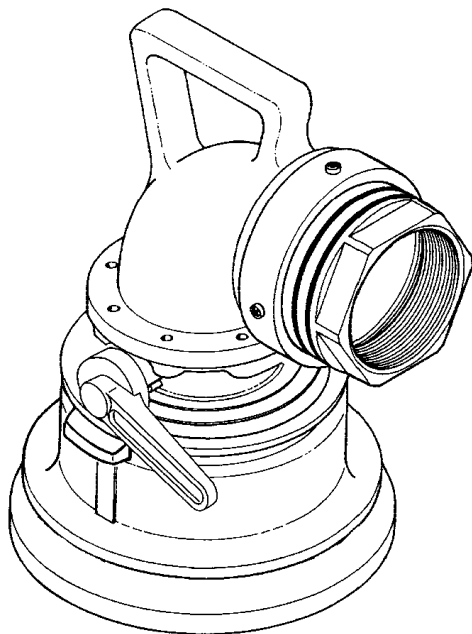


Energy products

Maintenance Manual HYDRANT COUPLER F250 Series

MMF250

Revision 2.0
02 June 2014



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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS!

This manual contains important instructions that shall be followed during installation and maintenance of the Hydrant Coupler (coupler). The following are general safety precautions that are not related to specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during maintenance.

The coupler is a mechanical device and can be dangerous if not correctly operated or maintained.

Safety Alert Symbols

Safety alert symbols are used in this manual to identify potential or immediate personal injury hazards. The safety alert symbol words are explained below:



- indicates an imminently hazardous situation which, if not avoided, will result in injury or serious injury.



- indicates a potentially hazardous situation which, if not avoided, could result in injury or serious injury.



- indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



- used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

WEAR PROTECTIVE CLOTHING

- Wear protective clothing (gloves, apron, etc.) approved for the materials and tools being used.

USE APPROVED SAFETY EQUIPMENT

- Use only approved equipment and make sure firefighting equipment is readily available.

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GIVE CLEANERS SPECIAL CARE

- When cleaners are being used read and follow the material safety data sheet (MSDS) instructions for correct handling.

Equipment Safety Information

The following safety information briefly discusses hazards peculiar to the equipment, which are likely to be encountered during maintenance activity.

COUPLER INSTALLATION AND OPERATION PRECAUTIONS

- The design of the piping system must provide adequate pressure to prevent exceeding the limits of the coupler.
- Make sure the coupler orientation is correct and install the coupler in-line with the flanges. Make sure the piping flanges are correctly positioned and spaced. Do not force the piping in order to fit the coupler.
- Make sure the coupler operates correctly after installation.
- Do not exceed the pressure limits of the coupler.

COUPLER MAINTENANCE PRECAUTIONS

- Do not loosen any fasteners or attempt to remove the coupler from the line until all pressure is isolated and released from the system.
- Use only authorized replacement parts or hardware.

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INTRODUCTION

1. General

The information and procedures contained in this manual have been prepared to assist qualified repair personnel in off-aircraft maintenance of the Hydrant Coupler. The instructions provide information necessary to perform maintenance functions. The coupler is manufactured by Meggitt (North Hollywood), Inc., 12838 Saticoy Street, North Hollywood, California 91605.

2. Scope

The instructions contained in this manual do not claim to cover all details or variations in equipment. They do not provide for every problem that could occur during installation, operation, or maintenance. If further information is required, contact Meggitt (North Hollywood), Inc., Product Support Department.

3. Standard Shop Practices

Use approved procedures and safety precautions to prevent damage to the equipment and injury to personnel.

4. Weights and Measurements

Weights and measurements in this manual are expressed in both English (U.S. customary) and Metric (SI) units.

5. Revision Service

This manual will be revised, as necessary, to reflect current information.

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DESCRIPTION AND OPERATION

NOTE: The F250 Hydrant Coupler is a direct upgrade replacement for the F240 Coupler. The F250 coupler complies with the API Standard 1584 non-ejection requirement. The shaft and seals are designed to improve safety, reliability and maintainability.

1. Description

The Hydrant Coupler (coupler) (see [Figure 1](#)) provides the means of connecting 4-inch hydrants and adapters conforming to API Standard 1584. The various optional configurations permit the use of several thread and hose sizes. The major functional components of the hydrant coupler are the swiveling outlet adapter, the elbow, and the coupler body section.

2. Installation/Operation

A. Installing the Coupler on the Hydrant

The coupler may be connected to the hydrant adapter by pressing it downward onto the adapter. This actuates the three locks and releases the shroud. The shroud slides downward and holds the locks in their locked position. If product selection is installed, the shroud will need to be rotated to align the product selection screws with the slots in the shroud.

