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Aerospace Group
Conveyance Systems Division
Carter® Brand Ground Fueling Equipment

SM64051

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Applicable additional manuals:

NONE

Maintenance & Repair Manual

Commercial Unisex Coupling - Non-Valved

Model 64051

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MAINTENANCE, OVERHAUL & TEST INSTRUCTIONS

CARTER PART NUMBER 64051 NON-VALVED UNISEX COUPLING

1.0 INTRODUCTION

This manual furnishes detailed instructions covering the maintenance and overhaul of Carter Part Number 64051, Non-Valved

Commercial Unisex Couplings and the various options listed in Section 3.0.

2.0 EQUIPMENT DESCRIPTION

The Carter Part Number 64051, Non-Valved Unisex Coupling is a commercial version of the 2-inch hose coupling that is universally connectable to either another Carter 64051 Non-valved Unisex Coupling, to other derivatives (e.g. 64052 valved coupling) of the Carter family of unisex couplings. The units are qualified in accordance with A-A-59377, Class A (which supercedes MIL-C-53071).

The basic non-valved coupling can be procured under the part number 64051 with various options that determine the desired inlet or hose mounting configuration. The table in Paragraph 3.0 and the figures at the end of this manual include the various options available.

3.0 TABLE OF OPTIONS AND ORDERING INFORMATION

The 64051 is available with various inlet or hose mounting configurations as described in the tables below.

OPTIONS TO BE ADDED TO 64051 NON-VALVED UNISEX COUPLING

OPTION LETTER	DESCRIPTION	OPTION LETTER	DESCRIPTION
A	Adds 40-mesh Strainer	L	Adds 2" Male NPT Non-swivel Adapter
B	Adds 60-mesh Strainer	M	Adds 2 1/2" Female BSPP Adapter
C	Adds 100-mesh Strainer	N	Adds 2" Female BSPP Adapter
D	Adds Optional Dust Cap	P	Adds 2" Female NPT Adapter
E	Adds Adapter to mate Carter 60427 Nozzle and/or 60129 or 47013 Hose End Control Valve (HECV)	R	Adds 1 1/2" Female NPT Adapter
H	Adds 1 1/2" Male NPT Non-swivel Adapter	S	Adds 1 1/2" Female BSPP Adapter
J	Adds 2" Male NPT Adapter	T	Adds Adapter to mate Swivel Joint of 64348, 64200 Nozzles, 44646 HECV
K	Adds 1 1/2" Male BSPP Non-swivel Adapter	U	Adds 2 1/2" Female NPT Adapter

Note: One or more of the above options letters must be included with the basic part number 64051 to receive a completed unit.

Example: 64051ADH – Non-valved unisex coupling with 40-mesh strainer, dust cap and 1 1/2" fixed male NPT inlet.

64051CL – Non-valved unisex coupling with 100-mesh strainer and 2" fixed male NPT inlet.

4.0 DISASSEMBLY

- 4.1 Main Section
- 4.1.1 Remove Screw (1-1) using a torque wrench, checking the running torque. If the running torque is less than 3.5 in-lb. discard Screw (1-1). Note: Screw (1-1) is self-locking and is designed to be reused several times before replacement is necessary. If a torque wrench is not used to remove it, Screw (1-1) should be replaced. Remove and discard O-ring (1-2). Holding the unit over a suitable container to collect the Balls (1-3) in the swivel joint, with the screw hole toward the container, rotate the inlet fitting to allow the Balls (3) to fall into the container. There should be 41 Balls (1-3). When all 41 Balls (1-3) have been collected, pull the Inlet (2-4) from the main unit. Remove and discard O-ring (1-14). Set the Inlet (2-4), (2-5), (2-6), (2-7) or (2-8) aside for later use.
- 4.1.2 Remove Spring (1-15) and Seal (1-16).
- 4.1.3 If the interlock pin mechanism is working properly there is no need to remove Ring (1-17), Pin (1-18) or Spring (1-19). If it is to be replaced remove these parts.
- 4.1.4 If the Dust Cap (1-25) or the Cable (1-28) is to be replaced cut the cable to remove. The Cable (1-28) can also be removed from Ring (1-17) without cutting by rotating the loop through the split portion of the Ring (1-17).
- Remove and discard Seal (1-25) from Dust Cap (1-25).
- 4.1.5 Remove the Bumper (1-20) only if replacement is needed or if it is necessary to replace the Lugs (1-22) or (1-23).
- 4.1.6 Remove Screw (1-21) to replace Lugs (1-22) and/or (1-23).
- 4.1.7 Do not try to disassemble the Body (1-30) to remove the spring loaded ball permanently affixed in the face of the unit. If the ball is damaged, replacement of the Body (1-30) will be necessary.
- 4.2 Various Fixed Inlets (Options E, H, K, L, & T).
- 4.2.1 Option E, H, K & L – Follow paragraphs 4.1.2 – 4.1.7 above for each of these inlets referring to the appropriate figure for the inlet.
- 4.2.2 Option T – Follow paragraphs 4.1.2 - 4.1.7 above for this inlet, referring to Figure 3 for item numbers. Remove Seal (3-2) and O-ring (3-3) and discard them.

