SERVICE MANUAL

TD4040F

Tractor

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Service Manual – TD4040F Tractor

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ENGINE TROUBLESHOOTING

(cont)

Problems	Possible Causes	Solutions
Engine overheating.	1. Coolant pump malfunction.	Overhaul pump and replace if necessary.
	2. Thermostat faulty.	Replace the thermostat.
	3. Radiator inefficient.	Remove internal deposits by flushing. Check for leaks and repair.
	4. Deposits in cylinder head and crankcase coolant passages.	Flush out coolant system.
	5. Coolant pump and fan drive belt slack.	Check and adjust belt tension.
	6. Coolant level low.	Top up expansion tank with specified coolant mixture.
	7. Incorrect engine timing.	Check and adjust engine timing.
	8. Injection pump calibration incorrect - delivering too much or too little fuel.	Calibrate pump on test bench to values specified in calibration tables.
	9. Air filter clogged.	Clean filter unit and replace filter element if necessary.
Engine lacks power and runs unevenly.	1. Injection pump timing incorrect.	Adjust injection pump timing.
	2. Auto advance regulator in injection pump damaged.	Overhaul injection pump and adjust on test bench to values specified in calibration table.
	3. Control valve journal worn.	Overhaul injection pump and adjust on test bench to values specified in calibration table.
	4. Injection pump delivery irregular.	Overhaul injection pump and adjust on test bench to values specified in calibration table.
	5. All-speed governor damaged.	Overhaul injection pump and adjust on test bench to values specified in calibration table.
	6. Injectors partially obstructed or damaged.	Clean and overhaul injectors and adjust pressure setting.
	7. Impurities or water in fuel lines.	Disconnect fuel lines from injection pump and clean thoroughly. If necessary clean and dry the fuel tank.

(continued)

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FRONT AXLE DIFFERENTIAL

Overhaul (Op. 25 102 24)

When overhauling the differential assembly it is necessary to adjust the backlash between the teeth of the planet pinions and the side gears.

Proceed as follows:

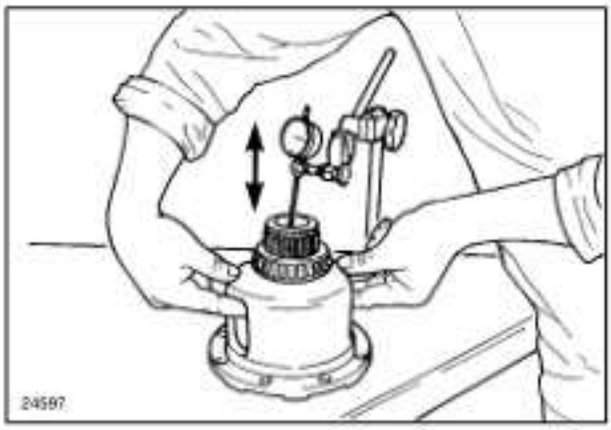
1. Thoroughly clean the components of the differential to remove any traces of oil which would otherwise prevent accurate backlash measurement.

2. Install the two side gears without thrust washers.

3. Fit the planet pinions complete with thrust washers and pins and screw the pin retaining bolts in by a few turns sufficient to hold the pins in place.

4. Position a dial gauge on the differential housing, as shown.

5. Move the left-hand side gear to bring it into full contact with the planet pinion and then push it up against the differential housing, reading the endfloat (G_s) on the dial gauge.



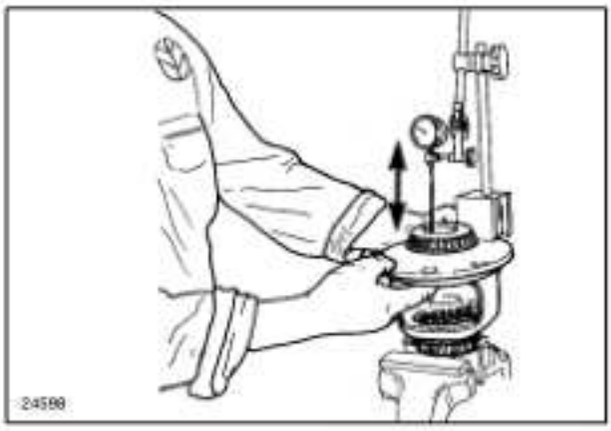
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6. Repeat the above operations to measure the endfloat on the right-hand side gear (G_d).

