



HYDRAULIC OIL RECYCLER MODELS



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HYDRAULIC OIL RECYCLERS

DAHL HYDRAULIC RECYCLERS

DAHL Hydraulic Recycler units are designed specifically for removal of water from hydraulic oils. Due to the composition of hydraulic oils, water becomes emulsified and cannot be removed from the hydraulic oil by conventional methods. The DAHL Hydraulic Recyclers use a special cartridge constructed from filtering media that absorbs the water. Hydraulic oils that contain relatively large amounts of water may require several passes through the filter to remove the water. Since the cartridge captures the water, the cartridge becomes more restrictive as it absorbs water. To prevent undue wear on the pump and motor, a vacuum switch is provided to shut the motor off when the pump produces a predetermined suction.

The Hydraulic Recycler is available in two portable arrangements and as an in-line filter. The portable units both consist of two units, a pump, a motor, a control box and a vacuum switch. The "Series Flow" model, **300-DHRAS5**, has the double unit arranged so that the hydraulic oil passes through the water-absorbing cartridge and then through a synthetic media to achieve high capacity and fine filtering. The "Parallel Flow" model, **300-DHRAP5**, uses two water-absorbing cartridges with the oil flow split between the two cartridges for maximum water-absorbing capacity.

DAHL units are mounted on a convenient cart to be moved where needed. Just position the unit in a convenient location where it can be monitored occasionally for contaminant level.

PORTABLE UNITS

Portable units are mounted on a sturdy 46 inch high cart. Easy-rolling 10 inch wheels with rubber tires make it simple to wheel these units to the equipment rather than bring the equipment to the unit.

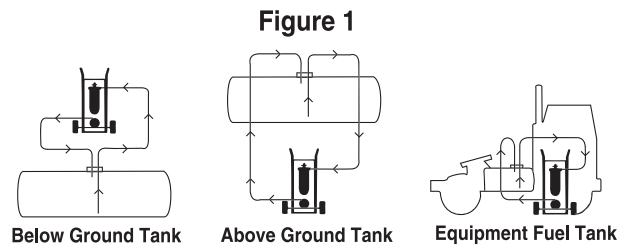
110 Volt AC is standard, but 220 Volt AC is also available. Maximum flow rate for single motorized units is 180 GPH (U.S.), 300 GPH (U.S.) for double units.

The motorized pump includes an on/off switch and 7 1/2 feet of heavy-duty 16/3 cable with ground.

Units come with 15 foot lengths of number 10 or number 12 fuel hoses. Number 10 fuel hoses come with 1/2" NPT male threaded fittings and number 12 fuel hoses come with 3/4" NPT male threaded fittings.

PIPE EXTENSION NOTE: For best suction control, a half-inch by ten foot section of pipe can be attached to the end of the suction hose. Notch the suction end of the pipe for good flow. If possible, periodically move the location at the bottom of the tank.

RECYCLING APPLICATIONS WITH DAHL PORTABLE UNITS



OPERATION — RECYCLING

1. **Priming**
 - a. Loosen the T-Bolt handle to release the filter body from the lid. Support the filter body with your hand prior to release.
 - b. Fill the filter body to within one-inch of the top with clean diesel fuel.
 - c. Lubricate the lid cover gasket and replace.
 - d. Reinstall the body to the lid. Hand tighten only.
2. Turn unit on. The toggle switch is on the motor. All DAHL units operate continuously and must NEVER be left running dry (No fluid flow through the pump).
3. Recycling time is determined by the fuel quality or until no additional contaminants appear in the bowl. Recycling time (in hours or minutes) may be estimated with the use of Table 1.
4. Monitor the bowl for water and contaminants. Drain as needed.

NOTE: Water must be drained before the level reaches the depressurizer cone. Refer to DRAINING WATER

- section. An optional water sensor with automatic pump shut-off is a handy accessory.
5. Element condition is monitored by the vacuum gauge located on the DAHL filter outlet. Refer to ELEMENT REPLACEMENT section.

