Publication Number: SeareyLS-001

Pilot's Operating Handbook

Searey LSA

Airplane Registration Number:

Airplane Serial Number:

PROGRESSIVE AERODYNE
3801 State Road 19
Tavares, Florida 32778

Version 5.0 Revision 8 Issue Date: 05 July 2017

Record of Manual Revisions

Any revisions or amendments to the present manual shall be issued in the form of bulletins with attached new pages. It is in the interest of every owner/operator to enter each revision into the table of revisions and replace the existing page with the new one.

Revision Number	**Bulletin Number**	**Date of Issuance**	**Pages Affected**	**New Page(s) Insertion Date with Signature**
0	---	July 16, 2014	---	Original manual
1~4				Corrected miscellaneous editing errors
5		December 23, 2014		Updated fuel tank
6		December 8, 2015		Updated 914, Miscellaneous Data
7		January 12, 2017	---	Updated Adventure Model
8		July 5, 2017		Updated Elite G3X

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Introduction

0.1 ASTM STANDARDS

The design, construction, and continued airworthiness of the Searey LS all comply with the following ASTM Standards:

- **F2245 – 11 (S/N: 1LK556C) / F2245 – 12d (S/N: 1002through S/N 1014) F2245-13b (S/N 1015 to 1048) F2245-14 (SN1049 and forward)**: Standard Specification for Design and Performance of a Light Sport Airplane
- **F2279 – 06:** Standard Practice for Quality Assurance in the Manufacture of Fixed Wing Light Sport Aircraft
- **F2295 – 06:** Standard Practice for Continued Operational Safety Monitoring of a Light Sport Aircraft
- **F2483 – 12:** Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft
- **F2746 – 12**: Standard Specification for Pilot's Operating Handbook (POH) for Light Sport Airplane

0.2 MANUFACTURER CONTACT INFORMATION

PROGRESSIVE AERODYNE
3801 State Road 19
Tavares, Florida 32778
United States of America

Phone: 352-253-0108
Fax: 352-253-0110
Email: support@Searey.com
Website: www.Searey.com

0.3 SUPPORT CONTINUATION INFORMATION

In the event that Progressive Aerodyne becomes unable to support the Searey LSA, a bulletin will be issued including the new location for data and the contact information for recovery of certification documentation and for further continued operational support.

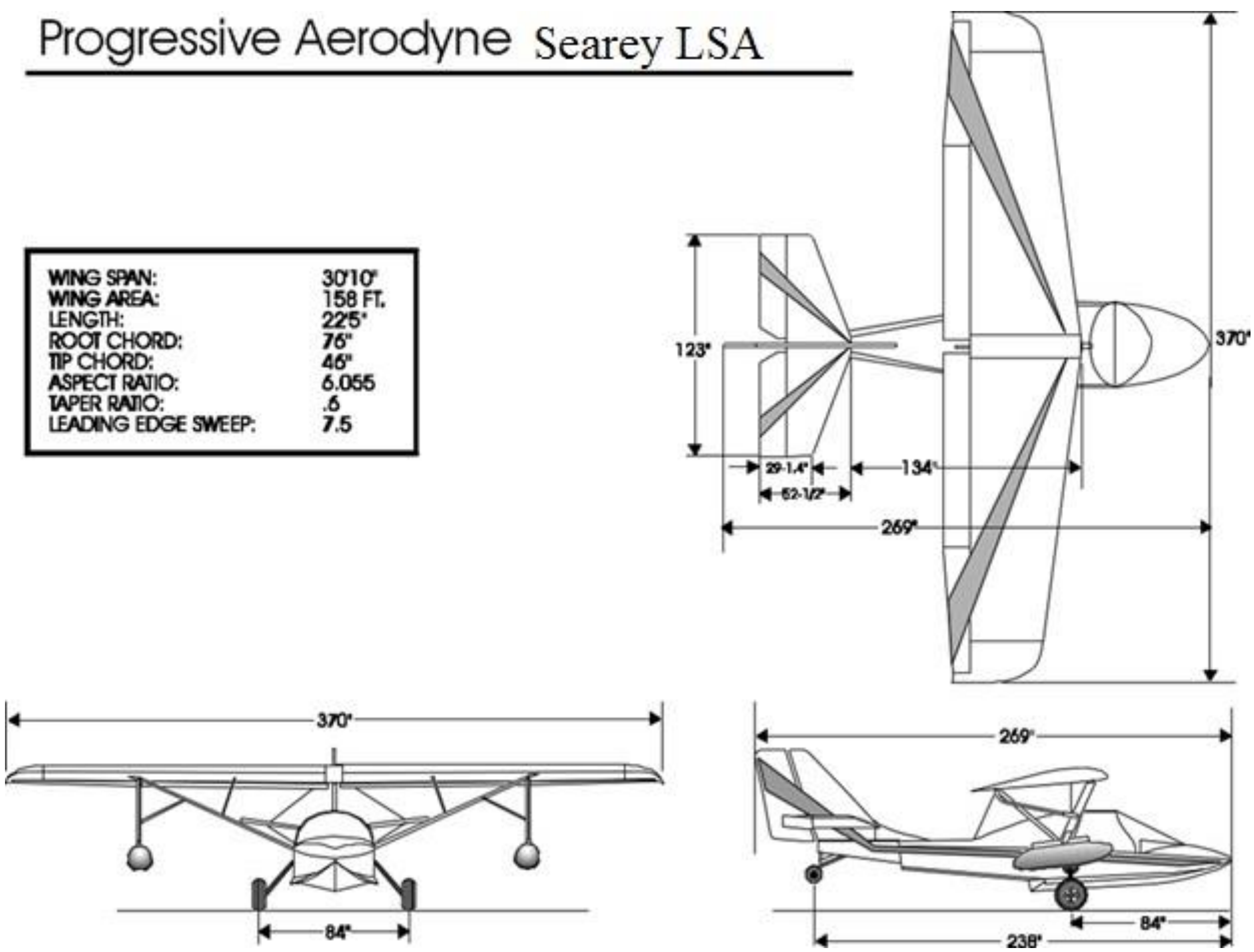
1.1 INTRODUCTION TO AIRPLANE

The Searey LSA aircraft is a two-place factory-built amphibian produced to fully meet the ASTM Light Sport Airplane industry standards. It is powered by a Rotax, 4 cylinder, 4-cycle internal combustion engine. The physical size is:

Wingspan: 30’ 10”

Length: 22’ 5”

Height: 7’ 2”



1.2 PERFORMANCE SPECIFICATIONS

Gross Weight (MTOW)	1430 lbs.	
VNE - Never Exceed Speed	120 MPH	
VH (**Adventure configuration**: Powered by Rotax 912 ULS, 100 HP engine) – Max. Cruise Speed at 5500 RPM at Sea Level	95 MPH	
VH (**Elite configuration**: Powered by Rotax 914 UL, Turbo charged, 115 HP engine) – Max. Cruise Speed at 5500 RPM at Sea Level	105 MPH	
Full Fuel Range (**Adventure configuration**, Powered by Rotax 912ULS engine) with 30 minute Day VFR reserves (as required by FAA)	75% Power at 5250 RPM burns 5.5 Gal/hr at 91 MPH with 30 minute reserve yields 317 miles at Sea Level 55% Power at 4700 RPM burns 4.0 Gal/hr at 80 MPH with 30 minute reserve yields 398 miles at Sea Level	At 5500 RI reserve yie At 5250 RI reserve yie
Full Fuel Range (**Elite configuration**, Powered by Rotax 914 UL engine) with 30 minute Day VFR reserves (as required by FAA)	75% Power at 5000 RPM burns 5.3 Gal/hr at 98 MPH with 30 minute reserve yields 430 miles at Sea Level 55% Power at 4500 RPM burns 3.0 Gal/hr at 81 MPH with 30 minute reserve yields 554 miles at Sea Level	
Adventure configuration: Engine Power Output (Rotax 912ULS)	Max Power: 98.6 HP (73.5 KW) at 5800 RPM, max 5 minutes Max Continuous Power: 92.5 HP (69 KW) at 5500 RPM	

Elite configuration: Engine Power Output (Rotax 914 UL)	Max Power: 115 HP (84.5 KW) at 5800 RPM, max 5 minutes Max Continuous Power: 99.9 HP (73.5 KW) at 5500 RPM
Vy – Best Rate of Climb Speed	63 MPH IAS with 10 degrees of flaps
Vx – Best Angle of Climb Speed	58 MPH IAS with 20 degrees of flaps
Vs - Stall Speed with Flaps not Extended	47 MPH IAS
Vso – Stall Speed with Flaps Extended	40 MPH IAS with Flaps 30°
Va – Maneuvering Speed at gross weight	92 MPH KCAS 94 MPH IAS
Va (min) – Maneuvering Speed at minimum weight	79 MPH KCAS 82 MPH IAS
Total Fuel Capacity	23 Gallons
Total Usable Fuel	22 Gallons
Approved Fuel Types	Premium 91 Octane Minimum (R+N)/2 method or 100 LL AvGas – No more than 10% Ethanol by volume (no ethanol in fuel preferable)

2.1 AIRSPEED INDICATOR – SPEED RANGE MARKINGS

COLOR	IAS	DESCRIPTION
White Arc	40 – 80 MPH	**Full Flap Operating Range** Lower limit is at Gross Weight. V_{SO} in landing configuration. Upper limit is maximum speed permissible with flaps extended. Vfe
Green Arc	47 – 94 MPH	**Normal Operating Range** Lower limit is at Gross Weight. V_S with flaps retracted. Upper limit is maximum structural cruising speed (Vno)
Yellow Arc	94 – 120 MPH	**Caution Range** Operations must be conducted with caution and only in smooth air.
Red Line	120 MPH	**Never Exceed Speed** - Vne

2.2 STALLING SPEEDS AT MAXIMUM TAKEOFF WEIGHT (V_S to V_{SO})

V_S: 47 MPH IAS

V_{SO}: 40 MPH IAS

2.3 FLAP EXTENDED SPEED RANGE (V_{SO} to V_{FE}):

40 – 80 MPH

2.3.1 FLAP LIMITATIONS

Flap setting for takeoff and landing on water is 30 degrees. Takeoff from land use 10 degrees and landing on land use 10 to 30 degrees.

1. Maximum positive load factor with flaps +2g
2. Maximum negative load factor with flaps -1g

2.4 MANEUVERING SPEED (V_A) AT GROSS WEIGHT AND MINIMUM WEIGHT

94 MPH IAS, Gross weight

82 MPH IAS, Minimum weight

2.5 NEVER EXCEED SPEED (V_{NE})

120 MPH IAS

2.6 SERVICE CEILING

With Rotax 912 ULS (100 HP): 13000 feet

With Rotax 914 UL (115 HP Turbo charged): 17000 feet

2.7 MANEUVERING LOAD FACTORS

1. Maximum positive limit load factor + 4g
2. Maximum negative limit load factor - 2g
3. Maximum positive load factor with flaps +2g
4. Maximum negative load factor with flaps -1g

2.8 APPROVED MANEUVERS

This aircraft is intended for non-aerobatic flight and the following maneuvers are approved

1. Any maneuvers incidental to normal flying
2. Stalls (except whip stalls)
3. Lazy eights, chandelles and steep turns in which angle of bank does not exceed 40 degrees

General limitations for maneuvering in this aircraft are:

30 degrees pitch, 40 degrees angle of bank

WARNING: Aerobatic maneuvers, including spins, are not permitted.

2.9 TOTAL FUEL CAPACITY

23 Gallons

2.10 TOTAL USABLE FUEL

22 Gallons

2.11 APPROVED FUEL TYPES

The Rotax engine(s) requires a minimum of 91 AKI ("premium"). Rotax manuals mention a rating of 95. This rating is calculated based on the RON standards used in Europe and is equivalent to a rating of 91 under the AKI standards used in North America. Use of 100LL AvGas is also allowed though not preferred. For further information refer to Rotax 912 ULS and 914UL series Operator's Manual supplied with the aircraft.

In China besides AvGas 100LL, the fuel that can be used is 97#.

In all cases, we recommend using as high an octane rating as possible, since fuel evaporates and quickly loses its octane rating when it lies in an aircraft's fuel tank or in a plastic jug. A "premium" fuel will see its octane rating reduced to unusable levels after as little as three weeks. Fuel with a lower octane rating has an even shorter usable life.

Too low an octane rating will cause pre-ignition and detonation, which can damage the piston ring grooves, skirt and crown.

Ethanol in fuel is allowed though not preferred up to a maximum of 10% (E10). Ethanol added fuel can reduce its octane rating faster and should be used up within a shorter period of time. Storage over longer period of time requires removal of fuel.

2.12 MAXIMUM ENGINE POWER OUTPUT AT STATED RPM

With ROTAX 912ULS (Adventure Configuration)

Maximum Power* (5 minutes)	98.6 HP / 73.5KW @ 5800 RPM
Maximum Power (sustained)	92.5 HP / 69.0KW @ 5500 RPM

With ROTAX 914UL (Elite Configuration)

Maximum Power* (5 minutes)	115 HP / 84.5KW @ 5800 RPM
Maximum Power (sustained)	99.9 HP / 73.5KW @ 5500 RPM

2.13 ENVIRONMENTAL LIMITATIONS

2.13.1 SMOKING

Smoking is prohibited at all times.

2.13.2 CROSSWIND COMPONENT

Maximum demonstrated crosswind component for takeoff and landing on land: 15 MPH

WARNING: Water takeoff and landings should be done into the wind as much as possible. Significant crosswind component can increase operational hazards in water takeoff and landings

2.13.3 HEADWIND COMPONENT

Maximum permissible headwind component for takeoff and landing: 20 MPH

2.13.4 TAILWIND COMPONENT

Maximum permissible tailwind component for takeoff and landing: 5 MPH

2.13.5 AMBIENT TEMPERATURE

Flights are permitted only under no icing conditions. Operational temperature range is -13 degrees to 120 degrees Fahrenheit.

2.13.6 ICING CONDITIONS

Flight into known icing conditions is prohibited.

2.13.7 CLOUDS, STORMS and OTHER WEATHER EVENTS

This aircraft is not certified for operation in IMC (Instrument Meteorological Conditions) or heavy rain operation. Always stay clear of clouds and have visual contact with the ground. Follow the airspace classification regarding distance from clouds. Always evaluate weather during your flight and try to get weather information from your destination using radio whenever possible. When weather is deteriorating make a diversion or turn back before the low cloud base and/or low visibility are critical.

2.14 VFR NIGHT OR IFR USE LIMITATIONS

The aircraft is not intended for IFR. VFR night flight on clear nights with operating lights is allowed. The landing lights should only be used while takeoff or landing and not continuously. Water landings at night without lighting assistance from the water are not allowed and can be very dangerous.

2.15 REQUIRED EQUIPMENT

Do not operate this aircraft without at least the following equipment operation except as allowed by local civil aviation authority regulation for the purpose of flying to a repair facility or mechanic such as FAR 91.215

1. Air Speed Indicator
2. Altimeter
3. Magnetic Heading indicator (required for United States per Part 91.205)
4. Oil Temperature indicator
5. Oil Pressure indicator
6. Cylinder Head Temperature indicator (at least one, hotter cylinder)
7. Engine Tachometer or RPM indicator
8. Manifold Pressure Gauge (914UL Elite configuration only)
9. Fuel Level indication
10. Landing Gear Position indication (use visual if needed)

3.1 GENERAL INFORMATION ON EMERGENCY PROCEDURES

This section contains procedures for various emergencies that may occur. Emergencies caused by aircraft or engine malfunctions are rare if proper pre-flight inspections and maintenance are practiced. Not all emergencies that may occur can be listed here in full; therefore their solution depends on experience of the crew controlling the course of such events.

