

**SECTION 4.2.4****PERIODIC INSPECTIONS****INTRODUCTION**

Aircraft operated under the auspices of CAO 95.10, 95.32 and 95.55 shall be maintained in accordance with the manufacturer's maintenance manual. Where no manufacturer's manual exists the aircraft should be maintained to the schedules contained in this Manual. Aircraft types used for hire or reward shall always be maintained in accordance with the manufacturer's schedules.

The following Notes and Maintenance Schedules are generalised for use on aircraft of all types of construction. Cross out items not applying to **your** aircraft and insert in the spaces provided additional items suitable for checking in **your** aircraft.

When maintenance is performed a log-book entry must be made. This entry must include the signature of the person authenticating the maintenance, their name (in block letters), the date the entry was made and RA-Aus membership number.

**ENGINE POWER**

1. Spark plugs should be the type recommended by the manufacturer of the engine.
2. Care should be taken adjusting a carburettor; it is a specialised job and can have a large effect on the power being developed.
3. Altitude can also affect the power available and may affect CARBURETTOR operation. When moving to a field with a different elevation it may be necessary to re-tune the carburettor.

**WOODEN FIXED-PITCH PROPELLERS**

4. Because of the nature of the material from which they are made, wooden propellers are relatively easily damaged by stones and other hard objects. They may also be affected by climatic conditions. Wooden propellers should be inspected frequently for breaks in the surface finish, scores, nicks, cracks, delamination, and security of the leading edge sheath. Minor defects in the surface finish may be repaired by touching-up with varnish or paint as appropriate, but any damage to the wood, other than very minor damage, must be assessed in accordance with approved repair schemes and the propeller repaired or returned to the manufacturer as appropriate.

### Periodic Propeller Maintenance

5. The intervals at which the propeller must be removed for inspection are specified in the approved Maintenance Schedule. With the propeller removed from the aircraft the blades and boss should be inspected for the sort of damage described above, paying particular attention to those areas which are not visible when the propeller is installed. In addition, the following inspections should be carried out:-
  - a. Bolt holes should be examined for ovality, rough edges, and cracks radiating into the boss.
  - b. Boss faces should be examined for crushing and other damage where they have been in contact with the hub flanges, particularly at the circumference of the flanges.
  - c. The centre bore should be examined for cracks and de-lamination of the plies.
  - d. The mounting hub should be examined for corrosion, cracks, correct fit on the crankshaft and the attachment bolts and nuts for condition and correct torque.
  - e. Where mounting cones are fitted, these should be checked for corrosion, and for picking-up of the surface. Correct fit between the hub and cones may be checked using engineers' blue, an 80% contact normally being required.

### Propeller Installation

6. Before installing a propeller the propeller shaft and threads should be checked for damage. The fit of the hub on the shaft should be checked using engineers' blue, and any high spots should be removed with a fine oil stone. Boss and hub flange faces should be checked for cleanliness to ensure that maximum friction will be obtained.
  - a. When assembling the hub to the shaft it is usually recommended that an anti-seize compound should be applied to the threads, and engine oil to the shaft. Where cones are fitted, these should be clean and dry.
  - b. If the engine is likely to be started by hand swinging, the propeller should be mounted in a convenient position in relation to aircraft height and engine compression unless the relevant manufacturer has issued instructions to the contrary. The attachment bolts should be tightened evenly and in the correct sequence, to the specified torque.
  - c. After installation, the track of the propeller must be checked. This is normally measured on a trestle or platform vertically below the boss. When the propeller is rotated the blades should track, as a guide, within 3 mm of each other.
  - d. After engine runs to check the reference rev/min, the propeller attachment bolts and the hub retaining nut should be checked for tightness, and re-locked. It is recommended that the bolts should also be checked after each of the first few flights.



## **TUBING**

### **Installation and Removal**

7. When removing tubing do not bend or force tubes. When installing, do not distort tubing from its original shape.

### **Inspection of Tubing**

8. Inspect tubing for cracks, damage from abrasion, elongated holes or distortion in tube surface. Never attempt to repair tubing, always replace with new part. Inspect tubing for corrosion inside and outside. If surface corrosion is present it must be carefully removed with abrasive, or the component replaced with a new part. Any corrosion which exceeds the manufacturer's limits or reduces the tube wall thickness at any point by greater than 10% of the wall thickness renders the tube unserviceable. The affected tube must be replaced and the unserviceable tube destroyed.

## **BOLTS**

### **Installation and Removal**

9. Proceed as follows:
  - a. After tightening all bolts should have at least 2 threads showing.
  - b. All self-locking nuts should not be installed more than 2 times.
  - c. If grip length is too long washers may be added. No more than 3 washers should be used.
  - d. A washer should always be installed under the nut.
  - e. Be sure not to over-torque bolts when installing.
  - f. Check assembly instructions for correct bolt placement.

