

## MANN+HUMMEL FM060 Oil Cleaning Centrifuge Maintenance Procedure

### Applicable for the FM060-31/31PB/32/33 Centrifuge Range

The MANN+HUMMEL FM060 Oil Cleaning Centrifuge should be cleaned at regular intervals ensuring that the thickness of the dirt deposit inside the rotor does not exceed approximately 25mm. This operation is normally carried out after a specified period of operational use and may be combined with other maintenance procedures.

### Maintenance Procedure

1. Stop the flow of oil to the centrifuge by either stopping the engine or isolating the centrifuge from the lubricating system by means of a valve. Ensure the centrifuge has come to a complete stop before proceeding.
2. Loosen the band clamp and remove the centrifuge cover. Examine the centrifuge cover O ring and replace if damaged (Kit N°. 6899079001).
3. Allow the oil to drain out of the rotor assembly. This may be assisted by raising the rotor on the spindle. Withdraw the rotor assembly vertically upwards from the spindle. The rotor should be removed and replaced on the spindle with care in order to ensure that the rotor bearings are not damaged.
4. Unscrew the rotor cover nut and separate the rotor cover from the rotor body.
5. Remove the standtube.
6. Remove sludge deposits from the inside of the rotor cover using a spatula. Clean the rotor components using a suitable cleaning fluid. Ensure that all rotor components (including the two nozzles located in the rotor body), are thoroughly cleaned and free from debris before reassembly.
7. Examine the rotor assembly O ring for damage and renew if necessary (Kit N°. 6899079001).
8. Fit a new paper insert (Part N°. 6890330201) into the rotor cover.
9. Reassemble the rotor assembly.
10. Replace the rotor on the spindle and check that the rotor spins freely.
11. Replace the filter cover and band clamp and fasten hand tight.
12. With the centrifuge running, check all joints for leaks.

### Important Notes

The MANN+HUMMEL 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 centrifuge spindle and rotor assembly bearings are visually inspected for damage and wear during the cleaning process. If excessive wear or bearing play is evident, the rotor body assembly (Part N°. 6899054301) and/or the centrifuge body assembly should be replaced.

Most FM060 centrifuge assemblies are fitted with a cut off valve (C.O.V.) which is located in the centrifuge body. The C.O.V. is designed to protect the engine by stopping the supply of lube oil to the centrifuge at start-up and during periods when the oil pressure is below the 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.

### Installation

#### Mounting:

The centrifuge must be securely mounted on the engine, ensuring that the cleaned oil is able to drain back to the sump under gravity. A position should be selected that is affected as little as possible by transmitted vibration from the engine and ensuring that there is sufficient headroom for easy removal of the rotor from the spindle. The filter should be mounted vertically where possible; if an angle mounting is necessary, this should not be more than 15° from the vertical.

#### Oil Pressures:

Oil pressures should be no less than 2.2 bar and a maximum of 7 bar, the preferred range being 3.5 bar to 5.5 bar. An oil feed should be selected as close to the oil pump as possible and preferably before the oil cooler and full flow filter if fitted. The oil feed pipe should be at least Ø9.5mm and the oil drain pipe at least Ø38mm.

### Maintenance Action

#### Every Oil Drain Interval:

- Clean rotor assembly / replace paper insert (Part N°. 6890330201)
- Inspect centrifuge cover O ring & rotor body O ring. Replace if damaged
- Inspect rotor bearings for wear and replace rotor body assembly if necessary
- Inspect spindle for wear and replace centrifuge body assembly if necessary

