

# ZLIN 143 L

## AIRPLANE FLIGHT MANUAL

Document No. 005.012

Serial No.: .....

Registration Mark: .....

Manufacturer: **Moravan Aviation Ltd. Otrokovice**  
**CZECH REPUBLIC**

Category: **UTILITY (U)**  
**NORMAL (N)**

Certification Basis: **- FAR Part 23 as amended through Amendment 23 - 41 inclusive,**  
**- FAR Part 36 as amended through Amendment 36 - 20 inclusive,**  
**- ICAO, Annex 16.**

**THIS DOCUMENT MUST BE CARRIED IN THE AIRPLANE AT ALL OPERATION TIMES!**

The Czech original of this Flight Manual has been approved by the Civil Aviation Authority of the Czech Republic in Prague, on **August 9, 1994**

The English version has been translated with care and is accurate to the best of editor's knowledge. However in all official matters the original Czech version is the authoritative document.

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765 81 Czech Republic

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**0.4. LIST OF EFFECTIVE PAGES**

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**NOTE:**

Section 9 consists of the separate Supplements which are included in the Flight Manual in accordance with the aircraft equipment. Each Supplement is provided with the individual List of effective pages.

Rev. No.:	Description/eligibility	Pages affected:	Date of issue of new page	Date of revision incorporation and signature
6	Design modifications from S/N 0015 inclusive. Formal faults removal. (all aircraft)	0-1, 0-9, 0-10, 0-11, 0-15, 2-15, 6-24, 7-7, 7-8, 7-9, 7-10, 7-41, 7-42, 8-9a, 8-9b, 8-10	Nov 7, 1996	
7	Measuring of the fuel quantity in the hole range from S/N 0023 and cancelling of the fuel level gauges. Equipment list extension and formal faults removal (all aircraft, which are not provided with the German version of AFM)	0-1, 0-9, 0-10, 0-11, 0-12, 0-15, 1-3, 1-12, 2-3, 2-4, 2-9, 2-10, 2-11, 2-18, 3-12, 3-17, 4-5, 4-6, 4-8, 4-12, 4-14, 6-18, 6-19, 6-20, 6-21, 6-22, 6-24, 6-25, 7-7, 7-8, 7-9, 7-10, 7-11, 7-13, 7-41, 7-42, 7-46, 7-47, 8-1, 8-9, 8-9a, 8-9b, 8-10, 8-18	Mar 10, 1997	
8	Design modifications from S/N 0046 inclusive. Formal faults removal. (all aircraft)	0-1, 0-9, 0-10, 0-11, 0-12, 0-15, 2-7, 2-9, 2-9a, 2-9b, 2-10, 3-4, 3-13, 3-15, 3-16, 4-4, 4-29, 4-34, 6-18, 6-22, 6-23, 6-25, 7-7, 7-7a, 7-7b, 7-8, 7-9, 7-10, 7-13, 7-14, 7-15, 7-17, 7-19, 7-44, 7-44a, 7-44b, 7-45, 7-46, 7-51,	Apr 20, 2001	
9	Change of the Fuel low level measuring from S/N 0053 inclusive	0-1, 0-9, 0-10, 0-15, 2-9b, 3-13	Jul 9, 2002	
10	Permission of six-turn spins performance in utility category. (all aircraft)	0-1, 0-9, 0-10, 0-15, 2-14, 2-20, 4-31	May 18, 2004	
11	Flight maneuvers performance limitations in utility category. (all aircraft)	0-1, 0-9, 0-15, 2-13, 2-14, 2-20	May 18, 2004	
12	Aircraft empty weight (theoretical) specification Outside air temperature specification Formal faults removal (all aircraft)	0-1, 0-9, 0-10, 0-11, 0-12, 0-15, 1-3, 2-4, 2-5, 2-9b, 2-13, 2-14, 2-16, 2-20, 4-6, 4-8, 6-16, 6-17, 6-18, 6-19, 6-20, 6-21, 6-22, 6-23, 6-24, 6-25, 7-19, 8-3, 8-4, 8-9, 8-9a, 8-9b	Oct 19, 2007	

**NOTE:**

- (1) The holder of the Flight Manual is obliged to make appropriate entries into this log according to 0.5.1 - Revisions.
- (2) The Manufacturer has incorporated into this Flight Manual, originally delivered with the aircraft, all revisions issued by the Date of Revisions, that is identified on the title page of this Flight Manual.

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**1. GENERAL****1.1 CLASSIFICATION OF THE AIRCRAFT**

The Z 143 L aircraft is designed for basic and advanced training and touring flights. When equipped with appropriate optional equipment it is suitable for training in night and IFR flights, radionavigation IFR air navigation and glider and banner towing.

The Z 143 L is a low wing, single engine cantilever monoplane of all-metal structure, four-seater with 2+2 seats arrangement, with tricycle fixed landing gear.

The power plant consists of the TEXTRON Lycoming O-540-J3A5 piston engine and three-blade constant-speed hydraulically controlled MTV-9-B/195-45a propeller.

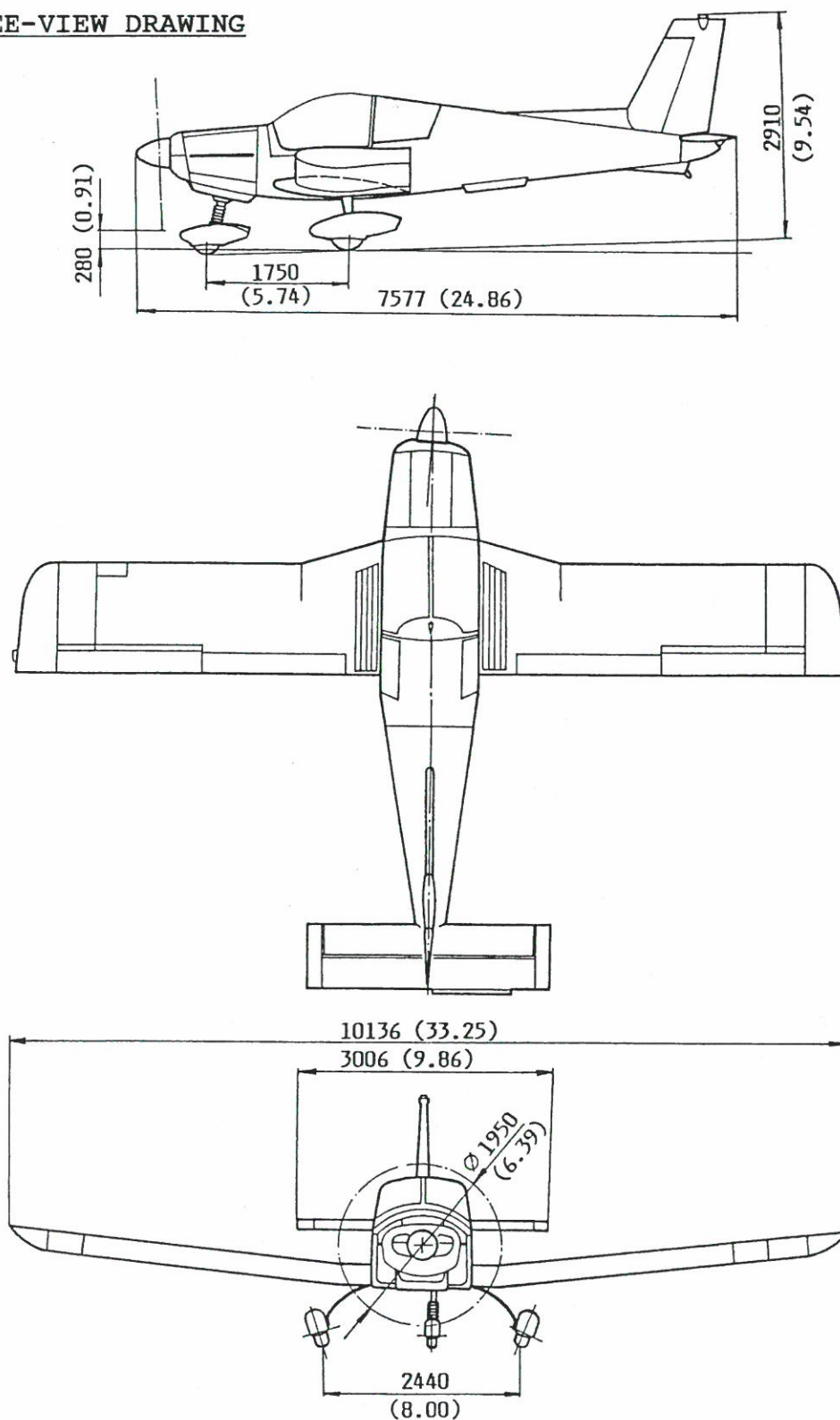
**1.2 MANUFACTURER**

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**765 81 OTROKOVICE,**  
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Tel.: +420/57 608 3900

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1.3. THREE-VIEW DRAWINGNOTE:

The dimensions in millimetres (feet).

