

## Installation, Operation & Maintenance Manual for Flo-Max II Couplers Model FM126

September 2010

Form FVC 073 - Rev 03

**IMPORTANT:** KEEP THIS DOCUMENT WITH THE PRODUCT UNTIL IT REACHES THE END USER.

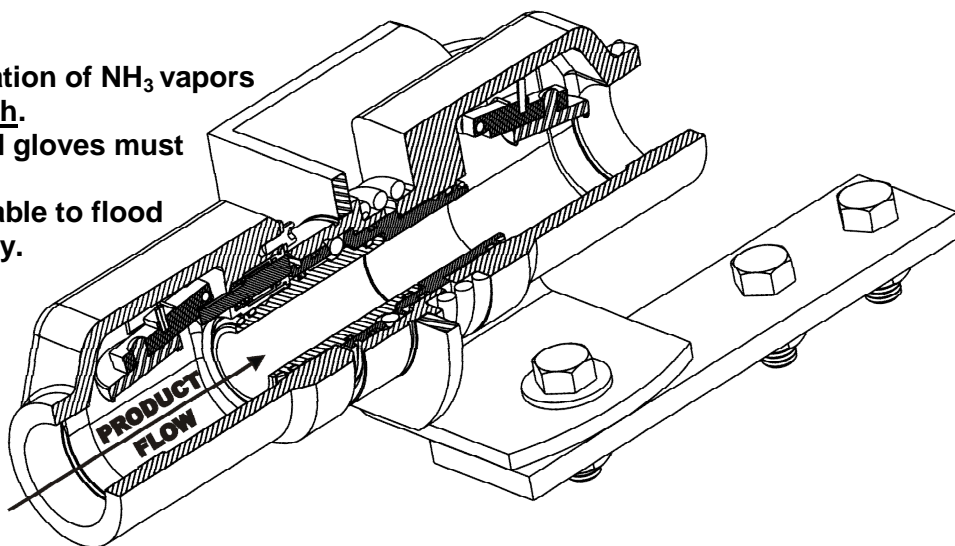
The Flo-Max II coupler is designed to disconnect the nurse tank hose from a tool bar before the straight pull force on the hose exceeds 450 pounds. Upon disconnect, swing checks in both halves of the coupler snap closed to stop flow of product from the nurse tank or the tool bar.

**WARNING! FAILURE TO READ AND UNDERSTAND THE INSTRUCTIONS CONTAINED IN THIS INSTALLATION, OPERATION AND MAINTENANCE MANUAL CAN LEAD TO PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH.**

If you have any questions about anything contained in this manual or desire additional copies, please call Squibb Taylor at 1-800-345-8105 and ask for customer service.

**WARNING! PROPER OPERATION OF THIS DEVICE AND YOUR SAFETY DEPENDS ON THE FOLLOWING:**

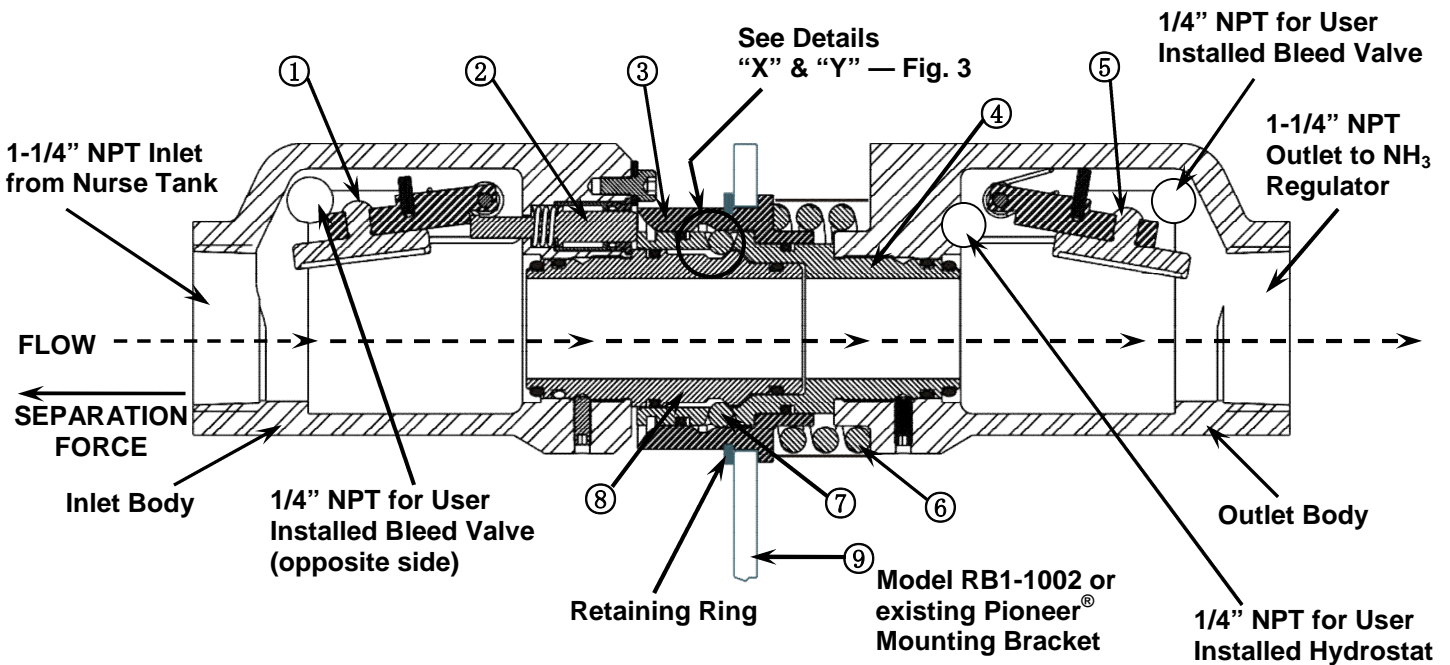
1. The mounted coupler must be able to freely swivel approximately 80 degrees to each side AND about 45 degrees up and 20 degrees down. This must be done so the coupler will be presented with a straight pull by the hose in the event of a situation where the nurse tank comes free of its attachment to the tool bar. If the coupler cannot swivel properly, the hose may pull at an angle which causes the separation force to increase greatly and may bind the coupler preventing separation. **Since pull away events often occur in a turn, the ability of the coupler to swivel as described is critical to operation of this device.**
2. All piping and valves in the system should be able to withstand a pull force greater than 450 lbs.
3. The female part of the coupler that is attached to the swivel bracket must be able to move at least 1/3 inch toward the bracket to compress the latch spring to allow unlatching of the coupler in the event of a pull away. The hose and fittings attached to the coupler at the swivel bracket must not catch on anything that would prevent movement of the coupler toward the bracket during a pull away, otherwise the coupler will not separate.
4. The latch spring cavity must be kept free of any objects that would prevent compression of the latch spring in a pull away. A rubber cover is provided for this purpose and should be replaced if damaged or missing.
5. Manually connect and disconnect this device before every usage season. Verify closure of swing checks and repair or replace as required. Since all metal surfaces in working contact are corrosion-free stainless steel, no change out date is required as long as the unit is inspected before every usage season.
6. In a pressurized pull away situation, approximately 60 cc of liquid NH<sub>3</sub> will be released from between the swing checks.
7. **WARNING!**
  - Contact with NH<sub>3</sub> liquid or inhalation of NH<sub>3</sub> vapors can cause serious injury or death.
  - Protective clothing, goggles and gloves must be worn at all times.
  - Emergency water must be available to flood any NH<sub>3</sub> contact area on the body.



