does not respond to a calibration tag within five seconds, there is a problem with either the communications wiring or the control. Disconnect the AC power to the feeder control for 10 seconds. Then, connect AC power and repeat the test. If the motors still do not respond to a calibration tag, disconnect the communications

# Getting Started

connector, J2 (leaving the wires connected to the plug), and repeat the steps above at a different feeder control. If the motors do not run at the next feeder, assume there is a problem with the communications wiring. Check for shorts, disconnected communications cable at the 2045, poor wiring, or other possible problems. Then, repeat the test.

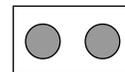
Once communications have been verified at the first feeder, leave the communications cable connected to the tested feeder, and reinstall the wiring shield and plastic panel. Then, extend the communications cable in a daisy-chain fashion to connector J2 on the second feeder in line to be tested. Test this feeder as explained above. Continue this process until all feeders have been connected and tested.

As feeders are tested and during normal operation, the receive (R) and transmit (T) LEDs, located below J7 on the 2045 circuit board and shown darkened in the example, should flash whenever communications occur between the feeder controls and the 2045 and should remain off at all other times; the receive LED should flash when the 2045 receives information from the feeder controls, *and both the receive and transmit LEDs should flash when the 2045 sends information to the feeder controls*. To verify communications, place an ID tag against the feeder control to send tag information to 2045 and feeding information back. Check to see that the LEDs flash as explained above. If the LEDs do not flash appropriately, reverse the receive and transmit wires connected at J7, positions 2 and 3, and again verify communications. If the LEDs still do not flash, check the wire connections and review the software installation procedure, because information is not getting to the Agri-comp 2045 computer.

Also, as feeders are tested, the feeder controls transmit their feeder addresses to the 2045, where the addresses are stored in numerical order, starting with 0 and increasing to 31. Later on, when you review the Feeder System Summary (explained in Chapter 5), the 2045 will indicate that a small amount of ration was dispensed to tested feeders.

If a feeder control does not communicate properly, verify that the voltages at 2045 connector J7 agree with those in the table below. If the voltages do not agree, take action at once to correct them. The table lists normal DC voltage measurements at J7 with a connected or disconnected cable at the 2045 and the communications cable connected

D54 FEED D55



(T) (R)

at the feeders.

Place Measured	Connected or Disconnected
A to B (meter red lead to A; black lead to B)	0.22V
DC Gnd (J1 pin 2, black) to A (J7 pin 2, red)	2.5V
DC Gnd (J1 pin 2, black) to B (J7 pin 3, red)	2.3V

If the voltage from A to B is -3.5 to -4.5 volts or +3.5 to +4.5 volts, the feeder will not communicate to the 2045. Unplug the connector at the 2045 and repeat the measurement. If it remains about the same, the 2045 is stuck in the Transmit mode to the feeders. Push the RESET switch at the 2045 to clear this condition. Then, recheck the voltage. If it returns to normal, the problem has been cleared. If the voltage returns to normal at the 2045, the problem is located at one or more of the feeders. Check the communications voltage at each feeder control, and disconnect any defective controls until the voltage readings are normal. Replace any defective controls.

Voltages between -0.22 and +0.22 volts will result in intermittent or poor feeder communications. If any feeder has power turned off, it will reduce the voltage. The voltage, at the connectors, can also be measured at the feeder to help locate wiring problems.

## 4.4 Installing the External Alarms

The alarm is an electronic device that provides an audible sound

- to indicate communications between the 2045 and the feeder controls or ID controls.
- to alert the operator to a problem in the parlor, such as ID errors, or to a special condition that an identified cow has, such as an assigned Attention code.

Two types of alarms are available with the 2045. One, an internal alarm, is standard with the 2045 and is located on the circuit board inside the 2045. The other, an external alarm, is optional and requires assembly in the parlor or wherever it will be most useful.

### Caution

Failure to use the cable type and lengths recommended by Bou-

# Getting Started

Matic may result in poor communications.

## External Alarm Mounting

At this time, mount the Agri-comp Alarm Kit (3554347), as explained in literature no. 9P-521, Agri-comp Alarm Installation Instructions.

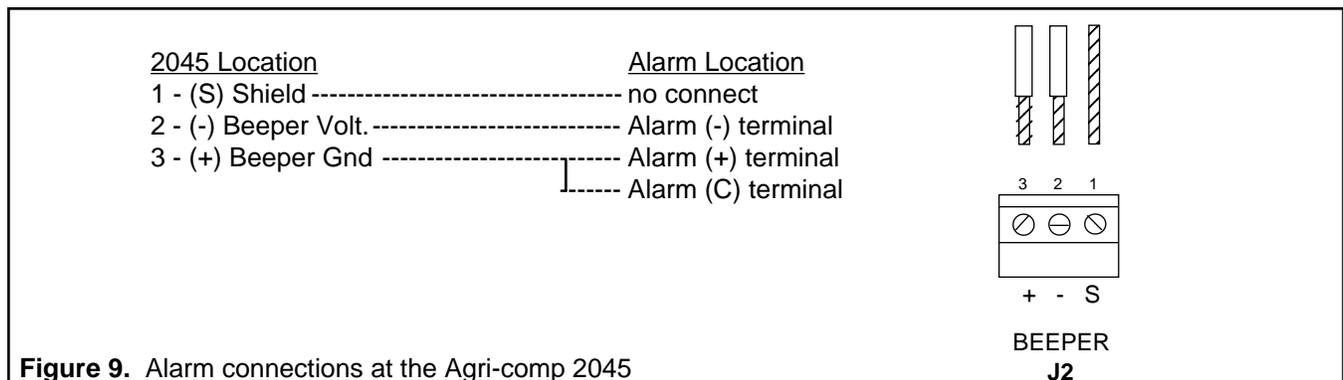
### Note

In Agri-comp ID installations, we recommend that an alarm be connected to each ID control. These separate alarms will only beep when an ID error or warning condition occurs in the ID zone served by that control.

## External Alarm Cable Connections

To provide communications between the Agri-comp 2045 and the external alarm, connect the communications cable from BEEPER connector J2 inside the 2045 to the terminals on the alarm, using the following procedure:

1. At the alarm end of the communications cable, crimp quick-connect terminals to the wire ends, and position them over the alarm terminals, as noted in Figure 9.
2. Either secure 1/2" flexible conduit or a strain-relief connector to the appropriate conduit hole on the back of the 2045 chassis.
3. Route the cable through the conduit or connector.
4. Strip the cable jacket back 2 inches (50 mm).
5. Strip the wire insulations back 1/4 inch (6 mm).



**Figure 9.** Alarm connections at the Agri-comp 2045

6. Unplug connector J2 and connect the alarm wires, as shown in Figure 9. This figure shows the cable's pin-to-pin connections between the 2045 and the alarm and provides an illustration of the BEEPER connector (J2) inside the 2045.
7. Then, plug J2 back into place.

## Alarm Communications Checkout

The internal alarm is factory tested before the 2045 is shipped and requires no additional testing.

While using the terminal, when the external alarm sounds, you may hear a click sound from within the 2045. This click sound is made by a small relay (labeled K2 and located below J2 on the 2045 circuit board), which controls the external alarm. The click merely indicates that the relay is working.

To ensure that the alarm operates properly, use the following procedure:

1. Turn on the power supply.
2. Disable the Agri-comp computer's internal alarm by entering the command:

**1 5 \* 4 8 \* 0 #**

3. Then, at a detacher in Automatic mode, press the ATTACH/DETACH button. The alarm should sound for one second and the detacher display should flash. If the display flashes but the alarm does not sound, recheck all wire connections.
4. After verifying that the alarm operates properly, enable the internal alarm by entering the command:

**1 5 \* 4 8 \* 1 #**

Additional notes about the alarm:

- You can only turn the external alarm off by disconnecting the wires to it.
- If the alarm becomes wet, it will temporarily have a dampened sound; once dried, the alarm's sound may return to normal.
- If the dairyman prefers a dampened sound (that is, if the alarm is too loud), place a piece of tape over part or all of the slots in front of the alarm.

# Getting Started

Once the basic communications have been verified, proceed to Chapter 4, “SYSTEMBASICS,” and enter the appropriate information into the Agri-comp 2045. Once you’ve followed the instructions in those chapters, you may continue on to the individual program chapters, entering the necessary data as explained in each chapter.

Proper maintenance of all system parts is essential for the dairyman to obtain maximum benefit from the Agri-comp 2045 FARM Management Computer System. The dairyman is responsible for properly operating, maintaining, and monitoring the 2045 computer and system components to ensure that they function properly. (Refer to Appendix MT for maintenance guidelines.)

# **INSTALLING SOFTWARE**



# Installing Software

## Table of Contents

Introduction .....	3-1
1 Software Loading Procedure .....	3-2
1.1 Loading the Initial System Software .....	3-2
1.2 Loading the Program Software .....	3-4
1.3 Writing System & Program Software to Disk .....	3-5
2 Replacement & Upgrade System Disks .....	3-7

# Installing Software

## Introduction

The Agri-comp 2045 computer uses two different kinds of software disks: the system disk and the program disk. The system disk, as shipped, contains a software program that enables the 2045 to perform basic system functions, print reports, and read and write data to disks, and it has the capacity to store system and herd data, some of which it already contains or will contain following completion of the software loading procedure in this chapter but most of which you will be instructed to enter into the 2045 in Chapters 4-8. (Two copies of the system disk are included with the 2045.) Three FARM program disks—Feeding, Milking, and Activity—are available, each including both the Automatic ID and Reproduction programs. Each program on a disk contains the software necessary for communications with the particular external device it is associated with and for entry and processing of data that pertains to the program.

This chapter provides instructions on installing or *loading* the initial system and program software, starting up the 2045, backing up the software and data that will eventually be stored in the 2045, and loading replacement and upgrade system software.

### Note

- Instructions in this chapter have been written for and are directed at both the dealer and the dairyman. While the dealer will, in most cases, load all initial software and perform the initial program backup, the dairyman will eventually need to know how to perform manual backups (which should be done immediately after any change is made to data in the 2045) and how to load replacement and upgrade software.
- All disks used by the 2045 must be specially formatted and prepared for use by Bou-Matic.

Before you attempt to load software and start the 2045, the 2045 must be connected to a terminal (or personal computer with a terminal emulator program installed), as explained in Chapter 2.

The Table of Contents which precedes this introduction lists the sections of this chapter in the order in which they should be read and procedures should be carried out.

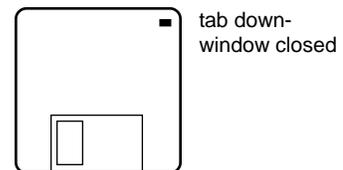
# Installing Software

## 1 Software Loading Procedure

Installation of the 2045 software is easy and takes only a few minutes; however, if you do not achieve the proper results after following the procedures in subsections 1.1 and 1.2, return to the appropriate installation instructions (for the terminal or PC) and verify proper communications as explained in the troubleshooting section.

### 1.1 Loading the Initial System Software

System software must be loaded into the 2045 before any FARM programs can be loaded. Before installing a system disk in the 2045, ensure that the disk is *not* write-protected (the small tab in the upper corner of the disk must be down so the window is closed). Then, load the initial system software, as follows:



1. Insert a system disk into the disk drive located behind the sliding door of the 2045.
2. Plug in J1 on the 2045 circuit board.

If the 2045 and terminal or PC are set up properly, the 2045 will respond by displaying this message on the terminal:

#### **LOAD SYSTEM DISK**

The 2045 will start to read the system program (or software), causing the terminal to display the total number of disk sectors to be read, then list each sector on the screen as it is read. During the software loading process, under normal operation, the clock LED (located on the 2045 circuit board to the right of the disk drive and visible when viewed through the open sliding door of the 2045) should flash eight times per second. When the system program has been loaded and verified, the 2045 will display the message:

#### **PROGRAM LOADED**

The 2045 will then try to read system and herd data from the system disk. A new system disk will not have any data on it, so the terminal

# Installing Software

```
+-----+
| *Agri-comp 2045*
| F - Feeding
| A - Automatic ID
| R - Reproduction
| M - Milking
| S - System
|
| Command Summary:
| 0? Parameter List
| 8* Diagnostics
| 11* Scatter Graphs
| 14* Parameter Recall
| 15* System Parameters
| 16* Prompt Entry
| 17* Summaries
| 18* Reports
|
```

will respond with a DISK DATA ERROR message. Once the 2045 attempts to read data, the clock LED should flash once per second. (If the clock LED flashes once every three seconds at this point, it indicates that the 2045 is operating off battery backup. Refer to the troubleshooting and, if necessary, the installation instructions for the power supply and 2045 in Chapter 2, and take action at once to correct the problem, as software will not load under these circumstances.) Then, the 2045 will display the main menu, as shown, indicating that the system program has been successfully stored in memory.

**Note:**

The Command Summary shown does not appear with C-level software.

If the proper 2045 responses do not occur and you verified that communications configurations of the terminal or PC were properly set during installation, verify proper communications as explained in the troubleshooting instructions (provided in Appendix TS). If, after changing a configuration or correcting an installation problem and returning to this procedure the screen still appears blank, press the ENTER key. If software loading was successful but not visible (because messages, disk sector numbers, and the main menu may have scrolled past while you were correcting a problem), the main menu will reappear. If the menu does not appear, check for other possible problems.

3. Once the system program is in memory, remove the system disk by pressing the rectangular button in the lower right-hand corner of the disk drive face plate and remove it from the 2045.

In addition to storing the system software in memory, the 2045 has stored the serial number of the system disk. Both system disks are programmed with the same serial number (a number, assigned by Bou-Matic, that is unique to each 2045), which will also be copied to the program disks when their software is loaded.

At this time, proceed to load the FARM program software. Keep the system disks handy for now, as they will be used again, later in this section, as backup disks for storing FARM programs and herd data.

# Installing Software

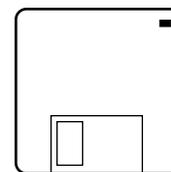
## 1.2 Loading the Program Software

Once the system software has been loaded, the FARM programs can be loaded. Upon loading a software program, the 2045 will unlock the program's corresponding menu interface to allow you access to the program functions, peripheral component communications interface, and herd data that will eventually be stored under it. (The menu interface will be locked for any program that is not loaded, and the 2045 will respond with an error beep if you try to access a locked menu item. In other words, if you do not load the Feeding program, you will not be able to access the Feeding menu and the 2045 will not communicate with feeder controls. If you do not load the Milking program, you will not be able to access the Milking menu and the 2045 will not record milk weights. If you do not load the Activity program, you will not be able to read Heat-Seeker tags.)

If the Agri-comp 2045 system is complete, including computerized feeders and detachers, you can load the programs on the Feeding, Milking, and Activity program disks at this time. If the system is not complete, load only the programs on the disk that relate to the components used in the present system and load the other programs if and when the system is expanded; loading only those programs that will be used will reduce the amount of extra data that would otherwise automatically display or print for the unaccessible programs. For instance, if you will be using the Feeding program in a system without detachers and you load the Milking program, the Cow Record Report will nearly double in size, showing milking parameter headings but no milking data—a needless waste of paper when printing the report if you will not be using the program. Note that once a program has been copied to a system disk, it cannot be removed or unloaded.

Before installing a program disk in the 2045, ensure that the disk is *not* write-protected (the small tab in the upper corner of the disk must be down so the window is closed). Then, load the program software, as follows:

1. Insert the desired program disk into the 2045 disk drive.



tab down-  
window closed

# Installing Software

2. Enter the command `1 5 * 2 5 #` at the terminal.  
Newly formatted program disks do not have serial numbers; however, the serial number stored in memory (from the system disk) will be copied to the program disk during this loading process. If you try to load a program disk with a serial number that does not match the serial number in memory, the 2045 will respond with a beep and a COMMAND ERROR message at the terminal, and the program will not be loaded into memory. (Assignment of the system disk's serial number to program disks prevents the unauthorized use of Agri-comp programs in other 2045 systems.) If the disk cannot be written to for other reasons, the program will not be loaded to memory; check to see that the write-protect tab is down (window is closed).
3. When the terminal responds with `15: 25: 0`, remove the program disk from the 2045.

Repeat this procedure with the other program disks you want loaded. When all desired programs have been loaded, store the program disks in a safe place (as noted in Appendix MT); they will not be needed again unless the system disks should both become damaged. If both system disks should become damaged, you will need to obtain replacement system disk software, load it, then reload all of your most recent program software. (See Section 2 for details.) At this time, copy all programs from the 2045 to the system disks, as explained in the following subsection, so that they will automatically reload in the event of a power failure.

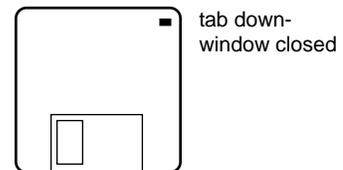
## 1.3 Writing System & Program Software to Disk

The system disks, in addition to storing system programs and data, are to be used as 'backup storage' disks for storing FARM programs and herd data. (Program disks cannot be used as backup storage disks, because system data cannot be written to them.) The 2045 will automatically write the herd data to the system disk in the disk drive after every milking if the Milking program is loaded or once a day if the Milking program is not loaded to help you maintain the most current data possible. To further maintain current data, we recommend that you manually perform a backup, as explained in Chapter 4, immediately after you change any system or herd data in the 2045.

# Installing Software

Before any data can be written (copied) automatically or manually to the system disk, you must perform an initial program backup, copying the programs stored in memory to the system disk in the disk drive. Once again, ensure that the system disk is *not* write-protected (the small tab in the upper corner of the disk must be down so the window is closed). Then, copy programs and data to the 'backup' system disk, using the following procedure:

1. Insert a system disk into the 2045 disk drive.
2. Enter the command `1 5 * 2 5 #` at the terminal.  
The programs will be copied to the system disk.
3. When the terminal responds with `15: 25: 0`, eject the system disk and remove it from the 2045.



Repeat this procedure with the other system disk right away. Then, store one system disk inside the 2045 in the space on top of the disk drive or in a safe place as noted in Appendix MT, and keep the other in the disk drive for now. Rotate the system disks on a regular basis (at least once a week), so that data stored on them will be as current as possible, and keep one in the disk drive at all times, so that if the 2045 experiences a complete power failure and the battery backup fails, the 2045 will automatically reload into memory the programs and herd data stored on the 'backup' system disk.

If you have just completed the initial installation of system and program software, refer now to Chapter 4; there you'll set basic system functions, enter general data, learn how to read and write backup disks, and become familiar with reports available through the System menu.

## 2 Replacement & Upgrade System Disks

To load replacement system software (version currently used in the 2045) or upgraded system software (version with new 2045 features and functions), use the following procedure:

1. With the old system disk in the 2045 disk drive, enter the command `1 5 * 2 5 #` to copy the most recent data to the disk.
2. When the terminal responds with `15: 25: 0`, remove the system disk from the 2045.

### Caution

Only write data to one system disk. If a problem occurs that corrupts programs and creates data errors during the backup process, your system disk may become useless. In the event that a disk does become corrupt or acquire errors, the data on the other old system disk, though several days old, can be easily loaded and updated; whereas the alternatives would be to reload data from disks with errors and manually correct all errors or to reload original program software and reenter all data manually.

3. Insert the new system disk into the 2045, and enter the command `1 5 * 2 5 #` to copy the most recent data to the new system disk. In addition to copying program and herd data, the 2045 will copy (as it did with the original program disks) the serial number from the old system disk to the replacement or upgrade disk.
4. When the terminal responds with `15: 25: 0` and the red disk drive light stops flashing, enter `8 * 8 * 9 1 7 3 #` to load the new system software and herd data to memory. The terminal will display the main menu, indicating that the system program has been successfully stored in memory.
5. Remove the system disk from the 2045.

**Repeat step 3 with the other new system disk right away.** Then, store one new system disk inside the 2045 in the space on top of the disk drive, or in a safe place as noted in Appendix MT, and keep the other in the disk drive until you are ready to rotate the disks. We also recommend that you keep the old version system disks as emergency

# Installing Software

backups (though you may never need to use them), but remember to store them in a safe place. Do not leave an old system disk loaded in the 2045, since they would be reloaded in case of a power failure.

# **SYSTEM BASICS**



## Table of Contents

Introduction .....	4-1
1 System Setup .....	4-2
1.1 Setting the Time .....	4-2
1.2 Setting the Date .....	4-4
1.3 Setting Peripheral Component Configurations .....	4-6
1.3.1 Preventing a 2045 Lockup—Phone Modem Setting .....	4-6
1.3.2 Enabling the Serial Printer .....	4-8
1.3.3 Setting the End-of-Line Delay—Serial Printer .....	4-9
1.3.4 Enabling/Disabling Milk Report Body .....	4-10
1.3.5 Enabling/Disabling Transparent Print Mode .....	4-11
1.4 Entering the Dairy Farm Name .....	4-12
1.5 Entering the Milk Price .....	4-13
1.5.1 Setting The Adjustable Price Factor .....	4-14
1.6 Setting Weight Units to Pounds or Kilograms .....	4-15
1.7 Entering Bunk Feed Costs .....	4-16
1.8 Setting Up User-Defined Reports .....	4-19
1.8.1 Assigning Report Numbers and Parameters .....	4-19
1.8.3 Assigning a Name to a Report .....	4-22
1.8.4 Assigning Sort Orders To User Reports .....	4-24
1.8.5 Assigning Selection Codes to Individual Reports .....	4-25
1.8.5.1 Within A Range .....	4-25
1.8.5.2 Outside A Range .....	4-25
1.8.5.3 Exact Match To Preset Value .....	4-26
1.8.5.4 Exact Match To Value At Print Time .....	4-26
1.9 Limiting The Cows On Reports .....	4-27
1.9.1 Limiting All Reports By Lot Number .....	4-27
1.9.2 Limiting All Reports By Selection Code .....	4-27
1.10 Enabling/Disabling Page Mode .....	4-28
1.11 Changing Baud Rate Settings .....	4-30
1.12 Enabling/Disabling the Alarm & Its Responses .....	4-31
1.12.1 Enabling/Disabling the Alarm .....	4-31
1.12.2 Setting General Alarm Responses .....	4-32
1.12.3 Selecting Fewer Cows Than Stalls Alarm Condition .....	4-33
1.13 Setting the Report Day Number .....	4-34
2 Setup Data .....	4-36
2.1 Creating a Cow Record .....	4-36

# System Basics

2.2 Assigning User-Defined Parameter Codes to Cows .....	4-37
2.3 Editing a Cow Record .....	4-40
2.3.1 Changing The System Edit Parameter List .....	4-41
2.4 Entering Average Daily Production Weights Manually .....	4-42
2.5 Deleting a Cow Record .....	4-44
2.6 Writing a Backup Disk—Backing up Data .....	4-46
2.7 Reading a Backup Disk .....	4-47
3 System Reports .....	4-49
3.1 Displaying/Printing the Cow Record Report .....	4-53
3.1.1 Changing The Cow Record .....	4-55
3.2 Displaying/Printing the System Setup Summary .....	4-56
3.3 Displaying/Printing the Income/Cost Report .....	4-57
3.4 Displaying/Printing User-Defined Reports .....	4-58
3.5 Printing Scatter Graphs .....	4-59
3.6 Performing the Printer Test .....	4-64
3.7 Setting the Printer Line Feed/Form Feed .....	4-65

## Introduction

This chapter provides the dairyman with instructions on setting basic system parameters; creating user-defined parameter codes and reports; creating, editing, and deleting a cow record; writing and reading a backup disk; and viewing and printing system reports.

Before you attempt to enter data, basic communications must be verified, as explained in Chapter 2, and the system software and either the Feeding or Milking program must be loaded, as explained in Chapter 3. If you have not already read Chapter 1, you should do so at this time to become familiar with the Command mode and Menu mode data entry methods.

The Table of Contents which precedes this introduction lists the sections of this chapter in the order in which they should be read and procedures should be carried out.

# System Basics

## 1 System Setup

This section includes instructions on setting various 2045 and peripheral component modes and functions as well as entering data for certain parameters that affect all cow records. Due to the great amount of explanation and differences in value options involved with each entry, settings and data entries covered in this section are explained on an individual (per subsection) basis.

### 1.1 Setting the Time

The Agri-comp 2045 is equipped with a real-time clock/calendar, which maintains the current time and date, once set, as long as power to the 2045 is maintained (from AC power panel or battery backup). Internally, the 2045 recognizes time in 24-hour mode (meaning that it would recognize 2:30 PM as 14:30) and displays time in that mode at the terminal in all records that can be displayed only; the time on all reports, however, will appear at the terminal or print out on paper in 12-hour mode, regardless of the settings you select.

When setting the current time, you may enter values for the 24-hour mode or the 12-hour mode. In either case, you may set the minutes before the hour or vice versa. The AM/PM command need not be set if you choose to enter the time using the 24-hour mode, as the 2045 will assume that an entry of 4:25 is an AM setting and an entry of 16:25 (which is also 4:25) is a PM setting; however, if you want to enter time using the 12-hour mode and you enter a time of 4:25 during an afternoon, you must then enter the PM command. If you do not enter the PM command, the 2045 will assume that the time set is 4:25 AM, all 2045 functions controlled by the clock will occur at improper times, and all records will be incorrectly updated. Note that you must set the hour before you set the AM or PM period for the 2045 to accept the time and that if you are setting the time to midnight or any time between then and 1:00 PM, you must enter an hour of zero.

#### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

# System Basics

## Command Mode

To set the time using Command mode, enter the following commands, specifying a value for the third field of data that falls within the range shown in parentheses in each command:

<b>1 5 * 6 0 * (0-59) #</b>	to set the minutes
<b>1 5 * 6 1 * (0-23) #</b>	to set the hour
<b>1 5 * 6 2 * 1 #</b>	to set PM mode

### Example:

To set a time of 4:25 p.m. for 12-hour mode, you would enter the following:

15\*60\*25#

15\*61\*4#

15\*62\*1#

To review a current time setting using Command mode, enter the following command, specifying a value for the second field of data that falls within the range shown in parentheses:

**1 5 \* (60-62) #** displays minutes (60), hour (61), mode (62)

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 System Setup \*\*\*

T - Set Time

D - Set Date

P - Printer

N - Dairy Name

M - Set Milk Price

B - Set Bunk Feed Costs

U - User Defined Report Setup

R - User Defined Report Name

## T

\*\*\*\* Set Time \*\*\*\*

H - Set Hour

M - Set Minutes

P - Set PM

C - Display Current Time

**H, M, P, or C**

## Menu Mode

To set or review the time through Menu mode, use the following procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the S key to display the System Setup menu.**
- 3. Press the T key to display the Set Time menu.**
- 4. Press the key (H,M,P,C) for the function you want to set.**
  - Press the H key to set the hour. Then type in the new hour (0-23) and press ENTER.
  - Press the M key to set the minutes. Then type in the new minutes (0-59) and press ENTER.
  - Press the P key to set the time to PM.
  - Press the C key to review the current time in the 2045. The 2045 will respond with a 24-hour mode setting.

To exit this mode, press the Escape key (as necessary).

# System Basics

## 1.2 Setting the Date

The Agri-comp 2045 is equipped with a real-time clock/calendar, which maintains the current date and time, once set, as long as power to the 2045 is maintained (from AC power panel or battery backup). The 2045 will automatically change the date each midnight, at which time it will also reset the feeding allocations and increment or decrement particular values assigned to individual cows (see Section 2 of Chapters 5-8) that are relative to the installed programs.

When setting the current date, you may enter date elements in any order except that you must set the month before you set the day of the month, since the 2045 will not allow you to enter a day that is not valid for the current month (such as day 31 for the month of February). You may enter four digits for the year, however, the 2045 will only use the last two digits of the year and will assume that any year from 51 through 99 is in the 1900s and any year from 0 through 50 is in the 2000s. Note that you need not set the day-of-the-week function, as it is currently not used by the 2045.

### Command Mode

To set the date using Command mode, enter the following commands, specifying a value for the third field of data that falls within the range shown in parentheses in each command:

<b>1 5 * 7 * (1-7) #</b>	to set the day of the week
<b>1 5 * 9 * (1-12) #</b>	to set the month
<b>1 5 * 1 0 * (1-31) #</b>	to set the day of the month
<b>1 5 * 1 1 * (0-99) #</b>	to set the year

To review a current date setting using Command mode, enter the following command, specifying a value for the second field of data that falls within the range shown in parentheses:

<b>1 5 * (9-11) #</b>	displays month (9), day of month (10), year (11)
-----------------------	--

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

### Example:

To set a date of January 1, 1991, you would enter the following:

```
15*9*1#  
15*10*1#  
15*11*91#
```

# System Basics

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 System Setup \*\*\*

T - Set Time

D - Set Date

P - Printer

N - Dairy Name

M - Set Milk Price

B - Set Bunk Feed Costs

U - User Defined Report Setup

R - User Defined Report Name

## D

\*\*\*\* Set Date \*\*\*\*

M - Set Month

D - Set Day

Y - Set Year

W - Set Weekday

C - Display Current Date

**M, D, Y, W, or C**

## Menu Mode

To set or review the date through Menu mode, use the following procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the S key to display the System Setup menu.**
- 3. Press the D key to display the Set Date menu.**
- 4. Press the key (M,D,Y,W,C) for the function you want to set.**
  - Press the M key to set the month. Then type in a number (1-12) for the new month and press ENTER.
  - Press the D key to set the day. Then type in a number (1-31) for the new day and press ENTER.
  - Press the Y key to set the year. Then type in a number (0-99) for the new year and press ENTER.
  - Press the W key to set the day of the week. Then enter the new weekday number (1-7) and press ENTER.
  - Press the C key to review the current date in the 2045. The 2045 will respond with a setting in a day:month:year format, such as 1 JAN 91.

To exit this mode, press the Escape key (as necessary).

## 1.3 Setting Peripheral Component Configurations

Due to the diverse features available on the various serial printers, which are too numerous for the 2045 to accommodate with a simple setup procedure, some printers may not respond and produce some of the results generally expected by the 2045. This subsection identifies some problems you may experience with nonstandard serial printers and suggests ways that you might be able to configure your printer and/or 2045 to achieve the expected results. Also included in this subsection are some suggestions on dealing with peculiarities associated with phone modems, instructions on selecting the output device (terminal or printer) you want data sent to, and instructions on enabling or disabling the body of the Milk Report.

### 1.3.1 Preventing a 2045 Lockup—Phone Modem Setting

Most phone modems will repeat or echo back characters to the terminal or computer (2045 or PC) they are connected to when they are not actually communicating with another modem. This echoing can result in the 2045 and modem sending one character back and forth, causing a “lockup” condition, which prevents the transmission of data to and from other system components—that of the terminal or PC, printer, feeders, detachers, etc. If you are using phone modems to transmit data between the 2045 and the terminal or PC, before connecting the modem to the 2045, you should enable the 2045 to ignore all characters received at connector J8 (RS-232 #2) on the 2045 circuit board. Then, after you make the modem connections and each time you start a session with the phone modems, you must enter an asterisk (\*) to permit the 2045 to selectively receive characters it needs for proper communications.

#### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

In most situations, when the phone connection becomes broken (that is, when you hang up the telephone), the lockup condition could reoccur, because the modem will start echoing characters again. The 2045, however, will automatically recognize a phone disconnect and ignore characters, so the lockup will not occur and you need not do anything special to end a phone modem session. You must, however, enter the asterisk (\*) each time you start a session. Note that this setting has been tested with and prevents the lockup condition in several brands of modems available but may not work with all brands.

# System Basics

## Command Mode

To enable the 2045 to ignore all characters from the modem (except \*) using Command mode, enter the command:

**1 5 \* 5 9 \* 2 #**

Once you've enabled the 2045 to ignore characters, if the modems operate at a rate other than 9600 baud (the 2045's factory-setting), you must change the baud rate of 2045 connector J8 to agree with the phone modems' baud rate, according to the instructions in subsection 1.11. Then, change the baud rate of the terminal or PC to agree with that of the modems and 2045, as explained in the owner's manual. Once you've changed the baud rates, connect the modems between the 2045 and the terminal or PC, as explained in Appendix SM. Then, type an asterisk (\*) to permit the 2045 to selectively receive characters. (Remember, also, to do so each time you start a session with the phone modems.)

## Menu Mode

To enable the 2045 to ignore characters through Menu mode, use the following procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the S key to display the System Setup menu.**
- 3. Press the P key to display the Printer Setup menu.**
- 4. Press the P key to enable or disable the 2045 to ignore characters.**  
This key acts as a toggle, causing the terminal to display either "Enabled" or "Disabled" to indicate the status of this mode.

To exit this mode, press the Escape key (as necessary).

Once you've enabled the 2045 to ignore characters, change the baud rates if necessary, connect the modem between the 2045 and the terminal or PC, and enter an asterisk (\*), as explained above.

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 System Setup \*\*\*

T - Set Time

D - Set Date

P - Printer

N - Dairy Name

M - Set Milk Price

B - Set Bunk Feed Costs

U - User Defined Report Setup

R - User Defined Report Name

## P

\*\*\*\* Printer Setup \*\*\*\*

P - Phone Modem

S - Serial

D - End of Line Delay

M - Enable/Disable Milk Report

T - Enable/Disable Transparent Print

## P

# System Basics

## 1.3.2 Enabling the Serial Printer

In order for a serial printer to receive report data from the 2045 and print a report, you must enable the printer. Two methods are available for enabling a serial printer—that of Command mode and Menu mode. Though the command shown below is provided in the section of Appendix SP that explains serial printer start-up, this subsection has also been provided to explain the enabling through Menu mode as well as through Command mode to accommodate your preference in entry methods.

### Command Mode

To enable the serial printer using Command mode, enter the command:

**1 5 \* 5 3 \* 1 #**

### Menu Mode

To enable the serial printer through Menu mode, use this procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the S key to display the System Setup menu.**
3. **Press the P key to display the Printer Setup menu.**
4. **Press the S key to enable the serial printer.**  
Note that this key does not act as a toggle to also disable the serial printer.

To exit this mode, press the Escape key (as necessary).

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

### S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### S

\*\*\* Agri-comp 2045 System Setup \*\*\*

T - Set Time

D - Set Date

P - Printer

N - Dairy Name

M - Set Milk Price

B - Set Bunk Feed Costs

U - User Defined Report Setup

R - User Defined Report Name

### P

\*\*\*\* Printer Setup \*\*\*\*

P - Phone Modem

S - Serial

D - End of Line Delay

M - Enable/Disable Milk Report

T - Enable/Disable Transparent Print

### S

### 1.3.3 Setting the End-of-Line Delay—Serial Printer

Most serial printers are set up to print data at a speed compatible with data transmission from the 2045. Others may lose characters at the beginning of lines of type (especially with full-width reports), because the 2045 sends data before their printheads have a chance to return. If you find that reports printed on your serial printer sometimes lose characters, you will need to set the end-of-line delay to allow for the printhead to return.

The end-of-line delay can be any setting 0-9999 in milliseconds—usually a slight delay setting of 20 to 50 milliseconds is sufficient. The lower the setting, the faster data is sent to the printer. (A setting less than 20 may cause the printer to lose characters.) The higher the setting, the slower data is sent to and printed at the printer.

#### Command Mode

To set the end-of-line delay using Command mode, enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

**1 5 \* 5 4 \* (0-9999) #**

To verify that the printer will print without losing characters, print and observe a full-width report such as a cow record.

#### Menu Mode

To set the end-of-line delay through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the S key to display the System Setup menu.**
- 3. Press the P key to display the Printer Setup menu.**
- 4. Press the D key, enter the desired delay (0-9999), and press the ENTER key.**

To exit this mode, press the Escape key (as necessary).

#### Example:

To set a delay of 30 milliseconds, you would enter 15\*54\*30#

**S**  
\*\* Agri-comp 2045 System \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**S**  
\*\*\* Agri-comp 2045 System Setup \*\*\*  
T - Set Time  
D - Set Date  
P - Printer  
N - Dairy Name  
M - Set Milk Price  
B - Set Bunk Feed Costs  
U - User Defined Report Setup  
R - User Defined Report Name  
**P**  
\*\*\*\* Printer Setup \*\*\*\*  
P - Phone Modem  
S - Serial  
D - End of Line Delay  
M - Enable/Disable Milk Report  
T - Enable/Disable Transparent Print  
**D**

# System Basics

## 1.3.4 Enabling/Disabling Milk Report Body

The Milk Report (which prints automatically during a milking if the 2045 and printer are set up properly) can be printed with or without the report body. You should enable the 2045 to print the body for the first few milkings (to ensure proper communications) or when you are trying to diagnose a problem related to parlor communications or Automatic ID, but, because the body is lengthy and the same data can be obtained through other reports, you may want to disable it most of the time. Note that although you can enable and disable the Parlor Entry Order portion of the Milk Report (as explained in Chapter 6), disabling of the body of the Milk Report as explained in this subsection will also disable the Parlor Entry Order portion. (The example shows a Milk Report without a body. Refer to Chapter 8 for more details about the Milk Report.) The COWS PER HOUR and MILK PER HOUR are based on the time between the first attach and the entry of the End Of Milking command (15\*1#), and are not available in the C-Level software.

### Command Mode

To enable or disable the Milk Report body using Command mode, enter the applicable command which follows:

**1 5 \* 5 8 \* 0 #** enables the Milk Report body  
**1 5 \* 5 8 \* 1 #** disables the Milk Report body & Parlor Entry Order

### Menu Mode

To enable or disable the Milk Report body through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the S key to display the System Setup menu.**
3. **Press the P key to display the Printer Setup menu.**
4. **Press the M key to enable or disable the Milk Report body.**  
This key acts as a toggle, causing the terminal to display either "Enabled" or "Disabled" to indicate the status of this mode.

To exit this mode, press the Escape key (as necessary).

```
=====
Example Farm
MLKG NO. IS 2
1 JAN 91
8:11 PM
-----
```

```
AGRICOMP 2045
MILK REPORT
-----
```

```
L   N   H   T   M
O   U   O   I   I
T   M   L   M   L
      B   D   E   K
-----
```

```
-----
NO. OF COWS:      200
TOTAL PROD:       3040
COWS PER HOUR:    67
MILK PER HOUR:   1018
UNMILKED COW:     0
COW NOT READ:     0
1 JAN 91
8:11 PM
```

**S**

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

**S**

\*\*\* Agri-comp 2045 System Setup \*\*\*

T - Set Time

D - Set Date

P - Printer

N - Dairy Name

M - Set Milk Price

B - Set Bunk Feed Costs

U - User Defined Report Setup

R - User Defined Report Name

**P**

\*\*\*\* Printer Setup \*\*\*\*

P - Phone Modem

S - Serial

D - End of Line Delay

M - Enable/Disable Milk Report

T - Enable/Disable Transparent Print

**M**

## 1.3.5 Enabling/Disabling Transparent Print Mode

The 2045 is designed to send reports to one data output device at a time—that of the terminal screen or the printer. The Transparent Print mode is a function that you must set to select which output device you want data sent to before you request the data. Note that this feature has been designed for and tested with the ADDS terminal connected to a parallel printer only. The feature also works with a PC, having the Agri-term Emulator program installed, that is connected to a parallel printer. It may not work with a terminal or PC connected to a serial printer, however. The quickest and easiest way to enable or disable (default setting) the Transparent Print mode is to press the Control (CTRL) and T keys together to toggle the mode on or off. You can enable or disable this mode at any time, during any function—within a menu hierarchy, midstream within a command, or while printing a report—with one exception; the 2045 will ignore the setting if entered while a report is being displayed at the terminal screen. Note that the 2045 will not display which mode is set when you toggle it, so you must know the setting in advance of toggling it or you may receive a printed report when you wanted only to view it or vice versa.

### Command Mode

To enable or disable the Transparent Print mode using Command mode, enter the applicable command which follows:

**S**  
\*\* Agri-comp 2045 System \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**S**  
\*\*\* Agri-comp 2045 System Setup \*\*\*  
T - Set Time  
D - Set Date  
P - Printer  
N - Dairy Name  
M - Set Milk Price  
B - Set Bunk Feed Costs  
U - User Defined Report Setup  
R - User Defined Report Name  
**P**  
\*\*\*\* Printer Setup \*\*\*\*  
P - Phone Modem  
S - Serial  
D - End of Line Delay  
M - Enable/Disable Milk Report  
T - Enable/Disable Transparent Print  
**T**

**1 5 \* 5 2 \* 0 #** disables Transparent Print & displays data at screen  
**1 5 \* 5 2 \* 2 #** enables Transparent Print & prints data at printer connected to terminal (or PC)

### Menu Mode

To enable or disable the Transparent Print mode through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the S key to display the System Setup menu.**
3. **Press the P key to display the Printer Setup menu.**
4. **Press the T key to enable or disable the Transparent Print mode.**  
This key acts as a toggle, causing the terminal to display either “Enabled” or “Disabled” to indicate the status of this mode.

To exit this mode, press the Escape key (as necessary).

# System Basics

## 1.4 Entering the Dairy Farm Name

Most reports have a heading that has a provision for a dairy farm name. If you would like your dairy farm's name to appear in the headings of your reports, enter it into the 2045 as explained in this subsection, according to the following guidelines:

- The name can consist of any of the printable characters listed in Appendix AC.
- The name can be no more than 20 characters long, and spaces are considered characters.

The dairy farm's name will be printed on all reports that have headings, automatically centered with other heading information.

### Command Mode

To enter (or change) the dairy farm's name using Command mode, enter the following command:

**1 5 \* 1 6 #**

The 2045 will respond with an 'Enter Name:' prompt and the current name if previously entered. Type the name of your dairy farm (using upper and/or lower case letters) and press the ENTER key, or erase unwanted characters from the end of a previously entered name using the Backspace key, then retype the new name and press ENTER.

### Menu Mode

To enter (or change) the dairy farm's name through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the S key to display the System Setup menu.**
3. **Press the N key.**  
The 2045 will respond with an 'Enter Name:' prompt and the current name if previously entered.
4. **Type a name or change an existing one as explained for Command mode.**

To exit this mode, press the Escape key.

**S**  
\*\* Agri-comp 2045 System \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**S**  
\*\*\* Agri-comp 2045 System Setup \*\*\*  
T - Set Time  
D - Set Date  
P - Printer  
N - Dairy Name  
M - Set Milk Price  
B - Set Bunk Feed Costs  
U - User Defined Report Setup  
R - User Defined Report Name  
**N**

## 1.5 Entering the Milk Price

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

Four calculations—milk income, yesterday’s income over feed cost, total lactation profit, and average daily profit—can be made by the 2045, whether or not detachers are part of your system, when you enter a milk price into 2045 memory. If your system includes feeders and detachers and both the Feeding and Milking programs are installed, the 2045 will automatically produce results for these calculations; if you are using the Feeding program in a system without detachers, you must also manually enter values for average daily production (AVG—explained in Section 2.4) in order for the 2045 to calculate milk income and income over feed cost results. (Note that if you load the Milking program for a system that does not use meters to measure the milk, you will not be able to enter values for average daily production and take advantage of these calculations.) The results of the calculations appear under the column heading abbreviations IN \$ (milk income), IOFC (income over feed cost), I-F\$ (Income minus Feed Cost), and in the reports listed for each abbreviation in Appendix PC. Evaluation of the IN \$ and IOFC results can assist the dairyman in managing the feeding program and in determining when to dry off or cull cows.

The milk price must be entered either in whole dollars or in dollars and cents per hundred pounds (or hundred kilograms) of milk, using a two-place decimal format and decimal point. Thus, a price of \$10.60 per hundred pounds would be entered as 10.60 (99.99 being the maximum value that can be entered for the milk price).

### Command Mode

To enter the milk price using Command mode, enter the following command, specifying a dollar amount in place of the word “(price)”:

**1 5 \* 9 9 \* (price) #**

### Example:

To assign a price of \$10.60 per hundred pounds of milk, you would enter 15\*99\*10.60#

# System Basics

## Menu Mode

To enter the milk price through Menu mode, use this procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the S key to display the System Setup menu.**
3. **Press the M key.**  
The 2045 will respond with an 'Enter Values:' prompt.
4. **Enter the price in the format explained above and press ENTER.**

To exit this mode, press the Escape key (as necessary).

## 1.5.1 Setting The Adjustable Price Factor

The 2045 normally calculates milk income and feed costs based on the assumption that the prices entered are for 100 pound (or 100 kilogram) quantities. In some countries, the upper limit of 99.99 on the price makes it difficult to calculate prices accurately. The Price Quantity Factor is used to set the base quantity that prices are based on. The default value is 100, indicating that milk and feed prices are based on 100 pound (kg) quantities. If you set this factor to 10, the costs and income will be calculated using the milk price per 10 pounds (kg). The Price Quantity Factor can be any number from 1 to 9999. To set the Price Quantity Factor, enter the command:

**1 5 \* 9 8 \* (1-9999) #**

Note: this feature is not available in the C-level software.

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 System Setup \*\*\*

T - Set Time

D - Set Date

P - Printer

N - Dairy Name

M - Set Milk Price

B - Set Bunk Feed Costs

U - User Defined Report Setup

R - User Defined Report Name

## M

### Reminder

- Average daily production data appear under AVG in reports.
- Milk income data appear under IN \$ in reports.
- Income over feed cost data appear under IOFC in reports.

## 1.6 Setting Weight Units to Pounds or Kilograms

The 2045 can be set to accept and present data involving weight units in either English pounds or metric kilograms, one of which you should decide upon using and set before entering any weight data into the 2045. When set to English pounds (the default setting), the 2045 will accept and store both milk and feed weights in pounds. In Metric mode, the 2045 will accept milk and feed weights in kilograms.

The unit of measure can be set only through Command mode, using one of the following commands:

<b>1 5 * 4 2 * 0 #</b>	sets English pounds
<b>1 5 * 4 2 * 1 #</b>	sets metric kilograms

The reports do not indicate which unit of measure the 2045 is set to use; to review the current setting, enter the command:

**1 5 \* 4 2 #**

The 2045 will respond with:

<b>15: 42: 0</b>	...if English units are set
<b>15: 42: 1</b>	...if metric units are set

 **Note**

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

# System Basics

## 1.7 Entering Bunk Feed Costs

A bunk feed cost can be entered into the 2045 by the dairyman for each lot, whether or not computerized feeders are part of the system, which specifies the *average* daily cost of bunk feed per cow (since consumption of bunk feeds cannot be controlled and the cow records cannot be updated on a per visit basis, as is the case with computerized feeding) and which is used by the 2045 to calculate the total cost of feeding a cow for an entire lactation. The bunk feed cost and results of the total feed cost calculation appear under the column heading abbreviations BNK\$ (daily bunk feed cost) and FD\$ (total feed cost) in the reports listed for each abbreviation in Appendix PC. Evaluation of the BNK\$ value and FD\$ result can assist the dairyman in managing the feeding program and in determining when to dry off or cull cows.

A default BNK\$ value of zero is assigned to each lot number. When you enter a BNK\$ value, the 2045 will begin adding the bunk feed cost to the total feed cost (FD\$) for each cow in that lot each midnight. If your system uses computerized feeders and the Feeding program is installed, the 2045 will add the daily bunk feed cost to the cost of feeds (grains and concentrates whose type, amount, and price are specified through the Feeding program, explained in Chapter 5) dispensed through the feeders, then add this total daily feed cost to the FD\$ figure each midnight; if your system does not use computerized feeders, the 2045 will simply begin with a FD\$ figure equal to the BNK\$ value, then increase the total by the daily bunk feed cost each midnight. The 2045 automatically resets a cow's FD\$ to zero when you set the cow's RPRO code to 9 to dry her off, at which time the calculations begin again. The dairyman can also change the FD\$ figure at any time.

Before you enter a bunk feed cost per lot, ensure that the unit of measure (pounds or kilograms) is set appropriately, as explained earlier in section. Then, determine what feed types you will be feeding in each lot, what amount of each feed type you will be feeding each day, what the cost per pound (or kilogram) of each feed type is, and how many cows will be fed in each lot. Once you've determined these factors, you must calculate the daily cost for each feed, add

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

### Reminder

- Daily bunk feed cost data appear under BNK\$ in reports.
- Total feed cost data appear under FD\$ in reports.

# System Basics

## Example:

To determine bunk feed costs per lot, say you are feeding cows in three lots varying amounts of haylage, high-moisture corn, and 38% protein pellets. You would first distinguish the types of feeds and determine the cost per pound of each:

- Feed A= Haylage @ \$.02/lb
- Feed B= Corn @ \$.036/lb
- Feed C= Pellets @ \$.16/lb

Then, you would determine the amount of each feed you plan to dispense to each lot each day, multiply that amount by the cost per pound, and add up the costs per lot for a total cost:

Say that Lot 1 (high producers) uses

- 700 lb of feed A x .02 =14.00
  - 400 lb of feed B x .036 =14.40
  - 250 lb of feed C x .16 =40.00
- \$68.40

...that Lot 2 (low producers) uses

- 600 lb of feed A x .02 =12.00
  - 200 lb of feed B x .036 = 7.20
  - 100 lb of feed C x .16 =16.00
- \$35.20

...and that Lot 3 (dry cows) uses

- 500 lb of feed A x .02 =10.00
  - 100 lb of feed B x .036 = 3.60
  - 0 lb of feed C x .16 = 0.00
- \$13.60

You must then divide the total for the lot by the number of cows in the lot to obtain the bunk feed cost per cow. If each lot has 20 cows, the BNK\$ values would be:

Lot 1:	68.40/20 =	3.42
Lot 2:	35.20/20 =	1.76
Lot 3:	13.60/20 =	0.68

together the costs for each feed in a lot, and divide the total cost by the number of cows in that lot. The example shows how a dairyman without computerized feeding may obtain reasonably accurate costs for bunk feeding his herd.

The bunk feed cost must be entered either in whole dollars or in dollars and cents per day, using a two-place decimal format and decimal point. Thus, a price of \$3.42 per day would be entered as 3.42 (99.99 is the maximum value that can be entered for the bunk feed cost). This value can be changed by the user at any time.

## Prompt Entry Mode

To enter, change, or review the daily bunk feed costs (BNK\$) per lot using Command mode, enter the following command (lot numbers will appear in increasing lot number order) and then the costs you desire:

1 6 \* 9 4 # or 1 6 \* 9 4 \* (lot) #

You can enter costs starting with any lot number by including an asterisk (\*) and the particular lot number as a third data field (between 94 and #) in the command, as shown. Lot numbers will still appear in increasing order; however, starting with a particular lot number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

BNK\$ P: lot number : current value =

The “P” indicates Prompt Entry mode, the words “lot number” represent the number of the lot that you may assign a new value to, and the words “current value” represent the cost of bunk feed currently assigned to that lot. Note: the reminder BNK\$ before the P: will not appear in C-level software.

# System Basics

Either press the ENTER key to accept the current cost or type in a new cost that you've determined to be the average for all cows in that lot and press ENTER. In either case the 2045 will proceed to the next lot number. (See example.)

To exit this mode, press the Escape key (as necessary).

## Menu Mode

To enter the bunk feed costs through Menu mode, using this procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the S key to display the System Setup menu.**
- 3. Press the B key.**  
The 2045 will enter Prompt Entry mode and you may enter values as described above for Command mode.

To exit this mode, press the Escape key (as necessary).

## Examples:

- To assign costs to lots, you would enter 16\*94#
- To assign them starting with lot number 3, you would enter 16\*94\*3#

```
S
** Agri-comp 2045 System **
S - Setup
D - Data Entry or Edit
R - Reports
S
*** Agri-comp 2045 System Setup ***
T - Set Time
D - Set Date
P - Printer
N - Dairy Name
M - Set Milk Price
B - Set Bunk Feed Costs
U - User Defined Report Setup
R - User Defined Report Name
B
```

## Example:

If you enter 16\*94# and lot 0 is the first to appear, having a previously assigned BNK\$ cost of .00, the 2045 would respond with:

```
BNK$ P: 0: .00=
```

The following entries would assign costs for the bunk feeds and lots used in the example to determine costs:

```
BNK$ P: 0: .00=0
BNK$ P: 1: .00=2.62
BNK$ P: 2: .00=1.76
BNK$ P: 3: .00=0.68
BNK$ P: 4: .00=
```

## 1.8 Setting Up User-Defined Reports

In addition to the standard 2045 reports available, you can define and view or print up to nine other ‘user-defined’ reports to aid you in managing your herd. A user-defined report is one in which you specify the parameters and arrangement of data. That is, you may define a report with the same information found in a standard report, but arrange it in a way that better suits your needs; you can define a report unlike any standard report but that uses the same parameter codes as are used in standard reports; or you can define a report using parameters that you define. (See Section 2.2 for details on assigning user-defined parameter codes.)

Two definition elements are required in the defining of user-defined reports: a report number, which the 2045 uses to distinguish one report from another, and ‘definition’ parameter codes that specify what data will appear in a report and in what order it will appear. Three other elements—a ‘selection’ parameter code, that allows you to limit data printed in a report, a sort order, that determines the order that cows are printed in the report, and a report name, that will help you distinguish one report from another—can be assigned to reports. The following subsections explain how to set up user-defined reports to include these elements.

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

### 1.8.1 Assigning Report Numbers and Parameters

The first step in defining a user-defined report is to assign a unique report number so that it can be distinguished from other reports. The 2045 uses a 900-series code, which is actually 900 plus a number (1-9) that you assign, to recognize user-defined reports. Thus, the report number codes are 901-909, in which the code for report #1 would be 901, report #2 would be 902, report #3 would be 903, and so forth.

As soon as you enter a report number, you will be prompted to enter definition parameter codes. You can specify any parameter codes (listed in Appendix PC) so long as you specify no more than 20 parameter codes per report and your entries do not exceed the column-width limits of the report format. (Note that any attempt to specify more parameter codes than the 20-code limit or to exceed the 80-column format limit will cause the 2045 to exit the mode, storing the

# System Basics

report with those parameter codes entered before the code that caused the report to exceed the limit.) In any case, you must determine the order in which you want data to appear in the report before you enter codes, because the order that codes are entered into the 2045 is also the order that data is displayed and printed.

The report format used with user-defined reports is the same as that used for standard reports—a maximum 80-column (or character) width, which includes one blank column between each parameter. When you specify a parameter code, the 2045 automatically calculates the number of columns required to print data for that parameter plus one extra column to provide a blank space between that parameter's data and the data for the next parameter. Thus, if you specify parameter code 19 (NUMB), the 2045 will indicate that five columns (of the 80-column total) have been used—four columns for data and one blank column.

## Prompt Entry Mode

To assign a report number and definition parameters to a user-defined report using Prompt Entry mode, enter the following command, specifying a value for the second field of data that falls within the range shown in parentheses:

**1 6 \* (901-909) #**

The 2045 will enter Prompt Entry mode and respond with:

P: *column width* : *current code* =

The “P” indicates Prompt Entry mode, the words “column width” represent the total number of columns used so far by entered and accepted parameter codes that precede the prompt, and the words “current code” represent the parameter code that is currently assigned that position in the report.

Enter the parameter code for the first column of data you want to appear in your report and press the ENTER key. (Refer to the parameter codes listed in Appendix PC or press the question mark [?] key to have the 2045 display a list of valid parameter codes at the

## Example:

To assign a number and definition parameters to user-defined report 1, you would enter the command **16\*901#**

## Examples:

The following entries (say for user-defined report 1—16\*901#) illustrate a simple feed ration report definition for a two-feed system:

P: 0: 0= **19** NUMB  
P: 5: 0= **56** DIM  
P: 9: 0= **7** AVG  
P: 13: 0= **40** %FED  
P: 17: 0= **41** RTNA  
P: 22: 0= **42** RTNB  
P: 27: 0=

The following entries (for user-defined report 2 enter 16\*902#) illustrate a milk-weights report that will print weights for milking 1 for days 1-4:

P: 0: 0= **19** NUMB  
P: 5: 0= **991** DAY1  
P: 7: 0= **14** MLK1  
P: 12: 0= **992** DAY2  
P: 14: 0= **14** MLK1  
P: 19: 0= **993** DAY3  
P: 21: 0= **14** MLK1  
P: 26: 0= **994** DAY4  
P: 28: 0= **14** MLK1  
P: 33: 0=

# System Basics

terminal.) The 2045 will automatically calculate the number of columns required for that parameter plus one extra, then respond with another prompt that indicates (in the second data field) the number of columns calculated for the previous parameter. If you want to specify another parameter code, you would enter it after the equal sign (=) prompt, then press the ENTER key. You can use parameter code 0 to include an extra column of spaces in the report, but it will count as one of the twenty total parameter codes in the report. You can also define a report that will present data from one or more of the previous seven days by specifying a day-number parameter code (990-997) in addition to the particular parameter you want. (Refer to subsection 1.12 for an explanation of how the 2045 recognizes the eight total days of data storage.) Day-number codes should be entered in increasing or decreasing order. (See examples.)

To exit this mode, press the Escape key (as necessary).

## Menu Mode

To assign a report number (901-909) and definition parameter codes to a user-defined report through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the S key to display the System Setup menu.**
- 3. Press the U key.**  
The 2045 will respond with a prompt, asking for a report number.
- 4. Press any numeric key (1-9) for the report desired.**  
The 2045 will enter Prompt Entry mode and you may enter values as described above for that mode.

To exit this mode, press the Escape key (as necessary).

You can also review or change the parameter codes assigned to a user-defined report through the modes explained above. Enter Prompt Entry mode for the report you want to redefine (for example, by entering 16\*901# for report 1). The 2045 will respond with the first assigned parameter. The remaining parameters will be displayed as you press ENTER to advance through the prompts. To change the

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 System Setup \*\*\*

T - Set Time

D - Set Date

P - Printer

N - Dairy Name

M - Set Milk Price

B - Set Bunk Feed Costs

U - User Defined Report Setup

R - User Defined Report Name

## U

# System Basics

definition parameter(s) assigned to the report, redefine the report by pressing ENTER for any previously assigned parameter entries that you want to remain unchanged and enter a new parameter code for any parameters you want changed.

**Note**

Whenever you change an existing report for any reason, be sure to step through to the end of the prompts before exiting the Prompt Entry mode; if you exit at a point before the end of the prompts, the report will be redefined with only those parameters accepted before you exited, and all parameters that previously appeared after the last accepted parameter will be lost.

The six-parameter definition used in the first parameter code entry example in this subsection will produce a report with the format shown in the report example at right. (The vertical rectangles represent the columns of blank spaces that automatically form between and separate data for different parameters.) Note that the 5 shown in the prompt for the second entry in the definition example agrees with the number of columns for NUMB in the report (4 data columns and 1 space) and that the number in each subsequent prompt agrees with the total number of columns used by each additional parameter.

The nine-parameter definition used in the second parameter code entry example in this section will produce a report with the format shown at right.

Refer to Section 3 for more information on displaying and printing user-defined reports.

**1.8.3 Assigning a Name to a Report**

All user-defined reports will have a heading, which consists of the same elements found in most standard reports—the dairy farm’s name (if entered into the 2045), the milking number, the time and date, and column headings that pertain to the particular report parameters you’ve specified. Another heading element that both standard reports and user-defined reports have is a report name so you can distinguish one report from another. The 2045 automatically displays or prints the names of standard reports in their headings when you request them; however, to have the 2045 display or print the name of a user-defined report, you must enter a name for the report into the 2045.

```

=====
Example Farm
MLKG NO. IS 1
1 JAN 91
9:43 AM
-----
AGRICOMP 2045
901 RATION REPORT
=====
N D A % R R
U I V F T T
M M G E N N
B D A B
-----
| | | | |
columns: 5 9 13 17 22
  
```

```

=====
Example Farm
MLKG NO. IS 1
1 JAN 91
9:43 AM
-----
AGRICOMP 2045
902 MLKG1-4 REPORT
=====
N D M D M D M D M
U A L A L A L A L
M Y K Y K Y K Y K
B 1 1 2 1 3 1 4 1
-----
1 1 .0 2 .0 3 .0 4 .0
2 1 .0 2 .0 3 .0 4 .0
3 1 .0 2 .0 3 .0 4 .0
-----
3 0 .0 0 .0 0 .0 0 .0
  
```

The following guidelines apply to the entry of user-defined report names in the 2045:

- The name can consist of any of the printable characters listed in Appendix AC.
- The name can be no more than 13 characters long, and spaces are considered characters. Note that the 2045 automatically places the word "REPORT" after the name you enter and does not include these six letters as part of the 13-maximum character limit.

#### Command Mode

To assign or change a user-defined report name using Command mode, enter the following command, specifying the report number (within the range shown in parentheses) of the report you want to name for the second field of data:

**15 \* (901-909) #**

#### Example:

To assign a name to user-defined report 1, you would enter the command 15\*901#, then type the name (for example):

901 RATION

...and press ENTER.

The 2045 will either respond with the current name if previously entered or a blank line on which you may type the initial name. Type in the name (using upper and/or lowercase letters) or use the Backspace key to erase unwanted characters from the end of a previously entered name and retype the new name that you want the report to have, and press the ENTER key. If you make a mistake while entering a name, before you press ENTER, use the Backspace key to back up and erase the incorrect letters and then retype the name.

#### Menu Mode

To enter or change the name of a user-defined report through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the S key to display the System Setup menu.**
3. **Press the R key.**  
The 2045 will respond with a prompt, asking for a report number.
4. **Press any numeric key (1-9) for the report desired.**  
The 2045 will respond with an 'Enter Name:' prompt and the current name if previously entered.
5. **Type in a name or change a previously entered name as explained above for Command mode.**

To exit this mode, press the Escape key (as necessary).

**S**  
\*\* Agri-comp 2045 System \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**S**  
\*\*\* Agri-comp 2045 System Setup \*\*\*  
T - Set Time  
D - Set Date  
P - Printer  
N - Dairy Name  
M - Set Milk Price  
B - Set Bunk Feed Costs  
U - User Defined Report Setup  
R - User Defined Report Name  
**R**

# System Basics

## 1.8.4 Assigning Sort Orders To User Reports

User Defined Reports can be printed out with the cows arranged in almost any desired order by issuing a Sort Command (4\*code\*code#) just prior to printing the report. You can also force a user defined report to always come out in a specific order by assigning a sort order to the report. Sort order commands always have both a primary and secondary sort key: the cows are first sorted by the primary key, then all cows with the same value of the primary key are sorted by the secondary key.

To assign a Primary Sort key to a user defined report, enter the command:

**15\*90r1\*(parameter code)#**

where the **r** is the report number (1 to 9) and the parameter code is the cow parameter code for the value to be sorted by. For example, to sort User Defined Report 1 by Lot, you would enter the command

**15\*9011\*30#**

To assign a Secondary Sort key to a user defined report, enter the command:

**15\*90r2\*(parameter code)#**

where the **r** is the report number (1 to 9) and the parameter code is the cow parameter code for the value to be sorted by. For example, to set the secondary sort key for User Defined Report 1 to Days In Milk, you would enter the command:

**15\*9012\*56#**

Note: if you add 1000 to a sort code, the sort will be in decreasing order, from largest to smallest, instead of the normal smallest to largest.

**Note**

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

## 1.8.5 Assigning Selection Codes to Individual Reports

You can limit the cows that are listed in a User Defined Report by assigning a Selection Code and limiting range to the report. You must assign three values to the report: the cow parameter code (see Appendix PC), the minimum value, and the maximum value. The selection code can be used to limit the report to only those cows that:

- fall within a range of values
- fall outside a range of values
- exactly match a preset value
- exactly match a value determined at print time

The parameter codes used can be any of the cow parameter codes listed in Appendix PC. If you need you need to use multiple conditions, such as Milking Cows with AVG < 40, you can use the Predefined and User-Defined Selection Codes as explained in Appendix SC.

### 1.8.5.1 Within A Range

To limit the report to cows within a range, enter the following commands (note: r is the report number, 1-9):

**15\*90r3\*(parameter code)#** to set the code number  
**15\*90r4\*(minimum)#** to set the minimum  
**15\*90r5\*(maximum)#** to set the maximum

For example, to set report 2 to use only cows with DIM (code 56) between 30 and 100 days, you would enter:

**15\*9023\*56#** set DIM, code 56  
**15\*9024\*30#** set minimum to 30  
**15\*9025\*100#** set maximum to 100

### 1.8.5.2 Outside A Range

To limit the report to cows outside a range, enter the following commands (note: r is the report number, 1-9):

**15\*90r3\*(parameter code + 1000)#** to set the code number  
**15\*90r4\*(minimum)#** to set the minimum  
**15\*90r5\*(maximum)#** to set the maximum

# System Basics

For example, to set report 2 to use only cows with DIM (code 56) less than 30 or more than 100 days, you would enter:

**15\*9023\*1056#** set DIM, code 56+1000  
**15\*9024\*30#** set minimum to 30  
**15\*9025\*100#** set maximum to 100

### 1.8.5.3 Exact Match To Preset Value

To limit the report to cows exactly matching a preset value, set the minimum and maximum values to the same desired value. Enter the following commands (note: r is the report number, 1-9):

**15\*90r3\*(parameter code)#** to set the code number  
**15\*90r4\*(preset value)#** to set the minimum  
**15\*90r5\*(preset value)#** to set the maximum

For example, to set report 2 to use only cows with DIM (code 56) equal to 30 days, you would enter:

**15\*9023\*56#** set DIM, code 56  
**15\*9024\*30#** set minimum to 30  
**15\*9025\*30#** set maximum to 30

### 1.8.5.4 Exact Match To Value At Print Time

To limit the report to cows exactly matching a value to be entered at the time the print command is given, enter the following command (note: r is the report number, 1-9):

**15\*90r3\*(parameter code+2000)#**  
(to set the code number, the minimum and maximum values are ignored)

To specify the value at print time, enter the print command with the desired match value as the third parameter. For example, to set report 4 to use only cows with LOT (code 30) equal to 3, you would enter:

**15\*9043\*2030#** set LOT, code 30 + 2000  
**18\*904\*3#** print report for LOT 3

Note that this is the method used in the C-Level software.

#### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

## 1.9 Limiting The Cows On Reports

### 1.9.1 Limiting All Reports By Lot Number

The Active Lot command will limit the cows printed on almost all reports to only those cows that are in the specified Lot. This includes all standard reports except the Lot Summary and Milk Report, all User-Defined reports, and all Scatter Graphs. To set the Active Lot, enter the command:

```
15*30*(lot, 0-99)#
```

To turn off the Active Lot, enter the command:

```
15*30*0#
```

Note that you cannot limit cows to those in Lot 0.

### 1.9.2 Limiting All Reports By Selection Code

The Selection Code Parameter command will limit the cows printed on almost all reports to only those cows that have a nonzero value for the specified parameter code. This includes all standard reports except the Lot Summary and Milk Report, all User-Defined reports, and all Scatter Graphs. To set the Selection Parameter, enter the command:

```
15*900*(code, 1-999)#
```

Any valid cow parameter code can be used for this purpose. If the cow has a non-zero value for this code, she will be included on the report.

To turn off the Selection Code, enter the command:

```
15*900*0#
```

Note that in the C-level software, this command was used to assign a selection code to User Defined Reports.

# System Basics

## 1.10 Enabling/Disabling Page Mode

Page mode is a feature that allows you to specify the manner in which a report will be displayed or printed. The basic Page mode options are that you can display data one screenful at a time or print data with column headings on each report page (if enabled) or you can display or print data continuously (if disabled). As you read the following paragraphs, you will learn that Page mode presents slightly different responses at the terminal and printer for each mode setting.

**Note:**

If your printer does not support the internal form-feed command, the Page mode will not work properly on your printer.

When you enable Page mode (the default setting)

- and display a report at the terminal, the 2045 will display the report heading (if applicable), display enough data to nearly fill the screen, then pause and display the message:

Press SPACEBAR to continue...

(This pause in the report allows you the chance to review data that might otherwise scroll on by if Page mode were disabled.) The 2045 will wait for the Spacebar or the Escape key to be pressed. If you press the Spacebar, the 2045 will redisplay the column headings, continue displaying data where it left off until the screen is almost filled, then pause and display the "Press SPACEBAR to continue..." message again. If you do not press the Spacebar within five minutes of each pause, the 2045 will automatically exit the report display function. If you press the Escape key at any point during the display process, the report will stop displaying (when the terminal's buffer empties), and the 2045 will exit the report display function.

- and send a report to the printer, the printer will print the heading (if applicable) and enough data to fill 60 lines of type, after which it will receive an internal form-feed command, instructing it to leave 6 lines blank at the bottom of the page. Then, the printer will reprint the heading at the top of the next page, continue printing data where it left off until another 60 lines have been printed, and again leave 6 lines blank. The printer will repeat this process for each page it prints. Note that with Page mode enabled the printer does not automatically pause at the end of each page as the terminal does, but prints continuously. If you press the Escape key at any point during the printing process, the report will stop printing (when the terminal's buffer empties), and the 2045 will exit the report print function.

**Note:**

When Page mode is enabled, the body of the Milk Report will be printed in three columns (as shown in Chapter 8), instead of one column, to conserve paper. The report heading and the list of unmilked and unread cows will still be printed in a single column.

When you disable Page mode

- and display a report at the terminal, the 2045 will display the report heading (if applicable) once, then begin displaying data and continue to do so until it scrolls through and displays the entire report. With Page mode disabled, the terminal does not automatically pause; however, you can pause a report at any time from the terminal by pressing the Control (Ctrl) and S keys simultaneously. Then, when you're ready to go on, press the Spacebar to continue the report. If you do not continue the report from a pause within three minutes, it will continue automatically. If you press the Escape key at any point during the display process, the report will stop displaying (when the terminal's buffer empties), and the 2045 will exit the report display function.
- and send a report to the printer, the printer will print the heading once (on the first page), then begin printing data one line of type after another, over top of page perforations if more than one page is required and continue to do so until the entire report has been printed. Note that with Page mode disabled the printer neither pauses nor receives an automatic form-feed command at the end of each page, but prints continuously. If you press the Escape key at any point during the printing process, the report will stop printing (when the printer's buffer empties), and the 2045 will exit the report print function.

To enable or disable Page mode, so that reports will be displayed or printed in a single-spaced format, use the commands:

**1 5 \* 5 6 \* 0 #**      to disable Page mode for continuous display/print  
**1 5 \* 5 6 \* 1 #**      to enable Page mode for pause display or print

In addition to the Page mode options explained above, you can also enable Page mode to print (but not display) reports in a double-spaced format, such that a blank line is printed between each line of data in a report, using the command:

**1 5 \* 5 6 \* 2 #**

# System Basics

## 1.11 Changing Baud Rate Settings

The two input/output ports—J8 (RS232#2) and J9 (RS232#1)—in the 2045 are capable of being set to several baud rates, or *transmission speeds*, to accommodate the various baud rate requirements of peripheral components used with the 2045 and to allow the dairyman the flexibility to select a data transmission speed that will optimize the time required for communications between the 2045 and the terminal and printer.

In order for the terminal or PC connected directly to 2045 connectors J8 and J9 to communicate with the 2045 at all, the baud rate of each component had to be set initially (during installation and initial start-up) to 9600 baud—the factory-set rate for both J8 and J9 and a rate suitable for proper communications between the 2045 and most terminals, PCs, and printers. If the installation requires phone modems, and the modems have a baud rate other than 9600, you must change the baud rate of the 2045 connector and the terminal or PC that the modems will be connected to (once communications have been verified between the 2045 and a temporarily, directly connected terminal or PC) in order for the modems to transmit data once connected. If the installation does not require phone modems and you find (after verifying communications between the 2045 and the terminal or PC) that your terminal or printer does not communicate properly when set to 9600 baud or you feel that you would prefer a baud rate other than 9600, you can change the baud rates of either 2045 connector or both and the baud rate of the corresponding peripheral component to a rate favorable to the component now that communications have been verified between the 2045 and all peripheral components and the system is in operation.

Connectors J8 and J9, inside the 2045, each have their own range of baud rates that they can be set for—that of 600, 1200, 2400, 4800, 9600, or 19200 baud for J8, and 4800, 9600, or 19200 baud for J9. You must change the baud rate of the 2045 connector(s) before you change that of the terminal or PC. (Refer to your terminal or printer owner's manual for baud rates available to you for those peripherals and details on how to change their settings. Refer to the appropriate procedure through the terminal emulator program you are using with

your PC for baud rates available to you for that peripheral and details on how to change its setting.)

The 2045's baud rate for connectors J8 and J9 can be changed only through Command mode by entering the appropriate command below and specifying a value—6, 12, 24, 48, 96, or 192 (representing baud rates 600, 1200, 2400, 4800, 9600, and 19200 respectively)—that applies to the connector in place of the words “(baud rate)”:

**1 5 \* 2 3 2 \* (baud rate) #** to set 2045 baud rate for J9  
**1 5 \* 2 3 3 \* (baud rate) #** to set 2045 baud rate for J8

To change the baud rate of a terminal or PC (after changing the rate of its corresponding 2045 connector), enter that component's setup mode (as explained in the owner's manual) and change the baud rate to match the new setting in the 2045.

## 1.12 Enabling/Disabling the Alarm & Its Responses

The Agri-comp computer (internal) alarm and the parlor (external) alarms are electronic devices that provide audible sounds to indicate communications between the 2045 and other components of the Agri-comp system network (such as feeder controls, ID controls, as so forth) and to alert the operator to various events or problems in the parlor. The following subsections explain how to enable or disable the alarms, what alarm response options are available for the possible conditions that would cause it to sound, and how to enable or disable the alarm to beep for the responses.

### *Examples:*

- To set a baud rate of 4800 for connector J9, you would enter the command **15\*232\*48#**
- To set a baud rate of 19200 for connector J8, you would enter the command **15\*233\*192#**

### 1.12.1 Enabling/Disabling the Alarm

The computer and parlor alarms can be enabled or disabled (for those users who do not wish to hear the alarm's frequent beeps) through Command mode only, by entering one of the following commands:

**1 5 \* 4 8 \* 0 #** disables the 2045 alarm  
**1 5 \* 4 8 \* 1 #** enables the 2045 alarm  
**1 5 \* 4 9 \* 0 #** disables the 2045 & parlor alarm

# System Basics

## 1.12.2 Setting General Alarm Responses

The following list summarizes the conditions for which the computer and parlor alarms can be set to sound and alert the operator. The alarm will sound when

- an ID tag enters the field of a feeder and the cow is identified by a feeder control, indicating normal communications. (The command for this condition should be set primarily when feeder communications are being tested.)
- an ID tag passes through the ID antenna and the cow is identified by an ID control, indicating normal communications. (The command for this condition should be set only when Automatic ID communications are being tested.)
- the number of cows identified by an ID control, in all parlors but side-openers, matches the number of detachers in the ID zone. The alarm sounds before the main entry gate closes, indicating normal communications. (This alarm response cannot be disabled.)
- the number of cows identified by an ID control, in all parlors but side-openers, is less than the number of detachers in the ID zone either because at least one stall is unoccupied or because all stalls are occupied, but the ID control was unable to identify a cow due to a missing, defective (one that is not transmitting its number), or unread ID tag. This condition, called “Fewer Cows Than Stalls” and considered an ID error, can be set to respond for either of two situations—upon close of entry gate or upon attach with entry gate open. (See subsection 1.12.3 for details on selecting the gate status that you will want the alarm to respond to for this condition. Additional information on this condition is provided in Chapter 6 under “Enabling/Disabling the Ignore ID Errors Mode.”)
- the operator presses the ATTACH button of a detacher at which a cow with an unassigned or misread ID tag numbers is located—indicating an ID error. (See Chapter 6 for an explanation on “Enabling/Disabling Ignore Unassigned ID Tag Numbers.”)
- the operator presses the ATTACH button of a detacher at which a cow will be milked and, upon opening her cow record, the 2045 discovers that a milk weight has already been stored for that cow that milking—indicating an ID error. The stored weight would suggest that the cow had been milked earlier in that milking; however, this finding would more likely be the result of another cow’s milk weight having been incorrectly stored under this cow’s record—an event that would occur if, upon discovering that the tag of the cow milked earlier was not read, the operator unknowingly entered the ID tag number of the cow about to be milked.
- a cow with an HOLD value greater than zero is identified. The alarm sounds as a cow passes through the ID antenna and when the operator presses the ATTACH button of the detacher at which the cow will be milked.

- a cow with an attention (ATTN) value greater than zero is identified. The alarm sounds as a cow passes through the ID antenna and when the operator presses the ATTACH button of the detacher at which the cow will be milked.
- the operator presses the ATTACH button of a detacher at which a cow with a RPRO value of 9 (DRY) will be milked.

*Examples:*

- To have the alarm(s) sound whenever a cow is identified by the ID system (i.e. when ID tag passes through the antenna) only, you would enter 15\*49\*16#
- To have the alarm(s) sound whenever a feeder message is received and a cow with HOLD and ATTN values greater than zero is identified, you would create and enter the command 15\*49\*14#. (The 14 was arrived at by adding 2+4+8.)

The conditions that both the 2045 and parlor alarms will beep for can be set only through Command mode. To specify the condition(s) that you want the alarms to alert operators to, enter one of the following commands or create your own command, as explained below:

15 * 49 * 1 #	beeps for all ID errors/warnings at antenna & detacher
15 * 49 * 2 #	beeps for feeder communications
15 * 49 * 4 #	beeps when cow with HOLD>0 is identified at antenna
15 * 49 * 8 #	beeps when cow with ATTN>0 is identified at antenna
15 * 49 * 16 #	beeps when any ID tag is read

You can create your own command by combining any of the various condition parameter codes (1, 2, 4, 8, or 16) together and inserting that code in place of any individual code in the commands above.

### 1.12.3 Selecting Fewer Cows Than Stalls Alarm Condition

One condition that the 2045 and parlor alarms can be set to sound for (discussed briefly in subsection 1.12.2) is called “Fewer Cows Than Stalls.” This condition alerts the operator when the number of cows identified in an ID zone is less than the number of detachers assigned to that zone and can be set to respond for either of two situations—upon close of entry gate or upon attach with entry gate open. In either situation, if the operator closes the entry gate before attaching milking units to cows, the alarm will sound once when the gate closes to indicate that too few cows were identified. If the condition is set to respond for the ‘upon close of entry gate’ situation and the operator begins pressing the ATTACH button at detachers before enough cows to fill the stalls are identified, the alarm will not sound, provided no other ID errors occur at that time, until such time as the operator closes the entry gate and the 2045 realizes that too few cows were identified. The 2045 will indicate that too few cows were identified by causing the alarm to sound once when the gate closes. If the operator closes the gate before attaching all units in the ID zone, the alarm will beep again for each detacher at which the operator presses the ATTACH

# System Basics

button. If the condition is set to respond for the ‘upon attach with entry gate open’ situation and the operator begins pressing the ATTACH button at detachers before enough cows to fill the stalls are identified and the gate closes, the alarm will sound upon each attach.

If operators typically attach milking units to cows before all cows are identified and the gate is closed, you may want to set the “Fewer Cows Than Stalls” condition for the ‘upon close of entry gate’ situation, since other alarm responses and messages, such as Hold or Attention messages (that may occur during entry) may go unnoticed.

To set the main entry gate status that you will want the Fewer Cows Than Stalls condition to respond to, enter one of the following commands:

**1 5 \* 4 6 \* 0 #**     condition responds when entry gate closes (default)  
**1 5 \* 4 6 \* 1 #**     condition responds upon attach with entry gate open

## 1.13 Setting the Report Day Number

As you read about the reports available through the Agri-comp 2045, you will learn that, for the most part, data presented in reports will be that collected during the current day—that is, the day the report is printed. Three exceptions to this rule are that <sup>1)</sup> certain reports—for instance, the Feeder Summary for Yesterday—present data for a particular day, <sup>2)</sup> you can specify report day number ‘definition’ parameters in user-defined reports (see subsection 1.8) under whose column heading abbreviations data specific to those days will appear, and <sup>3)</sup> you can set a report day number in the 2045 (the focus of this subsection) that will cause data stored under one of the previous seven days to appear in place of the current day’s data for certain parameters (to eliminate the need to print reports daily) in the body of all reports that include one or more of the following affected parameters: MLK1, MLK2, MLK3, PROD, DEV1, DEV2, DEV3, DEV, TIM1, TIM2, TIM3, TOD1, TOD2, TOD3, ST 1, ST 2, ST 3, %UFD, VSTS. The particular report day number you set will specify to the 2045 which day’s data should appear in reports for the previously-named parameters and will appear in its appropriate data location in the Cow Record report and, if other than zero, in the summary at the end of other

affected reports under the heading “Day Number.” Additionally, the data appearing for affected parameters will be used in 2045 calculations and the results of the calculations will appear in the summary of affected reports under the heading “Prod Today”.

The number you specify can be that for the current day or any of the seven days in the previous week, since the 2045 collects, adjusts, and stores data on a daily basis over an 8-day period. Before you specify a report day number (or report day number ‘definition’ parameters in user-defined reports), you must understand that the 2045 recognizes the eight days of data storage internally as 0-7. The current day’s data will be stored under day 0, yesterday’s data is stored under day 1, the previous day’s data under day 2, and data for the remaining five days is stored under days 3-7 (day 7, being one week prior to the current day). To maintain the most current data, the 2045 reassigns the day numbers each day (to milking data upon entry of the EOD command, to all other data at midnight), such that day 0’s data becomes day 1’s data, the former day 1’s data becomes day 2’s data, and so forth, the former day 7’s data is cleared from 2045 memory, and the current day’s data is stored under day 0 as the day progresses. (The same numbering is used with the day number ‘definition’ parameter codes, however the number 99 precedes each number 0-7 in these codes—for example, the parameter code for day 0 is 990—and reassignment does not occur.)

Cow Parameters affected by day numbers 1-7:

- MILK—not affected when printing Milk Report
- TIME—not affected when printing Milk Report
- TOD—not affected when printing Milk Report
- PROD—not affected when printing Milk Report
- STAT

Since storage of data under days 0-7 occurs automatically, the report day number need only be set for displaying and printing purposes. In most cases, you will probably want the report day number set to zero (the default setting) to display or print data for the current day. Note that this system of storing and recalling data for a particular day is directly affected by the current time and date and is, therefore, only accurate if they are set accurately.

*Example:*

To display or print a report with data from a week ago, you would enter 15\*6\*7#, then the command to generate the report you want, then most likely change the day number back to its original setting.

To set the day number, enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

**1 5 \* 6 \* (0-7) #**

# System Basics

## 2 Setup Data

Now that you have set some basic system functions and you have some understanding of the Agri-comp 2045, you can set up a cow record for each cow in your herd and begin entering cow-related data. This section includes instructions on creating, editing, and deleting cow records; entering various types of cow-related data; and writing and reading a backup disk. Due to the great amount of explanation and differences in value options involved with each entry, data entries covered in this section are explained on an individual (per subsection) basis.

### 2.1 Creating a Cow Record

Each cow that the 2045 will manage data for must have its own cow record, identified by a unique, four-digit cow number (and ID tag number if Automatic ID is part of the installation). Within each cow record, the 2045 stores and manages all the cow-related data—feeding, reproductive, milking, etc.—available for that cow. (Refer to Section 3 for an example of the Cow Record and instructions on displaying or printing the Cow Record Report.)

In preparation for creating cow records, refer to the “Cow Number and ID Tag Number Recording Form” that you were instructed to fill out if you placed ID tags around cows’ necks or whatever means you used to document cow numbers, as these numbers are the initial data to be entered for each record. Note that cow numbers appear under the column heading abbreviation NUMB in the reports listed for the abbreviation in Appendix PC.

#### Group Entry Mode

To create cow records using Group Entry mode, enter the command:

```
1 9 * #
```

The 2045 will enter Group Entry mode and respond with the prompt ‘NUMB E=’. At the prompt, type in a cow number (1-9999), then press the ENTER key. Continue typing in cow numbers and pressing ENTER until all assigned cow numbers have been entered. If your

#### Reminder

- Cow numbers appear under NUMB in reports.

#### Examples:

The following entries (for command 19\*#) would create records for cow numbers 1-3 in the 2045.

```
E=1  
E=2  
E=3  
E=
```

The following entries (for command 19\*#) would create records for cow numbers 1-3 and assign each cow to lot number 1.

```
E=1*1  
E=2*1  
E=3*1  
E=
```

dairy farm has more than one lot, cows will be located specifically in one lot or another, and you want to assign lot numbers to the cows as you enter numbers, you can type in a cow number, an asterisk (\*), a lot number (1-99), and then press the ENTER key. (See examples.)

To exit this mode, press the Escape key (as necessary).

#### Menu Mode

To create cow records through Menu mode, use this procedure:

**S**  
\*\* Agri-comp 2045 System \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**D**  
\*\*\* Agri-comp 2045 Setup Data \*\*\*  
A - Add Cows  
D - Delete Cows  
E - Edit Cow Record  
V - View Cow Record  
P - Print Cow Record  
W - Write Backup Disk  
**A**

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the D key to display the Setup Data menu.**
- 3. Press the A key.**  
The 2045 will enter Group Entry mode and respond with an 'NUMB E=' prompt.
- 4. Enter cow numbers or cow numbers with lot numbers, as explained for the above Command mode.**

To exit this mode, press the Escape key (as necessary).

Note that any attempt to reenter a previously accepted cow number will result in a Command Error message, which will then require that you reenter the above command.

## 2.2 Assigning User-Defined Parameter Codes to Cows

In addition to the standard 2045 parameter codes that are listed in Appendix PC and have predetermined meanings, you can define and assign up to eight user-defined parameter (UDP) codes to cows in your herd. Data for these codes will not be used in 2045 calculations but will appear under the headings USR1, USR2, USR3, USR4, USR5 (USR6, USR7, and USR8 can be added to the Cow Record) in one standard report—the Cow Record—and in any user-defined reports for which you specify a UDP code. Additionally, UDP codes can be used to sort data (see Appendix US) and also to limit data in user-defined reports (see subsection 1.9.1 of this chapter).

# System Basics

Before assigning a user-defined parameter code to a cow, you must first assign a purpose to the code you will be using and establish meanings for the values you'll assign. The eight numbers designated for UDP codes are 81-87 and 89 (assigned respectively to headings USR1-USR8). You may assign any value 0-255 for UDP codes 1-5, a value of 0 to 65535 for codes 6 and 7, and values up to 999999 for code 8.

## Note

To conserve space in the cow record, USR6 shares the same memory space as USR1 and USR2, while USR7 shares the space of USR3 and USR4. USR8 shares the space of USR1, USR2, USR3, USR4, USR6, and USR7. Thus, you cannot use the overlapping user codes at the same time.

## Single Entry Mode

To assign a UDP code to a cow using Single Entry Mode, enter one of the following commands, specifying the cow number that you want the parameter code assigned to and the parameter value you want to assign the cow:

<b>8 1 *</b> (cow number) * (0-255) #	to assign a UDP value for USR1
<b>8 2 *</b> (cow number) * (0-255) #	to assign a UDP value for USR2
<b>8 3 *</b> (cow number) * (0-255) #	to assign a UDP value for USR3
<b>8 4 *</b> (cow number) * (0-255) #	to assign a UDP value for USR4
<b>8 5 *</b> (cow number) * (0-255) #	to assign a UDP value for USR5
<b>8 6 *</b> (cow number) * (0-65535) #	to assign a UDP value for USR6
<b>8 7 *</b> (cow number) * (0-65535) #	to assign a UDP value for USR7
<b>8 9 *</b> (cow number) * (0-999999) #	to assign a UDP value for USR8

## Prompt Entry Mode

To enter, change, or review the UDP assignments using Prompt Entry mode, you may first use the Sort command (explained in Appendix US) to arrange data in the order you desire. Then, you can either enter the following command, specifying a number 81-87 or 89 in place of the words “(UDP code),” allowing cow numbers to appear in order of the most recent sort, and then the values you desire:

**1 6 \*** (UDP code) #

You can enter values starting with any cow number by including an asterisk and the particular cow number as a third data field (between the UDP code and #) in the command. Cow numbers will still appear

## Examples:

- To assign UDP code 81 (USR1) and value 3 to cow 2, you would enter the command `81*2*3#`
- To assign UDP code 84 (USR4) and value 1 to cow 3, you would enter the command `81*3*1#`

## Reminder

To sort first, you would enter  
`4*(parm code)# ...or`  
`4*(parm code)*(parm code)#`

## Examples:

- To assign values to cows for UDP code 81, you would enter `16*81#`
- To assign them starting with cow number 3, you would enter `16*81*3#`

in the order of the most recent sort; however, starting with a particular cow number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

P: cow number : current value =

*Example:*

If you enter 16\*81# and cow #1 is the first to appear, having a previously assigned UDP code value of 0, the 2045 would respond with:

USR1 P: 1: 0=

The following entries would assign UDP code values of 0, 3, and 1 to cows 1-3, respectively:

USR1 P: 1: 0=0

USR1 P: 2: 0=3

USR1 P: 3: 0=1

USR1 P: 4: 0=

The “P” indicates Prompt Entry mode, the words “cow number” represent the number of the cow you’ll be assigning a value to, and the words “current value” represent the value currently assigned that cow number for that UDP code.

Type in a new value that you want to assign to that cow number and press the ENTER key, or just press ENTER to accept the current value, and proceed to the next cow number.

To exit this mode, press the Escape key (as necessary).

### Group Entry Mode

To assign UDP codes and values to cows using Group Entry mode, enter one of the following commands:

<b>8 1 * #</b>	to assign a UDP value to cows for USR1
<b>8 2 * #</b>	to assign a UDP value to cows for USR2
<b>8 3 * #</b>	to assign a UDP value to cows for USR3
<b>8 4 * #</b>	to assign a UDP value to cows for USR4
<b>8 5 * #</b>	to assign a UDP value to cows for USR5
<b>8 6 * #</b>	to assign a UDP value to cows for USR6
<b>8 7 * #</b>	to assign a UDP value to cows for USR7
<b>8 9 * #</b>	to assign a UDP value to cows for USR8

*Example:*

The following entries (for command 81\*#) would assign the same cow number and value combinations used in the Prompt Entry example above; however, as you can see, Group Entry allows the user to determine the cow number entry order.

NUMB.USR1 E=3\*1

NUMB.USR1 E=1\*0

NUMB.USR1 E=2\*3

NUMB.USR1 E=

The 2045 will enter Group Entry mode and respond with an ‘E=’ prompt. At the prompt, type in a cow number, an asterisk (\*), the parameter value you want assigned, and press the ENTER key. Repeat this entry process for each cow you want to assign a value to for the parameter you’ve specified.

To exit this mode, press the Escape key (as necessary).

# System Basics

## 2.3 Editing a Cow Record

Although the Single, Prompt, and Group Entry modes, explained earlier in this section, are available specifically for entering and changing user-defined parameter (UDP) codes on an individual parameter basis, codes for those same parameters can also be assigned or changed in an existing cow record through the Edit Cow Record menu item of the System menu hierarchy. The advantage of entering data by editing a cow record is that you can see and change any or all UDP codes at once.

To enter or change UDP codes in a cow record through Menu mode, use the following procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the D key to display the Setup Data menu.**
- 3. Press the E key to edit a cow record.**  
The 2045 will respond with a prompt, asking you if you want to sort cows first.
- 4. Respond to the prompt by pressing the Y or N key.**  
If you press the N key, the 2045 will ask for the starting cow number, and you may proceed to step 5.

If you press the Y key, you will be asked for a primary sort key and a secondary sort key. Refer to the parameter codes listed in Appendix PC or press the question mark (?) key to have the 2045 display a list of valid parameter codes at the terminal, and enter the codes you wish to have data arranged by. (Refer to Appendix US for details on entering Sort commands.) The 2045 will pause briefly to perform the sort. After it has completed the sort, the 2045 will ask for the starting cow number.

- 5. Enter the number of the first cow whose data you wish to change, or press ENTER to start with the first cow of the most recent sort.**  
The screen will display the cow's current cow number and value for user-defined parameter code 1 (in parentheses) following their parameter name abbreviations. (Refer to Appendix PC for a list of parameter codes and name abbreviations.) The remaining user-defined parameters and their values will be displayed as you advance through the record (as explained below). A typical display is shown.

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

### S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### D

\*\*\* Agri-comp 2045 Setup Data \*\*\*

A - Add Cows

D - Delete Cows

E - Edit Cow Record

V - View Cow Record

P - Print Cow Record

W - Write Backup Disk

### E

NUMB ( 2 ) :

USR1 ( 3 ) :

USR2 ( 0 ) :

USR3 ( 0 ) :

USR4 ( 0 ) :

USR5 ( 0 ) :

You can change any of the currently assigned values in a record (except the cow number) by entering the new value at the colon (:). To skip past certain data, accepting the current value, press the ENTER key. To skip backward one parameter, such as from USR3 to USR2, press the left bracket ( [ ) or left brace ( { ) key. If you make a mistake while entering a value, before you press ENTER, use the Backspace key to erase incorrect digits, then retype the value. If you try to enter an invalid value, you will be alerted with an error beep. The 2045 will ignore the attempted change and continue to show the original value.

