EKU AVIATION

Eastern Kentucky University
Piper Seminole MEL

Maneuver Description Guide

January 17, 2022

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	Seminole
Engines	Left: O-360-A1H6 Right: LO-360-A1H6
Oil Capacity	• 8 Quarts • EKU Minimum 6 Quarts
Minimum Oil Pressure	25 PSI
Primer	• Button/Electric • Press Primer Button - 2-3 seconds before start on a cold engine • Press Primer Button – 3-5 seconds before start when below 32°F
Recognition Lights	• Located on Each Wingtip • Used Instead of Landing Light for Recognition • Saves Landing Light for Night Landing/Takeoff
Fin Strobe & Strobe Light Rocker Switch	• Rocker Switch Down Ground Use (Fin Strobe/ Rotating Beacon) • Rocker Switch Up Before Takeoff/ Flight Use (Strobes)
"Low Bus" Annunciator Light	Illuminates when Alternators not Providing 12.5V DC to the tie bus and bus -Check Ammeter for Inop Alternator
Unfeathering Accumulators	• Stores Engine Oil under pressure for Air-Staring the Engine • Releases Stored Pressure Back to Prop Governor when Prop Lever Moved Forward • Oil Pressure Drives the Blades from the feathered position toward low-pitch (Wind milling) • Wind milling prop with addition of fuel and ignition will allow the engine to start
Airstart	• Unfeathering Accumulator

Performance/ Weight and Balance

V-Speed	***KIAS***	***Description***	***Airspeed Indicator Marking***
V_{SO}	55	Stall Speed in Landing Configuration	Bottom of White Arc
1.3 V_{SO}	75	POH calls out 75 KIAS for short field Ops	
V_{MC}	56	Minimum Controllable Airspeed	Red Line
V_S	57	Stall Speed with Zero Flaps	Bottom of Green Arc
V_R	75	Rotation Speed(Start Rotation)	
V_X	82	Best Angle of Climb	
V_{XSE}	82	Best Angle of Climb Single-Engine	
V_{SSE}	82	Safe Speed for Intentional Engine Failure	
V_Y	88	Best Rate of Climb	
V_{YSE}	88	Best Rate of Climb Single-Engine	Blue Line
V_{FE}	111	Maximum Flap Extension Speed	Top of White Arc
V_{LO} (Up)	109	Maximum Gear Retraction Speed	
V_{LO} (Down)	140	Maximum Gear Extension Speed	
V_{LE}	140	Maximum Speed with Gear Extended	
V_{NO}	169	Max Structural Cruising Speed	Top of Green Arc
V_{NE}	202	Never Exceed Speed	Red Line
V_A	135	Maneuvering Speed at 3800 Pounds	
V_A	112	Maneuvering Speed at 2700 Pounds	
	100	Emergency Gear Extension Speed	

Maximum Demonstrated Crosswind 17 KTS

Takeoff and Landing Data Card (TOLD)

- Takeoff Weight: _____
- CG _____ In limits Yes _____ No _____
- Takeoff Ground Roll: _____
- Accel.-Stop Distance: _____
- Two-engine climb rate:_____
- Takeoff distance over a 50' obstacle_____
- One-Engine Climb Rate : _____
- Obstacle rotate speed _____
- Obstacle climb out speed_____
- Landing Ground Roll:_____
- Landing distance over 50' obstacle_____
- SE Service Ceiling: _____

V_A Compute: V_A @ 3800lbs: 135 Knots
(For every 50lbs less than 3800lbs, subtract 1 Knot until reaching 2700LBS or 112 KIAS. V_A will never be less than 112 KIAS)

- At 8,000', no wind, STD temp, 65% power set, & econ cruise
  - _____MP @ 2300 RPM (Figure 5-29)
  - _____GPH (Figure 5-29)
  - TAS _____kts (Figure 5-31)
  - _____NM Range (Figure 5-35)
  - _____Endurance Hours (Figure 5-39)

V_{MC}: 56 V_R: 75 V_Y/V_{YSE}: 88 V_X/V_{XSE}: 82

1.3 Vso: **75 KIAS (per POH) for short field OPS**

- Climb Speed to 500 feet AGL 88 **KIAS @ 27" MP & 2700 RPM Full Throttle**
- Climb Speed after 500' to 1000' **110 KIAS @ 27" MP & 2700 RPM Full Throttle**
- Cruise climb passing 1000' to final altitude: **110 KIAS @ 25" MP & 2500 RPM**
- Cruise: **140 KIAS @ ~23" MP and 2300 RPM** (~ 65% power Figure 5-29)
- IFR pattern (i.e., radar vectors, holding, arcing) **120 KIAS @ 20" MP and 2300 RPM**

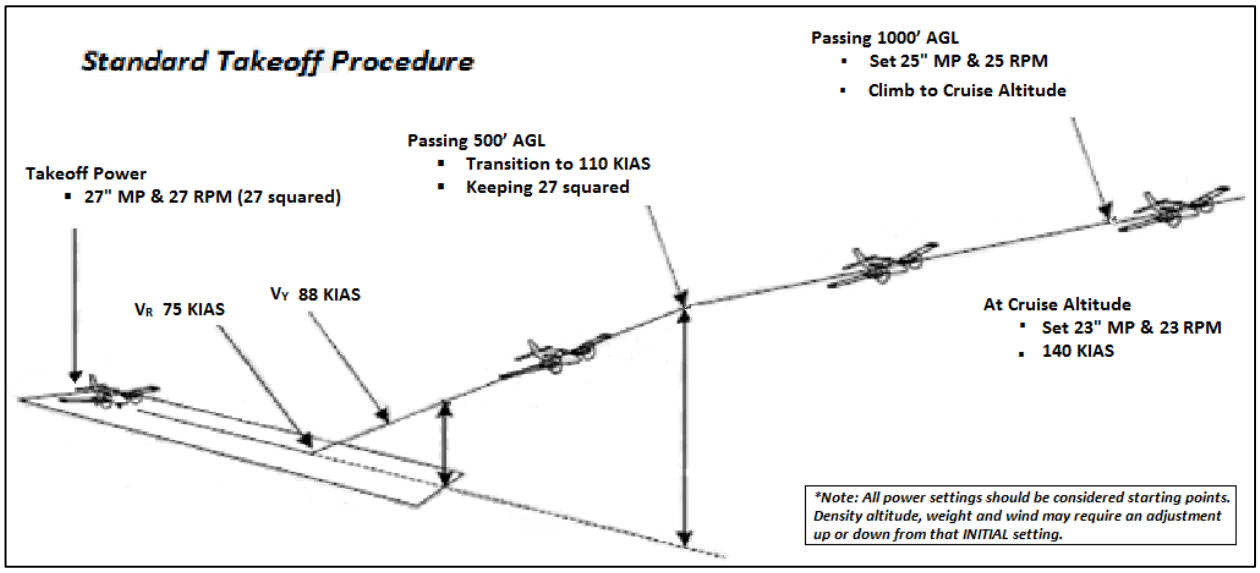
IFR calculations

- IFR cruise @ 65% power, 2300 RPM, & 10,000' MP____ Fuel Flow ____
  TAS ____ ,w/ OAT ____C, PA _____feet, & 55% power
- Max range w/ 45 minute reserve @ 55% power & 10,000' _____ Max range without reserve _____

In flight use actual altitude and numbers from POH

Takeoff and Performance Briefing

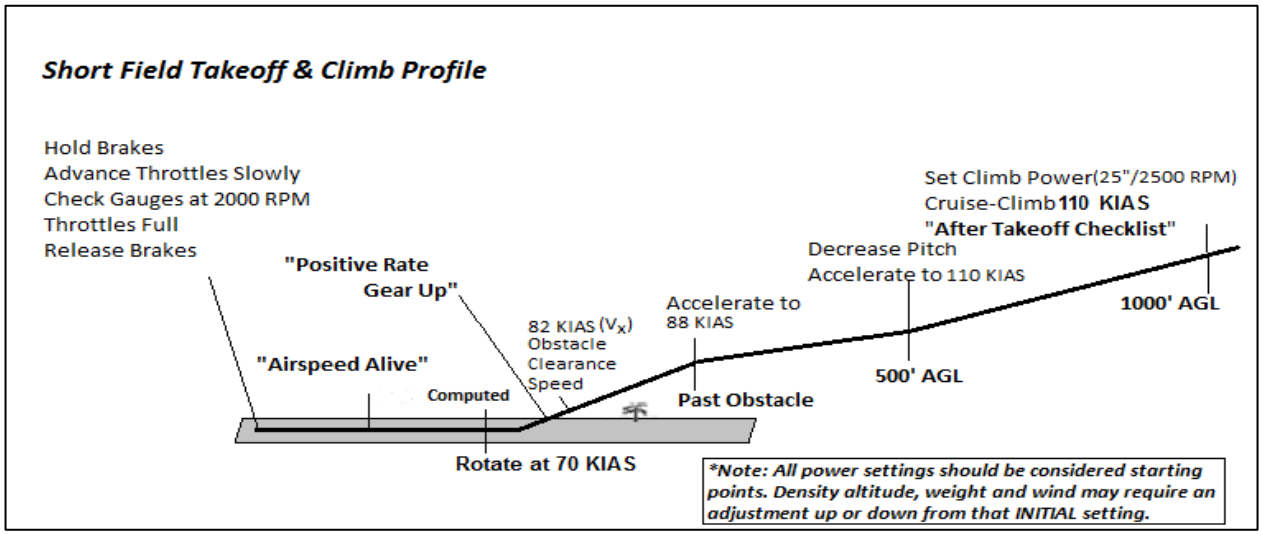
-No Power Reductions Below 1000' AGL
-Brief responsibilities - Who will be PIC, who will be PIC in an emergency both simulated and actual, who will run radios and checklists
-Brief V_R, V_X, V_Y airspeeds
-If an engine fails below V_R . Reject takeoff, throttles to idle, apply brakes
-If an engine fails after T/O, runway remaining - Throttles to idle, land straight ahead, and stop
-If an engine fails after T/O no runway remaining – Reduce Pitch, wings level, ball centered. Select mixture, prop, and throttle to full increase; raise the flaps and then gear; and identify, verify, feather failed engine propeller**. No fast hands.**
-If an engine fails after T/O, no runway remaining, - Fly V_{YSE} for single engine best rate of climb
If climbing, climb to a minimum of 1,000' AGL before making any turns back to runway. If possible, turn into operating engine.
If descending at a minimum rate of descent due to weight and DA, pick best landing site within 30° left or right of takeoff heading.
-Brief positive three-way exchange of flight controls - Your controls, My controls, Your controls
-Brief sterile flight deck procedure - NO nonessential conversation below 1,500' AGL.



