CHAPTER 5

TIME LIMITS - MAINTENANCE CHECKS

TABLE OF CONTENTS

NUMBER		PAGE
5-0	TIME LIMITS/MAINTENANCE CHECKS	
	Description/Operation	1
	General	1
5-1-1	TIME LIMITS	
	Description/Operation	1
	General	1
	Service Life Limited Components	1
5-2-1	SCHEDULED MAINTENANCE CHECKS	
	Description/Operation	1
	General	1
	Maintenance Practices	201
	Annual or 100-hour Inspection Procedures	1
5-5-1	UNSCHEDULED MAINTENANCE CHECKS	
	Description/Operation	1
	General	1
	Maintenance Practices	201
	Inspection Requirements	201
	Bondline Damage, Inspection Procedures and Repair	204

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

TIME LIMITS/MAINTENANCE CHECKS — DESCRIPTION/OPERATION

1. General

This chapter contains the manufacturer's recommended time limits, scheduled and unscheduled maintenance checks and inspections.

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

TIME LIMITS - DESCRIPTION/OPERATION

1. General

The service guide (Figure 1) contains the manufacturers' recommended time limits for inspection, maintenance and overhaul of the airplane, its systems and units.

2. Service Life Limited Components

Recent changes in the Federal Aviation Regulations require that all new aircraft now being certified, for which application for a type certificate was made after September 14, 1969, have the critical wing structure components fatigue strength investigated and that, where applicable, these components be service life limited. Since the AA-5, AA-5A and AA-5B fall into this category, the following service life information is provided. The Model AA-5, AA-5A and AA-5B wing and associated structure have been shown capable of withstanding the repeated loads of variable magnitude expected in service. This was accomplished through a fatigue strength investigation, and as a result of this investigation, discrete service lives have been established for several wing structure components. Those components and their corresponding service lives are listed in Figure 2.

Service life limited parts must be retired from service in accordance with the specified service life hours listed in Figure 2.

All wing and fuselage structural components shall be subject to normal inspection, maintenance, repair and replacement procedures. In addition, to ensure maximum limited life, if corrosion is detected on wing or inboard spars, remove it as quickly as possible and protect the surface from further corrosion in accordance with AC43.13-1A,"Acceptable Methods, Techniques and Practices - Aircraft Inspection and Repair".

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

SCHEDULED MAINTENANCE CHECKS - DESCRIPTION/OPERATION

1. General

The inspection procedures guideline included in this section may be used by the owner, inspector, or mechanic to ensure complete and comprehensive coverage of the inspection requirements. The format of the procedures can be reproduced for ready use by the personnel performing the inspection. The checklist includes the minimum requirements for the 100-hour or annual inspection.

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

INSPECTION MAINTENANCE	Inspection Interval (Operating Hours)			NOTE
	50	100	1000	
AIRFRAME				
1. Clean aircraft.	X	X	X	
2. Aircraft structure (especially the spar around the inboard and outboard wing lock shoulder bolts, gear attachments, and fuselage attach collars)		X	X	i
3. Windows, windshield and canopy	X	X	X	
4. Seats, console, interior and seat belts	X	X	X	
5. Instrument panel, instruments and placards		X	X	
6. Baggage compartment and cargo tie downs		X	X	
7. Radio antennas		X	X	
8. Nose gear torque tube assembly		X	X	
9. Control T-column and bearings		X	X	
10. Forward empennage attachments	X	X	X	
LANDING GEAR				
1. Strut and upper and lower strut brackets, main gear		X	X	
2. Strut, torque tube assy, fork and boot assy, nose gear		X	X	a
3. Nose and main wheel bearing lubrication				b
4. Nose fork swivel lubrication		X	X	
5. Brake linings and discs		X	X	
6. Wheel fairings scraper adjustment		X	X	
7. Main and nose tire pressure	X	X	X	
CONTROL SYSTEMS				
1. Cables, turnbuckles, pulleys, guards and terminals		X	X	
2. Rudder pedals and springs		X	X	j
3. Flaps, flap actuator, flap actuator jack screw, flap push-pull rods, flap torque tubes, torque tube bearings, bearing supports and position indicator		X	X	
4. All control Stops		X	X	

Service Guide
Figure 1 (Sheet 1 of 4)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

INSPECTION MAINTENANCE	Inspection Interval (Operating Hours) 50	100	1000	NOTE
CONTROL SYSTEMS (Continued)				
5. Elevator trim wheel, indicator, indicator shaft and actuator shaft drive screw. Elevator trim tab free play (AA-5A and AA-5B only).		X	X	l
6. Ailerons, aileron torque tubes, aileron balance weights, bearings and bearing brackets		X	X	
POWERPLANT				
1. Oil Change	X	X	X	
2. Oil Screens and cooler	X	X	X	
3. Replace oil filter if external filter is used	X	X	X	
4. Spark plugs		X	X	
5. Ignition harness	X	X	X	
6. Magneto timing				c
7. Exhaust system	X	X	X	
8. Throttle, carburetor heat and mixture controls operation	X	X	X	
9. Engine baffles	X	X	X	
10. Air filter	X	X	X	k
11. Engine mount	X	X	X	
12. Oil breather vent	X	X	X	
13. All lines, flex ducts and connections	X	X	X	d
14. Oil and fuel pressures	X	X	X	
15. Propeller and spinner	X	X	X	
16. Alternator belt	X	X	X	
17. Cylinders, crankcase, accessory section, front crankshaft seal	X	X	X	
18. Engine overhaul				e

