

OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

651706

RELEASED: 12-9-82
REVISED: 6-21-10
(REV. G)

STAINLESS STEEL MATERIAL REGULATORS



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.

DO NOT OPERATE REGULATOR AT AN INLET PRESSURE GREATER THAN SPECIFIED.

651707

651713 651713-1

MAXIMUM INLET PRESSURE

3000 P.S.I. (207 BAR)

MAXIMUM OUTLET PRESSURE

500 P.S.I. (34 BAR)

651706

MAXIMUM INLET PRESSURE

100 P.S.I. (7 BAR)

REGULATED MAXIMUM

OUTLET PRESSURE

100 P.S.I. (7 BAR)

651709 651710

651714

651716

MAXIMUM INLET PRESSURE

1000 P.S.I. (69 BAR)

MAXIMUM OUTLET PRESSURE

100 P.S.I. (7 BAR)

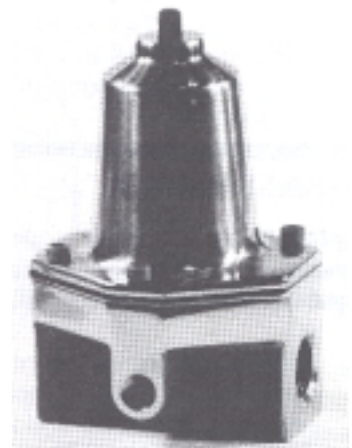
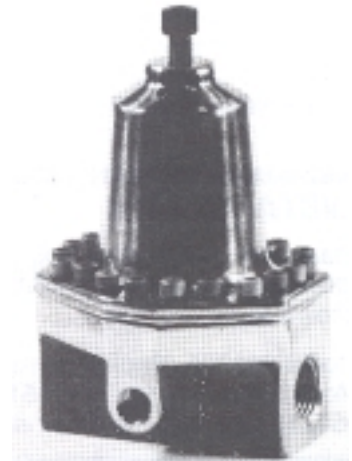
651715

MAXIMUM INLET PRESSURE

500 P.S.I. (34 BAR)

MAXIMUM OUTLET PRESSURE

250 P.S.I. (17 BAR)



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 disas-

semble 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.

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

INSTALLATION

- Place the ARO Stainless Steel Material Regulator (down-stream or back pressure) in the material line as shown in Figure 1.
- Model 651706 (Back Pressure)
- Models 651707, 651709, 651710, 651713-X, 651714, 651715 and 651716 (Downstream)
- It must be positioned with material flow through regulator in the direction indicated by arrow on the bottom of the regulator base.
- The ARO Stainless Steel Material Regulator has two tapped side ports which provide a means to install a material pressure gauge. Two 90897 plugs have been included with this unit to plug ports not being used. (See Accessories.)

OPERATION

- To **INCREASE** regulator outlet pressure, turn the (1) screw **CLOCKWISE** with Allen Wrench, (which is furnished with unit) (not included with 651716).
- To **DECREASE** regulator outlet pressure, turn the (1) screw **COUNTER-CLOCKWISE**. Refer to Figure 2.

MAINTENANCE

1. If material outlet pressure rises or creeps, check the (14) ball and (12) valve seat for foreign material. If (14) ball or (12) valve seat appear to be worn, damaged or eroded, they should be replaced.
2. If material is leaking through bleed hole in (4) spring chamber, check (8) back-up plate for damage and replace if necessary. Replace (9) and (10) diaphragms.

DISASSEMBLY

1. Turn (1) set screw counter-clockwise until spring pressure is relieved (not included with 651716).
2. Remove (2) screws and (3) washers (not included with all models) with proper Allen Wrench.
3. Remove (4) spring chamber, (5) cap and (6) spring.
4. Unscrew (7) nut on 651707, 651713, 651713-1 and remove (8) plate, (9) diaphragm and (11) screw. On models 651714, unscrew (11) screw from (8) plate. Remove (9) diaphragm and (10) diaphragm.
5. Unscrew (12) valve seat and remove (13) gasket, (14) ball and (15) spring.
6. Replace all worn or damaged parts with new ARO parts.

ASSEMBLY

Reverse disassembly procedure. Be sure all gaskets are in place and (10) diaphragm is on the material side of regulator.

