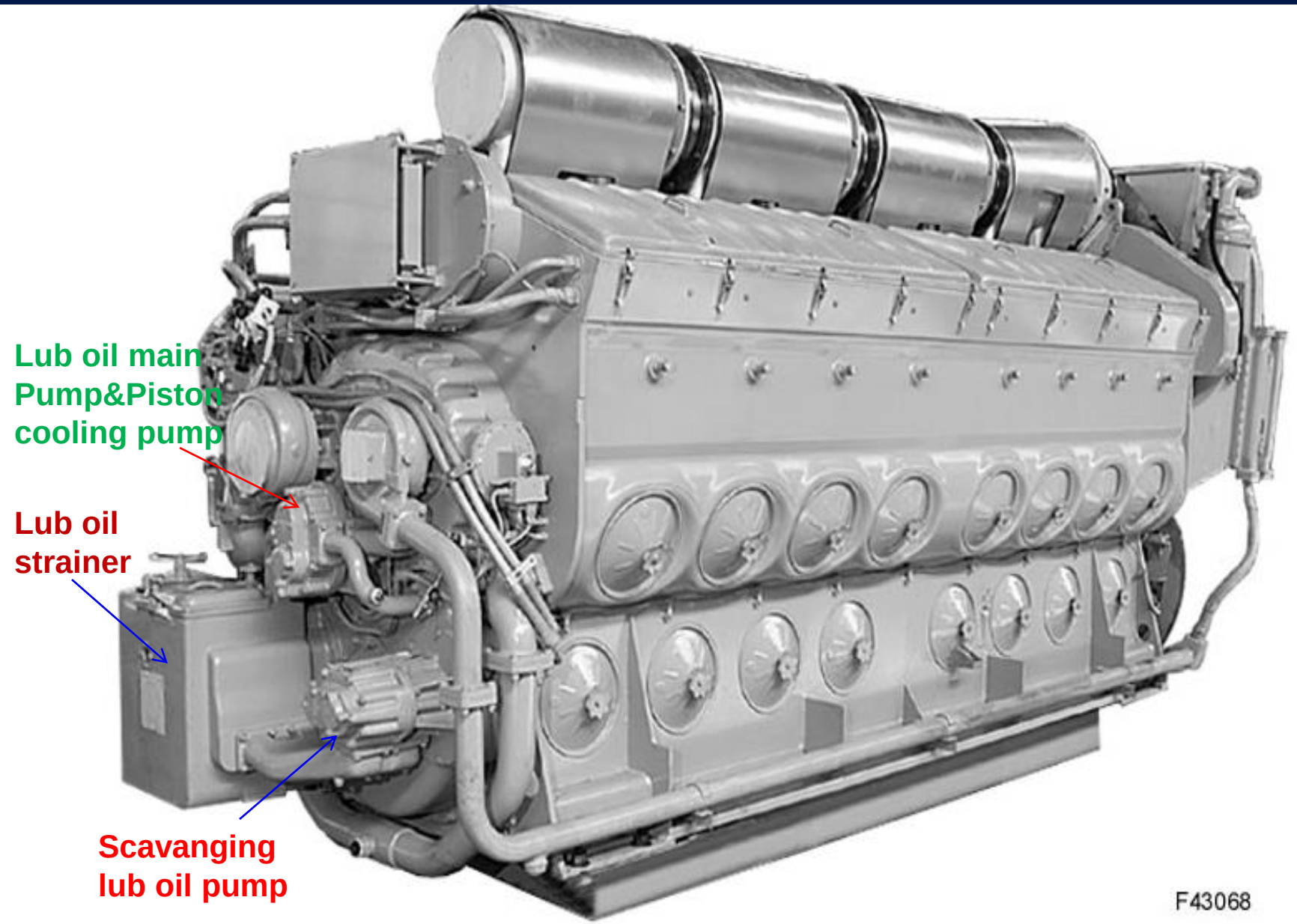
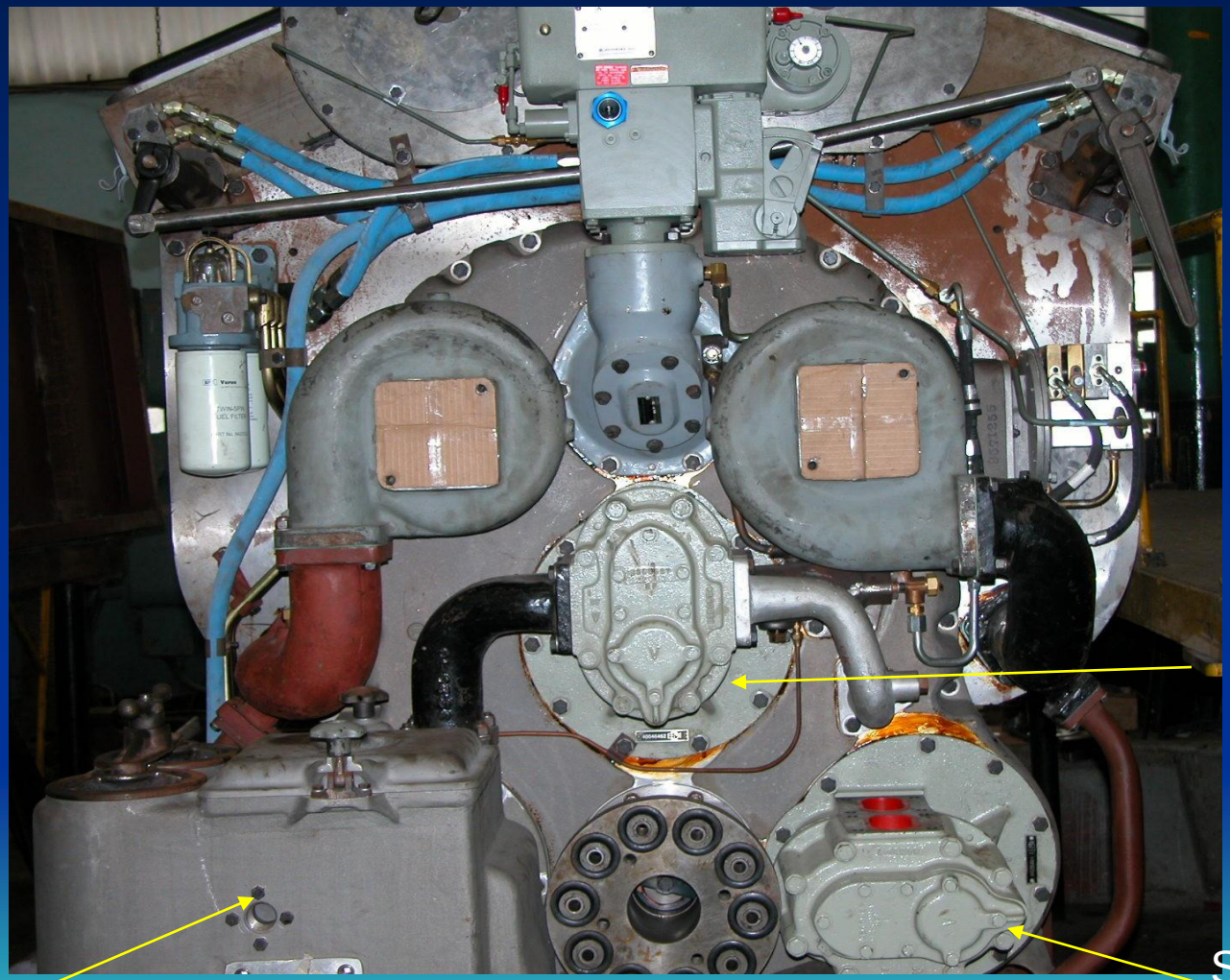
LUB OIL SYSTEM OF GM LOCOMOTIVE

