

OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

84501X

RELEASED: 8-20-99

REVISED: 7-6-01

(REV. C)

HIGH 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 Bink's replacement parts to assure compatible pressure rating and longest service life.

863001 valve kit for seat replacement on models 845012 (see page 4).

863005 valve kit for ball and seat replacement on models 845013 (see page 4).

863007 valve kit for ball and seat replacement on models 845010, 845011 and 845014 (see page 4).

863008 diaphragm kit for replacement of diaphragms (see page 4).

863013 rebuild kit for general repair of the 845010, 845011 and 845014 regulators. This includes an 863008 diaphragm kit and an 863007 valve kit.

863014 rebuild kit for general repair of the 845012 regulators. This includes an 863008 diaphragm kit and an 863001 valve kit.

863015 rebuild kit for general repair of the 845013 regulators. This includes an 863008 diaphragm kit and an 863005 valve kit.

SPECIFICATIONS

Model Series 84501X

Type

845010, 845011, 845013, 845014 ... Downstream

845012 Back Pressure

Body Material

845010, 845011, 845012, 845013 ... 300 series Stainless Steel

845014 Carbon Steel

Seat Material Tungsten Carbide

Ball Size 845010, 845011, 845014 .. 0.1875" dia.

845012, 845013 0.2500" dia.

Material Inlet / Outlet 3/8 - 18 N.P.T.F.

Dimensional Data See page 7

PERFORMANCE DATA

Regulated Pressure Range with Maximum Regulated Pressure

845010, 845014 400 - 1250 p.s.i. (27.6 - 86.2 bar)

845011 1000 - 3000 p.s.i. (69 - 206.9 bar)

845012 100 - 3000 p.s.i. (6.9 - 206.9 bar)

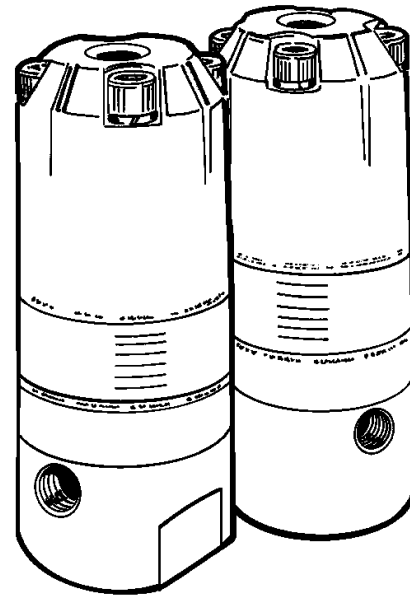
845013 2000 - 5000 p.s.i. (137.9 - 344.8 bar)

Maximum Inlet Pressure

845010, 845012, 845014 3000 p.s.i. (206.9 bar)

845011, 845013 6000 p.s.i. (413.8 bar)

Maximum Temperature Limits 0° to 200°F (-18° to 93°C)



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OPERATING AND SAFETY PRECAUTIONS



- ▲ Read and heed all Warnings and Safety Precautions before operation of this unit.
- ▲ Use only genuine Bink's 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 up stream and downstream may result in an injury upon disassembly.

⚠ WARNING BONNET REMOVAL HAZARD. DO NOT ATTEMPT TO REMOVE THE FOUR BONNET RETAINING BOLTS WITHOUT FIRST RELIEVING THE TENSION ON THE MAIN SPRING. Failure to relieve tension could result in an accident 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

- Refer to the typical installation view which best applies.
- 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 (refer to figure 7, page 7).
- When flexible fluid lines are used, mount the regulator securely using the (2) 1/4" - 20 threaded holes in the base (see figure 7, page 7).
- Flush supply line before installing regulator.

