

SPINNER II®

OIL CLEANING CENTRIFUGE

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Model 976 Gravity Return

Installation Instructions

Parts List

Service Instructions



Dirty Oil Supply to Centrifuge Inlet

Oil supply should, in general, be taken from the highest pressure, hottest source available on the dirty side of the full-flow oil filter. A 1/2" inch pipe or #8 hose supply line of suitable quality should be used to supply oil to the centrifuge oil inlet. Preferred pressure is 60 to 80 psi, but the Spinner II centrifuge will operate efficiently at 35 to 90 psi.

Note on COV (Cut-Out Valve). An internal idle cut-out valve prevents flow into the centrifuge at pressures less than 19 psi.

Pressure Tap on Engine - Most engines, including the latest models from Cummins, Caterpillar, DDC and MTU, provide a 3/8" inch or 1/2" inch port to supply an auxiliary device. Avoid using end-of-gallery supply points such as the pressure gauge tap.

Centrifuge Oil Inlet (1/2" inch NPT Female Pipe) – Unscrew plastic Shipping plug.

Clean Oil Outlet Return to Crankcase

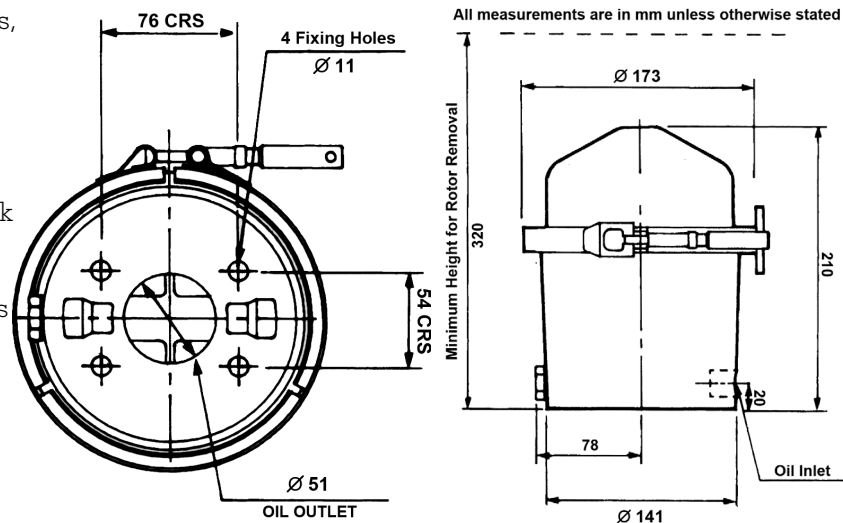
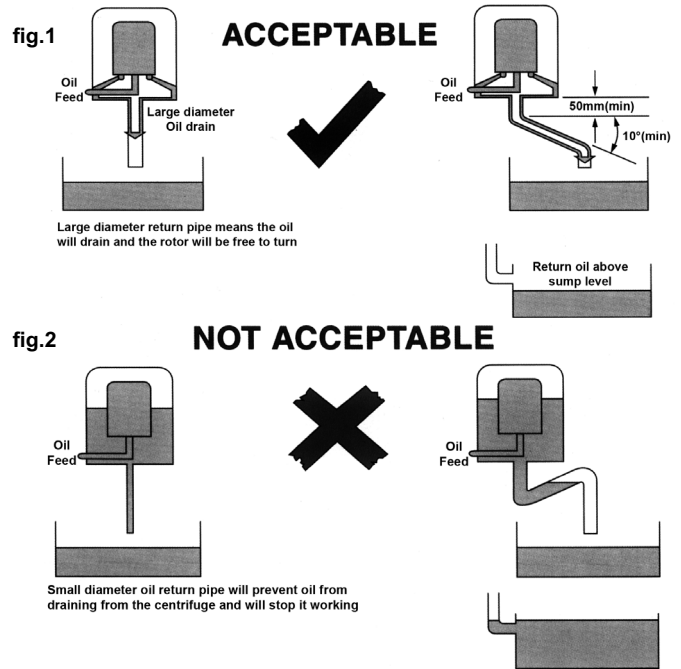
Gravity Drain. The Spinner II centrifuge must be close-coupled to the sump with an unrestricted 1-1/2" inch or 38mm ID hose drain returning above the normal sump oil level. The drain line must be sloped downward from the centrifuge outlet and be free of sharp bends or traps. On many engines, an access plate into the gear train or crankcase can be modified to provide a suitable drain opening as well as sturdy mechanical support, otherwise a suitable mounting bracket bolted securely to a point around the top of the engine with the flexible hose exiting from underneath will suffice. This will allow the oil to flow from the centrifuge back to the sump without restriction. Be sure the sump side of the drain opening is clear and that the drain oil does not impinge on moving parts of the engine. Gravity Return units need to be install with the following instructions in Fig 1 & 2 taken into consideration.

