

**FAA APPROVED  
ROTORCRAFT FLIGHT MANUAL SUPPLEMENT  
for the  
EUROCOPTER ASTAR AS350  
EQUIPPED WITH LYCOMING LTS-101 ENGINES  
and  
EQUIPPED WITH  
FDC/aerofilter INLET BARRIER FILTER SYSTEM**

REG. NO. \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

This supplement must be attached to the FAA Approved Rotorcraft Flight Manual (RFM), when the FDC/aerofilter Inlet Barrier Filter System is installed in accordance with Supplemental Type Certificate (STC) SR01049SE.

The information contained herein supplements information of the basic Flight Manual. For Limitations, Normal and Emergency Procedures, and Performance information not contained in this supplement, consult the basic Rotorcraft Flight Manual.

FAA APPROVED:

*Shirley Rippe*  
\_\_\_\_\_  
Foie Manager, Flight Test Branch, ANM160S  
FAA Seattle Aircraft Certification Office

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**RECORD OF REVISIONS**

*When updated, this document is revised in its entirety.*

REV	DESCRIPTION	FAA APPROVAL
A	<ul style="list-style-type: none"> <li>• TRANSFERRED ALL TEXT FOR AS350 MODELS EQUIPPED WITH LYCOMING LTS 101 ENGINES TO THIS DOCUMENT FROM RFMS DOC. NO. 1350-1200, REVISION G</li> <li>• ADDED HELI-LYNX MODIFIED ASTAR AS350BA AND AS350B2, POWERED BY LYCOMING LTS-101-600A-3A ENGINES (350FX1 MODEL) OR LTS-101-700D-2 ENGINES (350FX2 MODEL) TO LIST OF APPLICABLE HELICOPTERS IN SECTION 1.</li> </ul>	<p>Pat Morris for Mgr. Flt Test Br., ANM-160S FAA Seattle ACO Transport Airplane Directorate Date: May 16, 2008</p>
B	<ul style="list-style-type: none"> <li>• UPDATED AND ORGANIZED LAYOUT FOR EASE OF USE AND CLARITY.</li> <li>• SECTION 2: DELETED FILTER ELEMENT LIFE LIMITATION.</li> <li>• REVISED SECTION 5 PERFORMANCE FOR CONDITIONAL PERFORMANCE LIMITATIONS.</li> <li>• MINOR CORRECTIONS AND IMPROVEMENTS.</li> </ul>	<p><i>Shawn Ripple</i> <i>Shawn Ripple</i> Mgr. Flt Test Br., ANM-160S FAA Seattle ACO Transport Airplane Directorate Date: <u>22 June</u>, 2011</p>

**LIST OF REFERENCED DOCUMENTS**

<b>REF</b>	<b>DESCRIPTION</b>	<b>DOCUMENT NUMBER</b>
<b>1</b>	Basic Rotorcraft Flight Manual – AS350	(SEE BASIC HELICOPTER DOCUMENTATION)
<b>2</b>	Rotorcraft Flight Manual Supplement – Soloy	(SEE BASIC HELICOPTER DOCUMENTATION)
<b>3</b>	Rotorcraft Flight Manual Supplement – Heli-Lynx	(SEE BASIC HELICOPTER DOCUMENTATION)
<b>4</b>	Instructions for Continued Airworthiness – Engine Inlet Barrier Filter Eurocopter AS350 Series Helicopters	1350-SERIES-ICA-1

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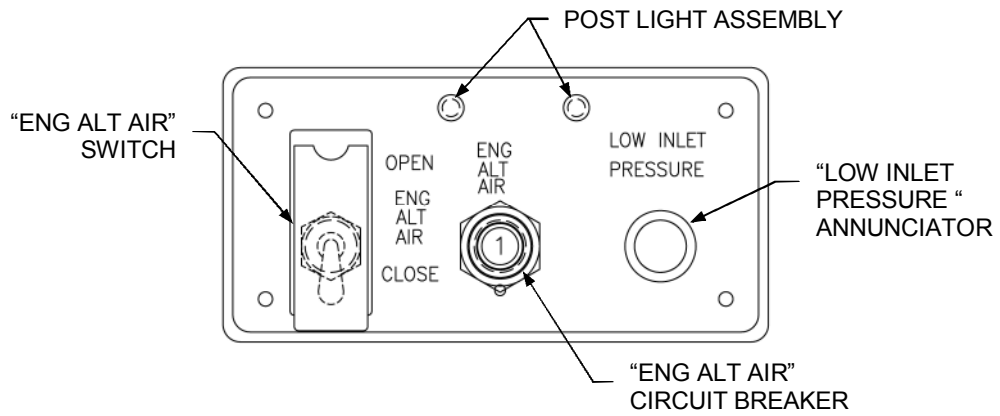
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**SECTION 1 - GENERAL**

