THE PELICAN SPORT 450 S

OPERATOR MANUAL

Ballard Sport Aircraft Ltd.
2696 rue du Pimbina,
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Canada, J1R 0G3

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WARNING

While designed and tested to meet and exceed the
TP10141 Design Standards for Advanced Ultralight
and Sportplane category airplanes,
THIS AIRCRAFT IS NOT TYPE CERTIFICATED
AND ITS OPERATOR HAS THE SOLE RESPONSIBILITY
OF ITS AIRWORTHINESS

Flying is fun only if you put safety first.

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INTRODUCTION

This operator's and maintenance manual was put together only as a guide to the operation and maintenance of your **Pelican.**

It does not cover all that is required to do or know to safely operate your airplane.

Read it carefully and make sure you have the required skills and competence to safely operate your aircraft. Your comments and suggestions to improve this manual will always be welcome.

Note: The Rotax engine operator manual should be considered as a part of this manual and supersedes any information given in Ballard Sport Aircraft's manual relating to the operation and maintenance of the engine.

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1 Pelican Sport 450 Technical descriptive

1.1 General

Design Standard: **TP 10141**

The **Pelican Sport 450 S** is manufactured by :

Aéronefs Sportifs Ballard *Ltée.*
2696 rue du Pimbina,
Sherbrooke, Québec,
Canada, J1R 0G3

1.2 Technical description

General

The **Pelican Sport 450** is a two place single-engine, high wing airplane of conventional configuration consisting of a composite fuselage and metal wings. It is equipped with a fixed tricycle landing gear.

Engine

The engine is a BRP Rotax, Type 912 S, 4 cylinder, 4 stroke featuring opposed cylinders, dual electronic ignition, dry sump with oil pump, liquid cooled heads, and an integrated gearbox. It is equipped with a 12V/250 Watt generator, two Bing 32 mm carburettors, a 0,6 KW electric starter and a mechanical fuel pump. The Rotax 912 S develops 100 HP at 5800 RPM and 94 HP at 5500 RPM.

Instruments

Airspeed indicator, altimeter, magnetic compass, engine tachometer, cylinder head temperature gauge, oil pressure gauge, oil temperature gauge, one electrical fuel gauge

Propeller

Three blade or four blade, ground adjustable.

Fuselage

Vacuum molded composite structure consisting of a S-glass vinylester resin laminate with rigid PVC foam core.

Cockpit

Two seats, side by side, foam seat cushions, dual sticks, dual pedals, center console, Lexan windshield and baggage compartment windows. The baggage compartment behind the seats has a capacity of 50 lbs. (23 kg) without a ballistic chute and 20 lbs (9 kg) with a ballistic chute.
Three-points seat belts - shoulder harness system for both seats.

Wings

The all-metal wing is a single-strut, single spar construction, covered with aluminum skins. Wing tips are made of molded fiberglass. The ailerons and flaps are fabric covered.

Tail

The fin and the cantilever stabilizer are all aluminum construction, covered with aluminum skins. Rudder and elevators are made of aluminum structures covered with fabric. Elevator and rudder tips have molded fiberglass tips.

Controls

The airplane features a dual control stick system, dual rudder pedal system and differential braking system. Ailerons are deflected through a bellcrank/push-rod mechanism mounted on ball bearings. A torque tube connected to a mechanical lever in the console operates flaps. The ailerons deflect 12° with full flaps. Rudder and elevators are cable operated. The elevator trim is mechanically operated. Fixed trims are used for the rudder and the ailerons.

Flaps

Mechanically operated by a Johnson bar - type lever located in the console. They offer 5 positions from 0° to 45°.

Elevator trim

One elevator trim mechanically operated by a lever on the console.

Fuel system

Fuel is stored in one 15 USG (60 li) composite tank located behind the seat.

Landing gear

The main landing gear legs are made of heat-treated 4130-springsteel tubing. The system consists of a right and a left leg, connected by a center tube. Aluminium blocks bolted inside the aluminium gear box support the legs. The nosegear leg is made of 4130 tubing with an aluminium fork. A bungee chord provides the nosegear suspension. The nosewheel is steerable via push rods connected to the pedals and it locks in flight. The tail dragger is also available.

Wheels and brakes

The main wheels are Matco 6 inch wheels and disk brakes with 15 * 600 tires. The nose wheel is an Azuza 6-inch wheel with a 13 * 600 tire.

Optional equipment (not included in empty weight)

- Upholstery and Carpet
- Cabin heat & ventilation system
- Strobe and naviguation lights system
- Speed fairings
- Wheel pants
- Propeller spinner
- Radios
- Ballistic recovery chute

