



# Service Data

SD-08-187B

## Bendix® PuraGuard QC™ Oil Coalescing Filter

### DESCRIPTION

The PuraGuard QC™ oil coalescing filter provides purified compressed air on any air braked vehicle. It consists of a spin-on housing, or cartridge, mounted to an aluminum body. The spin-on cartridge contains a drain valve for maintenance. For ease of serviceability, the spin-on cartridge can be removed without disconnecting the supply and delivery lines of the PuraGuard QC™ oil coalescing filter from its mounting on the vehicle.

Vehicles operate best with clean, dry compressed air. The PuraGuard QC™ oil coalescing filter removes approximately 90% of oil aerosols and particulates down to 1 micron in size, but it must be used in a system with and follow an air dryer.

### OPERATION

#### GENERAL (See Figure 2)

Compressed air passes through the supply port of the PuraGuard QC™ oil coalescing filter and travels downward through the center of the filter element. As the air passes through the filter material, oil in liquid and aerosol form are removed and collected in the sump. The PuraGuard QC™ filter also collects solid particles 1 micron and larger. The cleaned air travels back up from the sump, through the delivery port and into the air system.

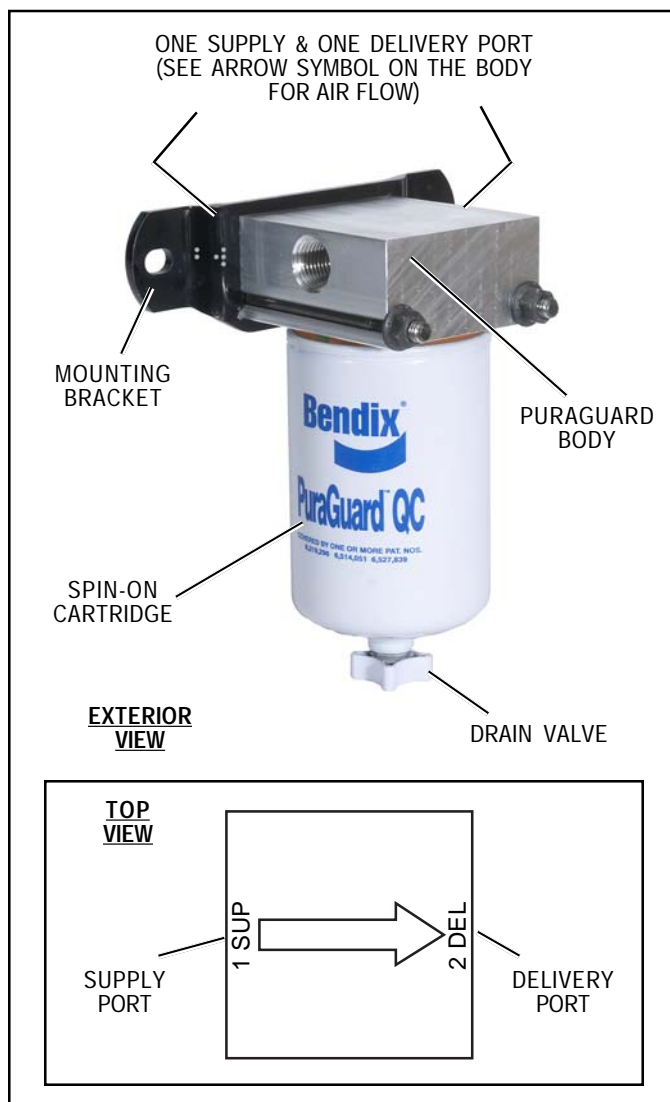


FIGURE 1 - PURAGUARD QC™ OIL COALESCING FILTER

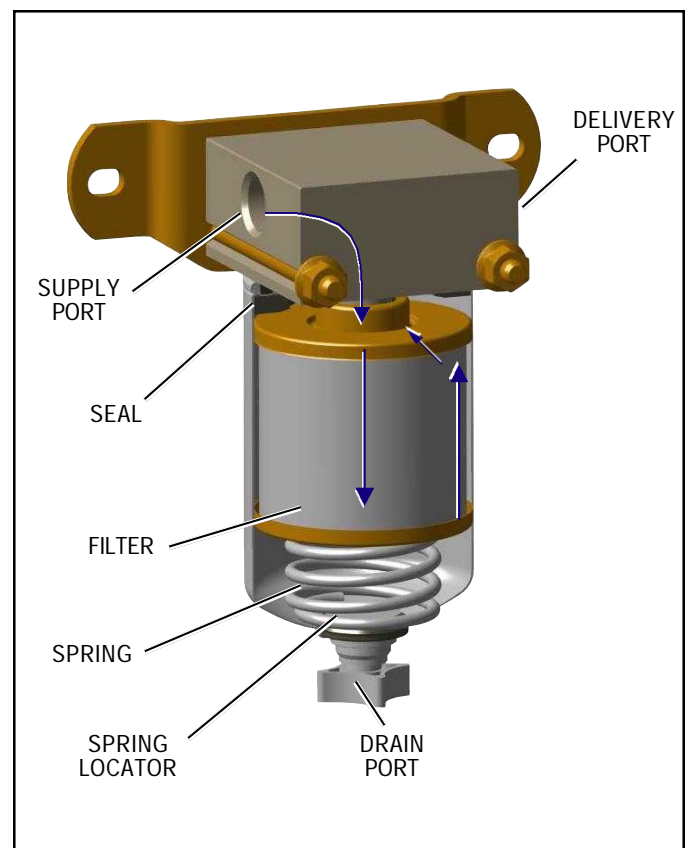


FIGURE 2 - CUT-AWAY SHOWING AIR FLOW

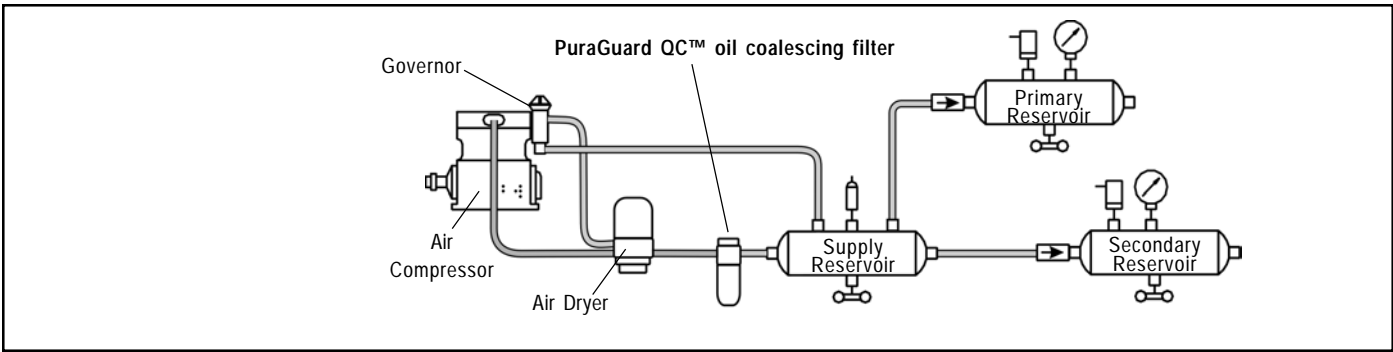


FIGURE 3 - PURAGUARD QC™ OIL COALESCING FILTER INSTALLATION SYSTEM WITH AIR DRYER

The PuraGuard QC™ oil coalescing filter has two female pipe thread air connections: one supply, one delivery — identified by their relationship to the arrow symbol showing air flow on the PuraGuard QC™ filter top (see Figure 1).

**Note:** The PuraGuard QC™ filter is not recommended to be used in conjunction with an alcohol evaporator or injector. The PuraGuard QC™ oil coalescing filter will remove the liquid or aerosol alcohol introduced, defeating the purpose of the evaporator/injector and requiring the sump to be drained more often than normal.

