FARWEST™

HOSPITALITY ★ PRODUCTS

INSTALLATION, OPERATIONS & MAINTENANCE

INSTRUCTIONS

NSF.

PAR DEEP FAT FRYER

MODEL PAR-1-20

NRTL

INSTRUCTIONS TO BE FOLLOWED IN CASE THE USER SMELLS GAS ARE TO BE POSTED IN A PROMINENT LOCATION. THIS INFORMATION SHALL BE OBTAINED BY CONTACTING THE LOCAL GAS COMPANY OR GAS SUPPLIER.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance

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

Manufactured by:

FARWEST HOSPITALITY ★ PRODUCTS

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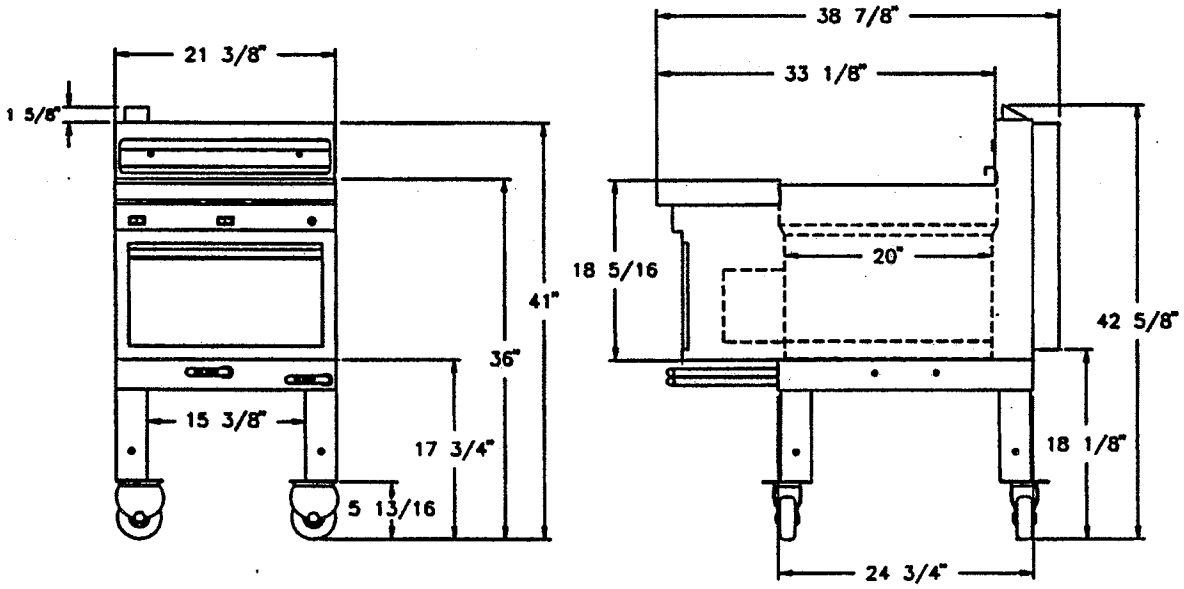
RETAIN THIS MANUAL FOR FUTURE REFERENCE!!!

PN 30-579 PUBLISHED MAY 1994

FIGURES AND TABLES

SPECIFICATIONS

OVERALL WIDTH	**21⅜"**
OVERALL DEPTH	**38⅞"**
WORK HEIGHT	**35"**
SIZE FAT CONTAINER	**20" x 20"**
OIL CAPACITY	**127 Lbs.**
GAS RATING	
NATURAL GAS	**63,000 BTU/HR**
ELECTRICAL	**120 VOLT 60HZ 1Ø**
SHIPPING CUBE	**20.5 CU. FT.**
SHIPPING WEIGHT	**285 Lbs.**



MODEL PAR-1-20

GENERAL: The Model PAR-1-20 deep fat fryer is fabricated to operate as a single fryer or in a bank of up to six (6) Model PAR-1-14, PAR-1-18 or PAR-1-20 fryers. Regardless of the number of fryers in a bank, each Model PAR-1-20 fryer is identical in construction and operation.

1. **DESCRIPTION AND SPECIFICATIONS:** The PAR Deep Fat Fryer is an energy-efficient gas fired unit, design-certified by the American Gas Association (AGA), Canadian Gas Association (CGA) and the National Sanitation Foundation (NSF), and manufactured to operate on **NATURAL** gas according to the following performance specifications. Each unit is shipped completely assembled with accessories packed inside the fryer tank, and each unit is adjusted, tested and inspected prior to shipment. The Model PAR-1-20 PAR deep fat fryer is designed to be used in a commercial food preparation environment after it is installed as outlined in these instructions.

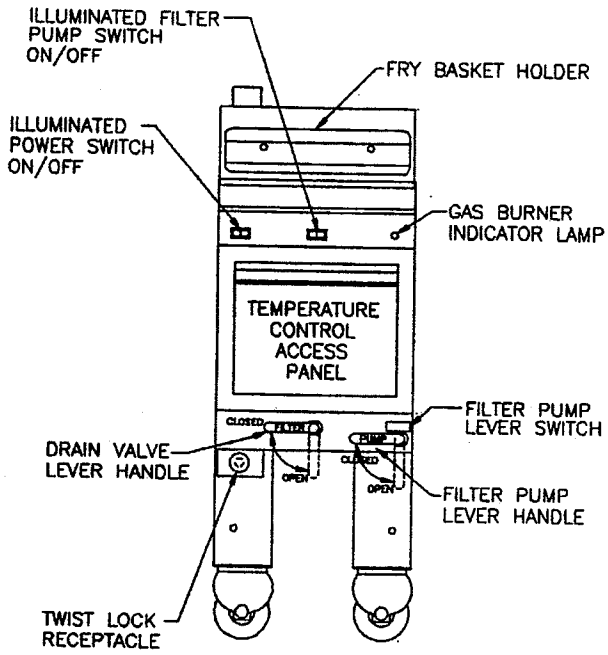
MODEL PAR-1-20 DEEP FAT FRYER OPERATION REQUIREMENTS

ITEM	REQUIREMENT
SHORTENING CAPACITY	127 LB
TYPE GAS	NATURAL
GAS VALVE SETTING	3.5" W.C.
ORIFICE DRILL SIZE	#23
ENERGY INPUT	
ELECTRIC	120V 60HZ 1Ø
NATURAL GAS	60.00 CU FT/HR

1.1 **OPERATING CONTROLS:** The "Standard" PAR 1-20 PAR deep fat fryer is equipped with a Fenwal temperature control as listed below; however customers may order the Frymaster computer version of this fryer. Customers ordering the Frymaster computer version will be provided supplemental operating instructions. "Standard" operating controls are as follows:

a) The illuminated power on/off switch, illuminated pump on/off switch, and **RED** indicator lamp are located on the front panel above the temperature control access panel, and the Fenwal temperature control is located beneath the TEMPERATURE CONTROL access panel.

b) The main drain valve lever and filter pump lever switch are mounted immediately below the TEMPERATURE CONTROL access panel, and the manual gas shutoff valve is located beneath the left hand corner of the vat. In addition a 120 volt twist lock electrical receptacle is located beneath the temperature control access panel for use by auxiliary equipment.



1.2 AUTOMATIC SAFETY FEATURES:

a) High limit thermostat to shut off gas to the main burners by opening a solenoid-actuated safety valve in the combination gas control valve.

b) Combination gas control valve which includes a built-in pressure regulator and manual valve.

c) CENTRIFUGAL switch within the blower motor to open the electrical circuit and turn gas to the fryer OFF in the event the blower motor fails.

1.3 **RATING PLATE:** Information on this plate includes the model and serial number; BTU/HR input rating of the burners; gas manifold pressure in inches W.C.; minimum inlet gas pressure, orifice size; and type of gas. This data is essential for proper identification when communicating with the manufacturer or requesting special parts or information.

THE FRYER MUST BE CONNECTED ONLY TO THE TYPE OF GAS IDENTIFIED ON THIS RATING PLATE!

2. **PRE-INSTALLATION:** Safe and satisfactory operation of a PAR-1-20 PAR deep fat fryer depends on its proper installation. Installation must conform to local codes or, in the absence of local codes, with the current National Fuel Gas Code, ANSI Z223.1 (latest edition). In Canada gas installation shall be in accordance with the current CAN/CGA B 149.1 and .2 installation codes and/or local codes.

2.1 **GENERAL:** Each Model PAR-1-20 deep fat fryer should be installed as follows:

a) Placed beneath a properly designed exhaust hood.

b) Installed by a licensed plumber.

c) Connected to the type gas for which the unit was fabricated as shown on the rating plate.

d) Connected to the proper size pressure regulator installed in the gas supply line and adjusted to the proper manifold pressure.

e) Connected to the main gas supply line with the proper size supply line.

f) Restrained by use of restraining device PN 24-324 to prevent tipping when installed to avoid splashing hot liquid.

2.2 CLEARANCES: The appliance must be kept free and clear of all combustibles. The minimum clearance from combustible and non-combustible construction is 6" from the sides, and 6" from rear. The fryer may be installed on combustible floors.

NOTE: Adequate clearances must be provided for servicing and proper operation.

2.3 STANDARDS: Installation must be planned in accordance with all applicable state and local codes, taking into account the following standards:

a) The fryer and its individual shut-off valve must be dis-connected from the gas supply piping system during any pressure testing of that system at pressures in excess of 1/2 psig (3.45kPA). In Canada gas installation shall be in accordance with the current CAN/CGA B 149.1 and .2 installation codes and/or local codes.

b) The fryer must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at pressures equal to or less than 1/2 psig (3.45kPA).

c) When installed, the fryer must be electrically grounded in accordance with local codes, or in the absence of local codes, in accordance with the current National Electrical Code ANSI/NFPA 70 (latest edition). In Canada electrical installation must be in accordance with the current CSA C22.1 Canadian Electrical Code Part 1 and/or local codes.

d) Other applicable nationally recognized installation current standards such as:

1) National Fuel Gas Code ANSI Z223.1 (latest edition)
American Gas Association
1515 Wilson Blvd.
Arlington, VA 22209

2) NFPA Standards #54, #96 and #221 (latest edition)
National Fire Protection Association
470 Atlantic Avenue
Boston, MA 02110

3) Canadian codes Z21.69/CAN1 6.10-88 and Z21.41/CAN1 6.9M79

e) Exhaust hood, when installed must conform to the current NFPA 54-1 and Canadian CAN/CGA-1.11 (latest edition)

NOTE: Local building codes will usually not permit a deep fat fryer with its open tank of hot oil to be installed immediately next to an open flame of any type, whether a broiler or the open burner of a range. Check local codes before beginning installation.

2.4 AIR SUPPLY AND VENTILATION: The area around the appliance must be kept clear to avoid any obstruction to the flow of combustion and ventilation air as well as for ease of maintenance and service. **NOTHING** is to be stored in the interior of the fryer's cabinet and the **ONLY** item to be stored beneath the fryer is the **FILTER TUB.**

a) A means must be provided for any commercial, heavy duty cooking appliance to exhaust combustion wastes outside of the building. It is essential that a deep fat fryer be set under a powered exhaust hood or that an exhaust fan be provided in the wall above the unit, as exhaust temperatures are in the vicinity of 400° F.

NOTE: Strong exhaust fans in a hood or in the overall air conditioning system can produce slight air drafts in the room, which can interfere with burner performance and be hard to diagnose. Air movement should be checked during installation and if burner problems persist, make-up air openings or baffles may have to be provided in the room.

b) Exhaust temperatures, in addition to the open tank of hot oil, make the storage of anything on shelving over or behind the fryer unsafe.

c) Filters and drip troughs should be part of any industrial hood, but consult local codes before constructing and installing any hood.

d) Provisions must be made for an adequate supply of fresh air and adequate clearance must be maintained for air openings into the combustion chamber.

3. RECEIVING & INSTALLING THE FRYER

3.1 UNPACKING: Check that the container is upright. Use an outward prying motion - **DO NOT USE A HAMMER** - to remove the carton. Check the fryer(s) for visible damage; if such damage has occurred do not refuse shipment, but contact the carrier and file the appropriate freight claims. Remove the two shipping bolts in the front and rear legs and remove the two (2) 2" x 6" wood supports.

