



## Safety Precautions

Before you begin maintaining your FRL unit, it is important to follow these safety precautions to avoid accidents and ensure a safe working environment:

- Safety Gear: Wear appropriate personal protective equipment (PPE) such as safety glasses, gloves, and ear protection.
- Safety Procedures: **Lockout/Tagout the system.**

## Before Lockout/Tagout

- Check the pressure settings: Ensure the regulator is set to the correct pressure according to your system's requirements.
- Inspect for leaks or damage: Look for signs of air leaks around the regulator, including hissing sounds or bubbles if you apply a soapy water solution. Check for any visible damage to the regulator housing or components.
- Adjust the pressure if needed: If the pressure is not within the desired range, adjust it using the adjustment knob. See Adjusting the Air Line Lubricator Drip Rate next.

## Materials

The following material may be needed in maintaining the FRL.

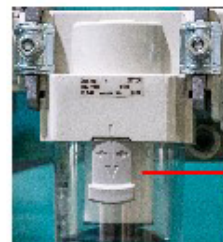
- Replacement filter elements (if needed)
- Lubricating oil compatible with your FRL unit
- Cleaning solution (mild detergent or industrial cleaner)
- Rags or paper towels

## How Remove Bowls from the FRL

Both the Filter and Lubricator have the same bowl locking system. See Figure 3-2 for information about the lock.

To remove the bowl:

1. De-pressurize the system.
2. Perform **Lockout/Tagout.**
3. Press the Lock Button and pull down to unlock.
4. Rotate the bowl clock-wise to remove it from the base.
5. To re-install the bowl, rotate it counter-clockwise until the lock clicks into place.



### Lock Button

To unlock it, press the button. Gently move the bowl upward. Rotate the bowl to remove.

## Step 1: Inspect the Regulator

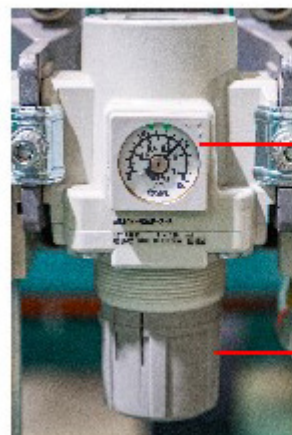
Before Lockout/Tagout

- **Check the pressure settings:** Ensure the regulator is set to the correct pressure according to your system's requirements.
- **Inspect for leaks or damage:** Look for signs of air leaks around the regulator, including hissing sounds or bubbles if you apply a soapy water solution. Check for any visible damage to the regulator housing or components.
- **Adjust the pressure if needed:** If the pressure is not within the desired range, adjust it using the adjustment knob. See Adjusting the Air Line Lubricator Drip Rate next.

## How to Adjust the Regulator

The air regulator includes a pressure gauge and adjustment knob. To adjust the air pressure:

1. Pull down knob to unlock the adjustment.
2. Turn the knob until the pressure gauge displays the desired pressure. Turn clockwise to increase pressure and counterclockwise to decrease pressure.
3. Lock the regulator by pushing up the knob to click into place.
4. Adjust the main FRL to 90 psi.



### Pressure Gauge

### Air Pressure Adjustment

## Step 2 - Inspect the Filter

The filter is at the factory air inlet. It removes debris and water vapor. Debris collects in the filter bowl and is auto-drained.

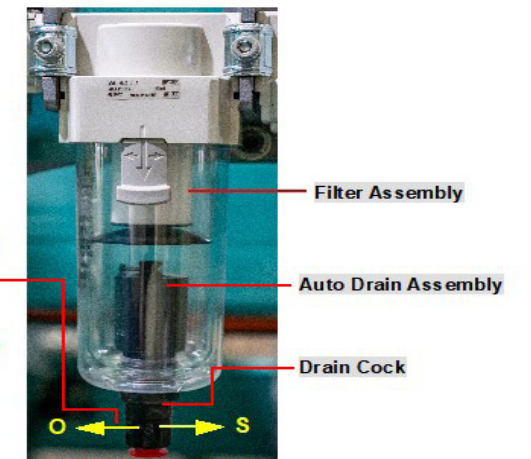
### To manually drain:

To manually blow out water and debris:

1. Normal position is "S" (tightened).
2. Loosen to "O" to drain.

### Manually Drain

Letters are embossed on the knob. Loosen to the "O" direction to open the drain. Tighten in the "S" direction to close the drain. Be careful of pressured discharge



### Filter Assembly

### Auto Drain Assembly

### Drain Cock

## Remove, Inspect and Clean Filter Bowl

The manufacturer recommends that the filter inside the Filter Bowl should be changed every 2 years.

