

TANDEM MODULATING VALVE (split pressure) Service Instructions

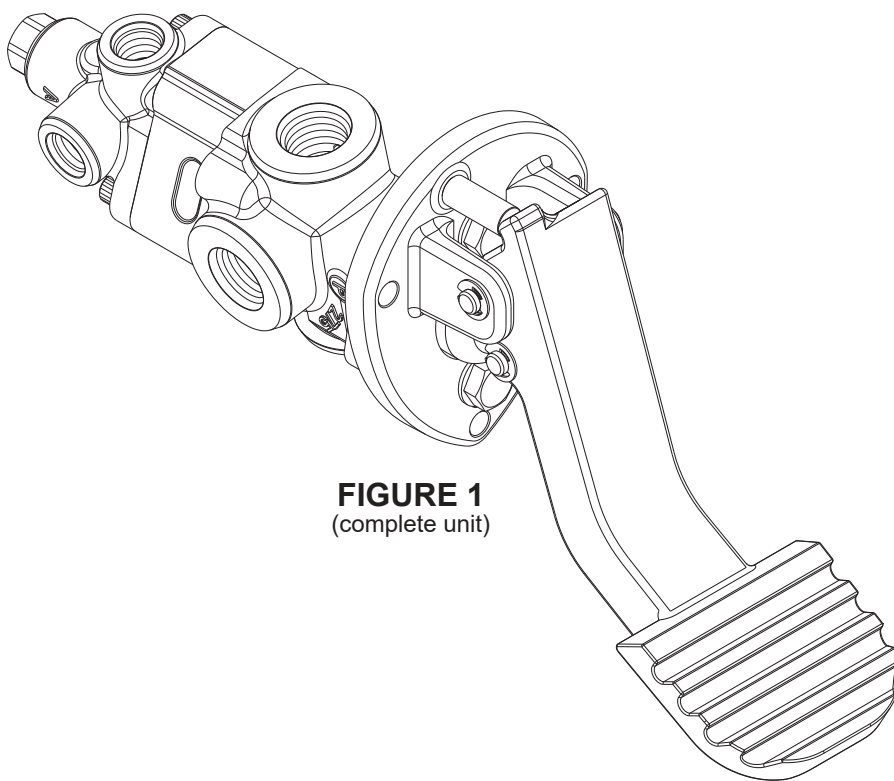


FIGURE 1
(complete unit)

