

**BELIZE**

**DEPARTMENT**

**OF CIVIL AVIATION**



**AIRCRAFT MAINTENANCE, REPAIRS**

**AND MODIFICATIONS**

**BCAR 43**

Issue: 1  
Revision: 1  
01/07/2008

INTENTIONALLY LEFT BLANK



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**Issue and Revision System**

**THE REVISIONS TO THIS REGULATION WILL BE INDICATED BY A VERTICAL BAR ON THE LEFT SIDE, IN FRONT OF THE LINE, SECTION OR FIGURE THAT HAS BEEN AFFECTED. AN ISSUE WILL BE THE REPLACEMENT OF THE COMPLETE DOCUMENT.**

**THESE REVISIONS MUST BE RECORDED ON THE RECORD OF REVISIONS TABLE OF THIS DOCUMENT, INDICATING THE RESPECTIVE NUMBER, DATE IT WAS ENTERED AND SIGNED BY THE PERSON ENTERING THE REVISION.**





**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

---

**Preamble**

To be developed





**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**TABLE OF CONTENTS**

<b>COVER PAGE.....</b>	<b>---</b>
<b>ISSUE AND REVISION SYSTEM.....</b>	<b>IRS</b>
<b>RECORD OF AMENDMENTS.....</b>	<b>RA</b>
<b>LIST OF EFFECTIVE PAGES.....</b>	<b>LEP</b>
<b>TABLE OF CONTENTS.....</b>	<b>TC</b>
<b>BCAR 43.1 Applicability.....</b>	<b>1</b>
<b>BCAR 43.2 Records of Overhaul and Rebuilding.....</b>	<b>1</b>
<b>BCAR 43.5 Approval for Return to Service after Maintenance, Preventive Maintenance, Rebuilding and Alterations.....</b>	<b>1</b>
<b>BCAR 43.7 Persons with Approval for Return to Service.....</b>	<b>1 - 1</b>
<b>BCAR 43.9 Content, Form and Disposition of Maintenance, Preventive Maintenance, Rebuilding and Alteration Records.....</b>	<b>2-3</b>
<b>BCAR 43.11 Content, Form and Disposition of Records for Inspections.....</b>	<b>3-4</b>
<b>BCAR 43.12 Maintenance Records: Falsification, Reproduction or Alteration.....</b>	<b>4</b>
<b>BCAR 43.13 General Performance Rules.....</b>	<b>4-5</b>
<b>BCAR 43.15 Additional Performance Rules for Inspections.....</b>	<b>5-6</b>
<b>BCAR 43.16 Airworthiness Limitations.....</b>	<b>6</b>
 <b>APPENDIX A</b>	
<b>MAJOR ALTERATIONS, MAJOR REPAIRS AND PREVENTIVE MAINTENANCE.....</b>	<b>8-13</b>
 <b>APPENDIX B</b>	
<b>RECORDING OF MAJOR REPAIRS AND MAJOR ALTERATIONS.....</b>	<b>14</b>
 <b>APPENDIX D</b>	
<b>SCOPE AND DETAIL OF ITEMS (AS APPLICABLE TO THE PARTICULAR AIRCRAFT) TO BE INCLUDED IN ANNUAL AND 100-HOUR INSPECTIONS.....</b>	<b>15-17</b>
 <b>APPENDIX E</b>	
<b>ALTIMETER SYSTEM TEST AND INSPECTION.....</b>	<b>18-21</b>
 <b>APPENDIX F</b>	
<b>ATC TRANSPONDER TESTS AND INSPECTIONS.....</b>	<b>22-24</b>
 <b>SECTION II</b>	
<b>RESERVED.....</b>	<b>25</b>



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**BCAR 43.1 Applicability**

- a) This regulations prescribes the rules governing the maintenance, preventive maintenance, rebuilding, and alteration of any:-
- 1) Aircraft having a Belize Certificate of Airworthiness.
  - 2) A foreign-registered civil aircraft used for air transport in accordance with that prescribed in the corresponding regulation.
  - 3) Airframe, aircraft engines, propellers, appliances and component parts of such aircraft.

**BCAR 43.2 Records of Overhaul and Rebuilding**

- a) It is prohibited to describe in any required maintenance entry an aircraft, airframe, aircraft engine, propeller, appliance or component part as being overhauled unless:
- 1) Using methods, techniques and practices approved by the Department of Civil Aviation, it has been disassembled, cleaned, inspected, repaired, reassembled; and
  - 2) It has been tested in accordance with approved standards and technical data, or in accordance with current standards and technical data acceptable to the Department of Civil Aviation, which have been developed and documented by the holder of the type certificate, supplemental type certificate, or a material, part, process, or appliance approval.
- b) It is prohibited to describe in any required maintenance entry or form an aircraft, airframe, aircraft engine, propeller, appliance, or component part as being rebuilt unless it has been disassembled, cleaned, inspected, repaired as necessary, reassembled and tested to the same

tolerances and limits as a new item, using either new parts or used parts that either conform to a new part tolerances and limits or to approved oversize or undersized dimensions

**BCAR 43.5 Approval for Return to Service after Maintenance, Preventive Maintenance, Rebuilding and Alterations.**

- a) No person may approve for return to service any aircraft, airframe, aircraft engine, propeller, or appliance that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless:-
- 1) The maintenance record entry required by BCARs 43.9 or 43.11 of this BCAR, as applicable, has been made.
  - 2) The repair or alteration form prescribed in Appendix B, authorized or furnished by the Department of Civil Aviation, has been executed in a manner prescribed by the Department.
  - 3) If a repair or alteration results in any change in the aircraft operating limitations or flight data contained in the approved aircraft flight manual, those operating limitations or flight data are appropriately revised and approved.

**BCAR 43.7 Persons with Approval for Return to Service.**

- a) The holder of a Belize Aircraft Maintenance Engineer's License may issue approvals (certifications) for the return to service of private or commercial aircraft in accordance with the privileges prescribed in BCAR APL Part 10 for the category of license entitled.
- 1) As provided in paragraphs (b) and (d) of this BCAR, in the case of aircraft for commercial use, the maintenance, inspection, repair, modification and return to service shall be undertaken by a BCAR 145 maintenance organization





**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

and personnel certifying the return to service, shall be registered in the list of authorized personnel to certify the return to service of an aircraft or its parts.

