Drive Motor

Operation

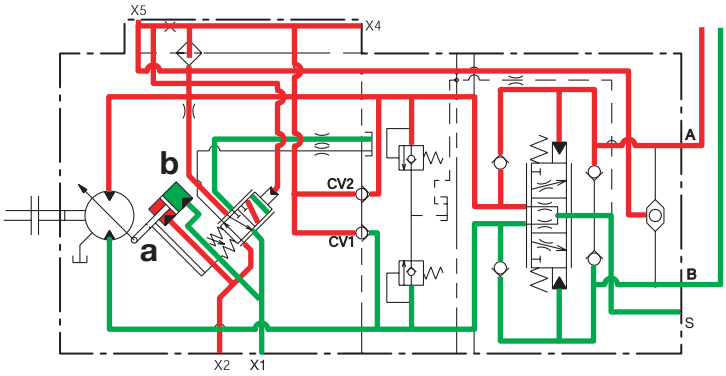

Fig 1. Operation below 210bar

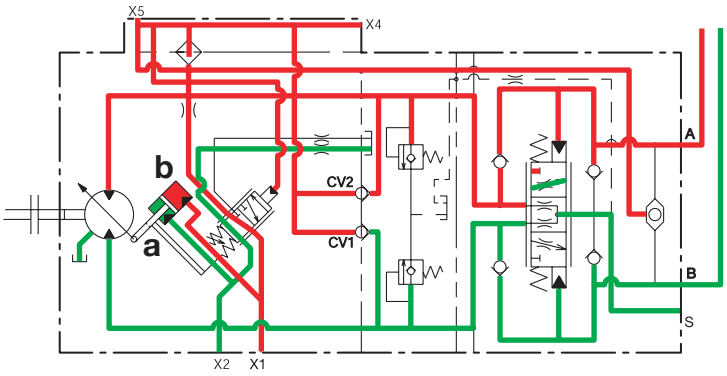

Fig 2. Operation at high pressure - 220bar

Under normal non-inclined road conditions, oil enters at ports **A** and **B** (depending on the drive direction). At port **A**, oil pressure moves the shuttle and oil flows at system pressure to act on the threshold piston. The oil is allowed to pass through the motor and back to tank.

Oil is available to the brake spool section. The flow is dead-ended at a check valve, but is available at the spool end, where it selects a spool. Oil passes through the other check valve, where it is dead-ended by the selected spool.

When the machine encounters an incline however, the operation changes. Oil still flows through the motor but, as the pressure starts to build up from the effect of the incline, this pressure starts to be felt at **CV1** which allows oil to pass, at **CV2**, which closes off, the supply to the filter, through the orifice, across the spool to **a**, Max speed /Min Flow side of the piston. The piston holds Max speed.

The pressure is felt at the spool end, but the spool does not select as the spring pressure holds it stationary. Oil from the other side of the piston is open to tank. As the pressure rises to match and overcome the spring pressure (threshold pressure), the spool will start to select.

The oil flow across the spool changes direction to feed the **b** Min speed/Max flow side of the piston, this moving the piston in the opposite direction altering the swash angle to give maximum torque. The max side of the piston is then

open to tank. The spool shuttles to match torque with road conditions.

When the machine travels down hill, the motor operation acts as a pump, the oil supply is insufficient to prevent cavitation within the motor. Negative pressure can lift the check valve and allow oil from tank to make up and prevent cavitation.The restrictions within the brake spool give the motor its braking effect by slowing the oil as it returns to tank.

Ports on Motor Body

X1	Gauge Port. Servo Piston Pressure (Max displacement side)
X2	Gauge Port. Servo Piston Pressure (Min displacement side)
X4	Gauge Port. Servo Supply Pressure (Before Orifice)
X5	Gauge Port. System Pressure

Ports A and B

Main drive pressure hoses from valve block.

