

operation & maintenance instruction

1" COMBINED "DYNABALL" CUT-OUT COCK AND STRAINER (With DIRT COLLECTOR) Pc.No. 586393

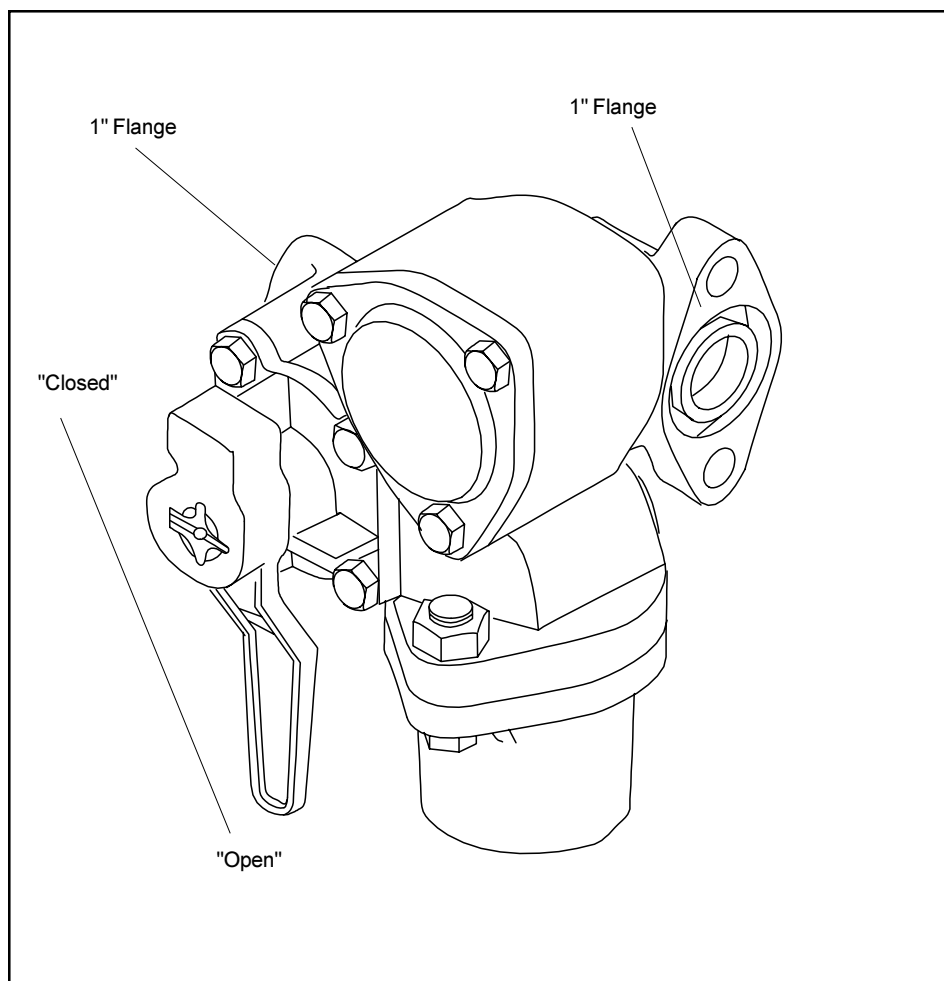
AUGUST, 1989

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.

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1.0 DESCRIPTION

Designed for use in equipment arrangements where the air pressure does not exceed 150 psig, the 1" Combined "DYNABALL" Cut-Out Cock and Strainer (with Dirt Collector), Pc.No. 586393 functions to assist in preventing dirt particles and moisture which may be carried by compressed air from entering the air line, device, or Unit to/on which, the Cut-Out Cock and Strainer is mounted.

This 1" Combined Cut-Out Cock and Strainer consists of a "DYNABALL" Cut-Out Cock, a replaceable (disposable type) Air Strainer, and a Dirt Chamber (dirt collector) which are housed within or mounted to a common Body. The "DYNABALL" Cut-Out Cock is used to open or close communication between equipment piping and devices. The Dirt Chamber is used to collect and hold particles of dirt and moisture, and the replaceable Air Strainer, filters the air before it exits the Body.