Normal Takeoff

Before takeoff Checklist complete

1. Flaps ..... 0°
2. Hold Brakes Then Increase Throttle To ..... **2000 RPM**
3. Engine Gauges ..... Check Ts & Ps In Green
4. Brakes ..... Release
5. Throttles ..... Full 27”/2700 RPM
6. Track centerline using rudders and set crosswind aileron if required.
7. Rotate at 75 KIAS
8. **Accelerate toward and set Blue Line 88 KIAS**
   - Commercial ACS (±5 KTS)
9. Landing Gear ..... Retract Below 109 KIAS
10. Passing 500' AGL ..... Transition To 110 KIAS
    Note: NO POWER CHANGES BELOW 1000 FEET AGL.
11. Passing 1000ft……climb checklist



Short field Takeoff Checklist

Before Takeoff Checklist Complete

1. Flaps..... 0º
2. Brakes ..... Hold
3. Throttles ..... Increase Throttles 2000 RPM
4. Engine Gauges ..... Check Ts & Ps Are In Green
5. Throttles ..... Full 27/2700
6. Brakes ..... Release
7. Track centerline using rudders and set crosswind aileron if required.

Rotate firmly to achieve 75 kias when passing 50 ft
Accelerate to 82 kias if obstacle present or 88 kias if no obstacle present

Commercial Pilot ACS

Until Obstacle Is Cleared, Pitch For ..... V_x 82 KIAS (+5/-0)
Clear Of Obstacle Pitch For..... V_y 88 KIAS (+5/-5)
Landing Gear ..... Retract Below 109 KIAS
Passing 500' AGL ..... Transition To 110 KIAS

Note: NO POWER CHANGES BELOW 1000 FEET AGL.

Engine Failure during Takeoff Roll

1. Throttles ..... Idle
2. Rudder .....Maintain Directional Control
3. Brakes ..... Maximum To Maintain Control
4. **If inadequate runway remains**
    a. Close throttles
    b. Apply maximum braking
    c. Master switch and fuel selectors "off"

Engine Failure after Lift Off

1. Pitch for level flight, (Wings level, ball centered) 88 KIAS, Blue line airspeed
   Maintain Directional Control
2. Mixtures Full, Props Full and Throttles Full
   ***Throttle Quadrant- (Right to Left Push)**
3. Flaps And Gear .....Up
4. Inop. Engine (dead foot/dead engine, fuel flow,
5. **Identify and Verify**

a. Throttle..... Test And Close On Dead Engine
b. Prop Control ..... Feather At Or Above **950** RPM
c. Mixture ..... Idle/Cut Off

6. Establish a Climb.....Blue Line 88 KIAS
7. Climb to 1000' AGL before turning (If unable, pitch for blue line and plan to land straight ahead, or within 30° left or right of centerline, off airport)
8. Assess the situation. If climbing, passing 1000 feet AGL turn into operating engine, if possible. Declare an "Emergency" to clear out all traffic. Return for landing. (see Emergency Landing procedure on page 10)

Securing Inoperative Engine (after the aircraft is under control)

1. Cowl Flaps (Inop Engine) .....Closed
2. Aux. Fuel Pump (Inop Engine) ..... Off
3. Fuel Flow (Op Engine)..... Verify
4. Magnetos (Inop Engine) ..... Off
5. Alternator (Inop Engine)..... Off
6. Cowl Flap (Op Engine) ..... As Required
7. Operative Engine ..... T's & P's Green
8. Mixture Lever (Inop Engine) ..... Off
9. Fuel Selector (Inop Engine)..... Off*
10. Fuel X-Feed ..... As Required
11. Electrical .....Consider Load Shed

Unless there is an engine fire, wait until passing 2000' to switch the fuel selector off

1000' Climb Out

1. Power .....25"/2500 RPM
2. Fuel Pumps ..... Off One At A Time
3. Fuel Pressures.....Check
4. T's And P's.....In The Green
5. Cruise Climb.....110 KIAS Or Greater At **5° Nose Up**

***Note: Maximum Altitude for any EKU aircraft is 12,500ft.**

Piper Seminole Maneuver Description Guide

Cruise Check

1. Engine.....**23**"/**2300** RPM; Check POH @ 65% Power
2. Icing .....OAT And Wings
3. Fuel.....Selector, Qty, Fuel Flow
4. Engine Instruments ... T's & P's; Prop Sync, Lean Mixture Using EGT 75° ROP And CHT Below 400°
5. DG/HSI.....Flags Away; Aligned With Compass
6. Cowl Flaps.....Half Or Closed Per CHT
7. Landing Lights..... Off
8. Air Cond. (G-500 Only) .....On (If Required)

Descent

(Begin descent about 3 times altitude in miles. i.e. 10,000' = 30 miles)

1. Cowl Flaps..... Half Or Closed
2. Throttles .....**18-20"**MP
3. Props.....**2300** RPM
4. Mixtures ..... Adjust As Necessary

Approach

1. ATIS..... Check Current
2. Altimeter ..... Set
3. Approach Brief.....Complete
4. Landing Lights.....On
5. Recog. Lights.....On
6. Cowl Flaps..... As Required
7. Seat Backs..... Erect
8. Seat Belts And Harness..... Fasten/Adjust
9. Vent Fan/Heater ..... As Required

Before Landing

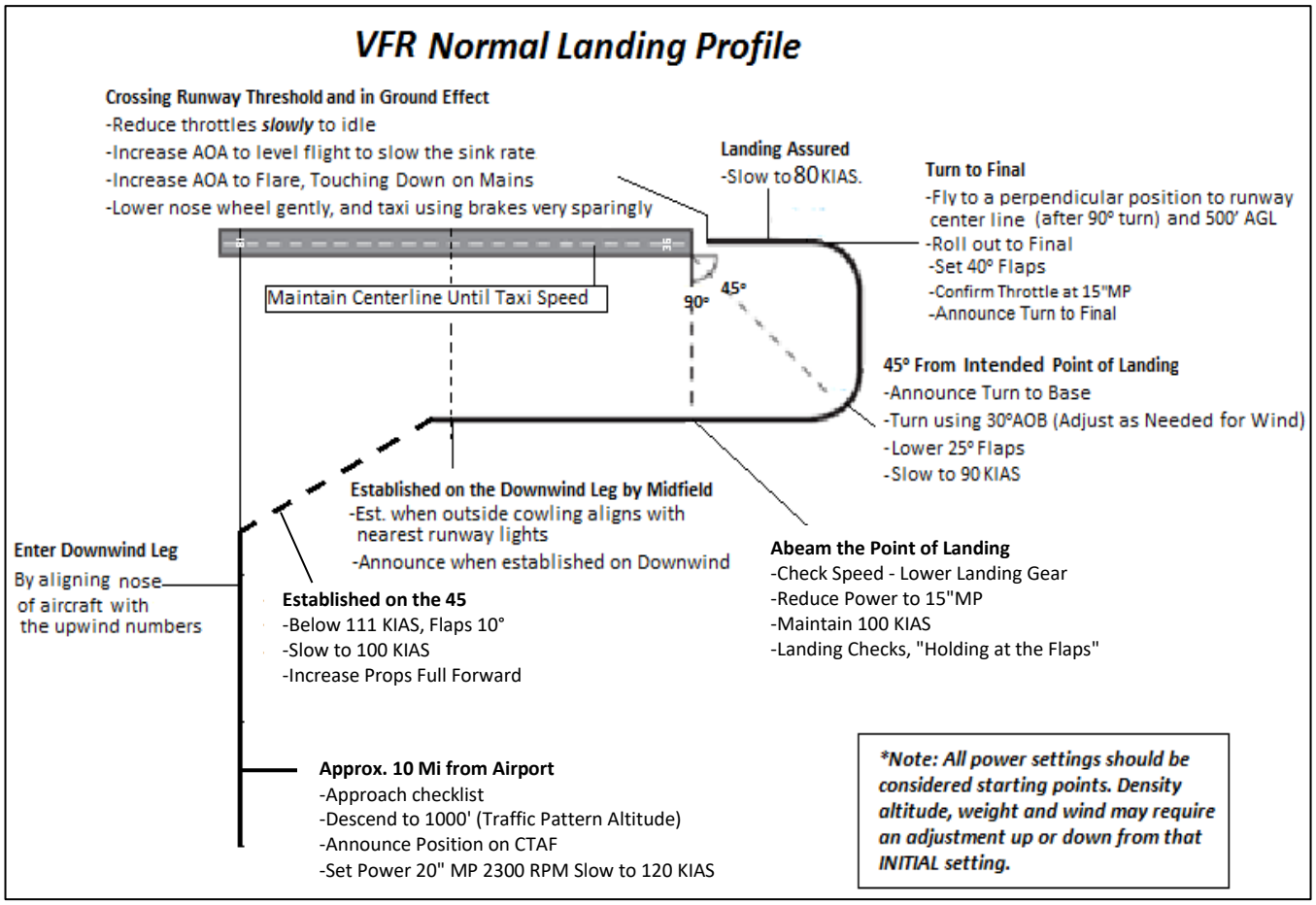
1. Air Cond. (G-500 Only) ..... Off
2. Gas-Fuel Selectors & Fuel Pumps .....On
3. Undercarriage.....Down, 140 KIAS Max
4. Mixture Controls ..... Enrich
5. Prop Controls..... Full Forward
6. Flaps ..... Set, 111 KIAS Max
7. Approach Speed ..... 75 KIAS Or Above
8. Heater…..Can be off prior to landing with air vent on for 15 sec

