Safety Procedures

⚠ WARNING



Dangerous environment.

Highly flammable/explosive fuels and high voltage are present.

Failure to observe all safety precautions could result in serious injury or death.

Observe all safety precautions as outlined in Gilbarco® manuals.

Installation Procedures

1. Install a single EMERGENCY POWER CUTOFF control to remove AC power from the site dispensing the equipment.
   Note: *The control is an additional safety feature, and not a substitute National Electrical Code (NEC®)/National Fire Protection Association (NFPA) 30 circuit breaker requirements. Label the EMERGENCY POWER CUTOFF switch and instruct the owner to keep the area clear of obstacles.*

2. Connect an insulated grounding conductor from the dispenser power panel to the site grounding electrode (size per NEC).

3. Install power breakers to each circuit leading to the dispensing unit. For dispensers and Ultra-Hi™ dispensers install power breakers to each circuit leading to the Submersible Turbine Pump (STP) also. They must be capable of simultaneously disconnecting hot and neutral conductors.
   Note: In Canada, switching neutral is contrary to the Canadian Electrical Code (CEC), reference part 1, rule 14-014.

4. Only field wiring connections are shown in the Junction Boxes (J-boxes). Cap all unused wires. Local and NECs may apply.

5. Install conduit per NEC for hazardous locations. Potting is required for conduit that passes within any portion of a hazardous vapor area to ensure vapor barrier integrity. Refer to *MDE-3985 Encore® Installation Manual* for futher potting information.

6. Wires - All wires are 14 American Wire Gage (AWG) copper stranded unless otherwise noted. Dispenser ground wire is 12 AWG (copper stranded).
   Power loading and distance run may require larger wire size. Wire all circuits NEC Class 1, except wiring to speaker (intercom) and call button, which must be NEC Class 2. Gilbarco two-wire is NEC Class 1 and may share the main power conduit.

7. Consult manufacturer specifications for wire nuts to determine the maximum number of wires and wires sizes that may be used per nut for the nut used.

8. For U.S. 240 V installations, wires labeled 'HOT' are to be connected to L1 and wires labeled 'NEUTRAL' are to be connected to L2.

9. Do not provide service loops or leave excess wire in electronics cabinet. Cut all wire lengths to a size sufficient to reach termination without stress or excess. Dress all wires neatly along surfaces so that they do not obstruct access to terminations and devices.

10. Two-wire communication wiring: For installations with 'new' wiring, use Unshielded Twisted Pair (UTP) data wires. Shielded wire must not be used.
    Wiring Specifications: Two-wire twisted pair with 10 to 12 twists per foot, stranded annealed copper tinned with 18 AWG minimum required for runs up to 1000 feet or 14 AWG minimum for runs up to 2600 feet. Do not daisy chain communications wiring.
    Insulation Specifications: PVC insulation of type Thermoplastic Flexible Fixture Wire Nylon Jacketed (TFFN) or Machine Tool Wire (MTW), Underwriters Laboratories (UL®)-approved gasoline and oil-resistant. Reference C&M Corporation Part # 27525 (18 AWG) 105C or equivalent. Refer to *MDE-3802 Encore and Eclipse® Site Preparation Manual* requirements where 14 AWG may be required.

10A. In Canada, installing communication circuits, such as data cables and AC cables in the same conduit as AC circuits is contrary to the CEC rule 60. New installations must have separate conduit for data/communication cables and power cables in the following circumstances (wiring for two-wire, data, communications, intercom, video, Ethernet®, Gilbarco Long Range Ethernet (GLRE), must be in a separate conduit from the dispensers power and light conduit):
    (i) All new installations of fuel dispensers or other electrical equipment, whether or not the raceways are exposed and made readily accessible as part of the installation process; or
    (ii) In any event if the raceways are exposed and made readily accessible for any reason.

Encore 300 Dispensers

For Encore 300 Ultra-Hi Dispensers and Encore 300 Dispensers Only:

11. STP isolation relay boxes are required by NEC to allow service of one unit safely without removing power from all dispensing equipment.

    Gilbarco STP Isolation Box PA0287 is not available for 220/230/240 VAC units. (Contact local supplier for these isolation relay boxes.)

For Encore 300 Ultra-Hi Dispensers Only:

12. For any master, additional conduits and wiring are required to connect the Satellite. Units with main J-box can coexist with units without J-box. Use portion of wiring from the appropriate sheet to match your installation. Wires labeled with a prefix of 'A' signify side 1/front, a prefix of 'B' signify side 2/rear.

13. Simultaneous and independent operation is defined as:
    A. Simultaneous - Both Master and Satellite can dispense fuel at the same time.
    B. Independent - Master and Satellite can dispense fuel only one at a time. Satellite pump handle determines which unit can dispense fuel.

For Encore 300 Pumps Only:

14. For three-phase systems, make appropriate connections to AC hot and return service. Motors must rotate counterclockwise.

Reference Manuals

MDE-2755 STP Control and Dispenser Isolation Relay Box (PA0287)
MDE-3116 Distribution Box PA0306 Installation Instructions
MDE-3802 Encore and Eclipse Site Preparation Manual
MDE-3804 Encore and Eclipse Start-up/Service Manual
MDE-3985 Encore Installation Manual

Electrical Rating

Includes all options except valance lights and motors.

12.0 AMP@ 120 VAC 60 Hz.
6.0 AMP @ 240 VAC 50 Hz.

Use one 15 AMP breaker per dispenser to power electronics and ensure proper lockout and tagout.

Gilbarco requires valance lights be placed on a separate 15 AMP breaker.

IMPORTANT INFORMATION

Sharing conduit to the dispensers with other non-Gilbarco devices is contrary to the installation and site preparation manuals and may void warranty. Doing so may result in incorrect/unreliable operation of the unit.

