Installation Instructions

Bendix® GSAT® (Global Scalable Air Treatment) Air Dryer Replacement Kits for Volvo® Trucks

KIT COMPONENTS

See Figure 1. The following components are in the Bendix® GSAT® (Global Scalable Air Treatment) air dryer kits for Volvo® trucks:

Item No.	Component	Quantity
1	Air Dryer (Attached)	1
2	Seal	1
Not Shown	Heater	1
Bendix Kit Part Number: K202684K57 Volvo Kit Part Number: 23771638 Bendix Kit Part Number: K202685K57 Mack® Kit Part Number: 23771617		

Item No.	Component	Quantity
3	Air Dryer (Detached)	1
Not Shown	Heater	1
Bendix Volvo Kit Part Number: K273513SC Bendix Mack Kit Part Number: K273514SC		

Item No.	Component	Quantity
4	Air Dryer (CFL Detached) PRI	1
Not Shown	Heater	1
Bendix Volvo Kit Part Number: K273515SC Bendix Mack Kit Part Number: K273516SC		

Item No.	Component	Quantity
5	Air Dryer (CFL Detached) SEC	1
Not Shown	Heater	1
Bendix Volvo Kit Part Number: K273517SC Bendix Mack Kit Part Number: K275583SC		

⚠ CAUTION

When replacing air dryer assembly, it is mandatory that the air dryer cartridge and carbon filter be replaced. For replacement kit part numbers and instructions, *refer to S-1693, Bendix® GSAT® (Global Scalable Air Treatment) Air Dryer Cartridge and Filter Kits for Volvo® Trucks,* on B2Bendix.com.

⚠ GENERAL SAFETY GUIDELINES

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

When working on or around a vehicle, the following guidelines should be observed AT ALL TIMES:

- **Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear personal protection equipment.**
- **Stop the engine and remove the 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.**
- **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.**
- **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 a Bendix® AD-IS® air dryer system, a Bendix® DRM™ dryer reservoir module, a Bendix® AD-9si®, AD-HF®, or AD-HFi™ air dryer, be sure to drain the purge reservoir.**
- **Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.**
- **Never exceed manufacturer's recommended pressures.**
- **Never connect or disconnect a hose or line containing pressure; it may whip and/or cause hazardous airborne dust and dirt particles. Wear eye protection. Slowly open connections with care, and verify that no pressure is present. Never remove a component or plug unless you are certain all system pressure has been depleted.**
- **Use only genuine Bendix® brand replacement parts, components, and kits. Replacement hardware, tubing, hose, fittings, wiring, etc. must be of equivalent size, type, and strength as original equipment and be designed specifically for such applications and systems.**
- **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.**
- **Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.**
- **For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.**
- **The power MUST be temporarily disconnected from the radar sensor whenever any tests USING A DYNAMOMETER are conducted on a vehicle equipped with a Bendix® Wingman® system.**
- **You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the guidelines above.**

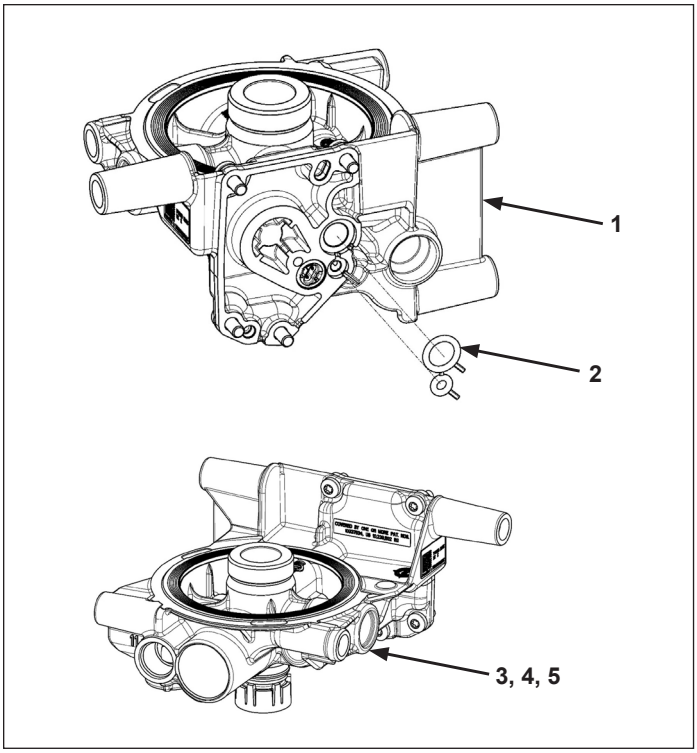

Figure 1 – Air Dryer Kits

DESCRIPTION

IMPORTANT

Do not install the air dryer included in this kit if it does not match the one being removed.

