Skybolt N22KJ
POH & MM

Registration: N22KJ

Manufacturer: Kenneth J. Jackson

Model: Skybolt

Serial Number: KJJ-1

This handbook should be carried onboard during flight.

Pilot Operating Handbook and Maintenance Manual prepared by:

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Date: 6 March 2018, Rev. 2

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1. GENERAL DESCRIPTION

The “Skybolt” was designed by LaMar Steen of Denver Colorado as a fully aerobatic two place Bi Plane with ease of construction. The prototype was completed in one year by minority students at Manual Arts High School in Denver Colorado where Mr. Steen was the instructor. Recommended power plants range from 125Hp for sport flying to the 260Hp Lycoming for serious aerobatic competition. No destructive tests were performed on the prototype however conservative calculations by a professional stress engineer indicate a Plus 9 and Minus 8 G load factor at a gross weight of 1650 lbs. The airframe exceeds the aerobatic minimums of plus 6 and minus 3 G’s at a gross weight of 2000lbs. The prototype has been flown to over 200 MPH with plus 8 and minus 5G applied in a gradual fashion.

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2. LIMITATIONS

A. Airspeeds: (MPH CAS)

Vs	55 MPH
Va	130 MPH
Vne	200 MPH

B. Power plant:

Based on IO-360-B4A Lycoming Service Manual

Cylinder Temp max	500 F
Minimum Fuel Grade	91 Oct
Fuel Pressure Max	35 Psi
Fuel Pressure Min	2 Psi
Oil Pressure	55-95 Psi
	25 Psi (Idle - Hot)
Oil Pressure Max	115 Psi (Start - Cold)
Oil Temp Min	100 F
Oil Temp Max	245 F
Oil capacity:	8 quarts, Minimum 6 quarts
Oil Consumption:	.80 qts/hr @ 75% Cruise (Approx)
	.45 qts/hr @ 65% Cruise (Approx)

*Refer to Lycoming Service Manual for exact burn rate.

Use 50 weight Aero Shell Oil W100 Plus **or equivalent oil. (See Lycoming SB for recommended oil)**

C. Weights:

Max Gross Weight	1822 lbs
Max Aerobatic Weight	1650 lbs
Operating Empty Weight	1291 lbs
Baggage, Maximum	15 lbs

D. Flight load factor aerobatics:

Positive Max	+ 6 G
Negative Max	- 5 G

The aircraft is designed to execute all Unlimited maneuvers listed in the Aresti Catalog.

E. Flight limitations:

Flight into icing conditions is prohibited.

F. Usable fuel:

Fuel capacity:	*38 Gal Total (37 usable)
	29 GAL Main Tank (28 Usable),
	*9 GAL Wing Tank

3/2018 Current A/C configuration uses 9 Gal Wing Tank as Smoke Oil Tank

3. EMERGENCY PROCEDURES

3.1 Checklist

ENGINE FAILURE - TAKEOFF

- *Airspeed.....80MPH*
- *Mixture.....Cut-Off*
- *Fuel Selector Valve.....Off*
- *Ignition Switch.....Off*
- *Master Switch.....Off*

ENGINE FAILURE - FLIGHT

- *Airspeed.....80MPH*
- *Fuel Selector ValveSwitch Tanks/ON*
- *Mixture.....Rich*
- *Aux Fuel Pump.....On*
- *Ignition Switch…Both/L/R/Start*
  - *Use START if prop not windmilling*
  - *Cycle Ignition Switch L/R/Both*
- *Forced Landing.....Execute*

ENGINE FIRE - FLIGHT

- *Mixture.....Cut-Off*
- *Master Switch.....Off*
- *Airspeed.....120MPH*
  - *Increase speed as required to 200mph*
  - *Consider using a slip to keep flames away from fuselage*
  - *Once fire extinguished, establish best glide speed*
- *Forced Landing.....Execute*

ENGINE FIRE – GROUND

- Cranking.....Continue
  - Hopefully pull flames into engine

IF ENGINE STARTS

- RPM.....1800
  - Continue for several minutes
- Fuel Selector Valve.....Off

IF ENGINE FAILS TO START

- Cranking.....Continue
  - Continue for several minutes
- Throttle.....Full Open
- Fuel Selector Valve.....Off
- Ignition.....Off
- Master.....Off
- Aircraft.....Evacuate
- Fire Extinguisher.....Use

ELECTRICAL FIRE

- Master Switch.....Off
- Avionics Master Switch.....Off
- All Electrical Switches.....Off
- Fire.....Extinguish

ONCE FIRE IS EXTINGUISHED

- Circuit Breakers.....Check
  - DO NOT RESET CB
- Master Switch.....On
- Radio/Elec Switches.....On
  - Turn on one at a time to isolate short

FORCED LANDING – W/ POWER

- Landing Area.....Select/Circle
- Radio, Electric Switches.....Off
- Airspeed.....80MPH
- Master Switch.....Off
- Touchdown.....Slowest Speed
- Ignition.....Off
- Brakes.....As Req'd

FORCED LANDING – W/O POWER	ELECTRICAL MALFUNCTIONS
• Airspeed.....80MPH • Seatbelts.....Secure • Mixture.....Cut-Off • Fuel Selector Valve.....Off • Ignition Switch.....Off • Master Switch.....Off • Touchdown…….Slowest Speed • Brakes.....As Req'd	**IF AMMETER INDICATES EXCESSIVE CHARGE** • Master Switch.....Off • Avionics Switch.....Off • All Electrical Switches.....Off • Flight.....Terminate As required for Safety of Flight • Master Switch.....On • Avionics Switch.....On • Radios.....Minimum Req'd **IF AMMETER INDICATES DISCHARGE** • Avionics Switch.....Off • Master Switch.....Off • Master Switch.....On • Avionics Switch.....On If Ammeter continues to show discharge • Only Essential Radios.....On • Flight.....Terminate ** Items in Italics should be memorized*

3.2 Engine Fire during Start

Should an induction system fire start from over priming, continue cranking the engine with the mixture control in the idle/cutoff position until engine starts which will pull flames into induction system and extinguish the fire.

3.3 Power loss during takeoff

If sudden complete power loss occurs after leaving the ground, immediately lower nose and establish glide straight ahead. If altitude permits, check fuel and verify that electric pump is on and proper inlet pressure exists. Should a power off landing be required, turn off master switch prior to touchdown.

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4. NORMAL PROCEDURES

4.1 Preflight Checklist

**The Most up-to-date checklist will be folded inside the POH*

PREFLIGHT – EXTERIOR

Right Wing
- Mag & Master Switch.....Off
- Upper Wing.....Condition
- Lower Wing.....Condition
- Slave Strut.....Attach Pts
- Upper Aileron.....Hinges
- Lower Aileron.....Hinges
- Upper Wing Tip.....Nav Lt.
- Lower Wing Tip.....Condition
- I Strut Attachment.....Condition
- Upper/Lower Leading Edge.....Condition
- Flying Wire.....Flexible
- Landing Wire.....Taut

Firewall Forward
- Rt. Landing Gear.....Condition
- Rt. Main Wheel.....Inflation
- *Chocks.....Removed
- Rt. Brake.....No Leaks
- Exhaust Stacks.....Secure
- Flying Wire Attach Pt.....Secure, Pinned
- Lower Cowling.....Condition
- Rt. Engine Compartment.....Condition
- Battery.....Secure/Connections
- Baffling.....Condition
- Oil.....Min 6qts
- Prop.....Nicks/Condition
- Alternator Belt.....Tightness
- Air Intakes.....Clear
- Lt. Engine Compartment.....Condition
- Throttle Linkage.....Check
- Flying Wire Attach Pt.....Secure, Pinned
- Lwr Fuel Tank Cap.....Secure
- Lt. Landing Gear.....Condition
- Lt. Main Wheel.....Inflation
- *Chocks.....Removed
- Lt. Brake.....No Leaks
- Lwr Cowling Access.....Condition
- Gascolator.....Drain
- Sump.....Drain

Left Wing
- Flying Wires.....Flexible
- Landing Wires.....Taut
- Upper/Lower Leading Edge.....Condition
- Pitot Tube.....Remove Cover/Check
- I Strut Attachment.....Condition
- Upper Wing Tip.....Nav Lt.
- Lower Wing Tip.....Condition
- Lower Aileron.....Hinges
- Upper Aileron.....Hinges
- Slave Strut.....Attach Pts
- Cabane Struts.....Condition

Left Fuselage
- Upper Fuel Tank.....Cap Secure
- Upper Tank Fuel Line.....Condition
- Fwd. Windshield.....Condition
- Aft Windshield.....Condition
- Fwd Cockpit Coaming.....Condition
- Rear Cockpit Coaming.....Condition
- Rear Cockpit Step.....Condition
- Fuselage.....Condition

Tail Section
- Lt. Horiz. Stab.....Condition
- Lt. Stab Flying/Ldg Wires.....Taut
- Lt. Elevator.....Hinges/Movement
- Lt. Trim Tab.....Hinge/Rod
- Rudder.....Nav Lt.
- Rudder.....Hinges/Control Cable
- Tailwheel.....Inflation
- Tailwheel Bolt.....Secure
- Tailwheel Springs.....Condition
- Rudder Springs.....Condition
- Rt. Trim Tab.....Hinge/Rod
- Rt. Elevator.....Hinges/Movement
- Rt. Stab Flying/Ldg Wires.....Taut
- Rt. Horizontal Stab.....Condition
- *Engine Breather Tube.....Secure
- Fuselage.....Check

PREFLIGHT – INTERIOR

Forward Cockpit
- Instruments.....Set
- Seat Belt & Harness.....Secured/Check
- Brake Master Cylinders.....No Leaks
- Rudder Cables.....Connected
- Throttle Linkage.....Connected
- *Helmet.....Secured/Connected
- Upper Fuel Tank Cap.....Secure

Rear Cockpit
- Instruments.....Set
- Fuel Selector Valve.....Main/Aux
- Trim Tab.....Set
- Throttle Linkage.....Check
- Seat Belt & Harness.....Connected
- Alternate Air.....Normal
- Baggage Compartment.....Secure
- Rudder Cables.....Connected
- All Electrical Switches.....Off
- Helmet.....Plugged In
- Documents.....ARROW/CALM
  - Airworthiness
  - Registration
  - *Radio Station License
  - Operating Handbook (POH)
  - Weight & Balance
  - Charts
  - *ARESTI Diagram
  - Pilot License
  - *Medical
- Loose Items.....Stowed
- EFB.....Set

Inner Fuselage (aft of rear seat)
- Push-Pull Tubes.....Condition
- Electrical Wires.....Condition
- ELT & Battery.....Check
- Overall Condition.....Check

