SERVICE

Software Revision 11 Option Programming 1/Vista and 2/Vista Model Dispensers

Wayne DRESSER

IMPORTANT

SOFTWARE INFORMATION

This manual describes the operation of Software Revision 11 for 1/Vista and 2/Vista model dispensers. With exceptions noted below, this manual can be used for Software Revisions 8 and 11.

Rev 8 only supports 1/Vista models. Example: 1/V390, 1/V590, etc.

Rev 11 supports both 1/Vista and 2/Vista models.

Rev 11 is required for 2/Vista models. Example: 2/V390, 2/V590, etc.

Option 04 must be set to 4 or 5 for 2/Vista models and 1, 2, or 3 for 1/Vista.

Option 24 and 28 settings vary between the 1/Vista and 2/Vista model series.

To determine the revision of Software residing on the computer, and if this is the appropriate manual for describing that software, follow these steps:

1. Press the **Position Select** push-button.

2. Press and hold the **Totals** push-button until the ones digit is 0. Press and hold the **Totals** push-button again until the tens digit is 0.

3. Press the **Price Jog** push-button **twice** to show the Software Revision number, the two middle digits (between the decimals), in the money display*.

4. To use this manual, the Software Revision number — again, the two digits between the decimals — should be ".08." or higher, and the dispenser model number must have a "1" or a "2" in the prefix and a "V" in the main body. For example, 1/V387, 1/V390D, 2/V387, 2/V390, etc.

* The two far left digits shown in the money display are the Software Identification number, which is used to identify the type of software and not the revision. See Option 02 description for more details.

Software Revision 11
Option Programming
1/Vista and 2/Vista
Model Dispensers

Service Manual

July 1999 Part No. 920205 Rev C

INDICATORS AND NOTATIONS

DANGER	Danger indicates a hazard or unsafe practice which, if not avoided, will result in severe injury or possibly death.
WARNING	Warning indicates a hazard or unsafe practice which, if not avoided, may result in severe injury or possibly death.
CAUTION	Caution indicates a hazard or unsafe practice which, if not avoided, may result in minor injury.
Note:	Important information to consider, otherwise, improper operation may occur in some instances.

A vertical bar (|) appearing on the right side of the pages indicates text, figures, or tables that are new or changed from the previous revision of this manual.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

This manual describes the programming options of Duplex II computers that have software revision 11. 2/Vista dispensers that require revision 11 or higher software can be identified by their model number prefix of "**2**" and a main body designation of "**V**". For example, 2/V387, 2/V390, 2/V590, 2/V595, etc. Also see "Important Software Information" on inside cover.

In this manual, model number prefix designations are shown but suffix designations are deleted, except when the suffix is needed to distinguish one particular model variation from another. For example, 2/V590D1 and 2/V590D1/U.

Any service problems which cannot be solved should be referred to Wayne Technical Support or to the appropriate regional service office.

Wayne Technical Support Austin, TX	1-800-926-3737 24 hours/7 days
Northeast Regional Service Office Salisbury, MD	410-546-6750 8:30AM-5:00PM Eastern
Southeast Regional Service Office Atlanta, GA	770-926-6005 8:30AM-5:00PM Eastern
North Central Regional Service Office Chicago, IL	773-693-7404 8:30AM-5:00PM Central
South Central Regional Service Office Houston, TX	281-871-5442 8:30AM-5:00PM Central
Southwest Regional Service Office Cypress, CA	714-952-1137 8:30AM-5:00PM Pacific
Northwest Regional Service Office San Ramon, CA	510-328-0400 8:30AM-5:00PM Pacific
Mid-Atlantic Regional Service Office Baltimore, MD	410-691-2200 8:30AM-5:00PM Eastern

1.1. INTRODUCTION TO OPTION PROGRAMMING

The Duplex II computer can be programmed to control various Wayne dispenser models. Computer option data settings provide a means for programming the computer to control a specific dispenser model. The options are initially set at the factory. However, the procedures in this manual will enable you to change the data settings within the options, if necessary, to satisfy local conditions.

This manual does not cover dispenser interface with the Wayne® 2400 Management Control System (2400 MCS) or Wayne Plus™ Retail Control System. Refer to the appropriate installation manual for the equipment that will be interfaced with the dispenser.

2. OPTION PROGRAMMING INSTRUCTIONS

This section provides option programming instructions to be used in conjunction with the option descriptions in Section 3 and the option settings in Appendix A. Make sure that any changes to the option settings are consistent with the available options for the particular dispenser model number.

2.1. OPTION CATEGORIES

Options fall into four categories as follows:

- **Specified** options are those that are dictated by dispenser model number. Incorrect dispenser operation may occur if a specified option is not set correctly. Options 02, 03, 05, 06, 07, 23, 24, 25, 28, and 51 are specified options.
- **Non-specified** options are those that are not dictated by the dispenser model number and may be altered to suit customer preference and local requirements. There are default values for the non-specified options. These values are typical and should be checked against local requirements.
- **Hidden** options are those that cannot be viewed or altered from their default settings. Many previous options are now hidden.
- **Service-only** options are those that can be altered, only, if the security switch is set when entering option programming. Service-only options consist of Options 02, 04, 51, and 97. These options can be viewed, but not changed, without setting the security switch.

2.2. PROCEDURES FOR OPTION PROGRAMMING

There are **two procedures** that can be used to enter the option programming mode to view or change option settings.

The first procedure simply enters the option programming mode and can be used to change any non-Hidden option except “Service-only” options.

The second procedure enters the option programming mode via a security switch, which allows service personnel to change any non-Hidden option including “Service-only” options.

Both procedures are discussed in detail on the following pages.

While performing either of these procedures, if the data setting for an option is changed from the default setting, the display will flash when viewing that option and when viewing Option 02, the macro setting. The altered option and Option 02 will stop flashing if the data is changed back to the default setting. If the changes are saved, the displays will flash when the option programming mode is entered on the next occasion. If **30 seconds** pass without making an entry, the computer will revert to normal mode without saving any changes.

Refer to the Installation and Operation manual for the dispenser being serviced for the location of the push-buttons used in these procedures.