CAUTION — Route hoses to clear exhaust and all moving parts and fasten securely. *Do not remove full-flow filters. Use the Spinner II centrifuge only as a bypass oil cleaner.* Remove any previously installed bypass filters prior to installation of the Spinner II, and block ports where necessary.

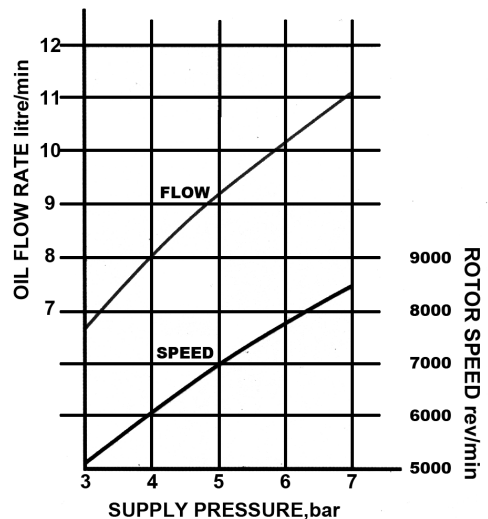
Mechanical Considerations

Spinner II centrifuges are high-speed devices and should be securely mounted to prevent excessive vibration. Operation up to 10 or 15 degrees from vertical is permitted. Further installation guidelines can be provided by your Spinner II Distributor. The cover clamp can be rotated to any convenient position and *should be tightened by hand only.*

“A gravity return centrifuge is not a normal filter, it needs a larger oil return pipe”.



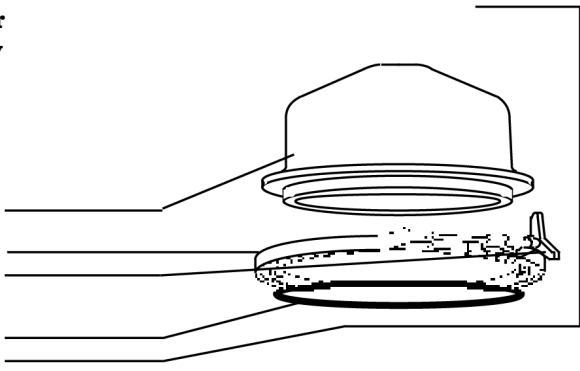
PERFORMANCE CURVES
Typical rotor performance for SAE 30 Oil @ 100°C



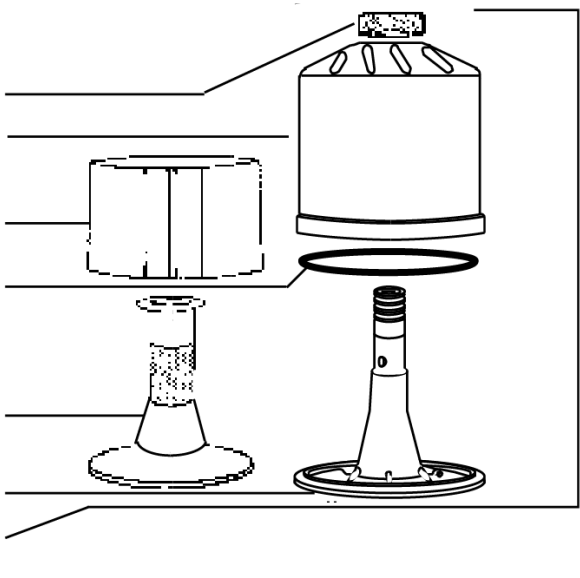
Model 976 Gravity Return Parts List

Only items shown with part numbers are available **Bold denotes assembly**

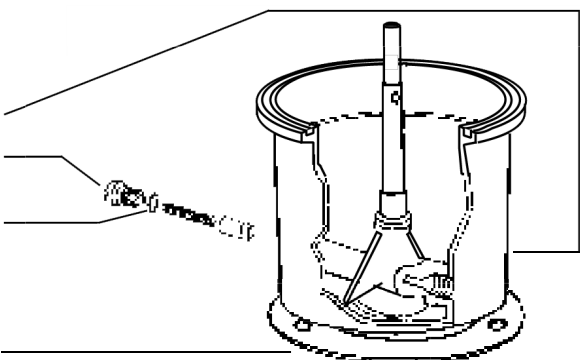
Item	Description	Part Number
	Centrifuge, Spinner II Model 976 GR complete	73320
	Service kit, (1 each items c, l and n)	tba
α	Cover.....	73191
b	Clamp, cover to base	71266
	Tee bolt and knob clamp.....	71270
● c	Seal-cover, Viton.....	71264
	Cover assembly	73266



h	Nut-centrifuge bowl.....	73239
k	Bowl-centrifuge.....	73196
● l	Bowl insert, oil resistant die-cut (pk of 25).....	73165
● n	Seal-centrifuge bowl, Viton.....	73240
m	Baffle/screen/standtube.....	73197
s	Body-centrifuge turbine/rotor base.....	73194
d	Centrifuge turbine/rotor assembly 2 gpm or 8 lpm	73236
	(includes items h, k, l, m, n and u)	



e	Housing assembly	73233
■ s	Idle cut-out valve (COV).....	71053
t	Seal-idle cut out valve.....	71054
i	Gasket-base.....	ESL-bg-060