** - as installed/required*

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4.2 Normal Checklist

**The Most up-to-date checklist will be folded inside the POH*

BEFORE START

- Chocks.....Removed
- Seatbelts.....Secured
- Cell Phone.....Off/Secured
- Master Switch.....On
- Alternate Air.....Off
- Fuel Selector.....Main
- Boost Pump.....On
- Throttle.....Open 1/4
- Mixture.....Rich
- Fuel Pressure.....3-5 Seconds
- Throttle.....Closed
- Mixture.....Off
- Boost Pump.....Off
- Throttle.....Open 1/4
- Prop.....Clear
- Brakes.....Pressed
- Mag Selector Switch..... Start
- Mixture.....Rich
  - Slowly/Smoothly as engine fires
- Oil Pressure.....Checked
  - Min 25psi (w/in 30 secs)
  - Max 115psi

FLOODED START

- Throttle.....Wide Open
- Mixture.....Rich
- Fuel Pump.....On
  - 3 seconds
- Mixture.....Cutoff
- Mag Selector Switch..... Start
- Throttle.....Retard
  - Slowly until engine fires
- Mixture.....Rich

BEFORE TAXI

- Idle.....Set
  - Set 800-1000rpm
- Radio Master.....On
- Radios/Intercom..... Set/On
- Transponder.....ALT/Set
- Turn Indicator.....Checked
- Compass.....Checked
- Stick.....Set
  - Position stick for wind conditions
- Brakes.....Checked
- *Fuel Selector.....Aux
- *Vacuum..... Checked

BEFORE TAKEOFF

- Seatbelts.....Secured
- Altimeter.....Set
- Fuel Selector.....Main
- Stick.....Full Aft
- Engine.....1800 RPM
  - Momentarily increase to full power
- Magneto Check.....L/R Checked
  - Max 175RPM dropoff
  - Max 50 RPM difference
- Engine.....Idle
- Mag Ground.....Checked
- Controls..... Checked
- Engine Instruments..... Checked
  - Oil Pressure: Min 25psi/Max 115psi
    - 55-95 normal
  - Oil Temperature: Min 40c/Max 118c
  - CHT: Min 250F/Max 500F
  - Fuel Pressure: Min 2psi/Max 35psi
- EFB.....Set
- *Attitude Indicator.....Set

- Boost Pump.....On
- Strobes.....On
- Stick.....Set
- Compass/*DG.....Checked/*Set

CLIMB/CRUISE

- Airspeed..... Check
  - Climb 80mph - IAS vs. Planned
- Power.....Check/Set
  - 2450-2500 rpm in climb
  - 2350rpm Cruise (65%) 8.5gph
  - 2450rpm Cruise (75%) 11gph
- Boost Pump.....Off
- Mixture.....Set
  - Lean Above 5,000ft
    - 75% - 150F Rich 65% - Peak EGT
    - CHT =< 435F@75% <= 400F@65%
- *Flight Plan.....Opened

AEROBATICS

- Seatbelts/Parachute.....Secured
- Loose Items/EFB.....Secured
- Eng. Instruments..... Checked
- G-Meter.....Reset
- *Aresti Diagram.....Reviewed

DESCENT/LANDING

- Mixture.....Set/Rich
- Fuel Selector..... Fullest Tank
- Boost Pump.....On

AFTER LANDING/SHUTDOWN

- Strobes.....Off
- Boost Pump.....Off
- Radios.....Off
- Transponder.....Off
- Intercomm.....Off
- Radio Master.....Off
- Mixture.....Off
- Magnetos.....Off
- Master Switch.....Off
- *Flight Plan.....Closed

Skybolt Checklist w/ Fixed Pitch IO-360 Engine Rev.6

4.3 Preflight Procedure

The aircraft should be given a through visual inspection prior to each flight. Particular attention should be given to the following:

(a) Master and magneto switches “OFF”
(b) Check luggage area for loose or heavy objects.
(c) Check inside rear fuselage for loose objects & foreign objects.
(d) Check for external fabric damage
(e) Check all controls for correct & freedom of movement
(f) Check security of Trim/servo Tabs
(g) Check fuel supply for quantity and tight cap
(h) Check all fuel vents for obstructions
(i) Check tires for damage and proper inflation
(j) Check Oil Level & top off as necessary
(k) Sump fuel tank and gascolator check for water and other foreign matter
(l) Check cowling for security and missing screws
(m) Check Air intake for obstructions
(n) Check propeller for nicks & defects
(o) Check spinner for security and cracks
(p) Check tail wheel for condition, deformed springs and security
(q) Check trim for neutral position

4.4 Engine Starting

Cold starts are easily accomplished by opening the throttle approximately ¼ inches and placing the mixture control to full rich. Turn master switch on and activate the fuel boost pump until pressure is noted on the fuel pressure gauge. (Boost pump off) Return mixture control to idle cut off(full rear). Engage combination Magneto/starter switch. Engine should start immediately, as the engine catches, smoothly move the fuel mixture control to full rich, throttle to idle.

Hot Starts are similar with one important difference. Throttle should beadvanced to approximately ½ power, fuel boost pump turned on for 2 seconds to force cool fuel through the injector system with the mixture control full rich. Return fuel mixture to idle cut off (full rear) Throttle to ¼ power and engage magneto/starter switch. Engine should start after a few revolutions once the flooded engine is cleared. Immediately move mixture control to full rich (full forward) and throttle to idle. Hot starts require deliberate flooding to avoid false starts caused by vapor lock from a hot engine boiling the fuel in the injector lines. Be aware that any back fire could cause a fire and should be handled as noted in section “emergency procedures”.

4.5 Engine Run up & Controls Check.

Position aircraft so as to avoid propwash damage. Smoothly apply power to indicate 1800 RPM. Check for 25 to 75 rpm drop on both right and left magnetos, return magneto switch to “both” Check gauges for normal indications of oil pressure, oil temperature,cylinder head temperature, exhaust gas temperature, electrical system and fuel quantity. Check controls for correct and free operation. At engine RPM of idle, check magneto grounding.

4.6 Take off

Set elevator trim control for take off. When cleared, taxi into position and move slightly forward to lock tail wheel and establish direction. Boost pump ON. Smoothly advance throttle while maintaining heading with rudder. Slight forward stick will raise tail slightly (6" or less) to normal take off attitude. Aircraft will fly off the runway by itself and climb attitude should be established. Climb speed between 90 and 115 MPH depending upon desired angle of climb. The boost pump should remain ON during full power portion of climb. The aircraft climbs out comfortably at 90 MPH indicated. Since the climb angle is so great at this speed, for safety reasons it is recommended that speed be increased above 100 MPH as the nose will be lower and visibility increased. Gentle turns back and forth during climb are recommended to better alert for traffic. Mixture may be leaned slightly during climb out being careful to monitor cylinder head temperature.

4.7 Stalls

The aircraft has gentle stall characteristics in both power on and power off conditions. Departure stalls are also gentle with no tendency to drop a wing. The gentle stall characteristics of the Skybolt are due to the unique wing design. The thicker top wing completely stalls so the aircraft can mush ahead under full control as the lower wing has not completely stalled. Power off stall speed is approximately 55 MPH indicated, however landings are accomplished above this figure to allow touchdown in a full 3 point attitude.

4.8 Cruising

Optimum cruise configuration is a function of aircraft loading and otherfactors such as power settings, altitude, air temperature and density. High cruise settings of 2450 RPM should result in speeds of about 120 MPH IAS at approximately 11 gallons per hour fuel burn. Low cruise is recommended at 2350 RPM, resulting in speed of approximately 110 MPH IAS and 9 gallons per hour fuel burn.

4.9 Approach and Landing

Approaches should be made at a pattern altitude of 800 to 1000 ft. AGL. The pattern should be planned so the field may be reached from any point should sudden power loss occur. Maintaining a downwind leg such that the runway is about 45°s under the wing. Power should be reduced to appox. 2200 RPM . Check fuel/boost pump on. Reduce power to 1500 RPM as the end of the runway is passed and start a gradual circular base when the runway is 45°s behind the wing. Base and final should be at 90 to 100 mph with 80 to 85 across the fence. The ideal pattern will be circular with the runway in sight until just before touchdown, similar to a carrier approach. Slips as required should be used to maintain runway visibility. Use peripheral vision and establish proper touchdown attitude (three point centered and straight with the runway). The aircraft should touch down slightly tail wheel first. Hold neutral stick until aircraft slows then gradually pull stick full back (up elevator). Extreme slips are permissible if required or desired. Touchdown is accomplished above true stall so it is important not to jerk the control stickback at the moment of touchdown. Crosswind landings are easily accomplished using normal wing low technique with a strong crosswind component easily mastered. The rudder has great authority

and is used to maintain heading during landing and rollout. Brakes are used as necessary. A technique used on strange or narrow runways is to make a normal touchdown as described above and then use forward stick to raise the tail to level attitude. This requires longer rollout but provides excellent visibility.

4.10 Engine Shutdown

After landing, allow cylinder head temperature to cool and stabilize, shutdown should be accomplished by smoothly leaning mixture to idle cutoff. Verify that master and magneto switches are off. It is recommended to always fill the main fuel tank to minimize the possibility of moisture condensation in the fuel tank.

5. PERFORMANCE

CRUISING SPEED: 75% power (2450 RPM) 125 MPH (TAS)
RATE OF CLIMB: SL@1200 FPM w/ 1 pilot
SERVICE CEILING: 14,500 FT, Limited by Oxygen
STALLING SPEED: STD Day @SL 55 MPH
ROLL RATE - 180+ DEG PER/SEC
TAKE-OFF RUN - No wind, standard day - 350 FT
LANDING RUN - No wind, standard day - 780 FT

Aerobatic Performance

This aircraft has demonstrated all advanced category aerobatic maneuvers with no undesirable flight characteristics. Loads greater than 6 G positive and 3 g negative are not recommended or necessary to perform any maneuver. Smoothness of flight to avoid abusing the airframe is strongly recommended. Full aerobatic power settings raises fuel consumption to greater than 15 gallons per hour, so fuel quantity should be carefully planned. Aerobatics are what the Skybolt is all about and the following chart will provide guidance for maneuver entry speeds.

