PARTS & SERVICE NEWS

REF NO.	AA00004B
DATE	2, June 2000

This PARTS & SERVICE NEWS supercedes AA00004 dated February 9, 2000 and AA00004A dated February 15, 2000 and should be discarded.

SUBJECT: AK4395 Air Dryer Installation Kit

PURPOSE: Provide instructions to install kit on existing trucks

APPLICATION: 330M/HD785-3 (Built in USA) prior to S/N 10222 w/Cummins KTA 38 or Komatsu SA 12V 140Z-1 Engines

FAILURE CODE: 045099

DESCRIPTION:

A new kit has been released for the installation of a new air dryer system (Figure 1) for the above model trucks. The original aftercooler, PC0114 has been discontinued by the vendor and is no longer available. *NOTE: SERVICE PARTS FOR THE REPAIR OF THE OLDER DESIGN AFTERCOOLER WILL BE AVAILABLE FOR A LIMITED TIME ONLY.*

Installation of the new type of air dryer will require a change in the air system piping (Figure 2) on the truck and repositioning of several components. When a truck is modified to the new design, it is recommended that a thorough cleaning and examination of the air system components be performed including: compressor, valves, tanks, and hoses. This should be done to insure satisfactory performance of all components. Examination of the piping leading from the compressor is an easy way to tell if the compressor is in serviceable condition. Clogged tubes or fittings with excessive oily or carbon deposits are the common signs of a worn compressor. Also, an excessive amount of time to build up to full air pressure is also a sign of a worn compressor.

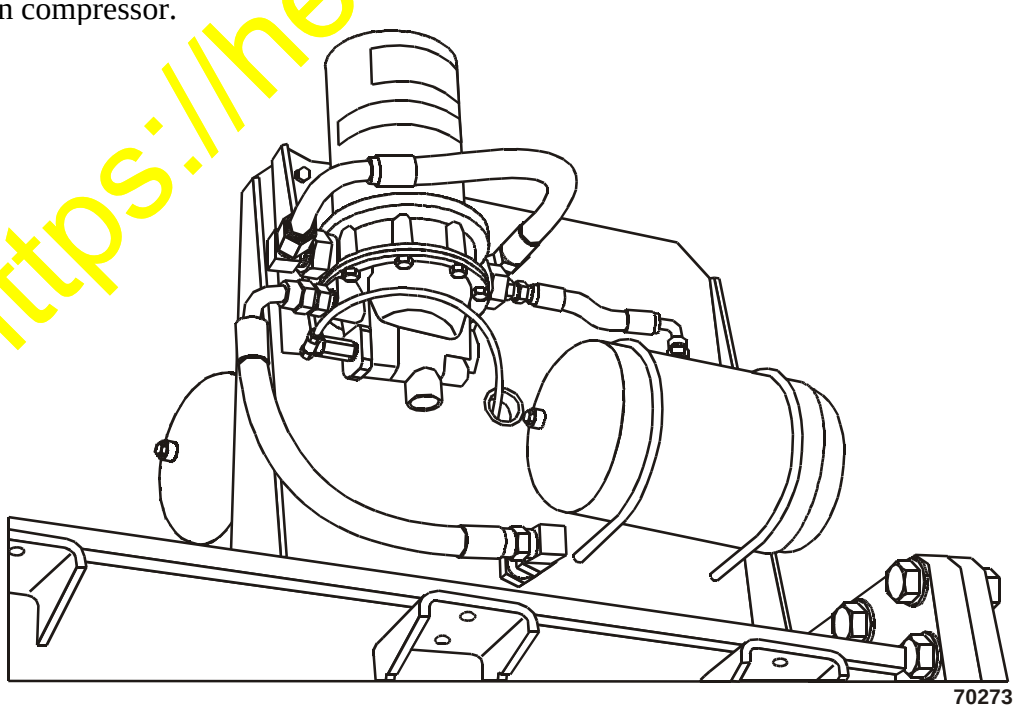

Figure 1 Installation of Air Dryer

General Precautions

Whenever working on or near air systems and components, always observe the following:

1. This vehicle is equipped with an air-actuated brake system, the vehicle's wheels must be chocked. Block the wheels and make sure the vehicle will not roll before releasing the brakes and before performing any test and/or removing the air dryer.
2. Stop the engine when working under a vehicle.
3. Never connect or disconnect a hose or line containing air pressure. Never remove a component or a pipe plug unless you are certain all system air pressure has been exhausted.
4. Always wear safety glasses when working with air pressure. Never look directly into air dryer ports.
5. Never exceed recommended working air pressure.
6. Never attempt to disassemble an air dryer until you have read and understood all recommended procedures. Use only proper tools and observe all precautions pertaining to the use of those tools.

Removal

1. Drain the air system of all pressure.
2. Disconnect air dryer.
3. Mark the air lines for later reference and disconnect from air dryer.
4. Remove the lock nuts, washers, and capscrews that attach the aftercooler to the vehicle.
5. Remove air dryer bracket.

Installation

NOTE: Welding of seats for mounting bracket behind the cab is required (disconnect batteries before welding seats).

1. Install new air dryer bracket per installation drawing EH7895.
2. Install the new air dryer's to bracket with the capscrews, washers, and lock nuts. Tighten capscrews to 37 ft. lb. (50 N·m) torque.
3. Inspect lines and fittings per installation drawing. Replace any that are damaged or contaminated.
4. Install the remaining parts included in this kit as shown in figures 1 though 6 and reference drawings EH7895 and EH7895.
5. Connect all air lines, taking care to match marked line with appropriate port.
6. Connect the air dryer.

On certain older model trucks in the field, the smaller air tank, 566-35-42690 (69, Figure 4) may already be in place on the vehicle as part of a previous kit, MK3897 as announced in PSN AA98098. If the parts involved from the installation of MK3897 are in serviceable condition, they may be reused. However, improvements to the tank drain are incorporated in the AK4395 kit.

When the new parts are installed, it is important to note that the air governor (EH9534) utilized in this kit, is at a different pressure setting than the one already installed on the truck. The new governor is set at 128 PSI, where as the old governor that was on the truck is set at 118 PSI. ***NOTE: DO NOT INTERCHANGE THESE AS DAMAGE TO THE COMPRESSOR MAY RESULT. Safety valves such as Item 15 (566-35-42350) must be installed and in working condition. Do not disable a safety valve or damage to the tank or air system may result.*** After installation, the twin desiccant air dryers will require service on a regular interval. Service and parts information for the air dryers is included with this Parts and Service News.