Motor Load Table - Full Load Ampere (AMP) (for Encore 300 Pumps)

Domestic (60 Hz)
3/4 H.P.(Dual Rated): . . . . . 115 VAC/1PH/12.8 AMP
230 VAC/1PH/6.4 AMP

International (50 Hz)
3/4 H.P.. . . . . 115 VAC/1PH/13.0 AMP
3/4 H.P.. . . . . 220-230 VAC/1PH/6.5 AMP
3/4 H.P.. . . . . 380 VAC/3PH/1.5 AMP

International (50 Hz, not UL-listed)
3/4 H.P.(Dual Rated): . . . . . 220 VAC/3PH/2.5 AMP
380 VAC/3PH/1.3 AMP

Active STP Connections (for Encore 300 Dispensers)

Encore	STP1	STP2	STP3
MPD® Three-grade	X	X	X
MPD Single-hose	X	X	X
Dual One-grade	X		
Quad Two-grade	X	X	
Blender Six-hose	X	X	
Blender X+1	X	X	X
Blender X+0	X	X	

Wiring Requirement

Wire dispensers, Point of Sale (POS), D-Boxes, etc., on a single phase in a dedicated electrical panel (recommended) and have other potentially noise sources, such as compressors, motors, and so on in a different electrical panel.
Ensure proper care to minimize noise sources present on the phase that is used for dispensers and related equipment.
If multiple phases are required, use industry best practices to keep noise generating circuits as isolated as possible from the fueling component circuits.

All equipment that is connected using communication connections, dispenser communications, and related power outlets and power sources for PIN pads, gas price signs, scanners, and so on must always be kept **on the same phase of power as the dispenser power**.
Notes: 1) Communication connections such as CAT-5/6,RS-485, and RS-232.
2) Dispenser communications such as Gilbarco two-wire to the fueling system including POS/Back Office System/Fuel Monitoring System/Network Communication/Dispenser Communication and Control System (Applause™ Media System or high speed data)/Other Payment, Loyalty Systems, and Car Wash Controllers.

Symbols Chart

Wire Nut	
Earth Ground Screw Terminal	
Earth Ground	
No Connection	
Connection	
Crimp Connector	

Wire Color Chart

Black	B
Brown	BR
Red	R
Orange	OR
Yellow	Y
Green	GN
Blue	BU
Violet	V
Gray	GY
White	W
White Black	WB

Contents

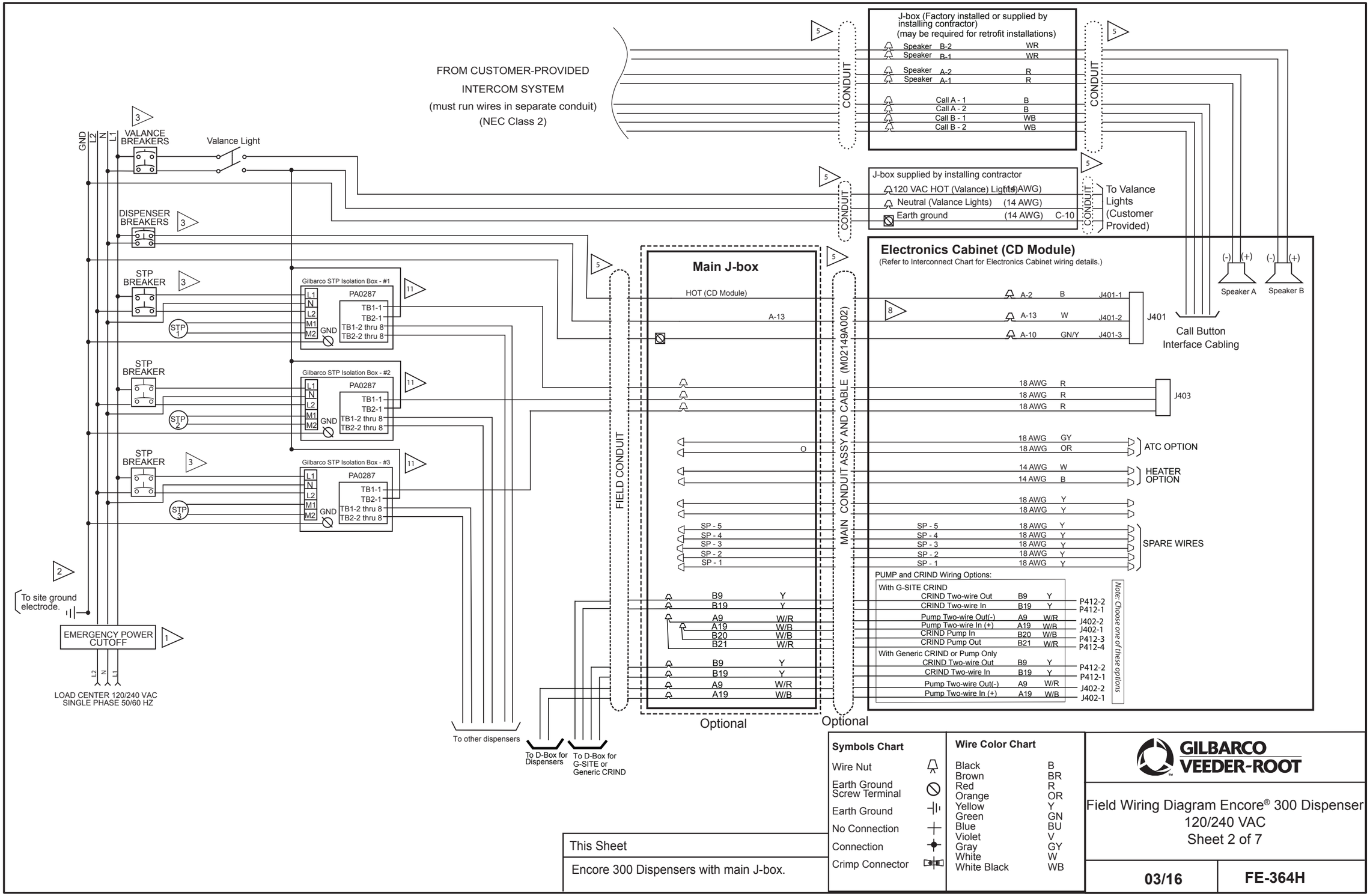
Sheet	Description
1	Cover Sheet (Safety, Notes, and Specifications)
2	Encore 300 Dispenser
3	Encore 300 Pump Units Wiring
4	Encore 300 Pump Motor Connections
5	Encore 300 Ultra-Hi
6	Encore 300 Ultra-Hi Master and Satellite
7	Satellite Signal Wiring with J-box (Independent/Simultaneous Operation)

