

LOW PRESSURE MATERIAL REGULATOR



**READ THIS MANUAL CAREFULLY BEFORE INSTALLING,
OPERATING OR SERVICING THIS EQUIPMENT.**

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

SERVICE KITS

- Use only genuine ARO® replacement parts to assure compatible pressure rating and longest service life.
- Order 637219-2B1-B Rebuild Kit (see chart below) for general repair of the regulator. This includes a diaphragm kit and a valve kit.
- Fluid diaphragm kit 62173 can be ordered separately (see page 4).
- Valve kit 62237 can be ordered separately (see page 4).

SPECIFICATIONS

Model Series	651782
Type	Downstream
Material Inlet (female)	3/8 - 18 N.P.T.F. - 1
Material Outlet (female)	3/8 - 18 N.P.T.F. - 1
Dimensional Data	See figure 5

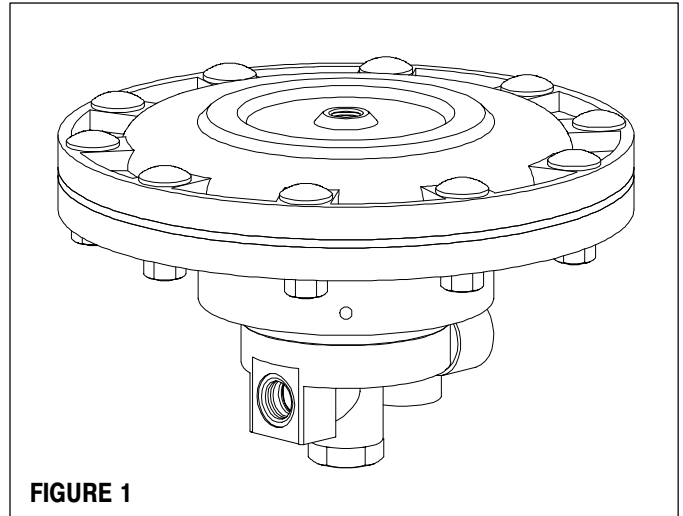
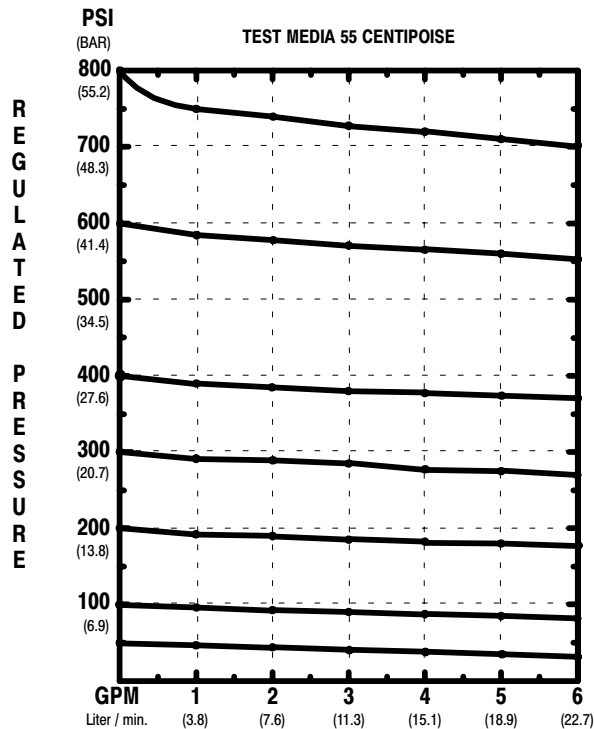


FIGURE 1

PERFORMANCE DATA

Regulated Pressure Range	100 - 800 p.s.i. (6.9 - 55.2 bar)
Maximum Regulated Pressure	800 p.s.i. (55.2 bar)
Maximum Inlet Pressure	1250 p.s.i. (86.2 bar)
Maximum temperature limits	0° to 200°F (-18° to 93°C)



OPERATING AND SAFETY PRECAUTIONS



EXCESSIVE AIR PRESSURE
STATIC SPARK



HAZARDOUS MATERIALS
HAZARDOUS PRESSURE

- ▲ Read and heed all Warnings and Safety Precautions before operation of this unit.
- ▲ Use only genuine ARO replacement parts to assure compatible pressure rating and longest service life.
- ▲ Be certain anyone operating this equipment or fluid system has been trained to use it safely.

