

PILOT OPERATING HANDBOOK

No. POH001

REVISION NC

1/10/2014

MANUFACTURER:

JUST AIRCRAFT CO.

MODEL: SUPERSTOL

AIRPLANE REGISTRATION NUMBER _____

AIRPLANE SERIAL NUMBER _____

DATE OF ASSIGNMENT _____

APPROVED TROY WOODLAND //S/ 1/10/2014

Just Aircraft Co.

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Walhalla, SC

SC 29691

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MANDATORY SERVICE ALERTS

As the Service History of the airframe evolves, Just Aircraft will from time to time issue mandatory Service Alerts, which will detail any changes to the aircraft operation instructions, maintenance manuals or any other details that Just Aircraft deems necessary for which the owners to be notified.

The web address for Service Alerts is www.justaircraft.com

It is the responsibility of the operator to keep up to date with any engine related service alerts and any Rotax Directives through the Rotax website.

The web address for Rotax Service Bulletins is <http://www.rotax.com>

WARNING

The information in this manual needs to be followed, and it is not acceptable to make changes to the materials and or physical features of this aircraft. In particular, the grades of bolts that have been utilized in the manufacture of this aircraft are critical for its continuing airworthiness. Never replace bolts with any other size or grade. Grade 8 bolts are not interchangeable with aircraft (AN) Grade Bolts. The fatigue characteristics of aircraft grade bolts are superior to other bolts and allow longer safe service life under cyclic loads like those experienced in aircraft. The length of bolt is important. If a shorter bolt is used the threads may encroach on the load bearing area which increases the stresses experienced by it.

Record of Revisions Pilot Operating Handbook No. POH001

Any Revisions of the present manual, except actual weighing data, must be recorded in the following table according to information from the Manufacturer.

New or amended text in the revised pages will be indicated by a black vertical line on the left had side of the page.

Revision Number	Affected Section	Affected Pages	Date	Approval	Date	Date Inserted	Signature
Rev A - ASTM update	all	all	1/10/2014	TW//s/	1/10/2014	1/10/2014	TW//s/

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F2245 Standard Specification for Design and Performance of a Light Sport Airplane

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F2483 Standard Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft

F2295 Standard Practice for Continued Operational Safety Monitoring of a Light Sport Aircraft

F2339 Standard Practice for Design and Manufacture of Reciprocating Spark Ignition Engines for Light Sport Aircraft

F2745 Standard Specification for Required Product Information to be Provided with an Airplane¹

F2746 Standard Specification for Pilot's Operating Handbook (POH) for Light Sport Airplane

F2316 Standard Specification for Airframe Emergency Parachutes

F2506 Standard Specification for Design and Testing of Light Sport Aircraft Propellers¹

6.4.2 The name and contact information of the manufacturer of the aircraft.
manufacturer:

Just Aircraft Co.
170 Duck Pond Rd
Walhalla, SC 29691
(864) 718-0320
Web: www.justaircraft.com

Model: Superstol

Web: www.justaircraft.com

6.4.3 Data Location and Contact information for recovery
of certification documentation, should the original manufacturer
lose its ability to support the make and model:

Troy Woodland
170 Duck Pond Rd
Walhalla, SC 29691
(864) 718-0320

6.4.4 Definitions

SYMBOLS, ABBREVEATIONS AND TERMINOLOGY

The following definitions are of symbols, abbreviations and terminology used throughout the hand book and those which may be of added operational significance to the pilot. General Airspeed Terminology and Symbols

- BHP-** Brake horsepower (= rated horsepower of the engine).
CAS- Calibrated airspeed means the indicated speed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.

- GPH-** Fuel consumption in gallons (U.S.) per hour
- KCAS-** Calibrated airspeed expressed in “Knots”.
- C.G.-** Center of Gravity.
- IAS-** Indicated airspeed is the speed of an aircraft as shown on the airspeed indicator.
- KIAS-** Indicated airspeed expressed in “Knots”
- L-** Left
- R-** Right
- RPM-** Revolutions per minute.
- S.L.-** Sea level
- TAS-** True airspeed is the airspeed of an airplane relative to undisturbed air which is the CAS corrected for altitude and temperature.
- V-** Speed
- V_A-** Maneuvering speed is the maximum speed at which application of full available aerodynamic control will not overstress the airplane.
- V_{FE}-** Maximum flap extended speed is the highest speed permissible with wing flaps partially or fully extended.
- V_{NE}-** Never exceed speed is the limit that may not be exceeded at any time.
- V_C-** Maximum structural cruising speed is the speed that should not be exceeded except in smooth air and only with caution.
- V_S-** Stalling speed or the minimum steady flight speed at which the airplane is controllable (flaps up).
- V_{SO}-** Stalling speed at which the airplane is controllable in the landing configuration.
- V_X-** Best angle-of-climb speed is the air speed which delivers the greatest gain of altitude in the shortest horizontal distance.
- V_Y-** Best rate-of-climb speed is the air speed which delivers the greatest gain in altitude in the shortest time.

Meteorological Terminology

- ISA-** International standard atmosphere in which the air is a dry perfect gas, the temperature is at sea level is 15° Celsius (59° Fahrenheit), the pressure at sea level is 29.92 inches hg. (1013 mb), and the temperature gradient from sea level up is: -1.98° C per 1000 ft or -6.5° C per 1000 meter, or -3.57° F per 1000 ft.
- OAT-** Outside air temperature is the free air static temperature, obtained either from in-flight temperature indications or ground meteorological sources, adjusted for instrument error.
- Indicated Pressure Altitude-** The number actually read from an altimeter when the barometric subscale has been set to 29.92 inches of mercury (1013 millibars).
- Pressure Altitude-** Altitude measured from standard sea level pressure (29.92 inches Hg) by a pressure or barometric altimeter. It is the indicated pressure altitude corrected for position and instrument error. In this POH, altimeter instrument errors are assumed to be zero.
- Station Pressure-** Actual atmospheric pressure at field elevation.
- Wind-** The wind velocities recorded on the charts of this POH are to be understood as the headwind or tail wind components of the reported winds.

Units

Speed- Kts (Knots) = 1.15 mph (miles per hour)
Pressure- PSI = pounds per square inch, in Hg = inches of Mercury,
in mb = millibar.
Distances- in. = inches = 25.4 millimeters, ft = foot (feet) = .305 meters
Weights- Kg = kilograms = 2.2 lbs (pounds)

Power Terminology

Takeoff Power- Maximum power permissible for takeoff.
Maximum Continuous Power- Maximum power permissible continuously during flight.
Maximum Climb Power- Maximum power permissible during climb.
Maximum Cruise Power- Maximum power permissible during cruise.
Engine Instruments
CHT Gauge- Cylinder head temperature

Airplane Performance and Flight Planning Terminology

Climb Gradient- The demonstrated ratio of the change in height during a portion of a climb, to a horizontal distance traversed in the same time interval.
Demonstrated Crosswind Velocity- The velocity of the 90° crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated.

Weight and Balance Terminology

Reference Datum- An imaginary vertical plane from which all horizontal distances are measured for balance purposes: the nose.
Station- A location along the airplane fuselage centerline given in terms of distance from the reference datum.
Position or Arm- The horizontal distance from the reference datum to the center of gravity (C.G.) of an item parallel to fuselage centerline.
Moment- The product of the weight of an item multiplied by its arm. (Moment divided by a constant is used to simplify balance calculations by reducing the number of digits.

Center of Gravity (C.G.)- The point at which an airplane would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane.

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

C.G. Limits- The extreme center of gravity locations within which the airplane must be operated at a given weight.

Usable Fuel- Fuel available for flight planning.

Unusable Fuel- Fuel remaining after a runout test has been completed in accordance with the design standards.

Standard Empty Weight- Weight of a standard airplane including unusable fuel, full operating fluids and full oil.

Empty Weight- Standard empty weight plus optional equipment.

Payload- Weight of occupants, fuel and baggage.

Useful Load- Difference between takeoff weight, and empty weight.

Maximum Takeoff Weight- Maximum approved weight.

6.5 No. 1 General Information

6.5.1 Introduction to airplane

The airplane Pilot Operating Handbook has been prepared to provide the pilots and instructors with information for the safe and efficient operation of this airplane.

Airplane and Systems Description

The Superstol is a two seat light airplane for primary training. It is a high wing, strut braced monoplane of “classic” aerodynamic layout with closed cockpit, non-retractable landing gear, with steerable nose wheel. It is equipped with a Rotax 912 engine (or other approved engines) and a three blade, ground adjustable pitch propeller.

