KR2-S Pilots Operating Handbook

N1213W

June 1997, updated May 2013

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Description of Systems and Structures

DESCRIPTIONS AND INTRODUCTION

The KR-2S is a high-performance, amateur built aircraft. Its compact size and efficient design results in superb performance and unequaled fuel economy using a relatively low horsepower engine. Pitch control is provided by elevators mounted on the horizontal stabilizer. Roll capability is provided by ailerons on the outboard wing panels. Yaw control is provided by a rudder mounted on the vertical stabilizer, and is actuated by conventional rudder pedals. The pitch and roll capability is provided by control sticks in a conventional configuration.

The tail wheel steering is provided by differential braking and steering chains attached to the rudder cables providing positive steering at all times while on the ground. Even though the KR2-S has relatively low horsepower, it can outperform many general aviation aircraft while retaining unequaled fuel economy. The maximum speed (Vne) is 195 mph IAS.

The structure of The KR-2S is a wooden frame with urethane foam and glass finish. The outboard wing panels were finish with preformed vinylester "Diehl" wing skins bonded to the spars as an upper and lower half with a glassed over "joggle" at the leading edge. The inboard wing skins were preformed using the same construction method, except the Saf-T-Poxy II was used in place of the vinylester and the parts were not molded under vacuum

The flaps were cut out of the trailing edge of the inboard wing skins, then an aerodynamic fairing bonded on to fair the flaps for cruise.

The engine that powers the KR2-S is a Continental O-200-A. The engine conforms to the O-200-A Type Certificate with the exception of E-mags used in place of magnetos and 8.5:1 O-200-D pistons were used in place of the stock 7.0:1 O-200-A pistons.

INSTRUMENT PANEL

The instrument panel is mounted to the fuselage. N1213W is provided with instruments for day and night VFR operations.

HEATING AND VENTILATION

Fresh air ventilation is provided by a pair of NACA vents in sides of the fuselage just below and ahead of the canopy . The flow of air can be controlled by adjusting the inlet opening with a knob on the NACA scoop. A heat exchanger using the engine exhaust on #3 cylinder provides heat for the cockpit.

LANDING GEAR

The main landing gear is a composite structure that is attached to the front of the main spar and uses 30" scotchply legs from Dan Diehl and 5:00x5 Cleveland wheels. The tailwheel is a steerable full swivel type.

BAGGAGE COMPARTMENT

A baggage compartment is provided behind the seat back. The baggage limit is 50 pounds. Depending on the pilot, passenger, and fuel to be carried, baggage may have to be limited because of gross weight or center-of-gravity (c. of g.) limits.

FLIGHT CONTROLS

Pitch and roll control is actuated either control stick located between the pilot or passengers legs. The rudder pedals are conventional with toe brakes actuated on the left pedal set only. The ailerons are actuated by cables. The rudder actuated by cables. The elevator is configured with a push/pull rod system

Trim is provided by an electrically actuated trim servo with the actuator switch located on the top of the left control stick and a position indicator mounted in the instrument panel. It should be noted that both flaps and cowl flap have significant impact on the elevator trim.

ENGINE CONTROLS

The throttle, located below the center of the instrument panel, is equipped with a friction lock to prevent creeping (but which can be overridden manually). The carburetor heat control is mounted to the left of the throttle and the mixture control is located to the right of the throttle. Both controls have a ratcheting cable control to prevent cable creep.

BRAKES

The braking system consists of hydraulic Cleveland 5:00x5 disk brakes on each main tire, actuated by individual toe brakes on the left seat rudder pedals.

FUEL SYSTEM

The aircraft has a 9 gallon header tank. There is a 7 gallon auxiliary tank located in either outboard wing panel. Fuel is transferred from each wing tank to the header tank with a pair of electric transfer pumps, each located to transfer fuel from its associated tank to the header tank. It is recommended to transfer fuel from the wings to the header on 30 – 45 minute intervals during flight until the wing tanks are empty.

The 9 gallon header fuel tank is located just aft of the firewall above the occupant's legs. The unusable fuel quantity is less than 1/2 gallon. The engine is gravity fed from the header tank, with a fuel shutoff valve located underneath the fuel tank. Each fuel tank has a capacitance type gauge to measure fuel quantity with an indicator for each tank in the instrument panel.

The fuel filler caps are located on the upper forward fuselage and the top of the wings. Either 100 octane Aviation fuel or Alcohol free Mogas of 90 octane or higher may be used.

