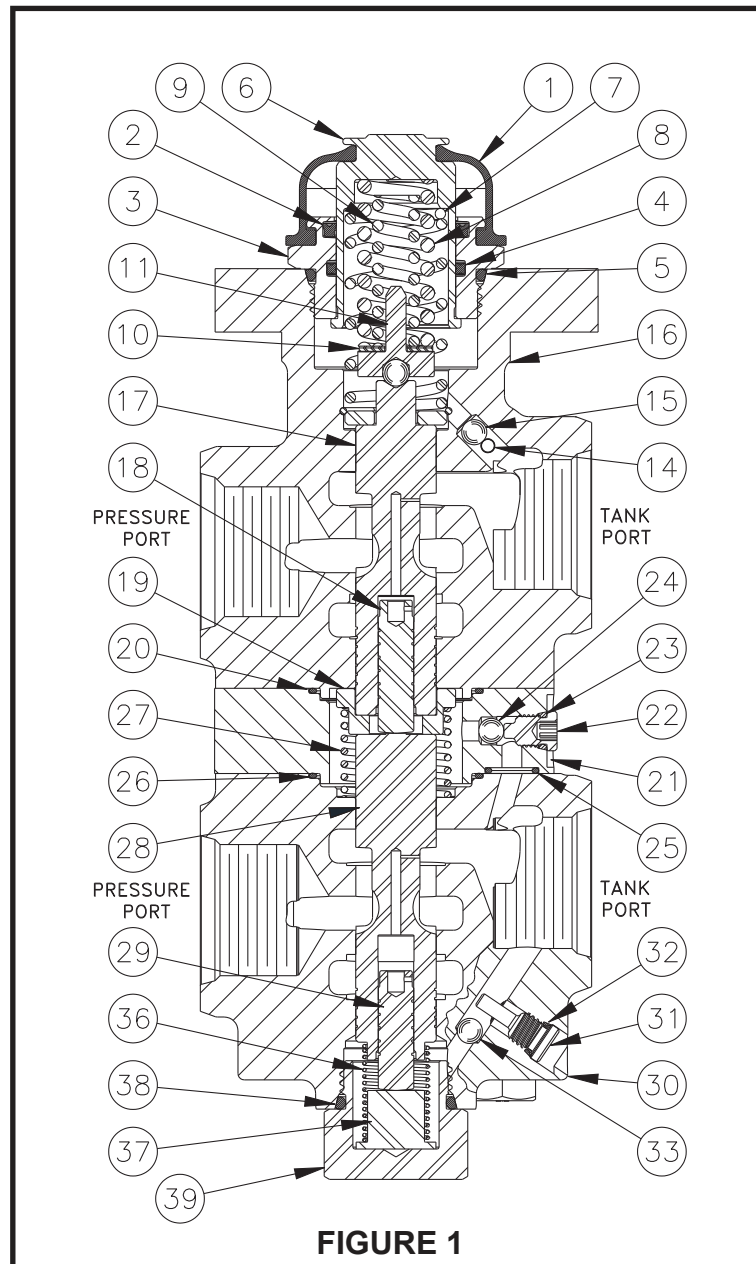


TANDEM MODULATING VALVE

Service Instructions

TABLE 1 (Specifications)

Caterpillar Valve Part Number	Caterpillar Repair Kit Part Number	Brake Pressure Setting	
		bar	PSI
247-1295	269-2200	103.5 $\pm$ 3.5	(1500 $\pm$ 50)



NOTE

Housing (16) and spools (17 & 18) are manufactured as a matched set, as are housing (30) and spools (28 & 29). These sets must not be intermixed with other parts

DISASSEMBLY

(Refer to Figures 1 and 2)

