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Maintenance Manual

# Water Detection System

# F756/F757/F758 Series

Meggitt Fuelling Products
Maintenance Manual
Water Detection System – F756/F757/F758 Series

# LIST OF EFFECTIVE PAGES

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The total number of pages in this technical document is 27 consisting of the following:

Title, 2 – 27

# TABLE OF CONTENTS

Meggitt Fuelling Products
Maintenance Manual
Water Detection System – F756/F757/F758 Series

# INTRODUCTION

## 1. General

This manual provides component maintenance shop instructions for the Water Detection System.

## 2. Revision Service

This manual will be revised as necessary to show the current information.

## 3. Weights and Measurements

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

# DESCRIPTION AND OPERATION

## 1. Description

A. The Water Detection System (see Figure 1) provides the means of detecting water contamination in automotive and aviation refueling systems. The major functional components of the water detection system are the controller and the water sensing probe. The controller includes a terminal board, a power supply board, a turret board, a relay board and power relays. The quantities of these items will vary with the system type and requirements. The water sensing probe contains the detector electrode(s), petcocks for testing, and passive electrical components. The water sensing probe is mounted in the vessel sump. The controller is remotely located.

B. Single stage systems initiate a shutdown when water accumulation within the vessel sump is sufficient to contact the water sensing probe's upper electrode ring. Dual stage systems produce an early warning signal when the accumulated water contacts the water sensing probe's intermediate electrode ring. This signal can be used to open a water drain valve. Just as for single stage systems, shutdown will occur when the water level reaches the upper electrode ring.

C. The water detection system can be tested without injecting water into the fuel lines.

D. The water detection system will shut down fuel flow in the event of a component failure or a wiring fault.

**2. Leading Particulars** (Refer to Table 1)

| Table 1. Leading Particulars |
|---|
| Service Automotive and Aviation Fuels |
| Water Sensing Probe Operating Pressure (maximum) 300 psi (20,7 bar) |
| Fluid Temperature –40 to 180°F (–54 to 82°C) |
| Ambient Temperature –40 to 180°F (–54 to 82°C) |
| Electrical Requirements/Ratings<br>Controller Voltage 10 to 32 VDC (negative ground)<br>(reverse-polarity and over-voltage protected)<br>Water Sensing Probe Current (maximum) 200 microamperes<br><br>Deadman Current (maximum at 12 VDC) 45 milliamperes<br><br>Relay Contact Rating 5 amperes at 30 VDC/240 VAC |
| Weight (approximate)<br>Water Sensing Probe 2.2 pounds (1,0 kg)<br>Controller 1.1 pounds (0.5 kg) |

**3. Model Variations**

**A. Basic F756 Water Detection System – 12/24 VDC**

The basic F756 is a single-stage water detection system that includes an F758A probe and a current limiting relay. Refer to Table 2 for the available F756 series water detection system variations.

### B. Basic F757 Water Detection System – 120/240 VAC

The basic F757 is a single-stage water detection system that includes an F758A probe. Refer to Table 3 for the available F757 series water detection system variations.

### C. Basic F758 Water Sensing Probe

The basic F758A is a single-stage water sensing probe. Refer to Table 4 for the available F758 series water sensing probe variations.

**NOTE:** The controllers and water sensing probes are not interchangeable with similar components from other water detection systems, including the F716/F717/F718 series.

Table 2. F756 12/24 VDC Water Detection System Variations

| SYSTEM MOD LETTERS | DESCRIPTION |
|---|---|
| Basic | Single-stage control with F758A water sensing probe and current limiting relay |
| A | Changes controller to dual-stage; changes water sensing probe to mobile-installation version (F758B) |
| B | Adds explosion-proof enclosure |
| C | Adds explosion-proof enclosure with test pushbuttons and indicator lights |
| E | Adds test indicator light |
| F | Adds pressure switch |
| G | Without water sensing probe |
| J | Adds 12 VDC 2-way solenoid valve |
| K | Adds 24 VDC 2-way solenoid valve |
| R | Changes relays to non-current limiting type |