Service Guide
Figure 1 (Sheet 2 of 4)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

INSPECTION MAINTENANCE	Inspection Interval (Operating Hours)			NOTE
	50	100	1000	
FUEL SYSTEM				
1. Electric fuel pump filter	X	X	X	
2. Fuel cap gaskets	X	X	X	
3. Fuel overboard vents	X	X	X	
4. Fuel tanks, fuel sumps and drains (4)		X	X	
5. Fuel selector and placard		X	X	
6. Fuel gauges		X	X	
7. All hoses and lines	X	X	X	d
8. Fuel primer		X	X	
UTILITY SYSTEMS				
1. Master cylinder fluid level	X	X	X	
2. Parking brake operation		X	X	
3. All hoses, lines, and connections		X	X	
4. Pitot and static systems		X	X	
5. Pitot line drain		X	X	
6. Vacuum regulator and filter		X	X	f
7. Flexible ducts for heating system		X	X	
8. Cabin heat control operation		X	X	
9. Compass check			X	g
10. Vacuum pump			X	h
ELECTRICAL SYSTEM				
1. Battery fluid level	X	X	X	
2. Battery hydrometer check		X	X	
3. All connections		X	X	
4. All lights for operation	X	X	X	
5. All wiring harnesses and wires		X	X	

Service Guide
Figure 1 (Sheet 3 of 4)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

INSPECTION MAINTENANCE	Inspection Interval (Operating Hours)			NOTE
	50	100	1000	
ELECTRICAL SYSTEM (Continued)				
6. Stall warning.	X	X	X	
7. Electric flap motor.		X	X	

NOTES:

a. Remove nose gear strut from torque yoke and inspect for corrosion of the surfaces every 12 calendar months. Remove corrosion and paint surfaces with zinc chromate primer and reassemble wet. Seal strut to yoke connection with RTV-102 by Dow-Corning or equivalent.

b. Clean and repack wheel bearings at first 100 hours. Inspect wheel bearing grease for contamination and solidification at each annual or 100 hour inspection. Do not exceed 500 wheel miles between repacking intervals.

c. Maximum time between magneto timing checks 100 hours. Magneto replacement recommended after 900 hours of service.

d. Recommended replacement of all flexible pressure lines at engine overhaul or every five years, whichever comes first.

e. Maximum engine overhaul time 2000 hours.

f. Replace gyros central air filter each 400 hours. Replace vacuum relief valve filter each 1000 hours. For operation in dusty climates, replace filters more frequently.

g. Check accuracy of compass every 1000 hours or at each time that an item of equipment is installed or removed that could affect the accuracy of the unit.

h. Recommended replacement of vacuum pump at 1000 hours.

i. Remove the fuel tank access covers and inspect all internal surfaces and structure for corrosion, cracks, and bonding separation every 2000 hours or at any time the access covers are removed.

j. Replace rudder springs every 1000 hours.

k. Recommended replacement of 1975 and later Model AA-5 and AA-5A air filters at 100 hours, 12 calendar months, or when 50 percent covered with foreign material, whichever comes first. AA-5B foam type air filters at 300 hours, 12 calendar months, or when 50 percent covered with foreign material, whichever occurs first. AA-5B paper type air filters at one year, 500 hours or after 10 cleanings.

l. Measure the elevator trim tab free play every 500 hours. Refer to 27-3-1.

Service Guide
Figure 1 (Sheet 4 of 4)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

COMPONENT	AIRCRAFT MODEL	PART NUMBER	SERVICE LIFE (AIRFRAME HRS.)
Inboard Spar Assembly	AA-5 & 5A	5102310-501	12,000
	AA-5B	5102310-502	12,000
Shoulder Bolt	AA-5 & 5A	901044-1/-2	7,250
	AA-5B	901044-2	7,250
Wing Spar Assembly	AA-5 & 5A	*5201002-501	12,500
	AA-5A & 5B	*5201004-501	12,500
Wing Outboard Spar Assembly	AA-5 & 5A	*5201189-501	12,500
	AA-5B	*5201189-501	12,500

*Retiring of wing spars from service will generally require simultaneous removal of corresponding wing panel assemblies from service.

Service Life Limited Components
Figure 2

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

SCHEDULED MAINTENANCE CHECKS - MAINTENANCE PRACTICES

1. Annual or 100-hour Inspection Procedures

A. Perform Annual or 100-Hour Inspection

Complete the inspection by performing each of the procedures detailed on the checklist, Figure 201. Indicate completion by sign-off in the appropriate column.

B. In addition to the Servicing Guide and Annual or 100 Hour Inspection Procedure, the following steps should be adhered to when performing an inspection or overhaul:

(1) Check any FAA Airworthiness Directive or Gulfstream American Service Bulletins/ Letters for compliance at the time specified thereon. Also, appropriate sections of this maintenance manual.

(2) Check that all aircraft documents are present and in order:

Aircraft Airworthiness Certificate (Form FAA 8100-2)

Aircraft Registration Certificate (Form FAA 8050-1 or FAA 8050-3)

Weight and Balance Sheet

Aircraft Equipment List

Any Repair and Alteration Forms if applicable (Form FAA 337)

Aircraft Radio Station License if applicable (Form FCC 566 or FCC 453B)

Aircraft and Engine Log Books

NOTE: All of the above items except the log books must be carried in the aircraft at all times. Form FAA 8100-2, FAA 8050-3 and FCC 556 (FCC 453-B) must be visually displayed.

