

MD-RA Inspection Service d'inspection

WHAT YOUR INSPECTOR WILL BE CHECKING

COMPLIANCE WITH AMATEUR BUILT REQUIREMENTS

- 1 Letter of Intent filed with MD-RA?
- 2 Amateur built Information Package available?
- 3 Is builder familiar with Chapter 549 and the exemption to STD 507?
- 4 Does aircraft gross weight comply with applicable regulation?
- 5 Does aircraft wingloading comply with applicable regulation?
- 6 Will owner be requesting Aerobatic waiver?
- 7 Does aircraft design meet design Aerobatic waiver requirements?
- 8 Is aircraft of composite construction? If "Yes", section on composite structures must also be completed
- 9 Is builder familiar with special inspection requirements?
- 10 Will builder be incorporating any modifications to structure that will affect flight, structural integrity of aircraft, or eligibility for Aerobatic waiver?
- 11 Will aircraft be built from kit?
- 12 Does builder have copies of applicable newsletters from the kit supplier?
- 13 Does kit meet "51% criteria" for amateur-built status?
- 14 Will the builder be sub-contracting any work on project?
- 15 What work will be sub-contracted and to whom?
- 16 Does the builder have "Acceptable Methods, Techniques and Practices"? (A.C. 43.13 1A and 2A)
- 17 Has builder established a project record system?
- 18 Are drawings available?
- 19 Is shop adequately heated and does it provide the proper environment for the construction of the project?

SUB-ASSEMBLY INSPECTIONS

- 1 List parts inspected.
- 2 Type of structure. (eg: wood, sheet metal, composite, etc.)

- 3 Material Quality?
- 4 Does builder have invoices for materials?
- 5 Do parts conform to drawings in dimensions, materials, etc.?
- 6 Are interiors of box sections treated against deterioration? (i.e. zinc-chromate, varnish, etc.)
- 7 Is proper ventilation and drainage provided in all closed sections?
- 8 Is craftsmanship to accepted practice? (excess glue, fits, etc.)
- 9 How was alignment and symmetry assured? (jigs, trammels, etc)
- 10 What provisions has the builder made to allow testing of weld and/or glue samples?
- 11 Have all relevant data been entered in project files?

PRE-COVER INSPECTION

- 1 Have all "Box Sections" been previously inspected?
- 2 Have all discrepancies from the previous "Box Section" inspection been rectified?

FUSELAGE (Hull)

- 1 Are all welded parts to accepted practice?
- 2 Are attachment fittings to accepted practice?
- 3 Are all drilled holes properly located, free from elongation and interiors treated for protection from environmental deterioration
- 4 Is venting and drainage provided and are there any moisture traps evident?
- 5 Are all surfaces protected against environmental deterioration?
- 6 Is all attachment hardware employed and safetied?
- 7 Are rivets, where employed, of proper type (ref. drawing) and suitably installed?
- 8 Is sheet metal fabrication to accepted practice?
- 9 Are fittings fabricated to acceptable practice and do they conform to drawings?
- 10 Has builder ensure alignment and symmetry?
- 11 Is craftsmanship to accepted practice?

MAIN PLANE

- 1 Are all drilled holes properly located, free from elongation and interiors treated for protection from environmental deterioration?
- 2 Are all surfaces protected against environmental deterioration?
- 3 Are all compression members secure and free of bends or other apparent defects?
- 4 Has provision been made against chafing of drag and anti-drag wires?
- 5 Has builder assured symmetry?
- 6 Is craftsmanship to accepted practice?
- 7 Have provisions been made for drainage and ventilation?
- 8 Is all attachment hardware employed and safetied?
- 9 Have all bays been trammelled?

CONTROL SURFACES

- 1 Are all drilled holes properly located, free from elongation and interiors treated for protection against environmental deterioration?
- 2 Are all surfaces protected against environmental deterioration?
- 3 Is craftsmanship to accepted practice?
- 4 Have provisions been made for drainage and ventilation?
- 5 Is all attachment hardware employed and safetied?
- 6 Has builder assured symmetry?

UNDERCARRIAGE

- 1 Type of Undercarriage: wheels; skis, floats
- 2 Is undercarriage completed?
- 3 Is undercarriage installed?
- 4 Are all attachment fittings secured and safetied?
- 5 Is brake plumbing, components, and attachment hardware employed and safetied?
- 6 Has undercarriage symmetry been assured?

SAILPLANE

- 1 Is tow-hook installed?
- 2 Tow-hook attachment OK?
- 3 Is tow-hook properly located in reference to datum?

