



## SERVICE LETTER No. L 133

**DATE:** October 1, 2021

**TO:** Ministry of Defense of Bulgaria

**MODEL AFFECTED:** Z 242 L aircraft, S/N: 0852, 0853, 0854, 0855

**SUBJECT:** Determination of technical safe life of the airframe and introduction of a new maintenance system for Z 242 L aircraft.

Based on operational experiences and knowledges, the aircraft manufacturer ZLIN AIRCRAFT a.s. introduces for the above-mentioned serial numbers:

1. The basic total technical safe life of the airframe is **6000 flight hours** in all aircraft airworthiness category.

**NOTE:**

Aircraft operation in accordance with a load spectrum, which corresponds with the basic total safe fatigue life time is a condition for saving this limit. This limit can be increased or decreased according to actual load spectrum.

If the aircraft is operated outside the limits of frequencies of load factors, which correspond with basic total safe fatigue life time, its safe life time is changed, either by a change of total safe life time limit or by determination of a limit from which the aircraft shall be operated in NORMAL (N) category only or by determination of acrobatic time limit for specified total operation time limit or by determination of a limit at which the wings and another prescribed parts shall be replaced to enable further aircraft operation. If the aircraft is operated in acrobatic operation outside the limits of frequencies of load factors which correspond with basic time of replacement intervals of main wing hinges pins and bushings and rear hinge pins, interval time of these replacement is changed.

2. a new maintenance system consisting of periodic inspection of the airframe after each 100 flight hours or after 1 year of operation (*whichever occurs first*) in the category AEROBATIC (A), UTILITY (U), NORMAL (N).

**TIME OF COMPLIANCE:** Immediately after delivery of the above mentioned aircraft's.



**PROCEDURES:**

During max. first 50 flight hours must be send data from AMU 1 to aircraft manufacturer to first analysis. The other sending will be determined according to data evaluation from AMU1.

After receipt of above-mentioned aircraft serial numbers, print the new maintenance system (*see enclosure of this Letter*).

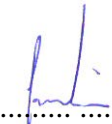
This system fully replaces the system mentioned in the Maintenance Manual, Vol. I (Chapter 5, Inspection type A) and Vol. II (Chapter 1, Inspections type B, C) or in individual supplements.

Log this new maintenance system into the board documentation.

**NECESSARY MATERIAL:**      --


**ENCLOSURES:**              The new system of scheduled maintenance checks

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.....  
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## THE SYSTEM OF SCHEDULED MAINTENANCE CHECKS

Item	Maintenance Check	List of scheduled inspections					Note	Performed by
		F25	F50	50	100	S.I.		
<b>0.</b>	<b>PREPARATORY WORKS</b>							
	a) Check aircraft accompanying technical and operational documentation, accuracy of records in Aircraft Log Book, Engine Log Book and Propeller Log Book				o			
	b) Check all aircraft, engine and propeller bulletins accomplished				o			
	c) Check time limits of all parts with limited safe life time (Chapter 9 Maintenance Manual of the Z 242 L Aircraft, Vol. I.)				o			
	d) Check accomplishment of all Airworthiness Directives (AD)				o			
	e) Wash aircraft surface, the engine and clean the cabin				o			
	f) Disassembly covers to enable inspection performance				o			
	g) Perform the engine check				o			
<b>1.</b>	<b>FUSELAGE</b>							
	<u>Cockpit canopy:</u>							
	a) sliding canopy: emergency release mechanism, hinges, greasing, free sliding of canopy, locking of canopy, emergency release mechanism lever				o			
	b) canopy glass: cracks, damage, glass silvering				o			
	c) cabin equipment: completeness of equipment, damage of equipment				o			
	d) cabin cleanness: no loose items				o			
	e) completeness and legibility of placards				o			
	<u>Fuselage frame:</u>							
	a) visual check (with magnifier) for cracks in attachment and in vicinity of attachment of the engine mount, the main spar, in fixing of the battery and safety belts.				o			
	b) corrosion, damaged coat				o			
	c) holes in attachment of the wings, engine mount, main landing gear and nose landing gear struts: check for distortion after mandatory removal of suspended parts					500		
	d) distortion of tubes (e.g. at unsuitable leveling)				o			
	<u>Rear fuselage part</u>							
	a) skin and bulkheads: damage, deformation, coating				o			
	b) auxiliary tail skid: attachment, damage				o			
	c) riveted joints: loosened rivets, corrosion				o			
	d) foot rests: deformation, cracks				o			
	e) last bulkhead: attachments of stabilizer struts, attachment of pulleys, cracks, loosened rivets				o			
	f) stabilizer struts: deflection, cracks (visually by magnifier)				o			
	f <sub>1</sub> ) stabilizer struts: deflection, cracks (by NDT method)					1500		
	g) attaching bolts of the rear fuselage part: deformation, measuring the bolts length					500		
	<u>External body:</u>							
	a) covers and floors: deformation, damage				o			
	b) rubber parts: condition				o			
	c) screws of covers: tightening				o			
	d) centroplane: attachment, damage, deformation, coating				o			

