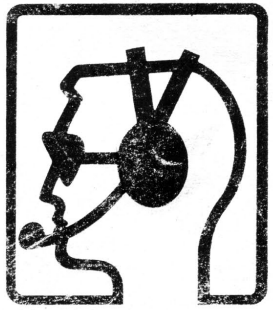
SCOUT

American Champion Scout 8GCBC



RealAir Simulations

Table of Contents

About This Manual

This operating manual is largely based on the actual Scout Pilot's Operating Handbook, but changes have been made to layout and content to make it more relevant to the Flight Simulator pilot.

You will find that all checklists and procedures can be closely followed for utmost realism while flying the RealAir Simulations Scout.

Pop-Up Windows

All necessary gauges can be accessed via pop-up windows when in either 2D or VC views. The key commands for accessing these windows are as follows:

Shift+1: Main panel
Shift+2: Electrical panel
Shift+3: Hand-held Garmin GPS
Shift+4: Enlarged radio-stack
Shift+5: Fuel panel
Shift+6: Elevator trim indicator
Shift+7: RealView adjustment panel

Mini Panel

The Scout includes a mini-panel, which can be accessed by pressing W when in 2D panel view. This panel gives an unobstructed view forward, while still displaying gauges essential for VFR flight and aerobatics.

Miscellaneous Key Commands

Open/close cabin door: Shift+E
Mixture lean: Shift+Ctrl+F2
Mixture enrich: Shift+Ctrl+F3
Propellor rpm decrease: Ctrl+F2
Propellor rpm increase: Ctrl+F3
Move eyepoint up: Shift+Enter
Move eyepoint down: Shift+Backspace
Move eyepoint back: Ctrl+Enter
Move eyepoint forward: Ctrl+Backspace

Section 1 — Specifications

1-01 Operating Limitations

Design Load Factor

Normal category	+5g / -2g

Airspeed Limitations

Never exceed speed (V_{NE})	140kt IAS
Maximum structural cruising speed (V_{NO})	87kt IAS
Manoeuvring speed (V_A) (max weight)	97kt IAS
Maximum flap extension speed	112kt IAS
Maximum demonstrated crosswind	17kt IAS
Stall speeds	Clean: 47kt IAS Full flaps: 42kt IAS

Kinds of Operation

VFR and IFR operations are approved.

Flight into known icing conditions is prohibited.

1-02 Essential Data

Specifications

Engine	Lycoming AEIO-360-H1A
Power @ rpm	180bhp @ 2700rpm
Propellor	Harzell HC-C3YR-1RF/F7282
Length	23ft
Height	9.7ft
Wingspan	34.5ft
Wing area	180 sq ft

Weights and Loading

Wing loading	11.9lb/ft ^{2}
Power loading	11.9lb/hp
Maximum gross weight (takeoff and landing)	2150lb
Empty weight (typical)	1400lb
Useful load	750lb
Payload with full fuel	540lb
Maximum baggage	100lb
Fuel capacity (usable)	35gal

1-03 Performance

Performance

Takeoff distance, ground roll	490ft
Takeoff distance over 50 ft obstacle	1025ft
Landing distance over 50 ft obstacle	1235ft
Landing distance, ground roll	425ft
Rate of climb, sea level	1075ft/min
Maximum level speed, sea level	120kt TAS
Cruise speed / endurance w 45 min reserve @ 75% power	113kt TAS / 2.7hr
Fuel consumption @ altitude	10.3gph @ 5000ft
Cruise speed / endurance w 45 min reserve @ 55% power	97kt TAS / 3.8hr
Fuel consumption @ altitude	7.7 gph@ 5000ft
Service ceiling	17000 ft
Maximum demonstrated crosswind component	17kt

1-03 Performance

Recommended Airspeeds

V_Y (best rate of climb)	53kt IAS
V_A (design manoeuvring speed)	97kt IAS
V_{NO} (maximum structural cruising speed)	112kt IAS
V_{NE} (never exceed speed)	140kt IAS
V_R (rotation, 14° flaps)	46kt IAS
V_{S1} (stall, clean)	47kt IAS
V_{S0} (stall, full flaps)	42kt IAS

Section 2 — Operating Checklists

2-01 Starting

Before Starting

1. Seat belts — adjust and secure
2. Controls — free and full movement
3. Fuel valve lever — ON (down)
4. Brakes — test and set
5. Radio and electrical equipment — OFF
6. Trim tab — full range and set
7. Manifold pressure — atmosphere

