HENNY PENNY®
Global Foodservice Solutions

Henny Penny
Open Fryer

Model OFG-390
Model OFG-392

TECHNICAL MANUAL

NOTICE

This manual should be retained in a convenient location for future reference.

A wiring diagram for this appliance is located on the rear shroud cover of the control panel.

Post in a prominent location, instructions to be followed if user smells gas. This information should be obtained by consulting the local gas supplier.

Do not obstruct the flow of combustion and ventilation air. Adequate clearance must be left all around appliance for sufficient air to the combustion chamber.

The Model OFG-390 open fryer is equipped with a continuous pilot. But fryer can not be operated with out electric power. Fryer will automatically return to normal operation when power is restored.

CAUTION

Keep appliance area free and clear from combustibles.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

DANGER

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE. FIRE OR EXPLOSION COULD RESULT.

HENNY PENNY
6 HEAD GAS OPEN FRYER

SPECIFICATIONS

Height	61" (155 cm)
Width	24" (61 cm)
Depth	41¾" (107 cm)
Floor Space	Approximately 7 sq. ft. (.65 sq. m.)
Pot Capacity	6 Head of chicken - 20 lbs. (9 kg.) 130 lbs. shortening (46 Kg.)
Electrical	120 VAC, 1 Phase, 50/60 Hz, 10 Amp, 2 Wire + Ground 230 VAC, 1 Phase, 50/60 Hz, 5 Amp, 2 Wire + Ground
Heating	Propane or Natural Gas; 100,000 BTU/Hr.(29.3 kw)
Shipping Weight	Approximately 670 lbs. (304 kg.)

NOTICE

A data plate, located on the back shroud behind the lid, gives the information of the type of fryer, serial number, warranty date, and other information pertaining to fryer. Also, the serial number is stamped on the outside of the frypot. See figure below.

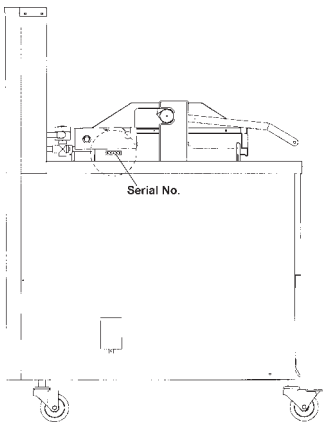


TABLE OF CONTENTS

SECTION 1. TROUBLESHOOTING

1-1. INTRODUCTION

This section provides troubleshooting information in the form of an easy to read table.

If a problem occurs during the first operation of a new fryer, recheck the installation per the Installation Section of this manual.

Before troubleshooting, always recheck the operation procedures per Section 3 of the Operator's Manual.

1-2. SAFETY

Where information is of particular importance or safety related, the words DANGER, WARNING, CAUTION, and NOTICE are used. Their usage is described below.

SAFETY ALERT SYMBOL is used with DANGER, WARNING, or CAUTION which indicates a personal injury type hazard.

NOTICE is used to highlight especially important information.

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

DANGER INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

1-3. TROUBLESHOOTING

To isolate a malfunction, proceed as follows:

1. Clearly define the problem (or symptom) and when it occurs.

2. Locate the problem in the Troubleshooting table.

3. Review all possible causes. Then, one-at-a-time work through the list of corrections until the problem is solved.

4. Refer to the maintenance procedures in the Maintenance Section to safely and properly make the checkout and repair needed.

If maintenance procedures are not followed correctly, injuries and/or property damage could result.

Problem	Cause	Correction
	COOKING SECTION	
Product color not correct:		
A. Too dark	• Temperature too high	• Check temperature setting in the program mode; see section on programming
	• Faulty temperature probe	• Remove and replace temperature probe
	• Shortening too old	• Change shortening
	• Shortening too dark	• Filter shortening • Change shortening
	• Breading product too far in advance	• Bread product closer to actual frying period
B. Too light	• Temperature too low	• Check temperature setting • Remove and replace probe
	• Fryer incorrect preheat	• Allow proper preheat time
	• Slow fryer heat-up/recovery	• Check gas pressure and blower airflow
	• Wrong cook button pushed	• Be sure to select the correct product to be cooked
C. Product greasy	• Shortening old	• Replace shortening
	• Temperature too low	• Check temperature setting • Temperature not recovered when product was dropped in frypot
	• Faulty temperature probe	• Remove and replace defective temperature probe
	• Frypot overloaded	• Reduce cooking load
	• Product not removed from frypot immediately after end of cycle	• Remove product from frypot immediately after end of cycle

Problem	Cause	Correction
	COOKING SECTION (Continued)	
D. Spotted product	• Improper separation of the product	• Load product into basket properly
	• Breading not uniform on the product	• Sift breading regularly. • Separate product during breading
	• Burned breading particles on product	• Filter the shortening more frequently
	• Product sticking together	• Separate product prior to cooking
E. Dryness of product	• Moisture loss prior to cooking	• Use fresh products
	• Overcooking the product	• Reduce cooking time. • Reduce cooking temperature
	• Wrong cook button pushed	• Be sure to select the correct product to be cooked
Product flavor (taste): A. Salty taste	• Breading mixture is too salty	• Sift breading after each use • Incorrect breading mixture • Discard old breading
	• Incorrect choice of breading	• Use breading designed for the desired product
B. Burned taste	• Burned shortening favor	• Replace shortening
	• Frypot not properly cleaned	• Drain and clean frypot
C. Bland taste	• Raw product not fresh	• Use fresh raw product
	• Breading mixture incorrect for product (spice content too low)	• Use breading designed for desired product
	• Cooking temperature too high (spice flavors lost)	• Check temperature

Problem	Cause	Correction
	COOKING SECTION (Continued)	
D. Rancid taste	• Shortening too old	• Replace shortening, and follow recommended care and use of shortening
	• Infrequent filtering	• Replace shortening and follow recommended care and use of shortening
	• Non-compatible products cooked within the same shortening	• Replace shortening • Use compatible products, and follow recommended care and use of shortening
	• Raw product not fresh	• Use fresh product
General: A. Meat separation from bone	• Incorrect meat cut	• Use correct meat cutting procedures
	• Overcooking	• Check cooking time
	• Product not fresh	• Use fresh product
B. Bone color not proper	• Using frozen product (black bone)	• Use fresh product
	• Improper processing of product (black bone)	• Use proper processing procedure for product
	• Product not thoroughly cooked (red bone)	• Check cooking time • Check cooking temperature
C. Breading falls off	• Incorrect breading procedures	• Use correct breading procedure
	• Product partially frozen	• Thoroughly thaw the product, before breading
D. Product sticking together	• Product breaded too long prior to cooking	• Refer to breading and frying instructions
	• Improper loading procedure	• Properly load product per loading procedures
	• Wrong cook button pushed. correct amount of product	• Be sure to select the to be cooked

Problem	Cause	Correction
POWER SECTION		
With switch in POWER position, the fryer is completely inoperative (no power)	• Open circuit	• Check to see that unit is plugged in • Check the breaker or fuse at supply box • Check voltage at wall receptacle • Check main power switch; replace if defective • Check cord and plug

Problem	Cause	Correction
	HEATING OF SHORTENING SECTION	
Shortening will not heat	• Gas valve knob turned to the OFF position	• Make sure the gas valve knob is turned to the ON position.
	• Blown fuse or tripped circuit breaker at supply box or control panel	• Reset breaker or replace fuse
	• Blown fuse in PC board	• Replace glass fuse in board
	• Faulty POWER/PUMP switch	• Check POWER/PUMP switch per POWER/PUMP Switch Section
	• Faulty cord and plug	• Check cord and plug and power at wall receptacle
	• Faulty drain switch	• Check drain switch per Drain Switch Section
	• Faulty PC board	• Remove and replace control panel
	• Faulty high limit control switch	• Check high limit control switch per High Temperature Limit Section
	• Drain valve open	• Close drain valve
	• Possible faulty gas control valve	• With power removed from fryer, check across electrical leads of gas valve with multimeter, and gas valve on ON position
	• Possible faulty temperature probe	• Replace temperature probe
	• Bad spark ignitor	• Replace spark ignitor
	• Low air pressure	• Clean or replace blower • Replace air pressure switch
	• Faulty ignitor module	• Replace ignitor module
	• Spark ignitor or flame sensor out of adjustment	• The spark ignitor needs to be 1/8 in. from the pilot hood, and the flame sensor, 1/4 in

Problem	Cause	Correction
HEATING OF SHORTENING SECTION (Continued)		
Heating of shortening too slow	• Supply line too small - low gas volume	• Increase supply line size Refer to Installation Instructions Section of Operator's Manual
	• Improper ventilation system	• Refer to Installation Instructions Section of Operator's Manual • Observe burners • Check gas pressure.
	• Improper air flow to burners	• Check blower for resriction of airflow
Shortening overheating	• Programming wrong in the Program Mode	• Check temperature setting
	• Faulty PC board	• Remove and replace control panel
	• Faulty temperature probe	• Remove and replace temperature probe

Problem	Cause	Correction
SHORTENING FOAMING/DRAINING SECTION		
Foaming or boiling over of shortening	• Water in shortening	• At end of Cook Cycle, drain shortening and clean frypot; add fresh shortening
	• Improper or bad shortening	• Use recommended shortening
	• Improper filtering	• Refer to the procedure covering filtering the shortening
	• Cold zone full of cracklings	• Filter shortening
	• Improper rinsing after cleaning the fryer	• Clean and neutralize the frypot; rinse with vinegar to remove the alkaline, then rinse with hot water and dry frypot
Shortening will not drain from frypot	• Drain valve clogged with crumbs	• Open valve - push cleaning rod through drain opening from inside of frypot
	• Drain valve will not open by pulling the handle	• Replace cotter pins in valve coupling
Shortening leaking	• Obstruction in drain	• Remove obstruction through drain valve
	• Faulty drain valve	• Replace drain valve

1-4. ERROR CODES

In the event of a control system failure, the digital display shows an error message. These messages are coded: "E04", "E05", "E06", "E32", "E41" and "E71". A constant tone is heard when an error code is displayed, and to silence this tone, press any of the product buttons.

DISPLAY	CAUSE	PANEL BOARD CORRECTION
"E04"	Control board overheating	Turn switch to OFF position, then turn switch back to ON; if display still shows "E04", the board is getting too hot; check for signs of overheating behind the control panel; once panel cools down the controls should return to normal; if "E04" persists, replace the control
"E05"	Shortening overheating	Turn switch to OFF position, then back to ON; if display shows "E05", the heating circuits and temperature probe should be checked; once the unit cools down, the controls should return to normal; if "E05" persists, replace the controls
"E06"	Temperature probe failure	Turn switch to OFF position, then back to ON; if the display shows "E06", the temperature probe should be checked; once the probe is repaired, or replaced, the controls should return to normal; if "E06" persists, replace the controls
"E41"	Programming failure	Turn switch to OFF position, then back to ON; if display shows "E41", the control should be re-initialized (See programming section); if the error code persists, replace the control panel
"E71"	Pump motor relay failure or wiring problem	Replace relay if contacts are stuck closed; check wiring on POWER/PUMP switch, or at wall receptacle; L1 and N may be reversed
"E32, CHECK HIGH LIMIT, DRAIN VALVE, VACUUM SWITCH, BLOWER MOTOR"	Air pressure switch open; clogged dilution box or faulty blower; open drain switch; open high limit; open vacuum switch	Clean dilution box or replace blower if necessary; have drain switch checked; reset high limit or have high limit checked; check vacuum switch

1-4. ERROR CODES (Continued)

CE Only - Along with the error codes from the preceeding pages, CE units have the following self-diagnostic error codes:

DISPLAY	CAUSE	PANEL BOARD CORRECTION
"E10"	High limit	Reset the high limit by manually pushing up on the red reset button; if the high limit does not reset, the high limit must be replaced per High Limit Temperature Control Section
"E15"	Drain switch	Close the drain, using the drain valve handle; if display still shows "E-15", check the drain microswitch per Drain Microswitch Section
"E-20 A"	Air pressure switch failure (stuck closed)	Press the Timer button to try the ignition process again, and if "E-20 A" persists, call Henny Penny's Service Department
"E-20 B"	Draft fan or air pressure switch failure (stuck open)	Press the timer button to try the ignition process again, and if "E-20 B" persists, call Henny Penny's Service Department; number of failures can be seen in Review Usage Section of Operator's Manual, then press "Exit Cool"
"E-20 C"	Left gas module failure	Press the timer button to try the ignition process again, and if "E-20 C" persists, call Henny Penny's Service Department
"E-20 D"	Right module failure	Press the timer button to try the ignition process again, and if "E-20 D", persists, call Henny Penny's Service Department
"E-20 E"	Both modules failure	Press the timer button to try the ignition process again, and if "E-20 E", persists, call Henny Penny's Service Department
"E-20 F"	Left module- no flame sense	Press the Timer button to try the ignition process again, and if "E-20 F", persists, call Henny Penny's Service Department
"E-20 G"	Right module- no flame sense	Press the timer button to try the ignition process again, and if "E-20 G", persists, call Henny Penny's Service Department
"E-20 H"	Both modules- no flame sense	Press the timer button to try the ignition process again, and if "E-20 H", persists, call Henny Penny's Service Department

SECTION 2. MAINTENANCE

2-1. INTRODUCTION

This section provides checkout and replacement procedures, for various parts of the fryer. Before replacing any parts, refer to the Troubleshooting section to aid you in finding the cause of the malfunction.

2-2. MAINTENANCE HINTS

1. A multimeter will help you to check the electric components.
2. When the manual refers to the circuit being closed, the multimeter should read zero unless otherwise noted.
3. When the manual refers to the circuit being open, the multimeter should read infinity.

Do not move the fryer with hot shortening in the frypot or filter pan. Severe burns can result from splashing hot shortening.

4. Remove weights from the frame to easily access rear of fryer.

2-3. PREVENTIVE MAINTENANCE

To ensure a long life of the fryers and their components, regular maintenance should be performed. Refer to the chart below.

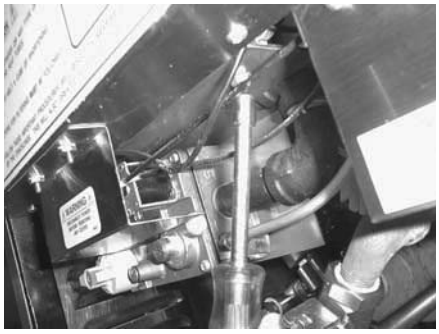
Frequency	Action
Twice Daily	Filter Shortening (See Operator's Manual)
Monthly	Check Dilution Box, Clean as needed (See Cleaning the Dilution Box Section)
Annually	Clean Blower Wheel (See Cleaning the Blower Wheel Section)
Annually	Lubricate Lid Rollers in back of fryer. (See Lubricating Lid Rollers Section)

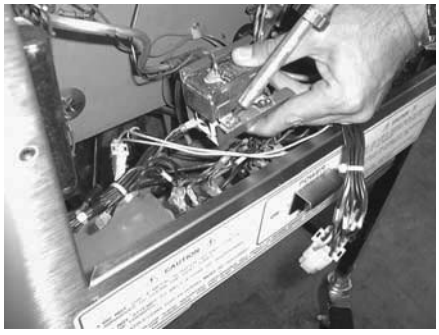
2-4. HIGH TEMPERATURE LIMIT CONTROL

This high temperature control is a safety, manual reset control, which senses the temperature of the shortening. If the shortening temperature exceeds 425°F (218°C), this switch opens and shuts off the heat to the frypot. When the temperature of the shortening drops to a safe operation limit, manually reset by pressing the red reset button. The red reset button is located under the control panel, in the front of the fryer. Once reset, the frypot starts heating.

Before replacing a high temperature limit control, check to see that its circuit is closed.

Checkout





NOTICE

The shortening temperature must be below 380°F (193°C) to accurately perform this check.

1. Remove electrical power supplied to the fryer.

To avoid electrical shock or property damage, move the Power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove the control panel.

3. Remove the two nuts securing the high limit bracket to the unit, and pull the bracket from the unit.

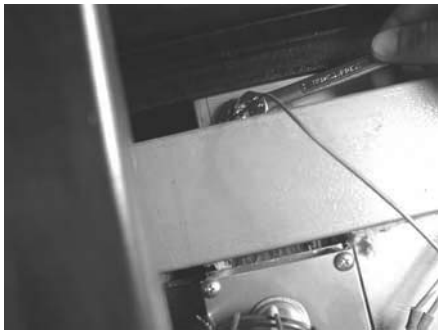
4. Remove the two screws securing the high limit to the bracket, and remove the high limit from the bracket.

5. Remove the two electrical wires from the high temperature limit control.

6. Manually reset the control, then check for continuity between the two terminals after resetting the control. If the circuit is open, replace the control, then continue with this procedure. (If the circuit is closed, the high limit is not defective. Reconnect the two electrical wires.)

2-4. HIGH TEMPERATURE LIMIT CONTROL (Continued)

Replacement



To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

1. If the tube is broken or cracked, the control will open, shutting off electrical power. The control cannot be reset.
2. Drain shortening from the frypot and discard. A substance in the tube could contaminate the shortening.
3. Remove control panel.
4. Loosen small inside screw nut on capillary tube.
5. Remove capillary bulb from bulb holder inside the frypot.
6. Straighten the capillary tube.
7. Remove larger outside nut that threads into pot wall, and remove defective control from control panel area.
8. Insert new control and replace screws.
9. Uncoil capillary line, starting at capillary tube, and insert through frypot wall.

To avoid electrical shock or other injury, run the capillary line under and away from all electrical power wires and terminals. The tube must <u>never</u> be in such a position where it could accidentally touch the electrical power terminals.

10. Carefully bend the capillary tube as shown in photo and place into bulb brackets.

2-4. HIGH TEMPERATURE LIMIT CONTROL (Continued)

11. Pull excess capillary line from pot and tighten nut into frypot wall.

CAUTION

Be sure capillary bulb of high limit is positioned so it doesn't interfere with the carrier or get damaged when cleaning the frypot.

12. With excess capillary line pulled out, tighten smaller nut.

13. Replace front panel.

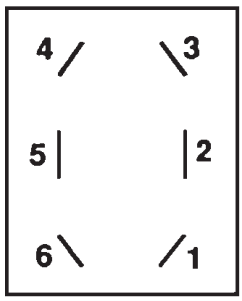
14. Refill with shortening.

2-5. POWER SWITCH

The POWER switch is a three way rocker switch with a center OFF position. With the switch in the ON position the fryer operates. With the switch in the PUMP position the filter pump operates, but the unit will not heat.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

Checkout



1. Remove control panel.

2. Label and remove wires from the switch.

3. OFF position-should be open circuit anywhere on the switch.

4. ON position. Check from: #5 to #6 closed circuit
   #l to #2 closed circuit

5. Pump position. Check from: #4 to #5 closed circuit
   #3 to #2 closed circuit

NOTICE

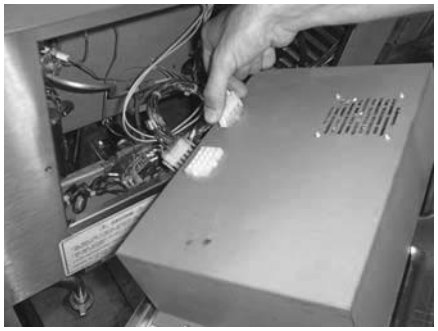
Check across the jumpers on the wires of the POWER switch. These jumpers have resistors and capacitors which may be faulty.

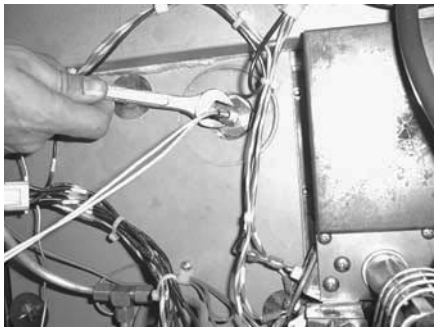
2-5. POWER SWITCH (Continued)

Replacement

1. With control panel removed, and wires off of the switch, push in on tabs on the switch to remove from the panel.
2. Replace with new switch, and reconnect wires to switch following the wiring diagram.
3. Replace the control panel.

2-6. TEMPERATURE PROBE REPLACEMENT





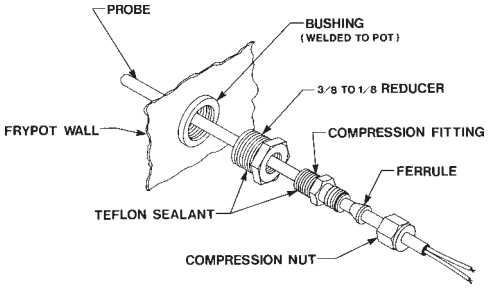


Figure 2-1

The temperature probe relays the actual shortening temperature to the control. If it becomes disabled, “E06” will show in the display. Also, if the temperature is out of calibration more than 10°F, or 10°C, the temperature probe should be replaced. An Ohm check can also be performed. See chart at end of this section.

1. Remove electrical power supplied to the fryer.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Drain the shortening from the frypot.
3. Remove the control panel.
4. Using a 1/2" wrench, remove the nut on the compression fitting.
5. Remove the temperature probe from the frypot.
6. Place the nut and new ferrule on the new temperature probe and insert the temperature probe into the compression fitting until it extends one-half (1/2) inch (1.3 cm) into the frypot. Use the temperature probe gauge provided in the temperature probe kit, to ensure proper placement in frypot. See Figures 2-1 and 2-2.

2-6. TEMPERATURE PROBE REPLACEMENT (Continued)

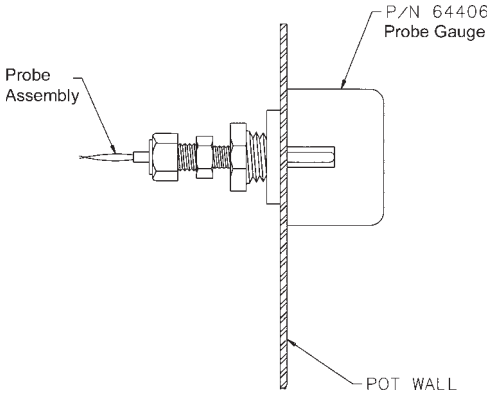


Figure 2-2

7. Tighten hand tight and then a half turn with wrench.

CAUTION

Excess force will damage temperature probe.

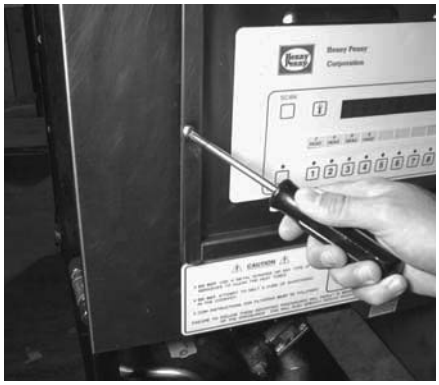
8. Connect new temperature probe to PC board and replace control panel.

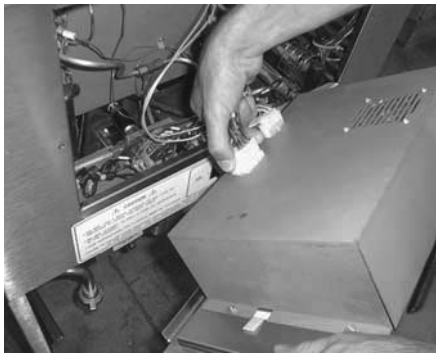
9. Replace shortening.