(3) Check that operating limitations placards (reference Chapter 11) are displayed.

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

ANNUAL OR 100 HOUR INSPECTION PROCEDURE GUIDELINE

FAR 43.15 (C) (1) states: "Each person performing an annual or 100 hour inspection shall use a check list while performing the inspection. The check list may be of the person's own design, one provided by the manufacturer of the equipment being inspected, or one obtained from another source. This checklist must include the scope and detail of the items contained in appendix D to this part and paragraph (b) of this section." The following pages contain a comprehensive annual or 100 hour inspection procedure check list. This check list has been prepared to assist a mechanic in performing a detailed inspection of such scope and detail that when the inspection is completed, the mechanic is absolutely sure that he has not overlooked any areas, even though he may not have previous experience on this particular model aircraft. Once a mechanic becomes familiar with this aircraft, he may wish to prepare his own check list, which must be within the scope of appendix D of FAR part 43.

OWNER'S NAME _____ STREET ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

IDENTIFICATION NUMBER _____ SERIAL NUMBER _____ HOURS _____ DATE INSPECTION COMPLETED _____

SERVICING AGENCY _____ CITY _____ STATE _____

Check for conformity with FAA Specifications, Airworthiness Directives and Gulfstream American Corporation and Supplier's Service Bulletins and Letters.

N O T E

It is recommended that reference be made to the applicable maintenance handbook, service bulletins, letters, installation instructions, and vendor specifications for torque values, clearances, settings, tolerances and other specification data.

Inspection Procedure Guideline
Figure 201 (Sheet 1 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

PRE-INSPECTION ENGINE RUN UP Prior to beginning the Annual or 100 hour inspection, an engine run up is to be made to facilitate oil drainage and to observe the following, noting any discrepancies:	MECH	INSP.
1. Fuel Pressure (0.5 to 8 PSI) Electric Pump only prior to engine start up ____ Engine Pump only after engine start up ____ Both ____		
2. Oil Pressure (60 to 90 PSI) (Approx. 25 PSI idling) Actual ____ Actual ____		
3. Magneto RPM Drop (175 RPM maximum drop on either magneto; no more than 50 RPM difference between magnetos.) Actual Drop Left ____ Right ____		
4. Static RPM: AA-5 & AA-5A (2250-2375) Actual ____ AA-5B (2150-2275) Actual ____		
5. Idling Speed: AA-5 & AA-5A (600 to 650 RPM) Actual ____ AA-5B (500 to 650 RPM) Actual ____		
6. Ammeter (no steady discharge in normal operating range)		
7. Suction Gauge (4.6 to 5.4 In. Hg.)		
8. Fuel Selector (check operation in all positions)		
9. Carburetor Heat Control		
10. Engine Response to change in power		
11. Idle cut-off		

Inspection Procedures Guideline
Figure 201 (Sheet 2 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

A. PROPELLER GROUP	MECH.	INSP.
1. Remove spinner and check for cracks, scratches, scoring, dents, nicks and distortions.		
2. Inspect blades for erosion, scratches, nicks and cracks. Dress out nicks as required		
3. Inspect spinner back plate, bulkheads and doubler for cracks and secure mounting.		
4. Check front crankshaft seal for oil leaks.		
*5. Check propeller mounting bolt torque: _____Foot pounds or_____inch pounds. Resafety propeller, mounting bolts.		
*6. Reinstall spinner. Check spinner run out_____inch maximum.		
B. ENGINE GROUP	**MECH.**	**INSP.**
1. Remove engine cowl. Clean and check for cracks, wear, distortion, loose or missing fasteners and landing light attachment		
2. Drain oil sump. Remove oil screens, clean and inspect for metal particles. Reinstall and resafety. Replace oil filter (If installed). Cut apart and inspect old filter for metal particles.		
3. Check oil temperature sending unit, oil lines, cooler, and fittings for leaks, chafing, dents, cracks, and secure mounting.		
4. Fill engine with oil per lubrication chart.		
5. Clean engine.		
6. Check engine cylinder compression #1.___ #2.___ #3.___ #4___		
7. Clean and regap or replace spark plugs as required (See latest revision of Lycoming Service Instruction No. 1042)		

*Refer to Maintenance Manual Chapter 61 and insert required values here applicable to your aircraft for quick reference during inspection.

Inspection Procedures Guideline
Figure 201 (Sheet 3 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

B. ENGINE GROUP (Continued)	MECH.	INSP.
8. Check ignition harnesses. Clean and inspect insulators		
9. Check magnetos to engine timing, oil seal leakage, and distributor block for cracks, burned areas and corrosion		
10. Remove and service air filter (see Chapter 73 for details). Inspect carburetor heat control valve plate, shaft, valve plate to shaft screws and bearings for signs of wear and security. Replace filter and/or gasket if damaged or defective. Reinstall carburetor air filter		
11. Check induction air intake seals for leaks, deterioration and hardness. Check flex ducts for broken or loose strings, loose or displaced supporting wire and general overall condition for signs of wear or perforation		
12. Drain carburetor bowl. Reinstall drain plug. Remove and clean carburetor fuel inlet screen with acetone. Reinstall screen		
13. Remove and clean electric fuel pump filter. Reinstall and resafety		
14. Check fuel pump for proper operation and secure mounting. Pressurize fuel system with electric pump and inspect fuel system and lines for leaks. Check fuel primer for operation and line leaks		
15. Check starter for secure mounting		
16. Check security of throttle arm on carburetor. Check throttle, carburetor heat, and carburetor mixture controls for proper travel, security, operating condition and control cushion		
17. Remove exhaust shroud and check muffler tailpipe, risers, clamps, gaskets and exhaust system for cracks, leaks and secure mounting. Reinstall shroud		