3.2 AIRSPEEDS FOR EMERGENCY PROCEDURES

	SPEED
Engine Failure After Takeoff • Wing Flaps Up	65 MPH
Engine Failure After Takeoff • Wing Flaps Down 30°	60 MPH
Landing without Engine • Flaps Up	57 MPH
Landing without Engine • Flaps Down 30°	47 MPH

3.3 EMERGENCY CHECKLISTS

3.3.1 ENGINE FIRE DURING START

Due to the high-octane fuel carried by the aircraft, there is always the possibility of a violent explosion occurring if an aircraft catches fire. Personnel are therefore warned not to take undue risks in attempting to save an aircraft that is obviously well alight. A small fire extinguisher is only meant to be used on small fires. For large fires, trained personnel with appropriate equipment are required.

Throttle	CLOSED
Ignition	OFF
Fuel	OFF
Master Switch	OFF
Evacuate the aircraft and move away	
Extinguish fire (if possible)	
Fire damage	INSPECT

3.3.2 ENGINE FAILURE DURING TAKEOFF

3.3.2.1 ENGINE FAILURE DURING TAKEOFF RUN

If sufficient runway/strip/waterway is available, lower the nose and come to a complete stop in a controlled manner. If there are obstacles in the path of the aircraft a slight change in heading may be made to line up on the most suitable area that is safe until aircraft slows down especially on water.

Throttle	CLOSE
Brakes	APPLY
Ignition	OFF

3.3.2.2 ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

If the altitude above ground is low, make an immediate plan for finding a landing point to which a slow but controlled landing can be made with least impact of the fuselage. Do not try to return to the runway unless there is enough altitude to work with and a clear approach can be made. Consider the effect of the wind, as a downwind landing will likely be made. If possible, shut off the fuel supply valve and master switch. Once a safe landing is assured, do not try to restart the engine, simply execute the landing.

Airspeed – Flaps UP	65 MPH
Airspeed – Flaps DOWN	60 MPH
Fuel	OFF
Ignition	OFF
Wing Flaps	AS REQUIRED

3.3.3 LOSS OF ENGINE POWER DURING FLIGHT

Airspeed	60 MPH
Fuel (troubleshoot)	CHECK ON
Electric Fuel Pump	ON
Ignition – if propeller is stopped	START

3.3.3.1 RESTARTING THE ENGINE DURING FLIGHT

It is unlikely that the engine will stop during normal maneuvers. However, in the event of the engine stopping in flight, the following procedure will normally allow the engine to be restarted without problems.

3.3.3.1.1 USING STARTER MOTOR

Throttle	OPEN 1/4
Fuel	CHECK ON
Electric Fuel Pump	ON
Master Switch	ON
Ignition	BOTH L & R ON
Starter	TURN KEY & START

CAUTION: Because of the high compression ratio of the Rotax four-cycle engines, the propeller will not windmill, even in a steep dive. If the engine cannot be restarted by using the starter motor, carry out the procedure as set out in Section 3.3.4 of this document.

3.3.3.2 ENGINE FAILURE CHECKS

3.3.3.2.1 INITIAL CHECK

Clogged fuel line or filter or hole in fuel line?

Fuel	ON
Fuel Sump	CHECK CONTENTS

3.3.3.2.2 TROUBLESHOOT

Fuel	ON – Contents sufficient
Oil pressure & temperature	NORMAL
Ignition	CHECK L & R - Both Switches ON
Throttle	OPEN - check for operation
Choke	OFF

3.3.3.2.3 SAFETY CHECK

Brakes	OFF
Switches	OFF – Ignition and Master
Fuel Pumps / Fuel	OFF
Occupants	HARNESS SECURE
Canopies/Hatches	SET FOR LANDING
Undercarriage	SET FOR LANDING

3.3.3.3 CARBURETOR ICING

A gradual loss of RPM and eventual engine roughness may result from the formation of carburetor ice. The chance of the formation of carburetor ice is reduced by the use of a carburetor heater warmed by engine coolant and is always on the Adventure Configuration (912ULS powered). On Elite configuration with 914UL powered aircraft, the chance of carburetor icing is reduced by the use of the turbo compressor and the engine cowling where some hot air is directed to the air filters under the cowling continuously. Thus no pilot action to turn on carburetor heat is required.

3.3.3.4 SPARK PLUG FOULING

A slight engine roughness in flight may be caused by one or more spark plugs becoming fouled. This may be verified by turning the ignition switch from BOTH to either L or R position. An obvious power loss in a single ignition operation is evidence of spark plug trouble.

3.3.4 EMERGENCY LANDING WITHOUT ENGINE POWER

Wing Flaps	20 Degrees
Airspeed	60 MPH
Fuel	OFF
Ignition	OFF
Radio, if available	Transmit Distress Call
Transponder, if available	Set code 7700
Sliding Canopies	Unlatched, Partially Open
Touchdown	**LAND**: Brake hard **WATER**: As normal **IF SHORT**: Back stick

3.3.4.1 OTHER PROCEDURES FOR LANDING WIHTOUT ENGINE POWER

- Convert any excess speed to height and at the same time perform the checks listed in paragraph 3.3.3.2.1.
- Place the aircraft at optimum gliding angle/attitude/speed.

- Select the most suitable field/waterway, bearing in mind height above the ground, wind speed and direction and the availability of assistance after landing.
- Plan descent in relation to the selected field/waterway – aiming to reach a base leg position – as for a normal glide approach.
- Keeping within easy gliding distance of the field/waterway, carry out the procedure listed in paragraph 3.3.3.2.2.
- If the engine cannot be restarted, continue as planned, brief the passenger and send distress signal, if radio is available.
- During descent, use flaps intelligently. Aim to have 10° of flap on base leg – use 30° when you are sure of making the field/waterway – turn off all fuel and electrical switches at a time early enough not to interfere with concentration over the final stages of the emergency landing. Refer to paragraph 3.3.3.2.3.

NOTE: If intending to use the aircraft radio for communication, make a thorough inspection to ensure that no fuel is spilled that would be likely to cause a fire if the electrical circuits are reactivated.

3.3.4.2 DITCHING (Without power)

Landing Gear	UP POSITION
Radio, if available	TRANSMIT DISTRESS CALL
Transponder, if available:	SQUAWK 7700
Baggage, etc.	SECURE OR JETTISON
Approach	HIGH WINDS/HEAVY SEAS – Into Wind LIGHT WINDS/HEAVY SWELL – Parallel to swell
Wing Flaps	30°
Airspeed	55 MPH
Passenger	Brief – Headset, Seat Belts, Canopy, Orientation, Cockpit Exit, Life Jacket/Raft, Face Protection, Clothing

3.3.5 PRECAUTIONARY LANDING WITH ENGINE POWER

In the event of a landing having to be made by virtue of deteriorating weather conditions, or for any reason where it is impossible to continue a flight and where no engine malfunction has occurred, proceed as follows:

Airspeed	60 MPH
Wing Flaps	20°

3.3.5.1 OTHER PROCEDURES FOR PRECAUTIONARY LANDING WITH ENGINE POWER

- Aim to land the aircraft at the nearest suitable airfield/waterway or authorized landing ground.
- If worsening flying conditions make this impossible or a proper landing ground is unavailable, select the largest and best open area for landing (as close as possible to habitation).
- Where any area other than a recognized airport or waterway is to be used, make dummy runs over the selected approach and landing path. The dummy runs should be flown at various heights where possible. Never carry out dummy runs up and down sloping terrain, always fly across the slope.
- Where appropriate, carry out a short field landing.

3.3.6 FIRE IN FLIGHT

Due to the high-octane fuel carried by the aircraft, there is always the possibility of a violent explosion occurring if an aircraft catches fire. Personnel are therefore warned not to take undue risks in attempting to save an aircraft that is obviously well alight. A small fire extinguisher is only meant to be used on small fires. For large fires, trained personnel with appropriate equipment are required.

3.3.6.1 ENGINE FIRE IN FLIGHT

Engine Fire – Symptoms confirmed – Shutdown Immediately

Throttle	CLOSED
Ignition	OFF
Fuel Pumps / Fuel	OFF
Landing	Plan EMERGENCY descent and landing
Radio, if available	TRANSMIT MAYDAY CALL
Emergency landing	Refer to paragraph 3.3.4

3.3.6.2 ELECTRICAL FIRE IN FLIGHT

Master Switch	OFF
Troubleshoot	IDENTIFY and ISOLATE Faulty Circuit
Canopy	CLOSED
Fire Extinguisher	ACTIVATE (if available)

WARNING: After discharging extinguisher within closed cabin, open sliding canopies to ventilate cabin.

Carry out an emergency landing at the nearest appropriate airport/waterway or landing ground.

If the fire persists, sideslip away from the flames. Instruct passenger as necessary. Proceed to an early landing.

Do not turn the generator off in flight, except in an emergency.

3.3.7 LOSS OF OIL PRESSURE

If low oil pressure is accompanied by normal oil temperature, there is a possibility the oil pressure gauge or relief valve is malfunctioning. If the condition persists a landing at the nearest airport would be advisable to inspect the source of trouble.

If a total loss of oil pressure is accompanied by a rise in oil temperature, there is every reason to suspect an engine failure is imminent. Reduce engine power immediately and select a suitable forced landing field, using only the minimum amount of power application to carry out the landing.

3.3.8 HIGH OIL PRESSURE

Power	REDUCE
If a reduction in power does not help	Perform a precautionary landing

3.3.9 EMERGENCY DESCENT

Throttle	IDLE
Descend	NOT EXCEEDING VNE

3.3.10 ALTERNATOR FAILURE

If the alternator fails, the electrical system will run on a fully charged battery for about 0.75 hours. However, it would be prudent and highly advised to land and resolve the problem as soon as practical. Some equipment when operated at low RPM may give a warning of battery discharge which should disappear with higher power settings. This equipment includes landing gear re-positioning linear actuators or even a long radio communication at idle power. This is normal and expected and is transient in nature. CAUTION: Battery or other electrical power is required for operation of the fuel pumps for Rotax 914 engines.

Non-essential Equipment	OFF
Generator C/Breaker	CHECK – IN

3.3.10.1 IF LOW VOLTAGE LIGHT ILLUMINATES AGAIN

All Non-essential Equipment	OFF
Flight	TERMINATE

3.3.10.2 OVERVOLTAGE

There is an over-voltage protection circuit that will interrupt the alternator feed automatically. If this happens the aircraft will draw on battery alone until a low voltage condition is experienced. Use the EFIS to reset the over-voltage condition, and the alternator will again be connected which may restore normal power or may again result in an automatic disconnect of the alternator. Terminate flight.

3.3.11 INADVERTENT SPIN

Throttle	CLOSED
Ailerons	NEUTRAL
Spin Direction	IDENTIFY
Rudder	FULL OPPOSITE to direction of spin
Stick	Progressively forward until rotation ceases
When rotation ceases	Level wings and recover from dive

WARNING: DELIBERATE SPINS ARE PROHIBITED

3.3.12 INADVERTENT ICING ENCOUNTER

Course	Alter course to obtain an outside air temperature that is less conducive to icing.
Altitude	Change altitude to obtain an outside air temperature that is less conducive to icing.
Throttle	OPEN to increase engine speed and minimize ice buildup on propeller blades
Airframe	If airframe ice formation is rapid or buildup is significant, plan a landing at the nearest airport.
Stall Speed	Be prepared for a higher stall speed.
Landing	With ice buildup, make faster landing approach 69-75 MPH

3.3.13 LOSS OF PRIMARY INSTRUMENTS

The primary flight parameters and the instruments that present them are:

Attitude (EFIS: artificial horizon)
Airspeed (EFIS: airspeed. Mech. ASI: airspeed, GPS: ground speed)
Altitude (EFIS: altitude)
Vertical speed (EFIS: vertical speed)
Turn & bank (EFIS: turn & bank)
Magnetic heading (EFIS: mag. heading, GPS: mag. heading)

The following should be kept in mind:

1. The Searey LSA is a VFR aircraft and flight by reference to the visible horizon is still primary. In case of any failure the first priority is to FLY THE PLANE and AVOID OBSTICLES. Do not be distracted from maintaining attitude, altitude and airspeed while trying to solve a cockpit problem.
2. In the case of an EFIS failure there is still the mechanical airspeed indicator and the GPS. The GPS has a horizontal situation indicator (HIS) page that indicates primary flight information and ground speed. These are excellent backups for the EFIS. It must be noted that the GPS altitude is not the same as barometric altitude and there can be several hundred feet difference in reading.

3. In the case of a failure of the mechanical airspeed indicator, the EFIS presents the same information.
4. In the case of a failure of the GPS, primary flight information is not lost but navigational information will not be available unless mapping is provided in the EFIS. If assistance is required with the loss of the GPS, communications with Air Traffic Control can be established via voice on the com radio or via radar guidance with transponder assist. The pilot should be prepared with strategies for dealing with various unexpected situations.

3.3.14 LOSS OF FLIGHT CONTROLS

Assess which flight controls are lost. Slow down immediately below 80 MPH.

1. If the ailerons are lost, flight is capable with rudder control.
2. If the rudder is lost, flight is capable with aileron control.
3. If one elevator is lost, pitch control will be sluggish but manageable.
4. If it is a total loss of elevators, varying power and airspeed settings can compensate to a point where a landing is possible, but will be a rough landing.
5. If it is a loss of control forward where the push-pull tube attaches to the control column where the stick is located, then the adjustable trim can be used.

4.1 PREFLIGHT CHECK

Preflight inspection must be conducted before the first flight of the day. The preflight inspection is recommended prior to any flight or series of flights by one pilot on any given day. Prior to each flight, at a minimum, fuel, oil quantity must be checked along with a general walk around the aircraft.

1. If the aircraft has been stored outside, the engine area and other points of entry should be checked for evidence of bird or rodent occupancy. Wiring should be checked in such a case for possible rodent bites. All control surfaces and travel stops should be examined for damage. When operating from gravel fields, pay special attention to propeller leading edges. Fuel caps should be periodically monitored for any deterioration to avoid fuel leakage in-flight or water or grime infiltration.
2. The aircraft's general condition should be noted during a visual inspection of the aircraft. Inspect any signs of deterioration, distortion and any damage to the aircraft. In cold weather, all traces of ice, snow, and frost should be removed from the aircraft. Make sure that no ice, snow or debris is trapped between any movable control surfaces.
3. Make sure that all instruments are in good condition and that there is no cracked or broken glass. The Airspeed indicator should read zero and altimeter should be checked against ramp or field elevation.
4. Do not activate the electrical system when anyone is near the propeller in order to prevent injury that can possibly result from electrical system malfunction.
5. Pay special attention to the propeller area – make sure the ignition and master switches are OFF before touching the propeller. Avoid touching propeller, when possible, to prevent potential injury resulting from electrical system malfunction. Do not push the propeller in a direction opposite from normal rotation as air may enter the oil lines.

