



**EUROCOPTER CANADA LIMITED**

**SUBJECT:**

Required maintenance for the Airframe Fuel Filter (P/N 130-600004).

**APPLICABILITY :**

Aircraft with the subject modification embodied in accordance with TCCA STC. No. SH02-42 or any relevant foreign approvals.

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APP'D / ACCEPTED (Civil A/W Authority)	(As per ICA Compliance Check Sheet)	9 Apr 2008	TCCA
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**RECORD OF REVISIONS**

Rev.	Pages at this Revision	Description, Reason Changed Pages	Prepared (name and date)	Checked (name and date)	App'd/Acc'd (Civil A/W Authority) (name and date)	Released (name and date)
0	1 through 9	Original Issue	D. Kerr 27 May, 2004	C. Timmins 27 May, 2004	TCCA E. Cheung 28 May, 2004	R. Manson 28 May, 2004
1	1 through 12	Changes to pages 1 to 12. Text, placard illustrations and assembly revised (re-designed installation for lower filter position)	D. Kerr 29 July, 2004	C. Timmins 30 July, 2004	N/A	R. Manson 4 Aug., 2004
2	1 through 13	Changes to pages 1 to 13. General, and Troubleshooting revised as per TCCA request.	D. Kerr 8 Sept., 2004	C. Timmins 8 Sept., 2004	TCCA E. Cheung 8 Sept., 2004	R. Manson 8 Sept., 2004
3	1 through 16, A1 to A4	Format revised. Weight and Balance data, torqueing statement, and wiring diagram change incorporated. (Pages 4, 5, 7 - 16)	D. Kerr 22 February 2005	C. Timmins 2 March 2005	TCCA E. Cheung 24 March 2005	R. Manson 24 March 2005
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5	1 through 24 A1 to A4	Replaced "boost" pump reference with "fuel" pump in Sec. 4. Added placard to outboard side of Fuel Filter. Addition of page 24. (Pages 3 to 5, 8, 9, 11 to 16, 18, 20 to 24)	See page 1.	See page 1.	See page 1.	See page 1.

NOTE: Revisions to this document will be distributed to operators of this equipment by the STC holder.  
NOTE: Revised portions of affected pages are identified by a vertical black line in the margin adjacent to the change.

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**1. GENERAL**

**A. Introduction**

The Airframe Fuel Filter enables operation of the helicopter at low temperatures without the use of anti-ice additives in the fuel. The filter is designed to collect ice particles. The filter contains a bypass valve and a bypass delta pressure switch. An annunciator light in the cockpit is provided to warn the pilot of an impending bypass of the filter. Refer to Figure 1.

**B. Description**

The Airframe Fuel Filter consists of the following main components:

Fixed Provisions

- Fuel Filter Support Assembly
- Fuel Filter Base Assembly
- Cover Assembly
- Drain Sump Assembly
- Angle
- Floor Doubler
- Floor Shim
- Drain Bracket
- Gusset

Detachable Provisions

- Fuel Filter
- Hoses

For instructions for initial installation, see IP-ECL-105.

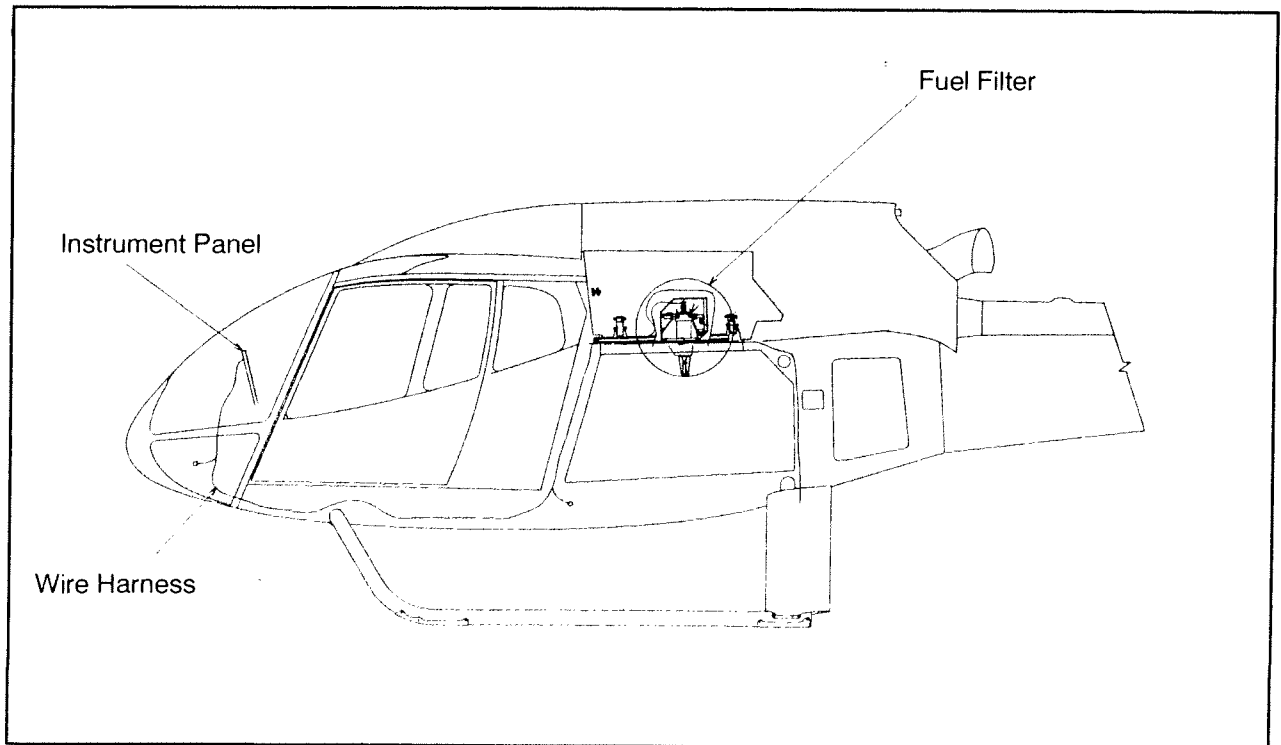


Figure 1 General Layout

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C. References

DOCUMENT	DOCUMENT TITLE
AC43.13	Advisory Circular No. 43.13-1B
IPC	Illustrated Parts Catalog
MTC	Standard Practices Manual
IP-ECL-105	Installation Procedure, Airframe Fuel Filter

"Operating and Design Specifications" Purolator Products Company

D. Abbreviations and Definitions

ABBREVIATION	DEFINITION
A/F	Airframe
EC	Eurocopter (France)
ECL	Eurocopter Canada Limited
hrs.	hours
Max.	Maximum
No.	Number
P/N	Part Number
Qty.	Quantity

E. Units of Measurement

ABBREVIATION/SYMBOL	UNIT OF MEASUREMENT
F	Fahrenheit
GPM	Gallons per Minute
in.lb	inch.pound
in	inch
kg	kilogram
lb	pound
m	meter
m kg	meter kilogram
PSI	Pounds per Square Inch
PSID	Pounds per Square Inch Differential
®	Registered Trademark
°	degree
±	plus or minus

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**2. AIRWORTHINESS LIMITATIONS**

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

No airworthiness limitations associated with this installation.

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**3. CONTROL AND OPERATION**

Control and operation of the aircraft remains unchanged.

