



Energy products

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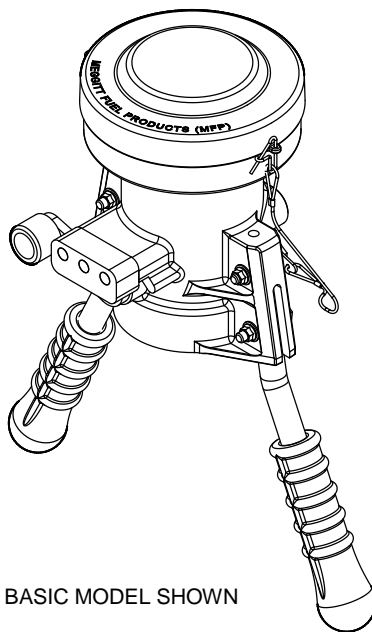
# Maintenance Manual

## PRESSURE FUELLING NOZZLE

### F145 Series

MMF145

Revision 6.4  
05 January 2015



BASIC MODEL SHOWN

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Meggitt Fuelling Products  
Maintenance Manual (MMF145)  
Pressure Fuelling Nozzle – F145 Series

## REVISION RECORD

Keep this record in the front of the manual. When you get the revisions, put the revised pages in the manual. Write the revision number, date issued and your initials on this page.

REV NO.	PAGES AFFECTED	DESCRIPTION OF CHANGE	DATE	APPROVED BY
Original 1.0	ALL	Initial Release	02/16/2011	A.B
1.1	ALL	See DCN	05/02/2011	A.B
2.0	ALL	See DCN	05/30/2011	A.B
3.0	ALL	See DCN	06/15/2011	A.B
4.0	ALL	See DCN	09/30/2011	A.B
5.0	ALL	See DCN	01/15/2013	A.B
6.0	ALL	See DCN	01/16/2014	A.B
6.1	ALL	See DCN	03/31/2014	J. M
6.2	RR, B, 35, 39 and 47	See DCN	10/02/2014	J. M
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## IMPORTANT SAFETY INSTRUCTIONS

### SAVE THESE INSTRUCTIONS!

This manual contains important instructions that should be followed during installation and maintenance of the Pressure Fuelling Nozzle (nozzle). 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 nozzle is a mechanical device and can be dangerous if incorrectly 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.

#### GENERAL OPERATING LOCATION PRECAUTIONS

- Use only authorized replacement parts or hardware.
- Obey Lock-Out/Tag-Out procedures when working on the nozzle and make sure that personnel protection equipment such as electrical grounds are installed.
- Avoid hazardous voltage situations that can result from unsafe conditions such as, but not limited, to the following:
  - o Incorrect grounding
  - o Handling electrical leads or devices with wet hands or on wet ground.
  - o Damaged electrical wire insulation.
  - o Incorrect connection of the power terminals.
  - o Short circuits to ground.

#### OPERATION AND MAINTENANCE OF FUEL SYSTEMS



**BEFORE TURNING THE OPERATING LEVER; MAKE SURE ALL 3 LUGS OF AIRCRAFT FUELING ADAPTER ARE PROPERLY ENGAGED IN THE F145J NOZZLE. REFER TO SAFETY BULLETIN 7872 FOR MORE DETAILS.**

- Protect all fuel lines from damage or puncture. Do not operate the nozzle if a fuel leak is detected.
- Do not use flammable solvents for cleaning parts.
- Check for tools, rags, or loose parts left in the area before resuming operation.
- Do not attempt to remove the nozzle from the system without first isolating it from the line pressure and venting all of the trapped internal pressure.

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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 Pressure Fuelling Nozzle. The instructions provide information necessary to perform maintenance functions. The nozzle 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

### 1. Description

The Pressure Fuelling Nozzle (nozzle) (see [Figure 1](#)) provides the means of controlling the flow of fuel in pressure fuelling operations. The nozzle inlet port couples to a fuelling hose. The outlet port attaches to the inlet adapter of the system being fueled. The nozzle provides a leak proof connection between the system being fueled and the fuel supply.

### 2. Operation

#### A. Uncoupled

When the nozzle is not coupled to a mating fuel system inlet adapter, its poppet valve is closed, so that there is no flow or leakage of fuel from the outlet port. The flow control handle that operates the poppet valve remains locked in the CLOSED position until the nozzle is coupled to the mating fuel system inlet adapter.

#### B. Coupling and Opening

When the nozzle is coupled to the mating fuel system inlet adapter, the nose seal of the nozzle is compressed against the sealing surface of the inlet adapter to form a fluid-tight connection. When the nozzle is fully engaged and locked to the bayonet flange of the inlet adapter, the flow control handle is unlocked. Rotation of the flow control handle to the OPEN position opens the poppet valve, providing a flow passage into the system being fueled. As the system is being fueled, fuel pressure acts on the floating nose seal of the nozzle to increase the sealing force.

#### C. Closing and Uncoupling

Rotation of the flow control handle to the CLOSED position closes the poppet valve and the flow passage into the system being fueled. When the nozzle is unlocked and disengaged from the bayonet flange of the inlet adapter, the flow control handle is locked in the CLOSED position.

#### D. Adapters

Suitable attachment adapters such as swivels and/or hose end control valves (HECV) may be used to adapt the nozzle to any fuel system.

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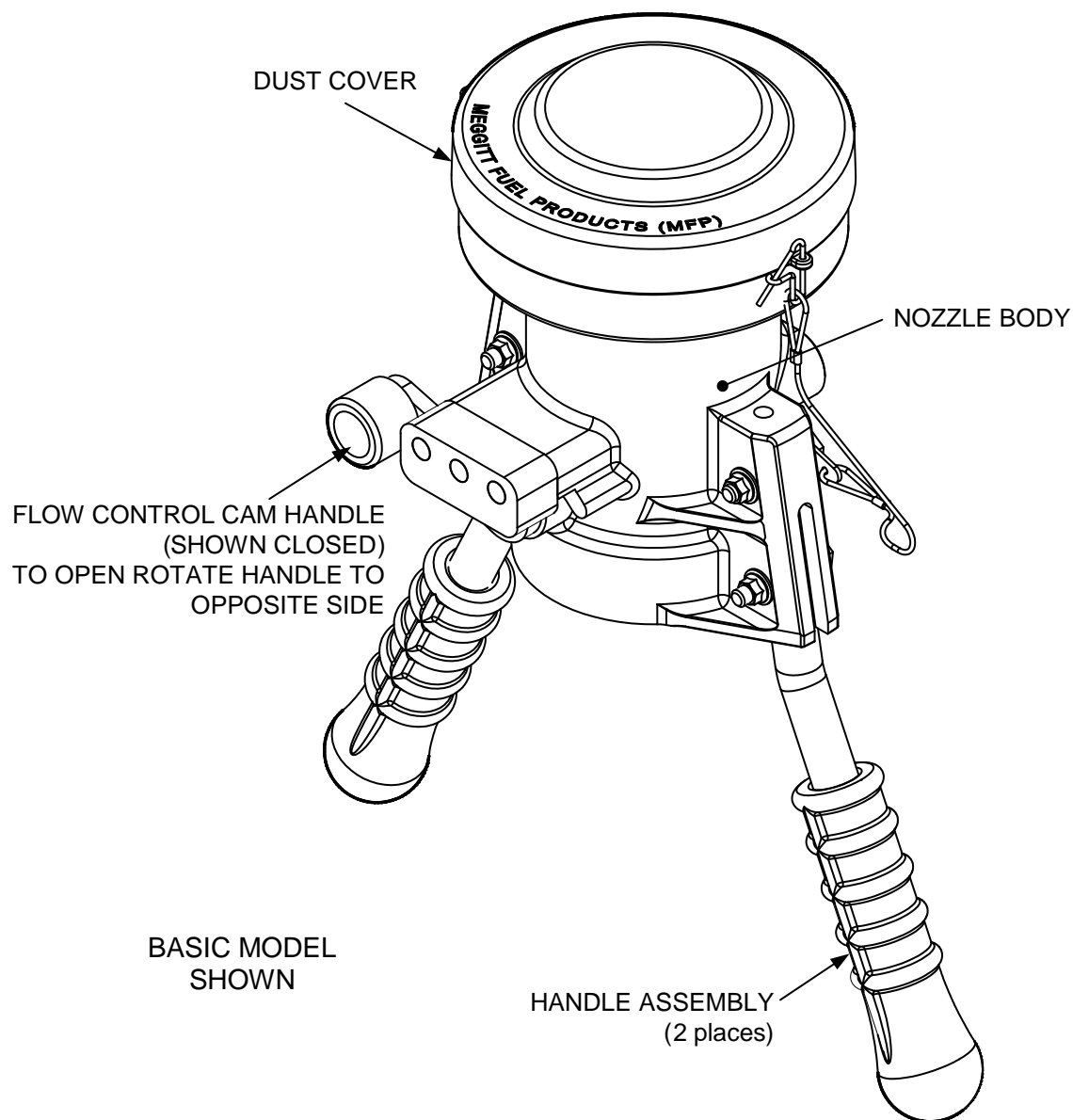


Figure 1. Pressure Fuelling Nozzle  
(Sheet 1 of 2)

