F14 MULTIVALVE FUEL PUMP
SERVICE MANUAL
HARDWARE CONTENTS

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<th>COMPONENT</th>
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<td>A - ROCKER SWITCH</td>
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<td>B - 16 GA. GREEN/BLACK WIRE W/SPADE CONNECTOR</td>
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<td>C - 1/4&quot; CORRUGATE</td>
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<td>D - CUT-OUT TEMPLATE FOR PADDLE SWITCH</td>
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<td>E - ROCKER SWITCH BRACKET</td>
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<td>F - BRACKET SCREWS</td>
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TOOLS REQUIRED

- 3mm ALLEN WRENCH
- 4mm ALLEN WRENCH
- 4mm ALLEN WRENCH SOCKET
- 8mm OPEN END WRENCH
- 13mm OPEN END WRENCH
- TORQUE WRENCH (5 Nm CAPABILITY)
- PHILLIPS HEAD SCREWDRIVER
- ADJUSTABLE WRENCH OR CHANNEL LOCKS
- 10w30 MOTOR OIL (O-RING LUBRICANT)
- LEAK DETECTION SOLUTION (SOAP & WATER)
SAFETY WARNING

READ BEFORE STARTING SERVICING OF THE ICOM JTG SYSTEM.
ENSURE THAT ALL PERSONNEL IN THE IMMEDIATE AREA ARE AWARE OF THESE REMINDERS.

PROPAINE IS A NONTOXIC, NONPOISONOUS GAS THAT IS EXTREMELY FLAMMABLE. IF SOMETHING IGNITES IT, YOU COULD BE BADLY BURNED. KEEP SPARKS, OPEN FLAMES AND SMOKING MATERIAL AWAY FROM PROPANE.

LIQUID PROPANE IS EXTREMELY COLD (-40° F) AND CAUSE SERIOUS BURNS WHEN CONTACTING YOUR SKIN OR EYES. PREVENT CONTACT WHEN HANDLING LPG BY WEARING APPROVED PROTECTIVE GLOVES AND EYE PROTECTION.

PROPANE IS STORED UNDER PRESSURE. THE FUEL SYSTEM OPERATES AT PRESSURES OF UP TO 312 PSI. A SUDDEN RELEASE OF PROPANE CAN CAUSE SERIOUS INJURIES.

THESE INSTRUCTIONS ARE INTENDED FOR TECHNICIANS WHO ARE CERTIFIED BY ALL AGENCIES THAT GOVERN PROPANE INSTALLATIONS AND THE TRANSPORTATION OF PROPANE. THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) PUBLISHES A CODE BOOK OF RULES (NFPA 58) THAT APPLY TO THE STORAGE, HANDLING, TRANSPORTATION AND USE OF LIQUEFIED PETROLEUM GAS (LPG). LOCAL PROPANE SUPPLIERS SUCH AS FERRELGAS AND AMERIGAS, AS WELL AS SOME AGENCIES SUCH AS THE TEXAS RAILROAD COMMISION AND PERC (PROPANE EDUCATION & RESEARCH COUNCIL) OFFER INFORMATIVE COURSES TO HELP PREVENT SEVERE INJURY OR DEATH TO YOU OR SOMEONE ELSE IF YOU DON'T FULLY UNDERSTAND LPG AND ITS PROPERTIES.
10) LOCATE MANUAL SUPPLY SHUT-OFF VALVE ON MULTIVALVE COLLAR COVER; ROTATE KNOB 'CLOCKWISE' UNTIL IT STOPS TO FULLY CLOSE SUPPLY VALVE

20) USING A 3mm ALLEN WRENCH, REMOVE (3) SCREWS IN COLLAR COVER AND SET ASIDE

30) USING A PAIR OF CHANNEL LOCKS OR AN ADJUSTABLE WRENCH, REMOVE THE NUT FROM THE TANK RELIEF PORT AND SET ASIDE (IF EQUIPPED WITH PRV TUBE)

40) CAREFULLY REMOVE COLLAR COVER AND SET ASIDE
50) LOCATE AND GRASP THE FUEL SUPPLY / COMMUTATOR WIRE HARNESS LEADS; CAREFULLY DISCONNECT THE CONNECTORS

60) LOCATE AND GRASP THE LPG FUEL PUMP WIRE HARNESS LEADS (RED & BLACK WIRES); CAREFULLY DISCONNECT THE CONNECTORS

70) LOCATE AND GRASP THE ELECTROVALVE SUPPLY SOLENOID WIRE HARNESS LEAD (RED & BROWN WIRES); CAREFULLY DISCONNECT THE CONNECTOR FROM THE SOLENOID
80) Locate fuel supply line attached to the fuel pump housing; using a 13mm wrench, carefully loosen the fitting and remove the line from the housing.

