

PIN8000 & PIN8010

*Portable & Rack-mountable Pneumatic
High Pressure Intensifier Console*

Operation and Maintenance Manual



CONDEC Sales Phone No.: (888) 295-8475
CONDEC Website: www.4CONDEC.com

CONDEC 
Genuine Quality, Proven Performance.

Contents

- About This Manual 1**
- 1.0 Safety 1**
 - 1.1 Safety Signals. 1
 - 1.2 Safety Precautions 1
- General Safety..... 2**
- 2.0 Introduction..... 3**
- 3.0 Operation..... 3**
 - 3.1 Optional External Pressure Cylinder (PN 59533) Filling Procedure. 3
 - 3.2 Initial Setup Procedure 3
 - 3.3 Operating Instructions 4
- 4.0 Maintenance & Service 5**
 - 4.1 Troubleshooting 5
 - 4.2 Maintenance & Service Procedures 5
 - 4.2.1 Panel/Chassis Removal and Installation. 6
 - 4.2.2 Accumulator, Intensifier & Orion 3A (PN 55287) Removal 6
 - 4.2.3 Orion 3A Manifold, Valve Seat Removal. 7
 - 4.2.4 Orion 3A Manifold, Vernier Control Disassembly 8
 - 4.2.5 Orion 3A Manifold, Vernier Control Reassembly. 8
 - 4.2.6 Orion 3A Manifold, Valve Seat Installation 9
 - 4.2.7 Accumulator, Intensifier and Orion 3A Manifold, Panel Installation 10
 - 4.2.8 Orion 3A Manifold, Valve Adjustment Procedure 11
 - 4.2.9 Accumulator Assembly, O-ring (PN 58051) Replacement, Filter (PN 56993) Cleaning 12
 - 4.2.10 Intensifier Assembly, O-rings/Seals Replacement 13
 - 4.2.11 REG 1000 (Regulator) and Solenoid Removal 15
 - 4.2.12 REG 1000 (Regulator) and Solenoid Installation. 16
 - 4.2.13 Panel Gauge Removal and Installation. 16
 - 4.2.14 Output (Test) Port Quick-Connect Fitting (PN 59004) and Filter (PN 54188), Removal and Installation. 17
 - 4.2.15 Output (Test) Port Hose Quick-Connect Fitting and Filter (PN 56991), Removal and Installation 18
 - 4.2.16 Input Port Filter (PN 54188), Removal and Installation 19
 - 4.2.17 Input Port Hose Quick-Disconnect Female Fitting, Removal and Installation 19
 - 4.2.18 AC Fuse (PN 57472), Removal and Installation 20
 - 4.2.19 Panel Mounted AC Power/EMI Line Filter (PN 58870), Removal and Installation 20
 - 4.2.20 Power Switch (PN 60307), Removal and Installation 20
 - 4.2.21 Pump Control Board Assembly, Removal and Installation 21
 - 4.3 Orion 3A Valve Assembly (PN 55287) Parts List 22
 - 4.4 Intensifier Assembly Parts List 24
- 5.0 Model Number System 29**
- 6.0 Options and Replacement Kits 30**
- 7.0 Specifications 32**
- PIN8000/PIN8010 Warranty and Return Policy 33**
- PIN8000/PIN8010 Return Material Authorization Form 34**

About This Manual

This manual is intended for service technicians responsible for installing and servicing PIN8000/PIN8010 pressure intensifiers.

The PIN8000 portable pneumatic pressure intensifier and the rack-mounted PIN8010 are rugged, compact instruments manufactured by Condec. They are designed for custom use and ease of operation.

This manual has been written to give the user a simple and clear explanation of how to operate and maintain these instruments.



WARNING

Before attempting to use either style pressure intensifier, the following instructions must be carefully read and understood. This is a high-pressure system. It is strongly recommended that only personnel trained in the use of pneumatic pressure equipment be permitted to operate it. Potentially dangerous conditions can be produced through negligent handling or operation of the console due to the high pressure output of the unit.

These units are strictly for use with pneumatic pressures. Erroneous readings and potential damage can result from the introduction of hydraulic fluids into internal tubing lines.



Authorized distributors and their employees can view or download this manual from the Condec distributor site at www.4condec.com.

1.0 Safety

1.1 Safety Signals

Safety Symbol Definitions:



DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed with misuse of unit.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.



Important

Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

1.2 Safety Precautions



Do not operate or work on this equipment unless you have read and understand the instructions and warnings in the manual. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals. Proper care is your responsibility.

General Safety



Before attempting to operate this unit, make sure every individual who operates or works with this unit has read and understands the following safety information. Failure to heed may result in serious injury or death.

DO NOT allow minors (children) or inexperienced persons to operate this unit.

DO NOT operate without fully reading and understanding operating instructions.

DO NOT step on the unit.

DO NOT jump up and down on the unit.

DO NOT use for purposes other than its intended use.

DO NOT place fingers into possible pinch points.

DO NOT drop or throw unit.

DO NOT use this product if any of the components are cracked or leaking.

DO NOT exceed the rated pressure limit of the unit.

DO NOT make alterations or modifications to the unit.

DO NOT remove or obscure warning labels.

DO NOT use near water.

Before opening the unit, ensure the power cord is disconnected from the outlet.

Keep hands, feet, and loose clothing away from moving parts.

2.0 Introduction

The PIN8000/PIN8010 pressure intensifier is an electro-mechanical device that can be used in conjunction with a NIST traceable calibration standard to allow calibrations up to 10,000 PSIG. Each PIN8000/PIN8010 utilizes Condec's patented ORION 3A type micro-metering valves and vernier for pressure adjustment and venting. The unit has two output (test) ports, one input port and three front panel gauges. This allows the operator to monitor accumulator pressure, regulated input pressure, and intensified output pressure. Two output (test) ports allow one to be connected to a NIST traceable calibration standard and the other to the device under test (DUT).

The Condec REG 1000 pressure regulator acts as a pressure limiter so that the operator can adjust input system pressure to 1/10 of the target value. A fill hose, output hose, and output fitting (located within the top cover) are supplied. A front panel switch provides selection of the desired pump control mode, momentary (jog) or continuous. For field use, the PIN8000 has an optional 83.3 cubic foot, 2,216 PSI cylinder is available to provide many hours of use.

The PIN8000 and 19-inch rack-mount version PIN8010 instruments offer a combination of features, performance, versatility and reliability not previously available in a pressure intensified instrument. Features include:

- Two output (test) ports for DUT and NIST standard
- Switch-selectable pressure pump control mode, momentary (jog) and continuous.
- Pressure monitoring: Three front panel mounted gauges provide excellent readability.
- Using the Condec REG 1000 pressure regulator, the maximum system input pressure is adjusted to slightly above 1/10 desired value of the full scale range of the device being tested. By using this technique, the device that is to be pressurized is fully protected from being inadvertently over-pressurized.
- Compact and self-contained, easily carried (38 lb.) and operated by only one person.
- Pressure source: nitrogen or clean dry air is supplied by the customer. In either instrument, the pressure source drives a pneumatically operated 10 to 1 intensifier contained within the PIN8000/PIN8010. Therefore, a 1,000 PSI input is amplified to 10,000 PSI. An optional external supply cylinder may be purchased that will contain a volume of 83.3 standard cubic feet of nitrogen and provide up to 2,216 PSIG of pressure for calibration and test.
- Simple operation: all controls, indicators and pressure ports (PIN8000 only) are accessible from the front panel.
- Safe and clean operation: all pressure components are made of stainless steel and proof-tested to at least 150% of maximum operating pressure. In addition, the system contains a high-pressure burst disk to protect both the operator and system components from harm in the event of inadvertent over-pressurization.

In addition to the features listed above, the PIN8000/PIN8010 pressure intensifier is easy to use. Two micro-metering valves and vernier are provided to control the internally intensified nitrogen, while the output pressure gauge and customer-supplied calibration standard (connected to one of the output ports) indicates the magnitude of the applied test pressure. Over-pressure protection is provided through a fully-adjustable Condec REG 1000 pressure regulator, which is manually set for each new device being tested.



Note *Actual output pressure is controlled through the vernier and micro-metering valves.*

Figure 2-1 provides an overview of the PIN8000/PIN8010's functions.

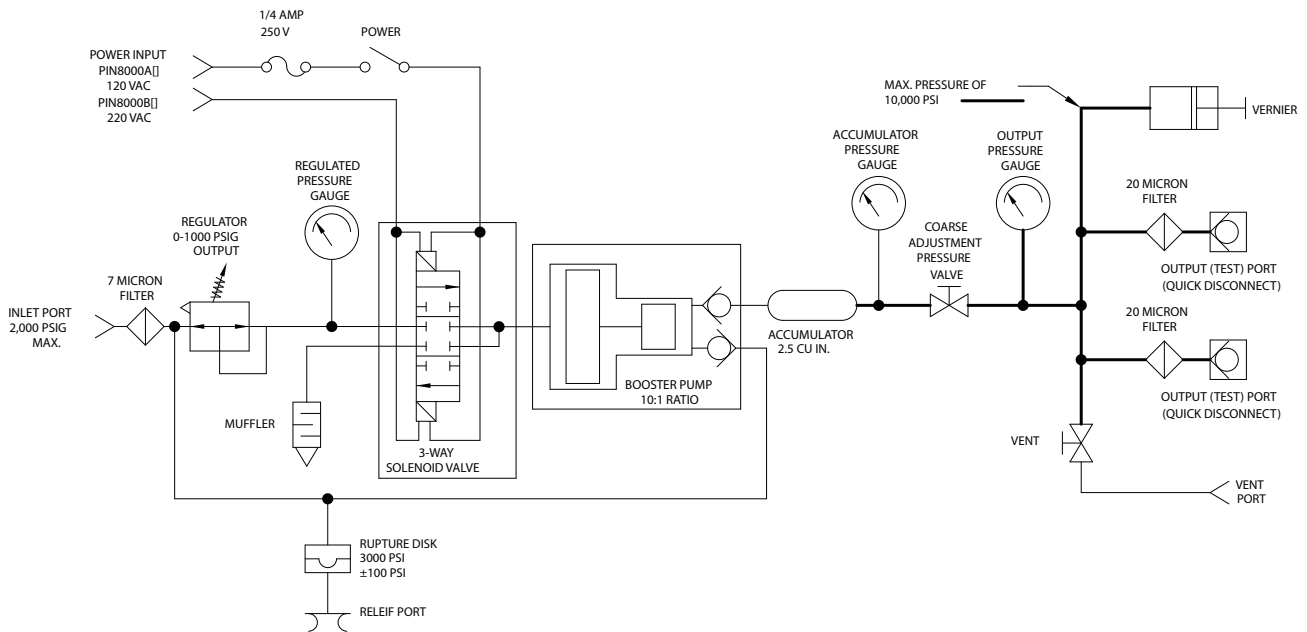


Figure 2-1. PIN8000/PIN8010 Flow Diagram

3.0 Operation

3.1 Optional External Pressure Cylinder (PN 59533) Filling Procedure



WARNING Condec strongly recommends that the external nitrogen supply cylinder be pressure-tested and re-certified every five years from the date the cylinder was manufactured per U.S. DOT. 3AL Regulation, Title 49 CFR, parts 173 and 178.

To initially fill or refill the external pressure cylinder (2,216 PSI max.),

1. Close the cylinder valve by rotating clockwise until it stops.
2. Connect the customer-supplied fill hose or optional Condec PN 150613 (male CGA-580 both ends) fill hose to a clean regulated nitrogen source, with an output pressure gauge and vent valve.
3. Connect the other end of the customer-supplied fill hose or optional Condec PN 150613 fill hose to the female CGA-580 brass cylinder valve fitting.
4. Open the cylinder valve by rotating counter-clockwise until it stops.
5. Slowly open the valve on the nitrogen source and allow the gas to flow into the pressure cylinder. The customer-supplied output pressure gauge indicates the amount of pressure within the internal cylinder.



Note The cylinder is equipped with a rupture disk.

6. Fill the cylinder to 1,000 PSI at a rate of charge equal to a minimum of two minutes, then wait five minutes for the system to stabilize.
7. Fill the cylinder from 1,000 PSI to 2,216 PSI at a rate of charge equal to a minimum of two minutes. Wait five minutes for the cylinder to stabilize before using.
8. Close the cylinder valve by rotating clockwise until it stops.
9. Vent the nitrogen source and remove the fill hose.