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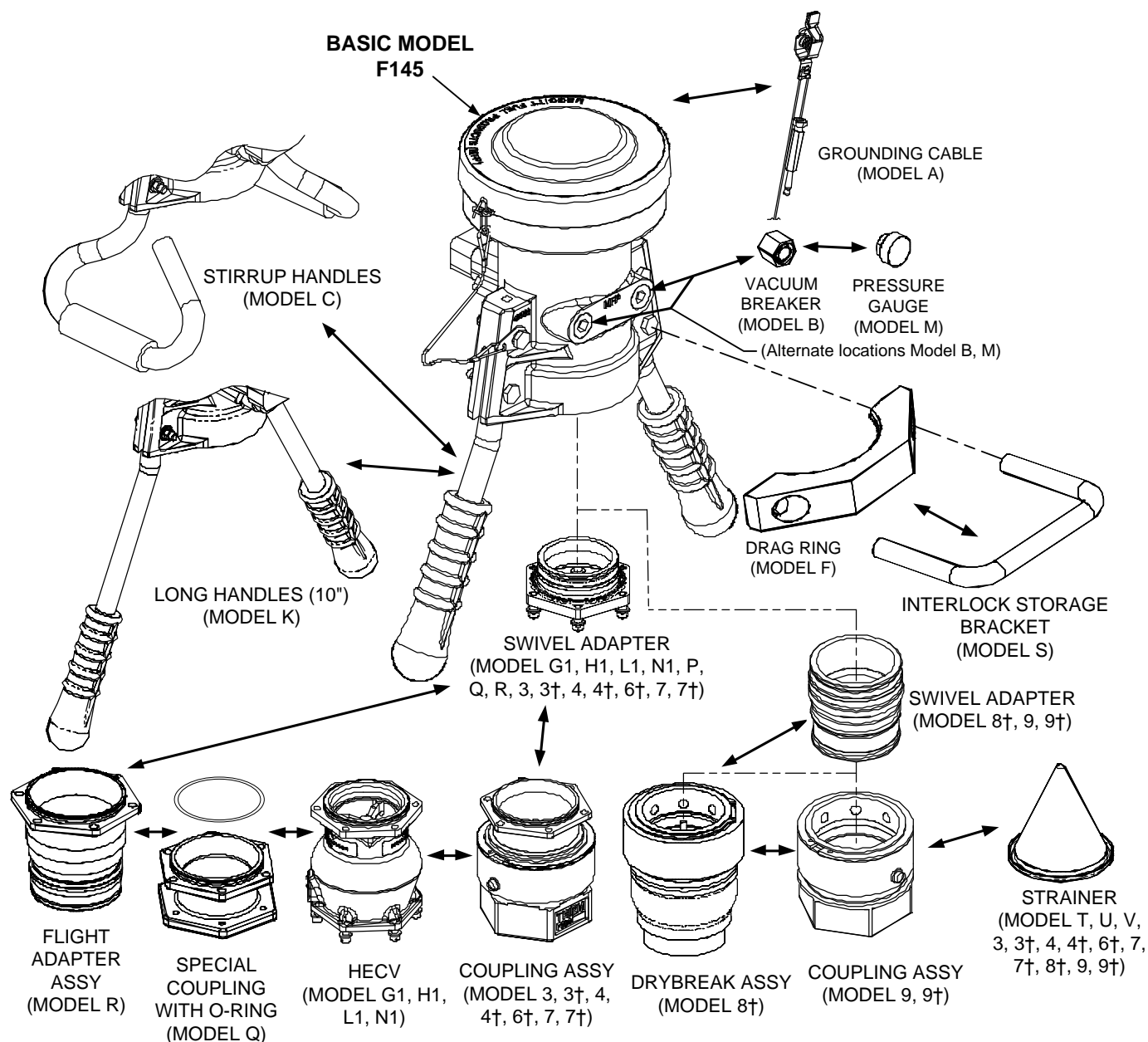


Figure 1. Pressure Fuelling Nozzle  
(Sheet 2)

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3. Leading Particulars

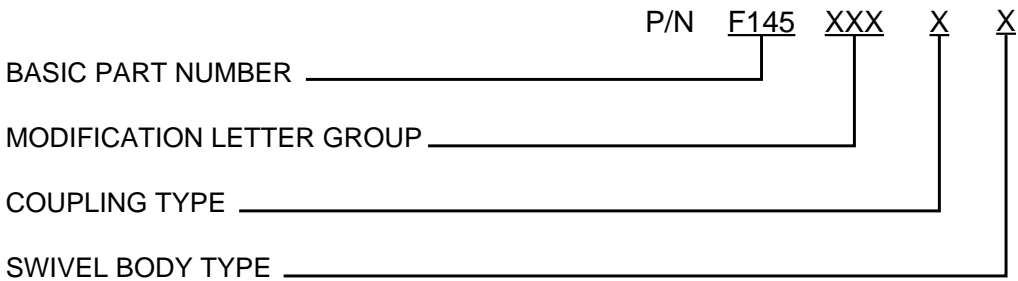
For the leading particulars refer to [Table 1](#).

Table 1. Leading Particulars

Service Fluid .....	Automotive and Aviation Fuels
Performance:	
Operating Pressure .....	120 psig (827 kPaG)
Temperature:	
Ambient.....	-40 to 165°F (-40 to 74°C)
Fluid .....	-40 to 165°F (-40 to 74°C)
Mating Inlet Swivels .....	F595 HECV, F575/F584, F577/F582, F581 Swivels, F1516/F596 Dry Disconnect

4. Model Variations

The F145 series nozzle is a straight-in fuelling nozzle with a swivel inlet. It is equipped with bicycle-type grip handles and a dust cover. A flanged swivel adapter is not supplied with the basic nozzle, but can be ordered as a variation. Refer to Tables 2, 3, and 4 for the available F145 series nozzle variations. An explanation of the F145 series part numbering system is as follows:



P/N Example: F145APV7A - This nozzle is equipped with a ground cable and has a flanged swivel adapter and a 100 mesh strainer. The coupling is the 2.5 inch aluminum type with wire raceways to mate with the F577/F582 swivel body. The swivel body has a 2.5 inch NPT inlet.

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Table 2. Nozzle Variations (Mod Code Group after F145)

Examples: F145**AP**V7A, F145**BG**7A

NOZZLE MOD LETTER	DESCRIPTION
A	Adds Ground Cable
B	Adds Vacuum Breaker
C	Changes to Stirrup Handles
D	Change nose seal to F117 (1 Piece)
E	Ring Handles
F	Adds Drag Ring
G1	Adds 45 PSI HECV (Flanged)
G2	(Inactive)
G3	Adds additional 45 PSI HECV (Flanged Connection)
H1	Adds 35 PSI HECV (Flanged)
H2	(Inactive)
H3	Adds additional 35 PSI HECV (Flanged Connection)
J	Six (6) Slot Configuration
K	Changes to 10" Long Handles
L1	Adds 50 PSI HECV (Flanged)
L2	(Inactive)
L3	Adds additional 50 PSI HECV (Flanged Connection)
M	Adds 0-100 PSI Pressure Gauge
N1	Adds 55 PSI HECV (Flanged)
N2	(Inactive)
N3	Adds additional 55 PSI HECV (Flanged Connection)
P	Adds Flanged Swivel Adapter
Q	Adds Adapter for J.C.C. Inlet Flange
R	Adds Flight Adapter <u>Note:</u> Use of a 100 mesh filter (Customer Furnished Equipment CFE)) is recommended.
S	Interlock Storage Bracket
T	Adds 40 Mesh Strainer

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Table 2. Nozzle Variations (Mod Code Group after F145) (continued)

NOZZLE MOD LETTER	DESCRIPTION
U	Adds 60 Mesh Strainer
V	Adds 100 Mesh Strainer
W	TBD
X	TBD
Y	TBD
Z	TBD

Table 3. Coupling Variations (Type Number between the Mod and Type Letter Groups)

Examples: F145APV7A (Basic model w/ grounding cable, swivel adapter flange, 100 mesh 3" strainer, F582E coupling assembly with 2-1/2 NPT inlet,

COUPLING TYPE NUMBER	DESCRIPTION
3	Standard 3-inch aluminum coupling with corrosion resistant steel wire races to mate with F575/F584 swivel body (uses 3-inch strainer) *When ordering less HECV must include "P" modification
4	Standard 3-inch aluminum coupling with corrosion resistant steel wire races to mate with F596 dry disconnect swivel assembly (uses 3-inch strainer) *When ordering less HECV must include "P" modification
6	Standard 2½-inch aluminum coupling with corrosion resistant steel wire races to mate with F1516 dry disconnect swivel body (uses 2½-inch strainer) *When ordering less HECV must include "P" modification
7	Standard 2½-inch aluminum coupling with corrosion resistant steel wire races to mate with F577/F582 swivel body (uses 2½-inch strainer) *When ordering less HECV must include "P" modification
8	Adds F1516 dry disconnect with integral coupling *Option can only be ordered less HECV mod
9	Adds 2½" integral coupling, straight *Option can only be ordered less HECV mod

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Table 4. Swivel Body Inlet Variations (End Type Letter)

Examples: F145APV7A

SWIVEL BODY TYPE LETTER	DESCRIPTION
A	2½-inch ANPT inlet. Available for coupling types 3, 4, 6 or 7 only.
B	2½-inch BSPPL inlet. Available for coupling types 3, 4, 6 or 7 only.
C	3-inch ANPT inlet. Available for coupling types 3, 4, 6 or 7 only.
D	2-inch ANPT inlet. Available for coupling types 3, 4, 6 or 7 only.
E	3-inch BSPPL inlet. Available for coupling types 3, 4, 6 or 7 only.
F	2-inch BSPPL inlet. Available for coupling type 6 only.
G	3-inch BSPPL inlet. Available for coupling type 7 only.
K	4-inch ANPT inlet. Available for coupling type 7 only.
T	2-inch female Camlock inlet. Available for coupling type 7 only.
U	4-inch female Camlock inlet. Available for coupling type 7 only.
V	3½-inch ANPT inlet. Available for coupling type 7 only.
X	2-inch BSPPL inlet. Available for coupling type 7 only.

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Pressure Fuelling Nozzle – F145 Series

## SPECIAL TOOLS AND TEST EQUIPMENT

### 1. General

For special tools and test equipment recommended for maintenance of the nozzle refer to [Table 5](#).

Table 5. Special Tools and Test Equipment

PART NUMBER	CAGE	DESCRIPTION	APPLICATION
F65-0-1130	79318	Nose Seal Test Fixture	Leakage testing of the nose seal
F65-0-2083	79318	Test Fixture	To accommodate fluid pressure source
GTP-8963	32218	Gammon Gauge	Check for wear on mating 3 lug adapter
T-90465	79318	Ball Tool	For removal and installation of swivel ball bearing
T-90466	79318	Nose Seal Removal Tool	For removing nozzle seat in 3 and 6 slot nozzles
2878018	79318	Test Plug, 3-inch ANPT	Leakage testing of 3-inch NPT connections
2878019	79318	Test Plug, 3-inch BSPPL	Leakage testing of 3-inch BSPPL connections
2878020	79318	Test Plug, 2½-inch ANPT	Leakage testing of 2½-inch NPT connections
2878021	79318	Test Plug, 2½-inch BSPPL	Leakage testing of 2½-inch BSPPL connections

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## TEST

### 1. General

Perform all tests using Stoddard solvent (or equivalent) as the test fluid, supplied by a 0 to 180 psig (0 to 827 kPaG) test stand. Use only petroleum jelly as a lubricant to aid in the assembly of seals and O-rings.

### 2. Functional Test

To functional test the nozzle (see [IPL Figure 1](#)), do as follows:

- A. Place the nozzle in the test fixture (P/N F65-0-1130) and use handles (52, 52A or 52B) to rotate nozzle clockwise and lock nozzle to test fixture.
- B. Use knob (36) on cam handle (38) to set the position to OPEN and then to CLOSED.

