

operation & maintenance instruction

"24-C" DOUBLE CHECK VALVE PORTION, Pc. No. 561520

DECEMBER, 1990

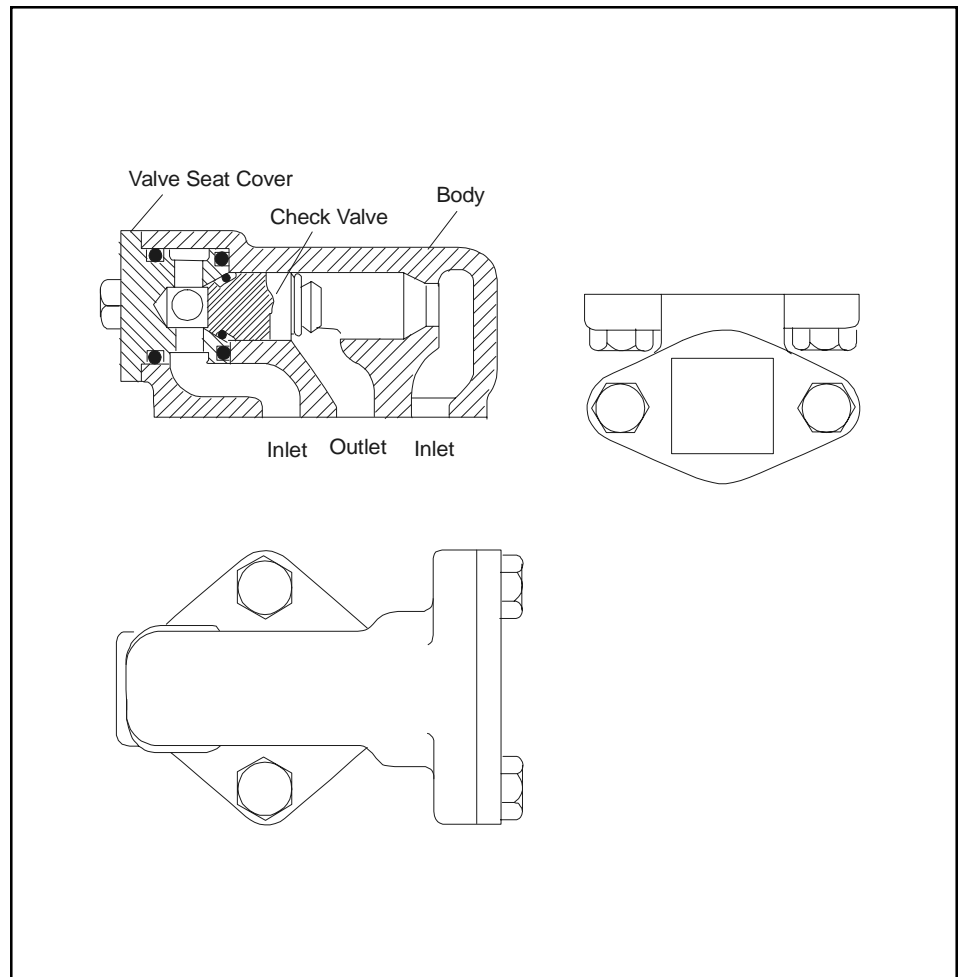
SUPERSEDES ISSUE DATED JUNE, 1986

NOTE: The following description and operation is based on this device and its components being new or this device and its components having been repaired, tested, installed and maintained in accordance with instructions issued by this and any other applicable Wabtec Corporation publications.

⚠ WARNING: At the time any part is replaced in this device, the operation of the complete device must pass a series of tests prescribed in the latest issue of the applicable Wabtec Test Specification. At the time this device is applied to the brake equipment arrangement, a stationary vehicle test must be made to insure that this device functions properly in the total brake equipment arrangement. (Consult your local Wabtec Representative for identity of the test specification, with latest revision date, that covers this device.)

IMPORTANT: Only Wabtec supplied parts are to be used in the repair of this device in order to obtain satisfactory operation. Commercially available non-O.E.M. parts are unacceptable.

NOTE: The part numbers and their associated descriptions are the property of Wabtec Corporation and may not be replicated in any manner or form without the prior sole written consent of an Officer of Wabtec Corporation.