Two 1" Flanges are provided on the Body for pipe connections. A ring gasket groove is provided in the delivery flange.

IMPORTANT: In order for the 1" Combined "DYNABALL" Cut-Out Cock and Strainer, Pc.No. 586393, to function as intended, it is to be installed in an equipment arrangement so that the Dirt Chamber is located on the bottom, as illustrated in Figure 1, and that the air flow, from a supply source, through the Body is in the direction of the arrow which is cast on the Body.

2.0 OPERATION (Figure 2)

With the handle manually positioned in the "OPEN" position, air under pressure entering the "IN" port of the Body is directed into the central chamber where the heavier dirt particles and moisture fall past the umbrella shaped check valve into the dirt chamber.

The flow of air is directed through the air strainer which assists in removing small dust particles from the air stream.

When a heavy reduction of air pressure occurs above the check valve, the check valve will seat against the machined seat of the body cutting off the dirt chamber. Air flow between the "IN" port and the delivery ("OUT") port is not effected.

The umbrella shaped check valve of the Cut-Out Cock and Strainer is installed on the valve stem of the dirt chamber so that a rocking motion is permitted. This design allows any fine dirt which may be collected on the top surfaces of the check valve to be shaken off into the dirt chamber.

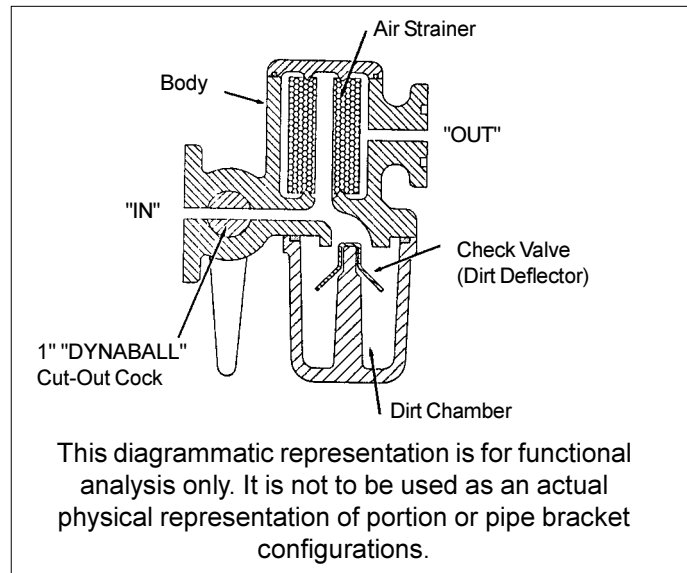


Figure 2 - Diagrammatic View

IMPORTANT: The handle **MUST BE** placed in the **FULL OPEN** or **FULL CLOSED** positions to prevent distortion of the ball seats.

3.0 MAINTENANCE SCHEDULE

3.1 SIX MONTH "ON-CAR"

IMPORTANT: At least **ONCE** every six months, or more frequently if service conditions so indicate, the following maintenance procedures should be performed on the 1" Combined "DYNABALL" Cut-Out Cock and Strainer.

3.1.1 PARTS REQUIRED

3.1.1.1 A NEW dirt chamber mounting gasket, Pc.No. 75932.

3.1.1.2 A NEW strainer cover gasket, Pc.No. 532616.

3.1.1.3 A NEW air strainer, Pc.No. 569146.

⚠ 3.1.2 "ON-CAR" MAINTENANCE PROCEDURE

3.1.2.1 IMPORTANT: ALL car builder, owner - operating property safety procedures and the safety procedures listed in Section 5.0 of this publication are to be adhered to.

3.1.2.2 Chock the vehicle wheels and apply hand brake(s)



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to prevent any unintentional movement.

3.1.2.3 Suitable warning placards indicating that work is being performed **are to be** placed on and about the vehicle.

3.1.2.4 **ALL** air supply to the 1" Combined Cut- Out Cock and Strainer **is to be cut-off and all air depleted from the device.**

3.1.2.5 Remove **ALL** free dirt from the exterior surfaces of the 1" Combined Cut-Out Cock and Strainer by wiping with a clean, dry, lint-free cloth.