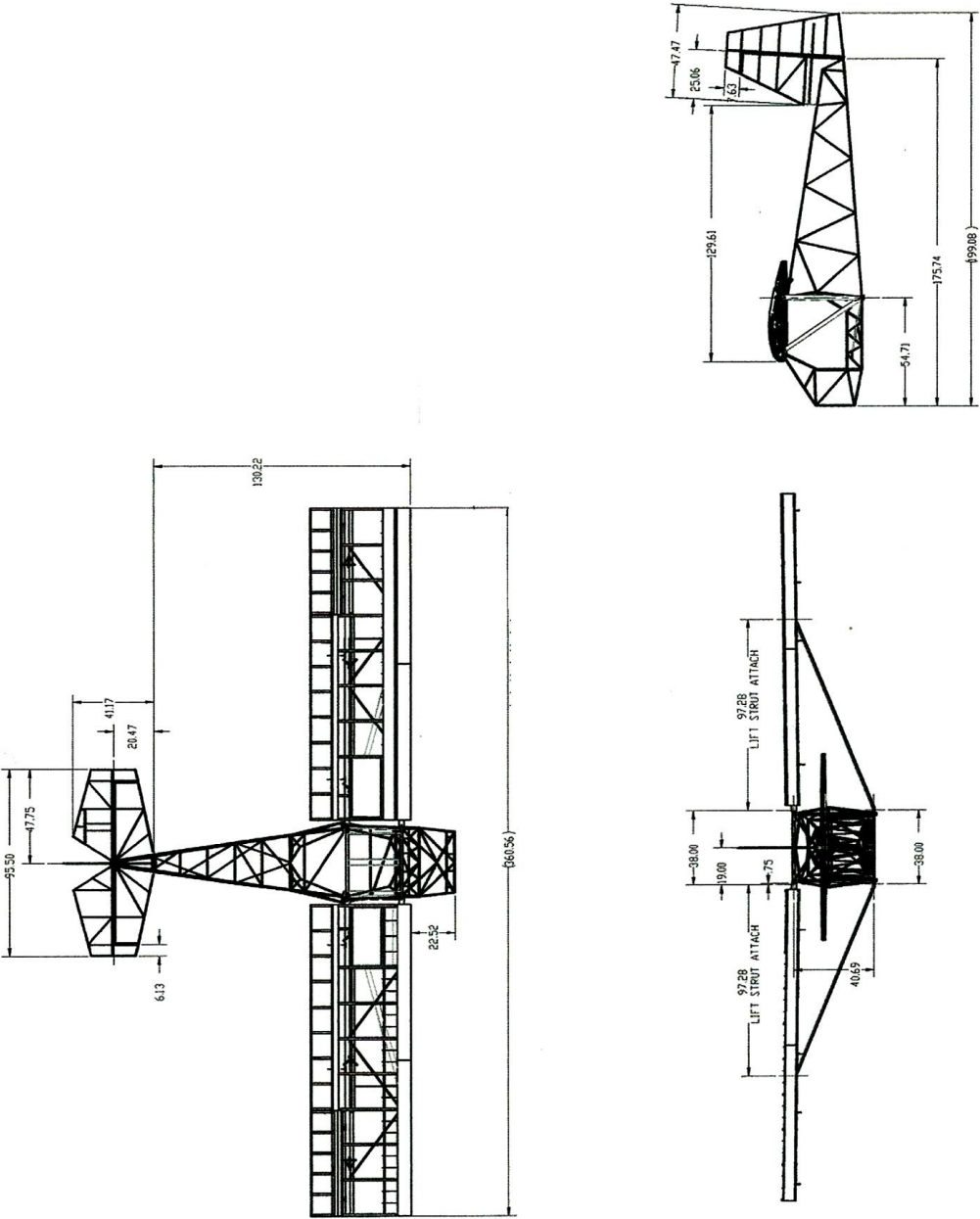
Performance of the airplane and its navigation and flight instruments make possible the airplane operation in VFR. The landing gear and thrust-to-weight ratio make possible the airplane operation from fields (aerodromes) with both grass and paved runways.

The airplane may have wheels, skis, or floats. Replacement of wheels for skis may be done easily in a very short time. On customer request, a quickly deployed parachute recovery system may be installed on the airplane. The system is used for saving the pilot(s) aboard in emergency in-flight situations.

Basic dimensions of the airplane

Wing Span	31.27 ft (9.53 m)
Length	20.21 ft (6.16 m)
Height	7.78 ft (2.4 m)
Mean Aerodynamic Cord	4.59 ft (1.4 m)
Wing Area	147 ft ² (13.56 m ²)
Wing Loading	7.5 lb/ft ² (36.85 kg/m ²)

Three view drawing of SUPERSTOL



Power Plant

The SUPERSTOL is equipped with a four-cylinder four-stroke Rotax-912UL or Rotax-912ULS carburetor combined cooling engine produced by BOMBARDIER-ROTAX Inc. (Austria). Or other approved engines.

The engine has a flat-four layout, dry sump lubrication system with a separate oil tank of 3 liters capacity, automatic valve clearance adjustment, two carburetors, mechanical membrane fuel pump, double electronic ignition system, integrated water pump, electric starter, integrated gearbox of 2.273 or 2.43 reduction ratio.

All engine systems (fuel, electric, cooling) are assembled in accordance with Rotax-912 engine operation manual.

Propeller is a three-blade ground-adjustable pitch.

Engine Manufacturer:	BOMBARDIER-Rotax-GmbH (Austria)	
Engine Model	Rotax-912ULS	
Engine Type:	Flat Four, Four Stroke	
Max. Take-off power	100 hp	
Time Limit at full power	5 min (5800)	
Max. Revolutions (no time limit)	5500 rpm	
Revolutions a idle	1400 rpm	
Max. cylinder head temperature at pick up point	150 °C (300 °F)	
Oil Temperature normal maximum minimum	90 – 110 °C (190 – 250 °F) 140 °C (285 °F) 50 °C (120 °F)	
Exhaust Gas Temperature maximum at take-off maximum minimum	880 °C (1620 °F) 850 °C (1560 °F) 800 °C (1470 °F)	
Oil Pressure normal maximum minimum	2.0 – 5.0 bar (29 – 73 psi) (above 3500 rpm) 0.8 bar (12 psi) (below 3500 rpm) 7 bar (100 psi) (at cold start, allowed for a short time)	

Fuel Pressure normal maximum	0.15 – 0.4 bar (2.2 – 5.8 psi) 0.4 bar (5.8 psi)
Fuel	Automotive unleaded fuel, minimum octane RON 95
Oil	Any automotive oil of API classification “SF” or “SG”

1.3.2 Propeller

Propeller Manufacturer: KeivProp or as specified
Propeller Type: Three blade, ground adjustable pitch, pusher

Fuel and Fuel Capacities

The following fuels may be used:

912 ULS

Minimum RON 90
EN 228 Regular
EN 228 Premium
EN 228 Premium Plus

Oil

The engine has a flat-four layout, dry sump lubrication system with a separate oil tank of 3.2 quart (3 l) capacity. Any automotive oil of API classification “SF” or “SG” may be used.

Operating Weights and loading (occupants, baggage, fuel, ballast)

Maximum take-off weight 1320 lbs (500 kg)
Maximum landing weight 1320 lbs (500kg)
Average Empty weight 737 lbs (335 kg)

6.5.1.1 Placards and Markings

Required Placards and Markings:

- Throttle
- Brake
- Elevator trim control
- Pilot and copilot PTT controls
- Parking brake
- Engine choke
- Fuel shutoff valves
- flaps position
- Ignition switch
- Landing light, strobe light, and navigation lights
- Ignition switches
- Passenger warning
- Minimum 145 lb in front seat
- ELT status
- Fuel gauges
- Tank marked, quantity and grade required
- Stainless data plate in left side of tail.
- Light-Sport in two inch size at every entry point
- Registration numbers in 12 inch size on each side.

6.5.2 Summary of the performance specifications:

Gross Weight	1320 lb.
Top Speed Sea Level	100 mph IAS
Cruise Speed Sea Level 75% power	90 mpg IAS
Full Fuel Range maintaining reserves	500 miles
Climb rate V(x)	62 mph IAS 900 fpm
Climb Rate V(y)	67 mph IAS 1000 fpm
Stall Speed w/o Flaps	37 mph IAS
Stall speed w/ Flaps	32 mph IAS
Usable fuel/ grade	24 gal, minimum 91 RON auto fuel.

Maximum HP at rated rpm	100 hp at 5800 rpm

6.5.1 WARNING NOTICE

WARNING

THERE ARE INHERENT RISKS IN THE PARTICIPATION IN RECREATIONAL AVIATION AIRCRAFT. OPERATORS AND PASSENGERS OF RECREATIONAL AVIATION AIRCRAFT, BY PARTICIPATION, ACCEPT THE RISKS INHERENT IN SUCH PARTICIPATION OF WHICH THE ORDINARY PRUDENT PERSON IS OR SHOULD BE AWARE. PILOTS AND PASSENGERS HAVE A DUTY TO EXERCISE GOOD JUDGMENT AND ACT IN A RESPONSIBLE MANNER WHILE USING THE AIRCRAFT AND TO OBEY ALL ORAL OR WRITTEN WARNINGS, OR BOTH, PRIOR TO OR DURING USE OF THE AIRCRAFT, OR BOTH.

THE OWNER AND OPERATOR MUST UNDERSTAND THAT DUE TO INHERENT RISKS INVOLVED IN FLYING AN LIGHT SPORT AIRCRAFT, NO WARRANTY IS MADE OR IMPLIED, OF ANY KIND, AGAINST ACCIDENTS, BODILY INJURY OR DEATH OTHER THAN THOSE WHICH CANNOT BY LAW BE EXCLUDED.

