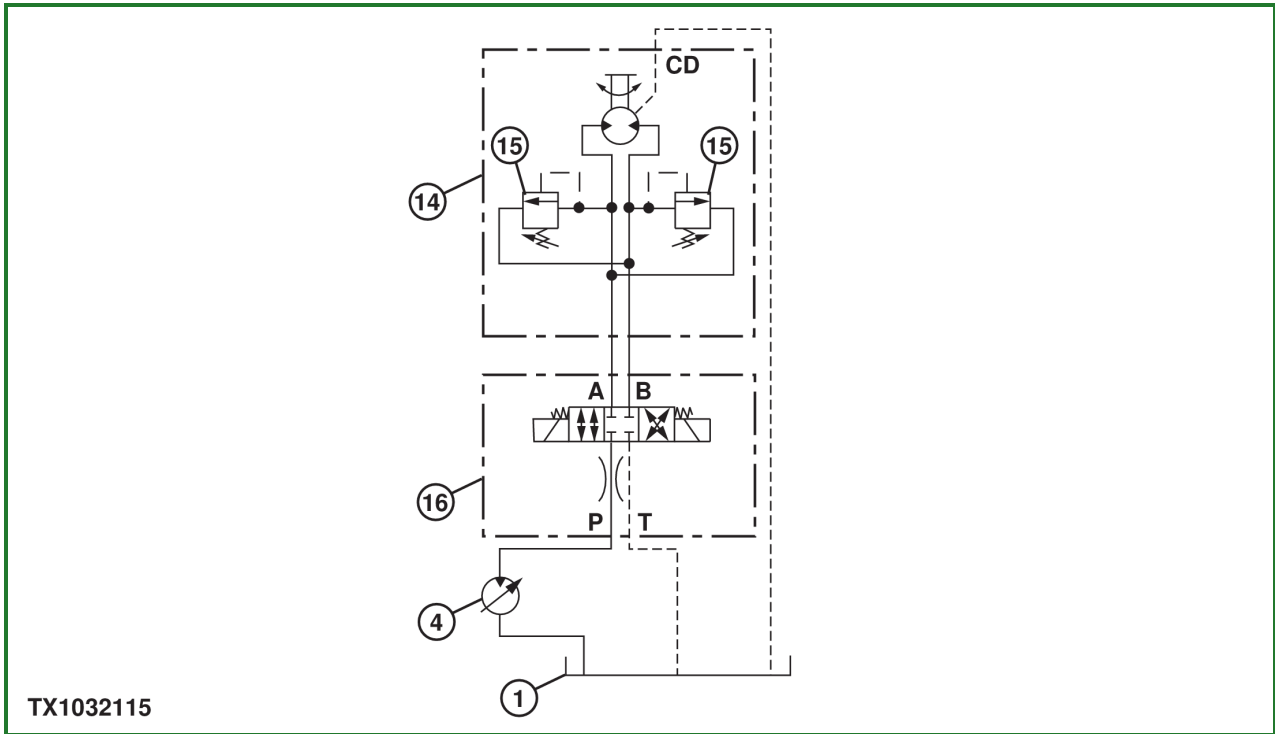


## Grapple Rotate Hydraulic Circuit Operation



### TX1032115-UN: Grapple Rotate Hydraulic Circuit

#### LEGEND:

- 1 - Hydraulic Reservoir
- 4 - Main Hydraulic Pump
- 14 - Grapple Rotate Motor
- 15 - Grapple Motor Circuit Relief Valve (2 used)
- 16 - Grapple Rotate Solenoid Valve

The grapple rotate function is operated from switches on the pilot control lever.

When the left solenoid on the grapple rotate solenoid valve (16) is energized, flow from the main hydraulic pump (4) is directed to the grapple rotate motor (14) through port A, turning the grapple clockwise.

When the right solenoid on the grapple rotate solenoid valve is energized, flow from the main pump is directed to the grapple rotate motor through port B, turning the grapple counterclockwise.

The grapple motor circuit relief valves (15) protect the hydraulic system from pressure overloads. When the movement of the grapple forces the grapple motor to rotate, the motor can act as a pump, generating pressure in the grapple rotate lines. When the pressure from the motor exceeds the circuit relief pressure setting, the hydraulic oil is circulated back through the motor in a loop until the grapple stops.

The motor case drain port CD returns oil to the hydraulic reservoir (1).

