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05-10-00 TIME LIMIT COMPONENTS

05-10-01 General

All components not listed herein should be inspected as detailed in Chapter 05-20 „Maintenance Checks“ and repaired, overhauled as required. It is recommended that overhaul or replacement of components should be accomplished not later than the specified period of operation for that component or in accordance with the manufacturer's service data or airworthiness directives.

05-10-02 Overhaul Schedule

Items shown here must be overhauled at the times indicated.

Item	Overhaul
Engine (Textron Lycoming)	*
Engine accessories	together with engine
Magneto (Slick)	*
Double magnetos (Bendix)	*
Propeller (MT-Propeller)	*
Governor (Woodward or MT-Propeller)	*
All other components	on Condition

** refer to latest issue of Manufacturer´s Service Bulletin*

05-10-03 Recommended Replacement Times

It is recommended to replace the items shown in the following schedule at the times indicated. The times may be modified by the respective national authorities.

Item	Replace
Battery a) Sonnenschein Battery b) Concorde	2 years ** on condition
Batteries of the ELT (Pointer)	2 years **
Wheels (Cleveland, Parker)	on condition
Tires	on condition
Fuel, oil, sensing & brake hoses (Rubber Type MS28741)	after first 7 years, then 5 years
Fuel, Oil & Sensing hoses (PTFE Type MIL-DTL-25579)	on condition, but in engine comp. at the latest together with engine removal
Seat belts (Hooker)	Rework or replace after a period of 6 years in use, service life limit of national aviation authority must be considered
Brake and Brake Assembly (Cleveland, Parker)	on condition
Rudder control cable	on condition
Fairleads	on condition
Shock mounts (Lord Kinematics, Barry Controls)	on condition, but at the latest at each engine overhaul
Bolts and Nuts	on condition ***

*** on the recommendation of the manufacturer*

**** if not stated otherwise*

05-10-04 Time Between Inspections

Inspect these equipment items at the times shown:

Item	Time between Inspections
Battery (Concorde)	Refer to Concorde Servicing Instruction (capacity check)
Static Pressure System	Every 24 calendar months in accordance with 14 CFR Ch. 1 Part 43 App. E
ATC Transponder	For US registered airplanes: Every 24 calendar months in accordance with 14 CFR Ch. 1 Part 43 App. F Par. C and F. For airplanes registered in other countries: Observe the latest national aviation regulations.

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
				Engine compartment		
				(Refer to latest edition of Textron Lycoming Operator´s Manual and SB's, of Christen Product Manual 801 Series and SB's, of Slick Magneto Maintenance and Overhaul Manual and SB's and of TCM/Bendix Service Support Manual, included in Form X40000 Master Service Manual and SB's)		
				DANGER **Ground magneto primary circuit before working on engine**		
	O	O	1	Remove engine cowling.		
	O	O	2	Inspect cowling and air inlet screen for damage, cracks, distortion, overheated areas and loose or missing blindnuts and secure attachment of oil level access plate.		
	O	O	3	After this inspection clean cowling.		
	O	O	4	Check fire protection according to EXTRA Service Bulletin 300-6-94. On GFRP cowlings repaint the fire protection paint ("WIEDOFLUGAT" N 56582/T508 with clear coat 4232-0303 or "HENSOTHERM 410KS" with clear coat Glasurit 923-335; refer Chapter 51-30-01) if necessary.		
O[1]	O[2]	O	5	Drain oil sump in accordance with Chapter 12-10-04 “Engine Oil Replenishing”		
O[1]	O	O	6	Clean oil suction screen at oil change, check suction screen for metal particles, shavings, or flakes. Consider Lyc. SB N° 480 latest issue.		
O[1]	O	O	7	Clean oil pressure screen at oil change, check pressure screen for metal particles, shavings, or flakes. Consider Lyc. SB N° 480 latest issue.		
O[3]	O	O	8	For engines using a full-flow filtration system: Replace oil filter. Remove paper element from filter, carefully unfold the paper element and examine the material trapped in the filter. Consider Lyc. SB N° 480 latest issue.		
		O	9	Inspect oil temperature sensor unit for leaks and security.		

1 each 25 hours for engines employing a pressure screen system
2 a spectrographic oil analysis is recommended at every 50 hours oil change.
3 at 25 hours for new, remanufactured or newly overhauled engines and for engines with any newly installed cylinders.

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
	O	O	10 Inspect flexible oil lines, oil return lines and fittings for leaks, security, chafing, dents, and cracks (ref: FAA AC 43.13-1A). Replace flexible oil lines at engine TBO per Lyc. SB 240. Check fire protection according to EXTRA SB 300-6-94.		
		O	11 Clean and inspect oil radiators and attachment.		
O[1]			12 Remove and flush oil radiators.		
	O	O	Inspect Christen Inverted Oil System for general condition, leaks, secure mounting and tight connections.		
O[2]			13 Clean and flush the Inverted Oil System with a suitable petroleum solvent, such as varsol according to Lycoming Operator's Manual.		
O[3]	O	O	14 Service engine with recommended lubricating oil in accordance with Chapter 12-10-04.		
	O	O	15 Inspect condition of spark plugs (Clean and adjust gap as required, adjust per Lycoming Service Instruction 1042). If fouling of spark plugs has been apparent, rotate buttom plugs to upper plugs and vice versa.		
	O	O	16 Inspect spark plug cable leads and ceramics for corrosion and deposits.		
	O	O	17 Perform a hot engine differential compression check in accordance with FAA AC 43.13-1A.		
		O	18 Inspect cylinders for cracked or broken fins.		
	O	O	19 Check cylinders for evidence of excessive heat which is indicated by discoloration.		
		O	20 Check fuel injector nozzles for loseness. Tighten to 60 inch pounds torque. Check fuel lines for fuel stains which are indicative for fuel leaks.		
	O	O	21 Inspect rocker box covers for evidence of oil leaks. If found, replace gasket; torque cover screws 50 Inch-pounds.		