⚠ WARNING HIGH PRESSURE DEVICE. IMPROPER USAGE OF THIS EQUIPMENT COULD RESULT IN SERIOUS INJURY. The possibility of injection into the flesh is a potential hazard. Wear approved safety glasses or face shield and other equipment as needed to prevent injury. Never allow any part of the human body to come in front of or in contact with the material outlet, the tip, or the material outlet of the dispensing device. An injection injury can be serious. If an injection accident should occur, it is very important that you contact a qualified physician for immediate treatment.

⚠ WARNING MISAPPLICATION HAZARD. DO NOT USE THE REGULATOR WHEN THE FLUID INLET PRESSURE IS TOO HIGH FOR THE DESIGNED OPERATING RANGE. Excessive inlet pressure can cause a Lock-Out situation. Lock-Out occurs when the inlet pressure is beyond the regulator's spring capacity. THE VALVE WILL NOT OPEN. Attempts to disassemble components while in a Lock-Out condition may result in injury.

⚠ WARNING COMPONENT RUPTURE. DO NOT OPERATE REGULATOR AT AN INLET PRESSURE GREATER THAN SPECIFIED. To avoid possible damage or personal injury, DO NOT operate this unit at pressure higher than the stated operating range as it appears on the model plate.

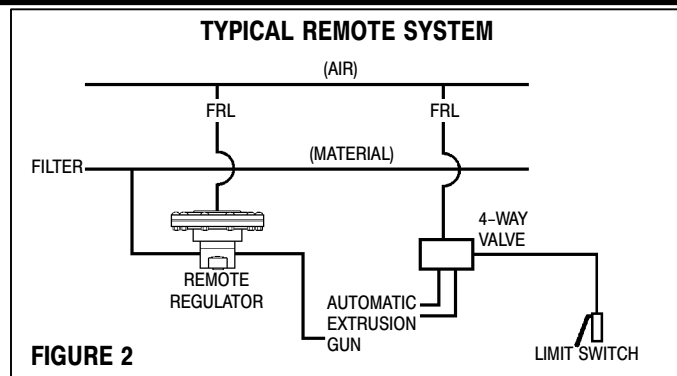
⚠ WARNING DISASSEMBLY HAZARD. DO NOT DISASSEMBLE THIS REGULATOR WHEN IT IS UNDER PRESSURE. RELIEVE PRESSURE IN THE PUMPING SYSTEM BEFORE ATTEMPTING SERVICE OR DISASSEMBLY PROCEDURES. Disconnect air lines and carefully bleed pressure off the system. Be certain the system is not maintaining pressure due to a material restriction in the hose, line, dispensing device, or the spray or extrusion tip. Failure to relieve pressure both upstream and downstream may result in an injury upon disassembly.

⚠ WARNING PREVENT FIRES. KEEP SOLVENTS AWAY FROM HEAT, SPARKS OR OPEN FLAME. Keep containers closed when not in use. When pumping, flushing or recirculating volatile solvents, be certain the area is adequately ventilated.

⚠ CAUTION FLUSH SUPPLY LINE. Before installing fluid regulator, blow the supply lines clear and flush to remove contaminants.

INSTALLATION

- Locate the regulator as close as possible to the spray gun or dispensing device for best pressure control.
- Identify the regulator INLET / OUTLET (flow direction). The regulator is marked with an arrow on the body base.
- Flush supply line before installing regulator.
- Remote models require maximum 100 p.s.i. signal pressure. Start with a signal pressure as low as possible and adjust upward until proper flow is reached.



OPERATING INSTRUCTIONS

SEAT PLUG FEATURE

The (29) plug located at the base of the regulator can be removed for access to the ball and seat assembly for cleaning and inspection for wear. With this feature, the regulator does not have to be unthreaded from the pumping system. Be certain to relieve system pressure (See "WARNING: DISASSEMBLY HAZARD").

