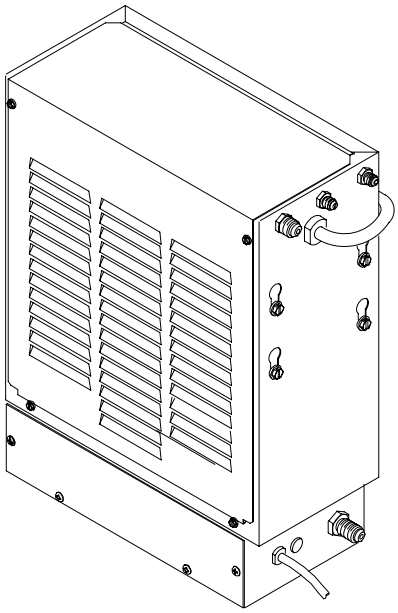
CARBONATOR with plain-water booster

Service Manual



IMPORTANT:

It is the responsibility of the Service Person to ensure that the water supply to the dispensing equipment is provided with protection against backflow by an air gap as defined in ANSI/ASME A112. 1.2-1979; or an approved vacuum breaker or other such method as proved effective by test.

Water pipe connections and fixtures directly connected to a potable water supply shall be sized, installed, and maintained according to Federal, State, and Local laws.

When installing in an area regulated by the City of Los Angeles Plumbing and/or Mechanical Codes, a City of Los Angeles approved reduced pressure principle backflow preventer shall be installed on each potable water supply to each carbonator.

Manual Part No. 319642004

Control Code B

March 27, 1984
Revised: March 11, 1997

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SAFETY INFORMATION

Recognize Safety Information

This is the safety-alert symbol. When you see this symbol on our machine or in this manual, be alert to the potentially of personal injury.

Follow recommended precautions and safe operating practices.

Understand Signal Words

A signal word - ***DANGER, WARNING,*** *OR* ***CAUTION*** is used with the safety-alert symbol. ***DANGER*** identifies the most serious hazards.

Safety signs with signal word ***DANGER*** or ***WARNING*** are typically near specific hazards.

General precautions are listed on ***CAUTION*** safety signs. ***CAUTION*** also calls attention to safety messages in this manual.

Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Learn how to operate the machine and how to use the controls properly. Do not let anyone operate the machine without instructions. Keep your machine in proper working condition. Unauthorized modifications to the machine may impair function and/or safety and affect the machine life.

CO_2 (Carbon Dioxide) Warning

CO_2 Displaces Oxygen. Strict Attention *must* be observed in the prevention of CO_2 (carbon dioxide) gas leaks in the entire CO_2 and soft drink system. If a CO_2 gas leak is suspected, particularly in a small area, *immediately* ventilate the contaminated area before attempting to repair the leak. Personnel exposed to high concentration of CO_2 gas will experience tremors which are followed rapidly by loss of consciousness and suffocation.

Shipping, Storing, Or Relocating Unit

CAUTION: All water must be purged from the Unit if exposed to freezing temperature. A freezing ambient temperature will cause residual water remaining inside the Unit to freeze resulting in damage to internal components of the Unit.

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GENERAL INFORMATION

TO THE USER OF THIS MANUAL

This Manual is a guide for servicing and maintaining this equipment. Refer to Table of Contents for page location of detailed information pertaining to questions that may arise. A Parts Manual (P/N 319642003) for this equipment is available upon request.

Thie Unit must be serviced by a qualified Service Person. This Unit contains no User serviceable parts.

CLAIMS INSTRUCTIONS

Claims: In the event of shortage, notify the carrier as well as IMI Cornelius immediately. In the event of damage, notify the carrier. **IMI Cornelius is not responsible for damage occurring in transit, but will gladly render assistance necessary to pursue your claim. Merchandise must be inspected for concealed damage within 15 days of receipt.**

WARRANTY REFERENCE INFORMATION

Warranty Registration Date (to be filled out by customer)
Unit Part Number:
Serial Number:
Install Date:
Local Authorized Service Center:

DESIGN DATA

Table 1. Design Data	
Model Numbers	
115 VAC Unit	416417000
230 VAC Unit	496417000
230 VAC Unit	496417020
230 VAC Unit	496417040
Overall Dimensions:	
Width	6-3/8 inches
Height	18-1/4 inches
Depth	14 inches

Table 1. Design Data (cont'd)	
Weight:	
Dry	35 pounds
Shipping	38 pounds
Ambient Operating Temperature	40° F to 100° F
Maximum CO_2 Operating Pressure	125 PSI
Electrical Requirements:	
Model No. 416417000:	
Operating Voltage	115 VAC, 60 Hz
Current Draw	6.5 Amps
Model No. 496417000, 496417020, and 496417040 :	
Operating Voltage	220/230 VAC, 50/60 Hz
Current Draw	3.3 Amps

THEORY OF OPERATION

A CO_2 cylinder delivers carbon dioxide (CO_2) gas through a CO_2 regulator to the carbonator tank. When carbonator tank calls for water, an electrical circuit is completed through the level control switches, which opens the water solenoid valve and also starts the water pump motor. Plain water is pumped through the water solenoid valve into the carbonator tank which is carbonated by CO_2 which is also entering the tank. When carbonator tank is full, the weight of the water in the tank forces the tank and the balance control mechanism down activating the level control switches which stops the water pump motor and also closes the water solenoid valve.

When still (non-carbonated) drink dispensing valve is activated, it sends an electrical signal to start the carbonator water pump motor. The carbonator water pump provides pressurized plain-water to the dispensing valve which dispenses a still (non-carbonated) drink. When the dispensing valve lever is released, the electrical signal to the carbonator water pump motor is cut off which stops the water pump motor.

