SECTION 8

AIRPLANE HANDLING, SERVICEING, AND MAINTENANCE

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INTRODUCTION

This section provides factory recommended general guidelines and procedures for proper ground handling, routine care and servicing of your Expedition E350 aircraft, model (FBA-2C3). It also identifies certain maintenance and inspection requirements, which must be followed if your airplane is to maintain its original 'factory new' performance and dependability. It is recommended that a planned schedule of preventative maintenance, based on local climatic and flying conditions, be followed.

Every E350 owner should keep in touch with Found's Customer Service Department to obtain the latest information available pertaining to their aircraft and to take advantage of their knowledge and experience. Any correspondence regarding your airplane should include the airplane serial number and model number found on the identification plate to ensure a proper response.

IDENTIFICATION PLATE

A single identification plate is located on the port side of the aft fuselage, below of the horizontal stabilizer. It displays the manufacturer's name, model designation, serial number, Canadian type certificate number, and US type certificate number.

PUBLICATIONS AND BULLETINS

The Transport Canada approved flight manual and pilots operating handbook is provided at the time of delivery. Additional or replacement copies may be obtained by contacting the Customer Service Department.

In addition to the above the owner will receive an assortment of other manufacturers' pilot guides, installation manuals etc. depending on the optional equipment installed at the time of delivery.

From time to time, Found Aircraft Canada (FAC) may publish and distribute, to all aircraft owners, additional information that is relevant to the care of their aircraft. These publications will be in the form of either a SERVICE BULLETIN, or a SERVICE INSTRUCTION.

SERVICE BULLETINS include the description of a problem and the solution. A Service Bulletin is mandatory, and must be accomplished by the owner within the time period specified, or, if the aircraft is out of service then the Service Bulletin must be accomplished before the aircraft is returned to service. Failure to follow a Service Bulletin, can result in failures or malfunctions during further operation of the airplane. FAC will notify the airplane owner via email that a Service Bulletin applicable to their aircraft has been issued and is posted on the FAC website. The Service Bulletin number, date, title and incorporation should be recorded in the airplane technical records when the work is complete.

A SERVICE INSTRUCTION is not mandatory and may be carried out by the owner at their discretion. For example, a Service Instruction may contain information to owners who operate in salt water and wish to be advised of additional corrosion protection.

In addition to the Service Bulletin and Instructions FAC also posts the airplane Maintenance Manual and Illustrated Parts Catalogue on the website (www.foundair.com).

ORDERING PUBLICATIONS

Any Found Aircraft publications may be ordered by contacting Customer Service as follows:

Found Aircraft Canada Inc.
Customer Service
RR#2, 95 Airport Rd.
Parry Sound, Ontario
P2A 2W8
Canada

Email: custsupport@foundair.com
Tel: (705) 378-0530
Fax: (705) 378-0594

AIRPLANE RECORDS AND CERTIFICATES

Transport Canada and the Federal Aviation Authority require that certain certificates and licenses be on board your aircraft at all times. The following is a list of those documents. Be sure to check applicable CARs and/or FARs occasionally to make sure your list is up to date. Expedition owners not operating within Canada or the United States should check with the governing aviation authority for required documents.

Documents:

1. Certificate of Airworthiness/Airworthiness Certificate
2. Certificate of Registration/Registration Certificate
3. Aircraft Radio Station License as required
4. Pilot Operating Handbook
5. Weight and Balance Data plus Equipment List
6. Proof of Insurance
7. Intercept Orders as required
8. Journey Log as required

AIRPLANE INSPECTION PERIODS

Both Transport Canada and the FAA require that every civil registered airplane undergo a complete inspection (annual) each 12 calendar months. In addition to the annual inspection each aircraft operated for hire (commercially) must have a complete inspection every 100 hours of operation. Expedition owners not operating within Canada or the United States should check with the governing aviation authority for required inspection periods

CAUTION

Unscheduled maintenance checks are required after:

- hard landings
- propeller strike
- engine fire
- lightning strike
- other malfunction and/or damage occurrence

Service Bulletins from Hartzell, Textron Lycoming or Found Aircraft Canada may supersede any inspection items upon short notice.

Airworthiness Directives from the governing aviation authority may change any inspection intervals upon short notice.

GROUND HANDLING

TOWING

The airplane may be maneuvered or moved on the ground by use of the nose wheel tow bar or by power equipment that will not excessively strain or damage the nose gear assembly. Do not lift the empennage by the elevator or any portion of the horizontal stabilizer. Likewise, do not push sideways on the tail plane. It is also recommended that you do not push or pull on the propeller or any other control surface to maneuver the aircraft.