**4. INSPECTION SCHEDULE AND MAINTENANCE ACTION**

For additional information on operation and maintenance, refer to the "Purolator" Operating and Design Specifications, Fuel Filter Assembly Part No.: 1743640-01 manual, located in Appendix A.

Use torque per EC, MTC, Volume 2, Chapter 20.02.05.404, unless otherwise specified.

Remove cover to gain access to filter assembly and re-install after inspection/maintenance.

4.1.1. Before the first flight of each day:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	<ul style="list-style-type: none"> <li>- Turn on fuel pump and check Airframe Fuel Filter for:               <ul style="list-style-type: none"> <li>a. water in fuel</li> <li>b. air in fuel line</li> <li>c. leaks in the fuel filter and the drain valve</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>a. Open drain valve, purge any water from the system.</li> <li>b. Hold drain valve open until all air is purged.</li> <li>c. No leaks with fuel pump on. Check valve seating, replace packing, item 8, in Figure 3 as necessary (P/N MS29513-012).</li> </ul>
B	<ul style="list-style-type: none"> <li>- Turn off fuel pump and check Airframe Fuel Filter for:               <ul style="list-style-type: none"> <li>a. debris in fuel drain, below the filter and/or on the transmission deck</li> <li>b. secure mounting and connection of filter and hoses</li> <li>c. condition of electrical connector and harness</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>a. Remove and clean as necessary.</li> <li>b. Secure as required.</li> <li>c. Repair in accordance with AC43.13-1B, Chapter 11, Section 1.</li> </ul>

Table 1 Inspection Schedule and Maintenance Action  
Before the first flight of each day

4.1.2. Pre-Flight Check:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	<ul style="list-style-type: none"> <li>- Push A/F FUEL FILTER by-pass "Press to Test" caution light:               <ul style="list-style-type: none"> <li>a. apply power to 4 Alpha Warning Panel (Master/Battery switch to ON) and push Press to Test A/F FUEL FILTER annunciator - lamp must illuminate.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>a. If lamp fails to illuminate, refer to Chapter 6, Troubleshooting, in this document.</li> </ul>

Table 2 Inspection Schedule and Maintenance Action  
Pre-Flight Check

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**4. INSPECTION SCHEDULE AND MAINTENANCE ACTION (continued)**

4.1.3. Every 100 flight hrs or 12 months (to coincide with the 100 hrs or 12 month helicopter inspection), whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Check doubler, item 1, and fuel filter support assembly, item 6, in Figure 2 for: a. cracks or corrosion	a. No cracks or corrosion are allowed. If cracks or deformation are found, contact ECL for replacement parts.
B	- Check hoses, item 12, and drain hose, item 13, in Figure 2 for: a. leaks b. cracking	a. If leaks are found, contact ECL for replacement parts. b. No cracking is allowed. If cracking is found, contact ECL for replacement parts.
C	- Check base, item 10, and drain bracket, item 5, in Figure 3 for: a. cracks or corrosion	a. No cracks or corrosion are allowed. If cracks or deformation are found, contact ECL for replacement parts.
D	- Check drain sump assembly, item 6, in Figure 3 for: a. cracks or deformation	a. No cracks or deformation are allowed. If cracks or deformation are found, contact ECL for replacement parts.
E	- Check placards and markings in Figures 5, 6, 7, 8, 9 and 10 (Section 10) for: a. legibility b. secure mounting	a. If placards and markings have become illegible, contact ECL for replacement parts. b. Secure, reattach placards as required.

Table 3 Inspection Schedule and Maintenance Action  
Every 100 flight hrs or 12 months, whichever occurs first

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**4. INSPECTION SCHEDULE AND MAINTENANCE ACTION (continued)**

4.1.4. Every 500 flight hrs or 24 months, whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	Perform Operational Test - Switch and Bypass Valve	Instructions given following Table 5

Table 4 Inspection Schedule and Maintenance Action  
Every 500 flight hrs or 24 months, whichever occurs first

4.1.5. Every 1000 flight hrs or 48 months (to coincide with the 1000 hrs hrs or 48 month helicopter inspection), whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	Replace Fuel Filter Element	Instructions given following Table 5

Table 5 Inspection Schedule and Maintenance Action  
Every 1000 flight hrs or 48 months, whichever occurs first

**NOTE:** Should the A/F FUEL FILTER annunciator light illuminate, the fuel filter element must be replaced.



A partially blocked filter element will cause a differential pressure switch in the head assembly to close and the A/F FUEL FILTER annunciator to illuminate. If the filter element becomes fully blocked a differential pressure activated valve will permit fuel to bypass the filter.

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4. **INSPECTION SCHEDULE AND MAINTENANCE ACTION** (continued)

Operational Test - Fuel Filter Switch and Bypass Valve

- a. Observe FUEL SYSTEM General Instructions. Refer to AMM 28-00-00.
- b. Remove cover from enclosure.
- c. Apply power to annunciator panel. Press differential pressure switch Test Button, on the top of the fuel filter, A/F FUEL FILTER annunciator must illuminate.
- d. Replace filter element with clean dummy element.
- e. Disconnect outlet hose of optional fuel filter from inlet of existing fuel shut off valve and place hose in a suitable container to collect fuel.
- f. Turn on fuel pump(s).
- g. The A/F FUEL FILTER annunciator should illuminate, and fuel should freely flow from outlet hose of fuel filter into the container.
- h. When test is successfully completed, remove dummy element and install filter element. Follow instructions given in Chapter 4, Replacement - Fuel Filter Element.
- i. Connect outlet hose of optional fuel filter to inlet of existing shut-off valve.
- j. Open fuel filter bowl drain and operate fuel pump until all air is purged.
- k. Replace cover of enclosure.

Replacement - Fuel Filter Element

- a. Observe FUEL SYSTEM General Instructions. Refer to AMM 28-00-00.
- b. Remove cover from enclosure.
- c. Drain fuel from filter bowl into a container.
- d. Refer to Appendix A "Operating Instructions" Purolator Products Company for Fuel Filter Element Change.
- e. Operate fuel pump and open fuel filter bowl drain until all air is purged.

**NOTE:** The Purolator Filter Assembly (Part No. 1743640-01) Replacement Element Kit is also available, Purolator Products Company Part No. 1743645.02. This kit consists of a Seal, an O-ring and an Element Assembly.

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Legend (for Figure 2)

Item	Description
1.	Floor Doubler
2.	Packing (P/N M83248/2-912)
3.	Elbow
4.	Hose End Cover
5.	Hose Clamp
6.	Fuel Filter Support Assembly
7.	Nut
8.	Lockwire
9.	Reducer
10.	Screw
11.	Washer
12.	Hose
13.	Drain Hose
14.	Fuel Filter
15.	Tyrap
16.	Grease (Mobil No. 28 / Aeroshell 22)

