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# 11. STYLE B FLUID CIRCULATION MODULE DRIVE ASSEMBLY

## 11.1 DESCRIPTION

The Style B & D Fluid Circulation Module Drive Assembly, hereafter referred to as the Drive Assembly consists of a Displacement Adjustment and motor within an enclosure. The 520205 enclosure measures approximately 116mm (4.57") wide, 274mm (10.79") deep and 128mm (5.04") high. The 520281 enclosure measures approximately 116mm (4.57") wide, 248mm (9.76") deep and 128mm (5.04") high. The approximate weight for each unit is 7 Lbs.

### 11.1.1 Front Panel Detail (Figure 11,1)

The front panel contains the following items.

1. On/Off/Direction Switch
2. On/Off Indicator
3. Displacement Adjustment Screw
4. Pump Module (Refer to Chapter 7)

#### 11.1.1.1 On/Off/Direction Switch (Figure 11.1 Item 1)

The On/Off/Direction switch turns the system On and Off. Fluid will move from right-to-left if the switch is moved to the left and left-to-right if the switch is moved to the right.

#### 11.1.1.2 On/Off Indicator (Figure 11.1 Item 2)

This green indicator illuminates when the On/Off/Direction switch is either in the left or right position.

#### 11.1.1.3 Displacement Adjustment Screw (Figure 11.1 Item 3)

The Displacement Adjustment Screw changes the angle of the Pump Module to the Displacement Adjustment Module thus changing the amount of fluid pumped.


**Figure 11.1 Drive Assembly Front View (520205 unit shown with Pump Module Installed)**

#### 11.1.1.4 Pump Module (Figure 11.1 Item 4)

The Pump Module provides the mechanical motion to move the fluid through the gland.

### 11.1.2 Rear Panel Detail (Figure 11.2)

The rear panel contains the following items.

1 Power Entry Module

#### 11.1.2.1 Power Entry Module (Figure 11.2 Item 1)

The power entry module contains a receptacle for a standard lEC power cord and main fuse holder and fuse. A spare fuse is provided in the slide out area of the Power Entry Module.

## 11.2 OPERATION

The Drive Assembly consists of Displacement Adjustment Module and Motor Module. The Motor Module contains a spherical bearing that imparts both reciprocating and rotary motion to the piston on the Pump Module. The magnitude of the piston's stroke is adjustable by varying the angle of the axis of the pump head relative to the axis of the motor drive shaft using the Displacement Adjustment screw.

### 11.2.1 System Setup

The Drive Assembly requires very little setup. The following steps provide a guideline for setting up the system for use when a Pump Module is included or replaced.

#### 11.2.1.1 Location

General operating practices provide the best guidelines for locating the components of the system. The Drive Assembly should be located for ease of use during all phases of operation and maintenance.

It is important that the Fluid Circulation Module, Circulation Module Reservoir and most all Circulation Module Tubing be located below the level of the pump. A negative suction needs to be created. The gland fluid also needs to be “pulled” through the fluid circuit and not “pushed” to prevent migration into the main fluid path. In other words, a negative suction needs to be created on the Recirculation Module’s fluid path.
The first gland tubing line should be from the gland reservoir to the gland input on the main pump. The second gland tubing line should be from the gland output on the pump to the input of the Fluid Circ. Module. The third gland tubing line should be from the Fluid Circ. Output to the gland reservoir. It is also important to note that the gland feed line should be pulling from the upper 1/3 of the gland reservoir and the gland output line be closer to the bottom of the reservoir to keep any solids at the bottom of the reservoir. Several common setups are illustrated in section 11.2.1.2 below.