## 2. OPERATING LIMITATIONS

### 2.1. VALIDITY OF OPERATING LIMITATIONS

Approved operating limitations contained in Section 2 apply both to the UTILITY (U) and NORMAL (N) category.

Possible changes of the operating limitations of Section 2 associated with the Optional System or Equipment are provided in Section 9 - SUPPLEMENTS.

### 2.2. KINDS OF OPERATION

#### 2.2.1 General

The airplane may be operated in following kinds of operation, when the appropriate equipment is installed and operable.

1. VFR Day
2. VFR Night
3. IFR

FLIGHT INTO KNOWN ICING CONDITIONS IS PROHIBITED!
---

#### 2.2.2 Kinds of Operation Equipment List

The following equipment list (KOEL) identifies some systems and equipment, which must be installed and operable on airplane for the particular kind of operation. This KOEL may not include all equipment (e.g. COMM/NAV etc.) required by the applicable Operating rules. Also the components obviously necessary for the airplane to be airworthy are not included.

**CAUTION:**

THE AIRPLANE MAY BE OPERATED IN DAY OR NIGHT VFR, IFR, NOT IN ICING CONDITIONS, WHEN THE APPROPRIATE EQUIPMENT IS INSTALLED AND OPERABLE IN ACCORDANCE WITH REQUIREMENTS SPECIFIED BY THE RESPONSIBLE CIVIL AVIATION AUTHORITY.

SYSTEMS and/or COMPONENTS	VFR Day	VFR Night	IFR
<b><u>ELEKTRICAL POWER</u></b>			
1. DC Generator	1	1	1
2. Battery	1	1	1
3. DC V-A Meter	1	1	1
4. Generator Annunciator	1	1	1
5. Turn-and-Bank Indicator Emergency Source	0	1	1
6. Turn-and-Bank Indicator Emergency Annunciator	0	1	1
<b><u>FLIGHT CONTROLS</u></b>			
1. Airspeed Indicator	1	1	1
2. Sensitive Altimeter	1	1	2
3. Magnetic Compass	1	1	1
4. Turn-and Bank Indicator	0	1	1
5. Slip/Skid Indicator	0	1	1
6. Gyro Horizon	0	0	1
7. Directional Gyro	0	0	1
8. Vertical Speed Indicator	0	1	1
9. Clock	1	1	1
10. Outside Air Thermometer	0	0	1
<b><u>ENGINE / FUEL SYSTEM INDICATION</u></b>			
1. R.P.M. Indicator	1	1	1
2. Oil Pressure Indicator	1	1	1
3. Oil Pressure Loss Annunciator	1	1	1
4. Oil Temperature Indicator	1	1	1
5. Fuel Pressure Indicator	1	1	1
6. Fuel Quantity Indicator (for each tank)	4	4	4
7. Fuel Low Level Annunciator (L + R)	2	2	2
8. Cylinder Head Temperature Indicator	1	1	1
9. Manifold Pressure Indicator	1	1	1
10. Carburetor Temperature Indicator	1	1	1

SYSTEMS and/or COMPONENTS	VFR Day	VFR Night	IFR
<b><u>LIGHTS</u></b>			
1. Position Lights	0	3	3
2. Anticollision Lights	1	1	1
3. Landing Light	0	1	1
4. Taxi Light	0	1	1
5. Cockpit and Instruments Lights	0	1	1
<b><u>FLIGHT CONTROLS</u></b>			
1. Trim Position Indicator (Elevator, Rudder)	2	2	2
2. Stall Warning Horn	1	1	1
<b><u>EQUIPMENT</u></b>			
1. Static Pressure Probes Heating	0	0	1
2. Pitot Heating	0	0	1
3. Alternate Static Pressure Source	0	0	1
4. Fire Extinguisher	1	1	1
5. First-Aid-Kit	1	1	1
6. Spare Fuses / Circuit Breakers	1	1	1
7. ELT	0	1	1

**NOTE:**

Numbers given in individual columns indicate quantity of instruments installed (and operable) on the aircraft.



2.3. AIRSPPEED LIMITATIONS

Airspeed	Symbol	Cat.	Speed Values knots (km/h)		Note
			CAS	IAS	
Never Exceed Speed	$V_{NE}$	U	170 (315)	165 (306)	Never exceed this speed
		N	170 (315)	165 (306)	
Maximum Structural Cruising Speed	$V_{NO}$	U	143 (265)	139 (258)	Do not exceed this speed with the exception of calm atmosphere and then only with caution
		N	143 (265)	139 (258)	
Design Maneuvering Speed	$V_A$	U	124 (230)	121 (224)	If this speed is exceeded, do not apply full deflections of controls (rudder, elevator..) and do not use abrupt motions
		N	130 (241)	127 (236)	
Maximum Flaps Extended Speed	$V_{FE}$	U	105 (195)	103 (190)	Never exceed this speed with wing flaps in extended position
		N	105 (195)	103 (190)	

CAUTION:

DESIGN MANEUVERING SPEED  $V_A$  DECREASES WITH THE DECREASING WEIGHT AND VICE VERSA.

2.3.1 Airspeed Indicator Marking

Name of Instrument		Red radial line	Yellow arc	Green arc	White arc
Airspeed Indicator IAS	knots	165	139-165	62-139	54-103
	km/h	306	258-306	115-258	100-190
Markings reading		Limit values	Caution range	Normal operation range	Wing flaps extended
				Operating range	



**Valid from S/N 0023 incl. up to S/N 0052 incl.**

**CAUTIONS:**

- (1) WHEN THE ANNUNCIATOR LIGHTS „**L FUEL LOW LEVEL**“, „**R FUEL LOW LEVEL**“ ARE ON, THE USABLE FUEL IN PARTICULAR TANK IS ABOUT 3 litres (0.8 USgal.) - FOR APPROXIMATELY 5 minutes OF FLIGHT IN ECONOMICAL POWER SETTING.
- (2) WHEN THE AUXILIARY TANK CONTAINS ANY FUEL, DO NOT OPEN THE MAIN TANK FILLING CAP! - THERE IS A DANGER OF THE FUEL FLOW - OUT! (The main tank is refuelled by means of gravity feeding from the auxiliary tank).
- (3) THE TAKE-OFF IS PROHIBITED IF IN BOTH MAIN TANKS IS LESS THEN 15 litres (4 US gal.) OF FUEL.
- (4) THE TAKE-OFF IS ALLOWED, IF THE FUEL VALVE IS SWITCHED-OVER TO MAIN TANK CONTAINING MIN. 15 litres (4 US gal.) OF FUEL.