These kits are used to replace the Bendix® GSAT® (Global Scalable Air Treatment) air dryer. **These are not retrofit kits.** These kits *cannot* be installed on vehicles that do not have an existing GSAT system. **Be sure to verify the air dryer included in this kit is identical to the air dryer you are replacing.** Ensure both air dryers have the same port configuration, heater voltage, and mounting configuration in the same locations.

VEHICLE PREPARATION

1. Park the vehicle on a level surface and chock the wheels.
2. Turn the ignition switch OFF.
3. Drain all reservoirs to 0 psi (0 kpa).
4. Clean the exterior of the air dryer body, cartridge, and core module silencers to remove any dirt and debris.

CAUTION

Always depressurize the air dryer and all other reservoirs on the vehicle to 0 psi (0kpa) before servicing the air dryer.

Air Connection Port ID	Function/ Connection	Port Size ISO 4039-2	Maximum Torque
11 IN	Energy Inlet Compressor	M22x1.5	25±5 ft-lb (40±8 N•m)
12 IN	Energy Inlet External Air Fill	M22x1.5	25±5 ft-lb (40±8 N•m)
2.1 DEL	Energy Outlet to Detached Core Module	M22x1.5	25±5 ft-lb (40±8 N•m)
4.5 CON	Control Line to Detached Core Module	M12x1.5	18±3 ft-lb (25±5 N•m)
3 EXH	Exhaust	n/a	n/a
M12 Mounting	GSAT to Vehicle Mounting	M12x1.75	55±11 ft-lb (75±15 N•m)

Table 1 – Air Connections

DISASSEMBLY

Air Dryer (Attached Variant)

NOTE: Identify and mark all air line connections on the air dryer for reinstallation ease.

1. Disconnect all air line connections from the air dryer.
2. To remove the air dryer from the core module, first remove the air dryer cartridge to access the mounting bolts from the air dryer to the core module.
3. Using an appropriate filter wrench (if necessary), loosen the old cartridge and remove it from the air dryer housing by turning in a counter-clockwise direction. Be careful not to allow dirt or other contaminants to fall into the air dryer housing. Discard the cartridge.

IMPORTANT

When replacing air dryer assembly, it is mandatory that the air dryer cartridge and carbon filter be replaced. For replacement kit part numbers and instructions, *refer to S-1693, Bendix® GSAT® (Global Scalable Air Treatment) Air Dryer Cartridge and Carbon Filter Kits for Volvo® Trucks,* on B2Bendix.com.

4. Once accessible, remove the carbon filter from the air dryer body and dispose. *See Figure 2.*

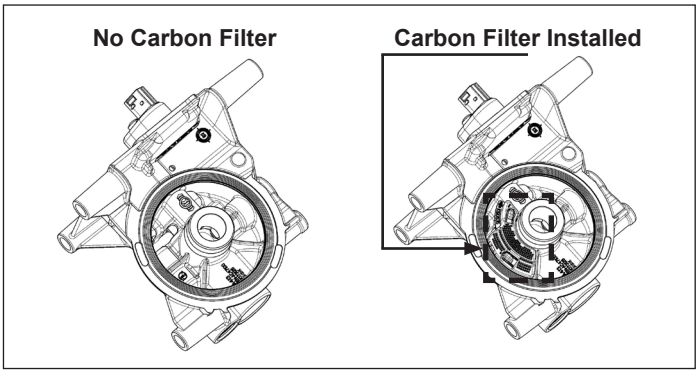

Figure 2 – Carbon Filter

5. Using a T-30 Torx® drive, remove the four (4) M6 mounting bolts that secure the air dryer to the core module and set them aside for reuse.

