MAINTENANCE AND INSPECTION PROCEDURES MANUAL

FOR SUPER PETREL XP

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List of Effective Pages

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00	All	All	New Issue	06/26/2023

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1 SCOPE

Scoda Aeronáutica Ltda has prepared this manual in accordance with the latest revision of the ASTM F2483 standard. The manual provides the practices for the servicing and the maintenance of the Super Petrel XP with guidance for the qualifications necessary to perform the various level of maintenance. It provides practices and guidance for servicing, preventive maintenance requirements of a 100-hour and annual condition inspection, and the corrective line maintenance action for the repairs, alterations, and the removal and re-installation of components.

1.1 Authorized Personnel

The Super Petrel XP is a composite biplane amphibious light sport aircraft powered by a compact size Rotax Aircraft Engine installed on pusher configuration. Considering these particularities, Scoda Aeronautica as well as ROTAX BRP-Powertrain authorized training are required to assure equally qualified technicians in the field.

Technicians that will service the Super Petrel XP need to be identifiable as having met a high standard of training, knowledge and experience on Super Petrel XP aircraft as well as Rotax Aircraft Engines. Therefore, every organization or individual should hold a formal instruction from Scoda Aeronautica and ROTAX BRP-Powertrain authorized training facility.

It is a requirement that all organizations or individuals have a recurrent knowledge status for the level of work they intend to perform. Any inspection, repair, and alteration outlined in this Maintenance Manual should be performed if the organization or individual holds the following maintenance rating:

- LSA Repairman Maintenance Certificate
- A&P Certificate
- iRMT Training (at least Service ROTAX® Aircraft Engines Rating)
- Super Petrel XP Maintenance Training (at least Line Maintenance Super Petrel XP Rating)

1.2 Super Petrel XP Training Courses

Scoda Aeronáutica established a globally standardized training guideline covering the different scope of work, target audiences and educational levels which ranges from familiarization to task specific on the Super Petrel XP aircraft. All technical training courses are offered by Scoda Aeronáutica or an authorized training center.

The Super Petrel XP Maintenance Training Pyramid is built on 3 main levels:

1. **Line Maintenance**

   The Line Maintenance course covers and gives the necessary knowledge to perform inspection on Super Petrel XP up to 100 hours inspection or annual inspection.

   Certification: Line Maintenance Super Petrel XP Aircraft

   Recurrent Training: This course/rating has to be renewed every 3 years, with focus on the Maintenance Manual revisions or changes since the last course.

2. **Heavy Maintenance**

   Additional to Line Maintenance course, the Heavy Maintenance course covers and gives the necessary knowledge to perform 5 years / 1000 hours and 10 years inspection on Super Petrel XP.

   Certification: Heavy Maintenance Super Petrel XP Aircraft

   Recurrent Training: This course/rating has to be renewed every 3 years, with focus on the Maintenance Manual revisions or changes since the last course.

3. **Task Specific Training**

   This course is available by invite only. Applicants must meet requirements set by Scoda Aeronáutica to be eligible for the applicable training.

1.3 Owner / Operator Responsibilities

The owner / operator is reminded that it is their responsibility to ensure that Scoda Aeronáutica Ltda has the appropriate contact information on file, to allow for flight safety and other important information can be communicated in a timely manner. Please use the FORM_SPLS_001_Aircraft Registration Form on Scoda Aeronáutica's website (www.scodaeronautica.com.br) to register any changes in ownership or address and sent via email to enginnering@scodaero.com.br.

Notices of Corrective Actions and the latest version of the Maintenance Manual for this aircraft may be found on Scoda Aeronáutica's website.

NOTE
SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Aircraft, Repair and Alterations Acceptable Methods, Techniques, and Practices.

NOTE
This maintenance manual does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1.4 Safety of Flight and Service Difficulty Reporting

Please report any safety of flight or any other service difficulty directly to Scoda Aeronáutica Ltda using the FORM_SPLS_002_Continued Operational Safety Reporting Form on Scoda Aeronáutica´s website (http://www.scodaeronautica.com.br/blog_anexos/c667c8609b3e92488fcc075d51070562.pdf) and sent via email to:

engineering@scodaero.com.br.

1.5 Application of Notes, Cautions and Warnings

NOTES, **CAUTIONS** and **WARNINGS** are used in the Maintenance Manual to emphasize instructions for information considered to be unusual or critical. The conditions that warrant use of **NOTES**, **CAUTIONS** and **WARNINGS** are defined in the following:

NOTE

Maintenance procedures, practices or conditions, which is essential to highlight or explain.

CAUTION

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

WARNING

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

2 Reference Documents

ASTM Standards:

- F2245 – Specification for Design and Performance of a Light Sport Airplane.
- 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

Federal Standards:

- 14 CFR Part 21.190 – Issue of a Special Airworthiness Certificate for a Light-Sport Category Aircraft.
- 14 CFR Part 43 – Maintenance, Preventive Maintenance, Rebuilding, and Alteration.
- 14 CFR Part 65 – Certification: Airmen Other Than Flight Crewmembers
- AC 43.13-1B – Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair

3 Terminology and Acronyms

(1) DEFINITIONS:

Annual Condition Inspection – detailed inspection accomplished once a year on a LSA in accordance with instructions provided in the maintenance manual supplied with the aircraft. The purpose of the inspection is to look for any wear, corrosion, or damage that would cause an aircraft to not be in a condition for safe operation.

A&P – airframe and powerplant mechanic as defined by 14 CFR Part 65 in the U.S. or equivalent certification in other countries.

FAA – United States Federal Aviation Administration.

Heavy Maintenance – any maintenance, inspection, repair, or alteration a manufacturer has designated that requires specialized training, equipment, or facilities.

Line Maintenance – any repair, maintenance, scheduled checks, servicing, inspections, or alterations not considered heavy maintenance that is approved by the manufacturer and is specified in the manufacturer's maintenance manual.

LSA (Light Sport Aircraft) – aircraft designed in accordance with ASTM standards under the jurisdiction of Committee F37 Light Sport Aircraft, for example, Specification F2244 for powered parachutes, Specification F2245 for airplanes, and Specification F2352 for gyroplanes.

LSA Repairman Inspection – U.S. FAA-certificated repairman (light sport aircraft) with an inspection rating as defined by 14 CFR Part 65, authorized to perform the annual condition inspection on experimental light sport aircraft the holder owns, or an equivalent rating issued by other civil aviation authorities.

LSA Repairman Maintenance – U S. FAA-certificated repairman (light sport aircraft) with a maintenance rating as defined by 14 CFR Part 65, authorized to perform line maintenance on aircraft certificated as special LSA aircraft. Authorized to perform the annual condition/100-h inspection on an LSA, or an equivalent rating issued by other civil aviation authorities.

Maintenance Manual – manual provided by an LSA manufacturer or supplier that specifies all maintenance, repairs, and alterations authorized by the manufacturer.

Major Repair, Alteration, or Maintenance – any repair, alteration, or maintenance for which instructions to complete the task excluded from the maintenance manual(s) supplied to the consumer are considered major.

Manufacturer – any entity engaged in the production of an LSA or component used on an LSA.

Minor Repair, Alteration, or Maintenance – any repair, alteration, or maintenance for which instructions provided for in the maintenance manual(s) supplied to the consumer of the product are considered minor.

Overhaul – maintenance, inspection, repair, or alterations that are only to be accomplished by the original manufacturer or facility approved by the original manufacturer of the product.

Overhaul Facility – facility specifically authorized by the aircraft or component manufacturer to overhaul the product originally produced by that manufacturer.

Repair Facility – facility specifically authorized by the aircraft or component manufacturer to repair the product originally produced by that manufacturer.

14 CFR – Code of Federal Regulations Title 14 Aeronautics and Space also known as the “FARs” or Federal Aviation Regulations.

100-h Inspection – same as an *annual condition inspection*, except the interval of inspection is 100 h of operation instead of 12 calendar months. This inspection is utilized when the LSA is being used for commercial operations such as flight instruction or rental, or both.

(2) ACRONYMS:

100 LL – 100 Octane Low Lead
AC – Alternating Current
ALT – Altimeter
ASTM – American Society for Testing and Materials
AVGAS – Aviation Gasoline
C – Celsius
CG – Center of Gravity
CHT – Cylinder Heat Temperature
DC – Direct Current
EMS – Engine Monitoring System
F – Fahrenheit
FAA – Federal Aviation Administration
GPS – Global Position System
GYRO – Gyroscopic
HP – Horse Power
hr – Hour
in – inches
Kg – Kilograms
Lbs – Pounds
LH – Left
LSA – Light Sport Aircraft
Min - minutes
ml – milliliters
mm – millimeters
MOGAS – Motor Gasoline
N*m – Newton per meter
N/A – Not Applicable
NAV – Navigation
OHV – Overhead Valve
Pcs - Pieces
Psi – Pounds per square inch
PVC – Polyvinyl Chloride
RH – Right
RPM – Revolutions per Minute
STC – Supplemental Type Certificate
TC – Turn and Coordinator
TCAS – Traffic Collision Avoidance System
US Gal – Gallon
V – Volt
VHF – Very High Frequency
XPDR – Transponder

4 SIGNIFICANCE AND USE

The purpose of this maintenance manual is to provide guidance to owners, mechanics, airports, regulatory officials, and aircraft and components manufacturers who may accomplish maintenance, repairs, and alterations on the Super Petrel XP.

5 Aircraft Maintenance Manual

5.1 General

Scoda Aeronáutica Ltda developed this aircraft maintenance manual, which contains the information needed to maintain the Super Petrel Aircraft in an airworthy condition. The Aircraft Maintenance Manual was prepared to meet the ASTM F2483 – Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft. Nevertheless, information about the engine, propeller and any other equipment not fabricated by Scoda Aeronáutica Ltda will never prevail over information supplied by their own manufacturer.

The provisions set forth in this manual will assist to apply and establish correct procedures. Any further modifications or variations will be advised through Notice of corrective Actions (Safety Alerts, Service Bulletins or Service Letter). For further information or explanation, contact Scoda Aeronáutica Ltda.

Any discrepancies and/or non-conformities found during inspections and maintenance should be carried out by qualified personnel using adequate approved methods as well as tools, equipment and spare parts.

Only the aircraft's manufacturer, or the manufacturer of a component on the aircraft, may perform or authorize the performance of repair or modification to that aircraft or component.

Because of the fact, this manual contains information that will be useful to any future owners of this aircraft; it must be considered an integral part of the aircraft.

- **Manufacturer Data**

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- **Aircraft Description**

  1. Three Plane View

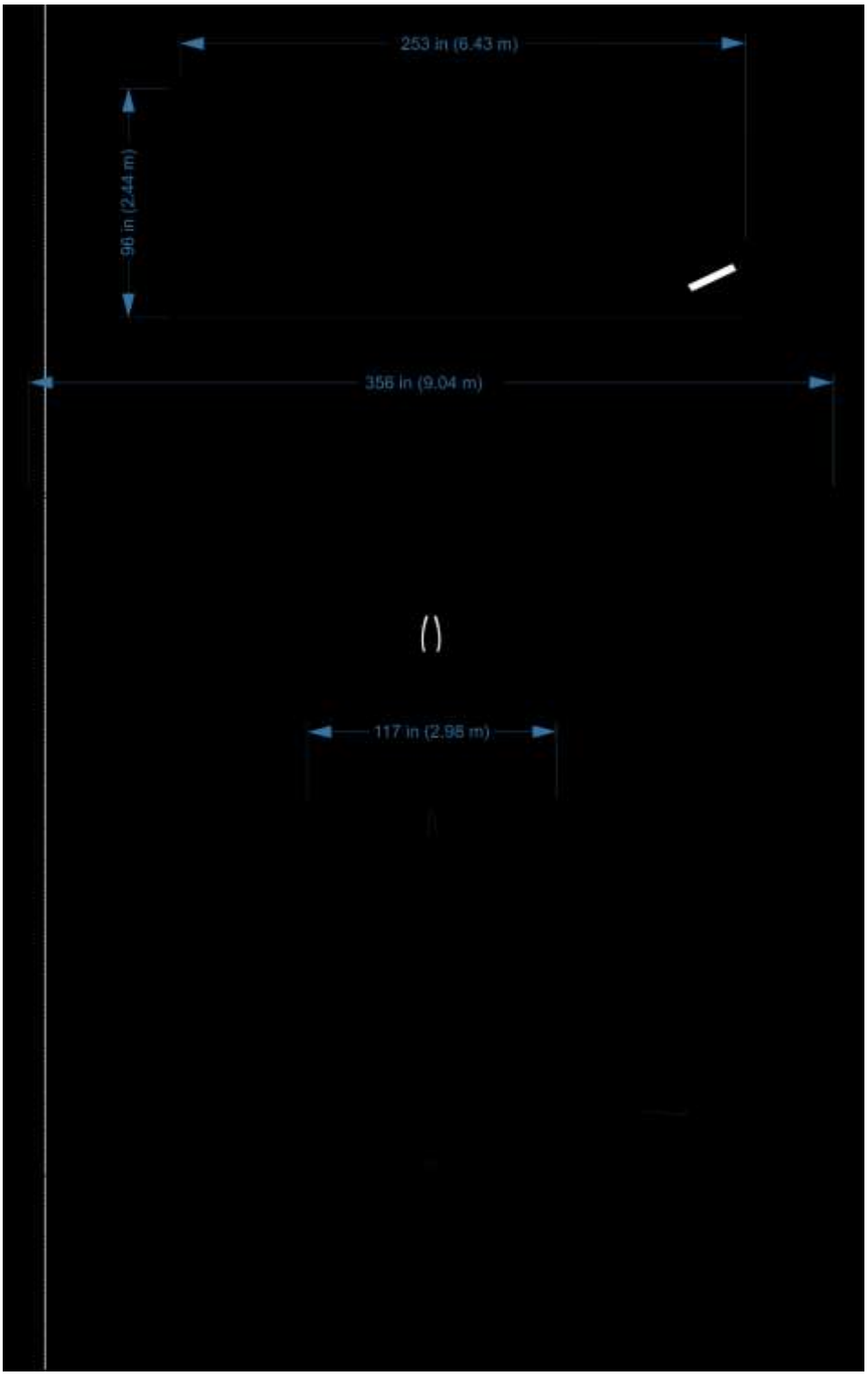


Figure 5-1

Configuration

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 built half way up the tail fin.

Both 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.

2. Airframe

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

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

The tail, the horizontal stabilizer, the elevator and rudder are molded in glass and 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; the difference is that Aramid tanks are located in the leading edge. The floats are attached to the lower wing's structure.

The struts are made of 6061-T6 aluminum profile.

3. Landing Gear

The main landing gear is equipped with oil pneumatic shock absorbers, hydraulic disk brakes, aluminum wheels and 4.00x6 6 Ply tubeless tires. The nose gear is castering and equipped with 4.00x4 8 Ply tubeless tire.

The landing gear retraction is actuated by an electrically / hydraulic system.

4. Flight Controls

Stainless steel cables operates the rudder. Ailerons are activated by a combination of Teleflex cables and rigid tubes. The elevator is actuated by rigid tubes. Ailerons and elevator trims are electrically operated.

Control Ranges:

- **Ailerons:** 17° up / 10° down (± 2°)
- **Elevator:** 20° up / 20° down (± 2°)
- **Rudder:** 30° Right / 30° Left (± 2°)
- **Elevator Electric Trim:** 15° up / 15° down (± 2°)
- **Aileron Electric Trim:** 17° up / 15° down (± 2°)

5. Instrument Panel and Flight Instruments

The Central GARMIN G3X Touch Screen 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.

The instrument panel for each aircraft is detailed on the Instrument Panel and Flight Instruments Supplement of the Pilot´s Operating Handbook.

6. Engine

The Super Petrel XP is powered by an engine 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. Propeller

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

- Excalibur 5-Blade Ground Adjustable Pitch Propeller

5.1.1 Equipment List

Typical Equipment List is divided into Avionics, Engine, Propeller, Safety Equipment, Miscellaneous, Lights, Optional Equipment Items and Others. This includes the following items:

- Description
- Manufacturer Part Number
- Serial Number
- Weight
- Arm

The actual equipment list is detailed on the Equipment List Supplement of the Pilot´s Operating Handbook.

5.1.2 Supply Sources for Parts

Spare parts and components can be ordered from their respective manufacturers, except structural parts, which can only be ordered from Scoda Aeronáutica Ltda. or an authorized reseller using the Super Petrel XP Illustrated Parts Catalogue. Follows below a list of sources according to the assembly:

PARTS	SOURCE
General Assemblies	Scoda Aeronáutica Ltda
Materials for Major Repairs	Contact Scoda Aeronáutica Ltda: **major repairs are not authorized.**
Hardware	Scoda Aeronáutica Ltda / Aircraft Spruce
Instruments / Avionics	Scoda Aeronáutica Ltda / OEM (Original Equipment Manufacturer)
Engine Parts	Scoda Aeronáutica Ltda / Rotax
Propeller Parts	Scoda Aeronáutica Ltda / E-PROPS

5.1.3 List of Disposable Replacement Parts

The following table shows a list of commonly replaced parts, as well as the components with lifetime limitations.

SYSTEM	ITEM	SPECIFICATION	PART NUMBER	SUPPLIER	INTERVAL	ACTION
ENGINE	Air Filter	Air Filter	825900	Rotax	100 h	Clean or Replace
	Engine Mount	Lord Engine Mount	07-01131	Aircraft Spruce	On Condition	Replace
	Inline Fuel Filter	Inline Fuel Filter 3/8'' 62 micron	FX375-M	Andair / Aircraft Spruce	100 h	Clean or Replace
	Fuel Selector Valve	Duplex Fuel Selector	FS2020-D2-MTM	Andair	On Condition	Replace
NOSE GEAR	Nose Landing Gear Tire	4.00x4 8 Ply Tubeless Tire	06-00844	Aircraft Spruce	On Condition	Replace
	Nose Landing Gear Wheel	Nose Wheel Assembly	RA-003W(C)RED	Beringer Aero	On Condition	Replace
	Nose Wheel Bearing	Stainless Steel Inner Bearing	B-BE-010W	Beringer Aero	On Condition	Replace
		Stainless Steel Outer Bearing	B-BE-015W			
	Gas Spring	N/A	17932M-420N-10B	Scoda Aeronáutica Ltda	On Condition	Replace
	Nose Gear Covering Plates - Left	N/A	XP-05901-00	Scoda Aeronáutica Ltda	On Condition	Replace
	Nose Gear Covering Plates - Right	N/A	XP-05900-00	Scoda Aeronáutica Ltda	On Condition	Replace
MAIN GEAR	Main Landing Gear Tires	4.00x6 6 Ply Tubeless Tire	06-00944	Aircraft Spruce	On Condition	Replace
	Main Landing Gear Wheel	Wheel Assembly (SS bearings)	RF-004W(D)	Beringer Aero	On Condition	Replace
	Main Wheel Bearing	Stainless Steel Inner Bearing	B-BE-001W	Beringer Aero	On Condition	Replace
		Stainless Steel Outer Bearing	B-BE-002W			
	Gas Spring	N/A	17932M-420N-10B	Scoda Aeronáutica Ltda	On Condition	Replace
	Shock Absorber	N/A	UA2000004D40	Scoda Aeronáutica Ltda	On Condition	Replace
CONTROLS	Aileron Control Cable	TFXtreme Control Cables 11''	CCX633-11	Go2Marine	On Condition	Replace
BRAKE SYSTEM	Brake Discs	Brake Discs	DSC-006	Beringer Aero	On Condition	Replace
	Brake Pads	Brake Pads	PQT-003 / PQT-004	Beringer Aero	On Condition	Replace
BATTERY	Battery	EarthX ETX-900 Aircraft Lithium Battery	11-13926	Aircraft Spruce	On Condition	Replace
		Odyssey Extreme Dry Cell 12v Battery	11-02233			

5.1.4 Engine Specifications

The Super Petrel XP is powered by an engine 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).

NOTE

For engine parameters information please refer to the latest revision of the Operator's Manual for the applicable ROTAX engine or the Pilot´s Operating Handbook supplied with the aircraft.

5.1.5 Weight and Balance Information

Super Petrel XP is structurally and aerodynamically engineered for certain load conditions which result from specific weights and forces anticipated to occur in normal operations within the specified flight envelope.

WARNING

AIRCRAFT'S HANDLING QUALITIES AND STRUCTURAL INTEGRITY MAY BE SERIOUSLY COMPROMISED IF THE WEIGHT AND BALANCE LIMITS ARE EXCEEDED.

For further information regarding Weight and Balance Practices, refer to the Chapter 10. Weight and Balance of the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – AIRCRAFT INSPECTION, REPAIR AND ALTERATION ACCEPTABLE METHODS, TECHNIQUES, AND PRACTICES

Definitions:

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 (CG): 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.

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

CG 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 for 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.

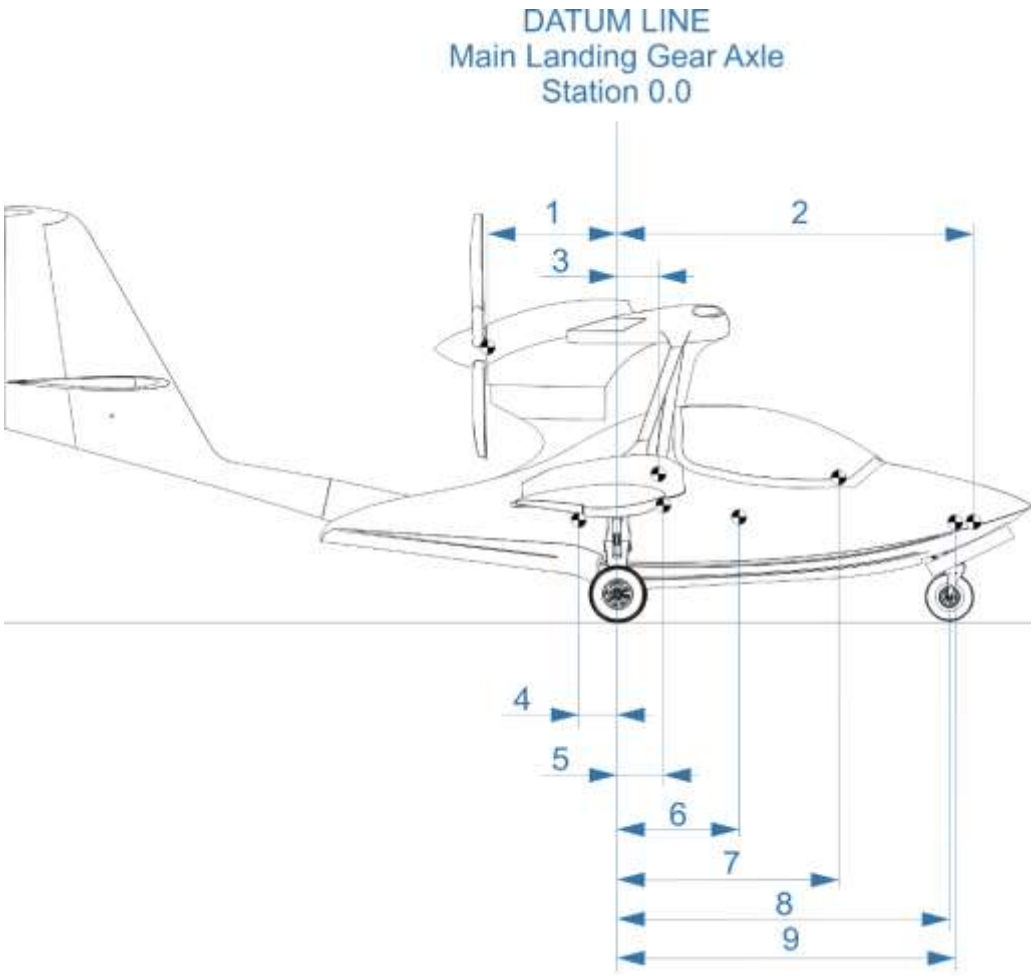
USEFUL LOAD: Difference between takeoff weight and basic empty weight.

5.1.5.1 Weight and Balance Chart

The aircraft total weight and the aircraft empty weight center of gravity location should be checked:

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

➢ ***DATUM LINE AND ARMS LOCATION***



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)

Figure 5-2

5.1.5.2 Empty Weight Center of Gravity Location

Weighing Procedure

The center of gravity must be determined with the airplane fully equipped according to the Equipment List of the corresponding aircraft.

Be sure to remove any items not listed in the Equipment List (such as rags, charts, tools, etc.) from the aircraft prior to weighing.

NOTE

Weighing the aircraft in a hangar with doors closed where the wind will not affect the readings of the scales.

1. Clean the aircraft in order to remove dirt and grease.
2. The fuel tanks should be empty except for unusable fuel.
3. Oil, coolant and reservoir tanks must be properly filled before weighing.
4. Put the airplane on three scales (one under each wheel). The scales must be calibrated correctly. All the scales must be set on level ground.
5. The aircraft must be weighed in a level flight attitude, both laterally and longitudinally (front to back).

   Laterally: Put a digital level in the stainless steel triangle located behind the seats, which is connected to the main struts in order to obtain 0°.

   Longitudinally: Put a digital level in the lateral of the fuselage in the pilot side, just after the instrument panel. Put a chock under the nose wheel in order to obtain 0°.

6. The mechanic or repairman who conducts a weight and balance procedure must ensure that the weight and balance data in the aircraft records is updated and accurate.

NOTE

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

WARNING

THE TOTAL WEIGHT OF THE AIRCRAFT MUST BE NO GREATER THAN THE MAXIMUM WEIGHT ALLOWED AND THE CENTER OF GRAVITY MUST BE MAINTAINED WITHIN THE ALLOWABLE LIMITS.

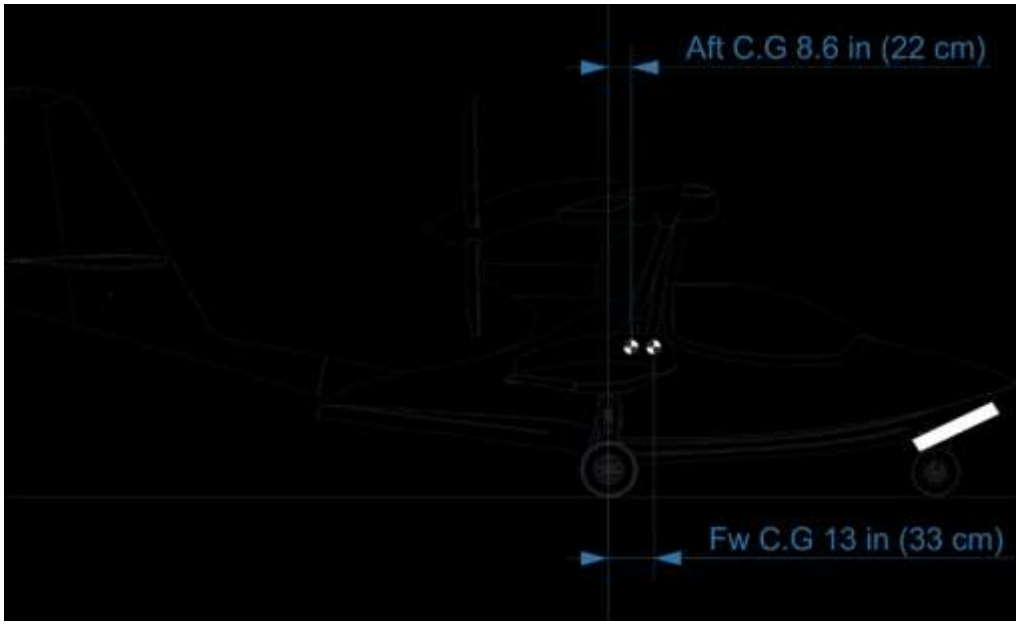
5.1.5.3 Loading Method

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)							



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 CG.
4. Determine that the airplane´s Loaded CG. falls within the applicable limits (Forward and Aft CG. Limits).