WARNING: DO NOT FLY THE AIRCRAFT IF YOU FIND ANY DAMAGE OR PROBLEMS DURING A PREFLIGHT INSPECTION. ALWAYS CONSULT AUTHORIZED PERSONNEL FOR REPAIRS.

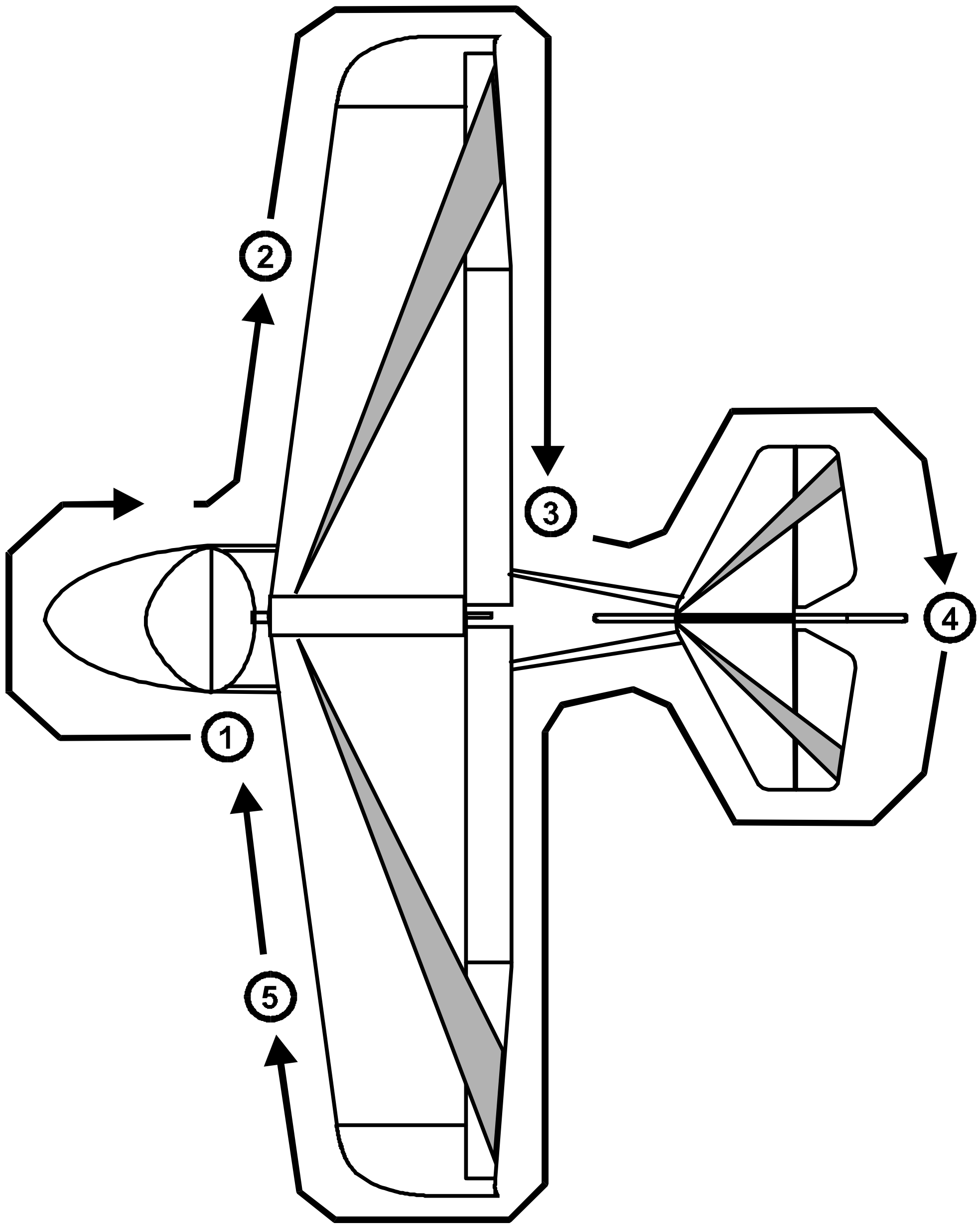


Figure 1 – Preflight Inspection

4.1.1 PREFLIGHT INSPECTION AREA 1 – COCKPIT and FORWARD FUSELAGE

1	**Flight Manual & Aircraft Documentation**	AVAILABLE
2	**Control Lock (if fitted)**	REMOVE
3	**Front Nose Hatch Off**	Check Elec/Batt area
4	**Nose Ballast (as needed for CG)**	Fitted/Secured
5	**Front Nose Hatch (Camlocs)**	Secured
6	**Ignition Switch**	OFF
7	**Master Switch**	ON
8	**EFIS Startup (37 seconds)**	CHECK
9	**Visual check of fuel quantity**	CHECK
10	**Confirm Fuel Quantity on EFIS vs Visual**	CHECK
11	**Electric Trim Operation**	CHECK
12	**Bilge Pump Operation & Hull Water**	CHECK - Drain Any Accumulated Water
13	**Set Flaps to 30 degrees (flaps actuate)**	CHECK
14	**Master Switch**	OFF
15	**Landing Gear Wheels Down Position Lights (Land only)**	ON (LAND ONLY)
16	**Landing Gear Wheels Up Position Lights (Water only)**	ON (WATER ONLY)
17	**Flight Control Full & Free Movement**	CHECK
18	**Aileron Push Rods, Attachment Bolts**	SECURE
19	**Check fuel sump for contamination**	CHECK
20	**Static Ports Clear of Blockage**	CHECK
21	**Windshield Cracks & Clean**	CHECK
22	**Seat Belts, Inertia Reels Functional**	CHECK
23	**Hull Sides & Underside Free of Damage**	CHECK

4.1.2 PREFLIGHT INSPECTION AREA 2 – STARBOARD WING

1	**Starboard Tire Inflation, Condition**	CHECK
2	**Lower Strut/Fuselage Attachment Bolts**	SECURE
3	**Outer Strut & Jury Strut Attachment**	SECURE

4	**Wing Float, Braces & Secure Attachment**	CHECK
5	**Aileron Outer Push-Pull Rod Attachment (Jam locknuts secure)**	SECURE
6	**Aileron Movement and Hinges**	FREE
7	**Flap & Push-Pull Attachment and Hinges**	SECURE
8	**Wing to Aft Fuselage Brace Cable**	SECURE
9	**Wing Tie-Down (if applicable)**	REMOVE

4.1.3 PREFLIGHT INSPECTION AREA 3 - ENGINE

1	**With MAGS OFF! Rotate prop counter Clockwise minimum 2 full turns to circulate oil**	CHECK
2	**Engine Cowling Doors (if applicable)**	OPEN
3	**Engine Cowling Secure to Aircraft (if applicable)**	CHECK
4	**Oil Level and Oil Line attachments, condition**	CHECK
5	**Coolant Level and Hose Attachments**	CHECK
6	**Exhaust retaining Springs**	CHECK
7	**Propeller – Nicks, Cracks & Security**	CHECK
8	**Carburetor Attachment & Induction System**	SECURE
9	**All Pipes & Hoses – Leakage, Wear & Security**	CHECK
10	**Exhaust & Muffler Springs, Cracks, Attachment**	CHECK
11	**Coolant Level & Color**	CHECK
12	**Engine Mounts Condition & Secure**	CHECK
13	**Electrical Cables – Wear & Secure**	CHECK
14	**Engine Cowling Doors Closed (Camlocs)**	SECURE
15	**Forward Hull Drain Plug**	CHECK

4.1.4 PREFLIGHT INSPECTION AREA 4 – EMPENNAGE

1	**Stabilizer Leading Edge Trim Attachment**	CHECK
2	**Elevator Push-Pull Tubes & Horn Attachment**	CHECK
3	**Upper & Lower Tail Cables, Turn Buckle Lock**	CHECK
4	**Elevators & Rudder – Free Movement, Security**	SECURE
5	**Tail Wheel for Inflation & Wear**	CHECK
6	**Tail Tie-Down**	REMOVE
7	**Aft Hull Drain Plug**	CHECK

4.1.5 PREFLIGHT INSPECTION AREA 5 - PORT WING

In addition to carrying out the same checks on the Port Wing as is listed in paragraph 4.1.2 for the Starboard Wing, the Port Wing Preflight Inspection includes:

1	**Fuel Cap Securely Attached**	CHECK
2	**Pitot Tube Clear of Obstruction-Cover Removed**	CHECK
1	**Port Tire Inflation, Condition, Attachment**	CHECK

4.2 ENGINE STARTING

Before starting the engine and conducting any operation, ensure that all articles and equipment are stowed safely and secured. This is of particular importance in the event of any object exiting the cockpit, which could cause damage to the propeller because of the pusher configuration of this aircraft.

4.2.1 BEFORE STARTING ENGINE

Preflight Inspection	COMPLETE
Seat Belts & Shoulder Harnesses Adjusted	CHECK
Overhead Emergency Fuel Shut-off Valve	ON
Master Switch	ON
EFIS Boot up complete and functional	CHECK

Set Parking Brakes or Chocks as Required	SET
Circuit Breakers In (if applicable) **Elite and optionally Adventure configuration is** **Equipped with VPX-Sport, that will do a self** **Check on turning the master on** **Pilots should get familiar with how the VPX can** **Be operated through the EFIS interface**	CHECK

4.2.2 STARTING ENGINE

Master Switch	ON
Electric Fuel Pump	ON

Choke (none if engine warm)	AS REQUIRED
Throttle Closed to 1/4" open	OPEN
Propeller Area	CLEAR PROP
Ignition Switch to Both Position, then twist to Start (No more than 10 seconds)*	START
Oil Pressure normal range (within 10 seconds)	CHECK
Radio & Electrical Equipment as Required	ON

***CAUTION:** Per Rotax engine operating instructions, engine should not be cranked for starting for more than 10 seconds at a time. If engine does not start, check choke (fuel enrichener circuit to be on at cold start) and give a 2 minute cool-down period between cranks. Abusing this procedure can result in melted wire and fire hazard

4.3 TAXIING

Seat Belts & Shoulder Harness On	SECURE
Trim – Full Up for Takeoff	SET
Fuel – Double Check (Minimum 4 gallons)	CHECK
Electric Fuel Pump(s)- 914UL has 2 electric fuel pumps	ON
Flaps - 20° Minimum	SET
Engine Run Up 4000 RPM	COMPLETE
L & R Ignition - RPM drop - not more than 115	CHECK
Engine Instruments (Temps) & Ammeter in Green	CHECK
Minimum Oil Temperature 120 ° F	CHECK
Throttle Reduced to Idle	1700 RPM
Radios, Frequencies etc.	SET
Transponder	SET
Strobe and Nav Lights (As Needed)	ON

4.3.1 TAXIING – ADDITION FOR WATER OPERATION

If Taxiing in water, the following checks must be completed in addition to the checks listed in paragraph 4.3.

Landing Gear Wheels Up Position Lights (Water only)	CHECK
Bilge Pump Operation	CHECK

4.4 NORMAL TAKEOFF

NORMAL LAND TAKEOFF

Throttle Maximum 5800 RPM	OPEN
LAND ONLY: Elevator Control Forward	AS REQUIRED to Lift Tail
Lift Off	46-52 mph
Accelerate to	65 mph
Climb Out and When Established Retract Undercarriage (Ground Operation)	COMPLETE
At Safe Height, Reduce Flaps to 10°	COMPLETE

NORMAL WATER TAKEOFF

Throttle Maximum 5800 RPM	OPEN
LAND ONLY: Elevator Control Forward	AS REQUIRED to Lift Tail
Lift Off	46-52 mph
Accelerate to	65 mph
Climb Out and When Established Retract Undercarriage (Ground Operation)	COMPLETE
At Safe Height, Reduce Flaps to 10°	COMPLETE

4.4.1 ENROUTE CLIMB

Airspeed	63 mph
Throttle	5500 RPM
Flaps Set	10 degrees
Aux Fuel Pump	OFF

4.5 BEST ANGLE OF CLIMB SPEED (VX)

58 MPH IAS – Flaps 20 degrees

4.6 BEST RATE OF CLIMB SPEED (VY)

63 MPH IAS – Flaps 10 degrees

4.7 CRUISE

Throttle, as Required	4800 –5500 RPM
Speed	80-95 (Adventure) -105 (Elite) MPH IAS
Trim	AS REQUIRED

4.8 APPROACH

Fuel Quantity	CHECK
Throttle Set	AS REQUIRED

4.9 NORMAL LANDING

BEFORE LANDING - DOWN WIND CHECK

Canopies: • **Closed for water** • **Comfortable for land**	CHECK
Seat Belts & Shoulder Harnesses	SECURE
Fuel Quantity	CHECK
Fuel Pump	ON
Undercarriage for GROUND LANDING	**DOWN**
Left and right green LG lights	ON
Undercarriage for WATER LANDING	**UP**
Left and right blue LG lights	ON
Flaps Set	10°

NOTE: Take-off and landing on water should be done using 30° of flaps for quick break

4.9.1 LANDING – LAND OPERATIONS

Airspeed Approach	60 – 65 MPH
Flaps Set	20°Adventure 30° Elite
Undercarriage - DOUBLE CHECK	**DOWN**
Touchdown	45-50 MPH
Flaps (After touchdown)	0
Brakes	Apply smoothly
Stick	Smoothly back

4.9.2 LANDING – WATER OPERATIONS

Airspeed Approach	60 mph
Flaps Set	20° Adventure 30° Elite
Undercarriage	**DOUBLE CHECK - UP**
Canopies Closed But Not Locked	CHECK
Touchdown – CARE in Glassy Water Conditions	45-50 mph

NOTE: It is not recommended to operate in wave height exceeding 12 inches.

4.10 SHORT FIELD TAKEOFF AND LANDING PROCEDURES

4.10.1 SHORT FIELD TAKEOFF

Flaps	20° Adventure 30° Elite
Brakes	HOLD
Power	UP
Brakes	RELEASE
Accelerate to	30 MPH
Rotate	45 MPH

Once airborne, between 20 – 50 feet off of the ground, reduce flaps to 20° if obstacles need to be cleared.

4.10.2 SHORT FIELD LANDING

BEFORE LANDING - DOWN WIND CHECK

Airspeed Approach	55 MPH ON SHORT FINAL
Seat Belts & Shoulder Harnesses	SECURE
Fuel Contents	CHECK
Fuel Pump(s) – 914UL has 2 electric pumps	ON
Undercarriage for GROUND LANDING	**DOWN**
LG Position Lights	CHECK

Flaps Set	20° Adventure 30° Elite

4.11 SOFT FIELD TAKEOFF AND LANDING PROCEDURES

Soft ground and/or wet grass will increase the land takeoff distance and pilots should satisfy themselves that adequate runway is available to cover these conditions.