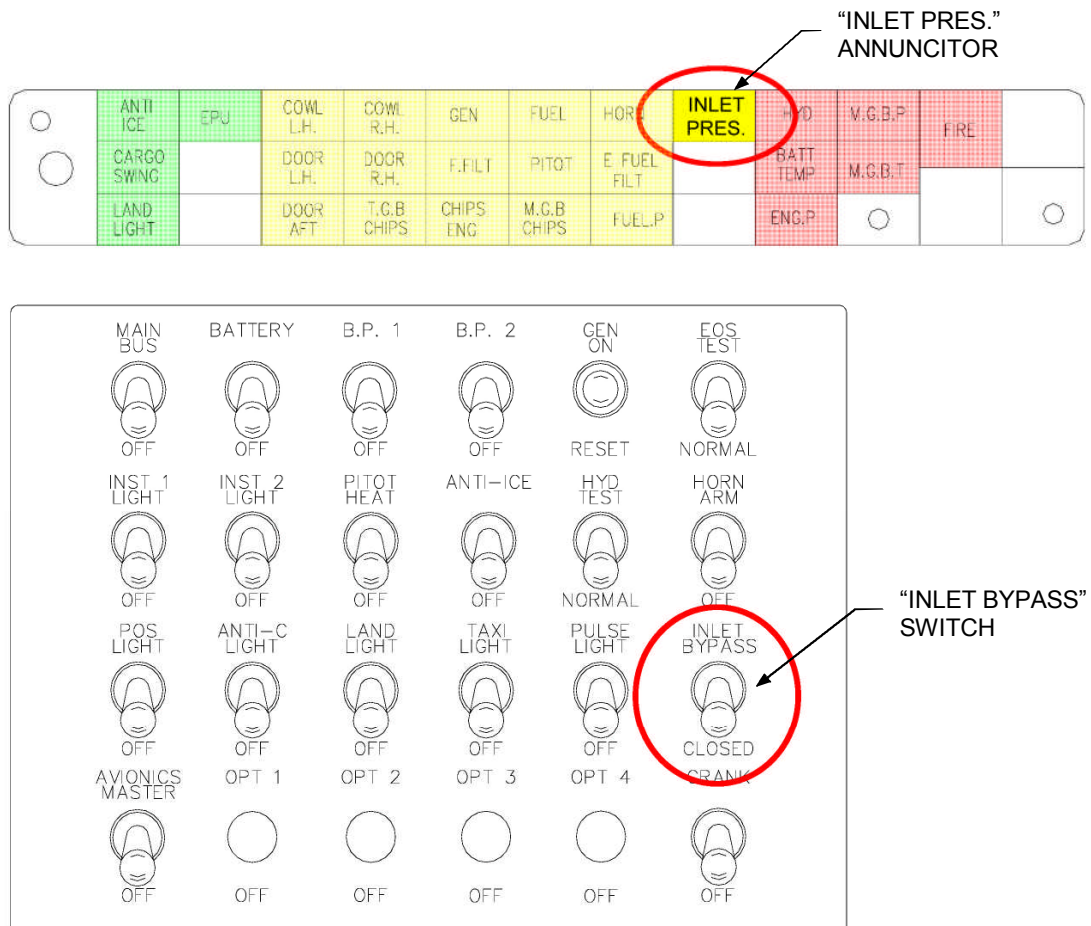
This supplement provides the changes in the normal operating procedures unique to the Eurocopter AStar AS350 rotorcraft with the FDC/aerofilter Inlet Barrier Filter System installed. Eligible AStar models for the installation of the Filter System:

<u>Model</u>	<u>Lycoming Engine</u>	<u>Installation</u>
AS350D	LTS-101-600A-2	Factory
AS350D1	LTS-101-600A-2	Factory
AS350D	LTS-101-600A-3	STC SH5815SW (Soloy AS350 Super D)
AS350D	LTS-101-600A-3A	STC SR00772SE (Soloy AS350 Super D)
AS350BA	LTS-101-600A-3A	STC SR00772SE (Soloy AS350 Super D)
AS350BA	LTS-101-600A-3A	STC SR00805SE (Soloy AS350 SD1)
AS350BA	LTS-101-600A-3A	STC SR02295NY (Heli-Lynx 350FX1)
AS350B2	LTS-101-600A-3A	STC SR02295NY (Heli-Lynx 350FX1)
AS350B2	LTS-101-700D-2	STC SR01647SE (Soloy AS350 SD2)
AS350BA	LTS-101-700D-2	STC SR02295NY (Heli-Lynx 350FX2)
AS350B2	LTS-101-700D-2	STC SR02295NY (Heli-Lynx 350FX2)