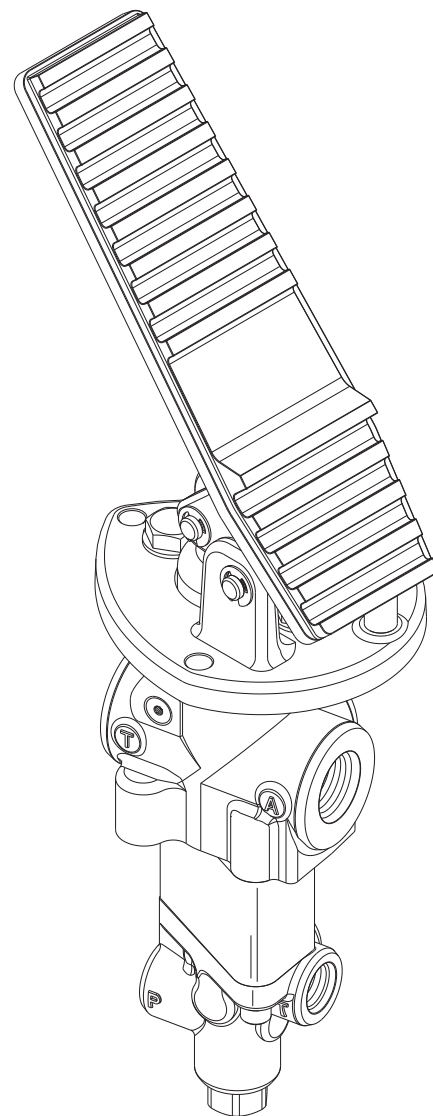
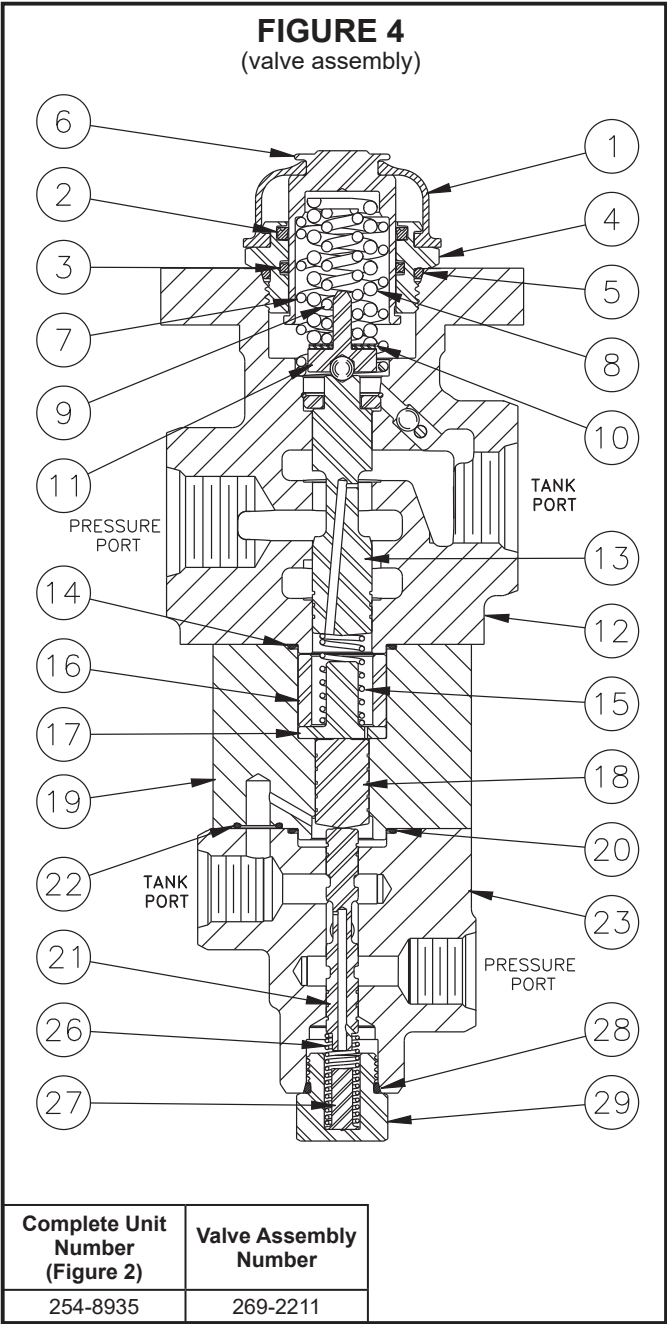
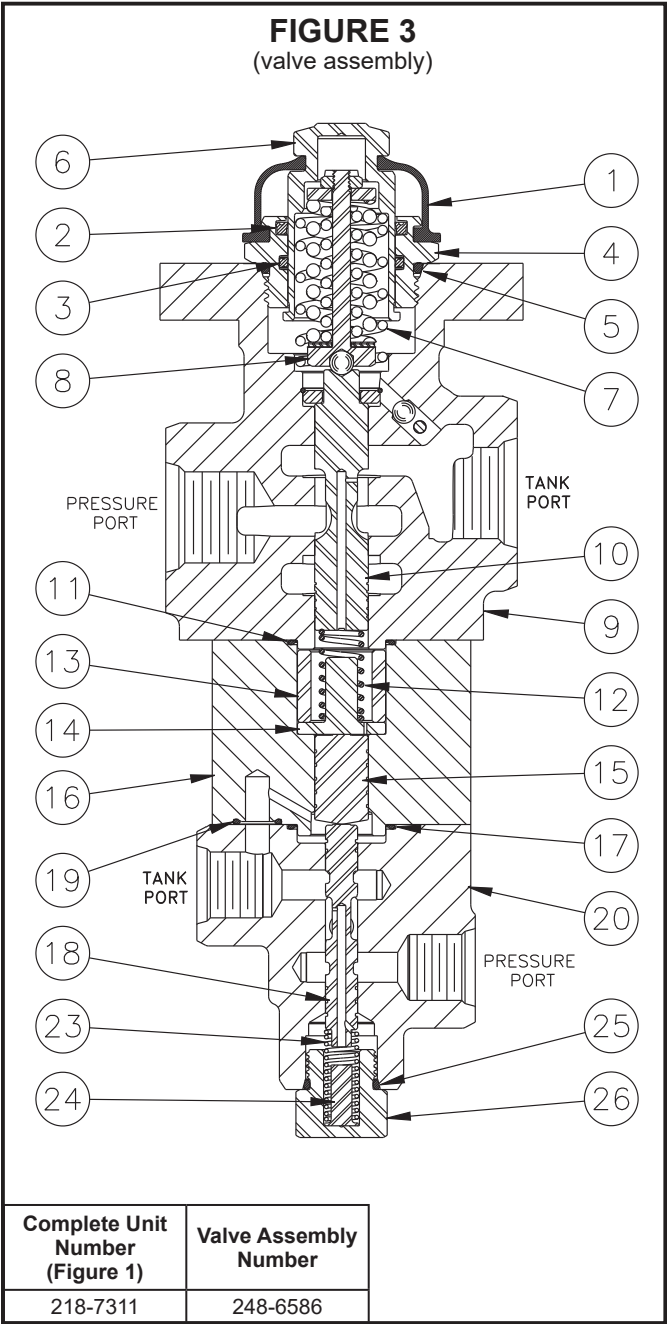


