

TRANSMISSION CONTROL OPERATION



The operator controls the transmission using the gear levers and electrical buttons on these levers (1). Signals are then sent to the processor (2) from the status switches (3) which inform the processor which mechanical synchronizers are selected.

The operator also controls the clutch/braking pedal (4) which has a potentiometer (5) and a disconnected switch (6) attached to it.

The processor takes a signal from the alternator (8) which gives the engine speed. The transmission speed sensor (9) gives the output speed of the transmission, and thus the wheel speed, to the processor.

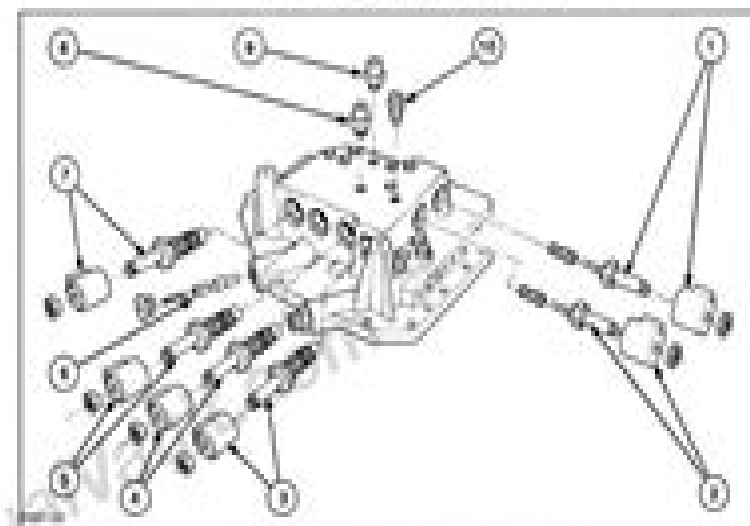
The transmission of temperature is measured by the oil temperature sensor (10) adjacent to the transmission control valves. This gives an indication of oil density to the processor.

The processor then controls the four Pulse Width Modulated (PWM) valves (7) which regulate the Low Pressure Oil (LPO) (18-20 bar) to operate the four clutches within the transmission.

The speed that the clutches hydraulically engage and disengage is controlled by the processor through the PWM valves and is dependent upon the signals received from the operator and the sensors. The two clutches at the front of the transmission (C1/C2) can be considered as ON/OFF clutches. However, a degree of gradual engagement/disengagement exists during gear changes. The two clutches at the rear of the transmission (C3/C4) are much larger and can be considered as the feathering or gradual engagement clutches. It is these clutches that permit smooth gear changes and take-ids by progressively engaging until fully locked.

Whilst operating in any one gear, one of the C1/C2 and one of the C3/C4 clutches is always fully engaged.

TRANSMISSION HYDRAULIC CONTROL



Mounted on the side of the transmission is the control valve assembly.

The control valve pack is supplied with Low Pressure Oil (18-20 bar) from an accumulator (Fig. 11). This is necessary to ensure minimum drop in oil pressure when changing gear, particularly when changing two clutches at once.

Oil for lubrication enters at point 6.

The control valve pack incorporates four PWM valves (2,3,4,5), a transmission oil temperature sensor (10) and optional WFO (3) and creep interlock piston (8).

Mounted on the rear of the control valve pack is the lubrication controlling valve pack. This incorporates the lubrication regulating valve (1), the lubrication controlling valve (2) with valve spring and spring (4) and the lubrication shuttle valve (3).

This valve pack contains lubrication of at 5 bar with low pressure/transmission control oil at 18-20 bar to increase clutch lubrication during clutch feathering.



New Holland Ts Manual

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