The Inlet Barrier Filter System consists of a filter element, housing assembly, alternate air doors, a switch (labeled “ENG ALT AIR”), an annunciator (labeled “LOW INLET PRESSURE”), a circuit breaker (labeled “ENG ALT AIR”), a fuse (labeled “ENG ALT AIR POWER”), and hardware required to complete the installation. Cockpit control and indication elements are shown in **Figure 1** (for standard FDC/aerofilter Panel Assembly, p/n 1350A11-1) and **Figure 2** (for Heli-Lynx 350FX1/FX2 installations).



**Figure 1 – Cockpit Control and Indication Elements**



**Figure 2 – Cockpit Control and Indication Elements for Heli-Lynx 350FX1/FX2 Installations**

**SECTION 2 - LIMITATIONS****2.1 - ENGINE OPERATIONS (GROUND AND FLIGHT)**

Engine operations without the filter element installed are **PROHIBITED**.

**2.2 - FLIGHT IN FALLING AND/OR BLOWING SNOW**

Operation of the Alternate Air Doors in falling and/or blowing snow is **PROHIBITED**.

The limitations laid out in the basic flight manual remain applicable with the exception of the following specific limitation:

The flight envelope restrictions in case of falling or blowing snow are cancelled.

**2.3 - TAKEOFF**

Takeoff with “LOW INLET PRESSURE” annunciator (“INLET PRES.” Annunciator for Heli-Lynx installations) illuminated is **PROHIBITED**

**SECTION 3 - EMERGENCY PROCEDURES****3.1 - "LOW INLET PRESSURE" ANNUNCIATOR (AMBER)**

- "LOW INLET PRESSURE" annunciator ("INLET PRES." annunciator for Heli-Lynx installations) **ILLUMINATED**, and/or
- Unexplained increase in Engine T4.

**FAULT:** FILTER DIRTY / BLOCKED and/or,  
ENGINE BLEED VALVE FAILURE and/or,  
LOW EFFICIENCY ENGINE POWER TURBINE

**ACTION:** "ENG ALT AIR" SWITCH  
("INLET BYPASS" SWITCH for Heli-Lynx installations) – **OPEN**

- a. If "LOW INLET PRESSURE" annunciator ("INLET PRES." annunciator for Heli-Lynx installations) extinguishes, continue mission and service filter prior to next flight.
- b. If "LOW INLET PRESSURE" annunciator ("INLET PRES." annunciator for Heli-Lynx installations) remains **ILLUMINATED**, monitor engine instruments to ensure full power can be attained within engine limits. If power can be achieved within engine limits, continue the mission. Service the filter and conduct an engine power check on the next flight.
- c. If "LOW INLET PRESSURE" annunciator ("INLET PRES." annunciator for Heli-Lynx installations) remains **ILLUMINATED**, monitor engine instruments and if power cannot be maintained within engine limits, land as soon as possible. Service the filter and conduct an engine power check on the next flight.

**3.2 - OPERATION IN FALLING AND/OR BLOWING SNOW**

- “LOW INLET PRESSURE” annunciator (“INLET PRES.” annunciator for Heli-Lynx installations) **ILLUMINATED**, and/or
- Unexplained increase in Engine T4.

**NOTE**

Operation of the Alternate Air Doors in falling and/or blowing snow is **PROHIBITED**.

**ACTION:** Reduce engine power

- a. If “LOW INLET PRESSURE” annunciator (“INLET PRES.” annunciator for Heli-Lynx installations) extinguishes, monitor engine instruments and land as soon as practicable.
- b. If “LOW INLET PRESSURE” annunciator (“INLET PRES.” annunciator for Heli-Lynx installations) remains **ILLUMINATED**, monitor engine instruments and land as soon as possible.

**CAUTION**

Inspect and/or service the filter system prior to next flight. Possible cause of low inlet pressure indication is accumulation of snow and/or ice on the filter. Remove any accumulation of ice, snow, slush, etc. before next flight. Verify rotor blades are free of ice accumulation.

**SECTION 4 - NORMAL PROCEDURES**

**4.1 - EXTERIOR CHECK**

***First Flight of the Day or Each Flight if Snow or Freezing Rain has fallen.***

Filter Element – Check for damage and security.

Filter Element surfaces – Must be free of accumulated debris, snow, ice, slush, etc.

Filter Element – Verify Filter material is in good condition.

Alternate Air Door System – Check for damage and security.

Alternate Air Screens, Ducts, and Doors – Must be free of accumulated debris, snow, ice, slush, etc.

