Parker Hannifin Corporation
Veriflo Division

SERVICE INSTRUCTION MANUAL FOR: PARKER HANNIFIN –VERIFLO DIVISION IR4000 & IR6000 SERIES PRESSURE REGULATORS

P/N 57000029 REV - E.O. 29409

1.0 INSTALLATION & SAFETY

See Installation & Operation Instructions at http://www.parker.com/veriflodivision/ or contact customer service at 510-235-9590.

2.0 DISASSEMBLY

Note: The following steps describe the sequence for disassembly of the IR4000 and IR6000 Series after the regulator has been removed from the system and purged.

2.0.1 Place the regulator in a vise and clamp by the flats on the bottom of the body. For IR6000 clamp the body in a vise. Use inlet and outlet fittings if installed or install fittings to prevent body from rotating.

2.0.2 Close the regulator by turning the adjusting knob counterclockwise (Decr direction) until the stop is reached. Do not force the knob past the stop. *No extra closing force is generated by rotating the knob past the stop.*

2.0.3 Disassembly of IR6000 1st Stage. Clamp the body in a vise. Use inlet and outlet fittings to prevent body from rotating. Remove acorn nut (See Figure 2) mark stem and cap with marker. Turn the stem counter clockwise and count the number of turns until the stop is reached. Note number of turns. (Follow 2.0.2 for 2nd Stage)

2.0.4 Using a 2 1/8" wrench loosen the clamp nut item 16.

2.0.5 Remove the Range Assembly and Diaphragm(s). Items 8-22.

2.0.6 Remove the Seal Assembly. Items 2-7.

2.0.7 Remove O-ring (1) from the O-ring grove.

Caution: Care must be taken to protect the toroid sealing surface on the body. Scratches or nicks on the toroid can cause the metal-to-metal seal to leak.

2.0.8 If needed remove screen(s) and filter(s). Items 23 and 24 using tweezers. *Be careful not to scratch sealing surfaces.*

3.0 REASSEMBLY

The following steps describe the sequence for re-assembly of the IR4000 & IR6000 Series Regulators. When rebuilding the IR4000 & IR6000 Series Regulators as a minimum it is recommend to replace the following items: 1, 4 and 5 (See spare parts kit lists). Once all of the replacement parts are available and the reused parts are appropriately cleaned proceed as follows:

Note: Spare parts kit listing is on the web at http://www.parker.com/veriflodivision/ ***go the instrument/analyzer icon and select the IR4000 or contact your local distributor for information regarding ordering replacement part kits.***

3.0.1 Install poppet spring (2) and poppet (3) into body.

3.0.2 Install washer (5) and seat (4) into carrier (6). Be sure seat bevel faces away from carrier.

3.0.3 Install carrier assembly (4,5,6) over poppet (3). Note that the poppet spring will prevent the carrier from sitting down on the body.

3.0.4 Install O-ring (1) in body (25).

3.0.5 Install Compression Member (7) over carrier (6). Ensure the concave of the Compression Member (7) is facing upwards. The poppet spring will prevent the carrier from sitting down on the body. Place diaphragm(s) (8) onto compression member (7) with dome side up. Place slip ring (9) on top of diaphragm (8)

3.0.5 Place the cap assembly (items 10 – 22) over the diaphragm (8) and slip ring (9). Be sure the diaphragm fits inside the lip of the body when pressing the assembly together gently, by hand, to prevent damage to the edge of the diaphragm. Care must be taken to assure the cap is properly seated into the body. Hold downward pressure and visually verify the cap (15) is centered inside the lip of the body (25).

3.0.7 While continuing to hold the cap (15) (range assembly) down on the body install the Clamp Nut (16) hand tight.

3.0.8 Position the vent hole in the cap at approximately the position desired by rotating the cap on the body. Note the cap (15) will rotate a small amount as the clamp nut (16) is being tightened.