**FIGURE 1**

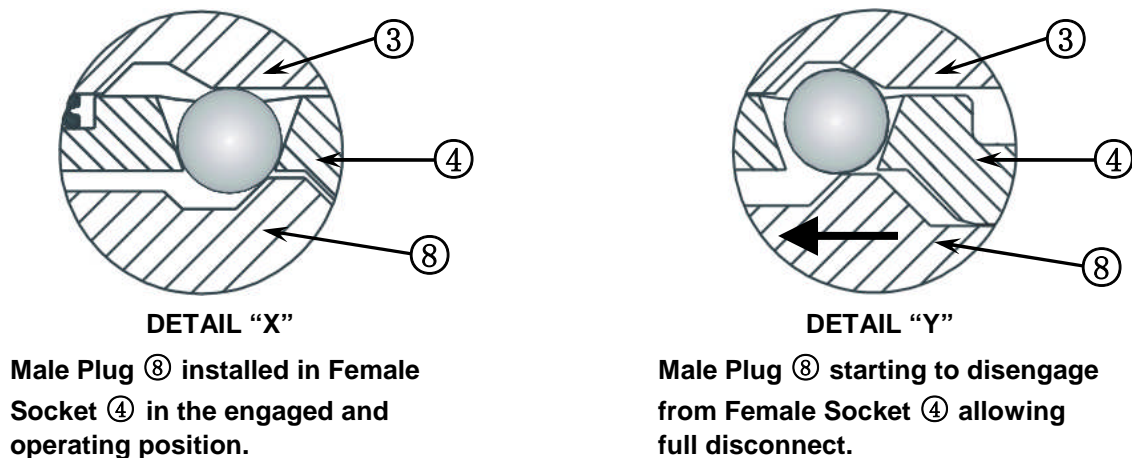
## Operation Instructions (Refer to Figures 2 & 3)

1. When the Flo-Max II Coupler is engaged and under pressure, the spring-biased Inlet Swing Check ① is held open by the Plunger ②. The spring-biased Outlet Swing Check ⑤ will be opened when NH<sub>3</sub> flow begins.



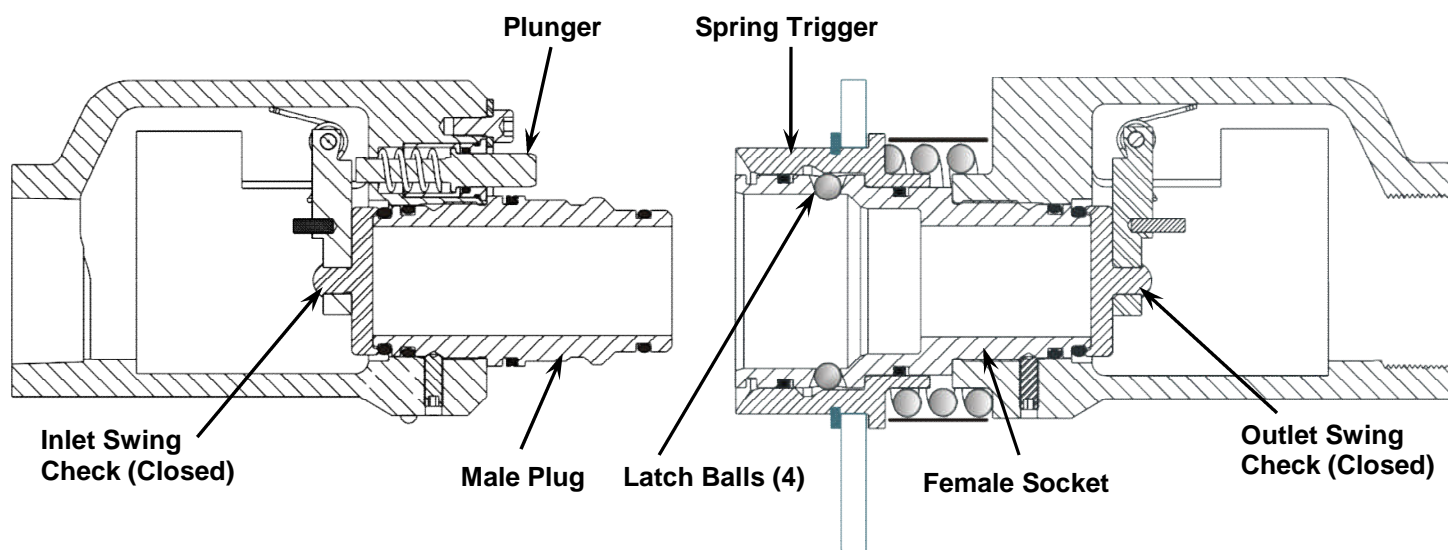
**FIGURE 2**

2. When fully engaged, the Male Plug ⑧ is secured to the Female Socket ④ by four Latch Balls ⑦. The separation of the Plug from the Socket is accomplished when, and only when, the nurse tank hose becomes taut and is in a straight line pull with the Flo-Max II Coupler.
3. When a separation force is applied to the Male Plug, the Trigger ③ remains stationary since it is attached to the Mounting Bracket ⑨. The Latch Balls, being pulled by the Plug, force the Outlet Body to compress the Trigger Spring ⑥. With about 1/4\" of travel, the Latch Balls are forced into the release groove, allowing a full disconnect. After separation, the Outlet Body will return to the \"engaged\" position and remain intact in the mounting bracket. The Inlet and Outlet Swing Checks will seal and prevent additional NH<sub>3</sub> release to the atmosphere, as shown in Figure 4.



**FIGURE 3**

## Operation Instructions (Refer to Figure 4)



**FIGURE 4**

When separation occurs . . .

- the Male Plug is completely disengaged from the Female Socket and remains with the nurse tank hose.
- the Inlet Swing Check is no longer forced open by the Plunger, and is free to seal the flow path from the nurse tank.
- the Outlet Body remains with the tool bar.
- the Outlet Swing Check is no longer forced open by flow and closes to prevent release of  $\text{NH}_3$  from the tool bar hoses and piping.

## **WARNING!**

**NEVER TAMPER WITH THE SWING CHECK OUTER PINS!  
IF THESE PINS ARE REMOVED, THE UNIT MUST BE  
RETURNED TO THE FACTORY FOR RE-ASSEMBLY!**



## Flo-Max II Coupler Installation Instructions

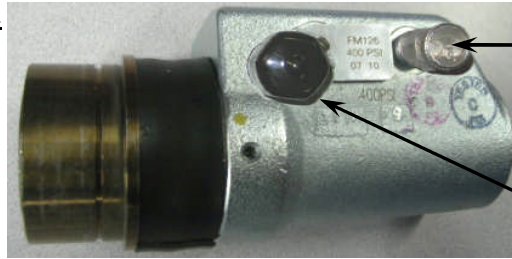
1. Install a Bleed Valve into the 1/4" NPT on Inlet Body portion of the Coupler. Open the Bleed Valve and leave it open until after the Inlet Body is coupled with the Outlet Body.

Install 1/4" NPT Bleed Valve at this location.

OPEN THE BLEED VALVE.



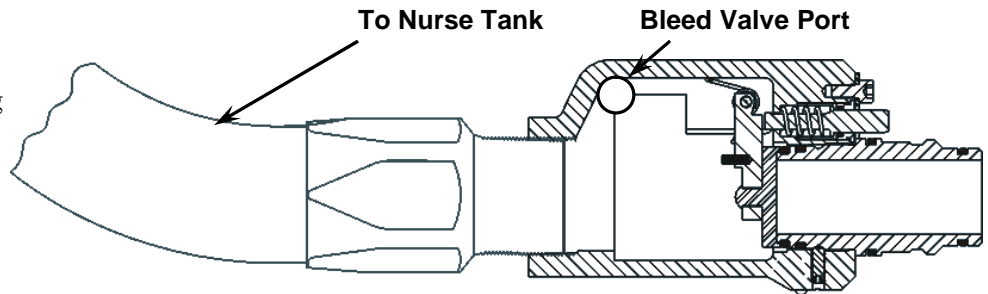
2. Install a 1/4" NPT Hydrostat Fitting into the forward port on the Outlet Body and a Bleed Valve into the rear port on the Outlet Body. These components MUST be installed at the locations shown at right.