PARKING AND TIE-DOWN

When parking the aircraft, ensure it is sufficiently protected from the weather and it poses no hazard to other aircraft. If the aircraft is parked overnight or for any length of time, or if severe weather is expected, ensure the aircraft is properly moored.

1. Face the aircraft into the wind, if possible.
2. Retract the flaps.
3. Set parking brake.

NOTE

Do not set brakes if the brakes are overheated or during cold weather as excess moisture may cause the brakes to freeze.

4. Chock the wheels.
5. Install control lock.
6. Install pitot head cover
7. Lock all doors, if leaving the airplane unattended.
8. Tie the aircraft down.

JACKING

Jack the aircraft on level ground. Jacking should be done in no wind conditions and with no passengers in the aircraft. The main gear may be jacked at the jacking pad mounted on the gear leg at the wheel. The bottom gear fairing must be removed in order to jack the aircraft.

SERVICING

ENGINE OIL

Oil Specification

MIL-L-6082-B Aviation Grade Straight Mineral Oil:
This oil is used when the airplane is delivered from the factory and should be drained and oil filter replaced after the first 10 hours. The drained oil has to undergo a spectrographic oil analysis. In addition, oil should be drained and the filter changed after the first 25 hours of operation. Refill the engine with MIL-L-6082 Aviation Grade Straight Mineral Oil and continue to use until a total of 50 hours has accumulated or oil consumption has stabilized.

MIL-L-22851 Aviation Grade Ashless Dispersant Oil:
This oil conforms to Textron Lycoming Service Instruction No. 1014, and all revisions and supplements thereto, **must be used** after the first 50 hours or once oil consumption has stabilized.

Recommended Viscosity for Temperature Range

Temperature	SAE J1966 MIL-L-6082-B SAE Grade	SAE J1899 MIL-L-22851 Ashless Dispersant SAE Grade
Above 27°C (80°F)	60	60
Above 16°C (60°F)	50	40 or 50
-1°C (30°F) to 27°C (90°F)	40	40
-18°C (0°F) to 21°C (70°F)	30	30, 40 or 20W-40
Below -12°C (10°F)	20	30 or 20W-30
All Temperatures	- - -	15W-50 or 20W-50

Capacity of Engine Sump

The capacity of the engine sump and oil filter is 10.4 Litres (11 U.S. quarts). The engine must not be operated on less than 3.8 Litres (4 US quarts) as measured on the dipstick. For normal operation, fill to the 8.5 Litres (9 US quarts) indication on the dipstick. For operations longer than three hours, fill to 10.4 Litres (11 U.S. quarts) on the dipstick.

Oil and Filter Change

The engine oil sump must be drained after the first 10 hours and the filter replaced. At this time the drained oil must undergo spectrographic oil analysis. The engine oil must also be drained after the first 25 hours and the filter replaced. The sump should be refilled with straight mineral oil and continue to use until a total of 50 hours has accumulated or oil consumption has stabilized. A complete change to ashless dispersant oil and a suitable filter can then be made. Subsequent oil and filter changes should be made at time intervals set by the engine manufacturer.

NOTE

After the first 50 hours of operation a general inspection of the overall engine compartment is required. The inspection should include all items not usually included in a pre-flight inspection, including: hoses, lines and fittings for security, leaks and wear; intake and exhaust systems for security and cracks; engine controls for freedom and security; electrics for security, signs of insulation failure and loose or corroded connections. Check the alternator belt for tension and adjust as required by the Maintenance Manual instructions.
It is recommended that that a periodic inspection is made of these items at subsequent servicing intervals for oil changes.

FUEL

Approved Fuel Grades

The minimum grade of aviation fuel for the airplane is 100LL (blue) or 100 (green). The use of lower grades of fuel can cause serious engine damage in a short period of time and may also invalidate your engine's warranty.

NOTE

Isopropyl alcohol or diethylene monomethyl ether (DiEGME) may be added to the fuel supply. Additive concentrations shall not exceed 1% for isopropyl alcohol or 0.1% to 0.15% for DiEGME of total volume. Refer to Fuel Additives later in this section for additional information.

Fuel Capacity

100.0 U.S. Gallons total: 50 U.S. Gallons per side.

Fuelling

Service the fuel system after each flight and keep the tanks full to minimize condensation.

When fueling the aircraft proper precautions should be taken to ensure appropriate safety requirements are met, such as grounding the aircraft. The fuel dipstick is calibrated to measure accurately in both the landplane and seaplane configurations. Ensure that the proper calibration scale is being used. (Refer to Section 7.)