3.2 INSTALLING:

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.

a) If sufficient clearance is available to roll the assembled fryer bank into the building, proceed to paragraph 3.3 below.

b) In the event entrance doors are too narrow for the assembled fryer bank, disassemble and reassemble the fryer as follows:

1) DISASSEMBLY:

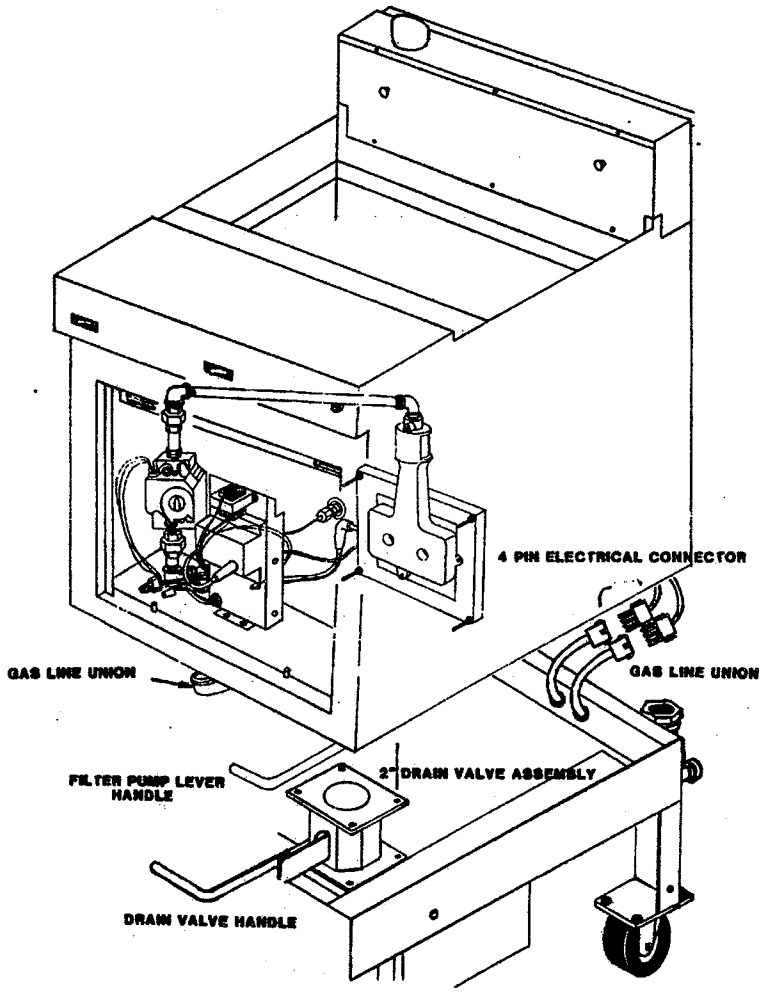
- a Remove the LOWER REAR panel on each fryer by removing the four (4) 10-24 truss head screws.
- b CAREFULLY loosen and separate ALL fryer and base frame gas line manifold unions.
- c CAREFULLY loosen and separate ALL fryer and base frame ¾" unions beneath each FILTER ball valve.
- d Remove the shortening drain trough from each 2" ball valve plate by removing the four (4) ¼-20 hex head bolts and nuts.
- e CAREFULLY remove each drain ball valve handle from the 2" ball valve by removing the ball valve hex head nut.
- f Disconnect the TWO (2) 4 pin electrical receptacles at the REAR of each fryer from its mating receptacle on the base frame.

NOTE: The two end vats have an additional 4 pin receptacle for the pump motors that must be disconnected.

- g Remove the wire chase cover beneath the FRONT of each fryer by removing the TWO (2) 10-24 round head screws; then CAREFULLY disconnect the 4 pin electrical receptacle from it's mating receptacle.
- h Number each fryer numerically from LEFT to RIGHT.
- i CAREFULLY remove each fryer from the base frame, set each fryer aside, and carry the base frame into the building

2) ASSEMBLY:

- a Place each fryer on the base frame in numerical order LEFT to RIGHT.
- b Connect the 4 pin receptacles on each end of the wire chase beneath the front of each fryer; then place the wire chase coverplate over this connection and secure it to the fryer using the TWO (2) 10-24 round head screws removed above.
- c Connect the 4 pin receptacle at the rear of each fryer color coded ORANGE to its mating receptacle; then connect the remaining receptacle on the left side to its mating receptacle. NOTE: Connect the 4 pin receptacle on the right side of each end vat to its mating receptacle.



d Insert the drain ball valve handle through the 1" hole on the front of the base frame and secure it to the ball valve with the ball valve hex head nut removed above.

e Install the shortening drain trough beneath the fryers and secure it to the ball valve plates using the four ¼-20 bolts and nuts removed above.

f CAREFULLY connect and securely tighten the fryer and base frame ¾" unions beneath the FILTER ball valves.

g CAREFULLY connect and securely tighten the fryer and base frame gas line unions.

h Place the LOWER REAR panel on the fryer and secure it using the four (4) 10-24 truss head screws removed above.

3.3 LEVELING:

a) Roll the base frame to the fryer location, and check to be sure that the frame is level at this location. If not, loosen the casters and insert the appropriate number of shim plates between leg and caster plates then re-tighten the caster bolts.

b) If the floor is smooth and level, adjust to the high corner and measure with a spirit level. If the floor is uneven or has a decided slope, level the unit with metal shims.

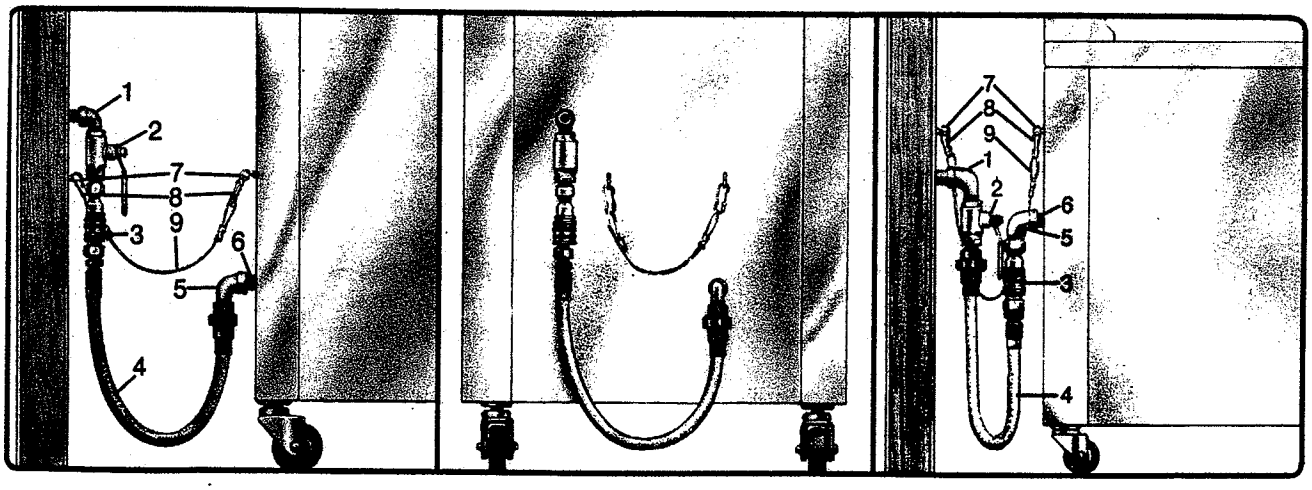
NOTE: A caster may not return exactly to the same position after being moved, which may require re-levelling after each move.

c) Connect the gas manifold to the building gas supply line by means of a ¾" or 1" **AGA/CGA APPROVED** flexible gas line as shown in the figure below.

NOTE: AVTEC Industries ¾" and 1" flexible gas hoses 4 feet long with a quick disconnect coupling on one end are available from Far West Products under part number 24-322 (¾" hose) and 24-323 (1" hose). Both hoses are equipped with a **FUSIBLE LINK** which melts at **361°F** that will **SHUT OFF** the gas supply when it melts. A restraining device 4" long is also available under part number 24-324.

CAUTION: THE BUILDING GAS SUPPLY LINE MUST BE 1" OR LARGER.

d) The fryer is equipped with a SJOW 16/3 electrical cord with an electrical plug. Connect this power cord to a standard electrical receptacle that is properly grounded and rated at 15 Amperes.



WARNING: THE RESTRAINT DEVICE (ITEM 9, FIGURE 1) MUST BE INSTALLED TO PREVENT TIPPING AND SPLASHING OF HOT LIQUID.

1 - BUILDING GAS SERVICE LINE
2 - MAIN GAS CUT-OFF VALVE
3 - AVTEC QUICK-DISCONNECT
4 - FLEX-CON CONNECTOR
5 - ELBOW
6 - APPLIANCE MANIFOLD/NIPPLE
7 - EYELET FASTENERS
8 - SPRING HOOK
9 - RESTRAINING CHAIN

TYPICAL GAS CONNECTION
FIGURE 1

e) Inlet gas requirement for each Model PAR-1-20 fryer **VAT** and each Model PAR-1-20 fryer **BANK** is as follows:

1 MODEL PAR-1-20 VAT INLET GAS REQUIREMENT

GAS VALVE SETTING (W.C.)	ORIFICE HOLE SIZE	BTU/HR RATING	CUFT/HR INLET GAS REQUIRED
3.5"	#23	63,000	60.00

2 PAR-1-20 FRYER BANK INLET GAS REQUIREMENT

1 VAT	2 VAT	3 VAT	4 VAT	5 VAT	6 VAT
60.00	120.00	180.00	*240.00	*300.00	*360.00

*Fryer banks containing 4 or more vats **MUST** be equipped with a 1" flexible gas line PN 24-323 which is rated for 414.29 CUFT/HR (435,000 BTU/HR).

3.4 **GAS CONNECTION:** The gas supply (service) line must be the same size or greater than the inlet line of the appliance. **THE GAS SUPPLY LINES MUST BE SIZED TO ACCOMMODATE ALL THE GAS-FIRED EQUIPMENT THAT MAY BE CONNECTED TO THAT SUPPLY.** Refer to Table 1 (page 34) and consult your contractor, gas company or supplier, or other cognizant authorities.

a) Manual shut off valve: This supplier-installed valve must be installed in the gas service line ahead of the appliance and in a position where it can be reached quickly in the event of an emergency.

b) Pressure regulating: All commercial cooking equipment must have a pressure regulator on the incoming service line for safe and efficient operation, because service pressure may fluctuate with local demand. External regulators are not required on this deep fat fryer, as that function is performed by a combination gas control valve, however if the incoming pressure is in excess of 1/2 psig, a stepdown regulator will be required.

c) Natural gas: Natural gas units require 7" water column (W.C.) line pressure for proper operation. This line pressure should be checked with a Manometer prior to installation of the fryer.

d) Combination gas control valve: The correct combination gas control valve and orifice is installed at the factory for **NATURAL GAS.** Combination gas control valves should be **CHECKED/ADJUSTED** by qualified service personnel using proper test equipment prior to start-up of the PAR-1-20 PAR deep fat fryer.

e) Rigid connections: The fryer can be connected singly or as part of a cooking line. Check any installer-supplied intake pipe(s) visually and/or blow them out with compressed air to clear dirt particles, threading chips, or any other foreign matter before connecting to the service line as these particles may clog the orifice when gas pressure is applied. All connections must be tested with a soapy solution before lighting fryers. **DO NOT USE AN OPEN FLAME TO CHECK FOR LEAKS!** Putting an open flame beside a new connection is not only dangerous, but will often miss small leaks that a soapy solution would find.

f) Flexible Couplings, Connectors: The installation is to be made with a connector that complies with the current Standard for Connectors for Movable Gas Appliances, ANSI Z21.69/CAN 1 6.10-88, and Addenda, Z21.69a (latest edition); a quick-disconnect device that complies with the current Standard for Quick-Disconnect Devices for Use

With Gas Fuel, ANSI Z21.41/CAN 1 6.9M79, and Addenda Z21.41a and Z21.41b (latest edition); and an adequate means must be provided to limit or restrain the movement of the fryer to prevent tipping and splashing of hot liquid without depending on the connector and the quick-disconnect device or its associated piping to limit the fryer movement. To assure movement of the fryer is limited, attach the restraining device to the nearest rear leg of the fryer base frame. **DOMESTIC CONNECTORS ARE NOT SUITABLE!!!**

g) Fryer Service: The fryer is mounted on a common frame which is equipped with swivel casters. To service the fryer:

1) Turn "off" gas supply at the supply source.
2) Disconnect the flexible gas line quick-disconnect.
3) Disconnect restraint means and roll fryer out for rear service access.
4) When the fryer is re-positioned, be sure to reconnect the restraint and level the fryer.

3.5 ELECTRICAL CONNECTION: The **MAXIMUM** current draw of a fryer bank will not exceed 12.9 amperes at 120 volts. Each bank of fryers is equipped with a SJOW 16/3 electrical cord with an electrical plug which is to be connected to a standard electrical receptacle rated at 15 amperes. Refer to the wiring diagram beneath the front panel of each fryer or in these instructions for internal electrical connections.

WARNING!!
ELECTRICAL GROUNDING INSTRUCTIONS

This appliance is equipped with a three-prong (grounding) plug for your protection against shock hazard, and should be plugged directly into a properly grounded three-prong receptacle. **DO NOT CUT, REMOVE, OR OTHERWISE BY-PASS THE GROUNDING PRONG ON THIS PLUG!**

4. INITIAL START-UP

4.1 CLEANING: New units are wiped clean with solvents at the factory to remove any visible signs of dirt, oil, grease, etcetera, remaining from the manufacturing process, then given a light coat of oil. Each fryer vessel should be thoroughly washed with hot soapy water to remove film residues and installation dust or debris; rinsed out; and then wiped dry before being used for food preparation.

4.2 START-UP: The fryers are tested, adjusted, and calibrated prior to being shipped; however adjustments may be necessary on installation to meet local conditions, low gas pressure, differences in altitude, variations in gas characteristics, and to correct possible problems caused by rough handling or vibration during shipment. Initial calibration, or adjustment is the responsibility of the customer and will not be covered by the Far West Products warranty.

NOTE: Calibration and adjustments must be performed by qualified service personnel.