SAMPLE LOADING CHART (Maximum Forward CG)

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	139,0	x	35,4	90	=	4925,2
	Pax	0,0	x				0,0
	Baggage	0,0	x	13,8	35	=	0,0
	Nose Baggage	54,0	x	94,5	240	=	5106,1
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) =		1177,9	Total Moment lbxin (kgxcm)			=	10130,1
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)							

5.1.5.4 Operating Weights and Loading

5.1.5.4.1.1 Weight Definitions

Maximum Takeoff Weight	1430 lbs (650 kg)
Maximum Landing Weight	Maximum Takeoff Weight
Maximum Empty Weight	981 lbs (446 kg)
Basic Empty Weight	925 lbs (420 kg)
Minimum Useful Load	449 lbs (204 kg)

NOTE

The limits of CG range are measured forward of Datum.

5.1.5.4.2 Center of Gravity Forward and Aft Limits

Forward C.G. Limit	Maximum Takeoff Weight with heavy passenger and pilot, reserve fuel only and the nose baggage at the 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.)***

5.1.5.4.3 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 area limit is 66 lbs (30 kg)

NOTE

The maximum baggage load will be limited by the MTOW.

CAUTION

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

5.1.5.4.4 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

5.1.5.4.5 Center of Gravity (CG) range

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.

5.1.6 Tire Inflation Pressures

The recommended tire inflation pressures are:

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

AIRCRAFT TIRE CARE RECOMMENDATIONS

(Reference: FAA ADVISORY CIRCULAR 65-15A – AIRFRAME OF POWERPLANT MECHANICS)

Tires are as vital to the Operation of aircraft as they are to the Operation of an automobile. During ground operation tires can be considered as ground control surfaces. Contrary to what most people think including many beginning pilots, the toughest demand on aircraft tires is rapid heat buildup during lengthy ground operation, not the impact of hard landings.

The best safeguards against heat buildup in aircraft tires are short ground rolls, slow taxi speeds, minimum braking, and proper tire inflation. Proper inflation assures the correct amount of flexing and keeps heat buildup to a minimum, increasing tire life and preventing excessive tread wear. Inflation pressure should always be maintained as specified in the aircraft maintenance manual.

Even though using a tire gage is the only accurate way to spot-check inflation, a quick visual inspection of the thread can reveal if air pressure has been consistently high or low. Excessive wear in the shoulder area of the tire is an indication of under inflation. Excessive wear in the center of the tire suggests over inflation.

Tire pressures should be checked with an accurate gage at least once a week or oftener, and it is recommended that they be checked before each flight. Otherwise, if a slow leak should develop, it could cause severe loss of air within two or three days, with resulting damage to the tire and tube. Air pressures should be only checked when tires are cool. Wait at least two hours after a flight before checking pressures (three hours in hot weather).

SUMMARIZING THE PROPER INFLATION PRESSURE IS ONE OF THE MOST IMPORTANT MAINTENANCE PROCEDURES TO ACHIEVE LONG TIRE LIFE:

- Inflation pressure practices are essential for balanced wear and durability.
- Perform weekly inflation checks with a calibrated pressure gauge.
- Inflation pressures can be obtained from the POH and Maintenance Manual of the Super Petrel XP.
- Underinflation can:
    - Reduce casing life
    - Cause fast wear
    - Cause irregular wear
    - Reduce fuel economy

- Cause sudden tire destruction

- Over inflation can:

  - Decrease resistance to punctures and impacts
  - Reduce tire footprint size
  - Cause irregular shoulder wear
  - Cause improper handling
  - Cause ride and handling disturbances
  - Cause reduced traction

NOTE
In addition, it is recommended to consult the latest edition of the **FAA ADVISORY CIRCULAR AC 20-97B – AIRCRAFT TIRE MAINTENANCE AND OPERATIONAL PRACTICES.**

5.1.7 Approved Oils and Capacities

5.1.7.1 Engine

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.

- **Engine Oil:** Perform maintenance checks according to the latest Rotax Maintenance Manual. In accordance to the latest edition of the Rotax Service Instruction SI-915 i-001 the frequency of oil changes must be increased regardless off the type of fuel mainly used (MOGAS or AVGAS).

- **Oil Specification*:*** Motor oils tested and released by BRP-Rotax (for use MOGAS or AVGAS), which Rotax recommended for use with their ROTAX engine types 915 i: **SHELL ® AeroShell Oil Sport Plus 4 (SAE 10 W-40)**

- **Oil Level:** It should be in the middle of the dipstick:

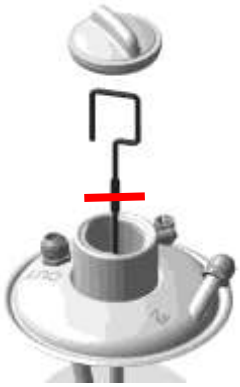


Figure 5-3

- **Engine Coolant:** 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:

- Conventional coolant based on ethylene glycol with 50% water (50 / 50).
- Waterless coolant based on propylene glycol.

- **Coolant Specification:** Aircraft manufacturer recommends the use **Honda Genuine Coolant Type 2 – All season antifreeze or similar**

- **Coolant Level:** It should be in the middle of the overflow bottle:

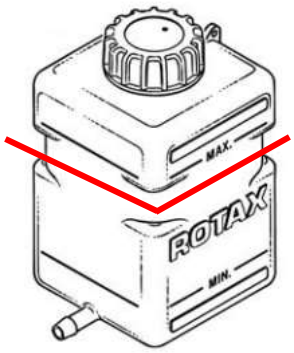


Figure 5-4

5.1.7.2 Brake Fluid

Super Petrel XP uses ATF (Automatic Transmission Fluid) Products in the lines of the brake system.

Brake Fluid Specification: The aircraft manufacturer recommends the use of **SHELL Spirax S1 ATF TASA or similar - Mineral Fluid (MIL Fluid).**

CAUTION

It is not allowed the use of DOT type brake fluid.

5.1.8 Recommended Fastener Torque Values

DESCRIPTION	TORQUE VALUE
Firewall Bolts M10	350 lb.in (40 N.m)
Engine Suspension Frame Bolts M10	350 lb.in (40 N.m)
Bolts M6 (E-Prop Propeller)	97 lb.in (11 N.m)
Nuts M8 (E-Prop Propeller)	212 lb.in (24 N.m)
Horizontal Stabilizer Allen Bolts M8 **(Empennage)**	86 lb.in (10 N.m)
Internal Stabilizer Allen Bolts M6 **(Empennage)**	86 lb.in (10 N.m)
External Stabilizer Hexagonal Bolts M6 **(Empennage)**	86 lb.in (10 N.m)
Front and Rear Fixation Bolts M8 **(Upper Wings)**	89 lb.in (10 N.m)

Rear Fixation Bolt M8 **(Lower Wings)**	177 lb.in (20 N.m)

CAUTION

Struts bolts torque values are not specified. These locknuts should be tightened until they are secure with at least one (1) thread protruding passed the nut.

For general information regarding aircraft hardware torque values and practices, refer also to the latest edition of **FAA ADVISORY CIRCULAR AC 43.13-1B Chapter 7.**

5.1.9 General Safety Information

There are many hazards inherently present when performing any maintenance task on this aircraft. To minimize the risk to owner, mechanic and others, begin by thinking through each task that is to be performed before starting any work. Use common sense, think of ways to avoid these hazards. Remember also that many accidents happen because of carelessness. Be sure to also use the right tool for the task at hand to use the proper personal protective equipment. Such equipment may include, but is not limited to:

- Eye protection
- Gloves
- Hearing protection – ear plugs or muffs
- Protective footwear with non-slip soles

You should also keep on hand a suitable fire extinguisher, absorbent material to contain spills, an eyewash bottle, and a general-purpose first aid kit. It is also advisable to have on hand the material safety data sheet (MSDS) for all products and chemicals that will be used during the servicing of the aircraft.

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

- Avoid exposing the main fuselage to temperatures above 140º F (60º C).
- Never move the aircraft by pushing it by the wings, specially the trailing edges.
- Do not step on the wings, tail cone or horizontal stabilizer.
- Do not rest machines or containers on the airplane skin.
- Never leave the ignition switch or the master switch turned on when the engine is not running.
- Never operate the engine with untrained personnel around.
- Remove any loose clothing, such as hats, neckties and scarves. Tuck in your shirt and secure any long hair to prevent them from becoming tangled in power tools.
- Remove all jewelry. Not only can items such as rings, watches, and necklaces become caught in rotating tools, they can also conduct electricity and may cause a short circuit. This could result in burns or damage to electrical circuits.
- Disconnect the negative lead from the battery when doing any electrical work that does not involve trouble shooting the electrical systems. This will reduce the risk of a short circuit or even a fire.

- Aviation gasoline is also highly flammable. When working with the fuel system, always work in a well-ventilated environment. Any nearby source of ignition such as sparks or an open flame can result in a fire or explosion. Keep all ignition sources away. Always ground the airframe to a suitable earth ground during fueling/defueling operations to reduce the risk of a static discharge ignition source.
- When working with dangerous chemical substances (adhesives, thinners), use adequate protective equipment such as goggles, gloves, etc.
- When working with the landing gear, always support the aircraft properly with jacks. Do not work underneath the aircraft unless it is properly supported.
- 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.
- Upon completion of work, carefully check to remove tools and unwanted objects from the airplane.

5.1.9.1 Ground Handling

5.1.9.1.1 Towing

The aircraft can be moved manually, this can be executed by pushing or pulling the wing struts. Also, the nose of the aircraft can be pushed, to turn the aircraft, lift the nose and spin it around the main wheels.

To tow the aircraft, one person is required:

1. Make sure the space near the aircraft is clear of obstacles and people.
2. Pull the nose of the aircraft up using the front wheel opening in the hull as a handle.
3. Push the aircraft in the needed direction.

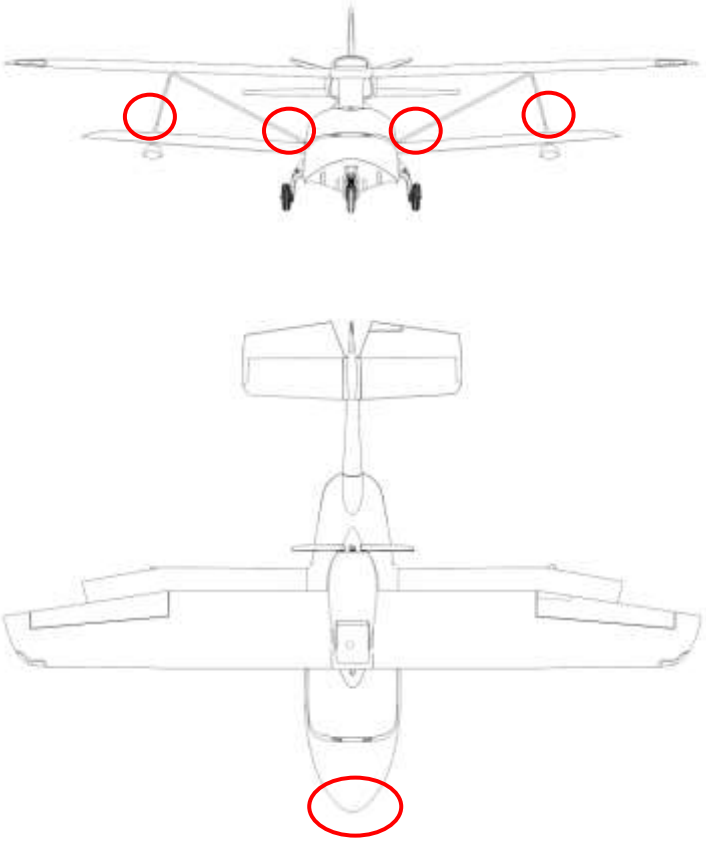


Figure 5-5

5.1.9.1.2 Jacking Up

NOTE

Raise the aircraft no more than required for maintenance being performed.

CAUTION

Do not jack the airplane outside or in open hangar with winds in excess.

Landing Gear System Maintenance and Test

This process is only used to make the operational test of 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, put protective foam among the support – keel and jack – fuselage. Lift the aircraft simultaneously with the jack placed in each point of the main gear, do not lift too high, just enough to let the wheels turn freely.

Nose Tire Replacement

- Activate the parking brake.
- Lift the nose of the aircraft up until the fuselage rear part support on the floor.
- Place chocks in the main gear wheels.

Main Gear Tires Replacement

- Activate the parking brake.
- Place a chock under the opposite main gear wheel and nose gear.
- Place a jack under the main gear leg and lift enough to let the wheel turn freely.

CAUTION

Preferably, put protective foam among the support and jack.

5.1.9.1.3 Parking

To accomplish this process it is good to know the local conditions. It is advisable to place chocks in each wheel of the main gear (as shown below) to avoid any displacement of the aircraft during the inspection. There is no need to place a chock in the nose wheel.

5.1.9.1.4 Tie-Down Instructions

To tie the aircraft down, one person is required:

1. Make sure the plane is set on the 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 taught.

CAUTION

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

5.1.9.2 Cleaning and Care

The 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:

5.1.9.2.1 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 over the entire surface of the aircraft.
3. Pass the palm of your hand and fingers softly, spreading the soap forward and backward (lengthwise).

CAUTION

Do not make circular moves.

4. Remove insects and dirt which can eventually cause staining. Do it with your fingernail. **(Slightly).**
5. Wash and remove remaining 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 must be done at the moment in order to complete the surface cleaning as following:

   - Use specific product for Plexiglass polishing.
   - Open it carefully in order to not spill dust into the recipient.
   - Remove a thin layer of polish and throw it away.
   - Use only a clean piece of cotton.
   - Complete the polishing moving the piece of cotton forward and backward.

5.1.9.2.2 Canopy Internal Part

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

5.1.9.2.3 Fuselage External Part (Wings / Tail)

CAUTION

When washing the aircraft with high-pressure water spray, careful 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. Wipe clean all surfaces with a clean cloth.

7. If necessary polish the entire surface with a specific product for polishing.

WARNING

IN THE END OF WASHING REMOVE ALL SEALS FROM COVERED COMPONENTS.

5.1.9.2.4 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.

5.1.9.2.5 Salt Water Care

CAUTION

After every flight when aircraft has been in contact with salt water, remove all traces and residue of salt water by thoroughly washing the aircraft with fresh water.

- Aircraft external structure should be kept clean, and painted surfaces should be kept waxed and polished. Rinsing the salt off the aircraft with large volumes of water is imperative. All drain holes should be kept free.

- Aircraft interior should be washed out regularly, specifically the floor should be flushed and washed out to prevent salt water from accumulative inside the aircraft structure.

- Aircraft landing gear components should be washed out and lubricate regularly to prevent salt water and moisture accumulation.

5.1.10 Safety of Flight Report

Instructions for reporting possible safety of flight concerns found during inspection / maintenance

According to the latest edition of the ASTM F2295 – Continued Operational Safety Monitoring, owner / operator shall be responsible for notifying the manufacturer of any safety of flight issue or significant service difficulty upon discovery.

Please report any service difficulties or any other issue relating to flight safety directly to Scoda Aeronáutica Ltda sending an email to engineering@scodaero.com.br

5.2 Inspections

This section is intended to serve as a guide for an Owner, LSA Repairman Maintenance (LSRM) and A&P to perform routine maintenance on the aircraft. It is the responsibility of the owner / operator to maintain the aircraft in an airworthy condition and ensure that all applicable Notice of Corrective Actions have been complied with. This inspection guide is not intended to replace the good judgment of an Owner, LSRM and A&P.

The guide will make reference to service information provided by other OEM (Original Equipment Manufacturer), such as the engine, propeller and avionics manufacturer. The latest editions of the OEM publications should be consulted prior to inspections / repairs; this guide will not make reference to revision levels of these publications.

NOTE
Inspection Form Checklist can be found in the Appendix Section of this Manual

Inspections Groups and Criteria

(1) VISUAL INSPECTION

Visual inspection will normally apply to those areas, surfaces, and/or items that become visible by the removal or opening of access doors, panels, fairings, or cowlings. Visual inspection criteria will normally consist of, but are not limited to the following criteria:

(A) Moving Parts

Proper operation, correct alignment, security, sealing, cleanliness, lubrication, adjustment, tension, travel, condition, binding, excessive wear, cracking, corrosion, deformation, and any other apparent damage.

(B) Metal Parts

Security, condition, cleanliness, wear, cracking, obstruction of drainage or vent holes, deformation, heat deterioration, fluid saturation, and any other apparent damage.

(C) Fuel and Hydraulic Oil Lines and Hoses

Cracks, dents, kinks, loss of flexibility, deterioration, obstruction, chaffing, improper bend radius, cleanliness, security, and any other apparent damage.

(D) Electrical Wiring

Cleanliness, loose, corroded, or broken terminals; chaffed, broken, or worn insulation; security, heat deterioration, and any other apparent damage.

(E) Bolts and Nuts

Fretting, wear, damage, stretch, proper torque and safety wiring.

(F) Filters and Screens

Filters and screens shall be removed, cleaned, inspected for contamination, or replaced as applicable.

(G) Fuel Tank Areas

Evidence of leaks.

NOTE

Inspection forms in the Appendix Section may be used as a guidance to perform the visual inspection.

(2) OPERATIONAL INSPECTION

An operational inspection is a check intended to determine that a component or system is fulfilling its intended purpose. The operational inspection does not require quantitative tolerances.

(3) FUNCTIONAL INSPECTION

When called for by an inspection task, a functional inspection is a quantitative check to determine if one or more functions of a component perform within specified limits. The functional inspection is a comparative examination of a component or system against a specific standard.

5.2.1 Condition Inspection Checklist

According to the latest revision of the ASTM F2483 standard, all LSA category airplanes must undergo a complete inspection at least once every 12 calendar months. An authorized maintenance person, as described in the latest revision of ASTM F2483 standard, must perform this inspection. A signed and dated record must be maintained as each inspection task is completed. When the last task of the inspection has been completed, the Inspection Report is to be signed off in the logbook / maintenance record. The inspection items to be covered in the condition inspection are identical to the 100-hour Inspection items. The inspection interval to the next condition inspection may not exceed twelve calendar months.

5.2.2 Periodic Inspection Tasks

If the aircraft is operated commercially (for hire), it must also have an inspection every 100 flight hours. The 100-hour interval between inspections should never be exceeded by more than 10 hours, and then only if additional time is required to reach a place where the inspection can be satisfactorily accomplished. Additionally, the time or interval that was exceeded must be included as flight hours in the next 100-hour interval. Inspection tolerances cannot be accumulated.

NOTE

Scoda Aeronáutica Ltda considers the inspections described in the following chapters as mandatory / obligatory to ensure the safe operation of the Super Petrel XP. Therefore, strictly follow the instructions as hereunder.

5.2.3 Level of Certification

Owner	Items that can be expected to be completed by a responsible owner who holds a pilot certificate (at least a sport pilot certificate) but who has not received any specific authorized training.
LSA Repairman Maintenance (LSRM)	Items that can be expected to be completed on a SLSA by a responsible individual who holds a FAA repairman certificate (light sport aircraft), with a maintenance rating or equivalent.
A&P	Items that can be expected to be completed by a responsible individual who holds a mechanic certificate with airframe or powerplant ratings, or both, or equivalent.
Task Specific	Items that can be expected to be completed by a responsible individual who holds either a mechanic certificate or a repairman certificate and has received task specific training to perform the task.

5.2.4 Inspections Schedule

The interval periods for the inspections noted in this schedule are based on normal usage under average environmental conditions. Airplanes operated in humid tropics, cold damp climates, etc. may need more frequent inspections for wear, corrosion, lubrication, and / or lack of maintenance. Under these adverse conditions, perform periodic inspections in compliance with this guide at more frequent intervals may be necessary.

CAUTION

Inspection schedule of this Maintenance Manual was made for aircraft which operate on normal environmental conditions. Aircraft which operate on salt water environment may need shorter intervals in the inspections schedule, as necessary.

NOTE

Refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43-4B, CORROSION CONTROL FOR AIRCRAFT.

The recommended periods do not constitute a guarantee that the item will reach the period without malfunction, as in-service factors cannot be controlled by the manufacturer. Any item on the aircraft should be repaired, overhauled, or replaced when inspection or performances of these items reveal a potentially unserviceable or unsafe condition.

NOTE

SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed in the inspections. Please refer to the last revision of the Advisory Circular 43.13 – 1B Aircraft Inspection, repair and Alterations Acceptable Methods, Techniques, and Practices.

5.2.4.1 Daily Inspection

The daily inspection should be performed after assembling, maintenance scheduled or before every flight day of the aircraft. Special attention must be devoted to the parts, which are affected by the high vibrations and high temperatures from the powerplant.

The scope of this inspection is specified in the preflight inspection Section of the Pilot's Operating Handbook. Besides the preflight inspection, the following items should be inspected:

- All control surfaces for full and free movement
- Aircraft structure surfaces
- Canopy System
- Powerplant and propeller
- Service fluid
- Electrical Fans (Cooling System)
- ELT (Armed position)
- Vents for obstruction

Level of Certification: OWNER

5.2.4.2 First 25 Hours Inspection

Detailed inspection accomplished after the first 25 hours of flight. This inspection should never be exceeded by more than 5 hours. The purpose of this inspection is to look for any wear, corrosion, or damage that would cause the aircraft to not be in a condition for safe operation. The scope of this inspection is specified in the Appendix Section of this Manual **(Line Maintenance Inspection Form).**

Level of Certification: LSA Repairman Maintenance or A&P, with iRMT Training (at least Service ROTAX® Aircraft Engines Rating) and Super Petrel XP Line Maintenance Rating.

5.2.4.3 Every 100 Hours / Annual Inspection

Detailed inspection accomplished every 100 hours of flight or at least once every 12 calendar months. This inspection should never be exceeded by more than 10 hours. The purpose of this inspection is to look for any wear, corrosion, or damage that would cause the aircraft to not be in a condition for safe operation.

The scope of this inspection is specified in the Appendix Section of this Manual **(Line Maintenance Inspection Form)**.

Level of Certification: LSA Repairman Maintenance or A&P, with iRMT Training (at least Service ROTAX® Aircraft Engines Rating) and Super Petrel XP Line Maintenance Rating.

5.2.4.4 Every 1000 Hours / Five (5) Years Inspection

Detailed inspection accomplished every 1000 hours of flight or five (5) years. This inspection must be made by the Aircraft Manufacturer or a Mechanic / Repairman, which has received a **Heavy Maintenance Super Petrel Training** to perform this inspection**.**

Level of Certification: LSA Repairman Maintenance or A&P, with iRMT Training (at least Maintenance ROTAX® Aircraft Engines Rating) and Super Petrel XP Heavy Maintenance Rating.

5.2.4.5 Every Ten (10) Years Inspection

Detailed inspection accomplished every ten (10) years. This inspection must be made by the Aircraft Manufacturer or a Mechanic / Repairman, which has received a **Heavy Maintenance Super Petrel Training** to perform this inspection**.**

Level of Certification: LSA Repairman Maintenance or A&P, with iRMT Training (at least Maintenance ROTAX® Aircraft Engines Rating) and Super Petrel XP Heavy Maintenance Rating.

5.3 Structures

5.3.1 Fuselage

5.3.1.1 Description

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

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

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

5.3.1.2 Fuselage Inspection

Required Tools:	Allen Wrench 6 mm (1 pc)
	Flashlight
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

In this section, the fuselage will be completely inspected. Check before every flight the correct assembling. Do not take off if you suspect any kind of abnormal behavior.

To avoid any future problems, the instructions listed below should be accurately followed to ensure that all parts of the fuselage are within condition. These should be carried out after 25 flight hours, 100 flight hours or annually.

All the inspections must be made visually, it is not necessary to disassemble to check the general condition of the components.

NOTE
Remove or open all cowlings, inspection windows, access doors and baggage compartment, before starting the inspection.

5.3.1.2.1 General

The fuselage consists of the surface of one big assembly, but here it is divided into two parts, namely as the Upper Fuselage Assembly and the Hull Assembly. No disassembling is necessary.

5.3.1.2.2 Deterioration

Inspect the whole covering for deterioration. If it occurs, the high temperature area around the engine is most likely to show the first signs of deterioration, it will probably occur as deformation “waves” in the engine cowling. If this is the case, contact Scoda Aeronáutica Ltda.

5.3.1.2.3 Cracks

Cracks can be occasioned by excessive or heavy impacts. Therefore, all cracks in the fuselage covering will appear as cracks in the paint. In addition cracks or distortion in the fuselage internal part will appear in components such as bulkheads.

Thus, start inspecting carefully for cracks on the whole fuselage external and internal part, and make sure to not forget any area. Pay special attention to edges, sharp corners, connection points, bulkheads and other critical areas where loads are higher and cracks are more likely to occur. If you find any cracks out, carefully inspect if it is only the paint that is damaged or also the structure. If you find any cracks out in the fuselage contact Scoda Aeronáutica Ltda.

5.3.1.2.4 Damages

There is only a slight chance that delamination will occur. Generally, delamination is caused by significant impacts. Use a flashlight if necessary.

1. Damages: on the fuselage outside and inside part (connection between Hull and Upper Fuselage) should be inspect for general damage, as this may be an indication for possible leakages.

5.3.1.2.5 Watertight Rubber Seals

The watertight rubber seals are installed in the fuselage internal part where the lower wings is fixed. Use a flashlight if necessary.

1. General Condition: check the watertight rubber seals for general condition, fixation and deterioration. Replace them if necessary.

5.3.1.2.6 Canopy Inspection

2. General Condition: check for cracks, scratches or considerable damages.
3. Canopy Mechanism: Check for the correct operation of the canopy mechanism, fixation of the components, lock mechanism and security of the latching.
4. Plexiglass: Check that Plexiglass is bonded to the frame with no delaminations.

5.3.1.2.7 Seats Inspection

1. Upholstery: Check for general condition.
2. Pins: Check for general condition. Replace if necessary.

5.3.1.2.8 Safety Belts Inspection

1. General Condition: Check the lap belt for cuts, fraying, extreme or unusual wear. Check the buckle for corrosion.
2. Attachment and Security: Check the safety belts for proper operation. Insert the latch and listening for an audible click.

5.3.1.2.9 Fire Extinguisher Inspection

Monthly inspection

NOTE

As per manufacturer instructions the fire extinguisher must be inspected when initially placed in service and at minimum 30-day intervals or more frequently if circumstances dictate. Perform 30-day inspections are not be required to be certified.

