

# PRESSURE MODULATING VALVE (Reverse Modulating)

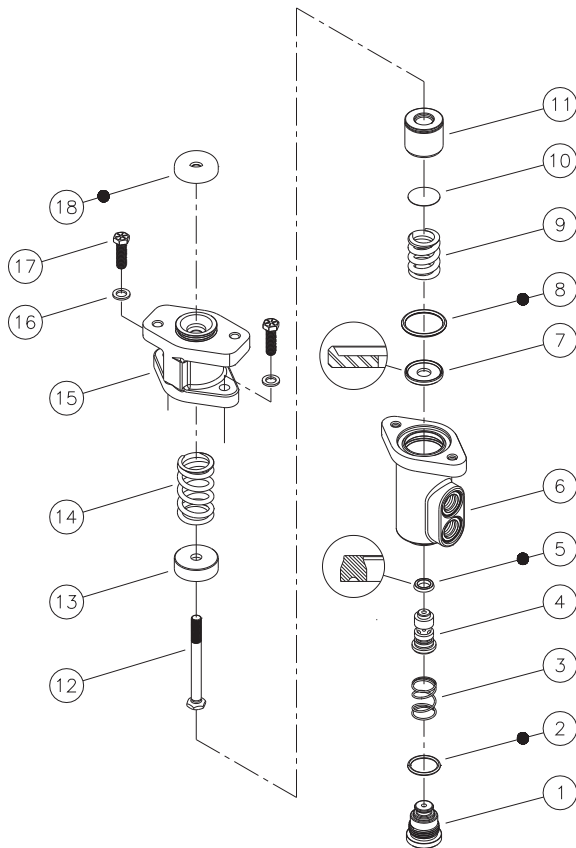


## Service Instructions

### DISASSEMBLY

1. Separate housings (6 & 15) by removing cap screws (17) and washers (16).
2. Remove rod (12), piston (13) and spring (14) from housing (15). Remove boot (18) from housing (15).
3. Remove piston (11), shim(s) (10) and spring (9) from housing (6) bore. Note number of shims being removed for reassembly purposes.
4. Remove o-ring (8) from housing (6) bore. **NOTE: Be careful not to scratch or mar housing bore.**
5. Remove retainer (7) from housing (6) bore.
6. Remove plug (1) from housing (6).
7. Remove o-ring (2) from plug (1).
8. Remove spring (3) from housing (6) bore.
9. Remove piston assembly (4) from housing (6) bore.
10. Remove cup (5) from piston (4). **NOTE: A check ball is located inside piston (4). Make sure ball is clean and moves freely.**

- Items included in Repair Kit



### ASSEMBLY

CLEAN AND INSPECT ALL PARTS FOR WEAR. LUBRICATE ALL RUBBER COMPONENTS FROM REPAIR KIT WITH CLEAN SYSTEM FLUID.

1. Install new cup (5) on piston (4). Note direction of of cup (5).
2. Install spring (3) on piston (4).
3. Install piston assembly (4) in housing (6) bore. Note direction of assembly.
4. Install new o-ring (2) on plug (1).
5. Install plug (1) in housing (6) and torque 54.3-67.8 N·m (40-50 lb·ft).
6. Install retainer (7) in housing (6) bore. Note direction of retainer (7). **NOTE: Be careful not to scratch or mar housing bore.**
7. Install new o-ring (8) in housing (6) bore.
8. Install spring (9), shim(s) (10) and piston (11) in housing (6) bore. Be sure to install the same number of shim(s) as were removed during disassembly.
9. Lightly coat inside bore of housing (15) with graphite based grease and install new boot (18) on housing (15).
10. Apply graphite based grease sparingly to piston (13) in chamfered area where rod (12) makes contact.
11. Insert rod (12), piston (13), spring (14) into housing (15).
12. Attach housings (15 & 6) using cap screws (17) and washers (16). Torque 33.9-40.7 N·m (25-30 lb·ft).

### NOTE

After service, the valve must develop the pressure indicated in the specifications, TABLE 1. Shim(s) (10) are used to obtain the correct pressure setting. Contact ZF Off-Highway Solutions Minnesota Inc. if brake pressure setting is not able to be obtained.

**TABLE 1** (Specifications)

Model Number	Repair Kit Number	Brake Pressure Setting	
		bar	(PSI)
20-200-146	02-400-271	162 ± 12	(2350 ± 175)

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