COWL FLAP

The cowling has a single cowl flap located in the center of the aft edge of the lower cowl. The cowl flap is electrically actuated using a pair of momentary push buttons to the right and above the throttle. The cowl flap position indicator is in the left side of the instrument panel just below the trim indicator. The cowl flap is infinitely adjustable between the fully open and fully closed stops and is set according to the desired CHT and oil cooling. The cowl flap provides a significant amount of drag and lift under the nose, so it is recommended to close the cowl flap as far as practical (fully retracted inside the cowl if engine temperatures permit) during cruise operations to increase speed. For take off and climb out, it is recommended to set the cowl flap to the middle position. The completely open position was found to be unnecessary and is not normally used.

OPERATING PROCEDURES

BEFORE STARTING

Before starting, be sure that the engine is properly filled with oil. Prime engine as necessary. Select the desired Emag max advance on the toggle switch located on the panel next to the master and key switch. Set the Emag advance prior to powering on the emags.

STARTING

At winter time temps, the engine may require 3 – 4 shots of prime. Mixture control Rich. Select Emag max advance (34°/39° advance). Select master switch On. Open cowl flap. Select P-Mag switch on. Push starter button at the lower left corner of the instrument panel.

TAKEOFF

Takeoff roll should be started with the control stick slightly aft to keep the tailwheel on the ground to improve tailwheel steering. The plane should be allowed to accelerate to 40 mph IAS at which time rudder authority is sufficient to overcome most crosswind conditions. The tail is normally allowed to lift to improve forward visibility down the runway as the plane continues to accelerate to 60 mph IAS. At 60 mph IAS, the tail may be slightly lowered allowing the plane to fly lift off the runway. It is recommended to use a shallow climb while the plane accelerates to 90 mph IAS or higher to facilitate cylinder head cooling.

CLIMB

Best rate-of-climb speed is roughly 100 mph IAS. The best angle-of climb is 78 mph at S.L. Recommended normal climb speed is >90 mph for proper cooling.

CRUISE

Recommended maximum normal cruise RPM is 2750 rpm. Once pitched over into cruise, fully close the cowl flap. Best combination of cooling and performance is with the cowl flap in the streamlined position even with the bottom of the cowl (cowl flap position indicator green) Best performance will be achieved with the cowl flap fully retracted inside the back of the cowl with the position indicator indicating fully closed.

GENERAL FLYING QUALITIES

While the KR series of aircraft are known for extremely light elevators, pitch instability and lack of feedback to the pilot, this aircraft has been modified with an 8 foot span tail to replace the original 6 foot tail and using the 0009 airfoil. The rudder cord was also significantly lengthened to improve rudder authority. While the elevator control is still light at low speeds, it provides good feedback and feel to the pilot and is dynamically stable in flight.

Flight through heavy rain or continuous flight in rain may cause erosion of the leading edge of the propeller.

In a cruise configuration, the aircraft is extremely clean aerodynamically. Care should be taken to plan ahead for descents as the aircraft can easily exceed VNE during a light descent.

LANDING

Slow the aircraft to 100 mph IAS, before deploying the flaps. An approach speed of 85 mph should be used under normal conditions. The target airspeed should be obtained on downwind leg of the pattern. Slips may also be used in conjunction with flaps to lose altitude. A speed of 65 mph over the numbers is recommended. The aircraft should be flared and held off until it settles onto the runway. Brakes may then be applied normally.

The KR-2S will wheel land or 3 point land equally well depending on circumstances and pilot skill.

A short field landing should be made with an approach speed of 65 mph.

Crosswind landings in the KR2-S are easy. A conventional "wing low" approach should be used, permitting the upwind main wheel to touch first. The other main gear will lower and touch gently.

SLIPS

Slips are very effective. Rapid descents with high sink rates can be obtained through a properly executed slip.

OPERATING LIMITATIONS

The KR2-S is intended for day and night VFR operation with standard equipment installed. Operation should be in accordance with all markings, placards, and check lists in this Operating Manual.

UTILITY CATEGORY OPERATION

The KR2-S is intended to be operated in the utility category. The utility category is restricted to airplanes intended for limited acrobatic operation within the flight load factor limitations listed below. The following utility category maneuvers are approved:

1. Any maneuver incident to normal flying.
2. Minimum speed maneuvering with full aft stick.
3. Lazy eights, chandelles, and steep turns.