1. Extinguisher is undamaged
2. Nozzle is unobstructed
3. The gauge pressure is in the operable (green) range
4. Lock pin and tamper seal are in place
5. Operating instructions are clearly visible
6. If the inspection reveals a deficiency in any of these conditions, corrective action must be taken.

Annual Inspection / Maintenance

Extinguishers shall be subjected to maintenance not more than one year apart or when specifically indicated by an inspection.

Maintenance is a thorough examination of the extinguisher, covering mechanical parts, extinguishing agent and expelling means. The extinguisher must also be weighed and recorded on the inspection tag.

It is intended to give maximum assurance that an extinguisher will operate effectively and safely, and should be done professionally. Most authorities require special tags be attached to the extinguisher to verify this service.

Six-Year Inspection / Maintenance

Every six years, aircraft fire extinguishers that require a 12-year hydrostatic test shall be emptied and subjected to applicable maintenance procedures.

This should be done professionally and involves a thorough inspection and the replacement of certain parts.

When these maintenance procedures are performed during periodic recharging or hydrostatic testing, the six-year requirement shall begin from that date.

If, however, the extinguisher was discharged and recharged at 3 years after the date of manufacture, the next six-year maintenance would then occur 6 years later (i.e., 9 years of the date of manufacture), since the recharging procedures include an internal inspection.

NOTE
For detailed information please consult the Fire Extinguisher manufacturer website www.h3raviation.com

5.3.1.3 Fuselage Repair and Alteration

Repairs or alterations on the fuselage, Plexiglass, windows and doors are not authorized at this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br

5.3.2 Wings

5.3.2.1 Description

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; the difference is that tanks are located in the leading edge. The floats are attached to the lower wing's structure.

The struts are made of 6061-T6 aluminum profile.

5.3.2.2 Wings Inspection

Required Tools:	Combined Wrench 13 mm (2 pcs)
	Combined Wrench 10 mm (2 pcs)
	Combined Wrench 8 mm (2 pcs)
	Allen Wrench 6 mm (1 pcs)
	Socket Wrench 10 mm (1 pcs)
	Ladder Support
	Flashlight
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

In this section, the wings and struts will be completely inspected. Check before every flight the correct assembling of each wing and strut and the correct functionality of the aileron system as described in the pre-flight checklist. Do not take off if you suspect any kind of abnormal behavior.

To avoid any future problems, the instructions listed below should be accurately followed to ensure that all parts of the wings and struts are in within condition. These should be carried out after 25 flight hours, 100 flight hours or annually.

All the inspections must be visually made. It is not necessary to disassemble the wings surface or components, just check the attachment condition.

NOTE

Remove or open all cowlings, inspection windows**,** access doors and baggage compartment, before starting the inspection.

5.3.2.2.1 Upper Wings Inspection

1. Wings Attachment: check the wings attachment with the fuselage.

- Torque the rear fixation bolt using two (2) combined wrenches 13 mm.
- Torque the front fixation bolt using one (1) combined wrench 13 mm and one (1) Allen wrench 6 mm.
- Check for looseness. Move the wings tips upward-downward, frontward-backward.

NOTE

See the Recommended Fastener Torque Values Section of this Manual 5.1.8

2. General Condition: Use a flashlight if necessary.

- Check visually the wings surface, leading and trailing edge for general condition (paint, damages, cracks, dents, etc.).

3. Ailerons: Use a flashlight if necessary.

- Check visually the ailerons for general condition (paint, cracks and dent).
- Check visually the ventilation holes of the ailerons for obstruction.

5.3.2.2.2 Lower Wings Inspection

1. Wings Attachment: check the wings attachment with fuselage (lower wing root).

- Check if the circular pin in the front attachment is in the correct position and good condition.
- Torque the rear fixation bolt using one (1) combined wrench 13 mm and one (1) Allen wrench 6 mm.
- Check for looseness. Move the wings tips upward-downward, frontward-backward.

NOTE
See the Recommended Fastener Torque Values Section of this Manual 5.1.8

2. General Condition: use a flashlight if necessary.

- Check visually the wings general condition (damages, denting, etc.).

3. Fuel Tanks: use a flashlight if necessary.

- Check visually the fuel tanks condition and evidence of leakage. Fuel tanks are located in leading edge of the lower wings.
- Check the correct operation and installation of the fuel caps and that “O” rings are in good condition.
- Check the closing pressure and if necessary adjust the nut using one (1) socket wrench 10 mm.
- Check the header tanks for leakage, connections and general condition (Header Tanks are located inside the fuselage, behind the main bulkhead).

4. Fuel Tanks Vent: check for obstructions.

- Check visually the vent hoses and connections located inside of the inner struts, inside and outside of the upper part of the fuselage.
- With the help of two people, check the correct airflow through the hoses. One person blowing through the hoses located outside of the upper part of the fuselage and the other person listening to the airflow through the filler tank.

5. Floaters: use a flashlight if necessary.

- Check the attachment using two (2) combined wrenches 10 mm in the floater´s front and rear sides.
- Check visually for general condition (cracks, dent).

6. Landing Gear Leg Housing: use a flashlight if necessary.

- Check visually the landing gear leg housing for general condition.

5.3.2.2.3 Struts Inspection

1. Struts Attachment: check the attachment of the struts.
   - Check the main strut attachment with the upper wing and fuselage using two (2) combined wrenches 13 mm.
   - Check the attachment of the inner strut (V-strut) with the upper and lower wing using two (2) combined wrenches 10 mm.
   - Check the attachment of the jury strut with the upper wing and main strut using two (2) combined wrenches 8 mm.

2. General Condition:
   - Check visually the strut, inner strut (V-strut) and jury strut for corrosion and looseness.

3. Pitot Tube:
   - Check the attachment of the Pitot tube located on the left inner strut wing (V-strut).
   - Check the general condition and correct operation.
   - Inspect air passages in the system for water, dirt or other foreign matter.
   - Check the pitot for corrosion.

5.3.2.3 Wings Repair and Alteration

Repairs or alterations in the internal wings structure (ribs, spar) and wings surface (impacts, denting) are not authorized at this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.3.3 Empennage

5.3.3.1 Description

The tail cone (fin), horizontal stabilizers (left and right), elevators (left and right), rudder and their components compose the empennage. The gluing of the tail cone with the fuselage is made with mixture of resin epoxy with cotton flocks, resulting in only one set.

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

5.3.3.2 Empennage Inspection

Required Tools:	Ladder support
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

In this section, the empennage will be completely inspected. Check before every flight the correct assembling. Do not take off if you suspect any kind of abnormal behavior.

To avoid any future problems, the instructions listed below should be accurately followed to ensure that all parts of the empennage are in within condition. These should be carried out after 25 flight hours, 100 flight hours or annually.

All the inspections must be visually made. It is not necessary to disassemble, just check the general condition of the components.

The inspection of the empennage control surfaces (rudder, elevators and electric trim tab) are describe in the Structural Control Surfaces of this manual.

NOTE

Remove or open all cowlings, inspection windows**,** access doors and baggage compartment before starting the inspection.

- General Condition: Check visually the tail cone, horizontal stabilizer leading edges for general condition. Inspect visually cracks, impacts, denting or some considerable damages on the surface.

- Attachment: Check the condition of the horizontal stabilizer attachment with the vertical stabilizer. Move the tips upward-downward and frontward-rearward. It cannot have looseness.

5.3.3.3 Empennage Repair and Alterations

Repairs or alterations in the internal empennage structure and empennage surface are not authorized at this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.3.4 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 castering and equipped with 400-4 8 Ply tubeless tire. The landing gear retraction is actuated by an electrically / hydraulic system.

Main wheels are fitted with disk brakes, hydraulic operated and controlled by pedals.

	USABLE TIRES
MAIN LANDING GEAR	4.00x6 6 Ply Tubeless Tire
NOSE LANDING GEAR	4.00x4 8 Ply Tubeless Tire

5.3.4.1 Landing Gear Inspection

Required Tools:	Slotted Screwdriver
	Phillips Screwdriver
	Cutter Pliers
	Combined Wrench 13 mm (1 pcs)
	Allen Wrench 6 mm (1 pcs)
	Parallel Pin Punch 8 mm (1 pcs)
	Steel Hammer
	Nylon Head Hammer
	Combined Wrench 15/16 ‘’ (1 pcs)
Parts and Materials Required:	Refer to Illustrated Parts Catalog
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

In this paragraph the landing gear system will be completely inspected. Check before every flight the correct functionality of the landing gear system, as described in the pre-flight checklist. Do not take off if you suspect any kind of abnormal behavior of the landing gear system.

To avoid any future problems, the instructions listed below should be accurately followed to ensure that all parts of the landing gear system are and remain in within condition. These should be carried out after 25 flight hours, 50 flight hours, 100 flight hours or annually.

Because the landing gear system contains many parts, for sake of clarity, the inspection of the complete landing gear system is divided into 5 different subassemblies:

- Nose Gear
- Main Gear
- Landing Gear Retraction System
- Wheels and Brake System
- Shock Absorber

Most of the inspections must be made visually; it is not necessary to disassemble, just check the general condition of some components. Some components must be replaced in the 100 hours inspection or just if necessary as explained below.

NOTE
Remove or open all cowlings, inspection windows**,** access doors and baggage compartment before starting the inspection.

NOTE

Lift the aircraft if necessary. See **5.1.9.1 Ground Handling** for instructions.

5.3.4.1.1 Nose Gear

1. General Condition: lift the nose of the aircraft up and use a flashlight.

- Inspection of the steering mechanism should include the following:
  - Torque-links (scissors)
  - Torque-tubes
  - Control rods
  - Rod-end bearings
  - Shimmy dampers
  - Turning stops
- Check the condition of the bolts and attachment.
- Check the condition and attachment of the rubbers.
- Check the springs for attachment, wear and looseness.
- Check the nose gear for looseness, bending, cracks and wear.
- Check the condition of the wheel (cracks, corrosion, and free rotation).
- Check the plates which cover the nose gear fork fore general condition, cracks, wear and looseness. Replace them if necessary.
- Check the bearings condition, free rotation of the wheel and looseness.

NOTE

Nose Gear bearings should be replaced on condition, however, it is recommended to replace every 100 hours operation **(See Section 6.2.3.7 Bearing Replacement).**

2. Nose Gear Doors: put the nose of the aircraft up and use the flashlight.

- Inspect nose gear doors frequently for cracks, deformation, proper rigging, and general condition.
- Check for proper safetying of the hinge pins and for distorted.
- Check for correct operation of the nose gear doors.
- Replace the nose gear doors if necessary (**See 6.2.3.8 Nose Gear Doors Replacement**).

5.3.4.1.2 Main Gear

1. General Condition: lift the aircraft if necessary and use a flashlight.

- Check the condition of the bolts (loose and damaged).
- Check for cracks, excessive looseness, attachment and general condition of the main gear legs. Check the rubber foam for general condition and detachment.

- Check the condition of the wheel (cracks, corrosion, and free rotation).
- Check the bearings condition, free rotation of the wheel and looseness.

NOTE

Main Gear bearings should be replaced on condition, however, it is recommended to replace every 100 hours operation **(See Section 6.2.3.7 Bearing Replacement).**

5.3.4.1.3 Landing Gear Retraction System

CAUTION

Jack the aircraft up for accomplishing this process (See Section 5.1.9.1.2 Jacking Up)

- Gas spring: Check for wear, looseness, leakage, attachment and correct operation.
- Inspect the landing gear system for wear, deterioration, corrosion, alignment and other causes that may cause failure or unsatisfactory operation.
- Inspect the landing gear retraction mechanisms for wear looseness in any joint, trunnion, or bearing.
- Inspect the hydraulic system of the landing gear for any leakage of fluid from the hydraulic line and units.
- Inspect the landing gear retraction system for smooth of operation.
- Perform an operational test of the landing gear retraction system. During the test, the following should be checked:
  - The smoothness of operation
  - Effectiveness of up-and-down locks
  - Operation of the warning horn
  - Operation of indicating systems (Sensors – Display)
  - Clearance of tires in wheels wells
  - Operation of landing gear doors
  - Looseness of mounting points
  - Play in torque links
  - Condition of inner strut cylinders
  - Play in wheel bearings
  - Play in actuating linkages
- Check electrical terminals (connectors), micro-switches for continuity, corrosion and general condition. Replace them if necessary.

5.3.4.1.4 Tires, Wheels and Brake System

NOTE

The wheels does not need to be removed.

1. Wheels Condition: replace them if necessary.
    - Inspect the wheels periodically for cracks, corrosion, dents, and distortion.
    - Check the condition of the through-bolts and nuts.
    - The sealing ring used between the wheels halves should be free of damage or deformation.
    - Periodically accomplish an inspection to ensure the nuts are tight and that there is no movement between the two halves of the wheel.

2. Tires Condition: replace them if necessary.
    - Check for cuts, worn spots, bulges on the side walls, foreign bodies in the treads, and tread condition.
    - Check for excessive wear and/or uneven and slippage on the wheels.

3. Tire Pressure: refer to the section 5.1.6 Tire Inflation Pressures of this manual.
    - Calibrate with recommended pressure.

CAUTION

The tires should not be inflated beyond the recommend pressure.

4. Assembly Screws: use the flashlight if necessary.
    - Check the toque paint mark.
    - Inspect for general condition of the screws and corrosion.

5. Caliper: use the flashlight if necessary.
    - Check for leakage or seepage.

6. Hydraulic Fluid: use the flashlight if necessary
    - Open the inspection window located on the fuselage nose.
    - Check the attachment of the hydraulic fluid reservoirs.
    - Change the hydraulic fluid (**See 6.2.3.5 Filling Brake System**).

7. Brake System Lines: use the flashlight if necessary.
    - Open the inspection window located on the fuselage nose.
    - Check that hydraulic lines are located away from moving parts. They should be secured to the aircraft so they can't move or be caught by foreign objects.
    - Make sure hydraulic lines aren´t in tension at any position of the suspension.
    - Check the connection of the lines located on the pedals, check for leakage and general condition.

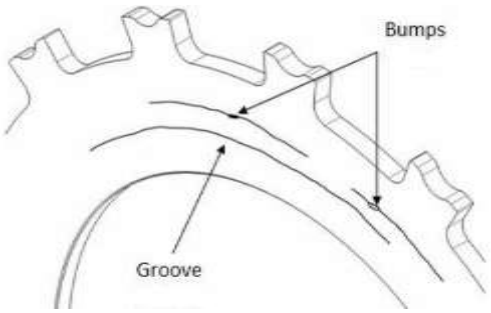
- Check the connection of the lines located in the main gear legs, check for leakage and general condition.

8. Brake Pads:

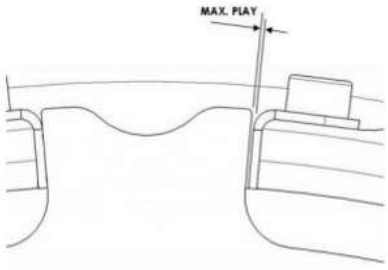
- Check the condition of brake pads, equal pad wearing.
- Check the lining thickness – (Minimum lining thickens for all brake pads is **1 mm**).
- Replace the brake pads if necessary **(See 6.2.3.6 Brake Pads and Discs Replacement)**.

9. Brake Discs:

- Check the brake discs for cracks, deformation and attachment.
- Check the discs for groove and bumps.



- Check the discs clips play.



- Replace the brake discs if necessary **(See 6.2.3.6 Brake Pads and Discs Replacement).**

5.3.4.1.5 Shock Absorber

1. General Condition:

- Inspect the entire shock-strut for evidence of leaks, cracks, and possible bottoming of the piston.
- Check all bolts, bolt holes, pins, and bushings for condition, lubrication and tightening.
- Check the shock absorber for corrosion, wear and leakage.
- Clean the shock absorber.

- Calibration and replacement procedures can be found in the **Section 6.2.3.9 Shock Absorber Calibration and Replacement**.

NOTE
Shock absorber should be replaced on condition.

2. Attachment: use the flashlight if necessary
   - Check the shock absorber attachment points with the main gear leg and inside fuselage with the articulation rod.

5.3.4.2 Landing Gear Repair and Alterations

Repairs or alterations in landing gear structure (composite parts) are not authorized in this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.3.5 Structural Control Surfaces

The controls are the most sensitive and important parts of the aircraft and their conditions must be checked before every flight.

WARNING

NEVER TAKE-OFF IF THERE IS ANY ABNORMAL LOOSENESS IN THE SYSTEM, IT MIGHT LEAD TO A VERY DANGEROUS ANOMALY.

5.3.5.1 Control Surfaces Inspection

Required Tools:	Flashlight.
	Ladder Support
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

The ailerons, elevators, rudder and their hinges will be inspected in this paragraph. Check before every flight the correct functionality of the control surfaces, as described in the pre-flight checklist. Do not take off if you suspect any kind of abnormal behavior of the control surfaces.

To avoid any future problems, the instructions listed below should be accurately followed to ensure that all parts of the structural control surfaces are and remain in within condition. These should be carried out after 25 flight hours, 100 flight hours and annually.

All the inspections must be visually made. It is not necessary to disassemble; just check the attachment condition and movement of the control surfaces.

NOTE
Remove or open all cowlings, inspection windows, access doors and baggage compartment before starting the inspection.

5.3.5.1.1 Ailerons

The construction of the aileron is very simple. It is a carbon front spar, foam ribs, a fiberglass trailing edge and foam/carbon-Aramid (Kevlar®) sandwich covering. The covering is also totally constructed of derakane.

1. General Condition: use a flashlight and a ladder support if necessary.
    - Check the surface condition (damages and paint damages) and trailing edge.
    - Check the attachment of the aileron electric trim tab (hinges, pins, and rod). Turn on the battery master switch and check the correct operation on the instrument panel and electric trim tab.

2. Drain Holes: use the flashlight if necessary.
    - Check the drain holes of each aileron for obstruction. Lower the aileron and check the holes located in each aileron extremity.

3. Operation: use a flashlight and a Ladder Support if necessary.
    - Check for free operation (condition of hinges and looseness). Move the aileron up and down, check for full free movement and sufficient space between the wing and the aileron.
    - Check the correct operation of the aileron tie rod. Check the support, bolt and nut.
    - Check the aileron bell-crank located inside of the upper part of fuselage. Move the aileron up and down, check attachment of the bell-crank and free movement.
    - Check the Teleflex cable for wearing, looseness and correct operation.

NOTE
Teleflex cable should be replaced on condition, however, it is recommended to replace every 10 years.

5.3.5.1.2 Rudder

The construction of the rudder is molded in a carbon fiber and have internal PVC foam reinforcements.

1. General Condition: use a flashlight and a ladder support.
    - Check the general condition of the rudder surface.
    - Check the trim tab attachment.
    - Check the attachment of the position light.

2. Drain Hole: use flashlight if necessary.
    - Check the drain hole of the rudder for obstruction located on the bottom.

3. Operation: use a flashlight and a ladder support if necessary.
    - Check for free operation and looseness. Move the rudder to the left and right and check for full free movement and sufficient space between the vertical stabilizer, elevator and rudder.
    - Check the rudder cable runs for incorrect routing, fraying, twisting, or wear at fair-leads, pulleys, and guards.
    - Check the rudder attachment bolts and correct operation.

NOTE
Rudder control cables should be replaced on condition, however, it is recommended to replace every 10 years.

- Check the attachment of the rudder castle nut and the cotter pin condition.

5.3.5.1.3 Elevators and Trim Tab

As the ailerons, the construction of the elevators is also very simple. It is a carbon front spar, foam ribs, a fiberglass trailing edge and foam/carbon-Kevlar sandwich covering.

1. General Condition: use a flashlight and a ladder support if necessary.
    - Check the surface condition (damages and paint damages) and trailing edge of the elevator.
    - Check the elevator attachment (nuts, bolts, bell-crank attachment and safety wires). Check the elevator control rods.
    - Check the surface condition of the electric trim tab and check the trailing edge.

2. Drain Hole: use a flashlight if necessary.
    - Check each elevator´s drain hole for obstruction. Lower the elevator and check the hole located in each elevator´s inner part.

3. Operation: use a flashlight and a ladder support if necessary.
    - Check free operation and looseness. Move the elevator up and down and check for full free movement and sufficient space between the horizontal stabilizer and the elevator.
    - Check the attachment of the elevator electric trim tab (hinges, pins, and rod). Turn on the battery master switch and check the correct operation on the instrument panel and trim tab.

5.3.5.1.4 Joysticks and Pedals

1. Check the joysticks for free operation. Remove foreign objects and contamination.
2. Check the pedals for movement strength, joints safety, general condition and cables attachment.
3. Inspect cable systems for binding, full travel, and security of attachment hardware.

4. Check for slack in the cable system b attempting to move the joystick and pedals while gust locks are installed on the control surfaces.
5. Actuate the controls and check for friction or hard movement.

5.3.5.2 Control Surfaces Repair and Alterations

Repairs or alterations in the internal control surfaces structure are not authorized in this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.4 Engine

5.4.1 Description

Description	915 iS A
Four-stroke piston engine with four liquid and air-cooled cylinders	✓
Redundant electronic fuel injection and ignition, eco mode	✓
Turbocharger, stainless steel exhaust	✓
Dry sump forced lubrication with separate oil tank, automatic adjustment by hydraulic valve tappets	✓
Engine management system (EMS)	✓
Electric starter (12 volt)	✓
Propeller speed reduction gearbox	✓
Air intake system / intercooler	✓
TBO 1,200 hours	✓
Maximum operating altitude 23.000 feet	✓
Incorporated reduction gearbox	✓

Because of engine's complexity and importance to the flight safety, it is necessary the operator be conscious that a very rigorous inspection/maintenance program must be adhered to.

Consult the manufacturer's manuals, service bulletins and instruction books regarding the repair and overhaul, inspection, installation and maintenance of the engine.

For inspection and maintenance of the engine or its systems listed below, refer to the latest edition of Maintenance

Manual (Line Maintenance) for ROTAX Engine Type 915i A Series supplied by the manufacturer.

- Cooling System
- Fuel System
- Lubrication System
- Electric System
- Propeller Gearbox

CAUTION

ROTAX engines must receive any heavy maintenance at an authorized ROTAX service center.

5.4.2 Engine Inspection

Required Tools:	Socket Wrench 17 mm **(1 pcs)**
	Allen Wrench 6 mm (1 pcs)
	Phillips Screwdriver
	Flashlight
	Ladder Support
Parts and Materials Required:	Liquid Grease
	Refer to Illustrated Parts Catalogue
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

To avoid any future problems, the instructions listed below should be accurately followed to ensure that all parts of the engine and components are in within condition. These should be carried out after 25 flight hours, 100 flight hours or annually.

All the inspections must be visually made. It is not necessary to disassemble, just check the attachment condition.

NOTE

Remove or open all cowlings, inspection windows, access doors and baggage compartment before starting the inspection.

The following instructions are in order to inspect aircraft structural parts, which make up the powerplant system and that are not included in the Rotax maintenance manual.

5.4.2.1 Engine Cowlings

1. Cowlings removing: use a ladder support if necessary.

   - First remove the upper cowling.
   - Then remove the lower cowling.

2. Cowlings Inspection: use a flashlight if necessary. Remove the cowlings.

- Check the upper and lower cowlings for general condition (cracks, burns, damaged protections, rubbers and general condition of fasteners).
- Check the condition of asbestos, detachment and general condition in the lower cowling.
- Check the supports of oil and water cooler for looseness and general condition in the lower cowling.
- Check the rubbers of the upper and lower cowlings for general condition and detachment.
- Check the protection grille for attachment and general condition in the lower cowling.

5.4.2.2 Engine Suspension Frame

NOTE

See the Recommended Fastener Torque Values Section of this Manual 5.1.8

1. Firewall Bolts (Engine Suspension Frame bolts with the Fuselage):
   - Torque the firewall bolts using one (1) socket wrench 17 mm and then using the torque wrench, check the torque.

2. Engine Suspension Frame Bolts:

   - Torque the engine suspension frame bolts using one (1) socket wrench 17 mm and then using the torque wrench, check the torque.

3. Engine Mounts:

NOTE

Engine Mounts for Super Petrel XP equipped with Rotax Engines 915i A Series should be replaced on condition, however, it is recommended to replace them every 500 hours.

NOTE

All rubber parts including engine mounts, hoses and lines which are part of the Powerplant must be replaced every 5 years as per Rotax recommendation.

NOTE

All GENUINE ROTAX® silicon hoses need to be checked by “on condition” as per Rotax recommendation.

5.4.2.3 Cooling System

The cooling system hose clamps should be re-tightened in the first 25 hours inspection and each 100 hours / annually inspection. Hoses should be inspected for leakage, cracks, kinks, and security of mounting. Ensure that hoses do not interfere with adjacent equipment or lines. Make sure that they are not kinked, and not in contact with hot, moving parts or sharp edges.

CAUTION

Clamps too tight may damage the hoses.

5.4.2.3.1 Ventilation Electrical System Inspection

DESCRIPTION	TECHNICAL SPECIFICATION	QUANTITY	PART NUMBER
Electrical Fans	SANYO DENKI DC FAN 120X38 12VDC	2	9WV1212P1J001
Relay	Power Relay (4P) – 10AMP	1	39794-S0K-A01

The system is automatically activated when the cooling temperature reaches the yellow arch.

- Check the condition and attachment of the electrical fans and brackets.
- Check the ventilation electrical system for friction with the cooling radiator.
- Check the relay of the ventilation electrical system which is located in fuselage pylon for general condition and attachment. Check the condition of the connectors.
- Make an operational test of the ventilation electrical system. A run-up engine will be necessary up to reach the yellow arch of the cooling temperature indicator. Shut the engine off without turning off the Master switch and check if the fans are working.

CAUTION

The engine instruments indications are set during the manufacturing of the aircraft according to the parameters specified in the Engine Parameters Section of the applicable Pilot´s Operating Handbook. The alteration of the indications and limits previously established can compromise the engine operation and aircraft systems.

WARNING

EXTRA CAREFUL MUST BE TAKEN WHEN INSPECT THE FANS. MAKE SURE THAT ENGINE IS SHUT OFF.

5.4.2.4 Engine Controls

NOTE

For throttle cables setting please refer to Engine Manufacturer Maintenance Manuals

1. Throttle: Check for correct operation and free movement.

5.4.3 Engine Maintenance, Repair and Overhaul

Maintenance, Repair and Overhaul of the engine requires a Rotax training. Before performing any inspection or maintenance task on the engine, check manuals for available updates through Rotax website.

5.4.3.1 Spark Plugs Replacement

- As per Rotax recommendations, operation with leaded fuels (e.g. AV GAS 100LL) can result in increased wear of the spark plugs. Reduce renewal intervals accordingly.
- Aircraft manufacturer recommends to replacement the spark plugs each 100 hours inspection when using either MOGAS or AVGAS. This should be applied to the three engine types.
- Spark plugs replacement should be made according to the latest revision of the Rotax Line Maintenance Manual.

5.4.3.2 Air Filter Replacement

- Air filter inspection and replacement should be made according to the latest revision of the Rotax Line Maintenance Manual.

5.5 Fuel System

5.5.1 Description

The fuel system is fed by one RIGHT and one LEFT wing tank built of aramid located inside the lower wings leading edges, each tank is connected to its fuselage header tank (RIGHT and LEFT) also made by aramid, 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 indicates RIGHT and LEFT tanks (wing + header) total fuel quantity.

