PUMA 165
PUMA 180
PUMA 195
PUMA 210

Tractor with/without Multicontroller

SERVICE MANUAL

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CASE IH AGRICULTURE

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Frame	line Range	Frame Title	Line Number	Compo-nent	Connec-tor	Description
31	9010-9300	SENSORS	9020	B33	**C022**	FUEL TANK SENDER
31	9010-9300	SENSORS	9060	F21 - 15A		FUSE - GRID HEATER, WIF SENSOR, BRAKE FLUID LEVEL SW
31	9010-9300	SENSORS	9060	S63	**C007**	BRAKE FLUID RESERVOIR SWITCH
31	9010-9300	SENSORS	9110	B34	**C068**	RADAR
31	9010-9300	SENSORS	9150	S64	**C174**	PAS PRESSURE SWITCH
31	9010-9300	SENSORS	9175	B35	**C014**	STEERING SENSOR
31	9010-9300	SENSORS	9250	X18	**C366**	RADAR SOCKET HARNESS CONNECTOR

NOTE: *Additional Connectors* ***C001, C020, C079, C080, C101, C184, C269.***

WIRE COLOUR CODES							
B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

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Code	Description	Cause	Controller Pin	Component
3158	Invalid ECM checksum	N/A	N/A	Clear error code. Download correct level of software. Engine controller.
3159	Invalid engine reference torque	The received engine configuration does not match the previously stored EEPROM value.	N/A	Clear error code. Download correct level of software. Engine controller.
3160	Fan actuator – short circuit to battery	Power stage hardware reports 'short circuit to battery' longer than 200 ms.	CNK/90	Vistronic fan and connector **X219**
3161	Fan actuator – short circuit to ground	Power stage hardware reports 'short circuit to ground' longer than 2000 ms.	CNK/90	Vistronic fan and connector **X219**
3162	Fan actuator – temperature too high	Power stage hardware reports 'open load' longer than 2000 ms	CNK/90	Vistronic fan and connector **X219**
3163	Fan actuator – no load	Power stage hardware reports 'excess temperature' longer than 300 ms	N/A	Vistronic fan and connector **X219**
3176	Setpoint of metering unit not plausible in overrun	The setpoint value of the rail pressure governor for the fuel volume flow through the metering unit exceeds an upper limit over 2500 ms. This limit is interpolated from the rail pressure dependent curve Rail_dvolMeUnOvrRun_CUR [mm^3/s].	N/A	Vistronic fan and connector **X219**
3177	Engine overspeed detected	Engine speed (Eng_nAvg) exceeds 3050rpm over 5000ms	N/A	Clear the error code If the driving conditions seem okay, download the correct level of software. If the fault re-occurs, remove and replace the engine controller.
3179	Timeout of CAN message BC2EDC2	Not used	via CAN	Check all power supplies and grounds to CAN-BUS controllers If ok and fault re-ocurrs, remove and replace engine controller.
3180	Timeout of CAN message VM2EDC	Not used	via CAN	Check all power supplies and grounds to CAN-BUS controllers If ok and fault re-ocurrs, remove and replace engine controller.
3182	Timeout of CAN message RxCCVS	CAN controller of the EDC reports a reception timeout for the BC or VCM message RxCCVS over 100 ms.	via CAN	Check all power supplies and grounds to CAN-BUS controllers If ok and fault re-ocurrs, remove and replace engine controller.

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Rear wheel - Torque

Rear Wheel Flange Type Axle

Description	Bolt/Nut Torque - Nm (lb ft)
Rear disc to hub nuts	**250 Nm (184.4 lb ft)**
Rear disc to rim nuts (M16 nuts)	**250 Nm (184.4 lb ft)**

Bar Axle - Wheels with Steel Centre Disc (welded and bolted to rim types)

Description	Bolt/Nut Torque - Nm (lb ft)
Disc to hub fixings (10 x M22 Bolts)	**500 Nm (368.8 lb ft)**
Disc to rim nuts (M16)	**250 Nm (184.4 lb ft)**
Split wedge bolts (6 x M22)	**500 Nm (368.8 lb ft)**

