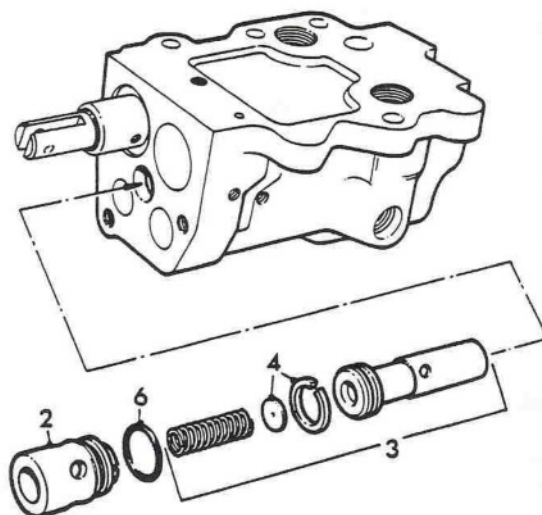


Removing and replacing the Hydraulic 'Unloader Valve'

Description

The 'Unloader valve' controls the lifting cycle in the main circuit. It's a 'Spool valve' hydraulically operated by the main lift spool valve, and is biased in the downward direction by a light spring (Part of 3). In most cases it has a small orifice plate (Part of 4) in the centre to prevent random operation due to oil leakage, though in some cases no orifice plate is necessary to achieve correct operation with a particular plunger and chest assembly. The unloader valve spring is held in position by the unloader cap (2), the cap having an 'O' ring seal (6), the cap also acts as an oil gallery taking low pressure oil from the high pressure relief valve into the low pressure circuit. The unloader valve has a small cast iron piston ring (Part of 4). (This piston ring was deleted on late tractors)

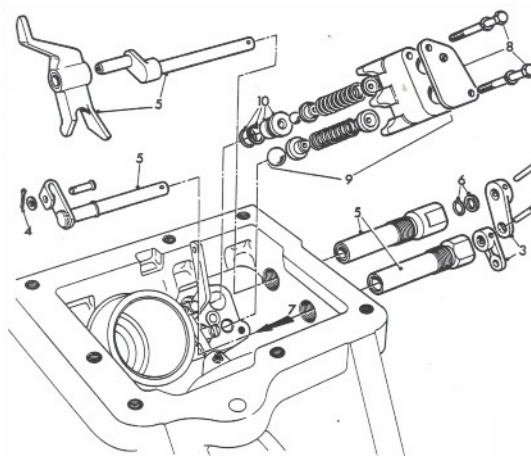


The Problem

The unloader valve has a habit of sticking in the down position due to moisture in the oil corroding the valve or in cold conditions when the moisture can freeze preventing the valve from operating. If the valve sticks the main lift is inoperative! The unloader valve can also stick if the hydraulics haven't been used for a period of time. The auxiliary circuit will operate normally since it has priority over the main lift.

Removing the unloader valve

1. Remove the hydraulic top cover and stuff rags around the exposed valve chest to prevent any parts from falling into the bottom of the transmission.
2. Remove all items shown in the picture on the right.
3. Remove the cap, spring & orifice plate (If fitted).
4. Using a suitable 'Easy Out Screw Extractor' remove the unloader valve. A screw driver with the sides ground down to allow a tight fit inside the valve works well. A twisting action helps with removal.



Refitting the unloader valve

1. Thoroughly clean the valve and its bore with metal polish to remove any corrosion.
2. Refit the piston ring if fitted. Lubricate the valve and very carefully inset into its bore.
3. Refit the orifice plate if fitted, spring and unloader valve end cap with a new 'O' ring.
4. Refit all the other items and refit the top cover using either 'Blue Hylomar' or 'Loctite 510' between the faces. Late Leylands and all Marshall Tractors used Loctite 510. Remember to remove the rags from around the valve chest.

Note;

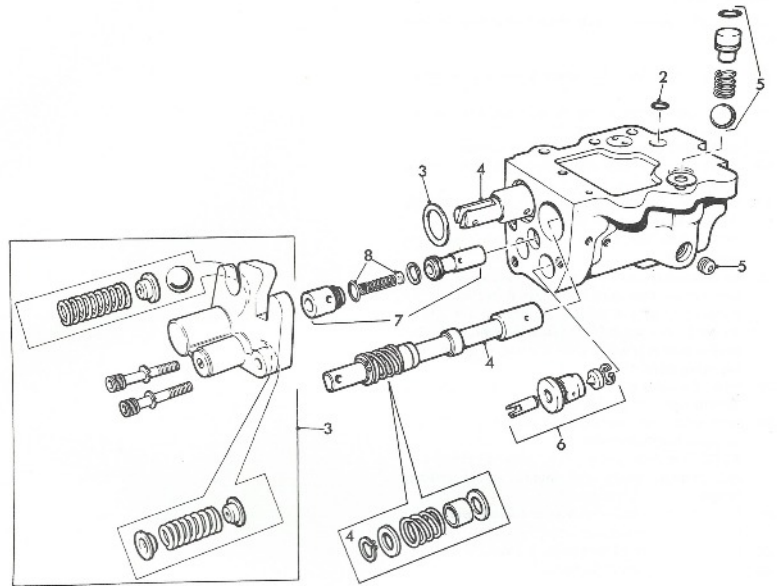
If the cause of the problem was moisture in the transmission oil, then unless the oil is changed, the problem will return again at a future date!

From chassis number 242718 a new type of high pressure relief valve was fitted, (6) this can be identified by the 'Aluminium' relief valve housing. This valve uses a 'Poppet' in place of the original ball and spring.

From chassis number 245032 the auxiliary spool valve became redundant and, although fitted, wasn't used. (4)

It's possible that tractors prior to these change points may have the modified valve chest fitted if a repair was required.

These modifications have no influence on the operation of the 'Unloader valve'.



Note;

Don't start the engine when the hydraulic top cover is off!

Unless the main spool valve has been tied upwards with wire, in the 'Lowering Position', the hydraulic piston can fly out of the cylinder with the potential of severe personal injury!