Control Manual and/or the Inspection Procedures Manual.

- b) A BCAR 145 approved maintenance organization may return to service private and commercial aircraft by properly authorized and licensed personnel in accordance with the capabilities approved in their Operation Specifications, Inspection Procedures Manual and maintenance contracts.
- c) A manufacturer may:
  - 1) Return to service a product with a type certificate which that manufacturer has manufactured once the reconstruction or modification of the product has been completed.
  - 2) Return to service after the modification or reconstruction of a part or appliance of an aircraft, engine or propeller manufactured under the approval of a Technical Standard Order (TSO) or a Parts Manufacturer Authorization (PMA).
  - 3) Return to service an aircraft in the private category after performing an inspection required in BCAR 02.
- d) The holder of an Air Operator's Certificate (AOC) who operates commercial aircraft for the use in public transport, cargo or mail or the holder of an Operating Certificate who operates under BCAR OPS 1, or the corresponding regulation to the service, commercial aircraft in aerial work or flight instruction and who has its own BCAR 145 approved maintenance organization, may issue approvals to return to service by properly authorized and licensed personnel in accordance with the capabilities or maintenance tasks that have been authorized in the Operation Specifications and in accordance with the Maintenance

**BCAR 43.9 Content, Form and Disposition of Maintenance, Preventive Maintenance, Rebuilding and Alteration Records.**

- a) Maintenance record Entries.
  - 1) Except as provided in paragraph b) of this BCAR, each person who performs maintenance, preventive maintenance, rebuilds or alters an aircraft, airframe, aircraft engine, propeller, appliance, or component part shall make an entry in the maintenance record of that equipment containing the following information:
    - i. A description (or reference data acceptable by the BDCA) of the work performed.
    - ii. The date of completion of the work performed.
    - iii. The name of the person performing the work if other than the person specified in paragraph a) 4) of this BCAR.
    - iv. If the work performed on the aircraft, airframe, aircraft engine, propeller, appliance or component part has been performed satisfactorily, the signature, type, number and class of certificate held by the person approving the work. The signature constitutes the approval for return to service only for the work performed.
- b) In addition to the entry required by this paragraph, major repairs and major alterations shall be entered on a form in the manner prescribed in Appendix B of this regulation by the person performing the work.



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

c) A holder of an Air Operator's Certificate that is required by its approved operations specifications to provide for a continuous airworthiness maintenance program, shall make a record of the maintenance, preventive maintenance, rebuilding and alteration on aircraft, airframes, aircraft engines, propellers, appliances or component parts which it operates in accordance with the applicable provisions of BCAR OPS Part 1 or 2.

**BCAR 43.11 Content, Form and Disposition of Records for Inspections.**

a) Maintenance Record Entries.

1) The person approving or disapproving for return to service an aircraft, airframe, aircraft engine, propeller, appliance or component part after any inspection performed in accordance with BCAR 02, BCAR OPS Part 1 or 2 and the corresponding regulation for aerial work or flight instruction, shall make an entry in the maintenance record of that equipment containing the following information:

- i. The type of inspection and a brief description of the extent of the inspection.
- ii. The date of the inspection, total aircraft time and the tachometer or hobbs meter at the time of the inspection, when applicable.
- iii. The signature, number and kind of certificate held by the person approving or disapproving for return to service the aircraft, airframe, propeller, appliance, component part or portions thereof.
- iv. Except for progressive inspections, if the aircraft is found to be airworthy and approved for return to service, the following worded statement: "I certify that this aircraft has been

inspected in accordance with (insert type) inspection and was determined to be in airworthy condition."

v. Except for progressive inspections, if the aircraft is not approved for return to service because of needed maintenance, noncompliance with applicable specifications, airworthiness directives or other approved data, the following worded statement: "I certify that this aircraft has been inspected in accordance with (insert type) inspection and a list of discrepancies and unairworthy items dated (date) had been provided for the aircraft owner or operator."

vi. For progressive inspections, the following or a similarly worded statement: "I certify that in accordance with a progressive inspection program, a routine inspection of (identify whether aircraft or components) and a detailed inspection of (identify components) were performed and the (aircraft or components) is/are (approved or disapproved) for return to service."

b) Listing of discrepancies and placards.

1) If the person performing any inspection finds that the aircraft is unairworthy or does not meet the applicable type certificate data, airworthiness directives, or other approved data upon which its airworthiness depends, that person must give the owner or aircraft operator a list of those discrepancies, signed and dated. For those items permitted to be inoperative, that person shall place a placard that meets the aircraft's airworthiness certification regulations on each inoperative instrument and the cockpit control of each item of



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

inoperative equipment, marking "INOPERATIVE" and shall add the items to the signed and dated list of discrepancies given to the owner or operator.

- c) For Commercial Air Transport aircraft, apart from that required in Paragraphs a) 1), 2) and 3), must include the indicated text in the corresponding BCAR OPS regulation.

**BCAR 43.12 Maintenance Records: Falsification, Reproduction or Alteration.**

- a) Any person directly or indirectly causing the following shall be sanctioned in accordance with the applicable regulation:
- 1) Any fraudulent or intentionally false entry in any record or report that is required to be made, kept, or used to show compliance with any requirement under this regulation.
  - 2) Any reproduction, for fraudulent purpose, of any record or report under this regulation.
  - 3) Any alteration, for fraudulent purpose, of any record or report under this regulation.

**BCAR 43.13 General Performance Rules**

- a) Each person performing maintenance, alteration or preventive maintenance on an aircraft, engine, propeller, or appliance shall use the methods, techniques and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer. The person shall use the tools, equipment and test apparatus necessary to assure completion of the work in accordance with accepted industry practices. If special equipment or test apparatus is recommended by the manufacturer involved, the person must use that equipment or apparatus or its equivalent

acceptable to the Department of Civil Aviation.

