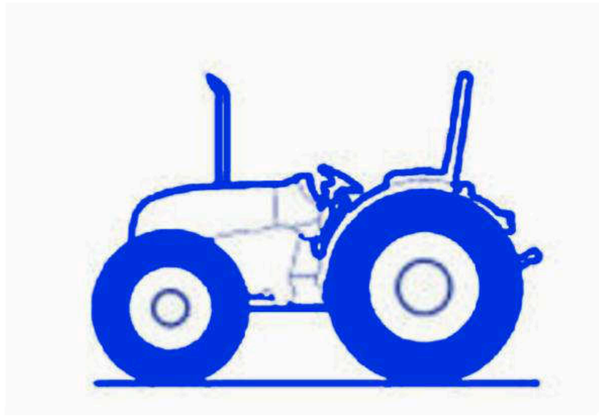
NEW HOLLAND



TN60A
TN70A
TN75A
TN85A
TN95A
Tractors

REPAIR MANUAL

NEW HOLLAND AGRICULTURE

SERVICE

87393899

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The sections used through out all New Holland product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in each book.

The sections listed above are the sections utilized for the TNA Series Tractors.

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BOOK 1 - 87393900

Chapter 1 - General

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SECTION 10 - ENGINE

BOOK 1 - 87393900

Chapter 1 - Engine (Three-Cylinder)

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SECTION 10 - ENGINE

BOOK 1 - 87393900

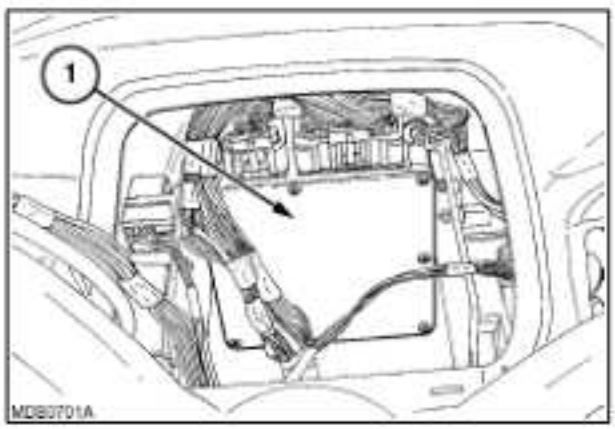
Chapter 1 - Engine (Three-Cylinder) (Continued)

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BATTERY MAINTENANCE

RELATIVE DENSITY

The relative density of the battery electrolyte shows the charge level of the battery. When the battery is fully charged, the relative density of the electrolyte is at least 1.280 to 77 °F (25 °C).

Alternatively, the approximate charge status can be measured by using a digital voltmeter (± 0.01V), as follows:

Less than 10.5 V battery unusable*
Less than 11.8 V Battery flat
Less than 12.3 V Battery half-charged
More than 12.6 V Battery fully-charged

* See the notes under the "TESTS" heading for instructions on how to recuperate a slightly sulphated battery.

The battery voltage must be measured on a flat battery, considering the following:

A. The battery must have been flat for at least four hours.

B. If the vehicle has been used recently, switch the headlamps on for two minutes.

When a battery is flat, the sulphuric acid in the electrolyte combines chemically with the plates and this decreases the relative density of the solution.

A battery densimeter will determine the relative density of the electrolyte in an element, and the quantity of sulphuric acid not used in the solution indicates the degree of charge of that element.

Low temperatures require a higher battery charge to operate. For example: a battery with a relative density of 1.225 at 80 °F (27 °C) can activate the starter motor at ambient temperatures, but will fail to do so if the temperature drops as a result of poor battery performance levels.

Table 1 shows the effect of temperature on battery performance.

Table 1

Temperature	Fully charged battery performance
77 °F (25.0 °C)	100%
70 °F (-4.5 °C)	82%
34 °F (-24.0 °C)	64%
27.5 °F (-27.5 °C)	58%
21 °F (-31.0 °C)	50%
15 °F (-34.5 °C)	40%
9.5 °F (-37.5 °C)	33%

Maximum battery life can be achieved by taking care of and regularly checking the battery. The energy capacity output must not be exceeded by a constant/excessive overload and charging requirements must be respected.

BATTERY MAINTENANCE

⚠ CAUTION ⚠

Batteries contain sulphuric acid and generate a highly explosive hydrogen and oxygen mix during charging.

