

operation & maintenance instruction

1" COMBINED DIRT COLLECTOR & DYNABALL CUT-OUT COCK PORTION, Pc.No. 577071

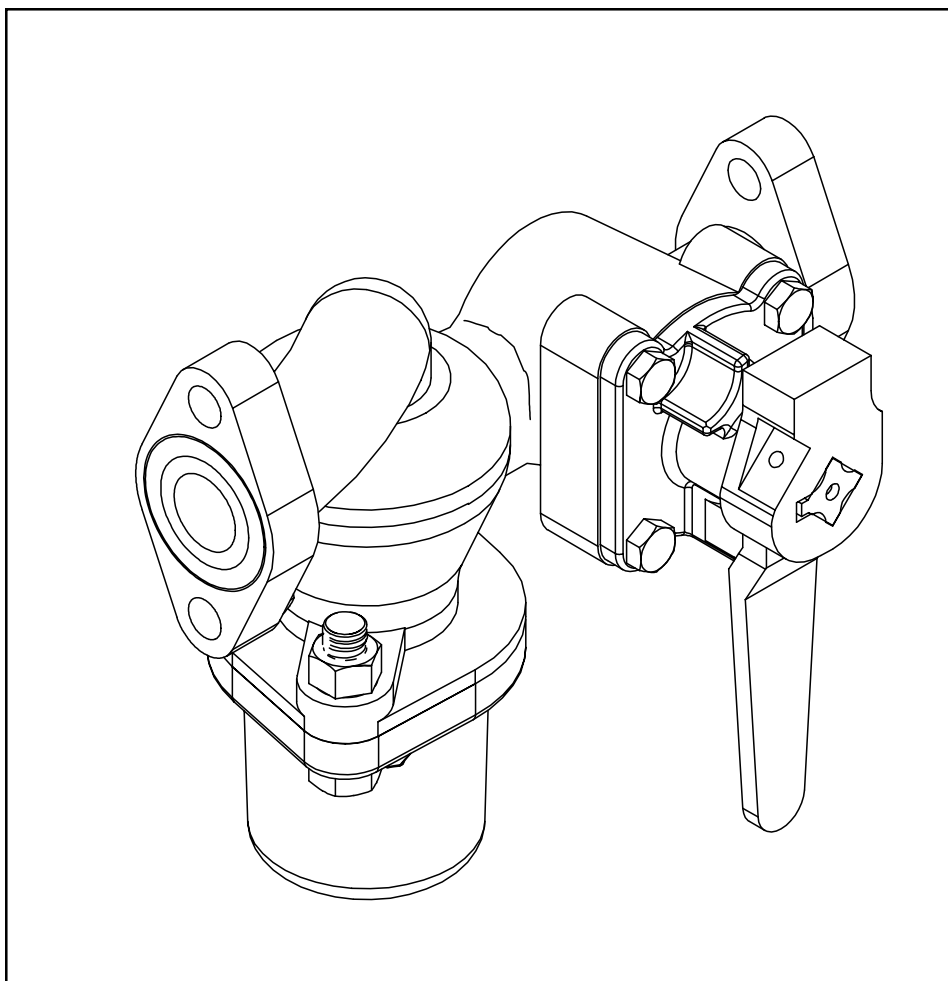
JUNE, 1986

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.





1.0 DESCRIPTION

Designed for use in equipment arrangements where the air pressure does not exceed 150 psig, the 1" Combined Dirt Collector and DYNABALL Cut-Out Cock Portion functions to assist in preventing dirt, which may be carried by air from the brake pipe, from entering the air line, device, or Unit on which it is mounted. This Portion consists of a DYNABALL Cut-Out Cock, used to open or close communication between the piping and the Portion, a removable Dirt Chamber, in which dirt particles are collected, and a Body.

Two 1" Flanges are provided on the body for pipe connections. Air flow through the Portion is indicated by an arrow which is cast on the body.

2.0 OPERATION

(Figure 2)

Air entering the Portion is directed into the swirl chamber where it reacts to the sudden increase in volume and creates a centrifugal action.

This centrifugal (swirling) action of the air suspends dirt particles in the swirl chamber until the air velocity is reduced considerably. The dirt particles then fall past the umbrella shaped check valve and into the dirt chamber. The umbrella shaped check valve is installed on the valve stem of the dirt chamber so that a rocking motion is permitted. This allows any fine dirt which may be collected on the top of the check valve to be shaken off into the dirt chamber.