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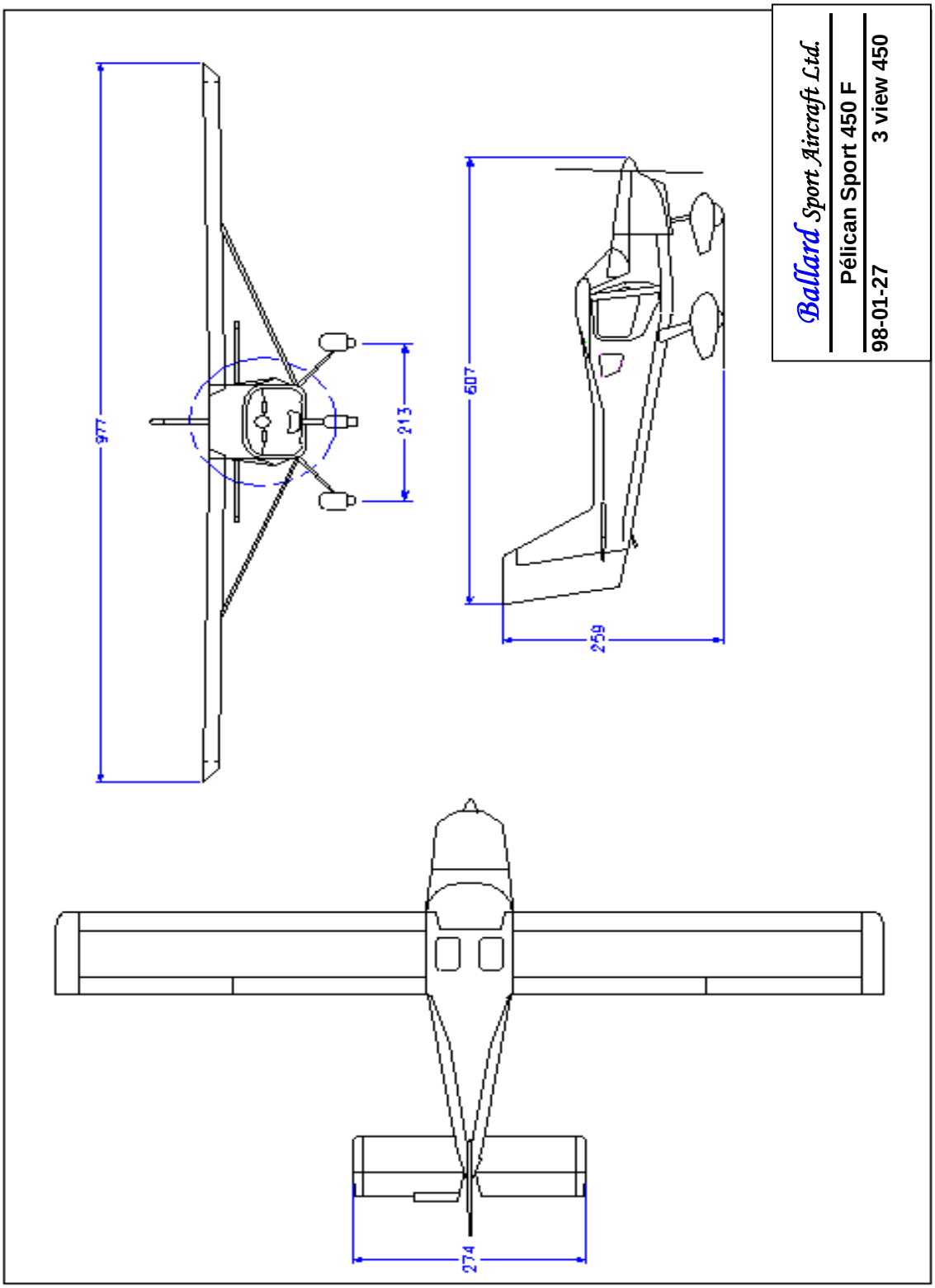
1.3 3-view drawing



1.4 Technical specifications and performance

1.4.1 Spécifications

Wingspan:	9,75 m	32,0 ft
Wing area:	10,9 m2	117,3 sq ft
Wing loading:	41,2 kg/m2	8,44 lbs/sq ft
Aspect ratio:	8,7	8,7
Lenght tricycle:	6,07 m	19,9 ft
Fin height tricycle:	2,59 m	8,5 ft
Cabin width (at hips):	1,02 m	40 in
Cabin width (at elbows):	1,17 m	46 in
Cabin headroom:	1,04 m	41 in
Structural gross (+4.5/-2.5 limit load):	450 kg	990 lbs
Structural gross (+4.0/-2.0 limit load):	523 kg	1 150 lbs
Dry empty weight tricycle:	[280:290] kg	[615:638] lbs
Baggage capacity (including parachute):	23 kg	50 lbs
Fuel capacity:	60 litres	15 USG

1.4.2 Performance with BRP Rotax 912ULS

Horsepower:	73,5 kW	100 HP
Never exceed speed Vne:	228 km/h	123 kts
Cruising speed 75%@6 500 ft:	205 km/h	110 kts
Cruising speed 65%@6 500 ft:	195 km/h	105 kts
Maximum range @65% no reserve:	725 km	450 sm
Fuel consumption @65%:	15,5 L/h	4,1 gph
Rate of climb, sea level:	7,6 m/s	1 500 fpm
Service ceiling:	4 900 m	16 000 ft
Stall speed (flaps up) C.A.S.:	70 km/h	38 kts
Stall speed (flaps down) C.A.S.:	63 km/h	34 kts
Take-off ground run:	90 m	300 ft
Take-off over 50 ft (15 m) obstacle:	150 m	500 ft

1.4.3 Performance on floats with BRP Rotax 912UL

Horsepower:	59 kW	80 HP
Never exceed speed Vne	228 km/h	123 kts
Cruising speed 75%@6 500 ft:	195 km/h	105 kts
Cruising speed 65%@6 500 ft:	185 km/h	100 kts
Maximum range @65% no reserve:	1 000 km	635 sm
Fuel consumption @65%:	14,4L/h	3,8 gph
Rate of climb, sea level:	6,6 m/s	1 300 fpm
Service ceiling:	4 900 m	16 000 ft
Stall speed (flaps up) C.A.S.:	70 km/h	38 kts
Stall speed (flaps down) C.A.S.:	63 km/h	34 kts
Take-off ground run:	105 m	350 ft
Take-off over 50 ft (15 m) obstacle:	185 m	600 ft

