



PILOT'S OPERATING HANDBOOK & FLIGHT TRAINING SUPPLEMENT FOR LIGHT SPORT AIRCRAFT

AIRPLANE SERIAL NUMBER:

AIRPLANE REGISTRATION NUMBER:

This handbook includes the material required by the Federal Aviation Regulations to be furnished to the pilot. It also includes and constitutes the FAA Approved Flight Manual. This airplane is approved as a special light-sport category aircraft (S-LSA) as defined by 14CFR§1.1 and meets the requirements of ASTM consensus standard F2245. This document must be carried in the airplane at all times.

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Original Issue: December 18th, 2023

Revision Date: N/A

POH_XP_001



POH_XP_001 **Pilot's Operating Handbook**



2022

Scoda Aeronáutica Ltda

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WARNING

BEFORE OPERATING THE EQUIPMENT IT IS NECESSARY THAT THE OPERATOR READS THIS MANUAL CAREFULLY AND COMPLETES THE ENTIRE TRAINING PROGRAM. MOREOVER, THE OPERATOR SHOULD VERIFY IF THE MANUAL IS COMPLETE AND UPDATED. THE MANUAL SHOULD BE ON BOARD WITH OTHER DOCUMENTS REQUIRED BY LOCAL AVIATION AUTHORITY.

WARNING

THIS OPERATING MANUAL IS ONLY VALID FOR USE WITH THE AIRCRAFT IDENTIFIED ON THE FACE PAGE. ANY REVISIONS OF THIS MANUAL SHOULD BE INSERTED AS APPROPRIATE.

RECORD OF MANUAL REVISIONS PAGE

[illegible]

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INTRODUCTION

ASTM Standards

- F2245: Specification for Design and Performance of a Light Sport Airplane
- F2972: Practice for Quality Assurance in the Manufacture of Fixed Wing Light Sport Aircraft
- F2295: Practice for Continued Operational Safety Monitoring of a Light Sport Aircraft
- F2483: Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft
- F2746: Specification for Pilot's Operating Handbook (POH) for Light Sport Airplane

About this Manual

All flight speeds are given in indicated airspeeds (IAS). All specifications and limitations were determined in order to meet the design and performance standard specification F2245.

Each pilot must be aware of the limitations and specifications of this light sport aircraft. The Pilot Operating Handbook must be read thoroughly.

Pay particular attention to the preflight and daily checks. Maintenance instructions for the aircraft are provided in a separate Super Petrel XP Maintenance Manual.

A list of original equipment manufacturer manuals for maintenance and operation is referred to on the Original Equipment Manufacturers Manuals Supplement.

Scoda Aeronáutica Ltda

The Super Petrel XP aircraft is manufactured by Scoda Aeronáutica Ltda, which is located at:

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Data Location and Contact Information

Should SCODA AERONAUTICA LTDA become unable to support the Super Petrel XP, a SERVICE LETTER shall be issued including the new location for data and the contact information for recovery of certification documentation and for further continued operational support.

Application of Notes, Cautions and Warnings

NOTES, CAUTIONS and WARNINGS are used in this document to emphasize instructions and information considered to be unusual or critical. **NOTE, CAUTIONS and WARNINGS** may appear in the text either before or after the instruction(s) to which it applies, depending on the relative significance of the information. The conditions that warrant the use of **NOTES, CAUTIONS and WARNINGS** are defined below:

NOTE

An operating procedure, practice or a condition, which is essential to highlight or explain.

CAUTION

Operating procedures, practices or conditions, which, if not strictly observed or corrected, could result in damage or destruction of equipment.

WARNING

OPERATING PROCEDURES, PRACTICES OR CONDITIONS, WHICH, IF NOT STRICTLY OBSERVED OR REMEDIED, COULD RESULT IN SERIOUS PERSONAL INJURY OR LOSS OF LIFE.

1 GENERAL INFORMATION

1.1. *Introduction to Airplane*

The SUPER PETREL XP is a corrosion resistant, light and safe amphibian aircraft, which demonstrates docile and precise pilotage through all speed ranges as well as turns.

On water, the SUPER PETREL XP operates safely, easily absorbing wave impacts. The lower wings also work as a water spray deflector preserving the propeller integrity.

The SUPER PETREL XP is a versatile and well-finished amphibious aircraft. Its ability to take off and land in short distances is unbeatable whether on land or water. With excellent range and a meticulous pilot ergonomic design, it is well suited for any kind of operation.

The SUPER PETREL XP has a spacious cockpit able to carry two people comfortably. The aircraft has a nose ballast / baggage compartment that can carry up to a maximum load of 55 lb (25 kg) and a main baggage compartment behind the seats with a maximum load of 66 lb (30 kg). Equipped with a safe and proven fuel system with a total capacity of 29 US gallons (110 liters), the aircraft can fly 570 miles (1056 km) range (with zero fuel reserve).

With an excellent cruise speed, the SUPER PETREL XP exceeds the expectations of the category. An advanced wing design and streamlined control surfaces bring safe and efficient handling characteristics throughout the aircraft operating envelope.

1.2. Summary of the Performance Specifications

Gross Weight (MTOW)	1430 lb (650 kg)	
(V _{NE}) Never Exceed Speed	120 kts	
(V _H) Maximum Cruise Speed at 5500 RPM at Sea Level	115 kts	
Full Fuel Range with 30 minutes Day VFR reserves (as required by FAA)	75 % Power	6.6 US gal/hr (25 liters/hr) at 110 kts with 30 minute reserve yields 411 miles at Sea Level
	60 % Power	5.3 US gal/hr (20 liters/hr) at 100 kts with 30 minute reserve yields 478 miles at Sea Level
Full Fuel Range with 45 minutes Night VFR reserves (as required by FAA)	75 % Power	6.6 US gal/hr (25 liters/hr) at 110 kts with 45 minute reserve yields 384 miles at Sea Level
	60 % Power	5.3 US gal/hr (20 liters/hr) at 100 kts with 45 minute reserve yields 453 miles at Sea Level
(V _x) Speed for best angle of climb	60 kts	
(V _y) Speed for best rate of climb	65 kts	
Stalling Speed	40 kts	
Total Fuel Capacity	29 US gal (110 Liters)	
Total Fuel Usable	28 US gal (106 liters)	Left Wing 9 US gal (34 Liters) Right Wing 9 US gal (34 Liters)
		Left Header 5 US gal (19 Liters) Right Header 5 US gal (19 Liters)
Approved Fuel Types	Premium 91 Octane Minimum (R+N)/2 method or 100 LL AVGAS – No more than 10% Ethanol by volume (no ethanol in fuel preferable)	
Maximum Engine Power Output (Rotax 915 iS)	Max Continuous Power: 133 HP (99 kW) at 5500 RPM	

2 LIMITATIONS

2.1. Airspeed Indicator Markings

Speed indicator markings and their color coding meanings are shown below:

Markings	IAS value	Meaning
	Kts	
Green Arc	40-100	Normal operating range. Lower limit is maximum weight V_S at most forward C.G. Upper limit is maximum structural cruising speed.
Yellow Arc	100-120	Caution range. Maneuverings should be conducted with caution and smooth air only.
Red Line	120	Never Exceed Speed.

2.2. Speeds Limitations

Speed limitations and their operating meanings are shown below:

Speed		IAS (Kts)	Meaning
V_{NE}	Never Exceed Speed	120	Do not exceed this speed in any operation
V_{NO}	Normal Operation Limit Speed	100	Do not exceed this speed except in Smooth Air and then only with caution
V_H	Maximum Cruise Speed	115	Such speed should never be exceeded in continues horizontal flight.
V_A	Maneuvering Speed at Gross Weight	80	Total or abrupt control movements should not be made above this speed. Under certain circumstances the aircraft can be stressed beyond its limit
	Maneuvering Speed at Minimum Weight	74	
V_{LO}	Maximum Landing Gear Operation Speed	80	Do not exceed this speed for extending or retracting the landing gear

2.3. Weight Limitations

Maximum Takeoff Weight: 1430 lb (650 kg)

2.4. Center of Gravity (CG) Limitations

Forward Limit: 13 in (33 cm)

Aft Limit: 8.7 in (22 cm)

2.5. Baggage Compartment Load

Nose Baggage Compartment Maximum Load (ballast + luggage): 55 lb (25 kg)

Baggage Compartment Maximum Load: 66 lb (30 kg)

2.6. Stalling Speed at Maximum Takeoff Weight (V_S)

Stalling speed V_S : 40 kts IAS

2.7. Operating Maneuvering Speed (V_O) at Gross and Minimum Weight

V_O at Gross Weight: 80 kts

V_O at Minimum Weight: 74 kts

2.8. Never Exceed Speed (V_{NE})

Never Exceed speed V_{NE} : 120 kts

2.9. Service Ceiling

Service Ceiling: 14000 ft (4250 m)

2.10. Load Factors

Maximum load factors: +4G, -2G

2.11. Approved Maneuvers

All aerobatic maneuvers, including spins, are prohibited

2.12. Maximum Water Wave Height

Maximum water wave height: 10 in (25 cm)

2.13. Minimum Depth

Minimum depth for secure operation in water: 30 in (76 cm)

2.14. Total Fuel Capacity

Total Fuel Capacity: 29 US gallons (110 Liters)

2.15. Total Usable Fuel

Total Usable Fuel: 28 US gallons (106 liters):

- Left Wing 9 US gal (34 Liters)
- Right Wing 9 US gal (34 Liters)
- Left Header Tank 5 US gal (19 Liters)
- Right Header Tank 5 US gal (19 Liters)

2.16. Approved Fuel Types

In accordance with engine Operator's Manual, the following fuels may be used.

		Usage / Description
MOGAS	European Standard	EN 228 Super (min. ROZ 95)
		EN 228 Super Plus (min. ROZ 95)
	Canadian Standard	CAN/CGSB3.5 Quality 3 (min. AKI 91)
	US Standard	ASTM D4814 (min. AKI 91)
AVGAS	US Standard	AVGAS 100 LL (ASTM D910)

For more details about the fuel's correct selection, refer to the engine manufacturer's original manuals.

NOTE

The aircraft is able to use fuel which contains up to 10% of ethanol. In case this type of fuel is needed, use high-octane fuel.

2.17. Maximum Zero Wing Fuel Weight

Not Applicable

2.18. Maximum Engine Power Output at a Stated RPM

Maximum Power (5 minutes): 140 HP at 5800 RPM

Maximum Continuous Power: 133 HP at 5500 RPM

2.19. Maximum Design Wind Speed for Opening the Canopy

25 knots

2.20. Engine Limitations

Instrument	Unit	Red Line Minimum Limit	Green Arch Normal Operation	Yellow Arch Variation with Caution	Red Line Maximum Limit
Tachometer	RPM	1800	1800–5500	5500–5800	5800
Oil Temperature	°C (°F)	50 (122)	90-110 (194-230)	50-90 (122-194) 110-130 (230-266)	130 (266)
Coolant Temperature	°C (°F)	---	50-105 (122-221)	105-120 (221-248)	120 (248)
Oil Pressure	Bar (Psi)	0.8 (11.6)	2-5 (29-72.5)	0.8-2 (11.6-29) 5-7 (72.5-101.5)	7 (101.5)
Manifold Pressure	inHg	---	1.77 - 40	40 - 51	51
Fuel Pressure	Bar (Psi)	2.5 (36)	2.9-3.2 (42-46)	2.5-2.9 (36-42) 3.2-3.5 (46-51)	3.5 (51)
Fuel Quantity	Liters (US gal)	11.3 (3)	18.9-52.9 (5-14)	11.3-18.9 (3-5)	---
EGT	°C (°F)	---	600-900 (1112-1650)	900-950 (1650-1742)	950 (1742)
Ammeter	A	(-) 6	(+) 0 – 18	(-) 0 – 6 (+) 18 – 29	(+) 30
Voltmeter A	V	12	12-16	---	---
Voltmeter B	V	12	12-16	---	---

NOTE

The coolant ventilation system installed in the cooling radiator is automatically activated when the temperature reaches the yellow arch.

CAUTION

The engine instrument indications are set during the manufacturing of the aircraft according to the parameters specified in the table above. The alteration of the indications and limits previously established is prohibited, and can compromise the engine operation and aircraft systems.

WARNING

PILOT MUST OPERATE THE AIRCRAFT IN ACCORDANCE WITH ENGINE LIMITATIONS.