1 each 500 hours
2 each 300 hours
3 each 25 hours

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
O[1]			22 Remove rocker box covers and check for freedom of valve rockers when valves are closed. Look for evidence of abnormal wear or broken parts in the area of valve tips, valve keeper, springs and spring seats.		
		O	23 Inspect ignition harness for general condition, free from fraying or chafing and insulators for high tension leakage and continuity.		
			TCM/Bendix magnetos		
		O	24 Check magneto-to-engine timing.		
		O	25 Remove all ignition harness spark plug terminals from spark plugs, clean and inspect following the respective sections of the applicable Support Manual.		
		O	26 Inspect magnetos with riveted impulse coupling for wear as specified in the latest revision of TCM/Bendix SB 599D.		
O[2]			27 Inspect magnetos equipped with snap-ring impulse coupling for wear as outlined in the PERIODIC MAINTENANCE Section of the applicable Support Manual, Paragraph 6.2.2.		
O[2]			28 Inspect magnetos as outlined in the PERIODIC MAINTENANCE Section of the applicable Support Manual, Paragraph 6.2.3. Clean and inspect all ignition harness outlet plates, covers or cap assemblies and grommets following the respective sections of the Manual mentioned above.		
O[3]			29 Overhaul or replace magnetos acc. to TCM/Bendix SB 643.		
			Slick magnetos		
		O	24 Adjust magneto to engine timing, refer to Slick Magneto Maintenance and Overhaul Manual		
		O	25 Inspect wiring connections, vent holes and P-lead attachment, refer to Slick Magneto Maintenance and Overhaul Manual.		

1 each 400 hours
2 each 500 hours
3 at engine overhaul and at the expiration of 4 years

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
O[1]			26 Clean magnetos.		
O[1]			27 Inspect ball bearing assembly, impulse coupling, coil, contact points, condenser and carbon brush.		
O[2]			28 Replace ball bearings.		
O[1]			29 Lubricate magnetos.		
O[3]			30 Overhaul or replace magnetos.		
		O	31 Check fuel injector for general condition, clean fuel inlet screen.		
	O	O	32 Inspect intake seals and O-rings for leaks and clamps for tightness.		
	O	O	33 Inspect flexible fuel lines, fuel injection lines and fittings for leaks, security, chafing, dents, and cracks (refer to Lycoming SB 342 each 100h; replace or overhaul as required or at engine overhaul). Check fire protection according to EXTRA SB 300-6-94.		
	O	O	34 Check fuel system for leaks.		
O[4]	O	O	35 Remove, clean and inspect gascolator screen and fuel filter bowl.		
	O	O	36 Inspect throttle, mixture, and propeller governor controls for security, travel, and operating conditions.		
	O	O	37 Inspect exhaust stacks, connections and gaskets (replace gaskets as required).		
	O	O	38 Inspect exhaust slipjoints for general condition.		
	O	O	39 Inspect exhaust system attachment.		
		O	40 Inspect crankcase for cracks, leaks, and security of seam bolts.		
	O	O	41 Check engine mounted accessories such as pumps, temperature and pressure sensing units for leaks, secure mounting and tight connections.		

1 each 500 hours
2 each 1000 hours
3 together with engine
4 clean at least every 90 days

as specified	each 50 hours	each 100 hours		Inspections (Date: / Serial No.: / Inspector: / Mechanic:)		
	O	O	42	Inspect engine mount for cracks and loose mountings.		
	O	O	43	Inspect engine baffles free from cracks and fraying.		
		O	44	Inspect all wiring connected to the engine or accessories		
	O	O	45	Inspect engine shock mounts for deterioration (replace as required).		
		O	46	Inspect firewall seals (see EXTRA SB 300-6-94).		
		O	47	Inspect alternator, cable connections and accessories.		
		O	48	Inspect condition and tension of alternator drive belt		
		O	49	Inspect security of alternator mounting		
		O	50	Inspect starter and starter drive		
	O	O	51	Check brake fluid level (fill as required).		
	O	O	52	Clean engine if necessary.		
	O	O	53	Lubricate all controls per lubrication chart.		
O[1]			54	Overhaul or replace propeller governor as required.		
O[2]			55	Complete overhaul of engine or replace with factory rebuilt		
	O	O	56	Reinstall engine cowling.		
				Fuselage		
	O	O	1	Remove tail fairing, tail side skins, tank covering sheet, turtle deck and landing gear cuffs per Chapter 51.		
		O	2	Remove bottom covering window and sheets including exhaust area covering sheet per Chapter 51.		
	O	O	3	Inspect tank covering sheet, turtle deck, bottom covering window and sheets including exhaust area covering sheet, tail fairing, tail side skins and landing gear cuffs for general condition, dents, cracks and loose screws and rivets.		
	O	O	4	Check installed parts for general condition and security of attachment.		

1 refer to Woodward Service Bulletin No. 33580
2 refer to Lycoming Service Instruction No. 1009

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
	O	O	5	Inspect fuselage for foreign matters.		
		O	6	Inspect steel tube construction for general condition, corrosion and cracks, above all in areas of load stress (e.g. wing, stabilizer, engine and seat attachments).		
	O	O	7	Visually inspect steel tube construction in the area of horizontal stabilizer attach brackets for cracks. In case of doubt remove horizontal stabilizer and use a dye check penetrant. In case of cracks are found contact EXTRA for repair advise.		
	O	O	8	Inspect fabric cover for general condition.		
		O	9	Inspect wooden longerons for damage.		
		O	10	Clean and lubricate canopy hinge and latching mechanism.		
	O	O	11	Inspect seats for security, attachment, proper operation, and condition.		
		O	12	Inspect breather line for obstructions and security.		
		O	13	Inspect main and auxiliary wing spar connector for general condition.		
				Seat belts		
		O	1	Check seat belts for security, attachment, proper operation, and condition.		
		O	2	Check webbing; inspect for fuzzy edges at the adjusters, inspect whether edges start to fray, inspect whether webbing lost its color (top and bottom sides have a different shades).		
		O	3	Check hardware; inspect for corrosion, check whether buckles mate properly. Check the buckles for easy opening.		
		O	4	Check ratchet assembly; inspect for corrosion, loss of plating, discoloration, slippage and wear; check for ease of operation. If the harness does not pass the check, it has to be reworked or replaced. Contact the harness manufacturer in case of doubt.		
			5	Check proper attachment of shoulder harness as per chapter 25-10-03.		