(Figure 3)

3.1.2.6 Remove the three $\frac{3}{8}$ " x 1" hex head cap screws (1) which secure the strainer cover (2) and cover gasket (3) to the body (20), then remove the cover (2) with cover gasket (3).

3.1.2.7 Remove and SCRAP the cover gasket (3) from its groove in the cover (2).

3.1.2.8 Remove and SCRAP the air strainer (4).

3.1.2.9 Carefully wipe the cover (2) clean with a clean, dry, lint-free cloth.

3.1.2.10 Install a NEW cover gasket, Pc.No. 532616 (3) into its groove in the cover (2).

3.1.2.11 Install a NEW air strainer (4) in place in the body. Air Strainer Pc. No. is 569146.

3.1.2.12 Place the strainer cover (2) with gasket (3) sub-assembly on the body (20) and secure it in place by installing the three $\frac{3}{8}$ " x 1" hex head cap screws (1). Equally tighten the screws (1).

3.1.2.13 Remove the dirt chamber (9) and dirt chamber mounting gasket (7) from the body (20) by first removing the two $\frac{1}{2}$ " hex nuts (5) and the two $\frac{1}{2}$ " x $1\frac{7}{8}$ " hex head bolts (6).

3.1.2.14 Remove and SCRAP the dirt chamber mounting gasket (7).

3.1.2.15 Carefully remove the check valve (8) from the check valve stem of the dirt chamber (9).

3.1.2.15.1 Remove all collected dirt and moisture from the dirt chamber (9). Wipe the chamber (9) clean with a clean,

dry, lint-free cloth.

3.1.2.15.2 Carefully wipe the check valve clean with a clean, dry, lint-free cloth.

3.1.2.16 Install the cleaned check valve (8) on the check valve stem of the dirt chamber (9).

3.1.2.17 Install a NEW dirt chamber mounting gasket (7) in place in the dirt chamber (9).

3.1.2.18 Place the dirt chamber (9) with check valve (8) and gasket (7) sub-assembly on the body (20) and secure it in position by installing the two $\frac{1}{2}$ " x $1\frac{7}{8}$ " hex head bolts (6) and $\frac{1}{2}$ " hex nuts (5). Equally tighten the nuts (5).

3.1.2.19 IMPORTANT: After the re-assembly procedure is completed, a soap suds test is to be made to be sure that there is no air leakage at the strainer cover and/or dirt chamber mounting areas.

3.1.2.20 IMPORTANT: Whenever any work is performed on the 1" Combined "DYNABALL" Cut-Out Cock and Strainer, or whenever the 1" Combined "DYNABALL" Cut-Out Cock and Strainer is removed from an equipment arrangement for any reason and it is re-installed or replaced with a NEW or repaired and tested 1" Combined "DYNABALL" Cut-Out Cock and Strainer, a stationary vehicle test MUST BE performed to be sure that the 1" Combined Cut-Out Cock and Strainer functions properly in the total equipment arrangement.

3.1.2.21 IMPORTANT: Whenever the 1" Combined "DYNABALL" Cut-Out Cock and Strainer is removed from an equipment arrangement for any reason and it is reinstalled or replaced with a NEW or repaired and tested Cut-Out Cock and Strainer, car builder and/or owner - operating property procedures are to be followed.

ALL car builder, owner - operating property safety procedures and the warnings and safety procedures of Section 5.0 of this publication are to be adhered to.

3.1.2.22 IMPORTANT: When installing a NEW or repaired and tested 1" Combined "DYNABALL" Cut-Out Cock and Strainer, Pc.No. 586393, a NEW 1" O.D. ring gasket, Pc.No. 93986, is to be installed in the ring groove of the delivery port flange.

NOTE: The 1" O.D. ring gasket, Pc.No. 93986 IS NOT a part of the 1" Combined "DYNABALL" Cut-Out Cock and



Strainer and **MUST BE** ordered as an individual item.

3.1.2.23 **IMPORTANT:** Remove **ALL** wheel chocks and warning placards before attempting to move the vehicle.