4.3 LIGHTING INSTRUCTIONS: Each fryer is equipped with a spark ignition system and to test this system, perform the following steps, in sequence:

a) Turn the electrical **POWER SWITCH** to the **OFF** position.
b) Fill the fryer vessel with hot or cold water to the **OIL LEVEL** line.

CAUTION

IF THE MAIN BURNERS ARE OPERATED WITH THE VESSEL EMPTY, THE HEAT WILL CAUSE THE JOINTS OF THE FRYING VESSEL TO BE PLACED UNDER UNDO STRESS AND MAY CAUSE THE BOTTOM OF THE VESSEL TO WARP OR BUCKLE, VOIDING WARRANTY!

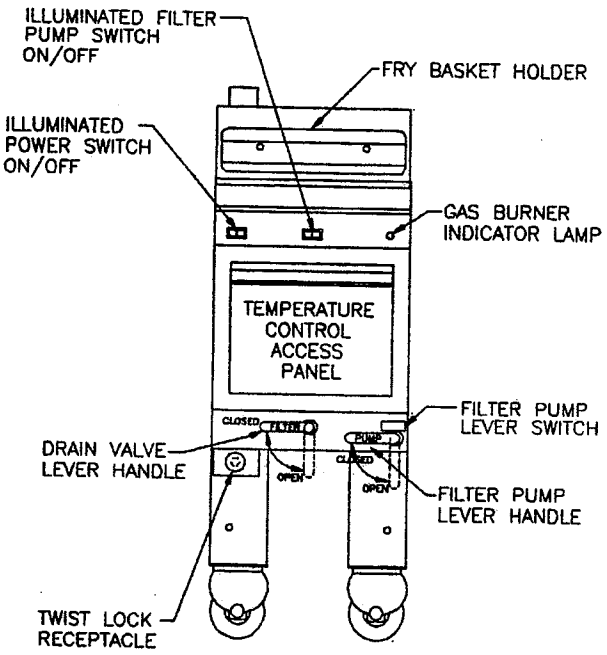


FIGURE 2

c) Turn the manual gas valve beneath the front of the fryer to the **OFF** position and wait **FIVE (5)** minutes for any accumulated gas to disperse.

d) **INSURE** the **MAIN** gas shut-off is in the **ON** position, **MANUAL VALVE** on the combination **GAS CONTROL VALVE** (located beneath the temperature control access panel) is in the **ON** position, and the **EXHAUST FAN** is **ON.**

e) Turn the manual gas valve to the **ON** position.

f) Turn electrical power **ON.**

WARNING!!!
DO NOT USE A MATCH OR CANDLE TO LIGHT A FRYER.....NEVER!

4.4 **SEQUENCE OF IGNITION:** When the lighting instruction steps are performed in the sequence listed above the following will occur:

a) Blower motor will come **ON** activating its internal CENTRIFUGAL switch.

b) The centrifugal switch will **CLOSE** completing the electrical circuit to the transformer.

c) The transformer will supply 24 volts to the **IGNITOR MODULE** and **GAS CONTROL VALVE,** and the ignitor will **SPARK** igniting the gas in the burner.

NOTES:

1- If the burner flame fails it will be sensed by the **SPARK IGNITOR**, the Spark Ignitor Module will open the electrical circuit to the **GAS CONTROL VALVE** shutting off gas to the burner.

2- If the blower motor fails the **CENTRIFUGAL** switch will open the electrical circuit to the **TRANSFORMER** removing electrical power from the **SPARK IGNITOR MODULE** and **GAS CONTROL VALVE** shutting off gas to the burner.

4.5 BURNER OPERATION TEST: Perform step 4.3 a) through 4.3 g) above for each fryer and observe operation of the burners. When satisfied that all burners are operating properly, drain each fryer vessel of water and dry the vessel thoroughly; then fill each fryer vessel with shortening according to instructions in paragraph 4.6 below.

WARNING!!!

WHEN CHECKING FOR BURNER PERFORMANCE, DO NOT STAND WITH YOUR FACE CLOSE TO THE BURNER...IT MAY LIGHT WITH A "POP" AND COULD FLASH BACK AND CAUSE FACIAL BURNS.

4.6 SHORTENING INSTALLATION: Prior to installing shortening **ENSURE** the fryer restraint cable is attached to prevent tipping and splashing of hot liquid.

WARNING!!!

DO NOT MELT A SOLID BLOCK OF SHORTENING BY SETTING IT IN A FRYER VAT OR PACKING IT AROUND THE HEAT TUBES. THIS IS DANGEROUS, INEFFICIENT, AND WILL DAMAGE THE VAT "VOIDING THE VAT WARRANTY."

a) **LIQUID SHORTENING:** When using a liquid shortening (cooking oil) fill the fryer to the **OIL LEVEL** line.

b) **SOLID SHORTENING:**

CAUTION: NEVER MELT A SOLID BLOCK OF SHORTENING BY SETTING IT IN A FRYER VAT OR PACKING IT INTO THE HEAT TUBES. THIS IS EXTREMELY DANGEROUS AND COULD CAUSE CRACKS AROUND WELD SEAMS - "VOIDING THE VAT WARRANTY.'

1) Remove two (2) cubes of shortening from their packaging and place them in a **CLEAN** heating unit, stock pot, steam kettle, etc. to melt. Do not overfill the heating unit, melt only enough shortening as you can safely carry.

2) Melt the shortening until it becomes a liquid. For safety reasons, heat only to about 150°F or until melted.

3) **CAREFULLY** transfer the melted shortening in a **METAL** container and pour the shortening into one of the fryer vats. Add enough **MELTED** shortening to ensure the level is at least two (2) inches **ABOVE** the heat tubes.

4) Turn the fryer vat **ON** following procedures in paragraph 4.3 above.

5) Add solid shortening to the fryer vat by cutting small blocks off of the cube and placing them into a french fry basket. Lower the basket into the fryer vat and gently turn the basket to allow the shortening blocks to float freely. Repeat the above procedure until the vat is full.

NOTE: When filling the first vat, it can be **OVER-FILLED** as melted shortening in this vat will be used to begin filling the next fryer vat.

6) Using a sauce pan, scoop the shortening from the first fryer vat into the next fryer vat until the level is at least two (2) inches **ABOVE** the heat tubes.

7) Turn the second fryer vat **ON** and repeat step 4.6 b) 5) above.

8) Continue the above procedures of scooping melted shortening from one fryer to another until all fryer vats are filled to the proper shortening level.

WARNING!!!
TO AVOID INJURY

I **DO NOT MOVE A FRYER FILLED WITH HOT LIQUID.**
II **DO NOT GO NEAR THE AREA DIRECTLY OVER THE FLUE OUTLET WHEN THE FRYER'S MAIN BURNERS ARE OPERATING.**
III **ALWAYS WEAR OIL-PROOF, INSULATED GLOVES WHEN WORKING WITH A FRYER FILLED WITH HOT OIL.**
IV **ALWAYS DRAIN HOT OIL INTO A METAL TUB, POT, OR CAN...HOT OIL CAN MELT PLASTIC BUCKETS OR SHATTER GLASS.**

5. OPERATING INSTRUCTIONS:

5.1 GENERAL:

a) **SHORTENING:** Use a high quality shortening to achieve a consistent quality product, as well as, long term savings.

b) **SHORTENING TEMPERATURE:** Most products should be cooked with a shortening temperature about **350°F**; however, each product should be cooked at the **LOWEST** temperature that produces a high quality product while obtaining maximum usage of the shortening. When this information is not provided through appropriate channels, the optimum cooking temperature and quantity of product for each cook cycle should be determined by the operator through experiments. To extend the life of the shortening **LOWER** the temperature of the fryer when the fryer is not being used.

c) **SALTING:** Products should not be salted over the frying vessel as salt quickly deteriorates the shortening and flavors other products cooked in the same fryer vessel.

d) **POWER FAILURES:** The Model PAR-1-20 PAR fryer cannot be operated during power failures. **DO NOT** attempt to bypass safety controls and manually operate the fryer.

e) **PUMP MOTOR:** The filter pump motor installed on the base frame is protected by circuit breakers.

CAUTION: ENSURE THE FILTER PUMP LEVER SWITCHES ARE IN THE OFF POSITION AND THE WASH DOWN HOSE IS NOT CONNECTED TO A FRYER PRIOR TO RESETTING A FILTER PUMP CIRCUIT BREAKER.

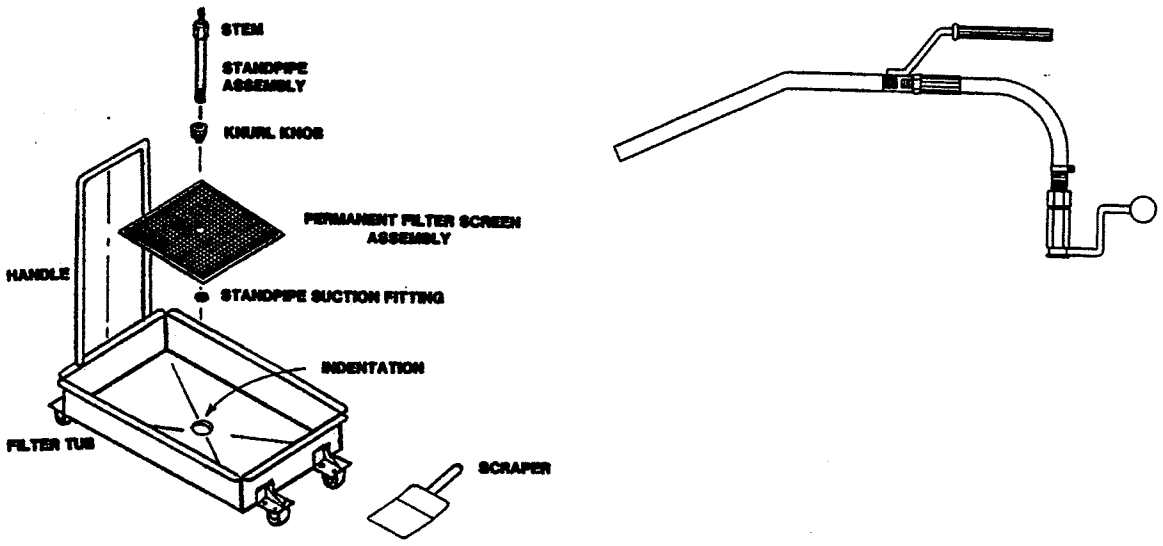
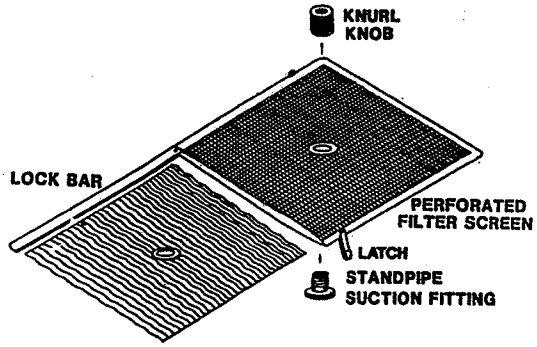


FIGURE 3

5.2 FILTER TUB ASSEMBLY: The **FILTER TUB ASSEMBLY** consists of the Permanent Filter Screen Assembly, Standpipe Assembly, Wash Wand Assembly, and Filter Tub. Assemble the Filter Tub as follows:

a) PERMANENT FILTER SCREEN - The Permanent Filter Screen Assembly consists of a 16" x 16" **FILTER SCREEN** with a hinged **LOCK BAR** on one end and a 13½" x 13½" woven aluminum **BAFFLE** each of which has a 1" diameter hole as shown below. Assemble the Permanent Filter Screen as follows:



1) Carefully insert the **BAFFLE** into the **FILTER SCREEN** as shown above.
2) Align the hole in the **BAFFLE** with the hole in the **FILTER SCREEN.**

3) **CLOSE** and **SECURE** the hinged **LOCK BAR** by placing the **LATCH** over the end of the lock bar.

4) Insert the **STANDPIPE SUCTION FITTING** through the hole in the filter screen and secure it with the **KNURL KNOB.**

b) FILTER TUB:

1) Place the **FILTER SCREEN ASSEMBLY** in the center of the **FILTER TUB** ensuring the **STANDPIPE SUCTION FITTING** is directly over the **INDENTATION** in the center of the filter tub.

2) **CAREFULLY** insert the **STANDPIPE** in the **KNURL KNOB** on the filter screen until it is **SEATED.**

3) Place **12 OUNCES OF FILTER AGENT** on top of the filter screen and spread it evenly over the screen with your hand. **NOTE:** With the exception of placing a **STRAINER** on the filber screen to catch large crumb fragments, the Filter Tub is ready to filter shortening when needed.

NOTE: Store the Wash Wand Assembly in an **UPRIGHT** position after each use to allow remaining shortening to drain into a container.

5.3 FILTERING SHORTENING: Shortening in each fryer vat should be **FILTERED** after each **LUNCH** and **DINNER** rush and more often in high volume stores. Filter the shortening in each fryer vat as follows:

a) Place a clean and **THOROUGHLY** dry assembled filter tub beneath the drain trough; turn the Power Switch to the **OFF** position; turn the Manual Gas Valve on each fryer vat to the **OFF** position; then **SECURELY** connect the **COUPLER** on the Suction Line Hose to the **STANDPIPE STEM** assembly.

b) Pour **16 OUNCES** of **FILTERING AGENT**, such as Kenite 200, into each fryer vat and **THOROUGHLY** stir the filtering agent into the shortening.

