

**VULCAN®**

**SERVICE & PARTS  
MANUAL FOR  
GAS FRYERS  
MODELS SPGR-1 AND SPGR-2**



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# **IMPORTANT FOR YOUR SAFETY**

**THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL AUTHORIZED, QUALIFIED, CERTIFIED OR LICENSED TO INSTALL GAS EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD STARTUP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.**

**POST IN A PROMINENT LOCATION THE INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE SMELL OF GAS IS DETECTED. THIS INFORMATION CAN BE OBTAINED FROM THE LOCAL GAS SUPPLIER**

## **IMPORTANT**

**IN THE EVENT A GAS ODOR IS DETECTED SHUT DOWN UNITS AT MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.**

## **FOR YOUR SAFETY**

**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.**

**IN THE EVENT OF A POWER FAILURE, THE PILOTS WILL REMAIN LIT AND THE UNIT WILL CONTINUE TO FUNCTION. UNITS EQUIPPED FOR 120 VOLT OPERATION WILL AUTOMATICALLY SHUT DOWN. SHOULD THIS HAPPEN, TURN POWER SWITCH OFF. DO NOT ATTEMPT TO OPERATE UNIT UNTIL POWER IS RESTORED.**

**PLEASE KEEP THIS MANUAL FOR FUTURE REFERENCE**

Vulcan fryers are produced with quality workmanship and material. Proper installation, usage and maintenance of your fryer will result in many years of satisfactory performance.

The manufacturer suggests that you thoroughly read this entire manual and carefully follow all of the instructions provided.

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# SWITCH PANEL CONTROLS (Fig. 1)

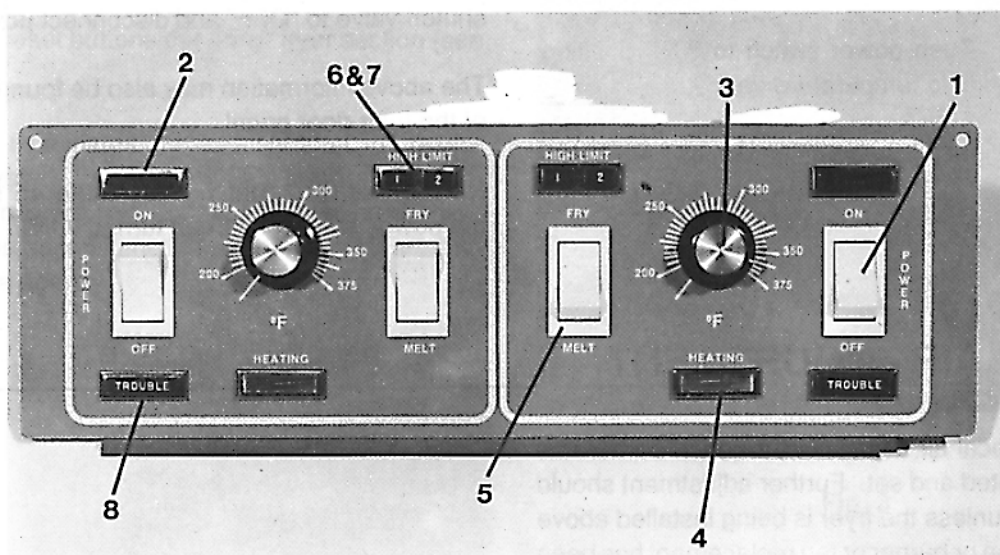


Fig. 1

1. MASTER SWITCH— controls electric supply to unit.
  2. POWER "ON" LIGHT — indicates when electric supply is "ON."
  3. TEMPERATURE CONTROL — maintains frying temperature by controlling power supply.
  4. HEATING LIGHT — when "ON" indicates temperature control is calling for gas to burners.
  5. FRY/MELT SWITCH — controls melting or frying cycle. Use MELT cycle position to melt solid shortening. When melted, turn switch to FRY cycle with thermostat set at desired frying temperature. MELT cycle not needed with liquid shortening.
  6. FIRST HIGH LIMIT LIGHT — when "ON" indicates first high limit thermostat has shut unit down.
  7. SECOND HIGH LIMIT LIGHT — when "ON" indicates second high limit thermostat has shut unit down (requires reset).
  8. TROUBLE LIGHT — indicates solid state ignition device has "locked out" (reset required).
- NOTE:** To reset, turn main power switch "OFF," then "ON."

# OPERATIONAL LIGHTING AND SHUTDOWN INSTRUCTIONS

**NOTE:** Manual shutoff valve must be in "ON" position and power cord connected to power source for unit operation.

**To Turn "ON":** Push power switch to "ON" position; turn thermostat dial to temperature desired.

If burners fail to light, allow a 5-minute shutdown before relighting.

**To Turn "OFF":** Push power switch to "OFF" position.

**For Service or Extended Shutdown:** Turn manual shutoff valve to "OFF" and disconnect power cord.

The above information may also be found on the inside of the fryer door panel.

**NOTE:** Heating light will illuminate 45 seconds after the power switch has been turned "ON".

## BLOWER AIR ADJUSTMENT

**NOTE:** The critical air adjustment for each burner has been factory tested and set. Further adjustment should not be required unless the fryer is being installed above 2,000 ft. elevation or burner or fan replacement has been made. **Blower air adjustment must be performed by authorized service personnel only.**

To make proper air adjustment, open fryer view port cover and turn fryer "ON".

Let burner run approximately 1 minute. See Fig. 2 and follow Steps 1 through 4 below.

**NOTE:** When making air adjustment, work on one side at a time.

1. Remove black plug bottom from the air adjustment box of the burner side being adjusted (Fig. 2).
2. Insert 1/8" Allen wrench into the air adjustment box and remove locking set screw.
3. Insert Allen wrench into adjustment access hole. A blue burner surface observed through the viewing port indicates insufficient air. Slowly turn Allen wrench clockwise until a maximum orange glow with a minimum blue haze is obtained on the burner surface. (Refer to trend color guide chart.)
4. Reinstall locking set screw, black plug button, and close view port cover.
5. Repeat Steps 1 through 4 as required for second burner.

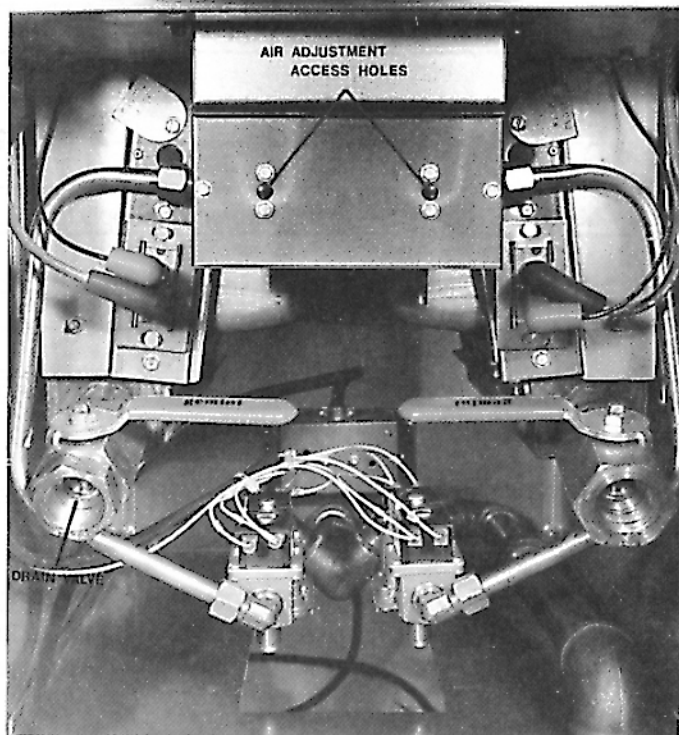


Fig. 2

# IGNITOR BOARD RESET

The ignitor board reset system protects the ignitor boards from overloads.

