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PHOENIX BUSINESS AVIATION TRAINING CENTER

Garmin G1000 to **Honeywell Apex**

A transition guide for the Garmin-trained pilot

Pilatus PC-12 / 47E · NG · NGX

DOCUMENT	NGX Training Supplement
SUBJECT	Avionics differences and transition training
AUDIENCE	Pilots with Garmin G1000 experience, new to Apex
CONTAINS	45 task comparisons · 35 watch-outs · 47 self-check questions

READ BEFORE USE

The information in this document is not guidance from the manufacturers. It is for familiarity only and the author is not responsible for errors or omissions. Note also that there are frequently more than one way to accomplish the tasks listed; only one method for each is described here. Always fly the aircraft in accordance with the approved AFM, POH and company procedures.

Contents

Work through the sections in order the first time. After that, the guide is a look-up reference — every task appears with the Garmin method beside the Apex method, and the behavior of each system underneath.

HOW TO USE THIS BOOKLET

Side-by-side tasks Each task shows the G1000 method on the left and the Apex method on the right. Where the two systems behave differently after the keystrokes, a behavior row underneath says so.

Watch out The orange boxes are the differences that catch Garmin-trained pilots. They are the part of each section worth reading twice.

Self-check Numbered questions with the answer directly beneath. Cover the answer, work the question, then check.

Quick Reference Card The last table is designed to be printed on its own and carried on the kneeboard for the first several flights.

Start Here — How Apex Thinks

Most of the trouble a Garmin-trained pilot has on Apex is not about finding buttons. It is about four habits of mind that differ. Read these four before you open any section.

1 Nothing happens until you press ACTIVATE

On the G1000 an edit goes into the flight plan the moment you press ENT. On Apex an edit builds a PENDING flight plan shown in cyan. The aircraft still flies the old plan until you click the ACTIVATE virtual button. Cyan on the map means "proposed, not flying it yet."

Teach the student to say out loud: "Entered — pending — ACTIVATE — confirm white."

2 You build from the FROM waypoint, not the TO waypoint

On the G1000 you put the cursor on the waypoint AFTER the one you want to insert and type. On Apex you select the waypoint BEFORE it and choose AMEND ROUTE. The direction of thinking reverses.

"Garmin inserts above. Apex amends below."

3 Direct To is destructive on Apex

On the G1000 a Direct To keeps the earlier waypoints in the flight plan so you can rebuild the original sequence. On Apex, going direct to a waypoint already in the plan DELETES every waypoint before it. There is nothing left to restore.

This is the single most common Garmin-to-Apex mistake. Drill it on day one.

4 It is a cursor and a touch screen, not a knob stack

The G1000 pilot reaches for the FMS knob and the ENT key. The Apex pilot reaches for the Cursor Control Device, the scroll wheel, and the Touch Screen Controller. Scroll wheel pushed LEFT opens the page menu — that one gesture unlocks FMW, Waypoint, and Avionics pages.

Spend the first session just moving the cursor and opening page menus. Muscle memory first, procedures second.

01 Creating and Editing Flight Plans

Building and modifying the route before you launch — and the pending/ACTIVATE logic that governs every edit.

Add a waypoint

PROCEDURE

GARMIN G1000

1) If waypoint list not displayed, press FPL.
2) If cursor not displayed, press FMS knob.
3) Move cursor to the “TO” waypoint (the waypoint after the one you want to add).
4) Enter the letters for the new waypoint.
5) Press the ENT key when finished.
6) Press FMS knob to remove cursor.

G1000 BEHAVIOR

Adds the new waypoint into the flight plan.

HONEYWELL APEX

1) If waypoint list is not displayed, bring up waypoint list.
2) Select the “FROM” waypoint (the waypoint before the one you want to add).
3) Select “AMEND ROUTE”.
4) Enter the letters for the new waypoint.
5) Click on the “ENTER” virtual button.
6) Click on the “ACTIVATE” virtual button.

APEX BEHAVIOR

Adds the new waypoint into the flight plan.

Delete a waypoint

PROCEDURE

GARMIN G1000

1) If waypoint list is not displayed, press the FPL key.
2) If cursor is not displayed, press FMS knob.
3) Move the cursor to the desired waypoint (the one you wish to delete).
4) Press the CLR button.
5) Press the ENT key to delete the waypoint.
6) Press the FMS knob to remove the cursor.

G1000 BEHAVIOR

Deletes the waypoint from the flight plan.

HONEYWELL APEX

1) If waypoint list is not displayed, bring up the waypoint list.
2) Scroll to and click on the waypoint you wish to delete.
3) Select the DELETE WAYPOINT option.
4) Click on the ACTIVATE virtual button.

APEX BEHAVIOR

Deletes the waypoint from the flight plan.

