SERVICE MANUAL

3510 / 4010 / 4510 / 4710

Tractor

Part number 47899743

English

September 2015

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Valve springs	
Free length	**45.290 - 45.800 mm (1.783 - 1.803 in)**
Fitted length	**38.10 mm (1.50 in)**
Load at fitted length	**9.44 - 11.24 kg (20.81 - 24.78 lb)**
Tappets	
Outside diameter	**15.800 - 15.840 mm (0.622 - 0.624 in)**
Clearance fit in cylinder head	**0.020 - 0.090 mm (0.001 - 0.004 in)**
Rocker shaft	
Outside diameter	**15.806 - 15.845 mm (0.622 - 0.624 in)**
Rocker levers	
Bore diameter bush	**15.860 - 15.890 mm (0.624 - 0.626 in)**
Clearance fit on rocker shaft	**0.017 - 0.090 mm (0.001 - 0.004 in)**

Valve drive and gears - General specification

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4710 model

Camshaft	
Type	Polydine (hollow shaft Journals are pressure feed lubrication located with thrust washer)
Number 1 journal diameter	**47.484 - 47.500 mm (1.869 - 1.870 in)**
Running clearance	**0.100 - 0.141 mm (0.004 - 0.006 in)**
Number 2 journal diameter	**47.234 - 47.250 mm (1.860 - 1.860 in)**
Running clearance	**0.100 - 0.141 mm (0.004 - 0.006 in)**
Number 3 journal diameter	**46.984 - 47.000 mm (1.850 - 1.850 in)**
Running clearance	**0.100 - 0.141 mm (0.004 - 0.006 in)**
Number 4 journal diameter	**46.724 - 46.740 mm (1.840 - 1.840 in)**
Running Clearance	**0.100 - 0.141 mm (0.004 - 0.006 in)**
Oil way for rocker shaft lubrication	From head to 1st rocker bracket top face
Cam lift inlet	**6.381 mm (0.251 in)**
Cam Lift exhaust	**7.417 mm (0.292 in)**
Gear-spigot diameter	**34.975 - 35.000 mm (1.377 - 1.378 in)**
Camshaft end float	**0.100 - 0.400 mm (0.004 - 0.016 in)**
Cylinder head	
Cylinder head total height	**118.000 mm (4.646 in)**
Skimming allowance on head face	A maximum of **0.300 mm (0.012 in)** may be removed from the head face provided the atomiser nozzle protrusion does not exceed **3.734 mm (0.147 in)** after skimming
Leak test	**4 bar (58 psi)** for 1 minute
Valve seat angle	Inlet **30 °** / Exhaust **45 °**
Tappet bore in cylinder head	**16.000 - 16.018 mm (0.630 - 0.631 in)**
Valve guide bore in cylinder head	**13.000 - 13.018 mm (0.512 - 0.513 in)**
Permissible cylinder head bow transverse and longitudinal	**0.080 mm (0.003 in)**
Valve guides (sintered)-inlet and exhaust	
Inside diameter	**7.900 - 7.915 mm (0.311 - 0.312 in)**
Outside diameter	**13.023 - 13.034 mm (0.513 - 0.513 in)**
Overall length	**58.800 - 59.000 mm (2.315 - 2.323 in)**

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Problem	Possible Cause	Correction
Lifting capacity does not match that prescribed	Deterioration of the control valve seal rings	Remove control valve and replace the external seal rings
	Relief and safety valves out of calibration	Control calibration of the valves
	Poor pump efficiency	Replace the pump
	Excessive loss of oil from control valve	Overhaul the control valve

