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
Battery of the Pointer ELT Battery of the Artex ELT	2 years * 5 years *
Battery of Garmin GNC 420W	on condition **
Internal Battery of Aspen EFD Pilot PFD	3 years, 800 hours or on condition*
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*

*** recommended replacement every 5 years to avoid unscheduled maintenance*

**** if not stated otherwise*

05-10-04 Time Between Inspection

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 and Maintenance Manual and SB's, Christen Product Manual 801 Series and SB's, Slick Magneto Maintenance and Overhaul Manual and SB's and 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	2a Check optional landing light for dirt.		
	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.		

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	9	Inspect oil temperature sensor unit for leaks and security.		
	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 and Maintenance 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	Date: / Serial No.:	Inspections	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.		
		O	26	Inspect SlickSTART, refer to Unison Operation, Maintenance, and Troubleshooting Manual. (AEIO-580-B1A engine only)		

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]			27 Clean magnetos.		
O[1]			28 Inspect ball bearing assembly, impulse coupling, coil, contact points, condenser and carbon brush.		
O[2]			29 Replace ball bearings.		
O[1]			30 Lubricate magnetos.		
O[3]			31 Overhaul or replace magnetos.		
		O	32 Check fuel injector for general condition, clean fuel inlet screen.		
	O	O	33 Inspect intake seals and O-rings for leaks and clamps for tightness.		
	O	O	34 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	35 Check fuel system for leaks.		
O[4]	O	O	36 Remove, clean and inspect gascolator screen and fuel filter bowl.		
	O	O	37 Inspect throttle, mixture, and propeller governor controls for security, travel, and operating conditions.		
	O	O	38 Inspect exhaust stacks, connections and gaskets (replace gaskets as required).		
	O	O	39 Inspect exhaust slipjoints for general condition.		
	O	O	40 Inspect exhaust system attachment.		
		O	41 Inspect crankcase for cracks, leaks, and security of seam bolts.		
	O	O	42 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	43	Inspect engine mount for cracks and loose mountings.			
	O	O	44	Inspect engine baffles free from cracks and fraying.			
		O	45	Inspect all wiring connected to the engine or accessories			
	O	O	46	Inspect engine shock mount for deterioration (replace as required).			
		O	47	Inspect firewall seals (see EXTRA SB 300-6-94).			
		O	48	Inspect alternator, cable connections and accessories.			
		O	49	Inspect condition and tension of alternator drive belt			
		O	50	Inspect security of alternator mounting			
		O	51	Inspect starter and starter drive			
	O	O	52	Check brake fluid level (fill as required).			
	O	O	53	Clean engine if necessary.			
	O	O	54	Lubricate all controls per lubrication chart.			
O[1]			55	Overhaul or replace propeller governor as required.			
O[2]			56	Complete overhaul of engine or replace with factory rebuilt			
	O	O	57	Reinstall engine cowling.			

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

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.

		Inspections	Date:	Inspector:
			Serial No.:	Mechanic:
O	1	Check all cables and hoses, replace when necessary		
O	2	Check engine according to the Lycoming Manual		
O	3	Check fire wall and engine cowling for damage by high temperatures (e.g. signs of blister 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:

		Inspections	Date:	Inspector:
			Serial No.:	Mechanic:
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.		

32-11-00 MAINTENANCE PRACTICES

32-11-01 Main Landing Gear

Removal/Installation

Refer to Figure 1

1 Remove the engine cowling, the landing gear cuffs and the 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 brake lines, 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.

32-11-02 Top Half of the Mounting Clamp

Removal/Installation

Refer to Figure 1

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.

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 (except Serial No. 45 thru 79):

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 (except Serial No. 45 thru 79):

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

Steel tubing (Serial No. 45 thru 79):

Manufacturer:	Pacific Tube Company 5710 Smithway Street Los Angeles, California 90040, USA
Supplier:	Wicks Aircraft Supply, Co. 410 Pine Street Highland, Illinois 62249, USA
Type:	AISI 4130 N (MIL-T-6736 Normalized) 2" x 0.049", 1 1/8" x 0.058", 1" x 0.058" 7/8" x 0.058", 7/8" x 0.035", 3/4" x 0.035", 5/8" x 0.035"

Steel sheet metal (Serial No. 45 thru 79):

Manufacturer:	Cold Metal Products, Inc. 2301 So. Holt Road Indianapolis, In. 46241, USA
Supplier:	Wicks Aircraft Supply, Co. 410 Pine Street Highland, Illinois 62249, USA
Type:	AISI 4130 N(MIL-S-18729 G Normalized) 0.04", 0.063", 0.08", 0.1", 0.125"

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

51-70-05 Structural Repair of Steel Components

Restoration of a damaged fuselage to its original design strength, shape and alignment involves careful evaluation of the damage, followed by exacting workmanship in performing the repairs.

IMPORTANT

Should structural repairs practicable on the aircraft be necessary, refer to "Aircraft Inspection and Repair FAA AC 43.13-1A" and "Aircraft Alterations Acceptable Methods, Techniques and Practices FAA AC 43.13-2A". Consult EXTRA in case of doubt about a repair not specifically mentioned there.

IMPORTANT

Alterations or repair of the airplane must be accomplished by *licensed* personnel.

Consider, that except from Serial No. 45 thru 79 WLB 1.7734.4 type steel has been used for the complete fuselage structure so as steel tubes, brackets, connections etc. (steel tubes are in mm-measurements). From Serial No. 45 thru 79 AISI 4130 N type steel is used (steel tubes are in inch-measurements). Also refer to Chapter 51-30-02.

The two steel types shall not be mixed in repair.

NOTE

If welding work must be performed, use only the TIG procedure (Tungsten Inert Gas). Use steel welding wire 1.7734.2 (except from Serial No. 45 thru 79) or 1.7324, 1.7734.2 or equivalent (from Serial No. 45 thru 79) for welding additive.

53-00-00 GENERAL

The fuselage structure of the EXTRA 300L consists of a TIG-welded steel tube construction integrating the wing and empennage connections (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 optional carbon cowlings have been coated with fire protection paint up to serial number 1323. The fire protection paint for carbon cowlings does not need to be renewed when uncomplete or worn out.

The main fuselage cover consists of glass fibre, carbon fibre and aramid laminate.

The bottom fuselage cover is made of carbon fibre and aramid fibre laminate, the cuffs of carbon fibre laminate. The lower rear part of the fuselage is covered with fabric. The window portion is of acrylic glass. The tail fairing consists of glas fibre laminate and the tail side skins are made of aluminium sheet metal.

The layer sequences of the composite parts are shown in Figures 2-6.

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.

Minimum sealant thickness approximately 1/8 inch (= 3 mm).

7 Repeat step 6 at positions B, C and D.

8 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

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

10 Remove the two bottom cowling attachment screws.

11 Reinstall main fuselage cover as per Chapter 53-00-03

12 Reinstall landing gear cuffs and engine cowling as per Chapter 51-00-01.