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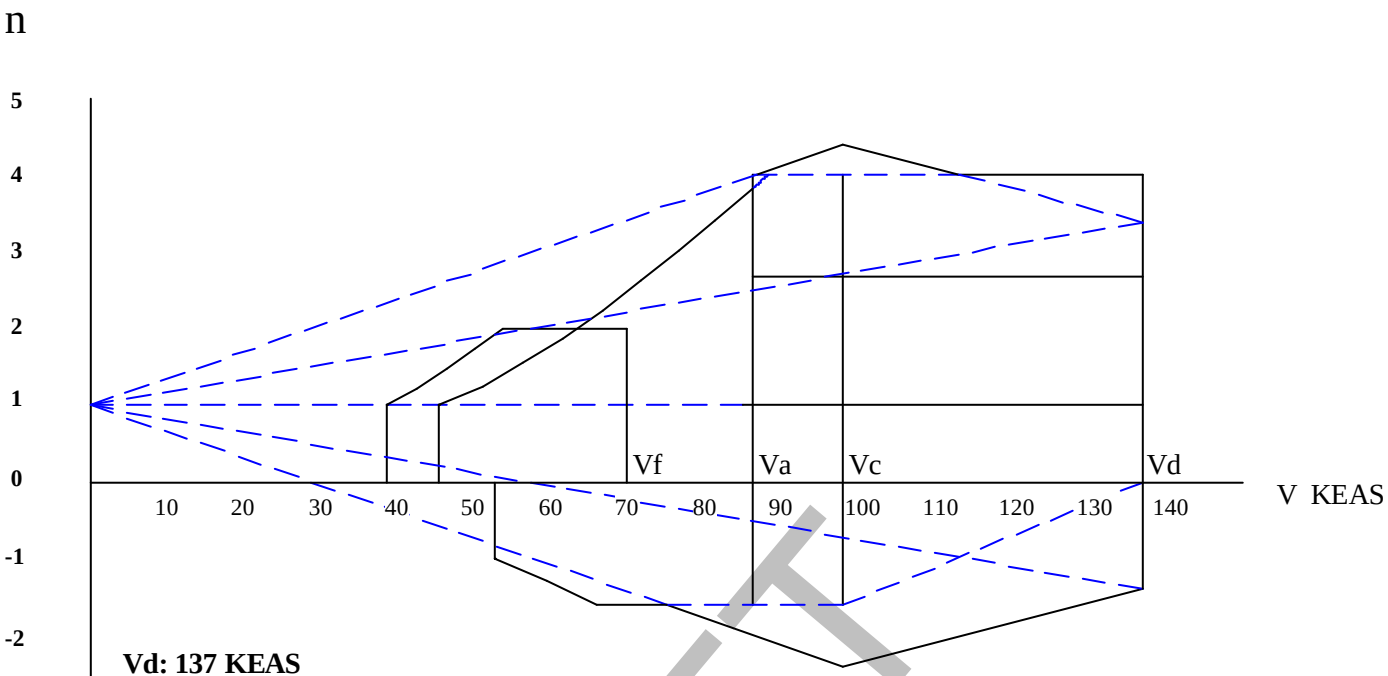
2 FLIGHT ENVELOPE



Vd: 137 KEAS
Vne: 123 KEAS
Vc: 98 KEAS
Va: 85 KEAS
Vf: 70 KEAS

3 PLACARD SPEEDS AND LIMITATIONS

There should be a placard in clear view of the pilot stating:

1)	NO AEROBATIC MANEUVERS, INCLUDING SPINS, APPROVED

2)	Speed limit	Indicated speed	Notes
	Vne (max speed)	123 kts	Do not exceed this speed under any consideration
	Vno (max level speed)	98 kts	Do not exceed this speed except in smooth air and then only with caution
	Va (manoeuver speed)	85 kts	No full or abrupt control movements above this speed
	Vf (max speed for flaps)	70 kts	No flaps above this speed

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4 PLACARDS AND INSTRUMENT MARKINGS

The following information should be displayed in full view of the pilot.

Aerobatics prohibited

Limits:	Maneuvering speed (I.A.S.)		85 kts
	Structural gross weight		1150 lbs
	Flight load factors:	Flaps up	+4.0 / -2.0
		Flaps down	+2

5 POWERPLANT OPERATING SPEEDS AND LIMITS

Refer to the engine manufacturer operator's manual to fill out the following table.

Instruments in the aircraft should be marked accordingly:

Instrument	Red line (minimum limit)	Green arc (up to warn limit)	Red line (maximum limit)
Tachometer			
Cylinder head temp			
Oil pressure			
Oil temperature			
Exhaust gas temp			
Water temp			

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5.1 AIRSPEED INDICATOR MARKINGS

Marking	I.A.S. value or range	Significance
White arc	30 - 70 kts	Full flaps operating range Lower limit: Vso at maximum weight in landing configuration Upper limit: maximum speed permissible with flaps extended
Green arc	40 – 98 kts	Normal operating range Lower limit: Vs at maximum weight with flaps retracted Upper limit: maximum structural cruising speed
Yellow arc	98 – 123 kts	Operations must be conducted with caution and only in smooth air
Red line	123 kts	Maximum speed for all operations

5.2 WEIGHT LIMITS AND FLIGHT LOAD FACTOR LIMITS

Maximum take-off weight	1 150 lbs (523 kg)
Flight load factors (limit): * flaps up	+4.0 / -2.0 G
* flaps down	+2.0 G

* Design load factors are 150% of the above

5.3 CENTER OF GRAVITY LIMITS

Center of gravity range:	Forward	8.0 inches aft of datum (20,3 cm)
	Aft	13.2 inches aft of datum (33,5 cm)

Reference datum:wing leading edge

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6 WEIGHT AND BALANCE

It is mandatory that you check the weight and balance of your aircraft before flight-testing.