B. Operating the Coupler

CAUTION

DO NOT OPEN THE COUPLER WHILE IT IS CONNECTED TO AN ADAPTER. THE SLEEVE WILL BE DAMAGED.

When the coupler is installed, it may be opened by rotating its handle to the OPEN position. To close the coupler, rotate the handle to the CLOSED position.

C. Removing the Coupler from the Hydrant

With the hydrant closed, the coupling may be disengaged from the hydrant adapter by rotating the handle to the CLOSED position and pulling back the shroud to disengage the locks.

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D. Removing the Coupler and Elbow from the Hose

Pull the inner safety ring from its groove and slide it back to the outer safety ring. Do not remove the safety rings. Loosen the screws and slide the lock ring towards the safety rings. The elbow can now be separated from the hose.

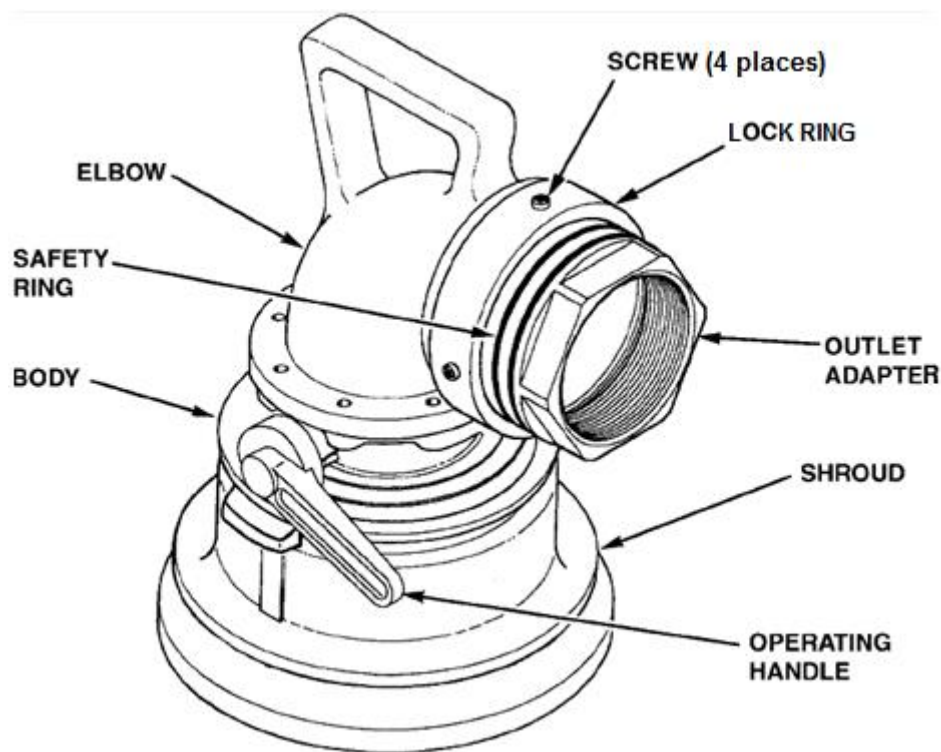


Figure 1. Hydrant Coupler

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3. Leading Particulars

For the leading particulars refer to [Table 1](#).

Table 1. Leading Particulars

Service	Automotive and Aviation Fuels
Operating Pressure	
Maximum Working.....	200 psi (1379 kPa)
Peak Surge.....	305 psi (2103 kPa)
Pressure Drop (connected to F368 Hydrant)..... (approximate)	13 psi at 1200 gpm (90 kPa at 4542 l/m)
Fluid Temperature.....	40 to 160°F (. 40 to 71°C)
Ambient	40 to 160°F (. 40 to 71°C)
Weights (approximate)	
Basic	13.7 pounds (6.2 kg)
Mod A . with 90° Elbow + 4 inch NPT Swivel	21.5 pounds (9.7 kg)
Mod B . with 90° Elbow + 4 inch BSPPI Swivel.....	21.5 pounds (9.7 kg)
Mod C . with 90° Elbow + 3 inch NPT Swivel.....	22.3 pounds (10.1 kg)
Mod D . with 90° Elbow + 3 inch BSPPI Swivel.....	22.3 pounds (10.1 kg)
Mod E . with 90° Elbow + 2.5 inch NPT Swivel	22.3 pounds (10.1 kg)
Mod F . with 90° Elbow + 2.5 inch BSPPI Swivel.....	22.3 pounds (10.1 kg)
Mod G . with 90° Elbow + 4 inch NPSM Swivel.....	21.5 pounds (9.7 kg)
Mod H . with 90° Elbow for F597 Swivel	19.0 pounds (8.6 kg)
Mod J . Add Product Selection.....	+0.1 pound (+0.05 kg)
Mod K . with 90° Elbow for F597 Swivel + 0.75 inch NPT Pressure Tap.....	19.0 pounds (8.6 kg)
Mod R . Change to Viton Seals.....	No weight change
Mod S . Add 3 inch NPT Adapter.....	+2.5 pounds (+1.1 kg)
Mod T . Add 4 inch NPT Adapter	+2.5 pounds (+1.1 kg)