| Table 3. F757 120/240 VAC Water Detection System Variations | |
|---|---|
| **SYSTEM MOD LETTERS** | **DESCRIPTION** |
| Basic | Single-stage control with F758A water sensing probe |
| A | Changes controller to dual-stage; changes water sensing probe to static-installation version (F758C) |
| B | Adds explosion-proof enclosure |
| C | Adds explosion-proof enclosure with test pushbuttons and indicator lights |
| E | Adds test indicator light |
| G | Without water sensing probe |
| H | Adds 15-ampere power relay |
| L | Adds 120 VAC 3-way solenoid valve |
| M | Adds 240 VAC 3-way solenoid valve |

| Table 4. F758A Water Sensing Probe Variations | |
|---|---|
| **PROBE VERSIONS** | **DESCRIPTION** |
| F758A | Single-stage control |
| F758B | Mobile-installation version with dual-stage control |
| F758C | Static-installation version with dual-stage control |

## 4. System Components

The water detection system is comprised of 4 to 7 non-repairable, replaceable, components. The quantity and type will depend on the power source and required functions. The components are as follows:

### A. Water Sensing Probe

The water sensing probe is mounted in the vessel sump. It has a “guard” electrode and one or two detector electrodes, and contains some of the passive electrical components. Its two petcocks connect to the internal passages for system testing.

**B. Terminal Board**

The terminal board mounts on the controller chassis, providing the terminals and sockets required for the internal and external connections. It includes a fuse that protects the electronic components.

**C. Power Supply Board (F757 Only)**

The power supply board connects to the terminal board. It consists of a rectifier, an isolation transformer and a voltage selector switch.

**D. Turret Board**

The turret board plugs into the terminal board. It contains, 1) a voltage regulator, 2) sensor and logic circuits to process the data received from the water sensing probe, and 3) output and feedback circuits to drive the relay(s) and feedback data to the sensor and logic circuits.

**E. Relay Board, Current Limited (F756 Only)**

The current limited relay board plugs into the terminal board. The relay is a sensitive sealed unit with DPDT contacts. The contacts are rated for 5 amperes at 240 volts AC or DC. One contact set is isolated (dry). The other contact set has a current limiter circuit (1.3 amperes), providing intrinsic safety up to 24 VDC. The relay is UL and CSA listed.

**F. Relay Board (Non-Current Limited)**

The relay board plugs into the terminal board. The relay is a sensitive sealed unit with DPDT contacts. The contacts are rated for 5 amperes at 240 volts AC or DC. One contact set is isolated (dry). The relay is UL and CSA listed.

**G. Power Relay (F757 only)**

The power relay mounts inside the explosion-proof enclosure. It provides contact capacity for 15 amperes at 120 VAC.

## 5. Optional/Auxiliary Components

The following optional/auxiliary components will be provided as required.

### A. Chassis and Cover

The standard steel chassis and protective cover is suitable for mounting in a fire-safe location.

### B. Explosion Proof Enclosure

For hazardous areas, the standard chassis and cover is installed in an explosion-proof housing, (NEMA 7 and 9).

### C. System Test Pushbutton(s) and Indicator Light(s)

Test pushbutton(s) allow functional testing of the water detection system. Indicator lamp(s) provide visible indication of the system status.

### D. Probe Test Bulb

A device that allows the water sensing probe and the controller to be tested with water, without introducing water into the refueling system.

### E. Pressure Switch (F756 Only)

This is an air pressure actuated switch. It is used to activate a water detection system installed on a vehicle.

### F. Solenoid Valve

The solenoid valve may be used for automatic water drain or for other functions.