Main lift system - Troubleshooting

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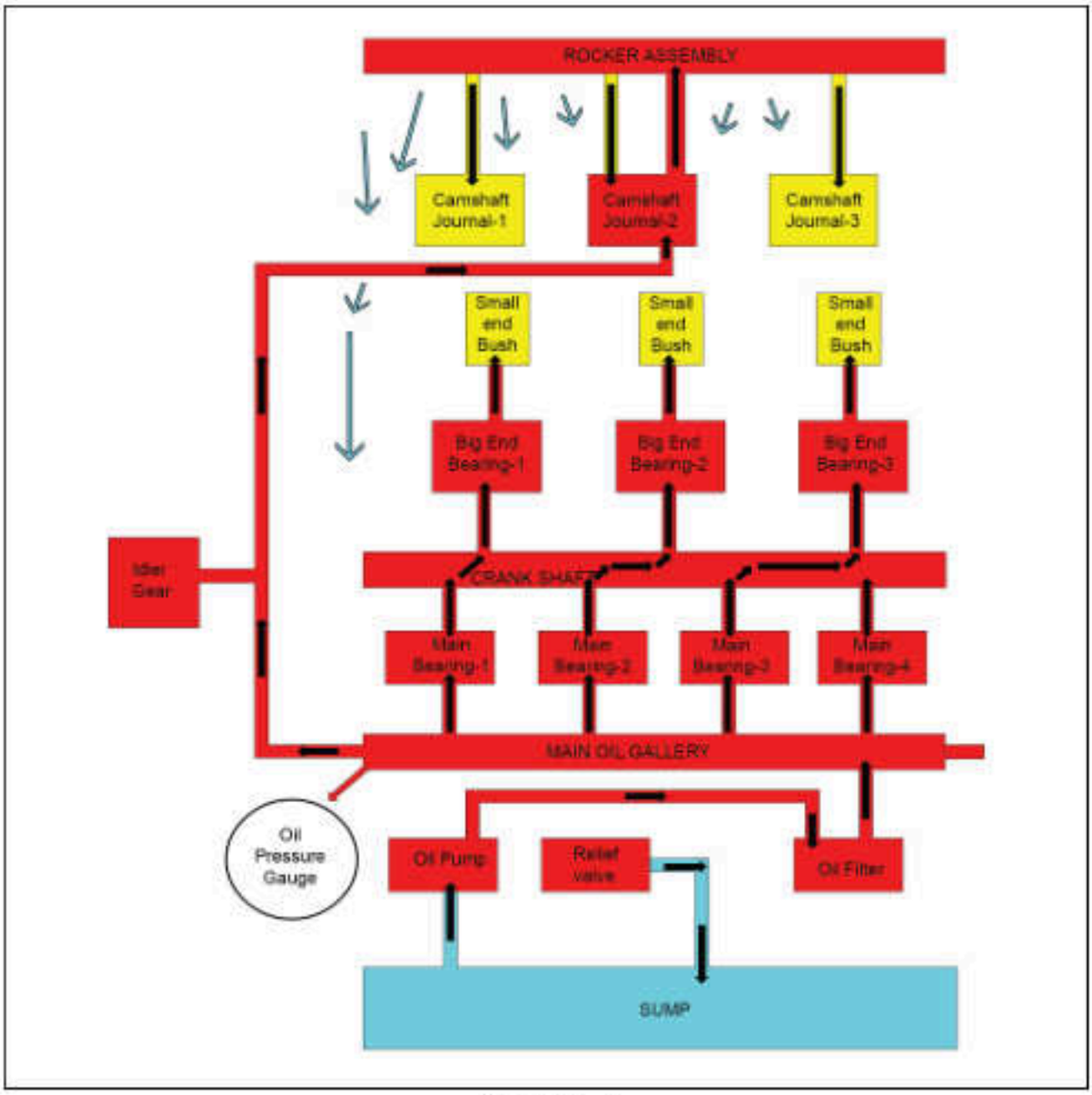
Problem	Possible Cause	Correction
The Rockshaft lifts jerkily	Insufficient oil level in the tank	Top up the level
	Pump inlet filter clogged	Clean or replace the filter
	Infiltration of air into the pump inlet pipe	Check the inlet pipe and any coupling and gasket
Rockshaft does not operate	Differencial valve blocked or dirty	Remove the control valve and unblock the regulator piston
The rockshaft starts to lift, but it stops as soon as it feels the load, without the functioning of the over-pressure valve	Tension rod measurement **(L)** is not correct (Refer to **Main lift system - Dynamic description (35.100)**)	Adjust the draft control lever (Refer to **Main lift system - Dynamic description (35.100)**)
The rockshaft does not descend over its entire travel	Faulty adjustment of the position control lever **(1)**	Adjust position control lever (Refer to **Main lift system - Dynamic description (35.100)**)
	Sensibility adjusted badly	Adjust sensitivity of control valve
	Discharge valve blocked	Remove control valve and unblock or clean discharge valve
	Lever RD closed	Turn lever RD in anti-clockwise
Lifting capacity does not match that prescribed	Deterioration of the control valve seal rings	Remove control valve and replace the external seal rings
	Relief and safety valves out or calibration	Control calibration of the valves
	Poor pump efficiency	Replace the pump
	Excessive loss of oil from control valve	Overhaul the control valve
The rockshaft supports loads with difficulty	Piston gasket worn	Replace the gasket
There is a rhythmic oscillation when the motor is on, the load descends	Discharge valve not adjusted	Adjust the sensitivity of control valve or substitute the valve
When the motor is off	Oil leakage from safety valve	Remove control valve and adjust valve
	Oil leakage from check valve	Remove the control valve and adjust valve
With the arms raised at backstop and with the engine on, we have verified a rhythmic oscillation, with the engine off the load does not lower	Incorrectly adjusted of position control lever which, at maximum raised height, causes the internal automatic backstop to function	Adjust the position control lever (Refer to **Main lift system - Dynamic description (35.100)**)
Working with the draft control, the implement drops too much or doesn't stay in the groove	Sensitivity of the control valve is badly adjusted	Adjust the sensitivity of the control valve (Refer to **Main lift system - Dynamic description (35.100)**)