Short Final

1. Greens .....3 Green, Wheel In Mirror
2. Blues ..... Full Forward
3. Reds ..... Full Forward
4. Flaps .....25°

After Landing

1. Runway ..... Exit
2. Flaps .....Retract
3. Cowl.....Full Open
4. Fuel Pumps ..... Off
5. Transponder ..... "Alt" Squawking 1200
6. Strobe/Landing Lights..... As Required
7. Heater (If On).....Fan 2 Min. Then Off

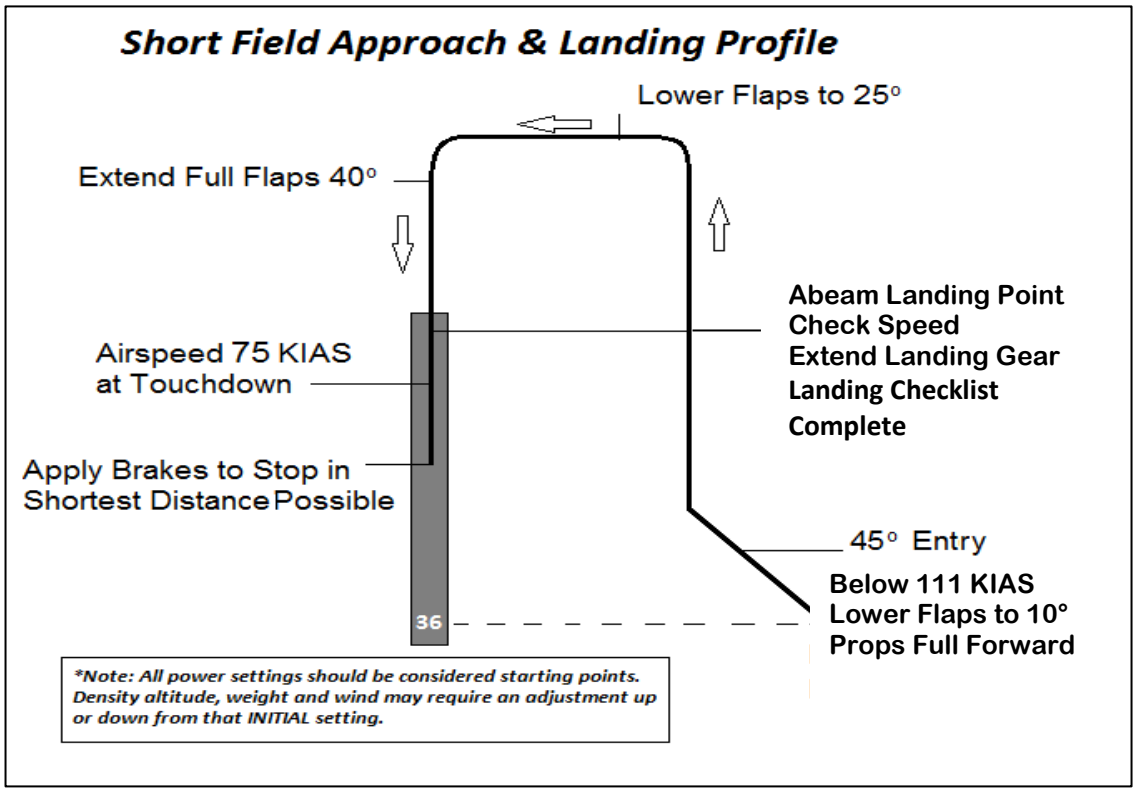

VFR Normal Landing Profile
Crossing Runway Threshold and in Ground Effect
-Reduce throttles slowly to idle
-Increase AOA to level flight to slow the sink rate
-Increase AOA to Flare, Touching Down on Mains
-Lower nose wheel gently, and taxi using brakes very sparingly
Landing Assured
-Slow to 80 KIAS.
Turn to Final
-Fly to a perpendicular position to runway center line (after 90° turn) and 500' AGL
-Roll out to Final
-Set 40° Flaps
-Confirm Throttle at 15"MP
-Announce Turn to Final
Maintain Centerline Until Taxi Speed
90°
45°
45° From Intended Point of Landing
-Announce Turn to Base
-Turn using 30°AOB (Adjust as Needed for Wind)
-Lower 25° Flaps
-Slow to 90 KIAS
Established on the Downwind Leg by Midfield
-Est. when outside cowling aligns with nearest runway lights
-Announce when established on Downwind
Enter Downwind Leg
By aligning nose of aircraft with the upwind numbers
Established on the 45
-Below 111 KIAS, Flaps 10°
-Slow to 100 KIAS
-Increase Props Full Forward
Abeam the Point of Landing
-Check Speed - Lower Landing Gear
-Reduce Power to 15"MP
-Maintain 100 KIAS
-Landing Checks, "Holding at the Flaps"
Approx. 10 Mi from Airport
-Approach checklist
-Descend to 1000' (Traffic Pattern Altitude)
-Announce Position on CTAF
-Set Power 20" MP 2300 RPM Slow to 120 KIAS
*Note: All power settings should be considered starting points. Density altitude, weight and wind may require an adjustment up or down from that INITIAL setting.

Normal VFR Pattern

1. Ten miles out from Airport
   1) Listen for ATIS/AWOS, 2) Set altimeter, 3) Transmit intent to enter pattern, 4) set power to 20 inches MP and 2300 RPM, slowing toward 120 KIAS, and 5) Descend to traffic pattern altitude (TPA) which is 1000 feet AGL.
2. Position the aircraft to enter on a 45° bearing in the downwind by initially aligning the nose of the aircraft with the upwind numbers
3. Established on the 45, reduce power to 18 inches and increase props full forward, slowing to 110 KIAS,
4. Below 111 KIAS lower flaps to 10 °
5. Maintain 100 KIAS
6. Turning into the downwind transmit call sign established in a left (or right) downwind on CTAF, placing the outside edge of the engine cowling on nearest set of runway lights to establish proper distance abeam
7. In the downwind check speed and lower the landing gear. Complete the landing checklist, announcing "Landing checklist complete".
8. Maintain 100 KIAS
9. Reduce power to set MP at 15 inches. **Note: All recommended power settings are starting points from which to adjust up or down depending on weight and density altitude.**
10. Maintain 100 KIAS
11. At the 45° bearing reference from the intended point of landing, turn toward Base, using a 30° angle of bank maximum, adjusted for crosswinds.
12. Announce "call sign turning to base, runway ____" on Airport CTAF.
13. Lower 25 ° flaps and use configuration to slow to 90 KIAS
14. Fly aircraft to a position perpendicular to runway centerline (after 90 ° of turn) and 500 feet AGL.
15. Clear final approach path to be clear of any traffic and make base to final call
16. Roll out to final approach course (set 40 ° flap short field landing only). Ensure Runway is clear of any **rollout traffic**.
17. Maintain 90KIAS
18. Confirm Throttles at 15" MP (weight/DA/altitude/glide slope permitting).
19. Landing assured, i.e. crossing the fence, slow to 80 KIAS. **(Note: 1) If slightly high, hold 90 KIAS until short final and landing on runway is assured, then slow to 80 KIAS. 2) For gusty wind conditions, give consideration to landing with only 25 ° of flaps and 90 KIAS vs. 80 KIAS until short final, landing assured.)**
20. Crossing the runway threshold and **in ground effect** begin reducing throttle **slowly** toward idle
21. In ground effect, increase AOA to level flight attitude and pause momentarily to slow the sink rate.
22. Looking at far end of runway, begin increasing AOA for flare, touching down on mains
23. Lower nose wheel gently and taxi to next taxiway, using brakes very sparingly
24. Clear of active runway complete after landing checklist

Emergency Landing Procedure (ELP) (Simulated Single Engine)

1. Five to Ten miles out from Airport
   1) Listen for ATIS/AWOS, 2) Set altimeter, 3) Transmit intent to enter traffic pattern downwind. Descend to, climb to, or maintain altitude at 2000-2500 feet AGL.
2. **Note: Power is available on the simulated failed engine** at any time during the approach to correct for wind effect, altitude, airspeed, **or if you just don't feel comfortable.**
3. Slow to 110KIAS.
4. Flaps - 10 ° (below 111 KIAS)
5. Landing gear –down (Below 140 KIAS)
6. Complete the one engine inoperative landing checklist
7. Check for traffic already in the downwind or turning crosswind.
8. Slow to 100 KIAS
9. Descend into the downwind, and fly aircraft to the abeam position, looking for 1500-1750 feet AGL. From 1500-1750 feet AGL abeam, the glide path will be higher than a normal approach. VASI/PAPI will show high until crossing the threshold.
10. In the downwind, transmit "(call sign) established in a left (or right) downwind" on CTAF, placing outside edge of the engine cowling on nearest set of runway lights to establish proper distance abeam
11. At the abeam position transmit "(call sign turning base to runway ____" on airport CTAF.
12. Maintain altitude and at the 45° bearing reference from the intended point of landing, turn toward Base, and use 30 ° angle of bank adjusted for crosswinds.
13. Maintain 100 KIAS
14. The intended point of landing is the 1000 foot marker on the approach end of the runway. Do not lower any additional increment of flaps until runway landing is assured. If high on final, consider lowering flaps early to increase sink rate. Also, if high, give consideration to extending the aircraft flight path downwind before turning final. However, be careful not to give away too much altitude. Remember the intended point of landing is NOT the numbers. It is the 1000-foot marker.
15. Fly aircraft to a position perpendicular to runway centerline (after 90 ° of turn) and 750 feet AGL. Remember the approach will be a little steeper than a normal power on approach. You will see white over white on the VASIs.
16. Check final approach path to be clear of any traffic and make base to final call
17. Roll out to final approach course, maintain 90 KIAS ensuring that the runway is clear of any rollout traffic.
18. Runway landing assured, lower 25 ° flaps and transition to 90 KIAS (25 ° is maximum for single engine approach)
19. Throttles……Maintain 12" MP (weight/DA/altitude/glide slope permitting).
20. Landing assured slow to 85 KIAS. **(Note: 1) if slightly high, hold 90 KIAS until short final and landing on runway is assured, then slow to 85 KIAS. 2) For gusty wind conditions, give consideration to landing with only 10 ° of flaps and 90 KIAS vs. 85 KIAS until short final, landing assured.)**
21. Crossing the runway threshold and in ground effect begin **slowly** reducing operating throttle toward idle. **Leave simulated failed engine at 12 inches until touchdown to give true simulated engine out landing.**
22. In ground effect, at no less than 85 KIAS, increase AOA to the level flight attitude and pause momentarily to slow rate of descent
23. Looking at far end of runway, begin increasing AOA for flare, touching down on mains at approximately 80 KIAS
24. Lower nose wheel gently and taxi to next taxiway, using brakes very sparingly
25. **After all 3 gear are rolling on the runway, reduce both throttles to idle.**
26. Clear of active runway complete after landing checklist