Whenever you press the ENTER key to accept the last parameter value listed in a cow record, the 2045 will display the next cow's data. Records for all cows with cow numbers in memory will be displayed, and data can be changed in the same manner explained above. The cow records will appear in the order of the most recent sort of the data. That is, if you last sorted the data by Production Average (AVG), the cow records will appear in increasing average production sequence. You can also proceed immediately to the next cow record (from any point within a record) by pressing the plus (+) or equal (=) key. To skip backward and repeat a previous cow record, press the minus (-) key.

To exit the editing process without affecting all cow records, press the Escape key.

### 2.3.1 Changing The System Edit Parameter List

The list of cow parameters to be edited can be changed to include only those parameters that you want to edit, in the order that you want to edit them. To edit the parameter list, enter the command:

```
1 6 * 1 9 * 5 #
```

The 2045 will enter Prompt Mode and allow you to review and change the System Edit Parameter list. Each field in the current list will be displayed with the four letter abbreviation (see Appendix PC), a "P:" to indicate prompt mode, the current field number (you can have up to 109 fields in the list), the current parameter code number, and end with a question mark (?). To leave the code as it is, just press the ENTER key. To change to a different parameter code, just type in the new code number. To insert a blank space, enter code 999. To delete a code, press the minus key (-). To insert a new code between two codes, press the plus key (+). To see a list of all possible codes, press the question mark key (?). To end the list, enter a code number 0, then press the Escape key.

# System Basics

To restore the default System Edit Parameter list, enter the command:

**8 \* 1 9 \* 5 #**

## 2.4 Entering Average Daily Production Weights Manually

An average milk production weight can be manually entered into the 2045 for each cow each day by a dairyman who does not have the Milking program installed in the system. The average weights, whether entered manually or calculated automatically by the 2045 from the individual milkings of a day if the Milking program is installed, appear under the column heading abbreviation AVG in the reports listed for the abbreviation in Appendix PC and are used by the 2045 in calculations for production averages of all cows listed in a particular report—the results of which appear in the summary at the end of most reports—and for milk income (IN \$), income over feed cost (IOFC), and profit figures. (Refer to Section 3 for more details on how the average milk production weights and related summary figures apply to reports.)

Any weight from 0 to 255 pounds (or kg) can be assigned or changed by the user in whole weights at any time. Thus, a weight of 90 pounds (lb) would be entered as 90, but a weight of 90.5 lb would have to be rounded up to 91 or down to 90. Keep in mind that the purpose of this feature is to provide you with report data showing the *average* production of cows each day. Therefore, you should not double or triple (depending on the number of milkings per day) the weight of one milking of the day; rather, you should note the production weight for each cow during each milking of each day and add separately the weights for each cow to obtain the average production weight.

When you enter a weight, the 2045 stores and applies that weight each day in calculations until you enter a different weight. Thus, if you enter a weight of 90 lb one day and do not enter a new weight for a week even though the actual average may be more or less than 90 lb the other six days, the calculations for those seven days will be based on a 90-pound average daily production weight. (Understandably, then, the more often you enter weights, the more accurate the calculations will be.) With manually entered weights, the calculations

### Reminder

- Average daily production data appear under AVG in reports.
- Milk income data appear under IN \$ in reports.
- Income over feed cost data appear under IOFC in reports.

### *Example:*

To determine an average daily milk weight for a cow, say you have a cow that is milked twice a day, and, during one day, she produced the following weights:

Milking 1 (MKG1) 49 lb  
Milking 2 (MKG2) 41 lb

You would add the weights of each milking together ( $49 + 41 = 90$ ), to obtain the average daily production weight (that of 90).

that use the daily production average occur each midnight, whereas automatic calculations, for those users having the Milking program installed, occur after each milking of a particular cow (that is, when her cow record closes).

The average daily production weights can be entered either through Single Entry Mode at the terminal (explained in this subsection) or through Menu mode editing of cow records through the Feeding program (explained in Chapter 5, Section 2).

### Single Entry Mode

To assign the average daily milk production weight for a cow using Single Entry Mode, enter one of the following commands, specifying a cow number for the second field of data (in place of the words “cow nmbr”) and a milk weight for the third field of data (in place of the words “mlk wgt”) that falls within the range noted earlier in this subsection:

#### *Example:*

To assign an average weight of 90 pounds to cow number 123, you would enter 7\*123\*90#.

**7 \* (cow nmbr) \* (mlk wgt) #** to assign weight at terminal  
**2 4 \* (cow nmbr) \* (mlk wgt) #** alternate method

### Prompt Entry Mode

To assign, change, or review the average daily milk production weights for cows using Prompt Entry mode, you may first use the Sort command (explained in Appendix US) to arrange cow data in the order you desire. Then, you can either enter the following command, allowing cow numbers to appear in order of the most recent sort, and then the weights you desire:

**1 6 \* 7 #**

You can enter weights starting with any cow number by including an asterisk and the particular cow number as a third data field (between 7 and #) in the command. Cow numbers will still appear in the order of the most recent sort; however, starting with a particular cow number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

# System Basics

The 2045 will enter Prompt Entry mode and respond with:

AVG P: *cow number* : *current value* =

The “P” indicates Prompt Entry mode, the words “cow number” represent the number of the cow that you’ll be assigning a value to, and the words “current value” represent the milk weight average currently assigned that cow.

Type in a new value that you want to assign to that cow number and press the ENTER key, or just press ENTER to accept the current value, and proceed to the next cow number.

## Group Entry Mode

To assign, change, or review the average daily milk production weight for cows using Group Entry mode, enter the following command:

**7 \* #**

The 2045 will enter Group Entry mode and respond with the prompt ‘NUMB.AVG E=’. At the prompt, type in a cow number, an asterisk (\*), the parameter value you want assigned, and press the ENTER key. Repeat this entry process for each cow you want to assign a value to for the parameter you’ve specified. (See example.)

To exit this mode, press the Escape key (as necessary).

## 2.5 Deleting a Cow Record

When you remove a cow from the herd, you can and should delete its cow record from the 2045’s memory, so reports need only include data for cows that actually exist in the herd. Note that when you delete a cow record (upon entry of the ‘delete’ command or menu letter), the 2045 requires you to confirm the deletion by entering the cow number twice, then executes the deletion immediately. Once you’ve deleted a record, you cannot recover (undelete) it, so use extreme care in deleting records. Note also that a final Cow Record Report of the cow you’re removing will automatically display or print (depending on the 2045 and printer setup) when you delete a cow record. Thus, if you

## Reminder

To sort first, you would enter  
4\*(parm code)#...or  
4\*(parm code)\*(parm code)#

## Examples:

- To assign weights to cows, you would enter 16\*7#
- To assign them starting with cow number 123, you would enter 16\*7\*123#

## Example:

If you enter 16\*7# and cow #1 is the first to appear, having a previously assigned AVG value of 85, the 2045 would respond with:

AVG P: 1: 85=

The following entries would assign milk weight values 90, 87, and 96 pounds each to cows 1-3, respectively:

AVG P: 1: 85=**90**

AVG P: 2: 90=**87**

AVG P: 3: 98=**96**

AVG P: 4: 83=

## Example:

The following entries (for command 7\*#) would assign the same cow number and value combinations used in the Prompt Entry example above; however, as you can see, Group Entry allows the user to determine the cow number entry order.

NUMB.AVG E=**3\*96**

NUMB.AVG E=**1\*90**

NUMB.AVG E=**2\*87**

NUMB.AVG E=

## Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

## Example:

To delete the cow record for cow #1, you would enter 19\*1\*1#

wish to keep a final report of the cow for your cow record archives, ensure that the 2045 and printer are set up properly (as explained in Section 3) before deleting its record.

## Command Mode

To delete a cow record using Command mode, enter the following command, specifying the cow number (from 0-9999) of the cow you're removing in place of the words "(cow number)" in the command:

**1 9 \* (cow number)\* (cow number) #**

Note that the C-level software did not require the double entry of the cow number for confirmation.

## Menu Mode

To delete a cow record through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the D key to display the Setup Data menu.**
- 3. Press the D key to delete a cow record.**  
The 2045 will enter Prompt Entry mode and respond with a 'Cow Number:' prompt.
- 4. Type the number of the cow (0-9999) whose record you want to delete and press the ENTER key.**
- 5. Type the number of the cow to be deleted again to confirm the delete.**  
The printer or terminal will respond as described above. Then, the 2045 will delete the record and respond with another 'Cow Number:' prompt. Repeat this step for each cow record you want to delete.

To exit this mode, press the Escape key (as necessary).

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## D

\*\*\* Agri-comp 2045 Setup Data \*\*\*

A - Add Cows

D - Delete Cows

E - Edit Cow Record

V - View Cow Record

P - Print Cow Record

W - Write Backup Disk

## D

If the cow number entered exists in the 2045's memory, the printer (if properly set up) will respond by printing that cow's individual cow record or the terminal will display the record. Then, the 2045 will delete the cow record. Any attempt to delete a cow number that is not stored in the 2045 will result in a Command Error message and beep.

# System Basics

## 2.6 Writing a Backup Disk—Backing up Data

As you learned in reading Chapter 3, the Agri-comp 2045 automatically writes a copy of the most current system and cow data, to the system disk in the disk drive at least once a day—after each milking if the Milking program is installed. This frequent, automatic backup of data is a safeguard against loss of data, should the 2045 experience a power failure, because the 2045 will automatically reload the data and software from the ‘backup’ system disk when power is reapplied.

Note that the dairyman is responsible for ensuring that a system disk is in the 2045 disk drive at all times and that the two system disks are alternated on a regular basis—at least once a week. Also note that reloaded data will only be as current as the most recent backup. Thus, if an extended power failure should occur two hours after the last backup, any data you may have entered or the 2045 may have calculated and updated reports with will be lost and nonrecoverable. To prevent this loss, in addition to the backups performed automatically by the 2045, we recommend that you manually back up data to the system disk after any change in system or herd data (such as parameter changes for feed rations, reproductive status codes, etc.).

### Note

- Only system disks that are specially formatted and prepared by Bou-Matic can be used as backup disks for the 2045.
- As it reads a backup disk, the 2045 erases all system and cow data (but not programs) currently in memory, even if the read is unsuccessful. We strongly urge you to back up data frequently, so that in the event that the 2045 loses power and later tries but is unsuccessful at reading the system disk, the alternate system disk will have fairly recent data.

You can write a backup disk manually at any time; however, we recommend that you *not* write to disk during a milking, because the backup function will interfere with the transmission of milk weight data being sent from the detachers to the 2045, which may result in the unrecoverable loss of some milk weights. Upon entry of the ‘write’ command or menu letter, the 2045 will immediately begin writing program software and system data to the system disk. Then, it will begin writing cow data, displaying the cow number of each cow record as it copies the record. When the 2045 responds with 15: 25: 0, the backup is complete and successful. If the 2045 alerts you with

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

### Note

Battery life is about 6 to 10 hours.

a Command Error message and an error beep, the backup is unsuccessful and should be tried again.

#### Command Mode

To manually write cow data to a 'backup' system disk using Command mode, enter the command:

**1 5 \* 2 5 #**

#### Menu Mode

To write cow data to a 'backup' system disk through Menu mode, use the following procedure:

#### S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

#### D

\*\*\* Agri-comp 2045 Setup Data \*\*\*

A - Add Cows

D - Delete Cows

E - Edit Cow Record

V - View Cow Record

P - Print Cow Record

W - Write Backup Disk

#### W

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the D key to display the Setup Data menu.**
- 3. Press the W key.**  
The 2045 will write to the system disk, as explained above, and redisplay the Setup Data menu when the disk write is complete.

## 2.7 Reading a Backup Disk

Although the 2045 will automatically reload program software, system data, and cow data from the 'backup' system disk when power is reapplied following a power failure, you may have other reasons for reading (recovering) data from a system disk—for instance, to recover data from records that you inadvertently changed or deleted.

#### Note

As it reads a backup disk, the 2045 erases all system and cow data currently in memory, even if the read is unsuccessful. Because this is so, we encourage you to enter data carefully and refrain from reading data from backup disks if possible.

You can read a backup disk at any time; however, since the 2045 erases all system and cow data currently in memory as it reads a backup disk, we recommend that you *not* read a disk during a milking. In the event that you do read data during a milking, only those milk weights received after the read is complete will be recorded in the 2045—all other milk weights will be lost and unrecoverable.

# System Basics

Backup disks can be read only through Command mode, using the following command:

```
15*9173#
```

The terminal displays each cow number as the 2045 reads its record from the backup disk. After the last cow number is displayed, the main menu will appear to indicate that the reloading of data is complete.

### Caution

Depending on the time of day that the data was backed up and the time of day it was reloaded, cows may not receive the correct amount of feed ration for the day a backup disk is reloaded.

Whenever you reload data from a backup disk, depending on when you last changed backup disks, the milking number on disk may not agree with your actual milking of the day. Before beginning a milking, you should check and, if necessary, change the milking number as explained in Chapter 8. While you could just reset the milking number (after reloading data) if it does not correspond with your actual milking, unless the current milking number of the backup data is set to 0 (for the first milking of the day), we recommend that you enter the manual end-of-day command (explained in Chapter 8) and then reset the milking number so that when you review the current day's data you will not confuse it with data from the previous week.

If it becomes necessary to reload the 2045 cow data from a 'backup' system disk, you will need to increment the days-in-milk (DIM) and days-since-bred (DBRD) values for all cows, which will be low by the number of days since the backup was made, according to the instructions in Chapter 7.

Things to consider when reloading data include

- Set current time
- Set current date
- Review Milking #

## 3 System Reports

This section includes instructions on displaying and printing various System reports and enabling other 2045 reports to include certain activity data. Due to the great amount of explanation (covering the purpose of each report, the data printed in each report, whether the report may be sorted, and suggestions on how the report may be generated), reports covered in this section are explained on an individual (per subsection) basis. (Due to the limitation of space in this manual, data shown in the example reports reflects a 20-animal herd.) For further explanation of the abbreviations used in the reports, refer to Appendix PC.

Four system reports are available through the Agri-comp 2045:

- System Setup Summary
- Cow Record Report
- Income/Cost Report
- User-Defined Reports

### Parts of a Report

Most System reports (and, in fact, most Agri-comp 2045 reports) consist of a report heading, a body, and a summary. A general explanation of these 'parts of a report' is provided here for all 2045 reports, since the same explanations apply to all reports with one or more of these parts.

### Heading

```
=====
      Example Farm
      MLKG NO. IS 2
           3 JAN 93
           12:46 AM
-----
      AGRICOMP 2045
      EXAMPLE REPORT
-----
N   N   N   N   N   N
A   A   A   A   A   A
M   M   M   M   M   M
E   E   E   E   E   E
```

The heading (top portion) consists of the dairy farm's name (if entered into the 2045), the number of the milking during which the data was obtained, the current date and time at which the report was printed, the name "Agri-comp 2045" and the report name, and column headings that pertain to the particular report. (The column headings, which vary for each report, are abbreviated parameter names, all of which can be found in Appendix PC.) A typical example is shown with the word "NAME" representing the parameter names.

The body (middle portion or, in some cases, the only portion of a report) consists of columns of specific cow- or system-related data that, in most reports, appear under corresponding column headings.

# System Basics

Due to the vast differences in report bodies, examples will be shown and the specific data provided by each report will be discussed in the individual report subsections which follow.

The summary (bottom portion) contains, at the very least, certain milking and reproductive figures automatically calculated by the 2045 for those cows listed in the report and others calculated for the entire herd. (Figures may vary from report to report, since the data used in the 2045's calculations will be different depending on which cows' data is used, the number of cows listed in the report, and their status at the time the report is displayed or printed.) Other data may be included in the summary, depending on functions or modes set at the time the report is displayed or printed. A typical example of the summary is also shown. A detailed explanation of each summary item is provided here for all 2045 reports that include a summary.

## Summary

```
-----  
No. of Cows = 20  
Totals:  
  Prod Today      814  
  Prod Avg        810  
  Avg Time        80  
Averages:  
  Prod Today = 40.7  
  Prod Avg   = 40.5  
  Avg Time   = 4.0  
Avg Days Open= 108.7  
Avg Days Preg= 152.7  
Average DIM  = 183.7  
Day Number   = 1
```

### No. of Cows

The number of cows printed in the report.

### Lot Number and/or Select Code

If the Active Lot command (15\*30) or the Selection Code command (15\*900) have been used to limited the number of cows on the report, the lot number or selection code will be printed here. If these values are zero, the respective line will not appear.

### Totals:

#### Prod Today

The total amount of milk produced (in pounds or kilograms) by all cows listed from milkings completed at the time of the day the report is printed.

#### Prod Avg

The total of all milk production averages (AVG), for all cows listed, over the period of time determined by the average interval (AVGINT).

#### Avg Time

The total of all milking time averages (ATVM) in minutes for all cows listed, over the period of time determined by the AVGINT.

### Averages:

#### Prod Today

The average of the Total Prod Today listed above (Total Prod Today ÷ number of cows listed).

#### Prod Avg

The average of the Total Prod Avg listed above (Total Prod Avg ÷ number of cows listed).

#### Avg Time

The average of the Total Avg Time listed above, in minutes (Total Avg Time ÷ number of cows listed).

Report examples use a hypothetical 20-cow herd (for simplicity), but employ settings and situations more typical of an 80- to 100-cow herd (for realistic use of the 2045). Also, for the sake of simplicity (though unrealistic), examples will indicate that cows were first bred when their DIM value was equal to the RTB setting of 45 days, and all breeding was successful the first time unless otherwise noted.

Because calculations for the next three summary items use days-in-milk (DIM), ready-to-breed (RTB), and days-since-bred (DBRD) values, unless values are entered and automatically updated through an installed and active Reproduction program or manually updated each day by a dairyman who does not have the Reproduction program, the figures will be zero. You can manually enter and update values for DIM and DBRD through Single Entry Mode (explained in Chapter 7, Section 2).

### **Avg Days Open**

The average number of days-in-milk (DIM) for all lactating cows (no heifers or dry cows) listed whose DIM values are greater than the ready-to-breed (RTB) setting. (For instance, if RTB is 45 days and three cows in the report have DIM values greater than RTB—that of values 50, 65, and 70—the 2045 would calculate  $50+65+70 = 185$ , then  $185 \div 3$  for a figure of 61.7.)

### **Avg Days Preg**

The average number of days-since-bred (DBRD) for all pregnant cows and heifers listed with RPRO codes equal to 6, 8, or 9. (For instance, if the report lists three pregnant cows having DBRD values of 25, 115, and 267, the 2045 would calculate  $25+166+267 = 458$ , then  $458 \div 3$  for a figure of 152.7.)

### **Average DIM**

The average number of days-in-milk (DIM) for all cows listed with RPRO codes of 0-6. (Heifers and dry cows are not included.)

### **Day Number (Report Day Number)**

The number of the day whose data for certain parameters is printed in the body of the report and is used to calculate the Prod Today value. If the report day number (explained in Section 1 of this chapter) is set for today (day 0), this item will not appear at the bottom of the summary, and all totals shown in the report will reflect the current day's production. If the report day number is set for any day other than today, the number of the day set will appear (as indicated by day 1 in the summary example) and the figures for Total and Average for the Prod Today will be calculated for the day specified.

# System Basics

## Preparation for Displaying/Printing Reports

Several settings can affect the way reports are displayed or printed. To ensure that you will obtain the correct data in a report, before displaying or printing the report, check the 2045 and/or printer for proper setup, as suggested in the following lists. (Instructions for most of the listed items are covered in this chapter.)

Before displaying reports, check the 2045 for proper setup, ensuring

- that Transparent Print mode is set appropriately (disable for displaying, enable for printing),
- that Page mode is set to your liking (as explained in Section 1),
- that the Report Day Number is set appropriately,
- that the Active Lot and Selection Code are set appropriately,
- that all other parameter assignments that would affect data you want to see in your report are set.

If you wish to print the reports, in addition to checking the above setup items, also ensure that

- the printer is connected to the terminal (or 2045), plugged into an AC wall outlet, turned on and on-line and that it has a sufficient amount of paper.
- the end-of-line delay is set (if necessary).

While the order in which report headings and columns of data appear cannot be changed, the order in which rows of data appear in the body of most reports can be arranged in several ways with the execution of a Sort command. Most standard System reports have a Sort command built into them. If you will want data in a report to be arranged according to a particular cow-related parameter(s), listed in Appendix PC, and in increasing or decreasing order, before displaying or printing the report, enter the appropriate Sort command (as explained in Appendix US). Data will appear in the order determined by the most recent sort.

### Note:

Adding or deleting a cow record will automatically force a sort in increasing cow number order.

The 2045 offers you several peripheral-control options for continuing, pausing, and exiting reports as they display or print. A quick-reference reminder is provided here for your convenience.

### Reminder

- If Page mode is enabled, report is displaying, and prompt to press Spacebar appears, press Spacebar to continue or press ESC to exit report. If no action within 5 minutes, the Agri-comp will automatically exit report.
- If Page mode is disabled and report is displaying, you can pause report any time by pressing Ctrl and S, then press Spacebar to continue or press ESC to exit report. If no action within 3 minutes after pause, the 2045 will automatically continue report.
- If report is printing, you can stop and exit it any time by pressing ESC. If printer has buffer, it will print until buffer becomes empty.

## 3.1 Displaying/Printing the Cow Record Report

The Cow Record report lists all data stored in the 2045 that is specific to each cow number in memory (such as feeding, reproductive, and milking data). Note that only data pertaining to the program(s) installed in the 2045 will appear in the report. Thus, if the Activity program is not installed, line 4 would not appear in the report; if the Milking program is not installed, lines 7-15 would not appear in the report; and if the Feeding program is not installed, lines 16-21 would not appear in the report. Note also that all data presented in the report will be current for the date and time at which the report was obtained except for those parameters controlled by a report day number (appearing in the upper, right corner of the report and explained in subsection 1.12 of this chapter) greater than zero. The following is a list of those parameters whose data will reflect that collected on the day specified by the report day number: MLK1, MLK2, MLK3, PROD, DEV1, DEV2, DEV3, DEV, TIM1, TIM2, TIM3, TOD1, TOD2, TOD3, ST 1, ST 2, ST 3, %UFD, VSTS. You can also redefine the entire cow record to contain any data you prefer; see section 3.1.1 for an explanation of how this is performed.

If you will want data to be arranged according to a particular cow-related parameter(s), listed in Appendix PC, and in increasing or decreasing order, before displaying or printing the report, enter the appropriate Sort command (as explained in Appendix US). Data will appear in the order determined by the most recent sort.

You should print this report immediately after you initially enter values for cow parameters and after any future value updates and keep it on file for future reference.

### Command Mode

To generate a cow record using Command mode, enter one of the following commands, specifying a cow number in place of the words “(cow number)”:

(cow number) #	displays/prints Cow Record for individual cow
<b>1 8 * 1 9 * 1 #</b>	displays/prints Cow Records for entire herd in order of the most recent sort
<b>1 8 * 1 9 * (cow number) #</b>	displays/prints Cow Records for entire herd, starting with cow number specified
+ (plus key)	display the report for the next cow (in the order determined by the most recent sort command)
- (minus key)	display the report for the previous cow

# System Basics

## Menu Mode

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the D key to display the Setup Data menu.**
3. **Press the V key to view/display a cow record or the P key to print the cow record.**

The 2045 will respond with a 'Cow Number:' prompt. At the prompt, type the number of the cow whose record you want and press ENTER.

To exit this mode, press the Escape key (as necessary).

This record also prints automatically whenever you update a cow record with a DIM value of 0 (to freshen a cow) or RPRO code 9 (to dry off a cow) or when you delete a cow record, provided the 2045 and printer are set up properly.

The example report shown below was printed with the command 1#. Note that the current day's data was printed in the cow record (as indicated by the 0:DAY data in the first row, last column of data).

1:NUMB	39682:CIDN	1:LOT	0:BRD	0:DAY
0:USR1	0:USR2	0:USR3	0:USR4	0:USR5
1.65:BNK\$	179:FD \$	1801:I-F\$	1980:IN \$	2.98:IOFC
22.79:AVG\$	0:MCTR	35:WGT	0:ATTN	60:AVG
0:HS#	0:HS a	0:HS b	0:HS c	0:HSHa
3:RPRO	79:DIM	0:DHET	7:DBRD	792:SIRE
1:LCNO	2:BRD#	0:DDRY	0:CLVI	
23.3:MLK1	18.3:MLK2	.0:MLK3	41.6:PROD	57.0:PRD1
21:AVG1	17:AVG2	22:AVG3	60:PAVG	62.5:PRD2
2.3:DEV1	1.3:DEV2	-22.0:DEV3	3.6:DEV	67.0:PRD3
4:ATM1	4:ATM2	5:ATM3	4:AVTM	61.0:PRD4
4.0:TIM1	3.4:TIM2	.0:TIM3	4264:LACT	67.9:PRD5
0600:TOD1	1318:TOD2	0000:TOD3	0:HOLD	50.2:PRD6
-----:ST 1	-----:ST 2	-T-----:ST 3	0:RATE	60.2:PRD7
17:HELD	348:DUMP	0:MAST	51:PDIM	93:PEAK
0:A305	100:MPA%			
74:%FD1	5.0:TRTN	32:%FED	0:TRG	1:ZONE
100:%FD2	3.0:RTNA	.6:FD A	5:TRGA	2:VSTS
100:%FD3	2.0:RTNB	.4:FD B	2:TRGB	0:%UFD
0:%FD4	.0:RTNC	.0:FD C	0:TRGC	7:VST1
84:%FD5	.0:RTND	.0:FD D	0:TRGD	0:UFD1
92:%FD6	0:%FD7			

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## D

\*\*\* Agri-comp 2045 Setup Data \*\*\*

A - Add Cows

D - Delete Cows

E - Edit Cow Record

V - View Cow Record

P - Print Cow Record

W - Write Backup Disk

V or P

### 3.1.1 Changing The Cow Record

The list of cow parameters to be printed in the Cow Record can be changed to include only those parameters that you want to display, in the order that you want to display them. To edit the cow record, enter the command:

**1 6 \* 1 9 #**

The 2045 will enter Prompt Mode and allow you to review and change the Cow Record Parameter list. Each field in the current list will be displayed with the four letter abbreviation (see Appendix PC), a “P:” to indicate prompt mode, the current field number (you can have up to 109 fields in the list), the current parameter code number, and end with a question mark (?). To leave the code as it is, just press the ENTER key. To change to a different parameter code, just type in the new code number. To insert a blank space, enter code 999. To delete a code, press the minus key (-). To insert a new code between two codes, press the plus key (+). To see a list of all possible codes, press the question mark key (?). To end the list, enter a code number 0, then press the Escape key. Appendix CR contains a form that can be used to design the cow record.

#### Note

Remember that the cow record will be printed in rows of 5 columns each. the fields are presented row by row, starting with the leftmost column in each row.

To restore the Cow Record to the default format, enter the command:

**8\*19#**

# System Basics

*Note: example shown is not a complete report*

## 3.2 Displaying/Printing the System Setup Summary

The System Setup (Parameter) Summary is a quick-reference list of current settings for most Agri-comp 2045 system functions. This summary can be very useful in determining the cause of some peculiar results or problems you discover, as it identifies those parameters you've set and what setting values you've specified.

The format used to present data in this report is similar to that which you use to enter a command. For all but the first row of data, the first column of data lists the Command code number 15, the second column lists the parameter code, and the third lists the current value set in the 2045. Thus, row four (15: 6: 0, entered with the command 15\*6\*0#) means that the day number is set for day 0 (the current day) and row eighteen (15: 42: 0, entered with the command 15\*42\*0#) means that the unit of measure is set to pounds. The data in row one (2: 7: 13) identifies the detacher flow rate and takeoff delay settings. Here, two values—a flow rate of 0.7 lb/min and a takeoff delay of 13 seconds—are set at one time for parameter code 2 with the command 2\*7\*13#. (Refer to Appendix CS, "Command Summary," for the meaning and options available for each of the parameters.)

You should print this report immediately after the Agri-comp 2045 system is completely set up (and after any future parameter changes) and keep it on file for future reference.

### Command Mode

The following command can be entered to generate this report:

**1 7 \* 1 5 #** display/prints the System Setup (Parameter) Summary

### Menu Mode

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the R key to display the Setup Reports menu.**
3. **Press the P key to display or print the System Setup Summary.**

```
=====
Example Farm
MLKG NO. IS 2
1 JAN 93
12:46 AM
-----
AGRICOMP 2045
SYSTEM SETUP
-----
2: 7: 13
15: 4: 7
15: 5: 1
15: 6: 0
15: 7: 6
15: 8: 2
15: 12: 45
15: 13: 45
15: 14: 220
15: 15: 265
15: 17: 0
15: 19: 0
15: 20: 0
15: 22: 0
15: 30: 0
15: 38: 4
15: 39: 0
15: 40: 0
15: 41: 0
15: 42: 0
15: 43: 0
15: 44: 0
15: 45: 0
15: 46: 0
15: 48: 1
15: 49: 1
15: 50: 2
15: 51: 0
15: 52: 0
15: 53: 0
15: 54: 40
15: 55: 10
15: 56: 1
15: 57: 1
15: 58: 1
15: 59: 0
15: 78: 20
15: 79: 40
15: 98: 100
15: 99:10.60
.
.
.
```

# System Basics

```

=====
Example Farm
MLKG NO. IS 2
  1 JAN 93
  6:15 PM
-----
AGRICOMP 2045
INCOME REPORT
-----
  N  D  I  I  M  F  B
  U  I  O  N  P  D  N
  M  M  F  A  A  K
  B  C  $  %  $  $
-----
  1 274  ....  ....  ....  ....  ....
  2 253  ....  ....  ....  ....  ....
  3 190  ....  ....  ....  ....  ....
 19  85  ....  ....  ....  ....  ....
 25 106  ....  ....  ....  ....  ....
 49  ...  ....  ....  ....  ....  ....
 60  64  ....  ....  ....  ....  ....
 72 211  ....  ....  ....  ....  ....
 91  1  ....  ....  ....  ....  ....
123 316  ....  ....  ....  ....  ....
176 127  ....  ....  ....  ....  ....
208 148  ....  ....  ....  ....  ....
362 337  ....  ....  ....  ....  ....
435  43  ....  ....  ....  ....  ....
593 232  ....  ....  ....  ....  ....
741 295  ....  ....  ....  ....  ....
857 358  ....  ....  ....  ....  ....
974  ...  ....  ....  ....  ....  ....
1015 22  ....  ....  ....  ....  ....
1316 169  ....  ....  ....  ....  ....
=====
  20  ...  ....  ....  ....  ....  ....
-----

```

```

No. of Cows = 20
Totals:
  Prod Today  ....
  Prod Avg    ....
  Avg Time    ...
Averages:
  Prod Today = ....
  Prod Avg   ....
  Avg Time   ...
Avg Days Open= ....
Avg Days Preg= .....
Average DIM  = .....

```

The example report shown (presenting some default settings and other typical settings) was printed with the command 17\*15#.

### 3.3 Displaying/Printing the Income/Cost Report

The Income/Cost Report lists various feed costs (through computerized feeding and/or bunk feeding) and income data relative to the particular stage of each cow's current lactation. Comparing data of one cow against another can help you determine when to dry off a cow, which among them are your most cost-effective producers, and which cows should be culled. Further evaluation of this report will indicate the profitability of your herd.

You should print this report weekly or monthly and keep it on file for future reference.

Data in this report can be sorted (as explained in Appendix US) by any cow-related parameter listed in Appendix PC and will appear in the order determined by the most recent sort.

#### Command Mode

The following commands can be entered to generate this report:

- 1 8 \* 9 7 #** displays/prints the entire Income/Cost Report
- 1 0 \* 9 7 #** displays/prints the Income/Cost Report without heading and summary

#### Menu Mode

To generate this report through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the R key to display the Setup Reports menu.**
- 3. Press the I key to display or print the Income/Cost report.**  
Reports generated through the menu always contain headings and summaries.

The example report shown was printed with the command 18\*97#.

# System Basics

## 3.4 Displaying/Printing User-Defined Reports

User-defined reports are unique reports that you design to provide yourself with those facts not offered by standard reports or those offered but not arranged to best suit your needs. For a user-defined report to exist and be displayed or printed, you must first define it according to the instructions in Section 1 of this chapter.

Data in these reports can be sorted (as explained in Appendix US) by any cow-related parameter listed in Appendix PC and will appear in the order determined by the most recent sort.

If you always want a report arranged in a particular order, you can assign a predefined sort order to each report. You can limit the report to display or print data only for those cows that you want to appear on the report by assigning a selection parameter and range to each report. You can use any cow parameter listed in Appendix PC as the selection parameter, or you can define some special Selection Criteria parameters to precisely define which cows are to be included in your report. Use of Selection Criteria are explained in detail in Appendix SC. Note that these custom features are not available in the C-level software.

### Command Mode

The following commands can be entered to generate this report:

<b>1 8 * (901-909) #</b>	displays/prints entire User-Defined Report (1-9)
<b>1 0 * (901-909) #</b>	displays/prints entire User-Defined Report (1-9) without heading and summary
<b>1 8 * (901-909) * (SP) #</b>	displays/prints User-Defined Report (1-9), limiting data to cows with SP value
<b>1 0 * (901-909) * (SP) #</b>	displays/prints User-Defined Report (1-9) without heading and summary and limiting data to cows with SP value

# System Basics

**S**  
\*\* Agri-comp 2045 System \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**R**  
\*\*\* Agri-comp 2045 Setup Reports \*\*\*  
P - Parameter Summary  
I - Income/Cost Report  
U - User Defined Reports  
T - Test Printer  
B - # of Blank Lines at End of Reports  
**U**

```
=====
      Example Farm
      MLKG NO. IS 1
           1 JAN 93
           6:23 PM
-----
      AGRICOMP 2045
      901 RATION REPORT
=====
      N   D   A   %   R   R
      U   I   V   F   T   T
      M   M   G   E   N   N
      B           D   A   B

      1 274 60 32 3.0 2.0
      2 253 .. .. ... ..
      3 190 .. .. ... ..
     19  85 .. .. ... ..
     25 106 .. .. ... ..
     49 ... .. .. ... ..
     60  64 .. .. ... ..
     72 211 .. .. ... ..
     91  1  .. .. ... ..
    123 316 .. .. ... ..
    176 127 .. .. ... ..
    208 148 .. .. ... ..
    362 337 .. .. ... ..
    435  43 .. .. ... ..
    593 232 .. .. ... ..
    741 295 .. .. ... ..
    857 358 .. .. ... ..
     974 ... .. .. ... ..
   1015  22 .. .. ... ..
   1316 169 .. .. ... ..
```

## Menu Mode

To generate this report through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the R key to display the Setup Reports menu.**
- 3. Press the U key.**  
The 2045 will respond with a 'Report Number:' prompt.
- 4. Type the numeric key (1-9) for the user-defined report you desire.**  
The 2045 will print the report requested the manner that it would for the command 18\*(901-909)#. (Note that selection parameter values cannot be specified from the menu.) Reports generated through the menu always contain headings and summaries.

To exit this mode, press the Escape key (as necessary).

The example report shown was printed with the command 18\*901#.

## 3.5 Printing Scatter Graphs

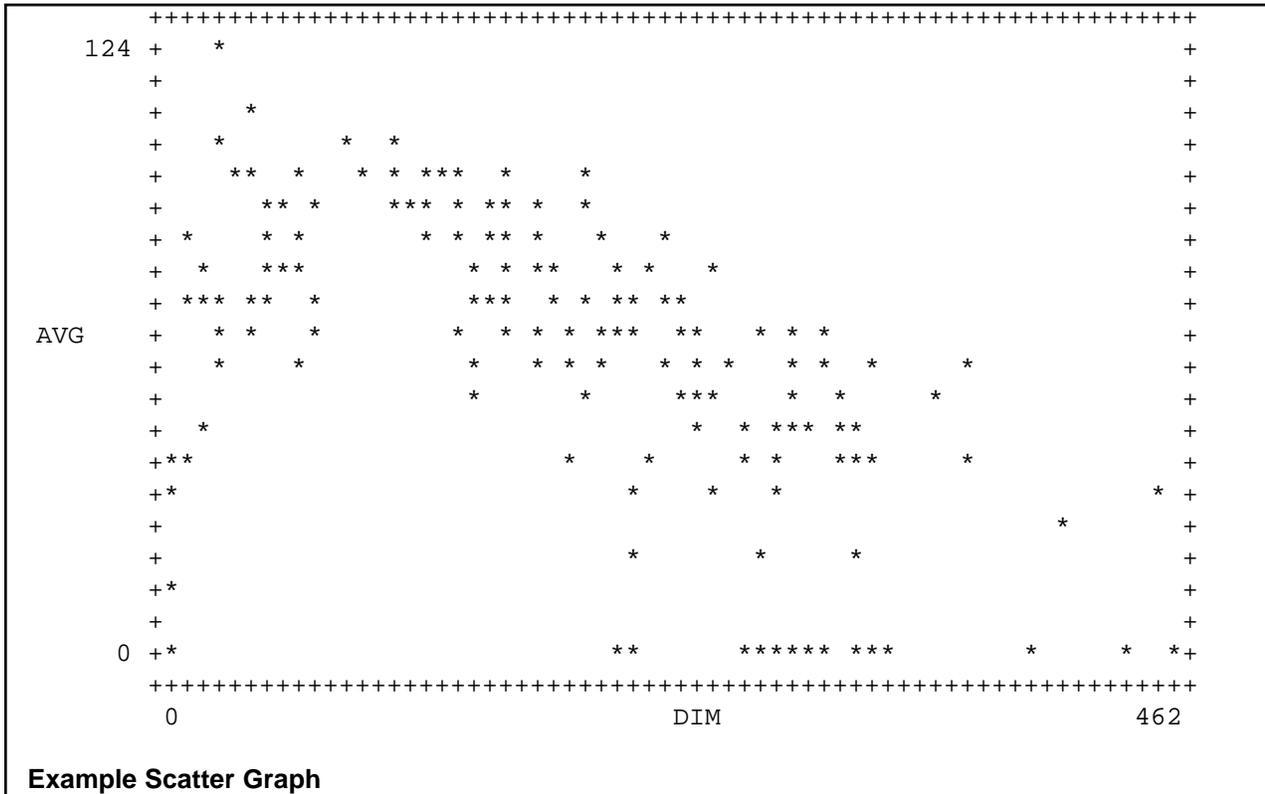
**Note:** the scatter graph feature is not available in the C-level software.

Sometimes it is helpful to compare two cow parameters graphically for a group of cows. These "scatter graphs" give a good indication of how uniform your cows are, and whether you have any cows that are really away from the norm for your herd. To display a scatter graph for your herd on any two parameters, enter the command

**11\*hhh\*vvv#**

where hhh is replaced by the cow parameter code that you want to be plotted horizontally, and vvv is replaced by the cow parameter code that you want to be plotted vertically.

# System Basics



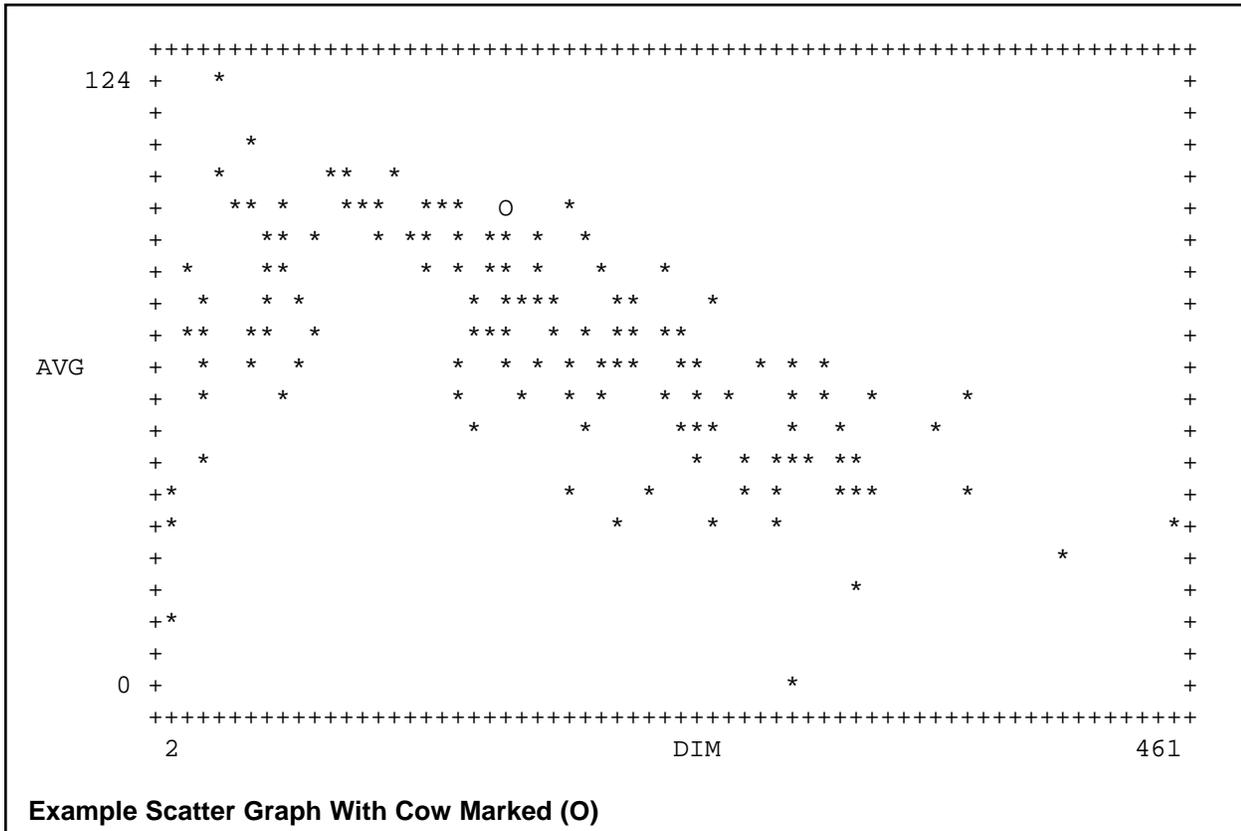
**Example Scatter Graph**

For example, the command **11\*56\*7#** would plot Days In Milk (56, DIM) horizontally versus Average Daily Production (7, AVG) vertically. The example graph on this page illustrates such a plot. The graph will be scaled automatically, with each axis labeled with the parameter code abbreviation and the minimum and maximum values for the cows in the graph. Each asterisk (\*) represents a cow. You will notice that in this herd, there are a number of cows in the 200-340 DIM range that have production averages of around zero, and that there are cows still being milked out to around 460 days.

You can control which cows are displayed on the plot with the Active Lot (15\*30\*[lot]#) and Selection Code (15\*900\*[code]#) commands. If you enter the commands 15\*30\*0# and 15\*900\*0#, the graph will include all animals in the Agri-comp memory. If you set the Active Lot to any value other than zero (0), only the cows in the specified lot will be included in the graph. If you set the selection code to any valid parameter code, only those cows that have a value for that parameter code that is not zero will be included. If you set both the Active Lot



# System Basics



**Example Scatter Graph With Cow Marked (O)**

You can also mark the location of a specific cow on the graph with the command:

**15\*911\*(cow number)#**

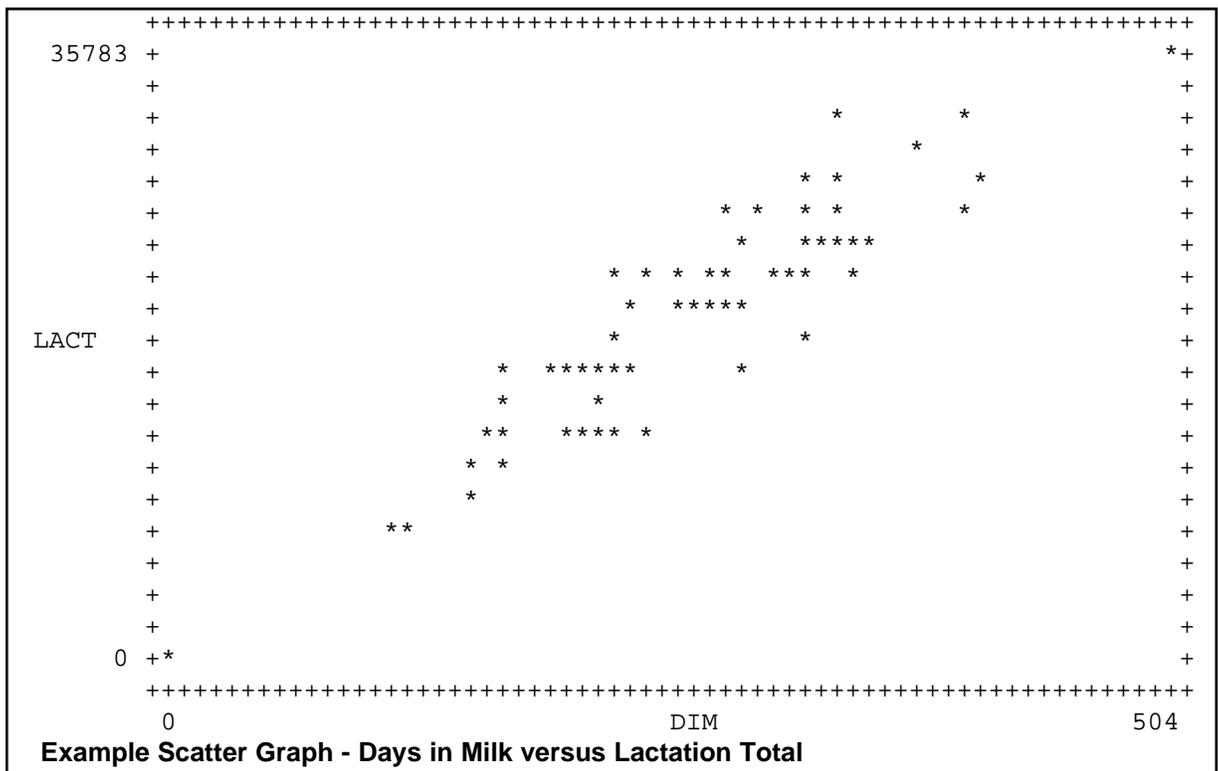
This will put an 'O' on the graph where the point for the specified cow is located. For example, for the data above, the command **15\*911\*56#** would result in the graph shown above.

Scatter graphs help you to manage your herd in two ways. They indicate trends in your data, such as the hump in the lactation curve above. They also also point out animals that are performing differently than the rest of the herd. For example, note the two cows in the graph shown that are still milking past 350 days, and the one cow that has very low production at about 285 days. These cows should be identified and checked to determine if there is some problem, or if they should be dried off or culled. An easy way to identify cows at one

# System Basics

end of the graph, like the two high DIM cows above, is to sort the cows by the variable of interest, in reverse order (4\*1056# in this case), then just press the plus key (+) to see the first cow's record. To see the cow with the low production at 285 DIM, set up a user defined report with cow number (19) and DIM (56) and AVG (7). Then assign a User Defined Selection Code to DIM between 270 and 290 plus AVG between 1 and 20, and assign this User Selection Code to the User Defined Report. When you print the report, you should see only the cows in that section of the graph on the report.

If you plot DIM (56) versus LACT (52), you should see a group of dots that spreads from the lower left to the upper right of the graph, spreading out as it moves to the right. Those cows on the high side of this graph are your better producers. Those cows that fall below the main group should be identified and checked — you might want to consider culling these cows. The graph below illustrates how this might look on a typical herd.



# System Basics

If you group your cows into lots by lactation stage, you might want to plot DIM (56) versus LOT (30) — you should see horizontal bands of cows with very little overlap. If you group your cows by production, plot AVG (7) versus LOT (30). Again, you should see bands or groups with little overlap. If you see overlap, you might want to move some cows into different lots, or check on those cows that seem to be assigned to the wrong lots.

Some useful combinations for scatter graphs are:

11*7*77#	Average production versus RPRO code
11*140*7#	Total ration versus average production
11*1*2#	Milk weight versus milking time at last milking
11*56*52#	Days in Milk versus lactation total
11*56*80#	Days in Milk versus body weight
11*56*30#	Days in Milk versus lot number
11*7*3#	Average daily milk production versus average milking time
11*56*25#	Days in Milk versus Deviation (may show cows in heat)
11*56*170#	Days in Milk versus Activity Tag status
11*56*77#	Days in Milk versus Reproductive Status
11*60*25#	Days since in Heat versus Deviation (may show cows in heat)
11*52*97#	Lactation Total versus Milk Income
11*56*96#	Lactation Total versus Lactation Profit

## 3.6 Performing the Printer Test

The Printer Test is a function you can perform to ensure that your printer starts and operates properly. The test is basically an observation you make by viewing a hard copy (paper print-out) of all the printable characters that your printer prints. The dealer should have performed this test during installation, so you may only need to perform it if you experience problems with your printer.

### Command Mode

The following command can be entered to perform this test:

**8 \* # or 8 \* 0 #**      prints entire character set

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## R

\*\*\* Agri-comp 2045 Setup Reports \*\*\*

P - Parameter Summary

I - Income/Cost Report

U - User Defined Reports

T - Test Printer

B - # of Blank Lines at End of Reports

## T

To perform the printer test through Menu mode, use this procedure:

1. **Beginning at the main menu, press the S key to display the System menu.**
2. **Press the R key to display the Setup Reports menu.**
3. **Press the T key to have the printer print characters.**

To exit this mode, press the Escape key (as necessary).

If the printer operates or prints characters in a peculiar manner and you are unable to correct the problem after following suggestion in the printer manual, consult your dealer.

### 3.7 Setting the Printer Line Feed/Form Feed

The printer line feed/form feed is a function that allows you to separate one report from another either by a few lines or by complete page breaks, depending on the printer's capabilities, to help you more readily distinguish one report from another. This function has been tested with several printers, but may not work with all printers.

Most parallel and serial printers are capable of printing one or both of the following two ways:

- Continuous style, where one line of type prints after the other, over top of page perforations (if the printer is not capable of being set to recognize and skip over them) if more than one page is required, and each report follows the previous one with no space separating them (unless you manually advance the page).
- Form-feed style, which is only different from continuous style in that the printer automatically receives and acts on a form-feed command from the 2045, which causes the last page of a report to advance so that the bottom perforation clears the printhead guard on the printer for the conveniences of reading lines of type that would otherwise be hidden below the guard and of separating the report from the paper stock.

If your printer is set up to print continuous style, you can enter a setting at the 2045 that will cause the printer to advance the paper a specific number of lines up to and including 254 lines for all reports. (The 2045 has a default setting of 10 lines.) If your printer is set up to print continuous style and form-feed style, you can enter a setting of 1-254

# System Basics

lines or you can enter a setting, specifying the number 255 (to enable the 2045 for automatic form feed), which will cause the 2045 (upon recognizing the end of a report) to send the printer a form-feed command that will cause the page to advance so that its bottom perforation clears the guard no matter how many lines remain between the last row of type and the perforation. Thus, if you wish to print reports in a continuous style (to conserve paper) but you'd like to insert a few lines between each report to separate them, you might enter a value of 2 or 3. (Keep in mind that the number of lines at the end of each report will vary from report to report and that the setting will apply for all reports. An entry of 254 lines could cause up to four blank pages to advance.) If you wish to print reports in a form-feed style (for ease in separating and filing reports), you will want to enter a value of 255. If you use the form feed setting, you should make sure that your paper is aligned properly in your printer, with the perforations just above the print head, before you start printing a report.

## Command Mode

To set the number of blank line feeds at the end of reports or enable the 2045 to send an automatic form-feed command using Command mode, enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

**1 5 \* 5 5 \* (1-255) #**

## Menu Mode

To set the line feed/form feed function through Menu mode, use the following procedure:

- 1. Beginning at the main menu, press the S key to display the System menu.**
- 2. Press the R key to display the Setup Reports menu.**
- 3. Press the B key.**  
The 2045 to respond with an 'Enter Value:' prompt, after which you can type in a setting of 1-255 for the number of blank lines at the end of reports.

To exit this mode, press the Escape key (as necessary).

## S

\*\* Agri-comp 2045 System \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## R

\*\*\* Agri-comp 2045 Setup Reports \*\*\*

P - Parameter Summary

I - Income/Cost Report

U - User Defined Reports

T - Test Printer

B - # of Blank Lines at End of Reports

## B

# **FEEDING PROGRAM**



## Table of Contents

Introduction .....	5-1
1 Feeding Setup .....	5-2
1.1 Calibrating Feeders .....	5-2
1.1.1 Assigning/Deleting Calibration Tags .....	5-3
1.1.2 Dispensing Samples & Assigning Feeder Addresses .....	5-4
1.1.3 Entering Feed Weights Obtained During Calibration .....	5-8
1.2 Changing Calibration Factors Manually .....	5-10
1.3 Assigning Feed Zones to Feeder Addresses .....	5-12
1.4 Assigning Feed-Type Numbers to Feed Zones .....	5-14
1.5 Assigning Feed-Type Names to Feed-Type Numbers .....	5-17
1.6 Entering Prices for Feeder-Dispensed Feeds .....	5-19
1.7 Pasture Feeding .....	5-21
1.7.1 Allocation Offset .....	5-21
1.7.2 Maximum Feed Amount Per Visit .....	5-22
2 Feeding Data .....	5-23
2.1 Understanding Feeding Codes, Commands & Values .....	5-25
Feed Ration (codes 41-44) .....	5-26
Target Feed Days (code 45) .....	5-26
Target Rations (codes 46-49) .....	5-27
Cow Weight/Days Since Weighed/Body Condition (codes 80, 70 and 74) .....	5-28
Total Feed Cost Since Dry Date (code 95) .....	5-28
Average Daily Milk Production (code 24) .....	5-29
2.2 Entering Feeding Data .....	5-29
2.3 Editing a Cow Record .....	5-33
2.3.1 Changing The Feeding Edit Parameter List .....	5-35
2.4 Adjusting Rations With Automatic Ration Adjust .....	5-36
3 Feeding Reports .....	5-38
3.1 Understanding Feeding Reports .....	5-38
3.1.1 Feed Ration Report .....	5-39
3.1.2 Feed Exception Report .....	5-41
3.1.3 Ration Target Report .....	5-43
3.1.4 Feeder System Summary—Today and Yesterday .....	5-44
3.1.5 Feed Type Summary .....	5-47
3.2 Printing the Feeding Reports .....	5-48

# Feeding

## Introduction

Installed in the Agri-comp 2045 FARM Management computer, the Feeding program helps the dairyman precisely control the amounts of grains and concentrates fed to individual cows in a herd by automatically maintaining feeding records for each cow. Each identification (ID) tag, worn by a cow, contains a unique ID number that the 2045 uses to search for and open automatically that cow's personal cow record whenever she enters a feed stall. As the tag enters the field of the feeder antenna, a cow identification process, similar to that explained in the introduction to Chapter 6, occurs and a visit begins; however in the case of identification at a feeder, in addition to sending the cow's ID tag number to the 2045, the feeder also sends its feeder address. Upon receiving this information, the 2045 opens the cow record, calculates the maximum amount of feed available for the cow for this visit, and sends this information, along with calibration factors for feeds A, B, C, and/or D, back to the feeder control. Following each visit, the feeder control sends the amount fed (dispensed) and the ID tag number of the cow just fed to the 2045 where her cow record is updated. (Specific information about feeder visits, daily allocation of feeds, amount of ration dispensed per visit, and other feeding-related topics are provided in a later section of this chapter.)

This chapter provides the dairyman with instructions on operating the feeding system, calibrating the feeders, entering and updating data on the feed rations of the herd, and obtaining feed reports to monitor the feeding habits and ration information of the herd as well as the operation of the entire feeding system.

Before you attempt to use this program, basic communications must be verified, as explained in Chapter 2, the system software and Feeding program must be loaded, as explained in Chapter 3, and certain system information must be entered into the 2045, as explained in Chapter 4. Once these tasks have been accomplished, you can begin to use the Feeding program.

The Table of Contents which precedes this introduction lists the sections of this chapter in the order in which they should be read and procedures should be carried out.

### Reminder From Chapter 1

The following keyboard keys can be used interchangeably (meaning that one can be used in place of the other) within commands or prompt or group entry strings:  
asterisk(\*) = period (.)  
pound (#) = ENTER = RETURN

## 1 Feeding Setup

This section includes instructions on setting various 2045 and feeder modes and functions as well as entering data for certain parameters that affect all cow records. Due to the great amount of explanation and differences in value options involved with each entry, settings and data entries covered in this section are explained on an individual (per subsection) basis.

### 1.1 Calibrating Feeders

Feeder calibration is a process that allows you to determine the deviation between the delivery rate of each auger motor on each feeder and the 'standard' rate of 0.8 lbs per minute (a rate used by Bou-Matic for 'ideal' feed delivery conditions) and allows the 2045 to calculate proper correction factors for those deviations so that an animal will receive its accurate ration at each feeder. Calibration of each auger on each feeder is necessary due to variations in delivery rates of the individual feeder augers and variations in feed quality from one feeder to the next.

#### Note

- The feeding system must be properly installed, the feeder controls must be programmed for computerized feeding, the auger motors must operate properly, and the feeders must be able to read ID tags before they can be calibrated.
- If you do not calibrate the feeder augers before using them regularly, we cannot assure that they will dispense the correct amount of ration you specify for a cow. Additionally, if the feeder augers are not calibrated, data entries cannot be made in the Prompt Entry mode.

The following list identifies the major steps involved in calibrating feeders:

- Assign a calibration tag for each feed: A-D (if four feeds are being used).
- Test communications between the 2045 and the feeders.
- Use the calibration tags at each feeder to deliver a test sample of each feed.
- Weigh the samples separately, and record the weights.
- Enter the weights into the 2045 to adjust the calibration factors.
- Review feeder data to verify that addresses are programmed correctly.

To ensure continued ration dispensing accuracy, we urge you to check the calibration of the feeders regularly and recalibrate them whenever you change any feed type or a feed changes sufficiently to affect the calibration for the simple reason that inconsistencies in feeds and variations from one batch to the next will cause the information stored at the computer to be inaccurate.

## 1.1.1 Assigning/Deleting Calibration Tags

### ☞ **Reminder**

Calibration tag numbers appear in the Feeder Summary report.

One calibration tag must be assigned for each auger motor (A-D) that will dispense a feed during normal operation. Calibration tags are ID tags which are used to activate individual auger motors during initial feeder calibration and any future calibration of the feeder augers. Unlike an cow ID tag, which (when identified) will cause a feeder to dispense a variable portion of a cow's daily ration (the actual amount depends on many factors), a calibration tag will cause its assigned auger to deliver a fixed amount of feed each time it is identified and it can be identified any number of times. Also, no record is kept at the 2045 for the feed dispensed to calibration tags. For these reasons, calibration tags must not be assigned to cows at any time. Note that if you have enough spare ID tags, and enough assistance to calibrate feeders in more than one location at the same time, you can assign more than one set of calibration tags; the 2045 will accept a maximum of 20 calibration tags. Be sure to keep tags of the same motor assignment separate to eliminate confusion when testing feeders. And leave the calibration tag numbers in the 2045's memory at least until all feeder calibration is complete.

To assign calibration tags using Command mode, enter each of the following commands, specifying the appropriate ID tag number in place of the words "(tag number)":

<b>3 5 * 1 * (tag number) #</b>	to assign tag number to auger/feed A
<b>3 5 * 2 * (tag number) #</b>	to assign tag number to auger/feed B
<b>3 5 * 3 * (tag number) #</b>	to assign tag number to auger/feed C
<b>3 5 * 4 * (tag number) #</b>	to assign tag number to auger/feed D

A list of all assigned calibration tags and their assigned feeds is printed at the end of the Feed System Summary report.

# Feeding

To delete a calibration tag using Command mode, enter the following command, specifying the ID tag number in place of the words “(tag number)”:

**3 5 \* 0 \* (tag number) #** to delete calibration tag number

You can also assign or delete calibration tags through Menu mode, using the following procedure:

- 1. Beginning at the main menu, press the F key.**  
The 2045 will display the Feeding menu, which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.
- 2. Press the S key.**  
The Feeding Setup menu, as shown, will be displayed.
- 3. Press the A key.**  
The Calibration Tags menu, as shown, will be displayed.
- 4. Type the letter of the auger motor (A, B, C, or D) that you wish to assign an ID tag to or press the R key to remove a calibration tag.**  
The 2045 will respond with a ‘Tag Number:’ prompt.
- 5. Type the number of the tag you want to assign or delete as a calibration tag and press the ENTER key.**

Repeat this procedure, steps 4 and 5, with each ID tag you want to assign or delete as a calibration tag.

To exit this mode, press the Escape key (as necessary).

## 1.1.2 Dispensing Samples & Assigning Feeder Addresses

Feeder calibration is accomplished through the process of obtaining test samples of feed dispensed from each auger (activated by the assigned calibration tag) of each feeder, weighing the test samples separately, entering the weights into the 2045, and allowing the 2045 to calculate proper correction factors, called *calibration factors*, for each auger motor. The results of these calculations allow the 2045 to adjust the delivery rate of the individual feeder augers to arrive at the

*Examples:*

- To assign ID tag number 3456 as a calibration tag for feed B, you would enter 35\*2\*3456#
- To assign ID tag number 7890 as a calibration tag for feed D, you would enter 35\*4\*7890#

*Example:*

To delete the calibration tag for feed B (whose ID tag number in the above example is 3456), you would enter 35\*0\*3456#

```
F
** Agri-comp 2045 Feeding **
S - Setup
D - Data Entry or Edit
R - Reports
A
*** Agri-comp 2045 Feeding Setup ***
A - Assign/Delete Calibration Tags
C - Calibrate Feeder
Z - Assign Feed Zones
T - Assign Feed Types
N - Assign Feed Names
P - Assign Feed Prices
A

**** Calibration Tags ****
A - Assign to Feed A
B - Assign to Feed B
C - Assign to Feed C
D - Assign to Feed D
R - Remove or Delete
```

correct feed dispensing rate (0.8 lbs per minute) to obtain the desired feed amounts.

As you calibrate a feeder for the first time, the 2045 automatically assigns it a feeder address number that corresponds to the address programmed with the configuration switch in that feeder's control. (Refer to the feeding system instruction packet for details on the purpose of and procedure for programming feeder addresses.) Once initial communications and feeder address number assignment occur, the 2045 will recognize and send ration assignments to any feeder that does not have a calibration factor of zero for auger/feed A. (A feeder with a calibration factor of zero for auger/feed A is inactive, or *deleted*, though the 2045 still communicates with it.)

**Note:**

The 2045 assumes that a feeder is in use if it has a non-zero calibration factor for feed A. *To delete a feeder*, you just set its A calibration factor to zero with the Enter Calibration Factors command, as described

At this time, refer to the record (form included with the feeding system instruction packet) of feeder numbers and addresses that you were instructed to complete during installation of the feeding system, and add to it the feed weights that will now be measured.

To prepare for feeder calibration, follow these guidelines:

- When calibrating feeders, you will need the following materials:
  - Container for removing and weighing feeds.
  - Scale for weighing feeds (accurate to within 0.1 lbs[.1 kg])
  - Form for recording weights.
- The more consistent the delivery of feed from each auger, the more accurate the calibration will be. To optimize consistency, ensure that each auger and the tube supplying feed to the auger are full of feed and that no air pockets are present. You may need to operate each auger for a while with the calibration tags to ensure that the augers are full. (Note that the feeders use a 3-second on-time for feed A and a 1-second on-time for feeds B, C, and D. Feed A is usually a bulk feed, such as ground corn or high moisture corn, with a lot of variability. The longer on-time for feed A gives a more consistent delivery for nonuniform feeds. Feeds B-D are usually concentrates or pellets, which have a much more uniform consistency. The shorter on-time for these feeds allows them to be delivered in small amounts more accurately.) Once you've determined that the feeders are ready for calibration, reset each feeder (with any tag but the one you'll be using first to calibrate an auger with) so that it is ready to read the calibration tag of the first auger you will be calibrating.
- Some flexibility in the method used to calibrate feeders is allowed. When calibrating, you can either (1) calibrate all augers at the first feeder, then the second, and so on or (2) calibrate the same auger (A,B,C, or D) at each

# Feeding

feeder, starting with the first feeder and going through all the feeders, then returning to the first feeder to calibrate the second auger, and so on. In either case, you should calibrate all augers at all feeders before you enter the weights into the 2045.

- In the event that you must temporarily stop calibrating feeders, you can return later in the day to finish calibrating. Any calibration information sent to the 2045 will be recorded and will remain on file until midnight. If calibration is not completed before midnight, the amounts recorded for each feeder will be reset to zero.

## Note

Certain conditions will cause calibration information to be lost or changed. One of these conditions is: if a calibration tag is reused at a feeder before the feed weight is entered into the 2045, the feeder will deliver more feed and the new weight will be recorded at the 2045. Remember that a proper calibration weight requires that an auger dispense feed for three minutes, so holding a tag in front of the control for seven and a half seconds would record only 0.1 lbs at the 2045 (not enough for proper calibration). Another condition which will also cause incorrect information to be recorded is: if more than one tag is assigned to one feed (such as two tags for feed A—an acceptable method when feeders are being calibrated in separate locations), and someone inadvertently uses the second tag thinking it was for feed B. The feeder will send a new weight for feed A (replacing the first one if the tag is held at the feeder for three minutes) to the 2045, and no weight will be recorded for feed B.

Before calibrating the feeders, weigh the empty container that you'll be placing the dispensed test samples of feed in for weighing, and record the container's weight. Then, calibrate the feeders using the following procedure:

- 1. Hold a calibration tag (A, B, C, D) in front of a feeder control and allow the auger to dispense feed until a consistent amount is delivered each time the motor cycles.**

Repeat this step with the other tags and motors at each feeder. Remove the feed from the feeder bowl.

- 2. Hold a calibration tag (A, B, C, D) in front of a feeder control until the feeder stops dispensing feed—a total of three minutes.**

Under ideal conditions, following three minutes of auger operation, the feeder (were it dispensing feed at the 'standard' rate of 0.8 lbs per minute) would dispense 2.4 lbs (2 lbs 6 oz or 1.1 kg) of the feed type that corresponds to the tag used. Most conditions, however, are not ideal (due to variations in delivery rates of the individual feeder augers, variations in feed quality from one feed to the next and in feed quality

of the same feed from one feeder to the next, and the affect that calibration factors have on the feeding system), so the actual weight may be above or below 2.4 lbs. For example, an auger containing a very dense, high-moisture feed might deliver 3.5 lbs, while one containing a very light feed might deliver only 1.7 lbs. Any auger that delivers less than 1.3 lbs of feed cannot be calibrated accurately. (If you experience this problem when calibrating an auger, we recommend that you change the feed to one that is heavier or change the auger to one with a larger diameter).

The feeder will report to the 2045 the amount of feed it assumed it delivered. This amount will be 2.4 lbs (the ideal weight) for the initial calibration of each feeder, since the 2045 applies a calibration factor of 100 to feeders when they first dispense feed samples. The amount could be within a range from 2.3 to 2.5 for a recalibrated feeder, however, due to variations between a previously specified feed and one that will be used and due to the affect that the previously specified calibration factor has on the feeder's delivery of feed samples for calibration. (The next subsection will discuss reported weights and calibration factors in greater depth.)

- 3. When the feeder stops dispensing, place the dispensed feed into the empty container.**
- 4. Weigh the feed in this container.**
- 5. Subtract the weight of the container from the weight of the feed and container, and record the weight of the feed only for the appropriate auger beside the corresponding feeder number and address.**

*See notes in feeding system instructions*

**Example: Feeder Number, Feeder Address, and Calibration Feed Weights Recording Form**

Feeder Address Number	Feed A Wgt (lb/kg)	Feed B Wgt (lb/kg)	Feed C Wgt (lb/kg)	Feed D Wgt (lb/kg)
0	2.6	2.5	2.4	1.9
1	2.0	2.4	2.3	2.1
2	2.5	2.3	2.2	
3	2.4	2.3	3.5	

Repeat this procedure for each feed at each feeder. Once you've obtained feed weight results for all feeders, enter the feed weights into the 2045, as explained in the next subsection. We recommend that you recalibrate after the first week of feed system operation, to ensure that the system is operating properly, and whenever you change feeds or at least once each month.

# Feeding

## 1.1.3 Entering Feed Weights Obtained During Calibration

Once the augers have delivered test samples of feed and weights have been recorded on paper, the weights can be entered into the Agri-comp 2045. The 2045 calculates correction (*calibration*) factors from these weights. These correction factors, for each auger motor, allow the 2045 to adjust the feeder timing to arrive at the correct feed-dispensing rate needed to obtain the desired feed amounts.

Note that in either case (Prompt Entry mode or Menu mode), only those feeders which have been calibrated since midnight will be shown. If no feeders have been calibrated since midnight, the 2045 will respond with a COMMAND ERROR message.

Feed weights can be entered into the 2045 using any of three formats (that of a whole-number, a one-place decimal, or a pounds-and-ounces format) for English units and either of two formats (that of a whole-number or a one-place decimal format) for metric units. Thus, to enter a weight of 2.0 pounds or kilograms in whole-number format, you would simply enter 2 (assuming the proper unit of measure is set). To enter a weight of 2 lbs 6 oz (1.1 kg) in one-place decimal format, you would first convert the 6 ounces to 0.4 pounds, and simply enter the resulting 2.4 pounds (or 1.1 kg). To enter a weight of 2 lbs 6 oz in a pounds-and-ounces format, you would multiply the pounds portion of a weight by 100, then add the ounces. For example, 2 pounds 6 ounces would convert to 206,  $([2 \times 100] + 6) = 206$ . Thus, a weight of 2 lbs 6 oz (1.1 kg) would be entered as 206 for English pounds or 1.1 for metric.

To enter feed weights using Command mode, you can either enter the following commands (feeder addresses will appear in increasing order, starting with the lowest address, skipping any that were not calibrated, and ending with highest address of feeders calibrated) and then the weights:

<b>1 6 * 3 1 #</b>	to enter actual calibration weight for auger/feed A
<b>1 6 * 3 2 #</b>	to enter actual calibration weight for auger/feed B
<b>1 6 * 3 3 #</b>	to enter actual calibration weight for auger/feed C
<b>1 6 * 3 4 #</b>	to enter actual calibration weight for auger/feed D

### *Examples:*

- To enter a weight of 2.0 pounds or kilograms in whole-number format, you would simply enter 2.
- To enter a weight of 2 lbs 6 oz... in a one-place decimal format, you would convert the 6 oz to 0.4 lbs, and then 2.4 pounds is entered 2.4. A weight of 1.0 kilograms is entered 1.0 or just 1.
- To enter a weight of 2 lbs 6 oz in a pounds-and-ounces format, you would multiply 2 lbs x 100 (=200), then add 6 oz for a result of 206.

You can enter feed weights starting with any feeder address by including an asterisk (\*) and the particular feeder address as a third data field (between the 2-digit number and #) in the command. Feeder addresses will still appear in increasing order; however, starting with a particular address allows you to skip those addresses that you would otherwise have to advance through if you have no assignment for them.

*Examples:*

- To assign feed weights for auger A to feeder addresses, you would enter 16\*31#  
To assign them starting with address 3, you would enter 16\*31\*3#

For example, if you entered the command 16\*31# and feeder address 1 was the first to appear, having a previously assigned amount dispensed value of 2.4 pounds, the 2045 would respond with:

P: 1: 2.4=

The following entries would assign weights of 2.0, 2.5, and 2.4 pounds for auger A on feeders 1, 2, and 3, respectively:

**16\*31#**

P: 1: 2.4=**2**

P: 2: 2.4=**2.5**

P: 3: 2.4=**2.4**

The 2045 will enter Prompt Entry mode and respond with:

P: *feeder address : amount feeder dispensed=*

The “P” indicates Prompt Entry mode, the words “feeder address” represent the address of the feeder you’ll be assigning a weight to, and the words “amount feeder dispensed” represent the ideal feed weight sent to the 2045 by the feeder.

Type in the actual feed weight (in the appropriate unit of measure—pounds or kilograms—and in the format you desire) that you recorded during the sample dispensing phase of calibration, and press the ENTER key. Then, proceed to the next feeder address. If you make a mistake while entering a weight, you can correct it in one of two ways: (1) if you entered the weight in whole numbers, before you press ENTER, type four zeros (0000), then retype the correct weight or (2) if you entered the weight using a decimal point, you must press the Escape key to exit the mode, then enter the appropriate command above (starting with the feeder address with which the error was created if you wish), and retype the correct weight for that feeder’s auger.

**Note**

If the amount dispensed shown by the 2045 is less than .5 pounds, you should NOT enter a new weight. Such a small amount is an indication that a calibration tag was read very briefly after the recorded amount was dispensed. Return to the feeder and recalibrate it, being very careful not to reread the tag after the feed is dispensed.

To exit this mode, press the Escape key (as necessary).

# Feeding

The 2045 will automatically calculate a new calibration factor by comparing the actual weight delivered, as entered above, with the weight reported from the feeder.

You can also enter feed weights through Menu mode, using the following procedure:

- 1. Beginning at the main menu, press the F key.**  
The 2045 will display the Feeding menu, which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.
- 2. Press the S key.**  
The Feeding Setup menu, as shown, will be displayed.
- 3. Press the C key.**  
The Calibrate Feeder menu, as shown, will be displayed.
- 4. Press the letter of the feed type you want to calibrate (A, B, C, or D).**  
The 2045 will enter Prompt Entry mode for the selected feed and start with the first feeder that has a calibration weight for that feed.
- 5. Type in the measured weights as described above for Command mode, or press ENTER to proceed to the next feeder.**

To exit this mode, press the Escape key (as necessary).

## F

\*\* Agri-comp 2045 Feeding \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 Feeding Setup \*\*\*

A - Assign/Delete Calibration Tags

C - Calibrate Feeder

Z - Assign Feed Zones

T - Assign Feed Types

N - Assign Feed Names

P - Assign Feed Prices

## C

\*\*\*\* Calibrate Feeder \*\*\*\*

A - Feed A

B - Feed B

C - Feed C

D - Feed D

E - Enter Factors

## 1.2 Changing Calibration Factors Manually

In some cases, you may want to change the calibration factor for one or more feeders to a predetermined calibration factor. Situations in which manually changing a calibration factor is advantageous or perhaps just desirable are that you can:

- change the calibration factors of a group of feeders that are located together physically to that of one properly calibrated feeder in the zone, to save time, rather than actually calibrating all of them. This option is useful for starting up a system in which all feeders that are relatively close to one another and have the same size augers will dispense the same feeds, but the calibration of each individual feeder should be checked before regular use.
- change the calibration factor of a feeder whose calibration weight (of the test sample) was incorrectly entered and whose calibration factor was, thus, incorrectly calculated to its correct factor.

- change the calibration factors for a group of feeders for which a feed type has been changed. The calibration of each affected feeder should be checked before regular use.
- change the calibration factor for auger/feed A on a feeder you no longer wish to use to a factor of zero, which effectively deletes the feeder from the system. If the 2045 communicates to that feeder later on the zero factor for auger/feed A will alert the 2045 that the feeder is not to receive ration information. As a result, the feeder will not dispense feed.

Note that, except for feed A, calibration factors for all augers of all feeders appear on the Feeder System Summary. Any feeder with a calibration factor of zero for auger/feed A will not appear in the report.

To change calibration factors using Command mode, you can either enter the following commands (feeder addresses will appear in increasing order, starting with the lowest address) and then the calibration factors:

**1 6 \* 1 3 1 #** to change calibration factor for auger/feed A  
**1 6 \* 1 3 2 #** to change calibration factor for auger/feed B  
**1 6 \* 1 3 3 #** to change calibration factor for auger/feed C  
**1 6 \* 1 3 4 #** to change calibration factor for auger/feed D

**Example:**

to enter calibration factors for feed A, starting with feeder address 0, you would enter the command:

**1 6 \* 1 3 1 #**

To start with feeder address 5, you would enter the command:

**1 6 \* 1 3 1 \* 5 #**

You can change factors starting with any feeder address by including an asterisk (\*) and the particular feeder address as a third data field (between the 3-digit number and #) in commands. Feeder addresses will still appear in increasing order; however, starting with a particular address allows you to skip those that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

*P: feeder address : calibration factor=*

The “P” indicates Prompt Entry mode, the words “feeder address” represent the address of the feeder you’ll be assigning a factor to, and the words “calibration factor” represent the factor currently assigned to that address.

Press the ENTER key to accept the displayed calibration factor and proceed to the next feeder address, or enter the desired new calibration factor (0-199) and press ENTER. (See example.) If you make a

# Feeding

mistake while entering a value, before you press ENTER, type four zeros (0000), then retype the correct value.

To exit this mode, press the Escape key (as necessary).

You can also change calibration factors through Menu mode, using the following procedure:

- 1. Beginning at the main menu, press the F key.**  
The 2045 will display the Feeding menu which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.
- 2. Press the S key.**  
The Feeding Setup menu, as shown, will be displayed.
- 3. Press the C key.**  
The Calibrate Feeder menu, as shown, will be displayed.
- 4. Press the E key.**  
The Enter Calibration Factors menu, as shown, will be displayed.
- 5. Type the letter of the feed type you want to enter factors for.**  
The 2045 will enter Prompt Entry mode and you may enter data as described above for Command mode.

To exit this mode, press the Escape key (as necessary).

## 1.3 Assigning Feed Zones to Feeder Addresses

If you will want feeders in one area to dispense one or more feeds that are different from those dispensed by feeders in another area, you must establish *feed zones* and assign each zone a unique zone number.

An associated group of feeders (those that can be accessed by all cows within a particular area—see guidelines), augers, and the tubes supplying feed to the augers (& feed bins), forms a feed zone within the integrated (Agri-comp 2045) system. This grouping of feeders into feed zones makes calibration entries and changes easier. Additionally, the Feed System Summary reports are organized according to feed zones to simplify management.

For example, if you entered the command 16\*133# and feeder address 0 had a previously assigned calibration factor value of 123, the 2045 would respond with:

P: 0: 123=

The following entries would leave calibration factors for auger A of feeders 0-2 unchanged, change the calibration factor for auger A of feeder 3 from 100 to 95 and assign a factor (before actual calibration of the auger) of 100 for auger A on a newly installed feeder 4:

**16\*131#**  
P: 0: 108=  
P: 1: 83=  
P: 2: 104=  
P: 3: 100=**95**  
P: 4: 0=**100**

\*\* Agri-comp 2045 Feeding \*\*

S - Setup  
D - Data Entry or Edit  
R - Reports  
S

\*\*\* Agri-comp 2045 Feeding Setup \*\*\*

A - Assign/Delete Calibration Tags  
C - Calibrate Feeder  
Z - Assign Feed Zones  
T - Assign Feed Types  
N - Assign Feed Names  
P - Assign Feed Prices  
C

\*\*\*\* Calibrate Feeder \*\*\*\*

A - Feed A  
B - Feed B  
C - Feed C  
D - Feed D  
E - Enter Factors  
E

\*\*\*\*\* Enter Calib. Factors \*\*\*\*\*

A - Feed A  
B - Feed B  
C - Feed C  
D - Feed D

A default feed zone number of zero is automatically set for each feeder when it is initially recognized by the 2045 and will remain zero until such time as you change the number. Any number from 0 to 99 can be assigned to feeders within a group. You determine the grouping of feeders and numbering of each group (see guidelines for suggestions grouping and numbering feeders for various situations), and change the value of each feeder within a group to that which you've assigned the group. Note that calibration factors for at least feed A (see subsection 1.1 or 1.2) must be assigned before a zone number can be assigned.

The following guidelines for assigning feed zones should be considered before entering data into the 2045:

- Two free-stall barns with two completely independent feed delivery systems would each be assigned a separate feed zone number: the feeders in one barn would each be assigned feed zone #1, the feeders in the other barn would be assigned feed zone #2. Keep in mind that the Feed System Summary prints a separate report for each feed zone, as explained in the Section 3.
- A large system, designed to house several different lots (groups or pens) of cows, may require two or more feeders in each lot. In this case, you would assign each lot a zone number, then assign the feeder addresses of the feeders in each lot to that zone number.

To assign feed zone numbers using Command mode, you can either enter the following command (*feeder address will appear in increasing order starting with the lowest address*) and then the zone numbers you desire:

For example, if you entered the command 16\*36#, the 2045 would respond with:

P: 0: 0=

**1 6 \* 3 6 #**

The following entries would assign zone number 1 to feeders 0 and 1 and zone number 2 to feeders 2 and 3:

**16\*36#**

P: 0: 0=1

P: 1: 0=1

P: 2: 0=2

P: 3: 0=2

P: 4: 0=

You can enter zone numbers starting with any feeder address by including an asterisk (\*) and the particular feeder address as a third data field (between 36 and #) in the command. Feeder addresses will still appear in increasing order; however, starting with a particular address allows you to skip those addresses that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

P: *feeder address* : *zone number* =

# Feeding

The “P” indicates Prompt Entry mode, the words “feeder address” represent the address of the feeder you’ll be assigning a number to, and the words “zone number” represent the current zone number assigned to that feeder address.

Type the number of the zone you want this feeder assigned to, and press the ENTER key, or just press ENTER to accept the current number, and proceed to the next feeder address. (See example.) If you make a mistake while entering a number, before you press ENTER, type four zeros (0000), then retype the correct number. Repeat this procedure until all feeders have been assigned a zone number.

To exit this mode, press the Escape key (as necessary).

You can also assign feed zone numbers through Menu mode, using the following procedure:

**1. Beginning at the main menu, press the F key.**

The 2045 will display the Feeding menu which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.

**2. Press the S key.**

The Feeding Setup menu, as shown, will be displayed.

**3. Press the Z key.**

The 2045 will enter Prompt Entry mode and you may enter data as described above for Command mode.

To exit this mode, press the Escape key (as necessary).

## 1.4 Assigning Feed-Type Numbers to Feed Zones

A powerful and beneficial feature of the 2045 is that it is capable of managing 32 different feed types. Obviously, one feeder will not be able to dispense all 32 types, since each feeder has only four augers, but by assigning feed zone numbers (as explained in subsection 1.3) to feeders in separate areas of your dairy farm, you allow yourself the flexibility to specify a combination of feeds to cows in one feed zone that is different from a combination you want cows in another zone

Examples:

- To assign feed zone numbers to feeder addresses, you would enter 16\*36#  
To assign them starting with address 6, you would enter 16\*31\*6#

\*\* Agri-comp 2045 Feeding \*\*

S - Setup  
D - Data Entry or Edit  
R - Reports  
R

\*\*\* Agri-comp 2045 Feeding Setup \*\*\*

A - Assign/Delete Calibration Tags  
C - Calibrate Feeder  
Z - Assign Feed Zones  
T - Assign Feed Types  
N - Assign Feed Names  
P - Assign Feed Prices  
Z

to receive. Such combinations of feeds for each zone are specified through the assignment of feed-type numbers to feed zones. The end result, with appropriate feed combinations, is that you'll more effectively control the diets of cows, optimizing their milk production while minimizing your feed costs. Additionally, the assignment of feed-type numbers to feed zones will allow you to adjust all cow rations for a particular feed type, up or down, using Ration Adjust.

Within each feed zone, four different feed types can be assigned—one for each feed auger—since each feeder in a zone shares the same feed bins and feed-supplying tubes. Thus, auger A on all feeders within a zone would dispense the same feed type, auger B on all feeders in a zone would dispense another type, and so forth. Note that you must establish feed zones, number them uniquely, and assign to each feeder within a zone its appropriate feed zone number (see subsection 1.3 for details) before you can assign feed types to zones in order for more than one combination of feed types to be accepted by the 2045.

When you first start up your 2045, the 2045 automatically assigns all feeder augers a default feed-type value—that of feed type 1 for auger A, feed type 2 for auger B, feed type 3 for auger C, and feed type 4 for auger D; however, any number from 1 to 32 can be assigned to augers A-D. You determine the meaning of each number (and assign it a name, if you wish). Although a number of possibilities exist for assigning feed-type numbers to feed zones, if you will be using a particular type of feed in more than one zone, you could assign numbers in one of the following ways, depending on whether or not you plan to use the Ration Adjust function. If you will not be using Ration Adjust, you could assign a different number for that feed type to the appropriate auger in each zone in which the feed will be used, however a better way (which would simplify evaluation of feeding reports) would be to assign the same number for that feed to the appropriate auger in each zone that the feed will be dispensed in. If you do plan to use Ration Adjust, you should assign a different number for that feed type to the appropriate auger in each zone in which it will be used, so that you can make adjustments to each zone later. Note that feed-type numbers appear in the Feed System Summary.

# Feeding

To assign feed-type numbers to each zone using Command mode, you can either enter the following commands (*feed zone numbers will appear in increasing order starting with 1*) and then the feed type numbers you desire:

**1 6 \* 2 3 1 #** to assign a feed type for feed A. (Default = 1)  
**1 6 \* 2 3 2 #** to assign a feed type for feed B. (Default = 2)  
**1 6 \* 2 3 3 #** to assign a feed type for feed C. (Default = 3)  
**1 6 \* 2 3 4 #** to assign a feed type for feed D. (Default = 4)

You can enter feed-type numbers starting with any feed zone by including an asterisk (\*) and the particular feed zone number as a third data field (between the 3-digit number and #) in the command. Feed zone numbers will still appear in increasing order; however, starting with a particular number allows you to skip those zone numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

P: zone number : feed type

The “P” indicates Prompt Entry mode, the words “zone number” represent the number of the feed zone you’ll be assigning a feed-type number to, and the words “feed type” represent the feed-type number currently assigned to the same auger in all feeders in that feed zone.

Type the number of the feed type you want the particular auger in all feeders in that zone to dispense, and press the ENTER key, or just press ENTER to accept the current number, and proceed to the next zone number. If you make a mistake while entering a number, before you press ENTER, type four zeros (0000), then retype the correct number. Note that this mode will step through all 100 feed zone numbers if you do not exit the mode at some point during the feed type entry process. Assign Feed types only to those feed zones that you are actually using.

To exit this mode, press the Escape key (as necessary).

To understand the use of feed-type numbers better, say you want to feed high-production cows in feed zone 1 a combination of cracked corn (for feed A), ground corn (for feed B), concentrate (for feed C), and pellets (for feed D) and low producers in zone 2 a combination of cracked corn (for feed A), ground corn (for feed B), pellets (for feed C), and no feed for feed D. If you will not be using Ration Adjust, you could assign the augers in zone 1 the default feed-type numbers 1-4, respectively and assign the augers in zone 2 the numbers 1, 2, and 5, as shown:

#### Zone 1

Auger A=cracked corn (type 1)  
Auger B=ground corn (type 2)  
Auger C=concentrate (type 3)  
Auger D=pellets (type 4)

#### Zone 2

Auger A=cracked corn (type 1)  
Auger B=ground corn (type 2)  
Auger C=pellets (type 5)  
Auger D= not used

If you will be using Ration Adjust, you could assign the augers in zone 1 the default feed-type numbers 1-4, respectively and assign the augers in zone 2 the numbers 5-7, as shown:

#### Zone 1

Auger A=cracked corn (type 1)  
Auger B=ground corn (type 2)  
Auger C=concentrate (type 3)  
Auger D=pellets (type 4)

#### Zone 2

Auger A=cracked corn (type 5)  
Auger B=ground corn (type 6)  
Auger C=pellets (type 7)  
Auger D= not used

### Examples:

- To assign feed-type numbers to feed zones for auger B, you would enter 16\*232#  
To assign them starting with zone 3, you would enter 16\*232\*3#

For example, if you entered the command 16\*232# and feed zone 1 was the first to appear, having a previously assigned feed-type number of..., the 2045 would respond with:

P: 1: ?=

*The following entries would assign feed types 1, 2, and 3 to augers B in feed zones 1-3, respectively :*

### 16\*232#

P: 1: 2=1  
P: 2: 2=2  
P: 3: 2=3  
P: 4: 2=

### \*\* Agri-comp 2045 Feeding \*\*

S - Setup  
D - Data Entry or Edit  
R - Reports  
S

### \*\*\* Agri-comp 2045 Feeding Setup

A - Assign/Delete Calibration Tags  
C - Calibrate Feeder  
Z - Assign Feed Zones  
T - Assign Feed Types  
N - Assign Feed Names  
P - Assign Feed Prices  
T

### \*\*\*\* Assign Feed Types \*\*\*\*

A - Feed A  
B - Feed B  
C - Feed C  
D - Feed D

### Note

You may want to record on paper the name of the feed along with the feed type as you enter feed types into the 2045 to eliminate confusion later when entering feed names.

You can also assign feed types to zones through Menu mode, using the following procedure:

- 1. Beginning at the main menu, press the F key.**  
The 2045 will display the Feeding menu, which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.
- 2. Press the S key.**  
The Feeding Setup menu, as shown, will be displayed.
- 3. Press the T key to assign feed types.**  
The Assign Feed Types menu, as shown, will be displayed.
- 4. Type the letter of the feed (A, B, C, or D) you wish to assign a feed type to.**  
The 2045 will enter Prompt Entry mode and you may enter data as described above for Command mode.

Repeat this procedure until you've made all desired feed-type assignments.

To exit this mode, press the Escape key (as necessary).

## 1.5 Assigning Feed-Type Names to Feed-Type Numbers

While the 2045 recognizes feed-type numbers only, you may want to assign a name for each feed type number you've assigned to feed zones to help you identify which feeds are being dispensed in a particular zone and to help you to maintain records of the amount of each feed dispensed. Note that feed-type names appear in the Feed Type Summary.

# Feeding

Feed-type names must be entered into the 2045 according to the following guidelines:

- The name can consist of any of the printable characters listed in Appendix AC.
- The name can be no more than 20 characters long, and spaces are considered characters.

If you will be using a particular type of feed in more than one zone, you can assign it a name in either of two ways, depending on whether or not you plan to use the Ration Adjust function. If you will not be using Ration Adjust, you can assign the name of the feed to one feed-type number (and assign that same feed-type number to the appropriate auger in each zone that the feed will be dispensed in). If you do plan to use the Ration Adjust, you can assign the same feed-type name to as many different feed-type numbers as will be adjusted but include the zone number (in which the feed will be dispensed) in the name to identify in which zone the feed type will be used (and assign each feed-type number for that feed to the appropriate auger in the appropriate zone).

To enter (or change) a name for a feed type using Command mode, enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

**1 5 \* 3 7 \* (1-32) #**

The 2045 will respond with the current name (if previously entered). Type in the name that you want to assign that feed-type number (using upper and/or lowercase letters) and press the ENTER key, or use the Backspace key to erase unwanted letters from the end of a previously entered name, then retype the new name and press ENTER.

Continue to use the command and enter names until all feed-type numbers assigned to feed zones have been assigned a name. If you wish to review or obtain a report of the feed-type names, refer to the instructions in Section 3 that explain how to view or print the Feed Type Summary.

*Example:*

To assign a name to feed type 1, you would enter 15\*37\*1#, then type the name (for example):

Feed Type 1-Name: ground corn

...and press ENTER.

\*\* Agri-comp 2045 Feeding \*\*

S - Setup  
D - Data Entry or Edit  
R - Reports

**S**

\*\*\* Agri-comp 2045 Feeding Setup \*\*\*

A - Assign/Delete Calibration Tags  
C - Calibrate Feeder  
Z - Assign Feed Zones  
T - Assign Feed Types  
N - Assign Feed Names  
P - Assign Feed Prices

**N**

\*\*\*\* Assign Feed Types \*\*\*\*

A - Feed A  
B - Feed B  
C - Feed C  
D - Feed D

You can also assign feed-type names through Menu mode, using the following procedure:

**1. Beginning at the main menu, press the F key.**

The 2045 will display the Feeding menu, which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.

**2. Press the S key.**

The Feeding Setup menu, as shown, will be displayed.

**3. Press the N key.**

The 2045 will respond with a prompt, asking for a feed type (#?).

**4. Type the number of the feed type (1-32) that you wish to assign a name to and press the ENTER key.**

**5. Type in the name of the feed as explained for Command mode.**

Repeat 4 and 5 above for all feed name assignments.

To exit this mode, press the Escape key (as necessary).

## 1.6 Entering Prices for Feeder-Dispensed Feeds

A feed price can be entered into the 2045 by the dairyman for each feed type. This price is used by the 2045 to calculate the daily profit (income over feed cost) for each cow and the total feed cost (FD\$) for a cow for her entire lactation. The results of the calculations appear under the column heading abbreviations: IOFC (income over feed cost), I-F\$ (total profit) and FD \$ (total feed cost) in the reports listed for each abbreviation in Appendix PC. Evaluation of IOFC, the BNK\$ (Bunk Feed Cost) value, and FD\$ result can assist the dairyman in managing the feeding program and in determining when to dry off or cull cows.

The feed price must be entered either in whole dollars or in dollars and cents per hundred pounds (or kilograms) of feed, using a two-place decimal format and decimal point. Thus, a price of \$3.00 could be entered as 3, and a price of \$13.55 per hundred pounds would be entered as 13.55 (*99.99 being the maximum value that can be entered for the feed price*). Numbers entered without decimal points are accepted as whole dollars.