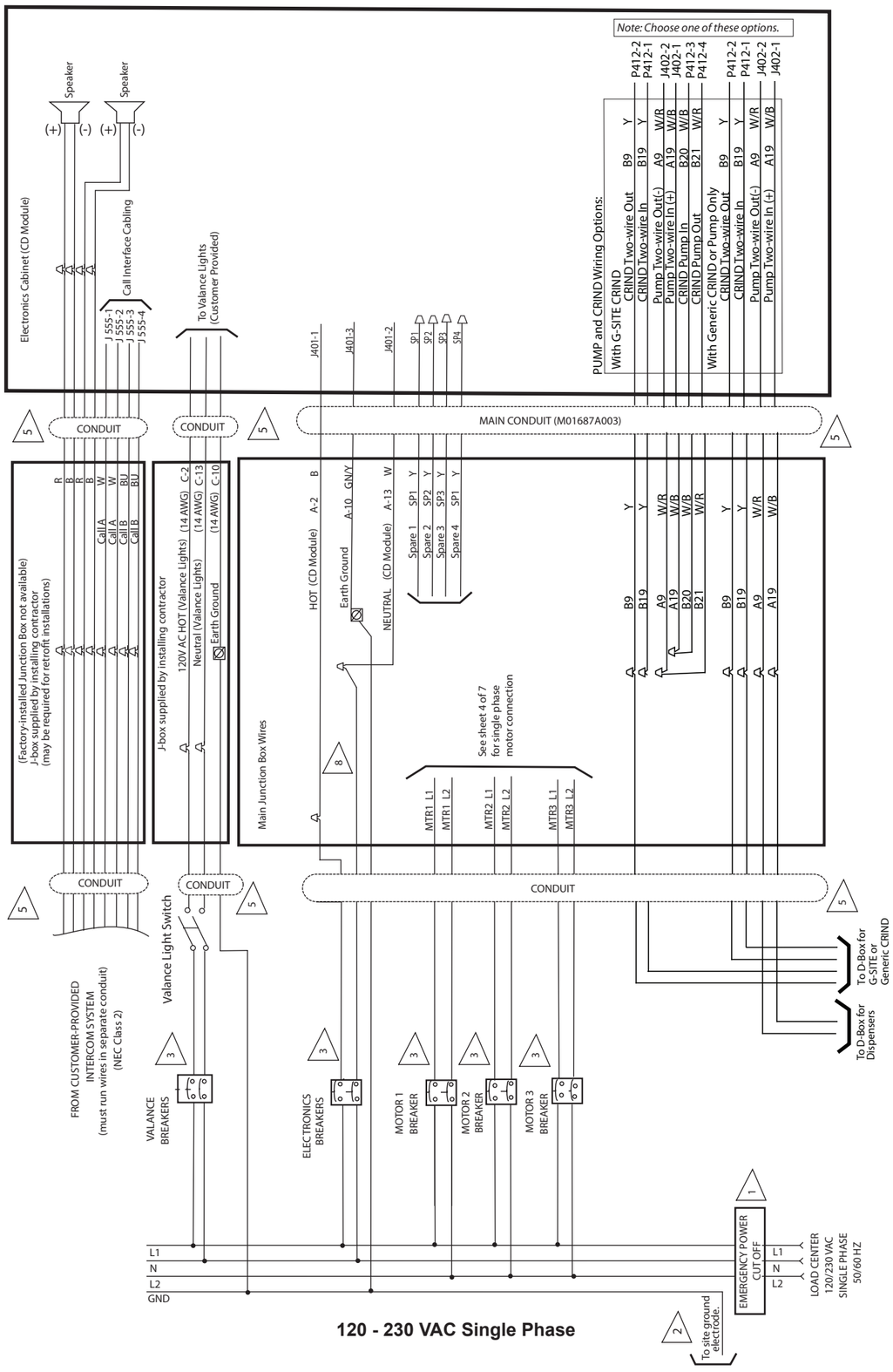
Used On
Encore 300 Dispensers with and without J-box
Encore 300 Self Contained Pumps
• Encore 300 Ultra-Hi Dispensers with and without J-box • Encore Satellites with and without J-box and Legacy Satellite

GILBARCO VEEDER-ROOT

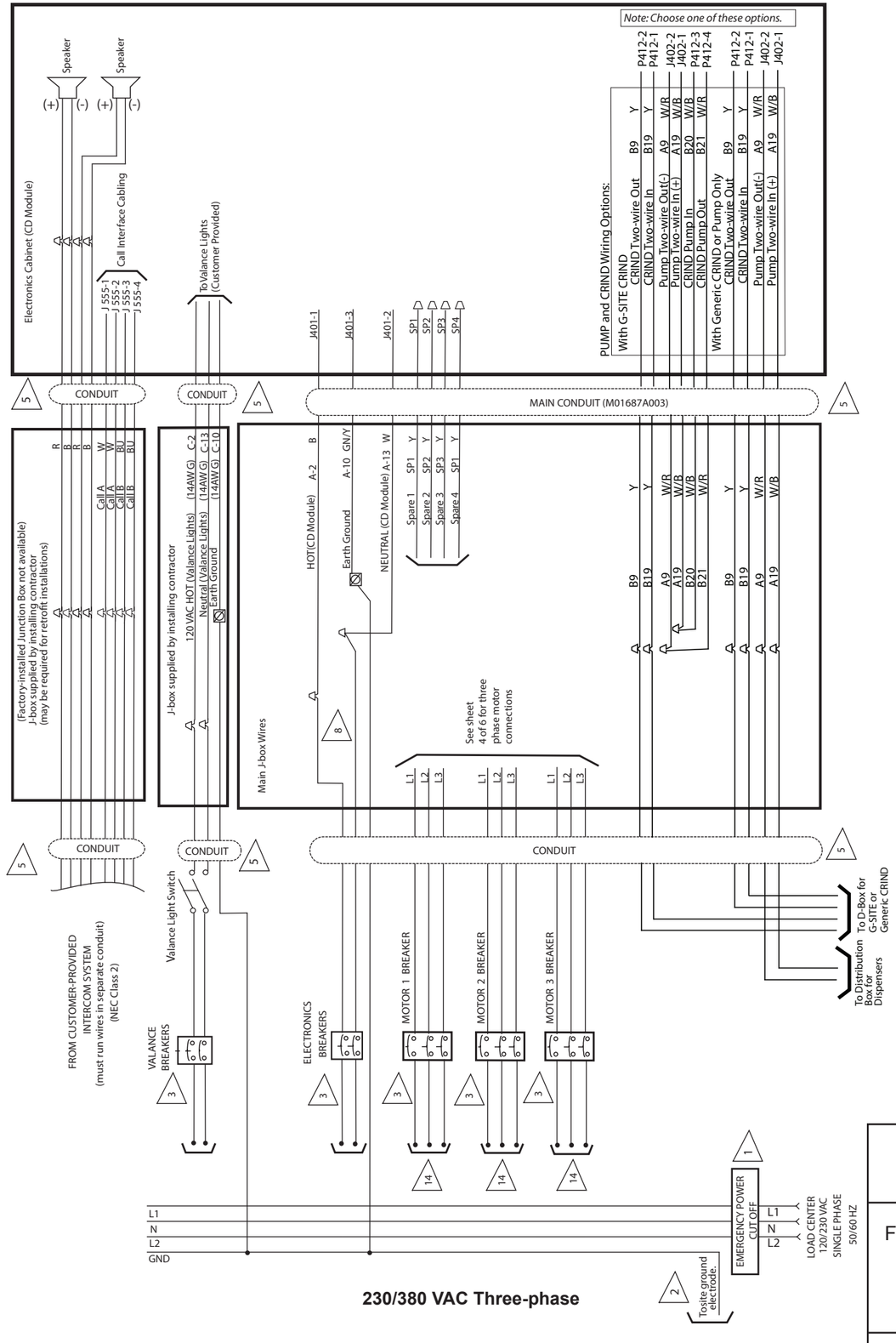
Field Wiring Diagram Encore® 300
Sheet 1 of 7

