

Piper Seminole  
PA-44-180  
Maneuver Guide  
May 2006

# Scott AFB Aero Club/Flight Training Center

Piper Seminole PA-44-180 Procedure Guide

Date: May 2006

## ALL PILOTS FLYING THE PIPER SEMINOLE SHOULD OBSERVE THE FOLLOWING

1. This procedure guide is applicable for both Part 61 and Part 141 students at Scott AFB Aero Club/Flight Training Center. This serves as a supplement to the FAA approved training syllabus.
2. The normal fuel level for each flight is 40 gallons per nacelle tank with a total of 80 gallons. The recommended oil level is no less than 5 quarts, and a maximum of 6 quarts per engine.
3. When adjusting the front seats, do not use the glare shield or instrument panel to assist in moving the seat to a forward position. Do not place any items on top of the glare shield at any time.
4. The student will brief the instructor on proper procedures in the event of loss of directional control. For an IFR flight, the student will also brief the instructor on any departure procedures as necessary for the flight. For Simulated *One-Engine Inoperative* (OEI): **Below 3,000 feet AGL** – Throttles only. **Above 3,000 feet AGL** – Throttles, Mixtures, or Fuel Selectors.
5. For safety reasons, at Scott AFB Aero Club/Flight Training Center, the Short Field Takeoff procedure shall be performed with flaps in the up position. You can significantly reduce takeoff distance with flaps down to two notches or 25°. Only the instructor is authorized to conduct a Short Field Takeoff with flaps at 25° in the Scott AFB Aero Club/Flight Training Center aircraft.
6. For every flight the student will complete a weight and balance. The student will brief the instructor on the results. If required will add weight to the baggage compartment to result in the weight and balance being within Center of Gravity (CG) limits.
7. Any power settings other than recommended for the procedures shall be computed by the student prior to each flight for the current conditions. Unless otherwise briefed between the student and instructor the student shall use 75% chart in the Piper Seminole Pilot Information Manual.
8. Landing lights normally should be turned off when reaching 1,000 feet AGL or 10 nautical miles from the airport, depending upon current situation. However, if the situation calls for the use of the landing light due to low visibility, the pilot or instructor may turn the landing light on to assist in increasing the aircraft's visibility in the practice area.
9. Avoid *abrupt* application of propellers to the full forward position to avoid the propeller from surging, and the ensuing higher noise levels.
10. During the post-flight, assure that all trash and other debris is removed from the aircraft interior and baggage area. Also verify that the storm window on the pilot's side of the aircraft is closed and secure with either the left or right seat belt securing the controls of the aircraft.
11. For more information about the aircraft view the Piper Seminole Pilot Information Manual. Consult the Commercial Practical Test Standards or the Airplane Flying Handbook for more information on the standards for which the student will be taught and tested on.
12. Under FAR Part 23, aircraft weighting less than 6,000 lbs. and with a  $V_{SO}$  speed under 61 knots are only require to calculate the climb performance at 5,000 feet, not demonstrated a climb. The Piper Seminole is also certified in the normal category of aircraft. During the certification phase the aircraft was never intentionally spun. Therefore acrobatic maneuver, including spins are prohibited.
13. It is the student/pilot and flight instructor's responsibility to verify that all applicable inspections, applicable to the type of flight/training, and Airworthiness Directives (AD) are complied with prior to the beginning of the flight.
14. Ask a flight instructor for clarification if any procedure is unclear to you as the student or pilot.

FOR TRAINING IN SCOTT AFB AERO CLUB/FLIGHT TRAINING CENTER AIRCRAFT ONLY

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## Airspeeds and Airspeed Indicator Markings

<u>AIRSPEED</u>	<u>KIAS</u>	<u>AIRSPEED INDICATOR MARKING</u>
V <sub>S0</sub>	55	Bottom of the White Arc – Stall LANDING Configuration
V <sub>MC</sub>	56	Red Radial – Minimum Controllable Airspeed Airborne
V <sub>S1</sub>	57	Bottom of the Green Arc – Stall CLEARN Configuration
V <sub>R</sub>	75	Not Indicated – Normal Rotation Speed
V <sub>X</sub>	82	Not Indicated – Best Angle of Climb
V <sub>XSE</sub>	82	Not Indicated – Best Angle of Climb Single Engine
V <sub>SSE</sub>	82	Not Indicated – Minimum Safe Airspeed Single Engine
V <sub>Y</sub>	88	Not Indicated – Best Rate of Climb
V <sub>YSE</sub>	88	Blue Radial – Best Rate of Climb Single Engine
V <sub>FE</sub>	111	Top of White Arc – Maximum Flaps Extension Speed
V <sub>LO (RETRACTION)</sub>	109	Not Indicated – Maximum Landing Gear Retraction Speed
V <sub>LO (EXTENSION)</sub>	140	Not Indicated – Maximum Landing Gear Extension Speed
V <sub>A (2700 lbs)</sub>	112	Not Indicated – Maneuvering Speed at 2700 lbs.
V <sub>A (MTOW)</sub>	135	Not Indicated – Maneuvering Speed at Maximum Takeoff Weight
V <sub>LE</sub>	140	Not Indicated – Maximum Landing Gear Extended Speed
V <sub>NO</sub>	169	Top of Green Arc – Maximum Structural Cruising Speed
V <sub>MO (AUTOPILOT)</sub>	185	Not Indicated – Maximum Cruise Speed for the Autopilot
V <sub>NE</sub>	202	Red Line – Never Exceed Speed
White Arc	55-111	Full Flaps Range
Green Arc	57-169	Normal Cruise Speed
Yellow Arc	169-202	Caution Range – Operations conducted only in smooth air.

### Other Important Speeds:

Max. Crosswind	17 knots	Not Indicated – Max. Demonstrated Crosswind Component
Storm Window	129	Not Indicated – Max. Storm Window Open Speed

## Speed and Power Settings

Cruise Climb	105 KIAS / 25" Manifold Pressure (MP) and 2500 RPM
Cruise	Local Area / 23" MP and 2400 RPM Cross Country Flight / Cruise Chart
Enroute Descent	165 KIAS / 2400 RPM and MP to hold airspeed
Traffic Pattern	100 KIAS / ±18" MP and 2500 RPM
Single Engine (OEI)	88 KIAS / ±24" MP and 2700 RPM (Maximum RPM)
Instrument Approaches	100 KIAS / ±15" MP and 2500 RPM
Single Engine (OEI)	88 KIAS / ±20" MP and 2700 RPM (Maximum RPM)
Minimum Controllable Airspeed	56 KIAS / Throttle as Required
Maximum Glide Distance	88 KIAS / Throttles Closed, Both Propellers Feathered

## Pilot Transition Techniques

1. Level Flight to Best Rate or Cruise Climb
  - A. Increase pitch to the Best Rate (88 KIAS) or cruise climb attitude (105 KIAS) and simultaneously reduce propellers and increasing throttles to 25" MP/2500 RPM.
  - B. Trim for best rate or cruise climb, as required.
  - C. Complete enroute checklist.
2. Level Flight to Enroute Descent
  - A. Reduce power to 2400 RPM and throttle as required.
  - B. Adjust pitch to enroute descent attitude (165 KIAS).
  - C. Trim for enroute descent.
  - D. Complete "Descent Checklist."
3. Climb to Level Cruise Flight
  - A. Decrease pitch to level flight attitude.
  - B. Set power to 18"MP and 2400 RPM or computed cruise performance.
  - C. Trim for level flight.
  - D. Complete "Cruise Checklist."
4. Descent to Level Cruise Flight
  - A. Increase pitch to level flight attitude.
  - B. Adjust power to 18"MP and 2400 RPM.
  - C. Trim for level flight.
  - D. Complete "Cruise Checklist."
5. Descent to Climb
  - A. Increase pitch to cruise climb attitude (105 KIAS) and advance propellers to 2500 RPM then increase throttles to 25" MP or highest MP.
  - B. Trim for cruise climb.
  - C. Complete "Enroute Climb Checklist."