Short field approach and Landing

1. Landing Configuration ..... Establish
2. Approach ..... Stabilized
3. Flaps (Below 111 KIAS) ..... 10°
4. Gear (Below 140 KIAS)..... Down
5. Flaps (Below 100 KIAS) ..... 25°
6. Flaps (Below 95 KIAS) ..... Full Down (40°)
7. Airspeed ..... 1.3 V_{SO} (**75 KIAS** Per POH 4.31 B (Commercial ACS ±5)
8. Touchdown.....
   Commercial ACS: Within 100' Beyond A Specified Point
9. Brakes.....Apply To Stop In Shortest Distance Possible

High Work Procedures and Maneuvers

Climb out to working area

1. Climb ..... To 3000 Feet AGL Minimum
2. Clearing Turns.....Shallow Turns
   Using 10-15° AOB To Clear Area Ahead Of Nose
3. Level Off At High Work Altitude ..... 3000 Feet AGL Minimum
4. Cruise Checklist .....Complete

STEEP TURNS

Commercial Pilot ACS

1. Cruise Checklist .....Confirm Complete
2. Power ..... 20" MP
3. Airspeed V_A Compute (Not To Exceed 135KIAS)..... 120 KIAS
4. Bank Angle..... **SMOOTHLY TRANSITION** To **50**° For Commercial ACS
5. Power ..... 21" MP
6. Altitude.....Maintain Level Flight With Pitch Adjustments,
7. Maintain Turn for 360 °
8. 22.5°/25° Prior to Desired HDG, **SMOOTHLY ROLL** into Turn in the **OPPOSITE DIRECTION**
9. 22.5°/25° Prior to Desired HDG- Smoothly Roll **OUT TO WINGS LEVEL after 360 °**
10. Power ..... 20" MP

Commercial ACS± 100 Feet, ±10 knots, ±-5 ° bank, roll out on entry heading ±10 °

Note: To Aid in slowing the aircraft power adjustments for the maneuver can be made before the second clearing turn

STALL CHECKLIST

Note: All EKU high work maneuvers must be completed at or above 3,000 feet AGL

1. T's & P's..... Check In The Green
2. Propeller RPM .....2700 RPM
3. Fuel Selectors .....On
4. Mixtures .....Rich
5. Cowl Flaps .....Open
6. Auxiliary Fuel Pumps .....On
7. All Exterior Lights.....On
8. HSI/Heading Bug..... Set To Roll Out Heading
9. Clearing Turns..... Both Directions
10. Air Cond. (G-500 Only) ..... Off

SLOW FLIGHT

1. Stall Checklist.....Confirm Complete
2. Power ..... 18" MP
3. Slow To And Trim For 110 KIAS
4. Flaps ..... 10° Below 111 KIAS
5. Gear (Below 140 KIAS).....Down, Three Green
6. Flaps ..... Lower Incrementally To Set 40°
7. Airspeed.....**65KIAS**
8. Altitude… .....Maintain

Note: perform straight and level, climbs and descents as required
Perform two turns of 10 bank angle, 90 ° HDG change.

To Exit Slow Flight

9. Power ..... Max Power
10. AOA ..... Pitch For Vx 82 KIAS
11. Flaps ....With Airspeed Increasing, Immediately Retract To 10°
12. AOA ..... Pitch For Vy 88 KIAS
    And Positive Rate of Climb (Roc)
    Or Maintain Vx 82 KIAS If Not Climbing
13. Gear .....Up
14. AOA ..... Pitch For Vy 88 KIAS
    And Positive Rate of Climb (Roc)
    Or Maintain Vx 82 KIAS If Not Climbing
15. Flaps (At Vy 88 KIAS And Positive Roc).....Flaps 0 °
16. Climb ..... To Entry Altitude
17. Cruise Checklist .....Complete*

***(Only after all stall maneuvers are complete)**

Commercial ACS ± 50 Feet, +5/-0 knots, ±5° bank, roll out on specified heading ±10°

POWER-OFF STALL-

Note: The purpose of the power off stall is to simulate a base to final turn where the student pilot overshoots the runway, pulls the nose to the runway instead of going around, and stalls the aircraft. The FAA ACS allow for both a straight ahead maneuver and/or one with a turn incorporated. EKU Aviation has chosen to teach the more difficult of the two recoveries.

Commercial Pilot ACS

1. Stall Checklist.....Confirm Complete
2. Power ..... 18" MP
3. Flaps (Below 111 KIAS) .....10°
4. Gear (Below 140 KIAS).....Down, Three Green
5. Flaps .....25°
6. Flaps .....40°
7. Airspeed ..... 88 KIAS
8. Altitude.....Maintain
9. Power .....Decrease Slowly To 15 Inches MP
10. Descent..... **Stabilized 3° Descent @ 500 FPM**
11. AOB..... Set 20 Degree AOB Turn
12. AOA .....Increase To Nose High Attitude To Induce A Stall

Note: **<u>Technique-raise nose until first indication of impending stall</u>**

13. Pitch.....REDUCE AOA To Nose Level
14. Bank Angle (Simultaneously)..... WINGS LEVEL
15. Power (Simultaneously) .....Full Throttle
16. AOA ..... Pitch For Vx 82 KIAS
17. Flaps ....With Airspeed Increasing, Immediately Retract To 10°
18. AOA ..... Pitch For Vy 88 KIAS
    And Positive Rate Of Climb (ROC)
    Or Maintain Vx 82 KIAS If Not Climbing
19. Gear.....Up
20. AOA ..... Pitch For Vy 88 KIAS
    And Positive Rate Of Climb (ROC)
    Or Maintain Vx 82 KIAS If Not Climbing
21. Flaps (At Vy 88 KIAS And Positive ROC).....Flaps 0 °
22. Climb .....To Entry Altitude
23. Cruise Checklist .....Complete*

    ***(only after all stall maneuvers are complete)**

<u>Commercial ACS:</u> Not to exceed 20° bank, ±5° turn, roll out on specified heading ±10°

POWER-ON STALL
Note: The purpose of the power on stall is to simulate an over rotation on takeoff where takeoff power is set and the excessive AOA causes a stall.

Commercial Pilot ACS

1. Stall checklist .....Confirm Complete
2. Power ..... 18" MP
3. Flaps .....0°
4. Airspeed ..... 80 KIAS
5. Heading .....Maintain
6. Pitch..... SMOOTHLY INCREASE AOA TO 15 °
   Nose up AND MAINTAIN heading

Note: **Technique-raise nose until first indication of impending stall.**

7. Pitch.....REDUCE AOA To Nose Level
8. Power .....Smoothly Apply Max Power
9. Airspeed .....Pitch For V_X 82 KIAS To Positive Rate
10. Airspeed (Clear Of Obstacles)..... Transition To V_Y 88 KIAS
11. Altitude.....Climb To Initial Recovery Altitude
12. Power ..... 18" MP
13. Airspeed ..... 88 KIAS
14. Cruise Checklist .....Complete*

***(only after all stall maneuvers are complete)**

ACS: Maintain a specified heading ±10° in straight flight or maintain a specified AOB, not to exceed 20°, ±10 ° in turning flight while inducing a stall.

Accelerated Stall

1. Stall Checklist .....Confirm Complete
2. Flaps .....0°
3. Gear.....Up
4. Power .....18'' MP
5. Airspeed ..... 120 KIAS
6. AOB .....45°
7. AOA .....Increase

***Note*:** **Technique-raise nose until first indication of impending stall.**

8. Pitch.....REDUCE AOA to Nose Level
9. Bank Angle (Simultaneously)..... Wings Level
10. Power (Simultaneously) ..... Full Throttle
11. Airspeed .....Pitch For V_X 82 KIAS To Positive Rate
12. Airspeed (Clear Of Obstacles) ..... Transition To V_Y 88 KIAS
13. Altitude.....Climb To Initial Recovery Altitude
14. Power ..... 18" MP
15. Airspeed ..... 88 KIAS
16. Cruise Checklist .....Complete*

***(only after all stall maneuvers are complete)**

Engine-out Operations

Minimum altitude for these maneuvers is 4500 ft MSL
Ensure that there is a suitable airport within 6-8 NM programmed into the GPS with a "Direct to"

VMC DEMO
Commercial Pilot ACS

1. Stall Checklist .....Confirm Complete
2. Power ..... 18" MP
3. Air-conditioning ..... Off
4. Flaps .....0^o
5. Airspeed ..... 88 KIAS
6. Heading .....Maintain
7. Critical Engine Throttle..... IDLE (Simulating Wind Milling Prop)
8. Heading (Use Heading Bug Or HSI Pointer)..... Maintain
9. Non-Critical Engine Throttle..... Full Power Slowly
10. Heading .....Maintain
11. Pitch..... Increase So As To Have A 1 KIAS Per Second Decay
12. Recover at first indication of a stall, horn OR buffet OR loss of directional control!!!
13. Non-Critical Engine Throttle.....Reduce Power **Sufficiently** On the Operating Engine
14. Angle Of Attack (AOA)..... Simultaneously Reduce AS NECESSARY To Regain Airspeed And Directional Control

Note: Recovery SHOULD NOT Be Attempted By Increasing The Power On The Simulated Failed Engine.

