



**INSTRUCTIONS FOR
CONTINUED AIRWORTHINESS
STC SR00811SE AND SR01049SE
1350-SERIES-ICA-1**



ENGINE INLET AIR FILTER SYSTEM

EUROCOPTER AS350 SERIES HELICOPTERS

This supplement must be attached to the applicable Eurocopter AS350 series helicopters, FAA Approved Maintenance Manual when the Engine Filtration System, P/N 1350IN1-1/-7/-9, P/N 1350IN2-9 or P/N 1350IN3-1 is installed in accordance with Supplemental Type Certificate (STC) SR00811SE or SR01049SE. The information in this manual supplements or supersedes the basic manual only in those areas listed.

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RECORD OF REVISIONS

REV	DATE	DESCRIPTION	BY
IR	03/01/00	Initial Release	NRP
A	12/20/01	Added applicability for models AS350D, D1, and BA powered by Lycoming LTS-101 engines.	JW
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C	01/28/08	<ul style="list-style-type: none"> Updated format Added <i>FDC/aerofilter</i> name to filter cleaner and oil products Expanded Contact Address in Distribution Section (Para 1.5) Minor text corrections Added applicability for model AS350B3 with Dual Hydraulics per Eurocopter Mod No. AMS OP-3082 	RL
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1.0 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 Engine Filtration Systems P/N's 1350IN1-1/-7/-9, 1350IN2-9, and 1350IN3-1 consist of a duct assembly, a filter element, a low inlet pressure annunciator system, and a pilot actuated alternate air system.

The filter element is comprised of a specially formulated polymerized oil suspended by a pleated wire cloth and cotton fabric matrix, for the purpose of attracting and holding airborne dust particles. The filter element is serviced by cleaning and re-oiling at regular intervals, or as required, based on engine performance loss or by visual determination that engine performance could be adversely affected prior to the next scheduled servicing.

The pilot actuated alternate air system is provided to bypass the filter element 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 Applicability

Eligible AS350 models for the installation of the Filter System:

AS350 Model	Engine	Installation	Filter System P/N
D, D1	Lycoming LTS-101-600A-2	Factory	1350IN1-9
D	Lycoming LTS-101-600A-3	STC SH5815SW (Soloy AS350 Super D)	1350IN1-9
D, BA	Lycoming LTS-101-600A-3A	STC SR00772SE (Soloy AS350 Super D)	1350IN1-9
BA	Lycoming LTS-101-600A-3A	STC SR00805SE (Soloy AS350 SD1)	1350IN1-9
B2, BA	Lycoming LTS-101-600A-3A	STC SR02295NY (Heli-Lynx 350FX1)	1350IN2-9
B2	Lycoming LTS-101-700D-2	STC SR01647SE (Soloy AS350 SD2)	1350IN1-9
B2, BA	Lycoming LTS-101-700D-2	STC SR02295NY (Heli-Lynx 350FX2)	1350IN2-9
B, B1, B2, BA, B3	Turbomeca Arriel	Factory	1350IN1-1 S/N 1 – 20 1350IN1-7 S/N 21 - Subs
B3 DH(*)	Turbomeca Arriel	Factory	1350IN3-1

(*)Note: AS350B3 with Dual Hydraulics per Eurocopter Mod. No. AMS OP-3082

1.4 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.

1.5 Definitions, Abbreviations, Acronyms and Symbols

The following are used throughout the manual.

fl. oz.	Fluid Ounce
in. lb.	Inch Pound (Torque)
ΔP	Differential Pressure
in-H ₂ O	Inches of Water (Pressure)
EFS	Engine Filter System
STC	Supplemental Type Certificate
FAR	Federal Aviation Regulation
ICA	Instructions for Continued airworthiness

1.6 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. 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.

Additional copies of this and other related documents, as well as revisions and updates may be obtained by contacting the following:

Filtration Development Corporation (FDC)
8 Digital Drive, Suite 104
Novato, CA 94949
Tel: 415-884-0555
Fax: 415-883-8071
<http://www.fdc-aerofilter.com>

2.0 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.

3.0 Inspection/Test Requirements

3.1 General

These sections cover the basic maintenance and service requirements necessary for safe operation and continued airworthiness of the Engine Filtration System. 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.

Recommended Service Intervals

ITEM		EACH FLIGHT	100 HOUR INTERVAL	300 HOUR INTERVAL	ANNUAL INTERVAL
a	Visual inspection of filter element (installed).	•			
b	Visual inspection of alternate air chamber for absence of debris.	•			
c	Inspect, clean, and re-oil filter element. *Ref. to 4.3.1 & 4.3.2 for additional cleaning interval information.		*		
d	Inspect and cycle alternate air doors.		•		•
e	Inspect differential pressure switch/ warning annunciator components		•		•
f	Inspect electrical connectors.		•		•
g	Inspect attachment hardware, remove lower alternate air chamber housing and inspect complete actuator installation for security.			•	•
h	Inspect filter housing structure and associated hardware for cracks and general security.			•	•
i	Leak and pressure test differential pressure switch/annunciator system.				•

4.0 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) Loosen 1/4-turn fasteners holding the element in place and carefully remove from the duct.
- (b) Reinstallation is reverse of above.

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) Use only *FDC/aerofilter* Filter Cleaner, p/n 40-15.

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

Normal conditions: Spray *FDC/aerofilter* 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.

- (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 of Element – 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 inner/outer 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 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.
- (d) Check the condition of the entire assembly including:
 - Element frame for security.
 - Seal strips for deterioration and evidence of gaps between joint surfaces.
 - Fasteners for security, loose rivets.
 - Repair any defects as required.

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

4.3.2 Inspection of Element – Normal Conditions

At each 100 hours of operation or upon activation of the low inlet pressure warning light, Remove the element and inspect in accordance with paragraphs 4.3.1a, b, c, and d.

The element should be replaced after **1500** hours in service.

4.4 Oiling the Filter Element

CAUTION: Use only *FDC/aerofilter* AeroFilter Oil, P/N 40-10 or P/N 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 dye 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)

- Fill sprayer with recommended quantity of AeroFilter Oil (**12 Fluid Ounces**).
- Charge sprayer with compressed air.
- Apply oil to the filter element with smooth, complete passes parallel to pleats.
- Repeat 90 degrees to pleats.
- Use all of the measured quantity of oil.
- 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

4.5 Caution Light Test

With the element removed, connect a 1/4 ID hose to the pressure port in the inlet plenum. Connect the other end of the hose to a low-pressure vacuum source. With the aircraft power on, slowly reduce the pressure in the line until the “LOW INLET PRESSURE” light comes on at 9 in-H₂O ± 1 in-H₂O. Remove test equipment and replace filter element.