

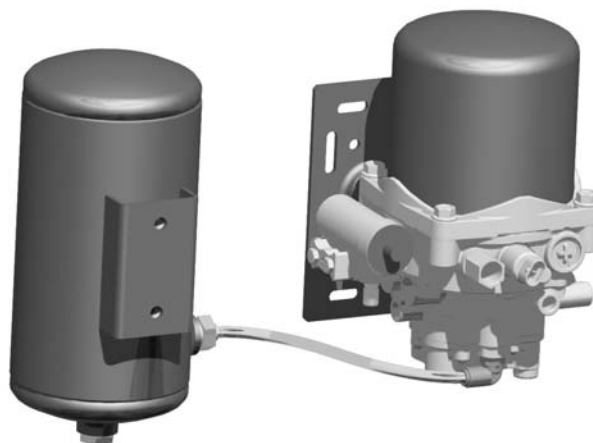
Instruction Guide

L31263

9/10

Haldex

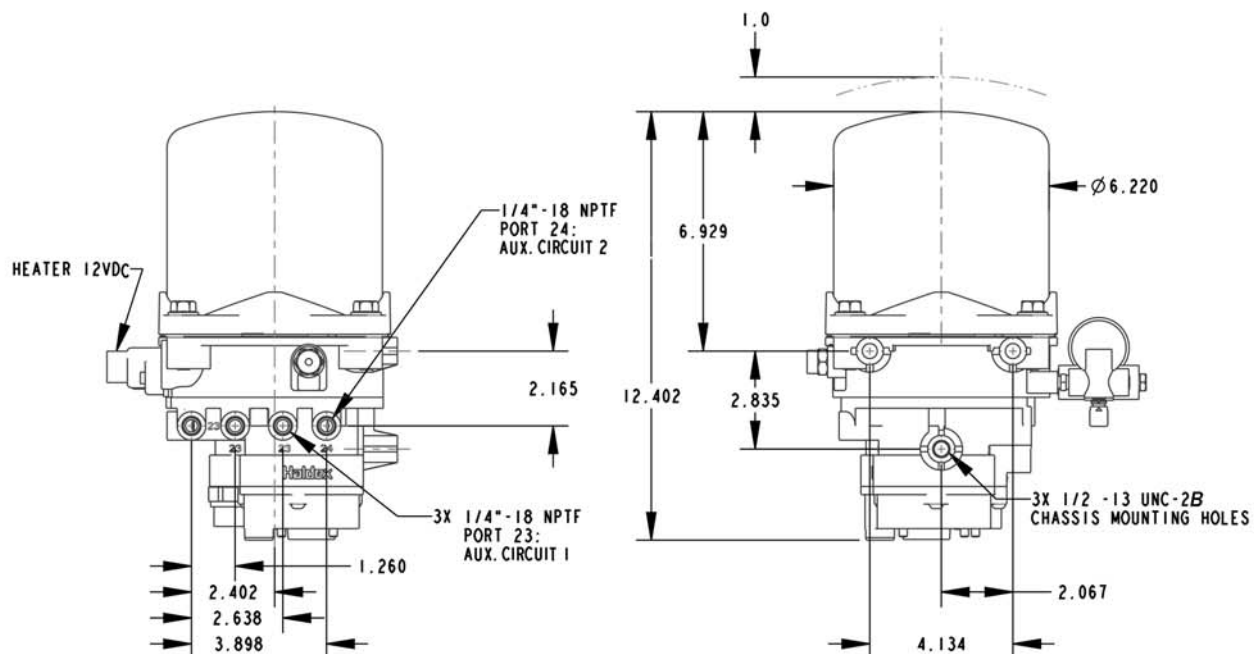
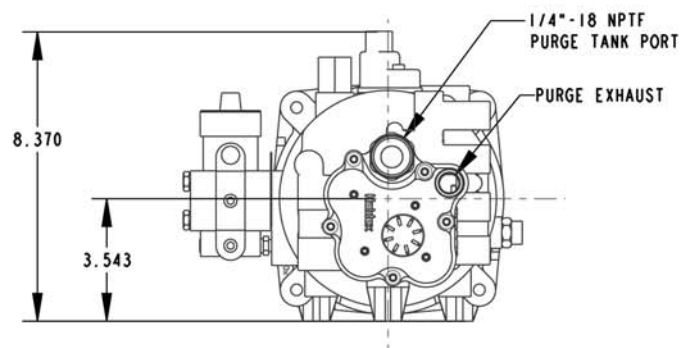