## Pilot Pre-Takeoff Briefing

Before takeoff, the student will brief the flight on important speeds and actions that must be taken by the pilot in the event of loss of directional control.

- Brief takeoff procedure
- "If loss of directional control occurs prior to gear retraction, I will:
  - Reduce power to idle,
  - Maintain directional control and stop on the remaining runway,
  - Braking as required,
  - If no more usable runway, Turn Master and Fuel Selectors to OFF."
- "If loss of directional control occurs after gear retraction , I will:
  - Pitch for Blue Radial,
  - Declare an emergency and return for landing,
  - I will fly the aircraft and I will ask you to handle the radios,
  - Please comply with any instruction that I may ask you."
- "If in the event of an off-airport landing after landing exit the aircraft as quickly as possible;
  - The door is the primary exit however is the door cannot be opened,
  - The pilot's side window does serve as an emergency exit,
  - Pull the cover off then pull the red handle to release the window."

**Engine Failure Procedure**

1. Control the Aircraft
2. Speed no lower than V<sub>YSE</sub> (Blue Line)
3. Mixtures – Full Rich
4. Propellers – Full Forward
5. Throttles – Full Open
6. Flaps – UP
7. Gear – UP

**CONFIRM FAILED ENGINE**

8. “AIRSPEED CHECK – BLUELINE OR ABOVE”
9. “\_\_\_\_\_ FOOT DEAD, \_\_\_\_\_ ENGINE DEAD”
10. “\_\_\_\_\_ THROTTLE TO IDLE, \_\_\_\_\_ ENGINE IS DEAD”
11. “SECURE OR TROUBLESHOOT \_\_\_\_\_ ENGINE”
12. “SECURING ENGINE CHECKLIST AS APPROPRIATE”

**Securing Engine Checklist**

**NOTE:** Verify the proper control is being secured prior to moving any level or switch.

1. THROTTLE.....RETARD
2. PROPELLER.....FEATHER
3. MIXTURE.....IDLE CUT-OFF
4. BANK.....3° - 5° INTO THE OPERATING ENGINE
5. TRIM..... AS REQUIRED  
.....BALL 1/2 TO 3/4 OUT
6. FUEL PUMP.....OFF
7. MAGNETOS.....OFF
8. COWL FLAPS.....CLOSED
9. ALTERNATOR OF INOP ENGINE.....OFF
10. ELECTRICAL LOAD.....REDUCE
11. FUEL SELECTOR.....OFF INOPERATIVE ENGINE  
.....CONSIDER CROSSFEED  
.....FOR FUEL MANAGMENT
12. FUEL PUMP (OPERATING ENGINE).....OFF

**NOTE:**

Any time that an engine fails maintain aircraft control. Never stop flying the aircraft. When an engine fails mixtures, propeller and throttles must be moved to the full rich, full forward, and full open positions respectively. If altitude and/or performance permits reduce the power on the operating engine. Maintain no lower than V<sub>YSE</sub> (Blue Line) at any time when flying. The propeller is maintained in the full forward position for the best performance out of the operating engine.

**REMEMBER:**

The lost of an engine does not decrease performance by only 50%. It will and can decrease performance of the aircraft by up to 80% due to lost of lift and increased drag.

## Normal and Crosswind Takeoff Procedures

1. Complete “Before Takeoff – Ground Check,” and review the “Normal Takeoff” Checklist.
2. Brief Instructor on the “Pre-Takeoff Briefing.”
3. Clear the runway environment of traffic prior to crossing the Hold Short Line.
4. Align the aircraft on the runway, holding proper wind correction in the ailerons, hold the brakes while bringing the throttles through 2000 RPM, verbalize “NEEDLES NORMAL”, release brakes and then advance the throttles to FULL OPEN.
5. Verbalize “AIRSPEED ALIVE, THROUGH 56” while maintaining directional control on the runway and rotate at 75 KIAS and accelerate to 88 KIAS ( $V_Y$ ). About 50’ AGL “Speed below 109, Gear – UP”.
6. Climb at  $V_Y$  until 500 feet AGL then reduce power to 25”/2500 RPM until pattern altitude or safe maneuvering altitude.
7. Maintain extended runway centerline until 300 feet below pattern altitude or a turn is required.
8. Follow noise abatement procedures as required.
9. Complete “After Takeoff Climb” Checklist.

## Short Field Takeoff Procedure

1. Complete “Before Takeoff – Ground Check”, and review the “Short Field Takeoff (Flaps Up)” Checklist.
2. Brief Instructor on the “Pre-Takeoff Briefing”.
3. Clear the runway environment of traffic prior to crossing the Hold Short Line.
4. Align the aircraft on the runway, holding proper wind correction in the ailerons; hold the brakes while bringing the throttles to FULL OPEN, verbalize “NEEDLES NORMAL”, then release the brakes.
5. Verbalize “AIRSPEED ALIVE, THROUGH 56” while maintaining directional control on the runway and rotate at 70 KIAS and accelerate to 75 KIAS through 50 feet then 82 KIAS ( $V_X$ ) until clearing the obstacle.
6. Then accelerate to 88 KIAS ( $V_Y$ ) and “Speed below 109, Gear – UP”.
7. Climb at  $V_Y$  until 500 feet AGL then reduce power to 25”/2500 RPM until pattern altitude or safe maneuvering altitude.
8. Maintain extended runway centerline until 300 feet below pattern altitude or a turn is required.
9. Follow noise abatement procedures as required.
10. Complete “After Takeoff Climb” Checklist.

**NOTE: THE INSTRUCTOR WILL DEMONSTRATE A 25° FLAP SHORT FIELD PROCEDURE BUT THE STUDENT WILL USE FLAPS UP FOR ALL SHORT FIELD TAKEOFF PROCEDURES.**

## Completion Standards for Takeoffs

1. Positions the flight controls for the existing wind conditions.
2. Rotates at recommended/computed airspeed.
3. Initial climb at appropriate airspeed: Normal –  $V_Y \pm 5$  knots, Short Field –  $V_X + 5/-0$  knots, then  $V_Y \pm 5$  knots to a safe maneuvering altitude.
4. Maintains directional control, proper wind-drift correction throughout the takeoff and climb.
5. Complete appropriate checklists.
6. If remaining in the traffic pattern: Maintains TPA  $\pm 100$  feet, Maintains appropriate airspeed  $\pm 10$  knots.

## Normal and Crosswind Landing Procedures

1. Reduce power to  $\pm 18^\circ/2500$  RPM for approximately 100 KIAS. Enter and fly the traffic pattern per standard procedures.
2. Complete "Before Landing Checklist". At mid-field downwind point extend the landing gear when speed is below  $V_{LO(EXTENSION)}$  and slow to a speed below  $V_{FE}$ . *If Single Engine: Airspeed  $V_{YSE}$  to 100 KIAS, Flaps – UP, Gear – UP.*
3. When abeam the point of intended landing verify speed is below 111 KIAS ( $V_{FE}$ ) and lower the flaps to  $10^\circ$  (First Notch) and decelerate to 95 KIAS abeam the point of intended touchdown. *If Single Engine: Trim aircraft to Airspeed  $V_{YSE}$  to 95 KIAS, Flaps – As Required, Gear – DOWN.*
4. Execute a base turn when  $45^\circ$  behind the wing.
5. On base leg extend flaps to  $25^\circ$  (Second Notch) and adjust power and trim to hold 95 KIAS. *If Single Engine: Trim aircraft to Airspeed  $V_{YSE}$  to 95 KIAS, Flaps – As Required.*
6. Turn final to align the aircraft with the extended centerline of the runway.
7. Reduce the airspeed to 90 KIAS,  $\pm 5$  knots. Adjust pitch and power to maintain airspeed and descent angle appropriate for the approach to the runway. *If Single Engine: Trim aircraft to Airspeed  $V_{YSE}$  to 90 KIAS, Flaps – As Desired.*
8. Short Final: "Gear – Down Three (3) Green one in the mirror", Propeller – Full Forward. The smoothly reduce power to idle when crossing the runway threshold. Smoothly apply back pressure to transition to landing attitude and apply proper crosswind correction as necessary.
9. Touchdown at approximately stalling speed, touching down at or within 200 feet beyond intended touchdown point on the runway centerline, and apply aerodynamic breaking and brakes as necessary to avoid excessive brake pressure.
10. Taxi off the runway at the first available intersection, or as directed by ATC. Reconfigure the aircraft only after taxiing clear of the runway hold short lines. Complete "After Landing Checklist".