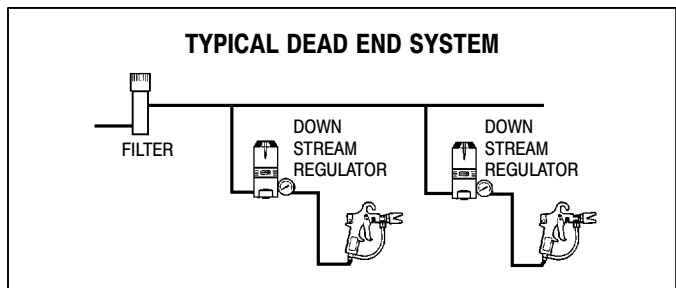
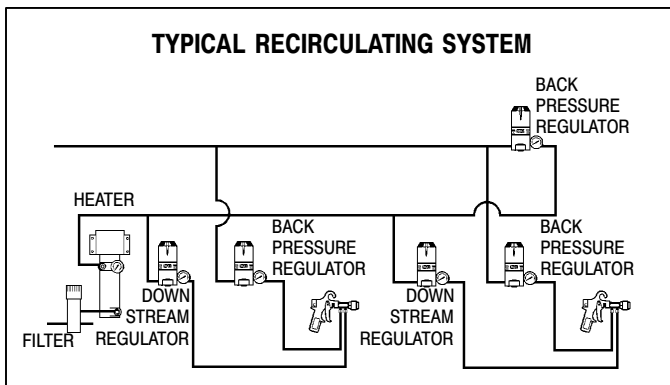


FIGURE 1

OPERATING INSTRUCTIONS

Refer to pages 4 and 5 for parts reference.

- To **INCREASE** outlet pressure, turn the (6) adjusting screw **CLOCKWISE** (see figure 2).
- To **DECREASE** outlet pressure, turn the (6) adjusting screw **COUNTERCLOCKWISE** (see figure 2).

NOTE: (20) 3/8" Allen wrench is included to make necessary pressure adjustments.

FLUSH-OUT FEATURE FOR DOWNSTREAM MODELS ONLY (see figure 3).

- Flush the regulator periodically. The interval may vary depending on the amount and type of material used.
- By using a wrench and "flush-out" plug (provided), the operator is able to move the entire spindle downward and force the ball off the seat, which should purge the regulator of particle build-up.

NOTE: The flush-out procedure temporarily overrides the adjusted pressure. It will not, however, affect the regulator setting when flushing operation is completed.

FLUSH-OUT PROCEDURE

1. Remove spray gun or dispensing device, this will allow any particles to clear from the system.
2. Insert (21) flush-out plug and turn clockwise until it touches the (4) washer (see view on page 5).
3. Turn up to two turns maximum. This will allow the ball to unseat and pass material at free flow (unregulated). **DO NOT** attempt to turn further to avoid damage.
4. Turn the plug back to its original position.

SEAT PLUG FEATURE

The (47) 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.

VIEW OF SPRING ADJUSTMENT PROCEDURE.

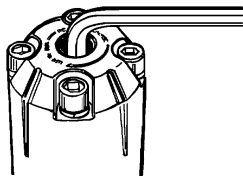


FIGURE 2

VIEW OF FLUSH-OUT PLUG

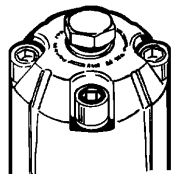


FIGURE 3

TROUBLE SHOOTING

No fluid pressure.

- Check for damaged or worn diaphragms.
- Look for possible obstruction by hardened material or foreign matter, periodically use the regulator "flush-out" feature (downstream models only). 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 spring housing.

- Check the bonnet hold-down screws and the plate hold down 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" found on page 2.

