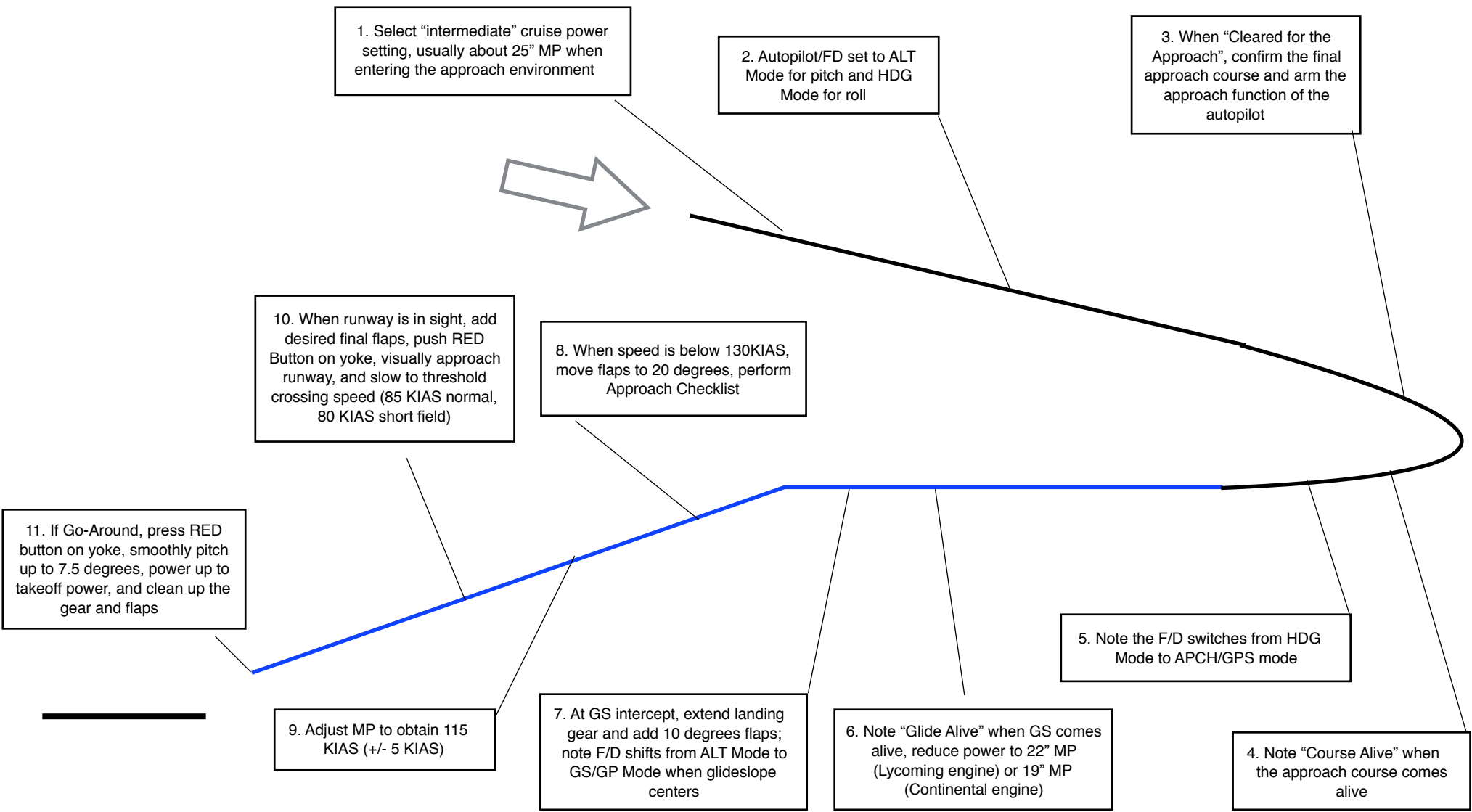




Operating Practices (OPs)

Piston PA-46 (Malibu, Mirage, Matrix, M350)

Precision Approach - Radar Vectors



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Operating Practices (OP's) are recommended because they have proven to be successful under most circumstances with a normally operating PA46. OP's provide a repeatable flow for a pilot in a critical phase of flight, creating a repeatable "normal observation". Thus, when a deviation from "normal" occurs, the deviation becomes obvious and the pilot can make corrections. Certain situations could exist that would make it prudent for a pilot to deviate from the OP's detailed below. Some of those circumstances are: icing conditions present or icing on the airframe, strong crosswinds, turbulence, excessively short or excessively long runways, a glide slope that is significantly different than 3 degrees, strong headwinds on approach, and an emergency/abnormal situation. Good pilot decision-making is required in any flight regime to ensure the safety of the flight. In all scenarios, adherence to the FAR's (Federal Aviation Regulations) is mandatory and information in the POH (Pilot Operating handbook) supersedes any practices illustrated below.

1.) **Select an Intermediate Cruise Power:** The airplane should be flown in the approach environment at an airspeed that allows for the pilot to prepare for the approach. Selection of cruise speed should be determined by pilot experience, the "flow of traffic" (possibly faster at airports with jet traffic, for example), level of turbulence (always below V_a in turbulent air), and other pilot-desired factors. For the piston PA46s, a level-flight power setting of approximately 25" MP allows for the airplane to be flown well below V_{fe} and V_{le} , and also does not allow the airplane to be flown so slow as to approach a stall or the autopilot minimum speed limitation.

