

Bendix® SDS-9600™ Trailer Suspension Dump Valve

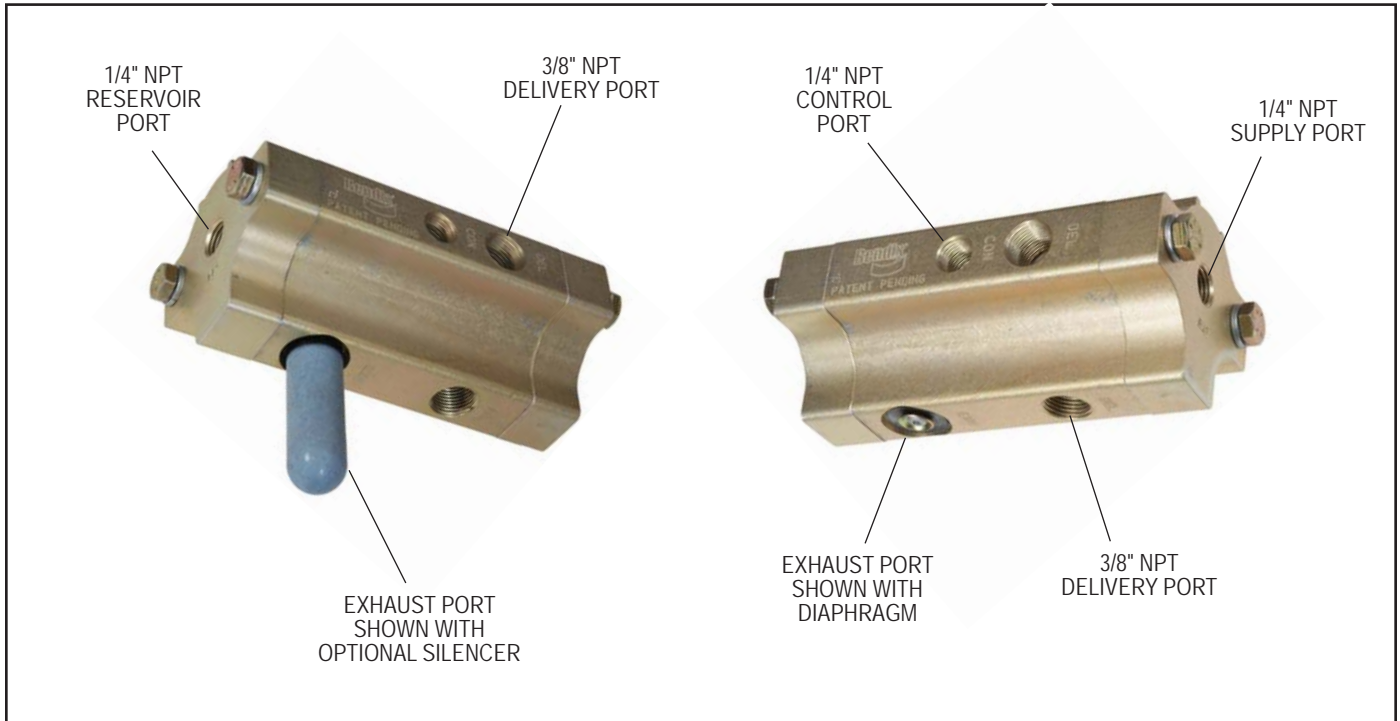


FIGURE 1 - BENDIX® SDS-9600™ TRAILER SUSPENSION DUMP VALVE PORT IDENTIFICATION

DESCRIPTION

The SDS-9600™ trailer suspension dump valve is utilized on spread axle trailers, to negotiate tight turns at low speeds by limiting torsion forces on the rear trailer axle. These forces can damage tires, frames, and suspension components.

When activated, the SDS-9600™ trailer suspension dump valve exhausts (dumps) a portion of the air out of the rear trailer axle suspension taking the weight off of that axle, and transferring it to the forward trailer axle. The trailer can then pivot on the forward trailer axle in a turn.

Maintaining a portion of the air in the rear axle reduces damage to the air suspension, saves on suspension and system air, reduces time needed to re-inflate the system when required, and reduces tire chattering, all of which may occur if all of the air is exhausted from the suspension. The SDS-9600™ trailer suspension dump valve then returns air to the rear axle suspension upon driver input (deactivated) or when vehicle speed is in excess of 10 mph.