10. Turn power on and check out fryer.

Temp. F	Temp. C	Resistance Ohms	Temp. F	Temp. C	Resistance Ohms
50	10.00	1039.02	250	121.11	1464.79
60	15.56	1060.65	260	126.67	1485.71
70	21.11	1082.24	270	132.22	1506.58
80	26.67	1103.80	280	137.78	1527.43
90	32.22	1125.32	290	143.33	1548.23
100	37.78	1146.81	300	148.89	1569.00
110	43.33	1168.26	310	154.44	1589.73
120	48.89	1189.67	320	160.00	1610.43
130	54.44	1211.05	325	162.78	1620.77
140	60.00	1232.39	330	165.56	1631.09
150	65.56	1253.70	340	171.11	1651.72
160	71.11	1274.97	350	176.67	1672.31
170	76.67	1296.20	360	182.22	1692.86
180	82.22	1317.40	365	185.00	1703.13
185	85.00	1327.99	370	187.78	1713.38
190	87.78	1338.57	380	193.33	1733.87
200	93.33	1359.69	390	198.89	1754.31
210	98.89	1380.79	400	204.44	1774.72
212	100.00	1385.00	410	210.00	1795.10
220	104.44	1401.84	420	215.56	1815.44
230	110.00	1422.86	430	221.11	1835.74
240	115.56	1443.85	440	226.67	1856.01

2-7. COMPLETE CONTROL PANEL-HENNY PENNY





Should the control panel become inoperative, follow these instructions for replacing the board.

1. Remove [illegible] fryer.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove the two screws securing he control panel and lift panel up and out

3. Unplug the connectors going to the control board.

4. Install a new control panel.

2-8. LID COUNTERWEIGHT CABLES

The Lid Counterweight in the back of the fryer balances the weight of the lid system to allow easier opening and closing of the lid. The weight has two cables attached to it, and weighs about 100 lbs. (45.4 Kg).

1. Using a Phillips head screwdriver, remove the screws securing the back and top shrouds of the fryer and remove the shrouds.

2. Raise the lid.

3. Remove the screws securing the shroud to the frame and remove the shroud.

4. Remove the nut from the nylatron slide and flip loosened end up over the lid.

5. Remove the 4 keps nuts from the bracket at top of the shroud.

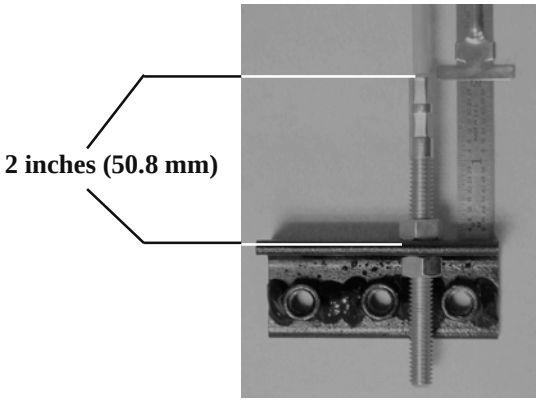
6. Place support under lid arm (ex: block of wood), and remove the weights from the frame in the back of the fryer.

7. Remove the Allen head bolts securing the stabilizer bracket and remove the bracket.

2-8. LID COUNTERWEIGHT CABLES (Continued)

8. Remove the bolts and spacers securing the pulley bracket, and pull bracket back, to allow access to cable bracket.
9. Pull cable and bracket from unit and remove cable from bracket.
10. Remove cable from weight frame.
11. Thread new cable through pulley.

12. Thread nut on cable and place cable through weight frame.
13. Thread second nut onto end of cable, but do not tighten.
14. Thread nut on other end of cable and place through the bracket, then thread a second nut on the end of the cable. Use the hole in bracket, that is towards the front of the cooker, when mounted. Tighten the nut to the bracket. 2 inches of the threaded cable end, should show above the bracket. See photo below.



NOTICE

Both cables should have the same amount of threads extending through the brackets.

15. Tighten cable onto weight frame.
16. Reassemble in reverse order.

NOTICE

Be sure to use pipe sealant on the pipe fittings.

2-9. GAS CONTROL VALVE

The gas control valve sends regulated gas to the burners when the controller calls for heat. The control valve can be turned on or off. In the on position, and the power switch on, a spark ignitor lights a standing pilot, and when the control calls for heat, the valve is opened and the burners are ignited.

Safety Precautions

DANGER
EXPLOSION RISK

TO AVOID INJURY, PROPERTY DAMAGE, OR EXPLOSION, BEFORE REPLACING GAS CONTROL VALVE DO THE FOLLOWING:

- **MOVE THE POWER SWITCH TO THE OFF POSITION.**
- **DISCONNECT THE MAIN CIRCUIT BREAKER AT THE WALL, OR UNPLUG THE POWER CORD.**
- **TURN OFF THE MAIN GAS SUPPLY TO THE FRYER AND DISCONNECT AND CAP THE SUPPLY LINE TO FRYER, OR POSSIBLE.**

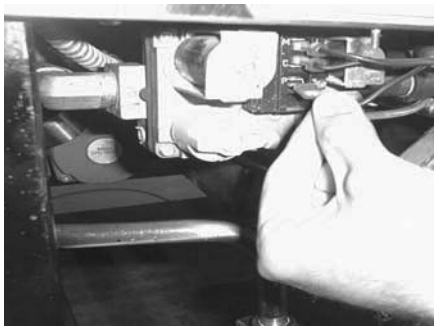
Replacement

NOTICE

A voltage check at the gas control valve must be taken four (4) seconds after the POWER switch is turned to the ON position.

1. Turn gas knob to the OFF position.

2. Remove cover from control valve.



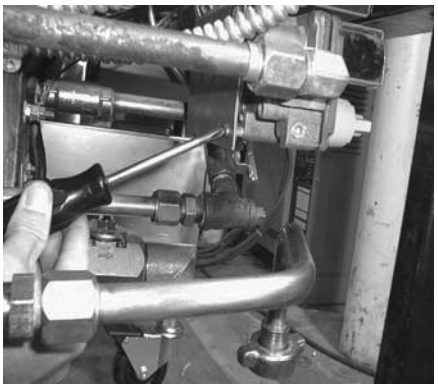
3. Remove the wires from the control valve.

2-9. GAS CONTROL VALVE (Continued)

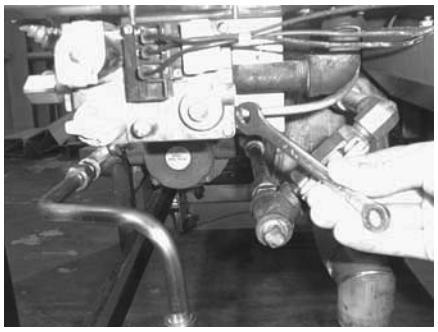
4. Remove left side panel.

5. Remove control panel.

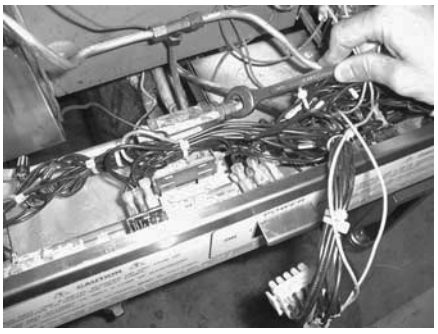
6. Unscrew nut from inlet line from the control valve.



7. Remove the bracket from behind the gas control valve.



8. Remove pilot light tube from gas control valve.



9. Loosen fittings from tee and pull control valve assembly from the unit.

10. Remove the fittings from the defective control valve, and place fittings on new valve.

12. Reassemble in reverse order.

2-10. BLOWER ASSEMBLY

The blower motor circulates air into the burner area to create the correct heat for the fryer. If the blower fails, a sensor will shut the gas control valve down.

1. Remove the electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove back shroud and right side panel.

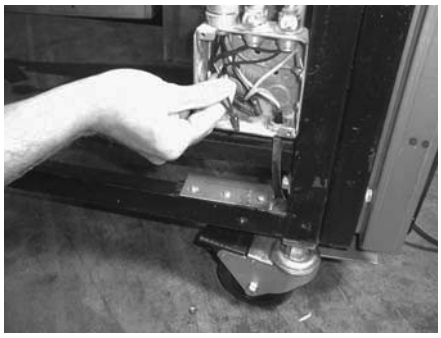
3. Remove the tube from the blower.

The blower tube will slide out of the bracket, instead of bolted, on the newer fryers. See photo below.

4. Remove the bracket from the frame.

2-10. BLOWER ASSEMBLY (Continued)

5. Remove the flue.



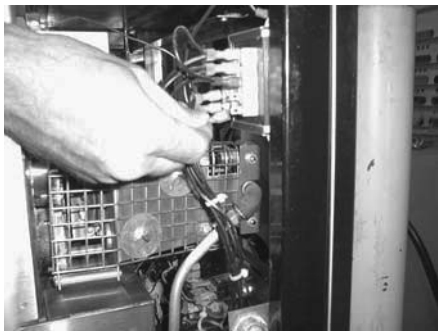
6. Disconnect wires at junction box.

7. Remove the blower from the plate.

8. Replace new blower in reverse order of procedures.

2-11. TRANSFORMER

The transformer reduces the voltage down to accommodate those components with low voltage.



1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove the control panel.

3. Remove the two (2) screws securing the transformer to the unit and remove transformer.

4. Remove the wires from transformer.

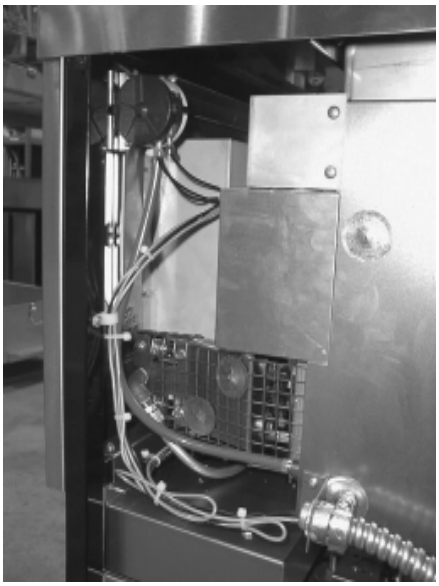
Mark wires before removal to insure new transformer is wired correctly.

5. Replace with new transformer in reverse order.

2-12. AIRFLOW SWITCH

The airflow switch senses the flow of air coming from the blower. If the airflow is reduced below a set amount, the switch will cut power to the control valve, which shuts the burners down.

Replacement



1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove control panel.

3. Remove screws securing air switch to the frame, and remove switch.

3. Pull hose from switch from under fryer.

4. Disconnect wires from switch.

Mark wires before removal to insure new airflow switch is wired correctly.

5. Install new airflow switch in reverse order.

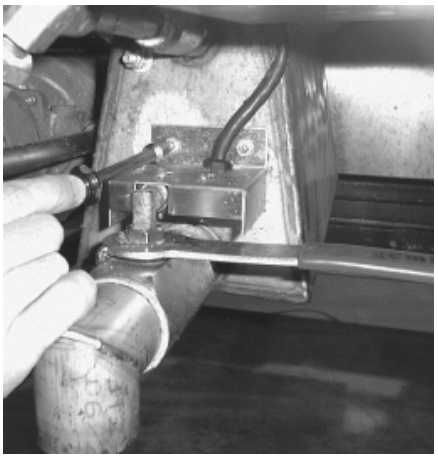
To avoid property damage, do not tamper with, or disassemble this component. It is set and sealed from the factory and is not to be adjusted.

2-13. DRAIN MICROSWITCH

Upon pulling out on the drain handle, the microswitch should be activated and the unit will not heat, but when the handle is pushed back, the unit should operate properly. The bracket on the microswitch is slotted so it can be adjusted backward or forward.

1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

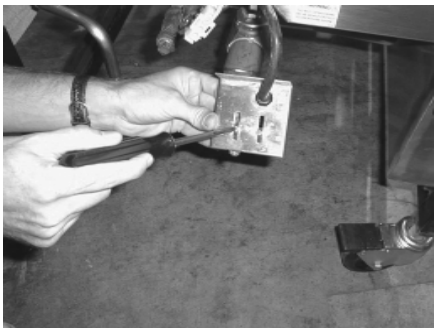


2. The following check should be made to determine if the drain switch is defective.

   a. Remove bracket from the unit.

   b. Remove wires from the switch.

   c. Check for continuity across the two outside terminals on the drain switch. If circuit is open, the drain switch is bad. The circuit should only be opened by pressing on the actuator of the drain switch.



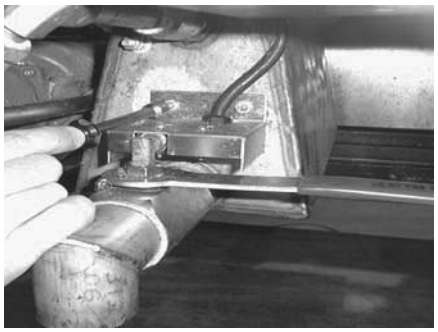
3. To replace switch, remove switch from the bracket, and install switch in reverse order.

4. Test to see if drain valve handle actuates the switch. The gap between the drain switch and the shaft should be no more than 1/8" (3 mm).
   NOTE: Listen for click of switch while pulling drain valve handle.

2-14. DRAIN VALVE AND EXTENSION

The drain valve opens when the drain valve handle is pulled out and drains the shortening out of the pot.

Replacement



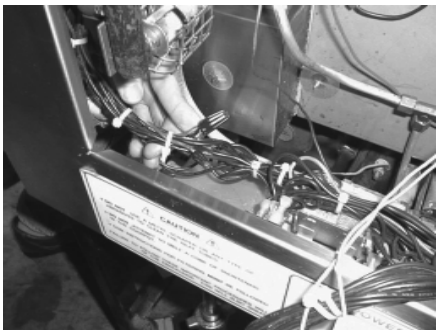
1. Using a 3/8" socket, remove the nuts securing the drain switch bracket, and pull the bracket from the studs.
2. Remove the nut securing the drain handle and pull the handle from the drain valve.
3. Using a large adjustable wrench, unscrew the drain valve and extension from the unit.
4. Replace the drain valve and extension.
5. Replace the drain switch bracket.

6. Adjust the microswitch to be no more than 1/8" (3 mm) from the shaft of the drain valve.

   NOTE: Listen for click of switch while pulling drain valve handle.

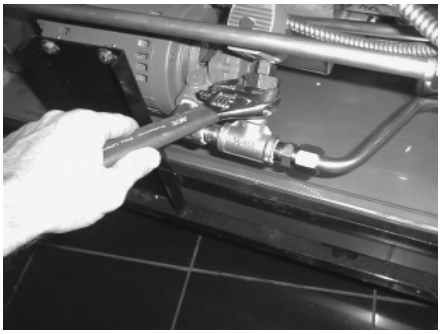
2-15. AIR VALVE

The air valve allows circulation of the shortening in the frypot to keep the shortening at a uniform temperature.



1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

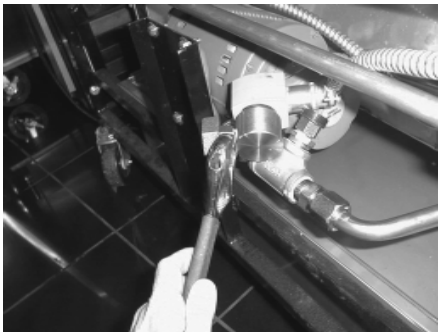


2. Remove the left side panel.

3. Remove the wires from the wire nuts.

4. Disconnect union at the valve.

5. Loosen the nut on the conduit connector and pull coil from conduit.

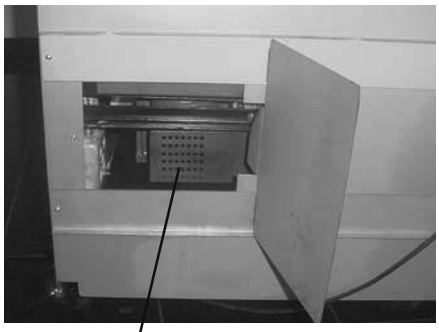


6. Remove close nipple and female part of union from valve body.

7. Replace with new valve in reverse order.

2-16. CLEANING THE DILUTION BOX

Clean the dilution box monthly to ensure the unit operates efficiently and without failures.



Dilution Box

1. Make sure unit is off, and close and lock the lid.

Lid should be in locked down position. Failure to do so could result in personal injury.

2. Unscrew the wingnut on the lower left back access panel of the fryer and remove the access panel. Clean the dilution box with a cloth or brush. Make sure the holes in the box are free of debris. Replace the back access panel when finished.

Depending on the breading location and conditions within the kitchen area, the dilution box may need cleaned more often.

2-17. CLEANING THE BLOWER WHEEL

The blower wheel must be cleaned annually to ensure the unit operates efficiently and without failures.

1. Make sure unit is off, and raise the lid.

Lid should be in locked down position. Failure to do so could result in personal injury.

2. Remove the back shroud of the unit.

3. Remove the hose from the blower housing.

The blower tube will slide out of the bracket, instead of bolted, on the newer fryers. See photo at left.

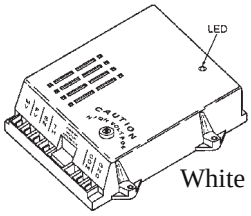
Depending on the breading location and conditions within the kitchen area, cleaning the blower wheel, may need to be done more frequently.

4. Clean the fins of the blower wheel, using a brush, or straight blade screwdriver. Make sure the fins are clean of any debris.

2-18. IGNITION MODULES

The ignition modules send 24 volts to the ignitors and gas valve.

LED Indication



White Rogers


Robertshaw

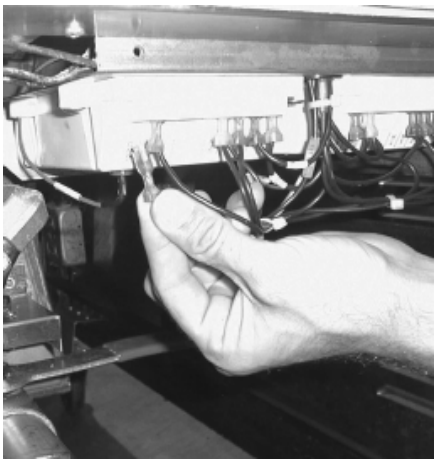
LED

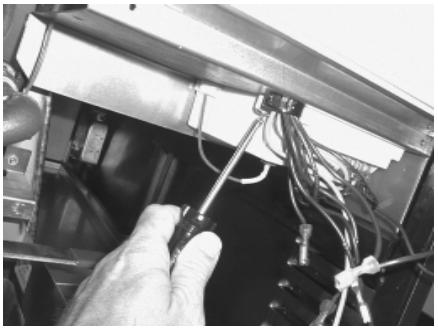
Two different modules are in the field. The White Rogers modules have a red LED, and the Robershaw modules have a green LED. These LEDs help to identify a failure.

For the White Rogers' module, when the control calls for heat, the LED will flash, then go out, indicating the control is functional. If the LED continues to flash, the module did not sense a pilot flame. If the LED stays on continuously, an internal fault has been detected, and the module should be replaced.

For the Robertshaw, when the control calls for heat, the LED will be on continuously, indicating the control is functional. If the LED flashes, the module did not sense a pilot flame. If the LED goes out while the control is calling for heat, an internal fault had been detected, and the module should be replaced.

Replacement





1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove the control panel as discussed in Complete Control Panel Section.

3. Remove the condensation drain pan.

4. Using a Phillips head screwdriver, remove the screws securing the module cover and remove the cover.

5. Label and remove the wires from the module.

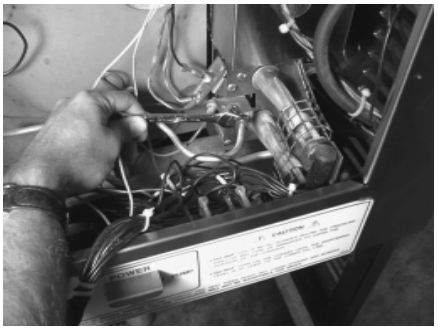
6. Using a 3/8" socket and Phillips head screwdriver, remove the nuts and screws securing the module and remove it from the unit.

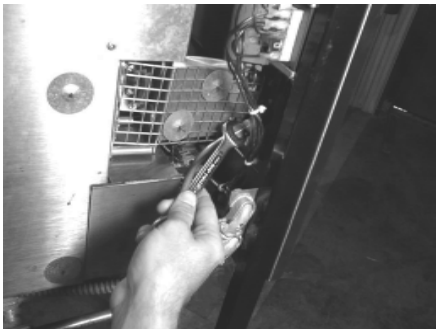
7. Replace with module in reverse order.

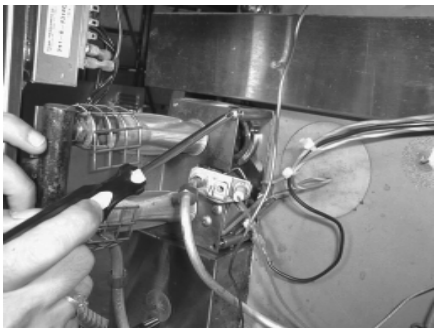
2-19. IGNITOR ASSEMBLY

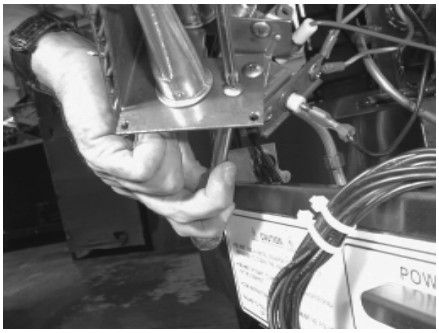
The 390 has electronic spark ignition, that lights a standing pilot.

Replacement









1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

TO AVOID INJURY, PROPERTY DAMAGE, OR EXPLOSION, BEFORE REPLACING GAS CONTROL VALVE DO THE FOLLOWING:

- **MOVE THE POWER SWITCH TO THE OFF POSITION.**
- **DISCONNECT THE MAIN CIRCUIT BREAKER AT THE WALL, OR UNPLUG THE POWER CORD.**
- **TURN OFF THE MAIN GAS SUPPLY TO THE FRYER AND DISCONNECT AND CAP THE SUPPLY LINE TO FRYER, OR POSSIBLE.**

2. Remove the control panel as discussed in Complete Control Panel Section.

3. Disconnect the 1/4” gas line fitting from the pilot assembly.

4. Follow the wire from the spark ignitor to the module, and remove the wire from the module.

5. Remove the left, or right side panel, depending upon which ignitor assembly to be removed.

6. Disconnect gas line (for the left ignitor assembly).

7. Remove the 4 screws securing the burner assembly, and pull the assembly from the unit.

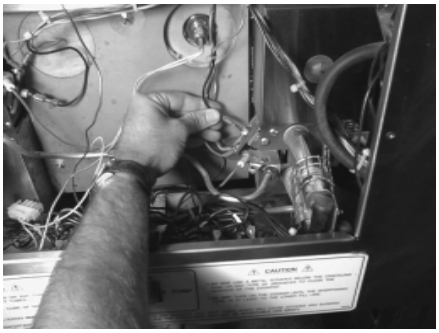
8. Using a Phillips head screwdriver, remove the screw securing the ignitor assembly to the burner assembly, and pull the ignitor assembly from the unit.

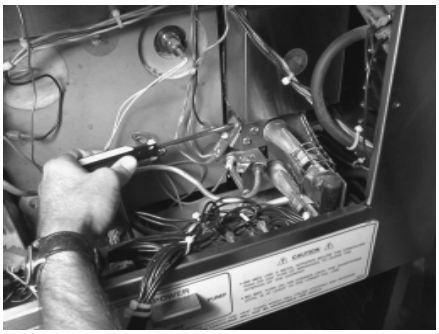
9. Secure the new assembly with the screw previously removed, making sure the assembly is turned to provide a 1/8” gap between the spark ignitor and the hood of the pilot assembly.

2-20. FLAME SENSOR ASSEMBLY

The flame sensor should glow a bright red when the pilot is lit and allows the gas valve to open. If it does not sense a flame, it shuts down the gas valve.

Replacement





1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

2. Remove the control panel as discussed in the Complete Control Panel Section.

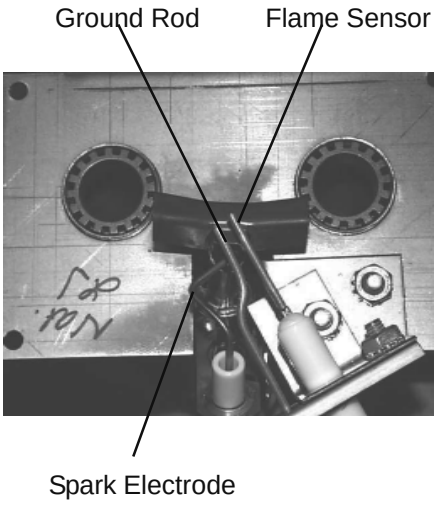
3. Pull the wire off of the terminal of the flame sensor.