2.21. Environmental Limitations

- The Super Petrel XP is authorized to fly according to VFR rules only (Visual Flight Rules) in VMC conditions (Visual Meteorological Conditions).
- Flight operations in IMC (Instrument Meteorological Conditions) are prohibited.
- Flight operation in known icing conditions is prohibited.
- Smoking is prohibited at all times.

WARNING

WATER TAKEOFF AND LANDINGS SHOULD BE DONE INTO THE WIND AS MUCH AS POSSIBLE. SIGNIFICANT CROSSWIND COMPONENT CAN CAUSE ACCIDENTS IN WATER TAKEOFF AND LANDINGS.

2.22. VFR Night or IFR Use Limitations

The Super Petrel XP aircraft is prohibited from operating in IMC conditions (Instrument Meteorological Conditions). Night VFR is allowed on land operation only and on clear nights with required operating lights.

WARNING

WATER OPERATION AT NIGHT IS PROHIBITED.

The minimum equipment for approved operations required under the Operating Rules are defined by 14 CFR 91 and ASTM standard F2245, as applicable.

NOTE

Carrying out Night VFR operations without a valid Airworthiness Certificate and proper equipment is illegal. Pilots must ensure the aircraft is appropriate for the intended operations.

3 EMERGENCY PROCEDURES

3.1. General Information

Emergency situations may occur with any type of aircraft. Always fly at a distance and height that will allow you to land if necessary and always think about your options available if you face an emergency situation.

We will present the main potential problems that may occur and what procedures are considered best practices from practical experience. Due to variables in each emergency situation, the pilot in command has the responsibility to implement the best solution available at the time of the emergency.

Always consider that prevention of emergencies is far more effective than procedures developed for emergency response.

WARNING

ALWAYS LOOK FOR PLACES WHERE YOU CAN LAND IF NECESSARY AND MAINTAIN AN ALTITUDE THAT ALLOWS YOU TO REACH THEM.

3.2. Airspeeds for Emergency Procedures

	knots
Stall Speed (V_S)	40
Engine Failure after Takeoff	65
Best Glide Speed (V_G)	65
Emergency Descent	100
Precautionary Landing with Engine Power	65
Emergency Landing without Engine Power	65

3.3. Emergency Checklists

3.3.1 Engine Fire during Start

Throttle	IDLE
Fuel Pumps (Main and Auxiliary)	OFF
LANE B	OFF
LANE A	OFF
Master Switch	OFF
Fuel Valve	CLOSE
Leave the aircraft immediately	USE THE EXTINGUISHER

3.3.2 Engine Failure during Takeoff

During takeoff, raise the landing gear upon positive rate of climb (land operation). Should the engine fail prior to initiation of landing gear retraction, the opportunity to land with gear down remaining runway may be available. If initiation of landing gear retraction has occurred, land straight ahead with gear retracted. Retracting the landing gear will result in a better glide ratio and if the surface where you will land is not smooth and compact enough, it will be better to land with the landing gear retracted.

Never forget that in case of a power loss during takeoff, you must immediately lower the nose and maintain speed, due to the high thrust line inherent to pusher aircraft, a sudden loss of power will cause the aircraft to pitch up, aggravating by the "high nose" attitude on takeoff.

WARNING

NEVER TRY TO GO BACK TO THE RUNWAY BY TURNING AT A LOW ALTITUDE.

WARNING

IN CASE OF POWER LOSS DURING WATER TAKEOFF, ALWAYS KEEP THE LANDING GEAR IN THE WATER POSITION.

3.3.3 *Loss of Engine Power in Flight*

Search for	SAFE PLACE FOR LANDING
Selector Valve	SWITCH TANK
Backup Battery Switch	ON
LANE B	ON
LANE A	ON
Main Fuel Pump	ON
Auxiliary Fuel Pump	OFF
Attempt	STARTING ENGINE
If engine not starting	LAND AS SOON AS POSSIBLE

3.3.4 *Emergency Landing without Engine Power*

When choosing a place for landing, the following checklist can be completed. The choice of landing gear extended or retracted is a function of the airfield available. The use of the landing gear extended should only be selected in the case of certainty that the surface is compact and without obstacles.

CAUTION

If it is possible to land with the landing gear extended, touch with the main wheels before the nose wheel, use brakes as required.

WARNING

IN CASE OF EMERGENCY LANDING ON THE WATER, MAKE SURE THAT THE LANDING GEAR IS IN THE WATER POSITION AND THE ELECTRICAL BILGE PUMP IS ON.

Safety Belts	FASTEN
Canopy	UNLOCKED
Landing Gear	AS NECESSARY
LANE B	OFF
LANE A	OFF

Fuel Pumps (Main and Auxiliary)	OFF
Master Switch	OFF
Fuel Valve	CLOSE

CAUTION

Remember that an excess of altitude can be lost by side slipping. Therefore, a steeper approach may be desirable.

WARNING

AFTER LANDING, EGRESS THE AIRCRAFT AND REMAIN CLEAR UNTIL THERE IS NO CHANCES OF FIRE.

3.3.5 Precautionary Landing with Engine Power

A precautionary landing must be performed at the nearest airfield when the situation does not require an immediate emergency landing.

3.3.6 Fire in Flight

Fuel Pumps (Main and Auxiliary)	OFF
LANE B	OFF
LANE A	OFF
Master Switch	OFF
Throttle	IDLE
Fuel Valve	CLOSE
Landing	LAND AS SOON AS POSSIBLE

3.3.7 Loss of Oil Pressure

Throttle	MINIMUM POWER FOR LEVEL FLIGHT
Landing	LAND AS SOON AS POSSIBLE
After landing inspect the source of trouble	

WARNING

IF A LOSS OF OIL PRESSURE IS NOT AN INSTRUMENT INDICATION ERROR, A TOTAL ENGINE STOP IS PROBABLE.

3.3.8 High Oil Pressure

Throttle	REDUCE POWER
If a reduction in power does not help	LAND AS SOON AS PRACTICAL

3.3.9 Emergency Descent

Throttle	IDLE
Landing Gear	AS NECESSARY

3.3.10 Overvoltage

Electronic Circuit breakers (VP-X Sport) is provided to avoid damage of overvoltage on the SUPER PETREL XP electrical system.

3.3.11 Inadvertent Spin

Throttle	IDLE
Aileron and Elevator	NEUTRAL
Rudder	OPPOSITE TO SPIN
Control stick	NEUTRAL, UNTIL ROTATION STOPS AND THEN APPLY ELEVATOR PITCH FOR LEVEL FLIGHT
Throttle	SET FOR LEVEL FLIGHT

3.3.12 Inadvertent Icing Encounter

WARNING

**THIS AIRCRAFT IS NOT APPROVED FOR FLIGHT INTO KNOWN ICING CONDITIONS.
THIS CONDITION IS PROHIBITED AND EXTREMELY DANGEROUS.**

At first indication of encountering icing conditions:

Course	180 DEGREE HEADING CHANGE AND CONSIDER CHANGING ALTITUDE
Cabin Heating	OPEN
Throttle	INCREASE
Controls	MOVE TO MAINTAIN THEIR MOVABILITY
Flight	LAND AS SOON AS POSSIBLE
Approach	HIGHER SPEED THAN NORMAL

NOTE

Be prepared for increased stall margins due to airframe icing during approach and landing.

3.3.13 Loss of Primary Instruments

Landing	LAND AS SOON AS PRACTICAL
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3.3.14 Loss of Flight Controls

Loss of Rudder:

Aircraft Control	AILERON
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Loss of Aileron:

Aircraft Control	RUDDER
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Loss of Elevator:

Aircraft Control	TRIM (Longitudinal)
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Loss of Power Throttle:

If it is possible to keep flight altitude proceed:	LAND AS SOON AS PRACTICAL
If it is NOT possible to keep flight altitude proceed:	LAND AS SOON AS POSSIBLE

3.3.15 Autopilot Loss of Control

If the Autopilot begins to act improperly (unexpectedly)	AVOID FROM STEADY CONDITION OR APPROACH AN UNUSUAL ATTITUDE
AUTOPILOT	OFF
Straight and Level Flight	COORDINATED USE OF ALL CONTROLS

3.3.16 Failed Autopilot Disconnect (Disengagement)

If the Autopilot fails to disconnect	OVERPOWER THE AUTOPILOT SERVO IN ORDER TO REACH STRAIGHT AND LEVEL FLIGHT
NOTE: It is possible to overpower the autopilot servo and flown by hand even though the forces of the control stick will be higher than normal.	
After straight and level flight reached	AUTOPILOT CIRCUIT BREAKER OFF

3.3.17 Landing Gear Failure

The landing gear system is an electrically actuated and hydraulically operated system where a failure is very unlikely. If a failure occurs, it may affect the main landing gear or the nose landing gear together or separately.

The main landing gear and nose landing gear are equipped with a gas spring that forces the gear to the extended position. Therefore, when the landing gear switch is activated to “down (land)” position, even with little or no pressure on the hydraulic system, the main and nose landing gear tend to go to the extended position.

The landing gear light located above the landing gear circuit breaker indicates that the electrically / hydraulic system is working to retract, extend or re-pressurize the system.

- Electrically / hydraulic gear system malfunction:

If the landing gear light remains OFF when the gear switch is activated	CHECK THE LANDING GEAR CIRCUIT BREAKER (IN)
Landing gear	DOWN (LAND)
Check landing gear indication on the PFD	GEAR DOWN (green)
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS DOWN (LAND)
Precautionary landing	ON LAND, GRASS OR PAVEMENT

The main and nose landing gear are equipped with sensors to indicate the extended and locked position and retracted and locked position. When main and nose gear are extended and locked, GEAR DOWN in green is displayed on the PFD. When main and nose gear are retracted and locked, GEAR UP in blue is displayed on the PFD. While the landing gear is cycling UP or cycling DOWN, UNSAFE GEAR in red is temporarily displayed on the PFD.

If main gear or nose gear or both gears are not locked UP or DOWN, UNSAFE GEAR in red will be displayed permanently on the PFD.

- UNSAFE GEAR in red displayed on the PFD when the gear switch DOWN:

Landing gear	UP (WATER)
Check landing gear indication on the PFD	GEAR UP (blue)
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS UP (WATER)
Precautionary landing	IN WATER

- UNSAFE GEAR in red displayed on the PFD when the gear switch is UP:

Landing gear	DOWN (LAND)
Check landing gear indication on the PFD	GEAR DOWN (green)
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS DOWN (LAND)
Precautionary landing	ON LAND, GRASS OR PAVEMENT

- UNSAFE GEAR in red displayed on the PFD when the gear switch is UP and also when the gear switch is DOWN:

Landing gear	DOWN (LAND)
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS DOWN (LAND)
Precautionary landing	ON LAND, GRASS OR PAVEMENT AS NECESSARY

CAUTION

A hard landing may induce structural stress on the aircraft due to the gross weight at the time and also the severity of impact. This is applicable for both ground and water landings. A comprehensive inspection is necessary before commencing flight operations. Refer to the last revision of the Maintenance Manual for Hard or Overweight Landing Inspection Checklist.

3.3.18 Water Infiltration

Bilge Pump	ON
Landing gear	UP
Engine	IDLE
Monitor	WATER DRAINING

CAUTION

If water infiltration persists, approach the shoreline in order to stabilize the aircraft.

3.3.19 Stall Recovery

The Super Petrel XP has a design feature that allows the lower wing of the aircraft to stall completely while the upper wing remains flying. Indication of a stall is apparent when lift is lost on the lower wing, and the nose of the aircraft drops. This allows for recovery from the stall while the upper wing, containing the ailerons, continues to provide positive flight and control. A properly calibrated Angle of Attack (AOA) system will indicate a stall when the AOA presents red chevrons and the stall warning audio tone is heard through the audio system.

With any of these indications, the following recovery procedure must be followed.