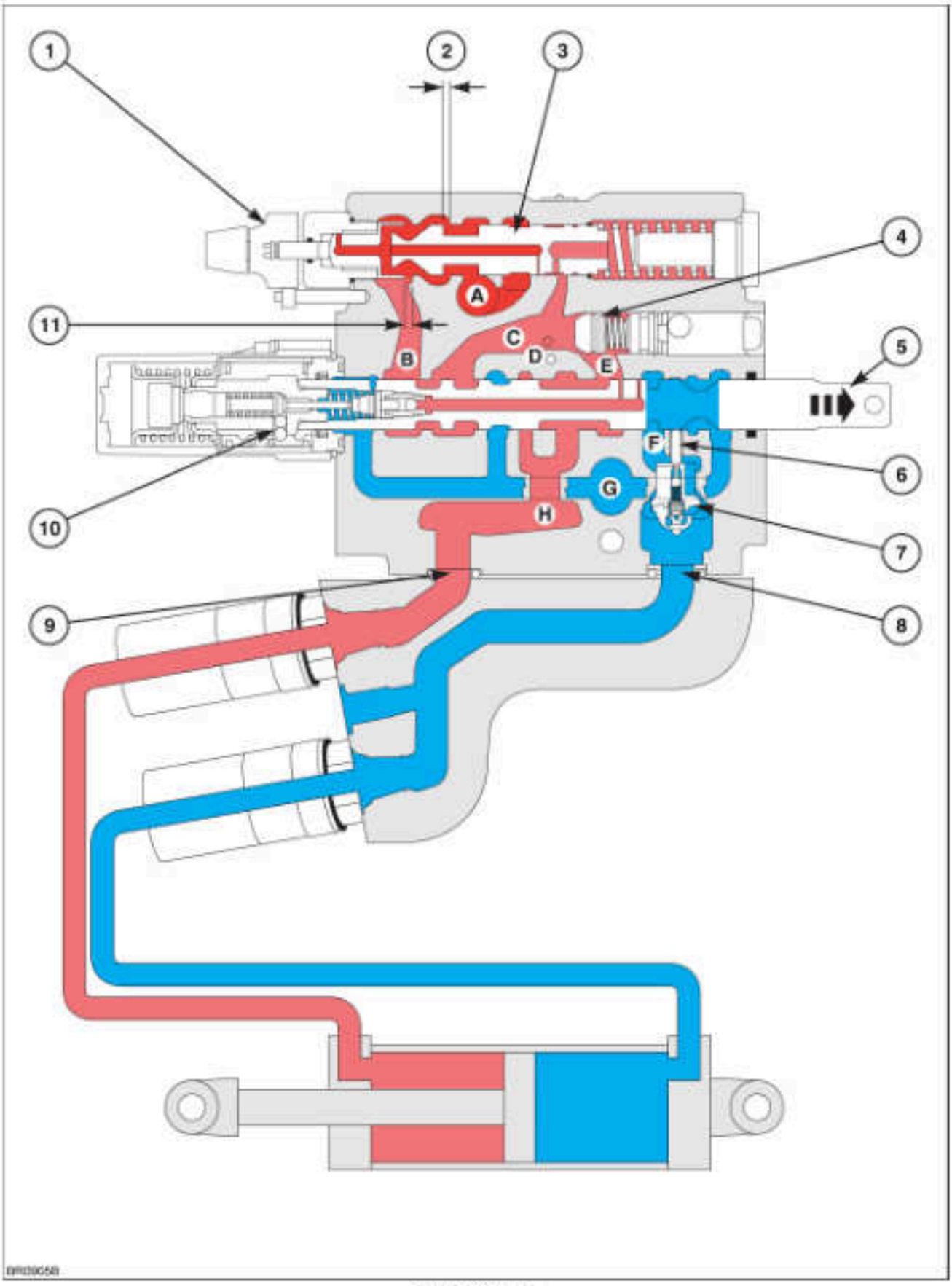
Bar Axle - Wheels with Cast Centre Disc

Description	Bolt/Nut Torque - Nm (lb ft)
Disc to rim nuts (M16 nuts)	**250 Nm (184.4 lb ft)**
Split Wedge bolts (6 x M20)	**300 Nm (221.3 lb ft)**