K.NAGARATHANM SSE/DSL/HQ


Lub oil main
Pump&Piston
cooling pump
Lub oil
strainer
Scavanging
lub oil pump
F43068

ACCESSORY VIEW



PISTON COOLING &MAIN PUMP

STRAINER

SCAVENGING PUMP

MAIN COMPONENTS OF L/OIL SYSTEM

- STRAINER ASSEMBLY
- SCAVANGING L/OIL PUMP
- L/OIL FILTER(MACHIANA)
- L/OIL COOLER
- MAIN &PISTON COOLING L/OIL PUMP
- SOAK BACK FILTER
- SOAK BACK PUMP
- SOAK BACK BY PASS VALVE
- HOT OIL DETECTOR
- L/LUBE OIL PRESSURE SAFETY DEVICE


Lub oil cooler
Lub oil tank

DATA L/OIL SYSTEM

- **L/OIL CAPACITY -**
- **MAC – GOODS LOCOMOTIVE. -1457Lts. (MAC)**
- **PAC – PASSANGER LOCOMOTIVE - 950 Lts. (PAC) /1457lts**
- **NOS. OF PUMPS- THREE**

  1.SCAVANGING OIL PUMP

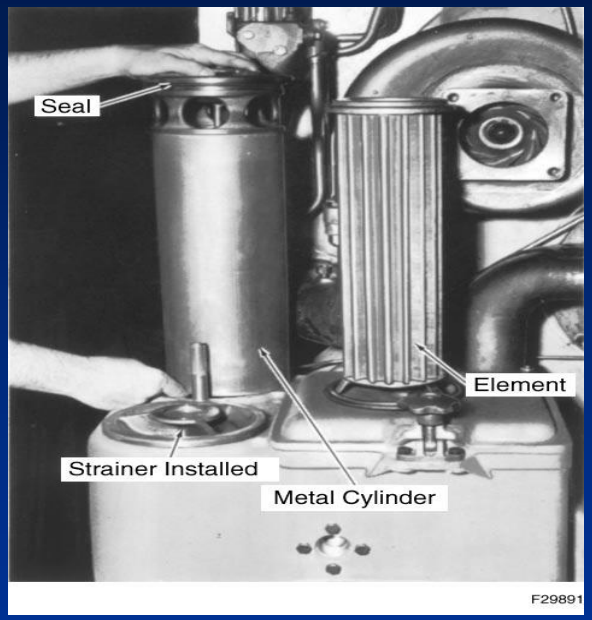
  2.MAIN L/OIL PUMP & PISTON COOLING PUMP

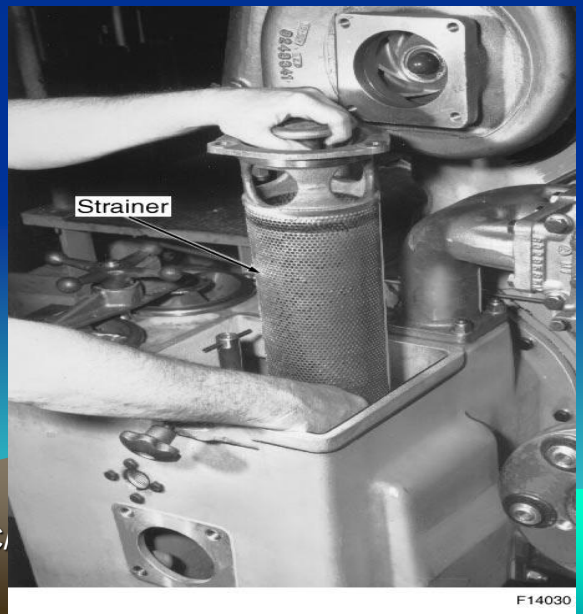
  3.SOAK BACK PUMP(FOR TSC)