Recyclers Flow Rates			Table 1	
DAHL Model Series	Gallons Per Hour*	Recycle Time		
		IN MINUTES Divide Gallons of Fuel by	IN HOURS Divide Gallons of Fuel by	
300 Double Series	300	5	300	

* Maximum Pump Rating - Actual flow may be less.

SERVICING

DRAINING WATER

When free water is found in the hydraulic oil, it will generally be removed by the depressurizer cones found in the bowl. Other contaminants that are large enough and dense enough will also be removed by the depressurizer cones. For these reasons, the bowl should be visually inspected from time to time. The bowl must be drained before the level of water and contaminants reaches the depressurizer cone.

A. Turn unit off.

NOTE: On units with automatic vacuum-activated shut-off, the motor will shut off automatically when the pump

produces a predetermined suction. Drain replace elements and press the reset button to resume operation.

- B.** Open the draincock up to 1/4 turn and drain all contaminants.
- NOTE:** If the contaminants will not drain out, slowly open the primer plug on the lid to allow air to enter the system.
- C.** Close the primer plug and draincock.
 - D.** Prime the system, if necessary. Refer to ELEMENT REPLACEMENT section.
 - E.** Start unit and check for leaks.

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SERVICING

WATER-ABSORBING CARTRIDGE REPLACEMENT

A. When To Replace

The DAHL unit will shut off when the restriction of the filters causes the pump to produce a predetermined suction. The water-absorbing cartridge should be changed at this point.

B. How To Replace Water-Absorbing Cartridge

1. Turn on the override switch and check the vacuum reading. Note the vacuum rating. Turn the unit off.

NOTE: If the hydraulic oil tank is above the DAHL unit, close the shut-off valves or disconnect the DAHL unit to prevent oil from flowing out of the DAHL body when disassembling.

2. Drain the body by opening the draincock. It may be necessary to open the primer plug slightly to allow air to flow into the body. Drain only enough oil to allow easier handling of the filter body.
3. Close the draincock and primer plug.
4. Loosen the T-Bolt handle to release the filter body from the lid. (It is not necessary to completely remove the T-Bolt from the

DAHL filter lids.) Support the filter body with your hand prior to release.

5. Remove the cartridge with a turning motion.
6. Inspect the ejector spring(s) at the bottom of the body. Also check the centerpipe O-Ring and replace if hard or damaged.
7. Remove and replace the lid cover gasket. Be sure the lid groove and body lip are clean. (Grease the lid cover gasket before positioning.)

C. Reassembly

1. Lubricate the top and bottom cartridge gaskets. Install the cartridge onto the centerpipe with a turning motion.
2. Fill the filter body with clean oil to within one inch of the top.
3. Double check the lid cover gasket position in the lid groove.
4. Attach the body to the lid and hand tighten the T-Bolt handle.
5. Start unit and check for leaks.

SYNTHETIC CARTRIDGE REPLACEMENT

A. When To Replace

The synthetic element is a secondary filter and should not become plugged as quickly as the water-absorbing cartridge. The actual life will be dependent upon the filtering conditions.

B. How To Replace Synthetic Cartridge

1. Drain the body by opening the draincock. It may be necessary to open the primer plug slightly to allow air to flow into the body. Drain only enough oil to allow easier handling of the filter body.
2. Close the draincock and primer plug.
3. Loosen the T-Bolt handle to release the filter body from the lid. (It is not necessary to completely remove the T-Bolt from the DAHL filter lids.) Support the filter body with your hand prior to release.

4. Remove the cartridge with a turning motion.
5. Inspect the ejector spring(s) at the bottom of the body. Also check the centerpipe O-Ring and replace if hard or damaged.
6. Remove and replace the lid cover gasket. Be sure the lid groove and body lip are clean. (Grease the lid cover gasket before positioning.)