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Harnesses and connectors - Electrical schematic sheet 04

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Fuel system

The diesel fuel system consists of fuel tank, fuel filters, fuel feed pump, injection pump, injector nozzles and inter connecting tubes and lines.

The injection pump is located on left side of the engine, is pressure fed from fuel feed pump. Fuel flows from fuel tank to the fuel feed pump strainer, through feed pump and then through the fuel filters.

From the filter the fuel passes to the injection pump to supply fuel at high pressure to each injector. The extra fuel from injection pump and injectors is recirculated by means of the leak offline to the fuel tank.

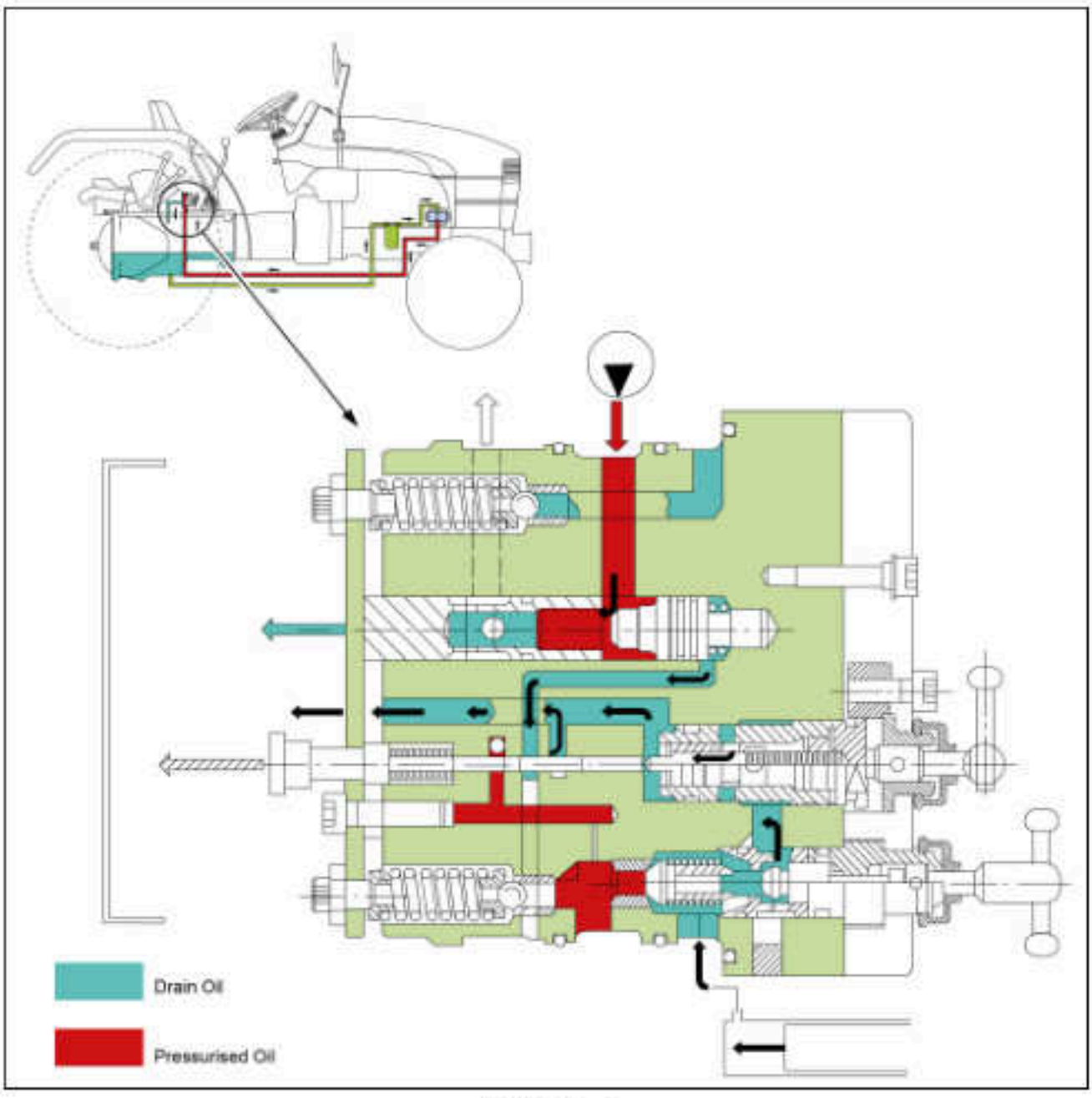
Fuel shut-off

Supply of fuel to the combustion chamber is stopped by means of a pull type knob provided just below the rear hood.