## 6. Operation

### A. Normal Operation – Single Stage System – Vessel Filled with Fuel

1) No water in sump Relay 1 is energized, fuel flows

2) Water level rises to the upper electrode Relay 1 is de-energized, fuel flow stops

3) Manually drain the water

4) Water level falls below the upper electrode Relay 1 is energized, fuel flows

5) No water in sump Relay 1 is energized, fuel flows

### B. Normal Operation – Dual Stage System – Vessel Filled with Fuel

1) No water in sump Relay 1 is energized, fuel flows

Relay 2 is de-energized, warning signal is OFF

2) Water level rises to the middle electrode Relay 1 is energized, fuel flows

Relay 2 is energized, warning signal is ON

3) Water level rises to the upper electrode Relay 1 is de-energized, fuel flow stops

Relay 2 is de-energized, warning signal is OFF

4) Manually drain the water

5) Water level falls below the upper electrode Relay 1 is energized, fuel flows

Relay 2 is energized, warning signal is ON

6) Water level falls below the middle electrode Relay 1 is energized, fuel flows

Relay 2 is energized, warning signal is OFF

7) No water in sump Relay 1 is energized, fuel flows

Relay 2 is energized, warning signal is OFF

# INSTALLATION

**1. Hardware installation**

A. Remove the cover from the controller. Note the board locations, and remove the boards from the controller.

B. Securely mount the controller chassis or the enclosure.

C. Remove the cap from the water sensing probe.

D. Install the water sensing probe in the vessel.

**NOTE:** The water sensing probe MUST be mounted with its terminal end down. The centerline of the probe MUST NOT be more than 45 degrees from vertical.

E. Install all of the wiring conduits and seal the fittings where applicable, in compliance with the applicable local wiring codes.

**NOTE:** The water sensing probe wiring must be run in a separate conduit.

F. Install a drain/breather in the explosion-proof enclosure.

**2. Electrical Installation** (Refer to Figure 2, 3, 4 or 5)

A. Install three (3) insulated wires (#20/22 AWG), from the water sensing probe to the controller chassis terminals.

**NOTE:** All three (3) wires are required to be installed in all installations.

B. Connect the wires to the water sensing probe terminals. (Do not connect the wires to the controller terminals at this time.)

**C. Resistance Check**

Using an ohmmeter at the controller end, check the resistance between wires as follows:

| FROM – TO | RESISTANCE |
|---|---|
| Wire 1 to Wire 3 | 58K (±5K) ohms |
| Wire 2 to Wire 3 | 58K (±5K) ohms |
| Wire 2 to Wire 1 | 120K (±10K) ohms |
| Wire 3 to Ground | 5 megohms or more |

D. Install power and output wiring as required, in compliance with the applicable local electrical codes.

E. Connect the instrumentation wiring to the dry contact terminals as required.

F. Make sure that three (3) jumper wires are installed (refer to IPL Figure 1).

G. Make sure that all of the connections to the water sensing probe and to the external circuits are correct and that their terminal screws are securely tightened.

H. Make sure that the power input voltage and polarity are correct.

**3. Final Checkout**

A. Re-install the boards in their assigned positions in the controller.

B. Apply the system input power. Relay 1 should energize and applying power to the control circuit.

C. Open both of the water sensing probe petcocks. Then, using a test bulb (P/N13311A), slowly inject water into the probe body.

D. As water is injected:

1) On dual-stage systems, the warning signal should be ON.

2) The control circuit should go OFF and indicator circuit should come ON. On dual-stage systems, the warning should go OFF.

E. As water is removed:

1) The indicator circuit should go OFF and control circuit should come ON. On dual-stage systems, the warning should come ON.

2) On dual-stage systems, the warning signal should go OFF.

F. Remove the test bulb and allow the water to drain. Blow dry air through the water sensing probe ports until the interior is completely dry. Close both of the petcocks.

G. Using water repellant dielectric grease (GE G-623, or equivalent):

1) Liberally coat the water sensing probe terminal block and the electrical wire ends.

2) Coat the controller chassis terminal blocks and the electrical wire ends.

H. Re-install the water sensing probe cap. Tighten the cap securely.

I. Re-install the protective cover on the controller chassis. Secure the cover with the nuts. Re-install the cover on the explosion-proof enclosure and secure it (if equipped).

