SAFE OPERATING AIRSPEEDS

NOTE

All airspeeds in this section are indicated airspeeds in Knots (KIAS) and assume zero instrument or installation error. You should make sure your system has been correctly calibrated and account for those errors as necessary.

Max Demonstrated X-WIND component	20
Rotate Speed (V_R) with flaps 24 deg.	65-80
Best Angle of Climb (V_X)	85
Best Rate of Climb (V_Y)	105
Cruise Climb	140-160
Stall Speed clean (V_S)	76
Stall Speed Landing config. (V_{SO})	61
Landing Gear Operating Speed (V_{LO})	150
Landing Gear Extended Speed (V_{LE})	165
Approach Flaps Extended	160
Full Flaps	140

PRE-FLIGHT INSPECTION

COCKPIT CHECK

Aircraft Status Log.....CHECKED
Required Forms/Certificates .....ON BOARD/CHECKED
All Electrical Switches .....OFF/NORMAL
Circuit Breakers .....CHECK IN
Gear Handle .....DOWN
Battery Master Switch.....ON
Aircraft Battery .....CHECK 24 VOLTS MIN
Fuel Gauge .....CHECK QUANTITY, BALANCE & RESET
Fuel Selector .....FULLEST TANK
Oxygen Quantity .....CHECK
Trim Servos.....CHECK
Flaps.....DOWN
Pitot Heat Cover.....REMOVE/STOWED
Pitot Heat .....ON (10 SEC)

Pitot Tube ..... VERIFY WARM AND CHECK CONDITION
Exterior Lights ..... ON & CHECK
Pitot Heat ..... OFF
Battery Switch ..... OFF
Propeller Heat ..... ON FOR 30 SECONDS, CHECK BLADES FOR HEAT

LEFT FUSELAGE

Main Entry Door ..... CLOSE AND CHECK EXTERNALLY
Step ..... SECURE
Rear Window ..... CHECK CONDITION
Upper and Lower Antennas ..... CHECK CONDITION
Static Port ..... CLEAR
A/C Vent ..... SCREEN CLEAR
Horizontal Stabilizer/Elevator ..... UPPER/LOWER SURFACES, ATTACH POINTS, FREE
Elevator Trim Tab ..... SECURE, ATTACH POINTS, FREE
Rudder ..... CONDITION, ATTACH POINTS, FREE

RIGHT FUSELAGE

Horizontal Stabilizer/Elevator ..... UPPER/LOWER SURFACES, ATTACH POINTS, FREE
Baggage Door ..... CLOSED & LOCKED
Static Port ..... CLEAR
Windows ..... CHECK CONDITION

RIGHT WING

Right Main Gear Door ..... CONDITION, ATTACH POINTS
Right Main Gear Mount ..... CHECK ATTACH POINTS, HYDRAULIC & BRAKE LINES/PADS, EXTENSION (4" MINIMUM)
Right Main Tire ..... CONDITION, INFLATION
Right Flap ..... ATTACH POINTS, MOVEMENT
Aileron Push Rod ..... CHECK CONNECTION (INSIDE WING)
Right Aileron ..... ATTACH POINTS, FREE
Nav / Strobe Lights ..... CONDITION, SECURE

Fuel Tank Vent .....CLEAR
Right Fuel Tank Cap.....VISUALLY CHECK FUEL & SECURE
Leading Edge/Stall Strips .....CONDITION, SECURE
Underwing Panels.....SECURE
Fuel Sump Drain.....SAMPLE
Wing Root Fairing .....SECURE

NOSE

Cowling.....SECURE
Propeller Hub/Blades.....CONDITION, SECURE, LEAKAGE, FREE
Propeller Spinner .....SECURE
Exhaust Stacks .....CONDITION, COVERS REMOVED
Engine Intakes.....CLEAR
Nose Gear Strut.....CONDITION, EXTENSION (4" MINIMUM)
Nose Gear Tire.....CONDITION, INFLATION
Landing Light.....CONDITION
Oil Level .....CHECK
Oil Cap & Door.....SECURE
Windshield .....CHECK CONDITION

LEFT WING

Wing Root Fairing .....SECURE
Fuel Sump Drain.....SAMPLE
Underwing Panels .....SECURE
Leading Edge/Stall Strips .....CONDITION, SECURE
Left Fuel Tank Cap.....VISUALLY CHECK FUEL AND SECURE
Pitot Tube.....CONDITION, SECURE, WARM
Fuel Tank Vent .....CLEAR
Nav/Strobe Lights .....CONDITION, SECURE
Left Aileron.....ATTACH POINTS, FREE
Aileron Trim Tab .....SECURE, ATTACH POINT
Aileron Push Rod.....CHECK CONNECTION (INSIDE WING)
Left Flap.....ATTACH POINTS, MOVEMENT
Left Main Tire.....CONDITION, INFLATION

cannot be neglected. The repaired contour of any repair should be similar to the original contour to remain as close as possible to the same airfoil as before thus maintaining the same "lift" on each blade. In addition the repair must result in the nick being fully removed and the blade surface polished. Give your propeller care, respect its overhaul periods, and it will pull you through many hours of flight. If in doubt, have it inspected by a certified propeller repair facility.

FUEL SYSTEM

The fuel system feeds fuel to the engine through a fuel screen pickup, fuel selector, gascolator/fuel filter, electric boost pump, and finally a fuel control unit. The fuel tanks should be sumped at regular intervals.