Enter a flight plan

PROCEDURE

GARMIN G1000

1) If waypoint list not displayed, press FPL.
2) If there is an existing flight plan, delete the current flight plan: press MENU, move cursor to “DELETE FLIGHT PLAN”, press ENT, press ENT again to indicate “OK” to delete.
3) If a cursor is not displayed, press FMS knob to display cursor.
4) Enter the letters for the new origin.
5) Press the ENT key when finished.
6) Enter the letters for the next waypoint, press ENT to confirm. Repeat as needed for all waypoints.
7) Enter the letters for the destination, press ENT to confirm.
8) Press FMS knob to remove cursor.

HONEYWELL APEX

1) If waypoint list is not displayed, bring up the waypoint list.
2) If there is an existing flight plan, delete the current flight plan and start a new one: push scroll wheel to the left to bring up the page menu, select FMW, select aircraft on ground picture, move cursor to Origin field.
3) Enter letters for Origin, press enter on virtual keyboard.
4) Enter letters for destination, press enter on virtual keyboard.
5) Click on the “ACTIVATE” virtual button.
6) Click on the origin waypoint in the waypoint list.
7) Select “AMEND ROUTE”.
8) Enter letters for the next waypoint, press Enter to confirm. Repeat as needed for all waypoints.
9) Click on the “ACTIVATE” virtual button to complete the flight plan.

G1000 BEHAVIOR

After each waypoint entered the flight plan is updated.

APEX BEHAVIOR

After each waypoint entered the “pending” flight plan is updated. The new waypoints appear in cyan and the corresponding flight plan legs on the map appear in cyan until the “ACTIVATE” virtual button is pressed.

Load an airway

PROCEDURE

GARMIN G1000

1) If waypoint list not displayed, press FPL.
2) If cursor not displayed, press FMS knob.
3) Move cursor to the “TO” waypoint (the waypoint after the one on which you will join the airway).
4) Press the MENU key.
5) Move the cursor to “Load Airway”, press ENT.
6) Move the cursor to the desired airway, press ENT.
7) Move the cursor to the desired exit waypoint, press ENT.
8) Press the ENT key again to load the airway.

HONEYWELL APEX

1) If waypoint list is not displayed, bring up the waypoint list.
2) Select the “FROM” waypoint (the waypoint before the airway you want to add).
3) Select “AMEND ROUTE”.
4) Select the “Join” option.
5) Select the “Airway” option.
6) Select the exit waypoint.
7) Click on the “ACTIVATE” virtual button to add the airway and associated waypoints to the flight plan.

G1000 BEHAVIOR

After the airway is entered the airway and all of the intermediate waypoints on the airway are added to the flight plan.

APEX BEHAVIOR

After the airway is entered the airway and all of the intermediate waypoints on the airway are added to the pending flight plan. More waypoints or airways can be added until “ACTIVATE” is pressed. The pending waypoints and legs on the map are cyan until “ACTIVATE” is pressed.

Load a departure

PROCEDURE

GARMIN G1000

1) Press the PROC key.
2) Move cursor to SELECT DEPARTURE field, press ENT. (Select Departure Window appears.)
3) Press the ENT key on the displayed airport or enter another airport.
4) Turn small inner FMS knob to highlight desired departure, press ENT (runway choices appear).
5) Turn small inner FMS knob to highlight desired runway, press ENT (transition choices appear).
6) Turn small inner FMS knob to highlight desired transition, press ENT.
7) Move cursor to LOAD field, press ENT.

HONEYWELL APEX

1) Bring up the Flight Management Window — push scroll wheel to the left and select FMW.
2) Click on the departure tab (the image of the airplane taking off).
3) Click on “Runway/Dep” field.
4) Select Runway.
5) Select Departure.
6) Select transition.
7) Click on the Insert button at the bottom.
8) Click on the “ACTIVATE” virtual button to add the departure to the flight plan.

G1000 BEHAVIOR

After the departure is entered the departure and all of the waypoints on the departure for the selected transition are added to the flight plan.

APEX BEHAVIOR

After the departure is entered the departure and all of the waypoints on the departure for the selected transition are added to the flight plan. More waypoints or procedures can be added if desired. All of the waypoints in the pending flight plan are displayed in cyan until the “ACTIVATE” virtual button is pressed. Then they are white and added to the active flight plan.

Load an arrival

PROCEDURE

GARMIN G1000

1) Press the PROC key.
2) Move cursor to SELECT ARRIVAL field, press ENT. (Select Arrival Window appears.)
3) Press the ENT key on the displayed airport or enter another airport.
4) Turn small inner FMS knob to highlight desired arrival, press ENT (transition choices appear).
5) Turn small inner FMS knob to highlight desired transition, press ENT (runway choices appear).
6) Turn small inner FMS knob to highlight desired runway, press ENT.
7) Move cursor to LOAD field, press ENT.

