Flight Safety Notification Airworthiness

Flight Safety Notifications (FSNs) are not mandatory in nature, but provide means such as guidance, methods, procedures and practices acceptable to the Authority for complying with regulations and other requirements in a systematic manner. These are not necessarily the only means of compliance. FSNs may also contain explanations of regulations, other guidance material, best practices or information useful to the aviation community. Unless incorporated into a regulation by reference, FSNs are not regulatory and do not create or change a regulatory requirement. A change of a regulatory requirement may come in the form of a Directive. A Flight Safety Notification is not a Directive.

Eligibility, Quality and Identification of Aeronautical Replacement Parts

Reason for Revision

N/A

Purpose

This Flight Safety Notification (FSN) provides information and guidance to persons involved in the sale, maintenance, or acquisition of aircraft parts. It provides information and guidance for use in determining the quality, eligibility and traceability of aeronautical parts and materials for installation on Jamaican registered aircraft, and to enable compliance with applicable regulations

References

(1) JCAR Schedule 5, Paragraph 5.130

(2) JCAR Schedule 5, Paragraph 5.160

(3) Flight Safety Notification FSN-AW-2016-06, Detecting and Reporting Suspected Unapproved Parts, provides information and guidance for detecting and reporting suspected unapproved parts.

(4) Flight Safety Notification FSN-AW-2016-03, Disposition of Unsalvageable Aircraft Parts and Materials, provides information and guidance to prevent unsalvageable aircraft parts and materials from being sold as serviceable parts and materials.

Discussion

Aircraft parts are being offered for sale when the quality and origin of the parts may be unknown or questionable. Purchasers of these parts may not be aware of the potential hazards involved with replacement parts for which acceptability for installation on a type certificated product has not been established.

(1) Replacement of Parts and Materials. The performance rules for replacement of parts and materials used in the maintenance , preventative maintenance , and alteration of aircraft that have a Jamaican Certificate of Airworthiness, and components thereof, are specified in CAR's the Fifth Schedule, Paragraph 5.160 and the Sixth Schedule, Paragraph 6.145. These regulations require that the installer of a part use methods, techniques and practices acceptable to the JCAA. Additionally, the installer of a part must accomplish the work in such a manner and use materials of such quality that the product or appliance worked on will be at least equal to its original or properly altered condition with respect to qualities affecting airworthiness.

(2) Conforming to Regulations. As part of determining whether installation of a part conforms with applicable regulations, the installer should establish that the part or material was manufactured under a production approval pursuant to the certification standards for products and parts of the State of the manufacturer, that an originally acceptable part has been maintained in accordance with the Fifth Schedule, or that the otherwise eligible for installation (i.e., has been found to conform to data approved by the JCAA). This FSN addresses means to help the installer make the required determinations.

Identification of Replacement Parts

Acceptable replacement parts should be identified using one of the following methods:

(1) Authorized Release Certificate (ARC): JCAA Form 308, FAA Form 8130-3, EASA Form One and Transport Canada Form One identify a part or group of parts for export approval and conformity determination from production approval holders. It also serves as approval for return to service after maintenance or alteration by a person authorized to perform maintenance pursuant to CARS, the Fifth Schedule and Paragraph 5.140.

Note: The use of an ARC does not approve the installation of a part on a Jamaican registered aircraft, its engine(s) or propeller(s). Additional substantiated authorization for compliance with the Fifth Schedule of the CARs (5.215 and

Appendix 1 to 5.215) and the JCAA approved data for major repairs and alterations may be required for installation on Jamaican registered aircraft, its engine or propeller.

(2) Maintenance Records. Used parts may be identified by the records required for approval for return to service as set forth in the Fifth Schedule, Paragraph 5.215 and Appendix 1 to 5.215. JCAA Form 308 or the accepted foreign equivalent may be used for this purpose if the requirements of Paragraph 5. 215 are contained in or attached to the form and approved for return to service by persons authorized to perform maintenance pursuant to CARS, the Fifth Schedule, Paragraph 5.140. There is no set format or form required for a maintenance or alteration record. However the data or information used to identify a part must be traceable to a person authorized to perform and approve for return to service maintenance and alterations under the Fifth Schedule. The records must contain a minimum of the data set forth in The Fifth Schedule, Paragraph 5.215.

