



Instrument Flight/Approach Procedures



North Star Aviation
Minnesota State University, Mankato

The 5 T's

Will be executed and verbalized each time when initiating a turn; intercepting a course, crossing a fix/NAVAID, etc.

- Turn (turning to heading)
- Time (start/note/stop as needed)
- Twist (hdg. bug, CDI, HSI, etc.)
- Throttle (adjust for alt./airspeed)
- Talk (radio call/report as required)

WIRE Checklist

- Weather.....Obtain
- Instruments.....DG/Altimeter Set
- Radios.....Set
(Load freq.'s needed for appch.)
- Environment.....Approach Brief

Final Approach Fix Checklist

- Time**.....(Start if needed)
 - Gear**.....Down (Seminole Only)
 - Power**.....Reduce for descent
 - Tower***.....Announce Position
 - Light**.....Airport Lights (7 Clicks)
 - Lights**.....Aircraft Lights On
 - Lights**.....3 Green (Seminole Only)
 - Flaps**.....10°
- *When not in radar contact, you would report FAF inbound with ATC. If in radar contact, you are not required to make this report. If approaching a non-towered airport, report aircraft position on the CTAF.

IAF Memory Checklist

- B** – Boost Pumps (fuel)
- C** – Carb Heat
- C** – Cowl Flaps (Seminole)
- G** – Gas (Fuel Selector)
- U** – Under Carriage
- M** – Mixture
- P** – Prop Controls
- S** - Seatbelts

Selecting and Tuning a NAVAID

- Tune**.....Appropriate Frequency
- Select**.....VLOC*
- Twist**.....Course on CDI/HSI
- Steer**.....To intercept course
- Identify**.....Verify correct identifier

Selecting the GPS for Navigation

- Tune**.....Enter “Direct To”, etc
 - Select**.....GPS*
 - Twist**.....Course on CDI/HSI
 - Steer**.....To intercept course
- *Use the “CDI” button on the GPS to select the nav. source. If using an aircraft with a glass display, select the appropriate source on the PFD.

Standard Call Outs

These standard call outs help build habits that increase situational awareness. The use of these call outs has been shown to reduce the risk of pilots falling behind the airplane in the IFR environment.

Departure

Taking the Runway for Takeoff

Verbally verify the DG, compass, and runway numbers are aligned. (i.e. The pilot looks at the heading indicator, compass, and runway numbers and says “33, 33, 33”, verifying the correct indications.

Airspeed Alive

When the airspeed indicator needle comes off the wall, the pilot will call “*Airspeed Alive*”.

Rotation

Example: “55 knots, rotate”

Climb/Descent

Approaching Assigned Altitude

“1000 To Go” “500 To Go” “100 To Go”

Approach

“*Localizer Alive/Final Approach Course Alive*”

“*Glideslope Alive*”

Approach Mode

Before reaching the final approach fix, the pilot will verify that the GPS has sequenced into approach mode. This will happen when within 2nm of the final approach fix.

Approaching MDA/DA

The pilot will make the *1000’, 500’, and 100’ to go* calls when approaching the MDA/DA

“*Minimums*” – The pilot will announce arrival at the MDA/DA.

“*Runway in sight*”- The pilot will make this call upon seeing one of the visual references listed in 91.175 in sight.

“*Missed Approach*” – The pilot will announce when initiating a missed approach.

Piper Seminole Instrument Approach Procedures

Straight-In Approach to Landing (All Engines)

Before Reaching IAF.....WIRE Checklist Complete¹
Final Approach Speed.....100 KIAS
Before Reaching FAF
.....Before Landing Check Complete
At FAF.....Final Approach Fix Checklist¹
Runway Environment in Sight^{2,3}
.....Flaps 25°, Pitch 90 KIAS
.....Flaps 40°, Pitch 80 KIAS

Circling Approach to Landing (All Engines)

Procedures are the same as a straight in approach to landing until.....
FAF.....Leave Flaps 0° Until Downwind
Runway Environment in Sight
Position for circling approach
Enter a normal traffic pattern if practical
Maintain MDA and intercept PAPI/VASI before beginning final descent.
After intercepting PAPI/VASI
.....Flaps 25°, Pitch 90 KIAS, begin descent
Final.....Flaps 40°, Pitch 80 KIAS

Straight-In Approach to Landing (Single Engine)

Before IAF.....WIRE Checklist Complete¹
Final Approach Speed.....100 KIAS
(88 KIAS if needed for performance)
Before FAF
.....Before Landing Check Complete
At FAF.....Final Approach Fix Checklist¹
Runway Environment in Sight^{2,3}
.....Flaps 25°, Pitch 90 KIAS
Committed to Land and Runway Made
Both props fwd. (when using sim. feather)⁴
Reduce throttle slowly and flare airplane

Circling Approach to Landing (Single Engine)

Single engine circling approaches should be avoided if possible. If necessary to perform a circling approach, enter a normal traffic pattern after the runway environment is in sight and perform the normal procedures for a single engine traffic pattern. This includes the procedures for extension of the gear and flaps. For performance purposes, it may be required to delay extension of the gear until beginning descent below MDA. Extra caution must be taken in this case to ensure the gear is down and locked prior to landing.

Piper Warrior Instrument Approach Procedures

Straight-In Approach to Landing

Before Reaching IAF.....WIRE Checklist Complete¹
Final Approach Speed.....90 KIAS
Before Reaching FAF
.....Before Landing Check Complete
At FAF.....FAF Check Complete¹
Runway Environment in Sight^{2,3}
.....Flaps 25°, Pitch 80 KIAS
.....Flaps 40°, Pitch 70 KIAS

Circling Approach to Landing

Procedures are the same as a straight in approach to landing until.....
FAF.....Leave Flaps 0° Until Downwind
Runway Environment in Sight
Position for circling approach
Enter a normal traffic pattern if practical
Maintain MDA and intercept PAPI/VASI before beginning final descent.
After intercepting PAPI/VASI
.....Flaps 25°, Pitch 80 KIAS, begin descent
Final.....Flaps 40°, Pitch 70 KIAS

FAR 91.175 Descent Below MDA or DA/DH

Three things required for descent below MDA/DA.

1. **Normal maneuvers to landing** and a normal rate of descent to the intended runway.³
2. **Flight visibility** not less than that listed in the approach procedure.
3. **Runway environment in sight**, including one of the following references:

- Runway end identifier lights (REILs)
- Visual approach slope indicator
- Runway/Runway markings and lights
- Threshold/Threshold markings and lights
- Touchdown zone/TDZ markings and lights
- Approach Lights
 - Allows descent to 100 ft. above TDZE
 - Descent below 100 ft. allowed if red terminating bars or red side row bars are in sight.

¹See FAF Fix/WIRE Checklist on previous page. For approaches in the Seminole, the landing gear will be extended at the FAF.

²When flying a precision approach, stay on the electronic glide path until it is necessary to descend below.

³When flying a non – precision approach, maintain MDA until intercepting the PAPI/VASI to ensure normal maneuvers to landing.

⁴This is done in the event that an actual go-around using both engines becomes necessary while performing single engine approaches for training purposes.