5.0 INSPECTION

It is recommended that O-ring (1-12) & (3-3) (if present), O-rings (1-2) and (1-14) and Seals (1-16), (3-2) and (1-26) be discarded and replaced at each overhaul.

Inspect all metal parts for dings, gouges, abrasions, etc. Use 320 grit paper to smooth and remove sharp edges. Replace any part with damage exceeding 15% of local wall thickness. Use alodine 1200 to touch up bared aluminum.

Inspect the Bumper (1-20) for evidence of cracking or wear. Replace as necessary.

Pull Ring (1-17) to its fully extended position and release. The Pin (1-18) should fully retract and extend promptly. Clean parts and replace Spring (1-19) as needed.

Check Lugs (1-22) and (1-23) to assure that they are not loose. If loose, remove Bumper (1-20) to check the tightness of the Screws (1-21). Screws (1-21) should be tightened to 6 in-lb. **Note** – If the lugs are

to be replaced be sure to replace them with like items, that is, if Option Z is present replace the lugs with the proper stainless steel lugs.

Count the Balls (1-3) to make sure that all 41 are present.

Check the hole in the face of the unit adjacent to the Pin (1-18) to be sure it is clear and free of contamination.

Check the groove (round bottom) in the Inlet (2-4 through 7) for burrs on the corners. If groove is worn such that burrs exist, use 320 grit paper to smooth and remove sharp edges. Burrs will make it difficult to re-install the part.

Inspect the Dust Cap (1-25) for soundness and completeness. If cracked or broken, replace.

Inspect the small spring loaded ball located in the face of the unit. Push the ball in and be sure that it pops back into place. The

purpose of this ball is to provide electrical

continuity between mating units.

6.0 REASSEMBLY

Reassemble the parts in the reverse order of disassembly noting the following:

- 6.1 Make certain all components are clean and free from oil, grease, or any other corrosion resistant compound on all interior or exterior surfaces. Wash all parts with cleaning solvent, Federal Specification P-D-680, and dry thoroughly with a clean, lint-free cloth or compressed air.

WARNING

Use cleaning solvent in a well-ventilated area. Avoid breathing of fumes and excessive solvent contact with skin. Keep away from open flame.

- 6.2 Install the Seal (1-26) in Dust Cap (1-25) using a finger to be sure that the seal is properly seated in its groove. This Seal (1-26) and Seal (1-16) are identical. (1-Seal (1-26) is also interchangeable with the same type of part made by Aeroquip for their Unisex Couplings).
- 6.3 If the Cable (1-28) was cut to remove it from the Dust Cap (1-25), rebuild it by looping one end of the Cable (1-28) through the hole in the Dust Cap (1-25). Make a loop approximately one inch long. Retain the loose end of the Cable (1-28) with Sleeve (1-27). Crush the Sleeve (1-27) to retain the Cable (1-28) using a pair of vise grips or heavy battery pliers. Thread the other end of the Cable (1-28) through the Ring (1-17), make a one inch loop and secure it with another Sleeve (1-27) affixing it as above.
- 6.4 If removed, drop the Spring (1-19) into the hole in the face of the unit. Insert Pin

(1-18) and thread the Ring (1-17) through the hole in the Pin (1-18) to retain.

- 6.5 If removed during disassembly, install Lugs (1-22 and 23) in their proper positions. Match the holes in the Lugs (1-22 and 23) with the hole pattern in the Body (1-30). Tighten Screws (1-21) to 6 in-lb. to retain.
- 6.6 Install Bumper (1-20) onto Body (1-30) such that the thin lip seal end is facing away from the unit.
- 6.7 Install the Seal (1-16) into the groove in the face of the Body (1-30) making sure that its outer face is smooth and free of any wrinkles.
- 6.8 Spring (1-15) is inserted into the groove within the larger opening of the Body (1-30). This spring is used to assure electrical continuity between the Body (1-30) and the Inlet (2-4 thru 7).
- 6.9 The Inlet (2-4 thru 7) has various hose connections on one end and the other end contains two grooves. The groove (rounded bottom) nearest the end is for the ball race connection. The second groove (square bottom) is where O-ring (1-14) is to be installed. Lubricate the O-ring (1-14) with a light coat of petrolatum, Federal Specification VV-P-236.
- 6.10 Press Inlet (2-4 thru 7) into Body (1-30) to line up the groove in the Inlet (2-4 thru 7) and the groove in the Body (1-30). **DO NOT** use any form of grease on Balls (1-3). Insert the correct number of Balls (1-3) in the hole of the Body (1-30) to retain the joint together. Insert Screw (1-1) and O-ring (1-2) into hole and tighten to 25 in-lb.
- 6.11 On Option T replace O-ring (3-3) in its groove and then Seal (3-2) over it.