(3) Technical Standard Order (TSO) Markings. A Technical Standard Order Authorization (TSOA) is issued under the regulations of the State of Design/Manufacture. A TSOA must be permanently and legibly marked with the following:

(a) Name and address of the manufacturer,

(b) The name, type, part number, or model designation of the article,

(c) The serial number or the date of manufacture of the article, or both, and

(d) The applicable TSO number.

(4) Parts Manufacturer Approval (PMA) Symbol. A PMA is issued under the regulations of the State of Design/ Manufacture. Each PMA part should be marked in accordance requirements of the State of Design/ Manufacture which may include the following:

(a) The name,

(b) Trademark or symbol,

(c) Part number, and

(d) Name and model designation of each certificated product on which the part is eligible for installation.

NOTE: Parts that are too small or otherwise impractical to be marked may, as an alternative, be marked showing the above information on an attached tag or labelled container. If the marking on the tag is too extensive to be practical, the tag attached to a part or container may refer to a readily available manual or catalogue for part eligibility information. Under a licensing agreement, when the applicant has been given the right to use the Type Certificate holder's design, which includes the part number, and a

replacement part is produced under that agreement, the part number may be identical to that of the Type Certificate holder, provided that the PMA holder includes the letters, PMA, and the PMA holder's identification symbol on the part. In all other cases, the PMA holder's part number must be different from that of the Type Certificate holder.

(5) Production Approval Holder's (PAH) Documents or Markings. Documents or markings such as shipping tickets and invoices may provide evidence that a part was produced by a manufacturer holding a manufacturing process approved by the State of Design/ Manufacture.

(6) Direct Ship Authority. In order for manufactured parts with direct ship authority to be recognized as being produced under a manufacturer's State of Design/ Manufacture production approval, the manufacturer must specifically authorize the shipping supplier, in writing, and must establish procedures to ensure that the shipped parts conform to the approved design and are in condition for safe operation. A statement to the supplier from the certificate holder authorizing direct shipment and date of authorization should be included on the shipping ticket, invoice, or other transfer document. It should contain a declaration that the individual part was produced under a Production Certificate.

(7) Maintenance Release Document. A release, signed by an appropriately certificated person, qualified for the relevant function that signifies that the item has been returned to service after maintenance or test function has been completed. This type of documentation could be in the form of a AMO tag containing adequate information (Paragraph 5.215); work order, JCAA Form 137 or equivalent, Major Repair and/or Major Alteration; JCAA Form 308 or equivalent; or a maintenance record entry, which must include an appropriate description of the maintenance work performed, including the recording requirements of the Fifth Schedule, Paragraph 5.215 & Appendix 1 to 5.215.

(8) Identification of Critical Components. Each person who produces a part for which there is a replacement time or an inspection interval must mark the part in accordance with the regulations of the State of Design/ Manufacture.

(9) Marking of Life-Limited Parts. The TC or design holder must provide a means of marking a life-limited part when requested by a person to comply with regulations of the State of Design/ Manufacture.

Note: When a Non-certificated person certifies that they are shipping the correct part ordered, the only thing they are stating is that the part number agrees with the purchase order, not the status of JCAA-acceptability of the part.