HONEYWELL APEX

1) Bring up the Flight Management Window — push scroll wheel to the left and select FMW.
2) Click on the arrival tab (the image of the airplane descending).
3) Click on “Runway/Dep” field.
4) Select Runway.
5) Select Arrival.
6) Select transition.
7) Click on the Insert button at the bottom.
8) Click on the “ACTIVATE” virtual button to add the arrival to the flight plan.

G1000 BEHAVIOR

After the arrival is entered the arrival and all of the waypoints on the arrival for the selected transition are added to the flight plan.

APEX BEHAVIOR

After the arrival is entered the arrival and all of the waypoints on the arrival for the selected transition are added to the flight plan. More waypoints or procedures can be added if desired. All of the waypoints in the pending flight plan are displayed in cyan until the “ACTIVATE” virtual button is pressed. Then they are white and added to the active flight plan.

WATCH OUT

Cyan is not flying

Every edit lands in a pending flight plan first. If you walk away without pressing ACTIVATE, the aircraft is still navigating the old route. On the G1000 there is no equivalent state — ENT commits.

FROM, not TO
Garmin inserts a waypoint by putting the cursor on the waypoint AFTER the insertion point. Apex amends from the waypoint BEFORE it. Pilots who fight this insert waypoints one position off, every time.

Departure and arrival tabs reverse the order
The G1000 arrival flow is arrival → transition → runway. The Apex flow starts with Runway. Selecting runway first feels backwards to a Garmin pilot and is a frequent stumble.

INSERT then ACTIVATE — two separate clicks
On procedures, INSERT puts it into the pending plan; ACTIVATE commits it. Pilots stop after INSERT and wonder why the departure is not flying.

SELF-CHECK

1. You add three waypoints on Apex and they appear in cyan. Is the aircraft navigating to them?
A. No. Cyan means pending. The aircraft continues on the active flight plan until you click the ACTIVATE virtual button, at which point the waypoints turn white.

2. You want to insert DEEDS between GEELA and PHX. Which waypoint do you select on Apex, and which on the G1000?
A. On Apex select GEELA — the FROM waypoint — then AMEND ROUTE. On the G1000 put the cursor on PHX — the TO waypoint — and type.

3. What single gesture opens the page menu on Apex?
A. Push the scroll wheel to the left. From there you reach FMW, Waypoint, Avionics, and the other pages.

4. On the G1000 you load a departure by selecting the departure first. What comes first on Apex?
A. The runway. On Apex the sequence under the departure tab is Runway/Dep field → Runway → Departure → Transition → Insert → ACTIVATE.

5. After selecting an arrival and pressing INSERT on Apex, the arrival waypoints are in the list but still cyan. What is left to do?
A. Click ACTIVATE. INSERT places the procedure into the pending plan; only ACTIVATE moves it to the active flight plan.

6. How do you delete a waypoint on Apex, and how many confirmations does it take?
A. Bring up the waypoint list, click the waypoint, select DELETE WAYPOINT, then click ACTIVATE — one selection plus the ACTIVATE commit.

7. You are building a brand new flight plan on Apex. Where do origin and destination get entered?
A. In the FMW — push the scroll wheel left, select FMW, select the aircraft-on-ground picture, then fill the Origin and destination fields and ACTIVATE. Intermediate waypoints are then added by clicking the origin and using AMEND ROUTE.

VIDEO

Each title links to Honeywell's free Aero Training TV. DB = the Simcom Dropbox copy, for instructors who already have folder access.

- 8. Creating a Flight Plan | PC-12 NG | Honeywell DB Apex Day 1
- 7. FMS Position Initialization on Apex Systems | Honeywell DB Apex Day 1
- 10. Types of Flight Plans | Honeywell DB Apex Day 2 (Part 1 of 2)
- 11. Secondary Flight Plans | PC-12 NG | Honeywell DB Apex Day 2 (Part 1 of 2)
- 8. Uploading ForeFlight Flight Plans DB Apex Day 2 (Part 1 of 2)

02 En Route Changes

Direct To, holds, intercepts, approaches and diversions — the section with the most behavior differences and the most risk.

Go direct to another waypoint in the flight plan

PROCEDURE

GARMIN G1000

1) If waypoint list is not displayed, press the FPL key.
2) If cursor is not displayed, press FMS knob.
3) Move the cursor to the desired waypoint (the one to which you want to proceed).
4) Press the “Direct To” key.
5) Move the cursor to the “ACTIVATE?” field.
6) Press ENT key to activate.

HONEYWELL APEX

1) If waypoint list is not displayed, bring up the waypoint list.
2) Select the desired waypoint (the one to which you want to proceed).
3) Select “DIRECT TO”.
4) Click on the “ACTIVATE” virtual button.