J. Fill the vessel with dry fuel.

K. Slowly inject a measured quantity of water into the sump.

L. As water is injected:

1) On dual-stage systems, the warning signal should be ON.

2) The control circuit should go OFF and indicator circuit should come ON. On dual-stage systems, the warning should go OFF.

M. As water is removed:

1) The indicator circuit should go OFF and control circuit should come ON. On dual-stage systems, the warning should come ON.

2) On dual-stage systems, the warning signal should go OFF.

N. Remove the measured quantity of water from the sump and an equal volume of fuel.

O) The water detector system is ready for use.

# PERIODIC MAINTENANCE

## 1. General

A. After a period of time in service the water detection system should be checked for function. The water sensing probe electrodes can become coated with surfactants and/or varnish. These coatings may be either electrically insulating or conducting. If the coating is conducting it can cause false alarm signals. If it is insulating it can disable the probe and the system, allowing water to pass.

B. The periodic maintenance tasks and intervals are given in Tables 5, 6 and 7. The intervals are basic recommendations. Field conditions may dictate shorter or may allow longer intervals. Decisions regarding maintenance intervals must be made by the operator based on the fuel conditions, liability, and economics.

# Meggitt Fuelling Products
## Maintenance Manual
## Water Detection System – F756/F757/F758 Series

| Table 5. **3-Month** (Quarterly) Maintenance Checks | | | |
|---|---|---|---|
| **ITEM** | **ACTION** | **FINDING** | **REACTION** |
| 1 | Open both petcocks | Nothing comes out | Good. |
| | | Product comes out | Replace the water sensing probe. |
| | | Water comes out | Petcocks not closed. |
| | | | Water sensing probe not drained after last internal test. |
| 2 | Press the TEST pushbuttons on the controller to check the controller (if equipped) | Indicator lights and relays operate correctly | Good. |
| | | Indicator lights and relays **do not** operate correctly | Go to Table 6 (12-Month) and perform Item 3. |
| 3 | Using a test bulb (P/N 13311A), slowly inject water into one of the water sensing probe petcocks | Indicator lights and relays operate correctly | Good. |
| | | Indicator lights and relays **do not** operate correctly | Go to Table 6 (12-Month) and perform Item 3. |
| 4 | Slowly remove the water from water sensing probe petcock | Indicator lights and relays operate correctly | Good. |
| | | Indicator lights and relays **do not** operate correctly | Go to Table 6 (12-Month) and perform Item 3. |
| 5 | Blow air through the water sensing probe to clear the water. Close both of the petcocks | | |

# Meggitt Fuelling Products
## Maintenance Manual
## Water Detection System – F756/F757/F758 Series

| ITEM | ACTION | FINDING | REACTION |
|---|---|---|---|
| 1 | Remove the water sensing probe cap | Dry | Good. |
| | | Wet with product | Replace the water sensing probe. |
| | | Wet with water | Check the cap seal. Replace if damaged. |
| | | | Check the conduit condition. Correct as necessary. |
| 2 | Check the water sensing probe wiring | All wires correctly connected and in good condition. | Good. |
| | | One or more wires loose or disconnected. | Reconnect the wires correctly. |
| | | One or more wires are broken, chafed, or missing | Replace and connect the wires correctly. |
| 3 | Go to Table 5 (3-Month) and perform Items 1 through 5. | | |
| 4 | Slowly inject a measured quantity into the vessel | Indicator lights and relays operate correctly | Good. |
| | | Indicator lights and relays **do not** operate correctly | Remove the water sensing probe from the vessel for cleaning. Go to Table 7 (36-Month) and perform Item 3. Repeat Table 6 (12-Month) Items 3 and 4. |
| 5 | Slowly drain and measure the water from the vessel. Also, drain an equal quantity of product to make sure that all of the water is removed. | | |
| 6 | Re-install the vessel plug(s), shut off the manual drain, close the water sensing probe petcocks, and re-install the water sensing probe cap. | | |