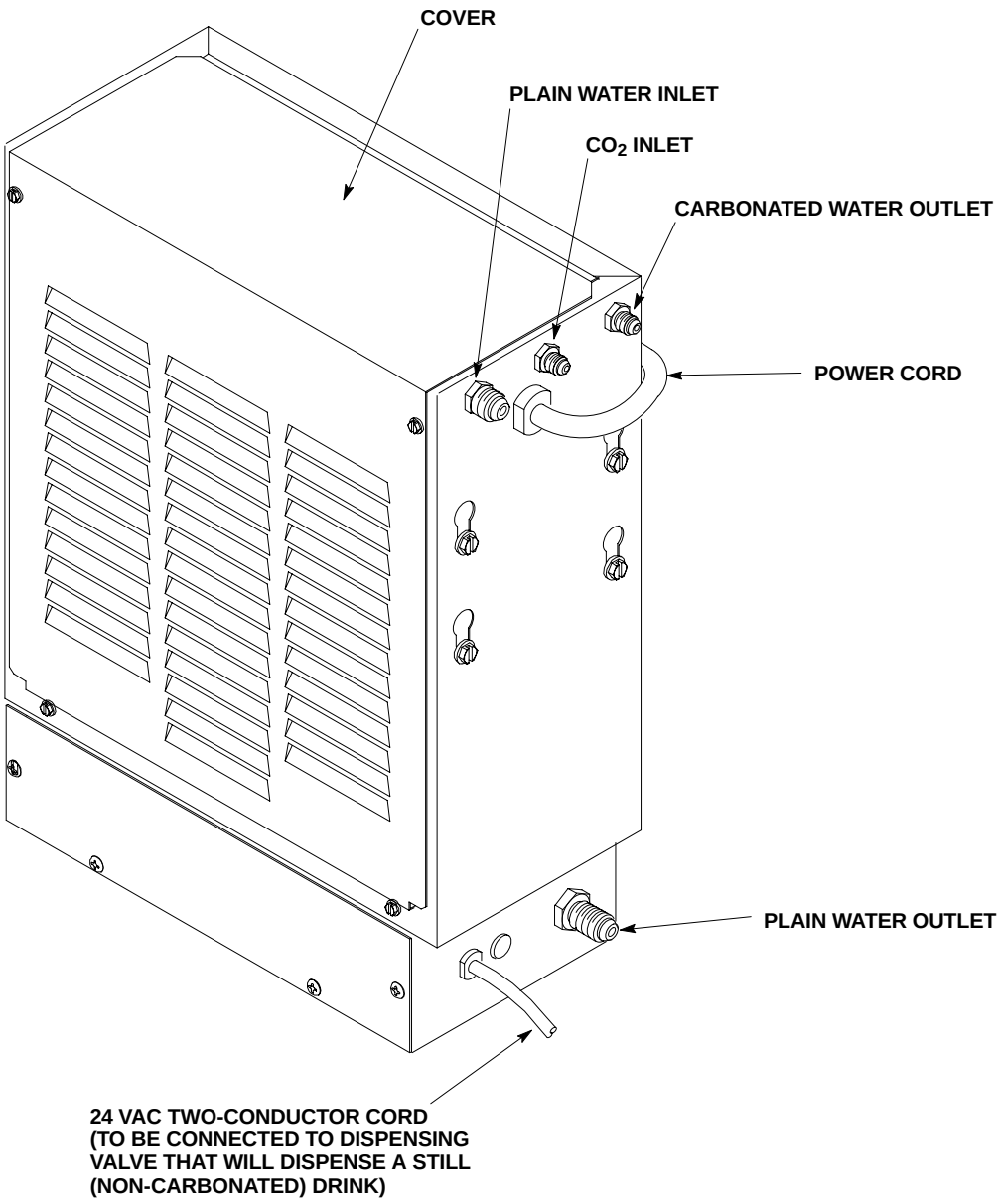

FIGURE 1. CARBONATOR WITH PLAIN-WATER BOOSTER

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SERVICE AND MAINTENANCE

This section describes service and maintenance procedures to be performed on the Unit.

IMPORTANT: Only qualified personnel should service internal components or electrical wiring.

CAUTION: This Unit *must* not be installed in an unsheltered outdoor location where it will be exposed to the elements.

CAUTION: Never operate the carbonator with the water inlet supply line shutoff valve closed. "Dry running" the water pump will burn out the pump. A pump damaged in this manner is not covered by warranty.

CAUTION: To prevent a fire hazard, no object should be placed or stored on top of the Unit.

PREPARING UNIT FOR SHIPPING OR RELOCATING

IMPORTANT: All water must be purged from the Unit if exposed to a freezing temperature. A freezing ambient will cause residual water inside the Unit to freeze resulting in damage to the internal components. Damage of this type will void the Factory warranty. Perform the following procedure to purge water from the Unit.

1. Disconnect electrical power from the Unit.
2. Close the water inlet supply line shutoff valve.
3. Disconnect the plain-water inlet supply line from the Unit.
4. Disconnect the plain-water outlet line from the Unit.
5. Dispense from the dispensing valve until all carbonated water has been dispensed from the carbonated water tank.
6. Shut off CO_2 supply to the Unit, then disconnect CO_2 inlet supply line from the Unit.
7. Connect filtered dry compressed air (50-psi max) to the Unit plain-water inlet. DO NOT USE CO_2 GAS WHICH COULD CAUSE A HEALTH HAZARD. Connecting compressed air to the Unit plain-water inlet will blow residual water out of the water pump through the Unit plain-water outlet.
8. Disconnect compressed air from the Unit plain-water inlet.
9. Remove four screws securing the lower access cover on the Unit, then remove the cover.
10. Disconnect the water line swivel nut connector from outlet end of the double liquid check valve and allow water to drain out of the line.
11. Remove the double liquid check valve from elbow in the water solenoid valve outlet. Allow water to drain out of the double liquid check valve and the solenoid valve.
12. Install the double liquid check valve on the water solenoid valve, then connect water line to the double liquid check valve outlet.

13. Install the Unit lower access cover and secure with four screws.

14. Disconnect the carbonated water outlet line from the Unit.

15. The Unit is now ready for shipping or relocating.

LUBRICATION

The water pump motor bearings must be oiled periodically. Refer to oiling instructions on the pump motor. DO NOT OVER OIL.

ADJUSTMENTS

PLAIN-WATER PRESSURE REGULATOR

NOTE: The plain-water outlet line water pressure regulator is factory set at 50-psig and should require no further adjustment. If further adjustment is necessary, turn the water pressure regulator handle to the right (clockwise) for higher psi or to the left (counterclockwise) for lower psi.

CARBONATOR CO_2 REGULATOR

NOTE: To readjust the CO_2 regulator to a lower setting, loosen the adjusting screw lock nut, then turn the screw to the left (counterclockwise) until pressure gage reads 5-psi lower than the new setting will be. Turn the adjusting screw to the right (clockwise) until the gage registers the new setting, then tighten the lock nut.

Loosen the CO_2 regulator adjusting screw lock nut. Turn the carbonator CO_2 regulator adjusting screw to the right (clockwise) until the regulator gage reads a nominal 80-psig, then tighten the lock nut. DO NOT EXCEED 125-PSIG.

ADJUSTING CARBONATED WATER TANK LIQUID LEVELS

(see Figures 2 and 3)

The carbonated water tank liquid levels (pump cut-in and cut-out) were adjusted at the factory and should require no further adjustments. If an incorrect adjustment is suspected, check and make necessary adjustments as follows:

1. Remove screws securing cover assembly on the Unit, then remove the cover.

2. With carbonated water tank full of water and water pump motor cycled off, disconnect electrical power from Unit.

3. Using container graduated in ounces, open the dispensing valve and completely drain the carbonated water tank. Total carbonated water dispensed should be 40 to 60-ounces.

WARNING: To avoid possible electrical shock which may cause serious injury or death, make sure electrical power is disconnected from the Unit before attempting to adjust the level control switches.

4. Under 40-ounces of carbonated water dispensed.

   If total amount of carbonated water dispensed is under 40-ounces, loosen screw securing the switch adjustment bracket and move the bracket up slightly. Moving the bracket up allows weight of more water in the carbonated tank to push the tank further down before activating the level control switches which shuts off the water pump motor. Tighten screw after adjustment.

   Over 60-ounces of carbonated water dispensed.

   If total measurement of carbonated water dispensed is over 60-ounces, loosen screw securing the switch adjustment bracket and move the bracket down slightly. Moving the bracket down allows weight of less water in the carbonated water tank to activate the level control switches which shuts off the water pump motor. Tighten screw after adjustment.