**FILTER BYPASS** (refer to Figure 4)

If a situation occurs where the ability of the filter to allow air to pass is impaired and causes a pressure difference of approximately 20 p.s.i. between the air entering the filter element and exiting, the filter will move downward against the spring. The air entering will then be able to bypass the filter element.

**PREVENTIVE MAINTENANCE**

**Important:** Review the warranty policy before performing any intrusive maintenance procedures. An extended warranty may be voided if intrusive maintenance is performed during this period.

Because no two vehicles operate under identical conditions, maintenance intervals will vary. Experience is a valuable guide in determining the best maintenance interval for a vehicle.

**Every 300 operating hours, 8,000 miles or one (1) month:**

1. With the air system pressure at 0 p.s.i., use the drain valve to collect contaminants for disposal. Do not open the valve beyond shoulder stop. This could loosen the handle.
2. Visually check the PuraGuard QC™ filter for broken or missing parts.
3. Check mounting bolts for tightness. Re-torque to vehicle manufacturers guidelines.

4. Perform the *Operation & Leakage Tests* listed in this publication.

**Every 3,600 operating hours, 100,000 miles or one (1) year:**

1. With the air system pressure at 0 p.s.i., drain collected contaminants for disposal.
2. Visually check for physical damage to the PuraGuard QC™ filter such as chaffed or broken air hoses and broken or missing parts.
3. Replace the cartridge (see Maintenance Kits, Figure 5). Do not use the drain valve to remove the cartridge.
4. Check mounting bolts for tightness. Re-torque to 160-200 in-lbs.
5. Perform the *Operation & Leakage Tests* listed in this publication.

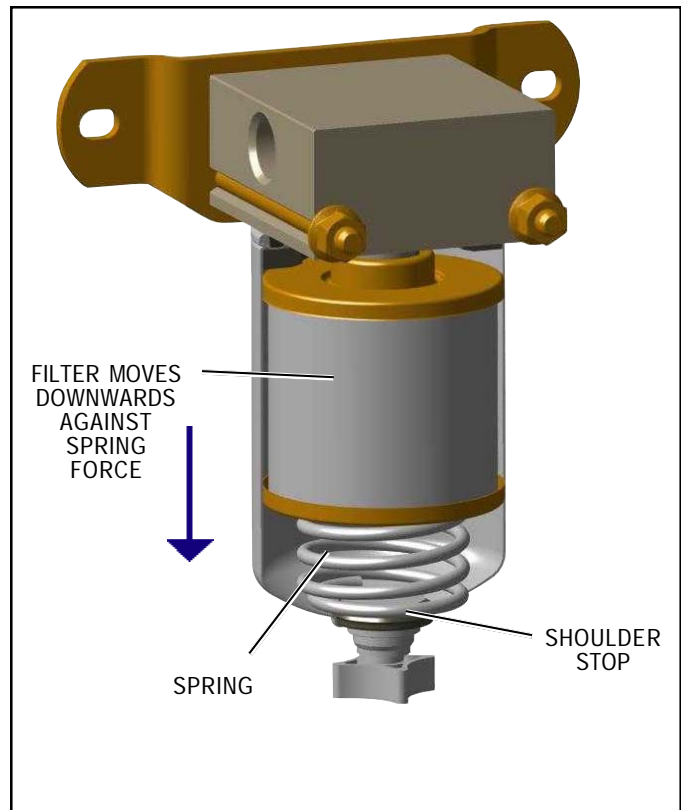


FIGURE 4 - BYPASS

## OPERATION & LEAKAGE TESTS

Build the air system to governor cutout. Shut off the engine. Using a soap solution, check all lines and fittings leading to and from the PuraGuard QC™ filter for leakage and integrity. Repair any excessive leaks — exceeding a 1 inch bubble in 5 seconds — before restoring vehicle to service.

### **WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:**

When working on or around a vehicle, the following general precautions should be observed at all times.