- b) Each person maintaining or altering or performing preventive maintenance, shall do that work in such a manner and use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller or appliance worked on will be at least equal to its original or properly altered condition with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness. The person responsible for the return to service must observe the following:

- 1) In the case of major repairs supported by Approved Data approved by the aeronautical authority responsible for the Type Certificate, Airworthiness Directives or Manual of Structural Repairs, or as modifications to the Supplemental Type Certificate (STC) or equivalent information approved by the aeronautical authority responsible for the Type Certificate: shall proceed in accordance with that prescribed in BCAR 43.9 and Appendix B of this BCAR. Similarly the same procedure shall be followed for major repairs or modifications based on acceptable information and in Advisory Circular 43-13-1B and 2A.

- 2) If there is no Approved Data to support a major repair or modification or an alternative method to comply with an Airworthiness Directive, the following should be considered:

- i. The Belize Department of Civil Aviation will not accept technical data for major repairs or major modifications to the Type Certificate nor alternative methods for the compliance of an Airworthiness Directive for Belize registered aircraft, without the assessment and



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

recommendation or approval by the aeronautical authority responsible for the Type Certificate.

- ii. The Belize Department of Civil Aviation will not accept technical data for a major repair or modification or an alternative method of compliance of an Airworthiness Directive issued by the manufacturer, unless it has properly been approved by the aeronautical authority responsible for the Type Certificate.
  - iii. In the case of major repairs or modifications or of an alternative method for the compliance of an Airworthiness Directive for private and commercial registered aircraft in Belize, the State of Registry of the aircraft is responsible to establish the standards for the approval of technical information required and the Belize Department of Civil Aviation will do the corresponding oversight.
  - iv. An extension to the period of compliance of an Airworthiness Directive is considered as an alternative method of compliance and will not be accepted without the written approval or recommendation of the aeronautical authority that issued it.
- c) Special Dispositions for holders of Air Operator's Certificates that operate under BCAR OPS 1
- d) The methods, techniques and practices in the Maintenance Management Exposition or part thereof, approved for the holder of the AOC by means of its Operations Specifications to provide continuous airworthiness and inspection program, constitutes and acceptable medium of compliance of this BCAR.

**BCAR 43.15 Additional Performance Rules for Inspections.**

- a) General
- 1) The inspector that performs an inspection required by BCAR 02, BCAR OPS 1 or in other applicable regulations shall:
    - i. Perform the inspection so as to determine whether the aircraft, or portion(s) thereof under inspection, meets all applicable airworthiness requirements; and
    - ii. Perform the inspection in accordance with the instructions and procedures set forth in the inspection program for the aircraft being inspected.
- b) Rotorcraft
- 1) Each person performing an inspection on a rotorcraft shall inspect the following systems in accordance with the maintenance manual or Instructions for Continued Airworthiness of the manufacturer concerned:
    - i. The drive shafts or similar systems.
    - ii. The main rotor transmission gear box for obvious defects.
    - iii. The main rotor and center section (or the equivalent area).
    - iv. The auxiliary rotor on helicopters
- c) Annual and 100 hour inspections.
- 1) Each person performing an annual or 100 hour inspection shall use a checklist while performing the inspection. The checklist may be of the person's own design, one provided by the manufacturer of the equipment being



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

inspected or one obtained from the Department of Civil Aviation in the case of the annual inspection. The checklist must include the scope and detail of the items contained in Appendix D of this regulation and paragraph b) of this BCAR.

- 2) Each person approving a reciprocating-engine-powered aircraft for return to service after an annual or 100 hour inspection shall, before that approval, run the aircraft engine or engines to determine satisfactory performance in accordance with manufacturer's recommendations of:

- i. Power output (static and idle R.P.M.);
- ii. Magnetos;
- iii. Fuel and oil pressure; and
- iv. Cylinder and oil temperature.

- 3) Each person approving a turbine-engine-powered aircraft for return to service after an Annual, 100 hour, or progressive inspection shall, before that approval, run the aircraft engine or engines to determine satisfactory performance in accordance with the manufacturer's recommendations.

- 4) The approved maintenance organization whose personnel is approved by the Licensing Regulations to perform an Annual Inspection shall send a copy of BDCA Form - 1000 that shows and accepts responsibility that the aircraft was returned to service after going through the process of an Annual Inspection.

d) Progressive Inspection.

- 1) Each person performing a progressive inspection shall, at the start of a progressive inspection system, inspect

the aircraft completely by means of a 100 hour type inspection, unless the system is adopted on a new aircraft. After this initial inspection, routine and detailed inspections must be conducted as prescribed in the progressive inspection schedule. Routine inspections consist of visual examination or check of the appliances, the aircraft, and its components and systems, insofar as practicable without disassembly. Detailed inspections consist of a thorough examination of the appliances, the aircraft, and its components and systems, with such disassembly as is necessary. For the purposes of this subparagraph, the overhaul of a component or system is considered to be a detailed inspection.

- 2) If the aircraft is away from the station where inspections are normally conducted, an approved maintenance organization or the manufacturer of the aircraft may perform inspections in accordance with the procedures and using the forms of the person who would otherwise perform the inspection.

**BCAR 43.16 Airworthiness Limitations**

- a) Each person performing an inspection or other maintenance specified in an Airworthiness Limitations section of a manufacturer's maintenance manual or Instructions for Continued Airworthiness shall perform the inspection or other maintenance in accordance with this BCAR or in accordance with operations specifications approved by the Belize Department of Civil Aviation in accordance with BCAR OPS 1 or with a maintenance program approved under BCAR 02.



