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SM64226

November, 2008

Applicable addition manuals
None

:

Aerospace Group
Conveyance Systems Division
Carter® Brand Ground Fueling Equipment

Maintenance & Repair Manual

2 ½ Inch and 3 Inch Side Load Emergency Breakaway Coupling

Model 64226

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Maintenance, Overhaul & Test Instructions
Model 64226
2-½" and 3" Side Load Emergency Breakaway Coupling

1.0 Introduction

This service manual is provided as a guideline for users of the 2 ½" or 3" Breakaway Coupling Model 64226. The coupling is designed to provide a safe and environmentally friendly means for hot refueling applications with mobile refueling equipment.

2.0 Description

Eaton's Carter® brand Model 64226 Emergency Breakaway Coupling is a side load dry breakaway emergency coupling with either a 2-½" or 3" male NPT inlet and a 2-½" or 3" female NPT outlet.

The 64226 valve assembly consists of two poppet dry break halves; the inlet half (female) and the outlet half (male). When connected, both halves will open to allow flow through the assembly. An interface o-ring seals between the two halves to form a leak free assembly against the atmosphere.

When the coupling is disconnected or separated in case of an emergency, the two halves will independently form a dry break to stop spillage from both halves.

The three shear pins connecting the two halves facilitate the breakaway mechanism of the emergency valve. The interface of the two halves is designed so that the shear pins will give way and the two halves disengage when the valve assembly is subjected to a side load shearing force.

The coupling meets or exceeds all the requirements of the Naval Air Systems Command Aircraft Refueling NATOPS Manual, NAVAIR 00-80T-109 and is listed as approved for use in Appendix D of their manual.

When the connected assembly is subjected to a shearing side pull load of approximately 350 pounds, the two halves separate and the poppets in each half spring closed, securing the fuel in each half, resulting in almost no spillage. This emergency breakaway function is fully automatic. Upon breakaway, in an emergency situation, the two halves should be inspected. Some deformation of the body at the shear pin and breakaway location is to be expected. These are designed for a limited number of breakaway events and the coupling should be replaced if severely deformed. If deemed fit for reuse the emergency dry break coupling halves can be re-connected manually without the use of any tools after replacing all three shear pins with the spare set contained in the female half of the coupling. The refueling operation can then be resumed.

3.0 Table of Options

Option Letter	Description
A	3" NPT male inlet and female outlet

4.0 Operation

4.1 Specifications

4.1.1 The Carter 64226 is constructed of stainless steel with a diameter of 4.11 inches, a length of 8.10 inches and a weight of approximately 8.05 pounds.

4.1.2 The valve is compatible for use with aviation jet fuels JP-5, JP-8, Jet A-1, Jet A, TS-1, JP-4 and Jet B.

4.1.3 The valve has a pressure drop of 9.0 psid at 300 gpm and a pressure drop of 37.5 psid at a flow rate of 600 GPM.

4.1.4 The valve is designed for use in temperatures ranging from -45° F to +165° F.

4.2 Connection and Disconnection

4.2.1 The two halves are manually connected by simply retracting the Spring Sleeve (1-2) on the Female half and pushing the Male half into the Female half then inserting the three Shear Pins (1-7) and releasing the sleeve to secure the pins.

4.2.2 Disconnection is accomplished by retracting the Spring Sleeve (1-2), removing the three Shear Pins (1-7) and pulling the Male half from the Female half then releasing the collar.

4.2.3 To access the spare set of Shear Pins (1-7) retract the Pin Retainer (1-4) and rotate housing until the three pins fall from the unit.

5.0 Disassembly

5.1 Refer to Figure 1. Separate the Male half of the coupling from the Female half by retracting the Spring Sleeve (1-2), removing the three Shear Pins (1-7) and pulling the Male half from the Female half then releasing the collar. Set the Male half aside.

5.2 Retract the Pin Retainer (1-4) and rotate housing until the three spare Shear Pins (1-7) fall from the unit set aside for reuse.

5.3 Set the Female Nozzle Housing (1-6) so the poppet is accessible.

5.3.1 Remove and set aside for reuse the Lock Wire (1-11).

5.3.2 Remove and set aside for reuse the Valve Retainer (1-10) and the Poppet Spring (1-9).

5.3.3 Remove Female half Poppet Seal Assembly (1-8). Inspect poppet surface and edges for any nicks, scratches, voids or deformations that might cause leakage. It may be re-used if no damage is found.

5.4 Reverse the Female Nozzle Housing (1-6) so the Retaining Ring (1-1) is visible.

5.4.1 Retract the Spring Sleeve (1-2) slightly and remove the Retaining Ring (1-1) from its groove on the outside diameter of the Nozzle Housing (1-6).

5.4.2 With the retaining ring removed, the Spring Sleeve (1-2), the Spring (1-3) and the Pin Retainer (1-4) can be removed and set aside for reuse.

5.5 Remove and discard to O-ring (1-5) from the inlet of the Nozzle Housing (1-6).

5.6 Inspect the inside and outside of the Female Nozzle Housing (1-6) for any deformations that might prohibit connection of the halves and sealing of the dry break poppets. Discard housing and replace if necessary.

