Figure 2-2. 2400/Plus Console Fueling Point Controls

2.3.1.2. Pump Stop Key (Fueling Point Stop)

Use the Pump Stop key to suspend fuel flow for individual fueling points or to de-authorize individual fueling points.

2.3.1.3. Pump Start Key (Fueling Point Start)

The Pump Start key activates fuel flow for all fueling points responding to the 2400/Plus system.

2.3.1.4. Mode Key

Use the Mode key to enter or exit the system data mode.

2.3.1.5. Unit Price Key

Use this key to view unit price information for current fuel sales or recall fuel sales on the console display screen.
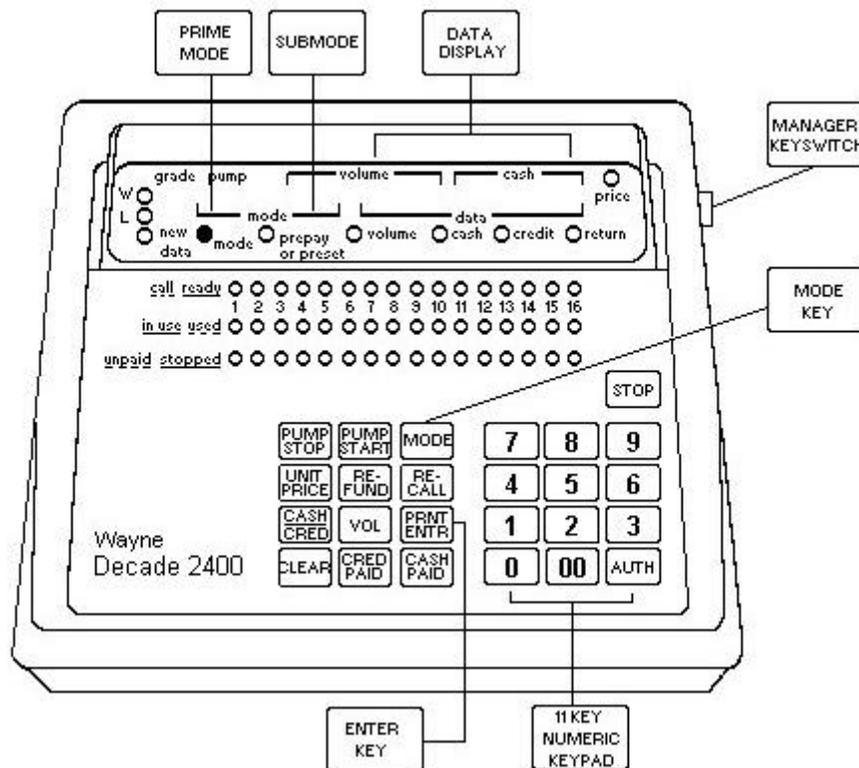
Figure 2-3. 2400/Plus Console Mode Data Display

2.3.1.6. Refund Key

Use this key to determine the customer refund amount for incomplete prepay fuel sales. The refund amount appears on the console display screen. Selecting the Refund key also clears the flashing indicator lamp for an incomplete prepay fuel sale.

authorize the additional fuel sale, the operator enters a mode selection of 33-18-1 into the 2400/Plus. Refer to Figure 3-1.

FIGURE 3-1. MODE DESCRIPTION EXAMPLE

3.3. MODES AND 2400/PLUS INSTALLATION

When the 2400/Plus is installed for the first time, data (programming information) and restriction values are automatically assigned to some modes. Modes automatically assigned non-zero data values at installation are identified in Table 3-2. To view the restriction values assigned to modes at installation, enter Mode 99 on the 2400/Plus console.