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

---

**INTENTIONALLY LEFT  
BLANK**

**INTENTIONALLY LEFT  
BLANK**



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**APPENDIX A  
MAJOR ALTERATIONS, MAJOR REPAIRS  
AND PREVENTIVE MAINTENANCE**

**a) Major Alterations**

1) Airframe Major Alterations - Alterations of the following parts and alterations of the following types, when not listed in the aircraft specifications issued by the Department of Civil Aviation, are airframe major alterations:

- i. Wings.
- ii. Tail surfaces
- iii. Fuselage.
- iv. Engine mounts.
- v. Control system.
- vi. Landing gear.
- vii. Hull or floats.
- viii. Elements of an airframe including spars, ribs, fittings, shock absorbers, bracing, cowling, fairings and balance weights.
- ix. Hydraulic and electrical actuating system of components.
- x. Rotor blades.
- xi. Changes to the empty weight or empty balance which results in an increase in the maximum certificated weight or center of gravity limits of the aircraft.
- xii. Changes to the basic design of the fuel, oil, cooling, heating, cabin pressurization, electrical, hydraulic, de-icing, or exhaust systems
- xiii. Changes to the wing or to fixed or movable control surfaces which

affect flutter and vibration characteristics.

2) Powerplant Major Alterations.

- i. The following alterations of a powerplant when not listed in the engine specifications issued or endorsed by the Department of Civil Aviation, are powerplant major alterations.
- ii. Conversion of an aircraft engine from one approved model to another, involving any changes in compression ratio, propeller reduction gear, impeller gear ratios or the substitution of major engine parts which requires extensive rework and testing of the engine.
- iii. Changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer or parts specifically approved by the Department of Civil Aviation.
- iv. Installation of an accessory which is not approved for the engine.
- v. Removal of accessories that are listed as required equipment on the aircraft or engine specification.
- vi. Installation of structural parts other than the type of parts approved for the installation.
- vii. Conversions of any sort for the purpose of using fuel of a rating or grade other than that listed in the engine specifications.

3) Propellers Major Alterations

- i. The following alterations of a propeller when not authorized in the propeller specifications, issued or



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

- accepted by the Department of Civil Aviation, are propeller major alterations.
- ii. Changes in blade design.
  - iii. Changes in hub design.
  - iv. Changes in the governor or control design. installation of a propeller governor or feathering system.
  - v. Installation of propeller de-icing system.
  - vi. Installation of parts not approved for the propeller.
- 4) Appliance or Accessory Major Alterations
- i. Alterations of the basic design not made in accordance with recommendations of the appliance or accessory manufacturer or in accordance with an Airworthiness Directive of the Department of Civil Aviation, are appliance or accessory major alterations. In addition, changes in the basic design of radio communication and navigation equipment approved under type certification or a Technical Standard Order that have an effect on frequency stability, noise level, sensitivity, selectivity, distortion, spurious radiation, AVC characteristics, or ability to meet environmental test conditions and other changes that have an effect on the performance of the equipment are also major alterations.
- b) Major Repairs.**
- 1) Airframe Major Repairs.
    - i. Repairs to the following parts of an airframe and repairs of the following types, involving the strengthening, reinforcing, splicing, and manufacturing of primary structural members or their replacement, when replacement is by fabrication such as riveting or welding, are airframe major repairs.
- ii. Box beams.
  - iii. Monocoque or semimonocoque wings or control surfaces.
  - iv. Wing stringers or chord members.
  - v. Spars.
  - vi. Spar flanges.
  - vii. Members of truss-type beams.
  - viii. Thin sheet webs of beams.
  - ix. Keel and chine members of boat hulls or floats.
  - x. Corrugated sheet compression members which act as flange material of wing or tail surfaces.
  - xi. Wing main ribs and compression members.
  - xii. Wing or tail surface brace struts.
  - xiii. Engine mounts
  - xiv. Fuselage longerons.
  - xv. Members of the side truss, horizontal truss, or bulkheads.
  - xvi. Main seat support braces and brackets.
  - xvii. Landing gear brace struts.
  - xviii. Axles.





**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

- xix. Wheels.
  - xx. Skis, and ski pedestals.
  - xxi. Parts of the control system such as control columns, pedals, shafts, brackets, or horns.
  - xxii. Repairs involving the substitution of material.
  - xxiii. The repair of damaged areas in metal or plywood stressed covering exceeding six (6) inches in any direction.
  - xxiv. The repair of portions of skin sheets by making additional seams.
  - xxv. The splicing of skin sheets.
  - xxvi. The repair of three or more adjacent wing or control surface ribs or the leading edge of wings and control surfaces, between such adjacent ribs.
  - xxvii. Repair of fabric covering involving an area greater than that required for repairing two adjacent ribs.
  - xxviii. Replacement of fabric on fabric covered parts such as wings, fuselage, stabilizers, and control surfaces.
  - xxix. Repairing, including rebotting or removal of integral fuel tanks and oil tanks.
- 2) Powerplant Major Repairs
- i. Repairs of the following parts of an engine and repairs of the following types are powerplant major repairs:
  - ii. Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with an integral supercharger.
  - iii. Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with other than spur-type propeller reduction gearing.
  - iv. Special repairs to structural engine parts by welding, plating, metalising or other methods.
- 3) Propeller Major Repairs
- Repairs of the following types to a propeller are propeller major repairs:
- i. Any repairs to, or straightening of steel blades
  - ii. Repairing or machining of steel hubs.
  - iii. Shortening of blades.
  - iv. Retipping of wood propellers.
  - v. Replacement of outer laminations on fixed pitch wood propellers.
  - vi. Repairing elongated bolt holes in the hub of fixed pitch wood propellers.
  - vii. Inlay work on wood blades.
  - viii. Repairs to composition blades
  - ix. Replacement of tip fabric.
  - x. Replacement of plastic covering.
  - xi. Repairs of propeller governors.
  - xii. Overhaul of controllable pitch propellers.
  - xiii. Repairs to deep dents, cuts, scars, nicks, etc., and straightening of aluminum blades.
  - xiv. The repair or replacement of internal elements of blades.



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

4) Appliance and Accessory Major Repairs.

Repairs of the following types to appliances or accessories are major repairs:

- i. Calibration and repair of instruments.
- ii. Calibration of radio equipment.
- iii. Rewinding the field coil of an electrical accessory.
- iv. Complete disassembly of complex hydraulic power valves.
- v. Overhaul of pressure type carburetors and pressure type fuel, oil and hydraulic pumps.