G1000 BEHAVIOR

Selected waypoint will become the active waypoint and FMS will create a course to the waypoint. Waypoints before the new active waypoint are RETAINED in the flight plan and can be used for “Direct To” later to restore all or part of the original sequence.

APEX BEHAVIOR

Selected waypoint will become the active waypoint and FMS will create a course to the waypoint. Waypoints before the new active waypoint in the flight plan are DELETED.

Go Direct to a new waypoint

PROCEDURE

GARMIN G1000

1) Press GO DIRECT key.
2) Enter waypoint letters.
3) Press the ENT key.
4) Press the ENT key again to confirm.

HONEYWELL APEX

1) Press “DIRECT TO” on the TSC.
2) Enter the new waypoint name.
3) Press ENTER on the TSC.
4) Click on the ACTIVATE virtual button to add the waypoint.

G1000 BEHAVIOR

Creates a Direct To course to the entered waypoint; this is now the active flight plan. However, the waypoints in the flight plan before the Direct To was entered are retained.

APEX BEHAVIOR

Inserts a waypoint before the active waypoint. Modifies the flight plan to include the new waypoint and creates a Direct To course to the new waypoint.

Hold present position

PROCEDURE

GARMIN G1000

1) If waypoint list is not displayed, press the FPL key.
2) Press the MENU key.
3) Move the cursor to the “Hold At Present Position” field.
4) Press the ENT button. The HOLD AT window will appear and cursor will be on the COURSE field.
5) Use the small FMS knob to dial in the first two digits of the inbound or outbound course for the hold.
6) Move the cursor to the last digit for the course; use the small FMS knob to dial in the last digit.
7) Press ENT; cursor moves to INBOUND/OUTBOUND field. Use the small FMS knob to select INBOUND or OUTBOUND if you wish to change it.
8) Press ENT; cursor moves to the TIME field. Use the small FMS knob to select TIME or DIST if you wish to change it.
9) Press ENT; cursor moves to the field with the time or distance in it. Use the small FMS knob to change the value if desired.
10) Press ENT; cursor moves to the TURNS field. Use small FMS knob to change to RIGHT or LEFT if desired.
11) Press ENT; cursor moves to the EFC TIME field. Use the small FMS knob to dial in the EFC time.
12) Press ENT; cursor moves to the ACTIVATE? field.
13) Press the ENT key.

HONEYWELL APEX

1) Click on the aircraft symbol on the MFD map display.
2) Select the PPOS HOLD option.
3) Use scroll wheel or TSC keyboard to enter CRS.
4) Press ENTER on TSC keyboard.
5) Click on Mag or True if you wish to change it.
6) Use scroll wheel or TSC keyboard to enter Leg Time or Leg Distance.
7) Press ENTER on TSC keyboard.
8) Click on Right or Left if you wish to change it.
9) Use scroll wheel or TSC keyboard to enter Speed if you wish to change it.
10) Click on “Apply”.
11) Click on the ACTIVATE virtual button.

G1000 BEHAVIOR

Hold waypoint is added at present position and FMS will activate hold as active leg.

APEX BEHAVIOR

Hold waypoint is added at present position and FMS will activate hold as active leg.

Load an approach

PROCEDURE

GARMIN G1000

1) Press the PROC key.
2) Move cursor to SELECT APPROACH field, press ENT. (Select Approach Window appears.)
3) Move cursor to APR field.
4) Turn small inner FMS knob to highlight desired approach, press ENT (IAFs and transitions appear).
5) Turn small inner FMS knob to highlight desired transition, IAF, or vectors, press ENT.
6) Move cursor to LOAD field, press ENT.

HONEYWELL APEX

1) If the waypoint list is not displayed, bring up the waypoint list.
2) Scroll to and click on the destination waypoint.
3) Select the DEP/ARR option.
4) Select the Arrival tab.
5) Select the runway.
6) Select the approach.
7) Select the transition or Vectors To Final.
8) Click on the Insert button at the bottom.
9) Click on the “ACTIVATE” virtual button to add the approach to the flight plan.

G1000 BEHAVIOR

After the approach is entered the approach and all of the waypoints on the approach for the selected transition are added to the flight plan.

APEX BEHAVIOR

After the approach is entered the approach and all of the waypoints on the approach for the selected transition are added to the flight plan. All of the waypoints in the pending flight plan are displayed in cyan until the “ACTIVATE” virtual button is pressed. Then they are white and added to the active flight plan.

Enter approach minimums

PROCEDURE

GARMIN G1000

1) Press PROC key.
2) Move the cursor to SELECT APPROACH field.
3) Press the ENT key (the loaded approach appears).
4) Move the cursor to the “MINIMUMS” field.
5) Turn the small inner FMS knob until BARO appears, press ENT.
6) Enter the minimums value, press ENT.
7) Press the ENT key again to load the approach.