2.2.1. Entering The Option Programming Mode

To enter the option programming mode to view or make changes, as allowed in this mode, perform the following procedure:

1. Press the **Position Select** push-button.
2. Press and hold the **Totals** push-button until the ones digit in the unit price display is 0. Press and hold the **Totals** push-button again until the tens digit is 0. The fueling point number is now set to "00", the money display on both sides will show dashes and both sides of the dispenser will be inoperative.
3. Press the **Price Jog** push-button. The unit price display will show "OP01" to indicate that you have entered the option programming mode and Option 01 has been selected.
4. Press **Price Jog** push-button **to go to** the desired programming option. As the Price Jog push-button is pressed the unit price display(s) will show the selected option in the range of "OP01" to "OP99".
5. Press the **Totals** push-button **to change** the data in the selected option, or Press the **Price Jog** push-button to go to the next desired programming option.
6. Press the **Price Jog** push-button until Option 99 is displayed and Press the **Totals** push-button to select the appropriate data; 03 to Exit and save changes, 02 to Exit and do not save changes, or 01 to review the options again.
7. Press the **Price Jog** push-button to display the original fueling point number.
8. Press the **Position Select** push-button to return the dispenser to the normal operating mode.

2.2.2. Entering The Option Programming Mode Via The Security Switch

WARNING

Electric Shock Hazard!
The procedure below requires that electrical power to the dispenser be turned ON. Avoid touching any of the components on the circuit boards. Failure to do so may result in serious injury.

In order to change Options 02, 04, 51, and 97 the security switch must be set. To set the security switch and enter the option programming mode, locate the Duplex II computer board and perform the following procedure:

1. **Remove power** from the board by removing connector **J3**.
2. **Locate** connector **J6** and bridge (jumper) pins 3 & 5. Use jumper part number 129930. Pin 1 of J6 is located closest to the center of the board.
3. **Apply power** to the board by re-installing connector **J3**. The unit price display will show "OP01" to indicate that the security switch has been set, you have entered the option programming mode, and Option 01 has been selected.
4. Press the **Price Jog** push-button **to go to** the desired programming option. As the Price Jog push-button is pressed the unit price display(s) will show the selected option in the range of "OP01" to "OP99".
5. Press the **Totals** push-button **to change** the data in the selected option.
6. Press the **Price Jog** push-button until Option 99 is displayed and Press the **Totals** push-button to select the appropriate data of 03 to Exit and save changes, 02 to Exit and do not save changes, or 01 to review the options again.
7. **Remove** the **jumper** from connector **J6**.

   If the jumper is not removed, exiting programming through Option 99 is inhibited and a cycle back to Option 01 will occur when performing the next step.
8. Press the **Price Jog** push-button to display the original fueling point number.
9. Press the **Position Select** push-button to return the dispenser to the normal operating mode.

3. OPTION PROGRAMMING DESCRIPTIONS

This section describes the programming options available in Duplex II computers that have software revision 11.

OPTION **DESCRIPTION**

01 **Code History Display**

Read Only — This option cannot be changed.
This option displays the last Fault Code (Error, Hydraulic, or Service) information.
The format for the display of a fault code is:

Sale Money = NNNNN.S
Sale Volume = PF-CC.T
Unit Price = OP01

NNNNN - Transaction counter, increments from 00000 to 59999. It is incremented with each sale and allocated to each fault code detected.

S - Side, 1 or 2, that the fault code was detected on is the junction box side.

P - Product that was selected at the time the fault occurred. The range is 0 - 7 with 0 meaning that no position was selected.

F - Identifies the fault source if the fault can be linked to a hydraulic condition. The range is 0 - 7, “H”, or “L.” The numeric values indicate positions (0 = none) while “H” and “L” indicate blending feed stocks.

CC - Fault Code number in the range of 00 - 99.

T - Fault Code Status:
1 = Error 2 = Hydraulic 3 = Service.

Pressing the Totals button displays fault codes, detected from both sides, beginning with the most recent. The last 16 are stored and displayed.

Pressing the Price Jog button at any point increments to the next option.

See Section 4 for more details on fault codes, their status and definitions. See Fault Codes 20 and 21 in Section 4 for display format.

OPTION	DESCRIPTION
02	**Macro Setting**

This is a read only option, unless option programming is entered via the security switch as discussed in Section 2.2.2.

DATA

00 - Manufacturing default.
02 to 13 Macro numbers.

See Appendix A for available options in each macro. Remember, this manual only applies to 1/Vista and 2/Vista model dispensers which are the Enhanced Vista models. See separate manual for Standard Vista.

The display format in this option is:

Sale Money = **FF.RR.SS**
Salh e Volume= **TT DD**
Unit Price = **OP02**

FF - Software ID number 00 - 99. Identifies the use type of software residing in the dispenser.
11 = Domestic use, 12 = International(Export) use,
13 = ISM use, 14 = Domestic Touchscreen use
RR - Software revision number 00 - 99. For example Rev 08 or Rev 11
SS - Revision sub number 00 - 99,
00 = production release.
TT - Datalink pump type 00 - 99.
DD - Option data 00, 02 to 13. This is the Macro number.
OP02 - Option 02

Note the following about this option and macros:

1. Macros set all option data defined in the macro table (see Appendix A) and hide those options that may not be configured to a setting different from the macro table configuration.

2. Settings which are hidden are not displayed in the option setting sequence.

3. If a data setting is altered from the macro setting, the display will flash (for both the altered option(s) and Option 02). The display will flash when reviewing the options prior to, or after, saving the option data.

OPTION **DESCRIPTION**

02 **Macro Setting,** continued

4. If Option 02 is entered and is flashing (data changed), changing the macro will reset any altered options to that macro's default.

5. Once a macro other than Macro 00 is saved, Macro 00 will be locked out.

6. If a RAM clear is performed, the macro setting will default to Macro 00 and be ready for option programming to one of the other Macros.

03 **Pump Configuration**

Configures the computer for the type of dispenser it will be controlling and the type of communications it will use with the control system. Data marked "SC-82 communications" will operate with any Rev. of data link control system CPU. All other data requires control system CPU Rev. 49 or higher.

DATA

01	SC-82 Emulation	(SC-82 communications)
02	Non-Blender	(Duplex communications)
03	Fixed Blender	(Duplex communications)
04	Reserved	(Do not use.)
05	Variable Blender	(Duplex communications)
06	Reserved	(Do not use.)
07	Duo-2	(Duplex communications)
08	UniHose MGD	(Duplex communications)

OPTION	DESCRIPTION

04 **Gallons/Liters**

This is a read only option, unless option programming is entered via the security switch as discussed in Section 2.2.2.