MAXIMUMS

Gross Weight	1200 lbs.
Maneuvering Speed	145 mph
Flight Load Factors	+4.4g, -1.76g

ACROBATIC LIMITATIONS

Maneuver	Maximum Entry Speed (IAS)
Chandeles	145 mph
Lazy Eights	145 mph
Steep Turns	145 mph

AIRSPEED LIMITATIONS

Smooth Air (Red Line)	195 mph
Maneuvering Speed	134 mph
Caution Range (Yellow Arc)	145-200 mph
Normal Range (Green Arc)	52-145 mph
Stall Speed	55 mph
Stall Speed (Flaps)	52 mph
Flap speed (White Arc)	52-100 mph

ENGINE INSTRUMENT MARKINGS

Oil Temperature Gauge -	
Normal Operating Range (Green Arc)	100-225°F
Yellow	225-235°F
Red	235F
Oil Pressure Gauge -	
Normal Operating Range	30-60 PSI at 2700 rpm
Maximum Allowable	60 PSI
Yellow	10-30 PSI
Red	10 PSI
Cylinder Head Temperature (If Installed) -	
Normal Operating Range	300-450F
Yellow	450-525F
Red	525F
Tachometer -	
Normal Operating Range	500-2750 RPM
Maximum Allowable	2750 RPM
Voltmeter -	
Normal Operating Range	12.5-14.5 Volts

Weight and Balance Sample Loading

WEIGHT AND BALANCE DATASHEET FOR KR-2S SERIAL #586					
Owner / Builder	**Jeff Scott**				
DATUM REFERENCE POINT IS FRONT BOTTOM OF FIREWALL					
Weight at	WEIGHT (lb)	MOMENT ARM (in)		MOMENT WT. (in/lb)	
LEFT WHEEL	388	16.25		6305.00	
RIGHT WHEEL	381	16.25		6191.25	
TAIL WHEEL	25	153.25		3831.25	
Starter and Alternator mods 4/8/16	-10	-6.25		62.50	
EMPTY WEIGHT	784			16390.00	
		20.91	CG (inches aft of datum)		
AIRCRAFT LOADING					
Fuel=6#/gal Oil=1.875#/qt					
	WEIGHT (lb)	VOLUMES	MOMENT ARM (in)		LOAD MOMENT. (in*lb)
LEFT WING LEADING EDGE	0		12.44		0.00
MAIN SPAR (front for ref)	0		23.25		0.00
Empty Aircraft	784		20.91		16390.00
OIL (6.0qt@1.875#)	0.00	0	-12.44	Oil Included	0.00
FUEL (header 9.25 gal)	0.00	0	8		0.00
RIGHT FUEL (6.75gal)	0.00	0	30		0.00
LEFT FUEL (7.1gal)	0.00	0	30		0.00
PILOT	0		42		0.00
PASSENGER	0		42		0.00
LUGGAGE	0		55		0.00
GROSS WEIGHT	784.00				16390.00
C. G. Inches from DATUM	20.91				
C. G. Range	20.44 - 28.44				

Gross weight
1,200 pounds
Fuel capacity
23 gallons
Engine
Continental O-200
Horsepower
100 horsepower @ 2750 rpm
Top speed
195 mph IAS
Fuel economy
Maximum cruise:
33 miles/gallon
Economy cruise:
40 miles/gallon

Range
Maximum cruise: @ 182 MPH 345 miles with 30 minutes reserve
Economy cruise: @ 130 MPH 682 miles with 30 minutes reserve

Service Ceiling
14,000 feet (1200 pounds)

EMERGENCY PROCEDURES

BRAKE FAILURE

If a brake failure is suspected, proceed to the nearest airport with adequate runway length to accommodate a landing without brakes. It is recommended, with a single brake failure that neither brake be utilized during landing and roll-out. Plan the touchdown near the approach end of the runway. The aircraft nose should be aligned with the runway centerline. Use minimum safe airspeeds for existing conditions. Maintain directional control straight down the runway with rudder and tailwheel steering. Allow the airplane to roll to a stop without the use of brakes. The engine may have to be stopped to reduce the ground roll. Push or tow the aircraft to a facility for repair.

EMERGENCY LOCATOR TRANSMITTER

An ELT is installed with panel indicator.

ICING CONDITIONS

Carburetor ice may be encountered at any time, even with ambient temperatures of 80 F. The first indication of carburetor ice should be a slight drop in engine RPM. Slight engine roughness may or may not accompany this engine RPM drop. If carburetor icing is suspected, the following procedures are suggested:

1. Apply full carburetor heat. Engine roughness may then occur due to an over-rich mixture or water from the melting ice.