# Meggitt Fuelling Products
## Maintenance Manual
## Water Detection System – F756/F757/F758 Series

| Table 7. **36-Month** (3-Year) Maintenance Checks | | | |
|---|---|---|---|
| **ITEM** | **ACTION** | **FINDING** | **REACTION** |
| 1 | Remove the water sensing probe cap | Dry | Good. |
| | | Wet with product | Replace the water sensing probe. |
| | | Wet with water | Check the cap seal. Replace if damaged. |
| | | | Check the conduit condition. Correct as necessary. |
| 2 | Check the water sensing probe wiring | All wires correctly connected and in good condition. | Good. |
| | | One or more wires are broken, chafed, or missing | Replace and connect the wires correctly. |
| 3 | Disconnect the wiring and conduit from the water sensing probe. Remove the probe from the vessel. | No leakage | Clean all varnish and surfac-tants from the electrodes and insulators. ONLY USE SOL-VENTS AND SYNTHETIC STEEL WOOL. |
| | | Product leakage | Replace the water sensing probe. (No applicable repair tasks.) |
| 4 | Re-install the water sensing probe in the vessel. Re-connect the conduit and the electrical wiring. | | |
| 5 | Go to Table 6 (12-Month) and perform Items 4 through 6. | | |

Meggitt Fuelling Products
Maintenance Manual
Water Detection System – F756/F757/F758 Series

# FAULT ISOLATION

## 1. General

A. Examine the controller and the water sensing probe to verify completeness of the installation (including the wiring and conduit), cleanliness, correct identification of the components, and that no obvious damage is evident.

B. Visually verify that all markings and nomenclature are complete and legible.

C. Refer to Table 8 for fault isolation information. Locate suspected faulty component and take appropriate remedial action.

D. All normal rules and procedures associated with good safety practices during performance of fault isolation must be observed and implemented at all times.

Table 8. Fault Isolation

| FAULT | POSSIBLE CAUSE | CORRECTIVE ACTION |
|---|---|---|
| No fuel flow | Water in vessel | Drain the water. |
| | Electrical power interrupted | Restore electrical power input. Check the circuit breakers. Check for power at the terminal board. Check the fuse on the terminal board. |
| | Water on the water sensing probe electrical terminals | Clean and dry the terminals and coat them with grease (GE G-623). |
| | Water on the controller electrical terminals | Clean and dry the terminals and coat them with grease (GE G-623). Install drain/breather in the enclosure (if not equipped). |
| | Defective control valve or control valve wiring | Replace the control valve, solenoid, or the electrical wiring. |
| | Water sensing probe wiring fault | Re-connect any disconnected wires. Re-place any wires having damaged insulation causing short circuits to ground. Check all wiring for continuity and resistance to ground. |

| Table 8. Fault Isolation | | |
|---|---|---|
| **FAULT** | **POSSIBLE CAUSE** | **CORRECTIVE ACTION** |
| No fuel flow (continued) | Defective relay 1 | Check the external circuits for excessive current. If defective, replace the relay 1 board. |
| | Water inside water sensing probe | Blow air through the water sensing probe to clear the water. Then, close both of the petcocks |
| | Water sensing probe contaminated | Disconnect the wiring and conduit from the water sensing probe. Remove the probe from the vessel. Clean all varnish and surfactants from the electrodes and insulators. ONLY USE SOLVENTS AND SYNTHETIC STEEL WOOL. |
| Fuel flow will not stop with water present in vessel | Defective control relay or control relay wiring | Replace the control relay or the electrical wiring. |
| | Welded relay 1 | Check the external circuits for excessive current. If defective, replace the relay 1 board. |
| | Water sensing probe contaminated | Disconnect the wiring and conduit from the water sensing probe. Remove the probe from the vessel. Clean all varnish and surfactants from the electrodes and insulators. ONLY USE SOLVENTS AND SYNTHETIC STEEL WOOL. |
| Warning signal will not come on when required | Defective control valve or control valve wiring | Replace the control valve, solenoid, or the electrical wiring. |
| | Defective relay 2 | Check the external circuits for excessive current. If defective, replace the relay 2 board. |
| | Water sensing probe contaminated | Disconnect the wiring and conduit from the water sensing probe. Remove the probe from the vessel. Clean all varnish and surfactants from the electrodes and insulators. ONLY USE SOLVENTS AND SYNTHETIC STEEL WOOL. |