TABLE 3-2. MODES AND DATA ASSIGNMENTS AT INSTALLATION

Prime Mode	Submode	Data Assigned at Installation	Description
00	00	1	Station unit price tier
00	01	1	Fueling point unit price tier
	(Max. F.P. No.*)		
02	01	1	Tank 1 contains grade 1
02	02	2	Tank 2 contains grade 2
02	03	3	Tank 3 contains grade 3
02	04	4	Tank 4 contains grade 4
02	05	5	Tank 5 contains grade 5
02	06	1	Tank 6 contains grade 1
04	01	1	All fueling points are
	(Max. F.P. No.*)		assigned with level 1 pricing
06	01	0.200	All fueling points are
	(Max. F.P. No.*)		assigned a pre-cutoff value of 0.200
07	00	$990.00	Cash ration limit
07	00	990.000	Volume ration limit
09	00	8	Maximum number of fueling points in the system
17	06-09	101	Blend ratio = grade not used
32	01, 02	2, 3	Decimal point location for totals and = XX . XX: for unit price = X.XXX
33	00, 01	1	Prepay/preset and postpay sales allowed
50	11/21	1	Data output to peripheral
	12/22	0	attached to console 1
	13/23	0	

NOTE: * 01-Max. F.P. no. = 01 - Maximum fueling point number as set in Mode 09.

3.4. ENTERING A MODE SELECTION

A mode selection consists of pressing the mode key, entering a two digit prime mode number, entering a one or two digit submode number, and entering a one digit data number on the numeric keypad. When certain prime mode numbers are entered in the system, a zero may automatically appear in the submode number.

The following steps demonstrate how to enter a mode selection in the 2400/Plus system.

1. To bypass most mode access restrictions, turn on the Manager Keyswitch.
2. Press the Mode key. The display screen becomes blank and the mode lamp turns on.
3. Enter a two digit Prime Mode number on the numeric keypad. The selected prime mode number appears on the display screen. Refer to Figure 3-2.
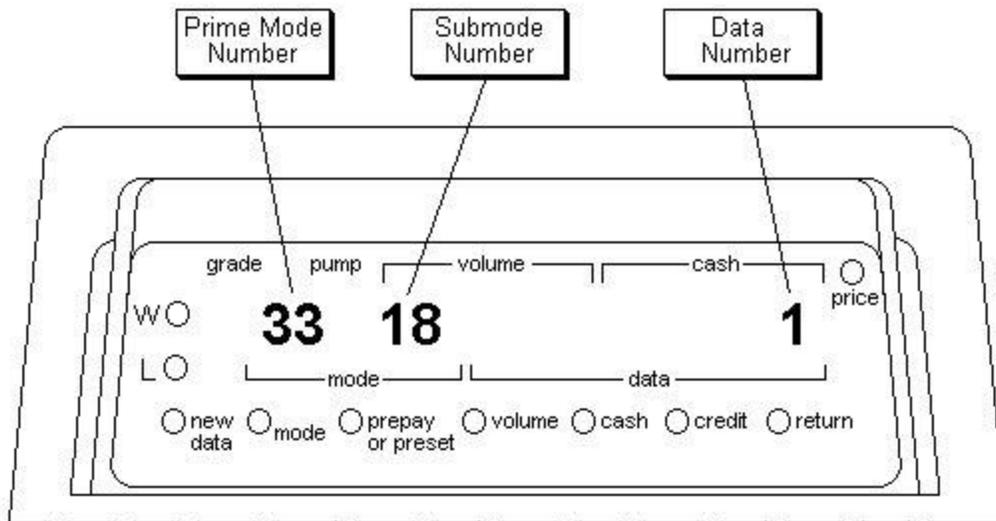
FIGURE 3-2. MODE DATA LOCATION

4. Enter a one or two digit Submode Number. The selected submode number also appears on the display screen next to the prime mode number. The display screen also indicates the current program data for the selected mode.

5. If the program data on the screen is correct, press the Recall key to advance to the next submode number.

6. To change the program data on the screen, enter the new data and press the Prnt/Entr key. If the console beeps, the new data value may be incorrect. Verify the numbers entered and re-enter the mode data.

NOTE: Pressing the Clear key twice causes the submode and prime mode numbers to disappear from the display screen. Pressing the Clear key again allows the operator to exit from the mode operation.

7. Pressing the Mode key allows the operator to exit the mode operation either during or after mode selections.

NOTE: Programming the 2400/Plus with particular prime mode numbers causes the system to automatically proceed to the next larger submode number after the operator has entered a data value.