**Valid from S/N 0053 incl.**

**CAUTIONS:**

- (1) WHEN THE ANNUNCIATOR LIGHTS „**L FUEL LOW LEVEL**“, „**R FUEL LOW LEVEL**“ ARE ON, THE USABLE FUEL IN PARTICULAR TANK IS ABOUT 8 litres (2.1 USgal.) - FOR APPROXIMATELY 10 minutes OF FLIGHT IN ECONOMICAL POWER SETTING.
- (2) WHEN THE AUXILIARY TANK CONTAINS ANY FUEL, DO NOT OPEN THE MAIN TANK FILLING CAP! - THERE IS A DANGER OF THE FUEL FLOW - OUT! (The main tank is refuelled by means of gravity feeding from the auxiliary tank).
- (3) THE TAKE-OFF IS PROHIBITED IF IN BOTH MAIN TANKS IS LESS THEN 15 litres (4 US gal.) OF FUEL.
- (4) THE TAKE-OFF IS ALLOWED, IF THE FUEL VALVE IS SWITCHED-OVER TO MAIN TANK CONTAINING MIN. 15 litres (4 US gal.) OF FUEL.

**2.4.5 Engine Oil**

For the first 50 flight hours only mineral aviation oil of the viscosity class according to the table for the Lycoming O-540-J3A5 engine should be used.

For further operation mineral, ashless dispersant or synthetic aviation oils of viscosity class according to the table or equivalent oil types approved by the engine manufacturer may be used.

**Table of recommended oils**

Average outside air temperature		Recommended oil viscosity class-SAE	
°F	°C	Mineral oils	Dispersive oils (ashless)
above +80	above +27	60	60
above +60	above +16	50	40 or 50
+30 to +90	-1 to +32	40	40
0 to +70	-18 to +21	30	40, 30 or 20W40
under 10	under -12	20	30 or 20W30
whole operation temperature range		-	15W50 or 20W50

**NOTES:**

- (1) Synthetic and semisynthetic oils shall not be added to and mixed with the other kinds of oil.

**2.6.3 Basic Empty Weight (theoretical)**

Category		Basic Empty Weight (theoretical)	
		kg	lb
Utility	(U)	855 ± 3 %	1885 ± 3 %
Normal	(N)		

**CAUTION:**

BASIC EMPTY WEIGHT (ACTUAL) IS MENTIONED IN CHAPTER 6 IN THIS AFM.

**2.7 FLIGHT MANEUVERS****2.7.1 Utility Category (U)**

In Utility (U) category the following flight maneuvers are permitted:

Ord. No.	Maneuver	Recommended entry speed IAS	
		knots	km/h
1.	Steep turn (angle of bank more than 60°, max. 90°)	min. 108	min. 200
2.	Chandelle	min. 119	min. 220
3.	Lazy eight	min. 119	min. 220
4.	Spin	67	125

**CAUTION:**

AEROBATIC MANEUVERS LISTED ABOVE MAY BE PERFORMED IN SINGLE OR DOUBLE MAN ON THE FRONT SEATS IN ANY ARBITRARY SEQUENCE, FLIGHT ATTITUDE AND COMBINATION, PROVIDED THAT FOLLOWING LIMITATIONS ARE COMPLIED WITH:

- A) WEIGHTS AND CENTER OF GRAVITY POSITION (SECTION 2.6, 2.13)
- B) POWER PLANT LIMITATIONS (SECTION 2.4.1, 2.4.2)
- C) SPEED LIMITATIONS, LOAD FACTORS LIMITATIONS AND MANEUVERING ENVELOPE LIMITATIONS -(SECTION 2.3, 2.8)
- D) INVERTED FLIGHTS AND INTENTIONAL MANEUVERES WITH NEGATIVE LOAD FACTORS ARE PROHIBITED.
- E) FOR AEROBATIC MANEUVERS, THE SEAT BACK REST SHOULD BE REPLACED BY PARACHUTE BACK REST.
- F) SPIN:
  - (A) PERMISSIBLE NUMBER OF TURNS: MAX. 6
  - (B) INTENTIONAL SPINS WITH WING FLAPS EXTENDED ARE PROHIBITED
  - (C) INTENTIONAL POWER ON SPINS ARE PROHIBITED.
- G) FLIGHT MANEUVERS ARE PROHIBITED:
  - (A) WITH FUEL IN AUXILIARY TANKS
  - (B) WITH BAGGAGE IN BAGGAGE COMPARTMENT.

**2.7.2 Normal Category (N)**

In category NORMAL (N) (weight of more than 1080 kg (2380 lbs) or fuel in auxiliary tanks) all aerobatic and flight maneuvers including intentional spins and stall are PROHIBITED.

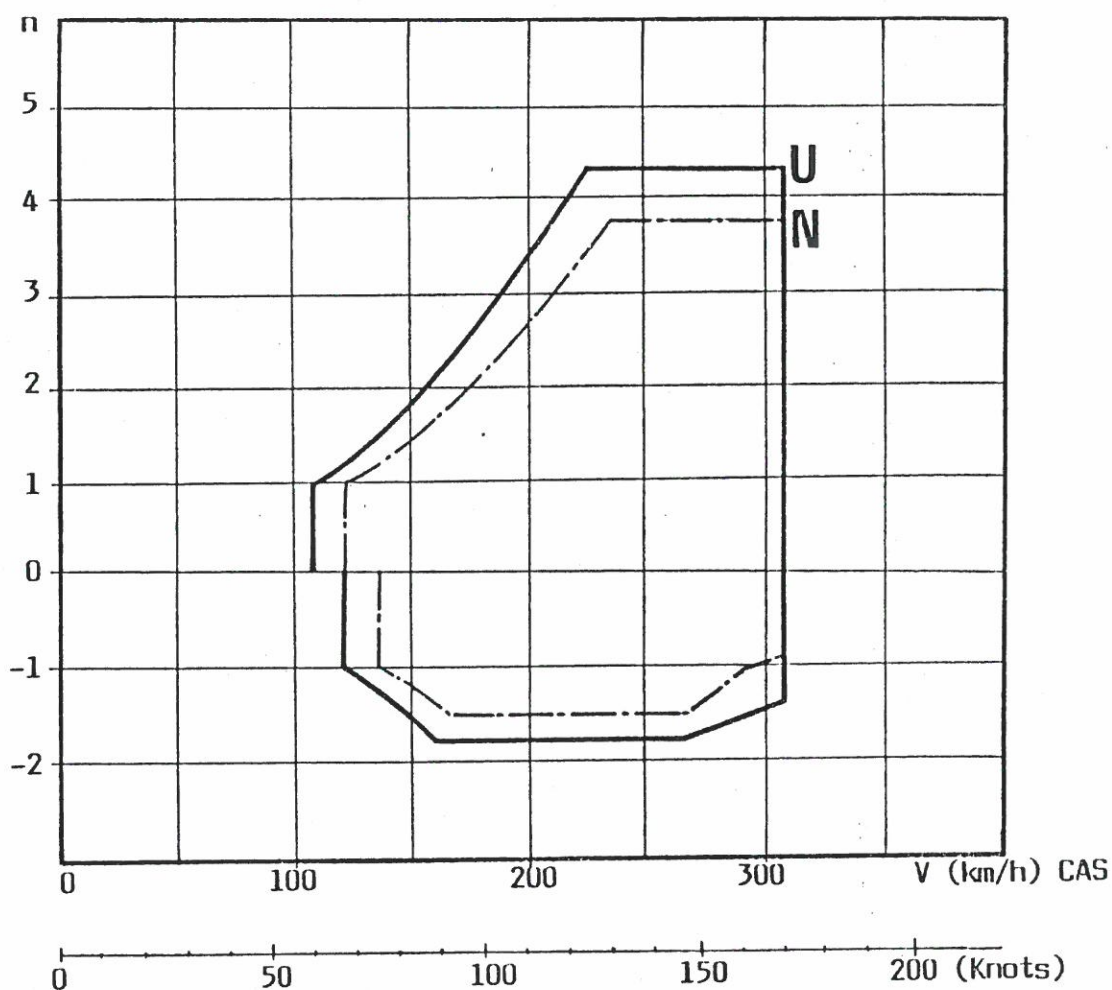


## 2.8. MAXIMUM LOAD FACTORS AND MANEUVERING ENVELOPE

### 2.8.1 Maximum Load Factors

C a t e g o r y	Load factor "g"	
	+	-
Utility (U)	4.4	1.76
Normal (N)	3.8	1.52

### 2.8.2 Maneuvering Envelope



EXPLANATORY NOTE: U category UTILITY  
N category NORMAL



**2.9 MINIMUM CREW, MAXIMUM SEAT CAPACITY**

Minimum aircraft crew is one pilot.