This option is interlocked to Option 53. The data setting in this option determines the data range allowed in Option 53.

DATA

01 Gallons - Volume based on 1072 pulses per gallon.
02 Liters - Volume based on 1072 pulses per liter.
03 Liters - Volume based on 283 pulses per liter.
04 Gallons - Volume based on 1514 pulses per gallon.*
05 Liters - Volume based on 400 pulses per liter.*

* Required setting for 2/Vista models, U.S. gal. or liter.

05 **Nozzle Configuration**

Sets the number and location of nozzle positions active on the dispenser.

DATA

01 Nozzle A

02 Nozzle A
Nozzle B

03 Nozzle A
Nozzle B
Nozzle C

04 Nozzle A
Nozzle B
Nozzle C
Nozzle D

05 Nozzle B

06 Nozzle B
Nozzle C

07 Nozzle B
Nozzle C
Nozzle D

OPTION	DESCRIPTION

06 **Number Of Fueling Points**

Sets the Duplex II computer to control either one or two fueling points on the dispenser.

DATA

01 One Fueling Point per computer.

02 Two Fueling Points per computer.

07 **Unit Prices Per Grade**

Sets the Duplex II computer to assign either, one unit price per grade (non-cash/credit) or two unit prices per grade (cash/credit) (C/C).

With either of the data selections below, the Duplex II computer automatically determines if cash/credit selection and cash/credit confirmation are required.

DATA

01 One unit price per grade (Non-Cash/Credit).

C/C Confirmation is not required at dispenser and C/C Selection is not required to begin sale.

02 Two unit prices per grade (Cash/Credit).

C/C Confirmation is required at dispenser and C/C Selection is required to begin sale.

OPTION	DESCRIPTION

10 **Totals Format**

Sets the computer to store money totals in one of three formats. First, to separate cash and credit totals per position. Second, to combine all money per position regardless if it's cash or credit. Third, to calculate all money per fueling point.

If Option 10 is set to separate cash and credit totals then Option 07 must be set for two unit prices per grade.

DATA

01	Money totals are separated into cash totals and credit totals per position.
02	Money totals are calculated equal to cash plus credit per position.
03	Money totals are calculated per fueling point only.

11 **Valve On Delay**

Programs a delay between the time that the relay select line is energized and the slow valve is turned on. This delay is intended to give the leak detectors time to perform their check.

DATA

2 to 6 seconds in 0.5 second increments.

12 **Time Out With No Pulses Received**

If, after the dispenser starts its reset, pulses to begin a sale, or during a sale, are not received for the programmed time period, the dispenser goes out of use and Fault Code 08 is set.

DATA

120 to 300 seconds in 10 second increments.

Cannot be disabled.

OPTION	DESCRIPTION

13 **Nozzle On Delay**

When enabled, sets a 3 - 4 second time which the nozzle switch must be turned off before moving the switch to the on position will be recognized. This prevents a customer from inadvertently resetting the sale amount. For example:

1. The nozzle is turned off and the dispenser goes out of use. The computer initializes a 3 - 4 second delay of nozzle-on recognition.

2. If the nozzle comes back on in less than 3 - 4 seconds the computer ignores the switch closure and does not reset.

3. If the nozzle comes on after the 3 - 4 second timer has expired, the computer resets and starts the sale.

DATA

01 Disabled.
02 Enabled.

14 **Money Display Decimal Location**

Sets the location of the money display decimal point. This same location is used on the preset assembly if present.

DATA

01 . X
02 . XX
03 . XXX
04 . XXXX
05 No Decimal Point

OPTION	DESCRIPTION
15	**Volume Display Decimal Location** Sets the location of the volume display decimal point. This same location is used on the preset assembly if present. DATA 01 . XX 02 . XXX
16	**Unit Price Display Decimal Location** Sets the location of the unit price decimal point. DATA 01 . X 02 . XX 03 . XXX 04 No decimal point.
19	**Number of Cash Digits** Sets the number of digits which will be shown in the money display. DATA 01 5 digits 02 6 digits

OPTION **DESCRIPTION**

23 **Flow Valve Sequence**

Sets the sequence which the computer turns the flow control valves on and off. In dispensers with new style hydraulics (with a two stage actuator), this option must always be set at 02. In dispensers with old style hydraulics (two external electric solenoid valves), this option must be set to 01.

DATA

01 S-F-S:
Slow on, Fast off;
Fast on, slow off;
Slow on, Fast off.

02 S-SF-S
Slow on, Fast off;
Slow on, Fast on;
Slow on, Fast off.

24 **Unit Price Order**

Reverses the order of unit price positions, switch inputs, and lighted cash credit button outputs on each side of the dispenser. See Table 3-1 for data.

DATA

TABLE 3-1. OPTION 24 DATA

Option 24 Data	Side 1 Unit Price Position Order	Side 2 Unit Price Position Order
01	Left to Right	Left to Right
02	Left to Right	Right to Left
03	Right to Left	Left to Right
04	Right to Left	Right to Left

Note: Side 1 of the dispenser is the junction box side.

OPTION	DESCRIPTION
25	**Push-button Start/Stop**

Enables or disables the push-to-start option.
If the option is enabled, a push-to-start switch must be pressed before the dispenser will reset. If the option is disabled the dispenser will reset without a push-to-start signal.

Note: NFPA 30A requires the dispenser to be "manually activated." This requires a separate intentional operation other than simply removing the nozzle from its hang up position.

DATA

01	Disabled. For use with Lift-to-Start models.
02	Enabled Push-to-start Switch. A push-to-start switch is the only valid push-to-start signal. The push-to-start switch is a normally open switch which ultimately connects to pins 7 and 5 of the J6 connector on the lighted cash credit interface board. If this switch is continuously closed for 30 seconds Fault Code 01 is set.
03	Enabled Push-to-start, Cash/Credit, or Grade Select Switches. The select switches are considered valid push-to-start signals. These are normally open switches which ultimately connect to the J5 connector on the lighted cash credit interface board.
04	Reserved. (Do not use.)

OPTION	DESCRIPTION

26 **Totalizer Sequence Code Display**

Sets the computer to display the most recent fault code detected, for a given side of a dispenser, before any totals have been displayed.