# Feeding

## Note

In countries other than the United States, the feed cost per hundred pounds or kilograms may not fit well into the four-digit format. The Price Quantity Factor (explained in Chapter 4) can be used to change the base quantity from 100 pounds (kg) to 10 or 1000 pounds (kg).

To enter or change feed prices using Command mode, enter the following command, specifying a feed-type number for the third field of data that falls within the range shown in parentheses:

**1 6 \* 3 7 \* (1-32) #**

The 2045 will enter Prompt Entry mode and respond with:

P: *feed type: feed cost=*

The “P” indicates Prompt Entry mode, the words “feed type” represent the feed-type number you’ll be assigning a price to, and the words “feed cost” represent the price currently assigned to that feed type.

Press the ENTER key to accept the current price and proceed to the next feed type, or type in a new price for the feed type specified, and press the ENTER key. (See example.) If you make a mistake while entering a price, you can correct it in one of two ways: (1) if you entered the price in whole numbers, before you press ENTER, type four zeros (0000), then retype the correct price. (2) if you entered the price using a decimal point, you must press the Escape key to exit the mode, then enter the above command (starting with the feed type number with which the error was created if you wish), and retype the correct price for that feed.

Continue to use the command and enter prices until all of your feed prices have been entered.

To exit this mode, press the Escape key (as necessary).

Cost records for each of the feed types you have assigned can be maintained by printing and saving your Feed Type and Feed System Summary reports on a regular basis.

## Example:

To assign a feed price to feed type 1, you would enter 16\*37\*1#

\*\* Agri-comp 2045 Feeding \*\*

S - Setup  
D - Data Entry or Edit  
R - Reports  
S

\*\*\* Agri-comp 2045 Feeding Setup \*\*\*

A - Assign/Delete Calibration Tags  
C - Calibrate Feeder  
Z - Assign Feed Zones  
T - Assign Feed Types  
N - Assign Feed Names  
P - Assign Feed Prices  
P

You can also enter or change feed prices through Menu mode, using the following procedure:

**1. Beginning at the main menu, press the F key.**

The 2045 will display the Feeding menu, which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.

**2. Press the S key.**

The Feeding Setup menu, as shown, will be displayed.

**3. Press the P key to assign Feed Prices.**

The 2045 will enter prompt entry mode and you may enter data as described above for Command mode.

Repeat this procedure until all feed types are assigned a cost.

## 1.7 Pasture Feeding

The 2045 provides two options to improve the use of computerized feeders on farms where the cows are also pasture fed. The computerized feeders can help you to feed your cows the extra protein and energy that they cannot get from pasture feeds.

### 1.7.1 Allocation Offset

The Allocation Offset allows you to adjust how early the cows can get their full daily ration. Normally, the 2045 does not allocate all of the ration until 8 PM, a four hour offset. Cows that are pasture fed may leave the feeder area before 8 PM and thus not be able to eat their full daily ration. The Allocation Offset command allows the 2045 to deliver the full ration earlier. To change the Allocation Offset, enter the command:

**15\*38\*(offset hours, 2-24)#**

The number of hours is subtracted from midnight to determine how early the full ration can be eaten. For example, 15\*38\*12# would allow the full ration to be eaten by noon, while 15\*38\*8# would change the time to 4 PM. We do not recommend that you set the offset hours to any value greater than 12.

# Feeding

## 1.7.2 Maximum Feed Amount Per Visit

Some cows that are pasture fed only get a few chances per day to access the feeders. The standard limit of four pounds per visit can prevent these cows from getting their full allocation. The limit can be changed with the Maximum Feed Amount command:

**1 5 \* 3 9 \*** (*amount, 0-15 lbs or 0-7 kg*) #

The maximum amount per visit can be set to any whole number of pounds from 0 to 15. Setting this to 0 will cause the 2045 to use the default value of 4 pounds per visit. We do not recommend setting this amount any higher than 7 pounds.

### **Note**

Enabling this feature disables the 4 lb per hour safety feature, so use it with extreme caution.

### **Note**

The EPROM in the feeder control must be at least version 2.34 to use this feature.

## 2 Feeding Data

This section includes instructions on entering various types of cow-related feeding data—some that affect cow records individually, others that affect all cow records collectively—that can be entered into the 2045 from the Feeding program.

To simplify instructions and allow you to readily find parameter definitions and lists of commands, data entries covered in this section (with the exception of the Cow Record and Ration Adjust) are explained on a group basis with all specific parameter explanations and value options in one subsection and all Single Entry commands, all Prompt Entry commands, and all Group Entry commands in other individual subsections. (The difference between these entry modes is explained in Chapter 1.)

The following explanation of the feed allocation process has been provided to increase your understanding how the 2045 and feeders operate as an integrated feed system to allocate and dispense feed rations to individual cows.

### Feed Allocation Process

The 2045's process of allocating feed is one in which cows can receive small portions of their individual rations continuously throughout each day, rather than obtaining large blocks of feed according to feed periods. The amount of feed ration a feeder will dispense to a cow during any one visit depends on several factors:

- The individual daily feed ration you assign the cow,
- The time of day,
- The amount of her uneaten ration,
- The amount she ate during her last visit (4 lbs per visit and per hour is the maximum allowed),
- The time elapsed since her last visit.

#### Note

The maximum of four pounds per visit can be changed for pasture feeding situations.

The feeding day begins at midnight, at which time the 2045 allocates 1/6 of each cow's daily feed ration (an amount that the 2045 calculates individually for each cow) to her individual 'feed account.' The remainder of her assigned ration is allocated proportionally to her account over the next 20 hours—that is, until 8:00 PM. (Note that a

# Feeding

Feed Allocation Offset command, explained later in this chapter, can be entered to change this allocation for certain situations.)

She may eat as often as she likes (to keep her rumen operating at peak efficiency), provided some portion of her ration exists in her account. However, to discourage cows from overeating, the 2045 only permits the feeders to dispense a maximum of four pounds of feed per visit and/or per hour (a safe measurement that corresponds with a cow's optimum digestive rate of four pounds per hour). Of course, they will never receive more feed than that which is the balance (amount accrued minus amount eaten) of their accounts, so if a cow visits the feeders fairly steadily during a day and at some point has less than 4 lbs in her account, she will only be able to receive that which is in her account should she visit a feeder before the 2045 allocates her next portion.

**Note:**

The Maximum Feed Per Visit setting allows this 4 pound limit to be changed for pasture feeding situations.

By 8:00 PM each evening, the 2045 will have allocated to each cow's account its full daily feed ration. Although no more feed is allocated between 8:00 PM and midnight, during the last four hours of the day, cows can continue visiting feeders to finish up any uneaten rations. To prevent carryover (a nonrecommended dietary practice and a poor feature of some feeding systems that permits uneaten rations from one day to be added to those allocations of the next day), any uneaten ration remaining in an account is discarded at midnight, at which time the 2045 reset all accounts and the feed allocation process begins again. (Cows start each new day with the ration you assigned to them.)

The following example of a cow's eating behavior should help clear up any confusion you may have about the allocation and dispensing of feed rations:

Let's say you've assigned the following feed rations to cow number 1991, for a total feed ration of 24 pounds:

Feed A:20  
Feed B:3  
Feed C:1  
Feed D: none

The following chart simplifies the allocation of rations and feeding behavior of the cow, in our example scenario, whose daily rations total 24 pounds:

Allocation/Time	Visit/Fed	Balance
4 lb 12:00 PM	— —	4 lb
1 lb 1:00 AM	— —	5 lb
1 lb 2:00 AM	— —	6 lb
1 lb 3:00 AM	— —	7 lb
— 3:05 AM	1 4 lb	3 lb
— 3:10 AM	2 —	3 lb
1 lb 4:00 AM	— —	4 lb
1 lb 5:00 AM	— —	5 lb
1 lb 6:00 AM	— —	6 lb
1 lb 7:00 AM	— —	7 lb
1 lb 8:00 AM	— —	8 lb
1 lb 9:00 AM	— —	9 lb
1 lb 10:00 AM	— —	10 lb
— 10:03 AM	3 4 lb	6 lb
1 lb 11:00 AM	— —	7 lb
— 11:30 AM	4 4 lb	3 lb
1 lb 12:00 AM	— —	4 lb
— 12:01 PM	5 2 lb	2 lb
1 lb 1:00 PM	— —	3 lb
1 lb 2:00 PM	— —	4 lb
— 2:04 PM	6 4 lb	0 lb
1 lb 3:00 PM	— —	1 lb
1 lb 4:00 PM	— —	2 lb
1 lb 5:00 PM	— —	3 lb
— 5:01 PM	7 3 lb	0 lb
1 lb 6:00 PM	— —	1 lb
1 lb 7:00 PM	— —	2 lb
1 lb 8:00 PM	— —	3 lb
— 9:00 PM	8 1 lb	2 lb
— 10:15 PM	9 1 lb	1 lb
— 10:45 PM	10 1 lb	0 lb

The account for this cow would be allocated 4 pounds (1/6 of total) of feed at midnight and 1 extra pound per hour for the next 20 hours.

Say she doesn't try to eat until 3:05 AM, at which time her account has accrued a total of 7 pounds of feed. Since she cannot receive more than 4 pounds in any single visit (to prevent overconsumption of feed), she can only receive 4 pounds at this time.

She finishes the 4 pounds and is still hungry, so she moves to another feeder (3:10 AM). This time, even though she still has 3 pounds left in her account, she does not get fed because she has not had time to digest any of the previous meal, and she gets one "Unfed Visit."

At 10:03 AM, she tries again. She now has 10 pounds available (a total allocation of 14 pounds minus the 4 pounds she ate before). She will still only get 4 pounds at this visit.

At 11:30 AM, she comes again. This time she has 7.5 pounds in her account (15.5 pounds total minus the 8 pounds she has eaten), of which she gets 4 pounds.

She returns at 12:01 PM. She now has 4 pounds available (16 pounds total minus the 12 pounds she has eaten). But it has only been 30 minutes since her last visit, so she has only had time to digest 2 pounds. The 2045 will only allocate 2 pounds at this visit.

At 2:04 PM, she visits again, has 4 pounds in her account (18 pounds total minus the 14 pounds she has eaten), and cleans out her account.

She visits again at 5:01 PM, at which time she will get all of the 3 pounds in her account.

She makes her last three visits at 9:00 PM, 10:15 PM, and 10:45 PM, each time at which she gets 1 pound—the last visit clearing her account.

## 2.1 Understanding Feeding Codes, Commands & Values

Explanations of the parameters used in the Feeding program (including the code, name abbreviation, and your value entry options for each) are provided here, listed in alphabetical order of column heading abbreviation, to prepare you for entering commands and values in later subsections. (Refer to Appendix PC for a list of reports in which the each column heading abbreviation appears.)

# Feeding

## **Feed Ration (codes 41-44)**

A feed ration (RTNA,RTNB,RTNC,RTND) is an amount that you can assign (or allot) to a cow that specifies the maximum serving of a feed that you want that cow to be fed (by computerized feeders) each day. A default value of 0 for each feed ration is automatically set and will remain so for each new cow number you enter into the 2045 until such time as you change the value. Any value from 0 to 50 pounds (0 to 22.7 kilograms) can be assigned for each feed ration, at any time. (You may want to consult a nutritionist for help in evaluating the nutritional needs *and eating habits* of your herd to aid you in specifying rations that will optimize their milk production, yet minimize your feed costs. Additionally, a nutritionist can help you decide on a regular interval for adjusting the feed rations for each cow.) Ration amounts can be entered into the 2045 using either of two formats, that of a whole-number or a one-place decimal format. (An explanation of each entry method is provided in subsection 1.1.3) Note that cows can be assigned rations of 0 for all four feeds, if they are not to be fed, without deleting them from the herd. Evaluation of reports with RTNA, RTNB, RTNC, and RTND amounts can assist the dairyman in managing the feeding program.

## **Target Feed Days (code 45)**

Target feed days (TRG) is a number that you must assign to a particular cow, if you will be assigning target rations to that cow, to specify the number of days over which you will want the 2045 to automatically adjust that cow's daily rations to achieve the target rations. A default TRG number of 99 (which means that no target days number is assigned and rations are not to be adjusted) is automatically set and will remain so for each new cow number until you change the TRG number. Any number 1-98 can be assigned to activate target days (*0 and 99 deactivate target adjustment*), at any time. Entry of a TRG number (1-30) signals the 2045 to calculate the difference between the target ration and the current ration for each feed assigned that cow, to divide each sum by the TRG number, to add each amount to its current ration (at midnight) for newly adjusted rations that will be available to the cow over the next 24 hours, and to add those same amounts to the new rations each target feed day (in cumulative fashion) until the target days have elapsed and the target rations have been achieved. The TRG number will decrease by one each midnight

until it reaches zero (indicating that the target ration has been achieved), at which time the current ration value will automatically change to equal the target ration. The rations and the target days will remain unchanged and no further adjustment to current rations will occur until you change target ration and TRG number values again. If the number of target days is equal to 0 or 99, the feed rations will not be changed. The 99 day value for target days is used to disable the target feed adjustment and allow cows with this value to be distinguished from those that have reached their target rations and have target days equal to 0. Evaluation of reports with TRG numbers can assist the dairyman in managing the feeding program and in determining the need for further adjustment of cows' diets.

Note that the 2045 calculates adjustment figures for all feed rations assigned a cow, not just those for which you expect to see a noticeable change. Thus, if you do not want a ration to change, before entering a TRG number, ensure that the target ration value for that feed is the same as that of the current ration value.

### **Target Rations** (codes 46-49)

A target ration (TRGA, TRGB, TRGC, TRGD) is an amount that you can assign (or allot) to a cow that specifies the serving of a currently assigned feed that you will want that cow to be fed (by computerized feeders) each day once the target feed days have elapsed. A default value of 0 (which means that no target ration has been assigned) for each target ration is automatically set and will remain so for each new cow number you enter into the 2045 until such time as you change the value. Any value from 0 to 50 pounds (0 to 22.7 kilograms) can be assigned for each target ration, and the value can be higher or lower than the current ration value. (You may want to consult a nutritionist when assigning target rations for the same reasons noted under the "Feed Ration" explanation.) Ration amounts can be entered into the 2045, at any time, using either of two formats, that of a whole-number or a one-place decimal format. Entries using a decimal point will automatically round up to the nearest 1/5 lb (such that an entry of 15.3 lbs would be stored in the 2045 as 15.4 lbs). (An explanation of each entry method is provided in subsection 1.1.3) Metric entries will also be rounded to the nearest 1/5 lb, which means that some metric values are not possible. Note that if you will be assigning a target ration for

# Feeding

one feed that a cow receives and you do not want other rations for that cow affected, you must assign a target ration value for each of those feeds that is the same as their current feed ration value assignment, since target ration adjustment is activated by target days and the incrementing of target days affects all rations assigned to a cow.

Adjustment of rations occurs each midnight as explained under the “Target Feed Days” explanation. (You must enter these values for each cow on which you will want the 2045 perform automatic ration adjustment.)

## **Cow Weight/Days Since Weighed/Body Condition (codes 80, 70 and 74)**

The cow weight, days since weighed, and body condition numbers can be used to keep track of the cow’s condition during lactation. The weight and days since weighed can be entered manually or determined automatically by the Bou-Matic Automatic Weigh Scale system. Body weight and Condition Score are important factors which should always be considered in determining feed rations. A default value of 0 (which means that no weight or condition code is assigned) is automatically set and will remain so for each new cow number you enter into the 2045 until such time as you change the value. Any value from 0 to 9999 pounds (0 to 4535 kilograms) can be assigned for a cow weight, 0 to 255 for days since weighed, and any value from 0 to 9.9 can be assigned for Body Condition. Cow weight and body condition values are not currently used in calculations by the 2045. Thus, no event occurs when you set a value. Evaluation of reports with cow weight or body condition numbers can assist the dairyman in managing the feeding program, however, and in determining feed rations. Additionally, reports can be sorted by these values.

## **Total Feed Cost Since Dry Date (code 95)**

The 2045 will automatically compute the total feed cost for a lactation, based on the daily bunk feed cost and the costs of the individual feeds dispensed at the feeding stations. This total will be reset to zero when you dry off the cow. You can change this value at any time. Any value from 0 to 65535 can be assigned.

## Average Daily Milk Production (code 24)

If you have the Milking Program installed, the 2045 will automatically calculate your milk income and lactation totals from the data received from the milk meters. If you do not have milk meters, and you do not install the milking program, you can still have the 2045 calculate milk income and lactation totals by entering the Average Daily Milk Production. Any value from 0 to 255 can be assigned.

## 2.2 Entering Feeding Data

Feeding data values can be entered into the 2045 at the terminal using either the Single Entry, Prompt Entry, Group Entry, or Menu mode. (The difference between these modes and suggestions on when to use one or the other are explained in Chapter 1.) The following subsections provide information on entering commands and menu answers relative to feeding data for these data entry methods.

### Single Entry

To enter (or change) feeding data values using Single Entry mode, enter any of the following commands, specifying a cow number in the second field of data for each command and a value for the third field of data that falls within the range or replaces the word shown in parentheses in each command:

#### Examples:

- To assign a daily ration of 12.5 lbs of feed B to cow 123, you would enter the command 42\*123\*12.5#
- To assign a target ration of 15 lbs of feed B to cow 123, you would enter the command 47\*123\*15#
- To assign cow 123 a target days value of 10 days, you would enter the command 45\*123\*10#
- To assign a body weight of 1400 lbs to cow 123, you would enter the command 80\*123\*1400#

4 1 *	(cow number) *	(0-500) #	assigns daily ration for feed A to cow
4 2 *	(cow number) *	(0-500) #	assigns daily ration for feed B to cow
4 3 *	(cow number) *	(0-500) #	assigns daily ration for feed C to cow
4 4 *	(cow number) *	(0-500) #	assigns daily ration for feed D to cow
4 5 *	(cow number) *	(0-30,99) #	assigns target feed days to cow
4 6 *	(cow number) *	(0-50) #	assigns target ration for feed A to cow
4 7 *	(cow number) *	(0-50) #	assigns target ration for feed B to cow
4 8 *	(cow number) *	(0-50) #	assigns target ration for feed C to cow
4 9 *	(cow number) *	(0-50) #	assigns target ration for feed D to cow
7 4 *	(cow number) *	(0-9.9) #	assigns body condition score to cow
7 9 *	(cow number) *	(0-255) #	assigns days since weighed to cow
8 0 *	(cow number) *	(weight) #	assigns weight to cow
9 5 *	(cow number) *	(0-65535) #	assigns total feed cost to cow
2 4 *	(cow number) *	(0-255) #	assigns average daily milk to cow

If you enter a command specifying a cow number that does not exist in the 2045's memory or an invalid value, the 2045 will respond with a Command Error message and the terminal beeper will sound to alert you to the error.

# Feeding

## Prompt Entry

To enter, change, or review feeding data values using Prompt Entry mode, you may first use the Sort command (explained in Appendix US) to arrange cow data in the order you desire. Then, you can either enter any of the following commands, allowing cow numbers to appear in order of the most recent sort, and then the values you desire:

1 6 * 4 1 #	to assign a daily ration for feed A to cows
1 6 * 4 2 #	to assign a daily ration for feed B to cows
1 6 * 4 3 #	to assign a daily ration for feed C to cows
1 6 * 4 4 #	to assign a daily ration for feed D to cows
1 6 * 4 5 #	to assign target days to cows
1 6 * 4 6 #	to assign a target feed ration for feed A to cows
1 6 * 4 7 #	to assign a target feed ration for feed B to cows
1 6 * 4 8 #	to assign a target feed ration for feed C to cows
1 6 * 4 9 #	to assign a target feed ration for feed D to cows
1 6 * 7 4 #	to assign body condition scores to cows
1 6 * 7 9 #	to assign days since weighed to cows
1 6 * 8 0 #	to assign cow weights to cows
1 6 * 9 5 #	to assign total feed costs to cows
1 6 * 2 4 #	to assign daily milk weight averages to cows

You can enter values starting with any cow number by including an asterisk and the particular cow number as a third data field (between the 2-digit number and #) in each command. Cow numbers will still appear in the order of the most recent sort; however, starting with a particular cow number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

P: cow number: current value=

The “P” indicates Prompt Entry mode, the words “cow number” represent the number of the cow you’ll be assigning a value to, and the words “current value” represent the value currently assigned to that cow number for the particular parameter.

Type in a new value that you want to assign that cow number, and press the ENTER key, or just press ENTER to accept the current value, and proceed to the next cow number. If you make a mistake

## Examples:

- To sort data first, you would enter  
4\*(parm code)# ...or  
4\*(parm code)\*(parm code)#
- To assign daily rations of feed B to cows, you would enter 16\*42#  
To assign them starting with cow 123, you would enter 16\*42\*123#
- To assign target rations of feed B to cows, you would enter 16\*47#  
To assign them starting with cow 123, you would enter 16\*47\*123#
- To assign target days values to cows, you would enter 16\*45#  
To assign them starting with cow 123, you would enter 16\*45\*123#
- To assign cow weights/body condition codes to cows, you would enter 16\*80#  
To assign them starting with cow 123, you would enter 16\*80\*123#

while entering a value, you can correct it in one of two ways: (1) if you entered the value in whole numbers, before you press ENTER, type four zeros (0000), then retype the correct value, (2) if you entered the value using a decimal point, you must press the Escape key to exit the mode, then enter the above command (starting with the cow number with which the error was created if you wish), and retype the correct value for that cow. If you enter a command specifying a cow number that does not exist in the 2045's memory or an invalid value, the 2045 will respond with a Command Error message and the terminal beeper will sound to alert you to the error.

To exit this mode, press the Escape key (as necessary).

#### Group Entry

To enter or change feeding data values using Group Entry mode, enter any of the following commands:

<b>4 1 * #</b>	to assign a daily ration for feed A
<b>4 2 * #</b>	to assign a daily ration for feed B
<b>4 3 * #</b>	to assign a daily ration for feed C
<b>4 4 * #</b>	to assign a daily ration for feed D
<b>4 5 * #</b>	to assign target feed days
<b>4 6 * #</b>	to assign a target ration for feed A
<b>4 7 * #</b>	to assign a target ration for feed B
<b>4 8 * #</b>	to assign a target ration for feed C
<b>4 9 * #</b>	to assign a target ration for feed D
<b>7 4 * #</b>	to assign a body condition score
<b>7 9 * #</b>	to assign a days since weighed
<b>8 0 * #</b>	to assign a cow weight
<b>9 5 * #</b>	to assign a total feed cost
<b>2 4 * #</b>	to assign an average daily milk weight

The 2045 will enter Group Entry mode and respond with an 'E=' prompt. After the prompt, type in a cow number, an asterisk (\*), the parameter value you want assigned, and then press the ENTER key. Repeat this entry process for each cow you want to assign a value to for the parameter you've specified. (See example.)

If you enter a command specifying a cow number that does not exist in the 2045's memory or an invalid value, the 2045 will respond with a Command Error message and the terminal beeper will sound to alert you to the error. To exit this mode, press the ENTER key (as necessary).

# Feeding

You can also enter (or change) feeding data using Group Entry mode and Menu mode, using the following procedure:

**1. Beginning at the main menu, press the F key.**

The 2045 will display the Feeding menu, which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.

**2. Press the D key.**

The Feeding Data menu, as shown, will be displayed.

**3. Press the F key.**

The Feeding Data Entry menu, as shown, will be displayed.

**4. Press the appropriate key (R,T,D,W, or I) for the feeding parameter you want to assign values for.**

The 2045 will respond in various ways, depending on your selection; find the heading that corresponds to your selection and continue with this procedure. (The remaining steps are shown unhighlighted so you may see the headings more readily.)

\*\* Agri-comp 2045 Feeding \*\*

S - Setup  
D - Data Entry or Edit  
R - Reports  
D

\*\*\* Agri-comp 2045 Feeding Data \*\*\*

F - Feeding Data Entry  
E - Edit Cow Record  
F

\*\*\*\* Feeding Data Entry \*\*\*\*

R - Assign Rations for Feeds  
T - Assign Ration Targets  
D - Assign Target Days  
W - Weight or Body Condition  
I - ID Tag Number

**If you pressed R to assign daily rations...**

The Feed Ration Entry menu, as shown, will be displayed.

**5. Press the appropriate key (A-D) for the feed you want to assign rations for.**

The 2045 will enter Group Entry mode and respond with an 'E=' prompt.

**6. Respond to the E= prompt as explained above for the Command mode.**

\*\*\*\* Feed Ration Entry \*\*\*\*

A - Assign Ration for Feed A  
B - Assign Ration for Feed B  
C - Assign Ration for Feed C  
D - Assign Ration for Feed D

**If you pressed T to assign target rations...**

The Feed Target Entry menu, as shown, will be displayed.

**5. Press the appropriate key (A-D) for the feed you want to assign target rations for.**

The 2045 will enter Group Entry mode and respond with an 'E=' prompt.

**6. Respond to the E= prompt as explained above for the Command mode.**

\*\*\*\* Feed Target Entry \*\*\*\*

A - Assign Target for Feed A  
B - Assign Target for Feed B  
C - Assign Target for Feed C  
D - Assign Target for Feed D

## If you pressed D to assign target days...

The 2045 will enter Group Entry mode and respond with an 'E=' prompt.

5. Respond to the E= prompt as explained above for the Command mode.

## If you pressed W to assign cow weight or body condition codes...

The 2045 will enter Group Entry mode and respond with an 'E=' prompt.

5. Respond to the E= prompt as explained above for the Command mode.

## If you pressed I to assign ID tag numbers...

The 2045 will enter Group Entry mode and respond with an 'E=' prompt.

5. Respond to the E= prompt as explained above for the Command mode.

To exit this mode, press the Escape key (as necessary).

## 2.3 Editing a Cow Record

Although the Single, Prompt, and Group Entry modes, explained earlier in this section, are available specifically for entering and changing feeding data values on an individual parameter basis, values for those same parameters can also be assigned or changed in an existing cow record through the Edit Cow Record menu item of the Feeding menu hierarchy. The advantage of entering data by editing a cow record is that you can see and change any or all feeding data for a particular cow at once.

To enter or change data in a cow record through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the F key.**

The 2045 will display the Feeding menu, which has three selections from which to choose: Setup, Data Entry or Edit, and Reports.

F

\*\* Agri-comp 2045 Feeding \*\*

S - Setup

D - Data Entry or Edit

R - Reports

D

\*\*\* Agri-comp 2045 Feeding Data \*\*\*

F - Feeding Data Entry

E - Edit Cow Record

E

# Feeding

**2. Press the D key.**

The Feeding Data menu, as shown, will be displayed.

**3. Press the E key to edit a cow record.**

The 2045 will respond with a prompt, asking if you want to sort the cows first.

**4. Respond to the prompt by pressing either the Y or N key.**

If you press the N key, the 2045 will ask for the starting cow number, and you may proceed to step 5.

If you press the Y key, you will be asked for a primary sort key and a secondary sort key. Refer to the parameter codes listed in Appendix PC or press the question mark (?) key to have the 2045 display a list of valid parameter codes at the terminal, and enter the codes you wish to have data arranged by. (Refer to Appendix US for details on entering Sort commands.) The 2045 will pause briefly to perform the sort. After it has completed the sort, the 2045 will ask for the starting cow number.

**Note**

Normally, the ? key will display the parameter list. In Edit cow mode, it displays the cow record.

**5. Enter the number of the first cow whose data you wish to change, or just press ENTER to start with the first cow.**

The screen will display the cow's current cow number and daily ration value for feed A (in parentheses) following their parameter name abbreviations. (Refer to Appendix PC for a list of parameter codes and name abbreviations.) The remaining parameters and their values will be displayed as you advance through the record (as explained below). A typical display is shown.

You can change any of the currently assigned values in a record (except the cow number) by entering the new value at the colon (:). To skip past certain data, accepting the current value, press the ENTER key. To skip backward one parameter, such as from TRGA to TRG, press the left bracket ([) or left brace ({) key. If you make a mistake while entering a value, before you press ENTER, use the Backspace key to back up over the incorrect digits, then retype the value. If you try to enter an invalid value, the terminal's beeper will sound, and the 2045 will ignore the attempted change and continue to show the original value.

*Example:*

```
NUMB (      1 ) :
RTNA (    20.0 ) :
RTNB (     5.0 ) :
RTNC (     1.0 ) :
RTND (     .0 ) :
TRG  (       0 ) :
TRGA (    20.0 ) :
TRGB (     5.0 ) :
TRGC (     1.0 ) :
TRGD (     .0 ) :
WGT  (    2000 ) :
CIDN (   1406 ) :
FD $ (   1756 ) :
```

Whenever you press the ENTER key to accept the last parameter value listed in a cow record, the 2045 will display the next cow's data. Records for all cows in the 2045 will be displayed, and data can be changed in the same manner explained above. The cow records will appear in the order of the most recent sort of the data. That is, if you last sorted the data by Production Average (AVG), the cow records will appear in increasing average production sequence. You can also proceed immediately to the next cow record (from any point within a record) by pressing the plus (+) or equal (=) key. To skip backward and repeat a previous cow record, press the minus (-) key. To view the complete cow record for the current cow, press the question mark (?) key.

To exit the editing process without affecting all cow records, press the Escape (ESC) key.

### 2.3.1 Changing The Feeding Edit Parameter List

The list of cow parameters to be edited in the Edit Cow Record for Feeding can be changed to include only those parameters that you want to edit, in the order that you want to edit them. To edit the parameter list, enter the command:

**16\*19\*1#**

The 2045 will enter Prompt mode and allow you to review and change the Feeding Edit Parameter List. Each field in the current list will be displayed with the four letter abbreviation (see Appendix PC), a "P:" to indicate prompt mode, the current field number (you can have up to 109 fields in this list), the current parameter code number, and end with a question mark (?). To leave the code as it is, just press the ENTER key. To change to a different parameter code, just type in the new code number. To delete a code, press the minus key (-). To insert a new code between two codes, press the plus key (+). To see a list of all possible codes, press the question mark key (?). To end the list, enter a code number 0, then press the Escape key.

You can restore the Feeding Edit Parameter List to the default list by entering the command:

**8\*19\*1#**

## 2.4 Adjusting Rations With Automatic Ration Adjust

Ration Adjust is a function that allows the 2045 to adjust automatically the daily rations of all cows eating a particular feed type, according to a Ration Adjust percentage value that you specify for that feed. This adjustment is an option that is useful for permanently changing rations when you change a feed type to one with a different nutrient content or for temporarily increasing or decreasing the rations of all cows (but not changing the feed type) due to a change in weather conditions, for example. Entry of a Ration Adjust command eliminates the need for the dairyman to reassign an individual feed ration for each cow. Note that Ration Adjust entries only affect daily rations, not target rations, and that the 2045 immediately changes the individual daily ration value in each affected cow record (upon entry of the command) to agree with the result of the calculation made with the Ration Adjust percentage you specify. Ration Adjust percentage values for each feed type appear under the heading abbreviation ADJ% in the Feed Type Summary report. This report alerts the dairyman to those feeds that have been adjusted, what adjustment has been made, and what adjustment can be made to return rations to their original values, if desired.

A default Ration Adjust percentage value of 100% for each feed type is automatically set and will remain so until such time as you change the value. Any percentage value from 0 to 200% can be assigned to a feed type, at any time. (The table shown lists some values and their affect on rations.) When you enter a command, the 2045 immediately searches each cow record for the feed type specified and *applies the percentage specified to the individual daily ration assigned each cow*. From that moment on until you enter a new value, the 2045 will allocate feed for each cow using the new daily ration assignment for the specified feed type. The 2045 does not store the original ration assignments for the cows; if you want to return the rations to the original settings you must issue another Ration Adjust command with the correct percentage to “undo” the original adjustment (the undo may not be exact, due to math round-off errors). Note that if you want to adjust the rations of a particular feed for cows in some feed zones but not others, you must assign a new feed-type number for the feed you’ll be affecting to the feed zone(s) containing the cows whose

### Reminder

- Ration adjust percentages appear under ADJ% in reports.
- Reverse adjustment percentages appear under UNDO in reports.
- Feed prices appear under CWT\$ in reports.

### Ration Adjust Percentage Values:

0	=no feed
10	=1/10 of ration or 90% decrease
20	=2/10 of ration or 80% decrease
30	=3/10 of ration or 70% decrease
40	=4/10 of ration or 60% decrease
50	=5/10 of ration or 50% decrease
60	=6/10 of ration or 40% decrease
70	=7/10 of ration or 30% decrease
80	=8/10 of ration or 20% decrease
90	=9/10 of ration or 10% decrease
100	=full original daily ration
110	=11/10 of ration or 10% increase
120	=12/10 of ration or 20% increase
130	=13/10 of ration or 30% increase
140	=14/10 of ration or 40% increase
150	=15/10 of ration or 50% increase
160	=16/10 of ration or 60% increase
170	=17/10 of ration or 70% increase
180	=18/10 of ration or 80% increase
190	=19/10 of ration or 90% increase
200	=20/10 of ration or 100% increase

For example, say you’re changing feed type 1 from a cracked corn with a dry matter content of 60% to one with a content of 70%, but you want cows to receive the same amount of dry matter after the change. You would calculate the percentage as follows:

$$\frac{60\%}{70\%} \times \frac{X}{100} = 85.714285 \text{ or } 86\%$$

If you want to temporarily increase rations by 10% (for instance due to extreme cold weather conditions), you would calculate the percentage as follows:

$$100\% + 10\% = 110\%$$

to restore the original rations:

$$\frac{100\%}{110\%} \times \frac{X}{100} = \dots \text{ or } 91$$

For example

- Say you're currently feeding cracked corn as feed type 1 to all cows, and you decide to increase rations by 20%. You would simply enter the command `37*1*120#`
- Say you're currently feeding crushed corn as feed type 1 to all of 4 feed zones, and you decide to change the rations of this feed for cows in zones 3 and 4 but not those in zones 1 and 2. You would simply assign another unused feed-type number (5, for example) to also be crushed corn, then assign that feed type to the appropriate feeds in zones 3 and 4, before you enter the Ration Adjust command.

rations will be adjusted and a feed-type name (to distinguish between the feed-type number used in each zone) to the new feed type. (You may want to indicate the zone number or include the letters 'RA' in the name of the feed to further aid in distinguishing feed types.) Note that specifying feed-type number 0 in the command will cause the adjustment to be applied to all feeds and all cows, and specifying a percentage of 0 will set the rations for that feed to 0.

The automatic adjustment of rations can be made only through Command mode by specifying a feed-type number for the second field of data and a percentage value for the third field of data that falls within the applicable range shown in parentheses in the following command:

```
37 * (1-32) * (0-200%) #
```

The Ration Adjust value used for each feed can be recalled by printing the Feed Name report (`17*37#`). The column labeled ADJ% is the value used for the last adjustment for each feed. The column labeled UNDO is the Ration Adjust percentage that you would need to enter to reverse the effects of the last Ration Adjust command. Note that the UNDO value may not restore the rations to exactly the same value as previously, due to round-off errors. Also note that adjustment percentage values that are less than 50% will require undo percentages that are greater than the maximum 200% that is allowed. This would require you to use several steps, each no larger than 200%, to restore the original values. In this case, you must remember that repeated adjustments are multiplied (not added), so that three successive adjustments of 200% will give a total adjustment of 800%, not 600%. Adjustments that might need to be restored to their original values should be kept in the range of about 75% to 125%.

## 3 Feeding Reports

Feeding reports can be used by the dairyman to evaluate and effectively manage herd diets and feeding system operation.

Seven reports are available through the Feeding program:

- Feed Ration Report
- Ration Target Report
- Feed Exception Report
- Feed System Summary for Today
- Feed System Summary for Yesterday
- Feed Name (Name) Summary
- Tag Number List

The purpose of each report, an explanation of the data printed in each report, and suggestions on how reports may be sorted and printed are discussed in the following subsections. Examples of the reports are shown on the following pages, as well. (Due to the limitation of space in this manual, actual data shown in the example reports may not reflect the number of cows indicated.) For further explanation of the abbreviations used in the reports, refer to Appendix PC.

### 3.1 Understanding Feeding Reports

Most feeding reports have a heading, which consists of the dairy farm's name (if entered into the 2045), the number of the milking during which the data was obtained, the current date and time at which the report was printed, the name "Agri-comp 2045" and the report name, and column headings that pertain to the particular report. (The column headings, which vary for each report, are abbreviated parameter names, all of which can be found in Appendix PC.) A typical example is shown with the word "NAME" representing the parameter names.

The body, or in some cases the only portion of a report, consists of columns of data that appear under their corresponding column headings. All data printed in the body of a report that includes a heading and summary (with the exception of data affected by a report day number other than zero—refer to Section 1 of Chapter 4 for

#### *Heading*

```
=====
      Example Farm
      MLKG NO. IS 2
      1 JAN 93
      12:46 AM
-----
      AGRICOMP 2045
      EXAMPLE REPORT
-----
N   N   N   N   N   N
A   A   A   A   A   A
M   M   M   M   M   M
E   E   E   E   E   E
```

instructions on entering the report day number and details on the specific parameters whose data is affected by that number) will contain data collected on the date specified in the report heading. Due to the vast differences in report bodies, examples will be shown and the specific data provided by each report will be discussed in the individual report subsections which follow.

## Summary

```
-----  
No. of Cows = 231  
Totals:  
  Prod Today 9402  
  Prod Avg 9365  
  Avg Time 931  
Averages:  
  Prod Today = 40.7  
  Prod Avg = 40.5  
  Avg Time = 4.0  
Avg Days Open= 108.7  
Avg Days Preg= 152.7  
Average DIM = 183.7  
Day Number = 1
```

Most reports also end with a summary, which includes figures automatically calculated by the 2045 for those cows listed in the report. While the summation headings in all the reports will remain the same, the figures may vary from report to report, since the data used in the 2045's calculations will be different depending on which cows' data is used, the number of cows listed in the report, and their status at the time the report is viewed or printed. A typical example of the summary is also shown. The summation headings are explained in Section 3 of Chapter 4 for all reports, since the same headings and explanations apply to all 2045 reports with summaries.

### 3.1.1 Feed Ration Report

The Feed Ration Report is a list of certain feeding-related data that are included in the cow record of each cow that has an ID tag number assigned. Among the data included in the report are the Lot number, the Reproductive Status code, the Body Weight or Condition Code (as entered), Days In Milk (DIM), Days since Bred (DBRD), and Average daily milk production (AVG). The zone number listed is the zone assigned to the last feeder that the cow ate at. The percent fed (%FED) value is the percent that a cow has eaten of the amount of ration that had been allocated to the cow at the time the report is printed—not the percent of her total daily allocation. The data shown under the last eight column headings are the rations assigned (RTNA-RTND) and the amounts actually fed (FD A through FD D) for each of the four feeds. This report can be useful for keeping track of your feeding patterns, and should be printed at least every time you change rations, and kept for future reference.

Data in this report can be sorted (as explained in Appendix US) by any cow-related parameter listed in Appendix PC and will appear in the order determined by the most recent sort.

# Feeding

This report can be displayed or printed two ways:

- You can generate the [entire] report by entering the command 18\*40# or through Menu mode
- You can limit the report to display or print data only for those cows in a particular zone by specifying that zone number (in place of the word "zone") in the command to print the report—18\*40\*(zone)#.

The example report shown was sorted by Cow Number (NUMB—parameter code 19) with the command 4\*19# and printed with the command 18\*40#.

```

=====
                          Example Farm
                          MLKG NO. IS 2
                          1 JAN 93
                          8:00 AM
=====
-
                          AGRICOMP 2045
                          FEED RATION REPORT
=====
  N  L R  W  D  D  A  Z  %  R  F  R  F  R  F  R  F
  U  O P  G  I  B  V  O  F  T  D  T  D  T  D  T  D
  M  T R  T  M  R  G  N  E  N  A  N  B  N  C  N  D
  B  O          D          E  D  A  A  B  B  C  C  D  D
=====
  1  3  6  975 274 199  64  2  94  8.5  4.0  5.5  2.6  3.7  1.7  .0  .0
  2  3  6  988 253 194  74  2  98  9.0  4.4  5.5  2.7  3.7  1.8  .0  .0
  3  3  6 1030 190 105 101  2  95 11.3  5.4  6.5  3.1  4.1  1.9  .0  .0
 19  2  4 1153  85  20 125  1  72 10.3  3.7  6.0  2.1  3.9  1.4  .0  .0
 25  2  0 1012 106  23 119  1  85 11.0  4.7  6.5  2.8  4.0  1.7  .0  .0
 49  4  7  974 250 187  75  3  87  9.2  4.0  5.9  2.6  3.6  1.6  .0  .0
 60  1  3  988  64  4 120  1  64  9.4  3.0  5.5  1.8  3.7  1.2  .0  .0
 72  3  6  987 211 151  89  2   0  9.0   .0  6.3   .0  4.0   .0  .0  .0
 91  1  1 1029  1  0  22  1  60  4.0  1.2  3.0   .9  2.0   .6  .0  .0
123  4  9  934 316 256  9  3  88  6.8  3.0  4.8  2.1  3.4  1.5  .0  .0
176  2  5 1017 127  68 107  1 100 11.4  5.7  6.7  3.3  4.1  2.1  .0  .0
208  3  5 1025 148 103 115  2  90 11.8  5.3  6.8  3.0  4.2  1.9  .0  .0
362  4  9  942 337 291  0  3  77  5.7  2.2  4.3  1.7  3.2  1.2  .0  .0
435  1  2 1032  43  0 102  1  97  8.0  3.9  4.8  2.3  3.4  1.6  .0  .0
593  3  6  966 232 172  87  2  80 10.0  4.0  6.0  2.4  4.0  1.6  .0  .0
741  3  6  936 295 230  21  2  91  7.7  3.5  5.1  2.3  3.4  1.5  .0  .0
857  4  9  911 358 293  7  3  89  4.5  2.0  4.0  1.8  3.2  1.4  .0  .0
974  4  8  917 328 280  11  3  98  6.1  3.0  4.6  2.2  3.3  1.6  .0  .0
1015 1  1 1147  22  0  63  1 100  6.0  3.0  4.0  2.0  3.0  1.5  .0  .0
1316 3  5 1019 169 105 111  2  96 12.0  5.8  6.7  3.2  4.1  2.0  .0  .0
=====
 20  0  0  999 200 157  75  0  87  8.6  3.8  5.4  2.4  3.6  1.6  .0  .0
=====
-
No. of Cows =    20
Totals:
  Prod Today      ....
  Prod Avg        ....

```

*Feed Ration Report:*

- NUMB—Cow Barn (Record) Number
- LOT— Lot Number
- RPRO—Reproductive Status Code
- WGT—Body Weight
- DIM—Days In Milk (days of current lactation)
- DBRD—Days Since Bred
- AVG—Overall Avg Milk Production
- ZONE—Feed Zone
- %FED—Percent fed (of possible so far)
- RTNA—Daily Ration of Feed A
- FD A—Amt of feed A fed so far today
- RTNB—Daily Ration of Feed B
- FD B—Amt of feed B fed so far today
- RTNC—Daily Ration of Feed C
- FD C—Amt of feed C fed so far today
- RTND—Daily Ration of Feed D
- FD D—Amt of feed D fed so far today

## 3.1.2 Feed Exception Report

The Feed Exception Report is a list of certain feeding-related data for cows whose percent fed (%FED) value was under the *current* feed exception threshold level (set with a command that will be explained below) on any of the last seven days. Note that data for any cow new to the system will always appear on the Feed Exception Report for the first seven days.

The feed exception threshold level is the cutoff point, in percent, for the Feed Exception Report. A default threshold value of 0% (which causes all cows to be printed) is automatically set and will remain so until such time as you change the value. Any threshold value from 0 to 200% can be assigned. Although cows normally would not be over 100%, a cow could exceed 100% if

- the cow's ration was reduced by the dairyman late in the day, when she had already eaten more than the new ration.
- round-off errors in the feeder resulted in one or two tenths of a pound extra being fed to a cow. On cows with small ration allocations, this can result in what appears to be a large percentage of the total ration. For example, on a cow with a total ration of only 1 pound, a round-off error of 0.1 pound would result in a percent fed value of 110%.
- the default feeding switches have been set on one or more of the feeders. This causes the feeders to feed the cows even when the 2045 says not to, and the amount fed is reported to, and recorded by, the 2045. These switches should always be turned off, unless the 2045 is going to be out of communication with the feeders for more than 24 hours at a time.

To set the threshold level, you can either enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

```
1 5 * 1 4 0 * (0-200) #
```

...or you can set it when you enter the command to print the Feed Exception Report, as explained below.

**Data in this report is always sorted in increasing order by the percent fed on day 1 (%FD1).**

# Feeding

This report can be displayed or printed three ways:

- You can generate the report by entering the command 18\*140#.
- You can set the threshold level by specifying the threshold level from 0 to 200 percent (in place of the word "threshold") in the command to print the report—18\*140\*(*threshold*)#.
- You can also generate the report through Menu mode, as explained in subsection 3.2.

The example report shown was printed with the command 18\*140#.

```

=====
                          Example Farm
                          MLKG NO. IS 2
                          1 JAN 93
                          8:00 AM
=====
                          AGRICOMP 2045
                          FD EXCEPTION REPORT
=====
N  L  R  D  Z  R  R  R  T  V  U  %  %  %  %  %  %
U  O  P  I  O  T  T  T  T  R  S  F  F  F  F  F  F
M  T  R  M  N  N  N  N  T  T  D  D  D  D  D  D
B  O  E  A  B  C  D  N  1  1  1  2  3  4  5  6  7
=====
  1  3  6  274  2  8.5  5.5  3.7  .0 17.7  4  1  98  97  53  95  92  90  94
  2  3  6  253  2  9.0  5.5  3.7  .0 18.2 12  7  65  94  92  69  96  93  99
  3  3  6  190  2 11.3  6.5  4.1  .0 21.9  6 19  74  60  63  97 100  90 100
19  2  4  85  1 10.3  6.0  3.9  .0 ..... .. .. .. .. .. .. ..
25  2  0 106  1 11.0  6.5  4.0  .0 ..... .. .. .. .. .. .. ..
49  4  7  250  3  9.2  5.9  3.6  .0 ..... .. .. .. .. .. .. ..
60  1  3  64  1  9.4  5.5  3.7  .0 ..... .. .. .. .. .. .. ..
72  3  6  211  2  9.0  6.3  4.0  .0 ..... .. .. .. .. .. .. ..
91  1  1  1  1  4.0  3.0  2.0  .0 ..... .. .. .. .. .. .. ..
123 4  9  316  3  6.8  4.8  3.4  .0 ..... .. .. .. .. .. .. ..
176 2  5  127  1 11.4  6.7  4.1  .0 ..... .. .. .. .. .. .. ..
208 3  5  148  2 11.8  6.8  4.2  .0 ..... .. .. .. .. .. .. ..
362 4  9  337  3  5.7  4.3  3.2  .0 ..... .. .. .. .. .. .. ..
435 1  2  43  1  8.0  4.8  3.4  .0 ..... .. .. .. .. .. .. ..
593 3  6  232  2 10.0  6.0  4.0  .0 ..... .. .. .. .. .. .. ..
741 3  6  295  2  7.7  5.1  3.4  .0 ..... .. .. .. .. .. .. ..
857 4  9  358  3  4.5  4.0  3.2  .0 ..... .. .. .. .. .. .. ..
974 4  8  328  3  6.1  4.6  3.3  .0 ..... .. .. .. .. .. .. ..
1015 1  1  22  1  6.0  4.0  3.0  .0 ..... .. .. .. .. .. .. ..
1316 3  5  169  2 12.0  6.7  4.1  .0 ..... .. .. .. .. .. .. ..
=====
 20  0  0  200  0  8.6  5.4  3.6  .0 ..... .. .. .. .. .. .. ..
=====
No. of Cows =    20
Totals:
  Prod Today     ....
  Prod Avg       ....

```

*Feed Exception Report:*

- NUMB—Cow Barn (Record) Number
- LOT— Lot Number
- RPRO—Reproductive Status Code
- DIM—Days In Milk (days of current lactation)
- ZONE—Feed Zone
- RTNA—Daily Ration of Feed A
- RTNB—Daily Ration of Feed B
- RTNC—Daily Ration of Feed C
- RTND—Daily Ration of Feed D
- TRTN—Total Ration (A+B+C+D)
- VST1—No. of Feeding Visits, day 1
- UFD1—Percent Unfed, day 1
- %FD1—Percent of Ration Fed, day 1
- %FD2—Percent of Ration Fed, day 2
- %FD3—Percent of Ration Fed, day 3
- %FD4—Percent of Ration Fed, day 4
- %FD5—Percent of Ration Fed, day 5
- %FD6—Percent of Ration Fed, day 6
- %FD7—Percent of Ration Fed, day 7

If the threshold value is not equal to 0, the threshold value will be printed at the bottom of the summary.

### 3.1.3 Ration Target Report

The Ration Target Report is a list of certain feeding-related data for cows that have either a target days (TRG) value from 0 to 98, or a TRG value of 99 with a target ration value for any feed (TRGA-TRGD) that is not equal to zero. Cows having a TRG value of 99 and all target rations set to 0 will not be listed.

Included in the report are the Lot number, Reproductive Status code, Body Weight, Days in Milk, Days since Bred, and Average daily milk production. The Zone shown is the zone assigned to the last feeder where the cow ate. The Percent Fed value is the percent that the cow has eaten of the amount allocated to her so far today, not the percent of her total daily allocation. The Target Days (TRG) value is the number of days remaining to reach the target rations. The last eight columns show the rations assigned and the target rations for each of the four feeds.

You should print this report weekly, or whenever you change the target rations, and keep it on file for future reference.

Data in this report can be sorted (as explained in Appendix US) by any cow-related parameter listed in Appendix PC and will appear in the order determined by the most recent sort.

This report can be displayed or printed two ways:

- You can generate the [entire] report by entering the command 18\*45#.
- You can also generate the report through Menu mode, as explained in subsection 3.2.

The example report shown was sorted by target days (TRG—parameter code 45) with the command 4\*45#. The report was printed with the command 18\*45#.

# Feeding

```

=====
Example Farm
MLKG NO. IS 2
1 JAN 93
8:00 AM
=====

```

```

=====
AGRICOMP 2045
RATION TARGET REPORT
=====

```

N	L	R	W	D	D	A	Z	%	T	R	T	R	T	R	T	R	T	R	T
U	O	P	G	I	B	V	O	F	R	T	R	T	R	T	R	T	R	T	R
M	T	R	T	M	R	G	N	E	G	N	G	N	G	N	G	N	G	N	G
B	O			D		E	D		A	A	B	B	C	C	D	D			
1	9	8	0	0	271	0	9	33	0	5.0	5	.0	0	.0	0	.0	0	.0	0
2	1	2	0	25	0	81	1	0	0	7.0	7	4.0	4	.0	0	.0	0	.0	0
3	1	2	0	28	0	96	1	84	0	7.0	7	4.0	4	.0	0	.0	0	.0	0
145	1	2	0	29	0	82	1	65	0	7.0	7	4.0	4	.0	0	.0	0	.0	0
127	1	3	0	72	23	64	1	0	0	7.0	7	1.0	1	.0	0	.0	0	.0	0
87	1	2	0	50	0	60	1	0	3	4.8	6	1.7	2	.0	0	.0	0	.0	0
114	1	2	0	28	0	56	1	67	5	4.5	6	1.5	2	.0	0	.0	0	.0	0
53	2	2	0	105	0	68	2	74	6	8.6	6	4.9	4	.0	0	.0	0	.0	0
44	2	5	0	240	54	66	2	67	6	6.9	6	3.9	3	.0	0	.0	0	.0	0
38	2	6	0	193	70	65	2	60	6	6.9	6	4.0	4	.0	0	.0	0	.0	0
152	2	6	0	373	201	41	2	48	10	4.0	0	1.0	0	.0	0	.0	0	.0	0
101	2	6	0	335	201	47	2	0	10	8.0	0	1.0	0	.0	0	.0	0	.0	0
59	1	2	0	12	0	78	1	65	13	2.4	6	1.7	4	.0	0	.0	0	.0	0
13	9	8	0	0	261	0	9	74	14	2.6	5	.0	0	.0	0	.0	0	.0	0
103	9	9	0	282	269	0	2	0	15	3.0	8	.0	0	.0	0	.0	0	.0	0
77	9	9	0	443	269	0	2	0	15	3.0	8	.0	0	.0	0	.0	0	.0	0
163	1	2	0	17	0	41	1	77	18	2.4	6	1.0	2	.0	0	.0	0	.0	0
165	1	1	0	6	0	24	9	0	19	.3	7	.2	4	.0	0	.0	0	.0	0

Ration Target Report:  
 NUMB—Cow Barn (Record) Number  
 LOT— Lot Number  
 RPRO—Reproductive Status Code  
 WGT—Body Weight/Condition Code  
 DIM—Days In Milk (days of current lactation)  
 DBRD—Days Since Bred  
 AVG—Overall Avg Milk Production  
 ZONE—Feed Zone  
 %FED—Percent fed (of possible so far)  
 TRG—Target Days, Auto Feed Adjust  
 RTNA—Daily Ration of Feed A  
 TRGA—Target for Feed A  
 RTNB—Daily Ration of Feed B  
 TRGB—Target for Feed B  
 RTNC—Daily Ration of Feed C  
 TRGC—Target for Feed C  
 RTND—Daily Ration of Feed D  
 TRGD—Target for Feed D

### 3.1.4 Feeder System Summary—Today and Yesterday

The Feeder System Summary is a report listing feed system data. The report groups the feeders into zones, with summary data for each zone. It also identifies which feed types are assigned to each zone and the total amount fed for each feed (at the time the report is printed for today, and total for end of day for yesterday). A complete list of all calibration tags and their feed assignments is printed at the end of the summary. This report can be very useful for verifying that the feeding system is working properly.

Today's summary shows how the feeders are performing so far today. Yesterday's summary represents a complete 24 hours of feeding information. Note that on the reports for both Today and Yesterday, the data for calibration factors, total rations (TOTAL FED), and last communication time (LAST COMM TIME) are actually today's

data, since only the current values for each of these parameters are stored.

## Note

Since all feeders in a zone are generally located close to each other, any unusual differences between feeders in a zone are indicative of possible problems with the feeders.

- A very low number of visits at a feeder usually indicates that feeder is not delivering the proper feed amounts.
- A very high number of visits at a feeder may indicate a problem reading ID tags or a communication problem. It may also indicate a problem with the calibration factor, since cows will make more visits to a feeder that gives them larger portions.
- A very high %unfed value at a feeder usually means that the feeder is not delivering feed (the cows visit, but leave right away when they do not get fed).
- A very low Total Fed may indicate that the feeder is not delivering feed from one or more augers. This is especially likely if only one feed is low.
- A very different calibration factor for a feeder may indicate a problem with the auger, or that a different auger size or motor gearing has been used. It may also mean that the feeder has been calibrated improperly.
- The Last Comm Time is the last time today that the 2045 received a message from the feeder. If this time is significantly earlier than the current time, the feeder is probably not working, or the communication line has come loose.

The number of Cows shown, the Total Rations, and the Percent Fed are for just those cows that last ate in that zone, which gives you a chance to see how each group of cows is doing.

You should look at this report every day, and print a copy for your permanent records once each week.

This report can be displayed or printed two ways:

- You can generate the report for today by entering the command 17\*40#.
- You can generate the report for yesterday by entering the command 17\*140#.
- You can also generate the report through Menu mode, as explained in subsection 3.2.

# Feeding

The first example report shown was printed for today's data with the command 17\*40#. The second example report shown was printed for yesterday's data with the command 17\*140#.

```

=====
                        Example Farm
                        MLKG NO. IS 2
                        1 JAN 1993
                        9:46 AM
=====

```

```

--
                        AGRICOMP 2045
                        FEEDER SUMMARY
=====
- FEEDER - - VISITS -   TODAY   - CALIBRATION - LAST
- ZONE ADDR NUM %UNFED  TOTAL FED  - FACTORS -  COMM
-----
1   0   57   1   76.0  17.4   9.3   0.0  63 102 78   0 0818
1   1   60   6   85.3  20.3  11.4   0.0  48 107 81   0 0817
=====
TOTALS : 172  FED: 260.3  57.6  20.7  0.0
          FEED TYPE:   1    2    3    4
          COWS :   77  RTN: 698.0 148.0 54.5 0.0
          PERCENT FED:   37   39   38   0
=====

```

## CALIBRATION TAGS

```

=====
4040 : A
4880 : B
4115 : C
=====

```

```

=====
                        Example Farm
                        MLKG NO. IS 2
                        1 JAN 1993
                        9:47 AM
=====

```

```

--
                        AGRICOMP 2045
                        FEEDER SUMMARY
=====
- FEEDER - - VISITS -   YESTERDAY   - CALIBRATION - LAST
- ZONE ADDR NUM %UNFED  TOTAL FED  - FACTORS -  COMM
-----
1   0  169   4  332.7  67.6  25.1   0.0  63 102 78   0 0818
1   1  175  16  337.4  74.5  27.2   0.0  48 107 81   0 0817
=====
TOTALS : 172  FED: 670.1 142.1 52.3 0.0
          FEED TYPE:   1    2    3    4
          COWS :   77  RTN: 698.0 148.0 54.5 0.0
          PERCENT FED:   96   96   96   0
=====

```

## CALIBRATION TAGS

```

=====
4040 : A
4880 : B
4115 : C
=====

```

### 3.1.5 Feed Type Summary

The Feed Type Summary lists all feed-type numbers and the names you have assigned for each. It also tells you if any of the feeds have been modified with Ration Adjust and how much to undo the adjustment. The 2045 also keeps a running total of the amount of each feed that has been fed; you can reset this total to zero at any time with the command 15\*937\*(feed type)#. This report can be very useful for keeping track of which feeds are being fed in each feed zone (the actual assignment of feed types to the feeds A-D in each zone is printed in the Feed System Summary report). The ADJ% and UNDO columns list the last Ration Adjust percentage for each feed and the percentage that would be required to change the rations back as close to the original rations as possible. This report also lists the feed price for each feed that you have assigned a name to.

You should print this report whenever you change your feed types, and keep it on file for future reference.

This report can be displayed or printed two ways:

- You can generate the report by entering the command 17\*37#.
- You can also generate the report through Menu mode, as explained in subsection 3.2.

The example report shown was printed with the command 17\*37#.

```

=====
                Example Farm
                MLKG NO. IS 1
                1 JAN 93
                8:03 AM
-----
                AGRICOMP 2045
                FEED TYPE SUMMARY
=====
T  A   U   C   F           F
Y  D   N   W   T           E
P  J   D   T   O           E
E  %   O   $   T           D
-----
1 100 100  3.50  7623 crack corn-zone 1
2  90 111  4.00  4359 ground corn-zn 1
3 100 100 15.70  1735 concentrate-zn 1
4 100 100 12.53  1803 18% protn pellet-1
5 100 100  3.50  6351 crack corn-zone 2
6  90 111  4.00  3275 ground corn-zn 2
7 100 100  8.90   762 dry cow mix
=====

```

# Feeding

## 3.2 Printing the Feeding Reports

All feeding reports can be obtained from the Agri-comp 2045 through Command mode or Menu mode.

Before viewing reports, check the 2045 for proper setup, ensuring that:

- Transparent Print mode is set appropriately (disable for viewing, enable for printing),
- Page mode is set to your liking (as explained in Section 1 of Chapter 4),
- the Day Number is set appropriately,
- all other parameter assignments that would affect data you want to see in your report are set.

If you wish to print the reports, in addition to checking the above setup items, also ensure that:

- the printer is connected to the terminal (or 2045), plugged into an AC wall outlet, turned on and on-line and that it has a sufficient amount of paper.
- the end-of-line delay is set (if necessary).

While you view or print reports, the 2045 offers you several peripheral-control options:

- If Page mode is enabled and the report is being displayed at the terminal, the report will stop when the screen becomes filled and prompt you to press the Spacebar to continue. You can continue by pressing the Spacebar or exit the report by pressing the Escape (ESC) key. If you do not continue or exit the report from a pause within five minutes, the 2045 will automatically exit the view function.
- If Page mode is disabled and the report is being displayed at the terminal, you can pause a report at any time by pressing the Control (Ctrl) and S keys simultaneously, then continue the report by pressing the Spacebar (or almost any other key) or exit the report by pressing the Escape (ESC) key. If you do not continue the report from a pause within three minutes, the 2045 will automatically continue it.
- If you're printing, you can stop a report and exit the print function at any time by pressing the Escape (ESC) key. If your printer has a buffer, it will continue printing until the buffer becomes empty. Stopping a report allows you to obtain a shorter list of data if you do not wish to list data for all cows in a herd. (This is especially convenient when printing the Feed Exception Report, since it is used primarily to check for those cows who are not eating all of their rations.)

### *Feed Type Summary:*

TYPE—feed type number

ADJ%—ration adjust percentage

UNDO—percentage to reverse adjustment

CWT\$—feed price

FTOT—total fed since last reset

FEED—feed type name

## Command Mode

The feeding reports can be printed by entering one of the following commands:

<b>1 8 * 4 0 #</b>	print the Feed Ration report for all zones
<b>1 8 * 4 0 * (zone) #</b>	print the Feed Ration Report for a single zone
<b>1 8 * 1 4 0 #</b>	print the Feed Exception Report
<b>1 8 * 4 5 #</b>	print the Ration Target Report
<b>1 7 * 4 0 #</b>	print the Feed System Summary for Today
<b>1 7 * 1 4 0 #</b>	print the Feed System Summary for Yesterday
<b>1 7 * 3 7 #</b>	print the Feed Type Summary

## Menu Mode

To generate any of the Feeding Reports through Menu mode, use this procedure:

**F**

\*\* Agri-comp 2045 Feeding \*\*

S - Setup

D - Data Entry or Edit

R - Reports

**R**

- 1. Beginning at the main menu, press the F key to display the Feeding menu.**
- 2. Press the R key to display the Feeding Reports menu.**
- 3. Press the R, E, T, V, S, Y, N or I key to print the report you desire.**

\*\*\* Agri-comp 2045 Feeding Reports \*\*\*

R - Feed Ration Report

E - Feed Exception Report

T - Ration Target Report

S - Feed System Summary-Today

Y - Feed System Summary-Yesterday

N - Feed Name Summary

I - ID Tag Number List

To exit this mode, press the Escape key (as necessary).

# Feeding

# **AUTOMATIC ID PROGRAM**



## Table of Contents

Introduction .....	6-1
1 ID Setup .....	6-2
1.1 Initializing the Parlor .....	6-2
1.1.1 Entering the Number of Zones .....	6-3
1.1.2 Entering the Number of Detachers Per ID Zone .....	6-4
1.1.3 Assigning Detacher Addresses to ID Zones .....	6-6
1.2 Enabling/Disabling the Ignore ID Errors Mode .....	6-10
1.3 Enabling/Disabling Ignore Unassigned ID Tag Numbers ....	6-13
1.4 Enabling/Disabling ID Mode .....	6-15
1.5 Fewer Cows Than Stalls Alarm .....	6-16
1.6 Automatic Reading Of Heat-Seeker Activity Tags .....	6-16
1.7 Automatic Sorting .....	6-17
1.8 Automatic Weighing .....	6-17
2 ID Data .....	6-18
2.1 Entering ID Tag Numbers .....	6-18
2.1.1 Checking A Tag Assignment .....	6-20
2.2 Editing a Cow Record .....	6-21
2.2.1 Changing the ID Edit Parameter List .....	6-22
2.3 Entering ID Tag Numbers During Milking—Parlor Entry ..	6-23
3 ID Reports .....	6-26
3.1 Displaying/Printing the Cow ID Number (CIDN) Report ...	6-27
3.2 Displaying/Printing the Read Report .....	6-29
3.3 Displaying/Printing the Not Read Report .....	6-31
3.4 Displaying/Printing the Parlor Entry Order Report .....	6-32
3.5 Displaying/Printing the Direct Tag Read Report .....	6-34
3.6 Displaying/Printing the Parlor Initialization Report .....	6-35

# Automatic ID

## Introduction

Installed in the Agri-comp 2045 FARM Management computer, the Automatic ID program allows the 2045 to identify cows and update their personal cow records automatically with data relative to their milking activity. Each identification (ID) tag, worn by a cow, contains a unique ID number that the 2045 uses to search for and open automatically that cow's personal cow record whenever she enters the milking parlor. As a tag passes through the ID antenna arch in the milking parlor, the antenna energizes the tag, which transmits a unique encoded radio signal. The antenna receives the signal and sends it to the ID control, which converts the signal to an ID tag number that the 2045 can recognize. The ID control then sends the ID number to the 2045, which searches for the ID number's corresponding cow number. Upon matching the ID number with its cow number, the 2045 automatically opens and updates the cow record. This process of automatic identification results in increased productivity and accuracy of milking data, since it eliminates the need for the operator to manually enter cow numbers at detachers during milking.

This chapter provides the dairyman with instructions on setting Automatic ID parameters for initializing the milking parlor, entering and editing ID data, and obtaining ID reports to monitor the Agri-comp ID system.

Before you attempt to use this program, basic communications must be verified, as explained in Chapter 2, the system software and either the Feeding or Milking program (both of which contain the Automatic ID and Reproduction programs) must be loaded, as explained in Chapter 3, and certain system information must be entered into the 2045, as explained in Chapter 4. Once these tasks have been accomplished, you can begin to use the Automatic ID program.

The Table of Contents which precedes this introduction lists the sections of this chapter in the order in which they should be read and procedures should be carried out.

# Automatic ID

## 1 ID Setup

### 1.1 Initializing the Parlor

Parlor initialization is a programming process, which permits the Agri-comp 2045, ID controls and antennas, detachers, and entry gates to operate as an integrated milking system. System integration is necessary for the 2045 to receive ID tag numbers and open and update cow records with milking, reproductive and other cow-related data, and it must be accomplished through initialization before the automatic ID can function.

Within the integrated system are smaller milking system networks. Each network will always consist of an ID zone, which includes primarily one entry gate and its associated detachers (those located at the stalls that cows passing through the entry gate will access) and is governed by one ID control. An ID zone may also consist of an activity zone, sort zone, or weigh scale. (One ID control may govern one or two ID zones, depending on the parlor type determined during installation.) This grouping of controls and associated components into zones allows the 2045 to communicate more efficiently with the controls and permits the functions performed by each group to operate independently of other groups for an efficient milking operation. Additionally, several 2045 reports, in which data is organized according to zones, can be obtained for your evaluation.

When you initialize the parlor, you provide the 2045 with the information it needs:

- to recognize the parlor type/operation it must communicate with.
- to recognize each zone (by its zone address).
- to know how many zones it must communicate with.
- to know how many detachers will be associated with each ID zone.
- to associate each detacher with an ID zone number (such that a group of detachers having the same ID zone number will be recognized by the 2045 as a network).

**Note**

Before initializing the parlor, ensure that proper communications have been verified between the 2045 and all products related to the initialization process; that all products are set with correct addresses, type of operation, and/or any other setting relative to initialization; and that all needed tests have been performed.

Follow the guidelines below when initializing or reinitializing the parlor:

- Initialization can be performed on an entire parlor (or parlors) at one time, or on individual zones (also referred to as ID sides or ID branches)
- Successful initialization requires that the procedures in this section be followed in the order that they appear.
- Full initialization is required when the ID system is first installed or when new ID controls and detachers are added to the parlor, whereas partial initialization (involving procedures in sections 1.1.1, 1.1.2, 1.1.3...) is required when other ID-related controls are added.
- Reinitialization is required when you replace a detacher only if you are unable to set the replacement detacher with the same address (see Appendix DA) as the detacher it replaces. In this situation, you may elect to reinitialize only the ID zone with the replaced detacher—not the entire parlor.

When parlor initialization is completed (if the 2045 and printer are properly set up), the Parlor Initialization Report (explained in Section 3) will automatically print to allow you to verify that the initialization procedure was performed correctly. Review the report immediately after initialization to ensure that you have not entered any duplicate detacher addresses. If you discover duplicate addresses or the wrong number of detachers in a zone, you must set a new address for any detachers with duplicate addresses, then reinitialize that ID zone or stall.

## 1.1.1 Entering the Number of Zones

Part of the initialization procedure (which is explained in applicable Agri-comp ID control installation instruction packets, and similar control instruction packets, and was to be performed when the control was installed) involved the setting of each control with a unique zone address. At this time, refer to the record(s) of zone address assignments, and prepare to enter into the 2045 the total number of zones assigned

# Automatic ID

(for ID, activity, sorting, etc.). Note that if you decided to skip zone addresses when setting controls, you must include those skipped addresses in the total number of zone addresses, as the 2045 will only communicate with controls whose zone address is less than the number entered into the 2045. Entering the number of zones actually being used will allow the 2045 to operate more efficiently, since it will not have to search and try to communicate with all 16 possible zones.

## Command Mode

To enter the number of zones assigned through Command mode, enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

**1 5 \* 5 0 \* (1-16) #**

## Menu Mode

To enter the number of zones through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the A key to display the Automatic ID menu.**
- 2. Press the S key to display the ID Setup menu.**
- 3. Press the Z key to set the number of ID zones.**  
The 2045 will respond with an 'Enter Value:' prompt.
- 4. Type in the number of zones (1-16) and press ENTER.**

The 2045 should automatically return to the ID Setup menu.

## 1.1.2 Entering the Number of Detachers Per ID Zone

Part of the initialization procedure (which is explained in applicable detacher installation instruction packets and was to be performed at the time of the detacher installation) involved the assigning of each detacher with a unique detacher address and setting of its configuration switches. While entry of each detacher address is explained in the following subsection, in order for the 2045 to know the correct number of detachers per zone and correctly assign cows to those detachers, you must enter into the 2045 the number of detachers in each ID zone. At this time, refer to the record of detacher address

## Examples:

- If you assigned numbers 0-3 to ID zones (for a total of 4 zones), to set the total number of ID zones for the parlor, you would enter 15\*50\*4#
- If you assigned numbers 0-3 and 6 and 7 to ID zones (for a total of 6 zones), to set the total number of ID zones for the parlor, you would enter 15\*50\*8#

## A

\*\* Agri-comp 2045 Automatic ID \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 ID Setup \*\*\*

P - Parlor Entry Mode

S - Parlor Setup

E - Ignore ID Errors

Z - Set Number of ID Zones

## Z

# Automatic ID

number assignments, and prepare to enter into the 2045 the number of detachers assigned.

## Prompt Entry Mode

To enter the number of detachers in each ID zone through Prompt Entry mode, enter the command:

**1 6 \* 9 0 #**

The 2045 will enter Prompt Entry mode and respond with:

**P: ID zone: detachers=**

The “P” indicates Prompt Entry mode, the words “ID zone” represent the number of the ID zone you’ll be assigning a total number of detachers to, and the word “detachers” represents the current number of detachers assigned to that zone.

Type in the number of detachers located in that zone, and press the ENTER key (see example) to accept the value and proceed to the next ID zone. If a zone number is to be skipped, enter “0” for the number of detachers in that zone. If the total of all numbers entered exceeds the maximum of 64 detachers, the 2045 will automatically adjust the number of detachers assigned to the last zone to make the total equal 64. Note that changing the number of detachers in a zone causes all the detacher address assignments to ID zones (made in subsection 1.1.3) to be cleared out, so that all detacher addresses for all zones must be reassigned.

The 2045 automatically exits this mode once a number has been entered for each ID zone prompt. To exit this mode before completing the entries, press the Escape key.

## Example:

If you entered the command 16\*90# the 2045 would respond with:

P: 0: 0=

The following entries would assign four detachers to each ID zone in a double-4 parlor.

P: 0: 0= 4

P: 1: 0= 4

# Automatic ID

## Menu Mode

To enter the number of detachers per ID zone through Menu mode, using the following procedure:

1. **Beginning at the main menu, press the A key to display the Automatic ID menu.**
2. **Press the S key to display the ID Setup menu.**
3. **Press the S key to display the Parlor Setup menu.**
4. **Press the Z key to set the number of detachers per ID zone.**  
The 2045 will enter Prompt Entry mode, and you may enter the number of detachers in each zone as described above.

To exit this mode, press the Escape key (as necessary).

### 1.1.3 Assigning Detacher Addresses to ID Zones

During installation of the detachers, a unique detacher address was to have been assigned and set for each detacher, as explained in the instructions in Appendix DA. Now, in order for the 2045 to recognize the detacher that it will assign a cow to, you must assign those addresses to the ID zones in which the detachers are located.

Detacher addresses can be assigned to ID zones either manually at the terminal (through Prompt Entry or Menu mode), if detacher address assignments were recorded during installation of the detachers, or automatically at detachers (through either of two Parlor Entry modes), if detacher addresses are not known. Note that the 2045 will only allow detacher addresses to be assigned to a zone until the number of address assignments matches the number of addresses specified for that zone in subsection 1.1.2. Note also that entry of addresses through Parlor Entry mode during milking may interfere with the recording of production data at the 2045, causing data to be lost and cow records to be inaccurate, so Parlor Entry of detacher addresses should only be performed between milkings.

When all detacher address assignments have been completed for all zones being initialized, press the ENTER key at the terminal to print the Parlor Initialization report and exit the Parlor Entry mode.

## A

\*\* Agri-comp 2045 Automatic ID \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 ID Setup \*\*\*

P - Parlor Entry Mode

S - Parlor Setup

E - Ignore ID Errors

Z - Set Number of ID Zones

## S

\*\*\*\* Parlor Setup \*\*\*\*

Z - Meters per Zone

M - D/M Addresses - Manual

A - D/M Addresses - Automatic

## Z

## Manual Assignment—Prompt Entry Mode

To assign detacher addresses through Prompt Entry mode (during a milking or at any other time), enter the following command (ID zone numbers will appear in increasing number order) and then the detacher addresses in the order explained below:

**1 6 \* 9 1 #**

### Example:

If you entered the command 16\*91# the 2045 would respond with:

P: 0: 255=

The following entries would assign detacher addresses 0-3 to ID zone 0 and addresses 4-7 to ID zone 1:

P: 0: 255=0

P: 0: 255=1

P: 0: 255=2

P: 0: 255=3

P: 1: 255=4

P: 1: 255=5

P: 1: 255=6

P: 1: 255=7

To start with zone 1, enter the command:

**16\*91\*1#**

...or enter detacher addresses starting with any ID zone by including an asterisk and the particular ID zone number as a third field of data (between 91 and #) in the command. ID zones numbers will still appear in increasing order ; however, starting with particular ID zone number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

**P: ID zone: Address=**

The “P” indicates Prompt Entry mode, the words “ID zone” represent the number of the ID zone you’ll be assigning a detacher address to, and the word “Address” represents the current detacher address assigned to that zone. (An initial detacher address of “255” means that no detacher address has been assigned yet.)

Type the address of the first detacher a cow will arrive at for the particular zone number (that is, enter the address of the detacher farthest from the entry gate in double-herringbone, trigon, and polygon parlors and the address of the detacher closest to the entry gate in side-opener parlors), and press the ENTER key, or just press ENTER to accept the current detacher address and proceed to the next detacher. Then, enter the second address in that zone, and so forth. Repeat this entry process for each address to be entered using the same order that you assigned them in Appendix DA. (See example.) When the 2045 has received detacher addresses that total the number of detachers per ID zone, the 2045 will advance to the next zone number. Continue entering addresses for all zones.

The 2045 automatically exits this mode once a number has been entered for each ID zone prompt. To exit this mode early, press the Escape key.

# Automatic ID

## Manual Assignment—Menu Mode

To assign detacher addresses through Menu mode, use this procedure:

1. **Beginning at the main menu, press the A key to display the Automatic ID menu.**
2. **Press the S key to display the ID Setup menu.**
3. **Press the S key to display the Parlor Setup menu.**
4. **Press the M key to enter the detacher addresses manually.**  
The 2045 will enter Prompt Entry mode and you may enter the addresses of the detachers in each zone as explained above.

To exit this mode, press the Escape key (as necessary).

## Automatic Assignment—Parlor Entry Mode (Command Mode Assisted)

To assign detacher addresses through Parlor Entry mode (with assistance from Command mode), use the following procedure:

1. **Close all entry gates that have main gate switches connected to them for ID controls.**
2. **Enter the command 9 \* # at the terminal to enable Parlor Entry mode for automatic entry of detacher addresses.**
3. **Open the main entry gate of the ID zone you want to initialize.**  
Note that when a gate opens, all previous detacher address assignments for that zone are cleared. If the 9\*# command is used on a 2045 with no communicating ID controls or with the ID communications disconnected, the number of zones will be set to zero and all detacher address assignments will be cleared.
4. **Press the ATTACH button of the first detacher you assigned an address to in Appendix DA.**

The detacher will automatically send its detacher address to the 2045 (where it will be assigned to the ID zone) as you press the button and at the same time its display will respond with a “9” in the CODE window, indicating the parameter code used to display data at the detacher (specifically, 9 means *display detacher address*); the detacher’s address in the COW NO./DATA window; and a “0” in the PRODUCTION window, which has no meaning for this parameter code and should be ignored. (The example illustrates a detacher display for address 6.)

## A

\*\* Agri-comp 2045 Automatic ID \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 ID Setup \*\*\*

P - Parlor Entry Mode

S - Parlor Setup

E - Ignore ID Errors

Z - Set Number of ID Zones

## S

\*\*\*\* Parlor Setup \*\*\*\*

Z - Meters per Zone

M - D/M Addresses - Manual

A - D/M Addresses - Automatic

## M



# Automatic ID

## Note

If you press ATTACH at a detacher with no entry gates open or with more than one entry gate open, the 2045 will respond with an error message and error beep and exit the Parlor Entry mode.

5. Press the ATTACH button of the next detacher you assigned an address to in Appendix DA.

Continue pressing the ATTACH buttons in the same order that you assigned detacher addresses in Appendix DA to enter detacher addresses in that ID zone. To exit this mode press the ENTER key.

## Automatic Assignment—Parlor Entry Mode (Menu Mode Assisted)

To assign detacher addresses through Parlor Entry mode (with assistance from Menu mode), using the following procedure:

**A**  
\*\* Agri-comp 2045 Automatic ID \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**S**  
\*\*\* Agri-comp 2045 ID Setup \*\*\*  
P - Parlor Entry Mode  
S - Parlor Setup  
E - Ignore ID Errors  
Z - Set Number of ID Zones  
**S**  
\*\*\*\* Parlor Setup \*\*\*\*  
Z - Meters per Zone  
M - D/M Addresses - Manual  
A - D/M Addresses - Automatic  
**A**

1. Beginning at the main menu, press the A key to display the Automatic ID menu.
2. Press the S key to display the ID Setup menu.
3. Press the S key to display the Parlor Setup menu.

## Caution

Do not press the A key of the Parlor Setup menu while a milking is in progress, because you will lose your previous parlor setup!

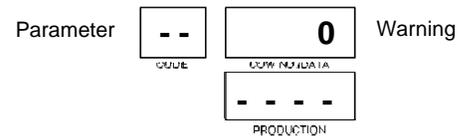
4. Press the A key to enter detacher addresses automatically. The 2045 will enter Parlor Entry mode.
5. Perform the actions in steps 2-5 above in the procedure for Command mode assisted automatic assignment.

Continue pressing the ATTACH buttons in the same order that you assigned detacher addresses in Appendix DA to enter detacher addresses in that ID zone. To exit this mode press the ENTER key.

# Automatic ID

## 1.2 Enabling/Disabling the Ignore ID Errors Mode

Occasionally (due to a missing or defective ID tag, for instance), an ID control will not be able to transmit an ID tag number for a cow that passes through an ID antenna, or, in the case of a short string of cows, ID tag numbers will not be transmitted for unoccupied stalls. Upon pressing the ATTACH buttons to milk cows, the operator will discover that a tag (or tags) was not read by the 2045, because the display at each detacher in that ID zone will flash (as its button is pressed), and the display at the detacher closest to the entry gate (for all but side-opener parlors) will indicate an ID “warning” error, as shown in the example, instead of displaying the normal “Time and Production” or “Cow Number and Production” data (depending on which Attach Display mode is set). The displays will continue to flash, and, though all but the last display will show “Time and Production” or “Cow Number and Production,” they will not show the incrementing of time or production until action is taken to correct the problem. (Note that an alarm can be set to respond for this condition, as explained in Chapter 4.)



Note that the error warning on the last detacher of a full string of cows is an indication that any one of the cows in that ID zone may have the unread tag—not necessarily the cow located at the last detacher. While production data displayed at each detacher will always be correct for the cow at that stall, if an unread tag should belong to a cow other than the last one in the zone, the cow number displayed at that cow’s detacher will be that of the next cow. The numbers of all other cows that entered the stalls after the cow with the unread tag will appear at the previous detacher, too, and the last detacher will automatically be assigned the number zero. (See example.) Since it is unable to open a production record for a cow it cannot identify, the 2045 will not be able to store production data for a cow with an unread tag. Consequently, the 2045 will assume that all displayed cow number/production assignments are correct and will store the assignments (except for that of invalid cow number 0) upon the next attach. Obviously then, unless a correction in assignment is made before the next attach, only the production of those cows that entered the stalls before the cow whose tag was not read will be correctly assigned to their records.

### Example:

Say four cows fill an ID zone, the ID tag number (\*521) of the second cow that entered was missed, and actual milk production is as follows:

CIDN	NUMB	D/M	MLK1
497	91	0	35 lb
*521	208	1	45 lb
15371	1015	2	50 lb
6929	1316	3	55 lb

If correction is not made before detach, the amounts sent to the 2045, would be as follows:

CIDN	NUMB	D/M	MLK1
497	91	0	35 lb
*521	no production recorded		
15371	1015	1	45 lb
6929	1316	2	50 lb
no cow	0	3	55 lb

# Automatic ID

When an ID error occurs, the operator can respond in one of the following ways, depending on the Ignore ID Errors mode set and the results the operator wants from the detacher and 2045.

## Example without error:

```
=====
Example Farm
MLKG NO. IS 1
  1 JAN 93
  2:10 PM
-----
AGRICOMP 2045
MILK REPORT
-----
L  N  H  T  M
O  U  O  I  I
T  M  L  M  L
   B  D  E  K
-----
3  91  0  ...  35.0
3  208 0  ...  45.0
1 1015 0  ...  50.0
3 1316 0  ...  55.0
```

## Example with error:

```
=====
Example Farm
MLKG NO. IS 1
  1 JAN 93
  2:11 PM
-----
AGRICOMP 2045
MILK REPORT
-----
L  N  H  T  M
O  U  O  I  I
T  M  L  M  L
   B  D  E  K
-----
3  91  0  ...  35.0
1 1015 0  ...  45.0
3 1316 0  ...  50.0
0   0  0  ...  55.0
```

*No production will be stored for cow 208 and data in report for cows 1015, 1316 and 0 will be incorrectly assigned*

If the Ignore ID Errors mode is disabled (the default setting),

- the operator can correct the error by entering (at the detacher of the cow whose ID tag was not read, while that cow is still milking) that cow's number, if known, using the 7\*(cow number)# command. If the operator enters the cow number, the detacher displays will stop flashing and return to normal, and all production data will be correctly sent to and stored in the 2045, as if no error had been detected.
- the operator can ignore the error warning, not correct misnumbering of cow numbers at detachers, but stop the displays from flashing by pressing the pound (#) key at each detacher (if desired), and milk cows anyway. If the operator ignores the warning and does not press the pound keys, each display will continue to flash until its ATTACH button is pressed to milk the next cow or (in the case of a final short string) to begin the wash routine. Upon receiving cow number/production assignments from detachers, the 2045 will assume that all displayed assignments were correct and will store the assignments (except for that of invalid cow number 0) just as they appeared at the detachers. All displayed assignments, including that of an invalid cow number 0 (appearing in no other report), will be included in the Milk report. All assignments stored in memory (whether correct or not) will also be included in any report that contains production-related data or calculations that use such data. Certain reports (i.e.. the Production report) will also show zero production for a cow whose ID tag number was not read (since her production record was never opened) for the particular milking (MLK1, MLK2, or MLK3) during which the tag was not read and will use the zero in calculations. Other reports that use production data in their calculations will ignore the zero production stored for cows and use previous averages for that milking number to update their lactation total to keep the total accurate (within a close percentage). Note that any values for an invalid cow 0 that would have incremented as a result of identification (HOLD, ATTN, etc.) will remain unchanged until the 2045 recognizes and updates that cow's cow record.

If the Ignore ID Errors mode is enabled (an option that should be set only for operators who are unfamiliar with cow numbers or who may have difficulty determining cow numbers due to the cows' positions in the parlor),

- the operator can correct the error by entering (at the detacher of the cow whose ID tag was not read, while that cow is still milking) that cow's number, if known, using the 7\*(cow number)# command. If the operator enters the cow number, the detachers and 2045 will respond exactly as this situation is explained under responses for a disabled Ignore ID Errors mode.

# Automatic ID

- the operator can ignore the error warning, not correct misnumbering of cow numbers at detachers, but stop the displays from flashing by pressing the pound (#) key at each detacher (if desired), and milk cows anyway. If the operator ignores the warning and does not press the pound keys, each display will continue to flash until its ATTACH button is pressed to milk the next cow or (in the case of a final short string) to begin the wash routine. Upon attach, the 2045 will store in memory the cow number/production assignments of all cows, except those present in an ID zone (whether their assignment was correct or not) when an ID error occurred. All displayed assignments, including that of an invalid cow number 0 (appearing in no other report), will be included in the Milk report, and an "I" (meaning the milk weight was not stored in that cow's record) will appear in the Milk report (and Day Number Milk report), for easy identification, for each cow present in the ID zone (whether its assignment was correct or not) when an ID error occurred. Certain reports (i.e.. the Production report) will show zero production for each cow present in the ID zone when an ID error occurred for the particular milking (MLK1, MLK2, or MLK3) during which the tag was not read. Other reports that use production data in their calculations will ignore the zero production stored for these cows and use previous averages for that milking number to update their lactation total to keep the total accurate (within a close percentage).

## Example with error:

```

=====
Example Farm
MLKG NO. IS 1
1 JAN 93
2:12 PM
-----
AGRICOMP 2045
MILK REPORT
-----
L N H T M
O U O I I
T M L M L
B D E K
-----
3I 91 0 ... 35.0
1I1015 0 ... 45.0
3I1316 0 ... 50.0
0I 0 0 ... 55.0
3 435 . ... ....
1 3 . ... ....
3 60 . ... ....
3 72 . ... ....

```

*No production will be stored for the first four cows*

### Command Mode

To enable or disable the Ignore ID Errors mode through Command mode, enter one of the following commands:

```

1 5 * 4 1 * 1 # enables the Ignore ID Errors mode
1 5 * 4 1 * 0 # disables the Ignore ID Errors mode

```

### Menu Mode

To enable or disable the Ignore ID Errors mode through Menu mode, use the following procedure:

- Beginning at the main menu, press the A key to display the Automatic ID menu.**
- Press the S key to display the ID Setup menu.**
- Press the E key to enable or disable the ignore mode.**  
This key acts as a toggle, causing the terminal to display either "Enabled" or "Disabled" to indicate the status of this mode.

To exit this mode, press the Escape key (as necessary).

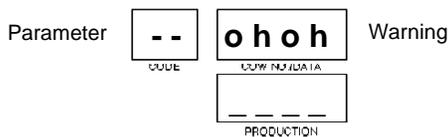
```

A
** Agri-comp 2045 Automatic ID **
S - Setup
D - Data Entry or Edit
R - Reports
S
*** Agri-comp 2045 ID Setup ***
P - Parlor Entry Mode
S - Parlor Setup
E - Ignore ID Errors
Z - Set Number of ID Zones
E

```

## 1.3 Enabling/Disabling Ignore Unassigned ID Tag Numbers

Assuming that you have correctly assigned in the 2045 all ID tag numbers to their respective cow numbers, the 2045 will normally recognize each ID tag number it receives from the ID control, then open the cow record and display at the respective detacher, upon attach, the normal “Time and Production” or “Cow Number and Production” (depending on which Attach Display mode is set). If the ID control should happen to read an ID tag number that was not assigned to a cow number or misread and send an invalid number to the 2045, the detacher and 2045 will respond in one of two ways, depending on the Ignore Unassigned ID Tag Numbers mode set prior to milking.



(Note that an alarm can be set to respond for this condition, as explained in Chapter 4.)

If the Ignore Unassigned ID Tag Numbers mode is disabled (the default setting), though the 2045 will not recognize an unassigned ID tag number and thus not be able to open a production record for it, the 2045 will accept that a cow entered the ID zone and it will assign a detacher to that cow. Upon pressing the ATTACH button to milk that cow, the operator will discover that its ID tag number was not recognized by the 2045, because that cow’s detacher display will flash and appear as shown in the example, instead of displaying the normal “Time and Production” or “Cow Number and Production” (depending on which Attach Display mode is set).

If the Ignore Unassigned ID Tag Numbers mode is enabled, one of two possible situations may arise if an ID control does not correctly identify a cow: the ID control may read one ID tag number or it may read more than one number (one of which will most likely be correct). If one ID tag number is read but not recognized, the 2045 will ignore the number, not realize that a cow entered the ID zone, and not assign a detacher to that cow. As a result, that cow’s detacher display will not alert the operator to an unassigned ID tag number, but may, instead, alert the operator to another ID error—for instance, that of “Fewer Cows Than Stalls,” even though all stalls are occupied. (Review the information in subsection 1.2 on how the detachers and 2045 will respond in this situation.) If two ID tag numbers are read, the correct number will override the invalid one, and the detacher and

# Automatic ID

2045 will function properly, not alerting the operator of any difficulty in identifying the cow.

When an unassigned ID tag number is sent to the 2045, the operator can respond in one of the following ways, depending on the Ignore Unassigned ID Tag Numbers mode set and the results the operator wants from the detacher and 2045.

If the Ignore Unassigned ID Tag Numbers mode is disabled,

- the operator can correct the error by entering (at the detacher of the cow whose ID tag was unassigned, while that cow is still milking) that cow's number, if known, using the 7\*(cow number)# command. If the operator enters the cow number, the detacher displays will stop flashing and return to normal, and all production data will be correctly sent to and stored in the 2045, as if no error had been detected.
- the operator can ignore the error warning, not enter the cow number, but stop the display from flashing by pressing the pound (#) key at that detacher (if desired), and milk the cow anyway. If the operator ignores the warning and does not press the pound key, that display will continue to flash until its ATTACH button is pressed to milk the next cow or (in the case of a final short string) to begin the wash routine. Upon attach, the 2045 will store all assignments except for that of a cow with an unassigned ID tag number (even though production data of all cows in the ID zone will be correct). All displayed assignments, including that of a cow with an unassigned ID tag number (appearing in no other report), will be included in the Milk report, though a zero will appear on the report for the cow number of the cow with an unassigned ID tag number. Any report containing the headings MLK1, MLK2, and/or MLK3 will show zero production for a cow with an unassigned ID tag number (since her production record was never opened) for the particular milking during which the tag was not read and will use the zero in report body and summary calculations. Reports that use production data in their calculations but do not present it in their body will use that cow's previous average, rather than the zero production, for the affected milking number to maintain the most accurate figures (within a close percentage) under the circumstances. Note that any values for an invalid cow 0 that would have incremented as a result of identification (HOLD, ATTN, etc.) will remain unchanged until the 2045 recognizes and updates that cow's cow record.

If the Ignore Unassigned ID Tag Numbers mode is enabled,

- the operator can correct the error by entering (at the detacher of the cow whose ID tag was unassigned, while that cow is still milking) that cow's number, if known, using the 7\*(cow number)# command. If the operator enters the cow number, the detachers and 2045 will respond exactly as this situation is explained under responses for a disabled Ignore Unassigned ID Tag Numbers mode.

# Automatic ID

## Example with no error:

```
=====
Example Farm
MLKG NO. IS 1
  1 JAN 93
  2:13 PM
-----
AGRICOMP 2045
MILK REPORT
-----
L  N  H  T  M
O  U  O  I  I
T  M  L  M  L
  B  D  E  K
-----
3  91  0  ...  35.0
3  208 0  ...  45.0
1 1015 3  ...  50.0
3 1316 0  ...  55.0
```

## Example with error:

```
=====
Example Farm
MLKG NO. IS 1
  1 JAN 93
  2:14 PM
-----
AGRICOMP 2045
MILK REPORT
-----
L  N  H  T  M
O  U  O  I  I
T  M  L  M  L
  B  D  E  K
-----
3  91  0  ...  35.0
3  208 0  ...  45.0
0  0  0  ...  50.0
3 1316 0  ...  55.0
```

*No production will be stored for cow 1015*

- the operator can ignore the error warning, not enter the cow number, but stop the displays from flashing by pressing the pound (#) key at each detacher (if desired), and milk cows anyway. If the operator ignores the warning and does not press the pound keys, each display will continue to flash until its ATTACH button is pressed to milk the next cow or (in the case of a final short string) to begin the wash routine. Upon receiving cow number/production assignments from detachers, the 2045 will assume that all displayed assignments were correct and will store the assignments (except for that of invalid cow number 0, the number given to a cow with an unassigned ID tag number) just as they appeared at the detachers. All displayed assignments, including that of an invalid cow number 0 (appearing in no other report), will be included in the Milk report, and a "U" (meaning the cow number is not entered in the 2045) will appear in the Milk report. All assignments stored in memory (whether correct or not) will also be included in any report that contains production-related data or calculations that use such data. Any report containing the headings MLK1, MLK2, and/or MLK3 will show zero production for a cow with an unassigned ID tag number (since her production record was never opened) for the particular milking during which the tag was not read and will use the zero in report body and summary calculations. Reports that use production data in their calculations but do not present it in their body will use that cow's previous average, rather than the zero production, for the affected milking number to maintain the most accurate figures (within a close percentage) under the circumstances. Note that any values for an invalid cow 0 that would have incremented as a result of identification (HOLD, ATTN, etc.) will remain unchanged.