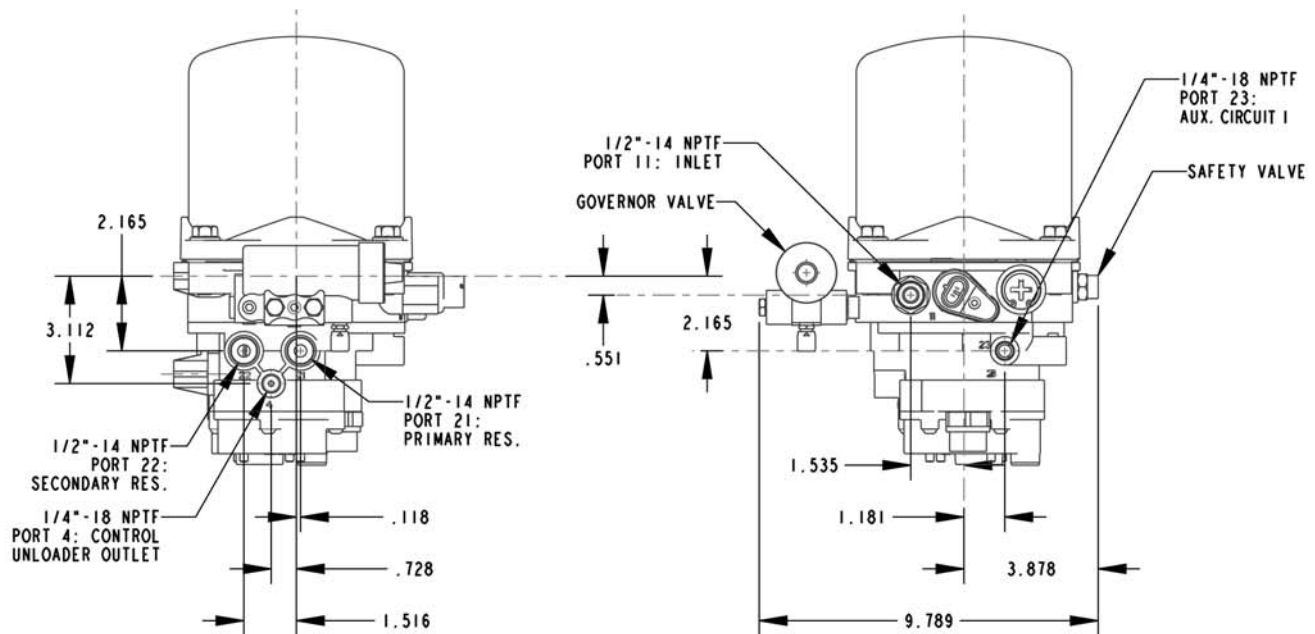
ModulAir® Air Dryer
with External Purge Tank -
Changeover from
Bendix® AD-IS for
Kenworth W900 Series with
Dryer Mounted in Front of Cab