The fuel drain system contains electric drain pumps located inside the aircraft fuselage and drain valves located below the left and right wing root of the aircraft outside part (**See 5.5.1.3 Draining Process**).

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.

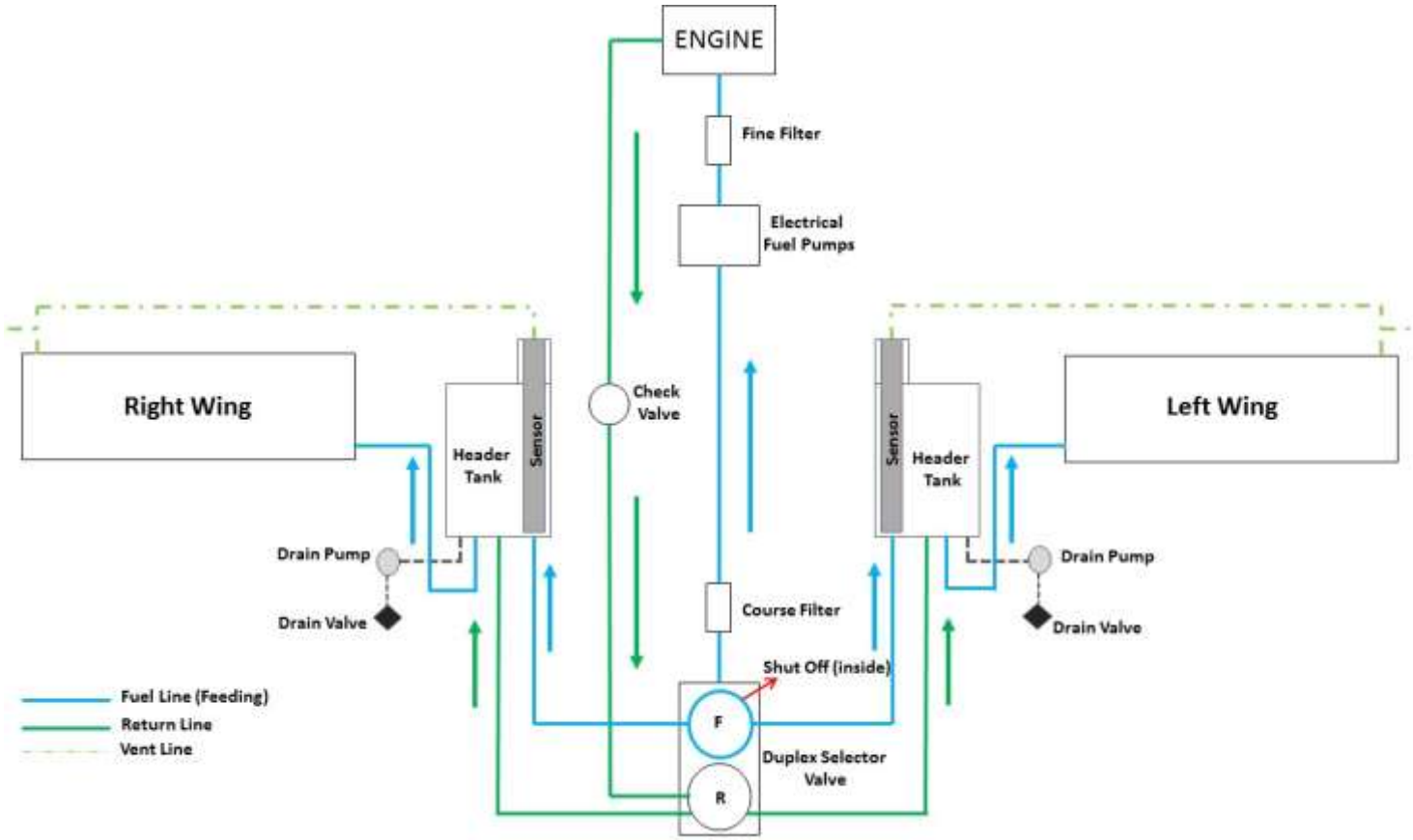
NOTE

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

WARNING

ALWAYS BE AWARE OF FUEL CONTAMINATION OR DETERIORATION CAUSED BY IMPURITIES OR LONG PERIODS OF INACTIVITY AND STORAGE. ALWAYS DRAIN THE SYSTEM AND CHECK FUEL CONTAMINATION BEFORE FLIGHT.

5.5.1.1 SPXP Fuel System Diagram



5.5.1.2 Refueling: Safety Precautions

Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 00-34 A – AIRCRAFT GROUND HANDLING AND SERVICING, Section 8. Aircraft Fueling.

In servicing the fuel system, the following precautions should be taken:

- Aircraft being serviced or having the fuel system repaired must be properly grounded;
- No electrical or radio equipment in the aircraft is energized or being maintained while fuel is being dispensed into the aircraft;
- Fueling personnel should not carry objects in the breast pockets of their clothing when servicing aircraft because loose objects can fall into the fuel tanks;
- Matches or lighters should never be carried during fueling operations;
- In event of fuel spillage, discontinue the fueling operations until the spill can be removed, using proper safety precautions. Remove or neutralize the spilled fuel as quickly as possible;
- Fire-extinguishing equipment must always be available.

WARNING

IN SERVICING THE FUEL SYSTEM, REMEMBER THAT FUEL IS FLAMMABLE AND THAT THE DANGER OF FIRE OR EXPLOSION ALWAYS EXISTS.

5.5.1.3 Draining Process

To drain the header tanks, the aircraft must be in 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

5.5.2 Fuel System Inspection

Required Tools:	Flashlight
	Ladder Support
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

In this section, the fuel system will be completely inspected. Check for leakage before every flight as described in the pre-flight checklist. Do not take off if you suspect any kind of abnormal behavior.

To eliminate any (future) problems, the instructions listed below should be accurately followed to ensure that all parts of the fuel system are in within condition. These should be carried out after 25 flight hours, 100 flight hours or annually.

All the inspections must be visually made. It is not necessary to disassemble any wing´s surface or components, just check the attachment condition.

NOTE

Remove or open all cowlings, inspection windows, access doors and baggage compartment before starting the inspection.

CAUTION

Connections located in the wings, header tank and vents should not be retightened in order to preserve the integrity of sealing components, fittings and lines of the fuel system.

- Fuel and Vent Hoses: use a flashlight if necessary.
  - Check the fuel hoses condition (integrity, attachment, security, excessive bending) in the baggage compartment, header tanks, lower wings and inside of the engine compartment.
  - Check the vent hoses condition (integrity, attachment, security) in the header tank, the inner struts connection and pylon of the fuselage.

- Inline Fuel Filter **(Andair FX375-M)**:
  - Fuel Selector Valve in OFF position.
  - Remove the fuel filter.

NOTE

Use a tray in order to collect the small quantity of residue fuel.

  - Open the fuel filter
  - Inspect and clean the filter screen. If necessary replace the fuel filter assembly. **(See 6.2.3.1 Fuel Filter Replacement).**

NOTE

Replace the O-Ring of the fuel filter as necessary.

  - Close the fuel filter. Re-safety the filter housing.
  - Install new ear clamps.
  - Fuel Selector Valve OPEN and check for leakage.
  - Check the fuel filter for general condition (leakage and attachment).

- Fuel System: check all fuel system for leakage (blue spots in the connections). Use a flashlight if necessary.
  - Check the header tanks (hose connection).
  - Check electrical terminals (connectors) for corrosion and general condition of the sensor and ground located on the top of the header tank sensor. Replace them if necessary.

- Check the lower wing (hose connection inside the fuselage).
- Check the wing tanks (cracks, denting, and damages) and the condition of the fuel cap (rubber, operation, sealing).
- Check the drain valves (attachment and hose connection). Test it for correct operation.
- Check the drain pumps for leakage and general condition.
- Check electrical terminals (connectors) for corrosion and general condition of the drain pump. Replace them if necessary.

- Fuel Selector Valve:
  - Check the selector valve for correct operation; turn the valve (change the valve position).
  - Check the connections.

- Placards:
  - Assure that required placards are complete and according to the Pilot´s Operating Handbook. Replace those are missing or cannot be read easily.

5.5.2.1 Electrical Fuel Pumps Inspection

NOTE

In order to comply with 5 year rubber parts replacement requirements, ROTAX has released a fuel pump service kit. Please refer to the latest version of the SI-912i-015.

NOTE

Refer to the latest edition of FAA ADVISORY CIRCULAR AC 43-4B, CORROSION CONTROL FOR AIRCRAFT for a more in-depth study on the detection and treatment of corrosion.

1. Remove the baggage compartment (upper and lower).
2. Fuel selector valve in OFF position.
3. Inspect the electric fuel pumps for corrosion, leakage, general condition, lines and connectors.
4. Clean the housing, pumps, and connections as necessary.
5. Apply CorrosionX Aviation or similar as necessary.
6. Make an operational check of the electric fuel pumps.
7. Install the baggage compartment (upper and lower).

CAUTION

Aircraft in operation on salt-water environment must have a recurrent corrosion inspection, cleaning and lubricating of the electric fuel pumps every 25 hours.

5.5.3 Fuel System Repair and Alterations

Repairs or alterations in the Fuel System of the Super Petrel XP are not authorized in this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br

5.6 Propeller

5.6.1 Description

Super Petrel XP is equipped with three-blade propeller with ground adjustable pitch:

- E-PROPS Propeller Excalibur 5 Blade

CAUTION

Always remember that composite blades do not resist certain impacts.

WARNING

BE SURE THAT NOTHING TOUCHES THE PROPELLER WHILE THE ENGINE IS RUNNING.

5.6.2 Propeller Inspection

Required Tools:	Combined Wrench 13 mm (1 pcs)
	Combined Wrench 10 mm (1 pcs)
	Allen Wrench 5 mm (1 pcs)
	Torque Wrench
	Phillips Screwdriver
	Flashlight
	Ladder Support
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

In this section, the propeller will be completely inspected. Check for general condition of propeller before every flight as described in the pre-flight checklist. Do not take off if you suspect any kind of abnormal behavior.

To avoid any future problems the instructions listed below should be accurately followed to ensure that all parts of the propeller are in within condition. These should be carried out after 25 flight hours, 100 flight hours or annually.

All the inspections must be visually made. It is not necessary to disassemble some surface of wing or components, just check the attachment condition.

NOTE

Remove or open all cowlings, inspection windows, access doors and baggage compartment before starting the inspection.

- Tightening of screws and blade adjustment: every 100 hours and/or every 6 months for standard screws.

Screw M6= 11 N.m (97 lb.in)

Screw M8= 24 N.m (212 lb.in)

NOTE
Never put threadlocker (Loctite) on the screws, otherwise it would not be possible to check the tightening torque.

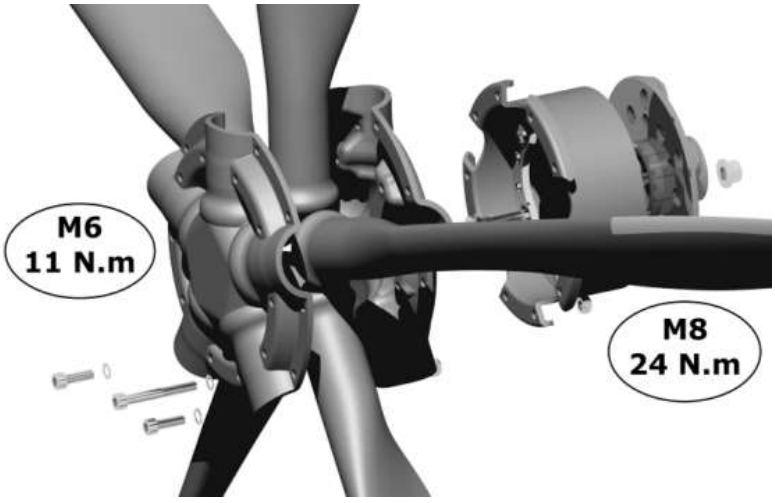
NOTE
For more details about the other propeller´s inspection, maintenance, repair, removal or installation, refer to the propeller manufacturer website for downloading the applicable documents.

5.6.3 Propeller Maintenance, Repair and Overhaul

Repairs or alterations in the Propeller are not authorized in this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.6.4 Propeller Installation

Required Tools:	Combined Wrench 13 mm (1 pcs)
	Combined Wrench 10 mm (1 pcs)
	Allen Wrench 5 mm (1 pcs)
	Flat Screwdriver
	Torque Wrench
	Pitch Adjustment Tool
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P



1. Assemble the components blades, hub, spacer and screws.

2. Assemble the propeller on the ground or on a work surface:

   - Locate the half hub with the fixing nuts and place it underneath.
   - Put the blade fleet in the half hub following the marking with the colored stickers.
   - Put the second half hub on top always following the colored stickers.
   - Tighten the 6 middle screws M6x22 without using force with the 5 mm Allen wrench.
   - Place the blades + hub assembly on the spacer.
   - Approach the 9 external screws M6x22

3. Once the propeller is assembled, screws not fully tightened, mount it on the gearbox flange:

   - Approach the 6 flange nuts with a 13 mm bushing.
   - Never put a threadlocker (Loctite) on the screws, otherwise it would not be possible to check the tightening torque.
   - Take a torque wrench and set at 24 N.m and tighten the 6 nuts to the right torque.

4. Blade pitch setting can be made using a Pitch Adjustment Tool:

E-Props – 915 iS
27.0°

   - Set the first blade to the correct pitch with the pitch adjustment tool.
   - Tighten the outer screws of the hub without forcing. Tightening the screw on the leading edge side first = the pitch will decrease slightly, thus achieving the desired precise pitch.
   - Proceed to the next blade. Do not touch the already adjusted blade: take the next blade and rotate the propeller very gently, avoiding jerks, so that the blade setting is not changed until the screws are fully tightened.
   - Tightening the hub screws to the torque: to be done progressively → first 6 N.m.

CAUTION

Never make more than 1/4 turn on a screw and never exceed 6 N.m (release the torque wrench). Distribute the tightening of the screws evenly in a crosswise pattern.

   - Check the pitch of all the blades, and if it has moved a little, repeat it if necessary.
   - Same operation at 9 N.m, then at the final torque of 11 N.m.

5. Make a static engine run test in order to get the following RPM:

915 iS
5600 RPM (+/- 100 RPM)

NOTE

If necessary make a fine pitch adjustment in order to reach the engine RPM.

6. After getting the specified static RPM, check again the hub and blades torque value.

7. Mount the spinner with a flat screwdriver. Approach the screws loosely during the assembly, then tighten the screws to 1.5 N.m.

NOTE

Please refer to the section below (**GENERAL RECOMMENDATIONS FOR PROPELLER BALANCING),** for positioning of the aircraft when is performing the RPM check after propeller installation.

5.6.5 Propeller Balancing

- Propeller balancing should be made each **100 hours inspection**. This procedure should be a dynamic balancing method.
- For balancing procedures, use the Balancer OEM manuals.

NOTE

For Propeller Balancing Best Practices, refer to the latest edition of the FAA ADVISORY CIRCULAR AC 20-37E, CHAPTER 3. ACCESSORIES AND BALANCING.

GENERAL RECOMMENDATIONS FOR PROPELLER BALANCING

- The vibration sensor should be fixed to the engine gearbox.
- The sensor should be placed vertically, centralized on the engine with the cable pointing upwards.
- Place the photo sensor on the engine or cowling between 30-45 centimeters behind of the propeller at the 12-o´clock position. The fixation should be properly in order to avoid vibrations in the sensor.
- The cables of the photo sensor should be far from the engine´s heated and moving parts.
- Place the reflective tape on the spinner mounting plate in vertical position.
- Do not exceed the aircraft and engine limitations.
- Pay particular attention in the engine water temperature.
- The vibration levels should not exceed 1.20 inches per second (1.20 IPS). If this value is exceeded, the propeller should be balancing statically.
- The maximum weight is 30 grams per bolt.
- Chock the aircraft and perform the engine starting on a clean and hard surface.
- Fixed pitch propellers should be turned to a low cruise RPM. Constant speed propeller should be turned to

a low cruise RPM using minimum power torque.

- Wind speed should be limited to 20 mph with a gust-limited factor between 5 – 7 mph. An attempt of performing the balancing with winds, will make the process more difficult or impossible to complete.
- Do not place the aircraft near any obstacles when the wind is more than 5 mph. Turbulent air around of the obstacle, would cause air loads on the propeller and the balancing will became difficult to complete.
- ALWAYS place the aircraft in the opposite direction of the Wind.

  NEVER attempt to balance with crosswinds or tailwinds.

5.6.5.1 Propeller Balancing Parameters

- Propeller specification: E-PROPS Propeller Excalibur 5 Blade
- Run engine test: at 5600 +/- 100 Static RPM.
- The IPS final (inches per second): less than 0,1 IPS as per Rotax instructions.

5.7 Utility Systems

5.7.1 Cabin Heater System

Super Petrel XP cabin heater system uses the 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. Cabin heater switch is located in the central console.

5.7.2 Cabin Heater Inspection

Required Tools:	Flashlight
	Ladder Support
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

The inspection of cabin heater system must be made visually. It is not necessary to remove the parts or components of system.

NOTE
Remove or open all cowlings, inspection windows, access doors and baggage compartment, before starting the inspection. Use a flashlight.

5.7.2.1 Under Cowling Inspection (Engine)

1. Insure hoses are not rubbing on anything and are not showing signs of any leakage.
2. Inspect hoses for chafing, hardening, and corrosion of fittings.
3. Check condition of hose clamps and security.

4. Follow hoses toward firewall to insure they have not been rubbing on anything or showing signs of cracking or stiffness.
5. Check hoses and grommets where they go through the firewall for cracks or wear.
6. Replace any defective, damaged, twisted, or bulging hoses if necessary.

NOTE

All rubber parts including engine mounts, hoses and lines which are part of the Powerplant must be replaced every 5 years as per Rotax recommendation.

5.7.2.2 In Cockpit Inspection

1. Inspect grommets and hoses where they enter through the firewall into the cockpit for the same issues as inspected under the cowling.
2. Check both red (+) and black (-) wire connections at sources, toggle switch and fan. Replace them if necessary.
3. Insure there is no sign of corrosion at connections and that wires are clean and have no missing / worn off insulation.
4. Check the amp draw on heater fan. If more than 4 amps are recorded, the fan should be replaced.
5. Check for any evidence of the heater core leaking coolant. If any evidence is noted, change heater core.
6. Check to insure the unit is secure in its mounts, tight and not rubbing on anything.
7. Check that the hoses are still hooked to the heater unit and are not cracking.
8. Check that hose clamps are still tight.
9. Make an operational check of the cabin heater. First, turn the master switch on and then turn on the cabin heater switch.

NOTE

Cabin Heater hoses and lines should be replaced on condition, however, it is recommended to replace them every 10 years.

5.7.3 Cabin Heater Maintenance, Repair and Overhaul

Repairs or alterations in the Cabin Heater System are not authorized at this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.8 Instruments and Avionics

5.8.1 Description

The Central GARMIN G3X Touch Screen 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.

5.8.1.1 Instrument Panel and Flight Instruments

The instrument panel of each Super Petrel XP is detailed on the Instrument Panel and Flight Instruments Supplement of this Manual.

5.8.2 Instruments and Avionics Inspection

Required Tools:	Flashlight
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

The inspection of the instruments and avionics must be made visually. It is not necessary to remove the parts or components of system.

NOTE

Remove or open all cowlings, inspection windows, access doors and baggage compartment before starting the inspection.

NOTE

Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices, Chapter 12. AIRCRAFT AVIONICS SYSTEMS

CAUTION

Magnetic tools must not be used during this procedure.

1. Instrument Panel: use a flashlight if necessary.
    - Check visually the instrument panel for attachment and general condition.
    - Check the readability and condition of the placards, which are located on the instrument panel. Replace them as necessary.

2. Instruments and Avionics: Follow the OEM (Original Equipment Manufacturer) manuals for maintenance and inspection instructions as applicable.
    - Inspect the condition and security of equipment including the proper security of wiring bundles.
    - Check for indications of overheating of the equipment and associated wiring.
    - Check that all avionics are free of dust, dirt, lint, or any other airborne contaminates.
    - Check the headset plugs, connectors, all switches and controls for condition and operation.
    - Check lightening of the instrument panel and cockpit.
    - Check the electrical circuit switches for correct operation.
    - Inspect antennas for general condition and signs of corrosion.
    - Check the correct operation of the instruments. Make an operational test on the instruments as applicable.

CAUTION

After performing the operational test on the instruments, turn off the Battery Master and Avionics Master Switch.

3. ELT Inspection: Follow the OEM (Original Equipment Manufacturer) manual for maintenance and inspection detailed information:
    - Inspect the ELT transmitter and mounting tray to insure all fasteners, and mechanical assemblies are secure.
    - Inspect the coaxial cable connecting the ELT transmitter to the antenna for cuts or abrasions on its outer jacket. Disconnect the BNC connector at each end. Examine both BNC connectors and the mating plug on the ELT transmitter, and antenna base for any signs of corrosion.
    - Inspect the modular cable connecting the ELT to the RCPI unit for signs of wear or abrasion on its outer jacket. Remove the modular plug connecting the ELT transmitter to the connecting cable, and inspect the jack and plug assembly for corrosion.
    - Check the expiration date of the RCPI battery and audio alert battery. Check the expiration date of the battery pack and replace if necessary.
    - Leave the ELT in the “Armed” position, then remove the ELT from the aircraft, and perform a G switch test.

NOTE

For testing the ELT follow the instructions described in the Section 10 of the MODEL E-04 ELT Installation Manual https://www.ackavionics.com/

5.8.3 Instruments and Avionics Maintenance, Repair and Overhaul

Repairs or alterations on the Instruments and Avionics are not authorized in this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

CAUTION

Replace defective instruments and avionics, only with approved instruments.

5.9 Electrical System

5.9.1 Description

Super Petrel XP operates on 12-volt DC electrical system and incorporates the electrical starter and voltage rectifier.

5.9.1.1 Engine

Rotax 915 iS Sport

- Fully redundant EMS (Electronic Engine Management)
- Electric Starter (12 V 0.8 kW)
- Fuel Pump Assy.
- Rectifier-Regulator A
- Rectifier-Regulator B
- Generator A 220 W
- Generator B 420 W

5.9.1.2 Circuit Breakers

The installed VP-X unit provides circuit protection and controls the electrical system. Some circuit protection are made 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
Engine Dual Cooling Fans (each)	3	Pylon
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.

5.9.1.3 Schematic Diagrams

To obtain the schematic diagrams for the Super Petrel XP please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.9.1.4 Acceptable Methods, Techniques and Practices for Electrical System Maintenance

The satisfactory performance of an aircraft is dependent upon the continued reliability of the electrical system. Damaged wiring or equipment in an aircraft, regardless of how minor it may appear to be, cannot be tolerated. Reliability of the system is proportional to the amount of maintenance received and the knowledge of those who perform such maintenance. It is, therefore, important that maintenance be accomplished using the best techniques and practices to minimize the possibility of failure.

Inspect equipment, electrical assemblies and wiring installations for damages, general condition and proper functioning to ensure the continued satisfactory operation of the electrical system. Replace components of the electrical system that are damaged or defective with identical parts.

Annual cleaning of electrical equipment to remove dust, dirt and grime is recommended. Suitable solvents or fine abrasives that will not score the surface or remove the plating may be used to clean the terminals and mating surfaces if they are corroded or dirty. Only cleaning agents that do not leave any type of residue must be used. Avoid using emery cloth to polish commutators or slip rings because particles may cause shorting and burning. Be sure that protective finishes are not scored or damaged when cleaning.

Annually check bus bars for general condition, cleanliness, and security of all attachments and terminals. Grease, corrosion, or dirt on any electrical junction may cause the connections to overheat and eventually fail. Bus bars that present corrosion, even in limited amounts, should be disassembled, cleaned, brightened and reinstalled.

NOTE

Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices, Chapter 11. Aircraft Electrical Systems.

WARNING

TURN THE POWER OFF BEFORE CLEANING.

5.9.2 Electrical System Inspection

Required Tools:	Flashlight
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

The inspection of the electrical system must be visually made. It is not necessary to remove the parts or components of system. Do not take off if you suspect any kind of abnormal behavior.

NOTE

Remove or open all cowlings, inspection windows**,** access doors and baggage compartment, before starting the inspection.

NOTE

Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices, Chapter 11. Aircraft Electrical Systems.

GENERAL INSPECTION

- Inspect equipment, electrical assemblies, and wiring installations for damage, general condition, and proper functioning to ensure continued satisfactory operation of the electrical system.
- Replace components of the electrical system that are damaged or defective with identical parts, or its equivalent to the original in operating characteristics, mechanical strength, and environmental specifications.
- Inspect for damaged, discolored, or overheated equipment, connections, wiring, and installations.
- Inspect for poor electrical bonding (broken, disconnected, or corroded bonding strap) and grounding, including evidence of corrosion.
- Inspect for dirty equipment and connections.
- Inspect for improper, broken, inadequately supported wiring and conduit, loose connections of terminals, and loose ferrules.
- Inspect the condition of the fuses.
- Inspect for broken or missing safety wire, broken bundle lacing, cotter pins, etc.
- Perform an operational check of electrically operated equipment such as batteries, lights, etc.
- Check the condition of electric lamps.

5.9.2.1 Battery Inspection

NOTE

Open the inspection window located on the fuselage´s to access the battery.

EARTHX BATTERY

NOTE

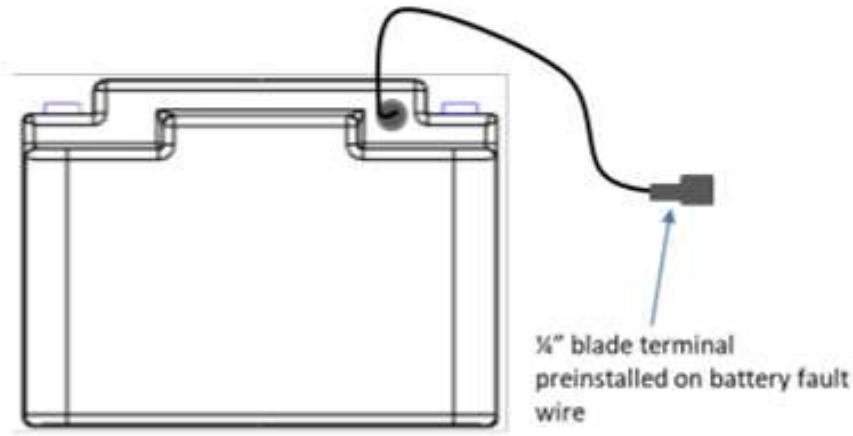
Please refer to the latest edition of the Instructions for Continued Airworthiness (ICA), ETX900-TSO Battery
https://earthxbatteries.com/wp-content/uploads/2022/02/180426-ICA-ETX900-TSO-Battery-RevD-Final-5-13-22.pdf

The ETX900-TSO battery system contains a maintenance free battery (article) with no internal replaceable components. No inspection or testing is required for the first 24 months after purchase. Thereafter, an annual inspection of the system is required to ensure that the battery functions as designed are maintained, and that it remains installed for safe operation of the aircraft and airworthiness.