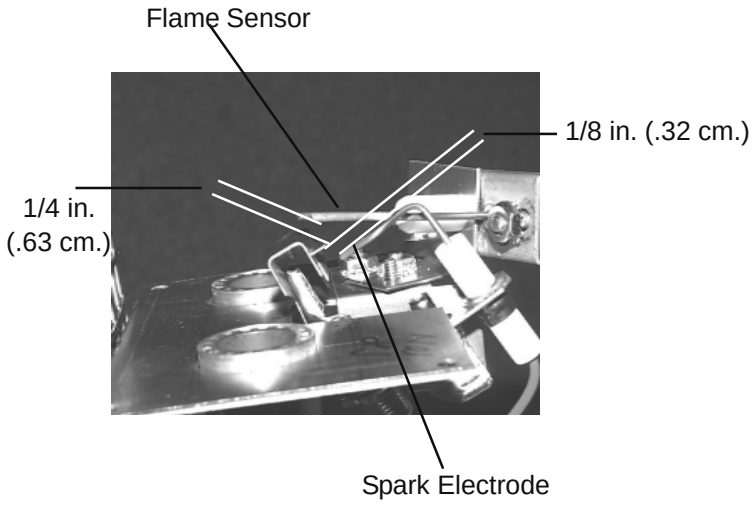
4. Using Phillips head screwdriver, remove the screw securing the flame sensor assembly, and remove the assembly from the unit.

5. Replace with new assembly in reverse order. Make sure the flame sensor has 1/4" gap between it and the pilot hood.

2-21. IGNITOR AND FLAME SENSOR ADJUSTMENT

For the proper function of the ignitor and flame sensor it is critical that they are at the adjusted properly. The flame rectification, from the flame sensor to the module, should at least be 1.3 microamps. See photos.





NOTICE

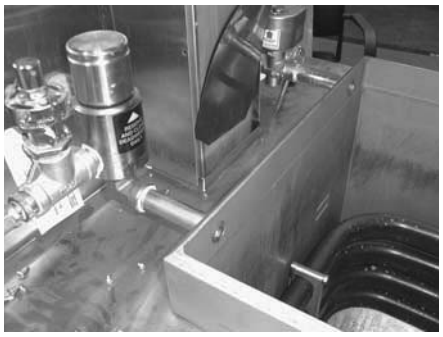
If the burner assembly is removed from the cooker to install and adjust the parts, once the assembly is re-installed, check the spacing of the components again.

2-22. NYLATRON STRIPS REPLACEMENT

1. Remove back and top shrouds

2. Remove the screw and keps nut securing the nylatron to the extension.

3. Remove the screws securing the guides, and slide the guides up and out from the top of the shroud.



4. Pull the broken piece from the unit. The nylatron is separated into two pieces, top and bottom.

5. Reassemble in reverse order.

2-23. LUBRICATING LID ROLLERS

The lid rollers, in the back of the cooker, should be lubricated at least once a year, to allow the lid easy movement.

1. Remove the back shroud of the cooker.

2. Using spindle lube, part number 12124, place a small amount of lube on both top and bottom rollers. Make sure to lube both left and right rollers.

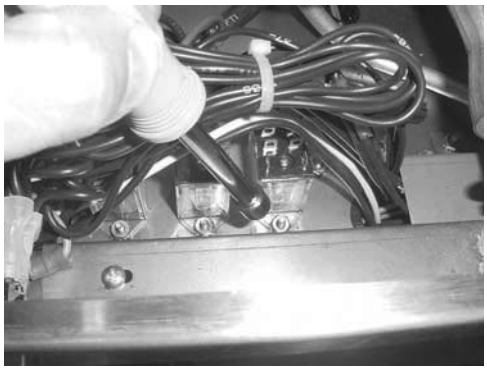
2-24. RELAYS

The relays receive messages from the control board and operate the components in the fryer. See wiring diagrams to help locate the desired relay.

1. Remove electrical power supplied to the unit.

To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

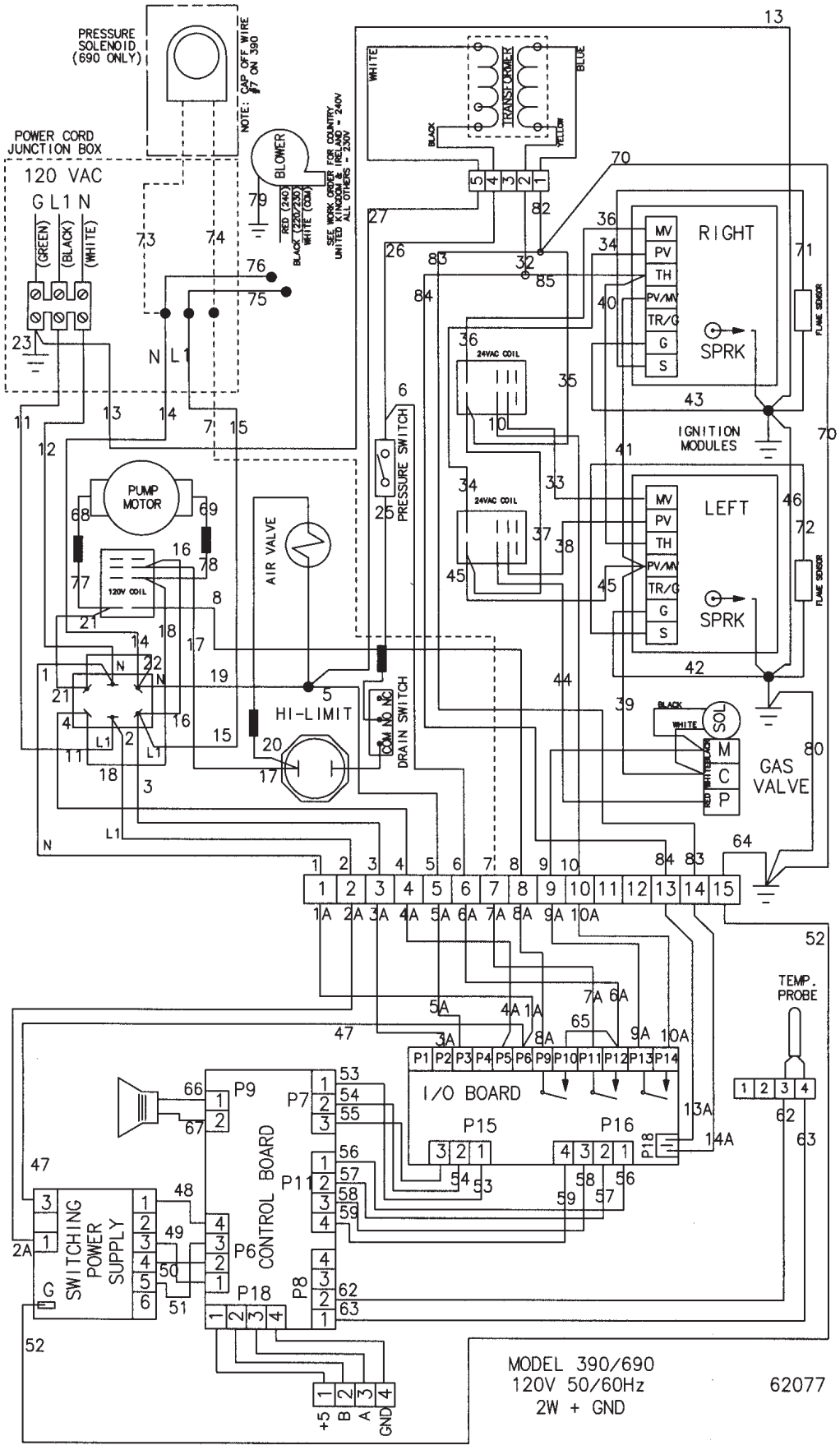
2. Remove the control panel as discussed in the Complete Control Panel Section.

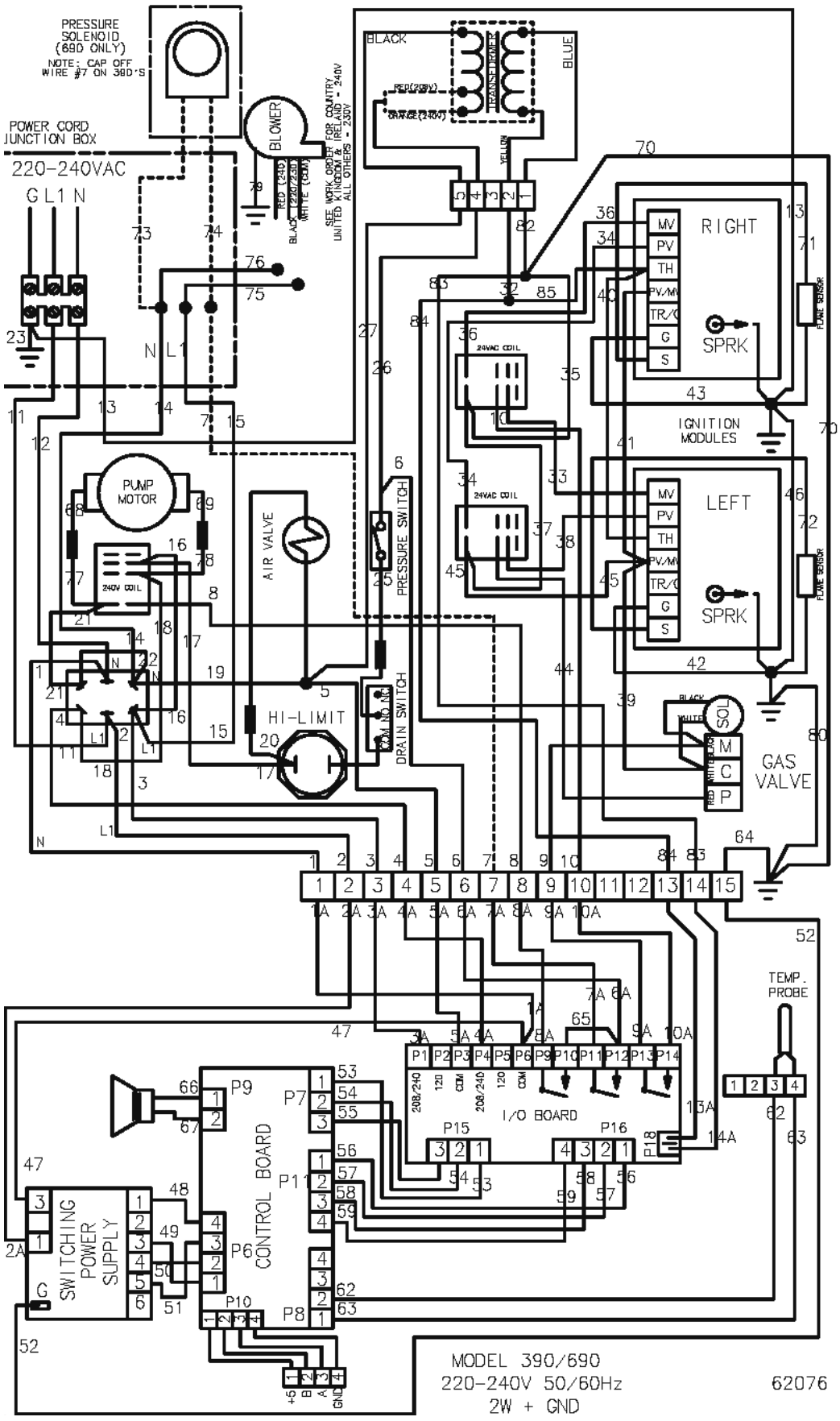


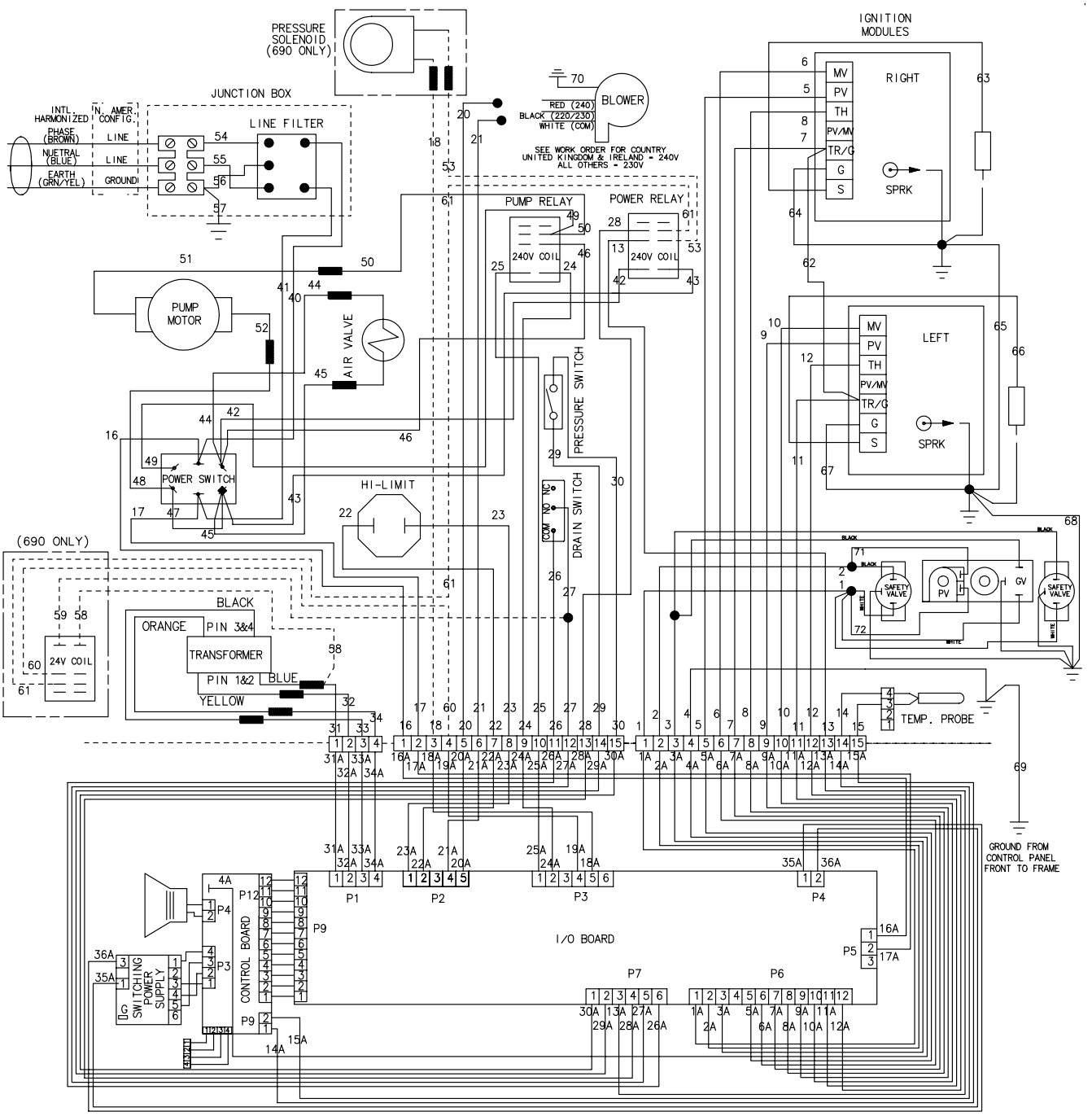
3. Label and then pull the wires off of the relay.

4. Using a 5/16” socket, remove the 2 nuts securing the relay and pull the relay from the unit.

5. Install new relay in reverse order.

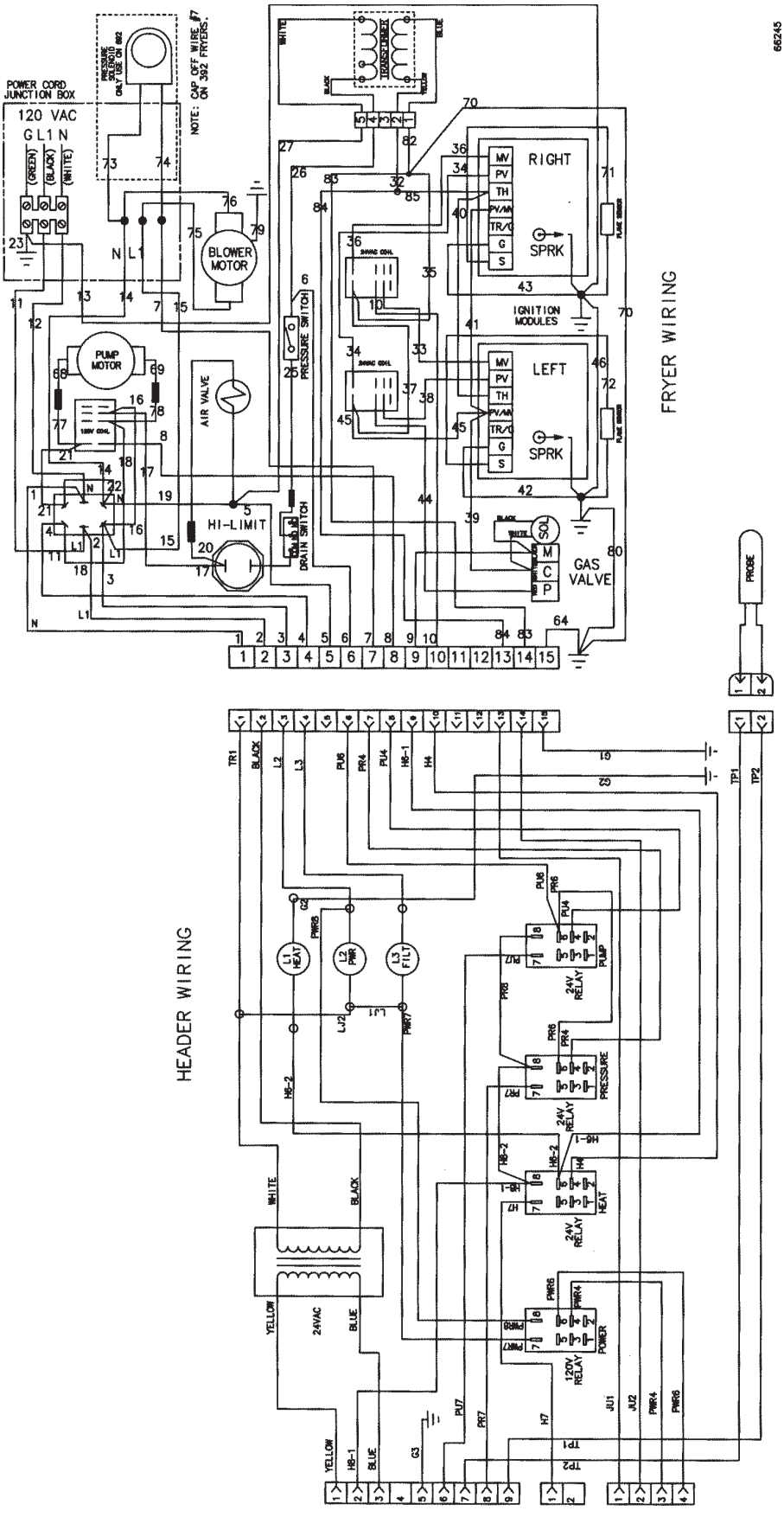

PRESSURE SOLENOID (690 ONLY)
NOTE: CAP OFF WIRE #7 ON 390
POWER CORD JUNCTION BOX
120 VAC
G L1 N
(GREEN)
(BLACK)
(WHITE)
BLOWER
SEE WORK ORDER FOR COUNTRY. UNITED KINGDOM & IRELAND = 240V ALL OTHERS = 230V
RED (240)
BLACK (120/230)
WHITE (COM)
TRANSFORMER
WHITE
BLUE
BLACK
YELLOW
RIGHT
LEFT
MV
PV
TH
PV/MV
TR/G
G
S
SPRK
FLAME SENSOR
24VAC COIL
IGNITION MODULES
PRESSURE SWITCH
PUMP MOTOR
AIR VALVE
120V COIL
HI-LIMIT
DRAIN SWITCH
COM N.O. N.C.
SOL
GAS VALVE
M
C
P
I/O BOARD
P15
P16
P18
TEMP. PROBE
CONTROL BOARD
P9
P7
P11
P6
P8
SWITCHING POWER SUPPLY
+5 B A GND
MODEL 390/690
120V 50/60Hz
2W + GND
62077


PRESSURE SOLENOID (690 ONLY)
NOTE: CAP OFF WIRE #7 ON 380'S
POWER CORD JUNCTION BOX
220-240VAC
G L1 N
BLOWER
SEE WORK ORDER FOR COUNTRY
UNITED KINGDOM & IRELAND - 240V
ALL OTHERS - 230V
BLACK
BLUE
YELLOW
TRANSFORMER
RIGHT
LEFT
MV
PV
TH
PV/MV
TR/C
G
S
SPRK
FLAME SENSOR
24VAC COIL
IGNITION MODULES
PUMP MOTOR
240V COIL
AIR VALVE
PRESSURE SWITCH
HI-LIMIT
DRAIN SWITCH
COM NO NC
SOL
M
C
P
GAS VALVE
TEMP. PROBE
I/O BOARD
CONTROL BOARD
SWITCHING POWER SUPPLY
MODEL 390/690
220-240V 50/60Hz
2W + GND
62076