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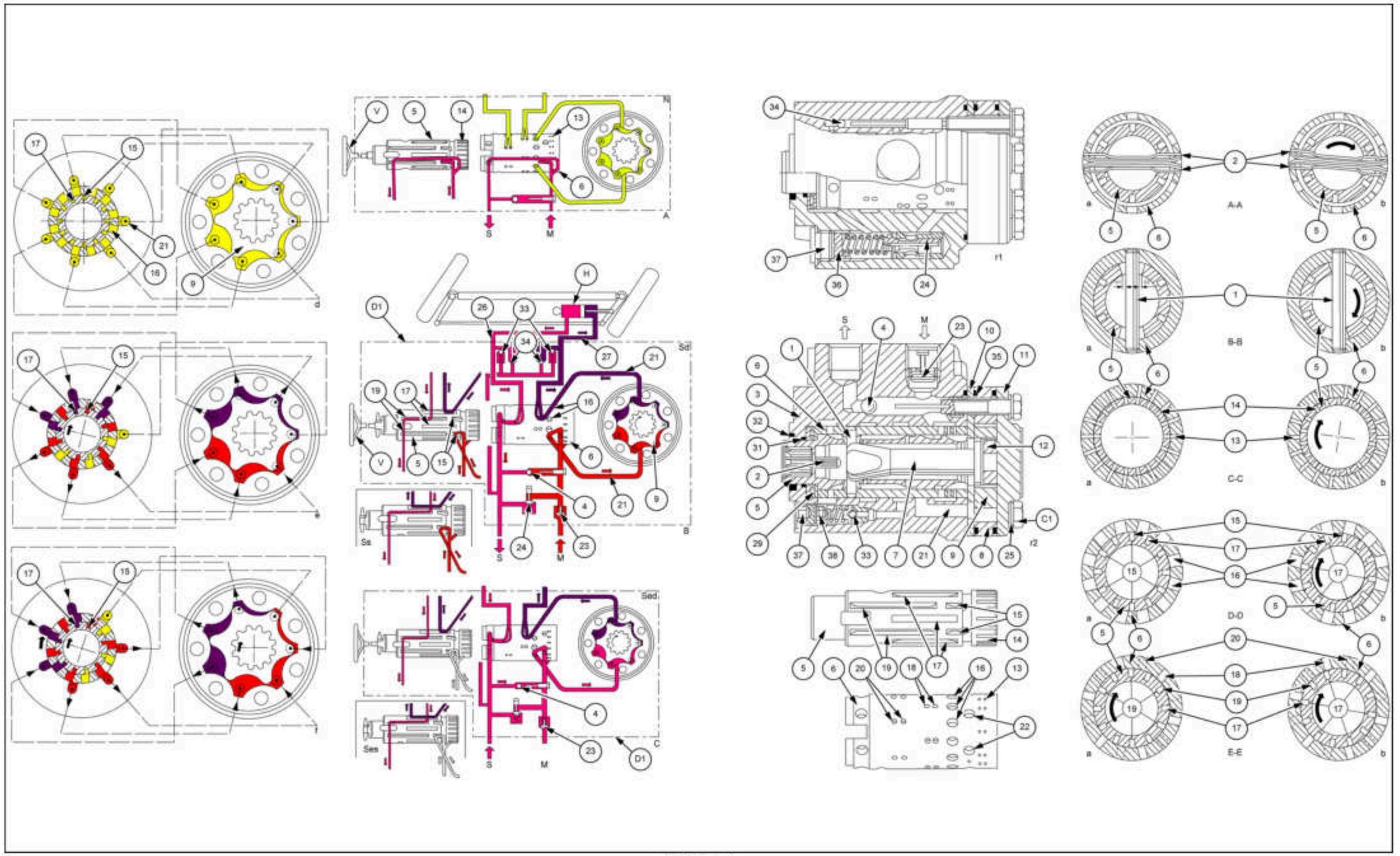
Hydraulic systems - Sectional view

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Sectional view - hydraulic oil distributor

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