The Ignore Unassigned ID Tag Numbers mode can set only through Command mode and must be set before milking is begun to be activated when a tag is not read, using one of the following commands:

**1 5 \* 4 4 \* 1 #** enables Ignore Unassigned ID Tag Numbers mode  
**1 5 \* 4 4 \* 0 #** disables Ignore Unassigned ID Tag Numbers mode

## 1.4 Enabling/Disabling ID Mode

The ID mode is a function that you must set to alert the 2045 as to what ID communications to expect. During normal parlor operations, if an Agri-comp ID system is installed, communications to the ID control should be enabled at all times, so that ID tags can be automatically identified by the 2045. If, however, the ID control and antenna will be nonfunctional (for instance, due to ID servicing) for some period

# Automatic ID

of time, you may choose to disable communications to the Agri-comp ID (*and manually identify cows for affected milkings*).

Three options are available for setting the ID mode:

- You can enable ID, which will allow the ID control to automatically identify ID tags and send ID tag numbers to the 2045.
- You can disable ID mode yet permit manual entry of cow numbers at detachers for automatic cow record update. In order to record a cow's production correctly, the operator must manually enter the number of the cow at its detacher before attaching the milking unit.
- You can disable ID mode and not record production.

The ID mode can be set only through Command mode but can be set at any time. To enable or disable the ID mode, enter one of the following commands:

- 1 5 \* 4 3 \* 0 #** enables ID and milk production recording
- 1 5 \* 4 3 \* 1 #** disables ID mode, permits recording of milk production
- 1 5 \* 4 3 \* 3 #** disables ID mode, does not record milk production

## 1.5 Fewer Cows Than Stalls Alarm

The 2045 will normally consider it an ID error if you attach to a cow and the 2045 has not yet seen enough ID tags to fill that ID zone only if the gate is closed. This allows you to start attaching cows while other cows are still entering the parlor. If your milkers never start attaching until all cows are in the parlor, you should enable the Fewer-Cows-Than-Stalls alarm with the command:

**1 5 \* 4 6 \* 1 #**

You can disable the alarm with the command:

**1 5 \* 4 6 \* 0 #**

## 1.6 Automatic Reading Of Heat-Seeker Activity Tags

A specially modified ID control can be used to read Heat-Seeker Activity Tags (with the ID option installed). For full instructions on the use of this system, see the Heat-Seeker Instruction Manual.

## **1.7 Automatic Sorting**

An Automatic ID control can be used to automatically separate selected cows from the rest of the herd. For full instructions on the use of this system, see the Auto-Sort Gate Instruction Manual.

## **1.8 Automatic Weighing**

An Automatic ID control and special weigh scale system can be used to catch and weigh cows automatically. For full instructions on the use of this system, see the Auto-Weigh Scale Instruction Manual.

# Automatic ID

## 2 ID Data

This section provides instructions exclusively on entering ID tag numbers into the 2045. ID tag numbers can be entered into the 2045 at the terminal using either Single Entry, Prompt Entry, or Group Entry mode or by answering prompts through Menu mode. If the Automatic ID system has been thoroughly checked out, you could also enter numbers automatically through Parlor Entry mode during milking, though any errors or problems that arise through this mode can result in ID tag numbers being assigned to the wrong cows, which can be very difficult to track down and correct. The difference between these entry modes is explained in Chapter 1.

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

### Reminder

To sort first, you would enter  
4\*(parm code)#...or  
4\*(parm code)\*(parm code)#

### 2.1 Entering ID Tag Numbers

As was explained in the introduction to this chapter (and that of Chapter 5), the matching of an ID tag number with its corresponding cow number is the means by which the 2045 automatically opens and updates a cow record. Thus, in order for the automatic cow identification and cow record update process to take place, the number of each ID tag you assigned to a cow, when you placed tags on cows, must first be entered into the 2045.

In preparation for entering ID tag numbers, refer to the “Cow Number and ID Tag Number Recording Form” (see Appendix PT) that you were instructed to fill out when assigning ID tag numbers to cow numbers or whatever means you used to document ID numbers.

Note that before ID tag numbers can be entered into the 2045, cow numbers must first be entered as explained in Chapter 4. Note also that the 2045 will not allow the same tag number to be assigned to more than one cow, nor will it allow the number of a calibration tag to be assigned to a cow. We recommend that you review all data entries once made to ensure that they are correct. ID tag numbers appear under the column heading abbreviation CIDN in the reports listed for the abbreviation in Appendix PC.

*Example:*

To assign an ID tag number of 39682 to cow #1, you would enter 22\*1\*39682#

**☞ Reminder**

ID tag numbers appear under CIDN in reports.

*Example:*

- To assign ID tag numbers to cows, you would enter 16\*22#
- To assign them starting with cow #53, you would enter 16\*22\*53#

*Example:*

If you enter 16\*22# and cow 1 is the first to appear, having a previously assigned CIDN number of 0, the 2045 would respond with:

P: 1: 0=

The following entries would assign CIDN numbers 39682, 30269, and 1023 to cow numbers 1-3, respectively:

P: 1: 0=**39682**

P: 2: 0=**30269**

P: 3: 0=**1023**

P: 4: 0=

**Single Entry Mode**

To enter (or change) an ID tag number through Single Entry mode, enter the following command, specifying a cow number for the second field of data and an ID tag number (that falls within the range of 1 to 262144) for the third field:

**2 2 \* (NUMB) \* (CIDN) #**

**Prompt Entry Mode**

To enter, change, or review an ID tag number through Prompt Entry mode, you may first use the Sort command (explained in Appendix US) to arrange data in the order you desire. Then, you can either enter the following command (allowing cow numbers to appear in order of the most recent sort) and then the ID numbers you desire:

**1 6 \* 2 2 #**

...or you can enter ID tag numbers starting with any cow number by including an asterisk and the particular cow number as a third data field (between 22 and #) in the command. Cow numbers will still appear in the order of the most recent sort; however, starting with a particular cow number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

P: *NUMB: CIDN*=

The “P” indicates Prompt Entry mode, the abbreviation “NUMB” represent the number of the cow you’ll be assigning an ID tag number to, and the abbreviation “CIDN” represent the ID tag number currently assigned to that cow.

Type in the ID tag number that you assigned that cow, and press the ENTER key (or just press ENTER to accept the current ID tag number) and proceed to the next cow number. (See example.)

To exit this mode, press the Escape key (as necessary).

# Automatic ID

## Group Entry Mode

To enter, change, or review an ID tag number through Group Entry mode, enter the following command:

**2 2 \* #**

The 2045 will enter Group Entry mode and respond with an 'E=' prompt. After the prompt, type in a cow number, an asterisk (\*), the ID tag number you've assigned, and then press the ENTER key. Repeat this entry process for each cow number you have an ID tag number assignment for. (See example.)

To exit this mode, press the Escape key (as necessary).

## Group Entry/Menu Mode

To enter ID tag numbers through Group Entry mode with assistance from Menu mode, use the following procedure:

- 1. Beginning at the main menu, press the A key to display the Automatic ID menu.**
- 2. Press the D key to display the ID Data menu.**
- 3. Press the I key to enter ID tag numbers.**  
The 2045 will enter Group Entry mode and respond with an 'E=' prompt.
- 4. Enter cow numbers and ID tag numbers, as described above for Group Entry mode.**

To exit this mode, press the Escape key (as necessary).

### 2.1.1 Checking A Tag Assignment

You can determine whether a tag number is already assigned to a cow or to a feeding calibration by entering the command:

**2 3 \* (ID tag number)#**

If the tag is already assigned to a cow, the 2045 will return the cow number in the format:

**2 3 : (cow): (tag number - last 4 digits only)**

## Example:

The following entries (for command 22\*#) would assign the same cow number and ID number combinations used in the Prompt Entry example; however, as you can see, Group Entry allows the user to determine the cow number entry order.

E=1\*39682#

E=3\*1023#

E=2\*30269#

E=

## A

\*\* Agri-comp 2045 Automatic ID \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## D

\*\*\* Agri-comp 2045 ID Data \*\*\*

I - ID Tag Number Entry

E - Edit Cow Record

## I

# Automatic ID

If the ID tag is assigned as a feeding calibration tag, the 2045 will respond with:

**23 : 0001** : (*tag number*) if the tag is for feed A  
**23 : 0002** : (*tag number*) if the tag is for feed B  
**23 : 0003** : (*tag number*) if the tag is for feed C  
**23 : 0004** : (*tag number*) if the tag is for feed D

If the ID tag has not been assigned, the 2045 will respond with COMMAND ERROR.

## 2.2 Editing a Cow Record

Although the Single, Prompt, and Group Entry modes, explained earlier in this ID Data section, are available specifically for entering and changing ID tag numbers, an ID tag number can also be added to or changed in an existing cow record through the Edit Cow Record menu item of the Automatic ID menu hierarchy.

To enter or change ID tag numbers through Menu mode, use the following procedure:

**A**  
\*\* Agri-comp 2045 Automatic ID \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**D**  
\*\*\* Agri-comp 2045 ID Data \*\*\*  
I - ID Tag Number Entry  
E - Edit Cow Record  
**E**

- 1. Beginning at the main menu, press the A key to display the Automatic ID menu.**
- 2. Press the D key to display the ID Data menu.**
- 3. Press the E key to edit a cow record.**  
The 2045 will respond with a prompt, asking you if you want to sort cows first.
- 4. Respond to the prompt by pressing the Y or N key.**  
If you press the N key, the 2045 will ask for the starting cow number, and you may proceed to step 5.

If you press the Y key, you will be asked for a primary sort key and a secondary sort key. Refer to the parameter codes listed in Appendix PC or press the question mark (?) key to have the 2045 display a list of valid parameter codes at the terminal, and enter the codes you wish to have data arranged by. (Refer to Appendix SO for details on entering Sort commands.) The 2045 will pause briefly to perform the sort. After it has completed the sort, the 2045 will ask for the starting cow number.

# Automatic ID

**5. Enter the number of the first cow whose data you wish to change, or press ENTER to start with the first cow of the most recent sort.**

The screen will display the cow's current cow number and ID tag number (in parentheses) following their parameter name abbreviations. (Refer to Appendix PC for a list of parameter codes and name abbreviations.) A typical display is shown.

```
NUMB (      1 ) :  
CIDN (   39682 ) :
```

You can change the tag number (but not the cow number) currently assigned to a record by entering the new value at the colon (:). To skip past certain data, accepting the current value, press the ENTER key. If you make a mistake while entering a value, before you press ENTER, use the Backspace key to erase incorrect digits, then retype the value. If you try to enter an invalid value (for instance, a tag number that is already assigned to another cow number or a calibration tag number), you will be alerted with an error beep, and the 2045 will ignore the attempted change and continue to show the original value.

Whenever you press the ENTER key to accept the last parameter value listed in a cow record, the 2045 will display the next cow's data. Records for all cows with cow numbers in memory will be displayed, and data can be changed in the same manner explained above. The cow records will appear in the order of the most recent sort of the data. That is, if you last sorted the data by Production Average (AVG), the cow records will appear in increasing average production sequence. You can also proceed immediately to the next cow record (from any point within a record) by pressing the plus (+) or equal (=) key. To skip backward and repeat a previous cow record, press the minus (-) key.

To exit the editing process without affecting any more cow records, press the Escape key.

## 2.2.1 Changing the ID Edit Parameter List

The list of cow parameters to be edited in the Edit Cow Record for ID can be changed to include any parameters that you want to edit, in the order that you want to edit them. To edit the parameter list, enter the command:

```
16*19*2#
```

The 2045 will enter Prompt mode and allow you to review and change the ID Edit Parameter List. Each field in the current list will be displayed with the four letter abbreviation (see Appendix PC), a "P:" to indicate prompt mode, the current field number (you can have up to 109 fields in this list), the current parameter code number, and end

**Note**

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

with a question mark (?). To leave the code as it is, just press the ENTER key. To change to a different parameter code, just type in the new code number. To delete a code, press the minus key (-). To insert a new code between two codes, press the plus key (+). To see a list of all possible codes, press the question mark key (?). To end the list, enter a code number 0, then press the Escape key.

You can restore the ID Edit Parameter List to the default list by entering the command:

**8\*19\*2#**

## 2.3 Entering ID Tag Numbers During Milking—Parlor Entry

ID tag numbers can be assigned to cows automatically during milking through Parlor Entry mode, though any errors made or problems encountered during entry can result in incorrect cow number/ID tag number assignments (which would be easier to review and correct before a milking) and possibly incorrect production recording (which can be very difficult correct). Therefore, use of this method in entering ID tag numbers should be limited to situations in which the entire Agri-comp 2045 system is known to be operating properly (for instance, a week or more after an installation when the ID tag number of a newly purchased cow must be entered or immediately after installation of an Agri-comp ID system in an existing parlor that has used a properly operating 2045 computer).

To use Parlor Entry mode, the Agri-comp ID system must be installed and checked out, the parlor initialization must be completed (see subsection 1.1), the Ignore Unassigned ID Tag Numbers mode must be disabled (see subsection 1.3), and the Parlor Entry mode must be enabled as explained below.

**Command Mode**

To enable or disable Parlor Entry mode through Command mode, enter one of the following commands:

**1 5 \* 2 2 \* 1 #** enables Parlor Entry mode for auto entry of ID tag no.s  
**1 5 \* 2 2 \* 0 #** disables Parlor Entry mode

# Automatic ID

## Menu Mode

To enable or disable Parlor Entry mode for entry of ID tag numbers through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the A key to display the Automatic ID menu.**
2. **Press the S key to display the ID Setup menu.**
3. **Press the P key to enable or disable the Parlor Entry mode.**  
This key acts as a toggle, causing the terminal to display either "Enabled" or "Disabled" to indicate the status of this mode.

## Parlor Entry of ID Tag Numbers

Once the Parlor Entry mode has been enabled, use the following procedure to assign ID tag numbers to cows:

1. **Open the entry gate on an ID zone, and let in enough cows to fill that zone of the parlor.**
2. **Enter the cow number of each cow (except cow numbers 1, 2, and 3) at its respective detacher keypad. Then, set the detacher to the Automatic mode and press the ATTACH button.**

The 2045 will mate each cow number you enter with the ID tag number it temporarily stored for that particular detacher when the cow passed through the ID antenna. (This identification process is the same as that which you would use to identify cows manually without an ID System.) Note that cow numbers 1, 2, and 3 cannot be entered this way because the detacher uses these numbers for other purposes (*to enter cow numbers 1, 2, or 3 you must use the 7\*(cow number)# command*). If the detacher display flashes, one of the cows in the group you are attaching may not be wearing a tag, or her tag may be defective. In this case, even though you enter each cow's number before attaching, none of the ID tag numbers will be assigned to cow numbers in that ID zone at that time. If a cow is missing a tag, identify her and have a tag placed on her before the next milking. Defective tags will show up at the next milking as explained below.

Repeat steps 1 and 2 for all cows that enter the ID zone during this milking. When you have milked all the cows, end Parlor Entry mode and the milking from the terminal or a detacher keypad by entering the EOM command (which will automatically cancel Parlor Entry Mode):

**1 5 \* 1 #**

## A

\*\* Agri-comp 2045 Automatic ID \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 ID Setup \*\*\*

P - Parlor Entry Mode

S - Parlor Setup

E - Ignore ID Errors

Z - Set Number of ID Zones

## P

---

# Automatic ID

---

This completes the first entry of ID tag numbers through Parlor Entry mode during milking.

To assign ID tag numbers to cows that may not have been milked during this first milking, or those whose assignments failed to be accepted by the 2045 during that milking, before the next milking, enable Parlor Entry mode for automatic entry of ID tag numbers *during a second milking*, by entering the command:

**1 5 \* 4 4 \* 2 #**

During this second milking, cow numbers that were previously mated with ID tag numbers will automatically appear at their respective detacher display when you press the ATTACH button to milk those cows. The ID error warning “ohoh” will appear at the detacher display of each cow with an ID tag number not yet mated to its cow number. To mate an ID tag number to the number of a cow with this warning, enter at the respective detacher the cow number, if known, using the 7\*(cow number)# command, *while that cow is milking*. Following entry of the cow number, the detacher display will stop flashing and return to normal, and all production data will be correctly printed and stored in the 2045, as if no ID error had been detected.

When you have milked all the cows, end the milking (and Parlor Entry mode) from the terminal or a detacher keypad by entering the EOM command 15\*1#.

Then, set the 2045 for the Ignore Unassigned ID Tag Numbers mode you desire (for normal milking routine).

This completes the second entry of ID tag numbers through Parlor Entry mode during milking. All future ID tag number entries should be made at the 2045 to avoid operator errors from the parlor.

Print an ID Tag Number report, as explained in Section 3, to verify proper assignment of all ID numbers to the cows.

# Automatic ID

## 3 ID Reports

This section includes instructions on displaying and printing various ID reports and enabling other 2045 reports to include certain ID data. Due to the great amount of explanation (covering the purpose and benefit of each report, the data presented in each report, whether or not the data may be sorted, and options on how the report may be generated), reports covered in this section are explained on an individual (per subsection) basis. (Due to the limitation of space in this manual, data shown in the example reports reflects a 20-animal herd.) For further explanation of the abbreviations used in the reports, refer to Appendix PC.

Six reports are available through the Automatic ID program:

- Tag Number (CIDN) Report
- Read Report
- Not Read (NRED) Report
- Parlor Entry Order Report
- Direct Tag Read Report
- Parlor Initialization (Parlor Summary) Report

### Parts of a Report

Most ID reports consist of a heading (top portion), which basically contains the report name, date, and time of day; a body (middle portion), which contains specific data for individual parameters and/or cows; and a summary (bottom portion), which contains herd-related figures calculated by the 2045 from cow-related data. Some reports also include a row of data between the body and the summary that provides totals, averages, and/or (in some cases) 0's that indicate 'no calculation' for data presented in the body. A more detailed explanation of these 'parts of a report' is provided in Chapter 4, Section 3 for all 2045 reports, since the same explanations apply to all reports with one or more of these parts.

### Preparation for Displaying/Printing ID Reports

Several setup and system settings can affect the way reports are displayed or printed. To ensure that you will obtain the correct data in a report, before displaying or printing the report, check the 2045 and/or printer for proper setup, as explained in Section 3 of Chapter 4.

### ☞ Reminder

- If Page mode is enabled, report is displaying, and prompt to press Spacebar appears, press Spacebar to continue or press ESC to exit report. If no action within 5 minutes, the Agri-comp will automatically exit report.
- If Page mode is disabled and report is displaying, you can pause report any time by pressing Ctrl and S, then press Spacebar to continue or press ESC to exit report. If no action within 3 minutes after pause, the 2045 will automatically continue report.
- If report is printing, you can stop and exit it any time by pressing ESC. If printer has buffer, it will print until buffer becomes empty.

While the order in which report headings and columns of data appear cannot be changed, the order in which rows of data appear in the body of most reports can be arranged in several ways with the execution of a Sort command. Most ID reports have a Sort command built into them (only the Read and NOT Read reports can be sorted by the sort command).

The 2045 offers you several peripheral-control options for continuing, pausing, and exiting reports as they display or print. While a detailed explanation of these control options is provided in Section 3 of Chapter 4, a quick-reference reminder is provided here for your convenience.

### 3.1 Displaying/Printing the Cow ID Number (CIDN) Report

The Cow ID Number (CIDN) Report is a list of various cow-related data (all of which are included in cow records). This report can be useful in helping you review data entry assignments and can assist you in identifying a cow that is missing an ID tag.

You should print this report any time you add or change ID tag assignments and keep it on file for future reference.

#### Command Mode

To generate this report through Command mode, enter one of the following commands:

- |                      |  |
|----------------------|--|
| <b>1 8 * 1 #</b>     | displays/prints the Cow ID Number Report in increasing tag number order (lowest to highest). Generated in this way, the report will only list those cows that have been assigned ID tag numbers.   |
| <b>1 8 * 1 * 1 #</b> | displays/prints the Cow ID Number Report in increasing cow number order (lowest to highest) by entering the command 18*1*1#. Generated in this way, the report will include data for all cow numbers, however, a "0" will appear in the CIDN column for each cow number that has not been assigned an ID tag number.—useful for finding cows w/o tags. |

# Automatic ID

## Menu Mode

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the A key to display the Automatic ID menu.**
2. **Press the R key to display the ID Reports menu.**
3. **Press the T key to display/print the Cow ID Number report.**  
Through menu mode, the report will be generated in increasing ID tag number order only.

To exit this mode, press the Escape key (as necessary).

The first example report shown was printed with the command 18\*1#.  
The second example shown was printed with the command 18\*1\*1#.

## A

\*\* Agri-comp 2045 Automatic ID \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## R

\*\*\* Agri-comp 2045 ID Reports \*\*\*

T - Tag Number List

R - Read List

N - Not Read List

P - Parlor Entry Order

D - Direct Tag Read

I - Parlor Initialization

## T

### Increasing ID Tag Number Order

```

=====
Example Farm
MLKG NO. IS 1
  1 JAN 93
  2:09 PM
-----
AGRICOMP 2045
CIDN REPORT
=====
  C      N  L R
  I      U  O P
  D      M  T R
  N      B  O
-----
  497   91  3 6
  521  208  3 5
  757   60  3 6
  965  741  3 6
 1023    3  1 2
 1306   19  2 4
 1960  123  4 9
 2164   72  3 6
 2506  362  4 9
 3324  974  4 8
 3698  176  2 5
 6929 1316  3 5
 7329   49  4 7
24740   25  2 0
26325  593  3 6
30269    2  1 1
38716  435  3 6
39682    1  1 3
47118  857  4 9
No. of Cows = 19
  
```

### Increasing Cow Number Order

```

=====
Example Farm
MLKG NO. IS 1
  1 JAN 93
  2:10 PM
-----
AGRICOMP 2045
CIDN REPORT
=====
  C      N  L R
  I      U  O P
  D      M  T R
  N      B  O
-----
39682    1  1 3
30269    2  1 1
 1023    3  1 2
 1306   19  2 4
24740   25  2 0
 7329   49  4 7
  757   60  3 6
 2164   72  3 6
  497   91  3 6
 1960  123  4 9
 3698  176  2 5
  521  208  3 5
 2506  362  4 9
38716  435  3 6
26325  593  3 6
  965  741  3 6
47118  857  4 9
 3324  974  4 8
    0 1015  1 1
 6929 1316  3 5
No. of Cows = 20
  
```

### Cow ID Number Report:

CIDN—Cow ID Tag Number

NUMB—Cow Barn Number

LOT—Lot Number

RPRO—Reproductive Status Code

## 3.2 Displaying/Printing the Read Report

The Read Report is a list of data, for all cows with ID tag numbers assigned, that includes certain cow record data and milking system data. (See Heading Key for column heading descriptions.) This report's primary purpose is to present a read count (number of times the ID tag number was sent by the ID control to the 2045 during that milking) for each ID tag that can be compared with suggested criteria (explained below) that can help you evaluate the performance of your ID system.

Assuming that cows enter an ID zone at a fairly steady walking pace, typical read counts for ID tags might range from 5 to 50. With this in mind, a report showing a cow with:

- a read count of zero would indicate that the cow's ID number was not read, either because her tag was missing or defective.
- a very low read count from 1 to 4 may indicate that two cows went through the ID antenna arch very quickly (in which case only the read count for the first cow would be low), that two cows tried to walk through the antenna at the same time or one cow stood close enough to the antenna to have her tag read while other cows walked through the antenna, or that the tag is defective.
- a read count of more than 100 would indicate that the cow(s) that followed her lagged behind—the greater the number, the longer the lag—or that she was the last cow to enter the ID zone and the main gate was not closed for some time after she entered.

### **Note**

If this report consistently shows low read counts, refer to the Automatic ID installation instructions for suggestions on resolving the problem of crowding at the antenna.

The 2045 resets READ data to zero at the beginning of each milking (when the first ID tag is read). Therefore, to obtain valid data for a particular milking, this report must be printed after that milking is completed (either before or after the EOM command is executed) but before the beginning of the next milking.—Note: once the EOM command has been given, any tag read will reset the read data.

# Automatic ID

The meaning of all possible problem status flag symbols, presented in the STAT column, are as follows:

- A - (Attention) prints for a cow with an Attention value >0
- D - (Duplicate) prints for the second or more appearance of a cow whose cow record was already updated with production data earlier in the milking. Data stored at the end of milking is always that for the last time a cow number appeared, since data for the latter duplicate replaces that of the earlier number.
- H - (Hold) prints for a cow with a Hold value >0
- I - (Ignore) prints, if Automatic ID is used and the "Ignore ID Errors" condition has been enabled, for all cows present in an ID zone (whether production data is correct or not) when an ID error occurred—that is, too few ID tags were read for the ID zone. The average production for this milking is used instead of the reported production for this cow.
- M - (Manual) prints for a cow whose cow number was manually changed at a detacher, for any reason.
- T - (ID Tag Not Read) prints for a cow with an assigned ID tag, but whose tag was not read during the milking.

The row of data just above the summary provides the total number of cows listed in the NUMB column and the average for all data in the READ column. Figures for all other columns of data will appear as shown, since no meaning has been established for them.

Data in this report can be sorted (as explained in Appendix SO) by any cow-related parameter listed in Appendix PC and will appear in the order determined by the most recent sort.

### Command Mode

To generate this report through Command mode, enter the command:

**1 8 \* 9 #** displays/prints the Read Report

### Menu Mode

To generate this report through Menu mode, use this procedure:

1. Beginning at the main menu, press the A key to display the Automatic ID menu.
2. Press the R key to display the ID Reports menu.
3. Press the R key to display/print the Read report.

To exit this mode, press the Escape key (as necessary).

```

=====
                        Example Farm
                        MLKG NO. IS 1
                        1 JAN 93
                        2:11 PM
=====
                        AGRICOMP 2045
                        READ REPORT
=====
      N   C   R   L   T   D   S
      U   I   E   O   O   /   T
      M   D   A   T   D   M   A
      B   N   D
=====
      1  39682  64  1  0824  5  -----
      2  30269 255  1  0818  3  -----
      3   1023  45  1  0812  5  -----
     19  1306  59  2  0818  0  -----A
     25 24740  33  2  0818  2  -----
     49  7329   0  4  0000  0  -----
     60   757  34  3  0812  6  -----D--
     72  2164  82  3  0812  7  -----
     91   497   5  3  0806  0  -----
    123 1960   0  4  0000  0  -----
    176 3698  51  2  0824  4  ---I-----
    208   521  25  3  0806  1  -----
    362  2506   0  4  0000  0  -----
    435 38716 107  3  0812  4  M-----
    593 26325  38  3  0818  1  -----
    741   965  45  3  0824  6  -----H-
    857 47118   0  4  0000  0  -----
    974  3324   0  4  0000  0  -----
   1015   0   0  1  0806  2  M-I-----
   1316 6929  46  3  0806  3  -----
=====
      20      0  79  0  0000  0  -----
=====
No. of Cows =    20
Totals:
  Prod Today    ....
  Prod Avg      ....
  Avg Time     ...
Averages:
  Prod Today =    ....
  Prod Avg   =    ....
  Avg Time  =    ...
  Avg Days Open= .....
  Avg Days Preg= .....
  Average DIM = .....
=====

```

### Heading Key—Read Report:

NUMB—Cow Barn Number  
 CIDN—Cow ID Tag Number  
 READ—No. of tag reads at last milking  
 LOT— Lot Number  
 TOD—Time of Day of last milking  
 D/M—Det/Meter address last milking  
 STAT—Problem Status flags last mlkg

```

=====
      Example Farm
      MLKG NO. IS 1
            1 JAN 93
            2:12 PM
-----
      AGRICOMP 2045
      NRED REPORT
=====
      C          N    L  H
      I          U    O  O
      D          M    T  L
      N          B          D
-----
      15371 1015  1  0
-----
           0    1  0  0
-----
No. of Cows =      1
Totals:
  Prod Today      ....
  Prod Avg        ....
  Avg Time        ...
Averages:
  Prod Today =     ....
  Prod Avg =       ....
  Avg Time =       ...
Avg Days Open=    .....
Avg Days Preg=    .....
Average DIM =     .....
=====

```

**Heading Key—Not Read Report:**  
 CIDN—Cow ID Tag Number  
 NUMB—Cow Barn Number  
 LOT—Lot Number  
 HOLD—No. of mlkgs to hold milk

### 3.3 Displaying/Printing the Not Read Report

The Not Read (NRED) Report is a list of certain cow record data for all cows whose ID tag numbers were not read during the last milking. An ID tag number that consistently shows up on this report might indicate that the tag is defective or missing or that the wrong ID tag number has been assigned to the cow number.

The read count is reset to zero at the beginning of each milking (when the first ID tag is identified or when the first attach button is pressed). Therefore, to obtain valid data for a particular milking, this report must be printed after that milking is completed (either before or after the EOM command is executed) but before the beginning of the next milking.—Note: once the EOM command has been given, any tag read will reset the read data.

Data in this report can be sorted (as explained in Appendix SO) by any cow-related parameter listed in Appendix PC and will appear in the order determined by the most recent sort.

#### Command Mode

To generate this report through Command mode, enter the command:

**1 8 \* 3 #** displays/prints the Not Read Report

#### Menu Mode

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the A key to display the Automatic ID menu.**
2. **Press the R key to display the ID Reports menu.**
3. **Press the N key to display/print the Not Read report.**

To exit this mode, press the Escape key (as necessary).

The example report shown was printed with the command 18\*3#.

# Automatic ID

## 3.4 Displaying/Printing the Parlor Entry Order Report

The Parlor Entry Order report is an optional portion of the Milk report body, which lists strings of identified cows, according to the ID zone they occupy. (While no headings appear in this report portion, parameter abbreviations have been provided in the example to aid you in understanding presented data). When reviewed with the Direct Tag Read report, this report is extremely useful in diagnosing ID system errors. Bou-Matic service personnel will normally request a copy of this report when ID problems arise.

You should enable this report to print during the first few milkings following installation or whenever you suspect that the ID system is not properly identifying cows. This report must be enabled before beginning a milking in order to be included in the Milk report. If no other portions of the Milk Report body are enabled when you generate this report, the strings of cows will appear, one zone after another, as the entry gate for that zone closes. If other report portions are enabled, strings will be separated by other data. Following testing or the last milking from which you wish to receive the report, disable this report portion.

### Command Mode

To enable or disable this report through Command mode, enter the appropriate command:

- 1 5 \* 4 0 \* 1 #** enables the Parlor Entry Order Report to display/print cows in most recently closed ID zone only.
- 1 5 \* 4 0 \* 0 #** disables the Parlor Entry Order Report

### Menu Mode

To enable or disable this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the A key to display the Automatic ID menu.**
2. **Press the R key to display the ID Reports menu.**
3. **Press the P key to enable or disable the Parlor Entry Order report.** This key acts as a toggle, causing the 2045 to display either "Enabled" or "Disabled" to indicate the status of this mode. This setting enables report to display/print cows in most recently closed ID zone only.

```
Id Zone 0
  497- 91- 0
  521- 208- 1
15371- U- 2
  6929-1316- 3
```

```
Id Zone 1
 38716- 435- 4
  1023- 3- 5
   757- 60- 6
  2164- 72- 7
```

```
Id Zone 0
 1306- 19- 0
26325- 593- 1
24740- 25- 2
30269- 2- 3
```

```
Id Zone 1
 3698- 176- 4
39682- 1- 5
  965- 741- 6
   - - 7
```

```
Id Zone 0
26325- 593- 0
  965- 741- 1
38716- 435- 2
15371-1015- 3
```

```
Id Zone 1
39682- 1- 4
6929-1316- 5
 1306- 19- 6
   757- 60- 7
```

```
Id Zone 0
  521- 208- 0
 2164- 72- 1
 3698- 176- 2
24740- 25- 3
```

```
Id Zone 1
 1023- 3- 4
30269- 2- 5
  497- 91- 6
   - - 7
```

### Note:

Disabling the Milk Report body also disables the ID Parlor Entry Order printout.

## **Error Condition**

When the 2045 receives an unassigned or unrecognizable ID tag number, and the "Ignore ID Errors" mode is disabled, the 2045 will print the error symbol "U" (meaning unassigned) for the cow number.

The example report shown was printed for all ID zones with the command 15\*40\*1#. You can print the current status of an ID zone by adding 100 to the zone number and using the command:

**1 5 \* 4 0 \* (100+zone number) #**

For example, to print the current status of zone 2, you would enter the command:

**1 5 \* 4 0 \* 102 #**

# Automatic ID

## 3.5 Displaying/Printing the Direct Tag Read Report

The Direct Tag Read report is an optional portion of the Milk report body, which lists the ID tag numbers read at each ID zone (in the order that they are read), along with the ID zone number of the control that read the tag. When reviewed with the Parlor Entry Order report, this report is extremely useful in diagnosing ID system errors, and will normally be requested by Bou-Matic service personnel when diagnosing an ID problem.

You should enable this report to print during the first few milkings following installation or whenever you suspect that the ID system is not properly identifying cows. This report must be enabled before beginning a milking in order to be included in the Milk report. If no other portions of the Milk Report body are enabled when you generate this report, tag numbers will appear, one after the other, as they are identified. If other report portions are enabled, tag numbers will be grouped (according to zones occupied at that time of milking) and separated by other data. Following testing or the last milking from which you wish to receive the report, disable this report portion.

### Command Mode

To enable or disable this report through Command mode, enter the appropriate command:

- 8 \* 1 #** enables Direct Tag Read Report to print w/Milk Report
- 8 \* 4 #** disables Direct Tag Read Report

### Direct Tag Read

```
Tag      497  Zone  0
Tag      521  Zone  0
Tag     38716 Zone  1
Tag     15371 Zone  0
Tag      1023 Zone  1
Tag       757 Zone  1
Tag     6929 Zone  0
Tag     2164 Zone  1
Tag     1306 Zone  0
Tag    26325 Zone  0
Tag     3698 Zone  1
Tag    39682 Zone  1
Tag     24740 Zone  0
Tag       965 Zone  1
Tag    30269 Zone  0
```

Note that tag# 15371 is that which should have appeared in place of the U in the Parlor Entry Order Report for milking 1.

### Example:

```
Tag      497  Zone  0
Tag      521  Zone  0
Tag     38716 Zone  1
Tag     15371 Zone  0
Tag      1023 Zone  1
Tag       757 Zone  1
Tag     6929 Zone  0
Tag     2164 Zone  1
```

>Parlor Entry Order Data for above cows would appear here

```
>
>
Tag     1306 Zone  0
Tag    26325 Zone  0
Tag     3698 Zone  1
Tag    39682 Zone  1
Tag     24740 Zone  0
Tag       965 Zone  1
Tag    30269 Zone  0
```

>Parlor Entry Order Data for above cows would appear here

```
>
>
```

*Example with no error*

```
=====
      PARLOR SUMMARY
ID Zone  0:
  Stall  1: 0
  Stall  2: 1
  Stall  3: 2
  Stall  4: 3
ID Zone  1:
  Stall  1: 4
  Stall  2: 5
  Stall  3: 6
  Stall  4: 7
Zones: 2  Stalls: 8
=====
```

*Example with error*

```
=====
      PARLOR SUMMARY
ID Zone  0:
  Stall  1: 0
  Stall  2: 1
  Stall  3: 2
  Stall  4: 3
ID Zone  1:
  Stall  1: 4
  Stall  2: 5
  Stall  3: 1
  Stall  4: 7
Zones: 2  Stalls: 8

Duplicate Stall:  1
=====
```

#### **Note**

If you discover duplicate addresses or the wrong number of detachers in a zone, you must set a new address for any detachers with duplicate addresses, then reinitialize that ID zone or stall.

### 3.6 Displaying/Printing the Parlor Initialization Report

The Parlor Initialization report lists the ID zones assigned to a parlor, the number and address of each detacher assigned to the respective zone, and any duplicate addresses which might have been assigned. The order in which detacher addresses are listed represents the order in which the cows will be assigned to the detachers. Thus, according to our example, the first cow identified in ID zone 0 would be assigned to stall 1, detacher address 0; the second cow would be assigned to stall 2, detacher address 1; and so forth. The “Duplicate Stall: 1” notation at the end of the report indicates that detacher address “1” has been set in more than one detacher. As you look down the column of detacher addresses, you will see that the detacher at ID zone 1/stall 3 (which should be “10”) is set with the same address as the detacher in ID zone 0/stall 2—that of address “1.” (When duplicates appear, reinitialization is required for just that stall.)

This report should be printed and reviewed (to ensure that initialization was performed properly) immediately after the parlor has been initialized or reinitialized and should be saved for future reference.

#### **Command Mode**

To generate this report using Command mode, enter one of the following commands:

- |         |   |
|---------|---|
| #       | displays/prints the Parlor Initialization Report immediately after the parlor has been initialized (also ends the Initialization mode).   |
| 9 * # # | displays/prints the Parlor Initialization Report—you should avoid doing this during a milking; if a gate opens up or a detacher button is pressed, you could mess up the initialization |

#### **Menu Mode**

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the A key to display the Automatic ID menu.**
2. **Press the R key to display the ID Reports menu.**

# Automatic ID

- 3. Press the I key to display/print the Parlor Initialization report.**  
This key acts as a toggle, causing the 2045 to display either “Enabled” or “Disabled” to indicate the status of this mode. This setting enables report to display/print cows in most recently closed ID zone only.

To exit this mode, press the Escape key (as necessary).

The example shown was printed with the command 9\*##.

# **REPRODUCTION PROGRAM**



# Reproduction

## Table of Contents

Introduction .....	7-1
1 Reproduction Setup .....	7-2
1.1 Setting the Number of Ready-To-Breed Days .....	7-2
1.2 Setting the Number of Pregnancy-Check Days .....	7-3
1.3 Setting the Number of Dry-Off Days .....	7-4
1.4 Setting the Number of Gestation Days .....	7-5
1.5 Incrementing Days-In-Milk & Days-Since-Bred Values .....	7-6
1.6 Decrementing Days-In-Milk & Days-Since-Bred .....	7-7
1.7 Converting Days to Dates .....	7-7
1.8 Setting The Heat-Seeker Program Thresholds .....	7-8
1.8.1 Automatic Detection Of First Heat .....	7-8
1.8.2 Automatic Detection Of Ready To Breed .....	7-9
2 Reproductive Data .....	7-10
2.1 Entering Cow-Related Reproductive Data .....	7-10
BRD# (code 71) .....	7-10
Days-In-Milk (code 56) .....	7-11
Days-Since-Bred (code 72) .....	7-11
Days-Since-Dried-Off (code 59) .....	7-12
Days-Since-in-Heat (code 60) .....	7-13
Calving Interval (code 62) .....	7-13
Lactation Number (code 88) .....	7-13
Sire (code 76) .....	7-14
Reproductive Status (code 77) .....	7-14
Heat-Seeker Tag (code 78) .....	7-17
Heat-Seeker Tag Status (code 170) .....	7-17
Heat-Seeker Tag-Hours Since Last Read (code 171) .....	7-17
Heat-Seeker Tag-Previous Status (code 172) .....	7-18
Heat-Seeker Tag-Time Between Readings (code 173) .....	7-18
Heat-Seeker Tag-Prior Status (code 174) .....	7-18
Heat-Seeker Tag-Time Between Readings B & C (code 175) .....	7-18
2.2 Editing a Cow Record .....	7-21
2.2.1 Changing the Reproduction Edit Parameter List .....	7-22
3 Reproduction Reports .....	7-24
3.1 Displaying/Printing the Pregnant Cows Report .....	7-26
3.2 Displaying/Printing the Open Report .....	7-27
3.3 Displaying/Printing the Sire Report .....	7-28

# Reproduction

3.4 Displaying/Printing the Reproductive Summary .....	7-29
3.5 Displaying/Printing the Date-to-Days Conversion List.....	7-33
3.6 Displaying/Printing the Heat-Seeker Report .....	7-35

## Introduction

Installed in the Agri-comp 2045 FARM Management computer, the Reproduction program allows the 2045 to help the dairyman manage the reproductive stages (i.e. heats, pregnancy, calving) of cows in the herd. The 'reproductive calendar' works by comparing each cow's progress against four reproductive stage settings for the herd—Ready-To-Breed, Pregnancy-Check, Dry-Off Days, and Gestation Length. As each cow passes a milestone, her record is updated or she will be included on an action report. The intent of such automatic changes is to alert the dairyman to new stages in each cow's reproductive cycle. The optional Activity program adds the ability to use the Bou-Matic Heat-Seeker pedometer tags for improved heat detection.

This chapter provides the dairyman with instructions on setting parameters, entering and editing data, and obtaining Reproduction reports to monitor the reproductive stages of cows.

Before you attempt to use this program, basic communications must be verified, as explained in Chapter 2, the system software and either the Feeding or Milking program (both of which contain the Automatic ID and Reproduction programs) must be loaded, as explained in Chapter 3, and certain system information must be entered into the 2045, as explained in Chapter 4. Once these tasks have been accomplished, you can begin to use the Reproduction program.

The Table of Contents which precedes this introduction lists the sections of this chapter in the order in which they should be read and procedures should be carried out.

# Reproduction

## 1 Reproduction Setup

This section includes instructions on entering reproductive calendar settings, quick-adjust values to increment or decrement certain reproduction data for all cow records, and other data that can assist you in using this program. Due to the great amount of explanation and differences in value options involved with each entry, settings and data entries covered in this section are explained on an individual (per subsection) basis.

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

Refer to Section 2 for definitions of cow-related parameter names used throughout this section.

### 1.1 Setting the Number of Ready-To-Breed Days

Ready-to-breed (RTB) days is a reproductive calendar setting which specifies the number of days after a cow calves before you consider her ready to breed again. The 2045 compares each cow's days-in-milk (DIM) value with the RTB value on a daily basis to determine when it should affect the cow's reproductive status (RPRO) value. (See Section 2 for further explanation of the affects RTB days has on DIM and RPRO code assignments.) RTB days also affects the Average Days Open calculation that appears in the summary at the end of most reports. (See Section 3 of Chapter 4 for an explanation of this effect.) A default RTB value of 45 days is automatically set in the reproductive calendar. Any value from 1 to 9999 can be assigned to cows.

#### Command Mode

To enter the number of ready-to-breed days through Command mode, enter the command:

```
1 5 * 1 2 * (RTB, 1-9999) #
```

To review the current RTB setting, enter the command:

```
1 5 * 1 2 #
```

#### Menu Mode

To enter the ready-to-breed days through Menu mode, use the following procedure:

1. Beginning at the main menu, press the R key to display the Reproduction menu.

#### Example:

To set an RTB value of 50 days, you would enter 15\*12\*50#

# Reproduction

**R**  
\*\* Agri-comp 2045 Reproduction \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports

**S**  
\*\*\* Agri-comp 2045 Repro Setup \*\*\*  
I - Increment Days in Milk  
B - Ready to Breed Days  
P - Pregnancy Check Days  
D - Dry Off Days  
G - Gestation Days  
**B**

2. Press the **S** key to display the Repro Setup menu.
3. Press the **B** key to set the ready-to-breed days.
4. Type the desired number of days (1-9999) and press **ENTER**.

## 1.2 Setting the Number of Pregnancy-Check Days

Pregnancy-check (PGCK) days is a reproductive calendar number that applies to all cows which specifies the number of days after a cow is bred before a pregnancy detection test should be performed. The 2045 compares each cow's days-since-bred (DBRD) value with the PGCK value on a daily basis to determine when it should affect the cow's reproductive status (RPRO) value. (See Section 2 for further explanation of the affects PGCK days has on DBRD and RPRO value assignments.)

A default PGCK value of 45 days is automatically set in the reproductive calendar. Any value from 1 to 9999 can be assigned to cows.

### Command Mode

To enter the number of pregnancy-check days through Command mode, enter the command:

**1 5 \* 1 3 \* (PGCK, 1-9999) #**

To review the current setting enter the command:

**1 5 \* 1 3 #**

### Menu Mode

To enter the number of Pregnancy Check days through Menu mode, use the following procedure:

1. Beginning at the main menu, press the **R** key to display the **Reproduction** menu.
2. Press the **S** key to display the **Repro Setup** menu.
3. Press the **P** key to set the pregnancy-check days.
4. Type the desired number of days (1-9999) and press **ENTER**.

**R**  
\*\* Agri-comp 2045 Reproduction \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports

**S**  
\*\*\* Agri-comp 2045 Repro Setup \*\*\*  
I - Increment Days in Milk  
B - Ready to Breed Days  
P - Pregnancy Check Days  
D - Dry Off Days  
G - Gestation Days  
**P**

# Reproduction

## 1.3 Setting the Number of Dry-Off Days

Dry-off (DRY) days is a reproductive calendar number that represents the point in each cow's pregnancy that you want to begin her dry period to prepare her for her next lactation. The 2045 compares each cow's days-in-milk (DIM) value with the DRY value on a daily basis to determine when the cow should be dried off and its reproductive status (RPRO) value should be changed. (See Section 2 for further explanation of the affects DRY days has on DIM and RPRO value assignments.) A default DRY value of 220 is automatically set in the reproductive calendar. Any value from 1 to 9999 can be assigned to cows.

To calculate and determine the appropriate DRY days value, subtract the number of days that you want the cow to be dry from the length of a typical pregnancy. For example, if the length of pregnancy is typically 280 days and you want the cow to have 60 dry days, the DRY value would be 220 days (calculated  $280 - 60 = 220$ ).

### Command Mode

To enter the number of dry-off days through Command mode, enter the command:

```
1 5 * 1 4 * (DRY,1-9999) #
```

To review the current setting enter the command:

```
1 5 * 1 4 #
```

### Menu Mode

To enter the number of dry-off days through Menu mode, use the following procedure:

1. Beginning at the main menu, press the R key to display the Reproduction menu.
2. Press the S key to display the Repro Setup menu.
3. Press the D key to set the dry-off days.
4. Type the desired number of days (1-9999) and press ENTER.

### Example:

To set a DRY value of 225 days, you would enter 15\*14\*225#

```
R
** Agri-comp 2045 Reproduction **
S - Setup
D - Data Entry or Edit
R - Reports
S
*** Agri-comp 2045 Repro Setup ***
I - Increment Days in Milk
B - Ready to Breed Days
P - Pregnancy Check Days
D - Dry Off Days
G - Gestation Days
D
```

## 1.4 Setting the Number of Gestation Days

Gestation (GEST) days specifies the normal time after breeding that you expect cows to calve. The 2045 compares each cow's days-since-bred (DBRD) value with the GEST value on a daily basis to determine when a cow is nearly ready to calve and its reproductive status (RPRO) code should be changed. (See Section 2 for further explanation of the affects GEST days has on DBRD and RPRO code assignments.) A default GEST value of 265 days (which means the 2045 would list cows in reports 14 days before they are expected to calve) is automatically set in the reproductive calendar. Any value from 1 to 9999 can be assigned to cows.

### Command Mode

To enter the number of gestation days through Command mode, enter the command:

#### Example:

To set a GEST value of 270 days, you would enter 15\*15\*270#

```
1 5 * 1 5 * (GEST,1-9999) #
```

To review the current setting enter the command:

```
1 5 * 1 5 #
```

### Menu Mode

To enter the number of gestation days through Menu mode, using the following procedure:

```
R
** Agri-comp 2045 Reproduction **
S - Setup
D - Data Entry or Edit
R - Reports
S
*** Agri-comp 2045 Repro Setup ***
I - Increment Days in Milk
B - Ready to Breed Days
P - Pregnancy Check Days
D - Dry Off Days
G - Gestation Days
G
```

1. Beginning at the main menu, press the R key to display the Reproduction menu.
2. Press the S key to display the Repro Setup menu.
3. Press the G key to set the gestation days.
4. Type the desired number of days (1-9999) and press ENTER.

# Reproduction

## 1.5 Incrementing Days-In-Milk & Days-Since-Bred Values

If it becomes necessary to reload the 2045 memory from a 'backup' system disk, you will need to update the days-in-milk (DIM) and days-since-bred (DBRD) values for all cows, which will be low by the number of days since the backup was made.

To determine the number of days to increment DIM and DBRD data, after successfully loading the backup disk, display the date on which the backup disk was saved by entering the command:

**1 5 \* 6 3 #**

Then, calculate the difference between the current date and the backup date to determine the number of days to increment the DIM and DBRD values. For instance, if today's date is 1 JAN 93, and the date of the backup disk is 26 DEC 92, the difference would be 6 days.

The DIM and DBRD values for the entire herd can be adjusted upward with a single command. (Adjustments to the individual cow RPRO codes will be made as a result of this command.) Note that you must enter an increment value greater than zero, for if you enter a value of zero, instead of incrementing the DIM and DBRD values, the 2045 will execute the manual end-of-day function (explained in Chapter 8), and the 2045 will not alert you to the error with a Command Error message or parlor beep.

### Command Mode

To increment the days-in-milk and days-since-bred values for the entire herd through Command mode, enter the command:

**1 5 \* 2 \* (days,1-999) #**

### Menu Mode

To increment the DIM and DBRD values through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the R key to display the Reproduction menu.**
2. **Press the S key to display the Repro Setup menu.**
3. **Press the I key to increment the DIM and DBRD values.**
4. **Type the desired number of days (1-999) and press ENTER.**

### Example:

To increment DIM and DBRD values by 6 days, you would enter 15\*2\*6#

### R

\*\* Agri-comp 2045 Reproduction \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### S

\*\*\* Agri-comp 2045 Repro Setup \*\*\*

I - Increment Days in Milk

B - Ready to Breed Days

P - Pregnancy Check Days

D - Dry Off Days

G - Gestation Days

### I

## 1.6 Decrementing Days-In-Milk & Days-Since-Bred

If, after incrementing days-in-milk (DIM) and days-since-bred (DBRD) values for the entire herd (as explained in subsection 1.5), you discover that you've increased them to too high a value, you can decrement them to lower values with a single command.

To decrement the DIM and DBRD values for the entire herd through Command mode, enter the command:

*Example:*

To decrement DIM and DBRD values by 2 days, you would enter 13\*# twice.

```
1 3 * #
```

This command will subtract one day from the DIM and DBRD values for the entire herd. Thus, if the error made when incrementing is more than one day off, you'll need to enter this command for each day in error.

## 1.7 Converting Days to Dates

The days-to-date conversion is a function that allows you to quickly reference a date prior to the current date, eliminating the need for you to count backward through a desk or wall calendar. Though you may discover other uses for this function, it is particularly useful when assigning days-in-milk (DIM), days-since-in-heat (DHET), and days-since-bred (DBRD) values to cows that you add to the herd in mid-lactation. Note that to obtain a correct conversion date, the 2045 must be set with the correct date (as explained in Chapter 4).

To obtain a single date from a days-to-date conversion through Command mode, enter the following command, specifying a value from 0-364 in place of the word "(days)":

*Example:*

If the current date in the 2045 is 20 January, 1993, and you enter 15\*35\*45#, the 2045 will respond with 6 DEC 92, which means that 45 days earlier was the 6th of December, 1992.

```
1 5 * 3 5 * (days) #
```

The 2045 will respond with the date in a day:month:year format, such as:

```
1 JAN 93
```

To display or print a complete days-to-dates conversion list for the past year, refer to Section 3.

# Reproduction

## 1.8 Setting The Heat-Seeker Program Thresholds

The optional Activity Program enables you to use the Heat-Seeker tags to monitor your cows' activity when they are ready to breed. Frequently, a cow about to come into heat will increase her daily movements, and this change can be detected by the Heat-Seeker tags and reported automatically to the 2045. To interpret this data correctly, the 2045 must be set up properly.

To read the Heat-Seeker tags, you must have installed the special Heat-Seeker Tag Identifier Controller and antenna, installed according to the instructions that come with that unit. This unit must be daisy chained into the Automatic ID communications wiring. The address switch in this controller must be set as though it were just another Automatic ID zone, and you will have to set your number of ID zones accordingly (see chapter 6 for instructions on setting the number of zones).

When a cow with a Heat-Seeker tag walks through the special antenna, her tag will transmit her special tag number and Heat-Seeker status to the 2045. The 2045 will update her Heat-Seeker data in the cow record.

### 1.8.1 Automatic Detection Of First Heat

If the cow's Heat-Seeker status (HS a) exceeds the Heat Detection Threshold, and the cow's Days Since In Heat (DHET) is equal to 0, the Activity program will automatically change the DHET value to 1 to indicate that the first heat was observed. This is very useful for detecting that first heat, thus improving your chances of identifying the next heat, when you want to actually breed the cow. The threshold value defaults to 40, which means that a cow must have at least 4 hours at rate 1 or 2 hours at rate 2 to indicate a heat (for a more complete explanation of the Heat-Seeker status values, see the description of Heat-Seeker Tag Status (HS a) in section 2 of this chapter).

To set the Heat Detection Threshold enter the command:

**1 5 \* 7 9 \* (heat threshold, 0-660) #**

To view the current setting enter the command:

**1 5 \* 7 9 #**

*Example:*

To set the First Heat threshold to a minimum of 4 hours at rate 1 enter the command:  
**15\*79\*40#**

To set the threshold to a minimum of 2 hours at rate 2 enter the command:  
**15\*79\*200#**

<b>2 1</b> <small>CODE</small>	<b>1 2 2</b> <small>COW #/R/DATA</small>
	<b>h 240</b> <small>PRODUCTION</small>

## 1.8.2 Automatic Detection Of Ready To Breed

If the cow's Heat-Seeker status (HS a) exceeds the RTB Detection Threshold and the cow's Reproductive Status (RPRO) is Ready To Breed or Already Bred (2, 3, or 4), the Activity Program will set the cow's Attention code (ATTN) to 'F' (15) to indicate that a RTB heat was observed. When the cow is milked at a detacher/meter, the detacher display will show the Days Since In Heat, Cow Number, and Heat-Seeker Tag Status when the cow is attached (see the example). The small 'h' in the leftmost digit of the Data Display indicates that this is Heat-Seeker Status data instead of normal milking data.

The threshold will default to 20, meaning that the cow must have at least 2 hours of increased activity . For a more complete explanation of the meaning of the status values, see the description of the Heat-Seeker Status (HS a) in the next section of this chapter.

*Example:*

To set the RTB threshold to a minimum of 4 hours at rate 1 enter the command:  
15\*78\*40#

To set the threshold to a minimum of 2 hours at rate 2 enter the command:  
15\*78\*200#

To set the threshold enter the command:

**1 5 \* 7 8 \* (RTB threshold, 0-660) #**

To view the current setting enter the command:

**1 5 \* 7 8 #**

# Reproduction

## 2 Reproductive Data

This section includes instructions on entering various types of cow-related reproductive data. To simplify instructions (due to similarities and relations between parameters) and allow you to readily find information, data entries covered in this section (with the exception of those made through the Edit Cow Record menu item, explained in subsection 2.2) are explained on a group parameter basis, with all specific parameter explanations and value options appearing early in subsection 2.1 and lists of commands for Single Entry, Prompt Entry, and Group Entry modes appearing later in the subsection.

Note that the 2045 stores all reproductive calendar events as the number of days since the event occurred, instead of as a date. This manner of storage reduces errors in entry, since you only need to enter a 1- to 3-digit number, instead of 6-digit dates. Also it is more useful to know that a cow was in heat or was bred 18 days ago than to have to figure out from a date. This convenience is made possible by the fact that the 2045 is dedicated to the purpose of collecting and analyzing data to help you manage your dairy farm better.

### 2.1 Entering Cow-Related Reproductive Data

Explanations of the parameters used in the Reproduction program (including the code, name abbreviation, and your value entry options for each) are provided here, listed in alphabetical order of column heading abbreviation, to prepare you for entering commands and values later in this subsection. (Refer to Appendix PC for a list of reports in which each column heading abbreviation appears.)

#### **BRD#** (code 71)

BRD# is a number generated for each cow and heifer that specifies the number of times an animal has been bred during a particular lactation (or prior to lactation in the case of heifers). A default BRD# value of 0 (which means the animal has not been bred) is automatically set for each new cow number you enter into the 2045. Each time you enter a DBRD value other than zero, the 2045 will automatically add one to the BRD# value. If this value increments to too high a number due

#### **Note**

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

#### **Reminder**

- The number of times an animal is bred appears under BRD# in reports.
- The number of days a cow has been milked in her current lactation appears under DIM in reports.
- The number of days since an animal was last bred appears under DBRD in reports.
- The number of days since an animal was first observed in heat appears under DHET in reports.
- The number of lactations a cow has had (including present) appears under LCNO in reports.
- The number of the sire used to breed a cow appears under SIRE in reports.
- The number of days since an animal was dried off appears under DDRY in reports.
- The number of days between her last two fresh dates (calving interval) appears under CLVI in reports.
- The code used to represent the stage of lactation a cow (or heifer) is currently in appears under RPRO in reports.

For example, on the day that a cow calves and becomes fresh, you would set her DIM value to 0. From then on, incrementing is automatic such that day 2 DIM=1

day 3 DIM=2, and so on.

If RTB is set for 45 days, then when DIM equals 45 her RPRO code will automatically change from 1 to 2, and she will be listed in the “Cows To Breed” portion of the RPRO Summary report.

## **End Of Lactation (Fresh Cows)**

The End Of Lactation (EOL) occurs the day that a cow begins her next lactation as a fresh cow. (See explanation for DIM.) This means that the cow’s dry period is included in the previous lactation period. EOL resets the information from the cow’s last lactation. EOL occurs when dairyman sets a cow’s DIM to 0 or 1.

For example, if you have just bred cow 123 for the first time (or first time this lactation) and changed her DBRD value to one other than 0, her BRD# would change from 0 to 1.

to an incorrect DBRD value entry, you can change the BRD# through Command mode or Menu mode (Edit Cow Record) to any value from 0-99.

## **Days-In-Milk (code 56)**

Days-in-milk (DIM) is a number generated for each cow that specifies how many days the cow has been milked in her current lactation. A default DIM value of 0 (which indicates that the cow is fresh and represents the end of her previous lactation, referred to as EOL, and beginning of her new lactation) is automatically set for each new cow number you enter into the 2045. The DIM number will increase by one each midnight until you set her RPRO value to 9 (dry cow) or the DIM number reaches 999. When a cow’s DIM number equals the ready-to-breed (RTB) value set in the 2045, her RPRO value will automatically change from 1 (not ready to breed) to 2 (ready to breed), and she will be listed in the “Cows To Breed” portion of the RPRO Summary report. When a cow’s DIM value reaches the DRY value set in the 2045, the cow will be automatically listed in the “Cows to Dry” section of the RPRO Summary report. She will remain on that list until you change her RPRO value to 9 to indicate that she has been dried off. On the day that a cow delivers a calf, you should change her DIM value to “0.” If you fail to change the value that day, you can enter a DIM value of “1” on the following day. Both settings, 0 and 1, will cause the 2045 to prepare a new lactation record for the cow, and activate the automatic incrementing of the DIM number. If you fail to change the value on the actual day or the day after a cow calves or you add a new cow to your herd midstream in her lactation, you must still enter a value of “0” (to reset lactation data and activate incrementing), then enter a value (2-999) for the number of days that have passed since the cow delivered her calf. Note that DIM will not increment for heifers.

## **Days-Since-Bred (code 72)**

Days-since-bred (DBRD) is a number generated for each cow and heifer that specifies the number of days since the animal was last bred. A default DBRD value of 0 (which means the cow has not been bred) is automatically set and will remain so for each new cow number you enter into the 2045 until such time as you breed the cow and change the value. Each time you breed a cow, on the day that you breed her,

# Reproduction

you should change this value to 1 (which represents the first day of that cow's breeding period). Changing the DBRD value to 1 (or any value other than 0) will activate the automatic incrementing of the DBRD number, causing it to increase by one each midnight. Also, when you change the DBRD value on a cow you are breeding for the first time during a lactation, the 2045 will automatically change the cow's RPRO status value from 2 (ready to breed) to 3 (bred once), she will continue to be listed in the "Cows To Breed" portion of the RPRO Summary report, and for a period of time beginning the 16th day and ending the 25th day after the second DBRD value change she will be listed in the "Cows To HTCK" portions of the RPRO Summary report. If, after reviewing these report portions and observing that the cow is in heat again, you determine that the cow requires an additional breeding and you enter another DBRD value of 1 on the day of the second breeding, the 2045 will automatically change the cow's RPRO status value from 3 to 4 (bred more than once), still listing her in the report portions named above. The RPRO value will remain 4 (for each additional breeding) or 3 (if not reinseminated) until the DBRD number equals the pregnancy-check (PGCK) value set in the 2045, at which time the value will change to 5 and the cow will be listed in the "Cows To PGCK" section of the RPRO Summary report. Note that if you fail to enter a value of 1 on the day you breed a cow, you can activate the incrementing on a later date by entering a value (2-999) for the number of days that have passed since you bred the cow. (For instance, if the current day is Wednesday and you bred a cow two days ago on Monday [day 1], you would enter a DBRD value of 3. We recommend that you enter a value within a week to reduce the chance of error.) Note also that each time you enter a DBRD value other than zero, the 2045 will automatically increment the BRD# value.

## **Days-Since-Dried-Off** (code 59)

Days-since-dried-off (DDRY) is a number generated for each cow that specifies the number of days since the animal was first set to Dry status (RPRO=9). This value will increment automatically each day the cow is dry until she is freshened or until the maximum of 255 days is reached. The DDRY value is used to calculate the Calving Interval. (Note: the days dry value is not available in the C-Level software.)

## **Days-Since-in-Heat (code 60)**

Days-since-in-heat (DHET) is a number generated for each cow and heifer that specifies the number of days since the animal was first observed in heat. A default DHET value of 0 (which means the animal has not yet been observed in heat) is automatically set and will remain so for each new cow number you enter into the 2045 until such time as you observe the animal in heat and change the value. On the day that you observe her in heat, you should change this value to 1 (which represents the first day of that cow's first heat). Changing the DHET value to 1 (or any value other than 0) will activate the automatic incrementing of the DHET number, causing it to increase by one each midnight. The DHET number will continue incrementing until it reaches 99 or until you reset the DHET value to 1. Changing the DHET value to anything but zero will also cause an animal (for a period of time beginning the 16th day and ending the 25th day after the DHET value has been changed) to be listed in the "Cows To HTCK" portion of the RPRO Summary report—a portion that will prove invaluable to the dairyman who wants to breed a cow or heifer during her second heat, as it allows you to monitor your animals' heat cycles. Since you will likely breed the animal during its second heat, there is no need to reset the DHET value for each heat observed in a lactation period, and you may actually learn more about an animal's heat cycles if you allow her DHET number to keep incrementing and then compare her DHET number with her DBRD number. Note that if you fail to enter a value of 1 on the day you observe a cow in heat, you can activate the incrementing on a later date by entering a value (2-999) for the number of days that have passed since your observation.

## **Calving Interval (code 62)**

The Calving Interval (CLVI) is the number of days between the last two calves for a cow. It is calculated when a cow is freshened by adding the previous lactation's days-in-milk (DIM) value to the days-since-dried-off value (DDRY). (Note: calving interval is not available in C-Level software.)

## **Lactation Number (code 88)**

A Lactation Number (LCNO) is generated to specify the number of lactations (including her current lactation) a cow has had. A default LCNO value of 0 (which means the animal has not yet had a lactation)

### *Example:*

To assign a LCNO of 3 to newly added cow 123, you would enter 88\*123\*3#

# Reproduction

is automatically set and will remain so for each new cow number you enter into the 2045 until you enter a DIM value of 0 or 1, to indicate that the cow is fresh. Each time you enter a DIM value of 0 or 1, the 2045 will automatically add one to the LCNO value; however, since you will not need to enter a DIM value of 0 or 1 for a cow until she begins a new lactation (and that lactation will be her second, third, or later), when you add a new cow to the herd midstream in her lactation, you must enter an initial LCNO value. Then, when you enter the DIM value, the 2045 will correctly assign her future lactation numbers. If this value increments to too high a number due to an incorrect DIM value entry, you can change the LCNO through Command mode or Menu mode (Edit Cow Record) to any value from 0-15.

## **Sire (code 76)**

The Sire number (SIRE) is a four-digit number (1-9999) that you can assign to a cow to represent the bull you used or wish to use to breed the cow. The SIRE number will appear in the “Cows To Breed,” “Cows To HTCK,” and “Cows To Calf” portions of the RPRO Summary report, as well as other reports.

## **Reproductive Status (code 77)**

Reproductive (RPRO) status values represent the stages of lactation that a cow (and heifer) goes through. A default RPRO status value of 1 (which means the animal is not ready to breed) is automatically set for each new cow number you enter into the 2045. While the 2045 automatically changes RPRO values 1-5 as days-in-milk (DIM) and days-since-bred (DBRD) values meet the herd parameter checkpoints for ready-to-breed (RTB) and pregnancy-check (PGCK), you will need to change the initial value for any new animal for which value 1 does not apply and manually change other values, as necessary, during the life of the animal. (You may change the RPRO value, for any cow, at any time.) RPRO values must be accurately entered into the 2045 for all cows.

The RPRO values, their meaning, and use are as follows:

Value 0 = Cow to be culled. You should assign this RPRO value to a cow that you have decided to eliminate from your herd, but have not yet sold. Cows with this value will be listed

# Reproduction

When you add a heifer to the herd, be sure to assign her a RPRO code of 7 or 8 to prevent the DIM number from incrementing and the LCNO from changing each time you reset the DIM value.

in the “Cows To Cull” portion of the RPRO Summary report, the Open Cows Report, and Sire Report.

- Value 1 = Cow not ready to be bred. This value is automatically assigned to all new cow numbers entered into the 2045 and to cows that have been in the herd some time whenever you set their DIM value to 0 or 1. When a cow’s DIM number equals the RTB value set in the 2045, her RPRO value will automatically change from 1 to 2.
- Value 2 = Cow ready to be bred, but not yet bred. This value is automatically assigned to a cow, as explained under Value 1, which should be bred the next time they come into heat. Cows with RPRO value 2 will be listed in the “Cows To Breed” portion of the RPRO Summary report. When you change the DBRD value on a cow you are breeding for the first time during a lactation, the 2045 will automatically change a cow’s RPRO value from 2 to 3.
- Value 3 = Cow bred once. This value is automatically assigned to a cow, as explained under Value 2. Cows with RPRO value 3 will continue to be listed in the “Cows To Breed” portion of the RPRO Summary report and will become listed in the “Cows To HTCK” portion of the report when their DBRD or DHET value falls within the 16 to 25 day range explained under those parameters.
- Value 4 = Cow bred more than once. This value is automatically assigned to a cow for which you enter a second DBRD value of 1. Cows with RPRO value 4 will continue to be listed in the “Cows To Breed” portion of the RPRO Summary report and will become listed in the “Cows To HTCK” portion of the report when their DBRD or DHET value falls within the 16 to 25 day range explained under those parameters.. The RPRO code will remain 4 for each additional breeding until the DBRD number equals the pregnancy-check (PGCK) value set in the 2045, at which time the value will change to 5. The 2045 will also change a cow’s RPRO value from 5 to 4, as explained below.
- Value 5 = Cow to be pregnancy checked. This value is automatically assigned to a cow (as explained under Value 4), that has been bred, after enough days have passed for a pregnancy-detection test to be performed safely and yield accurate

# Reproduction

results. Cows with RPRO value 5 will be listed in the “Cows To PGCK” portion of the RPRO Summary report. (You may set a cow’s RPRO value to 5 at any time to remind yourself to do a pregnancy check on her when your veterinarian visits the next time.) The 2045 will automatically change a cow’s RPRO value from 5 back to 4 when you enter a DBRD for the cow after checking her and finding that she did not become pregnant.

- Value 6 = Pregnant cow. You should assign this RPRO value to a cow as soon as it is diagnosed pregnant. Cows with this value will be listed in the Pregnant Cows Reports and will become listed in the “Cows To DRY” portion of the RPRO Summary report when their DBRD value exceeds the DRY value set in the 2045.
- Value 7 = Open heifer. You should assign this RPRO value to a heifer (which are considered throughout the 2045 manual to be cows that have never delivered a calf) when you enter its cow numbers into the 2045. Heifers with this value will be listed in the “Cows To PGCK” portion of the RPRO Summary report when their DBRD value reaches the PGCK value set in the 2045.
- Value 8 = Pregnant heifer. You should assign this RPRO value to a heifer when it is diagnosed pregnant. Heifers with this value will be listed in the “Cows To Calve” portion of the RPRO Summary report when their DBRD value reaches the GEST value set in the 2045.
- Value 9 = Dry cow. You should assign this RPRO value to a cow when she becomes listed in the “Cows to Dry” portion of the RPRO Summary report (triggered when a cow’s DIM value reaches the DRY value set in the 2045) to indicate that she is a dry cow and should not be milked. Assigning this value prevents the cow from appearing in any report that uses data for lactating cows in calculations.

## Note

RPRO codes 10 through 15 are allowed, but their meanings have not yet been defined. These codes are reserved for future use. If used, they will print on reports as codes A through F.

The use of these RPRO values will give you a quick reference to the reproductive status of cows in your herd and allow the 2045 to aid you in making management decisions.

## **Heat-Seeker Tag (code 78)**

When the Activity Program has been loaded, you can assign Heat-Seeker Tag Numbers to those cows that you want to monitor for activity. To change a tag from one cow to another, you must first assign tag number 0 to remove the tag from the animal it is currently assigned to, then assign it to the other cow.

## **Heat-Seeker Tag Status (code 170)**

The Heat-Seeker Tag Status (HS a) is the last reading received from a Heat-Seeker tag. This will be a 3 digit number interpreted as follows:

- the hundreds digit is the number of hours that the activity was measured at rate 2 (the meaning of rate 2 depends on the tag setup). This value will be 0, 2, 4, or 6 hours.
- the tens digit is the number of hours that the activity was measured at rate 1 (the meaning of rate 1 depends on the tag setup). This value will be 0, 2, 4, or 6 hours.
- the ones digit indicates that the increased activity was detected for less than 6 hours (0) or for more than 6 hours (1). This helps to determine how soon you need to breed the cow.
- if the tag detects an error, the status value will be negative. A value of -9 means that there was an error with all other values equal to 0 (a negative 0 cannot be printed).

The Heat-Seeker Tag Status value is determined by the 2045. It can be used for sorting and reports, but cannot be set by the user.

## **Heat-Seeker Tag-Hours Since Last Read (code 171)**

The Hours Since Last Read (HSHa) is an indicator of how long it has been since the tag was last read. When the tag is read this value is set to 1. The value is incremented at the beginning of each hour (note that this means that a tag that was read at 3:59 would show a value of 2 at 4:01, 1 for first read and 1 more for the change in hours). This helps to determine how soon you need to breed the cow. This value is determined by the 2045 and cannot be changed by the user.

# Reproduction

## Heat-Seeker Tag-Previous Status (code 172)

The Previous Status (HS b) is the second most recent status read from the Heat-Seeker tag. Comparing the two most recent readings and the timing of those readings helps to determine when to breed the cow. The Previous Status is determined by the 2045 and cannot be changed by the user.

## Heat-Seeker Tag-Time Between Readings (code 173)

The Time Between Readings (HSHb) is the number of hours between the most recent reading of the Heat-Seeker and the previous reading. This value cannot be changed by the user.

## Heat-Seeker Tag-Prior Status (code 174)

The Prior Status (HS c) is the third most recent status read from the Heat-Seeker tag. The Prior Status is determined by the 2045 and cannot be changed by the user.

## Heat-Seeker Tag-Time Between Readings B & C (code 175)

The Time Between Readings B & C (HSHc) is the number of hours between the second and third most recent readings of the Heat-Seeker tag. This value cannot be changed by the user.

The remainder of this subsection (arranged by entry mode) provides information on entering commands and menu answers relative to the cow-related reproductive parameters explained earlier in this subsection. (The difference between the Single Entry, Prompt Entry, Group Entry, and Menu modes is explained in Chapter 1.)

### Single Entry Mode

To enter (or change) reproductive data values using Single Entry mode, enter any of the following commands, specifying a cow number in the second field of data for each command and a value for the third field of data that falls within the range shown in parentheses:

5 6 * (NUMB) * (0-999) #	assigns DIM (EOL - freshen cow) to cow
5 9 * (NUMB) * (0-255) #	assigns DDRY to cow
6 0 * (NUMB) * (0-99) #	assigns DHET to cow
6 2 * (NUMB) * (0-999) #	assigns CLVI to cow
7 1 * (NUMB) * (0-99) #	assigns BRD# to cow
7 2 * (NUMB) * (0-999) #	assigns DBRD to cow

### Examples:

- To assign a days-in-milk value of 74 to cow 123, you would enter the command 56\*123\*74#
- To assign a days-since-in-heat value of 1 to cow 123 (for the first day of that cow's first heat), you would enter 60\*123\*1#
- The BRD# automatically increments with each entry of a DRBD value; however, to change the number of times cow 123 has been bred (should it be incorrect) from 3 to 2, you would enter 71\*123\*2#
- To assign a days-since-bred value of 2 to cow 123 (meaning she was last bred two days ago), you would enter 72\*123\*2#
- To assign a sire number of 1247 to cow 123, you would enter 76\*123\*1247#

# Reproduction

## ☛ Reminder

To sort first, you would enter

4\*(parm code)#...or  
4\*(parm code)\*(parm code)#

### Examples:

- To assign a days-in-milk value to cows, you would enter 16\*56#  
To assign them starting with cow 123, you would enter 16\*56\*123#
- To assign a days-since-in-heat value to cows, you'd enter 16\*60#  
To assign them starting with cow 123, you would enter 16\*60\*123#
- To assign a days-since-bred value to cows, you would enter 16\*72#  
To assign them starting with cow 123, you would enter 16\*72\*123#

### Example:

If you enter 16\*77# and cow 1 is the first to appear, having a previously assigned RPRO status value of 1, the 2045 would respond with:

RPRO P: 1: 1=

The following entries would assign initial RPRO status values to cow numbers 1-3:

RPRO P: 1: 1=3  
RPRO P: 2: 1=1  
RPRO P: 3: 1=2  
RPRO P: 4: 1=

7 6 \* (NUMB) \* (0-9999) # assigns SIRE number to cow  
7 7 \* (NUMB) \* (0-15) # assigns RPRO value to cow  
7 8 \* (NUMB) \* (0-999999) # assigns HS# number to cow  
8 8 \* (NUMB) \* (0-15) # assigns LCNO to cow

## Prompt Entry Mode

To enter, change (or review) reproductive data values through Prompt Entry mode, you may first use the Sort command (explained in Appendix US) to arrange data in the order you desire. Then, you can either enter any of the following commands, allowing cow numbers to appear in the order of the most recent sort, and then the values you desire:

1 6 \* 5 6 # assigns day-in-milk (DIM) to cows  
1 6 \* 5 9 # assigns days-since-dried (DDRY) to cows  
1 6 \* 6 0 # assigns days-since-in-heat (DHET) to cows  
1 6 \* 6 2 # assigns calving interval (CLVI) to cows  
1 6 \* 7 1 # assigns number of breedings (BRD#) to cows  
1 6 \* 7 2 # assigns days-since-bred (DBRD) to cows  
1 6 \* 7 6 # assigns sire number (SIRE) to cows  
1 6 \* 7 7 # assigns reproductive (RPRO) status to cows  
1 6 \* 7 8 # assigns Heat-Seeker tags (HS#) to cows  
1 6 \* 8 8 # assigns lactation number (LCNO) to cows

You can enter values starting with any cow number by including an asterisk (\*) and the particular cow number as a third data field (between the 2-digit number and #) in each command. Cow numbers will still appear in the order of the most recent sort; however, starting with a particular cow number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

ABBR P: NUMB: *current value*=

The ABBR will be replaced by the 4 character abbreviation for the parameter specified, the “P” indicates Prompt Entry mode, the abbreviation “NUMB” represents the number of the cow you may assign a new value to, and the words “current value” represent the value currently assigned to that cow number for the particular parameter.

# Reproduction

Either press the ENTER key to accept the current value or type in a new value and press ENTER. (See example.) In either case the 2045 will proceed to the next cow number. To exit this mode, press the Escape (ESC) key.

## Group Entry Mode

To enter or change reproductive data values through Group Entry mode, enter any of the following commands:

5 6 \* # assigns day-in-milk (DIM) to cows  
5 9 \* # assigns days-since-dried (DDRY) to cows  
6 0 \* # assigns days-since-in-heat (DHET) to cows  
6 2 \* # assigns calving interval (CLVI) to cows  
7 1 \* # assigns number of breedings (BRD#) to cows  
7 2 \* # assigns days-since-bred (DBRD) to cows  
7 6 \* # assigns sire number (SIRE) to cows  
7 7 \* # assigns reproductive (RPRO) status to cows  
7 8 \* # assigns Heat-Seeker tag (HS#) to cows  
8 8 \* # assigns lactation number (LCNO) to cows

The 2045 will enter Group Entry mode and respond with an 'E=' prompt. After the prompt, type in a cow number, an asterisk (\*), the parameter value you want assigned, and then press the ENTER key. Repeat this entry process for each cow number you want to assign a value to for the parameter you've specified. (See example.)

To exit this mode, press the Escape (ESC) key.

## Group Entry/Menu Mode

To enter or change reproductive data through Group Entry mode with assistance from Menu mode, using the following procedure:

1. Beginning at the main menu, press the R key to display the Reproduction menu.
2. Press the D key to display the Repro Data menu.
3. Press the R key to display the Repro Parameters menu.
4. Press the appropriate key (D,H,B,S,R,L) for the reproductive parameter you want to set or assign values for.

The 2045 will enter Group Entry mode and respond with an 'E=' prompt, and you may enter the data as explained above.

To exit this mode, press the Escape (ESC) key.

Example:

The following entries (for command 77\*#) would assign the same values used in the Prompt Entry example; however, as you can see, Group Entry allows the user to determine the cow number entry order.

```
NUMB.RPRO E=2*1#  
NUMB.RPRO E=1*3#  
NUMB.RPRO E=3*2#  
NUMB.RPRO E=
```

**R**

\*\* Agri-comp 2045 Reproduction \*\*

S - Setup

D - Data Entry or Edit

R - Reports

D

\*\*\* Agri-comp 2045 Repro Data \*\*\*

R - Repro Parameter Entry

E - Edit Cow Record

R

\*\*\*\* Repro Parameters \*\*\*\*

D - Days in Milk

H - Days since in Heat

B - Days since Bred

S - Sire Code

R - Repro Status Code

L - Lactation Number

**D, H, B, S, R, or L**

## 2.2 Editing a Cow Record

Although the Single, Prompt, and Group Entry modes, explained earlier in this section, are available specifically for entering and changing reproductive data values on an individual parameter basis, values for those same parameters can also be assigned or changed in an existing cow record through the Edit Cow Record menu item of the Reproduction menu hierarchy. The advantage of entering data by editing a cow record is that you can see and change any or all reproductive data for a particular cow at once.

To enter or change data in a cow record through Menu mode, use the following procedure:

R  
\*\* Agri-comp 2045 Reproduction \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
D  
\*\*\* Agri-comp 2045 Repro Data \*\*\*  
R - Repro Parameter Entry  
E - Edit Cow Record  
E

- 1. Beginning at the main menu, press the R key to display the Reproduction menu.**
- 2. Press the D key to display the Repro Data menu.**
- 3. Press the E key to edit a cow record.**  
The 2045 will respond with a prompt, asking you if you want to sort cows first.
- 4. Respond to the prompt by pressing either the Y or N key.**  
If you press the N key, the 2045 will ask for the starting cow number, and you may proceed to step 5.

If you press the Y key, you will be asked for a primary sort key and a secondary sort key. Refer to the parameter codes listed in Appendix A or press the question mark (?) key to have the 2045 display a list of valid parameter codes at the terminal, and enter the codes you wish to have data arranged by. (Refer to Appendix US for details on entering Sort commands.) The 2045 will pause briefly to perform the sort. After it has completed the sort, the 2045 will ask for the starting cow number.

NUMB ( 4 ) :  
RPRO ( 5 ) :  
LOT ( 1 ) :  
LCNO ( 1 ) :  
DIM ( 178 ) :  
DHET ( 0 ) :  
DBRD ( 35 ) :  
SIRE ( 1162 ) :  
BRD# ( 1 ) :

- 5. Enter the number of the first cow whose data you wish to change, or press ENTER to start with the first cow of the most recent sort.**  
The screen will display the cow's current cow number and RPRO status code (in parentheses) following their parameter name abbreviations. (Refer to Appendix PC for a list of parameter codes and name abbreviations.) The remaining parameters and their values will be displayed as you advance through the record (as explained below). A typical display is shown.

# Reproduction

You can change any of the currently assigned values in a record (except the cow number) by entering the new value at the colon (:). To skip past certain data, accepting the current value, press the ENTER key. To skip backward one parameter, such as from LCNO to LOT, press the left bracket ( [ ) or left brace ( { ) key. If you make a mistake while entering a value, before you press ENTER, use the Backspace key to erase incorrect digits, then retype the value. If you try to enter an invalid value, you'll be alerted with a terminal beep, and the 2045 will ignore the attempted change and continue to show the original value. If you want to see the complete cow record for the current cow, press the question mark ( ? ) key. To skip to the next cow, press the plus ( + ) key. To back up to the previous cow, press the minus ( - ) key.

Whenever you press the ENTER key to accept the last parameter value listed in a cow record, the 2045 will display the next cow's data. Records for all cows with cow numbers in memory will be displayed, and data can be changed in the same manner explained above. The cow records will appear in the order of the most recent sort of the data. That is, if you last sorted the data by Production Average (AVG), the cow records will appear in increasing average production sequence. You can also proceed immediately to the next cow record (from any point within a record) by pressing the plus ( + ) or equal ( = ) key. To skip backward and repeat a previous cow record, press the minus ( - ) key.

To exit this mode at any point within the editing process, press the Escape key (as necessary). The 2045 will store values for all entries made before the ENTER key was last pressed.

## 2.2.1 Changing the Reproduction Edit Parameter List

The list of cow parameters to be edited in the Edit Cow Record for Reproduction can be changed to include any parameters that you want to edit, in the order that you want to edit them. To edit the parameter list, enter the command:

**16\*19\*3#**

The 2045 will enter Prompt mode and allow you to review and change the Reproduction Edit Parameter List. Each field in the current list will be displayed with the four letter abbreviation (see Appendix PC),

### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

# Reproduction

a “P:” to indicate prompt mode, the current field number (you can have up to 109 fields in this list), the current parameter code number, and end with a question mark (?). To leave the code as it is, just press the ENTER key. To change to a different parameter code, just type in the new code number. To delete a code, press the minus key (-). To insert a new code between two codes, press the plus key (+). To see a list of all possible codes, press the question mark key (?). To end the list, enter a code number 0, then press the Escape key.

You can restore the Reproduction Edit Parameter List to the default list by entering the command:

**8\*19\*3#**

# Reproduction

## 3 Reproduction Reports

This section includes instructions on displaying and printing various Reproduction reports. Due to the great amount of explanation (covering the purpose and benefit of each report, the data presented in each report, whether or not the data may be sorted, and options on how the report may be generated), reports covered in this section are explained on an individual (per subsection) basis. (Due to the limitation of space in this manual, data shown in the example reports reflects a 20-animal herd.) For further explanation of the abbreviations used in the reports, refer to Appendix PC.

Four reports and a date-to-days conversion list are available through the Reproduction program:

- Pregnant Cows Report
- Open Cows Report
- Sire Report
- Reproductive Summary Report

A fifth report, the Heat-Seeker Report, is available if the Activity program is loaded.

### Parts of a Report

Most Reproduction reports consist of a heading (top portion), which basically contains the report name, date, and time of day; a body (middle portion), which contains specific data for individual parameters and/or cows; and a summary (bottom portion), which contains herd-related figures calculated by the 2045 from cow-related data. Some reports also include a row of data between the body and the summary that provides totals, averages, and/or (in some cases) 0's that indicate 'no calculation' for data presented in the body. A more detailed explanation of these 'parts of a report' is provided in Chapter 4, Section 3 for all 2045 reports, since the same explanations apply to all reports with one or more of these parts.

## **Reminder**

- If Page mode is enabled, report is displaying, and prompt to press Spacebar appears, press Spacebar to continue or press ESC to exit report. If no action within 5 minutes, the Agri-comp will automatically exit report.
- If Page mode is disabled and report is displaying, you can pause report any time by pressing Ctrl and S, then press Spacebar to continue or press ESC to exit report. If no action within 3 minutes after pause, the 2045 will automatically continue report.
- If report is printing, you can stop and exit it any time by pressing ESC. If printer has buffer, it will print until buffer becomes empty.

## **Preparation for Printing Reproduction Reports**

Several setup and system settings can affect the way reports are displayed or printed. To ensure that you will obtain the correct data in a report, before displaying or printing the report, check the 2045 and printer for proper setup, as explained in Section 3 of Chapter 4.

The 2045 offers you several options for continuing, pausing, and exiting reports as they display or print. While a detailed explanation of these control options is provided in Section 3 of Chapter 4, a quick-reference reminder is provided here for your convenience.

# Reproduction

## 3.1 Displaying/Printing the Pregnant Cows Report

The Pregnant (PREG) Cows Report is a list of certain (primarily reproductive) cow record data for all pregnant cows and heifers (those with RPRO values equal to 6-pregnant cow, 8-pregnant heifer, or 9-dry cow). This report can be very useful, as it allows you to visualize your milking herd inventory as it will change over the next few months. Of particular importance is the days-since-bred (DBRD) number of each cow. Cows whose DBRD value is greater than 250 will freshen within the next 30 days, cows whose DBRD value is between 220 and 250 are just dry and will freshen 30 to 60 days hence, cows with DBRD values between 190 and 220 will dry off in the next 30 days, etc. (You may find that drawing lines to separate data of these DBRD number categories will help you to better visualize the effect.)

You should print this report at least once each month and keep it on file for future reference.

Data in the body of this report is always sorted in increasing order of days-since-bred (DBRD).

### Command Mode

To generate this report through Command mode, enter the following command:

**1 8 \* 7 2 #**

### Menu Mode

To generate this report through Menu mode, use this procedure:

**1.Beginning at the main menu, press the R key to display the Reproduction menu.**

**2.Press the R key to display the Repro Reports menu.**

**3.Press the P key to display/print the Pregnant Cows Report.**

To exit this mode, press the Escape (ESC) key.

### Pregnant Cow Report:

LOT— Lot Number  
 NUMB—Cow Barn (Record) Number  
 DBRD—Days Since Bred  
 LACT—Lactation total milk  
 SIRE—Sire Code

*Example was generated with 18\*72#*

```

=====
                Example Farm
                MLKG NO. IS 2
                   1 JAN 93
                   7:00 PM
-----
                AGRICOMP 2045
                PREG REPORT
=====
L   N   D   L   S
O   U   B   A   I
T   M   R   C   R
      B   D   T   E
-----
3  435 145  .... 1002
3   72 166  .... 1002
3  593 187  .... 1002
3   91 208  .... 1002
3   60 229  .... 1002
3  741 250  .... 1002
4  123 271  .... 1002
4  362 292  .... 1002
4  857 313  .... 1002
-----
0    9 147  ....  0
-----
No. of Cows =    10
  
```

```

R
** Agri-comp 2045 Reproduction **
S - Setup
D - Data Entry or Edit
R - Reports
R
*** Agri-comp 2045 Repro Reports ***
P - Pregnant Cows
O - Open Cows
S - Sire
C - Cull Cows
R - Repro Summary
D - Date to Days Conversion
P
  
```

## Open Report:

LOT— Lot Number  
NUMB—Cow Barn (Record) Number  
DIM—Days In Milk (days of current lactation)  
ATTN—Attention Code  
DBRD—Days Since Bred  
RPRO—Reproductive Status Code

Example was generated with 18\*88#

=====

Example Farm  
MLKG NO. IS 3  
1 JAN 93  
7:00 PM

-----

AGRICOMP 2045  
OPEN REPORT

=====

L	N	D	A	D	R
O	U	I	T	B	P
T	M	M	T	R	R
	B		N	D	O

-----

1	2	1	0	325	1
1	1015	22	0	346	1
1	3	43	0	367	2
1	1	64	0	19	3
2	19	85	0	40	4
2	25	106	0	61	0
2	176	127	0	82	5
3	208	148	0	103	5
3	1316	169	0	124	5
4	49	-	0	...	7

-----

0	10	128	0	23	0
---	----	-----	---	----	---

-----

No. of Cows = 10

**R**

\*\* Agri-comp 2045 Reproduction \*\*

S - Setup

D - Data Entry or Edit

R - Reports

**R**

\*\*\* Agri-comp 2045 Repro Reports \*\*\*

P - Pregnant Cows

O - Open Cows

S - Sire

C - Cull Cows

R - Repro Summary

D - Date to Days Conversion

**O**

## 3.2 Displaying/Printing the Open Report

The Open Report is a list of all nonpregnant cows and heifers (those with RPRO codes not equal to 6-pregnant cow, 8-pregnant heifer, or 9-dry cow). This report can be very useful in helping you plan the breeding of these animals and in visualizing the effects that cows you breed will have on your milking herd inventory over the coming months. Data you may want to take special note of are that for cows

- not yet bred (DBRD=0)
- ready to breed (DIM-RTB)
- ready to pregnancy check
- who are not cycling (DIM is large and DBRD is 0)

You should print this report monthly and keep it on file for future reference.

Data in the body of this report is always sorted first in increasing RPRO status code order, then by increasing cow number order within each RPRO code.

### Command Mode

To generate this report through Command mode, enter the command:

**1 8 \* 8 8 #**

### Menu Mode

To generate this report through Menu mode, use this procedure:

**1.Beginning at the main menu, press the R key to display the Reproduction menu.**

**2.Press the R key to display the Repro Reports menu.**

**3.Press the O key to display/print the Open Report.**

To exit this mode, press the Escape (ESC) key.

# Reproduction

## 3.3 Displaying/Printing the Sire Report

The Sire Report lists all cows that have been assigned sire numbers. This report can be very useful for keeping track of your breeding program.

You should print this report whenever you breed your cows and keep it on file for future reference.

Data in the body of this report is always sorted first in increasing order of sire number, then by increasing cow number within each sire code.

### Command Mode

To generate this report through Command mode, enter one of the following commands:

- 18 \* 2 #** displays/prints the entire Sire Report for all sires
- 18 \* 2 \* (sire)#** displays/prints the Sire Report, limiting data to cows bred by a specific sire, as specified

### Menu Mode

To generate this report through Menu mode, use this procedure:

1. Beginning at the main menu, press the R key to display the Reproduction menu.
2. Press the R key to display the Repro Reports menu.
3. Press the S to display/print the Sire Report.

To exit this mode, press the Escape (ESC) key.

### Sire Report:

LOT— Lot Number  
 NUMB—Cow Barn (Record) Number  
 SIRE—Sire Code  
 LACT—Lactation total milk  
 RPRO—Reproductive Status Code

Example was generated with 18\*2#

```

=====
                Example Farm
                MLKG NO. IS 3
                   1 JAN 93
                   7:01 PM
-----
                AGRICOMP 2045
                SIRE REPORT
=====
L   N   S   L   R
O   U   I   A   P
T   M   R   C   R
      B   E   T   O
-----
1     2 1002 ..... 1
1 1015 1002 ..... 1
1     3 1003 ..... 2
1     1 1005 ..... 3
2    19 1005 ..... 4
2   176 1005 ..... 5
3   208 1005 ..... 5
3 1316 1005 ..... 5
3   435 1007 ..... 6
3    72 1008 ..... 6
3   593 1008 ..... 6
3    91 1009 ..... 6
3    60 1010 ..... 6
3   741 1010 ..... 6
4   123 1011 ..... 9
4   362 1011 ..... 9
4   857 1011 ..... 9
=====
0    17    0 ..... 0
-----
No. of Cows =    20
  
```

**R**  
 \*\* Agri-comp 2045 Reproduction \*\*  
 S - Setup  
 D - Data Entry or Edit  
 R - Reports  
**R**  
 \*\*\* Agri-comp 2045 Repro Reports \*\*\*  
 P - Pregnant Cows  
 O - Open Cows  
 S - Sire  
 C - Cull Cows  
 R - Repro Summary  
 D - Date to Days Conversion  
**S**

## 3.4 Displaying/Printing the Reproductive Summary

The Reproductive (RPRO) Summary report attempts to present the most meaningful reproductive *facts* and management information in one report. The summary is made up of seven sections, which can be printed individually or altogether as a complete report. Each section has its own importance based on facts entered into the 2045.

