Service Instructions

Model Number	Repair Kit Number	Model Number	Repair Kit Number
02-740-011	02-700-002	03-740-037	02-700-002
02-740-016	02-700-002	*12-740-006	12-700-005
03-740-006	02-700-002	*12-740-008	12-700-005
03-740-019	02-700-002	*12-740-011	12-700-005
03-740-023	02-700-002		

* Gauges are liquid filled and are not to be shipped via unpressurized air freight.

DISASSEMBLY

(Refer to Figure 1)

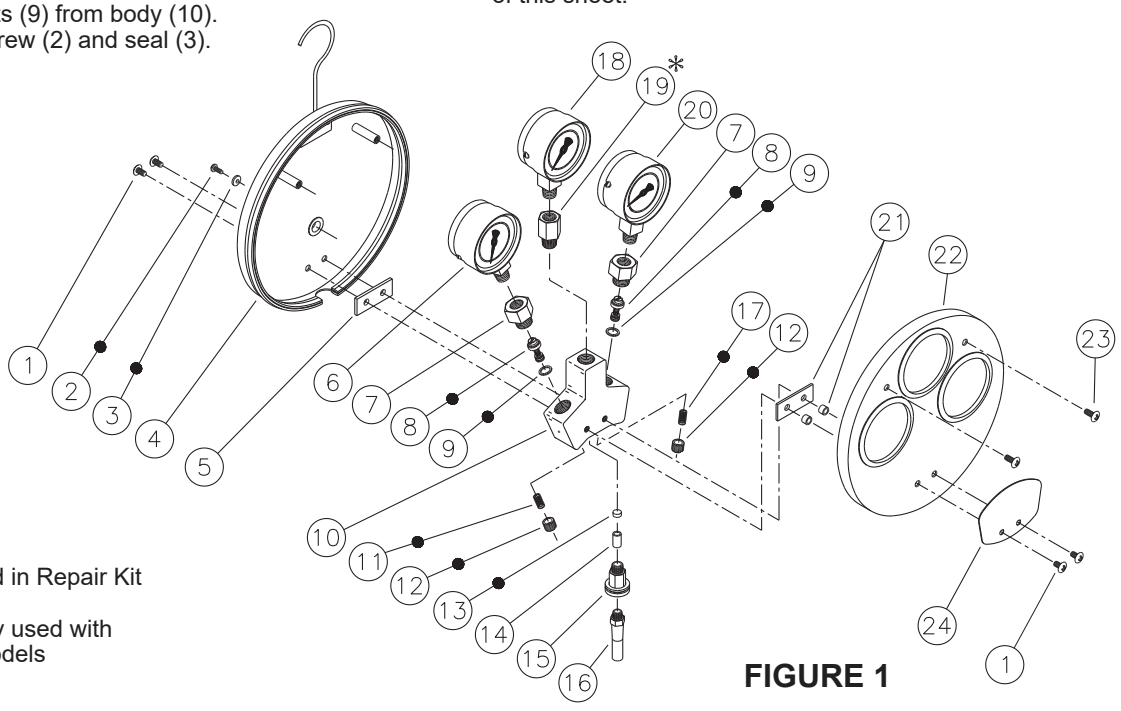
1. Remove covers (4 & 22) and label (24) by removing four screws (1) and two screws (23). It is not necessary to remove the two top screws on back cover.
2. Remove **thick** spacer (5) from cover (4) and **thin** or **round** spacers (21) from cover (22). **NOTE: Depending on unit, item 21 could be one thin flat spacer or two round spacers.**
3. Remove adapter (15) with hose (16), sleeve (14) and snubber (13) from body (10). **NOTE: It is not necessary to remove hose (16) from adapter (15).**
4. Remove gauges (6, 18 & 20) by turning counter-clockwise with an open end wrench. Removal of high pressure gauge (18) may require setting low pressure gauges at an angle.
5. Remove two adapters (7), adapter (19), plugs (12) and springs (11 & 17). **NOTE: Adapter (19) is used only with liquid filled models. Spring (11) is different than spring (17). Keep spring (11) separate from spring (17) for reassembly purposes.**
6. Remove two valve assemblies (8) by inserting a 3/16 inch diameter rod at adjusting plug end of bore and push valve assembly out or use a needle nose pliers and remove from the top. **NOTE: Be careful not to scratch or mar bores in body (10).**
7. Remove two gaskets (9) from body (10).
8. Remove bleeder screw (2) and seal (3).

ASSEMBLY

(Refer to Figure 1)

CLEAN ALL METAL PARTS PRIOR TO ASSEMBLY.