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1.0 DESCRIPTION

This "24-C" Double Check Valve Portion functions to permit the flow of air to a device to be controlled by either of two other devices. It may be used in equipment arrangements where the air pressure does not exceed 150 psig and consists of a body which houses an integral floating check valve with o-ring seals and a valve seat cover, with o-ring seals. The valve seat cover is secured to the body by cap screws.

The "24-C" Double Check Valve Portion is designed to be mounted on a pipe bracket, manifold or an equipment rack in such a way that it can be removed for servicing or maintenance without disturbing the piping of the vehicle.

2.0 OPERATION (Figure 1)

The "24-C" Double Check Valve Portion functions to select the higher value inlet air pressure and directs the flow of this higher pressure to the outlet port. The higher inlet air pressure forces the check valve over to seal against its seat on the low pressure side. This closes the passage between the low pressure inlet port and the outlet port of the body. Air then flows from the high pressure port through the body and outlet port to the controlled device. Figure 1 shows the higher inlet pressure entering Inlet Port "B".

3.0 MAINTENANCE SCHEDULE

IMPORTANT: The "24-C" Double Check Valve Portion should be removed from the vehicle, taken to the shop, thoroughly disassembled, the parts cleaned, inspected and lubricated. The Portion is then to be assembled using **NEW** Wabtec Corporation rubber parts and other specified **NEW** Wabtec Corporation parts. The assembled Portion is then to be tested according to the following vehicle application schedule or more frequently if service conditions so dictate.

RECOMMENDED TYPE OF APPLICATION	FREQUENCY - AT LEAST ONCE EVERY
Locomotives	24 Months
Passenger (Interstate)	36 Months
Transit	24 Months

4.0 PARTS CATALOG AND REPLACEMENT PARTS INFORMATION

4.1 PARTS CATALOG

4.1.1 Refer to the Wabtec Corporation Parts Catalog 3216-24, S.3 when ordering replacement parts.

NOTE: The reference numbers in this publication and those used in the parts catalog may differ. Check the descriptive parts name to be sure that the desired part is ordered.

4.2 REPLACEMENT PARTS

4.2.1 **IMPORTANT:** To obtain satisfactory operation and reliability of this device, **ONLY** Wabtec Corporation replacement parts are to be used in the maintenance of this device.

5.0 SAFETY PROCEDURES & WARNINGS

Regular shop safety procedures **MUST BE** followed when working on the valve portion.

The work area is to be clean.