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FROM CUSTOMER-PROVIDED
INTERCOM SYSTEM
(must run wires in separate conduit)
(NEC Class 2)
CONDUIT
J-box (Factory installed or supplied by installing contractor)
(may be required for retrofit installations)
Speaker B-2 WR
Speaker B-1 WR
Speaker A-2 R
Speaker A-1 R
Call A - 1 B
Call A - 2 B
Call B - 1 WB
Call B - 2 WB
J-box supplied by installing contractor
120 VAC HOT (Valance) Lights (14 AWG)
Neutral (Valance Lights) (14 AWG)
Earth ground (14 AWG) C-10
To Valance Lights (Customer Provided)
GND L2 N L1
VALANCE BREAKERS
Valance Light
DISPENSER BREAKERS
STP BREAKER
STP 1
STP 2
STP 3
Gilbarco STP Isolation Box - #1
Gilbarco STP Isolation Box - #2
Gilbarco STP Isolation Box - #3
PA0287
L1 N L2 M1 M2 GND
TB1-1
TB2-1
TB1-2 thru 8
TB2-2 thru 8
To site ground electrode.
EMERGENCY POWER CUTOFF
LOAD CENTER 120/240 VAC SINGLE PHASE 50/60 HZ
Main J-box
HOT (CD Module)
A-13
FIELD CONDUIT
MAIN CONDUIT ASSY AND CABLE (M02149A002)
SP - 5
SP - 4
SP - 3
SP - 2
SP - 1
B9 Y
B19 Y
A9 W/R
A19 W/B
B20 W/B
B21 W/R
Optional
Optional
To other dispensers
To D-Box for Dispensers
To D-Box for G-SITE or Generic CRIND
Electronics Cabinet (CD Module)
(Refer to Interconnect Chart for Electronics Cabinet wiring details.)
A-2 B J401-1
A-13 W J401-2
A-10 GN/Y J401-3
J401
Call Button Interface Cabling
Speaker A
Speaker B
18 AWG R
18 AWG R
18 AWG R
J403
18 AWG GY
18 AWG OR
ATC OPTION
14 AWG W
14 AWG B
HEATER OPTION
18 AWG Y
18 AWG Y
SPARE WIRES
PUMP and CRIND Wiring Options:
With G-SITE CRIND
CRIND Two-wire Out B9 Y P412-2
CRIND Two-wire In B19 Y P412-1
Pump Two-wire Out(-) A9 W/R J402-2
Pump Two-wire In (+) A19 W/B J402-1
CRIND Pump In B20 W/B P412-3
CRIND Pump Out B21 W/R P412-4
With Generic CRIND or Pump Only
CRIND Two-wire Out B9 Y P412-2
CRIND Two-wire In B19 Y P412-1
Pump Two-wire Out(-) A9 W/R J402-2
Pump Two-wire In (+) A19 W/B J402-1
Note: Choose one of these options
Symbols Chart
Wire Nut
Earth Ground Screw Terminal
Earth Ground
No Connection
Connection
Crimp Connector
Wire Color Chart
Black B
Brown BR
Red R
Orange OR
Yellow Y
Green GN
Blue BU
Violet V
Gray GY
White W
White Black WB
This Sheet
Encore 300 Dispensers with main J-box.
GILBARCO VEEDER-ROOT
Field Wiring Diagram Encore® 300 Dispenser
120/240 VAC
Sheet 2 of 7
03/16
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120 - 230 VAC Single Phase



230/380 VAC Three-phase

Symbols Chart

Wire Nut	
Earth Ground Screw Terminal	
Earth Ground	
No Connection	
Connection	
Crimp Connector	

Wire Color Chart

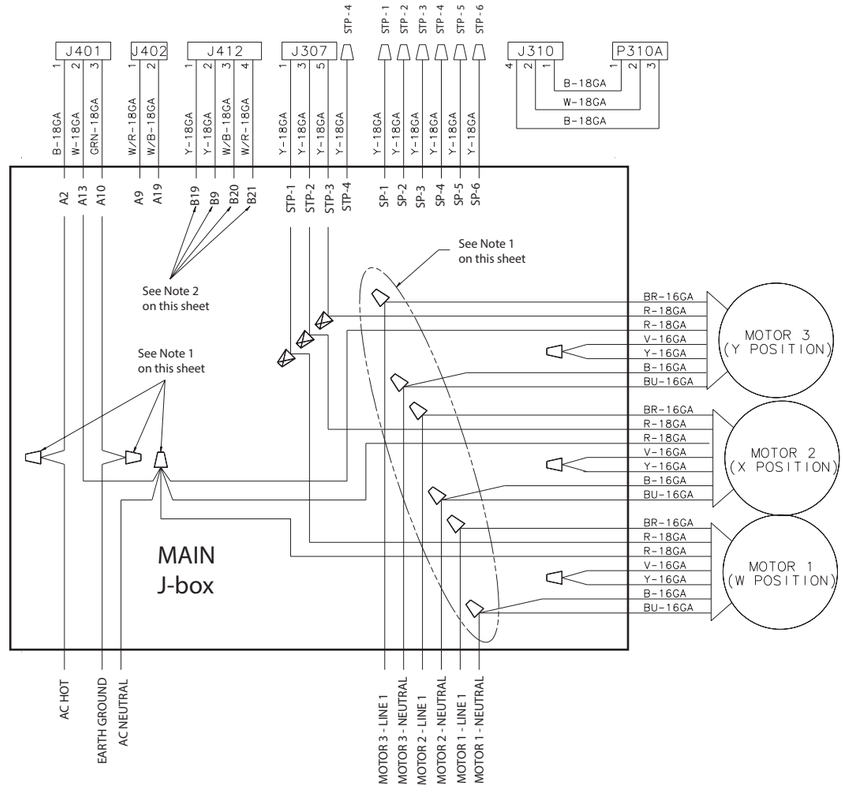
Black	B
Brown	BR
Red	R
Orange	OR
Yellow	Y
Green	GN
Blue	BU
Violet	V
Gray	GY
White	W
White Black	WB