Maximum passenger seating capacity – three seat.

**2.10 PERMISSIBLE OUTSIDE AIR TEMPERATURE**

At high outside temperature, it is necessary to watch engine instruments and count on engine power decrease.

Charts for determination of concrete aircraft performance are stated in Chapter 5 of this AFM.

**2.11 MAIN SPAR FLANGE MINIMUM NITROGEN PRESSURE**

Permissible nitrogen pressure range in the main spar is from 150 to 250 kPa (22 to 36 p.s.i.).

**WARNING:**

- (1) IN CASE OF NITROGEN PRESSURE DROP BELOW THE SPECIFIED MINIMUM LIMIT, THE AIRCRAFT MUST BE IMMEDIATELY REJECTED FROM OPERATION UNTIL THE FAULT REMOVED.
- (2) IN CASE OF NITROGEN PRESSURE DROP BELOW THE SPECIFIED MINIMUM LIMIT DURING THE FLIGHT, THE FLIGHT MUST BE INTERRUPTED. FOLLOW THE PRECAUTIONARY LANDING ON THE NEAREST AIRPORT. DURING THE REMAINING FLIGHT AVOID INTENTIONAL MANEUVERS EXCESSIVELY LOADING THE PRIMARY STRUCTURE.

**2.12 TAXIING**

The wing flaps must be **RETRACTED** during taxiing.

## 2.14.2 Other Instrument Markings

Instrument	Unit	Red radial line		Yellow arc	Green arc
		min.	max.		
Accelerometer		-1,76	4,4	-	-1,76 to 4,4
Nitrogen pressure indicator (main spar cap)	p.s.i.	22	-	-	22 - 36
	kPa	150	-	-	150 - 250

## 2.14.3 V-A Metr

Range of the V-A meter scale :

1. Voltage            0 up 40 V
2. Current - (+) re-charging the battery 0 up 20 A  
(the ammeter pointer indicates downwards from zero point)
- (-) current drain from the battery 0 up to 60 A (the ammeter pointer indicates upwards from zero point)

## 2.15. BRAKING

The maximum demonstrated speed for brakes application is 55 knots; 100 km/hod.

**2.16. PLACARDS**

Only placards containing prohibitions, limitations and safety provisions are included in this subsection. Other placards having the informative nature are described in Chapter 7.

**2.16.1 Placards Located in the Aircraft Cockpit**

- (1) The placard is located in the cockpit in direct pilot's view.

**THIS AIRPLANE MUST BE OPERATED IN COMPLIANCE WITH OPERATING LIMITATIONS STATED IN THE PLACARDS AND IN THE AIRPLANE FLIGHT MANUAL.**

**EXCEPT AS MAY BE OTHERWISE INDICATED ON A PLACARD THE MARKINGS AND PLACARDS INSTALLED IN THIS AIRPLANE CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THE UTILITY CATEGORY. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THIS CATEGORY OR IN THE NORMAL CATEGORY ARE CONTAINED IN THE AIRPLANE FLIGHT MANUAL.**

<b>DESIGN MANEUVERING SPEED <math>V_A</math> IAS</b>	<b>121 knots (224 km/h)</b>
<b>FOR TAKE-OFF WEIGHT</b>	<b>1080 kg (2380 lbs)</b>

**INTENTIONAL SPINS WITH WING FLAPS EXTENDED ARE PROHIBITED.**

**RECOVERY FROM SPINS:**

- 1. APPLY FULL RUDDER OPPOSITE TO THE DIRECTION OF ROTATION.**
- 2. CONTROL STICK - PUSH.**

**APPROVED UTILITY MANEUVRES AND RECOMMENDED ENTRY SPEEDS (IAS)**

	<b>knots</b>	<b>km/h</b>
<b>STEEP TURN (ANGLE OF BANK &gt;60°, max. 90°)</b>	<b>min 108</b>	<b>(200)</b>
<b>LAZY EIGHT (ANGLE OF BANK &gt;60°, max. 90°)</b>	<b>min 119</b>	<b>(220)</b>
<b>CHANDELLE (ANGLE OF BANK &gt;60°, max. 90°)</b>	<b>min 119</b>	<b>(220)</b>
<b>SPIN</b>	<b>67</b>	<b>(125)</b>

**THE AIRPLANE MAY BE OPERATED IN FOLLOWING KINDS OF OPERATION, WHEN THE APPROPRIATE EQUIPMENT IS INSTALLED AND OPERABLE.**

- 1. VFR DAY**
- 2. VFR NIGHT**
- 3. IFR**

**FLIGHT INTO KNOWN ICING CONDITIONS IS PROHIBITED.**

3. EMPENNAGE

- (1) Empennage surfaces - CONDITION, LOOSEN RIVETS
- (2) Rudder, elevator, trim tab - CONDITION, FREE MOVEMENT, PLAY IN BEARINGS, BOLTS SECURED, STATIC DISCHARGERS O.K.
- (3) Position light - CONDITION
- (4) Antennae, anticollision beacon - CONDITION

4. RIGHT WING

- (1) Trailing edge - CONDITION
- (2) Wing flap - CONDITION, BOLTS SECURED, LOCKING WHEN EXTENDED
- (3) Aileron - CONDITION, MOVEMENT, BOLTS SECURED, BALLANCE WEIGHT ATTACHMENT, PLAY IN BEARINGS, FIXED TAB, DISCHARGER O.K.
- (4) Auxiliary fuel tank R.H. - CONDITION, ATTACHMENT, LEAKAGE, DRAIN, CAP CLOSED
- (5) Wingtip, position light - CONDITION, ATTACHMENT, LIGHT-CONDUCTOR



**CAUTION:**

USE TRANSPARENT VESSEL FOR FUEL CHECK. DRAIN THE SYSTEM DAILY AND AFTER ANY REFUELLING. CHECK FUEL ON WATER, SEDIMENTS AND THE CORRESPONDING COLOURSHADE, WHICH INDICATES THE FUEL GRADE. DRAIN ALL FUEL DRAINING - VALVES, INCLUDING THE MASTER VALVE AT THE BOTTOM OF THE FUSELAGE. REPEAT THE DRAINING IF WATER AND/OR SEDIMENTS ARE FOUND UNTILL THE FUEL SAMPLE IS PURE!

- |                                   |  |
|-----------------------------------|--|
| (6) Wing skin                     | - CONDITION, LOOSEN RIVETS                               |
| (7) Leading edge                  | - CONDITION  |
| (8) Main fuel tank                | - BOTTOM COVER SCREWS CONDITION,<br>DRAIN, CAP CLOSED    |
| For aircraft up to S/N 0022 incl. | - FUEL QUANTITY ONLY UNLESS AUXILIARY<br>TANK IS FILLED! |

**5. RIGHT MAIN LANDING GEAR**

- |                                |   |
|--------------------------------|---|
| (1) Tire                       | - CONDITION, INFLATION (250 kPa, 36 p.s.i.)                 |
| (2) Wheel fairing with scraper | - CONDITION, CRACKS IN ATTACHMENT                           |
| (3) Wheel brake                | - CONDITION, ATTACHMENT, PIPING,<br>LEAKAGE                 |
| (4) Leaf-spring                | - CONDITION, ATTACHMENT, CRACKS,<br>MICROSWITCH CONTROL ROD |