There are two reset buttons per 15½" fryer section (see Fig. 3).

If trouble light illuminates immediately after the power switch is activated, turn fryer "OFF", push each reset button, and turn fryer back "ON". If, after second attempt, fryer continues to malfunction, turn fryer "OFF" and contact service agency.

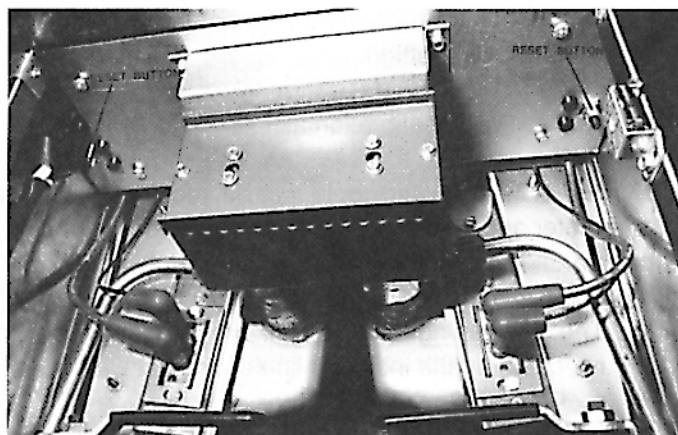


Fig. 3

## INSTRUCTIONS FOR SETTING IGNITOR LOCATION

This setting will provide optimum ignition reliability and prevent ignitor board lockout. The ignitor location is factory set and should not require adjustment unless the ignitor has been replaced or has been knocked out of adjustment. (See Fig. 4.)

**NOTE:** Complete all burner flame adjustments before proceeding.

1. Obtain a D.C. micro ampmeter with good resolution in the 2 to 8 micro amp range.
2. Measure flame current by connecting the meter in series with the ignitor. Clip 1 meter lead to the black flame sense wire and the other to the ignitor flame sense electrode.
3. While the burner is operating, observe the micro amps registered on the meter. If reading is less than 4 micro amps, loosen the ignitor assembly retaining screws and adjust the ignitor until 4 or more micro amps are attained.
4. Retighten the ignitor assembly retaining screws. Optimum ignition has now been achieved.

An electrical diagram is located inside the front door panel.

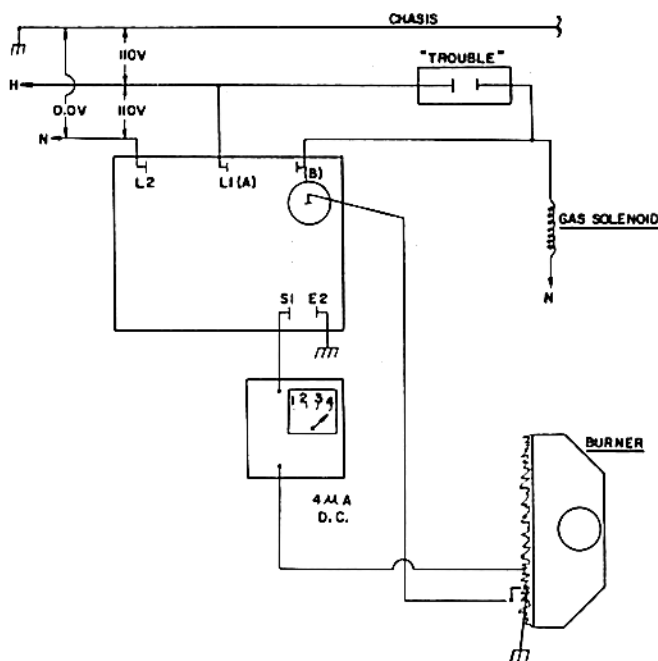


Fig. 4

# TERMOSTAT CALIBRATION PROCEDURES

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Thermostat calibration is factory set before unit shipment. Thermostat calibration should not be performed if unit temperature is registered within  $\pm 5^{\circ}\text{F}$  of the thermostat setting.

Check thermostat calibration as follows:

**NOTE:** The following tools will be required: Digital pyrometer and holder, 1/8" flatblade screwdriver, maple paddle.

1. The shortening must be at the proper level as indicated by the indicator line on the vat wall.
2. Insert a digital pyrometer, Alnor pyrometer or a deep fat thermometer at the rear of the fryer exactly where the computer probe would go.
3. Set the thermostat knob at the correct cooking temperature and turn unit "ON".
4. Allow shortening temperature to stabilize by letting the fryer cycle "ON" and "OFF" at least three times after reaching the desired temperature.

5. Using maple paddle, agitate the shortening until Step 6 is completed.
6. After the stabilizing period, the instant the burner actuates (as noted by the burner's "ON" light turning on), the shortening temperature should be  $\pm 5^{\circ}\text{F}$  ( $3^{\circ}\text{C}$ ) of the thermostat setting.
7. If it is within  $\pm 5^{\circ}\text{F}$  ( $3^{\circ}\text{C}$ ), you are finished calibrating. If not, follow Steps 8 through 11 for recalibration.
8. Loosen the set screw in the temperature control knob. Rotate knob without moving shaft and set the knob to match the pyrometer reading.
9. Retighten the set screw. **CAUTION: Do not overtighten.**
10. Turn the dial to the desired temperature.
11. Repeat Steps 4, 5 and 6.

**NOTE:** Do not calibrate using new shortening unless you agitate the shortening as indicated in Step 5.

## HIGH LIMIT CONTROL

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The function of the high limit control is to shut the unit down in the event of a thermostat failure which would allow the shortening to be overheated. The operating temperature of the high limit control is  $435^{\circ}\text{F}$ , or  $60^{\circ}\text{F}$  ( $223.8^{\circ}\text{C}$ , or  $15.5^{\circ}\text{C}$ ) higher than the highest temperature allowed by the thermostat when the thermostat is functioning properly.

In the event of a High Limit "Shutdown," the entire control system will be put out of operation.

**DO NOT** attempt to restart the fryer until the temperature of the shortening has lowered to approximately  $350^{\circ}\text{F}$  ( $176.6^{\circ}\text{C}$ ).