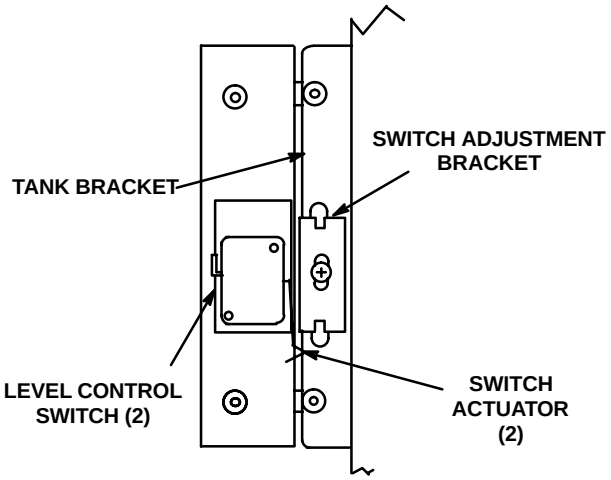


FIGURE 2. LEVEL CONTROL SWITCHES

5. Connect electrical power to the Unit and allow the carbonated water tank to fill with water. After the water pump motor cycles off, disconnect electrical power from the Unit.

6. Repeat steps 3, 4, and 5 preceding until the correct switch adjustment is achieved.

7. Connect electrical power to the Unit and allow carbonated water tank to fill with water.

8. Using a container graduated in ounces, open the Post-Mix Dispenser dispensing valve and dispense until the water pump motor cycles on, then immediately close the dispensing valve. The total volume dispensed (differential) should be 8 to 20-ounces.

9. Install cover assembly on the Unit and secure with screws.

WATER PUMP YEARLY MAINTENANCE (OR AFTER WATER SYSTEM DISRUPTIONS)

WARNING: The carbonator water pump water inlet strainer screen and the double liquid check valve must be inspected and serviced at least once a year under normal circumstances, and after any disruptions (plumbing work, earthquake, etc.) to the water supply system that might cause a turbulent (erratic) flow of water through the system. A carbonator water pump with no screen or a defective screen in the strainer would allow foreign particles to foul the double liquid check valve. CO_2 gas could then back flow into the water system and create a health hazard in the water system.

SERVICING WATER PUMP WATER INLET STRAINER SCREEN

1. Disconnect electrical power from the Unit.
2. Close the water inlet supply line shutoff valve.
3. Note pressure setting on the carbonator CO_2 regulator, then loosen the lock nut and turn the CO_2 regulator adjusting screw to the left (counterclockwise) until regulator gage reads 0-psi.
4. Remove screws securing the cover assembly on the unit, then remove the cover (see Figure 4).
5. Pull up on the carbonated water tank relief valve to release CO_2 pressure from inside the tank.
6. Loosen screen retainer, then pull the screen retainer and the strainer screen from the water pump.
7. Pull strainer screen from the screen retainer. Clean any sediment from the screen retainer and water pump screen retainer port.
8. Inspect the strainer screen for holes, restrictions, corrosion and other damage. Discard damaged strainer screen.
9. Check the O-Ring on the screen retainer. Replace worn or damaged O-Ring (P/N 315349000).

NOTE: A strainer screen should always be used, otherwise particles could foul the double liquid check valve.

10. Install good or new strainer screen (P/N 315348000) in the screen retainer, then screw the retainer into the water pump and tighten securely.
11. Install Unit cover and secure with screws.
12. Service the double liquid check valve (refer to next paragraph, SERVICING DOUBLE LIQUID CHECK VALVE).

SERVICING DOUBLE LIQUID CHECK VALVE

(see Figure 4 and 5)

1. Refer to steps 1 through 5 in SERVICING WATER PUMP WATER INLET STRAINER SCREEN to prepare the carbonator for servicing it's double liquid check valve.
2. Remove four screws securing lower access cover on the Unit, then remove cover.
3. Disconnect water tank inlet line from the double liquid check valve assembly outlet.
4. Remove the double liquid check valve assembly from elbow in the water solenoid valve outlet. Retain the white tapered gasket inside the inlet (female) end of the double liquid check valve assembly.
5. Disassemble each check valve as shown in Figure 5.
6. Wipe each part with clean lint-free cloth. Inspect each part, especially ball for burrs, nicks, corrosion, deterioration, and other damage. Discard the ball seat and any damaged or suspicious parts and replace with new parts during reassembly.
7. Reassemble check valves as shown in Figure 5. *ALWAYS INSTALL NEW BALL SEAT (QUAD RING) P/N 312418000.*

NOTE: *Make sure* when assembling check valves together, check valve female end with white tapered gasket inside is on inlet side of the double liquid check valve assembly.

8. Assemble check valves together. *DO NOT OVER TIGHTEN*.

9. Make sure white tapered gasket is in place inside female end of the double liquid check valve assembly, then install check valve assembly on elbow in the water solenoid valve outlet.
10. Connect water tank inlet line to the double liquid check valve assembly outlet. *DO NOT OVER TIGHTEN.*
11. Turn carbonator CO_2 regulator adjusting screw to the right (clockwise) until gage indicates pressure setting noted in step 3 of SERVICING WATER PUMP WATER INLET STRAINER SCREEN. Tighten adjusting screw lock nut.
12. Open the Unit water inlet supply line shutoff valve.
13. Connect electrical power to the Unit. The water pump will start and fill the carbonated water tank. Pull up on the carbonated water tank relief valve to release trapped air from inside the tank.
14. Check for water leaks and tighten any loose connections.
15. Install lower access cover on the Unit and secure with four screws.

REPAIR AND REPLACEMENT

LEVEL CONTROL SWITCH(S)

(see Figure 3)

NOTE: If level control switch(s) are determined to be at fault, it will be necessary to test each switch individually for proper operation and replace switch(s) as necessary.

Removal.

1. Disconnect electrical power from the Unit.
2. Remove screws securing cover on the Unit, then remove cover.
3. Tag level control switches electrical wires for identification, then disconnect electrical wires from switches.
4. Remove two screws securing level control switches, then remove switches from the Unit.
5. Individually check each level control switch for proper operation.

Installation.

1. Install new switch(s) by reversing removal procedure.
2. Make sure electrical wiring is correct (see applicable Figure 6, 7, or 8).

SAFETY THERMOSTAT

(see Figure 3 and 4)

IMPORTANT: If necessary to replace the safety thermostat, use only Replacement Safety Thermostat Kit (P/N 318040088) with special additional installation instructions included with the kit.