Note: The cam handle (38) shall operate freely with no mechanical interference or binding. If binding occurs refer to [REPAIR](#) section.

- C. Use the handles (52, 52A or 52B) to rotate the nozzle counter clockwise to unlock it from the test fixture.

Note: The nozzle shall lock and unlock freely from the test fixture without binding. If binding occurs refer to [REPAIR](#) section. The nozzle body shall rotate approximately 30° when connecting to the adapter. If nozzle over rotates, refer to the [REPAIR](#) section.

- D. Do steps A thru D three times.

### 3. Leakage Test (Basic, G1, G2, H1, H2, L1, L2, N1, N2, and P)

Note: Adapter Swivel Assembly (71) must be installed on “BASIC” nozzle for leakage test. For Mods; G, H1, L1, L2, N1 and N2; the lockout device p/n 941020-101 shall be installed in the vent port of the nose end control valve.

- A. Make sure the nozzle is in the CLOSED position (see [Figure 1](#)).
- B. Place the nozzle in the test fixture (P/N F65-0-1130) and rotate nozzle clockwise to lock nozzle to test fixture.

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- C. Use knob (IPL Figure 1, 36) and cam handle (38) to set the nozzle in the open position.
- D. Place the test fixture (P/N F65-0-2083) on Adapter Swivel Assembly (71) and secure with washer (74) lock washer (73) and screws (72).
- E. Test fixture (P/N F65-0-2083) has a 1/4 inch NPT port for pressure source. Attach applicable adapter to connect pressure source to test fixture (P/N F65-0-2083).
- F. Test fixture (P/N F65-0-1130) has a 1/4 inch NPT tap for a test plug. Fill nozzle with test fluid and let air bleed thru the hole in test fixture (P/N F65-0-1130). Plug up test fixture (P/N F65-0-1130) after all air has escaped from the nozzle.
- G. Apply 180 psig of fluid pressure to the nozzle for 5 minute. Then reduce pressure to 0 psig.
- H. Use knob (36) on handle (38) to set the nozzle in the closed position.
- I. Disconnect nozzle from test fixture (F65-0-1130).
- J. Apply 180 psig of fluid pressure to the nozzle for 5 minute. Then reduce pressure to 0 psig.
- K. There must not be any leakage from the exterior of the nozzle, thru any seals or from the plugs (3).
- L. Remove all test fixtures from the nozzle.

#### 4. Leakage Test (3, 3†, 4, 4†, 6, 6†, 7, 7†, 8 and 9)

- A. Make sure the nozzle is in the CLOSED position (see Figure 1)
- B. Place the nozzle in the test fixture (P/N F65-0-1130) and rotate nozzle clockwise to lock nozzle to test fixture).
- C. Rotate knob (IPL Figure 1, 36) on cam handle (38) and place the nozzle in the open position.
- D. Install matching test plugs (P/N's 2878018, 2878019, 2878020 or 2878021) in the inlet port of the nozzle under test.
- E. Test plugs (P/N's 2878018, 2878019, 2878020 or 2878021) have a 1/4 inch NPT port for pressure source. Attach appropriate connector to connect pressure source to the test plugs (P/N's 2878018, 2878019, 2878020 or 2878021).

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- F. Test fixture (P/N F65-0-1130) has a 1/4 inch NPT tap for a test plug. Fill nozzle with test fluid and let air bleed thru the hole in test fixture (P/N F65-0-1130). Plug up test fixture (P/N F65-0-1130) after all air has escaped from the nozzle.
- G. Apply 180 psig of fluid pressure to the nozzle for 5 minute. Then reduce pressure to 0 psig.
- H. Use knob (IPL Figure 1, 36) on handle (38) to set the nozzle in the closed position.
- I. Disconnect nozzle from test fixture (P/N F65-0-1130).
- J. Apply 180 psig of fluid pressure to the nozzle for 5 minute. Then reduce pressure to 0 psig.
- K. There must not be any leakage from the exterior of the nozzle, or from the plugs (3).
- L. Remove all test fixtures and test plugs from the nozzle.

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### FAULT ISOLATION

#### 1. General

This section contains fault isolation procedures for the nozzle. Operate the nozzle in accordance with the Operation section, if the nozzle fails to operate correctly refer to [Table 6](#) and select the appropriate action. [Table 6](#) identifies the Fault, Probable Cause and Corrective Action.

Table 6. Fault Isolation

FAULT	PROBABLE CAUSE	CORRECTIVE ACTION
Leakage at the poppet seat when closed	Damaged or worn nose seal seat (IPL Figure 1, 2 and 68)	Check condition and if necessary replace nose seal seat.
	Damaged or worn poppet (20)	Check condition and if necessary replace the poppet.
	Damaged or worn O-ring (4)	Check condition and if necessary replace the O-ring.
	Damaged or worn shoulder bolt (31)	Check condition and if necessary replace the shoulder bolt.
Leakage past nose seal when coupled	Nose seal seat (2, 68) damaged	Check condition and if necessary replace the nose seal seat.
	Mating flange and locking lugs on airplane fuel system inlet adapter damaged or worn	Check the three locking lugs of the bayonet flange for wear, straightness, and alignment. If they are damaged, the airplane inlet adapter must be replaced.
Leakage past flow control handle shaft	O-ring (25) or backup ring (26) damaged, twisted, or incorrectly installed	Check condition and if necessary replace the O-ring or backup ring (26)

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Maintenance Manual (MMF145)  
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Table 6. Fault Isolation (continued)

FAULT	PROBABLE CAUSE	CORRECTIVE ACTION
Leakage at swivel adapter	Damaged or worn O-ring (6)	Check condition and if necessary replace the O-ring.
	Damaged or worn cap seal (76)	Check condition and if necessary replace the cap seal.

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

## MAINTENANCE

### 1. Maintenance Instructions

The nozzle seals are checked for integrity every 3 months as part of the standard PCV checks or every 6 months when carrying out the Hose Pressure test in accordance with the JIG Guidelines. Any defective seals found at that time are replaced immediately.

#### NOTICE:

Nozzle with TEO26383, or “Rev R” and subsequent revision letter; received a design improvement where additional ball races were added to the nozzle body and swivel adapter.

Nozzle without TEO26383, or “Rev R” and subsequent revision letter and prior; can be upgraded by changing the following components and adding additional parts (refer to [Table 7](#)):

Table 7. Parts Information

OLD PART NUMBER	IPL Figure 1 Item	NOMENCLATURE	INSTRUCTIONS/ DISPOSITION	NEW PART NUMBER	IPL Figure 1 Item	QTY
430031	1	Body, Nozzle Assy	Change to	430031-1	1A	1
430048	78	Adapter, Swivel Assy	Change to	430048-1	78	1
-		Ball Race, Adapter	Add	430049	75A	1
-		Ball Race, Nozzle Body	Add	430059-1	98	1

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

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## DISASSEMBLY

### 1. General

The following procedures describe the full disassembly of the F145 Series Pressure Fuelling nozzle.

### 2. Disassembly Procedure

#### A. F145

To disassemble the nozzle (see [IPL Figure 1](#)), do as follows:

1. (Mods: G1, H1, L1, N1, P, 3 thru 7) Remove screws (72), washers (73 and 74) and remove valve assembly (70) or coupling assembly (81, 82) from adapter swivel assembly (71).
2. Remove screw (46) and O-ring (45). Discard O-ring (45).
3. At opening of screw (46) location; insert ball tool (T-90465) and rotate adapter swivel assembly (71) until the tool captures all ball bearings (43).
4. (Mods: G1, H1, L1, N1, P, 3 thru 7) Remove adapter swivel assembly (71) from nozzle body (1, 1A).
5. Disconnect dust cover assembly (53).

Note: The dust cover assembly's cable is attached to the nozzle body (1, 1A). To remove the dust cover assembly; remove one bolt (48), washers (22 and 22A) and nut (23).

6. Remove spring (55).
7. Remove O-ring (6) and ball race (44). Discard O-ring (6).
8. (Nozzle with TEO26383, or "Rev R" and subsequent revision letter) Remove ball race (98).

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9. (Mods: Basic thru 9) Insert tool (P/N T-90466) on lock plate (IPL Figure 1, 3) or 6 slot ring machined (33). While pressing down, rotate tool clockwise on lock plate (3) and slot ring (32, 33) to the OPEN position.

Note: Tool shall remain in place on nozzle body (1, 1A).

(Mod: J) A 3 lug adapter with the 3 locking lugs removed shall be used in place of P/N T-90466. Rotate tool clockwise and remove tool from nozzle.

10. Rotate cam handle (38) to open 'assembled' poppet (20).
11. Remove and discard cotter pin (11) from poppet shaft (12) and unscrew 'assembled' poppet (20).
12. On the 'assembled' poppet (20); remove retaining ring (15), bearing plate (16), ball bearings (19), poppet insert (18) and washer (17).
13. (Mods: Basic thru C, E thru 9) Remove retainer spring (61) from retainer (60). Pry off retainer (6) from nose seal seat (2). Remove and discard seal (59). Remove nose seal seat (2).
- Note: It may be necessary to use a flat head screwdriver to remove nose seal seat (2).
- (Mod: D) Remove nose seal seat (68).
- Note: It may be necessary to use a flat head screwdriver to remove nose seal seat (68).
14. Remove and discard O-ring (4).
15. Remove wave spring (21).
16. Remove screws (42) and washers (41) from latch ring (8, 34).
17. Remove bumper (7) from latch ring (8, 34). If pin (9) is bent or damaged, remove from latch ring (8, 34), otherwise pin (9) does not need to be removed from latch ring (8, 34).
18. (Mods: Basic thru H, K thru 9) Remove tool (P/N T-90466). Remove lock plate (3), wave spring (14), and 3 slot ring machined (32) from nozzle body (1, 1A).
- (Mod: J) Remove tool (P/N T-90466), 6 slot ring machined (33) and ball bearings (35) from nozzle body (1, 1A).

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19. Remove thrust bearing (IPL Figure 1, 5) and O-ring (6). Discard O-ring (6).

20. Remove screws (50), washers (56) and drag plate (49).

21. Remove screw (39), washer (40) and cam handle (38).

Note: Take note of cam handle (38) orientation with respect to camshaft (27) and link (30). The orientation is critical for proper installation of cam handle.

22. Remove screws (37) from handle knob retainer (51).

23. Remove handle knob retainer (51) from handle knob (36).

24. Remove cotter pin (28), bolt (31), nut (29) from link (30) and camshaft (27). Discard cotter pin (28).

25. Remove link (30) along with poppet shaft (12) from the nozzle body (1, 1A).

Note: The dowel pin (13) will fall out when once link (30) and poppet shaft (12) are removed.