**c) Preventive Maintenance**

Preventive maintenance is limited to the following work, provided it does not involve complex assembly operations.

- 1) Removal, installation and repair of landing gear tires.
- 2) Replacing elastic shock absorber cords on landing gear.
- 3) Servicing landing gear shock struts by adding oil, air, or both.
- 4) Servicing landing gear wheel bearings, such as cleaning and greasing.
- 5) Replacing defective safety wiring, brake elements or cotter keys.
- 6) Lubrication not requiring disassembly other than removal of nonstructural item such as cover plates, cowlings and fairings.
- 7) Making simple fabric patches not requiring rib stitching or the removal of structural parts or control surfaces. In the case of balloons, the making of small fabric repairs to envelopes (as defined and in accordance with the balloon manufacturers' instructions)

not requiring load tape repair or replacement.

- 8) Replenishing hydraulic fluid in the hydraulic reservoir.
- 9) Refinishing decorative coating of fuselage, balloon baskets, wings tail group surfaces (excluding balanced control surfaces), fairings, cowlings, landing gear, cabin, or cockpit interior when removal or disassembly of any primary structure or operating system is not required.
- 10) Applying preservative or protective material to components where no disassembly of any primary structure or operating system is involved and where such coating is not prohibited or is not contrary to good practices.
- 11) Repairing upholstery and decorative furnishings of the cabin, cockpit, or balloon basket interior when the repairing does not require disassembly of any primary structure or operating system or interfere with an operating system or affect the primary structure of the aircraft.
- 12) Making small simple repairs to fairings, nonstructural cover plates, cowlings, and small patches and reinforcements not changing the contour so as to interfere with proper airflow.
- 13) Replacing side windows where that work does not interfere with the structure or any operating system such as controls, electrical equipment, etc.
- 14) Replacing safety belts.
- 15) Replacing seats or seat parts with replacement parts approved for the aircraft, not involving disassembly of any primary structure or operating system.
- 16) Trouble shooting and repairing broken circuits in landing light wiring circuits.



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

- 
- 17) Replacing bulbs, reflectors and lenses of position and landing lights.
- 18) Replacing wheels and skis where no weight and balance computation is involved.
- 19) Replacing any cowling not requiring removal of the propeller or disconnection of flight controls.
- 20) Replacing or cleaning spark plugs and setting of spark plug gap clearance.
- 21) Replacing any hose connection except hydraulic connections.
- 22) Replacing prefabricated fuel lines.
- 23) Cleaning or replacing fuel and oil strainers or filter elements.
- 24) Replacing and servicing batteries.
- 25) Cleaning of balloon burner pilot and main nozzles in accordance with the balloon manufacturer's instructions.
- 26) Replacement or adjustment of nonstructural standard fasteners incidental to operations.
- 27) The interchange of balloon baskets and burners on envelopes when the basket or burner is designated as interchangeable in the balloon type certificate data and the baskets and burners are specifically designed for quick removal and installation.
- 28) The installations of anti-misfueling devices to reduce the diameter of fuel tank filler openings provided the specific device has been made a part of the aircraft type certificate data by the aircraft manufacturer, the aircraft manufacturer has provided instructions approved by the Department of Civil Aviation for installation of the specific device and installation does not involve the disassembly of the existing tank filler opening.
- 29) Removing, checking and replacing magnetic chip detectors.
- 30) The inspection and maintenance tasks prescribed and specifically identified as preventive maintenance in a primary category aircraft type certificate or supplemental type certificate holder's approved special inspection and preventive maintenance program when accomplished on a primary category aircraft provided:
- i. They are performed by the holder of at least a private pilot certificate who is the registered owner (including co-owners) of the affected aircraft and who holds a certificate of competency for the affected aircraft:
    - 1) Issued by an approved school.
    - 2) Issued by the holder of the production certificate for that primary category aircraft that has a special training program approved.
    - 3) Issued by another entity that has a course approved by the Department of Civil Aviation; and
  - ii. The inspections and maintenance tasks are performed in accordance with instructions contained by special inspection and preventive maintenance program approved as part of the aircraft's type design or supplemental type design.
- 31) Removing and replacing self-contained, front instrument panel-mounted navigation and communication devices that employ tray-mounted connectors that connect the unit when the unit is installed into the instrument panel, (excluding automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)). The approval unit must be designed to be readily and repeatedly removed and replaced, and pertinent instructions must be provided. Prior to the



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

unit's intended use, an operational check must be performed.

- 32) Updating self-contained, front instrument panel-mounted Air Traffic Control (ATC) navigational software data bases (excluding those of automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)) provided no disassembly of the unit is required and pertinent instructions are provided. Prior to the unit's intended use, an operational check must be performed in accordance with applicable BCARs of the regulation.



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**APPENDIX B**

**RECORDING OF MAJOR REPAIRS AND MAJOR ALTERATIONS**

a) Except as provided in paragraphs b), c) and d) of this Appendix, each maintenance organization approved to perform a major repair or major alteration shall:

- 1) Complete the BDCA Form - 337 at least in duplicate.
- 2) Give a signed copy of that Form to the aircraft owner, and:
- 3) Forward a copy of that Form to the Department of Civil Aviation within 48 hours after the aircraft, airframe, aircraft engine, propeller or appliance is approved for return to service.

b) For major repairs made in accordance with a manual or acceptable specifications, an approved maintenance organization may, in place of the requirements of paragraph a):

- 1) Use the customer's work order upon which the repair is recorded.
- 2) Give the aircraft owner a signed copy of the work order and retain a duplicate copy for at least two years from the date of approval for return to service of the aircraft, airframe, aircraft engine, propeller or appliance.
- 3) Give the aircraft owner a maintenance release signed by an authorized representative of the approved maintenance organization and incorporating the following information:
  - i. Identity of the aircraft, airframe, aircraft engine, propeller or appliance.
  - ii. If an aircraft, the make, model, serial number, nationality and registration

marks, and location of the repaired area.

iii. If an airframe, aircraft engine, propeller or appliance, give the manufacturer's name, name of the part, model and serial numbers (if any).