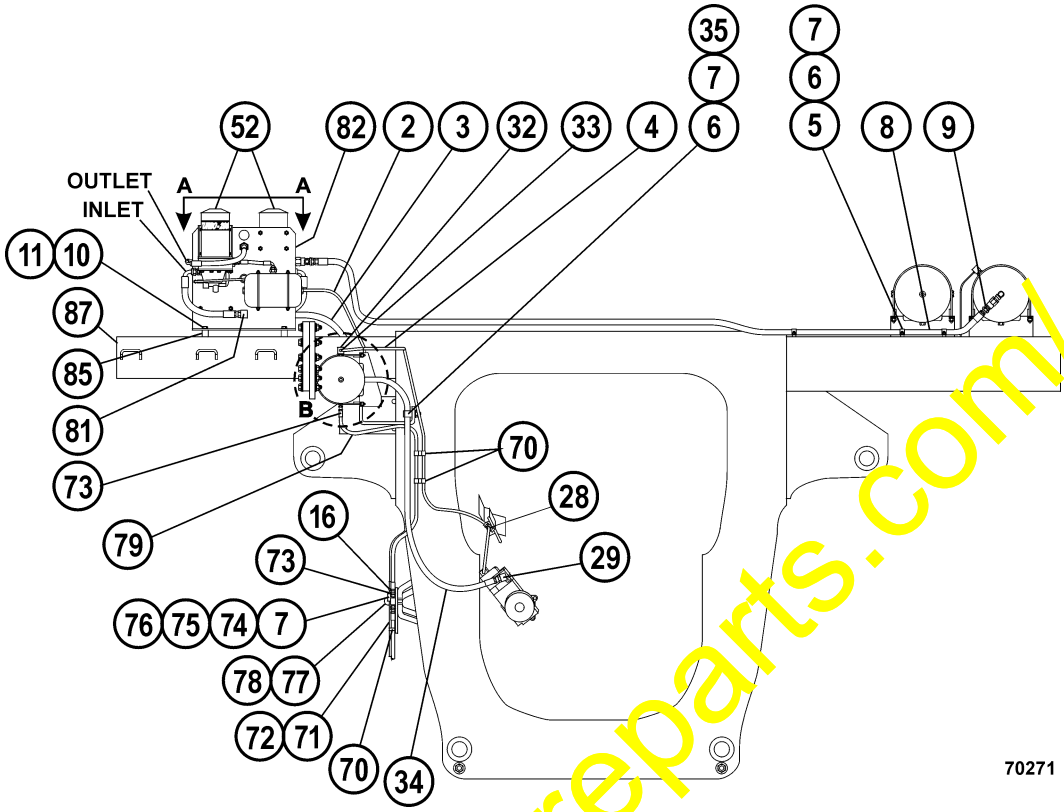

Figure 2 Rear View of Air Dryer Piping

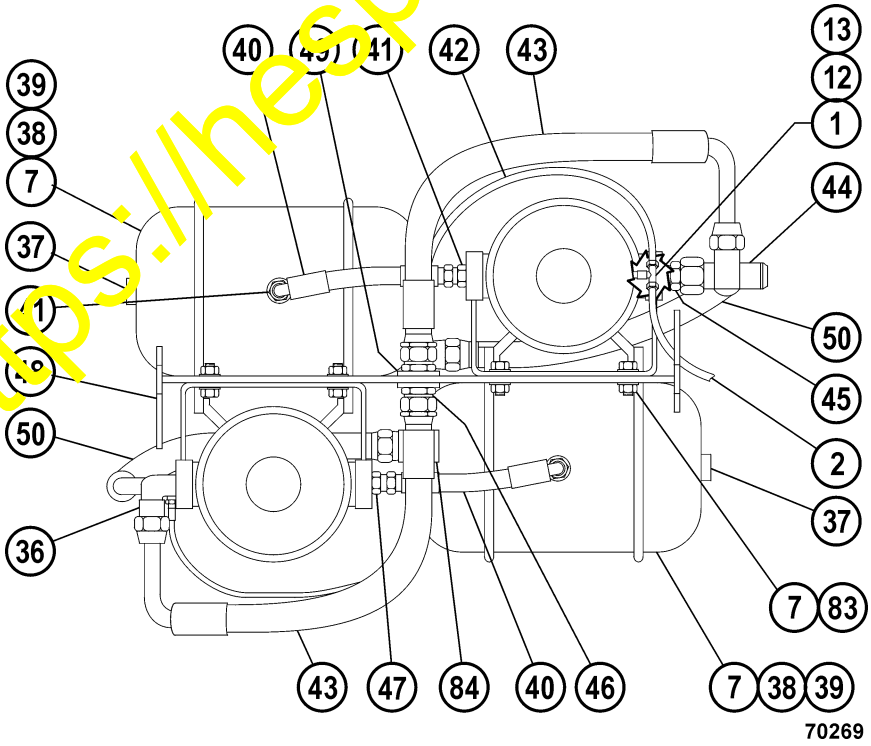

Figure 3 Top View of Air Dryer
[View A-A from Figure 2]

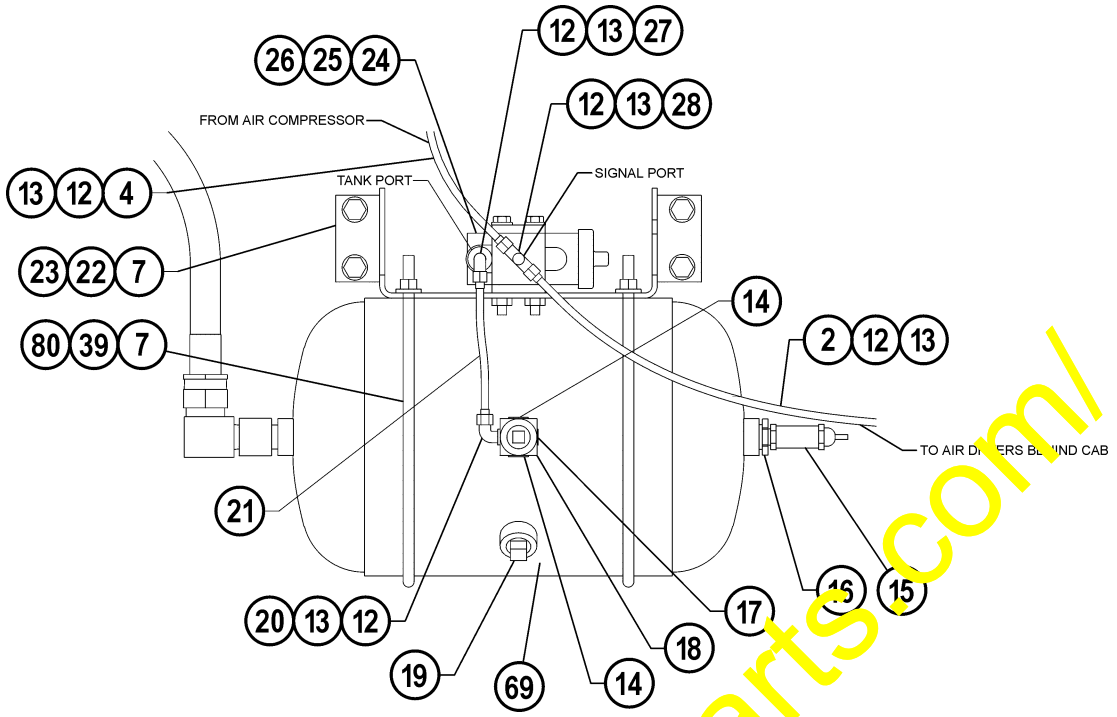

Figure 4 Expansion Air Tank
[View B-B, from Figure 2]