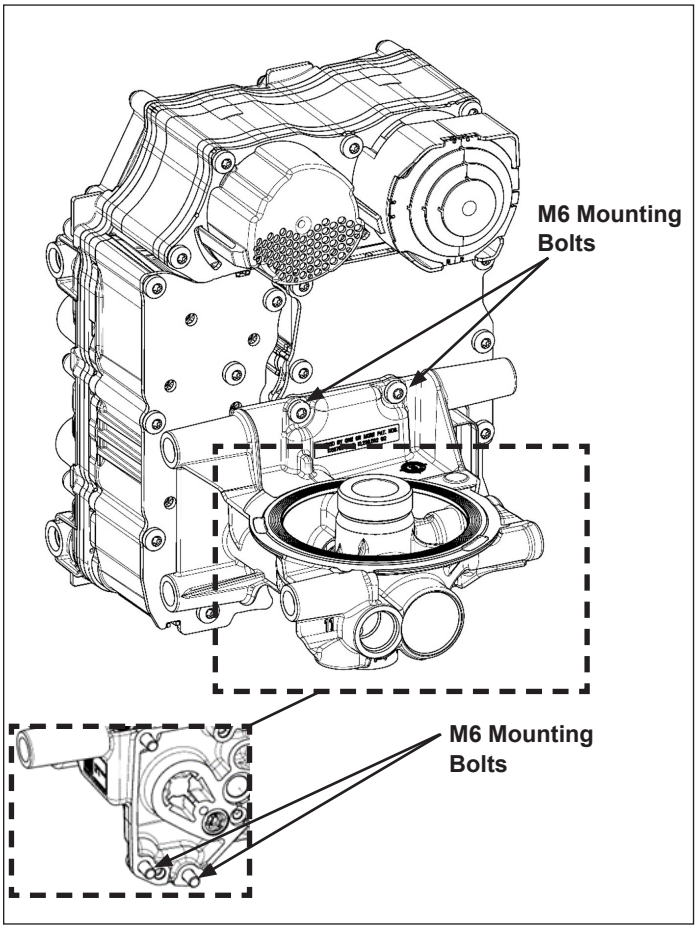

Figure 3 – M6 Mounting Bolts

6. Remove and retain the five (5) M12 mounting bolts that secure the air dryer and attached core module to the vehicle.
7. The air dryer can now be removed by pulling it away from the core module, taking care to not damage the alignment pins and the heater connection. Discard the seal (a new seal is provided in the kit).
8. Clean the mounting surface area of the core module with a clean cloth. Be careful not to allow dirt or other contaminants to fall into the delivery bore of the core module.

Air Dryer (Detached Variant)

NOTE: Identify and mark all connections on the air dryer for reinstallation ease.

1. Disconnect all air line connections from the air dryer.
2. Disconnect the heater electrical connector from the air dryer.
3. Remove and retain the three (3) M12 mounting bolts that secure the air dryer to the vehicle.
4. Remove the air dryer.
5. Clean the mounting surface area of the core module with a clean cloth and inspect for damage to the mounting surface.

⚠ CAUTION

When replacing air dryer assembly, it is mandatory that the air dryer cartridge and carbon filter be replaced. For replacement kit part numbers and instructions, *refer to S-1693, Bendix® GSAT® (Global Scalable Air Treatment) Air Dryer Cartridge and Carbon Filter Kits for Volvo® Trucks,* on B2Bendix.com.

ASSEMBLY

Air Dryer (Attached Variant)

1. Before mounting the air dryer to the core module, install the new seal (included in kit) into the seal groove of the air dryer mounting surface. Ensure the orientation tabs are located in the correct slots, and fully seat the seal into the groove.

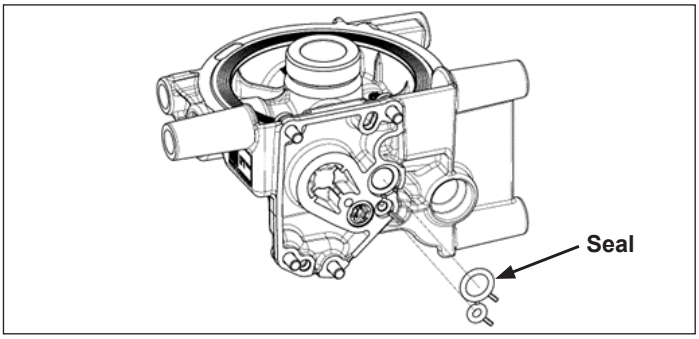

Figure 4 – Seal Installation

2. Align the air dryer mounting alignment holes with the alignment pins on the core module. Take care not to damage the exposed heater connection pins.
3. Seat the air dryer to the core module. The heater pins of the core module will engage with the air dyer heater.
4. Secure the air dryer to the core module with the four (4) M6 mounting bolts set aside during disassembly.
5. Using a T-30 Torx drive, torque the air dryer to the core module mounting screws to 71 in-lbs (8 N•m) in a cross pattern.
6. Secure the air dryer to the vehicle using the original five (5) M12 mounting bolts that were removed during disassembly. Torque to 55 ft-lbs (75 N•m).
7. Connect all of the air connections to the new air dryer as marked during the disassembly process.
8. Install the new air dryer cartridge and carbon filter per the installation instruction *S-1693, Bendix® GSAT® (Global Scalable Air Treatment) Air Dryer Cartridge and Carbon Filter Kits for Volvo® Trucks,* which is shipped with the replacement kit can be found on B2Bendix.com.