4) Include the following or a similarly worded statement:

**"The aircraft, airframe, aircraft engine, propeller or appliance identified above was repaired and inspected in accordance with the current Belize Civil Aviation Regulations and is approved for return to service. Pertinent details of the repair are on file at this maintenance organization under Work Order No....."**

Date..... Signature: ..... License No.....

c) For extended-range fuel tanks installed within the passenger compartment or a baggage compartment, the person who performs the work and the person authorized to approve the work by BCAR 43.7 shall execute BDCA Form - 337 in at least triplicate. One copy of the Form shall be placed on board the aircraft as specified in the corresponding regulation. The remaining forms shall be distributed as required by paragraph a) 2) and 3).



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**APPENDIX D**

**SCOPE AND DETAIL OF ITEMS (AS**

**APPLICABLE TO THE PARTICULAR  
AIRCRAFT) TO BE INCLUDED IN ANNUAL  
AND 100-HOUR INSPECTIONS**

- a) Each person approved to perform an annual or 100-hour inspection shall, before that inspection, remove or open all necessary inspection plates, access doors, fairing and cowling. The person shall thoroughly clean the aircraft and aircraft engine(s).
- b) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the fuselage and hull group:
  - 1) Fabric and skin: for deterioration, distortion, other evidence of failure, and defective or insecure attachment of fittings.
  - 2) Systems and components: for improper installation, apparent defects and unsatisfactory operation.
  - 3) Envelope, gas bags, ballast tanks and related parts for poor condition.
- c) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the cabin and cockpit group:
  - 1) Generally: for uncleanness and loose equipment that might foul the controls.
  - 2) Seats and safety belts: for poor condition and apparent defects.
  - 3) Windows and windshields: for deterioration and breakage.
  - 4) Instruments: for poor condition, mounting, marking, and (where practicable) improper operation.
- d) Each person performing an annual or 100-hour inspection shall inspect (where applicable) components of the engine and nacelle group as follows:
  - 1) Engine section: for visual evidence of excessive oil, fuel or hydraulic leaks, and sources of such leaks.
  - 2) Studs and nuts: for improper torquing and obvious defects.
  - 3) Internal engine: for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is a weak cylinder compression, for improper internal condition and improper internal tolerances.
  - 4) Engine mount: for cracks, looseness or mounting and looseness of engine to mount
  - 5) Flexible vibration dampeners: for poor condition and deterioration.
  - 6) Engine controls: for defects, improper travel, and improper safe tying.
  - 7) Lines, hoses and clamps: for leaks, improper condition and looseness.
  - 8) Exhaust stacks: for cracks, defects, and improper attachment.
  - 9) Accessories: for apparent defects in security of mounting.
  - 10) All systems: for improper installation,
- e) Flight and engine controls: for improper installation and improper operation.
- f) Batteries: for improper installation and improper charge.
- g) All systems: for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment.



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

- poor general condition, defects, and insecure attachment.
- 11) Cowling: for cracks and defects.
- e) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the landing gear group:
- 1) All units: for poor condition and insecurity of attachment.
  - 2) Shock absorbing devices: for improper oleo fluid level.
  - 3) Linkages, trusses and members: for undue or excessive wear fatigue and distortion.
  - 4) Retracting and locking mechanism: for improper operation.
  - 5) Hydraulic lines: for leakage.
  - 6) Electrical system: for chafing and improper operation of switches.
  - 7) Wheels: for cracks, defects and condition of bearings.
  - 8) Tires: for excessive wear or cuts.
  - 9) Brakes: for improper adjustment.
  - 10) Floats and skis: for insecure attachment and obvious or apparent defects.
- f) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components of the wing and center section assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure and insecurity of attachment.
- g) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components and systems that make up the complete empennage assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, insecure attachment, improper component installation and improper component operation.
- h) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the propeller group:
- 1) Propeller assembly: for cracks, nicks, binds and oil leakage.
  - 2) Bolts: for improper torquing and lack of safe tying.
  - 3) Anti-icing devices: for improper operations and obvious defects.
  - 4) Control mechanisms: for improper installation, insecure mounting and restricted travel.
- i) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the radio group:
- 1) Radio and electronic equipment: for improper installation and insecure mounting.
  - 2) Wiring and conduits: for improper routing, insecure mounting and obvious defects.
  - 3) Bonding and shielding: for improper installation and poor condition.
  - 4) Antenna including trailing antenna: for poor condition, insecure mounting and improper operation.
- j) Each person performing an annual or 100-hour inspection shall inspect (where applicable) each installed miscellaneous item that is not otherwise covered by this



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

listing for improper installation and improper operation.

- k) Each person performing an annual or 100-hour inspection shall evaluate and inspect the following:
- 1) Compliance of Airworthiness Directives applicable to the aircraft, engine, propeller or appliance.
  - 2) Compliance with the applicable Service Bulletins.
  - 3) Compliance with specialized tasks of the Maintenance Program or items prescribed by manufacturer in the applicable Maintenance Manual applicable to the aircraft in accordance with its total time, total cycles, landings, and/or calendar time.
  - 4) Revision of life limit appliances (time between the major overhaul and calendar time etc.) and
  - 5) Revision of life retirement appliances.
  - 6) Revision of the aircraft against the technical data of the Type Certificate.





**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**APPENDIX E**

**ALTIMETER SYSTEM TEST AND INSPECTION.**

Each person performing the altimeter system tests and inspections shall comply with the following:

**a) Static Pressure System:**

- 1) Ensure freedom from entrapped moisture and restrictions
- 2) Determine that leakage is within the tolerances established for the corresponding altimeter system.
- 3) Determine that the static port heater, if installed, is operative.
- 4) Ensure that no alterations or deformations of the airframe surface have been made that would affect the relationship between air pressure in the static pressure system and true ambient static air pressure for any flight condition.

