Reservoirs

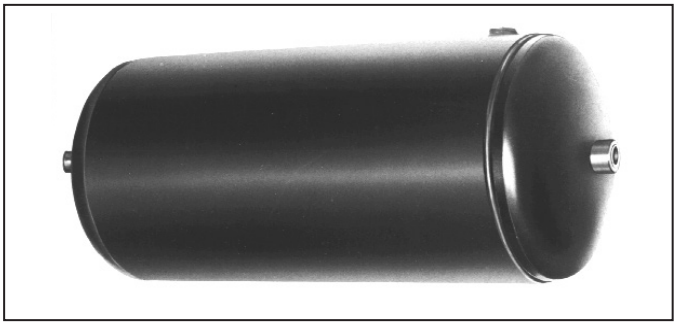

Figure 1 – Typical Single-Compartment Reservoir

DESCRIPTION

The reservoir is a storage tank; its function is to provide a volume of compressed air for braking which will be adequate in relation to the volume used by the brake chambers and auxiliary devices. If the vehicle is not equipped with an air dryer, reservoirs provide a location in the system where the air, heated by compression, may be cooled and the water vapor condensed.

Bendix® reservoirs are built in accordance with SAE Standard Air Brake Reservoir Test Code and Inspection Procedure SAE J-10-A. They are made from steel sheet, with stamped heads and rolled shells. The seams are electrically welded, and each reservoir is internally coated for corrosion resistance. Each reservoir is tested at 300 psi hydrostatic pressure.

Reservoirs are supplied in various pipe ferrule arrangements and lengths – and in diameters from 3-1/2" to 14" – having various volumes from approximately 100 cubic inches to 7600 cubic inches for tractors and trailers. All ferrules are tapped to SAE dry-seal pipe thread standards.

Reservoirs are also supplied in double- and triple-compartment configurations.

OPERATION

The reservoirs in an air brake system primarily serve to store energy in the form of compressed air. They also perform the less obvious function of providing a means of cooling the air as delivered from the compressor, and thereby condensing water vapor into a liquid, as well as collecting oil passed by the compressor. This water and oil collects as an emulsion; the greatest amount in the reservoir nearest the compressor. It should be drained off either manually or by means of an automatic drain device.

PREVENTIVE MAINTENANCE

Draining air system reservoirs daily is discouraged when powered vehicles are equipped with a properly functioning desiccant-type air dryer. Daily draining tends to saturate an air system (with a properly functioning air treatment system) on initial charge, and it also causes the system's air compressor to work unnecessarily, thus reducing its durability. *Refer to Chart 1 below for recommended reservoir draining and air dryer service intervals for powered vehicles.*

Air Usage	Typical Vehicle Vocation	Axles	Reservoir Drain Interval (whichever comes first)			Bendix® Standard Cartridge Replacement	PuraGuard® Oil Coalescing Cartridge Replacement*					Bendix® GC™ Green Cartridge Replacement
			Hours	Mileage	Time		AD-9®	AD-9si®	AD-IP®	AD-IS®	AD-SP®	
Standard	Line haul, city, delivery	5 or less	900	25,000	3 months	24 months	24 months or 200,000 miles					12 months
Medium	Double trailers, light transit, light off-highway	8 or less	450	12,000	2 months	18 months	18 months or 150,000 miles					12 months
High	Multiple trailers, city transit, heavy duty off-road	11 or less	300	6,000	1 month	12 months	12 months					6 months

Always follow the truck manufacturer's published service recommendations as they may require more frequent servicing.

Chart 1 – Reservoir Draining and Air Dryer Service Intervals

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.**
- ▲**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.**

INSTALLATION

Reservoirs should be securely mounted where they will be protected against outside damage so they will not vibrate or move during normal operation of the vehicle. A vibrating reservoir usually causes broken tubing lines.

They should be the low point in the air brake system and all lines connected to them should drain toward the reservoir.

The pipe tapped openings in the reservoir should not, under any circumstances, be reduced in size from original installation.

A drain cock or draining device must be installed in the bottom connection of every reservoir and, in the case of the two-compartment reservoir, in each compartment.

The first reservoir or first compartment must be protected by installing a safety valve.

MINOR REPAIRS

Minor repairs to the reservoir consist of examining the reservoir mounting and the inspection of the outside for corrosion or damage. The outside should be kept painted to prevent the possibility of corrosion causing a failure.

MAJOR REPAIRS

Repairs involving welding should never be performed on reservoirs. If a reservoir has been damaged so as to be unfit for use, it should be replaced with a new one.

In exceptional cases where the inside of a reservoir has become excessively coated with sludge which cannot be drained off, it is sometimes advisable to remove it and clean it with a solvent, steam, or water. If a solvent is used to clean the reservoir, the reservoir should be thoroughly aerated before reinstalling.