The twenty (2) screws on model 651707 and 651713, 651713-1 should all be torqued down evenly to 30 - 40 in-lbs (3.4 - 4.5 Nm). Refer to Figure 3 for proper sequence on tightening screws. Retorque screws in 24 hours.

The (2) screws on model 651706, 651709, 651710, 651714 and 651715 should all be torqued down evenly to 40 - 50 in-lbs (4.5 - 5.6 Nm). Retorque screws in 24 hours.

The (2) screws on model 651716 should all be torqued down evenly to 43 - 47 in-lbs (4.9 - 5.3 Nm). Retorque screws in 24 hours.

Parker Ferulube or equivalent should be applied to screws before assembly to prevent thread galling.

TYPICAL INSTALLATION

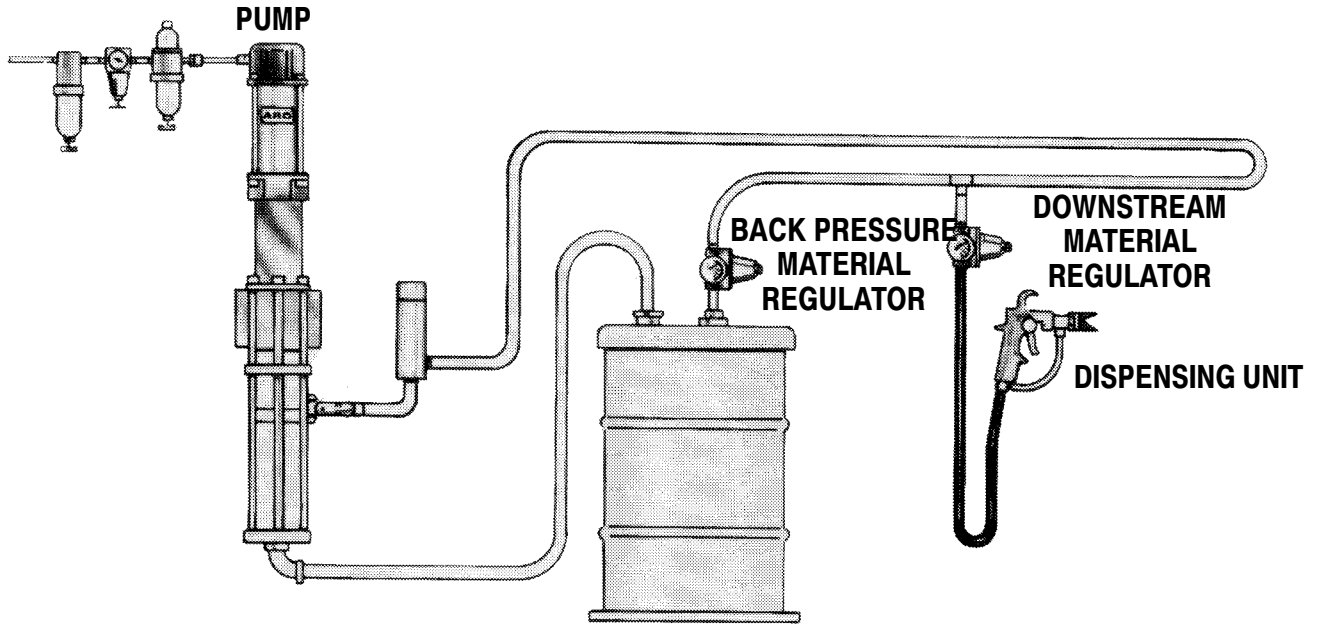


FIGURE 1

**REGULATOR PRESSURE
ADJUSTMENT
COUNTERCLOCKWISE
TO DECREASE**



**CLOCKWISE
TO INCREASE**



FIGURE 2

**ASSEMBLY
TIGHTENING
PROCEDURE**

1. SNUG
2. TIGHTEN
3. TORQUE

**651707, 651713, 651713-1
TOP VIEW**

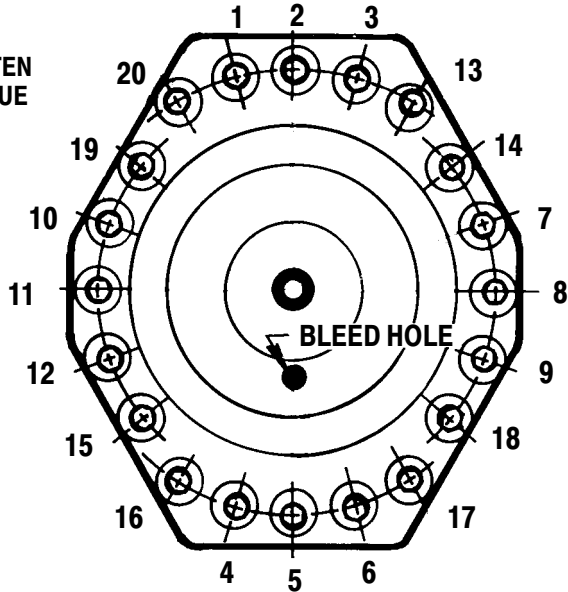


FIGURE 3

INCLUDED ACCESSORIES

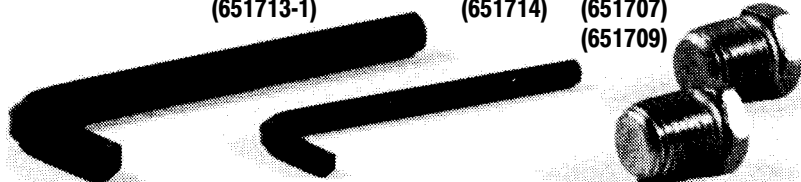
FIGURE 4

ALLEN WRENCH

Y106-7 (651713)
Y106-105 (651715)
Y106-4 (651710)
Y106-5 (651709)

PLUG

90897 (2)