NOTE: Safety goggles, neoprene insulated gloves and an apron should be worn while filtering.

c) Place a french fry basket on the filter screen beneath the drain valve to catch large crumbs.

d) Filter shortening in the **FRENCH FRY/ONION RING** fryer vat first, followed by shortening in the **MILD CHICKEN, SPICY CHICKEN,** and **NUGGET** fry vats as follows:

1) Open the drain valve by turning the **DRAIN VALVE** handle 90° to the **LEFT** (counter-clockwise), and let all the shortening drain into the filter tub.

2) When all of the shortening has drained into the filter tub, remove the grill from the fryer vessel and **SECURELY** connect the Wash Wand **QUICK-CONNECT COUPLER** to the fryer **QUICK-CONNECT STEM** located on the rear wall of the fryer.

CAUTION: - IF THE COUPLER IS NOT SECURELY ATTACHED TO THE STEM, HOT SHORTENING WILL BE DISCHARGED AROUND THIS CONNECTION WHICH COULD RESULT IN SEVERE BURNS.

3) Insert the Wash Wand in the fryer vessel; turn the Filter Pump Lever and Filter Pump on/off Switch Switch to the **ON** position; and then use the **HOT** shortening to clean residue from the fryer vessel.

4) When all residue has been rinsed from the fryer vessel; turn the Filter Pump Lever and Filter Pump on/off Switch to the **OFF** position; and disconnect the wash wand **QUICK-CONNECT COUPLER** from the fryer **QUICK-CONNECT STEM.**

5) Replace the grill in the fryer vessel with the **SHORTENING DEFLECTOR** on the **RIGHT SIDE** of the fryer vat.

CAUTION: INSURE THE GRILL IS POSITIONED IN THE VAT WHERE THE "SHORTENING DEFLECTOR' IS IN FRONT OF THE QUICK DISCONNECT STEM ON THE REAR WALL.

6) Set a timer for **SIX (6)** minutes; then turn the Filter Pump Lever and Filter Pump on/off switch to the **ON** position to allow shortening to circulate through the system. This is called **POLISHING** the shortening.

CAUTION: DO NOT POLISH THE SHORTENING MORE THAN 6 MINUTES AS IT WILL PUMP EXCESS AIR INTO THE SHORTENING CAUSING SHORTENING BREAKDOWN.

7) At the end of 6 minutes turn the Filter Pump Lever and Filter Pump on/off switch to the **OFF** position; close the **DRAIN VALVE**; then turn the Filter Pump Lever and Filter Pump on/off switch to the **ON** position to automatically return the shortening in the filter tub to the fryer vat.

8) When all shortening has been returned to the fryer vat; turn the Filter Pump Lever and Filter Pump on/off switch to the **OFF** position, and use the filter tub scraper to **CAREFULLY** remove all sediment from the filter screen taking care to not damage the screen.

9) Repeat steps 1 through 8 to filter shortening in the remaining fryer vats.

e) When the shortening in all fryer vats has been filtered, remove the **COUPLER** on the Suction Line Hose from the **STEM OF THE STANDPIPE** assembly and **THOROUGHLY** clean and reassemble the filter tub.

NOTE: Hang the **WASH WAND HOSE** in an upright position to allow any shortening remaining in the hose to drain into a container. This will prevent shortening from solidifying and clogging the hose.

5.4 **LEVELING SHORTENING:** After filtering the shortening level must be checked and fresh shortening added when necessary.

a) The shortening should reach to the **MIDDLE LINE** of the **"E"** in the word **LEVEL** on the back of the vat.

b) If shortening is needed, use a cook's knife to cut a small block of solid shortening off of the cube.

c) Place a small block of shortening into a french fry basket. Lower the basket into the shortening and turn the basket to allow the block to float freely.

d) Repeat the above steps until the shortening is at the proper level.

5.5 **BOILING OUT FRYERS:** Shortening should be replaced in each fryer every **7 DAYS** and each fryer vat should be **BOILED OUT** to remove carbon buildup and other encrusted materials as follows:

a) Place a clean and **THOROUGHLY** dry assembled filter tub beneath the drain trough; turn the Power Switch to the **OFF** position; turn the Manual Gas Valve on each fryer vat to the **OFF** position; then **SECURELY** connect the **COUPLER** on the Suction Line Hose to the **STANDPIPE STEM** assembly.

b) Turn the Exhaust Fan **ON** and drain the shortening from each vat, one vat at a time, as follows:

1) Open the drain valve by turning the **DRAIN VALVE** handle 90° to the **LEFT** (counter-clockwise), and let all the shortening drain into the filter tub.

2) When all of the shortening has drained into the filter tub, remove the grill from the fryer vessel and **SECURELY** connect the Wash Wand **QUICK-CONNECT**

COUPLER to the fryer **QUICK-CONNECT STEM** located on the rear wall of the fryer.

CAUTION - IF THE COUPLER IS NOT SECURELY ATTACHED TO THE STEM, HOT SHORTENING WILL BE DISCHARGED AROUND THIS CONNECTION WHICH COULD RESULT IN SEVERE BURNS.

3) Insert the Wash Wand in the fryer vessel; turn the Filter Pump Lever and Filter Pump on/off Switch to the **ON** position; and use the **HOT** shortening to clean residue from the fryer vessel.
4) When all residue has been rinsed from the fryer vessel; turn the Filter Pump Lever and Filter Pump on/off Switch to the **OFF** position; close the drain valve by turning the **DRAIN VALVE** handle 90^0 to the **RIGHT** (clockwise); remove the **WASH WAND** from the fryer vessel by removing the **QUICK-CONNECT COUPLER** from the **STEM**; and replace the grill in the fryer vessel.
5) Discard the shortening removed into a **METAL** container.
6) Repeat steps 1 through 5 to drain shortening from each fryer vat; then remove the **COUPLER** on the Suction Line Hose from the **STANDPIPE STEM** assembly and **THOROUGHLY** clean and reassemble the filter tub.

NOTE: Hang the **WASH WAND** in an upright position to allow any shortening remaining in the hose to drain into a container.

c) Add **8 GALLONS** of water to the **FRENCH FRY/ONION RING** fryer vat along with **9 OUNCES** of **BOIL OUT COMPOUND** such as Sea Powder and add **12 GALLONS** of water to remaining fryer vats along with **13 OUNCES** of **BOIL OUT COMPOUND.**
d) Turn the Power Switch for each fryer vat to their **ON** position; and turn the Manual Gas Valve on each fryer vat to the **ON** position.
e) When the cleaning solution is each fryer vat comes to a rolling **BOIL** set a timer for **30 MINUTES.**

NOTE: If the solution starts to boil over, turn the fryer OFF for a few minutes, then turn it back on.

f) **PERIODICALLY** use a long handled brush to scrub the sides and burner tubes to remove carbon build-up and other encrusted materials while the boil-out compound is boiling.
g) After the cleaning solution has boiled for 30 minutes turn the Power Switch and Manual Gas Valve on each fryer vat to their **OFF** position; and drain the cleaning solution from each vat into a floor drain.

NOTE: Do not use the pump to remove water from the fryer as this will cause premature pump failure.

CAUTION: PRIOR TO CLEANING A FRYER VAT REMOVE THE 120 VOLT ELECTRICAL PLUG FROM THE ELECTRICAL RECEPTACLE AND TURN THE MANUAL GAS VALVE OFF.

h) Scrub each fryer vat with a long handled brush to remove any carbon buildup or other encrusted material. If necessary use a dampened 3M Type 7447 **RED** Scotchbrite pad or 3M Type 7440 **HEAVY DUTY BROWN** Scotchbrite pad to remove encrusted material. **CAUTION: DO NOT USE STEEL WOOL, ABRASIVE CLEANSERS, OR ANY TYPE OF METAL OBJECT TO SCRAPE STAINLESS STEEL FRYER VATS.**
i) Use a pressure spray nozzle to rinse each fryer vat with cold water to remove any remaining debris or cleaning solution.
j) Mix a solution of **ONE PART** Vinegar to **25 PARTS** of water (½ cup vinegar to 1 gallon water); place this mixture into a 1 gallon garden pressure sprayer; and **THOROUGHLY**

spray this solution onto the **SIDES, TUBES,** and **BOTTOM** of each fryer vat to neutralize the Boil Out Compound.

NOTE: Boil Out Compound will cause shortening to break down rapidly if it is not neutralized.

k) Close all drain valves, **THOROUGHLY** wipe the sides, heat tubes and bottom of each fryer vat with clean dry towels to remove any remaining water; then fill each fryer vat with **NEW** shortening to the proper level as described in paragraph 4.6 and 5.4 of these instructions.

5.6 CLOSING/SHUTDOWN INSTRUCTIONS:

CLOSING:

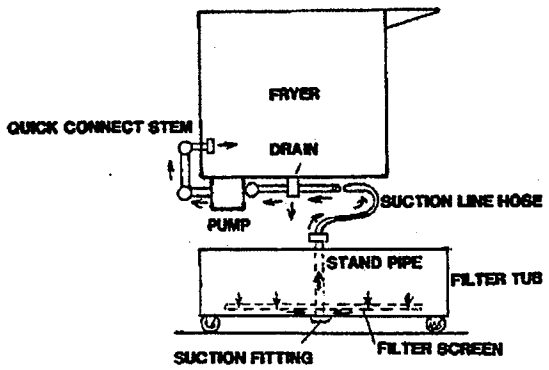
When closing at night filter the shortening in each fryer, **THOROUGHLY** drain all filter lines, and cover each fryer vessel. Turn the Power and Filter Pump Switch on each fryer **OFF**, and turn the Manual Gas Valve **OFF.**

SHUTDOWN OR PROLONGED POWER FAILURE:

a) Perform the following whenever a fryer is being shutdown for an extended period of time:
   1) Drain and discard the shortening.
   2) **THOROUGHLY** clean each frying vat.
   3) Turn the Power Switch and Filter Pump Switch to the **OFF** position, disconnect all 120 volt power cords, and turn applicable Circuit Breakers **OFF.**
   4) Turn the Manual Gas Valve **OFF** and turn the Main Gas Shut-Off Valve **OFF.**

b) Prolonged power failure: The model PAR-1-20 fryer cannot be operated during power failures. **DO NOT** attempt to bypass safety controls and manually start the fryer.

5.7 CLEARING SHORTENING CLOGS: Procedures contained in paragraph 5.2, 5.3 and 5.5 will prevent shortening from hardening and clogging the system. If the shortening system should become **CLOGGED**, locate and clean the clog as follows:



a) Place a clean and **THOROUGHLY** dry assembled filter tub beneath the drain trough; turn the Power switch to the **OFF** position; turn the Manual Gas Valve on each fryer vat to the **OFF** position; then **SECURELY** connect the **COUPLER** on the Suction Line Hose to the **STANDPIPE STEM** assembly.

NOTE: Safety goggles, neoprene insulated gloves and an apron should be worn while performing the following steps.

b) Place a french fry basket on the filter paper beneath the drain valve to catch large crumbs.

c) Open the drain valve by turning the **DRAIN VALVE** handle 90° to the **LEFT** (counter-clockwise), and let all the shortening drain into the filter tub. When all of the shortening has drained into the filter tub, remove the grill from the fryer vessel and **SECURELY** connect the Wash Wand **QUICK-CONNECT COUPLER** to the fryer **QUICK-CONNECT STEM** located on the rear wall of the fryer.

CAUTION: IF THE COUPLER IS NOT SECURELY ATTACHED TO THE STEM, HOT SHORTENING WILL BE DISCHARGED AROUND THIS CONNECTION WHICH COULD RESULT IN SEVERE BURNS.

d) Insert the Wash Wand in the fryer vessel; turn the Filter Pump Lever and Filter Pump on/off Switch to the **ON** position.

1) If shortening is not pumped into the vat; turn the Pump Lever and Filter Pump on/off Switch **OFF**, remove the **WASH WAND HOSE** from the vat and attempt to **BLOW** through the hose from the **COUPLER** end. If you **CAN** blow through the hose, proceed to step 2). If you **CANNOT** blow through the hose it contains congealed shortening. Place the **WASH WAND HOSE** in **HOT WATER** with the coupler and nozzle ends **ABOVE** the water.

NOTE: If water seeps into the hose and is not **THOROUGHLY** removed before it comes in contact with **HOT** shortening, the shortening will **SPLATTER** and could cause an injury.

When congealed shortening has drained from the hose; reconnect it to vat Quick-Connect Stem, place the nozzle in the vat, and turn the Pump Lever and Filter Pump on/off Switch **ON**. If shortening still is not pumped into the vat, more congealed shortening is present somewhere in the shortening system. Turn the Pump Lever and Filter Pump on/off Switch **OFF**, remove the Wash Wand Hose from the vat, and replace the **GRILL** in the vat with the **SHORTENING DEFLECTOR** on the **RIGHT SIDE** of the vat.