Starting

1. Mixture — idle cut-off
2. Throttle — open half inch
3. Master switch — ON
4. Prime — as required (if cold) then mixture full-rich
5. Propeller control — full-fine
6. Propeller area — clear
7. Magnetos left and right — ON
8. Stick — full-aft
9. Starter button — engage, release when engine starts
10. Oil pressure — check for green LED within 30 seconds
11. Ammeter — zero or positive reading
12. Avionics switch — ON
13. Radio and electrical equipment — ON
14. Panel lights — ON (FS2004 only, significantly improves VC lighting)
15. Warm-up at 1000-1200rpm

2-02 Takeoff

Cockpit Preflight

1. Flight controls — check for free and correct movement
2. Trim tab — takeoff setting
3. Flight instruments and radios — check and set
4. Fuel quantity — adequate
5. Fuel valve lever — ON
6. Accessories — ON, as required

Engine Runup

1. Throttle setting — 1800rpm
2. Magnetos — check (50rpm max differential, 175rpm max drop)
3. Propellor — check operation (pull lever out until drop of 300-500rpm)
4. Engine instruments — within acceptable limits (green LEDs)
5. Ammeter — zero or positive reading
6. At high density altitude, lean for best power before takeoff
7. Throttle — 1000rpm

Before Takeoff

1. Mixture — rich
2. Propellor — full-fine
3. Fuel boost pump — ON
4. Cabin door and left window — closed and latched
5. Harness — tight
6. Flaps — set as desired

Takeoff (Normal)

1. Flaps — UP
2. Throttle — smoothly advance to full power
2. Engine instruments — within acceptable limits (green LEDs)
3. Attitude — raise tail to level flight attitude
4. Lift-off — 52kt IAS

2-02 Takeoff

Takeoff (Obstacle)
During an obstacle takeoff, use the normal takeoff procedures with the following exceptions:

1. Flaps — set 14° (2nd notch)
2. Lift-off — 46kt IAS

Takeoff (Soft Field)
For soft field takeoff, use the normal takeoff procedures with the following exceptions:

1. Flaps — set 14° (2nd notch)
2. Attitude — tail low, but clear of ground
3. Lift-off — assist using elevator
4. After lift-off — level flight, to obtain safe margin of airspeed prior to climb
5. Flaps — UP

2-03 Climb

Cruise — Flaps UP, airspeed 80kt IAS
Best rate — Flaps UP, airspeed 66kt IAS
Best angle — Flaps 14°, airspeed 53kt IAS

Throttle — 25in Hg manifold pressure
Propellor — 2500rpm
Mixture — full rich or leaned as required at high altitude
Fuel boost pump — OFF at safe altitude (above 500ft)

2-04 Landing

Downwind

1. Brakes — check pressure and confirm off, toes clear
2. Mixture — rich
3. Power — 23in Hg manifold pressure and 2300rpm
4. Fuel quantity — adequate
5. Fuel valve lever — ON
6. Fuel boost pump — ON
7. Harness — tight

Base

1. Close throttle
2. Airspeed — below 87kt IAS
2. Flaps — as desired

Final

1. Mixture — rich
2. Propellor pitch — full-fine
3. Fuel boost pump — ON

Go Around

1. Throttle — smoothly advance to full power
2. Flaps — UP
3. Establish climb attitude
4. Airspeed — 70kt IAS
5. Trim — set for climb

2-04 Landing

Landing (Normal)

1. Flaps — as desired
2. Approach airspeed — 52-61kt IAS
3. Propellor pitch — full-fine
4. Throttle — as desired, to control rate of descent
5. Hold off in three point attitude for touchdown

Landing (Obstacle)

Use the normal landing procedures, with the following exceptions:

1. Flaps — full down
2. Approach airspeed — 52kt IAS
3. Throttle — as desired, to control rate of descent
4. Slip aircraft as necessary to increase rate of descent

Warning: A high rate of descent is possible in this configuration when at full gross weight with the throttle closed. If airspeed is allowed to decrease below 52kt, level off can only be assured with an application of power.