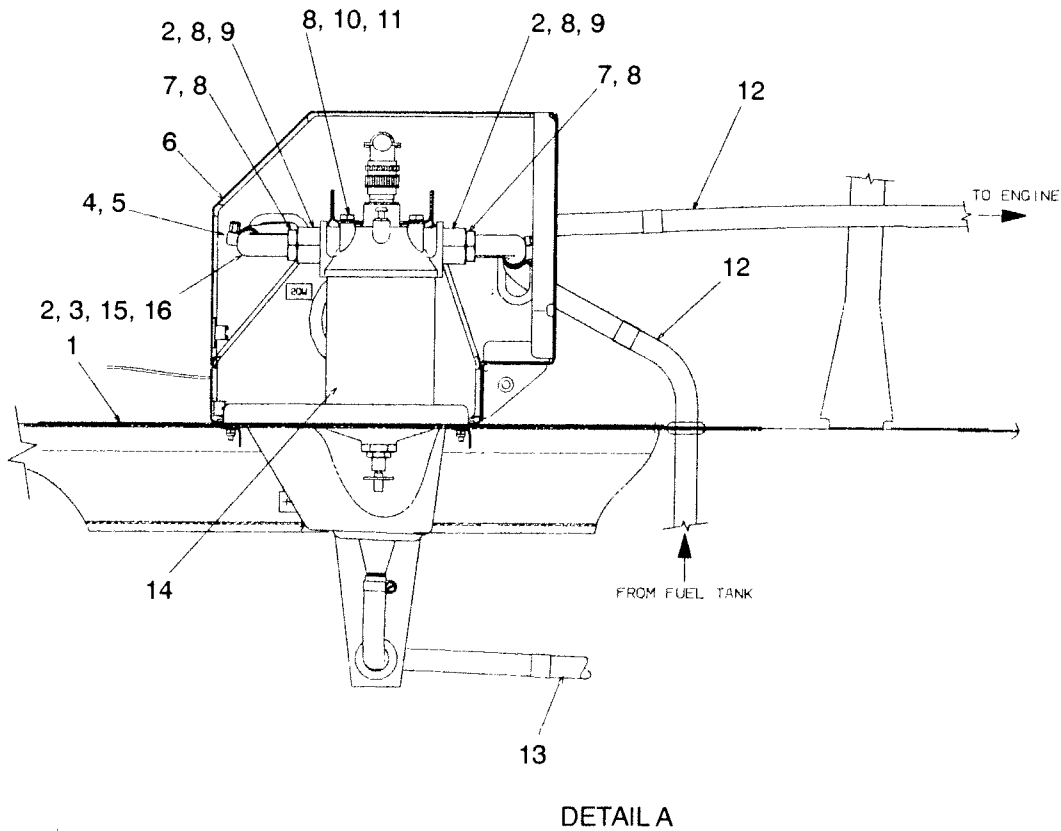
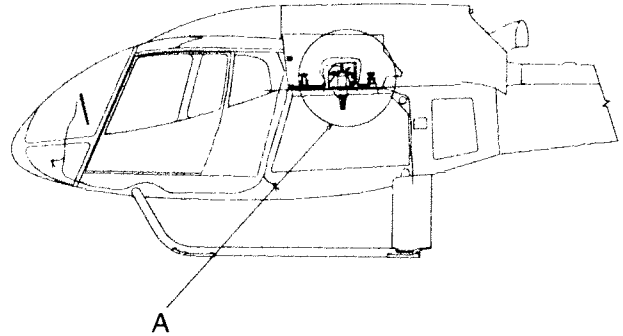


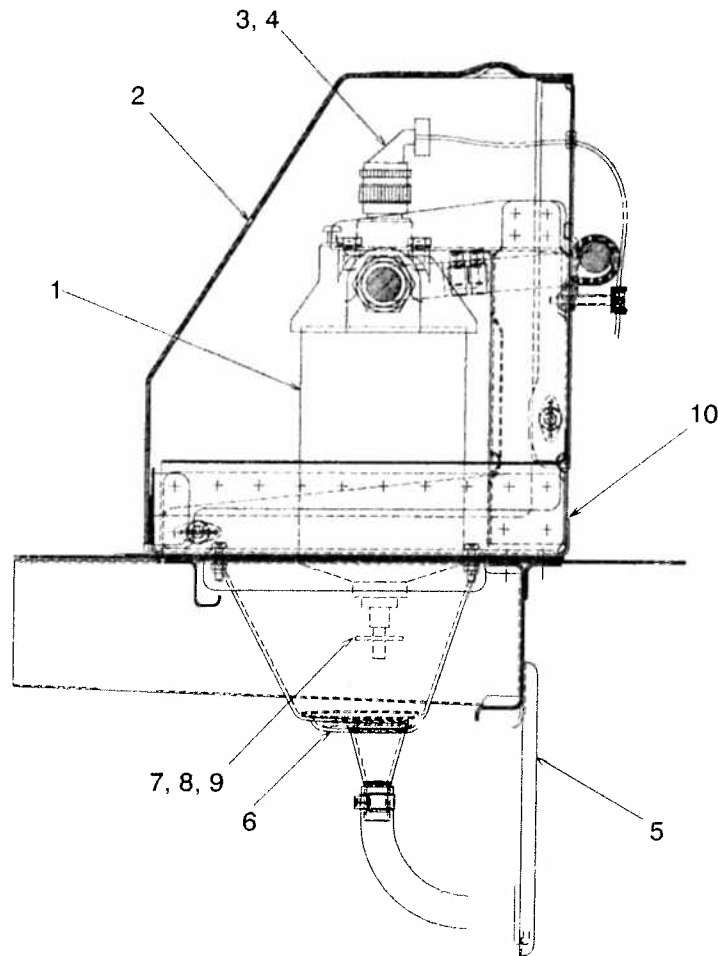
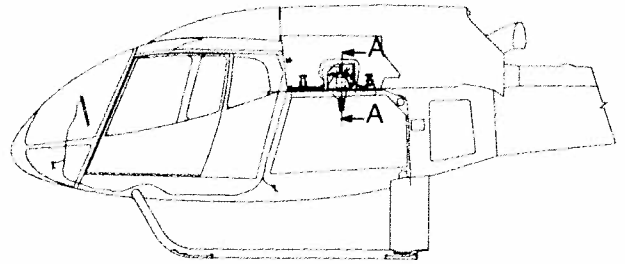
Figure 2 Airframe Fuel Filter Installation

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Legend (for Figure 3)

Item	Description
1.	Fuel Filter
2.	Cover Assembly
3.	Connector
4.	Backshell
5.	Drain Bracket
6.	Drain Sump Assembly
7.	Lockwire
8.	Packing
9.	Drain Valve
10.	Base



SECTION A - A

Figure 3 Side view of Airframe Fuel Filter Installation

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**5. OVERHAUL REQUIREMENTS**

No overhaul requirements for this installation.

**6. TROUBLESHOOTING**

For electrical system troubleshooting, refer to Figure 4.

Remove cover to gain access to filter assembly and re-install after maintenance.

ITEM	TROUBLE SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1	A/F FUEL FILTER lamp does not illuminate during Daily Preflight Inspection	Bulb burnt out.	Replace bulb, P/N MS25237-327
2	A/F FUEL FILTER lamp does not illuminate during Operational Test	Break or short in annunciator circuit  Fuel Filter Head Assembly defective	Perform circuit continuity check and repair/replace wiring as applicable in accordance with AC43.13-1B, Chapter 11, Section 1.  Replace Head Assembly, refer to the Purolator Documentation
3	A/F FUEL FILTER illuminates during operations.	Excessive contamination in fuel supply.  Filter is blocked prematurely.  Short in annunciator circuit.	Check quality of fuel supply.  Replace filter element.  Perform circuit continuity check and repair/replace wiring as applicable in accordance with AC43.13-1B, Chapter 11, Section 1.