15. Aircraft under control.....Operating Engine Full Power
16. Airspeed .....Positive Rate
17. Airspeed ..... 88 KIAS
18. Power .....Symmetric Throttles, 18" MP
19. Altitude..... Maintain Recovery Altitude
20. Cruise Checklist .....Complete*

***(only after all stall maneuvers are complete)**

ACS: Recover within 20^o of entry heading and ±5 Knots

The purpose of this maneuver is to take note of the vertical performance and effects of various drag configurations. Since this maneuver is repeated in several lessons take note of the aircraft weight and atmospheric conditions so that a comparison to subsequent lessons can be made.

Drag Demo (Demonstrate for ME student, perform for MEI Applicant)

Simulating Windmilling Prop

1. Stall Check list.....Confirm Complete
2. Power ..... 18" MP
3. Airspeed .....Pitch For 100 KIAS
4. Critical Engine Throttle..... Idle
5. Non-Critical Engine.....Max Power Slowly
6. Heading .....Maintain
7. Airspeed ..... Maintain 88 Blue line
8. Gear .....Down
9. Vertical Speed ..... Notate
10. Gear .....Up
11. Vertical Speed ..... Notate
12. Flaps ..... 10°
13. Vertical Speed ..... Notate
14. Flaps ..... 25°
15. Vertical Speed ..... Notate
16. Flaps ..... 40°
17. Vertical Speed ..... Notate
18. Flaps .....Slowly retract to 0°
19. Vertical Speed ..... Notate
20. Gear .....Down
21. Vertical Speed ..... Notate
22. Flaps ..... 10°
23. Vertical Speed ..... Notate
24. Flaps ..... 25°
25. Vertical Speed ..... Notate
26. Flaps ..... 40°
27. Vertical Speed ..... Notate
28. Flaps ..... 25°
29. Gear .....Up
30. Flaps ..... 10°
31. Flaps ..... 0°
32. Critical engine..... Zero thrust (12")

Repeat steps 8-31 for effects on Simulated Zero thrust engine.

33. Cruise Checklist .....Complete

Inflight Engine Shutdown and Restart Demonstration

Engine Shutdown Procedure

1. Throttle Lever (Inop Engine)..... Retard To Idle
2. Prop Control (Inop Engine)..... Feather
3. Mixture Lever (Inop Engine).....Idle Cutoff
4. Cowl Flap (Inop Engine).....Closed
5. Alternator (Inop Engine)..... Off
6. Fuel Pump (Inop Engine) ..... Off
7. Magneto Switches (Inop Engine) One at a time .....Off
8. Fuel Selector (Inop Engine)…..…….Off

Engine Air Restart Procedure

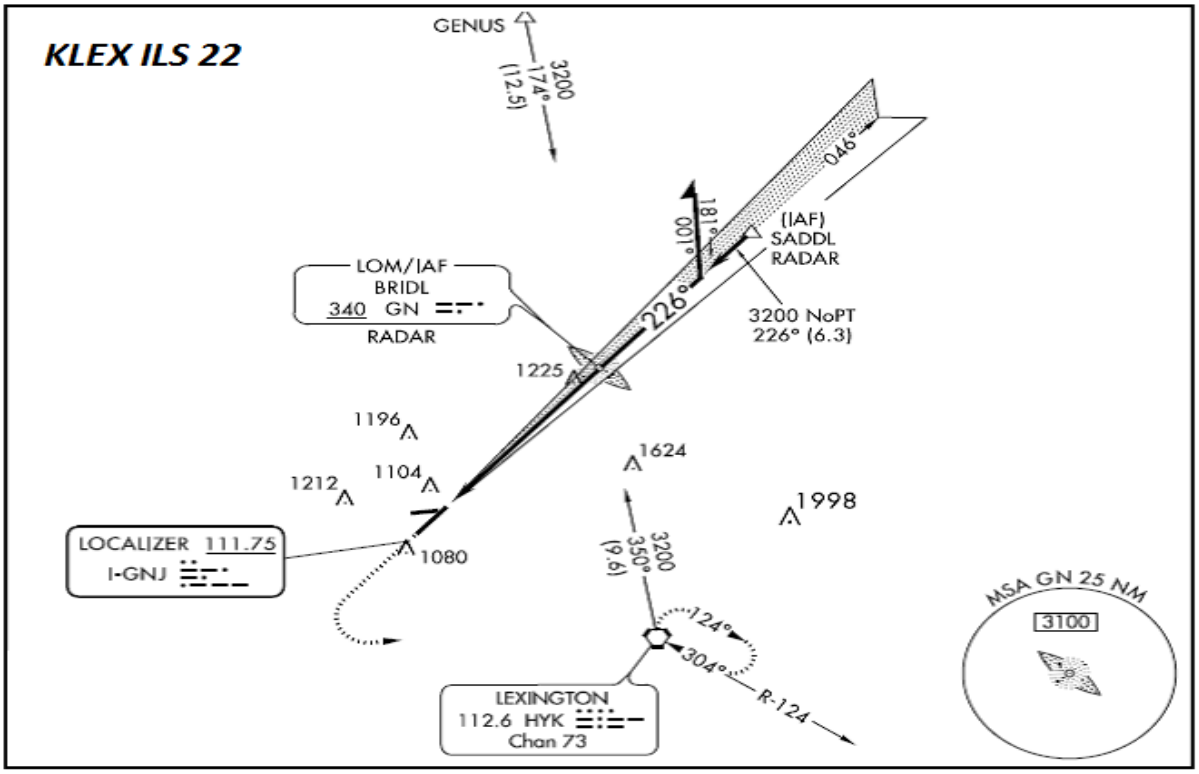
1. Fuel Selector (Inop Engine) .....On
2. Electric Fuel Pump (Inop Engine).....On
3. Mixture.....Rich
4. Throttle.....Two Full Strokes And Then Open 1/4 Inch
5. Airspeed (Increase To)..... 100 KIAS
6. Magneto Switches.....On
7. Prop Control ..... Full Forward
8. Starter.....Engage Until Prop Windmills
   If required - as Seminole has unfeathering accumulators
9. Throttle.....Reduce Power 15" Until Engine Is Warm
10. If Engine Does Not Start .....Prime As Required
11. Alternator.....On
12. Fuel Pump..... Off

Note: Starter limit is 10 seconds.

Emergency Descent

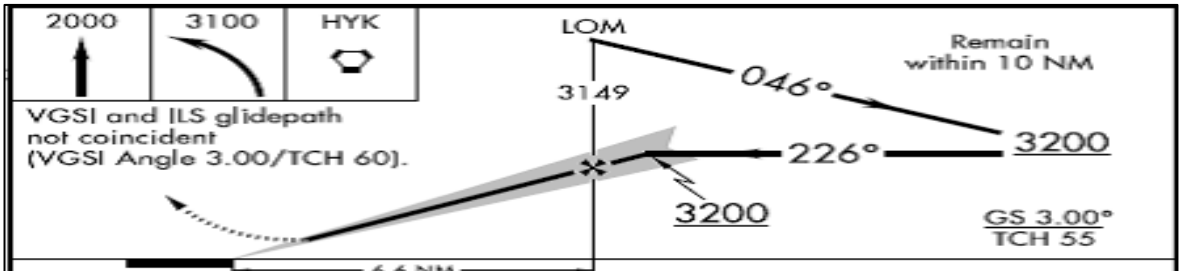
1. Throttles ..... Idle
2. Propellers ..... Full Forward
3. Mixtures ..... Adjust
4. Gear (Below 140 KIAS)..... Down
5. Cowl Flaps..... As Required
6. Bank Angle.....Maintain between 30° and 45°
7. Airspeed .....Maintain 140 KIAS
8. ATC.....Notify Nature Of Emergency
9. Fuel Selectors .....On

Sample ILS Approach Procedure



Instrument ILS 22

1. Set Throttles to 23"/2300 inbound to HYK
2. Slow to 20"/2300 approaching HYK for 120 KIAS
3. Perform Holding Pattern at HYK if requested by ATC
4. Follow Feeder Route to BRIDL and perform the Procedure Turn
5. At Procedure Turn inbound, or on a 45 for Final Approach Course if vectored, 15"/18" slow to 100 KIAS
6. At Final Approach Course Inbound complete the Landing checklist, Hold gear and flaps
7. Adjust power to maintain 100 KIAS and FAF altitude.
8. At 1/2 Dot below GS Intercept (FAF), Lower Landing Gear and 10° Flaps
9. Confirm 3 Down, Green & Landing Checklist Complete, Holding at the remainder of the flaps from FAF to MAP
10. The addition of the flaps and gear should allow for descent on GS **without** a power change at 100KIAS to DA/DH
11. If Runway environment in sight, reduce power, lower 25° Flaps. Landing Checklist Complete.