GILBARCO VEEDER-ROOT

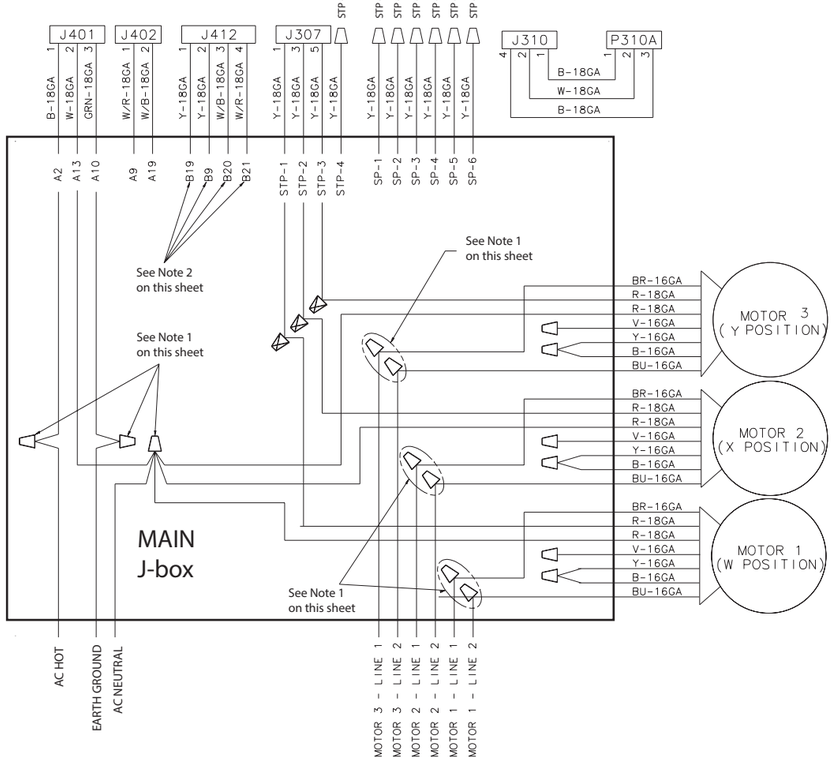
Field Wiring Diagram Encore® 300 Pump Units Wiring 120/240/380 VAC Sheet 3 of 7

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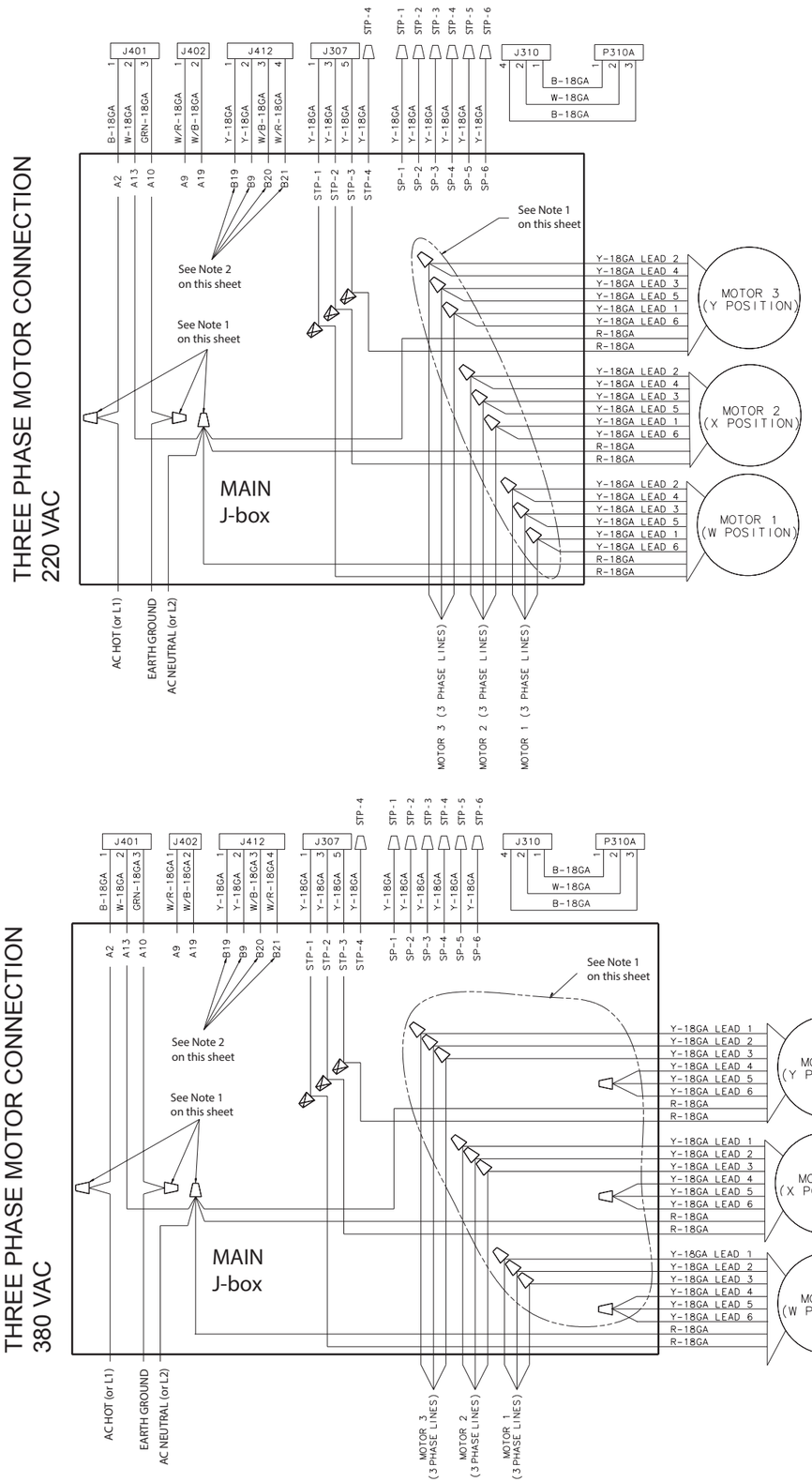
SINGLE PHASE MOTOR CONNECTION 115/120 VAC



SINGLE PHASE MOTOR CONNECTION 220/230 VAC



THREE PHASE MOTOR CONNECTION 220 VAC



THREE PHASE MOTOR CONNECTION 380 VAC

Note: W, X, and Y positions refer to the product type. Refer to the installation manual for additional information.