FIGURE 2
(complete unit)

TABLE 1 (Specifications)

Complete Unit Number	Valve Assembly Number	Top Brake Port Pressure Setting		* Lower Brake Port Pressure Setting	
		bar	(PSI)	bar	(PSI)
218-7311	248-6586	81.0	(880)	165.5	(2400)
254-8935	269-2211	45.5	(660)	124.1	(1800)

* The brake pressure will be limited to the input pressure for instances when the input pressure is below the brake pressure setting.



Complete Unit Number (Figure 1)	Valve Assembly Number
218-7311	248-6586

DISASSEMBLY

(Refer to Figures 3 and 5)

NOTE

Housings (9 & 20) and spools (10 & 18), and spacer (16) and spool (15) are manufactured as matched sets. These sets must not be intermixed with other parts.

1. Remove boot (1) from piston (6) and retainer (4).
2. Remove retainer (4), piston (6), spring (7), and spring assembly (8) from housing (9). **NOTE: Do not disassemble spring assembly (8).**
3. Remove o-ring (5) from retainer (4). Carefully remove cup (2) and quad ring (3) from retainer (4) bore. Note direction and order of cup and quad ring. **NOTE: Be careful not to scratch or mar retainer bore.**
4. Remove end plug (26), retainer (24), and spring (23) from housing (20). Remove o-ring (25) from end plug (26).
5. Separate housings (9 & 20) and spacer (16) by removing cap screws (22) and washers (21).
6. Remove o-ring (11), spring (12), spacer (13), retainer (14) and spool (15) from spacer (16). **NOTE: Be careful not to damage spool or spacer bore.**
7. Remove o-rings (17 & 19) from housing (20).
8. Carefully remove spools (10 & 18) from housings (9 & 20). **NOTE: Be careful not to damage spools or housing bores.**

CAUTION

Do not intermix spools and housings. Spool (10) and housing (9) are a matched set, as are spool (18) and housing (20), and spool (15) and spacer (16).

ASSEMBLY

(Refer to Figures 3 and 5)

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

1. Clean all parts thoroughly before assembling.
2. Lubricate spool (10) with clean system fluid and carefully slide into the bottom end of housing (9) bore. Note the direction of spool (10). **NOTE: Spool must slide freely into housing bore. If either part is damaged, a new valve assembly may be required.**
3. Install spool (15), retainer (14), spacer (13), and spring (12) in spacer (16). Note direction of spool (15). **NOTE: Spool must slide freely into bore. If either part is damaged, a new valve assembly may be required.**
4. Install new o-rings (11, 17, & 19) in the proper o-ring pockets on housings (9 & 20) and spacer (16).
5. Reassemble housings (9 & 20) and spacer (16) using cap screws (22) and washers (21). Use loctite 242 or equivalent on cap screws and torque 27.1-33.9 N·m (22-25 lb·ft). **NOTE: Make sure housings line up correctly and that o-rings (11, 17, & 19) remain in the pockets during assembly.**