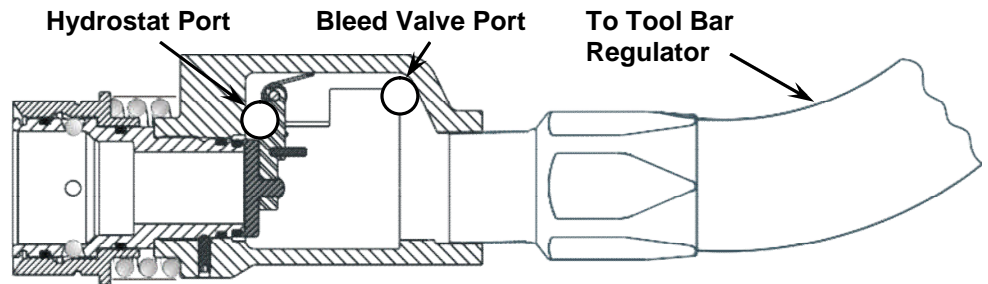
Install 1/4" NPT Bleed Valve at this location.

Install 1/4" NPT Hydrostat Fitting at this location.

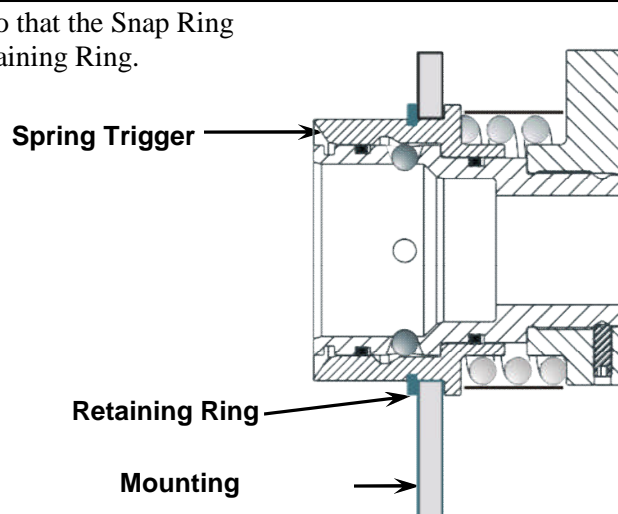
3. Attach the nurse tank hose to the Male (Inlet) Half of the Flo-Max II Coupler. Always place the wrench on the body portion of the coupler when connecting or disconnecting a hose.



4. Connect the Female (Outlet) Half of the Flo-Max II Coupler to any NH<sub>3</sub> tool bar regulator with the proper hose length. Always place the wrench on the body portion of the coupler when connecting or disconnecting a hose. See FIGURE 5-SAFE INSTALLATION photo on page 5 for minimum parameters for hose length.



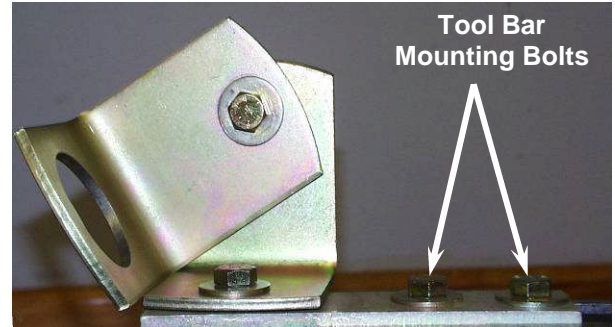
5. Insert the Spring Trigger through the Mounting Bracket so that the Snap Ring groove is exposed on the opposite side and install the Retaining Ring.





## Bracket Installation Instructions

It is mandatory that the Flo-Max II Coupler be installed into a mounting bracket that allows the Coupler full freedom to always, and under any condition, align itself for a straight line pull from the nurse tank hose. The Squibb-Taylor Model RB1-1002 Mounting Bracket provides this freedom of motion and is available through your local distributor. An existing 1-1/4" NPT Pioneer® bracket will also provide this freedom of motion, and may be used, provided that the bracket and snap ring are in good operating condition. It is also mandatory that the Flo-Max II Coupler and mounting bracket assembly be mounted on the tool bar at a location that will ensure the nurse tank hose will not be pinched or restricted from full movement freedom during operation.



**WARNING:**  
**Improper constraint of an Flo-Max II Coupler outlet hose can cause a SERIOUSLY UNSAFE CONDITION.**

### REFER TO FIGURE 5 — SAFE INSTALLATION

Figure 5 specifies the minimum outlet hose constraint parameters to assure safe rotation of the Flo-Max II Coupler.

The outlet hose must have a minimum height of 13 inches and must not be tied down or restricted for at least 3 feet from the mounting bracket holding the Flo-Max II Coupler.

If these minimum parameters are met, the coupler will have ample slack in the outlet hose to allow the coupler to swivel freely and separate properly in the event of a pull-away.

### FIGURE 5 SAFE INSTALLATION

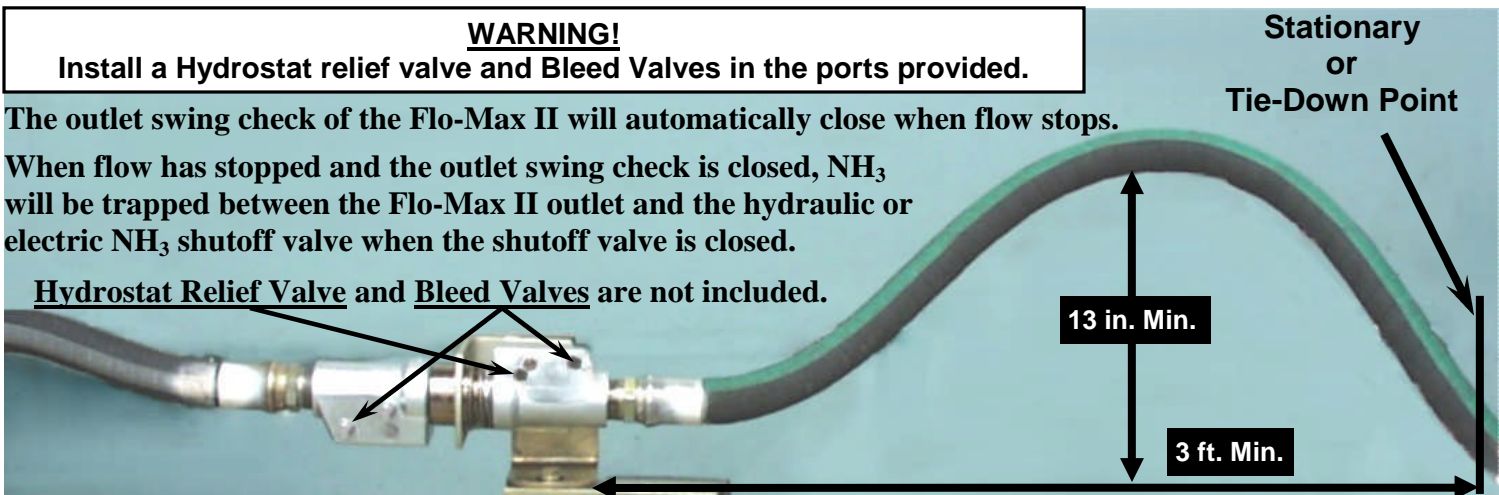
#### **WARNING!**

Install a Hydrostat relief valve and Bleed Valves in the ports provided.

The outlet swing check of the Flo-Max II will automatically close when flow stops.

When flow has stopped and the outlet swing check is closed, NH<sub>3</sub> will be trapped between the Flo-Max II outlet and the hydraulic or electric NH<sub>3</sub> shutoff valve when the shutoff valve is closed.

Hydrostat Relief Valve and Bleed Valves are not included.