THE SAFE OPERATION OF THIS AIRCRAFT RESTS WITH YOU, THE PILOT.

WE BELIEVE THAT IN ORDER TO FLY SAFELY YOU MUST MATURELY PRACTICE AIRMANSHIP. OPERATIONS OUTSIDE THE RECOMMENDED FLIGHT ENVELOPE SUCH AS AEROBATIC MANEUVERS OR ERRATIC PILOT TECHNIQUE MAY ULTIMATELY PRODUCE EQUIPMENT FAILURE. YOU ARE REFERRED TO THE OPERATING LIMITATIONS IN SECTION 2 OF THIS MANUAL.

THE AIRCRAFT WILL REQUIRE MAINTENANCE AS OUTLINED IN THE APPLICABLE MAINTENANCE MANUALS. LIKE ANY AIRCRAFT, SAFETY DEPENDS ON A COMBINATION OF CAREFUL MAINTENANCE AND YOUR ABILITY TO FLY INTELLIGENTLY AND CONSERVATIVELY.

Definitions:

Definitions used in the Aircraft Operation Instructions such as **WARNING**, **CAUTION**, and **NOTE** are employed in the following context:

WARNING

OPERATING PROCEDURES, TECHNIQUES, ETC. WHICH IF **NOT** FOLLOWED CORRECTLY, MAY RESULT IN PERSONAL INJURY OR DEATH.

CAUTION

OPERATING PROCEDURES, TECHNIQUES, ETC. WHICH IF **NOT** STRICTLY OBSERVED MAY RESULT IN DAMAGE TO THE AIRCRAFT OF ITS INSTALLED EQUIPMENT.

6.6 N0. 2 Limitations

NOTE: OPERATING PROCEDURES, TECHNIQUES, ETC., WHICH ARE CONSIDERED ESSENTIAL TO HIGHLIGHT.

Airspeed indicator speed range markings: (IAS)

Stall clean V(s)	37 mph IAS
Stall flaps V(so)	32 mph IAS
Flap extend speed V(fe)	75 mph IAS
Maneuvering speed V(a)	75 mph IAS
Never exceed speed V(ne)	130 mph IAS

Stall Speeds at Maximum Takeoff Weight (V_s and V_{so})

NOTE: In level flight and during turn stall approach warning is provided by the aerodynamic characteristics of the aircraft - shaking of aircraft structure and control yoke.

The stall speed with flaps set to second position at maximum take-off weight and engine at idle is equal to 34 mph IAS, with flaps in 1st position – 35 mph, with retracted flaps – 37 mph. Flaps Extended Speed Range (V_{SO} to V_{FE}) The positive flap operating range is 34 – 75 mph. V_{FE} Max. flap extended speed 75 mph. Do not exceed this speed with full flap deflection.

Maximum Maneuvering Speed (V_A) = 75 mph IAS

V_A Max. maneuvering speed. Do not make full or abrupt control movement above this speed. Under certain conditions the aircraft may be overstressed by full control movement.

Never Exceed Speed (V_{NE}) = 130 IAS

Crosswind and Wind Limitations

Wind limitations are as follows:

- head winds up to 22 mph (10 meters per second);
- crosswinds up to 9 mph (4 meters per second);

WARNING!

It is highly recommended to choose upwind direction (into the wind), for take-off and landing with the least cross wind. It will significantly shorten take-off and landing distances and increase degree of safety.

6.6.6 Service Ceiling

The service ceiling is 13,000 ft. (10,000 for light sport)

6.6.7 Load Factors

Limit load factors for the aircraft at gross weight of 1320 lbs are as follows:

Maximum positive limit load factor +4

Maximum negative limit load factor -2

6.6.8 Approved Maneuvers

All aerobatic maneuvers including intentional spins are PROHIBITED.
Flying in conditions where icing is possible is PROHIBITED

Flying in the vicinity of thunderstorms is PROHIBITED

6.6.9 Usable Fuel Capacity

24 U.S. Gallons

The Following Fuels may be used:

912ULS

Min RON 90

EN 228 Regular

EN 228 Premium

EN 228 Premium Plus

6.6.10 Maximum engine power output at a stated RPM

Engine Manufacturer:	BOMBARDIER-Rotax-GmbH (Austria)	
Engine Model		Rotax-912ULS
Engine Type:	Flat Four, Four Stroke	
Max. Take-off power		100 hp
Time Limit at full power	5 min (5800)	
Max. Revolutions (no time limit)	5500 rpm	
Revolutions at idle	1400 rpm	

6.6.11 Applicable environmental limitations

The aircraft is not designed for use in IFR, Night VFR, Known Ice, rain (above drizzle) or snow.

6.6.12 Applicable VFR night or IFR use limitations:

The SUPERSTOL is not current rated for either night VFR or IFR flight. Please see future developments.

6.7. No. 3 Emergency Procedures

6.7.1 General Information

Section 3 contains recommendations to the pilot for extreme situations during flight. However, these situations caused by airframe or engine malfunction are extremely rare provided that pre-flight inspections and checks are made regularly. Adequate training and preparations are needed as well as continued flight training and review to handle any and all situations that may arise.

6.7.2. Typical best airspeed is best glide speed of 70 mph IAS, except under special conditions which only the pilot can adapt for.

6.7.3 Emergency Checklists

6.7.3.1 Fire

In Case of fire on board, the pilot(s) must act as follows:

- Shut off the fuel taps located up to the left and behind the left Seat as well as located up to the right and behind the right Seat
- Switch the ignition OFF
- Establish the airplane into a steady descent Make an emergency landing or deploy the recovery system.

6.7.3.2 Engine Failure

- In case of engine failure during take-off roll switch off the engine ignition system and discontinue the take-off.
- If the airplane is at an altitude of up to 150 feet, switch the engine off and land right away.
- If the engine failed during climb, set the airplane into a steady descent at a speed of 56 mph and if the altitude permits, turn the plane toward the airfield, switch the ignition off and land.
- If the engine fails during level flight, set the airplane into a steady descent at a speed of 56 mph, switch the ignition off estimate wind direction and strength, choose a place for landing and land (preferably into the wind).
- Under favorable flight conditions try to restart the engine (see paragraph 3.3).
- If at the moment of engine failure the aircraft is over terrain absolutely unsuitable for landing (mountains, rough country, ravines) and flight conditions do

not permit restarting the engine in the air the pilot at his discretion may find that it is necessary to use the parachute recovery system (if installed).

To activate the Parachute Recovery System (if installed):

- Switch the ignition OFF
- Pull the handle to deploy the recovery system
- If while descending on the parachute, the airplane begins to rotate, the pilot(s) should use the ailerons and rudder to try to stop the rotation.
- The pilot(s) should adopt a safe position to avoid possible injuries from impact in case of rough landing.

The minimum height of system deployment may be estimated using the following formula:

$$H_{\min} = 120 + V_y$$

Where H_{\min} – minimum height of system deployment and V_y – is the vertical speed of the airplane's descent.

6.7.3.3 Restarting the Engine

To restart the engine in flight:

- Set the throttle to idle engine speed position
- Set the ignition switches to the ON position
- Turn the key to the **start** position.

6.7.3.4 Landing with the Engine Stopped

This airplane has no particular handling features during the landing with engine stopped and flaps up or down. Recommended speed at descent is 56 mph. Entry into flare and flare out at 1.5 feet with landing speed of 38 mph. Maximum lift-to-drag ratio for the airplane is approximately 12 with flaps up and 8 with flaps down. The maximum horizontal distance which the airplane may travel while gliding with engine stopped in still air may be calculated by multiplying the altitude by the lift-to-drag ratio.

6.7.3.5 Precautionary landing with engine power.

See 6.7.3.4 above and adapt added capability of power to adjust.

6.7.3.7 Loss of oil pressure.

Shut down engine and land as in 6.7.3.4.

6.7.3.8 High oil pressure.

See 6.7.3.4 above and adapt added capability of power to adjust.

6.7.3.9 Emergency descent. Engine to idle, full flaps slow to 60 mph

6.7.3.10 Alternator failure.

Shut down all none essential power uses. Fly anticipating full power loss.

6.7.3.11 Overvoltage.

Monitor the status and seek earliest landing at a safe airport. Fly anticipating full power loss.

In all of the above cases, fly the aircraft first, do not become distracted. Treat as precautionary landing with power.

6.7.3.12 Inadvertent Spin Recovery.

WARNING: Intentional spins are prohibited
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NOTE: In level flight and during a turn, the stall approach warning is provided by the aerodynamic characteristics of the airplane – shaking of the airplane structure and control stick.

A possible recovery of the airplane from an UNINTENTIONAL spin, push forward the rudder pedal opposite the direction of the spin and then push the stick full forward. When the rotation ceases, put the rudder in the neutral position and after reaching a speed of 70 mph smoothly level off the airplane without exceeding the load factor of +4 g and the maximum allowed speed of 130 mph. **THIS IS ONLY A POSSIBLE SOLUTION AND HAS NOT BEEN PROVEN OR DEMONSTRATED. GOOD AND SAFE FLYING PRACTICES SHOULD NOT YIELD A SPIN.**

6.7.3.13 Inadvertent icing encounter

Seek warmer /lower altitudes. Land as soon a practical and safe.