4.11.1 SOFT FIELD TAKEOFF

Flaps Set	20° Adventure 30° Elite
Throttle Maximum 5800 RPM	OPEN
Lift Off	46-52 mph
Accelerate to	65 mph
Climb Out and When Established Retract Undercarriage (Ground Operation)	COMPLETE
At Safe Height, Reduce Flaps to 10°	COMPLETE

4.11.2 SOFT FIELD LANDING

BEFORE LANDING - DOWN WIND CHECK

Airspeed Approach	60 MPH
Seat Belts & Shoulder Harnesses	SECURE
Fuel Contents	CHECK
Fuel Pump – 914UL has 2 electric fuel pumps	ON
Undercarriage for GROUND LANDING	**DOWN**
Left and right amber LG lights	CHECK
Flaps Set	20° Adventure 30° Elite

4.12 BALKED LANDING PROCEDURES

The procedure to be used for a balked landing procedure or a touch-and-go maneuver whether on land or water is to:

Level Altitude	MAINTAIN (initially)
Power	INCREASE SMOOTHLY
Trim	ADJUST TO ESTABLISH A CLIMB-OUT
Positive rate of climb	MAINTAIN
Landing Gear	RETRACT

4.13 AFTER LANDING

Wing Flaps	UP
Fuel Pump **Turn off backup fuel pump for 914UL**	OFF
Strobe Lights	AS REQUIRED

4.14 AFTER LANDING – WATER OPERATIONS – DOCKING & BEACHING

In the case of Docking or Beaching, the following points are recommended to assist in effective and safe operation.

Radio	ON – if at a marina or sea base with radio ops, otherwise OFF
Headsets	REMOVE – only when radio is OFF
Seat Belts & Harnesses	RELEASE
Undercarriage DOWN/UP & LOCKED	AS REQUIRED
Canopies	OPEN – unless water is splashing
Ropes	READY
Ignition – When Required	OFF
Master Switch	OFF
Second Fuel Pump (914UL Elite config)	OFF

4.15 SHUT DOWN

All Electrical Equipment	OFF
Cool-down Engine	At 2000 RPM
Ignition Switch	OFF
Master Switch	OFF
Fuel Pump (electric backup for 912ULS – Adventure)	OFF
Second Fuel Pump (914UL – Elite)	OFF

NOTE: The Elite configuration is powered by 914UL engine which has 2 electric fuel pumps.
One bypasses the Master so that shutting the Master Switch OFF will not shut the engine down. This fuel pump needs to be SWITCHED OFF separately or the battery will drain.

4.16 SECURING AIRCRAFT

Controls Tethered with Seat Belt	SECURE
Canopies	LOCKED
Pitot Tube Cover	FITTED
Chocks	LOCATED
Tie-Downs	SECURE
Cockpit/Engine Covers Fitted	AS REQUIRED

5.1 TAKEOFF TOTAL DISTANCE OVER A FIXED-HEIGHT OBSTACLE USING NORMAL TAKEOFF PROCEDURES

Normal takeoff procedures are defined in Section 4.4. The charts in this Section contain data establishing runway and waterway lengths for takeoff, landing and climb performance at a gross weight of 1430 lbs.

5.1.1 TAKEOFF DISTANCE

The takeoff distance (ground run in feet) with full throttle, flaps deflected 20° and a takeoff safety speed of 53 mph can be determined from the following data. The takeoff distances are for a hard surface runway and/or waterway at sea level conditions. Soft ground and/or wet grass will increase the land takeoff roll distance by approximately 15% from the ground roll distance for land and pilots should satisfy themselves that adequate runway is available to cover these conditions.

A headwind of 10% of takeoff speed can decrease the takeoff roll by 19% and a tailwind that is 10% of takeoff speed can increase the distance for takeoff by 21%

Ground Take-off: Before commencing the takeoff roll, check that the gear is in the fully "down" and locked position. To do this, check that both landing gear lights are lit. After takeoff, retract the gear only after the takeoff safety speed is reached and the aircraft is established in the climb.

Water Take-off: The aircraft may be taxied slowly in the water with the gear in the down position, when transitioning from land or water. Check that the gear is retracted before commencing the takeoff run. Both green landing gear position lights should be lit.

LAND:

912 ULS Powered, Adventure Configuration

Ground roll for takeoff to reach 1.2Vs1 = 350 ft.

(NOTE: Below with 1.2 safety factor for average pilot technique)

Distance to clear 50 foot obstacle at 58 MPH IAS (Vx), 20 degrees of flaps = 1250 ft.

Distance to clear 50 foot obstacle at 63 MPH IAS (Vy), 10 degrees of flaps = 1300 ft.

914 UL Powered, Elite Configuration

Ground roll for takeoff to reach 1.2Vs1 = 270 ft.

(NOTE: Below with 1.2 safety factor for average pilot technique)

Distance to clear 50 foot obstacle at 58 MPH IAS (Vx), 20 degrees of flaps = 1050 ft.

Distance to clear 50 foot obstacle at 63 MPH IAS (Vy), 10 degrees of flaps = 1100 ft.

WATER:

912 ULS Powered, Adventure Configuration

Takeoff roll in water to reach 1.2Vs1 = 550 ft.

(NOTE: Below with 1.2 safety factor for average pilot technique)

Distance to clear 50 foot obstacle at 58 MPH IAS (Vx), 20 degrees of flaps = 1400 ft.

Distance to clear 50 foot obstacle at 63 MPH IAS (Vy), 10 degrees of flaps = 1500 ft.

914 UL Powered, Elite Configuration

Takeoff roll in water to reach 1.2Vs1 = 430 ft.

(NOTE: Below with 1.2 safety factor for average pilot technique)

Distance to clear 50 foot obstacle at 58 MPH IAS (Vx), 20 degrees of flaps = 1100 ft.

Distance to clear 50 foot obstacle at 63 MPH IAS (Vy), 10 degrees of flaps = 1200 ft.

5.2 LANDING TOTAL DISTANCE OVER A FIXED-HEIGHT OBSTACLE USING NORMAL LANDING PROCEDURES

Minimum Approach Speed	55 mph	20° Flap
Normal Approach Speed	60 – 65 mph	20° Flap

- Normal landing procedures are defined in Section 4.9. The landing distances (ground run in feet) that appear in the table have been calculated by using the gross weight of 1430 lbs. at sea level conditions
- These distances are derived using the above minimum approach speed with 20° of flap and engine at idle. After touchdown maximum braking is used to bring the aircraft to a stop. These distances are for a hard level surface. Wet and/or slippery surfaces will increase these distances and pilots should satisfy themselves that adequate runway length is available to cover these conditions.
- In the case of water landings, full reduction of power after touchdown and application of full up elevator below 25 mph will result in best speed reduction and reduced landing distance covered.
- **Ground Landing:** Check that the gear is fully extended in the “down” and locked position. To do this, check that the landing gear position lights are lit. In the event that the gear cannot be extended, use a grass runway and land the aircraft on the hull. Landing gear up on a smooth grass runway minimizes the potential for damage if the gear cannot be fully extended.
- **Water Landing:** Check that the gear is fully retracted and locked in the “up” position with the position lights lit.
- Tail wind and higher density altitudes can have significant effects on landing distance and must be kept in mind by the operator

Note: In the interest of safety and good airmanship, pilots should make a thorough check of gear position, to include confirming “Selected, Indicated and Verified”. Selected refers to checking that the gear position switch is in the proper position. Indicated indicates that the appropriate gear position lights are illuminated. Verified signifies that the pilot has visually confirmed that both main gear are in the proper position for landing.

LAND:

Landing roll on ground = 320 ft.

(NOTE: Below with 1.2 safety factor for average pilot technique)

Landing distance to clear 50 foot obstacle at 55 MPH IAS, 20 degrees of flaps = 850 ft.

WATER:

Landing roll on water = 350 ft.

(NOTE: Below with 1.2 safety factor for average pilot technique)

Landing distance to clear 50 foot obstacle at 55 MPH IAS, 20 degrees of flaps = 860 ft.

5.3 RATE OF CLIMB (ROC)

The climb performance at gross weight can be determined from the following chart. This chart assumes that maximum takeoff power is used.

Altitude – Feet (Standard Atmosphere)	ROC – Feet per Minute (912 ULS – Adventure Configuration)	ROC – Feet per Minute (914 UL – Elite Configuration)
0	600	950
1,000	580	930
2,000	560	920
3,000	510	910
4,000	460	900
5,000	430	890

Note: Climb Data is adjusted for Standard Atmospheric Conditions

5.4 CRUISE SPEEDS

70 – 95 MPH (912ULS – Adventure Configuration)
70 – 105 (914UL – Elite Configuration)

5.5 RPM SETTING AND FUEL CONSUMPTION

Rotax 912ULS Engine

RPM	4700	5250	5800
Percent Power (%) - Approximate	55	75	100
Power – KW	40	55	73
Power – HP	54	74	98
Fuel Consumption in US Gal/Hr	4.5	6.1	7.1
Fuel Consumption in Litres/Hr	17	23	27

Note: For more information, please refer to the Rotax Operators Manual for 912ULS engine

Rotax 914UL Engine

RPM	4500	5000	5500
Percent Power (%) - Approximate	55	75	100
Power – KW	40	55	73
Power – HP	54	74	98
Fuel Consumption in US Gal/Hr	4.0	5.3	6.9
Fuel Consumption in Liters/Hr	15	20	26

Note: For more information, please refer to the Rotax Operators Manual for 914UL engine

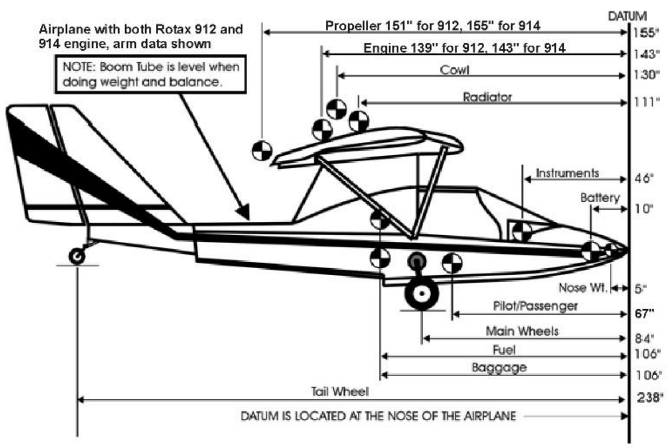
Section 6 – Weight and Balance and Equipment List

6.1 WEIGHT AND BALANCE CHART

All aircraft are structurally and aerodynamically engineered for certain load conditions which result from specific weights and forces anticipated to occur in normal operations within its specified flight envelope.

WARNING: An aircraft's handling qualities and structural integrity may be seriously compromised if the weight and balance limits are exceeded in normal operations. The pilot is responsible for ensuring the weight and balance limits are not exceeded as to weight, its location, distribution and security prior to any flight.

Figure 2



EMPTY WEIGHT AND BALANCE FORM

ITEM	WEIGHT (lb)	ARM (in)	MOMENT(lbxin)
Left Wheel		84	
Right Wheel		84	
Tail Wheel		238	
TOTALS			

WEIGHT AND BALANCE FORM

Aircraft Serial Number:_______________________ Date:_____________

Registration Number:__________________ Owner:_______________________

LOADING CHART

ITEM	WEIGHT SOLO (lbs)	WEIGHT DUAL (lbs)	ARM (in)	MOMENT SOLO(lbs x in)	MOMENT DUAL(lbs x in)
Empty Weight					
Fuel			106”		
Pilot			67”		
Passenger			67”		
Nose weight			5”		
Baggage (max 50 lbs)			106”		
TOTALS			- - -		

SOLO: Loaded C.G. Location=Total Moment/Total Weight=___________
______inches aft of Datum.

DUAL: Loaded C.G. Location=Total Moment/Total Weight=_____
______inches aft of Datum.

(Attention: Fuel Capacity 23 Gal.)

WEIGHT AND BALANCE LIMITS

	Maximum Weight	Minimum Weight
Pilot Weight	250 lbs/114 kilos	120 lbs/54 kilos
Passenger Weight	250 lbs/114 kilos	0 lbs/0 kilos
Maximum Fuel Weight	138 lbs/62.7 kilos	
Maximum Gross Weight	1430 lbs/649 kilos	

Maximum Forward C.G. Limit 95 inches Aft of Datum

Maximum Aft C.G. Limit 100.0 inches Aft of Datum

Datum: 68 inches in front of wing leading edge (from root of wing to front of fiberglass nose)

- Complete each horizontal line of calculation by multiplying Weight by Arm to find the Moment.
- Total the Weight and Moment columns.
- Divide the Total Moment by the Total Empty Weight to determine the Empty Weight Center of Gravity Location, from the Datum.
- **Nose ballast must be calculated and fitted if flying single pilot without passenger to remain within CG limits specified**

In the example below, the Empty Weight Center of Gravity (EWCG) is 107.25 inches aft of Datum. This distance is also known as the Empty Weight Arm.

ITEM	WEIGHT		ARM	MOMENT	
LEFT WHEEL		*Ex: 399*	84”		*Ex: 33516*
RIGHT WHEEL		*Ex: 394*	84”		*Ex: 33096*
TAIL WHEEL		*Ex: 142*	238”		*Ex: 33296*
TOTALS		*Ex: 935*	- -		*Ex: 100408*

EWCG Location = _______(Total Moment) / ___(Empty Weight) = ______ inches aft of Datum

***Example EWCG Location** = 102,312 (Total Moment) / 954 (Empty Weight) = 107.25 inches aft of Datum*

6.1.1 DEFINITIONS

6.1.1.1 EMPTY WEIGHT

The actual weight of the individual aircraft, including the structure, power plant, fixed equipment, any fixed ballast, unusable (in-flight) fuel, lubricants and coolant. Original Empty Weight is determined by actually weighing the new aircraft before it is flown.

WARNING: Any time a major alteration, modification, or repair is performed on the aircraft, its new Empty Weight must be determined by either weighing the aircraft again, or by accurate calculation of the weight changes and their effect on Empty Weight Center of Gravity (EWCG) location. A major alteration or modification results from the addition, deletion, or redistribution of existing equipment and accessories, or from a repair, which results in a significant increase of weight of the airframe or engine. For example: addition or removal of battery, radios, installation of a larger fuel tank or engine, painting the airframe, installation of heavier wheels and tires, etc.

6.1.1.2.1 GROSS WEIGHT

The maximum weight for which an aircraft's structure and performance have been approved for normal operations by its manufacturer. It is the maximum weight (Empty Weight plus useful load) at which an aircraft can be safely operated. Maximum takeoff weight must never exceed the published Gross Weight.

6.1.1.2.2 USEFUL LOAD

The total amount of weight available for pilot, passengers, baggage, cargo and in-flight usable fuel.

6.1.1.2.3 MAXIMUM/MINIMUM WEIGHTS

Due to certain balance, structural and aerodynamic considerations, sometimes a maximum or minimum weight may be specified for certain locations on the aircraft.

6.1.1.2.4 CENTER OF GRAVITY (C.G.)

A point along an aircraft's longitudinal axis at which all the loads and forces are perfectly concentrated and balanced.

6.1.1.2.5 CENTER OF GRAVITY RANGE

The horizontal distance, along an aircraft's longitudinal axis, within which an aircraft has been found to be fully maneuverable at all specified design speeds, weights and loading configurations. All aircraft are designed to operate within a specific center of gravity range.

6.1.1.2.6 MAXIMUM FORWARD/MAXIMUM AFT C.G. LOCATIONS

Every aircraft has specified a forward most and rear most center of gravity location, along its longitudinal axis. These center of gravity location limits are given from a convenient reference (datum) on the aircraft.

6.1.1.2.7 DATUM

A convenient reference point along the longitudinal axis of an aircraft from which all horizontal measurements are taken.

6.1.1.2.8 WEIGHT

Actual individual weight of each item such as airframe, persons, fuel, baggage, cargo, etc., in pounds or kilograms.