You should print this report monthly and keep it on file for future reference.

### Command Mode

To generate this entire report or individual portions of it through Command mode, enter one of the following commands:

<b>1 7 * 7 7 #</b>	displays/prints the entire RPRO Summary report
<b>1 7 * 7 7 * 0 #</b>	displays/prints "Cows to Cull"
<b>1 7 * 7 7 * 1 #</b>	displays/prints "Cows to Breed"
<b>1 7 * 7 7 * 2 #</b>	displays/prints "Cows to HTCK"
<b>1 7 * 7 7 * 3 #</b>	displays/prints "Cows to PGCK"
<b>1 7 * 7 7 * 4 #</b>	displays/prints "Cows to Dry"
<b>1 7 * 7 7 * 5 #</b>	displays/prints "Cows to Calf"
<b>1 7 * 7 7 * 7 #</b>	displays/prints "RPRO Summary"

### Menu Mode

To generate this entire report or the "Cows To Cull" portion through Menu mode, use this procedure:

**R**  
\*\* Agri-comp 2045 Reproduction \*\*  
S - Setup  
D - Data Entry or Edit  
R - Reports  
**R**  
\*\*\* Agri-comp 2045 Repro Reports \*\*\*  
P - Pregnant Cows  
O - Open Cows  
S - Sire  
C - Cull Cows  
R - Repro Summary  
D - Date to Days Conversion  
**C or R**

- 1. Beginning at the main menu, press the R key to display the Reproduction menu.**
- 2. Press the R key to display the Repro Reports menu.**
- 3. Press the appropriate key (C or R) for the report you wish to print.**
  - Pressing the C key will cause the "Cows To Cull" portion of the RPRO Summary report to display/print.
  - Pressing the R key will cause the entire Reproductive Summary report to display/print.

The following paragraphs (accompanied by enlarged examples) describe each portion of the report in greater detail. As shown in the example, each section is separated by a double-dashed line.

# Reproduction

## Reproductive Summary

The "RPRO Summary" portion lists each RPRO status code, the meaning of the codes, the number of cows assigned to each RPRO code, and the percent of each code relative to the whole herd. This section should indicate any lopsidedness in the herd's breeding program.

Example was generated alone with 17\*77\*7#

```

=====
Example Farm
MLKG NO. IS 3
1 JAN 93
7:01 PM
-----
AGRICOMP 2045
RPRO SUMMARY
Code           Cows    %
0 Cows to Cull      11     5
1 Not Ready to Breed  4     2
2 Ready to Breed    51    23
3 Bred Once         9     4
4 Bred More Than Once  9     4
5 Check for Pregnancy 21     9
6 Pregnant Cows     30    14
7 Open Heifers      21     9
8 Pregnant Heifers  40    18
9 Dry Cows          26    12
A Reserved          0     0
B Reserved          0     0
C Reserved          0     0
D Reserved          0     0
E Reserved          0     0
F Reserved          0     0
-----

```

## Cows To Breed

The "Cows To Breed" portion lists all cows whose days-in-milk (DIM) number is greater than the ready-to-breed (RTB) value set in the 2045 (expressed as -DIM is 60) and whose RPRO status code is not 6, 8, or 9. If a cow is observed to be in heat, this is the list to check to be sure that the observation is reasonable. Graphing the Average DIM will provide information about the progress of the breeding program.

Example was generated alone with 17\*77\*1#

```

Cows To BREED
-DIM is 60
=====
L  N  D  R  D  S
O  U  I  P  B  I
T  M  M  R  R  R
      B      O  D  E
-----
1   4 178 5  35 1002
1   9  73 2   0 1002
1  10  69 4   4 1002
1  11 124 3  15 1002
1  12 128 4  29 1002
1  14  61 2   0 1002
1  15 102 5  41 1002
1  19 136 2   0 1002
-----
Average DIM = 92.6
=====

```

"Cows to Breed" portion:  
 LOT— Lot Number  
 NUMB—Cow Barn (Record) Number  
 DIM—Days In Milk (days of current lactation)  
 RPRO—Reproductive Status Code  
 DBRD—Days Since Bred  
 SIRE—Sire Code

# Reproduction

Example was generated alone with 17\*77\*2#

```
Cows To HTCK
=====
L  N  D  D  S  R
O  U  H  B  I  P
T  M  E  R  R  R
    B  T  D  E  O
-----
1  34  0  21 1002 3
1  82  0  23 1002 4
1 159  0  23 1002 3
3 5572 0  20 1002 7
3 5573 0  19 1002 7
=====
```

Example was generated alone with 17\*77\*3#

```
Cows To PGCK
-DBRD is 35
=====
L  N  D  D  R
O  U  I  B  P
T  M  M  R  R
    B      D  O
-----
1  39  84  35  5
1   4 178  35  5
1 135 139  36  5
1  15 102  41  5
2  45 182  44  5
1  33 205  47  5
1 101 183  49  5
-----
Average DIM = 150.3
Average DBRD 39.7
=====
```

Example was generated alone with 17\*77\*4#

```
Cows To DRY
-DBRD is 200
=====
L  N  D  D  A
O  U  I  B  V
T  M  M  R  G
    B      D
-----
2 149 281 213 33
2   7 356 218 47
2 177 324 218 41
2 175 317 223 38
=====
```

## Cows To Heat Check

The “Cows To HTCK” portion lists each cow whose days-since-bred (DBRD) or days-since-last-heat (DHET) number is from 16 to 25. In other words, it lists the cows who should be coming into heat during the next week.

LOT— Lot Number  
NUMB—Cow Barn (Record) Number  
DHET—Days Since in Heat  
DBRD—Days Since Bred  
SIRE—Sire Code  
RPRO—Reproductive Status Code

## Cows To Pregnancy Check

The “Cows To PGCK” portion lists all the cows whose RPRO is 5. A cow’s RPRO is automatically changed to 5 when DBRD exceeds PGCK (expressed as -DBRD is 35). This list can help in planning the veterinary visit for pregnancy checking.

LOT— Lot Number  
NUMB—Cow Barn (Record) Number  
DIM—Days In Milk (days of current lactation)  
DBRD—Days Since Bred  
RPRO—Reproductive Status Code

## Cows To Dry

The “Cows To Dry” portion lists all the cows whose DBRD is greater than DRY (expressed as -DBRD is 200). If the value for DRY is set at a lower value than the actual drying off point, it will serve as a warning to check her for mastitis and body condition before she is dried off.

LOT— Lot Number  
NUMB—Cow Barn (Record) Number  
DIM—Days In Milk (days of current lactation)  
DBRD—Days Since Bred  
AVG—Overall Avg Milk Production

# Reproduction

## Cows To Calf

The “Cows To Calf” portion lists cows due to freshen based on gestation (GEST, expressed as -DBRD is 245). If GEST is set at less than 280 days, it should warn of cows about to freshen and allow for lead feeding, movement to calving pen, etc.

- LOT— Lot Number
- NUMB—Cow Barn (Record) Number
- LCNO—Lactation Number
- SIRE—Sire Code
- ATTN—Attention Code
- DBRD—Days Since Bred

*Example was generated alone with 17\*77\*5#*

```

Cows To CALF
-DBRD is 245
=====
L  N  L  S  A  D
O  U  C  I  T  B
T  M  N  R  T  R
      B  O  E  N  D
-----
3 5536 0 1002 0 245
9  75 3 1002 0 246
9 121 1 1002 0 249
9 112 3 1002 0 255
9  93 0 1002 0 259
9 153 2 1002 0 261
9  54 0 1002 0 265
9  50 0 1002 0 267
9 139 5 1002 0 272
9 168 2 1002 0 274
9 102 4 1002 0 275
9  62 0 1002 0 286
=====
  
```

## Cows To Cull

The “Cows To Cull” portion lists cows whose RPRO code is set to zero.

- NUMB—Cow Barn (Record) Number
- LCNO—Lactation Number
- RPRO—Reproductive Status Code
- DIM—Days In Milk (days of current lactation)
- AVG—Overall Avg Milk Production
- ATTN—Attention Code

*Example was generated alone with 17\*77\*0#*

```

Cows To CULL
=====
N  L  R  D  A  A
U  C  P  I  V  T
M  N  R  M  G  T
      B  O  O          N
-----
130 1 0  74  27  1
   26 5 0 301  32  0
129 2 0 153  32  0
   67 4 0 315  38  1
116 2 0 280  39  0
163 4 0 192  64  0
   21 2 0 244  65  0
   87 2 0 206  67  0
   61 2 0 161  68  1
   84 6 0 119  93  0
=====
  
```

6- 1-92	41
7- 1-92	40
8- 1-92	39
9- 1-92	38
10- 1-92	37
11- 1-92	36
12- 1-92	35
13- 1-92	34
14- 1-92	33
15- 1-92	32
16- 1-92	31
17- 1-92	30
18- 1-92	29
19- 1-92	28
20- 1-92	27
21- 1-92	26
22- 1-92	25
23- 1-92	24
24- 1-92	23
25- 1-92	22
26- 1-92	21
27- 1-92	20
28- 1-92	19
29- 1-92	18
30- 1-92	17
31- 1-92	16
1- 2-92	15
2- 2-92	14
3- 2-92	13
4- 2-92	12
5- 2-92	11
6- 2-92	10
7- 2-92	9
8- 2-92	8
9- 2-92	8
10- 2-92	7
11- 2-92	6
12- 2-92	5
13- 2-92	4
14- 2-92	3
15- 2-92	2
16- 2-92	1
17- 2-92	0

### 3.5 Displaying/Printing the Date-to-Days Conversion List

The date-to-days conversion lists dates for the last year (365 days) and, beside each date, the number of days between the listed date and the current date. This conversion list can be used to aid you in specifying data entry values involving days, as the Agri-comp 2045 uses “days since,” instead of dates, to express the passage of time. The current date must be set properly in the 2045 for this listing to be accurate.

The (partial) example shown was printed on February 17, 1992 (2-17-92), and that date was considered day zero. If you had a cow freshen on January 25, 1992 (1-25-92) and were entering her into the 2045 on 2-17-92 you would enter 22 as her DIM value.

#### Command Mode

To generate this list through Command mode, enter the command:

```
1 5 * 3 5 #
```

If you just want to find out what the date was some number of days ago, you can enter the command as:

```
1 5 * 3 5 * (days, 1-364) #
```

where you would replace the expression in parentheses with the desired number of days. The 2045 will perform the Days-To-Date conversion and respond with the date in day:month:year format. For example, if on 4 December 1992 you wanted to find the date 200 days earlier, you would enter:

```
1 5 * 3 5 * 2 0 0 #
```

and the 2045 would respond with:

```
1 8 : 5 : 9 2
```

# Reproduction

## Menu Mode

To generate this list through Menu mode, use this procedure:

1. Beginning at the main menu, press the R key to display the Automatic ID menu.
2. Press the R key to display the Repro Reports menu.
3. Press the D key to display/print the Date to Days report.

To exit this mode, press the Escape key (as necessary).

## R

\*\* Agri-comp 2045 Reproduction \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## R

\*\*\* Agri-comp 2045 Repro Reports \*\*\*

P - Pregnant Cows

O - Open Cows

S - Sire

C - Cull Cows

R - Repro Summary

D - Date to Days Conversion

## D

### 3.6 Displaying/Printing the Heat-Seeker Report

The Heat-Seeker Report lists the Heat-Seeker data for all cows that have Heat-Seeker tag numbers assigned to them.

To print the report, enter the command:

**1 8 \* 7 8 #**

To print this report for just those cows that have shown some activity during the last three readings (HS a, HS b, or HS c), enter the command:

**1 8 \* 7 8 \* 1 #**

The full report can also be printed from the Reproduction Reports menu.

*The example below was printed with the command 18\*78#:*

```

=====
                          Example Farm
                          MLKG NO. IS 1
                          1 JAN 93
                          10:40 AM
-----
                          AGRICOMP 2045
                          HEAT-SEEKER REPORT
=====
  N   L   H   H   H   D   D   D   R L A   H   H   H   S   H
  U   O   S   S   S   H   B   I P C V   S   S   S   I   S
  M   T           E   R   M R N G   H   H   H   R   #
  B           a   b   c   T   B           O O       a   b   c   E

-----
  59  2    0    0    0  0    0  35  2  2 ...   3  12  12   20 166627
 173  2   20    0    0  0    0  45  2  2 ...   2  12  12   21  54831
 112  2   41   40    0  0    0  47  2  3 ...   1  13  12   25  26120
   54  2  221   20    0  21   0  69  2  2 ...   2  12  11   25  25051
  160  2    0    0   20  19   0  65  2  4 ...   1  12  12  120 163362
  139  2   20    0   20  22   0  86  3  2 ...   2  11  13  120 166358
=====
  
```

# Reproduction

# **MILKING PROGRAM**



## Table of Contents

Introduction .....	8-1
1 Milking Setup .....	8-2
1.1 Changing the Detacher Attach Display Mode Setting .....	8-2
1.2 Setting the Detach Flow Rate & Takeoff Delay .....	8-4
1.2.1 Changing Settings at Detacher Switch—All Cows .....	8-6
1.2.2 Changing Settings at Detacher Keypad—One Cow .....	8-6
1.2.3 Permanent Settings—Entire Parlor .....	8-7
1.2.4 Individual Cow Takeoff Rates .....	8-9
1.3 Setting the Milking Number .....	8-10
1.4 Setting the End-Of-Day Function .....	8-11
1.4.1 Setting the Automatic End-Of-Day Function .....	8-12
1.4.2 Entering the Manual End-Of-Day Command .....	8-13
1.5 Clearing Herd Averages for Specified Milking .....	8-14
1.6 Setting the Average Interval .....	8-15
1.7 Setting the Fresh Cow Hold Count—For the Herd .....	8-17
1.8 Enabling/Disabling Milk Collection .....	8-18
1.9 Limiting Data to be Entered/Reviewed At Detachers .....	8-18
1.10 Setting User Defined Detacher Displays .....	8-19
2 Milking Data .....	8-20
2.1 Entering Cow-Related Milking Data .....	8-20
Attention (code 21—ATTN) .....	8-20
Breed (code 75—BRD) .....	8-21
Days In Milk (code 56—DIM) .....	8-21
Dumped Milk (code 51—DUMP) .....	8-21
Actual 305 Day Lactation Total (code 53—A305) .....	8-21
Held Milkings (code 57—HELD) .....	8-22
Hold Milkings (code 20—HOLD) .....	8-22
Income from Milk (code 97—IN \$) .....	8-23
Individual Cow Detach Rates (code 29—RATE) .....	8-23
Lactation Total (code 52—LACT) .....	8-23
Lot Number (code 30—LOT) .....	8-24
Mastitis Code (code 58—MAST) .....	8-24
Milk Price Adjustment Percentage (code 99—MPA%) .....	8-24
Peak Average Daily Production (code 54—PEAK) .....	8-24
Peak Days In Milk (code 55—PDIM) .....	8-24
Reproductive Status (code 77—RPRO) .....	8-25

# Milking

2.2 Editing a Cow Record .....	8-28
2.2.1 Changing the Milking Edit Parameter List .....	8-30
3 Milking Reports .....	8-31
3.1 Displaying/Printing the Milk Report .....	8-32
3.2 Displaying/Printing the Herd Summary .....	8-34
3.3 Displaying/Printing the Lot Summary .....	8-38
3.4 Displaying/Printing the Number Report .....	8-39
3.5 Displaying/Printing the Production Report .....	8-40
3.6 Displaying/Printing the Attention Report .....	8-42
3.7 Displaying/Printing The Average Report .....	8-43
3.8 Displaying/Printing the Deviation Report .....	8-44
3.9 Displaying/Printing the Lot Report .....	8-47
3.10 Displaying/Printing the Day Number Production Report ..	8-49
3.11 Displaying/Printing the Day Number Milk Report .....	8-53
3.12 Displaying/Printing the Weekly Production Report .....	8-55
4 Milking Procedures .....	8-57
4.1 Milking With an Agri-comp 2045 .....	8-57
4.1.1 Reattaching to the Same Cow .....	8-59
4.1.2 Viewing Data at the Detacher During Milking .....	8-60
4.1.3 Understanding the Deviation Number .....	8-61
4.2 Ending a Milking .....	8-62
4.2.1 Sending the Last Milked Cows' Data to the 2045 .....	8-62
4.2.2 Entering the End Of Milking Command .....	8-62
4.2.3 Entering the End Of Day Command .....	8-64
4.3 Understanding Warning Messages at the Detacher .....	8-65
4.4 Entering Commands at the Detacher .....	8-67
4.4.1 Assigning Lot Numbers From The Parlor .....	8-67

## Introduction

Installed in the Agri-comp 2045 FARM Management computer, the Milking program allows the 2045 to manage milking data on an individual cow basis as well as a herd basis (updating records with milk weights, milking times, and various other data automatically collected from detachers each milking and other data entered by the dairyman). Updating of records with individual cow data is accomplished automatically through identification by an Agri-comp ID system (and ID tags) or by manual assignment of cows to detachers, and transmission of milking data to the 2045 from detachers. Management of herd data (and certain other cow data) is accomplished through calculations the 2045 makes using the individual cow data it receives from detachers—some calculations based on all cows milked during a particular milking, others based on just those appearing in a particular report, still others applying to a specific cow. The results of these calculations appear in various reports and change with each milking according to the data obtained. The intent of such data management is to aid the dairyman in more effectively monitoring the milking performance and production efficiency of the milking herd.

This chapter provides the dairyman with instructions on setting parameters, entering and editing data, and printing reports relating to the Milking program. Special milking procedures that are required to maximize the benefits of the 2045 are also described in this chapter.

Before you attempt to use this program, basic communications must be verified, as explained in Chapter 2, the system software and Milking program must be loaded, as explained in Chapter 3, and certain system information must be entered into the 2045, as explained in Chapter 4. Once these tasks have been accomplished and the milking system has been set up and checked out, you could begin milking cows; however, in order for the detachers to send milking data to the 2045, certain settings and data must first be entered into the 2045 through the Milking program.

The Table of Contents which precedes this introduction lists the sections of this chapter in the order in which they should be read and procedures should be carried out.

# Milking

## 1 Milking Setup

This section includes instructions on setting various 2045 and detacher modes and functions as well as entering data for certain parameters that affect all cows. Due to the great amount of explanation and differences in value options involved with each entry, settings and data entries covered in this section are explained on an individual parameter basis.

If you have not already assigned and set detacher addresses in the detachers, you should do so at this time, as explained in Appendix DA.

### 1.1 Changing the Detacher Attach Display Mode Setting

The detachers are capable of displaying milking data in either of two formats when the operator presses the ATTACH button at a detacher to milk a cow, depending on which format the Attach Display mode is set to—“Time and Production” or “Cow Number and Production.”

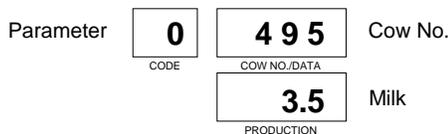
The default Attach Display mode setting for all detachers is “Time and Production.” When set to this mode, the display will present cow record data as shown in the example upon attach. The “1” shown in the CODE window indicates the parameter code used to display data at the detacher. Specifically, 1 means display time since attach. “.0”, appearing in the COW NO./DATA window, is the milking time. This number will begin to increment in tenths of minutes immediately after you press the ATTACH button, and it will stop incrementing when the milking unit detaches. The PRODUCTION window, showing an initial 3.5 pounds (lbs) of milk (or 1.5 kilograms), will begin incrementing in tenths of pounds (or kilograms) once the milk meter fills beyond 3.5 lbs and the rotor turns to release milk. The incrementing will stop each time a low flow rate condition exists and will continue each time the minimum flow rate resumes. Because the 3.5 lbs of milk is counted at the beginning of each milking, before the meter actually releases milk, the last 3.5 lbs is not counted. (Refer to the appropriate detacher instruction packet for more details on milk meter operation.) Attach time data appears under the column heading abbreviation

**Note**

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

Parameter	<table border="1"><tr><td>1</td></tr><tr><td><small>CODE</small></td></tr></table>	1	<small>CODE</small>	<table border="1"><tr><td>.0</td></tr><tr><td><small>COW NO./DATA</small></td></tr></table>	.0	<small>COW NO./DATA</small>	Time
1							
<small>CODE</small>							
.0							
<small>COW NO./DATA</small>							
	<table border="1"><tr><td>3.5</td></tr><tr><td><small>PRODUCTION</small></td></tr></table>	3.5	<small>PRODUCTION</small>	Milk			
3.5							
<small>PRODUCTION</small>							

TIME in the Milk Report and under the abbreviations TIM1, TIM2, and TIM3 (for the particular milking) in the reports listed for the abbreviation in Appendix PC. Production data appears under the column heading abbreviation MILK in the Milk Report and under the abbreviations PRD1, PRD2, and PRD3 (for the particular milking) in the reports listed for the abbreviation in Appendix PC.



The other Attach Display mode that detachers can be set to is “Cow Number and Production.” When set to this mode, the display will present cow data as shown in the example upon attach. The “0” shown in the CODE window indicates the parameter code used to display cow number at attach. The number appearing in the COW NO./DATA window is the number of the cow being milked. (495 is a hypothetical number.) The PRODUCTION window for parameter code 0 displays the initial 3.5 pounds of milk and increments the increasing milk weight the same as it does for parameter code 1. Cow numbers appear under the column heading abbreviation NUMB in the reports listed for the abbreviation in Appendix PC. Production data appears under the column heading abbreviations mentioned above.

If you are using ID, you should always use Cow Number/Prod.

Setting the mode to “Cow Number and Production” will allow you to check cow numbers, as identified by an Agri-comp ID system, at the detachers and reenter any incorrectly read cow numbers before attaching the milking unit to a cow.

#### Command Entry Mode

To set or review the Attach Display mode through Command Entry mode, enter the appropriate command:

#### Example:

To set the display mode for “Cow Number and Production,” you would enter 15\*5\*0#

- 1 5 \* 5 \* 0 # enables detachers to display Cow Number & Milk Produced
- 1 5 \* 5 \* 1 # enables detachers to display Milk Time & Milk Produced
- 1 5 \* 5 # displays current mode setting as follows:
  - 15:5:1 ...if the display mode set is Time & Production
  - 15:5:0 ...if the display mode set is Cow Number & Production

During a milking, while the detacher is in the Attach mode, you can view the data for either mode by entering the commands 0# (for cow number/production) or 1# (for time/production) at the detacher keypad. (Refer to Section 4 for details.)

# Milking

## Menu Mode

To set the display mode through Menu mode, use this procedure:

1. Beginning at the main menu, press the M key to display the Milking menu.
2. Press the S key to display the Milking Setup menu.
3. Press the D key to display the Detacher Setup menu.
4. Press the T key to enable the detachers to display Time & Production at attach or press the N key to have them display Cow Number & Production at attach.

To exit this mode, press the Escape key (as necessary).

## 1.2 Setting the Detach Flow Rate & Takeoff Delay

Two settings—detach flow rate and takeoff delay—are responsible for activating the detach function of detachers. The detach flow rate is the minimum flow rate of milk through the detacher that will be used to determine when the cow is milked out. The takeoff delay, which starts when a flow rate less than the detach flow rate is detected, is a period of time which allows a cow to resume a milk flow rate equal to or above the detach flow rate setting, if it should momentarily slow down or pause, before the milking unit detaches. (The exact delay period is the time between when the flow rate sensor in the milk meter measures less than the detach flow rate and the milking unit detaches.) The delay may occur any number of times during a cow milking, so long as the cow resumes at least the minimum flow rate.

The detach flow rate and takeoff delay settings should be reasonable ones that will optimize collection of milk from all cows in the herd without allowing detachers to over milk them. Generally, the detachers should all be operated using their default settings (explained in Appendix DA)—a flow rate setting of 0.7 pounds per minute and a takeoff delay of 13 seconds; however, due to varying requirements of dairymen and cows, you may want to adjust the flow rate and takeoff delay settings in certain situations. In addition to setting the flow rate and takeoff delay with a switch inside the detacher control, settings can be made from the detacher keypad or from the terminal. The 2045 also allows you to set detach flow rates for individual cows,

## M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

## D

\*\*\*\* Detacher Setup \*\*\*\*

T - Display Time

N - Display Number

R - Set Takeoff Rate

D - Set Takeoff Delay

C - Display Current Rate & Delay

T or N

### Example:

Say that you are milking cows and all detachers are set with a flow rate of 0.7 pounds per minute and a takeoff delay of 13-seconds (the default settings). Whenever any cow's milk flow rate drops below 0.7 lb/min, the takeoff delay will begin. After 13 seconds, the milking unit will detach.

for those cows that need a special setting to milk out completely (this feature is not available in the C-Level software). These setting methods will be explained after we explain how to review the current settings and what your setting options are.

To display the current settings at the terminal, enter the command:

**2 \* #**

The 2045 will respond with:

**2: flow rate: takeoff delay**

You can also display the current flow rate and takeoff delay settings at a detacher, as explained in Section 4. (See example of display.) Settings entered at the detacher will only be used for the current cow. When the next cow is attached at this detacher, the 2045 will change the detacher settings automatically.

Parameter 2  
CODE

.7 Flow Rate  
COW NO./DATA

13 Takeoff Delay  
PRODUCTION

If you prefer a takeoff delay or flow rate other than the default setting, select one of the settings listed in Table 8-1. (This table lists some typical takeoff delay and flow rate settings.)

**Table 8-1.** Takeoff Delay and Flow Rate Settings

Flow Rate (lbs/min)	Flow Rate (liter/min)	Takeoff (seconds)	Approximate Time to Detach (in seconds after claw first empties)
0.7	0.3	22	54
0.7	0.3	13	45
0.7	0.3	8	40
0.8	0.35	13	30
0.8	0.35	5	22
0.9	0.4	13	20
0.9	0.4	5	12

Then, change the detacher settings, using one of the methods explained below. (You may have to experiment with these settings to find the optimum rate and delay for your needs. We suggest that you allow at least two weeks between each setting change for proper evaluation of performance.) Note that, when entering setting values, you must use the same unit of measure set in Chapter 4, you must enter the flow rate

# Milking

in tenths of pounds (or liters) per minute and the takeoff delay in seconds, and you must not use decimal points, since the 2045 translates a decimal point into an asterisk (\*) internally. Thus, 0.7 lb/min would be entered as 7 instead of 0.7 and 13 seconds would be entered as 13. Note also that a takeoff delay value greater than zero must be entered for the 2045 to override detacher switch settings. Thus, if you specify a takeoff delay value of 0, the switch programmed delay and flow rate will not be overridden but will remain in effect.

**☞ Reminder:**

If a takeoff delay value of 0 is entered, the switch settings at the individual detachers will remain in effect.

## 1.2.1 Changing Settings at Detacher Switch—All Cows

Refer to your detacher instructions for an explanation of the flow rate and takeoff delay switch setting options and for details on changing the switch settings in detachers.

## 1.2.2 Changing Settings at Detacher Keypad—One Cow

Generally, the detachers should all be operated using the same factory-set switch settings; however, you may want to adjust the takeoff setting for an individual cow, especially a fast-milking one or one that has a very slow milkout. In such a case, you can temporarily override preset flow rate and takeoff delay switch settings during the period of time that the cow is milked by entering the desired settings at her detacher keypad (after attaching the milking unit to that cow). That detacher will ignore the programmed switch settings while the cow is being milked; however, it will automatically clear the keypad setting and revert back to its programmed switch settings upon attach to the next cow.

To temporarily change the flow rate and/or takeoff delay during a particular cow's milking, use the following procedure:

1. Set the detacher's milking mode to Automatic (if not already set), as explained in your detacher instruction packet.
2. Attach the milking unit to the cow whose flow rate and takeoff delay times you want to change.

*Example:*

To change the flow rate from 0.7 lb/min to 0.8 lb/min and the takeoff delay time from 13 seconds to 5 seconds, you would enter 2\*8\*5#

*Detacher Display:*

Parameter	<input type="text" value="2"/> <small>CODE</small>	<input type="text" value=".8"/> <small>COW NO./DATA</small>	Flow Rate
		<input type="text" value="5"/> <small>PRODUCTION</small>	Takeoff Delay

3. Enter the following command at the keypad, specifying the flow rate and takeoff delay time you want to assign that cow:

2 \* (flow rate) \* (takeoff delay) #

Return the display to the desired Display mode as explained in Section 4, “Viewing Data at the Detacher During Milking.”

### 1.2.3 Permanent Settings—Entire Parlor

A dairyman may want the detachers in the entire parlor to have flow rate and takeoff delay settings other than the standard factory settings programmed into the detacher electronics. Takeoff rate and delay settings can be programmed from the terminal, if an Agri-comp computer is part of the installation. Unlike the temporary settings, which automatically allow a detacher to revert back to its switch settings when the milking unit is attached to the next cow, these permanently programmed parlor settings will apply for all cows milked until the detachers are manually reprogrammed.

When an Agri-comp computer is part of the installation, you may set switch positions 8 and 9 to other values, but the takeoff delay and flow rate settings **must be made at the computer rather than the detachers**, as computer settings will override the detacher in this case. When a faster than normal takeoff setting is desired, the fastest reliable setting is 0.9 lbs/min and 5 seconds.

#### Command Entry Mode

To change the flow rate and takeoff delay through Command Entry mode at the terminal, enter the following command:

2 \* (flow rate) \* (takeoff delay) #

# Milking

## Menu Mode

To change (or review) the flow rate and takeoff delay through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the S key to display the Milking Setup menu.**
3. **Press the D key to display the Detacher Setup menu.**
4. **Press the appropriate key (R, D, or C) for the option you desire.**  
The Detacher Setup menu, as shown, will be displayed, and your options will be those listed below:
  - Press the C key to display the current settings.
  - Press the R key to change the flow rate. Then, type in the new rate (for example, enter 8 for 0.8 lbs/min) and press ENTER.
  - Press the D key to change the takeoff delay. Then, type in the new delay (for example, enter 13 for a 13-second delay) and press ENTER.

To exit this mode, press the Escape key (as necessary).

To reenter takeoff settings after power has been interrupted, manually reset the detachers by pressing the AUTO/MANUAL and ATTACH/DETACH buttons at the same time, releasing the AUTO/MANUAL button first. Then, enter values as explained above.

## M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

## D

\*\*\*\* Detacher Setup \*\*\*\*

T - Display Time

N - Display Number

R - Set Takeoff Rate

D - Set Takeoff Delay

C - Display Current Rate & Delay

**R, D, or C**

## 1.2.4 Individual Cow Takeoff Rates

The 2045 also allows you to store takeoff rates for individual cows that need special settings. This can be useful for high producers or for cows that are hard to milk out completely. To use this feature, you must also set the takeoff rate and delay for the rest of the herd with the  $2*(rate)*(delay)\#$  command. Individual cow takeoff rates can be set in the following four ways.

To set the takeoff rate for an individual cow, enter the command:

**2 9 \* (cow number) \* (rate) #**

You can enter takeoff rates for a group of cows using Group Entry Mode by entering the command:

**2 9 \* #**

or use Prompt Entry mode by entering the command:

**1 6 \* 2 9 #**

If you change the takeoff delay and rate at the detacher during a milking with the  $2*(rate)*(delay)\#$  command, the takeoff rate that you set at the detacher will be sent to the 2045 when the milk weight is transmitted (when the next cow is attached), and the rate will be stored in the cow record automatically.

**Note**

This feature is not available with C-Level software.

# Milking

## 1.3 Setting the Milking Number

The 2045 stores milking and certain other data according to a milking number it assigns each milking of the day. This method of storage allows the 2045 to update each cow record with the most current data obtained for a cow during a particular milking (allowing you to distinguish data from one milking to the next) and to use the most current data in calculations to provide you with herd totals and averages, discussed elsewhere in this manual. Note that the milking number will appear in the heading of all reports with headings, aiding you in determining what data was collected and used in the report. The milking number is also reflected in column heading abbreviations for certain 2045 calculations.

Factory-shipped, the 2045 assumes that your first milking with the Agri-comp system (no matter what time of day it is performed) will be milking number 1, and it will store data under that default milking number unless you change the milking number setting. Although the milking day need not correspond with the 2045's real-time clock, if the 2045 will also be managing feeding data for cows, you should number the milkings so that the first milking of the day is milking 1, the second is milking 2, etc. This numbering will make it easier for you to compare cows' feeding behaviors with milking behaviors over the previous week. Note that the milking number must be set to a valid value (0, 1, 2, 3), that the milking number can only be set between milkings, and that the number should be one less than the milking you will perform next.

To set the milking number through Command mode, enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

**1 5 \* 1 \* (0-3) #**

If you discover an incorrect milking number (for example, when reviewing the Milk Report), you can use the same command to reset the milking number before the next milking.

Note that the milking number must be set to a valid value (0, 1, 2, 3), that the milking number can only be set between milkings for milking data to be properly stored in the 2045, and that the number should be one less than the milking you will perform next. Should you decide to change the milking number during a milking, keep in mind that improperly stored data will affect the Milk Report for that milking as well as data and reports that use calculations from that milking.

*For example:*

To set the 2045 for the first milking of the day, you would enter 15\*1\*0#

To review a current milking number (an important consideration whenever you reload data from a backup disk), enter the following command at the terminal or detacher keypad:

**1 5 \* 1 9 #**

The 2045 will respond with:

15: 19: 0	...if milking 1 has not yet begun
15: 19: 1111	...if milking 1 is in progress
15:19: 1	...if milking 1 is complete
15: 19: 2222	...if milking 2 is in progress
15:19: 2	...if milking 2 is complete
15: 19: 3333	...if milking 3 is in progress
15:19: 3	...if milking 3 is complete

### Detacher Display:

Parameter	<b>1 5</b> <small>CODE</small>	<b>1 9</b> <small>COW NO./DATA</small>	Flow Rate
		<b>1 1 1 1</b> <small>PRODUCTION</small>	Takeoff Delay

If the command is entered at a detacher, the detacher will respond as shown in the example.

## 1.4 Setting the End-Of-Day Function

The end-of-day (EOD) function the 2045 to recalculate herd averages, to shift milking data stored in memory for the previous seven days by one day and store the current day's data under day 0, and to reset the milking number to 0 (for the next day's first milking). The EOD function must be executed some time between the last milking of a day, after you enter the last end-of-milking (EOM) command for the day (explained in Section 4), and the first milking of the next day for data to be stored properly. Although you can manually enter an EOD command each day, you should allow the 2045 to perform the EOD function automatically (to eliminate the manual task and possibility of operator error) and use the manual EOD method only after reloading data from a backup disk and before starting a new milking. Both methods of setting the EOD function—automatic EOD and manual EOD—are explained in the following subsections.

# Milking

The 2045 manages milking information on a daily basis over an 8-day period, in which the days are numbered 0-7. When the EOD command is entered, the 2045 provides memory space for the current day's milking data by discarding the oldest day's data and renumbering the previous seven days' data. Thus, the current day's data will be stored under day 0 (current day), data previously stored under day 0 will be renumbered under day 1 (yesterday), and data for the remaining six days of milking will be renumbered respectively under days 2-7.

## 1.4.1 Setting the Automatic End-Of-Day Function

Factory-shipped, the 2045 assumes that you will perform two milkings per day and is thus default set to perform the EOD function automatically after you enter the EOM command for milking number 2. If this setting is not appropriate for your milking operation, you should set the automatic EOD for the number of milkings you perform each day (1, 2, or 3). The 2045 automatically performs the EOD function as soon as you enter the end-of-milk (EOM) command and it discovers that the milking just ended was the last milking of the day.

### Command Entry Mode

To set or review the automatic EOD through Command Entry mode, enter the appropriate command:

```
15 * 8 * (EOD1-3) # sets EOD for 1, 2, or 3 milkings per day
15 * 8 # displays current EOD setting as follows:
15: 8: 1 ...if the 2045 is set for 1 milking
15: 8: 2 ...if the 2045 is set for 2 milkings
15: 8: 3 ...if the 2045 is set for 3 milkings
```

### Menu Mode

To set the automatic EOD through Menu mode, use this procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the S key to display the Milking Setup menu.**
3. **Press the A key to set the automatic EOD.**
4. **Type in either 1, 2, or 3 and press ENTER.**

To exit this mode, press the Escape key (as necessary).

### Note:

If you will be milking 4 times per day, set the EOD to 1.

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

### A

## 1.4.2 Entering the Manual End-Of-Day Command

Whenever you reload data from a backup disk, depending on when you last changed backup disks, the milking number on disk may not agree with your actual milking of the day. While you could just reset the milking number (after reloading data) if it does not correspond with your actual milking, unless the current milking number of the backup data is set to 0 (for the first milking of the day), we recommend that you enter the manual EOD command and then reset the milking number so that when you review the current day's data you will not confuse it with data from the previous week.

Note that the 2045 will not accept the manual EOD command if you are currently milking and that you must enter an end-of-milking (EOM, 15\*1#) command before you enter the EOD command.

### Command Entry Mode

To end the day's milking through Command Entry mode at the terminal, enter the manual EOD command:

**1 5 \* 2 #**

### Menu Mode

To manually end a milking through Menu mode, use this procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the S key to display the Milking Setup menu.**
3. **Press the E key to end the current milking day.**

To exit this mode, press the Escape key (as necessary).

Actually, the manual EOD command can be entered after any milking; however, we recommend that you set the 2045 to perform the EOD function automatically after the last milking of the day, as explained in the previous subsection.

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

### E

## 1.5 Clearing Herd Averages for Specified Milking

Using milk weights (MLK1, MLK2, MLK3) and milking times (TIM1, TIM2, TIM3) stored for each milking in each cow record, the 2045 calculates six individual cow averages—average milk for that milking (AVG1, AVG2, AVG3) and average time for that milking (ATM1, ATM2, ATM3)—and three herd averages—Production Today, Production Average, and Average Time—the results of which change with each milking, according to the data obtained. These averages provide the dairyman with a highly accurate means for comparing each cow's production to that of the average producer in the herd; however, they will only be as accurate as the data used in calculations. Thus, if you notice incorrect cow or herd averages for a milking or an incorrect milking number on a report, due to incorrect entry of EOM or EOD commands (for instance, if you milk twice a day but inadvertently get averages for milking 3 because the EOD command was set incorrectly), you should clear herd averages for the milking in error. The results of calculations for the individual cow averages appear under the column heading abbreviations (noted above) in the reports listed for the abbreviations in Appendix PC. The results of herd average calculations based on all cows milked during a particular milking appear in the Herd Summary report, while results of calculations based on only those cows listed in a particular report appear in the summary at the end of that report. (Refer to Section 3 of Chapters 4 and 8 for an explanation of the herd averages and the other report summary items.)

Clearing herd averages causes the 2045 to set all milk weights, times, and individual cow averages to zero in all cows records for the specified milking (for the previous week) and to recalculate herd averages for those days based on the other milkings of the day. Note that recalculation of averages also affects data under the column heading abbreviation AVG.

## Command Entry Mode

To clear the herd average through Command Entry mode at the terminal, enter the following command, specifying the milking number (1, 2, or 3) whose herd average data you wish to clear:

**1 5 \* 3 \* (milking number, 1-3) #**

## Menu Mode

To clear the herd average through Menu mode, use this procedure:

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

### C

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the S key to display the Milking Setup menu.**
3. **Press the C key to clear the herd average.**
4. **Type in either 1, 2, or 3 and press ENTER.**

To exit this mode, press the Escape key (as necessary).

## 1.6 Setting the Average Interval

Two herd average calculations—Production Average and Average Time—and six individual cow averages—average milk for that milking (AVG1, AVG2, AVG3) and average time for that milking (ATM1, ATM2, ATM3)—made by the 2045 require that it use herd data over a specified period of time to arrive at an average milking time and an average milk production for milked cows. Setting the period of time, or average interval (AVGINT), over which data for these calculations is collected and used is the focus of this subsection. (Refer to the Section 3 of Chapters 4 and 8 for an explanation of the herd totals and the other summary items.)

The 2045 has a default AVGINT setting of 7 days. You can, however, set the AVGINT to any value, 1-7 (the numbers of which correspond to the 2045's eight days of data storage), since the 2045 is capable of averaging all data stored in memory, except that of day 0 (current day). Thus, if you want the averages to be more sensitive to changes in a cow's milk production or milking time, you might select a low interval value, such as 2, 3, or 4 days. If you attempt to enter a value greater than 7, the 2045 will use 7 for its calculations. If you select

# Milking

a value of 1, the averages will always be equal to the values for day 1 (yesterday). (See examples.)

Example:

Although the 2045 bases herd averages on the entire milking herd, if you could imagine a herd of two cows, the 2045 would calculate the figures below (in pounds) for 7- and 3-day AVG INTs:

Day	—Cow 1 DIM=64—				—Cow 2 DIM=7—			
	MLK1	TIM1	MLK2	TIM2	MLK1	TIM1	MLK2	TIM2
7	54.8	9.0	44.7	8.5	2.8	6.5	2.2	6.0
6	55.6	8.7	45.4	8.2	3.6	6.8	2.9	6.3
5	56.4	8.9	46.1	8.4	4.4	7.0	3.6	6.5
4	57.2	8.5	46.8	8.0	5.2	6.7	4.3	6.2
3	58.0	8.8	46.0	8.3	6.1	6.9	4.9	6.4
2	58.9	9.0	48.1	8.5	6.9	6.6	5.6	6.1
1	59.7	8.6	48.8	8.1	7.7	6.8	6.3	6.3

Averages with AVGINT = 7:

AVG1	ATM1	AVG2	ATM2	AVG1	ATM1	AVG2	ATM2
57.2	8.8	46.6	8.3	5.2	6.8	4.3	6.3

Averages with AVGINT = 3:

AVG1	ATM1	AVG2	ATM2	AVG1	ATM1	AVG2	ATM2
58.9	8.8	47.6	8.3	6.9	6.8	5.6	6.3

## Command Entry Mode

To set or review the AVG INT through Command Entry mode, enter the appropriate command, specifying a value as required:

**1 5 \* 4 \* (1-7) #** sets AVG INT days  
**1 5 \* 4 #** displays current AVG INT setting as follows:  
 15: 4: *AVG INT*

## Menu Mode

To set the AVG INT through Menu mode, use this procedure:

1. Beginning at the main menu, press the **M** key to display the Milking menu.
2. Press the **S** key to display the Milking Setup menu.
3. Press the **I** key to set the AVG INT.
4. Type in a value from 1 to 7 and press **ENTER**.

To exit this mode, press the Escape key (as necessary).

## M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

## I

## 1.7 Setting the Fresh Cow Hold Count—For the Herd

The Fresh Cow Hold (FCH) count is a function you can set to specify and alert operators to the number of milkings that all freshened cows' colostrum-rich milk should be collected separately and discarded. To alert the operator, whenever a cow with a Hold number greater than zero is identified and the milking unit is attached, a HOLD message will display at the detacher and the parlor beeper, if installed and enabled to respond, will also sound. FCH numbers appear under the column heading abbreviation HOLD in the reports listed for the abbreviation in Appendix PC. (While this subsection explains how to set a HOLD value that applies to all cows upon freshening, Section 2 provides instructions for assigning a Hold value to individual cows for unique situations.)

A default HOLD value of "0" is automatically set to apply to all cows and will remain so until such time as you change the value. HOLD can be set for any number of milkings from 0 to 99. (Typical HOLD values are 3 to 9 milkings.) The 2045 will automatically activate the FCH count for a cow, whenever you set her days-in-milk (DIM) value to 1, starting with the number you specify for the count and decrementing by one after each milking until it reaches zero.

### Command Entry Mode

To set the FCH value through Command Entry mode, enter the following command, specifying a value for the third field of data that falls within the range shown in parentheses:

**1 5 \* 2 0 \* (hold count,0-99) #**

### Menu Mode

To set the FCH count through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the M key to display the Milking menu.**
- 2. Press the S key to display the Milking Setup menu.**
- 3. Press the H key to set the Fresh Cow Hold Count.**
- 4. Type the desired count (0-99) and press ENTER.**

To exit this mode, press the Escape key (as necessary).

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

### H

# Milking

## 1.8 Enabling/Disabling Milk Collection

To permit the 2045 to receive milk weight data collected at detachers, you must enable collection at the 2045. Unlike earlier Agri-comp computer models, the 2045 has no DATA COLLECT switch, so an existing command has been expanded to enable or disable collection of milk weight data. When collection of milk weight data is disabled (*as it should be during detacher servicing/troubleshooting*), the 2045 and detacher/meters can still communicate other data, but no milk weights or milking times will be accepted by the 2045.

To enable or disable collection, use the command:

**15\*43\*0#** enables milk weight collection (default)  
**15\*43\*2#** disables milk weight collection

## 1.9 Limiting Data to be Entered/Reviewed At Detachers

In addition to entering cow parameter values into the 2045 at the terminal, you may also enter values at the detachers, using the same (single entry) commands explained in Section 2. If you do not want all parameters to be settable from the parlor, you can limit the changeable parameters to HOLD, ATTN (*these can always be set from the parlor*), and up to 20 other parameters that you select.

To change or review a limited list of parameters, enter the command:

**16\*92#**

The 2045 will enter Prompt Entry mode and respond with:

**P: 0:** *parm code=*

This will prompt you to enter up to 20 parameter codes that you want to be able to change from the parlor. If you set the first code to 0, the 2045 will ignore the rest of the codes and allow you to change all parameters from the parlor. If the first code is not 0, the 2045 will only allow you to change HOLD, ATTN, and the parameter codes that you

### *Example:*

The following entries would allow you to set Lot(30) and DIM(52) from the parlor, in addition to values for HOLD and ATTN, but no RPRO(77) or any other parameter that follows the zero entry:

**16\*92#**

P: 0: 0=**30**  
P: 1: 0=**52**  
P: 2: 0=**0**  
P: 3: 0=**77**  
P: 4: 0=

You could not change any other parameters, even though RPRO (77) is in the list, because the 2045 will stop checking the list when it reaches the 0 between 52 and 77. If you change the first value back to 0, the 2045 will again give access to all parameters.

Note that you can only enter parameter values of four digits or less at detachers. Thus, you cannot enter ID tag numbers, feed costs, lactation totals, and other large values at detachers.

enter into this list. The 2045 will prompt you to enter 20 values, but will only use those codes up to the first 0 code in the list. Note that you do not need to specify HOLD (20) and ATTN (21) in the list, and you cannot prevent access to these values from the parlor.

## 1.10 Setting User Defined Detacher Displays

The detachers can be used to display cow record information from the 2045. Any desired cow data value (at least, any value that can fit in the 4 digit display) can be displayed by entering the 14\*(cow number)\*(parameter code)# command. In addition to this, you can program the 2045 to return any two desired cow data values for each of the commands 4\*#, 5\*#, and 6\*# at the detacher. For example, you could program the 4\*# command to return the LOT and AVG values, while the 5\*# command would return DIM and DHET, and the 6\*# command could return RPRO and %FED. You can enter the commands as shown, without a cow number, to get the data for the cow currently milking at the detacher, or you can use the form 4\*(cow number)#, 5\*(cow number)#, or 6\*(cow number)# to view data for any cow in the herd.

*Example:*

```
program 4*# for LOT and AVG
15*941*30#    LOT
15*942*7#    AVG
```

```
program 5*# for DIM and DHET
15*951*56#    DIM
15*952*60#    DHET
```

```
program 6*# for RPRO and %FED
15*961*77#    RPRO
15*962*40#    %FED
```

To program these displays, enter the following commands:

```
15*941*(code)#  assign the parameter code for the Cow display for 4*#
15*942*(code)#  assign the parameter code for the Data display for 4*#
15*951*(code)#  assign the parameter code for the Cow display for 5*#
15*952*(code)#  assign the parameter code for the Data display for 5*#
15*961*(code)#  assign the parameter code for the Cow display for 6*#
15*962*(code)#  assign the parameter code for the Data display for 6*#
```

This feature is not available in the C-Level software.

## 2 Milking Data

This section includes instructions on entering various types of cow-related milking data. To simplify instructions (due to similarities and relations between parameters) and allow you to readily find parameter definitions and lists of commands, data entries covered in this section (with the exception of those made through the Edit Cow Record menu item, explained in subsection 2.2) are explained on a group parameter basis, with all specific parameter explanations and value options appearing early in subsection 2.1 and lists of commands for Single Entry, Prompt Entry, and Group Entry modes appearing later in the subsection.

### 2.1 Entering Cow-Related Milking Data

Explanations of the parameters used in the Milking program (including the code, name abbreviation, and your value entry options for each) are provided here, listed in alphabetical order of column heading abbreviation, to prepare you for entering commands and values later in this subsection. (Refer to Appendix PC for a list of reports in which each column heading abbreviation appears.)

#### **Attention** (code 21—ATTN)

Attention (ATTN) is a number that you can assign to a cow to alert the operator to look for problems it might have, such as mastitis, sore feet, injuries, or signs of estrus. A default ATTN value of “0” is automatically set and will remain so for each new cow number you enter into the 2045 until such time as you change the value. Any value from 0 to 15 can be assigned to a cow. You determine the meaning of each value, except for zero (when you have the Activity program loaded, the 2045 will use ATTN=15 to indicate that a cow should be checked for estrus). Whenever a cow with an ATTN value greater than zero is identified and the milking unit is attached, the value will display at the detacher (and the parlor beeper, if installed and enabled, will also sound). When the problem no longer exists, assign an ATTN value of zero to that cow to clear the old value from the detacher.

## **Breed** (code 75—BRD)

The breed (BRD) number is one you can assign to a cow to indicate which breed type she belongs to, if your herd includes cows of more than one type. Table 8-2, below, lists the range of values and their assigned breed types. (Value Range 0-99)

### **Note**

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

**Table 8-2.** Breed Types & Suggested Values

-Breed-	-Value-
No breed assigned	0
Holstein	1
Jersey	2
Guernsey	3
Brown Swiss	4
Ayrshire	5
Milking Shorthorn	6
Other	7

## **Days In Milk** (code 56—DIM)

Data for this parameter is processed through the Reproduction program; however Menu mode through this program allows its values to be changed. (See explanation for this parameter in Chapter 7, Section 2.)

## **Dumped Milk** (code 51—DUMP)

DUMP is a number generated for each cow that specifies the total amount of milk in pounds or kilograms (depending on the unit of measure set in the 2045) that was held (collected separately from other milk) and dumped (discarded) during her current lactation. This value, affected by the HOLD count, can be changed by the user (if correction is necessary) at any time. Any value from 0 to 65535 can be entered. It is reset to zero when a cow starts a new lactation.

## **Actual 305 Day Lactation Total** (code 53—A305)

A305 is a number generated for each cow that specifies the cow's lactation total (for all milkings) as of the last time the cow's DIM value reached 305 days in milk. A default A305 value of "0" is automatically set for each new cow number you enter into the 2045. Each time a cow's DIM value reaches 305, the 2045 sets the A305 number equal to the current value of the Lactation Total

# Milking

(LACT), This value will be retained from one lactation to the next for your comparison with the cow's current lactation and can be changed (to allow entry of values for cows added to the herd midstream in lactation) by the user. (Range of values 0-65535, in whole pounds or kilograms)

## **Held Milkings** (code 57—HELD)

HELD is a number generated for each cow that specifies the total number of milkings held so far during the cow's current lactation. A default HELD value of "0" is automatically set for each new cow number you enter into the 2045. This number automatically increments by one each time the cow, having a HOLD value greater than zero, is milked and automatically resets to zero each time you enter a DIM value of 0 or 1. You can change this number to any value from 0-255 milkings (for instance, if you add a new cow to your herd midstream in her lactation and you know how many milkings have been held) as long as DIM has been reset.

## **Hold Milkings** (code 20—HOLD)

HOLD is a number you can assign to a cow to indicate the number of milkings that her milk should be collected separately, from the milk that enters the bulk milk tank, and then discarded. A number can be set (as explained in subsection 1.7) to apply for the entire herd that will alert the operator to hold milk for the first few milkings after a cow freshens; however, the focus of this explanation is to prepare you for assignment of a temporary HOLD value to an individual cow, such as one that has been treated with an antibiotic or given a drug, whose milk you wish to collect separately from the others. A default HOLD value of "0" is automatically set and will remain so for each new cow number you enter into the 2045 until such time as you change the value (as explained in subsection 1.7). Any value from 0 to 99 can be assigned to a cow. Whenever a cow with a HOLD value greater than zero is identified and the milking unit is attached, a HOLD message will display at the detacher (and the parlor beeper, if installed and enabled, will also sound). The HOLD number decrements by one after each milking until it reaches zero.

## **Income from Milk** (code 97—IN \$)

IN \$ is a milk income calculated by the 2045 for each cow by multiplying the milk price (whose entry is explained in Chapter 4) times the cow's average daily milk weight (AVG—which is calculated automatically from detachers if the Milking program is installed and whose manual entry is explained in Chapter 4 for user without detachers and the Milking program) times the MPA%, and dividing the total by 100. The 2045 automatically updates the cow's IN \$ value each time you milk a cow, actually calculating and storing it internally to the nearest tenth of a cent (\$0.001), and automatically resets it to zero each time you enter a DIM value of 0 or 1. You can change this number to any whole dollar value from 0 to 99999 at any time (for instance, if you add a new cow to your herd midstream in her lactation and you know how profitable she has been thus far).

## **Individual Cow Detach Rates** (code 29—RATE)

Detach Rate (RATE) is a number that the 2045 can use to control the automatic detach function of the detachers. This feature can be used to adjust the detach rate for problem cows. If the value for RATE is 0, the herd settings (2\*rate\*delay#) will be used. If the cow's value for RATE is nonzero, the individual rate will be used for the cow.

## **Lactation Total** (code 52—LACT)

Lactation (LACT) is a number that the 2045 calculates for each cow by adding together the cow's milk weights for each milking. Actual weights measured during a milking will be used whenever available. The average weight for a milking will be used for any missing milk weights. The Lactation total specifies her total production in pounds (or kilograms) for the current lactation. A default LACT value of "0" is automatically set for each new cow number you enter into the 2045. The 2045 automatically updates LACT each milking, and automatically resets it to zero each time you enter a DIM value of 0 or 1. You can change this number to any whole weight value from 0 to 65535 at any time (for instance, if you add a new cow to your herd midstream in her lactation and you know how much milk she has produced thus far).

# Milking

## **Lot Number** (code 30—LOT)

Lot (LOT) number is a number you can assign to a cow to identify it as belonging to a group of cows from a particular pen. Several options for generating reports allow you to specify a lot number that will limit data in the report to only that of cows assigned to the particular lot. Any value from 0 to 99 can be assigned to a cow. You determine the meaning of each value.

## **Mastitis Code** (code 58—MAST)

A four-digit mastitis (MAST) value can be assigned to cows to indicate the degree of mastitis on each of a cow's four quarters (one digit for each quarter). Any MAST value from 0 to 9999 can be assigned to a cow. This value is not currently used by the 2045, but can be assigned and maintained by the dairyman. You determine the meaning of each value.

## **Milk Price Adjustment Percentage** (code 99—MPA%)

MPA% stands for *milk price adjustment percentage*. The MPA% factor can be used to adjust the milk income (IN \$) calculations for cows that give higher or lower quality milk. This factor is applied as a percentage in calculating milk income, where 100 (the default) means use the normal milk price, 110 means use the normal price plus 10%, and 95 means use the normal price minus 5%. This factor can be changed by the user.

## **Peak Average Daily Production** (code 54—PEAK)

PEAK is the maximum average daily production recorded for a cow during the current lactation. For the first 19 days of a lactation, this value will be the peak from the previous lactation. This value can be changed by the user at any time.

## **Peak Days In Milk** (code 55—PDIM)

Peak-days-in-milk (PDIM) is the days-in-milk that the PEAK value was recorded. This value can be changed by the user, but is automatically saved when a new peak value is reached. The maximum value for this is 255 days.

## Reproductive Status (code 77—RPRO)

Data for this parameter is processed through the Reproduction program; however Menu mode through this program allows its values to be changed. (See explanation for this parameter in Chapter 7, Section 2.)

The remainder of this subsection (arranged by entry mode) provides information on entering commands and menu answers relative to the cow-related milking parameters explained earlier in this subsection. (The difference between the Single Entry, Prompt Entry, Group Entry, and Menu modes is explained in Chapter 1.)

### Single Entry Mode

To enter (or change) milking data values through Single Entry mode, enter any of the following commands, specifying an appropriate value in place of the unhighlighted data field descriptor or value range:

#### Examples:

- To assign a HOLD value of 5 milkings to cow 3, you would enter 20\*3\*5#
- To assign a LOT number of 2 to cow 123, you would enter 30\*123\*2#
- To assign a MAST number of 1 to cow 123, you would enter 58\*123\*1#

#### Examples:

- To review the current HOLD value assigned to cow 3, you would enter 14\*3\*20#; the response might be 14: 3: 5
- To review the current LOT & PROD values for cow 123, you would enter 5\*123#; the response would be 3: 123: 16.2
- To review the current LOT & MLK2 values for cow 123, you would enter 5\*123\*2#; the response would be 3: 123: 7.5

<b>2 0</b> * (NUMB) * (0-99) #	assigns # of milkings to HOLD milk to cow
<b>2 1</b> * (NUMB) * (0-15) #	assigns ATTN number to cow
<b>2 9</b> * (NUMB) * (0-9.9) #	assigns takeoff rate (RATE) to cow
<b>3 0</b> * (NUMB) * (0-99) #	assigns LOT number to cow
<b>5 1</b> * (NUMB) * (0-65535) #	assigns DUMPed amount to cow
<b>5 2</b> * (NUMB) * (0-65535) #	assigns total production for LACTation
<b>5 3</b> * (NUMB) * (0-65535) #	assigns A305 day production total to cow
<b>5 4</b> * (NUMB) * (0-254) #	assigns peak daily production (PEAK) to cow
<b>5 5</b> * (NUMB) * (0-254) #	assigns peak days-in-milk (PDIM) to cow
<b>5 6</b> * (NUMB) * (0 or 1) #	assigns DIM (EOL-fresh cow) to cow
<b>5 7</b> * (NUMB) * (0-255) #	assigns # of milkings HELD this lactation
<b>5 8</b> * (NUMB) * (0-9999) #	assigns a MAST number to cow
<b>7 5</b> * (NUMB) * (0-7) #	assigns BRD number to cow
<b>9 7</b> * (NUMB) * (0-99999) #	assigns IN \$ (total milk income) amount
<b>9 9</b> * (NUMB) * (0-255) #	assigns MPA% to cow

To review milking data values through Single Entry mode at the terminal, enter any of the following commands, specifying an appropriate value in place of the unhighlighted data field descriptor:

<b>1 4</b> * (NUMB) * (parm code) #	displays current assignment as follows: 14: NUMB: <i>value</i>
<b>5</b> * (NUMB) #	displays lot and today's prod. as follows: LOT: NUMB: PROD
<b>5</b> * (NUMB) * (1-3) #	displays lot and production for a specific milking LOT: NUMB: MLK1,2,or 3

# Milking

## Prompt Entry Mode

To enter, change, or review milking data values through Prompt Entry mode, you may first use the Sort command (see Appendix US) to arrange cow numbers in the order you desire. Then, you can enter any of the following commands, allowing cow numbers to appear in the order of the most recent sort, and then the values you desire:

<b>1 6 * 2 0 #</b>	assigns # of milkings to HOLD milk to cows
<b>1 6 * 2 1 #</b>	assigns attention (ATTN) number to cows
<b>1 6 * 2 9 #</b>	assigns takeoff rates (RATE) to cows
<b>1 6 * 3 0 #</b>	assigns LOT number to cows
<b>1 6 * 5 1 #</b>	assigns DUMPed amount to cows
<b>1 6 * 5 2 #</b>	assigns total production for LACTation to cows
<b>1 6 * 5 3 #</b>	assigns A305 day production total to cows
<b>1 6 * 5 4 #</b>	assigns peak daily production (PEAK) to cows
<b>1 6 * 5 5 #</b>	assigns peak days-in-milk (PDIM) to cows
<b>1 6 * 5 6 #</b>	assigns DIM (EOL-fresh cow) to cows
<b>1 6 * 5 7 #</b>	assigns # of milkings HELD this lactation to cows
<b>1 6 * 5 8 #</b>	assigns mastitis (MAST) number to cows
<b>1 6 * 7 5 #</b>	assigns breed (BRD) number to cows
<b>1 6 * 9 7 #</b>	assigns total milk income amount (IN \$) to cows
<b>1 6 * 9 9 #</b>	assigns milk price adjust percent (MPA%) to cows

You can enter values starting with any cow number by including an asterisk (\*) and the particular cow number as a third data field (between the 2-digit parameter code and #) in each command. Cow numbers will still appear in the order of the most recent sort; however, starting with a particular cow number allows you to skip those numbers that you would otherwise have to advance through if you have no assignment for them.

The 2045 will enter Prompt Entry mode and respond with:

**P: NUMB: current value=**

The “P” indicates Prompt Entry mode, the abbreviation “NUMB” represents the number of the cow you may assign a new value to, and the words “current value” represent the value currently assigned to that cow number for the particular parameter.

Either press the ENTER key to accept the current value or type in a new value and press ENTER. (See example.) In either case, the 2045 will proceed to the next cow number.

## Reminder

To sort first, you would enter  
4\*(parm code)# ...or  
4\*(parm code)\*(parm code)#

## Examples:

- To assign an ATTN numbers to cows, you would enter 16\*21#  
To assign them starting with cow number 123, you would enter 16\*21\*123#
- To assign a LOT numbers to cows, you would enter 16\*30#  
To assign them starting with cow number 123, you would enter 16\*30\*123#

## Example:

If you enter 16\*30# and cow 1 is the first to appear, having a previously assigned LOT number of 3, the 2045 would respond with:

LOT P: 1: 3=

The following entries would assign lot number 1 to cows 1-3 and lot number 2 to cows 4-6:

LOT P: 1: 0=1  
LOT P: 2: 0=1  
LOT P: 3: 0=1  
LOT P: 4: 0=2  
LOT P: 5: 0=2  
LOT P: 6: 0=2  
LOT P: 7: 0=

To exit this mode, press the Escape key (as necessary).

## Group Entry Mode

To enter or change milking data values through Group Entry mode, enter any of the following commands:

<b>20 * #</b>	assigns # of milkings to HOLD milk to cows
<b>21 * #</b>	assigns attention (ATTN) number to cows
<b>29 * #</b>	assigns takeoff rates (RATE) to cows
<b>30 * #</b>	assigns LOT number to cows
<b>51 * #</b>	assigns DUMPed amount to cows
<b>52 * #</b>	assigns total production for LACTation to cows
<b>53 * #</b>	assigns A305 day production total to cows
<b>54 * #</b>	assigns peak daily production (PEAK) to cows
<b>55 * #</b>	assigns peak days-in-milk (PDIM) to cows
<b>56 * #</b>	assigns DIM (EOL-fresh cow) to cows
<b>57 * #</b>	assigns # of milkings HELD this lactation to cows
<b>58 * #</b>	assigns mastitis (MAST) number to cows
<b>75 * #</b>	assigns breed (BRD) number to cows
<b>97 * #</b>	assigns total milk income amount (IN \$) to cows
<b>99 * #</b>	assigns milk price adjust percent (MPA%) to cows

### Examples:

- To assign ATTN numbers to cows, you would enter 21\*#
- To assign a LOT numbers to cows, you would enter 30\*#

### Example:

The following entries (for command 30\*#) would assign the same values used in the Prompt Entry example; however, as you can see, Group Entry allows the user to determine the cow number entry order.

NUMB.LOT E= 2.1  
NUMB.LOT E= 5.2  
NUMB.LOT E= 3.1  
NUMB.LOT E= 1.1  
NUMB.LOT E= 4.2  
NUMB.LOT E= 6.2  
NUMB.LOT E=

The 2045 will enter Group Entry mode and respond with an 'E=' prompt. After the prompt, type in a cow number, an asterisk (\*), the parameter value you want assigned, and then press the ENTER key. Repeat this entry process for each cow number you want to assign a value to for the parameter you've specified. (See example.)

To exit this mode, press the Escape key (as necessary).

# Milking

## Group Entry/Menu Mode

To enter or change some milking data values through Group Entry mode with assistance from Menu mode, use the following procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the D key to display the Milking Data menu.**
3. **Press the M key to display the Milking Parameter Entry menu.**
4. **Press the appropriate key (H, A, L, D, T, B, R) for the milking parameter you want to set or assign values for.**  
The 2045 will enter Group Entry mode and respond with an 'E=' prompt, and you may enter the data as explained above.

To exit this mode, press the Escape key (as necessary).

## 2.2 Editing a Cow Record

Although the Single, Prompt, or Group Entry modes, explained earlier in this section, are available specifically for entering and changing milking data values on an individual parameter basis, values for those same parameters can also be assigned or changed in an existing cow record through the Edit Cow Record menu item of the Milking menu hierarchy. The advantage of entering data by editing a cow record is that you can see and change any or all milking data for a particular cow at once.

To enter or change data in a cow record through Menu mode, use the following procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the D key to display the Milking Data menu.**
3. **Press the E key to edit a cow record.**  
The 2045 will respond with a prompt, asking if you want to sort the cows first.
4. **Respond to the prompt by pressing either the Y or N key.**  
If you press the N key, the 2045 will ask for the starting cow number, and you may proceed to step 5.

If you press the Y key, you will be asked for a primary sort key and a secondary sort key. Refer to the parameter codes listed in Appendix PC or press the question mark (?) key to have the 2045 display a list of valid

## M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## D

\*\*\* Agri-comp 2045 Milking Data \*\*\*

M - Milking Parameter Entry

E - Edit Cow Record

## M

\*\*\*\* Milking Parameter Entry \*\*\*\*

H - Hold Milk

A - Attention Code

L - Lot Number

D - Days in Milk

T - Lactation Total

B - Breed Code

R - Repro Status Code

**H, A, L, D, T, B, or R**

## M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## D

\*\*\* Agri-comp 2045 Milking Data \*\*\*

M - Milking Parameter Entry

E - Edit Cow Record

## E

parameter codes at the terminal, and enter the codes you wish to have data arranged by. (Refer to Appendix US for details on entering Sort commands.) The 2045 will pause briefly to perform the sort. After it has completed the sort, the 2045 will ask for the starting cow number.

**5. Enter the number of the first cow whose data you wish to change, or press ENTER to start with the first cow of the most recent sort.**

```
NUMB(      1):  
LOT (     12):  
HOLD(      3):  
ATTN(      0):  
DIM (     30):  
LACT(   2034):  
BRD (      1):  
RPRO(      1):  
HELD(      6):  
DUMP(     42):  
MAST(      0):  
A305(  21635):  
PDIM(     30):  
PEAK(     72):  
IN $(    2960):  
MPA%(    100):
```

The screen will display the cow's current cow number and value for lot number (in parentheses) following their parameter name abbreviations. (Refer to Appendix PC for a list of parameter codes and name abbreviations.) The remaining parameters and their values will be displayed as you advance through the record (as explained below). A typical display is shown.

You can change any of the currently assigned values in a record (except the cow number) by entering the new value at the colon (:). To skip past certain data, accepting the current value, press the ENTER key. To skip backward one parameter, such as from ATTN to LOT, press the left bracket ([) or left brace ({) key. If you make a mistake while entering a value, before you press ENTER, use the Backspace key to erase incorrect digits, then retype the value. If you try to enter an invalid value, you'll be alerted with a terminal beep, and the 2045 will ignore the attempted change and continue to show the original value.

Whenever you press the ENTER key to accept the last parameter value listed in a cow record, the 2045 will display the next cow's data. Records for all cows with cow numbers in memory will be displayed, and data can be changed in the same manner explained above. The cow records will appear in the order of the most recent sort of the data. That is, if you last sorted the data by Production Average (AVG), the cow records will appear in increasing average production sequence. You can also proceed immediately to the next cow record (from any point within a record) by pressing the plus (+) or equal (=) key. To skip backward and repeat a previous cow record, press the minus (-) key. To see the complete cow record for the current cow, press the question mark (?) key.

To exit this mode at any point within the editing process, press the Escape key (as necessary). The 2045 will store values for all entries made before the ENTER key was last pressed.

# Milking

## 2.2.1 Changing the Milking Edit Parameter List

The list of cow parameters to be edited in the Edit Cow Record for Milking can be changed to include any parameters that you want to edit, in the order that you want to edit them. To edit the parameter list, enter the command:

**16\*19\*4#**

The 2045 will enter Prompt mode and allow you to review and change the Milking Edit Parameter List. Each field in the current list will be displayed with the four letter abbreviation (see Appendix PC), a “P:” to indicate prompt mode, the current field number (you can have up to 109 fields in this list), the current parameter code number, and end with a question mark (?). To leave the code as it is, just press the ENTER key. To change to a different parameter code, just type in the new code number. To delete a code, press the minus key (-). To insert a new code between two codes, press the plus key (+). To see a list of all possible codes, press the question mark key (?). To end the list, enter a code number 0, then press the Escape key.

You can restore the Milking Edit Parameter List to the default list by entering the command:

**8\*19\*4#**

## 3 Milking Reports

This section includes instructions on displaying and printing various Milking reports. Due to the great amount of explanation (covering the purpose and benefit of each report, the data presented in each report, whether or not the data may be sorted, and options on how the report may be generated), reports covered in this section are explained on an individual (per subsection) basis. (Due to the limitation of space in this manual, data shown in the example reports reflects a 20-animal herd.) For further explanation of the abbreviations used in the reports, refer to Appendix PC.

Twelve reports are available through the Milking program:

- Milk Report
- Herd Summary
- Lot Summary
- Number/Lactation Total Report
- Production Report (actually 5 reports)
- Attention Code Report
- Average Production Report
- Deviation Report
- Lot Report
- Day Number Production Report
- Day Number Milk Report
- Weekly Production Report

### Parts of a Report

Most Milking reports consist of a heading (top portion), which basically contains the report name, date, and time of day; a body (middle portion), which contains specific data for individual parameters and/or cows; and a summary (bottom portion), which contains herd-related figures calculated by the 2045 from cow-related data. Some reports also include a row of data between the body and the summary that provides totals, averages, and/or (in some cases) 0's that indicate 'no calculation' for data presented in the body. A more detailed explanation of these 'parts of a report' is provided in Chapter 4, Section 3 for all 2045 reports, since the same explanations apply to all reports with one or more of these parts.

# Milking

## Preparation for Displaying/Printing Milking Reports

Several setup and system settings can affect the way reports are displayed or printed. To ensure that you will obtain the correct data in a report, before displaying or printing the report, check the 2045 and printer for proper setup, as explained in Section 3 of Chapter 4. Normally, reports are printed out to the last port that was used to enter a command. If you are using both a terminal and a PC connected to the 2045, and you want the Milk Report to always be printed at the printer attached to the terminal, enable transparent print (15\*52\*2#) and lock the milk report to the terminal with the command 15\*59\*4#.

While the order in which report headings and columns of data appear cannot be changed, the order in which rows of data appear in the body of some reports can be arranged in several ways with the execution of a Sort command. Most of this program's reports have a Sort command built into them. If you will want data in a non-sorted report to be arranged according to a particular cow-related parameter(s), listed in Appendix PC, and in increasing or decreasing order, before displaying or printing the report, enter the appropriate Sort command (as explained in Appendix US). Data will appear in the order determined by the most recent sort. Note that adding or deleting a cow record will automatically force a sort in increasing cow number order.

The 2045 offers you several peripheral-control options for continuing, pausing, and exiting reports as they display or print. While a detailed explanation of these control options is provided in Section 3 of Chapter 4, a quick-reference reminder is provided here for your convenience.

### 3.1 Displaying/Printing the Milk Report

The Milk Report is a list of milking data that includes the milk weight and milking time (length of time unit was attached) of each cow as she is milked, along with the lot number, the number of milkings that the operator should hold, and any ID errors (explained below). The 2045 automatically prints this report during each milking if the printer is set up properly and the Milk Report is enabled, listing data in the order that production data is sent to the 2045 (upon attach to the next cow). Thus, the Sort command does not apply to this report.

#### Note

If you experience any data entry errors, refer to applicable notes in Chapter 1 for guidance.

#### Reminder

- If Page mode is enabled, report is displaying, and prompt to press Spacebar appears, press Spacebar to continue or press ESC to exit report. If no action within 5 minutes, the 2045 will automatically exit the report.
- If Page mode is disabled and report is displaying, you can pause report any time by pressing Ctrl and S, then press Spacebar to continue or press ESC to exit report. If no action within 3 minutes after pause, the 2045 will automatically continue the report.
- If report is printing, you can stop and exit it any time by pressing ESC. If printer has buffer, it will print until buffer becomes empty.

=====

A summary is printed at the end of the Milk Report.. The summary heading and other data meanings are as follows:

NO. OF COWS: The number of cows whose data appears in the report.

TOTAL PROD: The total production for the entire milking.

COWS PER HOUR: The average number of cows milked per hour for this milking (not in C-level software).

MILK PER HOUR: The average amount of milk measured per hour for this milking (not in C-level software).

UNMILKED COW: The number (NUMB) of any lactating cow that has an average for the particular milking number but was not milked (NUMBs will be listed in cow number order).

COW NOT READ: The number (NUMB) of any lactating cow whose ID tag was not read during the particular milking. (NUMBs will be listed in cow number order).

The last items of the summary will be the date and the time at which the EOM command was entered.

The totals (# of cows, total prod, cows per hour, and milk per hour) include data that was lost due to errors, such as duplicates and unentered cows.

The 2045 automatically generates this report during a milking (provided the 2045 and printer, if used, are properly set up), so no command or menu items have been designed to generate it. The report can, however, be generated in the following formats:

- You can generate the report with or without a body by enabling or disabling the milk report body as explained in Chapter 4, Section 1. With the body enabled, all milking data is printed. With the body disabled, only error conditions will be printed (such as D-duplicate cows or M-manual entry).
- You can generate the report in a 1-column format if Page mode is disabled or a 3-column format (unique for this report only, to conserve paper) if Page mode is enabled, as explained in Chapter 4, Section 1. The report heading and summary will appear in the first column whether or not Page mode is enabled.

Milk Report:

LOT— Lot Number

NUMB—Cow Barn (Record) Number

HOLD—No. of milkings to hold milk

TIME—Attach time for this milking

MILK—Milk weight for this milking

# Milking

## Error Conditions

When one of several errors occurs, the 2045 will print an error symbol in the Milk Report just to the right of the lot number of the cow affected. These error symbols are defined below. Note that rows of data with these error symbols will be printed even if the body of the report has been turned off.

- D - (Duplicate) is printed if the cow number has already been entered at a detacher earlier in the milking. Production and time for this duplicate replace the earlier recorded values. A record is kept only the last time a cow number is used.
- E - (Enter) is printed only when the 2045 is in the Auto Entry mode. If the cow is already in the 2045, no E is printed. The cow's number and production are stored with the new cow record.
- I - (Ignored) is printed when Automatic ID is used and the Ignore ID Errors command has been enabled (15\*41\*1#). This symbol means that there were too few cow ID tags read for this zone, so that the cows may not be correctly identified. The average production for this milking is used instead of the reported production for this cow.
- M - (Manual) is printed whenever a cow number has been manually changed at a detacher, usually due to an ID error.
- S - (System) is printed whenever the 2045 is put into ID Parlor Entry mode (15\*22\*1#). This indicates that the ID tag read for this detacher was assigned to this cow.
- U - (Unentered) is printed if the cow number at the detacher is not recorded in the 2045. The information sent from the detacher is printed on the milk report and then discarded.
- Y - (Dry) is printed if a fresh cow, whose RPRO value has not been changed from 9 to 1 (due to failure to assign DIM value for new lactation), is milked.

## 3.2 Displaying/Printing the Herd Summary

The Herd Summary is a report which presents overall milk production and reproductive figures (automatically calculated by the 2045) for all cows in the herd for your evaluation of the entire herd's production. In addition to being available as a separate report, this summary also appears at the end of most other 2045 reports, though calculations for those reports are made with data for just those cows in the report (for selective evaluation) rather than that of all cows in the herd. Thus, while the summation headings in all the reports will remain the same, the resulting figures may vary from report to report, since the data

Example was generated with 17\*#

```
=====
      Example Farm
      MLKG NO. IS 1
           1 JAN 93
           2:15 PM
-----
      AGRICOMP 2045
      HERD SUMMARY
-----
No. of Cows =      20
Totals:
  Prod Today      1820
  Prod Avg        5400
  Avg Time        931
Averages:
  Prod Today =    40.7
  Prod Avg    =    40.5
  Avg Time   =     4.0
Avg Days Open= 108.7
Avg Days Preg= 152.7
Average DIM  = 183.7
=====
```

*Optional Summary Information*  
(If printed on 1-5-91 with a Report Day  
Number of 5, the same data shown in the  
example above would be printed.)

```
Average DIM = 183.7
Day Number  =     5
=====
```

used in the 2045's calculations will be different depending on which cows' data is used, the number of cows listed in the report, and their status at the time the report is generated.

The following summation heading explanations apply for the Herd Summary and all reports that include a summary:

**No. of Cows:**

The number of cows printed in the report. (In the Herd Summary, this number includes all milking and nonmilking animals for which a cow record exists in the 2045.)

**Totals:**

**Prod Today**

The total amount of milk produced (in pounds or kilograms) by all cows listed from milkings completed at the time of the day the report is printed.

**Prod Avg**

The total of all milk production averages (AVG), for all cows listed, over the period of time determined by the average interval (AVGINT), set by the dairyman.

**Avg Time**

The total of all milking time averages (ATVM) in minutes for all cows listed, over the period of time determined by the average interval (AVGINT) setting.

**Averages:**

**Prod Today**

The average of the Total Prod Today listed above (Total Prod Today divided by number of cows listed).

**Prod Avg**

The average of the Total Prod Avg listed above (Total Prod Avg divided by number of cows listed).

**Avg Time**

The average of the Total Avg Time listed above, in minutes (Total Avg Time divided by number of cows listed).

# Milking

Because calculations for the next three summary items use days-in-milk (DIM), ready-to-breed (RTB), and days-since-bred (DBRD) values, unless values are entered and automatically updated through an installed and active Reproduction program or manually updated each day by a dairyman who does not have the Reproduction program, the figures will be zero. You can manually enter and update values for DIM, DBRD, and RTB through Command mode (explained in Chapter 7, Section 2). RPRO codes are defined in Section 2 of Chapter 7.

## **Avg Days Open**

The average number of days-in-milk (DIM) for all lactating cows (no heifers or dry cows) listed whose DIM values are greater than the ready-to-breed (RTB) setting. (For instance, if RTB is 45 days and three cows in the report have DIM values greater than RTB—that of values 50, 65, and 70—the 2045 would calculate  $50+65+70=185$ , then  $185\div3$  for a figure of 61.7.)

## **Avg Days Preg**

The average number of days-since-bred (DBRD) for all pregnant cows and heifers listed with RPRO codes equal to 6, 8, or 9. (For instance, if the report lists three pregnant cows having DBRD values of 25, 115, and 267, the 2045 would calculate  $25+166+267=458$ , then  $458\div3$  for a figure of 152.7.)

## **Average DIM**

The average number of days-in-milk (DIM) for all cows listed with RPRO codes of 0-6. (Heifers and dry cows are not included.)

## **Day Number** (Report Day Number)

The number of the day whose data for certain parameters is printed in the body of the report and is used to calculate the Prod Today values. If the report day number (explained in Chapter 4) is set for today (day 0), this item will not appear at the bottom of the summary, and all totals shown in the report will reflect the current day's production. If the report day number is set for any day other than today, the number of the day set will appear (as indicated by day 1 in the example) and the figures for Total and Average for the Prod Today will be calculated for the day specified.

You should print this report daily or weekly (depending on how closely you want to monitor herd production) and keep it on file for future reference. You may even set periodic (perhaps yearly) production goals that can be compared with the actual figures in this report.

This report cannot be sorted.

#### Command Mode

To generate this report through Command mode, enter the command:

**1 7 \* #** or **1 7 \* 0 #** displays/prints the Herd Summary

#### Menu Mode

To generate this report through Menu mode, use this procedure:

#### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

#### R

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

P - Production

A - Average Production

C - Attention Codes

D - Deviation

L - Lot

S - Herd Summary

#### S

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the R key to display the Milking Reports menu.**
3. **Press the S key to display/print the Herd Summary report.**

To exit this mode, press the Escape (ESC) key as necessary.

### 3.3 Displaying/Printing the Lot Summary

The Lot Summary lists production totals and reproductive data (same data as provided in herd summary) of cows within each lot to allow you to compare the performance of each lot. If this summary is generated frequently, trends in production may indicate success or failure of changing feeds and heat-detection efficiency. It can be used to calculate rations based on average production and the number of cows per lot. This report should be printed just after the last milking of the day for greatest utility.

#### Command Mode

To generate this report through Command mode, enter the following command:

**1 7 \* 3 0 #**            displays/prints the Lot Summary

*Example was generated with 17\*30#*

```
=====
Example Farm
MLKG NO. IS 1
  1 JAN 93
  2:16 PM
-----
AGRICOMP 2045
LOT SUMMARY
-----
No. of Cows =    4
Lot Number =    1
Totals:
  Prod Today    ....
  Prod Avg      ....
  Avg Time      ...
Averages:
  Prod Today =   ....
  Prod Avg =    ....
  Avg Time =    ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM =   .....
=====
No. of Cows =    3
Lot Number =    2
Totals:
  Prod Today    ....
  Prod Avg      ....
  Avg Time      ...
Averages:
  Prod Today =   ....
  Prod Avg =    ....
  Avg Time =    ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM =   .....
=====
```

**Number Report:**

LOT— Lot Number  
 NUMB—Cow Barn Number  
 LCNO—Lactation Number  
 LACT—Lactation total milk  
 DIM—Days In Milk

Example was generated with 18\*0#

```
=====
Example Farm
MLKG NO. IS 2
  1 JAN 93
    8:16 PM
-----
```

```
-----
AGRICOMP 2045
NUMB REPORT
=====
L  N  L  L  D
O  U  C  A  I
T  M  N  C  M
  B  O  T
-----
```

L	N	L	L	D
1	1	1	.....	64
1	2	2	.....	1
1	3	2	.....	43
2	19	2	.....	85
2	25	B	.....	106
4	49	0	.....	34
3	60	3	.....	274
3	72	6	.....	211
3	91	2	.....	253
4	123	2	.....	316
2	176	3	.....	127
3	208	5	.....	148
4	362	8	.....	337
3	435	4	.....	190
3	593	2	.....	232
3	741	4	.....	295
4	857	3	.....	358
4	974	0	.....	258
1	1015	1	.....	22
3	1316	4	.....	169

```
-----
0  20  .  ....  .
-----
No. of Cows = 20
Totals:
  Prod Today  ....
  Prod Avg    ....
  Avg Time    ...
Averages:
  Prod Today  = ....
  Prod Avg    = ....
  Avg Time    = ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM  = .....
=====
```

### 3.4 Displaying/Printing the Number Report

The Number Report lists all cows in the 2045's memory in increasing order of cow number. It provides the cow number, lot number, lactation number, lactation total, and days in milk for each cow. It is used as a cow index to allow the operator easy access to each cows lactation status.

This report cannot be sorted.

**Command Mode**

To generate this report through Command mode, enter the following command:

**18 \* 0 #** prints the Number Report

This report can also be printed from the menu

**Menu Mode**

To generate this report through Menu mode, use this procedure:

1. Beginning at the main menu, press the M key to display the Milking menu.
2. Press the R key to display the Milking Reports menu.
3. Press the P key to display the Production Reports menu.
4. Press the N key to display/print the Number report.

The entire report will be generated as it would with entry of command 18\*0#.

To exit this mode, press the Escape (ESC) key as necessary.

```

M
** Agri-comp 2045 Milking **
S - Setup
D - Data Entry or Edit
R - Reports
R
*** Agri-comp 2045 Milking Reports ***
P - Production
A - Average Production
C - Attention Codes
D - Deviation
L - Lot
S - Herd Summary
P
**** Production Reports ****
C - Cow Number Order
P - Production Order
D - Daily Production
M - Daily Milk
W - Weekly Production
N - Number/Lactation Total
N
```

# Milking

## 3.5 Displaying/Printing the Production Report

The PROD REPORT lists the production for the milkings completed so far today for all milking cows (with RPRO values less than 7). If a cow's production is zero, she was not milked or there was a problem in the parlor. If a cow's production is significantly less than her average, she may be in heat, sick, or there may be a problem in the parlor.

### Command Mode

To generate this report through Command mode, enter one of the following commands:

- 1 8 \* 5 #** displays/prints the Production Report in decreasing (highest to lowest) production order for all milking cows
- 1 8 \* 5 \* (PROD) #** displays/prints the Production Report, limiting data to only cows with production less than specified PROD value (PROD is a number such as 30)
- 1 8 \* 5 \* 0 #** displays/prints the Production Report in increasing cow number order

### Menu Mode

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the R key to display the Milking Reports menu.**
3. **Press the P key to display the Production Reports menu.**
4. **Press the C or P key to display/print the Production report.**  
Pressing the C key will cause the report to print in cow number order  
Pressing the P key will cause the report to print in production order

To exit this mode, press the Escape (ESC) key as necessary.

### Production Report:

LOT— Lot Number  
NUMB—Cow Barn (Record) Number  
AVG—Overall Avg Milk Production  
RPRO—Reproductive Status Code  
PROD—Total milk Prod. so far today

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup  
D - Data Entry or Edit  
R - Reports

### R

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

P - Production  
A - Average Production  
C - Attention Codes  
D - Deviation  
L - Lot  
S - Herd Summary

### P

\*\*\*\* Production Reports \*\*\*\*

C - Cow Number Order  
P - Production Order  
D - Daily Production  
M - Daily Milk  
W - Weekly Production  
N - Number/Lactation Total

C or P

# Milking

Command used was 18\*5#

```
=====
Example Farm
MLKG NO. IS 2
7 JAN 93
11:17 PM
```

```
-----
AGRICOMP 2045
PROD REPORT
```

```
=====
L N A R P
O U V P R
T M G R O
      B O D
```

```
-----
2 25 70 4 70.5
2 19 64 4 68.6
3 593 65 6 65.9
3 2 58 6 58.6
3 3 53 6 52.0
3 1 48 6 48.9
1 435 53 2 48.8
2 60 47 3 44.1
2 176 45 5 43.2
3 72 43 6 39.3
1 91 38 1 29.0
```

```
-----
0 11 53 0 51.7
```

```
-----
No. of Cows = 11
Totals:
Prod Today 569
Prod Avg 584
Avg Time ...
Averages:
Prod Today = 52
Prod Avg = 53
Avg Time = ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM = .....
=====
```

Command used was 18\*5\*0#

```
=====
Example Farm
MLKG NO. IS 2
7 JAN 93
11:18 PM
```

```
-----
AGRICOMP 2045
PROD REPORT
```

```
=====
L N A R P
O U V P R
T M G R O
      B O D
```

```
-----
3 1 48 6 48.9
3 2 58 6 58.6
3 3 53 6 52.0
2 19 64 4 68.6
2 25 70 0 70.5
2 60 47 3 44.1
3 72 43 6 39.3
1 91 38 1 29.0
2 176 45 5 43.2
1 435 53 2 48.8
3 593 65 6 65.9
```

```
-----
0 11 53 0 51.7
```

```
-----
No. of Cows = 11
Totals:
Prod Today 569
Prod Avg 584
Avg Time ...
Averages:
Prod Today = 52
Prod Avg = 53
Avg Time = ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM = .....
=====
```

Command used was 18\*5\*40#

```
=====
Example Farm
MLKG NO. IS 2
7 JAN 93
11:19 PM
```

```
-----
AGRICOMP 2045
PROD REPORT
```

```
=====
L N A R P
O U V P R
T M G R O
      B O D
```

```
-----
3 72 43 6 39.3
1 91 38 1 29.0
-----
0 2 41 0 34.2
```

```
-----
No. of Cows = 2
Totals:
Prod Today 68
Prod Avg 81
Avg Time ...
Averages:
Prod Today = 34
Prod Avg = 41
Avg Time = ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM = .....
=====
```

# Milking

## 3.6 Displaying/Printing the Attention Report

The Attention report lists cows with a value of attention (ATTN) greater than zero in decreasing order of ATTN and cows with a HOLD count greater than zero. It provides the lot, cow number, attention, hold milk, reproductive status, and deviation for each cow listed. Attention can be entered both in the parlor and at the 2045. If used by the operator, it must be reviewed after each milking. Its uses are for two-way communications between the parlor and the herdsman. The operator can enter codes (such as 1—sick cow, 2—in heat, etc.) and the herdsman can respond with other codes (3—catch that cow, 4—treat for footrot, etc.) The code entered is displayed at the detacher unit when the cow is attached until it is given a value of zero; hence the need for constant review.

Data in this report is always sorted by decreasing Attention values.

### Command Mode

To generate this report through Command mode, enter the following command:

**1 8 \* 2 1 #** displays/prints the Attention Report

### Menu Mode

To generate this report through Menu mode, use this procedure:

1. Beginning at the main menu, press the **M** key to display the Milking menu.
2. Press the **R** key to display the Milking Reports menu.
3. Press the **C** key to display/print the Attention report.

To exit this mode, press the Escape (ESC) key as necessary.

*Attention Report:*  
 LOT— Lot Number  
 NUMB—Cow Barn (Record) Number  
 ATTN—Attention Code  
 HOLD—No. of milkings to hold milk  
 RPRO—Reproductive Status Code  
 DEV—Deviation for milkings completed

*Example was generated with 18\*21#*

```

=====
Example Farm
MLKG NO. IS 3
7 JAN 93
11:18 PM
-----
AGRICOMP 2045
ATTN REPORT
=====
L N A H R D
O U T O P E
T M T L R V
B N D O
-----
. . . 0 2 . - .3
. . . 0 14 . - 5.2
-----
0 2 0 0 0 - 2.7
-----
No. of Cows = 2
Totals:
Prod Today . . . .
Prod Avg . . . .
Avg Time . . .
Averages:
Prod Today = . . . .
Prod Avg = . . . .
Avg Time = . . .
Avg Days Open= . . . .
Avg Days Preg= . . . .
Average DIM = . . . .
=====

```

```

M
** Agri-comp 2045 Milking **
S - Setup
D - Data Entry or Edit
R - Reports
R
*** Agri-comp 2045 Milking Reports ***
P - Production
A - Average Production
C - Attention Codes
D - Deviation
L - Lot
S - Herd Summary
C

```

Example was generated with 18\*24#

```

=====
Example Farm
MLKG NO. IS 2
  1 JAN 93
  11:19 PM
-----
AGRICOMP 2045
AVG REPORT
=====
L  N  A  P  A
O  U  V  R  T
T  M  G  O  T
   B      D  N
-----
2  25  ..  ....  0
2  19  ..  ....  0
3  593 ..  ....  0
3   2  ..  ....  0
3   3  ..  ....  0
3   1  ..  ....  0
1  435 ..  ....  0
1   60 ..  ....  0
2  176 ..  ....  0
3   72 ..  ....  0
1   91 ..  ....  0
1 1015 ..  ....  0
3   208 ..  ....  0
3   741 ..  ....  0
3 1316 ..  ....  0
-----
0   15 ...  ....  0
-----
No. of Cows =    15
Totals:
  Prod Today      ....
  Prod Avg        ....
  Avg Time        ...
Averages:
  Prod Today =    ....
  Prod Avg =    ....
  Avg Time =    ...
Avg Days Open=  ....
Avg Days Preg=  ....
Average DIM =  ....
=====
Average Report:
LOT— Lot Number
NUMB—Cow Barn (Record) Number
AVG—Overall Avg Milk Production
PROD—Total milk Prod. so far today
ATTN—Attention Code

```

## 3.7 Displaying/Printing The Average Report

The AVG REPORT lists all cows that are not dry (RPRO=9) or heifers (RPRO=7 or 8) in descending order of average production. It provides the lot, cow number, average daily production, production so far today, and the attention code for each cow listed. It can be used to evaluate the placement of cows in lots or the overall placement of cows within the herd. Used weekly, this report will allow the manager an opportunity to keep track of production on an individual cow basis.

Data in this report cannot be sorted, but is always arranged by decreasing AVG values.

### Command Mode

To generate this report through Command mode, enter the following command:

**1 8 \* 2 4 #** displays/prints the Average Production Report

### Menu Mode

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the R key to display the Milking Reports menu.**
3. **Press the A key to display/print the Average report.**

To exit this mode, press the Escape (ESC) key as necessary.