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
				Fuel system		
	O	O	1	Inspect the fuel lines for leaks, security, chafing, dents and cracks. Replace fuel lines as required.		
	O	O	2	Inspect fuel selector valve for operation and proper pointer indication		
	O	O	3	Drain fuel system		
	O	O	4	Check acro- and center tank attachment		
	O	O	5	Check acro-, center- and both wingtanks for leaks		
	O	O	6	Check boost pump		
	O	O	7	Check fuel filler caps for security and proper operation		
	O	O	8	Check proper seat and condition of sealing lip (from S.No 59)		
				Flight controls		
	O	O	1	Remove wing access panels.		
	O	O	2	Inspect control surfaces for security of attachment, free movement, dents, delaminations and cracks.		
	O	O	3	Check spades visually for general condition. Inspect spade support for corrosion, cracks and deformations. Ensure proper attachment to aileron.		
	O	O	4	Inspect elevator trim system for proper operation and rigging.		
	O	O	5	Inspect hinges for condition, cracks and security; hinge bolts, hinge bearings, selflocking nuts.		
	O	O	6	Check free play in control system: torque tube, control surfaces, control sticks, rod end bearing, deflector limiter.		
O[1]	O	O	7	Lubricate rear torque tube bearing.		
	O	O	8	Lubricate aileron rodend bearings, trim flap hinges and trim lever bolt.		
		O	9	Lubricate adjustment tube of electrical pedal adjustment.		
	O	O	10	Check rudder cable system including sleeves, fairleads, pulleys and cable retracting springs per FAA-AC 43.13-1A.		

1 each 25 hours

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
		O	11 Check for minimum 3.5 mm (1/8") clearance of rudder pedal versus safety stop when fully deflected for rudder cables having 50 h flight time minimum. On newly installed rudder cables the minimum spacing is 6 mm (1/4"). Refer to Figure 5. This check is to be performed with zero loading on the rudder pedals.		
		O	12 Rough check of safety stop clearance. With a force of approx. 90 kg (200 lbs) acting on the fully deflected rudder pedal the safety stop shall not be reached. If the stop is reached the control system indicates a too high flexibility which needs to be traced. In this case contact EXTRA for advice.		
	O	O	13 Inspect all flight control ventilation holes for obstruction.		
		O	14 Inspect elevator balance weight for looseness and condition.		
		O	15 Inspect push rods.		
			Landing gear		
	O	O	1 Check landing gear for general condition.		
	O	O	2 Check landing gear spring for dents and cracks.		
	O	O	3 Inspect landing gear spring mounting clamps and bolts for security.		
		O	4 Lubricate landing gear center bolt and landing gear bearings.		
		O	5 Check wheel rake (10° ± 0.5°) and toe-in (1.5° ± 0.5°) per Chapter 32.		
			Fairings		
	O	O	1 Disassemble fairings.		
	O	O	2 Check fairings for dents and cracks.		
	O	O	3 Check fairing ventilation hole for obstruction.		
			Wheels		
			(refer to on-aircraft inspections presented in the latest edition of Cleveland Wheels & Brakes Maintenance Manual and Service Bulletins for wheel, tire and break inspections)		

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
	O	O 1	Visually inspect the wheels for corrosion, cracks, or other visible damage.		
	O	O 2	Check wheel nuts to be sure they are properly installed and have not worked loose. Bolt threads should be flush to 1-1/2 threads extending beyond the nut. Nuts should be on the side of wheel opposite the brake disc (outboard side of wheel).		
	O	O 3	Inspect the brake disc for rust, excessive grooves, large cracks, coning or other visible damage. Check if disc thickness is more than 0.325in/8.255mm. Coning of disc in excess of 0.015 in /0.381 mm is cause for replacement (see Fig. 6).		
		O 4	Remove wheels and wheel bearings. Inspect wheel bearing grease for contamination and solidification.		
		O 5	Inspect snap rings and grease seals for distortion or wear. Replace grease seal felts if they are hard or contaminated. Lightly saturate grease seals should be replaced if cracked, dried out, or distorted.		
		O 6	Inspect wheel bearings for excessive wear or damage. Replace on condition.		
		O 7	Repack bearings with AEROSHELL 22C (per MIL-G-81322), or equivalent. Reinstall wheels and safety.		
	O	O 8	Check wheel bearing clearance and wheels for free rotation.		
			Tires		
	O	O 1	Visually inspect tires for cuts, flat spots, and tread or sidewall damage. If changing of tires is necessary follow the instructions, including off-aircraft inspection of wheels, presented in the Cleveland Wheels & Brakes Component Maintenance Manual.		
	O	O 2	Check inflation pressure (3.4 bar / 49.3 psi). Proper inflation will provide maximum tire and wheel life.		
			Brake system		
	O	O 1	Inspect brake assemblies for general condition.		
	O	O 2	Inspect master cylinders for leaks.		