   The endfloat should be **0.25 mm (0.0098 in.)**. Therefore the shims to be inserted in the differential housing are given by:

   $S_s = G_s - 0.25$ mm (0.0098 in.) for the left-hand side gear;

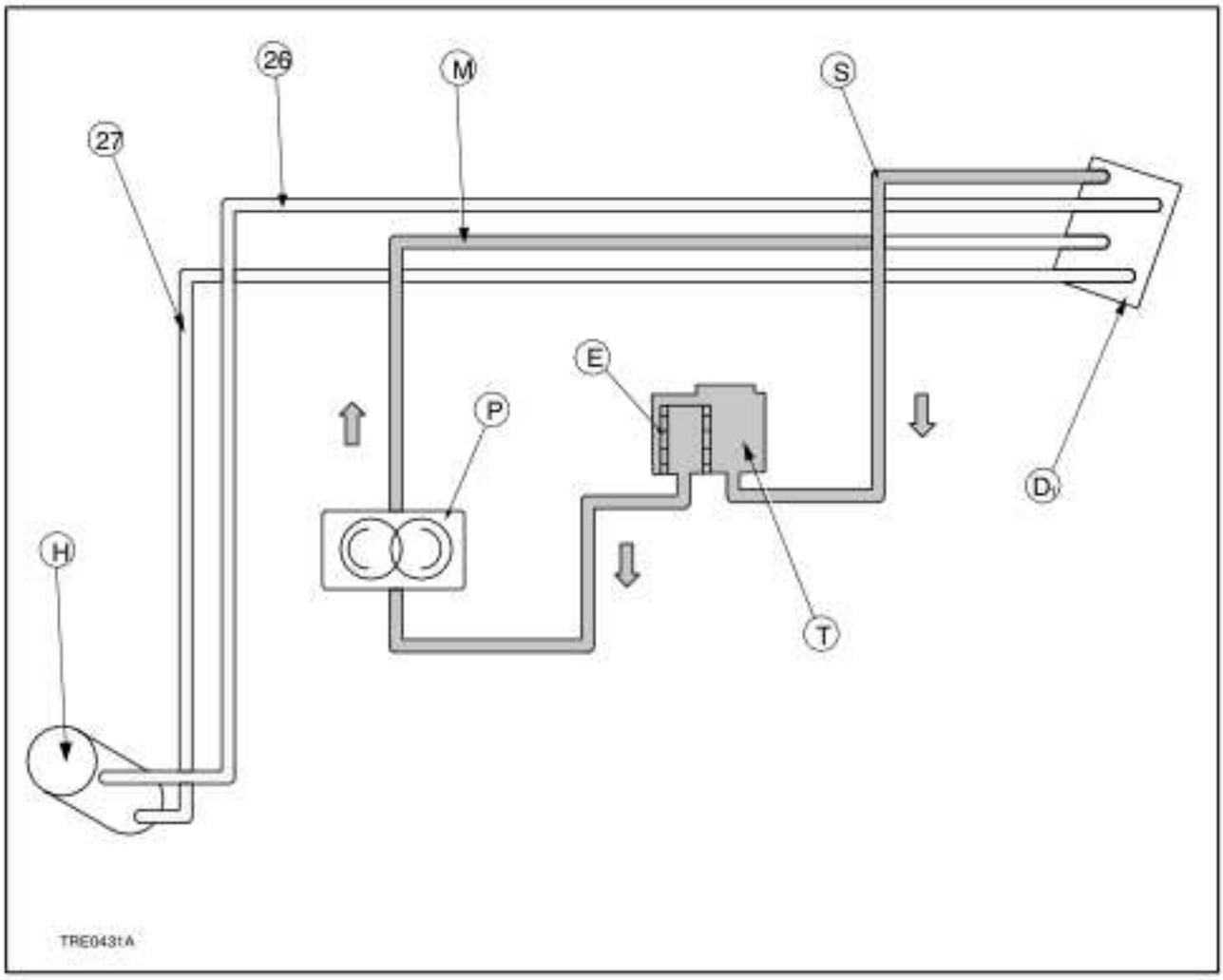
   $S_d = G_d - 0.25$ mm (0.0098 in.) for the right-hand side gear.



