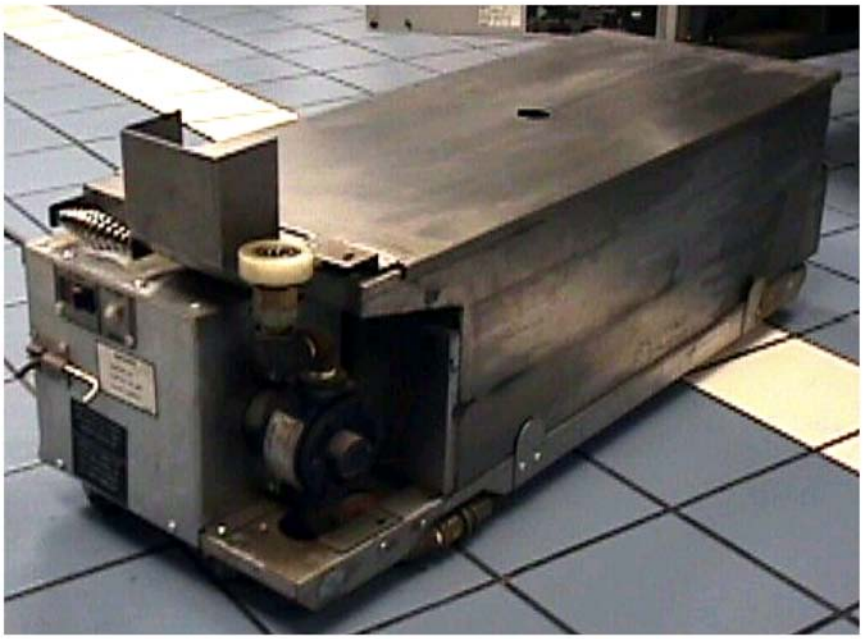
Cascade Filtration Systems

Installation and Operation Manual



Models CF35, CF60 & CF80

DEAN

CFESA
Commercial Food Equipment Service Association

Dean, a member of the Commercial Food Equipment Service Association, recommends using CFESA Certified Technicians.

24-Hour Service Hotline 1-800-551-8633

Price: $6.00

819-5666
07-98

Please read all sections of this manual and retain for future reference.

Installation, maintenance, and repairs should be performed by your Dean Factory Authorized Service Agency.

CAUTION

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.

CAUTION

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITYOF THIS OR ANY OTHER GAS APPLIANCE.

WARNING!

SAFE AND SATISFACTORY OPERATION OF YOUR EQUIPMENT DEPENDS ON ITS PROPER INSTALLATION.
INSTALLATION MUST CONFORM TO LOCAL CODES, OR IN THE ABSENCE OF LOCAL CODES, WITH THE NATIONAL ELECTRIC CODE, NFPA 70-1984 (OR LATEST EDITIONS).

WARNING!

ELECTRICAL GROUNDING INSTRUCTIONS

This filter is equipped with a three-prong, grounded plug for your protection against shock hazard and should be plugged directly into a properly grounded, three-hole receptacle. Do not cut off, remove or otherwise bypass the grounding prong on this plug.

IF IT IS NECESSARY TO USE AN EXTENSION CORD, IT MUST BE A THREE-CONDUCTOR, GROUNDED CORD OF 16 GAUGE OR GREATER.

CAUTION

HOT FLUID – DO NOT FILL BEYOND MAXIMUM FILL LINE LOCATED ON THE OIL CONTAINER.

CASCADE FILTRATION SYSTEMS

INSTALLATION AND OPERATION MANUAL

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1. PARTS ORDERING AND SERVICE INFORMATION

1.1 ORDERING PARTS:

Customers may order parts directly from their local Authorized Parts Distributor. For this address and phone number, contact your Maintenance & Repair Center or call the factory. The factory address and phone number are on the cover of this manual.

To speed up your order, the following information is required:

Model Number _____
Type _____
Serial Number _____
With/Without Heater _____
Optional Equipment _____
Item Part Number _____
Quantity Needed _____

1.2 SERVICE INFORMATION:

Call the "800" number on the cover of this manual for the location of your nearest Maintenance & Repair Center or contact the factory direct. Always give the model and serial numbers of your filter and fryer.

To assist you more efficiently, the following information will be needed:

Model Number _____
Type _____
Serial Number _____
With/Without Heater _____
Optional Equipment _____
Nature of Problem _____
Any other information which may be helpful in solving your service problem

2. IMPORTANT INFORMATION

2.1 GENERAL: The Micro-Flo CF-35, CF-60, and CF-80 Cascade Oil Filters are units with an oil capacity of 50 pounds, 60 pounds, and 110 pounds (respectively) that fit inside the Dean Industries' Decathlon D35G, D60G, and D80G fryers. The Cascade Filters can be used as portable units also.

The used oil drains by gravity from the fryer into the filter pan and then it is pumped back to the fryer vessel.

Filtering is accomplished through two sheets of replaceable filter paper assisted by a micro pre-coat filter powder.

CAUTION

The on-site supervisor is responsible for ensuring that operators are made aware of the inherent dangers of operating a hot oil filter system, particularly aspects of oil filtration, draining, and cleaning of the filter.

2.2 OPERATING CONTROLS: An "ON/OFF" switch is mounted on the pump motor housing. If equipped with an optional pan heater, a three (3) position switch (HEAT/OFF/PUMP) is mounted on the pump motor housing in lieu of the "ON/OFF" switch.