Pitch Altitude and Angle of Attack	DECREASE POSITIVELY AND IMMEDIATELY
Throttle	INCREASE POWER SMOOTHLY
Straight and Level Flight	COORDINATED USE OF ALL CONTROLS

3.3.20 Fault Indicated by the Warning Lamps

CAUTION

Reduce engine power setting to the minimum necessary and carry out precautionary landing

LANE A	LANE B	EFFECT ON ENGINE	PROPOSED ACTION ON GROUND IF WARNING LAMP IS PERSISTENT	PROPOSED ACTION IN FLIGHT
OFF	Flashing	No effect on engine power, 2 systems available	Maintenance action required	FLIGHT IS POSSIBLE TO YOUR DESTINATION AT YOUR OWN DISCRETION
Flashing	OFF	No effect on engine power, 2 systems available	Maintenance action required	FLIGHT IS POSSIBLE TO YOUR DESTINATION AT YOUR OWN DISCRETION
OFF	ON	No effect on engine power, rely on alternate system	Maintenance action required	FLIGHT IS POSSIBLE TO YOUR DESTINATION AT YOUR OWN DISCRETION
Flashing	Flashing	No effect on engine power, rely on alternate power supply system	Maintenance action required	FLIGHT IS POSSIBLE TO YOUR DESTINATION AT YOUR OWN DISCRETION
Flashing	ON	No effect on engine power, rely on alternate system (oscillating system)	Maintenance action required	FLIGHT IS POSSIBLE TO YOUR DESTINATION AT YOUR OWN DISCRETION
ON	OFF	No effect on engine power, rely on alternate system	Maintenance action required	FLIGHT IS POSSIBLE TO YOUR DESTINATION AT YOUR OWN DISCRETION
ON	Flashing	No effect on engine power, rely on alternate system (oscillating system)	Maintenance action required	FLIGHT IS POSSIBLE TO YOUR DESTINATION AT YOUR OWN DISCRETION
ON	ON	Loss of engine power possible (LOPC up to IFSD), system relies on default values and tries to maintain operation	Maintenance action required Flight not permissible	LAND AS SOON AS PRACTICAL

3.3.21 Failure of the EMS Power Supply

SYMPTOM	PROCEDURE
Failure of the EMS	<ul style="list-style-type: none"> If the EMS power supply (alternator A) fails then the ECU automatically switches one-time over to the second EMS power supply (alternator B)
No charging of battery	<ul style="list-style-type: none"> While alternator B runs, no power drop is recognizable
Failure of both EMS power supplies (alternator A/B) resulting in engine stoppage	<ul style="list-style-type: none"> Switch ON the BACKUP BATTERY SWITCH. In this case, the aircraft battery provides the power supply. Restart engine IF POSSIBLE USE ONLY ONE FUEL PUMP LAND AS SOON AS POSSIBLE A maintenance inspection should be carried out

3.3.22 EMS Voltage Supply below the Minimum Required Level

SYMPTOM	PROCEDURE
Voltage supply below level	<ul style="list-style-type: none"> Limited flight operation is possible if the voltage (alternator A or B) indicates yellow Proceed according to section Failure of the EMS power supply if the condition persists Reduce engine power setting to the minimum necessary and carry out precautionary landing A maintenance inspection should be carried out

NOTE

Please see the operator's manual for Rotax 915 iS engine type series reference OM-915 iS

4 NORMAL PROCEDURES

4.1. Preflight Check

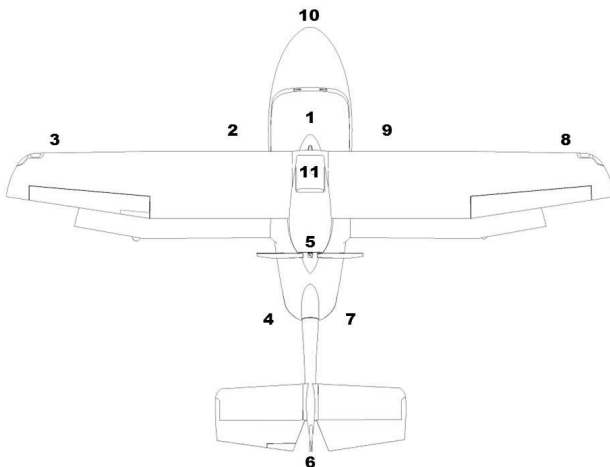
A Preflight inspection is of vital importance for aircrew safety and for the aircraft's integrity. Follow the inspection list in the correct sequence using the Figure below as a reference and correct any failure detected that may jeopardize the safety of flight.

WARNING

BEFORE ANY AIRCRAFT MOVEMENT, MAKE SURE THAT THE AIRCRAFT IS AIRWORTHY. PERFORM A THOROUGH PRE-FLIGHT INSPECTION. ALWAYS PAY ATTENTION TO OPERATING LIMITS AND EMERGENCY PROCEDURES. ENSURE AIRCRAFT AND PILOT DOCUMENTATION ARE IN ORDER.

WARNING

TO AVOID UNINTENTIONAL GROUND GEAR RETRACTION, ALWAYS CHECK THE LANDING GEAR SWITCH POSITION BEFORE TURNING THE MASTER SWITCH ON.



1. Cabin
<ul style="list-style-type: none"> • Plexiglas • Canopy Locking Handle • Canopy Mechanism / Gas Spring • Air Vents • Drain Header Tanks (L & R) and check fuel sample • Fuel Valve check (off, L & R) • Bilge Pump ON (verify operation & bilge empty) / OFF • All Circuit Breakers IN • Landing Gear Switch Position DOWN (land) / UP (water) • All Switches OFF • Master ON • PFD Landing Gear Indicator DOWN (land) / UP (water) • Electric Trims Switch operation • Airspeed & Vertical Speed Indicator indicating zero • Engine Instruments • Fuel Quantity • Master OFF • Controls check freedom of motion to all stops • Throttle check freedom of motion • Fire Extinguisher securely fastened to the bracket (gauge in green) • Main Baggage Compartment, load strapped and secured • Back Seats adjusted and fixed • Seat Belts adjusted and fixed
2. Left Landing Gear
<ul style="list-style-type: none"> • Attachment • Tire pressure / Condition • Brake Fluid Lines • Leg's general condition • Shock Absorber
3. Left Wings

<ul style="list-style-type: none"> • Wing-Fuselage attachment • Struts and Attachments • Pitot Tube (remove cover) • Wing Rigidity • Wing Surface • Aileron (movement, looseness and attachment) • Electric Trim Plug's attachment • Fuel Tank Cap (closed) • Float attachment • Float mirror attachment
4. Left Back Side
<ul style="list-style-type: none"> • Hull's general condition • Tail boom general condition
5. Engine
<ul style="list-style-type: none"> • Engine upper cowling (remove and disconnect antennas) • Oil and Water Radiator attachment • Fuel Hoses and Connections • Oil Hoses and Connections • Cooling Hoses and connections • Intake Hoses and Connections • Exhaust Tubes attachment • Engine attachment • Spark Plug Cables • Safety Wires of Reduction Gear Box Bolts • Coolant level in the Expansion Tank • Electrical Fans attachment (Cooling System) • Engine upper cowling (reinstall and reconnect antennas)
6. Tail
<ul style="list-style-type: none"> • Rudder Cables • Elevator-Actuator connection • Electric Trim Plug's attachment • Rudder and Elevator hinges and attachment

7. Right Back Side
<ul style="list-style-type: none"> Hull's general condition Tail boom general condition Propeller's general condition Propeller's leading edge protection and general condition
8. Right Wing
<ul style="list-style-type: none"> Wing-Fuselage attachment Struts and Attachments Wing Rigidity Wing Surface Aileron (movement, looseness and attachment) Fuel Tank Cap (closed) Float attachment Float mirror attachment
9. Right Landing Gear
<ul style="list-style-type: none"> Attachment Tire pressure / Condition Brake Fluid Line Leg's general condition Shock Absorber

10. Nose
<ul style="list-style-type: none"> Nose door (remove) Landing Gear hydraulic oil level Landing Gear hydraulic system hoses and connections Battery electrical harness Cabin Heater hoses and connections Tire pressure / Condition PVC Plates for wear, looseness and general condition Nose Wheel steering friction Nose Wheel Leg and external retraction mechanism Nose Wheel compartment sealing Hull's general condition Nose Ballast strapped and secured Nose Baggage Load strapped and secured Nose Baggage Door (reinstall)
11. Upper Fuselage
<ul style="list-style-type: none"> Electrical wiring (condition and attachment) Aileron Controls Throttle Mechanism (condition and attachment) Oil level check Coolant level in the Overflow Tank Fuel Vent Lines

4.1.1. Header Tanks Draining

To drain the header tanks, the aircraft must be in a static condition.

Fuel Drain (left lateral outside)	OPEN
Draining Button (left lateral inside)	PRESS
Draining Fuel Sample	COLLECT FUEL SAMPLE WITH A CLEAR CONTAINER
Fuel Drain (left lateral)	CLOSE
Fuel Drain (right lateral outside)	OPEN
Draining Button (right lateral inside)	PRESS
Draining Fuel Sample	COLLECT FUEL SAMPLE WITH A CLEAR CONTAINER
Fuel Drain (right lateral)	CLOSE

4.1.2. Loading the Nose Baggage Compartment and Ballast

The nose baggage compartment is located on the right side of the aircraft's nose. This area provides storage for luggage, tools, tie down items, etc. Due to the distance from the reference datum, it is very important for weight and balance of the aircraft. The additional lead ballast must be positioned on the most forward area of the baggage compartment and secured for safe operation.

Weight and balance	LOADING CHART (see section 6.1)
Nose baggage door	OPEN
Add / remove lead ballast and luggage	AS REQUIRED
Lead ballast and luggage	STRAPPED AND SECURED
Nose baggage door	CLOSED AND SECURED

WARNING

**NOSE BALLAST REQUIRED FOR SOLO FLIGHT. THE MINIMUM NOSE BALLAST /
BAGGAGE LOAD WILL BE DETERMINED BY THE C.G. LIMITS**

4.2. Airspeeds for Normal Procedures

	knots
Rotation Speed (V_R)	45
Speed for best angle of Climb (V_x)	60
Speed for best rate of Climb (V_y)	65
Approach	65
Landing	45
Short Field Takeoff	45
Balked Landing	65

NOTE

The maximum demonstrated crosswind component for take-off and landing on LAND is 15 knots (not a limitation).

4.3. Engine Starting

- Before starting:**

Preflight Inspection	COMPLETE
Documentation	CHECK (AIRCRAFT AND PILOT)
Cooling System	CHECK
Lubrication System	CHECK
Fuel Quantity and Quality	CHECK
Fuel Selector Valve	SELECT TANK
Parking Brake	HOLD THE BRAKES AND PULL THE PARKING BRAKE HANDLE (LAND)
Landing Gear Switch Position	DOWN (LAND) / UP (WATER)
Circuit Breakers	ALL IN
Strobe Lights	ON
Safety Belts	FASTEN
Propeller Area	CLEAR

NOTE

Parking brake is activated by holding left and right brakes simultaneously and pulling the parking brake handle. Pulling the parking brake handle and then holding the brakes also activates the parking brake.

NOTE

Before the first engine start of the day and before checking the oil level, manually turn the propeller (counter-clockwise – back view). This procedure causes the oil to run inside the engine and eliminates any air bubble, allowing a correct measurement of the oil level and helps to detect strange sounds and normal compression inside the cylinders. For more details reference the Rotax 915 iS operator's manual.

CAUTION

Do not rotate the propeller more than one revolution in reverse direction.

CAUTION

Backup Battery Switch is only used for Emergency Procedures; therefore, it must be in OFF position for Normal Procedures

WARNING

WHEN HANDLING THE PROPELLER, ALWAYS MAKE SURE THAT THE LANE A, B AND MASTER ARE OFF.