Information Relevant to Used Parts

The following information may be useful when assessing maintenance records and parts status:

(1) Documentation. If the part has been rebuilt, overhauled, inspected, modified, or repaired, the records should include a maintenance release, return to service tag, repaired parts tag, or similar documentation from persons authorized to perform maintenance pursuant to CARS, The Fifth Schedule, Paragraph 5.140. Documentation describing the maintenance performed and parts replaced must be made for the part (i.e., CAA Form 308, FAA Form 8130-3, EASA Form One, Transport Canada Form One, or AMO work order). (Reference the Fifth Schedule, Paragraph 5.215 & Appendix 1 to 5.215)

(2) Information to Obtain. The records should include information, either directly or by reference to support documentation that may be helpful to the user or installer in making a final determination as to the airworthiness and eligibility of the part. Listed are examples of information one should obtain, as applicable:

- (a) Airworthiness Directive (AD) status.
- (b) Compliance or noncompliance with Service Bulletins (SB).
- (c) Life-cycle-limited parts status (i.e., time, time since overhaul, cycles, history) should be substantiated. If the part is serialized and life-limited, then both operational time and/or cycles (where applicable) must be indicated. Historical records that clearly establish and substantiate time and cycles must be provided as evidence.
- (d) Shelf-life data, including manufacturing date or cure date.
- (e) Return to service date.
- (f) Shortages applicable to assemblies or kits
- (g) Import or export certification documents.
- (h) The name of the person who removed the part.
- (i) JCAA Form 137, FAA Form 337 or Major Repair or Alteration Records.
- (j) Maintenance manual standards used for performing maintenance.

(3) Unusual Circumstances. If a particular part was obtained from any of the following, then it should be so identified by some type of documentation (i.e., maintenance record entries, removal entries, overhaul records).

- (a) Non-certificated aircraft (aircraft without airworthiness certificate; i.e., public use, and military surplus aircraft).
- (b) Aircraft, aircraft engines, propellers, or appliances subjected to extreme stress, sudden stoppage, heat, major failure, or accident.
- (c) Salvaged aircraft or aircraft components.

(4) Seller's Designation. The seller may be able to provide documentation that shows traceability to State of the Manufacturer's approved manufacturing procedure.

(5) Manufactured. The manufacturer of the part should be identified; if not identified it may be difficult to prove that the part is acceptable for installation on a type certificated product.

(6) Certificates and Approvals Held

(a) Manufacturers. The certificate or approval held by the manufacturer, Type Certificate, Production Certificate, Technical Standard Order Authorization, or Parts Manufacturer Approval may be listed; if not known, state as unknown.

(b) Approved Maintenance Organizations (AMO). The certificate held by the AMO, the Sixth Schedule may be listed. If not, state as unknown.

(c) Air Operator. The certificate held by air operators, the Twelfth Schedule.

(7) Part Description. Indicate the part's physical description for positive identification.

(8) Part Number. Document the manufacturer's part number or, if the part has been modified, the amended part number.

(9) Serial Number. Document the specific part's serial number if so marked. Determine if the serialized part has any life or overhaul limitations.

Conditions for Safe Operation

Parts and materials should be properly stored, protected, and maintained to ensure airworthiness. The following factors should be considered when determining airworthiness:

(1) Composite Materials. Generally, most composite materials (thermoset polymers) have a refrigeration shelf life recommended by the manufacturer. Composite materials must be kept refrigerated in accordance with the manufacturer's recommended temperature range and out of refrigeration time (out time) limitations. Records must be maintained of the cumulative total of material out time to prevent exceeding shelf-life.

(2) Anti-friction Bearings. Anti-friction bearings that have been in storage for a long period of time or that have been improperly stored are subject to the deteriorating effects of time and elements, unless they were hermetically sealed. Such parts should be completely inspected and lubricated before being placed in service.

(3) Aircraft Fabric. Fabric and prefabricated covers should be used only if they are identifiable as meeting aircraft standards. All fabric should be examined or tested for freedom from deterioration, as determined by an appropriately certificated person.

(4) Dope, Paint, Sealants, and Adhesives. These items advertised as aircraft quality may have deteriorated due to age or environmental conditions, while in storage, and may require testing before use.