2. Continuous engine operation with carburetor heat ON is not recommended due to the decrease in engine efficiency.

CAUTION: *Flying in known icing conditions is not only prohibited by FAA regulations, but it is also very foolish. However, should wing icing occur, the following procedures are suggested:*

1. Monitor engine RPM for any indication of carburetor ice.
2. Increase airspeed if possible to reduce the angle of attack.
3. Changing altitude or course may alter the rate of accumulation of ice.
4. Remember that ice accumulation increases wing loading, decreases performance, decreases range and increases stall speeds. When landing, plan a slightly higher than normal air speed during landing approach. Guard against the increased stall speed created by the above mentioned conditions.

WINDSHIELD OBSCURATION

A windshield obscuration caused by ice or moisture condensation should not be encountered while flying day or night VFR. If it is encountered, open all vents, turn cabin heat ON if installed, and change altitude, if possible, in order to alter the outside air temperature. If part of the windshield is clear, a slip may be used to keep the airport in sight during the approach and landing.

LOW OIL PRESSURE/ENGINE OVERHEAT

A low oil pressure reading may be caused by malfunction of the indicating system, oil pump failure, or loss of oil. Monitor the oil temperature gauge for a marked increase in temperature. If no temperature change is detected, the failure may be in the oil pressure indicating system. Proceed to the nearest airport, land, check the oil level, and determine the difficulty. In flight, if the oil pressure indication is low and is confirmed by high oil temperatures, reduce power and proceed to the nearest airport or suitable landing area and land. If possible, notify the nearest ATC radio facility of your difficulty.

CAUTION: *Lack of oil pressure will cause the engine to seize, requiring replacement or repair. Do not expect engine to continue operating while in-flight. When operating in high outside air temperature, the oil temperature may approach the red line. This is not detrimental and is not cause for concern unless the oil temperature exceeds the red line on the oil temperature gauge. A reduced power setting will lower the oil temperature; should it exceed the red line in flight, land at an airport and correct the problem.*

IN FLIGHT ENGINE FIRES

In-flight engine fires in today's modern aircraft are extremely rare and it should be noted that the presence of smoke does not always mean that a flaming fire exists. As an example, it may be engine oil on the exhaust system. If, in the pilot's judgment, an engine fire exists the following procedures are suggested:

1. Fuel selector - OFF
2. Ignition switch - OFF
3. Establish a maximum safe rate of descent. Increasing speed may blow the fire out.
4. Side slip maneuvers may be used, as necessary, to direct flames away from the cabin area.
5. Select a suitable field for a forced landing.
6. Notify ATC of your location and problem, if possible.
7. Master switch - OFF

8. Complete the forced landing; do not try to restart the engine.

IN FLIGHT ELECTRICAL FIRES

Indication of in-flight electrical fires may be wisps of smoke or the smell of hot or burning insulation. Should an electrical fire develop, the following procedures are suggested:

1. Master switch - OFF
2. All Electrical switches - OFF
3. Cabin vent (s) - OPEN
4. Proceed to nearest suitable airport for landing.

CAUTION: *If electrical power is necessary for safety of flight, attempt to isolate the electrical problem and turn that unit off.*

ENGINE FAILURE

Engine failures are very rare in modern aircraft. Should an engine failure occur, the basic procedures listed below may be a useful guide:

1. Establish a glide speed of 85 mph.
2. Check wind direction for landing.
3. Pick a suitable landing area and plan an approach.
4. Carburetor Heat - ON
   Magneto Switches - OFF, then ON
   E-mag switch OFF for 5 seconds, then ON
5. If the engine does not start promptly, attention should be shifted to the forced landing procedure.
6. Notify ATC of your location and problem, if possible.
7. Fuel Valve - OFF
   Magneto Switches - OFF
   Master Switch - OFF
8. Complete the landing and secure the aircraft. Notify ATC by telephone of your location, the aircraft situation, and location.

ELECTRICAL SYSTEM MALFUNCTION

The voltage reading will vary depending on the current drain from operating equipment. Check the alternator and regulator for malfunction and control equipment usage.