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FAULT ISOLATION

1. General

This section contains fault isolation procedures for the coupler. Operate the coupler in accordance with the Operation section, if the coupler fails to operate correctly refer to [Table 2](#) and select the appropriate action. [Table 2](#) identifies the Fault, Probable Cause and Corrective Action.

Table 2. Fault Isolation

FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Leakage from outlet adapter	Damaged or worn quad ring (IPL Figure 1, 6), seal (IPL Figure 2, 8) or packing (9)	Replace quad ring, packings and/or seal.
Leakage from elbow flange	Damaged or worn packing (IPL Figure 1, 10)	Replace packing.
Leakage past handle shaft	Damaged or worn packing (IPL Figure 2, 17)	Replace packing.
Leakage past poppet when closed	Damaged or worn packing (9)	Replace packing.
	Damaged or worn sleeve assembly (6)	Replace sleeve assembly.
	Damaged or wear on seat face of poppet (5)	Replace poppet.
Leakage at hydrant adapter when open	Damaged or worn packing (9)	Replace packing.
	Damaged or worn seal (8)	Replace seal.

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DISASSEMBLY

1. Replacement Parts Kits

Refer to the [ILLUSTRATED PARTS LIST](#) section for the Replacement Parts Kit information.

2. Disassembling the Hydrant Coupler

A. Removing the Swivel Assembly from the Coupler Elbow (See [IPL Figure 1](#))

1. Pull the inner safety ring (1) out of its groove and slide it back to the outer safety ring (1).
2. Loosen the screws (2) and washers (3) just enough to allow the lock ring (4) to slide back to safety rings (1).
3. The swivel body (8) can now be pulled off from the elbow (11).

Note: The quad ring (6) can be replaced without further disassembly.

B. Disassembly of the Swivel Assembly (See [IPL Figure 1](#))

1. Pull the outer safety ring (1) out of its groove. Slide the outer and inner safety rings (1) and lock ring (4) from swivel body (8).
2. Remove the bearing balls (7) and ring quad (6).

C. Removing the Elbow from the Coupler Assembly (See [IPL Figure 1](#))

1. Pull the retaining rings (5) out of its groove.
2. Remove screws (9) and separate elbow (11) and packing (10) from coupler assembly. Discard packing (10).

D. Disassembling the Coupler Assembly (See [IPL Figure 2](#))

1. Remove dust cover assembly (1) from shroud (25).

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2. Using an API-style adapter without a poppet, release the locks (IPL Figure 2, 29). (A 6.0 inch (152 mm) outside diameter x 4.25 inch (108 mm) inside diameter x 3.0 inch (76 mm) long tube may be used as an alternate for the adapter.
3. Put coupler assembly on adapter. Press coupler assembly down until the locks (29) release the shroud (25). Slide the shroud (25) down as far as it will go.
4. Rotate handle (14) approximately 45-degrees toward its OPEN position.
5. Remove the pin (20), washer (21) and clevis pin (22). Remove the poppet (5) with the links (24) from the body (30).
6. Remove the sleeve assembly (6) and washers (10) from body (30).

Note: If they are difficult to remove; turn it so the shroud (25) is down and gently tap the sleeve (6) and washers (10) out of the body (30).
7. Pry seal retainer (7) from sleeve assembly (6); remove and discard seal (8) and packing (9) from sleeve assembly (6).
8. Rotate handle (14) to its CLOSED position.
9. Using a piece of 0.06 inch (1.5 mm) diameter wire, push the pin (11) out of the crank (23).
10. Drive pin (12) out of body (30) and remove the assembled handle from the body (30).

Note: Write down the relative positions of the handle (14) and the crank (23) for assembly reference.
11. Drive pin (13) out and remove the handle (14), felt wiper (15), bushing (16) and packing (17) from handle shaft (18). Discard the packing (17).
12. Remove shroud (25) from body (30). Remove felt wiper (27) from shroud (25).
13. Remove pin (2), washer (3), clevis pin (4) and links (24) from poppet (5).
14. Remove cotter pin (20), washer (21) and clevis pin (22) from crank (23) and poppet links (24).
15. If bushing (19) is excessively worn, remove it from body (30). Use a 3/8-16UNC, 6.5 inch long bolt threaded into the bushing as a draw-bolt.
16. If guard (26) is excessively worn, use a sharp bladed tool to cut it from the shroud (25).