• *Engine Start*

Master	ON
Main Fuel Pump Switch	ON
NOTE: Only operate the main fuel pump when starting the engine. Switching on the auxiliary fuel pump at the same time can lead to detrimental start behavior.	
LANE A and LANE B	SELECT BOTH SWITCHES ON
Start Power Switch (Momentary)	ACTIVATE
Warning Lamps	CHECK IF WARNING LAMPS ILLUMINATE AND EXTINGUISH AFTER 3 SECONDS
Engine Instruments	CHECK FUEL PRESSURE OF 43.5 PSI (3 BAR)
Throttle	SET THROTTLE LEVER APPROX. 1/2" (1-2 CM)
Start Button	PRESS UNTIL ENGINE RUNS

Start Power Switch (Momentary)	RELEASE AFTER ENGINE HAS REACHED 1500 RPM OR HIGHER
Throttle	SET THROTTLE LEVER AS REQUIRED (2000 RPM)
Engine instruments	CHECK FOR ERROR MESSAGES AND CHECK OIL PRESSURE
NOTE: Increasing engine speed is only permitted at steady oil pressure readings above 3 BAR (43.5 PSI)	
Throttle	INCREASE ENGINE SPEED ABOVE 2500 RPM AND HOLD AT LEAST 5 SECONDS (AWAIT GENERATOR SHIFT FROM GEN B TO GEN A)
NOTE: If, after the engine start, a warning lamp flashes or lights up, perform a LANE and IGNITION check. After the LANE and IGNITION check both warning lamps must be extinguished, otherwise there is an error. If either lamp illuminates or flashes: See Section 3.3.18 of this manual	
Engine Instruments	CHECK STATUS OF WARNING LAMPS AND OPERATING LIMITS

CAUTION

It must be ensured that both fuel pumps are working and no engine loss of power or uneven running by turning off a fuel pump occurs. The limits for fuel pressure must not be exceeded.

CAUTION

The coolant ventilation system installed in the cooling radiator is self-activated approximately 20 seconds after the master switch is turned on. It remains on until the momentary start power switch is activated. The engine start should be aborted if the ventilation system is inoperative.

Engine	2000 RPM
Fuel Pumps (Main and Auxiliary)	ON
Auxiliary Fuel Pump	OFF FOR 5 SECONDS
Fuel Pressure	CHECK
Auxiliary Fuel Pump	ON
Main Fuel Pump	OFF FOR 5 SECONDS
Fuel Pressure	CHECK
Main Fuel Pump	ON

CAUTION

Always fly with both Fuel Pumps ON

4.4. Taxiing

Ground

Parking Brake	OFF
Speed	LOW
Normal Turns	RUDDER
Accentuated Turns	RUDDER / BRAKES
Landing Lights	AS NECESSARY

CAUTION

Before sliding the canopy backwards, it must be at the full down position with the guiding pin inside the locking trail. Moving the canopy backwards with the guiding pin outside the locking trail may damage the mechanism.

CAUTION

Opening / Closing the canopy while the aircraft is moving is not recommended.

Water

Canopy	CLOSED AND LOCKED
Bilge Pump	ON (VERIFY BILGE EMPTY)
Throttle	AS REQUIRED TO CONTROL HEADING
Maneuvers	RUDDER
Coolant Temperature	MONITOR
Landing Lights	AS NECESSARY

NOTE

The aircraft will weathervane into the wind.

CAUTION

The bilge pump is located in the central part of the hull, below the luggage rack. Therefore, it will remove water when the aircraft is in level position. In the takeoff attitude or when accelerating, the water will most likely be displaced to the back of the hull and it will not be discharged by the bilge pump.

CAUTION

During taxi with landing gear down or at high speed, the watertightness of the hull may be compromised. In this case the pilot should set the engine at idle, turn the bilge pump on and verify water drainage.

CAUTION

During water operation, the aircraft starts moving at the time the engine is activated.

CAUTION

While the aircraft is floating or taxiing on the water, partial or full open canopy will allow water to come into the cockpit. Instrument panel as well as occupants may get wet depending on water conditions.

4.5. Normal Takeoff

CAUTION

Before applying power to LANE and ignition check, the nose gear should be aligned. Failure to center wheel may result in damage to the nose gear.

Before Takeoff (Holding Position Point):

Safety Belts	CHECK
Fuel Quantity	CHECK
Brakes	ON
LANE A and LANE B	PERFORM LANE AND IGNITION CHECK
Idle Throttle	READ 1600 ~ 1800 RPM
Instruments	CHECK
Controls	CHECK
Trim (Longitudinal and Lateral)	SET FOR TAKEOFF
Autopilot	OFF
Fuel Pumps (Main and Auxiliary)	ON
Landing Lights	AS REQUIRED
Runway and Pattern	CLEAR
Canopy	CLOSED AND LOCKED

CAUTION

Before sliding the canopy backwards, it must be at the full down position with the guiding pin inside the locking trail. Moving the canopy backwards with the guiding pin outside the locking trail may damage the mechanism.

LANE and Ignition check:

Engine	4000 RPM
LANE selector switch A	OFF (MAXIMUM DROP OF 180 RPM)
LANE selector switch A	ON, Light out
LANE selector switch B	OFF (MAXIMUM DROP OF 180 RPM)
LANE selector switch B	ON, Light out
RPM	IDLE

NOTE

LANE A and LANE B have different sensor inputs. During LANE and IGNITION check, some sensor values are not displayed depending on the position of the LANE select switches.

Not available sensor values if LANE A = OFF and LANE B = ON

- Coolant temperature
- Exhaust gas temperatures from cylinder 1-4
- Ambient temperature
- Ambient pressure
- Throttle lever position

Not available sensor values if LANE B = OFF and LANE A = ON

- Oil temperature
- Oil pressure

Before takeoff:

Fuel Pumps (Main and Auxiliary)	BOTH ON
LANE A and LANE B	BOTH ON
Engine instruments	CHECK
Landing Lights and Strobe Lights	BOTH ON

CAUTION

Before starting takeoff, make sure all instruments are functional.

CAUTION

Before starting takeoff, make sure you have sufficient runway.

Normal Ground Takeoff:

Control stick	AFT ELEVATOR POSITION
Throttle	FULL
Control stick	RELIEVE TO INCREASE SPEED
Rate of climb	POSITIVE
Landing Gear	RETRACTED AND LOCKED
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS UP

NOTE

After a crosswind takeoff, when directed against the wind the nose gear door closure can result in a loud bang.

CAUTION

While the landing gear is cycling up, monitor the landing gear light, the locking message (GEAR UP – BLUE) in order to make sure the cycle is complete.

WARNING

DURING TAKEOFF, IT IS EXPECTED THAT THE ENGINE ACHIEVES AT LEAST 5300 RPM. IF THE ENGINE DOES NOT ACHIEVE THIS VALUE, THEN THE TAKE OFF SHOULD BE ABORTED AND THE CONDITION OF THE ENGINE AND PROPELLER VERIFIED BEFORE NEXT FLIGHT.

Normal Water Takeoff:

Landing Gear	RETRACTED AND LOCKED
Bilge Pump	ON (VERIFY BILGE EMPTY)
Fuel Pumps (Main and Auxiliary)	ON
LANE A and LANE B	BOTH ON
Control stick	FULL AFT ELEVATOR POSITION
Throttle	FULL
Heading	KEEP HEADING USING RUDDER
Wings	LEVEL
On the step	CONTROL STICK NEUTRAL ELEVATOR POSITION

CAUTION

Normal takeoff in water happens in approximately 15 to 30 seconds. If the aircraft has difficulty achieving step or does not become airborne within 30 seconds the takeoff should be aborted. Check the parameters that affect aircraft performance such as wind direction, load, fuel quantity, temperature. Ensure the hull is drained prior to attempting Take Off.

CAUTION

Special care must be taken with wind direction. Taking off with a cross wind may be critical because the aircraft tends to weathervane into the wind.

CAUTION

Ensure there are no immersed trees or any other obstacles that could endanger the Take Off.

WARNING

ANY PORPOISING MUST BE CANCELLED PULLING THE CONTROL STICK BACKWARD UNTIL PORPOISING STOPS.

4.6. Climb

Trim (Longitudinal and Lateral)	AS NECESSARY
Landing Gear	RETRACTED AND LOCKED
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS UP
Bilge Pump	OFF (WATER TAKEOFF)
Landing Lights	AS REQUIRED
Engine Instruments	MONITOR

WARNING

IN CERTAIN CONDITIONS POWER REDUCTION MAY BE REQUIRED TO MAINTAIN ENGINE PARAMETERS WITHIN LIMITS.

4.7. Best Angle of Climb Speed (V_x)

For Rotax 915 iS engine and ground adjustable propeller.	
Best Angle of Climb Speed (V_x)	60 kts

4.8. Best Rate of Climb Speed (V_y)

For Rotax 915 iS engine and ground adjustable propeller.	
Best Rate of Climb Speed (V_y)	65 kts

4.9. Cruise

Trim (Longitudinal and Lateral)	AS NECESSARY
Engine	4600 ~ 5500 RPM
Fuel Consumption	MONITOR
Fuel Selector Valve	SWITCH TANK EACH 30 MIN
Engine Instruments	MONITOR

4.10. Approach

Ground

Landing Gear	EXTENDED AND LOCKED
Wing float mirror	CHECK VISUALLY THE LANDING GEAR DOWN
Parking Brake	OFF
Fuel Pumps (Main and Auxiliary)	ON
Landing Lights	ON
Throttle	AS REQUIRED

CAUTION

While the landing gear is cycling down, monitor the landing gear light and the locking message (GEAR DOWN – GREEN) in order to ensure the cycle is complete.

Water

Landing Gear	RETRACTED AND LOCKED
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS UP
Fuel Pumps (Main and Auxiliary)	ON
Landing Lights	ON
Bilge Pump	ON
Throttle	AS REQUIRED

WARNING

FOR WATER OPERATION, ENSURE THE LANDING GEAR IS RETRACTED AND LOCKED. CHECK WIND DIRECTION. CHECK THE SURFACE AND LOOK FOR ANY IMMERSSED TREES AND OBSTACLES. CHECK LATERAL BALANCE.

WARNING

WATER TAKEOFF AND LANDINGS SHOULD BE ACCOMPLISHED INTO THE WIND AS MUCH AS POSSIBLE. SIGNIFICANT CROSSWIND COMPONENT CAN CAUSE ACCIDENTS IN WATER TAKEOFF AND LANDINGS.

4.11. Normal Landing

Ground

Landing Gear – DOUBLE CHECK	EXTENDED AND LOCKED
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS DOWN
Brakes	APPLY SMOOTHLY
Control stick	AFT ELEVATOR PRESSURE

Water

Landing Gear – DOUBLE CHECK	RETRACTED AND LOCKED
Wing float mirror	CHECK VISUALLY THE LANDING GEAR IS UP
Bilge Pump	ON
Transition	NEAR THE WATER
Engine	REDUCE TO IDLE AS SOON AS THE AIRCRAFT MAKES CONTACT WITH WATER SURFACE.
Aircraft Floating	AFT ELEVATOR PRESSURE

4.12. Engine Shut – off

NOTE

Normally the cooling down of the engine during the descent and taxiing will be sufficient to allow the engine to be shut off as soon as the aircraft is stopped. At increased operating temperatures, make an engine cooling run of at least minimum 2 minutes.

Brakes	ON (GROUND)
Bilge Pump	OFF (WATER)
Instruments	CHECK
Engine	IDLE
LANE B	OFF
LANE A	OFF
Fuel Pumps (Main and Auxiliary)	OFF
Landing Lights	OFF
Master	OFF

CAUTION

While the aircraft is not in operation, pulling out the landing gear circuit breaker and removing the master key may help to prevent unintentional gear retracting.

4.13. Short Field Takeoff and Landing Procedures

In addition to normal Approach, Takeoff and Landing procedures, it is necessary to perform undermentioned "Short Field Takeoff and Landing Procedures" procedures.

Ground Takeoff:

Brakes	MAXIMUM
Throttle	FULL
Brakes	RELEASE

Water Takeoff:

NOT APPLICABLE

Ground Landing:

Brakes	APPLY AS NECESSARY
Control stick	AFT ELEVATOR PRESSURE

Water Landing:

Engine	REDUCE TO IDLE AS SOON AS THE AIRCRAFT MAKES CONTACT WITH WATER SURFACE.
Control stick	FULL AFT BACK ELEVATOR PRESSURE AFTER AIRCRAFT IS FULLY SUPPORTED BY THE HULL

4.14. Soft Field Takeoff and Landing Procedures

Soft ground and / or wet grass will increase land takeoff roll distance by approximately 15% from ground roll distance.

4.15. Balked Landing Procedures

Throttle	FULL
Control stick	AFT ELEVATOR PRESSURE

4.16. Night Flights

In addition to normal "Day Flights" procedures, it is necessary to perform undermentioned "Night Flights" procedures.

4.16.1. Preflight Check

Perform careful preflight Check of entire Lighting System and Battery condition before night flights.