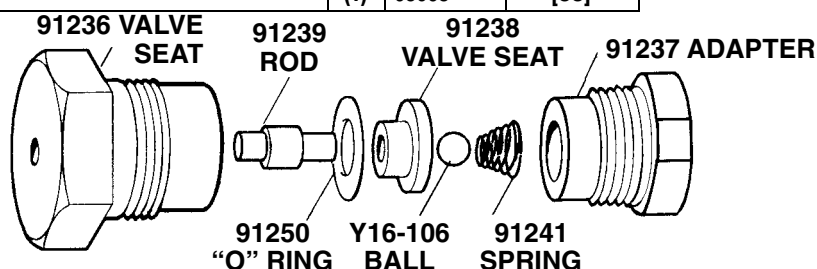


PARTS LIST

ITEM	DESCRIPTION (Size in Inches)	QTY	PART NO.	MATERIAL
1	Set Screw (3/8" - 24 x 1-1/4") (651706, 651709, 651715)	(1)	Y23-72-B	[C]
	(3/8" - 24 x 1") (651707)	(1)	Y23-71-B	[C]
	(5/16" - 24 x 1") (651710, 651714)	(1)	Y23-511-B	[C]
	Cap Screw (5/16" - 24 x 1") (651713, 651713-1)	(1)	92480	[C]
2	Socket Head Screw (#10 - 32 x 5/8") (651706, 651709, 651710, 651714, 651715, 651716)	(6)	90865	[SH]
	(#10 - 32 x 5/8") (651707, 651713, 651713-1)	(20)	90865	[SH]
3	Lock Washer (#10) (651707, 651713, 651713-1)	(20)	Y14-10	[C]
4	Housing and Nut Assembly (651706, 651709, 651715)	(1)	29919	[C / Co / Z]
	(651707)	(1)	66036	[C / Co / Z]
	Spring Chamber (651710, 651714)	(1)	90861	[SS]
	(651713, 651713-1)	(1)	92474	[SS]
	(651716)	(1)	93069	[SS]
5	Cap (651706, 651709, 651710, 651714, 651715, 651716)	(1)	29273	[C]
	(651707)	(1)	91251	[C]
	(651713, 651713-1)	(1)	92479	[SH]
6	Spring (651706, 651709, 651710, 651714, 651716)	(1)	90933	[C]
	(651707, 651713, 651713-1)	(1)	91240	[C]
	(651715)	(1)	29120	[C]
7	Elastic Stop Nut (1/4" - 28) (651707, 651713, 651713-1)	(1)	Y109-428	[C]
8	Backup Plate (651706, 651709, 651710, 651714, 651715, 651716)	(1)	90939	[A]
	(651707, 651713, 651713-1)	(1)	91244	[C]
9	Diaphragm (651706, 651709, 651710, 651714, 651715, 651716)	(1)	29000	[B]
	(651707, 651713, 651713-1)	(1)	91120	[P]
10	Diaphragm (651706, 651709, 651710, 651714, 651715, 651716)	(1)	90860	[T]
	(651707, 651713, 651713-1)	(1)	91249	[T]
11	Valve Stem (651706)	(1)	91061	[SS]
	(651707)	(1)	91242	[SS]
	(651709, 651710, 651714, 651715, 651716)	(1)	90898	[SH]
	(651713, 651713-1)	(1)	92314	[SS]
12	Valve Seat (651706)	(1)	91062	[SS]
	Valve & Seat Assembly (Figure 5) (651707)	(1)	66035	[SH / SS / T]
	Valve Seat (651709, 651710)	(1)	65104	[SS]
	(651713, 651714, 651715, 651716)	(1)	92203	[SS]
	(651713-1)	(1)	66399	[SS]
13	Gasket (651706)	(1)	90857	[T]
	(651707)	(1)	91243	[T]
	(651709, 651710, 651713, 651713-1, 651714, 651715, 651716)	(1)	Y328-19	[T]
14	Ball (0.3750 dia.) (651709, 651710)	(1)	Y16-112	[SH]
	(651713, 651714, 651715, 651716)	(1)	76954	[SS]
	(651713-1)	(1)	90399	[Ca]
15	Spring (651709, 651710, 651713, 651713-1, 651714, 651715, 651716)	(1)	90858	[SS]
16	Base (651706, 651709, 651710, 651714, 651715)	(1)	90855	[SS]
	(651707, 651713, 651713-1)	(1)	91245	[SS]
	(651716)	(1)	93068	[SS]