6. POWERPLANT

- |  |   |
|--|---|
| (1) Engine cowling, propeller speed governor | - CONDITION, LOCKED, FREE AIR-INTAKES, GOVERNOR INCL. CONTROL SYSTEM  |
| (2) Propeller                                | - CONDITION, BLADES ON CRACKS, NOTCHES, PLAY IN BLADE BEARINGS, OIL LEAKS   |
| (3) Air filter                               | - CHECK CLEAN VISUALLY AND MANUALLY   |
| (4) Engine oil                               | - QUANTITY, CAP, LID CLOSED,  |
| (5) Exhaust muffler                          | - CONDITION, ATTACHMENT, BURNS-OUT  |
| (6) Oil leakage                              | - CHECK SPILLAGE AT HOT-AIR OUTLET IN COWLING   |
| (7) Bottom fuselage cover                    | - DRAIN MASTER VALVE, CONDITION, ATTACHMENT<br>- PITOT-STATIC LINES DRAINING SUMPS CHECK ON CONDENSED WATER, DRAIN IF NECESSARY |

7. NOSE LANDING GEAR

- |                          |   |
|--------------------------|---|
| (1) Tire                 | - CONDITION, INFLATION (250 kPa, 36 p.s.i.)                                       |
| (2) Hydropneumatic strut | - CONDITION, STATIC LOAD DISPLACEMENT, ATTACHMENT STRUTS (THROUGH HOT-AIR OUTLET) |
| (3) Nose wheel fairing   | - CONDITION, ATTACHMENT   |

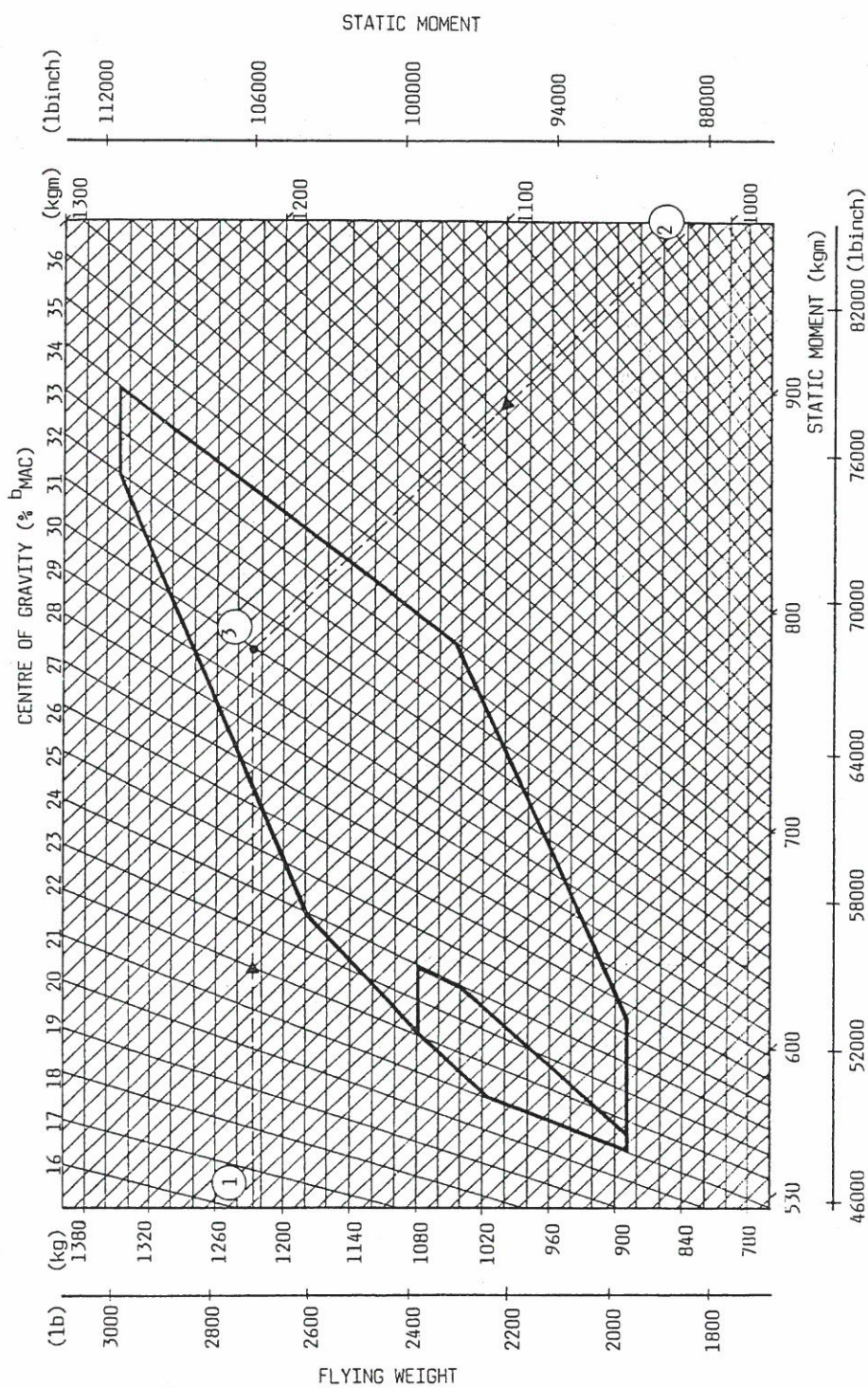
**8. LEFT MAIN LANDING GEAR**

- |                                |   |
|--------------------------------|---|
| (1) Tire                       | - CONDITION, INFLATION (250 kPa, 36 p.s.i.) |
| (2) Wheel fairing with scraper | - CONDITION, CRACKS IN ATTACHMENT           |
| (3) Wheel brake                | - CONDITION, ATTACHMENT, PIPING,<br>LEAKAGE |
| (4) Leaf-spring                | - CONDITION, ATTACHMENT, CRACKS             |

**9. LEFT WING**

- |                                   |  |
|-----------------------------------|--|
| (1) Main fuel tank                | - BOTTOM COVER SCREWS CONDITION,<br>DRAIN, CAP CLOSED    |
| For aircraft up to S/N 0022 incl. | - FUEL QUANTITY ONLY UNLESS AUXILIARY<br>TANK IS FILLED! |
| (2) Leading edge                  | - CONDITION  |
| (3) Wing skin                     | - CONDITION, LOOSEN RIVETS                               |
| (4) Stall warning probe           | - REMOVE PLUG, CHECK HOLE CLEAN                          |
| (5) Pitot-head                    | - REMOVE COVER, CHECK RAM-AIR HOLE<br>CLEAN              |
| (6) Headlights                    | - CONDITION, TRANSPARENT COVER,<br>ATTACHMENT            |
| (7) Auxiliary tank                | - CONDITION, ATTACHMENT, LEAKAGE,<br>DRAIN, CAP CLOSED   |
| (8) Wing tip, position light      | - CONDITION, ATTACHMENT, LIGHT-<br>CONDUCTOR             |

## 6.6. CENTRE OF GRAVITY POSITION CHECK





**6.7 EQUIPMENT LIST**Abbreviations :

- A - Avionics  
 E - Electric  
 I - Instruments  
 P - Powerplant  
 R - Airframe

Item	Designation	Model	Weight		Arm	
			kg	lb	m	inch
A1	VHF COMM Transceiver	Bendix/King KY 96A	1,320	2,91	0,280	11,0
A2	VHF COMM Transceiver	Bendix/King KY 196A	1,270	2,80	0,280	11,0
A3	Audio Control Console	Bendix/King KA 134	0,360	0,79	0,333	13,8
A4	Audio Control Console	Bendix/King KMA 24	0,770	1,70	0,330	13,0
A5	Audio Control Console	Bendix/King KMA 24 H-70	0,770	1,70	0,330	13,0
A6	Audio Control Console	Garmin GMA 340	0,736	1,62	0,330	13,0
A7	COMM/NAV System	Bendix/King KNS-81	2,300	5,07	0,264	10,4
A8	Audio Control Console	N.A.T Canada AA 12	0,450	0,99	0,335	13,1
A9	COMM/NAV System	Bendix/King KX 155 (A)	2,400	5,29	0,280	11,0
A10	COMM/NAV System	Bendix/King KX 165 (A)	2,560	5,64	0,280	11,0
A11	EHSI	Sandell SN-3308	1,315	2,90	0,320	12,6
A12	HSI	Bendix/King KI 525A	1,800	3,97	0,230	9,1
A13	HSI	Bendix/King KI 825	1,400	3,08	0,320	12,6
A14	Slaving Accessory	Bendix/King KA 51B	0,100	0,22	0,410	16,1
A15	Directional Gyro	Bendix/King KG 102A	2,000	4,41	2,200	86,6
A16	Magnetic Slaving Transmitter	Bendix/King KMT 112	1,973	4,35	0,775	30,5