HONEYWELL APEX

1) Use the “Minimums” knob on the AFCS Guidance panel to dial in the minimums.

Activate an approach

PROCEDURE

GARMIN G1000

1) Press the PROC key.
2) Move cursor to ACTIVATE APPROACH field.
3) Press ENT key.

HONEYWELL APEX

1) If the waypoint list is not displayed, bring up the waypoint list.
2) Select the waypoint where the approach will start.
3) Select “DIRECT TO”.
4) Click on the ACTIVATE virtual button.

G1000 BEHAVIOR

FMS activates a Go Direct to the IAF or transition entered.

APEX BEHAVIOR

No equivalent function on Apex, so FMS will activate a Direct To leg to the waypoint selected.

Activate vectors to final

PROCEDURE

GARMIN G1000

1) Press the PROC key.
2) Move cursor to ACTIVATE VECTOR-TO-FINAL field.
3) Press ENT key.

HONEYWELL APEX

1) Click on the ACTIVATE VECTORS virtual button.

G1000 BEHAVIOR

Final approach course becomes the active leg; all waypoints on final approach course are RETAINED.

APEX BEHAVIOR

Final approach course becomes the active leg; only the FAF remains, all other waypoints are DELETED.

Intercept a leg

PROCEDURE

GARMIN G1000

1) If waypoint list is not displayed, press the FPL key.
2) If cursor is not displayed, press FMS knob.
3) Move the cursor to the “TO” waypoint of the leg you want to activate (the waypoint at the end of the leg).
4) Press the MENU key.
5) Move the cursor to “ACTIVATE LEG”, press ENT.
6) Press ENT to activate the leg.
7) Press FMS knob to remove cursor.
8) Press NAV to arm Nav Mode.

HONEYWELL APEX

1) If waypoint list is not displayed, bring up the waypoint list.
2) Move the cursor to the waypoint list.
3) Select the “FROM” waypoint of the leg you want to activate (the waypoint at the beginning of the leg).
4) Select “FROM WPT”.
5) Click on the “ACTIVATE” virtual button to activate the leg.
6) Press “NAV” to arm Nav mode.

Intercept a course to a waypoint

PROCEDURE

GARMIN G1000

1) Not available as a function. Best you can do is make the desired waypoint the active waypoint (direct to the waypoint), then put the CDI in OBS mode, use the course knob to select the course, then press NAV to arm nav mode.

HONEYWELL APEX

1) If the waypoint list is not displayed, bring up the waypoint list.
2) Select the waypoint to which you will enter a course to intercept.
3) Select the “Intercept” option.
4) Use the scroll wheel to enter a course to the waypoint.
5) Click on “Apply”.
6) Click on the “Activate” virtual button to activate the course.
7) Press the “NAV” button to arm Nav mode.

Load an unpublished hold

PROCEDURE

GARMIN G1000

1) If waypoint list is not displayed, press the FPL key.
2) If cursor is not displayed, press FMS knob.
3) Move cursor to waypoint at which to hold.
4) Press the MENU key.
5) Move the cursor to the “Hold At Waypoint” field.
6) Press the ENT button. The HOLD AT window will appear and cursor will be on the COURSE field.
7) Use the small FMS knob to dial in the first two digits of the inbound or outbound course for the hold; move cursor to the last digit and dial it in.
8) Press ENT; cursor moves to INBOUND/OUTBOUND field. Change if desired.
9) Press ENT; cursor moves to the TIME field. Select TIME or DIST if desired.
10) Press ENT; cursor moves to the value field. Change the value if desired.
11) Press ENT; cursor moves to the TURNS field. Change to RIGHT or LEFT if desired.
12) Press ENT; cursor moves to the EFC TIME field. Dial in the EFC time.
13) Press ENT; cursor moves to the LOAD? field.
14) Press the ENT key.

HONEYWELL APEX

1) If the waypoint list is not displayed, bring up the waypoint list.
2) Scroll to and click on the waypoint at which to hold.
3) Select the HOLD option. The HOLD window appears.
4) Use scroll wheel or TSC keyboard to enter RAD or CRS.
5) Press ENTER on TSC keyboard.
6) Click on Mag or True if you wish to change it.
7) Use scroll wheel or TSC keyboard to enter Leg Time or Leg Distance.
8) Press ENTER on TSC keyboard.
9) Click on Right or Left if you wish to change it.
10) Use scroll wheel or TSC keyboard to enter Speed if you wish to change it.
11) Click on “Apply”.
12) Click on the ACTIVATE virtual button.

G1000 BEHAVIOR

HOLD is shown after the holding waypoint in the waypoint list.