Notes unique to this sheet:

- *Three-phase motors must rotate counter-clockwise.*

1. *Connections made in field*
2. *For MOC CRIND, connect B-20 to A-19 and B-21 to A-9. Two-wire data IN and OUT from D-Box should be connected to B-19 and B-9 respectively.*

Symbols Chart

Wire Nut	
Earth Ground Screw Terminal	
Earth Ground	
No Connection	
Connection	
Crimp Connector	

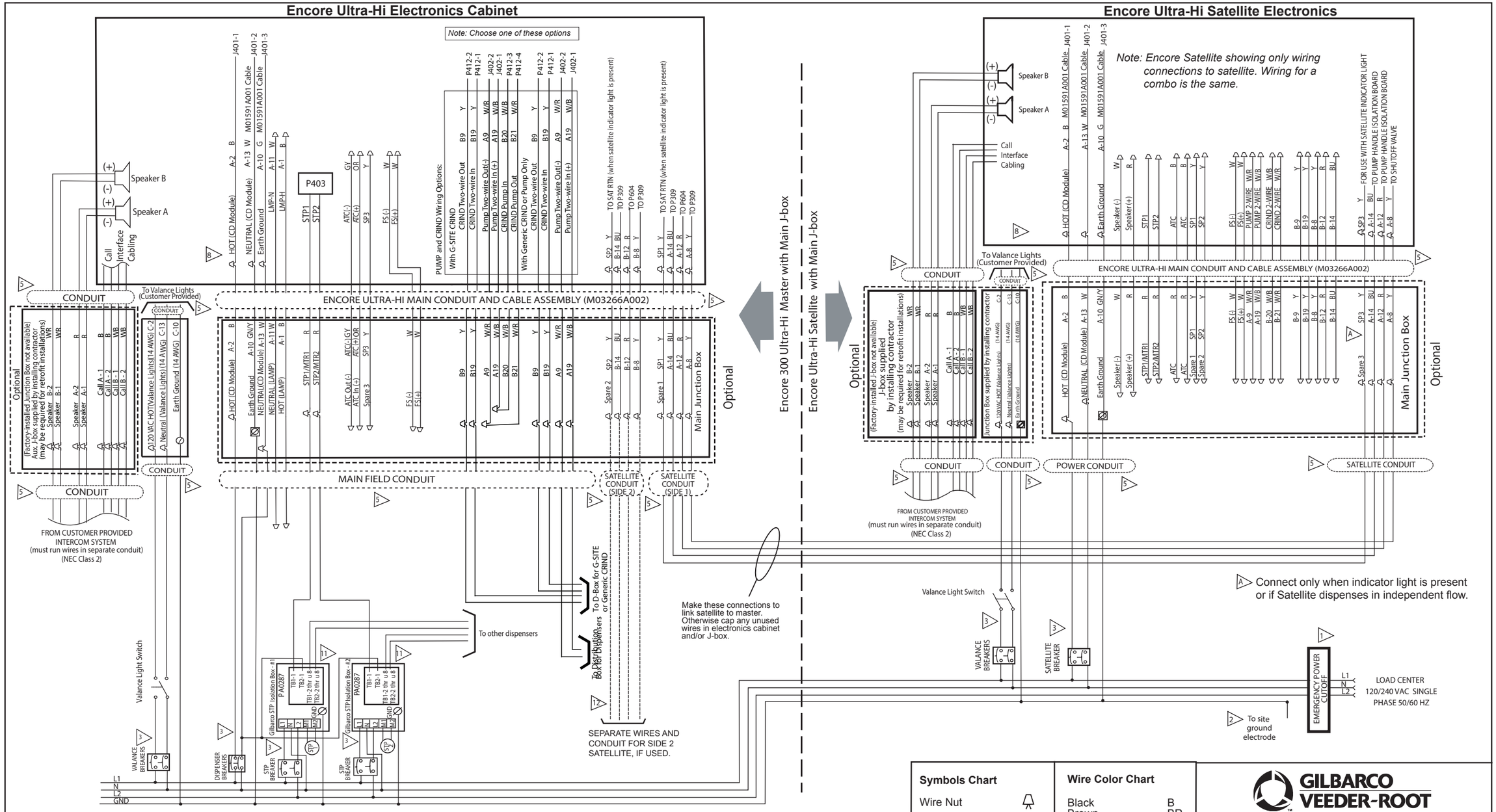
Wire Color Chart

Black	B
Brown	BR
Red	R
Orange	OR
Yellow	Y
Green	GN
Blue	BU
Violet	V
Gray	GY
White	W
White Black	WB

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Field Wiring Diagram Encore® 300 Pump
Motor Connections
120/240/380 VAC
Sheet 4 of 7

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Notes:
1. *For wiring of Satellite indicator light option units, refer to sheets 5 and 6.*
2. *Depending upon the model of Ultra-Hi and satellite, inlet and outlet conduit numbers related to satellites may vary.*

SIMULTANEOUS OPERATION
Both master and satellite can dispense fuel at the same time.

INDEPENDENT OPERATION
Master and satellite can dispense fuel only one at a time. Satellite pump handle determines which unit can dispense fuel.