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<b>2.</b>	<b>WINGS</b>							
	<u>Wing L.H. / Wing R.H.:</u>							
	a) main wing spar: corrosion, tightening nuts of cone pins		0		0			
	a <sub>1</sub> ) main wing spar: corrosion, scratching, crack on main attachment, cracks on web and on flanges between ribs No. 1 and No. 2 (visually)				0			
	a <sub>2</sub> ) fitted bolts of upper outer wing hinges (on upper wing side): loosening, damage (visually)				0			
	b) preservation of wing attachment fittings				0			
	c) skin (ailerons and wing flaps incl.): deformation, damage, cracks				0			
	d) wing flaps stop: deformation				0			
	e) riveted joints: corrosion, loosened rivets				0			
	f) antiskid tape: damage, wear				0			
	g) brackets for attachment of the wing flaps control levers: cracks, deformation, loosened bearings				0			
	h) wing tips: damage				0			
	<u>Ailerons and wing flaps suspension, mass balance of ailerons:</u>							
	a) hinges: corrosion, cracks				0			
	a <sub>1</sub> ) hinges at ailerons and wing flaps: cracks (visually)				0			
	a <sub>2</sub> ) hinges of ailerons on the wing rear spar: cracks (visually)				0			
	a <sub>3</sub> ) hinges of wing flaps on the rear spar: cracks (visually)				0			
	a <sub>4</sub> ) hinges of wing flaps on the rear spar: cracks (by NDT method)					1500		
	b) attachment pins (fitted bolts): corrosion, cracks, nuts securing					1500		
	c) bearings: rolling-in, damage					1500		
	d) mass balance of ailerons: corrosion, cracks (visually)				0			
	d <sub>1</sub> ) mass balance of ailerons: corrosion, cracks (by NDT method)					1500		
	d <sub>2</sub> ) locking nuts				0			
	<u>Wing attachment on the fuselage:</u>							
	a) holes in main attachments: ovality, deformation					1500		
	b) bearings in rear (auxiliary) attachments: rolling-in, damage					1500		
	c) wing attachment pins: cracks, corrosion, deformation, locking					1500		
	d) sealing between wing and fuselage: damage				0			