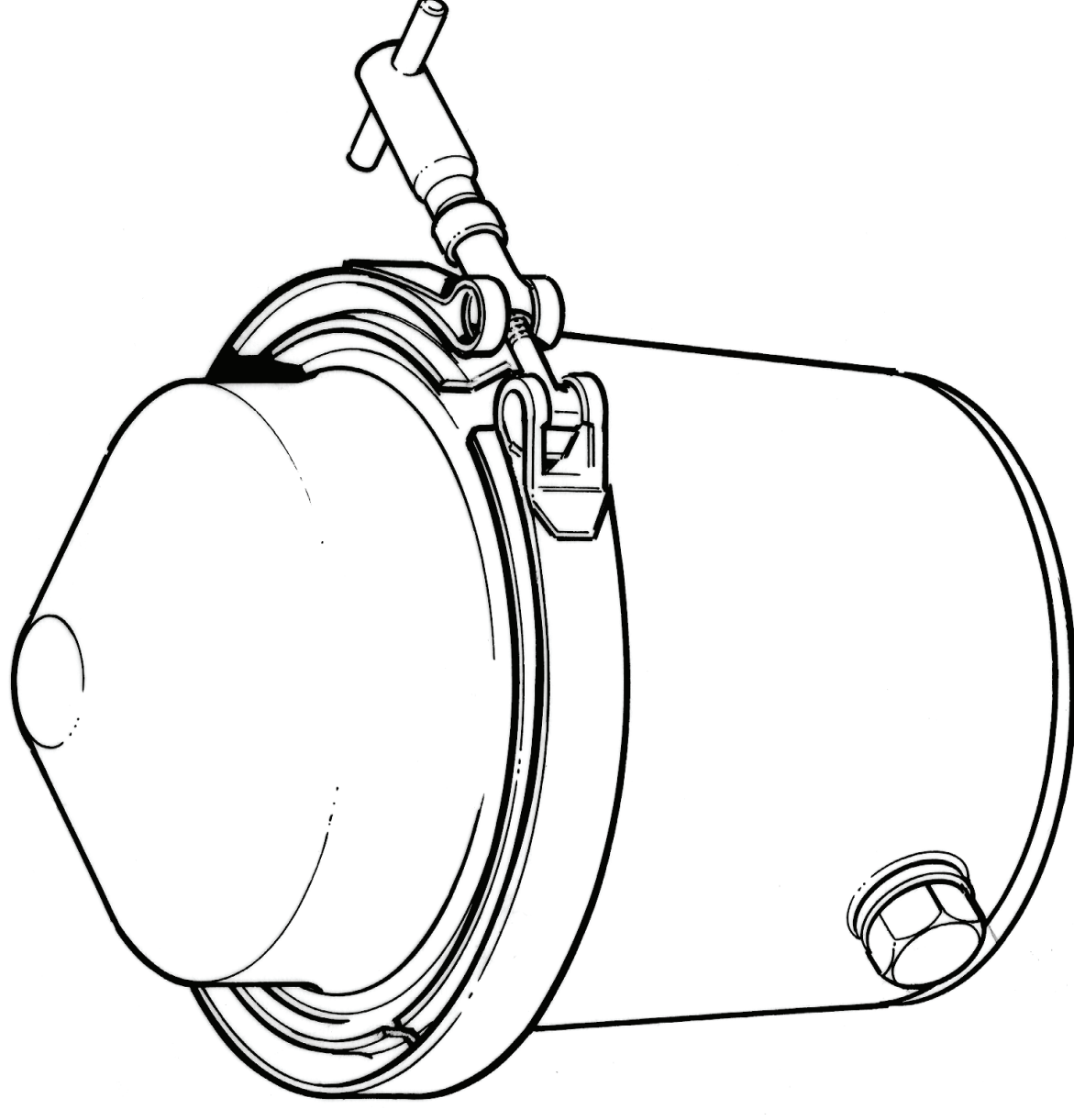
#### Engine Overhaul:

- 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.

# OIL CONDITIONING SYSTEMS SPARE PARTS LIST

MANN+  
HUMMEL



## FM060-31/31PB/32/33 SERIES

# Spare Parts List

FM060	PART No.	QTY	FM060-31 (6899123701)	FM060-31PB (6899126701)	FM060-32 (6899120901)	FM060-33 (6899121001)
CUT OFF VALVE RATING (BAR)			1.3	1.3	1.3	1.3
OIL INLET THREAD SPEC.			3/8" BSP	3/82 BSP	3/4" UNF	M16 x 1.5