After Landing

1. Flaps — UP
2. Brake as necessary
3. Trim — set neutral
4. Fuel boost pump — OFF
5. Radio — ground frequency

2-05 Shutdown

1. Throttle — 1000rpm
2. Magnetos — check
3. Radios and electrical equipment — OFF
4. Avionics switch — OFF
5. Throttle — 1000 rpm
6. Mixture — idle cut-off
7. Throttle — closed
8. Master switch — OFF
9. Magnetos left and right — OFF
10. Confirm all switches are OFF before exiting aircraft

Section 3 — Aircraft Systems

3-01 Aircraft Overview

Structure

The Scout is a tandem two place with a strut braced high wing. The fuselage is a welded tube frame Dacron covered. The wing is Dacron covered with formed aluminium ribs and metal spars. The airframe is stressed for a maximum load limit of +5g / -2g.

Engine

The engine is a Lycoming AEIO-360. It is a four cylinder engine with fuel injection, dual magnetos, and a wet sump.

Propellor

The Hartzell propellor is of the counter-weighted, constant-speed variety. The counter-weights provide a fail-safe feature, causing the prop to go to low rpm if oil pressure is lost. This protects against a possible over-speed condition.

Battery

The Scout has a conventional lead acid storage battery. The battery is located behind the baggage compartment and is equipped with special non-spill caps and a vent system. The battery and vent manifold are enclosed in a leak-proof case with a see-through removable cover.

Alternator

The 60A alternator provides charging current and has sufficient capacity to operate all electrical equipment without battery drain.

3-01 Aircraft Overview

Brakes

Hydraulic toe brakes are provided for both front and rear seats. A parking brake control is also provided. To operate the parking brake, depress the brake pedals and pull out the control located under the far-right side of the instrument panel. To release the parking brake, push the control all the way in.

Pitot Static System

The Pitot tube is mounted underside the starboard wing. Static sources are either side of the aircraft aft of the cabin.

Baggage Compartment

The baggage compartment behind the rear seat accommodates a maximum of 100 lb of baggage or cargo. Check weight and balance limits before adding baggage.

Engine Oil System

The oil system is a modified conventional wet sump pressure system. Oil is picked up from the integral sump by the engine driven pump and forced through the engine. Oil returns to the sump due to gravity. Oil quantity is checked with a dipstick, which screws into the crankcase on the right side of the engine.

Induction Air Filter

An induction air filter is located in the cowling under the propellor and filters all air entering the engine. Alternate (hot) air is not filtered and continuous use is not recommended.

Tyres

The Scout main wheels are fitted with conventional aircraft type 8.5 x 6 ply tyres.

3-02 Fuel System

Fuel System

Welded aluminium fuel tanks are located in the inboard section of the wing. Two 20gal (19gal usable) tanks are standard. Fuel lines between the tanks and the gascolator are drained from a quick-drain on the aft belly of the aircraft.

The gascolator is drained by a remote actuated quick-drain control, which can be reached through the oil dipstick access door in the cowl.

The wing tanks proper can be drained via a quick-drain on the inboard corner of each tank. The gascolator is mounted on the firewall in the engine compartment. The sediment bowl is removable for cleaning and replacement of the fuel filter. The fuel cut-off valve is located on the lower left side of the cabin. The Scout fuel system is an on / off system.

Fuel quantity is read from a mechanical-float-type gauge located in the right fuel tank. This gauge is only accurate in the level flight attitude.

The tanks should be dipped to make an accurate assessment of fuel quantity prior to flight.

Note: The fuel filler cap used on the Scout is a non venting type. A loose cap, or one that is not sealing properly, may cause a fuel imbalance from one tank to another. If an excessive fuel imbalance exists, check the caps for security and the filler cap gasket for condition. Flying the aircraft in an uncoordinated manner, or parking on a slope, may also cause fuel imbalance.

Do not assume that fuel in the left tank is identical to that shown on the right tank fuel gauge.

Vent System

Fuel tank air spaces are interconnected, and positive venting is provided via a tube which protrudes from the bottom of the left wing just outboard of the tank. A check valve is provided at the vent outlet of each tank to minimize inverted-flight fuel loss.

RealAir Simulations Scout Section 3 — Aircraft Systems

3-02 Fuel System

System Operation

Fuel is gravity fed from the tanks to the engine driven pump.