3.5. SYSTEM PROGRAMMING GUIDELINES

The following topics describe how to configure specific programming options required by the station site.

3.5.1. Grade-To-Position Programming

Programming the system with Mode 18 allows a fueling point position to dispense a particular fuel grade. Grade-to-position programming consists of assigning a non-zero value that relates to a specific fuel grade, fueling point position, and fueling point type. Refer to the Mode 18 table in this chapter for further details.

The following examples represent incorrect grade-to-position programming assignments.

3.8.3. Mode 02 - Tank Grade Assignment

TABLE 3-10. MODE 02

Prime Mode	Submode	Data	Description
02	01-06 (Tank No.)	1-5 (Grade)	Tank Grade Assignment: A grade number must be assigned to each fuel product stored in each of the six tanks controlled by the Wayne 2400/Plus. The only grades that can be assigned to tanks are grades 1 through 5.
			Grades 4 and 5 must be assigned to tanks supplying the low and high feedstock products to blending pumps (see Mode 03).
			Initially, the system assigns grades 1 through 5 to tanks 1 through 5 respectively, and grade 1 to tank 6.

3.8.4. Mode 03 - Tank-To-Fueling Point Assignment

Accessing Mode 03 allows the operator to either display or enter fuel tank assignments for each fueling point. This is usually a one time programming function unless the station plumbing is changed. The submode number indicates the fueling point number. Authorization of a pump is disallowed when an assigned tank grade does not match the grade assignment for the fueling point position (refer to Mode 18).

TABLE 3-11. MODE 03

Prime Mode	Submode	Data	Description
03	01 - MAX. F.P. No.	4-Digit	Tank-To-Fueling Point Assignment
			AA - Nozzle Position AA
			Z - Nozzle Position Z
			Y - Nozzle Position Y
			X - Nozzle Position X

If the dispenser is a Type 1 or Type 2 MGD, tank assignment for the fueling point is a 4-digit number in the following form: AAZYX.
Example: 0 3 2 1
Nozzle position X is connected to tank 1
Nozzle position Y is connected to tank 2
Nozzle position Z is connected to tank 3
Nozzle position AA is not connected

If the pump is blending (Types 3-29, Type 30 or Type 40), the tank-to-fueling point assignment is a four digit number with the following form:XHLS.
X - not used, entry of zero (0) suggested
H - high feedstock tank (must contain grade 5)
L - low feedstock tank (must contain grade 4)

S - single product tank
Example: 0 5 4 1
X is zero
High feedstock tank = tank 5
Low feedstock tank = tank 4
Single-product tank = tank 1

NOTE: Blending pump authorization is disallowed when the following conditions occur:
High feedstock tank does not contain grade 5.
Low feedstock tank does not contain grade 4.
A fuel grade in the single-product tank does not match the fuel grade assigned to position 1 (refer to Mode 18).

The system allows zero through 6 for tank-to-fueling point assignments. A zero display indicates no tank assignments. The system initially designates 0000 as the tank-to-fueling point assignment. Mode 03 provides fueling point plumbing descriptions. Using Mode 03 and 02 together also provides support for product inventory totals and tank declining balances.

3.8.5. Mode 04 - Fueling Point Price Level

Mode 04 allows the operator to select either of the two unit price levels for the current tier option selected in Mode 00. Each fueling point must be assigned to one of two price levels. The price level assignment for the fueling points allows different modes of operation, such as full-service or self-service. Refer to Mode 01 for a description on unit prices for each price level. Each of the nine grades have eight unit prices.
The following table describes the Mode 04 functions for the Wayne 2400/Plus system.
TABLE 3-12. MODE 04

Prime Mode	Submode	Data	Description
04	01 - MAX. F.P. No. 1-2		The submode number indicates the fueling point number and may not exceed the number of fueling points assigned in Mode 09. When the Enter key is pressed for a data entry, the submode automatically increases to the next fueling point number. Typical entries are 1 for self-service and 2 for full-service. The initial price level assigned by the system is price level 1.