#### **WARNING!**

**WITH THE Flo-Max II COUPLER AND METER HOSE INSTALLED, THE MOUNTING BRACKET MUST BE FREE TO SWIVEL AT LEAST 80° TO EACH SIDE, 45° UP AND 20° DOWN.**

## Flo-Max II Coupler Installation Instructions (cont'd.)

### SuperShooter III WARNING

For those customers using the BLU-JET SuperShooter III mounting bracket with the FLO-MAX II Safety Coupler, please be advised that **A HYDROSTAT OR BLEED VALVE, IF INSTALLED IN THE WRONG LOCATION, WILL INTERFERE WITH THE BRACKET DURING A DISCONNECT.**

The Body of the FLo-Max II will move approximately 1/4" toward the Spring during disconnect or reconnect, and this movement is the reason for the interference problem.

The following illustrations depict the proper installation locations for a 1/4" NPT Socket Head Pipe Plug, a Hydrostat, and a Bleed Valve.

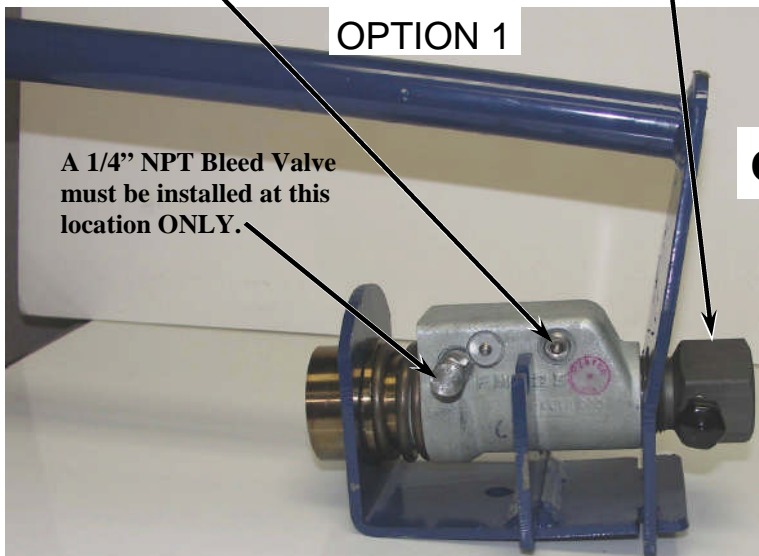
Install a 1/4" NPT Socket Head Pipe Plug, flush with the Coupler Body, in this location.

To mount a Hydrostat with this arrangement, install a Squibb-Taylor 2032-5000, 1-1/4" Adapter at the outlet of the FLO-MAX II.

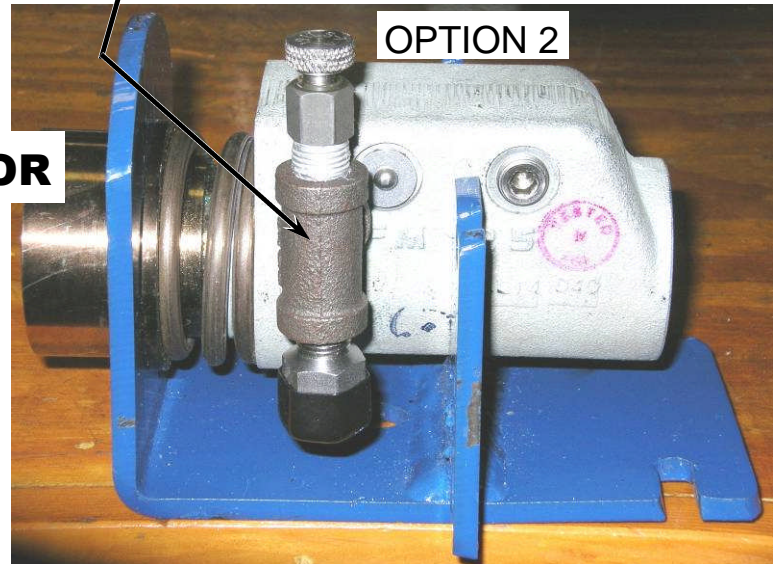
When installing a Hydrostat with a Bleed Plug, use a Nipple & Tee, as shown.