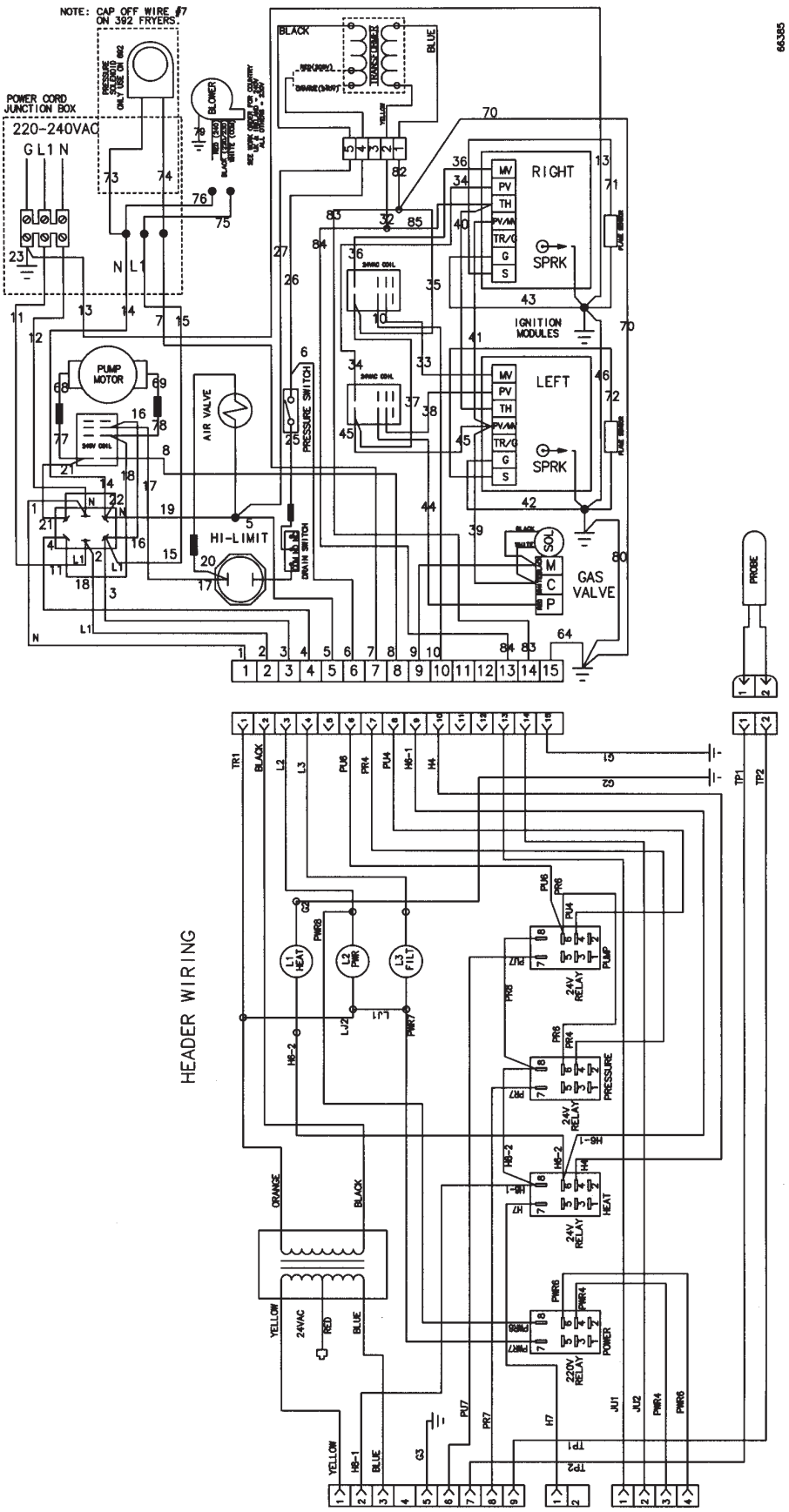


MODEL 390/690
230V 50/60 Hz
2+G

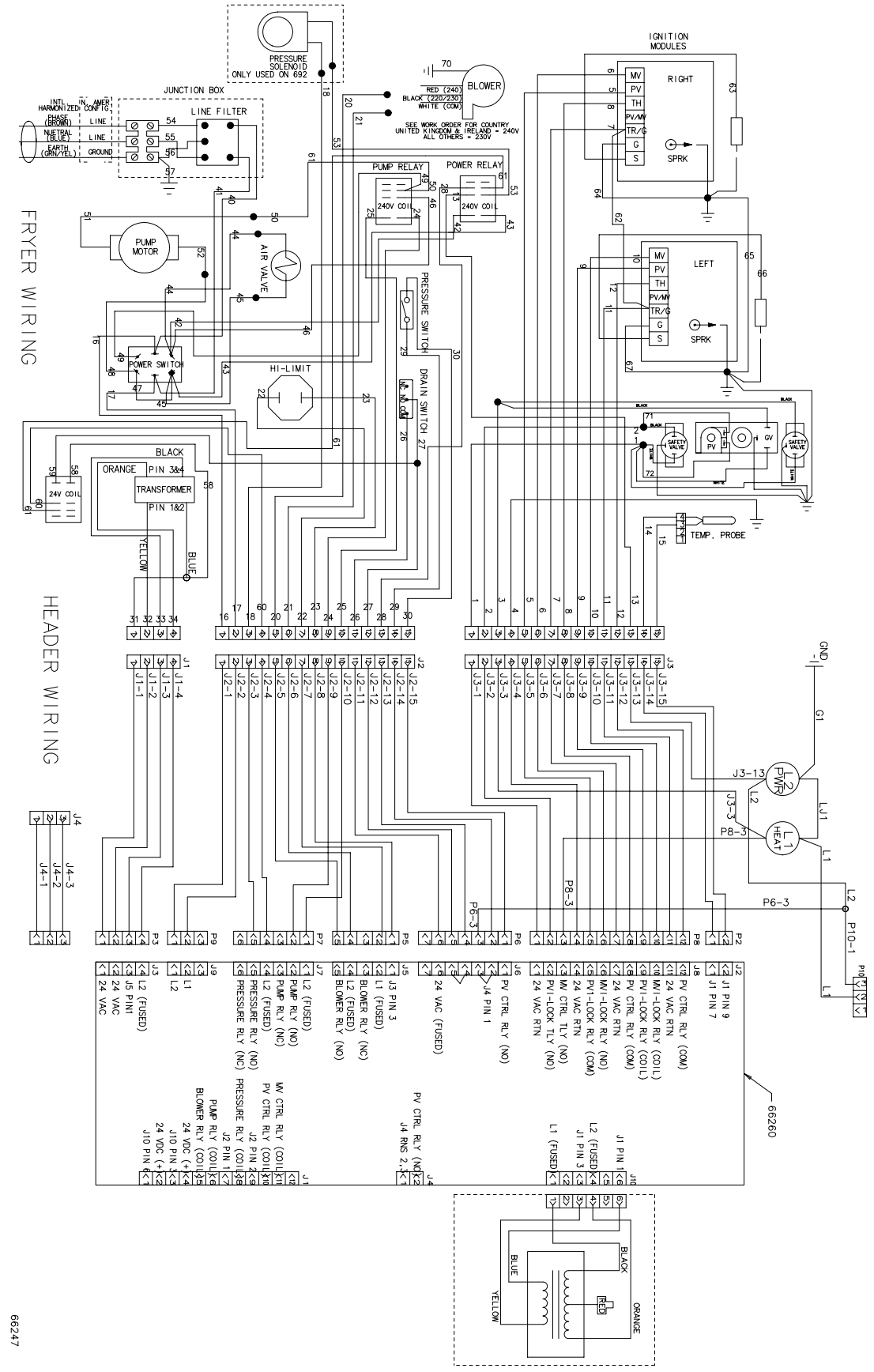
54914



FAST READY 120V



FAST READY 220-240V



FAST READY 230V-50 Hz

SECTION 3. PARTS INFORMATION

3-1. INTRODUCTION

This section lists the replaceable parts of the Henny Penny Model OFG-390.

3-2. GENUINE PARTS

Use only genuine Henny Penny parts in your fryer. Using a part of lesser quality or substitute design may result in damage to the unit or personal injury.

3-3. WHEN ORDERING PARTS

Once the parts that you want to order have been found in the parts list, write down the following information:

Item Number 2
Part Number 16738 Example:
Description High Limit

From the data plate, list the following information:

Product Number 01100
Serial Number 0001 Example:
Voltage 120

3-4. PRICES

Your distributor has a price parts list and will be glad to inform you of the cost of your parts order.

3-5. DELIVERY

Commonly replaced items are stocked by your distributor and will be sent out when your order is received. Other parts will be ordered, by your distributor, from Henny Penny Corporation. Normally, these will be sent to your distributor within three working days.

3-6. WARRANTY

All replacement parts (except lamps and fuses) are warranted for 90 days against manufacturing defects and workmanship. If damage occurs during shipping, notify the carrier at once so that a claim may be properly filed. Refer to warranty in the front of this manual for other rights and limitations.

3-7. RECOMMENDED SPARE PARTS FOR DISTRIBUTORS

Recommended replacement parts, stocked by your distributor, are indicated with √ in the parts lists. Please use care when ordering recommended parts, because all voltages and variations are marked. Distributors should order parts based upon common voltages and equipment sold in their territory.

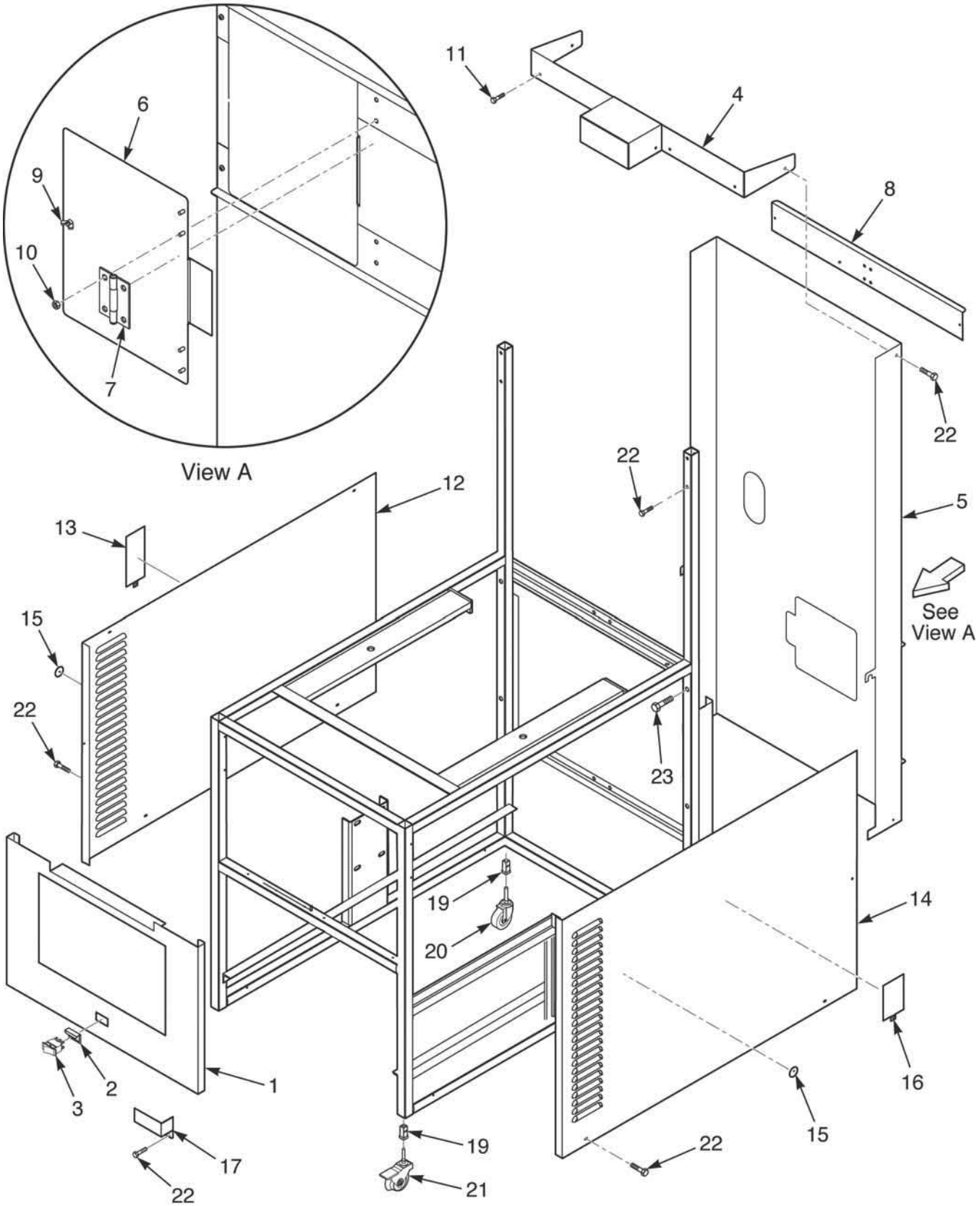


Figure 3-1. Frame and Cover Assembly

Figure & Item No.	Part No.	Description	Qty.
3-1		FRAME & COVER ASSEMBLY	
1	39796	WELDMENT – CONTROL PANEL FRONT	1
2	53669	GUARD – POWER SWITCH	1
√ 3	29898	SWITCH – POWER	1
4	55608	TOP COVER – REAR SHROUD	1
5	58261	REAR SHROUD – ACCESS ASSEMBLY	1
6	58258	. ACCESS COVER – STUD ASSEMBLY	1
7	58256	. HINGE – 2" LEAF HT	2
8	62056	. BRACE – REAR SHROUD	2
9	NS03-033	. NUT, WING – SS 10-24	1
10	NS03-002	. NUT, ACORN #10-24	8
11	SC03-005	. SCREW SD #8 X 1/2 PH PHD	4
12	66940	SIDE PANEL – LEFT	1
13	36337	DOOR – ACCESS	1
14	66941	SIDE PANEL – RIGHT	1
15	PL01-035	COVER – PILOT VIEW	2
16	36337	COVER – ACCESS COVER	1
17	51741	COVER, GAS VALVE WIRE	1
19	54225	1" INSERT – LEG MACHINED	4
20	53673	CASTER, SWIVEL 4"	2
21	37246	CASTER W/BRAKE & SWIVEL LOCK	2
22	SC03-005	SCREW	8
23	SC01-215	SCREW	4
24*	51801	RUNNER - DRAIN PAN - SN BELOW HH001JJ ...	2

√ recommended parts
* not shown

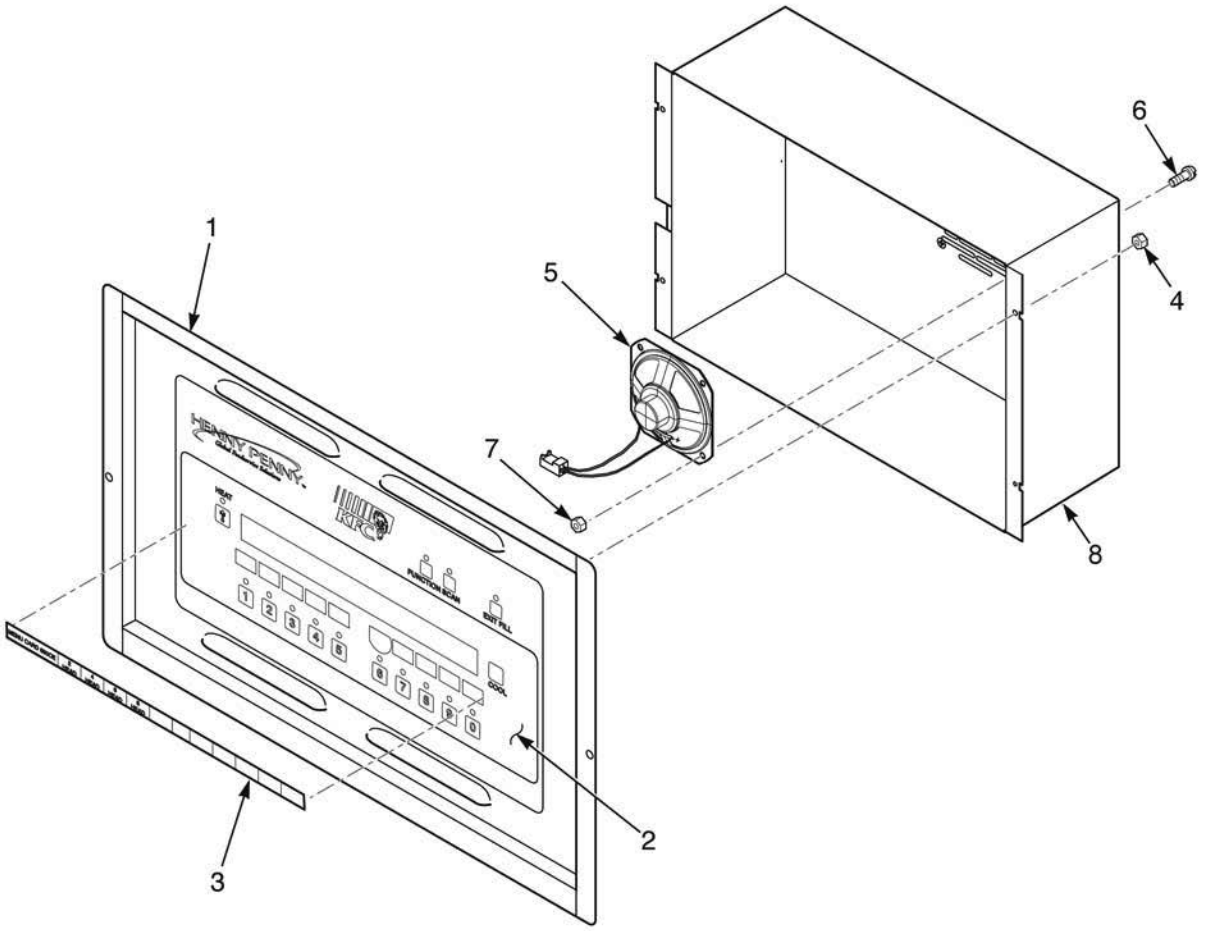


Figure & Item No.	Part No.	Description	Qty.
3-2		CONTROL PANEL	
√ 1	55765RB	CONTROL ASSY - SMS – KFC 390	1
√ 1	72164RB	CONTROL ASSY - SMS -120V-KFC 390-W/O SETPTS-INT'L.....	1
√ 1	55772RB	CONTROL ASSY - SMS - 220-240V	1
√ 1	72162RB	CONTROL ASSY - SMS - 208-240V-KFC 390-W/O SETPTS-INT'L. .	1
√ 1	55782RB	CONTROL ASSY - SMS – CE	1
2	50624	. CONTROL DECAL – 8 HEAD KFC	1
2	55574	. CONTROL DECAL – CE	1
3	61748	. . MENU CARD – 390	1
3	24259	. . MENU CARD – SPANISH - 390	1
4	NS02-005	. NUT	4
√ 5	51877	. WIRE/SPEAKER ASSY	1
6	SC01-049	. SCREW	4
7	NS02-005	. NUT	4
8	72500	. SHIELD - CONTROL PANEL	1

√ recommended parts

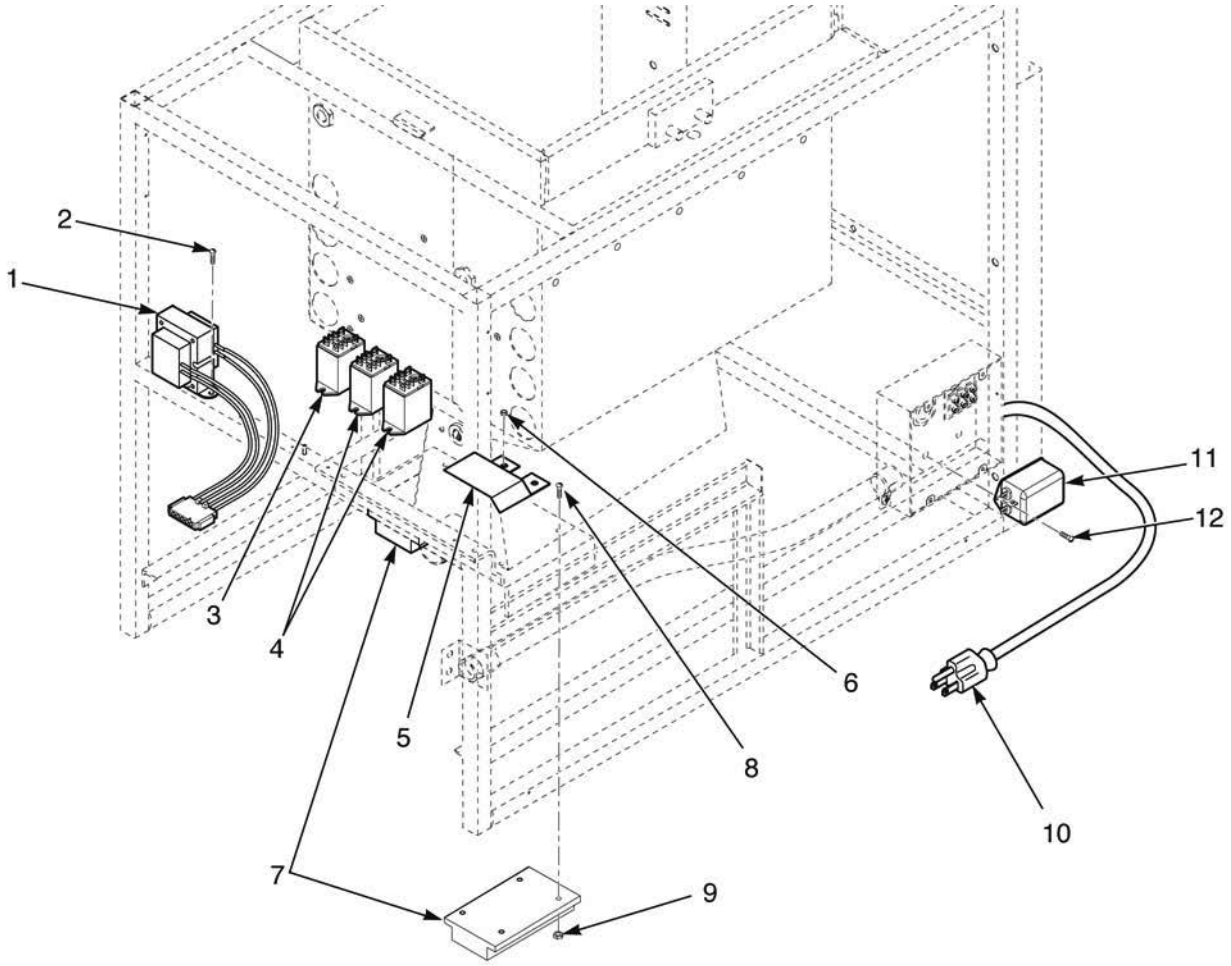


Figure & Item No.	Part No.	Description	Qty.
3-3		ELECTRICAL CONTROLS	
√ 1	60207	TRANSFORMER ASSY – 120V	1
√ 1	60536	TRANSFORMER ASSY – 24V/230V	1
2	SC03-005	SCREW	2
√ 3	140012	KIT - RELAY - 120V - SN: BT0903002 & Below	1
√ 3	81914	RELAY - 120V - SN: BT0903003 & Above	1
√ 3	56394	POWER RELAY - 240V	1
√ 4	60818	RELAY - 24V - 10A	2
5	62053	SHIELD – WIRE – RH BURNER NON CE	1
6	NS02-005	NUT	2
√ 7	14254	IGNITION MODULE KIT – S/N JH018IH & BELOW	2
√ 7	21347	IGNITION MODULE – S/N JH019IH &ABOVE	2
√ 7	14236	IGNITION MODULE – CE – S/N JH018IH & BELOW	2
√ 7	54924	IGNITION MODULE – CE – S/N JH019IH & ABOVE	2
8	SC01-214	SCREW #10-32 X 1 PH THD SS	4
9	NS02-001	NUT HEX KEPS #10-32 C	4
10	53656	POWER CORD – 120V	1
√ 11	54988	FILTER – 220V – 50/60HZ GA CE	1
12	SC01-006	SCREW #10-32 X 3/8 PH THD C	2