APEX BEHAVIOR

Waypoint is shown a second time in the waypoint list; the second one has an H (inverse video) next to it in the list.

Divert To

PROCEDURE

GARMIN G1000

1) Press the “Direct To” key.
2) Enter the airport letters.
3) Press the ENT key to enter.
4) Press the ENT key to confirm.

HONEYWELL APEX

1) Press the NRST bezel key on the MFD.
2) Scroll through the airports until you find the desired airport.
3) Click on the airport name.
4) Click the Divert To virtual button.
5) Click on the ACTIVATE virtual button.

G1000 BEHAVIOR

Creates a Direct To course to the entered waypoint; this is now the active flight plan. However, the waypoints in the flight plan before the Direct To was entered are retained.

APEX BEHAVIOR

Creates a Direct To course to the entered airport; all of the rest of the waypoints in the flight plan are deleted. Changes the destination to the Divert airport selected.

Arm approach

PROCEDURE

GARMIN G1000	HONEYWELL APEX
1) Press the APR key.	1) Press the APR key.
G1000 BEHAVIOR If able to arm approach, will capture vertical guidance in GP mode for SBAS or ILS approaches.	**APEX BEHAVIOR** If able to arm approach, will capture vertical guidance in VGP mode for SBAS or ILS approaches.

WATCH OUT

Direct To deletes your route on Apex
This is the headline difference of the whole transition. Garmin keeps the waypoints before your new active waypoint so you can rebuild the original sequence. Apex deletes them. Once you go direct on Apex, the earlier route is gone.

Divert To wipes the flight plan
On Apex, Divert To deletes every remaining waypoint and changes the destination. If ATC sends you back to the original destination, you are rebuilding from scratch.

Vectors to Final keeps only the FAF
The G1000 retains all waypoints on the final approach course. Apex keeps the FAF and deletes the rest. Pilots who expect to see the stepdowns on the map will not find them.

There is no ACTIVATE APPROACH on Apex
Apex has no equivalent function. You select the waypoint where the approach begins and use DIRECT TO. Teach it as a substitution, not as a missing feature.

Minimums moved to a knob
Garmin buries minimums inside the PROC pages. Apex puts a Minimums knob on the AFCS Guidance panel. Simpler — but a Garmin pilot will hunt through menus for it first.

Intercept a course actually exists on Apex
The G1000 cannot do it as a function; you fake it with OBS mode. Apex has a real Intercept option. This is one of the places Apex is genuinely easier, so show it off early.

Leg activation flips ends
Garmin: cursor on the TO waypoint, ACTIVATE LEG. Apex: select the FROM waypoint, FROM WPT. Same reversal as building a flight plan.

SELF-CHECK

1. You are on a four-waypoint route and ATC clears you direct to the third waypoint. What happens to waypoints one and two on each system?
A. G1000 retains them in the flight plan, so you can Direct To back to them later. Apex deletes them permanently.

2. Which Apex function has no G1000 equivalent, and which G1000 function has no Apex equivalent?
A. Apex has a true Intercept-a-course-to-a-waypoint function the G1000 lacks. The G1000 has ACTIVATE APPROACH, which Apex lacks — on Apex you use DIRECT TO the waypoint where the approach starts.

3. Where do you set approach minimums on Apex?
A. The Minimums knob on the AFCS Guidance panel — not in a menu page.

4. After ACTIVATE VECTORS on Apex, which approach waypoints remain in the flight plan?
A. Only the FAF. Every other waypoint on the approach is deleted. On the G1000 they are all retained.

5. You need to hold at your present position. What is the first action on each system?
A. G1000: press FPL, then MENU, then Hold At Present Position. Apex: click the aircraft symbol on the MFD map display, then select PPOS HOLD.

6. On Apex, how do you know a waypoint in the list has a hold on it?
A. The waypoint appears a second time in the list, with an H in inverse video next to the second entry.

7. Arm an approach on both systems — which key, and what mode captures the vertical guidance?
A. The APR key on both. The G1000 captures in GP mode; Apex captures in VGP mode.

8. A Divert To on Apex is more than a Direct To. What else does it change?
A. It changes the destination to the divert airport and deletes all remaining flight plan waypoints.

VIDEO

Each title links to Honeywell's free Aero Training TV. DB = the Simcom Dropbox copy, for instructors who already have folder access.