DATA

01	Enable.	Display fault code.
02	Disable.	Do not display fault code.

28 **Cash/Credit And Push-to-Start Switches**

Sets the computer to control the proper number of lighted or unlighted cash/credit or Push-to-Start switches.

DATA

01 One cash switch and one credit switch or one Push-to-Start bar per side.

02 One set of cash/credit switches or one Push-to-Start bar per nozzle, or lighted cash and credit switches.

03 Cash/credit selection or Push-to-Start required from dispenser mounted card activated terminal.

29 **Flash Unit Price Displays In Idle State**

Sets the computer to either flash or not flash the unit price displays.

DATA

01 Do not flash unit price displays.

02 Flash unit price displays when the dispenser is idle and all nozzle switches are off.

03 Flash unit price displays after a nozzle switch is turned on and until product flow begins.

OPTION **DESCRIPTION**

30 **Blank Non-Selected Unit Price Displays**

Sets the computer to display dashes in the non-selected unit price displays, or to blank out the non-selected unit price displays, when a nozzle switch is turned on.

DATA

01	Display dashes in non-selected unit price displays.
02	Blank out non-selected unit price displays.

31 **Beep After Nozzle Active**

DATA

01	Beep until authorized Beep during reset cycle	No. Yes.
02	Beep until authorized Beep during reset cycle	Yes. Yes.
03	Beep until authorized Beep during reset cycle	No. No.
04	Beep until authorized Beep during reset cycle	Yes. No.

Note: Push-to-Start dispensers will beep on nozzle active until Push-to-Start requirements are met regardless of how Option 31 is set.

34 **Call On Push-to-Start**

Tells the computer when to generate a call signal to the control system.

DATA

01	Call on product selection.
02	Call after product selection and Push-to-Start is satisfied.

OPTION	DESCRIPTION
36	**Submersible Pump Relay Control**
	DATA
	01 Relay turns ON if nozzle is out and Authorized.
	02 Relay turns ON if nozzle is out and not Authorized.

Note: If there is no authorization in 60 seconds, the relay is turned OFF.

37	**Inhibit Vista Actuator Assembly LEDs**
	DATA
	01 Do not inhibit LEDs. LEDs will flash when a nozzle is out and user action is required.
	02 Inhibit LEDs. LEDs will not flash if all of the following are true: The dispenser is not in stand alone. The dispenser is not authorized from the controller. Option 25 is set at 03. Option 03 is not set at 04, 05, or 08. A nozzle is out.
38	**Electromechanical Totalizer per Product or Meter**
	DATA
	01 One EMT per product.
	02 One EMT per meter.

OPTION	DESCRIPTION

40 **Money/Volume Default**

Tells the preset assembly which mode, money or volume, to default to at power up or after a completed sale.

DATA

01 Default to the money mode.

02 Default to the volume mode.

03 No default.

41 **Money Only, Volume Only, Or Both**

Tells the preset controller whether it can operate in only the money mode, only the volume mode, or if it can be toggled between the two.

DATA

01 Money or volume sales can be preset.

02 Money sales can be preset (money mode).

03 Volume sales can be preset (volume mode).

42 **Display Fill Or Dashes On Fill Command**

Tells the preset controller to display dashes or the word “FILL” when a customer selects fill.

DATA

01 “FILL” is displayed.

02 “- - - -” is displayed.

43 **Preset Required**

Tells the preset controller if a preset selection is required prior to beginning a sale.

DATA

01 Preset entry not required before a sale begins.

02 Preset entry required before a sale begins.

OPTION	DESCRIPTION

44 **First Digit Entry Point For Money**

Sets the position at which the money digit(s) entered will be displayed. The **X** below indicates the position on the display where the last digit entered will be shown. All digits to the right of the **X** position will remain zero.

DATA	
01	**X**000.00
02	- **X**00.00
03	- - **X**0.00
04	- - - **X**.00
05	- - - - .**X**0
06	- - - - .- **X**

Note: The decimal point location in the above Data assumes that two decimal places were selected in Option 14; therefore, if Option 44 is set to Data 04, and a 2 and 3 are entered at the keypad, "23.00" will be displayed. If Option 44 is set to Data 05, the same entry would display "2.30".

45 **First Digit Entry Point For Volume**

Sets the position at which the volume digit(s) entered will be displayed. The **X** below indicates the position on the display where the last digit entered will be shown. All digits to the right of the **X** position will remain zero.

DATA	
01	**X**00.000
02	- **X**0.000
03	- - **X**.000
04	- - - .**X**00
05	- - - .- **X**0
06	- - - .- - **X**

Note: The decimal point location in the above Data assumes that three decimal places were selected in Option 15; therefore, if Option 45 is set to Data 03, and a 2 and 3 are entered at the keypad, "23.000" will be displayed. If Option 45 is set to Data 04, the same entry would display "2.300".

OPTION	DESCRIPTION
46	**Volume Pre-Cutoff Amount**

Sets the volume amount before the end of a preset sale at which the dispenser will go into slow flow. For example, if the pre-cutoff amount is set at .15, the dispenser will slow down .15 volume units before the end of a preset sale.

Note: The DATA range below allows the flexibility to change this setting from the Default setting of .15 gallons (.57 liters). Various settings can be entered until a suitable slow down interval is obtained. The value entered should provide NO LESS than a 5 to 6 second slow down time, otherwise, Preset Overruns may occur.

DATA

.01 to 2.55 volume units (Gallons or Liters) in one one-hundredth of a volume unit increments.

51 **Blend Ratios (Programming Sequence)**

Note: This option can only be altered from its default value if the security switch is set when entering option programming as discussed in Section 2.2.2.

Note: If the dispenser is connected to a control system, the blend ratios must be entered in this option first and then at the control system. If the control system does not agree with the dispenser, data link communications will cease and the dispenser will drop off line. The control system will not override the blend ratios entered in the dispenser.(Weights and Measures requirement.)

This option (applicable to blending dispensers only) sets the blend ratios which are used to mix the end grades when dispensing the blended grades of product. The entries are made as a percentage of high product; for example, an entry of 75 would produce a blend made up of 75 percent high product and 25 percent low product.

The blends are assigned by hose position. A variable blender can have ratios set in positions 2 through 7. The representative unit price displays for positions 2 through 7 are either right to left or bottom to top respectively, depending on the type of display installed in the dispenser. A fixed blender can have a blend ratio set in position 3 only. This ratio must be between 01 and 99 with positions 2 and 4 fixed at 000 and 100 respectively.