After each fueling and prior to each flight, the fuel should be examined to ensure that there are no contaminants such as water, dirt, rust or fungal and bacteria growth.

Each fuel system drain should be sampled by draining a cupful of fuel into a clear fuel sample cup.

If contaminants are discovered, then the fuel must be drained sufficiently until all contamination is removed.

Fuel Additives

In order to eliminate any free water from the tank sumps, the preflight draining instructions of Section 4 must be adhered to strictly. Any small quantities of water remaining in the fuel will be consumed normally and unnoticed by the engine.

Under certain conditions of high humidity on the ground followed by flight at high altitudes and low temperatures, it is possible that small amounts of water may precipitate in the fuel and freeze. This may be in sufficient quantities to cause partial icing in the engine fuel system.

Such conditions are rarely found but where they arise they must be countered appropriately. Some geographic areas or type of operation may be more susceptible to these conditions.

In such situations it is permissible to counteract the possibility of fuel icing by adding isopropyl alcohol or diethylene monomethyl ether (DiEGME) compound to the fuel supply. The benefits of alcohol or the DiEGME compound are twofold:
1) The dissolved water is absorbed from the fuel;
2) The freezing temperature of fuel is depressed.

NOTE

It is important to realise that the desired fuel to additive ratio must be present throughout the entire contents of the fuel system and not just in the new fuel being added. Thus the amount of additive used in each tank must be matched to the entire contents of that tank.

If alcohol is used it must be blended with the fuel to obtain a concentration of 1% by volume. Higher concentrations are to be avoided as they can be detrimental to the fuel system materials.

For greatest effectiveness the alcohol must be completely dissolved in the fuel. The following procedure is recommended to ensure correct mixing:

a. The alcohol should be poured directly into the fuel stream as it emerges from the refuelling nozzle.

b. Alternatively the complete amount of alcohol may be premixed with some fuel in a container of 2-3 gallons capacity. The resulting mixture is then transferred to the tank before fuelling commences. Avoid using a plastic fuel container for this procedure as they are prone to build up static. Properly ground a metal container before adding fuel.

c. The amount of alcohol to be used in each tank is to be prorated from 128 fluid ounces per 100 U.S. gallons of fuel.

Diethylene monomethyl ether (DiEGME) compound must be very carefully mixed with the fuel in concentrations of 0.10% (minimum) to 0.15% (maximum) of the total volume. The corresponding volumes are:

a. The amount of DiEGME to be used in each tank is prorated from a minimum amount of 13 fluid ounces volume per 100 U.S. gallons, to a maximum of 19 fluid ounces per 100 U.S. gallons of fuel.

WARNING

ANTI-ICING ADDITIVE IS DANGEROUS TO HEALTH WHEN ABSORBED INTO THE SKIN AND/OR BREATHED.

WARNING

CAREFUL MIXING OF DiEGME WITH FUEL IS HIGHLY IMPORTANT. EXCEEDING A CONCENTRATION GREATER THAN THE RECOMMENDED MAXIMUM OF 0.15% BY VOLUME WILL RESULT IN DAMAGE TO THE FUEL TANKS AND SEALANT, AND DAMAGE TO THE O-RINGS AND SEALS USED IN THE ENGINE AND FUEL SYSTEM.
A CONCENTRATION LESS THAN THE RECOMMENDED MINIMUM OF 0.10% BY VOLUME WILL BE INEFFECTIVE.
TO ENSURE CORRECT PROPORTIONING USE ONLY BLENDING EQUIPMENT THAT IS RECOMMENDED BY THE DiEGME MANUFACTURER.

After prolonged storage of the aircraft, water will build up and the additive will leach out of the fuel. This can be detected by observing an excessive amount of water accumulating in the sumps. The concentration of the additive can be measured using a differential refractometer. The additive manufacturer's technical manual must be followed explicitly to ensure accurate measurement of the additive's concentration.

Fuel System Drainage

The fuel system can be drained at four wing tank drains, two collector tank drains and a fuel strainer (gascolator) drain. The wing tank drains are located on the underside of the wing at the inner and outer extremities of the wing tanks. The two collector tanks are located in the bottom of the fuselage just ahead of the main gear. The collector tank drains are located on the bottom of the fuselage approximately 1 foot inboard from the left and right sides of the fuselage. The fuel filter drain is located inboard approximately 1.5 feet from the left side of the fuselage just ahead of the left collector tank drain.

If system is to be dried out, wing tank covers would be removed and residual fuel swabbed or sponged dry; forward of fuel filter the fuel lines, pumps, injector and fuel flow manifold would have to be drained and purged of fuel.