The Pelican was designed to minimize the risk of exceeding the limits of the weight and balance envelope if properly built and loaded. However, if the center of gravity is not well located versus the wing chord, the flight characteristics of your aircraft might be dangerously altered:

- If the C.G, is too far forward, you will lack elevator power on landing
- If the C.G. is too far aft, the aircraft will be unstable and dangerous to fly

6.1 WEIGHT AND BALANCE CHECK

1. Place the aircraft on three scales.

2. FIRST: Check the position of the center of gravity with the empty aircraft (no fuel, no baggage, no passenger). Make a list of the equipment and note if there is oil and coolant.

3. SECOND: Check the foremost position of the center of gravity (light pilot, no fuel, no baggage)

4. THIRD: Check the rearmost position of the center of gravity (2 pilots, full fuel, full baggage).

5. You may also check the weight and balance of your aircraft in any other loading condition by measuring the weight, computing the moment and checking the new figure with the weight and balance envelope.

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6.2 PROCEDURE, SAMPLE CALCULATION AND DATA

DATA:

- Place the aircraft on 3 scales
- The aircraft must be level (rear top of fuselage is level)
- Take note of the Lnose and Lmain measures (note the distance between the plumb line shown below and the center of the wheel axles)
- Write these figures in Table 1

EMPTY WEIGHT C.G.

- Read the weight on each scale and write them down in Table 1
- Add up the weights and moments. Write the totals in Table 1

Sample calculation:

L_{nose}	-32.75 in
L_{main}	22.75 in
W_{nose}	185 lbs
W_{main}, right	220 lbs
W_{main}, left	220 lbs
W_{main}, total	440 lbs
W_{total}	625 lbs
$L_{nose} \times W_{nose}$	-32.75 in x 185 lbs = -6059 lbs-in
$L_{main} \times W_{main}$	22.75 in x 440 lbs = 10010 lbs-in

MOMENT = $L_{nose} \times W_{nose} + L_{main} \times W_{main}$

= -6 059 in-lbs + 10 010 lbs-in

= 3 951 lbs-in

VERIFICATION $\frac{3\ 951\ \text{lbs-in}}{625\ \text{lbs}}$ = 6.32 inches

6.32 inches / 44 inches = 14% of wing chord

Note: If aircraft is taildragger, Ltail x Wtail is + sign

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6.3 WEIGHT AND BALANCE CALCULATIONS

TABLE 1 (1) L_{nose} = _____ (minus sign if tricycle)

(2) L_{main} = _____

(A) EMPTY WEIGHT C.G. **A**

(3)	Weight under the nosewheel: W_{nose}	
(4)	Weight under left wheel: W_{main}, left	
(5)	Weight under right wheel: W_{main}, right	
(6)	Total weight under main wheels: W_{main} (4 + 5)	
(7)	Total weight of aircraft: W_T (3 + 6)	
(8)	L_{nose} x W_{nose} (2 x 3)	
(9)	L_{main} x W_{main} (1 x 6)	
(10)	Moment (8 + 9)	

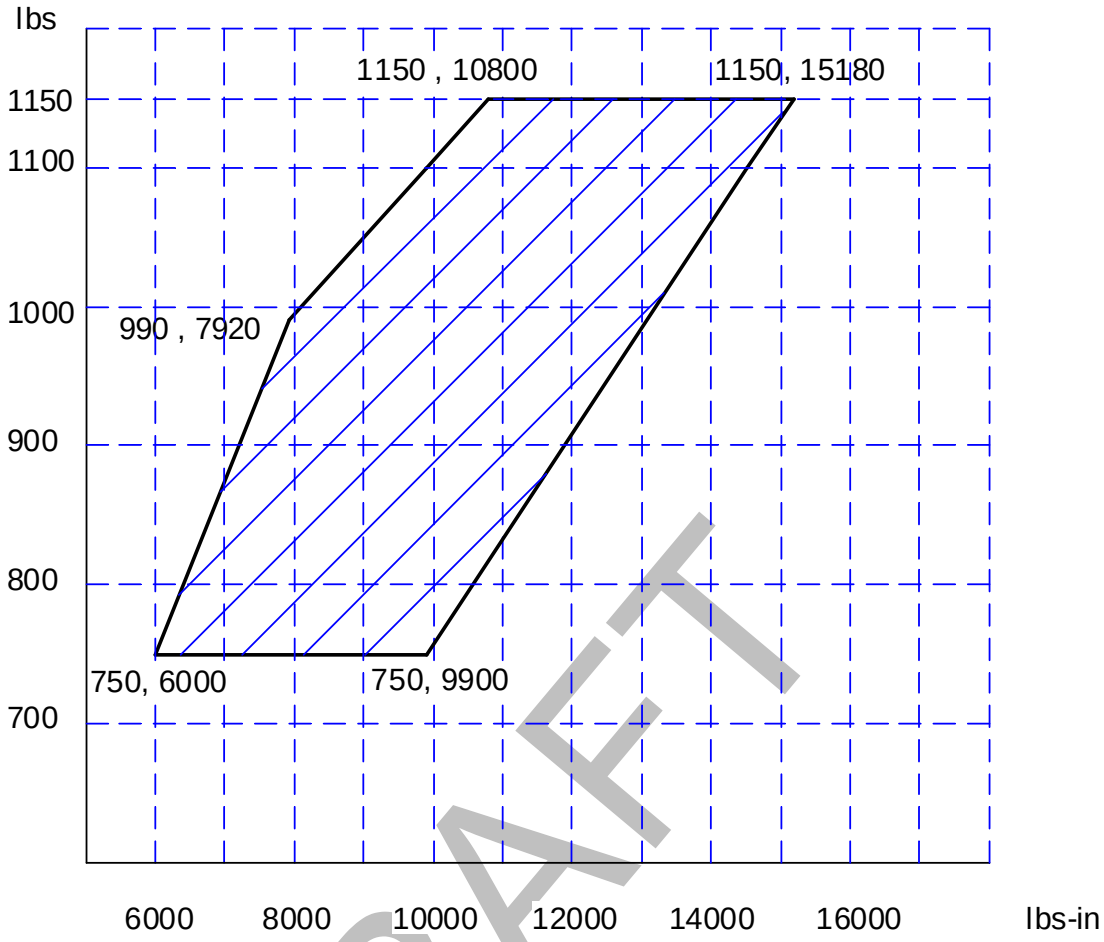
This is your empty weight C.G.
If you add equipment, you may weigh the equipment, measure the distance from the datum and compute your new empty weight C.G. without weighing the airplane.