Example: Assume that tier 2 has been selected for the station. An entry of 2 in Mode 04 selects the tier 2, level 2 cash and credit, or normal unit prices for the selected fueling point.

3.8.6. Mode 05 - Fueling Point Totalizer</H4< a>> Mode 05 provides a display of the fueling point totalizers for money and volume. Refer to Table 3-13 for further details on Mode 05 features.
TABLE 3-13. MODE 05

point number 3:

Mode 18-03 Position 1 = 0 (no grade at position 1)

Position 2 = 4 (grade 4 at position 2)

Position 3 = 6 (grade 6 at position 3)

Position 4 = 5 (grade 5 at position 4)

Positions 6, 7 = 0

When the operator uses Mode 16 and Submode 03 to select fueling point position 3, the following position information displays on the console screen:

Mode 16-03

Position 2 (grade 4) Money/Volume

Position 3 (grade 6) Money/Volume

Position 4 (grade 5) Money/Volume

Low Feedstock Volume (grade is a flashing 4)

High Feedstock Volume (grade is a flashing 5)

NOTE: Because no grade assignments were made for fueling point positions 1, 6 and 7, the console screen does not display information for these particular positions. Positions 1, 6, and 7 are also not available at the fueling point.

3.8.18. Mode 17 - Blend Ratio-to-Grade Assignment

TABLE 3-25. MODE 17

Prime Mode	Submode	Data	Description
17	6-9 Grade No.	1, 2, 3 Digit	The 2400/Plus system accepts blend ratio values in a range of 1 through 99. Mixed product grades of 6 through 9 are assigned a blend ratio of 101. The following values are assigned to blend ratios:
			0 = Low feedstock
			1-99 = Blended product
			100 = High feedstock
			101 = Grade not used
			Blend ratio values may normally be entered without regard to ascending order (lowest to highest). However, if the ascending order option is selected the ratio values should be entered with ascending values by grade number. Entering values in ascending order ensures that higher grade numbers have higher blend ratios required to satisfy the ascending order requirement. An example of the assignment structure is as follows:
			Submode = Grade Number Blend Ratio
			6 14

3 Grade not in grade-to-position order
4 Non-blender and grade is a mixed grade
5 Position grade does not equal tank grade
6 Blender and grade blend ratio greater than 100
7 Blender and single product position has grade greater than 3
8 Blender without single product position and grade is 1-3
9 Blender and feedstock grades not in feedstock tanks
10 Mandatory grade entry
11 Disallow recall
12 Ready/In-Use maximum exceeded
13 One time authorize exceeded
14 Postpay disallowed
15 Prepay/Preset disallowed
16 Pump is stopped
17 Pump has authorize reserved
18 Pump is off line
19 Conflicting unit price selection at fueling point
20 Volume prepay without grade selection
21 Pump authorized or has authorization pending
22 Unpaid sale in recall buffer
23 Current sale is incomplete prepay
24 Blender and sale pulse counts not received
25 Invalid authorization code from peripheral controller
26 Preset/Prepay for an invalid or 0 amount
27 Only Prepay authorization allowed from console
28 All authorizations not allowed from console
29 Dual pricing not configured
30 Volume prepay method does not match console display
31 Position out, conflicting grade select
99 Any other reason

3.8.28. Mode 31 - Grade Descriptor Codes

TABLE 3-35. MODE 31

Prime Mode	Submode	Data	Description
31	01-09 (Grade)	00-99	Accessing Mode 31 allows the operator to either display or enter a two digit code number used to identify grade-to-product assignments. For RTP equipped systems, either the grade number or a product name, such as

7	40
8	75
9	85

The entries 1 through 99 (blended products are expressed as a percentage of the high grade feedstock. For example, Submode 6 blend ratio 14 is a mixture of 14 percent high feedstock and 86 percent low feedstock.

A blend ratio value of 101 is not evaluated for ascending order (lowest to highest) and should be assigned to unused mixed grades. 101 is the default value for an unprogrammed system.

