

# Installation Instructions



## BENDIX® TU-FLO® 501 COMPRESSOR CYLINDER HEAD MAINTENANCE KIT

Bendix® Tu-Flo® 501 Compressor

Kit Contents		
Item No.	Description	Qty.
1	Discharge Fitting Gasket	1
2	Discharge Valve	2
3	Inlet Valve	2
4	Inlet Valve Spring	2
5	Governor Gasket	1
6	Inlet Gasket	1
7	Inlet Valve Guide	2
8	Unloader Maintenance Kit	1
9	Discharge Valve Spring	2
10	Cylinder Head Gasket	1

Figure 1 – Bendix® Tu-Flo® 501 Compressor Exploded View (Thru Drive)

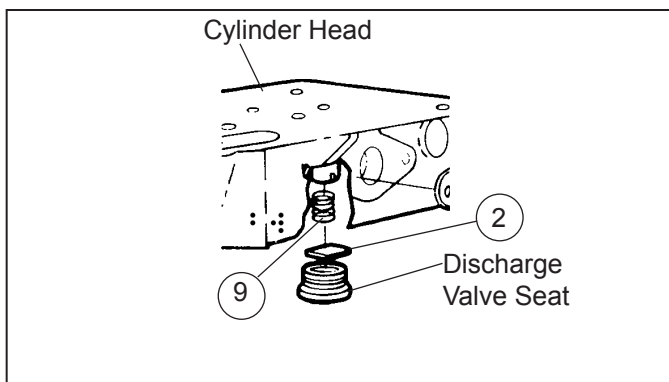


Figure 2 – Discharge Valve, Valve Stop and Seat

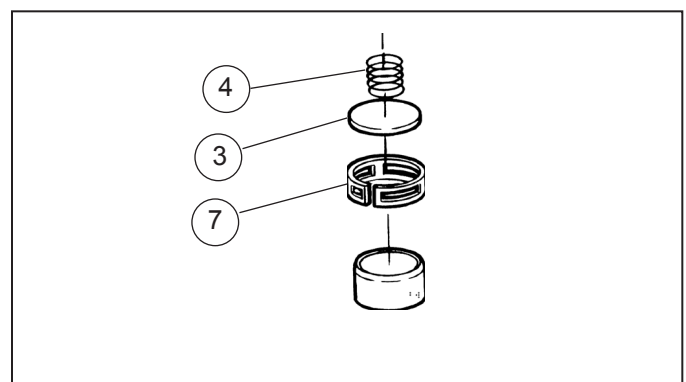


Figure 3 – Inlet Valve and Seat

## 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, or a Bendix® AD-9si® 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.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.
- ▲ 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.

## GENERAL INFORMATION

The Cylinder Head Maintenance Kit contains all of the components necessary to service the cylinder head of the Bendix® Tu-Flo® 501 compressor. The maintenance kit includes the inlet and discharge valving, as well as the gaskets which will require replacement when the maintenance kit is installed.

## PREPARATION FOR DISASSEMBLY

Remove road dirt and grease from the exterior of the compressor with a cleaning solvent. Before the cylinder head is removed, mark the cylinder head in relation to the crankcase. A convenient method to indicate this relationship is to use a metal scribe to mark the parts with numbers or lines. Do not use marking methods such as chalk that can be wiped off or obliterated during rebuilding.

## REMOVAL AND DISASSEMBLY

These instructions are general and are intended to be a guide; in some cases additional preparations and precautions are necessary.

1. Remove the discharge fitting from the discharge port of the cylinder head and push the discharge line out of the way. Remove the discharge fitting gasket (1) and discard.
2. Remove the governor or the air line leading to the governor mounting pad on the cylinder block of the compressor. Remove and discard the governor mounting gasket (5) if the governor is mounted to the cylinder block.
3. Remove the inlet fitting or strainer and discard the gasket (6).
4. Remove the inlet and outlet water lines after draining the radiator.
5. Remove and replace the unloader mechanism following the instructions included with the unloader maintenance kit (8) within this kit.
6. Remove the six cylinder head cap screws and tap the head with a mallet to break the gasket seal.
7. Remove the inlet valves (3), the inlet valve springs (4) and the inlet valve guides (7) and discard.
8. Scrape any gasket material from the cylinder head and cylinder block.
9. Unscrew the discharge valve seats from the cylinder head.
10. Remove and discard the discharge valves (2) and discharge valve springs (9).