4.0 PARTS CATALOG & REPLACEMENT PARTS INFORMATION

4.1 PARTS CATALOG

4.1.1 **IMPORTANT:** When ordering replacement parts for the 1" Combined "DYNABALL" Cut-Out Cock and Strainer, Pc.No. 586393, refer to the current issue of the Wabtec Corporation Parts Catalog 3216-2, S.2. Parts Catalog information may be obtained by contacting your Wabtec Corporation Representative.

NOTE: The reference numbers used in this publication and those used in the parts catalog may differ. Check the descriptive part name and part number 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 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.**

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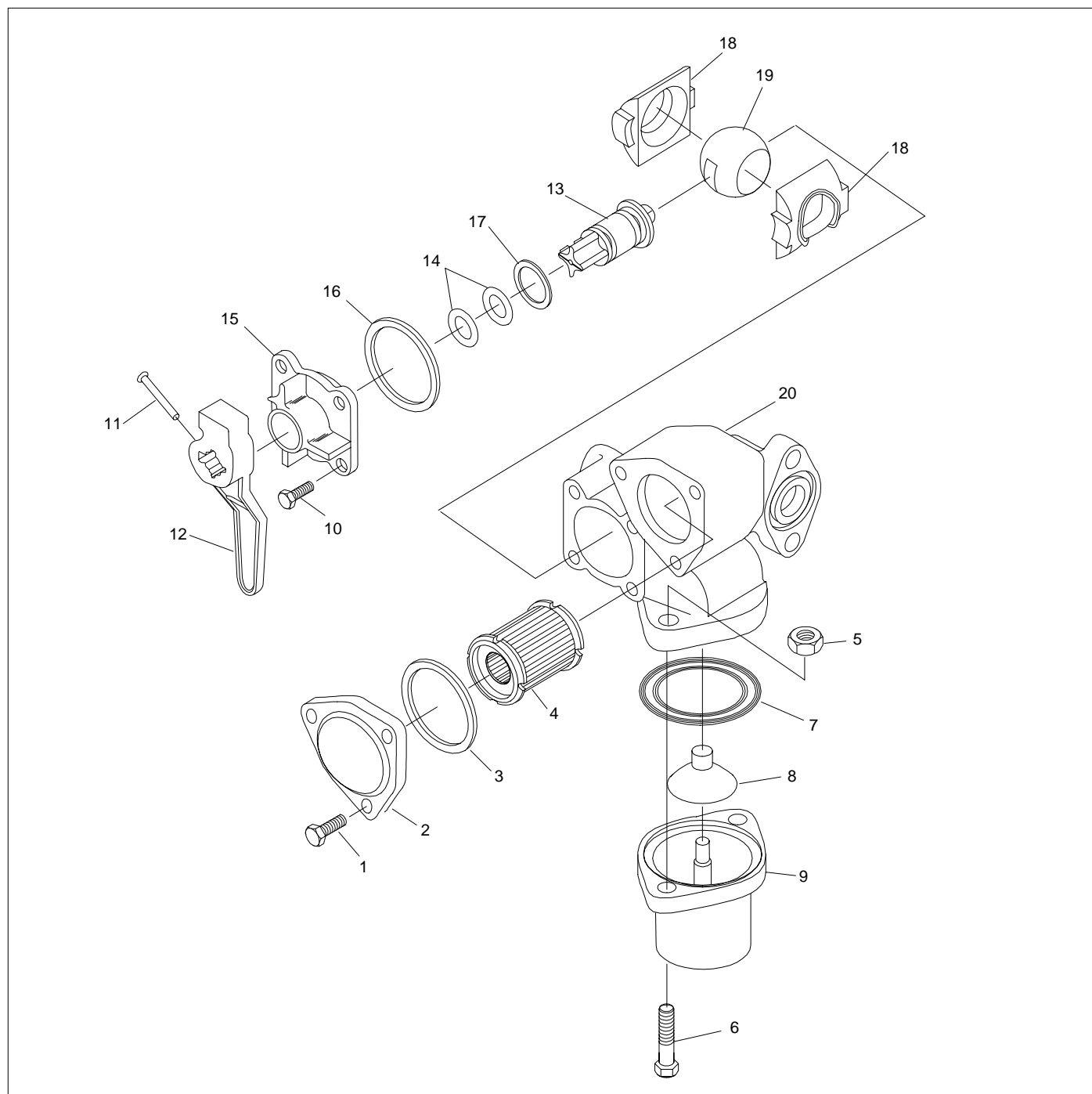


Figure 3 - Exploded View

6.0 CLEANING SOLVENT & LUBRICANT

6.1 The solvent used to clean reusable parts of the 1" Combined "DYNABALL" Cut-Out Cock and Strainer **MUST BE** an aliphatic organic solution, such as mineral spirits or naphtha, that will dissolve oil or grease and that will permit all parts to be cleaned without abrasion.