90) Locate fuel pump return line attached to the fuel pump housing; using an 8mm wrench, carefully loosen the fitting and remove the line from the housing.

100) Locate (5) socket head screws that secure the fuel pump housing to the multivalve; using a 4mm Allen wrench, remove the (5) screws and set aside.

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<td>4mm ALLEN WRENCH</td>
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<td>8mm OPEN END WRENCH</td>
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<td>13mm OPEN END WRENCH</td>
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110) CAREFULLY REMOVE THE FUEL PUMP HOUSING AND FUEL PUMP ASSEMBLY FROM THE MULTIVALVE

120) LOCATE AND DISCONNECT THE FUEL PUMP WIRE HARNESS LEADS

130) ROTATE FUEL PUMP COUNTER CLOCKWISE TO EXPOSE THE (2) FUEL PUMP ATTACHMENT SCREWS

140) USING A PHILLIPS HEAD SCREWDRIVER, REMOVE THE (2) FUEL PUMP ATTACHMENT SCREWS AND SET ASIDE
150) CAREFULLY REMOVE THE ORIGINAL O-RING FROM THE FUEL PUMP HOUSING AND DISCARD

160) OBTAIN O-RING FROM FUEL PUMP SERVICE KIT (A)

170) FULLY LUBRICATE O-RING WITH 10W30 MOTOR OIL

180) USING A FLAT TIP SCREWDRIVER, ALIGN AND SEAT O-RING ONTO THE FUEL PUMP HOUSING (DO NOT ROLL O-RING ONTO FUEL PUMP HOUSING AS DAMAGE TO THE O-RING MAY OCCUR)

190) OBTAIN FUEL PUMP FROM FUEL PUMP SERVICE KIT (A)

200) FULLY LUBRICATE O-RING ON FUEL PUMP SUPPLY HOSE FITTING

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<tr>
<td>A</td>
<td>P11X4-6900-AA</td>
<td>1</td>
<td>FUEL PUMP SERVICE KIT</td>
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<td>10w30 MOTOR OIL</td>
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210) POSITION FUEL PUMP TO HOUSING; LOCATE MOUNTING CLIP ATTACHED TO FUEL PUMP SUPPLY HOSE FITTING

220) CAREFULLY ALIGN AND SEAT SUPPLY HOSE FITTING ON FUEL PUMP INTO FUEL PUMP HOUSING

230) OBTAIN (2) SCREWS REMOVED IN STEP 140; ALIGN HOLES IN MOUNTING CLIP TO HOLES IN FUEL PUMP HOUSING; INSERT SCREWS THROUGH MOUNTING CLIP HOLES AND HAND TIGHTEN INTO FUEL PUMP HOUSING
230) LOCATE AND GRASP RED WIRE WITH SPADE CONNECTOR ATTACHED TO THE FUEL PUMP HOUSING: LOCATE AND GRASP RED WIRE WITH BLACK FEMALE CONNECTOR ATTACHED TO FUEL PUMP

240) ALIGN AND SEAT SPADE CONNECTOR INTO FEMALE CONNECTOR (SLIGHTLY PUSH/PULL CONNECTORS TO VERIFY CONNECTORS ARE FULLY SEATED)

250) LOCATE AND GRASP BROWN WIRE WITH FEMALE CONNECTOR ATTACHED TO THE FUEL PUMP HOUSING; LOCATE AND GRASP BLACK WIRE WITH SPADE CONNECTOR ATTACHED TO THE FUEL PUMP

260) ALIGN AND SEAT SPADE CONNECTOR INTO FEMALE CONNECTOR (SLIGHTLY PUSH/PULL CONNECTORS TO VERIFY CONNECTORS ARE FULLY SEATED)
270) POSITION FUEL PUMP TO LINE UP BELOW THE FUEL PUMP HOUSING AS SHOWN

280) CAREFULLY INSERT FUEL PUMP INTO MULTIVALVE AS SHOWN

290) ALIGN AND SEAT FUEL PUMP HOUSING INTO MULTIVALVE; POSITION MOUNTING HOLES IN THE FUEL PUMP HOUSING TO THE MOUNTING HOLES IN THE MULTIVALVE

300) OBTAIN (5) SOCKET HEAD SCREWS REMOVED IN STEP 100

310) USING A 4mm ALLEN WRENCH, INSTALL AND HANDSTART (5) SCREWS INTO MULTIVALVE

320) TORQUE SCREWS DIAMETRICALLY TO 5.5 Nm +/- .50
330) Locate fuel pump supply line; handstart fitting on line into housing; using an 13mm wrench, fully tighten the fitting into the housing.