Item	Designation	Model	Weight		Arm	
			kg	lb	m	inch
A17	ADF	Bendix/King KR 87	1,450	3,20	0,226	10,5
A18	ADF Indicator	Bendix/King KI 227	0,320	0,71	0,406	16,0
A19	ADF Indicator	Bendix/King KI 227.01	0,320	0,71	0,406	16,0
A20	RMI	Bendix/King KI 229	1,300	2,87	0,323	12,7
A21	ADF Antenna	Bendix/King KA 44B	1,270	2,80	1,600	63,0
A22	Transponder	Bendix/King KT 71	1,760	3,88	0,297	11,7
A23	Transponder	Bendix/King KT 76A	1,410	3,11	0,238	9,4
A24	Transponder	Bendix/King KT 76C	0,950	2,00	0,238	9,4
A25	Transponder	Garmin GTX 327	1,100	2,39	0,238	9,4
A26	DME	Bendix/King KN 62A	1,180	2,60	0,295	11,6
A27	DME	Bendix/King KN 63	1,270	2,80	2,190	86,2
A28	DME	Bendix/King KN 64	1,18	2,60	0,295	11,6
A29	DME Indicator	Bendix/King KDI 572	1,630	3,59	0,263	10,4
A30	DME/Transponder Antenna	Bendix/King KA 60	0,090	0,20	0,200	7,9
A30a	DME/Transponder Antenna	Bendix/King KA 61	0,090	0,20	0,200	7,9
A31	VOR/ILS indicator	Bendix/King KI 202	0,590	1,30	0,347	13,7
A32	VOR/LOC Indicator	Bendix/King KI 203	0,730	1,61	0,307	12,1
A33	VOR/ILS indicator	Bendix/King KI 204	0,780	1,72	0,306	12,0
A34	VOR/ILS indicator	Bendix/King KI 206	0,590	1,30	0,307	12,1
A35	VOR/LOC Indicator	Bendix/King KI 208	0,400	0,88	0,306	12,0
A36	VOR/LOC/GS Indicator	Bendix/King KI 209	0,500	1,10	0,306	12,0
A37	VLOC/GPS Indicator	Garmin GI 106 A	0,640	1,40	0,307	11,8

Item	Designation	Model	Weight		Arm	
			kg	lb	m	inch
A38	Marker	Bendix/King KR 21	0,250	0,55	0,376	14,8
A39	Marker	Bendix/King KR 22	0,180	0,39	0,388	15,2
A40	Encoding Altimeter	Bendix/King KEA 129	0,860	1,90	0,343	13,5
A41	Encoding Altimeter	Bendix/King KEA 130	0,860	1,90	0,343	13,5
A42	Encoding Altimeter-Digitizer	Bendix/King D-120-P2T	0,450	0,99	0,396	14,5
A43	Encoding Altimeter-Digitizer	Terra Avionics AT 3000	0,150	0,33	0,400	15,7
A44	Encoding Altimeter-Digitizer	Ameri King AK 350	0,181	0,40	0,386	15,2
A45	COMM Antenna	Comant Industries CI 122	0,220	0,49	2,575	101,4
A46	COMM Antenna	Comant Industries CI 292-1	0,220	0,48	2,470	92,2
A47	COMM Antenna	Dorne & Margolin DM C63-1A	0,227	0,50	2,470	92,2
A48	NAV Antenna	Comant Industries CI 158C	0,158	0,35	4,476	176,2
A49	NAV Antenna	Comant Industries CI 157P	0,220	0,48	4,600	181,1
A50	NAV Antenna	Comant Industries CI 159C	0,220	0,48	4,600	181,1
A51	Marker Antenna	Comant Industries CI 102	0,270	0,60	2,250	88,6
A52	GPS	Garmin 100 AVD	0,794	1,75	0,368	14,5
A53	GPS	Garmin 150 AVD	0,970	2,14	0,368	14,5
A54	GPS	Garmin 155 XL	0,930	2,05	0,368	14,5
A55	GPS	Bendix/King KLN 90A	2,860	6,31	0,266	10,5
A56	COMM/NAV/GPS System	Garmin GNS 430	2,270	5,00	0,368	14,5
A57	GPS Antenna	Bendix/King KA 91	0,270	0,60	2,075	81,7
A58	GPS Antenna	Bendix/King KA 92	0,227	0,50	2,075	81,7
A59	GPS Antenna	Garmin 100 AVD	0,250	0,55	2,075	81,7



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Item	Designation	Model	Weight		Arm	
			kg	lb	m	inch
E1	Battery	Gill G-246	19,00	41,89	1,775	69,9
E2	Battery	Varley AK 24/18 Ah	19,000	41,89	1,775	69,9
E3	Annunciator Lights Panel	Mikrotechna 08 LUN 2697.04-8	0,400	0,88	0,360	14,2
E4	BENDIX Ignition Switch	10-357200-1 10-357200-1H	0,215	0,47	0,386	15,2
E5	Anticollision Beacon	Whelen Engineering WRML	0,680	1,50	4,825	200,0
E6	Anticollision Beacon	Universal corp. FS-4400	0,482	1,06	4,825	200,0
E7	Map Lamp	Antreg KLSRK-45	0,250	0,55	0,760	30,0
E8	Landing Light	Hella 1x2 001 517-05	0,400	0,88	0,584	23,0
E9	Taxi Light	Hella 1x2 001 517-07	0,400	0,88	0,584	23,0
E10	Position Light Green	Hella 2LA 001 627-00	0,170	0,37	1,447	57,0
E11	Position Light Red	Hella 2LA 001 627-02	0,170	0,37	1,447	57,0
E12	Position Light White	Hella 2LA 001 625-00	0,070	0,15	5,671	223
E13	Position Light Green	Whelen A 650 PG 28	0,113	0,25	1,447	57,0
E14	Position Light Red	Whelen Engineering A 650 PR 28	0,113	0,25	1,447	57,0
E15	Position Light White	Whelen Engineering A 555	0,100	0,22	5,671	223
E16	Strobe Lights Convertor	Whelen Engineering A 413 HDACF 14-28	1,400	3,09	1,562	61,5
E17	Turn-and-Bank Indicator Emergency Power Supply	Whelen Engineering 6CX2SA212/1,1s	1,300	2,87	1,625	64,0
E18	Intercom	Moravan Z 42.8623	0,200	0,44	0,113	4,45
E19	Intercom	Signtronic SPA-400 TSO	0,150	0,33	0,360	14,2



Item	Designation	Model	Weight		Arm	
			kg	lb	m	inch
I1	Airspeed indicator	LUN 1106.xx-8	0,400	0,88	0,355	14,0
I2	Airspeed indicator	LUN 1107.xx-8	0,500	1,10	0,356	14,0
I3	Altimeter	UI 5934 D-1	0,861	1,90	0,312	12,3
I4	Altimeter	UI 5934 D-3	0,861	1,90	0,312	12,3
I5	Altimeter	LUN 1124.xx-8	0,650	1,43	0,310	12,2
I6	Vertical Speed Indicator	LUN 1144.xx-8	0,500	1,10	0,352	13,9
I7	Vertical Speed Indicator	LUN 1147.xx-8	0,500	1,10	0,352	13,9
I8	Vertical Speed Indicator	UI 7030	0,544	1,20	0,357	14,1
I9	Turn-and-Bank Indicator	LUN 1213.xx-8	0,950	2,09	0,350	13,8
I10	Turn-and-Bank Indicator	S-TEC 6407-28L	0,771	1,70	0,335	13,2
I11	Turn-and-Bank Indicator	UI 9013 N-5	0,771	1,70	0,334	13,5
I12	Directional Gyro	AIM 205-1BL	1,320	2,91	0,333	13,1
I13	Directional Gyro	AIM 205-2BL	1,320	2,91	0,333	13,1
I14	Directional Gyro	Sigma Tec 5000 B-22	1,180	2,60	0,321	12,6
I15	Attitude Gyro	AIM 510-8D	1,360	3,00	0,319	12,6
I16	Attitude Gyro	LUN 1241.A8G8W	1,600	3,53	0,350	13,8
I17	Attitude Gyro	AIM 1200	1,360	3,00	0,319	12,6
I17a	Attitude Gyro	Sigma Tec 5000 B-40	1,000	2,20	0,316	12,4
I18	Clock	Astrotech LC 2	0,150	0,33	0,380	15,0
I19	Clock	MD 91 LET	0,200	0,44	0,385	15,2
I20	Magnetic Compass	27 LUN 1224-8	0,200	0,44	0,385	15,2

