

SECTION 4

NORMAL PROCEDURES

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4.1 INTRODUCTION

This section provides normal operating procedures checklists for the aircraft including recommended airspeeds.

Additional information is provided in the Operators Manual for ROTAX® engine Type 912 series and in the Operation and Installation Manual mt Propeller®, latest revision.

Normal procedures associated with optional equipment can be found in Section 9.

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4.2 AIRSPEEDS FOR NORMAL OPERATION

The following airspeeds are based on a maximum weight of 750 (kg). They may be also used for any lesser weight.

TAKEOFF	
Airspeed (KIAS)	KIAS
Normal Climb Speed at 50 Feet (Flaps 17°)	60
Best Rate of Climb Speed V_Y at Sea Level (Flaps UP)	65
Best Angle of Climb Speed V_X at sea Level (Flaps 17°)	60

LANDING	
Airspeed (KIAS)	KIAS
Landing Final Approach Speed (Flaps Down)	60
Balked Landing (Flaps Down)	60
Maximum Demonstrated Crosswind Velocity Takeoff or Landing	15

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CRUISE		
	Airspeed (KIAS)	KIAS
Maneuvering Speed	V_A	112
Maximum Turbulent Air Operating Speed	V_{NO}	130
Maximum Flap Extended Speed	V_{FE}	90

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4.3 RESERVED

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4.4 PREFLIGHT INSPECTION

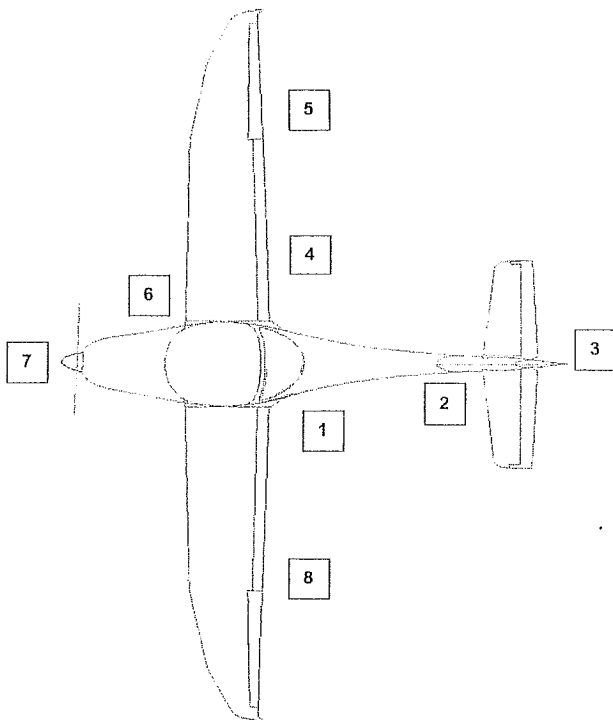
4.4.1 Daily Preflight Check

A) CABIN

- | | | |
|-----|---|--------------------------------|
| 1. | Papers | CHECK on board |
| 2. | Ignition Key | REMOVED |
| 3. | BAT Switch | ON |
| 4. | Annunciators (Alternator,
Fuel pressure) | ILLUMINATE |
| 5. | Engine Instruments | CHECK |
| 6. | Fuel Quantity | CHECK |
| 7. | Exterior Light | CHECK for proper operation |
| 8. | BAT Switch | OFF |
| 9. | Foreign Items | NOT on board |
| 10. | ELT | CHECK |
| 11. | Baggage | ANCHORED DOWN |
| 12. | Canopy | CHECK for damage and cleanness |

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B) EXTERIOR CHECK, Visual Inspection



CAUTION

Visual Inspection herein means the following: Inspection for mechanical damages, dirt, cracks, delamination, excessive play, looseness and incorrect attachment, foreign items and general condition;
Control surfaces, additional inspect for their freedom of movement