6.2 Number 2 Silicone Grease, Wabtec Corporation Specification M-7680-2, such as Dow Corning Corporation Molykote 55M, is required for the lubrication of "D" ring seals, the ring grooves of the cock key, the outer sealing surfaces of the ball seats, and the ball cavity of the cock body.



7.0 SPECIAL TOOLS

IMPORTANT: 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 and Strainer.

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 PROCEDURES - "IN-SHOP"

IMPORTANT: When performing the procedures which follow, **DO NOT** use hard or sharp metal tools to remove gaskets, seals, "D" Rings or washers. Exercise care so that component parts are not damaged.

⚠ 8.1 DISASSEMBLY (Figure 3)

8.1.1 Remove the air strainer cover (2) with cover mounting gasket (3) from the body (20) by first removing the three 3/8" by 1" hex head cap screws (1).

8.1.2 Remove and SCRAP the cover mounting gasket (3).

8.1.3 Remove and SCRAP the air strainer (4) from the body (20).

8.1.4 Remove the four 3/8" x 7/8" hex head cap screws (10) which secure the handle - cover - key assembly (11 to 17 incl.) to the body (20).

8.1.5 Remove the handle - cover - key assembly (11 to 17 incl.) as a unit from the body (20) and set it aside in a clean, protected area.

8.1.6 Insert a suitable "hook type" tool in the slot opening of the ball (19), then **CAREFULLY** pull the ball (19) and the two ball seats (18) from the body (20) at the same time. Exercise care so that the surfaces of the ball (19) are not nicked or scratched.

8.1.6.1 Remove and SCRAP the two ball seats (18).

8.1.7 Remove the dirt chamber (9) with check valve (8) and dirt chamber mounting gasket (7) as a unit from the body (20) by first removing the two 1/2" hex nuts (5) and the

two 1/2" x 1 7/8" hex head bolts (6).

8.1.8 Remove and SCRAP the dirt chamber mounting gasket (7).

8.1.9 Remove the check valve (8) from check valve stem of the dirt chamber (9).

8.1.10 IMPORTANT: When performing the procedures which follow, exercise care so that the cock key (13) is not damaged or bent.

8.1.11 Remove and SCRAP the handle cover mounting gasket (16) from its groove in the cover (15).

8.1.12 Place the handle - cover - key assembly into a jaw protected vise in such a way that the handle (12) is held by the vise. Be sure that the handle pin (11) can be seen and that it is "clear" to be removed.

8.1.13 Using a 1/8" drift punch, **CAREFULLY** drift the 3/16" x 1 7/8" pin (11) from the handle (12) and key (13). SCRAP the pin (11).

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

8.1.15 Using extreme care, remove the handle (12) from the key (13).

NOTE: The handle (12) is fitted to the key (13) with a light press.

8.1.16 Separate the cover (15) from the key (13).

8.1.17 Remove and SCRAP the two "D" ring seals (14) and the bearing washer (17) from the stem of the key (13).

⚠ 8.2 CLEANING & INSPECTING

8.2.1 NON-REUSABLE PARTS

IMPORTANT: 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 (8) is made of aluminum it is to be SCRAPPED and replaced with a NEW check valve, Pc.No. 75551, made of brass or high temperature plastic.

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 mate-



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rial 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 a bath of the cleaning solvent as described in Section 6.1.

A soft, clean lint-free cloth that has been saturated with the cleaning solvent may be used to assist in the cleaning of the interior and exterior surfaces of the body, covers, and dirt chamber.

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 Cut-Out Cock and Strainer.

8.2.3.4 Inspect all remaining parts. Replace any part that is 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 Cut-Out Cock and Strainer.