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CLEANING

1. Cleaning Materials

Refer to [Table 3](#) for recommended cleaning materials. Suitable equivalent cleaning materials may be substituted for the items listed.

Table 3. Recommended Cleaning Materials

DESCRIPTION	SPECIFICATION	SOURCE
Alcohol, Isopropyl	ASTM D770	Commercially available
Bags, Plastic	.	Commercially available
Brush, Bristle, Stiff, Non-metallic	.	Commercially available
Pick, Teflon	.	Commercially available
Solvent, Dry Cleaning	P-D-680, Type 2	Commercially available
Tissues, Lint-free	-	Commercially available

2. Cleaning Procedures



DRY CLEANING SOLVENT AND ISOPROPYL ALCOHOL ARE HARZARDOUS MATERIALS. BEFORE USE, READ AND FOLLOW THE MATERIAL SAFETY DATA SHEET (MSDS) INSTRUCTIONS FOR CORRECT HANDLING. FAILURE TO FOLLOW THIS WARNING MAY RESULT IN PERSONAL INJURY, LONG TERM HEALTH HAZARDS OR DEATH.

- A. Clean all of the metal parts by washing them thoroughly in dry cleaning solvent. Remove any stubborn deposits by scrubbing them with a non-metallic stiff bristle brush. Use a Teflon® pick to remove obstructions from the ports, the grooves, and the flow passages.
- B. Clean all of the non-metallic parts by wiping them with clean lint-free tissues slightly moistened with isopropyl alcohol.

Note: All parts must be free of corrosion, dirt, grease, oil or any other foreign matter.

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WEAR EYE PROTECTION WHEN USING COMPRESSED AIR. DO NOT DIRECT AIRSTREAM AT PERSONNEL OR LIGHT METAL PARTS.

- C. Dry the parts with clean lint-free tissues or clean, dry, compressed air.
- D. Package all of the clean parts in plastic bags. damage

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CHECK/INSPECTION

1. General

Under strong light and magnification, look at all parts in accordance with the general criteria specified in paragraph 2.

Repair minor damage in accordance with local directives. If damage is major or beyond simple repair, replace the part.

2. Component Checks (Refer to [Table 4](#))

Table 4. Component Checks

DESCRIPTION	INSPECTION CRITERIA
General	<p>Look at all parts for; nicks, cracks, cuts, burrs, corrosion, breaks, scoring, chafing, scarring, deformation, dents, thread damage, serration damage, or other damage. Make sure the ports, passages, recesses, and grooves are clean and are not blocked.</p> <p>Make sure all sealing and seating surfaces are free from damage and corrosion.</p>

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ASSEMBLY

1. Replacement Parts Kits

Refer to the [ILLUSTRATED PARTS LIST](#) section for recommended replacements parts information.

2. Assembly Materials

Refer to [Table 5](#) for recommended assembly materials. Suitable equivalent materials may be substituted for the items listed.

Table 5. Recommended Assembly Materials

DESCRIPTION	SPECIFICATION	SOURCE
Petroleum jelly	--	Commercially available

3. Hydrant Coupler Assembly

A. Lubrication

Before assembly, lightly lubricate all of the packings, seals and screw threads with petroleum jelly.

B. Coupler Section Assembly (See [IPL Figure 2](#))

1. If bushing (19) was removed, thread a new bushing onto the 3/8-16UNC, 6.5 inch long bolt used to remove the old bushing. Thread the bushing onto the bolt until it is flush with the end of the bolt. Press the bushing into the bushing bore of the body (30), until it bottoms out.
2. If guard (26) was removed from shroud (25), use tire levers to install a new guard (26) on the shroud (25).

Note: Alternate method is to heat guard (26) in an oven at 150°F (65°C) for 3 to 5 minutes. Use gloves to handle guard (26) and install on shroud (3).

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3. See [Figure 2](#) and install spring retainers (28) and locks (29) in the body (30) as follows:

Note: Long nose pliers can be used to close the spring loop during installation of a spring in the body, but be careful to avoid damaging the spring. The wire shall not be marked or scratched.

- a. Push the loop of the spring retainer (28) into the hole in the body (30), with the two tangs resting on the top surface. Push the spring in as far as possible, so that the two tangs contact the body surface. The loop of the spring shall be a tight press fit in the hole.
- b. Position the lock (29) in its groove of the body (30), spring anchor end inward to contact the ends of the two tangs of the spring retainer (28). Lift and place the ends of the spring tangs into the groove of the lock (29). Press the locks (29) inward and rotate it into position. Make sure the both of the spring tangs are still in their correct positions and the lock (29) rotates freely.