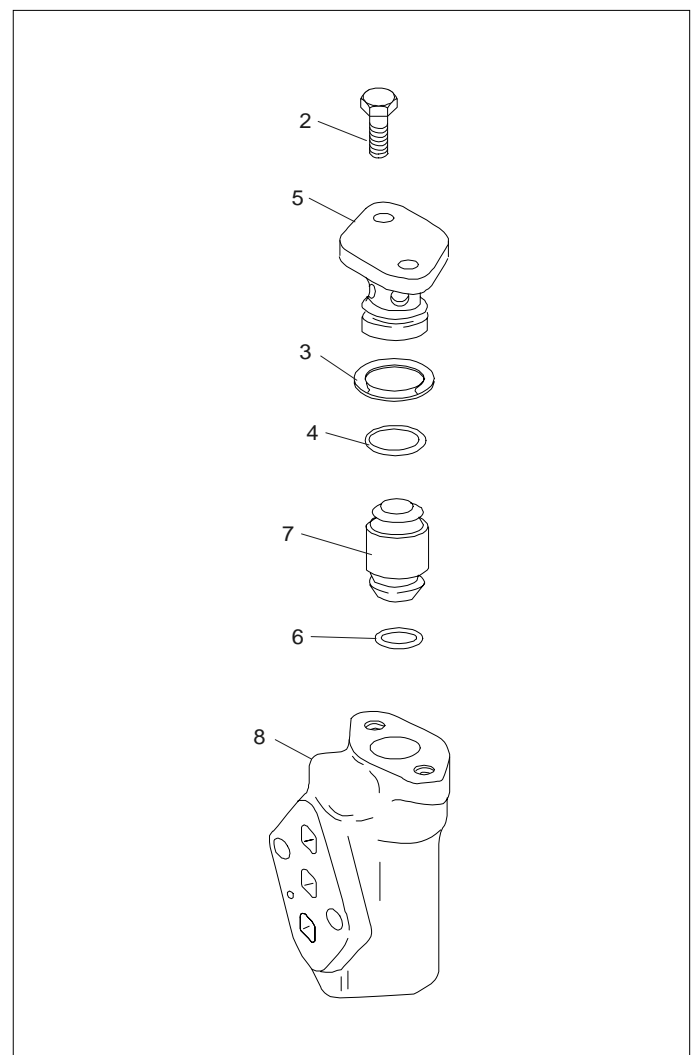


Figure 2 - Exploded View



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⚠ WARNING

The following statements of warning apply all or in part whenever the symbol ⚠ appears in the maintenance procedures. Failure to observe these precautions may result in serious injury to those performing the work and/or bystanders.

- The use of an air jet, which must be less than 30 p.s.i.g., to blow parts clean or to blow them dry after being cleaned with a solvent will cause particles of dirt and/or droplets of the cleaning solvent to be airborne. Wire brushing may also cause particles of dirt, rust, and scale to become airborne. These conditions may cause skin and/or eye irritation.
- When using an air jet, do not direct it toward another person. Improper use of air jet could result in bodily injury.
- Personal eye protection must be worn when performing any work on this device or its components parts to avoid any possible injury to the eyes.
- The use of solvents as cleaning agents and the use of lubricants can involve health and/or safety hazards. The manufacturers of the solvents and lubricants should be contacted for safety data (such as OSHA Form OSHA-20 or its equivalent). The recommended precautions and procedures of the manufacturers should be followed.
- When performing any test or work on devices or equipment while they are on the vehicle (on car test, etc.) special precautions must be taken to insure that vehicle movement will not occur which could result in injury to personnel and/or damage to equipment.
- Assembly may be under a spring load. Exercise caution during disassembly so that no parts "Fly Out" and cause bodily injury.
- All air supply and/or electric current to this device and/or to any components part must be cut-off before this device and/or any component part is removed from the equipment arrangement.
- "Bottled" up air under pressure (even though air supply is cut-off) may cause gaskets and/or particles of dirt to become airborne and an increase in sound level when this device and/or any component part is removed from the equipment arrangement.
- Personal eye and ear protection must be worn and care taken to avoid possible injury when performing any work on this device and/or component part.
- To prevent receiving electrical shock when perform-

ing electrical tests, hands must be clear of electrical components, contacts and housing and there must be no bodily contact with the work bench. Failure to heed this warning could result in severe injury or death.

6.0 CLEANING SOLVENT & LUBRICANT

6.1 The solvent used for cleaning the metal parts of the "24-C" Double Check Valve Portion in a well vented area, **MUST BE** an aliphatic organic solution, such as mineral spirits or naphtha, that will dissolve oil or grease and that will permit all of the parts to be cleaned without abrasion.

6.2 Number 2 Silicone Grease, Wabtec Corporation Specification M-7680-2, (Industry Designation MIL-G-4343) such as Dow Corning Corporation, Dow Corning 55, is required for the lubrication of specified o-rings and o-ring grooves.

7.0 MAINTENANCE PROCEDURES (Figure 2)

IMPORTANT: During the procedures which follow, **DO NOT** use hard or sharp metal tools to remove o-rings. Exercise care so that no damage occurs to metal parts.

⚠ 7.1 DISASSEMBLY

7.1.1 If the mounting gasket is adhering to the body (8), it is to be removed and **SCRAPPED**. This gasket is not a part of the "24-C" Double Check Valve Portion. **A NEW** mounting gasket **MUST BE** used when installing the "24-C" Double Check Valve Portion in an equipment arrangement. Mounting gasket, Part No. 560790, is supplied in the Rubber Parts Kit, Part No. 589791 for the "24-C" Double Check Valve Portion.

7.1.2 Remove the two $\frac{5}{16}$ " x $\frac{3}{4}$ " hex head cap screws (2) which secure the cover-check valve seat assembly (3, 4, 5) to the body (8).

7.1.3 Remove the cover-check valve seat assembly (3, 4, 5) from the body (8).

7.1.4 Remove and SCRAP the $\frac{11}{8}$ " O.D. o-ring (4) and the $\frac{11}{4}$ " O.D. o-ring (3) from the cover-check valve seat (5).