√ recommended parts

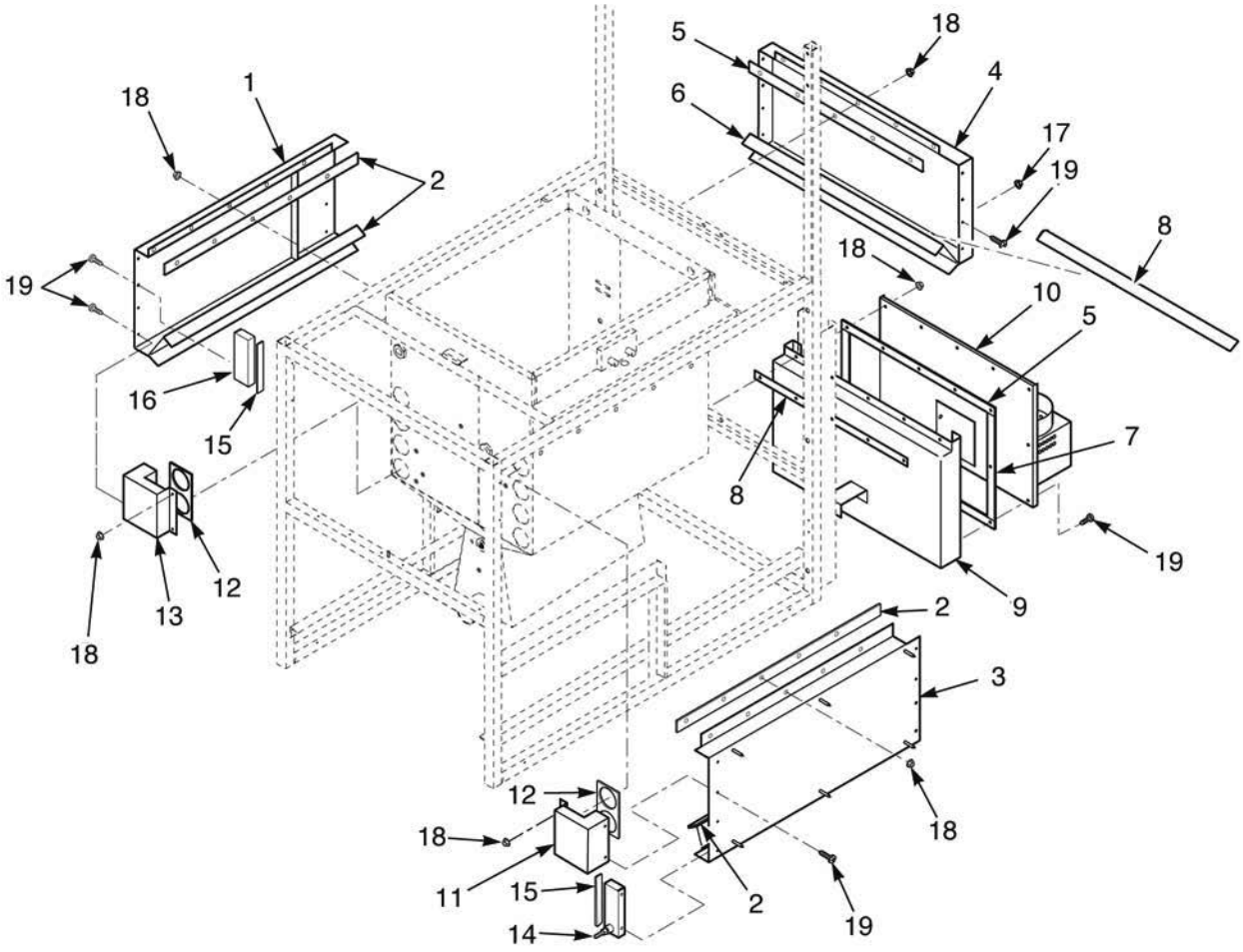


Figure & Item No.	Part No.	Description	Qty.
3-4		FRYPOT COVERS AND INSULATION	
1	52799	ASSY-INSUL/LFT. C/CHAMBER	1
2	52041	INSULATION-C/CHAMBER MOUNTIN	4
3	52798	ASSY-INSUL/RT. C/CHAMBER	1
4	52800	ASSY-INSUL/REAR C/CHAMBER	1
5	52038	INSULATION-LOWER CHAMBER DUC	3
6	52040	INSULATION-REAR C/CHAMBER	1
7	51897	INSULATION-LOWER CHAMBER COV	2
8	52039	INSULATION-C/CHAMBER COLLAR	2
9	52120	ASSY-LOWER C/CHAMBER DUCT	1
10	52801	ASSY-INSUL/CHAMBER COVER	1
11	52795	ASSY INSUL/TUBE-CHAMBER RT.	1
12	52792	INSULATION-TUBE TO C/CHAMBER	2
13	52794	ASSY-INSUL/TUBE-CHAMBER LFT.	1
14	52797	ASSY-INSUL/LOWER CHAMBER CAP	1
15	52793	INSULATION - C/CHAMBER CAP	2
16	52796	ASSY-INSUL/UPPER CHAMBER CAP	1
17	NS02-005	NUT HEX KEPS #6-32C	5
18	NS02-006	NUT HEX KEPS #10-24C	34
19	SC02-014	SCREW #8 AB X 3/8 PH #400SS	27

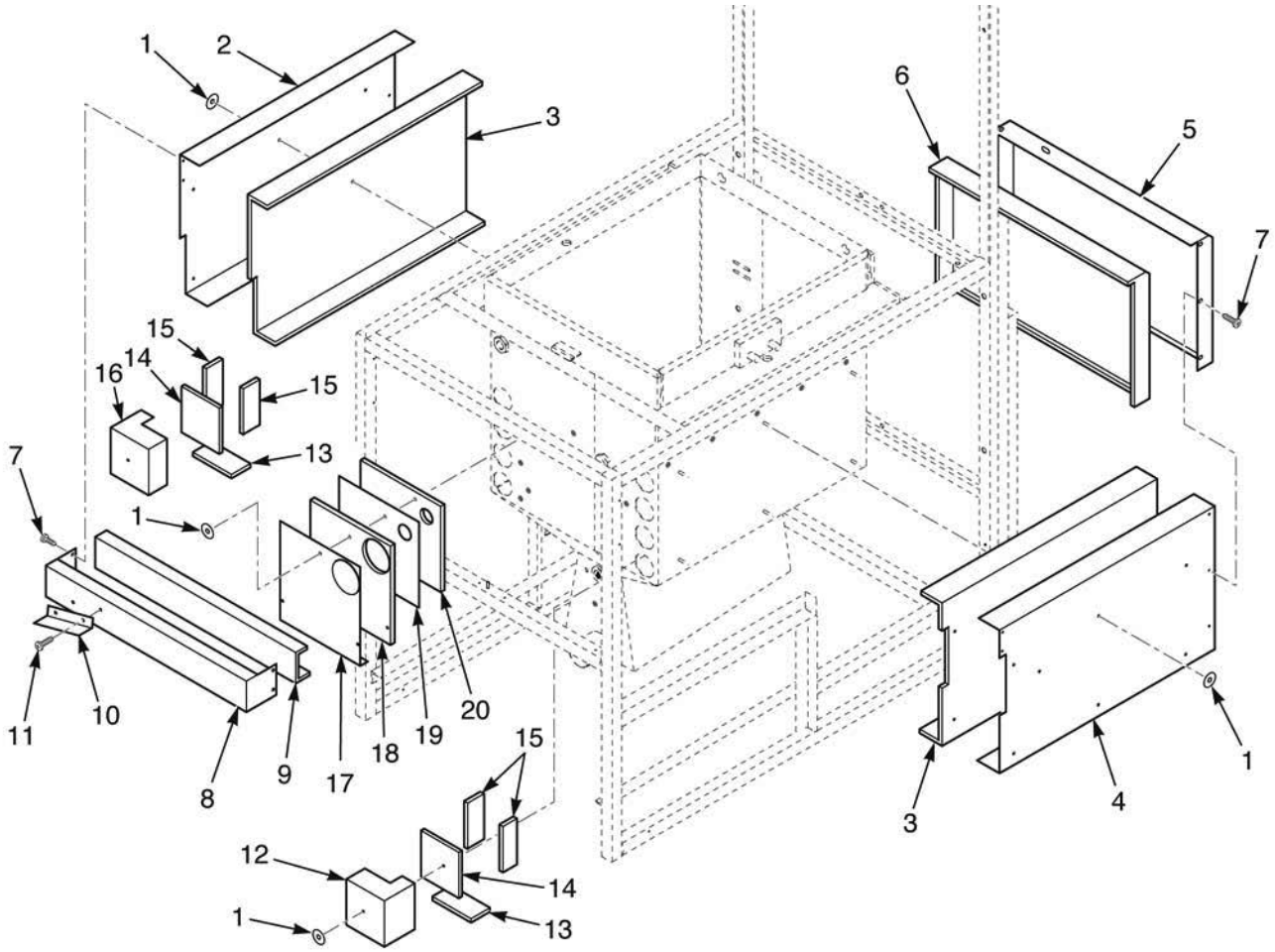


Figure & Item No.	Part No.	Description	Qty.
3-5		INSULATION COVERS	
1	WA02-001	WASHER – INSULATION 1-1/2" DIA.	17
2	51763	INSULATION COVER – LEFT	1
3	51892	INSULATION – C/CHAMBER SIDE	2
4	51765	INSULATION COVER – RIGHT	1
5	51759	INSULATION COVER – REAR	1
6	51893	INSULATION – REAR C/CHAMBER	1
7	SC02-014	SCREW #8-AB X 3/8 PH #400SS	10
8	51739	TOP FRONT INSULATION PANEL	1
9	51894	INSULATION – TOP FRONT PANEL	1
10	62060	SHIELD – HIGH LIMIT	1
11	SC03-005	SCREW SD #8 X 1/2 PH PHD	2
12	51753	INSULATION COVER – TUBE TRAN RH	1
13	53661	INSUL. – TUBE/CHAMBER-SIDE	4
14	53662	INSUL – TUBE/CHAMBER-BOTTOM	2
15	53660	INSUL. – TUBE/CHAMBER-BACK	2
16	51755	INSULATION COVER – TUBE TRANS	1
17	51821	CONTROL INSULATION COVER LH	1
18	53659	INSULATION – POT FRONT (FOIL)	1
19	51806	POT FRONT INSULATION COVER	1
20	53658	INSULATION – POT FRONT	1

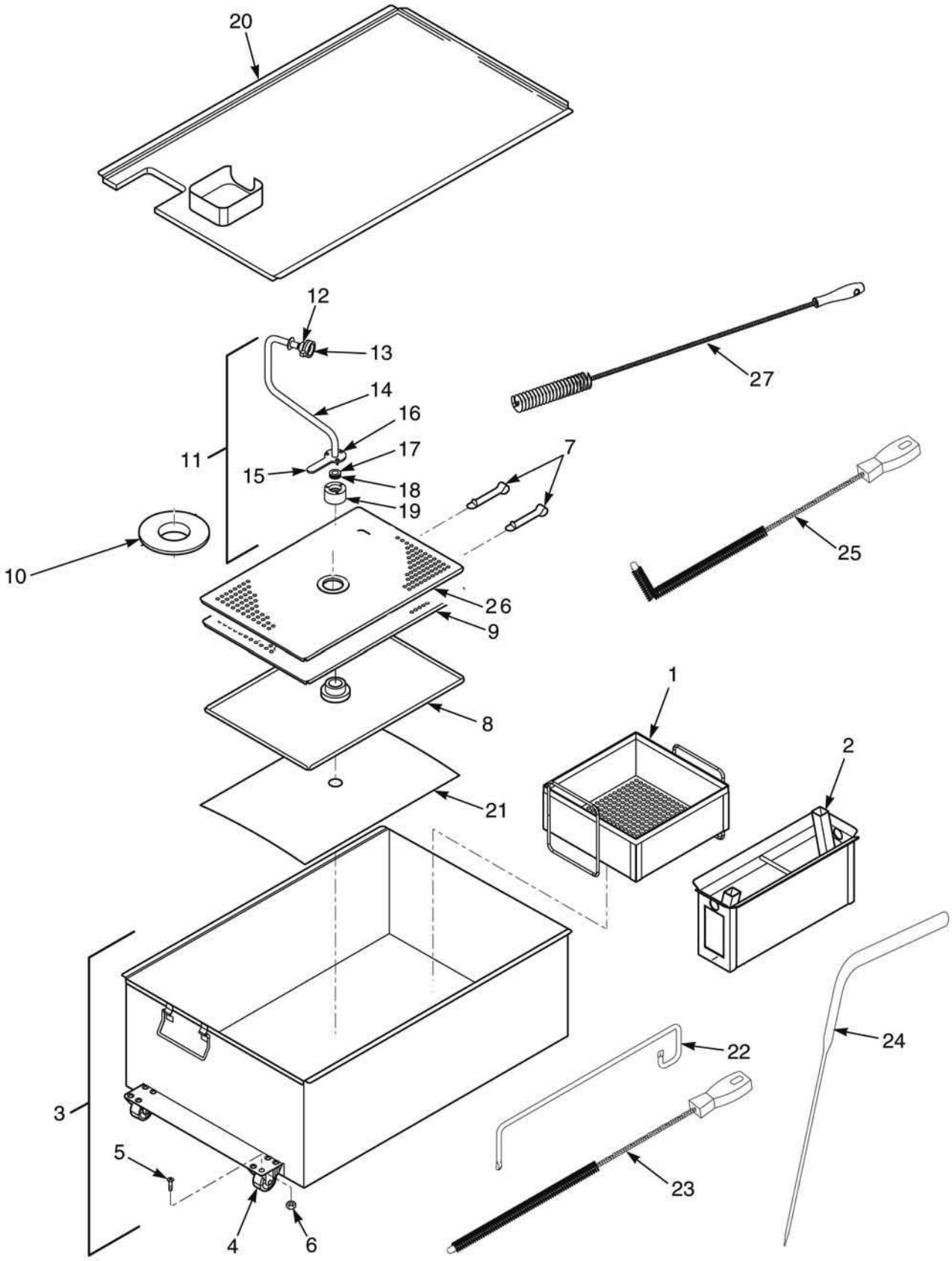


Figure 3-6. Drain Pan and Filter Assembly

Figure & Item No.	Part No.	Description	Qty.
3-6		DRAIN PAN AND FILTER ASSEMBLY	
1	52194	CRUMB CATCHER (OPTIONAL)	1
2	03204	CRUMB CATCHER BASKET W/HANDLE (OPTIONAL)	1
2	21010	. "COLD ZONE" CRUMB CATCHER BASKET ASSEMBLY	1
2	24429	. HANDLE - CRUMB BASKET	1
3	52496	FILTER DRAIN PAN ASSEMBLY	1
4	52487	. CASTER	2
5	SC01-009	. SCREW 1/4-20 X 1/2	8
6	NS02-002	. NUT 1/4-20	8
7	17505	FILTER CLIPS	2
8	17503(use 14671)	BOTTOM FILTER SCREEN (SN: KH031JJ AND BELOW)	1
8	17503(use 14674)	BOTTOM FILTER SCREEN (SN: KH032JJ TO BT0504001)	1
8	65447	BOTTOM FILTER SCREEN (SN: BT0504001 AND ABOVE)	1
9	17502(use 14671)	TOP FILTER SCREEN (SN: KH031JJ AND BELOW)	1
9	17502(use 14674)	TOP FILTER SCREEN (SN: KH032JJ AND ABOVE)	1
10	36305	WASHER & STANDPIPE	1
11	55876	STANDPIPE ASSEMBLY (S/N KH031JJ & BELOW)	1
11	62081	STANDPIPE ASSEMBLY (S/N KH032JJ to AH085JB)	1
11	24212	STANDPIPE ASSEMBLY (S/N AH086JB to BT0504001)	1
11	14658	STANDPIPE ASSEMBLY (S/N BT0504001 & ABOVE)	1
√ 12	USE 69289	. UNION - MALE FITTING	1
√ 13	USE 69289	. UNION - HANDLE FITTING	1
14	24211	. WELDMENT, FILTER TUBE AND WASHER	1
15	23740	. HANDLE, STANDPIPE 8 HEAD	1
16	SC01-245	. SCREW 10-32 X 1/2	3
17	23804	. INSERT, FILTER NUT	1
18	OR01-007	. O-RING, FILTER NUT INSERT	1
19	66535	. FILTER NUT - SS (S/N BT0504001 & ABOVE)	1
19	23803	. FILTER NUT - (S/N AH086JB to BT0504001)	1
19	65208	. FILTER NUT - (S/N KH032JJ to AH085JB)	1
19	55877	. FILTER NUT (S/N KH031JJ & BELOW)	1
20	62082	FILTER DRAIN PAN COVER ASSEMBLY	1
√ 21	12102	FILTER ENVELOPE PAPER (100 PER CARTON)	1
22	65776	ROD - CLEAN OUT	1
√ 23	52208	BRUSH	1
24	35310	STIRRER	1
√ 25	12126	BLACK L-BRUSH	1
26	65211	CRUMB CATCHER - SS	1
27	35771	BRUSH - CLEAN-OUT - 35 IN (89 CM)	1

√ recommended parts

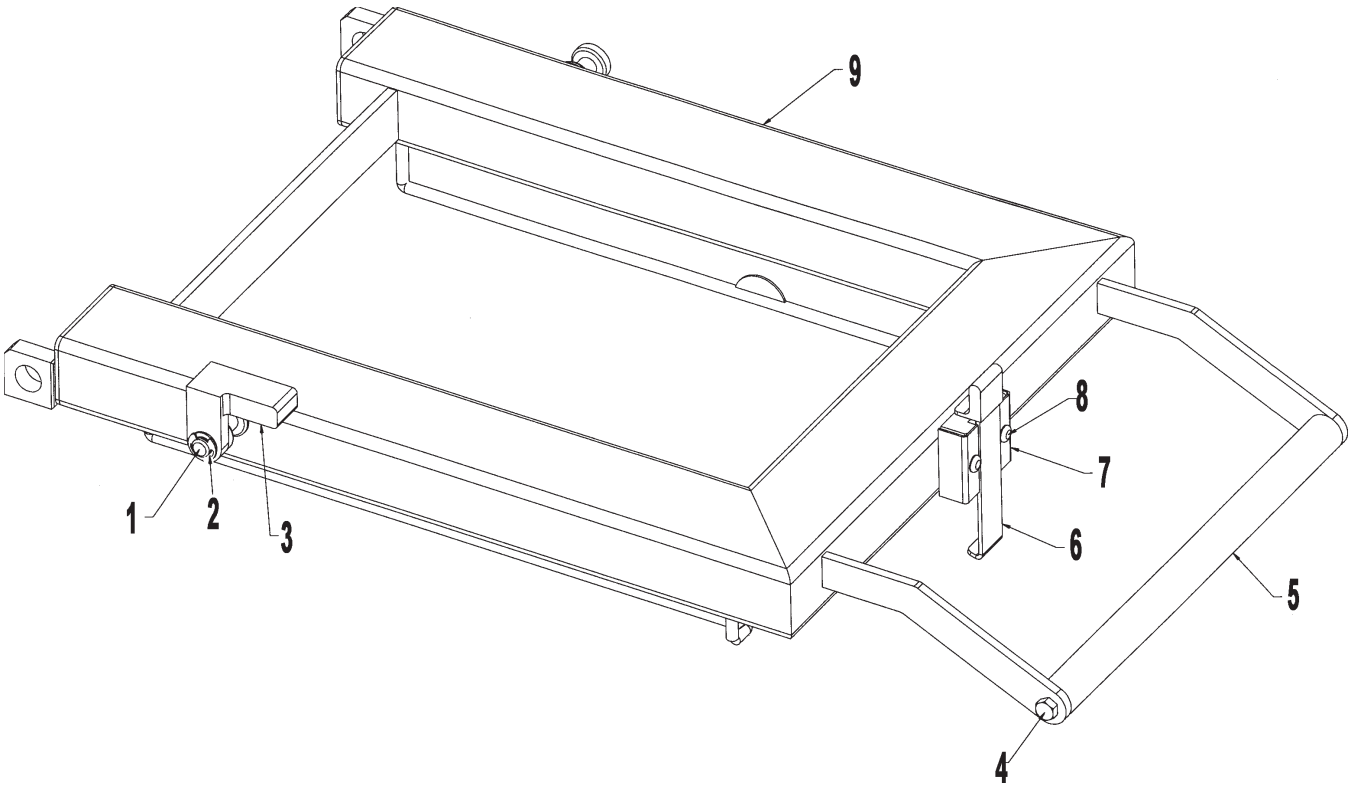


Figure & Item No.	Part No.	Description	Qty.
3-7	65191	Lid Assembly Complete	
1	RR01-004	Ring - Retaining - 1/2 in.	1
2	WA01-020	Washer - .513 ID-.750 OD-.05 THK	1
3	51531	Stop - Lid, Cast	1
4	SC01-041	Screw - 5/16”-18 x 1 HEX HD C	2
5	55754	Handle Weld Assembly	1
6	55756	Assy. - Latch/Sleeve Coat	1
7	59169	Lid Latch Bracket	1
7a	52498	Spring - Lid Latch	1
7b	51707	Lid Latch Bracket	1
8	SC01-248	Screw 10-32 x 1.25 PH THD SS	2
9	65190	Weldment 390 Lid	1

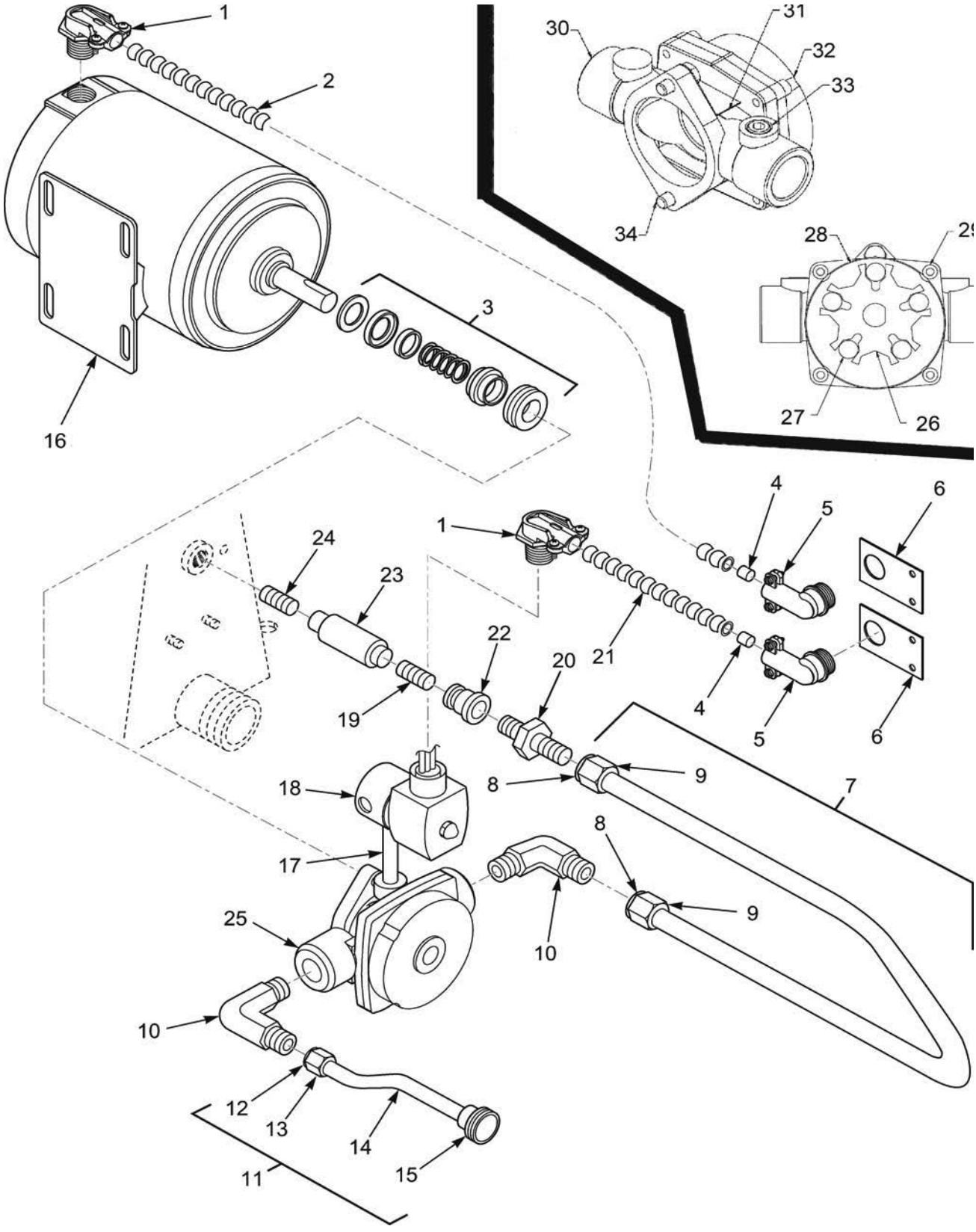


Figure 3-8. Filter Pump Assembly (SN: LH015JC & Below)