DQ6060 Kit Contents		
Item*	Description	Qty.
1	Mounting Bracket	1
2	1/2" Lock Washer	3
3	1/2-13 UNC Hex Head Bolt, 1.0" Long	3
4	1/4" NPT to 3/8" Tube Swivel Elbow	1
5	1/4" to 1/8" NPT Reducer Bushing	1
6	1/2" FNPT to 1/2" MNPT Adapter	1
7	1/2" NPT to 1/2" Tube Swivel Elbow	2
8	1/8" NPT to 1/8" NPT Male Elbow	1
9	1/8" Coupling	1
10	1/4" to 1/8" Reducer Coupling	1
11	3/8" Flat Washer	8
12	3/8" Lockwasher	4
13	3/8-16 UNC Nut	4
14	3/8-16 UNC Hex Head Bolt, 1.25" Long	4
15	Air Reservoir/Purge Tank	1
16	Automatic Drain Valve	1
17	M22 to 3/8" Tube Adapter	1
18	7/16" Washer	2
19	7/16" Lock Washer	2
20	7/16-14 UNC Hex Head Bolt, 1.0" Long	2
21	3/8" O.D. Nylon Tube	1
22	Instruction Sheet (L31263)	1

* This Item Number will be referenced throughout these instructions.

ModulAir® Port and Part Identification





Important Precautions

When working on air system components the following precautions should be observed.

1. Park the vehicle on a level surface, apply the parking brakes and always block the wheels.
2. Stop the engine when working around the vehicle.
3. Make certain to drain the air pressure from all reservoirs before beginning any work on the vehicle.
4. Following the vehicle manufacturer's recommended procedures; deactivate the electrical system in a manner that removes all electrical power from the vehicle.
5. When working in the engine compartment, the engine should be shut off. 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.
6. Never connect or disconnect a hose or line containing pressure. Never remove a component plug unless you are certain all system pressure has been depleted.
7. Never exceed recommended pressures and always wear safety glasses.
8. 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 the use of those tools.
9. Use only genuine Haldex replacement parts, components and kits. Replacement hardware, tubing, fittings, etc. should be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
10. Components with stripped threads or damaged parts should be replaced rather than repaired. Repairs requiring machining or welding should not be attempted unless specifically approved and stated by the vehicle or component manufacturer.
11. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.

Replacing a Bendix® AD-IS with a Haldex ModulAir® Air Dryer



Photo indicating the dryer location behind the front axle on the passenger's side.

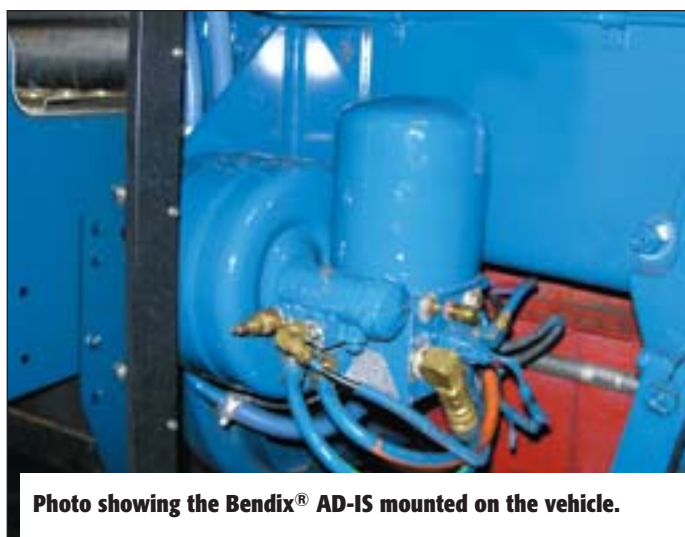


Photo showing the Bendix® AD-IS mounted on the vehicle.

Step 1

Mark and disconnect existing airlines from the Bendix® AD-IS.

AIRLINE PORT IDENTIFICATION CHART

Port 11	Inlet
Port 21	Primary Reservoir
Port 22	Secondary Reservoir
Port 23	Auxillary (Suspension)
Port 24	Auxillary
Port 4	Control Unloader Outlet

Remove air dryer from the vehicle bracket.

Set aside fasteners and air fittings. Many of them will be re-used throughout this changeover procedure.