OPTION	DESCRIPTION
51	**Blend Ratios (Programming Sequence),** continued

Once the correct programming is determined the steps to enter that programming (after setting the security switch) are as follows:

1. Upon entering Option 51 the money display shows a sequence number and the volume display is dashes. The sequence number is a count of how many times the **blend ratio** data has been changed and saved. Press the Totals push-button to display the first blend position in the money display, and the currently programmed data (blend ratio) for that position in the volume display.

2. Press the Totals push-button to change the blend ratio. The ratio can be set in 1% increments. Each digit is set individually by releasing and pushing the Totals button to advance to the next digit. Dashes are not valid digits for blend ratios.

3. Press the Price Jog push-button to increment to the next blend position.

4. Repeat Steps 2 and 3 until all blend ratios have been entered.

Note: The blend ratios can also be viewed, without entering option programming, by pressing the Totals button and then the Price Jog button to enter the Audit Report Display Mode. In this mode, the blend ratios are shown in the unit price displays. The sale volume shows the number of times a RAM clear has been performed and the sale money shows the combined total of, the number of RAM clears + the number of times Option 04 (Gal/Lit) has been changed + the number of times Option 51 has been changed. Non-blending dispenser unit price displays will show "Ar" in the Audit Report mode. Press the Totals button to exit this mode.

OPTION	DESCRIPTION
52	**Blend Error**

Sets the percentage by which the programmed blend ratio may fluctuate before a blend error is recorded. For example, if option 52 is set to 2 the selected blend ratio may fluctuate ± 2%; if the ratio fluctuates more than ± 2% the dispenser is shut down and a blend error is displayed at the next reset. Option applies to blending dispensers only.

DATA

1% to 5% in 1% increments.

53 **First Check Set**

Sets the volume amount at which the computer begins to check the blend ratio for correctness. For example, if Option 53 is set at 1.2, the first 1.2 volume units would be dispensed before the blend ratio was checked. Once the 1.2 volume units is exceeded, the blend ratio will continue to be checked throughout the rest of the sale. Option applies to blending dispensers only.

Option 53 is interlocked to Option 04 (Gallon/Liter).

DATA

0.2 to 5.0 Gallons, in 0.2 increments, when Option 04 = 1 (Gallons).

0.8 to 20.0 Liters, in 0.2 increments, when Option 04 = 2 (Liters) or 3 (Liters).

OPTION	DESCRIPTION
97	**RAM Clear**

Provides a means for clearing the RAM on the computer. The RAM clear counter is shown in the sale volume display during the Audit Report Display Mode as discussed on page 23. To perform a RAM clear follow these steps:

1. Enter option programming via the security switch as discussed in Section 2.2.2 and **leave the security jumper installed**.

2. Press the **Price Jog** push-button **to go to** Option 97 where the sale money display will show XAB; AB being the right hand two digits.

3. Use the **Totals** push-button **to change** the value in the volume display to XBA. For example, if the money display shows 06 in the right hand two digits, enter 60 in the right hand two digits in the volume display.

4. Press the **Price Jog** push-button; a **RAM clear** will occur in a few seconds and the computer will immediately enter Option 01.

5. Use the **Price Jog** and **Totals** push-buttons **to reset** the options as necessary and Save the new settings with Option 99 set to 03.

6. **Remove the security jumper.**

7. Press the **Price Jog** and then the **Position Select** push-button to return the dispenser to the normal operating mode.

Note: Reset the fueling point number and unit prices as necessary after performing this procedure.

OPTION	DESCRIPTION
98	**Code Allocation**

Allows the status of some fault codes to be changed as discussed in Section 4. This option will display only the changeable fault code statuses as follows:

1. When Option 98 is entered the money and volume displays will show dashes.

2. Press the Totals push-button to display the first fault code in the money display and the fault code status in the volume display.

3. Press the Totals push-button again to change the status or Press the Price Jog push-button to increment to the next fault code.

4. Repeat Step 3 as necessary until the money and volume displays show dashes.

5. Press the Totals push-button to repeat the sequence or press the Price Jog push-button to go to the next desired programming option.

DATA

01 Error Code. Shuts down the entire side of the dispenser until power is cycled or until Option 99 is set to 03. Displayed in Option 01.

02 Hydraulic Code. Shuts down the affected hydraulic system (hose) until power is cycled or until Option 99 is set to 03. Displayed in Option 01.

03 Service Code. Generally do not affect dispenser operation (see paragraph 4.3 for exceptions) but are displayed in Option 01.

04 Disable code. Do not affect dispenser operation and are not displayed in Option 01.

OPTION	DESCRIPTION
99	**Exit Programming**

Allows the option programming mode to be exited.

DATA

01 Review option settings. If the data is left at 01, the next closure of the Price Jog push-button will return the computer to Option 01.

02 Exit options and **do not save** new settings. If 02 is entered, the next closure of the Price Jog push-button will exit the option programming sequence without saving programming changes.

03 Exit options and **save** new settings. If 03 is entered, the next closure of the Price Jog push-button will exit the option programming sequence and save all programming changes.

4. FAULT DETECTION AND REPORTING

4.1. INTRODUCTION

The purpose of the fault detection and reporting circuits in the Duplex II computer is to:

- Monitor the operation of the dispenser.
- Identify a fault when it occurs by linking the fault to a fault code.
- Take the appropriate action as dictated by the status of the fault code.

4.2. CLEARING FAULTS

Once the cause of a fault is corrected, the fault code can be cleared from the display of the dispenser by cycling power to the computer or by entering Option 99. If the problem is corrected but power is not cycled or Option 99 is not entered, the fault code will continue to be displayed. See Table 4-1. for a listing of fault codes.

4.3. FAULT CODE STATUS DESCRIPTIONS

When a fault is detected, the Duplex II computer records a Fault Code Status number of 1, 2, 3, or 4. The fault code status number dictates what action, if any, the computer will take as a result of the fault. A description of Status numbers are:

1 **Error Code**: shuts down the affected side of the dispenser until power is cycled or Option 99 is set to 03. Error codes are displayed in Option 01.

2 **Hydraulic Code:** shuts down the affected hydraulic system on the specific side of the dispenser until power is cycled or Option 99 is set to 03. Hydraulic codes are displayed in Option 01.