Figure & Item No.	Part No.	Description	Qty.
3-8		FILTER PUMP ASSEMBLY (SN: LH015JC & Below)	
1	18107	CONDUIT CONNECTOR 3/8 X 90	2
2	54484	BLOWER/PUMP – FLEXIBLE CONDUIT	1
√ 3	17476	PUMP SEAL KIT	1
4	18105	ANTI SHORT 3/8 INCH	2
5	18644	CONDUIT CONNECTOR 3/8 X 90	2
6	51831	PUMP CONDUIT BRACKET	2
7	55757	ASSY – OIL RETURN LINE	1
8	16808	SLEEVE, FITTING	2
9	16809	NUT, FITTING	2
10	17407	CONNECTOR, 1/2 MALE ELBOW	2
11	62009	TUBE ASSY – DISCON. TO PUMP (S/N KH032JJ to AH086JB)	1
11	55435	TUBE ASSY – DISCON. TO PUMP (S/N KH031JJ & LOWER)	1
11	24225	TUBE ASSY – DISCON. TO PUMP (S/N AH086JB & HIGHER)	1
12	16808	SLEEVE, FITTING	3
13	16809	NUT, FITTING	3
14	55434	TUBING, DISCONNECT TO PUMP (S/N KH031JJ & LOWER)	1
14	62002	TUBING, DISCONNECT TO PUMP (S/N KH032JJ to AH086JB)	1
14	66676	TUBING, DISCONNECT TO PUMP (S/N AH086JB & HIGHER)	1
√ 15	17430(use 69289)	UNION, MALE FITTING	1
√ 16	67583	MOTOR – FILTER PUMP	1
17	62050	NIPPLE 1/4 NPT X 2.0	1
√ 18	52125	AIR-SOLENOID VALVE 120V	1
√ 18	54908	AIR-SOLENOID VALVE 240V	1
19	FP02-024	NIPPLE 3/8 CLOSE	1
20	16807	FITTING, CONNECTOR, MALE	1
21	54486	AIR VALVE – FLEXIBLE CONDUIT	1
22	FP01-122	REDUCER 3/8 TO 1/2	1
23	35472	CHECK VALVE – PRESSURE	1
24	FP02-007	NIPPLE 3/8 X 1-1/2	1
25	17437	PUMP SUBASSY 5 GPM	1
√ 26	17447	ROTOR - PUMP	1
√ 27	17446	ROLLER - TEFLON SET	1
√ 28	17453	PUMP O RING GASKET	1
√ 29	SC01-132	1/4-20 X 5/8 SOC HD CAP SCREW	4
√ 30	17454	BODY - PUMP	1
√ 31	17456	PUMP SHIELD	2
√ 32	17451	COVER - PUMP	1
√ 33	SC01-020	PLUG 1/4 HEX COUNTERSUNK	1
√ 34	SC01-026	SCREW 5/16-18 X 3/4 HEX HD C	2
35*	14675	KIT, 1/2" PUMP AND MOTOR	1

√ recommended parts

*not shown

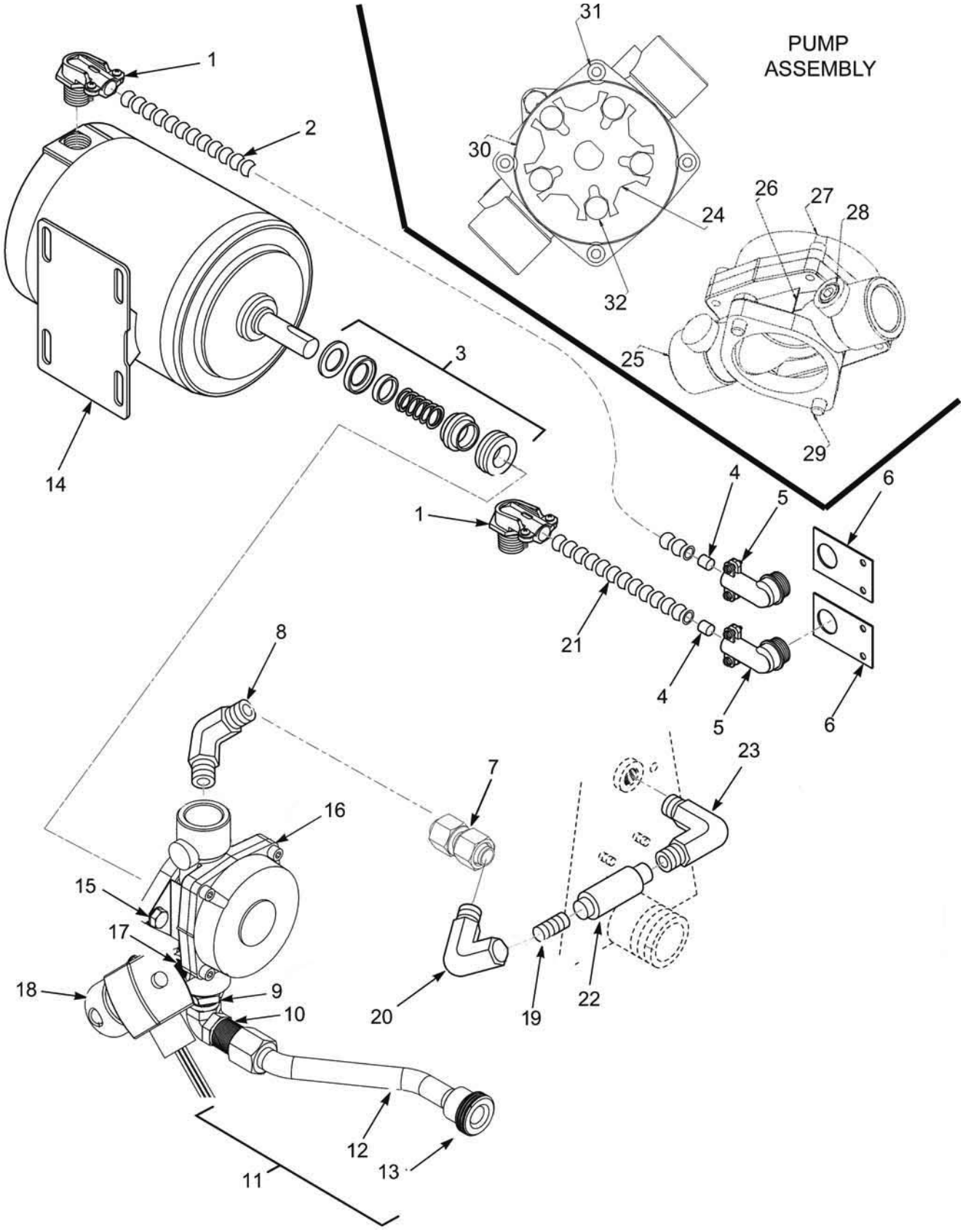


Figure 3-9. Filter Pump Assembly (SN: LH016JC & Above)

Figure & Item No.	Part No.	Description	Qty.
3-9		FILTER PUMP ASSEMBLY (SN: LHJ016JC & above)	
1	18107	CONDUIT CONNECTOR 3/8 X 90	2
2	54484	BLOWER/PUMP – FLEXIBLE CONDUIT	1
√ 3	17476	PUMP SEAL KIT	1
4	18105	ANTI SHORT 3/8 INCH	2
5	18644	CONDUIT CONNECTOR 3/8 X 90	2
6	51831	PUMP CONDUIT BRACKET	2
7	65080	ASSY – PUMP TO CHECK VLV TUBE-390/690	1
8	FP01-169	CON - 90 MALE 3/4 TUBE 3/4 NPT	1
9	FP01-089	BUSHING - REDUCING - 3/4M TO 1/2	1
10	17407	CONNECTOR, 1/2 MALE ELBOW	1
11	66574	ASSY – DISCON. TO PUMP	1
12	65079	. ASSY – DISCON. TO PUMP TUBE	1
√ 13	17430(use69289)	. UNION, MALE FITTING	1
14	67583	MOTOR – FILTER PUMP	1
15	LW02-014	LOCKWASHER - 5/16 INT STAR	1
16	64218	ASSY - FILTER PUMP 8 GPM	1
17	62050	NIPPLE 1/4 NPT X 2.0	1
√ 18	52125	AIR-SOLENOID VALVE 120V	1
√ 18	54908	AIR-SOLENOID VALVE 240V	1
19	FP02-037	NIPPLE 3/4 X 2.5 LG BI	1
20	FP01-168	CON - 90 FEMALE 3/4 TUBE 3/4 NF	1
21	54486	AIR VALVE – FLEXIBLE CONDUIT	1
22	21800	VALVE - 3/4 CHECK	1
23	FP01-173	ELBOW - 3/4 NPT X 90 MALE NICKEL	1

√ recommended parts

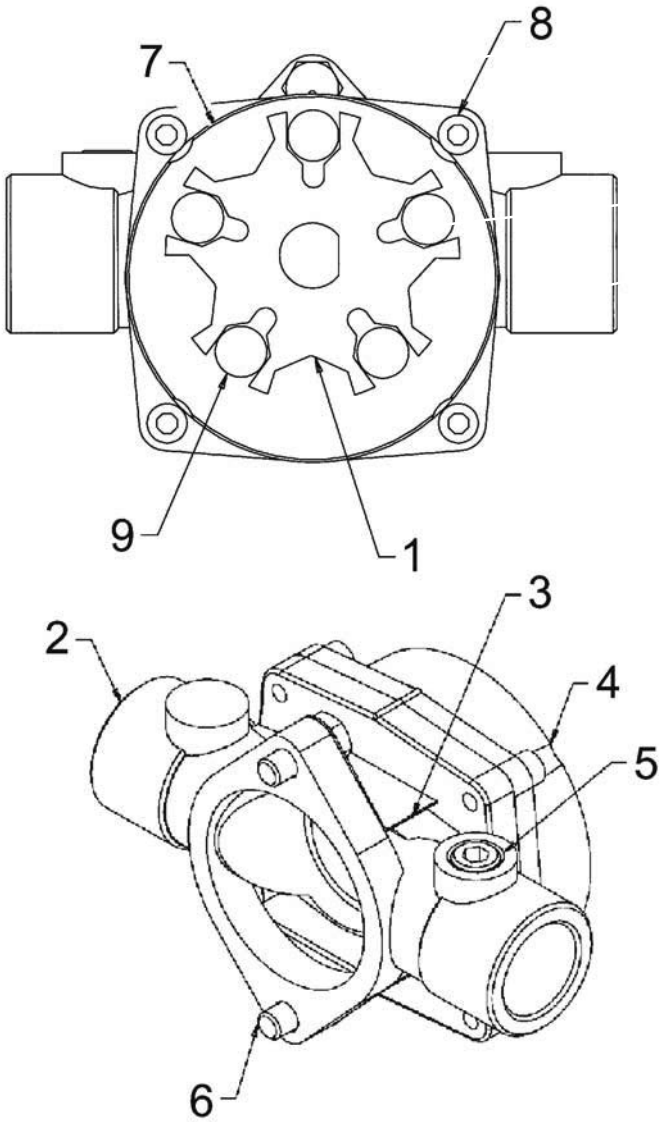


Figure & Item No.	Part No.	Description	Qty.
		FILTER PUMP ASSEMBLY	
	64218	PUMP SUBASSY 8GPM	
√ 1	23468	ROTOR - 8 GPM PUMP	1
√ 2	23647	BODY - 8 GPM PUMP	1
√ 3	17456	PUMP SHIELD	2
√ 4	23470	CAP - 8 GPM PUMP	1
√ 5	FP01-020	PLUG 1/4-18 HEX LEVEL SEAL	1
√ 6	SC01-026	SCREW 5/16-18 X 3/4 HEX HD C	2
√ 7	17453	PUMP O RING GASKET	1
√ 8	SC01-132	1/4-20 X 5/8 SOC HD CAP SCREW	4
√ 9	23469	ROLLER - 8 GPM PUMP	5

√ recommended parts

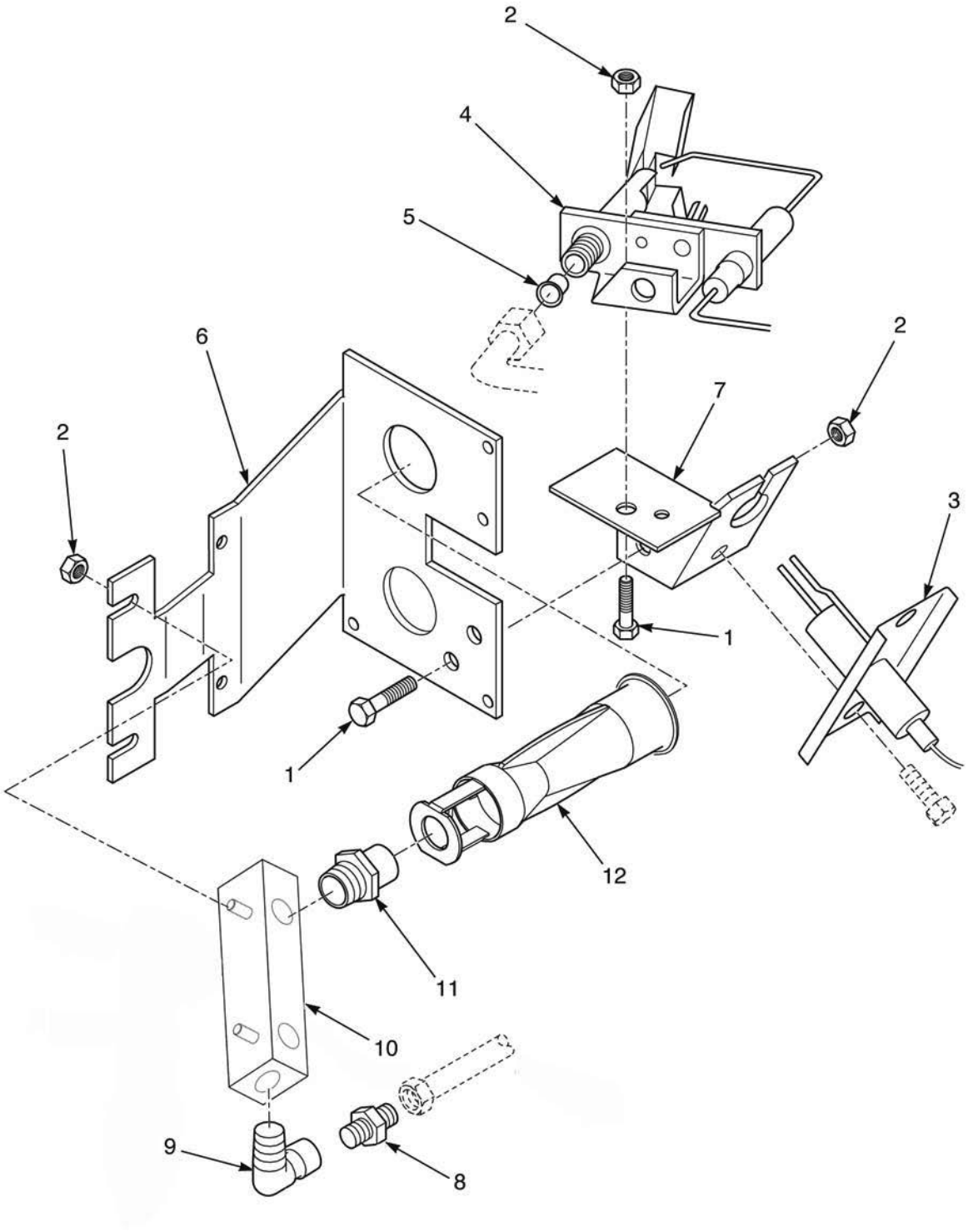


Figure 3-10. Gas Burner Assembly

Figure & Item No.	Part No.	Description	Qty.
3-10		GAS BURNER ASSEMBLY	
0*	56990-01	BURNER ASSY – NATURAL	2
0*	56990-02	BURNER ASSY – LP	2
0*	56990-03	BURNER ASSY – NATURAL CE	2
0*	56990-04	BURNER ASSY – LP CE	2
0*	56990-05	BURNER ASSY – PROPANE/BUTANE MIX	2
0*	56990-07	BURNER ASSY – NATURAL JAPAN	2
0*	56990-06	BURNER ASSY – LP/BUTANE MIX 70% PRO 30% BU	2
1	SC01-084	. SCREW #10-32 X 3/8 HEX HD S	8
2	NS02-001	. NUT HEX KEPS #10-32 C	8
√ 3	52074	. FLAME SENSOR	1
√ 4	52075	. PILOT & IGNITOR ASSY – NATURAL	1
√ 4	21333	. PILOT & IGNITOR ASSY – LP	1
5	54877	. . ORIFICE, PILOT – NATURAL, CE NATURAL	2
5	60614	. . ORIFICE, PILOT – LP, CE LP, PROPANE, BUTANE MIX	2
6	51735	. BURNER MOUNTING BRACKET	1
7	56708	. PILOT/FLAME SENSOR BRACKET	1
8	FP05-010	. CONNECTOR, 3/8 TUBE TO 1/4 NPT	2
9	FP01-117	. STREET ELBOW, 1/4 NPT B.I.	2
10	14852	. KIT - 390/690 GAS MANIFOLD	2
11	51725	. ORIFICE, BURNER – NATURAL	2
11	51730	. ORIFICE, BURNER – LP	2
11	55452	. ORIFICE, BURNER – CE NATURAL	2
11	55453	. ORIFICE, BURNER – CE LP	2
11	56219	. ORIFICE, BURNER – PROPANE/BUTANE MIX	2
11	40905	. ORIFICE, BURNER – LP BUTANE MIX 70% PRO 30% BU	2
11	56637	. ORIFICE, BURNER – NATURAL JAPAN	2
12	52066	. BURNER INSHOT	4
13*	14221	. CONVERSION KIT – LP. TO NAT.	1
13*	14222	. CONVERSION KIT – NAT. TO LP.	1
13*	14269	. CONVERSION KIT – LP. TO NAT.-JAPAN	1
13*	14321	. CONVERSION KIT – LP. TO NAT.-CE	1
13*	14322	. CONVERSION KIT – NAT. TO LP.-CE	1
14*	54902	WIRE GUARD - BURNER - BELOW S/N HH001JJ	2

√ recommended parts
*not shown

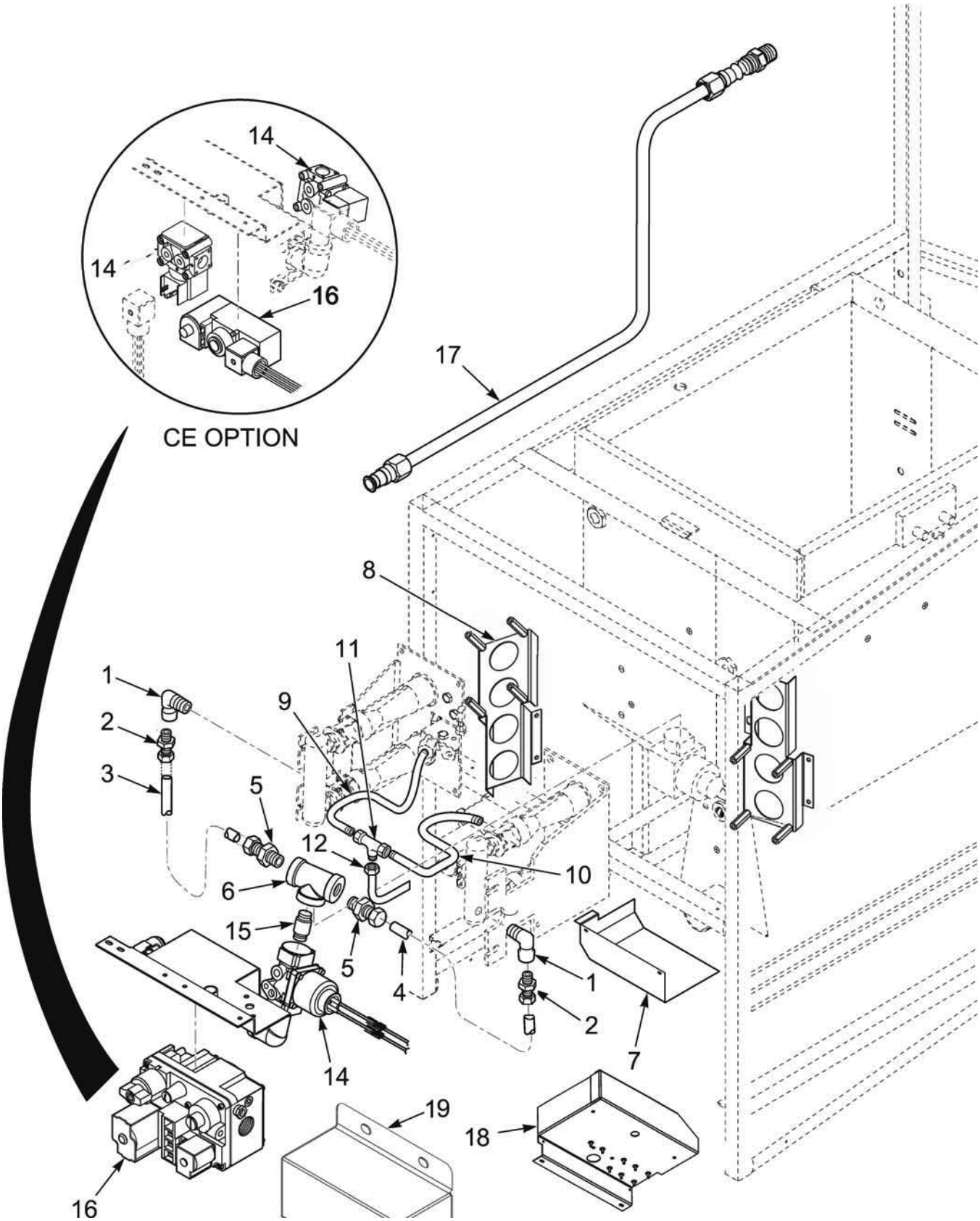


Figure 3-11. Gas Piping and Controls

Figure & Item No.	Part No.	Description	Qty.
3-11		GAS PIPING AND CONTROLS	
1	FP01-117	ELBOW	2
2	FP05-010	FITTING 3/8 TUBE TO 1/4 NP	2
3	65173	MANIFOLD TUBE – LEFT	1
4	65173	MANIFOLD TUBE – RIGHT	1
5	FP01-115	NIPPLE – 3/8 to 1/2 NP.	2
6	FP01-112	1/2 NPT FEMALE PIPE TEE B.I.	1
7	54875	MODULE COVER	1
8	52785	BURNER SHIELD ASSY	2
	68536	BURNER SHIELD STUD ASSY	2
	51731	STANDOFF-BURNER	8
9	69441	PILOT TUBE – LEFT BURNER	1
10	69442	PILOT TUBE – RIGHT BURNER	1
11	FP05-011	TEE – 1/4 X 1/4 X 1/4 BR COMPR	1
12	69442	PILOT TUBE – VALVE TO TEE	1
13*	21452	GAS VALVE ASSY 24V – CE – NATURAL GAS	1
13*	21453	GAS VALVE ASSY 24V – CE – LP GAS	1
√ 14	38468	. SOLENOID GAS VALVE – 24V 60 HZ (S/N IH024JJ & HIGHER) – NON CE	1
√ 14	34802	. SOLENOID GAS VALVE – 24V 50 HZ (S/N IH024JJ & HIGHER) – CE	2
15	FP01-028	. NIPPLE, CLOSE 1/2 NPT SS 1L	1
√ 16	80761	. COMBINATION GAS VALVE – NAT.- (S/N: AP0907006 & ABOVE)-NON CE (USED IN 52476)	1
√ 16	80858	. COMBINATION GAS VALVE – LP.- (S/N: AP0907006 & ABOVE)NON CE	1
√ 16	140056	KIT-GAS VALVE- NAT/LP.- (S/N: AP0907005 & BELOW)-NON CE	1
16	140042	KIT-GAS VALVE- NAT/LP.- (S/N: AP0907005 & BELOW)-NON CE FOR UNITS BUILT WITHOUT 38468 SOLENOIDS	1
√ 16	21451	. COMBINATION GAS VALVE – CE (USED IN 21452)	1
√ 16	21450	. COMBINATION GAS VALVE – CE (USED IN 21453)	1
17	52122	MAIN GAS SUPPLY LINE ASSY	1
17	55433	MAIN GAS SUPPLY LINE ASSY - CE (before 6-14-07)	1
17	76333	MAIN GAS SUPPLY LINE ASSY - CE (6-14-07 & after)	1
18	59189	STUD ASSY - MODULE ENCLOSURE	1
19	51741	WIRE COVER - GAS VALVE	1
20*	FP01-200	FITTING - GAS INLET BSPT	1