#### **WARNING:**

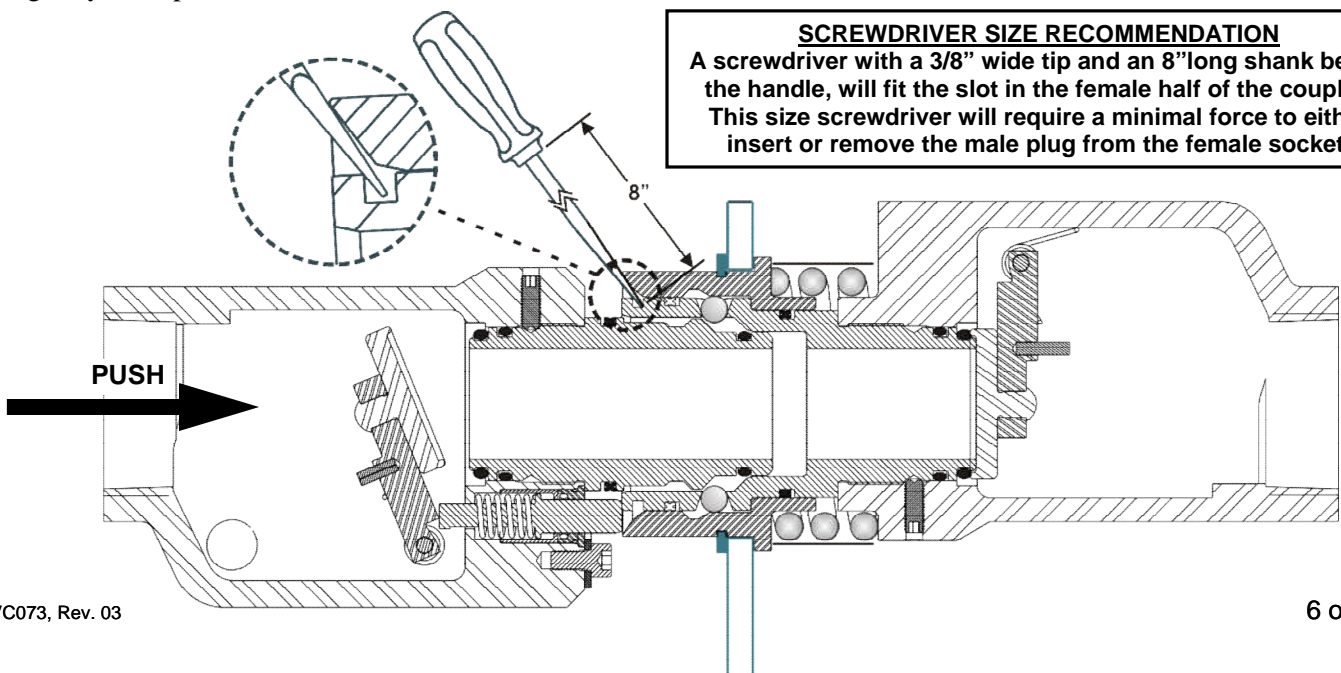
**DO NOT USE THIS ARRANGEMENT WITH PGI/PIONEER STANDARD BRACKETS.**



**OR**

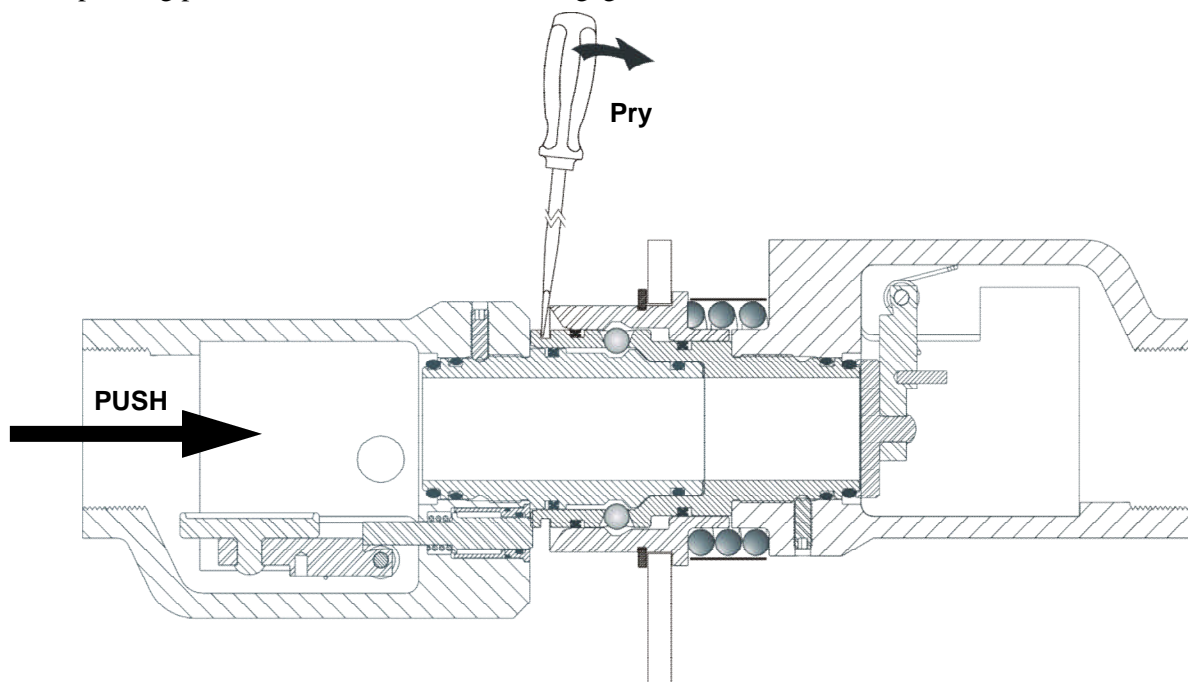


6. To ease installation, turn the Male Half of the Coupler so that the Plunger is not directly on top. (Shown inverted here for clarity.)
7. **MAKE SURE THE BLEED VALVE IS OPEN**, then insert the Male Plug into the Female Socket as far as possible using only hand pressure and insert the screwdriver as shown.

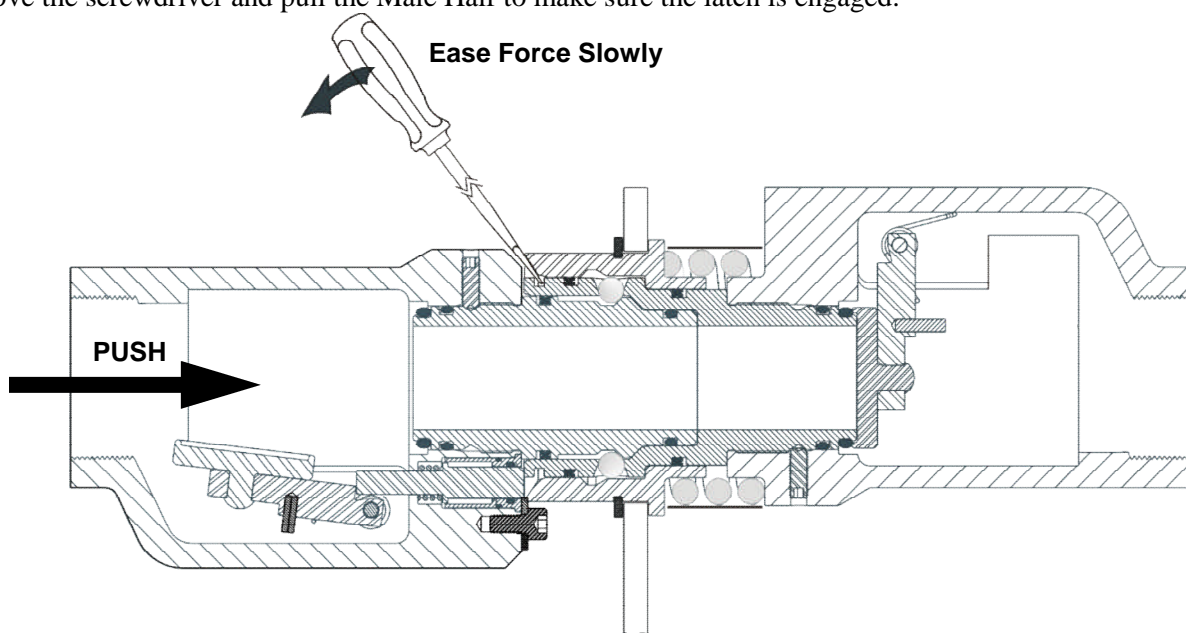


## Flo-Max II Coupler Installation Instructions (cont'd.)

8. While continuing to push the Male Plug, pry the Coupler latch in the direction shown, which will allow the Male Plug to move to its operating position and the Latch Balls to engage.



9. While maintaining the Male Plug in that position, ease the force on the screwdriver to fully latch the Coupler. Remove the screwdriver and pull the Male Half to make sure the latch is engaged.



10. **GRASP THE SUPPLY HOSE AND MAKE SURE THE Flo-Max II MOUNTING BRACKET CAN FREELY MOVE 80° RIGHT, 80° LEFT, 45° UP AND 20° DOWN, AS A MINIMUM.**  
**See FIGURE 5 - SAFE INSTALLATION.**

11. **CLOSE ALL BLEED VALVES.**

12. Open valves according to applicator manufacturer's instructions when ready to apply  $\text{NH}_3$ .



## Reconnection After Separation

Before attempting to reconnect the Coupler:

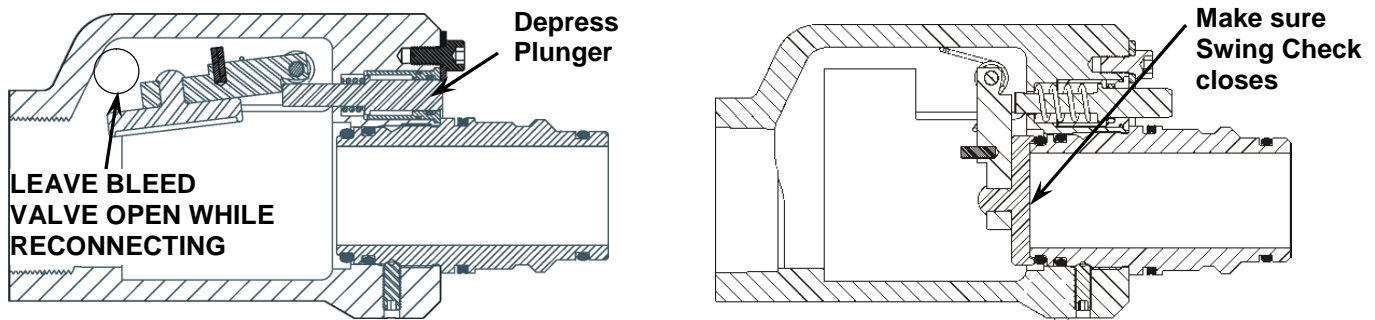
1. CLOSE ALL VALVES AND INSPECT ALL HOSES, VALVES AND FITTINGS FOR PROPER CONDITION.
2. OPEN THE BLEED VALVE ON THE MALE HALF TO RELIEVE PRESSURE IN THE NURSE TANK HOSE. LEAVE THE BLEED VALVE OPEN.

NOTE: Pressure may be trapped in the Female Half, but the Coupler may still be reconnected.

### WARNING!

THE BLEED VALVE MUST BE LEFT OPEN TO PREVENT RESIDUAL LIQUID FROM RE-PRESSURING THE HOSE.

3. Inspect the Male Half of the Flo-Max II Coupler by depressing the Plunger to make sure it operates freely and the Swing Check returns to the closed position when the Plunger is released.