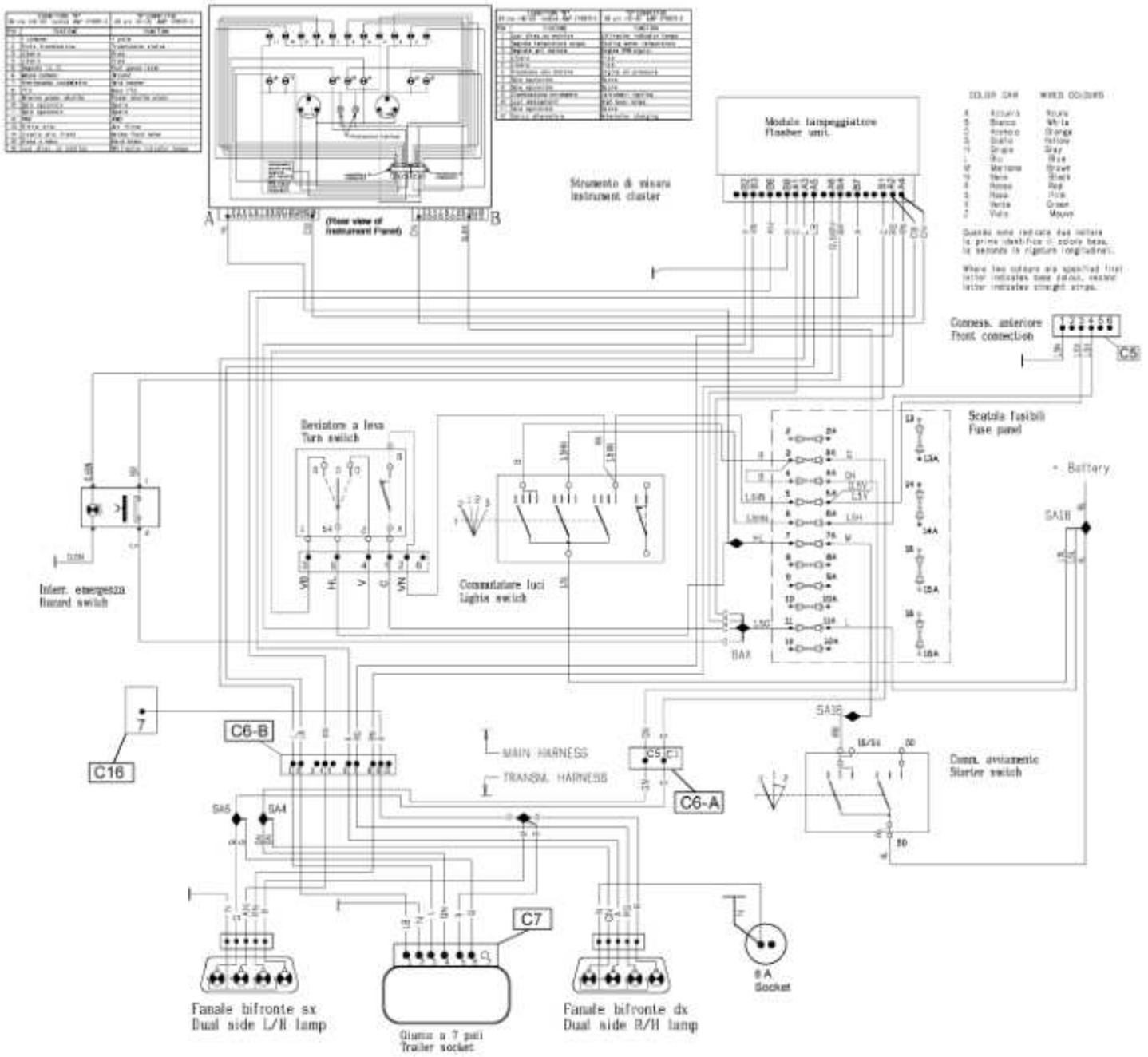
- *Never use devices that produce flames or sparks whilst checking the electrolyte level.*
- *Always protect hands and eyes before removing the battery caps.*

During battery maintenance, follow the steps below:

1. Keep the electrolyte at the recommended level of 0.6692 in. (17 mm) over the plates. If this level is not respected, the acid concentration will increase, which could cause damage to the separators and diminish plate performance.
2. Only use distilled or demineralized water, never overfill or use tap/rain water or other sources of water.
3. Keep the battery 75% charged (at least) to avoid plate sulphurisation, performance loss and possible freezing at low temperatures.
4. Avoid overcharging the battery, as excessive charge will generate high internal heat, causing grid deterioration water leaks.
5. During rapid recharging, make sure that the battery temperature does not exceed 122 °F (50 °C).
6. Do not add sulphuric acid to an element unless electrolyte has been spilled. Before topping up, make sure that the solution has the correct relative density. Slow recharge is the only way to recharge the battery completely. Use a high amperage battery charger to charge the battery with high current intensity for short periods of time, but this must be followed by a slow charge to achieve full capacity battery performance.