6.1.1.2.9 ARM

Horizontal distance, along the longitudinal axis, measured between centroids of an object in the aircraft and the datum line.

6.1.1.2.10 MOMENT

Obtained by multiplying the weight of an item by its arm.

6.1.1.2.11 INSTALLED EQUIPMENT

All optional accessories and equipment permanently installed on an airframe or engine at the time of weighing. These items must be listed in the "List of Installed Equipment". Additions and deletions must be noted in the list each time they are made and new weight and balance calculations performed to determine the magnitude and effect of weight change. Ballast, if permanently installed, must also be listed.

6.1.1.2.12 BALLAST

A specific amount of weight attached in a specific location, which can be temporarily or permanently installed in an aircraft, to help bring its center of gravity within the required limits. If temporary ballast must be used for certain operations, the exact amount and its location must be known for recalculation of weight and balance. A ballast compartment is provided in the very front of the nose of the hull, forward of the battery.

6.1.1.2.13 LOADING CHART

Used to calculate the actual center of gravity location of a ready to fly aircraft. Care must be taken not to exceed the maximum/minimum weight and balance limits stipulated for the aircraft. These limits are determined by structural, stability and control considerations of a particular design.

WARNING: Sometimes it is necessary to adjust or reduce fuel, cargo, or passenger weights to remain at or below maximum allowable gross weight. A temporary or permanent ballast is sometimes necessary to bring the C.G. within specified limits. However, the maximum allowable gross weight should not be exceeded under any circumstances.

6.2 OPERATING WEIGHT AND LOADING (OCCUPANTS, BAGGAGE, FUEL, BALLAST)

- Write the Empty Weight, the Empty Weight Arm and the Moment in the top line of the Loading Chart located in the Weight and Balance Form.
- Fuel weight is calculated at 6 lbs. per U.S. gallon.
- Write in the actual Fuel Arm for your aircraft. See Weight and Balance Data Sheet for the correct distance to use.
- Write in the actual weight of pilot/passenger. Be sure not to exceed the maximum recommended pilot/passenger weights.

- Complete the Loaded Center of Gravity calculations as was done for the Empty Weight Center of Gravity Chart.

Each of the following eight critical loading conditions should be investigated for each aircraft, along with any other possible loading condition that may affect the weight and balance envelope of the aircraft. This is particularly important for those aircraft operated close to the C.G. limits.

WARNING: Be sure the maximum individual weights and the gross weight are not exceeded at any time. Be sure all loaded items are placed in approved locations aboard the aircraft.

Minimum Pilot Weight, with:
Full Usable Fuel, Maximum Cargo
Full Usable Fuel, Zero Cargo
Zero Usable Fuel, Maximum Cargo
Zero Usable Fuel, Zero Cargo

Maximum Pilot/Passenger Weight, with:
Full Usable Fuel, Maximum Cargo
Full Usable Fuel, Zero Cargo
Zero Usable Fuel, Maximum Cargo
Zero Usable Fuel, Zero Cargo

The Loaded Center of Gravity must fall within the specified Maximum Forward and Maximum Aft Limits for each particular aircraft.

An aircraft logbook entry should be made whenever a weight and balance calculation is performed, indicating date, and nature of change, along with the results and name of person performing the calculation. This document, in its entirety, is part of the Aircraft Legal Documents. It must be preserved and made available for inspection by interested parties upon request.

6.3 CENTER OF GRAVITY (CG) RANGE AND DETERMINATION

6.3.1 WEIGHT AND BALANCE LIMITS

	Maximum Weight	**Minimum Weight**
Pilot Weight (without nose weight)	340 lbs	120 lbs
Passenger Weight	340 lbs	0 lbs
Maximum Fuel Weight	138 lbs	
Maximum Gross Weight	1430 lbs	

6.3.2 CENTER OF GRAVITY LIMITS

Maximum Forward C.G. Limit	95 inches Aft of Datum
Maximum Aft C.G. Limit	99.8 inches Aft of Datum
Datum	68 inches in front of wing leading edge (from root of wing to front of fiberglass nose)

6.3.3 PROCEDURE

All permanent equipment, options and accessories should be installed on the aircraft prior to weighing. All equipment options and accessories installed in the aircraft must be listed on the “Installed Equipment List”. That list becomes part of Weight and Balance Documents. Be sure to remove any loose equipment, tools, etc. from the aircraft prior to weighing.

1. The fuel tank should be empty except for unusable fuel. If the fuel tank is not empty, then the exact amount of usable fuel in the tank must be determined. Usable fuel weight and its moment must be deducted from the empty weight calculations before E.W.C.G. can be accurately determined.
2. Oil and coolant tanks and reservoirs must be properly filled before weighing. These and any other liquids necessary for normal operations are considered part of an aircraft’s empty weight.
3. If weighing is done outdoors, make sure there is no wind to affect the weight measurements. For best results, weigh indoors.
4. The scales must be calibrated correctly. All scales must be set on level ground. Any equipment placed on the scales when weighing the aircraft, such as chocks or blocks, should be weighed separately and the weight deducted from the scale reading. These weights should be noted for reference, if necessary.

5. The aircraft must be weighed in a level flight attitude, both longitudinally (front to back) and laterally, as shown in the Weight and Balance Data Sheet.
6. Place a scale under each wheel of the aircraft. Record the weight of each scale on the “Empty Weight and Balance Form”, as shown in the Weight and Balance Data Sheet.
7. Measure the exact horizontal distance from the datum line to center of spindles of wheel axles, as shown in Figure 2. Record these measurements on the Empty Weight and Balance Form.
8. If only one scale is used for weighing, be sure to level the wheels not being weighed before taking the scale readings. Remember, the aircraft must be in proper level flight attitude to ensure accuracy.

6.4 INSTALLED OPTIONAL EQUIPMENT LIST AFFECTING WEIGHT AND BALANCE OR A REFERENCE AS TO WHERE THIS INFORMATION CAN BE FOUND

Information on installed equipment may be found on the original Exhibit A in the sales documentation.

7.1 GENERAL

Type: Two Seat High Wing Amphibian

Engine Installation: Single Engine Pusher. Engine mounted up behind wing.

Wing: Strut braced, 2 spars, fabric covered. Full span flaps and ailerons.

Fuselage: Bolted aluminum tubular frame, bolt mounted into composite fiberglass or carbon fiber hull and enclosed in fiberglass front deck and aft turtle deck.

Landing Gear: Conventional tail-dragger configuration. Mains and tail wheel retractable.

Tail Surfaces: Aluminum tube frame, fabric covered. Trim control is via elevator push-pull tube. Tail surfaces cable braced.

Control System: Dual control sticks and rudder pedals

7.1.1 DIMENSIONS

Wing Span	30' 10"
Wing Chord – Tip	48"
Wing Chord – Root	76"
Wing Area – Incl. Ailerons	157 sq ft
Overall Length	22' 5"
Overall Height	7' 2"
Aileron Area	12 sq ft
Elevator Area	8 sq ft
Stabilizer Area	16 sq ft
Rudder Area	7 sq ft
Fin Area	10 sq ft
Aspect Ratio	6.06
Wheel Track	84"
Tire Size – Mains	6.00 x 6"
Tire Size – Tail	280/250 x 4"
Cockpit Height	3' 10"
Cockpit Width	3' 10"

Cockpit Length	4’ 6”

7.1.2 MAXIMUM APPROVED WEIGHTS

Gross Weight	1430 lbs
Maximum Takeoff Weight	1430 lbs
Maximum Landing Weight	1430 lbs
Maximum Baggage Weight	50 lbs
Basic Empty Weight (Adventure configuration 912ULS powered)	965 lbs
Basic Empty Weight (Elite configuration 914UL powered)	988 lbs

7.1.3 MINIMUM OCCUPANT LOADING

120 lbs. Requires removable ballast in nose of the hull to come within CG range.

7.1.4 MAXIMUM OCCUPANT LOADING

Maximum Combined Occupant Load to be not more than 500 lbs.

7.2 AIRFRAME

7.2.1 FUSELAGE

General: The fuselage is basically an aluminum structure assembled from tube and fittings by bolting and riveting. This aluminum structure carries the structural loads in flight and during landings on the ground. The fuselage frame is bolted into the molded fiberglass or carbon hull which is then enclosed with a fiberglass forward deck and a fiberglass turtle deck, located aft. The molded hull carries the water loads during water landings.

Hull: The hull is molded from woven fiberglass or carbon fiber cloth and vinyl-ester or epoxy resin and is coated on the outside surface with gel coat and painted with DuPont Imron finish. Typically, the hull is made up of fiberglass and carbon fiber laminations with a foam sandwich core.

7.2.2 WINGS

The wing is constructed of aluminum tubes, riveted and bolted together. Some fiberglass and sheet aluminum fairings are used to define the airfoil contour at the leading edge and wing tips. The entire wing is covered with fabric. The wing has internal drag bracing and two external lift struts. The outboard section of the leading edge is fitted with a leading edge fiberglass extension to ensure good behavior during stalls.

7.2.3 UNDERCARRIAGE

The landing gear is of the conventional tail-dragger configuration. The main gear and tail wheel are electrically repositionable for water operations. The main gear swings upward and the tail wheel swings forward and upward when retracted.

CAUTION: The tail wheel is extended downward by a stainless steel cable linked to the undercarriage system. Care should be taken when moving the aircraft backward, as damage may result if excessive pressure is exerted on the cable.

WARNING - WATER LANDINGS: Pilots should make absolutely certain that the undercarriage is in the "UP" and locked position at all times, when carrying out water landings. Serious aircraft damage and personal injury may result if this is not observed.

7.2.3.1 ELECTRIC LANDING GEAR

The landing gear may be operated at any speed. The landing gear is operated by two linear actuators, each driving one of the legs. Power comes directly from the battery through the cockpit landing gear reversing switch and then divides through the left and right 10 a. circuit breakers to the individual actuators. Internal switches in the actuators determine the range of operation. The circuit breakers are of the pull-able type allowing movement of the legs individually. The landing gear should only be operated while the aircraft is in the air or water deep enough that the wheels will not touch solid ground.

CAUTION: UNDER NO CIRCUMSTANCES SHOULD THE LANDING GEAR BE USED TO LIFT THE PLANE. Damage to the aircraft will occur.

- There are multiple micro-switches associated with the landing gear mechanism. These switches do not play a role in the operation of the landing gear. They do indicate to the pilot the position of each gear leg via the four lamps surrounding the landing gear switch as well as indicating the position to the EFIS landing gear alert feature.
- **Fault?** If both of the landing gear legs fail to move and stay in the down position, a safe landing on a runway is advised. If both fail in the up position, a water landing is best although a landing on soft smooth ground would minimize or totally avoid damage to the hull. If one gear stays up and one down, a landing on soft smooth ground is advised.

7.2.3.2 LANDING GEAR ADVISORY FUNCTION

The landing gear advisory function is contained in the Garmin G3X. The parameters used to determine an alert are (a) landing gear position, (b) flap position and (c) airspeed. The system will automatically detect Flight Mode and Landing Mode depending on flap position and airspeed thresholds.

- Above the "gear up airspeed" and with flaps fully retracted the system will prompt the pilot to "check landing gear". The Searey should normally be flown with the landing gear in the up or retracted position for safety.
- Below the "gear down airspeed" and with a non-zero degree flap position, the system will prompt the pilot with "check landing gear" and require the pilot to select a water or runway landing intention which must match the detected landing gear position. If no match is detected in 15 seconds, a new message and audio alert will be presented by the EFIS. See the Garmin G3X Installation Manual for more detailed information about the use and operation of this function.
- **Fault?** The pilot should not rely on this system to be told where to place the landing gear for an intended landing. This system is a backup to normal checklist use and pilot discipline to assure safe landings.

7.2.3.3 MAIN WHEELS

The wheel rims are two-piece split hub aluminum alloy. The two halves of the wheels are 8" in diameter and are assembled with bolts.

7.2.3.4 TIRES

The tires are 6.00 x 6". Inflate to 26 psi for operation on sealed runways.

7.2.3.5 TAIL WHEEL

The tire is a 280/250 – 4". Inflation pressure is 25 psi. Lubricate all bearings frequently.

7.2.3.6 WHEEL BRAKES

Hydraulically actuated Matco brakes are fitted to the main gear. The brake discs are bolted to the wheel hubs with AN bolts.

The hand-operated hydraulic brakes are applied by squeezing the brake lever which is located on the throttle handle.

7.3 FLIGHT CONTROLS

This section details the aircraft's flight controls and control surfaces. All control surfaces are constructed from aluminum tube and covered with Poly-Fiber fabric. The control surfaces are assembled by bolting and/or riveting aluminum tubes together using AN hardware. In several locations, the tubes are separated and supported by using plastic saddles and/or spacers at joints. The control surfaces all have similar hinges. These are small stainless steel 'U' brackets that are bolted to the surfaces to be hinged.

7.3.1 FLIGHT CONTROLS – SURFACE DEFLECTIONS

The control surface deflections are as follows:

Ailerons	17° up 14° down
Elevators	18° up 20° down
Rudder	30° left and right
Flaps - Neutral Flap Position	0° Elite
Flaps - First Flap Position	10° Elite
Flaps - Second Flap Position	20° Elite
Flaps - Third Flap Position	30° Elite
Flaps - Neutral Flap Position	0° Adventure
Flaps - First Flap Position	10° Adventure
Flaps - Second Flap Position	20° Adventure

Note: All control surface deflection tolerances are +/- 2°.

7.3.2 WING FLAPS

The electric flaps are actuated by an actuator that is located above the pilot's right shoulder. This lever actuates the flaps by a pushrod system. A single pushrod connects the lever to an idler near the rear wing spar attachment. This idler is then connected to the flaps by two pushrods, one to each side of the fuselage. The idler acts as an interconnection between the flaps.

Extension of the wing flaps is achieved by using the electric flap controller located on the center console.

7.3.3 AILERONS

The aileron system is a combination of a bell crank, torque tubes and seven push-pull rods.

A push rod runs from the lower end of each control stick to a central bell crank, located under and between the two seats. A rod connects this forward bell crank to a second rear bell crank which in turn connects to a torque tube which rises vertically, immediately in front of the forward main pylon structure and is located just aft of the front wing spar attachment. This torque tube extends from the bottom of the fuselage to a nylon bearing which is located on the underside of the square aluminum tube which is attached to the main pylon section and to which the wings attach. The torque tube has a horn at the upper end. This is connected by a push-pull tube to a horn that exits the wing. Inside the wing is a torque tube that runs out to about half the semi-span. This is supported by nylon bearings. The outer end of the wing torque tube is fitted with another horn that connects to the aileron horn via a push-pull rod.

7.3.4 VERTICAL FIN

The lower end of the leading edge tube and rudder posts plug into holes in the end of the tail boom aluminum tube. These are secured with AN bolts. The vertical fin is secured by tensioned stainless steel cable bracing that spans from the leading edge and aft vertical post of the fin to the outside edges of the stabilizer.

7.3.5 RUDDER

The rudder pedals are connected directly to the rudder by a stainless steel cable system, which runs down each side of the main fuselage tube structure. The rear sections of the cables run inside pulleys and plastic sleeves that act as guides.