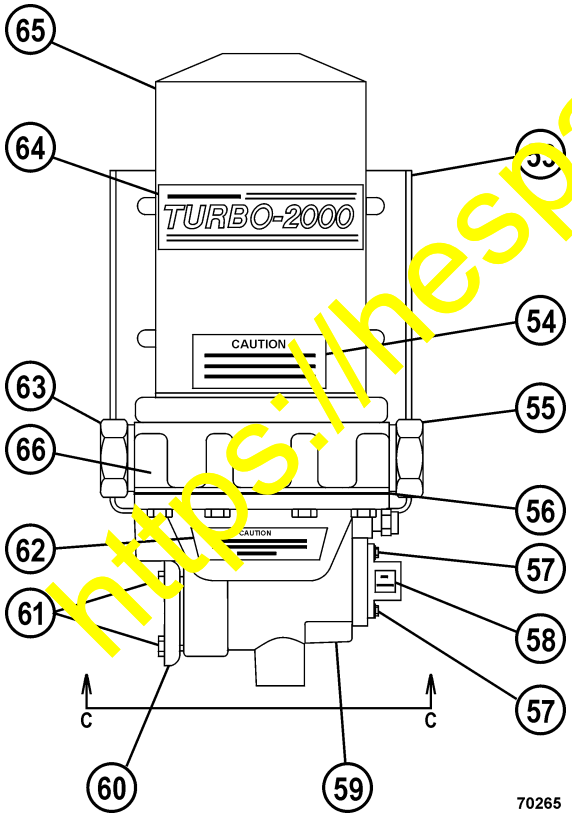

Figure 5 Air Dryer

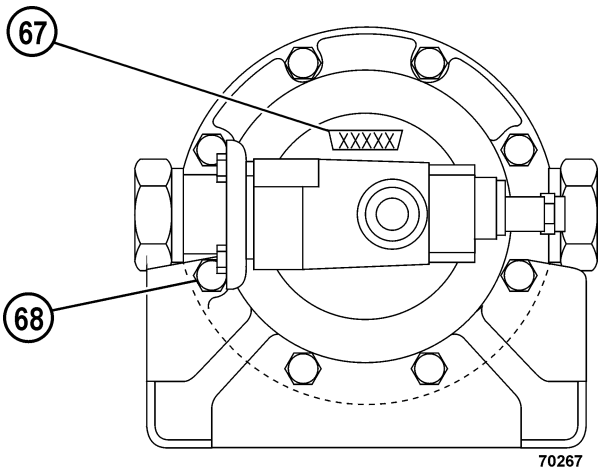

Figure 6 Bottom View - Air Dryer
[View C-C, from Figure 5]

330M AIR DRYER INSTALLATION KIT (FIGURES 2-6)

REF NO.	PART NO.	QTY.	DESCRIPTION
1	0783500413	1	TEE
2	0782200440	1	TUBE
3	HA7720	1	HOSE
4	0782200420	1	TUBE
5	TR9441	1	CLAMP, VINYL - 1.250
6	0101081016	8	BOLT
7	0164331032	34	WASHER
8	HA1453	1	HOSE
9	WB0984	1	FITTING, ADAPTOR
10	MM0029	4	CAPSCREW - M16 X2.00 X 3
11	0164331645	4	WASHER
12	0783100411	8	SLEEVE
13	0783200410	8	NUT
14	0704370312	2	PLUG
15	5663542350	1	VALVE ASSY, SAFETY
16	0732610402	2	ADAPTOR
17	0704370211	1	PLUG
18	566356A110	1	JOINT
19	0704200415	1	PLUG
20	0783400413	2	ELBOW
21	0782200405	1	TUBE
22	EH7294	1	BRACKET STR
23	0101081020	4	BOLT
24	EH9534	1	GOVERNOR ASSY
25	0164330823	2	WASHER
26	MM0070	2	CAPSCREW - M8 X 1.25 X 80
27	0783400410	1	ELBOW
28	0783500410	2	TEE
29	WB0272	1	FITTING, 90 DEG
30	WB1093	1	FITTING, ADAPTOR
31	WB1087	1	FITTING, 90 DEG

330M AIR DRYER INSTALLATION KIT (FIGURES 2-6)

32	WB1094	1	FITTING ADAPTOR, BSPT TO NPT
33	WB0270	1	FITTING, 90 DEG
34	HA7518	1	HOSE STR, TEFLON
35	VN9913	1	CLAMP, VINYL 1.062
36	WB0267	1	FITTING, 90 DEG
37	C5770	4	PLUG, PIPE
38	EG6207	2	TANK, PURGE
39	TC1233	12	NUT - .375
40	HA7597	2	HOSE
41	WB0461	4	FITTING, ADAPTOR
42	0782200408	1	TUBE
43	HA7595	2	HOSE
44	WB0386	1	FITTING, TEE
45	WB0468	1	FITTING, ADAPTOR
46	WB0432	1	FITTING, STRAIT
47	WB0461	4	FITTING, ADAPTOR
48	EH7898	1	BRACKET STR
49	VY0876	1	GROMMET
50	HA7596	2	HOSE
51	1754521320	1	NIPPLE
52	PC0778	2	AIR DRYER DESICCANT
53	BF5102	1	BRACKET
54	BF5134	1	LABEL, SERVICE
55	BF5104	1	NUT, PURGE
56	BF5103	1	GASKET
57	BF5122	2	SCREW
58	BF5098	1	HEATER - 24V
59	BF5100	1	CAP, BOTTOM
60	BF5121	1	RETAINER
61	TR1306	2	CAPSCREW - .25CX1.00
62	BF5132	1	LABEL - EXHAUST CAUTION
63	BF5108	1	NUT, CHECK VALVE
64	BF5135	1	LABEL - NAME

330M AIR DRYER INSTALLATION KIT (FIGURES 2-6)

65	BF5099	1	CARTRIDGE, DESICCANT
66	BF5101	1	PLATE, ADAPTOR
67	BF5131	1	LABEL - SERIAL
68	TD0791	8	CAPSCREW - .25CX1.00
69	5663542690	3	TANK
70	VH5107	5	TIE STRAP
71	CD9705	4	CLAMP, WORM DRIVE
72	EH1038	1	HOSE, OVERFLOW
73	WB1106	2	FITTING, ADAPTOR
74	EH7896	1	BRACKET STR
75	0728322236	1	CLIP
76	0159901011	2	NUT
77	5654411460	1	CHAIN
78	23S4411330M	1	VALVE, DRAIN
79	HA0570	1	HOSE
80	EG2565	2	U - BOLT
81	WB0377	1	FITTING, 90 DEG
82	EH7898	1	BRACKET STR
83	0101031025	8	BOLT
84	WB0691	1	FITTING, TEE
85	0157221625	4	SEAT
86	56189A7122	1	SUPPORT STR, LH
	EH7895	1	DRAWING, AIR DRYER INSTALLATION
	EH7899	1	DRAWING, AIR DRYER ASSEMBLY

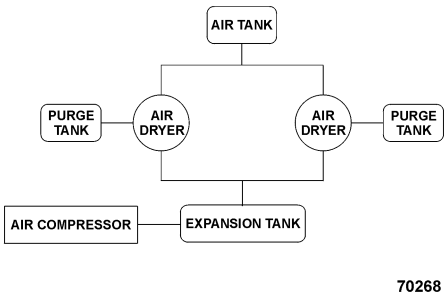

Figure 7 Air Dryer Schematic

GENERAL DESCRIPTION

The air dryer (2, Figure 8) is a desiccant style air dryer, mounted vertically between the air compressor and the supply tank. The air dryer receives hot compressed air, which it cools, dries and filters before sending it to the supply tank, reducing the build up of dirt and moisture in the vehicle air system. The system incorporates a separate, isolated purge tank which incorporates 460 in³ (7539.4 cm³) of purge volume.