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7. Install shims as near as possible to the calculated value and, using a dial gauge and following the procedure described above, check that the endfloat of the left and right-hand side gears is approximately 0.25 mm (0.0098 in.).

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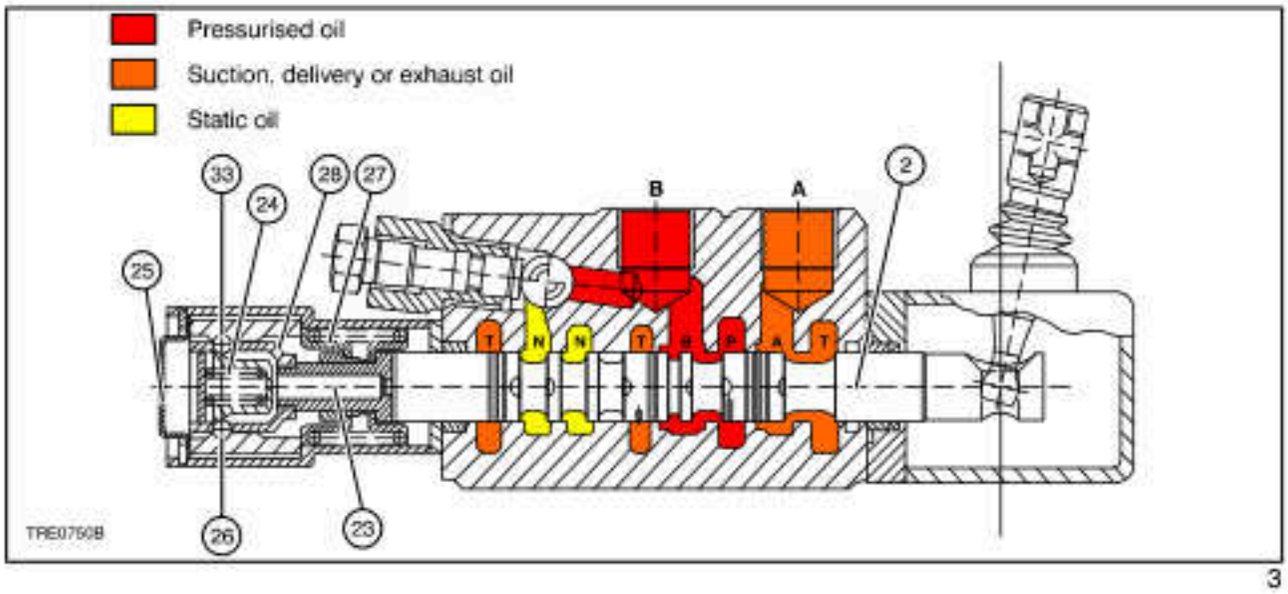
General hydraulic diagram

H ---- Power steering cylinder
D1 --- Hydrostatic steering control valve
E ---- Filter
T ---- Oil tank
P ---- Pump

26 Oil in intake line
27 Oil in delivery line from pump
M - Oil delivery to control valve
S - Oil at lubrication pressure