4.16.2. Engine Starting

Before Starting:

Panel Lights	ON (DIM AS NECESSARY)
NAV Lights	ON

After Starting:

Avionics	DIM AS NECESSARY
Instruments	CHECK
Strobe Lights	ON

4.16.3. Taxiing

Strobe	ON
Landing Lights	AS REQUIRED

4.16.4. Takeoff

Before Takeoff:

Strobe Lights	ON
Landing Lights	ON

After Takeoff:

Landing Lights	AS REQUIRED
----------------	-------------

4.16.5. Approach

Landing Lights	ON
----------------	----

4.17. Other Useful Pilot Information

Stalls

Refer to section 2 "Operating Limitations" for stall speeds. The stall is noted through light buffeting. Though the recovery actions must be performed in a coordinated manner, they are broken down into three actions for explanation purposes:

At the first indication of a stall, the pitch attitude and angle of attack must be decreased positively and immediately. Since the basic cause of a stall is always an excessive angle of attack, back stick pressure should be released. This lowers the nose and returns the wing to an effective angle of attack.

Maximum allowable power should be applied to increase the airplane's airspeed and assist in reducing the wing's angle of attack. The throttle should be promptly, but smoothly,

advanced to the maximum allowable power.

Straight-and-level flight should be regained with coordinated use of all controls.

Altitude loss of about 60 m (197 ft) in altitude should be expected during a stall.

WARNING

WHEN NOT LANDING DO NOT FLY SLOWER THAN 60 KTS.

Spins

Intentional spins are prohibited.

Refer to section 3 "Emergency Procedures" for Inadvertent Spins.

Bilge Pump Use

Whenever water is suspected in the hull, turn on the bilge pump to drain it.

Banked Turn

All turns should be made with the coordinated use of aileron and rudder.

WARNING

STEEP TURNS IN EXCESS OF 60° ARE PROHIBITED.

Anchoring / Coming Out of the Water

When floating for a long time on water, the aircraft should be anchored or moored. If the intention is to get the aircraft out of the water, lower the landing gear (always at minimum forward speed) and look for ramp or an area that is relatively flat and firm to taxi the aircraft.

CAUTION

Due to the pressure applied by the water to the tires, lower the landing gear with the engine at idle with minimum forward speed in order to avoid overstressing the retraction system mechanism.

5 PERFORMANCE

Performance data charts on the following pages are presented for normal takeoff and landing procedures. The data in the takeoff and landing tables has been computed from actual flight tests with the aircraft and engine in good condition and using average piloting techniques.

WARNING

BEYOND PARAMETERS, THE TAKEOFF AND LANDING DISTANCES DEPEND ON PILOT'S PERSONAL SKILLS.

5.1. Takeoff Distance

The takeoff distance chart should be consulted, keeping in mind that the distances shown are based on the normal takeoff procedures. Conservative distances can be established by reading the chart.

For example, the takeoff distance information presented for a pressure altitude of 2000 feet and a temperature of 20 °C should be used and results in the following:

Ground roll	355 Feet (108 m)
Total distance to clear a 50-foot obstacle	1105 Feet (337 m)

TAKEOFF DISTANCE CHART

CONDITIONS:

- MTOW = 1430 lb (650 kg)
- Ground Adjustable Propeller (**Static RPM = 5500 RPM**)
- Paved, Level, Dry Runway
- Zero Wind
- Distances in Feet. (**For distance in meters, use the conversion 1 m = 3.28 feet**)

NOTES:

1. Normal takeoff procedures as specified in Section 4.
2. A headwind of 10% of takeoff speed can decrease the takeoff roll by 19% and a tailwind that is 10% of takeoff speed can increase the distance for takeoff by 21%.
3. Where distance value has been deleted, climb performance after lift-off is less than 140 fpm at takeoff speed.
4. For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

NOTE

For water operation, use as reference the Takeoff Distance Chart. Increase distance by 65% of the "ground roll" figure.

5.2. Takeoff Distance Chart

			TAKEOFF DISTANCE (ft) - Asphalt											
			0 °C (32 °F)		10 °C (50 °F)		20 °C (68 °F)		30 °C (86 °F)		40 °C (104 °F)			
WEIGHT (LB)	TAKE OFF SPEED IAS (KTS)	PRESS ALT (FT)	GND ROLL	TOTAL TO CLEAR 50 FT OBS	GND ROLL	TOTAL TO CLEAR 50 FT OBS	GND ROLL	TOTAL TO CLEAR 50 FT OBS	GND ROLL	TOTAL TO CLEAR 50 FT OBS	GND ROLL	TOTAL TO CLEAR 50 FT OBS		
			LIFT OFF	AT 50 FT										
	1430	45	60	S.L	207	646	238	742	272	847	308	960	350	1089
			1000	238	748	273	851	311	968	352	1097	389	1210	
			2000	275	855	314	976	355	1105	390	1214	461	1436	
			3000	316	984	356	1109	391	1218	463	1440	523	1630	
			4000	358	1113	396	1235	464	1444	526	1638	596	1856	
			5000	399	1243	465	1448	529	1646	601	1872	705	2195	
			6000	466	1452	530	1653	602	1876	706	2199	881	2743	
			7000	531	1654	604	1880	709	2207	889	2768	---	---	
			8000	609	1896	710	2211	891	2776	---	---	---	---	

5.3. Landing Distance

A procedure similar to takeoff should be used in order to estimate the landing distance at the destination field. The chart shown below presents landing distances for various field altitude and temperature combination using the normal landing procedures.

For example, the takeoff distance information presented for a pressure altitude of 2000 feet and a temperature of 20 °C should be used and results in the following:

Ground roll	492 Feet (150 m)
Total distance to clear a 50-foot obstacle	1282 Feet (391 m)

LANDING DISTANCE CHART

CONDITIONS:

- MTOW = 1430 lb (650 kg)
- Engine at idle
- Ground Adjustable Propeller
- Paved, Level, Dry Runway
- Zero Wind
- Distances in Feet. **(For distance in meters, use the conversion 1 m = 3.28 feet)**

NOTES:

1. Normal landing procedures as specified in Section 4.
2. For operation on a dry, grass runway, decrease distances by 15% of the "ground roll" figure.
3. For water operation, decrease distance by 20% of the "ground roll" figure.

5.4. Landing Distance Chart

LANDING DISTANCE (ft) - Asphalt												
WEIGHT (LB)	SPEED AT 50 FT IAS (KTS)	Press Altitude (FT)	0 °C (32 °F)		10 °C (50 °F)		20 °C (68 °F)		30 °C (86 °F)		40 °C (104 °F)	
			GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL TO CLEAR 50 FT OBS
1430	60	0	324	1114	385	1175	458	1249	546	1337	652	1443
		1000	334	1125	398	1188	474	1265	566	1357	677	1468
		2000	345	1136	412	1202	492	1282	588	1378	704	1494
		3000	356	1147	425	1216	509	1299	609	1400	731	1521
		4000	368	1159	440	1231	528	1318	633	1423	760	1551
		5000	359	1150	430	1221	516	1307	621	1411	747	1537
		6000	394	1185	473	1264	569	1359	684	1475	825	1616
		7000	408	1199	491	1281	591	1381	712	1503	860	1651
		8000	423	1214	510	1300	614	1405	742	1532	898	1688

5.5. Rate of Climb

Configuration:

MTOW = 1430 lb (650 kg)
 Ground adjustable propeller
 At engine RPM: 5500 RPM
 At $V_Y = 65$ kts

		RATE OF CLIMB (feet / min)		
WEIGHT (LB)	PRESS ALT (FT)	0 °C (32 °F)	20 °C (68 °F)	40 °C (104 °F)
1430	S.L.	1650	1334	1018
	2000	1183	1011	729
	4000	997	722	502
	6000	715	495	330
	8000	492	323	206

5.6. Cruise Speeds

Configuration:

Ground adjustable propeller

Economic Cruise Speed at 4800 RPM: 90 kts
 Most Efficient Speed at 5000 RPM: 100 kts
 Normal Cruise Speed at 5200 RPM: 110 kts
 Maximum Cruise Speed at 5500 RPM: 115 kts

5.7. RPM Setting and Fuel Consumption (ISA Conditions)

Engine Power	RPM	Approximate Consumption
Maximum Power (5min)	5800	10.7 U.S Gal/h (40 l/h)
Continuous Maximum Power	5500	7.3 U.S Gal/h (28 l/h)
Normal Cruise	5200	6.6 U.S Gal/h (25 l/h)
Most Efficient Cruise	5000	5.9 U.S Gal/h (22 l/h)
Economic Cruise	4800	5.3 U.S Gal (20 l/h)

NOTE

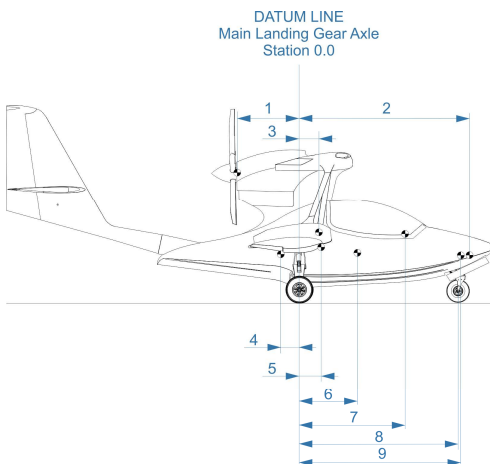
For more engine data, please refer to Rotax Operator's Manual.

6 WEIGHT AND BALANCE INFORMATION AND EQUIPMENT LIST

6.1. Weight and Balance Chart

The Weight and Weight Balancing should be checked:

- After Major repairs
- After repainting
- After fitting the airplane with additional equipment apart from its manufacturing configuration



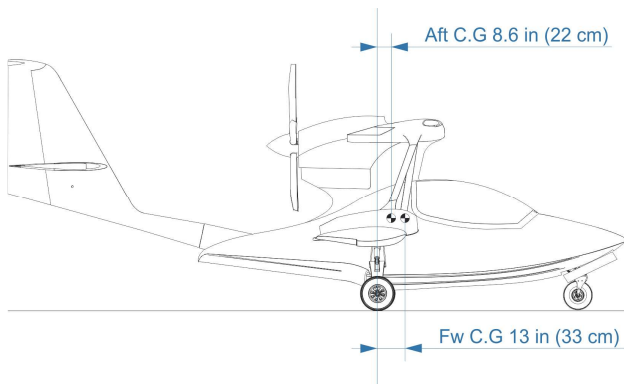
N°	Equipment	Arm
1	Propeller	-31.1 in (-79 cm)
2	Battery	79.5 in (202 cm)
3	Wing Tank	13.8 in (35 cm)
4	Header Tank	-8.3 in (-21 cm)
5	Baggage	13.8 in (35 cm)
6	Pilot/Passenger	35.4 in (90 cm)
7	Instruments	54.3 in (138 cm)
8	Nose Wheel	79.5 in (202 cm)
9	Ballast	94.5 in (240 cm)

LOADING CHART

Aircraft Serial Number: S0 _____ Date: _____

Registration Number: _____ Owner: _____

Item		Weight Lb (kg)	x	Arm (in)	Arm (cm)	=	Moment lbxin (kgxcm)
	Empty Weight		x			=	
	Pilot		x	35,4	90	=	
	Pax		x				
	Baggage		x	13,8	35	=	
	Nose Baggage		x	94,5	240	=	
Wing Left Tank	9 US GAL 34 LITERS		x	13,8	35	=	
Wing Right Tank	9 US GAL 34 LITERS		x				
Left Header Tank	5 US GAL 19 LITERS		x	-8,3	-21	=	
Right Header Tank	5 US GAL 19 LITERS		x				
Total Weight Lb (kg) =			Total Moment lbxin (kgxcm)			=	
Center of Gravity		Total Moment	/	Total Weight		=	
THE VALUE OF CG MUST BE HIGHER THAN 8.6in (22cm) AND LOWER THAN 13.0 in (33cm)							



6.1.1. Terminology

ARM: The horizontal distance from the reference datum to the center of gravity (CG) of an item.

BASIC EMPTY WEIGHT: Standard empty weight plus optional equipment.

CENTER OF GRAVITY (C.G.): The point at which an airplane would balance if suspended. Its distance from the reference datum is determined by dividing the total moment by the total weight of the airplane.

C.G ARM: The arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.

C.G LIMITS: The extreme center of gravity locations within which the aircraft must be operated at a given weight.

DATUM: An imaginary vertical plane from all horizontal distances are measured from balance purposes.