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses.
2. Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.
3. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning **ANY** work on the vehicle. If the vehicle is equipped with an AD-IS™ air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
8. Use only genuine Bendix® replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding

unless specifically stated and approved by the vehicle and component manufacturer.

10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.

## **PURAGUARD QC™ OIL COALESCING FILTER REMOVAL**

This PuraGuard QC™ filter removal process is presented in the event it becomes necessary to replace the entire coalescing filter.

**Normal service and parts replacement does not require removal of the PuraGuard QC™ filter from the vehicle.**

1. Park the vehicle on a level surface and prevent movement by means other than the brakes.
2. Drain **all** reservoirs to 0 p.s.i.
3. Identify and disconnect the two air hoses from the PuraGuard QC™ filter.
4. Remove the two bolts that secure the bracket to the vehicle, and remove the PuraGuard QC™ filter from the vehicle.

## **REPLACING OR RETROFITTING THE PURAGUARD QC™ OIL COALESCING FILTER**

### **General**

The following retrofit instructions are presented for reference purposes only since Bendix aftermarket retrofit and replacement PuraGuard QC™ filter systems are packaged with the most up-to-date installation instructions. The instructions packaged with the filter should be followed in lieu of those presented here.

### **ASSEMBLY**

1. The top of the system filter has an arrow symbol showing the air flow direction (see figure 1). Secure the mounting bracket to the body and spin-on cartridge.

### **RETROFIT: LOCATING THE PURAGUARD QC™ FILTER ON THE VEHICLE**

1. The PuraGuard QC™ filter must be mounted vertically ( $\pm 5^\circ$ ) and must not be exposed to direct wheel splash (located behind axle mud flap is acceptable).
2. Locate it as close to the first (supply) reservoir as possible and upstream of the supply reservoir (see figure 3).
3. To minimize vibration, mount the PuraGuard QC™ filter on a frame rail. If the vehicle requires the filter to be directly mounted to the reservoir, be sure to only use a high strength nipple fitting. (See further notes under *Connecting the Air Hoses*.)

4. Do not locate the PuraGuard QC™ filter near heat producing components such as the vehicle exhaust and provide adequate clearance from moving components e.g. drive shaft, suspension, pitman arm, etc.
5. Locate the PuraGuard QC™ filter on the vehicle so that a minimum of 12 inches of clearance is available horizontally (90° minimum arc) to allow servicing. This will permit a strap wrench to be used when replacing the filter.
6. Be sure that there is sufficient room to attach hoses to the PuraGuard QC™ filter.
7. To permit draining of collected contaminants, at least a 6 inch clearance below the filter is recommended. Nominal clearance above is required.
8. The PuraGuard QC™ oil coalescing filter must be installed after a properly functioning air dryer. Failure to locate the filter after an air dryer can cause the filter to malfunction. An air dryer eliminates certain conditions in the discharge line that could compromise the design of the filter.
9. Do not mount the unit in the engine compartment.

### **MOUNTING THE PURAGUARD QC™ OIL COALESCING FILTER**

1. After positioning the PuraGuard QC™ oil coalescing filter according to the installation requirements, mark the position of the mounting holes on the frame rail. Note: Check the vehicle manual before drilling a frame member.
2. Use vehicle manufacturer guidelines for mounting hardware (use at least grade 5 hardware). Torque to 160-200 in-lbs.

### **CONNECTING THE AIR HOSES**

1. The PuraGuard QC™ filter supply and delivery ports are 1/2-14 NPT. Install minimum 1/2 inch inside diameter air hoses. Install fittings prior to mounting the filter.
2. Hoses must be installed without tight turns that might cause air flow restrictions. Note: Check that the hose attachment agrees with the air flow arrow symbol (see Figure 1).

### **OPERATIONAL TEST**

Build the air system to governor cutout. Shut off the engine. Using a soap solution, check all hoses and fittings leading

to and from the filter for leakage and integrity. Repair any excessive leaks - exceeding a 1 inch bubble in 5 seconds - before restoring vehicle to service.

