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PALL Aerospace Fluid Filter Assemblies or Manifolds

1. Purpose and Scope

1.1 This document provides guidance on disposal and recycling of the component parts within Pall Fluid Filter Assemblies on completion of the serviceable life.

1.2 This document, when read in conjunction with the relevant component maintenance manuals (CMM) for the unit, provides unit material guidance and disassembly procedures.

1.3 This document identifies and gives separate instructions for disposal of electrical or electronic components, batteries, motors and other components in accordance with applicable local legislation and regulatory requirements, including those of European Directive 2012/19/EU (UK Waste Electrical and Electronic Equipment Regulations (2013)). (2013 **WEEE** Regulations)

2. Tools Required

Tools included in a standard aircraft maintenance tool kit plus those listed within the relevant CMM will be necessary to accomplish this task.

3. Disassembly Method

3.1 Isolate and remove the filter assembly or manifold from the aircraft in accordance with relevant AMM instructions.

This will include isolation of unit from fluid supply, electrical connections and mounting arrangements

3.2 Dis-assemble the filter assembly or manifold in accordance with “Disassembly” section of relevant CMM.

Ensure consideration is made to the materials or substances that the equipment may have been in contact with during use. The equipment must be decontaminated appropriately in accordance with local health and safety and environmental requirements to ensure safe handling during disassembly.

Comply with all of those requirements, plus the following requirements for safe work and any other requirements specific to the working location before dismantling this equipment, including:

- Observe all safety instructions and warnings.
- Comply with all safe handling and accident prevention measures.
- Ensure that no unauthorised person performs the disassembly and / or disposition operations.
- Wear appropriate personal protective equipment.

3.3 Dispose of components in accordance with the materials of construction and hazard classification of the contaminants present.

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4. Materials of Construction and Disposition Guidance : Filter Assembly / Manifold

The assemblies shown and Figures 1 and 2 are illustrative examples only.

The filter head and manifold are show as simple blocks, however the actual assembly may have a profile that will be machined, forged or cast .

The equipment in your system will be a variant of the generic example(s) shown.

4.1 Filter Assembly – see Figure 1

- This shows a filter head (represented as a simple generic block) with assembled parts exploded to show typical locations.

- Table A provides a generic list of materials and disposition guidance for the Filter Assembly components.

4.2 Manifold Assembly – see Figure 2

- The manifold example demonstrates the concept of a filter assembly expanded to incorporate multiple LRU's including electrical equipment (eg solenoid).

- You will need to review the "Description and Operation" section as contained in the relevant CMM for your product, to determine which optional equipment is included.

Line Replaceable Units (LRU's) that may be incorporated in a manifold in addition to standard filter assembly are:

- By-pass Valve assembly
- Directional Valve
- Non Return Valve
- Solenoid Valve – electrical item **
- Differential Pressure Indicator – mechanical only
- System Pressure Relief Valve
- Blanking Plug
- Differential Pressure Switch – electro-mechanical item
- Difference Pressure Transducer – electro-mechanical item **
- Pressure Transducer – electro-mechanical item **

** WEEE may be applicable for these LRU's

- Table B provides a list of materials and disposition guidance for components within the additional LRU's in a manifold.