**Figure 11.2 520205 Drive Assembly Rear View**

**NOTE**

*The supply tubing inner diameter should always be as large as or larger than the inner diameter discharge tubing.*

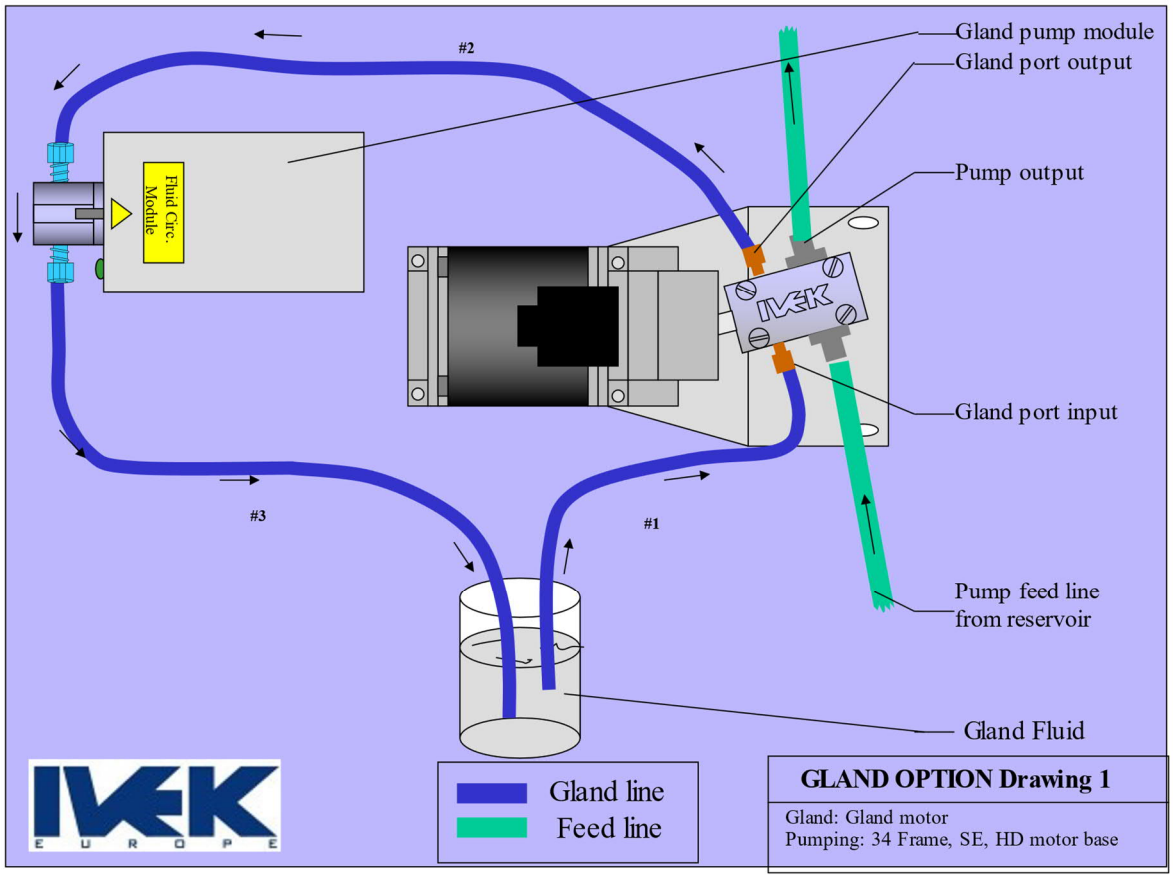
*The supply and discharge sides of the Pump module will change depending on the position of the On/Off/Direction switch.*

#### 11.2.1.2 Supply Connections

Connect one end of the supply tubing to the inlet side of the Pump Module. Connect the other end of the supply tubing to the reservoir. The reservoir must be able to provide an adequate supply of material to the inlet of the Pump Module.