Fuel Pumps

The Scout is fuel injected and two fuel pumps are required

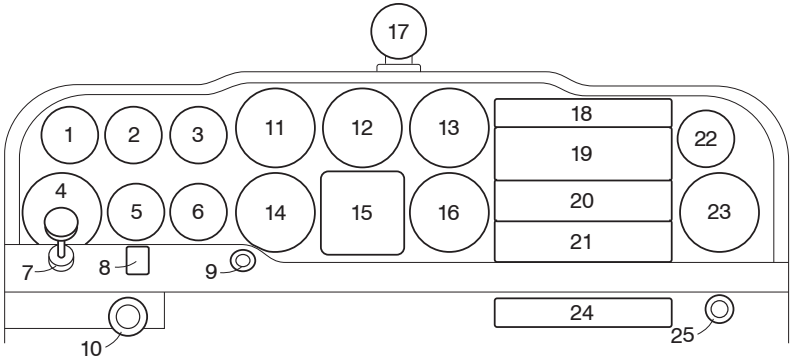
1. An engine driven, cam operated fuel pump which operates whenever the engine is running to supply fuel at the correct pressure to the fuel injector.

2. An emergency electric fuel boost pump on the firewall in the engine compartment. The electric fuel boost pump switch is mounted on the main panel, next to the mixture control.

Primer

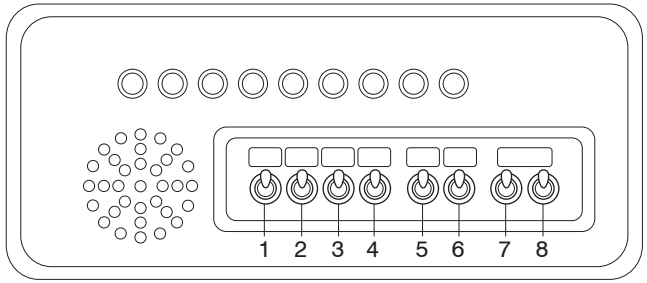
To prime the engine, turn on the master switch and the electric fuel boost pump with throttle closed and mixture at idle cut-off. To provide one stroke of prime, move mixture control to full-rich and back to idle cut-off. This injects fuel directly into the cylinders. Return electric pump to OFF after priming.

3-03 Main Panel Layout



1. Combined digital oil temperature (°F) / oil pressure indicator (in Hg)
2. Combined EGT / CHT Indicator — °F
3. Accelerometer (g-meter) — g units
4. Propellor speed indicator — rpm
5. Manifold pressure indicator — in Hg
6. Ammeter — A
7. Mixture lever — pull lever out to lean mixture, push lever in for a richer mixture
8. Electric fuel boost pump switch
9. Engine start button
10. Propellor pitch control — pull out to reduce rpm, push in to increase rpm
11. Airspeed indicator — kt IAS
12. Attitude indicator
13. Altimeter — ft
14. Turn / slip indicator
15. Horizontal situation indicator
16. Vertical speed indicator — ft/min
17. Magnetic compass
18. Bendix-King KA134 audio control panel
19. Bendix-King KX155A nav/com radio
20. Bendix-King KT70 transponder
21. Bendix-King KFC225 Autopilot
22. Clock
23. Radio magnetic indicator (taildragger), Landing gear lever (amphibian)
24. Bendix-King KR87 ADF (taildragger only)
25. Parking brake lever — pull out to engage

3-04 Electrical Panel Layout



The Electrical panel is located above the pilot's left shoulder in VC view, or can be accessed by pressing Shift+2 while in 2D panel view.

1. Strobe lights switch
2. Landing light switch
3. Navigation lights switch
4. Panel lights switch
5. Master battery switch
6. Master avionics switch
7. Left magneto switch
8. Right magneto switch

3-05 Instrument and Control Details

Throttle Quadrant

The throttle quadrant is located on the left-hand side of the cabin, directly behind and below the main panel. The upper-most lever is the throttle lever, and the lower lever is the alternate-air control lever.

Please Note: The alternate air lever does not move in VC view, in this version of the Scout.

Fuel Cut-Off Valve

The fuel cut-off valve is located on the right-hand cabin wall, near the floor, below the throttle quadrant. When the cut-off lever is UP, fuel is OFF.

The fuel cut-off valve can also be accessed by pressing Shift+5 in either 2D or VC views.

Fuel Gauges

The Scout has two fuel gauges, one for each fuel tank. The left fuel quantity gauge is located above the pilot's left shoulder, next to the electrical panel. The right fuel quantity gauge is located above the pilot's right shoulder.

Both gauges can also be viewed by pressing Shift+5 in either 2D or VC views.

Hand-held Garmin GPS

The default FS2004 hand-held Garmin GPS unit can be accessed by pressing Shift+3.

