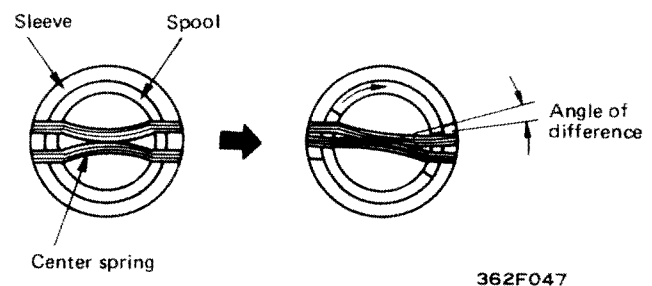
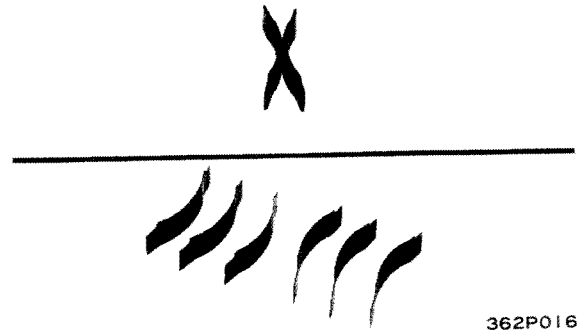


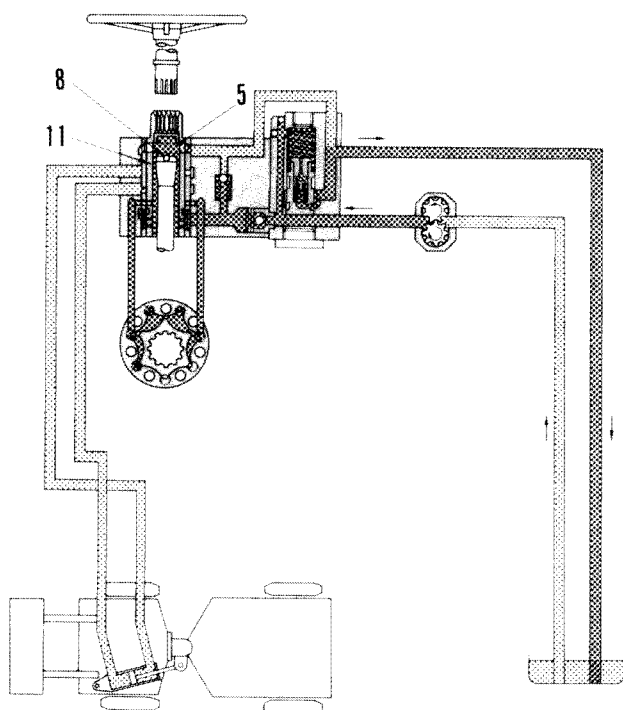
c. Function of center spring

- Center spring (15) consists of three layers of leaf springs crossed to form an X shape. The springs are assembled in spool (11) and sleeve (10) as shown in the diagram on the right. When the steering wheel is turned, the spring is compressed and a difference in rotation arises between the spool and the sleeve. Because of this, the ports in the spool and sleeve are connected and oil is sent to the cylinder. When the turning of the steering wheel is stopped, the hand pump also stops turning so no more oil is sent to the cylinder. If this happens, the oil pressure will rise and be relieved through the main relief valve. To prevent this, the difference in angle of rotation of the sleeve and spool is removed by the action of the center spring, so the situation is the same as when the steering wheel is not being turned.



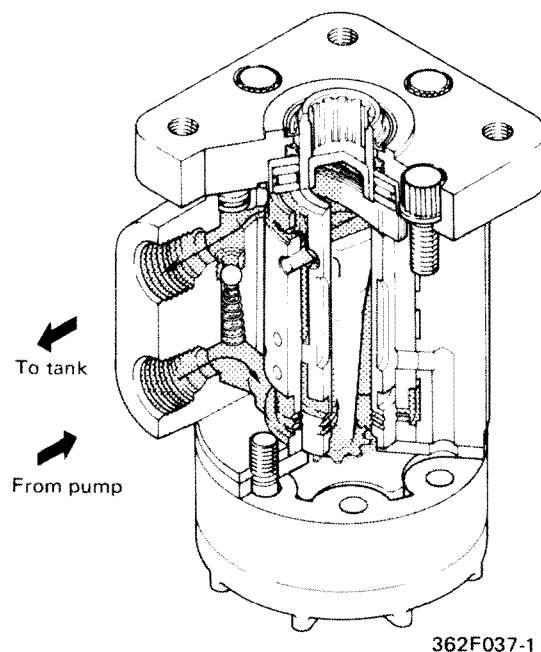
OPERATION

1) Steering wheel not being turned

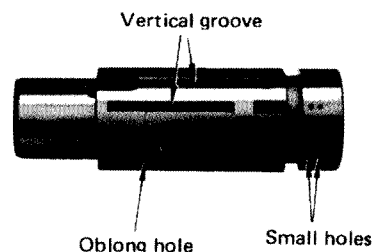


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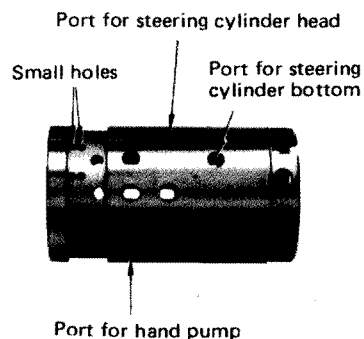
- When the steering wheel is not being used, center pin (8) is held by center spring (5) in the center of the oblong hole of spool (11). The spool and sleeve do not move.
- For this reason, the ports in the sleeve leading to the cylinder and hand pump, and the vertical groove in the spool are shut off. The small holes at the bottom of the spool and sleeve (two holes each at twelve points around the circumference) are connected.
- The oil sent from the pump passes from the inlet port of the valve through the sleeve and spool. It then flows inside the spool and passes through the oblong hole in the spool and through the spring mount, flows to the valve outlet port and is drained to the tank.



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