## Short Field Landing Procedures

1. Reduce power to  $\pm 18^\circ/2500$  RPM for approximately 100 KIAS. Enter and fly the traffic pattern per standard procedures.
2. Complete "Before Landing Checklist". At mid-field downwind point extend the landing gear when speed is below  $V_{LO(EXTENSION)}$  and slow to a speed below  $V_{FE}$ .
3. When abeam the point of intended landing verify speed is below 111 KIAS ( $V_{FE}$ ) and lower the flaps to  $10^\circ$  (First Notch) and decelerate to 95 KIAS abeam the point of intended touchdown.
4. Extend flaps to  $25^\circ$  (Second Notch) and turn your base leg when  $45^\circ$  behind the wing.
5. On base leg extend flaps to  $40^\circ$  (Third Notch) and adjust power and trim to hold 88 KIAS.
6. Turn final to align the aircraft with the extended centerline of the runway.
7. On final reduce the airspeed to 75 KIAS,  $\pm 5$  knots. Adjust pitch and power to maintain airspeed and descent angle appropriate for the approach to the runway.
8. Short Final: "Gear – Down Three (3) Green one in the mirror", Propeller – Full Forward. Then smoothly reduce power to idle when crossing the runway threshold. Smoothly apply back pressure to transition to landing attitude and apply proper crosswind correction as necessary.
9. Touchdown at approximately stalling speed, touching down at or within 100 feet beyond intended touchdown point on the runway centerline. After touchdown retract the flaps, apply maximum aerodynamic breaking, and maximum braking while maintaining runway centerline.
10. Taxi off the runway at the first available intersection, or as directed by ATC. Reconfigure the aircraft only after taxiing clear of the runway hold short lines. Complete "After Landing Checklist".

## Go-Around from a Rejected Landing

1. Apply full power (Throttles, Propellers, and Mixtures to Full Forward) and pitch for 88 KIAS  $V_Y$ , unless a climb at 82 KIAS  $V_X$  is required and verify flaps set to 25°.
2. Establish a positive rate of climb and retract the gear below 109  $V_{LO (RETRACTION)}$  and remaining flaps in increments.
3. Reduce power to 25"/2500 RPM and accelerate to 105 KIAS when 500 feet AGL.
4. Continue normal traffic pattern procedures.

## Touch-and-Go

1. During landing roll maintain directional control on the runway centerline.
2. Apply proper crosswind correction with the ailerons.
3. Trim reset for takeoff, Flaps retract to full up.
4. Smoothly apply full power, resume Normal Takeoff Procedure.
5. Then proceed with appropriate landing procedure.

## Effect of Configuration Demonstration

NOTE: This maneuver is performed to demonstrate how the aircraft configuration and/or airspeed will affect the ability to climb, the climb rate, to hold altitude, and the rate of drift-down, or descent, while operating on a single engine. The inoperative engine in this maneuver will be the **left engine**.

1. **SETUP**: Power set to local cruise (18"/2400), Fuel Selectors ON, Fuel Pumps OFF, Undercarriage UP, Cowl Flaps As Required, Complete Clearing Turn, Verify Flaps UP.
2. **ENTRY**: Power 15"/Props Full Forward, Mixtures Full Rich, Inoperative Engine to Zero-Thrust, Operating Engine to Full Throttle and stabilize at  $V_{YSE}$  88 KIAS.
3. **AIRSPEED CHANGE DEMONSTRATION**: Pitch to maintain  $V_{YSE} -10$ , Pitch to maintain  $V_{YSE} +10$ , Return to  $V_{YSE}$ , Inoperative Engine to IDLE, Inoperative Engine to Zero-Thrust.
4. **CONFIGURATION CHANGE DEMONSTRATION**: Flaps to 10°, Flaps to 25°, Flaps to 40°, Landing Gear Extend, Inoperative Engine to IDLE, Inoperative Engine to Zero-Thrust, Flaps – Retract, Landing Gear – Retract.
5. **RECOVERY**: 18" on both engines until left engine CHT temperature is acceptable, Establish Straight-and-Level Flight, Trim – As Required, Once CHT is within acceptable limits throttles, propellers, and mixtures to resume local cruise setting.

During each step of the configuration change, note the VSI to determine the amount of descent that will result with each configuration. Maneuver only required for Multi-Engine Instructor Certificate.

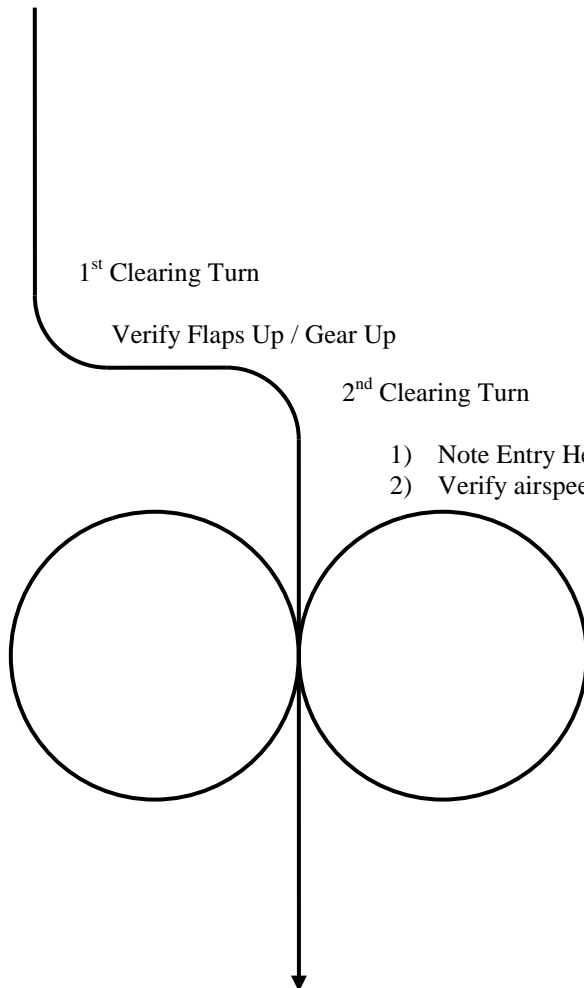
## Emergency Descent

1. Complete clearing turns including airspace below aircraft.
2. Propellers – FULL FORWARD, Throttle – IDLE, Flaps – UP, Gear – DOWN <140 KIAS
3. Pitch for maximum gear extended airspeed (140 KIAS –  $V_{LE}$ ), while in a turning descent of no more than 30° – 40° of bank.
4. Complete appropriate emergency checklist.

## Completion Standards

1. Exhibits knowledge of elements, recognizes situations that would require an emergency descent.
2. Exhibits orientation, diversion of attention, and proper planning.
3. Maintains a *positive* load factor during the descent.
4. Completes appropriate checklists.

## Steep Turns



### ENTRY:

- 1) Roll into at least a  $50^\circ$  bank,  $360^\circ$  steep turn
- 2) Pitch as needed to maintain altitude
- 3) Power as required to maintain entry airspeed
- 4) Trim off backpressure as required
- 5) Maintain coordination with rudder

Immediately roll from one steep turn into the other in the opposite direction.