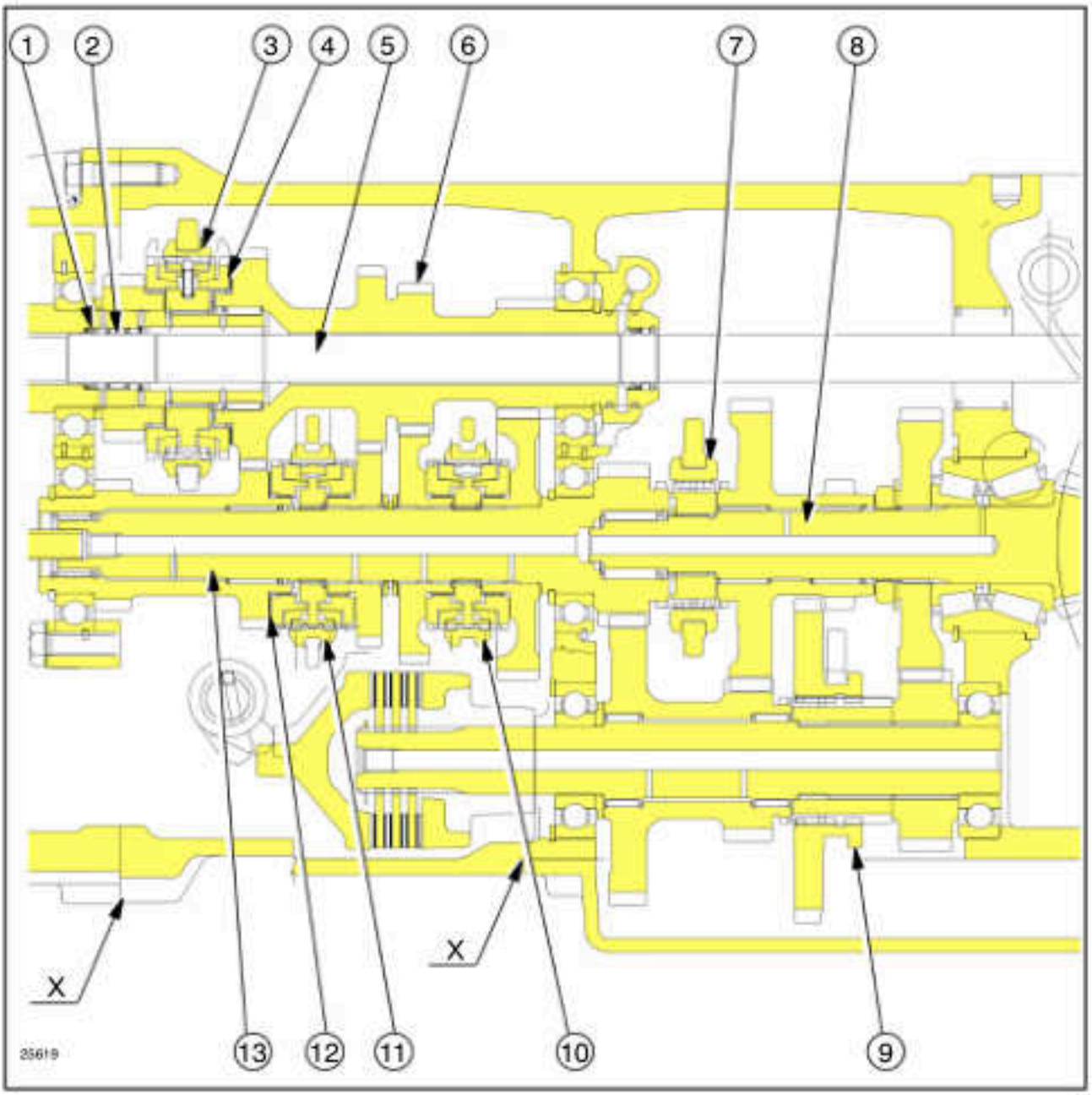
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DIAGRAM H **ROAD LIGHTS CIRCUIT WITH POWER SHUTTLE TRANSMISSION / 3-CYLINDER**