26. Remove back up ring (26) and O-rings (25). Discard O-rings (25).

27. Remove the inner bushing (24) by using a small flat head screwdriver and carefully pry between the lip of the bushing (24) and the boss feature on the nozzle body (1, 1A) to work the bushing (24) out until there is enough length exposed for removal. Remove cam shaft (27) and bushing (24) from nozzle body.

28. Remove the outer bushing (24) by using a socket that is close in diameter to the bore diameter and insert the socket inside the nozzle body (1, 1A) and press the bushings (24) out from nozzle body (1, 1A).

29. (Mods: Basic thru 9) If handles are bent or damaged, remove nut (23), lock washer (23A) and bolts (47, 47A, 48) from nozzle body (1, 1A). Remove handles (52, 52A, 52B) from nozzle body.

30. (Optional) Remove pipe plug (10), vacuum breaker (10A) (Mod B), or pressure gauge (10B) (Mod M) from nozzle body if there is leakage coming through threads.

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

## CLEANING

### 1. Cleaning Materials

Refer to [Table 8](#) for recommended cleaning materials. Equivalent items may be used.

Table 8. 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 HAZARDOUS MATERIALS. BEFORE USE, READ AND OBEY THE MATERIAL SAFETY DATA SHEET (MSDS) INSTRUCTIONS FOR CORRECT HANDLING. FAILURE TO OBEY THIS WARNING MAY RESULT IN PERSONAL INJURY, LONG TERM HEALTH HAZARDS OR DEATH.**

- 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 any blocked ports, grooves, and flow passages.
- Make sure the flow passage of the nozzle body ([IPL Figure 1](#), 1 or 1A) is clean, especially where the plugs (10) are installed.
- 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 DRYING PARTS WITH COMPRESSED AIR. DO NOT DIRECT AIRSTREAM AT PERSONNEL OR LIGHT METAL PARTS.**

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

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### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

## CHECK/INSPECTION

### 1. General

Under strong light and magnification, look at all parts in accordance with the general criteria specified in [Table 9](#).

Repair minor damage in accordance with instructions presented in the [REPAIR](#) section. If damage is major or beyond simple repair, replace the part.

### 2. Component Checks ([Table 9](#))

Table 9. Component Checks

DESCRIPTION	INSPECTION CRITERIA
General	<p>Look at the parts for; nicks, cracks, cuts, burrs, corrosion, breaks, scoring, dents, thread damage, serration damage, or other damage.</p> <p>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 or corrosion.</p> <p>If any cracks are suspected, perform a magnetic particle inspection (for ferrous metal parts) in accordance with MIL-I-6868 or a penetrant examination (non-ferrous metal parts) in accordance with MIL-I-6866.</p>
Screws ( <a href="#">IPL Figure 1</a> , 37, 39, 42, 46 and 50)	<p>Check for burrs, excessive wear, and straightness.</p> <p>Replace the screws if damaged. Do not attempt to repair them.</p>
Bolts (31, 47)	<p>Check for burrs, excessive wear, and straightness.</p> <p>Check bolt (<a href="#">IPL Figure 1</a>, 31) diameter to make sure it is not less than Ø 0.309" (see <a href="#">Figure 2</a>).</p> <p>Replace the bolts if damaged. Do not attempt to repair them.</p>
Nuts (23, 29)	<p>Check for burrs and excessive wear.</p> <p>Replace the nuts if damaged. Do not attempt to repair them.</p>

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Table 9. Component Checks (continued)

DESCRIPTION	INSPECTION CRITERIA
Latch Ring (IPL Figure 1, 8 and 34)	<p>Check for wear on the engagement face. If there is excessive wear, replace latch ring. Check measurements see Figure 3.</p> <p>Check the corner wear radius on the corners. If any corner radius is worn excessively, replace the latch ring.</p>
Lock Plate (3)	<p>Check for wear on the engagement face in multiple places. If there is excessive wear, replace lock plate.</p> <p>Check for wear on the locking tabs of the lock plate. If there is excessive wear, replace lock plate.</p>
Springs (9, 14, 21, 55)	If a spring is not straight or is deformed, replace the spring.
Cam Handle (38)	Check for sharp edges and abrasive wear.
Cam Shaft (27)	<p>The surface finish in the bearing areas must be smooth.</p> <p>Roll the shaft on a flat surface to check straightness. The portion of the shaft which rides on the bushing must be straight.</p> <p>Check for abrasive wear on the ends of the shaft.</p> <p>Check for cracks or other damage at the cross holes.</p>
Poppet Shaft (12)	<p>Check the pin hole in the threaded end of the shaft for cracks or other damage.</p> <p>Replace the shaft if damage is found.</p>
Dowel Pin (13)	<p>Check for burrs, excessive wear and straightness.</p> <p>Replace if damaged or Ø is less than Ø 0.185".</p>
Nozzle Body (1, 1A)	<p>Check the shaft holes in the body for burrs where the O-rings enter. Remove any burrs.</p> <p>Check for excessive wear of the sacrificial bosses at the handle shaft.</p> <p>Check for cracks or other damage at all of the holes in the body. Replace the body if any damage is found.</p>

**Note:** Burrs, nicks, and scratches are defined as material raised above normal surface, which if not removed would prevent complete and proper mating of parts and sealing surfaces. Where nicks or scratches allow bare metal to show through a protective finish, note defect and assign part for repair. Dents or damage must not impair finish or functional operation of any part.

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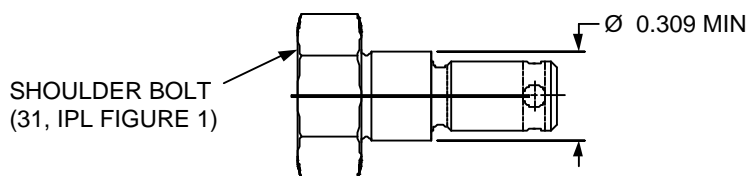
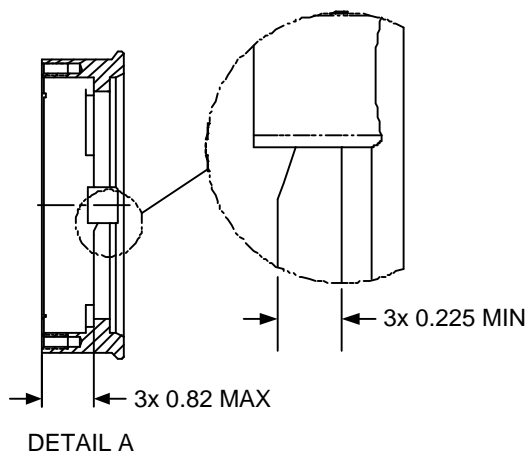
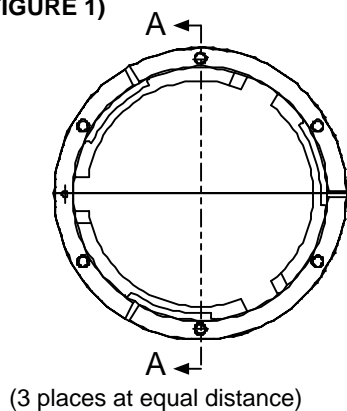


Figure 2. Shoulder Bolt Detail

#### 3-SLOT LATCH RING (8, IPL FIGURE 1)



#### 6-SLOT LATCH RING (34, IPL FIGURE 1)

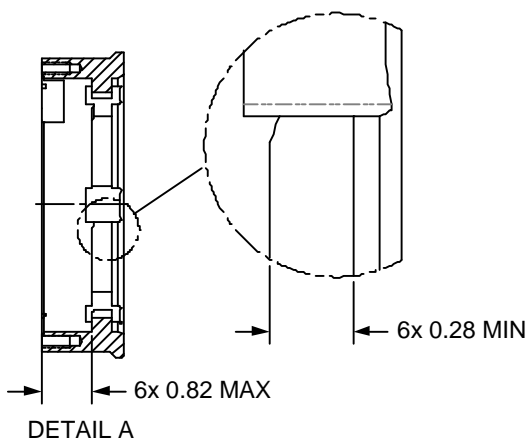
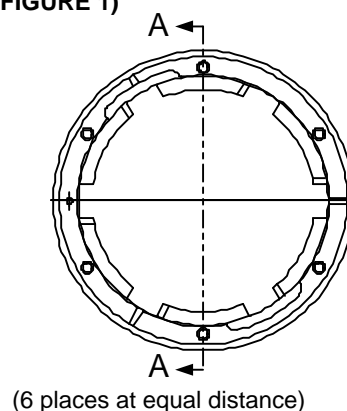


Figure 3. Latch Ring (3-Slot and 6-Slot) Detail

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## Energy products

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## REPAIR

### 1. General

There are limited repairable components in this nozzle. In the event of failure or damage exceeding the scope of this section, the nozzle shall be shipped back to Meggitt (North Hollywood), Inc.

### 2. Repair Procedures

#### A. Nose Seal Seat Replacement (see [IPL Figure 1, 2](#))

#### **CAUTION**

DO NOT OVER TIGHTEN THE CLAMPS ON THE NOZZLE BODY AS IT MAY BECOME DEFORMED OR CRACKED.

1. Clamp nozzle body (1, 1A) in place to ease nose seal replacement.
2. Use tool P/N (T-90466) to open nozzle by pressing down on lock plate (3) and turning the tool to rotate the 3 slot ring (32) or 6 slot ring (33) in the open position.
3. Rotate the cam handle (38) to place the nozzle in the OPEN position.
4. Remove cotter pin (11) and unscrew poppet assembly (20). Discard cotter pin (11).
5. Remove nose seal (2), O-ring (4) and spring (21).
6. Thoroughly clean and inspect the nose seal (2) sealing area. This area should be free of any irregularities that would cause leakage.
7. Apply petroleum jelly to new O-ring (4) and install onto the nose seal (2), being careful not to roll the O-ring.
8. Install spring (21) – direction optional. Make sure spring is seated correctly in 3 slot ring (32) or 6 slot ring (33).
9. Install the nose seal (2) and O-ring (4) assembly into the body (1, 1A).
10. Screw the poppet (20) onto the poppet shaft (12) until it bottoms out.