5.7 Retrieve the Male Adapter Housing (1-12) and position so the poppet is accessible.

5.7.1 Remove and set aside for reuse the Lock Wire (1-11).

5.7.2 Remove and set aside for reuse the Valve Retainer (1-10) and the Poppet Spring (1-9).

5.7.3 Remove Male half Poppet Seal Assembly (1-8). Inspect poppet surface and edges for any nicks, scratches, voids or deformations that might cause leakage. It may be re-used if no damage is found.

5.8 Inspect the inside and outside of the Male Adapter Housing (1-12) for any deformations that might prohibit connection of the halves and sealing of the dry break poppets. Discard housing and replace if necessary.

Disassembly of the 64226 is now complete.

6.0 Inspection

The Breakaway Coupling Assembly halves should be periodically inspected and tested to ensure the equipment is in satisfactory working condition.

6.1 Periodic Inspections

The dry break sealing surfaces of both halves should be visually inspected for scratches and any surface imperfections. Damage to the poppet sealing surfaces can cause leakage during the fueling process.

6.2 If a breakaway event occurs the coupling should be inspected and hydrostatic pressure tested for any evidence of damage or leakage. Repair or replace seals and components, as necessary, in accordance with this service manual. Hydrostatic pressure tests shall be conducted at 110 psig for one minute.

6.3 Overhaul Inspections

6.3.1 During the overhaul process, all components should be visually inspected for cracks, wear, damage or distortion which could inhibit proper function and movement of the part.

6.3.2 Replace any parts identified as damaged, with new Carter Ground Fueling parts.

6.3.3 When reusing parts during an overhaul ensure that they are free of old grease, debris and/or contaminants, prior to and during reassembly.

6.3.4 Particular attention should be paid to all sealing surfaces before reassembly. Replace any parts showing evidence of scratches, tears, voids or deformations that might prohibit sealing.

7.0 Reassembly

7.1 During reassembly it is recommended that a light coating of petroleum jelly may be used on all new o-rings and seals being installed.

7.2 Refer to Figure 1. Begin reassembly by placing Male Adapter Housing (1-12) with connecting end on the work surface.

7.2.1 Insert the lightly lubricated Poppet Assembly (1-8) into the housing molded side down.

7.2.3 Place the Poppet Spring (1-9) into the hole in shaft of Retainer Valve (1-10). Holding spring in place, install Lock Wire (1-11) with prongs pointed down toward the inside of the housing, onto the groove of the vanes of the Valve Retainer (1-10).

7.2.4 Insert the assembled items from 7.2.3 above into the hole in the backside of the Poppet Seal Assembly (1-8). Compress the unit until the Lock Wire (1-11) can be fitted into its groove in the housing interior to secure the assembly. Set the unit aside.

7.3 Retrieve the Female Nozzle Housing.

7.3.1 Install Pin Retainer (1-4) over outside diameter of housing.

7.3.2 Install the Spring (1-3) over outside diameter of housing until resting on interior shoulder of Pin Retainer (1-4).

7.3.3 Install Spring Sleeve (1-2) over Spring (1-3) and retain the assembly in place by installing Retaining Ring (1-1) into its grove on the outside diameter of the housing.

7.4 Install a lightly lubricated O-ring (1-5) in its groove in the housing interior diameter.

7.5 Reverse the Female Nozzle Housing (1-6) and install a lightly lubricated Poppet Assembly (1-8) into the housing molded side down.

7.5.1 Place the Poppet Spring (1-9) into the hole in shaft of Retainer Valve (1-10). Holding spring in place, install Lock Wire (1-11) with prongs pointed down toward the inside of the housing, onto the groove of the vanes of the Valve Retainer (1-10).

7.5.2 Insert the assembled items from 7.5.1 above into the hole in the backside of the Poppet Seal Assembly (1-8). Compress the unit until the Lock Wire (1-11) can be fitted into its groove in the housing interior to secure the assembly.

7.6 Retrieve male half and couple the two units by compressing the two together. While retracting the Spring Sleeve (1-2) install the three Shear Pins (1-7) to hold the halves and release the Spring Sleeve (1-2) to secure the assembled halves together.

7.7 Retract the Pin Retainer (1-4) to where the slot(s) for the spare pins is/are visible and insert the three spare Shear Pins (1-7). Release the retainer to secure the spare shear pins.

Reassembly of the 64226 is complete and ready for testing. If immediate testing will not occur, cover the unit's inlet and outlet with a protective covering to prevent contamination.