MAINTENANCE

- Disassembly should be done on a clean work bench and use clean cloths.
- If replacement parts are necessary, refer to the parts list and drawings on pages 4 and 5.
- Upon reassembly, lubricate parts and use Loctite where indicated. Follow the torque specifications as shown.
- Service kits are available which include parts typically needed for an overhaul.
- Keep good records of service activity and include the regulator in a preventive maintenance program.
- Certain ARO "Smart Parts" are indicated with a "□" in the parts list, these parts should be available for fast repair and reduction of down time.

TROUBLE SHOOTING

No fluid pressure.

- Check for damaged or worn diaphragms.
- Look for possible obstruction by hardened material or foreign matter. Use a Fluid Filter upstream from the regulator.

Pressure creeps above the setting when system is dead ended and in a static (no flow) mode.

- Check for dirty seat and clean as appropriate.
- Check for worn or damaged seat and replace if necessary.

Outlet pressure drops below setting.

- Check pump for proper operation and check for possible leakage problems.
- Look for a clogged supply line problem, flush the supply line.

Fluid leakage from air cap.

- Check the (1) ribbed bolts and the (8) cap screws and re-torque as needed.
- Check for damaged diaphragm, replace as needed.

Regulator will not function, even when dispensing device is opened.

- Check for possible obstruction in the fluid line.
- Inlet pressure is too high causing a "Lock-Out" situation. Read "WARNING: MISAPPLICATION HAZARD".