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### R

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

P - Production

A - Average Production

C - Attention Codes

D - Deviation

L - Lot

S - Herd Summary

### A

## 3.8 Displaying/Printing the Deviation Report

The DEV REPORT lists those cows that are down in production below a specified amount (deviation threshold - THRS). Cows are listed from those with the most deviation to those at or just more than THRS. This report has great value when used daily, as it will signal those cows that have dropped in production. Experience suggests that an accumulated daily deviation (just after the last milking of the day) greater than 5 to 9 lbs yields a large percentage of cows with problems. Some dairymen may wish to see deviations of 3 lbs and greater, which would warn them to watch the cows deviating from 3 to 5 lbs more carefully. Less than three pounds deviation appears to be insignificant on most dairies. The dairyman will wish to find his own level of significance for THRS. Cows that are down large amounts of production may have been un milked. Saving the Milk Report will aid in clarifying this assumption. Other reasons for high deviations may be severe mastitis or other illnesses. This report includes the days in milk value, and the production and % Fed values for the last three days to aid in determining the cause for any observed deviation.

Data in this report cannot be sorted, but is always arranged by decreasing deviation values.

### Command Mode

To generate this report through Command mode, enter the following command:

**1 8 \* 2 5 #** displays/prints the Deviation Report

### Menu Mode

To generate this report through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the M key to display the Milking menu.**
- 2. Press the R key to display the Milking Reports menu.**
- 3. Press the D key to display the Deviation Report menu.**
- 4. Press the appropriate key (R,W,P) for the report you wish to generate.**
  - Pressing the W key will cause the deviations to be printed in terms of weight (pounds or kilograms).

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### R

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

P - Production

A - Average Production

C - Attention Codes

D - Deviation

L - Lot

S - Herd Summary

### D

\*\*\*\* Deviation Report \*\*\*\*

R - Print Deviation Report

W - Deviation in Weight

P - Deviation in Percent

- Pressing the P key will cause the deviations to be printed in terms of percent of the average production.
- Pressing the R key will cause the Deviation Report to be printed.

To exit this mode, press the Escape (ESC) key as necessary.

This report can also be formatted several ways:

- You can print data to show the deviation as a percentage of the average by first setting the deviation report limit with the `15*17*(threshold)#` command, then entering the command `15*45*1#`. The report will list all milking cows in order of decreasing deviation, as shown in the third example on the next page. This lets you see how your cows are doing relative to their normal performance.
- You can print data to show the deviation in weight by entering the command `15*45*0#`. When the report is printed, the cows will be listed in order from the largest difference in weight to the smallest.

The example report shown on the next page was formatted with the commands `15*45*0#` and `15*17*10#` to show the deviations in pounds, with THRS set at 10 pounds. The report was printed with the command `18*25#`. Note that when the THRS value is not set to zero, the summary at the bottom of the report will include a line indicating the threshold value in effect.

# Milking

Example, showing the deviation in pounds, was generated with 18\*25#, threshold = 10 pounds

```

=====
                          Example Farm
                          MLKG NO. IS 3
                          8 JAN 93
                          11:20 PM
=====
                          AGRICOMP 2045
                          DEV REPORT
=====
L   N  R  D   P   D   D   D   D   P   P   P   P   %   %   %
O   U  P  I   A   E   E   E   E   R   R   R   R   F   F   F
T   M  R  M   V   V   V   V   V   O   D   D   D   D   D   D
      B  O      G      1   2   3   D   1   2   3   1   2   3
=====
2   91 4 150  32 -19.5 -6.2 -4.3 -9.0 12.5 12.5 11.0 18.2  0  0  0
2   60 2  65  81 -18.3 -9.0 -6.1 -3.2 62.7 62.7 78.3 83.4 95 90 85
1    3 3  66 111 -17.1 -3.8 -9.4 -3.9 93.9 93.9 106.1 113.4 67 100 80
2   19 6 353  58 -15.3 -3.5 -4.2 -7.6 42.7 42.7 51.0 52.8 100 95 100
3  123 6 252  67 -13.9 -7.9 -5.3  -.7 53.1 53.1 42.4 71.0  0  0  0
1   72 3  68  93 -13.2 -2.1 -2.6 -8.5 79.8 79.8 94.0 94.1 90 90 90
2  974 1  5  58 -12.8  1.0  4.2 -18.0 45.2 45.2 63.5 60.2  0  0  0
2  176 4  92  84 -11.6 -4.3 -5.3 -2.0 72.4 72.4 82.2 81.7  0  0  0
3   25 3  53 111 -10.6  -.7 -8.0 -1.9 100.4 100.4 103.5 115.8 49 31 23
2   49 6 333  65 -10.5 -2.9  -.6 -7.0 54.5 54.5 62.7 66.9  0  0  0
1  593 2  35 108 -10.2  -.5 -3.4 -6.3 97.8 97.8 110.0 108.0 100 100 100
1    2 6 295  53 -10.1  -.8 -4.1 -5.2 42.9 42.9 53.9 40.5 70  0  0
=====
0   12 0 147  77 -13.5 -3.3 -4.0 -6.0 63.2 63.2 71.6 75.5 82 84 80
=====

```

```

No. of Cows = 12
Totals:
  Prod Today      757
  Prod Avg        921
  Avg Time        75
Averages:
  Prod Today = 63.1
  Prod Avg   = 76.7
  Avg Time   =  6.2
Avg Days Open= 104.4
Avg Days Preg= 155.2
Average DIM  = 147.2
Threshold    =  10
=====

```

*Deviation Report:*

```

LOT— Lot Number
NUMB—Cow Barn Number
RPRO—Reproductive Status Code
DIM—Days-In-Milk
PAVG—Avg prod. for milkings completed
DEV—Deviation for milkings completed
DEV1—Deviation for milking 1
DEV2—Deviation for milking 2
DEV3—Deviation for milking 3
PROD—Production for milkings completed
PRD1—Production, Day 1
RPD2—Production, Day 2
PRD3—Production, Day 3
%FD1—% Fed, Day 1
%FD2—% Fed, Day 2
%FD3—% Fed, Day 3

```

Example was generated for lot 3  
only with 18\*30\*3#

```

=====
      Example Farm
      MLKG NO. IS 2
          1 JAN 93
          11:21 PM
-----
      AGRICOMP 2045
      LOT REPORT
=====
L   N   A   D   A   R
O   U   V   I   V   P
T   M   T   M   G   R
      B   M
-----
3   1   . 274 ... 6
3   2   . 253 ... 6
3   3   . 190 ... 6
3   72  . 211 ... 6
3  208  . 148 ... 5
3  593  . 232 ... 6
3  741  . 295 ... 6
3 1316  . 169 ... 5
-----
0   8   . ... 0
-----
No. of Cows =      8
Lot Number  =      3
Totals:
  Prod Today   ....
  Prod Avg     ....
  Avg Time     ...
Averages:
  Prod Today = ....
  Prod Avg   = ....
  Avg Time  = ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM  = .....
=====

```

**Lot Report:**

LOT— Lot Number  
 NUMB—Cow Barn (Record) Number  
 AVTM—Overall Avg Milking Time  
 DIM—Days In Milk (days of current lactation)  
 AVG—Overall Avg Milk Production  
 RPRO—Reproductive Status Code

### 3.9 Displaying/Printing the Lot Report

The Lot Report lists all cows in increasing order of lot first and average production second. This report can be used to order the cows by lot or indicate the culprits if a lot decreases in production.

**Command Mode**

To generate this report through Command mode, enter one of the following commands:

- 1 8 \* 3 0 #** prints the entire Lot report for all lots
- 1 8 \* 3 0 \* (LOT) #** prints Lot report for specified lot (0-99)

**Menu Mode**

To generate this report through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the M key to display the Milking menu.**
- 2. Press the R key to display the Milking Reports menu.**
- 3. Press the L key to display/print the Lot Report.**

The entire report will be generated as it would with entry of command 18\*30#

To exit this mode, press the Escape (ESC) key as necessary.

**M**

\*\* Agri-comp 2045 Milking \*\*

- S - Setup
- D - Data Entry or Edit
- R - Reports

**R**

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

- P - Production
- A - Average Production
- C - Attention Codes
- D - Deviation
- L - Lot
- S - Herd Summary

**L**

# Milking

Example was generated for all  
lots with 18\*30#

```

=====
Example Farm
MLKG NO. IS 2
  1 JAN 93
 11:21 PM
-----
AGRICOMP 2045
LOT REPORT
=====

```

```

=====
L  N  A  D  A  R
O  U  V  I  V  P
T  M  T  M  G  R
      B  M          O
-----
1  60  .  64  ...  3
1  91  .   1  ...  1
1 435  .  43  ...  2
1 1015 .  22  ...  1
-----
0   4  .  ...  ...  0
-----
No. of Cows = 4
Lot Number  = 1
Totals:
  Prod Today      ....
  Prod Avg        ....
  Avg Time        ...
Averages:
  Prod Today = ....
  Prod Avg   = ....
  Avg Time  = ...
  Avg Days Open= .....
  Avg Days Preg= .....
  Average DIM = .....
=====

```

```

=====
L  N  A  D  A  R
O  U  V  I  V  P
T  M  T  M  G  R
      B  M          O
-----
2  19  .  85  ...  4
2  25  . 106  ...  0
2 176  . 127  ...  5
-----
0   3  .  ...  ...  0
-----
No. of Cows = 3
Lot Number  = 2
Totals:
  Prod Today      ....
  Prod Avg        ....
  Avg Time        ...
Averages:
  Prod Today = ....
  Prod Avg   = ....
  Avg Time  = ...
  Avg Days Open= .....
  Avg Days Preg= .....
  Average DIM = .....
=====

```

```

=====
L  N  A  D  A  R
O  U  V  I  V  P
T  M  T  M  G  R
      B  M          O
-----
3   1  . 274  ...  6
3   2  . 253  ...  6
3   3  . 190  ...  6
3   72 . 211  ...  6
3  208 . 148  ...  5
3  593 . 232  ...  6
3  741 . 295  ...  6
3 1316 . 169  ...  5
-----
0   8  .  ...  ...  0
-----
No. of Cows = 8
Lot Number  = 3
Totals:
  Prod Today      ....
  Prod Avg        ....
  Avg Time        ...
Averages:
  Prod Today = ....
  Prod Avg   = ....
  Avg Time  = ...
  Avg Days Open= .....
  Avg Days Preg= .....
  Average DIM = .....
=====

```

```

=====
L  N  A  D  A  R
O  U  V  I  V  P
T  M  T  M  G  R
      B  M          O
-----
4   49 .  ...  ...  7
4  123 . 316  ...  9
4  362 . 337  ...  9
4  857 . 358  ...  9
4  974 .  ...  ...  8
-----
0   5  .  ...  ...  0
-----
No. of Cows = 5
Lot Number  = 4
Totals:
  Prod Today      ....
  Prod Avg        ....
  Avg Time        ...
Averages:
  Prod Today = ....
  Prod Avg   = ....
  Avg Time  = ...
  Avg Days Open= .....
  Avg Days Preg= .....
  Average DIM = .....
=====

```

## 3.10 Displaying/Printing the Day Number Production Report

The DAY # PROD REPORT lists all milking information, except the milking time, for all milking cows in the herd. This report contains up to three milkings worth of information for the day the report is printed or any of the last seven days (as determined by the report day number set). Some key features of the report are individually recorded status values (ST1,2,3) and the time of day the cow was milked for each milking(TOD1,2,3).

The status code symbols are: M (manually entered), T (ID tag not read), I (ignored because of ID error), D (duplicate), H (HOLD was set), A (ATTN code was set). The report can be generated for all cows or for just cows in a specified lot.

Data in this report can be sorted (arranged) by any of the parameters listed in Appendix PC, depending on what you want to observe. (See Appendix US for an explanation of the Sort Command.) If you do not sort data before printing, data in the report will be arranged in the order of the most recent sort.

If you sort this report by decreasing order of the problem status flags (parameter codes ST 1, ST 2, or ST 3), the cows with parlor errors will be listed first. Sorting data this way may help you identify such problems as defective ID tags.

### Command Mode

To generate this report through Command mode, enter one of the following commands:

<b>1 8 * 1 0 0 #</b>	prints entire Day Number Production Report
<b>1 8 * 1 0 0 * (Lot) #</b>	prints Day Number Production Report for specified lot (0-99)

The full report can also be printed from the menu

# Milking

## Menu Mode

To generate this report through Menu mode, use this procedure:

1. **Beginning at the main menu, press the M key to display the Milking menu.**
2. **Press the R key to display the Milking Reports menu.**
3. **Press the P key to display the Production Reports menu.**
4. **Press the D key for the Daily Production Report.**

You will be asked for the day number to print. If you press ENTER at the day number prompt, the most recently selected day will be printed. When the report finishes printing, you will be prompted to enter another day number. You can enter a day number to print another report or press the Escape (ESC) key to return to the Production Reports menu and select another report. The Daily Production report will allow you to sort the cows prior to printing the report. If you do not sort the cows, the most recent sort order will be used.

To exit this mode, press the Escape (ESC) key as necessary.

## M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

## R

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

P - Production

A - Average Production

C - Attention Codes

D - Deviation

L - Lot

S - Herd Summary

## P

\*\*\*\* Production Reports \*\*\*\*

C - Cow Number Order

P - Production Order

D - Daily Production

M - Daily Milk

W - Weekly Production

N - Number/Lactation Total

## D

### *Day Number Production Report:*

LOT— Lot Number

NUMB—Cow Barn Number

RPRO—Reproductive Status Code

AVG1—Avg milk for milking 1

MLK1—Milk weight for milking 1

ST 1—Problem status flag for mlkg 1

TOD1—Time of day, mlkg 1

AVG2—Avg milk for milking 2

MLK2—Milk weight for milking 2

ST 2—Problem status flag for mlkg 2

TOD2—Time of day, mlkg 2

AVG3—Avg milk for milking 3

MLK3—Milk weight for milking 3

ST 3—Problem status flag for mlkg 3

TOD3—Time of day, mlkg 3

# Milking

This example was sorted first by average production for milking number 1 (AVG1—parameter code 11) in decreasing order, then by increasing cow number (NUMB—parameter 19) order within each average with the command 4\*1011\*19#. The report was printed with the command 18\*100\*2#, which specifies that only cows in lot 2 be printed.

```

=====
                          Example Farm
                          MLKG NO. IS 3
                          1 JAN 93
                          11:25 PM
-----
                          AGRICOMP 2045
                          DAY 1 PROD REPORT
=====
L   N  R  A   M   S   T   A   M   S   T   A   M   S   T
O   U  P  V   L   T   O   V   L   T   O   V   L   T   O
T   M  R  G   K   D   G   K   D   G   K   D   G   K   D
      B  O  1   1   1   1   2   2   2   2   3   3   3   3
-----
 2  158 6  23 30.5 ----- 0406  18 18.5 ----- 1142  17 16.3 ----- 1942
 2   97 4  20 20.0 ----- 0336  19 20.5 ----- 1112  20 19.1 ----- 1918
 2  107 6  20 21.3 M----- 0342  18 21.1 ----- 1130  17 19.0 MT----- 1948
 2  178 6  20 18.2 M----- 0336  17 15.3 ----- 1136  16 15.3 ----- 1936
 2  110 6  18 17.2 ----- 0354  18 18.0 ----- 1130  17 17.1 ----- 1936
 2   29 0  18 16.8 ----- 0412  16 16.4 ----- 1200  16 15.7 ----- 1954
 2   94 6  16 15.0 ----- 0324  15 15.8 ----- 1124  15 15.5 ----- 1948
 2    3 6  15 12.5 ----- 0330  21 19.0 ----- 1142  17 20.5 ----- 2000
 2   28 6  15 15.2 ----- 0336  17 17.0 ----- 1112  15 16.1 ----- 1930
 2   30 6  15 13.6 MT----- 0336  15 10.7 ----- 1200  15 17.5 ----- 1954
 2  119 6  13 12.5 ----- 0324  11 11.7 ----- 1130  10  8.4 ----- 1930
 2   26 0  12 10.1 ----- 0412  11  9.1 ----- 1142  11  8.8 ----- 1930
 2    8 6  11 10.9 ----- 0330  11 10.6 ----- 1112  11 11.0 ----- 1918
 2   86 6  10  8.5 ----- 0348   9  9.3 ----- 1200   9  9.3 MT----- 1936
 2  130 2   7  6.5 ----- 0348   6  7.1 ----- 1112   6  7.5 ----- 1912
 2   65 6   6  4.4 ----- 0348   6  6.0 ----- 1142   6  6.1 ----- 1948
-----
 0   66 0  16 18.4 ----- 0000  15 14.5 ----- 0000  15 13.0 ----- 0000
=====
No. of Cows   =    66
Totals:
  Prod Today   =   3032
  Prod Avg     =   3047
  Avg Time     =    363
Averages:
  Prod Today   =    45.9
  Prod Avg     =    46.1
  Avg Time     =     5.5
Avg Days Open =   147.8
Avg Days Preg =   134.8
Average DIM   =   244.0
=====

```

# Milking

The second example of the Day Number Production Report was sorted first by increasing time of day for milking 1 (TOD1—parameter code 111), then by increasing cow number (NUMB—parameter 19) order within the TOD1 groups with the command 4\*111\*19#. The report was printed with the command 18\*100\*2#, which specifies that only cows in lot 2 be printed. Arranging data according to the time of day will show you the relationships between the milking order for the three milkings. Note that several of the cows were not milked, and show production of 0.0 with the TOD equal to 0000. If you look over the entire TOD printout and compare times between milking strings, you can tell when the milkers take breaks or something caused a delay in the milking.

```

=====
                          Example Farm
                          MLKG NO. IS 3
                          1 JAN 93
                          11:26 PM
=====
  
```

```

-----
                          AGRICOMP 2045
                          DAY 1 PROD REPORT
=====
  
```

L	N	R	A	M	S	T	A	M	S	T	A	M	S	T
O	U	P	V	L	T	O	V	L	T	O	V	L	T	O
T	M	R	G	K		D	G	K		D	G	K		D
	B	O	1	1	1	1	2	2	2	2	3	3	3	3
2	1	0	17	16.7	-----	0318	15	14.2	-----	1112	16	18.0	-----	1930
2	103	6	17	15.7	-----	0318	16	18.3	-----	1200	16	17.2	-----	2000
2	2	6	21	20.4	-----	0318	19	19.0	-----	1106	18	19.2	-----	1912
2	76	0	18	16.7	-----	0324	17	17.2	-----	1136	16	16.8	-----	1924
2	90	0	17	16.7	-----	0324	17	17.4	-----	1112	15	16.4	-----	1936
2	94	6	16	15.0	-----	0324	15	15.8	-----	1124	15	15.5	-----	1948
2	119	6	13	12.5	-----	0324	11	11.7	-----	1130	10	8.4	-----	1930
2	29	0	18	16.8	-----	0412	16	16.4	-----	1200	16	15.7	-----	1954
2	45	4	18	14.8	M-----	0412	16	15.8	M-----	1200	16	16.0	M-----	2006
2	88	6	20	21.2	-----	0412	18	15.8	-----	1118	17	19.5	-----	2006
2	126	6	15	15.8	-----	0412	16	13.9	-----	1148	14	15.2	-----	1954
2	111	0	15	13.8	-----	0412	13	12.8	-----	1142	14	13.2	-----	2006
0	12	0	16	18.4	-----	0000	15	14.5	-----	0000	15	13.0	-----	0000

```

-----
No. of Cows = 12
Totals:
  Prod Today      551
  Prod Avg        553
  Avg Time        66
Averages:
  Prod Today = 45.9
  Prod Avg   = 46.1
  Avg Time   = 5.5
Avg Days Open= 147.8
Avg Days Preg= 134.8
Average DIM  = 244.0
=====
  
```

## 3.11 Displaying/Printing the Day Number Milk Report

The Day # Milk Report lists the milk production and milking time for all milking cows for up to three milkings. Included in this report (among other things) are the average production and average time for each of the milkings. This report can be printed for the most recent milking day or any of the previous seven milking days by setting the report day number.

Data in this report can be sorted (arranged) by any of the parameters listed in Appendix PC, depending on what you want to observe. (See Appendix US for an explanation of the Sort Command.) If you do not sort data before printing, data in the report will be arranged in the order of the most recent sort.

### Command Mode

To generate this report through Command mode, enter one of the following commands:

**1 8 \* 1 0 1 #** prints entire Day Number Milk Report  
**1 8 \* 1 0 1 \* (Lot) #** prints Day Number Milk Report, limiting data to only those cows in a specified lot

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### R

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

P - Production

A - Average Production

C - Attention Codes

D - Deviation

L - Lot

S - Herd Summary

### P

\*\*\*\* Production Reports \*\*\*\*

C - Cow Number Order

P - Production Order

D - Daily Production

M - Daily Milk

W - Weekly Production

N - Number/Lactation Total

### M

### Menu Mode

To generate this report through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the M key to display the Milking menu.**
- 2. Press the R key to display the Milking Reports menu.**
- 3. Press the P key to display the Production Reports menu.**
- 4. Press the M key to print the Day Number Milk Report**  
Press M for the Daily Milk report, and you will be asked for the day number to print. If you press ENTER at the day number prompt, the data for the most recently selected day will be printed. When the report finishes printing, you will be prompted to enter another day number. You can enter a day number to print another report or press the Escape (ESC) key to return to the Production Reports menu and select another report. The Daily Milk report will allow you to sort the cows prior to printing the report. If you do not sort the cows, the most recent sort order will be used.

To exit this mode, press the Escape (ESC) key as necessary.

# Milking

The example shown below was sorted first by average time for milking number 1 (ATM1—parameter code 117) in decreasing order, then by increasing cow number (NUMB—parameter 19) order within each average with the command 4\*1117\*19#. Arranging data in this order places the slowest milking cows at the top of the list. This report also allows you to evaluate how new milkers are handling your problem cows. If the actual milking time is much less than the average milking time, the milkers are probably not giving the cow the attention she needs. The report was printed with the command 18\*101#.

```

=====
                    Example Farm
                    MLKG NO. IS 2
                      1 JAN 93
                      8:27 PM
  
```

```

-----
                    AGRICOMP 2045
                    DAY 1 MILK REPORT
  
```

L	N	R	D	A	M	T	A	A	M	T	A	A	M	T	A
O	U	P	I	V	L	I	T	V	L	I	T	V	L	I	T
T	M	R	M	G	K	M	M	G	K	M	M	G	K	M	M
	B	O		1	1	1	1	2	2	2	2	3	3	3	3
3	1	6	...	0	48.9	7.4	8	29	28.3	6.9	7	0	.0	.0	0
3	2	6	...	0	58.6	9.0	8	21	28.1	8.7	7	0	.0	.0	0
3	3	6	...	0	52.0	6.5	6	22	22.5	6.0	6	0	.0	.0	0
2	19	4	...	0	68.6	5.7	6	20	18.6	4.9	5	0	.0	.0	0
2	25	0	...	0	40.5	5.0	5	16	18.3	4.7	4	0	.0	.0	0
1	60	3	...	0	44.1	4.9	4	13	14.2	5.2	5	0	.0	.0	0
3	72	6	...	0	42.3	3.6	4	29	34.4	5.3	6	0	.0	.0	0
0	7	0	...	..	.....	...	.	..	.....	...	.	0	.0	.0	0

```

No. of Cows =      7
Totals:
  Prod Today   ....
  Prod Avg     ....
  Avg Time     ...
Averages:
  Prod Today = ....
  Prod Avg   = ....
  Avg Time  = ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM  = .....
=====
  
```

```

Day Number Milk Report:
LOT— Lot Number
NUMB—Cow Barn Number
RPRO—Reproductive Status Code
DIM—Days In Milk (days of current lactation)
AVG1—Avg milk for milking 1
MLK1—Milk weight for milking 1
TIM1—Milking Time at milking 1
ATM1—Avg Time for Milking 1
AVG2—Avg milk for milking 2
MLK2—Milk weight for milking 2
TIM2—Milking Time at milking 2
ATM2—Avg Time for Milking 2
AVG3—Avg milk for milking 3
MLK3—Milk weight for milking 3
TIM3—Milking Time at milking 3
ATM3—Avg Time for Milking 3
  
```

## 3.12 Displaying/Printing the Weekly Production Report

The WEEKLY PROD REPORT lists (among other things) the average daily production and the total production for the last seven days for each milking cow in the herd or for all cows in a specified lot. This report can be used to identify cows coming into heat (indicated by a decline) in production—especially when used in conjunction with the FEED EXCEPTION report). A sudden change in production may also indicate sick cows or other problems. The seven day information also allows you to detect trends in a cow's production.

Data in this report can be sorted (arranged) by any of the parameters listed in Appendix PC, depending on what you want to observe. (See Appendix US for an explanation of the Sort Command.) If you do not sort data before printing, data in the report will be arranged in the order of the most recent sort.

### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

### R

\*\*\* Agri-comp 2045 Milking Reports \*\*\*

P - Production

A - Average Production

C - Attention Codes

D - Deviation

L - Lot

S - Herd Summary

### P

\*\*\*\* Production Reports \*\*\*\*

C - Cow Number Order

P - Production Order

D - Daily Production

M - Daily Milk

W - Weekly Production

N - Number/Lactation Total

### W

### Command Mode

To generate this report through Command mode, enter one of the following commands:

<b>1 8 * 1 0 5 #</b>	prints entire Weekly Production Report
<b>1 8 * 1 0 5 * (Lot) #</b>	prints Weekly Production Report, limiting data to that of cows for specified lot (0-99)

### Menu Mode

To generate this report through Menu mode, use this procedure:

- 1. Beginning at the main menu, press the M key to display the Milking menu.**
- 2. Press the R key to display the Milking Reports menu.**
- 3. Press the P key to display the Production Reports menu.**
- 4. Press the W key to display/print the Weekly Production Report.**  
The entire report will be generated as it would with entry of command 18\*105#

To exit this mode, press the Escape (ESC) key as necessary.

# Milking

The example shown below was sorted first by production average (AVG—parameter code 7) in decreasing order, then by increasing cow number (NUMB—parameter 19) order with the command 4\*1007\*19#. Arranging data in this order places the cows with the best production averages at the top of the list. The report was printed with the command 18\*105#.

```

=====
                          Example Farm
                          MLKG NO. IS 2
                          7 JAN 93
                          8:28 PM
-----
                          AGRICOMP 2045
                          WEEKLY PROD REPORT
-----
L   N R D  A   P   P   P   P   P   P   P
O   U P I  V   R   R   R   R   R   R   R   R
T   M R M  G   D   D   D   D   D   D   D   D
      B O          1   2   3   4   5   6   7
-----
3   1 6 280 121 126.7 120.6 117.7 117.0 120.7 121.4 119.2
3   2 6 259 115 118.9 115.6 116.5 109.8 113.2 117.5 111.3
3   3 6 196 101 101.9  97.1 110.0  99.8 101.0  97.7  97.1
2  19 4  91 100 106.3 104.8 102.0  96.5  95.5 100.5  94.6
2  25 0 112  97  87.6  92.7  95.0  96.5 102.1 103.5 103.5
1  60 3  70  33  30.5  33.2  30.4  33.5  33.0  26.0  35.3
3  72 6 217  19  19.1  18.6  18.9  14.1  18.6  22.0  19.8
1  91 1  7  19  21.1  20.5  19.2  18.2  19.1  18.6  15.4
-----
0   8 0 ... ..
-----
No. of Cows =      8
Totals:
  Prod Today   ....
  Prod Avg     ....
  Avg Time     ...
Averages:
  Prod Today = ....
  Prod Avg   = ....
  Avg Time  = ...
Avg Days Open= .....
Avg Days Preg= .....
Average DIM  = .....
=====

```

*Weekly Production Report:*  
 LOT— Lot Number  
 NUMB—Cow Barn (Record) Number  
 RPRO—Reproductive Status Code  
 DIM—Days In Milk  
 AVG—Overall Avg Milk Production  
 PRD1—Total milk, day 1  
 PRD2—Total milk, day 2  
 PRD3—Total milk, day 3  
 PRD4—Total milk, day 4  
 PRD5—Total milk, day 5  
 PRD6—Total milk, day 6  
 PRD7—Total milk, day 7

## 4 Milking Procedures

After the 2045 has been installed and checked out, you can begin milking cows. This section describes the procedures for a first milking and for a standard milking.

### 4.1 Milking With an Agri-comp 2045

When milking with the Agri-comp 2045 computer for the first time, use the following procedure:

1. **Check to see that paper and a ribbon are installed in the printer and the printer is on-line, that terminal output is enabled, and that the Milk Report is enabled.**

These preparations will allow the Milk Report to be printed automatically during the milking. (Refer to Chapter 4 for details on enabling the terminal output and Milk Report.)

2. **Check to see that a system disk is installed in the 2045 disk drive and that the drive cover is closed.**

Although we recommend that cow numbers be entered at the terminal prior to milking (to reduce the likelihood of entry errors due to distractions in preparing and milking cows), in most cases, you can enter them at the detachers during the first milking. The only exception is that if you are using Automatic ID, you must have the cow numbers entered prior to milking. Should you decide to enter cow numbers during the first milking, keep in mind that once you begin entering cow numbers at the detachers, the 2045 must remain in Cow Number Entry mode for the entire milking for cow numbers and milk production data to be accepted. If you interrupt the entry process to do something else at the terminal, You must reenter the command to put the 2045 into Entry Mode. To enter cow numbers at the detachers, first enter the command 19\*# at the terminal to set the 2045 to the Cow Number Entry mode. Then, continue with step 3.

3. **Select the desired milking mode (Automatic or Manual) and check the detacher lamps to ensure the proper selection.**

Detachers automatically default back to the Automatic mode after detach, so you need not select this mode before milking each cow; however, it is a good practice to check that the MANUAL lamp is off. If the lamp is on, press the AUTO/MANUAL button to turn it off.

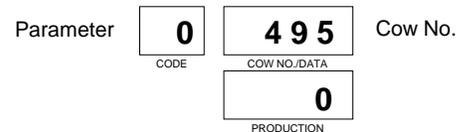
# Milking

Detachers do not communicate with the computer when ATTACH is pressed in Manual mode. If a cow must be milked in Manual mode because her milk flow rate is so low that the claw will detach early, press the MANUAL button after you press ATTACH to prevent an early detach.

**4. If you are not using Automatic ID, enter the cow number at the detacher. If you make a mistake, press 0 until the display is cleared, then enter the correct number.**

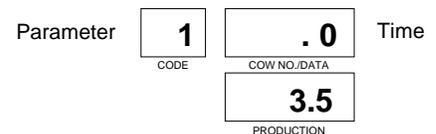
Note that cow numbers 1, 2, and 3 cannot be entered in this manner, since the detacher processes the 1#, 2#, and 3# commands internally and does not send them to the 2045. Enter cow numbers 1, 2, and 3 as explained below, after step 6. If you are using Automatic ID, the 2045 will automatically send the cow number to the detacher.

When you manually enter a cow number, just prior to pressing ATTACH/DETACH, the detacher will display the cow's number in the COW NO./DATA window and a "0" in the Code and Production windows, as shown in the example for cow number 495.



**5. While holding the claw in your hand, press ATTACH/DETACH.**

The detacher will release the claw and open the milk valve. If no warning messages or attention codes were assigned to the cow, the display will change as shown if the Attach Display mode set in the 2045 is "Time and Production." The ".0", appearing in the COW NO./DATA window, is the milking time. This number will begin to increment in tenths of minutes immediately after you press the ATTACH/DETACH button, and it will stop incrementing when the milking unit detaches. The PRODUCTION window, showing an initial 3.5 pounds of milk, will begin incrementing in tenths of pounds (or kilograms) once the milk meter fills beyond 3.5 lbs and the rotor turns to release milk. The incrementing of milk production will stop each time a low flow rate condition exists and will continue each time the minimum flow rate resumes. Because the 3.5 lbs of milk is counted at the beginning of each milking, before the meter actually releases milk, the last 3.5 lbs is not counted.



If the parlor alarm sounds and/or the detacher display flashes when you press the ATTACH/DETACH button to attach, an error or warning condition has been detected. (Refer to section 4.3 for an explanation of the warning messages, attention codes, and error messages displayed at the detachers.) The display also flashes if the total number of cows exceeds the 2045's capacity (during Parlor Entry).

**6. Attach the claw's teat cups to the cow's teats.**

**Note**

If you entered an incorrect cow number—1, 2, 3, or higher—but failed to correct it before pressing the ATTACH/DETACH button, enter 7\*(cow number)# at the detacher (before detach). The cow number will change without requiring a detach or any loss of production. (This method is the only way to enter cow numbers 1-3 at detachers.)

If the printer is set up as noted in step 1, the heading for the Milk Report will be printed when the first detacher is attached to the first cow. Each cow's milk production data is sent to the 2045 by the detacher that milked her upon attach to the next cow. As production information is received, the 2045 signals the printer to print that cow's data on the Milk Report. If the body of the Milk Report has been disabled, cows with no error conditions will not be printed on the Milk Report. Any error conditions, such as duplicate cows and manual entry, will cause the data to be printed even if the body of the Milk Report has been disabled.

If you interrupt the Milk Report to print another report during the milking, the 2045 will save up to 48 lines of the Milk Report in a buffer. When the other report finishes printing, the Milk Report heading will be reprinted along with the production data saved in the buffer. No production data will be lost, even if it is not printed.

For more specific information on detacher system operation, refer to the appropriate detacher instruction packet. For more information on printing reports, refer to Section 3.

### 4.1.1 Reattaching to the Same Cow

If you are milking a cow in the Automatic mode and her milking unit detaches early, you may choose to finish her milking in the Manual mode, so that you can more closely monitor her activity, or reattach the unit in the Automatic mode, if she is simply a slow starter.

To finish a milking in Manual mode, you would press the AUTO/MANUAL button (the MANUAL lamp will light) and then the ATTACH/DETACH button, to reattach the milking unit to the cow. This sequence allows the 2045 to keep the cow's production and time before detach and continue adding any additional production and time to the previous amounts.

You can reset the detacher back to Automatic mode at any time during Manual milking of a cow; however, if an early detach occurs after the initial 3.5 pounds of milk has been emptied from the milk meter and

# Milking

you do not reattach the milking unit to the cow before the dump delay time elapses, that 3.5 pounds will be lost and will not appear on the Milk Report. To avoid a possible early detach after reattaching, leave the detacher in Manual mode until the NO MILK lamp turns off.

For more specific information on takeoff delay, dump delay, and Automatic and Manual mode settings, refer to the appropriate detacher instruction packet.

## 4.1.2 Viewing Data at the Detacher During Milking

Two commands can be entered at the terminal to have the detacher display the current milking data:

- # to display the cow number and production
- 1 # to display the time and production

Requested data will appear in the three display windows. The CODE window indicates which parameter code (0, 1, etc.) was selected to display data at the detacher. The COW NO./DATA window indicates the cow's number (if entered) or the time (in tenths of minutes) since the attach, depending on which command was entered. And the PRODUCTION window indicates the cow's milk production.

Parameter	0 CODE	495 COW NO./DATA	Cow No.
		3.5 PRODUCTION	Production
Parameter	1 CODE	.0 COW NO./DATA	Time
		3.5 PRODUCTION	Production

Whenever you reload data from a backup disk, depending on when you last changed backup disks, the milking number on disk may not agree with your actual milking of the day. Before beginning a milking, you should check the milking number by entering the following command at the terminal or detacher keypad:

**1 5 \* 1 9 #**

And you can check the value assigned to a cow for any parameter by specifying that cow number and parameter in the following command:

- 1 4 \* 0 \* (parameter) # (for cow at detacher)
- 1 4 \* (cow number) \* (parameter) # (for any cow)

Refer to the list of parameter codes in Appendix PC.

You can also recall data on two parameters at a time with the following commands:

<b>4 * #</b>	for cow at detacher
<b>5 * #</b>	for cow at detacher
<b>6 * #</b>	for cow at detacher
<b>4 * (cow) #</b>	for any cow
<b>5 * (cow) #</b>	for any cow
<b>6 * (cow) #</b>	for any cow

To use the 4\*#, 5\*#, and 6\*# commands, you must first program the 2045 for the parameters you desire, as explained in section 1.10. This feature is not available in the C-Level software

### 4.1.3 Understanding the Deviation Number

Parameter	<b>25</b> CODE	<b>7.8</b> COW NO./DATA	Time
		<b>10</b> PRODUCTION	Deviation

When a cow finishes milking and experiences a normal detach, the detacher display responds similar to the example shown. The “25” shown in the CODE window indicates deviation and detach. The value appearing in the COW NO./DATA window is the total length of time in minutes that the milking unit was on the cow. The value shown in the PRODUCTION window is the deviation or difference between what the cow just gave for this milking and her average production stored in the 2045 for this milking number. If the deviation number is positive, the cow gave more than her average. If the deviation is negative, the cow gave less than her average. Note that the average value used for this calculation is first rounded to the nearest pound (or kilogram), which can cause some cows to show a deviation even when they produce an amount that exactly matches their true average.

The deviation can be useful in indicating cows that are in heat, sick, or not completely milked.

Deviation for the first day’s milking will be equal to production, because the average has not been established. The accuracy of the deviation will improve as it becomes averaged with subsequent milkings. See section 1.5 for instructions on setting the average interval (AVG INT).

# Milking

## 4.2 Ending a Milking

To end a milking, data for the last milked cows must be sent to the 2045. Then the End Of Milking command must be entered to signal the 2045 to close cow records and calculate data. The following sections explain the methods for accomplishing these tasks.

### 4.2.1 Sending the Last Milked Cows' Data to the 2045

As noted in section 4.1, "Milking With an Agri-comp 2045," each cow's milk production data is sent to the 2045 upon attach to the next cow. Since you will not be attaching the milking unit to a cow after the last cow at each detacher finishes milking, and the detacher and 2045 have no way of knowing which cows are the last milked, you must send the data stored in the detachers, for the last cows milked, to the 2045.

To send the last milked cows' production data to the 2045, set the detachers to the Automatic mode (this may already be done, as detachers default to Automatic mode after detach. Press the ATTACH/DETACH button and then the AUTO/MANUAL button at each detacher to transfer the information to the 2045 and change the detacher to manual mode. As production information is received, the 2045 signals the printer to print the cows' data and finish the Milk Report.

#### Note

All detachers must be set to the Attach and Manual modes before proceeding to end the milking in section 4.2.2.

### 4.2.2 Entering the End Of Milking Command

Immediately after each milking has been completed, you must enter the End Of Milking (EOM) command at the terminal or detacher keypad to signal the 2045 to close the cow records for a particular milking, update milking data totals, automatically print the end of the Milk Report, reset some data used by the automatic ID system, check to see if the milking just ended is the last milking of the day (in which case the 2045 would perform the End Of Day function, if automatically set), and write a backup copy to disk. The EOM function works together with the EOD function to update cow information so that daily reports are meaningful and correct.

If you do not end a milking with the EOM command before you begin milking cows for the next milking, the cows are considered milked twice in the same milking. The production for the previous milking is ignored by the 2045. The 2045 will overwrite data from first milking with that collect during second milking and error messages will flash ( duplicate cow#) at the detachers.

#### Command Mode

To end the current milking from the terminal or a detacher keypad, enter the following EOM command:

**1 5 \* 1 #**

When ending the milking from a detacher, the detacher can be in the Manual or Automatic mode.

At the conclusion of the first milking, if Parlor Entry was used to enter cow numbers into the 2045, first press # (at the terminal) to exit the entry mode, then enter the EOM command.

#### Menu Mode

To end the milking through Menu mode, using the following procedure:

#### M

\*\* Agri-comp 2045 Milking \*\*

S - Setup

D - Data Entry or Edit

R - Reports

#### S

\*\*\* Agri-comp 2045 Milking Setup \*\*\*

D - Detacher Settings

M - End of Milking

E - End of Milking Day

C - Clear Herd Average

I - Average Interval

A - Set Auto End of Day

H - Set Fresh Cow Hold Count

#### M

- 1. Beginning at the main menu, press the M key to display the Milking menu.**
- 2. Press the S key to display the Milking Setup menu.**
- 3. Press the M key to end the current milking.**

To exit this mode, press the Escape (ESC) key as necessary.

The 2045 allows you to enter the EOM command only once after a milking to prevent a milking number from being inadvertently changed. If you attempt to enter the command more than once, the 2045 will sound a warning beep and display an error message.

# Milking

The EOM function causes the following to occur:

- The 2045 closes the cow records for milking just ended.
- The 2045 updates milking data totals.
- The printer automatically prints the end of the Milk Report
- The 2045 resets some data used by the automatic ID system.
- The 2045 checks to see if the milking just ended is the last milking of the day (in which case the 2045 would perform the End Of Day function).
- The 2045 writes a backup copy of all cow and management information to disk if a nonwrite-protected system disk is in the disk drive. (The time required for the 2045 to write data to disk depends upon the size of the herd.) As the cow data is written to disk, the cow numbers will be displayed at the terminal. When the disk write is complete, the Cow Number display will stop changing.
- The HOLD value is decreased by one for every cow that has a HOLD count set.
- The MCTR value is decreased by one for every cow that has a MCTR count set (not in the C-Level software).

The milk production of any cows milked following entry of the EOM command will be recorded under the next milking number.

## 4.2.3 Entering the End Of Day Command

In addition to entering the EOM command, after the last milking of the day has been completed, the End Of Day (EOD) command must also be entered. The EOD function signals the 2045 to recalculate herd averages, shift data for the previous seven days by one day and store the current day's data under day 0, and reset the milking number to 0 (to be ready for the next day's first milking). The EOD function works together with the EOM function to update cow information so that daily reports are meaningful and correct.

The 2045 will perform the EOD function automatically after the milking for which it was set (which should be the last milking of the day). You should only have to enter the manual End Of Day command if you want to change the current milking number.

The EOD function causes the 2045 to

- recalculate herd averages.
- shift data for the previous seven days by one day, storing the current day's data under day 0 (current day) and discarding the oldest day's data.
- reset the milking number to 0 (to be ready for the next day's first milking).
- reset the Daily Production (PROD) for each cow to zero.

## 4.3 Understanding Warning Messages at the Detacher

Warning messages and attention values will automatically appear at detacher displays (during milkings only) if values for them were entered into the 2045 (as explained in various subsections of the manual). The 2045 will recognize an error immediately as the cow passes through the ID antenna and will sound the parlor alarm (if installed and enabled) at that moment, or it will flash a warning message on the detacher display and sound the alarm when the operator presses the ATTACH button to begin milking the cow. The display also blinks if the total number of cows exceeds the 2045's capacity. The alarm will sound briefly when the detacher blinks.

Warning messages are displayed when ATTACH is pressed and may appear in combination with the error conditions described on the following pages.

A brief description of the error warning messages and attention codes, their meanings, and the detacher display responses will be given here.

Parameter	- - <small>CODE</small>	4 9 5 <small>COW NO./DATA</small>	Cow No.	<b>HOLD</b>
		h o l d <small>PRODUCTION</small>	Warning	HOLD at the detacher display indicates that the cow's milk is to be collected separately from the milk that enters the bulk milk tank and discarded or that the cow is to be placed in the holding pen after she is milked out.
Parameter	- 2 <small>CODE</small>	4 9 5 <small>COW NO./DATA</small>	Cow No.	<b>ATTN</b>
		- - - - <small>PRODUCTION</small>	Warning	Attention (ATTN) codes should alert the operator to look for problems that a cow might have, such as mastitis, sore feet, injuries, or signs of estrus. These codes are user defined.
Parameter	- 2 <small>CODE</small>	4 9 5 <small>COW NO./DATA</small>	Cow No.	<b>ATTN and HOLD</b>
		h o l d <small>PRODUCTION</small>	Warning	Both attention code and HOLD messages can appear together, as shown here.
Parameter	- - <small>CODE</small>	o h o h <small>COW NO./DATA</small>	Warning	<b>OHOH</b>
		- - - - <small>PRODUCTION</small>		OHOH in the detacher display indicates that the cow's ID tag number was not assigned to a cow number and was, therefore, not recognized by the 2045.

# Milking

You can program the 2045 to ignore or accept ID tag numbers, as explained in Chapter 6, “Automatic ID.” The 2045 will print the production data of a cow whose ID tag number was ignored on the Milk Report, assigning it Cow #0, but it will not store the data in memory.

Other error warnings may occur in addition to those mentioned above. The following list suggests possible reasons for these errors and the action you should take to correct them:

- If all detacher display windows are flashing, it is possible that the EOM command was not entered after the last milking. Check the current milking number, and enter the EOM command if required.
- If a detacher display flashes after you enter a cow number or press ATTACH/DETACH in a system with Automatic ID, one of the following errors may have occurred:
  - The cow number has already been used during this milking. Verify that the cow number shown at the detacher agrees with the cow's identification (ear) tag, and correct by entering the command 7\*NUMB#
  - The cow number (or ID tag #) was not entered or does not exist in the 2045 memory. This data will not be stored in the 2045's memory. Enter the command 7\*NUMB# if the cow is in memory, otherwise ignore.
  - The cow has a reproductive status (RPRO) value of 7, 8, or 9 (heifer or dry cow). Check to see if she was identified properly. If so, check her RPRO value.
  - On a system with Automatic ID, the number of tags read was less than the total number of stalls in the ID zone. Beginning with the first detacher, verify that the cow number displayed agrees with the cow's actual number. When you find the cow whose tag was not read, enter her number into the detacher with the command 7\*NUMB#.

Though the detacher will display the cow number and production for all of these error warnings, the display will flash and the parlor beeper will sound in the same manner that they do for the warning messages explained earlier. Determining the reason for the warning and taking appropriate action will be the responsibility of the operator.

You can milk the cow while any warning message flashes, or you can stop the display from flashing by entering 1 # for “Time and Production” or just # for “Cow No. and Production” at the detacher. Note that the error or warning cannot be retrieved after pressing 1# or #, so you should pay close attention to HOLD warnings.

## 4.4 Entering Commands at the Detacher

The detacher is an independent unit, meaning that it can be used to milk cows and display production data without the aid of a 2045. You can issue commands for setting values, performing actions, and viewing certain data at the detacher keypad at any time. When used with an Agri-comp 2045, the detacher can perform the same functions mentioned above with information stored in the detacher, as well as with much of the information stored in the 2045, at any time.

### Note

Any automatic displays such as errors, warnings, and deviation are lost at the detacher if you use these commands.

To perform a function at the detacher, enter one of the following commands at the keypad:

- # displays Attach Display mode "Cow Number & Production"
- 1 # displays Attach Display mode "Time & Production"
- 2 # displays Flow Rate & Takeoff Delay settings
- 4\*# displays two cow parameter values
- 5\*# displays two cow parameter values
- 6\*# displays two cow parameter values
- 7 \* (NUMB) # changes current cow number at detacher without detaching
- 9 \* # displays the detacher address
- 1 4 \* (NUMB) \* (parameter code) # displays cow value
- 1 5 \* 3 0 \* (lot, 0-99) # assigns lot numbers from parlor

### 4.4.1 Assigning Lot Numbers From The Parlor

If you milk your cows by lot, you may find it useful to make any lot changes before milking, then use the Parlor Lot Assignment command to assign all cows to their correct lot numbers as they are being milked. To use this command, you must enter the command:

**1 5 \* 3 0 \* (lot number, 0-99) #**

at any detacher in an ID zone. This will program the 2045 to set the lot number to the specified lot for each cow milked in that zone when the milking data for each cow is sent to the 2045 (by pressing the attach button). Note that each zone must be programmed separately. To stop assigning lot numbers, enter the command 15\*30\*0# or end the milking.

# Milking

# **APPENDICES**



---

# Appendices

## Table Of Contents

<b>PC</b>	<b>Parameter Codes &amp; Abbreviations (9ES 805A)</b>
<b>CS</b>	<b>Command Summary (9ES 806A)</b>
<b>AC</b>	<b>Printable ASCII Characters</b>
<b>CP</b>	<b>Connecting To A Personal Computer</b>
<b>CR</b>	<b>Cow Record Design Worksheet</b>
<b>DA</b>	<b>Detacher Address and Switch Setting</b>
<b>LP</b>	<b>Line Protection Module Installation</b>
<b>MS</b>	<b>Menu Structure (9ES 811)</b>
<b>MT</b>	<b>Maintenance</b>
<b>PT</b>	<b>Placing ID Tags on Cows</b>
<b>SC</b>	<b>Selection Codes and User Defined Reports</b>
<b>SM</b>	<b>Short-Haul Modems and Phone Modems</b>
<b>SP</b>	<b>Serial RS232 Printer Installation</b>
<b>US</b>	<b>Using The Sort Command</b>
<b>PS</b>	<b>New Software Versions, Standard and Prime (9ES 817)</b>

# Appendices

## New Software Versions: Standard and Prime

Two new versions of the system software have been added to the ProVantage series for Smart ID™ and other new software features. ProVantage Standard is comparable to the original ProVantage Basic: it has a smaller cow record with only 5 days of milk data storage and no feeding or reproductive calendar features, but allows for herd sizes up to 5000 cows in a Network Controller. ProVantage Prime is comparable to the original ProVantage Deluxe, except that the **menus have been removed to make room for the new software features**. Note that these new software versions are only available for the 2045 and Network Controller hardware, not for the 2040, and the new features only work with Perfection meters. The maximum herd sizes for the new software are summarized in the following tables. The very small herd size in a 2045 with Standard code makes this combination impractical.

Table 1. ProVantage Standard Herd Sizes

Herd Size Option	2045	2045+	Network Controller
Default	220	500	500
Medium	220	1000	1000
Large	220	2700	5000

Table 2. ProVantage Prime Herd Sizes

Herd Size Option	2045	2045+	Network Controller
Default	280	500	500
Medium	280	1000	1000
Large	280	1300	2300

# Appendix PS

## Smart ID™ Software

ProVantage Smart ID™ software (patent applied for) is the Bou-Matic answer to several of the problems that commonly occur with parlor entry ID systems. The primary problem with parlor entry ID systems is that when a cow is not identified, all of the cows in that milking string after the misidentified cow are given the wrong milking data. The Smart ID software corrects this problem by matching milking data to the correct cow. This requires special software in the Network Controller, detacher/meter controls, and the ID control. The Smart ID feature is turned on by default. To change the setting, use the command 15\*122\*(1-5)# (we recommend the use of 15\*122\*3#). The last value determines the number of missing tags that the software will try to correct in a single string of cows. A setting of 3 should be adequate for most parlors, and a setting of 4 or 5 should only be used for parlors that are 2x40 or larger. To turn this feature off, use the command 15\*122\*0#. Another common problem with parlor ID is that the first cow from the next string is sometimes identified as the last cow in the current string. The Smart ID software will automatically correct this problem if the cow is still in the ID antenna when the entrance gate closes.

The new software also does a better job of handling the “Ignore ID Errors” command, 15\*41\*1#. When this mode is enabled, the cows will only be flagged as Ignored if the Smart ID software cannot correct the errors. Also, short strings will not be flagged as errors.

The new detacher/meter control software for Smart ID includes two features that improve the accuracy of assigning milk weights to cows. First, milk weights are sent on detach, instead of when the next cow is attached. This reduces the end of milking errors where milk weights were sometimes not sent in properly. Secondly, the Manual button on the control only affects the automatic detach function, and is not necessary when reattaching to a cow that has kicked off a unit or detached early. The Manual button has no effect on the sending of milk weights or setting of cow numbers. Simple procedural errors in the past, like not putting a control in manual mode prior to reattaching a milking unit, would cause the cow’s milk weight to be in error.

### **Note:**

*The Smart ID software does not have any effect on Rotary Parlor identification. Rotary parlors effectively have the equivalent of individual stall ID, so the Smart ID features are not needed.*

## ID Responsibilities

Proper operation of the Smart ID system requires that the system be properly installed, maintained, and operated. The Responsibilities List at the end of this appendix explains the actions required of the dealer, dairyman, and milkers to use and maintain the system properly.

## Correction of Cow Numbers in the Parlor

The 7\*(cow number)# command can still be used to change cow numbers in the parlor. If the stalls between the entrance gate and the stall with the problem have not yet been attached, this command can be used to insert a manually identified cow into the string, sliding the rest of the cows down one stall. This is particularly useful on DHIA test day to insure that all cows are identified correctly.

If you have an empty stall or group of stalls between groups of cows, the 7\*# command can be used to tell the ID system that those stalls are empty. This situation often occurs when you change from one lot to another or a cow enters a stall leaving a gap of one or more stalls (“short loading”). Attach the last cow on the exit side of the gap first. Then bring in the next group of cows. Before you attach to the first cow in the second group, enter 7\*# at the detacher where the first cow in the second group will be located. This will insert special “place-holder” cow numbers into the intermediate stalls. Then continue to attach the remaining cows as usual.

If cows coming into the parlor are allowed to exit immediately because of an improperly cycled exit reel, the Smart ID system cannot correct the ID errors that result. If this situation occurs, the milkers should close the entrance gate, chase out all of the cows that have entered, cycle the exit reel to reset the ID table, and then open the entrance gate to let a new string of cows into the parlor. The cows that were chased out should be cycled back into the holding area to be milked.

## Detection of Multi-Number Tags

Some faulty tags generate more than one ID number. To help identify these tags, use the 8\*1\*64# variant of the Direct Tag Read command. This will print out only those tags that generate more than one number, and will print both numbers that the tag generates on a single line to assist in finding the bad tag.

### Example:

```
Tag 31808= 15424 0
Tag 15424= 31808 0
this tag is generating two numbers
and was read in zone 0
```

# Appendix PS

## Improved End of Milking Report

To make the report at the end of the milking more useful, the list of un milked/unread cows has been revised. There are now four sections to the report, and no cow should show up more than once. The four sections are described in detail below.

### FRESH COW

A cow that has RPRO=1, DIM from 1 to 14, and has no production. The second number is the detacher address were the cow should have been milked. The number 255 will appear if the ID tag was read and not assigned to a detacher, or the tag was not read. If the number is other than 255 it is a detacher address and would indicate that the cow's ID tag was read and it was assigned a detacher address and no milk production was recorded for that cow. The last number on the line is the cow's lot number. Note that fresh cows do not need to have developed an Average to show up in this report.

### UNMILKED

The ID tag was read and the "Attach" button was not pressed to attach the milking unit, or the cow does not have an ID tag assigned. The second number is the detacher address for that cow. The number 255 will appear if the ID tag was read and not assigned to a detacher. This could happen if it is an extra cow in a milking string and does not get read at later time. If the number is other than 255 it is a detacher address and would indicate that the cow's ID tag was read and it was assigned a detacher address, but the Attach button was never pressed to attach the milking unit. The last number on the line is the cow's lot number.

### NO MILK

The ID tag was read and the "Attach" button was pressed on the detacher and the detacher/meter did not record milk production. The milker may have placed the milking unit on the cow and the cow did not "let her milk down" and the detacher removes the milking unit after the let down delay. Or the cow kicked the milking unit off before any milk production was recorded and the milking unit was not put back on the cow. The second number is the detacher address for that cow. If a large number of cows have the same address it could indicate a defective detacher/meter. The last number on the line is the cow's lot number.

## UNREAD

A cow that has an unread tag and was not milked, and was not listed in one of the other sections. Note that no detacher address can be assigned to these cows.

### Examples:

FRESH COW : 123 12 3

cow 123 was assigned to detacher 12 and she is in lot 3

UNMILKED : 367 255 6

cow 367 was not assigned to a detacher (so address 255 was assigned), and is in lot 6

NO MILK : 29 9 2

cow 29 was assigned to detacher 9, and is in lot 2

UNREAD : 120 1

cow 120 was never identified, so it was not assigned to a detacher address, and is in lot 1

## Force End of Milking Report to Terminal

The command 15\*59\*4# has been available for some time to force the milk report body to be sent to the terminal port (J9). It now also forces the end of milking report to be sent to the terminal. Previously, any command or noise on the computer/modem port (J8) just before the end of the milking could redirect the report to that port.

## End of Milking Macros

It is now possible to program a series of commands to be executed automatically at the end of each milking, with different sets of commands for different milkings or on different days of the week. Each set of commands, or macro, can be up to 127 characters long, and will be executed just as if you were typing at the keyboard. Any command or series of commands can be programmed into a macro, including reports, sort gate settings, etc. To program a macro, issue the command 15\*5dm#, where d is the day of the week and m is the milking number. You can use day 0 to program a default macro that is used for all days of the week that do not have macros programmed. For example, 15\*502# would program a macro for all milking 2 endings, and 15\*532# would program a macro for day 3, milking 2, that would override the 502 macro on day 3. (Note: the day of the week can be set with the command 15\*7\*(1-7)#.) Macros that are programmed will be printed in the 17\*15# summary. You can also program a delay of up

# Appendix PS

to nine minutes in a macro by inserting a tilde (~) followed by a single digit (1-9) which indicates the number of minutes to wait before executing the next command in the macro. For example, you might want to wait until all cows are gone from the parlor before changing the settings on the sort gates. You can cancel a macro by pressing the Escape (Esc) key while the macro is executing. Note: you must use the pound key (#) in your macros to complete a command, instead of the Enter key. The command 8\*500# will erase all macros.

Table 3. Summary of Macro Command Codes

Day #	0	1	2	3	4	5	6	7
Milking 1	501	511	521	531	541	551	561	571
Milking 2	502	512	522	532	542	552	562	572
Milking 3	503	513	523	533	543	553	563	573

*Note that macros for days 1-7 override day 0 macros.*

## Examples of End of Milking Macros

15\*503#

18\*101#18\*25# at the end of every milking 3, print the Production and Deviation reports

15\*541#

17\*77\*1# at the end of the first milking on Wednesday, print the cows to breed report

15\*501#

8\*25# at the end of every 1st milking, print the meter diagnostic report

15\*521#

~215\*1021\*884#15\*1022\*1#15\*1031\*884#15\*1032\*1#  
wait 2 minutes (~2) after the end of milking 1 on Monday (day 2, 521), then set sort gates 2 and 3 to catch cows that were found to be in the wrong lot (code 884 = 1)

15\*522#

~215\*1021\*61#15\*1022\*1#15\*1031\*61#15\*1031\*1#  
wait 2 minutes after the end of milking 2 on Monday, then set sort gates 2 and 3 back to catch cows with the Milking Counter (MCTR) equal to 1 (normal sorting)

## Five Digit Cow Numbers

The new software features support for cow numbers up to 65000. This feature is available at both the ProVantage Network Controller and at the detacher/meter controls. At the detacher/meter, the extra digit appears in the code window. To display 5 digit cow numbers on attach, use the command 15\*5\*19# instead of the traditional 15\*5\*0#. Note that all reports will allow space for an extra digit in the cow number, which may affect herd management packages that retrieve data from the ProVantage system.

```

=====
Example Farm
MLKG NO. IS 1
  9 SEP 97
  11:14 AM
-----
ProVantage Prime
CAUGHT REPORT
=====
  N      C      T      S
  U      I      O      T
  M      D      D      A
  B      N                T
-----
  25  24740  0836  ---C---
1093  63521  0924  ---C---

```

### Example Milk report:

```

  2  5065  0  5.3  31.6  23
  2  6722  0  5.1  23.9  24

```

*cows 5065 and 6722, both in Lot 2, were milked at detachers 23 and 24, respectively.*

*Milking routine problems can vary from something as simple as having to quickly change an inflation to having to hold up the milking to replace an air compressor. In any case the delays show where potential problems in the routine exist.*

## Status Flag for Cows Caught by Sort Gate

When a sort gate identifies a cow to be caught, a C (caught) flag will be set in the STAT flag for that milking. The parameter code 885 can be used to select cows that have been caught, and the new CAUGHT report (18\*885#) will print a list of the cows that were caught.

## Detacher/Meter Address on Milk Report

The detacher meter address has been added to each line of the milk report, to aid in diagnosing problems with the meters or communications with meters.

## ID and Attach Time of Day

A new timer, accurate to 3 seconds, has been added to record the time that cows are identified and attached in each milking. These timers are intended for analysis of parlor flow and are shown as 5 digit numbers. To get the actual time of day, you must multiply the number by 3 to get the number of seconds since midnight, and then convert that value into hours and minutes. The new parameter codes are ITOD (203, ID time) and ATOD (204, attach time). These timers are only available for the most recent milking. In normal operation, the ITOD value should be slightly less than the ATOD value. Large differences would indicate a problem in the milking of that cow. For example if a cow has ITOD=10861 (just after 9:03 AM) and her ATOD=10865 (3x4=12 seconds later), the time difference is normal, but a difference of more than 30 (90 seconds) would indicate a long delay, and a difference of more than 100 (5 minutes) would indicate a problem. Note that this feature was designed specifically for use by the Dairy-Comp 305 software.

# Appendix PS

## Hospital Lot

If you move your hospital cows into a special facility for treatment and milking, and don't want them to show up on the end of milking report as un milked cows, you can define a hospital lot with the command `15*31*(lot)#`. Any cow that is in the specified hospital lot will not be listed in the end of milking report.

## Expected Production

The command `15*24*1#` can be used to change the calculation of the averages from a simple average to an expected production value that takes the stage of lactation into account. This method will give much better values for deviation, especially during the first 60 days of lactation, when cows should be increasing each day, and the last two thirds of the lactation when the cows should be decreasing each day. For example, if a cow is producing 60 pounds per day at 35 days in milk and has been increasing 5 pounds per day, her average for the last 7 days would be 45 pounds per day, but her expected production would be 65 pounds per day. She could be down 20 pounds from what she should be giving and still have no apparent deviation with the standard average. In a similar fashion, a cow at 200 days in milk giving 60 pounds per day, and dropping 2 pounds per day, would have an average of 66 pounds per day, and an expected production of 58 pounds per day. If this cow produced exactly what would be expected, she would appear to have a deviation of 8 pounds with the standard average.

This value defaults to `15*24*1#`, which is turned on. To turn this feature off and use the standard average, use the command `15*24*0#`. Note that the calculations are made once per day, after the last milking of the day. If you change the setting, the changes will not have any immediate effect on any reports.

## Conductivity

The bulk milk conductivity is measured and stored. The new parameters CND1 (191), CND2 (192), and CND3 (193) are the readings for the most recent milking 1, 2, and 3, respectively. The new parameter CND (190) is the running average conductivity for the readings prior to those stored in the cow record. Increased conductivity, compared to the average, may be an indicator of health problems, especially when

*Conductivity values from the Perfection meters are reported in standard units of milliSiemens/cm. The values can range from 4.0 (very low conductivity) to 9.9 (very high conductivity). Because the meter limits the range of the values to 4.0 to 9.9, pure water will register as 4.0 and vinegar, which is highly conductive, will register as 9.9. Cows that have not been milked will have conductivity values of 0.*

```

=====
Example Farm
MLKG NO. IS 2
19 SEP 97
3:24 PM
-----

```

```

-----
ProVantage Prime
COND/DEV REPORT
=====

```

N	L	D	C	D	C	D	C	C
U	O	E	N	E	N	E	N	N
M	T	V	D	V	D	V	D	D
B		1	1	2	2	3	3	
91	2	-6.2	7.7	-4.3	9.9	-9.0	9.7	8.9
60	4	-9.0	8.5	-6.1	9.8	-3.2	7.1	6.5
123	3	-3.8	9.1	-9.4	9.6	-3.9	9.1	8.0

accompanied by a decrease in production. Note, however, that milk conductivity is affected by many factors not related to health problems. Conductivity is useful as a screening tool for detection of clinical mastitis, but is not useful in detecting sub-clinical infections. A new Conductivity/Deviation report, 18\*190#, has been added. Only cows with deviations above the Deviation Threshold (15\*17\*[0-255]#) will appear in the report. Cows with significant deviations and increases in conductivity should be tested for mastitis.

### Date of Last Disk Write

The command 15\*63# will now display the date of the last successful disk write, in the international format day:month:year (for example, 26: 8:97 would be the 26th of August, 1997). If you read data from a disk, this command will display the date that disk was written, until the system performs another successful disk write.

### Odd Lot Detection

The selection code ODDL (code 887), will return a value of 1 if the cow's lot number is odd, or 0 if her lot number is even. If you alternate odd and even lots when you are milking, this code can be used with a sort gate, and properly designed exit lanes, to separate cows into lots as they exit the parlor. This parameter allows you to separate two milking strings of cows where the two lots may be mixed during the changeover from one lot to the next. Use this when maximum utilization of the parlor is needed. At the end of a milking string simply fill the remaining empty stalls with cows from the next string. The sort gates on the exit lane will separate the cows into odd and even lots. Caution: all of the cows from a previous odd or even lot must be moved out of the sort pen prior to starting a new lot.

```

=====
Example Farm
MLKG NO. IS 1
9 SEP 97
11:24 AM
-----

```

```

-----
ProVantage Prime
WRONG LOT REPORT
=====

```

N	L	T	S	D	
U	O	O	T	/	
M	T	D	A	M	
B			T		
22	3	0836	----	L----	12
1183	4	0924	----	L----	9

### Wrong Lot Detection

When a string of cows contains only 1 or 2 cows in any given lot, those cows are assumed to be milked with the wrong lot, and the L flag will be set in the STAT flag for that milking. The selection code LOT\* (code 884) can be used to select those cows for a report, or to activate a sort gate to catch those cows as they exit the parlor. The new report 18\*884# will provide a list of the cows identified as being in the wrong lot at the most recent milking. Note that if the milking string only has 1 or 2 cows, this error flag will not be set. When a cow is identified as

# Appendix PS

being in the wrong lot, she will be printed as an error message on the milk report. First the report will list the current lot (the lot with the most cows in that string), followed by the record for that cow with her original lot number and an 'L' error code. The lot can be changed automatically to the current lot by entering the system command 15\*130\*1#. When this system variable is set to 1, the cow's lot number will be changed to the current lot after the milk report error line is printed. The 'L' flag will still be set in the cow record, but the cow record will now have the new lot number.

## ID Tag Printout With Feeder Control

If you attach a feeder control to the ProVantage Network Controller, you can use the command 8\*40\*8# to display the cow number associated with a tag. This command is designed to be used to check tags to verify that they work, to see if they are already assigned to a cow, and to identify the tag's number so it can be written on the tag. If used with the Standard software, you do not need the Feeding option installed, but with Prime software you will need to install the Feeding option to use this feature.

## Duplicate Cow Detection and Report

Cows that show up as duplicates frequently may be problem cows, or they may have a tag number that is being generated by another cow's tag. Two new codes and a new report have been added to help identify these cows. Parameter DUPL (code 886) will be a 1 if the cow was a duplicate at the last milking. This parameter can be used to select cows for reports, or to activate a sort gate. Parameter #DUP (code 202) indicates how many times the cow has been a duplicate over the last 5 (Standard) or 7 (Prime) days. The report 18\*202# lists those cows that were duplicates at the last milking along with the counter. We suggest that cows showing up as duplicates have their ID tags changed to see if the problem clears up. If the problem persists, the cow in question may not like entering the parlor. She gets close enough to be identified then backs out, and eventually enters near the end of the string, so that she appears to have been milked twice.

### *Wrong Lot indication:*

```
Current Lot= 3
2L 265 0 6,4 27.3 14
```

### **Note:**

*Wrong lot detection is not possible on Rotary parlors.*

```
=====
Example Farm
MLKG NO. IS 1
  9 SEP 97
 11:34 AM
-----
ProVantage Prime
DUPLICATE REPORT
=====
  N   L   C   #
  U   O   I   D
  M   T   D   U
  B           N   P
-----
6858  3   32832  4
6504  4   29147  3
2088  8    8355  0
```

```

=====
Example Farm
MLKG NO. IS 1
  9 SEP 97
 11:14 AM
-----
ProVantage Prime
NOT MILKED REPORT
=====
N   L   H   D   A   #   #
U   O   O   I   V   N   N
M   T   L   M   G   M   R
B           D           K   D
-----
9970 31  0 337 14 14 1
9966 31  0 337 22 13 1
7738  9  0  7  22  7  6
6466  2  0 316 97  4  4

```

```

=====
Example Farm
MLKG NO. IS 1
  9 SEP 97
 11:14 AM
-----
ProVantage Prime
NOT READ REPORT
=====
C       N       L   H   #
I       U       O   O   N
D       M       T   L   R
N       B           D   D
-----
23544  626  6  0  0
22951  636  8  0  1
24131  686  8  0  0

```

## Unmilked Cow Counter

The new parameter #NMK (code 200) indicates how many times the cow was not milked over the last 5 (Standard) or 7 (Prime) days. The new NOT MILKED report (18\*200#) lists those cows that were not milked in the most recent milking, along with this counter. Cows with both high numbers for #NMK and high not read counts (#NRD>2) should have their ID tag changed.

## Unread Cow Counter

The new parameter #NRD (code 201) indicates how many times the cow was not identified over the last 5 (Standard) or 7 (Prime) days. This counter has been added to the Not Read report, 18\*3#, which lists those cows whose tags were not read in the most recent milking.

## Manual Detach Indicator

The new parameter code MANL (code 883) will be a 1 if the cow was manually detached at the most recent milking. This flag may be used by herd management software for parlor monitoring. This feature only works with meters with version 5.12 or newer software. In general, if detachers are being manually detached frequently, or more frequently on one milking shift than on others, a review of milking procedures might be needed. A user defined report can be set up to include this parameter so you can spot-check your milking routine. You can also monitor the number of detachers in the Meter Diagnostic report (8\*25#) after each milking. To automatically get the report after each milking, refer to the End of Milking macros described earlier in this manual.

## Milk Weights Less Than 3.5 Pounds Stored

Milk weights that are less than 3.5 pounds (1.5 liters) can now be recorded in the cow record.

## Milk Weights Above 100 Pounds

Milk weights up to 169 pounds (or 169 liters) at a single milking can now be stored in the cow record. Note that the printed milk weights have been increased by 1 digit to allow for the larger numbers. This may affect herd management software that imports data from the Pro Vantage Network Controller.

# Appendix PS

## Parlor Entry/Exit Order Printout

The command 15\*40\*1# enables the Parlor Entry/Exit Order report. This report will be printed each time the Entrance gate closes, and shows the ID tag numbers and cows assigned to each stall in the parlor ID zone. When the Exit gate/reel is opened, the report will also be printed, to show the final order assigned by the ID system prior to any change made by the Smart ID software. The Exit report looks just like the Entrance report, except for the addition of the characters “>>” after the ID Zone number in the header of the report.

*Note:*

*The Parlor Entry/Exit report may be run on Herd Test Day to help reconcile the order of the cows milked with the milk samples.*

It is important to note that the entrance gate can be closed and reopened without affecting the ID assignment. The parlor entrance report will be reprinted each time the entrance gate is closed. The ID table is reset only when the Exit gate/reel is opened. The proper function of the exit switch is imperative for Smart ID software to work properly.

## Simplified Meter CIP Setup

The Perfection meter can be set to reduce the number of actions required by the operators at the end of the milking to prepare for washing. Enter the global command 1\*1008\*20# at a detacher to set the detacher to Manual and Attach whenever the CIP command is entered. When entered at a detacher, the End-of-Milking command (15\*1#) will automatically send the CIP command before the EOM command is sent. This means that the milkers only need to attach the jetter cups and enter the EOM command after the milking. If you do not want the milkers to end the milking in the parlor, they can attach the jetter cups and enter the global command 8\*1001\*1# to put the meters into the wash mode.

When washing is complete, and prior to the start of the next milking, the meters can be removed from wash mode by entering the global command 8\*1001\*2# at a detacher. This will take all meters out of CIP mode and detach them.

## Meter Diagnostic Report

The new Meter Diagnostic report, 8\*25#, provides the number of cows milked, the ratio of Production over Expected (P/E), average production, average expected value, average connect time, average conductivity, and number of manual detaches for each meter for the most recent milking. You can limit the report to only problem meters by adding a percent threshold in the form 8\*25\*(% threshold)#. For example, if you entered 8\*25\*25#, only those meters that have the P/E value more than 25% away from 100 will be printed, along with those meters that have 0 cows.

### Example Meter Diagnostic Report

D/M	Cows	P/E	Prod	Exp	Time	Cond	Manl
10	30	101	1252	1240	6	4.8	1
11	30	99	1321	1334	6	4.5	1
12	30	113	1331	1178	7	5.6	0
13	28	75	969	1292	12	4.7	15
14	30	100	1245	1245	7	5.1	1
15	26	99	1238	1250	6	4.9	1

Analysis: meters 10, 11, and 14 all have normal ratios of Production to Expected (P/E), at about 100, with normal average attach times of 6 minutes and average conductivity of 4.5 to 5.1, plus they all have the same number of cows (30). Meter 15 has a low number of cows (26), but this is the last meter in the parlor and may just have fewer cows because of short strings. Meter 12 has higher than expected values for the ratio P/E and for conductivity. The milking unit attached to this meter may have a plugged vent hole, the meter outlet may be loose, or an incorrect system adjust factor, which would give the higher production. The higher than normal conductivity is most likely caused by an improperly cleaned outlet. Meter 13 has a low P/E ratio and a high average connect time, plus it was manually detached an unusually high number of times. The low ratio could be caused by a leaky float, a bad cable connection, a leaky sampler plug, or other problems. The high attach time could be caused by the milkers putting the control in manual and forgetting to check the cow, or a faulty meter. The unusually high number of manual detaches indicates that the milkers are having a problem at that stall location. Any of the milking components associated with that stall position could be contributing to the problem. Carefully review the pulsator's function and solenoid action for the detacher. Look for leaky or pinched lines (air and/or vacuum). Check for loose or corroded electrical connections.

# Appendix PS

## RPRO Code For Bulls Added

The reserved RPRO Code 11, which shows up on most reports as a 'B' can now be used to indicate that an animal is a Bull. The bulls will not be included in summary calculations, and the Smart ID software will not assign milk weights to bulls. Bulls must be assigned a Cow number and an ID tag number to be properly accounted for in the milking string by the ProVantage Network Controller. To mark an animal as a bull, enter the command: 77\*(cow number)\*11#.

## Increased User Defined Reports

The number of User Defined Reports has been increased from 9 to 29. The new reports are accessed with the same command system that was used in the original reports. Two existing commands were changed to allow the extra reports to be used:

- The command to mark a specific cow on a scatter graph, 15\*911\*(cow number)#, has been changed to 15\*811\*(cow number)#. Note that only cow numbers up to 9999 can be marked.
- The command to read a data disk, 15\*9173#, has been changed to 15\*9173\*9173#. This change also makes it less likely that a user will enter the command by mistake and erase all of the data.

## Rotary Parlor Feeding

Feeding in a Rotary Parlor is now supported. As the cows enter the rotary parlor, they approach a specially designed ID antenna that is attached to a standard ID control. When the tag number is read and sent to the ProVantage Network Controller, the software determines the correct ration from the daily ration, the milking number, and the amount eaten so far today. This portion is transmitted to a feeder control which activates high speed feed augers (up to four feeds can be dispensed). The feed is dispensed into the feed bowl of the stall at the entrance. Only one feed control and auger system are required for the entire parlor. All feed must be delivered to the feed bowl in about 5 seconds, so there is no checking done to verify that the cow eats all of the delivered feed. To enable this feature, enter the command 15\*700\*4#. This system is compatible with external feeders (for instance, in a calf housing area or the dry pen), but the ProVantage Network Controller must have the clock set so that midnight occurs just before the first milking of the day. This is to ensure that cows have access to their full daily ration for up to three milkings per day.

**Note:**

*When Rotary parlor logic is enabled, the Smart ID and Wrong Lot detection logic are automatically disabled.*

## New Diagnostic Reports Command

When Bou-Matic staff needs to diagnose problems with a system, several standard diagnostic reports are normally used. To simplify this process, the command 8\*5 has been added.

The command 8\*5\*1# turns on the following diagnostic reports:

8*1*69#	Direct Tag read
15*40*1#	Parlor Entry printout
15*58*0#	Full milk report
15*52*2#	Transparent print on
15*56*0#	Page Mode off

The command 8\*5\*0# sets the following diagnostic conditions:

8*4#	Direct Tag read off
15*40*0#	Parlor Entry printout off
15*58*1#	Full milk report off
15*52*2#	Transparent print on
15*56*1#	Page Mode on

## Accidental Start/End of Milking

Occasionally during the parlor CIP wash cycle between milkings, an operator may take a meter out of CIP mode, then try to put it back into CIP mode by attaching and entering the 15\*1# command instead of the 8\*1\*1# command. The attach signals the start of a new milking to the ProVantage Network Controller, and the 15\*1# ends the milking, resulting in a skipped milking and missing data. To prevent this sequence of events from being a problem, the software now assumes that any milking with less than four cows was not a valid milking, and will automatically cancel the milking and reset the milking number when the 15\*1# command is entered.

## Revised Default Settings

Based on experience with the Perfection meter, the software will default to meter takeoff settings of 0.9 pounds per minute and 5 seconds (2\*9\*5#) instead of the original defaults of 0.

# Appendix PS

## **Deviation for the Current Milking**

The new cow parameter DEV0, code 125, is the calculated deviation for the current milking. This value is the difference between the expected production for this milking and the actual production, so the more a cow is below her expected production the higher the deviation value will be. This value will be reported in pounds/kilograms or percent, depending on the setting of 15\*45#. This value can be used to trigger a catch gate to catch cows as they leave the parlor.

## **Display Width Setting**

To maintain compatibility with older herd management software, a system parameter has been added to change the width of some of the cow parameters in reports. The 15\*18# parameter can be used to set the width of the cow number to either 5 (the default) or 4 (the compatibility setting). This also affects the display of milk weight values. This setting is needed for DairyBase, and may be required for other herd management software programs.

## **ID and Milking Responsibility List**

To insure optimum performance of a Bou-Matic ID system: the dealer that installs it, the dairyman that is using it to manage the herd and the milkers that milk the cows all have a responsibility to make sure that the ID system works.

The dealer should thoroughly check the performance of an ID system after it is installed, train the dairyman on how it works and do a routine analysis to make sure that it continues to work.

After the ID system is installed the dairyman will need to keep the data up to date in the ProVantage Network Controller. It may take a long time to enter all the data before you can use your new ID system, but once it has been entered a daily routine of 15 to 30 minutes will keep the cow data up to date.

The milker has only a few things to remember to insure that cows are milked and the correct milk weights are recorded in the ProVantage Network Controller. When the cows enter they should move to the front of the parlor, attach to all cows, if a gap occurs in the string enter 7\*# at the first detacher after the gap. And make sure all cows are detached before the reel rotates or the exit gate opens.

## **Dealer Responsibility**

Automation system analysis after installation:

- Use one power supply per ID control. *(Avoids overloading of the power supply and ID errors caused by low DC voltage.)*
- Adjust tag distance for 15 inches. *(Too much distance can make external electrical noise interfere with tag reading. Too little distance can cause tags to be missed.)*
- Check for a dead spot, for ID tag reading, in the middle of the antenna. *(Tags will not be read in a dead spot.)*
- The shield of the communication cable is taped to prevent ground loops. *(Ground loops can become electrically noisy, causing tags to be missed.)*
- Add shielding, a 2 foot by 6 foot metal sheet, on the outside of the ID antenna to stop ID tags from being read in an adjacent lane. *(Duplicate cows read can result without shielding. Inadvertant activation of a Sort Gate can also happen without shielding.)*

# Appendix PS

- The receiver bar graph should be at the bottom LED without a tag in the antenna. Electrical noise or broken antenna wires will cause the LED's to flash at 1/2 to full scale on the bargraph, resulting in missed tags.
- Check the voltages for these: Power supply, Communication, and Milk meter (*Usually, low voltage readings at any one of these locations will cause lost milk weights and/or missed ID tags.*)
- All Perfection meters should have the same parameters. (*For consistant detacher performance.*)
- Use of 10 and 12 gauge wire for power supply wiring to the Perfection meters. (*This prevents excessive loss of DC voltage. Too small of a wire size results in intermittent detacher function and lost milk weights.*)
- Air supply pressure should be 70 PSI, inadequate air pressure can cause the gate switches to malfunction. (*Malfunctioning gate switches mean that ID will not work, or works intermittently. Reports will show many duplicate cows, many cows not read, or many cows not milked.*)
- Software version is the same for all meters, use 8\*1007# to verify. (*Mixing PROM versions could cause complete loss of milking data for cows at those detachers with the wrong PROM's. Can be seen on the meter diagnostic report as 0 cows milked. Many cows Not Milked at the End of Milking report.*)

## Replacement of Perfection control:

- Verify the EPROM is the correct type and the latest revision.
- Set the correct address. (*If incorrect, the meter diagnostic report will show 0 cows milked for the proper meter/detacher location.*)
- Set the parameters to match the other Perfection controls.

## Routine analysis checks for:

- Tag distance should be 15 inches.
- Noise on the bar graph with Opti-Flo or any other variable speed motor control running, should not be above the 3rd LED. (*If above, ID tags will not be read.*)

- Reports from the ProVantage Network Controller be examined for:
  - Unidentified ( 0U ) cows
  - Tags not read
  - Cows unmilked
  - Duplicate cows
- If the above information contains more than 1 per cent of the herd it could indicate one or more of the following problems:
  - Tags not mounted correctly.
  - Exit reel or entrance gate was not closed, or intermittent operation of the gate switch is occurring during milking.
  - Accidental exit of the cows. (*Causes duplicate cows and cows not milked.*)
  - The milking unit still attached to the cow when the cows exit. (*Causes a cow's production to be lost, resulting in an unmilked cow.*)

The dealer should review Bou-Matic automation procedures with the dairy operator and milkers.

## Dairy Owner or Manager Responsibility

- When using the ProVantage Network Controller with a herd management program, the herd management program should be used for all data entry.
- Enter all changes to the cows everyday.
- Alternate back-up system disks, weekly for small dairies ( under 200 cows) and daily for large dairies ( over 200 cows). *(You must protect your milking data from equipment failure and be able to recover it.)*
- Place an ID tag on the cow about 7 to 14 days ahead of calving.
- All milking cows must have ID tags. *(No milk weights will be assigned to cows without tags.)*
- All bulls that enter the parlor must have an ID tag and be assigned a “cow number”. *(This is the only way that the ID system and Network Controller can properly account for every milking position in the parlor.)*
- Assign a “Repro” code of 11 to bulls that can enter the parlor. *(To keep from inadvertently assigning a milk weight from Smart ID.)*
- Dry cows should have the “Repro” status changed to 9 as soon as possible after the cow has been dried up to remove her from the unmilked list. *(She will show up as Unmilked or Unread if not.)*
- If a cow has lost a tag it must be replaced as soon as possible. *(Cows without tags show up as Not Read.)*
- Train milkers for proper milking procedure for optimum milking and ID performance. *(Results in accurate milk weights.)*
- Look for tags not read by doing report 18\*3# after the milking and replace tags that show up with a number of 3 or higher. If a large number of cows have tags not read the ID system needs to be checked by the dealer.
- Look for cows not milked by doing report 18\*200# after the milking. *(A high number of cows Not Milked indicates that milkers had some problems during milking.)*
- Do the report 18\*202# to determine which cows are duplicate. *(If the same cows show up repeatedly, change their tags to eliminate bad tags. These cows may also not like entering the parlor due to rough handling, or they are always near the end of the string to be milked.)*
- If using 15\*31\*(lot number)# for cows in a hospital lot, insure that the lot number is changed as soon as possible when cows enter and exit that hospital lot. *(Hospital string cows will not show up on the end of milking report as unmilked.)*

## Appendix PS

- Every week do the meter diagnostic report, 8\*25\*(0-100)#, after a milking is completed. Using a value of 10% will give a short list of meters that have their ratio of under 90 or over 110 for the actual to expected milk production ratio. Check proper meter operation for each meter on the report by doing the 8\*100#, 8\*201#, checking the float, dump solenoid and the diaphragm.

# Appendix PS

## Milker Responsibility

Before milking:

- Remove the milking units from the jettors and attach the rope/chain.
- Enter 8\*1001\*2# at the first detacher to place all detachers in the detached position.
- Close entrance gate if not closed.
- Rotate reel for parallel parlors or open and close the exit gate for herringbone parlors. *(This sets up the ProVantage Network Controller so that it is ready for the first string of cows.)*

During Milking:

- Open the entrance gate and make sure that cows move to the front of the parlor.
- Always start attaching to the cows at the front of the parlor. *(This ensures proper cow numbers being sent to the detachers, especially if a cow shortloads. Milkers enter 7\*# to tell the ProVantage Network Controller to skip the empty stalls.)*
- Attach to all cows. *(Cows not attached will show up as Unmilked.)*
- If a gap occurs in the milking string, do not attach to any cows after the gap until the following procedure has been done:
  - Attach the milking unit to the cow just before the gap. Then at the first detacher after the gap enter 7\*# and then attach the milking unit. Continue attaching to the remaining cows.
- If an ID tag is not read as the cows enter the parlor the milker could enter the cow number by entering 7\*(cow number)#. *(At the detacher she is at.)*
- If there is a problem when the cows are entering the parlor and they get into the exit lane, close the entrance gate to prevent any more cows from entering the parlor and exit all cows from the parlor. Put these cows back into the holding area and close the entrance gate or rotate the reel. Open the entrance gate if it is not open to let a new string of cows in. *(This procedure lets you get past the problem and accurately resume your milking procedure.)*
- Close the entrance gate before attaching to the last cow in the string. “Smart ID” checks for a tag being read and it will not include the last cow in that string if the ID tag numbers match.
- All detachers should be in the detached position before the reel rotates or the exit gate opens. *(If not, Smart ID cannot correct any errors.)*

## End of milking:

- Remove the milking units from the rope/chain and attach to the jettors.
- Enter 15\*1# at the first detacher to end the milking in the ProVantage Controller and to place all detachers in the Attached position, Manual mode and CIP. *(This end of milking procedure is automatic. The detachers can be reprogrammed to alter the procedure if desired.)*

## Parameter Codes & Abbreviations

A parameter code is a number within a command, which specifies the function that the ProVantage Network Controller will perform—that of setting system functions; entering, changing, recalling, or sorting data; and printing reports. A unique code is assigned for each parameter so that it may be distinguished from other codes.

Two tables are provided in this appendix to familiarize you with parameter descriptions used throughout instructions in the manual, name abbreviations used primarily in report column headings, and codes used in commands. Table A-1 presents the information in alphabetical abbreviation order and includes a list of reports where each abbreviation can be found along with the chapter that explains each report. Table A-2 presents the information in numerical code order, but does not include report names and chapter references.

### Parameter Codes & Abbreviations, Quick Reference Guide

Code	Abbr	Code	Abbr	Code	Abbr	Code	Abbr	Code	Abbr
1	MILK	48	<u>TRGC</u>	95	FD\$	170	HS a	802	USC2
2	TIME	49	<u>TRGD</u>	96	<u>I-F\$</u>	171	HSHa	803	USC3
3	AVTM	51	<u>DUMP</u>	97	IN\$	172	HS b	804	USC4
4	TOD	52	LACT	98	<u>IOFC</u>	173	HSHb	805	USC5
5	PROD	53	<u>A305</u>	99	MPA%	174	HS c	806	USC6
6	D/M	54	<u>PEAK</u>	101	PRD1	175	HSHc	807	USC7
7	AVG	55	<u>PDIM</u>	102	PRD2	190	CND	808	USC8
8	STAT	56	DIM	103	PRD3	191	CND1	809	USC9
9	READ	57	<u>HELD</u>	104	PRD4	192	CND2	883	MANL
11	AVG1	58	<u>MAST</u>	105	PRD5	193	CND3	884	LOT
12	AVG2	59	<u>DDRY</u>	106	PRD6	200	#NMK	885	SORT
13	AVG3	60	<u>DHET</u>	107	<u>PRD7</u>	201	#NRD	886	DUPL
14	MLK1	61	MCTR	108	ST 1	202	#DUP	887	ODDL
15	MLK2	62	<u>CLVI</u>	109	ST 2	203	ITOD	888	NMLK
16	MLK3	71	<u>BRD#</u>	110	ST 3	204	ATOD	889	HS**
19	NUMB	72	<u>DBRD</u>	111	TOD1	241	<u>%FD1</u>	890	DRY*
20	HOLD	74	<u>SCOR</u>	112	TOD2	242	<u>%FD2</u>	891	NRED
21	ATTN	75	<u>BRD</u>	113	TOD3	243	<u>%FD3</u>	892	PREG
22	CIDN	76	<u>SIRE</u>	114	TIM1	244	<u>%FD4</u>	893	<u>RTB</u>
24	PAVG	77	RPRO	115	TIM2	245	<u>%FD5</u>	894	RTHC
25	DEV	78	HS#	116	TIM3	246	<u>%FD6</u>	895	<u>PCHK</u>
26	DEV1	79	DWGT	117	ATM1	247	<u>%FD7</u>	896	<u>RTDR</u>
27	DEV2	80	WGT	118	ATM2	249	UFD1	897	RCLF
28	DEV3	81	USR1	119	ATM3	250	<u>VST0</u>	898	NDRY
29	RATE	82	USR2	125	DEV0	251	<u>VST1</u>	899	DEV>
30	LOT	83	USR3	140	<u>TRTN</u>	252	<u>VST2</u>	990	DAY0
40	<u>%FED</u>	84	USR4	141	<u>FD A</u>	253	<u>VST3</u>	991	DAY1
41	<u>RTNA</u>	85	USR5	142	<u>FD B</u>	254	<u>VST4</u>	992	DAY2
42	<u>RTNB</u>	86	USR6	143	<u>FD C</u>	255	<u>VST5</u>	993	DAY3
43	<u>RTNC</u>	87	USR7	144	<u>FD D</u>	256	<u>VST6</u>	994	DAY4
44	<u>RTND</u>	88	LCNO	148	<u>VSTS</u>	257	<u>VST7</u>	995	DAY5
45	<u>TRG</u>	89	USR8	149	<u>%UFD</u>	800	USC0	996	DAY6
46	<u>TRGA</u>	93	<u>AVG\$</u>	150	<u>ZONE</u>	801	USC1	997	DAY7
47	<u>TRGB</u>	94	<u>BNK\$</u>					998	DAY

Note: Underlined parameters are only available in Prime software.

