Single MODULATING VALVE with pilot apply

Service Instructions

TABLE 1 (Specifications)

Complete Unit Model Number	Repair Kit Number	Brake Pressure Setting	
		bar	(PSI)
06-466-300	06-400-203	56.9 1.7	(825 25)

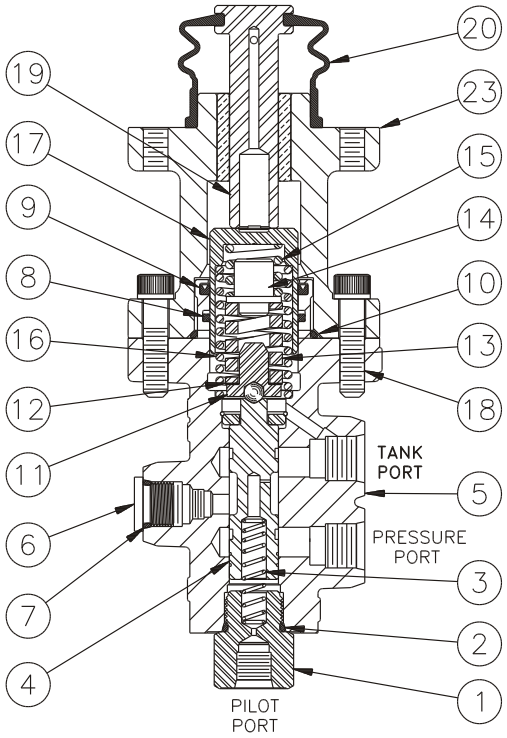

FIGURE 1

⚠ WARNING

Installation and test note: Piston (19) must be retained mechanically. This will prevent it from blowing out at high velocity if an incorrect connection occurs from power source to tank ports. **Be sure the tank ports are connected directly to tank.** Failure to do this could result in serious injury or death.

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DISASSEMBLY

(Refer to Figure 1)

NOTE: To prevent contamination to the valve or hydraulic system, thoroughly clean pedal assembly, valve and surrounding area of all dirt, grease, oil, etc. before servicing.

> **NOTE**
>
> Housing (5) and spool (4) are manufactured as a matched set. This set (Housing & Spool) must not be intermixed with other parts.

1. Remove boot (20) from push rod (19). Remove push rod (19) from pilot housing (23).
2. Separate pilot housing (23) and valve housing (5) by removing cap screws (18).
3. Remove piston (17), springs (16 & 15), retainer (14), spring (13), shim(s) (12) and retainer (11) from housing (5). Be aware of the number of shim(s) removed for reassembly purposes.
4. Carefully remove cup (9) and quad ring (8) from housing (5) bore. **NOTE: Be careful not to scratch or mar housing bore.**
5. Remove o-ring (10) from housing (5).
6. Remove plug (1) and spring (3) from housing (5). Remove o-ring (2) from plug (1).
7. Carefully remove spool (4) from housing (5). **NOTE: Be careful not to scratch or mar spool (4) or housing bore.**
8. Remove plug (6) from housing (5). Remove o-ring (7) from plug (6).
9. Remove plug (21) from pilot housing (23). Remove o-ring (22) from plug (21).
10. Do not remove internal retaining ring and washer from housing (5).

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. Carefully install new quad ring (8) and new cup (9) in housing (5) bore. Note direction and order of cup and quad ring. **NOTE: Be careful not to scratch or mar housing bore.**
3. Install new o-ring (7) on plug (6). Install plug (6) into housing (5). Torque plug (6) 27.1-32.5 N·m (20-24 lb·ft).
4. Lubricate spool (4) with clean system fluid and carefully slide into plug (1) end of housing (5) bore. Note direction of spool (4). **NOTE: Spool (4) must slide freely into bore. If either part is damaged, a new spool/housing assembly may be required.**
5. Install new o-ring (2) on plug (1).
6. Install spring (3) and plug (1) into housing (5). Torque plug (1) 47.5-54.2 N·m (35-40 lb·ft).
7. Assemble springs (16 & 15), retainer (14), spring (13), shim(s) (12) and retainer (11) in piston (17). **NOTE: Be sure to install the same number of shim(s) as were removed.**
8. With bore end of housing (5) facing down carefully install piston (17) assembly into housing (5) bore.
9. Install new o-ring (10) on housing (5).
10. Attach pilot housing (23) to housing (5) using cap screws (18). Torque cap screws (18) 27.1-33.9 N·m (20-25 lb·ft).
11. Install new o-ring (22) on plug (21). Install plug (21) into housing (23). Torque plug (21) 27.1-32.5 N·m (20-24 lb·ft).
12. Install push rod (19) in pilot housing (23). Install new boot (20) on push rod (19) and pilot housing (23).