3 **Service Code:** shuts down the affected hydraulic system on the specific side of the dispenser. The nozzle switch must close and open and the dispenser must be reauthorized to initiate a new sale. Service codes are displayed in Option 01.

4 **Disable Code:** when a fault code has this status, the computer does not take any action and the fault code is not displayed in Option 01.

Fault codes, their status, and descriptions are shown in Table 4-1. When more than one number is shown in the Fault Code Status column, it indicates that the Fault Code can be assigned either status. An asterisk next to a number indicates the default status.

For example, Fault Code 08 (Time out limit has been exceeded) has three numbers, 1/2/3*, in the Fault Code Status column. The default status is 3, however, you may assign either a Status 1 (Error Code), Status 2 (Hydraulic Code), or Status 3 (Service Code) to Fault Code 08.

TABLE 4-1. FAULT CODES, STATUS, AND DESCRIPTION

Fault Code	Fault Code Status	Description
01	1/3*	Push-to-start open but configured for push-to-start, or push-to-start switch shorted.
02	1*	Push-to-start jumper shorted but not configured for push-to-start.
03	1/2/3*	Unit has overrun prepay/preset amount.
04	1*	ROM checksum error.
05	1/2/3*	Pulser error or Wayne Vac error. (Set if jitter count exceeds limit)
06	1/3*	Illegal current sensed in valve or relay output circuit.
08	1/2/3*	Time out limit has been exceeded.
09	1*	5 consecutive no pulse timeouts.
10	1/2/3*	Reverse pulse limit has been exceeded.
11	1*	Corrupted option data. The pump will not restart until Option 99 is set to 03. Cycling power will not reset this error.
12	3*	Corrupted totals data; the totals were reset to zero.
13	3*	Corrupted unit price data; the unit prices were reset to zero.
14	1/2/3*	Forward pulses from illegal pulser exceeds limit.**
15	1/2/3*	Jitter pulses from illegal pulser exceeds limit.**
16	1/2/3*	Reverse pulses from illegal pulser exceeds limit.**
20	3/4*	Jitter count exceeds logging limit (blenders only).***
21	3/4*	Reverse count exceeds logging limit (blenders only).***
30	3*	Corrupted Electro-mechanical totalizer data. Totalizer fractional amounts stored in memory after each sale have been reset to 0.
31	3*	Electro-mechanical totalizer overflow. The computer missed incrementing at least one volume unit on the EM totalizer.
51	1/2/3*	Blend ratio has exceeded error limits in Option 52.
54	1/2/3*	Communication failure between computer and blender solenoid drive board.
55	1*	Computer did not configure iMeter module due to communication problems with blender solenoid drive board at power-up. (Applicable only at power-up.)

* Indicates the default status of the fault code.

** Illegal pulsers are defined as follows: In Blending dispensers -- pulses received from a feedstock product that is not selected. In single hose MGD dispensers -- pulses received from unselected product.

*** Jitter pulse count exceeds logging limit. Fault code is displayed in the following special format:

NNNNN.S	Sale Money
PF.20.BB	Sale Volume

NNNNN:	Transaction Counter
S:	Side 1 or 2
P:	Product Source (0-7)
F:	Fault Source (0-7, “H” or “L”)
20:	Fault Code 20 (Jitter pulse logging error)
BB:	Maximum jitter count allowed

4.4. FAULT REPORTING

When the computer detects a fault, the sale currently in progress will be shut down. Depending on the fault code status, on the next reset, a fault code may be displayed. The fault code is displayed only for the affected side of the dispenser. In addition to the displayed fault code, a transaction counter number is also displayed. The transaction counter number can be used as a troubleshooting aid to determine on which sale an error occurred and if that particular error is related to the reported problem. This fault code, along with the new transaction counter number, will have a format similar to that in Figure 4-1. Status 3 Fault Codes are not displayed on the next reset, but may be viewed in Option 01 Code History Display.

The transaction counter has a range of 00000 - 59999 and then rolls over to 00001. Each side of the dispenser has a transaction counter. When Option 01 is entered the current transaction number for side 1 is shown in the Sale Money Display. The value of side 2 transaction counter (if two fueling points) is shown in the Sale Volume Display. See Figure 4-2 for an example. Pushing the Totals button while the transaction values are displayed causes entry into the Fault Code History Display Mode. See Figure 4-3 for an example. As shown the transaction number is displayed for each side along with the fault code for that transaction number. The first fault code displayed is the most recent. Pushing the Totals button cycles through the fault codes. This mode will display the last 16 fault codes detected by the dispenser's computer since the last RAM clear (not 16 per side but 16 total for that computer).

In order to reset Status 1 and Status 2 Fault Codes, the initial problem must be corrected and power to the computer cycled (or a 3 entered in Option 99). Until these conditions are satisfied the fault code will continue to be displayed at the end of the reset cycle. The fault code is also stored in Option 01 Code History Display .

The effect an error (fault) has on the dispenser depends on the status of the fault code, as described below in Table 4-2.

TABLE 4-2. FAULT CODE STATUS EFFECT ON DISPENSER

	STATUS 1	STATUS 2	STATUS 3
Current sale is interrupted	X	X	X
The next reset attempt is normal			X
The next reset attempt displays the error code	X	X	
The error code is stored in Option 01	X	X	X
The entire side is out of service until the error is cleared	X		
The hydraulic position is out of service until the error is cleared		X	
The dispenser will operate normally unless another error occurs			X

4.4.1. Totalizer Sequence Code Display

The last fault code detected is displayed on the applicable side of the dispenser when the totalizer read sequence is initiated unless:

Option 26 = 02 (Disable), or, since the last fault code was detected, Option 99 has been entered or power has been cycled.