**b) Altimeter:**

- 1) Test by an approved maintenance facility in accordance with the following subparagraphs. Unless otherwise specified, each test for performance may be conducted with the instrument with the temperature substantially different from ambient temperature of approximately 25 degrees Centigrade, allowance shall be made for the variation from the specified condition:
  - i. **Scale Error:** With the barometric pressure scale at 29.92 inches of mercury, the altimeter shall be subjected successively to pressures corresponding to the altitude specified in Table I up to the maximum normally expected

operating altitude of the aircraft in which the altimeter is to be installed. The reduction in pressure shall be made at a rate not in excess of 20,000 feet per minute to within approximately 2,000 feet of the test point. The test point should be approached at a rate compatible with the test equipment. The altimeter shall be kept at the pressure corresponding to each test point for at least 1 minute, but not more than 10 minutes, before a reading is taken. The error at all test points must not exceed the tolerances specified in Table I.

- ii. **Hysteresis:** The hysteresis test shall begin not more than 15 minutes after the altimeter's initial exposure to the pressure corresponding to the upper limit of the scale error test prescribed in paragraph i), and while the altimeter is at this pressure, the hysteresis test shall commence. Pressure shall be increased at a rate simulating a descent in altitude at the rate of 5,000 to 20,000 feet per minute until within 3,000 feet of the first test point (50% of maximum altitude. The test point shall then be approached at a rate of approximately 3,000 feet for minute. The altimeter shall be kept at this pressure for at least 5 minutes, but not more than 15 minutes, before the test reading is taken. After the reading has been taken, the pressure shall be increased further, in the same manner as before, until the pressure corresponding to the second test point (40 percent of maximum altitude) is reached. The altimeter shall be kept at this pressure for at least 1 minute, but not more than 10 minutes, before the test reading is taken. After the reading has been taken, the



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

- pressure shall be increased further in the same manner as before until atmospheric pressure is reached. The reading of the altimeter at either of the two test points shall not differ by more than the tolerance specified in Table II from the reading of the altimeter for the corresponding altitude recorded during the scale error test prescribed in paragraph b)
- iii. **After effect:** Not more than 5 minutes after the completion of the hysteresis test prescribe in paragraph b) ii), the reading of the altimeter (corrected for any change in atmospheric pressure) shall not differ from the original atmospheric pressure reading by more than the tolerance specified in Table II.
- iv. **Friction:** The altimeter shall be subjected to a steady rate of decrease of pressure approximating 750 feet per minute. At each altitude listed in Table III, the change in reading of the pointers after vibration shall not exceed the corresponding tolerance listed in Table III.
- v. **Case leak:** The leakage of the altimeter case, when the pressure within it corresponds to an altitude of 18,000 feet, shall not change the altimeter reading by more than the tolerance shown in Table II during an interval of 1 minute.
- vi. **Barometric Scale Error:** At constant atmospheric pressure, the barometric pressure scale shall be set at each of the pressures (falling within its range of adjustment) that are listed in Table IV, and shall cause the pointer to indicate the equivalent altitude difference shown in Table IV with a tolerance of 25 feet.
- 2) Altimeters which are the air data computer type with associated computing systems, or which incorporate air data correction internally, may be tested in a manner and to specifications developed by the manufacturer which are acceptable to the Belize Department of Civil Aviation.
- c) **Automatic Pressure Altitude Reporting Equipment and ATC Transponder System Integration Test:** The test must be conducted by an appropriately rated person under the conditions specified in paragraph a). Measure the automatic pressure altitude at the output of the installed ATC transponder when interrogated on Mode C at a sufficient number of test points to ensure that the altitude reporting equipment, altimeters, and ATC transponders perform their intended functions as installed in the aircraft. The difference between the automatic reporting output and the altitude displayed at the altimeter shall not exceed 125 feet.
- d) **Records:** Comply with the provisions of BCAR 43.9 of the BCAR to content, form, and disposition of the records. The person performing the altimeter tests shall record on the altimeter the date and maximum altitude to which the altimeter has been tested and the persons approving the aircraft for return to service shall enter that data in the aircraft logbook or other permanent record.



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**TABLE 1 – SCALE ERROR**

<b>Altitude (feet)</b>	<b>Equivalent Pressure (inches of mercury)</b>	<b>Equivalent Pressure (millibars)</b>	<b>Tolerance +/- (feet)</b>
-1,000	31.018	1050.406	20
0	29.921	1013.250	20
500	29.385	995.075	20
1,000	28.856	997.166	20
1,500	28.335	959.518	25
2,000	27.821	942.129	30
3,000	26.817	908.117	30
4,000	25.842	875.105	35
6,000	23.978	811.996	40
8,000	22.225	752.624	60
10,000	20.577	696.817	80
12,000	19.029	644.408	90
14,000	17.577	595.239	100
16,000	16.216	549.152	110
18,000	14.942	505.998	120
20,000	13.750	465.633	130
22,000	12.636	427.915	140
25,000	11.104	376.009	155
30,000	8.885	300.896	180
35,000	7.041	238.423	205
40,000	5.538	187.539	230
45,000	4.335	147.477	255
50,000	3.425	11.972	280

**TABLE 2 – TEST TOLERANCES**

<b>Test</b>	<b>Tolerance +/- (feet)</b>
Case Leak Test	100
First test point (50% of maximum altitude)	74
Second test point (40% of maximum altitude)	75
After effect test	30



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**TABLE 3 – FRICTION**

<b>Altitude (feet)</b>	<b>Tolerance +/- (feet)</b>
1000	70
2000	70
3000	70
5000	70
10000	80
15000	90
20000	100
25000	120
30000	140
35000	160
40000	180
50000	250

**TABLE 4 – PRESSURE ALTITUDE**

<b>Altitude (feet)</b>	<b>Equivalent Pressure (inches of mercury)</b>	<b>Equivalent Pressure (millibars)</b>
-1727	28.10	951.55
-1340	28.50	965.10
-863	29.00	982.03
-392	29.50	998.96
0	29.92	1013.25
+531	30.50	1032.82
+893	30.90	1046.37
+974	30.99	1049.41



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

**APPENDIX F**

**ATC TRANSPONDER TESTS AND INSPECTIONS**

The ATC transponder tests may be conducted using a bench check or portable test equipment and must meet the requirements prescribed in paragraphs a) through j) of this Appendix. If portable test equipment with appropriate coupling to the aircraft antenna system is used, operate the test equipment for Air Traffic Control Radar Beacon System (ATCRBS) transponders at a nominal rate of 235 interrogations per second to avoid possible ATCRBS interference. Operate the test equipment at a nominal rate of 50 Mode S interrogations per second for Mode S. An additional 3 dB loss is allowed to compensate for antenna coupling errors during receiver sensitivity measurements conducted in accordance with paragraph c) 1) when using portable test equipment.