(B) FOREMOST C.G.
(C) REARMOST C.G. **B** **C**

(3)	Weight under the nosewheel: W_{nose}		
(4)	Weight under left wheel: W_{main}, left		
(5)	Weight under right wheel: W_{main}, right		
(6)	Total weight under main wheels: W_{main} (4 + 5)		
(7)	Total weight of aircraft: W_T (3 + 6)		
(8)	L_{nose} x W_{nose} (2 x 3)		
(9)	L_{main} x W_{main} (1 x 6)		
(10)	Moment (8 + 9)		

Check that the total Weight (7) and Moment (10) coordinates fall within the envelope of the next page with the loaded aircraft.

WEIGHT AND BALANCE ENVELOPE



(B) Weight of the aircraft: foremost position

- Load the aircraft with one light pilot, no fuel and no baggage
- Take note of the weight on each scale
- Compute the weight and moment and check that the coordinates fall in the envelope

(C) Weight of the aircraft: rearmost position

- Repeat operations with 2 pilots, full fuel and full baggage

7 NORMAL PROCEDURES

7.1 PRE-FLIGHT INSPECTION

Before each flight, the operator must visually inspect the aircraft, as taught in every good flying school. The following checklist can be used as guide:

0. Before external verification: documents and licenses

1. Unfasten seat belts to free the controls
Electrical system = OFF
Fuel selector: ON

2. Door fasteners, window, struts and fairings, landing gear, brakes, wheel pants, wheels and tires. Leading edge and wing gap cover in good condition. Remove pitot cover (left side). If wing tanks: drain, visual check of fuel level, check for leaks.

3. Struts, leading edge

4. Wing tip: check screws and mass balance

5. Ailerons and flaps, including controls and fittings. No unusual play. Fabric, false spar and ribs in good condition.

6. External check of airframe

9 to 12 Same as **2 to 5**

13. Windshield in good condition. Cowling secured. Propeller is in good condition. No unusual play in gearbox.
Winter: Check installation of radiator and oil cooler winter kit
Engine access door: nothing unusual. Check oil and coolant expansion bottle.

14. With ignition OFF: Turn propeller by hand and observe engine for odd noises or uneasy movements and proper compression

15. Cabin: visual check of cables, pulleys and supports, engine mount bolts, pedals, brakes. sticks, instruments, fuel selector, seat belts, door hinges, etc...

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7.2 ENGINE PRE-START VERIFICATION

Fuel selector		ON
Master		OFF
Electricals and radio		OFF
Trim		NEUTRAL
Throttle	IDLE	(note: if throttle is cracked, choke is inoperative)
Choke		as required

7.3 START

After having looked around the aircraft

Master	ON
Alternator	OFF (check light is on)
Brakes	applied

Start while looking outside.
Activate starter for max 20 sec only, followed by a cooling period of 3 minutes
Reduce engine RPM as required (2000 - 2500 RPM for warming up)
Check engine oil pressure: pressure has to rise within 10 seconds
Alternator: check light is off

7.4 CHECK BEFORE TAXIING

Check instrument panel from left to right and top to bottom
Choke as required
Flaps: up

7.5 TAXI

Try the brakes
Aircraft with nose in the wing for the run-up

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7.6 RUN-UP OF PRE-TAKE-OFF CHECK

Engine

- Check traffic behind
- Pressure and temperature (oil has reached 120°F)
- Choke: OFF
- Check ignition circuits as per engine operator manual
- RPM: idle

Instruments and accessories

- Compass
- Fuel selector ON
- Alternator (light is off)
- Check instrument panel from left to right and from top to bottom

Controls

- Controls Free
- Flaps Take-off position
- Trim Neutral

Safety

- Seat belts
- Baggage secured
- Doors locked
- Check traffic
- Radio call

7.7 TAKE-OFF

- Climbing with engine running at peak performance is permissible
- Note RPM
- Observe oil temperature, cylinder head temperature and oil pressure

7.8 ENGINE STOP

In normal conditions, the cooling down of the normally aspirated Rotax engine during descent and taxiing will be sufficient to allow to stop the engine by switching the ignition OFF

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AIRFRAME MAINTENANCE GUIDE

1 MAINTENANCE OF COMPOSITE - General

The fuselage and engine cowlings of the Pelican are made from vacuum molded composite materials, which consist in fiberglass and vinylester resin with a polyvynil chloride (PVC) foam core. These materials are cured at room temperature.

The composite materials require very little maintenance. It is however important that the structure should be regularly checked for delaminations, particularly in case of accidents.

A visual check is usually enough to find failures in the composite materials. Any crack, lump, depression or soft surface should be investigated and repaired. For this, refer to the introductory section of the Pelican assembly manual.

The composite materials used in the Pelican are stable at outside temperatures ranging from -40°C to +50°C (-40°F to 120°F). Tolerable surface temperature can however reach over 80°C (180°F).

The color of the fuselage is normalized white, which prevents any risk of surface temperature going beyond these values. The operator is authorized to paint identification marks and side decorative bands of any color. There is no restriction on the color of the covering fabric.

Composite materials are also sensitive to ultra-violet rays. The Pelican resin system uses an additive for UV protection. However, a coat of paint, preferably polyurethane, should protect composite parts.