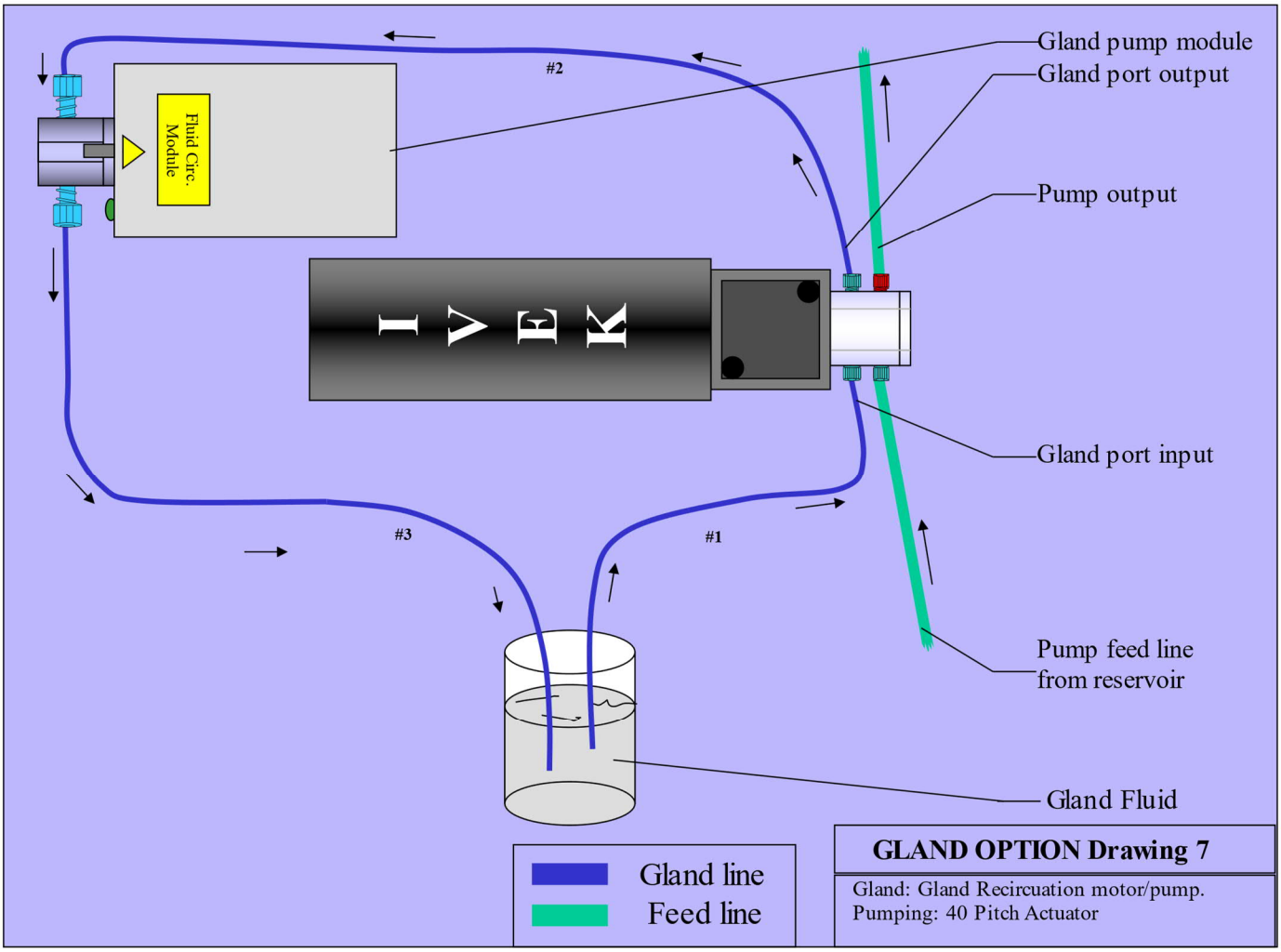
#### 11.2.1.2.1. 34-Frame, Single End with Gland