Warning: If icing conditions exist, or if icing is present on the airplane, additional speed must be utilized on the approach. Care must be taken to ensure the airplane does not decelerate below 130 KIAS on the approach until landing is assured. Under no circumstances should full deflection of flaps (36 degrees) be applied until landing is assured. See the POH for greater icing situation/discussion.

2.) **HDG and ALT Mode:** For radar vectors, the autopilot should always be set to Heading Mode for roll axis and Altitude Mode for the pitch axis on the F/D and/or autopilot.

For the remainder of the approach procedures, each step has a "cue" and an "action". The cue is the event that prompts the action of the pilot. The pilot should have each "cue" and "action" memorized so the approach is flown in a sequential fashion.

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3.) **“Cleared for the approach”**: A good habit to follow, the Approach Button should be armed on the autopilot when “cleared for the approach” by ATC.

Cue = ATC advising “cleared for the approach” in the approach clearance
Action = Activate the APCH Mode of the autopilot/FD

4.) **Course Alive**: Notice that the course bar (either localizer or approach course) begins to move from edge of display towards the center.

Cue = Course bar begins to move
Action = Verbalize “Course Alive”

5.) **Roll Mode Change**: Note the roll mode on the autopilot changes to APCH Mode

Cue = HDG light goes out on autopilot display, APCH light remain steadily illuminated
Action = Note the change

6.) **Glide Alive**: Note that that glide slope begins to move...not that it is centered, but that it begins to move from the top of the scale.

Cue = Glide slope indicator begins to move
Action = Reduce power to 22” MP (for Lycoming) or 19” MP (for Continental)

7.) **Glide Slope Intercept**: When the glide slope centers, lower the landing gear, and add 10 degrees of flaps. Note the pitch mode changes from ALT to GS (GP) Mode. Noting the change in pitch mode is important because sometimes the autopilot doesn’t behave perfectly. If the change from ALT to GS doesn’t happen properly (and the airplane does not descend on the glide slope/path), the airplane could slow excessively and approach a stall as drag factors are added.

For good operational practices, when lowering the landing gear, the hand should not be removed from the gear handle until the following are observed or completed:

a.) Three green landing gear lights are observed

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- b.) Brake pedal pressure is tested
- c.) Move the balls of the feet to the bottom pad of the rudder pedal

After the gear is extended, 10 degrees of flaps should be added (and verified by the flap gauge)

Cue = Glide Slope Intercepts
Action = Lower the landing gear, add 10 degrees of flaps; confirm change of GS/GP mode on autopilot when glide slope centers

8.) **Add 20 degrees of flaps:** For most PA46's, V_{fe} (20 degrees) is above 130 KIAS. The airplane should have a power setting and drag setting sufficient to reduce the speed to well under 130 KIAS. A 20 degree flap setting is preferred because if all three wheels of the landing gear are not safely extended, a flaps setting of 20 degrees (or greater) will activate the Gear Warning (audible alert and GEAR WARN light).

Cue = Airspeed below 130 KIAS
Action = Add flaps to 20 degrees; The Approach Checklist should be completed after adding 20 degrees of flaps.

9.) **115 KIAS:** The target airspeed for the glide slope portion of the approach is 115 KIAS. This airspeed is below V_{fe} (36) and is above the minimum speed for the autopilot. At this speed the airplane has sufficient energy for a safe go-around and is also easily configured for final approach and landing.

Cue = Airspeed 115 KIAS
Action = Adjust power to achieve 115 KIAS

10.) **Runway in sight:** When the runway become visible and a safe landing can be attempted, add flaps to 36 degrees. This addition of flaps will reduce the airspeed approximately 20 KIAS. 36 degrees of flaps should not be added until:

- a.) The runway is in sight
- b.) A safe landing can be reasonably expected
- c.) The approach is stable

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36 degrees of flaps makes a go-around or a balked landing more difficult to perform due to the increased drag. The piston versions of the PA46 do not have an abundance of excess power, making a 36 degree flap go around more challenging. If strong crosswinds are present, or the pilot prefers to approach the runway with lesser flaps (for example, when the runway environment is not seen due to weather conditions until 200' above TDZE), a landing with less than full flaps can be performed.

To ensure a stabilized approach, the configuration of the airplane (adding/reducing flaps, adding spoilers, etc) should not be changed below 500' AGL. A stabilized approach is the goal for the last 500' of any approach.

The RED button (autopilot disengage button) on the yoke should be pressed before landing to ensure that the yaw damper is OFF before touchdown.

- 11.) **Go Around:** If the runway is not in sight, a stable approach is not present, or a safe landing cannot be made successfully, a go-around must be performed. A go-around always includes these actions:
- a.) Pitch up (to 7.5 degrees nose up)
 - b.) Power up: Throttle, prop control, and mixture full forward
 - c.) Clean up: Gear, flaps, and other drag-producing devices should be retracted

Consideration should then be given to selecting appropriate pitch and roll flight director modes, and then turning ON the autopilot.