Dual Rear Wheels

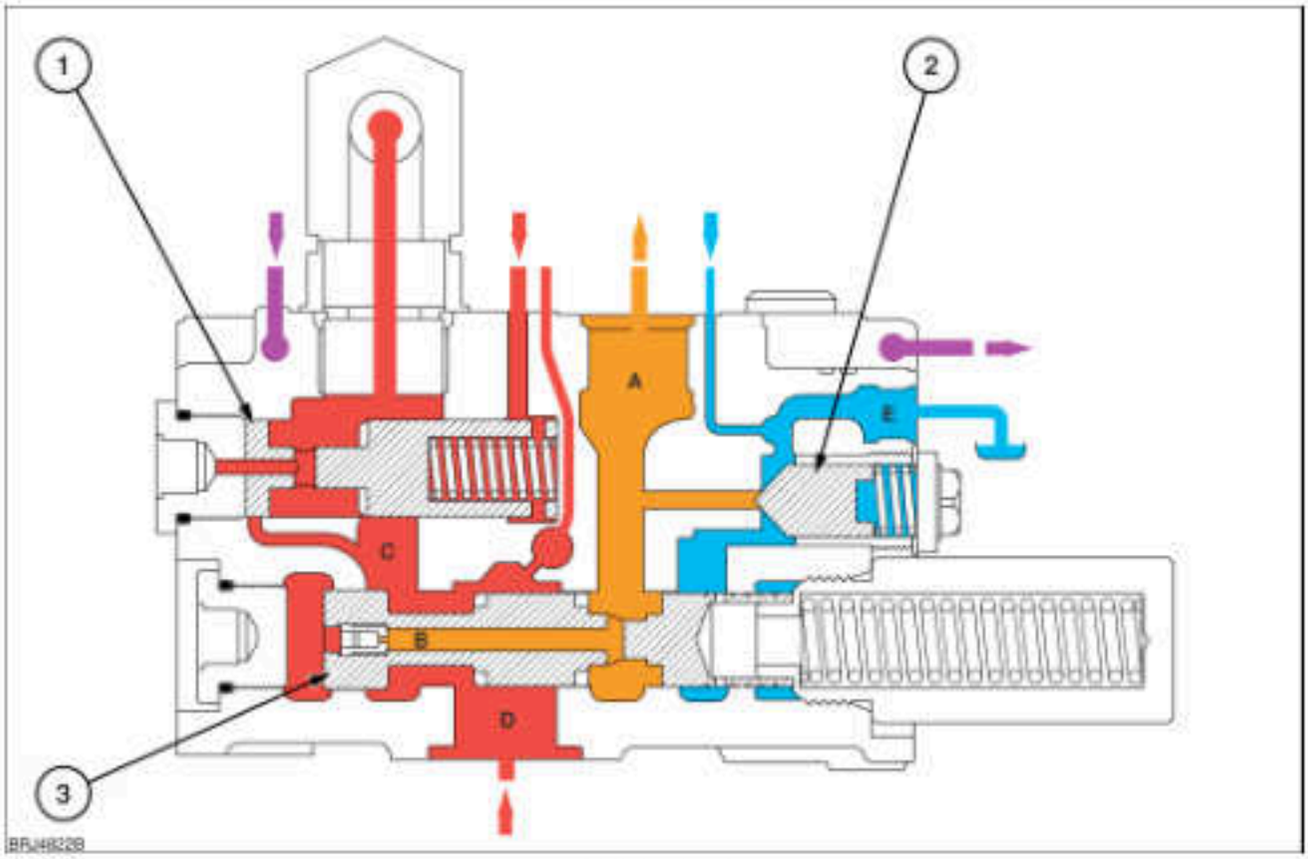
Description	Bolt/Nut Torque - Nm (lb ft)
Disc to hub fixings (10 x M22 bolt)	**500 Nm (368.8 lb ft)**
Split wedge bolts (4 x M22 bolt)	**500 Nm (368.8 lb ft)**
Disc to rim bolts (M16 nuts)	**250 Nm (184.4 lb ft)**

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Priority/Regulator valve - Dynamic description



BAILEYCCM317FSA 1

Pressure Reducing Priority Valve

The regulated flow of oil discharged from the variable displacement piston pump is directed to the low and high pressure hydraulic circuits via the trailer brake valve (where fitted) and the pressure regulating valve.

Because pump output is initially directed through the trailer brake valve (where fitted), the system ensures that the trailer brakes have priority over other hydraulic circuits.

The pressure regulating valve is located on the top of the variable displacement pump and controls the maximum pressure of oil in the low pressure hydraulic circuit while at the same time directing high pressure system oil to the hydraulic power lift and remote control valves.

The low pressure hydraulic circuit, which is regulated at a pressure of **23 bar** (**333.50 psi**)) operates the electronic remote valve spools (where fitted), P.T.O., differential lock, four wheel drive engagement system and transmission control circuits.

When the pressure in the system is below **23 bar** (**333.50 psi**)the low-Pressure regulating valve **(3)** is held to the left by the spring allowing system pressure oil (Gallery **(D)**) from the variable displacement piston pump to flow to the low pressure hydraulic circuits through gallery **(A)** to give flow priority to the low-pressure circuit..

The resulting pressure in gallery **(A)** is sensed in the pressure sensing gallery **(B)** drilled through the centre of the spool. As the pressure in gallery **(A)** increases, the spool moves against the spring restricting the flow of oil into gallery **(A)** to maintain the pressure of oil in the low pressure hydraulic circuit at **23 bar** (**333.50 psi**)), while at the same time allowing system pressure oil to flow into gallery **(C)** .

