

# RELAY VALVE



## Service Instructions

### DISASSEMBLY

(Refer to Figure 1)

1. Remove end plug (1) from housing (11).
2. Remove washer (5), spring (6), and guide (7) from end plug (1).
3. Remove o-ring (2), back-up ring (3), and cup (4) from end plug (1). Note direction of cup (4).
4. Remove cage (8) from housing (11).
5. Remove cap screws (24) and lock washers (25) and separate housings (11 & 23). Remove o-ring (12).
6. Remove piston (21) from housing (23) bore. **NOTE: Be careful not to scratch or mar piston (21) or housing bore.**
7. Remove cup (22) from piston (21). Note direction of cup (22).
8. Remove shim(s) (20), spring (19), and spring (18). **NOTE: Be aware of number of shim(s) (20) being removed.**
9. Remove retaining ring (17), washer (16), piston (15), and spring (13) from housing (11). **NOTE: Be careful not to scratch or mar piston (15) or housing bore.**
10. Remove cup (14) from piston (15). Note direction of cup (14).
11. Push valve assembly (9) from housing (11) out end plug (1) side of housing (11). Remove o-ring (10) from valve assembly (9).

### ASSEMBLY

(Refer to Figure 1)

LUBRICATE ALL RUBBER COMPONENTS FROM REPAIR KIT WITH CLEAN TYPE FLUID USED IN THE SYSTEM.

1. Clean all parts thoroughly before assembling.
2. Install new o-ring (10) on valve assembly (9). Install valve assembly (9) into housing (11). Note direction of valve assembly (9).
3. Install new cage (8) into housing (11). Be sure cage (8) is fully seated in housing (11).
4. Install new o-ring (2) on end plug (1).
5. Install new back-up ring (3), new cup (4), washer (5), spring (6), and guide (7) in end plug (1). Note direction and order of components.
6. Install end plug (1) in housing (11) and torque 54.2-67.8 N-m (40-50 lb-ft).
7. Install new cup (14) on piston (15). Note direction of cup (14).
8. Install spring (13), piston (15), washer (16), and retaining ring (17) into housing (11). **NOTE: Be careful not to scratch or mar piston (15) or housing bore.**
9. Install spring (18) and spring (19) in housing (11).
10. Install new cup (22) on piston (21) and install piston (21) into housing (23).
11. Install new o-ring (12) in o-ring groove in housing (11).
12. Install shim(s) (20) and assemble housings (11 & 23) using cap screws (24) and lock washers (25). Torque cap screws 29.8-36.6 N-m (22-27 lb-ft). **NOTE: Be sure to install the same number of shim(s) as were removed during disassembly.**

### NOTE

After service, the valve must develop the pressure indicated in Table 1. Shim(s) (20) can be added or removed to obtain the correct pressure setting.

TABLE 1 (Specifications)

Model Number	Repair Kit Number	Output Pressure Setting		* Pilot Pressure	
		bar	(PSI)	bar	(PSI)
06-460-450	06-400-176	50.7 ± 1.7	(735 ± 25)	86.2	(1250)
06-460-452	06-400-176	46.5 ± 1.7	(675 ± 25)	79.3	(1150)
06-460-460	06-400-236	148.2 ± 3.5	(2150 ± 50)	127.6	(1250)
06-460-462	06-400-236	117.2 ± 3.5	(1700 ± 50)	103.4	(1250)

\* Approximate pilot pressure required to produce the listed output pressure.

**NOTE: If your product number is not listed, contact ZF Off-Highway Solutions Minnesota Inc. for information.**

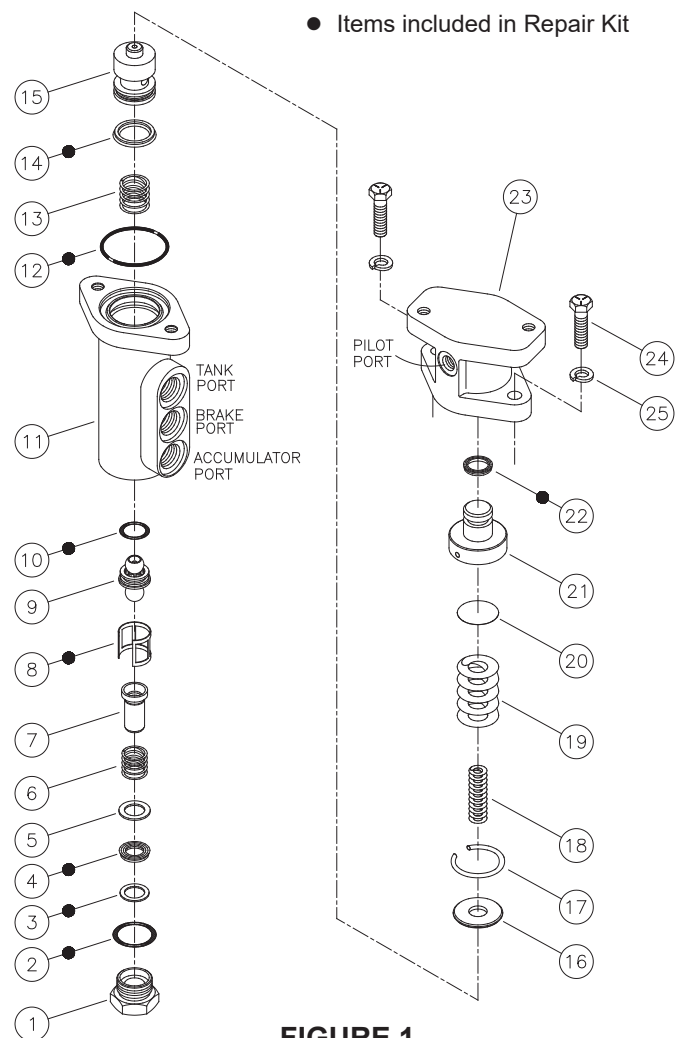


FIGURE 1

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