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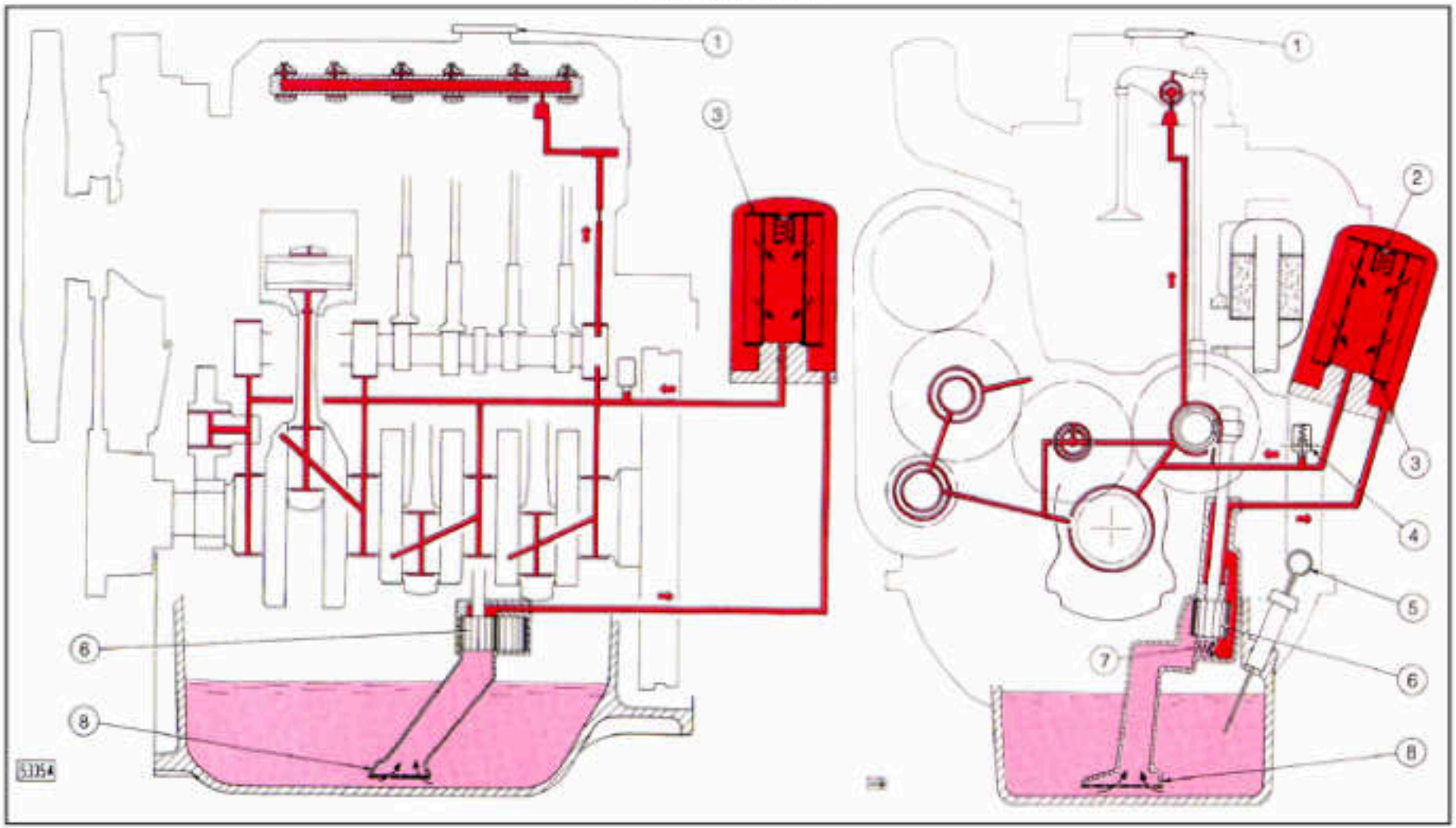
Longitudinal cross-sectional view of gearbox and gear range (16 + 16 Synchro-Command)

1. Seal.
2. Power take-off shaft support roller bearings.
3. Shuttle control synchronizer.
4. Gearbox driving gear clearance adjusting thickness.
5. Power take-off shaft.
6. Gearbox driving gear.
7. Selector sleeve for high or medium-low speeds.
8. Bevel pinion shaft.
9. Selector sleeve for low or medium-high speeds.
10. Synchronizer for 1st and 2nd speed.
11. Synchronizer for 3rd and 4th speed.
12. Gearbox driven shaft gear clearance adjusting thickness.
13. Gearbox driven shaft.

NOTE: *On assembly apply sealing compound to the surfaces marked with an* ***X*** *as indicated on page 31.*

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SECTIONAL VIEW



Engine Lubrication System (non-turbo engine shown) 1

1. Oil filler cap
2. Filter savety valve (opens when oil pressure at filter inlet exceeds the pressure at the outlet by 1.5-1.7 bar/cm²)
3. Filter
4. Switch for low engine oil pressure warning (on dashboard)
5. Dipstick
6. Pump
7. Oil pressure limiting valve
8. Screen filter on pick-up pipe

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