Table 6 Troubleshooting Guide

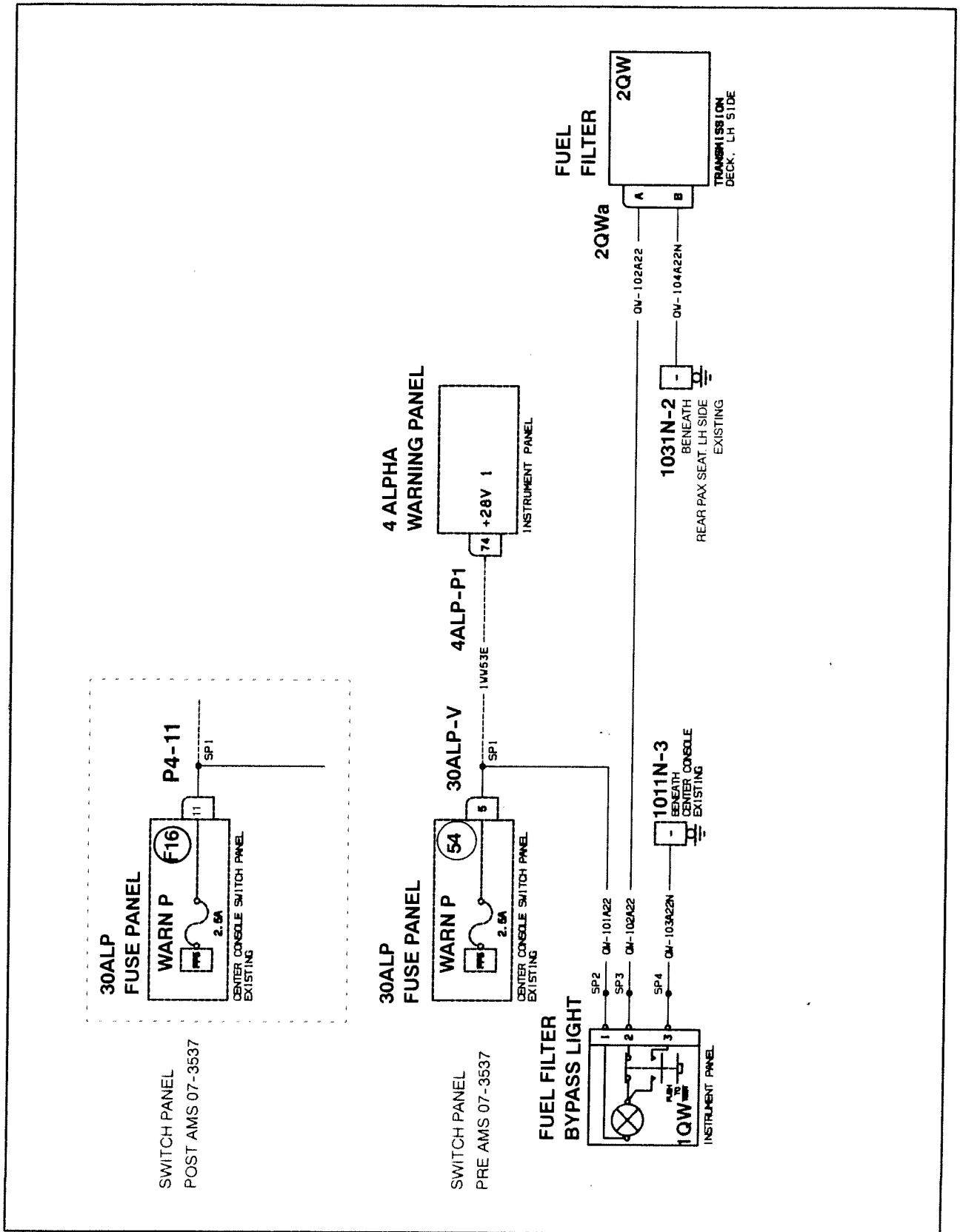


Figure 4 Wiring Diagram

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## 7. SPECIAL TOOLING

No special test equipment or tools are required. Standard tools are adequate.

## 8. REMOVAL AND REPLACEMENT

Proceed as follows if fuel filter needs to be removed.

### Preliminaries

- disconnect the battery
- Observe Fuel System General Instructions. Refer to Aircraft Maintenance Manual 28-00-00.
- open the engine and left MGB cowling (Removal / Installation refer to Aircraft Maintenance Manual Chapter 53.51.00, 4-1)
- Remove cover to gain access to filter assembly.

### A. REMOVAL

#### 1) Fuel Filter (Refer to Figures 2 and 3)

- a) Disconnect hose clamps (5, 4 places) from both sides of the fuel filter (14) and slide hose end covers (4) from both elbows (3). Retain hose clamps (5). Refer to Figure 2.
- b) Remove packing (2, 2 places) from elbows (3, 2 places) and discard packing. Refer to Figure 2.
- c) Position hoses (12) out of working area. Refer to Figure 2.
- d) Disconnect connector (3) and backshell (4) from fuel filter (1) and position wire out of working area. Refer to Figure 3.
- e) Remove lockwire (8), screws (10, 3 places), and washers (11, 3 places) that secure the fuel filter (14) to the top of the fuel filter support assembly (6). Refer to Figure 2.
- f) Remove fuel filter (16). Retain screws (10) and washers (11) for reinstallation. Refer to Figure 2.

### B. REPLACEMENT

**NOTE** Use torque per EC, MTC, Volume 2, Chapter 20.02.05.404, unless otherwise specified.

#### 1) Fuel Filter (Refer to Figures 2 and 3)

- a) Position fuel filter (14) into fuel filter support assembly (6) and secure using previously removed screws (10, 3 places), and washers (11, 3 places). Torque screws to required specifications and secure using lockwire (8). Refer to Figure 2.
- b) Install elbow (3, 1 place) on LHS of fuel filter (14) with new packing (2, 1 place). Reconnect hose (12) to elbow (3) and secure reusing hose clamps (5, 2 places).
- c) Install elbow (3, 1 place) on RHS of fuel filter (14) with new packing (2, 1 place). Reconnect hose (12) to elbow (3) and secure reusing hose clamps (5, 2 places).

**NOTE** Apply grease (14) to the nipple of elbows (3, 2 places) and to the inside diameter of the hoses (12, 2 places) before installation.

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**8. REMOVAL AND REPLACEMENT** (continued)

- d) Verify that the installation of the Airframe Fuel Filter is correct and secure.
- e) Install the Purolator Dummy Filter Test Element (P/N 1741185), as per this document, and using the Purolator Operating Instruction for the filter assembly contained in this document in Appendix A, check for the correct operation of the fuel filter bypass function.
- f) Install the fuel filter element, and perform a leak check on runup.