Item	Designation	Model	Weight		Arm	
			kg	lb	m	inch
I21	R.P.M. Indicator	AIM 3330-0017	0,350	0,77	0,371	14,6
I22	R.P.M. Indicator	Mitchell CD-112-5020	0,350	0,77	0,371	14,6
I23	R.P.M. Indicator	Mitchell CD-112-5122	0,350	0,77	0,371	14,6
I24	R.P.M. Indicator	LUN 1301.xx	0,650		0,200	
I25	4-Pointer Fuel Indicator	LUN 1639.xx	0,700	1,54	0,364	14,3
I25a	4-Pointer Engine Indicator	LUN 1639.xx	0,700	1,54	0,364	14,3
I26	CHT/EGT Indicator	Alcor 47 028	0,181	0,40	0,378	14,9
I26a	CHT/EGT Indicator	Alcor 46 167	0,181	0,40	0,378	14,9
I27	Manifold Pressure Indicator	LUN 1401.xx-8	0,220	0,49	0,373	14,7
I28	Accelerometer	AM 10.23	0,270	0,60	0,374	14,7
I29	V-A Meter	LUN 2744.xx-8	0,400	0,88	0,368	14,5
I30	Engine Hours Counter	Hobbs 15 124	0,050	0,11	0,400	15,7
I31	ELT	ACK Technologies E-01	1,500	3,31	1,700	66,9
I32	ELT	Pointer 3000	0,860	1,90	1,700	66,9
I33	Outside Air Thermometer	Rn 45(8)	0,150	0,33	0,600	23,6
I34	Outside Air Thermometer	SCOTT 2716	0,150	0,33	0,600	23,6
I35	Vacuum Filter	Sigma Tec S 400003-001	0,140	0,30	0,307	12,1
I36	Suction Gauge	Instr. Tech 4101-0001	0,070	0,15	0,377	14,8
I37	Registration Accelerometer	AMU1.01	0,130	0,29	0,940	37,0

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Item	Designation	Model	Weight		Arm	
			kg	lb	m	inch
R1	First Aid Kit	Z 143.8261	0,550	1,21	1,545	60,8
R2	Vlečné zařízení	Z 143.8400	2,000	4,41	5,892	232,0
R3	Towing Gear	L 143.8410	2,000	4,41	5,892	232,0
R4	Rear-view Mirror	Z 143.8265	0,250	0,55	1,012	39,8
R5	Front Curtains	Z 143.8190	0,285	0,63	1,175	46,2
R6	Front Curtains-lenghtened	C 142.8171	0,300	0,66	1,166	45,9
R7	Rear Curtains	L 143.8195	0,420	0,92	1,700	66,9
R8	Map Light	Z 143.8940	0,250	0,55	0,760	29,9
R9	Supplementary Light	Z 142.8950	0,250	0,55	1,364	53,7
R10	Parachute Back Rest	Z 143.8130	1,300	2,87	1,078	42,4
R11	Fire Extinguisher	T1H/T1 FM 100	2,500	5051	0,650	25,6
R12	Nose Wheel Cover	L 242.5730	1,800	3,97	-0,600	-23,6
R13	Main Wheel Cover L.H.	L 242.5710	2,800	6,17	1,150	45,3
R14	Main Wheel Cover R.H.	L 242.5720	2,800	6,17	1,150	45,3
R15	Covers for IFR Flight Training	Z 143.8191	0,500	1,10	0,766	30,6
R16	Covers for IFR Flight Training	Z 143.8192	0,500	1,10	0,776	30,6
R17	Alternate Static Pressure Source	Z 143.8259	0,100	0,22	0,400	15,7
R18	Main wheel Barum Tire	K 22-0100-7	3,500	7,72	1,150	45,3
R19	Main Wheel GoodYear Tire	K 22-3100-7	4,400	9,70	1,150	45,3
R20	Main Wheel Tire	Barum 420x150	4,100	9,04	1,150	45,3
R21	Main Wheel Tire	Goodyear 6.00-6.5	2,670	5,89	1,150	45,3
R22	Main Wheel Air Tube	Barum 420x150	1,050	2,31	1,150	45,3



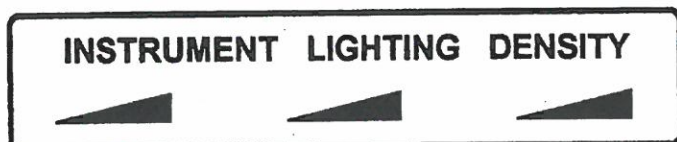
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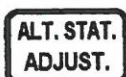
- (19) The placard is located close to the signalling check pushbutton



- (20) The placard is located close to the instrument lighting dimmers



- (21) The placard is located on the ASPS adjustment screw cover



- (22) The placard is located close to the signalling light beside the turn-and-bank indicator



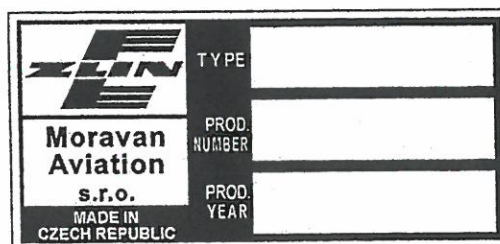
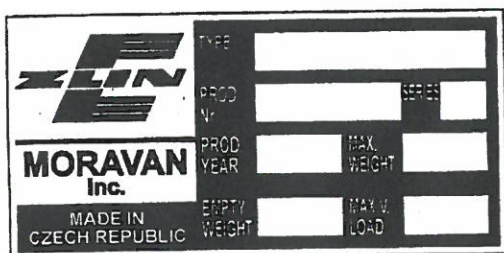
- (23) The placard is located near the manual injection pump (if installed)



- (24) The identification placard is located in the upper baggage shelf (left side, front part)

Applicable for aircraft up to S/N. 0057 incl.

Applicable for aircraft from S/N 0058 incl.



- (25) The placard is located close to External GPS power socket



b) Placards located on the aircraft outer surface

- (1) The placard is located close to the lid of the oil quantity check



**OIL 12 LITRES**

- (2) The placard is located close to the earthing pins adjacent to the fuel filling caps

**CONNECT GROUNDING  
CABLE FROM THE  
FUEL UNIT HERE**

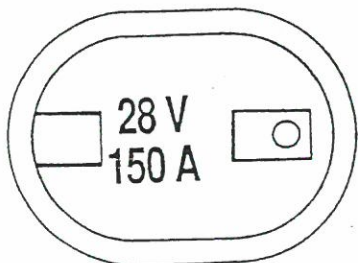


- (3) The placard is located close to the static pressure sensing probes

**STATIC VENT  
KEEP CLEAN**



- (4) The placard is located on the external power source socket





## 8. AIRPLANE HANDLING, SERVICING AND MAINTENANCE

### 8.1 GENERAL

This section contains important information on the handling, servicing and maintenance of the airplane. All owners of the Z 143 L airplane are recommended to contact regularly their authorized distributor or dealer and to have all maintenance inspections and/or repairs accomplished by the authorized stations.

In case of any contacts with the airplane manufacturer, the distributor, the dealer or the service station do not forget to mention the airplane serial number.