CROSS SECTION

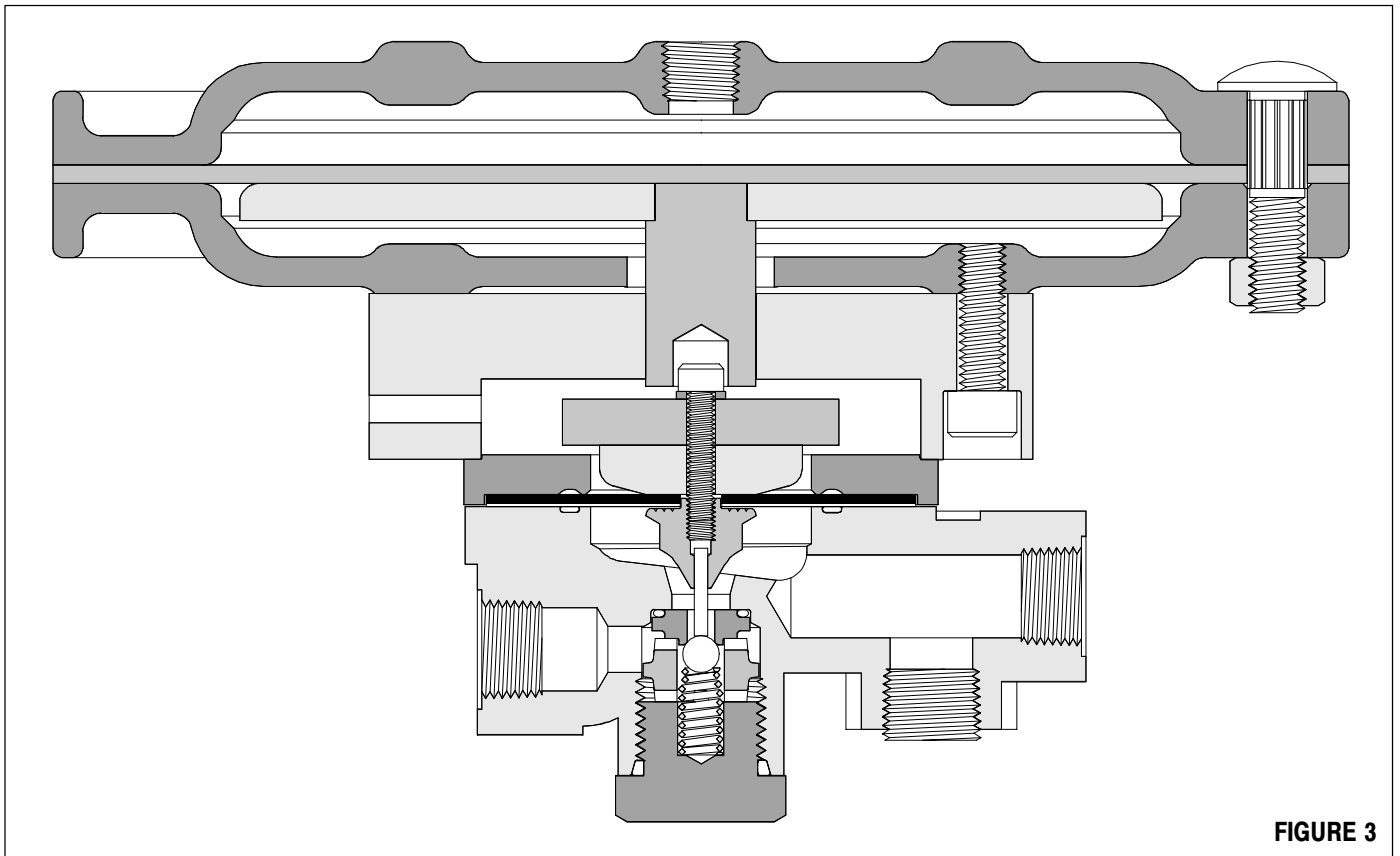


FIGURE 3

PARTS LIST / 651782 REGULATOR

ITEM	DESCRIPTION (Size in inches)	QTY	PART NO.	[Mtl]
1	Ribbed Bolt (3/8" - 16 x 1-1/2")	(10)	93750-1	[C]
2	Air Cap	(1)	93753-1	[A]
3	Diaphragm	(1)	93754-1	[N]
4	Plate	(1)	94573	[C]
5	Piston	(1)	93751-1	[C]
6	Air Cap	(1)	93753-2	[A]
7	Nut (3/8" - 16)	(10)	Y12-6-C	[C]
8	Cap Screw (7/16" - 20 x 1-1/2")	(4)	Y157-74	[C]
9	Adapter	(1)	93752-1	[A]
10	Cap Screw (5/16" - 18 x 1")	(4)	Y99-52	[C]
11	Cap Screw (#10 - 32 x 7/8")	(1)	Y191-107	[C]
12	Lock Washer (#10)	(1)	Y14-10	[C]
13	Plate	(1)	93893	[C]
<input type="checkbox"/> 14	Button	(1)	93889	[A]
<input type="checkbox"/> 15	Plate	(1)	93633-2	[C]
✓ 16	Diaphragm (.062" thick, black)	(1)	93883	[N]
✓ 17	Diaphragm (.020" thick, white)	(1)	93630-1	[T]

ITEM	DESCRIPTION (Size in inches)	QTY	PART NO.	[Mtl]
✓ 18	"O" Ring (3/32" x 1-7/8" o.d.)	(1)	Y328-131	[T]
	Diaphragm Kit (includes items 16 - 18)	(1)	62173	
<input type="checkbox"/> 19	Stem Assembly	(1)	92989	[SS/TC]
20	Pipe Plug (1/4 - 18 N.P.T. x 7/16")	(1)	Y17-51-S	[SS]
21	Base	(1)	93651-1	[SS]
22	Pipe Plug (3/8 - 18 N.P.T. x 31/64")	(1)	Y17-52-S	[SS]
✓ 23	"O" Ring (1/16" x 5/8" o.d.)	(1)	Y328-14	[T]
✓ 24	Seat	(1)	93558-1	[TC]
✓ 25	Ball (.2500" dia.)	(1)	93561-1	[TC]
✓ 26	Spring	(1)	93881	[SS]
<input type="checkbox"/>	Valve Kit (includes items 23 - 26)	(1)	62237	
<input type="checkbox"/> 27	Flow Tube	(1)	93489-1	[SS]
28	"O" Ring (.097" x .949" o.d.)	(1)	93492-1	[T]
<input type="checkbox"/> 29	Seat Plug (includes item 28)	(1)	62168	[SS]
✓	Parts in Service Kit		637219-2B1-B	

MATERIAL CODE

[A] = Aluminum [N] = Neoprene [T] = Teflon
 [C] = Carbon Steel [SS] = Stainless Steel [TC] = Tungsten Carbide

"Smart Parts" keep these items on hand in addition to the Service Kits for fast repair and reduction of down time.

