SERVICE INSTRUCTION

AIR / HYDRAULIC ACTUATORS

Actuator Part Number:		Repair Kit Number: Master Cylinder	Replacement Number: Diaphragm
J054085	5:1 Ratio	04578121	04578122
J054086	8:1 Ratio	04578121	04578123

SEPARATING AIR CHAMBER AND MASTER CYLINDER

1. Remove air/hydraulic actuator from the main equipment by disconnecting necessary air and fluid lines, and removing mounting bolts. Drain fluid from assembly.
2. On the 8:1 ratio unit, separate air chamber from mounting bracket and master cylinder by removing two nuts and lock washers.
3. On the 5:1 ratio units, separate air chamber support bracket from the master cylinder by sliding the boot off the push rod and removing four nuts, bolts and lock washers.

CONNECTING AIR CHAMBER AND MASTER CYLINDER

1. Lightly lubricate push rod with molly impregnated grease.
2. Reverse separation procedures 2 and 3 as needed and torque nuts to 27.1 N-m (20 lb-ft)
3. Install unit back onto main equipment. Connect air and fluid lines. Replace fluid and bleed system of all air. Tighten fittings if leaks occur. Make several operational applications to be sure actuator is working properly.

MASTER CYLINDER DISASSEMBLY (Ref. Figure 1)

1. On 8:1 ratio units, separate master cylinder from mounting bracket (10) by removing four flat head screws (13), nuts (12) and lock washers (11). On 5:1 ratio units, mounting and air chamber support brackets will be separated from above procedure #3.
2. On 8:1 ratio units, remove guide (1) and boot (3) from housing (14). Carefully remove o-ring (2) from guide (1). **NOTE: Be careful not to scratch or mar guide (1) bore.**
3. On 5:1 ratio units, remove boot (3) from housing (14).
4. Remove retaining ring (4) from housing (14).

⚠CAUTION

Retaining ring is under tension of spring (17).

5. Remove spacer (5), piston (7), cup (16), spring (17), check valve (18), and seat (19) from housing (14) bore.
6. Carefully remove seal (6) from piston. **NOTE: Be careful not to scratch or mar piston.**
7. Remove filler cap (8) and gasket (9) from housing (14).

MASTER CYLINDER ASSEMBLY (Ref. Figure 1)

1. Lubricate all rubber components from repair kit with clean fluid used in the system.
2. Clean all parts thoroughly before assembly.
3. Carefully install new seal (6) on piston (7). **NOTE: Be careful not to scratch or mar piston.**
4. Carefully install new seat (19) in housing (14) bore. Be sure seat (19) is bottomed out in housing (14) bore.
5. Install new check valve (18) on end of spring (17) and insert into housing (14) bore. Check valve end of spring goes in first.
6. Install new cup (16) and piston (7) into housing (14) bore. Note direction of cup and piston.
7. Install spacer (5) and new retaining ring (4) in housing (14) bore.
8. On 8:1 ratio units, carefully install new o-ring (2) in guide (1).
9. On 8:1 ratio units, install boot (3) and guide (1) on housing (14).
10. On 5:1 ratio units, install boot onto housing (14).
11. Install new gasket (9) onto filler cap (8).
12. ON 8:1 ratio units, reattach mounting bracket using four flat head screws (13), lock washers (11) and nuts (12). Torque to 29.8-36.6 N-m (22-27 lb-ft).

● **Items included in Repair Kits**

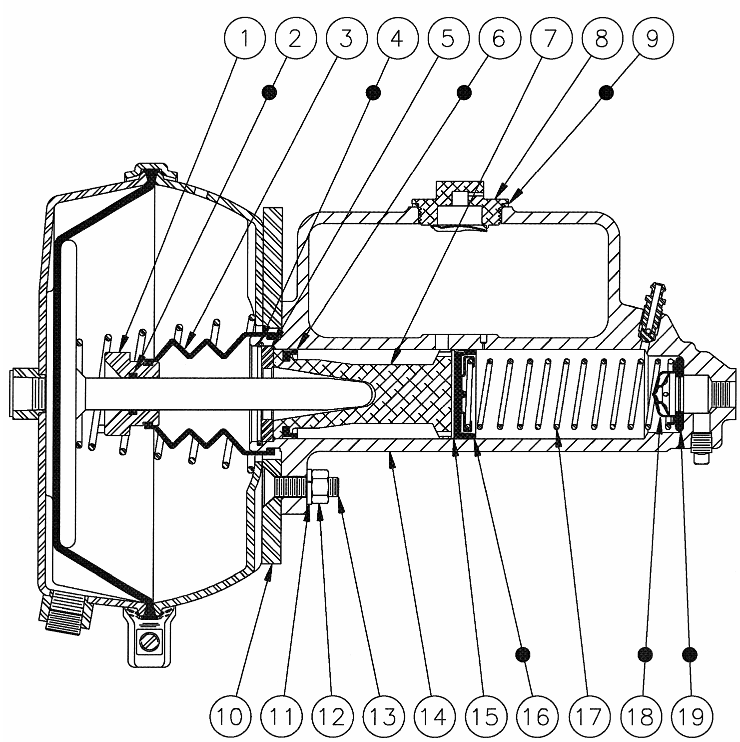


FIGURE 1

8:1 RATIO UNIT SHOWN

DIAPHRAGM REPLACEMENT (Ref. Figure 2)

