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Aerospace Group
Conveyance Systems Division

Carter® Brand
Ground Fueling Equipment

Maintenance Manual

Hydrant Coupler to Mate Hydrants In Accordance with API Bulletin 1584

Model 61525

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Maintenance, Overhaul & Test Instructions
Model 61525 Hydrant Coupler

1.0 INTRODUCTION

This manual furnishes detailed instructions covering the maintenance and overhaul of Eaton's Carter brand Model 61525, Hydrant Coupler.

The table of options, Section 3.0, fully defines the various options available on this unit.

There have been a series of Eaton's Carter brand API type couplers provided over the past few years. This manual can be used to easily repair either Model 60525 (42221-1 or 42221-2) or Model 61525 (44665 or 44675 & 47245) series. It is also helpful in updating older 41609 and 42221 lower half couplers. Refer to Paragraph 13.0 for information concerning these units.

2.0 EQUIPMENT DESCRIPTION

Model 61525 is a 4 inch hydrant coupler. It is designed to mate any hydrant or adapter that is manufactured in accordance with API Bulletin 1584. The basic coupler is available with a variety of options as defined in Section 3.0. Various outlet threads are available to suit the situation. The 61525 provides a quick means to connect to a hydrant or adapter with dry break capability. The coupler can not be accidentally opened unless it is connected to a valve; it can not be removed from that valve unless it is in the closed position.

3.0 TABLE OF OPTIONS

There are two basic units available to which the options listed below may be added to build a coupler to meet specific requirements. The two basic units are as follows:

Model 61525 – 4 inch hydrant coupler to mate units in accordance with API Bulletin 1584, latest revision. This coupler terminates in a bolt flange onto which may be attached a 90° elbow. The unit comes standard with a rigid operating handle and dust cap. Optional collar stop and folding handle are available.

Model 61525S - Same as 61525 except the poppet stroke is 1.75" to allow mating to early hydrant valves that were built prior to the finalization of API Bulletin 1584.

Option Letter	Part Number	Description
A	--	*Changes lugs to API/EI 1584 2nd edition
B	41731	Adds folding operating handle
C	41802	Adds product selection
E	44526	Adds 90° elbow with 3/4" NPT sense port and male half quick disconnect.
F	41622	Adds 90° elbow without 3/4" NPT sense port and male half quick disconnect.
G	44140	Adds Collar Lock Assy
K	41730-3	Adds 3" NPT female half quick disconnect and carrying handle.
L	41730-4	Adds 3" BSPP female half quick disconnect and carrying handle.
M	41730-1	Adds 4" NPT female half quick disconnect and carrying handle.
N	41730-2	Adds 4" BSPP female half quick disconnect and carrying handle.
P	60740	Adds 4" ASSPT female half quick disconnect and carrying handle.
W	60532A	Adds Carriage Assy.

* Refer to Product New s Bullletin PN6490001020 for a complete description of this change before ordering. Changes lugs to part number 200688 (2nd edition) in lieu of part number 221860 (3rd edition)

4.0 SAFETY INFORMATION - PERIODIC INSPECTIONS

The equipment described herein is designed primarily for safe, convenient, and reliable operation under normal operating conditions. However, the more exposed parts are subject to damage, and to wear with time that can result in unreliable or unsafe operation if not detected or corrected. Consequently, it is considered mandatory that a brief safety inspection is accomplished periodically. The frequency of this

inspection can vary depending upon the utilization, however, under no circumstances should the frequency be less than once a month. A more thorough periodic inspection should be accomplished at least once a year. Both inspections are discussed in the following paragraphs.

4.1 INTERLOCK

The coupler incorporates an interlock feature that prevents it from being opened unless it is installed onto a hydrant or adapter. The unit may not be removed from the hydrant unless the operating handle has been moved to the closed position. An additional safety system has been made available, as Option G, to prevent the unit from being **blown off** the hydrant in the case where the hydrant valve adapter poppet fails to close. During the connection cycle, the interlock is automatically disengaged by the proper alignment of the coupler with the hydrant. During the disconnection cycle, it is necessary to manually depress the collar stop assembly (if Option G is selected) to allow the collar to be moved away from the hydrant valve and complete the cycle. Should there be a major leakage occur after the operating handle has been closed and before unlocking the collar stop, this indicates a failure of the hydrant valve poppet. One should first make sure that the hydrant valve pilot has been closed and then close the servicing valve on the hydrant valve before attempting to remove the coupler. If the leakage still is apparent, attempt to re-open the coupler to stop the leakage and then shut down the operation of the system prior to completely disconnecting the coupler to prevent a possible catastrophic spill.

4.2 QUICK DISCONNECT RETENTION METHODS

The female half of the quick disconnect assembly is connected to the male half by means of 24 balls that mate with a groove in the male half and are retained there by a sleeve around the outer diameter of the female half. The sleeve maintains inward pressure on the balls to keep them in the groove of the male half. The sleeve itself is maintained in place by a partially circular wire retaining ring. This ring engages coincidental grooves in the quick disconnect housing and the sleeve. The spreading of the retaining ring allows disengagement of the retaining ring from the sleeve groove and, therefore, movement of the sleeve away from the balls. A retainer plate is used to cover the retaining ring to prevent all but intentional spreading. The coupler should never be operated without the installation of this plate. A secondary locking ring is also provided to prevent the sleeve from moving away from the coupler unless it is intentional.

4.3 CARRIAGE ASSEMBLY - OPTION W.

When utilized, the Carriage Assy (1-W) incorporates a torsion spring which can produce potential injury if the unit is not handled properly. Extending and retracting the castors of the unit should be done with care to prevent possible injury.

4.4 MONTHLY PERIODIC INSPECTIONS

4.4.1 Safety Inspections

Accomplish the following at least once each month: (An experienced operator should be able to accomplish these inspections in 30 to 45 seconds.)

A. While removing the Dust Cap (2-37) inspect the 16 Locking Lugs (2-33, 2-33A) to determine if any are missing, broken, bent, abnormally worn, etc. Verify that the Detent Pin (2-26) is extended and prevents collar extension. While holding the Collar (2-27) retracted, depress the Detent Pin (2-26) and release it to verify that it returns to the extended position. Examine the Collar (2-27) for excessive wear, cracks, or other damage. Verify that the Collar Stop Assembly (1-G) is in place and not bent, if Option G is chosen.

Reason: Missing, damaged, cracked, and abnormally worn or broken lugs can result in fuel pressure ejecting the coupler off the adapter with the poppet open. A stuck or malfunctioning detent pin can permit collar extension and accidental opening of the coupler poppet with the coupler disengaged from the adapter. The collar stop option, if present, prevents gross adapter poppet leakage from raising the collar and blowing the coupler off the adapter.

B. Visually inspect the closed Poppet (2-15, 2-15A or 2-15F) for signs of abnormal positioning. Visually inspect the molded rubber seal for cracks and tears.

Reason: Abnormal poppet retraction or extension indicates a compression or tension failure of portions of the internal linkage that could either result in a mid-position jam or complete separation of the linkage and accidental poppet opening. Damage to the molded seal can result in coupler connected external leakage or coupler disconnected poppet leakage.

C. If the unit incorporates Product Selection (Option C), verify that it is properly installed and that the bolt heads do not extend above the adjacent collar surface.

Reason: Improper product selection installation will, at the very least, result in an unnecessary connection delay, and at the worst, permit connection to the wrong product.

D. Inspect the poppet operating Handle (2-1) for bent, worn, broken, or missing pieces on the round cam-like surface. Inspect the adjacent surface of the collar.

Reason: The round portion of the handle locks the collar in the engaged, extended position. Broken, bent, or missing portions of this handle or of the collar may permit accidental collar retraction with the poppets open that could result in the coupler being ejected from the adapter.

E. Visually inspect the socket head Screws (2-2) or (7-19) securing the coupler housing to the elbow for security of installation and damage. If the Carriage Assembly (1-W) is present, Bolts (7-19) holding the Flange (6-9) to the unit must have hex heads. Check torque of these Bolts (7-19) to assure that they are tightened to 90 ± 10 in.-lbs. (104 ± 12 kg-cm). If the Bolts (7-19) are found to be loose damage to the Elbow (1-1) threaded holes may have occurred and further inspection in accordance with paragraph 4.5.O should be carried out.

Reason: Self-explanatory.

F. Visually inspect the female half quick disconnect to verify that the ball retaining sleeve is fully engaged, and that the ring retainer is secured by two lockwired screws so that the two ends of the retainer ring extend through the

remaining two holes in the ring retainer. Verify that the lock ring is engaged in the safety groove immediately adjacent to the ball retaining sleeve.

Reason: See WARNING below.

WARNING:

Improper (or omission of) safety locking and lockwiring of the female half quick disconnect can result in accidental separation of the disconnect at high pressures and/or flow rates resulting in a potentially unsafe and undesirable product spill that could result in personal injury.

G. During usage briefly inspect unit for unusual operation, external leakage, etc.

H. If the Carriage Assembly (1-W) is used, check to see that the Bolts (7-19) securing it to the unit have hex heads. Check to assure that the mounting Flange (6-9) of the Carriage Assembly (1-W) is not mounted flush to the flange on the coupler lower half. A single piece spacers or a stack of Washers (7-18), as shown in Figure 7, should be present. If neither is present, or the Bolts (7-19) do not have hex heads, take the unit out of service and repair using kit number 80898. The length of the Bolts (7-19) should be checked in accordance with paragraph 10.7.

J. During operation, check for seal leakage between the upper and lower halves of the units. If leakage is apparent, check for loose bolts that hold the two halves [and the Carriage Assy (1-W), if present] together. The unit should be removed from service for further inspection and repair.

4.5 EXTENDED PERIODIC INSPECTIONS - (ANNUAL INSPECTION)

In addition to the safety inspection advocated above, a more extended inspection should be accomplished. It will be necessary to provide a container to capture entrapped fuel during the following inspection. The parenthetical numbers are the item numbers in the list of materials in the referenced tables.

A. Refer to paragraph 8.1 for method of separating female half quick disconnect from the hose quick disconnect. Capture spilled fuel in a suitable container.

B. Inspect female half quick disconnect. Inspect Balls (3-9) for chips, flat spots, or excessive wear. Inspect ball retaining Sleeve (3-7) for cracks and wear from the Balls (3-9). Inspect Housing (3-6) for cracks or thread damage.

C. Inspect housing outlet O-ring (1-4) for damage. If damaged, replace with new part. Inspect ball race Rings (1-3) for brinelling (indenting of the material by the Balls (3-9)) and other indications of damage. Replace brinelled or damaged ball race Rings (1-3). Remove outer ball race Ring (1-3) and measure the smallest wire diameter. Replace the ball race ring if the smallest wire diameter is 0.123 inch (3.12 mm) or less. Reinstall an acceptable ball race Ring (1-3).

D. Conduct the Coupler Lower Half inspection detailed in paragraph 8.4. If the specified Wear Gauge is not available then continue with the inspections detailed in paragraphs E and F below as an alternative. The use of the Wear Gauge is preferred and will give more positive results.

E. Grasp opposite sides of the Collar (2-27) with the fingers while depressing the spring loaded Detent Pin (2-26) with one thumb. The Collar (2-27) will move to the engaged position, away from the Poppet Operating Handle (2-1 or 1-B). Verify that the 16 Lugs (2-33, 2-33A) cannot be depressed back into the collar with the Collar (2-27) extended.

F. Inspect 16 coupling Lugs (2-33, 2-33A) very closely for wear, cracks or damage. If any Lugs (2-33, 2-33A) are cracked, damaged, missing, or worn locally beyond 0.030 inch (0.76 mm), the unit is unsafe and should be withdrawn from service and completely overhauled. This inspection may be made by comparison with a new Lug (2-33, 2-33A).

Press the tip of one Lug (2-33, 2-33A) inward until stopped by the Collar (2-27). While holding the Lug (2-33, 2-33A) inward, rotate the Collar (2-27) through 360° to determine whether any grooves have been pressed into the Collar (2-27) by the Lugs (2-33, 2-33A) during previous misuse. If such grooves are evident, they will alternately cause the Lug (2-33, 2-33A) to move out and in when it is pressed against the Collar (2-27). If grooves are felt, the coupling is unsafe and should be removed from service and completely overhauled.

Alternately press each Lug (2-33, 2-33A) against the Collar (2-27) to determine which lug protrudes the least distance through the body slot. Then, while holding the Lug (2-33, 2-33A) against the Collar (2-27), use a scale to measure the inward distance the lug tip protrudes from the adjacent body inside diameter. If the measured distance is less than 0.15 inch (3.8 mm) the coupling is unsafe and should be removed from service and completely overhauled.

G. Carefully operate the Poppet Operating Handle (2-1 or 1-B) to the open position while capturing trapped fuel in a suitable container. Operation should be smooth and even.

Note: The molded rubber Nose Seal (2-17) which is normally contained either by the Poppet (2-15) or the pit adapter face, may extend with the Poppet (2-15) contingent on the relative friction between the Poppet (2-15) and the Nose Seal (2-17) and that between the same Nose Seal (2-17) and the O-ring or Quad-ring (2-18) and Housing (2-5). Do not be alarmed if this occurs. Use the opportunity to inspect the Wave Washers (2-19 or 19A) for damage. (Note that the newer designed Wave Washer (2-19A) is a single piece unit and replaces all four of the Wave Washers (2-19)). The seal O-ring or Quad-ring (2-18) may also be replaced if it appears scrubbed. Note that when the Quad-ring (2-18) is used in lieu of an O-ring, there should be four, not three Wave Washers (2-19) or the single stack Wave Washer Assy (2-19A). Reposition the Wave Washers (2-19) or (2-19A) and install the

Quad-ring or O-ring (2-18) onto the Nose Seal (17) prior to closing the Poppet (2-15). If an O-ring (2-18) is utilized, three Wave Washers (2-19) or the single unit (2-19A) may be used.