1. Depressurize the system.
2. **Inspect for leaks or damage:** Look for signs of air leaks and damage.
3. **Remove the filter bowl:** Be cautious of any remaining pressure or trapped debris. Inspect the bowl for cracks or defects.
4. **Check for debris and damage:** Inspect the filter element and the inside of the filter bowl for dirt, debris, and signs of wear or damage.
5. If needed, clean the bowl with soap and water.
6. If the filter is damaged or excessively dirty, replace it with a new element.
7. **Re-Attach the Filter Bowl:** Re-attach the bowl to the body of the Filter body. Make sure the lock button snaps into place.
8. **Re-pressurize the system:** Reverse Lockout/Tagout. Slowly open the main air supply valve to allow air to flow back into the system. Monitor the pressure gauge.
9. **Check for proper operation:** Observe the FRL unit and connected pneumatic tools for any signs of leaks or irregular operation.
10. **Make final adjustments:** Adjust the regulator pressure to ensure optimal performance.

**For information about maintaining the Air Lubricator System, refer to other side.**

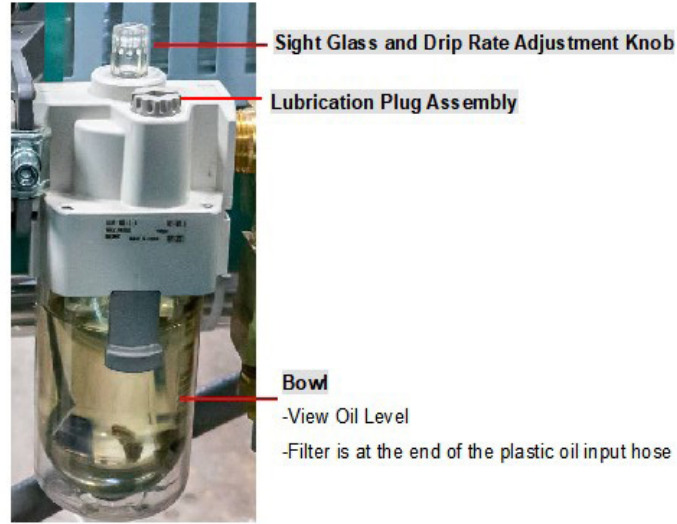
### Step 3: Inspect and Adjust the Lubricator

The lubricator in your FRL unit is essential for maintaining the performance and longevity of your pneumatic tools.

With the FRL in operation:

- Inspect for leaks or damage: Look for signs of air leaks or damage.
- Verify the oil level: The level should be at the "Max Level Line" on the line the bowl glass. If not at the level, add oil to the level.
- Verify the drip rate: Look into the sight glass on top of the lubricator.

### Adding Oil to the Lubricator



1. Do not fill lubricator above max line.
2. Perform **Lockout/Tagout**.
3. Depressurize the system.
4. **Remove the oil bowl:** Be cautious not to spill oil.
5. **Check for debris and damage:** Inspect the oil for dirt and debris. If dirty, dump the existing oil in accordance to regulations and clean the bowl with soap and water.
6. **Add Oil:** Add new oil to match the level line on the bowl. See oil types below.

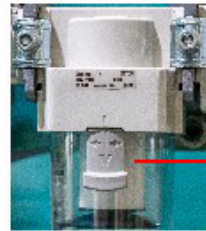
Oil Types
KVAL P/N SYSLUBG
Chevron AW Hydraulic Oil 32
G-C Lubricants light AW R&O
Mobile DTE 24
Shell Tellus 32
Gulf Harmony 32

7. **Re-Attach Bowl:** Re-attach the bowl to the body of the lubricator. Make sure the lock button snaps into place.
8. **Re-pressurize the system:** Reverse Lockout/Tagout. Slowly open the main air supply valve to allow air to flow back into the system. Monitor the pressure gauge.
9. **Check for proper operation:** Observe the FRL unit and connected pneumatic tools for any signs of leaks or irregular operation.
10. **Make final adjustments:** Adjust the regulator pressure and lubricator oil rate if necessary to ensure optimal performance. See the next section.