2.3 SAFETY FEATURES: A 7-amp circuit breaker switches the power OFF if an overload occurs.

NOTE: IF CIRCUIT BREAKER IS TRIGGERED, THE RESET BUTTON NEEDS TO BE DEPRESSED TO ACIVATE THE CIRCUIT AFTER NATURE OF FAILURE HAS BEEN DETECTED AND FIXED.

2.4 RATING PLATE: Information on this plate includes the model and serial numbers, as well as electrical requirements. When communicating with the factory about a unit or requesting special parts or information, this data is essential for proper identification.

2.5 PRE-INSTALLATION:

a. GENERAL: These filters, when used in combination with a fryer, require no additional space. When used as a portable filter, it will require an area of floor space approximately 1-1/2' x 2-1/2' (3.75 sq ft).

b. STANDARDS: Installation must be in accordance with all applicable state and local codes.

c. ELECTRICAL CONNECTIONS: The filter may or may not be equipped with a pan heater. Only one connection is required to a 115V/60HZ 15-amp electrical supply receptacle on the fryer. When used as a portable filter, the 2-1/2' flexible 16-3 SJT power cord is to be connected to a suitable extension cord.

2.6 UNPACKING THE FILTER:

Check that the container is upright. Unpack the filter carefully and remove all accessories from the carton. Do not discard or misplace these, as they will be needed.

Loose parts include starter kit, the filter hose and wand for portable operation and accessories that may have been ordered. These are packaged inside the filter tank. The tank top is strapped to the shipping frame.

After unpacking, immediately check the equipment for visible signs of shipping damage. If such damage has occurred, contact the carrier and file the appropriate freight claims. Do not contact the factory, as the responsibility of shipping damage is between the carrier and the dealer or end-user.

3. INSTALLATION:

3.1 GENERAL: On initial installation and before each use, remove all loose parts from the filter, wash the filter pan and all accessories in hot, soapy water and dry thoroughly.

3.2 ASSEMBLYING THE FILTER:

a. Figure 3-1 shows the proper assembly of these parts:

1. Filter Pan Assembly
2. Protective Screen/Support Grid
3. Filter Paper (2 sheets)
4. Hold-Down Ring
5. Crumb Catcher Screen
6. Filter Pan Cover

Exploded View of a Cascade Filter.

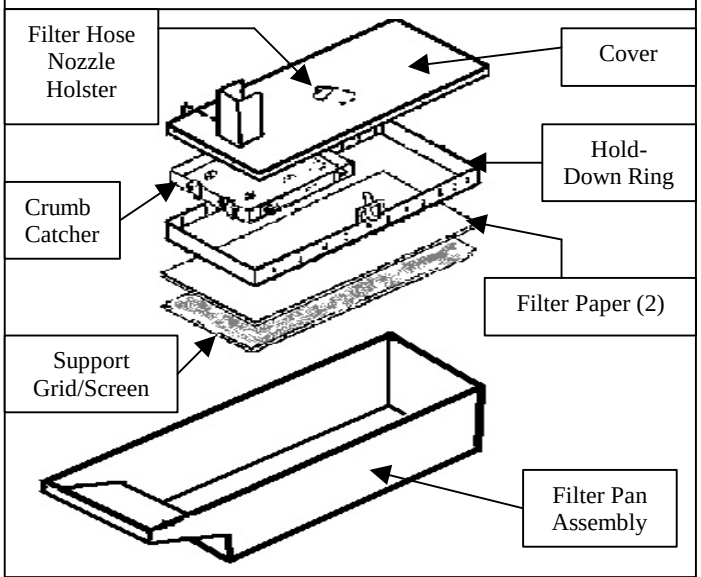


Figure 3-1

b. First place the support grid in the bottom of filter pan. The small box or brackets under the screen should fit into the space provided in the bottom of filter pan. Your Cascade Filter may be equipped also with a second, smaller support grid screen that must be placed in the filter pan trough before the larger support grid/protective screen is installed.

c. Put two filter paper sheets on top of the support grid. Be sure the paper covers the whole filter pan bottom.

d. Position the hold-down ring on top of the filter paper and latch the hold-down ring and filter paper securely against the filter pan bottom. When positioning the hold-down ring, do it evenly around the filter pan and paper to create a good seal around the support grid which prevents any air from getting into the system.

e. Prepare two quarts of precoat/slurry per precoat manufacturer's instructions. Pour the precoat/slurry on the filter paper. Make sure the filter paper is completely covered with precoat.

f. Place the crumb catcher screen in the filter pan. Allow the crumb catcher to rest on the top edges of the hold-down ring.

Installing crumb catcher screen.

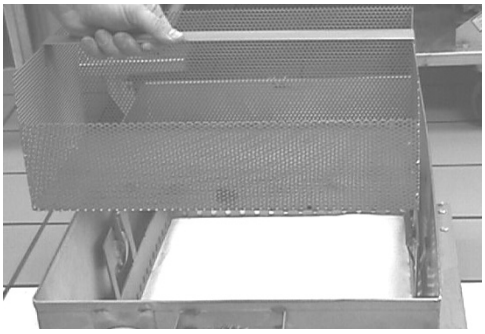


Figure 3-2

g. Place filter pan cover onto the filter pan assembly.

h. Roll the filter into position, either inside the fryer for built-in operations, or position the filter underneath the fryer drain valve for portable operations.

i. Prior to connecting the oil return lines, ensure the filter switch is "OFF" and the power cord is disconnected from the power source.

j. Connect the oil return line connector to the fryer's oil return line quick disconnect coupling. Plug the power cord into the power source.