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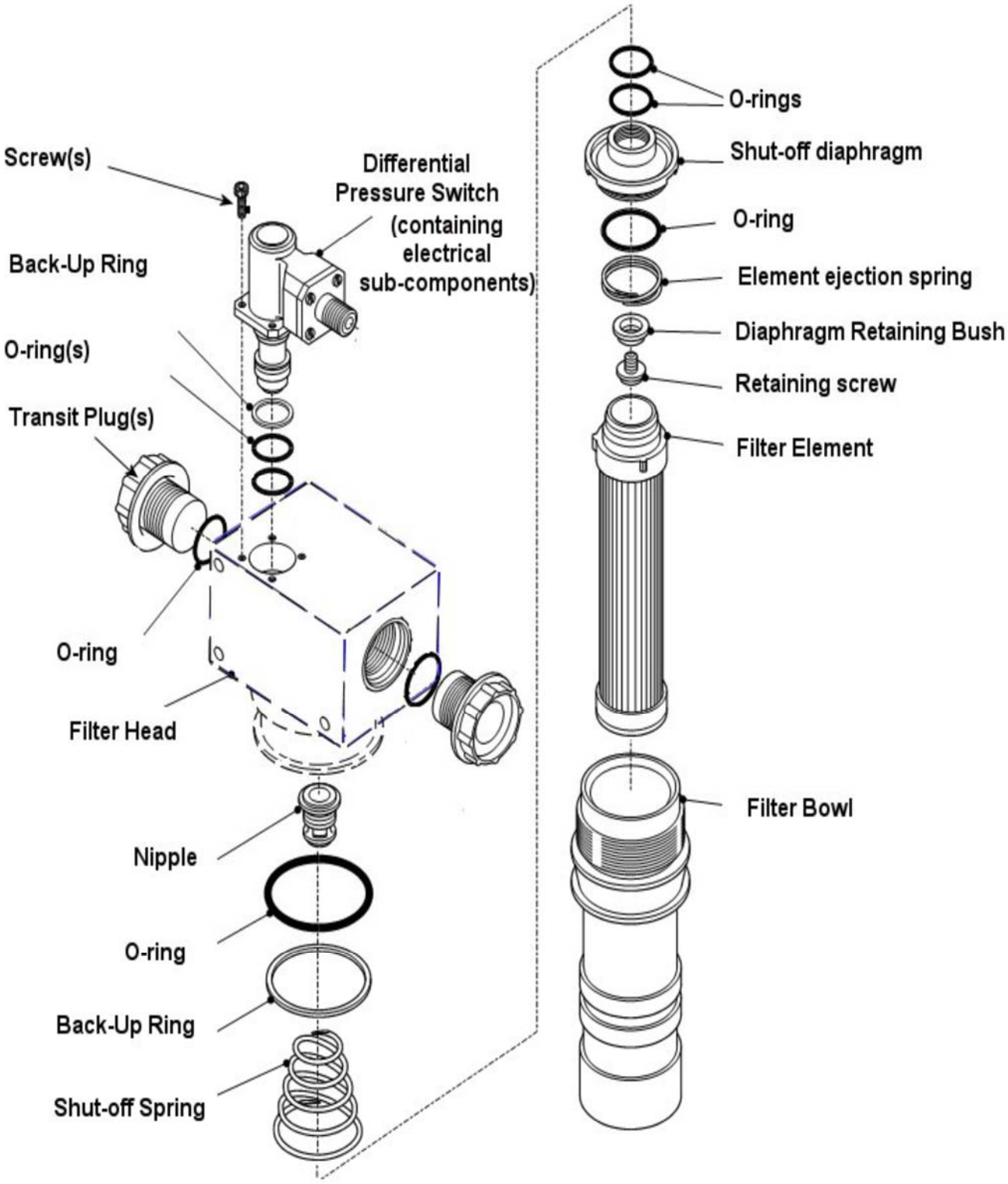

Exploded view of typical Filter Assembly

Figure 1

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High Pressure Filter Assembly (Figure 1)		
Components	**Material Type or Information (options that may be included)**	**Disposition Information**
Filter Head, Nipple, Shut-off Diaphragm, Filter Bowl, Diaphragm Retaining Bush	Anodised aluminium alloy. (Some components may be bonded together with Loctite242 or Loctite 542)	Anodised aluminium components (if not otherwise contaminated) are inherently recyclable and should be processed as if a pure material. Other metal components can be recycled unless permanently contaminated or coated. Disposition should reflect the materials of construction and any contaminants present as the result of use. Dispose of in line with local and national legislation and guidelines.
Screw(s)	Cadmium plated steel, Stainless Steel	
Spring(s)	Stainless steel	
Diaphragm Retaining Bush	Stainless steel	
Plug, Transit (disposable item)	Aluminium alloy, plastic	
Back-up Ring(s) (disposable item)	PTFE	Dispose of in line with local and national legislation and guidelines for sealing materials.
Seal, O-ring (s) (disposable item)	Elastomer (options of: Fluorocarbon, Ethylene Propylene, Nitrile – dependent upon application)	
Differential Pressure Switch	Anodised aluminium alloy, stainless steel, Alnico, PTFE coated electrical wires, electrical connector MIL-C-3899 series III, Hylomar sealant, Loctite adhesive, Avalon 09, Microswitch, Elastomer (options of: Fluorocarbon, Ethylene Propylene, Nitrile – dependent upon application), PTFE	Disposition should reflect the materials of construction and any contaminants present as the result of use. Dispose of (as a single unit or separate components as far as possible) in line with local and national legislation and guidelines.
Filter Element (Non-recoverable constituent parts)	Anodised aluminium alloy, stainless steel and aluminium alloy meshes, epoxy resin bonded glass fibres, epoxy resin adhesive	Disposition should reflect the materials of construction and any contaminants present as the result of use. Dispose of as a single unit in line with local and national legislation and guidelines.
Note: Obtain copies of Material Safety Data Sheets to allow decision on disposal instructions as appropriate for review in accordance with local Environmental, Health and Safety procedures.		