3.2 Initial Setup Procedure

To prepare for actual intensifier usage, see Figure 3-1 and proceed as follows:

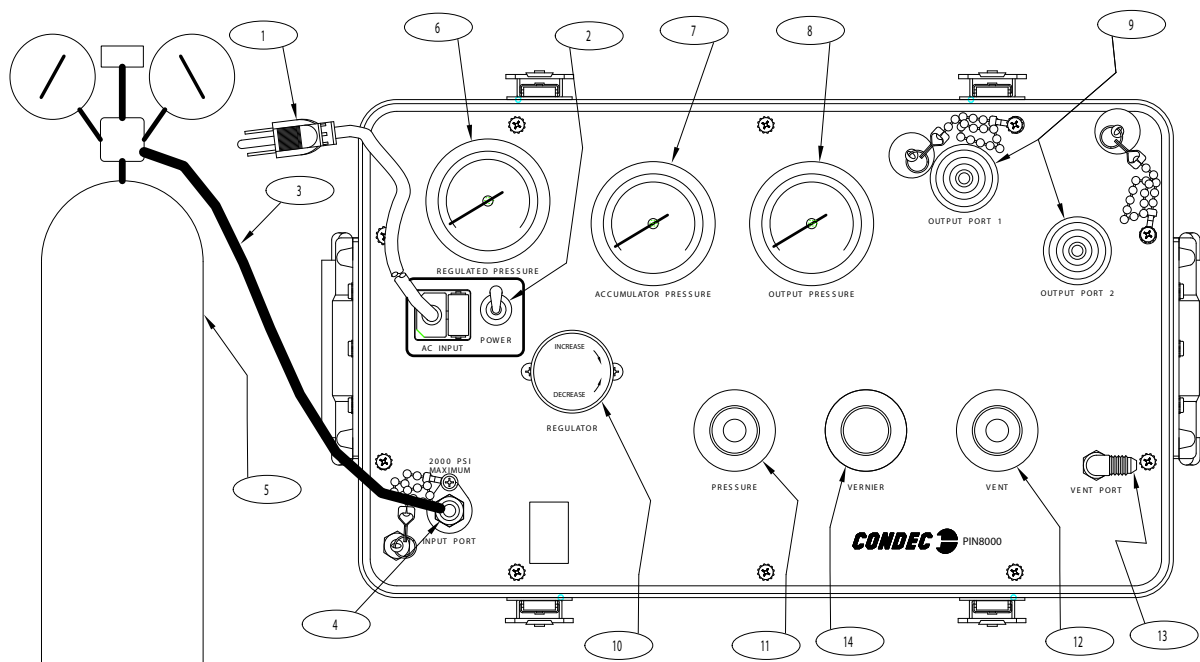


Figure 3-1. PIN8000 Components

1. Check that the pressure valve (11) is closed (rotate clockwise until it stops) and that the vent valve (12) is open (two turns counter-clockwise from its stop). Verify that the Condec REG 1000 (10) is closed by rotating counter-clockwise until it stops.
2. Plug in the power cord (1).
3. Connect the male end of the test (output) hose to output port 1 or port 2 (9).
4. Connect the swivel fitting end (7/16-20) of the test (output) hose to the input of the device to be pressurized using adapters if required. Properly tighten all connections.
5. Locate the male end of the supplied output port fitting PN 55542 found within the top cover. Connect with the output port (9).
6. Connect the other end of the output port fitting, male 7/16-20 37 degree (AN-4) JIC thread, to Condec 3030, Condec DPDG, or the customer-supplied pressure electronic calibration standard. If necessary, use adapters or a hose. Use a cheat seal pad PN 54854 between the output port fitting (PN 55542) and the hose/adaptor. Properly tighten all connections.
7. **If using the optional external cylinder PN 59533**, connect the male end of the input hose (3) to the female CGA-580 brass cylinder (5) valve fitting.
If not using the optional external cylinder, connect the male end of the input hose (3) to the female CGA-580, customer-supplied, regulated pressure source.
8. Connect the swivel fitting end (7/16-20) of the input hose (3) to the input port (4) fitting using a cheat seal pad PN 54854 between the mating surfaces. Properly tighten all connections.



Note *PIN8000 shown, AC Input (1), one of the output (test) ports (9) and input port (4) are on back side of the PIN8010 rack-mountable intensifier.*

3.3 Operating Instructions

See Figure 3-1 when following these steps.

1. **If using the optional external cylinder PN 59533**, open the cylinder valve (5) by slowly rotating counter-clockwise until it stops.
If not using the optional external cylinder, slowly open the customer-supplied regulated, 2000 PSIG max. input pressure source valve.
2. Using the Condec REG 1000 (10), adjust the maximum intensifier pump input pressure, as read by the regulated pressure gauge (6), to 1/10 of the target value. The unit utilizes an internal intensifier with a 10:1 ratio. For example, setting regulated pressure to 300 PSI would generate an output pressure of 3,000 PSI. This protects the device from being accidentally over-pressurized.
3. To generate pressure, enable the power switch (2) and monitor the pressure as it builds in the accumulator pressure gauge (7). Turn the power switch (2) off when 10% more than the target pressure has been achieved.



Note *The intensifier power switch (2) can be operated in two modes. The “up” position is continuous and the “down” position is momentary/jog.*



DANGER *Do not operate the unit in continuous mode without an operator being present.*

4. To apply pressure, the vent valve (12) must be closed by rotating the knob clockwise. Slowly open the pressure valve (11) counter-clockwise, while monitoring the electronic calibration standard display previously attached to one of the output ports (9), until reaching near the target value. The analog output pressure gauge (8) will also give a reading; however, it will be less accurate.
5. Use either the pressure (11) or vent valve (8) to obtain a pressure reading near the target value. Both provide precise control. As the pressure approaches the desired value, the valve being used for control should be slowly rotated clockwise to its closed position.
6. To obtain exact pressure readings, slowly rotate the vernier control (14) knob in the required direction (clockwise to increase pressure) as indicated by the electronic calibration standard display.



Note *Use the intensifier power switch (2) if the accumulator pressure gauge (7) reading falls below the required target pressure value.*

4.0 Maintenance & Service

This section outlines the mechanical and basic electrical repair procedures for the PIN8000/PIN8010.

4.1 Troubleshooting

Symptom	Problem	Remedy
The customer's electronic standard display or the output pressure gauge slowly decreases over time.	Leak in the system.	Check all compression and pipe fittings with Snoop®, bottle of liquid leak gas detector (PN 64781).
The electronic standard display or output pressure gauge fluctuates when the output pressure or vent valves are closed.	No pressure or vent control.	Replace the valve seats or O-rings in valves; check valve needles.
The electronic standard display or output pressure gauge does not respond when the vernier knob is turned.	No vernier control.	Re-adjust the isolation valves on the Orion 3A; replace the vernier piston's O-ring.
The unit does not cycle when the pump control switch is on.	Fuse blown on the pump control board. No power.	Replace the fuse. Check that the power is on.
The unit cycles, but does not pressurize.	Debris in check-valve seat in intensifier, deformity in seat. No supply pressure.	Remove seats in the intensifier and clean and/or replace. Check to see if there is sufficient supply pressure.

Table 4-1. PIN8000/PIN8010 Troubleshooting

4.2 Maintenance & Service Procedures

The repair procedures cover the major components and sub-assemblies which are critical to the proper functioning of the calibrators and that need periodic maintenance over the life of the unit.



CAUTION Only those persons who are formally trained as skilled technicians should attempt to repair these units. All safety precautions should be observed due to the presence of electrical and high-pressure components. The unit must always be unplugged from the power source and properly vented.

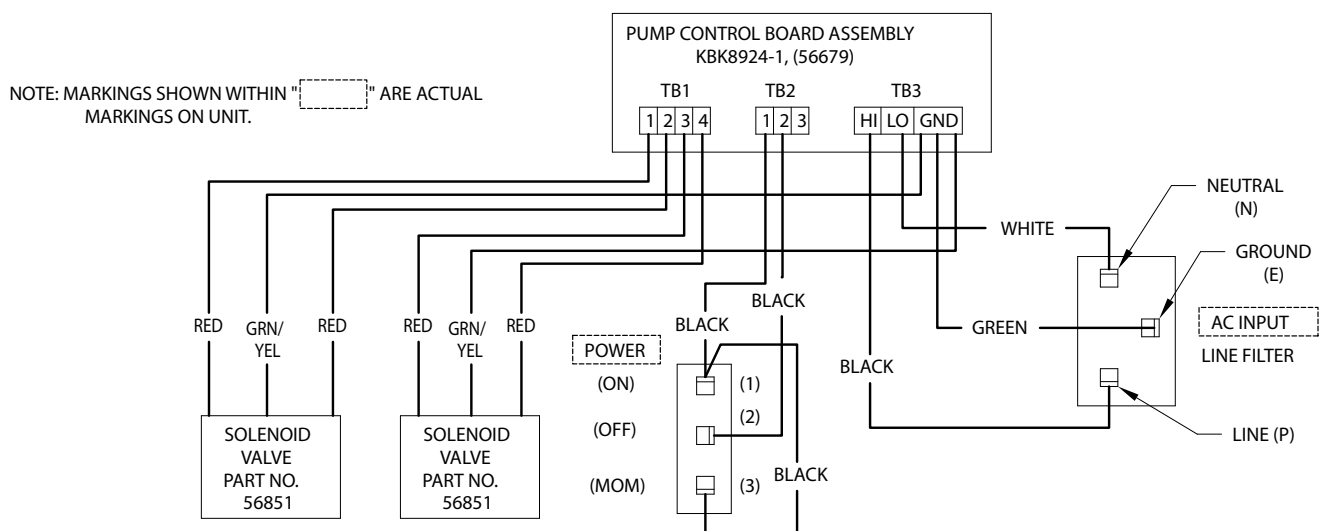


Figure 4-1. PIN8000/PIN8010 Wiring Diagram

4.2.1 Panel/Chassis Removal and Installation

PIN8000 Removal

Tools required: Phillips screwdriver

1. Loosen and remove the 10 screws (PN 14862) which secure the panel assembly to the enclosure.
2. Lift the panel and chassis by first grasping the regulator knob and output (test) port; and second, grasping under the panel edges. Tilt the panel at an angle by lifting the right side before the left side as you face the panel. Ensure that the wire harnesses do not catch and snag.
3. Gently set the panel/chassis assembly on a bench top. It can be rested on the panel bottom with the accumulator supported by a screwdriver handle.

PIN8000 Installation

Tools required: Phillips screwdriver

1. Lift the panel and chassis by first grasping the regulator knob and output (test) port.
2. Gently place the panel/chassis assembly into the enclosure. Tilt the panel at an angle by lifting the right side before the left side as you face the panel. Ensure that the wire harnesses do not catch and snag.
3. Align the mounting holes and install the 10 screws (PN 14862) which secure the panel assembly to the enclosure.

PIN8010 Removal

Tools required: Phillips screwdriver

1. Loosen and remove the 14 screws (PN 14861) from the top, bottom, and sides which secure the panel assembly to the enclosure. Loosen and remove the three screws (P/N 14861) from the rear of unit which secure the enclosure to the output (test) port/AC input/input port panel.
2. Lift the panel and chassis by grasping the handles located on the front of the rack-mountable panel. Ensure that the wire harnesses do not catch and snag.
3. Gently set the panel/chassis assembly on a bench top. It can be rested on the panel bottom with the accumulator supported by a screwdriver handle.

PIN8010 Installation

Tools required: Phillips screwdriver

1. Lift the panel and chassis by grasping the handles located on the front of the rack-mountable panel.
2. Gently place the panel/chassis assembly into the enclosure. Ensure that the wire harnesses do not catch and snag.
3. Align the mounting holes and install 14 screws (PN 14862) from the top, bottom, and sides which secure the panel/chassis assembly to the enclosure. Also, align the mounting holes and install the three screws (PN 14862) from the rear of unit which will secure the enclosure to the output (test) port/AC input/input port panel.

4.2.2 Accumulator, Intensifier & Orion 3A (PN 55287) Removal

Tools required:

- Phillips screwdriver
- 11/32" wrench or nutdriver
- .061" hex wrench
- adjusting screwdriver (small flat blade)
- 11/32" open end wrench (thin)
- 7/16" open end wrench



Note See Table 4-2 on page 22 and Figure 4.3 on page 22 for additional Orion 3A parts information.

1. Vent the system to its atmosphere before attempting to work on the unit. Disconnect the power cord from the power source.
2. Remove the front panel from its enclosure as described in Section 4.2.1 and carefully set on a bench top.
3. Using a 7/16" wrench, remove the following tubing sections:
 - Accumulator to supply pressure gauge (1/8" dia.)
 - Accumulator to pressure inlet on Orion 3A manifold (1/8" dia.)
 - Accumulator to intensifier outlet (1/4" dia.)
4. Loosen and remove the six screws securing the two clamps that hold the intensifier and accumulator.

5. Remove the accumulator by sliding out.
6. Loosen the fitting nut at the intensifier end of the long 1/4" diameter tubing section which connects the solenoid valve to the intensifier. There is no need to remove the tubing.
7. Remove the two clamps and the intensifier.
8. Using a 7/16" wrench, remove the vent port to the Orion 3A manifold vent outlet (1/8" dia.).
9. Loosen and remove the tubing connections located near the bottom of the Orion 3A manifold that go to both panel output ports.
10. Remove the panel knobs from the pressure (coarse), vernier and vent valves using the .061" hex wrench.
11. Loosen and remove the two panel screws (PN 60837) from the panel front which secures the manifold to the panel.
12. Remove the five retaining nuts and lock washers which secure the chassis to the panel.
13. Lift the chassis enough to allow the Orion 3A manifold to clear. Then, remove the manifold.
14. Reposition the chassis over the mounting studs and secure with at least two nuts.