The Bendix® SDS-9600™ trailer suspension dump valve is a pilot operated normally open three-way valve with a high-capacity exhaust, inversion control, and delivery pressure hold feature. The function of the valve is to apply delivery pressure to the rear axle of a spread axle trailer suspension, and then to exhaust the delivery pressure through a high-capacity exhaust upon the input of a control signal. Upon exhaust, an internal mechanism of the trailer suspension dump valve stops the exhausting of air and holds the delivery pressure at a minimal pressure.

Porting is as follows:

- (2) 3/8 inch NPT delivery ports
- (1) 1/4 inch NPT control port
- (1) 1/4 inch NPT supply port
- (1) 1/4 inch NPT reservoir
- (1) Exhaust port with Diaphragm or optional 3/8 inch NPT port

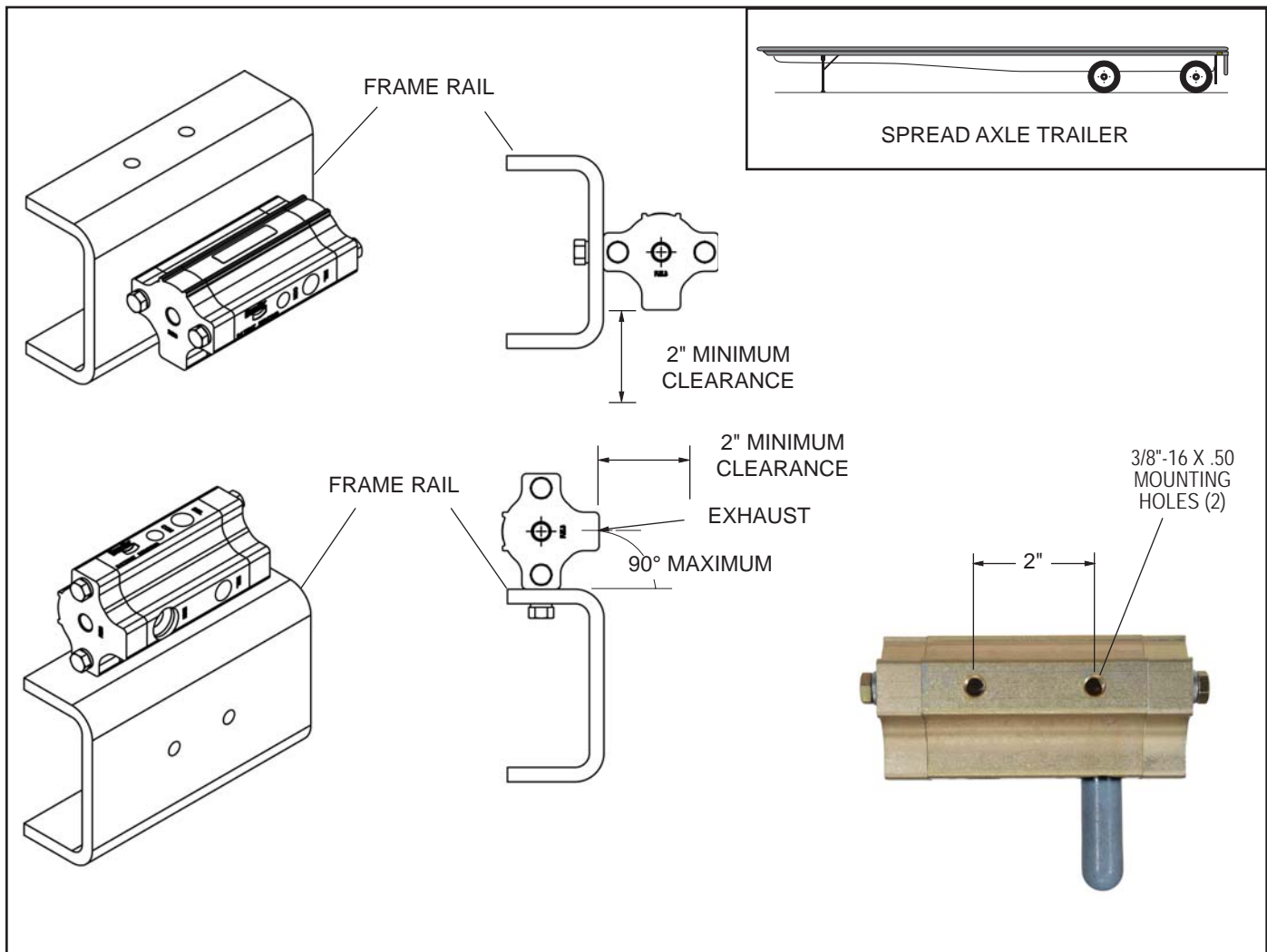


FIGURE 2 - MOUNTING THE SDS-9600™ TRAILER SUSPENSION DUMP VALVE

OPERATION

MOUNTING ORIENTATION

The SDS-9600™ trailer suspension dump valve is mounted to the trailer frame rail or cross-member. It is preferred that the valve be mounted on the backside of a cross-member with the exhaust port facing down. Mounting on the top side of a cross-member is acceptable, providing the exhaust port is facing rearward on the vehicle. Never mount the valve with the exhaust port facing upwards. The valve should have at least 2 inches of clearance between the exhaust port and any other surface. Refer to Figure 2.