Inspection Procedures Guideline
Figure 201 (Sheet 4 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

B. ENGINE GROUP (Continued)	MECH.	INSP.
18. Check breather tube for obstructions and secure mounting . . .		
19. Inspect cylinders for evidence of excessive heat indicated by burned paint on the cylinder. Check for cracks, loose bolts, oil leaks and general condition		
20. Inspect engine mount for cracks, secure mounting and proper safety wiring. Check rubber vibration dampeners for signs of deterioration. Replace as required		
21. Check all baffles for cracks, loose or missing screws and deteriorated seal material		
22. Check alternator for secure mounting and lugs and brackets for cracks. Check condition and tension of alternator drive belt. Replace if required. (Adjust belt tension to yield a 5/16 in. deflection at the center of the belt when applying a pressure equivalent to 14 pounds for new belts and 10 pounds for used belts		
23. Check battery electrolyte level and specific gravity. Clean and tighten battery terminals. Check battery box drains and vents for condition and drainage clear of aircraft structure . .		
24. Inspect vacuum system components (if installed) for secure mounting. Check vacuum pump drive for evidence of seal leakage. Replace seal and pump if required. Check all interconnecting lines and fittings for leaks, deterioration and damage. Replace as required		
25. Check ground straps for condition and secure attachment		
26. Check electrical wiring for condition and secure connections including shielded cable ground connections		

Inspection Procedures Guideline
Figure 201 (Sheet 5 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

B. ENGINE GROUP (Continued)	MECH.	INSP.
27. Check voltage regulator, starter relay and master switch relay for secure mounting and proper operation		
28. Install cowl, checking for proper engagement of air intake duct and cowl latches		
C. CABIN GROUP	**MECH.**	**INSP.**
1. Remove front seats, fold rear seat forward, remove cover from rear seat support and remove console side panels		
2. Check windshield, windows and canopy for cracks and secure mounting. Clean and lubricate canopy rails. Check canopy operation and locking devices		
3. Check seat belts and shoulder harnesses for condition and secure mounting		
4. Check elevator trim control for condition, secure mounting, proper operation and indication		
5. Check rudder pedal and brake system for proper operation and condition. Check brake fluid level. Replace rudder pedal springs at 1000 hours		
6. Check control "T" for secure mounting and adequate clearance from other equipment		
7. Check chains, cables, pulleys, turnbuckles and cable ends for condition, secure attachment and safeties. Specifically check cables at pulleys for fraying while actuating controls through full travel. (Max. of four broken wires acceptable)		
8. Check cable tension at the average temperature for aircraft operation		
9. Check all controls for clearance and proper operation		

Inspection Procedures Guideline
Figure 201 (Sheet 6 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

C. CABIN GROUP (Continued)	MECH.	INSP.
10. Check all interior bond lines for any indications of damage, peeling or cracking		
11. Check nose gear torque tubes and mounting brackets and bond joints for cracks and secure mounting. Check torque on mounting bolts - center bearing bracket bolts 185-195 in. lb and end plate bolts 300-350 in. lb		
12. Check flap actuator, push rods, limit switches and indicator for proper operation and secure mounting		
13. Lubricate per lubrication chart (Chapter 12)		
14. Check all plumbing in cabin for leaks and condition		
15. Disassemble, clean, lubricate and reassemble fuel selector valve every 500 hours. See fuel system section for details		
16. Check gyro system filters (if installed), replace if necessary. . .		
17. Check instruments for condition, secure mounting and legible markings		
18. Check electrical wiring switches, lights and electronic equipment for condition and security		
19. Inspect baggage compartment, baggage door and cargo tie-downs.		
20. Inspect all placards in cabin for condition and legibility		
21. Reinstall cover over rear seat support, console side panels and front seats		
22. Check fresh air vents for proper operation		
23. Check and verify correct quantity and rating of spare fuses mounted in right side of glove box		
D. FUSELAGE AND EMPENNAGE GROUP	MECH	INSP.
1. Remove tailcone and empennage covers.		
2. Inspect emergency locator transmitter for security, operation and battery expiration date		

Inspection Procedures Guideline
Figure 201 (Sheet 7 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

D. FUSELAGE AND EMPENNAGE GROUP (Continued)	MECH.	INSP.
3. Inspect exterior surfaces for condition and damage. Check all drain holes in the fuselage bottom for obstructions		
4. Inspect bond lines for any indication of damage, peeling or cracks		
5. Check ventral fin (Model AA-5), horizontal and vertical stabilizers for damage and secure mounting. Insure that horizontal stabilizer and elevator drain holes are open		
6. Check elevator, elevator bearings and stops, rudder, rudder bearings and stops, tab hinges and bellcranks for damage, travel and proper operation. Maximum allowable torque tube wear limit at bearing supports is 0.030 in. reduction in wall thickness		
7. Check elevator trim mechanism for damage, secure mounting and proper operation		
8. Check rudder and elevator cables and pulleys for damage, proper operation and safeties. Check bellcrank attaching bolts for wear.		
9. Lubricate per lubrication chart. (Chapter 12)		
10. Inspect antenna mountings, wiring and electronic installations . .		
11. Check position and anti-collision light (s) for secure mounting. . .		
12. Check static system lines and the alternate air source valve (if so equipped). Drain any accumulated moisture from system drain		
13. Reinstall inspection covers		