Continue to **Step 2** on following page.

Replacing a Bendix® AD-IS with a Haldex ModulAir® Air Dryer (Cont'd)



Fig. 1



Fig. 2

Step 2

See ModulAir® Port and Part Identification Section of this instruction booklet.

Install 1/4" tube fitting from Port 23 of Bendix® AD-IS into Auxiliary Port 24 of Modulair®. Fig. 1

Install 3/8" tube fitting from Port 24 of Bendix® AD-IS into Auxiliary (Suspension) Port 23 of ModulAir®. Fig. 2

Reuse Bendix® fittings as necessary in the remaining ports.

Note: Teflon tape or other approved thread sealant should be used sparingly on pipe threaded fittings.



Step 3

Install new 1/4" NPT to 3/8" Tube Swivel Elbow (Item 4) into purge tank port of the air dryer.



Step 5

Install Inlet Fitting from the Bendix® AD-IS inlet port in ModulAir® inlet port. Secure inlet port while positioning the fitting.

Re-install heater assembly. Insure heater o-ring is secure in the heater housing upon re-installation. Apply silicon grease to the housing o-ring.

Tighten socket head cap screw to 45-55 in-lbs.

Step 4

Remove heater assembly with 5/32" hex wrench to allow for installation clearance of the Inlet Fitting into Port 11.

Replacing a Bendix® AD-IS with a Haldex ModulAir® Air Dryer (Cont'd)



Step 6

Install 1/4" to 1/8" NPT Reducer Bushing (**Item 5**) into Control Unloader Outlet Port 4.

Install 1/4" tube fitting elbow from Bendix® AD-IS Governor "UNL" Port into Reducer Bushing and position accordingly.



Step 7

Install 1/2" FNPT to 1/2" MNPT Adapter (**Item 6**) into Secondary Port 22.

Install two 1/2" NPT to 1/2" Tube Swivel Elbow (**Item 7**) into Secondary Port 22 Adapter and Primary Port 21.



Step 8

Remove 1/8" NPT pipe plug from ModulAir® Governor "RES" Port and discard.

Remove Governor Mounting Bolt to allow installation clearance of 1/8" NPT Male Elbow (**Item 8**) into Governor "RES" Port.



Step 9

Orient Male Elbow in "RES" Port as shown.

Install 1/8" Pipe Coupling (**Item 9**) or 1/4" to 1/8" Reducer Coupling (**Item 10**) onto Male Elbow.

Choose the coupling which mates with Fill Valve removed from Bendix® AD-IS Governor "RES" Port.

Re-install Governor Mounting Bolt and tighten to 110-150 in-lbs.

Replacing a Bendix® AD-IS with a Haldex ModulAir® Air Dryer (Cont'd)



Step 10

Install three 1/2-13 UNC Hex Head Bolts (**Item 3**) and three 1/2" Lock Washers (**Item 2**) through Mounting Bracket (**Item 1**) into ModulAir® assembly. Tighten the three 1/2-13 UNC Hex Head bolts to 45-55 ft-lbs.



Step 11

Install four 3/8-16 UNC Hex Head Bolts (**Item 14**) through four 3/8" Flat Washers (**Item 11**) and vehicle coolant line clamps and bracket.



Step 12

Mount the ModulAir® /bracket assembly onto the four 3/8-16 UNC Hex Head Bolts and install four 3/8" Washer (**Item 11**), four 3/8" Lock Washer (**Item 12**) and four 3/8-16 UNC Nuts (**Item 13**). Tighten to 27-33 ft-lbs.



Step 13

Re-attach airlines using the **AIRLINE PORT IDENTIFICATION CHART** in **STEP 1**.

Re-attach the heater connection.

Position airlines to prevent water traps and airline chafing (rubbing on frame or bracket).