Care of the Aircraft

COMPOSITE STRUCTURE

The KR-2S is painted with a primer that contains a barrier for ultra-violet radiation. This, or an equivalent UV barrier, is required to protect the epoxy and foams from deterioration. Do not expose unprotected fiberglass to sunlight for extended periods. Unpainted areas should be retouched. The high surface durability and high safety margins designed into the KR-2S make it highly resistant to damage or fatigue. If the structure is damaged, it will show up as a crack in the paint. The strain characteristics of the material are such that it should not fail internally without first failing the paint layer. If damage is apparent due to a crack in the paint or wrinkle in the skin, remove the paint around the crack by sanding and inspect the glass structure. Do not use enamel or lacquer paint remover. If the glass structure is damaged, it will have a white appearing ridge or notch indicating torn (tension) or crushed (compression) fibers. If there is no glass damage, it will be smooth and transparent when sanded. If there is glass structure damage, repair as shown in the KR-2S Construction Plans. De-laminations are rare, due to the proper design of joints (None have occurred on the prototype.) If a de-lamination occurs (skin trailing edge joints, etc.), spread the joint, sand the surfaces dull , trowel in wet flox, clamp back together, and let cure.

PROPELLER CARE

Since wooden propellers do not have "metal fatigue" problems, they are a lot more forgiving of nicks. However, whenever you notice a large nick, the nick should be filled and refinished with epoxy resin with milled fibers mixed with a drop of black dye to match the black carbon fiber finish of the Prince Propeller. Waxing the propeller regularly will also help protect the surface. Flying regularly in rain or flying at all in heavy rain may erode the leading edge of the propeller.

EXTERIOR CARE

Consult the manufacturer of the paint that you used, or his representative, to determine the best means of maintaining a bright exterior surface.

CANOPY CARE

It is recommended that you keep the Plexiglas in the canopy clean and unscratched. The following procedures are recommended:

1. If large deposits of mud and/or dirt have accumulated on the Plexiglas, flush with clean water. Rubbing with your hand is recommended to dislodge excess dirt and mud without scratching the Plexiglas.
2. Wash with soap and water. Use a sponge or heavy wadding of a soft cloth. **DO NOT** rub, as the abrasive action in the dirt and mud residue will cause fine scratches in the surface.
3. Grease and oil spots may be removed with a soft cloth soaked in kerosene.
4. After cleaning, wax the Plexiglas surface with a thin coat of hard polish-wax. Buff with a soft cloth.
5. If a severe scratch or marring occurs, jeweler's rouge is recommended. Follow directions, rub out the scratch, apply wax and buff.

NOTE: *Never use benzene, gasoline, alcohol, acetone, carbon tetrachloride, lacquer thinner or glass cleaner to clean plastic. These materials will damage the plastic and may cause crazing.*

ENGINE OIL

Check engine oil level on each flight prior to operating the engine. Do not mix brands, nor grades of motor oil. Recommended oil numbers for expected ambient temperatures are:

Temperature	Grade
Winter	SAE 40 Aviation Oil
Summer	SAE 50 Aviation Oil
Year Round	20W-50 Phillips X/C 15W50 Aeroshell or equivalent Aviation Grade Oil

NOTE: *Engine oil and 48108 series spin on filter should be changed at a maximum of 50 hours.*

BATTERY

The battery is a 12 volt EarthX ETX-680C. It should be checked during annual maintenance inspections.

TIRE SERVICE

This aircraft has Condor 5:00x5 aircraft tires. Tires should be inspected for wear and cuts and abrasions before each flight. Tires should be replaced when the remaining tread depth reaches 1/16". The proper inflation pressure for the main tires is 45 PSI.

BRAKE SERVICE

The brake pads should be inspected annually, and replaced when the pad thickness is less than 0.030".

ELECTRICAL SYSTEM

Inspect the electrical wiring annually for chafing or loosening.

RECURRENT MAINTENANCE INSPECTION

At annual inspection, inspect in accordance N1213W checklist and with Federal Aviation Regulations. Every 50 hours the oil and filter should be changed.

FUEL REQUIREMENTS

Alcohol free MOGAS of 90 AKI or higher or 100LL Avgas or equivalent should be used.

N1213W CHECKLISTS

PREFLIGHT

The aircraft should be given a thorough visual inspection prior to each flight.