This Sheet
- Encore 300 Ultra-Hi Dispenser with main J-box
- Encore Ultra-Hi Satellite with main J-box

Symbols Chart

Wire Nut	
Earth Ground Screw Terminal	
Earth Ground	
No Connection	
Connection	
Crimp Connector	

Wire Color Chart

Black	B
Brown	BR
Red	R
Orange	OR
Yellow	Y
Green	GN
Blue	BU
Violet	V
Gray	GY
White	W
White Black	WB

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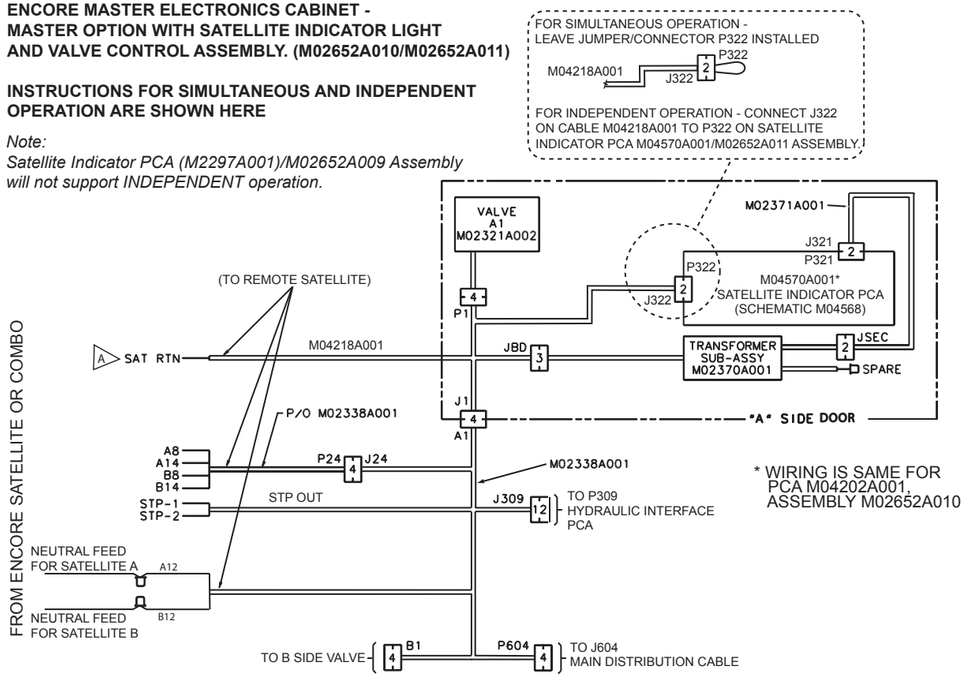
Field Wiring Diagram Encore® 300 Ultra-Hi™ Dispensers 120/240 VAC Sheet 5 of 7

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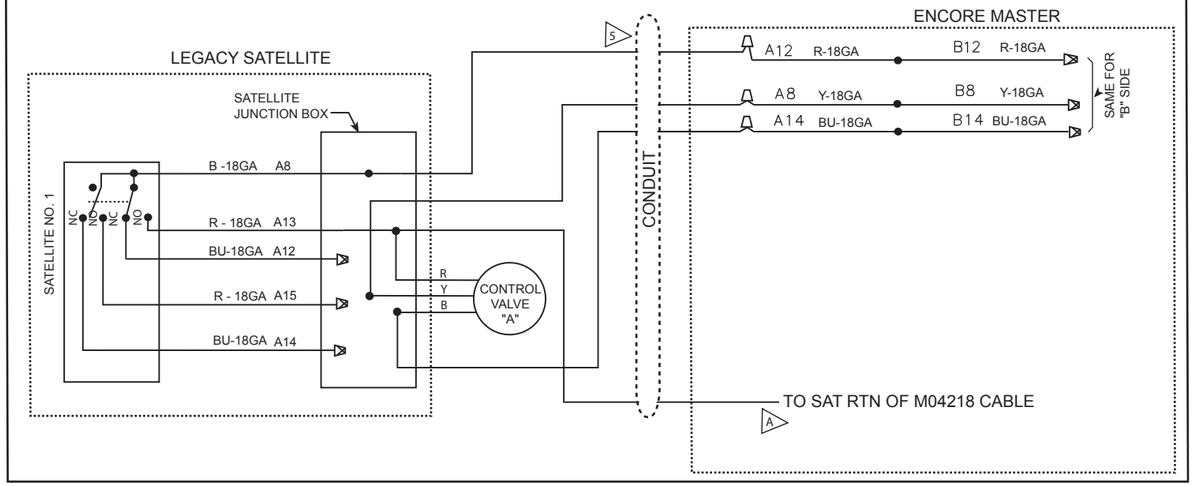
ENCORE MASTER ELECTRONICS CABINET - MASTER OPTION WITH SATELLITE INDICATOR LIGHT AND VALVE CONTROL ASSEMBLY. (M02652A010/M02652A011)

INSTRUCTIONS FOR SIMULTANEOUS AND INDEPENDENT OPERATION ARE SHOWN HERE

Note:
Satellite Indicator PCA (M2297A001)/M02652A009 Assembly will not support INDEPENDENT operation.



ENCORE MASTER/LEGACY SATELLITE - INDEPENDENT OR SIMULTANEOUS OPERATION (TWO-STAGE VALVE)

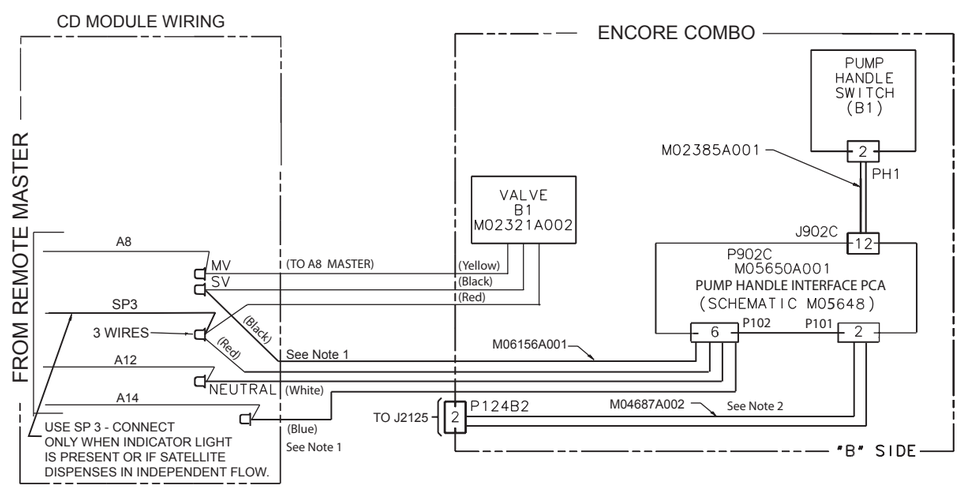


A Connect only when indicator light is present or if Satellite dispenses in independent flow.