MOMENT: The product of the weight of an item multiplied by its arm.

MAXIMUM LANDING WEIGHT: Maximum weight approved for the landing touchdown.

MAXIMUM TAKEOFF WEIGHT: Maximum weight approved for the start of the takeoff run.

PAYLOAD: Weight of occupants, cargo, and baggage.

STANDARD EMPTY WEIGHT: Weight of a standard airplane including unusable fuel, full operating fluids, and full oil.

UNUSABLE FUEL: Fuel remaining after a runout test has been completed in accordance with governmental regulations.

USABLE FUEL: Fuel available for flight planning.

USEFUL LOAD: Difference between takeoff weight and basic empty weight.

6.2. Loading Method

1. Multiply each item's weight times its arm to find the moment. Record each on its respective line.
2. Add all the weights and moments and record each on its respective total line.
3. Divide the total moment by the total weight and the result is the C.G.
4. Determine that the airplane's Loaded C.G. falls within the applicable limits (Forward and Aft C.G. Limits)

SAMPLE LOADING CHART (Maximum Forward C.G)

Item		Weight Lb (kg)	x	Arm (in)	Arm (cm)	=	Moment lbxin (kgxcm)
	Empty Weight	924,9	x	0,64	2	=	594,9
	Pilot	190,0	x	35,4	90	=	6732,3
	Pax	190,0	x				6732,3
	Baggage	0,0	x	13,8	35	=	0,0
	Nose Baggage	52,0	x	94,5	240	=	4913,4
Wing Left Tank	9 US GAL 34 LITERS	6,6	x	13,8	35	=	90,4
Wing Right Tank	9 US GAL 34 LITERS	6,6	x				90,4
Left Header Tank	5 US GAL 19 LITERS	30,0	x	-8,3	-21	=	-248,0
Right Header Tank	5 US GAL 19 LITERS	30,0	x				-248,0
Total Weight Lb (kg) =		1430,0	Total Moment lbxin (kgxcm)			=	18657,6
Center of Gravity		Total Moment	/	Total Weight		=	13,0
THE VALUE OF CG MUST BE HIGHER THAN 8.6in (22cm) AND LOWER THAN 13.0 in (33cm)							

SAMPLE LOADING CHART (Maximum AFT C.G)

Item		Weight Lb (kg)	x	Arm (in)	Arm (cm)	=	Moment lbxin (kgxcm)
	Empty Weight	924,9	x	0,64	2	=	594,9
	Pilot	136,0	x	35,4	90	=	4818,9
	Pax	0,0	x				0,0
	Baggage	0,0	x	13,8	35	=	0,0
	Nose Baggage	55,0	x	94,5	240	=	5194,7
Wing Left Tank	9 US GAL 34 LITERS	0,0	x	13,8	35	=	0,0
Wing Right Tank	9 US GAL 34 LITERS	0,0	x				0,0
Left Header Tank	5 US GAL 19 LITERS	30,0	x	-8,3	-21	=	-248,0
Right Header Tank	5 US GAL 19 LITERS	30,0	x				-248,0
Total Weight Lb (kg) =		1175,9	Total Moment lbxin (kgxcm)			=	10112,4
Center of Gravity		Total Moment	/	Total Weight		=	8,6
THE VALUE OF CG MUST BE HIGHER THAN 8.6in (22cm) AND LOWER THAN 13.0 in (33cm)							

6.3. Operating Weights and Loading

6.3.1. Weight Definitions

Maximum Takeoff Weight	1430 lb (650 kg)
Maximum Landing Weight	Maximum Takeoff Weight
Maximum Empty Weight	981 lb (446 kg)
Basic Empty Weight	924 lb (420 kg)
Minimum Useful Load	448 lb (204 kg)

NOTE

The limits of C.G. range are measured ahead of Datum.

6.3.2. Worst Loading Case

Forward C.G. Limit	Maximum Takeoff Weight with heavy passenger and pilot, reserve fuel only and the nose baggage at approximate maximum capacity. SEE SAMPLE LOADING CHART (Maximum Forward C.G.)
Aft C.G. Limit	With a very light pilot, fuel only on the header tanks and the nose baggage at approximate maximum capacity. SEE SAMPLE LOADING CHART (Maximum AFT C.G.)

6.3.3. Baggage Compartment

The baggage compartment is located behind the seats and above the main landing gear. The baggage compartment includes an upper shelf for light items above the main baggage compartment and contains niches for headsets, POH, etc. The baggage compartment is located next to the C.G. and, therefore has little effect on the balance.

The baggage compartment limit is 66 lb (30 kg).

NOTE

The maximum baggage load may be limited by the MTOW.

CAUTION

Loading the upper shelf compartment must be made avoiding interference with the canopy mechanism.

6.3.4. Nose Baggage Compartment and Ballast

The nose baggage compartment is located on the right side of the aircraft's nose. It provides room for ballast, luggage, tools, tie down items, etc. Due to the distance from the reference datum, it is very important for weight and balance of the aircraft. The additional lead ballast must be positioned on the most forward area of the baggage compartment and secured for safe operation.

When the occupants' total weight (Pilot and Passenger) is less than 310 lb (141 kg), ballast / load will be necessary in the nose baggage compartment for weight and balance of the aircraft according to the table below. Ballast must be placed and secured for safe operation.

Weight (PILOT + PASSENGER)	MINIMUM NOSE WEIGHT (BALLAST + LOAD)
Less than 136 lb (62 kg)	55 lb (25 kg)
Less than 230 lb (105 kg)	25 lbs (11.4 kg)
More than 310 lb (141 kg)	0 lbs (0 kg)

Lead ballast weight is 25 lb (11.36 kg) and 15 lb (6.82 kg).

The nose baggage (ballast + baggage) maximum load is 55 lb (25 kg).

WARNING

**NOSE BALLAST REQUIRED FOR SOLO FLIGHT. THE MINIMUM NOSE BALLAST /
BAGGAGE LOAD WILL BE DETERMINED BY THE C.G. LIMITS**

6.4. Center of Gravity (CG) range and determination

Longitudinal Limits

DATUM	Main Landing Gear Shaft
Forward Limit	13 in (33 cm)
Aft Limit	8.6 in (22 cm)

Procedure

Insert the respective loads in the Loading Chart in order to calculate the final position of the center of gravity (C of G).

NOTE

It is the pilot's responsibility to use the most updated weight and balance data when operating the aircraft.

WARNING

AIRCRAFT'S HANDLING QUALITIES AND STRUCTURAL INTEGRITY MAY BE SERIOUSLY COMPROMISED IF THE MAXIMUM WEIGHT AND/OR CG LIMITS ARE EXCEEDED.

6.5. *Installed Optional Equipment List*

Information on installed equipment and references may be found on the Equipment List Supplement of this Manual.

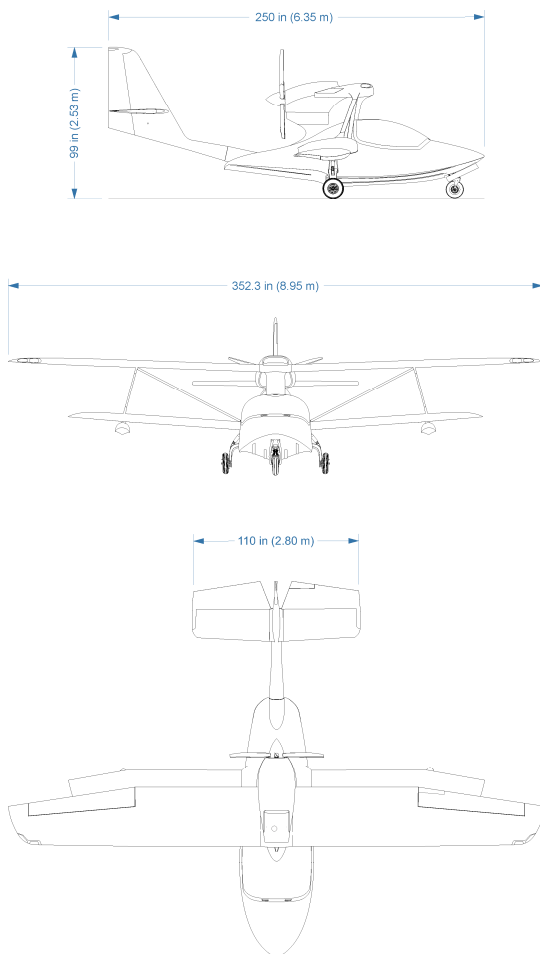
NOTE

The Weight and Balance Sheet corresponding to this aircraft is located on the Weight and Balance Supplement of this Manual.

7 DESCRIPTION OF AIRPLANE AND SYSTEMS

7.1. General

7.1.1. Three View



7.2. Configuration

The Super Petrel XP is an amphibious seaplane with equilibrium floats attached to its lower wings. The ailerons are located in the upper wings and the tail is conventional, with the horizontal stabilizer approximately half way up the tail fin.

The seats are side by side with dual controls in an enclosed cockpit.

The engine is a pusher configuration attached to the upper wing pylon.

A carbon fiber cowling encloses the engine.

7.3. Airframe

Two components comprise the fuselage: The main fuselage and tail.

The main fuselage is molded in carbon and Kevlar® reinforced by PVC foam bulkheads.

The tail, the horizontal stabilizer, the elevator and rudder are molded in carbon fiber and have internal PVC foam reinforcements.

The upper wings structure have a carbon fiber "C" channel spar, forming a "D" box when bonded to the fiber and PVC foam shells.

The lower wings are built in the same way with fuel tanks added in the leading edge. The floats are attached to the lower wing's structure.

The struts are made of 6061-T6 aluminum profile.

7.4. Landing Gear

The main landing gear is equipped with oil pneumatic shock absorbers, hydraulic disk brakes, aluminum wheels and 400-6 6 Ply tubeless tires. The nose gear is castoring and equipped with 400-4 8 Ply tubeless tire. The landing gear retraction is actuated by an electrical / hydraulic system.

7.5. Flight Controls

Stainless steel cables activate the rudder. Ailerons are activated by a combination of Teleflex cables and rigid tubes. The elevator is activated by rigid tubes. Aileron and elevator trim tabs are electrically operated.

Controls Ranges:

- ⤴ Ailerons: 17° up/ 10° down ($\pm 2^\circ$)
- ⤴ Elevator: 20° up/ 20° down ($\pm 2^\circ$)
- ⤴ Rudder: 30°right/ 30° left ($\pm 2^\circ$)
- ⤴ Elevator Trim: 15° up / 15° down ($\pm 2^\circ$)
- ⤴ Aileron Trim: 15° up / 15° down ($\pm 2^\circ$)

7.6. Typical Instrument Panel

The Central GARMIN G3X Touch Screen (Primary Flight Display – PFD) augmented with GARMIN G5 typical instrument panel contains all flight, navigation and engine instruments that are required for day and night operations.

Switches are located as follows:

- **Engine Panel:** Located on the central console.
- **Lights / Miscellaneous Panel:** Located on the central console.
- **Circuit Breakers:** The installed VP-X unit provides circuit protection and controls the electrical system.

7.6.1. Instrument Panel and Flight Instruments

The instrument panel of this aircraft is detailed on the Instrument Panel and Flight Instruments Supplement of this Manual.

7.7. Electrical System

The Super Petrel XP operates with a 12-volt DC electrical system and incorporates the electrical starter and voltage rectifier. The installed VP-X unit provides circuit protection and controls the electrical system. Some circuit protection is provided by circuit breakers or fuses according to the table below:

Equipment	Amps	Location
Cockpit Lights	3	Fuse Box
Bilge Pump	3	Fuse Box
Fuel Drain	5	Fuse Box
USB Power	5	Fuse Box
ECU Power	25	Instrument Panel
ECU Backup Battery	25	Instrument Panel
Landing Gear	25	Instrument Panel

CAUTION

The VP-X parameters are set during the manufacturing of the aircraft. The alteration of the limits previously established is prohibited, and can compromise the aircraft systems.

7.7.1. Battery

Super Petrel XP uses a 12-volt, 16 Amp-Hour sealed gel battery (Lithium battery is also available), which is located in the nose of the aircraft. The jump-start plug is located on the left side of the cockpit underneath the panel and may be used for plugging in a battery trickle charger.

7.7.2. Master Switch

The Master switch is located on the engine panel and labeled as MASTER.