H. Inspect the molded rubber Nose Seal (2-17) for damage, tears, etc. on both the adapter and poppet sealing surfaces.

I. Depress the Collar Stop Assy (1-G), if present, and verify that the Collar (2-27) cannot be retracted with the Poppet Operating Handle (2-1 or 1-B) in any position but the full closed position.

J. With the Poppet (2-15) closed and the Collar Stop Assy (1-G), if present, depressed, push the Collar (2-27) to the retracted position while observing that the spring loaded Detent Pin (2-26) extends and locks Collar (2-27).

K. With the Poppet (2-15) closed, precisely measure the distance between outer surface of the molded seal and the adjacent surface of the coupler body at two places 180° apart. If the average of these two measurements exceeds 0.100 inch (2.54 mm), the internal linkages are excessively worn and the coupler should be withdrawn from service and completely overhauled.

L. If the unit contains Option C, Product Selection, inspect for security, effectiveness and damage. Verify that product selector bolt heads are flush to 0.03 inch (0.76 mm) below the adjacent Collar (2-27) surface.

N. Lubricate unit outlet O-ring (1-4) with petroleum jelly. Reassemble and safety lock the female half quick disconnect per paragraph 10.8C.

O. Check the mating flange on the Elbow (1-1) with the Body (2-5) for damage to the threaded holes or the wall of the Elbow (1-1).Check the wall between the inner diameter of the coupler upper half Elbow (1-1) and the threaded holes. The diameter should be smooth and continuous with no evidence of bulging or hairline cracks. If the wall is bulged or cracked, the threads are already over stressed and the part is no longer safe for use. The coupler Elbow (1-1) will have to be replaced. Reference Figure 8 for assistance. Check to be sure that the correct length of fasteners is being used on the Carriage Assembly (1-W) as noted in paragraph 9.7.

5.0 TROUBLESHOOTING AND MINOR REPAIR

General trouble shooting analysis and minor repair actions are as follows:

5.1 Trouble: Collar (2-27) will not drop or extend during engagement.

Probable Cause:

A. Coupler improperly positioned.

B. Product Selection not mated or incorrectly set.

Remedy:

A. Use one hand to relieve hose weight while using the other hand to center and square coupler to adapter.

B. Rotate Collar (2-27) until Product Selection mates. If adapter flange incorporates a tab, align strip or arrow on Collar (2-27) with tab. Verify that adapter and coupler Product Selection is intended to mate.

C. Square coupling face to adapter to assure that the Detent Pin (2-26) is depressed. If hole in Body (2-5) in which Detent Pin (2-26) is housed is egg shaped it may be difficult to depress.

D. Collar (2-27) may be out of round.

5.2 Trouble: Poppet Operating Handle (2-1 or 1-B) cannot be moved in open direction.

Probable Cause: Collar (2-27) is not engaged, removing physical safety interlock between Poppet Operating Handle (2-1 or 1-B) and Collar (2-27).

Remedy: Fully engage Collar (2-27). See 5.1 above.

5.3 Trouble: Poppet Operating Handle (2-1 or 1-B) rotates easily for approximately 45° in the open direction and then a high resistance is felt.

Probable Cause: This is normal if the adapter is pressurized.

Remedy: Continue to apply moderate pressure to the Poppet Operating Handle (2-1 or 1-B) in the poppet open direction until the pressure equalizes and the poppet opens easily.

5.4 Trouble: External leak between Coupler Lower Half (1-5) flange and Elbow Assy (1E or F).

Probable Cause:

A. Flange Bolts (2-2) or (7-19) loose.

B. O-ring (2-10) damaged.

Remedy: Refer to Figures 1 and 2:

A. If Carriage Assembly (1-W) is present, before retightening the bolts, the Bolts (7-19) should be removed and the length of the shank checked. The length should be 1 19/32 ± 1/32 (40.5 mm). This applies to the four Bolts (7-19) affixing the Flange (6-9) to the unit. The other two Screws (2-2) should be 1 inch (25.4 mm) long. If the Bolts (7-19) are not the correct length, replace them with new ones from kit 80989. Tighten socket head Screws (2-2) or Bolts (7-19) to 90 ±10 inch pounds (104 ± 12 kg-cm) and recheck for leakage.

CAUTION!

If the Bolts (7-19) were not the proper length (too short) the threads in the Elbow (1-1) may have already been damaged beyond use. See paragraph 9.5 for inspection procedure.

B. Replace O-ring (2-10) as follows:

1. Use suitable container to capture entrapped fuel. Verify coupler is depressurized. Remove six socket head Screws (2-2) or (7-19) is used, six Washers (2-3), and Dust Cap (2-37).

2. Carefully separate Elbow Assy (1E or F) from coupling Body (2-5). Remove and discard O-ring (2-10).

3. Lubricate new O-ring (2-10) and carefully place over pilot on Body (2-5).

4. Carefully assemble Elbow Assy (1E or F) to Coupler Lower Half (1-5), reinstalling six Washers (2-3), Dust Cap (2-37) and six socket head Screws (2-2) or two Screws (2-2) and the four Bolts (7-19) if the Carriage Assembly (1-W) is used. Torque screws to 90 ± 10 inch pounds (104 ± 12 kg-cm).

5. Pressure check new O-ring (2-10) installation at 5 and 150 psig fuel pressure, if possible. If not possible, carefully observe for leakage during next use.

5.5 Trouble: External leak between disconnect halves.

Probable Cause: Damaged O-ring (1-4).

Remedy: Remove and replace O-ring (1-4) as follows:

A. Use suitable container to capture entrapped fuel. Refer to paragraph 7.1 for correct method of separating disconnect.

B. With disconnect separated, remove and discard O-ring (1-4). Lubricate with petroleum jelly and carefully install new O-ring (1-4).

C. Reconnect, safety and lockwire disconnect assembly per paragraph 10.8C.

D. Leak check at 5 and 150 psig fuel pressure, if possible. If not, carefully observe joint during next operation.

5.6 Trouble: Leak at Poppet Operating Handle (2-1 or 1-B).

Probable Cause: O-ring (2-25) damaged, worn or scrubbed.

Remedy:

A. O-ring (2-25) can be replaced without removing the coupling from the hose, however, the dispenser may be out of service for a shorter time if the coupler is replaced with a spare coupler and repair is accomplished on the bench. The hose should be depressurized and drained. Separation of the disconnect may be the simplest method of draining the hose.

WARNING:

Assure that the hose is not pressurized.

B. With the coupler held over an adequately sized container, depress the Detent Pin (2-26) and extend the Collar (2-27), operate the Poppet Operating Handle (2-1 or 1-B) in the open direction, opening the Poppet (2-15) to drain the hose. Close the Poppet (2-15) when the hose is drained, depress Collar Stop Assy (1-G), if present, and retract the Collar (2-27) releasing the spring loaded Detent Pin (2-26).

C. Remove Bolt (2-6), lock Washer (2-7), and Washer (2-8). Remove poppet operating Handle (2-1 or 1-B), Key (2-9), and outer shaft seal Bearing (2-24). Use a sharp pointed instrument or pin to remove old O-ring (2-25). Lubricate new O-ring (2-25) with petroleum jelly or equivalent. Use clean, lint-free cloth dipped in clean fuel or solvent to clean the sealing surfaces of the Crank Shaft (2-20) and Body (2-5). Carefully install new, lubricated O-ring (2-25) using clean, smooth blunt instrument to seat it properly. Inspect O-ring (2-25) to verify that it is not twisted.

D. Reinstall outer shaft seal Bearing (2-24), poppet operating Handle (2-1 or 1-B), Key (2-9), Washer (2-8), lock Washer (2-7), and Bolt (2-6). Torque Bolt (2-6) to 90 ± 10 inch pounds.

E. If possible, connect this coupler to a pressurized adapter and open Poppet (2-15). Observe the Crank Shaft (2-20) for leakage through several poppet opening and closing cycles.

5.7 Trouble: External leakage between unit and adapter or hydrant with unit engaged and Poppet (2-15) open.

Probable Cause:

A. Damaged adapter sealing surface.

B. Damaged Nose Seal (2-17).

C. Damaged or worn Quad-ring or O-ring (2-18).

D. Missing, damaged, broken, or ineffectual Wave Washers (2-19 or 19A).

Remedy

A. Replace or repair hydrant adapter.

B. Inspect Nose Seal (2-17) for tears, abrasions, blisters, bond failure, etc. If none are found, proceed to Remedy (C). If seal is damaged or otherwise defective, remove coupler from service and replace Nose Seal (2-17) on the bench as follows [If later multi-piece Poppet (2-15A) is being used skip paragraphs 1 & 2]:

1. Separate Elbow Assy (1E or F) from Coupler Lower Half (1-5) in accordance with paragraph 5.4, remedy B, steps 1 and 2.

2. Remove Cotter Pin (2-11), Washer (2-12) and Bearing (2-13). Rotate Link (2-16) slightly to free Link (2-16) from Crank Shaft (2-20). Slide Poppet (2-15), Pin (2-14) and Link (2-16) toward connection end of coupler until Pin (2-14) can be removed, separating Poppet (2-15) from Link (2-16).

3. For units with Poppet (2-15A) only. - Open Poppet (2-15A) by depressing Detent Pin (2-26) and sliding Collar (2-17) forward, then rotate Handle (2-1) to the open

position. Drain the unit in an appropriate basin or tank.

Remove Screws (2-15B) from Poppet Assembly (2-15A) or (2-15F). Remove Poppet (2-15C) and O-ring (2-15D). Discard O-ring (2-15D). Continue on with paragraph 4 - 8.

4. Grasp Nose Seal (2-17) with fingers and pull it out of the Body (2-5) bore. Discard Nose Seal (2-17). Remove and discard O-ring or Quad-ring (2-18). Use opportunity to inspect Wave Washers (2-19 or 19A) for damage and quantity. Remember four are required if the Quad-ring (2-18) is used in lieu of the O-ring (2-18).

5. Use clean, lint-free cloth soaked in clean solvent or fuel to clean out Body (2-5) bore, and Poppet (2-15).

6. Lubricate new O-ring or Quad-ring (2-18) with petroleum jelly and assemble it over new Nose Seal (2-17). Insure that O-ring or Quad-ring (2-18) is not twisted.

7. Position Wave Washers (2-19 or 19A) in Body (2-5) bore.

NOTE: Once used, Wave Washers (2-19), if present, take a set which causes the wave pattern to form a different shape. If used, rotate the Wave Washers (2-19) to obtain the best fit between washers prior to installation. Some models use a two piece Wave Washer (2-19A) which is approximately one and one-half times a single piece unit. The unit is not broken, it is intended to be that way.

Carefully insert new Nose Seal (2-17) in Body (2-5) bore, ensuring that new O-ring or Quad-ring (2-18) is not pinched.

8. On units with Poppet Assembly (2-15A) or (2-15F) (multi-piece units) - Assembly new O-ring (2-15D) to the Shaft (2-15E) or (2-15G) after lightly lubricating it. Install Poppet (2-15C) to the Shaft (2-15E) or (2-15G) and Screws (2-15B). Torque the Screws (2-15B) to 10 ± 1 in.-lbs. (138 ± 13 kg-cm). If running torque of Screws (2-15B) is less than 6 in.-lbs. (83 kg-cm) replace the Screws (2-15B) with new ones. Skip to paragraph 10.

9. Insert Link (2-16) into Body (2-5) bore so that bump on Link (2-16) is in the longest slot in bore. Place Poppet (2-15) clevis over Link (2-16) and insert Pin (2-14). Then press Poppet (2-15) back into bore so Pin (2-14) is captured. Slightly rotate Link (2-16) and insert Link (2-16) hole over lug of Crank Shaft (2-20). Slide Bearing (2-13) through hole in Link (2-16) and on to lug of the Crank Shaft (2-20). Fasten Link (2-16) and Bearing (2-13) to the Crank Shaft (2-20) with Washer (2-12) and Cotter Pin (2-11).

10. Close and open Poppet (2-15) several times. Then close Poppet (2-15), depress Collar Stop Assy (1-G), if present, and retract Collar (2-27) to retracted position.

11. If removed, reassemble Coupler Lower Half (1-5) to Elbow Assy (1E or F) and conduct coupler functional, proof pressure and leakage tests per paragraphs 11.3, 11.4 and 11.5.

C. Replace damaged or worn O-ring or Quad-ring (2-18) as follows:

1. Depressurize, drain fuel, and open Poppet (2-15) as described in paragraph 5.6.

WARNING:

Verify that coupler is not pressurized before opening Poppet (2-15).

2. With Poppet (2-15) open, carefully grasp Nose Seal (2-17) and pull out of Body (2-5).

NOTE: Nose Seal (2-17) cannot be pulled over Poppet (2-15).

3. Grasp old O-ring or Quad-ring (2-18) and stretch until it passes over Nose Seal (2-17). Use clean, lint-free cloth soaked in clean solvent or fuel to clean sealing diameters of Nose Seal (2-17) and Body (2-5) bore. Lubricate a new O-ring or Quad-ring (2-18) with petroleum jelly and stretch until it passes over Nose Seal (2-17). Position new O-ring or Quad-ring (2-18) on Nose Seal (2-17) sealing diameter and ensure that it is not twisted. Verify that the correct number of Wave Washers (2-19 or 19A) (four for 2-19 and one for 2-19A) are in proper Body (2-5) bore. Carefully press Nose Seal (2-17) into Body (2-5) bore, exerting care to prevent pinching O-ring or Quad-ring (2-18).

4. Close and open Poppet (2-15) several times. Then, depress Collar Stop Assy (1-G), if present, and retract Collar (2-27), ensuring that Detent Pin (2-26) has extended, and locked Collar (2-27).