2) Remove the **SUCTION LINE HOSE** from the ¾" pipe coupling and **STANDPIPE** and attempt to **BLOW** through it from the **COUPLER** end. If you **CAN** blow through the hose, proceed to step 3). If you **CANNOT** blow through the hose it contains congealed shortening. Use the same procedure in step 1) to clear the shortening clog in this hose. When congealed shortening has drained from the hose; reconnect it to the ¾" pipe coupling and standpipe and turn the Pump Lever and Filter Pump on/off Switch **ON**. If shortening still is not pumped into the vat, more congealed shortening is present in the **STANDPIPE, FILTER SCREEN, TUB,** or **PUMP/MOTOR**. Turn the Pump Lever and Filter Pump on/off Switch **OFF**.

3) Disconnect the Suction Line Hose from the **STANDPIPE** and remove the Standpipe from the **KNURL KNOB** on the Filter Screen. Attempt to **BLOW** through the **STANDPIPE** from the **STEM** end. If you **CAN** blow through the Standpipe proceed to step 4). If you **CANNOT** blow through the Standpipe it contains congealed shortening. Soak the **STANDPIPE** in **HOT WATER** to melt the congealed shortening, then **THOROUGHLY** dry the Standpipe with a soft cloth. Replace the Standpipe in the filter screen Knurl Knob, connect the Suction Line Hose to the Standpipe and turn the Pump Lever and Filter Pump on/off Switch **ON**. If shortening still is not pumped into the vat, more congealed shortening is present in the **FILTER SCREEN OR TUB**, or **PUMP/MOTOR**. Turn the Pump Lever and Filter Pump on/off Switch **OFF**.

4) Remove shortening from the filter tub, remove the **FILTER SCREEN ASSEMBLY** from the filter tub, remove any remaining liquid or congealed shortening from the filter tub, and **THOROUGHLY** clean the Filter Screen Assembly as described in paragraph 6. Reassemble the filter tub, connect the Suction Line Hose to the Standpipe, and turn the Pump Lever and Filter Pump on/off Switch **ON.** If shortening still is not pumped to the vat, congealed shortening is in the **PUMP/MOTOR.** Turn the Pump Lever and Filter Pump on/off Switch **OFF** and proceed to step 5).

5) Replace shortening removed from the vat, turn the fryer **ON**, and bring the shortening up to **COOK** temperature, and attempt to **FILTER** the shortening. If the pump shuts **OFF**, let it cool a few minutes, then depress the **RESET** button on the pump motor. Repeat this process several times until shortening is returned to the vat.

NOTE: If shortening still cannot be returned to the vat a repairman will have to remove the pump motor from the vat in order to melt and drain congealed shortening from the pump.

6. CLEANING AND MAINTENANCE

6.1 CLEANING: Any item of equipment operates better and lasts longer when it is kept clean and properly maintained, and the PAR deep fat fryer is no exception. In order for the fryer to provide years of trouble-free service it must be **CLEANED** and **MAINTAINED** according to instructions contained herein and at the intervals listed below:

a) **DAILY:**

1) **FILTER** shortening in each fryer vat after the **LUNCH** and **DINNER** rush, and more often in high volume sale stores; using **KENITE 200** or equivalent Filter Agent according to procedures in paragraph 5.3 above.
2) Ensure the Filter Tub is **THOROUGHLY** cleaned and reassembled **IMMEDIATELY** after each use.

CAUTION: PRIOR TO CLEANING THE FRYER VAT REMOVE THE 120 VOLT ELECTRICAL PLUG FROM THE ELECTRICAL RECEPTACLE AND TURN THE MANUAL GAS VALVE OFF.

3) Clean the fryer surface with a solution of hot water and detergent periodically during operating hours and with a stainless steel cleaner at closing. If necessary use a dampened 3M type 7447 **RED** or 3M type 7440 heavy duty **BROWN** Scotchbrite pad to remove encrusted material. **DO NOT** use steel wool, abrasive cloths, cleansers, powders, metal knife, spatula or any other metal object to scrape stainless steel! **SCRATCHES** on stainless steel are almost impossible to remove!

CAUTION: DO NOT ALLOW ANY CLEANING SOLUTION/WATER TO SPLASH INTO A VESSEL OF HOT COOKING OIL AS IT WILL CONTAMINATE THE OIL AND MAY CAUSE THE OIL TO SPLATTER CAUSING SEVERE BURNS.

4) **THOROUGHLY** clean the Filter Screen Assembly as follows.
   a **THOROUGHLY** flush any remaining sediment from both sides of the Filter Screen Assembly with **HOT WATER.**
   b Remove the **STANDPIPE SUCTION FITTING** from the Filter Screen Assembly by loosening the **KNURL KNOB.**

c **CAREFULLY** open the **LOCK BAR** on the end of the Filter Screen Assembly, as shown above, then remove the perforated **BAFFLE** from the assembly.

d **CAREFULLY** back-wash the filter screen with hot water. **THOROUGHLY** clean the baffle with **HOT WATER**, and allow these items to air dry. **DO NOT USE SOAP.**

e When the filter screen and baffle are dry **CAREFULLY** replace the baffle in the filter screen, **CLOSE** and **SECURE** the **LOCK BAR**, then replace the Standpipe Suction Fitting and Knurl Knob.

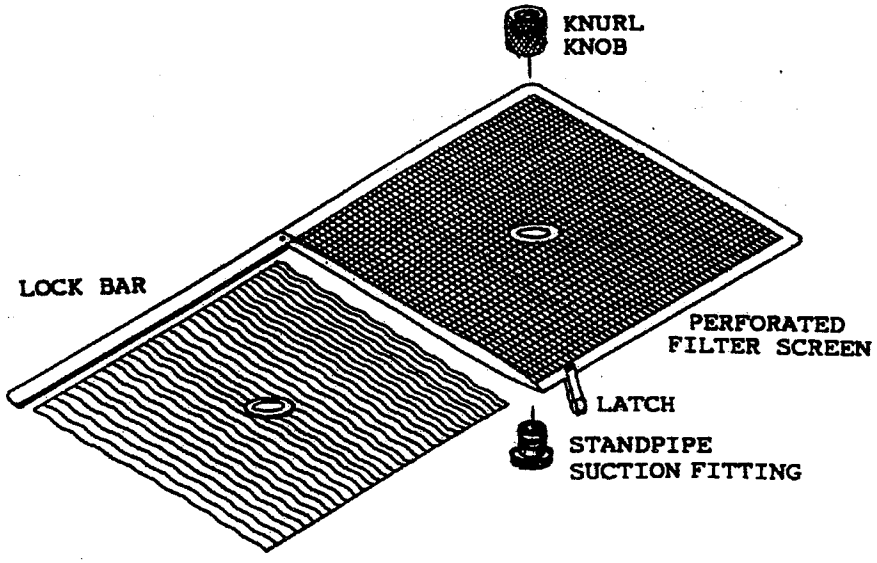
b) **WEEKLY:**

1) **BOIL OUT** each fryer vat using **SEA POWDER** or an equivalent Boil Out Compound according to procedures in paragraph 5.5 above.

2) Perform steps 2 and 3 listed above under Daily Cleaning routines.

3) Perform steps 6.1a4)a through 6.1a4)d

4) Place the **FILTER SCREEN** in a vat with **BOIL-OUT SOLUTION** for cleaning. **DO NOT PLACE THE ALUMINUM BAFFLE, KNURL KNOB OR STANDPIPE SUCTION FITTING IN THE BOIL-OUT SOLUTION!**



5) After the filter screen has been cleaned, **ENSURE** it is **THOROUGHLY** sprayed with a solution of **1 PART** vinegar to **25 PARTS** of water to **NEUTRALIZE** the boil-out solution, then allow it to air dry before assembling the Filter Screen Assembly. **NOTE:** Any residue of boil-out solution on the filter screen could cause the rapid breakdown of the shortening.

6.2 **MAINTENANCE:** The Filter pump/motor, and the Blower Motor have permanently lubricated bearings and therefore require no preventive maintenance. The Fenwal Temperature Controllers seldom need adjusted if properly set during the initial installation. A limited number of

replacement parts are available for repair of the Filter pump/ motor. If necessary adjust Fenwal Temperature Controllers and repair defective pump motors following procedures listed below.

CAUTION: ENSURE REPAIRMEN ARE ADVISED THAT FRYER RESTRAINTS MUST BE DISCONNECTED/CONNECTED ACCORDING TO PARAGRAPH 3.3 IF A FRYER IS TO BE MOVED DURING MAINTENANCE OR REPAIR.

a) If a Fenwal Temperature Controller is found to be **MORE THAN ±3°F** from the desired cook temperature, it should be adjusted by a **QUALIFIED REPAIRMEN** as follows:

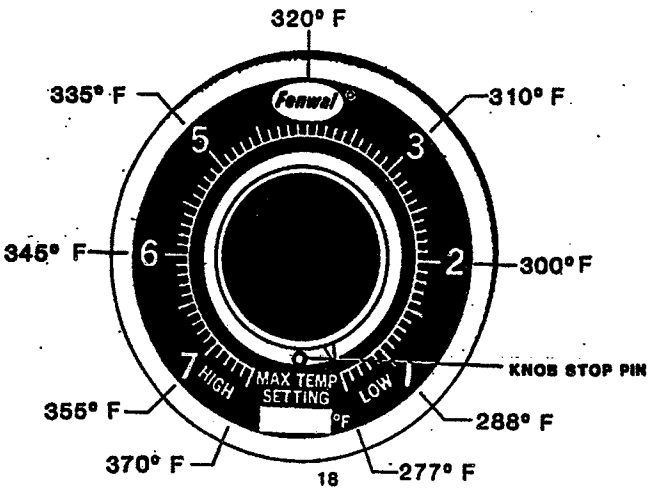
1) **EQUIPMENT REQUIRED:**
   - a Fluke Model 51 Digital Thermometer w/Type K "Bead" Thermo-Couple Temperature probe or equivalent **ACCURATE** digital thermometer and probe.
   - b Shortening Skimmer w/long handle.
   - c Two (2) screwdrivers, one with a $\frac{1}{8}$" blade and one with a ¼" blade.

2) **PRECAUTIONS:**
   - a If the **AVERAGE** temperature computed in step 3) i falls within a range of ±3°F of the cook temperature, the Fenwal Temperature Controller is operating properly and should not be adjusted.
   - b Ensure the Fenwal temperature Controller **PROTECTIVE COVER** is removed from each controller to be adjusted while the fryer is **COOL**; and replace this cover, as soon as possible, after the adjustment has been completed.
   - c **PRIOR** to checking/adjusting a Fenwal Temperature Controller; **ENSURE** the shortening **BENEATH** the heat tubes is in a **LIQUID** state, shortening has **STABILIZED** at the normal cook temperature, and the shortening is **THOROUGHLY** stirred in a **COUNTER-CLOCKWISE (CCW)** direction.
   - d The Fenwal Temperature Controller adjustment shaft is **EXTREMELY SENSITIVE.** One (1) **FULL** turn (360°) of the adjustment shaft will change shortening temperature 100°F. The approximate change of shortening temperature per movement of the adjustment shaft is as follows:

MOVEMENT	TEMPERATURE CHANGE
1/8 TURN	12.5°F
1/4 TURN	25°F
1/2 TURN	50°F
3/4 TURN	75°F
1 TURN	100°F

NOTE: To **INCREASE** shortening temperature turn the adjustment shaft to the **LEFT** (counter clockwise). To **DECREASE** shortening temperature turn the adjustment shaft to the **RIGHT** (clockwise).

3) **FENWAL TEMPERATURE CONTROLLER TEMPERATURE CHECK/ADJUSTMENT PROCEDURES:** Fenwal Temperature Controllers in **ALL** Model PAR-1-20 deep fat fryer configurations are equipped with a **DIAL** and **KNOB**, and should be checked/adjusted as follows:



a **ENSURE** electrical power and gas to the vat has been turned **OFF.**

b **CAREFULLY** drain sufficient shortening from the vat to **LOWER** the shortening about **4"** beneath the Fenwal Temperature Controller sensing element.

c After the sensing element has **COOLED;** loop the Bead Type K temperature probe around the sensing element, connect the temperature probe to the Fluke thermometer, set the **KNOB** pointer to the **LOW** setting **(MAXIMUM CLOCKWISE POSITION);** then **CAREFULLY** loosed the knob set screw and remove the knob from adjustment shaft. **TAKE CARE TO NOT TURN THE ADJUSTMENT SHAFT.**

d Replace shortening drained in step b and **ENSURE** it is level with the shortening level mark.

e Turn electrical power and gas to the vat **ON,** and start the fryer to heat the shortening.

f Periodically **STIR** shortening in a **COUNTER-CLOCKWISE (CCW)** direction with a **LONG** handle skimmer to pull congealed shortening **UPWARD** from the cold zone area beneath the heat tubes.

CAUTION: ALL SHORTENING MUST BE IN A LIQUID STATE AND EVENLY HEATED PRIOR TO ADJUSTING A FENWAL TEMPERATURE CONTROLLER!

g When the shortening has reached temperature, and the burner has cut-off, allow the temperature controller to **CYCLE** ON and OFF about 3 times to **STABILIZE** shortening temperature.

h After shortening temperature has become **STABLE,** continue to stir the shortening in a **CCW** direction. When the fryer **SHUTS OFF;** record the temperature displayed on the fluke digital thermometer, and when the fryer **TURNS ON** record the temperature displayed on the thermometer.