The following inspections/tests of the battery shall be performed on an annual basis (after the first 24-month period), typically during the annual or 100 hour inspection.

Any failure of the following shall result in a repair or replacement of any component in the battery system:

1. Visually inspect the battery for signs of damage; plastic case cracks, warped plastic or long side of the battery is swollen. Replace if damaged.
2. Verify the battery fault/status LED circuit is operational. To do this, use a wire jumper to connect the battery's fault output wire to battery ground (see figure inset below), and verify that the battery's internal fault LED is lit and that the external fault LED and/or EFIS indicator (on the instrument panel) is lit or indicating. If the panel mount LED is equipped with a "Push to Test" feature, verify it operates as intended as well. Repair or replace for any failures.



3. Ensure the battery is fully charged. Turn off the aircraft master switch and any other battery loads, then measure the voltage at the battery terminals. A fully charged ETX900-TSO battery should be approximately 13.2 volts or greater.
4. After fully charging the battery in the previous step, allow the battery to rest overnight (minimum of 12 hours) without any load applied to the battery. Verify the battery is "holding a charge" by confirming the voltage is greater than 13.2 volts. Replace if this charge is not maintained.
5. Verify battery terminals are clean and terminal screws are properly secured (torque to 45in-lbs).

6. Visually inspect the vent tubes to ensure they are not blocked (plugged, pinched or kinked). Replace if damaged.

12-VOLT, 18 AMP HOUR SEALED LEAD ACID OR GEL BATTERY

1. Cables Condition: use a flashlight if necessary.
   a) Check the cables for general condition and attachment, evidence of corrosion, pitting, arcing and burns. Replace them if necessary.
2. Battery Condition: use a flashlight if necessary.
   - Check the battery for general condition, security and attachment.
   - Replace the battery if necessary.

CAUTION

Battery should be replace on condition, however, it is recommended to replace it every 2 years.

5.9.2.2 Wiring Harness Inspection

1. Check the condition, integrity, connection and security of the wiring harness (loose, damaged, burned) as follows:
   - Open the inspection window located on the fuselage´s nose and check the instrument panel wiring harness.
   - Inside the fuselage, check the wiring harness that goes to the engine (Fuselage and Pylon).
   - Inside the engine compartment, check the wiring harness condition.

5.9.2.3 Bilge Pump Inspection

1. General Condition: use a flashlight if necessary.
   - Check the cover (fabric) of the bilge pump. Remove the bilge pump body from its support if necessary and inspect for presence of dirty and correct operation of rotor (free rotation). Reinstall correctly after the inspection (bilge pump and cover).
2. Operational Condition: use a flashlight if necessary.

NOTE

Battery Master Switch must be OFF to complete this inspection.

- Check the correct operation of the bilge pump electrical system. Ensure the full functional of the ON/OFF switch on the instruments panel (flashing light).
- Pour water (approx. 5 liters) through the inspection window and make an operational check of the bilge pump.
- When the inspection is finished, clean the hull internally with water and remove all dirt and material loose which could obstruct the bilge pump. Drain the water from the washing using the bilge pump and clean the protection cover if necessary.

5.9.2.4 Fuses and Fuses Holders

Inspect as follows:

- Check the security of the fuse holder connections
- Inspect for presence of corrosion and evidence of overheating on fuses and fuse holders. Replace corroded fuses and clean fuse holders. If evidence of overheating is found, check for correct rating of fuse
- Check the security of fuse holder mounts
- Replace previously used spare fuses with appropriate rating fuses.

5.9.2.5 Other Components

Inspection of the components such as Elevator Electric Trim, Aileron Electric Trim, Instrument Panel Light, Dome Light, Nav / Strobe Lights, Landing Lights, Headphones Plugs, etc., should be performed as follows:

- Check for general condition and attachment.
- Check electrical terminals (connectors) for corrosion and general condition. Replace them if necessary.

5.9.3 Electrical System Maintenance, Repair and Overhaul

Repairs or alterations in the Electrical System are not authorized at this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br.

5.10 Structural Repair

Aircraft structural components are designed to perform a specific function or to serve a definite purpose. The main objective of the aircraft repair is to restore damaged parts to their original condition. Very often, replacement is the only way in which this can be done effectively.

Repairs or alterations on Structural Parts are not authorized at this time. To obtain engineering approvals for any repairs or alterations, please contact Scoda Aeronáutica at engineering@scodaero.com.br

5.11 Painting and Coatings

Super Petrel XP uses Polyurethane UHS paint as topcoat on flying surfaces as well as composite parts.

NOTE
Please refer to the latest edition of the FAA-H8083-31 A – Aircraft Maintenance Technician Handbook, Chapter 8. Aircraft Painting and Finishing.

Paint is more than aesthetics; it affects the weight of the aircraft and protects the integrity of the airframe. The topcoat finish is applied to protect the exposed surfaces from corrosion and deterioration. In addition, a properly painted aircraft is easier to clean and maintain. The exposed surfaces are more resistant to corrosion and dirt, oil does not adhere as readily to the surface.

5.11.1 Paint Code and Specification

Manufacturer: PPG

Description: Bco UHS White SPLS AIR

Composition:

Code	Quantity
Deltron D525	1.1
Deltron D528	3.9
Deltron D503	7.1
Deltron D500	1234.0

5.11.2 Painting Repairs

NOTE

It is recommended that all the following procedures be performed in a well-ventilated area, at temperatures between 68°F and 100°F (20°C - 37°C).

NOTE

Please refer to the latest edition of the FAA-H8083-31 A – Aircraft Maintenance Technician Handbook, Chapter 8. Aircraft Painting and Finishing

CAUTION

Before starting the repair, cover the plexiglass and doors.

Required Tools:	N/A
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

SAFETY RULES

When working with paints, thinners and solvents follow the following safety rules:

1. It is necessary to follow safety rules for working with flammable and volatile substances.
2. Working area should be properly ventilated.
3. Smoking and open flames are prohibited in the work area.
4. Use protective equipment such as goggles, gloves, respirator, etc.

CAUTION

By applying permanent protective coating, aircraft weight and balance are affected. The increases in weight depend on the type of coating and its thickness.

5.11.2.1 Puttying

- Preparing the surface for repair, sand it with 180-grit sandpaper as applicable in order to remove the brightness/gloss.
- Apply finishing pastes (Epoxy Filler, Polyester Paste with Catalyst and Gray Paste) in order to fill the cavities. Attempt to minimize the thickness of the repair by skimming the paste.
- Remove the excess finishing paste with a 120 – 220 grit sandpaper.
- Inspect the surface being repaired thoroughly for cavities needed to be corrected. If no defects found, the surface can be primed.

5.11.2.2 Priming

- Place the part being repaired into a paint room.
- Apply one layer of Primer.
- Place the part into a compartment with a temperature at least 68 °F (20 °C) for 1 hour.
- Smooth down the surface with a 320 grit sandpaper.

5.11.2.3 Painting

- Apply one layer of paint onto the surface being repaired so that it just covers the primer.
- Place the part into a compartment with a temperature at least 68 °F (20 °C) for 1 hour.
- As soon as the first layer of paint gets dry, apply the second layer of paint minimally needed to cover the first one.
- Place the part into a compartment with a temperature at least 68 °F (20 °C) for 12 hours.

5.11.2.4 Polishing

- Sand the surface that needs to be polished with 1500-grit Water Sandpaper.
- Apply Polishing Paste onto the surface and rub with smooth circular hand motions, applying light pressure.
- Continue polishing with a right-angle orbital polisher for a minimum of 2-3 passes.
- Clean the polished surface with a piece of cotton fabric in order to remove excess polishing paste.
- Apply Polishing crème to the surface with a dry cotton fabric to bring surface to a gloss. A right-angle orbital polisher can be used.

5.11.2.5 Method of Verification

- Touch the painted surfaces the finished surface should be smooth, no dents or bumps.
- Inspect painted surface visually from various viewpoints. Paint runs and unpainted areas are unacceptable. Quality of polishing should be the same as adjacent areas.

5.11.3 Corrosion, Inspection and Protection

Required Tools:	N/A
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

The information supplied here is as a general guideline only. It is by no means intended to be exhaustive, complete or authoritative.

It is important to keep the aircraft clean and to remove any collection of corrosive causing agents such as water, anti-freeze, oil, grease, dregs and other foreign matter.

To avoid damage to the finish, do not use polishing detergents. Original or equivalent corrosion prevention, if used, should be re-applied after any alteration or repair. If any trace of corrosion is detected it should be removed as soon as possible and the applicable part should be treated immediately to prevent further corrosion. Treatment consists of mechanically removing as much as possible of any corrosion by-products, applying corrosion inhibitor and replacing any original finish.

For more information in order prevent, control, identify, and treat various types of corrosion, refer to the latest edition of FAA ADVISORY CIRCULAR AC 43-13-1B, Chapter 6. Corrosion, Inspection and Protection.

NOTE
Refer to the latest edition of FAA ADVISORY CIRCULAR AC 43-4B, CORROSION CONTROL FOR AIRCRAFT for a more in-depth study on the detection and treatment of corrosion.

5.12 Revisions

Revisions to this maintenance manual can be located in the revision control page and the list of effective pages section.

5.13 Feedback Form

Reports, comments or difficulties in relation with the use of this manual are welcome by sending an email to: engineering@scodaero.com.br

6 Line Maintenance, Repairs, and Alterations

6.1 Authorization to Perform Line Maintenance, Repairs and Alterations

Any inspection, repair, and alteration outlined in this Section should be performed if the organization or individual holds the following maintenance rating:

- LSA Repairman Maintenance Certificate
- A&P Certificate
- iRMT Training (at least Service ROTAX® Aircraft Engines Rating)
- Super Petrel XP Maintenance Training (at least Line Maintenance Super Petrel XP Rating)

Typical Tasks Considered as Line Maintenance for LSA´s Include:

1. 100-h inspection / Annual Condition Inspection,
2. Servicing of Fluids,
3. Removal and replacement of components for which instructions are provided in the maintenance manual,
4. Repair of components and structure for which instructions are provided in the maintenance manual and which do not require specialized training.

Guidance for accomplishing such maintenance, repairs, alterations, and inspections is contained in this manual and should be accomplished in accordance with the practices described in the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – ACCEPTABLE METHODS, TECHNIQUES, AND PRACTICES – AIRCRAFT INSPECTION AND REPAIR.

6.2 Line Maintenance Tasks

6.2.1 100-h Inspection / Annual Condition Inspection

Refer to Inspection´s Section 5.2 of this manual for 100-hour / Annual Inspection requirements

6.2.2 Servicing of Fluids

This information gives the general servicing procedures and maintenance practices that are to be used when servicing the aircraft.

For additional detailed information concerning the unit servicing of the engine, refer to the applicable chapters of the Manufacturer's Engine Manual.

For tire pressure information, please refer to Tire Inflation Pressures Section of this Manual.

The intervals specified in this section are considered adequate to meet average requirements under normal operating conditions. It is advisable to shorten the service and maintenance intervals when operating under abnormal environmental conditions, such as high humidity and moisture, salt-water environments, dusty atmospheric conditions and extreme temperature ranges. In salt-water areas, special care should be taken to keep the engine, accessories, and airframe clean to help prevent oxidation and corrosion.

6.2.2.1 Oil Check and Replenish

1. Remove the upper engine cowling.
2. Follow the instructions described in the last revision of the Rotax Line Maintenance Manual, Oil Level check / Replenish Section.
3. Reinstall the upper engine cowling.

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.

6.2.2.2 Oil Change

NOTE

According to the last revision of the Rotax Line Maintenance Manual oil change should be carry out every 50 hours.

1. Remove the upper and lower engine cowling.
2. Before removing the oil tank, make a mark on the oil tank and upper wings rectangular support. This mark will help to reinstall the oil tank in the same position which was installed originally.
3. Follow the instructions described in the last revision of the Rotax Line Maintenance Manual, Oil Change Section.
4. After carrying out the oil change reinstall the oil tank in the aircraft.

CAUTION

The oil tank should be installed following the mark which was made in the step above.

CAUTION

Do not tighten the oil hose´s nut to the maximum.

CAUTION

Oil system lines should be properly reinstalled in the oil tank and not rubbing against the structure. Also it should be avoided dents, bulges and signs of damages in the oil lines that might restrict the oil flow or cause a leak.

5. Reinstall the upper and lower engine cowling.

6.2.2.3 Coolant Replacement

NOTE
This procedure should be accomplished every 5 years.

NOTE
Coolant replacement should be performed according to the Rotax original manuals.

NOTE
See the latest edition of engine manufacturer's Service Information SI-915i-001.

Types of coolant	As per Rotax 912 iS Sport Engine original manuals.
• (Recommended: Conventional Coolant 50 / 50) **Honda Genuine Coolant Type 2 – All season antifreeze.**	
• **Coolant replacing procedure should be performed as per Rotax Instructions**	
• **Recommended Coolant Level:** it should be in the middle of the overflow bottle.	

6.2.2.4 Lubrication Table (Line Maintenance)

SECTION	LUBRICATION AREA	VIEW	NUMBER OF SERVICE POINTS	INTERVAL	LUBRICANT
ENGINE	Oil Reservoir		1	Every 50h (As per Rotax Maintenance Manual)	AeroShell Sport Pus 4
	Throttle Cable		2	Every 100h	Chain Lube
FUSELAGE	Elevator Control Push-Pull Tube		1	Every 100h	Chain Lube
	Aileron Control (Inside Pylon)		3	Every 100h	Chain Lube
	Joystick Assembly (Movable Joints)		8	Every 100h	Chain Lube
	Pedals (Movable Joints)		4	Every 100h	Chain Lube
	Rudder Cables and Movable Joints		4	Every 100h	Chain Lube
EMPENNAGE	Elevator (Movable Joints)		4	Every 100h	Chain Lube
	Electric Trim Tab Hinges		3	Every 100h	Chain Lube
	Rudder Cables and Movable Joints		4	Every 100h	Chain Lube
WINGS	Aileron Rod End		2	Every 100h	Chain Lube
	Aileron Hinges		8	Every 100h	Chain Lube
	Electric Trim Tab Hinges		2	Every 100h	Chain Lube
NOSE LANDING GEAR	Axle		1	Every 100h	Graphite or Nautical Grease
	Articulated Joints		7	Every 100h	Chain Lube
MAIN LANDING GEAR	Axle		2	Every 100h	Graphite or Nautical Grease
SHOCK ABSORBERS	Rod Ends		4	Every 100h	Chain Lube or Nautical Grease

6.2.3 Removal and Replacement of Components

NOTE
Check the List of Disposable Replacement Parts for consulting Part Number and Supplier of the Items.

NOTE
SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

6.2.3.1 Plexiglass

Required Tools:	As applicable
Parts and Materials Required:	Bidirectional Fiberglass 160 g/m^2
	Peel Ply 85 g/m^2
	Epoxy resin – HTR-212 LAMINATING RESIN (Aircraft Spruce P/N: 01-00430) or similar
	Structural Adhesive – Hysol or similar
	Flocked Cotton Fiber or Microballoon (glass bubbles)
	Sand Paper #80
	Sand Paper #180
	Masking tape
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

1. Remove the old Plexiglass.
2. Clean all the residual material from the structure, sand with Sand Paper #80.

NOTE
It is recommended to cover the new Plexiglass with paper or a plastic film in order to avoid damages during handling and installation.

3. Make a dry installation of the Plexiglass on the structure.
4. Prepare the Plexiglass by sanding the area where will be glued. Use a Sand Paper #180.
5. Apply structural adhesive on the Plexiglass and structure.
6. Install the Plexiglass and remove the excess of structural adhesive.
7. Cover the junction Plexiglass-Structure with masking tape.
8. Leave to cure for 24hr.

9. Remove the masking tape and prepare the surface for laminating.
10. Laminate two layer of Bidirectional Fiberglass 160 g/m^2 over the junction.
11. Apply one layer of Peel Ply 85 g/m^2.
12. Leave to cure for 24hr.
13. Perform finishing and painting. Refer to the Section 5.11 Painting and Coatings of this Manual.

6.2.3.2 Fuel Filter Replacement

Required Tools:	Ear Clamp Plier (1 pc)
	Combined Wrench 17 mm (1 pc)
	Combined Wrench 1 inch (1 pc))
	Torque Wrench (1 pc)
	Tray
	ANDAIR Inline Fuel Filter 3/8'' 62 Micron P/N FX375-M
	ANDAIR Spare O-ring for FX375 Filters P/N ORO30x15
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

ANDAIR FX375-M

1. Remove the lower baggage compartment.
2. Close the Fuel Shut Off Valve and Fuel Selector Valve.
3. Remove the old fuel filter.

NOTE

Use a tray in order to collect the small quantity of residue fuel.

4. Install the hose fittings onto the new fuel filter. Apply a torque between **75 - 125 in-lb (8.5 - 14 N.m).**

NOTE

Torque recommended for hoses with outside diameter of 3/8 inches and Fittings - 6. Reference: FAA-H-8083-30A – Aviation Maintenance Technicians Handbook.

5. Install the new fuel filter in the fuel lines.

NOTE

Check for the flow direction that is indicated on the fuel filter housing.

NOTE

Replace the O-Ring of the fuel filter as necessary.

6. Install new ear clamps.
7. Open the Fuel Shut Off Valve and Fuel Selector Valve and check for leakage.
8. Engine running test recommended prior to flight.
9. Install the lower baggage compartment.

6.2.3.3 Battery Replacement

Required Tools:	Combined Wrench 8 mm
Parts and Materials Required:	N/A
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

Super Petrel XP uses a 12-volt, 18 AMP Hour sealed lead acid or gel battery, which is located in front of the rudder pedals.

To remove and/or replace the battery, follow the steps:

1. Open the inspection door.
2. Disconnect the two battery connector leads, negative side first.
3. Remove the attachment ribbon.
4. Remove the Battery.

The battery installation follows the same steps in a reverse sequence.

WARNING

DO NOT REPLACE THE SEALED LEAD ACID BATTERY BY A WET LEAD ACID BATTERY.

6.2.3.4 Instruments

Required Tools:	As Applicable
Parts and Materials Required:	As Applicable
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

Replacement should be made according to the Original Equipment Manufacturers Installation Manual as applicable.

NOTE
Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices, Chapter 12. Aircraft Avionics Systems.

6.2.3.5 Filling Brake System

Required Tools:	As Applicable
Parts and Materials Required:	BERINGER Pressure bleeder kit
	Rags
	Safety goggles
	Optional : Syringe
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

NOTE
This procedure should be accomplished every 5 years or every 1000 hours.

NOTE
For detailed information and procedure please refer to the Servicing Manuals from Beringer Aero MM-00-003 Bleeding Procedure.

NOTE
Even though this procedure applies with other equipment, Beringer recommends Beringer Bleeding kit equipment, granting the best efficiency.

Bleeding the brake system aims at replacing the brake fluid and remove all air bubbles from the circuit. A proper bleeding is the key to avoid spongy brakes and loss of brake torque.

PRECAUTIONS:

- Protect the disc and pads from fluid contamination. During bleeding, if brake fluid contaminates the disc and pads do the next operations: change the brake pads by new ones and clean the disc.
- Brake pads are porous and cannot be cleaned if contaminated by the fluid, they must be replaced by new ones. Clean the disc separately from the brake calipers.
- The brake bleeder screw should be opened 3/4 to 1 turn to allow a sufficient fluid flow of around 0.15 to 0.20 Liter per minute.

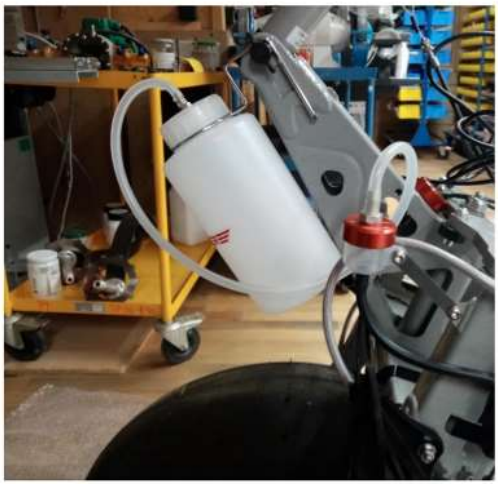
BLEEDING PROCEDURE:

NOTE
With pilot/ copilot master-cylinders configuration, bleeding might not work if copilot master-cylinders are not disconnected from plane and placed horizontally with fittings up during bleeding.

1. Ensure to have the adequate brake fluid corresponding to your system.

2. Fill the pressure bottle with the brake fluid.

3. Connect the reception bottle to the reservoir



4. Plug the pressure bottle to the bleeding screw of the caliper.

5. Inflate pressure bottle to around 1.5 bar / 21.8 psi (do not exceed 2 bars / 29 psi).

6. Unscrew bleeding screw and let the brake fluid flow in the reception bottle until there is no more bubbles appearing in the circuit.

7. Fully depress then slowly release the pedals 3 times.
8. Repeat the above step until air bubbles are no longer seen exiting the brake caliper.
9. Ensure there is no more bubble circulating before closing the circuit by screwing the bleeder screw on the caliper.

10. Deflate pressure bottle by pressing silver button on its side.

11. Disconnect the reservoir cap and membrane.

12. Disconnect hose from bleeding screw.

13. Remove bleeding cap.

14. If necessary, adjust fluid level from reservoir using a syringe or a rag (lower the fluid level by about 5mm / 0.2” (from the top, below Max level indicated).

15. Check pedal or lever firmness.

<u>To fill the brake system, follow the procedure described below:</u>

1. Disconnect the oil reservoir from its support and with assistance, hold it in a position higher than the master cylinders;

2. Attach the oil-can to a brake assembly lower valve, open it and pump oil through the line (As shown below). Notice that as you are pumping oil through the brake line, bubbles of air will flow to the master reservoir. Soon the oil will reach and fill the reservoir;

3. Close the valve, disconnect the filling tube and repeat with the other brake assembly. Ask your assistant to fill the oil reservoir with brake fluid;

4. After closing the valve, disconnect the filling tube from the oil can and leave it in an empty can;

5. Ask your assistant to pump the respective brake pedal several times and then keep it pressed while you open the valve allowing the oil and bubbles to spill out;
6. Close the valve and repeat the process. Notice that each time you repeat the process, the pedals will get harder, because the amount of air bubbles is diminishing;
7. Fill the oil reservoir, because it tends to empty;
8. Do the same process to the other brake line and when noticing that the lines are free of air bubbles, fill the reservoir as required and reinstall.

CAUTION

Be careful to avoid spilling oil, in particular, on painted parts, because the oil is corrosive and can cause damages.

6.2.3.6 Brake Pads and Discs Replacement

Required Tools:	As Applicable
Parts and Materials Required:	Flat Pliers
	Cutting Plies
	Safety Wire Twister
	Grease (Nautical grease or similar)
	Torque Wrench
	Thread Locker (Loctite 243 or equivalent)
	Paint marker
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

NOTE

Lift the aircraft following the instructions **5.1.9.1 Ground Handling**.

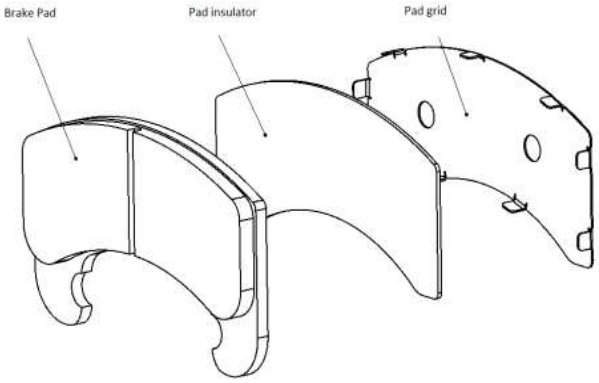
NOTE

For detailed information and procedure please refer to the Servicing Manuals from Beringer Aero MM-02-003 Main Wheels Removal and Installation; and MM-01-003 Pads and Disc Procedure.

Disc and brake pads technology is the same across all BERINGER brake systems though the size is different depending on brake model. Therefore, the pads replacement procedure is common to all. The pictures used to illustrate this procedure can be different from your brakes. However, principle remains the same

PRECAUTIONS:

- For brake pad replacement, do it on both sides. For disc replacement, you must also change brake pads on both sides.
- In no case the pads liner shall be in contact with hydraulic fluid; if this happens, replace the pad.



REMOVAL PROCEDURE:

1. Remove the main wheel as follows:
   - Remove the wheel cap.


   - Use a flat pliers to remove the cotter-pin.


   - Unlock and unscrew the main axle nut / bolt using a wrench.

- Use a cutting pliers to remove the safety wire retaining brake disc.

- Pull the wheel off the axle.

NOTE

Check the orientation of the disc in order to mount it the same orientation if you have to.

NOTE

Do not disconnect the hydraulic fittings from the brake, and leave the brake backplate on the axle.

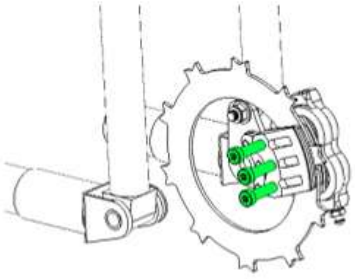
CAUTION

Be careful while pulling the wheel that the disc does not fall.

CAUTION

Don't activate the master cylinder while operating.

2. Remove the all assembly screws.



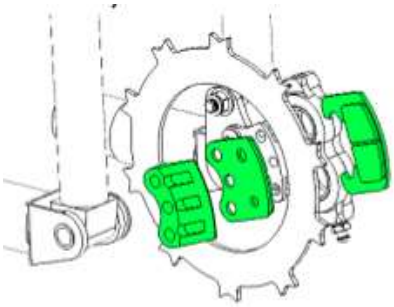
NOTE

Leave the disc in place if it is not necessary to replace it.

CAUTION

Do not apply pressure in the hydraulic system during this phase.

3. Remove brake pads.



4. Remove brake disc if needed.
5. Clean around piston area with a clean piece of cloth.
6. Grease around piston with silicon grease.
7. Push back completely the pistons back with your fingers.
8. Wipe excess of grease.

CAUTION

Never push back the pistons using a tool or a press.

CAUTION

Do not use any type of brake cleaner.

ASSEMBLY PROCEDURE:

1. Install the new disc.

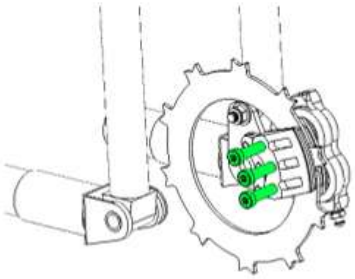
NOTE

Always degrease a new disc before installation.

CAUTION

Place the disc with its flat face on the wheel side.

2. Apply a drop of thread-locker (LOCTITE 243 or equivalent) on assembly screws thread.
3. Put and maintain the new pads and the backplate in the right position and re-install the 3 assembly screws.



4. Torque-tighten the assembly screws to 25 Nm (220 lb-in).
5. Mark the assembly screws position with a paint marker.
6. Reinstall the main wheel as follows:
   - Grease the axle on the bearing surfaces with nautical grease or similar.



   - Mount the wheel on the axle.

- Match the ears of the disc with the rim ones.

- Push the rim against the disc and the axle.
- Screw the main axle nut / bolt using a torque wrench.