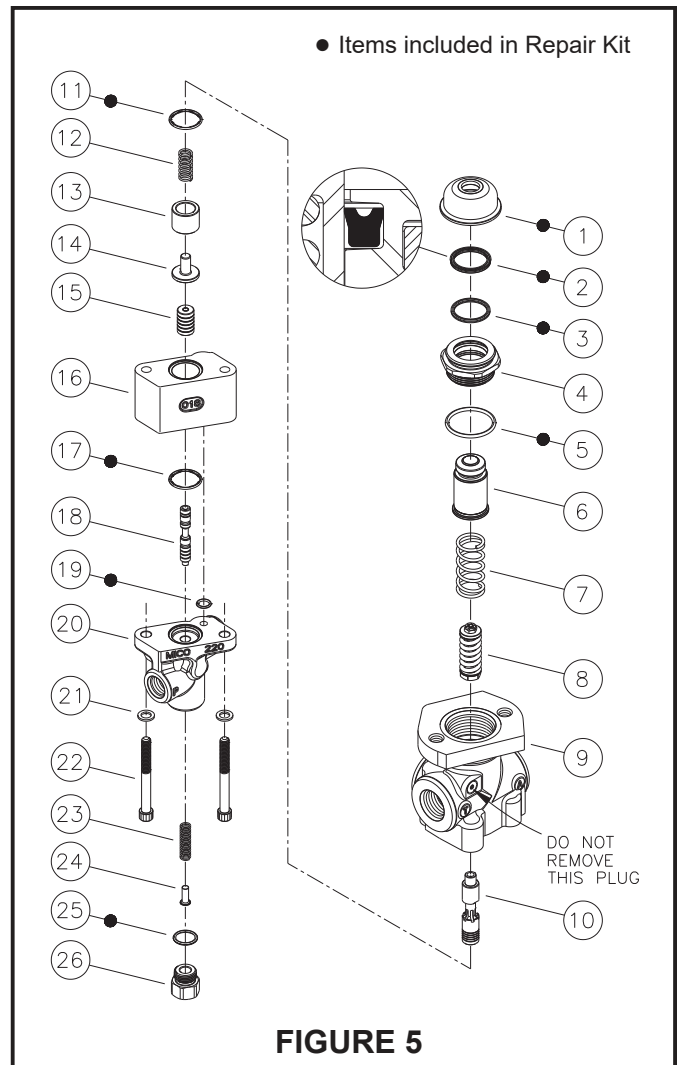


FIGURE 5

6. Lubricate spool (18) with clean system fluid and carefully slide into housing (20) bore. Note direction of spool (18). **NOTE: Spool must slide freely into bore. If either part is damaged, a new valve assembly may be required.**
7. Install new o-ring (25) on end plug (26).
8. Install spring (23), retainer (24), and end plug (26) into housing (20). Torque end plug 47.5-54.2 N·m (35-40 lb·ft).
9. Carefully install new cup (2) and new quad ring (3) into retainer (4) bore. Note direction and order of cup and quad ring. Install new o-ring (5) on retainer (4). **NOTE: Be careful not to scratch or mar retainer bore.**
10. Assemble spring (7) and spring assembly (8) in piston (6).
11. Carefully install piston (6) assembly and retainer (4) into housing (9) bore. Torque retainer (4) 81.4-94.9 N·m (60-70 lb·ft).
12. Install new boot (1) on retainer (4) and piston (6).

NOTE

After service, the valve must develop the pressure indicated in the specifications, TABLE 1. If it does not, contact the machine manufacture for further information.

Complete Unit Number (Figure 2)	Valve Assembly Number
254-8935	269-2211

DISASSEMBLY

(Refer to Figures 4 and 6)

NOTE

Housings (12 & 23) and spools (13 & 21), and spacer (19) and spool (18) are manufactured as matched sets. These sets must not be intermixed with other parts.

1. Remove boot (1) from piston (6) and retainer (4).
2. Remove retainer (4), piston (6), springs (7, 8, & 9), shim(s) (10), and retainer assembly (11) from housing (12).
NOTE: Be aware of the number of shim(s) being removed from the housing.
3. Remove o-ring (5) from retainer (4). Carefully remove cup (2) and quad ring (3) from retainer (4) bore. Note direction and order of cup and quad ring. **NOTE: Be careful not to scratch or mar retainer bore.**
4. Remove end plug (29), retainer (27), and spring (26) from housing (23). Remove o-ring (28) from end plug (29).
5. Separate housings (12 & 23) and spacer (19) by removing cap screws (25) and washers (24).
6. Remove o-ring (14), spring (15), spacer (16), retainer (17) and spool (18) from spacer (19). **NOTE: Be careful not to damage spool or spacer bore.**
7. Remove o-rings (20 & 22) from housing (23).
8. Carefully remove spools (13 & 21) from housings (12 & 23). **NOTE: Be careful not to damage spools or housing bores.**

CAUTION

Do not intermix spools and housings. Spool (13) and housing (12) are a matched set, as are spool (21) and housing (23), and spool (18) and spacer (19).