The air dryer consists of a housing (light weight aluminum and steel construction) and a spin-off cartridge. Below the cartridge are five ports: the inlet port (B) receives air from the compressor; the outlet port (A) directs clean/dry air to the vehicle air system; the purge port (D) contains a bleed valve directing air to and from the isolated purge tank; the unloader port (C) contains an unloader valve that receives a signal from the governor; the exhaust port (E) expels accumulated moisture and contaminants.

THEORY OF OPERATION

Hot, compressed air enters the air dryer (2, Figure 8) through the inlet port (B). As the hot air enters the dryer, the air expands, oil and water vapor condense, and accumulate in the sump. The air passes through three (3) filters and a cloth bag that removes carbon and other contaminates. Air vapor is absorbed by the desiccant as air travels through the desiccant bed housed in the cartridge. The clean dry air is then directed to the vehicle air system through the outlet port (A) and simultaneously to the purge tank through the purge port (D).

When the air system reaches the governor regulated "cut-out" pressure [typically 128 psi (883 kPa)], the air dryer unloader valve opens via an air signal received in unloader port (C) from the air system governor (4). The governor will also simultaneously signal the compressor (5) to stop compressing air. The air dryer check valve is closed via back pressure from the supply tank (3). This rapid action causes a sudden discharge of air through the exhaust port (E) of the dryer.

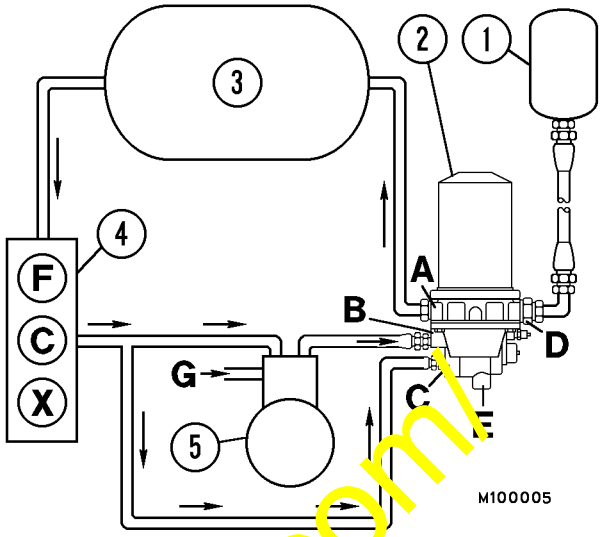

Figure 8. Air Dryer Operation

COMPONENTS	PORTS
1. Purge Tank	A. Check Valve
2. Air Dryer	B. Dryer Intake
3. Supply Tank	C. Unloader
4. Air Governor	D. Purge Tank
5. Air Compressor	E. Dryer Exhaust
	F. Governor Air Supply
	G. Compressor Air Intake
	X. Governor Exhaust

The filtered, dried purge air, which has accumulated in the isolated purge tank, slowly bleeds back through the air dryer. This action regenerates desiccant, cleans filters and expels the contaminants out the exhaust port (E) and completes the regeneration cycle.

Additionally, the air dryer incorporates a turbo valve and a pressure differential check valve. The turbo valve ensures engine boost pressure cannot escape out the air dryer's exhaust port during the stand-by mode of the compressor. The differential check valve maintains system air pressure within the air compressor discharge line. These two valves ensure full turbo boost pressure is checked and available at all times during the operation of the vehicle.

When the air system drops to the governor regulated "cut-in" pressure [typically 118 psi (814 kPa)], the air dryer unloader valve closes as the unloader line pressure evacuates through the exhaust port (X) of the governor. The compressor is signaled to proceed pumping.

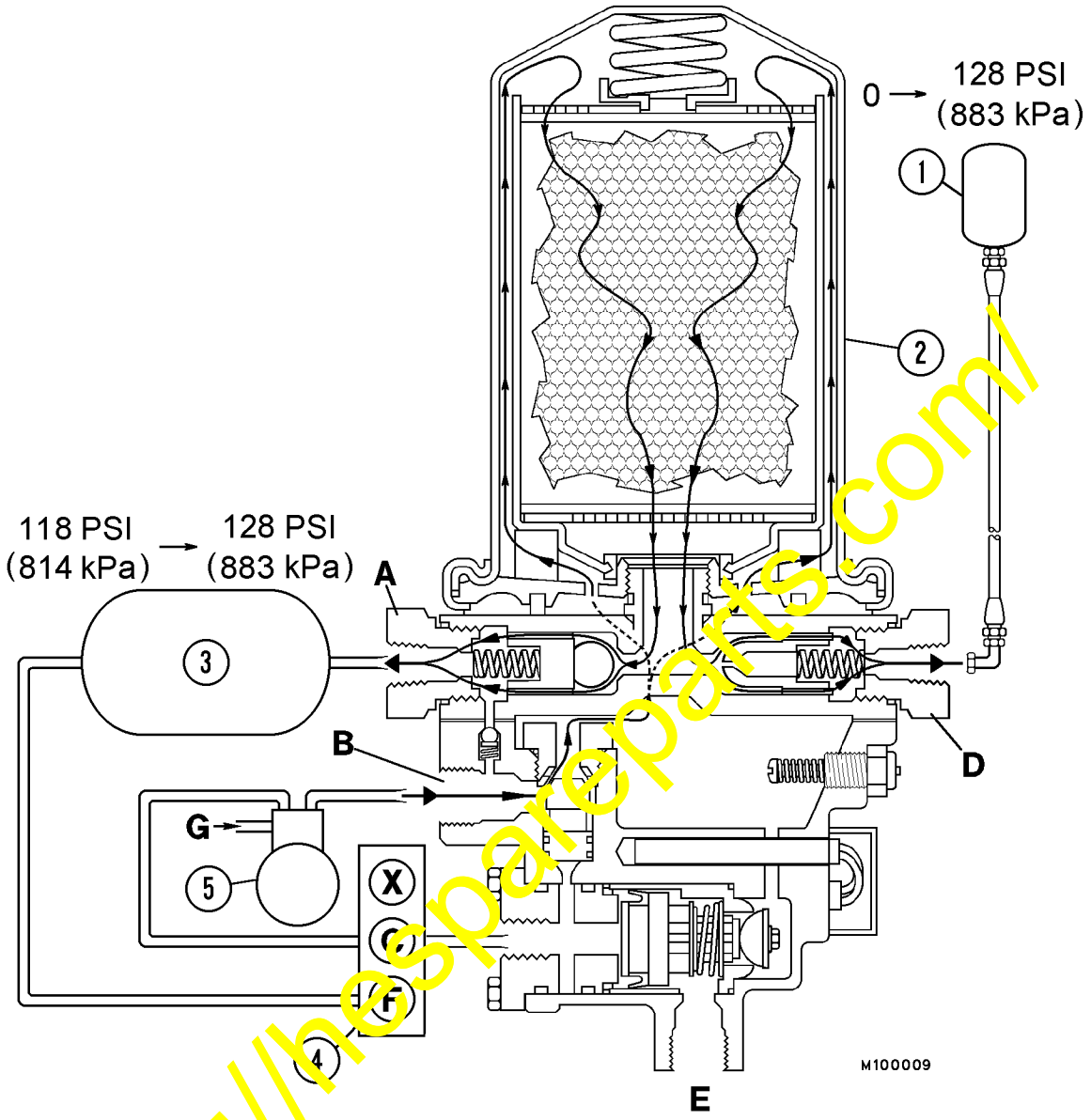

Figure 9. Charge Cycle

COMPONENTS	PORTS
1. Purge Tank	A. Check Valve
2. Air Dryer	B. Dryer Intake
3. Supply Tank	C. Unloader
4. Air Governor	D. Purge Tank
5. Air Compressor	E. Dryer Exhaust
	F. Governor Air Supply
	G. Compressor Air Intake
	X. Governor Exhaust