POSITIVE "G"				NEGATIVE "G"		
Maneuver	**Max V**	**Best V**	**Min V**	**Max**	**Best**	**Min**
Slow Roll	160	140	120	–	–	–
Barrel Roll	160	140	130	160	140	130
Snap Roll	130	120	100	130	120	100
Immelman	200	160	155	-	160	160
Hammerhead	200	150	120	–	150	130
Knife Edge	160	140	110	–	–	–
Loop	200	160	130	–	160	140
Vertical Roll	200	180	180	–	–	--
Spin	Stall	–	–	–	–	–

VNE 200 with flutter testing to 220 MPH
Maneuvering 130 Mph

Engine Performance

CURVE NO. 12849-A

PART THROTTLE FUEL CONSUMPTION
LYCOMING ENGINE MODEL
IO-360-B,-E,-F AND M1A SERIES

COMPRESSION RATIO 8.50:1
SPARK TIMING 25° BTC
FUEL INJECTOR, PAC TYPE RSA-5AD1
MIXTURE CONTROL- MANUAL TO BEST ECONOMY OR BEST POWER AS INDICATED
FUEL GRADE MINIMUM 91/96

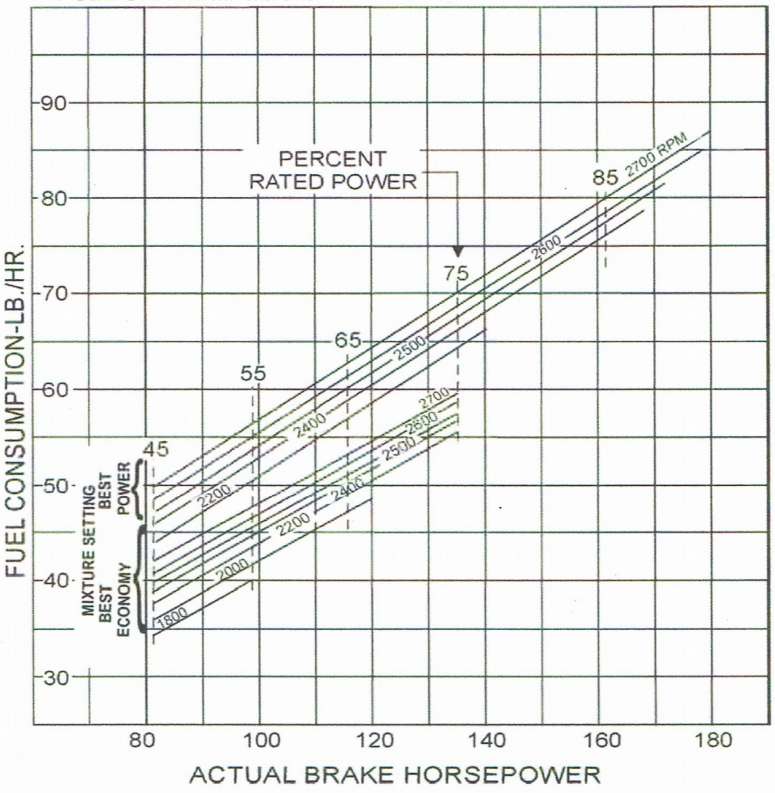

Figure 3-6. Part Throttle Fuel Consumption –
IO-360-B, -E, -F, ♦, -M1B Series (Excepting IO-360-B1A, -B1C); HIO-360-G1A

♦ - For information pertaining to engine model (L)IO-360-M1A, refer to Operation and Installation Manual P/N 60297-36.

6. Weight and Balance & Equipment List

Refer to Aircraft Weight and Balance Report & Chart included in the aircraft records. No equipment changes have occurred since the last known weight in 2009. A sample form is included below to note any changes in configuration since the last weight.

Skybolt Weight and Balance: Operating Empty Weight

(Note: This Chart reversed Arm measurements from building plans. Positions forward of the bottom wing leading edge are indicated in negative and after the LE bottom wing as positive, to align with modern CG measuring practice. Only +/- arm reversal has been done. All numbers remain the same. Basic Operating Empty Weight includes full oil. Less than full oil should be subtracted from the figures)

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WEIGHT AND BALANCE FOR AIRCRAFT N22KJ
SKYBOLT

ENTER DATA IN THE RED CELLS AS NEEDED
COMPUTED RESULTS IN THE BLUE CELLS.

CG LIMITS: FWD C.G. -3.0", AFT C.G. +2.5"

ALL WEIGHTS IN LBS, DISTANCES IN INCHES

PART TWO (CALCULATING EMPTY WEIGHT DATA)						
FIGURING EMPTY WEIGHT CG. W/ Full Oil						
MAIN WHEELS DATA	WEIGHTS					
RIGHT MAIN WHEEL WEIGHT =	596	LBS				
LEFT MAIN WHEEL WEIGHT =	609	LBS				
MAIN WHEEL RT DISTANCE FROM DATUM =	-15	IN				
MAIN WHEEL LT DISTANCE FROM DATUM =	-14.5	IN.				
MAIN WHEEL MOMENT =	-17770.5	INCH/LBS				
CALCULATED MAIN WHEEL MOMENT =	-17770.5	INCH/LBS				
TAIL WHEEL/NOSE WHEEL DATA						
TAIL/NOSE WHEEL WEIGHT =	86	LBS				
TAIL/NOSE WHEEL DISTANCE FROM DATUM=	155.9	IN.				
TAIL/NOSE MOMENT IF KNOWN =		INCH/LBS				
CALCULATED TAIL/NOSE MOMENT =	13407.4	INCH/LBS				
TOTAL WEIGHT =	1291	LBS				
	CG		MOMENT			
EMPTY WEIGHT CENTER OF GRAVITY DATA	-3.38	IN	-4363.58	INCH/LBS		
FIGURE FINAL CG BELOW						
ENTER THE FOLLOWING AS NEEDED						
SUBJECT	WEIGHT	X	ARM	X	MOMENT	
AIRCRAFT EMPTY WEIGHT =	1291	X		X	-4363.58	INCH/LBS
Pilot Weight =		X	44.4	X	0	INCH/LBS
Pilot Parachute (16.0lbs) =		X	44.4	X	0	INCH/LBS
Passenger Weight =		X	10.1	X	0	INCH/LBS
Passenger Parachute (16.0 lbs) =		X	10.1	X	0	INCH/LBS
Main Tank Fuel Wt (29 Gals) (6 LBS/GAL) =		X	-17	X	0	INCH/LBS
Wing Fuel Tank – Fuel Wt (9 Gals)		X	-6.5	X	0	
Wing Tank – Smoke Oil (1.9lbs/QT)		X	-6.5	X	0	
Oil Wt (Subtract less than full)(1.9LBS/QT) =		X	-47	X	0	INCH/LBS
Baggage Weight =		X	70.5	X	0	INCH/LBS
EXTRA WEIGHT#3 =		X		X	0	INCH/LBS
TOTALS	1291	LBS			-4363.58	INCH/LBS
AIRCRAFT CENTER OF GRAVITY =	-3.38	INCHES FROM DATUM				

Equipment List

N22KJ – Skybolt Equipment List							
Item	**Part No.**	**Quantity**	**Weight (Ea.)**	**Weight (Tot.)**	**Arm**	**Moment**	**Change Info**
	Installed	**Equip**					
Wheel--Main Gear 6.60x10		2					
Brake--Main Gear		2				#VALUE!	
Tailwheel-- 2.40		1		#VALUE!	155.9	#VALUE!	
Engine-- Lycoming IO-360-B4A		1	276.0	276.0	-47.0	-12,972	
Filter--Induction Air		1		#VALUE!		#VALUE!	
Filter--Oil		1		#VALUE!		#VALUE!	
Fuel Pump-- AC Auxiliary Electric		1		#VALUE!		#VALUE!	
Prop Spinner & Bulkhead		1	34.5	34.5		0	
Altimeter – Front							
Altimeter – Rear							
Airspeed Indicator Fwd							
Airspeed Indicator Rear							
Tachometer – Rear				#VALUE!		#VALUE!	
Compass – Rear		1	0.6	0.6	13.0	8	
Fuel Quantity Indicator—Main Tank – Rear		1	1.0	1.0	14.6	15	
Fuel Quantity Indicator— Aux Tank – Rear		1	1.0	1.0	14.6	15	
Alternator		1					
Voltage Regulator		1		#VALUE!		#VALUE!	
Battery 12 Volt		1		#VALUE!		#VALUE!	
Vertical Speed Indicator, Front		1	1.9	1.9		0	
Vertical Speed Indicator, Rear		1	1.9	1.9		0	
Clock		1	0.4	0.4		0	
Turn & Bank Indicator – Front		1	1.1	1.1		0	
Turn & Bank Indicator – Rear		1	1.1	1.1		0	
Outside Air Temperature Indicator		1	1.0	1.0	3.2	3	
Vacuum Pump		1	3.3	3.3		#VALUE!	
Trimble Terra TRT-250D Transponder	7280018	1	3.2	3.2	10.7	34	
Garmin GNC 250 GPS/COM/NAV	82902805	1				0	
Intercomm Sigtronics SPA-400		1				#VALUE!	
Altitude Encoder Trans-Cal	536521	1	1.0	1.0		0	
Chronometer		1					
Emergency Locator Transmitter		1	3.0	3.0		0	
Attitude Indicator – Rear		1					REMOVED
Directional Gyro – Rear		1					REMOVED
CHT/EGT Indicator		1					
Suction Gauge		1					
Oil Temp/Fuel & Oil Pressure Gauge		1					
G-Meter		1					
Air Temperature Gauge		1					
Ampere Gauge		1					
	Total Equipment			**17.9**	**###**	**#VALUE!**	

APPROVED BY: _____

7. AIRPLANE & SYSTEMS DESCRIPTIONS

7.1 Specifications

Wing Span: Upper 24 FT Lower 23 FT
Length 19 FT Height 7 FT
Empty Weight 1256 lbs
Basic (Operating) Weight 1291 lbs
Gross Weight 1822 Lbs
Useful Load 531 Lbs
Rigging Data:
Wing Incidence Upper +1.5 ° Lower +1.5 °
Horiz Stab Incidence +1.0° to 2.5° Ground Adjustable
Dihedral: Upper 0.0° Lower +1.5°
Vertical Stab Incidence 0.0° to centerline
Engine 0.0°
Thrust Line 6” below top Longeron

WING AREA AND LOADING:

Wing lifting area:	153 SQ.FT
Wing loading:	12.09 PSF Gross
Wing loading:	10.78 PSF Aerobatic
Wing loading:	7.6 PSF Empty

ENGINE:

Lycoming IO-360 B4A rated at 180 HP @ 2700 RPM

ENGINE EQUIPMENT:

SkyTec 12 Volt Starter
AC Engine Driven Fuel Pump
Bendix S4LN-21 LT, S4LN-20 RT Magnetos
2 into 1 Exhaust
Oil Cooler
Bendix RSA-5 Fuel Injection System
Christen Inverted Oil System

LANDING GEAR:

Main Gear: Marquart-Style Puck Shock-Absorber
Main Tires & Wheels: 6:00-6 with Cleveland disk brakes
Tail Wheel: Scott 3200 Spring Steel w/ Maule Anti-Shimmy Spring Connector Kit
Tail Tire: 2.80/2.50-4 Scott Model 2600 8” Pneumatic Tire

PROPELLER

Two-Blade Aluminum Sensnich 76EM8056

7.2 Fuel System

The fuel system consists of a 29 gal main tank (1 gal unusable) which is located aft of the firewall and forward of the front cockpit. The fuel gauges consists of one sight tube mounted on the rear of the tank (Markings consist of remaining gallons) and an electronic sender mounted in the tank and it's indicating gauge is mounted in the instrument panel in the rear cockpit with markings calibrated for ¼- ½- ¾ of tank capacity. Fuel flows from the bottom of the main tank via a flop tube for aerobatic flight to a gascolator then to an electric fuel pump and engine driven fuel pump then to the fuel injection system. The electric pump should be turned on during take off, landings and emergency operations.