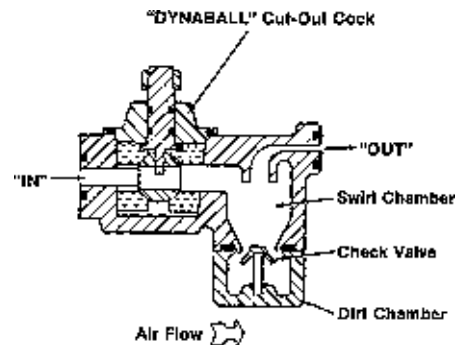
When a heavy reduction of air above the check valve occurs, the umbrella shape of this valve prevents dirt particles from entering the air flow path.

3.0 MAINTENANCE SCHEDULE

3.1 ON CAR

IMPORTANT: At least ONCE EVERY SIX (6) MONTHS, or more frequently if service conditions so indicate, the dirt chamber is to be removed, emptied of all dirt, the interior surfaces cleaned and the check valve inspected for damage, then the parts replaced in reverse order of removal. ALL safety procedures of the operating property and those listed in Section 5.0 are to be followed. ALL AIR SUPPLY to the Dirt Collector MUST BE cut off.

The dirt chamber is secured to the body with two 1/2" hex. nuts and two 1/2" x 1 7/8" special hex head screws. Be sure



This diagrammatic representation is for functional analysis only. It is not to be used as an actual physical representation of portion or pipe bracket configurations.

that the dirt chamber gasket is properly seated and not damaged.

3.2 IN-SHOP

IMPORTANT: The 1" Combined Dirt Collector and DYNABALL Cut-Out Cock Portion should be removed from the equipment arrangement, taken to the shop, be completely disassembled, the parts cleaned, inspected, lubricated, assembled, and the Portion tested for correct operation according to the following vehicle application schedule, or more frequently if service conditions so indicate.

RECOMMENDED TYPE OF APPLICATION	FREQUENCY - AT LEAST ONCE EVERY
Freight Cars	144 Months
Locomotives	24 Months
Passenger (Interstate)	36 Months

4.0 PARTS CATALOG INFORMATION

When ordering replacement parts for Pc.No. 577071, refer to the current issue of the Wabtec Corporation Parts Catalog 3216-2, S.1.

NOTE: The reference numbers used 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 obtained.




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5.0 SAFETY PROCEDURES AND WARNINGS

Regular owner-operating property and shop safety procedures are to be followed.

The work area is to be clean.

WARNING

The following statements of warning apply all or in part wherever 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.
- To prevent receiving electrical shock when performing electrical tests, hands must be clear of electrical components, contacts and housing and the required "in-lab" grounding procedures must be strictly adhered to. A wooden work bench should be used. Failure to heed this WARNING could result in severe injury or death.
- An adequate support or lifting device must be available to support the Device and/or Valve Portion(s) during removal, installation and maintenance procedures.

6.0 CLEANING SOLVENT & LUBRICANT

6.1 The solvent used for cleaning the parts of the Portion MUST BE an aliphatic organic solution, such as naphtha or mineral spirits, that will dissolve oil or grease and that will permit all parts to be cleaned without abrasion.

6.2 #2 Silicone Grease, Wabtec Corporation Specification M-7680-2, is required for the lubrication of "D" ring seals, the ring grooves of the cock key, and the outer sealing surfaces of the ball seats.

7.0 SPECIAL TOOLS

In addition to the regular shop tools, the following MUST BE available when working on the 1" Combined Dirt Collector and DYNABALL Cut-Out Cock Portion.

7.1 A 1/8" drift punch.

7.2 A Hook Type Tool, which is used to assist in the removal of the "ball".

7.3 A vise equipped with jaw protectors (keepers) so as to protect the device being held.

7.4 A small clean brush to be used to apply lubricant to body cavity.

8.0 MAINTENANCE PROCEDURE

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



During the procedures which follow, DO NOT use hard or sharp metal tools to remove seals, rings, or gaskets. Care MUST BE exercised so that NO damage occurs to the metal parts. The "Ball" is coated with a special self-lubricating material. Extreme care MUST BE used when handling the ball to prevent chipping or scratching of its surfaces.

⚠ 8.1 DISASSEMBLY

(Figure 3)

8.1.1 Remove the four $\frac{3}{8}$ " x $\frac{7}{8}$ " hex head cap screws (8) which secure the handle - cover - key assembly (6, 7, 9 to 13) to the body (16).

8.1.2 Remove the handle - cover - key assembly (6, 7, 9 to 13). Set this unit aside for later disassembly.

8.1.3 Insert a suitable "hook type" tool in the slot opening of the cock ball (15). CAREFULLY pull the ball (15) and the two rubber ball seats (14) from the body (16) at the same time. Be sure that the surfaces of the ball are not scratched or nicked. Remove and SCRAP the two ball seats (14).