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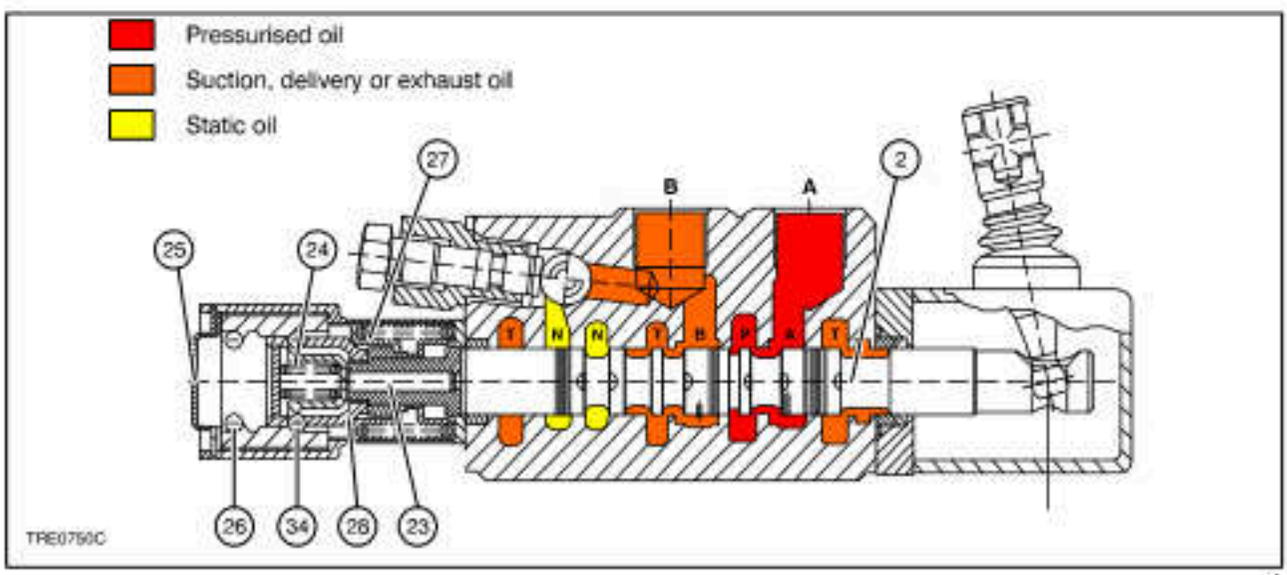
OPERATING STAGES OF AUXILIARY CONTROL VALVE FOR OPERATION A DOUBLE- ACTING CYLINDER AUTOMATIC DETENT RELEASE AND FLOAT POSITION



3

LIFTING

When the spool (2) moves to left, the detent balls (26) engage the groove (33), where they are held in place by the support (28) and spring (24). The movement of the spool (2) connects: the pressure line (P) with the line (B), and also the upper cylinder chamber with the exhaust line (T) by way of line (A), intercepting the supply of oil to the hydraulic lift control valve. Automatic detent release working principle is explained at page 6.



4

LOWERING

When the spool (2) moves to right, the detent balls engage in the groove (34) where they are held in position by the support (28) and the spring (24). In this condition the oil contained in the lower chamber of the cylinder can flow to the exhaust (T) by way of line (B), while the upper chamber is connected with the pressure line (P) by way of line (A). On completion of the lowering operation, the detent will be automatically released as explained at Page 6.

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Steering to the right (fig. 5)

When you turn the steering wheel clockwise, the springs (11) fig. 2 deform, allowing the valve (12) fig. 4 to rotate in relation to the sleeve (11) fig. 4.

In this state, the following takes place:

- de-synchronisation of the internal ducts with parts (11) and (12) fig. 4, which were aligned in the neutral phase, resulting in interruption of the flow of oil to the outlet.
- alignment with the same number of internal ducts connected moment by moment with the rotor compartments at intake from the pump (7) fig. 4 and in the delivery line to the steering cylinders (2)fig. 4, thus allowing the wheels to be steered to the right.

Steering to the left

When you turn the steering wheel anticlockwise, the grooves inside parts (11) and (12) fig. 4 and the delivery lines to the steering cylinders are reversed, thus allowing the wheels to be steered to the left.