1 Single End H.D. Motor/Base: → FEED LINE
→ GLAND LINE



### 11.2.1.2.2. 40-Pitch Actuator with Gland

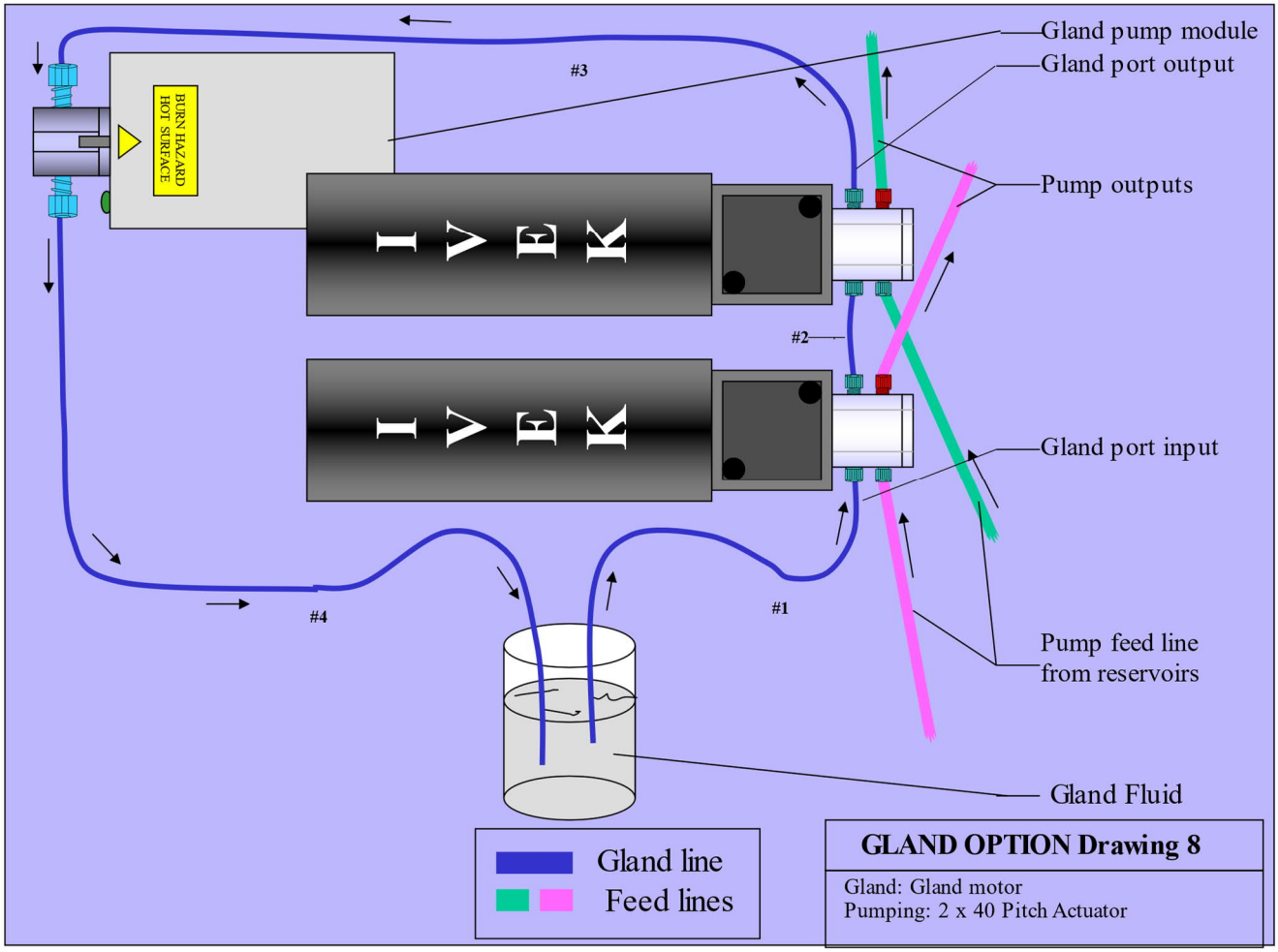
1 Linear Actuators + pumps → FEED LINE 1
1 Gland pump module: → GLAND LINE