# Appendix PC

**Table A-1.** Column Heading Abbreviations, Codes & Reports Where Used

<b>Abbr Code</b>	<b>Description</b>	<b>Report</b>	<b>Source</b>
A305 .....53 ...	Actual 305 day lactation total .....		Chapter 8
		Cow Record Report—Chapter 4	
ATM1 ... 117 ...	Average Time for Milking 1 .....		Chapter 8
		Cow Record Report—Chapter 4	
		Day Number Milk Report—Chapter 8	
ATM2... 118 ...	Average Time for Milking 2 .....		Chapter 8
		Cow Record Report—Chapter 4	
		Day Number Milk Report—Chapter 8	
ATM3... 119 ...	Average Time for Milking 3 .....		Chapter 8
		Cow Record Report—Chapter 4	
		Day Number Milk Report—Chapter 8	
ATOD ..204 ...	Attach Time of Day .....		Appx PS
ATTN .....21 ...	Attention Code .....		Chapter 8
		Cow Record Report—Chapter 4	
		Open Report—Chapter 7	
		Reproductive Summary Report—Chapter 7	
		Attention, Average Reports—Chapter 8	
AVG\$ .....93 ...	Average Daily Profit .....		Chapter 4
		Cow Record Report—Chapter 4	
AVG ..... 7 ...	Overall Average Milk Production .....		Chapters 4 & 8
		Cow Record Report—Chapter 4	
		Feed Ration, Ration Target Reports—Chapter 5	
		Reproductive Summary Report—Chapter 7	
		Production, Average, Lot, Weekly Production Reports —Chapter 8	
AVG1 ..... 11 ...	Average milk for milking 1 .....		Chapter 8
		Cow Record Report—Chapter 4	
		Day Number Production, Day Number Milk Reports—Chapter 8	
AVG2 ..... 12 ...	Average milk for milking 2 .....		Chapter 8
		Cow Record Report—Chapter 4	
		Day Number Production, Day Number Milk Reports—Chapter 8	
AVG3 ..... 13 ...	Average milk for milking 3 .....		Chapter 8
		Cow Record Report—Chapter 4	
		Day Number Production, Day Number Milk Reports—Chapter 8	
AVTM ..... 3 ...	Overall Average MilkingTime .....		Chapter 8
		Cow Record Report—Chapter 4	
		Lot Report—Chapter 8	
BNK\$ .....94 ...	Daily Bunk Feed Cost .....		Chapter 4
		Cow Record, Income/Cost Report—Chapter 4	
BRD ..... 75 ...	Breed Code .....		Chapter 8
		Cow Record Report—Chapter 4	
BRD# ..... 71 ...	Number of times Bred .....		Chapter 7
		Cow Record Report—Chapter 4	
CIDN .....22 ...	Cow ID Tag Number .....		Chapters 5 & 8
		Cow Record Report—Chapter 4	
		Cow ID Number, Read, Not Read Reports—Chapter 6	
CLVI .....62 ...	Calving interval (DIM plus DDRY) .....		Chapter 7

# Appendix PC

CND .... 190 ... Average Conductivity .....	Appx PS
CND1 .. 191 ... Conductivity from Milking 1 .....	Appx PS
CND2 .. 192 ... Conductivity from Milking 2 .....	Appx PS
CND3 .. 193 ... Conductivity from Milking 3 .....	Appx PS
DAY ..... 998 ... Day number used for reports .....	Chapter 4
DAY0 ... 990 ... Set Day Number to 0 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DAY1 ... 991 ... Set Day Number to 1 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DAY2 ... 992 ... Set Day Number to 2 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DAY3 ... 993 ... Set Day Number to 3 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DAY4 ... 994 ... Set Day Number to 4 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DAY5 ... 995 ... Set Day Number to 5 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DAY6 ... 996 ... Set Day Number to 6 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DAY7 ... 997 ... Set Day Number to 7 for reports .....	Chapter 4 User-Defined Reports—Chapter 4
DBRD .... 72 ... Days since Bred .....	Chapter 7 Cow Record Report—Chapter 4 Feed Ration, Ration Target Reports—Chapter 5 Pregnant Cow, Open Reports—Chapter 7 Reproductive Summary Report—Chapter 7
DDRY .... 59 ... Days since dry-off .....	Chapter 7
DEV ..... 25 ... Deviation for milkings completed .....	Chapter 8 Cow Record Report—Chapter 4 Attention, Deviation Reports—Chapter 8
DEV0 ... 125 ... Deviation for the current milking .....	Appendix PS
DEV1 ..... 26 ... Deviation for milking 1 .....	Chapter 8 Cow Record Report—Chapter 4 Deviation Report—Chapter 8
DEV2 ..... 27 ... Deviation for milking 2 .....	Chapter 8 Cow Record Report—Chapter 4 Deviation Report—Chapter 8
DEV3 ..... 28 ... Deviation for milking 3 .....	Chapter 8 Cow Record Report—Chapter 4 Deviation Report—Chapter 8
DEV> ... 899 ... =1 if DEV is greater than threshold for Dev. Rpt	Chapter 8
DHET .... 60 ... Days since in Heat .....	Chapter 7 Cow Record Report—Chapter 4 “Cows to HTCK” in Reproductive Summary Report—Chapter 7
D/M ..... 6 ... Detacher/Meter address from last milking .....	Chapter 8 Read Report—Chapter 6
DIM ..... 56 ... Days In Milk (days of current lactation) .....	Chapter 8 Cow Record, Income/Cost Reports—Chapter 4 Feed Ration Report—Chapter 5 Feed Exception, Ration Target Reports—Chapter 5

# Appendix PC

DIM (continued)	Open Report—Chapter 7
	Reproductive Summary Report—Chapter 7
	Number, Lot, Day Number Milk, Weekly Production Reports—Chapter 8
DRY .... 890 ... =1 if cow is Dry (RPRO from 7 to 9) .....	Chapter 4
DUMP .... 51 ... Total milk Dumped (held) this lactation .....	Chapter 8
	Cow Record Report—Chapter 4
DUPL ... 886 ... =1 if cow was milked twice .....	Appx PS
#DUP ... 202 ... number of times a cow was milked twice .....	Appx PS
DWGT ... 79 ... Days since last automatic weight .....	Chapter 5
FD \$ ..... 95 ... Total Feed Cost Since Dry Date .....	Chapter 4
	Cow Record, Income/Cost Reports—Chapter 4
FD A .... 141 ... Amount of feed A fed so far today .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration Report—Chapter 5
FD B .... 142 ... Amount of feed B fed so far today .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration Report—Chapter 5
FD C .... 143 ... Amount of feed C fed so far today .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration Report—Chapter 5
FD D .... 144 ... Amount of feed D fed so far today .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration Report—Chapter 5
HELD .... 57 ... Total number of milkings Held this lactation .....	Chapter 8
	Cow Record Report—Chapter 4
HOLD .... 20 ... Number of milkings to Hold milk .....	Chapter 8
	Cow Record Report—Chapter 4
	Not Read Report—Chapter 6
	Milk, Attention Reports—Chapter 8
HS# ..... 78 ... Heat-Seeker Tag Number .....	Chapter 7
HS a ... 170 ... Heat-Seeker Tag Status at last reading .....	Chapter 7
HS b ... 172 ... Heat-Seeker Tag Status at previous reading ....	Chapter 7
HS c ... 174 ... Heat-Seeker Tag Status at next prior reading ...	Chapter 7
HSHa ... 171 ... Hours since Heat-Seeker Tag last read .....	Chapter 7
HSHb ... 173 ... Heat-Seeker: Hours between a and b readings	Chapter 7
HSHc ... 175 ... Heat-Seeker: Hours between b and c readings.	Chapter 7
HS** .... 889 ... = 1 if cow was active during last three readings	Chapter 7
IN \$ ..... 97 ... Total Income from milk since freshening ...	Chapters 4 & 8
	Cow Record, Income/Cost Report—Chapter 4
IOFC .... 98 ... Income Over Feed Cost .....	Chapters 4 & 5
	Cow Record, Income/Cost Report—Chapter 4
I-F\$ ..... 96 ... Profit, Income Minus Feed Cost .....	Chapters 4 & 5
	Cow Record—Chapter 4
ITOD ... 203 ... ID Time of Day .....	Appx PS

# Appendix PC

LACT	.....52	... Lactation total milk .....	Chapter 8
			Cow Record Report—Chapter 4
			Pregnant Cow, Sire Reports—Chapter 7
			Number Report—Chapter 8
LCNO	....88	... Lactation Number .....	Chapter 7
			Cow Record Report—Chapter 4
			Reproductive Summary Report—Chapter 7
			Number Report—Chapter 8
LOT	.....30	... Lot Number .....	Chapters 5 & 8
			Cow Record Report—Chapter 4
			Feed Ration, Feed Exception, Ration Target Reports—Chapter 5
			Cow ID Number, Read, Not Read Reports—Chapter 6
			Pregnant Cow, Open, Sire Reports—Chapter 7
			Reproductive Summary Report—Chapter 7
Milk, Number, Production, Attention, Average, Deviation, Lot Reports			Chapter 8
			Daily Milk Number, Weekly Production Reports—Chapter 8
LOT*	....884	... Milked in Wrong Lot Number .....	Appx PS
MANL	..883	... =1 if cow was Manually detached .....	Appx PS
MAST	....58	... Four-digit Mastitis Code .....	Chapter 8
			Cow Record Report—Chapter 4
MCTR	....61	... Milking Counter, decrements after each milking	Chapter 5
MILK	.....1	... Milk weight produced at last milking .....	Chapter 8
			Milk Report—Chapter 8
MLK1	....14	... Milk weight for milking 1 .....	Chapter 8
			Cow Record Report—Chapter 4
			Day Number Production, Day Number Milk Reports—Chapter 8
MLK2	....15	... Milk weight for milking 2 .....	Chapter 8
			Cow Record Report—Chapter 4
			Day Number Production, Day Number Milk Reports—Chapter 8
MLK3	....16	... Milk weight for milking 3 .....	Chapter 8
			Cow Record Report—Chapter 4
			Day Number Production, Day Number Milk Reports—Chapter 8
MPA%	...99	... Milk Price Adjust factor (in percent) .....	Chapter 8
			Cow Record, Income/Cost Reports—Chapter 4
NDRY	..898	... =1 if cow is Not Dry (RPRO from 0 to 6) .....	Chapter 4
#NMK	..200	... Number of times cow was not milked .....	Appx PS
NMLK	..888	... =1 if cow was not milked .....	Appx PS
#NRD	..201	... Number of times cow was not read .....	Appx PS
NRED	..891	... =1 if ID tag not read at last milking .....	Chapter 4
NUMB	....19	... Cow Barn (Record) Number .....	Chapters 4 & 8
			Cow Record, Income/Cost Report—Chapter 4
			Feed Ration, Feed Exception, Ration Target Reports—Chapter 5
			Cow ID Number, Read, Not Read Reports—Chapter 6
			Pregnant Cow, Open, Sire, Reproductive Summary Reports—Chapter 7
Milk, Number, Production, Attention, Average, Deviation, Lot Reports			Chapter 8
			Day Number Production, Day Number Milk Reports—Chapter 8
			Weekly Production Report—Chapter 8
ODDL	..887	... =1 if cow's Lot number is Odd .....	Appx PS
PAVG	....24	... Average production for milkings completed .....	Chapter 8

# Appendix PC

	Deviation Report—Chapter 8
PCHK ..895 ... =1 if the cow is ready to Pregnancy Check .....	Chapter 4
PDIM .....55 ... DIM when peak production was noted .....	Chapter 8
	Cow Record Report—Chapter 4
PEAK.....54 ... The maximum daily production this lactation .....	Chapter 8
	Cow Record Report—Chapter 4
PRD1 ... 101 ... Total milk, Day 1 .....	Chapter 8
	Cow Record Report—Chapter 4
	Weekly Production Report —Chapter 8
PRD2 ... 102 ... Total milk, Day 2 .....	Chapter 8
	Cow Record Report—Chapter 4
	Weekly Production Report—Chapter 8
PRD3 ... 103 ... Total milk, Day 3 .....	Chapter 8
	Cow Record Report—Chapter 4
	Weekly Production Report—Chapter 8
PRD4 ... 104 ... Total milk, Day 4 .....	Chapter 8
	Cow Record Report—Chapter 4
	Weekly Production Report—Chapter 8
PRD5 ... 105 ... Total milk, Day 5 .....	Chapter 8
	Cow Record Report—Chapter 4
	Weekly Production Report—Chapter 8
PRD6 ... 106 ... Total milk, Day 6 .....	Chapter 8
	Cow Record Report—Chapter 4
	Weekly Production Report—Chapter 8
PRD7 ... 107 ... Total milk, Day 7 .....	Chapter 8
	Cow Record Report—Chapter 4
	Weekly Production Report—Chapter 8
PREG ..892 ... =1 if cow or heifer is Pregnant.....	Chapter 4
PROD ..... 5 ... Total milk production so far today .....	Chapter 8
	Cow Record Report—Chapter 4
	Production, Average Reports—Chapter 8
RATE .....29 ... Detach Flow Rate .....	Chapter 8
	Cow Record Report—Chapter 4
RCLF ... 897 ... =1 if cow is Ready to Calf .....	Chapter 4
READ ..... 9 ... Number of tag reads from last milking.....	Chapter 6
	Read Report—Chapter 6
RPRO ....77 ... Reproductive Status Code .....	Chapter 7
	Cow Record Report—Chapter 4
	Feed Ration, Feed Exception, Ration Target Reports—Chapter 5
	Cow ID Number Report—Chapter 6
	Open, Sire Reports—Chapter 7
	Reproductive Summary Report—Chapter 7
	Production, Attention, Deviation, Lot Reports—Chapter 8
	Day Number Production, Day Number Milk Reports—Chapter 8
	Weekly Production Reports—Chapter 8
	Bulls—Appx PS
RTB ..... 893 ... =1 if cow is Ready to Breed .....	Chapter 4
RTDR ..896 ... =1 if cow is Ready to Dry Off .....	Chapter 4
RTHC ..894 ... =1 if cow is Ready to Heat Check .....	Chapter 4

# Appendix PC

RTNA ....41 ... Daily ration of feed A .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration, Feed Exception, Ration Target Reports—Chapter 5
RTNB ....42 ... Daily ration of feed B .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration, Feed Exception, Ration Target Reports—Chapter 5
RTNC ....43 ... Daily ration of feed C .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration, Feed Exception, Ration Target Reports—Chapter 5
RTND ....44 ... Daily ration of feed D .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration, Feed Exception, Ration Target Report—Chapter 5
SCOR ....74 ... Body Condition Score .....	Chapter 7
	Cow Record Report—Chapter 4
SIRE .....76 ... Sire Code .....	Chapter 7
	Cow Record Report—Chapter 4
	Pregnant Cow, Sire Reports—Chapter 7
	Reproductive Summary Report—Chapter 7
SORT ..885 ... =1 if cow was sorted by catch gate .....	Appx PS
ST 1.....108 ... Problem Status Flags, Milking 1 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Production Report—Chapter 8
ST 2.....109 ... Problem Status Flags, Milking 2 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Production Report—Chapter 8
ST 3.....110 ... Problem Status Flags, Milking 3 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Production Report—Chapter 8
STAT ..... 8 ... Problem status flags from last milking .....	Chapter 8
	Read Report—Chapter 6
TIM1 ....114 ... Milking time at milking 1 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Milk Report—Chapter 8
TIM2 ....115 ... Milking time at milking 2 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Milk Report—Chapter 8
TIM3 ....116 ... Milking time at milking 3 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Milk Report—Chapter 8
TIME ..... 2 ... Milking time at last milking .....	Chapter 8
	Milk Report—Chapter 8
TOD..... 4 ... Time-Of-Day of last milking .....	Chapter 8
	Read Report—Chapter 6
TOD1 ...111 ... Time-Of-Day, Milking 1 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Production Report—Chapter 8
TOD2 ...112 ... Time-Of-Day, Milking 2 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Production Report—Chapter 8

# Appendix PC

TOD3 ... 113 ... Time-Of-Day, Milking 3 .....	Chapter 8
	Cow Record Report—Chapter 4
	Day Number Production Report—Chapter 8
TRG ..... 45 ... Target Days, Auto Feed Adjust .....	Chapter 5
	Cow Record Report—Chapter 4
	Ration Target Report—Chapter 5
TRGA .... 46 ... Target for feed A .....	Chapter 5
	Cow Record Report—Chapter 4
	Ration Target Report—Chapter 5
TRGB .... 47 ... Target for feed B .....	Chapter 5
	Cow Record Report—Chapter 4
	Ration Target Report—Chapter 5
TRGC .... 48 ... Target for feed C .....	Chapter 5
	Cow Record Report—Chapter 4
	Ration Target Report—Chapter 5
TRGD .... 49 ... Target for feed D .....	Chapter 5
	Cow Record Report—Chapter 4
	Ration Target Report—Chapter 5
TRTN ... 140 ... Total Ration (A+B+C+D) .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
UFD1 ... 249 ... Percent Unfed, Day 1 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
USC0 ... 800 ... User-Defined Selection Criteria #0 .....	Appx SC
USC1 ... 801 ... User-Defined Selection Criteria #1 .....	Appx SC
USC2 ... 802 ... User-Defined Selection Criteria #2 .....	Appx SC
USC3 ... 803 ... User-Defined Selection Criteria #3 .....	Appx SC
USC4 ... 804 ... User-Defined Selection Criteria #4 .....	Appx SC
USC5 ... 805 ... User-Defined Selection Criteria #5 .....	Appx SC
USC6 ... 806 ... User-Defined Selection Criteria #6 .....	Appx SC
USC7 ... 807 ... User-Defined Selection Criteria #7 .....	Appx SC
USC8 ... 808 ... User-Defined Selection Criteria #8 .....	Appx SC
USC9 ... 809 ... User-Defined Selection Criteria #9 .....	Appx SC
USR1 ..... 81 ... User-Defined Parameter #1 (0-255) .....	Chapter 4
	Cow Record, User-Defined Reports—Chapter 4
USR2 ..... 82 ... User-Defined Parameter #2 (0-255) .....	Chapter 4
	Cow Record, User-Defined Reports—Chapter 4
USR3 ..... 83 ... User-Defined Parameter #3 (0-255) .....	Chapter 4
	Cow Record, User-Defined Reports—Chapter 4
USR4 ..... 84 ... User-Defined Parameter #4 (0-255) .....	Chapter 4
	Cow Record, User-Defined Reports—Chapter 4
USR5 ..... 85 ... User-Defined Parameter #5 (0-255) .....	Chapter 4
	Cow Record, User-Defined Reports—Chapter 4
USR6 ..... 86 ... User-Defined Parameter #6 (0-65535) .....	Chapter 4
USR7 ..... 87 ... User-Defined Parameter #7 (0-65535) .....	Chapter 4
USR8 ..... 89 ... User-Defined Parameter #8 (0-999999) .....	Chapter 4

# Appendix PC

VSTS ... 148 ... Visits to feeder(s) on report day .....	Chapter 5
	Cow Record Report—Chapter 4
VST0 ... 250 ... Number of feeding visits, Day 0 .....	Chapter 5
VST1 ... 251 ... Number of feeding visits, Day 1 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
VST2 ... 252 ... Number of feeding visits, Day 2 .....	Chapter 5
VST3 ... 253 ... Number of feeding visits, Day 3 .....	Chapter 5
VST4 ... 254 ... Number of feeding visits, Day 4 .....	Chapter 5
VST5 ... 255 ... Number of feeding visits, Day 5 .....	Chapter 5
VST6 ... 256 ... Number of feeding visits, Day 6 .....	Chapter 5
VST7 ... 257 ... Number of feeding visits, Day 7 .....	Chapter 5
WGT ..... 80 ... Body Weight .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration, Ration Target Reports—Chapter 5
ZONE .. 150 ... Feed Zone .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration, Feed Exception, Ration Target Reports—Chapter 5
%FED .... 40 ... Percent Fed (of possible so far) .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Ration, Ration Target Reports—Chapter 5
%FD1 .. 241 ... Percent of ration fed, Day 1 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
%FD2 .. 242 ... Percent of ration fed, Day 2 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
%FD3 .. 243 ... Percent of ration fed, Day 3 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
%FD4 .. 244 ... Percent of ration fed, Day 4 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
%FD5 .. 245 ... Percent of ration fed, Day 5 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
%FD6 .. 246 ... Percent of ration fed, Day 6 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
%FD7 .. 247 ... Percent of ration fed, Day 7 .....	Chapter 5
	Cow Record Report—Chapter 4
	Feed Exception Report—Chapter 5
%UFD.. 149 ... Percent of feeding visits where amt fed = 0 .....	Chapter 5
	Cow Record Report—Chapter 4

# Appendix PC

**Table A-2.** ProVantage Network Controller Parameter Codes and Abbreviations

**Code Abbr Description** (see Reports and Sources in Table A-1)

1 ...	MILK...	Milk weight produced at last milking
2 ...	TIME ..	Milking time at last milking
3 ...	AVTM .	Overall average milking time
4 ...	TOD ...	Time-Of-Day of last milking
5 ...	PROD .	Total milk production so far today
6 ...	D/M ....	Detacher/Meter address from last milking
7 ...	AVG ...	Overall average milk production
8 ...	STAT ..	Problem status flags from last milking
9 ...	READ .	Number of tag reads from last milking
11 ...	AVG1 .	Average milk for milking 1
12 ...	AVG2 .	Average milk for milking 2
13 ...	AVG3 .	Average milk for milking 3
14 ...	MLK1 ..	Milk weight for milking 1
15 ...	MLK2 ..	Milk weight for milking 2
16 ...	MLK3 ..	Milk weight for milking 3
19 ...	NUMB	Cow Barn Number
20 ...	HOLD .	Number of milkings to hold milk
21 ...	ATTN .	Attention Code
22 ...	CIDN ..	Cow ID Tag Number
24 ...	PAVG .	Average production for milkings completed
25 ...	DEV ....	Deviation for milkings completed
26 ...	DEV1 ..	Deviation for milking 1
27 ...	DEV2 ..	Deviation for milking 2
28 ...	DEV3 ..	Deviation for milking 3
29 ...	RATE .	Detach Flow Rate
30 ...	LOT ....	Lot Number
40 ...	%FED .	Percent Fed (of possible so far)
41 ...	RTNA .	Daily ration of feed A
42 ...	RTNB .	Daily ration of feed B
43 ...	RTNC .	Daily ration of feed C
44 ...	RTND .	Daily ration of feed D
45 ...	TRG ...	Target Days, Auto Feed Adjust
46 ...	TRGA .	Target for Feed A
47 ...	TRGB .	Target for Feed B
48 ...	TRGC .	Target for Feed C
49 ...	TRGD .	Target for Feed D
51 ...	DUMP	Total milk Dumped (held) this lactation
52 ...	LACT ..	Lactation total milk
53 ...	A305 ...	Actual 305 day lactation total
54 ...	PEAK .	The maximum daily production this lactation
55 ...	PDIM ..	DIM when PEAK production was noted
56 ...	DIM ....	Days In Milk
57 ...	HELD .	Total number of milkings Held this lactation

# Appendix PC

**Code Abbr Description** (see Reports and Sources in Table A-1)

58 ...	MAST	Four-digit Mastitis Code
59 ...	DDRY	Days since dried off
60 ...	DHET	Days since in Heat
61 ...	MCTR	Milking Counter, decrements after each milking
62 ...	CLVI	Calving Interval
71 ...	BRD#	Number of times Bred
72 ...	DBRD	Days since Bred
74 ...	SCOR	Body Condition Score
75 ...	BRD	Breed Code
76 ...	SIRE	Sire Code
77 ...	RPRO	Reproductive Status Code
78 ...	HS#	Heat-Seeker Tag Number
79 ...	DWGT	Days since last automatic weight
80 ...	WGT	Body Weight
81 ...	USR1	User Defined Report parameter #1
82 ...	USR2	User Defined Report parameter #2
83 ...	USR3	User Defined Report parameter #3
84 ...	USR4	User Defined Report parameter #4
85 ...	USR5	User Defined Report parameter #5
86 ...	USR6	User Defined Report parameter #6
87 ...	USR7	User Defined Report parameter #7
88 ...	LCNO	Lactation Number
89 ...	USR8	User Defined Report parameter #8
93 ...	AVG\$	Average Daily Profit
94 ...	BNK\$	Daily Bunk Feed Cost
95 ...	FD \$	Total Feed Cost Since Dry Date
96 ...	I-F\$	Profit, Income Minus Feed Cost
97 ...	IN \$	Total Income from milk since freshening
98 ...	IOFC	Income Over Feed Cost
99 ...	MPA%	Milk Price Adjust factor (in percent)
101 ...	PRD1	Total milk, Day 1
102 ...	PRD2	Total milk, Day 2
103 ...	PRD3	Total milk, Day 3
104 ...	PRD4	Total milk, Day 4
105 ...	PRD5	Total milk, Day 5
106 ...	PRD6	Total milk, Day 6
107 ...	PRD7	Total milk, Day 7
108 ...	ST 1	Problem Status Flags, Milking 1
109 ...	ST 2	Problem Status Flags, Milking 2
110 ...	ST 3	Problem Status Flags, Milking 3
111 ...	TOD1	Time-Of-Day, Milking 1
112 ...	TOD2	Time-Of-Day, Milking 2
113 ...	TOD3	Time-Of-Day, Milking 3
114 ...	TIM1	Milking time at milking 1
115 ...	TIM2	Milking time at milking 2
116 ...	TIM3	Milking time at milking 3

# Appendix PC

## **Code Abbr Description** (see Reports and Sources in Table A-1)

117 ...	ATM1	. Average time for milking 1
118 ...	ATM2	. Average time for milking 2
119 ...	ATM3	. Average time for milking 3
140 ...	TRTN	. Total Ration (A+B+C+D)
141 ...	FD A...	Amount of A fed so far today
142 ...	FD B...	Amount of B fed so far today
143 ...	FD C ..	Amount of C fed so far today
144 ...	FD D ..	Amount of D fed so far today
148 ...	VSTS	. Visits to feeder(s) today
149 ...	%UFD	Percent of feeding visits where amount fed = 0
150 ...	ZONE	. Feeding Zone
170 ...	HS a ..	Heat-Seeker Tag Status at last reading
171 ...	HSHa	. Hours since Heat-Seeker Tag Last Read
172 ...	HS b ..	Heat-Seeker Tag Status at previous reading
173 ...	HSHb	. Heat-Seeker Tag, hours between readings a and b
174 ...	HS c ..	Heat-Seeker Tag Status at prior reading
175 ...	HSHc..	Heat-Seeker Tag, hours between readings b and c
190 ...	CND ...	Average Conductivity
191 ...	CND1	. Conductivity for milking 1
192 ...	CND2	. Conductivity for milking 2
193 ...	CND3	. Conductivity for milking 3
200 ...	#NMK	. Number of times not milked
201 ...	#NRD	. Number of times not read
202 ...	#DUP	. Number of times milked twice or more
203 ...	ITOD ..	ID Time of Day (to 3 seconds)
204 ...	ATOD	. Attach Time of Day (to 3 seconds)
241 ...	%FD1	. Percent of ration fed, Day 1
242 ...	%FD2	. Percent of ration fed, Day 2
243 ...	%FD3	. Percent of ration fed, Day 3
244 ...	%FD4	. Percent of ration fed, Day 4
245 ...	%FD5	. Percent of ration fed, Day 5
246 ...	%FD6	. Percent of ration fed, Day 6
247 ...	%FD7	. Percent of ration fed, Day 7
249 ...	UFD1 ..	Percent Unfed, Day 1
250 ...	VST0 ..	Number of Feeding Visits, Day 0
251 ...	VST1 ..	Number of Feeding Visits, Day 1
252 ...	VST2 ..	Number of Feeding Visits, Day 2
253 ...	VST3 ..	Number of Feeding Visits, Day 3
254 ...	VST4 ..	Number of Feeding Visits, Day 4
255 ...	VST5 ..	Number of Feeding Visits, Day 5
256 ...	VST6 ..	Number of Feeding Visits, Day 6
257 ...	VST7 ..	Number of Feeding Visits, Day 7
800 ...	USC0	. User Defined Report Criteria #0
801 ...	USC1	. User Defined Report Criteria #1
802 ...	USC2	. User Defined Report Criteria #2

# Appendix PC

**Code Abbr Description** (see Reports and Sources in Table A-1)

803 ... USC3 . User Defined Report Criteria #3  
804 ... USC4 . User Defined Report Criteria #4  
805 ... USC5 . User Defined Report Criteria #5  
806 ... USC6 . User Defined Report Criteria #6  
807 ... USC7 . User Defined Report Criteria #7  
808 ... USC8 . User Defined Report Criteria #8  
809 ... USC9 . User Defined Report Criteria #9  
883 ... MANL . =1 if an animal was manually detached  
884 ... LOT\* ... =1 if animal was milked in the wrong lot  
885 ... SORT . =1 if animal was sorted by a catch gate  
886 ... DUPL . =1 if animal was milked twice  
887 ... ODDL . =1 if animal has a Lot number that is Odd  
888 ... NMLK . =1 if animal was not milked  
889 ... HS\*\* ... =1 if animal was active (Heat-Seeker)  
890 ... DRY ... =1 if animal is Dry  
891 ... NRED . =1 if animal was not read at last milking  
892 ... PREG . =1 if animal is Pregnant  
893 ... RTB .... =1 if animal is Ready To Breed  
894 ... RTHC . =1 if animal is Ready To Heat Check  
895 ... PCHK . =1 if animal is ready to Pregnancy Check  
896 ... RTDR . =1 if animal is Ready To Dry  
897 ... RCLF .. =1 if animal is Ready to Calf  
898 ... NDRY . =1 if animal is Not Dry  
899 ... DEV> . =1 if Deviation above threshold  
990 ... DAY0 .. Set Day Number to 0 for reports  
991 ... DAY1 .. Set Day Number to 1 for reports  
992 ... DAY2 .. Set Day Number to 2 for reports  
993 ... DAY3 .. Set Day Number to 3 for reports  
994 ... DAY4 .. Set Day Number to 4 for reports  
995 ... DAY5 .. Set Day Number to 5 for reports  
996 ... DAY6 .. Set Day Number to 6 for reports  
997 ... DAY7 .. Set Day Number to 7 for reports  
998 ... DAY .... Day number used for reports

# Appendix PC

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## Command Summary

Note:  
 GE mode = Group Entry  
 PE mode = Prompt Entry  
 SE mode = Single Entry

The following tables list the command codes available for the ProVantage Network Controller (2045). Tables B-1 through B-5 are categorized by program and list, under the corresponding section headings, those commands that are explained in the respective chapters of this manual. Table B-6: Parlor Commands at Detacher, lists those commands that can be entered from a detacher control. Table B-7: Diagnostic Commands, lists those commands that can be entered at the ProVantage Network controller that are used to generate diagnostic reports or correct problems. Table B-8: Commands Arranged Numerically—At ProVantage Network Controller Only is a complete list of all commands (except Parlor Commands) in numerical order, and may include commands that are not described in any chapter.

**Table B-1.** Basic System Commands from Chapter 4

Setup Commands	Description
15*6*(0-7)#	Set report day number
15*7*(1-7)#	Set day of week
15*9*(1-12)#	Set month
15*10*(1-31)#	Set day of month
15*11*(0-99)#	Set year
15*(9,10,11)#	Review date entries (month=9, day=10, year=11)
15*16#	Enter Dairy Farm Name
15*42*(0,1)#	Set weight units (pounds=0, kilograms=1)
15*42#	Review weight units
15*46*0#	Alarm responds when entry gate closes
15*46*1#	Alarm responds upon attach with entry gate open
15*48*0#	Disable internal alarm
15*48*1#	Enable internal alarm
15*49*0#	Disable internal & external alarms
15*49*1#	Alarm beeps for all ID errors/warnings at antenna & detachers
15*49*2#	Alarm beeps for feeder communications
15*49*4#	Alarm beeps when cow with HOLD>0 is identified
15*49*8#	Alarm beeps when cow with ATTN>0 is identified
15*49*16#	Alarm beeps for automatic ID communications
15*51*0#	Enable Printer (and keyboard on 2040)
15*51*1#	Disable Printer (and keyboard on 2040)
15*51*2#	Enable Keyboard, Disable Printer (2040)
15*51*3#	Disable Keyboard, Enable Printer (2040)

# Appendix CS

Table B-1 continued

15*52*0#	Disable Transparent Print
15*52*1#	Do not send reports to terminal
15*52*2#	Enable Transparent Print & print data at printer
15*53*(0,1,2,3)#	Enable Printers 0-none,1-serial,2-parallel,3-both
15*54*(0-9999)#	Set end-of-line delay for serial printer in milliseconds
15*55*(0-255)#	Set number of blank lines at end of reports (default=10)
15*58*0#	Enable Milk Report body
15*58*1#	Disable Milk Report body
15*59*(0,1)#	Select input/output to Terminal(0) or Comp/ Modem(1)
15*59*2#	Set 2045 to ignore phone modem characters at J8
15*59*4#	Send Milk Report to Terminal (J9)
15*56*(0,1,2)#	Set Page mode (0=disable, 1=enable, 2= enable & double-space)
15*60*(0-59)#	Set clock minutes
15*61*(0-23)#	Set clock hours
15*62*1#	Set PM
15*(60,61,62)#	Review time entries (min=60, hour=61, PM=62)
15*64#	Read number of power failure resets recorded
15*98*(0-9999)#	Adjustable Price Factor
15*99*(price)#	Enter milk price (range=0-99.99)
15*232*(48,96,192)#	Set 2045 baud rate for J9
15*233*(6,12,24,48,96,192)#	Set 2045 baud rate for J8
15*(901-929)#	Enter name of user-defined report
15*(8001-8099)*(0-9999)#	Set User Defined Selection Parameter Ranges
15*(8001-8099)#	Review User Defined Selection Parameter Ranges
15*(9011-9295)*(0-9999)#	Assign Sort and Range parameters to User Defined Reports
16*19#	Define Cow Record
8*19#	Restore Default Cow Record
16*19*5#	Define System Edit List
8*19*5#	Restore Default System Edit List
16*94#	Enter/change/review daily bunk feed costs (BNK\$)—PE mode
16*(901-929)#	Assign report number for user- defined report—PE mode

Table B-1 continued

Data Commands	Description
7*#	Enter/change/review the average daily milk production (AVG) for cows (range=0-99.9)—GE mode (Milking Option must not be installed)
7*(cow nibr)*(weight)#	Enter manually the average daily milk production (AVG) for a cow at terminal but not detachers (range=0-99.9)—SE mode
14*(cow nibr)*(parameter code)#	Recall parameter value for cow
15*25#	Write copy of data to backup disk
15*63#	Display date from last disk read/written
15*9173*9173#	Clear 2045 memory and read (reload) copy of data from backup disk to 2045
16*7#	Enter/change/review the average daily milk production (AVG) for cows (range=0-99.9)—PE mode (Milking Option must not be installed)
16*19#	Enter, change, or review the Cow Record structure
16*19*1#	Enter, change, or review the list of parameters to edit for Feeding
16*19*2#	Enter, change, or review the list of parameters to edit for Auto ID
16*19*3#	Enter, change, or review the list of parameters to edit for Repro
16*19*4#	Enter, change, or review the list of parameters to edit for Milking
16*19*5#	Enter, change, or review the list of parameters to edit for System
16*(81-85)#	Enter, change, or review the assignments to cows for USR1-5
16*(86, 87,89)#	Enter, change, or review the assignments to cows for USR6-8
19*#	Enter cow numbers/create cow records
19*(cow nibr)*(cow nibr)#	Delete a cow record
24*(cow nibr)*(weight)#	Manually enter the average daily milk production (AVG) for a cow at terminal & detachers (range=0-99.9) (Milking Option must not be installed)
81*(cow number)*(0-255)#	Assign UDP value for USR1 to cow
82*(cow number)*(0-255)#	Assign UDP value for USR2 to cow
83*(cow number)*(0-255)#	Assign UDP value for USR3 to cow
84*(cow number)*(0-255)#	Assign UDP value for USR4 to cow
85*(cow number)*(0-2559)#	Assign UDP value for USR5 to cow
86*(cow number)*(0-65535)#	Assign UDP value for USR6 to cow
87*(cow number)*(0-65535)#	Assign UDP value for USR7 to cow
89*(cow number)*(0-999999)#	Assign UDP value for USR8 to cow

# Appendix CS

Report Commands	Description
10*(0-929)#	Print 18* (report)# reports without header
11*(parm1)*(parm2)#	Print Scatter Graph
15*30*(0-99)#	Active Lot - limits cows printed on Reports
15*31*(0-99)#	Hospital Lot - prevents cows from being listed as unmilking in End of Milking Report
15*56*0#	Disable Page Mode
15*56*1#	Enable Page Mode
15*56*2#	Enable Double-spaced printing
15*900*(parm code)#	Set selection parameter for reports and Scatter Graphs
15*900#	Review selection code
17*15#	Print Herd Parameter Summary
(cow number)#	Print Cow Record for specified cow
18*19*1#	Print Cow Records for all cows
18*(901-929)#	Print entire User-Defined Report
18*(901-929)*(value)#	Print entire User-Defined Report, limiting data to only those cows matching selection parameter
18*97#	Print entire Income/Feed Cost Report
?	Print list of cow parameters

Table B-1 continued

**Table B-2.** Feeding Program Commands from Chapter 5

<b>Setup Commands</b>	<b>Description</b>
15*37*(1-32)#	Enter Name for Feed Type in ASCII
16*(31-34)#	Prompt Entry mode for Feeder Calib Weights
16*(131-134)#	Prompt Entry Mode for Feeder Calib Factors
16*36#	Prompt Entry Mode to assign Zones to Feeders
16*(231-234)#	Prompt Entry Mode for Feed Types in Zones
16*37#	Prompt Entry Mode to assign Prices to Feed Types
15*140*(0-200)#	Set Threshold for Feed Exception Report
15*38*(2-24)#	Set allocation offset hours
15*39*(0-15)#	Set maximum feed amount per visit
16*19*1#	Define Feed Edit List
8*19*1#	Restore Default Feed Edit List
35*(1-4)*(ID tag nمبر)#	Assign feeding calibration tag

<b>Data Commands</b>	<b>Description</b>
16*(parameter code)#	Prompt Entry mode
41*(cow number)*(0-50.0)#	Ration assignment for feed A
42*(cow number)*(0-50.0)#	Ration assignment for feed B
43*(cow number)*(0-50.0)#	Ration assignment for feed C
44*(cow number)*(0-50.0)#	Ration assignment for feed D
45*(cow number)*(0-99)#	Target Feed Days
46*(cow number)*(0-50.0)#	Target feed ration for feed A
47*(cow number)*(0-50.0)#	Target feed ration for feed B
48*(cow number)*(0-50.0)#	Target feed ration for feed C
49*(cow number)*(0-50.0)#	Target feed ration for feed D
74*(cow number)*(0.0-9.9)#	Body Condition Score
79*(cow number)*(0-255)#	Days Since Weighed
80*(cow nمبر)*(weight/code, 0-9999)#	Body Weight
37*(feed type, 1-32)*(adjust %, 0 to 200)#	Adjust Rations
95*(cow number)*(cost,0-65535)#	Total feed cost since dry date
24*(cow number)*(0-255)#	Average daily milk production

<b>Report Codes</b>	<b>Description</b>
18*40(*zone,0-99)#	Feeding Ration Report
18*140(* % fed,0-100)#	Feeding Exception Report
18*250(*zone,0-99)#	Feed Visits Report
17*37#	Feed Type Name Table Summary
17*40#	Feeder System Summary—Today
17*140#	Feeder System Summary—Yesterday

# Appendix CS

**Table B-3.** Automatic ID Program Commands

Setup Codes	Description
9*#	Initialize Parlor
15*41*(0,1)#	Ignore ID Errors (enable=1, disable=0)
15*43*0#	Enable all Communications
15*43*1#	Disable ID, Enable Parlor and Feeding
15*43*2#	Disable Parlor, Enable ID and Feeding
15*43*3#	Disable ID and Parlor, Enable Feeding
15*43*4#	Disable Feeding, Enable ID and Parlor
15*43*5#	Disable ID and Feeding, Enable Parlor
15*43*6#	Disable Parlor and Feeding, Enable ID
15*43*7#	Disable ID, Parlor and Feeding
15*44*(0,1)#	Ignore invalid ID tags not assigned to cows (enable=1, disable=0)
15*46*(0,1)#	Fewer-Cows-Than-Stalls Alarm (enable=1, disable=0)
15*50*(1-16)#	Set Number of ID Zones
15*122*(0-5)#	Enable (1-5) or Disable (0) Smart ID™ <i>Default = 3</i>
15*(1001-1154)*(0-9999)#	Set Sort Gate catch conditions
15*(1001-1154)#	Review Sort Gate catch conditions
16*19*2#	Define ID Edit List
8*19*2#	Restore Default ID Edit List
16*90#	Prompt Entry mode for number of meters/zone
16*91#	Prompt Entry mode for D/M addresses in ID Zones
23*(ID tag number)#	Display Cow Number or Calibration Assigned to Tag
Data Codes	Description
22*(cow nمبر)*(ID tag nمبر)#	.. Change ID tag number
16*22#	Prompt Entry mode - ID tag
15*22*(0,1)#	Parlor Entry mode (enable=0, disable=1)
15*44*2#	Assign ID tag numbers from parlor
Report Codes	Description
18*1#	ID tag number List (by tag number)
18*1*1#	ID tag number List (by cow number)
18*9#	READ List—ID numbers read
18*3#	NRED List—ID numbers not read
15*40*(0,1)#	Printout Parlor ID Entry Order enable(1) or disable(0)
15*40*(2 or 100+zone[0-99])#	... Print current Parlor ID Entry Order
9*##	Parlor Initialization Report

**Table B-4.** Reproduction Program Commands

<b>Setup Codes</b>	<b>Description</b>
15*12*(value)# .....	RTB—Ready to Breed
15*13*(value)# .....	PGCK—Pregnancy Check
15*14*(value)# .....	DRY—Drying Cows Off
15*15*(value)# .....	GEST—Gestation Length
15*78*(0-660)# .....	Heat-Seeker: Set Ready to Breed Threshold
15*79*(0-660)# .....	Heat-Seeker: Set Heat Detection Threshold
15*2*days# .....	Increment Days In Milk and Lactation Total
13*# .....	Decrement Days In Milk and Days Since Bred
16*19*3# .....	Define Repro Edit List
8*19*3# .....	Restore Default Repro Edit List

<b>Data Codes</b>	<b>Description</b>
56*(cow nmr)*(LOT[1-9], DIM[000-999])# .....	Lot/Days In Milk
59*(cow nmr)*(0-255)# .....	Dry Days
60*(cow nmr)*(0-99)# .....	Days since in Heat
62*(cow nmr)*(0-9999)# .....	Calving Interval
70*(cow nmr)*(DBRD[00-99],SIRE[00-99])# .....	Days since Bred/Sire
71*(cow nmr)*(0-99)# .....	Number of times cow was bred
72*(cow nmr)*(0-999)# .....	Days Since Bred
76*(cow nmr)*(0-9999)# .....	Sire
77*(cow nmr)*(0-15)# .....	Reproduction Status
78*(cow number)*(0-999999)# .....	Heat-Seeker Tag Number
88*(cow nmr)*(0-15)# .....	Lactation Number
16*(parameter code)# .....	Prompt Entry mode

<b>Setup Codes</b>	<b>Description</b>
17*77# .....	Reproduction Summary
17*77*0# .....	Cull Cow List
17*77*1# .....	Cows to Breed List
17*77*2# .....	Cows to Heat Check
17*77*3# .....	Cows to Pregnancy Check
17*77*4# .....	Cows to Dry
17*77*5# .....	Cows to Calf
17*77*7# .....	RPRO Percentage of Herd Summary
18*72# .....	Pregnancy List
18*78# .....	Heat-Seeker Report, all tags
18*78*1# .....	Heat-Seeker Report, only active cows
18*88# .....	Open List
18*2# .....	Sire Report
18*2*(sire number,0-9999)# .....	List cows bred to one sire
15*35# .....	Date-to-Days Conversion
15*35*(1-364)# .....	Translate DIM to Calendar Date

# Appendix CS

**Table B-5.** Milking Program Commands

Setup Codes	Description
15*5*0#	Display cow number at detacher when attached (last 4 digits)
15*5*1#	Display time since attach at detacher
15*5*19#	Display cow number at detacher when attached (all 5 digits)
15*5*30#	Display lot number at detacher when attached
2*#	Recall takeoff setting
2*(flow rate,0-30)*(time delay,0-30)#	Set takeoff (default: 2*9*5#)
15*1#	End of Milking
15*1*(0-3)#	Set milking number
15*19#	Display current milking number
15*2#	End of Milking Day
15*8*(1-3)#	Set automatic End of Day
15*3*(1-3)#	Clear Average for milking number
15*4*(0-7)#	Set AVG INT
15*20*(0-99)#	Set number of Holds automatically assigned to Fresh Cows
15*24*(0-1)#	Disable (0) or Enable (1) Expected Average
15*31*(0-99)#	Set Hospital Lot
15*301*(0-99)#	Set Fresh Cow Lot
15*309*(0-99)#	Set Dry Cow Lot
15*43*0#	Enable Milk Weight collection
15*43*1#	Disable Milk Weight collection
15*2*(days,0-999)#	Increment Days In Milk and Lactation Total
15*99*(price,0-99.99)#	Set price per hundred pounds (kilograms) of milk
15*91*1#	Allow more than 64 detachers (2040 only, not used on 2045)
15*(941-966)*(0-999)#	Set User Defined Detacher Displays (4#, 5#, 6#)
16*92#	Set parameter codes to enter from parlor
16*19*4#	Define Milk Edit List
8*19*4#	Restore Default Milk Edit List

Table B-5 continued

Data Codes	Description
20*(cow nibr)*(0-99 milkings)#	Hold Milk for cow
21*(cow nibr)*(0-15)#	Attention
29*(cow nibr)*(0.0-9.9)#	Individual Cow Detach Rate
30*(cow nibr)*(1-99)#	Lot
50*(cow nibr)*(DIM,LACT)#	Days in Milk/Lactation
51*(cow nibr)*(0-65000)#	Total pounds (kilograms) of milk Dumped this lactation
52*(cow nibr)*(0-65000)#	Lactation total
53*(cow nibr)*(0-65000)#	Actual lactation total at 305 days
54*(cow nibr)*(0-255)#	Maximum daily production (PEAK)
55*(cow nibr)*(0-255)#	Days In Milk that PEAK was noted
56*(cow nibr)*(0,1)#	End Of Lactation
57*(cow nibr)*(0-255)#	Total number of milkings held this lactation
58*(cow nibr)*(0-9999)#	Mastitis Code
75*(cow nibr)*(0-99)#	Breed of Cow
97*(cow nibr)*(0-9999)#	Income from milk this lactation
99*(cow nibr)*(0-200)#	Milk Price Adjust factor (in percent)
16*(parameter code)#	Prompt Entry mode
5*(cow nibr)#	Recall Lot & Production
5*(cow nibr)*(1-3)#	Recall Lot & Production for desired milking
24*(cow nibr)#	Display Total Milking Average and Lot
24*(cow nibr)*(1-3)#	Display Deviation for Today or specified milking
Report Codes	Description
17*0#	Herd Summary
17*30#	Lot Summary
18*0#	Number List
18*5#	Production List—all milking cows (by production)
18*5*0#	Production List—by cow number
18*5*(0-255)#	Production List—all cows less than value
18*21#	Attention List
18*24#	Average List
18*25#	Deviation List
18*30#	Lot List
18*30*(lot nibr,0-99)#	Lot List for individual lot
18*100[*lot,0-99]#	Daily Production Report
18*101[*lot,0-99]#	Daily Milk Report
18*105[*lot,0-99]#	Weekly Production Report
15*17*(0-255)#	THRS—Threshold (Deviation Limit for Production)
15*45*(0,1)#	Print Production Deviations (pounds=0, percent=1)
15*58*(0,1)#	Milk Report (enable=0, disable=1)
15*59*4#	Force Milk Report to print at terminal

# Appendix CS

**Table B-6.** Parlor Commands at Detacher

Command Codes	Description
#	Display cow number and production
1#	Display milking time and production
2#	Recall takeoff setting
4#	Recall predefined parameters for current cow
4*(cow number)#	Recall predefined parameters for selected cow
5#	Recall predefined parameters for current cow
5*(cow number)#	Recall predefined parameters for selected cow
6#	Recall predefined parameters for current cow
6*(cow number)#	Recall predefined parameters for selected cow
7*(cow number)#	Change cow number
7*#	On parallel parlors, enter this at first occupied stall to skip empty stalls
8*1#	Display last ID tag number read in this ID zone
9*#	Return D/M address
14*0*(parm)#	Recall parameter value for cow assigned to this detacher
14*(cow nمبر)*(parm)#	Recall parameter value for cow
15*1#	End of Milking
15*30*(0-99)#	Assign LOT numbers from parlor (all cows attached after command)
20*(cow nمبر)*(0-99 milkings)#	Hold milk for cow
21*(cow nمبر)*(0-15)#	Attention
<b>Note:</b>	Any cow parameter can be assigned in the above manner, using the appropriate code.
23*(IDhi)*(IDlo)#	Display cow number or calibration assigned to tag

**Table B-7.** Diagnostic Commands

Command Codes	Description
8*0#	Printer test
8*1#	Direct Tag Read, all tags
8*1*4#	Activity: Direct Tag Read, Activity Tags only
8*3#	Fix corrupted ID list
8*4#	Turn off Direct Tag Read
8*7#	ROM Checksum
8*8*9173#	Load Program Disk
8*9#	Reset 2045
8*19#	Reset the cow record to the default
8*40*(0-7)#	Feed Msg Printout (enable=1-7, disable=0)
8*40*1#	Print Tag and Amount Fed messages from feeders
8*40*2#	Print System messages from feeders
8*40*4#	Print messages from 2045 to feeders
8*41*(feeder address,0-127)#	... Feeder communications check (sends back status message)

**Table B-8.** Commands Arranged Numerically—At ProVantage Network Controller Only

Note: GE mode = Group Entry mode  
 PE mode = Prompt Entry Mode  
 SE mode = Single Entry Mode

Command Codes	Source	Purpose
(cow number)#	Ch 4	View or print Cow Record report for individual cow
2*#	Ch 8	Review takeoff setting and flow rate
2*(flow rate)*(takeoff delay)#	Ch 8	Set detacher flow rate (0-30) and takeoff delay (0-30)
2*9*5#	Appx PS	Default settings
4*(primary code)#	Appx US	Sort data for one parameter only
4*(primary code)*(secondary code)#	Appx US	Sort data for two parameters
5*(cow number)#	Ch 8	Recall Lot & Production
5*(cow number)*(1-3)#	Ch 8	Recall Lot & Production for desired milking
7*(cow number)#	Ch 6	Correct ID error for misread cow number
7*(cow number)*(0-255)#	Ch 5	Assign avg daily milk wgt to cow—w/o Milking program
8*0#	Ch 4	Perform Printer test
8*1#	Ch 6	Enable/Perform Direct Tag Read Report
8*1*1#	Ch 6	Direct Tag Read Report - normal tags
8*1*2#	Ch 6	Repeat while tag is in field
8*1*4#	Ch 6	Heat-Seeker tags
8*1*8#	Ch 6	Sort gate tags
8*1*64#	Appx PS	Multinumber tags
8*3#	Appx TS	Fix corrupted ID list
8*4#	Ch 6	Disable Direct Tag Read Report
8*5*0#	Appx PS	Disable diagnostic reports
8*5*1#	Appx PS	Enable diagnostic reports
8*7#	Appx TS	Software version and Options
8*8*9173#	Ch 4	Load Program Disk
8*9#	Appx TS	Reset 2045
8*19#	Ch 4	Reset the default cow record
8*19*1#	Ch 5	Reset the default Feed edit cow record
8*19*2#	Ch 6	Reset the default ID edit cow record
8*19*3#	Ch 7	Reset the default RPRO edit cow record
8*19*4#	Ch 8	Reset the default Milk edit cow record
8*19*5#	Ch 4	Reset the default System edit cow record
8*25#	Appx PS	Meter diagnostic report
8*25*(0-100)#	Appx PS	Meter diagnostic report, only those meters with high P/E ratio
8*25*5#	Appx PS	Recommended 5% variation in P/E
8*40*(0-7)#	Ch 5	Feed Message Printout (enable=1-7, disable=0)
8*40*1#	Ch 5	Print Tag and Amount Fed messages from feeders
8*40*2#	Ch 5	Print System messages from feeders
8*40*4#	Ch 5	Print messages from 2045 to feeders
8*40*8#	Appx PS	Print cow and tag number from feeders

# Appendix CS

8*41*(feeder address,0-127)#	Appx TS	Feeder communications check (sends back status message)
8*500#	Appx PS	Reset all End-of-Milking Macros
9*#	Ch 6	Initialize Parlor
9*##	Ch 6	View or print Parlor Initialization Report
10*(report number)#	Ch 4-8	Print any report without heading or summary
10*(report number)*(value)#	Ch 4-8	Print any report without heading or summary and limit data to selection parameter
11*(code)*(code)#	Ch 4	Print scatter graph
13*#	Ch 7	Decrement DIM and DBRD values for herd (subtracts 1 day)
14*(cow number)*(parameter code)#	Ch 4	Recall parameter value for cow
15*1#	Ch 6 & 8	End-of-milking (close and update records)
15*1*(0-3)#	Ch 8	Set milking number
15*2#	Ch 8	Perform manual end-of-day function
15*2*(0-999)#	Ch 7	Increment DIM, DBRD, and Lactation Total (for backup data)
15*3*(1-3)#	Ch 8	Clear Average for milking number
15*4#	Ch 8	Review current AVG INT setting
15*4*(0-7)#	Ch 8	Set AVG INT (number of days for milking averages)
15*5#	Ch 8	Review current Attach Display mode
15*5*0#	Ch 8	Set Attach Display mode to "Cow Number & Production"
15*5*1#	Ch 8	Set Attach Display mode to "Time & Production"
15*5*19#	Appx PS	Set Attach Display mode to "5 digit Cow Number & Production"
15*5*30#	Appx PS	Show Lot Number at Attach
15*6*(0-7)#	Ch 4	Set day number for Sorts & 18*100 Report
15*7*(1-7)#	Ch 4 & Appx PS	Set current day of the week for Macros
15*8#	Ch 8	Review current end-of-day setting
15*8*(1-3)#	Ch 8	Set automatic end-of-day function for 1st, 2nd, or 3rd milking
15*(9,10,11)#	Ch 4	Review current date (9=month, 10=day, 11=year)
15*9*(1-12)#	Ch 4	Set current month
15*10*(1-31)#	Ch 4	Set current day
15*11*(0-99)#	Ch 4	Set current year
15*12*(value)#	Ch 7	Enter number of ready-to-breed (RTB) days
15*13*(value)#	Ch 7	Enter number of pregnancy-check (PGCK) days
15*14*(value)#	Ch 7	Enter number of dry-off (DRY) days
15*15*(value)#	Ch 7	Enter number of gestation (GEST) days
15*16#	Ch 4	Enter dairy farm name for report headings
15*17*(0-255)#	Ch 8	THRS—Threshold (Deviation Limit for Production)
15*18*(4,5)#	Appx PS	Set cow number Display Width
15*19#	Ch 8	Review current milking number
15*20*(0-99)#	Ch 8	Set number of Holds for Fresh Cows
15*22*(0,1)#	Ch 6	Set 2045 for entry of ID tag numbers during first milking in Parlor Entry mode (0=disable, 1=enable)

# Appendix CS

15*24*(0,1)#	Appx PS	Use Average (0) or Expected (1) Production
15*25#	Ch 4	Write data to a backup disk
15*30*(0-99)#	Ch 4	Set Active Lot (limits cows on reports, 0 = off)
15*31*(0-99)#	Appx PS	Set Hospital Lot (0 = off)
15*35#	Ch 7	View or print Date-to-Days Conversion List
15*35*(1-364)#	Ch 7	Translate DIM to Calendar Date
15*37*(1-32)#	Ch 5	Enter name for feed type (20 characters max)
15*38*(2-24)#	Ch 5	Set allocation offset hours
15*39*(0-15)#	Ch 5	Set maximum feed amount per visit (pasture feed, requires 2.34 or higher feeder PROMs)
15*40*(0,1)#	Ch 6 & Appx PS	Printout Parlor Entry/Exit Order Report (0=disable, 1=enable)
15*40*(2 or 100+zone[0-99])#	Ch 6	Print current Parlor ID Entry Order
15*41*(0,1)#	Ch 6	Set Ignore ID Errors (0=disable, 1=enable)
15*42#	Ch 4	Review unit of measure
15*42*(0,1)#	Ch 4	Set unit of measure (0=pounds, 1=kilograms)
15*43*0#	Ch 6	Enable ID, Parlor, and Feeding Communications
15*43*1#	Ch 6	Disable ID, Enable Parlor and Feeding Communications
15*43*2#	Ch 6	Disable Parlor, Enable ID and Feeding Communications
15*43*3#	Ch 6	Disable ID and Parlor, Enable Feeding Communications
15*43*4#	Ch 6	Disable Feeding, Enable ID and Parlor Communications
15*43*5#	Ch 6	Disable ID and Feeding, Enable Parlor Communications
15*43*6#	Ch 6	Disable Parlor and Feeding, Enable ID Communications
15*43*7#	Ch 6	Disable ID, Parlor and Feeding Communications
15*44*(0,1)#	Ch 6	Set Ignore Unassigned ID Tag Numbers(0=disable,1=enable)
15*44*2#	Ch 6	Enable 2045 for entry of ID tag numbers during second milking in Parlor Entry mode
15*45*(0,1)#	Ch 8	Print Production Deviations (pounds=0, percent=1)
15*46*0#	Ch 4	Alarm beeps for Fewer Cows Than Stalls when gate closes
15*46*1#	Ch 4	Alarm beeps for Fewer Cows Than Stalls at attach
15*48*(0,1)#	Ch 4	Set internal alarm (0=disable, 1=enable)[2045 only]
15*49*0#	Ch 4	Disable internal & external alarms
15*49*1#	Ch 4	Alarm beeps for all ID errors & communications
15*49*2#	Ch 4	Alarm beeps for feeder communications only
15*49*3#	Ch 4	Enable Keyclick[2040], Parlor Error, and Feeder Communications Beep
15*49*4#	Ch 4	Alarm beeps when cow with HOLD>0 is identified
15*49*8#	Ch 4	Alarm beeps when cow with ATTN>0 is identified
15*49*16#	Ch 4	Alarm beeps for Automatic ID communications only
15*50*(1-16)#	Ch 6	Enter number of ID zones
15*51*0#	Ch 4	Enable Printer
15*51*1#	Ch 4	Disable Printer
15*51*2#	Ch 4	Disable Printer
15*51*3#	Ch 4	Enable Printer
15*51*51#		Lock out System Commands
15*52*0#	Ch 4	Enable printer output to RS232
15*52*1#	Ch 4	Disable printer output to RS232
15*52*2#	Ch 4	Enable Transparent Print Mode (send directly to printer)

# Appendix CS

15*53*(0,1)# .....	Ch 4 .....	Enable Printers 0=none,1=serial
15*54*(0-9999)# .....	Ch 4 .....	Set end-of-line delay (in milliseconds) for serial printer
15*55*(0-255)# .....	Ch 4 .....	Set number of blank lines at end of reports (default=10)
15*56*(0,1,2)# .....	Ch 4 .....	Set Page mode (0=disable, 1=enable, 2=enablee/double-space)
15*57*(0,1)# .....	Ch 4 .....	Add Line Feeds (0=disable, 1= enable) [2045 only]
15*58*(0,1)# .....	Ch 4 .....	Set Milk Report body option (0=enable, 1=disable)
15*59*(0,1)# .....	Ch 4 .....	Select input/output to Terminal(0) or Comp/Modem(1)
15*59*2# .....	Ch 4 .....	Set Comp/Modem to use Modem (Prevent lockup)
15*59*4# .....	Ch 4 .....	Send Milk Report to Terminal port (J9)
15*60*(0-59)# .....	Ch 4 .....	Set minutes for current time
15*61*(0-23)# .....	Ch 4 .....	Set hour for current time
15*62*(0,1)# .....	Ch 4 .....	Set current time period of AM=0 or PM=1
15*63# .....	Ch 7/Appx PS ..	Display date from last disk write
15*78# .....	Ch 7 .....	Heat-Seeker: Activity Threshold
15*79# .....	Ch 7 .....	Heat-Seeker: Heat Threshold
15*98*(0-9999)# .....	Ch 4 .....	Adjustable Price Factor
15*99*(.00-99.99)# .....	Ch 4 .....	Enter milk price per hundred pounds or kilograms
15*122*(0-5)# .....	Appx PS .....	Disable (0) or Enable (1-5) Smart ID™ (default = 3)
15*130*(0,1)# .....	Appx PS .....	Disable (0) or Enable (1) Automatic Lot Change
15*140*(0-200)# .....	Ch 5 .....	Set threshold for Feed Exception Report
15*159*(0-2)# .....	Ch 4 .....	Set Terminal Type (0=ADDS, 1= QVT101,2=Televideo 950)
15*232*(48,96,192)# .....	Ch 4 .....	Set 2045 baud rate for RS232 connector J9 (Terminal)
15*233*(6,12,24,48,96,192)# .....	Ch 4 .....	Set 2045 baud rate for RS232 connector J8 (Computer/Modem)
15*301*(0-99)# .....	Ch 4 .....	Set Fresh Cow Lot
15*309*(0-99)# .....	Ch 4 .....	Set Dry Cow Lot
15*(500-573)# .....	Appx PS .....	Enter End-of-Milking Macros
15*700*1# .....		Enable special Rotary Parlor shuffle logic
15*700*2# .....		Enable special Rotary Parlor Identification logic
15*700*4# .....	Appx PS .....	Enable special Rotary Parlor Identification/Feeding logic
15*700*40# .....		Enable special Parlor Feeding logic
15*811*(0-9999)# .....	Appx PS .....	Mark cow on Scatter Graph (only cows up to 9999 can be marked)
15*900# .....	Ch 4 .....	Review current selection parameter
15*900*(parameter code)# .....	Ch 4 .....	Set selection parameter for limits for user-defined reports
15*(901-929)# .....	Ch 4 .....	Enter names for user-defined reports
15*(941-966)*(0-999)# .....	Ch 8 .....	Set User Defined Detacher Displays
15*(1001-1154)*(0-9999)# .....	Ch 6 .....	Sort/Weigh scale criteria
15*(8001-8099)*(0-9999)# .....	Ch 4 .....	Set User Defined Selection Parameters
15*(9011-9295)*(0-9999)# .....	Ch 4 .....	Assign Sort and Range parameters to User Defined Reports
15*9173*9173# .....	Appx PS .....	Read a backup disk (reload data from disk to 2045 memory)
16*(parameter code)# .....	Ch 4 .....	Prompt Entry mode
16*19# .....	Ch 4 .....	Change Cow Record Format
16*20# .....	Ch 8 .....	Set milk hold counts—PE mode
16*21# .....	Ch 8 .....	Assign Attention code—PE mode
16*22# .....	Ch 6 .....	Enter or change ID tag numbers—PE mode

# Appendix CS

16*29#	Ch 8	Individual Cow Detach Rate—PE mode
16*30#	Ch 8	Assign lot number—PE mode
16*(31-34)#	Ch 5	Enter calibration feed weight (31=A,32=B,33=C,34=D)—PE mode
16*36#	Ch 5	Assign feed zones to feeders—PE mode
16*37#	Ch 5	Assign prices to feed types—PE mode
16*(41-44)#	Ch 5	Assign current feed ration (41=A,42=B,43=C,44=D)—PE mode
16*45#	Ch 5	Set target days—PE mode
16*(46-49)#	Ch 5	Assign target feed ration(46=A,47=B,48=C,49=D)—PE mode
16*51#	Ch 8	Set total milk (lb or kg) dumped this lactation—PE mode
16*52#	Ch 8	Set lactation total—PE mode
16*53#	Ch 8	Set 305-day lactation total—PE mode
16*54#	Ch 8	Set peak daily production—PE mode
16*55#	Ch 8	Set peak days-in-milk—PE mode
16*56#	Ch 7	Set days-in-milk (DIM) —PE mode
16*57#	Ch 8	Set number of milkings held this lactation—PE mode
16*58#	Ch 8	Set mastitis code—PE mode
16*59#	Ch 7	Set days since dry off - PE mode
16*60#	Ch 7	Set days-since-in-heat (DHET)—PE mode
16*61#	Ch 6	Set milking down counter for sorting - PE mode
16*62#	Ch 7	Set calving interval - PE mode
16*71#	Ch 7	Set number of breedings (BRD#) —PE mode
16*72#	Ch 7	Set days-since-bred (DBRD) —PE mode
16*75#	Ch 8	Set breed code—PE mode
16*76#	Ch 7	Assign sire number (SIRE)—PE mode
16*77#	Ch 7/Appx PS	Assign RPRO status code —PE mode
16*79#	Ch 6	Set days since last weighed - PE mode
16*80#	Ch 5	Assign cow weight or body condition—PE mode
16*(81-87, 89)#	Ch 4	Assign user-defined parameter values to cows—PE mode
16*88#	Ch 7	Set lactation number(LCNO)—PE mode
16*90#	Ch 6	Enter number of detachers per ID zone—PE mode
16*91#	Ch 6	Assign detacher addresses to ID zones—PE mode
16*92#	Ch 8	Set parameter codes to enter from parlor
16*94#	Ch 4	Enter bunk feed cost (BNK\$) by lot number—PE mode
16*95#	Ch 5	Enter total feed cost (FD \$) since drying — PE mode
16*97#	Ch 8	Set milk income total—PE mode
16*99#	Ch 8	Set milk price adjustment—PE mode
16*(131-134)#	Ch 5	Enter calibration factor (131=A,132=B,133=C,134=D)—PE mode
16*(231-234)#	Ch 5	Assign feed types/zones (231=A,232=B,233=C,234=D)—PE
16*(901-929)#	Ch 4/Appx PS	Assign report number & parameters for user-defined reports—PE mode

# Appendix CS

17*0#	Ch 8	Print Herd Summary
17*15#	Ch 4	View or print System Setup (Parameter) Summary
17*30#	Ch 8	View or print Lot Summary
17*37#	Ch 5	View or print Feed Name Summary
17*40#	Ch 5	View or print Feed System Summary—Today
17*77#	Ch 7	View or print entire Reproductive Summary report
17*77*0#	Ch 7	View/print “Cows to CULL” portion of RPRO Summary
17*77*1#	Ch 7	View/print “Cows to BREED” portion of RPRO Summary
17*77*2#	Ch 7	View/print “Cows to HTCK” portion of RPRO Summary
17*77*3#	Ch 7	View/print “Cows to PGCK” portion of RPRO Summary
17*77*4#	Ch 7	View/print “Cows to DRY” portion of RPRO Summary
17*77*5#	Ch 7	View/print “Cows to CALF” portion of RPRO Summary
17*77*7#	Ch 7	View/print “RPRO Percentage of Herd Summary” portion
17*140#	Ch 5	Feeder System Summary—Yesterday
18*0#	Ch 8	Number List
18*1#	Ch 6	View/print Cow ID Number (CIDN) Report—ID tag no. order
18*1*1#	Ch 6	View/print Cow ID Number (CIDN) Report—cow no. order
18*2#	Ch 7	View or print Sire Report with all cows (bred by all sires)
18*2*(sire number)#	Ch 7	View or print Sire Report, limiting to cows bred by one sire
18*3#	Ch 6 & Appx PS	View or print Not Read (NRED) Report—ID no.s not read
18*5#	Ch 8	Production List—all milking cows (by production)
18*5*0#	Ch 8	Production List—by cow number
18*5*(1-255)#	Ch 8	Production List—all cows less than value
18*9#	Ch 6	View or print Read Report—ID number read count
18*19*1#	Ch 4	View or print Cow Record report for all cows in herd
18*21#	Ch 8	Attention list
18*24#	Ch 8	Average list
18*25#	Ch 8	Deviation list
18*30#	Ch 8	Lot list
18*30*(lot number,0-99)#	Ch 8	Lot list for individual lot
18*40[*zone,0-99]#	Ch 5	View or print Feed Ration Report
18*45#	Ch 5	View or print Ration Target Report
18*72#	Ch 7	View or print Pregnant Cows Report
18*78#	Ch 7	Heat-Seeker Report, all tags
18*78*1#	Ch 7	Heat-Seeker Report, only active cows
18*88#	Ch 7	View or print Open Report (nonpregnant cows/heifers)
18*97#	Ch 4	Income and Feed Cost Report
18*100[*lot,0-99]#	Ch 8	Daily Production Report
18*101[*lot,0-99]#	Ch 8	Daily Milk Report
18*105[*lot,0-99]#	Ch 8	Weekly Production Report
18*140(* % fed,0-200)#	Ch 5	Feeding Exception Report
18*190#	Appx PS	Conductivity/Deviation Report
18*200#	Appx PS	Not Milked Report
18*202#	Appx PS	Duplicate Report
18*250[*zone,0-99]#	Ch 5	Feed Visits Report
18*884#	Appx PS	Cows in Wrong Lot Report

# Appendix CS

18*885#	Appx PS	Cows Caught Report
18*(901-929)#	Ch 4	View or print user-defined report
18*(901-929)*(value)#	Ch 4	Print user-defined report, limiting data to selection parameter
19*#	Ch 4	Create cow record (enter cow numbers)
19*(cow number)*(cow number)#	Ch 4	Delete cow record
20*#	Ch 8	Set milk hold counts—GE mode
20*(cow number)*(0-99 milkings)#	Ch 8	Set milk hold counts—SE mode
21*#	Ch 8	Assign Attention code—GE mode
21*(cow number)*(0-15)#	Ch 8	Assign Attention code—SE mode
22*#	Ch 6	Enter or change ID tag numbers—GE mode
22*(cow number)*(ID tag number)#	Ch 6	Enter or change ID tag number—SE mode
23*(ID tag number)#	Ch 5 & 6	Display Cow Number or Calibration Assigned to Tag
24*(cow number)#	Ch 8	Display Total Milking Average and Lot
24*(cow number)*(1-3)#	Ch 8	Display Production for Today for specified milking
24*(cow number)*(0-255)#	Ch 5	Enter Average daily milk production (Feeding only)
29*#	Ch 8	Individual Cow Detach Rate—GE mode
29*(cow number)*(0.0-9.9)#	Ch 8	Individual Cow Detach Rate—SE mode
30*#	Ch 8	Assign lot number—GE mode
30*(cow number)*(1-99)#	Ch 8	Assign lot number—SE mode
35*0*(ID tag number)#	Ch 5	Delete calibration tag number from 2045 memory
35*(feed type)*(ID tag number)#	Ch 5	Assign calibration tag number to feed type (1-4)
37*(feed type)*(adjust %, 0-200)#	Ch 5	Adjust (0-200%) rations of all cows with feed type (1-32)
41*#	Ch 5	Assign current ration for feed A—GE mode
41*(cow number)*(0-50.0)#	Ch 5	Assign current ration for feed A to single cow—SE mode
42*#	Ch 5	Assign current ration for feed B—GE mode
42*(cow number)*(0-50.0)#	Ch 5	Assign current ration for feed B to single cow—SE mode
43*#	Ch 5	Assign current ration for feed C—GE mode
43*(cow number)*(0-50.0)#	Ch 5	Assign current ration for feed C to single cow—SE mode
44*#	Ch 5	Assign current ration for feed D—GE mode
44*(cow number)*(0-50.0)#	Ch 5	Assign current ration for feed D to single cow—SE mode
45*#	Ch 5	Set target days—GE mode
45*(cow number)*(0-99)#	Ch 5	Set target feed days—SE mode
46*#	Ch 5	Assign target feed ration for feed A—GE mode
46*(cow number)*(0-50.0)#	Ch 5	Assign target feed ration for feed A—SE mode
47*#	Ch 5	Assign target feed ration for feed B—GE mode
47*(cow number)*(0-50.0)#	Ch 5	Assign target feed ration for feed B—SE mode
48*#	Ch 5	Assign target feed ration for feed C—GE mode
48*(cow number)*(0-50.0)#	Ch 5	Assign target feed ration for feed C—SE mode
49*#	Ch 5	Assign target feed ration for feed D—GE mode
49*(cow number)*(0-50.0)#	Ch 5	Assign target feed ration for feed D—SE mode
50*(cow number)*(DIM,LACT)#	Ch 7	Days in Milk/Lactation
51*#	Ch 8	Set total milk (lb or kg) dumped this lactation—GE mode
51*(cow number)*(0-65535)#	Ch 8	Set total milk (lb or kg) dumped this lactation—SE mode
52*#	Ch 8	Set lactation total—GE mode
52*(cow number)*(0-65535)#	Ch 8	Set lactation total—SE mode

# Appendix CS

53*#	.....	Ch 8	.....	Set 305-day lactation total—GE mode
53*(cow number)*(0-65535)#	.....	Ch 8	.....	Set actual 305-day lactation total—SE mode
54*#	.....	Ch 8	.....	Set peak daily production—GE mode
54*(cow number)*(0-255)#	.....	Ch 8	.....	Set maximum daily production (PEAK)—SE mode
55*#	.....	Ch 8	.....	Set peak days-in-milk—GE mode
55*(cow number)*(0-255)#	.....	Ch 8	.....	Set Days In Milk that PEAK was noted—SE mode
56*#	.....	Ch 7	.....	Set days-in-milk (DIM)—GE mode
56*(cow number)*(0-999)#	.....	Ch 7	.....	Set days-in-milk (DIM; 0,1=end-of-lactation)—SE mode
56*(cow number)*(LOT[1-9], DIM[000-999])#	.....			Lot/Days In Milk
57*#	.....	Ch 8	.....	Set number of milkings held this lactation—GE mode
57*(cow number)*(0-255)#	.....	Ch 8	.....	Set number of milkings held this lactation—SE mode
58*#	.....	Ch 8	.....	Set mastitis code—GE mode
58*(cow number)*(0-9999)#	.....	Ch 8	.....	Set mastitis code—SE mode
59*#	.....	Ch 7	.....	Set Days Dry—GE mode
59*(cow number)*(0-255)#	.....	Ch 7	.....	Set Days Dry—SE mode
60*#	.....	Ch 7	.....	Set days-since-in-heat (DHET)—GE mode
60*(cow number)*(0-99)#	.....	Ch 7	.....	Set days-since-in-heat (DHET)—SE mode
61*#	.....	Ch 6	.....	Set Milking Down-counter—GE mode
61*(cow number)*(0-255)#	.....	Ch 6	.....	Set Milking Down-counter—SE mode
62*#	.....	Ch 7	.....	Set Calf Interval—GE mode
62*(cow number)*(0-9999)#	.....	Ch 7	.....	Set Calf Interval—SE mode
70*(cow number)*(DBRD[00-99],SIRE[00-99])#	.....			Days since Bred/Sire
71*#	.....	Ch 7	.....	Set number of breedings (BRD#)—GE mode
71*(cow number)*(0-99)#	.....	Ch 7	.....	Set number of breedings (BRD#)—SE mode
72*#	.....	Ch 7	.....	Set days-since-bred (DBRD)—GE mode
72*(cow number)*(0-999)#	.....	Ch 7	.....	Set days-since-bred (DBRD)—SE mode
75*#	.....	Ch 8	.....	Set breed (of cow) code—GE mode
75*(cow number)*(0-99)#	.....	Ch 8	.....	Set breed (of cow) code—SE mode
76*#	.....	Ch 7	.....	Assign sire number (SIRE)—GE mode
76*(cow number)*(0-9999)#	.....	Ch 7	.....	Assign sire number (SIRE)—SE mode
77*#	.....	Ch 7	.....	Assign RPRO status code—GE mode
77*(cow number)*(0-15)#	.....	Ch 7/Appx PS.	.....	Assign RPRO status code—SE mode
78*#	.....	Ch 7	.....	Assign Heat-Seeker Tag number (HS#)—GE mode
78*(cow number)*0-999999)#	.....	Ch 7	.....	Assign Heat-Seeker Tag number (HS#)—SE mode
79*#	.....	Ch 6	.....	Assign Days since weighed—GE mode
79*(cow number)*(0-255)#	.....	Ch 6	.....	Assign Days since weighed—SE mode
80*#	.....	Ch 5	.....	Assign cow weight or body condition—GE mode
80*(cow number)*(weight/code)#	.....	Ch 5	.....	Assign cow weight or body condition—SE mode
81*#	.....	Ch 4	.....	Assign UDP #1 values to cows—GE mode
81*(cow number)*(0-255)#	.....	Ch 4	.....	Assign UDP #1 value to single cow—SE mode
82*#	.....	Ch 4	.....	Assign UDP #2 values to cows—GE mode
82*(cow number)*(0-255)#	.....	Ch 4	.....	Assign UDP #2 value to single cow—SE mode
83*#	.....	Ch 4	.....	Assign UDP #3 values to cows—GE mode
83*(cow number)*(0-255)#	.....	Ch 4	.....	Assign UDP #3 value to single cow—SE mode
84*#	.....	Ch 4	.....	Assign UDP #4 values to cows—GE mode
84*(cow number)*(0-255)#	.....	Ch 4	.....	Assign UDP #4 value to single cow—SE mode
85*#	.....	Ch 4	.....	Assign UDP #5 values to cows—GE mode

# Appendix CS

85*(cow number)*(0-255)#	Ch 4	Assign UDP #5 value to single cow—SE mode
86*#	Ch 4	Assign UDP #6 values to cows—GE mode
86*(cow number)*(0-65535)#	Ch 4	Assign UDP #6 value to single cow—SE mode
87*#	Ch 4	Assign UDP #7 values to cows—GE mode
87*(cow number)*(0-65535)#	Ch 4	Assign UDP #7 value to single cow—SE mode
88*#	Ch 7	Set lactation number(LCNO)—GE mode
88*(cow number)*(0-15)#	Ch 7	Set lactation number(LCNO)—SE mode
89*#	Ch 4	Assign UDP #8 values to cows—GE mode
89*(cow number)*(0-999999)#	Ch 4	Assign UDP #8 value to single cow—SE mode
95*#	Ch 5	Total feed cost since dry date—GE mode
95*(cow number)*(cost,0-9999)#	Ch 5	Total feed cost since dry date—SE mode
97*#	Ch 8	Set milk income total—GE mode
97*(cow number)*(0-9999)#	Ch 8	Income from milk this lactation—SE mode
99*#	Ch 8	Set milk price adjustment—GE mode
99*(cow number)*(0-200)#	Ch 8	Milk Price Adjust factor (in percent)—SE mode

# Appendix CS

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## Printable ASCII Characters

The following table lists the printable characters that the Agri-comp 2045 will accept for the dairy name, feed type names, and user defined report names. Note: ASCII is an abbreviation for American Standard Code for Information Interchange. This character set is used by all standard terminals, printers, and personal computers.

Char	Code	Char	Code	Char	Code	Char	Code
A	65	a	97	0	48	:	58
B	66	b	98	1	49	;	59
C	67	c	99	2	50	<	60
D	68	d	100	3	51	=	61
E	69	e	101	4	52	>	62
F	70	f	102	5	53	?	63
G	71	g	103	6	54	@	64
H	72	h	104	7	55	[	91
I	73	i	105	8	56	•	92
J	74	j	106	9	57	]	93
K	75	k	107	(Space)	32	^	94
L	76	l	108	!	33	_	95
M	77	m	109	"	34	`	96
N	78	n	110	#	35	{	123
O	79	o	111	\$	36		124
P	80	p	112	%	37	}	125
Q	81	q	113	&	38	~	126
R	82	r	114	'	39		
S	83	s	115	(	40		
T	84	t	116	)	41		
U	85	u	117	*	42		
V	86	v	118	+	43		
W	87	w	119	,	44		
X	88	x	120	-	45		
Y	89	y	121	.	46		
Z	90	z	122	/	47		

# Appendix AC

## Connecting To A Personal Computer

Although we do not recommend the use of a personal computer (PC) with the Agri-comp 2045 to access data stored in the 2045, it is possible to connect a PC to the 2045. To accommodate users that opt to use a PC with their 2045, we have provided this appendix with instructions on connecting and verifying communications between a PC and 2045; however, we must emphasize that the PC may not perform all 2045 functions properly.

### 1. PC and Wiring Specifications

The following installation guidelines should be considered before connecting the PC to the 2045 computer:

- Make certain that the PC is an IBM or an IBM-compatible PC.
- The PC must have a serial port and appropriate communications software.
- Use communications cable 3555509 (RS232 Cable Kit with Transient Protection) when connecting the 2045 to a PC that uses a 25-pin, RS232 serial port connector, or an AT-style PCs that use a 9-pin, RS232 serial port connector.
- The maximum wire size that can be connected to J8 and J9 is 20 AWG (9 MWG).
- The maximum cable length between the 2045 and the dairyman's computer is 50 feet (15 meters). Longer distances are possible with special data cables, available at some computer stores.
- If the PC will be connected to a parallel printer and they will be located a distance from the 2045 that will not permit connection to the 2045 with the specified communications cable or a special data cable, either two telephone modems must be installed or two short-haul modems must be installed. (Installation of both modems is explained in Appendix SM).
- If the 2045 and the PC will be located in different buildings and short-haul modems will be installed, secondary lightning arrestors must also be installed, as explained in Appendix LP.
- If a serial printer will be used with the PC, the printer must be connected to connector J8 on the circuit board inside the 2045 computer and the PC will have to be connected to J9. When a parallel printer is used with a PC, the connection is made between the printer and the PC—not between the printer and the 2045—so the PC can be connected to either J8 or J9 on the 2045; however, we recommend that the PC be connected to J8. (Note that J8 has six baud rates—600, 1200, 2400, 4800, 9600, and 19200—and that J9 has only three baud rates—4800, 9600, and 19200—which may be a problem for some PC software.)

## 2. PC Computer Cable Connections

To provide communications between the 2045 and the PC, connect the communications cable to the appropriate RS-232 connector on the circuit board inside the 2045 computer, using the following procedure:

1. **Secure a strain-relief connector to the appropriate conduit hole in the back of the 2045 chassis.**
2. **Route the cable through the strain-relief connector.**
3. **Strip the cable jacket back 2 inches (50 mm).**
4. **Strip the wire insulations back 1/4 inch (6 mm).**
5. **Unplug connector J8 (J9, if a serial printer is being used) and connect wires, as shown in Figure CP-1.**  
This figure shows the cable connections between the 2045 and the PC for both the standard 25-pin and 9-pin connector styles and provides an illustration of the RS-232 #2 connector (J8) inside the 2045. Refer to Figure 4 in Chapter 2 when connecting the cable to connector J9.
6. **Then, plug J8 (or J9) back into place.**
7. **Plug the opposite end of the communications cable into the appropriate connector on the PC.**

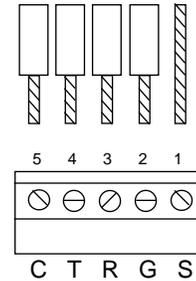
If phone modems or short-haul modems are to be part of the installation, connect them to the PC and 2045 at this time, as instructed in Appendix SM. Then, return to this appendix to check communications between the 2045 and the PC.

## Standard 25-Pin Connector

<u>2045 Location</u>	<u>Wire Color</u>	<u>PC Location</u>
1 - (S) Shield -----	Bare Wire -----	(DB25S) Pin 1
2 - (G) DC Ground ----	Black Wire -----	(DB25S) Pin 7
3 - (R) Receive -----	Red Wire -----	(DB25S) Pin 2
4 - (T) Transmit -----	White Wire -----	(DB25S) Pin 3
5 - not used -----	*no connect -----	(DB25S) Jumper pins 4 & 5
	*no connect -----	(DB25S) Jumper pins 6, 8, & 20

## Standard 9-Pin Connector

<u>2045 Location</u>	<u>Wire Color</u>	<u>PC Location</u>
1 - (S) Shield -----	Bare Wire -----	no connect
2 - (G) DC Ground ----	Black Wire -----	(DB9S) Pin 5
3 - (R) Receive -----	Red Wire -----	(DB9S) Pin 3
4 - (T) Transmit -----	White Wire -----	(DB9S) Pin 2
5 - not used -----	*no connect -----	(DB9S) Jumper pins 7 & 8
	*no connect -----	(DB9S) Jumper pins 1, 4 & 6



RS-232 #2  
J8

\* These connections are required at the plug to the dairyman's PC.

**Figure CP-1.** PC connections at the Agri-comp 2045

## 3. Agri-comp 2045 and PC Start-up

To make sure that the PC starts up and communicates properly to the Agri-comp 2045 computer, use the following procedure:

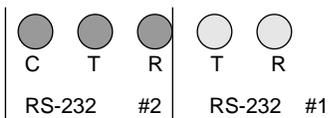
- 1. Plug the PC's power cord into a nearby grounded AC outlet.**
- 2. Turn power on to the PC.**  
Refer to the PC owner's manual for details on applying power to the computer.
- 3. Load a terminal emulator program or Bou-Matic's Agri-term program into the PC.**  
Either program enables the PC to function, or *emulate*, like a standard terminal and to communicate to the 2045. Refer to your PC owner's manual for details on loading programs.
- 4. Set the emulator program's communications configuration for 8 data bits, no parity, and 1 stop bit.**  
(The Agri-term program, if installed, is already preset with this configuration.) Save these settings to prevent the PC from reverting to default settings in case of power failure. (Refer to the owner's manual supplied with the emulator program for details on setting its configurations.)
- 5. Set the emulator program's baud rate to 9600.**  
(The Agri-term program, if installed, is already preset at 9600 baud.) The PC must be set to the same baud rate as that of the 2045 connector it is connected to in order to permit communications between the components. Connectors J8 and J9 are factory set at 9600 baud. (Refer to the emulator program owner's manual for details on setting its baud rate.) After verifying proper communications between the 2045 and all peripheral components, if you prefer a baud rate other than 9600, you can change the baud rates, as explained in Chapter 4.
- 6. Apply power to the Agri-comp 2045, install the system software and program software that will be used with this installation, and verify proper communications between the 2045 and the PC, as explained in Chapter 3.**  
Note that proper communications will be indicated by the appearance of software loading messages and the resulting main menu at the PC screen. If, during the loading procedure, you do not see the messages and main menu, return to this subsection and verify proper communications between the 2045 and the PC, as explained in the troubleshooting instructions in Section 4 of this appendix.

The 2045 recognizes the XON/XOFF handshaking protocol. At high baud rates, the 2045 may send several characters after receiving the XOFF character. No hardware handshaking signals are supplied or recognized.

If you are using a terminal, set the terminal's XON/XOFF configuration to ON.

## 4. Agri-comp 2045 and PC Troubleshooting

During normal operation, the receive (R) and transmit (T) LEDs for RS-232 #2, located a few inches below J8 on the 2045 circuit board and shown darkened in the example, should flash whenever you press a key at the PC to indicate communications between the PC and the 2045; the receive LED should flash when the 2045 receives information from the PC (a very quick, dim flash), and the transmit LED should flash when the 2045 sends information to the PC. To verify communications, press any key and check to see that the LEDs flash as explained above. If the LEDs do not flash appropriately, reverse the receive and transmit wires connected at J8 (J9 if used), positions 3 and 4, and again verify communications. If the LEDs still do not flash, check the wire connections and review the software installation procedures for the 2045 system and program disks and the terminal emulator or Agri-term program, because information is not getting to the Agri-comp 2045 computer.



If the PC does not communicate properly, verify that the voltages at J8 (J9 if used) agree with those in the table below. If the voltages do not agree, take action at once to correct them.

Place Measured	PC	PC
	Connected	Disconnected
DC Gnd (pin 2) to Receive (pin 3)	-5.0V to -12.0V	0.05V to 0.10V
DC Gnd (pin 2) to Transmit (pin 4)	-8.0V to -9.8V	-8.0V to -9.8V
Shield (pin 1) to DC Gnd (pin 2)	Less than 1.0V	Less than 1.0V

## 5. Computer Programs

Computer programs that access data from the 2045 should always be written to use Command mode, using the command set listed in Appendix CS, instead of trying to use the 2045 Menu mode. The menu structure may, and probably will, change as software features are added to or changed in the 2045, but the numeric commands will remain unchanged. New commands may be added, but existing commands will not (normally) be changed.

# Appendix CP

It may be necessary to “flush” the command buffers before a command is issued. The easiest way to do this is to send an Escape character (ASCII code 27), followed by the characters “0\*\*#” before any command is sent. The Escape cancels any command that may be in process. The “0” forces the 2045 out of Menu mode, and the two asterisks (\*\*) and the pound (#) sign cancel any command that might be left in the buffer.

The 2045 will recognize either a pound (#) sign or a carriage return as the end of a command, but the pound sign is preferred. Software should not send both the # and the carriage return. The 2045 will send a carriage return and a line feed (in that order) after a # is received.

While the 2045 is busy processing a command, such as sorting or printing a report, up to 255 incoming characters will be stored in a buffer. Once the buffer is filled, any further characters will be lost. To avoid missing or erroneous commands, software must wait for each command to be completed before another command is issued. Note that when the sort command is finished, the 2045 will redisplay the sort command. For example, if a sort by lot number and cow number is requested with the command 4\*30\*19#, when the sort is completed, the 2045 will send 4: 30: 19 followed by a carriage return and line feed. The 2045 is done sorting when the PC receives a colon (: ) followed by a line feed.

## 6. Capturing Reports from the 2045

The most convenient way to retrieve data from the 2045 is by capturing reports that have the required data. Capturing reports is readily accomplished on the 2045; however, it is usually helpful to temporarily disable the printer that is connected to the 2045, so that the dairyman does not end up with stacks of unnecessary printouts.

There are several ways to disable the 2045 printer. The best way is to issue the command 15\*52\*2#, which puts the 2045 into a special “transparent print” mode that automatically disables the printer and sends all reports to RS232 port. This mode also causes the 2045 to send an Escape character (ASCII 27) followed by a “3” (ASCII 51), at the beginning of the report, and an Escape character followed by a

“4” (ASCII 52), at the end of the report. The escape sequence can be used to determine the start and end of a report. If Page mode is enabled on the 2045, the 2045 will transmit a form feed (ASCII 12) followed by a set of column headings after each 60 lines of text. Software that analyzes the reports must be able to skip over these extra lines. The command `15*52*0#` should be used to return the 2045 to normal mode.

**Note:**

If the 2045 is using an ADDS terminal with a parallel printer attached, then the system may be normally set to have Transparent Print active, so that the Milk Report can be printed. If this is the case, then computer programs should not disable Transparent Print when finished capturing data.

# Appendix CP

## Cow Record Design Worksheet

The worksheet on the following page can be used to simplify the design of your cow record. The cow record will display in five columns, as shown. The number of rows will depend on the number of data items you wish to display. The cow number (NUMB, code 19) will always be the first entry in the upper left corner of the cow record. You can enter up to 109 items to be displayed. Only valid cow parameters will be displayed; invalid entries will print as blank spaces.

To design the cow record, enter the desired parameter code number and abbreviation, as shown for the cow number. Then use the 16\*19# command to enter the parameter codes, reading across the rows from left to right. Remember that you do not enter the initial code 19, and remember to enter codes for the spaces that you want to leave blank (code 999 is recommended for this purpose). The small numbers to the left of the page are to be used as aids to help you keep track of where you are in the record as you enter the numbers.

# Appendix CR

## COW RECORD DESIGN WORKSHEET

Index	Code:Abbr	Code:Abbr	Code:Abbr	Code:Abbr	Code:Abbr
0	19:NUMB	_____:	_____:	_____:	_____:
5	_____:	_____:	_____:	_____:	_____:
10	_____:	_____:	_____:	_____:	_____:
15	_____:	_____:	_____:	_____:	_____:
20	_____:	_____:	_____:	_____:	_____:
25	_____:	_____:	_____:	_____:	_____:
30	_____:	_____:	_____:	_____:	_____:
35	_____:	_____:	_____:	_____:	_____:
40	_____:	_____:	_____:	_____:	_____:
45	_____:	_____:	_____:	_____:	_____:
50	_____:	_____:	_____:	_____:	_____:
55	_____:	_____:	_____:	_____:	_____:
60	_____:	_____:	_____:	_____:	_____:
65	_____:	_____:	_____:	_____:	_____:
70	_____:	_____:	_____:	_____:	_____:
75	_____:	_____:	_____:	_____:	_____:
80	_____:	_____:	_____:	_____:	_____:
85	_____:	_____:	_____:	_____:	_____:
90	_____:	_____:	_____:	_____:	_____:
95	_____:	_____:	_____:	_____:	_____:
100	_____:	_____:	_____:	_____:	_____:
105	_____:	_____:	_____:	_____:	_____:

## Detacher Address and Switch Setting

Current production detacher controls have a 10-position, switch bank (located on the back of the electronic assembly inside the control, as shown in Figure DA-1) for setting basic detacher functions. Switch positions 1-6 are used to set the detacher address, position 7 is used to set the dump delay, positions 8 and 9 are used to set the milking unit's flow rate and takeoff delay, and position 10 is used to set the weight units used by the milk meter to measure milk.

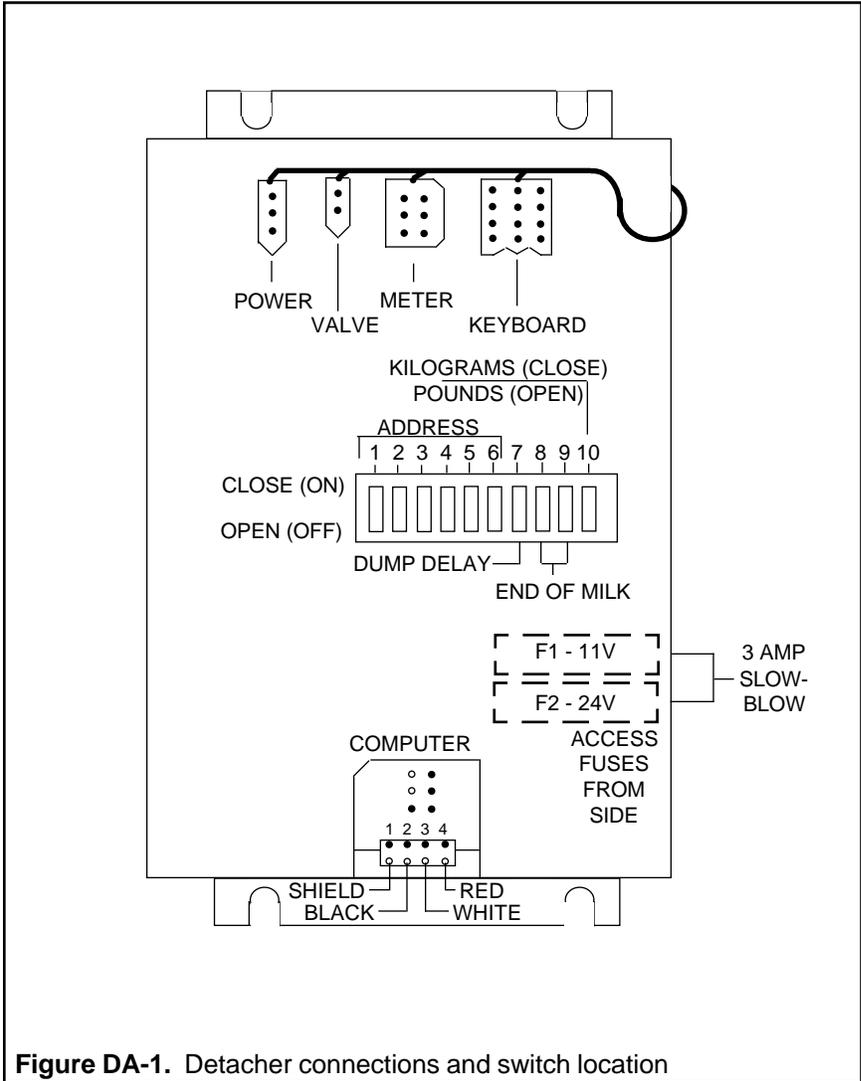


Figure DA-1. Detacher connections and switch location

# Appendix DA

All detachers are factory set with the same switch settings, which need not be changed in installations that do not use an Agri-comp computer. When an Agri-comp 2045 computer is part of the installation, however, individual addresses must be assigned and changed inside detachers so that the 2045 can identify which detacher is communicating to it and can respond by sending related milking data to that detacher's display.