3.3 INSTALLING THE FILTER IN THE FRYER:

a. Slide the filter inside the fryer cabinet.

Filter installed inside fryer cabinet.



Figure 3-3

b. Connect the filter's oil return line (male quick disconnect) into the quick disconnect (female) in the fryer's return line.

c. Slide filter latching device into the fryer to lock in-position.

Latching Device

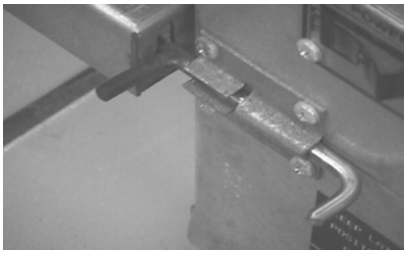


Figure 3-4

d. Connect the flexible power cord to the power supply provided in the fryer. The power supply receptacle is found in the front, upper left corner of the fryer cabinet near the front door hinge.

Power Receptacle

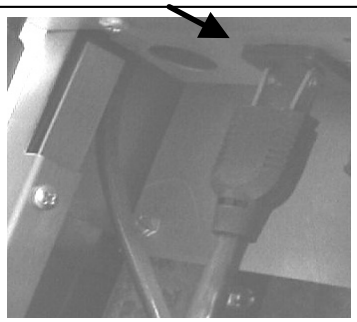


Figure 3-5

3.4 INSTALLING THE FILTER (PORTABLE OPTION):

a. Make sure the filter switch is in the "OFF" position before connecting the power cord to the power supply.

b. Connect the six foot (6') flexible hose/nozzle assembly into the filter discharge line (female into male quick disconnect). Place the hose in holster and then connect the flexible power cord to the power supply.

Insert drain extension here. | Insert flexible hose nozzle here.

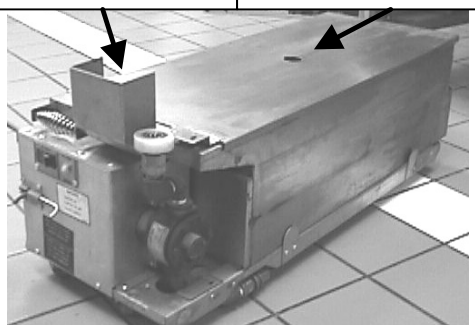


Figure 3-6

c. Roll the filter unit to the fryer to be filtered.

d. Attach drain valve extension (if needed) to the fryer's drain valve. This prevents hot oil from splattering out of the filter pan.

e. Move the filter unit into position by aligning the filter pan lid drain port with the fryer's drain valve extension.

4. DAILY OPERATIONS:

4.1 GENERAL:

The Cascade Filter is designed to operate as either a built-in filter unit or as a portable filter unit. Operations always start by ensuring the unit is properly plugged in, then rolling the filter to the fryer to be filtered. The filter will work directly under the fryer's drain valve.

CAUTION

ALWAYS USE INSULATED GLOVES DURING THE WHOLE FILTERING PROCESS.

DO NOT ALLOW WATER TO PASS THROUGH THE PUMP, OTHERWISE THE WARRANTY WILL BE VOID.

DRY FILTER UNIT AND ACCESSORIES THOROUGHLY AFTER CLEANING, RESIDUAL WATER WILL CAUSE SPLATTERING OF HOT OIL AND MAY CAUSE SEVERE BURNS.

4.2 FILTERING TOOLS:

These tools are not required, but are recommended to make the filtering task easier.

a. One-gallon aluminum pitcher or bucket: Used for mixing pre-coat to make slurry; also for dumping oil into fryer to flush out debris.

b. Whip: Used for mixing slurry.

c. Measuring Cup: Used to measure sixteen (16) ounces by volume of pre-coat.

d. Gloves: Used to expedite filtering and prevent burns from splashing oil.

4.3 FILTER PREPARATION:

a. Pull the filter unit from underneath the fryer.

b. Remove the filter pan cover and crumb screen.

c. Visually inspect the filter paper. Scrape debris off the filter paper. If the filter paper appears scuffed or darkened, replace the filter paper per instructions found in Section 4.4 of this manual.

d. Prepare slurry/pre-coat solution per instructions provided by the pre-coat manufacturer. Pour the mixture onto the filter paper in the filter tank. Make sure the top filter paper sheet is completely covered.

e. Now re-install the crumb catcher. Allow the crumb catcher to rest on top of the hold-down ring.

f. Place filter pan cover on top of the filter pan and slide the Cascade Filter into the fryer. Next turn the main power switch on the fryer to the "OFF" position. Then connect the filter return line connector into the quick disconnect in the fryer return line. Plug the filter power cord connector into the receptacle provided on the fryer.

4.4 CHANGING FILTER PAPER:

The filter paper should be discarded when it becomes dark or scuffed in appearance. Follow this procedure:

Removing the Filter Pan Cover.



Figure 4-1

a. Remove filter cover and crumb catcher screen. See figure 4-1.

b. Open the locking clips of the hold-down ring and lift the ring out of the filter tank.

Hold-down ring locking clips.