### ROLLOUT:

- 1) Simultaneously:
  - Rollout on entry heading
  - Reduce pitch to level attitude
- 2) Return power to local cruise power
- 3) Retrim the aircraft as needed

### COMPLETION STANDARDS

- 1) Selects an altitude that will allow the maneuver to be completed no lower than 3,000 feet AGL,
- 2) Begins maneuver at or below  $V_A$ ,
- 3) Maintains coordination; Bank angle  $\pm 5^\circ$ ; Altitude  $\pm 100$  feet; Airspeed  $\pm 10$  knots,
- 4) Rolls out on entry heading  $\pm 10^\circ$ ,
- 5) Divides attention between airplane control and orientation.

### IMPORTANT NOTES ABOUT THE MANEUVER

- 1) Maintain a coordinated turn along with altitude and airspeed through the maneuver,
- 2) Use trim as necessary to reduce backpressure,
- 3) Avoid excessive amount of time on instrument references only.

**Maneuvering During Slow Flight**

1<sup>st</sup> Clearing Turn

Gear – Down (Below 140 KIAS)

2<sup>nd</sup> Clearing Turn

**ENTRY:**

- 1) Power to 15" / Props Full Forward / Mixtures Full Rich
- 2) If Landing Configuration-  
Flaps extend up to 40° in increments below V<sub>FE</sub>  
If Clean Configuration-  
Verify flaps up / Gear – UP (Below 109 KIAS)
- 3) Slow to MCA
- 4) Maintain entry altitude and heading

**SLOW FLIGHT:**

- 1) Increase power as necessary to maintain altitude
- 2) Adjust pitch as necessary to maintain airspeed
- 3) Retrim as necessary to reduce backpressure
- 4) Maintain coordination, altitude, and heading

Establish straight-and-level flight and level turns, with gear and flaps in the proper configuration.

**RECOVERY:**

- 1) Full Power
- 2) Pitch to maintain altitude as airspeed increases
- 3) If in LDG configuration flaps to 25° / Gear – Up / remaining flaps up in increments  
If in CLEAN configuration verify flaps – up / gear – up
- 4) Accelerate to local cruise airspeed and resume local cruise configuration
- 5) Maintain altitude during recovery
- 6) Retrim as necessary
- 7) Resume local cruise power setting

**COMPLETION STANDARDS**

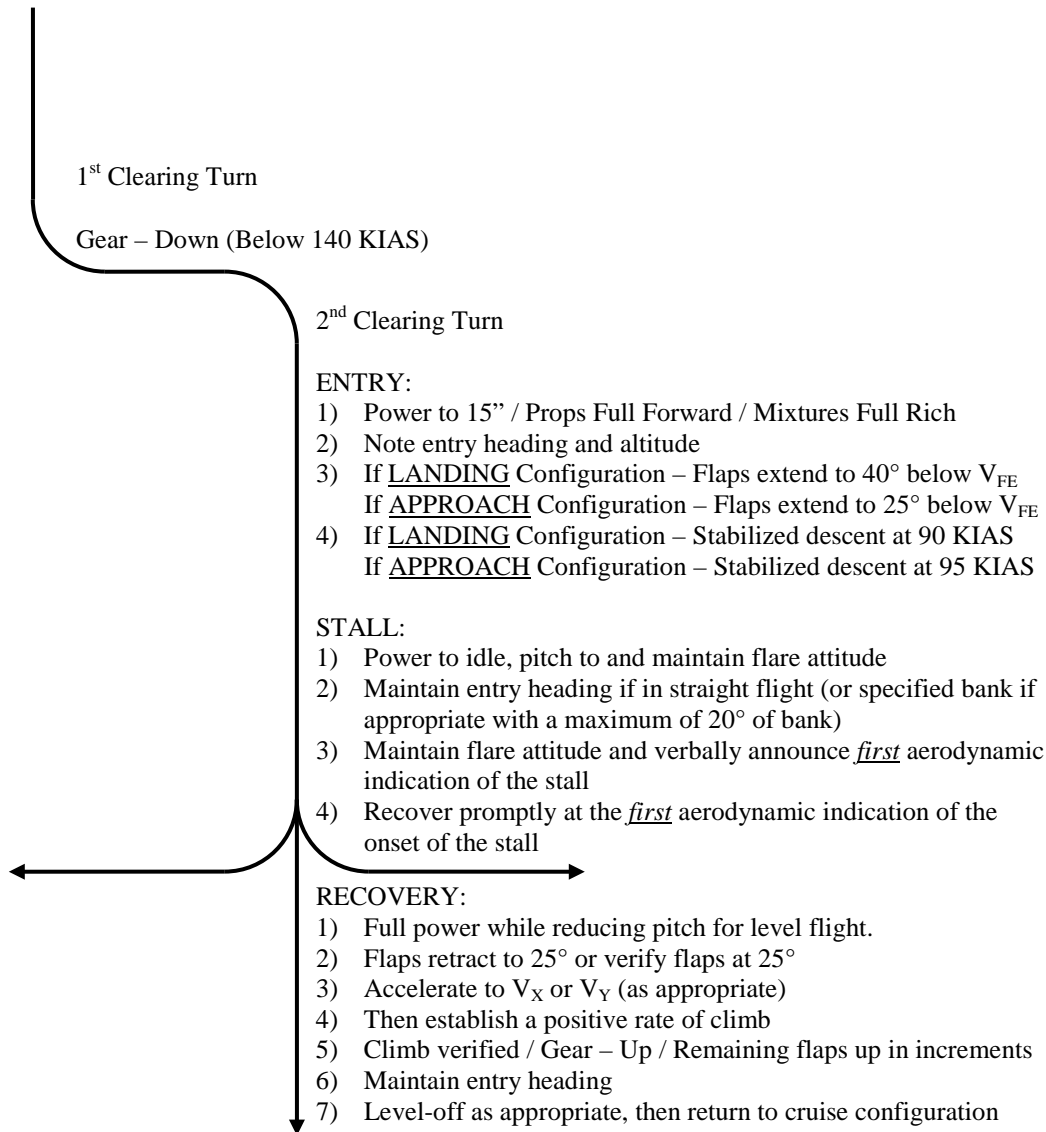
- 1) Selects an altitude that will allow the maneuver to be completed no lower than 3,000 feet AGL,
- 2) Maintains coordination; Altitude ±50 feet; Heading ±10°; Airspeed, MCA +5/-0 knots,
- 3) Maintains a specific bank angle ±5° during turning flight.

**IMPORTANT NOTES ABOUT THE MANEUVER**

- 1) Pitch for airspeed, power for altitude;
- 2) Maintain proper rudder coordination;
- 3) Anticipate additional power and pitch during turns;

Minimum Controllable Airspeed (MCA) is the speed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall.