#### NOTE:

The airplane Serial Number (S/N) is entered on the title page of this Flight Manual, stamped on the production placard located on the floor of the baggage compartment and on the identification placard at the vertical fin of the fuselage.

Accompanying documentation The manufacturer supplies the „Airplane Flight Manual“ and „Airplane Maintenance Manual“. Optionally the customer can obtain the „Illustrated Parts Catalog“.

### 8.2 AIRCRAFT INSPECTION

The approved system of scheduled inspection:

#### a) Airframe

- 1) Pre-flight check
- 2) Inspection after first 50 hours
- 3) Inspection after 50 hours
- 4) Inspection after 100 hours/1 year
- 5) Special works

#### b) Engine

- 1) Inspection
  - after first 25 hours
  - each 50 hours
  - each 100 hours
- 2) Check the valves, cleanliness of the crankcase front part
  - each 400 hours of operation

#### c) Propeller

- 1) Inspection after each 100 hours of operation

**NOTE:**

Detailed information about individual scheduled inspections are described in the Maintenance Manual Z 143 L, Chapter 05.

**CAUTION:**

THE AIRPLANE OWNER IS RESPONSIBLE FOR PERFORMED THE SCHEDULED INSPECTIONS AND THE OTHER MANDATORY MAINTENANCE PROCEDURES.

**8.3     AIRCRAFT ALTERATIONS OR REPAIRS**

All repairs and alterations must be performed by qualified personnel in authorized service stations.

Whenever the airplane owner intends to make any alteration of the airplane (installation of another navigation equipment) he is obliged to contact the Civil Aviation Authority of the country of airplane registration, which will reconsider the effects of the alteration on the airplane airworthiness

## 8.6. FILLING THE AIRCRAFT WITH FUEL AND SYSTEM DRAINING

The pilot is always responsible for filling the appropriate fuel grade and quantity.

Refueling procedure:

- 1) First refuel the main tanks.
- 2) The auxiliary (outer) tanks may be filled only after the main tanks are full and their caps properly closed.

Observe the safety precautions during filling the airplane with fuel:

- 1) Refueling may be carried out only by duly instructed persons familiarized with safety precautions.
- 2) It is prohibited to fill the airplane with fuel:
  - during heavy rain on unprotected area;
  - during thunderstorm;
  - inside the hangars and closed areas;
  - during engine run and any electric system ON.
- 3) The airframe mass must be connected by bonding cable with the mass of the filling gun.

### **NOTE:**

The extendable bonding pin is provided close to each filling hole to enable the proper connection of the filling gun bonding-clip.

- 4) The person, operating the filling gun should not wear a dress made of any dielectric cloth (such as Nylon or similar materials).
- 5) Smoking and any operation with fire is **STRONGLY PROHIBITED** during airplane refueling.

Aircraft up to S/N 0022 incl. the pilot is responsible for checking the fuel quantity after each refueling.

- a) The fuel quantity in the tanks is measured by means of the quadruple indicator on the instrument panel.
- b) When the auxiliary tanks are empty, fuel level in the main tank can be measured on ground using the gauge of main tank (Fig. 8-2a).

Aircraft from S/N 0023 incl. the pilot is responsible for checking the fuel quantity after each refueling

- a) The fuel quantity in the tanks is measured by means of the quadruple indicator on the instrument panel.

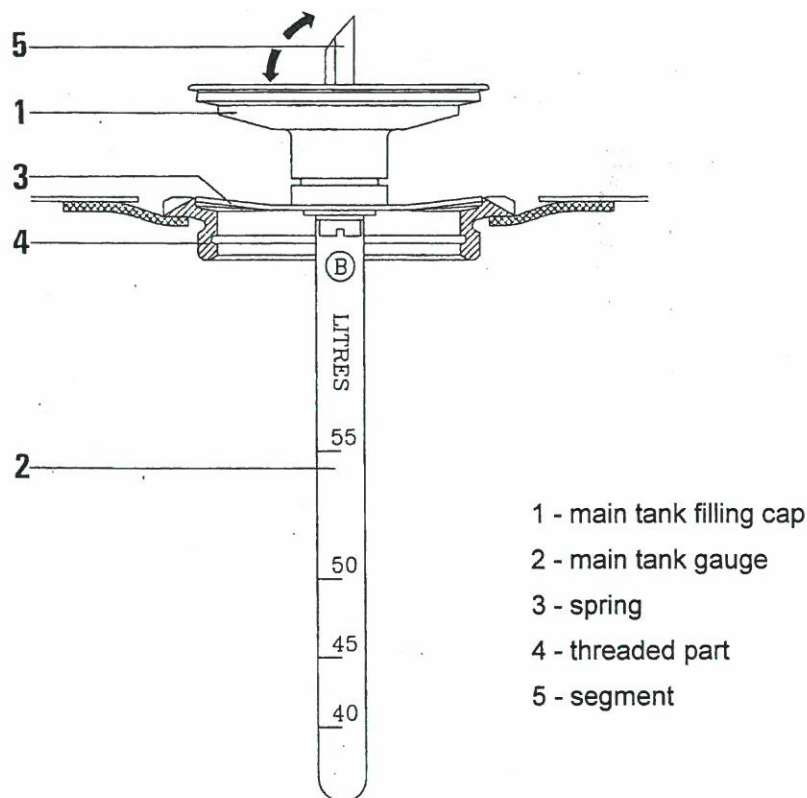


Fig. 8-2a - Main tank gauge

Procedure of the fuel level check using the main tank gauge for aircraft up to S/N 0014 (including)

- 1) Swing away the segment (5), move round slightly with the main tank filling cap (1) to the "OPEN" position and remove this cap.
- 2) Read off the fuel level in the main tank on the tank gauge (2).
- 3) Insert the tank filling cap (1) into the main tank, move it round slightly to the „CLOSED“ position and tilt the segment (5).



Procedure of the fuel level check using the main tank gauge for aircraft from S/N 0015  
up to S/N 0022 (including)

- 1) Swing away the segment (5), move round slightly with the main tank filling cap (1) to the "OPEN" position and remove this cap.
- 2) Wipe off the fuel from the gauge (2).
- 3) Insert the gauge into the main tank so that the spring (3) fits on the throughput of threaded part (4).
- 4) Remove the gauge from the tank and read off the fuel level in the main tank.
- 5) Insert the tank filling cap (1) into the main tank, move it round slightly to the "CLOSED" position and tilt the segment (5).

Quick operation valves for fuel system draining are provided in each fuel tank sump (4x in wings). The master draining-valve on the bottom part of the fuselage (see para 7.13., Sect. 7) in the lowest point of the fuel-system should ensure the general system drainage.

The special transparent vessel, provided with a central pin, is delivered as the aircraft standard accessory.

The central pin, after being inserted and slightly pressed-in the drain valve hole, opens the valve and allows the fuel to flow into the vessel. The valve is automatically closed after the vessel is removed (Fig. 8-2).

The content of the vessel is checked on the presence of water or any other sediments, that could appear in the fuel tank sump.

Repeat the draining until pure sample of fuel appears.

**CAUTION:**

IF WATER AND/OR SEDIMENTS ARE PRESENT AFTER REPEATED DRAINING, THE WHOLE FUEL CONTENT MUST BE DRAINED-OFF FROM THE SYSTEM AND THE AIRPLANE REFILLED BY THE NEW, NON-CONTAMINATED FUEL.

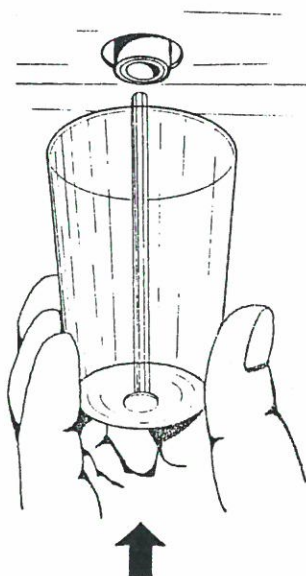


Fig. 8-2 - Fuel draining