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**9. WEIGHT AND BALANCE**

**A. Removed Items**

DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lbs	m	in	kg m	lb in
Floor Cut-out	0.09	0.2	3.47	136.8	0.31	27.36
<b>Total</b>	<b>-0.09</b>	<b>-0.2</b>	<b>3.47</b>	<b>136.8</b>	<b>-0.31</b>	<b>-27.36</b>

**B. Added Items**

DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lbs	m	in	kg m	lb in
Airframe Fuel Filter	4.20	9.3	3.47	136.8	14.60	1272.2
<b>Total</b>	<b>4.20</b>	<b>9.3</b>	<b>3.47</b>	<b>136.8</b>	<b>14.60</b>	<b>1272.2</b>

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10. PLACARDS AND MARKINGS

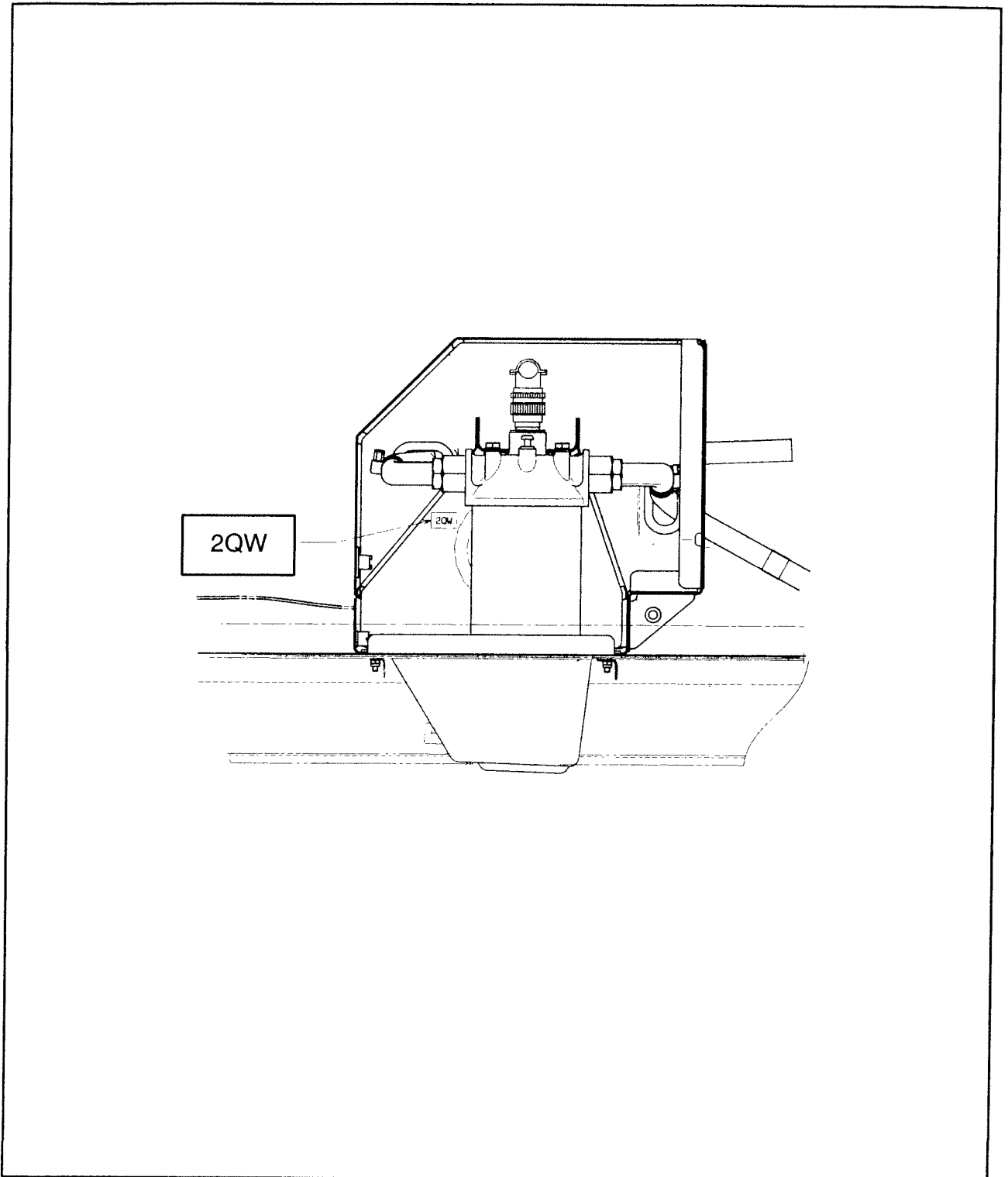


Figure 5 Identification Label on Fuel Filter Support Assembly

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10. PLACARDS AND MARKINGS

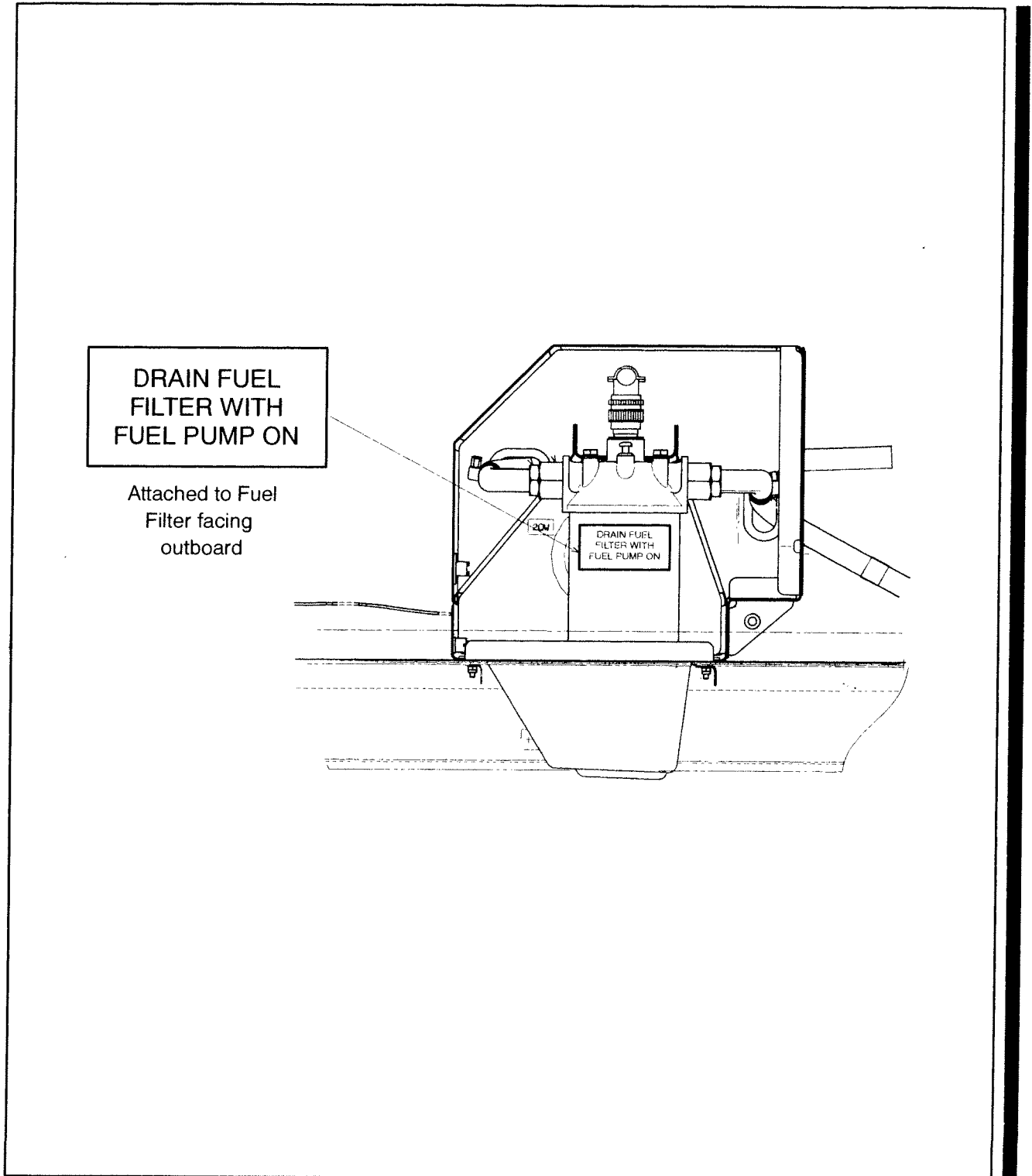


Figure 6 Placard on Fuel Filter

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10. **PLACARDS AND MARKINGS** (continued)