**If this situation occurs continually, do not attempt to bypass the High Limit. Shut unit down and contact a service agency.**

# TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
POWER SWITCH ON, POWER LIGHT ON, HEATING LIGHT COMES ON FOR 3 SECONDS OR LESS, THEN TROUBLE LIGHT COMES ON.	<p>Ignition systems did not sense flame.</p> <hr/> <p>Insufficient gas, check pressure.</p> <hr/> <p>Improper ventilation.</p> <hr/> <p>Improper air adjustment.</p> <hr/> <p>Improper ignitor positioning.</p> <hr/> <p>Defective ignitor or wires.</p> <hr/> <p>Fryer gas shutoff valve closed.</p> <hr/> <p>Gas hose not connected tightly to fryer.</p> <hr/> <p>Loose connections at ignitors.</p>	<p>Reset - turn power switch off, then on.</p> <hr/> <p>Call service agency.</p> <hr/> <p>Clean hood grease filters adjust ventilator system for proper fluing.</p> <hr/> <p>Adjust burner air, see instructions.</p> <hr/> <p>Refer to adjustment of ignitor or assembly.</p> <hr/> <p>Open shutoff valve.</p> <hr/> <p>Check and ensure quick disconnect fitting snaps onto fitting completely.</p> <hr/> <p>Turn fryer off and ensure push-on connectors are on tight.</p>
POWER SWITCH ON, POWER LIGHT ON, 1ST HIGH LIMIT LIGHT ON, 2ND HIGH LIMIT ON, TROUBLE LIGHT ON. NO HEAT.	<p>Oil temperature above 435°F (223.8°C).</p> <hr/> <p>Calibration temperature control.</p> <hr/> <p>Temperature control defective.</p>	<p>Allow fryer to cool below 375°F (190.6°C). Turn main power switch off, then on.</p> <hr/> <p>Recalibrate.</p> <hr/> <p>Replate temperature control board.</p>
FRYER DOES NOT COME OUT OF FRY MELT FUNCTION (FULL HEAT WHEN TURNED ON).	<p>Defective thermistor probe or temperature control board.</p>	<p>Replace thermistor probe or temperature control board.</p>
SLOW RECOVERY.	<p>Improper ventilation.</p> <hr/> <p>Gas pressure low.</p>	<p>Adjust ventilator system for proper fluing.</p> <hr/> <p>If manometer is available, adjust pressure to correct pressure according to rating plate.</p>
TROUBLE LIGHT FLASHES MOMENTARILY THEN HEATING LIGHT COMES ON WHEN SYSTEMS CALLS FOR HEAT.	<p>This is normal operation.</p>	<p>None required.</p>
POWER SWITCH ON, POWER ON LIGHT OFF. NO HEATING.	<p>No power to fryer.</p> <hr/> <p>Defective "ON" switch.</p> <hr/> <p>Loose wire.</p>	<p>a. Check power supply cord, verify plugged in.</p> <hr/> <p>b. Check store circuit breaker.</p> <hr/> <p>Replace power switch.</p> <hr/> <p>Check wire connection at power switch.</p>
POWER SWITCH ON, POWER LIGHT ON, NO HEAT AFTER 45 SECONDS.	<p>Temperature controller set below frying temperature.</p> <hr/> <p>Defective thermistor probe or associated wirings.</p> <hr/> <p>Defective temperature control board.</p>	<p>Set knob to frying temperature.</p> <hr/> <p>Replace thermistor probe and check connectors.</p> <hr/> <p>Replace temperature control board.</p>

## TROUBLESHOOTING (Cont.)

PROBLEM	CAUSE	REMEDY
POWER SWITCH ON, POWER LIGHT ON, VENTILATOR OFF.	<u>Loose wire in interlock system.</u> <u>Defective Power On switch.</u> <u>Ventilator circuit breaker off.</u> <u>Defective ventilator motor.</u>	<u>Call service agency.</u> <u>Replace power switch.</u> <u>Reset ventilator circuit breaker.</u> <u>Call service agency.</u>
NOISY IGNITION.	<u>Improper air adjustment.</u>  <u>Ignitor gap improperly set.</u> <u>Sticky gas valve.</u> <u>Cracked burner.</u> <u>Burner insulation not sealing.</u>	<u>Adjust ventilator system. Be sure blowers are clean and operating, air shutters clean and adjusted properly.</u> <u>Set gap to 1/8"</u> <u>Replace gas valve.</u> <u>Replace burner.</u> <u>Replace burner insulation.</u>
INDICATOR LIGHT "POWER ON, HEATING, 1ST HIGH LIMIT, TROUBLE" DOES NOT COME ON WHEN IT SHOULD.	<u>Light defective.</u>	<u>Replace indicator light as needed.</u>
FRYER DOES NOT GO INTO FRY MELT FUNCTION.	<u>Shortening or frytank is above 135°F (57.2°C).</u> <u>Defective thermistor probe.</u> <u>Defective temperature control board.</u>	<u>Allow the fryer to cool.</u>  <u>Replace thermistor probe.</u> <u>Replace temperature control board.</u>

# DIAGNOSTIC LIGHT CHART

Before using the chart complete the following:

1. The power light must be on and the first and/or second high limit lights off. If the first and/or second high limit lights are on, refer to the troubleshooting section regarding this problem.
2. Turn the power switch off.
3. Observe the pattern of the diagnostic lights at the moment you turn the power switch back on.
4. If fryer is IN fat melt, observe light pattern 45 seconds after the power switch has been turned on.
5. If fryer is NOT in fat melt, immediately observe the light pattern. Pattern remains valid for 3 seconds.

To assist you in reading the chart, keep in mind the following tips:

1. What is the problem you are having?
2. What lights are on or off?
3. Remedies are listed in order as to those most likely to correct the problem:

LIGHT OFF – ●

LIGHT ON – ○

### LIGHT PATTERN KEY

○ #2 REAR #4 ○

LEFT SIDE

RIGHT SIDE

○ #1 FRONT #3 ○

**NOTE:** The full vat unit employs a (3) light pattern.  
The split vat unit employs a (4) light pattern.

PROBLEM	PATTERN DIAGNOSTIC LIGHTS	REMEDY
NO HEAT	FULL VAT ● #2 ● #1 #3 ●	1. Check thermistor probe. 2. Check temperature control board. 3. Check wiring continuity.
	SPLIT VAT ● #2 #4 ● ● #1 #3 ●	
	FULL VAT ○ #2 ○ #1 #3 ●	1. Right ignitor board problem.
	SPLIT VAT ○ #2 #4 ○ ○ #1 #3 ●	
	FULL VAT ○ #2 ● #1 #3 ●	1. Left ignitor board problem.
	SPLIT VAT ○ #2 #4 ○ ● #1 #3 ○	

# DIAGNOSTIC LIGHT CHART (Cont.)

PROBLEM	PATTERN DIAGNOSTIC LIGHTS	REMEDY
OVERHEATING	<p>FULL VAT</p> <p>○ #2</p> <p>○ #1                      #3 ○</p>	<ol style="list-style-type: none"><li>1. Check temperature control.</li><li>2. Check thermistor probe.</li><li>3. Check temperature potentiometer.</li></ol>
	<p>SPLIT VAT</p> <p>○ #2                      #4 ○</p> <p>○ #1                      #3 ○</p>	
	<p>FULL VAT</p> <p>● #2</p> <p>● #1                      #3 ●</p>	<ol style="list-style-type: none"><li>1. Replace gas valve.</li></ol>
	<p>SPLIT VAT</p> <p>● #2                      #4 ●</p> <p>● #1                      #3 ●</p>	

# REPLACEMENT PARTS LIST AND PHOTOGRAPHS

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## REPLACEMENT PARTS LIST AND PHOTOGRAPHS FOR SPGR SERIES FRYERS

### **ALL SERVICE PERSONNEL**

FOR SAFETY PURPOSES, WHEN SERVICING THIS EQUIPMENT, USE ONLY  
CERTIFIED CONTROLS, DUPLICATING THOSE ORIGINALLY SUPPLIED  
ON THIS EQUIPMENT BY VULCAN-HART COMPANY

**DO NOT SUBSTITUTE** COMPONENTS WITH DIFFERENT MODEL NUMBERS.

**DO NOT SUBSTITUTE** COMPONENTS WITH DIFFERENT MANUFACTURING NAMES.

**DO NOT SUBSTITUTE** COMPONENTS WITH REBUILT CONTROLS WITHOUT  
AUTHORIZATION OF VULCAN-HART COMPANY, ANY UNAUTHORIZED SUBSTITUTION  
OF CONTROLS AS STATED ABOVE MAY BE A SAFETY HAZARD AND  
WILL AUTOMATICALLY VOID THE WARRANTY AND THE CERTIFICATION  
ASSOCIATED WITH THIS EQUIPMENT.