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2 MAINTENANCE OF FABRIC - GENERAL

The fabric must be well protected from ultra-violet rays.

After bonding the fabric to the frame and taughtening it with the iron, the fabric should be cleaned, covered with a good UV barrier. The operator is referred to the « covering » section of the Pelican assembly manual.

The fabric should be checked regularly. It must be well bonded to the structure and cuts or rips must immediately be repaired.

Depending on exposure to the sun, the fabric will deteriorate with time and re-covering will then be required. Experienced mechanics in covering have a special tool to check if the fabric is in good shape or deteriorated.

3 HARDWARE

The hardware used in the construction of the Pelican (bolts, nuts, cable, turnbuckles, pulleys) is almost exclusively of aeronautical type (AN, MS or NAS) and treated against corrosion with nickel-cadmium plating. However, rubbing and exposure to wind and rain may remove this protection and rust will appear. It is then recommended to change the part to prevent corrosion from spreading. The shackles, clevis pins and safety pins should namely be changed regularly.

As a general rule, for all bolts, the operator should see 1 to 3 threads exceeding the nut. Bolts which are too short should be changed for longer bolts and washers should be added for bolts slightly too long.

The operator should regularly check that the nicopress on the cables are in good condition and that the tension in the cables is adequate. The cables should also be secured in the pulleys, with no excessive play. The pulley supports (cabin and wings) should be checked regularly for failures.

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4 MAINTENANCE OF STEEL PARTS - General

A number of parts in the Pelican are made of steel, namely the landing gear, the engine mount, the sticks and pedals, the fin post, the tailfeather horns, some push-rods, etc...

All steel parts must be protected against the rust at the assembly stage (sanding with fine grit paper, linseed oil inside tubes and steel primer on the outside). Steel parts must also be checked and cleaned regularly. Some parts, such as the fin post and the wheel axles, must be taken off and greased regularly.

All steel parts should be checked regularly for failures, namely at the welds.

5 MAINTENANCE OF ALUMINIUM PARTS - General

As specified in the Assembly manual, the aluminium used in the construction of the Pelican is of 2024-T3 Alclad grade for sheeting and of 6061-T6 grade for tubing and extrusion. These materials already offer a good protection against rust. It is however recommended to the treat the aluminium with specialized products (such as zinc chromate of vinylwash primers) for marine or salt water operations.

All exposed aluminium parts should be cleaned, primed and painted.

All aluminium parts should be regularly checked for failures, such as cracks and crushed areas.

6 ACCESSORIES - General

The operator should regularly check all accessories and make sure of their proper state of operation. Particular care should be given to the brakes, the instruments and the accessories in the engine compartment (electrical system, fuel system, exhaust system, cooling system, battery, spinner, propeller, etc...).

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MAINTENANCE SCHEDULE

1 Check before first flight:

As per conformity inspection

2 Check after initial 10 hours:

Something may have been overlooked before the first flight, some bolts may need tightening, some SS screws may have flown away, some wires may be rubbing in the engine compartment, you may have some dirt in the fuel tanks, etc.

General inspection of engine compartment:

- 25 hour inspection from Rotax manual, except for oil and oil filter change
- Engine tight (inspect Lord mounts and bolts)
- Exhaust system: secured to engine
- Hoses, wires, lines secure (no wear by friction)
- Change fuel filter
- Clean gascolator
- Check carburators and filters for security
- Check propeller blade pitch and bolts torque
- Check fuel line connections
- Check cooling system, including hoses and clamps

General inspection of airframe:

- Remove all fairings and covers to inspect all bolts (landing gear, struts, wings to fuselage, empennage supports, sticks, etc.) for security
- Check control cables tension / no chaffing / no slip
- Check presence of all Cotter pins
- Check brakes: mount leg on support and check that the wheel turns freely
- Check all SS screws (fairings and others) for security
- Check no friction / no play in all control surfaces

Others: Any vibration must be investigated

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3 Check after initial 25 hours

Engine: 25 hours from Rotax engine manual + change fuel filter
Check spark plugs for color
Perform compression test (the engine should be run-in and this will be your reference compression values)

Others: Same as 10 hour inspection

4 Check at every 50 hours

Engine: As per Rotax manual - 100 hour inspection
Change fuel filter
Clean spark plugs (or change) + gap
Inspect and lubricate nosewheel nylon bearings

Airframe inspection: General

5 100 hours or annual inspection:

CONFORMITY INSPECTION

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PELICAN SPORT 450 S

50 HOUR INSPECTION CHECK-LIST

AIRCRAFT IDENTIFICATION:

Pelican serial N° _____
Registration _____
Airframe total time _____

Engine model _____
Engine serial N° _____
Engine total time _____
Propeller model _____
Propeller serial N° _____

Owner: _____

	Satis	Unsatis	Fixed
GENERAL			
Registration / C of A			
Weight and Balance / Equipment list			
WINGS			
Remove inspection plates / fairings			
General inspection of the exterior/interior of wing			
Flight control proper attachment (free / no slop)			
Flight controls properly rigged / proper tension			
Inspect all control stops for security			
Skin panels delaminate / voids			
Popped rivets / cracked / deformed skins			
Fabric/tape condition			
Lubrication (WD40 on bushings)			
Wing attach points			
Struts for security			
Corrosion			
Check drains			
_____			
_____			
FUEL SYSTEM			
Corrosion			
Fuel lines for chaffing/leaks/security/condition			
Fuel caps for security			
Fuel placards			
Fuel valve / cross feed for operation and security			
Inspect fuel tank vent system			
_____			

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Ballard Sport Aircraft Ltd.

