



MODULATING VALVE

Service Instructions

TABLE 1 (Specifications)

Model Number	Repair Kit Number	Brake Pressure Setting	
		bar	(PSI)
20-200-024	06-400-444	55.2 ± 3.5	(800 ± 50)
20-200-060	06-400-444	55.2 ± 3.5	(800 ± 50)

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

DISASSEMBLY

(Refer to Figure 1)

NOTE

Housing (5) and spool (4) are manufactured as a matched set. This set, housing and spool, should not be intermixed with other parts. Housing (5) may appear different than what is shown in Figure 1.

1. Remove boot (16) from retainer (13) and piston (11).
2. Remove retainer (13), piston (11), springs (10, 9, & 8), shim(s) (7), and retainer assembly (6) from housing (5).
NOTE: Be aware of the number of shim(s) being removed from housing.
3. Carefully remove cup (15), quad ring (14), and o-ring (12) from retainer (13). Note direction and order of cup and quad ring. **NOTE: Be careful not to scratch or mar retainer bore.**
4. Remove end plug (1) and spring (3) from housing (5). Remove o-ring (2) from end plug (1).
5. Carefully remove spool (4) from end plug (1) side of housing (5). **NOTE: Be careful not to damage spool or housing bore.**

ASSEMBLY

(Refer to Figure 1)

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

1. Clean all parts thoroughly before assembling.
2. Lubricate spool (4) with clean system fluid and carefully slide into plug (1) side of housing (5) bore. Note the direction of spool (4). **NOTE: Spool must slide freely into housing bore. If either part is damaged, a new valve assembly may be required.**
3. Install new o-ring (2) on end plug (1).
4. Install spring (3) and end plug (1) into housing (5). Torque end plug (1) 47.5-54.2 N·m (35-40 lb·ft).
5. Carefully install new cup (15), new quad ring (14), and new o-ring (12) on retainer (13). Note direction and order of cup and quad ring. **NOTE: Be careful not to scratch or mar retainer bore.**

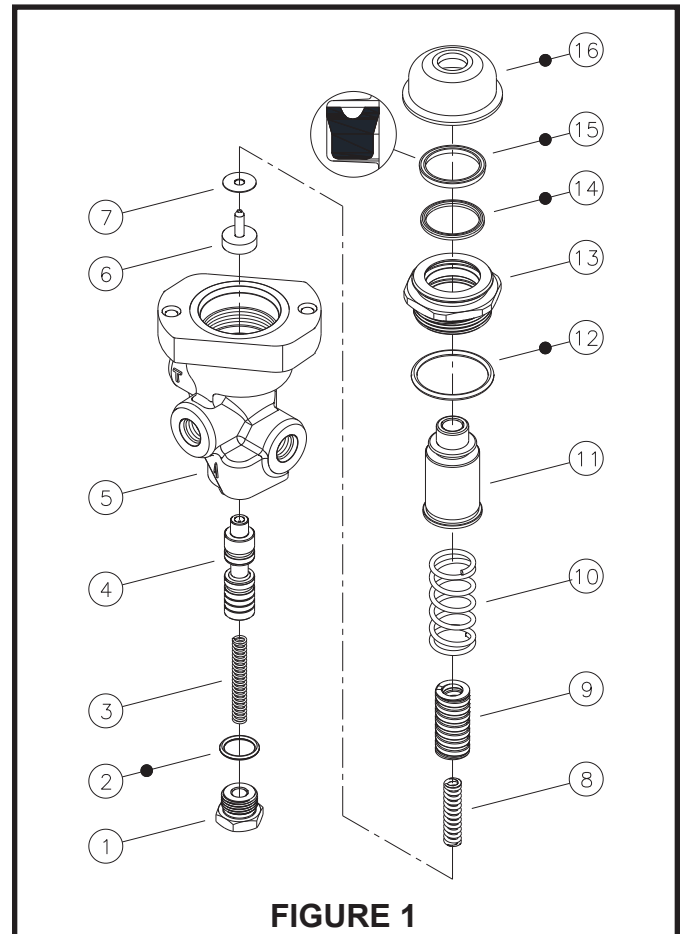


FIGURE 1

6. Assemble springs (8, 9, & 10), shim(s) (7) and retainer assembly (6) in piston (11).
7. Carefully install retainer (13) over piston (11) and install retainer (13) assembly into housing (5). Torque retainer (13) 81.4-94.9 N·m (60-70 lb·ft).
8. Install new boot (16) on retainer (13) and piston (11).

NOTE

After service, the valve must develop the pressure indicated in the specifications, TABLE 1. Shim(s) are used to obtain correct pressure setting. Contact ZF Off-Highway Solutions Minnesota Inc. if brake pressure setting is not able to be obtained.

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