4.2.3 Orion 3A Manifold, Valve Seat Removal

Tools required:

- A/R solvent (de-natured alcohol)
- socket wrench
- 3/4" socket
- needle housing socket (PN 65580)
- isolation valve needle housing socket (PN 68509)
- hex wrench (.050")
- hex wrench (.061")
- needle-nose pliers
- tube fluorinated krytox grease (PN 55593)
- electric hand drill
- No. 43 drill bit
- No. 4-40 tap
- tap handle
- small hammer



Note See Table 4-2 on page 22 and Figure 4.3 on page 22 for additional Orion 3A parts information.

1. Secure the manifold by its center portion, in a bench vise, with the valve knobs pointing upward.
2. Using the .061" hex wrench, loosen and remove the knob inserts (4) from the pressure and vent valve stems.
3. Loosen the 3/4" locknuts (1) on the pressure and vent valve threaded needle housings (10).
4. Using the needle housing socket (PN 65580) and torque wrench, loosen and remove the needle/housing assembly (10, 1).
5. To disassemble the isolation valves (two inner valves), first remove the valve needle (18) by turning the gear clockwise.
6. Loosen and remove the valve housings (19) using the isolation valve housing removal socket (PN 59793) female socket (PN 65581) and torque wrench.
7. Remove the valve stem seats (8) and valve needle seats (9) using the needle-nose pliers.
8. Remove the inner and outer O-rings (28, 27) and back-up rings (31, 30) from the valve stem seats. Wash all parts in solvent (de-natured alcohol).
9. To remove valve seats (7) from either the pressure (coarse), vent or isolation valves, try blowing compressed air through the inlet and outlet fittings. If unsuccessful, continue with the following steps.
10. Using the electric hand drill with the No. 43 bit, carefully drill out the seat hole, ensuring that the drill does not touch the hole in the manifold housing directly beneath the seat.
11. Blow out any chips from the seat area using compressed air.
12. While holding the 4-40 tap steady and perpendicular to the seat, slowly turn until the tap starts to engage the seat.
13. When the tap has engaged into the seat, use a small hammer and gently knock upward against the tap handle to extract the seat.
14. After the seat has been removed, blow any remaining chips from the seat area.

4.2.4 Orion 3A Manifold, Vernier Control Disassembly

Tools required:

- A/R solvent (de-natured alcohol)
- 1-1/4" open end wrench
- screwdriver (flat-blade)
- socket wrench
- isolation valve needle housing socket (PN 68508)
- isolation valve needle housing socket (PN 68509)



Note See Table 4-2 on page 22 and Figure 4.3 on page 22 for additional Orion 3A parts information.

1. With the manifold housing mounted in a vise, turn the vernier shaft (14) clockwise until the piston is bottomed.
2. Loosen and remove the end cap (13) using a 1-1/4" wrench. At certain points during removal, the end cap might appear to lock up. If this occurs, rotate the shaft clockwise until the end cap is free to turn.
3. Remove the O-ring (29) from the end cap.
4. Remove the self-sealing screw (36) which acts as the piston key.
5. Extract the piston (15) by partially screwing in the threaded end of the shaft and pulling.
6. Remove the O-ring (32) from the piston groove.
7. To disassemble the end cap/shaft assembly, mount the end cap in the vise.
8. Loosen and remove the locknut (20) using the isolation valve needle housing socket (PN 68509) and socket wrench.
9. Loosen and remove the end bushing (12) using the isolation valve housing socket (PN 68508) and socket wrench. Remove the shaft (14). Remove the ball bearings (41) from both sides of the shaft flange.
10. Use a small pick or screwdriver to remove the O-ring (27) from the inner groove of the end cap (13). Also, remove backup retainer (39) from inner groove of the end cap (13).
11. Wash all parts in solvent and blow dry with compressed air.

4.2.5 Orion 3A Manifold, Vernier Control Reassembly

Tools required:

- tube fluorinated Krytox grease (PN 55593)
- 1-1/4" wrench
- screwdriver (flat-blade)
- socket wrench
- isolation valve needle housing socket (PN 68508)
- isolation valve needle housing socket (PN 68509)
- torque wrench



Note See Table 4-2 on page 22 and Figure 4.3 on page 22 for additional Orion 3A parts information.

1. Coat all new O-rings with fluorinated Krytox grease before installing.
2. Install the small O-ring (27) into the end cap inner groove. Also, install the backup retainer (39) into the inner groove of the end cap (13).
3. Hold the shaft (14) vertically with the end that goes through the end bushing (12) toward the ceiling. Place a light coating of grease on the shaft's threads. Place a thick coating of grease on top of the shaft bearing surface.
4. Allowing grease to hold the ball bearings in place, slide the end bushing (12) over the top of the shaft and down to contact the top of the ball bearings.
5. Rotate the shaft assembly 180°, placing the end bushing towards the floor. Be careful not to displace ball bearings. Place a thick coating of grease on the shaft and bearing surface. Place 16 chrome ball bearings (41) on the greased surface, allowing grease to hold them in place.
6. Install the shaft (14) with bearings (41) into the end cap.

7. Install the end bushing (12) and tighten until snug using the isolation valve needle housing socket (PN 68508) and socket wrench.
8. Tighten so the shaft rotates but is firm. Feel the vertical motion of the shaft (14). If motion exists, retighten the end bushing.
9. Install the locknut (20) into the end cap (13) using the isolation valve needle housing socket (PN 68509) and torque wrench. Torque to approximately 325 in/lbs.
10. Install the O-ring (32) in the piston groove and install the piston (15) into the vernier cavity. Ensure that the piston keyway is facing the hole into which the self-sealing screw (36) is assembled.
11. Install the self-sealing screw (36) and tighten until snug.
12. Apply a thin coat of fluorinated Krytox grease and install the O-ring (29) and backup washer (38) on the end cap/shaft assembly. Install into the manifold and tighten until snug.

4.2.6 Orion 3A Manifold, Valve Seat Installation

Tools required:

- | | |
|---|--|
| • needle-nose pliers | • torque wrench |
| • tube fluorinated Krytox grease (PN 55593) | • socket wrench |
| • No. 43 drill | • 3/4" socket |
| • A/R solvent (de-natured alcohol) | • needle housing socket (PN 65580) |
| • hex wrench (.050") | • isolation valve needle housing socket (PN 68509) |
| • hex wrench (.061") | • female socket (PN 65581) |



Note See Table 4-2 on page 22 and Figure 4.3 on page 22 for additional Orion 3A parts information.

1. Install a new seat (7) by placing it into the seat well with the needle-nose pliers. Ensure that the seat is centered within the cavity and gently tap it with the blunt end of a drill bit to install.
2. Install the valve needle seat (9) with the smaller diameter end facing outward.
3. Install new O-rings (28, 27) inside and outside of the valve stem seat. Coat all O-rings and back-up rings (30, 31) with fluorinated Krytox grease before installation. Make sure the rings are installed in the proper order.
4. Install the valve stem seat (8) by grasping the small diameter end with the needle-nose pliers and positioning in the valve cavity, then gently pushing with the blunt end of a drill bit.
5. For pressure (coarse) and vent valves (two outer valves), disassemble the valve needle (11) from its housing (10) and check for any burrs or dirt on the threads which might interfere with smooth operation.
6. Clean both the needle (11) and housing (10) in solvent, dry the parts and apply a small amount of fluorinated Krytox grease to the needle threads before reassembly.
7. Assemble the valve needle (11) into the valve needle housing (10) and turn it until it stops.
8. Reinstall the needle/housing assembly into the valve cavity until it is finger tight.
9. Mount the manifold body (16) in a vise. For the pressure (coarse) and vent valves only, torque the needle/housing assembly to 325 in-lb. using the needle housing socket (PN 65580) and torque wrench.
10. Install the housing lock nuts (1) onto the housing (10) and tighten with the 3/4" socket until snug.
11. Using the .050" hex wrench, install and tighten the lock nut (2) and set screw (34).
12. Install the knob insert (4) over the valve needle (11) shaft. Align the set screws (23) with the indents and tighten with the .061" hex wrench.
13. For the isolation valves (two inner valves), install the needle housing (19) and tighten until snug using the isolation valve needle housing installation socket (PN 68509) and torque wrench.



Important There is no specified torque, so use care when tightening so as not to break the socket nibs.

14. Install the gear (6) over the isolation valve needle (18) shaft. Align the set screws (26) with the indents and tighten with the .061" hex wrench.
15. Apply a small amount of fluorinated Krytox grease to the threads of the isolation valve needles (18) and install into the valve by turning counter-clockwise. Rotate the gear until the needle stops at the seat.

4.2.7 Accumulator, Intensifier and Orion 3A Manifold, Panel Installation

See Table 4-2 on page 22 and Figure 4.3 on page 22, for additional parts information.



Note (* denotes reference to Figure 2-1 on page 4.)

Tools required:

- 7/16" open end wrench
 - Phillips screwdriver
 - Hex wrench (.061")
 - Snoop®, liquid leak gas detector (PN 64781)
 - 11/32" open end wrench (thin)
1. If not already done, remove the panel knobs from the pressure (coarse), vernier and vent valves using the .061" hex wrench.
 2. With the panel facing down against the bench, if not already done, remove the five retaining nuts and lock washers which secure the chassis to the panel. Lift up the chassis enough so that the Orion 3A manifold is able to clear.
 3. Install the manifold with the output port connections side facing the panel bottom. Install the two mounting screws (PN 60837) from the panel front and tighten until snug.
 4. Secure the chassis to the panel with the five nuts and lock washers. Tighten until snug.
 5. Install the vernier knob (17) onto the vernier valve shaft (14). Align the set screws (25) with the indentations on the vernier valve shaft and tighten until snug using the .061" hex wrench.



Note To install the pressure (coarse) and vent valve knobs, and perform a valve adjustment, follow the procedure in Section 4.2.8 after completing the following steps.

6. Install and tighten tubing connections located near the bottom of the Orion 3A manifold that are connected to panel output ports.
7. Using a 7/16" wrench, install the following tubing section that goes from the vent port to the Orion 3A manifold vent outlet (1/8" dia.)
8. Replace the intensifier and the two clamps.
9. Realign and tighten the fitting nut at the intensifier end of the long 1/4" diameter tubing section which connects the solenoid valve to the intensifier.
10. Replace the accumulator by sliding in thru the clamps.
11. Thread and tighten the six screws that secure the two clamps that hold the intensifier and accumulator.
12. Using a 7/16" wrench, realign and tighten the following tubing sections:
 - accumulator to intensifier outlet (1/4" dia.)
 - accumulator to pressure inlet on Orion 3A manifold (1/8" dia.)
 - accumulator to supply pressure gauge (1/8" dia.)
13. With a pressure source connected to the input port (*4), use the Condec REG 1000 (*10) set the input pressure to 100 PSI. Enable the power switch (*2) and monitor the pressure as it builds in the accumulator gauge (*7). Turn the power switch (*2) off when 1,000 PSI has been achieved. Check all fittings for leaks. If there are no leaks, vent the system and remove the pressure source.



Note See Section 3.2 on page 3 for pressure source connection procedure.



DANGER Do not operate the unit in continuous mode without an operator being present.

14. Install panel/chassis assembly in its enclosure as described in Section 4.2.1 on page 6.

4.2.8 Orion 3A Manifold, Valve Adjustment Procedure

Tools required: hex wrench (.050")
 hex wrench (.061")



Note See Table 4-2 on page 22 and Figure 4.3 on page 22 for additional parts information.
(* denotes reference to Figure 2-1 on page 5.)

1. Locate the male end of the supplied output port fitting (PN 55542) found within the top cover. Connect with the output port (*9).
2. Connect the other end of the output port fitting, male 7/16-20 37 degree (AN-4) JIC thread, to Condec 3030, Condec DPDG, or the customer-supplied pressure electronic calibration standard. If necessary, use adapters or a hose. Use a cheat seal pad (PN 54854) between the output port fitting (PN 55542) and the hose/adapter. Properly tighten all connections.
3. **If using the optional external cylinder PN 59533**, connect the male end of the input hose (*3) to the female CGA-580 brass cylinder (*5) valve fitting.
If not using the optional external cylinder, connect the male end of the input hose (*3) to the female CGA-580, customer-supplied, regulated pressure source.
4. Connect the swivel fitting end (7/16-20) of the input hose (*3) to the input port (*4) fitting using a cheat seal pad (PN 54854) between the mating surfaces. Properly tighten all connections.
5. If not already done, remove the Orion 3A pressure and vent valve knobs (3) using the .061" hex wrench.
6. Energize the electronic calibration standard attached to one of the output ports (9) and let it warm up.
7. To adjust the pressure (coarse) valve, use a .050" hex wrench to loosen the set screw (34) on the locknut (2) and turn the locknut clockwise to its stop.
8. Check to see that the knob insert (4) is securely fastened to the valve shaft (11). If it is loose, re-tighten the set screws (23) with the .061" hex wrench.
9. Close the pressure (coarse) valve by turning the knob insert (4) clockwise until you feel the valve needle seat on the O-ring (valve is now in closed position).
10. Rotate gears on both isolation valves (two inner valves), counter-clockwise until they stop, then rotate clockwise 1/2 turn (opening isolation valves).
11. With a pressure source connected to the input port (*4). Use the Condec REG 1000 (*10), to increase the regulated pressure (monitor the regulated pressure gauge [*7]) to 1,000 PSIG. Enable the power switch (*2) and monitor the pressure as it builds in the accumulator gauge (*7). Turn the power switch (*2) off when 8,000-10,000 PSIG has been achieved.