Note: Do steps a and b to the remaining spring retainers (28) and locks (29).

4. Put felt wiper (27) into the wiper groove of the shroud (25).
5. Put body (30) on API-style adapter (or equivalent tube) used during disassembly of coupler. Install shroud (25) on body (30).
6. Put seal (8) into the groove of the sleeve assembly (6) and secure it with retainer (7). Put packing (9) in packing groove of the sleeve assembly (6).
7. Assemble the links (24), clevis pin (4), washer (3) and pin (2) on poppet (5). Make sure the bow of the links is away from the central leg of the poppet.
8. Put packing (17), bushing (16), felt wiper (15) and operating handle (14) on shaft (18). Secure handle (14) to shaft (18) with pin (13).

Note: The pin (13) must be flush or below surface of the handle.

9. Put assembled handle/shaft (13 thru 18) in the body (30) and through the crank (23).

Note: The crank (23) must be oriented opposite the flat on the handle (14), (refer to [DISASSEMBLY](#) paragraph 2.D.10).

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10. Drive pin (IPL Figure 2, 12) into pin bore of body (30) to secure assemble handle/shaft (13 thru 18).
11. Put the two washers (10), assembled sleeve (6 thru 9) and poppet (5) in the body (30).
12. Rotate handle (14) to its CLOSED position. Orient the bow of the links (24) on the poppet opposite to the handle (14).
13. Align the hole in crank (23) and install pin (11).
14. Rotate handle 45° approximately towards its OPEN position and install clevis pin (22), washer (21) and cotter pin (20).
15. Rotate handle (14) to its CLOSED position, slide shroud (25) up to handle (14) until the locks (29) engage.

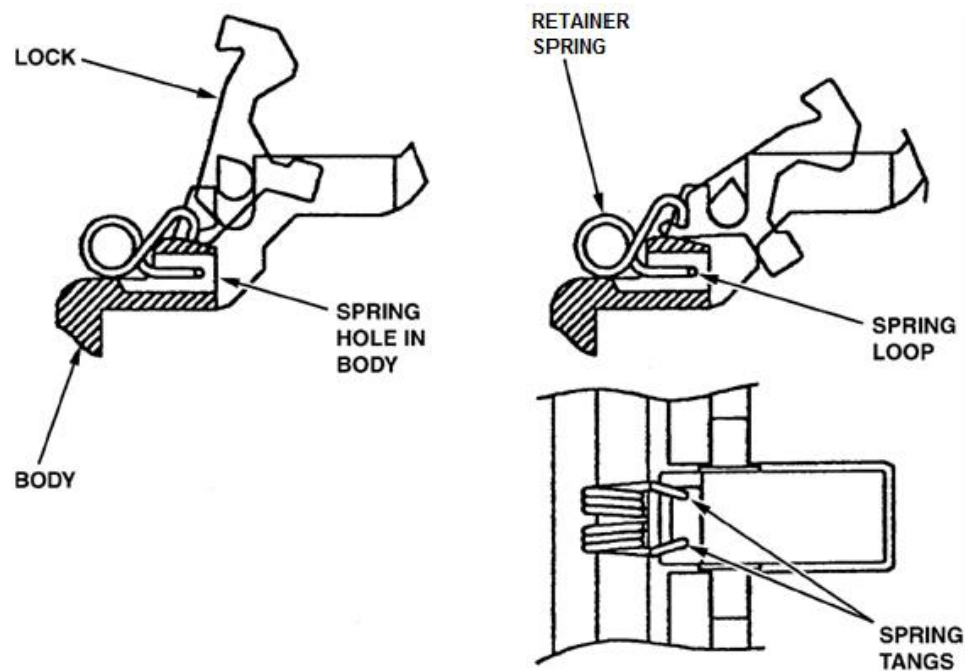


Figure 2. Installing the Springs and the Locks

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C. Assembling and Installing the Elbow/Outlet Adapter (See [IPL Figure 1](#))

1. Install new packing (10) into the packing groove of the elbow (11). Connect elbow with coupler section and secure it with screws (9). Make sure the screws (9) are tightly secured.

Note: Check condition of bearing balls (7), if damaged, replace as necessary.

2. Install the lock ring (4); retaining rings (5), quad ring (6), bearing balls (7) and swivel body (8) on elbow (11).
3. Secure the lock ring (4) with screws (2) and washers (3).
4. Insert the inner and outer safety rings (1) into their grooves in the swivel body (8).