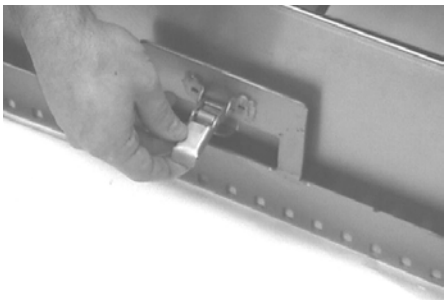


Figure 4-2

c. Roll both ends of the used (top) sheet of paper into the center, making sure no sediment falls out and discard.

d. Remove and check the protection screen for cleanliness and scrub if necessary.

e. Check the filter pan for cleanliness and scrub if necessary; check the drain ports at the bottom rear of the filter pan also.

f. Replace the bottom protection screen and place a new sheet of filter paper on top.

Installing hold-down ring.

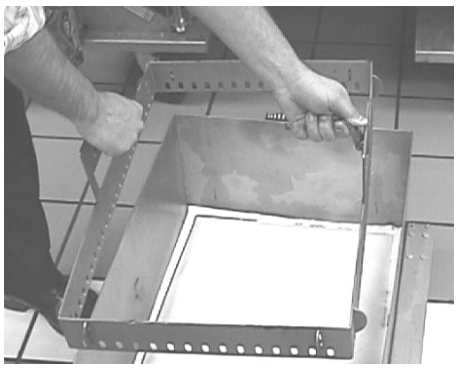


Figure 4-3

g. Replace the hold-down ring and secure.

h. Replace crumb catcher and cover.

Built-in Filter Operations (Cut-away)

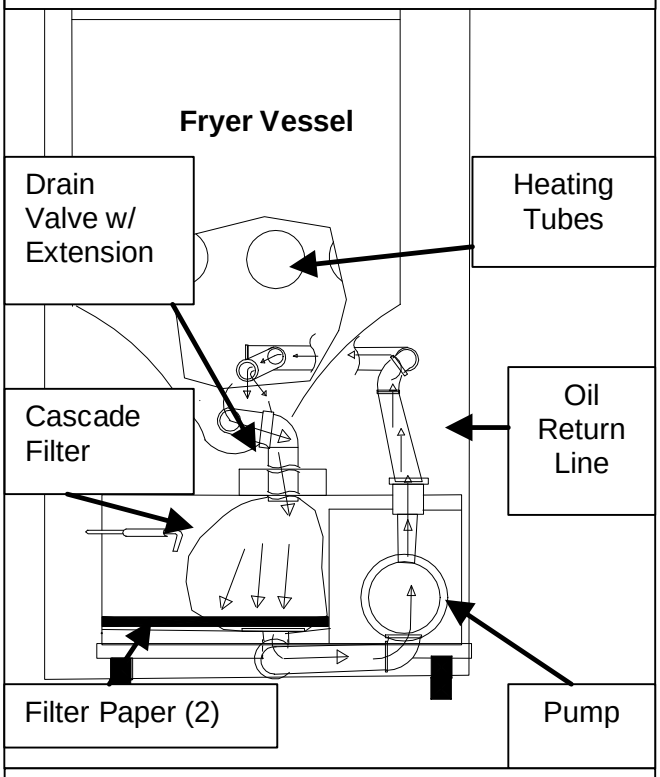


Figure 4-4

4.5 BUILT-IN OPERATIONS:

Figure 4-4 shows the flow of oil during built-in operations. When filtering, follow these steps:

a. Unlock the latching device on the filter and disconnect filter from fryer. See Sections 4.3 and 4.4 to prepare the filter paper. Once filter paper is prepared, re-install the filter unit.

CAUTION

MAKE SURE QUICK DISCONNECTS ARE PROPERLY CONNECTED OR SERIOUS INJURY MAY OCCUR. SLIDE LATCHING DEVICE INTO LOCK POSITION, THEN TURN SWITCH ON FILTER TO "ON" POSITION OR PUMP POSITION IF PROVIDED WITH A HEATER.

b. When using solid shortening, before filtering, turn the filter switch to the heater position for a few minutes in

order to melt the solid shortening in the pump lines.

c. Turn the power switch on the fryer to the "OFF" position.

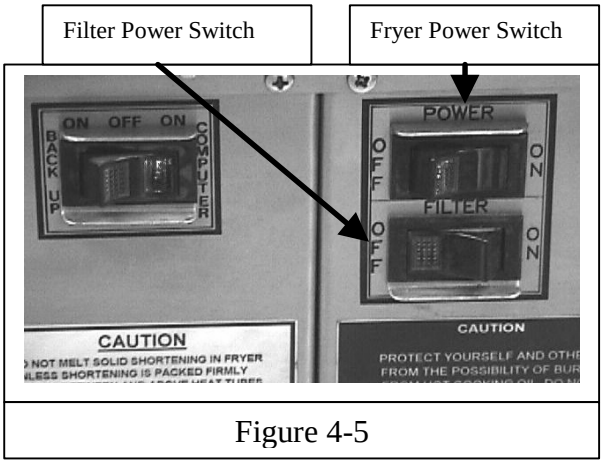


Figure 4-5

WARNING!

DO NOT LEAVE A FILTER MACHINE UNATTENDED DURING OPERATION. THE ACTION OF THE OIL MOVING THROUGH THE LINES COULD CAUSE A FLEXIBLE RETURN HOSE TO POP LOOSE AND SPRAY HOT OIL.

d. Open the fryer door and be sure that the filter is in the proper position under the fryer drain valve.

e. To open the drain valve, pull the handle out and allow all the oil in the fryer to drain into the filter pan.