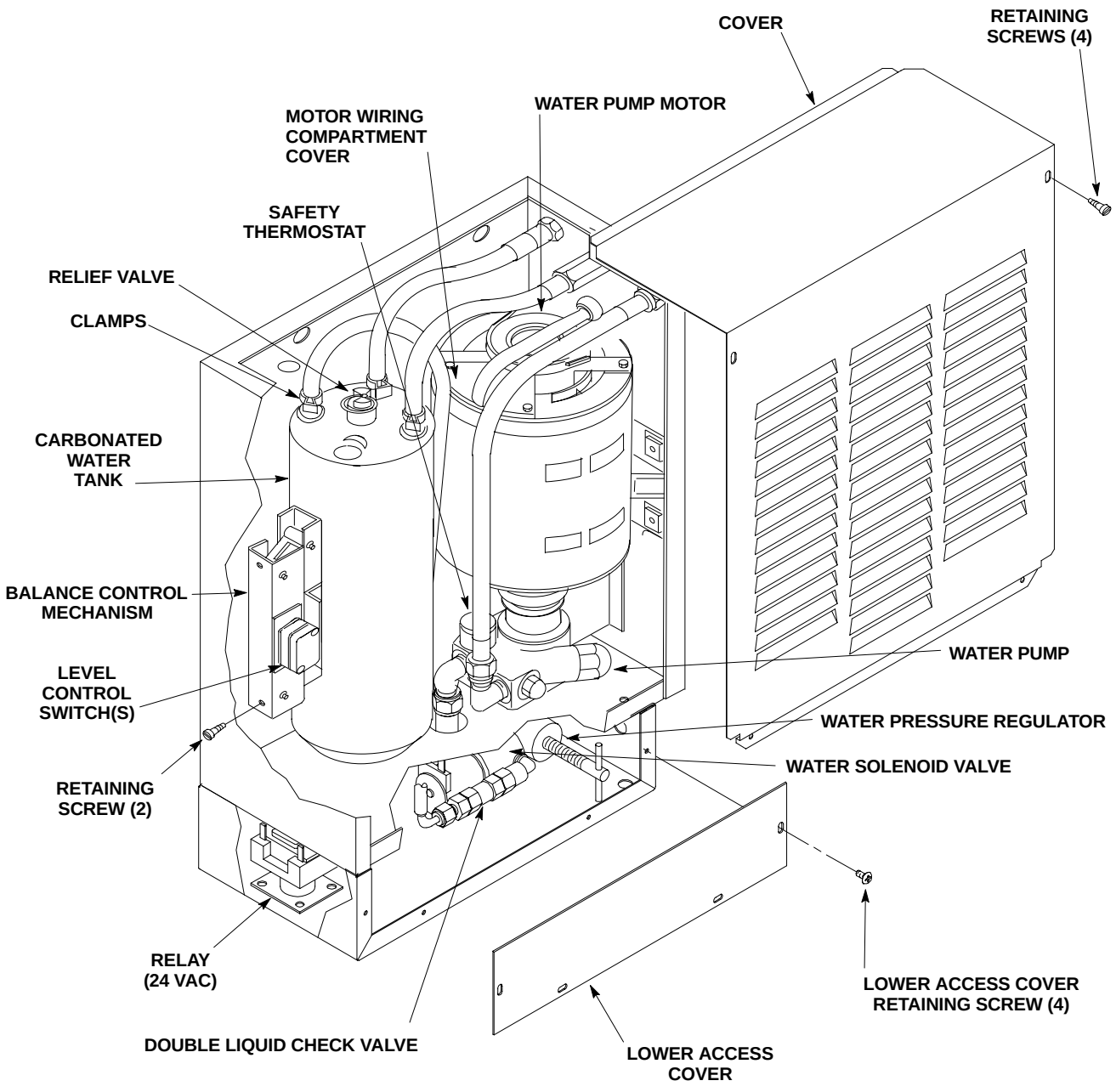


FIGURE 3. CARBONATOR ASSEMBLY COMPONENTS

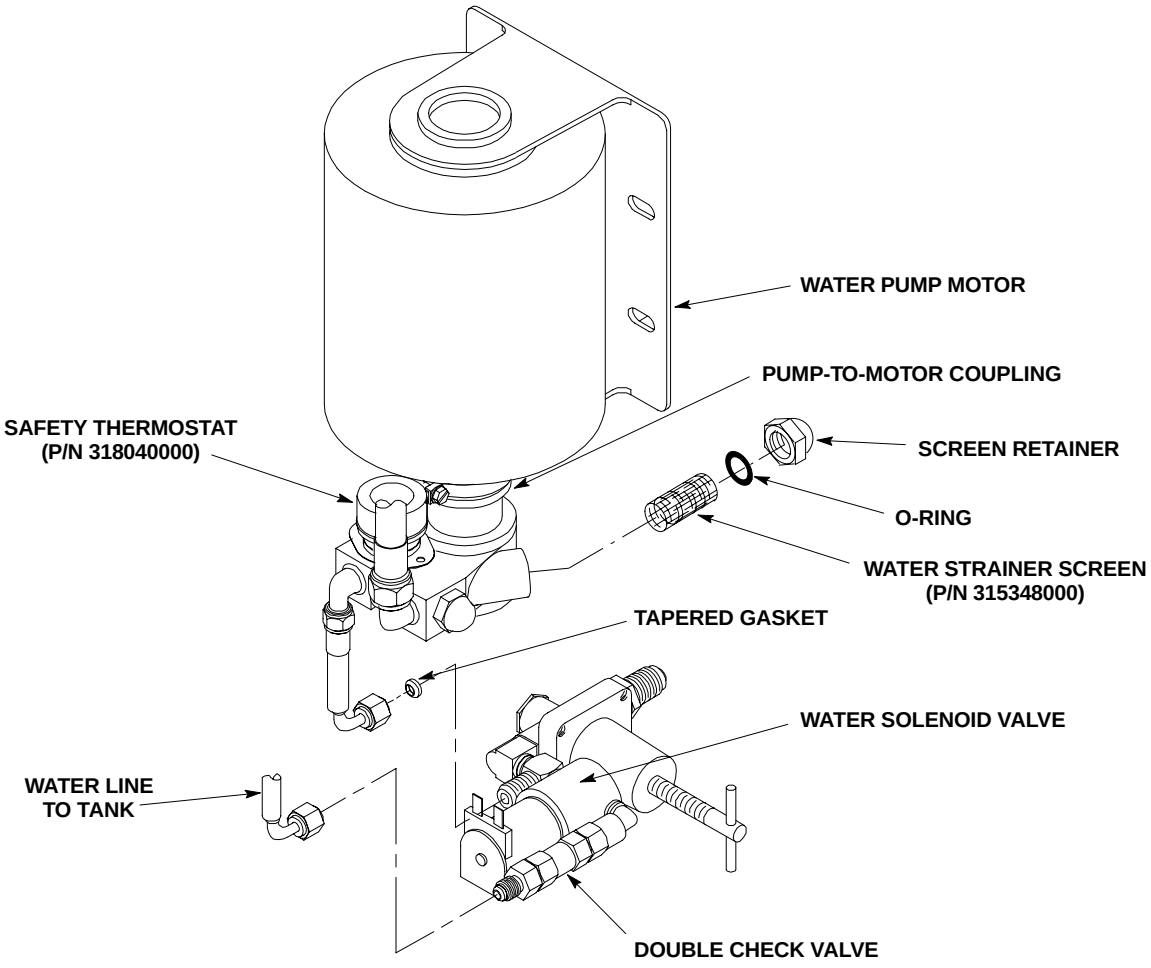
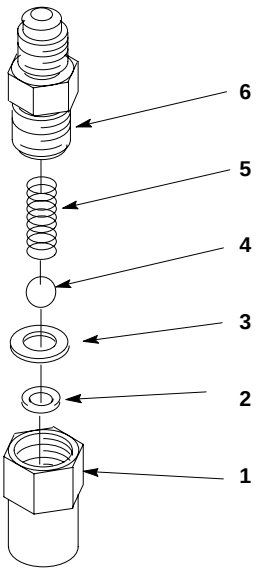


FIGURE 4. WATER STRAINER SCREEN AND DOUBLE CHECK VALVE



INDEX NO.	PART NO.	NAME
1	317963000	Housing
2	312415000	Flat Washer, Stainless Steel
3	*312418000	Ball Seat (quad ring)
4	312419000	Ball
5	312196000	Spring
6	317965000	Retainer

*** INSTALL NEW BALL SEAT AT EACH SERVICING**

FIGURE 5. CHECK VALVE ASSEMBLY

Removal.

1. Disconnect electrical power from Unit.
2. Remove screws securing cover on Unit, then remove cover.
3. Loosen two screws securing the wiring compartment cover on the water pump motor, then remove cover.
4. Disconnect safety thermostat electrical wire from electrical wire inside motor wiring compartment and terminal on level control switches.
5. Note position of safety thermostat on the water pump outlet, then remove thermostat from the pump.
6. Disconnect thermostat electrical wire from motor wiring compartment and wiring harness to level control switch, then remove old thermostat from inside the Unit.