- Use a flat pliers to install a new cotter-pin.

- Mount the wheel cap.

- Use a cutting pliers to install the safety wire retaining brake disc.

NOTE
Make sure that the safety wire coincides with every ears. The wire shall be tensed and pass in every groove of the wheel.

- Torsade the safety wire 5 times, cut the excess of the wire then refold the torsade inside the rim.

6.2.3.7 Bearing Replacement

6.2.3.7.1 Nose and Main Wheels

Required Tools:	Heat gun
	Snap-ring caliper
	Flat Pliers
	Punch Pin
	Nylon Hammer
	Cutting Pliers
	Safety Wire Twister
	Torque Wrench
Parts and Materials Required:	Bearing for Nose and Main Wheels (See Section 5.1.3 List of Disposable Replacement Parts)
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

NOTE
Use only a bearing approved by BERINGER. There are many different qualities in bearings and most of them are not compliant with BERINGER requirements.

CAUTION

Do not re-install a bearing that was removed from a wheel, even if is in new condition.

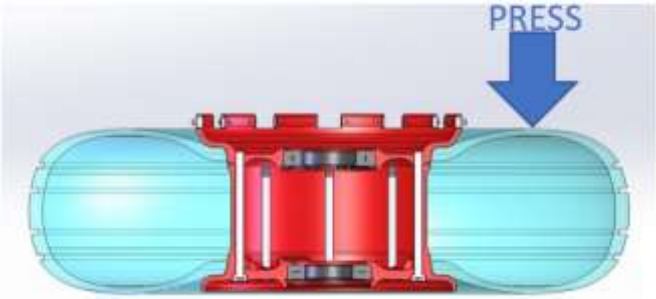
CAUTION

Do not attempt to install or remove the bearing without heating the wheel flange. This could damage the bearing bore.

1. Lift the aircraft
2. Remove the wheel.
3. Deflate completely the tire.
4. Remove the valve core.
5. Brake the tire beads away from the wheel flanges by applying pressure by feet or using a vise.

CAUTION

Be careful to not damage the inflation valve, use a spacer if necessary.



6. Remove assembly screws holding wheel halves together.

CAUTION

Do not remove assembly screws before the tire beads are fully free from the wheel.

7. Separate wheel halves, remove the tire and O-ring.
8. Carefully lay the wheel halves on a flat clean bench.
9. Remove bearing circlips with a snap-ring plier.
10. Make sure all rubber seals, wheel valve and circlips have been removed before heating.
11. Heat a wheel half using a heat gun at 110°C to 120°C (230°F to 248°F) for 30 minutes.

CAUTION

Temperature must in no case be over 150°C (302°F) for not damaging anodized coating.

12. After the wheel half is heated, remove immediately the bearing. Use a nylon hammer and a punch pin gently for removing it.
13. Repeat the same process with the other wheel half and remove the other bearing.
14. Before installation of the new bearings, make sure that the inside bore of wheel half is clean and dry.
15. Heat a wheel half using a heat gun at 110°C to 120°C (230°F to 248°F) for 30 minutes.

CAUTION

Temperature must in no case be over 150°C (302°F) for not damaging anodized coating.

16. After the wheel half is heated, install the bearing into the bore of heated wheel. Use a nylon hammer and a punch pin gently for installing it.
17. Install new snap rings and make sure they are correctly seated in their groove.

CAUTION

Snap rings maintain bearings, if they are not in place the bearing can slide out and cause the blocking of the wheel.

18. Assemble the wheel.
19. Reinstall the wheel on the aircraft.

6.2.3.8 Nose Gear Doors Replacement

Required Tools:	As Applicable
Parts and Materials Required:	As Applicable
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

NOTE

SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

1. Lift the nose of the aircraft up.
2. Remove the old nose gear doors.
3. Place the new nose gear doors without installing the pin and adjust with the fuselage structure.

NOTE
It is possible to make a fine adjustment by sanding the new doors structure.

4. Install the pins.
5. Perform the finishing and painting of the component if necessary.

6.2.3.9 Shock Absorber Calibration and Replacement

Required Tools:	As Applicable
Parts and Materials Required:	As Applicable
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

NOTE
Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices, Chapter 9. Aircraft Systems and Components, Section 1. Inspection and Maintenance of Landing Gear.

NOTE
Please refer to the latest edition of the FAA-H-8083-31-AMT-Airframe-Vol-2 – Aviation Maintenance Technician Handbook Airframe, Vol. 2 Chapter 13. Aircraft Landing Gear Systems.

The shock absorber of the Super Petrel XP is constructed of two telescoping cylinders or tubes that are closed on the external end. The upper cylinder is fixed to the aircraft landing gear retraction system and is free to slide in and out of the lower cylinder. The lower cylinder is fixed to the main landing gear leg.

6.2.3.9.1 Shock Absorber Inspection

Shock absorber should be inspected for evidence of leaks, cracks, and possible bottoming out of the piston, as the condition causes overloading of landing gear components and contributes to fatigue cracks. Check all bolts, bolts holes, pins, and bushings for condition, lubrication and proper tightening.

- **Calibration** of the shock absorber should be made while the aircraft is on the ground, presents symptoms of bend/sagging outward of the landing gear legs **(See Section 6.2.3.9.2 Shock Absorber Calibration).**

- **Replacement** of the shock absorber should be made when the component presents evidence of leakage **(See Section 6.2.3.9.3 Shock Absorber Replacement).**

6.2.3.9.2 Shock Absorber Calibration

CAUTION

Either too much or too little air or oil will affect aircraft handling characteristics during taxi, takeoff, and landing, and can cause structural overloads.

Insufficient fluid or air in the shock absorber, will cause the compression stroke to not be properly limiting. The shock absorber could bottom out, resulting in impact forces to be transferred directly to the airframe through the shock absorber structure.

WARNING

THE TECHNICIAN MUST BE THOROUGHLY FAMILIAR WITH THE OPERATION OF THE HIGH-PRESSURE SERVICE VALVE FOUND AT THE TOP OF THE SHOCK ABSORBER UPPER CYLINDER.

1. Lift the aircraft. Shock absorber must be expanded, there should be zero load (weight) on it.
2. Remove the cap from the servicing valve located on the upper cylinder.
3. Using a sharp object activate the servicing valve for 1/100 seconds. This step is to make sure the valve is operating freely.
4. A threaded fitting from a controlled source of nitrogen should be screwed onto the servicing valve.
5. Inflate the shock absorber. The servicing of nitrogen pressure is:

   Shock Absorber: 522 psi (36 bar)

CAUTION

Shock absorber should always be inflated slowly to avoid excess heating and over inflation.

6. Once inflated, it is recommended to wait for 10 seconds.
7. Remove the controlled source of nitrogen from the servicing valve.
8. Install the cap onto the servicing valve.

NOTE

SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the FAA-H-8083-31-AMT-Airframe-Vol-2 – Aviation Maintenance Technician Handbook Airframe, Vol. 2 Chapter 13. Aircraft Landing Gear Systems.

6.2.3.9.3 Shock Absorber Replacement

NOTE

SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

1. Lift the aircraft.
2. The landing gear should be lowered.
3. Loosen the bolt or pin of the lower cylinder.
4. Loosen the bolt or pin of the upper cylinder.
5. Remove the shock absorber.
6. Install the shock absorber. Execute this process in reverse of the removing process.

CAUTION

Do not forget to install the bushing in the shock absorber ends.

CAUTION

When installing the nuts, these should be tightened until they are secure and then back one thread. The bolt should be able to move freely in order to not restrict the mechanism.

6.2.3.9.4 Shock Absorber Specification

DESCRIPTION	QUANTITY	SCODA PART NUMBER
Shock Absorber	2	UA2000004D40

6.2.3.10 Wiring and Connectors Replacement

Required Tools:	As Applicable
Parts and Materials Required:	As Applicable
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

NOTE

Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices, Chapter 11. Aircraft Electrical Systems.

Wiring must be replaced with equivalent wire when found to have any of the following defects:

- Wiring that has been subjected to chafing or fraying, that has been severely damaged, or that primary insulation is suspected of being penetrated;
- Wiring of which the outer insulation is brittle to the point that slight flexing causes it to crack;
- Wiring having weather-cracked outer insulation;
- Wiring that is known to have been exposed to electrolyte or on which the insulation appears to be, or is suspected of being, in an initial stage of deterioration due to the effects of electrolyte;

- Check wiring that shows evidence of overheating (even if only to a minor degree) for the cause of the overheating;
- Wiring of which the insulation has become saturated with engine oil, hydraulic fluid, or another lubricant;
- Wiring that bears evidence of having been crushed or severely kinked;
- Shielded wiring of which the metallic shield is frayed and/or corroded. Cleaning agents or preservatives should not be used to minimize the effects of corrosion or deterioration of wire shields;
- Wiring showing evidence of breaks, cracks, dirt, or moisture in the plastic sleeves placed over wire splices or terminal lugs;
- When replacing wiring, identify them properly at both equipment and power source ends.

6.2.3.11 Hoses and Lines

Required Tools:	As applicable
Parts and Materials Required:	As applicable
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

NOTE

Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices.

Generally hoses are manufactured from synthetic rubber, their limited service life depends on factors such as age, shelf life, temperature (ambient and fluid), and other environmental conditions.

6.2.3.11.1 Hose and Line Inspection

To assure the continued hose and line integrity, it is recommended to accomplish an inspection each 100 hours or annually.

Hoses and lines should be inspected for leakage, cracks, kinks, and security of mounting. Check clamps for tightness and condition. Ensure that hoses and lines do not interfere with adjacent equipment or lines. Make sure that they are not kinked, and not in contact with hot, moving parts or sharp edges.

6.2.3.11.2 Hose and Line Replacement

NOTE

Hoses and lines should be replaced on condition, however, it is recommended to replace them every 10 years.

NOTE

All rubber parts including engine mounts, hoses and lines which are part of the Powerplant must be replaced every 5 years as per Rotax recommendation.

NOTE

All GENUINE ROTAX® silicon hoses need to be checked by “on condition” as per Rotax recommendation.

When replacement of a flexible line is necessary, use the same type, size, part number, and length of hose as the line to be replaced. During the reinstallation of the hose assemblies, consider the following precautions:

- Ensure the hose is not twisted. High pressures applied to a twisted hose can cause failure of the hose or loosening of the fitting.
- Provide a large bend radius (as much as allowable), however, never use a bend radius less than the minimum specified by the hose manufacturer.
- Do not attempt to straighten a hose having a bend in it as this could result in damage to the hose. Rubber hoses will take a permanent set during extended service periods. Care should also be taken during removal and reinstallation of such hoses to assure that are not bent excessively and that they are returned to their original position.

NOTE
SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

6.2.4 Repairs of Components

6.2.4.1 Repair of Non-Structural Composite Components

Required Tools:	As applicable
Parts and Materials Required:	As applicable
Type of Maintenance:	Line Maintenance
Level of Certification:	LSRM, A&P

Damage to non-structural composite components may be repaired using techniques described in the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B – Acceptable Methods, Techniques and Practices

NOTE
For further information regarding repair of Non-Structural Composite Components please contact Scoda Aeronáutica at engineering@scodaero.com.br

6.2.4.2 Stop Drilling Cracks

Stop Drilling Cracks procedures are not authorized at this time. To obtain engineering approvals for any Stop Drilling Cracks procedures, please contact Scoda Aeronáutica at engineering@scodaero.com.br

6.2.5 Alterations

6.2.5.1 Compliance with Manufacturer's Service Directives

Service directives are issued in the form of (NOA) Notice of Corrective Actions (Safety Alert, Service Bulletin or Notifications).

All NOA will be primarily published online and readily accessible on http://www.scodaeronautica.com.br/avioes/index.php?pagina=blog. In addition, these will be sent to the email address of the known Super Petrel XP Owner / Operators.

7 Heavy Maintenance, Repairs, and Alterations

7.1 Authorization to Perform Heavy Maintenance, Repairs and Alterations

Any inspection, repair, and alteration outlined in this Section should be performed if the organization or individual holds the following maintenance rating:

- LSA Repairman Maintenance Certificate
- A&P Certificate
- Super Petrel XP Maintenance Training (at least Heavy Maintenance Super Petrel XP Rating)

Typical Tasks Considered as Heavy Maintenance for LSA´s Include:

1. Removal and Replacement of Components.
2. Repair of Components or Aircraft Structure.
3. Alterations of Components or Aircraft Structure.

7.2 Heavy Maintenance Tasks

7.2.1 5 Years / 1000 Hours Inspection

Detailed inspection accomplished every five (5) years or 1000 hours of flight. This inspection must be made by the Aircraft Manufacturer or a Mechanic / Repairman, which has received a **Heavy Maintenance Super Petrel Training** to perform this inspection**.**

The scope of this inspection is specified in the Appendix Section of this Manual **(Heavy Maintenance Inspection Form)**.

7.2.1.1 Electric Fuel Pumps Replacement (Main and Auxiliary)

NOTE
Electric Fuel Pumps should be replaced on condition, however, it is recommended to replace it every 1000 hours.

NOTE
Refer to the latest edition of Maintenance Manual (Line Maintenance) for ROTAX Engine Type 915i A Series supplied by the manufacturer.

7.2.1.2 Empennage Assembly Inspection

NOTE
Tail Cone of the aircraft is glued on the fuselage.

NOTE

Cracks on the paste are not considering as structural damages.

1. Remove rudder, elevators and horizontal stabilizers.
2. Inspect the Tube of the Vertical Stabilizer for general condition, cracks, alignment of the internal holes.
3. Inspect the Vertical Stabilizer and Tail Cone for general condition, bulkhead fixation, rudder supports fixation, bushings and rudder stops.
4. Inspect the articulation bearings located in the elevator control rod, elevator bellcranck and fixation plate of the horizontal stabilizer for general condition, corrosion and fixation.
5. Inspect the Vertical Stabilizer and Tail Cone for general condition, impact damages, corrosion, stains, dents.
6. Inspect the hinges and bushings of the Horizontal Stabilizers for general condition and fixation.
7. Inspect the Horizontal Stabilizers for general condition, impact damages, corrosion, stains, dents.
8. Inspect the hinges and pins of the Elevators for general condition and fixation.
9. Inspect the fixation bolts of the Elevators for fixation and corrosion.
10. Inspect the Elevators for general condition, impact damages, corrosion, stains, dents
11. Inspect the Electric Trim Tab for general condition, impact damages, corrosion, stains, dents.
12. Inspect the hinges, pins, control rod of the Electric Trim Tab for general condition, corrosion and fixation.
13. Inspect the electrical installation of the Electric Trim Tab for general condition, corrosion of the connectors, routing, and friction with structure.
14. Perform a test of the Electric Trim Tab and check the proper operation.
15. Inspect the Bellcranck and Fixation Bolt of the Rudder for general condition, corrosion and fixation.
16. Inspect the Rudder for general condition, impact damages, corrosion, stains, dents.
17. Install the horizontal stabilizers, elevators and rudder. Re-Torque the empennage fixation bolts. ***(See the Recommended Fastener Torque Values Section of this Manual 5.1.8).***

7.2.2 10 Years Inspection

Detailed inspection accomplished every ten (10) years. This inspection must be made by the Aircraft Manufacturer or a Mechanic / Repairman, which has received a **Heavy Maintenance Super Petrel Training** to perform this inspection**.**

The scope of this inspection is specified in the Appendix Section of this Manual **(Heavy Maintenance Inspection Form)**.

7.2.3 Teleflex Cable Inspection

NOTE

Teleflex Cable should be replaced on condition, however, it is recommended to replace every 10 years.

1. Inspect the Teleflex Cable for looseness. Check looseness between joysticks.
2. Check the smoothness of the control command (pitch and roll).

3. Inspect the rod ends of Teleflex Cable for general condition, corrosion and fixation.

4. Replace the Teleflex Cable if necessary.

7.2.4 Rudder Cables Inspection

NOTE

Rudder Cables should be replaced on condition, however, it is recommended to replace every 10 years.

1. Inspect the Rudder Cables for general condition, fixation and corrosion.

NOTE

Please refer to the latest edition of the FAA ADVISORY CIRCULAR AC 43.13-1B Acceptable Methods, Techniques and Practices - Aircraft Inspection and Repairs - Chapter 7. AIRCRAFT HARDWARE, CONTROL CABLES, AND TURNBUCKLES

2. Inspect the Rudder cables for friction with the aircraft structure.

3. Inspect the guidance of the rudder cable which is located inside the fuselage floor for general condition, fixation and position.

4. Replace the Rudder cables if necessary.

7.2.5 Wings Assembly Inspection

NOTE

For this inspection should be necessary to remove the wings and struts. Please refer to the Section 12.7 Assembly Quick Guide of this manual for guidance.

NOTE

Cracks on the paste are not considering as structural damages.

1. Remove the lower wings. Disconnect vent and fuel lines.

2. Remove the V-struts.

3. Remove the upper wings. Disconnect the electrical cables and vent lines.

7.2.5.1 Lower Wings Inspection

1. Inspect the wing root for general condition, forward and rear fixation part for corrosion.

2. Inspect the V-struts support for corrosion.

3. Inspect the fuel output point for general condition and fixation.

4. Inspect the fuel tank for leakage.

7.2.5.2 Upper Wings Inspection

1. Inspect the wing root for general condition and rear part for corrosion.
2. Inspect the main spar for general condition and bushing fixation.
3. Inspect the Main Strut, V-strut and Jury Strut support for corrosion.

7.2.5.3 Struts Inspection

1. Inspect the Main Struts for general condition, corrosion, dents, stains and impact damages.
2. Inspect the fixation main struts terminals and general condition of the rivets.
3. Inspect the Teflon bushing of the terminal for general condition and fixation.
4. Inspect the V-strut for general condition, corrosion, dents, stains and impact damages.
5. Inspect the rivets of the V-strut for general condition.
6. Inspect the Jury Strut for general condition, corrosion, dents, stains and impact damages.

7.2.5.4 Wings Assembly Installation

1. After inspection of the wings assembly, install all the components following the steps described in the **Section 12.7 Assembly Quick Guide of this Manual.**

7.2.6 Composite Structure Inspection

1. Inspect the composite structures for general condition, impact damages, corrosion, stains, and dents.
2. If the inspection made in the step 1 is considered by the mechanic as not satisfactory, it should be performed a special inspection on the composite structures according to the Scoda Service Instruction - Composite Structure Inspection. In this case the aircraft manufacturer should be consulted for further assessment.

NOTE
The Service Instruction – Composite Structure Inspection is a Scoda´s internal document.

7.2.7 Structural Repairs – Standard and Practices

This section contains information and procedures applicable to all composite repairs. The basic elements of successful repair are; preparation of the laminate and repair material, proper mixing of resin, technique, and complete cure cycle. If any element is not properly executed the repair will be substandard.

7.2.7.1 General Safety Information

In the production of composite parts all used types of resins, hardeners, separators, paints, solvents are hazardous when direct contact with skin and mucous membranes. When perform structural repairs, it is recommended to follow this safety information:

- Use protective clothing, respiratory protective equipment and googles.
- When laminating use undamaged latex gloves, which go for wristbands. Damaged gloves immediately replace with new ones.
- Avoid eating, drinking, smoking and manipulating with fire during the repair process.

7.2.7.2 Level of Certification

The person carrying out the repairs must be trained in composite repair techniques. The instructions specified in this section are not sufficient guidance to allow an otherwise un-trained person to successfully complete the repair.

NOTE
SCODA AERONÁUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

Type of Maintenance:	Heavy Maintenance
Level of Certification:	Task Specific

Task Specific: Items that can be expected to be completed by a responsible individual who holds either a mechanic certificate or a repairman certificate and has received task specific training provided by the manufacturer of the aircraft to perform the task.

7.2.7.3 Repair Classification

The described procedures concern only to relatively minor damage. Large-scale repairs may be performed only by the manufacturer or authorized repair station. Every materials used for repairs must be suitable for the appropriate repair. Before repairs provide needed fabrics reserve in sufficient quantity. Fabrics are sensitive to moisture: therefore, they need to be properly stored in a cool, dry, dark place. For proper storage of resin and fabric, it is necessary to follow the manufacturer´s recommendations.

Composite structures cannot be laminated with relative atmospheric humidity above of 60%. It is not recommended to mix epoxy materials with temperature below of 18°C (64.4 °F).

The repairs are divided in classes according to the influence of the aircraft airworthiness:

A. REPAIR CLASS 1

Large damages which require a partial replacement of the airframe or large repairs of main structure can be carried out only by the aircraft manufacturer itself or a repair workshop approved by the manufacturer. The repair procedure is not provided and must be prepared individually after damage examination.

B. REPAIR CLASS 2

Destruction of the whole shell (also the inner laminate is destroyed), however small size only.

C. REPAIR CLASS 3

Simple surface damage (only the outer laminate is damaged)) and small damage of the foam filling.

D. REPAIR CLASS 4

The damages caused by the scores and the scrapes without the outer laminate damage and without the breakage of the element.

7.2.7.4 Materials

A. EPOXY SYSTEM

- Resin
- Hardener

NOTE
The mixing proportion must be observed as exactly as possible. Mixture of a resin and a hardener must be stirred thoroughly until there are no cloudiness and no bubbles in a vessel.

B. FABRICS

- Unidirectional Fiberglass Cloth
- Bidirectional Fiberglass Cloth
- Unidirectional Carbon Fiber Cloth
- Bidirectional Carbon Fiber Cloth
- Carbon / Kevlar Cloth
- Peel Ply (Optional)

C. FILLERS

- Quartz Powder (anti abrasive load)
- Flocked Cotton Fiber
- Microballoon (glass bubbles)

7.2.7.5 Repair Preparation

- Repair extend size should be extend minimum 1 inch (25mm) in all directions around the damaged area. The surface must be prepared beyond this limit to provide proper bonding of the new material.
- Sand off surface coatings including paint and gel-coat to expose the structure. Some residual paint may remain, however the visible surface must be minimum of 80% bare composite.
- 100 Grit sandpaper (or similar) may be used.
- Wipe the surface down using a clean rag moistened with Acetone or similar. This is to remove any residual oils or other surface contaminants. Once this step has been completed care must be taken to not introduce any new contaminants – i.e. gloves must be worn to prevent skin oils reaching the surface.
- Lightly sand the surface to present a fresh face to the repair materials. Blow off dust using clean, dry air.

7.2.7.6 Typical Lay-Up Procedure

The plies are usually placed using the smallest ply first taper layup sequence, therefore the last layer of reinforcing fabric should covers the work area.

General Recommendations:

- Ensure atmospheric conditions are appropriate for the materials being used – many epoxy resin systems have maximum humidity limits and must not be used outside these limits.
- Apply a light coat of Epoxy resin to the surface before applying the first layer of cloth. In some cases, it may also be necessary to mix a structural filler material (such as flocked cotton fiber or microballoon) to level the surface.
- Apply the first layer of cloth and wet with Epoxy resin.
- Apply subsequent layer of cloth and wet with Epoxy resin.

7.2.7.7 Fillers Mixing

NOTE
Resin-hardener should be prepared and mixed first before add any filler type.

For gluing, the resin-hardener mix should be thickened with the filler type which will be worked (add enough so that the resin no longer flows). The surfaces to be glued should be wetted with non-thickened resin & hardener before. To glue foam pieces into place when repairing sandwich sections and to fill in irregularities and gaps etc. around the repair.

Filler Types: Flocked Cotton Fiber, Microballoon and Quartz Powder.

NOTE

Quartz Powder is used in order to conform the original shape of the hull when damaged.

7.2.7.8 Repair Tolerances

Only the damages listed below can be considered to be performed using the procedures specified in the Repair Procedures Section:

- Any damage limited to gelcoat or filler.
- Holes, cracks and tears, bubbles, etc. in the fuselage and wings where the average diameter does not exceed: *50mm (2 inches)*
- Holes, cracks and tears, bubbles, etc. in the horizontal stabilizer and control surfaces skins where the average diameter does not exceed: *20mm (0.75 inches)*

NOTE

The parts described above should not be damaged in the spar area.

NOTE

Damages on metal fittings should not be repaired. Metal fittings should be replaced.

WARNING

REPAIRS ON THE TAIL CONE AND VERTICAL STABILIZER ARE PROHIBITED.

7.2.7.9 Repair Procedures

NOTE

SCODA AERONÁUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

A. REPAIR CLASS 4

Damages caused by scores and the scrapes without the outer laminate damage require finishing and painting works only. In case of first cloth layer damage, it will be necessary to clean the damaged area and sands smoothly with a sandpaper. Follow the typical lay-up procedure as necessary. When the resin is cured, the repair area can be finished and repainted.

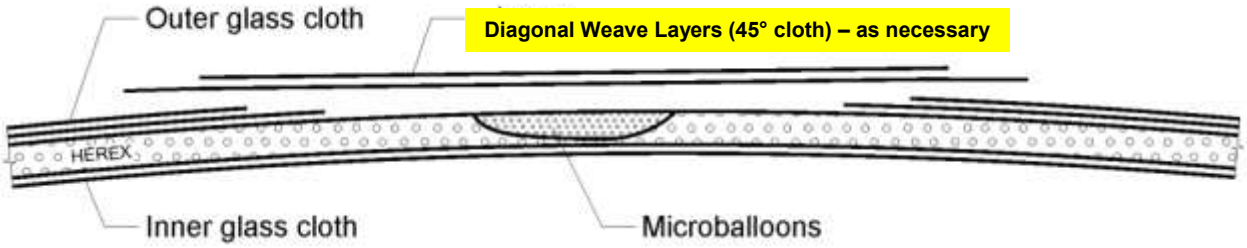
B. REPAIR CLASS 3

On the damaged area of the outer shell cut a circular or rounded hole with sufficiently size. Make sure that

all delaminated parts of the shell have been removed. If the foam is also damaged, remove it too, eventually to the internal shell layer. Tap the surroundings of the damage area to determine the extent of delamination from the foam. Sand the edge of the cut hole at least 40mm with a sandpaper.

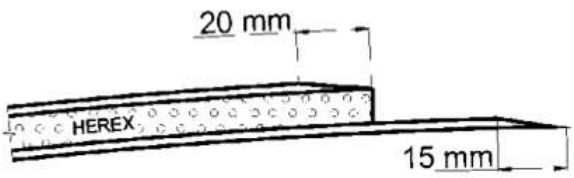
Around the edge of the damaged area where the shell is still firmly bonded, chamfer the shell. For top thin cloth layer the chamfer about 15mm is necessary.