DANGER Do not operate the unit in continuous mode without an operator being present.

12. Open the vent valve (*12) to atmosphere, then close the vent valve (*12).
13. Slowly open the pressure (coarse) valve by turning the knob insert (4) counter-clockwise until the displayed pressure increases. Then turn the knob insert slightly clockwise until the pressure stops rising.
14. Mark a radial line at the 12 o'clock position on the knob insert.
15. Turn the knob insert (4) clockwise to move the mark to the 6 o'clock position.
16. Turn the locknut (2) counter-clockwise until it contacts the bottom of the stop washer. Tighten the set screw (34) on the locknut with the .050" hex wrench.
17. Install the pressure (coarse) valve knob (3) on the knob insert (4) and engage its gear (5) with the smaller isolation valve gear (6). Turn the knob clockwise until the isolation valve is slightly snug.



Important Do not use excessive torque when tightening pressure (coarse) valve knob. Doing so may damage the seat.

18. Remove the pressure (coarse) valve knob. Align the set screws (25) with indentations on the knob insert (4). Install the knob on the knob insert while engaging the knob gear (5) with the isolation valve gear (6).
19. Tighten the set screws (25) with the .061" hex wrench. The pressure (coarse) valve is now adjusted.
20. To adjust the vent valve, follow steps 7-8 replacing the term *pressure (coarse) valve* with *vent valve*.

21. Close the pressure (coarse) valve by turning the pressure (coarse) knob (*11) clockwise.
22. Close the vent valve knob insert (4) clockwise until slightly snug.
23. With a pressure source connected to the input port (*4). Use the Condec REG 1000 (*10), to increase the regulated pressure to 1,000 PSIG. Enable the power switch (*2) and monitor the pressure as it builds in the accumulator gauge (*7). Turn the power switch (*2) off when 8,000-10,000 PSIG has been achieved. Open the pressure (coarse) valve until the indicated pressure viewed on the electronic calibration standard, attached to one of the output ports (*9), stabilizes and then close the pressure (coarse) valve.



DANGER Do not operate the unit in continuous mode without an operator being present.

24. Slowly turn the vent valve knob insert (4) counter-clockwise until the electronic calibration standard display, attached to one of the output ports (*9) starts to decrease, then turn the knob insert (4) slightly until the indicated pressure stops decreasing.
25. Follow steps 13 through 19 replacing the term *pressure (coarse) valve* with *vent valve*. The vent valve is now adjusted.

4.2.9 Accumulator Assembly, O-ring (PN 58051) Replacement, Filter (PN 56993) Cleaning

Tools required:

- Phillips screwdriver
- 5/8" Open end wrench
- Adjustable wrench
- A/R 1/4" wide teflon tape, (PN 60575)
- Tube fluorinated Krytox grease (PN 55593)
- A/R solvent (de-natured alcohol)

Disassembly:

1. Remove the accumulator assembly from PIN8000/PIN8010 per Section 4.2.2 on page 6.
2. Place the accumulator body in vise, using flats.
3. Remove the plug adapter fitting (PN 57134) using an adjustable wrench.
4. Remove the O-ring (PN 58051) and back-up ring (PN 59735).
5. Remove the accumulator body from the vise and place the adapter fitting in the vise, using flats with threads facing upwards.
6. Remove the filter retainer fitting (PN 57811) using a wrench.
7. Remove the plug adapter fitting from the vise, turn upside down, and remove the filter.
8. Clean the filter (PN 56993) in solvent (de-natured alcohol) and blow-dry with compressed air.

Assembly:

1. Place the filter (PN 56993) into the filter retainer fitting (PN 57811).
2. Finger-tighten the filter retainer fitting into the plug adapter fitting (PN 57134).
3. Place the plug adapter fitting (PN 57134) in a vise and tighten the filter retainer fitting.
4. Grease the O-ring/back-up ring groove on the plug adapter fitting.
5. Grease both sides of the O-ring (PN 58051) and back-up ring (PN 59735). Install the back-up ring onto the plug adapter fitting, followed by the O-ring.



Note Use a pointed bent pick when installing the O-ring to prevent damage. Verify the backup ring split is properly aligned.

6. Place the accumulator body in a vise using flats. Grease the accumulator body in the O-ring seat area, then slowly thread the plug adapter fitting using an adjustable wrench into the accumulator body.



Note To help seat the back-up ring, hand-tighten the plug adapter fitting close to bottoming, then wrap an 8" piece of 22 AWG, solid buss wire around the edge of the back-up ring with a gap between the accumulator body and plug adapter fitting. Pull the buss wire ends to squeeze the back-up ring into the proper position within the accumulator body. Verify the back-up ring split is properly aligned and overlapping properly.

7. Tighten the plug adapter fitting.
8. Install the accumulator assembly into PIN8000/PIN8010 per Section 4.2.7 on page 10.

4.2.10 Intensifier Assembly, O-rings/Seals Replacement

Tools required:

- Phillips screwdriver
- 5/8" Open end wrench
- 1/4" Hex key
- 3/16" Hex key
- 3/8" Hex key
- Adjustable wrench
- Check valve seat tool (PN 70711)
- Fitting holder tool (PN 70710)
- Tapered packing retainer tool (PN 70712)
- Check valve fitting tool (PN 70709)
- A/R 1/4" wide teflon tape, (PN 60575)
- Tube fluorinated Krytox grease (PN 55593)
- Oil lubricant, (PN 60944)
- A/R solvent (de-natured alcohol)



Note See Table 4-3 on page 24 and Figure 4-3 on page 25 for additional parts information.

Disassembly Rings and Seals:

1. Remove the intensifier assembly from PIN8000/PIN8010 per Section 4.2.2 on page 6.
2. Remove the 10 cap screws (1) and washers (2) from the end cap which has the single elbow fitting (23).
3. Remove the end cap (3) and O-ring (4).
4. Remove the piston (18).
5. Remove the small piston retainer (24) and three piston rings (22).
6. Remove the large piston O-ring (21) and two packing retainers (20).

Disassembly of Check Valves:

1. Remove the inlet check valve fitting (12) and outlet (16) port.
2. For the outlet valve, remove, in order, the spring housing (8), spring (9), poppet (10) and seat (11).
3. For the inlet valve remove, in order, the seat (15), poppet (10) and spring (9).

Reassembly of Check Valves:



Note Clean all parts with solvent and use an air hose to remove any dust particles from all mechanical parts, except screws and washers. Replace all damaged parts with new ones.

For ease of assembly and to prevent damage to parts, it is recommended to use the following tools during assembly:

- check valve seat tool (PN 70711)
- tapered packing retainer tool (PN 70712),
- fitting holder tool (PN 70710)
- check valve fitting tool (PN 70709)

For the outlet valve:

1. Assemble the spring (9) and check valve (10) into the spring housing (8).
2. Press the check valve seat (11) into the spring housing (8) using the large diameter end of the check valve seat tool (PN 70711). Be sure the check valve seat (11) is seated. Coat grease in the bottom groove marks and in the hole of the end cap (19) where fitting item 16 goes.



Note The larger of the two seats belongs to the outlet check valve. It is very important not to get grease in the counter-sunk hole located at the center of groove marks.

3. Place grease on the bottom of items (11/8) sub-assembly.



Important Take care to not get grease on item 10.

4. Slide the (11/8) sub-assembly into the end cap (19) until it is properly seated on the bottom. Thread the high pressure tube fitting (16) into the end cap (19) and tighten using a 5/8" wrench.
5. For the inlet valve, perform the following steps:
6. Thread the "AN" side of the inlet check valve fitting (12) into the fitting holder tool (PN 70710).
7. Place a small amount of grease (PN 55593) on the inlet check valve fitting (12) between the groove area

and the top of the fitting to enable ease of installation of the packing retainer (13).

8. Place the tapered packing retainer tool (PN 70712), stepped part, into the hole in the packing retainer (13). Place grease on sides of the tool.
9. Slide the packing retainer (13) onto the packing retainer tool (PN 70712) and down into the groove of the inlet check valve fitting (12).
10. Remove the packing retainer tool (PN 70712) and wipe grease from the tool.
11. Grease both sides of the O-ring (14) and install into the groove on the inlet check valve fitting (12).
12. Use the stepped part of the packing retainer tool (PN 70712) on the check valve seat (15) to install into the recessed end of the inlet check valve fitting (12). The check valve seat (15) must seat flat. If needed, tap the tool very lightly to seat, but make sure no damage occurs to the inlet check valve fitting (12).
13. If required, tap the round dowel (25) into the hole on the threaded shaft of the piston ring retainer (24). Leave extra material protruding from both sides of the shaft. Trim the round dowel (25), using cutters, to the top of threads on both sides. Thread the piston ring retainer (24) into the piston (18), two or three turns, to form threads on the round dowel (25). Remove the piston ring retainer (24) from the piston (18).
14. Grease the inside wall of the end cap (19) where the inlet check valve fitting (12), sub-assembly, O-ring, and back-up ring will touch.
15. Place the spring (9) and check valve (10) into the end cap (19).
16. Thread the "AN" side of the inlet check valve fitting (12), sub-assembly into the fitting holder tool (PN 70710). Now place the sub-assembly into the check valve fitting tool (PN 70709) so the flat side of item 15 goes through the beveled side of the tool.
17. Slide item 12 back and forth in the tool a few times to align the O-ring and backup ring. Remove the sub-assembly from the check valve fitting tool (PN 70709) and unthread from the fitting holder tool (PN 70710). Thread item 12 sub-assembly into the end cap (19), where the spring (9) and check valve (10) were previously installed. Tighten using a 5/8" wrench.

Reassembly of Rings and Seals:



Note Clean all parts with solvent and use an air hose to remove any dust particles from all mechanical parts, except screws and washers. Wipe the bores of the intensifier housing with a clean cloth before installing the piston. Replace all damaged parts with new ones.

1. Smear a medium amount of grease in the O-ring cavity on piston (18). Grease both sides of the two back-up rings (20) and the O-ring (21). Install into the groove on piston (18).



Important The split of each backup ring (20), must be 180° from each other with the ends properly overlapping.

2. Lightly coat the edges of backup rings (20) and the O-ring (21) with oil lubricant (PN 60944).
3. Lightly coat both inside diameters of the housing (17) with oil lubricant.
4. Place grease on the piston ring retainer (24) where the piston rings (22) seat.
5. Place grease on both sides of the three piston rings (22) and install the three piston rings (beveled sides aligned) onto the piston ring retainer (24).
6. Slide the piston (18) into the housing (17), being careful not to damage wall areas. Slide until the smaller diameter of the piston (18) is exposed from the side of housing (17).
7. Thread item 24 with the three piston rings (22) into the piston (18) approximately four turns.
8. Stand housing 17 on end, with the piston ring retainer (24) facing upward. Push the piston ring retainer to verify it will fully go into the housing. The top of the piston ring retainer (24) must be slightly below the surface of housing (17).
9. Place the housing (17) on its side. Place a 3/16" hex key in the piston ring retainer (24) and a 1/4" hex key in the piston (18). Rotate the 1/4" hex key to tighten.
10. Remove the 3/16" hex key and verify the piston (18) will rotate. If the piston rotates, remove the 1/4" hex key. If it does not rotate, loosen the piston slightly.
11. Grease both sides of the O-ring (4) and end cap (3) O-ring groove. Install the O-ring (4) into the groove of the end cap (3).

12. Place the housing (17) sub-assembly with large I.D. upward and install the end cap (3) into the housing (17).
13. Place the cap screw (1) through the washer (2) and thread finger-tight into the end cap (3). Repeat for the other nine cap screws.
14. Use a torque wrench and 1/4" hex key socket to torque each bolt to 325 in/lbs.



Note Torque cap screws in a side-to-side pattern (do not use a circular pattern) and in small increments to ensure the end cap (item 3) is seated flat to the housing surface.

15. If previously removed, place the 1/4" tape, two turns, on the 90° NPT elbow (23). Thread and tighten the 90° NPT elbow (23) into the end cap (3). Align so the 90° NPT elbow (23) is parallel with the small hole located on the side of housing (17).
16. Grease both sides of the O-ring (7) and O-ring seat area on the end cap (19). Install the O-ring (7) onto the end cap (19) and place onto the housing (17). Orient such that the small hole located on the housing side is on your left at the "9 o'clock" position. The inlet check valve fitting (12) placement hole located on the end cap (19) must be at the 6 o'clock position.
17. Place the cap screw (5) through the washer (6) and end cap (19) and thread finger-tight into the housing (17). Repeat for the other nine cap screws. Use a torque wrench and 3/8" hex key socket to torque each bolt to 325 in/lbs.



Note Torque cap screws in a side-to-side pattern (do not use a circular pattern) and in small increments to ensure end cap (item 19) is seated flat to the housing surface.

18. Install the intensifier assembly into PIN8000/PIN8010 per Section 4.2.7 on page 10.

4.2.11 REG 1000 (Regulator) and Solenoid Removal

Solenoid 120 VAC input - PN 56851, Solenoid 220 VAC input - PN 54366

Tools required:

- Phillips screwdriver
- 7/16" Open end wrench
- 9/16" Open end wrench
- A/R 1/4" wide teflon tape, (PN 60575)
- A/R 1/2" wide teflon tape, (PN 60911)
- 1/2" Socket
- Socket wrench
- 1/4" Hex wrench



WARNING

Vent any remaining gas from the system to the atmosphere. Disconnect the power cord from the power source.