7.0 TEST

- 7.1 The following test procedures will be accomplished after overhaul:

7.2 Test conditions

Test media shall be JP-8 MIL-T-83133, Jet A, odorless kerosene or Stoddard type solvent MIL-PRF-7024E Type II.

7.3 Functional Test

- 7.3.1 Using the test unit and a similar unisex coupling make sure that they will connect correctly. Disconnect by pulling Ring (1-17) while applying a counterclockwise motion. inlet of the test unit. Apply pressure of 5 and 100 psig to the system and observe for external leakage. There should be no leakage over a period of at least one minute. Reduce the system pressure.
- 7.3.2 Connect the test unit to fluid pressure source capable of 100-psi pressure by means of another unisex coupling. Cap the
- 7.3.3 Remove test unit from the test system and install the dust cap.

8.0 ILLUSTRATED PARTS LIST

Table 1.0 tabulates the parts and sub-assemblies comprising the 64051 Non-valved Unisex Coupling. The item numbers of the table are keyed to the exploded views of the nozzle diagrammed in Figure 1.

TABLE 1.0
Ref. Figures 1 & 2

Fig.	Item	Part Number	Description	Units/ Assy	Option	Spares/10 Units/Yr
1	1	GF35206-276	Screw	1	All	-
	2	MS29513-010	O-Ring	1	All	10
	3	220265	Ball	41	All	-
2	4	220141-1	Inlet, 2" Male NPT	1	J	-
	5	220497-1	Inlet, 2" Female BSPP	1	N	-
	6	220138-1	Inlet, 1½" Female NPT	1	R	-
	7	47104	Inlet Assy, Ball Joint Adapter	1	T	-
	8	47103	Inlet Assy, Non-Swivel, 1 ½" male NPT	1	H	-
	9	47105	Inlet Assy, Mates 64027 Nozzle Inlet	1	E	-
	10	220485-1	Inlet, 2" female NPT	1	P	-
	11	220496	Inlet, 1 ½" female BSPP	1	S	-
	12	47112	Inlet Assy, Non-Swivel, 2" male NPT	1	L	-
	12A	220558	Inlet, 2 ½" female BSPP	1	M	-
	12B	220572-1	Inlet, 2 ½" female NPT	1	U	-
	12C	47117	Inlet Assy, Non-Swivel, 1 ½" male BSP	1	K	-
1	13	47115-40	Screen Assy – 40-mesh	1	A	-
		47115-60	Screen Assy – 60-mesh	1	B	-
		47115-100	Screen Assy – 100-mesh	1	C	-
	14	MS29513-228	O-Ring	1	All	10
	15	220330	Spring	1	All	-
	16	220146	Seal	1	All	10
	17	8K1	Ring	1	All	2
	18	220148	Pin	1	All	-
	19	220301	Spring	1	All	-
	20	220161	Bumper	1	All	5
	21	GF16997-20L	Screw	4	All	-
	22	220159-1	Lug, long	1	All but Z	-
	23	220159-2	Lug, short	1	All but Z	-
	24	47062	Dust Cap Assy	1	D	2
	25	220162	Cap	1	D	2
	26	220146	Seal	1	D	10
	27	28-2-G	Sleeve	2	D	4
	28	220201-1-18	Cable	1	D	1
	29	220482	Wire Ring	1	All	-
	30	220164-1	Body	1	All	-
-		KD64019-1	Kit of seals for 64051 with single coupling - contains items 14, 16 & 26.			

