FDC/aerofilter™

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS STC SR00180SE

ENGINE INLET AIR FILTER SYSTEM
BELL 206 AND 407 SERIES HELICOPTERS

This supplement must be attached to the applicable Bell 206, A, A1, B, B1; Arrow Falcon OH58A, A+, C; Garlick OH58A, A+, C Jet Ranger; Bell 206L1, L3, or L4 Long Ranger, Bell 407, FAA Approved Maintenance Manual when the Engine Filtration System, P/N 1206IN1-600, 1206IN1-1600, 1206IN1-1601, 1206IN1-2600 or 1407IN1-600 is installed in accordance with INTEC Supplemental Type Certificate (STC) SR00180SE. The information in this manual supplements or supersedes the basic manual only in those areas listed.

THE SERVICE INFORMATION CONTAINED IN THIS DOCUMENT SUPERCEEDS THE SERVICE INFORMATION SECTION CONTAINED IN DOCUMENT NO. 1206-EFS/SRV.

RECORD OF REVISIONS

REV	DATE	DESCRIPTION	BY
IR	11/20/99	INITIAL RELEASE	AG/NP
A	10/25/02	ADDED FILTER SYSTEM KIT 1206IN1-1600 AND 1206IN1-1601 TO TITLE PAGE. MINOR REVISIONS TO FILTER ELEMENT SERVICING PROCEDURES.	JW
B	05/12/03	ADDED FILTER SYSTEM KIT 1407IN1-600 FOR BELL 407 SERIES HELICOPTERS.	

LIST OF EFFECTIVE PAGES

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SECTION 1

Introduction

1.1 General Product Information

The engine filter system is designed to protect the turbine engine from foreign object damage and micro erosion when operating in normal and severe environmental conditions. The Model 1206 and 1407 Engine Filter Systems consist of a duct assembly, left & right filter elements, low inlet pressure annunciator system, and a pilot actuated alternate air system.

The filter elements are comprised of a specially formulated polymerized oil suspended by a pleated wire cloth and fabric matrix for the purpose of attracting and holding airborne dust particles. These filter elements are serviced by cleaning and re-oiling at regular intervals, or as required, based on engine performance loss or by visual inspection.

The pilot actuated alternate air system is provided to bypass the filter elements in the event that engine performance is degraded due to filter blockage. The alternate air system should be inspected at regular intervals or prior to flight into environmental conditions that may require its use.

1.2 Scope of ICA

This manual describes the airworthiness limitations, service instructions, inspection procedures, and testing of the engine filter systems and its individual components. Strict adherence to the information given herein will assure maximum filtration benefit and increased component life.

1.3 Precautions

The following precautions are used throughout this manual and are defined as follows:

WARNING: Maintenance procedure, practice, condition, etc. which if ignored could result in personal injury or loss of life.

CAUTION: Maintenance procedure, practice, condition, etc. which if ignored could result in damage or destruction of equipment.

NOTE: Maintenance procedure, practice, condition, etc. or a statement which needs to be highlighted.

SECTION 1

Introduction (cont.)

1.4 Definitions, Abbreviations, Acronyms, and Symbols

The following are used throughout the manual

fl. oz.	Fluid Ounce
in. lb.	Inch Pound (torque)
∆P	Differential Pressure
EFS	Engine Filter System
STC	Supplemental Type Certificate
FAR	Federal Aviation Regulation
ICA	Instructions for Continued Airworthiness

1.5 Distribution

From time to time it may be necessary to revise or update information contained in this ICA. Although best efforts will be made to distribute revisions and updates to the registered owner of the product, it is ultimately the responsibility of the current user to ensure he or she is using the most current information available. Additional copies of this ICA as well as revisions and updates may be obtained by contacting Filtration Development Corporation (FDC) at 415-884-0555. Additionally, you may register to receive these updates when they are released. When revised pages are received, insertions should be logged on the *Record of Revisions* page and the *List of Effective Pages* log should be updated.

SECTION 2

Airworthiness Limitations

The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under §43.16 and §91.403 of the Federal Aviation Regulations unless an alternate program has been approved.

No airworthiness limitations associated with this STC.

SECTION 3

Inspection/Test Requirements

3.1 General

This section covers the basic maintenance and service requirements necessary for safe operation and continued airworthiness of the Model 1206 and 1407 Engine Filter Systems. The service and inspection intervals designated herein are the maximum allowable and should not be exceeded.

3.2 Service Intervals

When severe or unusual environmental conditions exist or as flight requirements dictate, it is the responsibility of the operator to increase the frequency and scope of inspections necessary to ensure safe operation. Due to the operational nature of a "barrier" type filter, an important criteria for safe and successful operation is an unobstructed inlet/filter system. This can be accomplished by visual inspection of the filter through the inlet fairing prior to each flight. Where as small suspended particles on the outside of the filter element do not cause an appreciable airflow restriction, large, obvious debris such as leaves, brush, litter, etc., should be removed prior to flight. Good judgment and practice will ensure safe operation as well as long filter life.

Inspections, scheduled and conditional, shall be performed by qualified personnel and in accordance with standard aircraft practice. Compliance with all applicable Service Bulletins and Airworthiness Directives is mandatory.

Refer to paragraphs 4.3.1 and 4.3.2 for post cleaning inspections.