5. If possible, test seal by connecting coupler to pressurized adapter and observing interface for leakage.

D. Damaged, broken or ineffectual Wave Washers (2-19 or 19A): Proceed as in (C) above, to inspect Wave Washers (2-19 or 19A). If any of the Wave Washers (2-19 or 19A) are damaged, cracked, or broken, proceed as in (B) remedy (above) to replace damaged Wave Washers (2-19 or 19A), and do not replace Nose Seal (2-17) unless it is also damaged.

5.8 Trouble: Leakage past Poppet (2-15) seal with coupler disengaged.

Probable Cause:

A. Damaged Poppet (2-15) sealing surface or O-ring (2-15D.

B. Damaged molded rubber on Nose Seal (2-17).

Remedy:

Isolate problem by reducing pressure in the nit and draining unit, and opening poppet as described in paragraph 5.6. Inspect Poppet (2-15) or (2-15C) sealing surface and Nose Seal (2-17). Replace damaged component or components per paragraph 5.7 remedy B. Replace O-ring (2-15D). Disassemble only to the extent necessary to replace either the Poppet (2-15) or (2-15C) or Nose Seal (2-17). Replace O-ring or Quad-ring (2-18) if Nose Seal (2-17) is replaced.

5.9 Trouble: Excess force required during last portion of poppet closing travel.

Probable Cause:

A. Steady force had not been applied to poppet operating Handle (2-1 or 1-B) long enough to permit relief valve to vent trapped fluid downstream, relieving the hydraulic lock.

B. Pressure trapped downstream of unit.

Remedy:

A. Apply steady moderate force until poppet closes.

B. Vent trapped pressure.

6.0 INSTALLATION

6.1 CONNECTION TO HOSE

6.2 The installation of the 4-inch coupler to the hose is contingent of the optional outlet arrangement incorporated in the specific unit. The E or F option elbow with its male half quick disconnect will connect to any of the five various sized outlet threaded female half quick disconnects with carrying handle. A proper pipe thread lubricant should be used when tightening the female half quick disconnect to the hose thread.

Holes have been provided in the Screws (3-4) used to lock the Sleeve (3-5) in place. It is recommended that these screws be lockwired to further prevent loosening during service.

6.2 CONNECTION TO HYDRANT VALVE OR ADAPTER

The coupler is connected to the hydrant or adapter by using the following steps:

- Align the coupler inlet with hydrant valve or adapter and allow it to rest upon the mating surface of same.
- Push collar away from the coupler, toward the hydrant valve until the collar is locked in the down position. If Option G is utilized the collar stop assembly will automatically snap outward to lock collar in the down position. If product selection (option C) is utilized, it will be necessary first to rotate the collar until the three vacant slots in the face of the collar match up with the three extended bolts on the mating hydrant. The collar should then slide down onto the valve.
- The unit can then be opened. During the opening cycle, the handle will meet with resistance, especially if the hydrant valve is pressurized. A pressure equalizing valve should be provided in the poppet of the hydrant or adapter, otherwise it will be nearly impossible to open the coupler against pressure. Damage to the coupler may occur to the internal mechanism. The force resisting opening of an Eaton Carter brand hydrant valve is composed of two factors, poppet spring force plus any force created by fuel pressure in the hydrant. The normal spring force is approximately 20 pounds and the pressure force is equal to over 125 pounds for each 10 psi present. In addition to the forces attributed to the hydrant, there are forces presented by the coupler itself. The initial movement of the operating handle to get it **over center** is resisted by a stack of wave washer springs on the nose seal plus seal friction. Under even severe weather conditions, the coupler can be opened by the application of less than 30 pounds force applied to the handle. The presence of a pressure equalization valve in the hydrant will necessitate a slow deliberate opening of the handle to allow time for the pressure to equalize across the hydrant poppet. An attempt to quickly open the handle may result in internal damage to the unit.

It should be noted that API Bulletin 1584 does not cover the need for a pressure equalizing valve. This results in the hydrant valve manufacturers having different dimensions for the location of the operating tip of the valve. There is some incompatibility between the various hydrants and couplers if they are intermixed. The result can be either one of considerable leakage during hookup or non-function of the equalizing valve making it very difficult to achieve connection.

6.3 DISCONNECTING FROM HYDRANT VALVE OR ADAPTER

The following steps should be taken to disconnect the coupler from the mating unit:

- Close the flow control Handle (2-1 or 1-B) of the coupler. **Note: This handle should not be used to close the coupler against flow.** Another means of stopping flow should be utilized in the system, i.e. lanyard or deadman control.
- Pull upward on the collar with both hands to retract it from the hydrant. If Option G is present, with the heel of the right hand pressing downward on the collar stop to unlock it, pull the collar to the up, locked position.
- The coupler can then be lifted away from the hydrant.

7.0 SPECIAL TOOLS

The following special Eaton Carter brand tools are recommended for use during the maintenance of the coupler:

- 61362 Wear Gauge - Inspects completely assembled couplers to indicate wear.
- 60505D or 61526D - 4" API Adapter for use in testing the unit.

8.0 DISASSEMBLY

Refer to Figures 1-5 for exploded views of the unit to assist in disassembly. The numbers mentioned herein are those shown in one of these figures.

8.1 OUTLET CONNECTION TO HOSE

Refer to Figure 3. Unless there is a need to replace or repair any parts of the female half of the quick disconnect, it may be left on the hose. Excessive wear of the inside diameter of the Sleeve (3-7) can be a cause of external leakage from the O-ring (1-4). Removal of the coupler from the female half quick disconnect may be accomplished in the following manner:

A. Note the method used to lockwire the two Screws (3-4) to assure correct reassembly. Break the Lockwire (3-2) and remove the Screws (3-4). Remove the Retainer Plate (3-5). Note that the Housing (3-6) incorporates two lock ring grooves. The Lock Ring (3-2) should be installed in the groove closest to the Sleeve (3-7) during operation. Move it to the groove farthest from the Sleeve (3-7).

B. Grasp the outside diameter of the Sleeve (3-7) with the fingers while using the thumbs to spread the ends of the Retaining Ring (3-9). The Sleeve (3-7) may then be moved toward the outlet (hose) end of the unit until stopped by the Lock Ring (3-2), unloading the Balls (3-9) that lock the coupler to the quick disconnect. The Female Half Quick Disconnect (1-K-N & P) may be removed from the coupler. Considerable force may be required due to the presence of an o-ring seal used between the two halves.

C. Remove the Lock Ring (3-2) from the Housing (3-5). Spread the Retaining Ring (3-9) to keep it from catching in either of the other two grooves in the Housing (3-5) as you slide the Sleeve (3-7) off of the Housing (3-5). Take care to catch the Balls (3-9) in a container to prevent losing them as the Sleeve (3-7) releases them.

8.2 PRODUCT SELECTION SET

If the unit incorporated option C, Product Selection, it is not necessary to remove the Bolts (1-C) from the Collar (2-27) unless there is apparent damage to one of the Bolts (1-C) or the position desired is to be changed. Note that there are six potential positions, numbered 1 through 6. There are two other unmarked slots. The mating unit should have three studs or bolts protruding from it that match the three slots in which there are no bolts. The numbered position that has no bolt is the **set** position.

8.3 ELBOW ASSEMBLY, Options E or F

Refer to Figure 1 to identify the part numbers. Newer units have been changed to eliminate the lockwire from the Screws (2-2). Self-locking thread inserts have been installed within the Elbow (1-1) to provide the locking. The Screws (2-2) still retain the holes for lock wire purposes at the option of the customer. Remove the lockwire, if present, Screws (2-2) and Washers (2-3). The Dust Cap (2-37), if present, will be removed with these items also. If present, removal of the Collar Stop Assembly (1-G) will also be achieved. Set the Collar Stop Assembly (1-G) aside for now. Separate Coupler (1-5) from Elbow (1-E or F). Remove and discard O-ring (1-4). Do not remove the Wear Rings (1-3) unless replacement is necessary.

On Option E, Elbow with Sense Port, do not remove Plug (1-2) unless replacement is required.

8.4 PRE-DISASSEMBLY INSPECTION OF COUPLER SUBASSEMBLY

It is recommended that Coupler Wear Gauge, part number 61362, be utilized prior to disassembly of the coupler. The wear gauge is designed to give a quick, convenient and accurate method of checking aggregate wear of all related parts in the coupler. The following instructions are provided to assist in utilizing the wear gauge:

A. **Installation** - Place the Wear Gauge into the inlet of the coupler with the pins of the gauge pointing toward the coupler inlet.

Note: Be sure that the pins do not rest on the coupler detent pin.

Extend the Collar (2-27) to the locked-on position and open the Poppet (2-15). This must be done to simulate a coupler locked onto a hydrant valve.

Note: This operation should be done with a catch basin under the coupler so as not to spill fuel trapped inside the coupler.

B. **Operation** - Once the Wear Gauge is in place, all four (4) gauge pins of the gauge should be above the exposed gauge surface. Slowly rotate the Collar (2-27) while bearing on one side of the Collar (2-27). Note the position of the gauge pins as the rotation is accomplished. Should any <u>one</u> of the four pins become flush or receded below the gauge surface, the coupler exhibits excessive wear and should not be used again until overhauled. See note below. Pay particular attention to the detailed inspection of the Collar (2-27), Body (2-5), Lugs (2-33, 2-33A) and Lug Rings (2-32) during the following maintenance procedure.

Note: Should only one pin (of the gauge) indicate wear, it is suggested that the gauge be removed and turned approximately one-fourth turn and the inspection be repeated. There may be a local indentation in the surface of the Body (2-5) on which the pin rests causing a false reading.

8.5 COUPLER

Refer to Figures 1 and 2 to identify the part numbers. Remove O-ring (2-10) and discard. Remove Bolt (2-6) and Washers (2-7 & 8) from Handle (2-1 or 1-B). Poppet (2-15) should be open for the following actions. Remove Handle (2-1) or Handle Assembly (1-B) and Woodruff Key (2-9).

8.5.1 Collar Stop Assembly (1-G) - Note how Torsion Spring (4-14) is installed to facilitate reassembly. Remove Cotter Pin (4-16). Push out Hinge Pin (4-15), separating Collar Stop (4-12), Torsion Spring (4-14) and Bracket (4-13). Spring should be replaced if it is distorted or weak.

8.5.2 Folding Handle Assembly (1-B) - **Do not disassemble the Folding Handle Assembly (1-B) unless one or more parts are damaged and require replacement. It is necessary that Spring (1-8) be replaced whenever the Folding Handle (1-B) is disassembled.**

Place the assembly in a small, soft-jawed vice so that the jaws grip the boss of the Handle Cam.

CAUTION:

Do not over tighten vise as this may collapse or damage handle cam.

Insert large blade screwdriver in clevis end of Pin (1-6). Rotate Pin (1-6) slightly in a counterclockwise direction to release torsion on Cotter Pin (1-7). Remove Cotter Pin (1-7).

CAUTION:

Maintain a restraining torque on Pin (1-6) with screwdriver to prevent spring's tendency to unwind following Cotter Pin (1-7) removal. Gradually release Spring (1-8) torsion by slowly allowing Pin (1-6) to rotate the inserted screwdriver until the Spring (1-8) torque has been relieved.

Remove Pin (1-6) by pressing on either end. With Pin (1-6) removed, Handle (1-11) and Spring (1-8) may be separated from Handle Cam (1-10).

8.5.3 Coupler Subassembly (1-5) - Disassemble Coupler Subassembly (1-5) as follows:

Remove Cotter Pin (2-11) and Washer (2-12) from Crank Shaft (2-20). Rotate Link (2-16) slightly and disengage Link (2-16) from Crank (2-20). Remove Bearing (2-13). Press Poppet (2-15) and Link (2-16) far enough out of the coupler outlet end to remove Pin (2-14). Then withdraw Poppet (2-15) and Link (2-16) from opposite ends of the coupler.

Note: Newer units will utilize a multi-piece Poppet Assembly (2-15A) or (2-15F). This can be determined by the presence of the four Screws (2-15B) in the face of the unit. Do not disassembly Poppet Assembly (2-15A) or (2-15F) if present unless a part of the unit is to be replaced.

If disassembly of the Poppet Assembly (2-15A) or (2-15F) is required do so by removing the four Screws (2-15B). Remove these Screws (2-15B) using a torque wrench noting the running torque as they are removed. If the running torque is less than 6 in.-lbs. (83 kg-cm), discard the Screws (2-15B). Remove and discard O-ring (2-15D).

Remove Seal (2-17), Quad-ring (2-18) and four Wave Washers (2-19) or one (2-19A). Note; in older units that utilize an O-ring instead of the Quad-ring (2-18) there may have been only three Wave Washers (2-19). It is recommended that four Wave Washers (2-19) or the newer single Wave Washer pack (2-19A) be utilized to improve sealing capability. Note: In some units a two piece wave washer was used in the transition period between the use of the four and the single piece units. The use of the two pieces (one is approximately half of the size of the other piece used) produced the same force as the current single piece unit. When replacing Wave Washers (2-19) or the two piece unit, always replace either with the newer 2-19A.

Discard the Quad-ring (2-18) (or O-ring, if present). The use of an o-ring, part number 201201-347, is still an available option. The O-ring will, in the experience of some customers, not offer as long life as the Quad-ring (2-18).

Rotate the Crank Shaft (2-20) and press down so it enters cavity cast into Body (2-5), then tilt Crank Shaft (2-20) and remove it along with Bearing Washer (2-21). Remove Bearing Washer (2-21) from Crank Shaft (2-20).

Remove Bearing (2-22). Remove one Shaft Seal Bearing (2-24), O-ring (2-25), second Shaft Seal Bearing (2-24) and Shaft Bearing (2-23). Discard O-ring (2-25).