TYPICAL DOWNSTREAM REGULATOR CROSS SECTION VIEW SHOWING MAJOR COMPONENTS

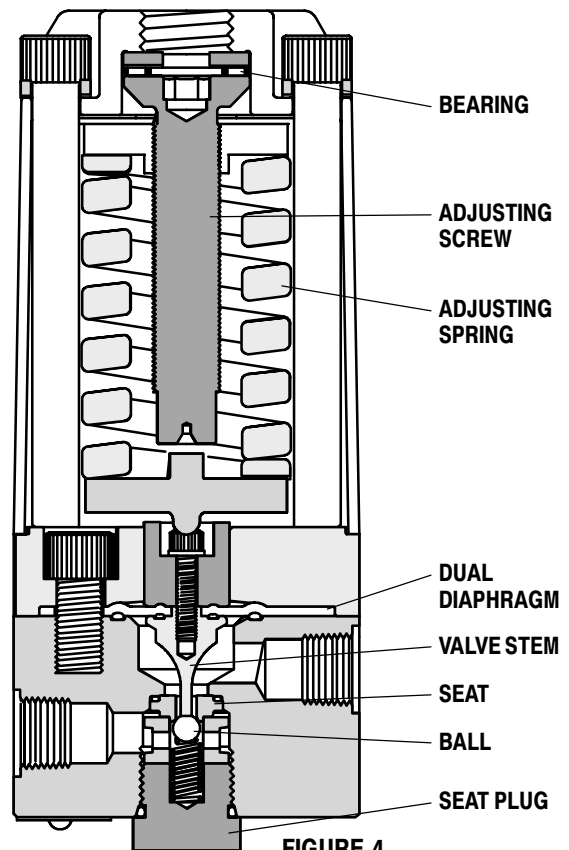


FIGURE 4

PARTS LIST / 84501X REGULATOR

863001 Valve Kits include: (for models 845012)	Item #	41	42								
	Qty	1	1								
863005 Valve Kits include: (for models 845013)	Item #	41	42	43	44						
	Qty	1	1	1	1						
863007 Valve Kits include: (for models 845010, 845011 and 845014)	Item #	41	42	43	44						
	Qty	1	1	1	1						
863008 Diaphragm Repair Kits include: (for all models)	Item #	16	17	18	19					Operator's Manual	
	Qty	1	1	1	1					1	
863013 Rebuild Kits include: (for models 845010, 845011 and 845014)	Item #	16	17	18	19	41	42	43	44	Operator's Manual	
	Qty	1	1	1	1	1	1	1	1	1	
863014 Rebuild Kits include: (for models 845012)	Item #	16	17	18	19	40	41	42			Operator's Manual
	Qty	1	1	1	1	1	1	1			1
863015 Rebuild Kits include: (for models 845013)	Item #	16	17	18	19	41	42	43	44	Operator's Manual	
	Qty	1	1	1	1	1	1	1	1	1	

84501X COMMON PARTS

ITEM	DESCRIPTION (Size in Inches)	QTY	PART NO.	MTL	ITEM	DESCRIPTION (Size in Inches)	QTY	PART NO.	MTL
1	Housing	(1)		[A]	16	Diaphragm (.048" thick, cream)	(1)		[H]
2	Bolt (7/16" - 20 x 5-1/2")	(4)		[C]	17	Diaphragm (.020" thick, white)	(1)		[T]
3	Washer (7/16" i.d.)	(4)		[C]	18	"O" Ring (3/32" x 1-3/8" o.d.)	(1)		[T]
4	Washer (1.162" o.d. x .125 thick)	(1)		[C]	19	"O" Ring (1/16" x 9/16" o.d.)	(1)		[T]
5	Thrust Bearing (1.173" o.d.)	(1)	873330	[C]	⊗ 20	3/8" Allen Wrench (not shown)	(1)		[C]
6	Adjusting Screw (5/8" - 24, left hand)	(1)	873331	[C]	⊗ 21	Flush-Out Plug (not shown)	(1)		[C]
7	Plate	(1)		[SS]	40	Valve Stem 845010, 845011, 845013, 845014	(1)	873052	[TC/SS]
8	Adjusting Nut	(1)	873332	[C]		845012	(1)	873057	[TC/SS]
9	Spring				41	"O" Ring (1/16" x 5/8" o.d.)	(1)		[T]
	845010, 845014 (green) 100 - 1250 in. lbs	(1)	873050	[C]	42	Seat	(1)		[TC]
	845011, 845012 (red) 1000 - 3000 in. lbs	(1)	873051	[C]	43	Ball 845010, 845011, 845014 (.1875" dia.)	(1)		[TC]
845013 (yellow) 2000 - 5000 in. lbs	(1)	873053	[C]	845013 (.2500" dia.)		(1)		[TC]	
10	Cap Screw (#10 - 32 x 7/8")	(1)		[C]	44	Spring	(1)		[SS]
11	Lock Washer (.196" i.d.)	(1)		[C]	45	Flow Tube	(1)	873045	[SS]
12	Small Plate	(1)		[C]	46	"O" Ring (3/16" x 15/16" o.d.)	(1)		[T]
13	Piston	(1)		[C]	47	Seat Plug Assembly (includes item 46)	(1)	863002	[SS]
14	Cap Screw (7/16" - 20 x 7/8")	(2)		[C]	48	Base 845010, 845011, 845012, 845013	(1)		[SS]
						845014			

⊗ Except models 845012.

PARTS LIST / 84501X REGULATOR

TORQUE REQUIREMENTS

NOTE: DO NOT OVERTIGHTEN FASTENERS.

(2) Torque alternately.

1.) Snug.

2.) 20 - 25 ft lbs (27.1 - 33.9 Nm).

(10) 65 - 75 in. lbs (7.3 - 8.5 Nm).

(14) Torque alternately.

1.) Snug.