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
		O	3	Inspect brake system plumbing for leaks and hoses for bulges and deterioration.		
		O	4	Lubricate brake guide pins using Silicone-base lubricant.		
	O	O	5	Visually inspect the brakes for corrosion, cracks, or other visible damage. Check inlet fitting bosses and anchor bolt lugs for cracks. Check inlet flares on aircraft side of rigid hydraulic tubing for fatigue cracks.		
	O	O	6	Check back plate attachment bolts to insure they are properly torqued and have not worked loose. Gaps between the back plate and cylinder would be evidence of this.		
	O	O	7	Check fit of brake cylinder anchor bolts in torque plate bushings for sloppiness. This can be accomplished by grasping the cylinder and moving it; slight movement is normal. Excessive movement is cause for removal and detailed inspection.		
	O	O	8	Linings should be visually checked for extreme chipping on the edges. Lining worn to a minimum thickness of 0.100 inch (2.54 mm) must be replaced.		
	O	O	9	Visually check torque plate for corrosion, cracks, loose anchor bolt bushings, or other visible damage. Anchor bolt bushings must be flat against torque plate surface.		
	O	O	10	Check for any brake fluid leaks.		
	O	O	11	Check brake fluid level.		
				Tail-wheel landing gear		
	O	O	1	Check tail-wheel landing gear for general condition.		
	O	O	2	Check tail-wheel landing gear spring for dents, cracks, and delaminations.		
	O	O	3	Check tail-wheel rubber tire condition.		
	O	O	4	Inspect tail-wheel spring and swivel arm mounting bolts for security.		

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
				a) Standard: Full-swivel tailwheel		
	O	O	1	Check swivel arm for dents and cracks.		
	O	O	2	Check tail wheel for free rotation and swivel feature.		
		O	3	Check swivel arm and wheel bearing clearance, service.		
				b) Optional: Steerable tailwheel		
	O	O	1	Check for general condition and function. Pay attention to the free movement of the rudder.		
	O	O	2	Check the connector springs for light precompression.		
	O	O	3	Check the wheelfork for free rotation and steering function, damage, dents, cracks and corrosion.		
	O	O	4	Inspect wheelfork for damage, dents, cracks and corrosion.		
	O	O	5	Inspect the axle bolt and nut for fretting, wear, damage, and stretch.		
	O	O	6	Lubricate tail wheel steering.		
				Wing		
	O	O	1	Check wing for dents, cracks, and delaminations.		
		O	2	Inspect wing spar main bolts for looseness and security.		
		O	3	Check the safety wire and the safety screw of the wing main spar bolt.		
		O	4	Inspect wing spar main sleeves for looseness and bearing load.		
		O	5	Inspect wing auxiliary spar attachment.		
		O	6	Inspect wing ventilation holes for obstruction.		
	O	O	7	Check inside wing structure in the area of access panels.		

05-50-03 Engine Fire

After an engine fire, perform a check as described in the following:

For damage evaluation consult the manufacturer, before the aircraft is put back into service.

		Date:	Inspector:
		Serial No.:	Mechanic:
		Inspections	
O	1	Check all cables and hoses, replace when necessary	
O	2	Check engine according to the Lycoming Manual	
O	3	Inspect firewall and engine cowling for damage by high temperatures (e.g. signs of blisters on the protective paint). If necessary renew LJF PR 812 seals and, on GFRP cowlings, reapply the fire protection paint (N56582/T508) and the lacquer 4243-0303 or "HENSOTHERM 410KS" with clear coat Glasurit 923-335; refer Chapter 51-30-01).	

05-50-04 Lightning Strike

In the event of a lightning strike in flight or on ground check the following:

		Date:	Inspector:
		Serial No.:	Mechanic:
		Inspections	
O	1	Check engine according to Lycoming Service Bulletin 401.	
O	2	Check the skin of the strike area for burns and melting	
O	3	Inspect bolts and fasteneners for burns and melting .	
O	4	Check the electrical system, with running engine, for correct operation.	
O	5	Check the avionic and antenna for correct operation.	
O	6	Check the magnetic compass for correct readings.	

20-10-04 Special Torque Values

Special torque values for the following items must be adhered to:

Item	Torque value (Nm)	(in.lbs)
Brake Back Plate Bolts (Cleveland)	Refer to Cleveland Maintenance Manual	
Wheel Assembly Bolts (Cleveland)		
Engine Mounting (Bolts AN7-50A/ Metal Stop Nut NAS 363C-720)	55	480
Engine Mount to Fuselage (Bolt Din 912, M12-12.9 / Stop Nut DIN 985, M12-8-B2C)	80	720
Longeron Cutout Bridge (Bolt DIN 912 M8-8.8 / Stop Nut LN 9348-08)	18	160
Horizontal Stabilizer Front Spar Bolts (Bolt LN 9037-10054 / Stop Nut LN 9348-10)	33	292
Horizontal Stabilizer Rear Spar Bolts (Bolt LN 9037-08042 / Stop Nut LN 9348-08), S/N 1 thru 66	14	124
Horizontal Stabilizer Rear Spar Bolts (Bolt LN 9037-10054 / Stop Nut LN 9348-10), S/N 67 ff	33	292
Vertical Stabilizer Rear Spar Bolt (Bolt LN 9037-10054 / Stop Nut LN 9348-10)	38	336
Wing Main Spar Safety-Bolts (Bolt LN 9038 K-08020)	15	133
Torque for Engine	Refer to Lycoming Overhaul Manual	
Torque for Propeller	Refer to MT-propeller Installation Manual E-124	

IMPORTANT

On all bolt connections, the specified torque and locking method must be observed. Do not reuse stop nuts if they can be run up finger tight!