8.3 ASSEMBLY

8.3.1 Install a **NEW** bearing washer (17) in place on the lower shoulder of the cock key (13).

8.3.2 Coat the surfaces of two **NEW** "D" ring seals (14) with Number 2 Silicone Grease, Wabtec Corporation Specification M-7680-2. Also fill the ring grooves of the cock key (13) with the lubricant.

8.3.3 Install the two **NEW** lubricated "D" ring seals (14) 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 sub-assembly (13, 14, 17) into the cover (15) so that the handle end of the cock key (13) enters the bore in the cover (15) from the side of the cover that has the ring gasket groove.

8.3.4.1 Position the cock key (13) in the cover (15) 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 (12) on the cock key (13) as follows:

8.3.5.1 Turn the handle (12) 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 key (13) and place the handle (12) 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 (12) down onto the cock key (13) until the upper face of the handle (12) is flush with the top end of the handle shaft of the cock key (13).

8.3.6 Place the key - cover - handle sub-assembly (12, 13, 14, 17) 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 (12) as a guide, drill a hole completely through the handle (13) and the cock key (13) with a Number 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 $\frac{1}{8}$ " handle pin (11) into the drilled hole in the flat area on the side of the handle (12).

8.3.10 Force the handle pin (11) into the hole of the handle (12) and through the cock key (13) until the pin con-



tacts the flat on the side of the handle.

8.3.11 Remove the assembly from the vise.

Place the head of the handle pin (11) against the anvil of the vise and then peen the straight end of the pin (11) to prevent the handle (12) from becoming loose on the shaft of the key (13).

8.3.12 Apply a light coating of Number 2 Silicone Grease, Wabtec Corporation Specification M-7680-2, to the ball cavity of body (20). Use a small clean brush to apply the lubricant.

Apply a light coating of Number 2 Silicone Grease, Wabtec Corporation Specification M-7680-2, to ALL surfaces of two NEW ball seats (18).

8.3.13 Place a dry, unlubricated cock ball (19) between the two NEW ball seats. Position the ball seat - cock ball assembly (18, 19) so that the lugs of the ball seats are aligned with the lug grooves in the cavity of the body (20), then insert the ball seat - cock ball assembly (18, 19) into the body (20) 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 (16) in its groove in the cover (15).

8.3.15 Install the key - cover - handle sub-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 (19) and then place the cover (15) against the body (20). Be sure that the cover gasket (16) has remained in proper position and that the four bolt holes of the cover (15) are aligned with the bolt holes of the body (20).

8.3.15.2 Install a $\frac{3}{8}$ " x $\frac{7}{8}$ " hex head cap screw (10) into each of the four aligned bolt holes of the cover (15) and body (20). Equally tighten the screws.

8.3.16 Install the check valve (8) on the check valve stem of the dirt chamber (9).

8.3.17 Install a NEW dirt chamber gasket (7) into its groove on the mounting face of the dirt chamber (9).

8.3.18 Install the dirt chamber sub-assembly (7, 8, 9) in place on the body (20) so that the two bolt holes of the dirt chamber (9) are aligned with the holes of the body (20).

8.3.19 Install a $\frac{1}{2}$ " x $1\frac{7}{8}$ " special hex head bolt (6) through each of the aligned holes so that the head of each bolt faces the bottom of the dirt chamber (9). Secure the parts together by installing a $\frac{1}{2}$ " hex nut (5) on each of the bolts (6). Equally tighten the nuts (5).

8.3.20 Install a NEW air strainer (4) in place in its cavity in the body (20).

8.3.21 Install a NEW strainer cover gasket (3) into the gasket groove in the strainer cover (2).

8.3.22 Position the cover with gasket sub-assembly (2, 3) on the body (20) and secure it in place by installing the three $\frac{3}{8}$ " x 1" hex head cap screws (1).

8.4 TESTING & ADDITIONAL INFORMATION

8.4.1 **IMPORTANT:** After the 1" Combined "DYNABALL" Cut-Out Cock and Strainer, Pc.No. 586393, 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-4064-O.

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

8.4.3 **IMPORTANT:** Whenever the 1" Combined "DYNABALL" Cut-Out Cock and Strainer, 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 this device functions properly in the equipment arrangement.

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

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