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### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

11. Install new cotter pin (IPL Figure 1, 11) and bend the cotter pins (11) tabs to secure.
12. Hold the nose seal (2) down while slowly turning the cam handle (38) back into its closed position. The closing of poppet will secure the nose seal (2) back into the 3 slot ring (32) or 6 slot ring (33).
13. Rotate tool P/N (T-90466) to return the 3 slot ring (32) or 6 slot ring (33) back to the CLOSED position.
14. Remove tool P/N (T-90466) on the 3 slot and 6 slot nozzle. For the 3 slot nozzle, lock plate (3) should spring into position to engage the latch ring (8) to prevent opening of the nozzle while tool is removed.

#### B. Cross Shaft Seal Replacement

##### CAUTION

USE CARE WHEN REMOVING O-RING (25). DO NOT SCRATCH OR DAMAGE THE SEALING SURFACE AS IT WILL CAUSE LEAKAGE.

##### 1. Method 1:

- a. Remove screws (50), washers (56) and drag plate (49).
- b. Remove screw (39), washer (40) and cam handle (38).
- c. Remove and discard backup ring (26) and O-ring (25).
- d. Apply petroleum jelly to new back up ring (26) and new O-rings (25) and install into nozzle body (1, 1A).
- e. Put cam handle (38) on nozzle body (1, 1A) and install screw (39) and washer (40). Torque screw (39) to 80  $\pm$ 2 in-lbs (9.0  $\pm$ 0.2 N,m).
- f. Put drag plate (49) on nozzle body (1, 1A) and install screws (50) and washers (56). Torque screws (50) to 30  $\pm$ 2 in-lbs (3.4  $\pm$ 0.2 N,m).

##### 2. Method 2:

- a. Insert tool (P/N T-90466) on lock plate (3) or 6 slot ring (33). While pressing down, rotate tool clockwise on lock plate (3) and 3 slot ring (32); or 6 slot ring (33) to the OPEN position.

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- b. Remove screws (IPL Figure 1, 50), washers (56) and drag plate (49).
- c. Remove screw (39), washer (40) and cam handle (38).  
  
Note: Take note of cam handle (38) orientation with respect to camshaft (27) and link (30). The orientation is critical for proper installation of cam handle.
- d. Remove cotter pin (28), bolt (31), nut (29) and slide link (30) away from camshaft (27). Discard cotter pin (28).
- e. Slide the camshaft (27) back and remove and discard backup ring (26) and O-ring (25).
- f. Attach link (30) to cam shaft (27) with nut (29) and install new cotter pin (28).
- g. Apply petroleum jelly to new back up ring (26) and new O-rings (25) and install into nozzle body (1, 1A).
- h. Put cam handle (38) on nozzle body (1, 1A) and install screw (39) and washer (40). Torque screw (39) to 80  $\pm$ 2 in-lbs (9.0  $\pm$ 0.2 N,m).
- i. Put drag plate (49) on nozzle body (1, 1A) and install screws (50) and washers (56). Torque screws (50) to 30  $\pm$ 2 in-lbs (3.4  $\pm$ 0.2 N,m).
- j. Rotate the 3 slot ring (32) or 6 slot ring (33) to the CLOSED position and remove tool P/N (T-90466).

#### C. Shoulder Bolt (31) and Link (30) Replacement

- 1. Remove poppet (20) and attaching parts (refer to [DISASSEMBLY](#) section). Disconnect poppet from poppet shaft (12) by removing the cotter pin (11).
- 2. Remove cotter pin (28), slotted nut (29) and shoulder bolt (31) and disconnect link (30) from cam shaft (27).
- 3. Remove link (30) and poppet shaft (12) by pulling out of the nozzle body (1, 1A). The dowel pin (13) will fall out when pulling out the link and poppet shaft.
- 4. Secure new link (30) to poppet shaft (12) with new dowel pin (13). Install poppet shaft (12) and link (30) in nozzle body (1, 1A).

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### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

5. Attach link (IPL Figure 1, 30) to cam shaft (27) with new shoulder bolt (31), slotted nut (29) and cotter pin (28).
6. Assemble poppet shaft (12) and poppet (20) with new cotter pin (11) (refer to [ASSEMBLY](#) section).

#### D. Bushing (24) Replacement

#### CAUTION

DO NOT OVER TIGHTEN THE CLAMP ON NOZZLE BODY AS IT MAY BECOME DEFORMED OR CRACKED.

1. Carefully clamp the nozzle body (1, 1A) in a vise, so that the handle shaft boss faces upward.
2. Insert tool (P/N T-90466) on lock plate (3) or 6 slot ring (33). While pressing down, rotate tool clockwise on lock plate (3) and 3 slot ring (32); or 6 slot ring (33) to the OPEN position.
3. Remove cotter pin (28), bolt (31), nut (29) from link (30) and camshaft (27). Discard cotter pin (28).
4. Remove link (30) along with shaft (12) from the nozzle body (1, 1A).  
  
Note: The dowel pin (13) will fall out when once link (30) and shaft (12) are removed.
5. Remove screw (39), washer (40) and cam handle (38).  
  
Note: Take note of cam handle (38) orientation with respect to camshaft (27) and link (30). The orientation is critical for proper installation of cam handle.
6. Remove back up ring (26) and O-rings (25). Discard O-rings (25).
7. Remove the inner bushing (24) by using a small flat head screwdriver and carefully pry between the lip of the bushing (24) and the boss feature on the nozzle body (1, 1A) to work the bushing (24) out until there is enough length exposed for removal. Remove bushing (24) and cam shaft (27) out from nozzle body (1, 1A).
8. Remove the outer bushing (24) by using a socket that is close in diameter to the bore diameter and insert the socket inside the nozzle body (1, 1A) and press the bushings (24) out of the nozzle body (1, 1A). Discard bushings (24).

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#### **WARNING**

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

9. Thoroughly clean the interior of the nozzle body (IPL Figure 1, 1, 1A) with compressed air.

Note: Make sure the bushing (24) is seated correctly.

10. Install inner bushing (24) by sliding it first on the cam shaft (27). Then place the cam shaft through the bore from inside the nozzle body (1, 1A).
11. Temporarily slide the cam shaft (27) out of the bore but do not remove from nozzle body (1, 1A).

#### **CAUTION**

**MAKE SURE THE FLANGE ON BUSHING (24) DOES NOT SCRATCH OR DAMAGE THE BORE SEALING SURFACE OF BODY (1, 1A).**

Note: Make sure the bushing (24) is seated correctly.

12. Install outer bushing (24) using a socket that is close in diameter to press bushing (24) into nozzle body (1, 1A).
  13. Slide the cam shaft (27) back through the two installed bushings (27). Rotate cam shaft (27) several times to check for binding.
  14. Inspect back up ring (26) for damage and replace as necessary. Apply petroleum jelly to back up ring (26) and new O-rings (25) and install into nozzle body (1, 1A).
  15. Inspect dowel pin (13) for damage and replace as necessary. Apply petroleum jelly to link (30), shaft (12) and dowel pin (13). Insert link (30) into shaft (12) and press in dowel pin (13).
- Note: Inspect bolt (31) for damage and replace as necessary. Make sure hole on bolt (31) is aligned with slots on nut (29).
16. Insert assembled shaft (12) inside nozzle body (1, 1A); apply petroleum jelly to bolt (31) and install through link (30) and cam shaft (27), secure with nut (29). Hand tighten nut (29) and torque bolt (31) to  $95 \pm 5$  in-lbs ( $10.7 \pm 0.6$  N,m).
  17. Put new cotter pin (28) through the slots on nut (29) and through the hole on bolt (31); make sure to wrap the cotter pin (28) tabs around the outer shape of the nut (29), bend the ends of cotter pin (28) tabs to secure. Refer to Service Bulletin 7919.

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

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18. Put cam handle (38) on nozzle body (1, 1A) and install screw (39) and washer (40). Torque screw (39) to  $80 \pm 2$  in-lbs ( $9.0 \pm 0.2$  N,m).

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## ASSEMBLY

### 1. Assembly Procedure

Before assembly; make sure all parts are clean (refer to [CLEANING](#) section), laid out and identified.

#### A. F145

To assemble the nozzle (see [IPL Figure 1](#)), do as follows:

1. Assemble the poppet (20) as follows:

Note: Inspect ball bearings (19) for damage and replace as necessary.

- a. Put washer (17), insert (18), ball bearings (19), bearing plate (16) and retaining ring (15) into poppet (20).
2. Inspect inner bushing (24) for damage and replace as necessary. Install inner bushing (24) by sliding it first on the cam shaft (27). Then place the cam shaft with the bushing through the bore from inside the nozzle body (1, 1A).

Note: Make sure bushing (24) is seated correctly

3. Temporarily slide the cam shaft (27) out of the bore. Do not remove cam shaft from nozzle body (1, 1A).

#### CAUTION

MAKE SURE THE FLANGE ON BUSHING (24) DOES NOT SCRATCH OR DAMAGE THE BORE SEALING SURFACE OF BODY (1, 1A).

4. Inspect outer bushing (24) for damage and replace as necessary. Install outer bushing (24) using a socket that is close in diameter to press bushing (24) into nozzle body (1, 1A).

Note: Make sure the bushing (24) is seated correctly.

5. Slide the cam shaft (27) through both bushings (24) and rotate cam shaft (27) several times to check for binding.
6. Inspect back up ring (26) for damage and replace as necessary. Apply petroleum jelly to back up ring (26) and new O-rings (25) and install into nozzle body (1, 1A).

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### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

7. Inspect dowel pin (IPL Figure 1, 13) for damage and replace as necessary. Apply petroleum jelly to link (30), shaft (12) and dowel pin (13). Insert link (30) into shaft (12) and install dowel pin (13).
8. Inspect bolt (31) for damage and replace as necessary. Insert assembled shaft (12) inside nozzle body (1, 1A) and apply petroleum jelly to bolt (31) and install through link (30) and cam shaft (27), secure with nut (29). Hand tighten nut (29) and torque bolt (31) to 95 ±5 in-lbs (10.7 ±0.6 N,m).

Note: Make sure hole on bolt (31) is aligned with slots on nut (29).

9. Put new cotter pin (28) through the slots on nut (29) and through the hole on bolt (31); make sure to wrap the cotter pin (28) tabs around the outer shape of the nut (29), bend the ends of cotter pin (28) tabs to secure. Refer to Service Bulletin 7919.
  10. Install handle knob retainer (51) into handle knob (36). Apply Loctite® 362 to the threads of screw (37). Secure handle knob retainer (51) to cam handle (38) with screws (37). Torque screw (37) 11 ±2 in-lbs (1.2 ±0.2 N, m).
  11. Put cam handle (38) on nozzle body (1, 1A) and install screw (39) and washer (40). Torque screw (39) to 80 ±2 in-lbs (9.0 ±0.2 N,m). Rotate cam handle to the open position.
- Note: Take note of cam handle (38) orientation with cam shaft (27) and link (30) during disassembly procedure.
12. Put drag plate (49) on nozzle body (1, 1A) and install screws (50) and washers (56). Torque screws (50) to 30 ±2 in-lbs (3.4 ±0.2 N,m).
  13. Inspect thrust bearing (5) for damage and replace as necessary. Apply petroleum jelly to thrust bearing (5) and new O-ring (6) and install onto nozzle body (1, 1A).