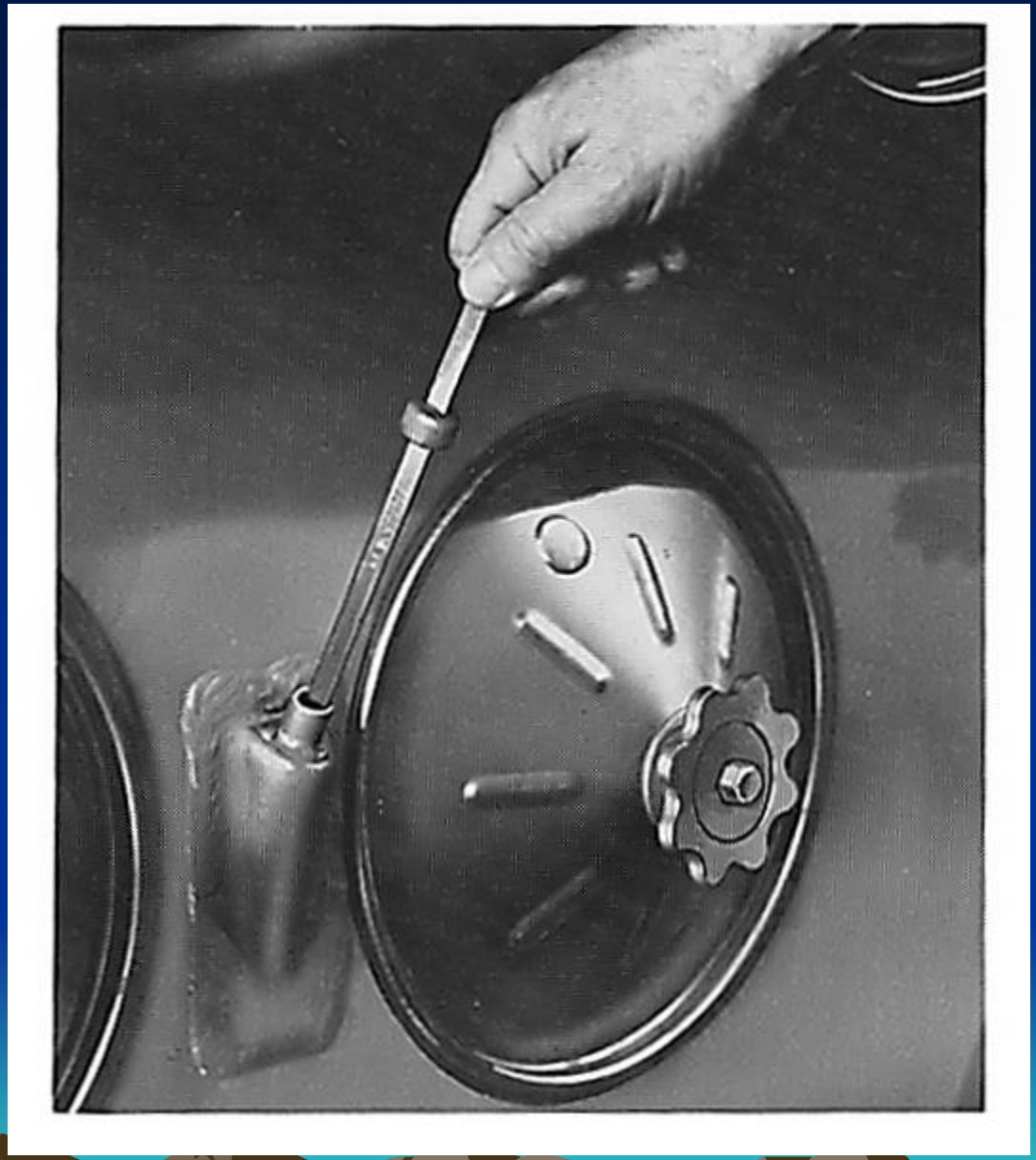
- **NOS. OF FILTERS-05(FIVE)(MICHIANA PAPER TYPE)-(THIS FILTER ALSO USED IN F/OIL SYSTEM)**
- **CHANGING SCH.**
- L/OIL FILTER - AFTER 90 DAYS
- TURBO SPIN-ON FILTER-90 DAYS
- STRAINER CLEANING –90DAYS

STRAINER ASSEMBLY

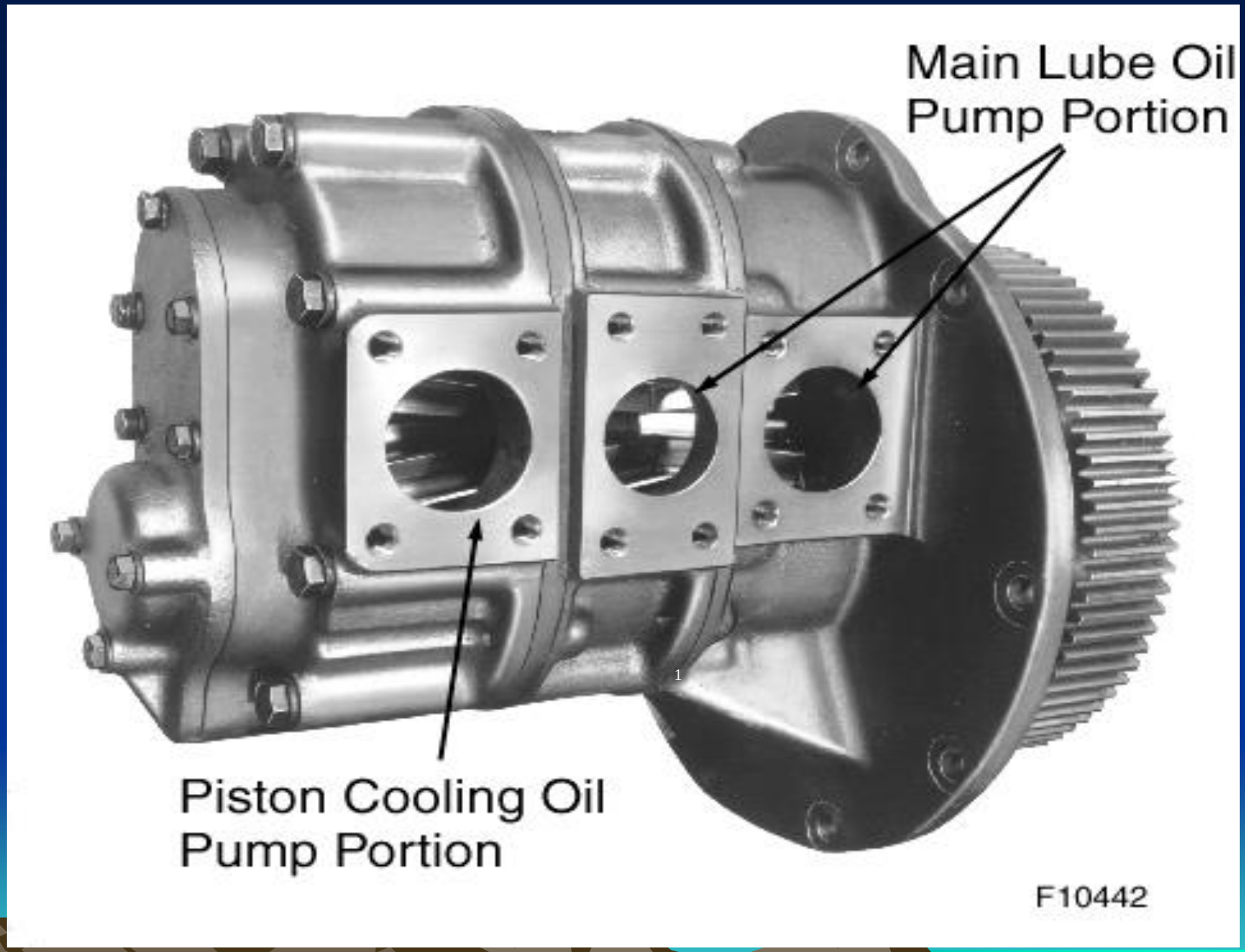
- -TWO STRAINERS ASSEMBLIES ARE
- COMBINED IN SINGLE CASING.
- -ONE FOR 'SCAVANGING PUMP' &
- -OTHER TWO FINE STRAINERS FOR
- 'MAIN L/OIL PUMP
- -IT IS RECOMMENDED THAT OIL TO BE FILL OR ADD IN SYSTEM THROUGH
- THE SQUARE OPENING OF STRAINER HOUSING.
- - IT IS IMPORTANT THAT STRAINER HOUSING BE FILLED BEFORE
- STARTING THE ENGINE.