Replacing a Bendix® AD-IS with a Haldex ModulAir® Air Dryer (Cont'd)



Fig. 3



Fig. 4



Step 14

Note: Before installation lubricate the o-ring on both the Automatic Drain Valve (**Item 16**) and M22 to 3/8" Tube Adapter (**Item 17**). Avoid the use of thread sealant.

Install Automatic Drain Valve (**Item 16**) into End Port of Air Reservoir/Purge Tank (**Item 15**). Tighten to 55 ft-lbs. Fig. 3

Install M22 to 3/8" Tube Adapter (**Item 17**) into Side Port of Air Reservoir/Purge Tank (**Item 15**). Tighten to 55 ft-lbs. Fig. 4

Step 15

With the Automatic Drain Valve (**Item 16**) pointing towards the ground, mount the Air Reservoir/Purge Tank/Adapter assembly to the vehicle step frame by installing two 7/16-UNC Hex Head Bolts (**Item 20**) through two 7/16" Lock Washers (**Item 19**), 7/16" Washers (**Item 18**) and existing vehicle step frame holes. Tighten to 55-65 ft-lbs.



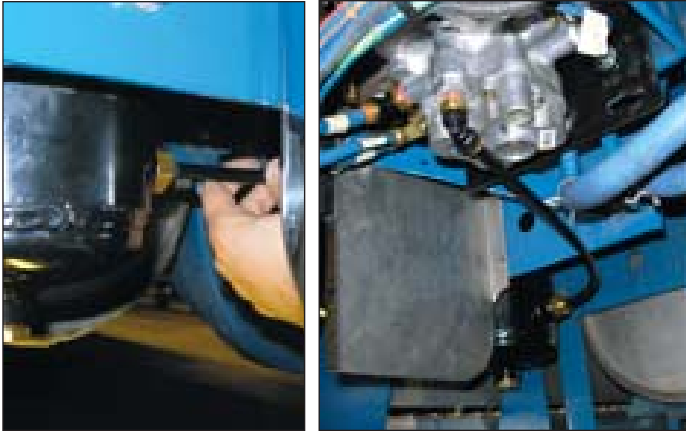
Step 16

Make the connection from the ModulAir® Purge Tank Port to the Reservoir/Purge Tank with the 3/8" O.D. Nylon Tube (**Item 21**).

First install one end of the 3/8" O.D. Nylon Tube (**Item 21**) into the 1/4" NPT to 3/8" Tube Swivel Elbow (**Item 4**) located in the ModulAir® Purge Tank Port.

Note: If it is not possible to install the Reservoir/Purge Tank in this location, find a suitable alternative location where the reservoir and tubing are secure.

Replacing a Bendix® AD-IS with a Haldex ModulAir® Air Dryer (Cont'd)



Step 17

Cut to length and install the opposite end of the 3/8" O.D. Nylon Tube (**Item 21**) into the Reservoir/Purge Tank 3/8" Tube Adapter (**Item 17**). Secure nylon tubing from chafing (rubbing on frame or bracket).

Installation is complete. Air up the system, check for purge and air leaks with the instructions shown in the next column.

Testing the Haldex ModulAir® Air Dryer

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

1. Close all reservoir drain cocks.
2. Start vehicle and build up the air pressure to governor cut-out and note that the air dryer purges with an audible exhaust of air. Air should continue to flow from the dryer exhaust for approximately 20-30 seconds as the dryer regenerates the desiccant. The Reservoir/Purge Tank pressure will decrease to zero psi while the dryer regenerates the desiccant.
3. Actuate the service brakes to reduce system air pressure to governor cut-in. Note that the system once again builds to full pressure and is followed by a purge.
4. Perform standard air leakage tests to assure the air dryer will not cycle excessively.
5. Charge Cycle Time: During normal, daily operation the compressor should recover from governor cut-in to governor cut-out in 90 seconds or less depending upon engine speed and vehicle vocation. An excessive recovery time may indicate the air compressor performance has decreased and should be investigated.
6. Purge Cycle Time: During normal vehicle operation, the air compressor must remain unloaded for a minimum of 30 seconds between charge cycles. This minimum purge time is required to insure complete regeneration of the cartridge desiccant.