Grades four and five have ratios of 0 and 100 assigned by the system and cannot be programmed Mode 17.

3.8.19. Mode 18 - Grade-to-Position Assignment

TABLE 3-26. MODE 18

Prime Mode	Submode	Data	Description
18	0 - FP MAX F.P. No.	0-9 Grade No.	Mode 18 allows the operator to assign grades to fueling point positions at the fueling point. An entry of 0 means there is not a grade assigned to the fueling point position. Valid entries are 1 through 9. When programming, press the Recall key to advance to the next fueling point. To advance to the next fueling point position, press the Cash/Cred key The following list identifies fueling point positions available for different fueling point types.

Fueling Point Type	Positions
4 Product MGD	Positions 1 - 4
3 Product MGD	Positions 1 - 3
MGB Blender	Positions 1, 3 - 7 (2 is reserved)
Fixed Ratio Blender	Positions 2 - 4 (1 is reserved)
Type 40 Variable Ratio Blender with single product	Positions 1, 3-6 (2 and 7 reserved)
Type 40 Variable Ratio Blender without single product	Positions 3-7

The system classifies grades as either stored or mixed. The following paragraphs describe both types.

Stored Grades: Grades 1 through 5 are used to identify

stored products. These grades may be assigned to any position on a MGD fueling point but only grades 1 through 3 may be assigned to the single product position (position 1) of a blending fueling point. Grades 4 and 5 are designated respectively as the low and high feedstock grades for all blending units.

Mixed Grades: Grades 6 through 9 are used for mixed products. Other than the feedstock grades, these are the only grades that may be assigned to blending positions. These grades must not be assigned to multi-grade fueling point positions or to the single product fueling point position of a blending fueling point. **NOTE:** Incorrect assignment of mixed grades can prevent authorization.

To change a grade assignment, enter a new grade value within a range of zero through 9 and press the **Enter** key. The flashing position number increases to the next fueling point position while the grade assignment for the new position number displays on the console screen. The mode and submode values do not change. **NOTE:** Assignment of a 0 prevents the system from authorizing the position.

Use caution when assigning grades in this mode. Make sure grade assignments are assigned to appropriate fueling point types. Type 2 fueling points use positions 1 through 3 which correspond to nozzle positions X through Z. Type 1 fueling points use positions 1 through 4 which correspond to positions X through AA. Grades 1 through 5 are valid assignments for these fueling points. The system denies fueling point authorization when higher grade numbers are assigned to the fueling point types described above.

The current version of the Type 30 fueling point uses positions 2 through 4. The two feedstock grades must be correctly assigned to the feedstock positions before the fueling point can operate. Position 2 must have the low feedstock grade 4. Position 4 must have the high feedstock grade 5. Grades 1 through 5 are not valid assignments for fueling point position 3. This position requires a mixed grade such as grades 6 through 9.

3.8.20. Mode 19 - Non Resettable Totals

TABLE 3-27. MODE 19

Prime Mode	Submode	Data	Description
24	01-03 (Shift)		Mode 24 provides a display of the time, date, and shift change sequence numbers. Submode 01 selects the most recent shift change time. Submode 02 selects the next previous shift time and Submode 03 selects the third previous shift time. The shift change time is displayed when the submode is entered. Pressing 00 displays the date for a short interval. Pressing the Auth key displays the shift sequence number for a short interval. The shift sequence number is a 3 digit number that increases when a shift change occurs.

3.8.26. Mode 26 - First Previous Shift Fueling Point Totals

TABLE 3-33. MODE 26

Prime Mode	Submode	Data	Description
26	01-MAX F.P. No.		Mode 26 provides a display of eight digit sales and volume totals for the first previous shift for a selected fueling point. There are sales and volume totals for each assigned position of each fueling point. A fueling point position is assigned if a grade number has been entered for that fueling point position in Mode 18. Pressing the Vol key alternates the display between sales and volume totals. Pressing the Recall key advances the display to the next available position total for the fueling point being viewed.