CAUTION

DO NOT DRAIN MORE THAN ONE FRYER INTO THE FILTER PAN TO AVOID SERIOUS SPILLING OF HOT OIL ONTO THE FLOOR.

f. Turn filter switch "ON" to begin pumping clean oil into the fryer; allow the oil to flow for a few seconds to wash out sediment on the bottom of the cooking vessel before closing the drain valve.

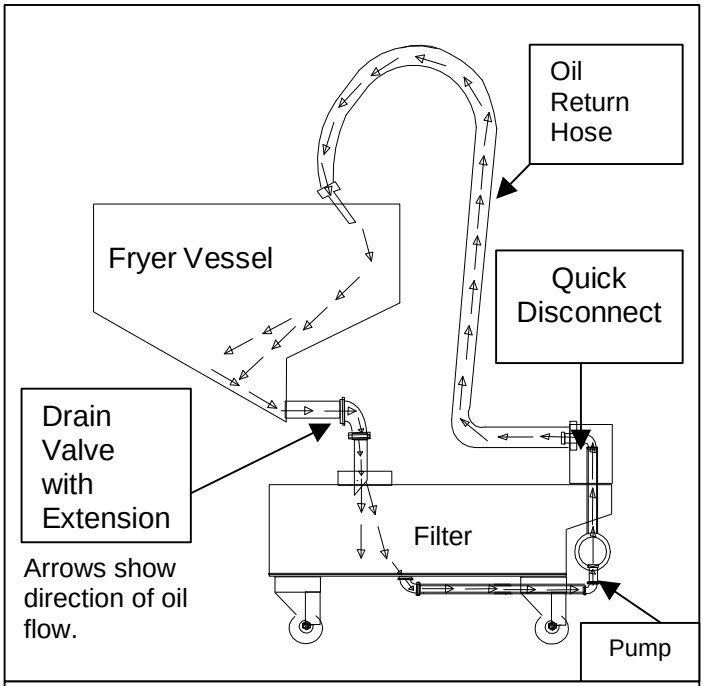
g. Push on the drain valve handle to close it. It takes approximately 5 to 7 minutes for the filter to pump all the oil back into the fryer.

h. Turn filter switch on the fryer to the "OFF" position after all the oil has been pumped back into the fryer. Allow the pump to run for 10 – 15 seconds after air bubbles appear in the fryer vessel before shutting off to clear shortening/oil from the return lines.

WARNING!

THE OIL TEMPERATURE OF THE FRYER TO BE FILTERED SHOULD BE AROUND 350°F (175°C). AT ALL TIMES HOLD THE FLEXIBLE HOSE NOZZLE IN THE FRYING VESSEL OR SECURED IN THE FILTER PAN PRIOR TO OPERATING ANY SWITCHES OR VALVES. FAILURE TO DO THIS CAN RESULT IN SEVERE BURNS.

NOTE: AFTER FILTERING IT MAY BE NECESSARY TO SCRAPE OFF ALL OF THE DEBRIS ACCUMULATED ON TOP OF THE FILTER PAPER AND DISCARD.



Portable Filtration System

Figure 4-6

CAUTION

OPERATING THE BURNERS WITHOUT OIL IN THE FRYER VESSEL WILL CAUSE DAMAGE TO THE FRYER AND VOID THE WARRANTY.

4.6 PORTABLE FILTER OPERATION:

Figure 4-6 shows the oil flow during portable filter operations. Follow these instructions for portable operations:

a. Prepare a precoat/slurry per the pre-coat manufacturer's instructions.

b. Turn "OFF" fryer to be filtered. Pour the mixture onto the filter pad.

c. Remove filter lid cover and position the filter pan under the fryer drain valve, then install drain extender. Attach return hose.

d. Open the drain valve and drain fryer oil into the filter. If there is an abundance of sediment in the fryer, put a strainer under the drain valve to remove these particles before they get into the filter pan. This will conserve filter paper and shorten filtering time.

e. Hold return hose in the fryer vessel, then turn the filter pump on. Wash all remaining sediment from the fryer into the filter with the hot oil return hose.

f. Shut the drain valve and return the oil to fryer.

g. When pumping oil back into the last fryer, turn the filter off and direct the hose nozzle back into the filter when about one inch of oil remains in the filter pan. Turn the filter back on and use this hot oil to flush sediment from bottom corners and side walls of the filter pan. Once finished flushing the filter pan, turn the filter off and direct the hose nozzle back into the fryer. Turn the pump on and return the remaining oil to the fryer.

h. When there is no more oil coming out of the hose nozzle, allow the pump to run an additional 10-15 seconds before turning the pump off. This will allow the pump to clear the oil return lines and the hose assembly of remaining oil or shortening.

i. Disconnect the hose nozzle assembly and hang up the assembly to allow it to dry.

j. Remove the filter pan cover and scrape any solid matter from the filter paper.

k. Wipe the filter pan dry with dry toweling.

l. Replace cover onto the filter pan and store filter unit.

4.7 OPERATING PROBLEMS:

Plugged lines and plugged filter paper account for over ninety percent of malfunctions. The troubleshooting flowcharts found in Chapter 6 can provide a step-by-step guide to correct these and other common malfunctions.

a. PLUGGED LINES:

1. If you are using solid shortening and the filter is operated improperly, the motor may shut off before the hot oil is completely pumped back into the fryer and solidification of the oil in the lines could occur as the oil cools. The illustrations in Figures 4-4 and 4-6 show the path of oil in a filter circuit for the portable and built-in operational modes.