## **MAINTENANCE KIT INSTALLATION**

### **KIT DESCRIPTION**

A kit is available for cartridge replacement.

### **VEHICLE PREPARATION**

1. Park the vehicle on a level surface and prevent movement by means other than the brakes.
2. Drain all reservoirs to 0 p.s.i.
3. Drain the contents of the sump into a suitable container for disposal and then close the drain valve.

### **DISASSEMBLY AND CLEANING**

1. Using a strap wrench, unscrew the cartridge.
2. Remove and discard the cartridge.

### **INSPECTION**

1. Inspect the PuraGuard QC™ oil coalescing filter for broken or missing parts. Replace as necessary.
2. Inspect the drain valve for any build-up that could impair its function. Clean as necessary.
3. Inspect the housing during filter replacement. Replace the PuraGuard QC™ oil coalescing filter if the body is becoming clogged with carbon or dirt, clean the supply and delivery ports if necessary.

### **ASSEMBLY**

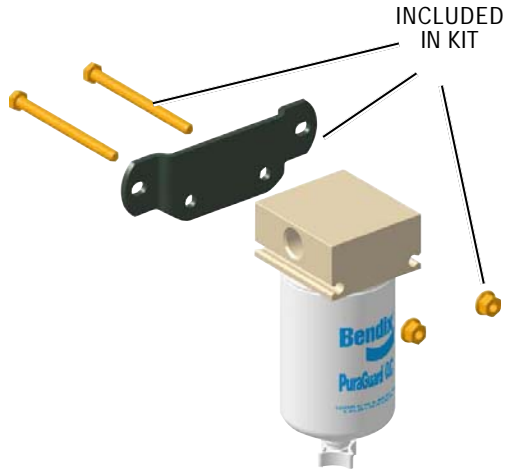
1. Tighten the replacement cartridge by turning the cartridge 180° after the cartridge seal touches the aluminum body. Tighten with a strap wrench, do not tighten by turning the drain valve.

### **OPERATIONAL TEST**

Build the air system to governor cutout. Shut off the engine. Using a soap solution, check all hoses and fittings leading to and from the PuraGuard QC™ filter for leakage and integrity. Repair any excessive leaks - exceeding a 1 inch bubble in 5 seconds - before restoring vehicle to service.

**Mounting Bracket Kit Piece No. 5013671**

This kit contains the mounting hardware needed for installing the PuraGuard QC™ oil coalescing filter.



**Cartridge Kit Piece No. 5013672**

This kit contains the PuraGuard QC™ oil coalescing filter spin-on cartridge only.



FIGURE 5 - MAINTENANCE KITS

## PURAGUARD QC™ OIL COALESCING FILTER TROUBLESHOOTING CHART

SYMPTOMS	CAUSE	REMEDY
1. More often than normal (monthly) sump draining required.	A. PuraGuard QC™ oil coalescing filter installed in incorrect position in system.	A. See figure 3.
	B. Alcohol injector in system.	B. The PuraGuard QC™ filter is <u>not recommended</u> to be used in conjunction <u>with an alcohol evaporator or injector</u> . [The PuraGuard QC™ filter will remove the liquid or aerosol alcohol introduced, defeat the purpose of the evaporator/injector and require the sump to be drained more often than usual.]
	C. Air dryer malfunction.	C. Check the air dryer.
	D. Compressor malfunction.	D. Check the compressor.
2. Bypass feature not working.	A. Supply and delivery air connections reversed.	A. Reverse hose connections.
3. Oil in the system.	A. Supply and delivery air connections reversed.	A. Reverse hose connections.
	B. Sump not drained regularly.	B. Drain the sump every 300 operating hours, 8,000 miles or one (1) month. (Draining can be done more frequently if desired.)
	C. Cartridge maintenance interval exceeded.	C. Use a maintenance kit to replace the cartridge every 3600 operating hours, 100,000 miles or one (1) year whichever is less.
	D. Air dryer malfunction.	D. Check the air dryer.
	E. Compressor malfunction.	E. Check Compressor.