7.3 Hydraulic Brake System

Toe brakes are installed in both the front and rear cockpit. They may be used to assist in ground handling and keeping the airplane straight on the landing rollout. Since the Skybolt has a significant amount of static weight on the tail wheel, a considerable amount of breaking force may be applied without fear of nosing over. Each brake is self contained and is fed through a reservoir on right/left rear toe brake/rudder pedal. The front brakes are activated by use of a slave rod connected from the rear pedals to the front pedals. Bleeding is accomplished from the wheel cylinder with excess air being expelled from each reservoir. The cap must be removed from the reservoir when bleeding. A very small air vent in the cap will allow contraction and expansion of brake fluid. Flight test have shown no seepage during inverted flight.

The brake system is serviced with MIL-H-5606 hydraulic fluid. If it is necessary to add fluid to the system, do so as follows:

- Remove vented filler plugs from master cylinders
- Fill with MIL-H-5606 hydraulic fluid level to the top of the reservoir(s)
- Reinstall vented filler plugs
- Check brake system for proper operation

When it is necessary to refill or to bleed the brake system to remove air, follow this procedure:

- Remove vented filer plug from master cylinders
- Loosen bleeder screw on brake unit at wheel
- Onto the loosened bleeder screw, insert brake bleeder hose, which is fastened to a pump-type pressure oil can filled with MIL-H-5606.
- Fill the system from the bottom up using the pump-type pressure oil can
- When master cylinder is filled to the top of reservoir, tighten brake bleeder screw and remove bleeder hose.
- Reinstall non-vented filler plugs in master cylinders
- Check system for proper operation

7.4 Inverted Fuel and Oil System

Aerobatic and inverted flying is accomplished in the fuel system through fuel injection. Oil flow is provided during aerobatic maneuvers by a Christen Inverted Oil System which allows

unlimited aerobatic maneuvers while maintaining full oil flow. A small (usually 1 PT or Less) amount of oil is lost overboard after each period of aerobatics and/or inverted flight via the oil breather tube which exits the aircraft just below the tail wheel spring. A dribble valve is provided in the induction system to prevent fuel accumulation in the intake which minimizes the possibility of an induction fire after shutdown as the injector lines percolate fuel.

7.5 The Electrical System

Consists of a battery, adjustable regulator, 12volt 60 ampere alternator and a master solenoid and master switch. The system uses a common hot bus and a common ground bus. These busses are located on the electrical panel on right side of rear cockpit along with master switch, slave switches and circuit breakers. Master and starter solenoids are located on the forward (engine) left side of the firewall.

7.6 Landing Gear

The main landing gear is a Marquart-Style Gear utilizing Ercoupe puck-like shock-absorbers. Cracking has been found to be an issue along the longerons where the gear pivot and should be closely inspected prior to each flight. The tail gear consists of a steerable swivel tail wheel assembly, a steel spring for energy absorption and two compression type steering spring assemblies. The type of tailwheel is known as a “Scott 3200”.

7.7 Tires

For maximum service keep the tube type tires inflated to 25 (+ or - 2 lbs) pounds per square inch. The tires can be removed from the wheels by first deflating the tubes, then removing the wheel through bolts allowing the wheel halves to be separated. The main wheels are 6.00 x 6. See wheel and brake manufacturer’s information for additional details and procedures. For the tailwheel, recommended tire is the 2.80/2.50-4 4ply Scott tailwheel inflated to just under 50psi.

7.8 Smoke System

The former wing fuel tank has been modified to be the holding tank for smoke oil. Smoke oil is routed through an electrical solenoid directly from the wing tank to a ShurFlo pump which is then injected directly into the exhaust. The solenoid and ShurFlo pump are controlled through a 40amp circuit breaker type switch located in the rear cockpit near the suction gauge. To operate, flip the red guard switch up, and turn the switch to the “up” or “on” position. To turn off smoke, close the guard and confirm the switch in the “down” or “off” position. Smoke oil is typically consumed at 0.8gals per minute. Smoke oil weights 8lbs per gallon for weight and balance purposes.

7.9 Instruments and Avionics

The aircraft is intended for day/night VFR operations. A comprehensive set of VFR instrumentation has been provided with basic flight instruments in the front cockpit and complete instrumentation in the rear (solo) cockpit.

Engine Management	**Flight Management**	**Avionics**
• Tachometer • Oil pressure, oil temperature & fuel pressure gauge • Two Electric Fuel quantity gauges • CHT/EGT gauge	• (2) Air speed indicators • (2) Altimeters • Ampere meter • Compass • Turn and Slip Indicator • G-Meter • *Attitude Indicator • *Directional Gyro • Vacuum pump – Airborne Model 211CC	• Garmin GNC-250 GPS/COM (S/N 82902805) • Trimble Terra TRT-250D Transponder (S/N7280018) w/ Trans-Cal Encoder (sn/ 536521) • Sigtronics SPA-400 Intercom

* Currently removed for aerobatic flight, but available and may be installed based on flight mission. See current equipment list for most current configuration.

8. Maintenance

8.1 Daily Inspection

DAILY INSPECTION

1. Inspect aircraft generally for external signs of damage, particularly under lower wing, under fuselage, and under tail.
2. Check control surfaces for full and free travel. Check that there is no excessive backlash in the aileron or elevator system. Ensure that there is tension in the rudder circuit.
3. Check operation of elevator trim
4. Carry out a general assessment of tension of wing streamline wires. Investigate any uneven tension or change of tension. (1¼ inch deflection per 30 lbs) Inspect for nicks/dents.
5. Check tension of rear tail plane bracing wires (1¼ inch deflection per 30 lbs of pull)
6. Check tension of front tail plane bracing wires. **Note:** These wires are not drum tight.
7. Check inside of wheel fairing for accumulation of mud
8. Check tires for condition
9. Check tail wheel unit and spring for condition
10. Check brake units for condition and signs of fluid leakage
11. Check pitot head for condition and obstructions
12. Check engine cowling and inspect engine installation visually for leak of oil and fuel
13. Check oil level
14. Check exhaust for cracks
15. Visually check engine mounting for condition
16. Check fuel drains
17. Check the cowling attachment
18. Check spinner for security and condition
19. Check propeller blades for damage
20. Check fabric covering for sign of internal damage or distortion
21. Check fuel level
22. Check cockpit for freedom from foreign matter
23. Check condition of Harness
24. Visually check instruments for condition

8.2 25-Hour Preflight Inspection

1. The satisfactory external condition of the aircraft, especially wing tips, propeller, empennage extremities and fuselage belly and under wing surfaces.
2. Check that all cowling, panels, and spinner are secured and check condition generally.
3. Check that all brake units free from fluid leaks and check brake pads for wear
4. Check main landing gear for cracks
5. Check tail wheel assembly and spring for condition and steering action from rudder. Lubricate as required.
6. Check the action of all flying controls for freedom and correct movement. Lubricate all hinges.
7. Check security of pitot head and mountings and orifice for obstructions
8. Ensure all control surface hinges are free and undamaged
9. Inspect windscreen frame for cracks, loose screws or any other damage
10. Inspect Oil level in engine sump for condition and change oil as required
11. Inspect oil screen/filter assembly for contaminates
12. Check for obvious signs of non normal leakage of oil fuel or exhaust gasses
13. Check engine controls for condition, action, and correct movement.
14. Check firewall for condition
15. Check engine mount for condition and security, especially attachment to firewall .
16. Check that there are no loose items that can foul the controls
17. Clear all drains and vent holes
18. Check seat slings for security
19. Check condition of the moving rudder pedals and security of lexan foot trays in cockpit
20. Clean cockpit and aft fuselage
21. Check cowling for condition and security
22. Remove seat slings for further structural inspection
23. Check rudder cables for wear, especially in the vicinity of fairleads
24. Inspect control stick and trim bearings for cleanliness, lubrication, and security.
25. Inspect propeller for condition of blades and torque
26. Inspect Harness is in good working order
27. Check Aircraft Battery and terminal security
28. Check fuel tank lines for security and lack of leaks, and vent clear.
29. Check fuel valve correct and smooth operation
30. Check fuel drains for water and foreign matter

WINGS

1. Check fabric covering for condition and possible damage from stones, etc
2. Check leading edge for condition or damage
3. Check wing tips for condition
4. Check ribs and trailing edge for damage, security or warping.
5. Check fuselage in vicinity of main landing gear
6. Check main and rear spar attachment to fuselage for condition and signs of movement, or slackness of bolts.