Refer to Figure 11 for Valve Locations:

VALVES OPEN - Check Valve (2); Bleed Valve (13); Turbo Valve (7)

VALVES CLOSED - Ball Check Valve (5); Unloader Valve (9)

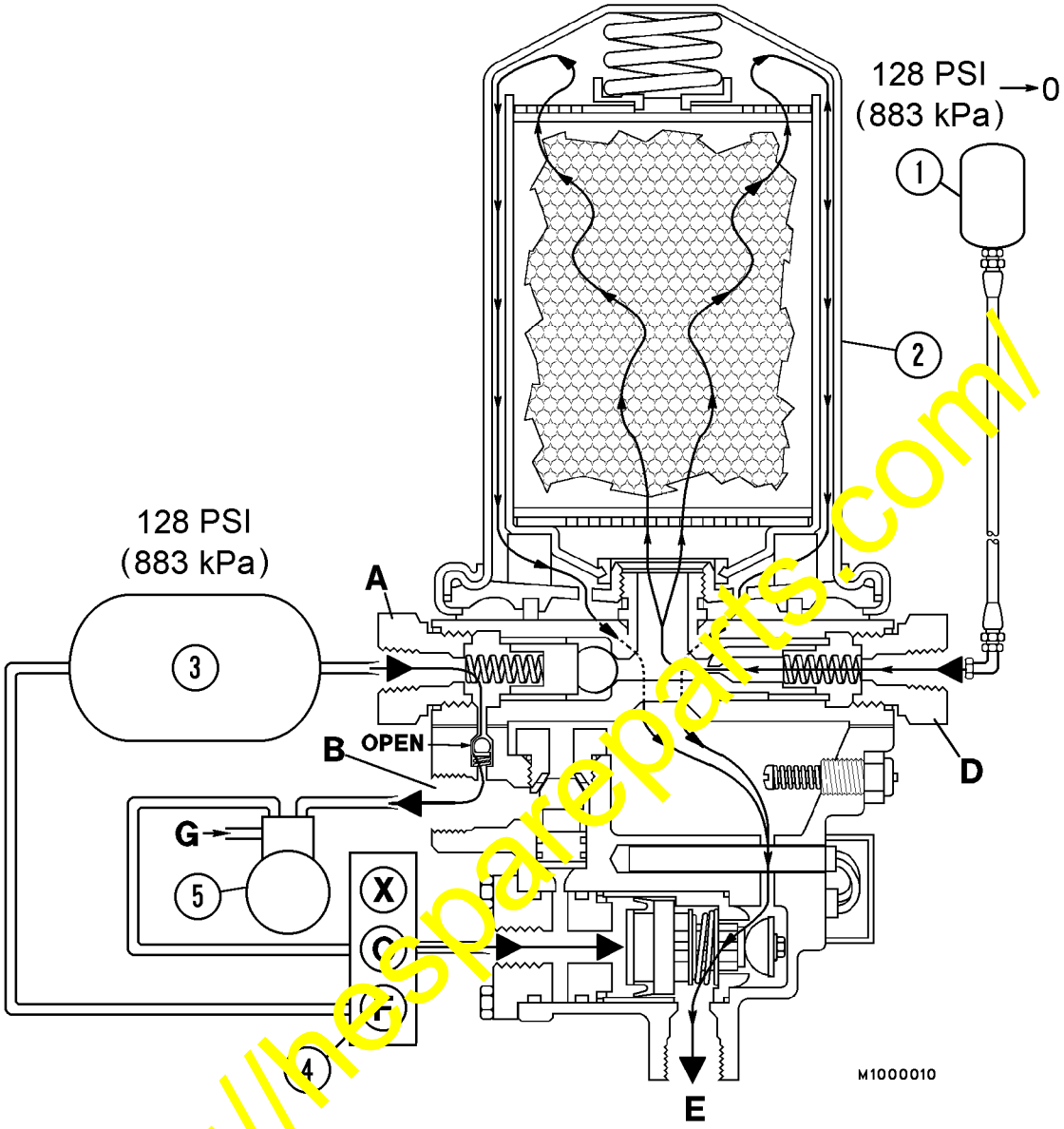

Figure 10. Unload / Purge Cycle

COMPONENTS	PORTS
1. Purge Tank	A. Check Valve
2. Air Dryer	B. Dryer Intake
3. Supply Tank	C. Unloader
4. Air Governor	D. Purge Tank
5. Air Compressor	E. Dryer Exhaust
	F. Governor Air Supply
	G. Compressor Air Intake
	X. Governor Exhaust

Refer to Figure 11 for Valve Locations:

VALVES OPEN - Ball Check Valve (5); Unloader Valve (9)

VALVES CLOSED - Check Valve (2); Bleed Valve (13); Turbo Valve (7)

General Precautions

Whenever working on or near air systems and components, always observe the following:

1. If the vehicle is equipped with an air-actuated brake system, the vehicle's wheels must be chocked. Block the wheels and make sure the vehicle will not roll, before releasing the brakes and before performing any test and/or isolating the air dryer.

2. Stop the engine when working under a vehicle.

3. Never connect or disconnect a hose or line containing air pressure. Never remove a component or a pipe plug unless you are certain all system air pressure has been exhausted.

4. Always wear safety glasses when working with air pressure. Never look directly into air dryer ports.

5. Never exceed recommended working air pressure.

6. Never attempt to disassemble an air dryer until you have read and understood all recommended procedures. Use only proper tools and observe all precautions pertaining to the use of those tools.

Removal

1. Drain the air system.

2. Disconnect heater wiring.

3. Mark the air lines for later reference and disconnect from the air dryer.

4. Remove the lock nuts, washers, and capscrews that attach the air dryer to the vehicle.

Installation

1. Position the air dryer. Install the capscrews, washers, and lock nuts.
   Tighten capscrews to **37 ft. lb (80 N.m)** torque.