Materials of Construction and Disposition guidance for typical Filter Assembly

Table A

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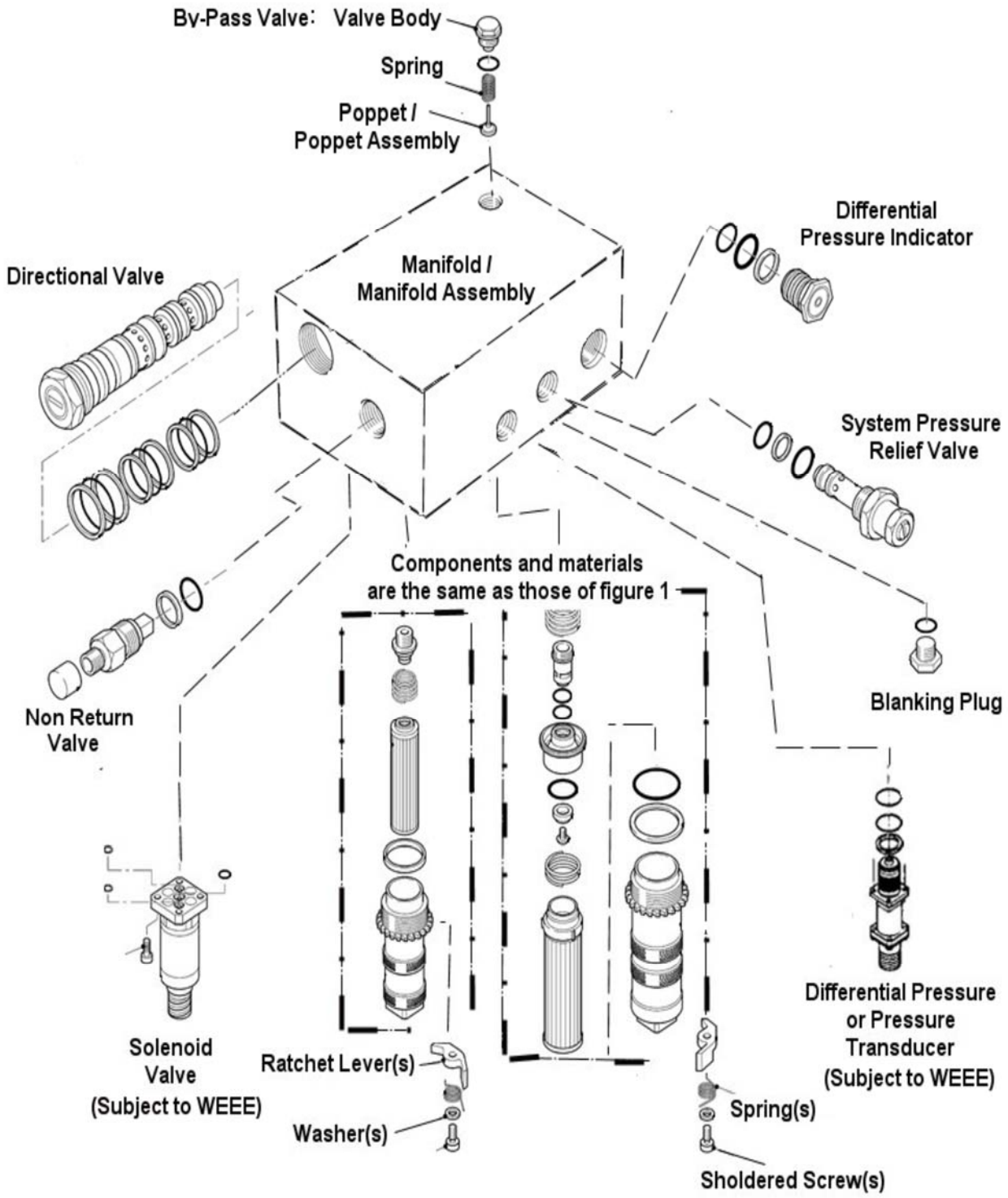

