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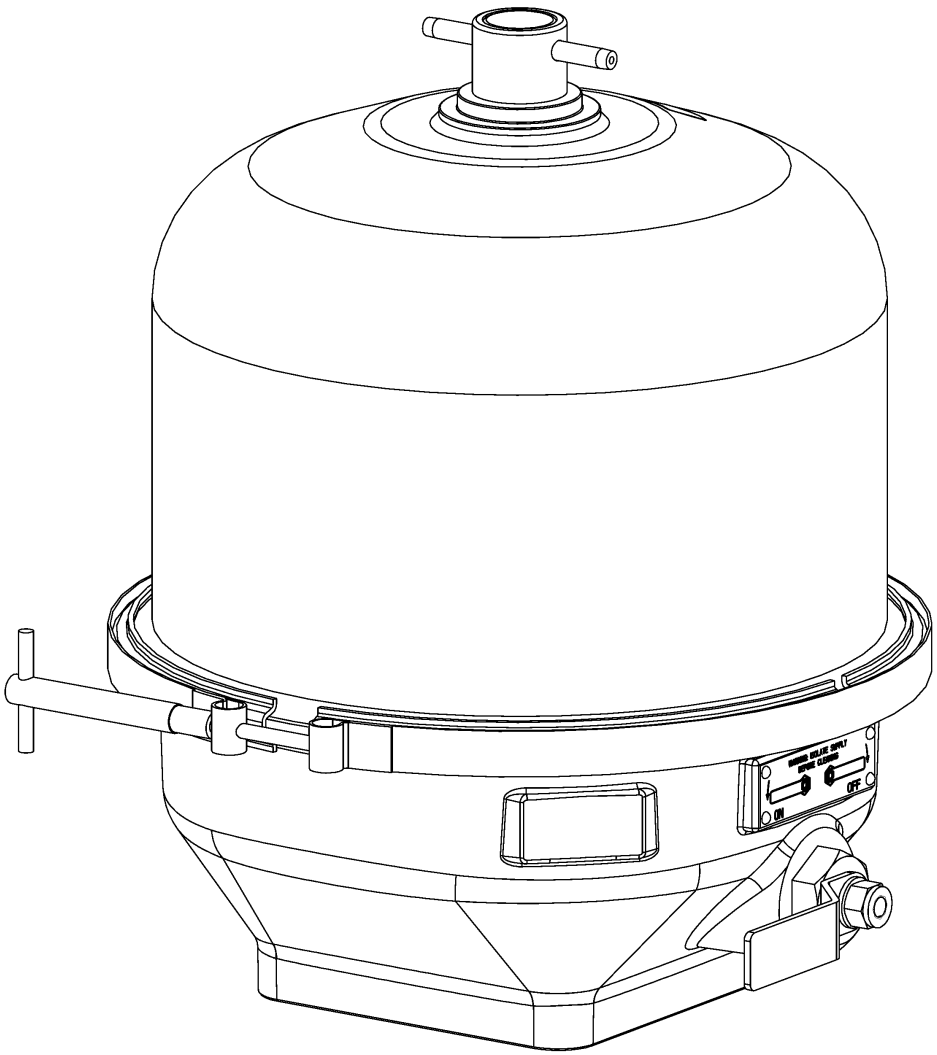
Filtration made easy...

OIL CONDITIONING SYSTEMS

SPARE PARTS LIST



Working Together

MANN+HUMMEL

FM400 SOLAS

MANN+HUMMEL FM400 Oil Cleaning Centrifuge Maintenance Procedure

Applicable for the FM400 SOLAS

For efficient and safe operation of a MANN+HUMMEL centrifuge it is essential that high standards of cleaning and maintenance are observed. The MANN+HUMMEL FM400 SOLAS Oil Cleaning Centrifuge should be cleaned after the first 100 hours of operation and then at regular intervals, ensuring the thickness of the dirt deposit inside the rotor does not exceed 45 mm.

Maintenance Procedure

1. Stop the flow of oil to the centrifuge by closing the isolating valve, if present on the Centrifuge or engine, or by stopping the engine. Ensure that the centrifuge has come to a complete stop and allowed to cool before proceeding.

2. Remove the bandclamp, unscrew the filter cover nut and remove the filter cover assembly.

3. Allow the oil to drain out of the rotor assembly. This may be assisted by raising the rotor assembly on the spindle. Withdraw the rotor assembly vertically upwards from the spindle. The rotor assembly should be removed and replaced on the spindle with care in order to ensure that the rotor bearings are not damaged.

4. With the rotor assembly securely held, unscrew the rotor cover nut on the rotor assembly. This procedure requires one 60 mm (3/4" drive) socket for the bearing tube hex and one 50 mm (3/4" drive) socket for the rotor cover nut hex and can be aided with the use of the rotor disassembly tool. Unscrewing the rotor cover nut will allow the rotor assembly to split into 3 different sections, the rotor cover, the rotor tube and the rotor base.