2. Inspect lines and fittings. Replace any that are damaged.

3. Connect all air lines, taking care to match marked line with appropiate port.

4. Connect the heater wiring.

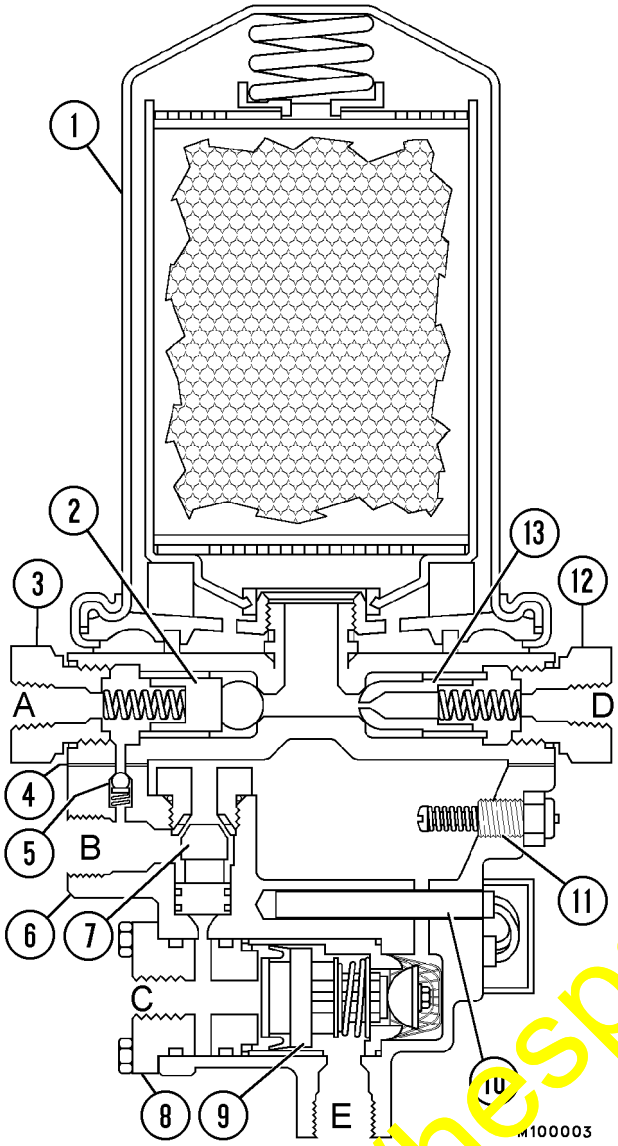

Figure 11. Turbo 2000 Air Dryer

COMPONENTS

1. Desiccant Cartridge
2. Check Valve Kit
3. Check Valve Nut
4. Body Gasket
5. Ball Check Valve
6. Bottom Cap Assembly
7. Turbo Valve
8. Seal Retainer
9. Unloader Valve
10. Heater
11. Safety Valve
12. Bleed Valve Nut
13. Bleed Valve

PORTS

A. Check Valve
B. Intake
C. Unloader
D. Purge Tank
E. Exhaust

Desiccant Cartridge Service

Symptoms/Actions

1. Regular service interval.

   1 year/5000 Hours

   *NOTE: The above is a **guideline only**.*
   Check the tank(s) on regular basis.
   If moisture exists, replace cartridge.

2. Water in tanks.

   Desiccant cartridge requires regular servicing at intervals determined by compressor duty cycle or type of operation, evironment, etc.

Desiccant Cartridge Replacement

1. Drain the air system.

2. Using a strap wrench, turn the desiccant cartridge (1, Figure 11) counterclockwise and remove it. Discard cartridge.

3. Remove and discard O-ring from adaptor plate stud.

NOTE: *If there is excessive oil in the check valve port, compressor may require servicing.*

4. Clean top surface of adaptor plate and threaded stud.

5. Using grease supplied with cartridge, apply a light coating on the O-ring. Install O-ring on adaptor stud.

6. Apply a generous coat of grease on the new desiccant cartridge gasket surface.

7. Thread new cartridge onto adaptor stud turning clockwise. When gasket contacts adaptor plate, tighten cartridge ½ Turn only.
   DO NOT OVER-TIGHTEN.

Unloader Valve Service

Symptons/Actions

1.Dryer won't exhaust.

Start engine and build pressure to just before "cut-out" pressure. Cycle several times. If dryer does not exhaust, replace unloader valve.

2. Air leak at exhaust port during:

a) Charge Mode:

Start engine and build pressure to just before "cut-out". Stop engine. Apply soap solution at exhaust port or listen for air leak at exhaust port. If a leak is present, replace unloader valve.

b) Standby Mode:

Remove governor line from UNL port on air dryer. Start engine and build to "cut-out" pressure. Stop engine. If no air leaks are present, replace unloader valve.

3. Pressure slow or no build.

Start engine and build pressure to just before "cut-out". Stop engine. Apply soap solution at exhaust port or listen for air leak at exhaust port. If a leak is present, replace unloader valve.

4. Compressor cycles rapidly.

Remove governor line from UNL port on air dryer. Start engine and build to cut-out pressure. Stop engine. If no air leaks are present, replace unloader valve.

Unloader Valve Replacement

1. Disconnect the unloader air line.

2. Remove the two fasteners that attach the unloader valve retainer (8, Figure). Remove the retainer.

3. Remove the unloader valve assembly (9) from the unloader port and discard.

NOTE: If there is excessive oil in the unloader port, compressor may require servicing.

4. Clean the unloader port thoroughly.

5. Remove the three (3) O-Rings from the retainer and discard.

6. Using lubricant supplied with kit, lightly grease the new O-rings.

7. Install on the retainer the two (2) thickest O-rings. Then install the third (thinner) O-ring.

8. Install the new filter screen in the unloader cavity, open end out.

9. Apply a light coating of grease around the O-ring seat on valve assembly. Install the thin O-ring on the unloader valve seat.

10. Aligning the valve exhaust port with the air dryer exhaust port, install the unloader valve assembly. Use care not to dislodge the O-ring from its seat.

If the air dryer exhaust port and unloader valve exhaust port do not align, air dryer will not unload.

11. Install retainer.

12. Apply a light coating of grease on the threads of the two retainer bolts.

13. Install the two retainer bolts and tighten to **10-15 ft. lb. (13.56-20.34 N.m)** torque.

14. Reconnect the unloader air line to air dryer unloader port.

Bleed Valve Service

Symptom

1. Water in tanks.

2. Slow or no purge

Operation Check

Start engine and build air pressure allowing dryer to exhaust. Stop engine. After initial exhaust, air should bleed with decreasing intensity out the exhaust port for approximately 45 seconds. If air fails to bleed as described, replace bleed valve kit.

Bleed Valve Replacement

1. Drain the air system

2. Disconnect the air line at air dryer purge port.

3. Remove bleed valve nut (12, Figure 10-4).

4. Remove and discard O-ring, spring and spindle.

5. Clean bleed valve nut and cavity area.

6. Position new spindle in the cavity with spring pocket side out. Install spring.

7. Using grease supplied with kit, apply a light coating on O-ring. Install O-ring on nut.

8. Apply light coating of grease on nut threads. Install nut and tighten to **60 ft. lb. (81.35 N.m)** torque.

9. Re-connect air line to air dryer purge port.

Check Valve Service

Symptom

1. Dryer frequently unloads.
2. Air continually flows from exhaust port when compressor is in standby mode.
3. Wet tank pressure drops rapidly.