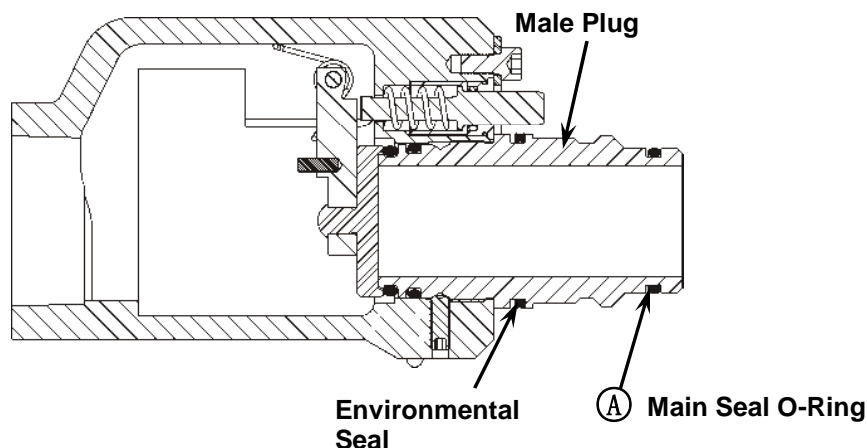


4. Wipe the outside of the Male Plug with a clean cloth to remove any dirt and debris from the Main Seal O-Ring and Environmental Seal Quad Ring.

Inspect the O-Rings and replace them if damaged. See Service Kit Figure 8.

### WARNING!

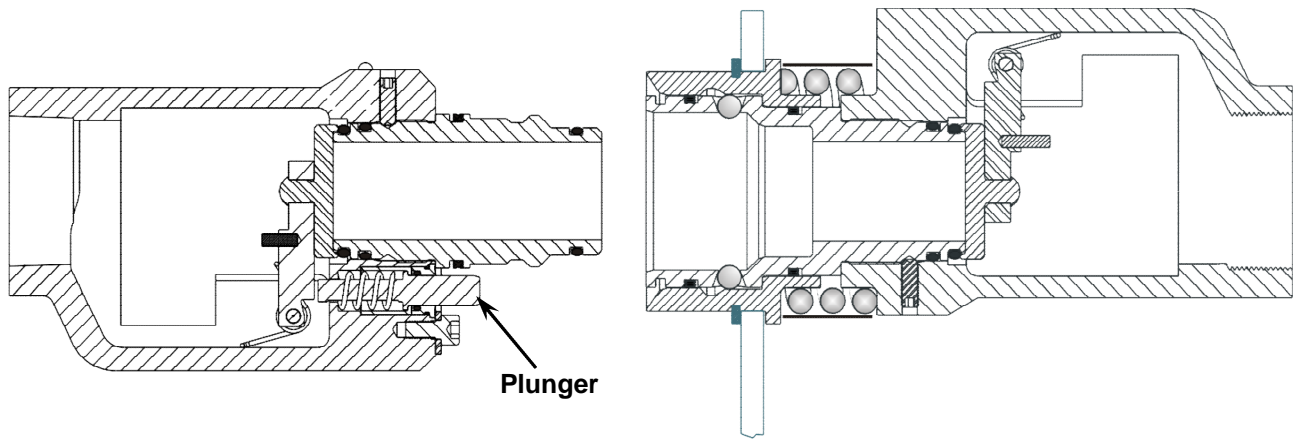
IN THE EVENT OF A FORCED DISCONNECT, THE MAIN SEAL MAY BE BLOWN OUT OF ITS GROOVE, BUT WILL REMAIN ON THE MALE PLUG. BE SURE TO CLEAN AND INSPECT THE MALE PLUG AND THE O-RING, AND RE-INSTALL THE O-RING IN ITS PROPER LOCATION AS SHOWN BELOW AT ①.



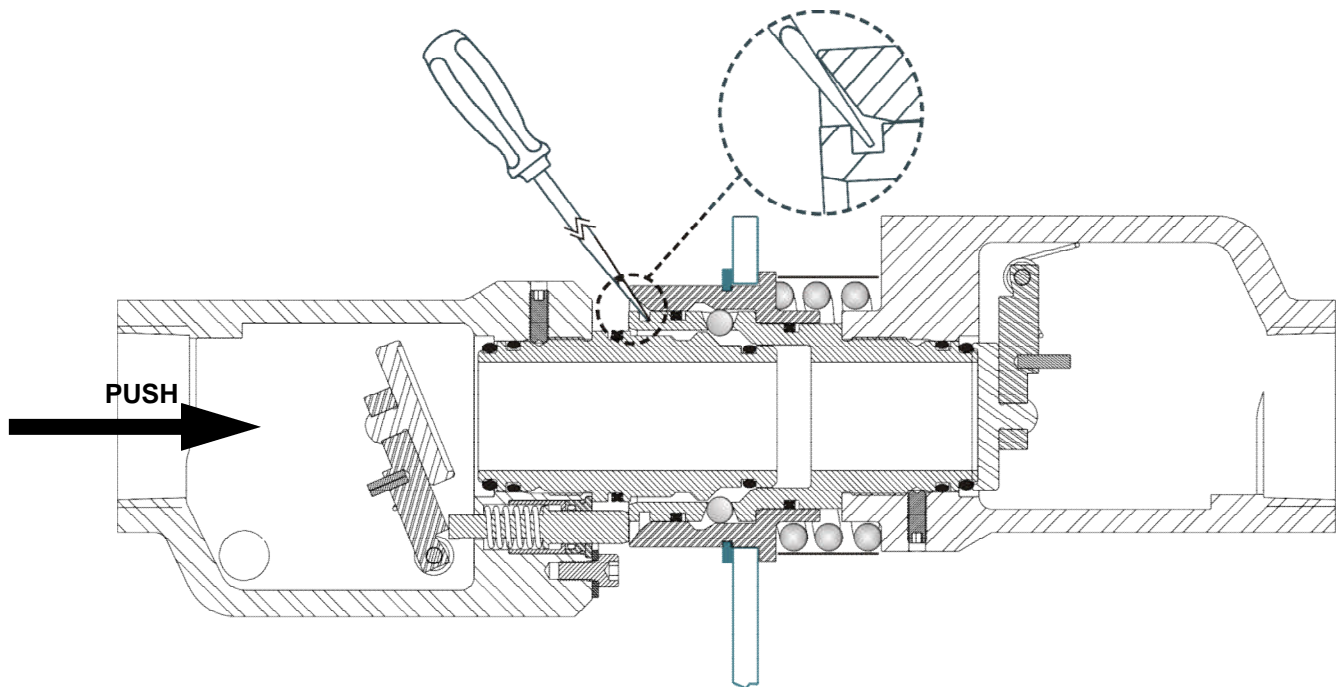


## Reconnection After Separation (cont'd.)

5. To ease installation, turn the Male Half of the Coupler so that the Plunger is not directly on top. (Shown inverted here for clarity.)