340) Locate fuel pump return line; handstart fitting on line into housing; using an 8mm wrench, fully tighten the fitting into the housing.
**INSTRUCTION**

**PROCESS NAME**
MULTIVALVE FUEL PUMP REPLACEMENT

**INSTRUCTIONS**

**CRITICAL PROCESS**

350) LOCATE AND GRASP THE ELECTROVALVE SUPPLY SOLENOID WIRE HARNESS LEAD (RED & BROWN WIRES); ALIGN AND SEAT THE CONNECTOR INTO THE SOLENOID (SLIGHTLY PUSH/PULL CONNECTOR TO VERIFY FULLY SEATED INTO SOLENOID)

![Image of SOLENOID]

360) LOCATE AND GRASP THE LPG FUEL PUMP WIRE HARNESS LEADS (RED & BLACK WIRES); ALIGN AND SEAT CONNECTORS TOGETHER (SLIGHTLY PUSH/PULL CONNECTORS TO VERIFY CONNECTORS ARE FULLY SEATED)

![Image of LPG FUEL PUMP WIRE HARNESS]

370) LOCATE AND GRASP THE FUEL SUPPLY / COMMUTATOR WIRE HARNESS LEADS; ALIGN AND SEAT CONNECTORS TOGETHER (SLIGHTLY PUSH/PULL CONNECTORS TO VERIFY CONNECTORS ARE FULLY SEATED)

![Image of FUEL SUPPLY / COMMUTATOR WIRE HARNESS]

**ITEM** | **PART NUMBER** | **QTY** | **DESCRIPTION** | **TORQUE** | **TOOLS**
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**PROCESS NUMBER**
P11X4-9202-AA

**REV**
A

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380) LOCATE SUPPLY SHUT-OFF VALVE ON MULTIVALVE: FULLY ROTATE KNOB 'COUNTER CLOCKWISE' TO OPEN SUPPLY VALVE

390) USING A LEAK DETECTION SOLUTION (SOAP & WATER), SPRAY ALONG THE BOTTOM EDGE OF THE FUEL PUMP HOUSING AND AROUND THE SUPPLY AND RETURN LINES TO VERIFY NO LEAKS ARE PRESENT; (IF A LEAK IS DETECTED, THE SUPPLY SHUT-OFF VALVE MUST BE COMPLETELY CLOSED BEFORE A REPAIR CAN BE STARTED, ROTATE THE KNOB 'CLOCKWISE' UNTIL THE KNOB STOPS TURNING TO CLOSE THE VALVE)

400) IF NO LEAKS ARE PRESENT, USE AN AIR HOSE AND NOZZLE TO REMOVE THE LEAK DETECTION SOLUTION FROM THE AREAS INSPECTED; LEAVE THE SUPPLY VALVE IN THE OPEN POSITION

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MULTIVALVE FUEL PUMP REPLACEMENT INSTRUCTIONS

PROCESS NUMBER: P11X4-9202-AA

REV: A

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410) CAREFULLY INSERT THE WIRE HARNESS LEADS BACK INTO THE MULTIVALVE COLLAR AS SHOWN

420) OBTAIN THE COLLAR COVER REMOVED IN STEP 40; LOCATE PRV TUBE (IF EQUIPPED) ON MULTIVALVE; ALIGN AND INSERT PRV TUBE INTO LARGE OPENING ON MULTIVALVE COLLAR

430) LOCATE THE AUXILIARY SHUT-OFF KNOB ON THE COVER; ALIGN AND SEAT THE AUXILIARY KNOB SHAFT ONTO THE SHUT-OFF KNOB ON THE MULTIVALVE

440) ALIGN AND SEAT COLLAR COVER ONTO COLLAR

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PROCESS NAME: MULTIVALVE FUEL PUMP REPLACEMENT INSTRUCTIONS

PROCESS NUMBER: P11X4-9202-AA

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### 440) Align and Seat Collar Cover onto Collar

- **Process**: Align and seat collar cover onto collar.
- **Description**: If equipped with PRV tube, obtain nut removed in step 30; handstart nut onto tube; using a pair of channel locks or an adjustable wrench, tighten the nut securely onto the lid.

### 450) If Equipped with PRV Tube, Obtain Nut Removed in Step 30

- **Step 30**: Handstart nut onto tube; using a pair of channel locks or an adjustable wrench, tighten the nut securely onto the lid.

### 460) Obtain (3) Collar Cover Screws Removed in Step 20

- **Step 20**: Obtain (3) collar cover screws removed in step 20; insert screws into holes in lid; using a 3mm Allen wrench, hand tighten screws into Multivalve.

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<td>3mm Allen Wrench</td>
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**Process Name**: Multivalve Fuel Pump Replacement Instructions

**Process Number**: P11X4-9202-AA

**Rev**: A

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