7. Check rib lacing for condition
8. Clear all vent holes
9. Clean and check flying and landing wires for nicks and bends
10. Check tension of wing rigging wires

MAIN LANDING GEAR AND TAIL WHEEL

1. With aircraft at rest on wheels, check that aircraft stands level
2. Inspect Pucks for condition
3. Check wheel pants for condition
4. Hoist aircraft, remove wheels for service of brakes and bearings per manufacturer recommendations
5. Check main Tire pressure (25 PSI) (+ or - 2 lbs) and condition of tires, i.e. free from cuts, fractures, undue wear, tire creep.
6. Replace tires and brakes if needed
7. Check tail wheel assembly for security of attachment to spring and fuselage. Lubricate as required.
8. Check tail wheel tire, wheel bearings, pivot, actuating levers and coil springs for condition and wear.
9. Check brake system for leaks and top off reservoirs if necessary

TAIL PLANE

1. Check tail plane main attachments for security and condition
2. Carry out general inspection, especially at junction of tail plane and fuselage.
3. Remove tail fuselage inspection panels to complete this inspection
4. Clear drain holes
5. Check rudder and elevator hinges

FLYING CONTROLS

1. Check all control surfaces for play in hinges and freedom of movement
2. Check all controls for correct and full travel
3. Check rudder cables for correct tension, check cable for condition, particularly in the vicinity of fairleads.
4. Check fairleads for security and wear
5. Check push-pull rod adjustment locknuts for security and self aligning bearings for full movement
6. Check all control surfaces for damage or trailing edge warp. Check ribs and structure for security.
7. Check fabric condition of all surfaces and clear drain holes
8. Check rib lacing and condition of surfaces
9. Check the rudder pedals for wear and security
10. Check action of trim and condition of operating cable, especially in vicinity of trim control horn.
11. Carry out full lubrication schedule
12. Check trim operation mechanism for wear

INSTRUMENT AND SYSTEM

1. Check pitot head for condition and security
2. Check all lines at instrument panel mountings
3. Check all flexible lines for condition and security and lack of kinks at bends
4. Check instrument for correct action
5. Check wiring condition and security
6. Check condition of instrument panel

FUEL SYSTEM

1. Check fuel tanks and straps for security and condition
2. Check fuel valve for correct and free operation and signs of fuel leak
3. Check attachment of fuel lines to tanks for distortion or damage
4. Check fuel venting
5. Remove gascolator fuel filter for inspection and replacement
6. Check fuel tank for water

ELECTRICS

1. Check all wiring at terminals for condition and security
2. Check Aircraft Battery, leads and mounting for security and condition.
3. Check radio

GENERAL

1. Clean cockpit and aircraft
2. Check that articles such as seat are secure and not likely to foul controls
3. Check condition of canopy
4. **Perform engine run up and taxi tests**

8.3 100 Hour/Conditional Inspection

N22KJ Annual (Condition) Inspection **Date**_____

Airman Records

1) Verify A&P or Repairman certificate number and picture ID CFR 65.91 Yes ☐ No ☐
2) Verify Owner/Pilot certificate number and picture ID CFR 61.3 Yes ☐ No ☐

Records

1) Registration current and in aircraft CFR 91.9 Yes ☐ No ☐
   Airworthiness Certificate in aircraft dated and signed CFR 91.203(a) & 21.175 Yes ☐ No ☐
2) Operation Limitations in aircraft dated and signed CFR 91.203(a) & 21.175 Yes ☐ No ☐
3) Condition Inspection Total time_____ CFR 43.11 & 91.417 Yes ☐ No ☐
4) All AD's, recorded in maintenance records and check recurring AD's
   a. Airframe CFR 39 & 91.417 Yes ☐ No ☐ N/A☐
   b. Engine CFR 39 & 91.417 Yes ☐ No ☐ N/A☐
   c. Propeller CFR 39 & 91.417 Yes ☐ No ☐ N/A☐
   d. Appliances Check for a list of items CFR 39 & 91.417 Yes ☐ No ☐ N/A☐
5) Last **Condition** inspection completed: date _____ CFR 43.11 & 91.417
   a. CFR 65.91 A&P/Repairman Name _____ Certification No._____
8) Current weight and balance report CFR 23.23, **23.1519,** 23.1581, 91.9 Yes ☐ No ☐
9) Identification data plate secured to aircraft fuselage exterior CFR45.11 Yes ☐ No ☐
10) Maintenance Records for Engine, Propeller, Airframe and Appliances in accordance with CFR 91.417 Yes ☐ No ☐ N/A☐
11) **ATC transponder** date ___ **24 calendar months** check. CFR 91.413 Yes ☐ No ☐
12) **ELT** TSO-C91a /TS0-C126 **every 12 months** CFR 91.207(d) Yes ☐ No ☐
13) **Altimeter test every 24 months**. CFR 91.411 Yes ☐ No ☐

NOTES

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Cockpit Inspection

1)	Instrument & placards are correctly located	CFR 91.31	Yes ☐ No ☐ N/A ☐
2)	INOP placards	CFR 91.213	Yes ☐ No ☐ N/A ☐
31.	INOP instruments disabled or removed by an A&P	CFR 91.213	Yes ☐ No ☐ N/A ☐
32.	Equipment list up-dated	CFR 91.213	Yes ☐ No ☐ N/A ☐
33.	Maintenance record entry	CFR 91.213	Yes ☐ No ☐ N/A ☐
34.	Weight and balance record updated	CFR 91.9	Yes ☐ No ☐ N/A ☐
3)	Vacuum indicating system, **Life limited** pump	CFR 23.1301	Yes ☐ No ☐ N/A ☐
4)	Compass card Yes ☐ No ☐ Readable	CFR 23.1547 & 25.1547	Yes ☐ No ☐ N/A ☐
5)	Type of clock installed original analog or digital working	AC 20-94	Yes ☐ No ☐ N/A ☐
7)	Nav Radio P/N 1 _____, P/N 2 _____ matches equipment list		Yes ☐ No ☐ N/A ☐
8)	Cockpit fuel smell	CFR 23.863	Yes ☐ No ☐ N/A ☐
9)	Data plate information matches registration	CFR 45.11/13 & 47.3	Yes ☐ No ☐ N/A ☐
10)	Electrical wiring more **than ½ inch slack**	AC 43.13-1B para 11-118	Yes ☐ No ☐ N/A ☐
6.	Electrical wiring clamps/marking as required	AC 43.13-1B sec. 11	Yes ☐ No ☐ N/A ☐
7.	Tie-wraps items of mass in the cabin	CFR 23.561	Yes ☐ No ☐ N/A ☐
25)	Loose wires under dash not clamped	CFR 23.1351	Yes ☐ No ☐ N/A ☐
26)	Fuel selector moves to all positions and placarded	CFR 23.951	Yes ☐ No ☐ N/A ☐
27)	Brake master cylinder leaking R/H ☐ L/H ☐	CRF 43.13	Yes ☐ No ☐ N/A ☐
28)	Thoroughly clean the aircraft and aircraft engine	CFR 43App D	Yes ☐ No ☐ N/A ☐
29)	General, uncleanness and loose equipment that might foul the controls, apparent and obvious defects and insecurity of attachment.	CRF 43App D	Yes ☐ No ☐ N/A ☐
30)	Windshield and windows conditions	CFR 23.775	Yes ☐ No ☐ N/A ☐
31)	Windscreen clear ☐ scratches ☐ cracks ☐ crazing ☐ Reference CFR23.775 AC 43.13-1b and MIL-P-5425		Yes ☐ No ☐ N/A ☐

Instruments

CFR 91.205

Flight Instruments minimum required

1)	An Airspeed indicator	CFR 23.1303	Yes ☐ No ☐ N/A ☐
2)	An Altimeter indicator	CFR 23.1303	Yes ☐ No ☐ N/A ☐
3)	Direction indicator	CFR 23.1303	Yes ☐ No ☐ N/A ☐

Minimum Instruments Required Visual-flight rules (day)

1)	Air speed indicator	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐
2)	Altimeter	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐
3)	Magnetic direction indicator	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐
4)	Tachometer for each engine	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐
5)	Oil pressure gauge for each engine using pressure system	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐
6)	Manifold pressure gauge for each altitude engine	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐
7)	Fuel gauge indicating the quantity of fuel in each tank	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐
8)	Landing gear position indicator, if retractable	CFR 91.205(b)	Yes ☐ No ☐ N/A ☐

Minimum Instrument for Instrument flight rules

25.	Two-way radio communications and navigation equipment	CFR 91.205(c)	Yes ☐ No ☐ N/A ☐
26.	Gyroscopic rate-of-turn indicator	CFR 91.205(c)	Yes ☐ No ☐ N/A ☐
27.	Slip-skid indicator	CFR 91.205(c)	Yes ☐ No ☐ N/A ☐
28.	Sensitive altimeter adjustable for barometric pressure	CFR 91.205(c)	Yes ☐ No ☐ N/A ☐

29. Clock displaying hours, minutes, and seconds with sweeping second hand pointer or digital presentation CFR 91.205(c) Yes ☐ No ☐ N/A ☐
30. Generator or alternator of adequate capacity CFR 91.205(c) Yes ☐ No ☐ N/A ☐
31. Gyroscopic pitch and bank indicator (artificial horizon) CFR 91.205(c) Yes ☐ No ☐ N/A ☐
32. Gyroscopic direction indicator (directional gyro) CFR 91.205(c) Yes ☐ No ☐ N/A ☐

Power plant Instrument (all aircraft)

1) Fuel quantity indicator per tank CFR 23.1305(a) Yes ☐ No ☐ N/A ☐
2) Oil pressure indicator for each engine CFR 23.1305(a) Yes ☐ No ☐ N/A ☐
3) Oil temperature indicator for each engine CFR 23.1305(a) Yes ☐ No ☐ N/A ☐
4) Oil quantity measuring device for each engine CFR 23.1305(a) Yes ☐ No ☐ N/A ☐
5) Tachometer indicator for each engine CFR 23.1305(b) Yes ☐ No ☐ N/A ☐
6) Cylinder head indicator for each engine CFR 23.1305(b) Yes ☐ No ☐ N/A ☐
7) Manifold pressure indicator for each engine with an controllable pitch propeller CFR 23.1305(b) Yes ☐ No ☐ N/A ☐

Instrument Markings CFR 23.1543

1) Marking on cover glass must be in alignment with face CFR 23.1543 Yes ☐ No ☐ N/A ☐
2) Each arc and line must be clearly visible to pilot CFR 23.1543 Yes ☐ No ☐ N/A ☐
3) All related instruments must be calibrated in compatible units CFR 23.1543 Yes ☐ No ☐ N/A ☐

Electrical System CFR 23.1367

7. Switches
   a. Able to carry rated current CFR 23.1367 Yes ☐ No ☐ N/A ☐
   b. Enough distance or insulating material between current carrying parts and the housing so that vibration will not cause shorting CFR 23.1367 Yes ☐ No ☐ N/A ☐
   c. Labeled as to operation and circuit controlled CFR 23.1367 Yes ☐ No ☐ N/A ☐
8. Circuit Breakers/Fuses
   a. Circuit protection CFR 23.1357 Yes ☐ No ☐ N/A ☐
   b. Each resettable circuit trip free cannot be overridden CFR 23.1357 Yes ☐ No ☐ N/A ☐
   c. Breakers labeled and rating CFR 23.1357 Yes ☐ No ☐ N/A ☐
9. Master Switch
   a. Wired to disconnect each electrical power source from the distribution systems CFR 23.1361 Yes ☐ No ☐ N/A ☐
   b. Switch is easily discernible and accessible to crew CFR 23.1361 Yes ☐ No ☐ N/A ☐

Equipment / Furnishings

1) Batteries for proper installation, & charging CFR 23.1353 Yes ☐ No ☐ N/A ☐
2) Battery vented overboard CFR 23.1353 & AC 43.13-1B PARA 11-22 Yes ☐ No ☐ N/A ☐
3) Seat belts for stitching, cuts, or frayed CFR 91.107 & 23.785 Yes ☐ No ☐ N/A ☐
4) Seat belts proper storage and marking TSO-22 & 23.785 Yes ☐ No ☐ N/A ☐
5) TSO C-22 marking on seat belts CFR 45.15 CFR 91.205(b)(13,14) Yes ☐ No ☐ N/A ☐
6) **Shoulder harness required after July 18, 1978** CFR 23.785(g)(1) Yes ☐ No ☐ N/A ☐
7) Glare shield painted flat black CFR 23.773 Yes ☐ No ☐ N/A ☐