Depress Detent Pin (2-26) and pull Collar (2-27) with Bumper (2-28) to extended position. Remove Retainer Ring (2-29). Withdraw Collar (2-27) over opposite end of Body (2-5). Ball Bearing (2-30) will fall out. Locate and secure Ball Bearing (2-30). Do not remove Bumper (2-28) from Collar (2-27) unless it is to be replaced. If Bumper (2-28) requires replacement, use a sharp cutting tool to cut it away from Collar (2-27).

WARNING

Use extreme care to prevent personal injury while cutting Bumper (2-28) from Collar (2-27).

Remove four Lug Rings (2-32) each with four Lugs (2-33, 2-33A) attached from Body (2-5). Remove Lugs (2-33, 2-33A) from Lug Ring (2-32).

Insert a metal rod of 5/32 inch (3.9 mm) or smaller diameter in hole in Detent Pin (2-26) to prevent Detent Pin (2-26) from turning while unscrewing Bolt (2-34).

CAUTION:

Do not use pliers or other gripping tools to hold Detent Pin (2-26). Raised burrs on Detent Pin (2-26) may cause pin to jamb depressed, resulting in an unsafe condition that could result in a fuel spill.

Remove Bolt (2-34) and Washers (2-35 & 36). From opposite end, remove Detent Pin (2-26) and Detent Spring (2-31) from Body (2-5). Disassembly of the Coupler Subassembly (1-5) is completed.

8.5.4 60532A Carriage Assy

8.5.5 The Carriage Assy (1-W) should be removed from the unit before any work is performed on it.

Older units will utilize loose piece spacers that are loose from the Flange (6-9), either single piece or multi-piece, between the Flange (6-9) and the Body (2-5) to provide the correct spacing of the unit to the ground. This necessitates the use of longer fasteners, Screws (7-19), for the attachment of the unit to the coupler. Newer units will have the spacers pressed into the Flange (6-9) making it impossible to install them incorrectly.

CAUTION!

Do not use the shorter Screws (2-2) on the four attachment points for the Carriage Assembly (1-W). The use of the shorter bolts can result in insufficient strength of the mating joint possibly resulting in an accident.

Remove Screws (7-19), Washers (or older one piece spacer) (7-18) (where present). Next remove Nuts (6-1), Washers (6-2) and Casters (6-3). Remove one Screw (6-4), Washer (6-5) and Washer (6-6). Set feet of Strut (6-16) into a soft jawed vise and hold securely. Grasp Spring (6-8) with a pair of vise grips or other suitable tool to hold it in place, pull the Shaft (6-7) from the Strut (6-16). Items (6-9) through (6-12) will then be loose. The other Washers (6-6) will also be loose. There is no need to remove the other Screw (6-4) and Washer (6-5) from the Shaft (6-8) unless one of the parts is to be disassembled. Remove Cotter (6-14) and Clevis (6-15) to disassemble Latch (6-13).

On newer units where the installation spacers are an integral part of the Flange (6-9) do not attempt to remove them, they are pressed in place.

9.0 INSPECTION AND REPAIR

9.1 GENERAL

Inspect all metal parts for cracks, nicks, gouges, scratches, corrosion, etc. Special attention should be given to the Body (2-5) in the window areas that contain the Lugs (2-33, 2-33A). Weld repair in the area is not recommended due to potential distortion of the Body (2-5) which could cause the Collar (2-27) not to slide freely on the Body (2-5). Inspect all parts for stripped or crossed threads and loose inserts.

9.2 COLLAR STOP ASSEMBLY (1-G)

Inspect Torsion Spring (4-14) for distortion. Free ends of Spring (4-4) shall be in proper position and actuate Collar Stop (4-12) without evidence of sticking or binding. Inspect Collar Stop Assembly (1-G) for damage sufficient to prevent proper operation.

9.3 COUPLER SUBASSEMBLY (1-5)

Precisely measure the following wear surfaces. Discard and replace those parts that fail this inspection:

A. Pin (2-14) - Inspect bearing diameter for indications of galling, raised metal, etc. Replace pin if local wear results in low spots exceeding 0.005 inches (0.12 mm) below adjacent surfaces.

B. Link (2-16) - Place Link (2-16) on straight edge or surface plate and inspect for flatness. Replace Link (2-16) if bent. Measure longest dimensions of both holes in Link (2-16). Replace if longest dimension of the smaller hole exceeds 0.382 inch (10.70 mm) and larger hole exceeds 0.505 inch (12.83 mm).

C. Dust Cap (2-37) - Inspect for continued serviceability. Replace if required.

D. Bearing (2-13) - Measure outside diameter and inside diameter of Bearing (2-13). The outside diameter should not be less than 0.494 inch (12.55 mm) in the smallest dimension. The inside diameter should not be greater than 0.390 inch (9.91 mm) in the largest dimension. Replace Bearing (2-13) if either of these dimensions is exceeded.

E. Crank (2-20) - Measure the diameter of the protrusion on the Crank (2-20) that mates with the Bearing (2-13). The diameter of the protrusion shall not be less than 0.365 inch (9.271 mm).

F. Poppet (2-15) or (2-15C) and Shaft (2-15 E) - Inspect sealing surface for nicks, scratches, or gouges that will cause leakage. Minor scratches may be repaired by polishing with abrasive cloth, 300 grid or finer. Measure through hole's largest diameter [on Shaft (2-15E) if Poppet (2-15A) is used]. Replace Poppet (2-15) or (2-15C) if through hole largest diameter exceeds 0.382 inch (9.70 mm).

G. Lugs (2-33, 2-33A) - Measure diameter of hole through all 16 lugs. Reject all lugs with hole dimension greater than 0.163 inch (4.15 mm) in any direction. Use a new Lug (2-33, 2-33A) as a template. Compare each Lug (2-33, 2-33A) to the new Lug (2-33, 2-33A). Reject all lugs with local wear exceeding 0.030 inch (0.76 mm) by comparison to the new Lug (2-33, 2-33A). Carefully inspect all remaining Lugs (2-33, 2-33A) for cracks or other damage.

CAUTION:

Lug (2-33, 2-33A) failure can result in the coupler being ejected from the mating adapter. Replace any Lug (2-33, 2-33A) that is questionable.

H. Detent Pin (2-26) - Inspect annulus and 25° angle cam surface of pin for excess wear. Replace Detent Pin (2-26) with local wear in excess of 0.005 inch (0.125 mm) deep.

I. Lug Rings (2-32) - Inspect the four Lug Rings (2-32) for local wear. Replace rings where local wear has reduced local wire diameter below 0.149 inch (3.78 mm).

J. Ball Bearing (2-30) - Inspect Ball Bearing (2-30) for local wear or flat spots. Replace if any flat spots are observed.

K. Wave Washers (2-19 or 2-19A) - Carefully inspect the four Wave Washers (2-19) or the single (2-19A) for cracks. Replace cracked Wave Washers (2-19 or 19A). On some older models where item (2-18) was an O-ring, only three Wave Washers (2-19) were utilized. If the Quad-ring (2-18) is used one must install four Wave Washers (2-19) or the single (2-19A).

L. Collar (2-27) - Inspect the 0.335 inch (9.5) wide shoulder, located on the collar's inside diameter 1.36 inches (34.5 mm) from the collar's connection end, for local depressions in excess of 0.08 inch (2.0 mm) wide and 0.010 inch (0.25 mm) deep. Replace Collar (2-27) if any are found. The inside diameter of the Collar (2-17) that rubs against the outer diameter of the Body (2-5) will also wear. The amount of allowable wear of both parts together is checked by the use of the Wear Gauge, 61362. This allowable wear will be checked on a post assembly check using the Wear Gauge.

M. Body (2-5) - Inspect Body (2-5) for excessive wear, abrasions, gouges, cracks, etc. Pay particular attention to the area around the windows in which the Lugs (2-33, 2-33A) fit. If this area is cracked, replace the Body (2-5). Determine that the two pins shown in Figure 2 are in place. These pins are used to prevent rotation of the Lug Rings (2-32).

CAUTION:

If the pins are missing, rotation of the Lug Rings (2-32) will cause Lugs (3-33) to drop out and can cause a coupler disconnect.

The outer diameter of the Body (2-5) that rubs against the Collar (2-27) will also wear. The amount of allowable wear of both parts together is checked by the use of the Wear Gauge, 61362. This allowable wear will be checked on a post assembly check using the Wear Gauge.

N. Rigid Operating Handle (2-1) - Inspect the round surface of the Handle (2-1) and the adjacent surface of the Collar (2-27) that acts as the interlock for cracks, being bent, worn, etc. Replace damaged handle or collar.

O. Folding Handle Assembly (1-B) - Inspect the round surface of the Handle Cam (1-10) and the adjacent surface of the Collar (2-27) that acts as the interlock for cracks, being bent, worn, etc. Replace damaged handle or collar.

9.4 FEMALE HALF QUICK DISCONNECT ASSEMBLY 1-K-N, P

A. Balls (3-9) - Inspect the 24 Balls (3-9) for chips, flat spots, excess wear, etc. Replace as required.

B. Sleeve (3-7) - Inspect inside of Sleeve (3-7) for indications of brinelling or ball indentations at intersection of tapered surface with constant inside diameter at ball lock area as well as for cracks, excessive abrasions, or other damage. Replace if damaged or worn as described above. If carrying handle is worn such that it is no longer serviceable replace entire Sleeve (3-7). Measure the ball lock area which is the smallest inside diameter of the Sleeve (3-7). Replace Sleeve if smallest inside diameter is more than 5.415 inches (107.5 mm).

C. Housing (3-6) - Inspect Housing (3-6) for damage, abrasions, thread damage, cracks, etc. Inspect grooves on the outside of the Housing (3-6) for rounded edges. Replace Housing (3-6) if grooves are excessively worn such that they no longer safely retain rings.

D. Retainer Ring (3-8) - Place Retainer Ring (3-8) over Housing (3-6) so it is fully engaged in its groove (which is the groove closest to the ball bearing holes). Press tips of the Ring (3-8) toward each other, but do not deform them. While pressing the tips, use a 6-inch vernier caliper, or equivalent, to measure the dimension from the outside of the one tip to the outside of the other tip. The dimension must be 3.90 inches (99.1 mm) minimum. If the dimension is less, the Retaining Ring (3-8) should be replaced.

9.5 ELBOW (OPTION E OR F) (1-E OR -F)

If the Carriage Assembly (1-W) is used, check the wall between the inner diameter of the coupler upper half Elbow (1-1) and the threaded holes. The diameter should be smooth and continuous with no evidence of bulging or hairline cracks. If the wall is bulged or cracked, the threads are already over stressed and the part is no longer safe for use. The coupler Elbow (1-1) will have to be replaced. Reference Figure 8 for assistance. Check to be sure that the correct length of fasteners is being used on the Carriage Assembly (1-W) as noted in paragraph 9.7.

The threaded holes in the elbow have Heli-coil inserts. Check to see that the inserts are flush or below the surface of the flange. If the inserts are not flush or below, take the part out of service and contact your nearest Eaton Carter brand distributor or the factory for further repair instructions.

9.6 PRODUCT SELECTION (OPTION C) (1-C)

Inspect the Coupler Subassembly (1-5) to assure the correct number of Product Selection Bolts (1-C) are utilized (five) and that they are placed in the correct positions. The outer head of the bolts

should be flush to 0.03 inch (0.76 mm) below the adjacent collar surface.

9.7 CARRIAGE ASSY (1-W)

Inspect all parts, for cracks, especially in the Strut (6-16), Casters (6-3) for excessive wear that will make rolling difficult, and the contact surfaces of the Latch (6-13) and Lever (6-10).

CAUTION:

When operating the Carriage Assembly do not place hands onto any part of the unit except the Lever (6-10). Improper operation can result in injury to the hands.

Using a new Latch (6-13) as a guide, compare the contour of the new one to the one disassembled from the unit. If there is wear in excess of .030 (0.76 mm) it should be replaced.

Measure the distance on the Flange (6-9) between the centerline of the hole for the Shaft (6-7) to the surface that makes contact with the Latch (6-13). The dimension shall not exceed 1.04 (26.42 mm). The hole in the Flange (6-9) shall not be larger than 0.544 (13.818 mm).

Measure the Clevis Pin (6-15) diameter. It shall not be less than 0.370 (9.398 mm) in the area where the Latch (6-13) makes contact.

Measure the hole in the Latch (6-13). It shall not exceed 0.386 (9-804 mm).

Measure the diameter of the Shaft (6-7). It shall not be less than 0.485 (12.319 mm)

Check the four Screws (7-19) to be sure they are the correct length. They should have a shank length of 1 19/32 ± 1/32 inch. (40.5 mm). The other two bolts (2-2) will be 1 inch (25.4 mm) long. If the bolts are not the correct length, order kit 80898.

On newer units, units that do not utilize loose spacers [Washers (7-18) or single piece spacers, not shown] make sure that there are four spacers included as a part of Flange (6-9). If there are no spacers present in the four mounting holes, then order kit 80898.

9.8 REPAIR

A. Remove corrosion and minor damage from metal parts by polishing with abrasive cloth, 300 grid or finer. Apply chemical film (alodine 1200 or equivalent) to bared aluminum surfaces.

B. Cleaning - Clean all parts with clean solvent or fuel, using soft bristle brush and lint-free cloth. Air dry.

WARNING:

Use solvent or fuel in safe, well ventilated area only.