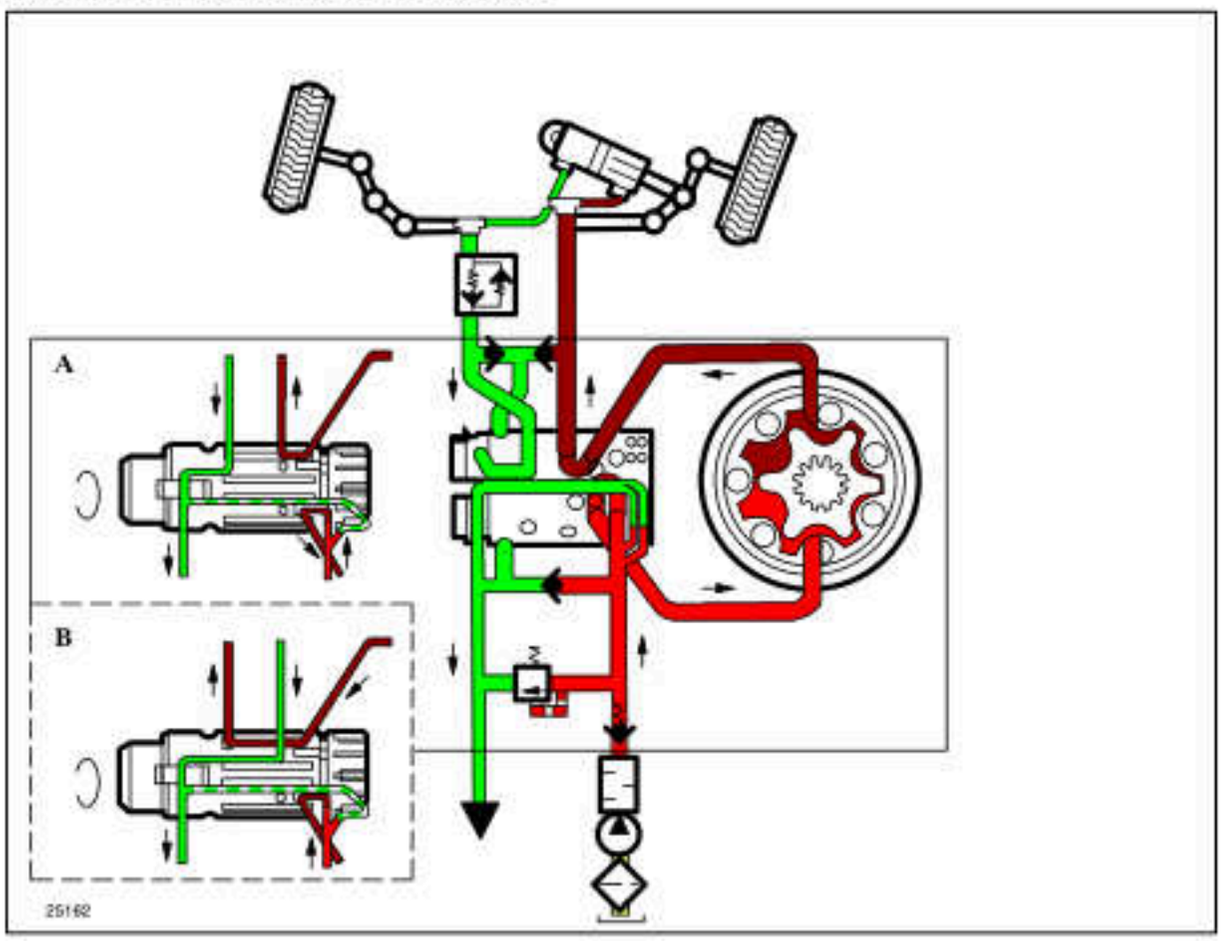
Steering to the right manually

If there is a fault or loss of oil pressure at the hydrostatic steering pump, steering can also be performed manually.

When you turn the steering wheel clockwise, the rotor inside the hydrostatic steering control valve (3) fig. 4 performs the function of a hand pump, sending oil to the control cylinder rod side (2) fig. 4, thus allowing the wheels to be steered to the right manually.

Steering to the left manually

When you turn the steering wheel anticlockwise, you act upon the rotor inside the hydrostatic steering control valve which, by operating as a hand pump as previously described, sends oil to the control cylinder piston side, thus allowing the wheels to be steered to the left manually.



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Diagram showing operation of the hydrostatic steering