While some of the settings can be overridden by entering commands at the terminal or keypad, the instructions in this appendix deal only with setting the switch positions. Refer to the appropriate chapters for information on overriding the settings.

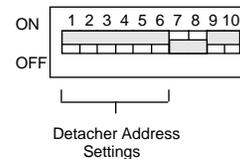
## Caution

The detacher switch is easily accessible from the back of the electronic assembly, so you need not remove the assembly to change settings. Should you decide to remove the assembly, however, carefully follow the cable connect and disconnect directions in the detacher instruction packet and on the label inside the detacher control. Also do not pull on the wires—pull on the Molex connector.

## 1. Changing the Detacher Address Settings

Individual addresses must be assigned and changed inside detachers when an Agri-comp computer is part of the installation, so that the computer can identify which detacher is communicating with it and can respond by sending milking data to that detacher's display. All detachers are factory set with a default detacher address of 0. That is, switch positions 1-6 are all set to the OFF position, as shown in the example.

When assigning detacher addresses, you should start with the detacher farthest from the entry gate in double-herringbone, trigon, and polygon parlors and start with the detacher closest to the entry gate in side-opener parlors, assigning the first detacher the address 0. You won't have to change its switch settings, since they are already factory set. Assign the next detacher address 1 and change its switch positions 1-6 to 000010, as shown in Table DA-1. Continue assigning and changing addresses to all detachers in a consecutive order. (Although it is not necessary to match detacher addresses with detacher numbers in the parlor, it may be helpful when reading and using ID reports.)



Switch is set for address 0

Initialization will catch any duplicate detacher addresses. You must set a new address for any detachers with duplicate addresses, then reinitialize that ID zone.

# Appendix DA

## DA-1. Detacher Control Address Settings (0=ON, 1=OFF)

Address	Switch						Address	Switch					
	1	2	3	4	5	6		1	2	3	4	5	6
0	0	0	0	0	0	0	32	0	0	0	1	0	0
1	0	0	0	0	1	0	33	0	0	0	1	1	0
2	0	0	0	0	0	1	34	0	0	0	1	0	1
3	0	0	0	0	1	1	35	0	0	0	1	1	1
4	1	0	0	0	0	0	36	1	0	0	1	0	0
5	1	0	0	0	1	0	37	1	0	0	1	1	0
6	1	0	0	0	0	1	38	1	0	0	1	0	1
7	1	0	0	0	1	1	39	1	0	0	1	1	1
8	0	1	0	0	0	0	40	0	1	0	1	0	0
9	0	1	0	0	1	0	41	0	1	0	1	1	0
10	0	1	0	0	0	1	42	0	1	0	1	0	1
11	0	1	0	0	1	1	43	0	1	0	1	1	1
12	1	1	0	0	0	0	44	1	1	0	1	0	0
13	1	1	0	0	1	0	45	1	1	0	1	1	0
14	1	1	0	0	0	1	46	1	1	0	1	0	1
15	1	1	0	0	1	1	47	1	1	0	1	1	1
16	0	0	1	0	0	0	48	0	0	1	1	0	0
17	0	0	1	0	1	0	49	0	0	1	1	1	0
18	0	0	1	0	0	1	50	0	0	1	1	0	1
19	0	0	1	0	1	1	51	0	0	1	1	1	1
20	1	0	1	0	0	0	52	1	0	1	1	0	0
21	1	0	1	0	1	0	53	1	0	1	1	1	0
22	1	0	1	0	0	1	54	1	0	1	1	0	1
23	1	0	1	0	1	1	55	1	0	1	1	1	1
24	0	1	1	0	0	0	56	0	1	1	1	0	0
25	0	1	1	0	1	0	57	0	1	1	1	1	0
26	0	1	1	0	0	1	58	0	1	1	1	0	1
27	1	1	1	0	1	1	59	1	1	1	1	1	0
28	1	1	1	0	0	0	60	1	1	1	1	0	0
29	1	1	1	0	1	0	61	1	1	1	1	1	0
30	1	1	1	0	0	1	62	1	1	1	1	0	1
31	1	1	1	0	1	1	63	1	1	1	1	1	1

# Appendix DA

## 2. Changing the Dump Delay Switch Setting

The dump delay is the period of time between when the milking unit detaches and the milk meter empties the remaining 3.5 pounds of a cow’s milk production. All detachers are factory set with a default dump delay setting of 30 seconds. That is, switch position 7 is set to the ON position, as shown in the example.

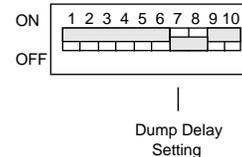
The detachers should normally be operated using the standard factory setting; however, you also have the option of setting the delay to zero.

To change the dump delay time at a detacher, choose one of the settings listed in Table DA-2 and set switch position 7 accordingly.

**Table DA-2.** Switch Settings for Dump Delay

Dump Delay	Position 7
30 seconds	ON
0 seconds	OFF

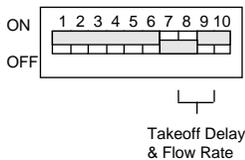
Operating the detachers with the 30-second dump delay allows the operator ample time to reattach the milking unit in the event that a cow experiences an early detach. On the other hand, operating them with the 0-second dump delay would not allow the operator any time to reattach. Providing time for reattachment is especially important when you are using an Agri-comp computer, because the releasing of milk signals the computer to close the cow’s production record. As a result, if a detacher with a dump delay of zero seconds were to detach early, upon reattachment to the cow the computer would not reopen the cow’s record—the additional milk production would simply not be counted for that cow.



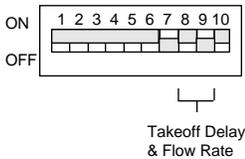
Switch is set for dump delay of 30 sec

## 3. Changing the Takeoff & Flow Rate Switch Settings

The takeoff delay is a feature which allows a cow to resume her milk flow, if it should momentarily pause, before the milking unit detaches. The delay time is the period of time between when the flow rate sensor in the milk meter measures less than the predetermined milk flow rate and the milking unit detaches.



Switch is set for delay of 13 seconds and flow rate of 0.7 pounds (0.3 liters)



Switch is set for delay of 22 seconds and flow rate of 0.7 pounds (0.3 liters)

Detachers are factory set with a 13-second takeoff delay and a milk flow rate of 0.7 pounds (0.3 liters) per minute—switch position 8 is ON and position 9 is OFF. Thus, if you are milking a cow using a detacher with a takeoff delay setting of 13 seconds and a flow rate of 0.7 lb/min and the cow’s milk flow rate drops below 0.7 pounds per minute, the takeoff delay will begin. After 13 seconds, the milking unit will detach.

Generally, the detachers should all be operated using their same standard factory settings, however, due to varying requirements of dairymen and cows, you may want to adjust the takeoff delay and flow rate settings in certain situations.

To change the switch settable takeoff delay and flow rate at a detacher, choose one of the settings listed in Table DA-3, and set switch positions 8 and 9 accordingly.

**Table DA-3.** Switch Settings for Takeoff and Flow Rate Delays

Takeoff (seconds)	Position		Flow Rate	
	8	9	(lbs/min)	(liter/min)
22	OFF	ON	0.7	0.3
13	ON	OFF	0.7	0.3
8	ON	ON	0.7	0.3

**Note:**

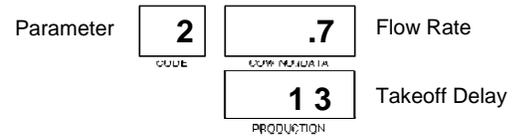
Flow rate settings are to be entered in tenths of a pound (or liter) per minute.

To check the current delay setting at a detacher, enter the command **2 #** at the detacher’s keypad. The display will show the flow rate and takeoff delay time.

# Appendix DA

Enter the command **1 #** to return the display to the Attach Display mode of “Time and Production.”

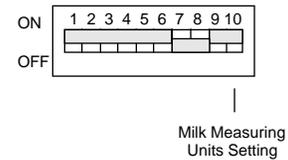
The takeoff delay and flow rate can also be changed from the terminal or PC or from the detacher keypad, which will override programmed switch settings. Refer to Chapter 8 for more details on changing these settings.



## 4. Changing the Milk Measuring Units Switch Setting

The milk meter can measure milk in pounds or kilograms, depending of the switch setting in the detacher. All detachers are factory set with milk measuring units of pounds. That is, switch position 10 is set to the OFF position, as shown in the example.

To change the unit of measure on a detacher, choose one of the settings listed in Table DA-5, and set switch position 10 accordingly.



Switch is set for units in pounds

**Table DA-5.** Switch Settings for Unit of Measure

Units of Measure	Position 10
Kilograms	ON
Pounds	OFF

**Note**

When setting the unit of measure to kilograms, do not convert takeoff delay settings to kilograms. All takeoff settings must be in pounds.

Should you experience problems with a detacher and the electronics inside a detacher are found to be defective, the Detacher circuit board will need to be replaced and the detacher settings on the new electronics must be set identical to that of the old electronics. Refer to the appropriate detacher instruction packet for details on replacing the Detacher circuit board.

## Line Protection Module Installation

Data line protection modules are electrical devices which, used on communications cables, help protect electrical equipment from damage caused by high voltage surges from lightning strikes. When a high-voltage transient appears on one or more of the communications cables, the module acts like a voltage clamp and limits the transient's peak voltage. Some of the high energy in a transient is changed to heat in the module, and the spike of current from the clamping action is conducted to earth through wiring to a ground rod.

Data line protection modules must be installed in the following places:

- At both ends of the communications cable that connects the 2045 to a system component located in a building other than that which the 2045 is located in.
- At both ends of the communications cable that connects short-haul modems together.

**Note**

Feeder communications cables have line protection built in at both the 2045 computer and the feeder control and do not require extra protection.

Recommendations on the type of protection modules to use in a particular situation and instructions on how to install them are covered in this appendix.

# Appendix LP

## 1 Wiring Specifications

The following installation guidelines should be considered before connecting the modules to a communications cable:

- The protection device we recommend for use on communications cables between the 2045 and a terminal or PC when short-haul modems are used is model #22, by Telebyte Technology, Inc.
- For recommendations on a suitable protection module for use on communications cables between telephones and phone modems (if you so desire addition protection), consult your local computer store representative.
- Each branch that goes to a different building requires two modules: one where the branch exits the building from the 2045, and one where it enters the building to the milking parlor.
- Each module must be connected to the nearest AC (earth) ground with at least a 14 AWG (18 MWG) wire.

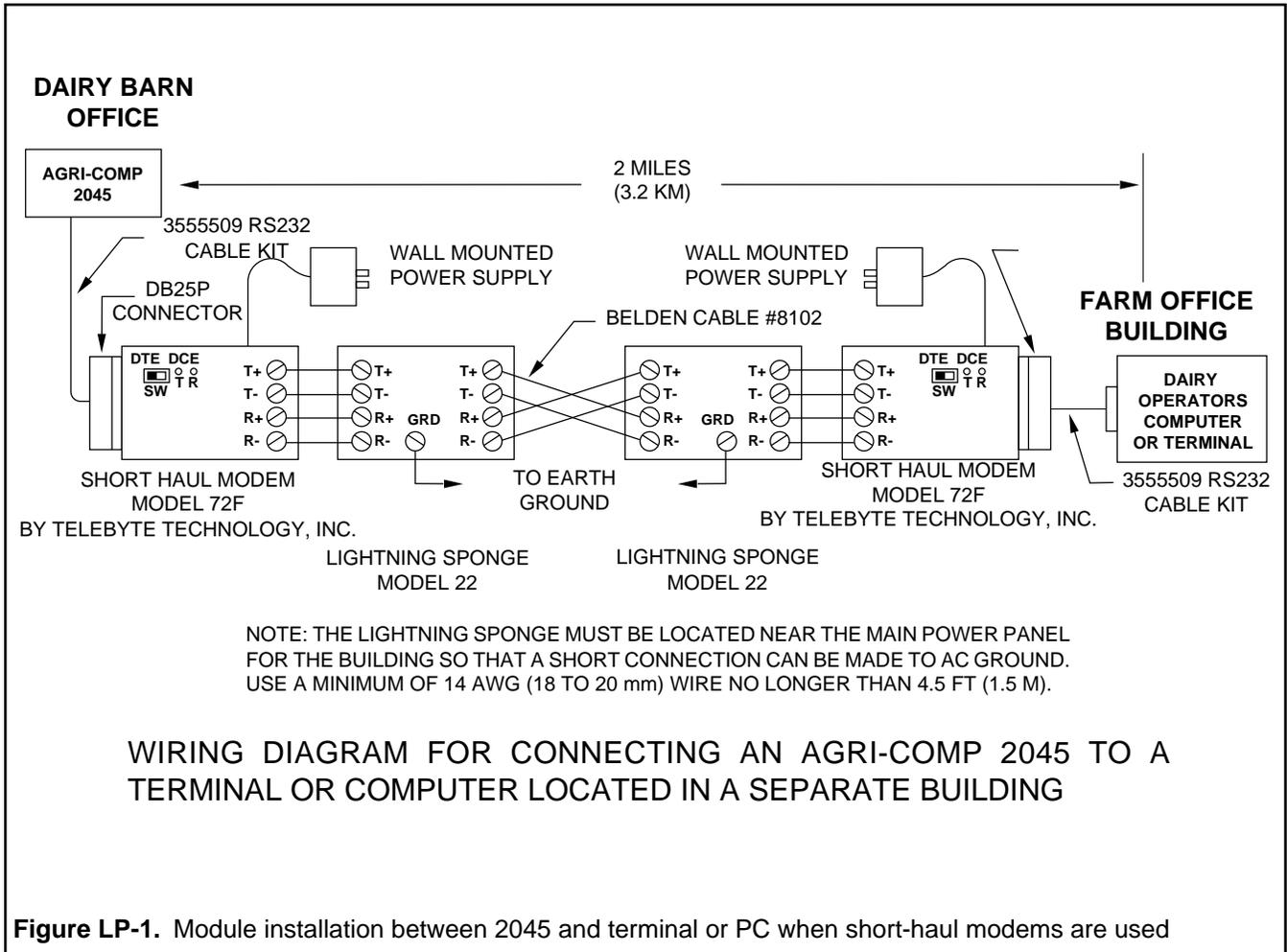
## 2 Installation

### Note

During installation, all electrical work should be done by a qualified (or licensed, if applicable) electrician.

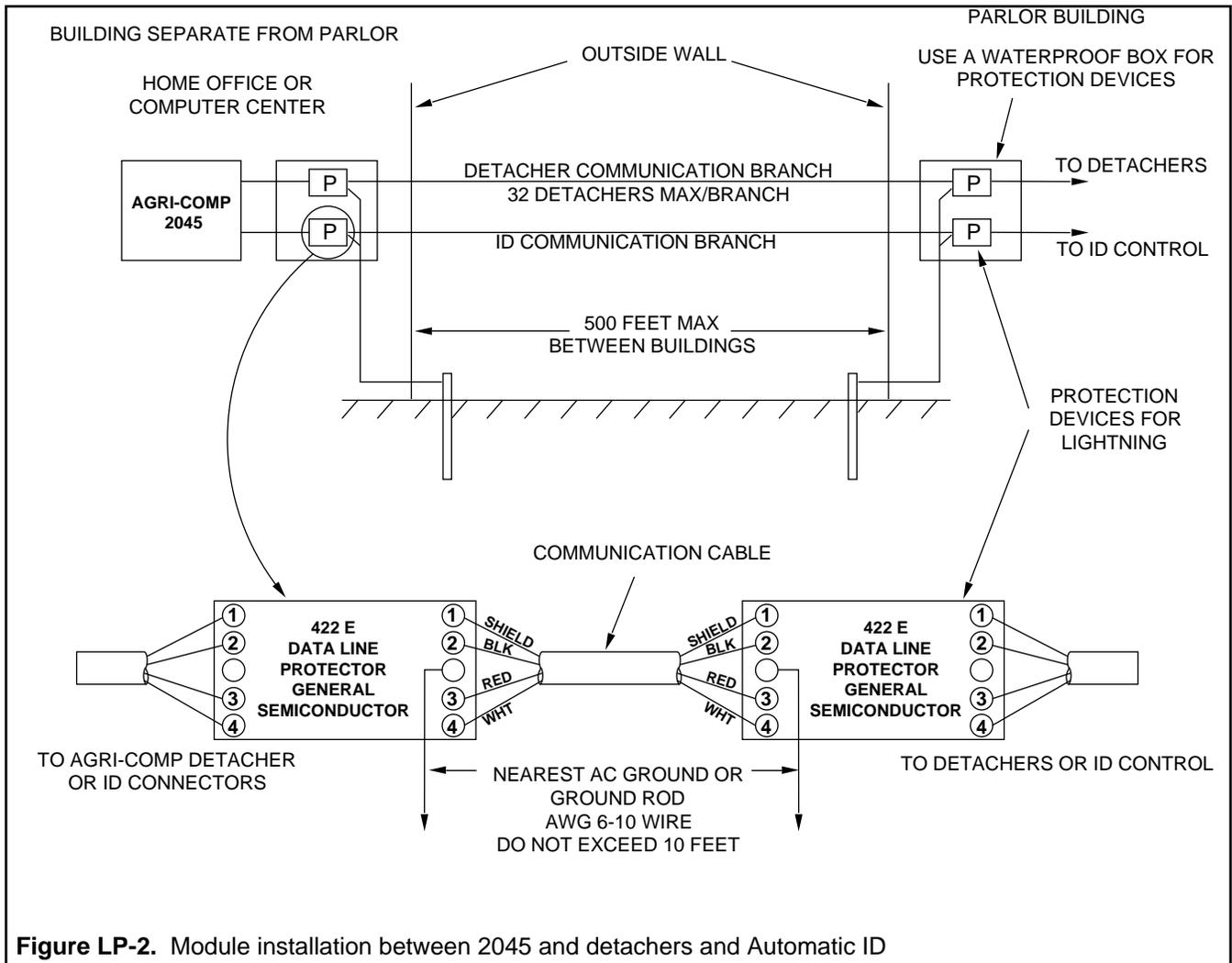
Mount the modules in standard waterproof enclosures near the main AC power panel (where applicable) and either inside or outside the office building and parlor (in all other applications), but near the outside wall of the buildings, to keep the lightning transients outside of the building. Connect all wires in the communications cable to the module, arranging them such that input wires stay a minimum of 1" from output wires and the two do not cross. Failure to comply with this arrangement will result in no transient protection. Also, for best protection, keep grounding wires as short as possible.

Figure LP-1 illustrates the proper module connections between the 2045 and a terminal or PC when short-haul modems are used.



**Figure LP-1.** Module installation between 2045 and terminal or PC when short-haul modems are used

# Appendix LP



**Figure LP-2.** Module installation between 2045 and detachers and Automatic ID

Figure LP-2, above, illustrates the proper module connections between the 2045 and detachers and Automatic ID.

## 3 Maintenance

Replace the arrestor if its plastic housing becomes cracked or broken; this damage may happen as a result of a nearby lightning strike.

## Reminders From Chapter 1

- To activate Menu mode, press any letter key (unless the Command mode is awaiting a letter).
- To exit from a menu and return to the previous menu, press the ESC key.
- To return to the main menu, press ESC until the main menu appears or press the zero key (to switch to Command mode), then press any letter key to return to the main menu.

## Menu Structure

The following tables provide a quick reference of the menu structure of the Agri-comp 2045 computer, briefly explained in Chapter 1, and include command equivalents (where applicable), though not actually present on the screen, to aid you in understanding their relationship to menu entries. The menus will be indented as shown (except the main menu) for improved readability. Thus, the farther each menu is from the left margin, the deeper you are in the overall menu structure. As was mentioned in Chapter 1, the number of asterisks in the menu headings increases with each menu level to help orient you within a menu hierarchy.

**Table MS-1. Feeding Menu Hierarchy:** \_\_\_\_\_ **Commands:**

When you press any letter at the terminal or PC, the main menu will appear as shown.

- \* Agri-comp 2045 \*** (main menu)  
**F** - Feeding  
**A** - Automatic ID  
**R** - Reproduction  
**M** - Milking  
**S** - System

When you select main menu option letter "F," a second-level Feeding menu will be displayed.

- \*\* Agri-comp 2045 Feeding \*\***  
**S** - Setup  
**D** - Data Entry or Edit  
**R** - Reports

Select Feeding menu letter "S," and a third-level Feeding Setup menu will be displayed.

- \*\*\* Agri-comp 2045 Feeding Setup \*\*\***  
**A** - Assign/Delete Calibration Tags  
**C** - Calibrate Feeder  
**Z** - Assign Feed Zones ..... **16\*36#**  
**T** - Assign Feed Types  
**N** - Assign Feed Names ..... **15\*37\*(1-32)#**  
**P** - Assign Feed Prices ..... **16\*37**

When you select Feeding Setup menu letter "A," a fourth-level Calibration Tags menu will be displayed, and your choices will be those listed.

- \*\*\*\* Calibration Tags \*\*\*\***  
**A** - Assign to Feed A ..... **35\*1\*tag#**  
**B** - Assign to Feed B ..... **35\*2\*tag#**  
**C** - Assign to Feed C ..... **35\*3\*tag#**  
**D** - Assign to Feed D ..... **35\*4\*tag#**  
**R** - Remove or Delete ..... **35\*0\*tag#**

Select Feeding Setup menu letter "C" to access this menu.

- \*\*\*\* Calibrate Feeder \*\*\*\***  
**A** - Feed A ..... **16\*31#**  
**B** - Feed B ..... **16\*32#**  
**C** - Feed C ..... **16\*33#**  
**D** - Feed D ..... **16\*34#**  
**E** - Enter Factors

# Appendix MS

## Feeding Menu Hierarchy and Commands continued

<b>***** Enter Calib. Factors *****</b>		
<b>A</b> - Feed A .....	16*131#	
<b>B</b> - Feed B .....	16*132#	
<b>C</b> - Feed C .....	16*133#	
<b>D</b> - Feed D .....	16*134#	Select Calibrate Feeder menu letter "E" to access this menu.
<b>**** Assign Feed Types ****</b>		
<b>A</b> - Feed A .....	16*231#	
<b>B</b> - Feed B .....	16*232#	
<b>C</b> - Feed C .....	16*233#	
<b>D</b> - Feed D .....	16*234#	Select Feeding Setup menu letter "T" to access this menu.
<b>*** Agri-comp 2045 Feeding Data ***</b>		
<b>F</b> - Feeding Data Entry		
<b>E</b> - Edit Cow Record		Select Feeding menu letter "D" to access this menu.
<b>**** Feeding Data Entry ****</b>		
<b>R</b> - Assign Rations for Feeds		
<b>T</b> - Assign Ration Targets		
<b>D</b> - Assign Target Days .....	45*cow*days#	
<b>W</b> - Weight or Body Condition .....	80*cow*wtg#	
<b>I</b> - ID Tag Number .....	22*cow*tag#	Select Feeding Data menu letter "F" to access this menu.
<b>***** Feed Ration Entry *****</b>		
<b>A</b> - Assign Ration for Feed A .....	41*cow*rtn#	
<b>B</b> - Assign Ration for Feed B .....	42*cow*rtn#	
<b>C</b> - Assign Ration for Feed C .....	43*cow*rtn#	
<b>D</b> - Assign Ration for Feed D .....	44*cow*rtn#	Select Feeding Data Entry menu letter "R" to access this menu.
<b>***** Feed Target Entry *****</b>		
<b>A</b> - Assign Target for Feed A .....	46*cow*trg#	
<b>B</b> - Assign Target for Feed B .....	47*cow*trg#	
<b>C</b> - Assign Target for Feed C .....	48*cow*trg#	
<b>D</b> - Assign Target for Feed D .....	49*cow*trg#	Select Feeding Data Entry menu letter "T" to access this menu.
<b>*** Agri-comp 2045 Feeding Reports ***</b>		
<b>R</b> - Feed Ration Report .....	18*40#	
<b>E</b> - Feed Exception Report .....	18*140#	
<b>T</b> - Ration Target Report .....	18*45#	
<b>V</b> - Feed Visits Report .....	18*250#	
<b>S</b> - Feed System Summary - Today .....	17*40#	
<b>Y</b> - Feed System Summary - Yesterday .....	17*140#	
<b>N</b> - Feed Name Summary .....	17*37#	
<b>I</b> - ID Tag Number List .....	18*1*1#	Select Feeding menu letter "R" to access this menu.

# Appendix MS

## Automatic ID Menu Hierarchy: \_\_\_\_\_ Commands:

When you press any letter at the terminal or PC, the main menu will appear as shown.

- \* **Agri-comp 2045** \* (main menu)
- F** - Feeding
- A** - Automatic ID
- R** - Reproduction
- M** - Milking
- S** - System

When you select main menu option letter "A," a second-level Automatic ID menu will be displayed.

- \*\* **Agri-comp 2045 Automatic ID** \*\*
- S** - Setup
- D** - Data Entry or Edit
- R** - Reports

Select Automatic ID menu letter "S" to access this menu.

- \*\*\* **Agri-comp 2045 ID Setup** \*\*\*
- P** - Parlor Entry Mode ..... 15\*22\*(0,1)#
- S** - Parlor Setup
- E** - Ignore ID Errors ..... 15\*41\*(0,1)#
- Z** - Set Number of ID Zones ..... 15\*50\*zones#

Select ID Setup menu letter "S" to access this menu.

- \*\*\*\* **Parlor Setup** \*\*\*\*
- Z** - Meters per Zone ..... 16\*90#
- M** - D/M Addresses - Manual ..... 16\*91#
- A** - D/M Addresses - Auto ..... 9\*#

Select Automatic ID menu letter "D" to access this menu.

- \*\*\* **Agri-comp 2045 ID Data** \*\*\*
- I** - ID Tag Number Entry ..... 22\*cow>tag#
- E** - Edit Cow Record

Select Automatic ID menu letter "R" to access this menu.

- \*\*\* **Agri-comp 2045 ID Reports** \*\*\*
- T** - Tag Number List ..... 18\*1#
- R** - Read List ..... 18\*9#
- N** - Not Read List ..... 18\*3#
- P** - Parlor Entry Order ..... 15\*40\*(0,1)#
- D** - Direct Tag Read ..... 8\*1#
- I** - Parlor Initialization ..... 9\*##

# Appendix MS

## Reproduction Menu Hierarchy: \_\_\_\_\_ Commands:

<p><b>* Agri-comp 2045 *</b> (main menu)</p> <p><b>F</b> - Feeding  <b>A</b> - Automatic ID  <b>R</b> - Reproduction  <b>M</b> - Milking  <b>S</b> - System</p>	<p>When you press any letter at the terminal or PC, the main menu will appear as shown.</p>
<p><b>** Agri-comp 2045 Reproduction **</b></p> <p><b>S</b> - Setup  <b>D</b> - Data Entry or Edit  <b>R</b> - Reports</p>	<p>When you select main menu option letter "R," a second-level Reproduction menu will be displayed.</p>
<p><b>*** Agri-comp 2045 Repro Setup ***</b></p> <p><b>I</b> - Increment Days in Milk ..... 15*2*days#  <b>B</b> - Ready to Breed Days ..... 15*12*days#  <b>P</b> - Pregnancy Check Days ..... 15*13*days#  <b>D</b> - Dry Off Days ..... 15*14*days#  <b>G</b> - Gestation Days ..... 15*15*days</p>	<p>Select Reproduction menu letter "S" to access this menu.</p>
<p><b>*** Agri-comp 2045 Repro Data ***</b></p> <p><b>R</b> - Repro Parameter Entry  <b>E</b> - Edit Cow Record</p>	<p>Select Reproduction menu letter "D" to access this menu.</p>
<p><b>**** Repro Parameters ****</b></p> <p><b>D</b> - Days in Milk ..... 56*cow*days#  <b>H</b> - Days since in Heat ..... 60*cow*days#  <b>B</b> - Days since Bred ..... 72*cow*days#  <b>S</b> - Sire Code ..... 76*cow*sire#  <b>R</b> - Repro Status Code ..... 77*cow*rpro#  <b>L</b> - Lactation Number ..... 88*cow*lcno#</p>	<p>Select Repro Data menu letter "R" to access this menu.</p>
<p><b>*** Agri-comp 2045 Repro Reports ***</b></p> <p><b>P</b> - Pregnant Cows ..... 18*72#  <b>O</b> - Open Cows ..... 18*88#  <b>S</b> - Sire ..... 18*2#  <b>C</b> - Cull Cows ..... 17*77*0#  <b>R</b> - Repro Summary ..... 17*77#  <b>D</b> - Date to Days Conversion ..... 15*35#  <b>T</b> - Translate DIM to Calendar Date ..... 15*35*(1-364)#  <b>H</b> - Heat-Seeker ..... 18*78#</p>	<p>Select Reproduction menu letter "R" to access this menu.</p>

# Appendix MS

## Milking Menu Hierarchy: \_\_\_\_\_ Commands:

When you press any letter at the terminal or PC, the main menu will appear as shown.

- \* **Agri-comp 2045** \* (main menu)
- F** - Feeding
- A** - Automatic ID
- R** - Reproduction
- M** - Milking
- S** - System

When you select main menu option letter "M," a second-level Milking menu will be displayed.

- \*\* **Agri-comp 2045 Milking** \*\*
- S** - Setup
- D** - Data Entry or Edit
- R** - Reports

Select Milking menu letter "S" to access this menu.

- \*\*\* **Agri-comp 2045 Milking Setup** \*\*\*
- D** - Detacher Settings
- M** - End of Milking ..... 15\*1#
- E** - End of Milking Day ..... 15\*2#
- C** - Clear Herd Average ..... 15\*3\*(1-3)#
- I** - Average Interval ..... 15\*4\*(0-7)#
- A** - Set Auto End of Day ..... 15\*8\*(1-3)#
- H** - Set Fresh Cow Hold Count ..... 15\*20\*days#

Select Milking Setup menu letter "D" to access this menu.

- \*\*\*\* **Detacher Setup** \*\*\*\*
- T** - Display Time ..... 15\*5\*#
- N** - Display Number ..... 15\*5\*#
- R** - Set Takeoff Rate ..... 2\*flow\*time#
- D** - Set Takeoff Delay ..... 2\*flow\*time#
- C** - Display Current Rate & Delay ..... 2\*#

Select Milking menu letter "D" to access this menu.

- \*\*\* **Agri-comp 2045 Milking Data** \*\*\*
- M** - Milking Parameter Entry
- E** - Edit Cow Record

Select Milking Data menu letter "M" to access this menu.

- \*\*\*\* **Milking Parameter Entry** \*\*\*\*
- H** - Hold Milk ..... 20\*cow\*(0-99)#
- A** - Attention Code ..... 21\*cow\*(0-15)#
- L** - Lot Number ..... 30\*cow\*(0-99)#
- D** - Days in Milk ..... 56\*cow\*days#
- T** - Lactation Total ..... 52\*cow\*(0-6500)#
- B** - Breed Code ..... 75\*cow\*code#
- R** - Repro Status Code ..... 77\*cow\*rpro#

Select Milking menu letter "R" to access this menu.

- \*\*\* **Agri-comp 2045 Milking Reports** \*\*\*
- P** - Production
- A** - Average Production ..... 18\*24#
- C** - Attention Codes ..... 18\*2#
- D** - Deviation
- L** - Lot ..... 18\*30#
- S** - Herd Summary ..... 17\*0#

Select Milking Reports menu letter "P" to access this menu.

- \*\*\*\* **Production Reports** \*\*\*\*
- C** - Cow Number Order ..... 18\*5\*0#
- P** - Production Order ..... 18\*5#
- D** - Daily Production ..... 18\*100#
- M** - Daily Milk ..... 18\*101#
- W** - Weekly ..... 18\*105#
- N** - Number/Lactation Total ..... 18\*0#

Select Milking Reports menu letter "D" to access this menu.

- \*\*\*\* **Deviation Report** \*\*\*\*
- R** - Print Deviation Report ..... 18\*25#
- W** - Deviation in Weight ..... 15\*45\*0#
- P** - Deviation in Percent ..... 15\*45\*1#

# Appendix MS

## System Menu Hierarchy: \_\_\_\_\_ Commands:

### \* Agri-comp 2045 \* (main menu)

- F - Feeding
- A - Automatic ID
- R - Reproduction
- M - Milking
- S - System

When you press any letter at the terminal or PC, the main menu will appear as shown.

### \*\* Agri-comp 2045 System Setup \*\*

- S - Setup
- D - Data Entry or Edit
- R - Reports

When you select main menu option letter "S," a second-level System Setup menu will be displayed.

### \*\*\* Agri-comp 2045 System Setup \*\*\*

- T - Set Time
- D - Set Date
- P - Printer
- N - Dairy Name ..... 15\*16\*2045#
- M - Set Milk Price ..... 15\*99\*(0-99.99)#
- B - Set Bunk Feed Costs ..... 16\*(901-909)#
- U - User Defined Report Setup ..... 16\*(901-909)#
- R - User Defined Report Name ..... 15\*(901-909)#

Select Setup menu letter "S" to access this menu.

#### \*\*\*\* Set Time \*\*\*\*

- H - Set Hour ..... 15\*61\*hour#
- M - Set Minutes ..... 15\*60\*mins#
- P - Set PM ..... 15\*62\*1#
- C - Display Current Time

Select System Setup menu letter "T" to access this menu.

#### \*\*\*\* Set Date \*\*\*\*

- M - Set Month ..... 15\*9\*month#
- D - Set Day ..... 15\*10\*day#
- Y - Set Year ..... 15\*11\*year#
- W - Set Weekday ..... 15\*7\*(1-7)#
- C - Display Current Date

Select System Setup menu letter "D" to access this menu.

#### \*\*\*\* Printer Setup \*\*\*\*

- P - Phone Modem ..... 15\*59\*2#
- S - Serial ..... 15\*53\*1#
- D - End of Line Delay ..... 15\*54\*(0-9999)#
- M - Enable/Disable Milk Report ..... 15\*58\*(0,1)#
- T - Enable/Disable Transparent Print ..... 15\*52\*(0,2)#

Select System Setup menu letter "P" to access this menu.

### \*\*\* Agri-comp 2045 Setup Data \*\*\*

- A - Add Cows ..... 19\*#
- D - Delete Cows ..... 19\*cow#
- E - Edit Cow Record
- V - View Cow Record
- P - Print Cow Record ..... cow#
- W - Write Backup Disk ..... 15\*25#

Select Setup menu letter "D" to access this menu.

### \*\*\* Agri-comp 2045 Setup Reports \*\*\*

- P - Parameter Summary ..... 17\*15#
- I - Income/Cost Report ..... 18\*97#
- U - User Defined Reports ..... 18\*(901-909)#
- T - Test Printer ..... 8\*0#
- B - # of Blank Lines at End of Reports ..... 15\*55\*lines#

Select Setup menu letter "R" to access this menu.

## Maintenance

### 1 Hardware Maintenance

To aid you in maintaining your Agri-comp 2045 computer and peripheral components, we recommend that you inspect the items in this section for cleanliness, wear, and replacement at their specified intervals.

#### **Every Six Months**

At least once every six months you should clean out your printer. To do so, turn the printer off, remove the paper, turn the printer upside down, and shake or blow out all foreign material (such as paper, dust, insects). Push the print head all the way to the right and wipe the bar that the print head slides on with a tissue or soft towel. Apply a very thin coat of light sewing machine oil to the bar, then slide the print head all the way to the left to distribute the oil. You may have to slide the print head back and forth a few times to distribute the oil evenly. Put paper back in your printer and turn the printer back on.

#### **Yearly**

Clean the outside of the terminal or PC once a year or as needed, depending on the amount of dust it is exposed to. Refer to the owner's manual for other maintenance recommendations.

#### **Every 5 Years**

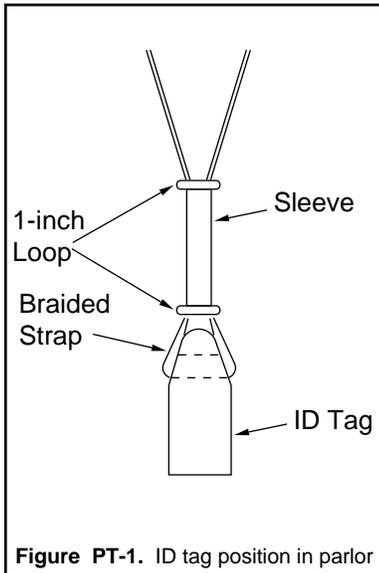
Replace the battery in the 2045 every 5 years.

# Appendix MT

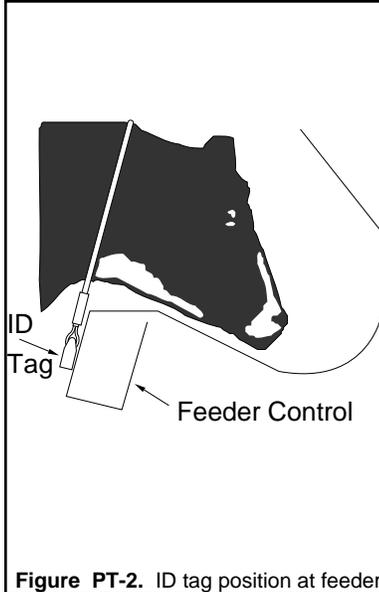
## 2 Care of Disks and Disk Drive

The 3.5" disks used in the 2045 are very reliable, efficient computer storage medium, but to protect them and the programs and data stored on them, you must take some precautions:

- Never handle a disk by any part except the edges or the portion away from the sliding metal cover.
- Do not store the disks where the temperature will exceed 110°F (43°C) or fall below 32°F (0°C). Never store the disks in direct sunlight!
- Keep the disks away from magnetic fields, such as cow magnets, motors, fans, magnetized tools, and telephones. These common farm items and other objects with magnetic fields can cause disk problems.
- Do not expose the disks or the disk drive to water or liquids of any kind (and don't open the disk drive door if you have wet hands or you're wearing wet gloves).
- Avoid exposing the disks to excessive dust. Never place a dirty or dusty disk into the disk drive.



**Figure PT-1.** ID tag position in parlor



**Figure PT-2.** ID tag position at feeder

**Note**

The maximum operating distance from an ID tag to a feeder control is three inches.

Cows are identified in the 2045's memory by a four-digit (1-9999) cow number (NUMB)

## Placing ID Tags on Cows

Each cow to be identified automatically at an Agri-comp ID or Agri-comp feeder control must wear a Bou-Matic identification (ID) tag. Each ID tag, worn by a cow, contains a unique ID number that the Agri-comp 2045 uses to search for and open automatically that cow's personal cow record whenever she enters the milking parlor or approaches a feed stall. In general, the searching process involves the matching of an ID tag number with its corresponding cow number (both numbers of which you will assign later in this procedure and be instructed to enter into the 2045 in other chapters of this manual). Once a cow record opens, the 2045 will automatically update it with data the 2045 obtains while the record is open. (The process of automatic cow identification is explained in more detail in Chapter 6, which focuses on 2045 functions that pertain to Automatic ID.)

This appendix provides the dairyman with instructions on placing ID tags on cows and generating a list of corresponding ID tag numbers and cow numbers.

At this time, assemble the ID tags and all required hardware as explained in the instructions supplied with them. (Proper assembly of the tags and hardware is critical for cows to be identified both in the milking parlor and at feeders, due to the different manner in which their controls read the tags. The tag positions shown in Figure PT-1, in which the tags hang parallel to the cow's body, allow the tag to be read at the Agri-comp ID; whereas, the position shown in Figure PT-2, in which the tag lays flat against the feeder control's antenna, allows the tag to be read at the feeders.) Then, place an assembly around each cow's neck, adjust the strap or chain of each tag such that the tag will contact the center of a feeder control while the cow is eating, and record the ID tag number (located on the bottom of the tag) and the cow's identification number (ear tag number, etc.) for entry into the 2045 later on. (Use the Cow Number and ID Tag Number Recording Form supplied with this manual to record the number assignments.)



## Short-Haul Modems and Phone Modems

When the Agri-comp 2045 is installed in a different building than the terminal, detachers, and/or ID controls, lightning-protection modules must be installed at both ends of the communications cables that connect the peripheral to the 2045 to help protect the electrical equipment from high voltages caused by lightning strikes. When a high voltage transient appears on one or more of the AC lines, the lightning arrestor acts like a voltage clamp and limits the transient's peak voltage. Some of the high energy in a transient is changed to heat in the arrestor, and the spike of current from the clamping action is conducted to earth through the wiring to the power panel's ground rod. A lightning arrestor should be installed on AC power lines, main pole, and power panels serving Bou-Matic automation equipment (system power supplies, Agri-comp computers, feeding systems, detachers, identifiers, and so forth) to help protect them from damage caused by lightning. When the terminal or PC is connected to the 2045 and they are located a distance from the 2045 that will not permit connection to the 2045 with the specified communications cable or a special data cable, either two telephone modems must be installed or two short-haul modems must be installed (one connected to the 2045 and one to the terminal or PC).

The phone modem converts signals from the 2045 to transmit data over telephone lines. Before selecting a brand of phone modem, read section 1.4, "Enabling the Phone Modem," in Chapter 4 to ensure compatibility with the 2045.

The short-haul modem converts the RS-232 signal from the 2045 into a signal that is not as susceptible to decay and/or electrical noise, to insure that the data transferred between the 2045 and the terminal or PC are correct.

Modems are constantly being revised and improved. For a current recommendation, contact the Bou-Matic Customer Service Department.

# Appendix SM

Most phone modems will repeat or echo back characters when they are not actually communicating with another modem. This echoing, in which the 2045 and the modem connected to it start sending one character back and forth, causes a “lockup” condition at the 2045, which prevents the transmission of data to and from other peripheral components. If you are using a phone modem to transmit data between the 2045 and the terminal, before connecting the modem to the 2045, you should enable the 2045 to ignore characters coming from the RS-232 #2 port until an asterisk (\*) is received with the command `15*59*2#`, as explained in Chapter 4. Then, return to this appendix for instructions on installing the phone modem.

## Installation

All phone modems should be connected to RS-232 #2 on the 2045. The 2045 software has special support for the use of telephone modems. Note that the modem must be connected to the RS-232 #2 port and that the baud rate of that port must match the baud rate of the modem used.

The cable used to connect the 2045 to the phone modem must be a “null-modem” type cable (Bou-Matic cables are supplied this way). A “null-modem” cable reverses the transmit and receive connections and jumpers together certain required control signals. Most modems require that the DTR signal be present before they will answer, and this cannot be provided by the 2045.

The phone modem must be set to Auto Answer mode. This may require setting switches in the modem, or storing command settings by connecting the modem to a PC or terminal before connecting it to the 2045. Read your modem manual for instructions on which method is appropriate for your modem.

To terminate a call, or “hangup” the modem, you can type “+++ATH” and press Enter at your terminal or PC terminal emulator program.

**Note:**

There is no way to make the 2045 dial a phone call. You must put the 2045 modem in auto-answer mode and place the call from your terminal or PC.

## Serial RS232 Printer Installation

Although we recommend the use of a parallel printer with the Agri-comp 2045 to provide the dairyman with a hard copy (paper print-out) of the information stored in the 2045 computer, it is possible to connect a serial printer to the 2045. To accommodate users that opt to use a serial printer with their 2045, we have provided this appendix with instructions on connecting and verifying communications between the printer and 2045; however, we must emphasize that the printer may not perform all 2045 printing functions properly.

### 1. Serial Printer Wiring Specifications

The following installation guidelines should be considered before connecting the serial printer to the 2045:

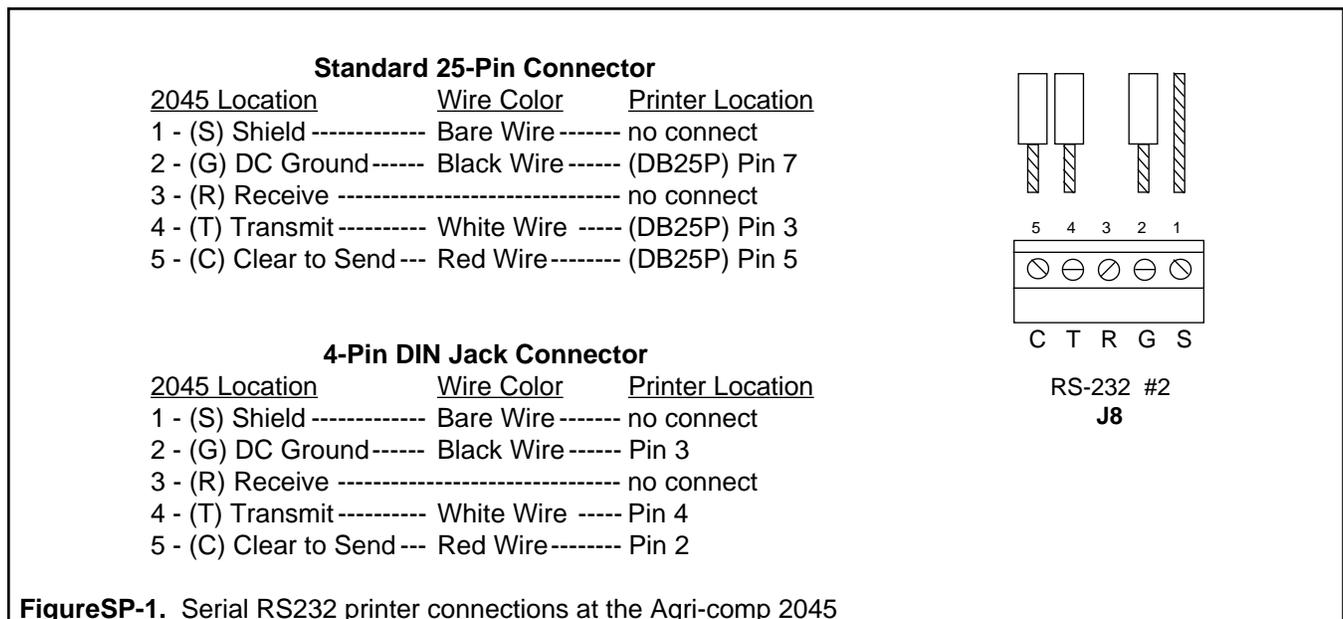
- The serial printer must have RS-232 serial interface.
- It must be capable of printing eighty columns of characters.
- It must be capable of adding line feeds to every carriage return and must use a hardware BUSY signal to indicate that it is not ready to accept data.
- A special cable, using communication cable 3555509 (RS232 Cable Kit) is required for connecting the 2045 to the serial printer.
- The maximum wire size that can be connected to J8 or J9 is 20 AWG (9 MWG).
- The maximum cable length between the 2045 and the printer is 50 feet (15 meters).
- If the serial printer will be used, the serial printer must be connected to connector J8 on the circuit board inside the 2045 computer and the terminal or PC will have to be connected to J9.

# Appendix SP

## 2. Serial Printer Cable Connections

To provide communications between the 2045 and the serial printer, connect the communications cable to RS-232 #2 connector J8 on the circuit board inside the 2045 computer, using the following procedure:

1. **Secure a strain-relief connector to the appropriate conduit hole in the back of the 2045 chassis.**
2. **Route the cable through the strain-relief connector.**
3. **Strip the cable jacket back 2 inches (50 mm).**
4. **Strip the wire insulations back 1/4 inch (6 mm).**
5. **Unplug connector J8 and connect wires, as shown in Figure SP-1.** This figure shows the cable connections between the 2045 and the printer for both the standard 25-pin connector and the 4-pin DIN jack connector styles and provides an illustration of the RS-232 #2 connector (J8) inside the 2045.



**FigureSP-1.** Serial RS232 printer connections at the Agri-comp 2045

6. **Then, plug J8 back into place.**
7. **Connect the opposite end of the cable to the printer.**

## 3. Serial Printer Start-up

To make sure that the printer starts up and communicates properly to the 2045, use the following procedure:

**1. Set the printer's baud rate to 9600.**

The printer must be set to the same baud rate as that of the 2045 connector it is connected to in order to permit communications between the components. If the printer does not operate properly at 9600 baud, which is the factory setting for J8, you will have to set its baud rate and the baud rate of 2045 connector J8 to a lower baud. (Refer to the printer owner's manual for details on setting its baud rate. Refer to Chapter 4 for details on setting the 2045 baud rates.)

**2. Enable the serial printer using the command:**

**1 5 \* 5 3 \* 1 #**

**3. Set the printer communications configuration for 8 data bits, no parity, and 1 stop bit as explained in the printer owner's manual.**

**4. Set the printer switch(es) to produce an automatic line feed.**

The auto-line-feed feature, which causes the printer to advance the paper after a carriage return, must be set in the printer, as the 2045 does not send a line-feed character after a carriage return. (Refer to the printer owner's manual for details.)

**5. Place paper in the printer, turn the printer's power switch on, and place the printer on-line.**

Refer to the printer owner's manual for more details.

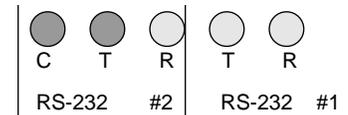
**6. Perform the Printer Test by entering the command:**

**8 \* 0 #**

The entire printable character set used by the Agri-comp 2045 (provided in Appendix AC) should print out several times. Note that instructions on enabling and disabling the printer and on other printer settings are explained in more detail in Chapter 4. If the printer does not operate properly, refer to Section 4 for help in determining the cause, and take action at once to correct it.

## 4. Serial Printer Troubleshooting

During normal operation, the transmit (T) LED for RS-232 #2, located a few inches below J8 on the 2045 circuit board and shown darkened in the example, should flash when the 2045 sends information to the printer. The clear-to-send (C) LED, to the left of the transmit LED, should remain on when the printer is connected and on-line, ready to receive information from the 2045. When the printer is off or placed off-line, the clear-to-send LED will be off, and the 2045 will not try to send information to the printer. The receive (R) LED for RS-232 #2 is not used for printer communications and should not flash, because the 2045 does not receive information from the printer.



The following is a list of possible problems and suggestions for correcting printer problems:

- If the printer does not operate at all, verify that the printer is turned on and on-line, that the printer cable is connected properly, and that the terminal is set up properly.
- If the printer is turned on, on-line, and properly connected to the terminal, ensure that the printer ribbon is installed properly.
- If lines of text print on top of each other, you may be able to resolve the problem by entering the auto-line-feed command 15\*57\*1#.

After correcting one of the problems listed above or ruling out the possibility of the problems above, perform the Printer Test again (as explained in Section 3, step 6) to verify communications, and check to see that the LEDs respond as explained above. If the transmit and clear-to-send LEDs do not respond appropriately, reverse the transmit and clear-to-send wires connected at J8, positions 4 and 5, and again verify communications. If the LEDs still do not respond appropriately, check the wire connections and review the software installation procedure, because information is not getting to the 2045 computer.

# Appendix SP

If the serial printer does not communicate properly, verify that the voltages at J8 agree with those in the table below. If the voltages do not agree, take action at once to correct the them.

<b>Place Measured</b>	<b>Printer Connected</b>	<b>Printer Disconnected</b>
DC Gnd (pin 2) to Receive (pin 3)	No connection	0.050V to 0.100V
DC Gnd (pin 2) to Transmit (pin 4)	-5.0V to -12.0V	-8.4V to -9.8V
DC Gnd (pin 2) to C (pin 5)	-5.0V to -12.0V	0.050V to 0.100V
Shield (pin 1) to DC Gnd (pin 2)	Less than 1.0V	Less than 1.0 V

# Appendix SP

## Using The Sort Command

The Sort command is a feature that allows you to arrange data stored in the 2045, according to a parameter and value order that you specify, before displaying it at the terminal screen or printing it at the printer. Arranging data, with the various sort options, allows you to focus on certain information that you want to compare and evaluate without having to search for it among data in random order.

Three functions of the 2045 are affected by the Sort command:

- Prompt Entry mode displays cow data, one record at a time, in the order determined by the most recent sort.
- The Edit Cow Record menu choice also displays cow data, one record at a time, in the order of the most recent sort. The Sort command is so important here that a 'prompt to sort cows first' has been built into the Edit Cow Record.
- Various reports (such as Feed Ration, Feed Target, Day Number Production, Day Number Milk, and Weekly Production) and User-Defined Reports are printed in the order determined by the most recent sort to allow you to arrange data for different purposes. Note that some reports have specific Sort commands built into them, because they are intended to be used in a specific manner.

Two Sort commands are available for arranging data in the 2045. One command requires only that you specify a primary sort key (or parameter code) for the parameter that you want data sorted by and causes the terminal or printer to arrange data in either increasing or decreasing order of the parameter specified. In many cases, this simple command will suffice; however, when all or most data for the parameter used as a primary sort key is the same, you may also want to specify a secondary sort key to further arrange data. Entry of the Sort command that includes a primary key and secondary key causes the 2045 to arrange data first according to the parameter specified as the primary key, then according to the parameter specified as the secondary key. When you specify a primary or secondary sort key, you also specify the order in which data under a parameter's report column heading will be arranged—that is, in increasing (smallest to largest) or decreasing (largest to smallest) number order. The methods in which you specify the order are best explained with the examples that follow the Sort commands, below.

# Appendix US

To sort data, enter one of the following Sort commands, specifying the parameter code (from the list of codes in Appendix PC) and number order that you want data to be sorted by in place of the words “primary key” and “secondary key”:

4 \* (primary key) #

4 \* (primary key) \* (secondary key) #

The following explanations and examples should aid you in understanding the various sort options:

- To specify a sort key that will cause data to be arranged in increasing order, simply type the basic parameter code for the primary or secondary key, as shown in the first two examples.
- To specify a sort key that will cause data to be arranged in decreasing order, different methods must be used, depending on the mode you are entering data in. If you are using Menu mode, when the 2045 asks for a primary or secondary sort key, type a minus (-) sign before you type the parameter code. If you are using Command mode, you must add 1000 to the parameter code to specify that the sort is to be in decreasing order (the 2045 does not accept the minus sign in commands). These sort methods are shown in the third and fourth examples.
- You can also enter a Sort command, specifying one sort key that will cause data to be arranged in increasing order—the other key, causing data to be arranged in decreasing order.

Headings and data under them will retain the same column format after every sort, but data will be arranged so that the values listed under the heading that corresponds to the parameter code specified in the Sort command are in either increasing (smallest to largest) or decreasing (largest to smallest) number order. Remember to enter the Sort command just before reviewing or printing a report. The arrangement and order produced by the Sort command (most recent sort) will remain in effect until you change it.

Compare the examples shown on the next page to see the ways you might sort the same report.

- Example 1 was sorted first by lot number (code 30—LOT) in increasing order, then by production so far today (code 5—PROD) in decreasing order with the command 4\*30\*1005#.
- Example 2 was sorted first by lot number (code 30—LOT) in increasing order, then by Cow Number (NUMB—code 19) in increasing order with the command 4\*30\*19#.

## Examples:

- To arrange data in a Production Report in increasing order of total production so far today, you would specify a primary sort key of 5 (PROD) in the command 4\*5#
- To sort first by increasing order of lot numbers, then by increasing order of total production so far today (within each lot), you would specify a primary sort key of 30 (LOT) and a secondary sort key of 5 (PROD) in the command 4\*30\*5#
- To arrange data in a Production Report in decreasing order of total production so far today through Menu mode, you would specify a primary sort key of -5 (PROD).
- To sort first by decreasing order of lot numbers, then by decreasing order of total production so far today (within each lot), you would specify a primary sort key of 1030 (decreasing LOT) and a secondary sort key of 1005 (decreasing PROD) in the command 4\*1030\*1005#
- To sort first by increasing order of lot numbers, then by decreasing order of total production so far today (within each lot), you would specify a primary sort key of 30 (LOT) and a secondary sort key of 1005 in the command 4\*30\*1005#, depending on the entry mode used.

# Appendix US

## Example 1

```

=====
Example Farm
MLKG NO. IS 3
3 JAN 93
11:17 PM
-----
AGRICOMP 2045
PROD REPORT
=====
L   N   A   R   P
O   U   V   P   R
T   M   G   R   O
      B       O   D

-----
1  122 121 2 126.7
1   44 113 2 121.0
1   37 115 2 118.9
1   38 100 2 106.3
1   84  97 0 102.4
1   23  89 6  93.4
1   74  80 2  81.8
1    5  68 6  65.9
2  182  65 6  67.8
2   31  67 3  61.2
3   65  18 6  16.5
3   40  15 1  14.7

-----
0  148  63 0  63.5
-----
No. of Cows = 148
Totals:
  Prod Today      9402
  Prod Avg        9274
  Avg Time        923
Averages:
  Prod Today = 63.5
  Prod Avg   = 62.6
  Avg Time   =  6.2
Avg Days Open= 108.7
Avg Days Preg= 123.9
Average DIM  = 165.8
=====

```

## Example 2

```

=====
Example Farm
MLKG NO. IS 3
3 JAN 93
11:17 PM
-----
AGRICOMP 2045
PROD REPORT
=====
L   N   A   R   P
O   U   V   P   R
T   M   G   R   O
      B       O   D

-----
1    5  68 6  65.9
1   23  89 6  93.4
1   37 115 2 118.9
1   38 100 2 106.3
1   44 113 2 121.0
1   74  80 2  81.8
1   84  97 0 102.4
1  122 121 2 126.7
2   31  67 3  61.2
2  182  65 6  67.8
3   40  15 1  14.7
3   65  18 6  16.5

-----
0  148  63 0  63.5
-----
No. of Cows = 148
Totals:
  Prod Today      9402
  Prod Avg        9274
  Avg Time        923
Averages:
  Prod Today = 63.5
  Prod Avg   = 62.6
  Avg Time   =  6.2
Avg Days Open= 108.7
Avg Days Preg= 123.9
Average DIM  = 165.8
=====

```

# Appendix US

## Parlor Feeding

The Parlor Feeding option enables the Agri-comp computer to send feed information to the Parlor as each cow is attached to a Detacher/Meter. With the special Parlor Feeding software PROM installed, a Bou-Matic Feeder Control can deliver one feed per stall to four stalls. This appendix explains how the Parlor Feeding system is to be set up and used. The Parlor Feeding option will work in systems that have either manual or automatic identification.

To enable the Parlor Feeding option at the Agri-comp computer, enter the command

**15\*700\*40#**

When a cow is attached in the parlor, the cow number and amount of feed A to be fed will be sent to the feeder control with the same address as the detacher. The feeder control will actually respond to four consecutive addresses, the address it is actually programmed to and the next three addresses. For example, if you program the control for address 1, it will respond to addresses 1, 2, 3, and 4. Thus, you will need one feeder control for each four stalls (see Figure 1). A double eight parlor would require four controls, and a double 10 would require five controls (see Figure 2).

The feed will be delivered at the maximum rate possible for the auger by activating the auger continuously for as many seconds as are needed to deliver the ration. The system is calibrated by entering the number of kilograms delivered by the auger in one minute. To calibrate an auger, use the following procedure:

1. Empty the feed bowl of all feed.
2. Attach cow 9999 (this cow can only be used for calibration when parlor feeding is active) by entering **9999** at the detacher keypad, then pressing attach, or by entering **7\*9999#** at the keypad.
3. The corresponding auger should turn on for exactly one minute.
4. When the auger stops, remove and weigh the feed delivered.

Cows are identified in the 2045's memory by a four-digit (1-9999) cow number (NUMB)

# Appendix PF

5. You may want to repeat the above steps several times, then divide the total amount delivered by the number of dumps to get the average dump per minute.
6. Enter the amount delivered as the calibration factor for Feed A for the correct feeder address. The amount should be entered in 10's of grams. For example, if the amount delivered was 563 grams, enter the calibration factor as 56. The maximum setting that can be entered is 200, or 2.00 Kg per minute. Note that the calibration factor must be entered in metric, even if the Agri-comp is set to use pounds.

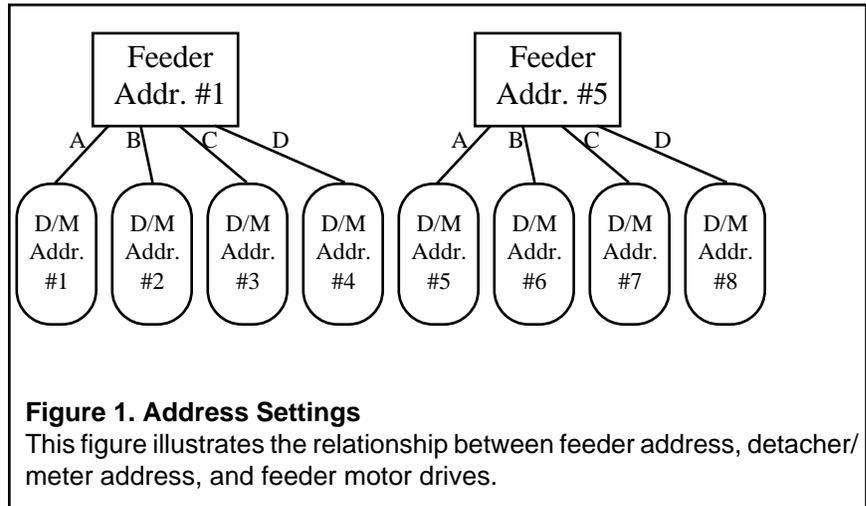
Note that the actual delivery rate may vary significantly between stalls, so that each stall must be calibrated if you want accurate delivery.

Once all of the feed has been delivered at a stall, the amount delivered will be sent back to the Agri-comp computer, and the cow and feeder records will be updated. This delay is required to allow wrongly identified cows to be corrected. If you are using this system in a "Swing Over" type parlor, you must not switch the communications to the other side until all of the feed has been delivered, or the cow and feeder records will not be updated.

If you are only feeding in the parlor, and need to deliver more than 4 pounds (1.8 Kg) per visit, you must also set the maximum feed per visit with the `15*39*[max]#` command. You can set this to deliver a maximum of 15 pounds or 7 kilograms per visit. This command should not be used if you are also feeding at other feed stalls outside of the parlor. Please refer to the section on Pasture Feeding in the main manual for an explanation of this feature.

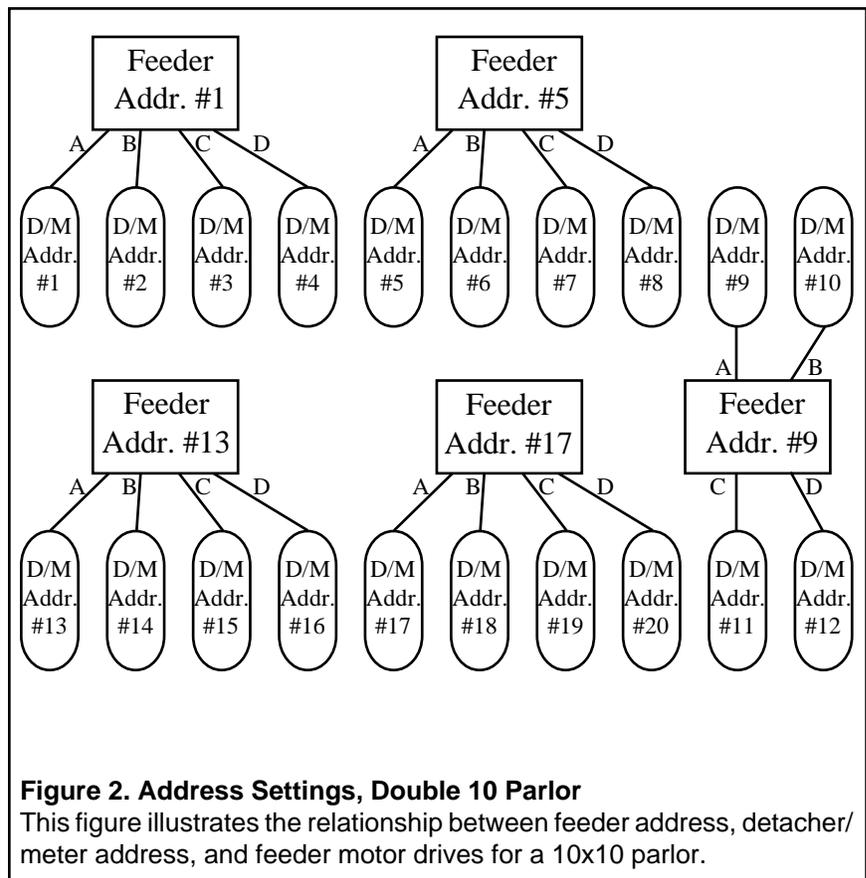
You may also need to set the Offset Hours command so that the cows have all of their ration for the day allocated before the start of the last milking of the day. For example, if the last milking starts at 7 PM, you should set the offset hours to 5 hours (`15*38*5#`).

Detachers with meters and an Agri-comp 2040/2045 must be part of the system, and both the Feeding and Milking programs must be installed for Parlor Feeding to work.



**Figure 1. Address Settings**

This figure illustrates the relationship between feeder address, detacher/meter address, and feeder motor drives.



**Figure 2. Address Settings, Double 10 Parlor**

This figure illustrates the relationship between feeder address, detacher/meter address, and feeder motor drives for a 10x10 parlor.

# Appendix PF

# **GLOSSARY**



**AC power:** Alternating current; an electric current that reverses its direction at regularly recurring intervals--abbr. AC

**Agri-comp 2045 computer:** A computer that collects and maintains cow information and can list or summarize its contents. The standard model 2045 has memory capacity for 500 cow records, while the 2045+ has extra memory for 1000 cow records.

**allocate:** To divide a daily feed ration into individual portions.

**allotment:** An assigned (or distributed) share or portion of something.

**alphanumeric:** A system of characters or symbols including all letters and numbers.

**auto entry:** A condition that the Agri-comp 2045 may be put in that allows each cow number entered to establish a cow record.

**Automatic mode:** A milking condition that the detacher may be set to in which the Manual lamp is off and the machine will detach by itself.

**Binary Number System:** A number system that uses only two digits: 0 and 1.

**bit:** A binary digit, 0 or 1, used to represent the “off” or “on” state of an electronic circuit. It is the smallest unit of digital information that a computer processes.

**byte:** A unit usually made up of 8 bits. One byte represents one character on the computer keyboard.

**calibrate:** A process used to standardize weights by determining the deviation from a standard to ascertain the proper correction factors.

**Caps Lock key:** A key used to produce uppercase letters only.

**character:** A letter, number or symbol found on a computer keyboard.

**code:** A number or value used to better define a parameter or to indicate the parameter displayed.

**command:** A word (or message) describing an action for the computer to perform. For example, the word RUN is a command.

**command sequence:** An instruction (series of numbers) given to Agri-comp 2045 to tell it what must be done. To execute a command is to give the instruction to begin the command sequence.

**communicate:** The transmission of messages between parlor units and the Agri-comp 2045.

**cow data:** data specific to a single animal, such as that found in a cow record.

**cow parameter:** The name used to describe a fact about a cow, such as days in milk (DIM) or cow number (NUMB).

**cow record:** The block of information (parameter) stored inside Agri-comp 2045 about a single cow.

**Ctrl key:** The Control key. Hold it down and press the T key to turn Transparent Print on or off.

**cursor:** The symbol appearing on the computer screen that shows where the next character to be typed will appear.

**Cursor Movement key:** One of four arrow keys located on the right end of the top row of special function of keys on the computer. The cursor movement key moves the cursor one space at a time in the direction indicated by the arrow you select.

**daisy chain:** A group of devices linked together sequentially.

**data:** Information; also refers to information that is to be input or information that is to be output of a program.

**decrement:** Decreasing a value by one.

**Default Feeding:** A feeding option which does not work on the basis of feed periods and which should only be used when communications between the 2045 and the feeders are to be disrupted for long periods of time.

# Glossary

**deviation:** The difference between what a cow gives now and the average of what she has given before. Each milking has its own stored average for each cow. This value is cumulative on the deviation report and displayed at the parlor unit after each detach.

**digit:** A single number from 0 to 9.

**diskette:** A plastic circle coated with magnetic material and mounted in a hard plastic case. Use to store Agri-comp programs and data.

**disk read:** This is the process where cow parameters and management information on a diskette is loaded into the Agri-comp 2045 after power failure or loss of memory in the Agri-comp 2045.

**disk write:** This is the process where cow parameter and management information in the Agri-comp 2045 is stored on disk for protection against power failure.

**display:** The lighted portion of a parlor unit which shows numbers or letters.

**Enter key:** A key that confirms a selection and causes information to be stored in the 2045.

**Esc key:** A key, meaning *escape*, used to cancel a choice or return you to a previous menu.

**Del Bksp key:** A key, meaning *delete backspace*, used to delete the current selection before it is entered.

**EOD:** The end of the milking day.

**EOM:** The end of milking command.

**enter mode:** A condition of Agri-comp 2045 allowing cow numbers to be entered at the keyboard.

**exit:** This means to stop the command sequence. It is used in Prompt to stop the process (\* or Esc).

**feeder calibration:** A process used to standardize feed weights so that all feeder augers will deliver the correct amounts of feeds. Feeders must be tested to determine their delivery rates (amount

of feed dispensed), and adjustments are made by the 2045 to correct any that are wrong. If feeder augers are not calibrated, there can be no assurance that they will dispense the correct amount of ration specified for a cow.

**format:** The way a report is put together: heading first, values in columns, summary at the bottom, etc.

**hard copy:** A paper output from a printer; print-out of data stored in a computer.

**herd data:** data for all bovine animals in a herd (male or female).

**herd data summary:** includes data calculated by the 2045 for all cows used in reports.

**identification (ID) tag:** A plastic molded device, hung from a cow's neck, which identifies the cow at the feeder. Each ID tag is programmed with its own identification number, which, when placed in close proximity to the antenna (inside the feeder control or ID archway), signals the computer to send the cow's ration information to the feeder, or assign a cow to a parlor stall.

**increment:** Increasing a value by 1 (e.g. when incrementing dates, the date 1/11/91 would follow 1/10/91).

**input:** Information to be put into the computer.

**keyboard:** The place on a computer where the alphabetic, numeric, and symbolic keys are located.

**keystroke:** The action composed of pressing a key on a keyboard.

**list:** A printed series of cow information.

**lockup:** A situation in which the computer or printer fails to respond to a command or request for action.

**management parameters:** The facts stored in Agri-comp 2045 that tell it how to sort or distribute information. These include: GEST, DRY, PGCK, etc.

**Manual mode:** A *milking* condition that the detacher may be set to in which the Manual lamp is on and the machine's operation is stopped (no automatic takeoff or communication can be accomplished).

**memory:** The part of the computer that stores information.

**menu:** A list of the program commands on a computer, from which the user can select and execute a specific program by simply pressing the appropriate key.

**Milk report:** The report that lists all the information collected during milking.

**on-line:** Connected to, served by, and available through a system, especially a computer or a printer.

**order:** Ascending order is to list from small to large; descending order is to list from large to small.

**output:** Results of a processed program. Information processed by the computer (this can be information appearing on the display screen, or information sent to the printer).

**parlor unit:** An automatic detacher capable of communicating with both a meter and an Agri-comp 2045.

**press:** This word indicates to push a key or a button.

**program disk:** contains specific programs that link the 2045 with the particular external devices they are associated with (e.g. Feeding program links with feeders) and data specific to the programs.

**prompt:** A symbol used by the computer to indicate when it is ready to accept input.

**prompt entry:** A means to enter the value for a parameter on a large number of cows at once.

**ration:** A feed allowance for one day.

**reattach:** The act of putting a milking unit back on a cow from which it was just removed.

**report:** A list or a summary of information stored in the 2045 that can be viewed at the terminal or PC or printed at the printer.

**save:** To store information on a diskette.

**screen:** A video display on a computer which presents output to the user.

**Shift key:** A key used to produce uppercase letters or the upper characters on the keys.

**software:** Program(s) for a computer, usually referring to programs stored on diskettes.

**Spacebar Key:** The long, unmarked key on the bottom row of the keyboard. The spacebar moves the cursor to the right one space (each time it is pressed) or, several spaces (if it is depressed continually).

**store:** To transfer a piece of information to memory for later recall.

**summary:** A presentation of herd information in a concise manner including totals, averages, and tables.

**summation:** The block of averages and totals found at the bottom of each list.

**system data:** basic setup data specific to the 2045 and herd data common to all FARM programs.

**system disk:** contains system software programs and system data that enable the 2045 to perform general system functions, print reports, and read and write data to disks.

**takeoff setting:** The value stored to indicate when a parlor unit will remove the milker from the cow. Two values are entered: a flow rate which indicates in tenths of a pound per minute the rate the milk must fall below to signal the end of milk flow; a delay which tells a parlor unit how many seconds to delay removal of the milker after milk flow stops.

**Target Feed:** A feed option which allows the dairyman to set a new feed ration for a cow along with a determined number of days for the cow to reach its new ration. Each midnight, the 2045 automatically adjusts the rations of the cow with a target days setting until the target is reached.

# Glossary

Target rations can be adjusted on individual cows at any time.

**threshold:** The value at which the Agri-comp 2045 starts printing out deviations (e.g. if the value is 8, only those cows who dropped more than 8.0 lb or kg will be printed).

**transient protection:** Protection against short duration voltage fluctuations (spikes and drops).

**unmilked cow:** A cow number that was not entered during milking for a cow with RPRO between zero and 6 is listed at the end of the milk report as an unmilked cow.

# INDEX



## Symbols

2045 1-1  
2045 Computer & Power Supply 2-3  
2045+ 1-1  
4X Milking 8-12

## A

Abbreviations 1-4  
Active Lot 4-27, 4-50  
Activity 8-20  
Activity Program 7-8  
Activity Report 7-35  
Activity Tag 7-17  
Activity Tag ID 2-5  
Activity Tag Status 7-9, 7-17  
Activity Tag-Hours Since Last Read 7-17  
Activity Tag-Previous Status 7-18  
Activity Tag-Time Between Readings 7-18  
Activity Tags 6-16  
Actual 305 Day Lactation Total 8-21  
Adding Cows 1-17  
ADDS 1010 2-2, 2-12, 2-14  
ADDS 1010 Setup 2-15  
ADDS 1010 Terminal 2-3  
Adjustable Price Factor 4-14  
Adjusting Rations 5-36  
After Each Milking 1-22  
Agri-comp 2045 and Terminal Start-up 2-14  
Agri-comp 2045 Computer 2-7  
Agri-comp Alarm Kit 2-30  
Agri-comp Checklist 1-16  
Agri-comp ID 2-5, 2-22  
Agri-comp ID Cable Connections 2-22  
AgriTerm 2-3, 4-11  
Alarm 2-29, 2-31, 4-31  
Alarm, Enabling and Disabling 4-31  
Alarm Kit 2-30  
Allocation Offset 1-18, 5-21  
AM/PM 4-2  
Assigning Detacher Addresses to ID Zones 6-6  
Assigning Feeder Addresses 5-4  
Assigning Lot Numbers From The Parlor 8-67  
Assigning/Deleting Calibration Tags 5-3  
Attach Display Mode 8-2  
Attention 1-20, 7-9, 8-20, 8-65

Attention Report 8-42  
Auger Motors 2-27, 5-2, 5-3  
Auto Entry 8-34  
AUTO/MANUAL 8-59  
Automatic Detection Of First Heat 7-8  
Automatic End of Day 1-19, 8-11, 8-12  
Automatic ID 1-19, 1-20, 1-22, 6-1  
Automatic Ration Adjust 5-36  
Automatic Sorting 6-17  
Automatic Weighing 6-17  
Average Daily Milk Production 1-25, 4-42, 5-29  
Average Daily Profit 4-13  
Average Days Open 4-51, 7-2  
Average Days Pregnant 4-51  
Average DIM 4-51  
Average Interval 1-19, 8-15  
Average Milk Production 1-25  
Average Report 8-43  
Average Time 8-14  
AVGINT. See Average Interval

## B

Backing Up Data 1-19, 1-20, 1-21, 3-1, 4-46, 7-6,  
8-11, 8-13  
Backup Storage 3-5  
Basic Command Entry Mode 1-7  
Battery Backup 3-3  
Baud Rate 2-12, 2-14, 4-30  
Beeper 1-16, 1-20, 2-30  
Body Condition 1-25, 5-28  
Body Weight 1-25  
Bou-Matic System Component Installation 2-19  
Breed 8-21  
Breed Type 1-20  
Breeding Cows 1-26  
Bunk Feed Cost 1-18, 1-20, 1-23, 1-24, 4-16, 5-19  
Butterfat 1-27

## C

C-Level Software 1-5, 8-5, 8-9, 8-19, 8-33, 8-61,  
8-64  
Calibrating Feeders 5-2  
Calibration 5-8  
Calibration Factors 1-17, 1-18, 1-22, 5-1, 5-2, 5-4,  
5-11, 5-44

# Index

Calibration Factors - Manual Entry 5-11  
Calibration Tags 1-17, 5-2  
Calibration Weights 5-8  
Calving Interval 7-13  
Changing Calibration Factors Manually 5-10  
Changing The Cow Record 4-55  
Changing The Feeding Edit Parameter List 5-35  
Changing The System Edit Parameter List 4-41, 4-55  
Checking A Tag Assignment 6-20  
Circuit Board 2-9  
Clearing Herd Averages 8-14  
Command Mode 1-5  
Communications Configuration 2-14  
Condition Score 1-25, 5-28  
Connector J1 2-11  
Converting Days to Dates 7-7  
Correction of Errors in Commands 1-10  
Cost Report 4-57  
Cow Calendar 1-21  
Cow Identification 5-1  
Cow Number Entry Mode 8-57  
Cow Record 3-4, 4-36, 5-23  
Cow Weight 5-28, 5-29  
Cows To Breed 1-26, 7-12, 7-14, 7-15, 7-29, 7-30  
Cows To Calf 7-14, 7-16, 7-29, 7-32  
Cows To Calve 1-21  
Cows To Cull 1-26, 7-15, 7-29, 7-32  
Cows To Dry 1-26, 7-16, 7-29, 7-31  
Cows To Heat Check 1-25, 1-26, 7-12, 7-13, 7-14, 7-15, 7-31  
Cows To Pregnancy Check 1-26, 7-12, 7-16, 7-29, 7-31  
Ctrl-S 4-29  
Ctrl-T 4-11  
Current Milking Number 8-11

## D

D-Level Software 1-5  
Daily Checklist 1-22  
Daily Feed Cost 4-16  
Daily Profit 5-19  
Dairy Farm Name 1-16, 4-12  
Daisy-Chain 2-4, 2-5  
Data Entry Methods 1-5  
Data Line Protection Modules 2-7

Date 1-16, 4-2, 4-4  
Date-to-Days Conversion 7-33, 7-35  
Day Number 4-51. See Report Day Number  
Day Number Milk Report 8-53  
Day Number Production Report 8-49  
Daylight Savings 1-16  
Days in Milk 1-20, 1-21, 7-2, 7-6, 7-7, 7-11, 7-14, 8-21  
Days Since Bred 1-21, 1-26, 7-3, 7-5, 7-6, 7-7, 7-11, 7-14, 7-26, 7-31  
Days Since Dryoff 7-12  
Days to Dates 7-7, 7-33  
Days-Since-In-Heat 7-7, 7-13, 7-31  
Decrementing Days-In-Milk 7-7  
Delete Calibration Tag 5-4  
Deleting a Cow Record 4-44  
Detach Flow Rate 8-4  
Detacher 8-60, 8-65, 8-67  
Detacher Addresses 1-20, 6-4, 6-6, 8-2  
DETACHER BRANCH Connector 2-19  
Detacher Cable Connections 2-19  
Detacher Communications Checkout 2-20  
Detacher Reset 8-8  
Detacher/Meter Mounting 2-20  
Detachers 2-4, 2-19, 8-18  
Detection Of Ready To Breed 7-9  
Deviation 8-61  
Deviation Report 1-23, 8-44  
Deviation Threshold 8-44  
DHIA 1-18, 1-25  
Direct Tag Read 6-34  
Direct Tag Read Test 2-25  
DISK DATA ERROR 3-3  
Dispensing Samples 5-4  
Double-Spaced Reports 1-17, 4-29  
Dry Cow 1-26  
Dry Off Days 1-21, 7-4  
Dumped Milk 8-21

## E

Editing a Cow Record 5-33  
Electrical Surge 2-7  
Enabling/Disabling ID Mode 6-15  
Enabling/Disabling Milk Collection 8-18  
End Of Day Command 8-64  
End Of Lactation 7-11

End Of Milking 1-22  
End Of Milking Command 8-62  
End-Of-Day 8-11  
End-of-Line Delay 1-17, 4-9  
Ending A Milking 8-62  
English Pounds 4-15  
Entering Feed Weights 5-8  
Entering Feeding Data 5-29  
Entering ID Tag Numbers 6-18  
Entering ID Tag Numbers During Milking 6-23  
Error Conditions, Milk Report 8-34  
Escape 4-28  
External Alarm 2-6, 2-29, 2-31  
External Alarm Cable Connections 2-30  
External Alarm Mounting 2-30

## F

FARM Program Software 3-3  
FARM Programs 1-1  
Feed Allocation 5-24  
Feed Allocation Offset 5-24  
Feed Allocation Process 5-23  
Feed Carryover 5-24  
Feed Cost 5-19, 5-28  
Feed Exception Report 1-17, 1-23, 5-41  
Feed Exception Threshold 5-41  
Feed Names 1-17, 5-15, 5-17  
Feed Periods 5-23  
Feed Prices 1-17, 1-18, 5-19  
Feed Ration Report 5-39  
Feed Rations 1-18, 1-24, 1-25, 1-27, 5-26  
Feed Reports 5-1  
Feed Stalls 2-26  
Feed System Summary 5-3, 5-12, 5-15  
Feed System Summary for Today 1-23  
Feed System Summary for Yesterday 1-22, 1-24  
Feed Targets 1-27  
Feed Type Summary 1-18, 5-17, 5-36, 5-47  
Feed Types 1-17, 1-18, 1-27, 5-14, 5-17, 5-47  
Feed Visit 5-1, 5-23  
Feed Visits Report 1-24  
Feed Weights 5-7  
Feed Zones 1-17, 5-12, 5-14  
Feeder Addresses 2-28, 5-1, 5-2, 5-5, 5-9, 5-11, 5-12  
Feeder Calibration 1-27, 2-27, 5-2

Feeder Calibration Procedure 5-5  
Feeder Communications Checkout 2-27  
Feeder Control 2-5  
Feeder Control Mounting 2-26  
Feeder Control Cable Connections 2-25  
Feeder Recalibration 5-7  
Feeder System Summary 1-18, 5-11, 5-44  
Feeders 2-25  
Feeding 1-17, 1-22, 1-24, 1-25, 4-16, 5-1  
Feeding Data 5-23  
Feeding Reports 5-38  
Feeding Setup 5-2  
Fewer Cows Than Stalls 4-32, 4-33, 6-16  
First Heat 7-8  
First Milking 8-57  
Flow Rate 8-4  
Form Feed 4-65  
Fresh Cow 1-26  
Fresh Cow Hold Count 1-19, 8-17

## G

General Specifications 2-6  
Gestation Days 7-5, 7-32  
Gestation Length 1-21  
Ground Loops 2-6

## H

Hard Copy 2-16  
Heat Detection 1-23, 1-24  
Heat Detection Threshold 7-8  
Heat-Seeker Tags 3-4, 6-16, 7-17  
Herd Averages 8-11  
Herd Summary 1-24, 8-34  
HOLD 8-65  
Hold 1-19  
Holstein 1-21

## I

ID Communications 2-23  
ID Communications Checkout 2-24  
ID Control Mounting 2-23  
ID Data 6-18  
ID Installation 2-23

# Index

ID Number 6-1  
ID Parlor Entry 8-34  
ID Reports 6-26  
ID Setup 6-2  
ID Tag Number Report 1-21  
ID Tag Numbers 6-18  
ID Tag Numbers, Entering 6-19  
ID Tags 1-18, 5-1, 5-3, 6-1  
ID Zone 1-20, 2-24, 6-2, 6-3, 6-6  
Ignore ID Errors 6-10, 8-34  
Ignore Unassigned ID Tag Numbers 6-13, 6-15  
Income Over Feed Cost 1-18, 1-19, 1-26, 1-27, 4-13, 5-19  
Income Report 1-25, 1-26, 4-57  
Incrementing Days-In-Milk 7-6  
Individual Cow Takeoff Rates 8-9, 8-23  
Initializing the Parlor 6-2  
Installation Specifications 2-3  
Installing Agri-comp 2045 2-1  
Installing Data Line Protection Modules 2-7  
Installing Software 3-1  
Installing the ADDS 1010 (RS232) Terminal 2-12  
Installing the Agri-comp 2045 Computer 2-9  
Installing the Agri-comp ID System 2-22  
Installing the Computerized Feeders 2-25  
Installing the Detachers With Meters 2-19  
Installing the External Alarms 2-29  
Installing the Power Supply 2-9  
Installing the Printer 2-16

## J

J1 2-11, 3-2  
J2 2-30, 2-31  
J4 2-19, 2-20  
J5 2-19, 2-20  
J6 2-22, 2-23, 2-24  
J7 2-25, 2-26, 2-28, 2-29  
J8 2-12  
J9 2-12, 2-13, 2-16

## K

K2 2-31  
Kilograms 1-16, 4-15

## L

Lactation Total 8-23  
Last Comm Time 1-22, 5-44, 5-45  
Lightning 2-7  
Limiting All Reports By Lot Number 4-27  
Limiting All Reports By Selection Code 4-27  
Limiting Data to be Entered/Reviewed At Detachers 8-18  
Limiting The Cows On Reports 4-27  
Line Feed 2-17, 4-65  
Loading Software 3-1  
Loading the Program Software 3-4  
Lot 1-20  
Lot Number 8-24  
Lot Report 1-26, 8-47  
Lot Summary 1-23, 1-24, 8-38

## M

Manual End-Of-Day 8-11, 8-13  
Mastitis 8-24, 8-44  
Maximum Amount Per Visit 1-18  
Maximum Feed Amount 5-1  
Maximum Feed Amount Per Visit 5-22  
MCTR 8-64  
Menu Interface 3-4  
Menu Mode 1-13  
Meters 2-19  
Metric 4-15  
Metric Mode 1-16  
Milk Income 1-27, 4-13, 8-24  
Milk Meters 2-19  
Milk Payments 1-27  
Milk Price 1-18, 1-19, 1-27, 4-13  
Milk Price Adjustment Factor (MPA%) 1-27  
Milk Price Adjustment Percentage 8-24  
Milk Quality 1-27  
Milk Report 1-22, 4-29, 8-32  
Milk Report Body 8-33  
Milking 1-19, 1-23, 1-24, 8-1  
Milking Number 1-19, 8-10, 8-60  
Milking Number, Reviewing 8-11  
Milking Procedures 8-1, 8-57  
Milking Reports 8-31  
Modems 2-4

Monthly Checklist 1-25  
More than 64 detachers 2-4  
MPA% 1-27. See Milk Price Adjustment  
Percentage

## N

Name 4-12  
Not Read Report 6-31  
NRED 6-31  
Number of Detachers Per ID Zone 6-4  
Number of ID Zones 1-20  
Number of Meters Per Zone 1-20  
Number Of Times Bred 7-10  
Number Of Zones 6-3, 6-4  
Number Report 8-39  
Nutritionist 5-26

## O

Ohoh Display 6-13, 6-25, 8-65  
Open Report 7-27

## P

Page Mode 1-17, 4-28  
Parallel Printer 2-4, 2-12, 2-16  
Parallel Printer Cable Connections 2-17  
Parallel Printer Start-up 2-17  
Parallel Printer Troubleshooting 2-18  
Parameter Summary 4-56  
Parlor Alarm 1-20  
Parlor Beeper 1-20  
Parlor Entry 6-23  
Parlor Entry Mode 6-8  
Parlor Entry Order 6-32  
Parlor ID 2-5  
Parlor Initialization 1-20, 6-2  
Parlor Initialization Report 6-3, 6-35  
Parlor Summary 1-20  
Parlor Type 2-24  
Pasture Feeding 1-18, 5-21, 5-23  
PC 2-12  
Peak Average Daily Production 8-24  
Peak Days In Milk 8-24  
Peak Production 1-24, 1-25

Percent Fed 1-22, 1-23, 5-39, 5-41  
Personal Computer 1-4, 2-3  
Phone Modems 2-13, 4-6  
Pounds 1-16, 4-15  
Power Failure 3-5, 3-8  
Power Supply 2-3, 2-9  
Pregnancy Check 1-21  
Pregnancy Check Days 7-3, 7-14  
Pregnant Cow 7-16  
Pregnant Cows Report 7-26  
Price Quantity Factor 4-14, 5-20  
Prices 1-17  
Primary Sort 4-24  
Printer 1-17, 2-4, 2-7  
Printer Cable 2-17  
Printer Test 2-17, 4-64  
Printing Scatter Graphs 4-59  
Printing the Feeding Reports 5-48  
Production Average 8-14  
Production Report 1-26, 8-40  
Production Today 8-14  
Profit 5-19  
Programs 3-1  
Prompt Entry Mode 1-9

## Q

Question Mark [?] Key 1-5

## R

Radio Shack 2-4  
Ration Adjust 5-15, 5-18, 5-23, 5-36, 5-37, 5-47  
Ration Target Report 1-18, 5-43  
Read Report 6-29  
Reading a Backup Disk 4-47  
Ready To Breed 1-21, 7-9  
Ready-To-Breed Days 7-2, 7-9, 7-11, 7-14, 7-30  
Reattaching To The Same Cow 8-59  
Reloading Data 3-7, 7-6  
Replacement & Upgrade System Disks 3-7  
Replacement Software 3-1  
Report Day Number 4-34, 4-51  
Report Summary 4-50  
Reproduction 1-21, 1-25  
Reproduction Setup 7-2

# Index

Reproduction Summary 1-25  
Reproductive Data 7-10  
Reproductive Status 1-21, 7-2, 7-3, 7-5, 7-9, 7-11,  
7-14, 8-25  
Rotating Disks 3-6  
RPRO Summary 7-29, 7-30  
RS-232 2-13

## S

Scatter Graphs 4-59  
Secondary Sort 4-24  
Selection Code 4-25, 4-27, 4-50  
Serial Number 3-3, 3-5  
Serial Printer 2-12, 4-9  
Setting the Date 4-4  
Setting The Milking Number 8-10  
Setting the Printer Line Feed/Form Feed 4-65  
Setting the Time 4-2  
Setting Up the System Components 2-7  
Setting Up User-Defined Reports 4-19  
Setting Weight Units 4-15  
Short-haul Modems 2-4, 2-13  
Single Entry Mode 1-8  
Sire 1-26, 7-14  
Sire Report 7-28  
Software 3-1  
Sort 4-24, 5-30, 5-34  
Sort Order 4-24  
Sort/Weigh Scale ID 2-5  
Spacebar 4-28  
Startup Procedure 1-16  
STAT 6-30  
Status Code 8-49  
System Component Installation 2-19  
System Components 2-7  
System Disk 3-2  
System Setup Preparation 2-2  
System Setup Report 1-21  
System Setup Summary 4-56

## T

Takeoff Delay 1-19, 8-4  
Target Days 1-24, 1-25  
Target Feed 1-18

Target Feed Days 5-26  
Target Rations 1-24, 1-25, 5-27  
Terminal 1-4, 2-7, 2-12, 2-17, 2-31  
Terminal Communications Checkout &  
Troubleshooting 2-16  
Terminal Connections 2-13  
Terminal Emulator 2-3  
Testing Feeders 5-3  
Threshold 1-17  
Time 1-16, 4-2  
Total Lactation Profit 4-13  
Total Profit 5-19  
Transparent Print 2-17, 4-11  
Troubleshooting 2-16, 2-20, 2-24, 2-27

## U

Understanding the Manual's Format 1-2  
UNDO 5-37, 5-47  
Unfed Visit 5-25  
Unmilked Cows 1-22  
Unread Cows 1-22  
Upgrade Software 3-1  
User Defined Detacher Displays 8-19  
User Defined Parameter Codes 4-37  
User Defined Report Name 4-22  
User Defined Report Setup 4-19  
User Defined Report Sort 4-24  
User Defined Reports 4-19, 4-58

## V

Verifying Part and Tool Requirements 2-2  
Viewing Data At The Detacher 8-60

## W

Warning Messages 8-65  
Weekly Checklist 1-23  
Weekly Production Report 1-24, 1-26, 8-55  
Weigh Scale 6-17  
Write-protect 3-2, 3-4  
Writing a Backup Disk 4-46  
Writing System & Program Software to Disk 3-5

## **Z**

Zones 1-20, 6-3

# Index