Installation.

1. Install new safety thermostat by reversing removal procedure.
2. Make sure electrical wiring is correct (see applicable Figure 6, 7, or 8).

WATER PUMP

(see Figure 3)

Removal.

1. Disconnect electrical power from the Unit.
2. Close the CO_2 cylinder shutoff valve, then close the water inlet supply line shutoff valve.
3. Remove screws securing cover on the Unit, then remove the cover.
4. Pull up on carbonated water tank relief valve to release CO_2 pressure from inside the tank.
5. Disconnect water inlet line from the water pump inlet. Be careful not to lose black tapered gasket from inside the water inlet line swivel nut.
6. Disconnect water outlet line from the water pump outlet. Be careful not to lose the white tapered gasket from inside the water outlet line swivel nut.
7. Note position of safety thermostat on the water pump outlet, then remove thermostat from the pump.
8. Loosen screw on the pump–to–motor coupling enough to remove pump from the motor, then remove pump.
9. Remove elbow fittings from the water pump inlet and outlet ports.

Installation.

1. Install new water pump by reversing Removal procedure and using the following instructions:
   A. Make sure pipe thread sealing compound is used on elbows fittings threads, then install elbows in new water pump inlet and outlet ports.

B. Make sure drive tang on pump and slot in pump motor shaft are properly lubricated and aligned, then install pump on the motor.

C. Make sure tapered gaskets are inside water pump water inlet and outlet lines swivel nuts, then connect lines to pump.

2. Open CO_2 cylinder valve, then open water inlet supply line shutoff valve.
3. Connect electrical power to the Unit.
4. Check Unit for leaks during operation. Tighten any loose connections.
5. Install cover on Unit and secure with screws.

WATER PUMP MOTOR

(see Figure 3)

Removal.

1. Disconnect electrical power from the Unit.
2. Remove screws securing cover on the Unit, then remove the cover.
3. Loosen screw on water pump–to–motor coupling enough to remove pump from motor, then remove the pump.
4. Loosen two screws securing the wiring compartment cover on the water pump motor, then remove the cover.
5. Tag electrical wires for identification, then disconnect wires from terminals on the motor.
6. Remove four screws securing the motor, then remove the motor from inside the Unit.

Installation.

1. Install the new pump motor by reversing removal procedure.
2. Make sure drive tang on the pump and slot in the pump motor shaft are properly lubricated and aligned, then install pump on the motor.
3. Make sure all wiring is correct (see applicable Figure 6, 7, or 8).

RELAY (24 VAC)

(See Figure 3)

Removal.

1. Disconnect electrical power from the Unit.
2. Remove four screws securing lower access cover on the Unit, then remove the cover.
3. Tag electrical wires for identification, then disconnect wires from the relay, (see Figure NO TAG).

4. Remove two screws securing relay to the Unit, then remove old relay.

Installation.

1. Install new relay by reversing removal procedure.
2. Make sure electrical wiring is correct (see Figure NO TAG).
3. Install lower access panel and secure with four screws.
4. Connect electrical power to the Unit.

WATER SOLENOID VALVE

(see Figure 3)

Removal.

1. Disconnect electrical power from the Unit.
2. Close plain-water inlet supply line shutoff valve.
3. Note pressure setting on the carbonator CO_2 regulator, then loosen lock nut and turn CO_2 regulator adjusting screw to the left (counterclockwise) until regulator gage reads 0-psi.
4. Remove screws securing cover on the Unit, then remove cover.
5. Pull up on carbonated water tank relief valve to release CO_2 pressure from inside the tank.
6. Remove screws securing lower access covers to the Unit, then remove the cover.
7. Disconnect water line swivel nut connector from the water pump outlet. Be careful not to lose tapered gasket from inside the water line swivel nut.
8. Disconnect water tank water line swivel nut connector from the double liquid check valve outlet. Be careful not to lose tapered gasket from inside the swivel nut.
9. Disconnect Unit plain-water outlet line from the bulkhead connector. Be careful not to lose tapered gasket from inside the water outlet line swivel nut.
10. Loosen large nut securing the Unit plain-water outlet bulkhead fitting in the cabinet, then remove the nut.
11. Swing water solenoid valve/pressure regulator out far enough to disconnect electrical wires from the solenoid, then disconnect the wires.
12. Remove water solenoid valve/pressure regulator assembly from inside the cabinet.
13. Remove double liquid check valve from the water solenoid valve. Be careful not to lose tapered gasket from inside the double liquid check valves inlet.
14. Remove elbow fitting from the water solenoid valve outlet.
15. Remove water solenoid valve from tee fitting connected to the water pressure pressure regulator.

Installation.

1. Install new water solenoid valve by reversing removal procedure. *MAKE SURE PIPE THREAD SEALING COMPOUND IS USED TO SEAL PIPE THREAD CONNECTIONS WHEN INSTALLING THE NEW WATER SOLENOID VALVE.*
2. Restore CO_2 pressure to the carbonator as noted in step 3 of removal procedure.
3. Open plain-water shutoff valve.
4. Connect electrical power to the Unit.
5. Check for water leaks and tighten any loose connections.
6. Install upper and lower covers on the Unit and secure with screws.

WATER PRESSURE REGULATOR

(see Figure 3)

Removal

1. Disconnect electrical power from the Unit.
2. Close plain-water inlet supply line shutoff valve.
3. Note pressure setting on the carbonator CO_2 regulator, then loosen lock nut and turn the CO_2 regulator adjusting screw to the left (counterclockwise) until the regulator gage reads 0-psi.
4. Remove screws securing the cover assembly on the Unit, then remove the cover.
5. Pull up on carbonated water tank relief valve to release CO_2 pressure from inside the tank.
6. Remove screws securing lower access cover to the Unit, then remove cover.
7. Disconnect water line swivel nut connector from the water pump outlet. Be careful not to lose tapered gasket from inside the water line swivel nut.
8. Disconnect water tank water line swivel nut connector from the double liquid check valve outlet. Be careful not to lose tapered gasket from inside the water line swivel nut.
9. Disconnect Unit plain-water outlet line from the bulkhead connector. Be careful not to lose tapered gasket from inside the water out line swivel nut.
10. Loosen large nut securing the Unit plain-water outlet bulkhead fitting in the cabinet, then remove the nut.
11. Swing the water solenoid valve/pressure regulator out far enough to disconnect electrical wires from the solenoid, then disconnect the wires.
12. Remove water solenoid valve/pressure regulator assembly from inside the cabinet.
13. Remove double liquid check valve from the water solenoid valve. Be careful not to lose tapered gasket from inside the double liquid check valve inlet.
14. Remove water pressure regulator from tee fitting in the water solenoid valve inlet.
15. Remove fittings from old water pressure regulator inlet and outlet.

installation

1. Install new water pressure regulator by reversing removal procedure. *MAKE SURE PIPE THREAD SEALING COMPOUND IS USED TO SEAL PIPE THREAD CONNECTIONS WHEN INSTALLING NEW REGULATOR.*
2. Restore CO_2 pressure to the carbonator as noted in step 3 of removal procedure.
3. Open plain-water shutoff valve.
4. Connect electrical power to the Unit.
5. Check for water leaks and tighten any loose connections.
6. Install upper and lower covers on the Unit and secure with screws.