> **NOTE**
>
> After service, the valve must develop the pressure indicated in the specifications, TABLE 1. Shim(s) (12) may be added or removed to obtain the correct pressure setting.

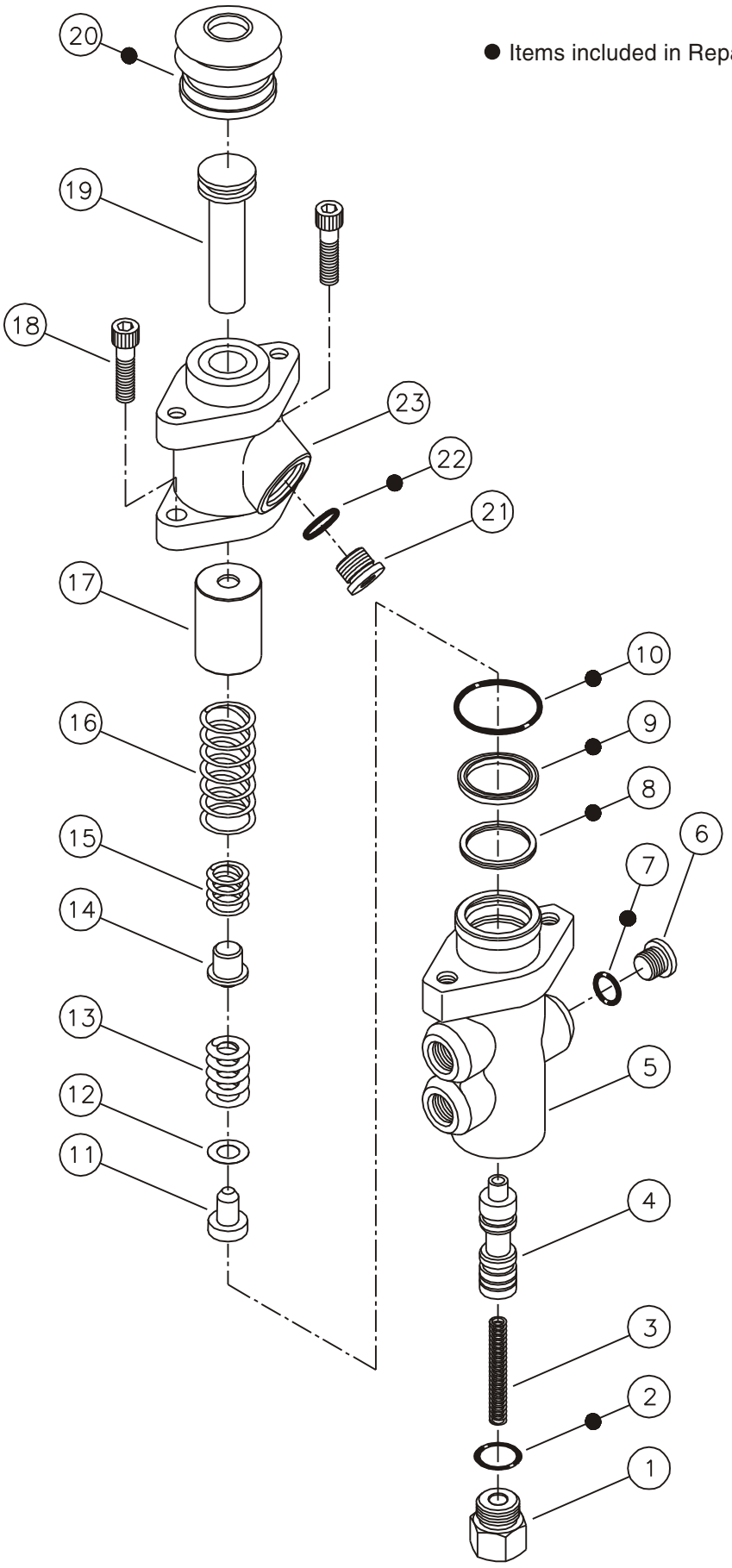
● Items included in Repair Kit
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FIGURE 2

BLEEDING

Brakelines should be bled very carefully as soon as the valve is installed in the machine. Air in the system will not allow the brakes to release properly and may severely damage them.