CAUTION

After flight when parking and securing the aircraft ensure the fuel selector is either in the left or right tank position. If the selector is "in between" the fuel in the higher wing will drain to the lower wing causing a dangerous imbalance condition. Also, fuel may dump through the vent system onto the ramp until the higher wing is completely empty.

HYDRAULIC SYSTEM

A self-contained hydraulic system is used to operate the landing gear. The pump is electrically powered. When the "gear up" position is selected the pump is activated and 2000 psi is provided to the up side of the landing gear actuators raising the gear. This pressure is maintained although the electric pump is disabled by a limit pressure switch and the pressure holds the gear in its retracted position. Upon selecting the "down" position, 2000 psi is provided to the down side of the actuators and lowers the landing gear until it is down and locked.

As with any hydraulic system proper servicing is required. Use only MIL-L-5606 "red" hydraulic fluid.

The airframe will withstand the storage quite well under almost any circumstances since it is of high temperature materials however the upholstery, instruments and avionics will suffer from excessive heat and exposure to the sun so a cover is recommended. Elastomers such as tires also need to be protected from exposure to ultraviolet to limit their deterioration.

Fuel tanks should be filled or drained completely, the control surfaces locked, the aircraft electrically grounded, a pitot cover installed, the static port (or ports if installed on both sides) covered, the engine and cabin cooling air intake (NACA inlet) covered or plugged and the battery removed.

PREPARATION FOR SERVICE

Following storage, the aircraft preparations for flight should include the following:

- Remove all taped openings, plugs and control locks.
- Clean and thoroughly inspect the aircraft checking the gear, tires, controls pitot and static ports.
- Install a serviced battery.
- The fuel tanks should be checked for water accumulation and purged as required.
- Following a short but thorough engine ground check the aircraft should be flown for 30 minutes maximum and given a very thorough post flight inspection.

FUEL SERVICING

The fuel should be clean and water free. The firewall gascolator drain should be checked on preflight inspections for evidence of water, and the filter checked for solid foreign material. It is good practice to leave the tanks full to minimize the amount of combustible fuel/air vapor present in the tanks. This also helps minimize the amount of water vapor in the fuel system.

RECOMMENDED SERVICING

Interval – Preflight

- [ ] Check & service engine oil
- [ ] Drain water trap
- [ ] Verify fuel quantity

Interval – First 25 Hours

- [ ] Service oil. Inspect for rub and wear inside cowling
- [ ] Inspect fuel lines for security
- [ ] Check bleed air lines for security
- [ ] Check battery fluid
- [ ] Check brake lines
- [ ] Check all gear doors (nose and main gears)
- [ ] Check control surface hinges and control rods and connections – if hinges show signs of corrosion or excessive wear replace the hinge.
- [ ] Jack the aircraft and retract gear/check gear door fit

ENGINE FIRE/MECHANICAL FAILURE AIRBORNE

Pitch to Glide Attitude ..... 110 KIAS
Propeller Control Lever ..... FEATHER
Fuel Condition Lever ..... CUTOFF
Power Control Lever ..... LOW IDLE
Fuel Selector Valve ..... OFF

NOTE

If smoke is present in the cabin, shut off all equipment operated by engine bleed air.

Perform Forced Landing Procedure

AIRSTART PROCEDURES

WARNING

Do not attempt to restart a failed engine caused by a known mechanical failure (Ng – 0%) or engine fire if Ng is above 50%.

ENGINE FLAMEOUT IF Ng IS ABOVE 50% (HOT AIR START)

Check Fuel Quantity ..... SWITCH TO FULLEST TANK
Power Control Lever ..... IDLE
Ignition ..... ON
Fuel Condition Lever ..... CHECK ON
Ng / ITT ..... MONITOR

WHEN ENGINE RELIGHTS (ABOVE 51% Ng AND 400°C ITT)

Ignition ..... OFF
Power Control Lever ..... AS REQUIRED
Land at Nearest Suitable Airfield & Investigate

WARNING

During airstarts above 14,000' or with Ng<10%, starting temperatures tend to be higher and caution is required, if Ng is below 50%.

FORCED LANDING

The use of gear UP versus gear DOWN is a function of the type of landing site. If the site is relatively hard and smooth, a gear DOWN landing is recommended. Conversely, if the site is soft or rough, a gear UP landing is recommended. This procedure can be used for practice, and actual engine failure or a precautionary landing.

NOTE

For feathering, a minimum oil pressure of 15 psi should be registered if propeller is windmilling.

Landing Gear .....UP
Flaps.....UP
Propeller Control Lever .....FEATHER
Airspeed .....110 KIAS

The above configuration should give maximum glide performance with approximately 500 fpm descent and an 18:1 glide ratio. This should result in approximately 3.5 nm glide distance per 1000' of altitude lost.

Fly Directly to Intended Landing Site
Fuel Pump Switch .....OFF
Ignition Switch.....OFF
Fuel Condition Lever .....CUTOFF
Power Control Lever.....IDLE
Fuel Selector Valve.....OFF
Cabin/Baggage Door Seal Switches ..OFF
Enter Forced Landing Pattern Overhead at high/low key whichever altitude permits, using an initial aim point 1/3 of the way down the runway/intended landing site. Use approximately 2500' AGL for High Key altitude and approximately 1300' AGL for Low Key altitude with the propeller feathered. If unable to feather the propeller, use 3500 AGL for High Key and 1700 AGL for Low Key.