BODY ASSEMBLY	6899212501	6899212801	6899212601	6899212701
	1			
		1		
			1	
				1

ROTOR ASSEMBLY	6899048101	6899411101	6899054301	6899059801	6890461201	6890309801	6890188001	6890490401	6890330201
	1								
		1							
			1						
				1					
					1				
						1			
							1		
								2	
									1

COVER ASSEMBLY	6899035701
	1

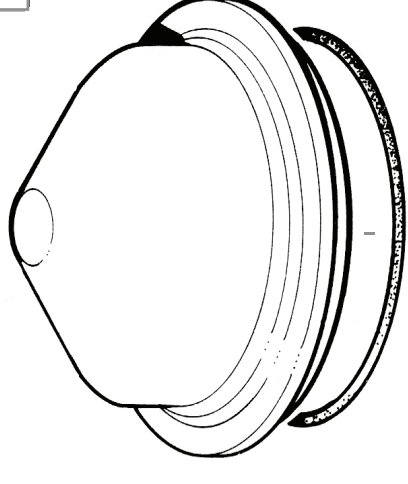
BAND CLAMP	6890329701
	1

FM060 KITS	PART No.	QTY	FM060-31 (6899123701)	FM060-31PB (6899126701)	FM060-32 (6899120901)	FM060-33 (6899121001)
CUT OFF VALVE (C.O.V.) KIT	6899071901	1				
SEALS KIT	6899079001	1				

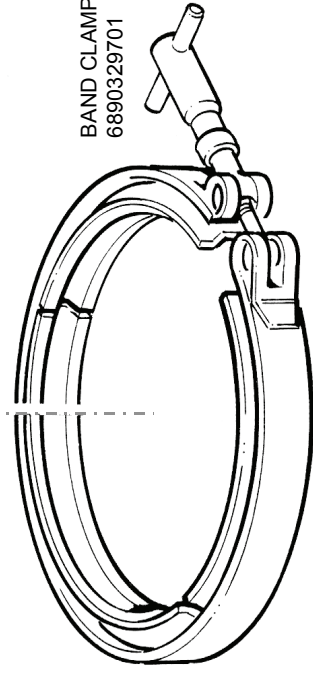
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COVER ASSEMBLY  
6899035701

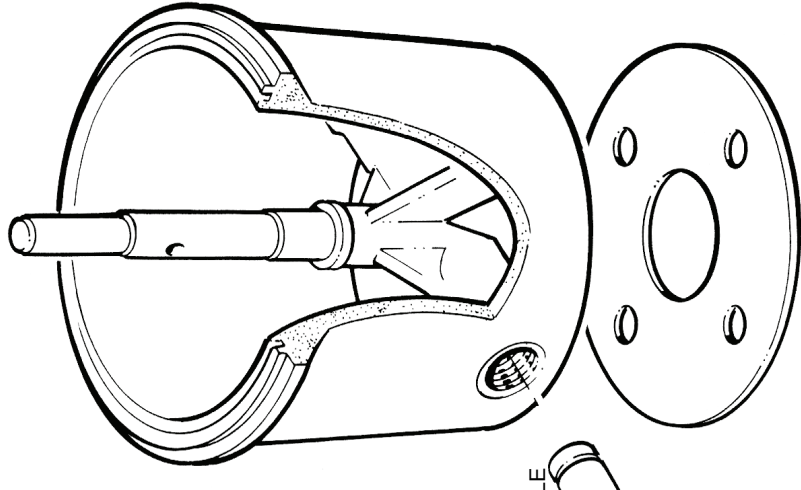


COVER O RING\*  
KIT No. 6899079001



BAND CLAMP  
6890329701

BODY ASSEMBLY  
6899212501  
6899212601  
6899212801



BASE GASKET\*  
KIT No. 6899079001

ROTOR ASSEMBLY  
6899048101

ROTOR  
COVER NUT  
6890188001

COVER  
6890461201

PAPER INSERT  
6890330201

STAND TUBE  
6890309801

ROTOR O RING\*  
KIT No. 6899079001

ROTOR BODY  
ASSEMBLY  
6899054301

NOZZLE  
6890490401

SHUTTLE

C.O.V. KIT  
6899071901

WASHER\*

PLUG