3.8.27. Mode 30 - Authorization Error Codes

TABLE 3-34. MODE 30

Prime Mode	Submode	Data	Description
30	01-MAX. F.P. No.	0-99	Mode 30 allows the operator to determine the cause for an authorization error. Mode 30 applies to preset, prepay, and postpay authorization attempts. The submode indicates the fueling point number
			Authorization Error Codes 0 No authorization error 1 Disqualified due to unit prices 2 Grade not in range of 1-9

3 Grade not in grade-to-position order
4 Non-blender and grade is a mixed grade
5 Position grade does not equal tank grade
6 Blender and grade blend ratio greater than 100
7 Blender and single product position has grade greater than 3
8 Blender without single product position and grade is 1-3
9 Blender and feedstock grades not in feedstock tanks
10 Mandatory grade entry
11 Disallow recall
12 Ready/In-Use maximum exceeded
13 One time authorize exceeded
14 Postpay disallowed
15 Prepay/Preset disallowed
16 Pump is stopped
17 Pump has authorize reserved
18 Pump is off line
19 Conflicting unit price selection at fueling point
20 Volume prepay without grade selection
21 Pump authorized or has authorization pending
22 Unpaid sale in recall buffer
23 Current sale is incomplete prepay
24 Blender and sale pulse counts not received
25 Invalid authorization code from peripheral controller
26 Preset/Prepay for an invalid or 0 amount
27 Only Prepay authorization allowed from console
28 All authorizations not allowed from console
29 Dual pricing not configured
30 Volume prepay method does not match console display
31 Position out, conflicting grade select
99 Any other reason

3.8.28. Mode 31 - Grade Descriptor Codes

TABLE 3-35. MODE 31

Prime Mode	Submode	Data	Description
31	01-09 (Grade)	00-99	Accessing Mode 31 allows the operator to either display or enter a two digit code number used to identify grade-to-product assignments. For RTP equipped systems, either the grade number or a product name, such as

"REGULAR", prints on the fuel sale ticket. The available product codes and their associated product names are listed below.

Product Code Product Name

00 - Grade Number is printed

01 - SUPR UNL

02 - SUPR L-F

03 - PREM UNL

04 - DIESEL

05 - ECONOMY

06 - REGULAR

07 - PLUS

08 - SUPER

09 - PREMIUM

10 - NO LEAD

11 - PREM L-F

12 - UNLEADED

13 - LEAD FREE

14 - KEROSENE

15 - GASOHOL

16 - ULTRA

3.8.29. Mode 32 - Decimal Location

TABLE 3-36. MODE 32

Prime Mode	Submode	Data	Description
32	01-02	0-3 Submode 01: sets the sales and the total sales decimal location. Submode 02: sets the unit price decimal location. The data entered for either Submode 01 or Submode 02 may be any of the four following codes: 0 - XXXX (no decimal point) 1 - XXX.X 2 - XX.XX 3 - X.XXX The standard settings are as follows: Submode 01 - 2 Submode 02 - 3 **NOTE:** The decimal movement has been extended to the RTP. This operation requires a console	

option interface revision PTECRG or later.>

3.8.30. Mode 33 - Sale Options

TABLE 3-37. MODE 33

Prime Mode	Submode	Data	Description
33	00-17	0-24	
	00	0-1	Prepay/Preset sales: 0 - disallow prepay/preset sales 1 - allow prepay/preset sales
	01	0-1	Postpay sales: 0 - disallow postpay sales 1 - allow postpay sales
	02	0-1	Pricing: 0 - normal pricing 1 - cash/credit pricing
	03	0-1	Limited Authorization: 0 - disable limited authorization 1 - select limited authorization If a sale has not started, limited authorization causes the fueling point to stop automatically 10 seconds after authorization. The fueling point stop lamp lights up and the fueling point cannot be started unless the Pump Start key is pressed when the fueling point is selected at the console.
	04	0-1	Date Options: 0 - all dates appear as Month/Day/Year 1 - all dates appear as Day/Month/Year