Inspection Procedures Guideline
Figure 201 (Sheet 8 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

E. WING GROUP	MECH.	INSP.
1. Remove wing tips and access panels. Inspect surfaces, skins, ribs and tips for damage. Check position and anti-collision lights for secure mounting. Insure that all wing drain holes are open		
2. Visually inspect interior and exterior bond lines for any indication of damage, peeling or cracks		
3. Check ailerons, aileron bearings and stops, flaps, and flap bearings for secure mounting, damage, proper travel and wear. Maximum allowable aileron torque tube wear limit at bearing supports is 0.030 in. reduction in wall thickness. Check that aileron flap and drain holes are open. Check that aileron balance weight tube arm I.D. is open, corrosion free and zinc coated (early aircraft only)		
4. Check fuel vents and connecting lines for damage and restrictions .		
5. Check fuel tanks, sump tanks and lines for evidence of leakage. Check sump tanks and lines for secure mounting		
6. Check fuel cap gaskets for air tight seal		
7. Check wing and outboard wing section attaching bolts. Torque to 60-85 in. lb		
8. Inspect fuel tank placards		
9. Check pitot heating element for proper operation (if installed) . . .		
10. Check pitot tube opening and lines. Drain accumulated moisture. .		
11. Check for interior corrosion of skin indicated by a white flaking ash		

Inspection Procedures Guideline
Figure 201 (Sheet 9 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

F. MAIN LANDING GEAR GROUP	MECH.	INSP.
1. Remove wheels and check for cracks. Check condition of brake linings, wheel cylinders, torque plates and mounting pins. Pack wheel bearings, reinstall wheels and key axle nuts at first 100 hours and each 500 hours thereafter. Inspect wheel bearing grease for contamination and solidification at each annual or 100 hour inspection. For operation in dusty areas or areas of high humidity, repack every 100 hours. Perform a complete wheel inspection when tires are replaced		
2. Check tires for approved type, wear and proper inflation		
3. Check brake lines for leaks and secure attachment		
4. Check struts for secure mounting. Inspect for cracks, delamination and nicks		
5. Inspect the upper main mounting brackets and spar attaching supports (center spar to fuselage) for wear, cracks and loose bolts		
6. Inspect wheel and strut fairings for damage and secure mounting (if installed)		
G. NOSE GEAR GROUP	MECH.	INSP.
1. Check nose gear strut for secure mounting, deformation, damage and cracks		
2. Remove nose gear strut from torque yoke and inspect for corrosion of the faying surfaces every 12 calendar months. Remove corrosion if present, paint surfaces with zinc-chromate and reassemble wet. Seal strut to yoke connection with RTV-102 by DOW CORNING		
3. Remove and check nose gear fork for deformation, wear and cracks. Maximum fork to strut bearing clearance is 0.035 in.		

Inspection Procedures Guideline
Figure 201 (Sheet 10 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4

MODELS AA-R, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

G. NOSE GEAR GROUP (Continued)	MECH.	INSP.
4. Grease fork and friction dampener, assemble to strut and tighten to 10-22 lb. drag at axle		
5. Remove nose wheel, check for cracks, clean, inspect and repack bearings, reinstall wheel and safety axle at first 100 hours and each 500 hours thereafter. Inspect wheel bearing grease for contamination and solidification at each annual or 100 hour inspection. For operation in dusty areas or areas of high humidity, repack every 100 hours. Perform a complete wheel inspection when tire is replaced		
6. Inspect nose wheel for cracks, corrosion and loose or broken bolts		
7. Check tire for approved type, wear and proper inflation.		
8. Check wheel fairing for damage and secure mounting (If installed)		
H. OPERATIONAL INSPECTION	**MECH.**	**INSP.**
1. Check brake operation (including parking brake)		
2. Check fuel primer operation and lines for leaks		
3. Check booster pump operation		
4. Check fuel pressure		
5. Check starter for proper operation		
6. Check oil pressure and temperature		
7. Check engine controls for proper operation. Check throttle control for proper cushion		

Inspection Procedures Guideline
Figure 201 (Sheet 11 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

H. OPERATIONAL INSPECTION (Continued)	MECH.	INSP.
8. Check magneto operation; both ON, left OFF; both ON, right OFF; both ON. (Maximum magneto drop 175 RPM with 50 RPM maximum difference between magnetos). With engine at idle, turn switch to OFF position momentarily to check magneto grounding		
9. Check engine static RPM: 2250-2375, Model AA-5 and AA-5A 2150-2275, Model AA-5B		
10. Check carburetor heater for proper operation		
11. Check alternator output		
12. Check suction gauge and vacuum system output 4.6 to 5.4 in Hg.		
13. Check fuel selector valve operation and indexing		
14. Check heating, defrosting and ventilating system for proper operation		
15. Check radio for proper operation		
16. Check engine mixture setting and idle speed: 600-650 RPM, Model AA-5 and AA-5A; 500-650 RPM, Model AA-5B.		
17. Check idle cut off on carburetor for proper operation		
18. Check ailerons for proper operation		
19. Check elevators and trim tabs for proper operation		
20. Check flaps for proper operation		
21. Check fuel quantity gauges for condition and proper operation . .		