(5) Parts with Internal Seals. Internal seals on parts such as pumps, valves, actuators, motors, generators, and alternators are subject to deterioration from long-term storage and are susceptible to early failure in service. A procedure should be established for control of shelf-life items in order to prevent possible premature failures of the parts/components, unless other preventive procedures are in place.

(6) Rotating Components. Rotating components, such as propellers, engine parts, and rotor blades, may have a life-limit or retirement life. Maintenance records should reflect a complete continuity of service time and repair history. Information that indicates whether the component has exceeded the life limit may, in some cases, be obtained from the manufacturer or from an FAA-approved repair station that may have affixed a logo, decal, or some other identification.

(7) Heat and Fire. Parts that may have been exposed to heat or fire can be seriously affected and are likely unserviceable.

(8) Corrosives. Foreign or corrosive liquids can also be detrimental on aircraft parts. Parts, appliances, and components that have been submerged in salt water may be unserviceable parts.

(9) Manufacturing Rejects. The manufacturers may offer parts that failed the manufacturers' quality assurance (QA) inspection criteria for conformity to type design, for sale as scrap without being mutilated or destroyed rendering them unusable, and are unacceptable for installation.

(10) Damaged Aircraft. Parts removed from an aircraft involved in an accident may have been subjected to undue stresses that may have seriously affected structural integrity and rendered them permanently unusable.

(11) Rebuilt Engines. Only engines that are rebuilt by a manufacturer holding an FAA production approval, an agency approved by the PAH, or an appropriately rated Approved Maintenance Organization (AMO) can be considered as zero timed. (Referenced the Fifth Schedule, CARs 5.220)

Electrical Parts and Instruments

(1) Electronic Kits. Kits assembled by non-certificated individuals are not eligible for installation on Jamaican registered aircraft, its engine(s) or propeller(s) until the part is certified as airworthy and found eligible for Installation in accordance with the certification and continued airworthiness regulations of the State of Manufacture/Design. During and after assembly, these kits should receive

documented conformity inspections by properly certificated persons to ensure that they meet all applicable airworthiness requirements for use on the specific aircraft on which they are to be installed. The installation of these approved units should be accomplished by or under the supervision of a properly certificated person or agency in accordance with the certification and continued airworthiness regulations of the State of Manufacture/Design. When the installation is a major alteration, the kit data and the data used for the alteration of the product must be approved by a representative of the State of Manufacture/Design. An appropriately certificated person must complete the maintenance records to ensure that the aircraft is approved and airworthy for return to service.

(2) Discrete Electrical and Electronic Component Parts. Electrical and electronic parts, such as resistors, capacitors, diodes, and transistors, if not specifically marked by the equipment manufacturer's part number or marking scheme, may be substituted or used as replacement parts, provided that such parts are tested or it is determined that they meet their published performance specifications and do not adversely affect the performance of the equipment or article into or onto which they are installed. The performance of such equipment or article must be equal to its original or properly altered or repaired condition. Integrated circuits such as hybrids, large scale integrated circuits (LSIC), programmable logic devices, gate arrays, application specific integrated circuits (ASIC), memories, CPU's etc., are not included because their highly specialized functionality does not readily lend itself to substitution.

(3) Aircraft Instruments. Instruments advertised as high quality, looks good, or remanufactured or that were acquired from aircraft involved in an accident should not be put in service unless they are inspected, tested, and/or overhauled as necessary, by an appropriately rated FAA-certificated repair station, and the installer establishes that (for the aircraft in which) the instrument installed will comply with the applicable regulations.

NOTE: Instruments are highly susceptible to hidden damage caused by rough handling or improper storage conditions; therefore, instruments that have been sitting on a shelf for a period that cannot be established should be tested by an appropriately rated and certificated person.

Know Your Suppliers

(1) Used and Repaired Parts. In addition to unapproved parts, used or repaired parts may be offered for sale as like new, near new, and remanufactured. Such terms do

not aid the purchaser in positively determining whether the part is acceptable for installation on Jamaican registered aircraft, its engine(s) or propeller(s) and do not constitute the legal serviceability and condition of aircraft parts.