PREVENTIVE MAINTENANCE

Important: The SDS-9600™ trailer suspension dump valve is not serviceable, but must be inspected for proper operation as a part of routine vehicle maintenance.

No two vehicles operate under identical conditions, as a result, maintenance intervals may vary. Experience is a valuable guide in determining the best maintenance interval for air brake system components. At a minimum,

the SDS-9600™ valve should be inspected every 6 months or 1500 operating hours, whichever comes first, for proper operation. Should it not meet the elements of the operational tests noted in this document, further investigation and replacement of the valve may be required.

REMOVAL

Secure the vehicle with spring brakes or blocks. Drain the reservoir which supplies the SDS-9600™ valve. Mark and disconnect the connecting air lines. Remove the screws that secure the valve to the trailer frame rail. Remove the valve.

INSTALLATION

Typical system schematics for the SDS-9600™ valve are shown in Figures 3 and 4.

Inspect the mounting hardware and replace if necessary. Check connecting air lines for integrity and foreign material, replace if necessary. Re-connect the air lines. Check the operation of the valve by charging the system and performing the service check as described in this manual.

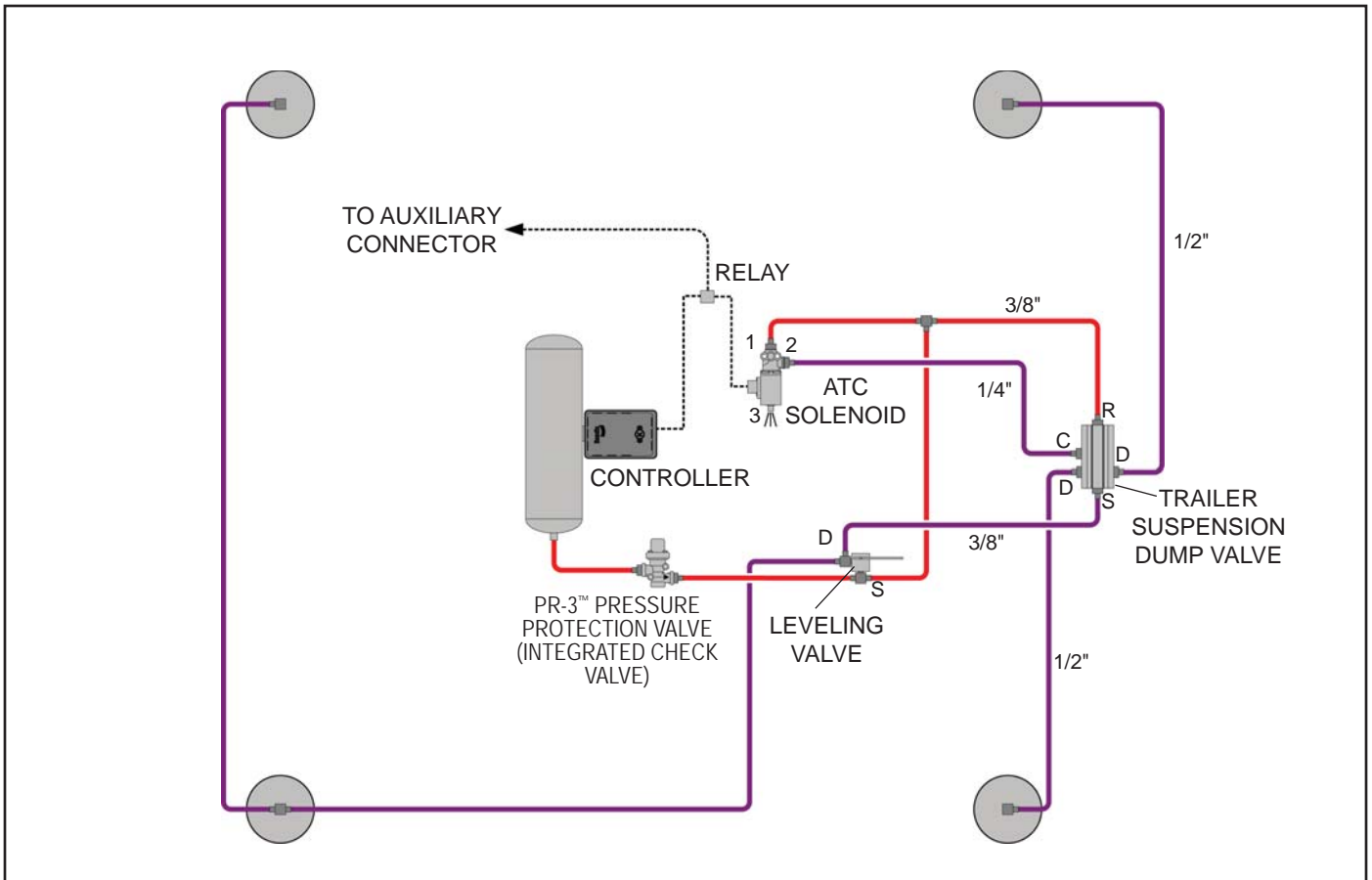


FIGURE 3 - SYSTEM DIAGRAM – PRESSURE PROTECTION VALVE WITH INTEGRATED CHECK VALVE

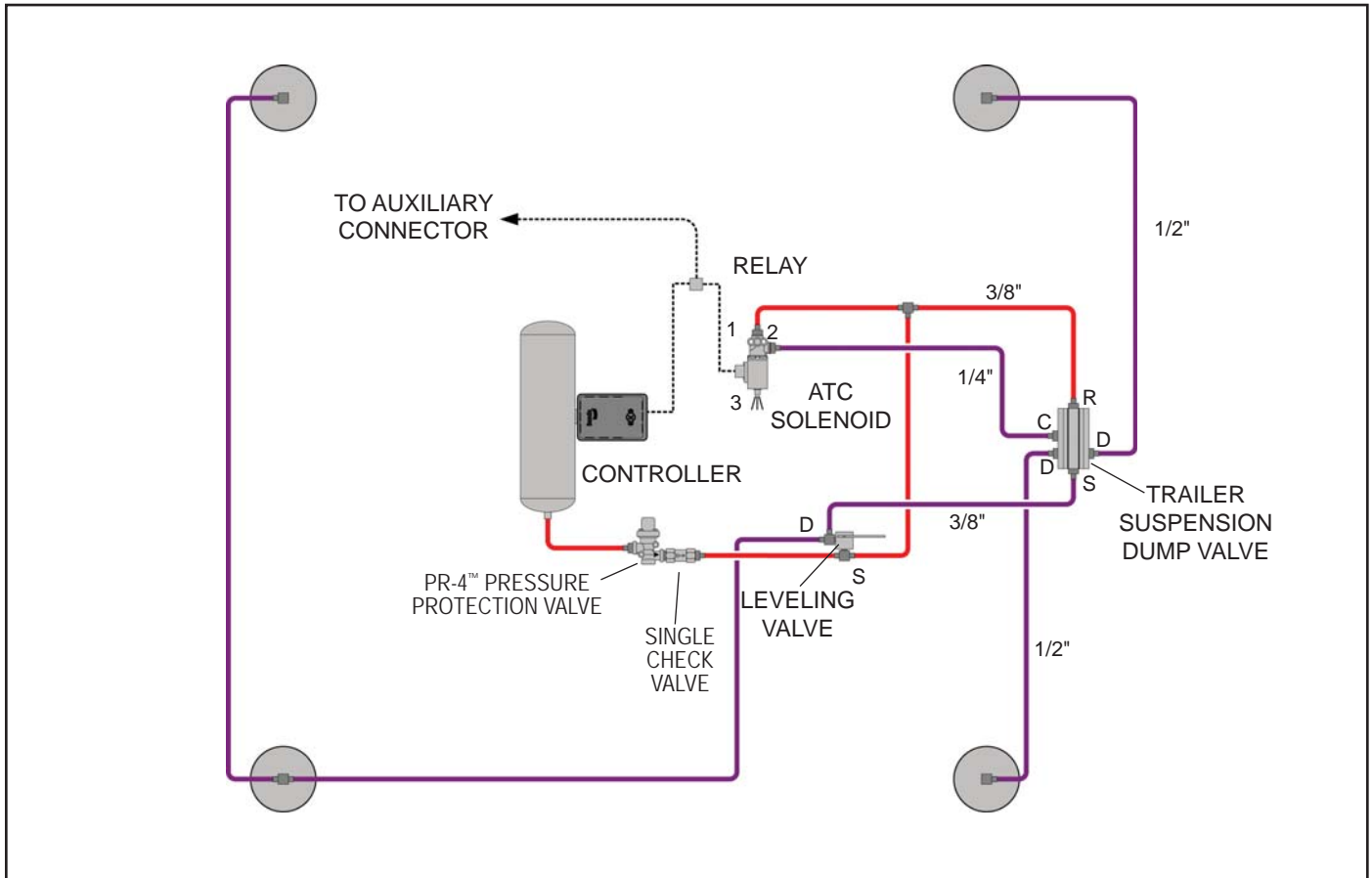


FIGURE 4 - SYSTEM DIAGRAM – PRESSURE PROTECTION VALVE WITHOUT INTEGRATED CHECK VALVE

SERVICE CHECKS

LEAKAGE

Build the system air pressure to governor cutout. Shut off the engine. Using a soap solution, check all lines and fittings leading to and from the SDS-9600™ trailer suspension dump valve for leakage and integrity. Repair any excessive leaks - exceeding a 1" bubble in 5 seconds - before restoring vehicle to service.