**a) Radio Reply Frequency**

- 1) For all classes of ATCRBS transponders, interrogate the transponder and verify that the reply frequency is 1090+/-3 Megahertz (MHz)
- 2) For classes 1B, 2B, and 3B Mode S transponders, interrogate the transponder and verify that the reply frequency is 1090+/-3 MHz
- 3) For classes 1B, 2B, and 3B Mode S transponders that incorporate the optional 1090+/-1 MHz reply frequency, interrogate the transponder and verify that the reply frequency is correct
- 4) For classes 1A, 2A, 3A, and 4 Mode S transponders, interrogate the transponder and verify that the reply frequency is 1090+/-1 MHz.

**b) Suppression:** When classes 1BB and 2B ATCRBS Transponders, or Class 1B, 2B, and 3B Mode S transponders are interrogated Mode 3/A at an interrogation rate between 230 and 1,000 interrogations per second, or when Classes 1A and 2A ATCRBS Transponders, or Classes 1B, 2A, 3A, and 4 Mode S transponders are interrogated at a rate between 230 and 1,200 Mode 3/A interrogations per second:

- 1) Verify that the transponder does not respond to more than 1 percent (1%) of ATCRBS interrogations when the amplitude of P2 pulse is equal to the P1 pulse.
- 2) Verify that the transponder replies to a least 90 percent (90%) of ATCRBS interrogations when the amplitude of the P2 pulse is 9 dB less than the P1 pulse. If the test is conducted with a radiated test signal, the interrogation rate shall be 235+/-5 interrogations per second unless a higher rate has been approved for the test equipment used at that location.

**c) Receiver Sensitivity.**

- 1) Verify that for any class of ATCRBS Transponder, the receiver minimum triggering level (MTL) of the system is -73+/-4 dbm, or that for any class of Mode S transponder the receiver MTL for Mode S format (P6 type) interrogations is -74+/-3 dbm by use of a test set either:
  - i. Connected to the antenna end of the transmission line;
  - ii. Connected to the antenna terminal of the transponder with a correction for transmission line loss or;
  - iii. Utilized radiated signal.
- 2) Verify that the difference in Mode 3/A and Mode C receiver sensitivity does not



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

exceed 1 db for either any class of ATCRBS transponder or any class of Mode S transponder.

**d) Radio Frequency (RF) Peak Output Power**

- 1) Verify that the transponder RF output power is within specifications for the class of transponder. Use the same conditions as described in c) 1) i), ii), and iii) above.
  - i. For Class 1A and 2A ATCRBS transponders, verify that the minimum RF peak output power is at least 21.0 dbw (125 watts)
  - ii. For Class 1B and 2B ATCRBS Transponders, verify that the minimum RF peak output power is at least 18.5 dbw (70 watts).
  - iii. For Class 1A, 2A, 3A, and 4 and those Class 1B, 2B, and 3B Mode S transponders that include the optional high RF peak output power, verify that minimum RF peak output power is at least 21.0 dbw (125 watts).
  - iv. For Classes 1B, 2B, and 3B Mode S Transponders, verify that the minimum RF peak output power is at least 18.5 dbw (70) watts).
  - v. For any class of ATCRBS or any class of Mode S Transponders, i) verify that the maximum RF peak output power does not exceed 27.0 dbw (500 watts).

NOTE: The tests in e) through j) apply only to Mode S transponders.

**e) Mode S Diversity Transmission Channel Isolation:** For any class of

Mode S transponder that incorporates diversity operation, verify that the RF peak output power transmitted from the selected antenna exceeds the power transmitted from the no selected antenna by at least 20 db.

**f) Mode S Address:**

Interrogate the Mode S transponder and verify that it replies only to its assigned address. Use the correct address. Use the correct address and at least two incorrect addresses. The interrogations should be made at a nominal rate of 50 interrogations per second.

**g) Mode S Formats:**

Interrogate the Mode S transponder with uplink formats (UF) for which it is equipped and verify that the replies are made in the correct format. Use the surveillance formats UF=4 and 5. Verify that the altitude reported in the replies to UF=4 are the same as that reported in the valid ATCRBS Mode C reply. Verify that the identity reported in the replies to UF+5 are the same as that reported in a valid ATCRBS Mode 3/A reply. If the transponder is so equipped, use the communication formats UF=20, 21, and 24.

**h) Mode S All-Call interrogations:**

Interrogate the Mode S transponder with the Mode S-only all-call format UF=11, and the ATCRBS/Mode S all-call formats (1.6 microsecond P4 pulse) and verify that the correct address and capability are reported in the replies (downlink format DF=11).

ATCRBS-Only All-Call Interrogation: Interrogate the Mode S transponder with the ATCRBS-only all-call interrogation (0.8 microsecond P4 pulse) and verify that no reply is generated.

**i) Squitter**

Verify that the Mode S transponder generates a correct squitter approximately once per second



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION I**

**BCAR 43**

---

**j) Records:**

Comply with the provisions of BCAR 43.9 as to content, form, and disposition of the records



**BELIZE CIVIL AVIATION REGULATIONS  
AIRCRAFT MAINTENANCE, REPAIRS AND MODIFICATIONS**

**SECTION II**

**BCAR 43**

---

**SECTION II**

***TO BE DEVELOPED.***