20-10-07 Flexible Hose

The EXTRA 300 is equipped for the oil, fuel, and brake lines with "AEROQUIP-hoses Aerospace Division". From Serial No. 64 equivalent "STRATOFLEX-hoses Aerospace Connectors Division" are used. KNAPP hoses also can be used for the brake system in the cockpit area and for the flight instruments. PARKER/STRATOFLEX or AEROQUIP PTFE type hoses are alternatively used as fuel, oil and sensing lines. Maintenance work or overhaul of these hoses requires the attention of the manufacturer informations and bulletins. For the replacement of hose and hose assemblies EXTRA-Flugzeugproduktions- und Vertriebs- GmbH should be contacted.

Replacement of Flexible Hose

Hose and hose assemblies should be checked for deterioration at each inspection period. Leakage, separation of the cover or braid from the inner tube, cracks, hardening, lack of flexibility, and excessive "cold flow" are apparent sign of deterioration and reason for replacement. The term "cold flow" describes the deep, permanent impressions in the hose produced by pressure of hose clamps or supports.

The entire assembly must be replaced, if a failure occurs in a flexible hose before the time limit (refer to Chapter 05-10-02 *Overhaul Schedule*) of the hose is achieved. Obtain a new hose assembly of the correct size and length, complete with factory-installed end fittings.

Installation of Flexible Hose Assemblies

The flexible hose must not be twisted on installation, since this reduces the life of the hose considerably and may loosen the fittings. Twisting of the hose can be determined from the identification stripe running along its length.

The minimum bend radius for flexible hose varies according to size and construction of the hose and the pressure under which the hose is to operate. Bends that are too sharp will reduce the bursting pressure of flexible hose considerably below its rated value.

The flexible hose should be installed so that it will be subject to a minimum of flexing during operation.

The AEROQUIP- hoses inside the engine compartment are to be covered with AEROQUIP AE102 fire sleeves. The correct size of fire sleeves can be taken from the following table:

N O T E

The STRATOFLEX-hoses used in the engine compartment are factory equipped with fire sleeves.

Hose	Fire sleeve
MIL-H-8794-4 / AE303-4 / 111-4	AE102-10
MIL-H-8794-6 / AE303-6 / 111-6	AE102-12
MIL-H-8794-8 / AE303-8 / 111-8	AE102-16
MIL-H-8794-10 / AE303-10 / 111-10	AE102-18

20-10-08 Fittings

For the oil lubrication, the fuel system, and the brake system only AN-fittings are used in the Extra 300. All these fittings are made of aluminium alloy and are colored blue for identification purposes. The dash number following the AN number indicates the size of the hose for which the fitting is made, in 16ths of an inch. This size measures the inner diameter (I.D.) of the hose. The material code letter (Aluminum alloy: code D) follows the dash number.

Example: Elbow AN 822-8D

N O T E

Apply Loctite 577 on all National Pipe Threads (NPT) before installation.

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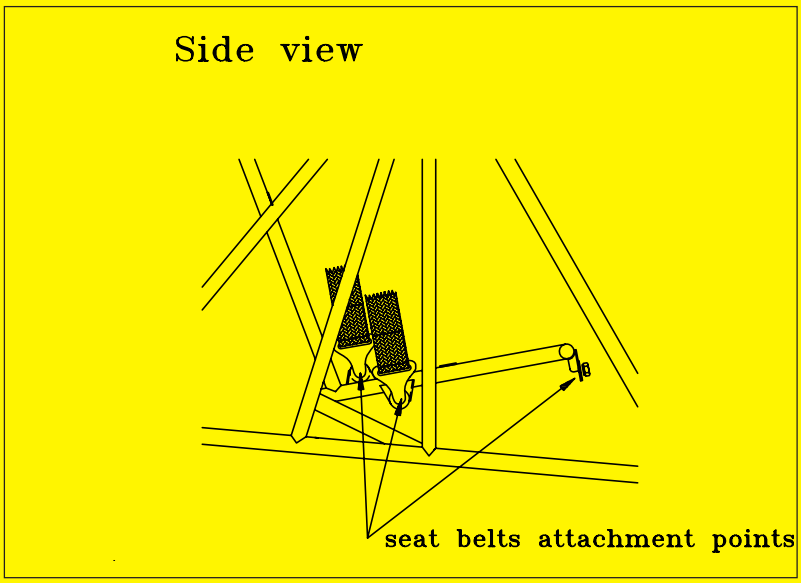
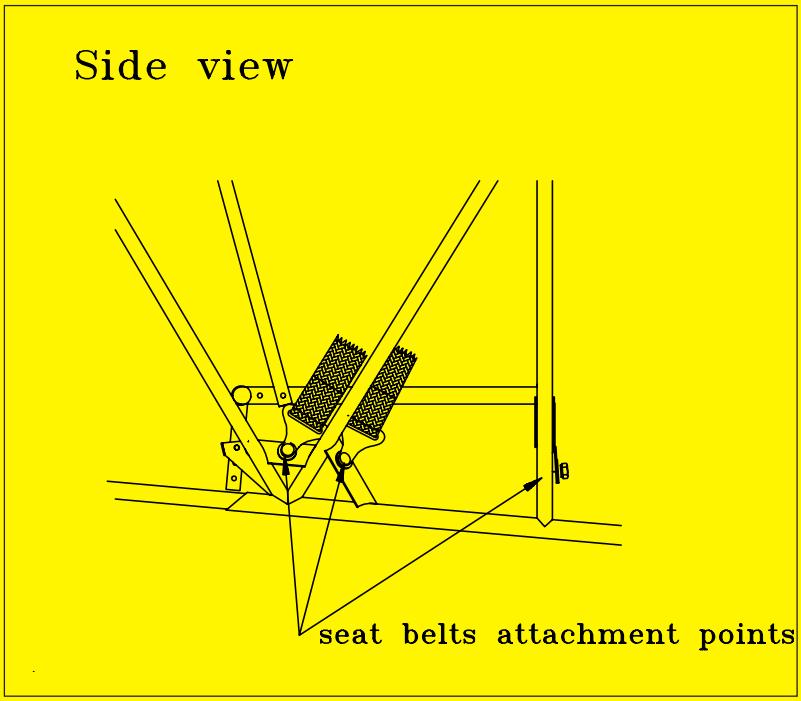
Each strap end is fitted with LN 9037-0820 bolts , LN9348-08 stop nuts and DIN 125 M8 washers to its own fitting at the steel frame (refer to Figures 4+5).