8.1.4 Remove the dirt chamber (5) from the body (16) by first removing the two $\frac{1}{2}$ " hex nuts (1) and the two $\frac{1}{2}$ " x $1\frac{7}{8}$ " special hex head screws (2) that secure the parts together.

8.1.5 Remove and SCRAP the dirt chamber gasket (3).

8.1.6 Remove the check valve (4) from its post in the dirt chamber (5).

IMPORTANT: Inspect the check valve (4); if it is made of aluminum it is to be SCRAPPED and replaced with a NEW brass or high temperature plastic check valve. Refer to parts catalog listed in Section 4.0 for the check valve part number.

8.1.7 **IMPORTANT:** Care MUST BE exercised during the procedures which follow to prevent damage to or bending of the cock key (13).

8.1.8 Remove and SCRAP the cover gasket (10) from the handle - cover - key assembly (6, 7, 9 to 13).

8.1.9 Place the handle - cover - key assembly into a jaw protected vise in such a way that the handle is held by the vise. Be sure that the handle pin (6) can be seen and is "clear" to be removed.

8.1.10 Using a $\frac{1}{8}$ " drift punch, CAREFULLY drift the $\frac{3}{16}$ " x $1\frac{7}{8}$ " pin (6) from the handle (7) and cock key (13).

SCRAP the pin (6).

8.1.11 Remove the handle - cover - key assembly from the vise.

8.1.12 Using care, remove the handle (7) from the cock key (13).

NOTE: The handle is fitted to the key with a light press.

8.1.13 Separate the cover (9) from the key assembly (11, 12, 13).

8.1.14 Remove and SCRAP the two "D"-ring seals (12) and the bearing washer (11) from the cock key (13).

⚠ 8.2 CLEANING & INSPECTING

8.2.1 NON-REUSABLE PARTS

ALL "D" ring seals, gaskets, ball seats, the bearing washer and the cock key handle pin are to be SCRAPPED and replaced with NEW Wabtec Corporation parts.

If the check valve (4) is made of aluminum it is to be SCRAPPED and replaced with a NEW check valve made of brass or high temperature plastic; refer to current issue of the parts catalog listed in Section 4.0 for correct part number.

8.2.2 COCK BALL

8.2.2.1 **IMPORTANT:** The cock ball MUST BE handled with care as it is coated with a special self-lubricating material which, if mistreated, could possibly be chipped or scratched off. UNDER NO CONDITIONS should any abrasive material or any tool be used to clean the ball.

8.2.2.2 Using a clean, soft, lint-free cloth that has been saturated with the cleaning solvent described in Section 6.1, clean the interior and exterior surfaces of the ball.

8.2.2.3 After the ball is cleaned, blow it completely dry using a low pressure jet of clean, dry air.

8.2.2.4 Inspect the ball. It is to be replaced if it is nicked or scratched, or if the spherical surface is pitted or worn to base metal at any point.