### REPLACEMENT PARTS ORDERS

The following information must accompany a replacement parts order or it cannot be filled:

- A. Model and serial number, including suffix or prefix letter if applicable.
- B. Type of gas.
- C. Unit voltage, amperage and motor phase.
- D. Appliance finish black, grey, stainless steel, etc.

This information may be found on the unit rating plate located inside the fryer door panel.

Parts may be ordered from your dealer, service agency or parts distributor. For further information concerning parts ordering location, contact Vulcan-Hart Company, 3600 North Point Blvd., Baltimore, MD 21222, or in Canada, Vulcan-Hart Canada, Inc., 79 West St., South Orillia, Ontario L3V 6K5.

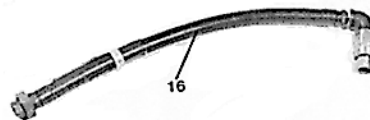
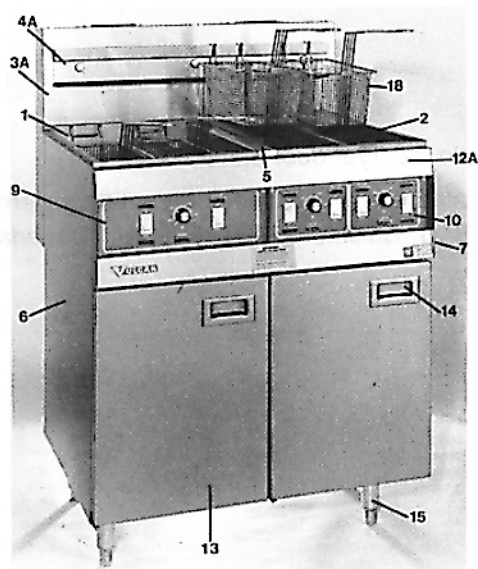
# SPGR FRYER – FRONT VIEW

ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
1	Fry Tank Assy.	413903-G5	1	2	3	-	-	-	2	-	1
2	Fry Tank Assy.	414090-G5	-	-	-	1	2	3	-	2	1
3	Splasher Back Assy. (NS)	414457-G3	1	-	-	1	-	-	-	-	-
3A	Splasher Back Assy.	414457-G1	-	1	-	-	1	-	-	-	-
3B	Splasher Back Assy. (NS)	414457-G2	-	-	1	-	-	1	1	1	1
□ 4	Basket Hanger (NS)	414853-3	1	-	-	1	-	-	-	-	-
□ 4A	Basket Hanger	414853-2	-	1	-	-	1	-	-	-	-
□ 4B	Basket Hanger (NS)	414853-1	-	-	1	-	-	1	1	1	1
5	Capping Strip	410863-2	-	1	2	-	1	2	2	2	2
6	Lt. Hd. Body Side Assy.	415448-G1	1	1	1	1	1	1	1	1	1
7	Rt. Hd. Body Side Assy.	415448-G2	1	1	1	1	1	1	1	1	1
8	Inner Body Side Assy. (NS)	415448-G5	-	1	2	-	1	2	2	2	2
9	Decal, Single Vat Control Panel Mylar	414194-9	1	2	3	-	-	-	2	-	1
10	Decal, Split Vat Control Panel Mylar	414043-10	-	-	-	1	2	3	-	2	1
11	Decal, Blank Control Mylar (NS)	414244-2	-	-	-	-	-	-	1	1	1
12	Front Panel Assy. (NS)	414114-G4	1	-	-	1	-	-	-	-	-
12A	Front Panel Assy.	414114-G5	-	1	-	-	1	-	-	-	-
12B	Front Panel Assy. (NS)	414114-G6	-	-	1	-	-	1	1	1	1
□ 13	Fryer Door Assy.	414123-G1	1	2	3	1	2	3	3	3	3
□ 14	Door Pull	414211-1	1	2	3	1	2	3	3	3	3
□ 15	Leg	413112-5	4	4	4	4	4	4	4	4	4
□ *16	Quick Disconnect Flex Hose	414150-1	1	1	1	1	1	1	1	1	1
□ *17	Flex Hose 1" Elbow	414741-6	1	1	1	1	1	1	1	1	1
□ 18	Fryer Basket	410737-1	2	4	6	2	4	6	2	4	4

□ – May be replaced by other than service personnel.

(NS) – Not shown by photo.

\* – Not supplied as standard item (Optional upon request).



(SPGR-12 Fryer Shown)

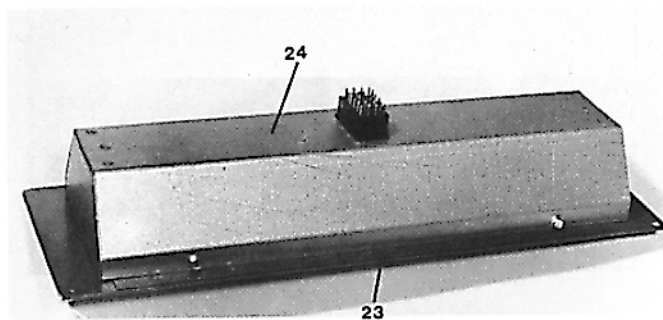
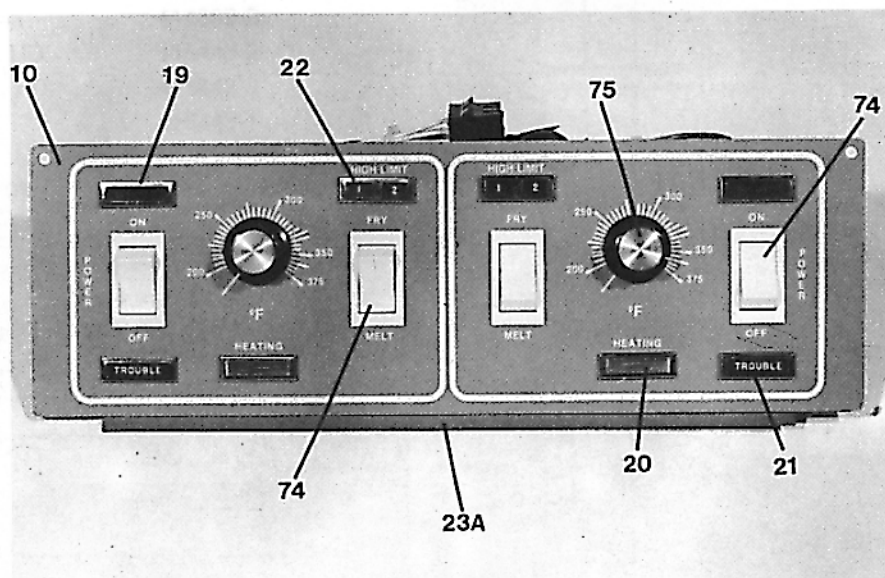
# SPGR CONTROL PANELS

ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
9	Decal, Single Vat Mylar (NS)	414194-9	1	2	3	-	-	-	2	-	1
10	Decal, Split Vat Mylar	414043-10	-	-	-	1	2	3	-	2	1
19	Signal Light (Red)	411496-E4	1	2	3	2	4	6	2	4	3
20	Signal Light (Amber)	411496-E3	1	2	3	2	4	6	2	4	3
21	Signal Light (Trouble)	411496-E6	1	2	3	2	4	6	2	4	3
22	High Limit Light 1-2	411496-E7	1	2	3	2	4	6	2	4	3
74	Rocker Switch	411496-B1	2	4	6	4	8	12	4	8	6
75	Potentiometer Knob	414254-1	1	2	3	2	4	6	2	4	3
23	Control Panel Assy. (NS)	414042-G1	1	2	3	-	-	-	3	-	2
23A	Control Panel Assy.	414042-G2	-	-	-	1	2	3	-	2	1
24	Cover Control Panel Assy.	415431-G1	1	2	3	1	2	3	2	2	2
25	Potentiometer (NS)	415144-11	1	2	3	2	4	6	2	4	3

□ - May be replaced by other than service personnel.