Service/Inspection/Test Intervals

ITEM			EACH FLIGHT	100 HOUR INTERVAL	300 HOUR INTERVAL	ANNUAL INTERVAL
a	Visual inspection of filter element (installed).		•			
b	Inspect, clean and re-oil filter element. * Ref. to 4.3.1 & 4.3.2 for additional cleaning interval information.			*		
c	Inspect and cycle alternate air door.			•		•
d	Inspect differential pressure switch/ warning annunciator components.			•		•
e	Inspect electrical connections.			•		•
f	Inspect attachment hardware, mounting brackets, and inlet ring				•	•
g	Inspect filter housing structure and associated hardware for cracks and general security.				•	•
h	Leak and pressure test differential pressure switch/annunciator system.					•

SECTION 4

Filter Element Servicing

4.1 General

To insure proper function and maintain a high level of filtration efficiency, great care should be taken when handling the element. The element is most likely to be damaged during servicing than in operation. Special care should be taken when removing and reinstalling the inlet cowling, as well as when removing and replacing the element from the duct. The pleated material's fragile wire mesh is easily damaged or deformed when allowed to scrape against other objects. Careful attention to the following section will assure full service from the filter element.

4.2 Removal And Reinstallation of Element

a) Remove the inlet cowl per Bell instructions, DO NOT SCRAPE INLET FAIRING ON FILTER MEDIA.

b) Loosen the sixteen 1/4 - turn fasteners holding the elements in place and carefully remove them from the duct.

c) Reinstallation is reverse of above.

4.3 Filter Element Cleaning

a) Holding the element clean side up. Gently tap the element to dislodge any large imbedded debris and dirt.

b) Use only INTEC filter cleaner, PN 40- 15

Severe conditions: Soak element, dirt side down, in a pan of sufficient depth to allow complete coverage with INTEC filter cleaner. Allow soak for 20 to 60 minutes, depending on condition. Remove element and shake thoroughly to remove dirty cleaner.

Normal conditions: Spray INTEC filter cleaner liberally onto the entire element for ten minutes. Alternatively, soak element in a shallow pan of filter cleaner for ten minutes.

DO NOT use Gasoline
DO NOT use Jet A or Kerosene
DO NOT use Caustic Cleaning Solution
DO NOT use Detergents
DO NOT use Parts Cleaning Solvents
DO NOT use Pressure or Steam Cleaners
DO NOT use High Pressure Hose Nozzles

CAUTION: Failure to service the element correctly will harm the filter media by reducing its filtration efficiency, restricting airflow, and/or a reduction in service life.

SECTION 4

Filter Element Servicing (cont.)

c) Rinse the element with low pressure water from a garden hose. Always flush from the inside to the outside to avoid driving particles further into the filter media.

d) After rinsing, gently shake off the excess water and set filter aside. Allow the element to dry naturally. It is permissible to set in direct sunlight for drying.

DO NOT use Compressed Air
DO NOT use Open Flame
DO NOT use Hair Dryers or Heat Guns

4.3.1 Inspection - Severe Conditions

In severe environments, it may be necessary to clean and inspect the element more frequently than recommended in Section 3. An element used in such conditions should be replaced after not more than **1000** hours of operation. Regardless of the actual time in service, the physical condition of the element must remain the most important factor to determine the serviceability of the element.

At each cleaning carefully inspect the elements as follows:

a) Inspect the fine mesh on the forward surface of the element pleats. Complete erosion of more than .50 in. is cause for element rejection.

b) Inspect the course mesh on the aft surface of the element. Any evidence of mesh wire wear or general signs of mesh deterioration are cause for element rejection.

c) After cleaning and before reoiling, hold the element up to a light and check for holes in the element material greater than .020(it is normal to observe pinholes in the filter media particularly at the pleat folds. These pinholes will not allow the passage of dirt once the element is oiled). Close the holes if present using a fine pick to reposition the media material to cover the hole.

d) Check the condition of the element assembly:

- Frames for security
- Seal strips for deterioration and evidence of gaps between the element and duct flange
- Fasteners for security, loose rivets, or worn pins.
- Wash nozzle, tube and valve assembly for security.

Repair any defects as required.

When operating in the most severe conditions it is highly recommended that a serviceable set of pre oiled elements are available. This will allow continued service while the previously installed set is being cleaned, inspected and reoiled.

SECTION 4

Filter Element Servicing (cont.)

4.3.2 Inspection – Normal conditions.

At each 150 hours of operation or upon activation of the low inlet pressure warning light, Remove the elements and inspect in accordance with paragraphs 4.3.1a, b, c and d. Elements should be replaced after **1500** hours in service.

4.4 Oiling The Filter Element

CAUTION: Use only Oil, PN 40 – 10 or PN 40-10CW

AeroFilter oil is a compounded mineral based blend, formulated with special polymers to form the tack barrier. A dye has been added to show where the oil has been applied. Eventually the red color will fade but the oil will remain.

CAUTION: Never use the filter element without AeroFilter oil.

DO NOT use Engine Oil
DO NOT use Transmission Oil
DO NOT use Hydraulic Fluid
DO NOT use Lightweight Oils (WD 40, LPS, etc)

a) Fill sprayer with recommended quantity of Aerofilter oil (8 Fluid Ounces).
b) Charge sprayer with compressed air.
c) Apply oil to the filter element with smooth, complete passes parallel to pleats.
d) Repeat 90 degrees to pleats.
e) Use all of the measured quantity of oil.
f) Wait 30 minutes for proper wicking and *lightly* re-oil any light areas.

NOTE

Do not over-oil the element. Proper absorption is achieved when the filter media is completely wicked and any surplus oil has been allowed to drip from the element.

The filter element is now ready for installation. Ref. Par. 4.2.