REGULATOR DISASSEMBLY

FOR "WARNINGS", REFER TO "OPERATING AND SAFETY PRECAUTIONS" ON PAGE 2 FOR DETAILS.

BEFORE SERVICING, READ "WARNING: DISASSEMBLY HAZARD." FOUND ON PAGE 2.

TOOLS REQUIRED: Small bench vise, 5/32" allen wrench, 1/4 allen wrench, 5/16" allen wrench, 3/8" allen wrench, torque wrench and Loctite 242.

NOTE: It is not always necessary to remove the regulator from the fluid line to service or inspect only the valve section.

BEFORE DOING ANY IN-LINE SERVICE, ALL FLUID PRESSURE MUST BE RELIEVED. HEED ALL WARNINGS FOUND ON PAGE 2.

VALVE SEAT NOTE: Before deciding to order a general repair kit to service the whole regulator, check the easiest things first. Remove and inspect the valve seat for dirt, foreign matter, damage or wear (step 1).

1. Remove the (28 / 29) seat plug / "O" ring assembly, releasing (27) flow tube, (26) spring, (25) ball, (24) seat and (23) "O" ring.
2. Remove four (10) cap screws, releasing (6) air cap from (9) adapter.
3. Remove ten (7) nuts and (1) ribbed bolts, releasing (2) air cap, (3) diaphragm, (4) plate and (5) piston from (6) air cap.
4. Remove four (8) cap screws, releasing (9) adapter.
5. Remove (11) cap screw, releasing (12) lock washer, (13) plate, (14) button, (15) plate, (16 and 17) diaphragms and (19) stem assembly.

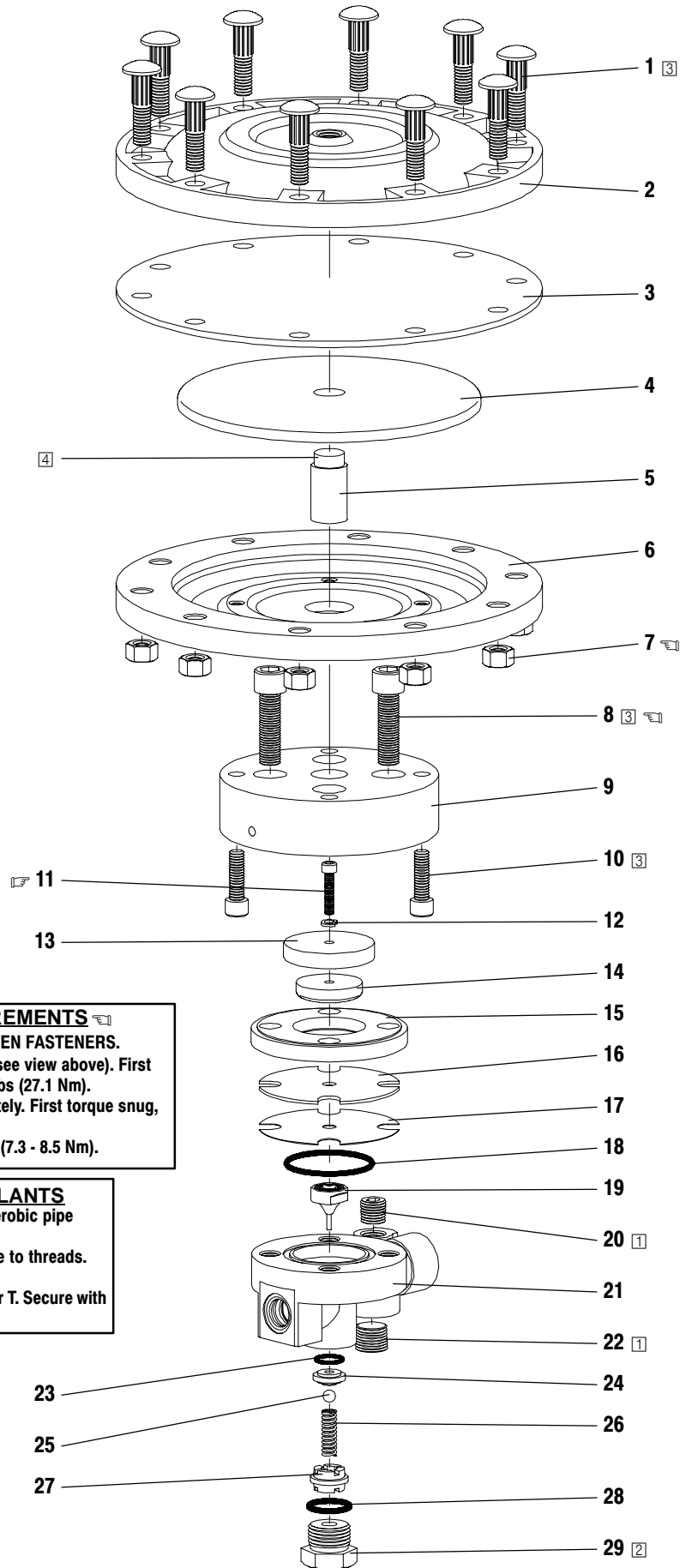
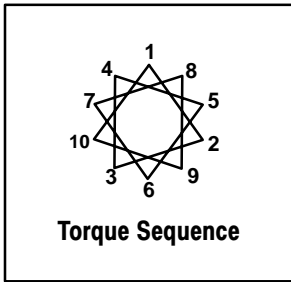
REGULATOR REASSEMBLY