A Steering to the right

B Steering to the left

Oil in intake line

Oil in delivery line from pump

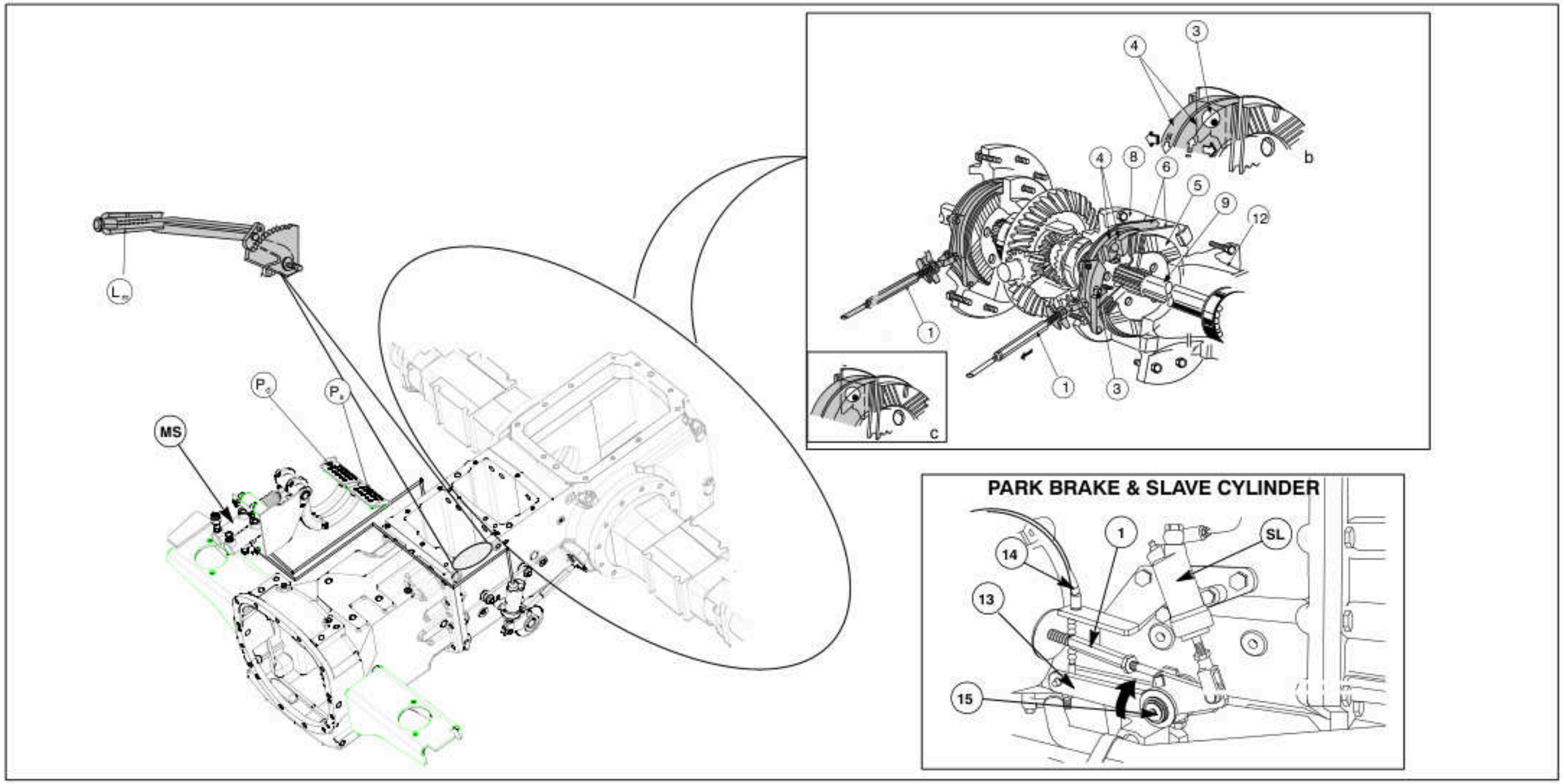
Oil in delivery line to hydraulic cylinder

Oil returning to reservoir

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BRAKES



View of service and park brake controls

a. R.H. brake pedal in rest position and L.H. brake applied.
b. Brakes applied.
c. Brakes in rest position.
Lm. Parking brake hand lever.
M. Brake pedal return springs.
Pd. R.H. brake pedal.
SL. Slave cylinder
MS. Master cylinder
1. Brake links.
3. Actuator ball.
4. Brake actuator.
5. Brakes discs.
6. Back-up discs.
7. Actuator return spring.
8. Differential support.
9. Axle shaft.
12. Final drive housing.
13. Park brake control lever.
14. Park brake control cable.
15. Brake pivoting shaft.

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