2.) 20 - 25 ft lbs (27.1 - 33.9 Nm).

3.) 50 - 55 ft lbs (67.8 - 74.6 Nm).

LUBRICATION - SEALANTS

1 Apply Dri-Slide upon assembly.

2 Apply Loctite nickel anti-seize to threads.

3 Apply clutch grease.

4 Apply Loctite 242 to threads.

MATERIAL CODE

[A] = Aluminum

[C] = Carbon Steel

[H] = Hytrel

[SS] = Stainless Steel

[T] = Teflon

[TC] = Tungsten Carbide

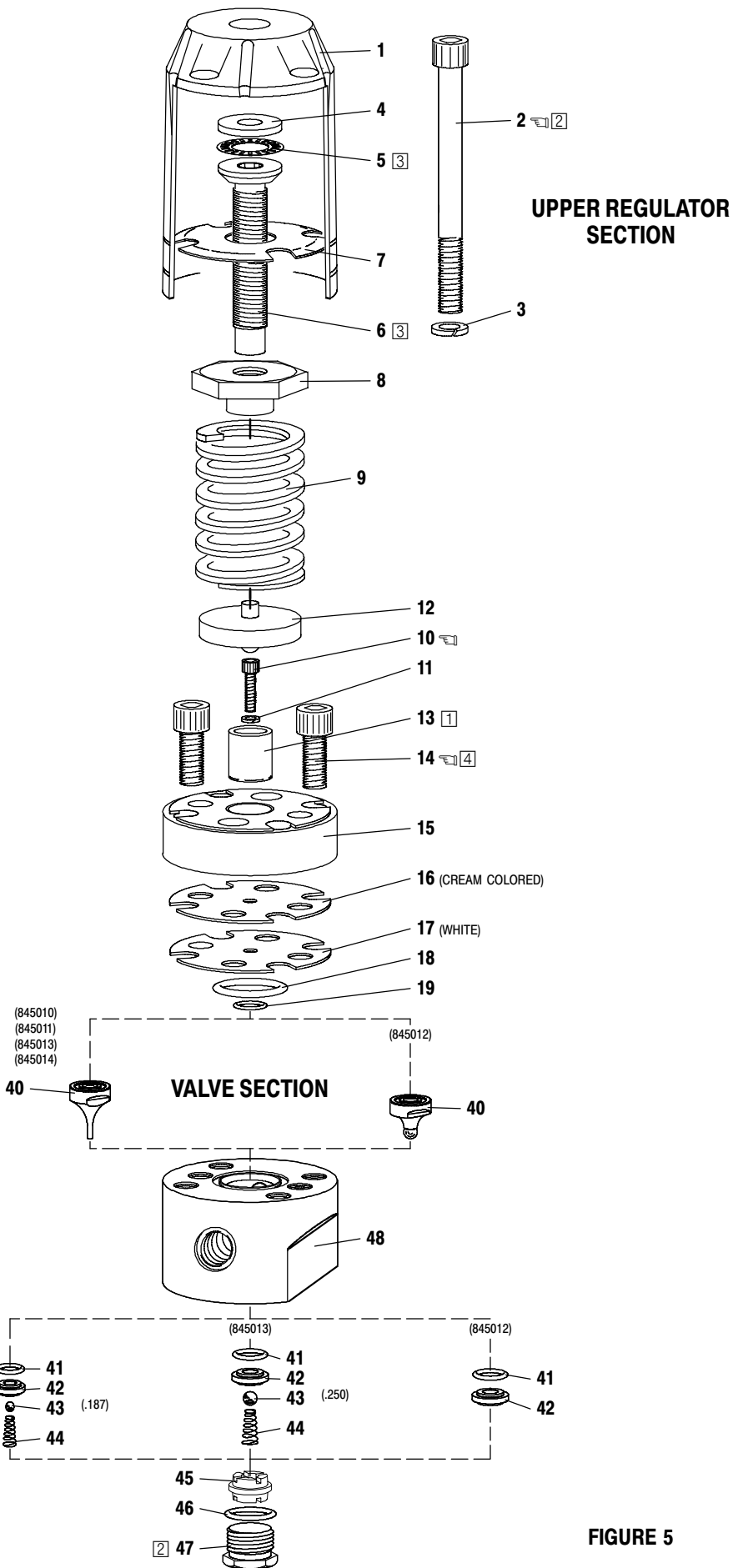


FIGURE 5

REGULATOR DISASSEMBLY

REFER TO PAGES 4 AND 5.