C. Reassembly

1. Lubricate the top and bottom cartridge gaskets. Install the cartridge onto the centerpipe with a turning motion.
2. Fill the filter body with clean oil to within one inch of the top.
3. Double check the lid cover gasket position in the lid groove.
4. Attach the body to the lid and hand tighten the T-Bolt handle.
5. Start unit and check for leaks.

TROUBLESHOOTING

Poor performance of the recycler or blender units is usually caused by one or more of the following:

A. Air Leaks

1. **Fittings.** Insure the O-Rings on the fittings in the DAHL filter ports are lubricated and not damaged, cracked or dirty.

NOTE: When using JIC 37° fittings, be sure only mating JIC 37° fittings are used. Misalignment will occur and air leakage will result from an attempt to fasten a SAE 45° fitting to a JIC 37° fitting. Check for fitting looseness, seat dents, misalignment or unmatched threads. All fittings must be wrench tight.

2. **Bubbles In The Bowl.** If bubbles appear at the depressurizer cone, a leak is indicated between the tank and the inlet port.

NOTE: Old lines (rubber hose or metal tubing) may crack when moved. Check areas around push-on fittings, pipe adapters, hose clamps, etc. If air bubbles appear at the draincock, check for particles stuck in the valve seat or a partly open draincock. Also check for defective, miscentered or unlubricated bowl gaskets. Check the bowl plug O-Ring to make sure it is not cracked or extruded out of place. The bowl plug should be hand tightened only.

3. **Gaskets.** If the lid or bowl has been removed, make sure the gasket grooves are clean. Inspect the gaskets for proper seating in the grooves. Lubricate the gasket(s) with oil or grease.


B. Clogging and Restriction

1. **Lines.** Check for collapsed lines caused by sharp bends or excessive turns. Check the tank and/or filter shut-off valve(s).
2. **Filter Elements.** Early clogging can occur from badly contaminated fuel or oil (micro-organism growth, rust,

sludge, dirt, etc). Always carry a spare DAHL element. Asphaltic materials (fuel oxidation products), which are normally harmless to the injection system, can eventually plug original equipment filters remaining in the fuel system. If problems persist after the DAHL element has been replaced, also replace the other fuel filter elements.

3. **Filter Inlet.** Severely contaminated fluids may cause inlet plugging. In this event, close the tank supply shut-off valve (if equipped) and disconnect the inlet line. Remove the bowl and clean the inlet. Should the depressurizer cone also be plugged, disassemble and clean out.
4. **Bleed Back.** If fuel in the DAHL filter bleeds back to the fuel tank, an air leak or reverse flow valve problem is indicated. Inspect lines and fittings first as indicated above. If the reverse flow valve is clogged, use air or clean fluid to flush out.

C. Motorized Pump Malfunction

 **Danger!** Electric Shock Hazard. Only qualified personnel should test or repair defective components.

1. Check the power source and on-off toggle switch for operation.
2. On water-activated automatic shut-off models, drain the water or select the override position on the switch.

D. Water Sensor Light Malfunction

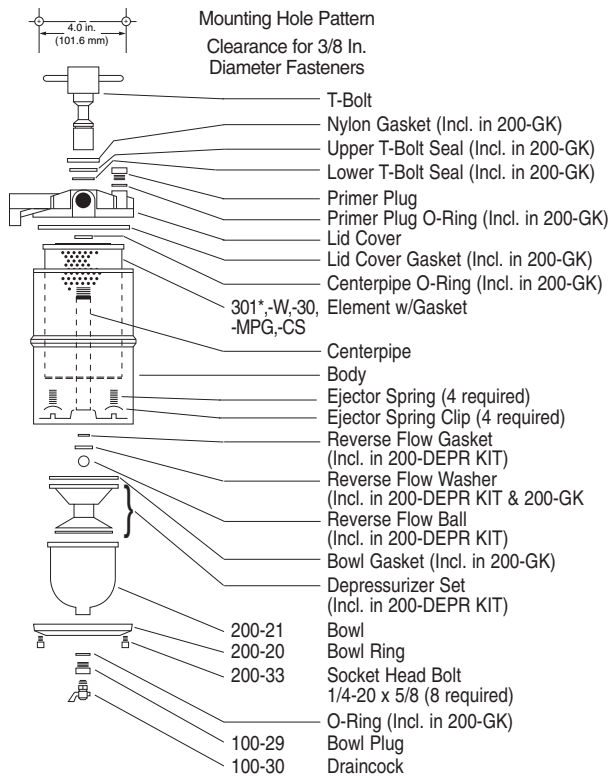
NOTE: This is a 12 Volt DC low voltage system. There is no danger of electrocution from the probes at the clear bowl even though the current is switched on.