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<b>3.</b>	<b>EMPENNAGE</b>							
	<u>Empennage surface:</u>							
	a) skin: damage, deformation, cracks				o			
	b) wing tip: damage (deformation)				o			
	c) riveted joints					1500		
	<u>Stabilizer:</u>							
	a) front spar: cracks, deformation, corrosion					1500		
	b) attachment pins: cracks (visually), deformation, corrosion, locking nuts		o		o			
	c) joints on the stabilizer: corrosion, cracks, holes deformation					1500		
	<u>Control surfaces suspension:</u>							
	a) hinges on control surfaces: corrosion, cracks					1500		
	b) bearings: rolling-in, condition, greasing					1500		
	c) hinge pins: cracks (visually), deformation, corrosion					1500		
	d) locking nuts of elevator and rudder hinges				o			
	<u>Elevator:</u>							
	a) balance tab and trim tab: condition of tabs, corrosion and locking of piano-hinge wire, play in piano-hinges				o			
	b) balance tab and trim tab: play in the balance tab control				o			
	c) mass balance: condition and tightening of nuts				o			
	<u>Rudder:</u>							
	a) Trim tab: damage, deformation				o			
<b>4.</b>	<b>CONTROLS</b>							
	<u>Stops of control systems:</u>							
	a) deformation, damage				o			
	<u>Cables:</u>							
	a) condition, stretching				o			
	b) cables cleanness and cables greasing				o			
	<u>Pulleys:</u>							
	a) wear of groove caused by cables, free movement				o			
	Play in stick and pedal control: may not exceed permissible values				o			
	<u>Control rods:</u>							
	a) corrosion, cracks, deformation					1500		
	<u>Control stick:</u>							
	a) wing flap lever: corrosion, cracks				o			
	<u>Bearings (after control system removal):</u>							
	a) condition, damage					1500		
	b) lubrication of bearings				o			
	<u>Ailerons and wing flaps control levers:</u>							
	a) cracks (by NDT method)					1500		
	<u>Joints and control hinges:</u>							
	a) securing all joints and hinges				o			

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5.	<b>LANDING GEAR</b>							
	<u>Tires:</u>							
	a) damage, wear, pressure in tires				0			
	<u>Landing wheels:</u>							
	a) wheel cleanness, conditions, damage, cracks (visually)				0			
	b) free rotation of wheels (after jacked-up the aircraft)				0			
	e) wheel toe-in (after jacked-up the aircraft)					500		
	f) wheel trimming: as necessary							
	<u>Landing wheel covers:</u>							
	a) condition, damage, cracks				0			
	<u>Main landing gear legs:</u>							
	a) condition, damage, grooves, cracks (visually)				0			
	b) attachment hole: damage, ovality (at each removal of legs)					1500		
	c) limiting insert: damage, corrosion (at each removal of legs)					1500		
	d) attachment bolts: deformation (bolt heads deformation), nuts locking				0			
	e) play in attachment of landing gear legs				0			
	<u>Brake system:</u>							
	a) brake cleanness, conditions, damage, cracks (visually)				0			
	b) Check play between disc and wheel clips				0			
	c) Check the brake system for leakage				0			
	c) brake control: condition of hose and metal piping, brake master cylinder leakage, condition of bowden cables, joints securing, control function				0			
	d) parking brake: function				0			
	<u>Nose landing gear:</u>							
	a) attachment of landing gear: nuts locking, corrosion, cracks				0			
	b) clearances in attachment of hydropneumatic shock absorber piston rod				0			
	c) piston rod cover: damage				0			
	d) hydropneumatic shock absorber: damage, tightness, fluid quantity, air pressure, function				0			
	e) groove in piston rod: condition					500		
	f) aluminum ring for cover fixing: condition					500		
	g) length of piston rod extension					500		
	h) fork fixing: condition				0			
	i) filling valve: fluid leakage				0			
	j) cover damper: fluid leakage				0			
	k) shimmy damper: tightness, fluid quantity				0			
	l) piston rod: fluid leakage				0			