6.7.3.14 Loss of primary instruments

Seek to use alternate means such as wind sound for airspeed. Do not fly near limit speeds either too fast or too slow. Land as soon a practical and safe.

6.7.3.15 Loss of flight controls

Each control has some idem that may help. For example flaps for pitch, trim for pitch, doors for rudder and aileron, throttle for pitch and speed, rudder for banking, etc. Experiment as necessary. Practice is a good idea so you know what works.

6.7.3.16 Pitot Tube Blockage

Signs of such a failure:

- In level flight readings of airspeed indicator do not change with speed changes
- During descent airspeed readings decrease and during climb increase.

Pilot actions:

- Inform the ATC officer.
- Do not use airspeed indicator readings.
- In level flight set the engine speed to 4100 – 4300 rpm. The airspeed in this case will be 68 – 75 mph.
- While descending reduce the engine speed to idle and set the sink rate to 13 fps. The airspeed will be approximately 75 mph.
- THE ABOVE ACTIONS ARE ONLY ESITMATES YOUR RESULTS WILL VARY FOR YOUR AIRCRAFT, AS YOU BECOME FAMILIAR WITH YOU AIRCRAFT YOU SHOULD DISCOVER THIS FOR YOURSELF.

6.7.3.17 Static Tube Blockage

Signs of such a failure:

- Readings of vertical speed indicator and altimeter do not change with altitude changes.

- Airspeed indicator readings are notably unlikely
- During descent airspeed readings increase and climb decrease.

Pilot actions:

- Do not use readings of airspeed indicator
- Check the airspeed by tachometer readings only.

6.7.3.17 Radio Failure

If there is no radio transmission / reception make sure that:

- The radio is switched on
- The frequency is set correctly
- The headset is plugged in to the radio set
- Set the VOLUME to maximum
- Set the SQUELCH to OFF
- Check the radio reception at other frequencies
- Follow all FAA procedures

If the radio connection is lost the pilot(s) must discontinue the flight task, pay more attention to looking for traffic and in any situation continue to make relevant reports about aircraft position, pilot actions and flight conditions. Land at a reserve airfield or the airfield of departure according to airfield regulations.

6.7.3.18 Flying in Dangerous Weather Conditions

Flying in dangerous weather conditions refer to flying in conditions when icing is possible, during a thunderstorm, dust storm and strong turbulence. Pay attention continuously to flight condition changes. If flight conditions begin to deteriorate, make a decision in time to change the route or discontinue the flight.

WARNING: FLYING IN CONDITIONS WHERE ICING IS POSSIBLE IS PROHIBITED
--

Having gotten into such conditions the pilot(s) must leave the hazardous area immediately, abandon the flight task, report to ATC and land at the nearest airfield or suitable place.

WARNING: FLYING IN THE VICINITY OF THUNDERSTORMS IS PROHIBITED

Having noticed the thunderstorm in the area, estimate the available time, the direction of the thunderstorm approach and land at the nearest airfield or a suitable place. Tie the airplane down. The control surfaces must be secured with clamps or stops and the doors must be locked reliably.

Strong turbulence may be dangerous. Avoid it in flight making the decision in time to change the route or discontinue the flight. Having gotten into strong turbulence at low altitude, climb immediately to a higher altitude flying away from the source of the turbulence. During intensive turbulence, the airspeed must be at least 62 mph and the altitude must be at least 330 feet. Turns must be performed with bank angle not more than 30^0 . In a case when flying into turbulence cannot be avoided, choose an open field and land without exceeding the limit values of speed and bank angle.

WARNING: DO NOT FLY INTO A CLOUD

Having flown into a cloud, fly out of it descending and checking the airspeed and bank angle. When the horizon line is obscured by cloud the bank angle may be checked by vertical orientation of the compass reel.

6.7.3.20 Wind Sheer Effect on the Airplane

Wind sheer is the difference in wind direction and velocity at low altitudes in which the airplane may be suddenly shifted from the desired flight path. The wind sheer is most dangerous when the airplane is at the final stage of flight, i.e. during final approach. Due to increase of tailwind component and decrease of headwind component near the ground the airspeed decreases, lift drops and the sink rate increases. Such a situation may occur suddenly so the pilot should know when and where the phenomenon may be expected and must be ready to act accordingly to ensure safe flight and landing.

Most often wind sheer is connected with:

- Passing fronts
- Forming of thunderstorm clouds
- Significant inversion at altitude of 150 – 650 feet.

When expecting wind sheer, the approach must be performed at a speed of 62 mph minimum. The pilot must be ready to increase engine speed to full power and perform a go-around.

6.7.3.21 Wake Turbulence

Getting into the wake turbulence of another, especially larger, airplane may be dangerous. Wake turbulence is created by propeller slipstream and wingtip and fuselage generated vortices. Getting into wake turbulence may cause complete loss of aircraft control. Most dangerous is the wake turbulence during take-off, initial climb, final approach and landing.

WARNING: AVOID GETTING INTO WAKE TURBULENCE

6.7.3.22 Landing off of an Airfield

In cases where out landing is imminent, the pilot should do the following:

- Select a suitable place for landing
- Pilot training and decision making is needed in order to prepare for such an instance
- Determine the wind direction looking at land features (smoke, trees, shadows, etc.)
- Make a suitable landing

When landing where there is dense and high vegetation (crops, bushes, etc.), select the top of it as ground level for leveling off.

Emergency landing on water (ditching) or forest must be done by flaring with fully extended flaps. When landing on forest select the densest part of it selecting tree tops as ground level for flaring. When ditching, unfasten seatbelts and unlatch the doors in advance in order to leave the aircraft promptly. Use the water surface as ground level for flaring. The above are only suggestions and have not been tested for certified. Quality training and currency are needed to make such a decision. The full flaps suggested landing is for the slowest speed. One may find the circumstance requires a different configuration.

6.8 No. 4 Normal Procedures

6.8.1 Pre-Flight Check

Pre-flight inspection of the airplane should ensure that:

- The fabric of the wing and tail and windshield glass are intact
- That all control system stops and pitot tube covers are removed
- There is no water blockage in the full and static air pressure lines
- The fuel tank caps are closed tight
- There are no fuel or oil leaks
- Fuel is of the correct Octane for engine type.
- Fuel quantity has been checked visually as well as via gauges, and is sufficient for the concerned flight, and meets all applicable rules and regulations.
- Fuel is sampled from drainage point
- All belts and hoses are secure and in good condition.
- Engine cover is locked and secured
- All tie down ropes are removed for flight and or taxi
- All lights required for flight are operable
- All logs and papers for the aircraft are checked

WARNING: IT IS STRICTLY FORBIDDEN TO FLY THE AIRPLANE THAT IS EVEN PARTIALLY COVERED WITH FROST, SNOW, OR ICE.

The pilot should inspect the interior of the cockpit and make sure that its equipment is intact and there are no foreign objects. The pilot should fit the harness belts and remove the securing pin from the recovery system deployment handle (if installed).

Sitting in the pilot seat the pilot should do the following:

- Check the control stick or yoke for free and easy movement
- Set the trim tab lever to the neutral position visually check as well as lever position
- Compare the readings of air pressure on the barometric scale of the altimeter with the true value for the airfield (the big arrow of the altimeter should be pointed to zero before that) – error must not exceed 0.03 psi
- Check whether the engine control system is in good condition
- Check the amount of fuel in the tank
- Check the readings of the magnetic compass
- Make sure the engine ignition switch is set to OFF position.

6.8.2 Engine Starting

Before starting the engine:

- Set Parking Brake
- Master Switch ON
- Navigation lights ON
- Set the throttle in the idle position
- Pump the fuel to the engine by the hand pump or throttle and or electric pump
- Set the choke lever as needed
- Turn both Magneto ON
- Engage the Starter to start the engine
- Look for oil pressure (minimum based on Engine type refer to engine manual)
- Use choke as need from this point on. Refer to engine manual
- Aircraft electronics as needed ON

The engine Operator's Manual should be followed for the correct engine starting procedure.

Engine starting

For engine start procedures refer to the engine Operator's Manual.

6.8.3 Taxiing

Before taxiing, make sure the taxi way is clear.

- Flight controls are free
- Flaps are UP
- Engine instruments are indicating and correct
- Set Trim to Neutral Position Check Visual, note position of Trim lever
Aircraft is TRIM SENSITIVE
- Release parking brake.

Taxiing:

The required speed for taxiing should be chosen depending on the taxiway condition, visibility and presence of obstacles. Direction of taxiing is controlled with the rudder pedals. To check the brakes, set the engine speed to idle, pedals in the neutral position and step on the brake pedals.

**WARNING: DO NOT APPLY THE BRAKES ABRUPLY AT HIGH SPEED
BECAUSE THE AIRPLANE MAY GO NOSE OVER.**

When taxiing with cross-winds, the airplane tends to turn into the wind. If the wind is stronger than 22 mph the airplane, during taxiing, should be followed by someone from the windward side near the wing tip.