Inspection Procedures Guideline
Figure 201 (Sheet 12 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

MODELS AA-5, AA-5A & AA-5B
ANNUAL OR 100 - HOUR INSPECTION PROCEDURE

H. OPERATIONAL INSPECTION (Continued)	MECH.	INSP.
22. Check interior lights for proper operation and adjustment		
23. Check navigation and anti-collision lights for proper operation and landing lights for proper operation and adjustment		
24. Check pitot heat for proper operation		
25. Check stall warning device for operation		
26. Inspect engine after ground run-up. Flight test and inspect for oil leaks and secure mounting of all components		
I. GENERAL	**MECH.**	**INSP.**
1. Aircraft cleaned and serviced		
2. Aircraft conforms to FAA Specifications		
3. All FAA Airworthiness Directives complied with		
4. All manufacturer's Service Letters and Bulletins complied with		
5. Checked for proper Owners Manuals or Pilots Operating Handbook.		
6. Aircraft papers in proper order. Make log book entry		

"END OF INSPECTION"

Inspection Procedures Guideline
Figure 201 (Sheet 13 of 13)

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

UNSCHEDULED MAINTENANCE CHECKS — DESCRIPTION/OPERATION

1. General

Following a hard landing, certain items and systems of the aircraft should be inspected for subsequent damage. Applicable groups in Figure 201, 5-2-1 should be used as a guideline when performing the unscheduled inspections required as a result of unusual circumstances. For example, if the landing gear requires an unscheduled inspection, each procedure listed under the landing gear group should be completed.

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 464

UNSCHEDULED MAINTENANCE CHECKS - MAINTENANCE PRACTICES

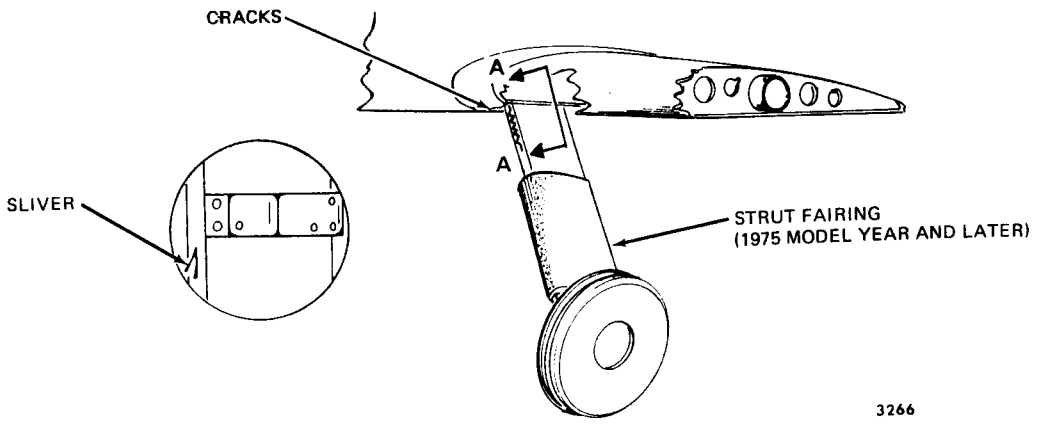
1. Inspection Requirements

A. Inspect Main Landing Gear Assembly

(1) Remove rubber fairing and thoroughly inspect the fiberglass struts for evidence of nicks, cracks, delamination, and deterioration of the protective paint coating (See Figure 201).

NOTE: Minor surface delaminations are acceptacle providing they do not extend more than one ply into the surface of the strut. Corner delaminations (slivers) are acceptable if they are smaller than 1/16 x 1/16 inch in size throughout their length. If airworthiness of a damaged fiberglass strut is in question, close-up photographs of the damaged area may be submitted to the Customer Service Department for analysis and recommendations.

(2) Minor imperfections may be repaired. Struts with other minor imperfections must be replaced.



Main Gear Strut
Figure 201

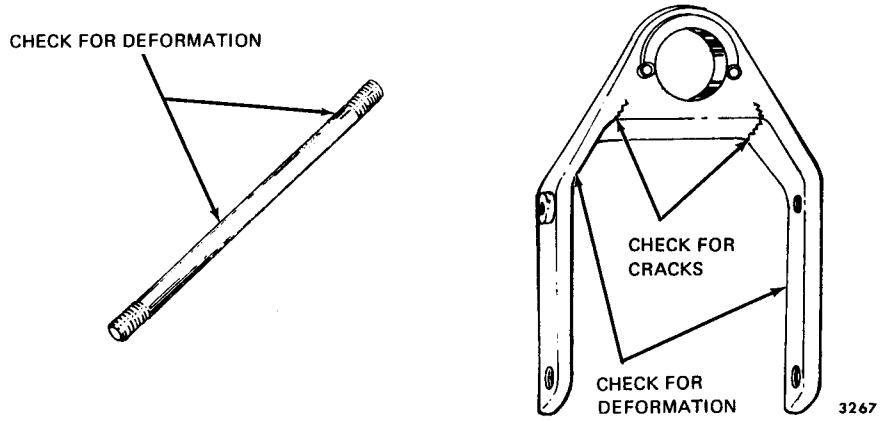
(3) Inspect main gear attach brackets for deformation, proper bolt torque and evidence of movement on the spar. If spring plate (Item 20, Figure 201, Chapter 32-1-1) between brackets and strut is bent, it must be replaced.