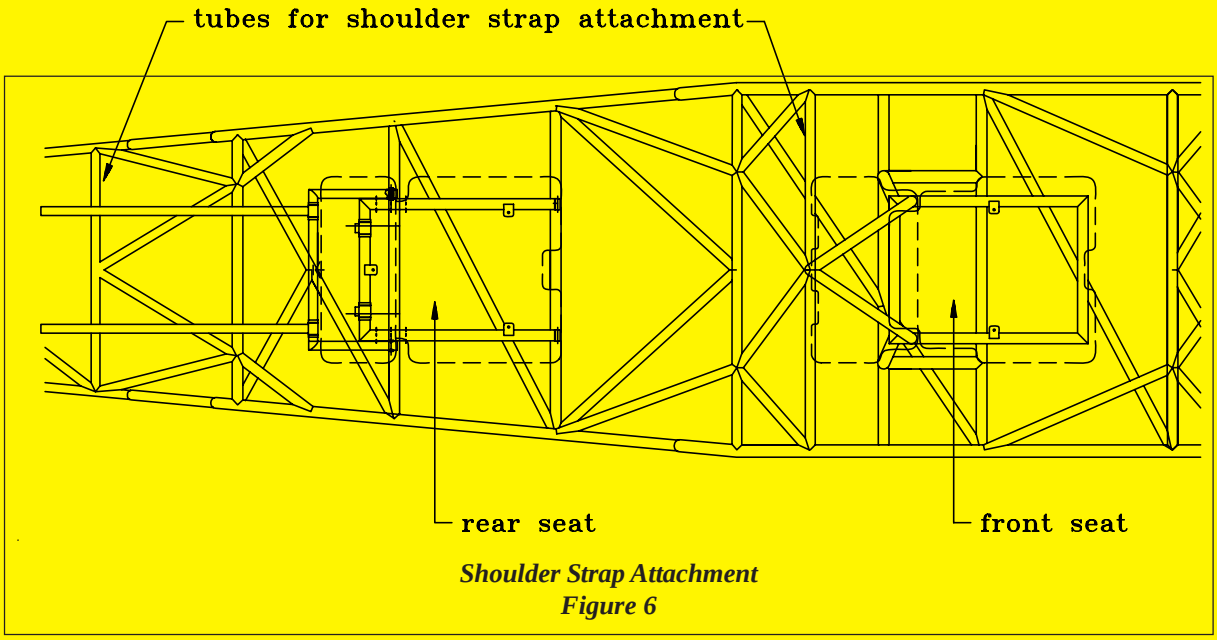


Front Seat Belt Attachment
Figure 4



Rear Seat Belt Attachment
Figure 5

The shoulder strap loops of the front and rear seat are attached to horizontal steel tubes as shown in Figure 6.



Shoulder Strap Attachment
Figure 6

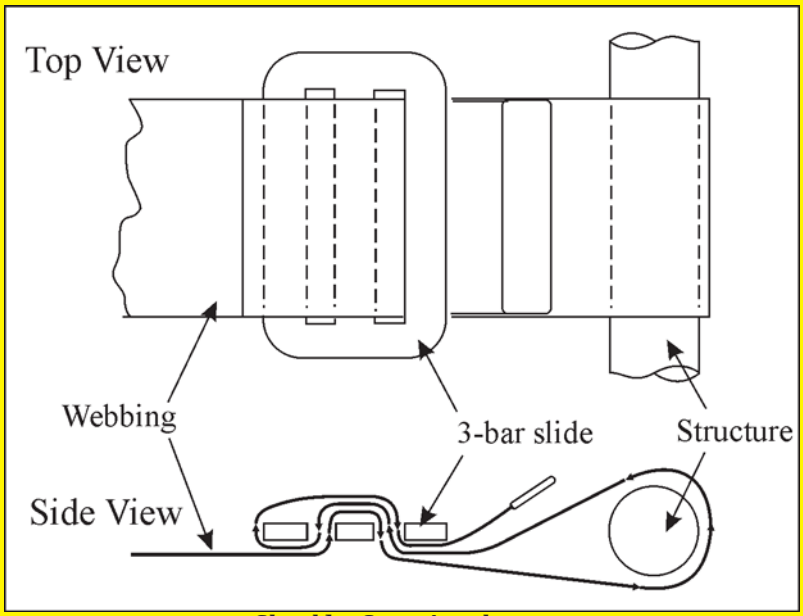
The shoulder harness shall be installed using the 3-bar slide as shown in figure 6A.

IMPORTANT

Tuck excess webbing through the 3-bar slide. Failure to make this third pass through the 3-bar slide will cause the belt to slip under load.

IMPORTANT

Make shure that after the proper length is determined, the 3-bar slide is positioned as close to the structure as possible.



Shoulder Strap Attachment
Figure 6A

25-10-04 Aircraft Document Bag

The rear cockpit of the Extra 300 is furnished with an aircraft document bag. This aircraft document bag is mounted with three AN 526 C 1032 R8 bolts and DIN 9021 M5x20 washers on the right inside of the cockpit frame.