## Power-Off Stalls



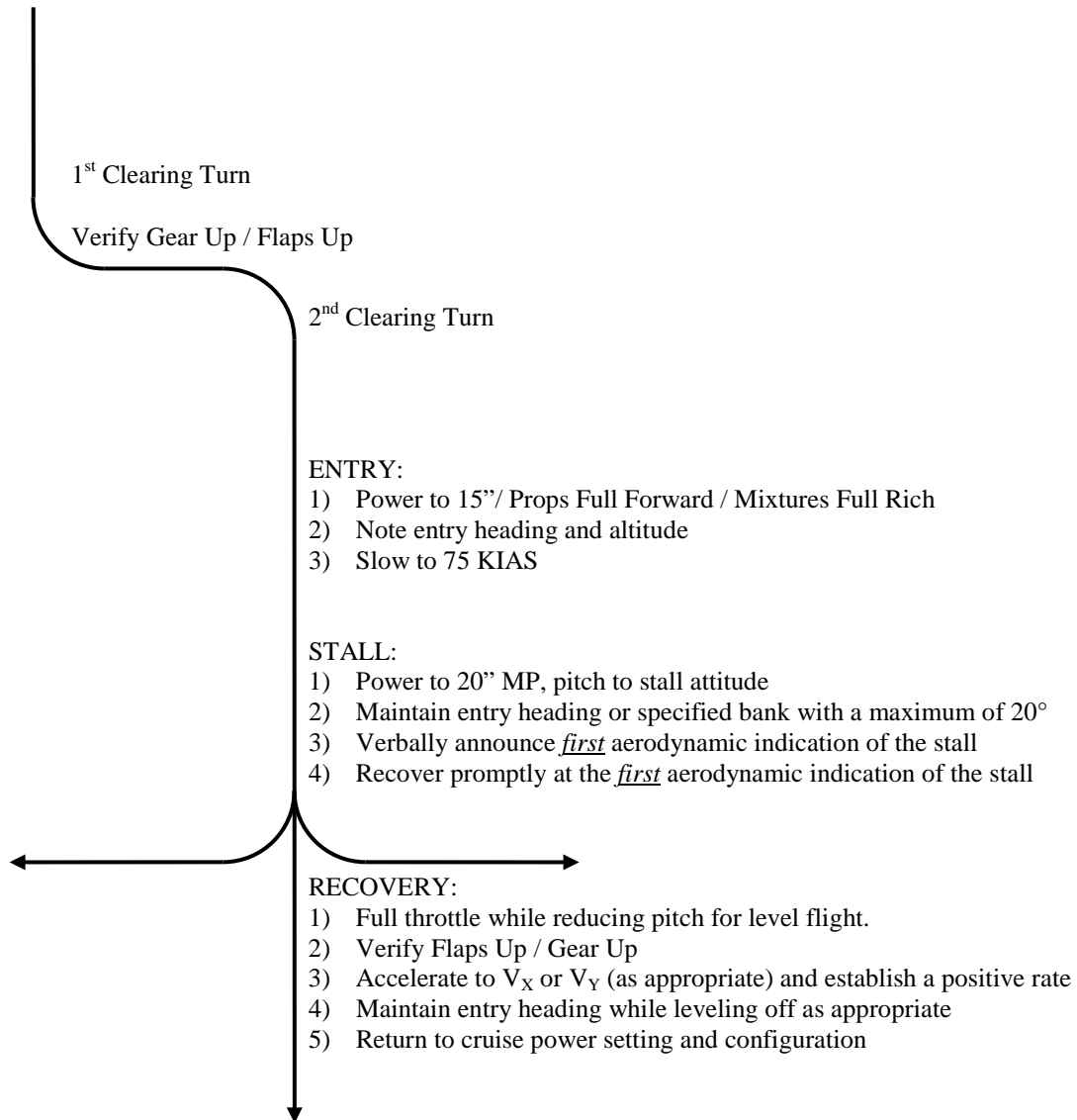
### COMPLETION STANDARDS

- 1) Selects and maintains an altitude that allows the maneuver to be completed no lower than 3,000 feet AGL;
- 2) Stabilizes in a descent in the appropriate configuration;
- 3) Maintains a specific heading  $\pm 10^\circ$ ; Maintains a specific bank, not more than 20°,  $\pm 5^\circ$ ;
- 4) Recognizes and recovers promptly as stall occurs by reducing pitch, increasing power, leveling wings with minimum altitude loss;
- 5) Accelerates to V<sub>X</sub> or V<sub>Y</sub> prior to the final flap retraction.

### IMPORTANT NOTES ABOUT THE MANEUVER

- 1) Maintain a stabilized descent for approximately 50 feet before pitching for the maneuver,
- 2) Maintain proper rudder coordination,
- 3) Make sure you are in the proper configuration selected by the instructor/examiner.

## Power-On Stalls



### COMPLETION STANDARDS

- 1) Selects and maintains an altitude that allows the maneuver to be completed no lower than 3,000 feet AGL;
- 2) Set the proper configuration and selects a power setting to no less than 65% power;
- 3) Transitions smoothly from takeoff attitude to an attitude that will induce a stall;
- 4) Maintains a specific heading  $\pm 5^\circ$ ; Maintains a specific bank, not more than  $20^\circ$ ,  $\pm 10^\circ$ ;
- 5) Recognizes and recovers promptly as stall occurs by reducing pitch, increasing power, leveling wings with minimum altitude loss.

### IMPORTANT NOTES ABOUT THE MANEUVER

- 1) Maintain proper rudder coordination during the maneuver,
- 2) When lowering nose do not dive but place nose for level flight.

## V<sub>MC</sub> Demonstration

1<sup>st</sup> Clearing Turn

Verify Gear Up / Flaps Up

2<sup>nd</sup> Clearing Turn

### ENTRY:

- 1) Power to 15" / Props Full Forward / Mixtures Full Rich
- 2) Left throttle IDLE / Right throttle FULL OPEN
- 3) Note entry heading
- 4) Establish a climb at 10 knots above V<sub>YSE</sub>

### V<sub>MC</sub> DEMONSTRATION:

- 1) Increase pitch to decrease speed at approximately one knot per second
- 2) Maintain entry heading with rudder and ailerons
- 3) Simulate FULL rudder at 75 KIAS
- 4) Recognize: 1) Loss of directional control  
2) Stall warning horn  
3) Stall buffet

### RECOVERY:

- 1) Reduce right throttle by approximately half while lowering the nose and increasing airspeed
- 2) Increase throttle smoothly on right engine to full open and establish V<sub>YSE</sub> or V<sub>XSE</sub>
- 3) Bring left throttle to 20" MP until CHT Temp gauge is within acceptable limits
- 4) Retrim and set to local cruise power and configuration

### COMPLETION STANDARDS

- 1) Selects and maintains an altitude that allows the maneuver to be completed no lower than 4,000 feet AGL;
- 2) Establishes a climb at approximately 10 knots above V<sub>YSE</sub>;
- 3) Establishes a bank toward the operating engine, as appropriate;
- 4) Recovers within 20° of entry heading;
- 5) Maintains airspeed on the recovery ±5 knots;

### IMPORTANT NOTES ABOUT THE MANEUVER

- 1) Recover at first sign of: Loss of directional control, Stall warning horn, OR Stall buffet;
- 2) Announce first sign of: Loss of directional control, Stall warning horn, OR Stall buffet;
- 3) Return to original heading during recovery;
- 4) Do not increase power on left engine to recover more quickly.

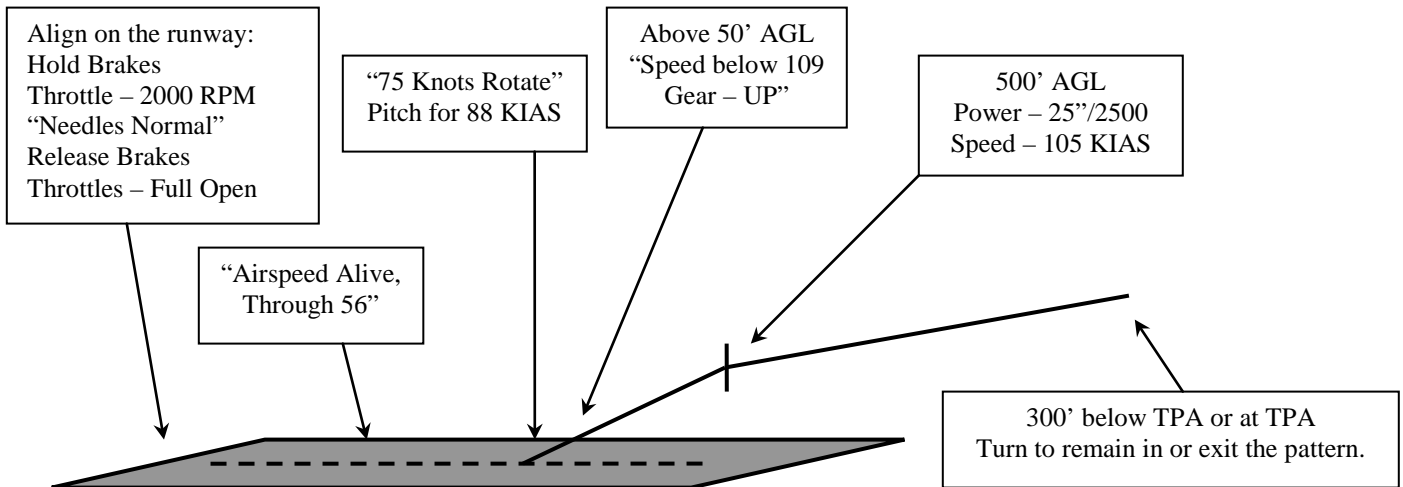
This maneuver is performed so that the student demonstrates the ability to understand the flight characteristics of the aircraft during flight at Minimum Controllable Airspeed. To simulate MCA with high density altitudes, during the summer, the use of simulated full rudder at 75 KIAS will be observed.