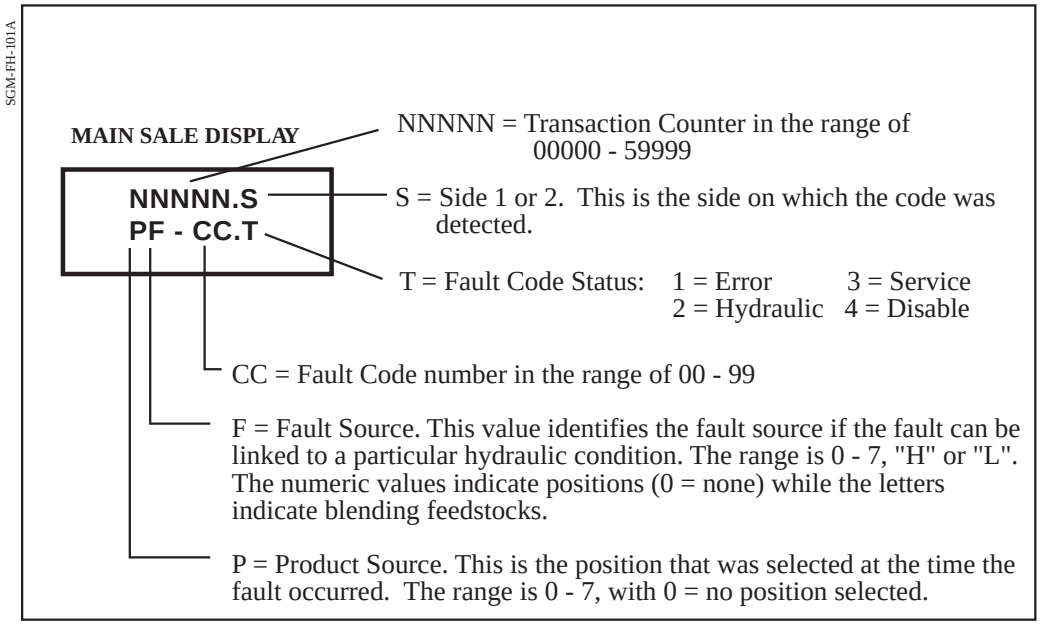

FIGURE 4-1. FAULT CODE DISPLAY. *The fault code will have a format similar to that shown.*

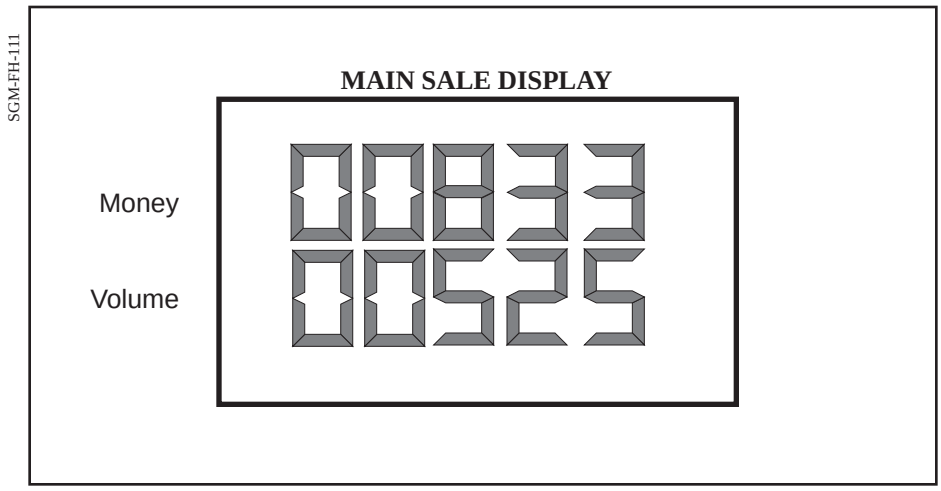

FIGURE 4-2. MAIN SALE DISPLAY SHOWING TRANSACTION COUNTERS. *The transaction number for Side 1 of the dispenser is shown in the Money Display and the transaction number for Side 2 is shown in the Volume Display.*

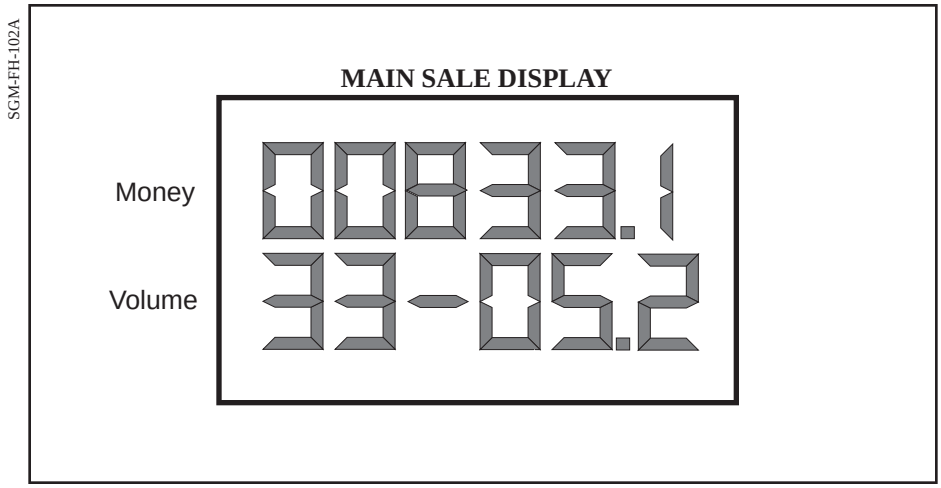

FIGURE 4-3. MAIN SALE DISPLAY SHOWING TRANSACTION COUNTER AND FAULT CODE. *In this example Fault Code 05 occurred on transaction number 00833 on Side 1 of the dispenser.*

Note: Side 1 of the dispenser is the junction box side.

APPENDIX A. MACRO SETTINGS

A.1. AVAILABLE MACROS

Each macro, 02 to 13, listed in the "Macro Settings" row in Table A-1 on the following page has been designed for use with a specific dispenser model. The settings listed under each macro are the default settings to be used for the dispenser model shown. Exception: Macro 00 is the Manufacturing Default, but is also used for the 2/V388 Duo-2 model as shown. Use the Macro designed for the dispenser model as listed and, if necessary, change the option setting within that Macro for single or dual pricing, single sided models, etc.

TABLE A-1. REV 11 OPTION SETTINGS BY DISPENSER MODEL NUMBER.