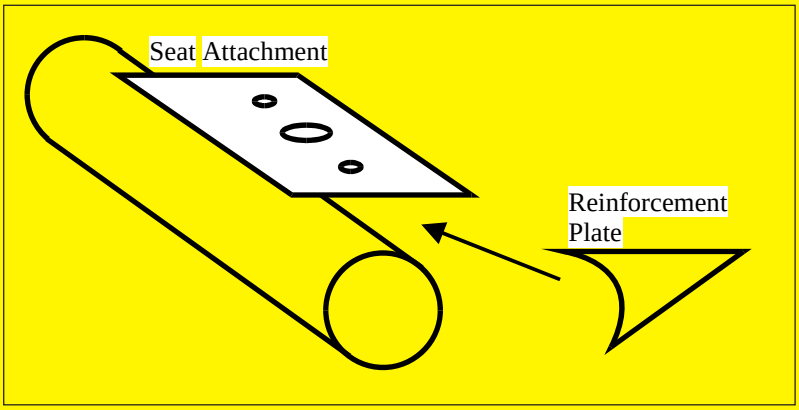
25-11-00 MAINTENANCE PRACTICES

25-11-01 Reinforcement of Seat Attachment

For the Serial No's V1 and 01 thru 63 it is advisable to strengthen the seat attachments. Weld a reinforcement plate at the position as shown on Figure 7. Use steel grade 1.7734.4 or AN 4130 in conjunction with the TIG welding procedure (Tungsten Inert Gas, also called WIG welding) , thickness 1mm (0.04").

N O T E

Any welding needs to be done in accordance with FAA AC43.13-1A manual.



Reinforcement of Seat Attachment
Figure 7

32-11-00 MAINTENANCE PRACTICES

32-11-01 Main Landing Gear

Removal/Installation

Refer to Figure 2.

1 Remove the engine cowling, the landing gear cuffs and the 1. bottom covering sheet as per chapter 51-00-01.

2 Shore the aircraft as per Chapter 07-20-00

3 Drain brake system.

4 Unfasten the ventilation tubings and disconnect the brake lines from the brake assembly.

5 Remove the four landing gear attachment stop nuts (LN9348-8) (1) and the DIN 125 M8 washers.

6 Remove the bottom halves of the mounting clamps (2), the anti abrasion strips (3) and the landing gear (4).

7 Install in reverse sequence of removal using new stop nuts. For correct position of landing gear the mandrel, which is located at the bottom of the fuselage, is to put into the respective sleeve at the top of the landing gear spring. Replenish brake fluid per Chapter 12.

32-11-02 Top Half of the Mounting Clamp

Removal/Installation

Refer to Figure 2

1 Remove the main landing gear as per Chapter 32-11-01.

2 Remove the LN9348-10 stop nuts, the DIN125 M10 washers and the LN9037-10054 bolts (5).

3 Remove the top half of the mounting clamp (6).

4 Reverse procedure for installation.

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34-50-00 DEPENDENT POSITION DETERMINING

34-50-01 Transponder

Various transponders can be installed in the EXTRA 300. A transponder is a radio transmitter and receiver that fulfills the role of airborne beacon equipment according to the requirements of the Air Traffic Radar Beacon System (ATCRBS). It operates on radar frequencies, receiving ground radar interrogations at 1030 MHz and transmitting a coded response of pulses to ground-based radar on a frequency of 1090 MHz.

Removal/Installation

1 Remove Instrument Cover if transponder has to be installed from the rear. Refer to Chapter 31-15-01.

2 Remove transponder following the Removal/Installation Instructions of the respective manufacturer.

3 Install in reverse sequence of removal.

4 Perform an operation test.

1006-202/3	Glassit Spritzfüller SP 60-7023
948-36	Glassit Härterpaste, rot SB 48-3360
21-	Glassodur-PUR-Acryl-Lack AD/AE 2
929-73	Glassodur-MS-Härter SC 29-0173
352-91	Glassodur-Einstellzusatz SV 41-0391
923-335	Glasurit Klarlack (with Hensotherm 410KS)
Manufacturer:	Rudolf Hensel GmbH Lauenburger Landstraße 11 D-21039 Börnsen
Type:	Fire protective coating: Hensotherm 410KS (with 923-335 Glasurit Klarlack)

51-30-02 Metal Components

IMPORTANT

Only approved materials have to be used for the repair of metal components.

Steel tubing:

Manufacturer:	MHP Mannesmann Hoesch Präzisrohr GmbH Postfach 1713, D-59061 Hamm, Germany
Supplier:	HEINE+BEISSWENGER Stiftung + CO Postfach 1510, D-70705 Fellbach, Germany
Type:	WLB 1.7734.4 18mm x 1.0mm, 20mm x 1.0mm, 22mm x 1.0mm, 22mm x 1.5mm, 25mm x 1.5mm

Steel sheet metal :

Manufacturer:	BÖHLER Edelstahl GmbH München, Germany
Supplier:	BÖHLER Edelstahl GmbH Hansa Allee 321, D-40549 Düsseldorf, Germany
Type:	WLB 1.7734.4 1.0mm, 1.5mm, 2.0mm, 3.0mm

Paint:

Manufacturer:	GLASURIT GmbH Max-Winkelmannstr. 80, D-48165 Münster / Hiltrup, Germany
Supplier:	WESSELS AG Pagenstecherstraße 121, D-49090 Osnabrück, Germany
Type:	
801-1552	Glassofix Grundfüller-EP AC 01-1492
965-32/2	Glassofix Härter-EP SC 65-0322
21-	Glassodur-PUR-Acryl-Lack AD/AE 2
1929-73	Glassodur-MS-Härter SC 29-0173
352-91	Glassodur-Einstellzusatz SV 41-0391

51-30-03 Aluminium Components

Aluminium sheet metal:

Manufacturer:	Kaiser Aluminium & Chem. Corp. Spokane, Washington
Supplier:	Westdeutscher Metallhandel Postfach 104245 45141 Essen
Type:	WLB 3.1364. T3511 or 2024 T3 0.6mm; 0.8mm; 1.2mm

Control rod tubings:

Manufacturer:	Aluminium AG CH-5737 Menziken
Supplier:	Karstens & Knauer GmbH&Co D-28865 Lilienthal
Type:	WLB 3.1354. T3 ø 25x1mm