PELICAN SPORT 450 S

50 HOUR INSPECTION CHECK-LIST

	Satis	Unsatis	Fixed
FUSELAGE			
Inspect for delaminated skin and voids (in and out)			
Inspect door latching mechanism			
Inspect rudder pedals/brakes for operation/security			
Inspect behind firewall for loose wires/chaffing lines			
Check control sticks for freedom of movement / no play			
Check flap control operation			
Check cables and pulleys for security and operation			
Inspect instruments, lines, for security / clean			
Inspect seats, seatbelts/shoulder harness for security and attachment			
Corrosion check			
Check drains			
_____			
_____			
LANDING GEAR			
Remove fairings			
Inspect legs for attachment / tighten Allen bolts			
Check all bushings for wear / free play			
Wheels/tires for cracks and serviceability			
Inspect for corrosion			
Inspect nosegear/tailwheel for cracks and travel / Lubricate nylon bearings and push-rods			
Check tire pressure			
Brake linings within limits			
Brake disks for cracks/wear/deformity			
Brake hydraulic lines for leaks and security (use only automatic transmission oil)			
_____			
_____			
TAIL			
Inspect rudder attachment points			
Inspect elevator/stabilizer attachment points			
Inspect hinges/trim tab for attachment and free play			
Inspect skins for damage/corrosion			
Inspect all control cables, hinges and pulleys			
Lubrication (WD40 on bushings)			
Inspect all control stops			
Check drains			
_____			

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Ballard Sport Aircraft Ltd.

PELICAN SPORT 450 S

50 HOUR INSPECTION CHECK-LIST

	Satis	Unsatis	Fixed
ENGINE			
Change oil and filter (check for metal)			
Inspect ignition harness for condition and continuity			
Check ignition leads cigarettes for condition/cracks			
Clean (change) and gap spark plugs			
Inspect engine mount/bushings			
Check torque of engine mount attachment bolts			
Inspect cylinders for cracks/broken fins/exhaust stains			
Check for oil leaks			
Inspect oil vent lines			
Inspect carburator for security/clean filters			
Inspect throttle/choke control for proper travel and security / Lubricate			
Inspection condition of flexible fuel and oil lines			
Inspect oil cooler for leaks and condition			
Check exhaust system for attachment and condition			
Check muffler for security and attachment			
Check cowling for cracks and security			
Check radiator/hoses for leaks/security + anti-freeze			
Check radiator/oil cooler covers for winter operation			
_____			
_____			
_____			
PROPELLER			
Check spinner and backplate for cracks			
Inspect for cracks / stone damage / nicks (DO NOT FILE)			
Repair nicks (resin) - Paint/varnish			
Check for delaminations			
Check prop bolts torque / Safety wire			
Check for oil leaks (crankcase nose seal)			
_____			
_____			
ELECTRICALS			
Battery and supports/covers for security/corrosion			
Check position/strobe lights for operation			
Check all antenna mounts and wiring for security			
Inspect radios/leads/wires for attachment and security			
Inspect circuit breakers/panel for condition			
_____			

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Ballard Sport Aircraft Ltd.

PELICAN SPORT 450 S

50 HOUR INSPECTION CHECK-LIST

OPERATIONAL INSPECTION	Satis	Unsatis	Fixed
Visual inspection of the engine/propeller			
All inspection panels and fairings secure			
Brake system check			
Proper fuel in tanks (Super unleaded or 100LL with TCP additive)			
Engine start procedures			
Oil pressure/oil temperature within limits			
Ignition check			
Idle RPM check/Choke check			
Static RPM check			
Electrical system check			
Cool down period/engine shut-down			
Perform oil, hydraulic and fuel leak check			

PAPERWORK			
Airworthiness directives			
Record findings and sign off inspection and maintenance in aircraft logbooks			

Inspector signature: _____

Name (in print) _____

Date: _____

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6 WINTER OPERATION

Ultravia offers a very effective cabin heating system with radiator. However, you will not get adequate heating if the engine's water temperature is too low.

For winter operation:

- Check prestone
- Check acid in battery
- Install fiberglass radiator cover (or cover partly with tape) when outside temperature is below 50°F (10°C)
- Install Lexan cover (drill a few holes in the cover) over oil cooler when oil temperature falls below green arc

DAMAGE TO THE ENGINE OR ENGINE STOPPAGE CAN OCCUR IF TEMPERATURES ARE NOT WITHIN OPERATING LIMITS OR IF THE AIR COMING FROM THE CABIN HEATING SYSTEM IS NOT WARM ENOUGH

Comes spring and summer, you must remove the fiberglass covers in the radiator and oil cooler inlets. You may also disconnect the air hose from the side of the cabin to the radiator box and connect directly from the side of the cabin to the ventilation box behind the instrument panel.

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CONFORMITY INSPECTION CHECK-LIST

This list was put together as a guide to the **Pelican** operator. It must in no case be considered as a complete and infallible list. The assembly manual is a far better guide and each owner and operator must ensure that he has the required knowledge and competency to perform a valid inspection.

This guide is also very useful before the first flight of the aircraft. In the event the aircraft should be flight tested by another person than the owner, we remind the latter that the whole responsibility of declaring the aircraft airworthy lies with the owner who bears the sole responsibility of any accident or incident, which may be related to the construction of his aircraft.

Human lives are at stake, not to mention the amount of time and money involved.

It is therefore of capital importance that you do a thorough inspection of your aircraft before declaring that it is airworthy.