5. Carefully remove the rotor cover.

6. Remove the rotor tube. This should ensure that the majority of the sludge remains within the rotor tube. A flat screwdriver may be used in the slots at either end of the rotor tube to aid disassembly.

7. Remove the paper insert from the rotor tube and discard. Carefully remove the separation cone from the rotor base. Remove any remaining sludge from inside the rotor components by using a non-metallic spatula or other non- damaging tool. Ensure that all the rotor components (including the two nozzles located in the rotor base) are thoroughly cleaned using suitable cleaning fluid and free from debris.

8. Examine rotor bearings and spindle journals for damage or excessive wear. If the top or the bottom bearing radial clearance exceeds 0.15 mm, then replace the rotor base assembly and/or filter body assembly.

9. Examine the 3 rotor assembly o-rings (within the rotor cover, rotor base and bearing tube), for damage and replace if necessary or at intervals of 3000 hours.

10. Replace the separation cone, making sure that it is properly located on the rotor base. If the separation cone does not fit properly, ensure that the location area is free from dirt and refit the separation cone. If the separation cone shows any sign of damage, then it should be replaced.

11. Assemble the rotor tube on to the rotor base, ensuring that the rotor o-ring is positioned correctly.

12 Fit a new paper insert into the rotor tube. Paper inserts are available in packs of 25 under service kit part no. 6899764101.

13. Replace the rotor cover on to the rotor tube, ensuring that the rotor o-ring is also positioned correctly. Tighten the rotor cover nut to a torque of 34-46 Nm. Incorrect torque may result in rotor imbalance.

14. Replace the rotor assembly on the spindle and check that the rotor spins freely.

15. Examine the filter body o-ring for damage and replace if necessary or at intervals of 3000 hours.

16. Replace the filter cover assembly onto the spindle and wind down to hand tight.

17. Replace the bandclamp and tighten to a torque of 13-17 Nm. The bandclamp must be securely fitted during operation of the centrifuge.

18. Ensure that the filter cover nut tightening torque is no less than 13 Nm.

19. With the centrifuge running, check all the connections and joints for leaks. If excessive vibration occurs disassemble and inspect.

Important Notes

The FM400 SOLAS Oil Cleaning Centrifuge is designed to provide extended service without the need to replace major components. However, after extended periods of operation, wear and damage to the centrifuge spindle and rotor assembly may become evident. For this reason it is recommended that the rotor bearings and spindle journals are checked during service for wear and looseness, replacing the bearing tube and/or the filter body assembly, if necessary.

The centrifuge is fitted with a 1.5 bar (nominal) cut off valve (C.O.V.) which is located in the filter body assembly. The C.O.V. is designed to protect the engine by stopping the supply of oil to the centrifuge at start-up and during periods when the oil pressure is below the nominal C.O.V. rating. This item is intended to provide maintenance free operation for extended periods and should only be disassembled and inspected for damage if a problem becomes evident and frequent.

Maintenance Action

Every Oil Drain Interval:
- Clean Rotor Assembly and replace Paper Insert (Kit #12).
- Inspect Filter Body O-Ring and Rotor O-Rings. Replace every 3000 hours or if damaged (Kit #8).
- Check Filter Cover Nut O-Ring for leaks and replace if necessary (Kit #2 or Kit #8).
- Inspect Rotor Bearings for damage and wear. Replace Rotor Base Assembly if necessary (Kit #6).
- Inspect Spindle for wear and looseness. Replace the Filter Body Assembly if necessary (Kit #1).