# Scott AFB Aero Club/Flight Training Center

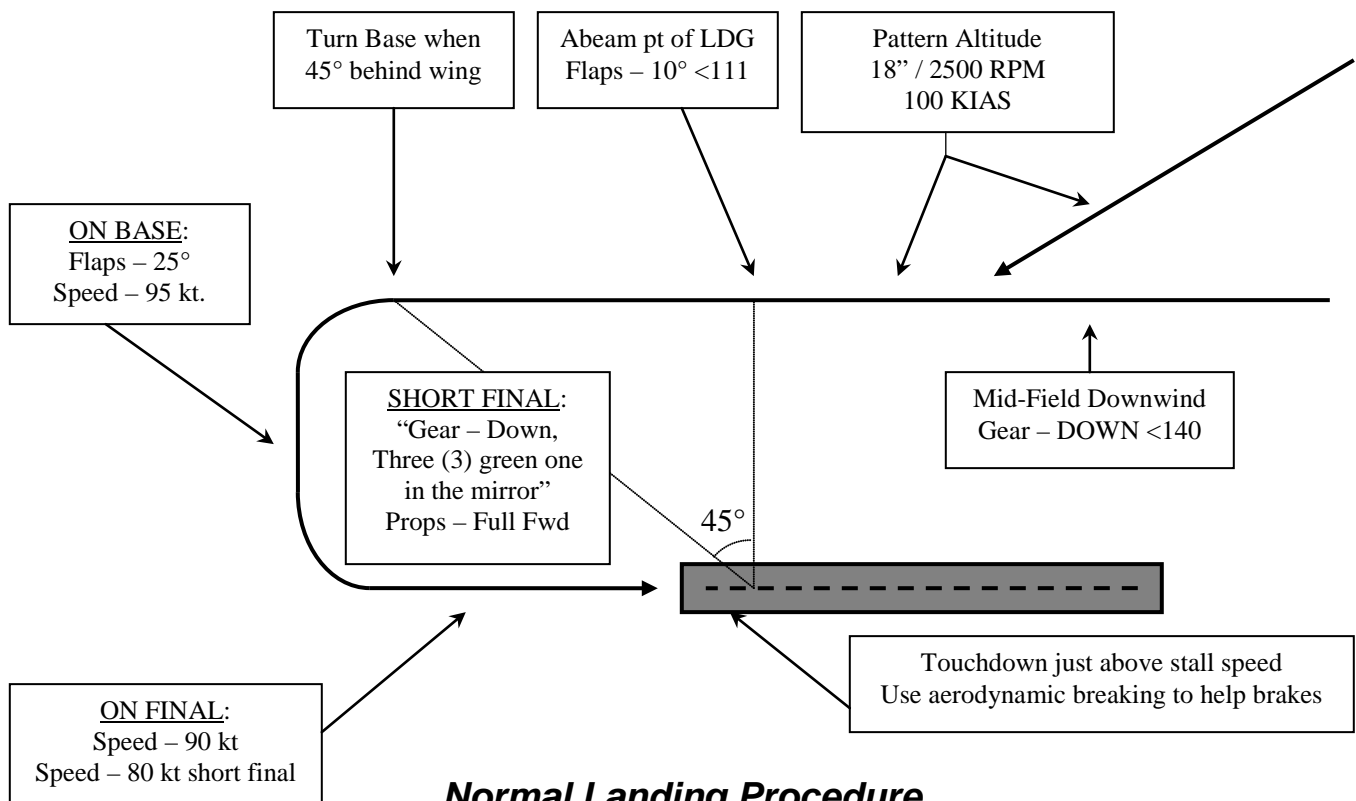
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## Visual Depictions



## Normal Takeoff Procedure



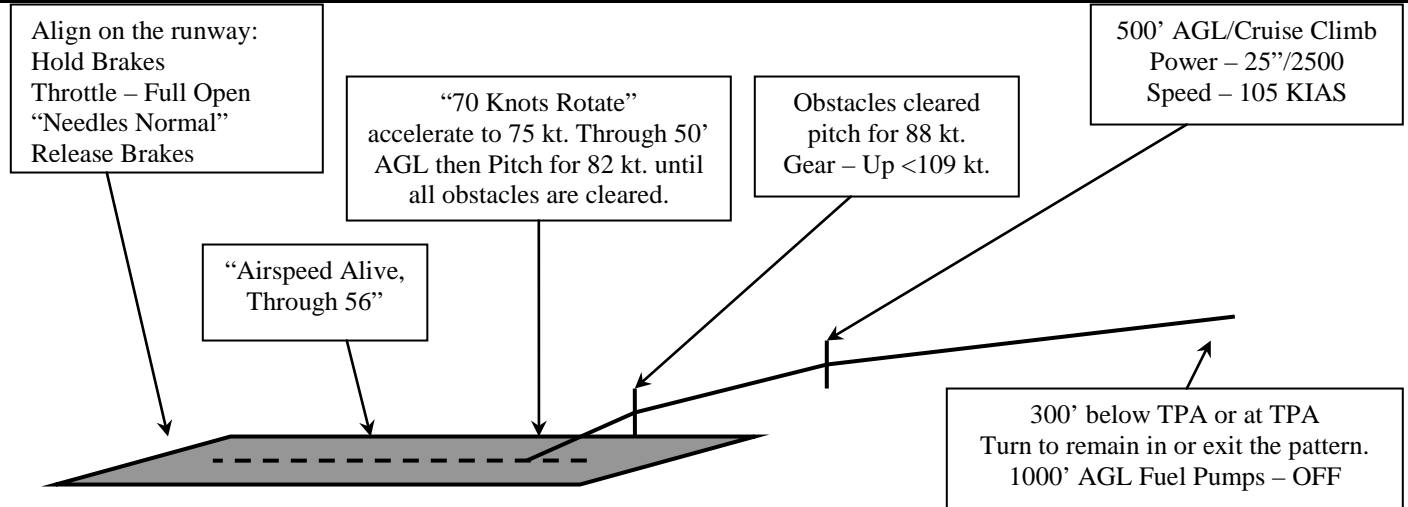
## Normal Landing Procedure

(continued)