9.9 REPLACEMENT

A. General - Replace all parts found damaged beyond repair or found excessively worn during inspections above.

B. Recommended Replacements - Eaton recommends that the following parts be replaced at each overhaul regardless of condition:

Item No.	Part No.	Description	Used On
1-4	201201-348	O-ring	Elbow Assy (1-E or F)
1-8*	29179	Spring	Option B - Folding Handle Assy (1-B)
2-10	MS29513-249	O-ring	Coupler Assy (1-5)
2-15B**	LP57G82P8	Screw	Coupler Assy (1-5)
2-15D***	MS29513-037	O-ring	Coupler Assy (1-5)
2-17	28755	Nose Seal	Coupler Assy (1-5)
2-18	209837-347	Quad-ring	Coupler Assy (1-5)
	201201-347	Alternate O-ring	Coupler Assy (1-5)
2-21	200103	Bearing Washer	Coupler Assy (1-5)
2-22	203563	Bearing	Coupler Assy (1-5)
2-23	29221	Bearing	Coupler Assy (1-5)
2-25	MS29513-212	O-ring	Coupler Assy (1-5)

* Replace only if the Folding Handle Assy (1-B) has been disassembled.

** Replace only if disassembled from Poppet Assembly (15A or 15F) and torque is less than 6 in.-lbs. (83 kg-cm) to remove.

*** Replace only if disassembled from Poppet Assembly (15A or 15F).

10.0 REASSEMBLY

10.1 GENERAL

Assembly is accomplished in essentially the reverse order of disassembly. The following paragraphs cover assembly of the major components, followed by final assembly of the complete Unit.

10.2 COLLAR STOP ASSEMBLY (1-G)

A. Insert Pin (4-15) through Bracket (4-13), Collar Stop (4-12) and Torsion Spring (4-3). Position free ends of the Torsion Spring (4-3) as shown in Figure 4.

B. Install Cotter Pin (4-16).

C. Check that the Collar Stop (4-12) moves under pressure of the Torsion Spring (4-14) without sticking or binding.

10.3 FOLDING HANDLE ASSEMBLY (OPTION B) (1-B)

Replace Spring (1-8) each time the handle is disassembled. Assemble the Handle (1-B) as follows:

A. Place the Cam (1-10) in small, soft-jawed vise.

CAUTION:

Do not over tighten vise and collapse or damage handle Cam (1-10).

B. Position new Spring (1-8) in clevis of Handle (1-11) and place both between clevis of Handle Cam (1-10). Note the orientation of the flat and slotted end on the Pin (1-6) in Figure 1 to assure correct reassembly. Insert Pin (1-6) through holes in Handle Cam (1-10) and Handle (1-11) and with end of Spring (1-8) hole over Pin (1-6) and balance of Spring (1-8) passing under Pin (1-6) and over Handle (1-11).

C. Fasten end of Spring (1-8) to Pin with pan head Screw (1-9).

D. Insert large blade screwdriver in clevis end of Pin (1-6) and wind Spring (1-8) in a counterclockwise direction.

E. When Spring (1-8) is wound, insert Cotter Pin (1-7) to lock Pin (1-6). Operate Handle Assembly (1-B) to fully unfolded position while inspecting the following:

(1) Clearance between Spring (1-8) and adjacent face of Handle Cam (1-10) should occur throughout travel.

(2) Clevis ends of Handle (1-11) should bottom on face of Handle Cam (1-10) with Handle Assembly (1-B) in extreme extended condition.

10.4 COUPLER SUBASSEMBLY (1-5)

Replace all parts found defective in the inspections noted above with new or serviceable parts. Replace all parts specified in paragraph 10.8 with new parts. Lightly lubricate all O-rings, Quad-ring and threaded parts with petroleum jelly (Vaseline or equivalent).

A. If a new Bumper (2-28) is being utilized it is suggested that the Bumper (2-28) be heated to 150° - 160° (32° - 71° C) to soften it to make assembly to the Collar (2-27) easier. This can be accomplished in either an oven or in hot water, however, use caution.

CAUTION:

Do not overheat Bumper (2-28) or it will melt!

B. Assemble four (4) Lugs (2-33, 2-33A) to each of four (4) Lug Rings (2-32). Assemble the four Lug Rings (2-32) with Lugs (2-33, 2-33A) installed in groove in Body (2-5) so Lugs (2-33, 2-33A) mate with slots in Body (2-5). The end of one Lug Ring (2-32) should be positioned against the spiral pin pressed into Body (2-5) (See Detail on Figure 2). This pin is there to prevent the Lug Rings (2-32) from gradually rotating around during use and allowing the Lugs (2-33, 2-33A) to become dislodged.

C. Slide Collar (2-27) (with Bumper (2-28) attached) over Body (2-5) from the outlet end, capturing Lug Rings (2-32) and Lugs (2-33, 2-33A). Install large Retaining Ring (2-29) into groove in Body (2-5).

D. Lay unit thus far assembled on its side with detent pin hole in bottom location. Slide Collar (2-27) all the way forward against the Retaining Ring (2-29). Insert Ball Bearing (2-30) into detent pin hole, making certain that it drops into the hole in the Body (2-5). Slide Collar (2-27) all the way back. Assemble Detent Spring (2-31) to Detent Pin (2-26). Place hardened rod of 5/32 inch (3.9 mm) or smaller diameter through hole at forward end of Detent Pin (2-26) and insert Detent Pin (2-26) and Spring (2-31) in hole in Body (2-5). Depress Detent Pin (2-26) as far as possible and while holding Detent Pin (2-26) depressed, slide Collar (2-27) all the way forward. Holding the hardened rod through the Detent Pin (2-26) to prevent turning, assemble the Detent Pin (2-26) to the Body (2-5) by installing Washers (2-35 & 36) and Bolt (2-34). Washer 2-35), the one with the smallest outside diameter, should be adjacent to the head of the Bolt. Remove hardened rod after Bolt (2-34) is tightened.

E. Install Bearing (2-22) into crank shaft bore from inside of Body (2-5). Install Shaft Bearing (2-23) into crank shaft bore from outside of Body (2-5). Place Bearing Washer (2-21) over Crank Shaft (2-20) and insert Crank Shaft (2-20) through bearings from inside of Body (2-5). Press Bearing back down if necessary.

F. Assemble one shaft seal Bearing (2-24), O-ring (2-25) and second shaft seal Bearing (2-24) over Crank Shaft (2-20) from the outside and press these parts into the Body (2-5), exerting care that the O-ring (2-25) is not pinched.

G. Position four (4) Wave Washers (2-19) or the single (2-19A) into Body (2-5) bore. Assemble Quad-ring or alternate O-ring (2-18) over Seal (2-17) and press into Body (2-5) bore, capturing Wave Washers (2-19 or 2-19A) and being careful that Quad-ring or O-ring (2-18) is not pinched.

NOTE:

If multi-piece Poppet Assembly (2-15A) or (2-15F) is used check the tightness of the four Screws (2-15B) before proceeding. Torque for the Screws (2-15B) must be 10 ± 1 in. lbs. (138 ± 13.8 kg-cm). If the torque is less than specified, the screws have come loose in service and they should be replaced.

H. If Poppet (2-15A) or (2-15F) was disassembled reassemble at this time. Install O-ring (2-15D) into the groove in Shaft (2-15E) or (2-15G). Assemble Poppet (2-15C) onto part and retain with the four Screws (2-15B) Torque Screws to 10 ± 1 in.-lbs. (138 kg-cm) noting the running torque before tightening. If the running torque is under 6 in.-lbs. (83 kg.-cm.) replace Screws (2-15B) with new ones.

I. Insert Link (2-16) into Body (2-5) bore so Link (2-16) bump is in the bore's longest slot. Secure Poppet (2-15), (2-15A) or (2-15F) to Link (2-16) with Pin (2-14) and press back into bore so Pin (2-14) is captured.

J. Slightly turn and work the largest hole in the Link (2-16) over lug of Crank Shaft (2-20). Place Bearing (2-13) through Link (2-16) and onto lug of Crank Shaft (2-20). Position Washer (2-12) over Bearing (2-13). Fasten Link (2-16) to Crank Shaft (2-20) with Cotter Pin (2-11).

K. A post assembly check using the Wear Gauge, 61362, is necessary to determine if the collective wear between the Collar (2-27) and Body (2-5) is less than allowable. Repeat the gauge check described in paragraph 8.4. It will be necessary to install the Woodruff Key (2-9) and the Handle (2-1 or 1-B) loosely to actuate the unit to the open position.

If the unit fails the gauge check, it will be necessary to disassemble the unit sufficiently to replace the Collar (2-27). If after the Collar (2-17) has been replaced and the unit still fails the gauge check, it will be necessary to replace the Body (2-5).

L. Install Woodruff Key (2-9) and Handle (2-1 or 1-B) onto Crank Shaft (2-20). Fasten Handle (2-1 or 1-B) with Washer (2-8), Lock Washer (2-7) and Bolt (2-6). Torque Bolt (2-6) to 90 ± 10 inch pounds (1.04 ± 0.12 m-kg).

10.5 ELBOW ASSEMBLY (1-E OR F)

A. Install O-ring (1-4) in appropriate groove on the Elbow (1-E or F).

B. If Wear Rings (1-3) are to be replaced, install them in both grooves of the Elbow (1-E or F) being careful not to scratch surrounding surfaces.

C. On Option E - Replace Pipe Plug (1-2) only if required using 1-1.5 wraps of Teflon tape for sealing.

10.6 FEMALE HALF QUICK DISCONNECT (1-K-N & P)

Replace all parts found defective in the inspection procedures above.

A. Assemble the Retainer Ring (3-8) into Sleeve (3-7). Spread ends of the Retainer Ring (3-8) and slide both parts over Housing (3-6). Temporarily allow Retainer Ring (3-8) to seat in the Housing (3-6) groove nearest the pipe threaded end.

B. Set Housing (3-6) on end in a shallow container with the disconnect end up. Use a cotton-type swab to place a small amount of petroleum jelly on the bottom of each of the 24 holes in the Housing (3-6).

C. Carefully insert 24 Balls (3-9) into the holes in the Housing (3-6). The petroleum jelly should hold the balls in place while the ends of the Retainer Ring (3-8) are spread and the Sleeve (3-6) is moved to the engaged position, capturing the Balls (3-9).

E. Spread Retainer Ring (3-8) and assemble into groove closest to threaded end on Housing (3-6).

F. Keep Retainer (3-5) and Screws (3-4) handy for final assembly as noted later.

10.7 CARRIAGE ASSY (1-W)

Place the feet of the Strut (6-16) in a soft jawed vise to hold it firmly with the feet flat on the work bench. Install Latch (6-13), Clevis Pin (6-11) Washers (6-12) and Cotter Pin (6-14) into Strut (6-16). Install one Screw (6-4) and Washer (6-5) into Shaft (6-7). Place two Washer (6-6) onto Shaft (6-7) and then place Shaft (6-7) through one hole of the Flange (6-9) and Lever (6-10). Place another Washer (6-6) between the Lever (6-10) and Strut (6-16). Place this sub-assembly into position with the Strut (6-16) and the Spring (6-8). The straight tang of the Spring (6-8) is to be placed in the hole in the Strut (6-16).

CAUTION!

Be very careful during the next phase of the assembly. The Spring (6-8) is very strongly loaded and could cause damage to person if not controlled properly.

Grasp the Spring (6-8) with a pair of battery pliers (channel locks) with the straight tang toward the left. Using a pair of vise grips in the right hand grasp the spring and rotate the spring until the bent tang is approximately into position under the

Flange (6-9)., Holding the Spring (6-8) with the vise grips, push the Shaft (6-7) through the Spring (6-8) to engage the Shaft (6-7) into the other hole of the Strut (6-16) and on through the other parts. Note that one Washer (6-6) should be placed between the Strut (6-16) and Lever (6-10) and between the Lever (6-10) and the Flange (6-9). Install two Washers (6-6) onto Shaft (6-7) end. Fasten in place with the other Screw (6-4) and Washer (6-5).

Install Spring (6-11) and Washer (6-12) into recess in Strut (6-16).

FINAL CAUTION!

If Carriage Assy (1-W) is latched when it is not attached to the unit, unlatching may be injurious to your person. Be very careful in unlatching the Carriage Assy (1-W) in this position.

10.8 FINAL ASSEMBLY

Verify that the Coupler Subassembly (1-5), the Female Half Quick Disconnect (1-K-N & P), Elbow Assembly (1-E or F) and the Collar Stop Assembly (1-G) have been overhauled and reassembled.

A. Assemble O-ring (2-10) onto the outlet of the Coupler (1-5).

B. Assemble Elbow Assembly (1-E or F) to Coupler Assembly (1-5) while being careful that the O-ring (2-10) is not pinched. Fasten, along with Collar Stop Assembly (1-G), using six Screws (2-2), Washers (2-3) and tab of Dust Cap (2-37) beneath one Screw (2-2). Place Collar Stop Assembly (1-G) under two Screws (2-2) as shown in Figure 5.

C. Install the Female Half Quick Disconnect (1-K-N & P) to the Male Half (part of the Elbow Assembly (1-E or F). Once in place, assemble the Retainer (3-5) in place with two Screws (3-4) and lockwire to properly retain. For Options L or N (BSPP threads) install a proper sized gasket (not furnished by Eaton) in the proper position. Use the wrench flats on the Female Half Housing (3-6) to tighten the unit to the hose.

D. If the Carriage Assy (1-W) is utilized, the four longer Bolts (7-19) must be used in lieu of the standard Bolts (2-2) for its installation. Check the four Screws (7-19) to be sure they are the correct length. They should have a shank length of 1 19/32 ± 1/32 inch. (40.5 mm). The other two bolts (2-2) will be 1 inch (25.4 mm) long. If the bolts are not the correct length, order kit 80898.

If the spacers between the Flange (6-9) and Body (2-5) are loose pieces (either a series of Washers (7-18) or single piece Spacers (not shown) then proceeds with this paragraph. If the spacers are permanently affixed to the Flange (6-9), skip to the next paragraph. The Washers (7-18) will be used as spacers between the Body (2-5) and Flange (6-9) except where the Collar Lock Assy (1-G) is used. In that case one of the Washers (7-18) will be replaced by the mounting bracket of the Collar Lock Assy (1-G). There will be seven Washers (7-18) used under three of the Screws (7-19) and six will be used where the Collar Lock Assy (1-G) is retained. Washers (2-3) will be utilized under the Screw (7-19) heads. See Figure 7.