Please Note: There is no switch to slave navigation instruments to this GPS unit.

Accelerometer (g-meter)

Despite not being certified for areobatics, the Scout is fitted with an accelerometer. The maximum allowable load factor for the Scout is +5g / -2g. Press the button at the bottom-left of the gauge to reset the maximum/minimum g needles.

3-05 Instrument and Control Details

Combined Oil Temperature / Oil Pressure Indicator

This gauge measures both oil temperature, in °F, and oil pressure, in in Hg. It features coloured LEDs for scanning, and an LCD display for precise readings.

A normal condition is indicated by a green LED for either oil temperature or oil Presssure. A red LED for either indicates that the engine is above normal operating limits, and action must be taken immediately to rectify the situation.

The LCD readout can be set to display either oil temperature or oil pressure at any one time. To switch between oil temperature and oil pressure, flick the switch located below the LCD readout.

Combined EGT / CHT Indicator

This gauge measures both exhaust gas temperature (EGT), in °F, and cylinder head temperature (CHT), in °F. It features a switchable LCD display, for a precise reading of either EGT or CHT. To switch between EGT and CHT, flick the switch located below the LCD readout.

Ammeter

The ammeter measures current to and from the battery. A normal condition is indicated by a zero or positive reading. A negative reading indicates a current draw from the battery, which can result from an over-loaded system or a faulty charging system.

Elevator Trim

The elevator trim lever is located next to the pilot's left leg, on the left-hand wall.

An alternative elevator trim gauge can be viewed by pressing Shift+5 while in either 2D or VC views.

Section 4 — Operating Procedures

4-01 Normal Operating Procedures

Engine Starting

Before starting, set the parking brake by depressing the brake pedals and pulling the park brake knob located under the right side of the instrument panel.

To prime for a cold start, turn the electric fuel pump on and push mixture control to full rich. Hold for two to three seconds and return to idle cut-off. For a hot start, prime should not be necessary.

With brakes set, mixture at full-rich, throttle slightly open, master switch on, and magneto switches on, engage the starter. Release starter as the engine starts. Check that both magneto switches are on after engine starts.

If the engine fails to start on the first attempt, another attempt should be made without additional priming. If this fails it is possible that the engine is over primed. In this case, turn the magnetos off, open the throttle and turn the engine over approximately ten revolutions with the starter. Prime the engine again with half the amount of the original prime and repeat the starting procedure.

Check the oil pressure gauge for an indication as the engine starts. If no pressure is indicated within 30 seconds, stop the engine to determine the trouble even in cold climates.

Warm-Up and Ground Check

Engine warm-up should be conducted at 1000-1200rpm. The magneto check is run at 1800rpm. Maximum rpm drop on each magneto is not to exceed 175rpm and the differential between mags should not exceed 50rpm. The alternate-air and propellor control should be checked for operation at this time. To check prop control, pull vernier control from full-increase rpm to full-decrease until a 300-500rpm drop is noted, then return to full-increase.

4-01 Normal Operating Procedures

The engine is ready for takeoff when the oil pressure is steady and in the green, and when the engine will accept full throttle without hesitating or faltering. Avoid using alternate-air on the ground. With the alternate air selected, induction air is not filtered and abrasive dirt particles can enter the engine.

Takeoff Power Check

It is important to check full-throttle engine operation early in the takeoff run. The takeoff should be discontinued if there are any signs of rough engine operation or sluggish engine acceleration.

Normal Takeoff

Align the airplane with the runway centre-line. Assure that the tail wheel is tracking straight. Keeping the stick fully-back, smoothly open the throttle all the way with the prop-control full-forward. As the speed increases, use sufficient forward stick pressure to raise the tail to approximately level flight position, using the rudder to maintain directional control. Lift-off at 60-65kt.

Climb

After takeoff, establish best rate of climb (60kt IAS). Above 1000ft AGL, set power to 25in Hg manifold pressure and 2500rpm.

If best rate of climb or best angle of climb is not required, a climb speed of 80kt will provide good forward visibility (and engine cooling in warm climate). The mixture should be full-rich when the power is greater than 75%. At 75% power or below, the mixture may be leaned to peak EGT.

Cruise

The maximum recommended cruise power-setting for the Scout is 75%. Fuel consumption can be reduced significantly by using a lower power-setting, and at high altitude by leaning the mixture to peak EGT.