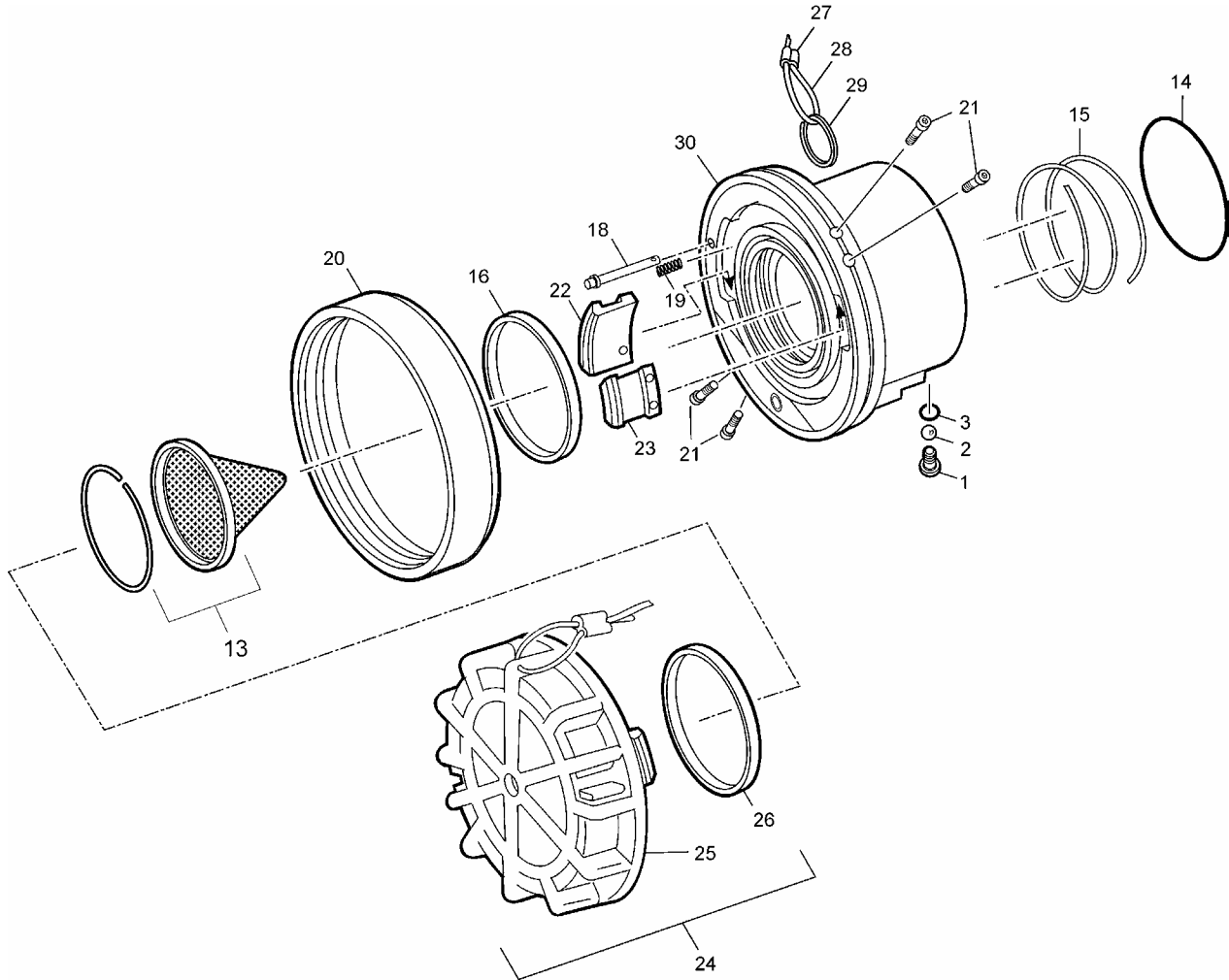


FIGURE 1 – BASIC UNIT BREAKDOWN

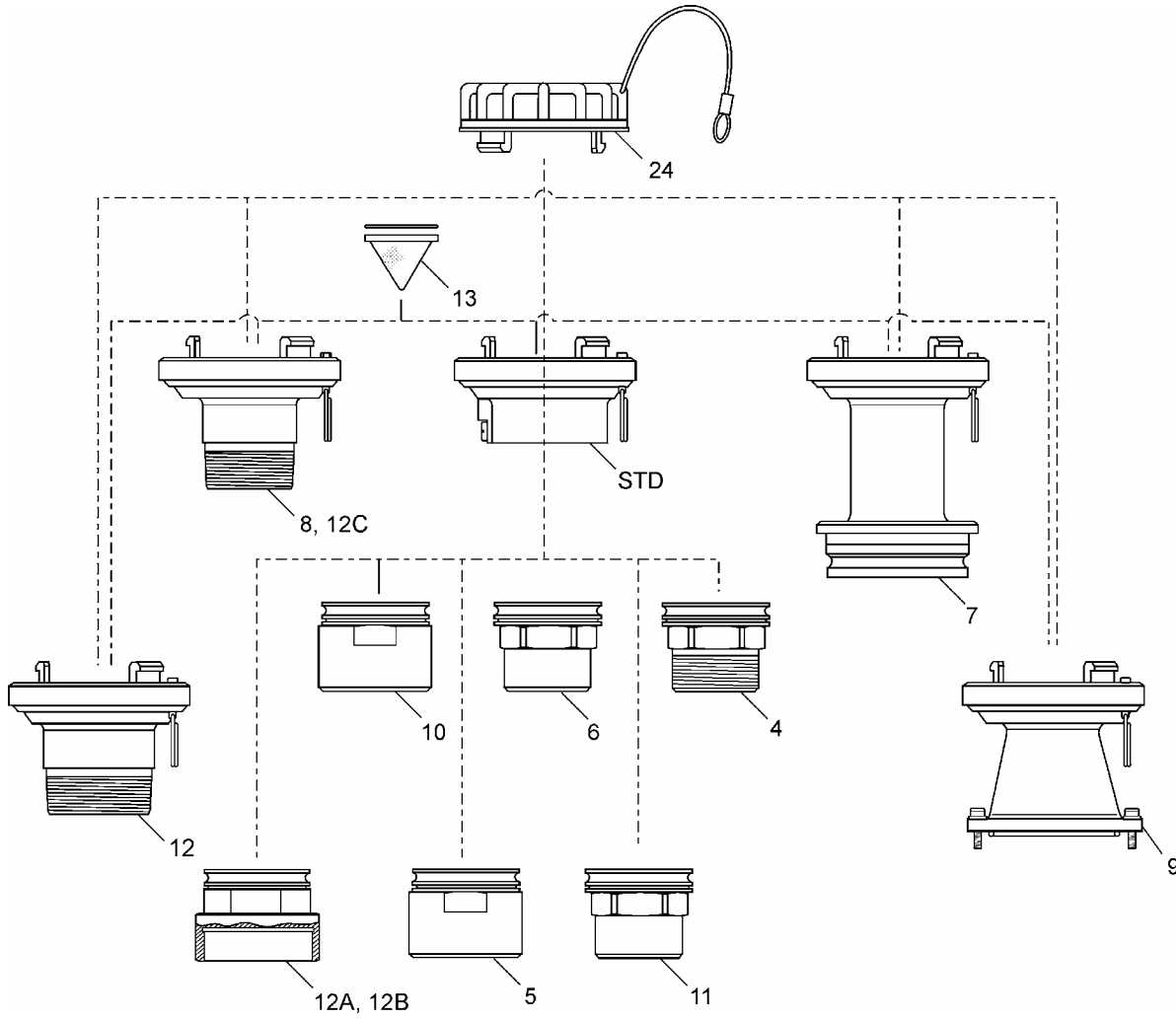


FIGURE 2 – VARIOUS INLET OPTIONS

TABLE 3.0
Ref. Figure 3

Fig.	Item	Part Number	Description	Units/ Assy	Option	Spares/10 Units/Yr
2	7	47104	Inlet Assembly, Swivel Joint	1	T	-
3	1	220477	Adapter, Nozzle Inlet	1	T	-
	2	207807	Seal	1	T	10
	3	M25988/1-040	O-ring	1	T	10
	4	220482	Ring	1	T	-
	5	220148	Pin	1	T	-
	6	220301	Spring	1	T	-
	7	220159-1	Lug, long	1	T	-
	8	220159-2	Lug, short	1	T	-
	9	GF16997-20L	Screw	4	T	-
	10	220146	Seal	1	T	10
	11	220161	Bumper	1	T	5