When the spacers are affixed to the Flange (6-9), as on newer units, Washers (7-18) are used under the heads of Screws (7-19), with no other washers required.

Screws (2-2) and (7-19) should be torqued to 90 ± 10 in.-lbs. (104 ± 12 kg.-cm.).

11.0 TESTING

11.1 TEST EQUIPMENT

The following test equipment is required:

- Inlet test adapter conforming to API Bulletin 1584 with pressure equalization valve such as Eaton Carter brand Model 60505D or 61526D.
- Outlet test adapter to mate pipe threads in outlet.
- 0-300 psig fuel or test solvent pressure source.

11.2 TEST CONDITIONS

Test media shall be Stoddard Solvent (Federal Specification P-D-680), JP-4 per Mil-J-5624, Jet A or equivalent.

11.3 FUNCTIONAL TEST

A. With the Collar (2-27) retracted (Unit not attached to an adapter and closed), verify that the opening Handle (1-B or 2-1) can not be rotated to the open position.

B. Depress and release the Detent Pin (2-26) several times to verify that the pin promptly extends and locks the Collar (2-27) each time it is released. Rotate the Detent Pin (2-26) in 90° increments and repeat this operation at each position to verify that there is no position at which the Detent Pin (2-26) hangs retracted.

C. With the Collar (2-27) retracted, place the Coupler squarely over an unpressurized, vented Model 60505D or 61526D adapter so the face of the adapter depresses the Detent Pin (2-26). The Collar (2-27) should drop freely in a positive manner into the engaged position with no hesitation, sticking or binding. With the Collar (2-27) extended, it should be impossible to separate the Unit from the test adapter. Retract the Collar (2-27), depressing the Collar Lock Assembly (1-G) at the same time, and lift the Unit off of the adapter. The Detent Pin (2-26) should extend and prevent extension of the Collar (2-27).

D. Repeat C several times. Then, engage the Unit to the adapter and open and close the Poppet (2-15) by rotating the operating Handle (2-1 or 1-B), while verifying that it is not possible

to retract the Collar (2-27) with the Handle (2-1 or 1-B) in any position but the fully closed position. The Collar Stop Assembly (1-G) should automatically engage the Collar (2-27) each time the Collar (2-27) becomes extended preventing the retraction of the Collar (2-27) until it is manually depressed.

E. Repeat D several times. Then, retract the Collar and separate the Unit from the adapter. Verify that the Detent Pin (2-26) has extended and locked the Collar (2-27) in the retracted position, Verify that the Poppet (2-15) can not be opened with the Collar (2-27) retracted.

11.4 PROOF AND LEAKAGE TEST - DETACHED

A. Fill the Unit with test fluid and connect the outlet to a test fluid pressure source. Close the Coupler Poppet (2-15).

B. Bleed all air from the test setup.

C. Apply 5 psig pressure to the outlet for one minute while inspecting for leakage.

D. Reduce the pressure to zero.

E. There shall be no evidence of leakage as a result of the pressure application.

F. Repeat tests in accordance with C-E above with 300 psig.

11.5 PROOF AND LEAKAGE TEST - ATTACHED

A. Repeat the tests in paragraph 11.4 with the Unit engaged to the test adapter and the Unit poppet fully open and outlet of the test adapter closed.

B. There shall be no evidence of distortion or leakage as a result of the pressure application.

12.0 ILLUSTRATED PARTS CATALOG

Tables 1.0 through 7.0 tabulate the parts and sub-assemblies comprising the 61525 Model Hydrant Coupler including all available options. The item numbers of the table are keyed to the exploded views shown in Figures 1 through 7.

TABLE 1.0
61525 Coupler and Options

Fig.	Item	Part Number	Description	Units/ Assy	Coupler Option	Spares/10 Units/Yr
1	B	41731	Folding Handle Assy	1	B	-
	6	29178	Pin	1	B	-
	7	GF9245-68	Cotter Pin	1	B	4
	8	29179	Spring	1	B	10
	9	GF51957-42	Screw	1	B	2
	10	29177	Handle Cam	1	B	1
	11	207355	Handle	1	B	-
	C	GF4-7A	Product Selection	5	C	-
	E	44526	90° Elbow w/sense port	1	E	-
	F	41622	90° Elbow no sense port	1	F	-
	1	41621	Elbow	1	F	-
	44527		Elbow	1	E	-
	2	GF27769D6	Pipe Plug	1	E	-
	3	28382	Wear Ring	2	E,F	-
	4	201201-348	O-ring	1	E,F	10
	5	61525	Coupler, Lwr Half	1	All but S	-
	61525S		Coupler, Lwr Half	1	S	-
	G	44140	Collar Stop Assy	1	G	-
	K	41730-3	Female Half, 3" NPT	1	K	-
	L	41730-4	Female Half, 3" BSPP	1	L	-
	M	41730-1	Female Half, 4" NPT	1	M	-
	N	41730-2	Female Half, 4" BSPP	1	N	-
	P	60740	Female Half, 4" ASSPT	1	P	-
	W	60532A	Carriage Assy	1	W	-
		KD61525-1	Kit - Contains all soft goods parts plus others needed to repair or overhaul 61525, 61525E or 61525F - contains the follow ing items - 1-4, 2-10, 2-17, 2-18, 2-21, 2-22, 2-23 & 2-25.			
		KD61525-2	Kit - All parts in KD61525-1 plus other parts needed for a major overhaul - contains following items - 1-4, 2-10, 2-11, 2-12, 2-13, 2-17, 2-18, 2-21, 2-22, 2-23, 2-25, 2-28, 2-32 & 2-33.			
		KD61525-3	Kit – Contains parts necessary to upgrade the Latching Lugs of the 61525 Lower Half of the 64900 Coupler to be compliant with the			

breakaway force requirements of API/IP specification Bulletin 1584, 3rd Edition. Contains items – 2-10 & 2-33.

KD61525-4 Kit – Contains parts necessary to upgrade the latching lugs of the 61525 lower half of the 64900 coupler to be compliant w ith the breakaway force requirements of API/IP Specification 1584, 3rd Edition and strengthened actuating collar. (Note: Bumper w ill be assembled to the collar prior to sh ipment.) Contains items – 2-10, 2-27, 2-28 & 2-33.

KD61525-5 Kit - All parts in KD61525-2, 2nd Edition lugs - contains follow ing items - 1-4, 2-10, 2-11, 2-12, 2-13, 2-17, 2-18, 2-21, 2-22, 2-23, 2-25, 2-28, 2-32 & 2-33A (SECOND EDITION).

KD61525-6 Kit – Contains parts necessary to upgrade the Latching Lugs of the 61525 Lower Half of the 64900 Coupler to be compliant with the breakaway force requirements of API/IP specification Bulletin 1584, 2nd Edition. Contains items – 2-10 & 2-33A (SECOND EDITION).

TABLE 2.0
Lower Coupler Half

Fig.	Item	Part Number	Description	Units/ Assy	Coupler Option	Spares/10 Units/Yr
2	1	207494	Handle	1	All but B	2
	2-36	44665	Coupler, Lower Half	1	All but S	-
		44675	Coupler, Lower Half	1	S	-
		47245	Coupler, Lower Half	1	Replaced 44665	
	2	GF24673-16	Screw	6	All	-
	3	GF960C516	Washer	6	All	-
	4	Left intentionally blank				
	5	43945	Body	1	All	-
	6	GF4-4A	Screw	1	All	-
	7	GF35338-44	Lockwasher	1	All	-
	8	28781	Washer	1	All	-
	9	201286	Key	1	All	-
	10	MS29513-249	O-ring	1	All	10
	11	202010	Cotter Pin	1	All	2
	12	NAS1169C10	Washer	1	All	-
	13	28765	Bearing	1	All	5
	14	210004	Pin	1	All	1
	15	209600	Poppet (Single piece)	1	All but S	1
		210139	Poppet (Single piece)	1	S	1
	15A	47064-1	Poppet Assembly	1	All but S	1
	15B	LP57G82P8	Screw	4	All	1
	15C	220276	Poppet	1	All	1
	15D	MS29513-037	O-ring	1	All	1
	15E	220275	Shaft	1	All but S	1
	15F	47064-2	Poppet Assembly	1	S	1
	15B	LP57G82P8	Screw	4	All	1
	15C	220276	Poppet	1	All	1
	15D	MS29513-037	O-ring	1	All	1
	15G	220349	Shaft	1	S	1
	16	209601	Link	1	All	1
	17	28755	Seal, Nose	1	All	10
	18	209837-347	Quad-ring	1	All	10
	19	29232	Wave Washer	4	All	-
	19A	210587	Wave Washer	1	All	-
	20	209996	Crank Shaft	1	All but S	-
		210141	Crank Shaft	1	S	-
	21	200103	Washer	1	All	2
	22	203563	Bearing	1	All	10
	23	29221	Bearing	1	All	10

Fig.	Item	Part Number	Description	Units/ Assy	Coupler Option	Spares/10 Units/Yr
2	24	29216	Bearing	2	All	10
	25	MS29513-212	O-ring	1	All	10
	26	200689	Detent Pin	1	All	-
	27	207482	Collar	1	All	1
	28	28928	Bumper	1	All	1
	29	RR-800-S	Retaining Ring	1	All	-
	30	GF19060-4815	Ball	1	All	-
	31	28763	Spring	1	All	-
	32	28760	Lug Ring	4	All	4
	33	221860	Lug (3rd edition)	16	All but A	32
	33-A	200688	Lug (2nd edition)	16	Al	32
	34	GF3-3A	Bolt	1	All	-
	35	GF960C10L	Washer	1	All	-
	36	GF35333-39	Lockwasher	1	All	-
	37	44660	Dust Cap	1	All	-

TABLE 3.0
Quick Disconnect Female Half

Fig.	Item	Part Number	Description	Units/ Assy	Coupler Option	Spares/10 Units/Yr
1	K	41730-3	Female Half, 3" NPT	1	K	-
	L	41730-4	Female Half, 3" BSPP	1	L	-
	M	41730-1	Female Half, 4" NPT	1	M	-
	N	41730-2	Female Half, 4" BSPP	1	N	-
	P	60740	Female Half, 4" ASSPT	1	P	-
3	1	26961	Lock Ring	1	K-N,P	-
	2	GF20995C32	Lock Wire	A/R	K-N,P	1 Spool
	3	GF35276-261	Screw	2	K-N,P	3
	4	28383	Retainer	1	K-N,P	1
	5	29173	Housing, 4" NPT	1	M	-
		29174	Housing, 4” BSPP	1	N	-
		27374	Housing, 3” NPT	1	K	-
		27377	Housing, 3” BSPP	1	L	-
		201742	Housing, 4” ASSPT	1	P	-
	6	28779	Sleeve	1	K-N,P	-
	7	26962	Retainer Ring	1	K-N,P	-
	8	GF19060-26	Ball	24	K-N,P	-

TABLE 4.0
Collar Stop Assy, Option G

Fig.	Item	Part Number	Description	Units / Ass/y	Coupler Option	Spares/10 Units/Yr
1	G	44140	Collar Stop Assy	1	G	-
4	12	207165	Stop	1	G	-
	13	207166	Bracket	1	G	-
	14	207167	Spring	1	G	1
	15	GF20392-2C63	Pin	1	G	-
	16	GF24665-151	Cotter Pin	1	G	2

TABLE 5.0
60532A Carriage Assy, Option W

Fig	Item	Part Number	Description	Units/ Assy	Coupler Option	Spares/1 0 Units/Yr
1	W	60532A	Carriage Assy	1	W	-
6	1	GF51971-4	Nut	2	W	-
	2	GF35338-47	Washer	2	W	-
	3	203577	Caster	2	W	-
	4	GF35206-296	Screw	2	W	-
	5	GF35333-41	Washer	2	W	-
	6	GF960-816L	Washer	9	W	-
	7	29745	Shaft	1	W	-
	8	29663	Spring, Torsion	1	W	-
	9	29664	Flange, obsolete, (Note 3)	1	W	-
		47078	Flange, with spacers (Note 3)	1	W	-
	10	201041	Lever	1	W	-
	11	29665	Spring	1	W	-
	12	GF960-616L	Washer	3	W	-
	13	29662	Latch	1	W	-
	14	GF9245-44	Cotter	1	W	-
	15	GF20392-5C73	Pin, Clevis	1	W	-
	16	29667	Strut	1	W	-
7	17	80898	Hardware Kit (Note 3)	1	W	-
	18	GF960C516	Washer	28	W	-
	19	GF5-14A	Screw	4	W	-
	17A	47080	Hardware Kit (Note 3)	1	W	-
	18	GF960C516	Washer	4	W	-
	19	GF5-14A	Screw	4	W	-

Notes:

1. All part numbers beginning with "GF" are interchangeable with those beginning with either "AN" or "MS". If the "GF" is followed by three numbers it is interchangeable with and "AN" part, otherwise it is interchangeable with an "MS" part of the same number.
2. The recommended spare parts shown above are the number required to support 10 Units for one year. In addition it is advisable to keep a spare Coupler Subassembly (1-5) complete with the Elbow Assy (1-E or F) to interchange with any unit in the field that may exhibit a problem. The recommended quantities are based on the ratio of spare parts sold for each unit during a one year period of time. The actual quantity required will vary from location to location.
3. Item 17, 80898, is an installation kit used with Flange (6-9), 29664, that does not have integrally fitted installation spacers. Item 17A, 47078, is an installation kit used with Flange (6-9), 47078, that has the fitted installation spacers. When ordering a new Flange (6-9) order part number 47078.