GENERAL

To properly check the functionality of the SDS-9600™ trailer suspension dump valve there must be 15-20 PSI minimum in the suspension air bags of the rear axle. Depending on the weight of the trailer, this may require disconnecting the forward axle from the air system. An empty trailer could yield as low as 8-10 PSI in the suspension, at which point the SDS-9600™ valve will not perform a noticeable dump function.

These instructions assume that the TABS-6 control module and ATC solenoid are working properly. For detailed troubleshooting of the electrical control circuit see service data sheet SD-13-4767.

LOADED TRAILER

Dump System Check

Drain all trailer air pressure before disconnecting any air lines. Install a pressure gauge with a "T" fitting into one of the delivery lines from the SDS-9600™ valve. Charge the trailer air system reservoir to 100-120 PSI. Confirm that there is at least 15-20 PSI of pressure in the rear axle air bags. Activate the dump feature on the trailer. The suspension air pressure should drop to 5 +/- 3 PSI, as shown on the gauge in the delivery circuit.

Dump Valve Stand Alone Check

Drain all trailer air pressure before disconnecting any air lines. Install a pressure gauge with a "T" fitting into one of the delivery lines from the SDS-9600™ valve. Disconnect the air line at the CON port of the SDS-9600™ valve. Charge the trailer air system reservoir to 100-120 PSI. Confirm that there is at least 15-20 PSI of pressure in the rear axle air bags. Charge the CON port with 100-120 PSI shop air (must be equal to RES pressure). The suspension air pressure should drop to 5 +/- 3 PSI, as shown on the gauge in the delivery circuit.

UNLOADED TRAILER

Dump System Check