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, 3/8" allen wrench (included), 5/32 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.

ALLEN WRENCH NOTE: The 3/8" allen wrench is included and can be used for several functions including: Regulator adjustment (spring type models), removal and assembly of the long bonnet bolts and the short plate bolts.

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 (steps 1 - 3).

DOWNSTREAM STYLE MODELS

1. Remove the (46 / 47) base plug / "O" ring assembly which will allow removal of the (44) spring, (43) ball, (45) flow tube, (42) seat and (41) "O" ring.

BACK PRESSURE STYLE MODELS

2. Remove the (46 / 47) base plug / "O" ring assembly which will allow the removal of the (45) flow tube, (42) seat and (41) "O" ring.
3. Inspect the (42) seat for dirt, damage or wear.

READ "WARNING: BONNET REMOVAL HAZARD" FOUND ON PAGE 2.

4. Remove the four (2) long bolts to allow removal of the Bonnet / Adjusting Screw Assembly.

NOTE: The (6) adjusting screw, (5) thrust bearing and (4) washer are retained by (7) plate which is pressed into place. It should not be necessary to disassemble these parts during normal service.

5. Remove the (9) regulator spring and (12) small plate.
6. Remove the (14) bolts.
7. Remove the (15) plate.
8. Remove the stem / diaphragm and piston assembly.
9. Place the stem in a vise, locate and secure on the stem flats provided.
10. Using a 5/32" hex allen wrench, remove the (10) screw.
11. Remove the (11) lockwasher, (13) piston, two (16, 17) diaphragms, (18, 19) "O" rings, from the (40) valve stem.

REGULATOR REASSEMBLY

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

1. Place the (40) stem in a vise. Use the flats provided.
2. Position the (19) "O" ring in the groove.
3. Place the (17) white diaphragm onto the (40) stem center.
4. Place the (16) cream colored diaphragm onto the (40) stem.
5. Place the (13) piston on the assembly.
6. Install the (11) lockwasher and the (10) screw. **NOTE:** Make certain the diaphragm holes are in alignment before tightening the (10) screw. Torque to 65 - 75 in. lbs (7.34 - 8.47 Nm).

SERVICE HINT: Use the (14) screw to help align the diaphragm holes.

7. Remove the diaphragm / piston / stem assembly from the vise.

UPPER REGULATOR BODY SECTION REASSEMBLY

☆ **NOTE:** (from page 4 parts list) If the (1) housing has been removed and disassembled, the (7) plate should be replaced.

8. Place the (48) base in a vise, using the flats.
9. Place the (15) plate over the diaphragm / piston / stem assembly.

10. Apply Loctite 242 to the (14) screw.

11. Install the (14) screws.

NOTE: Tighten the short bolts alternately and evenly.

- Tighten snug.
 - Tighten to 20 - 25 ft lbs (27.1 - 33.9 Nm).
 - Tighten to 50 - 55 ft lbs (67.8 - 74.6 Nm).
12. Place the (12) plate (ball side down) into the hex of the (10) screw.
 13. Place the (9) spring on top of the (12) plate.
 14. Place the bonnet / adjusting screw assembly over the spring.
 15. Retain the bonnet with the (3) lockwashers and (2) bolts. Tighten alternately until snug, then torque to 20 - 25 ft lbs (27.1 - 33.9 Nm).
 16. Place the (18) "O" ring into the groove.
 17. Apply "DRI-SLIDE" to the surface of the (13) piston.
 18. Install the diaphragm / piston / stem assembly and align with the base hole pattern.
 19. Turn the regulator over and vise on flats.

REGULATOR VALVE SECTION REASSEMBLY

DOWNSTREAM MODELS

- Install (41) "O" ring.
- Install (42) seat.
- Install the (45) flow tube.
- Install the (43) ball.
- Install the (44) spring with the narrow end against the ball.
- Install the (47) valve plug and "O" ring assembly.
- Tighten until snug.

BACK PRESSURE MODELS

- Install (41) "O" ring.
- Install (42) seat.
- Install the (45) flow tube.
- Install the (47) valve plug and "O" ring assembly.
- Tighten until snug.