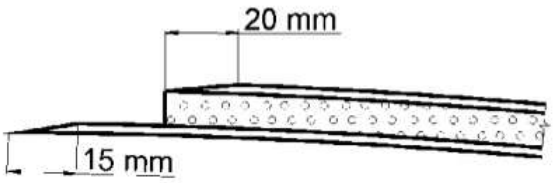
After chamfering the shell, blow out thoroughly the whole repair area including the pores of the foam. Now fill the hole in the foam with microballoon and simultaneously fill the pores of the exposed foam. Then apply layers as necessary with diagonal weave direction (45° cloth) over the damaged area following the typical lay-up procedure. After cured (approximately 24 hours at 20-25 °C) the damaged area should be finished



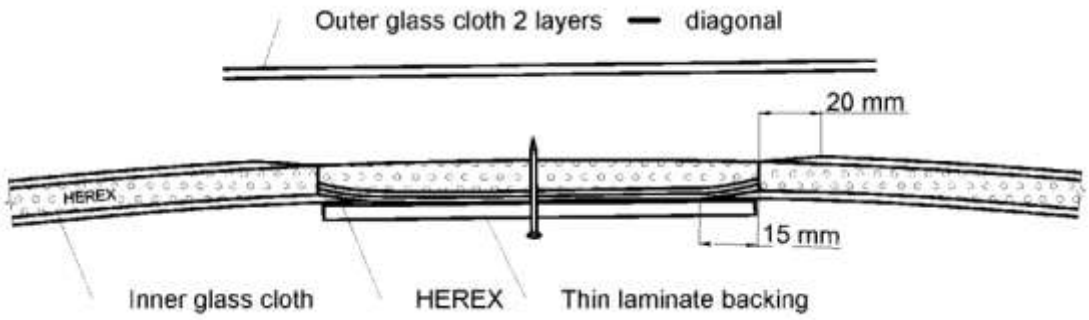
C. REPAIR CLASS 2

If there is a through hole in the sandwich shell, then remove all delaminated parts and sand the edge of the hole. Enlarge the hole until good bonding to foam is evidenced. Then remove the foam next 20mm around the hole while the inner fabric remains undamaged. On thus exposed inner fabric make chamfer around the circumference. Outer fabric layer chamfer about 20mm.

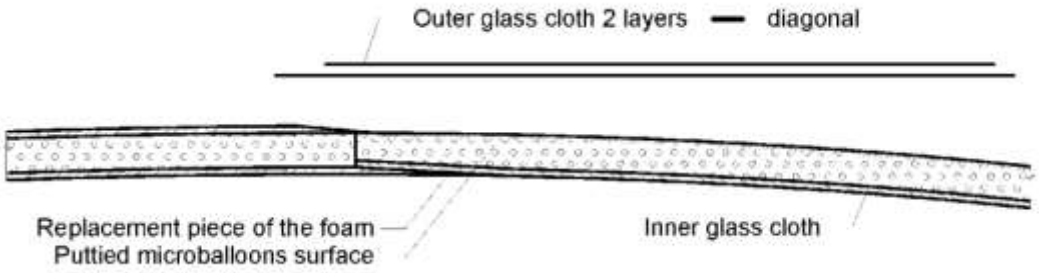




If the hole is not grater than 100mm, then glue a thin laminate plate from bottom of the hole. Glue laminate can be supportedby means of the nail or wire. Then lay inner layer of patches. Allow the inner laer harden before doing further work. Prepare the foam plug that will be insreted according the hole. If necessary warm the foam with hairdriyer and bend. Scratch the previous layered patches with sadpaper 80 to ensure good glued contact. glue the foam plug in the hole with thickened resin (micorballon) to close the pores. make sure no air bubbles occur especially in inner corners. If necessary add weight to ensure better contact. Let the repair to cure (approximately 24 hours at 20-25 °C).



Once the epoxy is cured is can be smoothed, puttied with epoxy thickened with microballoon to close the pores and the outer laminate layers applied.



D. REPAIR CLASS 1

Repairs Class 1 are not authorized at this time. To obtain engineering approvals for any repairs procedure, please contact Scoda Aeronáutica at engineering@scodaero.com.br

7.2.7.10 Fuselage Repair

CAUTION

Instructions specified in this section are not sufficient guidance to allow an otherwise un-trained person to successfully complete the repair. The person carrying out the repairs must be trained in composite repair techniques and have completed of the Scoda Aeronáutica´s Task Specific Training.

WARNING

DAMAGES WHICH ARE BEYOND TO THE REPAIR CLASSIFICATION AND TOLERANCES SPECIFIED IN THE SECTION 7.2.8 OF THIS MANUAL, NEED TO OBTAIN APPROVAL FROM THE MANUFACTURER

Required Tools:	As applicable	
Parts and Materials Required:	**#ID**	**Description**
	1	Fiberglass 160 g/m^2
	2	Carbon fiber 160 g/m^2
	3	Carbon fiber 45° 200 g/m^2
	4	Carbon fiber Kevlar 160 g/m^2
	5	Peel Ply 85 g/m^2
	Epoxy resin – HTR-212 LAMINATING RESIN (Aircraft Spruce P/N: 01-00430) or similar	
	Flocked Cotton Fiber	
Type of Maintenance:	Heavy Maintenance	
Level of Certification:	Task Specific	

- ***REPAIR PLAN***

NOTE
Use as reference the Section 7.2.8 Structural Repairs – Standard Practices of this Manual.

NOTE
SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

- ***FUSELAGE INTERNAL PART***

  - Prepare the surface to be repaired according to the section 7.2.8.5 of this Manual.
  - Using the process Typical Lay-Up Procedure specified in the section 7.2.8.6 of this Manual:
    - Apply 1 layer of cloth #2
    - Apply 1 layer of cloth #3
    - Apply 1 layer of cloth #4
    - Apply 1 layer of cloth #1
    - Apply 1 layer of cloth #5

  ****LEAVE TO CURE FOR 24 HOURS****

- ***FUSELAGE EXTERNAL PART***

  - Prepare the surface to be repaired according to the section 7.2.8.5 of this Manual.

- Using the process Typical Lay-Up Procedure specified in the section 7.2.8.6 of this Manual:
    - Apply 2 layers of cloth #1
    - Apply 1 layer of cloth #5

****LEAVE TO CURE FOR 24 HOURS****

- ***FINISHING AND PAINTING***

    - Refer to the Section 5.11 Painting and Coatings of this Manual.

7.2.7.11 Hull Repair

CAUTION

Instructions specified in this section are not sufficient guidance to allow an otherwise un-trained person to successfully complete the repair. The person carrying out the repairs must be trained in composite repair techniques and have completed of the Scoda Aeronáutica´s Task Specific Training.

WARNING

DAMAGES WHICH ARE BEYOND TO THE REPAIR CLASSIFICATION AND TOLERANCES SPECIFIED IN THE SECTION 7.2.8 OF THIS MANUAL, NEED TO OBTAIN APPROVAL FROM THE MANUFACTURER

Required Tools:	As applicable	
Parts and Materials Required:	**#ID**	**Description**
	1	Carbon fiber Kevlar 210 g/m^2
	2	Fiberglass 160 g/m^2
	3	Peel Ply 85 g/m^2
	Epoxy resin – HTR-212 LAMINATING RESIN (Aircraft Spruce P/N: 01-00430) or similar	
	Quartz Powder (anti abrasive resin load)	
	Flocked Cotton Fiber or Microballoon (glass bubbles)	
Type of Maintenance:	Heavy Maintenance	
Level of Certification:	Task Specific	

-

- ***REPAIR PLAN***

NOTE

Use as reference the Section 7.2.8 Structural Repairs – Standard Practices of this Manual.

NOTE

SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

- Prepare the surface to be repaired according to the section 7.2.8.5 of this Manual.
- Apply a first layer Quartz Powder mixed with resin over the area to be repaired.
- Apply a second layer of Cotton Powder or Microballoon mixed with resin.
- After cured, sand the surface in order to conform to the original shape of the hull.
- Using the process Typical Lay-Up Procedure specified in the section 7.2.8.6 of this Manual:
  - 4 layers of cloth #1
  - 1 layer of cloth #2
  - 1 layer of cloth #3

****LEAVE TO CURE FOR 24 HOURS****

- ***FINISHING AND PAINTING***

- Refer to the Section 5.11 Painting and Coatings of this Manual.

7.2.7.12 Leading Edge Repair

CAUTION

Instructions specified in this section are not sufficient guidance to allow an otherwise un-trained person to successfully complete the repair. The person carrying out the repairs must be trained in composite repair techniques and have completed of the Scoda Aeronáutica´s Task Specific Training.

WARNING

DAMAGES WHICH ARE BEYOND TO THE REPAIR CLASSIFICATION AND TOLERANCES SPECIFIED IN THE SECTION 7.2.8 OF THIS MANUAL, NEED TO OBTAIN APPROVAL FROM THE MANUFACTURER

Required Tools:	As applicable	
Parts and Materials Required:	**#ID**	**Description**
	1	Carbon fiber 200 g/m^2
	2	Fiberglass 100 g/m^2
	3	Peel Ply 85 g/m^2
	Epoxy resin – HTR-212 LAMINATING RESIN (Aircraft Spruce P/N: 01-00430) or similar	
	Structural Adhesive – Hysol or similar	
Type of Maintenance:	Heavy Maintenance	
Level of Certification:	Task Specific	

- ***REPAIR PLAN***

NOTE
Use as reference the Section 7.2.8 Structural Repairs – Standard Practices of this Manual.

NOTE
SCODA AERONAUTICA cannot accept any responsibility for the quality of work performed. Please refer to the last revision of the Advisory Circular 43.13 – 1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair.

- ***LEADING EDGE***

  - Prepare the surface to be repaired according to the section 7.2.8.5 of this Manual.
  - Using the process Typical Lay-Up Procedure specified in the section 7.2.8.6 of this Manual:
    - Apply 3 layer of cloth #1
    - Apply 1 layer of cloth #2
    - Apply 1 layer of cloth #3
  - Cover with masking tape the leading edge in order to press the repair onto the structure.

    ****LEAVE TO CURE FOR 24 HOURS****

8 Overhaul

8.1 Authorization to Perform Overhaul

No Overhauls as outlined in ASTM F2483, FAR 23, or in this manual are authorized at this time.

NOTE
For Engine Overhaul, refer to the engine manual for a list of Rotax approved service centers

9 Major Repairs and Alterations

9.1 All major repairs or alterations made to aircraft subsequent to its initial design and production acceptance testing to applicable ASTM standards and sale to a consumer are evaluated relative to the requirements of the applicable ASTM design and production specification(s).

9.2 Scoda Aeronáutica Ltda will provide a written affidavit that the aircraft being altered will still meet the requirements of the applicable ASTM design and performance specification subsequent to the alteration through a Letter of Authorization (LOA).

9.3 Scoda Aeronáutica Ltda will provide written instructions and diagrams on how, who, and the level of certification needed to perform the alteration or repair through a Letter of Authorization (LOA).

9.4 Scoda Aeronáutica Ltda will provide information to the owner of the aircraft for the documentation of the alteration in the aircraft´s records.

MAJOR REPAIRS AND ALTERATIONS PROCEDURE

1. Owner/Operator will request a LOA Form sending an email to engineering@scodaero.com.br.

2. Scoda Aeronáutica Ltda will analyze the MRA Form and issue a LOA with approval or not.

3. If LOA is approved, Owner/Operator should demonstrate that the alteration or repair described in the LOA was performed correctly and the aircraft is in a condition for safe operation.

10 Task-Specific Training

10.1 Scoda Aeronáutica Ltda may require task-specific training in order to accomplish a task in either the maintenance manual or in an authorization for a major repair, maintenance, or alteration. The FAA does not give approval to these task-specific programs for SLSA. Scoda Aeronáutica Ltda may specify any task-specific training it determines is appropriate to accomplish the task.

11 Safety Directives

11.1 A Super Petrel XP may have a safety directive issued against an aircraft or component part. Scoda Aeronáutica Ltda issues the directive as outlined in the last revision of the ASTM F2295 – Continued Airworthiness in for of (NOA) Notice of Corrective Actions (Safety Alerts, Service Bulletins or Notifications).

11.2 Scoda Aeronáutica Ltda is responsible for providing the applicable instructions to comply with any NOA, which will include:

11.2.1 A list of the tools needed to accomplish the task.

11.2.2 A list of the parts needed to perform the task.

11.2.3 Type of maintenance (Line or Heavy Maintenance).

11.2.4 The level of certification needed to accomplish the task (A&P, LSRM).

11.2.5 Detailed instructions and diagrams as needed to perform the task.

11.2.6 Method to test / inspect to verify the task was accomplished properly.

11.3 Notice of Corrective Actions are considered mandatory task in order to maintain a condition of safe operation and compliance with the applicable ASTM design specification.

12 Appendixes

12.1 Improvement or Corrections

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

12.2 Aircraft Registration Form

REGISTRATION TYPE		
☐ New Aircraft (Original Owner)	☐ Change of Ownership	
AIRCRAFT DETAILS		
Serial Number:	Model:	Registration Number:
Name of Dealer or Previous Owner:		
Date of Delivery or Change of Ownership:		
The Aircraft is Used For:	☐ **Training:** Flight school or similar activity.	
	☐ **Personal Use:** Operated for recreational purposes.	
	☐ **Special Use:** Rentals, Aerial Works, etc.	
OWNER DETAILS		
Name:		
Full Address:		
Country:		
Contact Phone Number:		
Email Address:		

Send this form to the email address: engineering@scodaero.com.br

12.3 Continued Operational Safety Reporting Form

AIRCRAFT DETAILS		
Serial Number:	Model:	Registration Number:
Total Flight Time (*Hobbs*):		
OWNER DETAILS		
Name:		
Country:		
Email Address:		
DESCRIPTION OF FLIGHT SAFETY ISSUE OR SERVICE DIFFICULTY		

** Attach any pictures or file that might complete or support your communication*

***When completed, a copy of this form must be retained in the aircraft permanent records*

FOR SCODA AERONÁUTICA LTDA USE ONLY	
Log Number:	Received Date:

Send this form to the email address: engineering@scodaero.com.br

12.4 Warranty Claim Form

AIRCRAFT DETAILS		
Serial Number:	Model:	Registration Number:
Total Flight Time (*Hobbs*):		
OWNER DETAILS		
Name:		
Country:		
Email Address:		
THE AIRCRAFT, PARTS OR COMPONENTS WERE INSPECTED BY OR ARE BEING INSPECTED BY A NON-AUTHORIZED MANUFACTURE´S MAINTENANCE CENTER?	☐ YES ☐ NO	
EVENT REPORT		
Date:	Time:	The issue occurred: ☐ ON LAND ☐ ON WATER ☐ IN FLIGHT
DESCRIPTION OF FLIGHT SAFETY ISSUE OR SERVICE DIFFICULTY		
** Attach any pictures or file that might complete or support your communication*		

FOR SCODA AERONÁUTICA LTDA USE ONLY	
Log Number:	Received Date:

Send this form to the email address: engineering@scodaero.com.br

12.5 Line Maintenance Inspection Form

100 HOURS / ANNUAL CONDITION INSPECTION CHECKLIST		
Owner Name:	**Inspector Name** (LSRM or A&P):	
Aircraft Make / Model: Scoda Aeronáutica Ltda / Super Petrel XP		**S/N:**
Engine Make / Model: Rotax Aircraft Engines /		**S/N:**
Hours Flown (Hobbs):	**Date:**	

Before Starting the inspection:	• Remove or open all cowlings, inspection windows, access doors and baggage compartment.
	• Clean the aircraft, if necessary.
	• Sign all the applicable items and N/A for non-applicable items.

NOTE

Lubrication of components and parts, please refer to the Section 6.2.2.4 Lubrication Table (Line Maintenance) of this Manual.

Item	Description	Inspection		Initials	Comments
		Special	Annual		
1. ENGINE					
NOTE *Refer to the Recommended Fastener Torque Values Section of this Manual*					
1.1	Re-Torque and check the condition of the firewall bolts ***(See the Recommended Fastener Torque Values Section of this Manual 5.1.8)***	**First 25 h**	✓		
1.2	Re-Torque and check the condition of the engine suspension frame bolts ***(See the Recommended Fastener Torque Values Section of this Manual 5.1.8)***	**First 25 h**	✓		
1.3	Inspect visually the engine cowlings for cracks, burns, damaged protections, general condition of fasteners, asbestos, support of oil and water cooler, rubbers in general, engine mounts and attachment of protection grille.	**First 25 h**	✓		
1.4	Inspect the fuel system components and fittings for general condition	**First 25 h**	✓		
1.5	Check visually the inline fuel filter for general condition (leakage and attachment).	**First 25 h**	✓		
1.6	Inspect and clean the fuel filter. Replace it if necessary	**Every 100 h**			
1.7	Check visually the fuel system for leakage.	**First 25 h**	✓		
1.8	Check visually the selector valve for correct operation and general condition of the connections	**First 25 h**	✓		
1.9	Re-tighten hoses clamps of the cooling system.	**First 25 h**	✓		
1.10	Check the ventilation electrical system (fans, supports, sensor and relay) for general condition and attachment.	**First 25 h**	✓		
1.11	Make an operational check of the ventilation electrical system.	**First 25 h**	✓		
1.12	Inspect the electric fuel pumps for corrosion, leakage, general condition, lines and connections.	**First 25 h**	✓		
1.13	Make an operational check of the electric fuel pumps.	**First 25 h**	✓		
1.14	Check the throttle for correct operation and free movement.	**First 25 h**	✓		

Item	Description	Inspection		Initials	Comments
		Special	Annual		
2. PROPELLER					
NOTE *Inspection, maintenance, repair, removal or installation of the propeller, refer to the latest revision of the Instruction Manual for E-PROPS Propellers Excalibur Range*					
2.1	Inspect the spinner and back plate for cracks	**First 25 h**	✓		
2.2	Inspect blades for nicks and cracks	**First 25 h**	✓		
2.3	Inspect hub parts for cracks and corrosion	**First 25 h**	✓		
2.4	Check for grease and oil leaks	**First 25 h**	✓		
2.5	Check propeller mounting bolts and safety	**First 25 h**	✓		
2.6	Re-torque the screws and check the blade adjustment	**Every 100h and/or 6 months**			
2.7	Perform a propeller dynamic balancing: **Propeller Balancing Time: _____** **IPS (INITIAL) _____** **IPS (FINAL) _____** **Weight 1 _____ Position _____** **Weight 2 _____ Position _____**	**Every 100 h**			
2.8	Inspect complete propeller and spinner assembly for security, chafing, cracks, deterioration, wear and correct installation.	**First 25 h**	✓		
3. LANDING GEAR SYSTEM – *Before starting the inspection lift the aircraft, if necessary*					
3.1	Check visually the nose gear for general condition (bolts, rubbers, nose gear lock, looseness, bending, cracks and wear). Check if the nose gear spins freely on vertical shaft. Check the correct operation of nose gear doors.	**First 25 h**	✓		
3.2	Check visually the condition of nose gear doors for attachment, hinges and general condition.	**First 25 h**	✓		
3.3	Check the nose gear springs for attachment, wear and looseness.	**First 25 h**	✓		
3.4	Check the plates which cover nose gear fork fore general condition, cracks, wear and looseness. Replace them if necessary.	**First 25 h**	✓		
3.5	Check the nose gear bearings condition, free rotation of the wheel and looseness	**Every 100h**	✓		
3.6	Check visually the main landing gear for cracks, excessive looseness, attachment, loose or damaged bolts, and general condition of wheel.	**First 25 h**	✓		
3.7	Check the main gear bearings condition, free rotation of the wheel and looseness	**Every 100h**	✓		
3.8	Inspect the landing gear system for wear, deterioration, corrosion, alignment and other causes that may cause failure or unsatisfactory operation.	**First 25 h**	✓		
3.9	Inspect the landing gear retraction mechanisms for wear looseness in any joint, trunnion, or bearing.	**First 25 h**	✓		
3.10	Inspect the hydraulic system of the landing gear for any leakage of fluid from the hydraulic line and unit.	**First 25 h**	✓		

Item	Description	Inspection		Initials	Comments
		Special	Annual		
3.11	Inspect the landing gear retraction system for smooth of operation.	**First 25 h**	✓		
3.12	Check the gas spring (nose and main gear) for wear, looseness, leakage, corrosion and correct operation.	**First 25 h**	✓		
3.13	Perform an operational test of the landing gear retraction system.	**First 25 h**	✓		
3.14	Check the electrical terminals, micro-switches for continuity, corrosion and general condition.	**First 25 h**	✓		
3.15	Check the wheels for cracks, corrosion, dents and distortion.	**First 25 h**	✓		
3.16	Check visually the tires for condition, cuts, excessive wear and/or uneven and slippage in the wheel – replace if necessary. Check the pressure – calibrate with recommended pressure (Check the Tire Inflation Pressure Section of the POH).	**First 25 h**	✓		
3.17	Check the lines of the brake system for leakage and general condition.	**First 25 h**	✓		
3.18	Check the condition of the Brakes hydraulic fluid – **replace every 5 years / 1000 hours.**	**First 25 h**	✓		
3.19	Check visually the condition of the brake pads. Replace them if necessary.	**First 25 h**	✓		
3.20	Check visually the discs for cracks and permanent deformations. Replace if necessary.	**First 25 h**	✓		
3.21	Check visually the shock absorber for corrosion, wear, leakage and attachment. Clean the shock absorber cylinder. Calibrate if necessary.	**First 25 h**	✓		
3.22	Check visually the general condition of the rubber foam of the housing of main landing gear leg.	**First 25 h**	✓		
4. UPPER WINGS					
4.1	Re-Torque the front and rear fixation bolts of the upper wings. ***(See the Recommended Fastener Torque Values Section of this Manual 5.1.8)***	**First 25 h**	✓		
4.2	Check visually the wing surface for damages, denting and general condition of coating.	**First 25 h**	✓		
4.3	Check visually the general condition and attachment of the main struts, inner struts (V-struts) and jury strut.	**First 25 h**	✓		
4.4	Check the attachment and general condition of the pitot tube.	**First 25 h**	✓		
4.5	Check visually the aileron surface for damages and paint damages.	**First 25 h**	✓		
4.6	Check visually the drain holes of aileron for obstruction.	**First 25 h**	✓		
4.7	Check the aileron for freedom of operation, hinges and looseness.	**First 25 h**	✓		
4.8	Check visually the hinges, pins, rod of aileron electric trim tab for general condition.	**First 25 h**	✓		
4.9	Check visually the aileron electric trim tab for attachment and correct operation.	**First 25 h**	✓		
4.10	Check visually the bell-crank of the aileron.	**First 25 h**	✓		

Item	Description	Inspection		Initials	Comments
		Special	Annual		
4.11	Check the Teleflex cable for wear, looseness and correct operation.	**First 25 h**	✓		
4.12	Check the looseness of wings fixation. Move the wings tips upward-downward, frontward-rearward.	**First 25 h**	✓		
5. LOWER WINGS					
5.1	Re-Torque the rear fixation bolts of the lower wings. ***(See the Recommended Fastener Torque Values Section of this Manual 5.1.8)***	**First 25 h**	✓		
5.2	Check visually the wing surface for damages, denting and general condition of coating.	**First 25 h**	✓		
5.3	Check visually the fuel tanks (lower wings leading edge) for cracks, leakage and general condition.	**First 25 h**	✓		
5.4	Check the general condition and correct operation of the fuel tanks filler caps.	**First 25 h**	✓		
5.5	Check the header tank for leakage, connection and general condition.	**First 25 h**	✓		
5.6	Check visually the output of the fuel tanks vent for obstruction.	**First 25 h**	✓		
5.7	Perform an air test of the fuel vents in order to check for obstruction in the lines.	**First 25 h**	✓		
5.8	Check visually the condition of the floaters (attachment, cracks and dents).	**First 25 h**	✓		
5.9	Check visually the landing gear legs housing for general condition.	**First 25 h**	✓		
6. FUSELAGE					
6.1	Check visually the fuselage surface for damages, cracks, denting and general condition.	**First 25 h**	✓		
6.2	Inspect visually for impacts or damage of the hull internal and external part.	**First 25 h**	✓		
6.3	Check visually bulkheads for distortion and cracks.	**First 25 h**	✓		
6.4	Check visually the condition of the watertight rubber seals. Replace them if necessary.	**First 25 h**	✓		
6.5	Check visually the canopy condition for cracks, scratch and other damages.	**First 25 h**	✓		
6.6	Check the canopy latching mechanism and lock for general condition and functionality.	**First 25 h**	✓		
6.7	Check that Plexiglass is bonded to the frame with no delaminations.	**First 25 h**	✓		
7. EMPENNAGE					
7.1	Check visually the tail cone surface and horizontal stabilizer leading edges for damages, cracks, impacts, denting. Check visually the elevators and rudder for general condition on the surface.	**First 25 h**	✓		
7.2	Check the condition of horizontal stabilizer attachment with vertical stabilizer.	**First 25 h**	✓		
7.3	Check the elevator for free operation, hinges and looseness.	**First 25 h**	✓		

Item	Description	Inspection		Initials	Comments
		Special	Annual		
7.4	Check visually the drain holes of elevator and rudder for obstruction.	First 25 h	✓		
7.5	Check visually the elevator electric trim tab for attachment and correct operation.	First 25 h	✓		
7.6	Check for looseness of elevator, rudder and trim tab.	First 25 h	✓		
7.7	Check visually all the nuts, tail bolts, control rods, bell-crank attachment, and safety wires.	First 25 h	✓		
7.8	Check visually the hinges, pins, rod of elevator electric trim tab for general condition.	First 25 h	✓		
7.9	Check visually the rudder control cables and the castle nut.	First 25 h	✓		
8. BATTERY					
EARTHX BATTERY					
8.1	Check visually the battery for signs of damage, plastic case cracks, and wrapped plastic or long side of the battery is swollen. Replace if damaged.	First 25 h	✓		
8.2	Verify the battery fault / status LED circuit is operational.	First 25 h	✓		
8.3	Ensure the battery is fully charged	First 25 h	✓		
8.4	Check visually the battery terminals are clean and terminal screws are properly secured.	First 25 h	✓		
8.5	Check visually the vent tubes to ensure they are not blocked (plugged, pinched or kinked). Replace if damaged.	First 25 h	✓		
12-VOLT, 18 AMP HOUR SEALED LEAD ACID OR GEL BATTERY					
8.6	Check the cables for general condition and attachment, evidence of corrosion, pitting, arcing and burns. Replace them if necessary.	First 25 h	✓		
8.7	Check visually the battery for general condition, attachment and security. Replace if necessary.	First 25 h	✓		
9. COCKPIT AND ELECTRICAL SYSTEM					
9.1	Check visually the instrument panel for attachment and general condition.	First 25 h	✓		
9.2	Inspect visually if the panel has all necessary´s placards and are readable.	First 25 h	✓		
9.3	Check the instruments and avionics for general condition and security, proper security of wiring bundles, free of dust, dirt, lint and any other airborne contaminates.	First 25 h	✓		
9.4	Check the headset plugs, connectors, all switches and controls for general condition and operation.	First 25 h	✓		
9.5	Check the lightening of the instrument panel and cockpit.	First 25 h	✓		
9.6	Check the electrical switches for correct operation.	First 25 h	✓		
9.7	Check the Dimmer Lights for correct operation.	First 25 h	✓		
9.8	Check the antennas for general condition and signs of corrosion.	First 25 h	✓		
9.9	Check the correct operation of the instruments. Make an operational test as applicable.	First 25 h	✓		