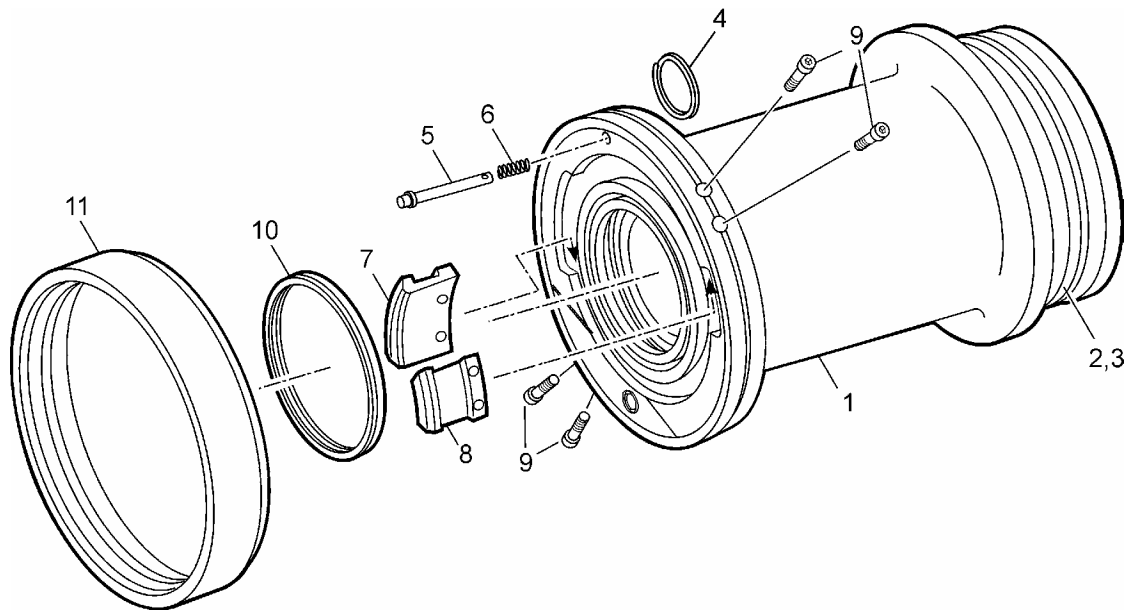


FIGURE 3 – OPTION T SWIVEL JOINT TO MATE 64348/64300 NOZZLES

TABLE 4.0
Ref. Figure 4

Fig.	Item	Part Number	Description	Units/ Assy	Option	Spares/10 Units/Yr
2	8	47103	Inlet Assembly, 1-1/2" MNPT Non-swivel	1	H	-
4	1	220478	Adapter, Fixed Inlet	1	H	-
	2	220482	Ring	1	H	-
	3	220148	Pin	1	H	-
	4	220301	Spring	1	H	-
	5	220159-1	Lug, long	1	H	-
	6	220159-2	Lug, short	1	H	-
	7	GF16997-20L	Screw	4	H	-
	8	220146	Seal	1	H	10
	9	220161	Bumper	1	H	5

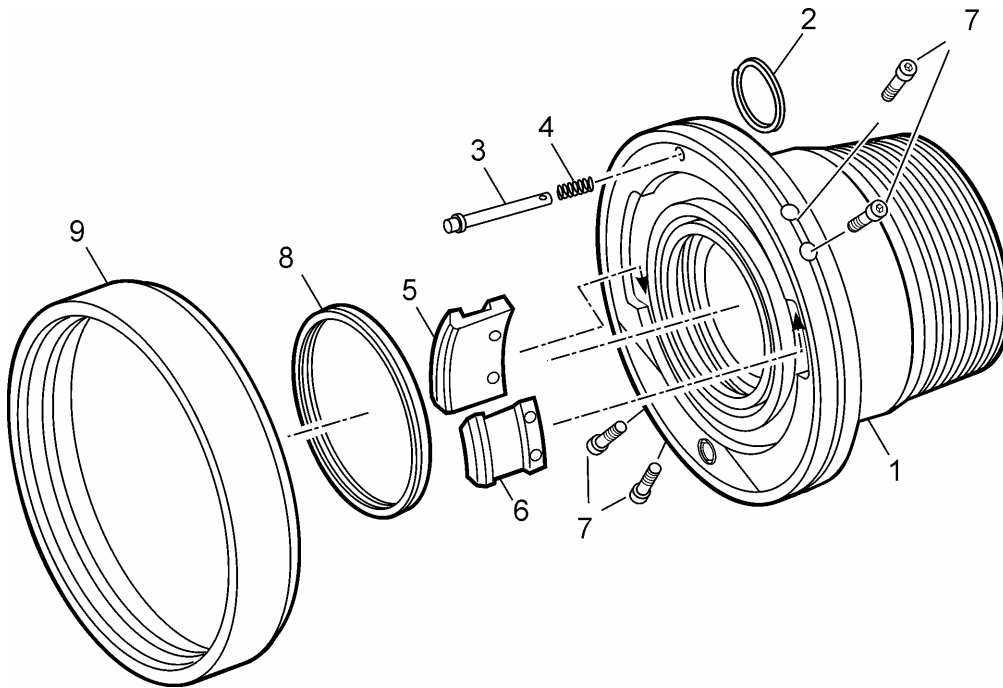


FIGURE 4 – OPTION L INLET ASSEMBLY, 1-1/2" MNPT NON-SWIVEL

TABLE 5.0
Ref. Figure 5

Fig.	Item	Part Number	Description	Units/ Assy	Option	Spares/10 Units/Yr
2	9	47105	Inlet Assembly, Flange Adapter	1	E	-
5	1	220493	Adapter, Nozzle Inlet	1	E	-
	2	GF16995-49	Screws	6	E	-
	3	5710-63-30	Washers	6	E	-
	4	201201-151	O-ring	1	E	10
	5	220482	Ring	1	E	-
	6	220148	Pin	1	E	-
	7	220301	Spring	1	E	-
	8	220159-1	Lug, long	1	E	-
	9	220159-2	Lug, short	1	E	-
	10	GF16997-20L	Screw	4	E	-
	11	220146	Seal	1	E	10
	12	220161	Bumper	1	E	5