(2) Caution. It is the installer's responsibility to ensure airworthiness. Aircraft parts distributors, aircraft supply companies, or aircraft electronic parts distributors, unless they are a PAH, cannot certify the airworthiness of the parts they advertise and/or sell; therefore, it is the installer's responsibility to request documentation establishing traceability to a PAH.

Parts Removed From Aircraft no Longer in Service

(1) Aircraft withdrawn from service are often used as a source of spare parts, a process sometimes described as "parting out". These parts although serviceable at the time the aircraft was placed in storage, may have been affected adversely by storage conditions, including especially environmental factors, or by length of storage.

(2) It is important that the part removal process be planned and controlled in a manner as close as possible to that adopted for routine maintenance tasks on in service aircraft. The following points in particular should be considered:

(a) The means by which the part is removed should be in accordance with the normal maintenance data (e.g. maintenance manuals), using the tooling specified;

(b) Adequate access equipment should be provided;

(c) If conducted in the open, disassembly should cease during inclement weather;

(d) All work should be carried out by appropriately qualified maintenance personnel;

(e) All open connections should be blanked; and

(f) A protected and enclosed quarantine storage area for the parts being removed should be provided in the immediate vicinity work area.

(3) An assessment for condition and eventual return to service of each removed part will need to be conducted by a suitably approved organization. The extent of the work necessary before the part is returned to service may range from a simple external inspection to a complete overhaul.

(4) Parts such as these must be accompanied by the appropriate return to service documentation and comply with the standards of the CARs before installation on aircraft registered in Jamaica. Refer to the Paragraph entitled 'Documentation Relevant to Used Parts', Sections (1) and (2) of this FSN for additional guidance on the use of these parts.

Parts Recovered From an Aircraft Involved in an Accident

(1) When an aircraft has been involved in an accident, the title of the salvage may pass from an insured owner to another person (e.g. aircraft insurers) and this salvage may be offered for sale either complete or as a separate aircraft item in an "as is where is" condition. Though such items may not manifest any visual evidence of damage, distortion or change of characteristics, a serious airworthiness hazard could result from their use if special precautions are not taken. While some items may be totally unaffected by the accident or incident which caused the aircraft to be declared as salvage, it is essential to obtain clear evidence that this is the case. If such evidence cannot be obtained, the item shall not be returned to service.

(2) Before overhaul and reinstallation can be considered, all such items must therefore be subject to competent assessment and inspection in the light of adequate knowledge of the circumstances of the accident, subsequent storage and transport conditions, and with evidence of previous operational history obtained from valid airworthiness records. Confirmation of this assessment in the form of an airworthiness release is essential.

(3) In particular, if a crash load is sufficient to take any part above its proof strength, residual strains may remain which could reduce the effective strength of the item or otherwise impair its functions. Loads higher than this may cause the item to crack, with an even more dangerous potential. Further, a reduction in strength may be caused by virtue of the change of a material's characteristics following overheat from a fire. It is therefore of the utmost importance to establish that the item is neither cracked, distorted or overheated. The degree of distortion may be difficult to assess if the precise original dimensions are not known, in which case there is no option but to reject the item. Any suggestion of overheating would be cause for a laboratory investigation into significant change of material properties.

(4) Parts such as these must be accompanied by the appropriate return to service documentation and comply with the standards of the CARs before installation on aircraft registered in Jamaica. Refer to the Paragraph entitled, 'Documentation Relevant to Used Parts' bullets (1) and (2), of this FSN for additional guidance on the use of these parts.

Suspected Unapproved Part(s) (SUP)

Suspected unapproved parts should be reported via the JCAA Form FS050, SUP Notification, or the Aviation Safety Emergency Hotline toll free number, 876-881-JCAA (5222), as referenced in FSN-AW-2016-06 (Detecting and Reporting Suspected Unapproved Parts).

Approved by: 

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