3.0.9 Torque the Clamp Nut (16) to 90 ft-lbs. +/- 5 using a 2 1/8" wrench.

3.0.10 IR6000 1st stage setting: Turn stem clockwise the number of turns noted from 2.0.3 and line up the marks on the stem and cap. Re-install acorn nut and tighten. (See Figure 2)

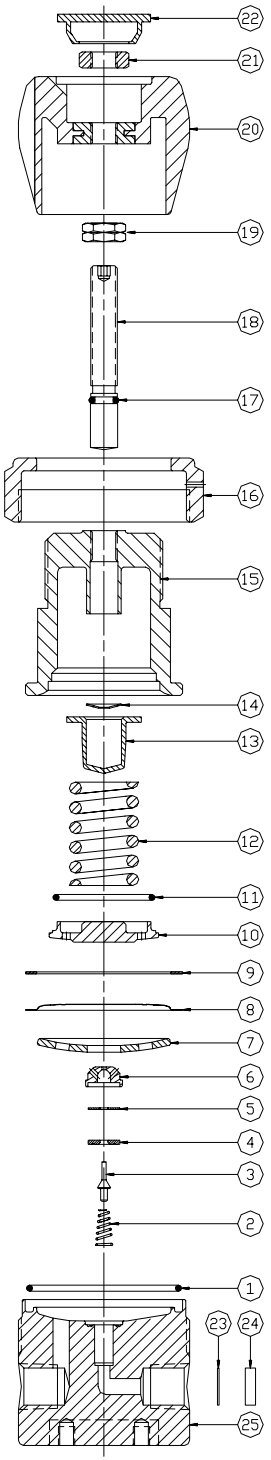

Figure 1

QTY	DESCRIPTION	ITEM
1	Body	25
1	Filter, Inlet ¼ NPT	24
1	Screen	23
1	Closure	22
1	Nut, Jam	21
1	Knob	20
2	Nut, Jam	19
1	Stem	18
1	O-Ring	17
1	Nut, Clamp	16
1	Cap	15
1	Washer, Kapton	14
1	Button, Spring	13
1	Spring, Coil	12
1	O-Ring	11
1	Backup Plate, Diaphragm	10
1	Slip Ring	9
1	Diaphragm	8
1	Compression Member	7
1	Carrier	6
1	Washer	5
1	Seat	4
1	Poppet	3
1	Spring, Conical	2
1	O-Ring	1

CAUTION

The user should insure the cleanliness of the media upstream of the regulator. Particulate matter can damage the regulator. Veriflo recommends the use of appropriate upstream filters to protect against contamination with in the process gas stream.

CAUTION

It is not recommended to perform field change out of the spring and diaphragm range assemblies to convert outlet pressure ranges. Field conversion could cause misapplication due to factory permanent marking of the body.

For assistance please call Veriflo Division Parker Hannifin direct at 510-235-9590 and ask for Customer Service and your call will be directed to a representative.

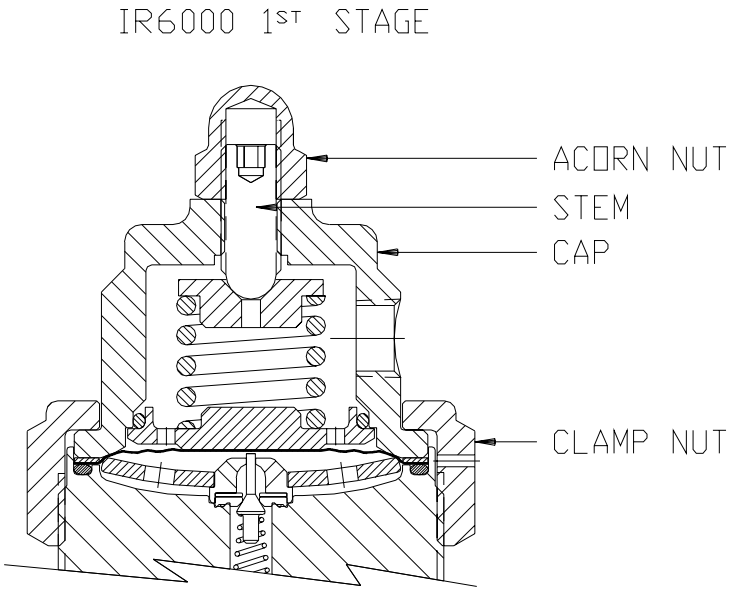

Figure 2

4. Creep

Reduce the flow to zero.
The rise in outlet pressure from the low flow reference point must not exceed the values given in table 2.