(NS) - Not shown by photo.

\* - Not supplied as standard item (Optional upon request).



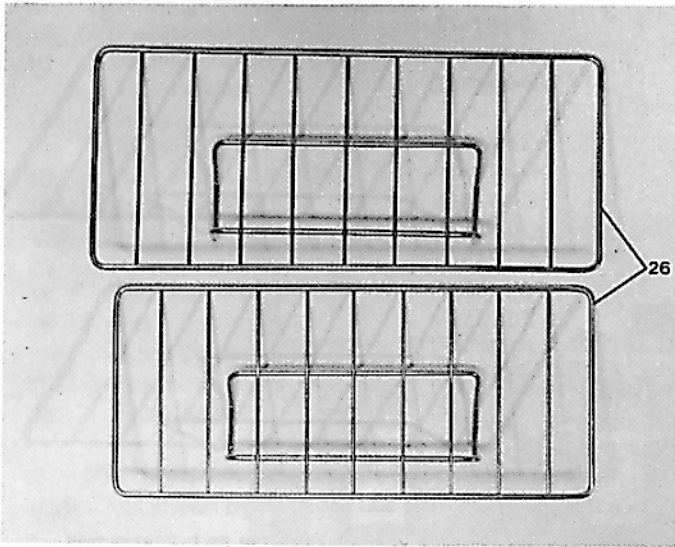
# FRY TANK ACCESSORIES

ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
□ 26	Basket Support Racks	414215-1	2	4	6	2	4	6	4	4	4
□ *27	Fry Tank Cover Assy.	414848-G2	1	2	3	-	-	-	2	-	1
□ *28	Fry Tank Cover Assy.	414848-G1	-	-	-	2	4	6	-	4	2
□ *29	Tank Cover Handle	407023-1	1	2	3	2	4	6	2	4	3
□ 30	Cleaning Rod Assy. (NS)	414608-G1	1	1	1	1	1	1	1	1	1

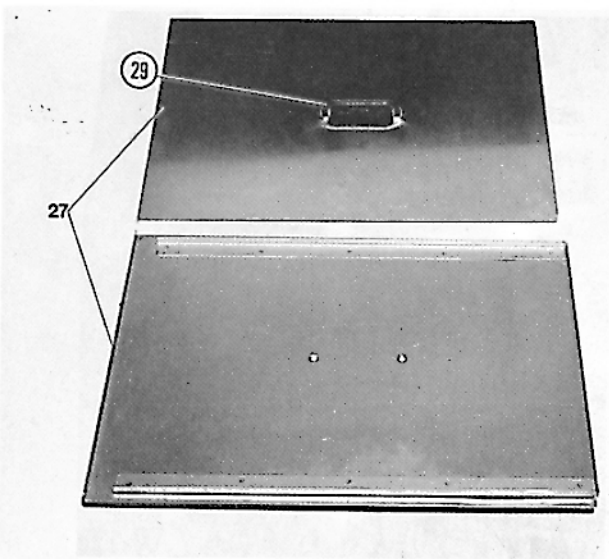
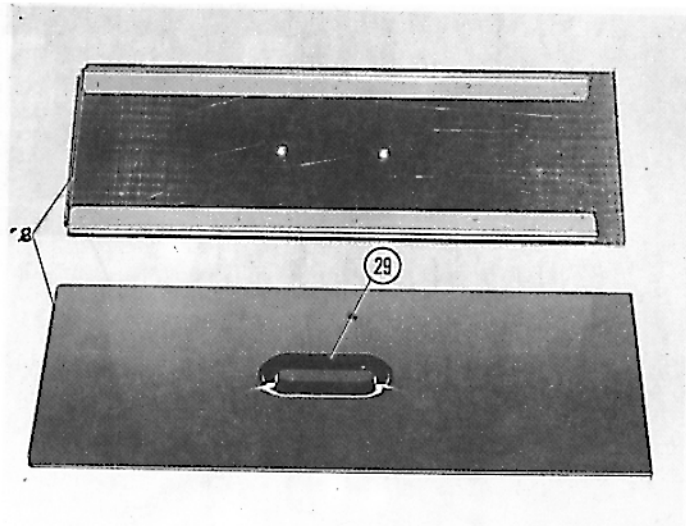
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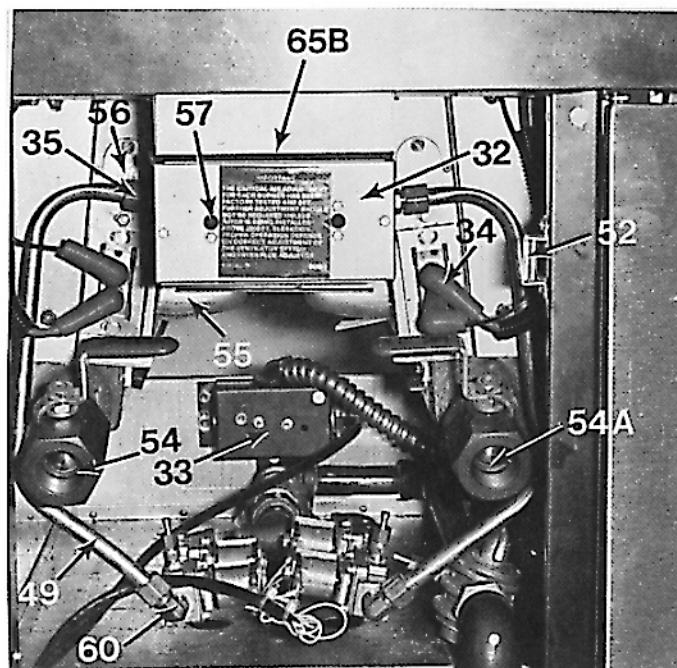
FRY TANK ACCESSORIES