6.8.4 Normal Takeoff

STOL Takeoff

The shortest ground run take-off under standard conditions at 1320 lbs. or less can usually be accomplished with full-flaps, I.e., 40°. (This will not, however, provide the best angle of climb if barrier clearance is the objective.) Use of the 30° or less, depending on load and pressure altitude, is recommended.

Align aircraft along intended take-off track. Apply full power in a steady manner. Do not “jam” the throttle forward. Release brake as power is applied. Holding brakes on while full power is being applied is not necessary, or desirable. Keep aircraft straight on track using rudder. Try to avoid application of the foot brakes unless required to maintain directional control.

After the air speed reaches approximately 15 or 20 MPH during take off roll, apply forward pressure on the control stick just enough to lift the tail about 12 or 18 inches off the ground, i.e., or about half of the conventional full tail up position. At approximately 35 MPH, apply back pressure on the stick in a positive manner but not so fast that the tail wheel strikes the ground. If the tail wheel is allowed to strike the ground, the ground run distance will be longer.

When aircraft breaks ground, allow it to remain just above the ground for approximately 2 or 3 seconds, so that the airspeed will build up to over 50 MPH before the airplane starts full climb-out. Establish a climb-out speed of 60 to 65 MPH as soon as practical.

Experience gained in this type of take-off will enable the pilot to determine the amount of stick movement and/or rapidity of action necessary to get the aircraft airborne with a minimum of ground run. The type of minimum ground run take-off is most useful when the ground is rough, bumpy, muddy or when very low obstacles, such as hedges, fences, ditches, etc, are present.

Normal Take Off

A relatively tail-high technique can also be used to allow airspeed to build up for better directional control before breaking ground. The tail-high take-off is helpful when the take-off area is very narrow and when visibility over the nose may be essential (safer) than breaking ground sooner in the tail-low attitude. In turbulent, gusty air or very rough ground, this technique can also eliminate the difficulties that arise from becoming airborne prematurely from the three-point position and then striking ground again with a side wise drift.

Crosswind Take offs

Takeoffs are allowed with the crosswind component not stronger than 15 mph.

Take-off with a crosswind must be done without extending the flaps. The airplane tends to turn into the wind during take-off so the stick should be moved to the wind side from the very beginning of the take-off roll. This is necessary for maintaining equal loads on the main landing gear wheel and preventing the banking and turning of the airplane into the wind.

As the speed of the airplane and aileron efficiency increases, gradually return the stick to the neutral position to prevent the airplane from leaving the ground from one wheel.

If the airplane starts to turn during take-off, it is necessary to stop this tendency by deflecting the rudder (pressing the pedal) to the side opposite the turn.

After lift-off, in order to prevent drifting it is necessary to hold the stick shifted against the drift (i.e. maintain bank to compensate for the drift) and the airplane's tendency to turn should be compensated by pushing the pedal opposite to the bank.

When taking off with a crosswind the lift-off speed should be 3 – 7 mph higher than normal.

6.8.5 Best Angle of Climb (V_X)

Recommended speed at climb is 65 mph IAS.

6.8.6 Best Rate of Climb Speed (V_Y)

Recommended speed at climb is 70 mph IAS.

6.8.7 Cruise

During level flight the airplane is stable and easily controllable throughout the entire speed range and any operational center of gravity position. Level flight speed range is from 65 to 105 mph. The control stick force in pitch may be removed with elevator trim tab deflection.

Steep turns are allowed at an altitude of not less than 165 feet with a bank angle of not more than 60 degrees. Periodically check the amount of fuel remaining in the fuel tank. In turbulence, the airspeed should be less than 75 mph, altitude not less than 330 feet and turns should be made with a bank angle not more than 30 degrees.

6.8.8 Approach

Having obtained the clearing for final and airfield condition information adjust the altimeter according to the airfield pressure.

At an altitude of not less than 160 feet AGL set the flaps in the landing position taking into account the strength of the wind. It is NOT RECOMMENDED to extend the flaps with a headwind of more than 18 mph.

After entering into final, set the throttle to idle position and descend at a speed of 65 mph. Watch the altitude, bank and drift.

When below the glide slope, DO NOT RETRACT the flaps as this will cause some loss of altitude. This should be corrected by increasing engine power.

6.8.9 Normal Landing

Enter the flare at 15 – 20 feet and flare out at approximately 1.5 feet. Stick movement should be energetic but smooth and continuous until touch-down. Use the classic three-point landing technique. During the landing watch the ground 50 – 65 feet ahead and 10 – 15 degrees to the left from the longitudinal axis of the airplane.

During the flare attention should be shared between the following:

- Height and vertical speed
- Drift and bank angle
- Direction of flight.

Maintain direction during landing run with the rudder.

Use brakes in the second half of the landing run. Do not apply brakes abruptly as soon as the airplane touches the ground because it may cause the airplane to nose over.

Retract the flaps at the end of the landing run.

In the case of landing with the flaps retracted, the glide slope is more shallow and landing speed and distances are somewhat greater.

Crosswind Landings

The landing may be allowed if the crosswind component is not higher than 15 mph. Do not use flaps during crosswind landings.

As a crosswind landing is more difficult it is **RECOMMENDED** to choose in-wind direction for landing.

Lateral wind component

- Causes drift to the airplane in the air or
- Turn into the wind on the ground.

During the approach apply a little bank opposite to the wind direction to compensate for the drift and use the rudder to maintain the direction. When entering into the flare, start to decrease the bank slowly so that when the airplane touches the ground the wing levels.

If just before touch-down there is a drift, turn the airplane with rudder pedals towards the drift to lessen the side load on the landing gear.

Go Around

A go around procedure is possible from any altitude with flaps either up or down. To do that apply full throttle, climb at a speed of 65-70 mph and at an altitude of at least 165 feet retract the flaps leaving the engine at full throttle. Repeat circuit and approach patterns.

After Landing

After landing clear the runway and taxi in for parking.

Before stopping the engine, set the minimum stable engine speed with the throttle and let the engine cool down for 1 to 2 minutes. Set the engine speed to idle and ignition switches to the off position and turn the ignition key to its initial position.

Post Flight Inspection

After flight, visually check:

- The fuel tank and engine for leaks of fuel or oil
- Weld seams of Power plant
- Condition of the propeller blades
- Condition and inflation of the tires
- Landing gear spring for deformations and cracks
- The condition of the fabric covering the wing and tail
- After a flight in humid conditions or winter check the transparent tubes to barometric instruments for water or ice blockage
- Refuel if necessary

6.8.10 Short Field Takeoff and Landing Procedures

If it is necessary to achieve a short take-off run and distance, pilot should extend the flaps for take-off. When choosing the flaps setting it is necessary to take into account the strength of the headwind. With a headwind of 25 mph and more, extending of flaps is NOT RECOMMENDED.

There are no peculiar difficult features in airplane behavior with flaps extended.

At an altitude of about 300 ft retract the flaps, maintaining the takeoff power of the engine.

6.8.11 Soft field takeoff and landing procedures

If it is necessary to achieve a shortest take-off run on a soft field, the pilot should extend the flaps for take-off. When choosing the flaps setting it is necessary to take into account the strength of the headwind. With a headwind of 25 mph and more extending of flaps is NOT RECOMMENDED.

Take-off with full back stick and as the craft leaves the ground, release some back pressure and allow the aircraft to accelerate to $V(x) = 62$ mph.

There are no peculiar features in airplane behavior with flaps extended.

At an altitude of about 300 ft retract the flaps, maintaining the takeoff power of the engine.

6.8.12 Balked Landing Procedures

Go-around:

Go-around procedure is possible from any altitude with flaps either up or down. To do that apply full throttle, climb at a speed of 65 mph, and at an altitude at least 300 ft retract flaps leaving the engine at full throttle, repeat circuit and approach patterns.

6.8.13 Information on Stalls, Spins, and any other useful Information

Stall speed

The stall speed at maximum take-off weight, flaps set into 3rd position and engine at idle is equal to 32 mph, with retracted flaps it is equal to 37 mph. Stall speed during turn with flaps retracted and bank angle of 60 degrees is equal to 74 mph, with bank angle of 30 degrees - 55 mph.

Spin recovery

WARNING: Intentional spins in the airplane are prohibited.

NOTE: In level flight and during turn stall approach warning is provided by the aerodynamic characteristics of the airplane - shaking of airplane structure and control stick.

To recover the airplane from the spin (unintentional stall) push forward the rudder pedal opposite to the direction of spin and then push the stick forward. When the rotation ceases put the rudder in neutral position and after reaching speed of 55 MPH smoothly level off the airplane.

6.9 No.5 Performance

SECTION 5 PERFORMANCE

GENERAL

All of the required performance information applicable to this aircraft is provided by this section.

TAKE OFF ROLL

From a hard surface, full power at brake release, flaps up. 400 feet.

TAKE OFF ROLL + CLIMB CLEAR 50 FT. OBSTACLE AT 60 KCAS

From a hard surface, full power at brake release, flaps up. 550 Feet

LANDING ROLL – 250 Feet**LANDING DISTANCE**

Landing distance from 50 ft. height, flaps down, throttle idle, approach speed = 60 KCAS. 450 feet

RATE OF CLIMB

1320 lbs, flaps up and full throttle at $V_y = 70$ KCAS, 1000 fpm

CRUISE SPEEDS & RPM

Cruise speeds and RPM in standard atmosphere and 75% power (above 7,000ft. power is less).

