



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS STC SR01191SE



ENGINE INLET AIR FILTER SYSTEM EUROCOPTER EC120B SERIES HELICOPTERS

This supplement must be attached to the applicable Eurocopter EC120B, FAA Approved Maintenance Manual when the Engine Filtration System, P/N 1120IN1-1001 is installed in accordance with INTEC Supplemental Type Certificate (STC) SR01191SE. The information in this manual supplements or supersedes the basic manual only in those areas listed.

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SECTION 1

Introduction

1.1 General Product Information

The Eurocopter EC120B Engine Filter System consist of a duct assembly, a filter element, low inlet pressure annunciator system, and a pilot actuated alternate air system. It is designed to protect the turbine engine from foreign object damage and erosion due to fine particulate when operating in normal and dusty environments. Especially formulated polymerized oil, suspended by a pleated wire cloth and fabric matrix, attracts and holds dust particles within the filter element. It is serviced by cleaning and re-oiling at regular intervals, per the operators approved maintenance program or 'on-condition'.

A pilot actuated alternate air system is provided to bypass the filter element in the event that filter blockage exceeds a pre-selected level demonstrated in INTEC flight tests. The alternate air system should be inspected at regular intervals as part of the operator maintenance program.

1.2 Scope of ICA

This manual describes the airworthiness limitations, service instructions, inspection procedures, and testing of the engine filter system and its individual components. Adherence to the information given herein will assure maximum filtration benefit and increased component life. These data are intended to aid the operator in formulating an acceptable maintenance program in accordance with FAR 91.403(c).

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)
ΔP	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.

*Life Limit of the filter element is 1500 hours of engine operation.
The element must be removed from service if the wire mesh on the downstream side of the element is broken or damaged.*

No other limitations are 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 EC120B Engine Filter System. Service and inspection intervals designated herein are recommended by the manufacturer and should be combined with the operators experience to form an acceptable maintenance program under FAR 91.403 as applicable. It is to the operators benefit to maintain the filter element in a clean condition to assure maximum engine protection with minimum performance losses.

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 prior to each flight. Small suspended particles on the outside of the filter element do not cause an appreciable airflow restriction. However, 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.

Recommended Service Intervals

ITEM		EACH FLIGHT	100 ± 10 HR INTERVAL	300 ± 10 HR INTERVAL	ANNUAL INTERVAL
a	Visual inspection of filter element (remove debris and note condition of element and associated screens).	•			
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 seal.			•	•
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, care should be taken when handling the element. The element is more likely to be damaged during servicing than in operation. Special care should be taken when removing and reinstalling the filter element. Pleated material 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 element by unlatching the six latches on the top and sides of the element.
- b) Reinstallation is reverse of above. Be sure to latch secondary latch spring.

4.3 Filter Element Cleaning

- a) Holding the element clean side up. Gently tap the element edges to dislodge any large imbedded debris and dirt.
- b) Liberally spray the dirty side of the element with INTEC Filter Cleaner, PN 40-15 using the spray bottle provided or similar hand-held sprayer. Do not use any powered device to spray the filter element. Allow the Cleaner to soak into the element for approximately 10 minutes.

NOTE

Use only INTEC filter cleaner, PN 40- 15.

- c) Flush the cleaner fluid from the element with low pressure water from a garden hose. Always flush from the clean side to the dirty side 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.

NOTE

When drying the filter:
DO NOT use Compressed Air
DO NOT use Open Flame
DO NOT use Hair Dryers or Heat Guns

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 then flush.

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.

SECTION 4

Filter Element Servicing (cont.)

NOTE

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 reducing service life.

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 subject to frequent cleaning should be replaced after **1000** hours of operation. Regardless of the actual time in service, the physical condition of the element is the most important factor in determining 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 breakage or deterioration are cause for element rejection.
- c) After cleaning and before re-oiling, 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. Numerous holes in the media greater than 0.030 will reduce the filtration efficiency and are cause for element rejection.
- 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.Repair any defects as required.

When operating in the most severe conditions it is highly recommended that a serviceable, pre-oiled element be available. This will allow continued service while the dirty element is being cleaned, inspected and re-oiled.

SECTION 4

Filter Element Servicing (cont.)**4.3.2 Inspection – Normal conditions.**

At each 100±10 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 AeroFilter 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 (15 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.