1. Left Main Landing Gear

- a) Landing Gear Strut
- b) Wheel Fairing

Visual Inspection
Visual Inspection

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- | | |
|------------------------|-------------------|
| c) Tire Pressure | CHECK |
| d) Tire Slippage Marks | CHECK |
| e) Tire, Wheel, Brake | Visual Inspection |
| f) Wheel Chocks | REMOVE |

2. Tail Pipe

- | | |
|--------------------|-------------------|
| a) Tail Pipe Shell | Visual Inspection |
| b) Skid Plate | Visual Inspection |
| c) Tail Tie-Down | DISCONNECT |

3. Empennage

- | | |
|--------------------------|---|
| a) Elevator | Visual Inspection |
| b) Horizontal Stabilizer | Visual Inspection |
| c) Rudder | Visual Inspection,
CHECK: for security, proper
control cable connection, and
correct safetying |
| d) Vertical Stabilizer | Visual Inspection |

4. Right Main Landing gear

- | | |
|------------------------|-------------------|
| a) Landing Gear Strut | Visual Inspection |
| b) Wheel Fairing | Visual Inspection |
| c) Tire Pressure | CHECK |
| d) Tire Slippage Marks | CHECK |
| e) Tire, Wheel, Brake | Visual Inspection |
| f) Wheel Chocks | REMOVE |

5. Right Wing

- | | |
|----------------------------------|--|
| a) Entire Wing Surface | Visual Inspection |
| b) Fuel Vent | CHECK clear |
| c) Flap | Visual Inspection |
| d) Aileron and Inspection Plates | Visual Inspection |
| e) Wing Tip and Lights | Visual Inspection |
| f) Fuel Level | CHECK with dipstick |
| g) Fuel tank filler cap | CHECK if closed |
| h) Fuel Tank Drain Valve | DRAIN, check for water
and sediment |
| i) Wing Tie-Down | DISCONNECT |

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6. Nose Section, Cowling

WARNING

Before cranking the propeller, Switch OFF battery and Ignition Circuits,
Activate Parking brake

WARNING

Risk of burning and scalds

Carry out pre-flight checks on the cold ore luke warm engine only !

a) Check Oil level

Prior to oil check,turn the propeller in direction of engine rotation several times to pump oil from the engine into the oil tank.

This process will be finished when air is returning back to the oil tank and can be noticed by a murmur from the open oil tank. Now check oil level, which should be between max. and min. mark of the oil level gauge but must never be below min. mark. Difference between max. and min. mark = 0.45 litre

NOTE

The oil specifications section 1.9.1 are to be observed !

b) Check Coolant Level

Verify coolant level in the **expansion tank**, replenish as required up to top. The coolant level must be at least 2/3 of the expansion tank.

Verify coolant level in the **overflow bottle**, replenish as required. The coolant level must be between max. and min. mark of the expansion tank.

NOTE

The coolant specifications section 1.9.2 are to be observed !

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- | | |
|----------------------------------|-------------------------------------|
| c) Air Intakes (4 NACA Intakes) | CHECK clear |
| d) Radiator / Oil Cooler Intake | CHECK clear of obstructions |
| e) Cowling | Visual Inspection |
| | CHECK Camloc fasteners |
| f) Propeller | Visual Inspection |
| g) Propeller Blades | CHECK for cracks and other damage |
| | Visual Inspection |
| h) Spinner Dome | Visual Inspection |
| i) Electr. Fuel Pump Drain Valve | DRAIN, check for water and sediment |

7. Nose Landing Gear

- | | |
|-----------------------------|-------------------|
| a) Nose Gear Strut | Visual Inspection |
| b) Wheel Fairing | Visual Inspection |
| c) Tire Pressure | CHECK |
| d) Tire Slippage Marks | CHECK |
| e) Tire, Wheel | Visual Inspection |
| f) Shock Absorber Unit | Visual Inspection |
| f) Wheel Chocks and Tow Bar | REMOVE |