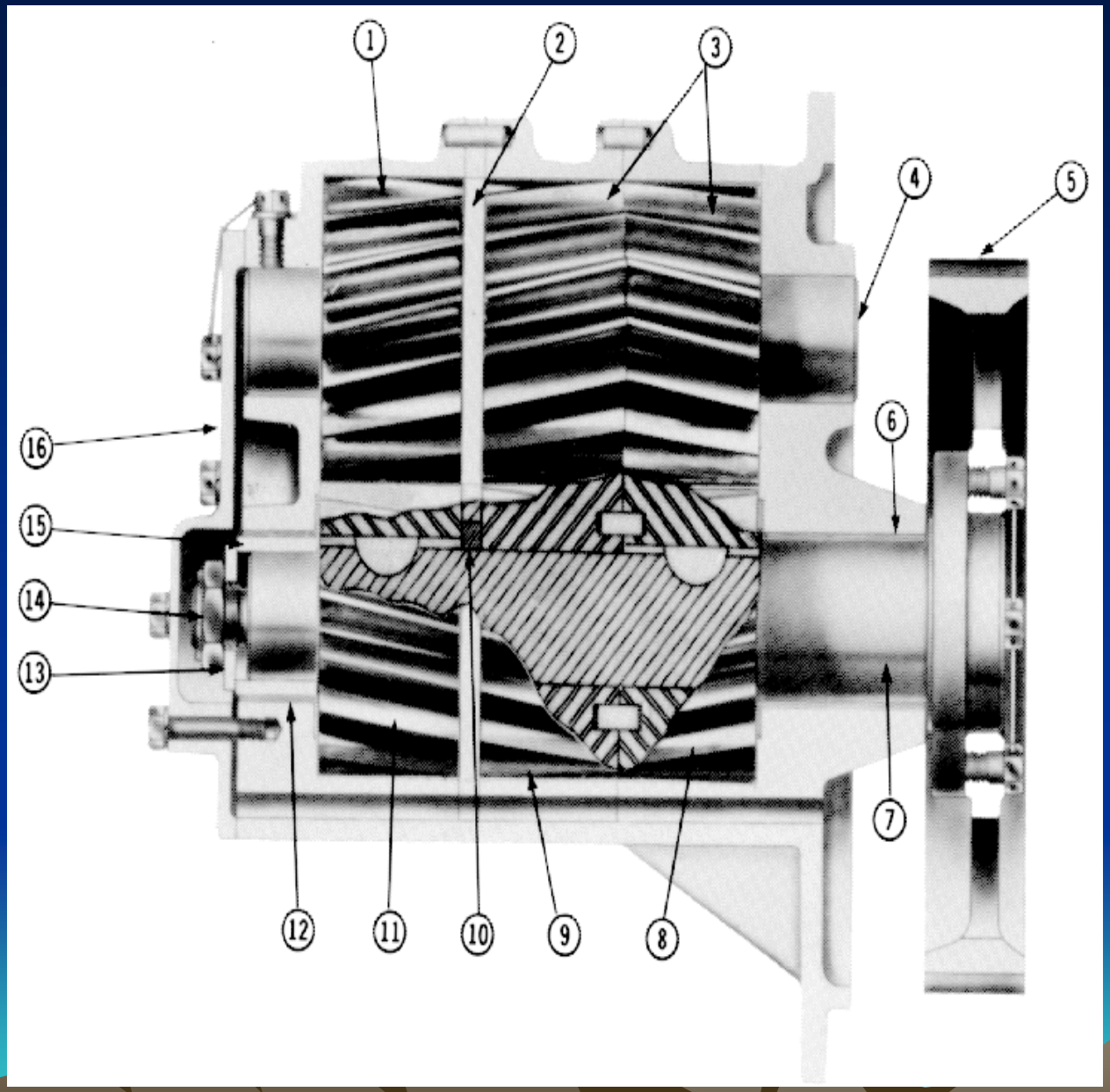






OIL LEVEL GAUGE (DIPSTICK)


Main Lube Oil
Pump Portion
Piston Cooling Oil
Pump Portion
F10442



1. Piston Cooling Driven Gear
2. Spacer Plate
3. Lube Oil Pump Driven Gears
4. Idler Shaft
5. Drive Gear
6. Inner Bushing
7. Drive Shaft
8. Lube Oil Pump Drive Gear
9. Lube Oil Pump Drive Gear Assy.
10. Collar
11. Piston Cooling Drive Gear
12. Front Bushing
13. Washer
14. Shaft Nut
15. Shaft Sleeve
16. Cover