1. Remove the front panel from its enclosure as described in Section 4.2.1 on page 6 and carefully place on a bench top.
2. Remove the regulator knob cap and two screws which secure the round plate.
3. Loosen and remove the locknut using a 1/2" socket while holding the knob.
4. (PIN8010 Only) Loosen tube nuts on the input port and output (test) port fittings. Remove the two screws and AC input/input port/output (test) port panel.
5. Remove all tubing sections that connect to the regulator/solenoid assembly.
6. Loosen the mounting collar in the panel rear using a 1/4" hex wrench.
7. Remove the regulator/solenoid assembly by sliding out from the panel rear.
8. Mount the regulator in a bench vise by the flats in the base.
9. Note the orientation of the solenoids, as well as the inlet and outlet fittings in the regulator. Remove the fittings and any remnants of teflon tape from the pipe threads.

4.2.12 REG 1000 (Regulator) and Solenoid Installation

Solenoid 120 VAC input - PN 56851, Solenoid 220 VAC input - PN 54366

Tools required:

- Phillips screwdriver
 - 7/16" Open end wrench
 - 9/16" Open end wrench
 - A/R 1/4" wide teflon tape, (PN 60575)
 - A/R 1/2" wide teflon tape, (PN 60911)
 - Snoop, liquid leak gas detector (PN 64781)
 - 1/2" Socket
 - Socket wrench
1. Wrap two layers of teflon tape on the pipe threads of each fitting, and using previously noted orientation, install into the inlet and outlet of the regulator. Ensure that each, as well as, solenoids are oriented properly. Use a bench vise when doing this.
 2. Insert the new regulator/solenoid assembly into the panel through hole. Pass the adjusting end through the mounting ring.



Important Do not tighten cap screw until adjusting knob is installed.

3. Install the tubing sections to the inlet and outlet fittings.
PIN8010 only: Replace the AC input/input port/output (test) port panel and two mounting screws. Thread and tighten tube nuts on the input port and output (test) port fittings.
4. Install the adjusting knob on the threaded shaft by turning clockwise. Turn the adjusting knob on the threaded shaft until it is bottomed, then install the locking nut and tighten. Turn the knob until it bottoms. Position the regulator so the bottom of the knob is 1/2" from the panel surface, then tighten the cap screw on the mounting collar.
5. Using a pressure source connected to the input port (4), set the regulator (10) pressure to 100 PSI. Enable the power switch (2) and monitor the pressure as it builds in the accumulator pressure gauge (7). Turn the power switch (2) off when 1,000 PSI has been achieved. Check all fittings for leaks. If there are no leaks, vent the system and remove the pressure source.



DANGER Do not operate the unit in continuous mode without an operator being present.



Note See Figure 3-1 on page 3 for items in parenthesis.

6. Install the panel/chassis assembly in its enclosure as described in Section 4.2.1 on page 6.

4.2.13 Panel Gauge Removal and Installation

- Regulated pressure gauge (PN 59751), 0–1,500 PSIG
- Accumulator or Output pressure gauge (PN 59696), 0–15,000 PSIG

Tools required:

- Phillips screwdriver
- 7/16" Wrench
- 9/16" Wrench
- A/R 1/4" wide teflon tape (PN 60575)
- Snoop, liquid leak gas detector (PN 64781)

Panel Gauge Removal



WARNING Vent any remaining gas from the system to the atmosphere. Disconnect the power cord from the power source.

1. Remove the front panel from its enclosure as described in Section 4.2.1 on page 6 and carefully place on a bench top.
2. Disconnect the tubing section which connects to the gauge fitting.
3. Loosen the two thumb-nuts that hold the gauge mounting U-clamp.
4. While gripping the square portion of the gauge port with the 9/16" wrench, remove the tube connector fitting from the gauge.
5. Remove the two thumb-nuts, the mounting U-clamp, and the gauge.

Panel Gauge Installation

1. Before installing a new gauge, wrap two layers of new Teflon tape on the port.
2. Install the gauge into the panel, secure with a U-clamp, and tighten the two thumb-screws.
3. While gripping the square portion of the gauge port with the 9/16" wrench, tighten the female tube connector onto the gauge.
4. Attach the tubing section which connects to the gauge fitting.
5. Using a pressure source connected to the input port (4), set the Condec REG 1000 (10) pressure to 100 PSI. Enable the power switch (2) and monitor the pressure as it builds in the accumulator pressure gauge (7). Turn the power switch (2) off when 1,000 PSI has been achieved. Check all fittings for leaks. If there are no leaks, vent the system and remove the pressure source.



DANGER Do not operate the unit in continuous mode without an operator being present.



Note See Figure 3-1 on page 3 for items in parenthesis.

6. Install the panel/chassis assembly in its enclosure as described in Section 4.2.1 on page 6.

4.2.14 Output (Test) Port Quick-Connect Fitting (PN 59004) and Filter (PN 54188), Removal and Installation

Every two months, a coating of fluorinated Krytox grease should be applied to the inner seal of the output (test) port fitting. The pressure cap (PN 58216) should be plugged in whenever the unit is not in use.



Note Apply fluorinated Krytox grease to the outside surface between the sealing lip and the end of mating pressure cap. Do not put grease on the flat end of the tip, as this may allow grease to enter the system. Vent the unit line pressure to the atmosphere. Plug the pressure cap into the output (test) port. Rotate the pressure cap clockwise and counter-clockwise to transfer fluorinated Krytox grease to the O-ring seal.



Important If there is leakage out of the port when the pressure cap is in place, replace the port fitting.

Tools required:

- Phillips screwdriver
- 11/16" open-end wrench
- adjustable wrench
- 9/16" open-end wrench
- A/R solvent (de-natured alcohol)
- A/R 1/4" wide Teflon tape (PN 60575)
- A/R 1/2" wide Teflon tape (PN 60911)
- Tube fluorinated grease (PN 55593)
- Snoop, liquid leak gas detector (PN 64781)



WARNING Vent any remaining gas from the system to the atmosphere. Disconnect the power cord from the power source.

1. Remove the front panel from its enclosure as described in Section 4.2.1 on page 6 and carefully set on a bench top.
2. Loosen and remove the tubing end nut from the reducing tube fitting (PN 59830).



Note Use PN 54047 for reducing tube fitting field replacement.

3. Loosen and remove the reducing tube fitting and filter (PN 54188) from the output (test) port quick-connect fitting.
4. Clean the filter (PN 54188) in solvent (de-natured alcohol) and blow-dry with compressed air.
5. Grasp the output (test) port quick-connect fitting on the flats from the rear of panel with a 11/16" wrench and using an adjustable wrench, turn the locknut counter-clockwise to remove the locknut.
6. Remove the old output (test) port quick-connect fitting and install a new output (test) port quick-connect fitting (PN 59004) through the panel's front.
7. Thread and tighten the locknut by grasping the output (test) port quick-connect fitting on the flats from the rear of the panel with a 11/16" wrench and using an adjustable wrench, turn the locknut clockwise.

8. Slide the filter (PN 59764) into the reducing tube fitting and install it into the output (test) port quick-connect fitting.
9. Replace and tighten the tubing end nut on the reducing tube fitting.
10. Using a pressure source connected to the input port (4), set the Condec REG 1000 (10) pressure to 100 PSI. Enable the power switch (2) and monitor the pressure as it builds in the accumulator pressure gauge (7). Turn the power switch (2) off when 1,000 PSI has been achieved. Check all fittings for leaks. If there are no leaks, vent the system and remove the pressure source.



DANGER Do not operate the unit in continuous mode without an operator being present.



Note See Figure 3-1 on page 3 for items in parenthesis.

11. Install the panel/chassis assembly in its enclosure as described in Section 4.2.1 on page 6.

4.2.15 Output (Test) Port Hose Quick-Connect Fitting and Filter (PN 56991), Removal and Installation

Tools required:

- 5/8" Open end wrench
- 3/4" Open end wrench
- 13/16" Open end wrench
- A/R solvent (de-natured alcohol)
- Tube fluorinated grease (PN 55593)

Removal:

1. Loosen and unthread the quick-connect fitting assembly from output (test) port hose using 3/4" and 5/8" wrenches.
2. Remove the cheat seal pad (PN 54854) from the "AN" thread side of the adapter fitting (PN 60803)
3. Place the quick-connect fitting assembly in a vise using the filter fitting (PN 59588) as a clamping area.
4. Loosen and unthread the quick-connect fitting (PN 59034) using a 13/16" wrench.
5. Remove the filter fitting (PN 59588) from the vise.
6. While holding the filter fitting (PN 59588) vertically, remove the filter (PN 56991) and then O-ring (PN 55608) from the filter fitting.
7. Inspect and clean parts in solvent (de-natured alcohol) and blow-dry with compressed air. Replace worn or damaged parts with new ones.

Installation:

1. Grease the inside cavity on the bottom flat (none allowed in hole) of the quick-connect fitting (PN 59034).
2. Grease the O-ring seat groove area in the filter fitting (PN 59588).
3. Grease both sides of the O-ring (PN 55608). While holding the filter fitting (PN 59588) vertically, place the O-ring (PN 55608) and then filter (PN 56991) into the filter fitting (PN 59588).
4. Thread the quick-connect fitting (PN 59034) onto the filter fitting (PN 59588).
5. Place the filter fitting (PN 59588) in a vise and tighten the quick-connect fitting (PN 59034) using a 13/16" wrench.
6. Remove from the vise.
7. Place a cheat seal pad, (PN 54854) on the "AN" part of the assembly and thread into the output (test) port hose. Tighten the assembly using 5/8" and 3/4" wrenches.

4.2.16 Input Port Filter (PN 54188), Removal and Installation

The port filter is a sintered element filter, which is easily removed for inspection and cleaning.

Tools required:

- Phillips screwdriver
- 7/16" open-end wrench
- 9/16" open-end wrench
- A/R solvent (de-natured alcohol)
- Snoop, of liquid leak gas detector (PN 64781)

Input Port Filter Removal



WARNING Vent any remaining gas from the system to the atmosphere. Disconnect the power cord from the power source.

1. Remove the front panel from its enclosure as described in Section 4.2.1 on page 6 and carefully place on a bench top.
2. Loosen and remove the tubing end nut from the tube union (PN 59886).
3. Loosen and remove the tubing end nut from the input port bulkhead "AN" fitting (PN 59707).
4. Remove the tube union (PN 59886), port connector (PN 59746) and filter from the bulkhead "AN" fitting (PN 59707).



Note Use PN 55705 for port connector field replacement.

5. Clean the filter (PN 54188) in solvent (de-natured alcohol) and blow-dry with compressed air.

Input Port Filter Installation

1. To reinstall, reverse the order of steps 3, 4 and 5 of the "Input Port Filter Removal" procedure above.
2. Using a pressure source connected to the input port (4), set the REG 1000 (10) pressure to 100 PSI. Enable the power switch (2) and monitor the pressure as it builds in the accumulator pressure gauge (7). Turn the power switch (2) off when 1,000 PSI has been achieved. Check all fittings for leaks. If there are no leaks, vent the system and remove the pressure source.



DANGER Do not operate the unit in continuous mode without an operator being present.



Note See Figure 3-1 on page 3 for items in parenthesis.

3. Install the panel/chassis assembly in its enclosure as described in Section 4.2.1 on page 6.

4.2.17 Input Port Hose Quick-Disconnect Female Fitting, Removal and Installation

Tools required:

- 3/4" Open end wrench
- 9/16" Open end wrench
- A/R solvent (de-natured alcohol)
- A/R 1/2" wide Teflon tape (PN 60911)

Removal:

1. Loosen and unthread the quick-disconnect fitting from the input hose using 3/4" and 9/16" wrenches.
2. Remove the cheat seal pad (PN 54854) from the "AN" thread side of the adapter fitting (PN 60803) and place the CGA-580 nipple (PN 57150) pressure fitting in a vise, holding by flats located on the nipple.
3. Loosen and unthread the adapter fitting (PN 60803) from the CGA-580 nipple pressure fitting using a 3/4" wrench.
4. Remove the CGA-580 nut (PN 57154) by sliding over threads of the CGA-580 nipple pressure fitting.
5. Remove remnants of tape from the fittings.
6. Inspect and clean parts in solvent (de-natured alcohol) and blow-dry with compressed air. Replace worn or damaged parts with new ones.

Installation:

1. Wrap two turns of 1/2" Teflon tape around threads of the CGA-580 nipple (PN 57150) pressure fitting.
2. Hold the CGA-580 nipple pressure fitting in a vise by flats located on the nipple.
3. Slide the CGA-580 nut (PN 57154) over threads of the CGA-580 nipple pressure fitting.
4. Thread and tighten the adapter fitting (PN 60803) onto the CGA-580 nipple pressure fitting using a 3/4" wrench.
5. Remove the assembly from the vise and install a cheat seal pad (PN 54854) on the "AN" thread side of the adapter fitting (PN 60803).
6. Thread into the input hose and tighten using 3/4" and 9/16" wrenches.