1. Start engine and allow accumulator to reach full charge. Shut down engine, then slowly apply and release brakes, waiting one minute between applications until brakes will not apply. Repeat this step three times.
2. Operate engine to maintain accumulator pressure within working limits throughout the bleeding procedure.
3. Open bleeder screw at wheel closest to brake valve and apply brakes cautiously until all air is bled out of line. Then close bleeder screw. Repeat this step at each wheel, moving to the next farthest wheel from the brake valve each time, as follows:
   a. Left front
   b. Right front
   c. Right rear
   d. Left rear
4. Release brake pressure for at least one (1) minute.
5. Apply brakes, holding pedal down 10 seconds; then release pressure for one (1) minute. Repeat this step two more times.
6. Repeat step 3.
7. Check for system leaks and be sure of proper brake operation.

SERVICE CHECKS FOR 466 SERIES SINGLE PEDAL VALVES

BRAKES SLOW TO APPLY

1. No or improper gas charge in accumulator
1. **Check gas charge**
2. Brakes not properly adjusted
2. **Adjust brakes**
3. Inoperative brakes
3. **Check brakes**
4. Hydraulic lines or fittings leaking
4. **Check for leaks and repair**
5. Inoperative automatic adjuster (Goodrich Hi-torque Brakes only)
5. **Check adjuster operation**
6. Damaged hydraulic brake lines
6. **Check lines for dents that restrict flow of oil**

BRAKES WILL NOT RELEASE

1. Pedal angle out of adjustment
1. **Check for proper pedal angle**
2. Inoperative brakes
2. **Check brakes**
3. Inoperative automatic adjusters
3. **Check operation of adjusters**
4. Inoperative brake valve
4. **Replace brake valve**

INSUFFICIENT BRAKES

1. No oil or low oil level in tank
1. **Check oil level in tank**
2. Brakes not properly adjusted
2. **Check brake adjustment**
3. Oil or grease on brake lining
3. **Clean or install new linings**
4. Brake line damaged
4. **Check lines and replace**
5. Inoperative automatic adjusters
5. **Check operation of adjusters**
6. No or improper gas charge in accumulator
6. **Check gas charge**
7. Inoperative brakes
7. **Check brakes**
8. Brake valve inoperative
8. **Replace valve**

EXCESSIVE BRAKING

1. Inoperative brakes
1. **Check brakes**
2. Inoperative brake valve
2. **Replace brake valve**

BRAKES WILL NOT RELEASE COMPLETELY

1. Brakes not properly adjusted
1. **Adjust brakes**
2. Inoperative brakes
2. **Check brakes**
3. Pedal angle out of adjustment
3. **Adjust pedal angle**
4. Inoperative wheel cylinders
4. **Replace wheel cylinders**
5. Inoperative automatic adjuster
5. **Check operation of adjusters**
6. Air in brakes (when automatic adjusters used Goodrich Hi-torque Brakes only)
6. **Bleed brakes**
7. Inoperative brake valve
7. **Replace brake valve**
8. Back pressure on return line too high
8. **Remove restriction**

NO BRAKES

1. No oil in hydraulic system
1. **Check oil level in tank**
2. Broken or damaged brake line
2. **Check lines for breaks or damaged condition**
3. Brakes not properly adjusted
3. **Adjust brakes**
4. Inoperative system relief valve
4. **Check pressure in pressure line to valve**
5. Worn pump
5. **Check pressure in pressure line to valve**
6. Inoperative automatic adjuster
6. **Check brake line pressure**
7. Inoperative or worn brakes
7. **Check brakes**
8. Inoperative brake valve
8. **Replace brake valve**

PEDAL KICKBACK WHEN BRAKES ARE APPLIED

1. Air in brakes
1. **Bleed brakes**

SERVICE DIAGNOSIS

All item numbers discussed here refer to Figures 1 and 2.

BRAKES WILL NOT RELEASE COMPLETELY

1. Piston (17) binding
2. Pedal angle out of adjustment
3. Spring (3) broken

BRAKES WILL NOT RELEASE

1. Binding spool (4)
2. Piston (17) binding

NO BRAKES

1. Piston (17) binding
2. Broken spring (13)

EXCESSIVE BRAKING

1. Too many shims (12) installed in valve

EXCESSIVE ACCUMULATOR LEAKAGE WHEN BRAKES ARE APPLIED

1. Damaged spool (4)

EXCESSIVE ACCUMULATOR LEAKAGE WHEN BRAKES ARE NOT BEING USED

1. Damaged spool (4)
2. Spring (3) broken

INSUFFICIENT BRAKES

1. Broken pressure regulating spring (13)
2. Pedal travel is inhibited