Misc. Fuselage

1) Corrosion on antenna's CFR 23.609 Yes ☐ No ☐ N/A ☐
2) Fabric covered aircraft condition good ☐ poor ☐ AC 43.13-1B Chapter 2 Yes ☐ No ☐ N/A ☐
4) Condition of paint, is corrosion present NOT allowed CFR 23.609 Yes ☐ No ☐ N/A ☐
5) Antenna installation doubles per AC43.13 2A, CFR 23.571/572 Yes ☐ No ☐ N/A ☐

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Aircraft exterior inspection

1) Nationality and registration marks per CFR 45.29 Check 3 inch marking per date Jan. 1,1983 and repaint. Over 30 years 2 or 12 inch — CFR 45.22(b) — Yes ☐ No ☐ N/A ☐
2) Anticollision light system installed — CFR 91.209(b) / CFR 23.1401 — Yes ☐ No ☐ N/A ☐
3) AFT nav light proper color **white** — CFR 23.1385-1399 — Yes ☐ No ☐ N/A ☐
4) Pitot tube worn around hole Yes ☐ No ☐ Not plugged — Yes ☐ No ☐ N/A ☐
   a. Air Speed Last inspection date _____ — CFR 23.1325 — Yes ☐ No ☐ N/A ☐

Landing Gear

1) Fairing cracked ☐, Hardware missing ☐. — CFR 23.607/1193 — Yes ☐ No ☐ N/A ☐
2) Tire service Main ____ N/T ____ — CFR 23.733 — Yes ☐ No ☐ N/A ☐
3) Tires condition wear, cuts, or weather cracking L/H ☐ R/H ☐ TLG ☐ — AC 43.13 para 9-14 — Yes ☐ No ☐ N/A ☐
4) Brake pads worn. L/H ☐ R/H ☐ **0.100 inch thickness minimum** — CFR 23.735 — Yes ☐ No ☐ N/A ☐
5) Brake lines condition, frayed, corrosion on fittings L/H ☐ R/H ☐ — CFR 23.735 — Yes ☐ No ☐ N/A ☐
6) Brake rotor corrosion, warped, or under size L/H ☐ RH ☐ — CFR 23.735 — Yes ☐ No ☐ N/A ☐
7) Lube type of grease used per manufacture _____ — CFR 43.16 — Yes ☐ No ☐ N/A ☐
8) Repack wheel bearing — CFR 43 Appendix D — Yes ☐ No ☐ N/A ☐

Flight Control/Wing

5. Wing attach fittings for cracks, elongated bolt holes (right) — L/H CFR 23.572 — Yes ☐ No ☐ N/A ☐
6. Wing attach fittings for cracks, elongated bolt holes (left) — R/H CFR 23.572 — Yes ☐ No ☐ N/A ☐
7. **Wing L/H** dents, cracks, Loose rivets, Corrosion, nav light **red** — CFR 23.603/1385 — Yes ☐ No ☐ N/A ☐
8. **Wing R/H** dents, cracks, Loose rivets, Corrosion, nav light **green** — CFR 23.603/1385 — Yes ☐ No ☐ N/A ☐
9. **Aileron R/H** cracks ___, Loose hardware ___, Properly installed — Yes ☐ No ☐ N/A ☐
   Cable rigging loose Annual/100 hour inspection — CFR 23.655/685/689 — Yes ☐ No ☐ N/A ☐
10. **Aileron L/H** cracks ___, Loose hardware ____, Properly installed — Yes ☐ No ☐ N/A ☐
    Cable rigging loose Annual/100 hour inspection — CFR 23.655/685/689 — Yes ☐ No ☐ N/A ☐
11. **Rudder** moves up & down, bearing loose, cracks, repairs — CFR 23.685 — Yes ☐ No ☐ N/A ☐
12. **Lubrication**, systems lube per manufactures recommendations — CFR 43.13 — Yes ☐ No ☐ N/A ☐
13. **Horizontal Stab L/H** cracks ☐, Hardware installation and safetied ☐, Stops ☐ — CFR 23.675 — Yes ☐ No ☐ N/A ☐
14. **Horizontal Stab R/H** cracks ☐ Hardware installation and safetied ☐ Stops ☐ — CFR 23.675 — Yes ☐ No ☐ N/A ☐
15. Elevator / trim tab attach fittings L/H — CFR 23.572 — Yes ☐ No ☐ N/A ☐
16. Elevator / trim tab attach fittings R/H — CFR 23.572 — Yes ☐ No ☐ N/A ☐
17. Elevator trim / servo tab structure L/H — CFR 23.572 — Yes ☐ No ☐ N/A ☐
18. Elevator trim / servo tab structure R/H — CFR 23.572 — Yes ☐ No ☐ N/A ☐
19. Elevator trim control system rigging — CFR 23.659 — Yes ☐ No ☐ N/A ☐
20. Control surface attach fittings condition — CFR 23.572 — Yes ☐ No ☐ N/A ☐
21. Control surface balancing all primary controls after repair or paint — CFR 23.659 — Yes ☐ No ☐ N/A ☐
22. Flight Control Surface Travels / Cable Tension — CFR 23.143 — Yes ☐ No ☐ N/A ☐
23. Flight control pulleys worn, broken, or frozen up — CFR 23.689 — Yes ☐ No ☐ N/A ☐
24. Flight control cables broken strands/rust Reference AC43.13 — CFR 23.689 — Yes ☐ No ☐ N/A ☐
25. Flight control Surface Travel/Cable Tension — CFR 23.391 to 23.459

Rudder Pedals _____ _____ _____

Engine Inspection

Reference CFR 23 Subpart E Powerplant

1)	Engine Data plate installed	CFR 45.13	Yes ☐ No ☐ N/A ☐
2)	Instruments CFR 23.1305 instruments		Yes ☐ No ☐ N/A ☐
	a. Engine	CFR 23.1301	Yes ☐ No ☐ N/A ☐
	b. Accessories	CFR 23.1301	Yes ☐ No ☐ N/A ☐
3)	Engine cowl loose/missing hardware Location _____	CFR 23.1193	Yes ☐ No ☐ N/A ☐
4)	Firewall bent, cracked, or missing fasteners	CFR 23.1191	Yes ☐ No ☐ N/A ☐
1)	Firewall wire and hose grommets condition	CFR 23.1191(c)	Yes ☐ No ☐ N/A ☐
2)	Firewall has corrosion	CFR 23.1191(e)	Yes ☐ No ☐ N/A ☐
3)	Engine mount structure for cracks, dents, etc.	CFR 23.23	Yes ☐ No ☐ N/A ☐
4)	Engine shock mount cracks, worn, hardware condition	CFR 33.33	Yes ☐ No ☐ N/A ☐
5)	Flex tubing condition weather cracking, worn, etc.	CFR 23.1183	Yes ☐ No ☐ N/A ☐
6)	Engine oil leaking Location _____	CFR 23.1183	Yes ☐ No ☐ N/A ☐
7)	Air Filter dirty/foreign particles	CFR 23.1107	Yes ☐ No ☐ N/A ☐
8)	Condition of baffle seals and installation Good ☐ Poor ☐ Substituted type of baffle material ☐	CFR 33.15/17/21& CFR 23.1043	Yes ☐ No ☐ N/A ☐
9)	Wire chafing, fuel lines, no wires clamped under them	AC 43.13-1B	Yes ☐ No ☐ N/A ☐
10)	Electrical wire Slack between supports Max1/2 inch	AC 43.13-1B fig.11.9	Yes ☐ No ☐ N/A ☐
11)	Engine/Electric fuel pump condition wires, mounting Good/worn	CFR 23	Yes ☐ No ☐ N/A ☐
12)	Ignition harness condition Good ____ Worn ____	CFR 23	Yes ☐ No ☐ N/A ☐
13)	Clean and gap spark plugs per engine manufactures recommendations		Yes ☐ No ☐ N/A ☐
14)	Starter ring broken teeth	CFR 23	Yes ☐ No ☐ N/A ☐
15)	Alternator/generator drive belts condition worn, cracked, broke	CFR 23	Yes ☐ No ☐ N/A ☐
16)	Cracked cylinders fins, rocker cover leaking 1__ 2__ 3 __ 4__ 5__ 6__		Yes ☐ No ☐ N/A ☐
17)	Exhaust stacks cracks, defects, installation 1__ 2 __ 3__ 4__ 5__ 6__	CFR 23. 1121 and CFR 33.21	Yes ☐ No ☐ N/A ☐
18)	Exhaust pipe cracked, location _____,**Recurring AD's**	CFR 23.1121	Yes ☐ No ☐ N/A ☐
19)	Air Box condition of holes	CFR 23.	Yes ☐ No ☐ N/A ☐
	a. Proper hardware screws and nuts	CFR 23.	Yes ☐ No ☐ N/A ☐
20)	Engine controls properly safetying ☐ travel ☐	AC 43.13-1B para 7-122 thru 127	Yes ☐ No ☐ N/A ☐
21)	Engine case nuts torqued and right side up	CFR 43 Appendix D (d)(2)	Yes ☐ No ☐ N/A ☐
22)	Alternate/ Ram air	CFR 23.1093	Yes ☐ No ☐ N/A ☐
23)	Crankcase for cracks, leaks and security of seam bolts	CFR 33.	Yes ☐ No ☐ N/A ☐
24)	Oil filter opening placard	CFR 23.1557(c)(2)	Yes ☐ No ☐ N/A ☐
25)	Metal in oil filter core paper	CFR 23.1019	Yes ☐ No ☐ N/A ☐
26)	Inverted oil system disassemble clean and inspect		Yes ☐ No ☐ N/A ☐
27)	Electrical wiring cracked, burned , broken	CFR 23.1163(b)	Yes ☐ No ☐ N/A ☐
28)	Oil drain plug/valve condition and positive locking	CFR 23.1021	Yes ☐ No ☐ N/A ☐
29)	Oil radiator supporting structure for security	CFR 23.1023	Yes ☐ No ☐ N/A ☐
30)	Oil tanks condition and free of vibration	CFR 23.1013	Yes ☐ No ☐ N/A ☐
31)	Engine mounts for corrosion, cracks **NONE Allowed**	CFR 23.363	Yes ☐ No ☐ N/A ☐
32)	Hose inspection/replacement manufacture limits	CFR 43.10	Yes ☐ No ☐ N/A ☐
33)	Retorque cylinder base nuts and case half per manufacture recommendations		Yes ☐ No ☐ N/A ☐
34)	Crank shaft flange cracked		Yes ☐ No ☐ N/A ☐
35)	Differential Compression Test		
	80psi /60 psi cylinder	CFR 43 Appendix D and AC 43.13-1B paragraph 8-14	Yes ☐ No ☐ N/A ☐
	1 ____3 ____4___ 5___6___ If **25%** difference check cylinder for problems.		