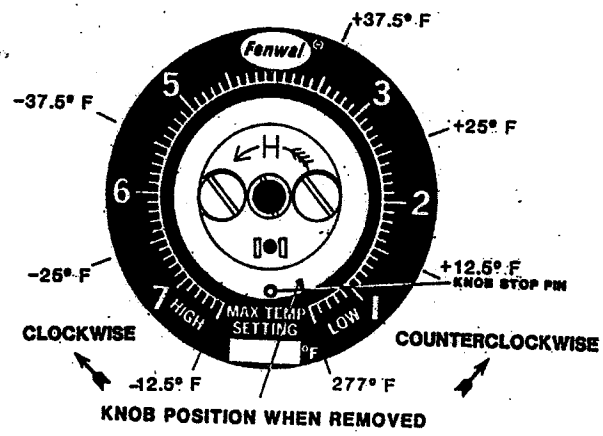
i Compute the **AVERAGE** of the two (2) temperature readings recorded in step h. For example: **SHUT-OFF** temperature = 343°F, **TURN-ON** temperature = 339°F, then **AVERAGE** temperature = 341°F.

j If the **AVERAGE** temperature computed in step i falls with a range of ±3°F of the cook temperature, the Fenwal Temperature Controller is operating properly and should not be adjusted. If the **AVERAGE**

temperature computed above is more than ±3°F from the cook temperature the Fenwal Temperature Controller should be adjusted as follows:

1 If the **AVERAGE** temperature computed above is **HIGHER** than the desired cook temperature, the adjusting screw should be turned to the **RIGHT** (clockwise) CW to **DECREASE** shortening temperature. For example; the **AVERAGE** temperature is 365°F and the desired cook temperature is 340°F - turn the adjusting screw **1.4 TURN** to the **RIGHT** (CW) to lower the cook temperature.

2 If the **AVERAGE** temperature computed above is **LOWER** than the desired cook temperature, the adjusting screw should be turned to the **LEFT** (counter-clockwise) CCW to **INCREASE** shortening temperature. For example; the **AVERAGE** temperature is **347.5°F** and the desired cook temperature is **360°F** - turn the adjusting screw **1/8 TURN** to the **LEFT** CCW to raise the cook temperature.



k Repeat **STEP** h and i to re-compute the **AVERAGE** temperature and if it is within **±3°F** of the desired cook temperature, no further adjustment is necessary.

NOTE: To **ACCURATELY** set the Fenwal Temperature Controller to the desired cook temperature, shortening **MUST BE** periodically **STIRRED** in a **COUNTER-CLOCKWISE** direction to assure it is evenly heated.

l Repeat **STEP** a and **STEP** b and after the sensing element has **COOLED**; 1) remove the Bead type K temperature probe from the sensing element, 2) **CAREFULLY** replace and secure the **KNOB** on the adjustment shaft with the **POINTER** against the **LOW** setting **(MAXIMUM CLOCKWISE POSITION)** and 3) replace shortening to the shortening level mark.

m Repeat the above steps to check/adjust the Fenwal Temperature Controller in the remaining vats.

b) Filter Pump/Motor repair or replacement:

1) **Pump/Motor replacement:** Replacement pump/motor assembly is stocked under PN 24-239, replacement motor is stocked under PN 17-037, and replacement

pump is stocked under PN 24-329. In the event a pump/motor assembly, pump or motor fails, replace the applicable item as follows:

a Remove the 110 volt electrical plug from the electrical receptacle.

b Remove the defective pump/motor from the fryer base frame.

NOTE: If the **COMPLETE** filter pump/motor assembly is to be replaced, **SKIP** step b) 1) c through step b) 1) e.

c Separate the pump from the motor by removing the four (4) 5/16" mounting bolts.

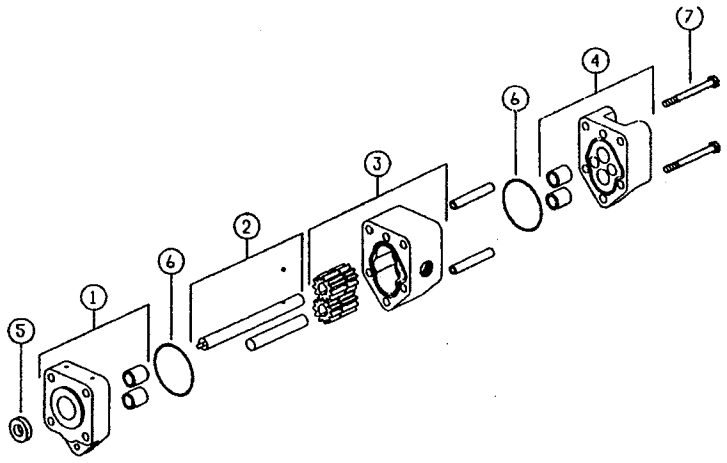
d Thoroughly clean the face plate of the pump and motor and set the defective item aside.

e Place a **NEW** gasket, PN 24-344, on the replacement pump/motor; then secure the pump/motor to the serviceable item using the four (4) bolts removed in step b) 1) b above.

NOTE: Prior to installing a new pump add oil in the pump suction port and turn the pump shaft by hand. This will insure that the pump gears are well lubricated when placed into operation.

f Replace the repaired pump/motor on the fryer base frame, connect the 110 volt electrical plug to the electrical receptacle; then test operate the pump/motor assembly.

2) **Lip Seal/O-Ring Pump Repair Kit:** Filter pump/motors are designed for long, trouble-free operation. If leakage occurs around the pump shaft, it normally can be corrected by replacing the **LIP SEAL** and two (2) **O-RINGS** identified in the sketch below. A Lip Seal/O-Ring kit is stocked under PN 22-718. When ordering this kit order a **PUMP/MOTOR GASKET** PN 24-344 for use in replacing the pump on the motor. Install a **NEW** Lip Seal and O-Rings as follows:



NUMBER	DESCRIPTION
1	BRACKET/BEARING ASSEMBLY
2	SHAFTS
3	CASING/GEARS ASSEMBLY
4	HEAD/BEARING ASSEMBLY
5	LIP SEAL
6	O-RING
7	ASSEMBLY CAPSCREW

a) **PARTS REQUIRED**

PN	DESCRIPTION	QTY
22-718	Viking pump Lip Seal/O-Ring Kit No. 3-462-177-999	1
24-344	Viking pump/motor mounting gasket No. 2-316-032-809-30	1

b) **TOOLS REQUIRED**

1 Combination wrench/socket set
2 Soft face hammer
3 Screwdriver
4 Torque wrench rated in ft-lbs
5 2" length of 2" ID pipe

c) **PRECAUTION:** The pump/motor becomes extremely **HOT** during operation and retains this heat for a long period of time. **ENSURE** that the pump/motor has **COOLED** prior to removing it from the fryer base frame.

d) **LIP SEAL/O-RINGS INSTALLATION:**

1 Remove the 120 volt electrical plug from the electrical receptacle.
2 Remove the leaking pump/motor from the fryer base frame.
3 Separate the pump from the motor by removing the four (4) 5/16" mounting bolts.
4 Discard the pump/motor gasket and thoroughly clean the face plate of the pump and motor.
5 Remove the two (2) ¼" assembly capscrews from the pump.
6 Place the pump in a pan with the head **DOWN** and shaft **UP**, grasp the pump by the **BRACKET/BEARING ASSEMBLY** section; then tap the **CASING/GEARS ASSEMBLY** with a soft face hammer until the **BRACKET** slides up over the shafts.

CAUTION: DO NOT USE A SCREWDRIVER, CHISEL OR OTHER HARD TOOL TO SEPARATE THE ABOVE COMPONENTS.

7 Place the **BRACKET/ BEARING ASSEMBLY DOWN** over a 2" length of 2" diameter pipe; then use a screwdriver and soft face hammer to tap out the old **LIP SEAL.**

CAUTION: DO NOT SCORE THE LIP SEAL BORE

8 Continue disassembling of the pump to remove the casing, shafts, gears, alignment sleeves and O-rings. Discard the O-rings and **LIP SEAL** and clean the Bracket/Bearing, Casing/Gears, Head/Bearing assemblies; as well as the shafts, gears and sleeves.
9 Inspect the **BRACKET/BEARING** and **HEAD/BEARING** assemblies for **GROOVING.** If grooves are found, wear has occurred and the entire pump should be replaced. If no grooves are found, continue to step 10.
10 Pour **VEGETABLE OIL** on the new O-Rings; as well as, bearings, shafts, gears and alignment sleeves.
11 Install an O-Ring in the groove of the **HEAD/BEARING** assembly; then replace the two (2) **NEEDLE BEARINGS** in this assembly.
12 Install an O-Ring in the groove of the **CASING/GEARS** assembly; then replace the two (2) **GEARS**, two (2) **SHAFTS** and two (2) **ALIGNMENT SLEEVES** in this assembly.

NOTE: The gears are stacked on the shaft and are of different lengths. These gears are reversed on the driver shaft; one gear is pressed on the shaft and the other gear is a slip fit.

13 Lubricate the **LIP SEAL BORE** in the **BRACKET/BEARING** assembly with vegetable oil then **CAREFULLY** place the lip seal with garter spring **DOWN** over the **COUNTERBORE** in this assembly.

14 **CAREFULLY** place a **SOCKET** just big enough to cover the **LIP SEAL** face on the face of the lip seal, then tap the lip seal into the counterbore until it is about 3/16" beneath the surface of the **BRACKET/BEARING** assembly.

NOTE: Ensure the lip seal is not cocked in the counterbore.

15 Lubricate the pump shaft with vegetable oil, place the **BRACKET/BEARING** assembly over the shaft, guide this assembly to **CENTER** it over the **SHAFT TANG;** then **GENTLY** push the **BRACKET/BEARING** down until it is in position against the **CASING/GEARS** assembly face plate.

16 Hold the complete pump assembly together and place it with the shaft **DOWN** over a 2" length of 2" diameter pipe.

17 When the pump has been properly reassembled, **CAREFULLY** thread the two (2) assembly **CAPSCREWS** into **BRACKET/BEARING** assembly; then tighten these capscrews to **9 FOOT POUNDS** with a torque wrench.

18 Install at **NEW** pump/motor mounting gasket over the **BRACKET/LIP SEAL** assembly of the pump, assemble the pump to the motor using the four (4) mounting bolts removed in step 3; and then tighten the capscrews to **12-15 FOOT POUNDS.**

19 Pour a small quantity of vegetable oil in the pump and test operate the pump/motor assembly.

20 Replace the repaired pump/motor on the fryer base frame, reconnect the electrical plug to the electrical receptacle and again test operate the pump/motor.

WARNING: NEVER USE A PUMP/MOTOR TO REMOVE WATER FROM A FRYER VAT. THIS WILL CAUSE A PUMP/MOTOR TO FAIL PREMATURELY.

7. TROUBLESHOOTING

7.1 GENERAL: The problems and possible solutions listed in the troubleshooting chart below are typical problems that are frequently encountered. **ONLY** qualified repairmen are to use the troubleshooting chart to repair this deep fat fryer. In the event a main burner malfunction occurs, perform the following checks **PRIOR** to contacting a repairman:

a) Insure Gas Valves are in their proper position.
b) Check that the fryer electrical plug is connected to an electrical receptacle.
c) Insure the applicable Circuit Breaker is in the **ON** position and that the Power Switch is in the **ON** position.
d) Determine that the blower is operating.

7.2 TROUBLESHOOTING CHART: Should a problem occur that cannot be corrected after performing the above **CHECKS,** contact an authorized repairman and/or the Customer Service Department, Far West Products at 1-800-525-8130 and provide the information acquired while performing these checks.

CAUTION: ENSURE REPAIRMEN ARE ADVISED THAT FRYER RESTRAINTS MUST BE DISCONNECTED/CONNECTED ACCORDING TO PARAGRAPH 3.4 IF A FRYER IS TO BE MOVED DURING MAINTENANCE OR REPAIR AND THAT ELECTRICAL POWER AND GAS MUST BE TURNED OFF PRIOR TO PERFORMING ANY MAINTENANCE OR REPAIR.

TROUBLESHOOTING CHART

	PROBLEM		POSSIBLE SOLUTIONS
a)	Main burner will not ignite. Blower is operating but gas is not present at the burner.	1)	Check the Blower Motor CENTRIFUGAL Switch as follows and replace the blower motor if it is found to be defective: a. Temporarily disconnect the two (2) ORANGE blower motor wires and connect them together. If the BLOWER starts when these wires are connected, the CENTRIFUGAL switch is defective and the blower motor will have to be replaced.
		2)	Check the following components and replace if found to be defective: Gas Control Valve Hi-Limit Switch Transformer
b)	Electrical power is present at the fryer, but the Blower is not operating.	1)	Blower Motor may have over-heated and shut-off on thermal overload. If this situation did occur, it will correct itself when the motor cools (10-20 minutes). If this overheating problem persists, replace the blower motor.
c)	Excessive time is required to raise the shortening to cooking temperature, temperature recovery is slow, and main burner flames are small and appear to be lethargic.	1)	Ensure that the **MANUAL GAS VALVE** is completely open.
		2)	Check for an obstruction in the gas line.
		3)	Check that the **ORIFICE PLUG** has the correct drill size opening shown below.