NOTE: The above symptoms could also lead to turbo valve replacement. A malfunctioning turbo valve will tend to allow pressure to drop to ©cut-in" pressure within seconds.

Operational Check

Disconnect line at purge port and plug. Start engine and build pressure to "cut-out" pressure. Stop engine.
Apply soapy solution around exhaust port.
If soap bubbles exist, replace check valve.

Check Valve Replacement

1. Drain air system.

2. Disconnect air line from outlet port.

3. Remove check valve nut (3, Figure 11).

4. Remove and discard O-ring, spring, spindle, and ball.

NOTE: If there is excessive oil in the check valve port, compressor may require servicing.

5. Clean nut and cavity area.

6. Install new ball in cavity. Next, position spindle with spring pocket facing out. Install spring.

7. Using grease supplied with kit, apply a light coating on O-ring. Install O-ring on nut.

8. Apply a light coating of grease to threads of nut. Install nut and tighten to **60 ft. lb. (81.35 N.m)** torque.

9. Re-connect air line to air dryer outlet port.

Turbo Valve Service

Symptom

1. Dryer frequently unloads.
2. Air continually flows from exhaust port when compressor is in standby mode.
3. System pressure drops very rapidly.

NOTE: The above symptoms could also lead to check valve replacement. A malfunctioning turbo valve will tend to allow pressure to drop to cut-in pressure within seconds.

Operational Check:

Disconnect line at purge port and plug. Start engine and build pressure to cut-out pressure.
Stop engine.
Apply soapy solution around exhaust port.
If soap bubbles exist, replace turbo valve.

Turbo Valve Replacement

1. Drain the air system.
2. Disconnect the heater wiring. Disconnect the inlet and unloader lines from their respective ports. Mark lines for later assembly.
3. Remove eight bolts from bottom cap and set aside. Discard gasket.
4. Remove turbo nut, valve stop, and valve (7, Figure 11) and discard.
5. Clean cavity area thoroughly.
6. Lightly coat the two small O-ring surfaces and install on piston. Carefully install valve in cavity with tapered side up.
7. Place valve stop on top of valve concave side down.
8. Lightly lube large O-ring and place on nut. Install flat seal into nut.
9. Install nut and tighten to **50 ft. lb. (68 N.m)** torque.
10. Place gasket on bottom cap aligning small hole with small check valve. Locate bottom cap so that inlet port is directly below outlet port. Install the eight bolts set aside during disassembly and tighten to **15-20 ft. lb. (20 -27 N.m)** torque.
11. Re-connect inlet and unloader lines as previously marked to air dryer.
12. Re-connect heater wiring.

Heater Assembly Service

Symptom

1. Dryer won't exhaust.
2. Exhaust port leaks.
3. Cannot build pressure.

Operational Checks

Thermostat must be cooled to at least 35° F (2°C) to check.

1. Connect an ohmmeter across the heater electrical terminals. The reading should show a closed circuit.

2. If the reading shows an open circuit, replace heater assembly.

Heater Assembly Replacement

1. Disconnect heater leads.
2. Remove the two screws from heater cover.
3. Remove heater/thermostat assembly (10, Figure 10-4) and discard.
4. Thoroughly clean entire area.
5. Apply a light coating of anti-seize to the heater element and to the thermostat cavity only. Do not apply this compound to screws.
6. Install new heater. Twist slightly to spread anti- seize. Install new set screw until snug. Set screw will protrude from bottom cap about 0.125 inch (3.18 mm). **DO NOT OVERTIGHTEN**.
7. Install new thermostat. Coil wires around heater cover posts allowing wires to protrude through slots. Place the two #6-32 x 1.125 inches (2.86 cm) screws in heater cover and attach the thermostat.
8. Fill heater cover with non-corrosive RTV.
9. Connect blue heater wire to a good chassis ground.
10. Connect orange wire to ignition switch.
11. Seal and route heater wires carefully.

AIR DRYER TROUBLESHOOTING

Problem: Air continually exhausts from the exhaust port when the compressor is in the standby mode.

Possible Cause	Remedy
The air dryer check valve is worn.	Clean cavity. Replace check valve assembly.
Turbo valve is damaged or worn.	Clean cavity. Replace turbo valve assembly.
The air dryer unloader valve seal is worn.	Clean cavity. Replace unloader valve assembly.

Problem: System air pressure drops rapidly.

Possible Cause	Remedy
Fittings are loose or damaged.	Tighten and/or replace as necessary.
Air reservoir, tubing, or hoses are damaged.	Repair or replace as necessary.
The air dryer check valve is worn.	Clean cavity. Replace check valve assembly.
Turbo valve is leaking.	Clean cavity. Replace turbo valve assembly.
The air dryer unloader valve seal is worn.	Clean cavity. Replace unloader valve assembly.

Problem: The air compressor goes into the standby mode but cycles rapidly.

Possible Cause	Remedy
Fittings are loose or damaged.	Tighten and/or replace as necessary.
Air reservoir, tubing, or hoses are damaged.	Repair or replace as necessary.
The air dryer check valve is worn.	Clean cavity. Replace check valve assembly.
Turbo valve is worn.	Clean cavity. Replace turbo valve assembly.
Air governor malfunctioning.	Replace governor valve.
The air dryer unloader valve seal is worn.	Clean cavity. Replace unloader valve assembly.

Problem: Air flows from the exhaust port when the air compressor is trying to build up pressure.

Possible Cause	Remedy
The unloader valve is worn.	Clean cavity. Replace unloader valve assembly.
Dirt/foreign material is stuck in unloader valve.	Clean cavity. Replace unloader valve assembly.
Air governor malfunctioning.	Replace governor valve.
Heater assembly malfunctioning. (32°F).	Replace heater assembly.

AIR DRYER TROUBLESHOOTING (Continued)

Problem: The air compressor runs continuously (system pressure will not build).

Possible Cause	Remedy
Fittings are loose or damaged.	Tighten or replace loose or damaged fittings.
Air reservoir, tubing, or hoses are damaged.	Repair or replace damaged items.
The air compressor needs serviced or replaced.	Rebuild or replace the air compressor.
The air dryer unloader valve is worn.	Clean cavity. Replace the unloader valve ass'y.
The air compressor capacity too low for vehicle.	Install larger air compressor.
Line between governor and air compressor is blocked.	Replace the line or remove the blockage.
Air governor malfunctioning.	Replace governor valve.

Problem: The air dryer does not unload when the air compressor goes into standby mode.

Possible Cause	Remedy
The line between the air governor and the air dryer unloader port is missing.	Install or replace the air line, or tighten the fittings.
The unloader valve is worn.	Clean cavity. Replace the unloader valve ass'y.
Ice has formed in the unloader valve.	Check heater assembly; replace if necessary.
The heater is malfunctioning.	Check heater assembly; replace if necessary.
The unloader valve sleeve is misaligned.	Align unloader valve sleeve.

Problem: The safety valve opens.

Possible Cause	Remedy
The air dryer check valve is blocked.	Clean cavity. Replace the check valve assembly.
The air brake system is blocked down stream from the air dryer.	Remove blockage or replace the necessary components.
The air compressor governor valve is malfunctioning.	Replace the compressor air governor valve.
The safety valve is malfunctioning	Replace the safety valve.