FINAL INSPECTION

- 1 Have all re-inspection and discrepancies noted on previous inspections been rectified?
- 2 Have all cowls, covers, inspection openings, fairings, etc., been removed to allow access for proper inspection?

FUSELAGE (HULL)

- 1 Are all attachment fittings to accepted practices?
- 2 Is all attachment hardware employed and safetied?
- 3 Are there inspection openings for all critical areas?
- 4 Is ventilation and drainage provided?
- 5 Are acceptable fastening methods (glue, type, rivets, etc.) employed throughout structure?
- 6 Have all surfaces been protected against environmental deterioration?
- 7 Firewall material and thickness, and is it sealed?

FINAL INSPECTION

CONTROL SYSTEMS

- 1 Are all controls secured and safetied?
- 2 Are control stops provided?
- 3 Are pulleys of proper diameter for bends involved, suited to cable size, and provided with cable guards?
- 4 Is cable fabrication to accepted practice?
- 5 Has builder access to "Go-No-Go" gauge to check nicopress sleeves after squeezing?
- 6 Is all hardware throughout systems installed and safetied?

FINAL INSPECTION, CONT'D

- 7 Is there full throw of all controls with seats occupied and harness secured?
- 8 Are fairleads incorporated which alter cable direction in excess of 3 degrees?

EXITS

- 1 Can aircraft be rapidly cleared in the event of an emergency?
- 2 Is provision made for emergency external release of canopy?
- 3 Is external emergency canopy release placarded?

WINDSHIELD AND WINDOWS

- 1 Are windshield and windows of accepted materials?
- 2 Are they braced for positive and negative pressure?
- 3 Are they free enough from distortion to allow proper vision?

BAGGAGE COMPARTMENT

- 1 Are walls and floor of strength for loads imposed?
- 2 Is compartment placarded?
- 3 Does Weight and Balance report reflect loading of luggage compartment?
- 4 Are baggage restraints installed?

CABIN COCKPIT

- 1 Instrument and gauge installation and range markings?
- 2 Are primary instruments readily visible to pilot?
- 3 Is fire extinguisher properly mounted and accessible with harness secured?
- 4 Are following placards installed:
Stainless steel identification plate:
Aerobatics prohibited;
Passengers prohibited;
Amateur built warning;

- Compass Deviation card;
- Canopy Release (Ext. & Int.):
- 5 Are seat belts to aeronautical standards?
- 6 Are seat belts anchored to primary structure?
- 7 Are all controls and essential equipment easily accessible with harness secured?
- 8 Is cockpit provided with ventilation?
- 9 Seat strength? Braced for excepted loads, aerobatics, etc?

FLIGHT AND ENGINE CONTROLS

- 1 Are controls placarded for identification and operation?
- 2 Is operation of controls smooth throughout full range?
- 3 Are controls protected from jamming by foreign objects?

FUEL SYSTEM

- 1 Is selector valve within reach of pilot with harness secured and is it placarded?
- 2 Are fuel lines to accepted practice, correctly installed, and secured against vibration?
- 3 Does tank have finger screen at outlet?
- 4 Are fuel drains located at lowest point in system with aircraft at rest?
- 5 Are fuel drains fitted with positive shut off valves?
- 6 Are drain overflows clear of all structure?
- 7 Are tanks vented?
- 8 Is gascolator properly located and equipped with a suitable drain? No low points in fuel lines to gascolator?
- 9 Has fuel flow been checked with minimum fuel and max. angle of attack? Record results.
- 10 Tank supports?
- 11 Is tank compartment vented?
- 12 Fuel gauge installation and operation?
- 13 Is fuel system bonded?
- 14 Is tank protected against chafing?

WING-TAIL SURFACES

FINAL INSPECTION, CONT'D

- 1 Is general fabrication to accepted practice?
- 2 Are hinges and brackets sound?
- 3 Is all hardware safetied?
- 4 Are all control surfaces including trim tab free of excessive play?
- 5 Are all pulleys properly sized and employed and complete with cable guards?
- 6 Is cable fabrication to accepted practice?
- 7 Are all fairleads correctly employed? (No change of direction more than 3 degrees)
- 8 Do all controls move freely and clearly through their full range of travel?
- 9 Are all external braces, struts, etc., protected against environmental deterioration both internally & externally?
- 10 Are all struts fittings secured and safetied?
- 11 Are struts free from bends and apparent defects?
- 12 Are wire bracing and end fittings to accepted practice and are end fittings in safety?