7.3.6 STABILIZER

The stabilizer is attached to the vertical fin by small brackets, approximately 6” above the main fuselage tube. Additionally, the stabilizers are secured by stainless steel cable bracing that is bolted to the vertical fin and the underside of the main fuselage boom tube. The leading edge of the stabilizer is also connected to four cables that support the horizontal stabilizers.

7.3.7 ELEVATORS

An aluminum push-pull tube actuates the elevators. This tube runs straight back from the control stick assembly to the elevator horn. The push rod exits the rear of the fiberglass hull where a rubber boot is provided to seal the opening at the transom. Individual left and right rods then connect to the elevators.

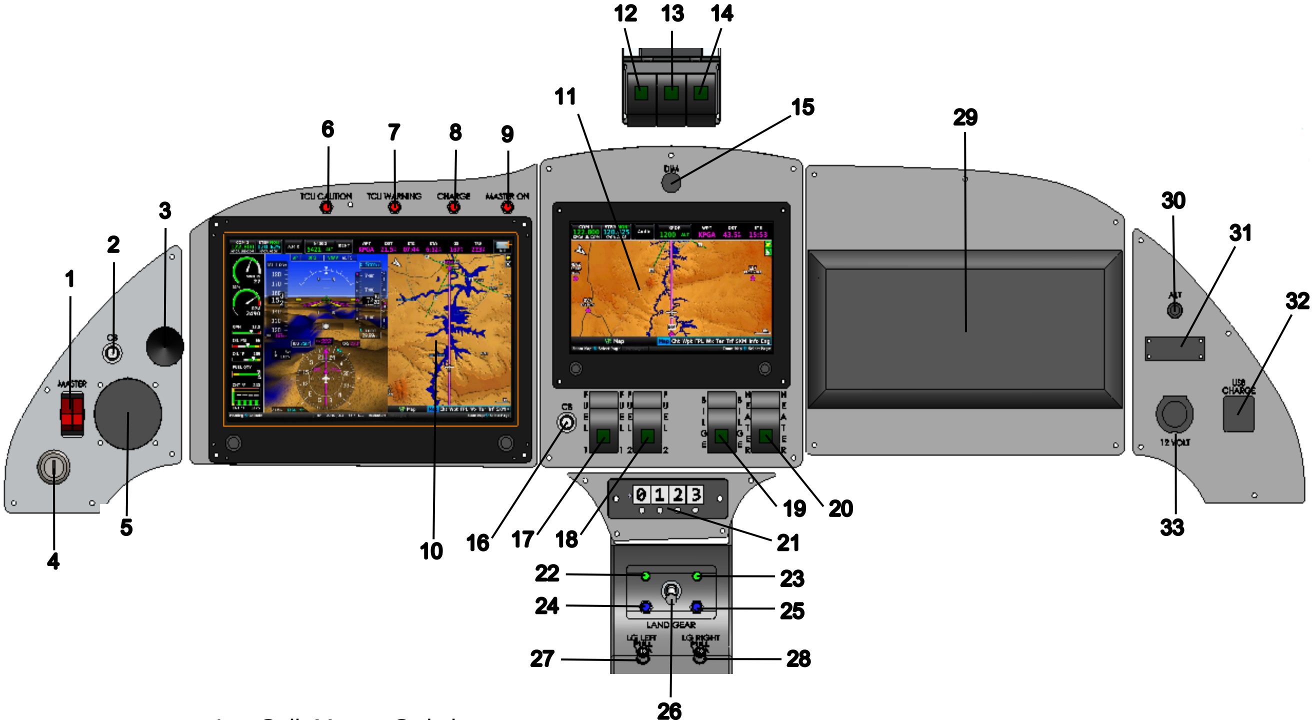
7.3.8 ELECTRIC TRIM SYSTEM

An electric actuator anchored to the airframe connects to the elevator push rod through a spring assembly that can put adjustable tension in either the up or down elevator direction. This is located behind the right seat.–The electric trim is operated by using the trim switch that is located on top of both control sticks).–Forward movement of the switch will cause nose down trim and rearward movement will create nose up trim.

Note: Full up trim should be used for all takeoffs.

7.4 INSTRUMENT PANEL

914 Elite Searey



1. Split Master Switch
2. Master Solenoid Breaker
3. Parking Brake
4. Ignition & Start Switch
5. Air Speed Indicator
6. Turbo Control Unit Caution Indicator
7. Turbo Control Unit Warning Indicator
8. Battery Charge Indicator
9. Master Switch Indicator
10. EFIS & EMS Screen
11. GPS Screen
12. Navigation Lights Switch
13. Strobe Light Switch
14. Landing Light Switch
15. Dimmer Switch
16. Fuel Pump 1 breaker
17. Fuel Pump 1 Switch
18. Fuel Pump 2 Switch
19. Bilge Pump Switch
20. Heater Switch
21. Flap Control Unit
22. Left Landing Gear Up Indicator
23. Right Landing Gear Up Indicator
24. Left Landing Gear Down Indicator
25. Right Landing Gear Down Indicator

26. Landing Gear Switch
27. Left Landing Gear Circuit Breaker (Push-Pull)
28. Right Landing Gear Circuit Breaker (Push-Pull)
29. Storage Box
30. Alternator Circuit Breaker
31. ELT Panel Control Unit
32. USB power outlet
33. 12 V. Aux. Outlet

7.4.1 ELECTRICAL SYSTEM

The Searey operates on a 12-volt DC electrical system.

7.4.1.1 Battery

A 12-volt, 17 amp Hr sealed lead acid battery is used for the aircraft power supply. The battery is located in the forward fuselage in front of the rudder pedals.

7.4.1.2 Master Switch

The Master Switch is a split-rocker type switch labeled MASTER and is ON in the UP position and OFF in the DOWN position. The right half of the switch controls power from the battery. The left half controls the power from the alternator.

Normally both sides of the master switch should be used simultaneously, however the Battery side of the switch may be turned on separately to check or operate equipment while on the ground. The generator side of the switch, when placed in the OFF position, isolates the generator from the electrical system. With the switch in this position the entire electrical load is placed on the battery. Continued operation with the generator switch OFF will reduce battery power and cause electrical system failure.

7.4.1.3 Turning On Power – Proper & Fault Conditions

Electric power is initially brought up by turning on the Battery (right) side of the red Master Switch. The Master Relay is activated and applies battery voltage to the power distribution circuitry. The Master On lamp and the mechanical airspeed indicator ring lamp should illuminate.

Fault? If the lamp does not illuminate the problem could be (a) dead battery, (b) a tripped 2 a. Master Relay circuit breaker or (c) a faulty lamp, wire or relay.

a. With battery power on, power is fed through the 30 a. Battery Breaker to the power bus feeding the bank of circuit breakers on panel 4. All instrument panel avionics and all electric aircraft accessories and devices will be fed power through their respective circuit breakers.

b. **Fault?** Check all circuit breakers and any power switches of individual components. There is also a 130 a. fuse link at the positive battery terminal that protects the whole electric system in case of a major short circuit anywhere. If this is blown, it must be replaced.
c. Most circuit breakers are within the VP-X power controller. They, as well as individual circuit breakers, should all be checked before flight.
d. **Fault?** Do not reset unless the aircraft is on the ground.

7.4.1.4 Ignition/Start Switch

The ignition/start switch controls these circuits that are independent of the main power circuit so engine restart in flight is possible if master power is lost. The "start" position of the switch applies power to the start relay that engages the electric engine starter. After engine start, the switch should be set to the "run" position. The "right" and "left" switch positions allow testing the two independent ignition systems prior to takeoff.

Fault? If the Battery lamp is on but the engine does not turn over, the possible faults could be (a) a bad start switch, (b) a bad start relay, a bad starter motor or any connecting wires. There are no circuit breakers in this circuit with the exception of the 125 a. fuse link.

7.4.1.5 Alternator Power and Overvoltage

After engine start, power from the alternator will be available and can be switched into the aircraft electric system using the Alternator (left) half of the red Master Switch. Current flows through the 30 a. Alternator Breaker. If an over-voltage (OV) condition occurs at the output of the voltage rectifier/regulator, the over-voltage relay will cause the alternator feed to be interrupted until the over-voltage condition is removed.

Fault? An alternator circuit fault may be determined if after the engine is turning above 2000 RPM the battery current indicator in the engine management system (EMS) in the electronic flight information system (EFIS) unit, does not show the battery charging. The aircraft should not be flown in this condition and maintenance should be performed to determine the problem and mitigate it.

7.4.1.6 12 v. Accessory Jack

The accessory jack supplies 12 v. battery voltage for low power devises such as a cell phone charger, iPad power or audio entertainment device. The circuit is protected by the 2 a. circuit breaker.

7.4.1.7 External Audio Jack

The external audio jack accommodates a 2.5 mm stereo plug and connects an audio source to the auxiliary input of the intercom unit. Sound level must be controlled at the source.

7.4.1.8 Electric Fuel Pump

The 912S engine has a mechanical fuel pump and is backed up by an electrical pump for priming and emergency operation. The 914 engine has no mechanical pump but has two electric pumps. The power for one primary pump comes through the main power source and the second backup pump is connected through its own circuit breaker directly to the battery. All electric pumps have check valves in parallel with them.

Fault? The aircraft may be operated without the use of its primary mechanical or electric pump. It is not recommended that a flight be initiated with an inoperable electric fuel pump.

7.4.1.9 Bilge Pump

Before takeoff, the interior of the hull step area should be checked for water accumulation. The bilge pump should be used to expel the water. Do not run the pump continuously but only until no more water is being pumped out.

Fault? The aircraft may be flown with a failed bilge pump so long as there is no appreciable water accumulation in the hull. Water operations should be avoided.

7.4.1.10 Emergency Locator Transmitter (ELT)

The ELT is mounted in the nose area. It has a control panel on the instrument panel for testing the transmitter and observing its operation. The pilot should become familiar with its operation and maintenance by consulting the user manual.

7.4.1.11 Alarms

The EFIS on Elite Aircraft provides alarms for the following parameters when they go outside their normal range. In addition to audio warnings, a red LED acts as a master alert indication:

- Oil pressure
- Oil temperature
- Head temperature (CHT R & L)
- Engine speed (RPM)

- Voltage
- Current
- Landing gear position
- Fuel level
- Fuel flow
- Angle of attack

7.4.1.12 Electric Flap Controller on Elite Aircraft

The flap controller places the flaps in one of four positions depending on which button is pushed (0, 10, 20, 30 degrees). Any button may be pushed at any time so long as the airspeed is below the top of the white arc on the airspeed indicator (80 MPH). Associated LED lamps indicate the position of the flaps.

Fault? If the flap controller fails, the aircraft may be flown normally and safely consistent with airspeed limitations specified in this manual.

7.4.1.13 References to manuals for EFIS, GPS, Intercom/radio, Transponder, ELT & Flap controller

Instructions for the use of certain installed avionics and electronic components can be found in the manufacturer's manuals. These include:

- Garmin G3X EFIS/EMS
- Garmin GTR 200 Radio/Intercom
- Garmin GTX-345 Transponder
- ACK Emergency Locator Transmitter
- Progressive Aerodyne Flap Controller

7.5 ENGINE

Manufacturer	Rotax
Model	912 ULS (Adventure configuration) or 914 UL (Elite configuration)
Type	4 cylinder, 4 cycle Internal Combustion
RPM Full Throttle	5800 RPM

Note: For more detailed information on the Rotax Engine and Systems, reference should be made to the Rotax Operators Manual.

The Searey is powered by a horizontally-opposed, four cylinder, liquid cooled heads, air-cooled cylinders, carbureted engine with dry sump forced lubrication. The engine is fitted with an electric starter, AC generator and a mechanical fuel pump. The propeller is driven via a reduction gearbox with integrated shock absorber. Fuel mixture is automatic and is controlled by an altitude-compensating diaphragm in the carburetor.

7.5.1 ENGINE CONTROLS

Engine power is controlled by a throttle handle that is located between the two occupant seats. There are two cables attached to the throttle handle with both cables being linked to the two carburetors. The throttle operates in a conventional manner with the throttle being fully open when the handle is in the full forward position and in the full aft position the throttle is closed.

Rotax 914UL engine is turbo charged and used in the Elite configuration of Searey LSA. If your aircraft is equipped with 914 UL engine, a Turbo Control Unit (TCU) switch is located overhead with a switch guard on it. TCU is automatic and in normal operation, pilot would not have to do anything with this switch. Only in a runaway boost condition, should pilot utilize this switch. Pilots are encouraged to read Rotax 914 Operator's Manual supplied with the aircraft for further understanding of TCU and its function.

7.5.2 ENGINE INSTRUMENTS

Engine operation is monitored by the following instruments:

- 1 x Oil Pressure gauge
- 1 x Oil Temperature gauge
- 2 x Cylinder Head Temp gauge
- 1 x Ammeter
- 1 x Voltmeter
- 1 x Tachometer
- Manifold pressure on the 914 engine

7.5.3 ENGINE OIL

Grade	See Rotax Engine Manual
Capacity	3.5 qt.

Oil for engine lubrication is supplied from an oil collector reservoir and is circulated throughout the engine by an engine driven oil pump. Oil is sucked by the oil pump from the reservoir to the engine with the oil returning under pressure to the collector reservoir. An oil filler cap and dip stick area located on the top of the collector reservoir. After extended engine shutdown (i.e. longer than 1 day) to ensure an accurate oil dip reading, the engine should be started and run for approximately 1 minute. The difference between Max and Min oil on the dip is 1 quart. To drain the oil from the system, the oil line fittings (pickup and return) may be disconnected from the collector reservoir. The two reservoir retaining clamps can be loosened to allow removal of the collector reservoir. Remove reservoir and change oil. Reinstall reservoir and reconnect fittings. A new oil filter should also be fitted at each oil change. Reference should be made to the Engine Operator's Manual.

7.5.4 IGNITION SYSTEM

Engine ignition is provided by two solid-state breakerless capacitor discharge units with interference suppression.

7.5.5 STARTER SYSTEM

The 12-volt electric starter motor is a reduction gear type with overrunning clutch.

ATTENTION: Activate starter for periods no longer than 10 seconds with a 2-minute cooling interval.

7.5.6 CARBURETORS

The engine is fitted with 2 x Bing constant depression carburetors type 64/32. Mixture control is automatic and is governed by an altitude-compensating diaphragm.

7.5.7 PRIMING SYSTEM

The carburetor is primed by fuel that is independently supplied to the carburetors.

7.5.8 FUEL SYSTEM

7.5.8.1 Fuel Tank

The fuel tank is a cross-linked polyethylene plastic molding. It is attached to the fuselage primarily by a nylon strap with additional location support provided by aluminum angles. Capacity of the tank is 23 gallons. The fuel sump and fuel supply are at the forward bottom of the fuel tank.

7.5.8.2 Fuel Lines

5/16” and 3/8” automotive fuel lines to supply fuel and 1/4” inch automotive fuel line for sumping.

7.5.8.3 Fuel Filter

A fuel filter is located directly behind the pilot’s seat where it is readily visible and inspectable by the pilot. Fuel filter screen element can be cleaned and re-used.