PERFORMANCE DATA

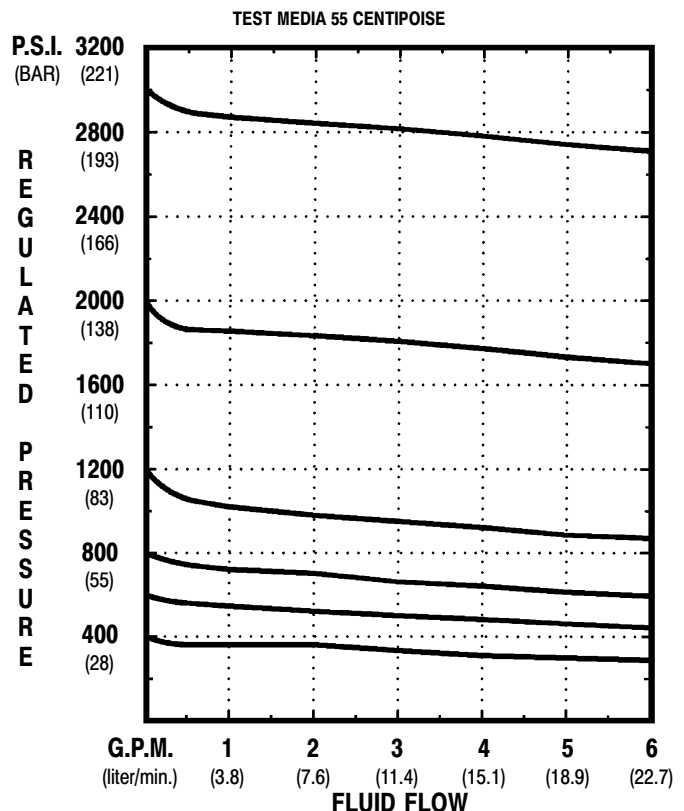
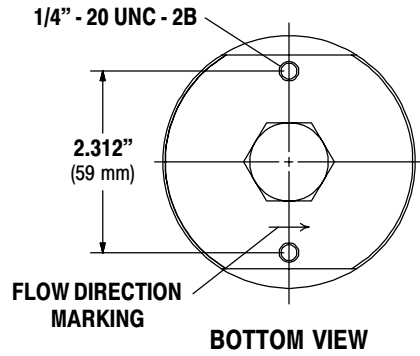
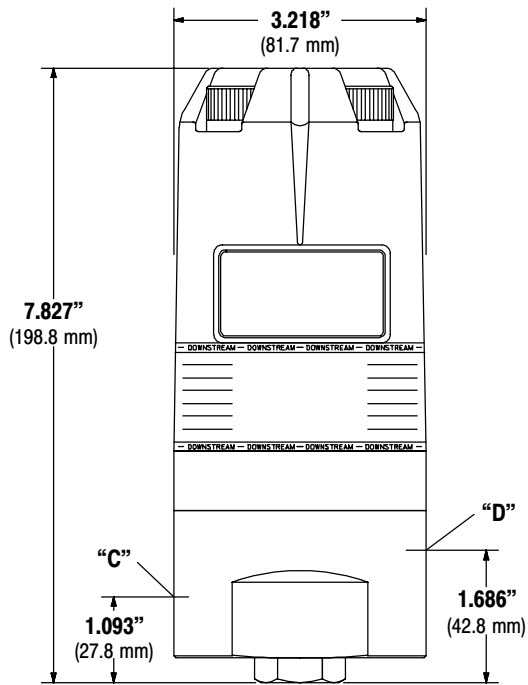


FIGURE 6

SERVICE NOTE: "DRI-SLIDE", FXR is a commercially available Anti-Rust lubricant (contains 9% Molybdenum Disulfide) or Molybdenum Disulfide Powder with or without light oil carrier.

DIMENSIONAL DATA



"C" and "D" thread = 3/8 - 18 N.P.T.F.

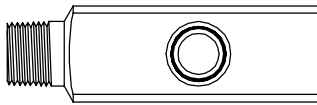
NOTE:

- 845010, 845011, 845013 and 845014 (downstream models) "C" is the **INLET** port, "D" is the **OUTLET** port.
- 845012 (back pressure models) "D" is the **INLET** port, "C" is the **OUTLET** port.

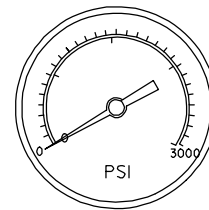
FIGURE 7

OPTIONAL ACCESSORIES

GAUGE AND AUXILIARY PORT



873056 Outlet Adapter
3/8 - 18 N.P.T.F. - 1



873055 Rear Mount Gauge
0 - 3000 p.s.i.