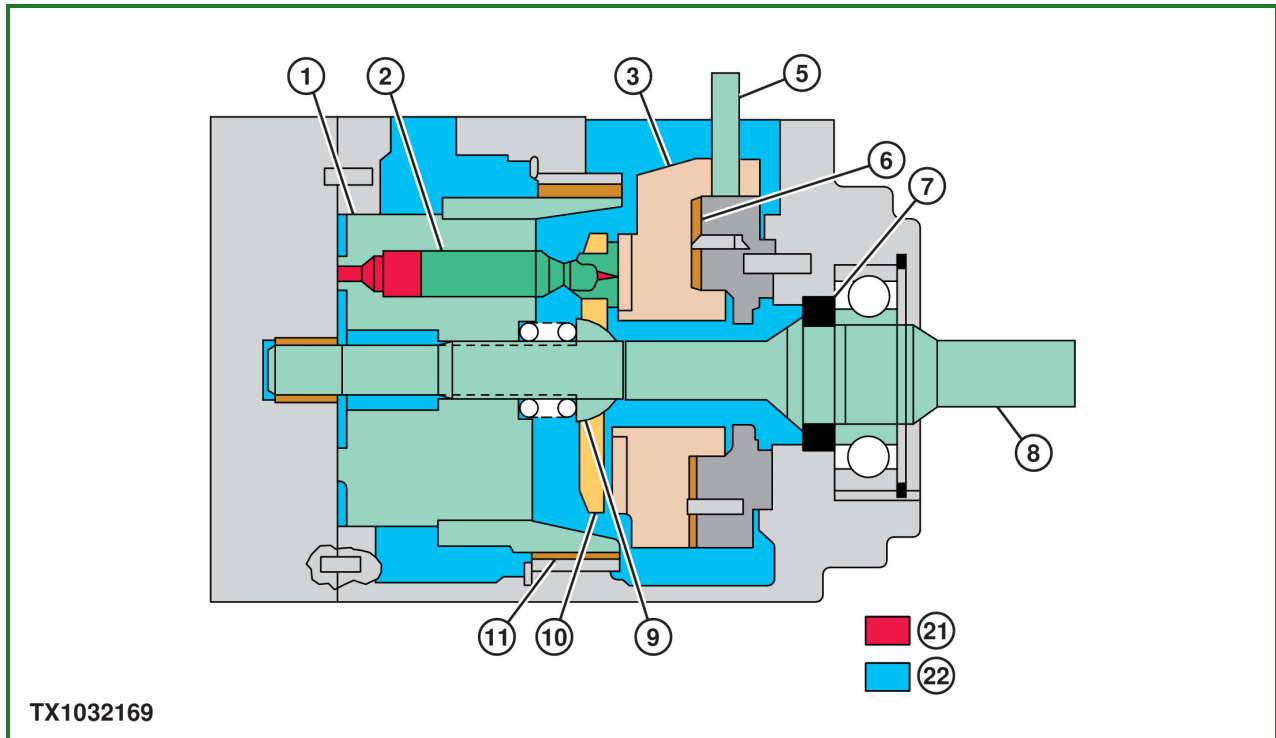
For more information, see [Grapple Rotate Solenoid Valve Operation](#) . (Group 9025-05.)

For electrical circuit information, see [Grapple Control Circuit Theory of Operation](#) . (Group 9015-15.)

Go to [Section\\_9025:Group\\_05](#)

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## Main Hydraulic Pump and Pressure Compensator Operation



### TX1032169-UN: Main Hydraulic Pump

#### LEGEND:

- 1 - Cylinder Block
- 2 - Piston Assembly (9 used)
- 3 - Swash Plate
- 5 - Control Piston Pin
- 6 - Swash Plate Bearing
- 7 - Shaft Seal
- 8 - Drive Shaft
- 9 - Ball Guide
- 10 - Piston Retainer
- 11 - Bearing
- 21 - Standby Pressure Oil
- 22 - Return Oil

**Main Hydraulic Pump Operation**— the main hydraulic pump is an axial piston, variable displacement pump. The pump mounts to the front of the transmission auxiliary drive case and is driven by the transmission auxiliary drive gears. The drive shaft is supported by a ball bearing on the spline end and bearing sleeve in the end cap.

With the engine running, the drive shaft drives the cylinder block (1) and nine piston assemblies (2). A piston retainer (10) backed by a spring-loaded ball guide (9) holds the piston slippers against the swash plate (3). The cylinder block is supported by a bearing (11).

The swash plate rides on a bearing (6) and is moved by the control piston pin (5) that is connected to the pressure compensator control piston.