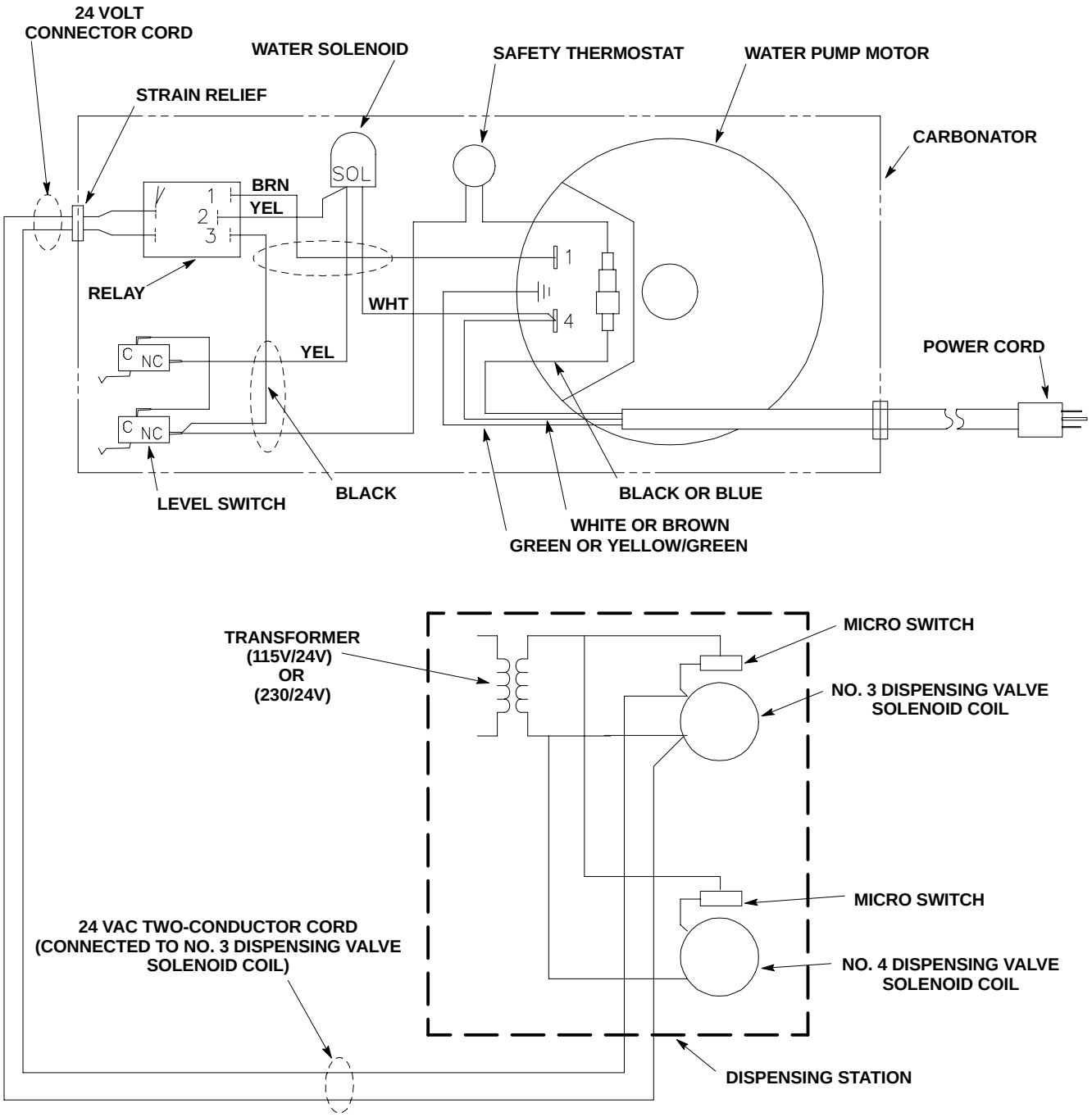
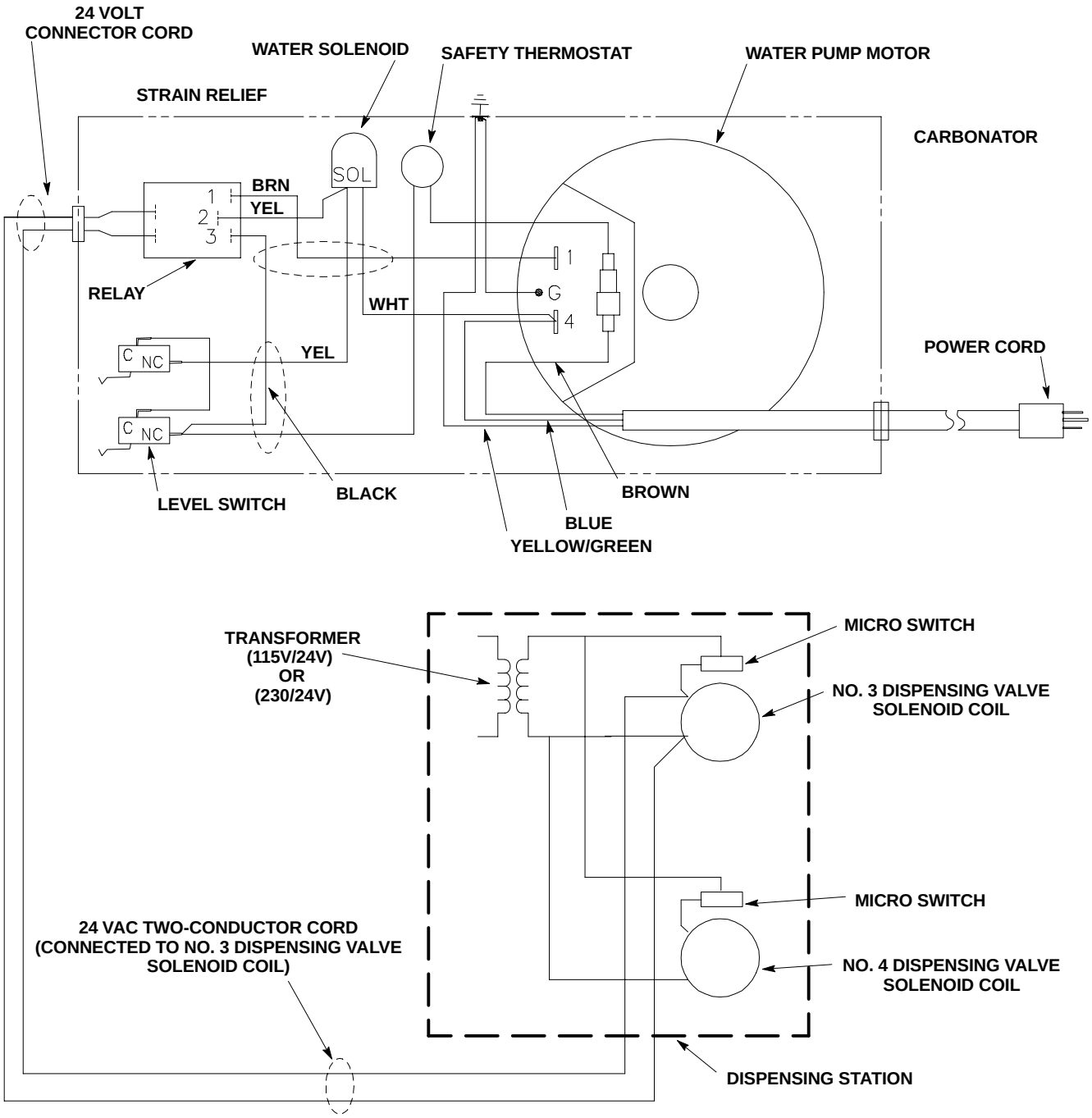
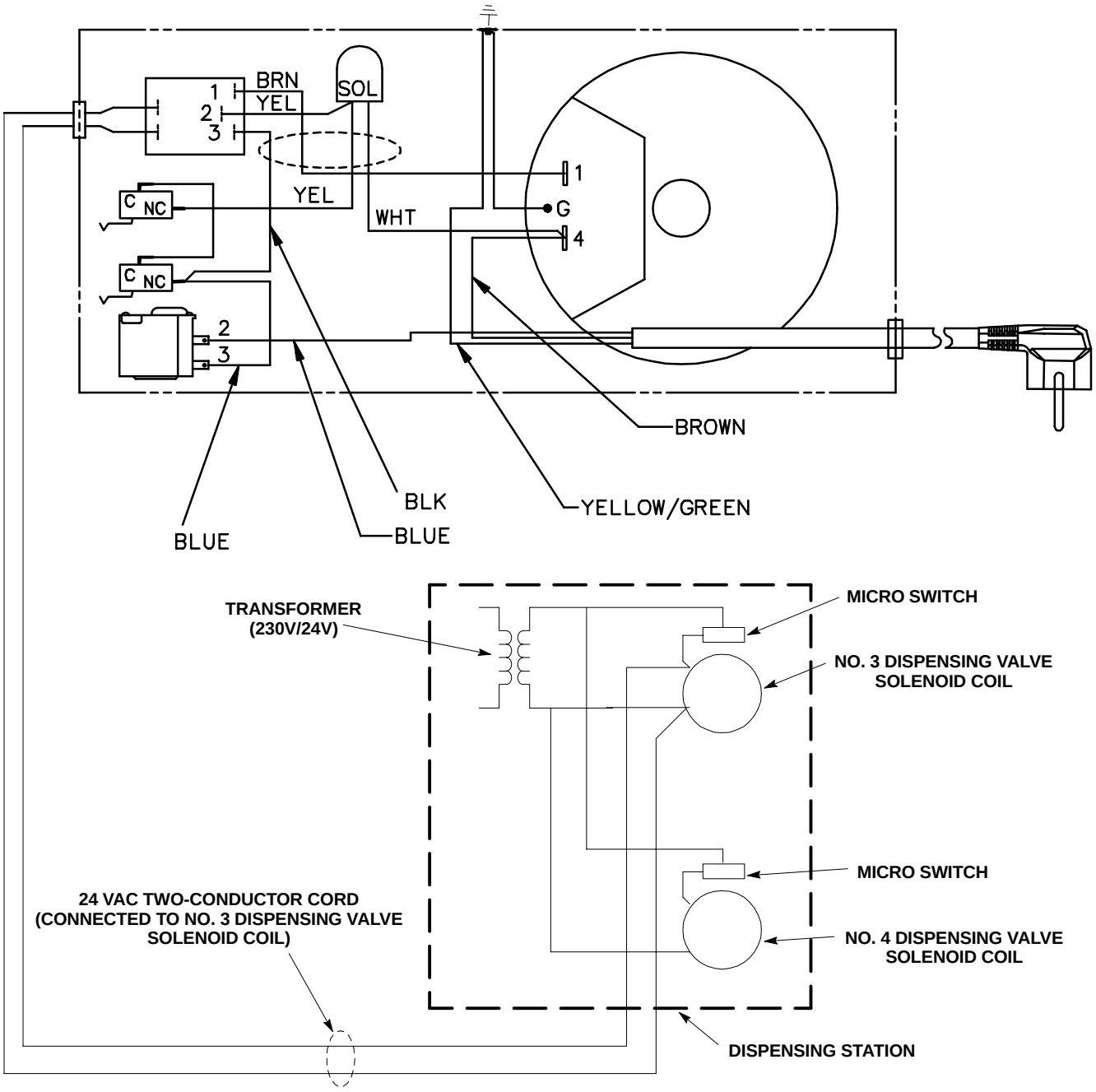