| Table 8. Fault Isolation | | |
|---|---|---|
| **FAULT** | **POSSIBLE CAUSE** | **CORRECTIVE ACTION** |
| Warning signal will not turn off when required | Defective control valve or control valve wiring | Replace the control valve, solenoid, or the electrical wiring. |
| | Welded relay 2 | Check the external circuits for excessive current. If defective, replace the relay 2 board. |
| Test indicator light(s) will not come on when required | Water in vessel | Drain the water. |
| | Water on the water sensing probe electrical terminals | Clean and dry the terminals and coat them with grease (GE G-623). |
| | Water on the controller electrical terminals | Clean and dry the terminals and coat them with grease (GE G-623). Install drain/breather in the enclosure (if not equipped). |
| | Defective control valve or control valve wiring | Replace the control valve, solenoid, or the electrical wiring. |
| | Defective water sensing probe wiring | Re-connect any disconnected wires. Replace any defective (short circuited or open) electrical wiring. |
| | Defective lamp(s) | Replace the lamp(s). |
| | Defective relay 1 | Replace the relay 1 board. |
| | Defective relay 2 | Replace the relay 2 board. |
| | Defective turret board | Replace the turret board. |
| | Defective power supply board | Replace the power supply board. |

## 2. Water Sensing Probe and Wiring Check

A. Drain ALL water from the vessel.

B. On the water sensing probe, open both of the petcocks and blow dry air through the probe until it is completely dry.

C. Disconnect the 3 water sensing probe wires from controller chassis terminal board.

D. Using an ohmmeter, check the resistance between wires as follows:

| FROM – TO | RESISTANCE |
|---|---|
| Wire 1 to Wire 3 | 30K to 60K ohms |
| Wire 2 to Wire 3 | 30K to 60K ohms |
| Wire 3 to Ground | 15K ohms or more |

E. If any resistance indication is not within tolerance, disconnect the wires from the water sensing probe and re-check the resistance values at the probe terminals.

F. If any resistance indication is still out of tolerance, replace water sensing probe. If the probe checks within tolerance, locate and repair or replace the defective wires.

**3. Controller Chassis Check**

A. With the water sensing probe wires (only) disconnected from the controller terminal board:

1) Connect a 33 K ohm resistor between the PROBE 1 terminal and the PROBE GRD terminal.

2) Connect a 33 K ohm resistor between the PROBE 2 terminal and the PROBE GRD terminal.

3) Turn on the system power source.

**NOTE:** If the controller has test pushbutton(s) and light(s), the test pushbuttons perform the following tests.

B. Relay 1 should be energized. Relay 2 should be de-energized.

1) If Relay 1 is not energized, check the voltage between the DEADMAN terminal and the PROBE GRD terminal.

2) If the voltage indication is 11 (±1) VDC, replace the relay 1 board. If the voltage is out of tolerance, replace the turret board.

C. Replace the 33K ohm resistor between the PROBE 2 terminal and the PROBE GRD terminal with a 50K ohm resistor. If relay 2 is not energized, replace the relay 2 board. If relay 2 still is not energized, replace the turret board.

D. To check the power supply board:

1) Remove the fuse from the terminal board.

2) Check the voltage between the fuse pin nearest to the jumpers and the PROBE GRD terminal. The voltage should be 14 (±2) VDC.

3) If the voltage is approximately 7 VDC, the 120/240 VAC switch is incorrectly set. If not, replace the power supply board.

# ILLUSTRATED PARTS LIST

## 1. General

This section lists, describes, and illustrates all detail parts required for maintenance support of the Water Detection System.