TYPE GAS	ORIFICE HOLE SIZE
Natural	#23

		4)	Check for damaged BLOWER MOTOR fins.
		5)	Use a standard water-type U-Gauge Manometer to check the pressure at the Gas Control Valve pressure tap. Proper gas pressure is shown below:

TYPE GAS	GAS VALVE SETTING
Natural	3.5" W.C. If necessary remove the Pressure Regulator Adjustment cover and adjust this control to the proper pressure. a) Turn adjusting screw **CLOCKWISE** to increase gas pressure to the burner and **COUNTER CLOCKWISE** to decrease gas pressure. Replace adjustment cover.

d)	Shortening temperature is too high and breaks down quickly.	1)	Check the gas pressure as described above.
		2)	Check calibration of the Fenwal Temperature Controller with an **ACCURATE** digital thermometer. If necessary, adjust the controller according to procedures in paragraph 6.2 of these instructions.
e)	The filter pump motor fails to operate when the Filter Pump Lever Switch is placed **ON** position.	1)	Insure the filter pump switch is good then check the manual reset button on the filter pump motor. **WARNING!!!** **TURN THE FILTER PUMP LEVER SWITCH "OFF" PRIOR TO DEPRESSING THE RESET BUTTON. FAILURE TO PLACE THIS SWITCH IN THE OFF POSITION COULD RESULT IN SEVERE BURN FROM HOT COOKING OIL!**
		2)	If the filter pump motor fails to operate after the reset button has been depressed, repair or replace the motor.
f)	Decreased shortening flow rate while filtering.	1)	Check for excessive sediment on the filter screen, standpipe suction fitting or in filter tub.
g)	Pump/motor operates but does not pump shortening.	1)	Check for congealed shortening in shortening system.
		2)	Check that Standpipe is seated in Knurl Knob.
		3)	Check for loose Standpipe/Suction Line Coupler connection.
h)	Pump/motor hums but will not pump shortening.	1)	Check for congealed shortening in pump or in shortening plumbing.

8. **RECOMMENDED SPARE PARTS:** To minimize downtime on the Model PAR-1-20 PAR deep fat fryer upon failure of a component part, at least one (1) of the following items should be kept in stock as a spare part in the local area:

DESCRIPTION	MANUFACTURER PART NUMBER	FAR WEST PRODUCTS PART NUMBER	
2" Ball Valve Assembly	-	PN 12-775	(Note 1)
Fasco Blower Fan	Fasco B23618	PN 17-034	
Ignitor Spark Module	Honeywell S879B1008	PN 18-179	
24 Volt Step-Down Transformer	Honeywell AT40A1121	PN 18-180	
Hi-Limit Switch Model 103KM1	Stemco 103K	PN 18-182	
Filter Pump Lever Switch	Cherry E13-50H	PN 18-185	
Ignitor Rod	Honeywell Q347A-1012	PN 18-186	
Ignitor Rod/Module Cable	Honeywell 392125-1	PN 18-187	
Temperature Controller	Fenwal No. 47102-501	PN 18-233	
24 volt Combination Gas Control Valve	Honeywell VR8203A-1005	PN 18-227	
Illuminated Power Switch		PN 23-358	
Viking Pump/Motor Assembly	-	PN 24-239	(Note 2)
3/4" Apollo Ball Valve Assembly	-	PN 24-292	
1/2" Manual Gas Valve	Giacomini R602	PN 24-326	
7/16" Orifice Plug w/#23 drill hole	-	PN 24-383	

NOTES: 1 - Order gasket PN 19-526 when ordering this item
2 - See paragraph 6.2b), page 21, this manual

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9. TECHNICAL ASSISTANCE AND PARTS LISTING

9.1 TECHNICAL ASSISTANCE - Contact the local repairman, service agent or Far West Customer Service Department at 1-800-525-8130 for technical assistance or to perform any maintenance or repair that may be necessary.

9.2 PARTS LISTING - Items listed above and on the following pages may be obtained by contacting Far West Products 1-800-545-9189.

	PIPE DIAMETER (INCHES)								
PIPE LENGTH (FEET)	1/2	3/4	1	1¼	1½	2	2½	3	4
15	62	168	350	620	960	2,000	3,500	5,400	11,200
30	43	120	245	430	680	1,400	2,450	3,800	7,900
45	35	98	200	355	530	1,150	2,000	3,200	6,500
60	30	84	175	310	480	1,000	1,760	2,700	5,600
75	27	76	155	275	430	890	1,560	2,450	5,000
90	25	70	145	250	395	810	1,430	2,260	4,550
105	23	64	132	232	370	750	1,300	2,100	4,200
120	21	60	125	215	340	700	1,200	1,950	4,000
150	19	54	110	195	310	630	1,080	1,750	3,550
180	17	49	100	175	280	570	960	1,600	3,200
210	16	44	94	165	260	530	890	1,450	3,000
240	15	43	88	155	240	500	840	1,350	2,800
270	14	40	83	145	230	470	780	1,300	2,650
300	14	38	79	138	215	440	750	1,250	2,500
450	11	31	64	112	176	360	630	1,000	2,050
600	10	27	56	97	152	315	530	860	1,750

TABLE 1
MAXIMUM ALLOWABLE FLOW (CUFT/HR)
FOR GIVEN PIPE DIAMETER/LENGTHS

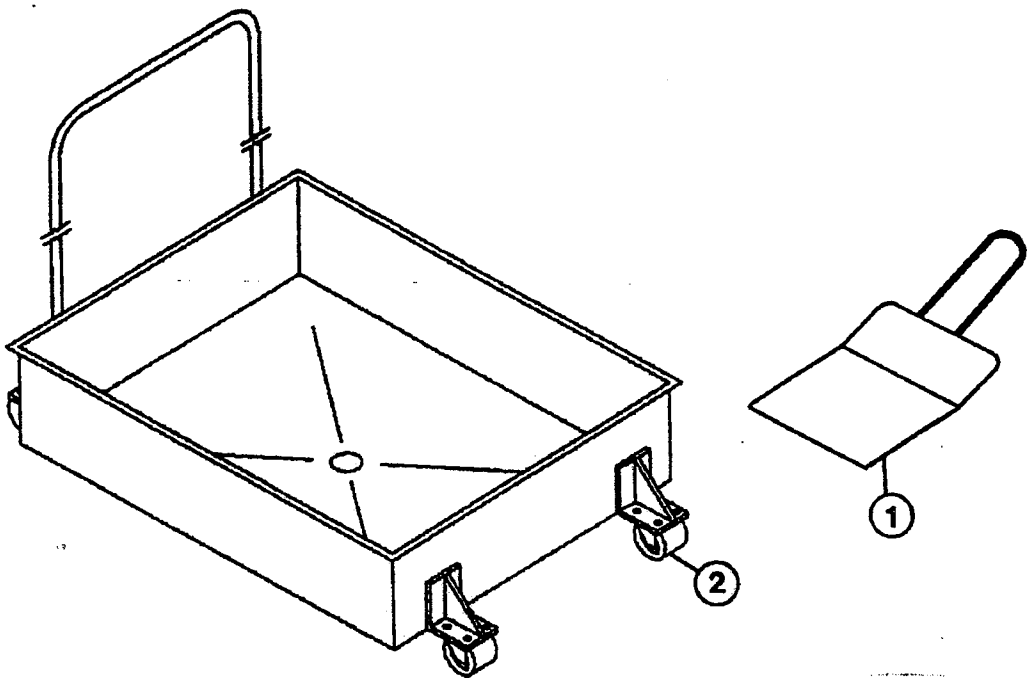
TYPICAL MODEL PAR-1-20 PAR DEEP FAT FRYER
INLET GAS REQUIREMENTS (CUFT/HR)

MODEL	1 VAT	2 VAT	3 VAT	4 VAT	5 VAT	6 VAT
PAR-1-20	60.00	120.00	180.00	*240.00	*300.00	*360.00

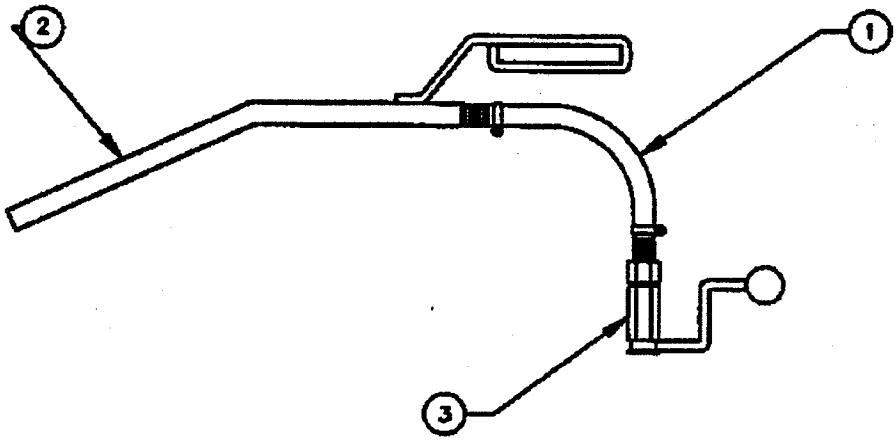
* Fryers with five or more vats must be equipped with a 1" flexible gas line PN 24-323 rated at 414.29 cuft/hr (435,000 BTU/HR); other fryers can use a ¾" gas line PN 24-322 rated at 214.29 cuft/hr (225,000 BTU/HR).

EXAMPLE: A **NATURAL GAS** six (6) vat Model PAR-1-20 PAR deep fat fryer requires **360.00 CUFT/HR** of gas at the fryer manifold for proper operation (6 X 60.00 CUFT/HR). If the fryer bank is located 60 feet from the building gas regulator, a **1½"** diameter gas line **MUST** be installed between the manifold and regulator.

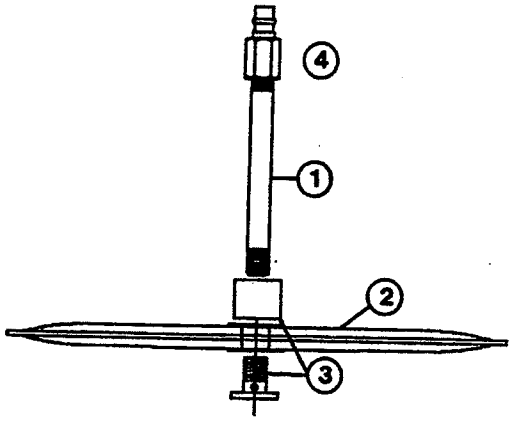
FILTER TUB AND FILTER WASH WAND
PN 11-543



FILTER TUB ASSEMBLY
PN 12-670



WASH WAND HOSE ASSEMBLY
PN 12-330



PERMANENT FILTER SCREEN ASSEMBLY
PN 12-671

FILTER TUB, WASH WAND AND PERMANENT FILTER SCREEN
PN 11-543

A. FILTER TUB ASSEMBLY

INDEX NUMBER	PART	PN	DESCRIPTION
1	Scraper	12-567	Filter Tub w/Handle
2	Caster	28-017	Medium duty 2½" high

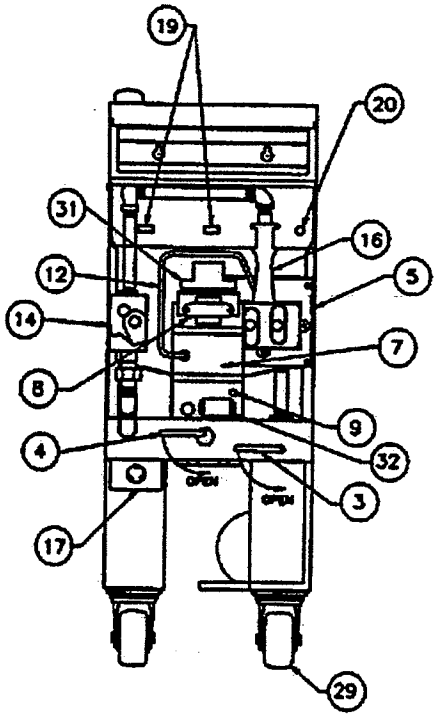
B. WASH WAND ASSEMBLY

INDEX NUMBER	PART	PN	DESCRIPTION
1	Hose	12-541	Wash Wand 5½ feet long w/fittings
2	Assembly	12-675	Wash Wand handle and nozzle
3	Assembly	19-248	½" Filter Wash Wand disconnect

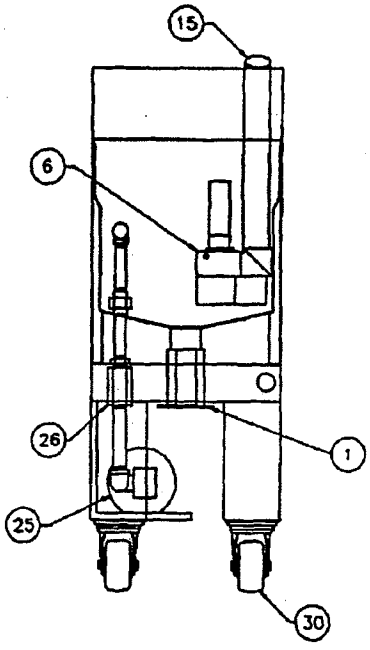
C. PERMANENT FILTER SCREEN ASSEMBLY

INDEX NUMBER	PART	PN	DESCRIPTION
1	Nipple	12-673	Standpipe ⅜" x 7" stainless steel
2	Screen	21-619	Permanent filter w/baffle
3	Fittings:	24-369	Top compression cap (knurl knob)
		24-368	Bottom compression cap (standby suction fitting)
4	Stem	22-676	⅜" NPT quick connect male fitting