CATEGORY	A	B	C	D
S-ILS 22		1252-1 272 (300-1)		
S-LOC 22	1520-1 540 (600-1)		1520-1½ 540 (600-1½)	1520-1¾ 540 (600-1¾)
CIRCLING	1520-1 540 (600-1)		1520-1½ 540 (600-1½)	1540-2 560 (600-2)

APPENDIX 1
SEMINOLE CHECKLIST

EKU AVIATION

PA-44-180
Seminole Checklist
(Including G-500)
January 13, 2016

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AIRSPEEDS FOR SAFE OPERATIONS

Fuel Capacity	108 Gal
Max TO Weight	3800
Max Demonstrated Crosswind	17 Kts
V_{SO}	55 KIAS
V_{MCA}	56 KIAS
V_{S1}	57 KIAS
Landing Final Approach Speed	75 KIAS
V_{XSE}	82 KIAS
V_{YSE}	88 KIAS
V_X (@ S.L.)	82 KIAS
V_Y (@S.L.)	88 KIAS
V_{FE}	111 KIAS
V_A (@ gross weight)	135 KIAS
V_{LE}	140 KIAS
V_{LO} (retract)	109 KIAS
V_{LO} (extend)	140 KIAS
V_{NO}	169 KIAS
V_{NE}	202 KIAS
V_R	75 KIAS

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PRE-FLIGHT CHECK

1. WEIGHT AND BALANCE..... WITHIN LIMITS
2. PERFORMANCE AND RANGE.... COMPUTED AND SAFE

Takeoff and Performance Briefing

- Takeoff Weight: _____ (Figure 6-13)
- CG _____ In limits Yes _____ No _____ (Figure 6-15)
- Takeoff Ground Roll: _____ (Figure 5-9, 5-13)
- Accel.-Stop Distance: _____ (Figure 5-5, 5-7)
- Two-engine climb rate_____ (Figure 5-23)
- T.O. Distance Over 50' Obstacle _____ (Figure 5-11, 5-15)
- SE Climb Rate: _____ (Figure 5-25)
- SE Service Ceiling: **about 4000'** depending on density altitude
- Obstacle Rotate:_____ Climb Out:_____ (Figure 5-11, 5-15)
- Landing Roll: _____Over 50':_____(Figure 5-43, 5-45)
- At 8,000', no wind, STD temp, 65% power set, & econ cruise
  - _____MP @ 2300 RPM (Figure 5-29)
  - _____GPH (Figure 5-29)
  - TAS_____kts (Figure 5-31)
  - _____NM Range (Figure 5-35)
  - _____Endurance Hours (Figure 5-39)

V_{MC}: 56 V_S: 75 V_Y/V_{YSE}: 88 V_X/V_{XSE}: 82

- Climb Speed to 500' AGL: **88 KIAS @ 27" MP & 2700 RPM (No power changes below 1000'AGL)**
- Climb Speed to 1000' AGL: **110 KIAS @ 27" MP & 2700 RPM**
- Cruise climb to final altitude: **110 KIAS @ 25" MP & 2500 RPM**
- Cruise: **140 KIAS @ 23" MP and 2300 RPM**
- IFR Pattern (i.e., radar vectors, holding, arcing) **120 KIAS @ 20" MP and 2300**

PRE-FLIGHT (Inside Cabin)

1. LANDING GEAR CONTROL..... DOWN
2. AVIONICS MASTER..... OFF
3. MAGNETOS..... OFF
4. MASTER SWITCH..... ON
5. LANDING GEAR LIGHTS..... ON AND 3 GREEN
6. FUEL QUANTITY..... ADEQUATE PLUS RESERVE
7. MASTER SWITCH..... OFF
8. MIXTURES..... IDLE CUT-OFF
9. COWL FLAPS..... OPEN
10. FLAPS..... CHECK OPERATION
11. TRIM INDICATORS..... NEUTRAL
12. FLIGHT CONTROLS..... FREE AND CORRECT
13. PITOT AND STATIC SYSTEM..... DRAIN
14. EMPTY SEATS..... FASTEN SEATBELTS
15. EMERGENCY EXIT..... CLOSED AND LOCKED
16. AIRWORTHINESS DOCUMENTS..... ARROW

PRE-FLIGHT (outside)

1. FUEL SUMP DRAINS..... DRAIN
2. RIGHT WING AILERON, FLAP..... CHECK NO ICE
3. RIGHT WING TIP..... CHECK
4. RIGHT LEADING EDGE..... CHECK, NO ICE
5. RIGHT MAIN GEAR..... NO LEAKS
6. STRUT..... CHECK 2.5 Inches ±0.25
7. TIRE..... PROPER INFLATION
8. FUEL CAP.... CHECK QUANTITY AND COLOR, SECURE
9. RIGHT ENGINE NACELLE..... CHECK OIL
10. RIGHT PROPELLER..... CHECK
11. COWL FLAPS..... OPEN AND SECURE
12. NOSE SECTION..... CHECK
13. NOSE GEAR..... EXTENSION SPRINGS
14. STRUT..... CHECK 2.5 Inches +- 0.25
15. TIRE..... PROPER INFLATION
16. TOW BAR..... REMOVED AND STOWED
17. LANDING LIGHT..... CLEAN
18. WINDSHIELD..... CLEAN
19. REPEAT .....#2-11 FOR LEFT WING, ENGINE, AND LANDING GEAR IN REVERSE ORDER
20. STALL WARNING VANES..... CHECK
21. PITOT/STATIC MAST..... CLEAR, CHECKED
22. DORSAL FIN AIR SCOOP..... CLEAR
23. EMPENNAGE..... CHECK, NO ICE
24. STABILATOR..... FREE
25. ANTENNAS..... CHECK
26. BAGGAGE DOOR..... LATCHED
27. CHOCKS..... REMOVED

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BEFORE STARTING ENGINES

1. SEATS ..... ADJUSTED
2. SEAT BELTS/HARNESSES ..... FASTENED/ADJUST
3. SEATBELT INERTIA WHEEL ..... CHECK OPERATION
4. PARKING BRAKE ..... SET
5. CIRCUIT BREAKERS ..... IN
6. AVIONICS ..... OFF
7. COWL FLAPS ..... OPEN
8. CARBURETOR HEAT ..... OFF
9. ALTERNATORS ..... ON
10. PASSENGER BRIEFING ..... COMPLETE

STARTING ENGINES

1. FUEL SELECTORS (BOTH) ..... ON
2. MIXTURE ..... RICH
3. PROPELLER ..... FORWARD
4. THROTTLE ..... 1/4 INCH OPEN
5. MAGNETOS ..... ON
6. ANTI-COLLISION LIGHTS ..... ON
7. MASTER SWITCH ..... ON
8. ELECTRIC FUEL PUMP ..... ON
9. FUEL PRESSURES ..... CHECK
10. PROPELLER AREA ..... CLEAR
11. PRIMER ..... AS REQUIRED
12. STARTER ..... ENGAGE
13. THROTTLE ..... ADJUST WHEN ENGINE STARTS
14. ELECTRIC FUEL PUMP ..... OFF
15. ENGINE, ALT, & VACUUM GAUGES ..... CHECK
16. MIXTURE ..... LEANED AS APPROPRIATE
17. REPEAT ..... FOR OPPOSITE ENGINE
18. AVIONICS ..... ON
19. **28 VAC Rocker Switch (G-500 Only)** ..... **ON**
20. **Air Cond. (G-500 Only)** ..... **ON (If required)**
21. **AP/FD Rocker Switch (G-500 Only)** ..... **ON**

Note: With the A/C compressor on the left engine, for VIP operations with two instructors, the 28VAC rocker could be moved to the on position for passenger comfort after the left engine is started)

WARM-UP

THROTTLES ..... 1,000 TO 1,200 RPM

STARTING ENGINES WHEN FLOODED

1. MIXTURE ..... IDLE CUT-OFF
2. THROTTLE ..... OPEN FULL
3. PROPELLER ..... FULL FORWARD
4. MASTER SWITCH ..... ON
5. MAGNETOS ..... ON
6. ELECTRIC FUEL PUMP ..... OFF
7. STARTER ..... ENGAGED
8. THROTTLE ..... RETARD
9. MIXTURE ..... ADVANCE
10. OIL PRESSURE ..... CHECK

STARTING ENGINES IN COLD WEATHER (below 10° F)

..... REFER to POH

STARTING ENGINES WITH EXTERNAL POWER

..... REFER to POH

BEFORE TAXI

1. GPS ..... GROUND TEST
2. AWOS/ATIS ..... CHECKED
3. RADIO CHECK ..... RECEIVED
4. **AHRS (G-500 Only)** ..... **Caution Text Disappears**

Warning!!
DO NOT TAXI until artificial horizon appears, with no warnings visible, and no X's.

5. TAXI ..... ANNOUNCE

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TAXI CHECK

1. TAXI AREA ..... CLEAR
2. PARKING BRAKE ..... OFF
3. THROTTLES ..... APPLY SLOWLY
4. BRAKES ..... TEST
5. STEERING ..... CHECK
6. INSTRUMENTS ..... CHECK
7. HEATER AND DEFROSTER ..... CHECK

GROUND CHECK RUN-UP

1. PARKING BRAKE ..... ON
2. CLOCK ..... SET
3. ATTITUDE INDICATOR ..... SET
4. ALTIMETER ..... SET
5. ANNUNCIATOR PANEL ..... PRESS-TO-TEST
6. HSI ..... SET
7. **STANDBY ATT IND (G-500 Only).** ..... **TEST BATT**
8. FLIGHT CONTROLS ..... FREE, FULL TRAVEL
9. COWL FLAPS ..... OPEN
10. FUEL SELECTORS ..... ON
11. MIXTURES ..... FORWARD
12. PROPELLERS ..... FORWARD
13. **Air Cond. (G-500 Only)** ..... **OFF**
14. THROTTLES ..... 1500 RPM
15. PROPELLERS .. CHECK FEATHER 500 RPM MAX DROP
16. THROTTLES ..... 2000 RPM
17. PROPELLERS ..... CHECK GOVERNOR
18. CARBURETOR HEAT ..... CHECK
19. MAGNETOS ..... CHECK, MAX DROP 175 RPM MAX DIFF DROP 50 RPM
20. ALTERNATOR OUTPUT ..... CHECK
21. GYRO SUCTION GAUGE ..... 4.8 TO 5.3 IN HG (N/A in G-500)
22. ENGINE GAUGES ..... IN THE GREEN
23. THROTTLES ..... 1000 RPM
24. QUADRANT FRICTION ..... ADJUSTED
25. PITOT HEAT ..... AS REQUIRED

BEFORE TAKEOFF

*1. FUEL SELECTORS (BOTH) ..... ON
*2. TRIM ..... SET
*3. WING FLAPS ..... SET
*4. COWL FLAPS ..... OPEN
*5. MIXTURES ..... SET
*6. PROPELLERS ..... FORWARD
*7. ELECTRIC FUEL PUMPS ..... ON
8. LIGHTS ..... AS REQUIRED
9. TRANSPONDER ..... ALT
*10. **Air Cond. (G-500 Only)** ..... **OFF**
*11. DOORS ..... LATCHED
*12. SEAT BACKS ..... ERECT
*13. TAKEOFF BRIEFING ..... COMPLETE

* Asterisk items to be completed before every takeoff.

CAUTION

Fast taxi turns immediately prior to takeoff run should be avoided. Adjust mixture prior to takeoff from high elevation. Do not overheat. Adjust mixture only enough to obtain smooth engine operation.