(4) Check brackets for hole elongation.

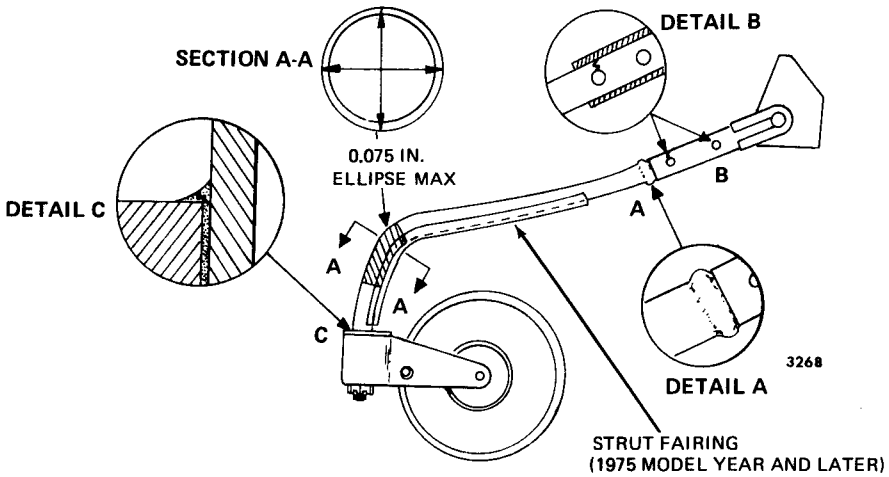
B. Inspect Nose Landing Gear Assembly

(1) Inspect the nose gear fork assembly and axle rod for deformation or cracks as shown in Figure 202. This damage normally results from a landing at a relatively flat attitude with a high vertical velocity. Any evidence of deformation or cracks is cause for rejection of the fork assembly and/or axle rod.

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647



Nose Gear Axle Rod and Fork Assembly
Figure 202



Nose Gear Strut
Figure 203

(2) Deformation shown in Detail A, Figure 203, is the result of landing in a relatively flat attitude with high vertical velocity. Replace strut if deformed.

(3) Inspect the curved area of the strut for flattened condition as shown in Section A-A, Figure 203. An ellipsed area exceeding 0.075 in. is cause for rejection of the strut.

NOTE: On Aircraft 1975 model year and later nose gear struts have a streamlining fairing attached to the aft side. This fairing must be removed to perform the visual inspection.

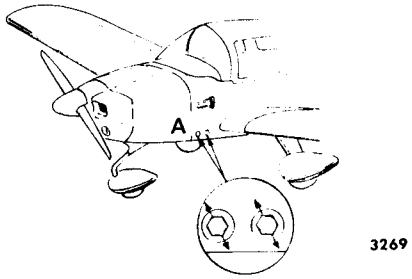
(4) With the weight removed from the nose landing gear, check the fit of the strut assembly into the torque tube yoke assembly by moving the strut up and down in the torque tube Tee. If looseness is noted, the cause for looseness must be determined. If the bolts that attach the strut to the torque tube yoke are worn, they should be replaced with NAS464-P6A28 bolts. If new bolts do not satisfactorily eliminate play, ream and install next larger size NAS bolt (NAS464-P7 maximum).

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

(5) With strut removed, inspect bolt hole areas at strut to torque tube attach point for evidence of elongation or cracking.

(6) Inspect the nose fork bearing cup to nose strut bond joint for cracks, corrosion, deterioration, or damage (see Detail C, Figure 203).

(7) Inspect torque tube assembly attachment to fuselage side panels as shown in Figure 204. Remove snap plugs and check location of attach bolts. If bolts have shifted and are not exactly in the center of the counterbored holes in the fuselage sides, damage may have occured to the lower engine mount/fuselage area. A very close inspection of this area should be accomplished.



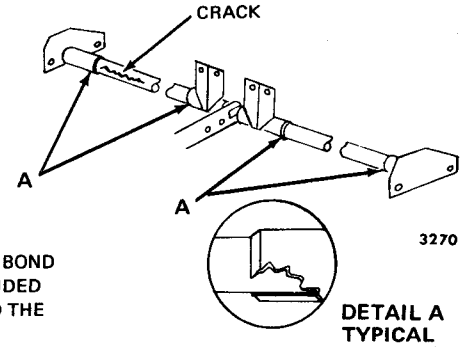
Torque Tube Assembly Attachment
Figure 204

(8) Inspect bond fillets in torque tube and yoke assembly as shown in Figure 205. If cracks are noted in paint or in the bond fillets, they should be carefully sanded out to determine that they do not extend into the bonded joint. Cracks in the bond fillets are permissible. Cracks in the bonded joints are not permissible and torque tube assembly must be removed from service.

NOTE: In cases of severe overload the bond joints may actually fail in the outboard end of the torque tube and yoke assembly, allowing one or both of the torque tubes to rotate in the end fittings.

(9) Inspect the torque tubes for longitudinal cracks, as shown in Figure 205.