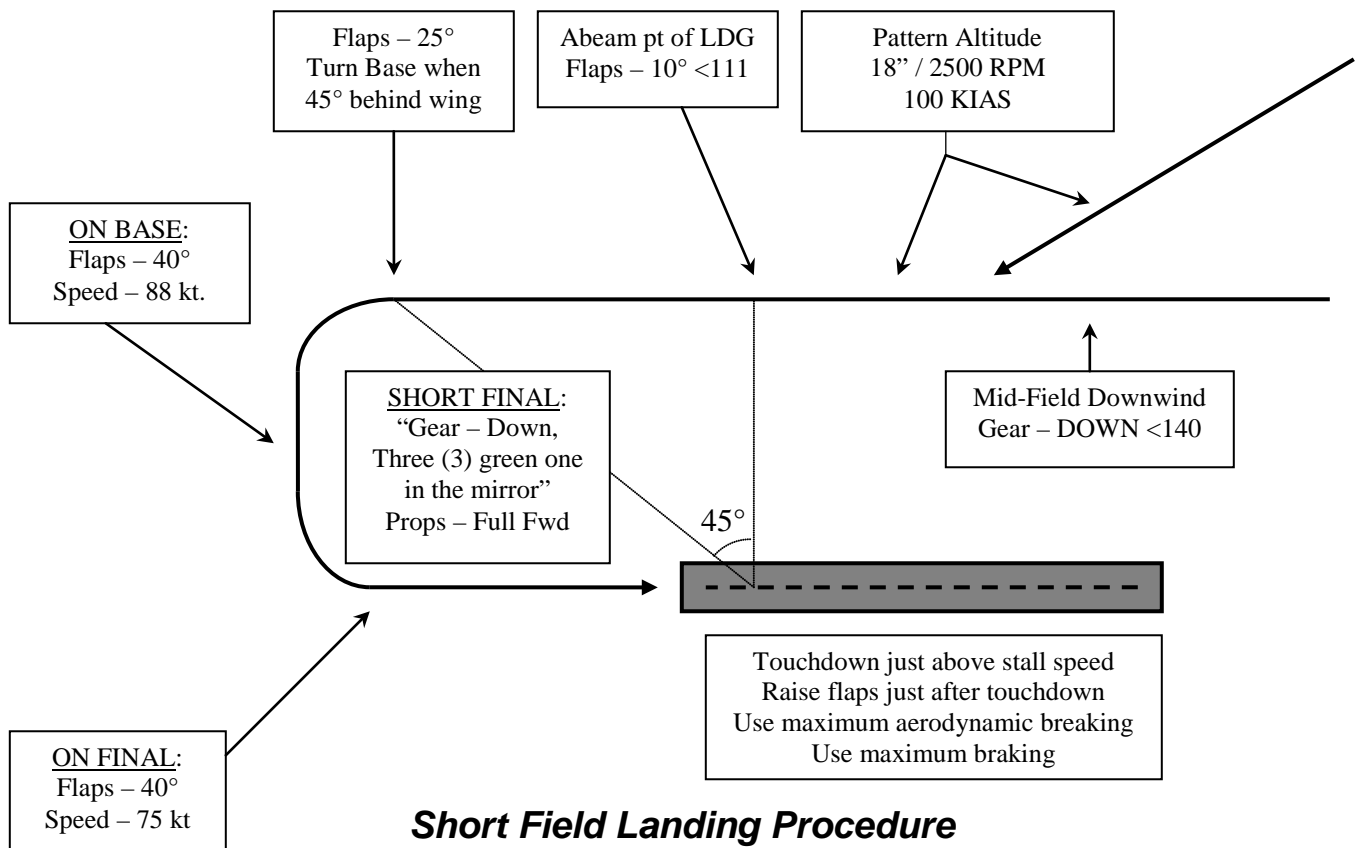
# Scott AFB Aero Club/Flight Training Center

Piper Seminole PA-44-180 Procedure Guide

Date: May 2006



## Short Field Takeoff Procedure

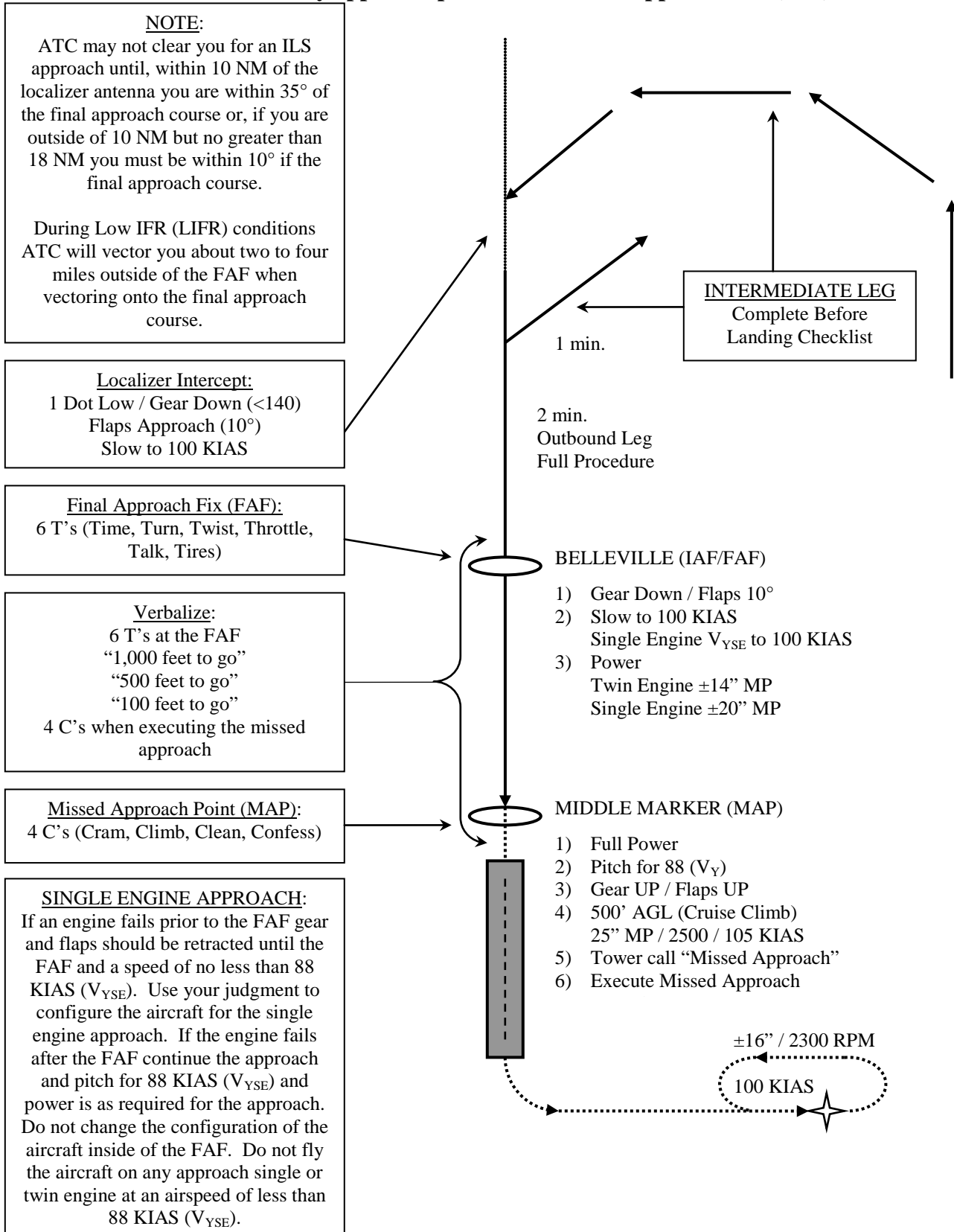


## Short Field Landing Procedure

(continued)