> **⚠CAUTION**
> **Air chamber is under spring tension. Be careful at all times during disassembly and assembly.**

1. Place air chamber in a vise with threaded rods and push rod down. Clamp air chamber on push rod. **NOTE: Protect push rod and threaded rod from vise jaw marking and marring.**
2. Remove bolts (3) and nuts (4) from clamps (5). Remove clamps from air chamber.
3. Remove air chamber cover (6) and diaphragm (2).
4. Install new diaphragm (2).
5. Replace air chamber cover (6). **NOTE: Be sure all edges align properly.**
6. Assemble clamps (5) to air chamber. Install bolts (3) and nuts (4) and torque to 32.5 N-m (24 lb-ft).
7. Remove air chamber from vise. See CONNECTING AIR CHAMBER AND MASTER CYLINDER section on front page.

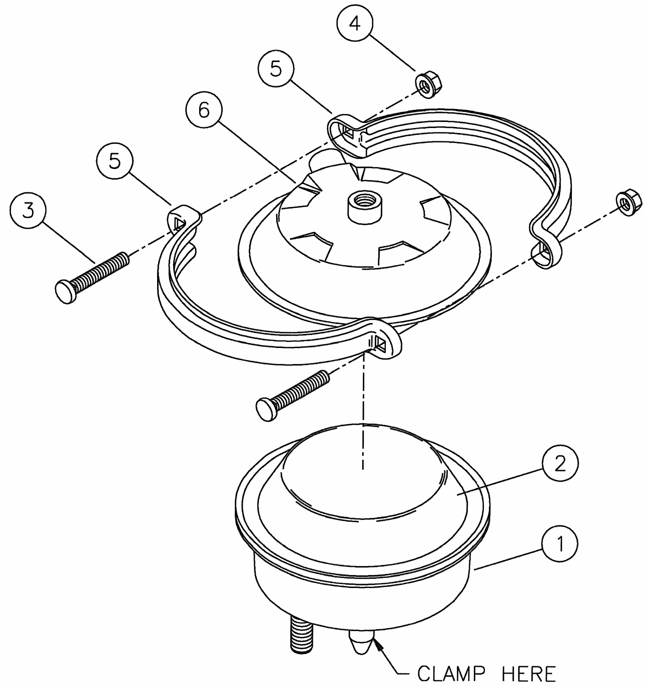
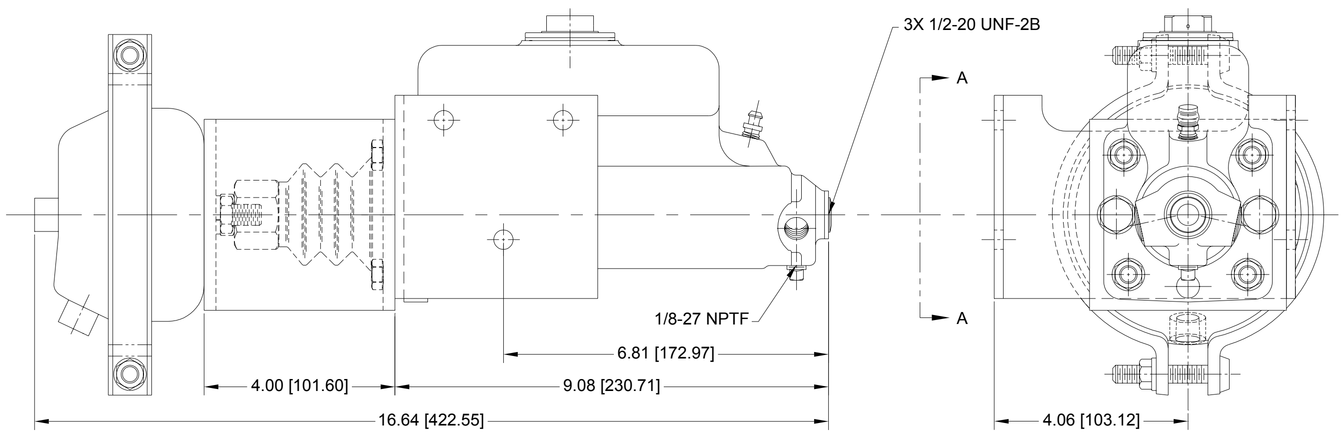
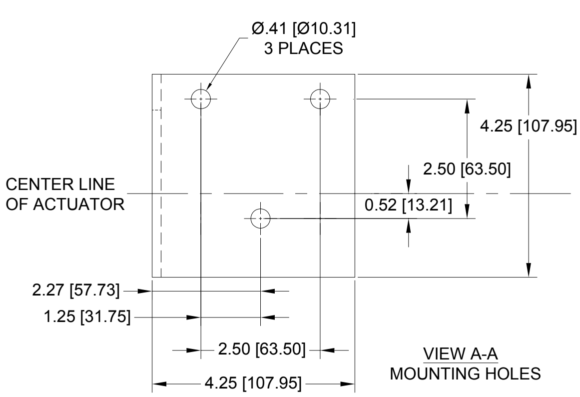