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	<b>Struts and attachment pins:</b>							
	a) struts deformation				o			
	b) cracks in struts (visually)				o			
	b <sub>1</sub> ) cracks in struts (by NDT method)					1500		
	c) spherical bearing and hemmed bushing in double strut: loosening, damage					1500		
	d) attachment pins: cracks (visually), deformation, corrosion				o			
	e) corrosion and damaged coat				o			
<b>6.</b>	<b>ENGINE AND PROPELLER INSTALLATION</b>							
	<b>Engine:</b>							
	a) engine visually inspection				o			
	b) check of the valves and cleanliness of the front part of the crankcase					400		
	c) engine general overhaul					1400		
	<b>Propeller:</b>							
	a) propeller visually inspection				o			
	b) propeller overhaul					6R		
	<b>Engine mount:</b>							
	a) cracks (visually) by magnifier				o			
	a <sub>1</sub> ) crack (by NDT method) - at each engine general overhaul					1400		
	b) vibration damper: condition (without removal)				o			
	b <sub>1</sub> ) vibration damper: condition (after removal)					1500		
	c) deflection of struts					1500		
	d) joint holes					1500		
	e) attachment pins					1500		
	f) corrosion				o			
	<b>Engine compartment:</b>							
	a) locking nuts of all bolted joints				o			
	b) spark plugs, cables connection: tightness, re-location	o		o	o			
	c) air filter element: cleanness, damage, replacement	o		o	o			
	<b>Engine cowlings:</b>							
	a) Outer composite engine covers: cracks, deformation, coat				o			
	b) Inner composite engine cover: cracks, deformation				o			
	c) Outer composite covers quick locks: function, corrosion				o			
	<b>Engine accessories:</b>							
	a) exhaust system: cracks (visually) by magnifier				o			
	b) exhaust silencers: crack, deformation, damage, burn-out	o			o			
	c) instrument cooling: damage, cracks				o			
	d) engine intake: cleanness, corrosion				o			

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<b>7.</b>	<b>POWERPLANT SYSTEMS</b>							
	<u>Oil system:</u>							
	a) oil cooler: cleanness, tightening attachment	o			o			
	b) oil replacement	o		o	o			
	c) hose: damage, attachment, life time				o			
	d) oil filter element: replace	o		o	o			
	e) oil system cleanliness for inverted flights: see SI Lycoming No. 1397 in latest issue					300		
	<u>Fuel system:</u>							
	a) hose: damage, attachment, life time				o			
	b) piping: overall condition, attachment				o			
	c) main fuel tank: condition of filler neck packing				o			
	d) main fuel tank: condition, check of attachment					1500		
	e) battery valve: tightness, condition				o			
	f) fuel strainer: tightness, condition	o			o			
	g) fuel pump: tightness, condition	o		o	o			
	h) drain off valve: tightness, condition	o		o	o			
	ch) joints, hoses and piping: locking		o		o			
	i) fuel system tightness: verify		o			1500		
	j) annunciator of fuel low level: function check					1500		
	<u>Engine and propeller control:</u>							
	a) flexible rods: greasing				o			
	a <sub>1</sub> ) flexible rods: damage, cracks				o			
	b) flat springs and brackets: damage, cracks (visually)				o			
	c) matching front tubes to bushings				o			
	d) joint pins: locking with stainless cotter pins				o			
	e) verify function of engine and propeller control				o			
	<u>Engine electrical system:</u>							
	a) magnetos: see Service Letter Lycoming No. 173 in latest issue					500		
	b) alternator belt tension: see Service Instruction Lycoming No. 1129 in latest issue				o			
	c) starter: lubrication as necessary: see Service Instruction Lycoming No. 1278 in latest issue							
	d) compression check: see Service Instruction No. 1191 in latest issue				o			
	e) el. conductors in engine compartment: condition, attachment, cleanness and tightening of plugs	o		o	o			



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<b>8.</b>	<b>EQUIPMENT</b>							
	<u>Seats and safety belts:</u>							
	a) seat adjustment: damage or wear of seat adjustment mechanism parts, holes deformation				0			
	b) seat structure: cracks, deformation				0			
	c) safety belts: lock function, worn or otherwise damaged belts				0			
	d) seat cushions: damage, wear				0			
	e) corrosion of metal parts, coating				0			
	<u>Instrument panel and control panels:</u>							
	a) placards and markings: damage, placards visibility				0			
	b) instrument panel suspension: condition of holders (cracks)					1500		
	c) panel sheets: corrosion, damaged coating				0			
	<u>Pitot-static system:</u>							
	a) hoses: condition, life time				0			
	b) piping: corrosion, damage				0			
	c) draining sumps: damage, cleanness				0			
	d) pitot tube: inlet hole cleanness, holder condition, cracks (visually), damage				0			
	e) pitot tube and pitot-static probes heating check				0			
	f) pitot-static system tightness check					1Y		
	<u>Board equipment:</u>							
	a) crash axe: fixing, securing				0			
	b) first aid kit: content, medical material expiration				0			
	c) rear view mirror: condition				0			
	d) board fire extinguisher: corrosion, pressure, attachment, life time				0			
	d <sub>1</sub> ) board fire extinguisher: inspection of tightening					5Y		
	<u>Main spar flange pressure check:</u>							
	a) pressure gauge reading: min. 150 kPa				0			
	b) pressure gauge condition				0			
	c) piping: attachment, condition				0			
	<u>Cockpit ventilation and heating:</u>							
	a) heating hose: condition, attachment				0			
	b) function of system: free movement, verification of proper function				0			
	c) corrosion or burn out: replacement of damaged parts				0			