Exploded view of typical Manifold Assembly

Figure 2

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Manifold Assembly (Figure 2)		
Component	**Material Type or Information (options that may be included)**	**Disposition Information**
Manifold, Ratchet Lever	Anodised aluminium alloy. (Some components may be bonded together with Loctite242 or Loctite 542)	Anodised aluminium components (if not otherwise contaminated) are inherently recyclable and should be processed as if a pure material. Other metal components can be recycled unless permanently contaminated or coated. Disposition should reflect the materials of construction and any contaminants present as the result of use. Dispose of in line with local and national legislation and guidelines.
Spring(s)	Stainless steel	
Valve, non-return	Anodised aluminium alloy body, stainless steel pin, Ceramic aluminium oxide ball, PEEK, PTFE	
Screw, Washer	Cadmium plated steel, Stainless Steel	
Indicator, differential pressure	Anodised aluminium alloy, stainless steel, Alnico, Elastomer (options of: Fluorocarbon, Ethylene Propylene, Nitrile – dependent upon application), PTFE, Loctite adhesive	Disposition should reflect the materials of construction and any contaminants present as the result of use. Dispose of in line with local and national legislation and guidelines for mixed hardware as well as for sealing materials.
Valves		
Poppet / Poppet Assembly	Anodised aluminium alloy, elastomer, screw, Loctite adhesive	Anodised aluminium components (if not otherwise contaminated) are inherently recyclable and should be processed as if a pure material. Other metal components can be recycled unless permanently contaminated or coated. Disposition should reflect the materials of construction and any contaminants present as the result of use. Dispose of in line with local and national legislation and guidelines for mixed hardware as well as for sealing materials.
System Pressure Relief Valve	Stainless steel, Aluminium bronze, anodised aluminium alloy, Elastomer (options of: Fluorocarbon, Ethylene Propylene, Nitrile – dependent upon application), Loctite 542, Loctite 7649, PTFE	
Directional Valve	Stainless steel, Aluminium bronze, anodised aluminium alloy, Carbon steel, Elastomer (options of: Fluorocarbon, Ethylene Propylene, Nitrile – dependent upon application), Loctite 242, Loctite 542, PTFE, Arlon 1330	

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Solenoid Valve	Contains "**WEEE**"	Dispose of as waste electrical or electronic equipment after consideration and removal of any contaminants present as the result of use. Pall provides information on recycling of Pall **WEEE** in various European countries at: https://www.pall.com/en/about-pall/corporate-sustainability/weee-compliance.html.
Differential Pressure Transducer		
Pressure Transducer		

Please contact Pall for further information related to additional accessory options.

* The presence of the WEEE recycling label on the item means that it contains electrical or electronic materials and should not be disposed of as unsorted waste, but instead be treated separately. The presence of these materials may, if not disposed of properly, have potential adverse effects on the environment and human health. Users are directed to recycle such products when being replaced with a newer version, or ultimately when they have outlived their useful lives.

Note: Obtain copies of Material Safety Data Sheets to allow decision on disposal instructions as appropriate for review in accordance with local Environmental, Health and Safety procedures.

Materials of Construction and Disposition guidance for LRU's in Manifold

Table B