Also refer to parts list and views on pages 4 and 5.

1. Place the (11) cap screw and (12) lock washer thru the (13) plate

- and (14) button NOTE: Be sure the curved side of (14) button faces the (16) diaphragm.
2. Assemble the (15) plate over the (14) button.
3. Assemble the (16) black diaphragm then the (17) white diaphragm to the (15) plate, aligning notches in diaphragm with bolt holes in plate.
4. Assemble the (19) stem assembly to the (11) cap screw and snug hand tight.
5. Place the assembly in a vise, locating on flats of (19) stem assembly. NOTE: Make sure the diaphragm notches are in alignment with the bolt holes before tightening the (11) cap screw. Tighten (11) cap screw to 65 - 75 in. lbs (7.3 - 8.5 Nm).
6. Remove the assembly from the vise.
7. Place the (18) "O" ring in the groove in the (21) base.
8. Assemble the stem / diaphragm assembly to the (21) base, aligning the bolt holes.
9. Assemble the (9) adapter to the (21) base, securing with four (8) cap screws. NOTE: Snug cap screws hand tight, then alternately tighten to 20 ft lbs (27.1 Nm).
10. Apply Loctite RC-680 to (5) piston (see figure 4) and assemble to (4) plate.
11. Assemble the piston / plate, (3) diaphragm and (2) air cap to (6) air cap, aligning bolt holes.
12. Apply Loctite 242 to threads of ten (1) ribbed bolts and assemble to (2) air cap.
13. Assemble ten (7) nuts to ribbed bolts. NOTE: Refer to torque sequence in figure 4, page 5. Tighten nuts hand tight, then tighten to 20 ft lbs (27.1 Nm).
14. Assemble air cap assembly to (9) adapter, securing with four (10) cap screws. NOTE: Apply Loctite 242 to threads prior to assembly.
15. Assemble (23) "O" ring to (24) seat and assemble seat into (21) base.
16. Assemble the (27) flow tube into the (21) base.
17. Assemble the (25) ball and (26) spring (small end against ball) into (27) flow tube.
18. Assemble (28) "O" ring to (29) seat plug.
19. Apply Loctite nickel anti-sieze to threads of (29) seat plug and assemble seat plug to (21) base.

PARTS VIEW / 651782 REGULATOR



TORQUE REQUIREMENTS

NOTE: DO NOT OVERTIGHTEN FASTENERS.

(7) Nut, torque in sequence (see view above). First torque snug, then to 20 ft lbs (27.1 Nm).