66035 VALVE AND SEAT

FIGURE 5



PARTS LIST

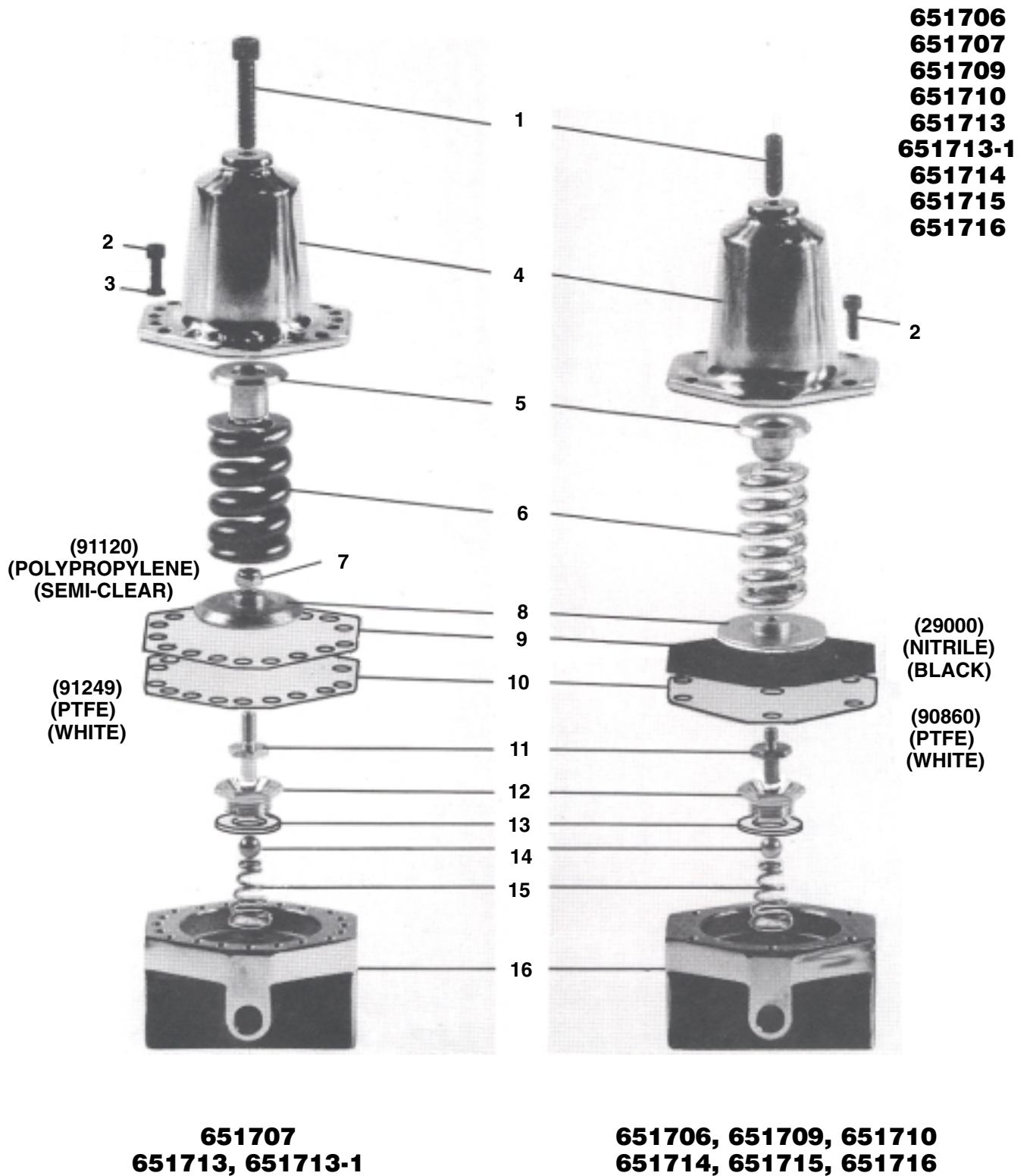


FIGURE 6

MATERIAL CODE			
[A] = Aluminum	[P] = Polypropylene		
[B] = Nitrile	[SH] = Hard Stainless Steel		
[C] = Carbon Steel	[SS] = Stainless Steel		
[Ca] = Carbide	[T] = PTFE		