8.0 Testing

8.1 Hydrostatic pressure test the valve at 110 PSI for one minute using a test fluid in accordance with MIL-C-7024.

9.0 Illustrated Parts Catalog

Table 1.0
Model 64226
Side Load Dry Breakaway Emergency Coupling

Item No	Part Number	Description	Qty/Unit	Spares/10 Units/Yr
1	VS-356-S02	Ring, Retaining	1	-
2	221901	Sleeve, Spring	1	-
3	221906	Spring	1	-
4	221902	Retainer, Pin	1	-
5	M25988/1-335	O-Ring	1	10
6	221897	Housing, Nozzle 2 ½" NPT	1	-
6	222170	Housing, Nozzle 3" NPT (Option A)	1	-
7	221903	Sheer Pin	6	30
8	47619	Poppet Seal Assy	2	-
9	RR-34	Spring, Poppet	2	-
10	221900	Retainer, Valve	2	-
11	221904	Lock Wire	2	-
12	221898	Adapter Housing, 2 ½" NPT	1	-
12	222169	Adapter Housing, 3" NPT (Option A)	1	-
Not Shown	WW-44	Adapter Cap Plug, 2 ½"	1	-
Not Shown	WW-57A	Adapter Cap Plug, 3" (Option A)	1	-
Not Shown	WW-45A	Nozzle Cap Plug, 2 ½"	1	-
Not Shown	WW-96A	Nozzle Cap Plug, 3" (Option A)	1	-
	KD64226-1	Kit – Contains the six shear pins necessary to overhaul the 64226. Contains item(s) – 1-7.		

10.0 Illustrated Figures

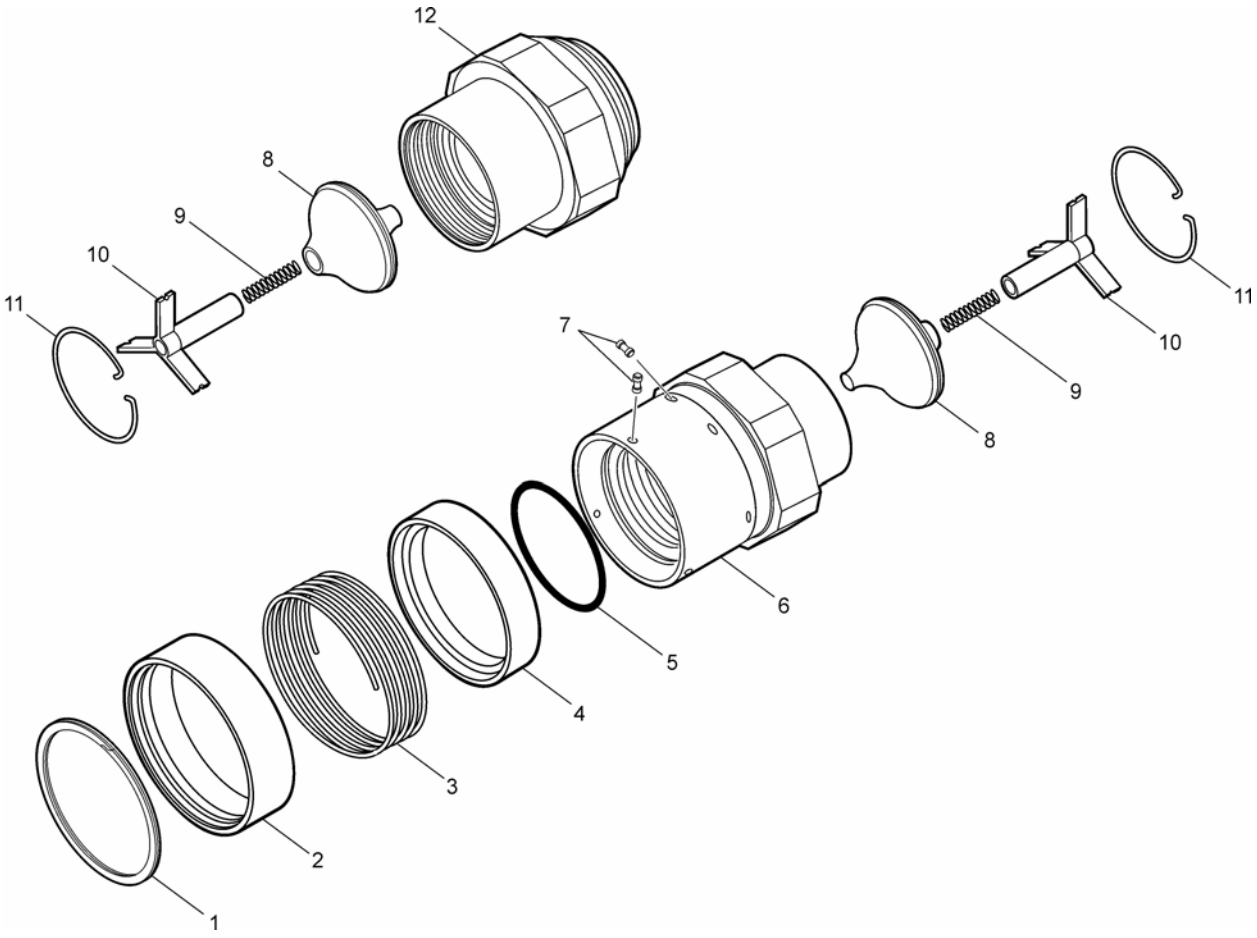

Figure 1
Side Load Dry Breakaway Emergency Coupling

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