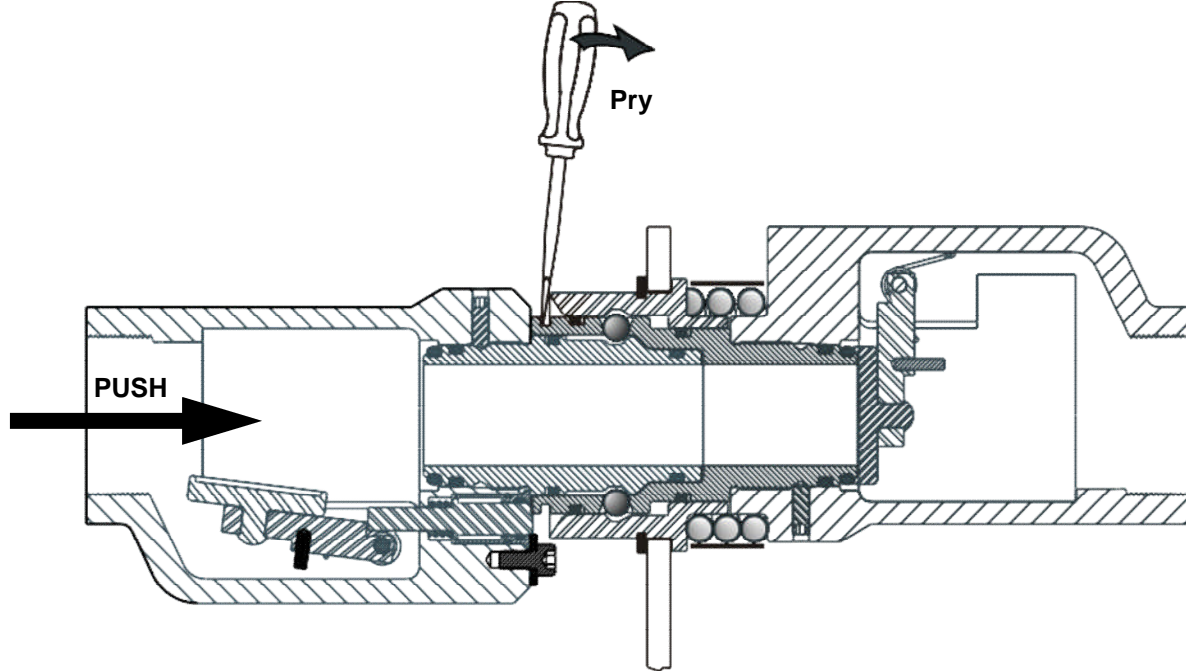


6. **Make sure the Bleed Valve is open**, then insert the Male Plug into the Female Socket as far as possible using only hand pressure and insert the screwdriver as shown.

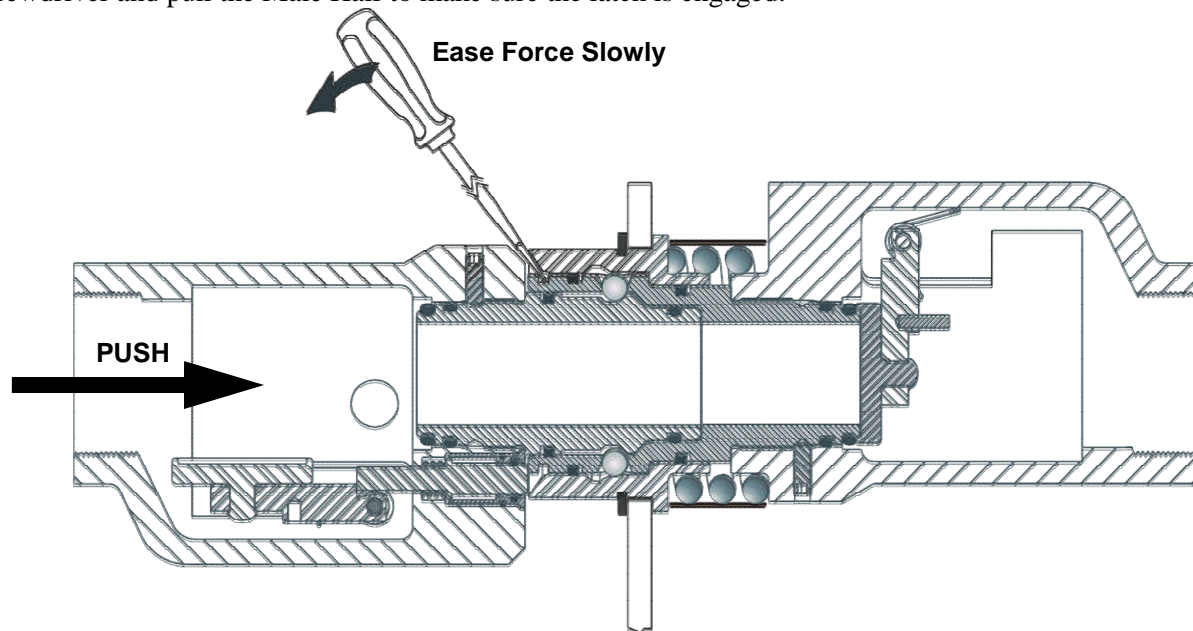


## Reconnection After Separation (cont'd.)

7. While continuing to push the Male Plug, pry the Coupler latch in the direction shown, which will allow the Male Plug to move to its operating position and the Latch Balls to engage.



8. While maintaining the Male Plug in that position, ease the force on the screwdriver to fully latch the Coupler. Remove the screwdriver and pull the Male Half to make sure the latch is engaged.



9. **GRASP THE SUPPLY HOSE AND MAKE SURE THE Flo-Max II MOUNTING BRACKET CAN FREELY MOVE 80° RIGHT, 80° LEFT, 45° UP AND 20° DOWN, AS A MINIMUM.**

**See FIGURE 5 - SAFE INSTALLATION.**

### **10. CLOSE ALL BLEED VALVES.**

11. Open valves according to applicator manufacturer's instructions when ready to apply  $\text{NH}_3$ .

## Manual Disconnect Instructions (Refer to Figure 6)

### DANGER!

It is imperative that all pressure is removed from the inlet side of the coupler before separating the coupler manually.

### USE EXTREME CAUTION!

A 60 cc liquid release of  $\text{NH}_3$  will occur from the internal cavity of the Flo-Max II Coupler when separated.

Serious bodily harm could result if the coupler is separated while under pressure.

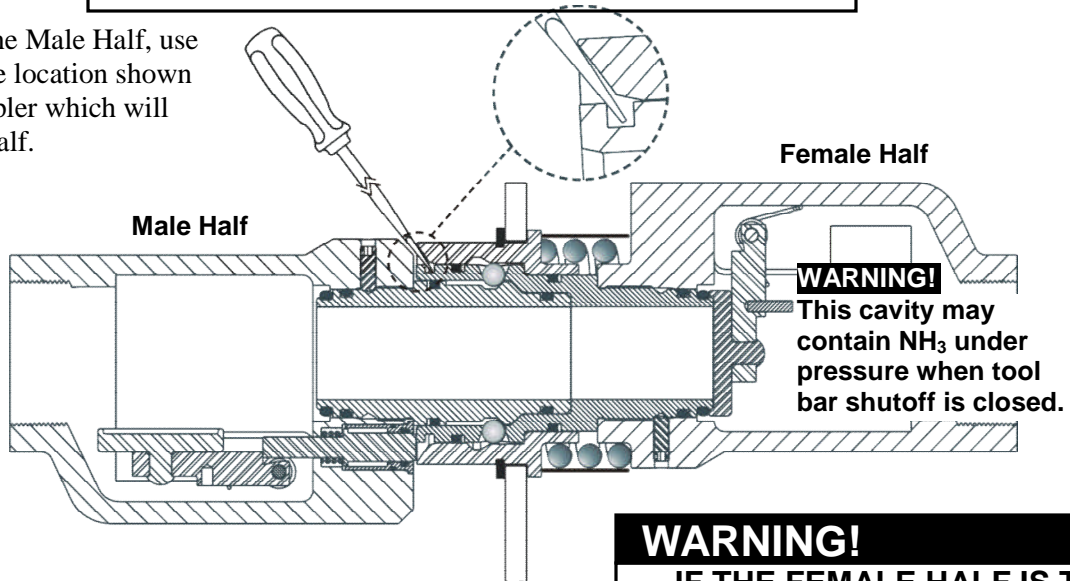
1. CLOSE THE NURSE TANK WITHDRAWAL VALVE.
2. OPEN THE BLEED VALVE ON THE MALE HALF TO RELIEVE PRESSURE IN THE NURSE TANK HOSE. LEAVE THE BLEED VALVE OPEN.

NOTE: Pressure may be trapped in the Female Half, but the Coupler may still be reconnected.