[Co] = Copper	[Z] = Zinc		

FLUID REGULATOR (-B) CONVERSION KITS

MODEL NO.

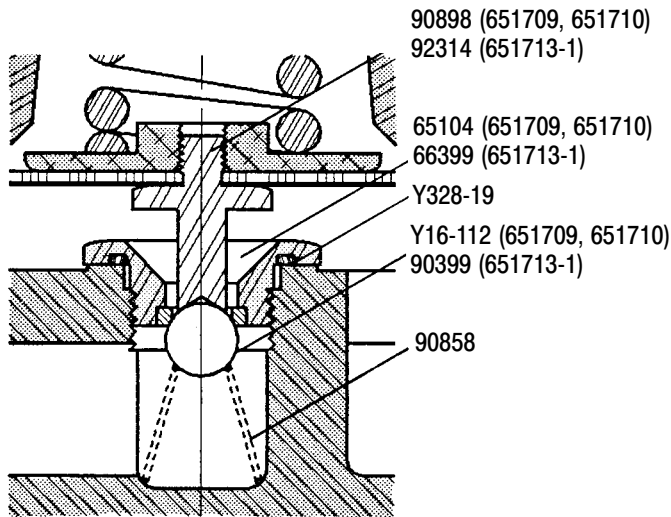
651709
651710
651713-1

CONVERSION KIT

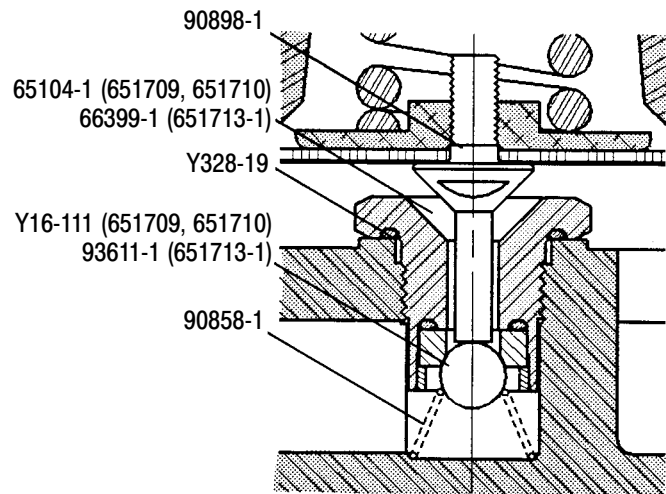
66837-1
66837-1
66820-1

Includes "new style" parts
shown below.