At sea level Cruise power of 4800 rpm at 81 mph IAS.

Note: Reducing the power will reduce the speed and fuel consumption and slightly increase the range.

BEST ANGLE OF CLIMB

$V(x) = 65$ mph IAS at 950 fpm

CROSSWIND

The demonstrated takeoff and landing crosswind component is 10 mph.

SERVICE CEILING

With a rate of climb of 100 fpm in standard atmosphere: 13,000 ft

AIRSPEED CALIBRATION MPH – FLAPS UP

$IAS = 1.00 * CAS$

AIRSPEED CALIBRATION MPH – FLAPS DOWN

$IAS = 1.00 * CAS$

Above calibrations is specific to this aircraft.

NOTE

CAS – Calibrated airspeed means the indicated speed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to airspeed that would be shown on a perfect ASI in standard atmosphere. Calibrated airspeed expressed in “mph”.

IAS – Indicated airspeed is the speed of an aircraft as shown on the airspeed indicator. Indicated airspeed expressed in “mph”.

STALL SPEEDS AT MAX TAKEOFF WEIGHT

Flaps up: 37 mph IAS

Flaps down: 32 mph IAS

6.9.1 Takeoff Distances

Take-off distance is the sum of the take-off run and the distance flown from lift-off to an altitude of 50 feet. The take-off distance depends on the airfield elevation, air temperature, direction and strength of the wind. The available take-off distance in any conditions must be not less than 800 feet.

6.9.2 Landing Distances

The landing distance is the sum of distance flown from an altitude of 50 feet to touch-down and landing run. It depends on airfield elevation, air temperature, and direction and strength of the wind. Required landing distance in any conditions does not exceed 800 feet.

In case of landing with flaps retracted the glide path is shallower, landing speed and landing distance slightly increase.

6.9.3 Rate of Climb

The airplane's rate of climb depends on ambient air temperature and take-off weight. Climb should be performed at an optimum speed of 62 mph IAS.

6.9.4 Cruise Speed

The cruising speed in level flight is 90 mph IAS

6.9.5 RPM

The engine speed at cruise is 5250 rpm. Maximum flight endurance at economical engine speed at sea level, standard atmosphere and full fuel tanks (24 gallon) is 4.3 hours. (5.5 gallons/hour)

6.10 No. 6 Weight and Balance and Equipment List

In order to achieve the performance and flying characteristics which are designed into the airplane, it must be flown with the weight and center of gravity (C.G.) position within the approved operating range (envelope). Although the

airplane offers flexibility of loading, the pilot must ensure that the airplane is loaded within the envelope before attempting to take off.

Miss-loading carries consequences for any aircraft. An overloaded airplane will not take off, climb or cruise properly. The heavier the airplane is loaded, the less climb performance it will have.

C.G. is a determining factor in flight characteristics. If the C.G. Is too far forward in any airplane, it will be difficult to rotate for takeoff or landing and the nose gear overstressed at landings. If the C.G. is aft of the approved limit, the airplane may rotate prematurely on takeoff or tend to pitch up or down; the aircraft will be unstoppable in pitch. This can lead to inadvertent stalls and even spins; stall and spin recovery may be impossible in an improperly loaded airplane.

A properly loaded airplane, however, will perform as intended. Before the airplane is delivered, it is weighed, and the corresponding empty weight and C.G. location is computed (the empty weight consists of the standard empty weight of the airplane plus the optional equipment). Using the empty weight and C.G. location, pilots can easily determine the weight and C.G. position for the loaded airplane by computing the total weight and moment and then determining whether they are within the approved envelope.

The empty weight and C.G. location are recorded in the Weight and Balance Record Form. The current values should always be used. Whenever new equipment is added or any modification work is done, a new empty weight and C.G. position should be determined and recorded. The owner must make sure that this is done.

To determine a new empty weight C.G., the airplane must first be weighed and then the new C.G. position must be calculated.

To determine the C.G. for the loaded airplane, loaded weight and balance calculations must be performed before flight.

This section specifies the values of payloads approved for safe operation of the aircraft, as well as the weighing results and method of determining the permissible payload.

6.10.1-3 Center of Gravity (CG) Range and Determination

Weight of the empty aircraft is equal to 737

Airplane Weight and Balance

Just Aircraft

Model: **SuperStol** (version of Highlander)

Gross Weight 1320

CG Range: 24.5% to 37.3% Mean Chord **12.5 – 19.0**

Datum is: **Leading edge slats retracted**

Date: 12/13/13

Registration:

Serial #:

Level Flight: is cockpit rails level.

Empty Weight & CG	Weight	Arm	Moment
Tail Wheel	88	164.25	14,454

Left main wheel	329.4	-5.25	-1,729
Right main wheel	319.8	-5.25	-1,679
Ballast	0	0	0
Front Seat	0	17.5	0.0
Wing Fuel Tanks	0	18.5	0.0
Aircraft empty weight	737.2		11045.7
Empty CG		14.98	

Most Aft Weight & CG	Weight	Arm	Moment
Aircraft Empty	737.2		11,045.7
Left Seat	240	17.5	4,200
Right Seat	180.8	17.5	3,164
Baggage	0	40	0
Wing Fuel Tanks	162	18.5	2,997.0
Weight	1320		21,407
CG		16.22	

Most Forward Weight & CG	Weight	Arm	Moment
Aircraft Empty	737.2		11,045.7
Left Seat	120	17.5	2,100
Right Seat	0	17.5	0
Baggage	0	40	0
Wing Fuel Tanks	6	18.5	111.0
Weight	863.2		13,257
CG		15.36	

Flight Test Weight & CG	Weight	Arm	Moment
Aircraft Empty	737.2		11,045.7
Left Seat	280	17.5	4,900
Right Seat	248.8	17.5	4,354
Baggage	0	18.5	0
Wing Fuel Tanks	54	18.5	999.0
Weight	1320		21,299
CG		16.14	

There is no rational condition for which the CG is out of range.

***NOTE: The ACTUAL Aircraft Weight and Balance will vary from the above sample. Please refer to the Actual Aircraft specific Weight and Balance Data.

6.10.4 Installed Equipment List

VFR Option: Altimeter, Airspeed indicator, compass, Radio and glass panel options, fuel gauges (left and right tank), Emergency Locating Transmitter (ELT); ELT condition Indicator, Transponder option:

Advanced VFR Option: Altimeter, Airspeed indicator, compass, Electronic Flight Instrument System: EFIS :(Dynon D-180 or GRT Sport EFIS or TrueTrak EFIS or other similar EFIS), MicroAir 760N Radio, Lynx Radio Powered interface, Lighter, fuel gauges (left and right tank), Emergency Locating Transmitter (ELT); ELT condition Indicator, nav and Strobe.

6.11 No. 7 Description of Airplane and Systems

6.11.1 General,

The SUPERSTOL is a two seat light airplane for primary training. It is a high wing, strut braced monoplane of “classic” aerodynamic layout with closed cockpit, non-retractable landing gear, tail wheel. It is equipped with a Rotax 912ULS tractor engine and a three blade, ground adjustable pitch propeller.

Performance of the airplane and its navigation and flight instruments make possible the airplane operation in VFR. The landing gear and thrust-to-weight ratio make possible the airplane operation from fields (aerodromes) with both grass and paved runways.

6.11.2 Airframe.

Welded chrome moly tubing and fabric, tube AL wing stars and pressed AL ribs.

6.11.3 Flight controls.

Standard elevator, rudder and ailerons, as well as flaps.

6.11.4 Instrument panel.

Panel in front of forward pilot.

6.11.5 Flight instruments.

Standard ASI, compass, fuel quantity, ELT status, engine gauges, altimeter and options.

6.11.6 Engine.

Rotax 912ULS 100 HP (see engine section)

6.11.7 Propeller.

Keiv Prop or as specified.

6.12 No. 8 – *Handling and Servicing:*

6.12.1 Introduction

6.12.2 Ground handling

Aircraft Ground Handling and Servicing

Airplane handling, servicing and maintenance

The extended storage of the airplane is possible either in a hangar or in the open air. In the latter case the airplane should be parked in the special place equipped for airplane tie-down. When parking the airplane take into consideration the prevailing wind direction. The airplane should be parked with its nose into the wind.

6.12.3-4 Towing and Tie-down instructions

The parking devices must provide safe airplane tie-down in the strong wind conditions. The airplane is tied by three points: upper (on the wing) wing strut fittings and tail wheel spring.

NOTE: Do not pull the ropes too tight. It will overload the wing structure and cause it deformation.

When keeping the airplane in the open air do the following:

1. Secure the wheels with brake shoes from both sides; put the tail wheel in neutral position.
2. Fix the elevator, rudder and ailerons in neutral position with screw clamps.
3. Cover the engine, canopy and Pitot tube with protective covers. Particular attention should be given to protection of the airplane from corrosion. Mainly it consists of keeping the protective coatings intact.

