Instrument Flying in the Cessna 172 (O-320 Engine)

General:

Final Approach Segment Speed & Configuration (Inside FAF and/or Glidepath/slope Intercept):
75 knots with 10° flaps. (1500-1700 RPM with carb heat on).

Final Landing Speed:
Landing with 10° Flaps: 65 knots.
Landing with 20° or 30° Flaps: 60 knots.

Slowing from Final Approach Speed to Final Landing Speed:
1.5 miles from the runway begin reducing power to landing speed.
If breaking out of IMC 500' AGL or above, flap changes at pilot discretion.
If breaking out of IMC below 500' AGL, continue to land with 10° flaps.

Speed approaching Initial Approach Fix or Vectors to Final:
90 knots (2300 RPM).

Holding Speed:
90 knots (2300 RPM).

Missed Approach:
Power, Pitch, Flaps.
(Full Power/Carb heat OFF, Pitch nose up 10°, Retract Flaps with positive rate of climb.

Carb Heat Usage:
Descending with Less than 2000 RPM, any carb icing indications, or suspected carb icing conditions…Turn ON Carb Heat.

Glidepath/slope Alive:
Magenta or Green diamond is fully visible for vertical guidance.

1 Dot Deflection:
Magenta or Green diamond is aligned with the first dot above a centered glidepath/slope.

CDI Button (Must be GREEN for ILS/LOC/VOR):
Press CDI button on "Default Nav" page to swap between GPS and NAV1

Instrument Approaches:

"Cleared for ___ __ approach" = Taxi Light ON
"Clear to land Runway __ "/ "Change to Advisory Frequency" = Landing Light ON

Approaches with Vertical Guidance (ILS, LPV, LNAV+V, LP+V):

Speeds as mentioned above while inside IAF or vectored to final.

3 miles from FAF OR "Glidepath/slope Alive", reduce power to 2000-2100 RPM and slow to 85 knots.

1 mile from FAF OR 1 Dot Deflection, set 10° flaps and slow to 80 knots.

Glidepath/Glideslope intercept, reduce power to 1500-1700 RPM and trim for 75 knots. Altitude bug set to Missed Approach altitude, sync present heading (wind corrected approach course).

Precision approach (DA): approach at normal speed, make "decision" at the published altitude to continue or execute MAP.

Non-precision approach (MDA): 50 feet prior to MDA, increase power to 2000 RPM and level off nose to remain +100/-0 above MDA as you approach the VDP. Maintain altitude until Missed Approach Point, or no longer in normal position to land, then execute MAP.

Approaches withOUT Vertical Guidance (LOC, VOR, LNAV, Circling):

Speeds as mentioned above while inside IAF or vectored to final.

3 miles from FAF, at published altitude, reduce power to 2000-2100 RPM and slow to 85 knots.

1 mile from FAF at published altitude, set 10° flaps and slow to 80 knots.

Crossing FAF at published altitude, reduce power to 1500-1700 RPM and track 500-700 FPM descent rate at 75 knots. Altitude bug set to Missed Approach altitude, sync present heading (wind corrected approach course).

Reaching MDA: 50 feet prior to MDA, increase power to 2000 RPM and lower nose to remain +100/-0 above MDA prior to VDP. Maintain altitude until Missed Approach Point, or no longer in normal position to land.

Loading an Approach:

ABBA Check.
ATIS/AWOS, Build, Brief, Activate.

ATIS/AWOS: Pick up airport weather. Frequencies can be found AND loaded to COM1 from the "Waypoint Info" page on the "Freq" Tab.

Build: Load the approach to GPS. "Procedure" Page -> Confirm Correct Airport -> Select Approach -> ALWAYS load an anticipated IAF as opposed to "Vectors" (View approach chart with separate device) -> LOAD Approach (only activate approach immediately if assigned to selected IAF)
Activate Vectors to Final can be found on the "Procedure" Tab.

Brief: Brief Instrument Approach Chart through separate devices. Ensure Chart is correct and current.

Activate: Activate Approach while approaching IAF, or activate VTF if vectored inside IAF. Run Descent and Before Landing Checklist.

Loading a Hold:

If published on selected IAP, on the "Flight Plan" Page, proceed Direct to holding fix ("Suspend" by Activating Hold on flight plan page).

If not published (GPS), on the "Flight Plan" Page, add Fix to flight plan, select the Fix, select "Hold at WPT" and load the holding instructions.

If not published (VOR/DME), on the "Waypoint Info" Page, "Create user WPT", select "position", name and create the fix from radial/distance (please make temporary), after creating USR waypoint…go to the "Flight Plan" Page, add User created Fix to flight plan, select the Fix, select "Hold at WPT" and load the holding instructions (or green needles and direct to VOR).

*If tracking a VOR, the bearing pointers on the Garmin G5 do NOT have distance. Ensure the GPS is set "Direct To" the VOR or Nav source that is presently be tracked or tuned into in order to see distance or "DME".

Notes and Suggestions:

When tracking a "+V" approach with advisory Vertical Guidance, error towards the high side to ensure step down and/or obstacle clearance. Once past step down, track as normal to reach MDA at the VDP.

When descending to lower altitudes on an IAP, remember there is no autopilot, level off approximately +50 feet above published altitude. The 172 is not as responsive to climb as an SR, and an underlined altitude indicates the LOWEST altitude to fly during that segment.

While tracking an IAP, fly with the "Flight Plan" page open. This allows for a better visualization of distances from each fix, and accurately shows what "leg" you are presently on.

Approach procedures can also be loaded from the flight plan page when selecting an airport that is presently loaded to the flight plan.

The altitude bug takes a bit more effort than a G1000 or equivalent, so do not wait for the automation, start climbing or descending first and come back with the altitude bug.

75801 has a roll to the right, fly with the rudder trim 1-2 notches to the left at cruise…it seems to help.

Garmin GTN Trainer is a free iPad app that emulates the Garmin GTN 650 which could be a useful tool to practice.

Our GTN 650 in 75801 presently has a "CDI" button on the main Map page. This is meant for easier access. While on an activated approach, the normal CDI button placement is replaced with "suspend", so to switch the CDI you must go to the "Default Nav" page.

"OBS" mode is also on the "Default Nav" page.

In order to change Nav course or OBS GPS course, push in the G5 knob on the HSI and hover Course/OBS, push to select and twist as necessary.

Partial Panel training performed by disabling PFD (Top G5). HSI (Bottom G5) can be changed to act as a PFD. This is done by pushing in the knob, twist to the right to "PFD," highlight and push to select. PFD G5 provides vertical guidance and lateral CDI, as well as compass headings at the top.