Table 2a (PCTFE seat):

Cv	Inlet Pressure	First Stage Pressure	Low Ref Flow	Maximum Allowable Drop For Each Range Listed					
				0-10	1-30	2-60	3-100	10-250	20-500
IR4000									
.02/.06	250 psig	——	500 cc	2.0 psi	——	——	——	——	——
.15	250 psig	——	1 lpm	2.5 psi	——	——	——	——	——
.02/.06	1500 psig	——	500 cc	——	2.0 psi	2.0 psi	2.0 psi	——	——
.15	1250 psig	——	1 lpm	——	2.5 psi	2.5 psi	2.5 psi	——	——
.02/.06	1500 psig	——	1 lpm	——	——	——	——	3.5 psi	——
.15	1250 psig	——	1 lpm	——	——	——	——	4.0 psi	——
.02/.06	1500 psig	——	2 lpm	——	——	——	——	——	4.0 psi
.15	1250 psig	——	2 lpm	——	——	——	——	——	4.5 psi
IR6000									
.02/.06	1500 psig	250 psig	500 cc	2.0 psi	2.0 psi	2.0 psi	2.0 psi	——	——
.15	1250 psig	250 psig	1 lpm	2.5 psi	2.5 psi	2.5 psi	2.5 psi	——	——
.02/.06	1500 psig	500 psig	1 lpm	——	——	——	——	3.5 psi	——
.15	1250 psig	500 psig	1 lpm	——	——	——	——	4.0 psi	——

Table 2b (PEEK & VESPEL seat)

Cv	Inlet Pressure	First Stage Pressure	Low Ref Flow	Maximum Allowable Drop For Each Range Listed					
				0-10	1-30	2-60	3-100	10-250	20-500
IR4000									
.02/.06	250 psig	——	500 cc	3.0 psi	——	——	——	——	——
.15	250 psig	——	1 lpm	4.0 psi	——	——	——	——	——
.02/.06	1500 psig	——	500 cc	——	3.0 psi	3.0 psi	3.0 psi	——	——
.15	1250 psig	——	1 lpm	——	4.0 psi	4.0 psi	4.0 psi	——	——
.02/.06	1500 psig	——	1 lpm	——	——	——	——	4.5 psi	——
.15	1250 psig	——	1 lpm	——	——	——	——	5.0 psi	——
.02/.06	1500 psig	——	2 lpm	——	——	——	——	——	5.0 psi
.15	1250 psig	——	2 lpm	——	——	——	——	——	5.5 psi
IR6000									
.02/.06	1500 psig	250 psig	500 cc	3.0 psi	3.0 psi	3.0 psi	3.0 psi	——	——
.15	1250 psig	250 psig	1 lpm	4.0 psi	4.0 psi	4.0 psi	4.0 psi	——	——
.02/.06	1500 psig	500 psig	1 lpm	——	——	——	——	4.5 psi	——
.15	1250 psig	500 psig	1 lpm	——	——	——	——	5.0 psi	——

5. Leak Testing

1. IR4000 and IR6000 Self Relieving Regulator:
   Static seal:
   Inlet pressure: (table 1)
   Outlet pressure: Maximum rated outlet pressure
   Requirement: Bubble tight at clamp nut test port
2. Dynamic seal:
   Inlet pressure: Maximum rated outlet pressure plus 100 psi
   Outlet pressure: 0
   Requirement: Bubble tight
3. Self relieving vent seal:
   Set the regulator inlet pressure equal to the maximum rated outlet pressure plus 100 psi. Set outlet pressure at maximum rating. The flow should be zero. Turn regulator knob CCW and check that the pressure vents through the cap. Turn regulator knob CW to maximum rated outlet. Check that the cap vent port is bubble tight.