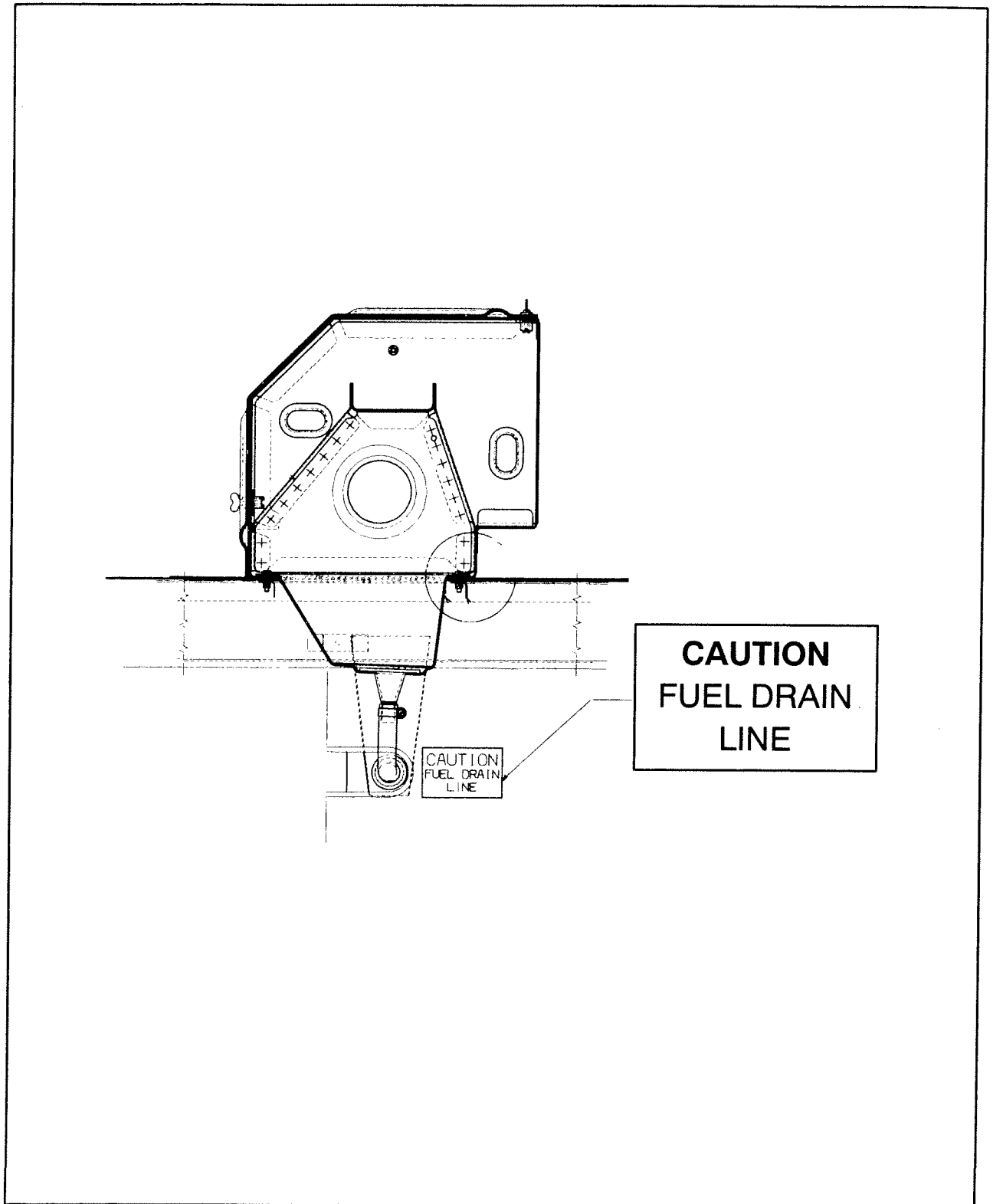


Figure 7 Placard in LH Cargo Compartment

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10. PLACARDS AND MARKINGS (continued)

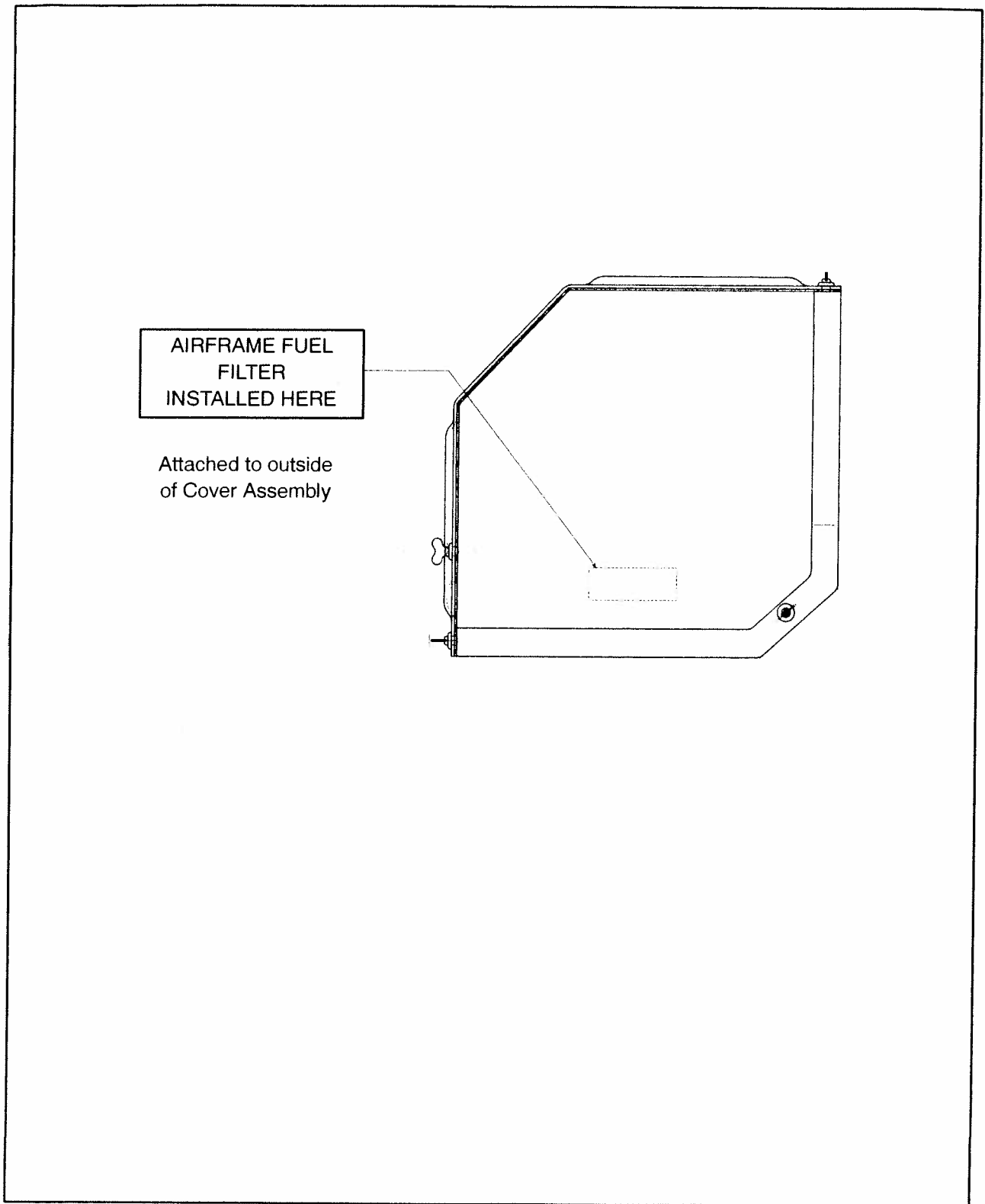


Figure 8 Placard on Cover Assembly

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10. **PLACARDS AND MARKINGS** (continued)