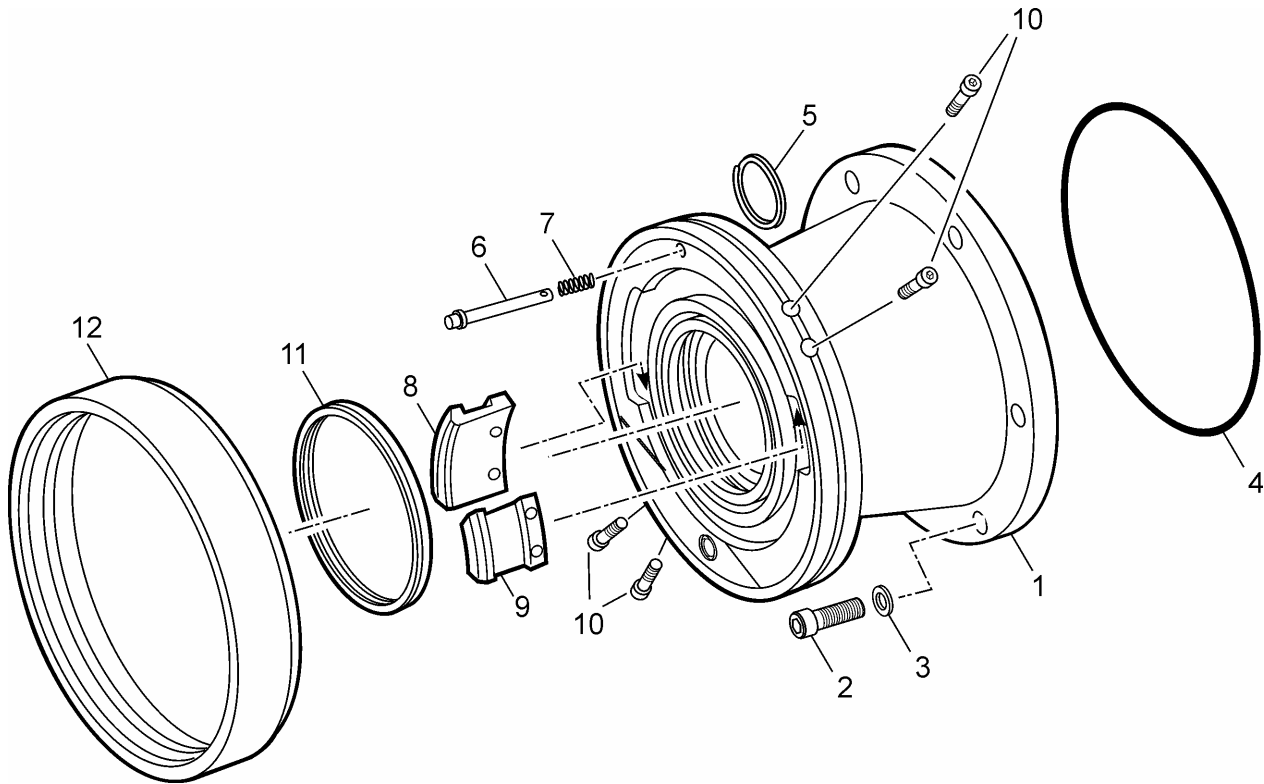


FIGURE 5 – OPTION E FLANGE ADAPTER

TABLE 6.0
Ref. Figure 6

Fig.	Item	Part Number	Description	Units/ Assy	Option	Spares/10 Units/Yr
2	12C	47117	Inlet Assembly, 1-1/2" Male BSP Non-swivel	1	K	-
6	1	220555	Adapter, Fixed Inlet	1	K	-
	2	220482	Ring	1	K	-
	3	220148	Pin	1	K	-
	4	220301	Spring	1	K	-
	5	220159-1	Lug, long	1	K	-
	6	220159-2	Lug, short	1	K	-
	7	GF16997-20L	Screw	4	K	-
	8	220146	Seal	1	K	10
	9	220161	Bumper	1	K	5