#### CAUTION

TO MAKE SURE THE INTERNAL INTERLOCK MECHANISM WORKS CORRECT; THE BALL BEARINGS (35) INSTALLED ON THE 6 SLOT RING (33) MUST BE FITTED CORRECTLY.

14. (Mod: J) Inspect the 6 slot ring (33) and ball bearing (35) for damage and replace as necessary. Install the 6 slot ring (33) with its boss tab feature put on the slotted side of on nozzle body (1, 1A). Apply petroleum jelly on to ball bearings (35) and install on the 2 slotted locations on 6 slot ring (33).

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### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

15. (Mods: Basic thru H, K thru 9) Inspect the 3 slot ring (32) for damage and replace as necessary. Install 3 slot ring (32) into nozzle body (1, 1A). The 3 slot ring shall have its boss tab feature installed on the slotted side of the nozzle body (1, 1A).
16. Apply petroleum jelly to new O-ring (4) and put onto nose seal seat (2, 68).
17. Install wave spring ([IPL Figure 1](#), 21) onto 3 slot ring (32) or 6 slot ring (33).
18. (Mods: Basic thru H, K thru 9) Prepare the nose seal by installing new seal (59) onto nose seal seat (2). Then install retainer (60) over seal (59) and nose seal seat (2). Insert retainer spring (61) onto retainer (60).
19. (Mods: J) Nose seal seat (68) is a single piece molded assembly; no special assembly of seals is required.
20. Install nose seal seat (2, 68) onto 3 slot ring (32) or 6 slot ring (33).
21. Screw assembled poppet (20) onto poppet shaft (12) until poppet bottoms out.
22. Insert new cotter pin (11) through hole of poppet shaft (12) and bend ends of cotter pin (11) to secure.
23. Rotate knob (36) on handle (38) to close poppet (20). Take care not to damage O-ring (4) and nose seal seat (2, 68).
24. Slide bumper (7) on to latch ring (8, 34). A use of a press would ease installation.
25. Press pin (9) into latch ring (8, 34).
26. (Mod: J) Put latch ring (34) onto nozzle body (1, 1A) and align pin (9) with the larger hole on nozzle body (1, 1A).
27. (Mods: Basic thru H, K thru 9) Insert wave spring (14), lock plate (3) on to 3 slot ring (32). Then place latch ring (8) onto nozzle body (1, 1A) and align pin (9) with the larger hole on nozzle body (1, 1A).
28. Install screws (42) and washers (41) into latch ring (8, 34). Torque screws (42) to 30  $\pm$ 2 in-lbs (3.4  $\pm$ 0.2 N,m).
29. Inspect ball race (44) for damage and replace as necessary. Install ball race (44) and new O-ring (6) into nozzle body (1, 1A).

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

30. (Nozzle with TEO26383, or “Rev R” and subsequent revision letter) Inspect ball race (98) for damage and replace as necessary. Install ball race (98) into nozzle body (1A).
31. Install spring (55) in nozzle body (1, 1A).
32. Insert specified mod (Mods: G1, H1, L1, N1, P, 3 thru 9) into inlet of nozzle body (IPL Figure 1, 1, 1A).
33. Inspect bearings (43) for damage and replace as necessary. Put bearings (43) in ball tool (T-90465). The last ball bearing should fit to edge of tool opening. If the ball bearing is significantly below this edge, there are missing ball bearings.
34. At opening of screw (46) location; insert ball tool (T-90465) with captured bearings (43) and fill nozzle body (1, 1A) with bearing (43).
35. Apply petroleum jelly to new O-ring (45) and put onto nozzle body (1, 1A). Install screw (46) and torque to 120  $\pm$ 5 in-lbs (13.5  $\pm$ 0.6 N,m).
36. (Mods: G1, H1, L1, N1, P, 3 thru 7) Install screws (72), washers (73 and 74) and valve assembly (70) or coupling assembly (81, 82) into adapter swivel assembly (71).
37. Use safety cable (54) or safety wire (58) to secure all torqued screws.
38. Connect dust cover assembly (53).  
  
Note: If dust cover assembly was removed; install bolt (48), washers (22 and 22A) and nut (23) to dust cover assembly's cable.
39. If pipe plug (10) was removed from nozzle body (1, 1A) do as follows:
  - a. Make sure pipe plug (10) threads and nozzle body (1, 1A) threads are clean and free from debris.
  - b. Apply anti-seize tape (PTFE) or equivalent thread sealant to the threads of pipe plug (10); make sure to apply at least 2 to 2.5 turns, but no more of tape.
  - c. Install pipe plug (10) into nozzle body (1, 1A) and hand tighten, then torque plug (10) 218  $\pm$ 2 in-lbs (24.6  $\pm$ 0.2 N,m).

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

## ILLUSTRATED PARTS LIST

### 1. General

This section lists, describes, and illustrates all detail parts required for maintenance support of the Pressure Fuelling Nozzle (nozzle).

### 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 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 of 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	IPL	Illustrated Parts List
CAGE	Commercial and Government Entity	MOD	Modification
CFE	Customer Furnished Equipment	RF	Reference
FIG.	Figure		
HECV	Hose End Control Valve		

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**View A**

**View B**

**View C**

**View D**

1, 1A, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 12 ref, 13, 14, 15, 16, 17, 18, 19 (15 places), 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37 (2 places), 38, 39, 40, 41 (6 places), 42 (6 places), 43 (39 places), 44, 45, 46, 47, 48, 49, 50 (3 places), 51, 52, 53, 53A, 53B, 53C, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68

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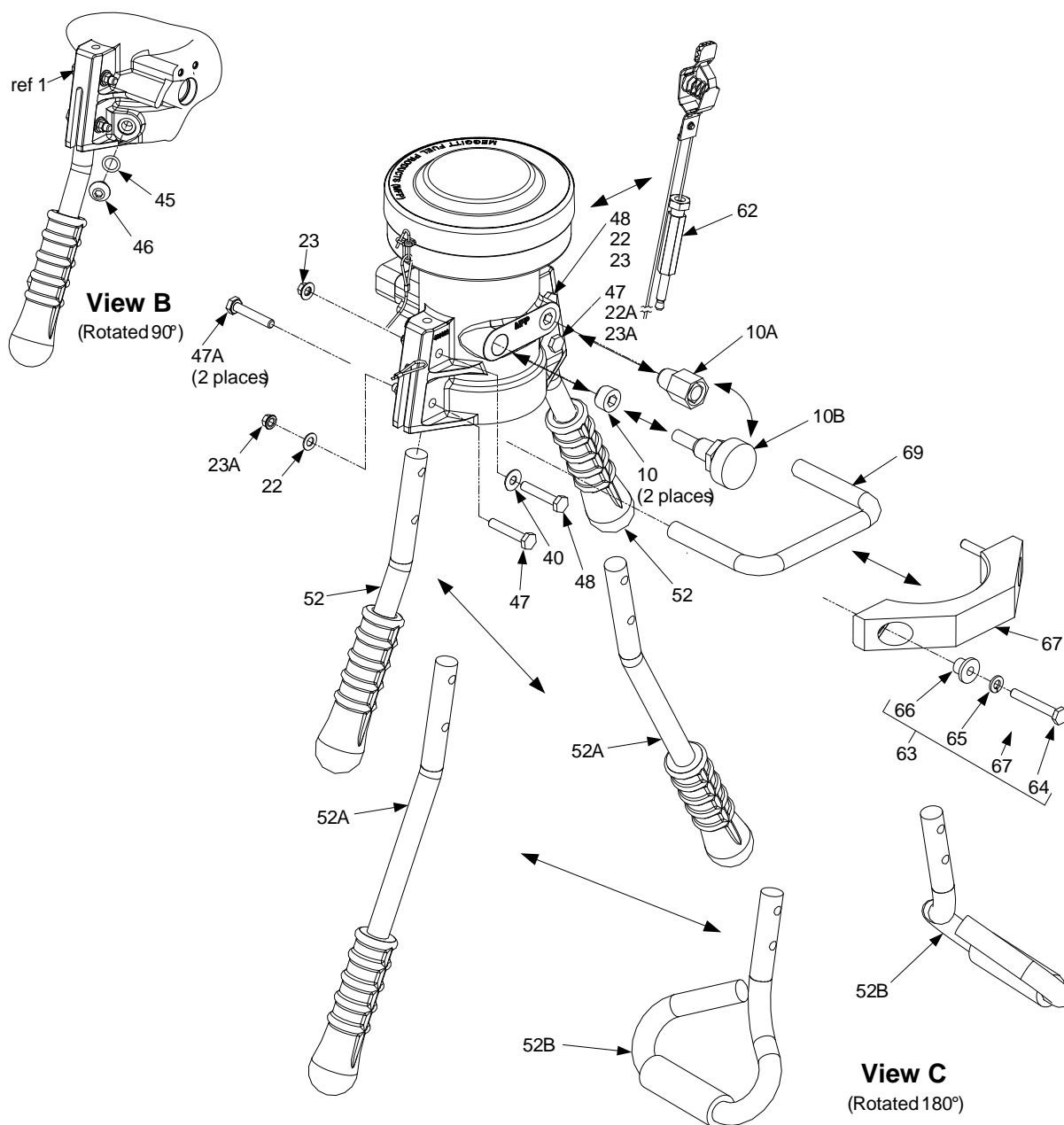
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### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series



IPL Figure 1. Pressure Fuelling Nozzle (Sheet 2)