Programming Options	2/V387	2/V388 Note: Set Option 03 to 7	2/V389 2/V399	2/V390	2/V490	2/V590	2/V390/U	NOT USED	2/V580 2/V590/U	NOT USED	2/V585 2/V595/U	2/V595 (4+1)	2/V595 2/V591 (3+1)
02 Macro Settings	2	00	4	5	6	7	8	9	10	11	12	13	13
04 Gallons/Liters	4	4	4	4	4	4	4		4		4	4	4
06 Fueling Points	2	2	2	2	2	2	2		2		2	2	2
07 Unit Prices	1	1	1	1	1	1	1		1		1	1	1
10 Totals Format	2	2	2	2	2	2	2		2		2	2	2
11 Valve Delay	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0
12 Timeout if No Pulses	300	300	300	300	300	300	300		300		300	300	300
13 Nozzle Delay	1	1	1	1	1	1	1		1		1	1	1
14 Money Decimal	2	2	2	2	2	2	2		2		2	2	2
15 Volume Decimal	2	2	2	2	2	2	2		2		2	2	2
16 Unit Price Decimal	3	3	3	3	3	3	3		3		3	3	3
19 Cash Digits	1	1	1	1	1	1	1		1		1	1	1
23 Valve Seq.	2	2	2	2	2	2	2		2		2	2	2
24 U/P Reversal	4	1	4	4	4	4	1		1		1	1	1
25 Push To Start	2	1	2	2	2	2	3		3		3	3	3
26 Totals Code Display	2	1	2	2	2	2	2		2		2	2	2
28 C/C Switches	2	2	2	2	2	2	1		1		1	1	1
29 Flash U/P	3	1	3	3	3	3	3		3		3	3	3
30 Blank U/P	1	1	1	1	1	1	1		1		1	1	1
31 Beep Until Authorize	1	1	1	1	1	1	1		1		1	1	1
34 Call on Push to Start	1	1	1	1	1	1	1		1		1	1	1

TABLE A-1. REV 11 OPTION SETTINGS BY DISPENSER MODEL NUMBER., continued

Programming Options	2/V387	2/V388 Note: Set Option 03 to 7	2/V389 2/V399	2/V390	2/V490	2/V590	2/V390/U	NOT USED	2/V580 2/V590/U	NOT USED	2/V585 2/V595/U	2/V595 (4+1)	2/V595 2/V591 (3+1)
36 Sub Pump Relay Control	1	1	1	1	1	1	1	1	1	1	1	1	1
37 Inhibit Vista Actuator Assy LEDs	1	1	1	1	1	1	1	1	1	1	1	1	1
38 EM Totalizers	1	1	1	1	1	1	1	1	1	1	1	1	1
40 Money Volume Default	1	1	1	1	1	1	1	1	1	1	1	1	1
41 Money Volume Sale	1	1	1	1	1	1	1	1	1	1	1	1	1
42 FILL or Dashes on Fill	1	1	1	1	1	1	1	1	1	1	1	1	1
43 Preset Required	1	1	1	1	1	1	1	1	1	1	1	1	1
44 First Money Digit Entry	4	4	4	4	4	4	4	4	4	4	4	4	4
45 First Volume Digit Entry	3	3	3	3	3	3	3	3	3	3	3	3	3
46 Volume Precut-off	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15
51 Blend Ratios POS 2 POS 3 POS 4 POS 5 POS 6 POS 7						 000 050 100 - - -			 - 100 - 050 - 000		 - 100 075 050 025 000	 - 100 075 050 000 -	 - - 100 050 000 -
52 Blend Error						2			2	2	2	2	2
53 First Check						1.2			1.2	1.2	1.2	1.2	1.2

Software Revision 11
Option Programming
1/Vista and 2/Vista Model Dispensers

Written and illustrated by Stephen G. Martin.

This manual was produced using Adobe® FrameMaker® on a Power Macintosh® 8100/80.

Page design uses Times 12 and Helvetica 10 Fonts.

Manuals were electronically produced on a Xerox Docutech 135 Publishing System at 600 dpi.

Art was produced using Aldus® Freehand® and Adobe® PhotoShop®.

Power Macintosh® is a trademark of Apple Computer, Inc.

FrameMaker® and Adobe® PhotoShop® are trademarks of Adobe Systems, Inc.

Wayne Division, Dresser Industries, Inc., is located at 124 West College Ave., Salisbury, MD 21804.
Dresser Industries' general telephone number is (410)-546-6600.
The Documentation fax number is (410)-546-6753.

WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

Seller warrants that new products and parts of its own design and manufacture when shipped, will be of good quality and will be free from defects in material and workmanship and will conform to applicable specifications. Work, when performed by Seller, will meet applicable work requirements. No warranty is made with respect to used or rebuilt equipment and with respect to products not manufactured by Seller. Seller's only obligation shall be to assign to Buyer, at the time of sale, whatever warranty Seller has received from the manufacturer. Items such as but not limited to lamps, electric motors, hoses, nozzles, hose swivels and safety impact valves are included in the category referred to in the previous sentence. Seller's recommendations with respect to the operation of Seller's equipment are advisory only and are not warranted. All claims under this warranty must be made in writing immediately upon discovery and, in any event, within twenty-four (24) months from date of start-up, if a product is involved, or from completion of the applicable work, if work is involved, or thirty (30) months from date of invoice (whichever shall occur first). (Provided however, that with respect to the Wayne Plus system, 2400 system, DL series dispensers, and card readers, all claims must be made in writing within twelve (12) months from date of start-up. With respect to receipts/totals printers, and any other printers or printing mechanisms, all claims must be made in writing within ninety (90) days from date of start-up. Wayne Vista dispenser external metal panels will be free from defects due to rust and/or corrosion for a period of forty-eight (48) months from date of dispenser start-up.) Defective and nonconforming items must be held for Seller's inspection and returned to the original f.o.b. point upon request. Seller's warranty on service parts, whether new or reconditioned, is ninety (90) days from the date of installation, or twelve (12) months from date of invoice, whichever first occurs. THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESSED, IMPLIED AND STATUTORY, INCLUDING WITHOUT LIMITATIONS, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall, at its option either (I) repair or replace its product or work at the original f.o.b. point or location of purchase products and/or parts or (II) refund an equitable portion of the purchase price.

THE FOREGOING IS SELLER'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY AND, EXCEPT FOR GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, THE FOREGOING IS BUYER'S EXCLUSIVE REMEDY AGAINST SELLER FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES. BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES. ANY ACTION BY BUYER ARISING HEREUNDER OR RELATING HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE CAUSE OF ACTION ACCRUES OR IT SHALL BE BARRED.

"NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense."

Wayne Division, Dresser Industries Inc., P.O. Box 1859, Salisbury, MD 21802-1859, (410) 546-6600
Part No. 920205 Rev C 7/99

300/7/99

920205 C