FIGURE 6. WIRING DIAGRAM (MODEL NO. 416417000)



496417000
REV: R

FIGURE 7. WIRING DIAGRAM (MODEL NO. 496417000)



496417020
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FIGURE 8. WIRING DIAGRAM (MODEL NO. 496417020)

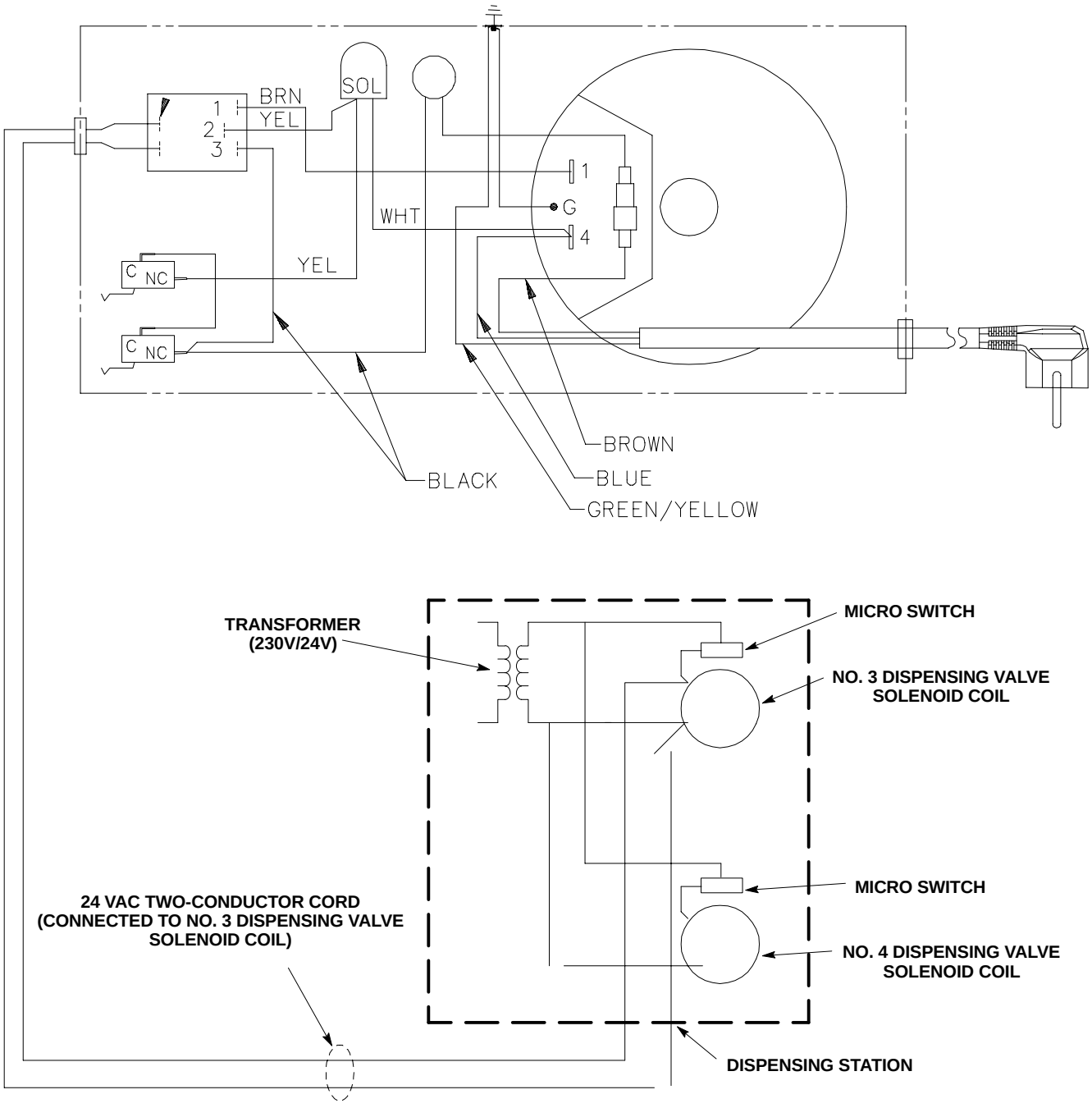

FIGURE 9. WIRING DIAGRAM (MODEL NO. 496417040)