See Troubleshooting and Service Kit Information on the following pages.

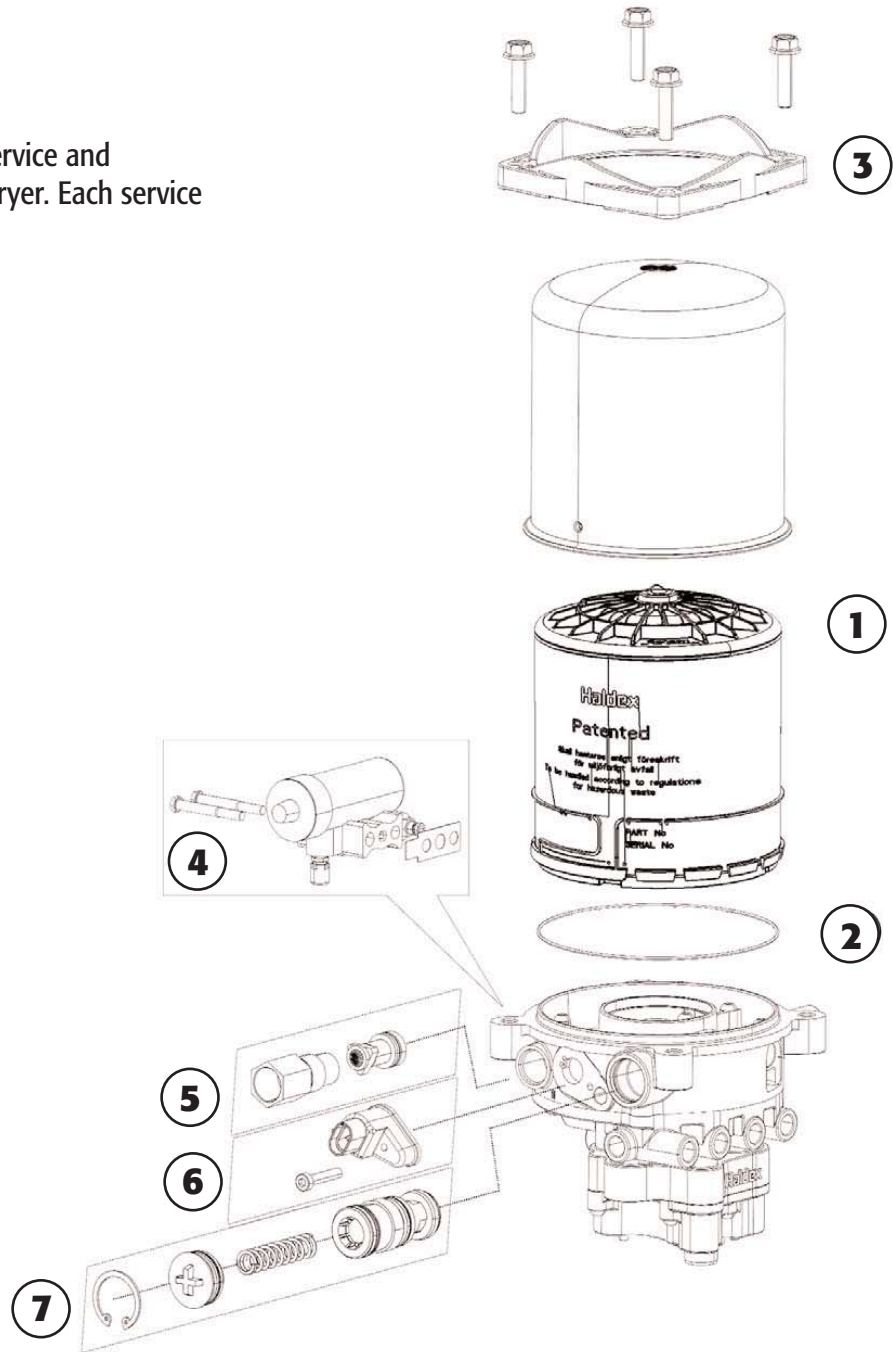
ModulAir® Air Dryer Troubleshooting

Problem	Cause	Solution
Water in air system	<ol style="list-style-type: none"> 1. Desiccant contaminated (oil) or over saturated. 2. Leaks in air system. 3. Governor loose or not functioning properly. 	<ol style="list-style-type: none"> 1. Replace desiccant cartridge. Wipe dryer base clean. Check compressor for excessive oil passage. 2. Tighten air connections. Use soapy water to recheck for leaks following the Testing The Modulair® Dryer Section. 3. Check governor gasket for damage and replace if necessary. Reassemble governor and tighten governor bolts to recommended manufacturer's torque specifications.
Constant exhaust of air at air dryer	<ol style="list-style-type: none"> 1. Dryer unloader valve not closing. 2. Governor loose or not functioning properly. 3. Compressor unloader not functioning (compressor not unloading). 	<ol style="list-style-type: none"> 1. At compressor cut-out there must be a slight blow of regenerated air from the exhaust port of the dryer for approx. 20 -30 seconds. If air flow continues, after purge cycle, remove and inspect unloader valve of the dryer for obstruction or damage. If damaged, then replace. If obstructed or dirty, then clean and reinstall. 2. Check governor gasket for damage and replace it if necessary. Reassemble governor and tighten governor bolts to recommended manufacturer's torque specifications 110-150 lb. in. 3. Repair or replace compressor unloader.
Excessive Compressor Cycling	<ol style="list-style-type: none"> 1. Excessive leaks in air system. 2. Broken, contaminated or defective unloader valve. 3. Undersized compressor, duty cycle of compressor should not exceed 25%. 	<ol style="list-style-type: none"> 1. Tighten air connections, soap connection and recheck for air leaks. 2. Clean or replace compressor unloader valve. 3. Reduce air demand or use a compressor with greater air output.