4.2.18 AC Fuse (PN 57472), Removal and Installation

1. Disconnect the power cord and line filter. Remove the fuse holder at the AC input.
2. Inspect the fuse. If blown, replace with a 1/2 amp 250 volt, 20mm x 5mm diameter fuse (PN 57472).
3. Replace the fuse holder at the AC input location.

4.2.19 Panel Mounted AC Power/EMI Line Filter (PN 58870), Removal and Installation



Note See Figure 4-1 on page 5 for wiring diagram.

Tools required:

- Phillips screwdriver
- 1/4" open-end wrench or nutdriver
- A/R soldering iron
- A/R shrink sleeving (PN 60735)
- A/R heat gun



WARNING Disconnect the power cord from the power source and line filter.

1. Remove the front panel from its enclosure as described in Section 4.2.1 on page 6 and carefully set on a bench top.
2. Remove the three cable connectors from the line filter terminals.



Note Some units may not have connectors and will require wire leads to be unsoldered.

3. Loosen and remove the line filter retaining nuts on the rear of panel.



Note Some units may have screws on the front panel.

4. Remove the AC line filter.
5. To install a new line filter, reverse the order of steps 1 through 4. Connect (or solder) wires to the new line filter as follows:

Green wire to terminal (E) Ground
White wire to terminal (N) Neutral
Black wire to terminal (P) Line

4.2.20 Power Switch (PN 60307), Removal and Installation



Note See Figure 4-1 on page 5 for wiring diagram.

Tools required:

- Phillips screwdriver
- Flat screwdriver
- 1/4" open-end wrench or nutdriver
- A/R soldering iron
- A/R shrink sleeving (PN 60735)
- A/R heat gun

Removal:



WARNING Disconnect the power cord from the power source and line filter.

1. Remove the front panel from its enclosure as described in Section 4.2.1 on page 6 and carefully set on a bench top.
2. Remove the two black wires from the pump control board TB2 terminals 1 and 2.
3. Loosen and remove the nut on the panel front and remove the switch from the panel rear.
4. Unsolder and remove the three wires from the switch terminals.

Installation:

1. Use shrink sleeving over wires/terminals for protection. Connect and solder the harness wires to the new switch terminals per the following:

	<u>Terminal</u>	<u>Function</u>
Rear of Switch	1	On
	2	Off
	3	Momentary

Black wire to switch terminal 1

Black wire to switch terminal 2

Black jumper wire between switch terminals 1 & 3

2. Install the new switch through the panel's rear. Rotate the switch so the momentary position is toward the bottom of the panel and secure it from the panel's front with the mounting nut.
3. Replace the two black wires to the pump control board TB2. Connect terminal 1 of the switch to terminal 1 of TB2, and terminal 2 of the switch to terminal 2 of TB2.
4. Install the panel/chassis assembly in its enclosure as described in Section 4.2.1 on page 6.

4.2.21 Pump Control Board Assembly, Removal and Installation



Note See Figure 4-1 on page 5 for wiring diagram.

120 VAC input - PN 56679, 220 VAC input - PN 56682

Tools required:

- Phillips screwdriver
- 11/32" open-end wrench or nutdriver
- flat blade screwdriver (small)

Removal of Pump Control Board:



WARNING Disconnect the power cord from the power source and line filter.

1. Remove the front panel from its enclosure as described in Section 4.2.1 on page 6 and carefully set on a bench top.
2. Disconnect the wires from the terminal blocks located on the pump control board assembly. Make note of the wire locations for future re-connection.
3. Loosen and remove the four nuts which hold the pump control board and remove the board.

Installation of Pump Control Board:

1. Position the new board over the four standoffs and install four nuts. Tighten the nuts until they are snug.
2. Connect the wires to the terminal blocks located on the pump control board assembly.



Note Refer to the wiring diagram Figure 4-1 on page 5.

3. Install panel/chassis assembly in its enclosure as described in Section 4.2.1 on page 6.

4.3 Orion 3A Valve Assembly (PN 55287) Parts List

The following table lists the component parts of the Orion 3A.

Ref Number	PN	Description	Quantity
1	57482	Nut, valve needle housing	2
2	54401	Locknut	2
3	58079	Knob	2
4	57889	Knob, insert	2
5	57256	Gear, spur 40 teeth	2
6	59233	Gear, spur 18-tooth	2
7	55896	Valve Seat	4
8	59387	Valve Seat, stem	4
9	59045	Valve, needle seat	4
10	54540	Housing, valve needle	2
11	59551	Valve Needle	2
12	57600	Bushing, end	1
13	58554	Cap, end	1
14	58699	Shaft	1
15	58597	Piston	1
16	59309	Body, dual valve	1
17	57580	Knob	1
18	55533	Valve Needle	2
19	55159	Housing, valve needle	2
20	56784	Locknut,9/16-18UNF-3A, SST	1
21	58464	Setscrew,12-24NCx1/4 SST	14
22	58308	Ball, Tungsten Carbide	14
23	59383	Setscrew, 6-32NCx1/8 SST	4
24	58342	Screw, cap hex socket head, #2-56UNC-3A	6
25	59322	Setscrew, 6-32NCx1/4 SST	6
26	59326	Setscrew, 2-56NCx1/8, alloy steel	4
27	55569	O-ring, Fluorocarbon (Viton) color black w/white dot	5
28	55552	O-ring, Fluorocarbon (Viton) color black w/white dot	4
29	58090	O-ring, Fluorocarbon (Viton) color black w/white dot	1
30	60633	Retainer, Packing Backup	4
31	55570	Washer, backing	4
32	58045	O-ring, Fluorocarbon (Viton) color black w/white dot	1
33	59245	Washer, nylon	2
34	60202	Setscrew, hex	2
35	60837	Screw, MACH #10- 32NF SST	2
36	54905	Screw, self sealing	1
38	57027	Washer, backup	1
39	54448	Retainer, packing backup	1
40	55615	O-ring, Fluorocarbon (Viton) color black w/white dot	1
41	58314	Ball, chrome, steel	32
42	59731	Male connector, 1/8 tube x 1/8 NPT, stainless steel	3

Table 4-2. Orion 3A Valve Assembly Parts List

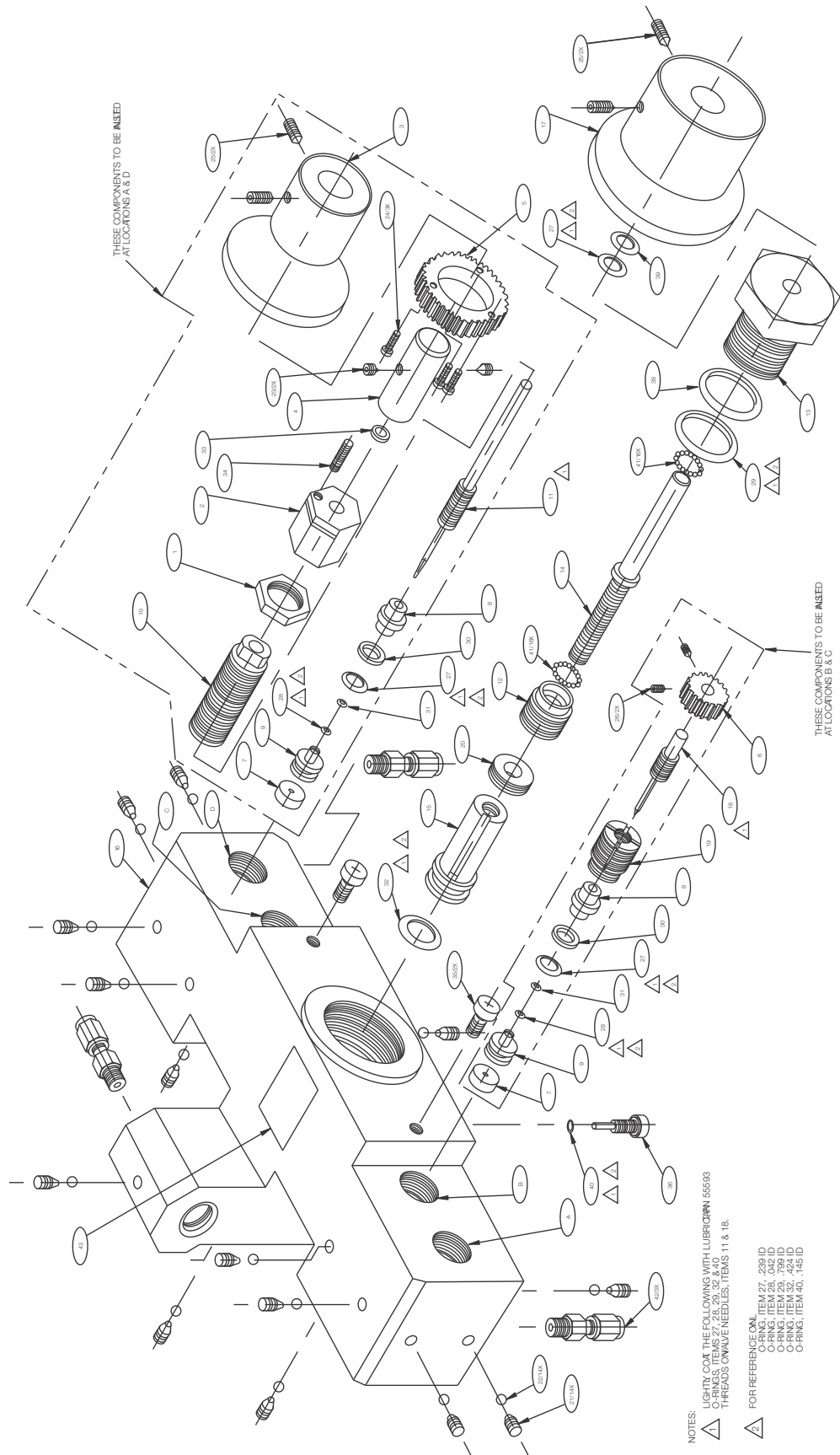


Figure 4-2. Orion 3A Valve Assembly Exploded View

4.4 Intensifier Assembly Parts List

Ref Number	PN	Description	Quantity
1	59328	Screw, cap, socket	10
2	60704	Washer, flat	10
3	59548	Cap, end	1
4	55589	O-ring, Buna-N (Nitrile) 70 Durometer color black	1
5	59333	Screw, cap, socket head	10
6	59508	Washer, flat	10
7	55579	O-ring, Flourocarbon (Viton) 90 Durometer color black w/white dot	1
8	60133	Housing, spring	1
9	60343	Spring	2
10	57410	Check valve	2
11	56714	Seat, check valve	1
12	57236	Fitting, check valve inlet	1
13	54456	Retainer, packing backup	1
14	55596	O-ring, Flourocarbon (Viton) 90 Durometer color black w/white dot	1
15	57114	Seat, check valve	1
16	59785	Adapter, High Pressure 1/4 NPT Male to Swagelok	1
17	60333	Housing, piston	1
18	59070	Piston	1
19	58786	Cap, end	1
20	60579	Retainer, packing	2
21	55600	O-ring, Buna-N (Nitrile) 70 Durometer color black	1
22	54614	Ring, piston	3
23	59794	Elbow, 90 Tube to Male NPT	1
24	58752	Retainer, piston ring	1
25	69435	Dowel, round	1