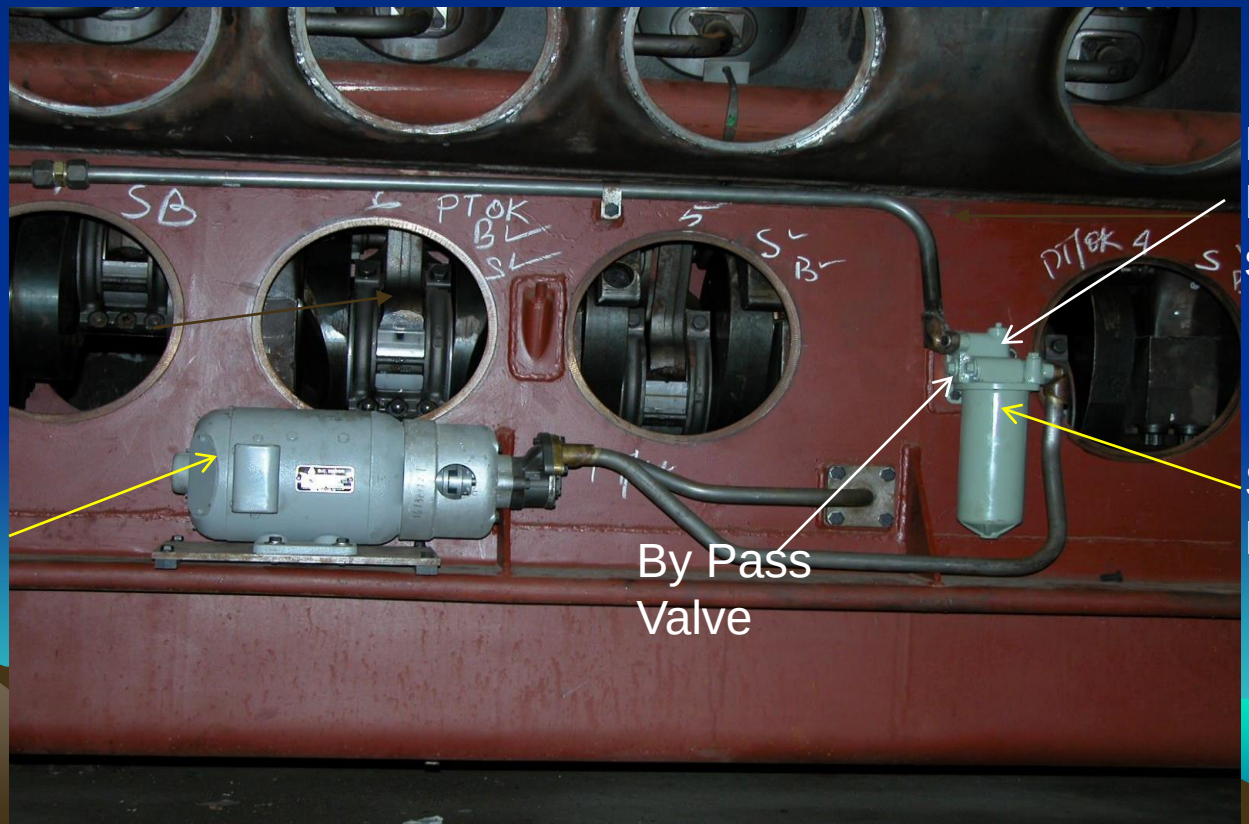
PUMP DISCHARGES

- MAIN: 867 LPM(7-8 KG AT 8TH NOTCH)
- PISTON COOLING: 413 LPM(5-6 KG AT 8TH NOTCH)
- SCAVENGING-1703 LPM
- SOAK BACK-11 LPM

SOAKBACK SYSTEM

1. To ensure lubrication of the turbocharger bearings prior to engine start, and the removal of residual heat from the turbo after engine shutdown, a separate lube oil pressure source is provided.

2. An AC (or DC) electric motor driven pump draws lube oil from the oil pan, pumps the oil through a soak back filter, and the head of the turbocharger oil filter assembly directly into the turbocharger bearing area



SOAK BACK OIL SYSTEM

1. When the engine starts, and the motor driven soak back pump is still running, Main lube oil pressure from the engine driven pump becomes greater than the motor driven soak back pump pressure