8.2.3 REMAINING PARTS

8.2.3.1 Wash ALL of the remaining parts in the cleaning solvent described in Section 6.1.

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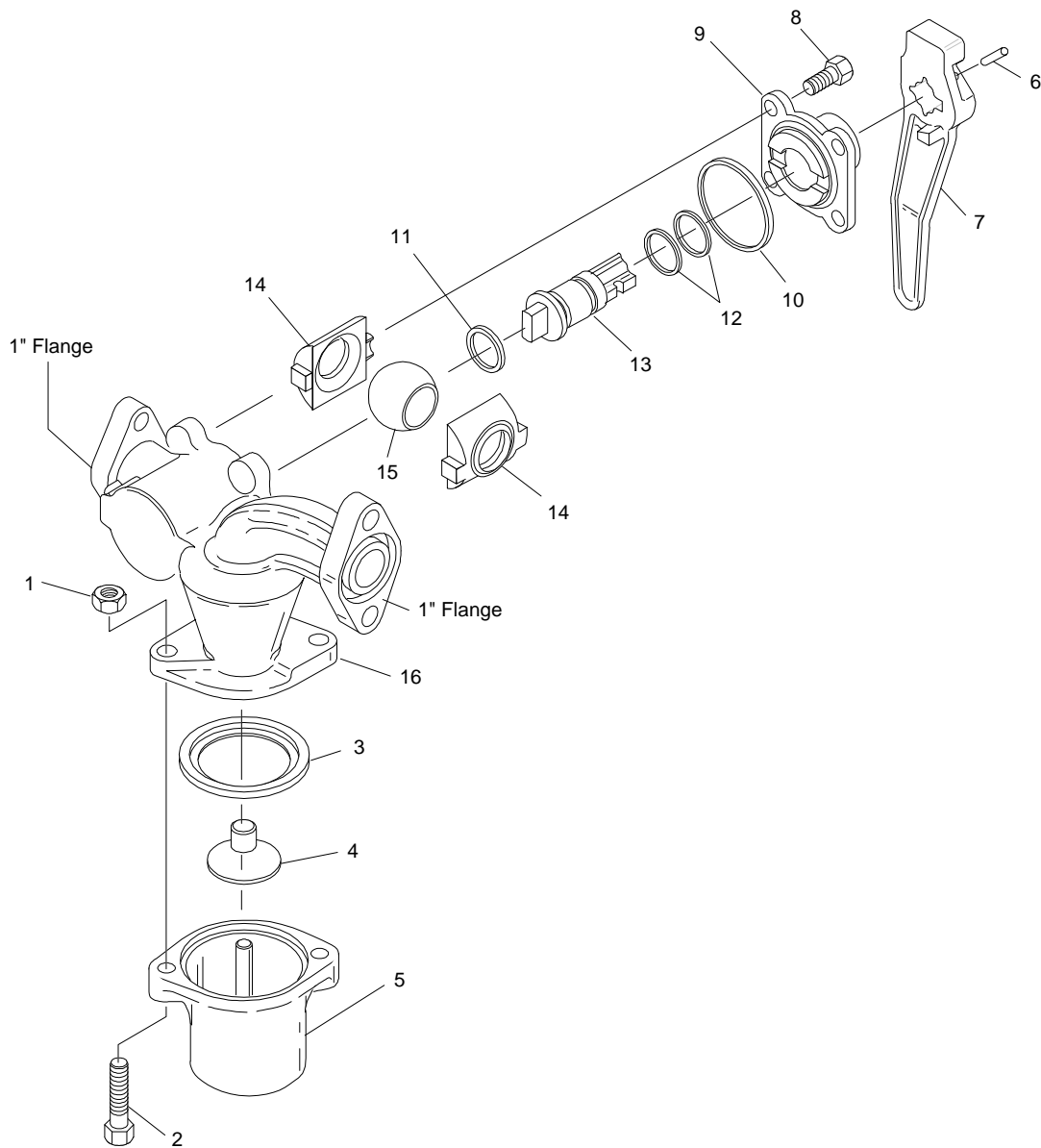


Figure 3 - Exploded View



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8.2.3.2 After cleaning, all parts **MUST BE** completely dried. Use a low pressure jet of clean, dry air to blow the parts dry.

8.2.3.3 Inspect the cock key. The key is to be **SCRAPPED** and replaced with a **NEW** key if it is cracked, broken, nicked, bent, deformed, excessively worn, corroded, or if it is in such a condition that may result in the unsatisfactory operation of the portion.

8.2.3.4 Inspect all remaining parts. Replace any part that cracked, cut, broken, excessively worn, damaged in any way or that is in such a condition that may result in the unsatisfactory operation of the Portion.

8.3 ASSEMBLY

8.3.1 Install a **NEW** bearing washer (11) in place on the lower shoulder of the cock key (13).

8.3.2 Using #2 Silicone Grease, Wabtec Corporation Specification M-7680-2, coat the surfaces of two **NEW** "D" ring seals (12). Also fill the ring grooves of the cock key (13) with the lubricant.

8.3.3 Install the two **NEW** lubricated "D" ring seals (12) into their grooves on the cock key (13).

Excess lubricant may be removed by wiping with a clean, dry, lint-free cloth or rag.

8.3.4 Install the cock key assembly (11, 12, 13) into the cover (9) so that the handle end of the cock key (13) enters the bore in the cover (9) from the guide of the cover that has the gasket groove.

8.3.4.1 Position the cock key (13) in the cover (9) so that the tang of the key's handle shaft is directed away from the rib which extends to the flat side of the cover.

8.3.5 Install the handle (7) on the cock key (13) as follows:

8.3.5.1 Turn the handle (7) so that the lug on the bottom of the handle faces the top (the side without the gasket ring groove) of the cover.

8.3.5.2 Align the tang slot in the hole of the handle with the tang on the handle shaft of the cock (13) and place the handle (7) on the key (13).

8.3.5.3 **NOTE:** The handle and key are designed to mate with a slight interface fit.