Good care of fabric covering of the wing and tail is important for maintaining the airplanes high flight performance and reliability. For keeping the fabric covering in good condition do the following:

1. Regularly clean the covering of dust, dirt, moisture and snow (in winter).
2. Protect it from scratches.

3. Avoid the contact of the covering with oil products, solvents, alkali and acids.

WARNING: DO NOT FLY the airplane if its fabric covering has even the slightest tear. Repair it first.

Canopy is made of acrylic glass. Wipe it with a clean and soft piece of cloth soaked in soapy water. Oil stains must be removed with cotton wool soaked in kerosene. Do not use gasoline, solvents and acetone - they cause glass hazing.

6.12.5 Servicing fuel, oil, coolant, and other operating fluids as applicable

See Maintenance Manual and Engine Manual.

6.12.5.1 Approved fuel grades and specifications

In all matters concerning engine maintenance, refer to the engine Operators Manual.

6.12.5.2 Approved oil grades and specifications

In all matters concerning engine maintenance, refer to the engine Operators Manual.

6.12.6 Cleaning and Care.

See Rotax manual for engine, for aircraft only use mild detergent and water.

6.13 No. 9 – Supplements:

6.13.1 Any additional information the manufacturer wishes to add regarding the airplane.

Required Placards and Markings:

- Throttle
- Brake
- Elevator trim control
- Pilot and copilot PTT controls
- Parking brake
- Engine choke
- Fuel shutoff valves
- flaps position
- Ignition switch
- Landing light, strobe light, and navigation lights
- Ignition switches
- Passenger warning
- Minimum 145 lb in front seat
- ELT status
- Fuel gauges
- Tank marked, quantity and grade required
- Stainless data plate in left side of tail.
- Light-Sport in two inch size at every entry point
- Registration numbers in 12 inch size on each side.

Airspeed Indicator Range Markings

Airspeed is indicated in Miles per Hour. The airspeed indicator has colored arcs that indicate aircraft speed ranges. (IAS)

White	Flap Extended Speed Range	V(so)- V(fe)	32 – 75
Green	Normal Speed Range	V(s) – V(a)	37 – 75
Yellow	Smooth Air	V(a) – V(ne)	75 –130

Red	Speed Range Never Exceed Speed	V(ne)	130
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Operating Limitations on Instrument Panel

This aircraft is **NOT** approved for Aerobatic flight and **INTENTIONAL SPINS ARE PROHIBITED.**

Passenger Warning:

“This aircraft was manufactured in accordance with Light Sport Aircraft airworthiness standards and does not conform to standard airworthiness requirements.”

Miscellaneous Placards and Markings

Listed in Section 6.5.1.1 and 6.13.1 above.

Pilot Operating Advisories

None

6.13.2 Operation of optional equipment or accessories

6.13.3 Airplane flight training supplement (FTS)

Familiarization Flight Procedures

Pilots new to the SUPERSTOL should allow sufficient time with a trained instructor to become familiar with the aircraft.

Low weight, high drag, means handling is different than a Cessna.

Things to watch for are:

- 1) Quick deceleration when power is reduced.
- 2) Engine out on takeoff compounds the problem by combining higher stick force against the pitch up and quick deceleration. The pilot must know and be ready for effective stick forward response.

6.13.4 Information the owner can use for:

6.13.4.1 Improvements or Corrections

Contact the factory listed on the title page with any requests or information important to this aircraft.

6.13.4.2 Continued Operational Safety Reporting

Your reporting to the factory of any issues or problems with the aircraft is a very important part of improving aviation safety. Factory personnel will help you pull together the correct information necessary to understand and potentially correct what may be vital issues. Please report quickly if there are any issues with the aircraft.

6.13.4.3 Change of Address Notice

Reporting any change of ownership or of owners address is also very important so that information items may be reported to you without delay. When you do an annual condition inspection on this aircraft you must download the latest maintenance manual from the official web site www.justaircraft.com . This is your way to make sure you have the latest information.

6.13.5 Owner/operator responsibility

6.13.5.1 Each owner/operator of a LSA shall be responsible for providing the manufacturer with current contact information where the manufacturer may send the owner/operator supplemental notification bulletins

6.13.5.2 The owner/operator of a LSA shall be responsible for notifying the manufacturer of any safety of flight issue or significant service difficulty upon discovery.

6.13.5.3 The owner/operator of a LSA shall be responsible for complying with all manufacturer issued notices of corrective action and for complying with all applicable aviation authority regulations in regard to maintaining the airworthiness of the LSA.

6.13.5.4 An owner of a LSA shall ensure that any needed corrective action be completed as specified in a notice, or by the next scheduled annual inspection.

6.13.5.5 Should an owner/operator not comply with any mandatory service requirement, the LSA shall be considered not in compliance with applicable ASTM standards and may be subject to regulatory action by the presiding aviation authority.

Maintenance Manual

ELSA and Experimental

Handling and Servicing

Introduction

Your aircraft surfaces are covered in a modern heat-shrink fabric and finished as per the fuselage. The tail surfaces are also made of tubular steel construction, and are wire and tubing braced. The surfaces are finished as per the rest of the aircraft. This fabric is tough and durable but care must be taken so as not to puncture it. The windscreen, windows and doors are made from thin transparent polycarbonate sheets.

There is a handle on the rear of the fuselage for ground handling operations. Pushing and pulling by this handle is the recommended way of moving the plane around on the ground.

Your Highlander was designed to be easily towable. Load the plane onto a trailer and secure the wings back locking them into position with transportation jury struts and tie the airframe down to the trailer. Its recommended to support the fuselage at the rear so the tail wheel is not touching. Secure the prop from turning.

Your Highlander has tie down rings incorporated into the wings on each lift strut attach point. Use conventional tie downs on these rings and tie the tail around the tail wheel spring.

Below are the service intervals to be followed for the airframe. (For engine maintenance see the Engine Manual).

It is also permitted for the pilot to make small aileron adjustments at the aileron wire turnbuckles if the aircraft has a natural turn.

Auto gas is permitted and recommended also 100ll.

See engine manual for oil grades and specifications.

Cleaning of your highlander will prolong the service life of the fabric. Use a weak solution of mild detergent in water. Take care not to get water into electrical devices, venturis, pitot heads or static ports. Ensure that the aircraft is then dried thoroughly.

Record of Maintenance

The Highlander must possess two separate logbooks one for the airframe and one for the engine.

Check A (daily) **need not** be recorded in the aircraft logbooks unless a defect is found.

Check B (25 hrs / 3 months), and Check C (50hrs / 6 months) and the annual inspection **must always** be recorded in the appropriate logbooks. A list of all parts replaced must always be given and the invoices or certificates of conformity for these parts must be retained, along with all other aircraft maintenance records, until at least two years after destruction or permanent withdrawal from use of the aircraft.

Preparing the Aircraft for Inspection

Carry out a visual inspection before cleaning the aircraft. Any fretting damage may be visible from powdery deposits around a bolt hole. Leaks or fatigue cracks may sometimes be detected by visible deposits in surface dust or dirt.

The aircraft may then be cleaned if required using a weak solution of mild detergent in water. Take care not to get water into electrical devices, venturis, pitot heads or static ports. Ensure that the aircraft is then dried thoroughly.

If the aircraft has been stored outside, all frost, snow or excessive dew or rain must also be carefully removed.

Inspection must be carried out in a clean environment, with good light.

When to Carry out Maintenance

- | | |
|----------------|---|
| Check A | <ul style="list-style-type: none">• Before the first flight of the day.• Before any further flight if the aircraft has been left unattended on an airfield for any period of time. |
| Check B | <ul style="list-style-type: none">• At 25hr or 3 month intervals, except when a Check C or annual inspection is carried out instead.• If necessary, Check B interval may be extended by up to 2½hrs or 9 days, but the next check time must still be taken from the due date of the previous inspection. |
| Check C | <ul style="list-style-type: none">• At 50hr or 6 month intervals, except when a Check C or annual inspection is carried out instead.• If necessary, Check B interval may be extended by up to 5hrs or 18 days, but the next check time must still be taken from the due date of the previous inspection. |
| Annual | <ul style="list-style-type: none">• Once per year, timed to co-incide with the annual permit renewal, or at 150 hr intervals (extendable by up to 15 hrs if required).• This may not be extended in time, however if the aircraft is “rested” for some time, the intervals for all other checks may be reset by carrying out an annual inspection. |

Note: Airframe and Engine Hours

Inevitably, airframe and engine hours rarely, if ever, match up. While it is permissible to separate airframe and engine maintenance intervals, this becomes very complicated. It is recommended that whichever has the highest hours (usually the engine) is used as the basis for inspection and maintenance intervals.

Check A - the Daily Inspection (DI)

Paperwork

- Check permit to fly is valid
- Confirm no B, C or Annual checks are due.
- Check that all defects entered into the logbooks are acceptable, or have been rectified.