2. Oil drains from the fryer vessel into the filter pan, then it is drawn through the filter paper, exits the pan through the ports on the filter pan bottom, then flows through a rigid tube to the filter pump. From

the pump, oil returns to the fryer through the flexible oil return hose or the internally-plumbed oil return line in the fryer.

3. A solid shortening plug can exist anywhere in this path; locate the plug using the procedures found in Chapter 6, Troubleshooting Guide.

4. To guard against plugged lines when using solid shortening, follow these guidelines:

    a. If your filter is equipped with a pan heater, use it every time you filter.

    b. Also, at the end of the filtering cycle, let the filter flow bubbles into the fryer through the flexible hose for about ten seconds. If it is blowing bubbles, air is moving through the lines and they cannot be plugged.

    c. When filtering is completed, always disconnect the flexible line and hang it up to drain.

b. PLUGGED PAPER: Improper use of the filter pre-coat powder will cause a slow oil flow return rate. The filter paper should at least be scraped (if not discarded) after filtering a particularly dirty fryer. First indication of paper plugging is a surging, jerking movement of the hose. To correct, check the instructions for the right use of powders and scrape the filter paper more frequently. Also review procedures found in Chapter 6, Troubleshooting Guide.

5. CLEANING & MAINTENACE

5.1 GENERAL:

Cleaning operations fall into three general categories:

a. The continuing habit of clean-up every time the filter unit is used;

b. The daily clean-up at the close of each business day;

c. And, a more thorough weekly cleaning.

5.2 EACH FILTER USE:

Every time your Cascade Filter System is used:

a. Wash down the sides of the filter pan with hot oil.

b. Scrape and possibly change the top sheet of filter paper. Always scrape sediment and debris from the paper when the system is warm; this prolongs the life of the paper.

c. Wipe up any oil which may have splashed or spilled.

d. Wipe all exterior surfaces of the filter unit.

5.3 DAILY-CLOSE OF BUSINESS:

One of the last orders of business at the close of a working day should be to filter the oil in all fryers. When the last fryer is finished, follow these steps:

a. If used as a portable filter, run the filter pump for an additional 10 – 15 seconds after air bubbles come out of the filter hose nozzle before shutting "OFF". Keep the filter hose pointed down into the last fryer's fryer vessel until done. This should clear the hose line of any remaining oil or shortening.

b. Remove the filter unit from the fryer. Scrape the top piece of filter paper. Replace filter paper if it is scuffed or dark.

c. Remove the filter pan cover, the crumb catcher (if equipped) and hold-down ring assembly; then take out the paper and protection screen.

d. Wash all of removed items with soapy water.

e. Clean the filter pan with a dry towel.

f. Be sure that all items have been dried thoroughly before reassembling.

5.4 WEEKLY:

Follow the same procedure as for "DAILY", with these additional steps:

a. Check the connections of the inlet lines. Tighten if the inlet lines become loose or start to leak oil.

b. Wash the filter pan with hot, soapy water and a brush. Dry and reassemble with new filter paper.

c. Clean thoroughly under, around, and behind the fryers and filtering area.

d. Avoid getting water inside the motor/pump housing when washing the filter pan.

WARNING!

DO NOT RUN WATER THROUGH THE FILTERING SYSTEM AS PART OF THE CLEANING PROCESS. THE FILTER PUMP IS NOT DESIGNED TO HANDLE WATER. THIS WILL VOID THE WARRANTY FOR THAT SYSTEM, HASTEN PUMP FAILURE AND CAUSE ACCIDENTS IF WATER MIXES WITH HOT OIL.

6. TROUBLESHOOTING GUIDE

These troubleshooting procedures help locate the most encountered problems and will give possible solutions/corrective action to be taken.

To use these flowcharts, start at the top of the diagram. Follow each step in sequence.

If the answer to a question is "yes", proceed downward to the next step.

If the answer is "no", follow the arrow to the right and follow the next step. Arrows direct the troubleshooter through the sequence.