RIGHT position is ON and LEFT position is OFF.

Master switch activates the battery relay of the aircraft, displays, avionics (VHF, Transponder, GPS, ADAHRS) as well as all the aircraft electrical system.

7.7.3. Backup Battery Switch

The Backup Battery Switch contains a red guard and is located on the engine panel and labeled as BACKUP BATTERY.

UP position is ON and DOWN position is OFF.

Backup Battery Switch feeds the EMS system by the onboard battery during emergency procedures in case of supply failure by the internal generator.

7.7.4. Lane A and Lane B Switches

The Lane A and Lane B switches are two independent switches located on the engine panel and labeled as LANE A and LANE B.

UP position is ON and DOWN position is OFF.

Lane A and Lane B switches connect the ECU for the relevant Lane to the EMS supply.

7.7.5. Electrical Fuel Pumps (Main and Auxiliary)

The Super Petrel XP has two 12-volt electrical fuel pumps, which are located behind the baggage compartment on the main bulkhead of the aircraft. These pumps are controlled by two independent switches with guards (MAIN F. PUMP and AUX. F. PUMP) located on the engine panel.

7.7.6. Power Switch

The power switch is a momentary switch located on the engine panel and labeled as POWER.

UP position is ON (MOMENTARY).

Power switch makes a connection only during the start-up procedure between the ECU, ignition system and the EMS lamps with the aircraft battery.

7.7.7. Start Button

The start button is located on the engine panel and labeled as START.

Start button activates the starter motor.

7.7.8. 5V Universal Serial Bus (USB) Charging Port

The Universal Serial Bus (USB) charging port installed underneath the central console allows simultaneously charging of two devices such as cell phones, iPad, audio entertainment, etc.

7.7.9. Headphones Plugs

There are two 6 pin LEMO plugs located on the left and right sides of the cockpit.

7.7.10. Bilge Pump

The bilge pump is in the hull behind the baggage compartment. It should be used to expel water which has accumulated in the interior of the hull. The bilge pump switch is on the miscellaneous panel. It is connected directly to the battery so that it works with the Master switch OFF.

Automatic (Bilge Pump)

The automatic bilge pump switch is located in the hull below the lower baggage compartment. It is self activated when there is water inside the aircraft hull and connected directly to the battery so that it works with the Master switch OFF.

7.7.11. Emergency Locator Transmitter (ELT)

The ELT is mounted behind the upper baggage compartment. The pilot should become familiar with its operation and maintenance by consulting the manufacturer user manual.

7.7.12. Elevator Electrical Trim

An electrical actuator is located inside of the left elevator airframe, which controls the up, or down position of the trim through a rod.

The electrical trim is operated by using the trim switch located on top of both control sticks. Forward movement of the switch will cause nose down trim and rearward movement will cause nose up trim.

7.7.13. Aileron Electrical Trim

An electrical actuator is located inside of the left aileron airframe, which controls the up or down position of the trim through a rod.

The electrical trim is operated by using the trim switch located on top of both control sticks. Left movement of the switch will cause left trim and right movement will cause right trim.

7.7.14. Avionics

The Super Petrel XP is equipped with a Garmin G3X Touch system. Instructions for the use of installed avionics can be found in the manufacturer's manuals. These include:

- Primary Flight Display – PFD
- GPS
- XPNDR
- VHF
- Autopilot

7.7.15. External Lights

- Landing Lights: Located on the leading edge of both upper wings. A corresponding switch is located in the lights panel with two positions: OFF-ON.

<p>NOTE</p>

Landing light Wig-Wag (Pulsing) feature begins automatically when the switch is ON and the airspeed is above 65 knots. When the switch is ON and the airspeed is below 65 knots the lights are steady.

- Navigation Lights: Located on the tip of both upper wings as well as on the tip of the rudder. The corresponding switch is located in the lights panel.
- Strobe Lights: Located on the tip of both upper wings. The corresponding switch is located in the lights panel.

7.7.16. Cockpit Lights

- The Instrument Panel Light is an LED panel lighting system which can be dimmed independently from the instrument lights. The dim control knob is located in the lights panel.

For additional information regarding electrical systems, please refer to the last revision of the aircraft Maintenance Manual.

7.8. Engine

CAUTION

Use only oils with API classification "SG" or higher.
Aero Shell OIL Sport Plus 4 is highly recommended

WARNING

THIS ENGINE IS NOT SUITABLE FOR ACROBATICS (INVERTED FLIGHT ETC.) NON COMPLIANCE CAN RESULT IN SERIOUS INJURIES OR DEATH! CERTAIN AREAS, ALTITUDES AND CONDITIONS PRESENT GREATER RISK THAN OTHERS. NEVER FLY THE AIRCRAFT EQUIPPED WITH THIS ENGINE AT LOCATIONS, AIRSPEEDS, ALTITUDES OR OTHER CIRCUMSTANCES FROM WHICH A SUCCESSFUL NO-POWER LANDING CANNOT BE PERFORMED AFTER SUDDEN ENGINE SHUTDOWN.

PLEASE SEE THE OPERATOR'S MANUAL FOR ROTAX 915 iS ENGINE TYPE SERIES REFERENCE OM-915 iA

The Super Petrel XP is powered by the Rotax 915 iS Turbo configuration 2, 4 strokes, 4 cylinders, with dual ignition, and mixed air/water cooling system. It has an incorporated reduction gearbox, electric starter system and voltage rectifier (12 V).

7.9. Fuel System

The fuel system is fed by one RIGHT and one LEFT wing tank built of aramid fiber located inside the lower wings leading edges. Each tank is connected to its fuselage header tank (RIGHT and LEFT), also made with aramid fiber, which is located behind the fuselage main bulkhead.

The RIGHT and LEFT header tanks are connected to the fuel selector valve. The fuel selector valve is located on the cockpit floor below the central console and has three positions: LEFT, RIGHT and OFF (Shut-Off). The OFF position avoids the engine being fed by usable fuel during emergency procedures.

The full capacity of the system is 29 US gallons – 110 liters (28 US gallons usable – 106 liters).

The fuel gauges indicate RIGHT and LEFT tank (wing + header) total fuel quantity.

<p>NOTE</p>

The aircraft is able to use fuel which contains up to 10% of ethanol. In case this type of fuel is needed, use high-octane fuel.

7.10. Propeller

The Super Petrel XP is equipped with three blade propellers with ground adjustable pitch:

- E-PROPS, EXCALIBUR FIVE BLADE

7.11. Cabin Heater

The Super Petrel XP cabin heater system uses engine coolant as a heat source. The coolant is bled from the engine and taken to the heater radiator. A fan, coupled to the radiator, blows hot air through the cabin when the cabin heater switch is activated. The Cabin Heater switch is located in the central console.

8 HANDLING AND SERVICE

8.1. Introduction

While carrying out tasks on the airplane, strictly observe safety precautions.

- Avoid exposing the main fuselage to temperatures above 140° F (60° C).
- Never move the aircraft by pushing on the wings with particular care to avoid the trailing edges.
- Do not step on the wings, tail boom or horizontal stabilizer.
- Do not rest machines, tools or containers on the airplane skin.
- While working on the fuel system, ground the airplane; do not smoke, do not work with open fire and do not work simultaneously on the electrical system.
- When working with dangerous chemical substances (adhesives, thinners), use adequate protective equipment such as goggles, gloves, etc.
- For engine's assembling or disassembling, use only adequate and tested lifting equipment.
- While running the engine on the ground, keep away from the propeller.
- An accidental engine start is very dangerous! Ensure that the Ignition switch is OFF!
- Upon completion of work, carefully check to remove tools and unwanted objects from the airplane.

8.2. Ground Handling

8.2.1. Jacking The Aircraft

This process is only used to change the wheels or to operationally test the landing gear system. One person is required to lift the nose of the aircraft and put a support under the keel located under the fuselage. Then put a jack under each point of the main gear.

CAUTION

Preferably place protective foam among the support – keel and jack – fuselage. Lift the aircraft simultaneously with the jack placed in each point of the main gear, lift the aircraft just high enough to let the wheels turn freely.

8.2.2. Parking

Carefully consider local conditions. It is advisable to place chocks in each wheel of the main gear to avoid any displacement of the aircraft. Chocking the nose gear is optional.

8.3. Towing Instructions

To tow the aircraft, one person is required:

1. Make sure the space near the aircraft is clear of obstacles and people.
2. The aircraft can be towed using the eyebolt located on the aircraft nose.
3. Smoothly pull the aircraft in the desired direction.

8.4. Tie-Down Instructions

To tie the aircraft down, one person is required:

1. Apply main wheel chocks.
2. Attach the tie down lines to the support of the wing struts and nose gear.
3. Attach the lines to the mooring arrangements on the ground. Make sure the lines are tightened.

CAUTION

If the aircraft is left in the sunlight, do not use dark covers. Preferably, use a white light cover.

8.5. Servicing Fuel, Oil and Coolant

Before commencing refueling operations the following is recommended:

Tires	CHOCKED / WEDGED
LANE B switch	OFF
LANE A switch	OFF
Fuel Pumps (Main and Auxiliary)	OFF
Master	OFF
Bonding Cable	ATTACHED
Tank Cap	OPEN
Check the fuel specifications	FILL
Cap	CLOSE
Check for Spillage	CLEAN IF NECESSARY

Other tank	REPEAT THE PROCEDURE
------------	----------------------

When servicing the oil, it is required to use the following procedure:

Tires	CHOCKED
LANE B switch	OFF
LANE A switch	OFF
Fuel Pumps (Main and Auxiliary)	OFF
Master	OFF
Support or Ladder	IN FRONT OF THE UPPER WING
Reservoir cap	OPEN
Rotate the propeller (from aft part of the aircraft)	COUNTERCLOCKWISE until engine burps
Oil level	CHECK DIPSTICK (see section 8.7)
Add oil	AS NECESSARY
Reservoir cap	CLOSED

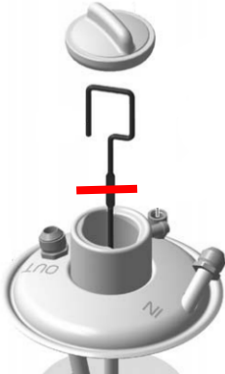
8.6. Approved fuel grades and specifications

In accordance with engine Operator's Manual, the following fuels can be used.

		Usage / Description
MOGAS	European Standard	EN 228 Super (min. ROZ 95)
		EN 228 Super Plus (min. ROZ 95)
	Canadian Standard	CAN/CGSB3.5 Quality 3 (min. AKI 91)
	US Standard	ASTM D4814 (min 91 Octane)
AVGAS	US Standard	AVGAS 100 LL (ASTM D910)

For more details about the fuel's correct selection, refer to the engine manufacturer's original manuals.

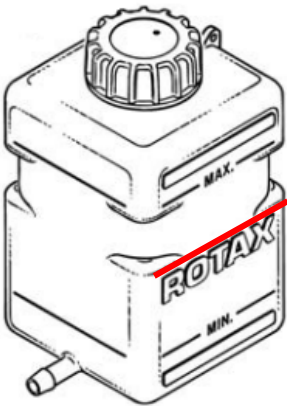
8.7. Approved oil grades and specifications

Types of oil	For selection of suitable operating fluids for ROTAX Engine type 915 (Series), refer to the latest edition of the Rotax Service Instruction SI-915 i-001.
<ul style="list-style-type: none"> • (Recommended: SAE 10 W-40) Aero Shell OIL Sport Plus 4 is highly recommended. (Oil changes are required depending on climatic conditions) 	
<ul style="list-style-type: none"> • Oil changes procedure should be performed as per Rotax Instructions. 	
<ul style="list-style-type: none"> • Recommended Oil Level: it should be in the middle of the dipstick. 	
	

CAUTION

If engine runs mainly on AVGAS, more frequently oil changes will be required. See the latest edition of engine manufacturer's Service Information SI-915i-001.