ASSEMBLY

(Refer to Figures 4 and 6)

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

1. Clean all parts thoroughly before assembling.
2. Lubricate spool (13) with clean system fluid and carefully slide into the bottom end of housing (12) bore. Note the direction of spool (13). **NOTE: Spool must slide freely into housing bore. If either part is damaged, a new valve assembly may be required.**
3. Install spool (18), retainer (17), spacer (16), and spring (15) in spacer (19). Note direction of spool (18).
NOTE: Spool must slide freely into bore. If either part is damaged, a new valve assembly may be required.
4. Install new o-rings (14, 20, & 22) in the proper o-ring pockets on housings (12 & 23) and spacer (19).
5. Reassemble housings (12 & 23) and spacer (19) using cap screws (25) and washers (24). Use loctite 242 or equivalent on cap screws and torque 27.1-33.9 N·m (22-25 lb·ft). **NOTE: Make sure housings line up correctly and that o-rings (14, 20, & 22) remain in the pockets during assembly.**

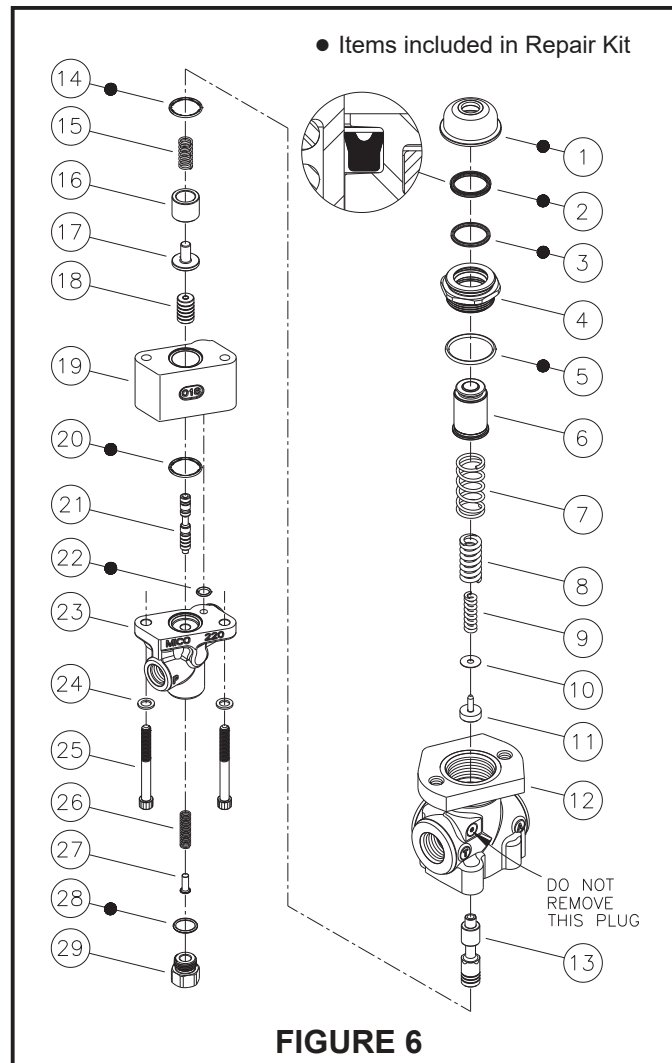


FIGURE 6

6. Lubricate spool (21) with clean system fluid and carefully slide into housing (23) bore. Note direction of spool (21). **NOTE: Spool must slide freely into bore. If either part is damaged, a new valve assembly may be required.**
7. Install new o-ring (28) on end plug (29).
8. Install spring (26), retainer (27), and end plug (29) into housing (23). Torque end plug 47.5-54.2 N·m (35-40 lb·ft).
9. Carefully install new cup (2) and new quad ring (3) into retainer (4) bore. Note direction and order of cup and quad ring. Install new o-ring (5) on retainer (4). **NOTE: Be careful not to scratch or mar retainer bore.**
10. Assemble springs (7, 8, & 9), shim(s) (10), and retainer assembly (11) in piston (6).
11. Carefully install piston (6) assembly and retainer (4) into housing (12) bore. Torque retainer (4) 81.4-94.9 N·m (60-70 lb·ft).
12. Install new boot (1) on retainer (4) and piston (6).

NOTE

After service, the valve must develop the pressure indicated in the specifications, TABLE 1. Shim(s) (10) may be added or removed to obtain the correct pressure setting.