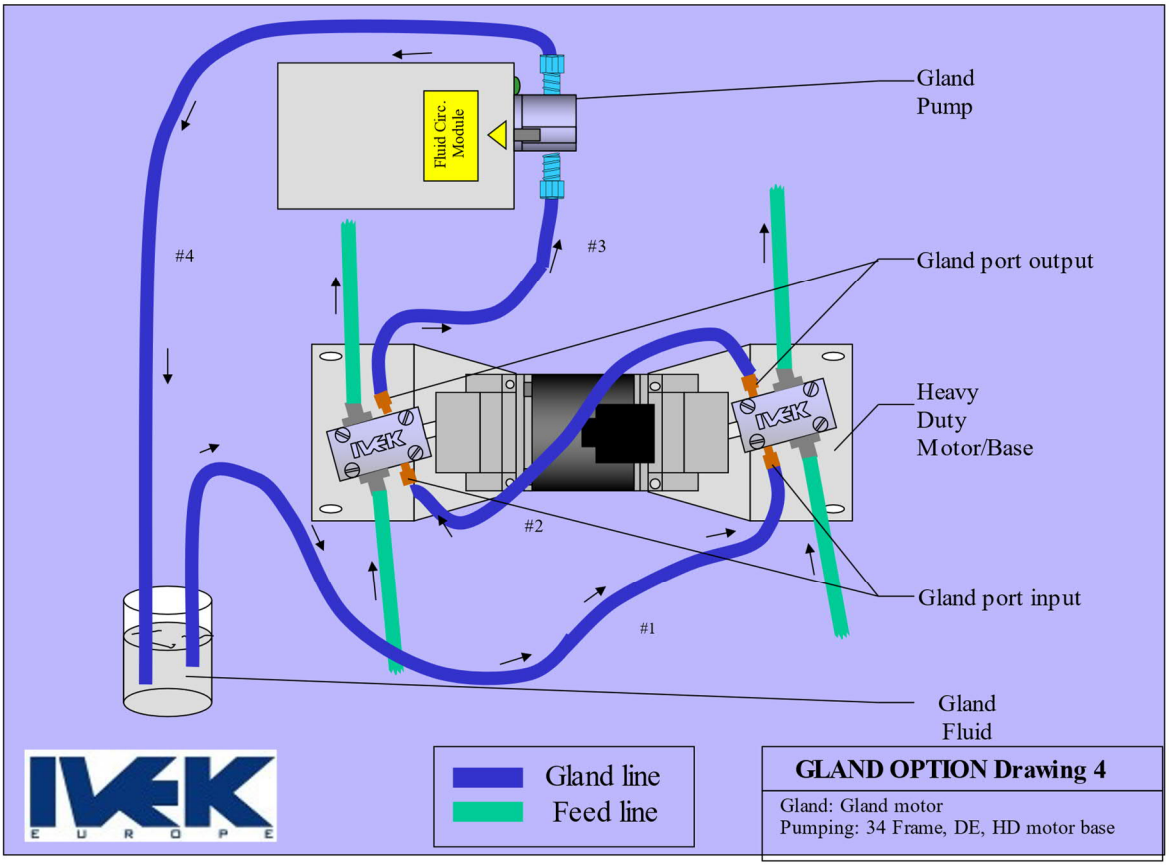
### 11.2.1.2.3. 2 40-Pitch Actuators & 1 Fluid Circulation Module

2 Linear Actuators + pumps: → FEED LINE 1
→ FEED LINE 2

1 Gland Pump Module: → GLAND LINE



### 11.2.1.2.4. Dual End Heavy-Duty Motor/base & 1 Fluid Circulation Module




### 11.2.1.3 Discharge Connections

Connect one end of the discharge tubing to the Pump Module, Connect the other end of the tubing to the Gland Port on the Pump Module that requires rinsing.

### 11.2.2.4 Displacement Adjustment

| PUMP SIZE | PUMP VOLUME | FLOW RANGE 60RPM | FLOW RANGE 72RPM |
|---|---|---|---|
| 2A | 54µl | 3,240µl/min | 3,888µl/min |
| 1A | 109µl | 6,540µl/min | 7,848µl/min |

The displacement adjustment is changed using the displacement adjustment screw. Turning the screw all the way clockwise sets the displacement to the minimum and turning the screw all the way counterclockwise sets the displacement to the maximum. The screw will turn approximately nine full rotations going from minimum displacement to maximum displacement.

For initial setup, turn the screw all the way in one direction then four turns in the opposite direction.

**CAUTION**

*Be careful not to overtighten the displacement adjustment screw. Stop turning when you feel resistance. Overtightening may cause damage.*

#### 11.2.2.5 Power Connections

Make sure the power switch is in the "OFF" (0) position. Connect the power cord to the Drive Assembly.

#### 11.2.2.6 Turn Power On

Move the On/Off/Direction switch either left or right depending on the required fluid direction. The On/Off Indicator will illuminate. (Refer to the Problem Guide section if the indicator fails to illuminate.)