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		F25	F50	50	100	S.I.		
<b>ELECTRICAL SYSTEM</b>								
	<u>Board battery:</u>							
	a) voltage check				o			
	b) capacity check					500		
	c) battery installation: corrosion of metal parts, damage, attachment				o			
	d) battery annunciator control unit: function				o			
	<u>Electrical conductors:</u>							
	a) cleanness of bundles, insulation/screening condition, wires attachment, shorting or broken wires				o			
	b) contact and insulation resistances (as necessary)							
	<u>Connectors, terminal boards:</u>							
	a) cleanness, condition, connectors locking					1500		
	<u>External source socket:</u>							
	a) corrosion, damage, lid lock function				o			
	<u>Electrical bonding and static dischargers:</u>							
	a) corrosion, damage, lid lock function				o			
	<u>Electrical accessories:</u>							
	a) contactors and other parts of electrical system located on firewall: condition, check of fixing				o			
	b) circuit breakers and circuit switches: condition				o			
	<u>Lighting:</u>							
	a) condition of internal lighting (cockpit lighting, placard lighting and panel lighting)				o			
	b) condition of external lighting (condition of LED reflectors)				o			
	<u>Annunciator lights:</u>							
	a) verify of proper function				o			

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<b>COMM/NAV EQUIPMENT</b>								
	<u>Antennas:</u>							
	a) damage, corrosion, attachment				o			
	b) safety grounding of transceiver coaxial cable				o			
	<u>COMM/NAV:</u>							
	a) condition, attachment, visibility of values				o			
	b) function: connection with station on ground and during flight (during COM/NAV system check)				o			
	c) ground measurement on simulators (it is necessary to follow instructions of the manufacturer of this equipment and perform measurements in accordance with regulations of the country where the aircraft is operated)					1Y		
	d) engine instruments (on Garmin 500 TXi) system function check					1Y		
	<u>ELT:</u>							
	a) battery life time				o			
	b) function verify acc. to manufacturer instructions					1Y		
	<u>Board instruments:</u>							
	a) check of board instruments installation: attachment				o			
	c) calibration of board „analog“ instruments (calibration perform in accordance with regulations of the country where the aircraft is operated)					2R		
<b>9.</b>	<b>FINAL WORKS</b>							
	Check and readability of placards and markings in the cockpit and upon the surface of aircraft				o			
	Grease the airplane systems acc. to Plan of greasing (see Section 4.17 of MM I)				o			
	Check of aircraft to detect foreign objects, lost tools etc.				o			
	Shut access and inspection port doors and install all before removed covers and lids				o			
	Perform the aircraft leveling and adjusting acc. to measurement record mentioned in MM II Z 242L, chapter 6, Directive 6.901					500		
	Perform the aircraft weighing acc. to measurement record mentioned in MM II Z 242L, chapter 6, Directive 6.902					1500		
	Perform the compensation of magnetic compass				o			
	Make engine test acc. to measurement record mentioned in MM II Z 242 L, chapter 6, Directive 6.905				o			
	After engine test check the tightness of fuel and oil systems				o			
	Make the test flight (acc. to record mentioned in MM II Z 242 L, Chapter 6, Directive 6.905)					500		
	Make all the required entries into the pertinent logbooks				o			