The Scout is not approved for flight into known icing conditions.

4-01 Normal Operating Procedures

Approach and Landing

As a general rule, it is good practice to contact the ground at a minimum, safe speed consistent with existing conditions. In calm or light wind conditions, and in short and/or soft-field operations, a full-stall landing is recommended. In a full-stall landing, the flare should be made with power off. A three-point landing attitude should be held just above the ground while increasing back-pressure on the stick as airspeed drops, until the stick is in a full-aft position at the time of touch-down. Brake as necessary.

Crosswind Landings

Crosswind approaches should be made with the upwind-wing low, with the nose kept in line with the runway by use of top-rudder. Touch-down should be made on the into-wind main-wheel, in either a level or three-point attitude depending on preference. Use of full flaps is not recommended in heavy crosswind, or gusty wind conditions.

Engine Shutdown

Before engine shutdown, check the magnetos, and turn off all radio equipment and other electrical equipment. The engine is shutdown by closing the throttle and pulling the mixture control full-aft to the idle cut-off. After the engine stops, close the throttle, turn off the master switch, and turn off both magneto switches.

After exiting the aircraft, confirm that all switches are off.

RealAir Simulations Scout Section 4 — Operating Procedures

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Section 5 — Emergency Procedures

This section covers the recommended procedures to follow during emergency and adverse flight conditions.

As it is not possible to define every type of emergency that may occur, it is the pilot's responsibility to use sound judgement based on experience and knowledge of the aircraft to determine the best course of action.

It is considered mandatory that the pilot familiarise him/herself with the entire manual, especially this section prior to flight.

5-01 Fire

Engine Fire During Start

If the fire is believed to be confined to intake or exhaust systems (result of flooding engine):

1. Continue cranking engine with starter
2. Mixture control — Idle cut-off
3. Throttle — Full open
4. Inspect aircraft thoroughly for damage and cause prior to restart

If fire persists, or is not limited to intake or exhaust system:

1. Mixture control — Idle cut-off
2. Fuel cut-off valve — OFF (lever up)
3. Electrical and magneto switches — All OFF
4. Exit aircraft
5. Direct fire extinguisher through the bottom of the nose cowl or through the cowl access door.

5-01 Fire

Engine Fire In Flight

1. Mixture control — Idle cut-off
2. Fuel cut-off valve — OFF (lever up)
3. Electrical and magneto switches — All OFF
4. Master switch OFF after mayday call
5. Cabin Heat — OFF front and rear
6. Use hand fire extinguisher if available
7. Land immediately using ‘Forced Landing Procedures’

Warning: Do not attempt to restart engine

Electrical Fire

An electrical fire is usually indicated by an odour of hot or burning insulation and wisps of smoke.

1. Electrical switches — All OFF (leave magneto switches ON)
2. Air vents / windows — OPEN only if absolutely necessary for smoke removal and ventilation
3. Use hand fire extinguisher if available and necessary
4. If fire continues, land immediately

If fire/smoke stops and electrical power is required for the remainder of the flight, turn the master switch ON followed by the desired circuit switch. Allow a minute between turning on each switch, in order that the faulty circuit may be located and switched OFF.

5-02 Component Failure

Engine Failure on Takeoff

If sufficient runway remains:

1. Throttle — Closed
2. Land using brakes as required

If airborne and insufficient runway remains for landing, attempt an engine restart if altitude permits:
1. Fuel boost pump — ON
2. Mixture control — Full-rich
3. Fuel cut-off valve — Check ON
4. Magneto switches — Both ON
5. Propeller control — Full-fine

If no restart is possible: Select most favourable landing area ahead.

Warning: Maintain flying speed at all times and do not attempt to turn back towards the runway unless sufficient altitude has been achieved.

Engine Air Restart

1. Maintain airspeed — 70kt minimum recomended
2. Magneto switches — Both ON
3. Mixture control — Full-rich or leaned as required at high altitude
4. Throttle — Half open
5. Fuel cut-off valve — Check ON
6. Fuel boost pump — ON
7. Propeller control — Full-fine
8. If restart not possible — change throttle, mixture settings in attempt to restart
9. Follow ‘Forced Landing Procedure’ if unable to restart

Please Note: the engine starter may be engaged in flight if the propeller has stopped windmilling.