Item	Description	Inspection		Initials	Comments
		Special	Annual		
9.10	Inspect the equipment, electrical assemblies and wiring installation for damage, general condition and proper functioning.	**First 25 h**	✓		
9.11	Check visually the condition and integrity cables, connections and security of the wiring harness (loose, damaged, and burned) – replace them if necessary.	**First 25 h**	✓		
9.12	Check the bilge pump and the cover, if necessary remove the bilge pump body from its support and inspect for presence of dirty and the correct operation of the pump. Reinstall the pump and the protective cover correctly.	**First 25 h**	✓		
9.13	Make an operational check in the electric system of bilge pump. Ensure the functional full of ON/OFF switch (flasher light) and automatic.	**First 25 h**	✓		
9.14	Check the fuses and fuses holders for security of the connection, presence of corrosion and evidence of overheating. Replace if necessary.	**First 25 h**	✓		
9.15	Check other electrical components and equipment (terminals and connectors) for general condition and corrosion. Replace them if necessary.	**First 25 h**	✓		
9.16	Check the position lights, strobe and landing light for correct operation.	**First 25 h**	✓		
9.17	Check the correct operation of electric elevator trim tab and electric aileron tab.	**First 25 h**	✓		
9.18	Check the entire cabin heater system for general condition, security, proper installation and evidence of any leaks.	**First 25 h**	✓		
9.19	Check visually the safety belts for condition, attachment and security. Replace if necessary.	**First 25 h**	✓		
9.20	Check visually the upholstery condition and seats pins.	**First 25 h**	✓		
9.21	Inspection of the fire extinguisher should be following the instructions detailed in this Maintenance Manual.	**First 25 h Monthly Six Year**	✓		
9.22	Check the controls for freedom of operation. Check for any presence of objects/FOD in the hull internal part.	**First 25 h**	✓		
9.23	Check the control surfaces for deflections and looseness.	**First 25 h**	✓		
9.24	Check the pedals for movement strength, joints safety, general condition and cables attachment.	**First 25 h**	✓		
9.25	Inspect the ELT transmitter and mounting tray to insure all fasteners, and mechanical assemblies are secure.	**First 25 h**	✓		
9.26	Inspect the coaxial cable connecting the ELT transmitter to the antenna for cuts or abrasions on its outer jacket. Inspect for general condition and corrosion.	**First 25 h**	✓		
9.27	Inspect the modular cable connecting the ELT to the RCPI unit for signs of wear or abrasion on its outer jacket.	**First 25 h**	✓		
9.28	Check the condition of the batteries. Verify the expiration date and replace them if necessary.	**First 25 h**	✓		
9.29	Perform a G switch test of the ELT. See the OEM instructions	**First 25 h**	✓		

Item	Description	Inspection		Initials	Comments
		Special	Annual		
9.30	When the inspection is finished, clean the hull internally with water and remove all dirt and material loose, which could obstruct the bilge pump. Drain the water from the washing using the bilge pump and clean the protective cover if necessary.	**First 25 h**	✓		
10. CORROSION					
NOTE *Make a detailed inspection of the following components and parts of the Super Petrel XP for corrosion. Use the latest edition of the FAA ADVISORY CIRCULAR AC 43-13-1B, Chapter 6. Corrosion, Inspection and Protection.*					
10.1	**Engine:** Throttle control lever, throttle cable, engine suspension frame, exhaust, fixation support of the lower engine cowling.		✓		
10.2	**Propeller:** Hub, Spacer and fasteners.		✓		
10.3	**Landing Gear System:** Retraction mechanism, rods, sensors connectors, gas spring, rod end and body of the shock absorber, main gear wheel axle, main gear wheel nut, main and nose gear wheel halves, nose gear fork, nose gear springs, landing gear retraction system joints and trunnions.		✓		
10.4	**Struts:** Main struts, V-struts and Jury Struts, fixation rivets.		✓		
10.5	**Brake System:** Cylinder, pedal rod end, brake disc, brake caliper.		✓		
10.6	**Aileron Controls:** Rod ends of the Teleflex cable, control rods, rod ends, bell-crank, hinges, electric trim hinges, and autopilot control rods of the aileron servo.		✓		
10.7	**Elevator Controls:** Control rods, rod ends, rivets, bell-crank, electric trim hinges, autopilot control rods of the elevator servo.		✓		
10.8	**Rudder Controls:** Control cable, bell-crank.		✓		
10.9	**Fuel System:** Fuel selector valve, electrical fuel pumps housing, fixation clamp of the electrical fuel pumps.		✓		
10.10	**Electrical Fuel Pumps:** A detailed inspection of the electrical fuel pumps and connections should be made for corrosion and general condition.		✓		
10.11	**Autopilot (Elevator and Aileron):** Servo housing, rod ends, control rod.		✓		
10.12	**Electrical System:** Battery terminals, battery relay terminals, instruments connectors, switches, instruments fixation bolts, panel fixation bolts, bilge pump connectors, electrical fuel pumps connectors and terminals, headphones connectors, electric trim connectors (elevator and aileron), antennas connectors (VHF, XPNDR, ELT, etc.).		✓		
10.13	**Miscellaneous:** Fire extinguisher fixation support, cabin heater radiator, cabin heater valve, seat belts harnesses.		✓		

12.6 Heavy Maintenance Inspection Form

5 YEARS / 1000 HOURS CONDITION INSPECTION CHECKLIST		
Owner Name:	**Inspector Name** (LSRM or A&P):	
Aircraft Make / Model: Scoda Aeronáutica Ltda / Super Petrel XP		**S/N:**
Engine Make / Model: Rotax Aircraft Engines /		**S/N:**
Hours Flown (Hobbs):	**Date:**	

Before Starting the inspection:	• Remove or open all cowlings, inspection windows, access doors and baggage compartment.
	• Clean the aircraft, if necessary.
	• Sign all the applicable items and N/A for non-applicable items.

Item	Description	Inspection		Initials	Comments
		Special	5 years / 1000 h		
1. ENGINE					
1.1	Inspect the electric fuel pumps (Main and Auxiliary). Replace them if necessary.		✓		
1.2	Replace coolant.		✓		
1.3	Inspect all hoses and lines installed on the airframe. Replace them if necessary.		✓		
2. LANDING GEAR RETRACTING SYSTEM - Use as reference the FAA AC 43.13-1B Chapter 9.					
2.1	Inspect the landing gear system for general condition, corrosion, routing, fixation and friction with structure. Replace components if necessary.		✓		
2.2	Inspect the landing gear system for wear looseness in any joint, trunnion, or bearing; leakage of fluid from any hydraulic line or unit; and, smoothness of operation.		✓		
2.3	Perform an operational test check the smoothness of operation, effectiveness of up-and-down locks, operation of warning horn, operation of indicating systems, clearance of tires in well wells, and operation of nose gear doors.		✓		
3. BRAKE SYSTEM					
3.1	Inspect the brake system for leakage, air and corrosion in the lines and connections. Replace the hydraulic fluid if necessary.		✓		
4. EMPENNAGE					
4.1	Remove rudder, elevators and horizontal stabilizers.		✓		
4.2	Inspect the vertical stabilizer where the horizontal stabilizers are attached for general condition, cracks, internal holes (alignment).		✓		
4.3	Inspect the Vertical Stabilizer and the Tail Cone for general condition, bulkhead fixation, rudder supports fixation, bushings, rudder stops.		✓		

Item	Description	Inspection		Initials	Comments
		Special	1000 h / 5 years		
4.4	Inspect the articulation bearings located in the elevator control rod, elevator bellcranck and fixation plate of the horizontal stabilizer for general condition, corrosion and fixation.		✓		
4.5	Inspect the Vertical Stabilizer and the Tail Cone for general condition, impact damages, corrosion, stains, dents.		✓		
4.6	Inspect the spars of the Horizontal Stabilizers for general condition and fixation.		✓		
4.7	Inspect the hinges and bushings of the Horizontal Stabilizers for general condition and fixation.		✓		
4.8	Inspect the Horizontal Stabilizers for general condition, impact damages, corrosion, stains, dents.		✓		
4.9	Inspect the spar of the Elevators for general condition and fixation.		✓		
4.10	Inspect the hinges and pins of the Elevators for general condition and fixation.		✓		
4.11	Inspect the fixation bolts of the Elevators for corrosion, fixation and general condition.		✓		
4.12	Inspect the Elevators for general condition, impact damages, corrosion, stains, dents.		✓		
4.13	Inspect the Electric Trim Tab for general condition, impact damages, corrosion, stains, dents.		✓		
4.14	Inspect the hinges, pins, control rod of the Electric Trim Tab for general condition, corrosion and fixation.		✓		
4.15	Inspect the electrical installation of the Electric Trim Tab for general condition, corrosion of the connectors, routing, and friction with structure.		✓		
4.16	Perform a test of the Electric Trim Tab and check the proper operation.		✓		
4.17	Inspect the Bellcranck and Fixation Bolt of the Rudder for general condition, corrosion and fixation.		✓		
4.18	Inspect the Rudder for general condition, impact damages, corrosion, stains, dents.		✓		
4.19	Install horizontal stabilizers, elevators and rudder. Re-Torque the empennage fixation bolts. ***(See the Recommended Fastener Torque Values Section of this Manual 5.1.8)***		✓		
5. CABLES - Use as reference the FAA AC 43.13-1B Chapter 7.					
5.1	Inspect the Teleflex cable for looseness, corrosion and softness. Replace it if necessary.	**10 Years**			
5.2	Inspect the rudder cables for general condition, corrosion, routing, fixation and friction with structure. Replace them if necessary.	**10 Years**			
6. STRUCTURE					
6.1	Remove the lower wings, struts and upper wings.	**10 Years**			
6.2	Inspect the wings assembly for general condition, impact damages, corrosion, stains, and dents.	**10 Years**			

Item	Description	Inspection		Initials	Comments
		Special	1000 h / 5 years		
6.3	Inspect the wings struts for general condition, corrosion, impact damages.	**10 Years**			
6.4	Inspect the composite structures for general condition, impact damages, corrosion, stains, and dents.	**10 Years**			

12.7 Hard or Overweight Landing Inspection (Unscheduled Maintenance)

The structural stress induced by a landing depends not only upon the gross weight at the time, but also upon the severity of impact. This is applied for ground and water landings.

The hard landing inspection is for hard landings at or below the maximum design landing limits. An overweight landing inspection must be performed when an airplane lands at a weight above the maximum design landing weight.

However, because of the difficulty in estimating vertical velocity at the time of contact, it is hard to judge whether or not a landing has been sufficiently severe to cause structural damage.

For this reason, a special inspection is performed after a landing is made at a weight known to exceed the design landing weight or after a rough landing, even though the latter may have occurred when the aircraft did not exceed the design landing weight. It is difficult to confine the possible damage to certain areas.

HARD OR OVERWEIGHT LANDING INSPECTION CHECKLIST		
Owner Name:	**Inspector Name** (LSRM or A&P):	
Aircraft Make / Model: Scoda Aeronáutica Ltda / Super Petrel XP		**S/N:**
Engine Make / Model: Rotax Aircraft Engines /		**S/N:**
Hours Flown (Hobbs):	**Date:**	

Before Starting the inspection:	• Remove or open all cowlings, inspection windows, access doors and baggage compartment.
	• Sign all the applicable items and N/A for non-applicable items.

NOTE

All the inspections must be visually made. It is not necessary to disassemble; just check the general condition of the aircraft and its components.

Item	Description	GROUND LANDING	WATER LANDING	Initials	Comments
	1. NOSE LANDING GEAR				
1.1	Remove the nose gear doors and inspect for general condition.	✓	✓		
1.2	Check visually the nose gear leg, hinges, springs, bolts, trunnion, etc., for any damage, deformation and cracks.	✓			
1.3	Check visually the rubber stop for damage and deformation.	✓			
1.4	Check the nose gear for steering and centering of mechanism. Turn the nose gear leg from side to side for checking abnormal resistance.	✓			
1.5	Check visually the tire for wear, damage, bulges, pressure loss, etc.	✓			

Item	Description	GROUND LANDING	WATER LANDING	Initials	Comments
1.6	Check visually the wheel for damage, deformation, condition of the bearings by rotating the wheel.	✓			
1.7	Reinstall the nose gear doors.	✓	✓		
	2. MAIN LANDING GEAR				
2.1	Check visually the main gear legs for damage, deformation and cracks. Replace if necessary.	✓			
2.2	Check visually the components of the landing gear retraction system located inside the fuselage for general condition and deformation.	✓			
2.3	Check visually the main landing leg attachment.	✓			
2.4	Perform an operational test of the landing gear retraction system and check for alignment of the legs and components during the retraction and extension.	✓			
2.5	If necessary, remove the landing gear leg and check the condition of the articulation axle and bushings.	✓			
2.6	Check visually the tire for wear, damage, bulges, pressure loss, etc.	✓			
2.7	Check visually the wheels for damage and condition of the bearings by rotating of wheels.	✓			
2.8	Check visually the brake discs, brake pads and calipers for general condition and damage. Check visually the brake system for any leakage.	✓			
	3. WINGS				
3.1	Check visually the upper and lower surfaces for signs of damages and cracks.	✓	✓		
3.2	Check for excessive looseness. Move the wings tips upward-downward, frontward-backward.	✓	✓		
3.3	Check visually for signs of fuel leakage from integral tanks.	✓	✓		
3.4	Check the operation of flying controls (aileron).	✓	✓		
3.5	Check visually the main struts and V-Struts for general condition and distortion.	✓	✓		
	4. EMPENNAGE				
4.1	Check visually the tail cone for general condition, signs of damages and cracks.	✓	✓		
4.2	Check visually the upper and lower surfaces for signs of damages and cracks of the horizontal stabilizers and elevators.	✓	✓		
4.3	Check for excessive looseness. Move the horizontal stabilizers and elevators tips upward-downward, frontward-backward.	✓	✓		

Item	Description	GROUND LANDING	WATER LANDING	Initials	Comments
4.4	Check visually the rudder for signs of damages and cracks.	✓	✓		
4.5	Check the operation of flying controls (rudder).	✓	✓		
	5. FUSELAGE				
5.1	Check visually the fuselage surface and structure for wrinkling, cracks and distortion.	✓	✓		
5.2	Check visually the hull surface and structure for wrinkling, cracks and distortion.	✓	✓		
5.3	Check visually if there is signal of impact of the propeller on the fuselage surface.	✓	✓		
5.4	Check visually bulkheads for distortion and cracks.	✓	✓		
5.5	Check fuel lines, pitot lines, wiring harness for general condition and connections.	✓	✓		
5.6	Check visually the instrument panel for general condition of the instruments and structural damage.	✓	✓		
5.7	Check the attachment of the instrument modules tray located behind the instrument panel.	✓	✓		
5.8	Check the canopy system for general condition of the components and proper operation.	✓	✓		
5.9	Check the attachment of the items installed in the fuselage internal part including but are not limited to fuel pumps, ELT, battery, cabin heater, retraction landing gear pump, etc.	✓	✓		
	6. POWERPLANT				
6.1	Check visually the engine controls for full and free movement.	✓	✓		
6.2	Check visually the engine cowling for distortion and cracks.	✓	✓		
6.3	Check visually the engine suspension frame for general condition, alignment with the fuselage-firewall and attachment.	✓	✓		
6.4	Check the engine mount for general condition, deformation or signs of damage. Replace them if necessary.	✓	✓		
6.5	Check visually the oil system for general condition, attachment of the components and leakage.	✓	✓		
6.6	Check the fuel system for general condition, attachment of the components and leakages.	✓	✓		
6.7	Check visually the attachment of the engine components including but are not limited to ECU, Intercooler, Air Filter, Fuel Filter, Fuse Box, etc.	✓	✓		
6.8	Check visually the propeller for general condition, distortion, cracks and damages in the blades.	✓	✓		

12.8 Assembly Quick Guide

Level of Certification: LSA Repairman Maintenance or A&P, with iRMT Training (at least Service ROTAX® Aircraft Engines Rating) and Super Petrel XP Line Maintenance Rating.

12.7.1 Wings

Required Tools:	Combined Wrench 13 mm (2 pcs)
	Combined Wrench 10 mm (2 pcs)
	Combined Wrench 8 mm (2 pcs)
	Allen Wrench 6 mm (1 pcs)
	Combined Wrench 7/16” (1 pcs)
	Safety Wire Pliers
	Clamp Pliers

NOTE

All the bolts must be installed from the outside to the inside, from the top to the bottom and from forward to backward.

NOTE

Remove or open all engine cowlings, inspection windows, access doors and baggage compartments, before the starting the assembly.

CAUTION

Connections located in the wings, header tank and vents should not be retightened in order to preserve the integrity of sealing components, fittings and lines of the fuel system.

WARNING

BEFORE STARTING INSTALLATION, REMOVE ALL INSULATING TAPES ON THE VENTS AND FUEL TANK HOSES.

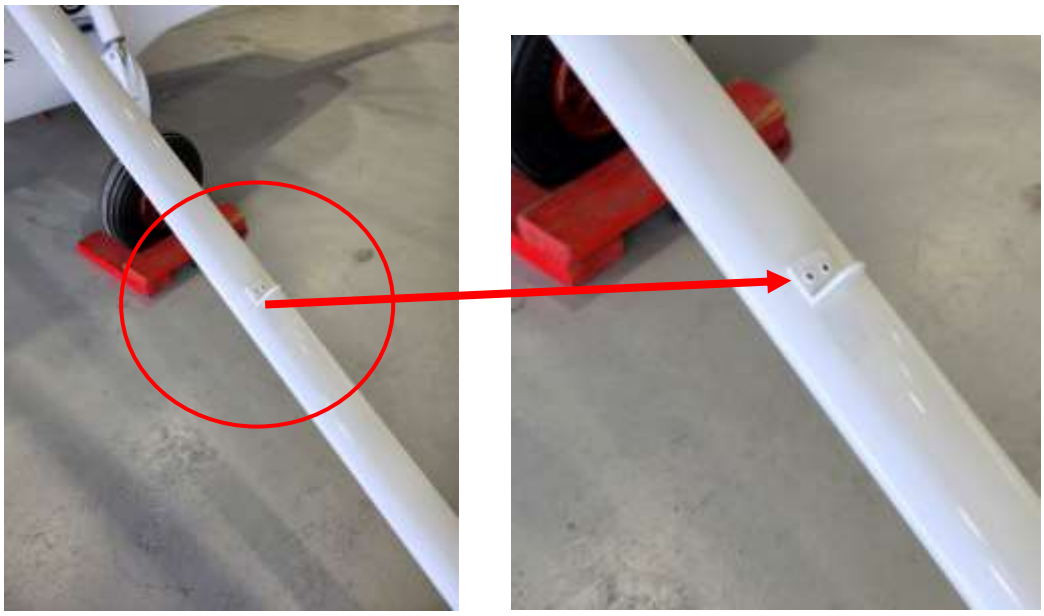
12.7.1.1 Upper Wings

1. Remove the intercooler. Loose the bolts and clamps and remove the intercooler.

2. Place the main strut in the junction of the fuselage, install the bolt and allow the other end to be supported on a stand.

NOTE

Observe the correct direction of the main strut installed.



Right main strut position

3. While one person holds the wing tip, the other person holds the wing root, pass the electrical cables (light position, strobe and landing position light), the vent hose and the aileron rod through the corresponding holes.

NOTE

Before installation of the upper wing, check the aileron rod end are with the washers glued in order to facilitate the installation aileron mechanism inside the pylon (terminals, bolts and safety wire).

4. Fit the wing to the fuselage, installing the bolt and its respective washer in the front part of the upper wing junction. Procedure is completed with two people.

5. Fit the main strut in the junction with the upper wing and install the bolt. Procedure is completed with two people.

6. Install the bolt in the upper wing rear junction of the fuselage.

7. Install the nuts, washers and tighten the bolts as explained below:

NOTE

See the Recommended Fastener Torque Values Section of this Manual 5.1.8

NOTE

Use the washers on the bolts and nuts as necessary.

NOTE

Before tighten the bolts and nuts, apply penetrating oil as necessary.

NOTE
After tightening, apply torque seal over the nut.

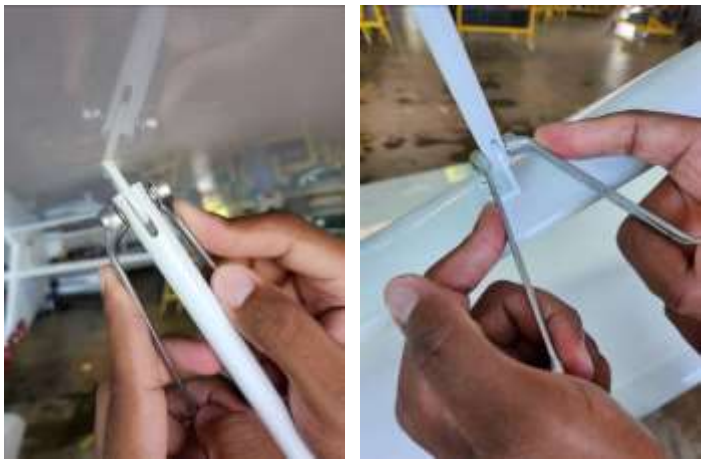
A) Main Strut Junction of the Fuselage

B) Main Strut Junction of the Upper Wing

C) Front Junction of the Upper Wing

D) Rear Junction of the Upper Wing

E) Jury Struts



F) Connection between the Aileron Bell-Crank Tie Rod with the Aileron Rod (install safety wire).



NOTE

Check the aileron rod end are with the washers glued in order to facilitate the installation aileron mechanism inside the pylon.

G) Vent Hoses


NOTE

Check the vent hoses (D = Right; E = Left)

H) Communication and Electric Cables


12.7.1.2 V-struts

1. **Pitot and Static:** Pass the hoses through the main strut and connect them inside the fuselage. (The pitot system must be installed in the left V-strut). Use tie-wraps for fix them.



2. **V-strut:** Connect the vent hose to the upper wing and install the bolt.


NOTE

Install the nuts and washers of the V-struts just after you have installed the lower wing.

NOTE

Tightening the clamp of the vent hose should be made after installing the lower wing, bolts, washers and nuts.

12.7.1.3 Lower Wings

1. Fit the wing and install the L-pin inside the fuselage.


CAUTION

After installed the L-pin one person must hold the wing tip.

2. Connect the fuel hose to the fuel tank´s output.

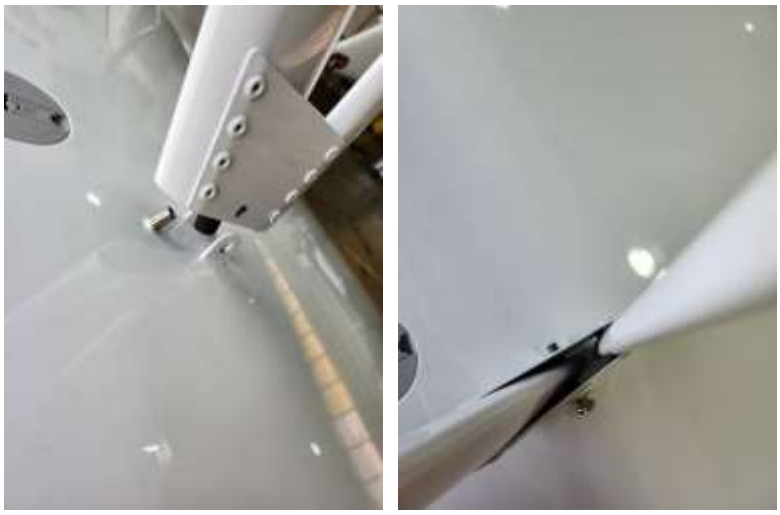
CAUTION

Do not tighten the fuel hose´s connection to the maximum.

CAUTION

Check the fuel hose for chaffing with aircraft structure.

3. Connect the vent hoses of the front V-strut and install the bolt. One person must hold the wing tip until the bolt is installed.



4. Install the bolt in the rear of the lower wing root.

5. Install the nuts, washers and tighten the bolts as explained below:

NOTE
Use the washers on the bolts and nuts as necessary.

NOTE
Before tightening the bolts and nuts, apply penetrating oil as necessary.

NOTE
After tightening, apply torque seal over the nut.

A) V-strut: Install the nuts with its respective washers and tighten.

B) Vent Hose: tight the clamps of the fuel vent hose.

C) Rear Wing Root: Install the nut with its respective washer and tighten.

D) L-Pin: Inside the fuselage install the circular pin with its respective washer**.**

E) Floaters: Install the floaters.

12.7.2 Empennage

12.7.2.1 Horizontal Stabilizer

Required Tools:	Allen Wrench 6 mm (1 pcs)
	Combined Wrench 10 mm (2 pcs)
	Torque Wrench
	Safety Wire Pliers

To install the horizontal stabilizer, a minimum of two people will be necessary.

NOTE
Use the washers on the bolts and nuts as necessary.

1. Clean the spar of the vertical stabilizer and the spars of the horizontal stabilizer before starting the installation.

2. Install the left horizontal stabilizer.

3. Install the right horizontal stabilizer.



4. Install the stud which fix the horizontal stabilizer spars. Check internally with a flashlight if the stud is passing thought the spars.


5. Torque the studs.

6. Install the Hexagonal M6 bolts and torque.



7. Install the bellcrank support with the M6 bolts and torque.

NOTE

See the Recommended Fastener Torque Values Section of this Manual 5.1.8

8. Install the safety wire between Hexagonal M6 and Allen M8 bolts both sides separately.



9. Install the bellcrank with its respective bolts, washers and nuts.


12.7.3 Controls

12.7.3.1 Elevators

Required Tools:	Socket Wrench 10 mm **(1 pcs)**

To install the elevators, a minimum of two people will be necessary.

NOTE

The left elevator has an electrical cable for the trim tab.

NOTE

Use the washers on the bolts and nuts as necessary.

NOTE

All the bolts must be installed from the outside to the inside, from the top to the bottom and from forward to backward.

NOTE
Before tightening the bolts and nuts, apply penetrating oil as necessary.

NOTE
After tightening, apply torque seal over nuts.

1. Install the elevators by fitting the pins with the hinges laterally.

2. Install the nut and its respective washer in the three points that join the elevator with the bell-crank and tighten the bolts.

3. Connect the electrical cable of the trim tab and fixed with tie wrap in the empennage structure.


NOTE
Check the electrical elevator trim for correct operation.

12.7.3.2 Rudder

Required Tools:	Combined Wrench 8 mm **(2 pcs)**

NOTE
The rudder has an electrical cable for the rear position light.

NOTE
Use the washers on the bolts and nuts as necessary.

NOTE
All the bolts must be installed from the outside to the inside, from the top to the bottom and from forward to backward.

NOTE
Before tightening the bolts and nuts, apply penetrating oil as necessary.

NOTE
After tightening, apply torque seal over nuts.

1. Install the rudder. First, fit the bottom bolt and then fit the rudder top.


NOTE

Check the rear position light for correct operation.

2. Install the rudder´s castle nut with its respective washer; tighten it just enough to install the cotter pin.


WARNING

DO NOT TIGHTEN THE RUDDER´S CASTLE NUT TO THE MAXIMUM.

3. Install the bolts, washer and nut; tighten them and Install the cotter pins.



12.7.4 Engine

12.7.4.1 Air Filter

Remove the plastic bags that cover the air filter.

12.7.4.2 Oil Hoses

Connect the oil hose as shown below. First, remove the yellow cap and then connect the oil hose with a wrench.

CAUTION

Do not tighten the oil hose´s nut to the maximum.

12.7.5 Battery

- Open the nose inspection door of the aircraft.
- Remove the insulating tape from the negative cable.
- Remove the bolt and washers located on the negative point of the battery.
- Install the negative cable on the battery.