SIMULTANEOUS OPERATION
Both Master and Satellite can dispense fuel at the same time.

INDEPENDENT OPERATION
Master and Satellite can dispense fuel only one at a time.
Satellite pump handle determines which unit can dispense fuel.

ENCORE MASTER ELECTRONICS CABINET - SATELLITE PORTION OF MASTER/COMBO OPTION



Notes:
1. *The black and blue wires will only be present if the Pump Handle Interface Board PCA (M05650A001) is present. If Pump Handle Interfaces Boards (M02325A003 or M04528A002) is used, only the red and white wires will be available.*
2. *The wiring for the Satellite is the same except that the Satellite will use M02802A001 Cable.*

This Sheet

Satellite signal wiring details for Encore Master with Encore Satellite and Encore Master with Legacy Satellite.

Symbols Chart

Wire Nut	
Earth Ground Screw Terminal	
Earth Ground	
No Connection	
Connection	
Crimp Connector	

Wire Color Chart

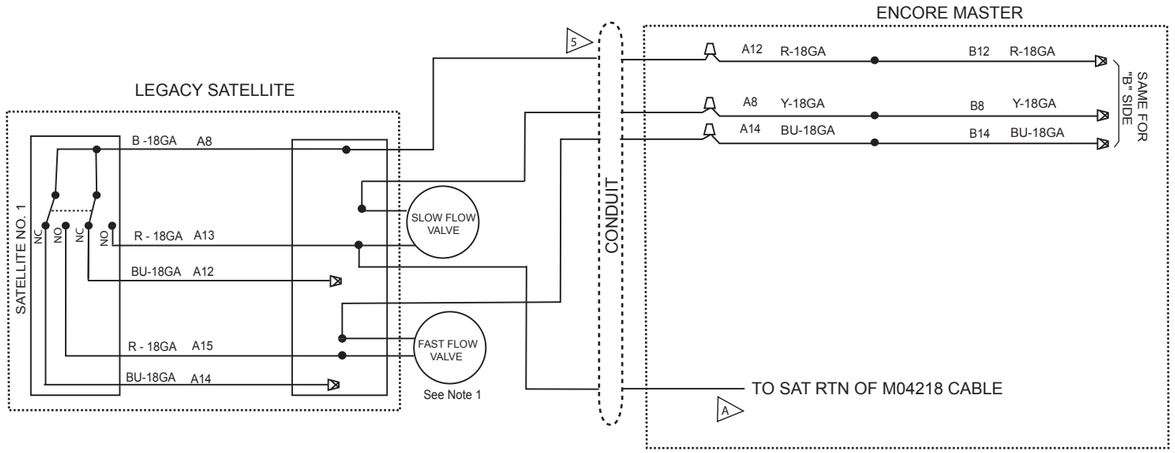
Black	B
Brown	BR
Red	R
Orange	OR
Yellow	Y
Green	GN
Blue	BU
Violet	V
Gray	GY
White	W
White Black	WB

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Field Wiring Diagram Encore® 300 Ultra-Hi™
Dispenser Master and Satellite
120/240 VAC
Sheet 6 of 7

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ENCORE MASTER TO LEGACY SATELLITES WITH TWO SINGLE-STAGE VALVES - INDEPENDENT OR SIMULTANEOUS OPERATION

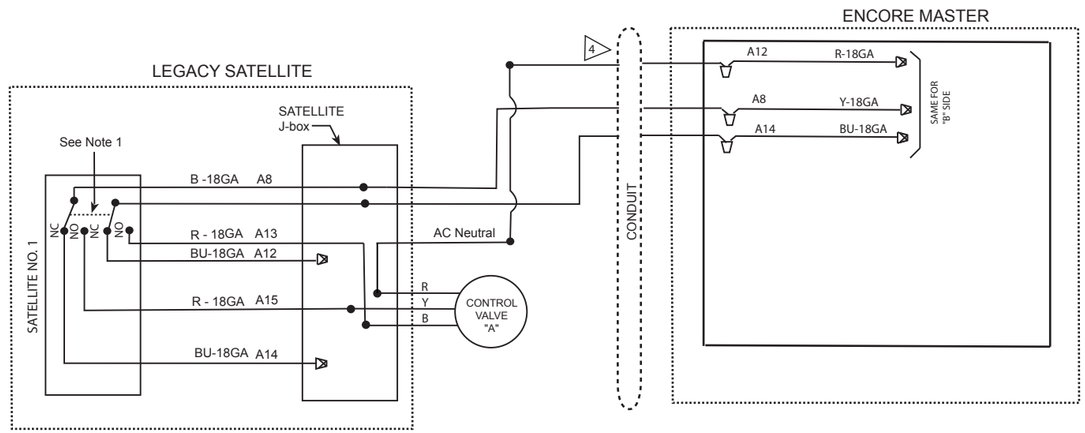


Notes:

1. *M04570A001 Satellite indicator must be used in Encore units in order to function in independent flow.*
2. *In Single-stage valve, only the fast flow valve is present. This unit is not preset-capable.*

A Connect only when indicator light is present or if Satellite dispenses in independent flow.

ENCORE MASTER/LEGACY SATELLITE WITH J-BOX - SIMULTANEOUS OPERATION (TWO-STAGE VALVE) WITHOUT SATELLITE INDICATOR LIGHT ON MASTER



Notes:

1. *For this option you will be modifying wiring at the handle switch of the Legacy Satellite. You will be removing the A8 wire to the switch and connecting wires from the Encore master valve to the inlets of the switch.*
2. *Alternative wiring method: This method of wiring is often required to allow Encore master to hit presets. This method will not support independent operation or Satellite indicator light.*

This Sheet

Satellite signal wiring details for Encore Master with Encore Satellite and Encore Master with Legacy Satellite.

Symbols Chart

Wire Nut	
Earth Ground Screw Terminal	
Earth Ground	
No Connection	
Connection	
Crimp Connector	

Wire Color Chart

Black	B
Brown	BR
Red	R
Orange	OR
Yellow	Y
Green	GN
Blue	BU
Violet	V
Gray	GY
White	W
White Black	WB

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Field Wiring Diagram Satellite Signal with J-box
120/240 VAC

Sheet 7 of 7

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