TROUBLESHOOTING

IMPORTANT: Only qualified personnel should service internal components or electrical wiring.

WARNING: If repairs are to be made to a product system, remove quick disconnects from the applicable product tank, then relieve the system pressure before proceeding. If repairs are to be made to the CO_2 system, stop dispensing, shut off the CO_2 supply, then relieve the system pressure before proceeding. If repairs are to be made to the refrigeration system, make sure electrical power is disconnected from the unit.

Trouble	Probable Cause	Remedy
WATER PUMP MOTOR WILL NOT OPERATE.	A. Power cord unplugged or circuit breaker open in panel box.	A. Plug in power cord or reset circuit breaker.
	B. Inoperative water pump motor.	B. Replace water pump motor as instructed.
	C. Dirty balance mechanism.	C. Clean balance mechanism.
	D. Loose connections and/or open electrical circuit.	D. Tighten connections and/or repair open circuit. Check line voltage.
	E. Overheated motor cut off by thermal overload protector.	E. Check for proper line voltage. Check for restricted pump discharge or water solenoid not opening.
	F. Inoperative level control switches.	F. Replace level control switches as instructed.
	G. Binding or damaged balance mechanism.	G. Repair or replace balance mechanism.
	H. Water pump binding (new or replacement pumps only).	H. Remove water pump from motor, rotate pump or motor shaft 180 degrees, then recouple pump to motor.
	I. Water pump damaged.	I. Replace water pump as instructed.
	J. Safety thermostat inoperative.	J. Replace safety thermostat as instructed.
WATER PUMP MOTOR WILL NOT SHUT OFF.	A. Foreign object restricting tank movement.	A. Remove foreign object.
	B. Dirty balance mechanism.	B. Clean balance mechanism.
	C. Leak in carbonated water line.	C. Tighten or replace line.
	D. Inoperative level control switches.	D. Replace level control switches as instructed.
	E. Binding or damaged balance mechanism.	E. Repair or replace balance mechanism.

Trouble	Probable Cause	Remedy
ERRATIC CYCLING OF CARBONATOR.	A. Balance mechanism spring obstructed or ‘‘cocked’’.	A. Remove obstructions. Make sure spring is perpendicular to spring release and is not twisted.
	B. Dirty balance mechanism.	B. Clean balance mechanism
	C. Erratic safety thermostat.	C. Replace thermostat.
	D. Erratic water inlet supply to carbonator causing safety thermostat to interrupt electrical supply to water pump motor.	D. Correct water supply (refer to manual for water supply requirements).
WATER PUMP MOTOR OPERATES BUT WATER PUMP DOES NOT PUMP WATER.	A. Water pump inlet water strainer screen dirty.	A. Clean or replace water strainer screen as instructed.
	B. Kinked water supply line.	B. Straighten water supply line.
	C. Restriction between water pump outlet and carbonator tank inlet or water solenoid not operating.	C. Remove restriction or replace water solenoid.
	D. Foreign object in water pump bypass.	D. Clean. (Note: Count number of turns bypass screw makes when removing and install same number of turns.)
	E. Water pump worn out.	E. Replace water pump as instructed.
WATER PUMP CAPACITY TOO LOW.	A. Water pump inlet water strainer screen dirty.	A. Clean or replace water strainer screen as instructed.
	B. Water supply capacity too low.	B. Inlet water supply must be at a minimum of 100-gallons per hour not to exceed water pressure of 30-psi.
	C. Water filter clogged.	C. Replace water filter.
	D. Water pump worn out.	D. Replace water pump as instructed.
NO PLAIN WATER DISPENSED WHEN DISPENSING VALVE IS OPENED.	A. Inoperative dispensing valve micro switch or solenoid coil.	A. Replace micro switch or coil.
	B. Poor electrical connection or broken 24 VAC service cord from dispensing valve to carbonator.	B. Repair connection or repair or replace service cord.
	C. Inoperative carbonator 24 VAC relay.	C. Replace relay as instructed.

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WARRANTY

IMI Cornelius Inc. warrants that all equipment and parts are free from defects in material and workmanship under normal use and service. For a copy of the warranty applicable to your Cornelius product, in your country, please write, fax or telephone the IMI Cornelius office nearest you. Please provide the equipment model number and the date of purchase.

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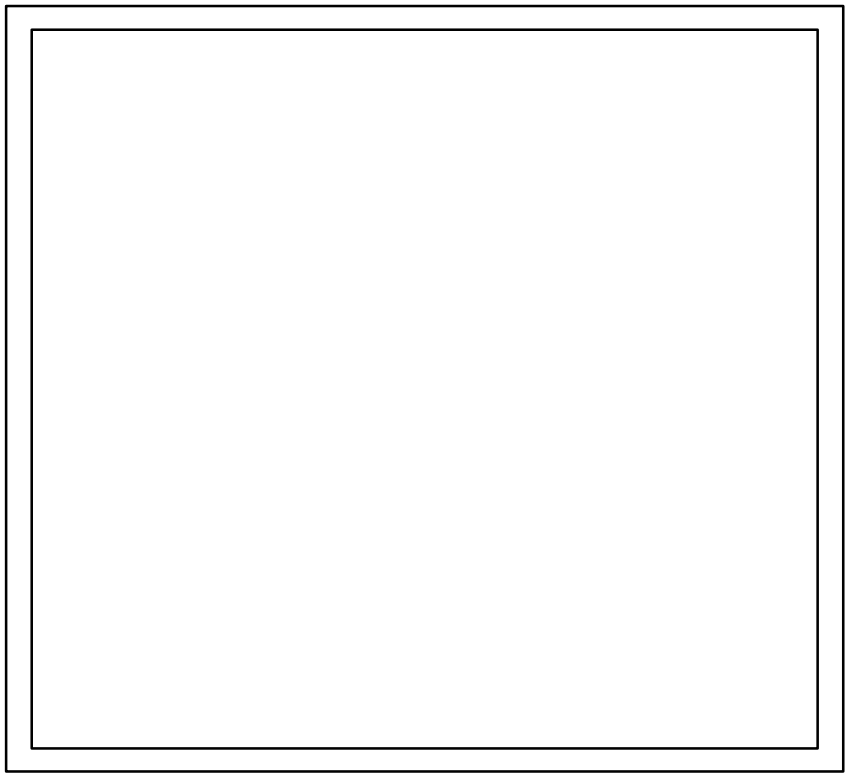

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