### **Inspection of Bolts**

10. Check bolts for worn shanks, bad threads or corrosion.

## **CONTROL CABLES AND PUSH RODS**

11. Inspect all control cables and their end fittings as follows.
  - a. Check all push rods for bends, dents, scratches, etc.
  - b. Check control wire and rod ends and bolts and/or other fastener for security.
  - c. Check for twisted or jammed thimbles.
  - d. Check cables are free of kinks, frays, abrasions, broken strands etc and are free of sagging, but not so tight that they 'twang' when plucked.

## WING COVERS

### Installation and Removal of Wing Covers

12. When installing and removing the cover make sure there are no sharp edges or burrs that will tear the sail. See the manufacturer's Assembly and Parts Manual for complete instructions.

### Inspection

13. Check for tears in the sail cloth or any loose or unravelled seams. Check all inspection zippers to see if they function smoothly and close completely. Inspect velcro strips for attachment, wear or frayed edges.
14. Sail may be repaired by reference to a professional engineer who will specify the loads such coverings are to contain then by reference to an experienced sailmaker who is to be given the engineering requirements and asked to effect suitable repairs. No matter what the advice, the owner-operator is ultimately responsible and is to conduct whatever tests are necessary to ensure that the repairs are suitable for the application intended. Keep the sail clean of oil and dirt by washing the sail with soap and water. Keep the sail covered when not in use.
15. Aircraft using Dacron skins, such as, but not limited to, RA-Aus 95.32 weight shift aircraft, must be tested in accordance with the manufacturer's schedules. A Bettsometer test can be used to test sail strengths to the rated limits.

### **WARNING**

**CONTINUED EXPOSURE TO SUN DRAMATICALLY SHORTENS THE LIFE OF WING AND TAIL COVERS- possibly to as little as six months.**

### BRACING WIRES AND CABLES

16. All wires are to be checked for broken strands, wear and rust. All swages are to have any plastic sheathing removed and be inspected for corrosion. All securing mechanisms are to be checked for security and safety. Cotter pins and securing pins are to be checked for wear and replaced as necessary.

## INSTRUMENTATION

17. Altimeters on aircraft used to enter controlled airspace are to be checked every 12 months against a currently certified altimeter or appropriate test equipment for the task. Altimeters are not to deviate by +/- 100 feet up to the limit of the instrument or 10'000 feet whichever is the lower.
18. Altimeters on aircraft not used to enter controlled airspace are to be checked every 2 years against a currently certified altimeter or appropriate test equipment for the task. Altimeters are not to deviate by +/- 100 feet up to the limit of the instrument or 10'000 feet whichever is the lower.
19. Air speed indicators are to be checked every 2 years against a manometer or against a GPS using test runs in opposite directions. Airspeed indications shall not vary by +/- 4kts. Aircraft with more than one ASI shall not have variations between the instrument readouts by more than +/- 2kts.
20. Pitot and static systems are to be checked for leaks every 2 years using a device capable of holding and indicating pressure for a minimum of 2 minutes without loss of pressure.  
Nb. Remove tubing from instruments before pressurising the system to avoid damage to the instruments.
21. All transponders used in aircraft entering controlled air space are to be checked against CASA AD/RAD/47. Compliance with the inspection is to be noted in the aircraft log book.

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SECTION 4.2.4 Annex A

**MAINTENANCE SCHEDULES AND PERIODIC  
 INSPECTIONS FOR RA-Aus AIRCRAFT**

**CODES USED IN FOLLOWING SCHEDULES**

- 1 Oil lube, clean and service.
- 2 Check as directed.
- 3 Check for insecurity, cracks, wear and faulty operation.
- 4 Remove, inspect and replace if necessary.
- 5 Recommend replacement or overhaul.

Items	<b>AIRCRAFT/ITEMS HOURS OF OPERATION</b>															
	2	5	7	1	1	1	1	2	2	2	2	3	3	3	3	4
	5	0	5	0	2	5	7	0	2	5	7	0	2	5	7	0
				0	5	0	5	0	5	0	5	0	5	0	5	0

**PROPELLER**

Examine for nicks and abrasions	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Check security of blades	.	2	.	2	.	2	.	2	.	2	.	2	.	2	.	2
Check security of mounting bolts, sandwich plates, washers, nuts and cotter pins	.	2	.	2	.	2	.	2	.	2	.	2	.	2	.	2
Check minimum 1" clearance between tip and fuselage	.	.	.	2	.	.	.	2	.	.	.	2	.	.	.	2
Rotate propeller to check out-of-track condition - 1/8" maximum at tips	.	.	.	2	.	.	.	2	.	.	.	2	.	.	.	2
Thrust line to be within 3° of manufacturer's recommendation	.	.	.	2	.	.	.	2	.	.	.	2	.	.	.	2
Check hub section for cracks	.	.	.	4	.	.	.	4	.	.	.	4	.	.	.	4
Check balance	.	.	.	4	.	.	.	4	.	.	.	4	.	.	.	4











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