OPERATION AND
SERVICE GUIDE
O-1450A
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RECESSED PLATE FILTER PRESS

Refer to Bulletin F-705

SAFETY PRECAUTIONS

1. Read all operating instructions, study the diagrams, and become familiar with all instruments and controls.
2. Refer to a chemical resistance data chart for compatibility of materials in the unit with the solution to be used.
3. Personnel should always wear suitable protective clothing: face mask or goggles, apron and gloves.
4. Ensure that all fittings and connections are properly tightened.

BEFORE CHANGING APPLICATION OR PERFORMING MAINTENANCE

1. **Wear protective clothing as described in item 3 above.**
2. **Flush unit thoroughly with a neutralizing solution to prevent possible harm to personnel.**
3. **Verify compatibility of materials as stated in item 2 of Safety Precautions above.**

INSTALLATION

The SERFILCO Filter Press is shipped completely assembled and pretested. Keys for the control compartment lock are in a cloth bag tied to the handle. Pressure regulator P-1 is packaged inside the control panel for protection during shipment. To install, unlock the control cabinet, unscrew the the lock ring collar from P-1, project P-1 through the control panel, replace the lock ring and tighten.

CAUTION: Use care in handling the filter press to avoid damage to any components such as discharge extension pipes, plate handles, or hydraulic system.

NOTE: The press is **TOP HEAVY**. Please take proper precautions in handling. Lifting lugs are provided to lift and transfer the press.

1. Mount the filter press level to floor, platform or extension legs through the base holes provided. (See diagram No. 1) **Do not install mounting bolts at this time.**
2. Remove all banding and crating that hold the follower, plates and head together.
3. Connect discharge of air powered diaphragm pump to filter press inlet. See Fig. 2.
4. Install drain pipe to bottom outlet of discharge manifold. (Figure No. 4) IMPORTANT: Be sure outlet of drain pipe is below level of discharge manifold outlet. If not, a check valve must be installed in the line.
5. If optional air blowdown manifold is used, connect air supply as shown in Figure No. 4.
6. Connect air supply, using a minimum ½" I.D. pipe, to fitting marked air inlet located at the hydraulic cylinder end of the filter press. Use a shut off valve in the air line prior to the filter press. The air filter, regulator, and lubricator are included in the press tail section, inside the control compartment.

PRE-TEST

1. The filter press is in the closed position as shipped.
2. Adjust the air regulator on the control console for zero (0) air pressure by turning the black knob counterclockwise.
3. Push air valve V-5, red knob - to OFF position.
4. Turn the hydraulic selector valve V-6 (black handle) to NEUTRAL position.
5. Turn on air supply to filter press (valve V-8 in incoming line).
6. Pull air valve V-5 ON (red).
7. Turn hydraulic selector valve V-6 to CLOSE position.
8. Increase air pressure, valve P-1 (turn black knob clockwise) slowly until you hear the air powered hydraulic pump start to cycle.
9. Allow filter press to close completely.
10. With filter press tightly closed, increase air pressure until maximum hydraulic pressure (per specifications sheet) is indicated on hydraulic pressure gauge. NOTE: a preset hydraulic pressure relief valve at the pump will not allow pressure to exceed maximum limit. If hydraulic pressure does not reach approximate maximum, see hydraulic pump section on next page. The pump has been cycled and tested at the factory.
11. If pump has reached maximum pressure but continues to cycle, decrease air pressure P-1 until the pump stalls. Upon completion of installation, check the troubleshooting section for corrective measures.
12. With air pressure set, push in outer ring on regulator knob to lock in position.
13. The air powered hydraulic pumping unit is designed to maintain a constant hydraulic pressure using no air consumption.
14. Turn selector valve V-6 to the OPEN position. The hydraulic pump will start cycling, retracting the hydraulic ram to open the press.
15. With ram retracted within 2-3 minutes, (longer time indicates inadequate air supply) turn selector valve to the NEUTRAL position.
16. Turn selector valve V-6 to CLOSE position.
17. With press completely closed and at maximum hydraulic pressure, **now** install bolts holding filter press in place.
18. The filter press is now ready for operation. (See START-UP Operation Instructions).
19. Check the oil in the air line oiler - fill with SAE 20 non-detergent oil.
20. Check and adjust the air line oiler to insure adequate oil is being provided to continuously lubricate the hydraulic fluid reservoir - maintain with quality hydraulic fluid.
21. Check the level in the hydraulic fluid reservoir - maintain with quality hydraulic fluid.