Table 4-3. Intensifier Parts List

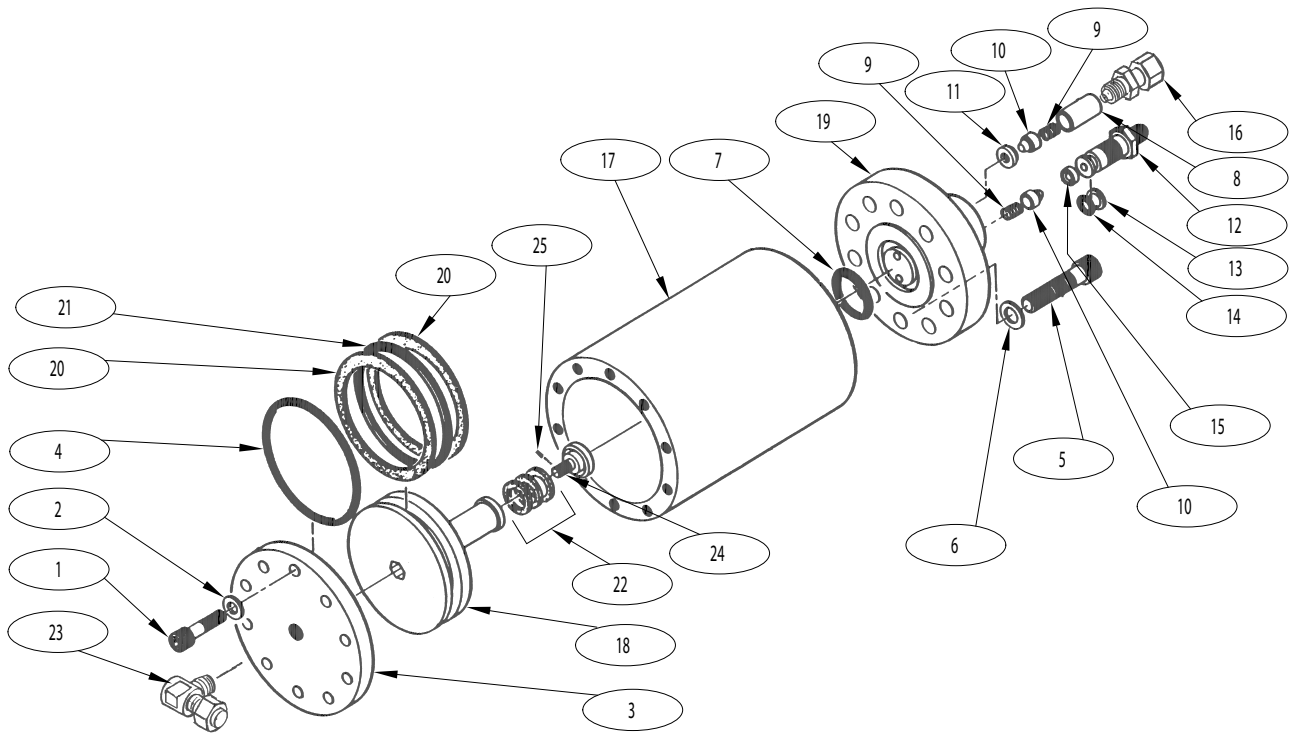


Figure 4-3. Intensifier Exploded View

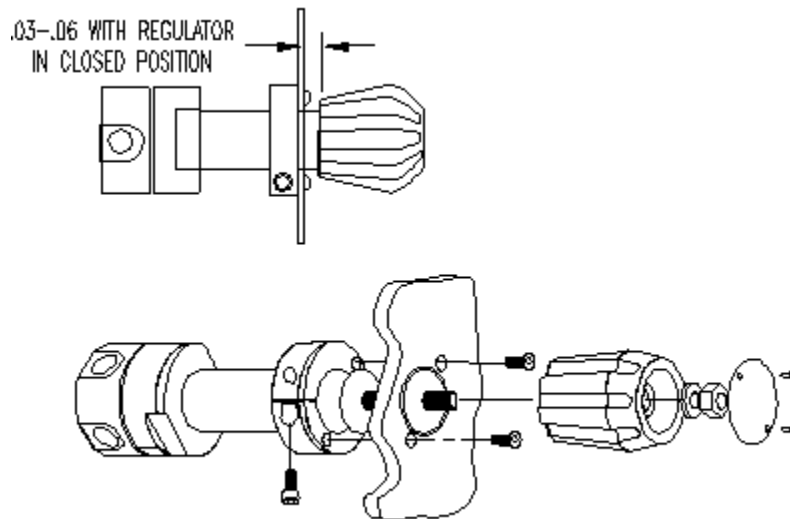


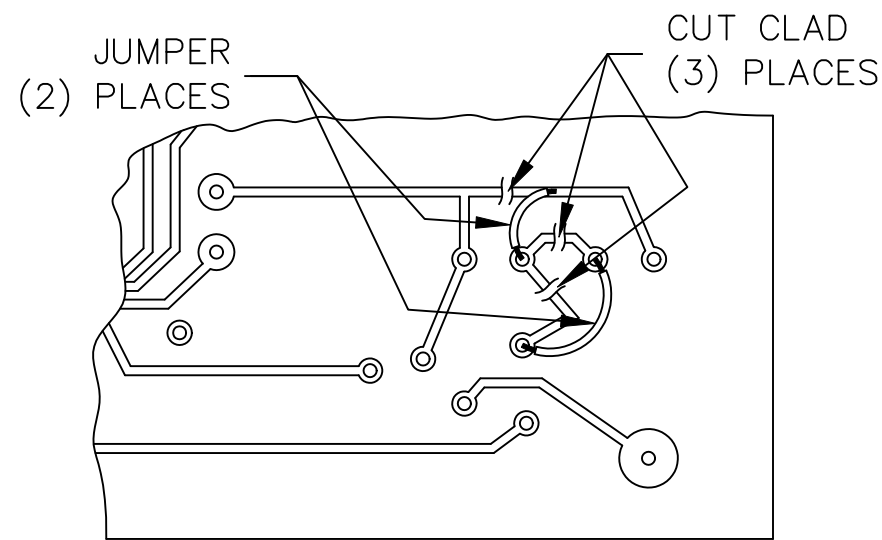
Figure 4-4. Condec REG1000 Regulator Mounting

NOTES:

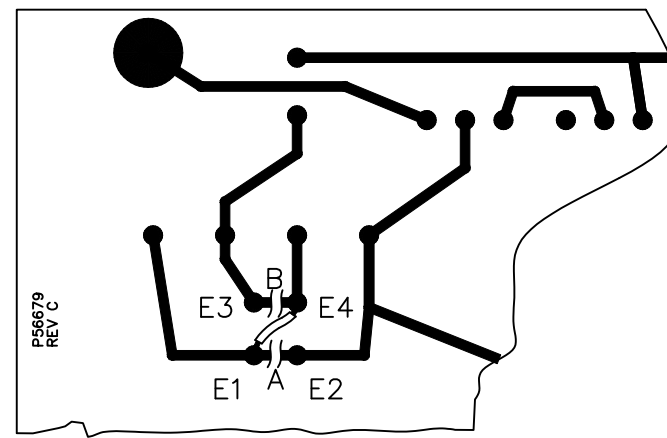
- 1 - COMPONENTS SHALL BE MOUNTED IN THEIR LOCATIONS BY THEIR COMPONENT DESIGNATIONS AS SHOWN ON THIS DRAWING AND/OR APPLICABLE BILL OF MATERIAL. OBSERVE COMPONENT ORIENTATION AND POLARITY REQUIREMENTS, WHERE APPLICABLE.
- 2 - COMPONENT PINS/LEADS MAY NOT PROTRUDE FROM CIRCUIT SIDE BOARD SURFACE BY MORE THAN .08 MAX.
- 3 - CAPACITORS WITH VOLTAGE RATINGS GREATER THAN THOSE SHOWN ON BILL OF MATERIAL MAY BE USED IF PHYSICAL SIZE AND LEAD SPACING ARE EQUIVALENT.
- 4 - PACKAGING SHALL BE ADEQUATE TO PREVENT PHYSICAL DAMAGE, ESD AND ENVIRONMENTAL DEGRADATION. EACH ASSEMBLY SHALL BE INDIVIDUALLY PACKAGED IN A SHIELDING BAG.

5 - MARK APPLICABLE DASH NUMBER, REVISION AND DATE AT FINAL ASSEMBLY USING BLACK INDELIBLE INK.

- 6 - KBK8924-2 (56682) ASSEMBLY, 220 VAC OPERATION.
- A. PCB KGM7361 REVISION "B" AND BELOW:
CUT CLAD AND ADD TWO ONE INCH LONG 22 GA. JUMPER WIRES (61079) PER FIGURE 2.
REMARK BOARD ASSEMBLY "KBK8924-2" (56682).
 - B. PCB P56679 (KGM7361) REVISION "C" AND ABOVE:
CUT CLAD AT MARKS "A" & "B". ADD ONE INCH LONG 22 GA. JUMPER WIRE (61079) PER FIGURE 2.
REMARK BOARD ASSEMBLY "KBK8924-2" (56682).

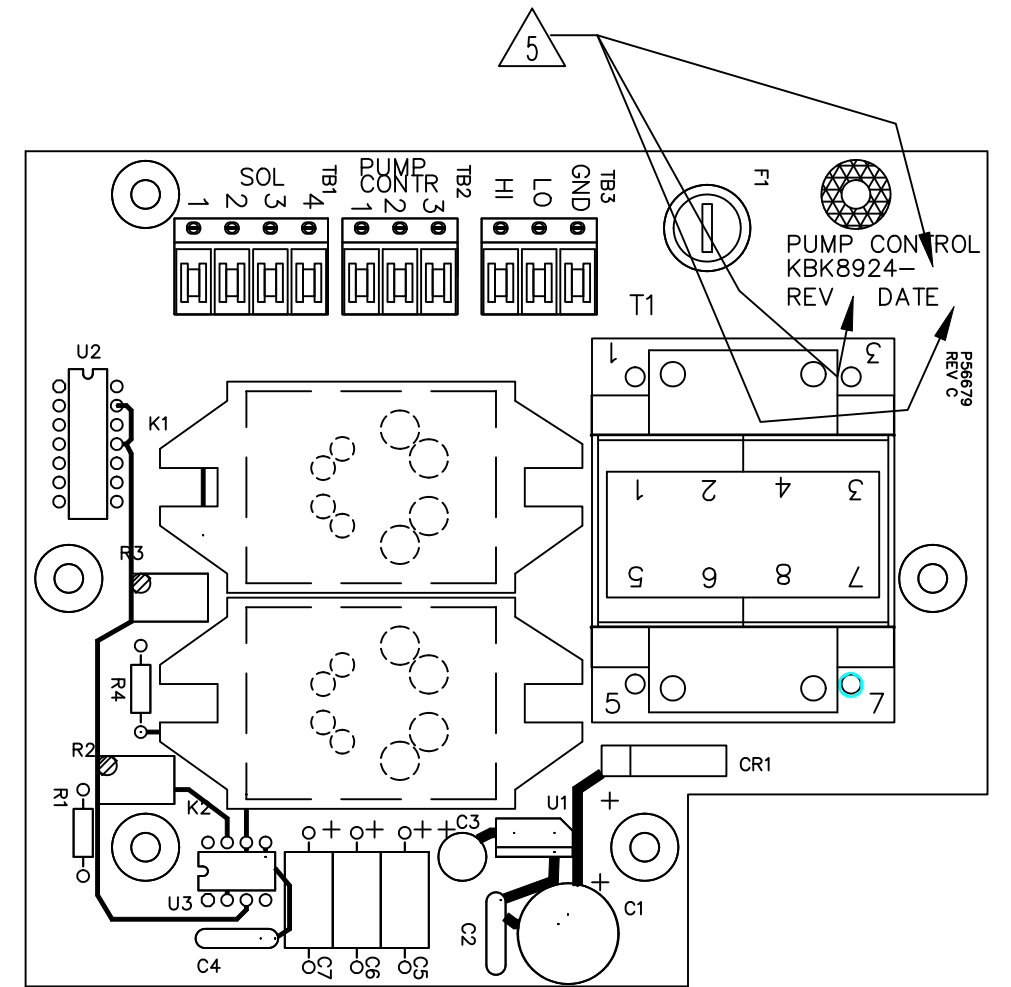


6 FIGURE 1 - 220 VAC MODIFICATION
CIRCUIT SIDE OF PRINTED WIRING BOARD
(SCALE: N/A)



6 FIGURE 2 - 220 VAC MODIFICATION
CIRCUIT SIDE OF PRINTED WIRING BOARD
(SCALE: 1:1)

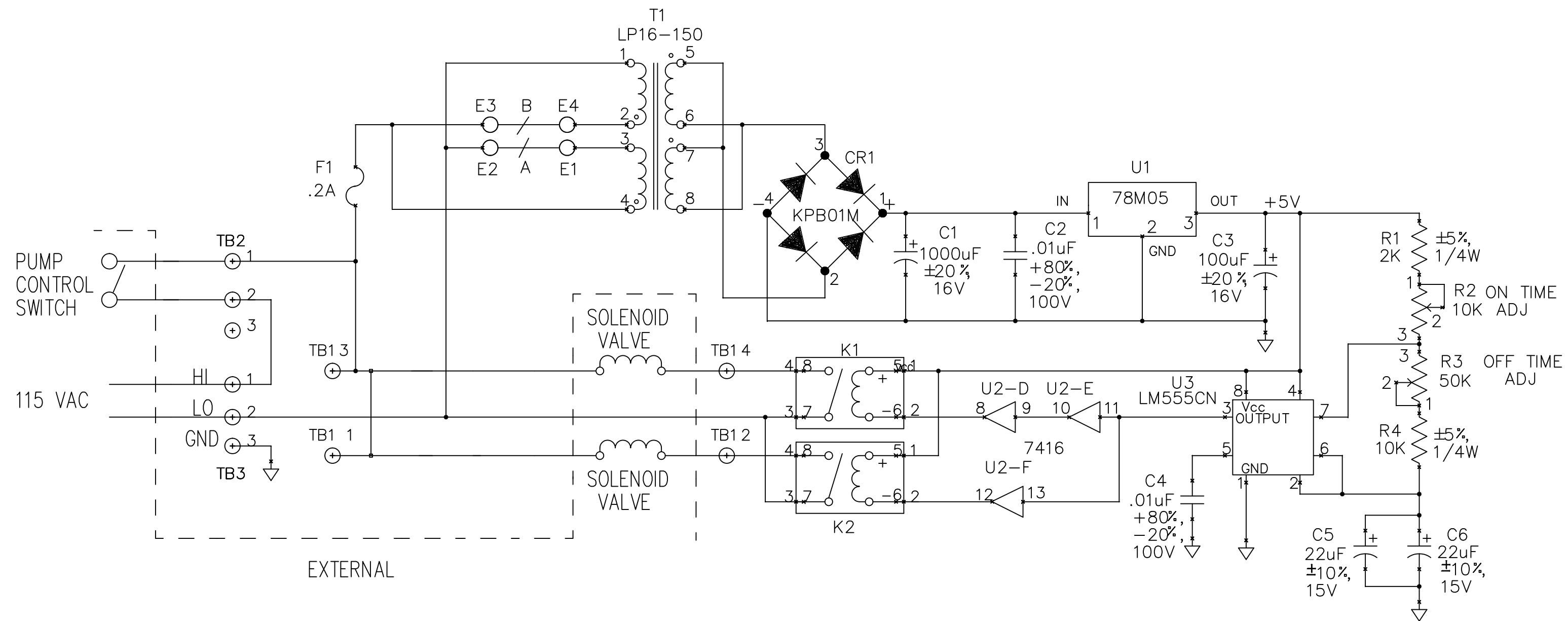
REVISION			
REV	REFERENCE	INIT	DATE
H	ECO14703 - REVISED K1 & K2 FOOTPRINTS. REDRAWN RLWS FORMAT	JEW	7/6/12