8.8. Coolant

<p>Types of coolant</p>	<ul style="list-style-type: none"> Remember that different coolants cannot be mixed. In accordance to the latest edition of the Rotax Service Instruction SI-915 i-001, in principle 2 different types of coolant are permitted: <ul style="list-style-type: none"> Conventional coolant based on ethylene glycol with 50% water (50 / 50). Waterless coolant based on propylene glycol.
<ul style="list-style-type: none"> (Aircraft manufacturer recommends to use Conventional Coolant 50 / 50) Honda Genuine Coolant Type 2 – All season antifreeze. 	
<ul style="list-style-type: none"> Coolant replacing procedure should be performed as per Rotax Instructions 	
<ul style="list-style-type: none"> Recommended Coolant Level: it should be in the middle of the overflow bottle. <div data-bbox="456 815 742 1222" data-label="Image">  </div>	

8.9. Tire Inflation Pressure

TIRES	MINIMUM PRESSURE	MAXIMUM PRESSURE
Nose Wheel Tire	16 PSI	20 PSI
Main Wheel Tires	40 PSI	50 PSI

8.10. Cleaning and Care

Washing and cleaning of the aircraft can be made according to the criteria of the owner; it is not obligatory for each inspection. When washing and cleaning the aircraft the following steps are recommended:

8.10.1. Canopy External Part

CAUTION

Only recommended cleaning products should be used to clean the aircraft's canopy.

1. Spray enough water on the surfaces.
2. Spread generously with a good quality neutral soap the entire surface of the aircraft.
3. Pass the hands palm and fingers softly, spreading the soap forward and backward (lengthwise).

CAUTION

Do not make circular moves.

4. Remove carefully with the fingers or slight nail pressure insects and dirt.
5. Wash and remove remained dirt, repeating the process only on that spot.
6. Apply a specific product for Plexiglass cleaning and gently dry with a clean and new soft cloth.
7. If polishing is needed it is recommended to complete the surface cleaning as following:
 - Use a specific product for Plexiglass polishing.

- Open the product carefully in order to not spill dust into the receptacle.
- Use only a clean piece of cotton.
- Complete the polishing moving the piece of cotton forward and backward.

8.10.2. Canopy Internal Part

1. Sprinkle the specific product for Plexiglass cleaning generously.
2. Clean softly with a clean and new piece of cotton using fore and aft movement.

8.10.3. Fuselage External Part (Wings/Tail)

CAUTION

When washing the aircraft with high-pressure water spray, care must be taken with avionics, connectors and sensors.

1. Seal the Pitot tube, vents, etc., with masking tape.
2. Seal the possible water intakes in the aircraft with masking tape.
3. Use a good quality neutral soap.
4. Soap the surface with a clean and soft cloth.
5. Wash the surface generously.
6. Clean all surfaces with a clean cloth.
7. If necessary polish the entire surface with a specific product for polishing.

WARNING

WHEN FINISHED WASHING, REMOVE ALL SEALS AND COVERS

8.10.4. Fuselage Internal Part

1. Clean the seats with a neutral soap with a clean and new cloth.
2. Hydrate the skin of the seats with liquid Vaseline if necessary.

8.10.5. Salt Water Care

Corrosion inspection frequency, corrosion identification, and corrosion treatment is to be responsibility of the operator. Refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43-4A, CORROSION CONTROL FOR AIRCRAFT.

NOTE

Refer to the latest revision of the Super Petrel Maintenance Manual, Corrosion, Inspection and Protection Section.

CAUTION

After operation on salt water, always wash the aircraft with fresh water.

9 SUPPLEMENTS

9.1 Introduction

This section provides additional information regarding the airplane.

NOTE

Additional equipment will increase the empty weight of the aircraft and reduce the permitted useful load.

9.2 Supplement: Original Equipment Manufacturer Manuals

Engine

For more detailed information about the Rotax Engine and Systems must be consulted at the Rotax official site www.flyrotax.com

Propeller

For more detailed information about the Propeller must be consulted at the official site: <https://e-props.fr/>

Avionics

For more detailed information about the Digital Screens and Avionics installed in the aircraft must be consulted at the official site: www.garmin.com/en-US

Vertical Power VP-X

For more detailed information about the Electronic Circuit Breakers must be consulted at the official site: <https://verticalpower.com/>

Emergency Equipment

For more detailed information about the Emergency Locator Transmitter (ELT) must be consulted at the official site www.ackavionics.com

9.3 Supplement: Placards and Markings

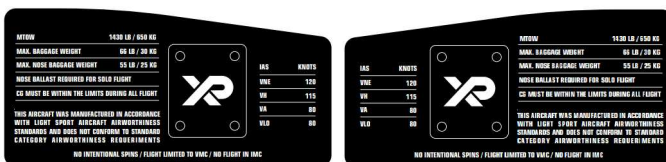
LANDING GEAR PLACARD: Located on the top left of the instrument panel.



ELT / PANEL DIM PLACARD: Located on the top right of the instrument panel.



FLIGHT INFORMATION PLACARD: Located in the panel console in front of the pilot and passenger (right and left).



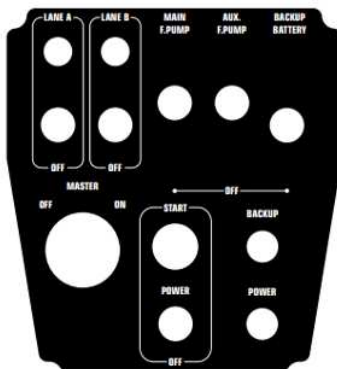
BALLAST INFORMATION PLACARD: Located inside the fuselage nose landing gear compartment.

MAX. NOSE BAGGAGE WEIGHT 55 LB / 25 KG
NOSE BALLAST REQUIRED FOR SOLO FLIGHT
LOAD MUST BE STRAPPED AND SECURED

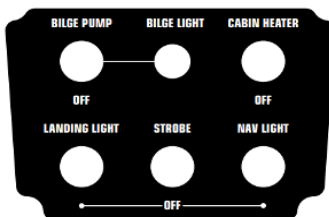
BAGGAGE COMPARTMENT PLACARD: Located inside the cockpit in the baggage compartment.

MAX. BAGGAGE WEIGHT 66 LB / 30 KG
LOAD MUST BE STRAPPED AND SECURED

ENGINE PANEL PLACARD: Located in the central console.



MISCELLANEOUS PLACARD: Located in the bottom of central console.



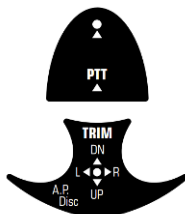
THROTTLE PLACARD: Located next to the throttle lever.



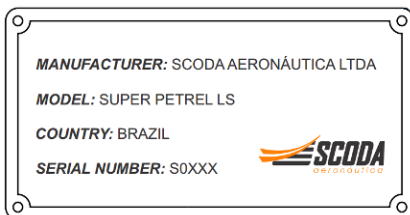
FUEL SELECTOR / PARKING BRAKE PLACARD: Located in the bottom of the central console.



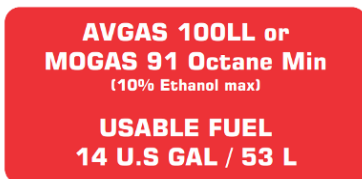
AUTOPILOT DISCONNECT, ELEVATOR / AILERON TRIM CONTROL AND PTT PLACARD:
Located on the top of joystick levers.



IDENTIFICATION PLATE: metallic placard containing information about the aircraft's manufacturer, model, country and serial number. It is placed on the right side of the vertical stabilizer.



FUEL QUANTITY PLACARD: Located next to the filler cap on the lower wings tank.



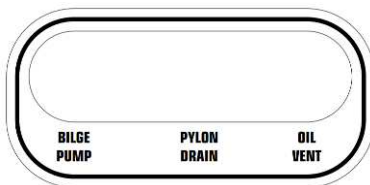
DRAIN PLACARD: Located next to the fuel drain buttons (right and left side of the fuselage internal part).



DRAIN PLACARD: Located next to the fuel drain valves (right and left side of the fuselage external part).



OUTPUT PORT PLACARD: Located next to the bilge pump, pylon and oil vent output port (left of the fuselage external part).



OIL ENGINE PLACARD: Located on the upper engine cowl.



TIRE PRESSURE PLACARDS: Located on the nose gear and main landing gear legs.

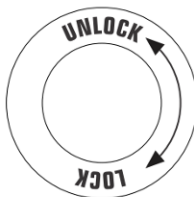
TIRE PRESSURE
NOSE GEAR: 16-20 PSI

TIRE PRESSURE
MAIN GEAR: 40-50 PSI

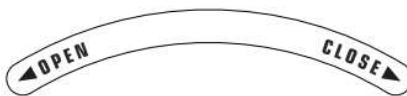
NO PUSH PLACARD: Located on the lower wings, upper wings and elevators trailing edge.

NO PUSH

CANOPY LOCKING KEYS: Located on the top of the canopy (outside).



CANOPY LOCKING LEVER: Located inside and outside of the canopy.



CANOPY HANDLES: Located inside and outside of the canopy.



CAUTION PLACARD (CANOPY): Located inside and outside the canopy.



CONNECT ANTENNA PLACARD: Used for Transponder and VHF antennas, located inside of the upper engine cowl.



PROPELLER PLACARD: Located on the sides of the fuselage rear part.



9.4 Supplement: Flight Training

Scoda Aeronáutica advises the pilot to strictly follow the Super Petrel XP training program listed below.

I. GROUND SCHOOL (3.0 H)

Before practical flight training, the pilot must be familiarized to the following procedures and documents:

- PILOT OPERATING HANDBOOK.
 1. General Information
 2. Operating Limitations
 3. Emergency Procedures
 4. Normal Procedures
 5. Performance
 6. Weight and Balance Information
 7. Description of Airplane and Systems
 8. Handling and Service
 9. Supplements
- MAINTENANCE MANUAL
- AVIONICS AND INSTALLED AIRCRAFT'S EQUIPMENT OPERATION

II. GROUND OPERATION (2.0 h)

1. Pre Flight
2. Engine Starting
3. Taxi

4. Runway Threshold Check
5. Take-off
6. Climb
7. Level Flight
8. Handling (Turns, Coordination, etc)
9. Stall
10. Descent and Gliding
11. Touch and Go
12. Landing
13. Post Flight

III. WATER OPERATION (2.0 h)

1. Pre Flight
2. Engine Starting
3. Take-off Check
4. Low speed taxi
5. High speed taxi (on the step)
6. Take-off
7. Excessive Wave Water Landing
8. Glassy Water Landing
14. Margin and Pier Approach
15. Ramp Climb
16. Post Flight

IV. EMERGENCIES (1.0 h)

1. Ground
2. Water

9.5 Supplement: Listing of Owner / Operator Responsibilities for Continued Operational System

- Each Owner/Operator shall provide current contact information to the manufacturer that is suitable for delivery of COS Notices. (FORM_SPLS_001_Aircraft Registration Form).
- Each Owner/Operator shall notify the manufacturer of any unsafe condition or service difficulty (faults, malfunctions, defects, and other occurrences) immediately upon discovery. This notification must be made in a manner acceptable to the manufacturer. (FORM_SPLS_002_Continued Operational Safety Reporting Form).
- Each Owner/Operator should read and comply, as specified within the Notice, with any Notices of Corrective Action provided by Scoda Aeronáutica as well as all applicable consensus standards and CAA regulations in regard to maintain the airworthiness of the LSA.
- Each Owner/Operator should understand that they may submit written comments and questions regarding any mandatory Notice to Scoda Aeronáutica. Those comments and questions may be sent to engineering@scodaero.com.br
- Owner / Operator should understand it is their responsibility to consult frequently the company's support link in order to search new COS notices. The sending of messages directly to the registered e-mail addresses is made with the purpose of increasing the speed of information dissemination.

9.6 Supplement: Improvements or Corrections

In order to report any improvements or corrections to this manual, please use the following email address: engineering@scodaero.com.br

9.7 Supplement: Continued Operational Safety Reporting Form

The Continued Operational Safety Reporting Form is added to this supplement.

9.8 *Supplement: Aircraft Registration Form*

The Aircraft Registration Form is added to this supplement.

9.9 *Supplement: Warranty Claim Form*

The Warranty Claim Form is added to this supplement.

9.10 Supplement: Weight and Balance

The weight and balance sheet is added to this supplement. This document is generated after the aircraft's production.

9.11 Supplement: Equipment List

The list of equipment and instruments installed on the aircraft is added to this supplement.
This document is generated after the aircraft's production.

9.12 Supplement: Instrument Panel and Flight Instruments

The instrument panel and flight instruments installed on the aircraft is added to this supplement. This document is generated after the aircraft's production.