### WARNING!

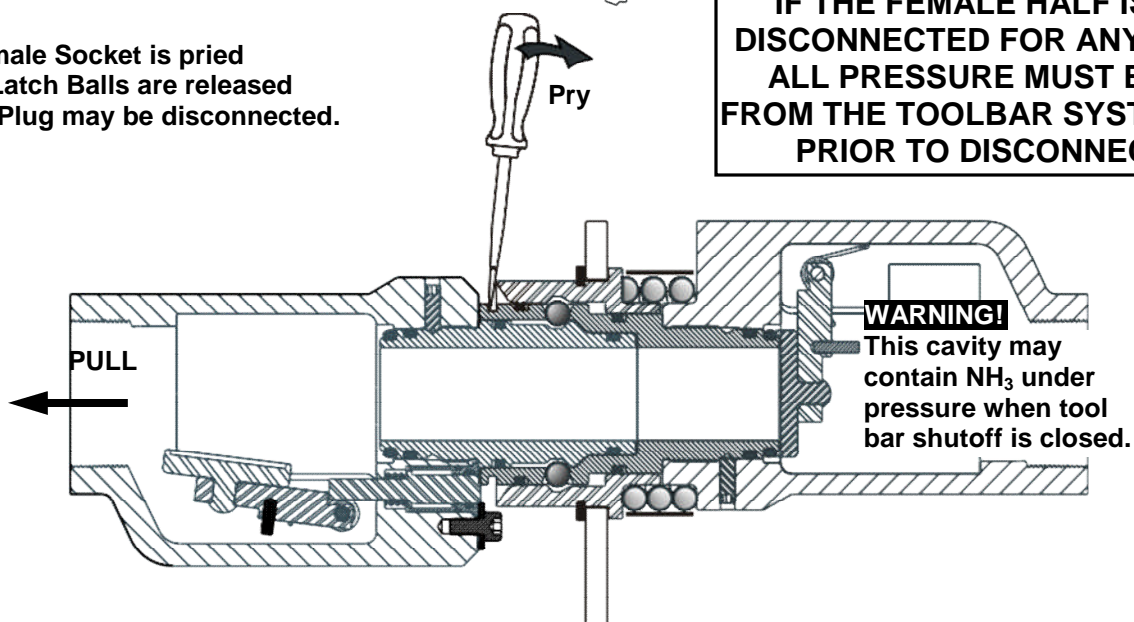
THE BLEED VALVE MUST BE LEFT OPEN TO PREVENT RESIDUAL LIQUID FROM RE-PRESSURING THE HOSE.

3. While pulling on the Male Half, use a screwdriver at the location shown to unlatch the Coupler which will release the Male Half.



**FIGURE 6**

When the Female Socket is pried forward, the Latch Balls are released and the Male Plug may be disconnected.



Service Kits

If O-rings become worn or damaged, Service Kits are available through your local distributor.

Service Kit Number FM125-0022 & FM125-0024 (See FIGURE 7 for item numbers.)

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	FM125-5012	BALL CARRIER INSTALLATION TOOL (not shown) Included with FM125-0022 ONLY.
2	2	P5-287-R0	#2-215 PARKER O-RING N674-70
3	2	P5-067-R2	#2-124 PARKER O-RING N674-70
4	1	108-2003	#2-122 PARKER O-RING N674-70
5	1	P9-127-R0	RUBBER TRIGGER SPRING COVER

NOTE: The Quad Rings installed on the Flo-Max II Couplers are dust seals only and are not included in seal kits.

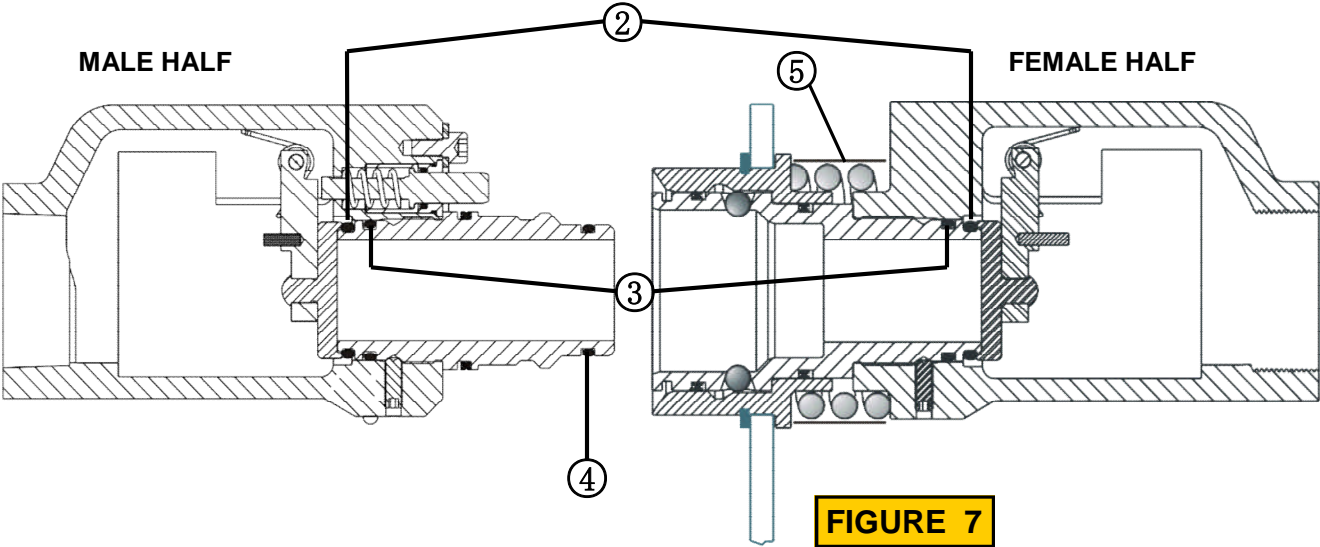


FIGURE 7

If the Plunger or Plunger O-Rings become damaged, a Service Kit is available through your local distributor.

Service Kit Number FM125-0023 (See FIGURE 8 for item numbers.)

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	FM125-5013	PLUNGER HOUSING (not included)
2	1	P5-133-R0	O-RING (11mm x 1mm)
3	1	P5-015-R4	O-RING 2-011
4	1	FM125-5014	PLUNGER HOUSING SLEEVE (not included)
5	1	FM125-5009	PLUNGER

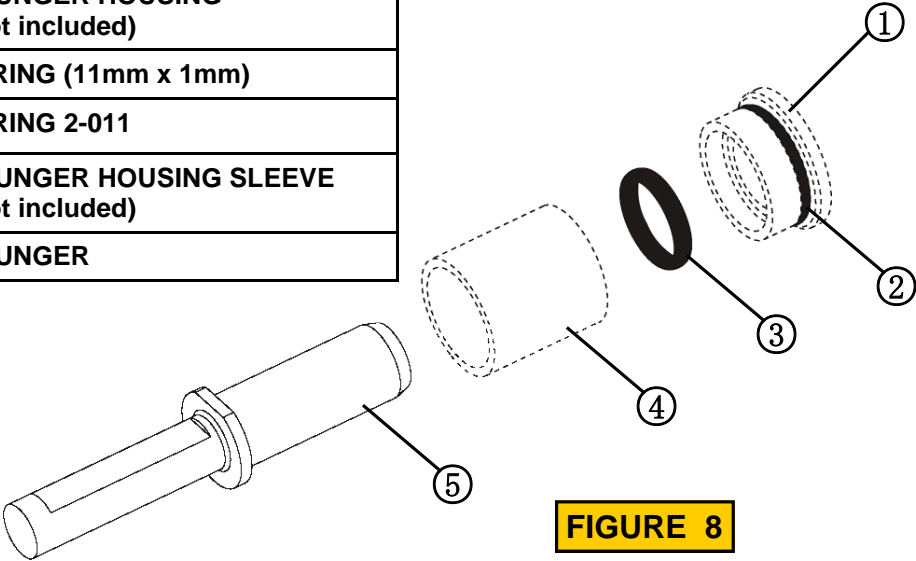


FIGURE 8