Force the handle (7) down onto the cock key (13) until the upper face of the handle (7) is flush with the top end of the handle shaft of the cock key (13).

8.3.6 Place the key - cover - handle assembly (7, 9, 11 to 13) into a jaw protected vise so that the vise clamps on the handle. Be sure that the flat area on the side of the handle faces upward.

IMPORTANT: If a **NEW** handle and/or a **NEW** key is being used, proceed with step 8.3.7.

If the original parts are being reassembled go to step 8.3.9.

8.3.7 **NOTE:** This procedure is for **NEW** keys or handles only.

Using the pilot hole found in the flat area on the side of the handle (7) as a guide, drill a hole completely through the handle (7) and the cock key (13) with a #10 drill. Be sure that the hole is drilled completely through both sides of the handle.

8.3.8 **IMPORTANT:** Visually inspect the cock key (13) to be sure that there are no particles of metal imbedded in the lubricant on the key.

8.3.9 Insert the straight end of a **NEW** $\frac{3}{16}$ " x $1\frac{7}{8}$ " handle pin (6) into the drilled hole in the flat area on the side of the handle (7).

8.3.10 Force the handle pin (6) into the hole of the handle (7) and through the cock key (13) until the pin contacts the flat on the side of the handle.

8.3.11 Remove the assembly from the vise.

Place the head of the handle pin (6) against the anvil of the vise and then peen the straight end of the pin (6) to prevent the handle (7) from becoming loose on the shaft of the key (13).

8.3.12 Apply a light coating of #2 Silicone Grease, Wabtec Corporation Specification M-7680-2, to the ball cavity of body (16). Use a small clean brush to apply the lubricant.

Apply a light coating of #2 Silicone Grease, Wabtec Corporation Specification M-7680-2, to **ALL** surfaces of two **NEW** ball seats (14).

8.3.13 Place a dry, unlubricated cock ball (15) between the two **NEW** ball seats (14). Position the ball seat - cock ball assembly (14, 15) so that the lugs of the ball seats are



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aligned with the lug grooves in the cavity of the body (16), then insert the ball seat - cock ball assembly (14, 15) into the body (19) as a unit. Be sure that the slot opening on the top of the ball is positioned to accept the tongue of the key.

8.3.14 Install a NEW cover gasket (10) on the cover (9).

8.3.15 Install the key - cover - handle assembly on the body as follows:

8.3.15.1 Properly position the key (13) so that the tongue of the key (13) fits into the key slot of the cock ball (15), and then place the cover (9) against the body (16). Be sure that the cover gasket (10) has remained in proper position and that the four bolt holes of the cover (9) are aligned with the bolt holes of the body (16).

8.3.15.2 Install a $\frac{3}{8}$ " x $\frac{7}{8}$ " hex. head cap screw (8) into each of the four aligned bolt holes of the cover (9) and body (16). Equally tighten the screws.

8.3.16 Install the check valve (4) on the check valve stem of the dirt chamber (5).

8.3.17 Install a NEW dirt chamber gasket (3) into its groove on the mounting face of the dirt chamber (5).

8.3.18 Install the dirt chamber assembly (3, 4, 5) in place on the body (16) so that the two bolt holes of the dirt chamber are aligned with the holes of the body (16).

8.3.19 Install a $\frac{1}{2}$ " x $\frac{17}{8}$ " special hex head screw (2) through each of the aligned holes so that the head of each screw faces the bottom of the dirt chamber. Secure the parts by installing a $\frac{1}{2}$ " hex nut (1) on each of the screws (2). Equally tighten the nuts.

8.4 TESTING & ADDITIONAL INFORMATION

8.4.1 **IMPORTANT:** After the 1" Combined Dirt Collector and DYNABALL Cut-Out Cock Portion is 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-3753-O.

8.4.2 **IMPORTANT:** Whenever the 1" Combined Dirt Collector and DYNABALL Cut-Out Cock Portion is removed from an equipment arrangement for any reason, and it is reinstalled or replaced with a NEW or repaired and tested Portion, NEW flange mounting gaskets MUST BE used. These gaskets, Pc.No. 93986, ARE NOT a part of the Portion and MUST BE ordered as individual items.

8.4.3 **IMPORTANT:** Whenever the 1" Combined Dirt Collector and DYNABALL Cut-Out Cock Portion or any component part is removed from an equipment arrangement for any reason, and the Portion or component part is reinstalled or replaced with a NEW or repaired and tested Portion or component part, a stationary vehicle test MUST BE made to be sure that the Portion functions properly in the equipment arrangement.

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