Drain all trailer air pressure before disconnecting any air lines. Disconnect the lines to the forward air bags at the leveling valve. Plug the ports at the leveling valve. Install a pressure gauge with a "T" fitting into one of the delivery lines from the SDS-9600™ valve. Charge the trailer air system reservoir to 100-120 PSI. Confirm that there is at least 15-20 PSI of pressure in the rear axle air bags. Activate the dump feature on the trailer. The suspension

air pressure should drop to 5 +/- 3 PSI, as shown on the gauge in the delivery circuit.

Dump Valve Stand Alone Check

Drain all trailer air pressure before any air lines are disconnected. Disconnect the lines to the forward air bags at the leveling valve. Install a pressure gauge with a "T" fitting into one of the delivery lines from the SDS-9600™ valve. Disconnect the line at the CON port of the SDS-9600™ trailer suspension dump valve. Charge the trailer air system reservoir to 100-120 PSI. Confirm that there is at least 15-20 PSI of pressure in the rear axle air bags. Charge the CON port with 100-120 PSI shop air (must be equal to RES pressure). The suspension air pressure should drop to 5 +/- 3 PSI, as shown on the gauge in the delivery circuit.

BENCH TEST

Plug one delivery port of the SDS-9600™ trailer suspension dump valve. Attach the other delivery port to a 400 cu-in or larger reservoir, with a pressure gauge in the delivery line or in a separate reservoir port. Charge the SUP port to 20-80 PSI. Charge the RES port to 100-120 PSI. Confirm delivery pressure is equal to SUP pressure. Charge the CON port with 100-120 PSI (must be equal to the RES pressure). Valve should exhaust, and delivery should drop to 5 +/- 3 PSI.

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.
11. For vehicles with Antilock 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.