7.1.5 Dislodge the check valve with o-ring assembly (6, 7) by turning the body (8) upright and shaking.

7.1.6 Remove the check valve with o-ring assembly (6, 7) from the body (8).

7.1.7 Remove and SCRAP the two $\frac{5}{8}$ " O.D. o-rings (6) from the check valve (7).



⚠ 7.2 CLEANING & INSPECTING

7.2.1 O-RINGS

ALL o-rings are to be **SCRAPPED** and replaced with NEW Wabtec Corporation Parts.

A "24-C" Double Check Valve Rubber Parts Maintenance Kit, which includes o-rings (3, 4, 6) and a body gasket Part No. 560790, to be used when mounting the Check Valve Portion, may be obtained by ordering Part No. 589791.

7.2.2 METAL PARTS

IMPORTANT: Cleaning solvents are to be used in a well ventilated area.

7.2.2.1 Wash all of the metal parts in the cleaning solvent described in Section 6.1.

Use a clean lint free cloth or rag, which has been saturated with the cleaning solvent to clean the interior surfaces of the body.

7.2.2.2 After the metal parts are cleaned, they **MUST BE** blown completely dry using a low pressure jet of clean dry air.

7.2.2.3 Inspect the check valve. If wear is observed at the center or on either end, the check valve is to be replaced with a NEW Wabtec Corporation Part.

7.2.2.4 Visually inspect the body and the body bore. The body bore should be free of scratches, nicks and wear. If nicks, scratches and/or wear are observed, **SCRAP** the body and replace it with a NEW Wabtec Corporation part.

7.2.2.5 Inspect the remaining parts. Replace any part that is cracked, cut, broken, excessively worn, or that is in such a condition that may result in the unsatisfactory operation of the "24-C" Double Check Valve Portion.

⚠ 7.3 ASSEMBLY (Figure 2)

7.3.1 Install two NEW DRY (unlubricated) $\frac{5}{8}$ " O.D. o-rings (6) into their groove on the check valve (7).

7.3.2 Insert the check valve assembly (6, 7) into the unlubricated bore of the body (8).

IMPORTANT: NO lubricant is to be used on the check valve or its o-rings.

7.3.3 Apply a **light** coating of Number 2 Silicone Grease, Wabtec Corporation Specification M-7680-2, to the surfaces of a NEW $1\frac{1}{4}$ " O.D. o-ring (3) and a NEW $1\frac{1}{8}$ " O.D. o-ring (4). Also fill the o-ring grooves of the cover - check valve seat (5) with the lubricant.

7.3.4 Install a NEW lubricated $1\frac{1}{4}$ " O.D. o-ring (3) and a NEW $1\frac{1}{8}$ " O.D. o-ring (4) in their grooves in the cover-check valve seat (5). Remove any excess lubricant by wiping with a soft, clean, lint-free cloth.

7.3.5 Insert the cover-check valve seat (5) in place in the body (8) so that the holes of the cover line up with the holes of the body.

7.3.6 Secure the cover-check valve seat (5) to the body (8) with two $\frac{5}{16}$ " x $\frac{3}{4}$ " hex head cap screws (2). Equally tighten the screws.

8.0 TESTING & ADDITIONAL INFORMATION

8.1 After the "24-C" Double Check Valve Portion, Part No. 561520, has been assembled, **BUT BEFORE** it is returned to service, it **MUST PASS** a series of tests following the procedure of the current issue of the Wabtec Corporation Test Specification T-2503-O.

8.2 **IMPORTANT:** Whenever the "24-C" Double Check Valve Portion is removed from the equipment arrangement for any reason, and it is re-installed or replaced with a NEW or repaired Portion that has passed the procedures of the current Test Specification T-2503-O, a NEW body gasket (mounting gasket) **MUST BE** used. This gasket is **NOT** a part of the Check Valve Portion BUT will be a part of the complete device of which the Check Valve Portion is a component, i.e. Operating Unit. This gasket Part No. 560790 is included in the Rubber Parts Maintenance Kit, Part No. 589791.

8.3 **IMPORTANT:** Whenever the "24-C" Double Check Valve Portion is removed from an equipment arrangement for any reason and it is re-installed or replaced with a NEW or repaired Portion that has passed the procedures of the current Test Specification T-2503-O, a stationary vehicle air brake test **MUST BE** made to be sure that the Portion functions properly in the total brake equipment arrangement.

8.4 Consult your Wabtec Corporation Representative if additional information is required.

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