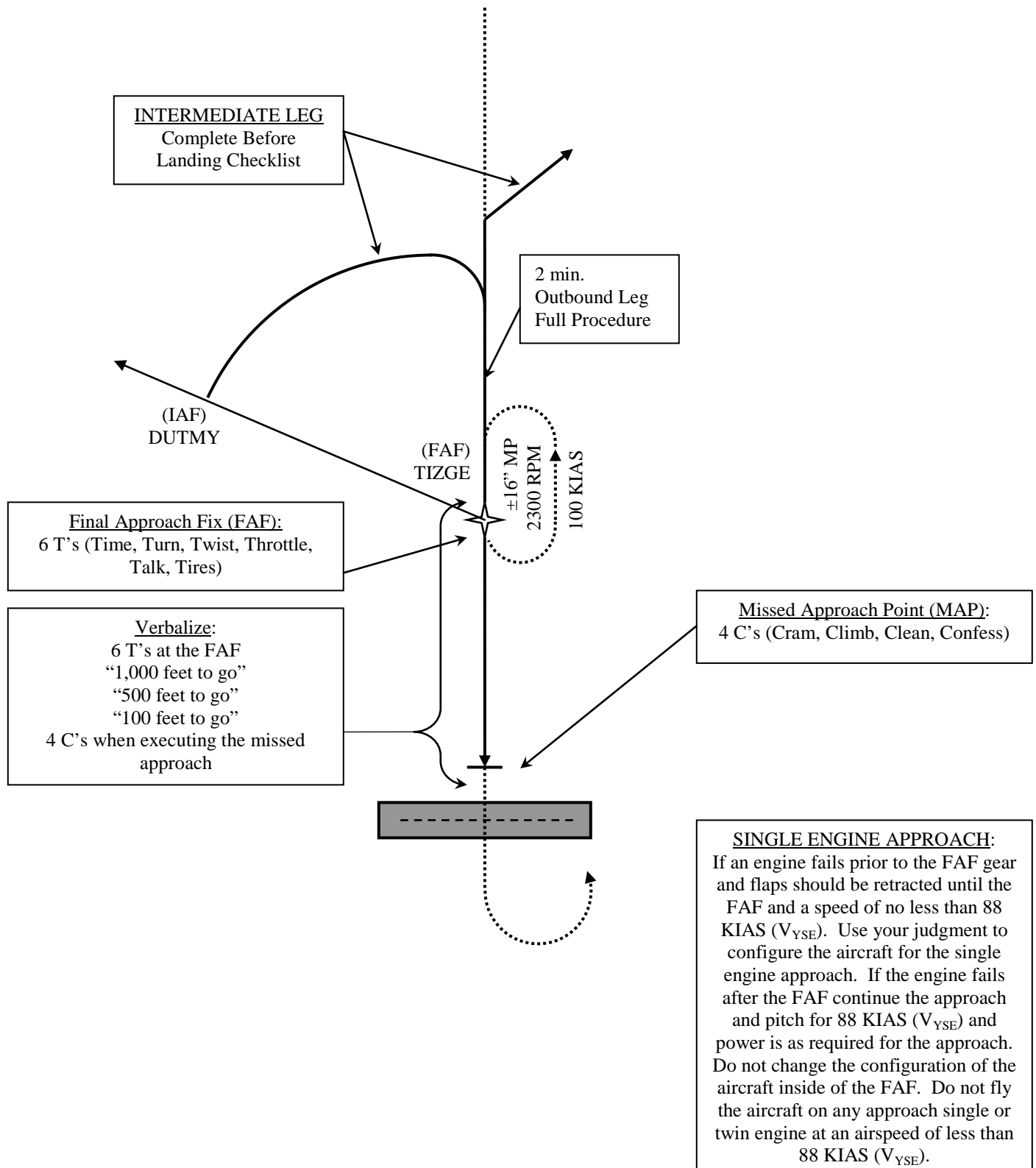
## Instrument Approach Procedures (Precision)

**\*Brief every approach prior to the Initial Approach Fix (IAF)**



**Instrument Approach Procedure (Non-Precision)**

**\*Brief every approach prior to the Initial Approach Fix (IAF)**



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# LOCAL FLIGHT – TAKEOFF AND LANDING DATA (TOLD)

PIPER SEMINOLE PA-44-180

N \_\_\_\_\_

DATE: \_\_\_\_\_

CURRENT CONDITIONS: \_\_\_\_\_

AIRCRAFT WEIGHT: \_\_\_\_\_ lbs. HEADWIND / TAILWIND COMPONENT: \_\_\_\_\_

---

ACCELERATED STOP (NORMAL): \_\_\_\_\_

TAKEOFF GROUND ROLL / TAKEOFF OVER 50FT OBSTACLE (NORMAL): \_\_\_\_\_|\_\_\_\_\_

ACCELERATED STOP (SHORT FIELD): \_\_\_\_\_

TAKEOFF GROUND ROLL / TAKEOFF OVER 50FT OBSTACLE (SHORT FIELD): \_\_\_\_\_|\_\_\_\_\_

---

SINGLE ENGINE ROC: \_\_\_\_\_ (FOR AN ALTITUDE OF: \_\_\_\_\_)

SINGLE ENGINE ABSOLUTE CEILING WITH GEAR DOWN: \_\_\_\_\_

SINGLE ENGINE ABSOLUTE CEILING WITH GEAR UP: \_\_\_\_\_

---

LANDING OVER 50FT OBSTACLE / LANDING GROUND ROLL (SHORT FIELD): \_\_\_\_\_|\_\_\_\_\_

---

AVIALABLE RUNWAY DISTANCE FOR TAKEOFF: \_\_\_\_\_

DISTANCE BETWEEN ACCELERATED STOP AND RUNWAY LEGNTH: \_\_\_\_\_

AVIALABLE RUNWAY DISTANCE FOR LANDING: \_\_\_\_\_

# CROSS-COUNTRY FLIGHT – TAKEOFF AND LANDING DATA (TOLD)

PIPER SEMINOLE PA-44-180                      N \_\_\_\_\_                      DATE: \_\_\_\_\_

CURRENT CONDITIONS: \_\_\_\_\_

AIRCRAFT WEIGHT: \_\_\_\_\_ lbs.      HEADWIND / TAILWIND COMPONENT: \_\_\_\_\_ K

---

ACCELERATED STOP: \_\_\_\_\_ FT                      NORMAL / SHORT FIELD TAKEOFF

TAKEOFF GROUND ROLL / TAKEOFF OVER 50FT OBSTACLE: \_\_\_\_\_ | \_\_\_\_\_ FT

---

AVIALABLE RUNWAY DISTANCE FOR TAKEOFF: \_\_\_\_\_ FT

DISTANCE BETWEEN ACCELERATED STOP AND RUNWAY LEGNTH: \_\_\_\_\_ FT

AVIALABLE RUNWAY DISTANCE FOR LANDING: \_\_\_\_\_ FT

---

SINGLE ENGINE ROC: \_\_\_\_\_ (FOR AN ALTITUDE OF: \_\_\_\_\_)

SINGLE ENGINE ABSOLUTE CEILING WITH GEAR UP: \_\_\_\_\_

---

## CRUSE PERFORMANCE:

ALTITUDE: \_\_\_\_\_ FT                      EST TEMPERATURE ALOFT: \_\_\_\_\_ °C

MP/RPM: \_\_\_\_\_ | \_\_\_\_\_                      TAS: \_\_\_\_\_ K                      GPH: \_\_\_\_\_

BHP: \_\_\_\_\_                      RATED POWER: \_\_\_\_\_ %                      BEST POWER / BEST ECON

EST GS: \_\_\_\_\_ K                      RANGE: \_\_\_\_\_ NM                      ENDURANCE: \_\_\_\_\_ HRS

TOTAL FUEL CONSUMPTION: \_\_\_\_\_ G                      FUEL REMAINING: \_\_\_\_\_ G

---

LANDING OVER 50FT OBSTACLE (SHORT FIELD): \_\_\_\_\_ | \_\_\_\_\_ FT

LANDING GROUND ROLL (SHORT FIELD): \_\_\_\_\_ | \_\_\_\_\_ FT

**Seminole Effects of Configuration Demonstration**

	DATE	
ALT	OAT °C	
CONFIGURATION		VSI
LEFT THROTTLE – IDLE		
LEFT THROTTLE – 12” MP		
V <sub>YSE</sub> +10		
V <sub>YSE</sub> - 10		
GEAR – UP & FLAPS – 10° (1N)		
GEAR – UP & FLAPS – 25° (2N)		
GEAR – UP & FLAPS – 40° (3N)		
GEAR – DOWN & FLAPS – 40° (3N)		
GEAR – DOWN & FLAPS – 25° (2N)		
GEAR – DOWN & FLAPS – 10° (1N)		
GEAR – DOWN & FLAPS – UP		
<b>RECOVER</b>		

**Seminole Effects of Configuration Demonstration**

	DATE	
ALT	OAT °C	
CONFIGURATION		VSI
LEFT THROTTLE – IDLE		
LEFT THROTTLE – 12” MP		
V <sub>YSE</sub> +10		
V <sub>YSE</sub> - 10		
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GEAR – DOWN & FLAPS – 40° (3N)		
GEAR – DOWN & FLAPS – 25° (2N)		
GEAR – DOWN & FLAPS – 10° (1N)		
GEAR – DOWN & FLAPS – UP		
<b>RECOVER</b>		