7.5.19 FUEL

Grade	91+ Oct. Auto Gas or 100LL AVGAS
Capacity, Total	23 Gallons
Capacity, Useable	22 Gallons

7.6 PROPELLER

Manufacturer	Warp Drive
Type	3 Blade tapered tip
Diameter	68” diameter
Pitch	13.5° at the 66” diameter station (Adventure configuration with 912 ULS) or 16° at the 66” diameter station (Elite configuration with 914 UL)

7.7 BAGGAGE COMPARTMENT

The baggage compartment consists of two areas, each extending aft from behind the two passenger seats. Access to both areas is gained through the cabin over the passenger seats. When loading baggage or cargo into the compartments, please use the integrated baggage hold downs, or other measures to ensure that all items are adequately secured to avoid any potentially dangerous movement of baggage or cargo. Do not exceed 50 lbs. of baggage or cargo and never exceed the 1430 lbs. loading limit.

7.8 SEAT BELTS & INERTIA REELS

Each passenger seat is fitted with a seat belt. Inertia reel shoulder harnesses are also installed. To use the seat belts, insert the seat belt link connector into the seat belt buckle. To remove the seat belt, simply lift the lever on the seat belt buckle.

7.9 SLIDING CANOPIES

The Searey aircraft can be flown with the sliding canopies in any position. It should be noted that if the canopies are fully opened in flight some minor buffeting may occur from disturbance to the airflow to the propeller and elevator system. It is recommended that the canopies remain in the closed but not locked position for all takeoff and landing.

7.10 CONTROL LOCKS

The Searey does not have a control lock device. However, if the aircraft is parked in the outdoors, it is desirable that the seat belts or a bungee cord are used to secure the control column and rudder.

8.1 INTRODUCTION

This section contains recommendations for the proper ground handling and routine care, preventative maintenance and servicing of the Searey. It is good practice to follow a planned schedule of lubrication and preventative maintenance based on climatic, environmental and flying conditions encountered in the locality where the aircraft is based and operated.

8.2 GROUND HANDLING

The aircraft is most easily and safely maneuvered by hand.

8.2.1 SINGLE PERSON HANDLING

The aircraft is easily moved by one person pushing on the trailing edge of the rudder. Because the rudder is also connected to the steerable tail wheel, gentle positioning of the rudder will also turn the tail wheel, thereby providing directional control.

8.2.2 TWO PERSON HANDLING

By positioning one person at each of the leading edges of the forward wing strut, forward or backward movement of the aircraft can be easily managed. Directional control is managed by differential pushing or pulling by the two people.

8.2.3 GROUND CONTROL

Effective ground control while taxiing is accomplished through the tail wheel steering using the rudder pedals. When a rudder pedal is depressed a spring tensioned stainless steel cable (which is also connected to the fin and water rudder) will turn the tail wheel.

8.2.4 WATER HANDLING – MOORING & BEACHING

Proper handling and securing of the Searey in water operations can vary considerably, depending on the type of operation involved and the facilities available. Each operator should use the method most appropriate for his or her operation. Some of the more common mooring or beaching alternatives are as follows:

- The aircraft can be moored to a buoy, using a suitable line attached to a stainless steel U hook bolted to the lower nose of the hull. The aircraft can then weathercock into the wind.
- The aircraft can be connected forward and aft to an endless line that is attached to a pulley and tied off from a beach, jetty, or marina.
- With the aircraft's undercarriage lowered, it can be taxied up onto a ramp or beach. When carrying out this form of beaching, ensure that the control column is in the full elevator "UP" position when applying power to taxi the aircraft up the beach or ramp.

8.2.5 PARKING

When parking the aircraft it is always desirable to face the aircraft into the wind. If leaving the aircraft for any time or in stronger wind conditions, it is strongly recommended that the aircraft be securely tied down. Chocks front and back of the main landing gear is also recommended.

8.2.6 JACKING

When a requirement exists to raise the aircraft off the ground, e.g. for the purposes of testing the undercarriage retraction, use of multiple jacks is necessary. Support points that may be used for jacking the aircraft include the extreme aft end of the hull at the transom, and the underside of the hull in the location of the landing gear. Cover jacks with soft material to avoid damage to hull.

If an individual main gear requires jacking, a suitable motor vehicle jack may be used by locating it securely under the axle assembly. Make sure the other main wheel and tail wheel are chocked forward and aft.

8.3 TOWING INSTRUCTIONS

The aircraft may be towed forward by the bow hook or backward by the tail-wheel.

8.4 TIE-DOWN INSTRUCTIONS

Proper tie-down procedure is the best precaution against damage to the aircraft when parked in gusty or strong wind conditions. When tying down, the following points should be observed:

- Tie-down ropes should be attached to both wings at the leading edge of the forward strut at the wing connection point.
- A rope should also be secured to the tail wheel.
- The front of the aircraft fuselage can also be tied down using the stainless steel U hook as an attachment point.

- The control column can be secured by using the seat belts or a bungee strap.
- Fit a suitable cover to the pitot tube

8.5 SERVICING FUEL, OIL, COOLANT AND OTHER OPERATING FLUIDS

In addition to the Daily Preflight Inspection as set out in Section 4, complete servicing, inspection and maintenance requirements and recommendations are set out in the Continued Airworthiness Maintenance Program detailed in Section 9.1.

8.5.1 ENGINE SERVICING

For correct engine servicing and maintenance, please refer to the Rotax Operators Manual.

8.5.2 APPROVED FUEL GRADES AND SPECIFICATIONS

The Rotax 912 and 914ULS engines require a minimum of 91 AKI ("premium"). 100LL AvGas is allowed though not preferred and reduces the oil change interval to 25 hours in more than occasional use.

For Chinese market, in addition to 100LL AvGas, 97 octane car gas should be used

Note: For more information, please refer to the Rotax Operator’s Manual.

8.5.3 APPROVED OIL GRADES AND SPECIFICATIONS

8.5.3.1 Oil Specifications

Rotax recommends using a high quality, major brand, 4-stroke motorcycle oil with gear additives and “SF” or “SG” API classification. The gear additives are required to withstand the high stresses in the reduction gearbox. The “GL4” or “GL5” specification is recommended.

Note: For more information, please refer to the latest Rotax Operator’s Manual.

8.5.3.2 Oil Types

Users running mostly unleaded fuel can opt for full-synthetic or semi-synthetic oils. Users running leaded AVGAS more than 30% of the time should only use mineral or semi-synthetic oils, since full-synthetic oil will sludge and create residues when used with leaded fuel. Oil changes and other important maintenance tasks have to be performed more often when using leaded fuel, as described in the maintenance tasks table.

Note: For more information, please refer to the Rotax Operator's Manual.

8.5.3.3 Viscosity

Multi-grade oil is recommended. Refer to Figure 3 to select the appropriate viscosity for your climate.

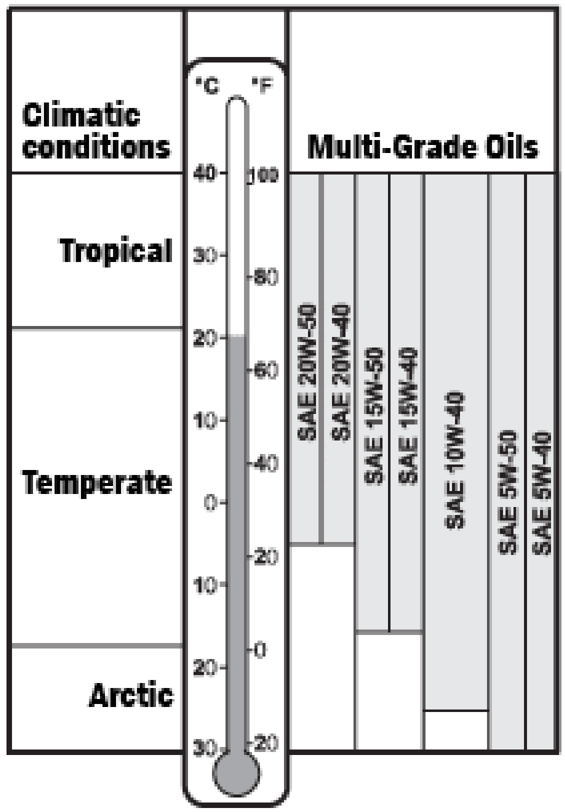


Figure 2 - Oil viscosity based on climate.

Note: For more information, please refer to the Rotax Operator's Manual.

8.3.4 COOLANT

For correct coolant information, please refer to the Rotax Operator's Manual. Searey uses Dexcool 50/50.

8.3.5 BRAKE FLUID

ATF brake fluid is used in the aircraft. Brake Fluid is replenished by adding fluid to the clear cup reservoir

8.6 CLEANING AND CARE

8.6.1 WINDSHEILD AND WINDOWS

The Lexan windshield and windows should be cleaned with mild soapy water, rinsed in fresh water and wiped dry with a chamois.

CAUTION: Do not use any solvent-based cleaners, spirits, fuel, glass cleaner, acetone, alcohol, etc. on the Lexan windows. If fuel should accidentally spill on the Lexan, flush quickly and liberally with water. Lexan will craze and rapid cracking will occur if fuel or solvents comes into contact with the Lexan.

8.6.2 PAINTED FABRIC AND FIBERGLASS SURFACES

Generally, all the painted surfaces can be kept bright and clean by washing with mild soapy water, rinsing with fresh water and wiping dry with a chamois.

- For spot cleaning and removal of general stains, oil marks, insects, etc., Windex window cleaner is an excellent cleaning agent.
- The central and aft location of the engine exhaust system results, over a period of time, in a buildup of a brownish exhaust deposit on the vertical fin and rudder. This deposit can be cleaned off with Windex and cloth.

8.6.3 PROPELLER CARE

Preflight inspection should include a close examination of the propeller blades for nicks, cracks and any other damage. Wiping the blades with "Mr. Sheen" or a similar cleaner will remove oil, insects and stains. The application of a light film of anti-corrosion material on the aluminum leading edge of the blades will assist in preventing possible corrosion.

- Checking for satisfactory propeller bolt tension should be included as part of the preflight inspection.
- Regular and thorough inspection of the propeller will assist in long, trouble free service.

8.6.4 LANDING GEAR

MAIN WHEEL TIRE (6.00 x 6) Pressure Range	26 psi
TAIL WHEEL TIRE (280/250 x 4) Pressure Range	25 psi

8.6.5 ENGINE CARE

The engine can be rinsed down with fresh water and sprayed with an anti-corrosion lubricant. Particular care should be given to engine cleanliness and maintenance. More details on this can be found in the Rotax Operators Manual and the Airworthiness Maintenance Program in Section 9.1 of this document.

8.6.6 INTERIOR CARE

Vacuuming of the seats, carpets and baggage compartment will keep these surfaces looking good. Occasional hosing out of the floor and pumping out with the bilge pump will keep this area fresh and clean.

8.7 SALT WATER MAINTENANCE AND CARE

We recommend that Searey LSA specially treated internally with linseed oil treatment at the time of build be used for regular Salt Water operations. Salt water operation will require 100 much closer hour inspections and replacement of tail sections at regular intervals of 200 to 300 hours as necessary upon inspection. The following preventative maintenance is recommended for the Searey aircraft operated in salt water.

8.7.1 PREVENTATIVE CORRISION TREATMENT

Prior to operating the Searey in salt water, the following Preventative Corrosion Treatment is recommended:

8.7.1.1 Airframe

Apply Spray anti-corrosion material to:

- All exposed AN nuts and bolts
- Control surface hinges
- Push-pull ball joints and threads
- Stainless steel swage ends
- Inside nylon stainless steel cable guides in aft boom tube underside area

Apply Anti-corrosion Lubricant to:

- Wing struts, strut attachment plates, jury struts, inside strut ends
- Wing float attachment tubes
- Push-pull rods
- Inside undercarriage legs
- Wheel housing, hubs and external brake mechanism

- Stainless steel cables
- Inside upper bulkhead cross tube
- All around and inside the aft boom tube area
- Spray down the main boom from the cockpit end
- Using a cloth dampened with Anti-corrosion Lubricant, wipe over all reachable aluminum surfaces of the fuselage frame in the cockpit area
- Water rudder springs
- AN Nuts and bolts in the aft boom tube under area

Apply anti-corrosion material to:

- Stainless steel cables on the underside of the stabilizer
- Aluminum angles in the aft boom tube under area
- Tail wheel retract and rudder cables

8.7.1.2 Undercarriage

- Spray Anti-corrosion Lubricant down the inside of the undercarriage legs – it is recommended that this be done after every flight when the undercarriage has been extended into salt water.
- Spray aluminum wheel hubs and outside brake assembly with Anti-corrosion Lubricant.
- Spray all of the tail wheel support and retract mechanism with Anti-corrosion Lubricant.
- Spray anti-corrosion material on all undercarriage mechanism AN nuts and bolts, ball joint threads and ball ends. A topcoat of anti-corrosion material will provide added protection.
- Apply regular and liberal amounts of anti-corrosion material to all wheel bearings and spindles.
- Paint the main and tail wheel tires with silicone tire preserver. This will help prevent perishing of the rubber. Apply a similar material to the main gear rubber boots and transom rubber boot to prevent perishing.

Note: When the aircraft is on the water and the undercarriage is lowered, a small volume of water may seep up into the undercarriage leg. With the undercarriage selected in the down position, spraying of Anti-corrosion Lubricant into the top of the undercarriage leg will act to disperse moisture and prevent corrosion.

8.7.1.3 Engine

- Spray all major nuts and bolts including mounting bolts with ACF-50
- Spray exhaust pipe springs with anti-corrosion material.
- Spray propeller nuts and bolts with anti-corrosion material.
- Spray Anti-corrosion Lubricant over exhaust pipes and muffler – mop excess with cloth.
- Spray cast aluminum crank case and reduction gear box with Anti-corrosion Lubricant.
- Spray Anti-corrosion Lubricant around spark plugs.
- Treat throttle cables with Anti-corrosion Lubricant.
- Apply anti-corrosion material to carburetor linkages.
- Spray linkage springs with anti-corrosion material.

8.7.1.4 After each flight

To minimize corrosion, wash the aircraft down liberally with fresh water at the conclusion of each day of salt water operations and wipe dry with chamois.

While hosing down, pay particular attention to:

- All cracks, crevices and surfaces where salt can accumulate
- Windshield and canopy Lexan and rivets
- Canopy tracks
- Undercarriage legs, wheel and brake assembly
- Tail wheel mechanism
- Under side and inside of entire aft boom tube area
- Flush the boom tube by inserting hose in cockpit end of boom tube
- Flush around bilge area and pump out
- Struts and strut attachment points
- Flaps and ailerons, hinge attachments and push-pull rods
- Wing float attachment tubes

8.7.1.5 Recommended Corrosion Prevention Materials

- Boeshield T-9 Anti-corrosion Lubricant
- Corrosion X Anti-corrosion Lubricant
- NOX Anti-corrosion Lubricant
- Ardrox

9.1 CONTINUED AIRWORTHINESS MAINTENANCE PROGRAM

Perform the following every 100 hours or annually, whichever comes first, unless noted otherwise:

ENGINE

- ❑ Refer to and follow your engine manufacturer's manual for maintenance procedures on engine.

ENGINE MOUNTING

- ❑ Inspect engine mounting parts, hardware and bolts for condition (wear, distortion, cracks, etc.) and security.
- ❑ Check engine mount bolts and nuts for security.
- ❑ Inspect rubber engine mounts for condition (deterioration, distortion, cracking, etc.). Replace if necessary.