# FRYER DOOR CONTROL AREA

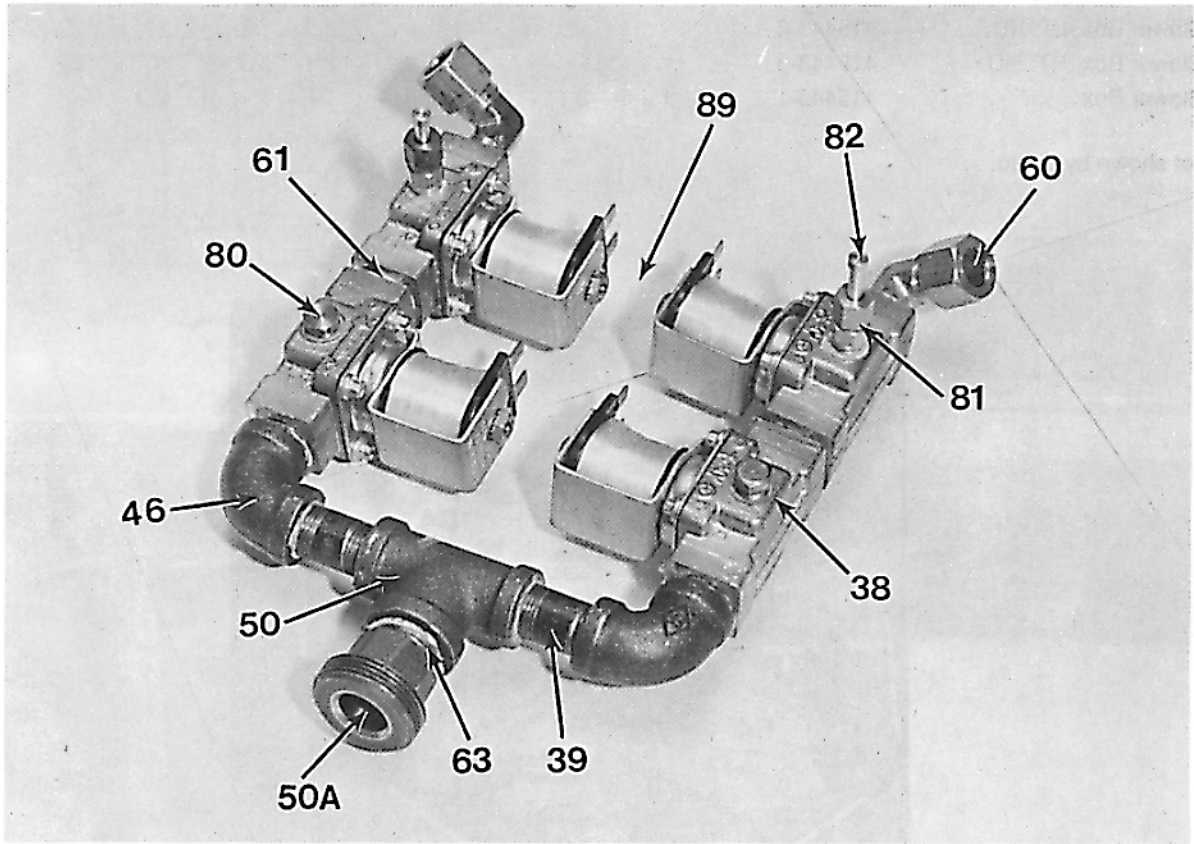
ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
32	Blower Cover	415440-1	1	2	3	-	-	-	2	-	1
33	Elec. Box Assembly	414219-G1	1	2	3	1	2	3	2	2	2
34	Ignitor	414149-1	2	4	6	2	4	6	4	4	4
35	CC Fitting Male	409700-1	2	4	6	2	4	6	4	4	4
36	Orifice Nat.	409290-31	2	4	6	2	4	6	4	4	4
36A	Orifice Propane	409290-49	2	4	6	2	4	6	4	4	4
49	Burner Tubing	415543-1	2	4	6	2	4	6	4	4	2
52	Door Magnet	408834-1	1	2	3	1	2	3	3	3	3
54	Drain Valve, LT.	414212-3	1	2	3	1	2	3	3	3	3
54A	Drain Valve, RT.	414212-4	1	2	3	1	2	3	3	3	3
55	Burner Assembly	414707-G3	2	4	6	2	4	6	4	4	4
55A	Burner Assembly (High Hydrogen)	414707-G2	2	4	6	2	4	6	4	4	4
56	Sight Hole Cover	414139-1	2	4	6	2	4	6	4	4	4
57	Plug Button	414781-1	2	4	6	2	4	6	4	4	4
58	Drain Pipe Hook Top (NS)	414246-1	1	2	3	1	2	3	2	2	2
59	Drain Pipe Hook (NS)	414245-1	1	2	3	1	2	3	2	2	2
60	CC Fitting Below	414800-2	-	-	-	2	4	6	-	4	2
65	Blower Box, LT. HD.	415443-2	-	-	-	1	2	3	-	2	1
65A	Blower Box, RT. HD.	415443-3	-	-	-	1	2	3	-	2	1
65B	Blower Box	415443-1	1	2	3	-	-	-	2	-	1

(NS) – Not shown by photo.




# SUB-MANIFOLD ASSEMBLY

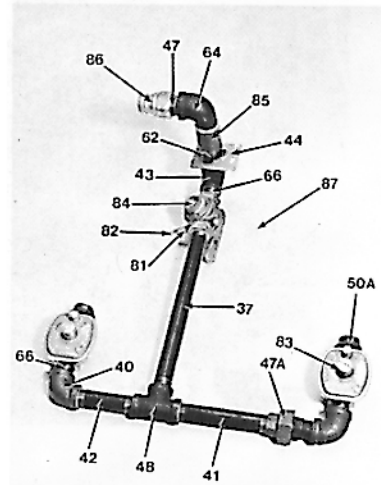
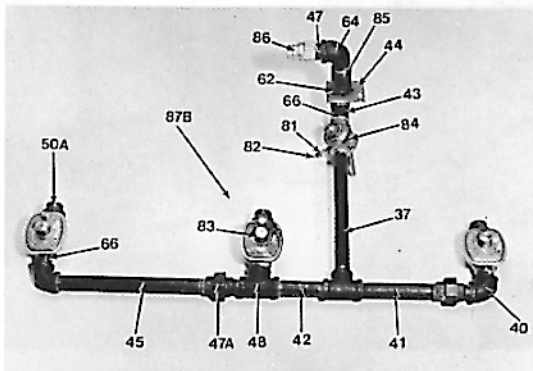
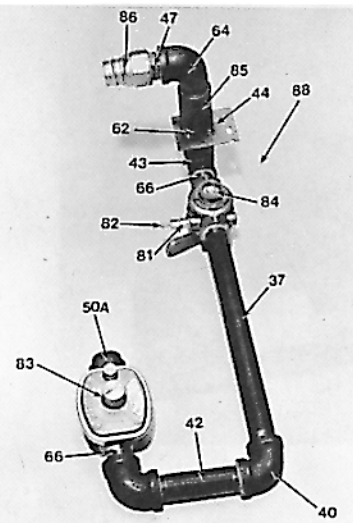
ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
38	Valve, Solenoid Auto.	411497-F1	4	8	12	4	8	12	8	8	8
39	Pipe Nipple	413500-C13	2	4	6	2	4	6	4	4	4
46	90° Elbow Banded	414798-3	2	4	6	2	4	6	4	4	4
50	Tee Reducing	414789-7	1	2	3	1	2	3	2	2	2
50A	Union Female	414797-4	1	2	3	1	2	3	2	2	2
60	90° Comp. Fitting	414800-2	2	4	6	2	4	6	4	4	4
61	Pipe Nipple	413500-C6	4	8	12	4	8	12	8	8	8
63	Pipe Nipple	413500-D9	1	2	3	1	2	3	2	2	2
80	Plug Pipe	414837-1	4	8	12	4	8	12	8	8	8
81	Pressure Tap	404738-2	2	4	6	2	4	6	4	4	4
82	Pressure Tap Plug	416813-1	2	4	6	2	4	6	4	4	4
89	Sub-Manifold Assembly	414232-G3	1	2	3	1	2	3	2	2	2