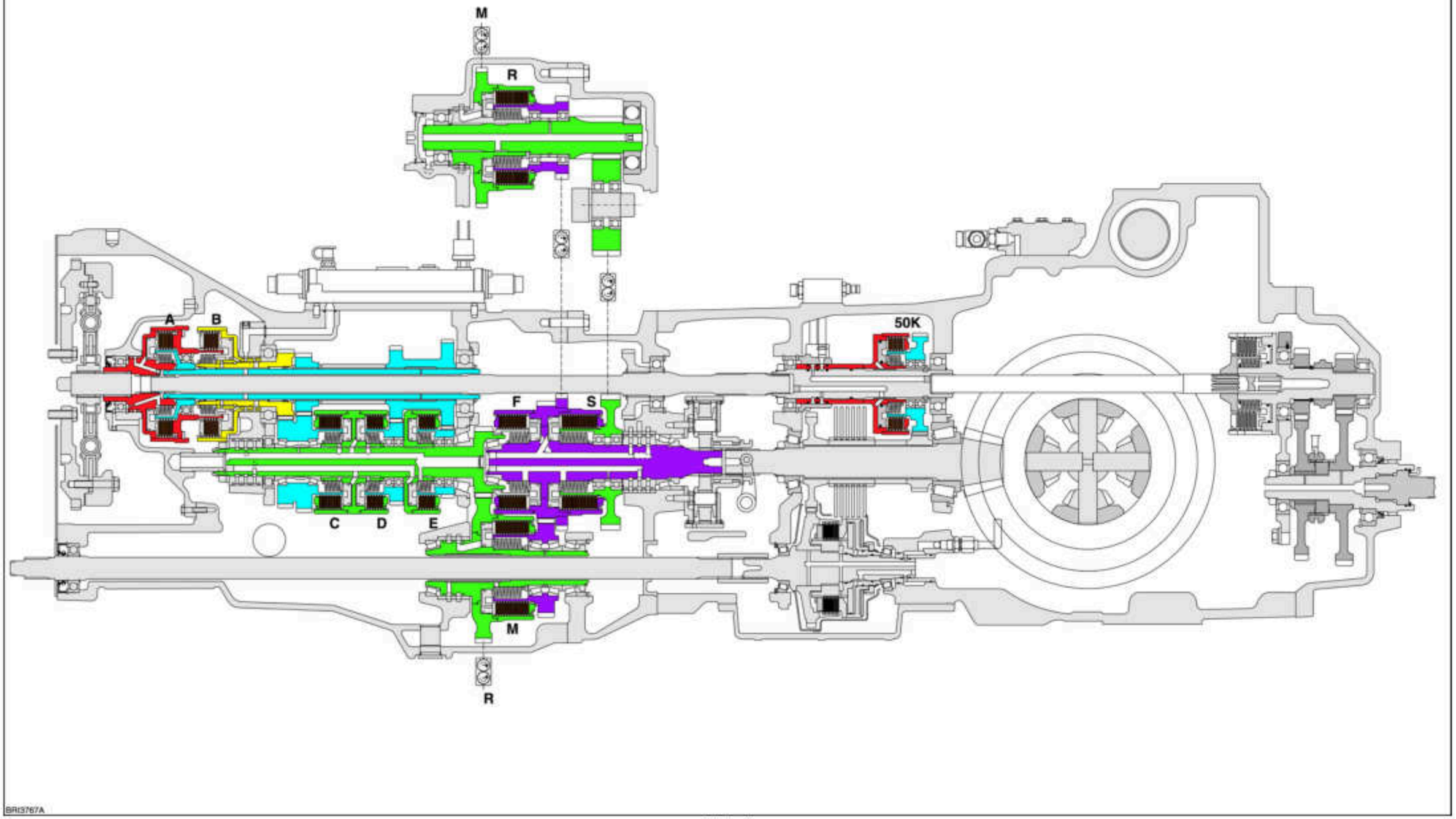
It can now be seen that the spool moves back and forth to maintain the low pressure circuit oil at **23 bar** (**333.50 psi**)), while at the same time allowing system pressure oil to be directed to the high pressure hydraulic circuit for operation of the hydraulic lift and remote control valves.

When the high pressure hydraulic circuits are not in operation the priority valve **(1)** ensures an adequate supply is fed to the trailer brake valve (where fitted), and low pressure circuits to maintain circuit pressure of **23 bar** (**333.50 psi**)).

To prevent any damage occurring due to excessive pressures in the low pressure hydraulic circuit, the low pressure circuit safety valve **(2)** will operate whenever the pressure increases to **28 bar** (**406.00 psi**). Should this occur the safety valve poppet will lift off its seat and vent the circuit to reservoir through gallery **(E)**.

Refer to **Priority/Regulator valve - Hydraulic schema (A.14.A)**

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