LUBRICATION

- ❑ Drain engine oil and replace with fresh oil (every 50 hours with Mo Gas, 25 hours with Avgas)
- ❑ Check engine drain plug and oil sump plug for metal particles.
- ❑ Replace oil filter each time oil is changed.

CARBURETION AND AIR INTAKE SYSTEM

- ❑ Clean and re-oil or replace air filters.
- ❑ Check carburetors for proper position and security.
- ❑ Check throttle linkage for condition and operation.
- ❑ Remove and clean float bowls.
- ❑ Check for carburetor synchronization.

EXHAUST SYSTEM

- ❑ Check exhaust system for cracks, leaks and security (every preflight). Replace manifold gasket if necessary.
- ❑ Check mounting hardware and springs for condition (cracks, wear, spring fatigue) and security (every preflight).
- ❑ Apply a bead of silicone rubber on springs to extend spring life.
- ❑ Lubricate exhaust joints with high temperature anti-seize compound.
- ❑ Check for adequate clearance from other parts, hoses, wires, etc.

PROPELLER

- ❑ Check propeller blades and hub for nicks, splits, cracks, excessive wear or other damage.

- ❑ Check for correct balance and tracking.
- ❑ Check propeller bolt condition.
- ❑ Check for proper propeller bolt torque. (AN4 bolt torque value: 6 ft. lbs. AN5 (or 8 mm) bolt torque value: 14 ft. lbs.) Bolts should also be safety wired

ELECTRICAL SYSTEM

- ❑ Clean and re-gap spark plugs. Replace spark plugs at engine manufacturer's specified intervals.
- ❑ Check spark plug caps and spark plug wires for condition and security.
- ❑ Check ignition switches, wires and ignition coil leads for condition and security.
- ❑ Check electric starter for condition.
- ❑ Check battery for condition and security.
- ❑ Check battery cables for condition and security.
- ❑ Remove and clean battery terminals if corrosion is visible.
- ❑ Clean battery mount and check for security.
- ❑ Check battery mount area for evidence of corrosion or acid leakage.
- ❑ Check alternator wiring for security and condition.
- ❑ Check EGT, CHT and water temperature probes and wiring for security and condition.

FUEL SYSTEM

- ❑ Check fuel tank for secure placement, leaks, cracks, abrasions or interior contamination.
- ❑ Check fuel tank venting for proper operation and security.
- ❑ Check fuel hoses and primer hoses for condition (pliability, leaks, blockage, etc.) and security.
- ❑ Check fuel squeeze bulb and fuel pump(s) for condition and security.
- ❑ Check fuel filters for condition (blockage, leaks, etc.) and security.
- ❑ Replace fuel filters every 50 hours or as needed.
- ❑ Check oil tank and hoses for condition and security.
- ❑ Check and clean if necessary the in-line fuel filter.

COOLING SYSTEM

- ❑ Check all coolant lines and hoses for security and condition. Replace hoses if deteriorated.
- ❑ Tighten all hose clamps.
- ❑ Drain and replace coolant with a mixture of 50% coolant and 50% distilled water.
- ❑ Remove radiator cowling and check radiator for security and condition.
- ❑ Clean radiator fins if dirty or obstructed. Reinstall cowling.

FUSELAGE AND EMPENNAGE

- ❑ Check all fabric covering for tears, punctures and tautness.
- ❑ Check drain grommets for proper drainage.
- ❑ Check fiberglass hull, deck and turtle deck for cracks, condition and security.
- ❑ Check bilge pump and hose for condition and security. Clear any blockage away from bilge pump and hose.

- ❑ Check windshield, sliding canopies and windows for visibility, condition and security. Clean Lexan surfaces with soft chamois cloth only.
- ❑ Check fuselage frame for signs of distortion, fatigue, cracking and corrosion.
- ❑ Check boom tube for condition (straight, distortion, wear, cracking, etc.) and for security.
- ❑ Check canopy tracks and latches for condition and operation.
- ❑ Check elevator hinge pins and bushings for excessive play.
- ❑ Check rudder hinge pins and bushings for excessive play.
- ❑ Check rudder control cables for security and condition (wear, fraying, elongation, etc.).
- ❑ Check horizontal stabilizer mounting bolts for condition and security.
- ❑ Check horizontal stabilizer support cables for security and condition (wear, fraying, elongation, etc.).

CABIN

- ❑ Check seats for security.
- ❑ Check seat belts for condition, secure attachment, and proper operation.
- ❑ Check rudder cables, rudder pedals and attachments for operation, condition and security.
- ❑ Check control sticks and mounting hardware for freedom of movement and security.
- ❑ Check flap control mechanism for condition and security.
- ❑ Set aircraft hull carefully on proper supports. Check landing gear retraction mechanism and over center locks for proper operation, condition and security.
- ❑ Check instruments for security and for proper operation and clear markings.
- ❑ Check instrument panel for condition and security.
- ❑ Check instrument panel wiring for condition and security.
- ❑ Check elevator trim actuator mechanism for proper operation and wear.
- ❑ Check bilge pump switch for proper operation of bilge pump.
- ❑ Check pitot system plumbing for proper operation, condition (obstructions) and security. Note: Never blow directly into pitot tube while it is connected to the airspeed indicator.
- ❑ Check radios and antennas for condition and security.
- ❑ Check throttle cables and attachment hardware for wear, proper tension and freedom of movement.
- ❑ Check aileron push-pull rods and torque tube, mounting hardware and control horns for binding, obstacle clearance, security, etc.
- ❑ Check tie rod ends for freedom of movement, security and condition.
- ❑ Check rudder cables for adequate clearance from obstruction, chafing, and freedom of movement.
- ❑ Lubricate all cables that go through plastic nylon guides with a silicone lubricant to prevent friction in these areas.
- ❑ Check fuel filler cap for proper seal and condition.
- ❑ Check fuel hoses for proper routing, condition and security. Replace if cracked or deteriorated.

CONTROL SYSTEM

- ❑ Check aileron, flap, rudder and elevator hinges for excessive play or wear.
- ❑ Check rudder cables for clearance, freedom of movement, fraying, wear, etc.
- ❑ Check control surfaces for proper operation, freedom and range of movement.
- ❑ Check control attachment bolts, nuts, tie rod ends, etc. for visible wear and security.
- ❑ Check aileron, flap, rudder and elevator control horns for cracks, elongated holes, wear, etc.
- ❑ Remove and inspect for wear (replace as necessary) all control attachment bolts, nuts, hinge pins, brackets, etc.
- ❑ Check aileron control system for condition and proper operation. Replace components as necessary to keep excess play to a minimum.
- ❑ Check flap control system for condition and proper operation.
- ❑ Check elevator control system for condition and proper operation.
- ❑ Lubricate all tie rod ends, torque tube bearings, cables and hinge bolts with grease or anti-corrosion material every 25 hours.

WINGS

- ❑ Check wing struts for distortion, cracks, damage, etc. and for security.
- ❑ Check wing strut attach points for condition and security.
- ❑ Check wing spar attach points for condition and security.
- ❑ Check fabric for tears, punctures, and tautness.
- ❑ Check wing tips and leading and trailing edge spars for security and condition.
- ❑ Check wing spars and wing ribs for visible deformation or overstressing.
- ❑ Check top surface of wing for wrinkles and irregularities that could indicate possible rib or spar damage.
- ❑ Remove all inspection covers and check interior of wing structure for condition and security.
- ❑ Check drain grommets for proper drainage.

LANDING GEAR

- ❑ Check entire main landing gear structure, steel tubes and attach points for wear, cracking, bending, etc.
- ❑ Check main gear legs for adequate drainage.
- ❑ Take weight off main gear legs and check for play at attachment fittings.
- ❑ Remove main gear legs and spindles and inspect for fatigue, cracking or excessive wear every 100 hours.
- ❑ Check main gear leg spindle and spindle housing retaining bolts for security.
- ❑ Check brakes for cleanliness, and for drum and pad wear.
- ❑ Check brakes for proper operation and security.
- ❑ Check tires for proper air pressure and tread wear.
- ❑ Check hubs for cracking or damage.
- ❑ Check main wheel and tail wheel bearings for wear, end play and smooth rotation every 100 hours, replacing if necessary. Check more frequently if water operations are experienced frequently.
- ❑ Check tail wheel for cleanliness, condition and proper operation, freedom of travel and security.

- ❑ Check tail wheel steering mechanism for condition and security.
- ❑ Check tail wheel/airframe mounting points for fatigue, cracking, and security.
- ❑ Take weight off tail wheel and check swivel operation and for play at attachment fittings.
- ❑ Check tail wheel strut for condition (cracks, etc.) and for security.
- ❑ Check tail wheel retraction and extension cables for condition and security.

DOCUMENTS AND MARKINGS

- ❑ Check aircraft registration, airworthiness certificate, radio licenses (if applicable), operating limitations, Pilot's Operating Handbook and weight and balance data for currency and accuracy.
- ❑ Check insurance documents, as required.
- ❑ Check for proper display of registration markings, experimental stickers, E-LSA / S-LSA decal, instrument/gauge markings and placards, etc.

9.2 DOCUMENTATION

The following documentation must be carried on aircraft and on display/ accessible in the cockpit at all times: The Airworthiness Certificate, Registration, Operating limitations and Weight and Balance information as well as this Pilot's Operating Handbook.

9.3 ABBREVIATIONS & DEFINITIONS

The following shall apply throughout this manual:

- **PRESSURE ALTITUDE** is the altitude read from an altimeter when the altimeter's barometric scale has been set to 29.92 Hg (inches of mercury).
- **TAKEOFF SAFETY SPEED** is a speed chosen to ensure that adequate control will exist under all conditions, including turbulence and sudden and complete engine failure, during the climb after takeoff.
- **APPROACH SPEED** is a speed chosen to ensure that adequate control exists under all conditions, including turbulence, to carry out a normal flare and touchdown.
- **V_A – MANUEVERING SPEED** is the maximum speed at which you may use abrupt control travel.
- **V_{FE} – MAXIMUM FLAP EXTENDED SPEED** is the highest speed permissible with wing flaps in a prescribed extended position.
- **V_{NE} – VELOCITY TO NOT EXCEED** is the speed that should not be exceeded.
- **V_S – STALL SPEED** or the minimum steady flight speed at which the aircraft is controllable.

- **V_{SO} – STALL SPEED** or the minimum steady flight speed at which the aircraft is controllable in the landing configuration at the most forward center of gravity.
- **V_X** is the best angle of climb speed.
- **V_Y** is the best rate of climb speed.

9.4 AIRCRAFT PERFORMANCE & FLIGHT PLANNING TERMINOLOGY

- **USABLE FUEL** is the fuel available for flight planning.
- **UNUSABLE FUEL** is the quantity of fuel that cannot be safely used in flight.

9.5 OPERATION OF OPTIONAL EQUIPMENT OR ACCESSORIES

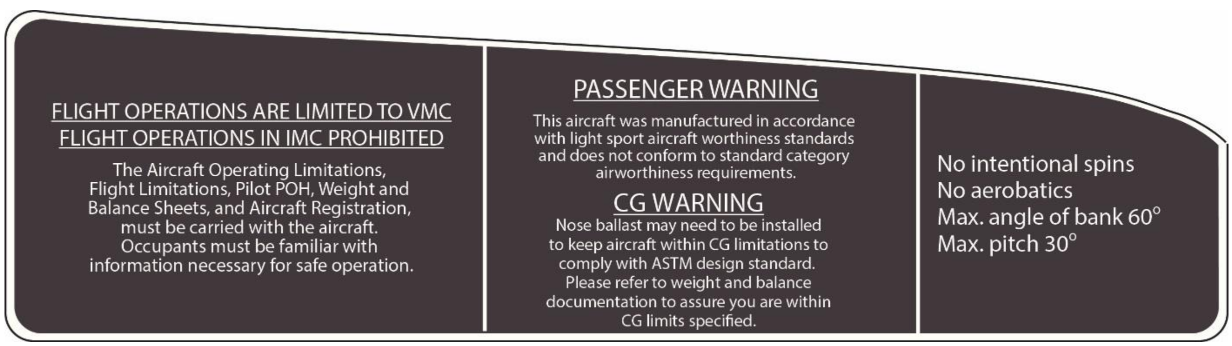
Reserved. Currently not applicable.

9.6 AIRPLANE FLIGHT TRAINING SUPPLEMENT (FTS)

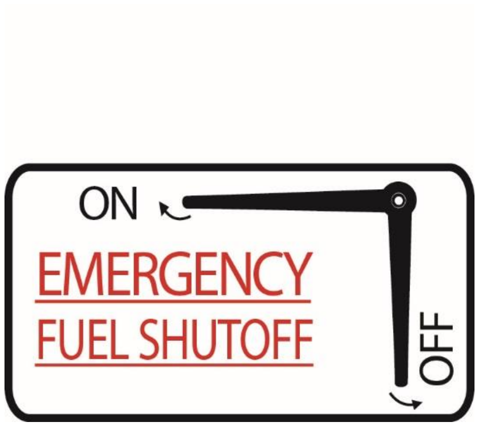
The Searey FTS is provided at the time of aircraft purchase.

9.7 PLACARDS AND MARKINGS

9.7.1 OPERATING LIMITATIONS AND PASSENGER WARNING ON INSTRUMENT PANEL



9.7.2 FUEL SHUTOFF PLACARD



9.7.3 GAS TANK

9.7.4 OTHER MARKINGS


ALT
30
ACK
ON
ELT ON
RESET
USB
CHARGE


TCU CAUTION
TCU WARNING
CHARGE
MASTER ON
GARMIN


0 1 2 3
FLAPS
LAND GEAR
LG LEFT
PULL
LG RIGHT
PULL
10 A
10
10


SUMP OUTLET
BILGE OUTLET


STATIC PORT


NRST
MENU
BACK
CB
5
FUEL 1
FUEL 1
FUEL 2
FUEL 2
BILGE
BILGE
HEATER
HEATER
0 1 2 3
FLAPS

9.8 REPORTING IMPROVEMENTS OR CORRECTIONS

To report any improvements or corrections to this manual, email factory@Searey.com.

9.9 CONTINUED OPERATIONAL SAFETY REPORTING

To report any safety-related event, provide the following information in an email to safety@Searey.com or send information by mail by filling out the form below to Progressive Aerodyne. Additional pages and pictures should be attached as needed or instructed by Progressive Aerodyne. Progressive Aerodyne reserves the right to ask for further information regarding the problem reported to make a proper determination.

CONTINUED OPERATIONAL SAFETY REPORTING FORM

NAME (Last)		**NAME (First)**	
COMPANY / ORGANIZATION			
ADDRESS: Number and Street			
City			**AIRCRAFT MODEL**
State / Province	Postal Code		**AIRCRAFT SERIAL NUMBER**
Country			**AIRCRAFT REGISTRATION NUMBER**
TELEPHONE NUMBER(S)			
DESCRIPTION OF FLIGHT SAFETY ISSUE OR SERVICE DIFFICULTY:			
Signature			Date
FOR PROGRESSIVE AERODYNE USE ONLY			
COS Log Number			Date Received

9.10 OWNER CHANGE OF ADDRESS NOTICE

Keeping ownership records current is vital for ensuring proper communication of any safety related notices. Should your contact information change or if the aircraft changes owners, **send the current first and last name, mailing address, phone number, and email address of the owner** through the various contact methods for Progressive Aerodyne listed in paragraph 0.2 of this document.

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