# MANIFOLD ASSEMBLY

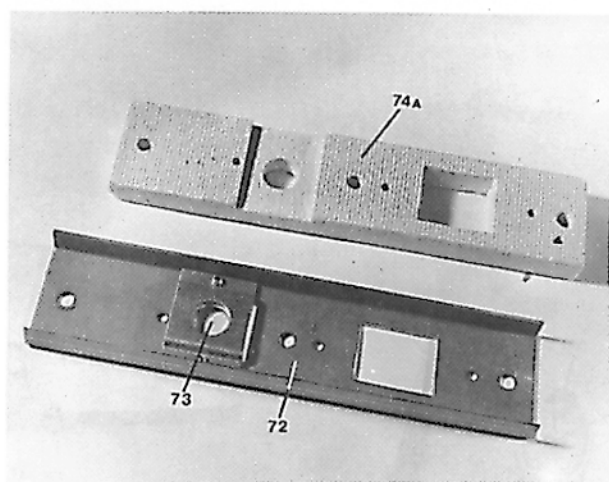
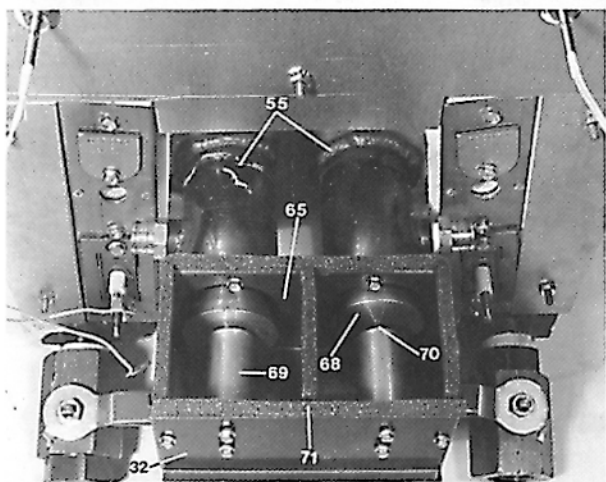
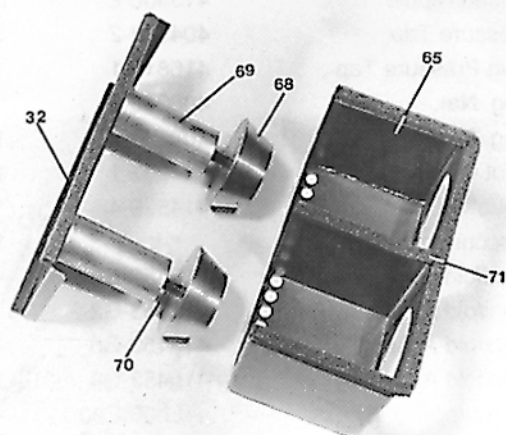
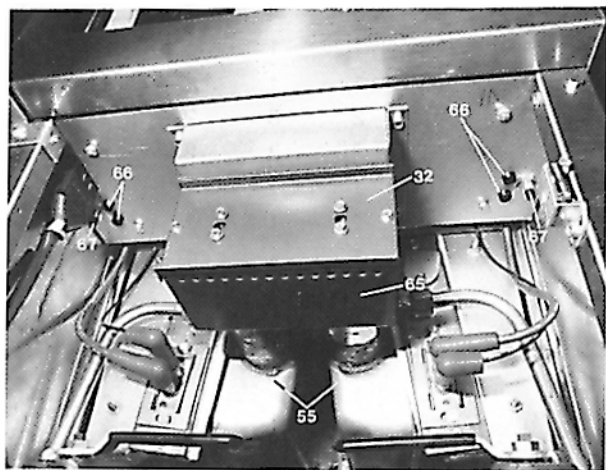
ITEM NO.	DESCRIPTION	PART NO.	SPGR								
			-1	-11	-111	-2	-22	-222	-101	-202	-102
37	Pipe Nipple	413500-E98	1	1	1	1	1	1	1	1	1
40	Elbow, Banded	414798-5	2	2	2	2	2	2	2	2	2
41	Pipe Nipple	413500-E46	-	1	-	-	1	-	-	-	-
42	Pipe Nipple	413500-E32	1	1	1	1	1	1	1	1	1
43	Elbow Reducing	414812-4	1	1	1	1	1	1	1	1	1
44	Bracket, Manifold Support	415983-G1	1	1	1	1	1	1	1	1	1
45	Pipe Nipple	413500-E168	-	-	1	-	-	1	1	1	1
47	Pipe Nipple	413500-F12	1	1	1	1	1	1	1	1	1
47A	Union, Female	414803-1	-	1	2	-	1	2	1	1	1
48	Tee Fitting	414696-5	-	1	2	-	1	2	1	1	1
50A	Union, Female	414797-4	1	2	3	1	2	3	2	2	2
62	Bushing Plain Face	414790-7	1	1	1	1	1	1	1	1	1
63	Close Nipple	413500-D9	1	2	3	1	2	3	2	2	2
64	Street Elbow	414741-6	1	1	1	1	1	1	1	1	1
66	Closed Nipple	413500-E11	2	3	4	2	3	4	3	3	3
81	Pressure Tap	404738-2	1	1	1	1	1	1	1	1	1
82	Plug Pressure Tap	416813-1	1	1	1	1	1	1	1	1	1
83	Reg. Nat.	<del>408279-1</del>		2	3	1	2	3	2	2	2
83A	Reg. Propane	<del>408279-3</del>	1	2	3	1	2	3	2	2	2
84	Shut Off Valve	<del>414201-1</del>	1	1	1	1	1	1	1	1	1
85	Coupling	414829-4	1	1	1	1	1	1	1	1	1
86	Disconnect Fitting		1	1	1	1	1	1	1	1	1
87	Manifold Assembly	415452-G5	-	1	-	-	-	1	-	-	-
87A	Manifold Assembly (NS)	415453-G2	-	-	1	-	-	1	1	1	1
87B	Manifold Assembly	415452-G6	-	-	1	-	-	1	1	1	1
88	Manifold Assembly	415452-G4	1	-	-	-	1	-	-	-	-
89	Pipe Nipple (NS)	413500-E90	-	-	1	-	-	1	-	-	-

(NS) – Not shown by photo.



# BLOWER BOX AND IGNITOR AREAS

ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
66	Indicator Lights	411496-E11	3	6	9	5	8	12	6	8	7
67	Ignitor Board Reset Button	414148-1	2	4	6	2	4	6	4	4	4
68	Air Adjustment Plunger	414703-1	2	4	6	2	4	6	4	4	4
69	Air Adjustment Sleeve	414706-1	2	4	6	2	4	6	4	4	4
70	Set Screw 1/4-28 x 1 1/4 LG.	414737-1	2	4	6	2	4	6	4	4	4
71	Foam Tape	415541-1	1	2	3	1	2	3	2	2	2
72	Burner Channel Seal	415445-1	2	4	6	2	4	6	4	4	4
73	Sight Glass	415518-1	2	4	6	2	4	6	4	4	4
74A	Burner Channel Insulation	415436-1	2	4	6	2	4	6	4	4	4