13.0 OBSOLETE PARTS INFORMATION

There is a long history of Eaton's Carter brand coupler changes that, through the years has not been particularly explained. The reasons for these changes are now lost, however we are providing a table that will detail the various couplers and the detail parts that were utilized in them. Many of these parts are no longer economical to continue to manufacture as spare parts hence we have made every effort to indicate the parts (kits) required to upgrade couplers older than the 42221-1 and the special "short stroke" versions provided to mate early Parker F368, F373 and F382 Hydrant Valves.

The table below provides the history of the various Eaton Carter brand Coupler lower halves. The exploded views provided in Figures 1-3 can be used as an assistance to identify the required parts. The major pictorial differences between the newer and older couplers are in the Detent Pin (2-26) area. Older couplers, such as the 41609, used two detent pins and a retaining ring instead of the Ball (2-30). For this reasons it is not possible to totally interchange some of the parts on an item for item basis. The couplers are separated into two major areas:

- Linkage System
- Collar - Body - Detent Pin

The latter part of the table provides an indication as to the availability of the various parts or their substitutes where the inventory has been depleted.

API Coupler Lower Half History of Parts Interchangeability

Crank Shaft - Poppet - Link Area:

Item	41609	42221	42221-1	42221-2	44665	44675
Crank Shaft	28756	42401	201422	200096	209996	210141
Pin	----	200785	-----	-----	-----	-----
Cotter Pin	202010	98398D218	207521	207521	202010	202010
Washer	28762	GF960C616L	-----	-----	NAS1169C10	NAS1169C10
Link	(2) 28757	200687	201421	201421	209601	209601
Bearing	28765	-----	28765	28765	28765	28765
Key	GF20066-205	201286	201286 GF20066-205		201286	201286
Pin (link)	28766	GF9390-690	GF16555-647	GF16555-647	210004	210004
Disc	(2) 28767	-----	-----	-----	-----	-----
Poppet	28754	200686	207991 202307	208069	47064-1	47064-2
Shaft	41740	-----	----- -----		-----	-----
Shims	29381	-----	----- -----		-----	-----

Collar - Body - Detent Pin Area:

Item	41609	42221	42221-1	42221-2	44665	44675
Snap Ring	RR-800-S	RR-787-S RR-	800-S	RR-800-S RR-800-S	RR-800-S	
Body	43944	200784	43945 43945	43945 43945		
Detent Pin	(2) 28761	200689 200689	200689 200689	200689		
Detent Lock	28764	GF19060-4815	GF19060-4815	GF19060-4815	GF19060-4815	GF19060-4815

Notes:

1. All part numbers beginning with "GF" are interchangeable with those beginning with either "AN" or "MS". If the "GF" is followed by three numbers it is interchangeable with and "AN" part, otherwise it is interchangeable with an "MS" part of the same number.

2. The above table reflects the various parts used on each of the couplers shown and their superseding parts. It is not necessarily true that the various parts shown supersede the equivalent older part. The table below indicates the superseding part or kit of parts for each of the older items shown above. Where "limited stock" is indicated, it is the status as of April 1, 1992. Please ask your Eaton Carter brand equipement distributor to check with us for the current situation.

Parts support for the various older couplers

Ordered	Name	Replacement	Part Ordered Inventory Note
200096	Crank Shaft	210141	No longer available
200684	Collar		No longer available
200686	Poppet		No longer available
200687	Link		No longer available
201421	Link		Limited stock/check stock
201422	Crank Shaft	209996	No longer available
202307	Poppet		Not available.
207481	Collar	44665	No longer available.
207521	Headed Pin		Limited stock/check stock
207991	Poppet		No longer available.
208069	Poppet		No longer available
28754	Poppet		No longer available
28756	Crank Shaft		No longer available
28757	Link		Limited stock/check stock
28761	Detent Pin	44665	Limited stock/check stock
28764	Detent Lock	44665	Limited stock/check stock
28766	Pin		Limited stock/check stock
28767	Disc		Limited stock/check stock
29381	Shim		Limited stock/check stock
41740	Shaft		No longer available
42401	Crank Shaft		No longer available.
200785	Pin		No longer available.
43944	Body	44665	Limited stock/check stock
GF16555-647	Pin		No longer available.
GF9390-690	Pin		No longer available

The kits below can be used in support of the coupler lower half, part numbers 44665 and it replacement, part number 47245.

Kit Number	Description
KD44665-1	Overhaul coupler with latching lugs in compli ance to breakaway force per API/IP specification 1584, 2nd edition. Contains the following items (see Table 2.0): 2-33A, 2-22, 2-15A, 2-16, 2-20, 2-13, 2-22, 2-14, 2-11, 2-12, 2-25, 2-18, 2-21, 2-17, 2-10, 2-28, & 2-24.
KD44665-2	Overhaul coupler with latching lugs in compli ance to breakaway force per API/IP specification 1584, 3rd edition. Contains the follow ing items (see Table 2.0): 2-33, 2-22, 2-15A, 2-16, 2-20, 2-13, 2-22, 2-14, 2-11, 2-12, 2-25, 2-18, 2-21, 2-17, 2-10, 2-28, & 2-24.
KD44665-3	Parts to upgrade the short stroke 42221-1 low er half in compliance to breakaway force per API/IP specification 1584, 2nd edition. Contains the follow ing items (see Table 2.0): 2-33A, 2-22, 2-15F, 2-16, 2-20, 2-13, 2-22, 2-14, 2-11, 2-12, 2-25, 2-18, 2-21, 2-17, 2-10, 2-28, & 2-24.
KD44665-4	Parts to upgrade the short stroke 42221-1 low er half in compliance to breakaway force per API/IP specification 1584, 3rd edition. Contains the following items (see Table 2.0): 2-33, 2-22, 2-15F, 2-16, 2-20, 2-13, 2-22, 2-14, 2-11, 2-12, 2-25, 2-18, 2-21, 2-17, 2-10, 2-28, & 2-24.