NOTE: If using a filter wrench, place the filter wrench on areas *A or B* as shown in *Figure 5* to avoid damage to the cartridge. If a filter wrench is used in the middle of the cartridge, damage may occur to the carbon filter.

NOTE: When replacing the air dryer cartridge, the cartridge lifetime wear and wetness content will need to be reset. Use Bendix® ACom® Diagnostic Software, or a Volvo® diagnostic tool, to initiate the cartridge reset routines.

9. Before placing the vehicle back into service, perform the *Operational Test*.

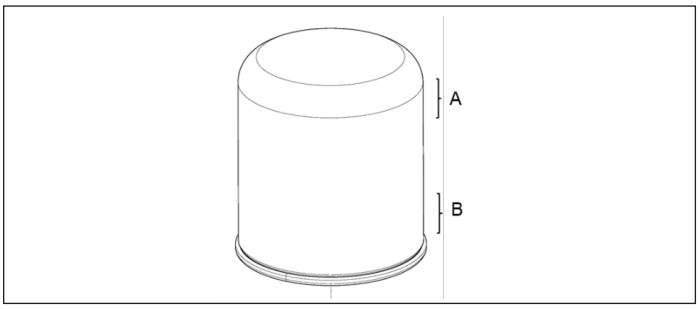

Figure 5 – Air Dryer Cartridge Filter Wrench Placement

Air Dryer (Detached Variant)

1. Secure the air dryer to vehicle using the original three (3) M12 mounting bolts that were removed during disassembly. Torque to 55 ft-lbs (75 N•m).
2. Connect all air connections to the new air dryer as marked during the disassembly process.
3. Install the new air dryer cartridge and carbon filter per the installation instruction *S-1693, Bendix® GSAT® (Global Scalable Air Treatment) Air Dryer Cartridge and Carbon Filter Kits for Volvo® Trucks,* which is shipped with the replacement kit can be found on B2Bendix.com.

NOTE: If using a filter wrench, place the filter wrench on areas *A or B* as shown in *Figure 5* to avoid damage to the cartridge. If a filter wrench is used in the middle of the cartridge, damage may occur to the carbon filter.

NOTE: When replacing the air dryer cartridge, the cartridge lifetime wear and wetness content will need to be reset. Use Bendix ACom Diagnostic Software, or a Volvo diagnostic tool, to initiate the cartridge reset routines.

4. Before placing the vehicle back into service, perform the *Operational Test*.

OPERATIONAL TEST

Before placing the vehicle in service, perform the following tests.

1. Close all of the reservoir drain cocks.
2. With the engine at 1800 rpm, build up system pressure to system cutout while observing that both service reservoir dash gauges rise equally in pressure from 0 psi (0 kpa) to system cutout. If either gauge fails to display this condition, stop testing and check the installation. Note that the Bendix® GSAT® (Global Scalable Air Treatment) system regenerates with an audible escape of air when system cutout pressure is reached.

NOTE: The service reservoir pressures will drop during regeneration.

3. Fan down the service brakes to reduce system air pressure to system cut-in. Note that the system – once again – builds to full system pressure and is followed by a regeneration event at the GSAT air dryer primary exhaust.
4. To verify proper park brake function, use the Hand Control Unit (HCU) to release and apply the tractor park brakes several times. The HCU and/or dash cluster should illuminate, indicating a proper park state.
5. It is recommended that the following items be tested for leakage to ensure the GSAT will not cycle excessively:
   a. Air brake system (*Refer to the Bendix® Air Brake Handbook, BW5057, on B2Bendix.com*)
   b. Compressor unloader mechanism per manufacturer's recommendation
   c. GSAT core module
   d. Drain cock and safety valve in first (supply) reservoir, (if equipped)
   e. All air connections leading to and from the first (supply) reservoir (if equipped)

TECHNICAL ASSISTANCE

For additional assistance, the Bendix Tech Team can be reached by email at techteam@bendix.com or by phone at 1-800-AIR-BRAKE (1-800-247-2725), option 2. Representatives are available Monday through Thursday, 8:00 a.m. – 6:00 p.m., and Friday, 8:00 a.m. – 5:00 p.m. ET.