2. A pressure relief valve, set at 32 psi is located in the head of soak back filter assembly.

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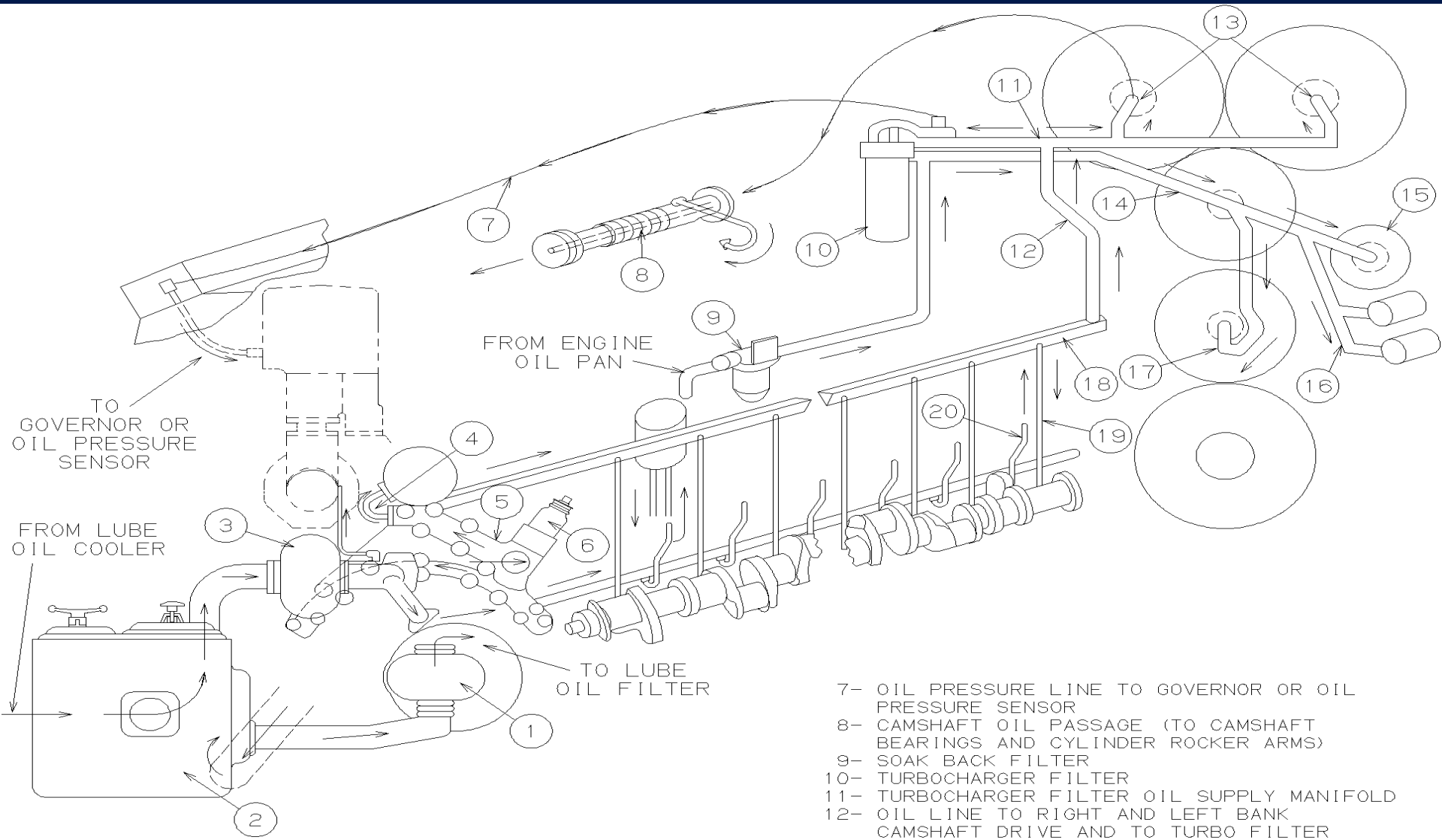
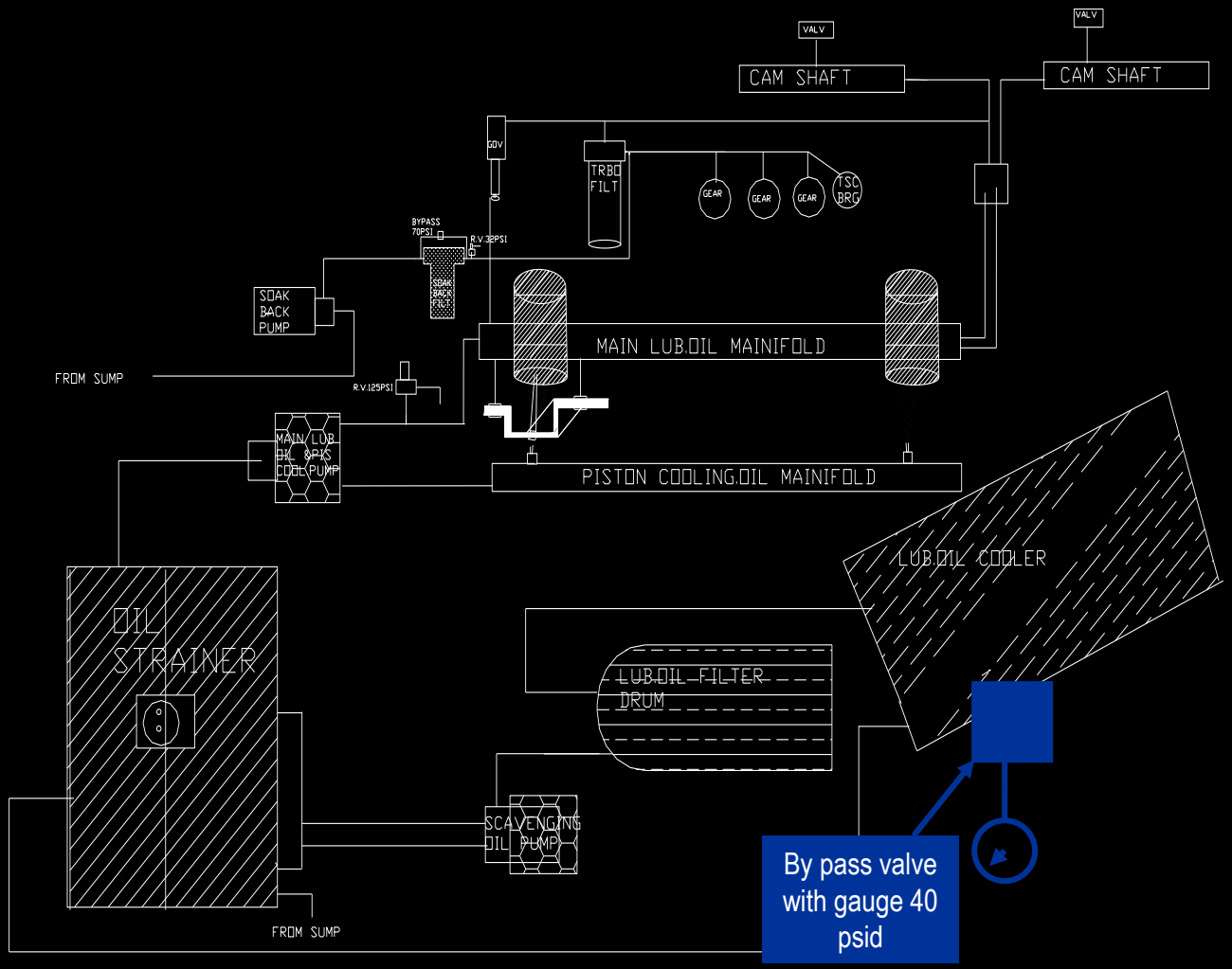
3. As there is no outlet for the lower pressure oil, the relief valve will open when the pressure builds up to 32 psi ,and the oil will return to the engine oil pan through a passage in the filter head mounting flange.