Aircraft

Checks B, C and Annual

	Check B (25hrs / 3 months)	Check C (50 hrs / 6 months)	Annual (Or 150 hrs)
Fuselage			
Check all pressure instruments for cracks, leaks and suction			✓
Check all airframe members for cracks, dents, corrosion or deformation		✓	✓
Check all fasteners for security, condition or fretting		✓	✓
Check all rig / derig connections, rings & clips	✓	✓	✓
Check all bracing cables for tension, corrosion or kinks.	✓	✓	✓
Check doors for security and cracks		✓	✓
Check seats for fraying, cracks, security		✓	✓
Check harnesses and belts		✓	✓
Check flying control runs for condition and lubrication	✓	✓	✓
Check operation of all controls	✓	✓	✓
Undercarriage			
Check structure for damage or deformation	✓	✓	✓
Check tire pressures (15psi)	✓	✓	✓
Check freedom & play in bearings		✓	✓
Check brakes for wear or damage		✓	✓
Lubricate all joints and bearings		✓	✓
Check steering mechanisms for wear and lubrication.		✓	✓
Toe brakes			
Check operation, adjust and lubricate cables.		✓	✓
Propeller			
Inspect blades for nicks and splits	✓	✓	✓
Inspect hub for security and condition		✓	✓
Check for vibration on run-up	✓	✓	✓
Inspect leading edge protection (if fitted) for security	✓	✓	✓
Check blade pitch (if ground adjustable)			✓
Fuel System			
Inspect tank(s) for cracks, leaks, abrasion	✓	✓	✓
Drain or flush tank			✓

	Check B (25hrs / 3 months)	Check C (50 hrs / 6 months)	Annual (Or 150 hrs)
Inspect all fuel pipes and hose for cracks or perishing. Always replace if unsure.			✓
Inspect system for leaks		✓	✓
Inspect and clean or replace fuel filter. (Check every hour 1st 40 hours of run-in)			✓
Disconnect hose at pulse pump and confirm fuel flows from tanks.		✓	✓
Check operation of fuel tap.		✓	✓
Electrical			
Check electrolyte level of unsealed batteries.	✓		✓
Check security of battery mounting, leaks, connection security.		✓	✓
Check all wiring for condition and security.		✓	✓
Check condition of all switches			✓
Wing			
Check all members for cracks, dents, deformation, corrosion or fretting.		✓	✓
Check all cables and thimbles for tension, corrosion, fraying, kinking or fretting.	✓	✓	✓
Check all fasteners for security (nylon-insert self locking nuts are to be replaced with new items if removed for inspection).	✓	✓	✓
Check critical structural fasteners for corrosion and deformation.		✓	✓
Check condition and abrasion of riveting or stitching and gluing of fabric.			✓
Check main spar joint for wear or deformation.	✓	✓	✓
Inspect all rig & derig points for condition and operation.	✓	✓	✓
Ailerons			
Check for full and free movement.	✓	✓	✓
Check for any excessive freeplay between ailerons, and between aileron and control column.		✓	✓
Check control deflections.			✓
Inspect all hinges, brackets, push-pull rods, bellcranks, control horns, cables, pulleys		✓	✓
Check control cables and stops have correct tension and friction.			✓
Rudder			
Check for full and free movement.	✓	✓	✓
Check connections to tail wheel steering		✓	✓
Check for any excessive freeplay between rudder and pedals.		✓	✓
Check control deflections.			✓
Inspect all hinges, brackets, push-pull rods, bellcranks, control horns, cables, pulleys		✓	✓
Check control cables and stops have correct tension and friction.			✓
Elevator			
Check for full and free movement.	✓	✓	✓
Check for any excessive freeplay between elevator and control column.		✓	✓

	Check B (25hrs / 3 months)	Check C (50 hrs / 6 months)	Annual (Or 150 hrs)
Check control deflections match.			✓
Inspect all hinges, brackets, push-pull rods, bellcranks, control horns, cables, pulleys		✓	✓
Check condition and operation of trim tab.		✓	✓
Check all control cables and stops have correct tension and friction.			✓
Doors			
Check condition of doors, bracing, hinges, and latches.		✓	✓
Rear Fuselage			
Inspect all rear fuselage and tailboom structure through access points.			✓

Supplements

Maintenance and Repair

Fuel System

- Check venting system on the fuel cap and determine it is not clogged.
- Inspect all fuel lines for cracking, dryrot, and leaks and replace where necessary.
- Be sure the curtiss drain valve is clear and not leaking.
- Replace the fuel filter with a “non-papered” fuel filter with wire mesh.

Repairs

General

Repairs should either be carried out as described below, or to a scheme approved by the **A&P or I.A.**. After making any repairs, you should always obtain a “second inspection” from a qualified pilot or (preferably) **A&P or I.A.** inspector, who should sign in the logbook that they have inspected the repair and consider it safe. Where this is not possible, at the next permit renewal draw the repair to the attention of your inspector who should oversign your own entry.

Repairs to bolted tubular structure, springs, pulleys, cables, bolts, nuts, etc. Any damage to such parts must not be repaired and the aircraft must not be flown once the damage has been identified. Identical replacement parts must be fitted before any further flight, and their installation inspected and signed-off in the logbook by a **A&P or I.A.** inspector. The invoice (legally referred to as the Certificate of Conformity) for the parts fitted must be kept with the aircraft logbook. If it is not possible to obtain replacement parts, consult the **A&P or I.A.** Technical Office for advice.

Repairs to the Engine These should be carried out in accordance with the maintenance manual for the engine fitted.

Repairs to Instruments Light aircraft instruments may be repaired or replaced.

Repairs to Fuel Hose Any fuel hose that found to be cracked or damaged must not be repaired. Replace it with at least automotive quality (preferably aircraft or fire-retardant boat use) re-enforced rubber fuel hose. It is not advised that transparent fuel hose is used, and PVC hose must not be used with fuel under any circumstances. Take care not to over-tighten cable ties used to secure hose, since this can cause a flow restriction.

Damaged Wiring Replace with fireproof or fire resistant wiring of the same or higher current rating, secured in the original manner.

Repairs to Batteries A damaged battery must be replaced and all surrounding structure thoroughly inspected for acid damage.

Repairs to Tires An inner tube puncture may be repaired. If there is damage to the tires that shows the inner canvas, replace the tire in question.

Damage to a Fuel Tank. The fuel tank should be drained and removed from the aircraft. It is unlikely that the tank will be repairable.

Damage to the Fabric Do not attempt to fly if there is damage to the wing or fuselage covering fabric. Repairs should be carried out in accordance with FAA Airworthiness Circular AC43.13-1B chapter 2 section 4, taking care to ensure that the same materials are used as at original build, or - if the aircraft has subsequently been re-covered - the last re-covering.

Damage to The Welded Steel Frame If there is damage, either corrosion or bends to parts of the welded steel frame, do not attempt to straighten any damage, and do not attempt to overpaint or repair corrosion. Any repair must be approved by the **A&P or I.A.** and is likely to require cutting out the damaged section, welding in a replacement, painting the repair, and then externally sleeving the repair. Guidance notes on such repairs are to be found in FAA Airworthiness Circular AC 43.13-1B chapter 4, section 5.

Vital Statistics

Weight values for this Superstol are at section 6 and a description of the aircraft limitations are at Section 2. The following describes the basic dimensions of the aircraft:

	<u>Superstol</u>	
Length	19ft	
Length wings folded	21ft 8in	
Width wings folded	8ft 6in	
Height tail wheel version	7ft 5in	
Span	31ft 3in	
Mean chord	55in	
Wing area	147ft ²	
Undercarriage track width		98in
Fuel capacity		27 gals
Tire Pressure (Main wheels, Alaska Bush)		6 psi
Tire Pressure (tail wheel)		15 psi

ANNEX A

**MINOR MODIFICATIONS FITTED TO THIS AIRCRAFT SINCE INITIAL
PERMIT ISSUE**

Minor modification approval sheets are to follow this page

Minmod No.	Description	Sign and date incorporated

ANNEX B

**MAJOR MODIFICATIONS FITTED TO THIS AIRCRAFT SINCE INITIAL
PERMIT ISSUE**

MAAN / AAN No.	Issue	Description	Sign and date incorporated

ANNEX C

**INSTRUCTIONS AND MANUALS FOR OTHER DEVICES FITTED TO THIS
AIRCRAFT**

No.	Description	Issue or date	Approval Mod No, or original equipment
F1			
F2			
F3			
F4			
F5			
F6			
F7			
F8			
F9			
F10			
F11			
F12			
F13			
F14			
F15			
F16			
F17			

Service Difficulty and Feedback Reporting Form

This is information that owner must send to Just Aviation to report service difficulties and/or possible safety of flight issues. The data does not have to be in this specific format, however, the data needs to be complete enough for the manufacturer to begin evaluation of the specific issues.

Name of reporting party _____

Date reported _____ Date of event if any _____

Make _____ Model _____ S/n _____

Address of reporting party _____

City, state, zip _____

Phone number of reporting party _____

Email of reporting Party _____

Name of owner if different _____

Address of owner if different _____

City, state, zip _____

Phone number of owner _____

Email of owner _____

Details of issue: What part _____

What Happened _____

Circumstances (ie. Hard landing, gust front, etc) _____

FAA/NTSB contact if any

Superstol work sheet: contacted

Initial working issue _____

Closure if any _____

Closing date _____ Person _____

Record number _____