### Adjusting the Air Line Lubricator Drip Rate

After inspecting and refilling the Lubricator, adjust the drip rate. The drip rate is the frequency at which oil droplets fall into the air stream.

1. **Observe the drip rate:** Look through the transparent sight glass to observe the drip rate of the lubricating oil. One drop per every other cycle is recommended.
2. **Adjust the Rate:** If the rate is not within specification, perform the following:

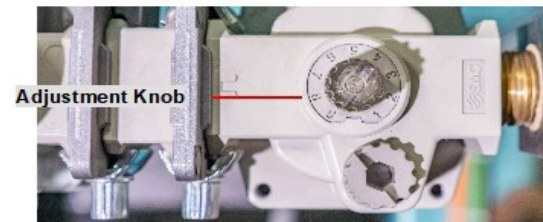


#### Lock Button

To unlock it, press the button.  
Gently move the bowl upward.  
Rotate the bowl to remove.

3. **Increase the drip rate:** Turn the adjustment knob clockwise to increase the oil delivery rate.
4. **Decrease the drip rate:** Turn the adjustment knob counterclockwise to decrease the oil delivery rate.
5. Adjust until the rate is obtained.

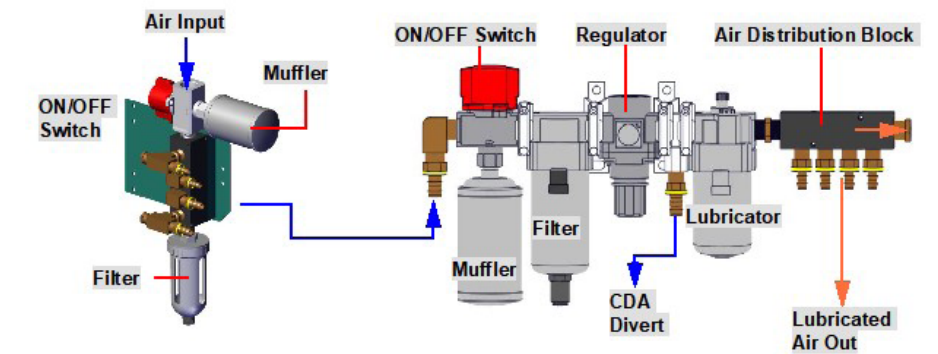
(Sight Glass). When the oiler has run dry, open the knob all the way until flow begins. Once you have a steady flow, tighten knob back down until you have one drop per every other cycle.  
Drop will form at end of cane shaped tube visible inside glass.



### About the FRL

An FRL unit, which stands for **Filter, Regulator, and Lubricator**, is an essential component in pneumatic systems. It ensures clean, regulated, and lubricated air is supplied to the machinery, thereby improving performance and longevity.

Note: The Figure below shows an example of an FRL with a full assembly. Not all assemblies include an Oiler Air or Distribution Block.



Component	Description
ON/OFF Switch	Point of access to turn off air to the entire machine. Machine air Lockout/Tagout occurs at this point.
Muffler	Air, Muffler, 3/8 NPT, High Flow Exhaust; Deadens the sound of the air exhaust.
Filter	Filter, 1/2" NPT Port With Auto Drain. Filters shop air to create Clean Dry Air to deliver to the machine.
Regulator	Regulator, 1/2" NPT Port With Back Flow Mechanism With Gauge. Normally set to 90 psi.
CDA Divert	Clean Dry Air is diverted normally to Air Blow Offs and the Screw Shooters.
Lubricator	Lubricator, 1/2" NPT Port. The Lubricator delivers lubricated air to Valve Banks and Air Cylinders.
Air Distribution Block	Distributes air to various parts of the machine. If after the Lubricator, normally diverted to Valve Banks that need oiled air.