Fuel System

1)	Injection fuel lines **Recurring AD** if required every 100 hours	CFR 39	Yes ☐ No ☐	N/A ☐
2)	Fuel bowl leaking	CFR 23.999	Yes ☐ No ☐	N/A ☐
3)	Fuel quantity sensor / transmitter condition	CFR 23.955	Yes ☐ No ☐	N/A ☐
4)	Fuel boost / Aux. pump(s) bypass condition	CFR 23.955	Yes ☐ No ☐	N/A ☐
5)	Fuel lines vibration/clamped	CFR 23.993 & AC 43.13-1B para 8-31	Yes ☐ No ☐	N/A ☐
6)	Throttle body security, throttle arm/bushing loose	CFR 23.994	Yes ☐ No ☐	N/A ☐
7)	Mixture control linkage condition	CFR 23.1147	Yes ☐ No ☐	N/A ☐
8)	Throttle control binding condition	CFR 23.1143	Yes ☐ No ☐	N/A ☐
9)	Induction System Screens condition	CFR 23.1107	Yes ☐ No ☐	N/A ☐
10)	Fuel pump condition and AD requirement	CFR 23.991	Yes ☐ No ☐	N/A ☐
11)	Fuel system lines and fittings conditions	CFR 23.993	Yes ☐ No ☐	N/A ☐
12)	Fuel system drains, lock shut and drains properly	CFR 23.999	Yes ☐ No ☐	N/A ☐
13)	Clean and inspect fuel tank strainer condition	CFR 23.977	Yes ☐ No ☐	N/A ☐
14)	Filler cap must have electrical bonding (chain on cap)	CFR 23.973	Yes ☐ No ☐	N/A ☐
15)	Fuel placards	CFR 23.1557(c)	Yes ☐ No ☐	N/A ☐
16)	Fuel tank caps seal condition, tight seal	CFR 23.973(c)	Yes ☐ No ☐	N/A ☐
17)	Fuel tank sump drained of water	CFR23.971	Yes ☐ No ☐	N/A ☐
18)	Fuel tank condition for cracks, vibration, leaks	CFR 23.963	Yes ☐ No ☐	N/A ☐
19)	Fuel line and hose condition left/right side	CFR 23.993	Yes ☐ No ☐	N/A ☐
20)	Fuel drain valve positive locking	CFR 23.999	Yes ☐ No ☐	N/A ☐
21)	Fuel strainer or filter condition	CFR 23.997	Yes ☐ No ☐	N/A ☐

Propeller Inspection

	Propeller Part number and serial number	CFR 45.11	Yes ☐ No ☐	N/A ☐
	Part number #_____ Serial Number #_____			
1.	Is there a propeller maintenance record (log book)	CFR 43.2(a)	Yes ☐ No ☐	N/A ☐
2.	Propeller seal leaking	CFR23.907	Yes ☐ No ☐	N/A ☐
3.	Propeller for nicks, cracks, and damage	AC 43.13-2B para 8-73	Yes ☐ No ☐	N/A ☐
4.	File marks after dressing propeller **NOT** allowed	CFR 43.13	Yes ☐ No ☐	N/A ☐
5.	Repairman or A&P record entry after dressing nicks	CFR 43.9	Yes ☐ No ☐	N/A ☐
6.	Propeller spinner had doubler added to repair cracks **Not ALLOWED**	CFR 23.907	Yes ☐ No ☐	N/A ☐
7.	Propeller spinner(s) cracks ___, **NO cracks allowed** nuts safety wired __ Missing screws from spinner None allowed ____ Reference Service Letters if cracked:			
	a. McCauley 1992-14C -part **must be replaced**		Yes ☐ No ☐	N/A ☐
	b. Hartzell HC-SL-61-91 **Requires a Field Approval**		Yes ☐ No ☐	N/A ☐
	a. Sensenich **See aircraft maintenance manuals**		Yes ☐ No ☐	N/A ☐
8.	Propeller grinding when rotating	AC 43.13-1B para 8-2(c)(2)	Yes ☐ No ☐	N/A ☐
9.	Corrosion pitting on blades or hub **None Allowed**	CFR A35.3	Yes ☐ No ☐	N/A ☐
10.	Paint on propeller blades, type per manufacture manual	CFR 23.609	Yes ☐ No ☐	N/A ☐
11.	If repainted after rework type of paint applied lacquer base or polyurethane enamel and was it recorded in the propeller maintenance record	CFR 43.5	Yes ☐ No ☐	
12.	STC propeller check engine gages for new limitations	CFR A35.4	Yes ☐ No ☐	N/A ☐
13.	Is the propeller the right diameter / width	CFR 23.45	Yes ☐ No ☐	N/A ☐
14.	Has the propeller tips been altered (rounded or square)	CFR 43Append A	Yes ☐ No ☐	N/A ☐
15.	Are their repairs in the propeller maintenance records	CFR 43.9	Yes ☐ No ☐	N/A ☐
16.	Has the shot peen been removed after reworked at hub	CFR 43.9	Yes ☐ No ☐	N/A ☐
17.	Has the hub seal been replaced (service life)	CFR 43.9	Yes ☐ No ☐	N/A ☐
18.	Prop Hub is it oil filled and leaking	CFR 35.3	Yes ☐ No ☐	N/A ☐
19.	When was the last hub overhaul	CFR 35.3	Yes ☐ No ☐	N/A ☐

20. Pitting corrosion on Hub **NONE ALLOWED**	CFR 35.3	Yes ☐ No ☐ N/A ☐
21. Hub, blade clamps, and pitch change mechanisms should be inspected for corrosion **NONE ALLOWED**	CFR A35.3	Yes ☐ No ☐ N/A ☐
22. Were new propeller bolts installed	CFR A35.3	Yes ☐ No ☐ N/A ☐
23. Were new nuts used on the propeller bolts	CFR A35.3	Yes ☐ No ☐ N/A ☐
24. Files marks on blades	CFR A43.5	Yes ☐ No ☐ N/A ☐
25. New cotter pins installed in retaining nuts per Manufacture	CFR A35.4	Yes ☐ No ☐ N/A ☐
26. Is the spinner shimmed to the spinner bracket if required	CFR A35.3	Yes ☐ No ☐ N/A ☐
27. Pitch change counterweights on blade clamps should be inspected for security, safety	CFR A35.3	Yes ☐ No ☐ N/A ☐
28. Adequate counterweight clearance within the spinner	CFR 23.925	Yes ☐ No ☐ N/A ☐
29. Are the propeller blades in track	CFR 23.925	Yes ☐ No ☐ N/A ☐
30. De-icer boots for signs of deterioration and security	CFR 23.929	Yes ☐ No ☐ N/A ☐
31. Propeller **<u>total time</u>** is recorded in propeller record	CFR 91.417(2)	Yes ☐ No ☐ N/A ☐
32. Propeller vibration rate	CFR 23.907	Yes ☐ No ☐ N/A ☐
33. Propeller clearance to ground and gear	CFR 23.925	Yes ☐ No ☐ N/A ☐

Special Inspection Areas

4. Inverted oil system- remove and inspect check balls, vent line and exhaust valve	Yes ☐ No ☐ N/A ☐
5. Check smoke system attachment, line, injectors and pump	Yes ☐ No ☐ N/A ☐
6. Inspect smoke tank for:	
10. Leaks	Yes ☐ No ☐ N/A ☐
11. Vent line	Yes ☐ No ☐ N/A ☐
12. Clean filter	Yes ☐ No ☐ N/A ☐
7. Inspect and lube starter and Bendix drive	Yes ☐ No ☐ N/A ☐
8. Service top toe brake reservoir	Yes ☐ No ☐ N/A ☐
9. Inspect control stick attach bolts	Yes ☐ No ☐ N/A ☐
7. No play allowed	Yes ☐ No ☐ N/A ☐
8. No wear allowed	Yes ☐ No ☐ N/A ☐
9. Cotter pin installed	Yes ☐ No ☐ N/A ☐
10. Check stick stops	Yes ☐ No ☐ N/A ☐
10. Rod ends No play allowed	Yes ☐ No ☐ N/A ☐

Wings

11. Inspect structures' external and internal conditions	Yes ☐ No ☐ N/A ☐
12. Fabric condition/strength	Yes ☐ No ☐ N/A ☐
13. Flying/landing wires/attachments/nicks/tension	Yes ☐ No ☐ N/A ☐
14. Aileron rigging/hinges/actuators/control stops/trim tabs	Yes ☐ No ☐ N/A ☐
15. Interplane/cabane struts/attachments	Yes ☐ No ☐ N/A ☐
16. Pitot tube	Yes ☐ No ☐ N/A ☐
17. Inspect aileron hinge play	Yes ☐ No ☐ N/A ☐
18. Check Incidence	Yes ☐ No ☐ N/A ☐
19. Rod ends and bellcranks- threads, 90 deg and play	Yes ☐ No ☐ N/A ☐

Empennage

1. Inspect structures' external and internal conditions	Yes ☐ No ☐ N/A ☐
2. Fabric condition/strength	Yes ☐ No ☐ N/A ☐
3. Brace wires/struts/attachments/tension	Yes ☐ No ☐ N/A ☐
4. Inspect/lube hinges and pins- be sure seated properly and no wear	Yes ☐ No ☐ N/A ☐

5. Check Control stops	Yes ☐	No ☐	N/A ☐
6. Actuator cables and pushrods	Yes ☐	No ☐	N/A ☐
7. Trim tab and actuator system	Yes ☐	No ☐	N/A ☐
8. Controls/"elevator pushrods reversal bushing welds	Yes ☐	No ☐	N/A ☐
9. Remove the rear seat back and carefully inspect for	Yes ☐	No ☐	N/A ☐
a. Pivot bushing for the reversal mechanism	Yes ☐	No ☐	N/A ☐

Landing Gear

13. Inspect condition/alignment/structure	Yes ☐	No ☐	N/A ☐
14. Tire wear and inflation	Yes ☐	No ☐	N/A ☐
15. Tailwheel condition and attachment	Yes ☐	No ☐	N/A ☐
16. Tailwheel springs, chains, and clips	Yes ☐	No ☐	N/A ☐
17. Drain/Bleed brakes	Yes ☐	No ☐	N/A ☐

Operational Check

1. Start/full static RPM/idle RPM	Yes ☐	No ☐	N/A ☐
2. Mag differential check (1800/175/50) and “hot” mag check	Yes ☐	No ☐	N/A ☐
3. Instrument indications- calibrate	Yes ☐	No ☐	N/A ☐
4. Engine leak checks	Yes ☐	No ☐	N/A ☐
5. Oil consumption history	Yes ☐	No ☐	N/A ☐
6. Cycle prop	Yes ☐	No ☐	N/A ☐

9. Supplements

U.S. Department of Transportation
Federal Aviation Administration

Scottsdale Flight Standards District Office

17777 North Perimeter Drive
Suite 101
Scottsdale, Arizona 85255
480-419-0330, Fax: 480-419-0800

EXPERIMENTAL OPERATING LIMITATIONS
Operating Amateur-Built Aircraft
Phase 2
Operations Outside the Assigned Flight Test Area

(These limitations are derived from the general standards contained in FAA Order 8130.2F, 6/30/2008)

REG. NO.	MAKE:	MODEL:	SERIAL NO:
N22KJ	Kenneth J. Jackson	Skybolt 1	KJJ-1

(1) No person may operate this aircraft for other than the purpose of meeting the requirements of § 91.319(b) during phase I flight testing, and for recreation and education after meeting these requirements as stated in the program letter (required by § 21.193) for this aircraft. In addition, this aircraft must be operated in accordance with applicable air traffic and general operating rules of part 91 and all additional limitations herein prescribed under the provisions of § 91.319(i). **These operating limitations are a part of Form 8130-7, and are to be carried in the aircraft at all times and be available to the pilot in command of the aircraft.**

(5) Except for takeoffs and landings, this aircraft may not be operated over densely populated areas or in congested airways.