The threshold pressure can be adjusted to alter the point at which maximum and minimum displacement takes place. The adjustment screw gives a 57 Bar increase/ reduction per one complete turn. Altering the threshold pressure will give varying amounts of torque and speed that will effect the machines road speed and also the machines ability to climb hills. There is no external adjustment on the displacement limiter screw, although adjustment is still possible, it is done by the addition/ removal of shims, internally.

Description

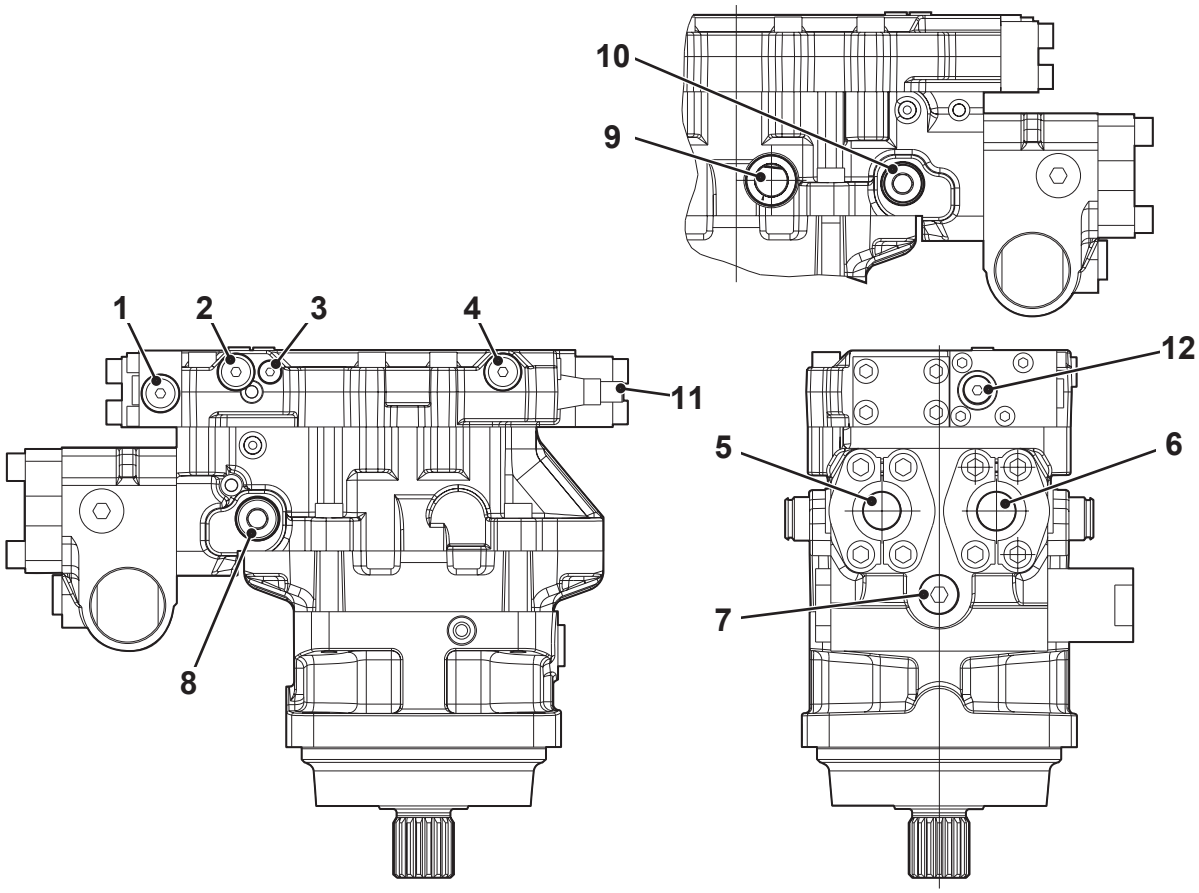

Fig 3.