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ILLUSTRATED PARTS LIST

1. General

This section lists, describes, and illustrates all detail parts required for maintenance support of the Hydrant Coupler.

2. Scope of Information

The parts list is arranged in the general order of disassembly. The listing is indented to show the relationship between each part and its next higher assembly. Item numbers used in the parts list are keyed to the corresponding numbers of the accompanying illustration.

A. MODIFICATION CODE

The modification code (refer [Table 1](#)) indicates the parts usage with respect to the end item. When the MOD column is blank, the part usage is applicable to all versions unless otherwise specified in the DESCRIPTION column.

B. How to Identify a Part

When the part number is known: Refer to the parts list for the item number, description, modification codes, and quantity. Refer to the illustration to make sure the physical appearance and location of the part.

When the part number is not known: Examine the illustrations to identify the part by physical appearance and location. Refer to the accompanying parts list to get the part number, nomenclature, modification codes, quantity, etc.

C. Abbreviations

ASSY	Assembly
FIG.	Figure
IPL	Illustrated Parts List
MOD	Modification

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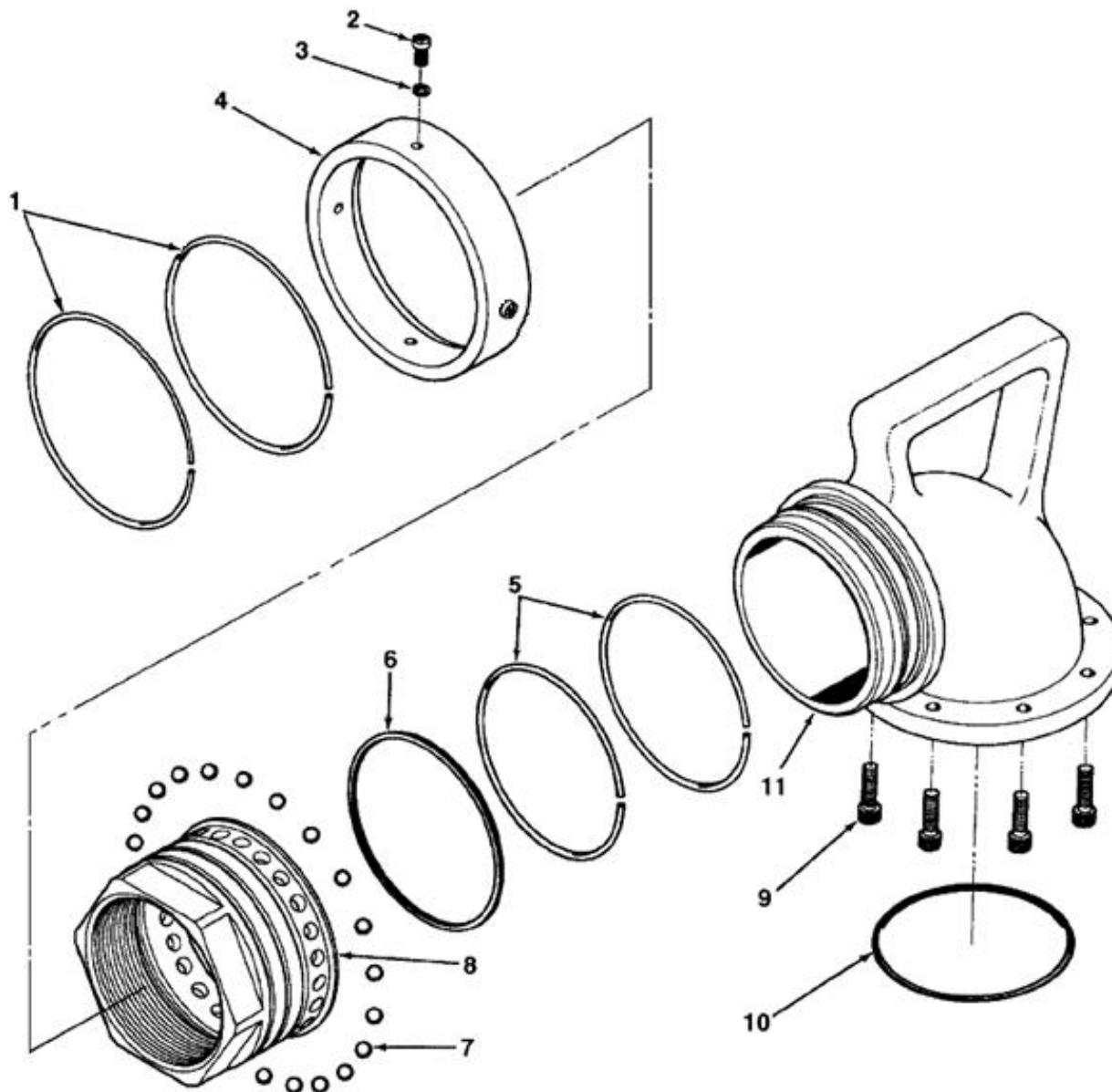
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IPL Figure 1. Elbow / Outlet Adaptor