(8) Cap screw, torque alternately. First torque snug, then to 20 ft lbs (27.1 Nm).

(11) Cap screw 65 - 75 in. lbs (7.3 - 8.5 Nm).

LUBRICATION – SEALANTS

1 Apply Perma-Lok LH150 anaerobic pipe sealant to threads.

2 Apply Loctite nickel anti-seize to threads.

3 Apply Loctite 242 to threads.

4 Clean joint with Loctite Primer T. Secure with Loctite RC-680.

FIGURE 4

DIMENSIONAL DATA

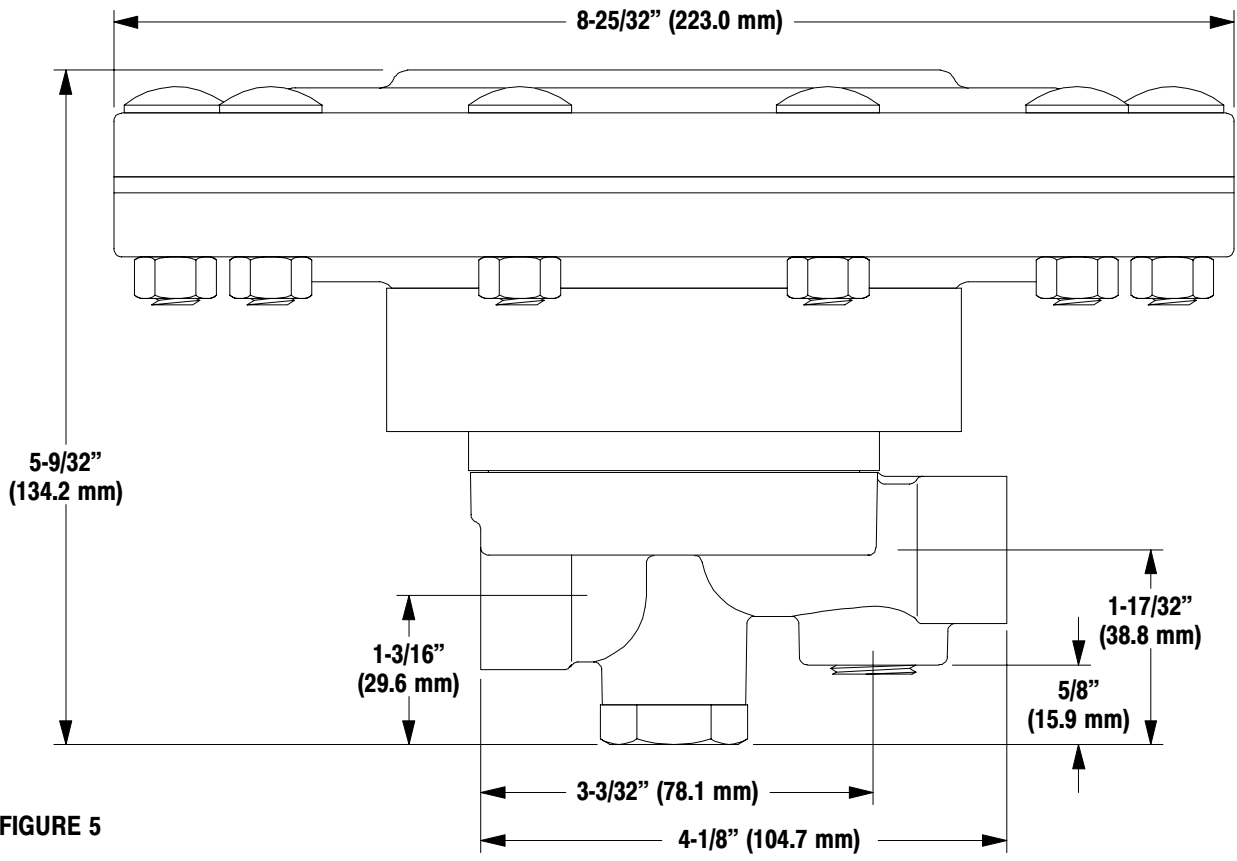


FIGURE 5