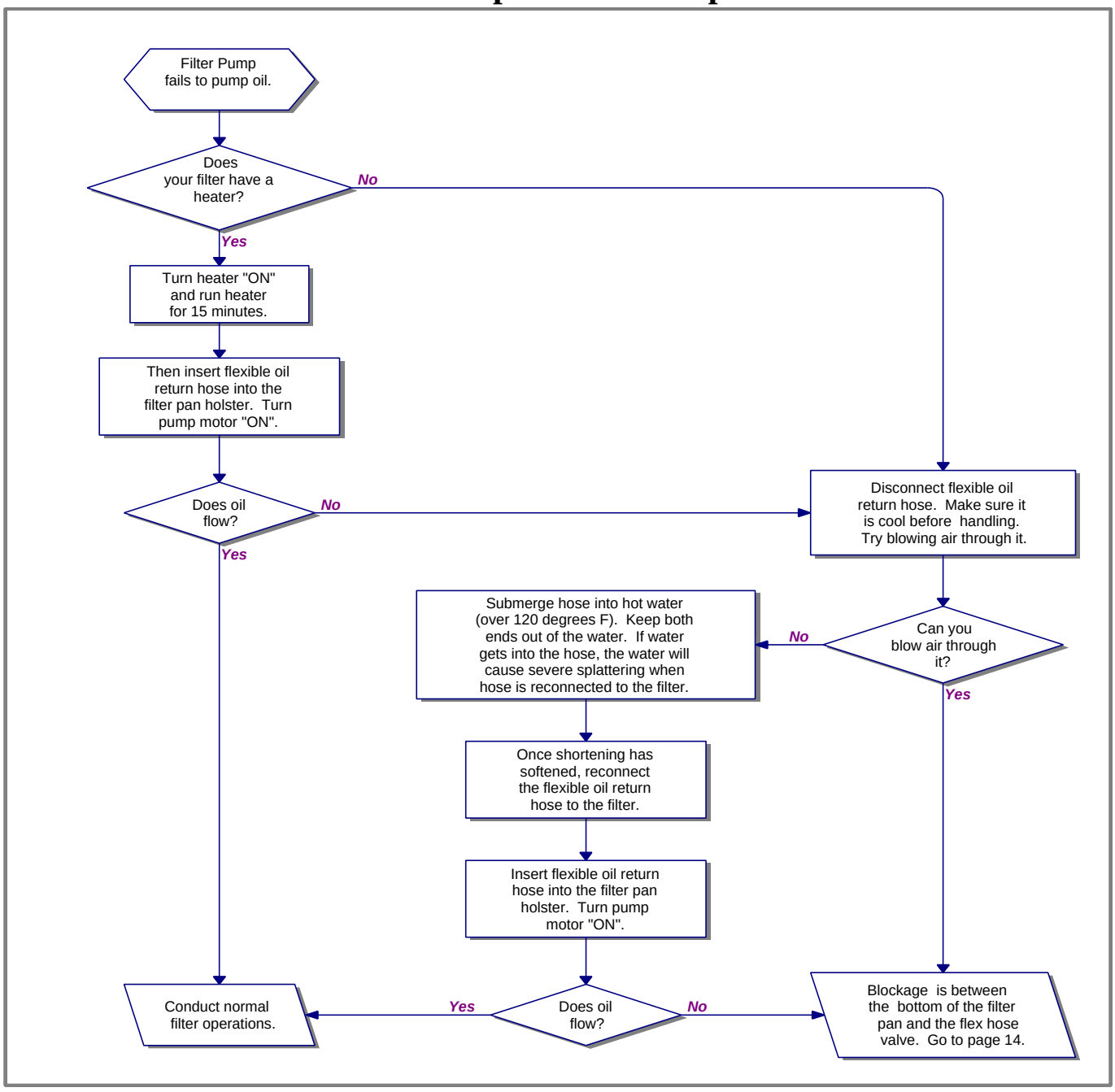
DANGER!

USE EXTREME CARE DURING ELECTRICAL CIRCUIT TESTS. LIVE CIRCUIT WILL BE EXPOSED.