- 11. En Route Changes, Part 1 of 2 | PC-12 NG | Honeywell DB Apex Day 1
- 12. En Route Changes, Part 2 of 2 | PC-12 NG | Honeywell DB Apex Day 1
- 2. Direct To and Direct To Recovery PC-12 NG | Honeywell Aerospace DB Apex Day 2 (Part 1 of 2)
- 7. Holding Patterns PC-12 NG | Honeywell DB Apex Day 2 (Part 1 of 2)
- 3. Offset Courses | Pilatus PC-12 NG | Honeywell DB Apex Day 2 (Part 1 of 2)
- 5. Pilot-Entered and Temporary Waypoints PC-12 NG | Honeywell DB Apex Day 2 (Part 1 of 2)
- 9. Orbit Patterns Pilatus PC-12 NG | Honeywell DB Apex Day 2 (Part 1 of 2)
- 6. Method Preview Arrival / Approach Procedures | PC-12 NG | Honeywell [NO PUBLIC UPLOAD] DB Apex Day 2 (Part 1 of 2)
- 12. Using Temperature Compensation | Honeywell DB Apex Day 2 (Part 1 of 2)
- 14. Activating Vectors PC-12 NG | Honeywell DB Apex Day 1
- 13. Approach and Landing Pilatus PC-12 NG | Honeywell DB Apex Day 1
- 15. Visual Approaches PC-12 NG | Honeywell [NO PUBLIC UPLOAD] DB Apex Day 1
- 1. LPV PC-12 NG | Honeywell DB Apex Day 2 (Part 2 of 2)
- 8. Jeppesen Terminal Charts | PC-12 NG | Honeywell DB Apex Day 2 (Part 2 of 2)

03 PFD — Manipulation and Display

Getting the primary flight display to show what you want, and reading what it is telling you.

Change flight director symbol

PROCEDURE

GARMIN G1000

1) Cannot change flight director command bars.

HONEYWELL APEX

1) Bring up page menu in a 1/6 window (push scroll wheel to the left).
2) Select “Avionics”.
3) Click on “FCS” tab.
4) Click on the “SD” icon until the desired flight director symbol is shown.

Change HSI between arc mode and 360 mode

PROCEDURE

GARMIN G1000

1) Press bezel PFD soft key.
2) Press bezel HSI FRMT soft key.
3) Press bezel soft key “360 HSI” or “ARC HSI”.

HONEYWELL APEX

1) Press the HSI button on the PFD Controller.

Bring up a bearing pointer

PROCEDURE

GARMIN G1000

1) Press bezel PFD soft key.
2) Press bezel soft key “BRG1” or “BRG2” to cycle through Nav sources for bearing pointer 1 or bearing pointer 2.

HONEYWELL APEX

1) Press the bearing pointer button (bearing pointer 1 or bearing pointer 2) to cycle through the Nav sources for the respective bearing pointer.

Change Nav source for HSI

PROCEDURE

GARMIN G1000

1) Press the bezel soft key “CDI” to cycle through Nav sources.

HONEYWELL APEX

1) Press the NAV SEL button on the PFD controller to cycle through Nav sources.

Flight director options

DISPLAY FEATURE

GARMIN G1000

- No options, just the command bars available (Single Cue).

HONEYWELL APEX

- Single Cue
- Cross pointer
- Flight Path

Nav source display

DISPLAY FEATURE

GARMIN G1000

- Displayed on the left side of the HSI within and near the top of the arc or compass.

HONEYWELL APEX

- Displayed above the HSI arc or compass circle on the right side.

CDI scale when GPS is Nav source

DISPLAY FEATURE

GARMIN G1000

- Displayed on right side of HSI within compass (ENR, TERM, LNAV, LP, LPV, LP+V, L/VNAV, MAPR).

HONEYWELL APEX

- No CDI scale indication available.

Scoreboard / Mode annunciations

DISPLAY FEATURE

GARMIN G1000

- Active modes displayed at top of PFD in green: lateral mode on left, AP on indication in center, then pitch mode on right.
- Pending/armed lateral mode is to the left of active lateral mode in white.
- Pending/armed pitch mode is to the right of active pitch mode in white.

HONEYWELL APEX

- Active modes displayed at top of PFD in green: lateral mode on left, AP and YD on indication in center, then pitch mode on right.
- Pending/armed lateral mode is to the left of active lateral mode in white.
- Pending/armed pitch mode is to the right of active pitch mode in white.
- Green pointer in center points to the PFD to which the AFCS is currently coupled.

WATCH OUT

No CDI scale on Apex

The G1000 pilot has learned to glance at ENR / TERM / LNAV / LPV on the HSI to confirm sensitivity. Apex does not display it at all. The pilot must get that awareness from the approach mode annunciation and position instead. Expect this to feel like something is broken.

Soft keys become dedicated buttons

Three G1000 soft-key presses to change the HSI format becomes one HSI button on the Apex PFD Controller. Faster once learned, but a Garmin pilot's hand goes to the bezel first.

The green coupling pointer is new

Apex adds a green pointer in the center of the scoreboard showing WHICH PFD the AFCS is coupled to. The G1000 has no equivalent. Point it out — it matters in a two-pilot cockpit.