MODEL PAR-1-20 PAR DEEP FAT FRYER



FRONT VIEW



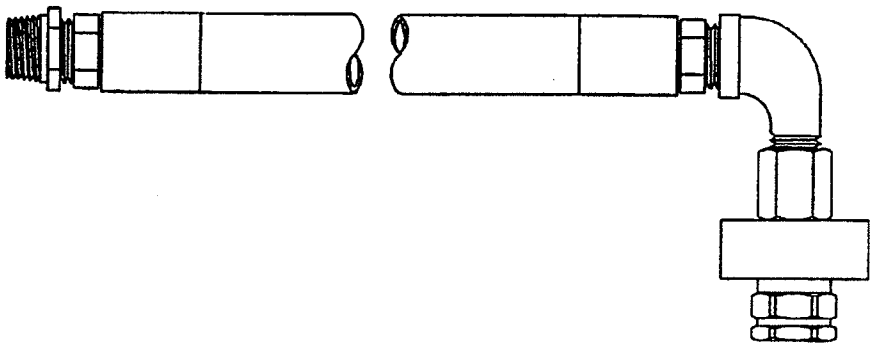
REAR VIEW

MODEL PAR-1-20 PAR DEEP FAT FRYER

INDEX NUMBER	PART	PN	DESCRIPTION
1	Assembly	12-775	2" Ball Valve (order gasket PN 19-526)
*2	Grill	12-710	Model PAR-1-20 Vat w/Right Hand Deflector
3	Assembly	12-681	¾ Filter Ball Valve/Pump Lever Handle
4	Assembly	12-683	2" Ball Valve/Drain Valve Lever
5	Assembly	19-441	Model PAR-1-20 Fire Box w/cover, and gaskets
6	Motor	17-034	Exhaust Blower 120 volt 60HZ 1Ø
7	Module	18-179	Spark Ignitor
8	Transformer	18-180	120 to 24 Volt Step-Down (Note 1)
9	Switch	18-182	Hi-Limit (Trips at 400° F) (Note 2)
*10	Switch	18-185	Filter Pump Lever
*11	Rod	18-186	Ignitor Spark (Located inside fire box) (Note 3)
12	Cable	18-187	Ignitor Rod w/Plugs
13	Controller	18-233	Fenwal Temperature (for dial and knob order PN 22-705)
14	Valve	18-227	Electric Gas Control
15	Pipe	20-125	Flue 2⅛" diameter (Specify length)
16	Assembly	22-664(M)	Cast Iron Burner
17	Receptacle	23-183	Electrical Twice Lock Nema L5-15R
*18	Heater	23-341	Silicon Rubber 120 volt 75 watt 5' long
19	Switch	23-358	Power on/off and Filter Pump on/off
20	Lamp	23-362	Snaplight w/Red Raised Lens 125 volt ⅓ amp
*21	Decal	23-418	"Power On/Off"
*22	Decal	23-419	"Pump On/Off"
*23	Decal	23-420	"Pump Lever On/Off"
*24	Decal	23-421	"Drain Lever Open/Close"
25	Assembly	24-239	Model GPV 0519 Viking Filter Pump Motor (see section 6 these instructions for maintenance parts)
26	Valve	24-292	Apollo ¾" Filter system ball
*27	Valve	24-326	Manual Gas ½" I.D. w/red handle
*28	Orifice Plug	24-383	Model PAR-1-20 "Natural" Gas 7/16" NPT w/#23 drill hole
29	Caster	28-015	Medium Duty 4" w/Brake (Front Casters)
30	Caster	28-016	Medium Duty 4" w/o Brake (Rear Casters)
	COMPUTER VERSION PAR-1-20 DEEP FAT FRYER PARTS		
31	Board	22-541	Computer Interface w/o relays (One used for each two (2) vats)
32	Relay	18-210	Omron Model G5D22423T-US "K" (One used for each vat)
*33	Relay	22-616	Computer Interface Board (Two (2) used for each computer interface board)

* Not Shown

Notes:
1) Computer version PAR-1-20 fryer uses two (2) relays
2) Order a **NEW** ¼" compression fitting PN 24-247 when ordering a replacement Hi-Limit switch.
3) Set spark ignitor rod gap to 5/32" prior to installation.



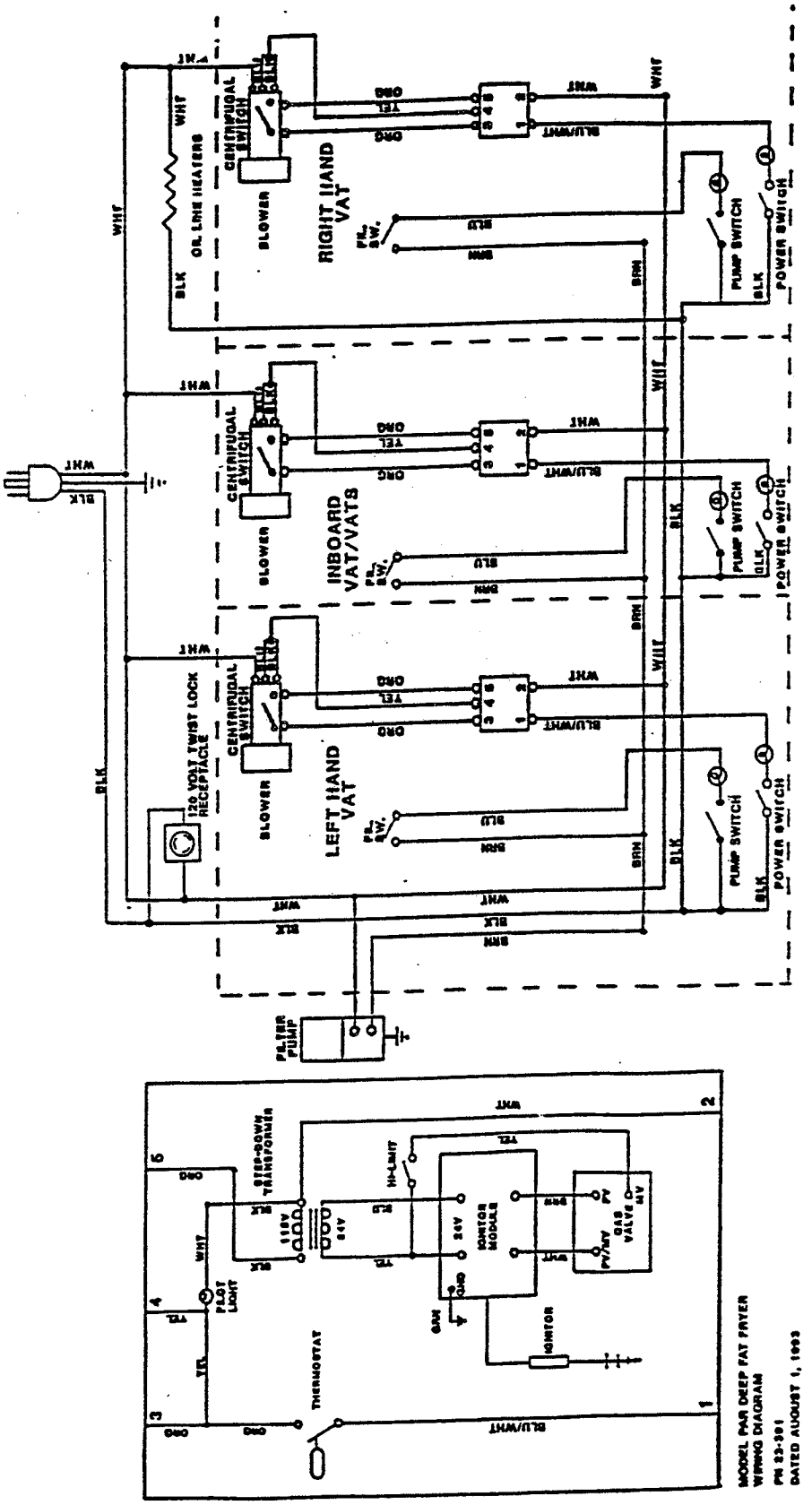
SUCTION LINE "HOSE" ASSEMBLY
PN 12-666

NOTES:
1- Female coupler attached to existing suction line hose.

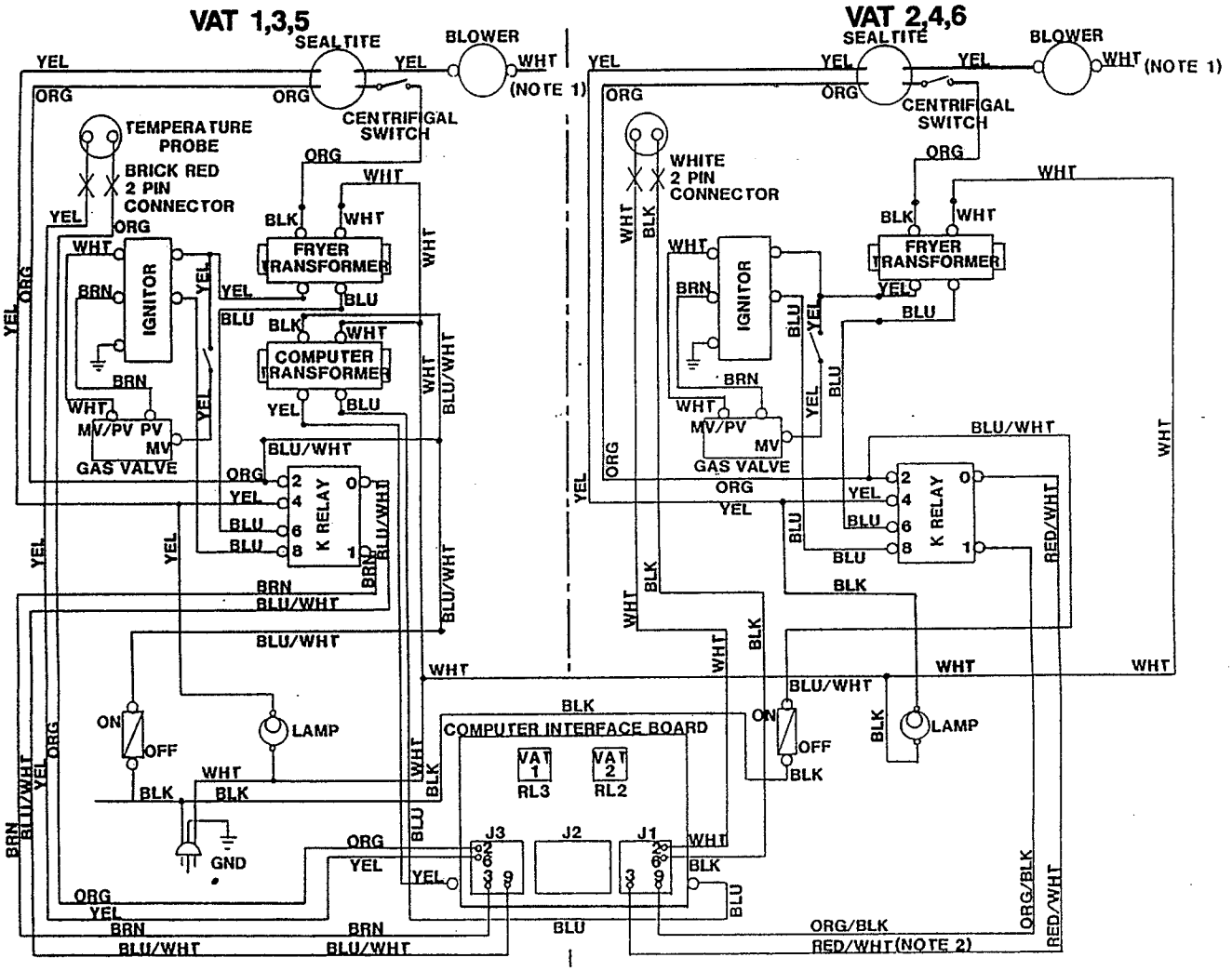
2- Suction line hose assembly consists of a 1 foot length of hose with a hose nipple clamped on each end.

3- Reducer and coupling connected to ¾" filter pump pipe.

9.3 **WIRING DIAGRAM** - Since minor wiring changes may occur in the future, **USE** the diagram pasted to the Control Panel Access cover for circuit tracing and/or trouble-shooting a fryer.



9.4 **COMPUTER VERSION CONTROL CIRCUIT WIRING DIAGRAM** - The wiring diagram shown below is **ONLY** applicable to PAR Deep Fat Fryers equipped with a Frymaster Computer.



NOTES: 1. This wire connects to the white input power wire.
2. This wire may be RED not RED/WHT on some wiring harnesses.

LEGEND:

⌐/¬=HI-LIMIT SWITCH

X = 2 pin temperature probe connectors.

COMPUTER VERSION CONTROL CIRCUIT WIRING DIAGRAM