RealAir Simulations Scout Section 5 — Emergency Procedures

5-02 Component Failure

Partial Power Loss / Rough Running

1. Follow ‘Engine Air Restart’ procedures
2. Land as soon as practical using ‘Precautionary Landing Approach’ procedures

Obstruction of the engine intake air may be indicated by a gradual power loss. Alternate air should be applied to the hot position and left in that position as long as the obstructed condition exists.

Abnormal Oil Pressure / Temperature Indicators

Oil pressure and temperature problems are usually related, with one affecting the other. Before any action is taken, cross-check the other engine instruments and control settings for possible clues.

High oil temperature is generally a result of a loss of oil, engine overheating (note CHT), or a malfunctioning oil cooler by-pass valve. If the situation remains unchecked, oil pressure usually drops resulting in possible engine damage. Power should be reduced while maintaining cruise airspeed. Place mixture in full-rich position and land as soon as practical.

Little or no oil pressure is usually caused by a failed pressure regulator valve, pump, loss of oil, clogged oil line, high oil temperature, or a defective gauge. A landing should be made as soon as practical using minimum rpm changes. Plan a ‘Precautionary Landing Approach’ as engine failure may be imminent.

Loss of Propellor Control

In the event of a loss of oil pressure to the propellor and/or propellor governor, the propellor will automatically go to the low-rpm position. The throttle may be used with caution as necessary to climb or maintain level flight. A precautionary landing should be made as soon as possible.

5-02 Component Failure

Alternator / Electrical Failure

An alternator failure is indicated by a steady discharge of the ammeter.

1. Master switch — Cycle in attempt to reset the over voltage relay
2. If excessive battery discharge continues, turn off all non-essential electrical equipment to conserve battery power
3. Land as soon as possible

Please Note: If only one circuit appears to be inoperative, remove and replace the suspected fuse with a spare of the same amperage rating. These spare fuses are located above the regular fuses in use. Only replace a fuse once.

Pitot-Static System Failure

A malfunction in the pitot-static system will affect the airspeed, altimeter and vertical speed indicator, and is usually a result of an obstructed static opening. Use the alternate static source.

Warning: With alternate static source on, subtract 65ft from indicated altitude and 9kt from indicated airspeed.

5-03 Emergency Landing

Precautionary Landing Approach

A precautionary landing approach should be used whenever power is still available.

Maintain a higher and closer pattern than normal to remain in gliding distance of the intended touchdown point. Use the normal landing procedure plus:

1. Airspeed — 60kt recommended (52kt minimum)
2. Throttle — Closed, when in gliding distance to runway
3. Propellor control — Full-fine
4. Flaps — Lower as needed to increase approach descent angle

Please Note: Slipping the aircraft by cross-controlling the rudder and ailerons will increase the rate of descent.

Forced Landing (complete power failure)

1. Airspeed — Maintain 60kt
2. Mixture — Idle cut-off
3. Fuel cut-off valve — OFF
4. Master switch — ON
5. Flaps — UP to increase glide range
6. Radio — Mayday
7. All electrical switches — OFF
8. On final approach — Airspeed 60kt (52kt minimum)
9. Flaps — DOWN after intended point of landing is assured
10. Touchdown with minimum airspeed (three point full stall)

Ditching

Should it become necessary to make a forced landing over water follow the ‘Forced Landing Procedures’ in addition to the following:

1. Cabin side door — Jettison
2. Land into wind if high winds are evident or parallel to swells with calm winds
3. Contact the water with a nose-high attitude
4. Do not stall prior to touchdown

5-04 Stall Recovery

Stall characteristics are conventional. The stall warning horn will proceed the stall by approximately 5kt, depending on the amount of power used. There is very little aerodynamic buffeting preceding the stall.

Aileron control in a power-on stall is marginal. Large aileron deflection will aggravate a near stalled condition — aileron use is not recommended to maintain lateral control. The rudder is very effective for maintaining lateral control in a stalled condition, with the ailerons kept in the neutral position. To recover from a stall proceed as follows:

1. Lower the nose and add full power simultaneously.
2. Use the rudder to maintain lateral control, avoid aileron movements

5-05 Spin Recovery

Spins are prohibited in the normal category.

Inadvertent Spin Recovery

1. Throttle — Closed
2. Ailerons — Neutral
3. Rudder —Full deflection in the opposite direction to rotation
4. Elevator — Positive forward to neutral
5. Rudder — Neutralise when rotation stops
6. Nose attitude — Raise slowly to level flight attitude