FABRIC COVER

- 1 Is general workmanship to accepted practice?
- 2 Are tapes and patches to accepted practice?
- 3 Is rib stitching to accepted practice including spacing? Note: conventional rib stitching may be substituted by a demonstrated equivalent method of fastening.
- 4 Are dope and finish colours applied to accepted practice?
- 5 Are drain grommets employed and open?
- 6 Are there adequate inspection openings provided?

LANDING GEAR

- 1 Are attachment fittings as per drawing?
- 2 Is all hardware safetied?
- 3 Are brake system components and lines or cables installed and safetied?
- 4 Are wheels and brakes in good condition?
- 5 Are tires sound with good tread?
- 6 Does retraction system appear adequate for positive control and locking?
- 7 Has retraction test been accomplished?

- 8 Did inspector witness retraction test?

ENGINE INSTALLATION

- 1 Are all controls secured and safetied, with no excessive play, and no evidence of binding or interference throughout full travel?
- 2 Is oil tank secured and safetied?
- 3 Is crankcase breather line installed including auxiliary vent opening?
- 4 Is ignition harness to accepted practice and in good condition?
- 5 Are magneto wires sound and is switch grounded directly to engine?
- 6 Are cabin and carburetor heat mufflers and hoses to accepted practice and condition?
- 7 Is engine mount free from bends, and apparent defects, and is attachment hardware in safety?
- 8 Is cowl security, condition and methods of attachment to accepted practice?
- 9 Is the engine ground-strapped directly to the airframe?

ELECTRICAL SYSTEM

- 1 Is correct size and type of wire employed?
- 2 Are arc grommets used and is wire secured?
- 3 Are fuses or circuit breakers employed?
- 4 Is battery installation to accepted practice and have provisions been made for venting and spill damage?
- 5 Is structure around battery protected against spillage?

PROPELLER

- 1 Is condition and type to accepted practice?
- 2 Are propeller bolts of correct length and in safety?
- 3 Are propeller bolts torqued to manufacturing specifications?
- 4 Has propeller track been checked?
- 5 Is spinner fabrication and installation to accepted practice?

FINAL INSPECTION, CONT'D

GENERAL

- 1 Is pitot tube secure and clear?
 - 2 Are sufficient access openings provided for proper servicing and maintenance?
 - 3 Are registration markings properly installed, legal size and of sufficient contrast to background colours?
 - 4 Is an approved First Aid Kit installed and readily available?
 - 5 Is an approved ELT installed? (25NM limit without)
- 6 Control travels - Record the travel of flights controls (in degrees or inches) from Neutral as follows:
- Ailerons - Up, Down;
- Elevators or Stabilator - Up, Down;
- Rudder - Left, Right; Trims:
- A. Elevator - Nose Up, Nose Down,
- B. Rudder - Nose Left, Nose Right,
- C. Ailerons - Roll Left, Roll Right;
- Flaps - Full Down; Spoilers - Full Deflection
- 7 Are Weight and Balance Report Figures within design specifications?

DOCUMENTATION

- Builder must produce certificate of registration or Final Inspection cannot proceed.
- 1 Have all re-inspection of discrepancies noted on previous inspections been accomplished?
 - 2 Are all project records up to date?
 - 3 Have following documents been properly prepared for submission to MD-RA?
 - 1 Copy Certificate of Registration
 - 3 copies Form 24-0079 - (Application for Special Certificate of Airworthiness)
 - 1 copy Weight and Balance Report including sample loadings.
 - 1 copy Fuel Flow statement.
- As applicable - Inspection Discrepancies Report.
- 3 copies - 2" x 3" photos of aircraft.
- 1 copy Statement of Conformity to Designer's drawings and specifications (Aerobatic Aircraft only).
- 4 Is engine "approved" or "not approved" type?
- 5 Has the builder established maintenance schedule in accordance with the Airworthiness Manual chapter 571.101 and Appendix "A"?

COMPOSITE STRUCTURES

- 1 Has kit of materials been purchased from recognized dealer, and do materials meet designer's specs?
- 2 Has builder constructed "Confidence Sample" and presented it for examination?
- 3 Is builder fully conversant with procedures and is he/she following kit instructions?
- 4 Has builder kept resin samples, labeled for identification, and were they presented for your examination?
- 5 Do Shop conditions meet minimum standards? (ie temperature, humidity, not greasy/oily etc.)
- 6 Does builder have required copies of the newsletters (e.g. "the Canard Pusher" - #1 to #15 inclusive)?

SUB-ASSEMBLY INSPECTION (SHEAR WEBS, BOX SPARS, ETC.)

- 1 Has accuracy of foam cores been maintained?