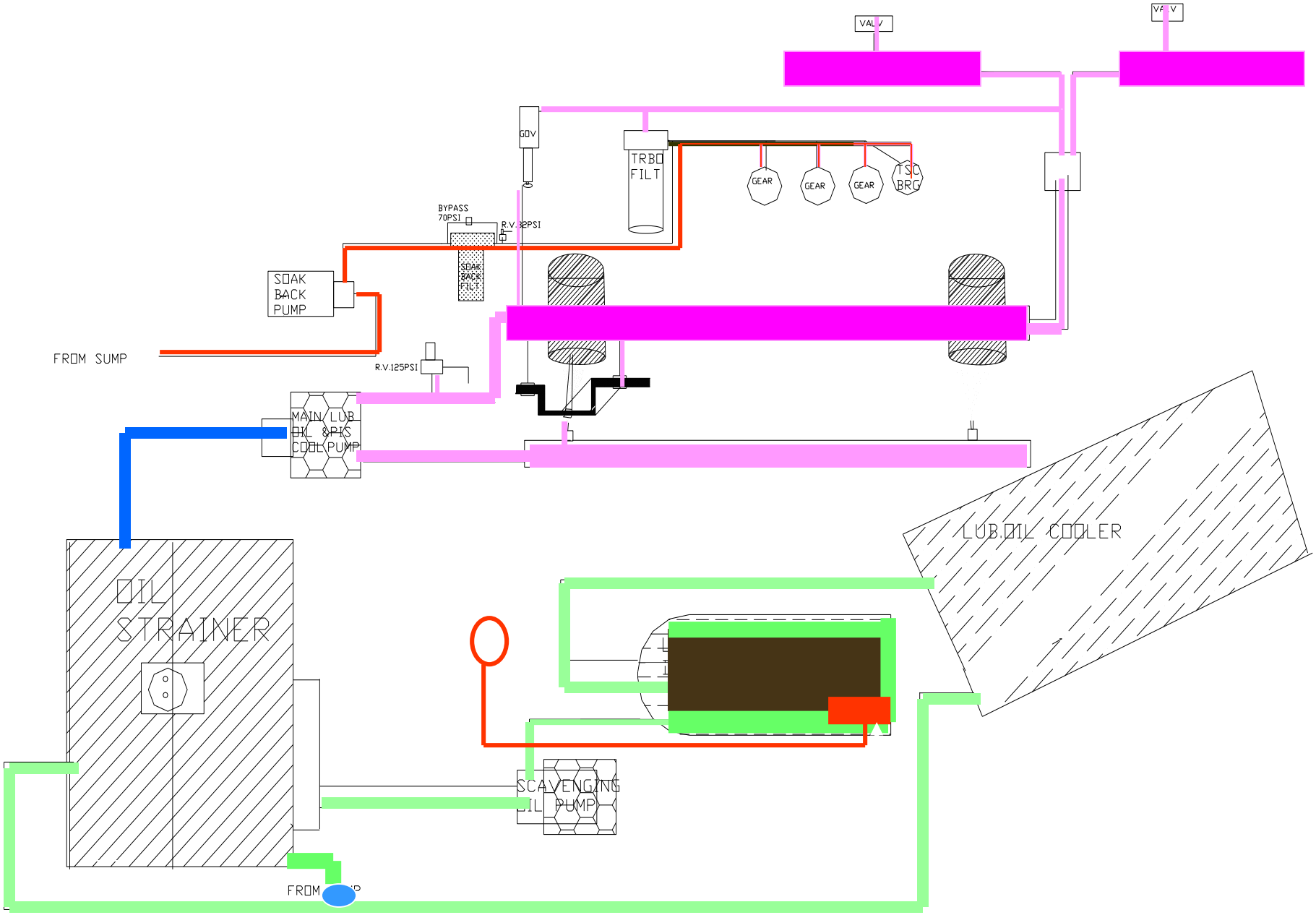
4. Also located in the filter head is a bypass valve, set at 70 psi. This valve will open to permit motor driven soak back pump pressure to bypass a plugged soak back filter element so that lubrication can continue to be supplied to the turbocharger (through the turbocharger filter) in order to prevent turbo damage.



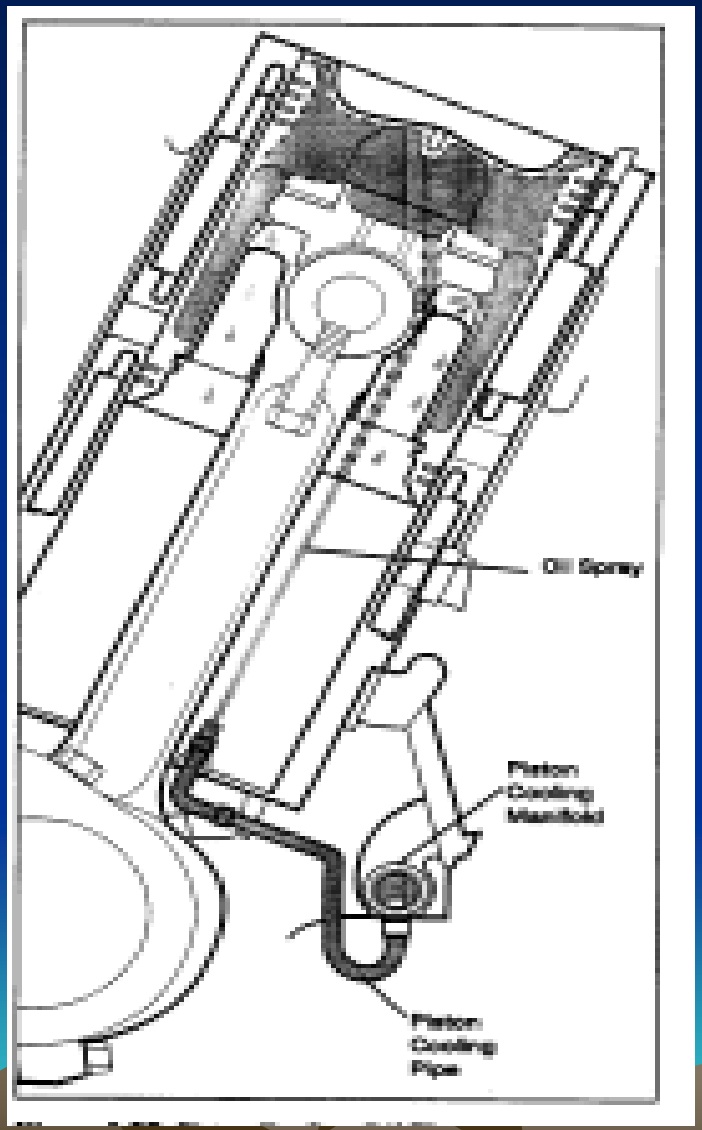
1- SCAVENGING OIL PUMP
2- OIL STRAINER HOUSING
3- MAIN LUBE OIL AND PISTON COOLING OIL PUMP
4- OIL LINE TO GOVERNOR DRIVE GEAR STUBSHAFT
5- MAIN LUBE OIL AND PISTON COOLING OIL MANIFOLD
6- OIL PRESSURE RELIEF VALVE
7- OIL PRESSURE LINE TO GOVERNOR OR OIL PRESSURE SENSOR
8- CAMSHAFT OIL PASSAGE (TO CAMSHAFT BEARINGS AND CYLINDER ROCKER ARMS)
9- SOAK BACK FILTER
10- TURBOCHARGER FILTER
11- TURBOCHARGER FILTER OIL SUPPLY MANIFOLD
12- OIL LINE TO RIGHT AND LEFT BANK CAMSHAFT DRIVE AND TO TURBO FILTER
13- OIL LINES TO CAMSHAFT STUBSHAFTS
14- OIL LINE TO NO. 2 IDLER GEAR STUBSHAFT
15- TURBOCHARGER GEAR TRAIN
16- TURBOCHARGER BEARING OIL SUPPLY LINES
17- OIL LINE TO NO. 1 IDLER GEAR STUBSHAFT
18- MAIN OIL MANIFOLD
19- OIL SUPPLY TO CRANKSHAFT AND BEARINGS
20- PISTON COOLING OIL LINE