1 Gauge port X4 - Servo supply pressure

2 Gauge port X1 - Servo piston pressure (max. displacement side)

3 Construction plug X2

4 Gauge port X2 - Servo piston pressure (min. displacement side)

5 Pressure port (A)

6 Pressure port (B)

7 Make up port (S)

8 Safety valve (port B)

9 Drain Port

10 Safety Valve

11 Threshold pressure adjusting screw

12 Gauge port X5 - Pilot pressure

Removal and Replacement

The permitted level of servicing is limited to the replacement of the seals, O-rings and gaskets.

The unit must be removed from the machine for servicing.

Removal

1 Switch off the engine and operate the drive controls to relieve system pressure.

2 Taking steps to catch any oil spillage, disconnect the hoses to the drive motor. Identify the hoses with their ports to assist in replacement. Cap the hose ends and plug the motor ports.

3 Remove the four bolts securing the drive motor to the drive gearbox and lift clear.

Note: *The drive motor is heavy. Using suitable lifting tackle, make sure it is supported when the bolts are removed.*

⚠ WARNING

Lifting Equipment

You can be injured if you use faulty lifting equipment. Make sure that lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure that lifting equipment is strong enough for the job.

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Replacement

Replacement is the reverse of removal.

Dismantling and Assembly

Dismantling

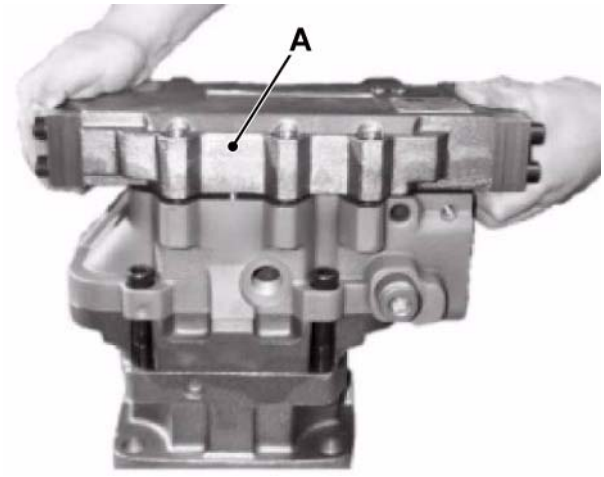

Fig 4.

1 Remove the 6 x hexagon screws securing the control module **4-A**. Lift off the control module.

Important: *Lift the control module vertically upwards so that the 2 x check-valve balls **5-A** do not fall down into the motor.*

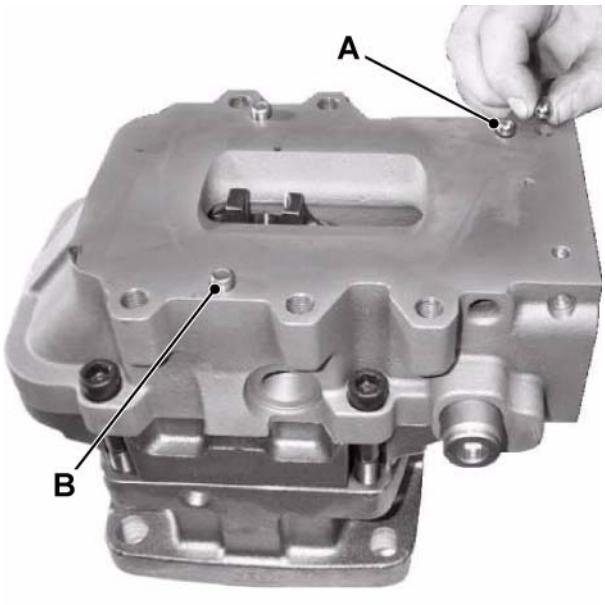

Fig 5.

2 Remove the 2 x check valve balls **5-A**.

Note: *The 2 x guide pins **5-B** can be loose.*