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NORMAL TAKEOFF

1. BEFORE CROSSING HOLD SHORT
   - LIGHTS, CAMERA, ACTION
2. TAXI INTO POSITION ON RUNWAY
3. FLAPS ..... 0°
4. HOLD BRAKES INCREASE THROTTLE TO .....2000 RPM
5. ENGINE GAUGES ..... CHECK T's & P's IN GREEN
6. BRAKES..... RELEASE
7. THOTTLES .....FULL 27"/2700 RPM
8. ROTATE. ..... 75 KIAS
9. AIRSPEED ..... SET BLUE LINE 88 KIAS
   - PRIVATE PTS (+10/-5 KTS)
   - COMMERCIAL PTS (±5 KTS)
10. GEAR UP..... BEFORE 109 KIAS
11. PASSING 500' AGL ..... 110 KIAS

Note: NO POWER CHANGES BELOW 1000 FEET AGL.

1000 FEET CLIMBOUT

1. POWER ..... 25 INCHES/2500 RPM
2. FUEL PUMPS .....OFF ONE AT A TIME
3. FUEL PRESSURES..... CHECK
4. T'S AND P'S .....IN THE GREEN
5. CRUISE CLIMB..... 110 KIAS OR GREATER

CRUISE CHECK

1. ENGINE..... 23"/2300 RPM; CHECK POH @ 65% POWER
2. ICING .....OAT AND WINGS
3. FUEL.....SELECTOR, QTY, FUEL FLOW
4. ENGINE GAUGES..... T'S & P'S; PROP SYNC, LEAN MIXTURE EGT 75° ROP AND CHT BELOW 400°
5. DG/HSI ..... FLAGS AWAY; ALIGNED WITH COMPASS
6. ALTIMETER ..... SET PRESSURE
7. COWL FLAPS.....HALF OR CLOSED PER CHT
8. LIGHTS .....AS REQUIRED
9. **Air Cond. (G-500 Only)..... ON (If Required)**

DESCENT

1. COWL FLAPS ..... HALF OR CLOSED
2. THROTTLE..... 18-20"MP
3. PROP..... 2300 RPM
4. MIX..... ADJUST AS NECESSARY

APPROACH

1. ATIS..... CHECK
2. ALTIMETER..... SET
3. APPROACH BRIEF .....COMPLETE
4. LANDING LIGHTS ..... ON
5. RECOG LIGHTS..... ON
6. COWL FLAPS.....AS REQUIRED
7. SEAT BACKS ..... ERECT
8. SEAT BELTS AND HARNESSES.....FASTEN/ADJUST
9. VENT FAN/ HEATER..... AS REQUIRED

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BEFORE LANDING

1. **Air Cond. (G-500 Only)** ..... **OFF**
2. GAS–FUEL SELECTORS & FUEL PUMPS ..... ON
3. UNDERCARRIAGE ..... GEAR DOWN, 140 KIAS MAX
4. MIXTURE CONTROLS ..... ENRICH
5. PROP CONTROLS ..... FULL FORWARD
6. FLAPS ..... SET, 111 KIAS MAX
7. APPROACH SPEED ..... 75 KIAS OR ABOVE

1000'AGL CHECKS

1. GREENS ..... T'S AND P'S IN GREEN
2. BLUES ..... PROPS 2700 RPM FULL FORWARD
3. REDS ..... MIXTURE RICH
4. FLAGS ..... AWAY AND ALIGNED

SHORT FINAL

1. GREENS ..... 3 GREENS, WHEEL IN MIRROR
2. BLUES ..... FULL FORWARD
3. REDS ..... FULL FORWARD
4. FLAPS ..... 40° (ONLY IF 2 ENGINE)

GO AROUND

1. POWER ..... MAXIMUM AVAILABLE
2. POSITIVE RATE OF CLIMB ..... ESTABLISH
3. FLAPS ..... RETRACT TO 25°
4. GEAR ..... UP
5. FLAPS ..... RETRACT
6. AIRSPEED ..... 88 KIAS
7. COWL FLAPS ..... ADJUST

AFTER LANDING

1. RUNWAY ..... EXIT
2. FLAPS ..... RETRACT
3. COWL FLAPS ..... FULL OPEN
4. FUEL PUMPS ..... OFF
5. TRANSPONDER ..... "ALT" SQUAWKING 1200
6. STROBE/LANDING LIGHTS ..... AS REQUIRED
7. HEATER (IF ON) ..... FAN 2 MIN. THEN OFF

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SHUTDOWN

1. THROTTLES ..... IDLE
2. **Air Cond. (G-500 Only)** ..... **OFF**
   (If Used During Taxi To Park)
3. **28 VAC Rocker Switch (G-500 Only)** ..... **OFF**
4. **AP/FD Rocker Switch (G-500 Only)** ..... **OFF**
5. AVIONICS ..... OFF
6. THROTTLES ..... 1200 RPM
7. MIXTURES ..... *IDLE CUT-OFF
   *One at a time to check suction gauge operation
8. MAGNETOS ..... OFF
9. MASTER SWITCH ..... OFF
10. ELECTRICAL PANEL SWITCHES ..... OFF
11. VENT FAN/ HEATER ..... OFF
12. AIR VENTS ..... BOTH CLOSED

PARKING

1. WHEEL CHOCKS ..... IN PLACE (IF REQUIRED)
2. TIE DOWNS ..... SECURE
3. PITOT TUBE COVER ..... IN PLACE
4. COWL PLUGS ..... IN PLACE
5. EXTERIOR WALKAROUND ..... COMPLETED
6. TACH SHEET ..... COMPLETED
7. DOORS ..... LOCKED

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Emergency Procedures

ENGINE FAILURE DURING TAKEOFF BELOW 75 KIAS

IF ADEQUATE RUNWAY REMAINS:
THROTTLES..... CLOSE BOTH IMMEDIATELY
STOP STRAIGHT AHEAD
IF INADEQUATE RUNWAY REMAINS TO STOP:
THROTTLES..... CLOSED
BRAKES.....APPLY MAX BRAKING
MASTER SWITCH.....OFF
FUEL SELECTORS.....OFF
Continue Straight Ahead.

ENGINE FAILURE DURING TAKEOFF ABOVE 75 KIAS

IF ADEQUATE RUNWAY REMAINS:
THROTTLES..... CLOSE BOTH IMMEDIATELY
LAND, IF AIRBORNE, AND STOP STRAIGHT AHEAD.
IF INADEQUATE RUNWAY REMAINS:
DECIDE WHETHER TO ABORT OR CONTINUE.
IF CONTINUING, MAINTAIN HEADING AND ESTABLISH 88 KIAS
LANDING GEAR .....UP
FLAPS .....UP
INOPERATIVE ENGINE .....FEATHER
(SEE FEATHERING PROCEDURE)

AIRSPEEDS FOR SAFE OPERATIONS

ONE ENGINE INOP AIR MINIMUM CONTROL .....56 KIAS
ONE ENGINE INOP BEST ANGLE OF CLIMB .....82 KIAS
ONE ENGINE INOP BEST RATE OF CLIMB .....88 KIAS
VA (@ GROSS 3800 LBS.) .....135 KIAS
(@ 3400 LBS.) .....127 KIAS
NEVER EXCEED SPEED .....202 KIAS

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Emergency Procedures

ENGINE FAILURE DURING FLIGHT ABOVE 75 KIAS (CRUISE)

MINIMUM CONTROL SPEED .....56 KIAS
ONE ENGINE INOP BEST RATE OF CLIMB .....88 KIAS
MAINTAIN DIRECTION & AIRSPEED ABOVE.....82 KIAS
MIXTURE CONTROL.....FORWARD
PROPELLER CONTROL .....FORWARD
THROTTLE CONTROL .....FORWARD
FLAPS.....RETRACT
LANDING GEAR.....RETRACT

If altitude permits, a restart may be attempted. If restart fails or if altitude does not permit restart; see feathering procedure.

DETECTING DEAD ENGINE

Loss of thrust, nose of aircraft will yaw in direction of dead engine (with coordinated controls).

DEAD FOOT INDICATES DEAD ENGINE

THROTTLE OF INOP ENGINE..... RETARD TO VERIFY

ATTEMPTING TO RESTORE ENGINE (TROUBLESHOOT)

FUEL SELECTORS .....ON
CARBURETOR HEAT .....ON
MIXTURES .....RICH
ELECTRIC FUEL PUMPS .....CHECK ON
MAGNETOS .....CHECK BOTH ON

IF ENGINE DOES NOT RESTART PROCEED TO FEATHERING PROCEDURE CHECKLIST

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Emergency Procedures

FEATHERING PROCEDURE

PROP CONTROL INOP ENGINE.....FEATHER BEFORE RPM DROPS BELOW 950
MIXTURE OF INOP ENGINE.....IDLE CUT-OFF
TRIM.....AS REQUIRED
(RAISE THE DEAD ENGINE BY 2-4° OF BANK & 1/2 BALL TOWARD OPERATIVE ENGINE)
ELECTRIC FUEL PUMP OF INOP ENGINE.....OFF
MAGNETOS OF INOP ENGINE.....OFF
COWL FLAPS.....CLOSED ON INOP ENGINE
COWL FLAPS.....OPEN ON OPERATIVE ENGINE
ALTERNATOR ON INOP ENGINE.....OFF
ELECTRICAL LOAD.....REDUCE
FUEL SELECTOR.....OFF INOP ENGINE
CROSSFEED.....CONSIDER
ELECTRIC FUEL PUMP OPERATIVE ENGINE.....OFF

ONE ENGINE INOPERATIVE LANDING

INOP ENGINE PROP.....FEATHER
--WHEN CERTAIN FIELD IS MADE:
LANDING GEAR.....EXTEND
WING FLAPS.....LOWER
ADDITIONAL ALTITUDE AND SPEED.....MAINTAIN
FINAL APPROACH SPEED.....90 KIAS
WING FLAPS.....25°