√ recommended parts
*not shown

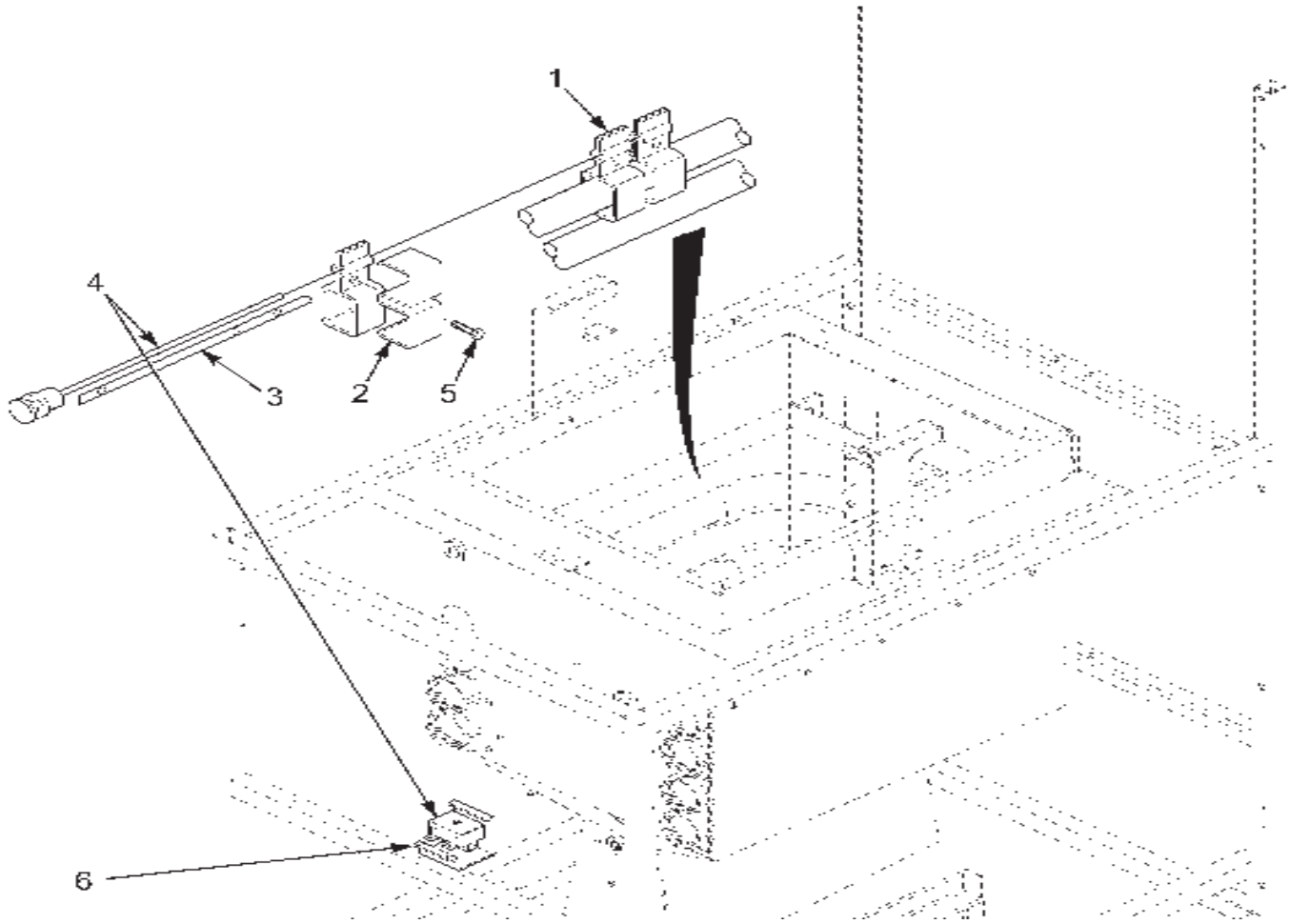


Figure & Item No.	Part No.	Description	Qty.
3-12		BURNER TUBES	
1	54480	BRACKET ASSY – HIGH LIMIT SENSING BULB	3
2	62051	CLIP – SPREADER – HEAT TUBE	6
3	53670	SPACER – HIGH LIMIT	1
√ 4	16738	450 HIGH LIMIT – ELECTRIC – NON CE	1
√ 4	60241	425 HIGH LIMIT – ELECTRIC – CE	1
5	SC01-211	SCREW #10-32 X 1/2 IND HEX HD S.S.	3
6	17216	BRACKET ASSY – HIGH LIMIT	1
7*	16268	THERMOCOUPLE FITTING - POT (for High Limit)	1

√ recommended parts
*not shown

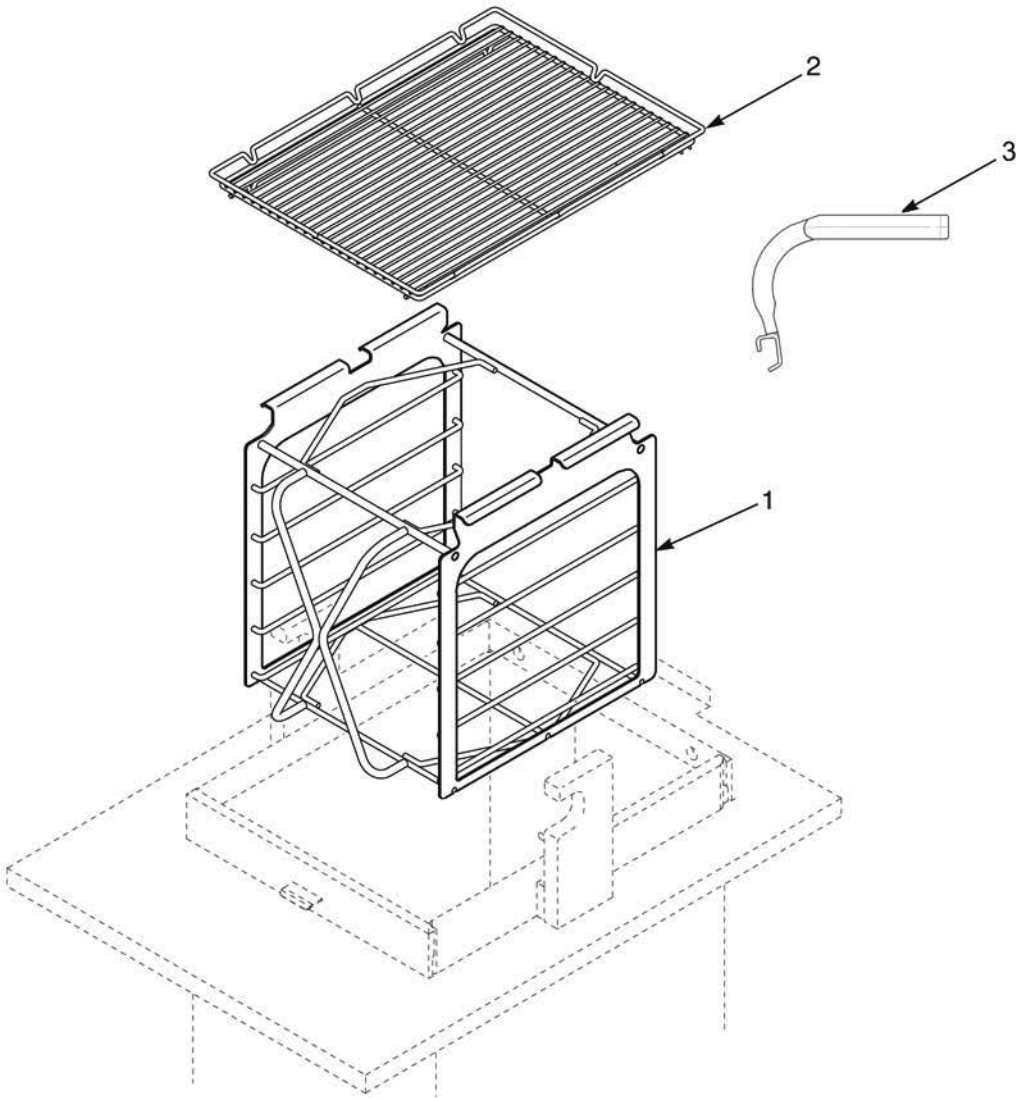


Figure & Item No.	Part No.	Description	Qty.
3-13		CARRIER AND RACKS	
1	62183	CARRIER ASSY	1
2	44782	RACK HALF SIZE – 8 HEAD FRYER	5
2	62181*	390 BASKET (OPTIONAL)	4
3	35308	WELDMENT - RACK HANDLE	1
4	21519*	COVER - WIRE RACK (OPTIONAL)	1

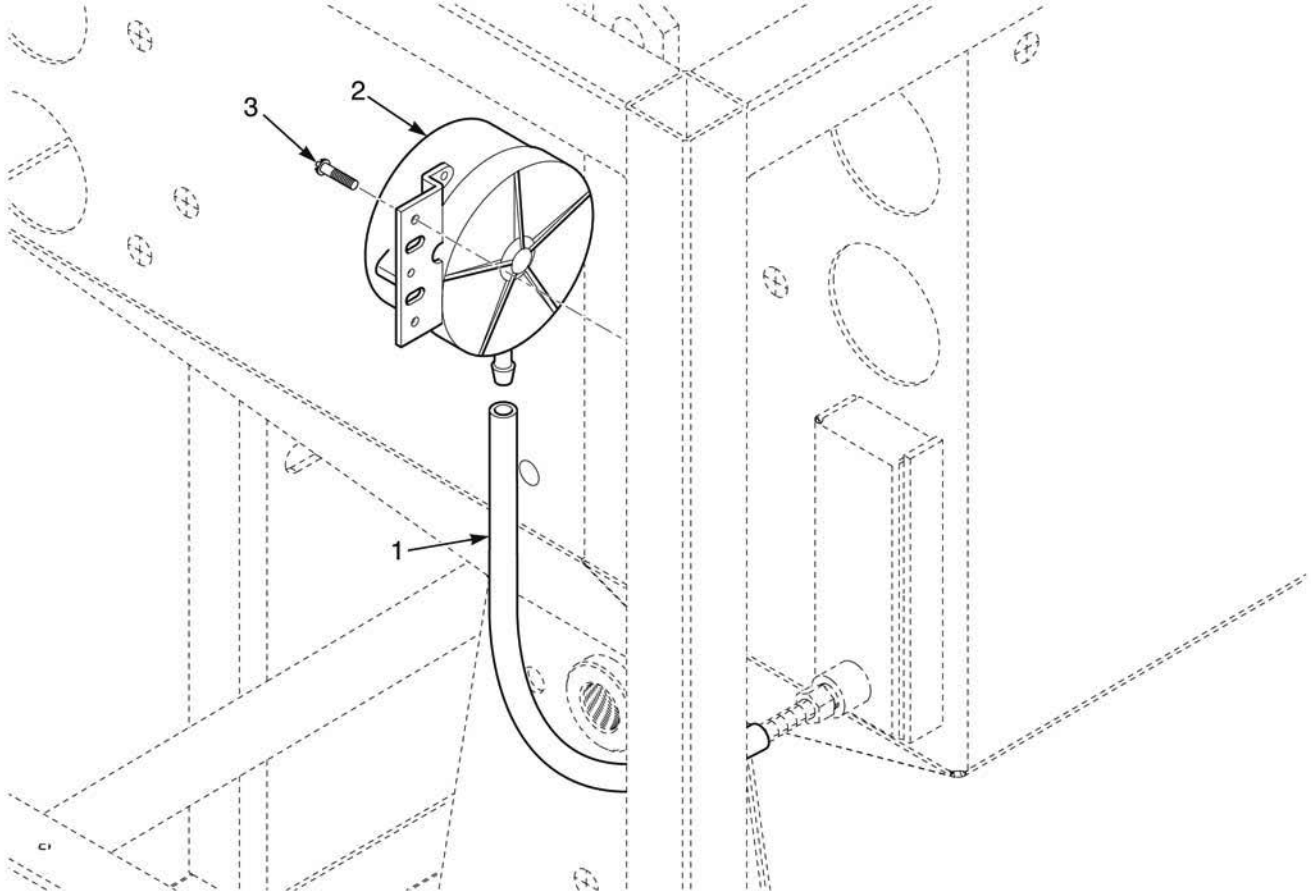


Figure & Item No.	Part No.	Description	Qty.
3-14		VACUUM SWITCH	
1	60202	TUBE-VACUUM SWITCH	1
√ 2	14240	KIT - VACUUM SWITCH - VERITCAL	1
√ 2	55607	VACUUM SWITCH – VERTICAL	1
3	SC03-005	SCREW	3

√ recommended parts

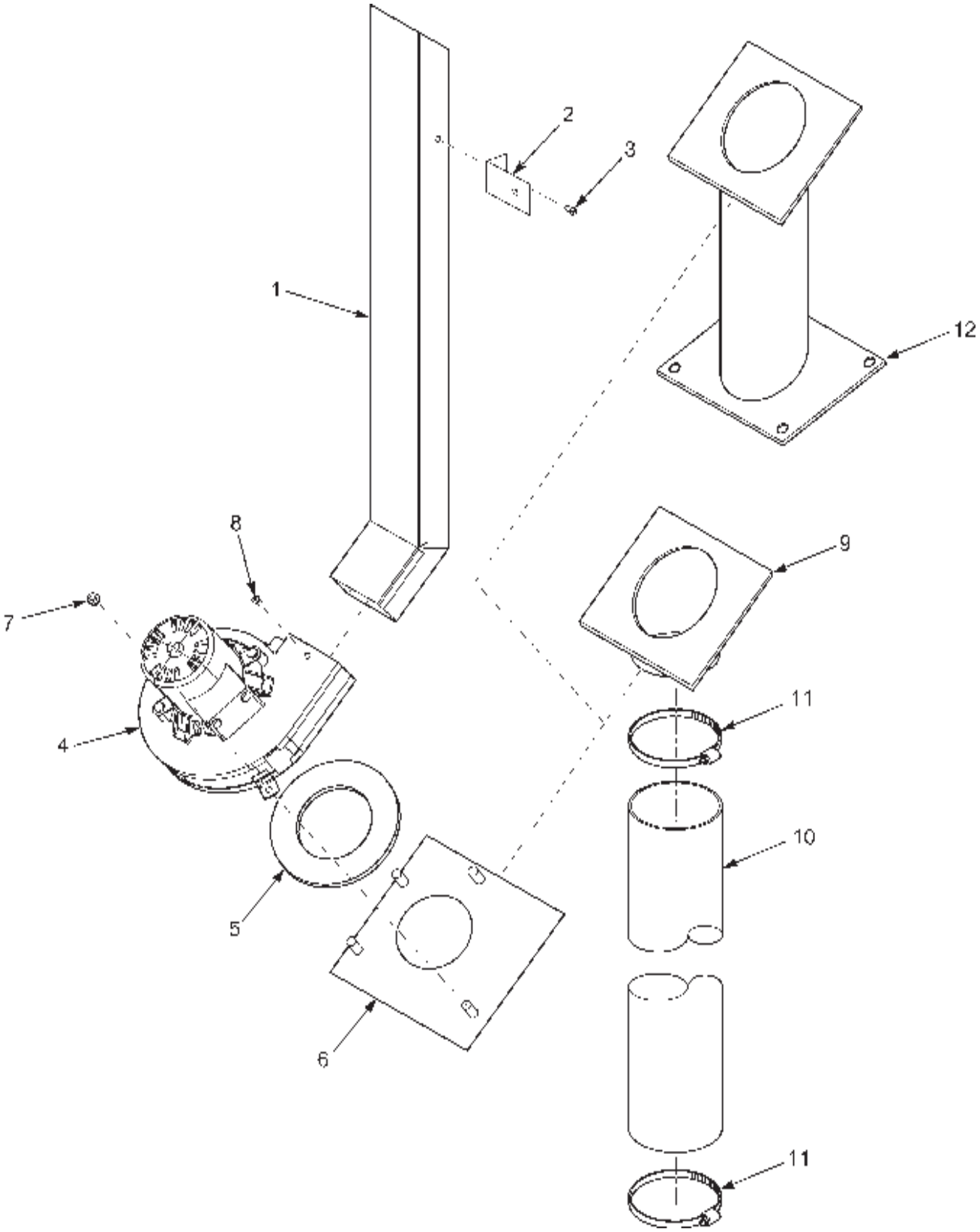


Figure 3-15. Flue Assembly and Blower
SN: BT0802002 & BELOW

Figure & Item No.	Part No.	Description	Qty.
3-15		FLUE ASSEMBLY AND BLOWER **(SN: BT0802002 & BELOW)**	
1	55681	FLUE ASSY – WELDMENT	1
2	55783	BRACKET – FLUE RETAINING	1
3	SC03-005	SCREW SD #8 X 1/2 PH PHD	2
√ 4	14420	120V BLOWER – FLUE EXHAUST W/INSULATION	1
√ 4	14421	100V BLOWER – FLUE EXHAUST W/INSULATION	1
√ 4	14422	240V BLOWER – FLUE EXHAUST W/INSULATION	1
5	21329	. INSULATION – BLOWER	1
6	55673	STUD ASSY – BLOWER MOUNT PLATE	1
7	NS02-002	NUT KEPS 1/4-20 C	4
8	SC02-041	#8-32 X 7/16 PH IND XTRNL TRX	2
9	55675	ASSY – INSUL/BLOWER INLET-NAT GAS ONLY	1
10	52103	DILUTION HOSE/BLOWER-NAT GAS ONLY	1
11	MS01-429	HOSE CLAMP – 3 9/16-4 1/2 PL-NAT GAS ONLY	2
12	32743	DILUTION HOSE ASSEMBLY-LP GAS ONLY	1
13*	14384	KIT, FLUE DUCTS – BUTANE	1
14*	54905	DILUTION BOX COVER - CE (0-3,999 FT)	1
14*	55880	DILUTION BOX COVER - LP-CE (OVER 3,999 FT)	1
14*	55881	DILUTION BOX COVER - NAT.-CE (OVER 3,999 FT)	1

√ recommended parts
*not shown

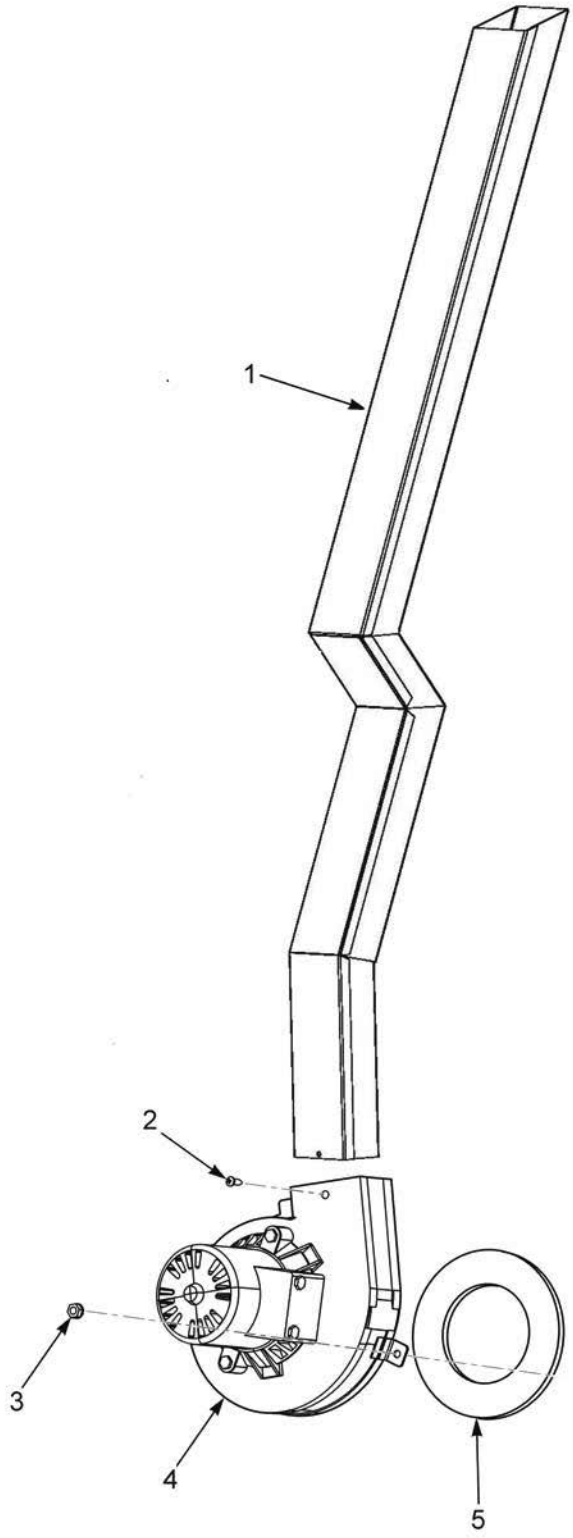


Figure 3-16. Flue Assembly and Blower
SN: BT0802003 & ABOVE

Figure & Item No.	Part No.	Description	Qty.
3-16		FLUE ASSEMBLY AND BLOWER (SN: BT0802003 & ABOVE)	
1	70582	FLUE ASSY – WELDMENT	1
2	SC02-041	#8-32 X 7/16 PH IND XTRNL TRX	1
3	NS02-002	NUT KEPS 1/4-20 C	5
√ 4	14986	120V BLOWER – FLUE EXHAUST W/INSULATION ..	1
√ 4	14988	100V BLOWER – FLUE EXHAUST W/INSULATION ..	1
√ 4	14987	240V BLOWER – FLUE EXHAUST W/INSULATION ..	1
5	21329	. INSULATION – BLOWER	1

√ recommended parts

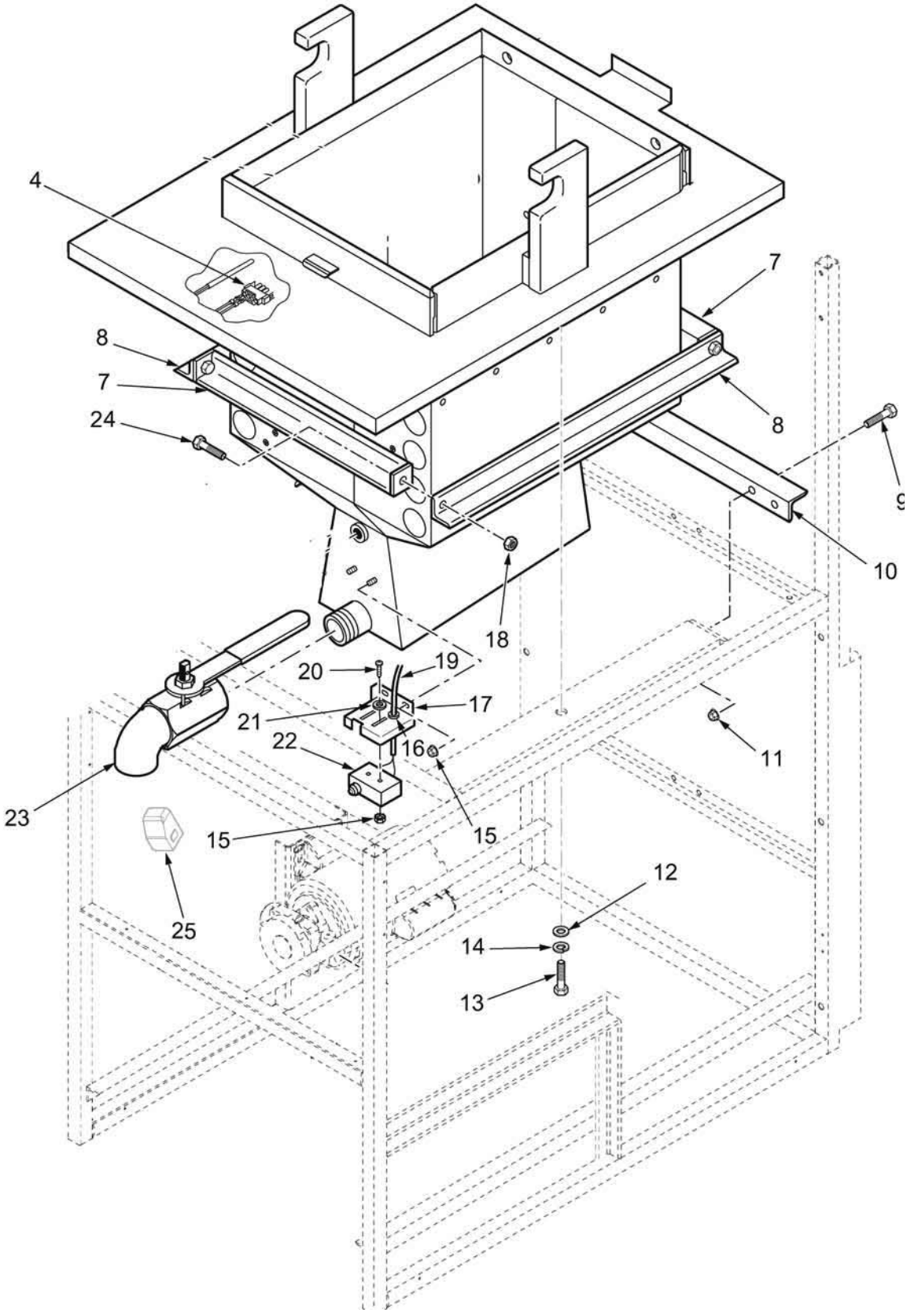


Figure 3-16. Frypot and Drain Piping

Figure & Item No.	Part No.	Description	Qty.
3-16		FRYPOT AND DRAIN PIPING	
√ 4	14330	PROBE ASSY – DOMESTIC	1
√ 4	14266	KIT-CE PROBE CONNECTOR RETROFIT (probe not included) .. (CE units built prior to NOV. 1, 1999)	1
5	16226	NIPPLE 1/2 X 3-1/2	2
6	16239	ELBOW	1
7	51792	POT BRACE, FRONT AND REAR	2
8	51790	POT BRACE, SIDE	2
9	SC01-022	SCREW 1/4-20 X 3/4 HEX HD.	4
10	51874	SUPPORT, REAR	1
11	NS02-002	NUT 1/4-20	4
12	WA01-018	WASHER 3/8 FLAT	2
13	SC01-042	SCREW 3/8-16 X 1 HEX HD.	2
14	LW01-010	LOCKWASHER 3/8 SPLIT RING	2
15	NS02-005	NUT #6-32 HEX	4
16	EF02-017	STRAIN RELIEF	1
17	51891	BRACKET, SWITCH (BELOW SN: BT0404001)	1
17	67618	BRACKET, SWITCH (SN: BT0404001 & ABOVE)	1
18	NS01-016	NUT 7/16-14 HEX	4
19	52519	CORD ASSY., DRAIN INTERLOCK	1
20	SC01-058	SCREW #6-32 X 1 PH. PAN HD.	2
21	WA01-006	WASHER #6	2
√ 22	54228	DRAIN SWITCH W/BOOT	1
23	21355	DRAIN VALVE W/EXTENSION (BELOW SN:LH016JC)	1
23	66446	DRAIN VALVE W/EXTENSION (SN: LH016JC & ABOVE)	1
24	SC01-217	SCREW 7/16-14 X 1-1/4 HEX HD.	4
25	67617	BRACKET - MICROSWITCH TRIGGERING (SN: BT0802002 & BELOW)	1
26*	76683	PLATE - D/I SWITCH COVER GAS	1