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FIG. ITEM	PART NUMBER	DESCRIPTION	MOD CODES	UNITS PER ASSY
ELBOW/OUTLET ADAPTER				
1-	1	2763539-101	. RING, SAFETY.....	A. G 2
	2	2706511CC05012	. SCREW, MACHINE.....	A. G 4
	3	AN935-10L	. WASHER, LOCK.....	A. G 4
	4	2803018-101	. RING, LOCK.....	A. G 1
	5	2763537-101	. RING, RETAINING.....	A. H 2
	6	Q4248-366Y	. RING, QUAD.....	A. G 1
	7	MS19060-26	. BALL, BEARING.....	A. G 24
	8	2861015-101	. BODY, SWIVEL, NPT (4-INCH).....	A 1
		2861015-102	. BODY, SWIVEL, BSPPL (4-INCH).....	B 1
		2861015-103	. BODY, SWIVEL, NPT (3-INCH).....	C 1
		2861015-104	. BODY, SWIVEL, BSPPL (3-INCH).....	D 1
		2861015-105	. BODY, SWIVEL, NPT (2.5-INCH).....	E 1
		2861015-106	. BODY, SWIVEL, BSPPL (2.5-INCH).....	F 1
		2861015-107	. BODY, SWIVEL, NPSM (4-INCH).....	G 1
	9	2706525C08030	. SCREW, SOCKET HEAD CAP.....	A. H 8
	10	2661058A157	. PACKING, PREFORMED.....	A. H 1
	11	2861016-101	. ELBOW.....	A. H 1
		2861016-103	. ELBOW.....	K 1

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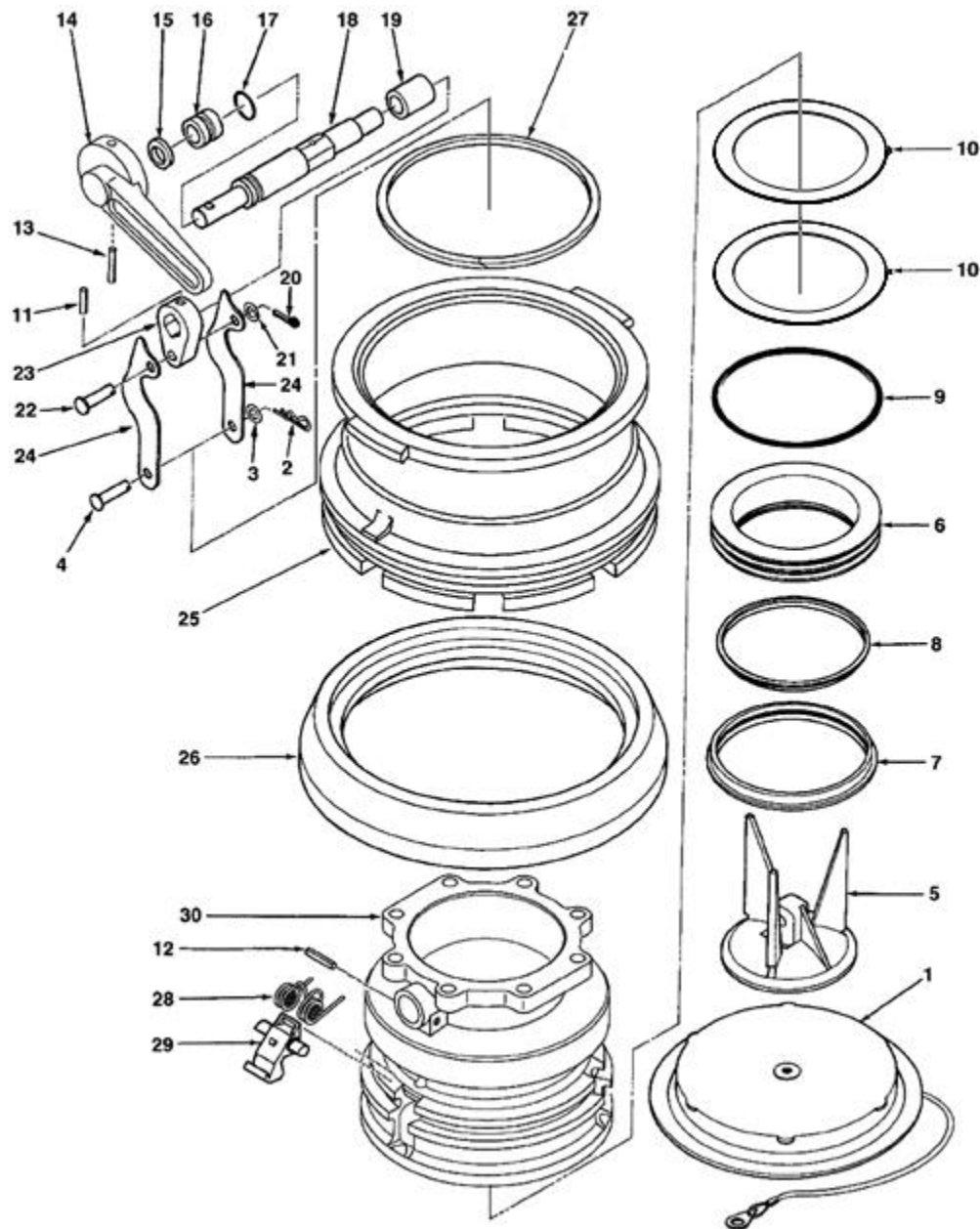
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IPL Figure 2. Hydrant Coupler