CAUTION

One engine inoperative go-around (should be avoided if at all possible)
MIXTURE.....FORWARD
PROPELLER.....FORWARD
THROTTLE.....OPEN SLOWLY
FLAPS.....RETRACT
LANDING GEAR.....RETRACT
AIRSPEED.....88 KIAS
TRIM.....SET
COWL FLAP OPERATING ENGINE.....AS REQUIRED

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Emergency Procedures

AIR START
(UNFEATHERING PROCEDURE)

FUEL SELECTOR INOP ENGINE.....ON
ELECTRIC FUEL PUMP INOP ENGINE.....ON
MIXTURE.....RICH
THROTTLE.....TWO FULL STROKES AND THEN OPEN 1/4 INCH
MAGNETO SWITCHES.....ON
PROP CONTROL.....FULL FORWARD
STARTER.....IF REQUIRED ENGAGE UNTIL PROP WINDMILLS
THROTTLE.....REDUCE TO 15" UNTIL ENGINE IS WARM
IF ENGINE DOES NOT START.....PRIME AS REQUIRED
ALTERNATOR.....ON
FUEL PUMP.....OFF

ENGINE FIRE ON GROUND

IF ENGINE HAS NOT STARTED:
MIXTURE.....IDLE CUT-OFF
AFFECTED THROTTLE.....OPEN
STARTER.....CRANK ENGINE
IF ENGINE IS RUNNING: CONTINUE OPERATING TO PULL THE FIRE INTO THE ENGINE. IF FIRE CONTINUES, EXTINGUISH WITH BEST AVAILABLE MEANS.
IF EXTERNAL FIRE SUPPRESION IS TO BE APPLIED
FUEL SELECTORS.....OFF
MIXTURE.....IDLE CUT-OFF

ENGINE FIRE IN FLIGHT

AFFECTED ENGINE:
FUEL SELECTOR.....OFF
THROTTLE.....CLOSE
PROPELLER.....FEATHER
MIXTURE.....IDLE CUT-OFF
COWL FLAP.....OPEN
IF TERRAIN PERMITS.....LAND IMMEDIATELY

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Emergency Procedures

PROPELLER OVERSPEED

THROTTLE.....RETARD
OIL PRESSURE.....CHECK
PROP CONTROL.....DECREASE RPM
UNTIL WITHIN LIMITS THEN SET IF ANY CONTROL AVAILABLE
AIRSPEED.....REDUCE
THROTTLE..... REDUCE TO REMAIN BELOW 2700 RPM

FUEL MANAGEMENT DURING ONE ENGINE INOPERATIVE OPERATION

CRUISING

WHEN USING FUEL FROM TANK ON THE SAME SIDE AS THE OPERATING ENGINE:
FUEL SELECTOR OPERATING ENGINE.....ON
FUEL SELECTOR INOP ENGINE.....OFF
ELECTRIC FUEL PUMPS.....OFF
(EXCEPT IN CASE OF ENGINE-DRIVEN FUEL PUMP FAILURE, ELECTRIC FUEL PUMP ON OPERATING ENGINE SIDE MUST BE USED)
WHEN USING FUEL FROM TANK ON THE SIDE OPPOSITE THE OPERATING ENGINE:
FUEL SELECTOR OPERATING ENGINE..... CROSSFEED
FUEL SELECTOR INOP ENGINE.....OFF
ELECTRIC FUEL PUMPS.....OFF
(EXCEPT IN CASE OF ENGINE-DRIVEN FUEL PUMP FAILURE, ELECTRIC FUEL PUMP ON OPERATING ENGINE SIDE MUST BE USED)
NOTE: ..USE CROSSFEED IN LEVEL CRUISE FLIGHT ONLY

LANDING

FUEL SELECTOR OPERATING ENGINE.....ON
FUEL SELECTOR INOP ENGINE.....OFF

Emergency Procedures

ELECTRICAL OVERLOAD

(ALTERNATORS OVER 30 AMPS ABOVE KNOWN ELECTRICAL LOAD)
ALT SWITCHES.....ON
BAT SWITCH.....OFF
IF ALTERNATOR LOADS ARE REDUCED: this indicates a malfunction of the battery and/or battery wiring.
ELECTRICAL LOADS.....REDUCE TO MINIMUM
Land as soon as practical. The alternator (s) is the only source of electrical power.
NOTE: Due to increased system voltage and radio frequency noise, operation with alt switches on and bat switch off should be made only when required by an electrical failure.
IF ALTERNATOR LOADS ARE NOT REDUCED:
ALT SWITCHES.....OFF
BAT SWITCH.....AS REQUIRED
ELECTRICAL LOADS.....REDUCE TO MINIMUM
Land as soon as practical. The battery is the only remaining source of electrical power. Anticipate complete electrical failure.

WARNING

Compass error may exceed 10 degrees with both alternators inoperative.

NOTE

If the battery is depleted, the landing gear must be lowered using the emergency gear extension procedure. The gear position lights will be inoperative.

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Emergency Procedures

ELECTRICAL FAILURES

ALT ANNUNCIATOR LIGHT ILLUMINATED
AMMETER.. CHECK TO DETERMINE INOP ALTERNATOR

IF ONE AMMETER SHOWS ZERO:

INOP ALT SWITCH.....OFF
REDUCE ELECTRICAL LOADS TO MINIMUM
ALT CIRCUIT BREAKER CHECK & RESET AS REQUIRED
INOP ALT SWITCH.....ON
IF POWER IS NOT RESTORED:
INOP ALT SWITCH.....OFF
ELECTRICAL LOADS....RE-ESTABLISH TO 60 AMPS MAX

IF BOTH AMMETERS SHOW ZERO:

ALT SWITCHES.....BOTH OFF
REDUCE ELECTRICAL LOADS TO.....MINIMUM
ALT CIRCUIT BREAKERS.....CHECK & RESET AS REQUIRED
ALT SWITCHES.....ON ONE AT A TIME
DETERMINE ALT SHOWING LEAST (NOT ZERO) AMP
ALT SWITCHES.....LEAST LOAD ON, OTHER OFF
ELECTRICAL LOADS....RE-ESTABLISH TO 60 AMPS MAX

CONTINUED NEXT PAGE

Emergency Procedures

IF ALTERNATOR OUTPUTS ARE NOT RESTORED

BAT SWITCH.....OFF
ALT SWITCHES.....ON ONE AT A TIME

IF ONE OR BOTH ALTERNATOR OUTPUTS ARE RESTORED:

ELECTRICAL LOADS.....REDUCE TO MINIMUM
Land as soon as practical. The alternator (s) is the only remaining source of electrical power

NOTE:

Due to increased system voltage and radio frequency noise, operation with ALT switches ON and BAT switch OFF should be made only when required by an electrical failure.

IF ALTERNATOR OUTPUTS ARE NOT RESTORED AFTER THE ABOVE PROCEDURE:

ALT SWITCHES.....OFF
ELECTRICAL LOADS.....REDUCE TO MINIMUM
Land as soon as practical. The battery is the only remaining source of electrical power. Anticipate complete electrical system failure.

WARNING

Compass error may exceed 10 degrees with both alternators inoperative.

NOTE

If the battery is depleted, the landing gear must be lowered using the emergency gear extension procedure. The gear position lights will be inoperative

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Emergency Procedures

GYRO SUCTION FAILURES
(N/A in G-500)

Suction Below 4.5 Inches Hg.

RPM ..... INCREASE TO 2700
ALTITUDE ..... DECREASE TO MAINTAIN 4.5 IN HG.
Use electric turn indicator to monitor directional indicator and attitude indicator performance.

SPIN RECOVERY
(Intentional Spins Prohibited)

THROTTLES ..... RETARD TO IDLE
RUDDER ..... FULL OPPOSITE TO DIRECTION OF SPIN
CONTROL WHEEL ..... RELEASE BACK PRESSURE
CONTROL WHEEL ..... FULL FORWARD IF NOSE DOESN'T DROP
AILERONS ..... NEUTRAL
RUDDER ..... NEUTRALIZE WHEN ROTATION STOPS
CONTROL WHEEL ..... SMOOTH BACK PRESSURE TO RECOVER FROM DIVE

OPEN DOOR
(Entry Door Only)

SLOW THE AIRPLANE TO ..... 82 KIAS
CABIN VENTS ..... CLOSE
STORM WINDOW ..... OPEN
IF UPPER LATCH IS OPEN ..... LATCH
IF LATCHES ARE OPEN ..... LATCH SIDE THEN TOP

EMERGENCY DESCENT

1. THROTTLES ..... IDLE
2. PROPELLERS ..... FULL FORWARD
3. MIXTURES ..... ADJUST
4. GEAR (BELOW 140 KIAS) ..... DOWN
5. COWL FLAPS ..... AS REQUIRED
6. AIRSPEED ..... MAINTAIN 140 KIAS
7. ATC ..... NOTIFY NATURE OF EMERGENCY
8. FUEL SELECTORS ..... ON

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Emergency Procedures

EMERGENCY EXIT

THERMOPLASTIC COVER ..... REMOVE
PULL HANDLE ..... FORWARD
PUSH ..... WINDOW OUT

LANDING GEAR UNSAFE WARNINGS

Red light indicates gear in transit
Recycle gear if indication continues
Light will illuminate and gear horn sounds when the gear is not down and locked if throttles are at low settings or wing flaps are in 2nd or 3rd notch position

MANUAL EXTENSION OF LANDING GEAR

CHECK FOLLOWING BEFORE EXTENDING GEAR MANUALLY:

CIRCUIT BREAKERS ..... CHECK
MASTER SWITCH ..... ON
ALTERNATORS ..... CHECK
NAVIGATION LIGHTS ..... OFF (DAYTIME)
DAY/NIGHT DIMMER SWITCH ..... DAY

TO EXTEND: PROCEED AS FOLLOWS:

AIRSPEED ..... REDUCE 100 KIAS MAX
GEAR SELECTOR ..... GEAR DOWN LOCKED
EMERGENCY GEAR EXTEND KNOB ..... PULL
INDICATOR LIGHTS ..... 3 GREEN
LEAVE EMERGENCY GEAR EXTENSION KNOB OUT

ENGINE-DRIVEN FUEL PUMP FAILURE

ELECTRIC FUEL PUMP ..... ON

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