Service Cycle ● Whenever bowl is cleaned or replaced
 ■ At unit rebuild or when required

Refer to Parts List illustration

1. Shut off engine and allow centrifuge turbine assembly (d) to come to a complete stop.
2. Loosen handle on clamp (b), disengage tee bolt and remove cover (a), using screwdriver in gap to separate cover from housing.
3. Partially withdraw centrifuge turbine/rotor assembly (d) from the housing (e) and allow oil to drain from nozzles (o) before removing completely.
Hold the centrifuge turbine assembly in one hand and loosen knurled bowl nut (h) several turns until the face of the nut projects beyond the bronze bushing face. Carefully separate centrifuge bowl (k) from turbine body (s) by striking the face of the nut (h) with the palm of one hand while holding the bowl in the other. Do not strike the nut or the bushing with or against a hard surface or damage will result. Finish removing the nut and then remove the bowl and baffle/screen/standtube (m).
4. Simply replace the dirty centrifuge bowl with a new one or carefully remove the dirt cake from the bowl (k) using a wooden spatula or other non-damaging tool. Wipe out bowl with solvent. Note: To save time in cleaning, an optional oil resistant die-cut insert (l) is available as a service part and may be installed to allow the compressed cake to be removed quickly and in a safer/cleaner manner.
5. Wash and clean baffle/screen/standtube (m) and turbine body/rotor base (s), removing and discarding O-ring bowl seal (n).
6. Inspect top and bottom bushings of centrifuge turbine body/rotor base (s).

Replace turbine assembly if bushings show severe wear.

Re-assemble:

- Place baffle/screen/standtube (m) over stem of turbine body/rotor base and seat evenly over shoulder on base. Install bowl seal (n) in recess in outer edge of turbine/rotor base. Slide the cleaned centrifuge bowl (k) over stem and seat uniformly over bowl seal. Install and tighten knurled bowl nut (h) securely, *using finger pressure only*.
7. Inspect housing assembly (e) paying special attention to journal areas of spindle. Replace housing if damaged.
 8. Clean and inspect cover (a). Always remove the old cover seal (c), clean the groove in the housing and mating surface of the cover and replace with a new green Viton O-ring seal.
 9. Install centrifuge turbine/rotor assembly (d) on spindle. Be sure it rotates freely. Replace cover (a), position clamp (b) uniformly over cover and housing flanges, and tighten clamp handle *securely by hand pressure only*.
 10. With the engine running, check all connections and joints for leaks.

Trouble-Shooting

Centrifuge removes too little dirt

Check for Proper Operation

Warm up engine and then bring engine to normal speed for one minute and immediately shut it down. If the Spinner II unit is working correctly the turbine/rotor can be heard spinning. As with any high-speed device, it may go through momentary periods of vibration as it passes through critical speeds while slowing to a stop. This is normal. If the turbine/rotor assembly is not spinning or if vibration is severe or continuous at all speeds, an error may have been made in assembly. Repeat steps 1 to 10, paying special attention to the proper seating of baffle/screen/standtube (m) and the bowl seal (n) (Step 6). If vibration persists, substitute a different turbine/rotor assembly (d). If the turbine/rotor is spinning properly, the centrifuge is doing its job of removing harmful abrasive dirt regardless of the amount of deposit found in the bowl. The visible deposit is largely soot and its thickness will vary from 1/16" inch or 1.5 mm. to completely full depending on oil type, oil change interval, engine type and condition, and operating conditions. Oil additive package design will affect soot size and thus the amount of carbon and soot collected in the bowl. Thickness of dirt and soot deposit should not exceed 1" inch or 25mm.

Oil leaks

Cover Seal

Remove cover (a) and cover O-ring seal (c). Clean seal grooves in housing and mating surface on cover. Install a new cover seal (b) in the housing groove, replace cover (a), position clamp (b) uniformly over cover and housing flanges, and tighten clamp handle *securely by hand pressure only*.

Oil Line Connections

Disconnect leaking hose and remove hose adapter from port. Clean threads in port and on adapter, and inspect for damage. Reinstall adapter using a good liquid thread sealant. Reconnect hose.

Sales and Service

SPINNER II®
PRODUCTS



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INCORPORATED

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