1. With the unit on, test the light by temporarily attaching a test wire across the two probes at the clear bowl.
2. If the water level is above the probes and the light still does not work, refer to PROBE CLEANING section.

HYDRAULIC OIL RECYCLERS

MODEL 300 SPECIFICATIONS

DAHL Model 300



* Standard with Unit Unless Stated.

SPECIFICATIONS	300 DOUBLE
Flow Rate (Recommended)	300 GPH (U.S.) 1136 LPH
Height (w/o Cart) (w/ Cart)	22 1/4 in. (565.2 mm) 46 in. (1168 mm)
Width of Portable Units	26 in. (660 mm)
Depth of Portable Units	25 in. (635 mm)
Dry Weight, Portable Units	125 lbs. (57 kg)
Port Size — Inlet Outlet	1/2 in. NPT 3/4 in. NPT
Sump Water Capacity	48 ounces
Filter Elements	301-W

REBUILD PROCEDURE

If it is ever necessary to dismantle the unit for inspection and/or possible repairs, refer to the parts illustration. Then follow these simple steps:

1. Refer to the appropriate ELEMENT REPLACEMENT steps for disassembly. (Dismount if desired.)
2. Remove the socket head bolts from the bowl ring to release the bowl. Stubborn bolts are easily removed by "shocking" the head. Place the allen wrench into the bolt and lightly rap the wrench with a hammer. Remove the bolt.
3. Unscrew the depressurizer cone to inspect the reverse flow valve. **Caution:** Cone edges are sharp. Use gloves or a rag for protection.
4. Check all parts for damage. Replace all damaged parts or hard gaskets. (Order Gasket Kit 200-GK.)
5. Refer to the parts illustration for reassembly. Clean all gasket grooves and contact surfaces of foreign matter. Coat the lid cover gasket with grease to hold in place before positioning and coat all other gaskets and O-Rings with diesel fuel. Hand tighten the depressurizer cone and wrench tighten the socket head bolts.
6. Again, refer to ELEMENT REPLACEMENT section to finish reassembly.

BALDWIN LIMITED WARRANTY

Baldwin Filters warrants each new Baldwin or DAHL Filter Product to be free from defects in workmanship and material as follows:

1. **Housings** one year from date of user's purchase.
2. **Electronics, Pumps and Motors** 90 days from date of user's purchase.
3. **Replaceable Elements, Spin-ons, Etc.** during equipment manufacturer's recommended filter service interval, if properly installed in a Baldwin recommended application.

Baldwin will replace or repair at its option, free of charge, any part still in the Baldwin warranty period found by Baldwin's inspection to be defective when such product is returned to place of purchase or to Baldwin Filters with transportation charges prepaid.

Specifically excluded from this warranty is damage resulting from excessive force, negligence, abuse, misuse, misapplication, tampering, improper installation, fire or accident. The warranty will not apply to any filter which has been cut apart or subject to tampering. Also, damage to plastic parts of fuel/water separators caused by the use of fluids containing alcohol is not covered by this warranty.

Full details of this warranty are in the Policy and Procedures Manual at the Baldwin or DAHL distributor or may be obtained from Baldwin's Service Engineering Department.

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