MAINTENANCE

No periodic maintenance is required on the Controller Module, beyond standard practices for electronic equipment.

If maintenance or adjustment is required on the Pump Module, refer to Chapter 7 and use IVEK tool kit item number 32398 to adjust or disassemble the pump.

## 11.3 PROBLEM GUIDE

Table 11.1 contains a list of possible problems, causes and solutions for the Controller Module.

**WARNING**

*Hazardous voltages exist inside the Drive Assembly. Under no circumstances should the Controller Module be opened. There are no user serviceable parts inside the Controller Module. Any unauthorized access to the inside will void the warranty.*

## 11.4 SPECIFICATIONS

520205 Input Power Requirements;

| | | | | |
|---|---|---|---|---|
| 115VAC | 0.5A | 59VA | 60Hz | 72 RPM |
| 230VAC | 0.25A | 59VA | 50Hz | 60 RPM |
| | | | 60Hz | 72 RPM |

520281 Input Power Requirements;

| | | | | |
|---|---|---|---|---|
| 115VAC | 0.2A | 23VA | 60 Hz | 72 RPM |
| 230VAC | 0.1A | 23VA | 50Hz | 60 RPM |
| | | | 60Hz | 72 RPM |

## 11.5 MODEL NUMBER

The model number provides important information about the specifics of your Drive Assembly. Refer to this number when calling IVEK Technical support. The model number for your Drive assembly is located in the rear of the enclosure.

**520205- # # #**

**Motor Configuration**
- **1** AC Synchronous, 115 VAC
- **2** AC Synchronous, 230 VAC

**Enclosure Finish**
- **1** Stainless Steel, 115 VAC
- **2** Stainless Steel, 230 VAC

**Cord & Agency Approval**
- **C** US Cord, CE
- **D** International Cord (No Plug), CE

**520281- # # #**

**Motor Configuration**
- **1** AC Synchronous, 115 VAC
- **2** AC Synchronous, 230 VAC

**Enclosure Finish**
- **1** Stainless Steel, 115 VAC
- **2** Stainless Steel, 230 VAC

**Cord & Agency Approval**
- **A** US Cord, CE
- **B** International Cord (No Plug), CE

## 11.6 ILLUSTRATED PARTS BREAKDOWN

Please contact IVEK Technical Support for information on ordering replacement parts for this Drive Assembly.

**Table 11.1 Common Operational Problems And Solutions**

| PROBLEM | PROBABLE CAUSE | POSSIBLE SOLUTION |
|---|---|---|
| No power, nothing works, switch is on but On/Off indicator fails to illuminate. | AC power may be absent or inadequate. Unit not plugged in.<br><br>Fuse is blown. | Ensure AC power cord is plugged into a properly grounded three-prong outlet capable of supplying the appropriate voltage.<br><br>Unplug main power cord from outlet. Remove fuse from rear panel fuse holder.* Test fuse conductivity. Install good fuse in rear panel fuse holder.<br><br>**If none of the above solves the problem,** |

* To replace the fuse; turn the power Off, remove the line cord and remove the fuse drawer using a small flat blade screwdriver. Remove the fuse and replace with a new one. Put the fuse drawer back in and install the line cord.

CHAPTER REVISIONS

| | | |
|---|---|---|
| F | 12/02/22 | Per DCR/N 21379 added gland setup information. Added 520281 variant. |
| E | 09/05/18 | Per DCR/N 18798 updated Section 11.6 to remove #3#, #4#, ##A and ##B. |
| D | 07/10/14 | Per DCR/N 15762 added pump maintenance information |
| C | 05/06/13 | Per DCR/N 14997 added tool kit information to section 11.3 |
| B | 11/27/07 | Per DCR/N 11569 changed Flow Range table under 11.2.2.4 Displacement Adjustment section from 50RPM to 72RPM. |
| A | 07/26/07 | Per DCR/N 11384 changed section 11.5 to an Input Power Requirements table<br><br>Per DCR/N 11365 added Flow Range table under 11.2.2.4 Displacement Adjustment section. |
| - | 05/23/06 | Original release. |