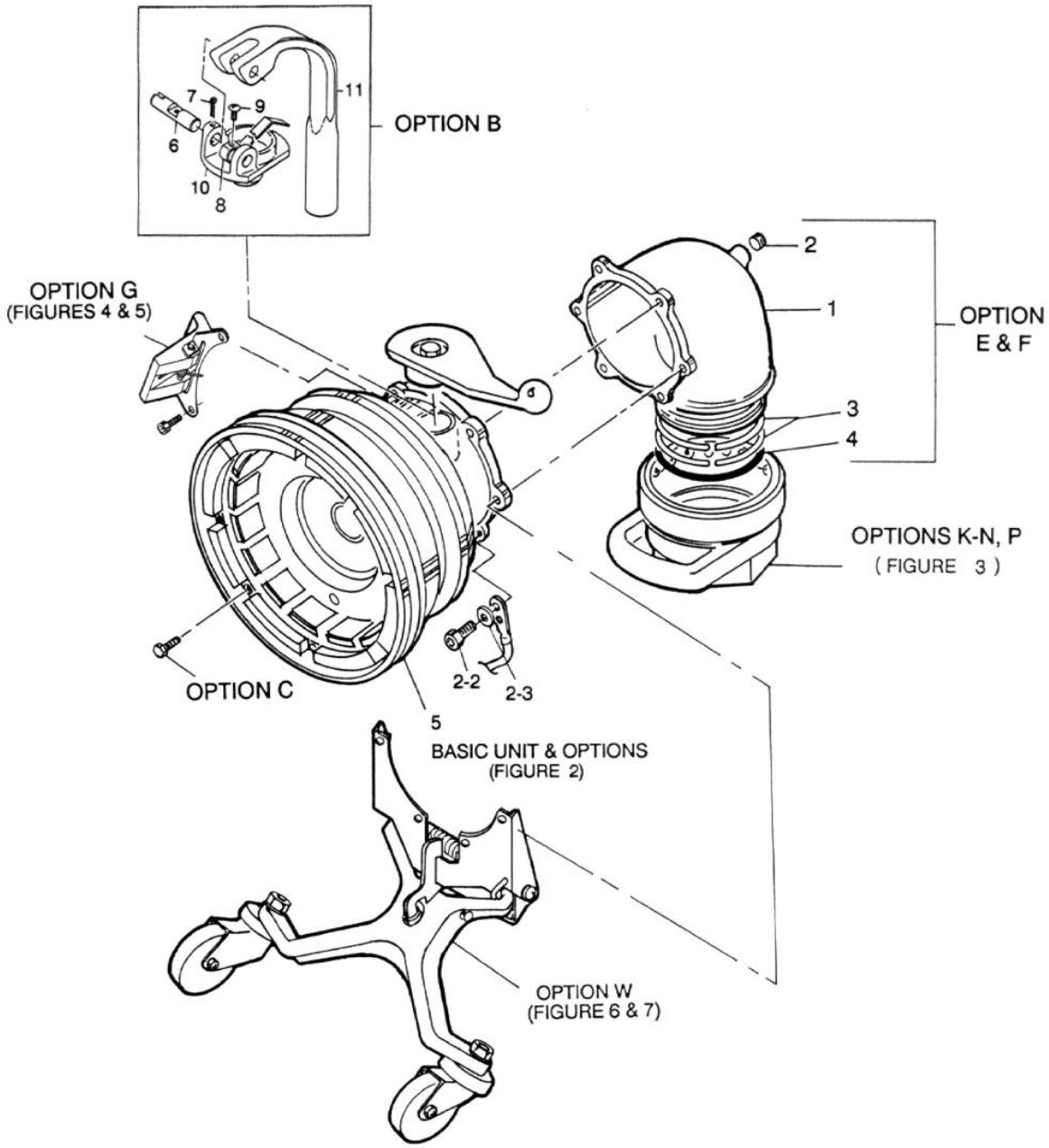

Figure 1

Overall Coupler View

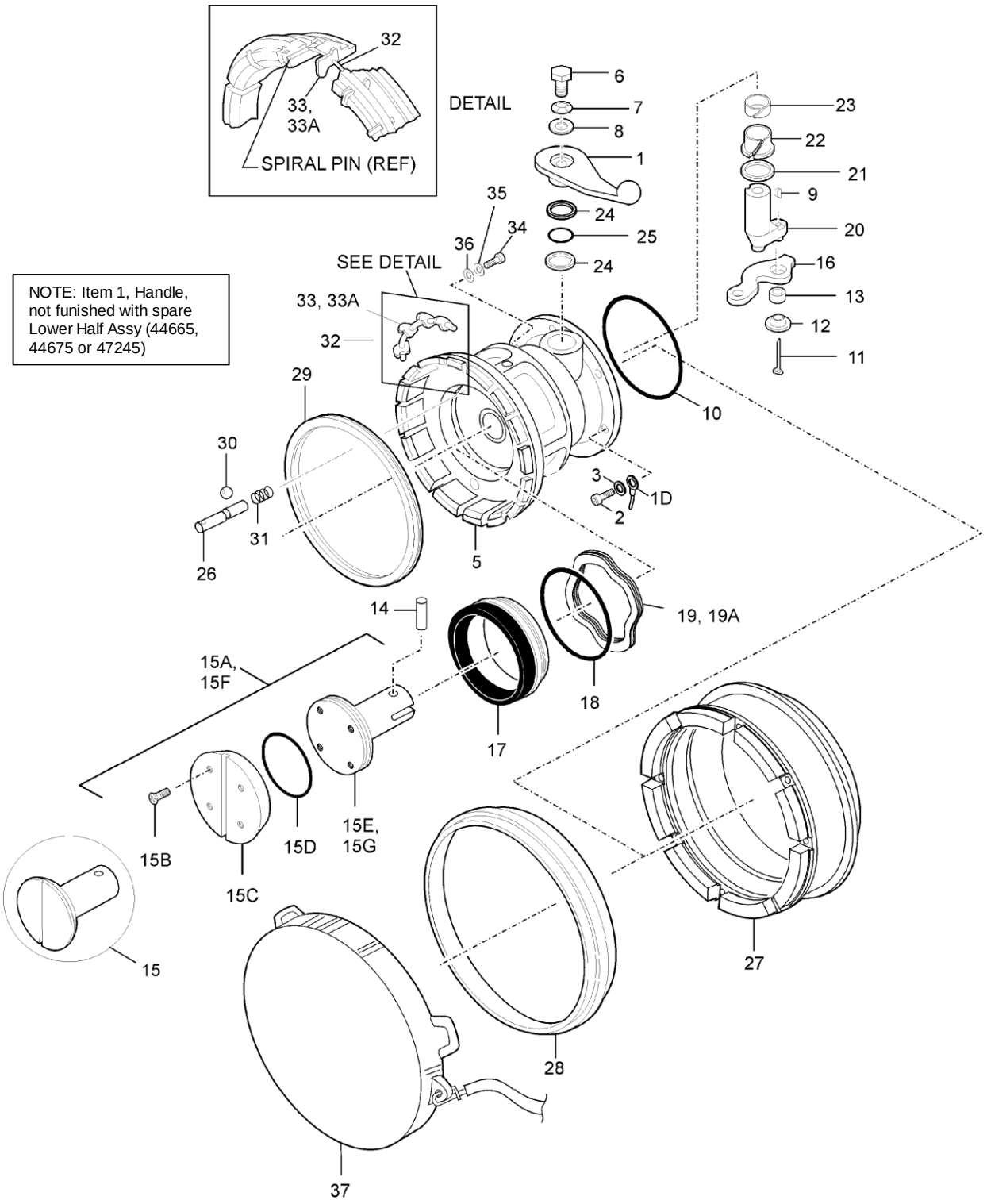

Figure 2

Lower Half Coupler View

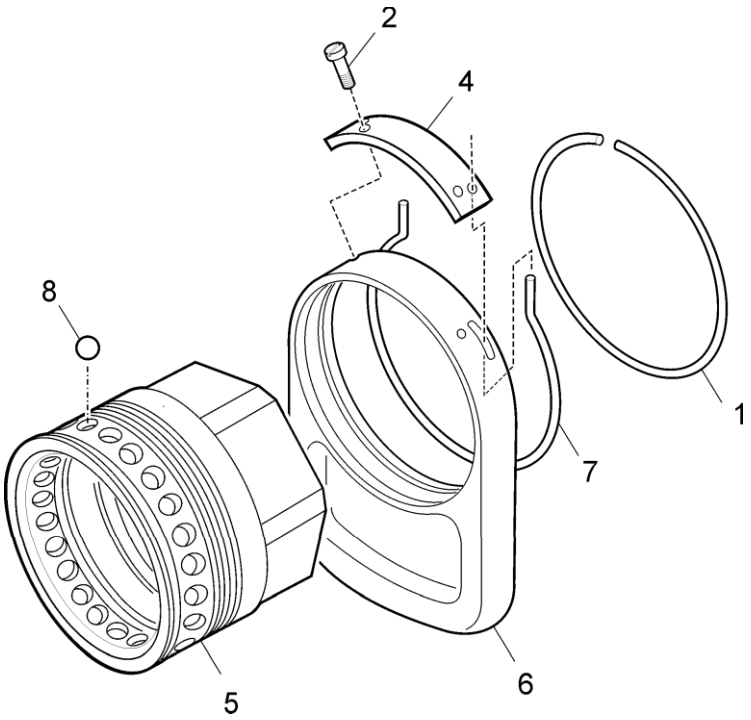

Figure 3
Female Half QD

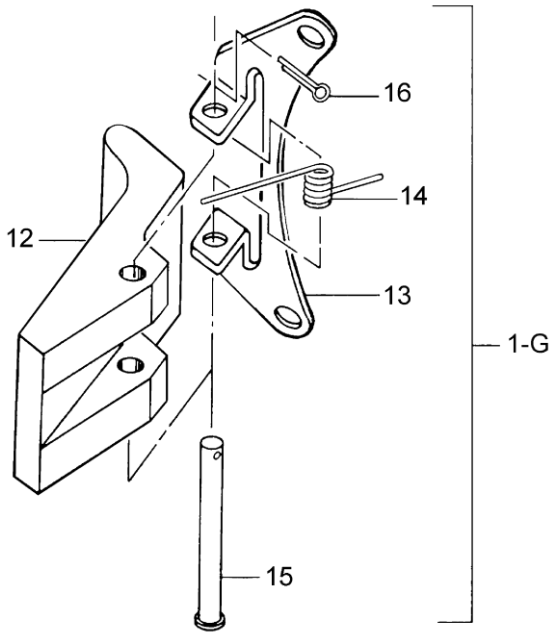

Figure 4
Collar Stop Lock Assy

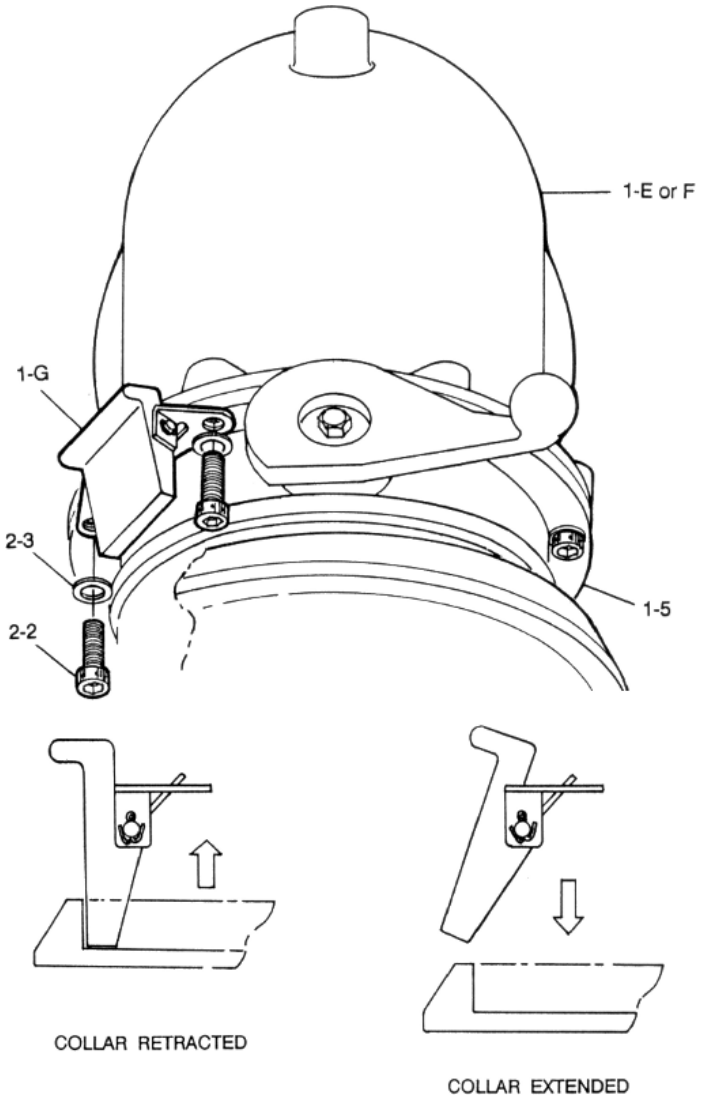

Figure 5
Collar Stop Assembly Method

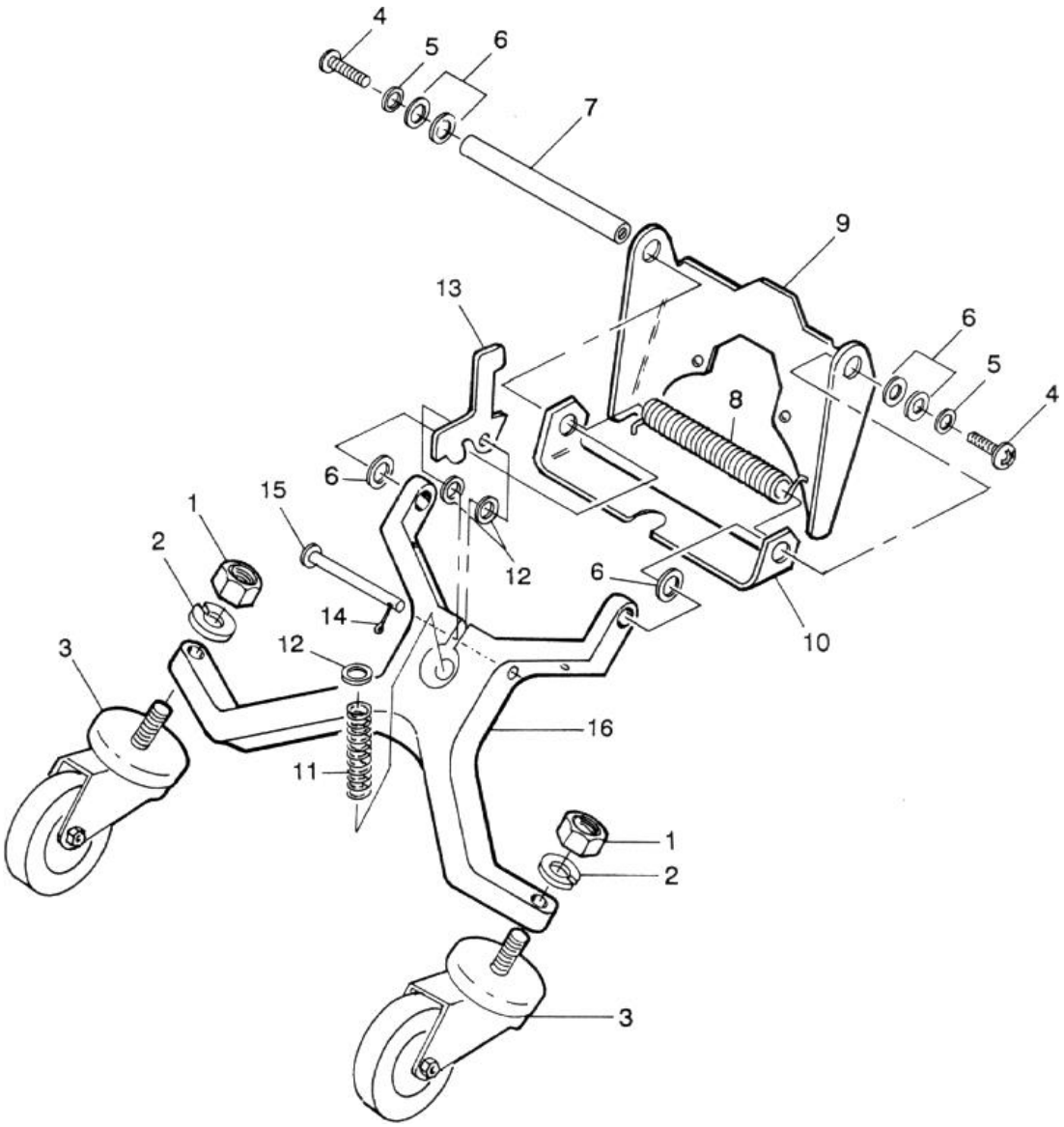

Figure 6

Carriage Assy

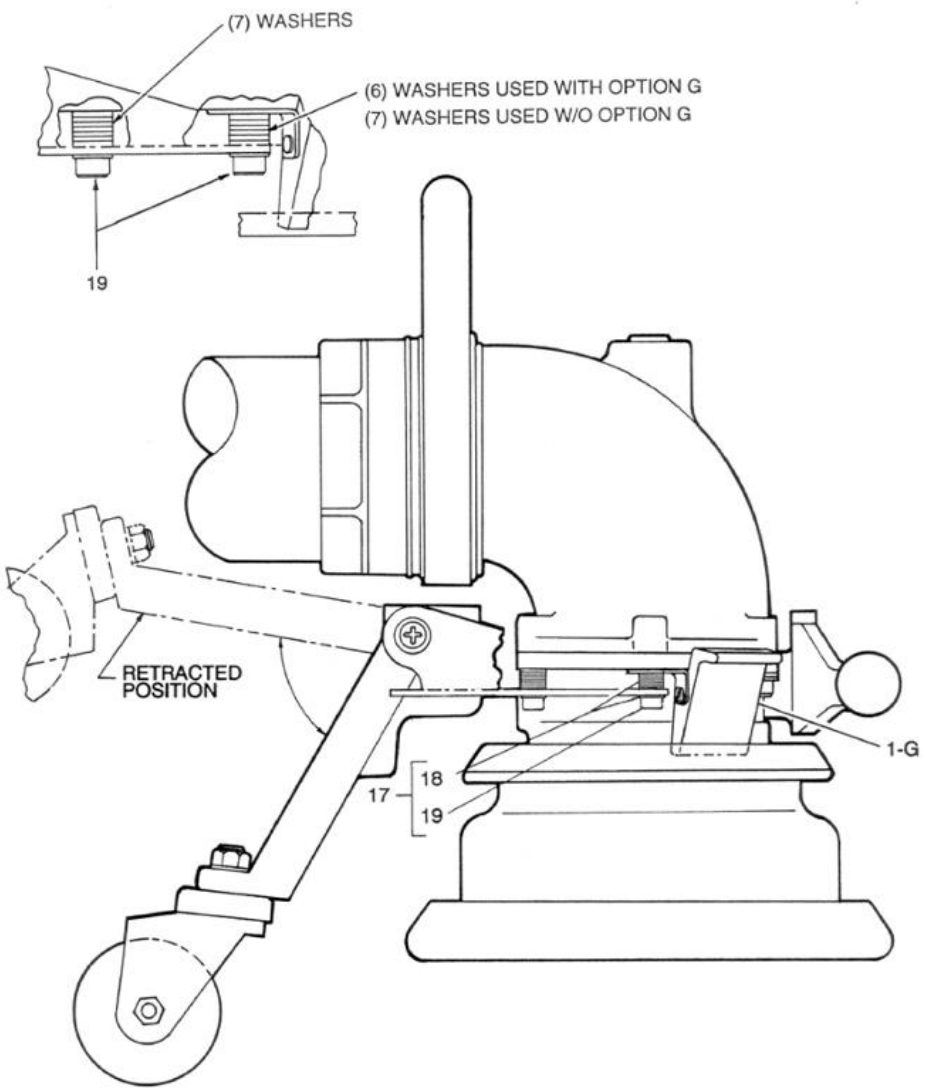

Figure 7
Carriage Assy Installation

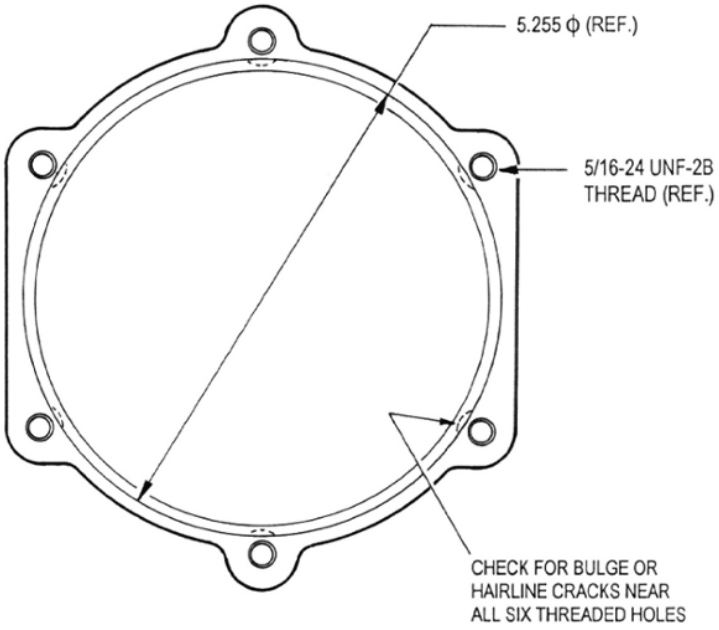

Figure 8

Coupler Flange Inspection

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