1. Open canopy.
2. Check canopy for cracks and nicks.
3. CHECK: Magneto Switch - OFF.
   Master Switch - ON.
   Fuel quantity - As required.
   Master Switch – OFF
4. Check oil level .
5. Check propeller and spinner for cracks, nicks, and security. Check cowling for damage and security. Check air inlets and outlet for obstructions.
6. Drain fuel sample from the sump drain(s).
7. Fuel caps secure; vents clear.
8. Inspect left wheel pant and tire for general condition (wear, cuts, abrasions, and proper inflation).
9. Check pitot tube and static port for obstructions.
10. Check left wing surface for damage.
11. Check left aileron for freedom of movement. Check lateral free play (3/32" Max.)
12. Check left flap for excessive movement.
13. Inspect left fuselage for damage.
14. Check left horizontal stabilizer for damage. Check right elevator for freedom of movement. Check lateral free play (3/32" Max.)
15. Check vertical stabilizer surface for damage. Check rudder for freedom of movement. Check rudder vertical free play (3/32" Max.)
16. Inspect tailwheel and tire for damage, for general condition (wear, cuts, abrasions).
17. Check left horizontal stabilizer for damage. Check left elevator for freedom of movement. Check lateral free play (3/32" Max.)
18. Check trim tab for excessive motion
19. Inspect right fuselage for damage.
20. Check right wing surface for damage.
21. Check right flap for excessive movement.
22. Check right aileron for freedom of movement. Check lateral free play (3/32" Max.).
23. Inspect right wheel pant and tire for general condition (wear, cuts, abrasions, and proper inflation).

BEFORE STARTING ENGINE

1. Check all controls for operation.
2. Check brakes - ON.

3. Mixture - IDLE CUTOFF.
4. Fuel Valve - OFF.

NORMAL ENGINE START

1. Throttle - Cracked .
2. Carburetor heat - OFF.
3. Master Switch - ON.
4. Mag Swithes - ON.
5. Emag Switch - ON
6. Mixture - FULL RICH
7. Place Fuel Selector On.
8. Set cowl flap to 50% open position.
9. Start – Push starter button
10. After engine is running, check to verify oil pressure within 20 seconds.
11. Warm up engine at 1000 RPM.

BEFORE TAXI

1. Seat belts and shoulder harness: adjusted and buckled.
2. Verify Canopy is latched/pinned.

BEFORE TAKEOFF

1. Engine instruments: operating properly in the green arc ranges.
   Engine Runup: 1700 RPM;
   Ignition check:
   Emag switch – OFF
   Mag Switch – BOTH – LEFT – BOTH – RIGHT mag drop < 100 rpm
   Emag Switch - ON
2. Carburetor heat - ON: Check for RPM drop and allow to warm carb, then OFF.
3. Engine: Check idle.
4. Verify Fuel Valve - ON.
5. Mixture – Set as necessary. Full Rich a < 3000' MSL
6. Fuel quantities - As required.
7. Canopy - Locked.
9. Carburetor heat - OFF
10. Controls: Free, with movement in the proper direction and no binding.
11. Altimeter - Set.
12. Avionics - ON.
13. Verify correct operation and settings of all instruments and gauges.
14. Set 10° flaps.

TAKEOFF - NORMAL

1. Throttle: Full open.
2. Controls: Lift off at 60 mph. accelerate to 90 mph, establish normal climb, retract flaps.
3. Climb speed >100 mph IAS as necessary for engine cooling.

CLIMB

1. Normal – >100 mph.
2. Best Rate - 100 mph at S.L. full throttle.
3. Best Angle - 80 mph at S.L. full throttle.

CRUISE

Power setting: 2300 to 2750 RPM.

1. Close cowl flaps
2. Trim - As required.
3. Mixture - Lean to peak RPM.

BEFORE LANDING

1. Mixture – As necessary
2. Carburetor heat – ON
3. Deploy 38° flaps below 100 mph IAS
4. Airspeed: 85 mph.

LANDING

1. 65 mph over the numbers.
2. Touchdown three point or wheel landing
3. Maintain directional control with the rudder steering.
4. Brake, as required, for stopping.

LANDING - OBSTACLE CLEARANCE

1. Airspeed: 70 mph on final.
2. Touchdown main wheels first.
3. Maintain directional control with the rudder steering.
4. Brake, as required, for stopping.

AFTER LANDING

1. Carb Heat Off.
2. Retract flaps.
3. Cowl flap to 50% setting.

SHUTDOWN

1. Stop engine using IDLE CUTOFF.
2. Turn off switches on electrical systems.
3. Mags off.
4. Master switch off.
5. Turn Fuel Valve selector Off.
6. Chock wheels and tie down aircraft.