(6) This aircraft is prohibited from operating in congested airways or over densely populated areas unless directed by air traffic control, or unless sufficient altitude is maintained to effect a safe emergency landing in the event of a power unit failure, without hazard to persons or property on the ground.

(8) After completion of phase I flight testing, unless appropriately equipped for night and/or instrument flight in accordance with § 91.205, this aircraft is to be operated under VFR, day only.

(9) Aircraft instruments and equipment installed and used under § 91.205 must be inspected and maintained in accordance with the requirements of part 91. Any maintenance or inspection of this equipment must be recorded in the aircraft logbook and maintenance records.

(11) No person may operate this aircraft for carrying persons or property for compensation or hire.

(12) The pilot in command of this aircraft must advise each passenger of the experimental nature of this aircraft, and explain that it does not meet the certification requirements of a standard certificated aircraft.

(13) This aircraft must contain the placards or markings, as required by § 91.9. In addition, the placards and markings must be inspected for legibility and clarity, and the associated systems inspected for easy access and operation, to ensure they function as intended by the amateur builder/owner during each condition inspection.

(14) This aircraft must display the word "EXPERIMENTAL" in accordance with § 45.23(b).

(16) This aircraft may conduct aerobatic flight in accordance with the provisions of § 91.303. Aerobatics must not be attempted until sufficient flight experience has been gained to establish that the aircraft is satisfactorily controllable and in compliance with § 91.319(b). The aircraft may only conduct those aerobatic flight maneuvers that have been satisfactorily accomplished during flight testing and recorded in the aircraft logbook and maintenance records by use of the following, or a similarly worded, statement: **"I certify that the following aerobatic maneuvers have been test flown and that the aircraft is controllable throughout the maneuvers' normal range of speeds, and is safe for operation. The flight-tested aerobatic maneuvers are _____, _____, _____, and _____."**

(18) The pilot in command of this aircraft must hold a pilot certificate or an authorized instructor's logbook endorsement. The pilot in command also must meet the requirements of § 61.31(e), (f), (g), (h), (i), and (j), as appropriate.

(19) After incorporating a major change as described in § 21.93, the aircraft owner is required to reestablish compliance with § 91.319(b) **and notify the geographically responsible FSDO of the location of the proposed test area. The aircraft owner must obtain concurrence from the FSDO as to the suitability of the proposed test area.** If the major change includes installing a different type of engine (reciprocating to turbine) or a change of a fixed-pitch from or to a controllable propeller, the aircraft owner must fill out a revised Form 8130-6 to update the aircraft's file in the FAA Aircraft Registration Branch. All operations must be conducted under day VFR conditions in a sparsely populated area. The aircraft must remain in flight test for a minimum of 5 hours. The FSDO may require additional time (more than 5 hours) depending on the extent of the modification. Persons nonessential to the flight must not be carried. The aircraft owner must make a detailed aircraft logbook and maintenance records entry describing the change before the test flight. Following satisfactory completion of the required number of flight hours in the flight test area, the pilot must certify in the records that the aircraft has been shown to comply with § 91.319(b). Compliance with § 91.319(b) must be recorded in the aircraft records with the following, or a similarly worded, statement: **"I certify that the prescribed flight test hours have been completed and the aircraft is controllable throughout its normal range of speeds and throughout all maneuvers to be executed, has no hazardous characteristics or design features, and is safe for operation. The following aircraft operating data has been demonstrated during the flight testing: speeds Vso _____ , Vx _____, and Vy _____, and the weight _____, and CG location _____ at which they were obtained."**

(20) This aircraft must not be used for glider towing, banner towing, or intentional parachute jumping.

(21) This aircraft does not meet the requirements of the applicable, comprehensive, and detailed airworthiness code, as provided by Annex 8 to the Convention on International Civil Aviation. The owner/operator of this aircraft must obtain written permission from another CAA before operating this aircraft in or over that country. That written permission must be carried aboard the aircraft together with the U.S. airworthiness certificate and, upon request, be made available to an FAA inspector or the CAA in the country of operation.

(22) No person may operate this aircraft unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with the scope and detail of appendix D to part 43, or other FAA-approved programs, and was found to be in a condition for safe operation. As part of the condition inspection, cockpit instruments must be appropriately marked and needed placards installed in accordance with § 91.9. In addition, system-essential controls must be in good condition, securely mounted, clearly marked, and provide for ease of operation. This inspection will be recorded in the aircraft logbook and maintenance records.

(23) Condition inspections must be recorded in the aircraft logbook and maintenance records showing the following, or a similarly worded, statement: **"I certify that this aircraft has been inspected on [insert date] in accordance with the scope and detail of appendix D to part 43, and was found to be in a condition for safe operation."** The entry will include the aircraft's total time-in-service (cycles if appropriate), and the name, signature, certificate number, and type of certificate held by the person performing the inspection.

(26) An experimental aircraft builder certificated as a repairman for this aircraft under § 65.104 or an appropriately rated FAA-certificated mechanic may perform the condition inspection required by these operating limitations.

(27) Application must be made to the geographically responsible FSDO or MIDO for any revision to these operating limitations.

(28) The pilot in command of this aircraft must notify air traffic control of the experimental nature of this aircraft when operating into or out of airports with an operational control tower. When filing IFR, the experimental nature of this aircraft must be listed in the remarks section of the flight plan.

M. Craig Roberts
Aviation Safety Inspector
SDL FSDO (WP07)

Date issued: February 16, 2011

Transport Canada
Safety and Security
Transports Canada
Sécurité et Sûreté

STANDARDISED VALIDATION OF
A SPECIAL AIRWORTHINESS CERTIFICATE - EXPERIMENTAL, FOR THE PURPOSE OF OPERATING A UNITED STATES - REGISTERED AMATEUR-BUILT AIRCRAFT IN CANADIAN AIRSPACE

Pursuant to section 507.05 of the Canadian Aviation Regulations, this document constitutes a validation of the Federal Aviation Administration Special Airworthiness Certificate - Experimental, for the purpose of operating a United States - registered amateur-built aircraft in Canadian airspace, subject to the following conditions:

1. valid for the purpose of operating a United States - registered amateur-built aircraft in Canadian Airspace;

2. the aircraft shall have a valid United States Certificate of AircraftRegistration;

3. the nationality and registration marks assigned to the aircraft by the Federal Aviation Administration shall be displayed on the aircraft in accordance with the requirements of the UnitedStates;

4. the aircraft shall have been issued with a Special Airworthiness Certificate - Experimental, for the purpose of operating an amateur-builtaircraft;

5. the Special Airworthiness Certificate - Experimental shall be valid and shall be carried on board theaircraft;

6. compliance with the operating limitations, that are part of the Special Airworthiness Certificate - Experimental, is mandatory, provided those operating limitations do not limit or change the conditions hereinimposed;

7. a copy of this validation shall be carried on board the aircraft when operating in Canadianairspace;

8. the general operating and flight rules of theCanadian Aviation Regulationsshall be complied with when operating the aircraft in Canadianairspace;

9. except when otherwise directed by Air Traffic Control, or in the event of an emergency, all flights shall be conducted to avoid areas having heavy air traffic and to avoid cities, towns, villages, and congested areas, or any other area where the flights might create hazardous exposure to persons orproperty;

10. the operator of the aircraft shall advise Air Traffic Control of the nature of the flight when establishing communications;

11. the aircraft shall be operated under Day VFR only, unless the operating limitations issued for the aircraft authorize night or instrument flight (IFR) operations, in which case the aircraft shall be appropriately equipped in accordance with section 605.18 of theCanadian Aviation Regulationsor 14 CFR part91.205;

12. crew members shall be the holders of valid and subsisting pilot licences issued or endorsed by the United States or Canada and which are appropriate to theirduties;

13. no person may be carried in this aircraft during flight unless that person has been advised of the content of this validation and of the airworthiness status of theaircraft;

14. persons or property shall not be carried on board the aircraft for hire orreward;

15. an aircraft operator, who is not the registered owner of the aircraft, shall carry a signed letter of authorization from the registered owner showing the owner's permission for continued operation of the aircraft in Canadianairspace;

16. participation in a Canadian special aviation event is prohibited unless authorized pursuant tosection
603.06 of theCanadian Aviation Regulations; and

17. this validation is valid for an indefinite period, unless superseded or canceled in writing by the Minister of Transport, provided the owner or operator of the aircraft complies with the operating conditions of this validation.

D.B. Sherritt Director,
Aircraft Maintenance and Manufacturing For Minister of Transport

Issued in Ottawa, Canada on July 31,1999

Skybolt N22KJ
POH & MM

Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: MELICHAR, CHARLES D

MELICHAR, CHARLES D
495 BRICKELL AVENUE, APT. 4605
MIAMI, FL 33131

FCC Registration Number (FRN): 0010229649

FAA Number/FCC Call Sign	Radio Service	File Number
N 22KJ	AC - Aircraft	0008162700
Type of License	**Number in Fleet**	**Classification**
Regular		Private Aircraft

Grant Date	Effective Date	Expiration Date	Print Date
04-06-2018	04-06-2018	04-06-2028	04-06-2018

Waivers/Conditions:

NONE

THIS AUTHORIZATION IS NOT TRANSFERABLE

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.