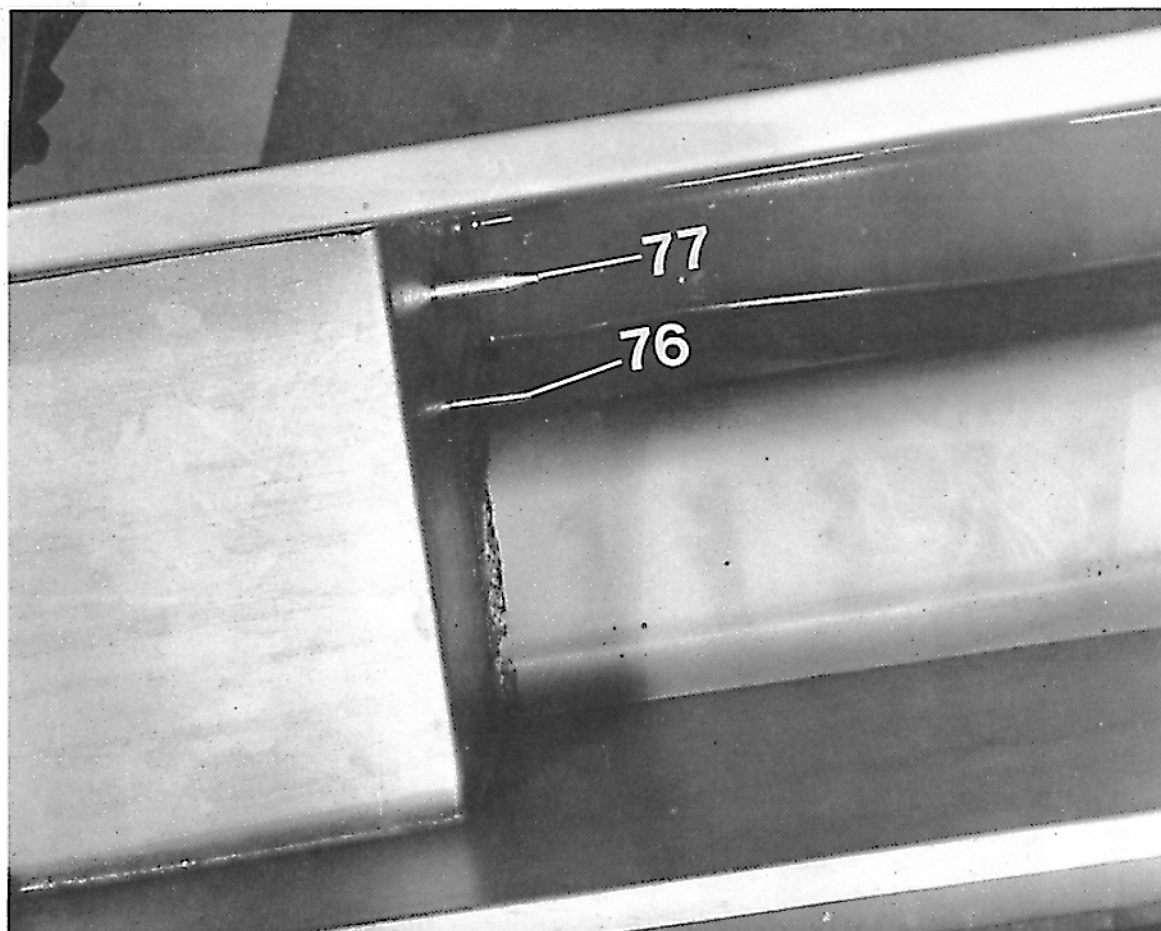
# TANK SENSORS

ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
77	Second High Limit	414145-1	1	2	3	2	4	6	2	4	3
76	Thermistor Probe	<del>414141-2</del>	1	2	3	2	4	6	2	4	3

□ - May be replaced by other than service personnel.

(NS) - Not shown by photo.

\* - Not supplied as standard item (Optional upon request).



# CONTROL BOARDS

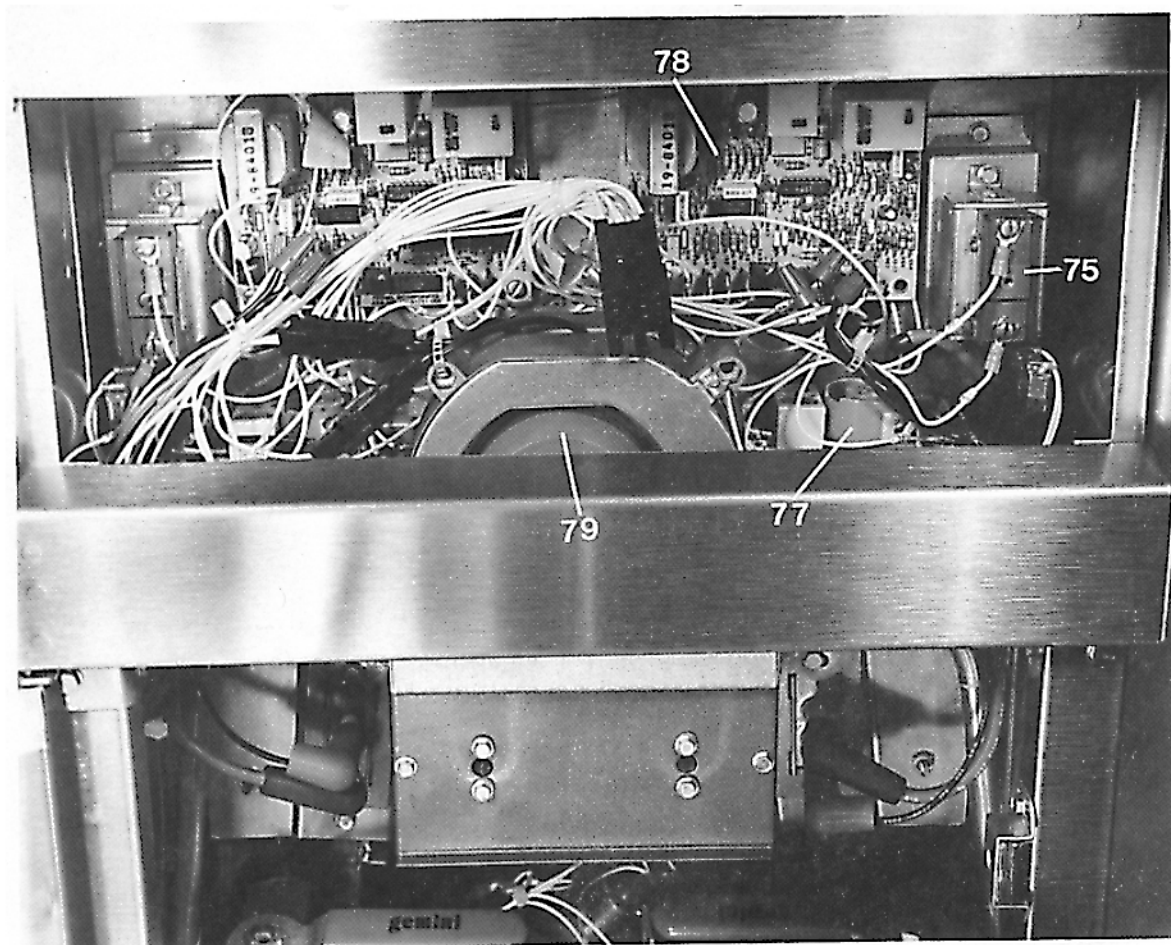
ITEM NO.	DESCRIPTION	PART NO.	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR	SPGR
			-1	-11	-111	-2	-22	-222	-101	-202	-102
79	Blower Assy.	<del>414160-8</del>	2	4	6	2	4	6	4	4	4
77	Ignitor Board	414148-1	2	4	6	2	4	6	4	4	4
78	Temp. Control Board	415144-11	1	2	3	2	4	6	2	4	3
75	Second High Limit	414145-1	1	2	3	2	4	6	2	4	3

□ – May be replaced by other than service personnel.

(NS) – Not shown by photo.



\* – Not supplied as standard item (Optional upon request).





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