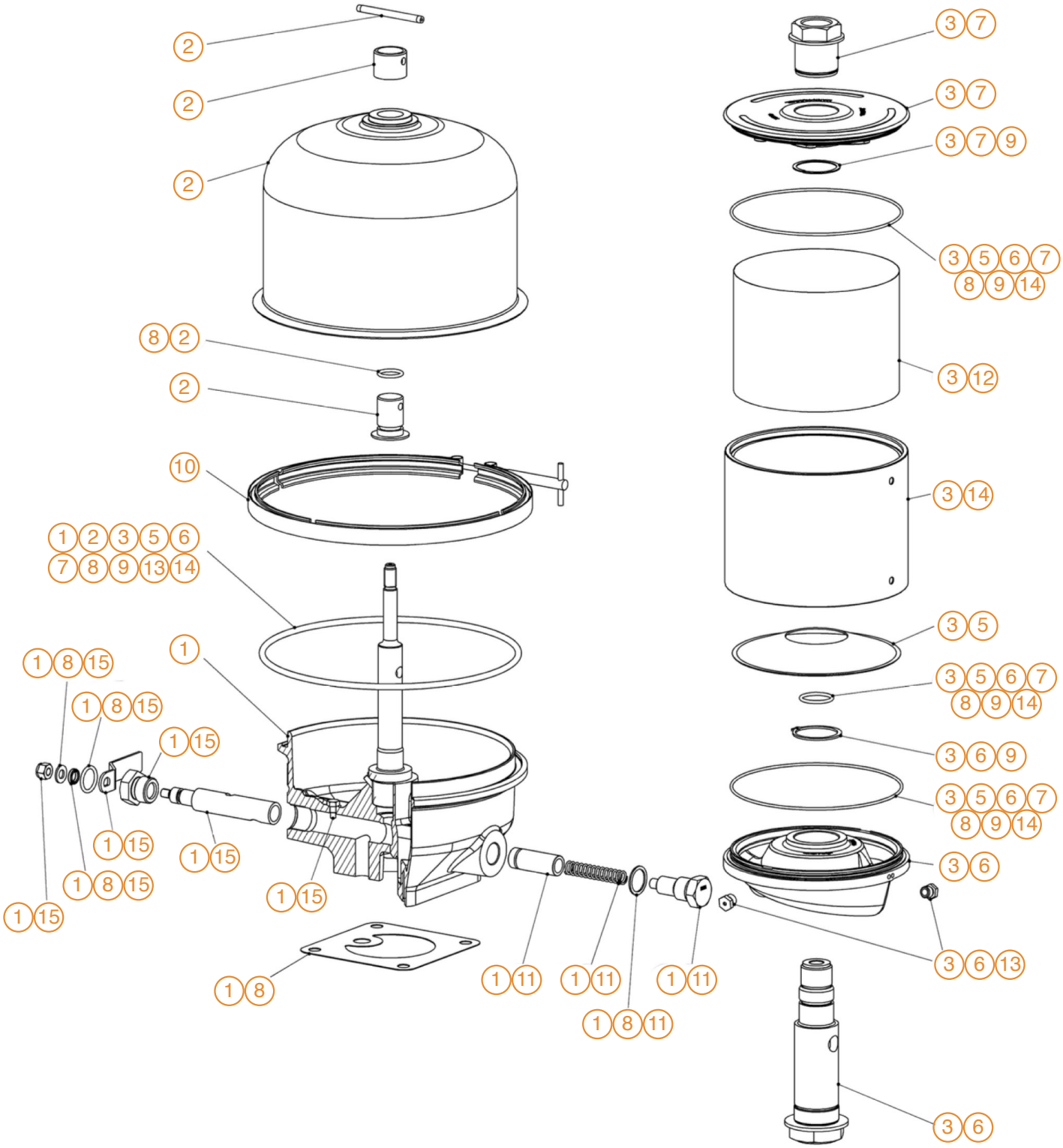
Engine Overhaul:
- Replace Centrifuge

Please note that this should be used as a guide only. Maintenance intervals for the centrifuge are dependant on a number of factors and differ with engine type and operational environment.

FM400

MANN + HUMMEL Model	FM400-23 SOLAS	FM400-23B SOLAS
MANN + HUMMEL PART NUMBER	6899154701	6899155301
NOMINAL CUT OFF VALVE RATING (BAR)	1.5	1.5
OIL INLET THREAD SPECIFICATION	ISO 228 G 3/4”	Ø19 BASE FEED

#	KIT	MANN + HUMELL	PART NUMBER
	FILTER BODY ASSEMBLY		
1	FILTER BODY ASSEMBLY KIT	6899761401	6899761301
11	CUT OFF VALVE KIT	6899766101	6899766101
15	ISOLATING VALVE KIT	-	6899713801
	FILTER COVER ASSEMBLY		
2	FILTER COVER ASSEMBLY KIT	6899761501	6899761501
	FILTER ROTOR ASSEMBLY		
3	ROTOR ASSEMBLY KIT	6899761601	6899761601
5	SEPARATION CONE KIT	6899766001	6899766001
6	ROTOR BASE ASSEMBLY KIT	6899761701	6899761701
7	ROTOR COVER ASSEMBLY KIT	6899761801	6899761801
9	CIRCLIP KIT	6899763901	6899763901
12	PAPER INSERT KIT (PACK OF 25)	6899764101	6899764101
13	NOZZLE KIT	6899754201	6899754201
14	ROTOR TUBE KIT	6899764001	6899764001
	MISCELLANEOUS		
4	ROTOR DISASSEMBLY TOOL (NOT SHOWN)	6890691116	6990691116
8	SEALS KIT	6899761901	6899748401
10	BANDCLAMP KIT	6899751101	6899751101



Largo

Filtration made easy...

1a Station Road
Lenwade
Norwich
Norfolk
NR9 5LY

T +44 (0)1603 870959
F +44 (0)1603 879803
E info@largo-grp.com

Find Us...