(10) Inspect cabin floor and firewall where torque tube center bearing support brackets attach for evidence of deformed honeycomb. Inspect torque tube center bearing support brackets for deformation. If torque tube center bearing support brackets are deformed, the entire tube assembly must be replaced.



CRACKS PERMITTED IN THE BOND FILLET IN THIS AREA PROVIDED THEY DO NOT EXTEND INTO THE BOND JOINT

Torque Tube and Yoke Assembly
Figure 205

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647

C. Inspect Engine Mounts and Propellers

(1) Inspect engine mount welded assembly for cracks or any deformation.

(2) Inspect attach fittings at fuselage for cracks, deformation, and security of attachment to fuselage.

(3) Inspect the tips of the propeller for evidence of ground contact. Replace a bent or damaged propeller.

D. Inspect Fuselage and Empennage Items

(1) Inspect ventral fin (AA-5 only) and attachments to fuselage for evidence of damage or bond separation of aft bulkhead to fuselage side and bottom attachment. Repair in this area may be accomplished in accordance with AC43.13-1 or with data obtainable from Grumman American Engineering Dept.

(2) Inspect the tailcone structure for damage. Buckled tailcone flanges can normally be repaired using the procedures from AC 43.

(3) Inspect bond lines for evidence of damage or cracks.

(4) Inspect horizontal and vertical stabilizer, elevator, rudder and aileron mounting brackets for damage, cracks, security of mounting, loose bolts, or buckled supports.

2. Bondline Damage, Inspection Procedures and Repair

A. Isolate Most Commonly Damaged Area.

(1) Areas which should be given particular attention include: flanges of wing and stabilizer rear spars, trailing edges of control surfaces, the side lap joint between the tailcone and forward cabin section, the joint between the tailcone top and side skin, and the aft tailcone bulkhead joints.

(2) Inside edges and internal joints which have an undisturbed bondline fillet are generally not affected.

B. Identify Types of Damage

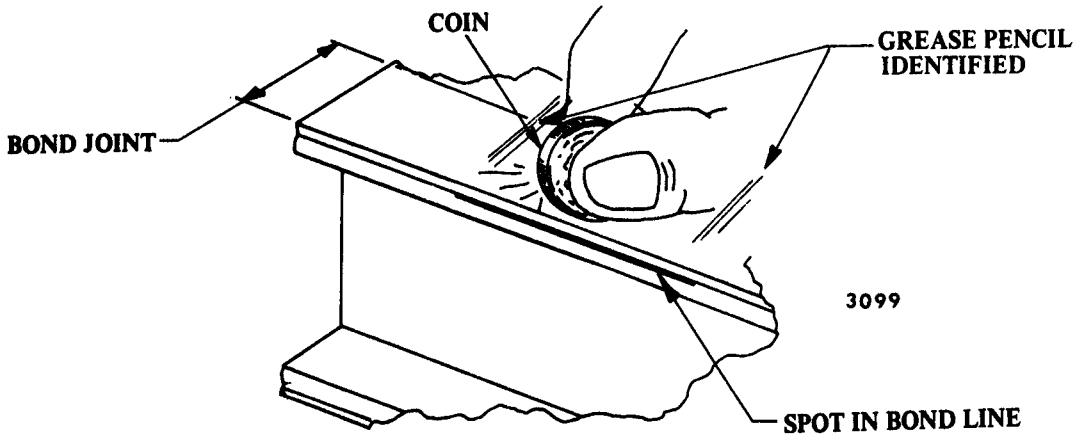
(1) Physical Damage - The most common type of bondline damage is physical damage along the trailing edges of the flaps, ailerons, elevators and rudder. This is caused by persons stepping on the inboard trailing edges of the flaps and general "hangar rash" on the other control surfaces. This type of damage is usually readily visible in the form of joint separation.

(2) Corrosion Damage - A less common type of bondline damage is damage caused by metal corrosion. This type of damage is usually restricted to edges of unfilleted bondlines, such as found on the rear spar to skin joints on the trailing edges of wings and stabilizers, particularly if these edges are not well protected by paint. This type of damage is more likely in tropical and subtropical climates, particularly where an aircraft is located close to the coast.

C. Locate and Verify Damaged Areas

(1) Visual Scanning - Carefully scan the edges of all joints in a well-lighted location or outside in daylight to determine the existance of hairline cracks between two layers of bonded metal. Figure 206 shows the appearance of this condition. Identify the location of any cracks with a grease pencil as shown in Figure 206.

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647



Identifying Suspect Areas
Figure 206

(2) Tapping — Gently tap the bondline with a coin or similar metal object to verify the existence of a bondline separation. Slowly move along the bondline, while tapping, and listen for a change in tone as the suspect area is traversed. A bondline separation will produce a flat or hollow sound when tapped directly in the damaged area.

(3) Separation — If bondline separation cannot be positively verified by tapping the area with a coin, attempt to insert a 0.004 to 0.006 inch feeler gauge into the bondline to verify that a separation exists.

D. Repair Bondline Damage

(1) If the suspected damage proves to be no actual separation, the hairline should be wiped with MEK and sealed with paint.

(2) Seal all bare bondline edges with paint.

(3) If the suspected damage proves to be actual bondline separation, order Service Kit No. SK-125 from the Customer Service Department and make the repairs accordingly.

Provided by the AYA - www.aya.org as a service to its Members
For the latest version or printed copies of this manual contact Fletcher Aviation on (800) 329 4647