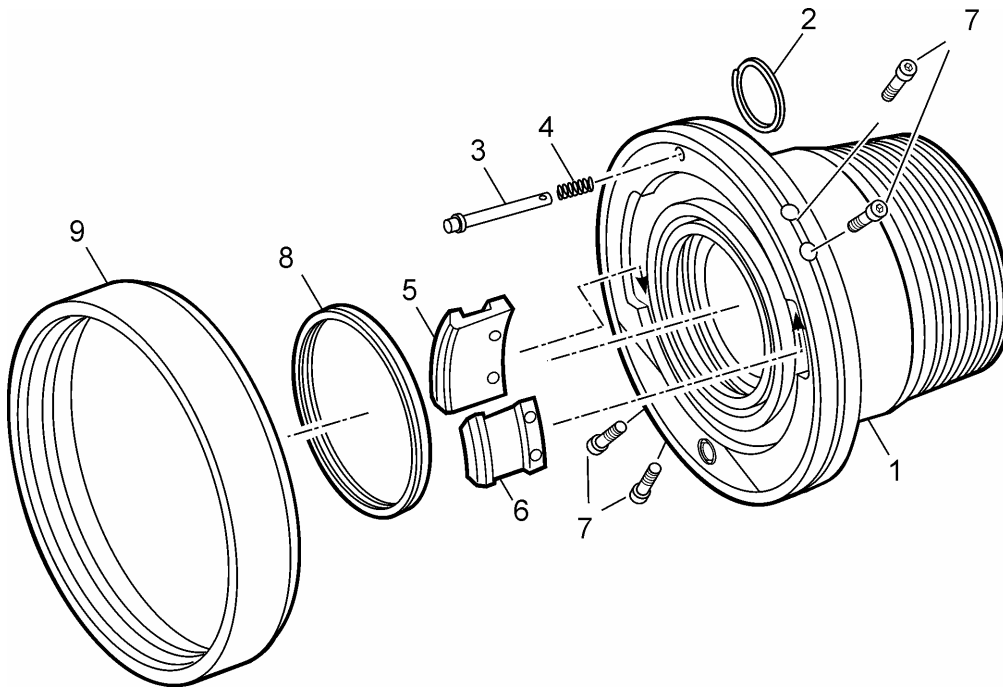


FIGURE 6 – OPTION K INLET WITH FIXED 1 1/2" MBSP

TABLE 7.0
Ref. Figure 7

Fig.	Item	Part Number	Description	Units/ Assy	Option	Spares/10 Units/Yr
2	12	47112	Inlet Assembly, 2" MNPT Non-swivel	1	L	-
7	1	220505	Adapter, Fixed Inlet	1	L	-
	2	220482	Ring	1	L	-
	3	220148	Pin	1	L	-
	4	220301	Spring	1	L	-
	5	220159-1	Lug, long	1	L	-
	6	220159-2	Lug, short	1	L	-
	7	GF16997-20L	Screw	4	L	-
	8	220146	Seal	1	L	10
	9	220161	Bumper	1	L	5

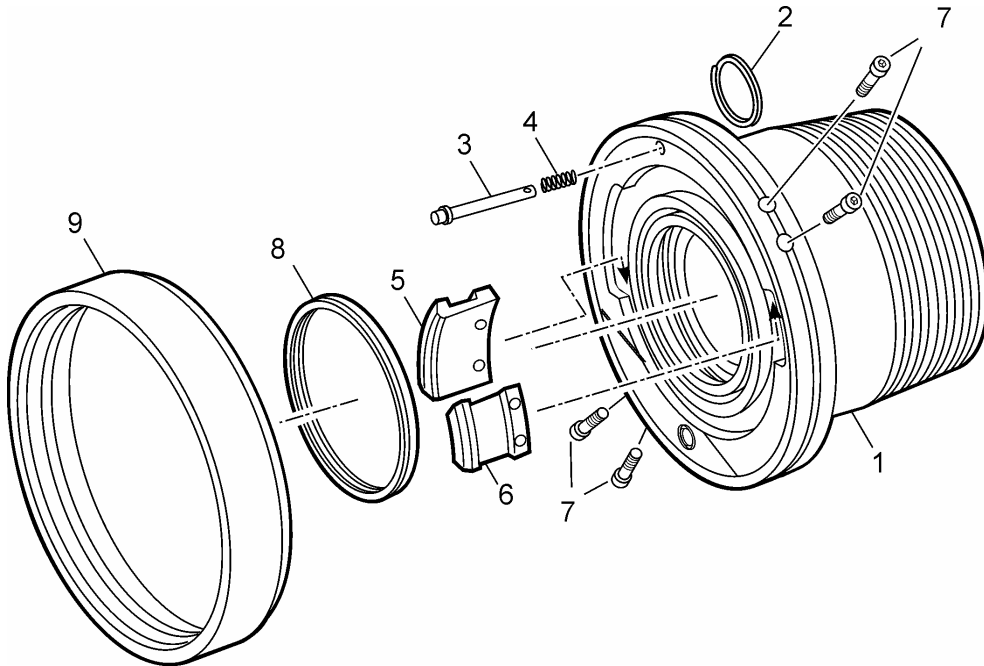


FIGURE 7 – OPTION L INLET ASSEMBLY, 2" MNPT NON-SWIVEL

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