1. Install two new gaskets (9) into body (10). **NOTE: Gaskets must bottom out on shoulders of body bores.**
2. Lubricate two new valve assemblies (8) with clean type fluid used in system and install in body (10).
3. Install two adapters (7) and torque 13.6-27.1 N·m (10-20 lb·ft).
4. Install adapter (19) and torque 13.6-27.1 N·m (10-20 lb·ft). **NOTE: Adapter (19) is used only with liquid filled models.**
5. Place new springs (11 & 17) into new adjusting plugs (12) and screw into body (10) until contact is made with valve assemblies. **NOTE: It is very important that new springs (11 & 17) be installed into the correct gauge ports. Compare new springs to the old springs removed during disassembly.**
6. Install gauges (6, 18 & 20) by turning them clockwise on the wrench flats with an open end wrench. Torque the three gauges to 13.6 N·m (10 lb·ft) minimum. Gauge faces must be parallel to cover surface to ensure proper fit.
7. Install new snubber (13), sleeve (14) and adapter (15) with hose (16) into body (10). Torque adapter (15) 6.9-20.3 N·m (5-15 lb·ft).
8. Install **thick** spacer (5) on cover (4) and **thin** or **round spacers (21) on cover (22). NOTE: Depending on unit, item 21 could be one thin flat spacer or two round spacers.**
9. Assemble covers (4 & 22) and label (24) using four screws (1) and two screws (23). Torque screws (1 & 23) 2.5-3.1 N·m (22-27 lb·in).
10. Install new seal (3) and new bleeder screw (2) on back of the Quadrigage™.
11. After servicing the gauge, adjust low-pressure gauge (6) and mid-pressure gauge (20) as explained on the back of this sheet.



● Items included in Repair Kit

* Item 19 is only used with liquid filled models

FIGURE 1

ADJUSTMENT INSTRUCTIONS AFTER SERVICING THE VALVE

Dry Gauge Adjustment Procedure

(Refer to Figure 1)

A variable pressure source is needed to adjust limiter valves.
NOTE: High pressure should never be applied until after gauge adjustments have been completed.

LOW PRESSURE GAUGE (6)
While cycling the pressure source between 0.0-10.3 bar (0-150 PSI), slowly tighten adjusting plug (12) until the pressure limit on the gauge reaches 9.7-10.0 bar (140-145 PSI).

MID-PRESSURE GAUGE (20)
While cycling the pressure source between 0.0- 41.4 bar (0-600 PSI), slowly tighten adjusting plug (12) until the pressure limit on the gauge reaches 39.6 bar (575 PSI).

HIGH PRESSURE GAUGE (18)
Requires no adjustment.

At this point check for leaks. If all gauges read correctly and there are no leaks the gauge is ready for use. If a leak is detected, replace the valve assembly. If this does not repair the leak, check bore for damage or defect. If all corrections have been made and a leak still appears, the body is defective. In this case please contact ZF Off-Highway Solutions Minnesota Inc.

Bleeding Procedure

(Refer to Figure 1)

1. Pressurize gauge 1.7 to 13.8 bar (25 to 200 PSI).
2. Open bleeder screw (2) allowing air to escape.
3. Close bleeder before releasing pressure.
4. Repeat procedure until all air has escaped Quadrigage™.

Liquid Filled Gauge Adjustment Procedure

(Refer to Figure 1)

A variable pressure source is needed to adjust limiter valves.
NOTE: High pressure should never be applied until after gauge adjustments have been completed.

LOW PRESSURE GAUGE (6)
While cycling the pressure source between 0.0-20.7 bar (0-300 PSI), slowly tighten adjusting plug (12) until the pressure limit on the gauge reaches 19.0 bar (275 PSI).

MID-PRESSURE GAUGE (20)
While cycling the pressure source between 0.0-69.0 bar (0-1000 PSI), slowly tighten adjusting plug (12) until the pressure limit on the gauge reaches 62.1 bar (900 PSI).

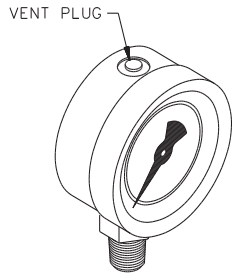
HIGH PRESSURE GAUGE (18)
Requires no adjustment.

At this point check for leaks. If all gauges read correctly and there are no leaks the gauge is ready for use. If a leak is detected, replace the valve assembly. If this does not repair the leak, check bore for damage or defect. If all corrections have been made and a leak still appears, the body is defective. In this case please contact ZF Off-Highway Solutions Minnesota Inc.

Bleeding Procedure

(Refer to Figure 1)

1. Pressurize gauge 1.7 to 13.8 bar (25 to 200 PSI).
2. Open bleeder screw (2) allowing air to escape.
3. Close bleeder before releasing pressure.
4. Repeat procedure until all air has escaped Quadrigage™.



Calibration Note

Due to temperature changes, the low pressure liquid filled gauge may experience slight reading fluctuations. Periodically check low pressure liquid filled gauge to make sure it returns to zero. If low pressure gauge is reading incorrectly, remove vent plug on top to release pressure inside, then reinstall vent plug to seal gauge. Gauge should now read zero.

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