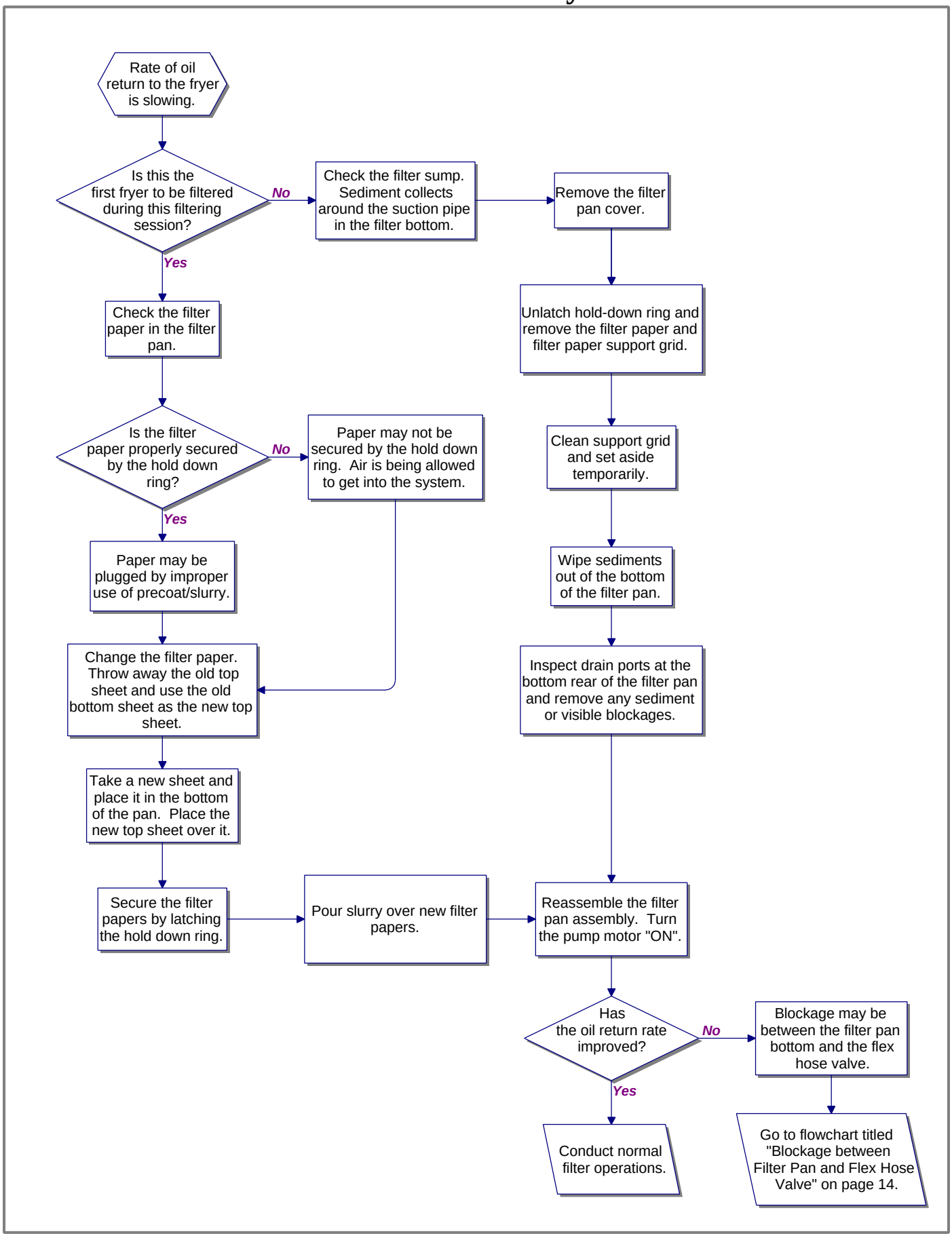
WARNING

INSPECTION, TESTING, AND REPAIR OF GAS OR ELECTRICAL EQUIPMENT SHOULD BE PERFORMED BY QUALIFIED PERSONNEL.

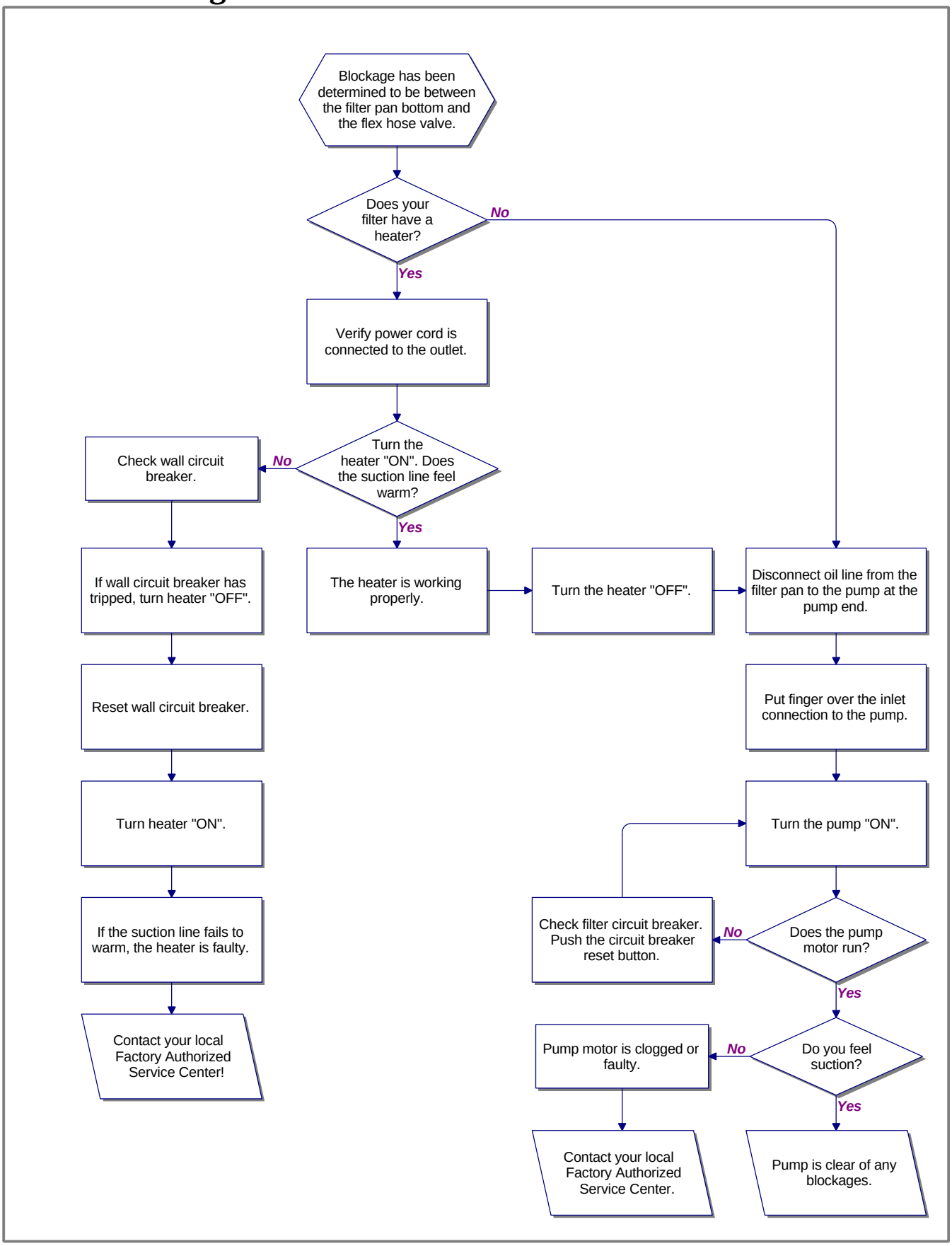
Filter Pump Fails to Pump Oil?



Rate of Oil Return to Fryer Slows?



Blockage between Filter Pan and Flex Hose Valve?





Dean, 8700 Line Avenue, Shreveport, Louisiana 71135

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