√ recommended parts

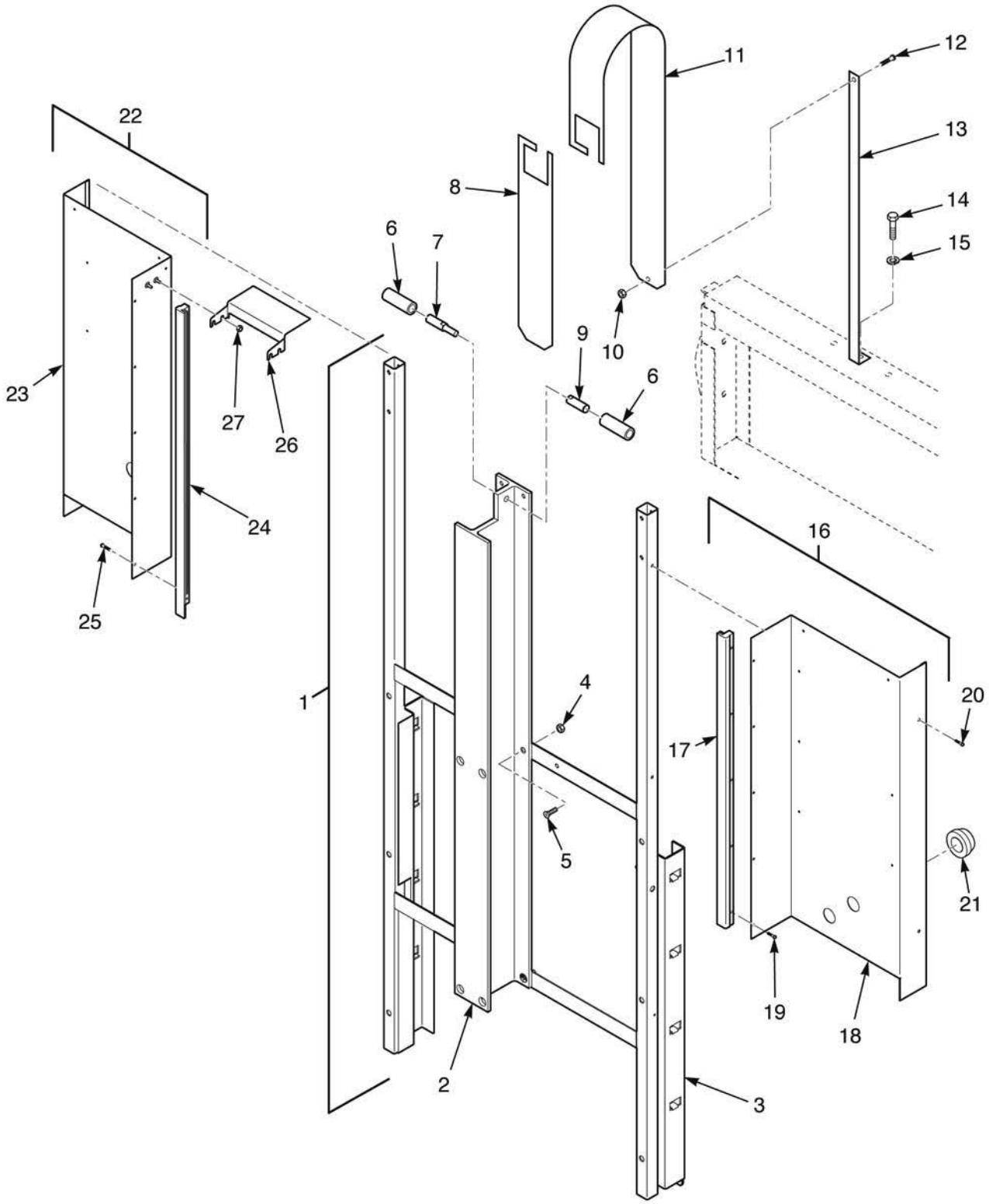


Figure 3-17. Lift Beam and Shrouds
SN: BT0802002 & BELOW

Figure & Item No.	Part No.	Description	Qty.
3-17		LIFT BEAM AND SHROUDS **(SN: BT0802002 & BELOW)**	
1	55678	ASSY – I-BEAM/LIFT FRAME	1
2	51548	. LIFT I-BEAM	1
3	55677	. LIFT FRAME ASSY – WELDMENT	1
4	NS02-008	. . NUT	4
5	SC01-212	. . SCREW	4
6	52474	STOP - LIFT U-CHANNEL	1
7	51595	STOP PIN MALE	1
8	56825	LIFT STRAP FILLER – LOWER	1
9	51594	STOP PIN – FEMALE	1
10	NS02-007	NUT	1
11	56824	LIFT STRAP FILLER – UPPER	1
12	SC01-034	SCREW – PH	1
13	52177	LIFT STRAP	1
14	SC01-052	BOLT	1
15	LW01-002	LOCK WASHER	1
16	52784	ASSY – FRONT SHROUD/RIGHT	1
17	21345	. SLIDE GUIDE – RIGHT	1
18	52482	. WELDMENT – FRONT SHROUD/RIGHT	1
19	SC01-023	. SCREW #6-32 X 1/4 PH RHD C	5
20	SC03-005	SCREW – PH	4
21	16804	UMBRELLA GROMMET	3
22	52521	ASSY – FRONT SHROUD/LEFT	1
23	62087	. ASSY – FRONT SHROUD, LEFT STUD	1
24	21346	. SLIDE GUIDE – LEFT	1
25	SC01-023	. SCREW #6-32 X 1/4 PH RHD C	5
26	62091	SHROUD SPACER/PULLY GUARD	1
27	NS02-005	NUT	4
28	14218*	SINGLE TO DOUBLE LIFT STRAP KIT	1

*not shown

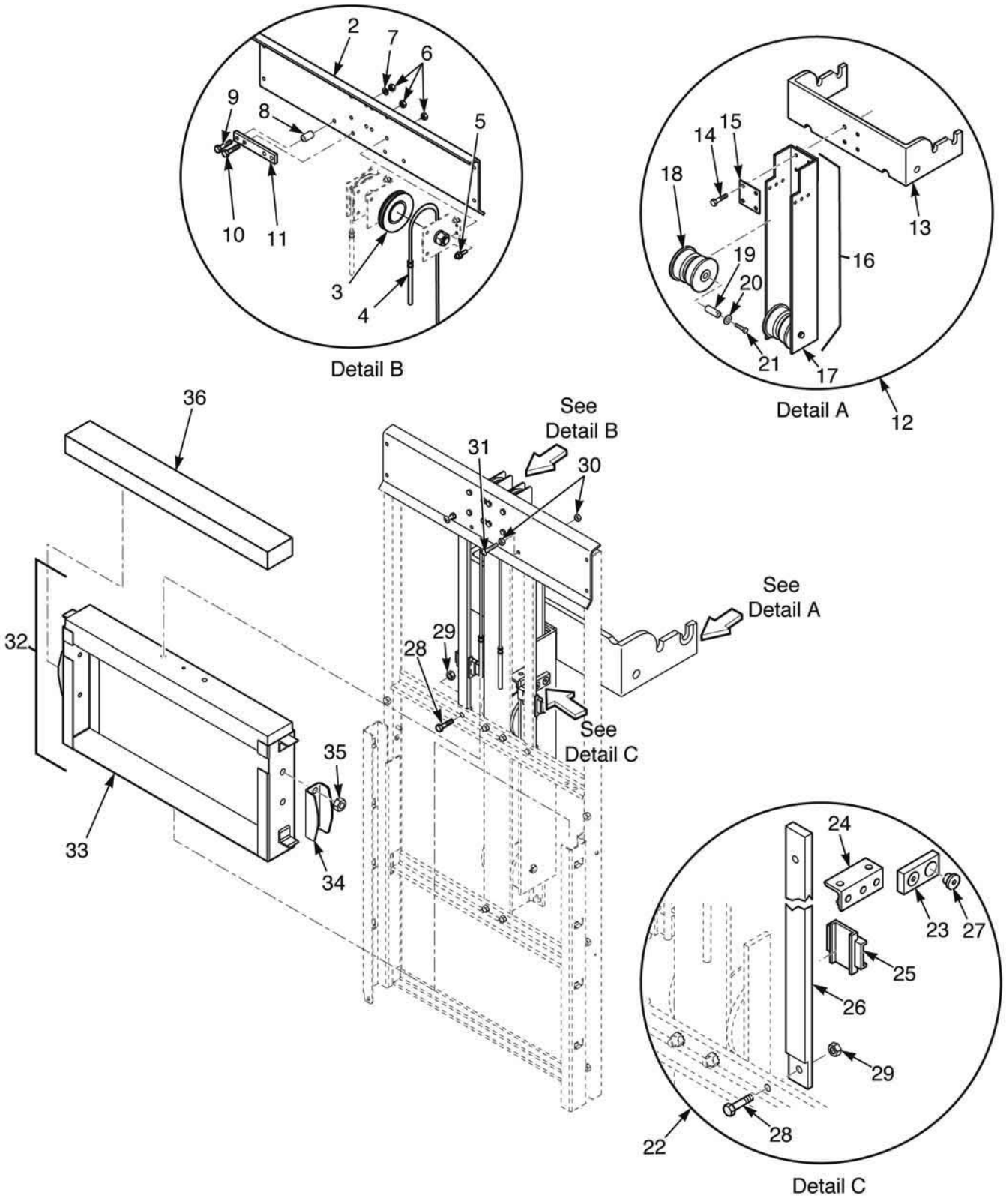


Figure 3-18. Counterweight and Pulley System
SN: BT0802002 & BELOW

Figure & Item No.	Part No.	Description	Qty.
3-18		COUNTERWEIGHT AND PULLEY SYSTEM **(SN: BT0802002 & BELOW)**	
1	52475	PULLEY ASSY	1
2	51677	. PULLEY PLATE	1
3	35962	. BRACKET/WHEEL ASSY	2
√ 4	35207	. CABLE	2
5	SC01-022	. SCREW 1/4-20 X 3/4 HEX HD C	8
6	NS02-002	. NUT KEPS 1/4-20 C	12
7	WA01-002	WASHER	2
8	51590	SPACER	2
9	SC01-104	BOLT	2
10	SC01-022	BOLT	2
11	51591	I BEAM – PULLEY BRACE	1
12	54494	ASSY – LID ARM/U-CHANNEL	1
13	51692	. MACHINED – ARM – LID LIFT	1
14	55883	. SCREW 3/8–16 X 1-1/2 FT HH G	4
15	55598	. TORQUE PLATE – U-CHANNEL	1
16	54493	. ASSY – LIFT U-CHANNEL	1
17	51549	. . LIFT U-CHANNEL	1
18	66715	. . WHEEL – TRUCK	4
19	51593	. . SPINDLE – U CHANNEL WHEEL	4
20	LW01-001	. . LOCKWASHER SPLIT RING 3/8 ID	4
21	SC01-081	. . SCREW 3/8-24 X 3/4 HEX HD S	4
22	55873	STABILIZER COMPONENTS – ASSY	1
23	59113	. SUPPORT ARM – STABILIZER	2
24	51553	. ASSY – CABLE MOUNTING BRACKET	2
25	59112	. SLIDE – STABILIZER	2
26	59111	. BRACE – STABILIZER	2
27	SC01-226	. 5/16-18 X 1-1/4 FHD CAP SCREW	6
28	SC01-146	. SCREW 1/4-20 X 3/4 HEX HD C	2
29	NS02-002	. NUT KEPS 1/4-20 C	4
30	NS01-012	. NUT HEX 1/4-20 C	2
31	SC01-232	. 1/4-20 X 2.00 TRUSS HD PH ZI	2
32	54492	ASSY – CARRIAGE, WEIGHT	1
33	52118	. ASSY – WEIGHT BRACKET, STUD	1
34	62018	. GUIDE – COUNTER WEIGHT	2
35	NS02-002	. NUT KEPS 1/4-20 C	4
36	36627	COUNTERWEIGHT BAR	4

√ recommended parts

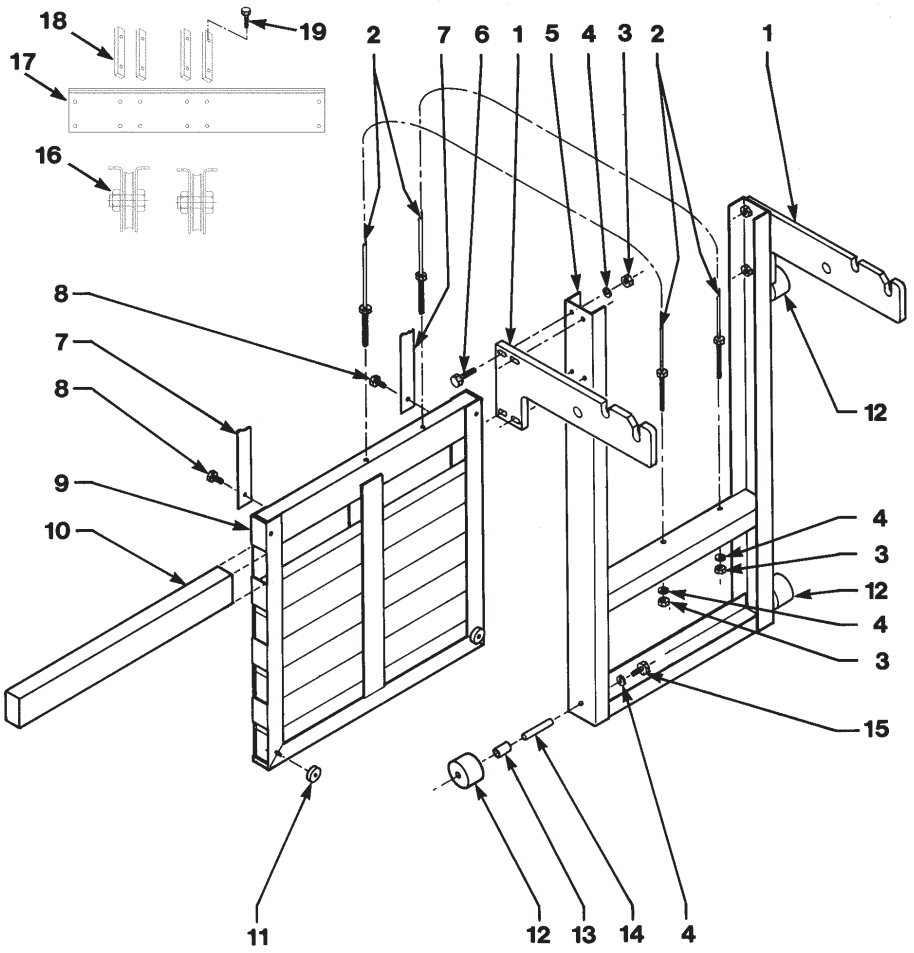


Figure & Item No.	Part No.	Description	Qty.
3-21		COUNTERWEIGHT SYSTEM **(SN: BT0802003 & ABOVE)**	
1	35026	ARM, LID SUPPORT	2
√ 2	35207	CABLE	2
3	NS01-025	NUT, HEX 5/16-18 SS	10
4	LW01-010	WASHER, 3/8 SPLIT RING SS	10
5	35092	CARRIAGE	1
6	SC01-069	SCREW, 3/8-16 X 1-1/2 HEX HD S2P	8
7	36839	SLIDE	2
8	SC01-042	SCREW, 3/8-16 X 1 HEX C	2
9	36625	WELD ASSEMBLY, C/W CARRIAGE	1
10	36627	COUNTERWEIGHT BAR	7
11	36626	SPACER, C/W FRAME	2
12	37362	WHEEL, CARRIAGE	4
13	37363	SPACER, CARRIAGE WHEEL	4
14	37364	SPINDLE	4
15	SC01-081	SCREW, 3/8-24 X 3/4 HEX HD SS	4
16	35962	BRACKET/WHEEL ASSY.	2
17	36561	BRACE, TOP FRAME	1
18	35964	PLATE, SUPPORT PULLEY	4
19	SC01-132	1/2-20 X 5/8 SOC HD CAP SCREW	8

√ recommended parts

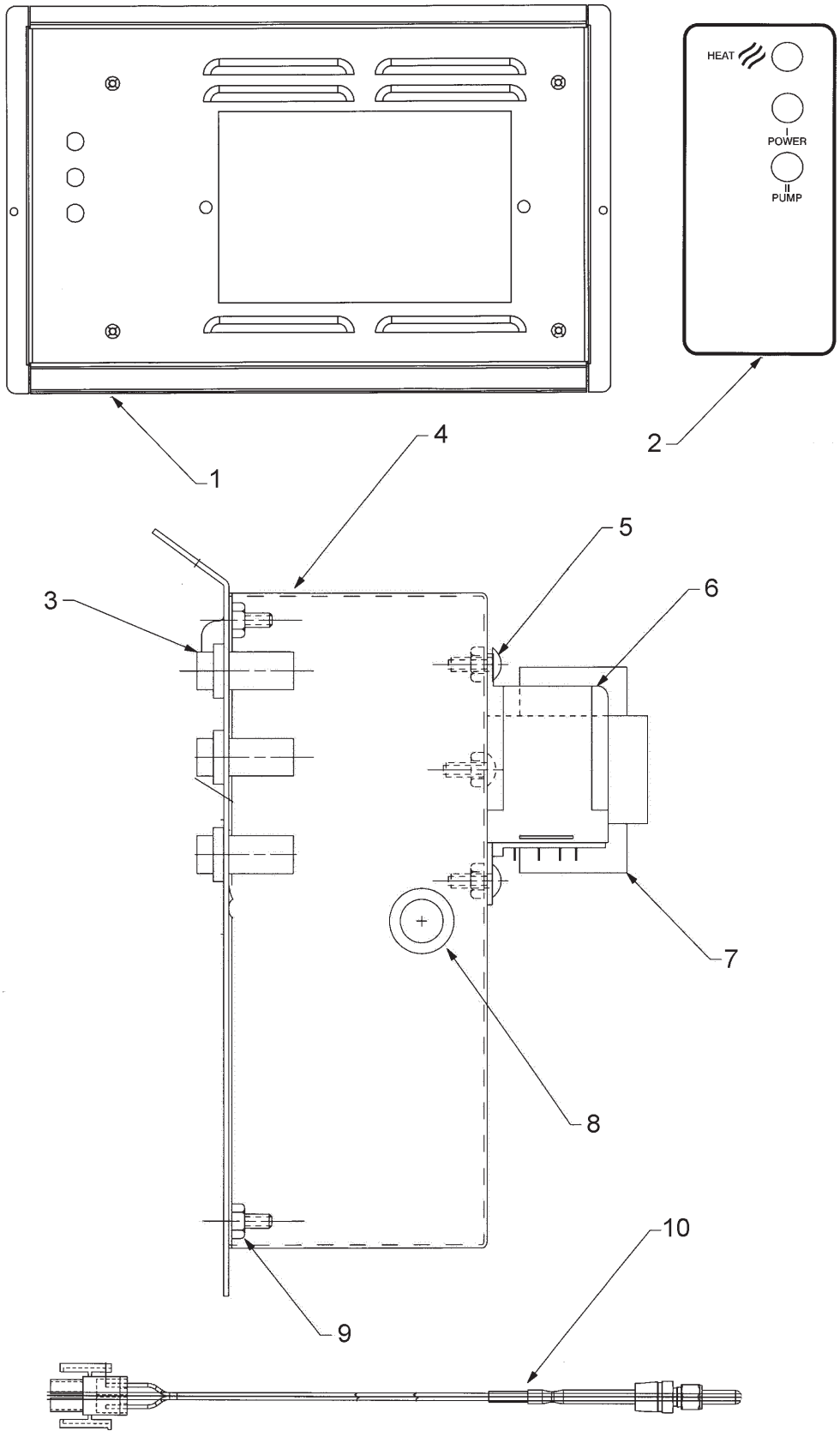


Figure 3-19. FAST Ready Parts

Figure & Item No.	Part No.	Description	Qty.
3-19		FAST READY PARTS	
1	66287	ASSY - 392/692 - 120V FAST HEADER	1
1	66288	ASSY - 392/692 - 230V FAST HEADER - CE	1
1	66385	ASSY - 392/692 - 220-240V FAST HEADER	1
1	66241	STUD ASSY - 392/692 CONTROL PNL	1
1	66296	STUD ASSY - 392/692 CONTROL PNL - CE	1
2	66289	DECAL - 392/692 FAST CONTROL	1
2	66294	DECAL - 392/692 FAST - CE CONTROL	1
√ 3	54085	LIGHT - CE INDICATOR, GREEN - CE	2
√ 3	16624	LIGHT - INDICATOR, RED	3
4	66239	BOX - SHIELD - 392/692	1
4	66302	BOX - SHIELD - 392/692 - CE	1
5	SC01-023	SCREW - #6-32 X 1/4 PH RHD C	11
√ 6	54472	POWER RELAY - 15A-120VAC	1
√ 6	56394	POWER RELAY - 10A-240VAC-DBL POLE	1
√ 6	60818	RELAY - 24VAC COIL (NON-CE)	3
√ 7	66259	ASSY - 120V FAST TRANSFORMER	1
√ 7	66261	ASSY - 230V FAST TRANSFORMER	1
8	EF02-072	BUSHING SPLIT 3/4	1
9	NS02-005	NUT HEX KEPS #6-32 C	11
√ 10	66244	ASSY - FAST 392/692 PROBE	1
√ 11*	66260	BOARD - 230V FAST I/O CONTROL - CE	1

√ recommended parts
*not shown