8. Left Wing

- | | |
|----------------------------------|---|
| a) Entire Wing Surface | Visual Inspection |
| b) Fuel Vent | CHECK clear |
| c) Battery | ON |
| d) Stall Warning System | Carefully move the small plate at the transmitter upwards until an alert is audible |
| | OFF |
| e) Battery | REMOVE cover, holes clear |
| f) Pitot / Static Head | Visual Inspection |
| g) Wing Tip and Lights | Visual Inspection |
| h) Aileron and Inspection Plates | Visual Inspection |
| i) Fuel Level | CHECK with dipstick |
| j) Fuel Tank Drain Valve | DRAIN, check for water and sediment |
| | CHECK if closed |
| k) Fuel tank filler cap | Visual Inspection |
| l) Flap | Visual Inspection |
| m) Wing Tie-Down | DISCONNECT |

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4.4.2 Check Before Every Flight

NOTE

The fuel level gauge for checking the fuel level is stored on the inner side of the baggage door.

1. Daily Preflight Inspection complete?
2. Tow Bar CHECK if removed.
3. Fuel Quantity CHECK with fuel level gauge.

WARNING

Before cranking the propeller, Switch OFF battery and Ignition Circuits,
Activate Parking brake

WARNING

Risk of burning and scalds

Carry out pre-flight checks on the cold or luke warm engine only !

4. Check Oil level Prior to oil check, turn the propeller in direction of engine rotation several times to pump oil from the engine into the oil tank.

This process will be finished when air is returning back to the oil tank and can be noticed by a murmur from the open oil tank. Now check oil level, which should be between max. and min. mark of the oil level gauge but must never be below min. mark. Difference between max. and min. mark = 0.45 litre

NOTE

The oil specifications section 1.9.1 are to be observed !

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5. Check Coolant Level

Verify coolant level in the **overflow bottle**, replenish as required.

The coolant level must be between max. and min. mark of the expansion tank.

NOTE

The coolant specifications section 1.9.2 are to be observed !

- | | | |
|-----|---------------------------------------|--|
| 6. | Tie-Down Straps | Removed. |
| 7. | Baggage door | CHECK if closed |
| 8. | Pitotcover | CHECK if removed. |
| 9. | Flight Controls | CHECK for proper operation |
| 10. | Carburettor Heat | CHECK for freedom of movement, OFF |
| 11. | Cabin Heat | CHECK for freedom of movement, OFF |
| 12. | Choke | CHECK for freedom of movement,
self resettable |
| 13. | Throttle | CHECK for freedom of movement, IDLE |
| 14. | Propeller Control Lever | CHECK for freedom of movement,
START |
| 15. | Trim System | CHECK, set full "Nose-Down" and
"Nose-UP" Positions |
| 16. | Flaps (Pos. Indication and Operation) | CHECK, full extended and retract |

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4.5 NORMAL PROCEDURES CHECKLIST

4.5.1 Before Starting Engine

- | | | |
|-----|-----------------------------|--------------------|
| 1. | Daily Preflight Check | COMPLETE |
| 2. | Passenger Briefing | COMPLETE |
| 3. | Seats | ADJUST |
| 4. | Seat Belts and Harnesses | FASTENED/CHECK |
| 5. | Canopy | CLOSED and LATCHED |
| 6. | Parking Brake | PULL On |
| 7. | Control Stick | CHECK free movable |
| 8. | Fuel Selector Valve | "L" or "R" |
| 9. | Carburettor Heat | OFF |
| 10. | Throttle | IDLE |
| 11. | Propeller Control Lever | START |
| 12. | AVIONICS Switch | OFF |
| 13. | ALT/BAT Switch | ON |
| 14. | Generator Warning Light | ILLUMINATES |
| 15. | Fuel Pressure Warning Light | ILLUMINATES |
| 16. | Anti Collision Light | ON |
| 17. | Circuit Breakers | CHECK In |

4.5.2 Starting Engine

- | | | |
|----|-----------------------------|--|
| 1. | Electrical Fuel Pump | ON |
| 2. | Fuel Pressure Warning Light | Does not illuminate |
| 3. | Throttle | IDLE |
| | - Cold Engine | 2 cm OPEN |
| | - Hot Engine | PULL |
| 4. | Choke | OFF |
| | - Cold Engine | SET |
| | - Hot Engine | CHECK clear |
| 5. | Brakes | START |
| 6. | Propeller Area | CHECK, should show oil pressure
within 10 seconds |
| 7. | Ignition Switch | |
| 8. | Oil Pressure Gauge | |

CAUTION

If the oil pressure after starting does not reach 1,5 (bar) within 10 seconds, stop the engine immediately!