05	1-24	Maximum Number of Pumps In use/Authorized: limits the total number of fueling points that can be authorized or in use at any one time
06	0-1	Mandatory grade entry if MGD (Multi-grade Dispenser): 0 - grade entry not needed 1 - must enter required grade number if using MGD type: fueling point
07	0-1	Preferential Cash (dual pricing): 0 - dispenser normally displays the credit price 1 - displays cash price if cash/credit is programmed in Mode 33 Submode 02 This mode is used to select price displayed at the fueling point when the Auth key is pressed.
08	0-1	Auto-Select Pump Cash/Credit: 0 - No Auto-select 1 - Auto-select Submode 08 provides automatic postpay price selection. When the fueling point position is selected with a general postpay authorization, the fueling point position does not operate until the customer makes a cash or credit choice or the pre-programmed auto-selection takes place. **NOTE:** Mode 33 Submode 08 must be set to 0 if cash/credit confirmation is enabled at the fueling point. Auto-selection chooses either cash or credit as

		programmed in Mode 33 Submode 07. Auto-selection occurs when: cash/credit pricing is selected in Mode 33-02 SW1-7 option at pump (AP) is "must select" SW2-5 option AP is "dual unit price displays" Mode 33-08 is one
09	0-3	Prepay/Preset Authorized Different Than Pump: 0 - console does not allow override with the nozzle out 1 - console does allow override of fueling point cash/credit selection 2 - customer cash/credit selection can be changed at the console. The selection on the dispenser changes if the customer selects credit and prepays with cash. 3 - console does not allow override. The selection must be changed before authorization is complete. Use Submode 09 whenever the console should override a selection made at the fueling point. **NOTE:** If the override is allowed, the price at the fueling point and at the console are different. However, the volume amount delivered is correct for the amount paid.
10	0-1	Unit Price Ratio (special pump code required): 0 - sale/unit price ratio = 10 to 1 1 - sale/unit price ratio = 1 to 1 **NOTE:** When the unit price of the fuel is too high to be entered, enter the unit price at one tenth of its actual value and set this option.
11	0-1	Peripheral Fueling Point Controller Interlock: 0 - interlocks to the recall sale. Stacked sales are allowed. 1 - interlocks to the current sale. Stacked sales are not

		allowed.
12	0-1	Clear Sale Display Command to Fueling Point After Payment: 0 - no clear command to fueling point 1 - clear command to fueling point
13	0-1	Bypass Data Change Tally Printout: 0 - no bypass to printout 1 - bypasses the data change printout
14	0-1	Override Fueling Point Grade Selection: 0 - inhibits selected authorization of one fueling point position when another fueling point position is selected 1 - any fueling point position may be authorized
15	0-2	Volume Units Switch Override: 0 - use the fueling point switch settings to determine the units printed on the RTP receipts 1 - gallons printed on the RTP receipts 2 - liters printed on the RTP receipts **NOTE:** If the value of the sales grand total is not zero for the current shift, a shift change must be performed before a change is allowed to Mode 33 Submode 15.
16	0-1	Ascending Order Option: 0 - ascending order not required 1 - ascending order required Unit prices and blend ratios for grades 4, 6, 7, 8, 9, and 5 (in that sequence) must be in order of lowest value to highest

		value. The system does not accept blend ratios or unit prices not in ascending order.
17	0-1	Export Rounding Option (special pump code required): 0 - rounding not implemented 1 - sale money rounded

The following rule is used in rounding:		
Calculated Value	Display Value	Carry
0, 1, 2	0	0
3, 4, 5, 6, 7	5	0
8, 9	0	1

18	0-1	Bypass Unpaid Recall Buffer Sales: 0 - authorization not allowed if the sale in the recall buffer is not final 1 - authorization allowed if the recall buffer sale is not final and the current buffer sale has been finalized
19	0-1	Dispenser Remote Mode Control: This feature allows a peripheral controller to set the cash /credit mode and the push-to-start function in the dispenser. 0 - do not allow the peripheral controller to change the dispenser mode 1 - allow remote control of dispenser mode

3.8.31. Mode 34 - Fueling Point Type and Software Revision

TABLE 3-38. MODE 34