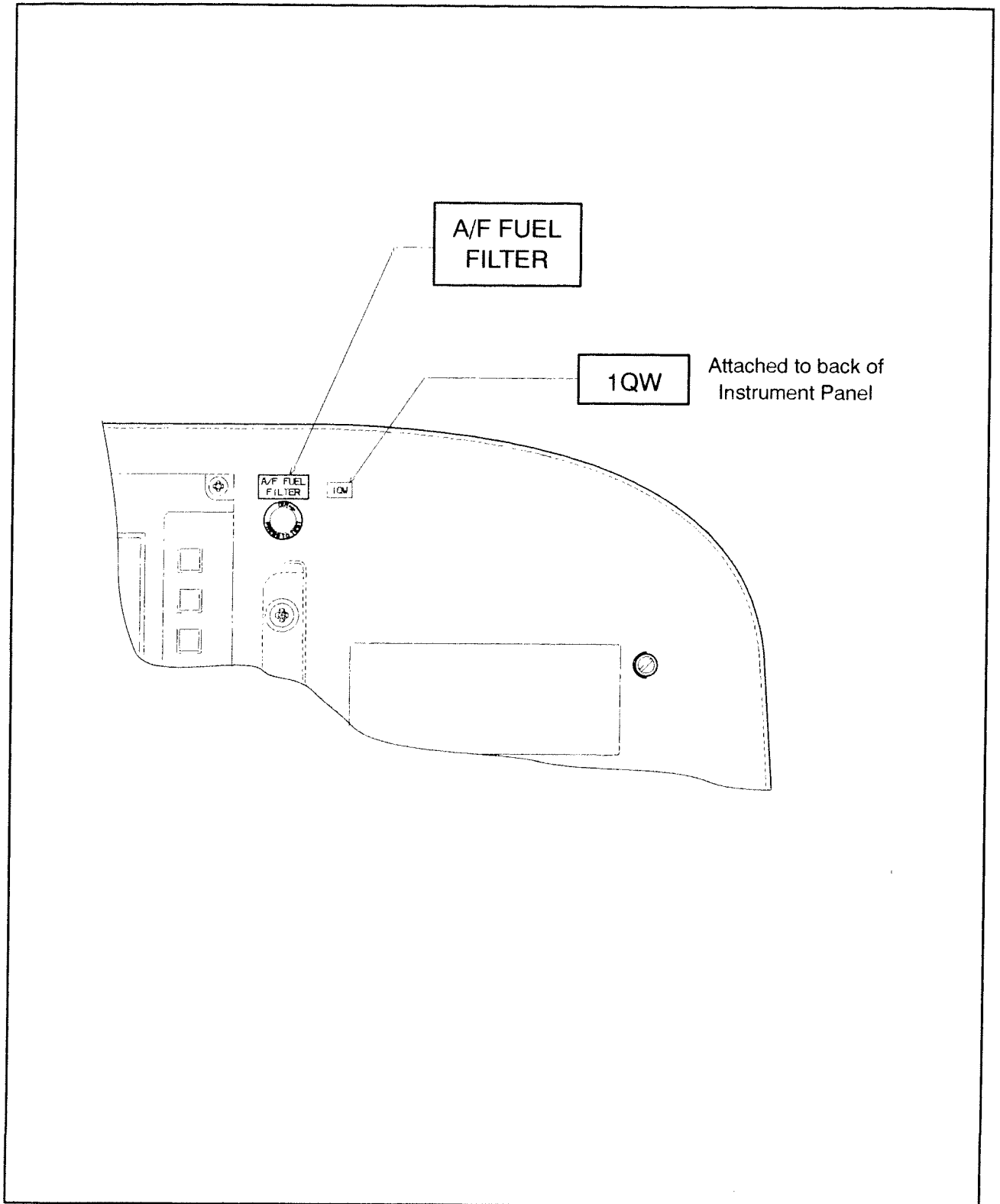


Figure 9 Placard and Identification Label on Instrument Panel

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10. **PLACARDS AND MARKINGS** (continued)