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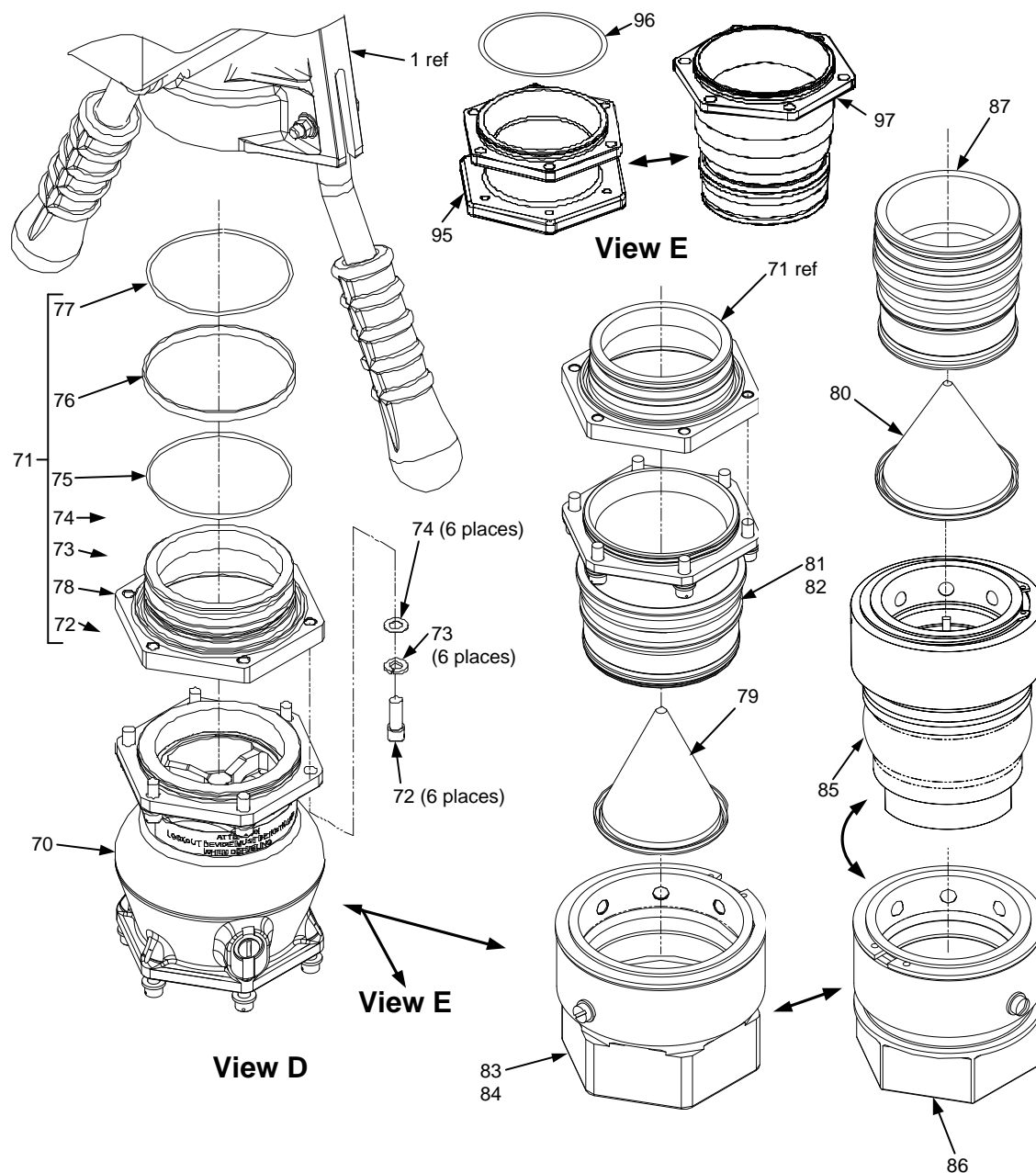
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IPL Figure 1. Pressure Fuelling Nozzle (Sheet 3)

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FIG. ITEM	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	MOD CODES	UNITS PER ASSY
<b>NOZZLE, PRESSURE FUELING ASSEMBLY PART NUMBER AIPF145</b>				
1 1	430031	. BODY, NOZZLE ASSY .....		1
1A	430031-1	. BODY, NOZZLE ASSY .....		1
		(FOR NOZZLE WITH TEO26383, OR "REV R" AND SUBSEQUENT REVISION LETTER)		
2	2701911	. SEAT, NOSE SEAL.....		1
		(NOT USED ON MODEL D)		
3	430058	. PLATE, LOCK .....		1
		(NOT USED ON MODEL J)		
4	2661058BD145	. O-RING.....		1
5	430067	. BEARING, THRUST.....		1
6	2661058BD235	. O-RING.....		2
7	430037	. BUMPER .....		1
8	430051	. LATCH RING, 3 SLOT .....		1
		(NOT USED ON MODEL J)		
9	MS16562-213	. PIN, SPRING .....		1
10	MS27769D4	. DELETED (SUPERSEDED BY F430660) .....		2
10	F430660	. PLUG, PIPE (SUPERSEDES MS27769D4) .....		2
10A	F509	. VACUUM BREAKER.....	B	1
		(USE IN PLACE OF ITEM 10)		
10B	2706054-101	. GAUGE, PRESSURE, 0 – 100 PSI.....	M	1
		(USE IN PLACE OF ITEM 10)		
11	2706782-3-12	. PIN, COTTER.....		1
12	430060	. SHAFT, POPPET .....		1
13	430288	. PIN, DOWEL .....		1
14	430231	. SPRING, WAVE .....		1
		(NOT USED ON MODEL J)		
15	200813-0290D	. RING, RETAINING (ALT 200813-0290B) .....		1
	200813-0290B	. RING, RETAINING (ALT TO 200813-0290Ds) .....		RF
16	430032	. PLATE, BEARING .....		1
17	430357	. WASHER, NYLON .....		1

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FIG. ITEM	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	MOD CODES	UNITS PER ASSY
1 18	430050	. INSERT, POPPET .....		1
19	MS19060-312	. DELETED (SUPERSEDED BY F430658) .....		15
19	F430658	. BALL BEARING (SUPERSEDES MS19060-312) .....		15
20	430061	. POPPET .....		1
21	430227	. SPRING, WAVE .....		1
22	AN960C416L	. WASHER .....		2
22A	AN960C416L	. WASHER .....		2
		(NOT USED ON MODEL F, S)		
23	NAS1291C4M	. NUT, SELF-LOCKING, HEXAGON .....		2
23A	NAS1291C4M	. NUT, SELF-LOCKING, HEXAGON .....		2
		(NOT USED ON MODEL F, S)		
24	430232	. BUSHING .....		2
25	2661058BD208	. O-RING .....		1
26	430030	. RING, BACKUP .....		1
27	430040	. CAM SHAFT .....		1
28	MS24665-172	. PIN, COTTER .....		1
29	MS9363-10	. NUT, SLOTTED, HEXAGON .....		1
30	430057	. LINK .....		1
31	430038	. BOLT, SHOULDER .....		1
32	430430	. RING, 3 SLOT MACHINED .....		1
		(NOT USED ON MODEL J)		
33	430431	. RING, 6 SLOT MACHINED .....	J	1
34	430052	. LATCH RING, 6 SLOT .....	J	1
35	MS19060-316	. DELETED (SUPERSEDED BY F430658-2) .....	J	2
	CMS19060-316	. DELETED (SUPERSEDED BY F430658-2) .....	J	2
35	F430658-2	. BALL, BEARING, CRES .....	J	2
		(SUPERSEDES MS19060-316 & CMS19060-316)		
36	430047	. KNOB, HANDLE .....		1
37	NAS1352C06-6	. SCREW, CAP, SOCKET HEAD .....		2
38	430068	. HANDLE, CAM .....		1

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FIG. ITEM	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	MOD CODES	UNITS PER ASSY
1 39	430229	. SCREW, BUTTON HEAD .....		1
40	100168-800	. WASHER.....		1
41	MS35338-138	. WASHER, LOCK.....		6
42	NAS1352N3H12	. SCREW, CAP, SOCKET HEAD .....		6
43	MS19060-314	. DELETED (SUPERSEDED BY F430658-1) .....		39
43	F430658-1	. BALL BEARING (SUPERSEDES MS19060-314).....		39
44	430059	. BALL RACE, NOZZLE BODY .....		1
45	2661058BD013FS	. DELETED (SUPERSEDED BY 2661058BD013).....		RF
	2661058BD013	. O-RING (SUPERSEDES 2661058BD013FS).....		1
46	430230	. SCREW, BUTTON HEAD .....		1
47	AN4C-13A	. BOLT, MACHINE..... (NOT USED ON MODEL F, S)		2
47A	AN4C-13A	. BOLT, MACHINE.....	S	2
48	AN4C-13A	. BOLT, MACHINE.....		2
49	430072	. DRAG PLATE.....		1
50	NAS1351C3-10	. SCREW, CAP, SOCKET HEAD .....		3
51	430200	. RETAINER, HANDLE KNOB .....		1
52	2721163	. HANDLE ASSY .....		2
		(NOT USED ON MODEL C, K)		
52A	2721162	. HANDLE ASSY, LONG 10 INCH .....	K	2
52B	2712634	. HANDLE ASSY, STIRRUP .....	C	2
53	430208	. DUST COVER ASSY .....		1
53A	1426-595145	. . CABLE ASSY, DUST COVER, STRAIGHT .....		1
		NOZZLE		
53B	1429-512631	. . HOOK, TANK FILLER CAP CHAIN .....		1
53C	430207	. . DELETED (SUPERSEDED BY 430458).....		1
53C	430458	. . DUST CAP (SUPERSEDES 430207) .....		1
-54	AS3510-0118K	. CABLE, SAFETY.....		AR
55	430358	. SPRING HELICAL COMPRESSION.....		1

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1 56	100168-168	. WASHER .....		3
-57	100127-1	. SEAL, LOCKWIRE .....		AR
-58	MS20995C20	. WIRE, SAFETY .....		AR
59	2662383-2	. SEAL .....		1
60	4631036	. RETAINER .....		1
61	1426-585770	. SPRING, RETAINER STRAIGHT NOZZLE .....		1
62	430408	. GROUNDING CABLE .....	A	1
63	430202	. DRAG RING ASSY .....	F	1
64	AN4C-16A	. . BOLT, MACHINED .....	F	2
65	MS35338-139	. . WASHER, LOCK .....	F	2
66	430041	. . RETAINER, DRAG RING .....	F	2
67	430042	. . DRAG RING .....	F	1
68	2713509	. SEAT, NOSE SEAL .....	D	1
69	430398	. BRACKET, INTERLOCK, STORAGE .....	S	1
70	F595A	. VALVE ASSY, HOSE END PRESSURE CONTROL..... (45 PSI)	G1	1
	F595B	. VALVE ASSY, HOSE END PRESSURE CONTROL..... (35 PSI)	H1	1
	F595K	. VALVE ASSY, HOSE END PRESSURE CONTROL..... (50 PSI)	L1	1
	F595N	. VALVE ASSY, HOSE END PRESSURE CONTROL..... (55 PSI)	N1	1
71	430201	. DELETED (SUPERSEDED BY 430201-1) .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
71	430201-1	. ADAPTER SWIVEL ASSY .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
		(SUPERSEDES 430201)		
72	971009-101	. . SCREW, SPECIAL .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	6