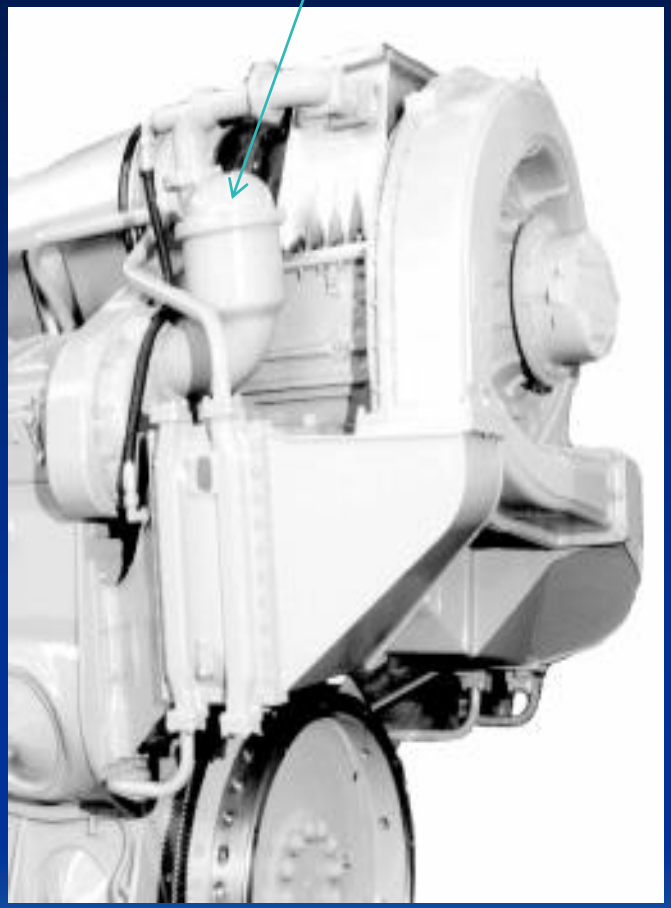
LU37615


VALV
CAM SHAFT
VALV
CAM SHAFT
GOV
TRBO FILT
GEAR
GEAR
GEAR
TSC BRG
BYPASS 70PSI
R.V.32PSI
SOAK BACK FILT
SOAK BACK PUMP
MAIN LUB.OIL MAINIFOLD
FROM SUMP
R.V.125PSI
MAIN LUB OIL &PIS COOL PUMP
PISTON COOLING.OIL MAINIFOLD
LUB.OIL COOLER
OIL STRAINER
LUB.OIL FILTER DRUM
SCAVENGING OIL PUMP
FROM SUMP
By pass valve with gauge 40 psid


VALV
VALV
GOV
TRBO FILT
GEAR
GEAR
GEAR
TSC BRG
BYPASS 70PSI
R.V.32PSI
SOAK BACK FILT
SOAK BACK PUMP
FROM SUMP
R.V.125PSI
MAIN LUB OIL &PIS COOL PUMP
LUB.OIL COOLER
OIL STRAINER
SCAVENGING OIL PUMP
FROM

PISTON COOLING /LUB





The oil separator is an elbow-shaped housing containing a securely held wire mesh screen element.
It is mounted on the turbocharger housing.

An ejector assembly, mounted on the separator cover, is connected to the inner and outer eductor tubes in the exhaust stack by a flanged pipe elbow and flexible tube assembly.

Air under pressure passing through the ejector assembly creates a suction which
draws up engine oil vapors through the screen element.

In addition, the eductor tube
inserted into the turbine exhaust also creates a suction on the oil vapors.

The oil collects on the screen element and drains back into the engine.

The remaining gaseous vapor is discharged into the exhaust stack and vented to the atmosphere.

EJECTOR

HOT OIL DETECTOR

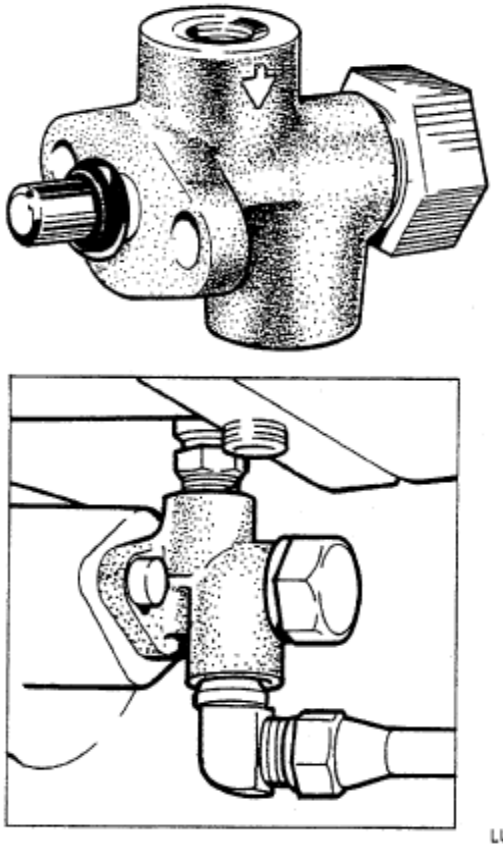


Figure 3-9 Hot Oil Detector Thermostatic Valve.

A thermostatic valve, located on the outlet elbow from the main lub oil pump,is Calibrated to open when lub oil temperature reaches a nominal124*c.

At this temperature causes it is possible that the lub oil cooler is plugged on the water side.

When oil temperature cause the valve to open ,pressure to the oil pressure detecting device in the engine governor is dumped.

The device detects low oil pressure and reacts to shut down the engine.

The thermostatic valve is not latching ,and it will reset automatically when oil temperature falls.