Paint:

Manufacturer:	GLASURIT GmbH Max-Winkelmannstr. 80, D-48165 Münster / Hiltrup, Germany
Supplier:	WESSELS AG Pagenstecherstraße 121, D-49090 Osnabrück, Germany
Type:	
Primer:	
283-150	Glassofix-Grundfüller AB83-1150
352-228	Glassofix-Zusatzlösung SC12-0228
Lacquer:	
21-	Glassodur-PUR-Acryl-Lack AD/AE 2
1929-73	Glassodur-MS-Härter SC 29-0173
352-91	Glassodur-Einstellzusatz SV 41-0391

Aluminium hardware metal (brackets, pedestals, castings, etc.):

Paint:

Manufacturer:	Parker & Anchem, Ambler, PA 19002
Supplier:	Aircraft Spruce
Chem. coating:	Alodine No. 1201 (MIL-C-5541)
Lacquer:	see above

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53-00-00 GENERAL

The fuselage structure consists of a TIG-welded steel tube construction integrating the wing and empennage connections as well as the seats (refer to Figure 1).

The particular areas of the fuselage are covered with different materials (also refer to Chapter 51-00-01 "Access Panel Identification"):

Both halves of the engine cowling consist of glass fibre laminate and honeycomb. They are coated with fire protection paint ("WIEDOFLUGAT" N 56582 /T508 with clear coat 4232- 0303 or "HENSOTHERM 410KS" with clear coat Glasurit 923-335; refer Chapter 51-30-01)

The front part of the fuselage behind the fire wall, the lower side and the sides below the wing are faired with aluminium panels. The lower rear part of the fuselage is covered with fabric. The rear part of the upper fuselage surface (turtle deck) consists of an aramid laminate.

The one-piece canopy frame is built of carbon fibre laminate and rovings. The window portion is made of acrylic glass.

The layer sequences of the engine cowlings, the turtle deck and the tail fairing are shown in Figures 2-5.

All composite parts, as protection against moisture and UV radiation, are coated with an unsaturated polyester gel-coat, an acrylic filler and finally with an acrylic paint.

For repair of composite parts and steel components refer to Chapter 51. The repair of fabric has to be executed in accordance to the FAA AC 43.13-1A.

53-00-03 Bottom Fuselage Cover

Removal

1 Remove engine cowling, the landing gear cuffs and turtle deck as per chapter 51.

2 Pull the plug of the optional OAT sensor wiring, if applicable.

3 Disconnect the antenna wirings.

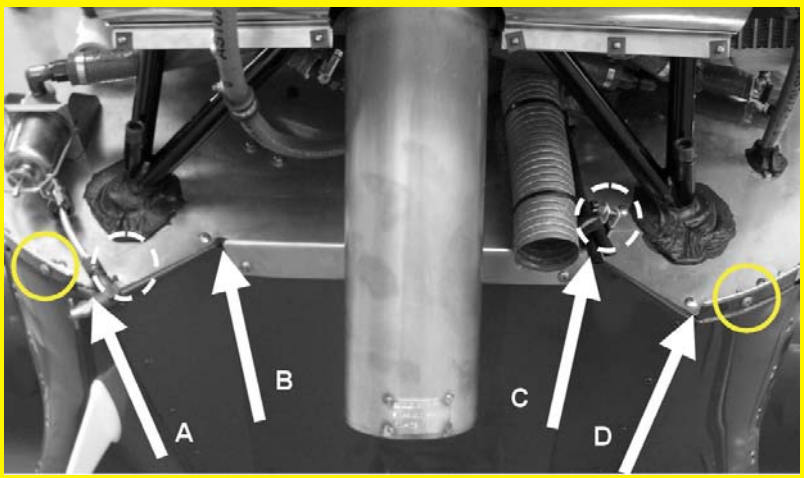
4 Remove bottom covering sheets and LEXAN window by removing the attachment screws.

Installation

IMPORTANT

The cockpit area must be thoroughly sealed and thus separated from the engine compartment. Gases or fluids could get into the cockpit area.

Critical areas to be observed are the following:
Position A and D of figure 6, where different parts converge (firewall, aluminium profile, bottom covering sheet and exhaust area covering sheet) Position B and C, where a bent corner ends in a bore hole.



Forward View on Bottom Side Firewall
Figure 6

1 Position aft bottom covering sheet in its original position.

2 Plug the optional OAT sensor wiring and/or antenna wiring, if applicable.

3 Install aft bottom covering sheet attachment screws.

4 Install LEXAN-window.

5 Repeat steps 1 thru 3 for the forward bottom covering sheets.

6 Install bottom cowling attachment screws (one on either side) without cowling present (see two outer circles in figure 6).

7 Loosen clamp screws on gascolator drain and fuel pump vent lines for easy access (see inner dotted circles).

8 Prepare PR-812 firewall sealant by mixing brown part A with black part B with weight ratio 2.5:100.

9 Clean areas (from inside and outside) with solvents at four positions pointed out by the arrows in figure 6. Immediately thereafter, dry these areas with a new dry cloth.

10 At the gascolator drain (position A) seal the remaining gap between firewall and bottom fuselage cover from inside and outside with PR-812 firewall sealant. Minimum sealant thickness approximately 1/8 inch (= 3 mm).

11 Repeat step 9 at positions B, C and D.

12 Cure time @77°F (25°C), 50%RH for a fillet 1/8 inch thick:

tack free	approx. 24 hours
to tough rubber	approx. 72 hours
to performance properties	approx. 14 days

13 Fasten clamp screws on gascolator drain and fuel pump vent lines.

14 Remove the two bottom cowling attachment screws.

15 Reinstall turtle deck, landing gear cuffs and engine cowling as per Chapter 51.