OLD STYLE



NEW STYLE



INSTALLATION PROCEDURE

- See Operators Manual
- Relieve spring tension on regulator.
- Remove 90865 screws and remove bonnet.
- Detach 90898 (651709, 651710) or 92314 (651713-1) screw and replace with a 90898-1 stem.
- Remove 65104 (651709, 651710) or 66399 (651713-1) seat and Y16-112 (651709, 651710) or 90399 (651713-1) ball and 90858 spring from base.
- Replace 90858 spring with 90858-1 spring and replace old ball and seat with a new 65104-1 (651709, 651710) or 66399-1 (651713-1) seat and Y16-111 (651709, 651710) or 93611-1 (651713-1) ball. Replace the old Y328-19 "O" ring with the new one provided with the kit.
- Torque 65104-1 (651709, 651710) or 66399-1 (651713-1) seat to 150 - 175 in-lbs (16.9 - 19.8 Nm).
- Reassemble regulator.

FLUID REGULATOR (-B) CONVERSION KITS

MODEL NO.

651713

651714

651715

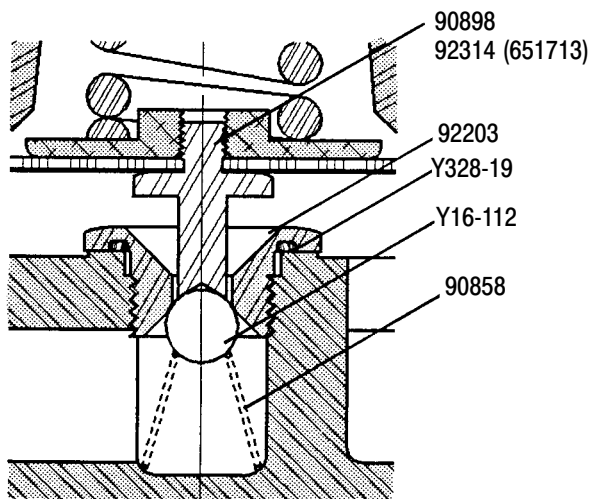
651716

CONVERSION KIT

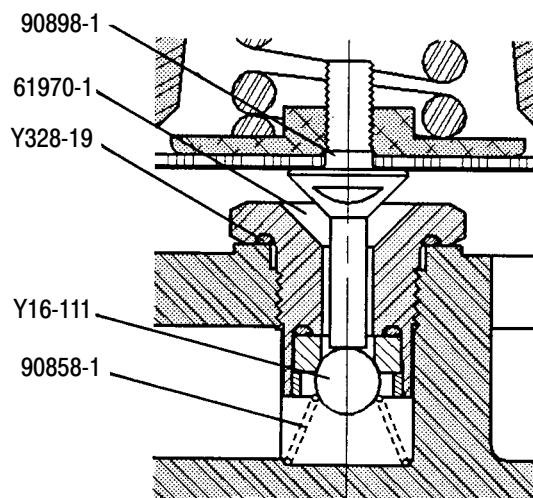
66854-1

Includes "new style" parts
shown below.

OLD STYLE



NEW STYLE



INSTALLATION PROCEDURE

- See Operators Manual
- Relieve spring tension on regulator.
- Remove 90865 screws and remove bonnet.
- Detach 92314 (651713) or 90898 screw and replace with a 90898-1 stem.
- Remove 92203 seat and Y16-112 ball and 90858 spring from base.
- Replace 90858 spring with 90858-1 spring and replace old ball and seat with a new 61970-1 seat and Y16-111 ball. Replace the old Y328-19 "O" ring with the new one provided with the kit.
- Torque 61970-1 seat to 150 - 175 in-lbs (16.9 - 19.8 Nm).
- Reassemble regulator.