Safety Valve Is Open	<ol style="list-style-type: none"> 1. Desiccant cartridge is plugged or overly contaminated. 2. Ice blockage inside air dryer. 3. Excessive system pressure. 	<ol style="list-style-type: none"> 1. Excessive oil passage from compressor or high amount of carbon buildup. Check for worn compressor (piston rings, gaskets, etc.) Replace desiccant cartridge. 2. Check heater for proper functioning. 3. Repair or replace governor.
Short Life Of Dryer Or Desiccant Cartridge	<ol style="list-style-type: none"> 1. Air at inlet of air dryer exceeds 170°F (77°C). 	<ol style="list-style-type: none"> 1. Extend length of compressor discharge line; see Installing the ModulAir Section. The 170°F (77°C) air dryer inlet temperature can usually be achieved with 12' to 15' of compressor discharge line.
Short Purge Cycle Of Air Dryer (Less Than 12 Seconds)	<ol style="list-style-type: none"> 1. Loose governor or poor gasket seal. 2. Regeneration valve not functioning. 	<ol style="list-style-type: none"> 1. Tighten governor bolts. If leakage still occurs, then replace gasket or complete governor. 2. Replace regeneration valve.

ModulAir® Air Dryer Service Kit Information

The following kits are available for service and maintenance of the ModulAir® Air Dryer. Each service kit includes installation instructions.

1. Desiccant Cartridge
Part No. 47178964
2. O-Ring for Cartridge
Part No. DQ6054
3. Retaining Collar
Part No. 47171868
4. Governor Kit
Part No. KN18541
5. Turbo Protection Valve
Part No. DQ6055
6. Heater Assembly
Part No. 47110020 (12VDC)
Part No. 47110021 (24VDC)
7. Unloader Valve
Part No. DQ6056



Commercial Vehicle Systems

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