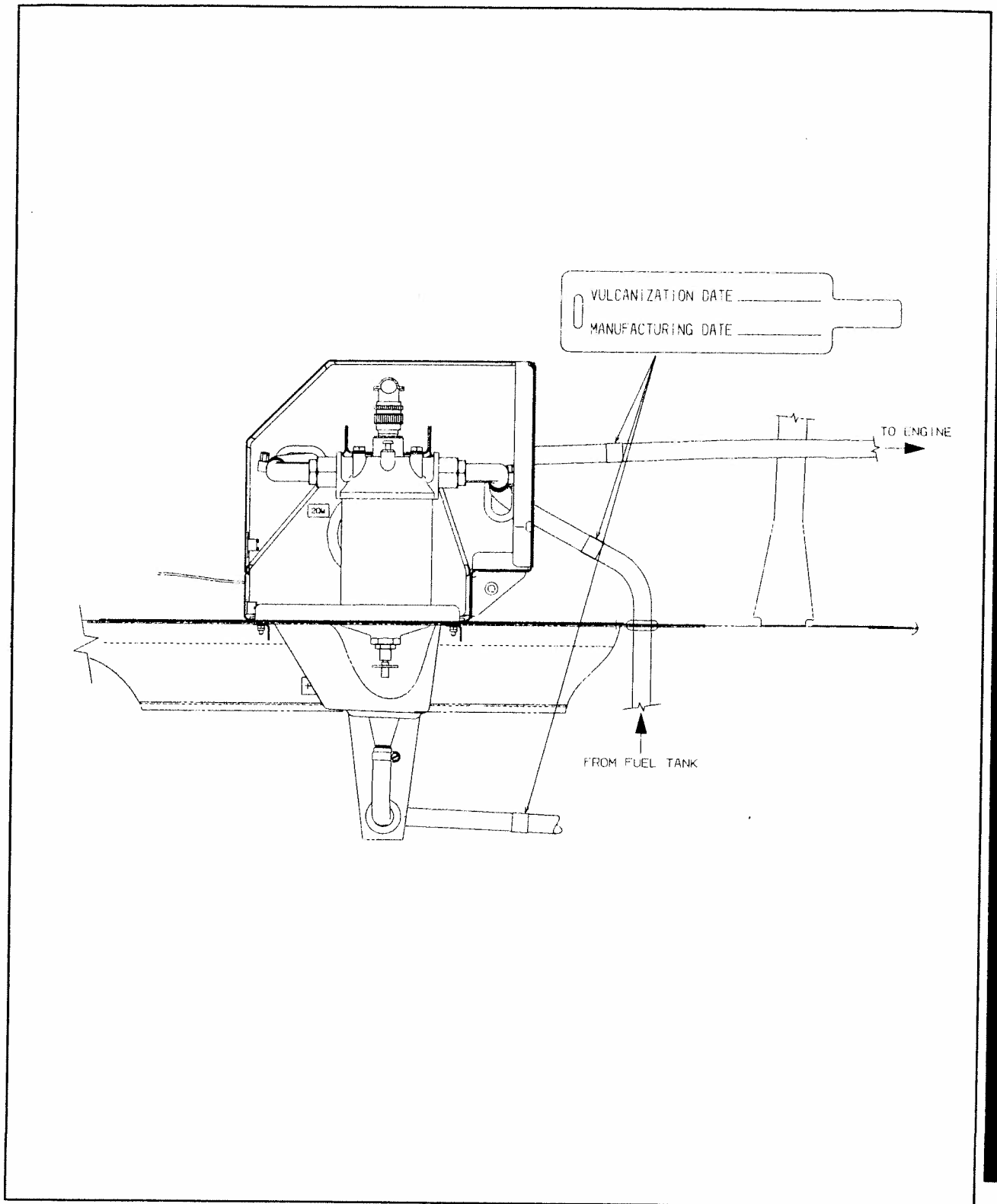


Figure 10 Identification Tags on hoses

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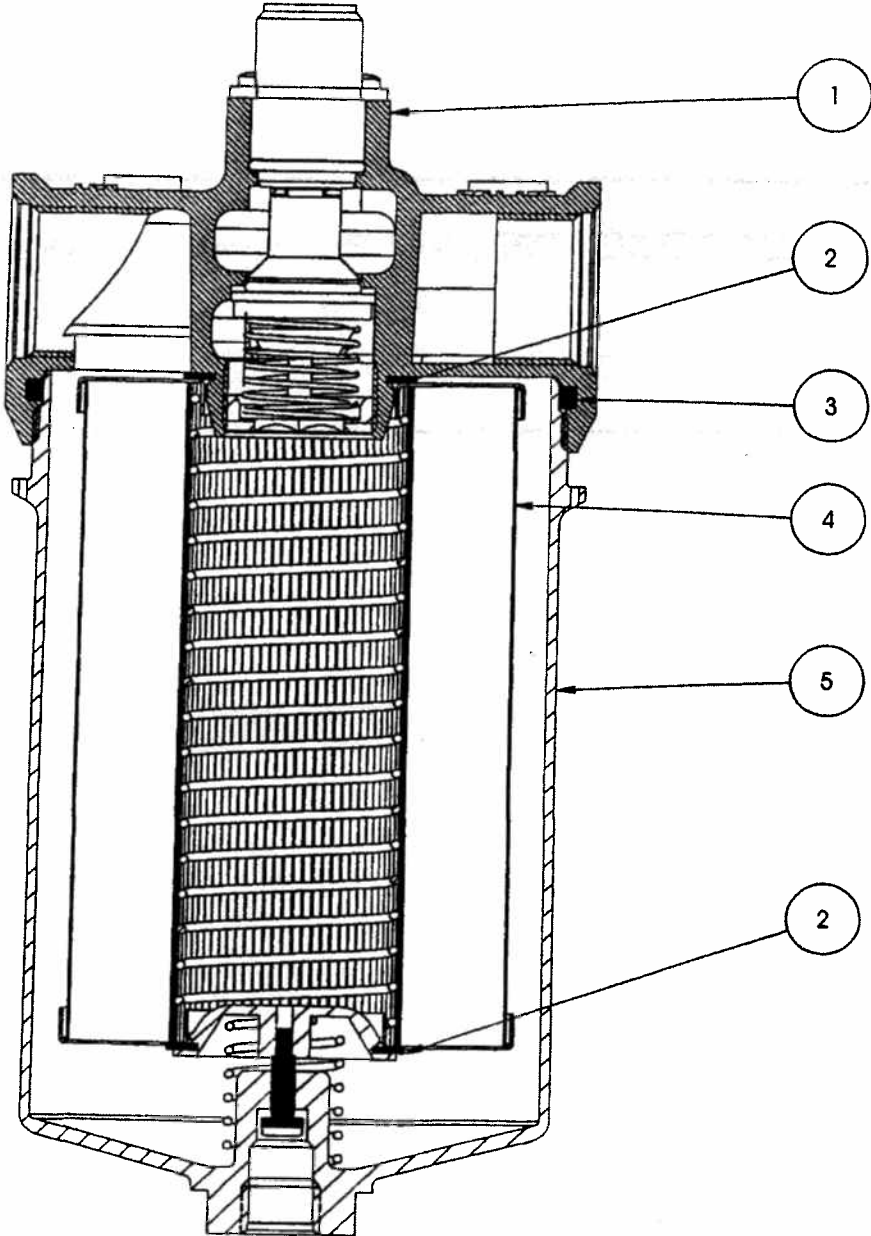
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**Operating & Design Specifications**  
**Fuel Filter Assembly**  
**Part No.: 1743640-01**

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**Purolator Facet Inc.**  
8439 Triad Drive, Greensboro, NC 27409-9621  
Phone: (336) 668-4444, Fax (336) 668-4452

# Purolator Fuel Filter Assembly Part No. 1743640-01



## Replacement Parts for Filter Assembly Part No. 1743640-01

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Item No.	Qty. Req.	Part No.	Description:
1.	1	1744990-01	Head Assembly
2.	2	1743629-01	Seal
3.	1	034921-01	O-Ring
4.	1	1743645-01	Element Assembly
5.	1	1745011	Bowl Assembly

**NOTE:** Purolator replacement element kit part no. 1743645-02 consists of items 2, 3 & 4

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### Operating Instructions:

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#### Preflight Inspection Procedure Change:

1. Follow aircraft manufacturers recommended preflight instructions.
- 

#### Scheduled Maintenance:

1. Fuel Filter Element Change:
  - A. Replace element at the intervals specified by the aircraft manufacturer.
  - B. Remove lockwire and unscrew filter bowl.
  - C. Remove used element.
  - D. Remove O-Ring and flat seals from filter head and inside of bottom of filter bowl.
  - E. Install new seals P/N: 1743629-01 on the nipple of the filter head and retainer in the filter bowl.
  - F. Install new filter element p/n: 1743645-01.
  - G. Install new O-Ring P/N: 034921-01 in the filter head.
  - H. Re-install filter bowl and torque to 130±20 inch pounds.
  - I. Secure filter head to filter bowl with lockwire.

**Purolator Fuel Filter Assembly  
Part Number 1743640-01**

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**Design Specifications:**

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1. Filtration Rating: 10 Micrometres Nominal
2. Fluid: Mil-T 5624 Gr. JP-4, JP-5, ASTM-D-1655 Type A, A1 or B.
3. Temperature Range: -65°F to +160°F.
4. Bypass valve cracking Pressure: 3.75 PSID.
5. Microdelta® Differential Pressure Switch actuates at 0.875 PSID
7. Pressures:    Operating: 60 PSI  
                  Proof: 90 PSI  
                  Burst: 180 PSI
8. Rated Flow: 0.5 GPM
9. Weight: 1.75 lbs. Max.