Alternate Air Doors – Verify doors are closed and sealed.

Engine Cowling – Verify air intake to be free of snow, ice, or water, particularly under the filter.

Heli-Lynx Installation Only–  
“INLET BYPASS” Circuit  
Breaker (Aft Baggage  
Compartment CB Panel) – ENGAGED.

**NOTE**

For operations in cold weather and snow, refer to Basic Rotorcraft Flight Manual Supplement 4 “Instructions for Operation in Cold Weather”.

**4.2 - INTERIOR & ENGINE PRESTART CHECK**

“ENG ALT AIR” Switch (“INLET BYPASS” Switch for Heli-Lynx installations)	– verify <b>CLOSED</b> position
“ENG ALT AIR” Circuit Breaker	– <b>SET</b>
“ENG ALT AIR POWER” Fuse	– <b>FITTED</b>
“LOW INLET PRESSURE” annunciator	– <b>TEST</b>

**NOTE**

On non-Heli-Lynx installations, “LOW INLET PRESSURE” annunciator can be dimmed independently from the rest of the instrument panel. Always ensure that dimming is adjusted such that annunciator is easily viewable in all lighting conditions.

**4.3 - ENGINE RUNUP**

During engine run up, ensure “LOW INLET PRESSURE” annunciator (“INLET PRES.” annunciator for Heli-Lynx installations) does not illuminate.

**4.4 - OPERATION IN FALLING AND/OR BLOWING SNOW**

Operations in falling and/or blowing snow have been demonstrated in one-quarter mile or greater visibility conditions when the helicopter engine induction system is equipped with the FDC/aerofilter Inlet Barrier Filter. Minimize exposure time in ground and IGE hover operations. Snow accumulations on airframe and filter are more probable in these conditions. Exercise caution when operating in snow. Maintain visual contact with ground and any obstacles at all times.

**NOTE**

Operation of the Alternate Air Doors in falling and/or blowing snow is **PROHIBITED**.

**SECTION 5 - PERFORMANCE**

Engine performance is slightly reduced when the FDC/aerofilter Inlet Barrier Filter is installed and may decrease further as the filter becomes contaminated. It is the responsibility of the pilot/operator to conduct engine power checks to determine if the engine meets published engine power check criteria and performance. Conduct engine power checks in accordance with appropriate RFM and/or RFMS. Additional engine power checks are at the discretion of the pilot/operator and based on the operating environments.

Except as noted below, engine power check procedures and criteria are unchanged from the appropriate basic RFM or RFMS.

Performance published in the appropriate basic RFM or RFMS is assured if engine power checks result in torque and T4 margins that are at least zero.

If results meet the appropriate basic RFM or RFMS engine power check criteria:

- Operate aircraft in accordance with the appropriate basic RFM or RFMS performance data.

If results do not meet the appropriate basic RFM or RFMS engine power check criteria:

- Refer to appropriate maintenance manual to determine cause of power loss and perform new power check. If results still do not meet the appropriate basic RFM or RFMS engine power check criteria:
  - It is recommended that the filter element be serviced and a new engine power check be performed.

and/or

- If the IBF system is determined to be the single reason for power to fall below the limits specified in the basic RFM or RFMS, it is permissible to continue operating using the performance limitations listed below provided that subsequent engine power check results meet the criteria contained in the basic RFM or RFMS using the correction factors listed below:
  - Apply the following correction when entering Engine Power Check or Torque Margin Check chart.
    - Reduce OAT by 4°C.
  - Conduct engine power checks at intervals not to exceed 20 flight hours. Increase frequency of engine power checks if operating in dusty environments.

- **Hover Ceiling:** Apply the following corrections to the Performance Charts of the basic RFM or RFMS.

For Outside Air Temperature (°C)

Lower than 5°C – Reduce chart Gross Weight by 3.5%

Between 5°C and 35°C – Reduce chart Gross Weight by 5.5%

Higher than 35°C – Reduce chart Gross Weight by 7.0%

**NOTE**

If reduced weight is above maximum gross weight,  
no offload is required

- **Rate of Climb:** Apply the following corrections to the Performance Charts of the basic RFM or RFMS.

Increase Actual Gross Weight prior to entering chart.

For Outside air Temperature (°C)

Lower than 5°C – Increase Actual Gross Weight by 3.5%

Between 5°C and 35°C – Increase Actual Gross Weight by 5.5%

Higher than 35°C – Increase Actual Gross Weight by 7.0%

**NOTE**

Operating with the Inlet Barrier Filter System can cause  
T4 temperature to increase by approximately 20°C  
or can increase Ng by approximately 1.3%  
compared to an inlet with no protection.