1. Remove boot (1) from retainer (3) and piston (6).
2. Remove retainer (3), piston (6), springs (7, 8, & 9), shim(s) (10), and retainer assembly (11) from housing (16). **NOTE: Be aware of the number of shim(s) (10) being removed from housing (16).**
3. Carefully remove cup (2), quad ring (4), and o-ring (5) from retainer (3). Note direction and order of cup (2) and quad ring (4). **NOTE: Be careful not to scratch or mar retainer bore.**
4. Remove plug (12), dowel pin (14), and ball (15) from housing (16). Remove o-ring (13) from plug (12). **NOTE: Ball (15) will drop out of tank port.**
5. Remove plug (22) and ball (24) from spacer (21). Remove o-ring (23) from plug (22).
6. Remove plug (31) and ball (33) from housing (30). Remove o-ring (32) from plug (31).
7. Remove plug (39), retainer (37), and spring (36) from housing (30). Spool (29) may or may not drop out of housing (30) at this point. **NOTE: Be careful not to damage spool (29).**
8. Separate housings (16 & 30) and spacer (21) by removing cap screws (35) and washers (34).
9. Remove spring (27), spacer (19), and o-rings (20, 25, & 26) from housings (16 & 30) or spacer (21).
9. Carefully remove spools (17 & 18) from housing (16), and spools (28 & 29) from housing (30). **NOTE: Be careful not to damage spools or housing bores.**

⚠ CAUTION

Do not intermix spools and housings. Spools (17 & 18) and housing (16) are a matched set, as well as spools (28 & 29) and housing (30).

ASSEMBLY

(Refer to Figures 1 and 2)

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 spools (17 & 18) with clean system fluid and carefully slide spool (18) into the bottom of spool (17). Slide spool (17) into the bottom of housing (16). **NOTE: Spools must slide freely into bores. If spools or housing bore are damaged, a new valve assembly may be required.**
3. Install new o-rings (20, 25, & 26) in the proper o-ring pockets on housings (16 & 30) and spacer (21).
4. Install spring (27) and spacer (19) in spacer (21) bore and reassemble housings (16 & 30) and spacer (21) using cap screws (35) and washers (34). Use Loctite 242 or equivalent on threads of cap screws and torque 47.5-61.0 N·m (35-45 lb·ft). **NOTE: Be sure housings line up correctly and that o-rings (20, 25, & 26) remain in the pockets during assembly.**
5. Lubricate spools (28 & 29) with clean system fluid and carefully slide spool (29) into the bottom of spool (28). Slide spool (28) into the bottom of housing (30) bore. **NOTE: Spools must slide freely into bores. If spools or housing bore are damage, a new valve assembly may be required.**
6. Install new o-ring (38) on plug (39).
7. Install spring (36), retainer (37), and end plug (39) into housing (30). Torque end plug (39) 67.8-94.9 N·m (50-70 lb·ft).
8. Carefully install new cup (2), new quad ring (4), and new o-ring (5) on retainer (3). Note direction and order of cup and quad ring. **NOTE: Be careful not to scratch or mar retainer bore.**
9. Assemble springs (7, 8, & 9), shim(s) (10), and retainer assembly (11) in piston (6). Be sure to install the same number of shim(s) as were removed.
10. Carefully install retainer (3) over piston (6) and install retainer assembly (3) into housing (16). Torque retainer 81.4-94.9 N·m (60-70 lb·ft).
11. Install new o-ring (32) on plug (31). Install ball (33) and plug (31) in housing (30). Torque plug (31) 3.4-6.8 N·m (30-60 lb·in).
12. Install new o-ring (23) on plug (22). Install ball (24) and plug (22) in spacer (21) and torque plug (22) 3.4-6.8 N·m (30-60 lb·in).
13. Install new o-ring (13) on plug (12). Install ball (15), dowel pin (14), and plug (12) in housing (16) and torque plug (12) 3.4-6.8 N·m (30-60 lb·in). **NOTE: To install ball (15), housing (16) will need to be turned upside down and ball (15) will be installed through the tank port.**
14. Install new boot (1) on retainer (3) and piston (6).

NOTE

After service, the valve must develop the pressure indicated in the specifications, TABLE 1 on page 1. Shim(s) (10) are used to obtain the correct pressure setting. Contact MICO if brake pressure setting is not able to be obtained.