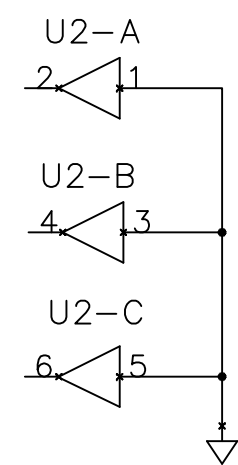
COMPONENT SIDE

MATERIAL	SEE BOM	UNLESS OTHERWISE SPECIFIED UNITS TO BE INCHES ALL THREADS TO BE CLASS 2 ALL DIMENSIONS APPLICABLE AFTER TREATMENT DO NOT SCALE DRAWING	DRAWING TOLERANCES UNLESS OTHERWISE SPECIFIED	THIS DRAWING AND INFORMATION CONTAINED HERE IN, IS AND REMAINS THE PROPERTY OF RICE LAKE WEIGHING SYSTEMS INC. IT IS SUBMITTED AND MAY BE USED ONLY IN CONNECTION WITH RICE LAKE WEIGHING SYSTEMS' PROPOSAL AND/OR ITS CUSTOMERS' ORDERS. IT SHALL NOT BE DISCLOSED TO OTHERS OR COPIED WITHOUT RICE LAKE WEIGHING SYSTEMS' SPECIFIC WRITTEN CONSENT AND SHALL BE IMMEDIATELY RETURNED UPON REQUEST.	
TREATMENT	NONE	SURFACE FINISH ✓	TOLERANCES .XX: ±.01 .XXX: ±.005 ANGLE: ±1°	TITLE PUMP CONTROL ASSEMBLY	
		DES. ENG.: SV 7/86 MFG. ENG.: J. WELSH DRAWN BY: JEJ 7/3/12	THIRD ANGLE PROJECTION 	SHEET 1 OF 1 SCALE 1:1 DWG NO. A56679	REV H

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
B	ECO14703 - REVISED K1&K2 REDRAWN CADSTAR	7/6/12	JEW



SPARES



REFERENCE	NAME	VCC PIN	GND PIN
U2	7416	14	7

THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN IS AND REMAINS THE PROPERTY OF RICE LAKE WEIGHING SYSTEMS INC. AND IS CONFIDENTIAL. IT IS SUBMITTED AND MAY BE USED ONLY IN CONNECTION WITH RICE LAKE WEIGHING SYSTEMS PROPOSAL AND/OR ITS CUSTOMERS ORDERS. IT SHALL NOT BE DISCLOSED TO OTHERS OR COPIED WITHOUT RICE LAKE WEIGHING SYSTEMS SPECIFIC WRITTEN CONSENT AND SHALL BE IMMEDIATELY RETURNED UPON REQUEST.

RICE LAKE WEIGHING SYSTEMS
230 WEST COLEMAN STREET, RICE LAKE WI 54868
PHONE: 715-234-9171 FAX: 715-234-6967

Title: SCHEMATIC, PUMP CONTROL BOARD			
Drawn: JEW	Checked: J. WELSH	Date: 06/08/12	Dwg No.: S56679
	Approved: JEW	Sheet: 1 OF 1	Revision: B

5.0 Model Number System

PIN8000

—

—

PIN8010

—

—

|

|

+-----+-----+

| POWER REQUIREMENTS |

A - 120 VAC 50/60 Hz

B - 220 VAC 50/60 Hz

+-----+-----+

A - Standard

(Only applicable letter)

6.0 Options and Replacement Kits

Orion 3A O-Ring Replacement Kit (Data Sheet # 65308):

- Fluorocarbon “Viton” (standard).....PN 55277
- Nitrile Buna-N.....PN 58499
- Ethylene-PropylenePN 58506
- Silicone.....PN 58509
- NeoprenePN 58515



Note A small coating of fluorinated Krytox grease, (PN 55593), should be applied to both sides of the O-ring prior to installation.

- Pressure Trap (Data Sheet # 58596).....PN 58478
- Output (Test) Port Quick-Disconnect Hose Fitting Male Coupling Body, other end 7/16-20 Male, with Internal 40 Micron Filter (standard, requires Cheat Seal PN 54854)PN 55542
- Output (Test) Port Quick-Disconnect Fitting Male Coupling Body, other end 1/4-18 NPT Female, with Internal 40 Micron Filter (may be used to connect DPDG Gauge to Output Port). see Figure 6-4 on page 31.PN 151017
- Output (Test) Port Quick-Disconnect Fitting Male Coupling Body, other end 1/4-18 NPT Female, no Filter (may be used to connect DPDG Gauge to Output Port). See Figure 6-5 on page 31.PN 151019
- Five-Foot Hose with CGA-580 Male fitting, both ends, for use when filling optional External Pressure Cylinder PN 59533.....PN 150613
- Input Port Hose Nitrogen Bottle Mating fitting (for connecting External Pressure Cylinder PN 59533 to Internal Port, (one each of the following)
 - Cheat Seal Pad.....PN 54854
 - Hose Adapter fittingPN 60803
 - CGA-580 NipplePN 57150
 - CGA-580 NutPN 57154



Note For Input Port Quick-Disconnect Female Hose fitting assembly instructions see Section 4.2.17 on page 19.

Output (Test) Port Hose, with Quick-Disconnect Male fitting:

- 5' Long.....PN 55280

Input Port Hose, with Nitrogen Bottle Mating fitting:

- 4' Long.....PN 55360
- 10' Long.....PN 55366
- 15' Long.....PN 55369
- 20' Long.....PN 55375

External Pressure Aluminum Cylinder with Shut-off Valve, Rupture Disk and Carrying Handle, 83.3 cu ft. 3694 Test Pressure, 2216 PSI Service Pressure....PN 59533



Figure 6-1. Pressure Trap (PN 58478)



Figure 6-2. External Pressure Cylinder with Shut-off Valve (PN 59533)



Figure 6-3. Output (Test) Ports Quick-Disconnect Male Hose Fitting (PN 55542)



Figure 6-4. Output (Test) Ports Quick-Disconnect Fitting (PN 151017)



Figure 6-5. Output (Test) Port (output) Quick-Disconnect Fitting (PN 151019)

7.0 Specifications

Temperature Range:

Operating Temp: +40° to +122°F (+4.4° to +50.0° C)
Storage Temperature: 0° to +185° F (-17.8° to +85°C)
Pressure Media: Dry gaseous nitrogen, standard

Optional External Pressure Cylinder:

Capacity: 83.3 ft³ N₂ @ 2,216 PSIG
Volume: 960 in³
Rating: 2,216 psig
Test Pressure: 3,694 psig
Material: Aluminum

Regulated Pressure Gauge:

Size: 2-1/2 in. diameter
Range: 0–3,000 PSIG
Test Pressure: 4,500 PSIG

Accumulator and Output Pressure Gauges:

Size: 2-1/2 in. diameter
Range: 0–15,000 PSIG
Test Pressure: 22,500 PSIG

Over-pressure Rupture Disk:

Rating: 3,000 PSIG, nominal
Type: Stainless steel outer case

Pressure Media Filter:

Rating: 20 microns, Output (Test) Ports and Input Port
40 microns, Output (Test) Port Hose
Type: Field replaceable

Orion 3A Control Valves:

Type: Micro-metering with positive shut off, adjustable stop and replaceable seat, non-destructible

Vernier Mechanical Rotation: 16 turns, nominal
Adjustable Sensitivity: 0.0005 PSI, minimum
Vernier Torque: Finger-tip adjust to 10,000 PSI
Material: Aluminum knobs, black anodized
All other parts 300 series stainless steel

Internal Piping:

Tubing: 1/8 in. O.D., 0.035 in. wall thickness, seamless Cu.
1/4 in. O.D., 0.035 and 0.065 in. wall thickness, seamless 304 Stainless Steel
Couplings: Stainless Steel, Swagelok type

Input Port:

Style: 1/4" 37° AN flare male
Pressure Rating: 2216 PSIG connected
Material: 300 series Stainless Steel

Output (Test) Ports:

Style: Quick-disconnect type
Pressure rating: 10000 PSIG minimum, connected or disconnected
Quantity supplied: Two Output Quick-disconnects (one, p/o output pressure hose)

Vent Port:

Style: 1/4" 37° AN male
Pressure Rating: 10,000 PSIG
Material: 300 series Stainless Steel

Pressure Hoses:

Quantity Supplied: Two; one input, one output
Length: 4 ft. nominal, input hose
5 ft. nominal, output hose
Style: Input hose - Nylon-lined core tube with synthetic fiber braid and polyester cover. Fitted with CGA-580 (Brass) nipple fitting on one end and 1/4" 37° female AN swivel pressure fitting on opposite end.
Output hose - Nylon-lined core tube with synthetic fiber braid and polyurethane cover. Fitted with quick-disconnect plug (St Stl) on one end and 1/4" 37° female AN swivel tube coupling on the other.

Condec REG1000 Regulator:

Type: Single stage, self-venting, non-bleed
Pressure Rating: 3,000 PSIG max. inlet

Carrying Case PIN8000 only:

Type: Aluminum case with latched cover and handle
Material thickness: 0.090 in., nominal
Finish: Enamel paint, textured finish
Color: Gray

Control Panel:

Material: Aluminum (5052-H32)
Thickness: 0.125 in
PIN8000 Finish: Gray enamel paint with black silkscreen nomenclature
PIN8010 Finish: Dark Tan enamel paint with black silkscreen nomenclature

Physical Specifications:

Weight: 46 lbs including all hoses and cables
PIN8000 Case Dim's: 11" wide x 18" long x 11.5" high
PIN8010 Case Dim's: 19" wide x 8.1" deep x 10.5" high
(Case Dimensions excluding front handles).

PIN8000/PIN8010 Warranty and Return Policy

If possible, please save original packing material which is specifically designed for the unit. Should it be necessary to ship the unit back to the factory, a suitable shipping container must be used along with sufficient packing material. Do not put a shipping label on the unit as a "suitable shipping container." Some units have been severely damaged this way. This is a delicate, precision instrument. Any damage incurred because of poor packaging procedures will ultimately result in added service charges and longer turnaround times.



Vent all pressure lines and the nitrogen cylinder, if applicable, to the atmosphere before shipping.

When factory service is required, send in only the unit for repair. Retain fittings, nitrogen cylinder, manuals, etc. at your facility. However, if there is a problem with a particular part, send in that part with the unit.

If a unit is found to be defective, it may be returned to our repair facility at the following address:

CONDEC
3 SIMM LANE
DOOR D, UNIT 2A
NEWTOWN, CT 06470

ATTN: PRESSURE PRODUCTS/REPAIR LAB

Each unit's I.D. plate is stamped with a date code (week/year) prior to shipment. Our warranty is 12 months from that date code and includes repair and/or replacement of the unit at our, Newtown facilities at no charge. Units subjected to abuse or damaged by external influences, are not covered under warranty.

If the unit is found to be out of warranty, an evaluation fee of not less than \$150 (U.S. dollars) will be charged. Our evaluation fee will be placed toward the unit's repair cost unless the customer does not want the repair completed. Please note on any attached paperwork if a repair estimate is required or if there are any other specific instructions.

Please be explicit as to the nature of the problem and/or its symptoms. Your documentation will save needless time and expense. Also, please include a return shipping address (with a street address) and a contact name with email, and fax and telephone numbers. Contact numbers are necessary to provide a job estimate and in case further questions arise at the factory.

PIN8000/PIN8010 Return Material Authorization Form

The repair lab is also equipped to do calibrations on our calibrators and pressure standards. Calibrations include a certification and are traceable to N.I.S.T.

COMPANY NAME: STREET: CITY, STATE, ZIP: TELEPHONE: FAX: CONTACT PERSON:
MODEL NUMBER: _____ SERIAL NUMBER: _____
PROBLEM WITH UNIT (PLEASE BE SPECIFIC):
IS THIS A WARRANTY REPAIR? () YES () NO
SHIP TO Address: COMPANY NAME: STREET: CITY, STATE, ZIP: ATTN:

CONDEC • 3 SIMM LANE • DOOR D, UNIT 2A • NEWTOWN, CT 06470
ATTN: PRESSURE PRODUCTS/REPAIR LAB
TEL: 888-295-8475 • FAX: 203-364-1556 or 715-234-6967
WEB SITE: www.4condec.com





Door D, Unit 2A · 3 Simm Lane · Newtown, CT 06470 · USA

888-295-8475

www.4condec.com

©2012 Rice Lake Weighing Systems

PN 132626 03/2012