FIGURE 2

SPECIFICATION AND DIMENSIONAL DATA

J054085 5:1 RATIO





VIEW A-A
MOUNTING HOLES

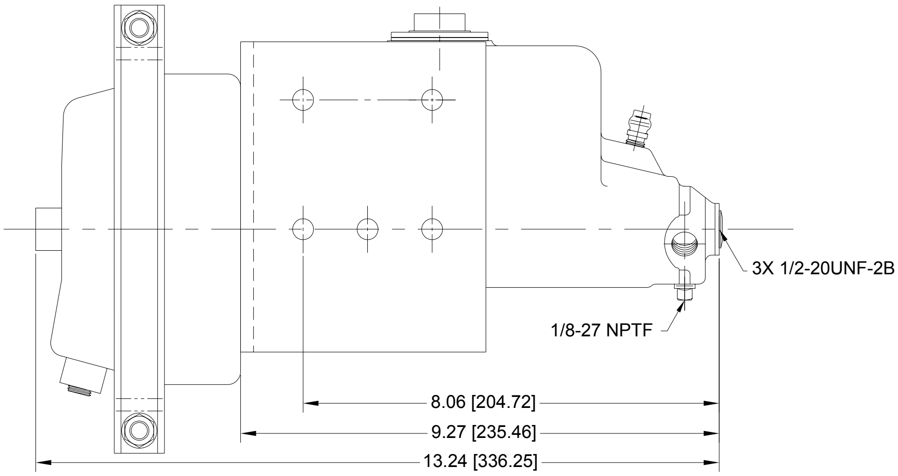
NOTES:
1. FOR USE WITH DOT 3 FLUID.
2. REPLACES WAGNER STYLE J54085 AIR/HYDRAULIC ACTUATOR

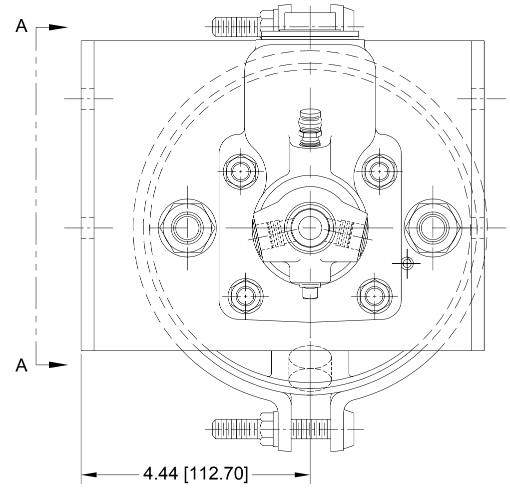
PERFORMANCE CHARACTERISTICS:
1. BORE SIZE: Ø1.750
2. STROKE: 1.75"
3. FLUID DISPLACMENT 5.20 Cu. In.
4. MAXIMUM AIR INPUT 100 PSI
5. FLUID OUT RATIO: 5:1 (NONLINEAR SEE BELOW)

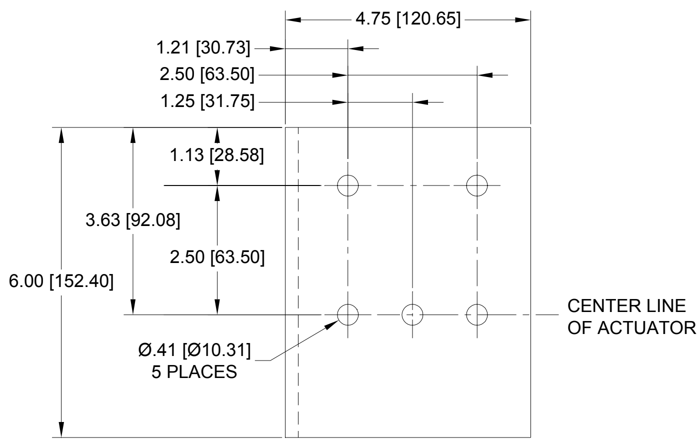
INPUT AIR PSI	NOMINAL FLUID OUTPUT PSI
40	130
50	180
60	240
70	300
80	360
90	410
100	440

SPECIFICATION AND DIMENSIONAL DATA

J054086 8:1 RATIO







VIEW A-A
MOUNTING HOLES

NOTES:

1. FOR USE WITH DOT 3 FLUID.
2. REPLACES WAGNER STYLE J54086 AIR/HYDRAULIC ACTUATOR

PERFORMANCE CHARACTERISTICS:

1. BORE SIZE: Ø1.750
2. STROKE: 2.25"
3. FLUID DISPLACMENT 5.40 Cu. In.
4. MAXIMUM AIR INPUT 100 PSI
5. FLUID OUT RATIO: 8:1 (NONLINEAR SEE BELOW)

INPUT AIR PSI	NOMINAL FLUID OUTPUT PSI
40	260
50	330
60	410
70	480
80	560
90	630
100	710

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