START-UP & OPERATION To close filter press

1. Open valve V-8 in air supply line.
2. Pull air valve V-5 ON (red knob). Regulated air pressure will register on gauge.
3. Turn selector valve V-6 to CLOSE position. The hydraulic pump will start cycling, extending the ram to close the press. With the press closed, the hydraulic pump will read maximum pressure and automatically stop maintaining constant pressure without further air consumption.
4. Leave selector valve V-6 in CLOSE position with air valve V-5 ON.
5. Open inlet valve V-1 and start the feed pump. The feed pump cycling will slow as the press becomes filled. With the press completely filled, the pump will cycle approximately every five seconds. Experience will dictate when the optimum sludge cake has formed.
6. Turn off the feed pump.
7. Close the inlet air valve.

AIR BLOWDOWN (optional)

The air blowdown purges solution from the piping, internal ports and cavities between the filter cloth and plates. The reverse flow of air also serves to separate the cake from the cloth. It also displaces some free moisture from the cake.

1. Close the 1½" valves on the discharge manifold. (Fig. 4 or 5)
2. Open the air valve on the discharge manifold to expel water left on the press, (approx. 1 min).
3. Close the air valve.
4. Open the 1½" valves on the discharge manifold. Leave the 2" inlet valve closed. This will slow gravity drainage of the press.

TO OPEN FILTER PRESS

1. Turn hydraulic selector valve V-6 to open position. The hydraulic pump will start cycling, retracting the hydraulic ram.
2. With the press open, turn selector V-6 valve to NEUTRAL position.
3. Push air valve V-5 (red knob) to OFF position.
4. Clean plates
   a. Manually separate the plates. NOTE: New gaskets have a tendency to stick. Use care in separating plates to avoid damaging them. A silicone spray can be used to eliminate this condition.
   b. Use non-abrasive nylon or wash paddle to remove any cake that has not fallen free.

NOTE: Failure to thoroughly clean the plates can cause cracking due to increased pressure build-up.

5. With the plates thoroughly cleaned, the press is ready for closing. NOTE: Follow instructions "To Close Filter Press"

CAUTION: If flow to the filter press is interrupted for a period of time, such as overnight, it is recommended that the feed pump be restarted at a low pressure for 5 to 10 minutes before slowly increasing to maximum pressure. When the feed to the press is interrupted, the sludge build-up will have a tendency to fall from the sides of the chamber and settle to the bottom, possibly blocking the center feed hole. Restarting with high feed pressure does not give the sludge time to resoften and distribute itself in the chamber. Blockage of the center feed can cause uneven pressure build-up and result in plate breakage.

MAINTENANCE

Hydraulic System

Check the reservoir oil level periodically. Check the complete hydraulic system for any sign of leaks.

Air filter

The air filter is an automatic self-draining type. For filter element replacement, see above section on air filter.

Air lubricator

Check the oil level in the lubricator at least monthly. Add SAE 20 non-detergent oil as required. Check and adjust the oil flow rate to one drop per 30 pump strokes.

Filter plates

Filter plates should be inspected periodically for gasket deterioration and condition of filter cloths.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Hydraulic pump will not cycle	1. Air supply off. 2. Inadequate air supply. 3. Air filter plugged. 4. Restriction in air line. 5. Muffler frozen over.	Check air pressure in line and clean air system parts.
Pump cycles without pumping or does not reach maximum pressure and stall.	1. Check valve in pump body malfunctioning. 2. Low oil in reservoir.	Clean, inspect and replace, if necessary. Fill reservoir with oil.
Pump continues to cycle after it has reached maximum hydraulic pressure.	1. Air pressure too high. 2. By-pass valve set too low.	Decrease regulated air pressure. (see Start-up and Operation) Reset by-pass valve.
Since the air operated hydraulic pump is very efficient, exhaust air is very cold. Ice may accumulate in the muffler if the pump is operated for extended periods at air pressures above 85 PSI with maximum power output.		
Water leaks out between plates during operation .	1. Gaskets loose or torn. 2. Low hydraulic pressure. 3. Too high pumping pressure 4. Press misaligned.	Reinstall or replace. (See section on filter plates). Increase to required PSI. Press must be set-up and pressurized before mounting bolts are installed.
Filter cloths pull out of grooves during operation.	A full cake was not developed before wash or blowdown, causing cloth to be pushed out of caulking groove.	Be sure chambers are completely full before wash or blowdown. The filter cake will then support the cloth. Increase cycle time.Increase pump pressure.
Filter cloths pull out of grooves during operation even though full cakes are being built.	Improper size sash cord for cloth or application.	Future cloths should be made with a slightly larger sash cord. Contact SERFILCO for recommendations.
Filter cake not fully compacted.	Inadequate cycle time. Supply pump pressure too low.	Increase cycle time. Increase pump pressure.