## ASSEMBLY

Prior to assembly, inspect the discharge valve stops and seats for excessive wear. Inspect the inlet valve seats for nicks.

Remove all the carbon deposits from the discharge cavities, and all rust and scale from the cooling cavities of the cylinder head body surfaces; use shop air pressure to blow the dirt particles from all the cavities.

1. Install the discharge valve springs (9), discharge valves (2), and discharge valve seats. Tighten the discharge valve seats to 50-60 ft-lbs.
2. Install the inlet valve springs (4) in the cylinder head by applying a turning motion to the spring after it is in the head.
3. Install inlet valve guides (7) and inlet valves (3) on the inlet valve seats.
4. Place the cylinder head gasket (10) on the cylinder block with the beaded side down. Carefully align the cylinder head assembly on the block and install the six cap screws, tightening them evenly to a torque of 25-30 ft-lbs.
5. Replace the discharge fitting, governor, and inlet fitting or air strainer using the new gaskets supplied (items 1, 5 & 6).
6. Reconnect the cylinder head water lines and refill the radiator.

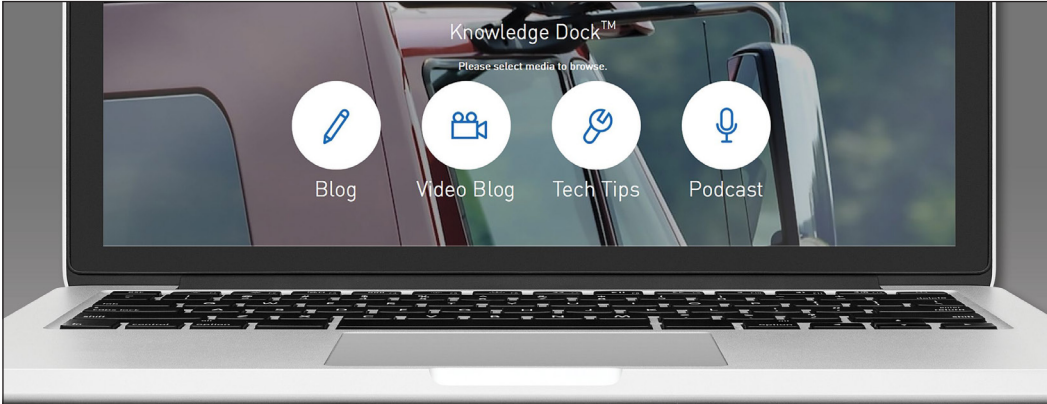
## TESTING THE COMPRESSOR

In order to properly test a compressor under operating conditions, a test rack for correct mounting, cooling, lubricating, and driving the compressor is necessary. Such tests are not compulsory if the unit has been carefully rebuilt by an experienced person. A compressor efficiency or build up test can be run which is not too difficult. An engine lubricated compressor must be connected to an oil supply line of at least 15 psi pressure during the test, and an oil return line must be installed to keep the crankcase drained.

Connect to the compressor discharge port, a reservoir with a volume of 1500 cubic inches, including the volume of the connecting line. With the compressor operating at 2100 RPM, the time required to raise the reservoir(s) pressure from 85 psi to 100 psi should not exceed 7 seconds for the Tu-Flo 501 compressor. During this test, the compressor should be checked for gasket leakage and noisy operation, as well as unloader operation and leakage.

Reinstall the compressor on the vehicle connecting all air, water, and oil lines to their appropriate ports as marked in the disassembly procedure.


If additional service information is needed, refer to the appropriate compressor service manual.



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