AIR DRYER TROUBLESHOOTING (Continued)

Problem: Water accumulation in air system (tanks).

Possible Cause	Remedy
Desiccant is contaminated.	Replace desiccant cartridge.
The air compressor capacity too low for vehicle.	Install larger air compressor and replace desiccant cartridge.
Bleed valve is malfunctioning.	Clean cavity. Replace bleed valve assembly.
The line between the purge tank and the air dryer purge port is missing, leaking, or damaged.	Install or replace the air line, or tighten fittings.
Line between the compressor and air dryer too short (Insufficient pre-cool).	Fit new line with a minimum length of 6 ft. (1.83 m) copper line or 12 ft. (3.66 m) of steel braided teflon.

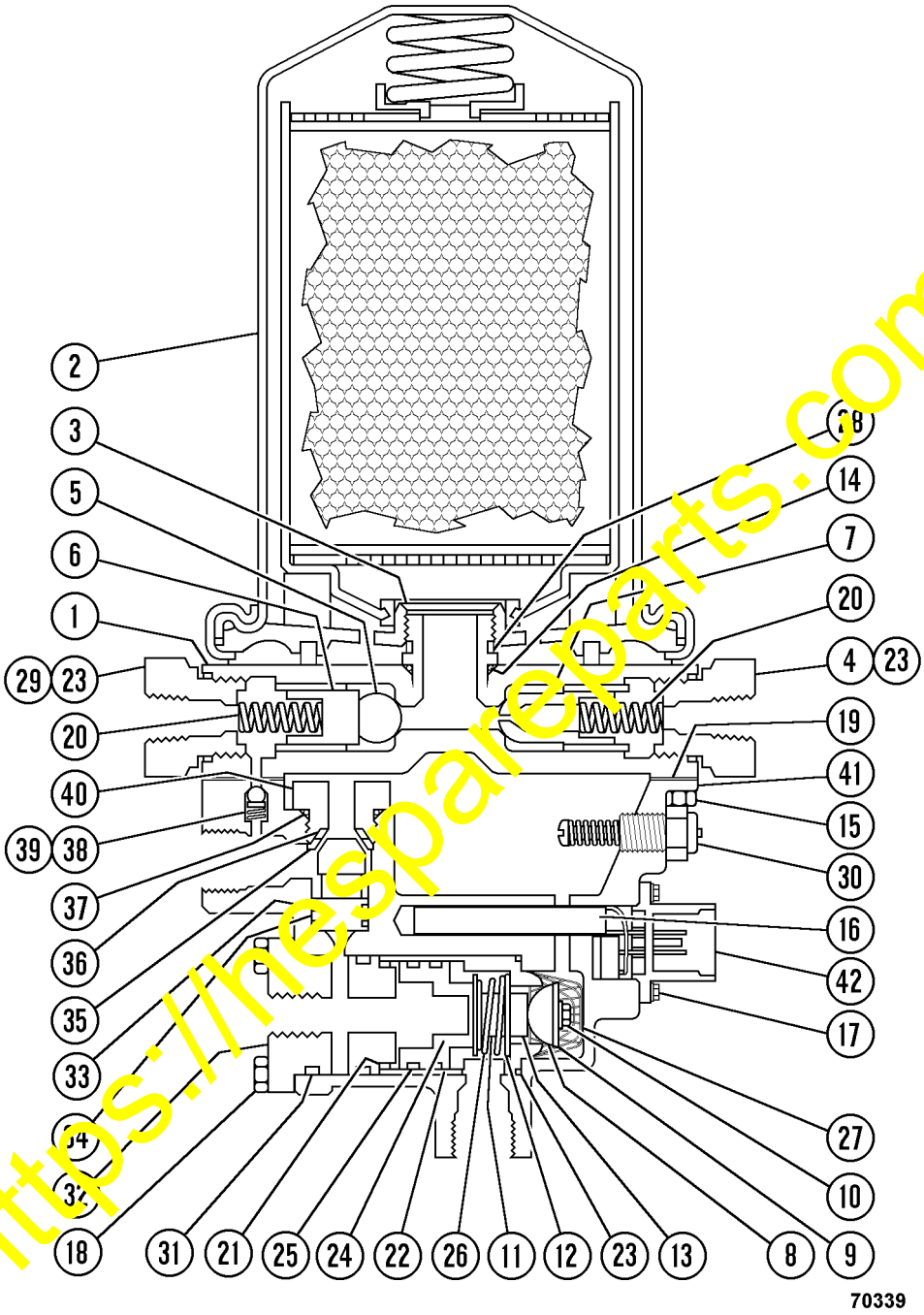

Figure 12. Turbo 2000 Air Dryer Assembly

TURBO 2000 AIR DRYER ASSEMBLY

REF NO.	PART NO.	QTY.	DESCRIPTION
1		1	ADAPTOR PLATE (2)
2		1	KIT, CARTRIDGE REPLACEMENT (1)
3		1	ADAPTOR, CARTRIDGE (2)
4	BF3705	1	NUT, BLEED VALVE
5		1	BALL (4)
6		1	SPINDLE (4)
7		1	SPINDLE, BLEED VALVE (7)
8		1	SEAL (5)
9		1	WASHER, COMPRESSION (5)
10		1	SCREW, RETAINING (5)
11		1	SPINDLE (5)
12		1	WASHER, LEVELING (5)
13		1	WASHER, ANTI EXTRUSION (5)
14		1	O-RING (2)
15	C1603	8	BOLT
16		1	HEATER - THERMOSTAT ASSEMBLY (9)
17		1	SET SCREW (9)
18	BF3573	2	BOLT
19	VJ8001	1	GASKET
20		2	SPRING (4)
21		1	O-RING (5)
22		1	SLEEVE (5)
23		3	O-RING (4)
24		1	PISTON (5)
25		3	O-RING (5)
26		1	SPRING (5)
27		1	SCREEN (5)
28		1	O-RING, CART ADAPTOR (1)
29	BF3710	1	NUT, CHECK VALVE
30	VS6000	1	SAFETY VALVE
31		2	O-RING (5)
32		1	SEAL RETAINER (8)
33		2	O-RING (6)
34		1	SPINDLE, VALVE (6)
35		1	UNLOADER VALVE STOP (6)
36		1	SEAL RING, RECTANGULAR (6)
37		1	O-RING (6)
38		1	CHECK VALVE (3)
39		1	CHECK VALVE SEAT (3)

TURBO 2000 AIR DRYER ASSEMBLY (Continued)

REF NO.	PART NO.	QTY.	DESCRIPTION
40.		1	UNLOADER VALVE SEAT (6)
41.		1	BOTTOM CAP (3)
42.		1	BULLET RECEPTACLE (9)
KT	BF3703		NOTE: (1) PART OF KIT BF3703.
KT	BF5096		(2) PART OF KIT BF5096.
KT	BF5095		(3) PART OF KIT BF5095.
KT	RK1869		(4) PART OF KIT RK1869.
KT	RK0109		(5) PART OF KIT RK0109.
KT	BF4068		(6) PART OF KIT BF4068.
KT	BF4067		(7) PART OF KIT BF4067.
KT	BF3584		(8) PART OF KIT BF3584.
KT	BF5098		(9) PART OF KIT BF5098.

NOTES