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AIRCRAFT IDENTIFICATION:

Pelican serial N° _____
Registration _____
Airframe total time _____

Engine model _____
Engine serial N° _____
Engine total time _____
Propeller model _____
Propeller serial N° _____

Owner: _____

	Satis	Unsatis	Fixed
GENERAL			
Registration			
Aircraft identification plates and placards installed			
Weight and Balance / Equipment list			
WINGS			
Remove inspection plates / fairings			
General inspection of the exterior/interior of wing			
Flight controls balance weights for security			
Flight control proper attachment (free / no slop)			
Flight controls properly rigged / proper tension			
Check aileron travel			
Check flaps operation			
Inspect all control stops for security			
Skin panels delaminate / voids			
Popped rivets / cracked / deformed skins			
Fabric/tape condition			
Lubrication (WD40 on bushings)			
Wing attach points			
Struts for security			
Corrosion			
Pitot line / electrical wires and connectors			
Check drains			
_____			
_____			

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	Satis	Unsatis	Fixed
FUEL SYSTEM			
Corrosion			
Fuel lines for chaffing/leaks/security/condition			
Sump all tanks for water or debris			
Fuel caps for security			
Fuel placards			
Fuel valve / cross feed for operation and security			
Change fuel filters / clean gascolator / flush system			
Inspect fuel tank vent system			
_____			
_____			

	Satis	Unsatis	Fixed
FUSELAGE			
Remove pulley covers, console top, cable covers			
Inspect for delaminated skin and voids (in and out)			
Inspect bulkheads for cracked skins			
Inspect windows for cracks and fit			
Inspect windshield for cracks and fit			
Inspect door latching mechanism			
Inspect firewall for distortion and cracks			
Inspect rudder pedals/brakes for operation/security			
Inspect behind firewall for loose wires/chaffing lines			
Check control sticks for freedom of movement / no play			
Check flap control operation			
Check cable and pulleys for attachment and operation			
Check aileron cables tension: 50 lbs			
Ensure cockpit instruments are properly marked			
Compass swing (annual)			
Inspect instruments, lines, for security / clean			
Inspect cockpit fresh air vents / heater for operation and security			
Inspect seats, seatbelts/shoulder harness for security and attachment			
Corrosion check			
Check drains			
_____			
_____			

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	Satis	Unsatis	Fixed
LANDING GEAR			
Remove fairings			
Inspect legs for attachment			
Lift wing and check leg for play / grease pivot points / tighten bolts			
Check all bushings for wear / free play			
Lubricate wheel axles / Check security of bolts			
Inspect wheels for alignment / balance			
Wheels/tires for cracks and serviceability			
Wheel bearings for lubrication/wear			
Inspect for corrosion			
Inspect nosegear/tailwheel for cracks and travel / Lubricate nylon bearings and push-rods			
Check tire pressure			
Brake linings within limits			
Brake disks for cracks/wear/deformity			
Brake hydraulic lines for leaks and security (use only automatic transmission oil)			
_____			
_____			
_____			

TAIL			
Remove covers and fairings			
Inspect vertical fin attachment points			
Inspect rudder attachment points			
Inspect elevator/stabilizer attachment points			
Inspect hinges/trim tab for attachment and free play			
Inspect skins for damage/corrosion			
Inspect all control cables, hinges and pulleys			
Check table tension: 50 lbs elevator, 20 lbs rudder			
Check elevator travel			
Check rudder travel / No interference with elevators			
Lubrication (WD40 on bushings)			
Inspect all control stops			
Flight control balance weights for security			
Check drains			
_____			
_____			
_____			

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	Satis	Unsatis	Fixed
ENGINE			
Perform compression test (yearly or 100 hrs)			
#1 _____ #2 _____ #3 _____ #4 _____			
Change oil and filter (check for metal)			
Inspect ignition harness for condition and continuity			
Check ignition leads cigarettes for condition/cracks			
Clean (change) and gap spark plugs			
Inspect engine mount/bushings			
Check torque of engine mount attachment bolts			
Inspect cylinders for cracks/broken fins/exhaust stains			
Check for oil leaks			
Inspect oil vent lines			
Inspect carburator for security/clean filters			
Oil air filters			
Change carburator intake flanges (200 hrs or yearly)			
Inspect throttle/choke control for proper travel and security / Lubricate			
Inspection condition of flexible fuel and oil lines			
Inspect oil cooler for leaks and condition			
Check exhaust system for attachment and condition			
Check muffler for security and attachment			
Check cowling for cracks and security			
Check radiator/hoses for leaks/security + anti-freeze			
Check radiator/oil cooler covers for winter operation			
_____			
_____			
_____			
_____			

PROPELLER			
Check spinner and backplate for cracks			
Inspect for cracks / stone damage / nicks (DO NOT FILE)			
Repair nicks (resin) - Paint/varnish			
Check for delaminations			
Check prop bolts torque / Safety wire			
Check for oil leaks (crankcase nose seal)			
Check prop track/pitch			
_____			
_____			
_____			

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	Satis	Unsatis	Fixed
ELECTRICALS			
Battery serviced and free of corrosion			
Battery supports/covers for security/corrosion			
ELT battery free from corrosion and current battery			
Check position/strobe lights for operation			
Check all antenna mounts and wiring for security			
Check all grounding wires (engine to airframe, wing, tail, etc...)			
Inspect radios/leads/wires for attachment and security			
Inspect circuit breakers/panel for condition			
_____			
_____			
OPERATIONAL INSPECTION			
Visual inspection of the engine/propeller			
All inspection panels and fairings secure			
Personnel with fire bottle standing by			
Brake system check			
Proper fuel in tanks (Super unleaded or 100LL with TCP additive)			
Engine start procedures			
Oil pressure/oil temperature within limits			
Ignition check			
Idle RPM check/Choke check			
Static RPM check			
Electrical system check			
Cool down period/engine shut-down			
Perform oil, hydraulic and fuel leak check			
_____			
PAPERWORK			
Airworthiness directives			
Record findings and sign off inspection and maintenance in aircraft logbooks			
_____			

Inspector signature: _____

Name (in print) _____

Date: _____