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NOTE

The oil pressure may rise into the **YELLOW RANGE**, as long as the oil temperature is below the normal operating temperature.

NOTE

If engine does not start within 10 sec., disengage the starter and try again after a pause of 2 minutes.

NOTE

To successful start engine, the propeller speed must be at least 100 RPM. That should be considered during cold weather operations or if the battery is partial discharged.

- | | | |
|-----|-------------------------|------------|
| 10. | Generator Warning Light | OFF |
| 11. | NAV Lights | AS DESIRED |
| 12. | Electrical Fuel Pump | OFF |

4.5.3 Before Taxiing

- | | | |
|----|---------------------------------|--------------------------------------|
| 1. | AVIONICS Switch | ON |
| 2. | Avionics and Flight Instruments | SET UP |
| 3. | Engine Instruments | CHECK |
| 4. | Voltmeter | CHECK, needle within the green range |

CAUTION

Warm up engine for 2 min with 820 RPM and then with 1030 RPM until the Oil Temperature reaches 50°C (possible during taxiing).

4.5.4 Taxiing

- | | | |
|----|---------------------------------|---------|
| 1. | Parking Brake | RELEASE |
| 2. | Nose Wheel Steering | CHECK |
| 3. | Brakes | CHECK |
| 4. | Flight Instruments and Avionics | CHECK |
| 5. | Compass Reading / Gyro Instr. | CHECK |

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CAUTION

Do not operate engine at high RPM when taxiing over ground, to prevent damages through loose stones or splashed water.

4.5.5 Before Takeoff (at the Taxi Holding Point)

- | | | |
|-----|-----------------------------|---|
| 1. | Brakes | APPLY |
| 2. | Parking Brake | SET |
| 3. | Fuel Selector Valve | "L" or "R", proper tank |
| 4. | Fuel Pressure Warning Light | OFF, (otherwise cancel flight) |
| 5. | Throttle | 1700 RPM. |
| 6. | Propeller Control Lever | Move three times fully back and then in START position.
(RPM drop 50-100) |
| 7. | Throttle | 1700 RPM. |
| 8. | Ignition Switch | CHECK "L" then "R"
(Max. RPM drop: 120, Max. difference 50, the drop must be noticeable) |
| 9. | Carburettor Heat | ON
(Max. RPM drop is 50) |
| 10. | Carburettor Heat | OFF |
| 11. | Throttle | IDLE |
| 12. | Electrical Fuel Pump | ON |
| 13. | Flaps | TAKEOFF Position |
| 14. | Trim | TAKEOFF Position |
| 15. | Engine Instruments | CHECK within the green Range |
| 16. | Circuit breakers | CHECK In |
| 17. | Control Stick | Free Moveable |
| 18. | Seat Belts and Harnesses | FASTENED/CHECK |
| 19. | Canopy | CLOSED and LATCHED |
| 20. | Parking Brake | RELEASE |

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4.5.6 Takeoff

- | | | |
|----|------------------|---------------------------------|
| 1. | Throttle | FULL OPEN |
| 2. | Tachometer | CHECK, whether 2200-2260 RPM |
| 3. | Elevator Control | NEUTRAL, at initial ground roll |
| 4. | Rudder Pedals | HOLD Direction |
| 5. | Lift Nose Wheel | 50 KIAS |
| 6. | Climb Speed | 65 KIAS |

CAUTION

For the shortest takeoff distance over a 50-foot obstacle.:

- | | | |
|----|-----------------|---------|
| 7. | Lift Nose Wheel | 50 KIAS |
| 8. | Climb Speed | 57 KIAS |

4.5.7 Climb

- | | | |
|----|-------------------------|-----------------|
| 1. | Propeller Control Lever | 2260 RPM |
| 2. | Throttle | OPEN |
| 3. | Engine Instruments | CHECK |
| 4. | Flaps | CRUISE position |
| 5. | Climb | 65 KIAS |
| 6. | Electrical Fuel Pump | OFF |
| 7. | Trim | SET as required |

NOTE

The Best Rate-of-Climb Speed V_Y decreases at higher altitude.