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Meggitt Fuelling Products
Maintenance Manual (MMF250)
Hydrant Coupler . F250 Series

FIG. ITEM	PART NUMBER	DESCRIPTION	MOD CODES	UNITS PER ASSY
HYDRANT COUPLER				
2	1	9000001-101	. COVER ASSEMBLY, DUST	1
	2	98335A054	. PIN, COTTER.....	1
	3	CAN960-516L	. WASHER, FLAT	1
	4	CMS28382-4C33	. PIN, CLEVIS.....	1
	5	2763483-102	. POPPET.....	1
	6	2763489-101	. SLEEVE ASSEMBLY, SEALING (Buna)	A-K,S,T
		2763489-102	. SLEEVE ASSEMBLY, SEALING (Viton)	R
	7	2672293	. RETAINER, SEAL	1
	8	2672292-1	. SEAL (Buna-N).....	A-K,S,T
		2672292-2	. SEAL (Viton).....	R
	9	2661058BD350	. PACKING, PREFORMED (Low Swell Buna-N)	A-K,S,T
		2661058AF350	. PACKING, PREFORMED (Viton).....	R
	10	W4997-050	. WASHER, WAVE	2
	11	901014-101	. PIN, SPRING.....	1
	12	CMS171594	. PIN, SPRING.....	1
	13	CMS171658	. PIN, SPRING.....	1
	14	901006-101	. HANDLE, OPERATING	1
	15	2763494-101	. WIPER, FELT	1
	16	901010-101	. BUSHING	1
	17	2661058A207	. PACKING, PREFORMED (Buna).....	A-K,S,T
		2661058AF207	. PACKING, PREFORMED (Viton).....	R
	18	901009-101	. SHAFT	1
	19	901012-101	. BUSHING	1
	20	CMS24665-300	. PIN, COTTER.....	1
	21	CAN960-516L	. WASHER, FLAT	1
	22	CMS28382-4C33	. PIN, CLEVIS.....	1
	23	901011-102	. CRANK.....	1

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Meggitt Fuelling Products Maintenance Manual (MMF250) Hydrant Coupler . F250 Series

FIG. ITEM	PART NUMBER	DESCRIPTION	MOD CODES	UNITS PER ASSY
HYDRANT COUPLER				
2 24	2763497-103	. LINK.....		2
25	901004-102	. SHROUD..... (USED ON SERIAL NUMBER 100 THRU 150)		1
	901004-103	. SHROUD..... (USED ON SERIAL NUMBER 151 AND SUBSEQUENT) (MARKED %N+)		1
26	2763486-101	. GUARD.....		1
27	001002-101	. WIPER, FELT..... (USED WITH 90104-102)		1
	CMS28932C23-3	. WIPER, FELT..... (USED WITH 90104-103)		1
28	941016-101	. RETAINER, SPRING.....		3
29	2763487-101	. LOCK.....		3
30	951003-101	. BODY.....		1

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REPLACEMENT PARTS KITS AVAILABLE		
PART NUMBER	DESCRIPTION	ITEMS IN KIT (See IPL Figure 2)
KITF250-101	Standard Seals	6, 8, 9, 17
KITF250-102	Viton Seals	6, 8, 9, 17
KITF250-103	Standard Seals Overhaul	1, 2, 6, 7, 8, 9, 12, 15, 17, 26, 27
KITF250-104	Viton Seals Overhaul	1, 2, 6, 7, 8, 9, 12, 15, 17, 26, 27

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