## 2. Scope of Information

A. 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.

### B. MODIFICATION CODE

The modification code indicates the parts usage with respect to the end item. When the MODIFICATION CODE column is blank, the part usage is applicable to all versions unless otherwise specified in the DESCRIPTION column.

### C. How to Identify a Part

**1) 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 verify the physical appearance and location of the part.

**2) When the part number is not known:** Review the illustrations to identify the part by physical appearance and location. Refer to the accompanying parts list to obtain the part number, description, modification codes, and quantity.

### D. Abbreviations

| | |
|---|---|
| ASSY | Assembly. |
| FIG. | Figure. |
| IPL | Illustrated Parts List. |
| MOD | Modification. |

# Meggitt Fuelling Products
## Maintenance Manual
## Water Detection System – F756/F757/F758 Series

| FIG. ITEM | PART NUMBER | DESCRIPTION | MOD CODES | UNITS PER ASSY | |
|---|---|---|---|---|---|
| | | | | F756 | F757 |
| 1 1 | 9451006-101 | TERMINAL BOARD, 12/24 VDC | | 1 | – |
| | 9451006-102 | TERMINAL BOARD, 120/240 VAC | | – | 1 |
| 2 | 941010-101 | TURRET BOARD | | 1 | 1 |
| 3 | 941008-101 | RELAY BOARD, CURRENT LIMITED | | 1 | – |
| | 941008-102 | RELAY BOARD | | – | 1 |
| | 941008-102 | RELAY BOARD | R | 1 | – |
| 4 | 961009-101 | POWER SUPPLY BOARD | | – | 1 |
| 5 | 941000-101 | CHASSIS | | 1 | 1 |
| 6 | 941004-101 | LABEL (F756) | | 1 | – |
| | 941004-102 | LABEL (F757) | | – | 1 |
| 7 | 941001-101 | COVER, PROTECTIVE | | 1 | 1 |
| 8 | F758A | PROBE, WATER SENSING (Single-Stage) | | 1 | 1 |
| | F758B | PROBE, WATER SENSING (Dual-Stage) (Short) | A | 1 | – |
| | F758C | PROBE, WATER SENSING (Dual-Stage) (Long) | A | – | 1 |
| 9 | AA9575H2441-115VAC | RELAY, POWER | H | – | 1 |
| 12 | CAN505-4R28 | SCREW, MACHINE | | 3 | 3 |
| 13 | CAN505-4R9 | SCREW, MACHINE | | 3 | – |
| | CMS35206-220 | SCREW, MACHINE | | – | 4 |
| 14 | 941002-101 | SPACER | | 10 | 15 |
| 15 | 941003-101 | SPACER | | 3 | 3 |
| 16 | CMS21042-04 | NUT, SELF-LOCKING | | 6 | 7 |
| 17 | 951005-101 | LABEL | | 1 | 1 |
| 19 | 971010-101 | ENCLOSURE (NEMA) | B,C | 1 | 1 |
| 20 | 2706133-113 | NIPPLE | C | 1 | 1 |
| 21 | 2706400-120 | HOUSING, SWITCH (Single) | C | 1 | 1 |

# Meggitt Fuelling Products
## Maintenance Manual
## Water Detection System – F756/F757/F758 Series

| FIG. ITEM | PART NUMBER | DESCRIPTION | MOD CODES | UNITS PER ASSY | |
|---|---|---|---|---|---|
| | | | | F756 | F757 |
| 22 | 2706400-121 | HOUSING, SWITCH (Double) | AC | 1 | 1 |
| 23 | 2706400-112 | COVER | AC | 2 | 2 |
| | 2706400-112 | COVER | C | 1 | 1 |
| 24 | 2706601-104 | SPACER | B,C | 3 | 3 |
| 25 | CMS35276-263 | SCREW, MACHINE | B,C | 5 | 5 |
| 26 | 971011-101 | BLOCK, MOUNTING | H | – | 1 |
| 27 | CMS35276-263 | SCREW, MACHINE | H | – | 4 |