LANDING GEAR AND BRAKES

CAUTION

When replacing a tire, always use a tire with the same size and profile as the original tire. Failure to do so may result in damage to the tire, wheel pant, and wheel assembly.

The main landing gear wheel assemblies use 6.00-6 tires and tubes. The main gear tire pressure is 42 to 44 PSI

The nose wheel assembly uses a 5.00-5 tire and tube. The nose wheel tire pressure is 52 to 54 PSI.

Always keep tires inflated to the rated pressure to obtain optimum performance and maximum service.

The landing gear struts do not require servicing. With exception of replenishing brake fluid, wheel and brake servicing must be accomplished in accordance with the Maintenance Manual procedures. The fluid level should be checked at every oil change and at the annual/100-hour inspection, replenishing the system when necessary. The brake reservoir is mounted on the firewall in the engine compartment on the right hand side. The brake system is filled with MIL-H-5606 hydraulic fluid.

CLEANING AND CARE

WINDSHIELD AND WINDOWS

CAUTION

Never use gasoline, benzene, alcohol, acetone, carbon tetrachloride, anti-ice fluid or glass cleaner to clean the acrylic.

The acrylic windshield and windows should be cleaned with an airplane windshield cleaner or mild soap and warm water. Rinse off all loose dirt with water before hand. Always apply the cleaning solution with a soft cloth or another non-abrasive material. Be sure to rinse off the solution thoroughly when you are done and dry the windows with a soft, clean, dry cloth or moist chamois. Once clean, a thin coat of wax should be applied, this will help fill in minor scratches and prevent further scratching.

PAINTED SURFACES

CAUTION

There may be time limit restriction when aircraft can be waxed after application of new paint. Contact the paint manufacturer for any restrictions.

A clean exterior surface is important both to preserve the new look of your aircraft, as well as to achieve optimum flight characteristics. The airplane should be washed with a mild soap and water. Harsh abrasives or alkaline soaps or detergents should be avoided as they could scratch painted or plastic surfaces, or cause corrosion of metal.

To wash the airplane:

CAUTION
Some cleaning solutions can damage the paint. Consult manufacturer instructions prior to use.

1. Rinse off any loose dirt with water
2. Apply cleaning solution with soft cloth or soft bristle brush
3. To remove exhaust stains, allow the solution to remain on the surface longer
4. Rinse all surfaces thoroughly
5. Dry aircraft with a soft absorbent cloth or chamois

To preserve the surfaces, any good silicone free wax may be used. Always use soft cloths or chamois to prevent scratching during cleaning or polishing. A heavier coating of wax on the leading edges of the wings and tail as well as the spinner will help protect these surfaces from abrasion damage often encountered on these spots.

ENGINE AND ENGINE COMPARTMENT

Before cleaning the engine and engine compartment, it is important to cover up and protect certain elements of the engine to prevent the solvent from entering these areas. Particular care should be given to electrical equipment and intakes including; the engine magnetos, magneto vents, starter, alternator, induction air intakes and vacuum pump.

Once these areas are protected or removed before cleaning, ensure the engine is cold and then clean with a solvent or a mixture of solvent and degreaser. It may be necessary to brush the areas that were sprayed. Once the solvent has been applied, allow it to remain on the engine for 5 – 10 minutes, then rinse the engine with additional solvent and allow it to dry.

PROPELLER

Thorough preflight inspections of the propeller blades, as well as the spinner and backing plate for nicks, cracks and corrosion should be undertaken to assure safety. If any are found, they should be repaired as soon as possible by a licensed mechanic as they can cause vibrations leading to more serious cracks in the blade or loss of a propeller tip. It is recommended to keep the propeller clean to assure peak performance and to wax it periodically to prevent corrosion.

INTERIOR SURFACES

The interior of your aircraft has been designed with wear-resistant, lightweight durable surface materials designed for maximum usage with minimal upkeep. However, as with any interior or furnishing, its endurance and appearance is dependant upon the degree of care.

CAUTION

Loose dirt has a tendency to find its way into the belly of the aircraft and adhering onto flight control cables and bell cranks. It also acts as a corrosion starting point

Loose dirt and dust on the floors can be swept or picked up with a vacuum cleaner. Stubborn dirt on the floors or side panels may be wiped up with a cloth moistened in warm water. Mild soap may be used sparingly to remove grease. The soap may be removed with a clean damp cloth.

The seats and other upholstered furniture should be vacuumed regularly. When necessary, soiled upholstery (except leather) may be cleaned with good upholstery cleaner suitable to the material. Carefully follow the manufacturer's instructions. Avoid soaking or harsh rubbing.

The headliner, instrument panel, trim, and control knobs need only be wiped off with a damp cloth.