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1 73	MS35338-139	. . WASHER, LOCK.....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	6
74	NAS1149C0416R	. . WASHER, FLAT.....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	6
75	430049	. . BALL RACE, ADAPTER .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
75A	430049	. . BALL RACE, ADAPTER .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
		(FOR NOZZLE WITH TEO26383, OR “REV R” AND SUBSEQUENT REVISION LETTER)		
76	430062	. . CAP, SEAL.....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
77	2661058BD040	. . O-RING .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
78	430048	. . DELETED (SUPERSEDED BY 430048-1) .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
78	430048-1	. . ADAPTER, SWIVEL ASSY .....	G1, H1, L1, N1, P, Q, R, 3, 3†, 4, 4†, 6, 6†, 7, 7†	1
		(SUPERSEDES 430048)		
79	2672020-1	. STRAINER ASSY, 40 MESH, 2.5 INCH .....	T	1
		(USED WITH MODEL 6†, 7, 7†, 8†, 9, AND 9†)		
	2672020-2	. STRAINER ASSY, 60 MESH, 2.5 INCH .....	U	1
		(USED WITH MODEL 6†, 7, 7†, 8†, 9, AND 9†)		
	2672020-3	. STRAINER ASSY, 100 MESH, 2.5 INCH .....	V	1
		(USED WITH MODEL 6†, 7, 7†, 8†, 9, AND 9†)		
80	2681633-1	. STRAINER ASSY, 40 MESH, 3 INCH .....	T	1
		(USED WITH MODEL 3, 3†, 4 AND 4†)		

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

FIG. ITEM	PART NUMBER	DESCRIPTION	MOD CODES	UNITS PER ASSY
		1 2 3 4 5 6 7		
1 80	2681633-2	. STRAINER ASSY, 60 MESH, 3 INCH ..... (USED WITH MODEL 3, 3†, 4 AND 4†)	U	1
	2681633-3	. STRAINER ASSY, 100 MESH, 3 INCH ..... (USED WITH MODEL 3, 3†, 4 AND 4†)	V	1
81	F584L	. COUPLING ASSY, 3 INCH WITH FLANGE .....	3, 3†	1
82	F596L	. COUPLING ASSY, 3 INCH WITH FLANGE .....	4, 4†	1
	F582E	. COUPLING ASSY, 2.5 INCH WITH FLANGE .....	6†, 7, 7†	1
83	F584A	. BODY ASSY, 2.5 INCH, FEMALE, NPT, INLET ..... (ALTERNATE TO F584B THRU F584F)	3†	1
	F584B	. BODY ASSY, 2.5 INCH, FEMALE, BSP, PARALLEL . INLET (ALTERNATE TO F584A THRU F584F)	3†	1
	F584C	. BODY ASSY, 3 INCH, FEMALE, NPT, INLET ..... (ALTERNATE TO F584A THRU F584F)	3†	1
	F584D	. BODY ASSY, 2 INCH, FEMALE, NPT INLET ..... (ALTERNATE TO F584A THRU F584F)	3†	1
	F584E	. BODY ASSY, 3 INCH, FEMALE, BSP, PARALLEL ..... INLET (ALTERNATE TO F584A THRU F584F)	3†	1
	F584F	. BODY ASSY, 2.5 INCH, FEMALE, NATIONAL VALVE TYPE END CONNECTOR (ALTERNATE TO F584A THRU F584F)	3†	1
84	F596A	. BODY ASSY, 2.5 INCH, FEMALE, NPT, INLET ..... (ALTERNATE TO F596B THRU F596F)	4†	1
	F596B	. BODY ASSY, 2.5 INCH, FEMALE, BSP, PARALLEL . INLET (ALTERNATE TO F596A THRU F596F)	4†	1
	F596C	. BODY ASSY, 3 INCH, FEMALE, NPT, INLET ..... (ALTERNATE TO F596A THRU F596F)	4†	1
	F596D	. BODY ASSY, 2 INCH, FEMALE, NPT INLET ..... (ALTERNATE TO F596A THRU F596F)	4†	1
	F596E	. BODY ASSY, 3 INCH, FEMALE, BSP, PARALLEL ..... INLET (ALTERNATE TO F596A THRU F596F)	4†	1

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## Energy products

Meggitt Fuelling Products  
Maintenance Manual (MMF145)  
Pressure Fuelling Nozzle – F145 Series

FIG. ITEM	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	MOD CODES	UNITS PER ASSY
1 84	F596F	. BODY ASSY, 2.5 INCH, FEMALE, NATIONAL VALVE TYPE END CONNECTOR (ALTERNATE TO F596A THRU F596E)	4†	1
85	F1516A	. BODY ASSY, 2.5 INCH NPT..... (ALTERNATE TO F1516B THRU F1516F)	6†, 8†	1
	F1516B	. BODY ASSY, 2.5 INCH BSPP ..... (ALTERNATE TO F1516A THRU F1516F)	6†, 8†	1
	F1516C	. BODY ASSY, 3 INCH NPT..... (ALTERNATE TO F1516A THRU F1516F)	6†, 8†	1
	F1516D	. BODY ASSY, 2 INCH NPT..... (ALTERNATE TO F1516A THRU F1516F)	6†, 8†	1
	F1516E	. BODY ASSY, 3 INCH BSPP ..... (ALTERNATE TO F1516A THRU F1516F)	6†, 8†	1
	F1516F	. BODY ASSY, 2 INCH BSPP ..... (ALTERNATE TO F1516A THRU F1516E)	6†, 8†	1
86	F582A	. BODY ASSY, 2.5 INCH, NPT, FEMALE INLET ..... (ALTERNATE TO F582B THRU F582D, F582F, F582K, F582T, F582U, F582V AND F582X)	7†, 9†	1
	F582B	. BODY ASSY, 2.5 INCH, BSP. P1, FEMALE INLET ..... (ALTERNATE TO F582A, F582C, F582D, F582F, F582K, F582T, F582U, F582V AND F582X)	7†, 9†	1
	F582C	. BODY ASSY, 3 INCH, NPT, FEMALE INLET ..... (ALTERNATE TO F582A, F582B, F582D, F582F, F582K, F582T, F582U, F582V AND F582X)	7†, 9†	1
	F582D	. BODY ASSY, 2 INCH, NPT, FEMALE INLET ..... (ALTERNATE TO F582A THRU F582C, F582F, F582K, F582T, F582U, F582V AND F582X)	7†, 9†	1
	F582F	. BODY ASSY, 3 INCH, BSP. P1, FEMALE, INLET ..... (ALTERNATE TO F582A THRU F582D, F582K, F582T, F582U, F582V AND F582X)	7†, 9†	1
	F582K	. BODY ASSY, 4 INCH, NPT, FEMALE INLET ..... (ALTERNATE TO F582A THRU F582D, F582F, F582T, F582U, F582V AND F582X)	7†, 9†	1

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## Energy products

### Meggitt Fuelling Products Maintenance Manual (MMF145) Pressure Fuelling Nozzle – F145 Series

FIG. ITEM	PART NUMBER	DESCRIPTION	MOD CODES	UNITS PER ASSY
		1 2 3 4 5 6 7		
1 86	F582T	. BODY ASSY, 2 INCH, NPT, FEMALE INLET ..... (ALTERNATE TO F582A THRU F582D, F582F, F582K, F582U, F582V AND F582X)	7†, 9†	1
	F582U	. BODY ASSY, QUICK DISCONNECT (FOR 4 INCH ..... MALE CAMLOCK (ALTERNATE TO F582A THRU F582D, F582F, F582K, F582T, F582V AND F582X)	7†, 9†	1
	F582V	. BODY ASSY, 3.5 INCH, NPT, FEMALE INLET ..... (ALTERNATE TO F582A THRU F582D, F582F, F582K, F582T, F582U AND F582X)	7†, 9†	1
	F582X	. BODY ASSY, 2 INCH, BSP. P1, FEMALE INLET ..... (ALTERNATE TO F582A THRU F582D, F582F, F582K, F582T, F582U AND F582V)	7†, 9†	1
87	430212	. DELETED (SUPERSEDED BY 430212-1) .....	8†, 9, 9†	1
87	430212-1	. ADAPTER ASSY, 2.5 INCH, SWIVEL TO QD ..... (SUPERSEDES 430212)	8†, 9, 9†	1
88	430049	. . BALL RACE, ADAPTER.....	8†, 9, 9†	1
89	430062	. . CAP, SEAL .....	8†, 9, 9†	1
90	MS29513-040	. . O-RING, PREFORMED .....	8†, 9, 9†	1
91	2803015	. . RING, BEARING .....	8†, 9, 9†	2
92	Q4231-366Y	. . QUAD RING .....	8†, 9, 9†	1
93	2803082	. . SEAL, BACK UP .....	8†, 9, 9†	1
94	430211-1	. . ADAPTER, 2.5 INCH, SWIVEL TO QD .....	8†, 9, 9†	1
95	2861021-101	. COUPLING, SPECIAL .....	Q	1
96	2661058A042	. O-RING.....	Q	1
97	430492	. DELETED (SUPERSEDED BY 430492-1) .....	R	1
	430492-1	. ADAPTER ASSY, FLIGHT (SUPERSEDES 430492)....	R	1
98	430059-1	. BALL RACE, NOZZLE BODY ..... (FOR NOZZLE WITH TEO26383, OR "REV R" AND SUBSEQUENT REVISION LETTER)		1

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## Energy products

Meggitt Fuelling Products  
Maintenance Manual (MMF145)  
Pressure Fuelling Nozzle – F145 Series

REPLACEMENT PARTS KITS AVAILABLE		
KIT P/N	DESCRIPTION	ITEMS IN KIT (IPL Figure 1)
KITF145-1	Major Seal Kit	2, 4, 5, 6, 11, 25, 26, 45, 59, 60 and 61
KITF145-2	Minor Seal Kit	4, 11, 25, 26 and 59
KITF145-3	Seal Kit for Mod P Only	76 and 77
KITF145-4	Operating Handle Kit	36, 37, 38, 40 and 51
KITF145-5	Complete Overhaul Kit	2, 4, 5, 6, 11, 24, 25, 26, 28, 31, 36, 37, 38, 40, 45, 51, 59, 60, 61, 76, 77 and 89
KITF145-6	Shoulder Bolt Kit	28 and 31
KITF145-7	Handle Knob Kit	28, 31, 36, 37 and 51

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