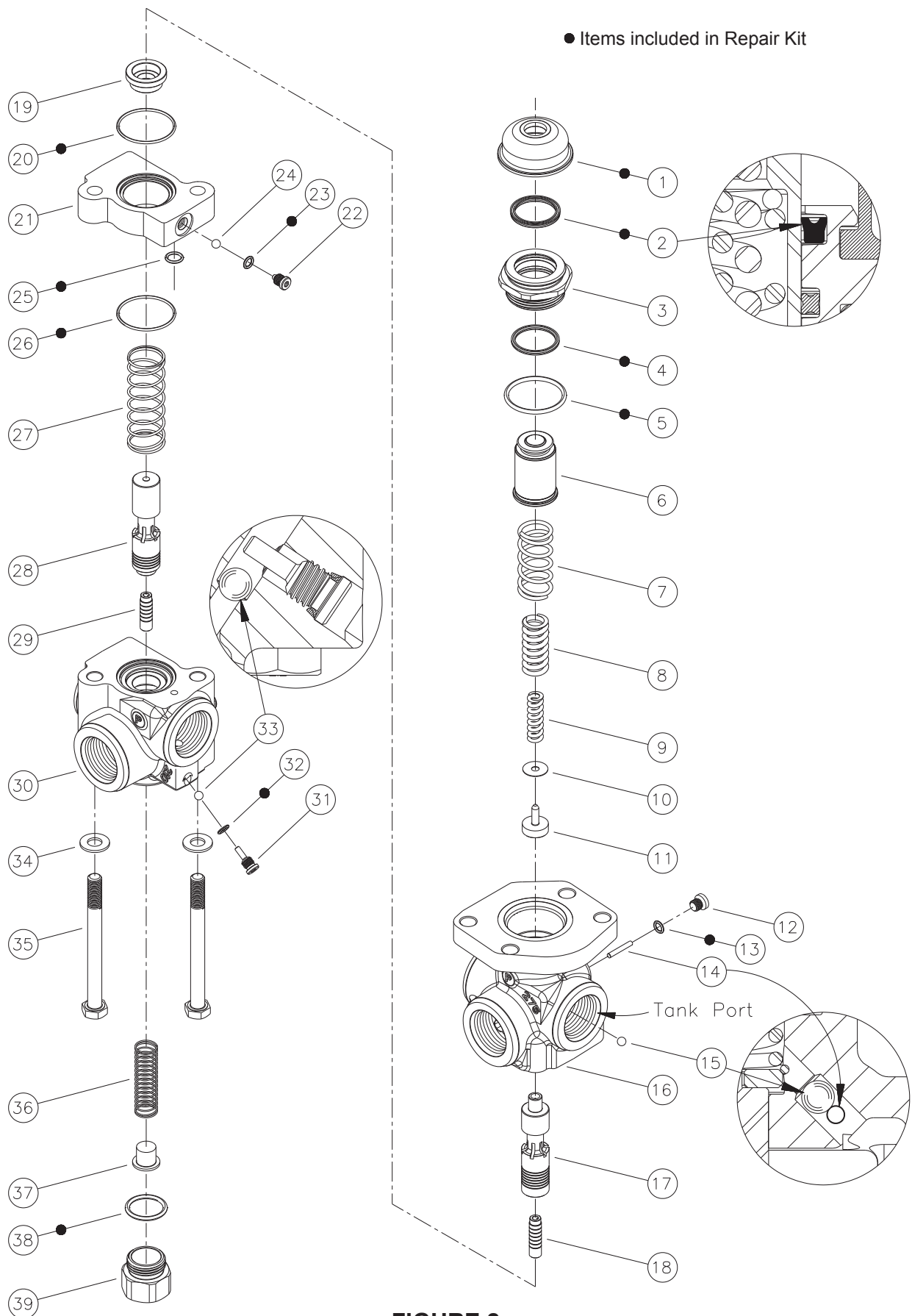


FIGURE 2