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4.5.8 Cruise

- 1. Throttle AS REQUIRED
(Ref. to Section 5, page 5-9)
- 2. Propeller Control Lever 1650 - 2260 RPM

NOTE

Favorable manifold pressure / propeller speed combinations: (Ref. to Section 5 page 5-9)

- 3. Flaps CRUISE position
- 4. Trim AS REQUIRED
- 5. Engine Instruments CHECK

CAUTION

In flights above pressure altitudes of 6000 ft mind the status of the fuel pressure warning light, if illuminated, the electrical fuel pump should be switched ON to prevent vapour formation in the fuel system.

4.5.9 Descent

- 1. Throttle As Required
- 2. Propeller Control Lever 1800 - 2200 RPM
- 3. Carburettor Heat AS REQUIRED

CAUTION

For a rapid descent, proceed as follows:

- Propeller Control Lever 2260 RPM
- Throttle IDLE
- Carburettor Heat ON
- Flaps CRUISE position
- Airspeed 130 KIAS
- Oil / Cyl. Head Temperature CHECK

4.5.10 Landing

- 1. Seat Belts and Harnesses TIGHT
- 2. Electrical Fuel Pump ON
- 3. Carburettor Heat ON
- 4. Throttle AS REQUIRED

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- | | | |
|-----|-------------------------|---------------------------|
| 5. | Airspeed | 90 KIAS |
| 6. | Flaps | START or LANDING position |
| 7. | Trim | AS REQUIRED |
| 8. | Flaps | LANDING position |
| 9. | Approach Speed | 60 KIAS |
| 10. | Propeller Control Lever | START |
| 11. | Landing Light | ON (as required) |

CAUTION

In high wind conditions; in strong head or crosswinds as well as in turbulent air or wind shears, it may be desirable to approach at appropriate higher than normal speeds.

4.5.11 Balked Landing

- | | | |
|----|-------------------------|------------------|
| 1. | Throttle | OPEN |
| 2. | Propeller Control Lever | START |
| 3. | Carburettor Heat | OFF |
| 4. | Flaps | TAKEOFF position |
| 5. | Airspeed | 65 KIAS |

4.5.12 After Landing

- | | | |
|----|----------------------|-----------------|
| 1. | Throttle | IDLE |
| 2. | Flaps | CRUISE position |
| 3. | Carburettor Heat | OFF |
| 4. | Electrical Fuel Pump | OFF |
| 5. | Transponder | OFF |
| 6. | Landing Light | OFF |

4.5.13 Engine Shutdown

- | | | |
|-----|----------------------------|-----------------------------|
| 1. | Throttle | IDLE |
| 2. | Parking Brake | SET |
| 3. | Flaps | LANDING Position |
| 4. | ELT | CHECK, Frequency 121.5 MHz) |
| 5. | AVIONICS Switch | OFF |
| 6. | Ignition Switch | OFF |
| 7. | Electrical Equipment | OFF |
| 8. | Instrument Light | OFF |
| 9. | BAT Switch | OFF |
| 10. | Wheel Chocks and Tie-Downs | AS REQUIRED |

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4.5.14 Flight in Heavy Rain and/or With Strongly Dirtied Wings**CAUTION**

Wet and/or strongly dirtied wings and control surfaces can affect the flight performance, particularly the takeoff distance, climb rate, and the maximum cruising speed. Stall speeds may be increased up to 3,0 kts. The visibility can be influenced badly by rain.

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