Three flight director symbologies

Apex offers Single Cue, Cross pointer, and Flight Path. Set it to Single Cue for a transitioning Garmin pilot's first sessions so the picture matches what they know, then introduce the others.

SELF-CHECK

1. A pilot asks where the LPV / LNAV / TERM annunciation went on the Apex HSI. What do you tell them?

A. Apex has no CDI scale indication. It is not hidden — it does not exist on this display. Awareness of approach sensitivity comes from the approach mode annunciation and position in the procedure.

2. How many actions does it take to swap the HSI between arc and 360 on each system?

A. G1000: three soft-key presses (PFD, HSI FRMT, then 360 HSI or ARC HSI). Apex: one press of the HSI button on the PFD Controller.

3. Which system lets you change the flight director symbol, and how?

A. Apex only. Page menu (scroll wheel left) → Avionics → FCS tab → click the SD icon until the desired symbol appears. The G1000 command bars cannot be changed.

4. What extra item does the Apex scoreboard show that the G1000 does not?

A. A green pointer in the center indicating which PFD the AFCS is currently coupled to, and the YD annunciation alongside AP.

5. Where does each system display the nav source?

A. G1000: left side of the HSI, within and near the top of the arc or compass. Apex: above the HSI arc or compass circle, on the right side.

6. Which button changes the nav source on Apex?

A. NAV SEL on the PFD controller — the equivalent of the G1000's CDI soft key.

VIDEO

Each title links to Honeywell's free Aero Training TV. DB = the Simcom Dropbox copy, for instructors who already have folder access.

PDF *3. Primary Flight Display DB Apex Day 1

- 1. Display Reversion Controller PC-12 NG | Honeywell DB Apex Day 2 (Part 1 of 2)
- 6. Touch Screen Controller (TSC) Pilatus PC-12 DB Apex Day 1
- 4. The Cursor Control Device (CCD) PC-12 NG | Honeywell DB Apex Day 1
- 3. Radio Controller PC-12 NG | Honeywell DB Apex Day 1
- 2. Audio Panel PC-12 NG | Honeywell DB Apex Day 1

04 MFD and Other Tasks

Map handling, the vertical situation display, nearest airports, and storing or recalling a flight plan.

Change map orientation

PROCEDURE

GARMIN G1000

1) Press the MENU key on the MFD.
2) Cursor will be on “Map Setup” entry, press ENT.
3) Move cursor to “ORIENTATION” field.
4) Use the small inner FMS knob to highlight desired orientation (North up, Track up, etc.).
5) Press the ENT key.

HONEYWELL APEX

1) Press the right bezel key on the MFD to change orientation.

Bring up waypoint list on MFD

PROCEDURE

GARMIN G1000

1) Press FPL key on MFD.

HONEYWELL APEX

1) Bring up page menu by pressing scroll wheel to the left.
2) Select Waypoint 1/6 or 1/3.

Bring up VSD

PROCEDURE

GARMIN G1000

1) Press MAP bezel soft key on MFD.
2) Press PROFILE bezel soft key on MFD.

HONEYWELL APEX

1) Press bezel soft key VSD on right side of MFD.

Change map range

PROCEDURE

GARMIN G1000

1) Rotate the RANGE knob clockwise or counter clockwise to change the map range.

HONEYWELL APEX

1) Move the cursor to the map on the appropriate MFD.
2) Use the scroll wheel to change the map range.

Flight plan display

DISPLAY FEATURE

GARMIN G1000

- Waypoint list — waypoint names are cyan.
- Magenta arrow is shown pointing to the next waypoint.

HONEYWELL APEX

- Many options for displaying data associated with each waypoint next to each waypoint name.
- Active waypoint name is magenta if FMS is navigating to the waypoint, green otherwise.
- Other waypoint names are white.

Bring up list of nearest airports

PROCEDURE

GARMIN G1000

1) Press bezel PFD soft key NRST.

HONEYWELL APEX

1) Press MFD bezel NRST button.

Save a flight plan

PROCEDURE

GARMIN G1000

1) Press FPL key to bring up current flight plan.
2) Move cursor to “Store Flight Plan” field.
3) Press the ENT key.
4) Press the ENT key again to store flight plan to the flight plan number displayed.

HONEYWELL APEX

1) If FMW not displayed, move cursor to waypoint list, push scroll wheel to the left, and select FMW.
2) Click on the icon with the aircraft on the ground.
3) Click on FPLN tab.
4) Enter a name in the FPLN Name field.
5) Click on the Save virtual button.

Recall a flight plan

PROCEDURE

GARMIN G1000

1) Rotate the large FMS knob to display the flight plan page (FPL on the MFD).
2) Press FMS knob to display a cursor.
3) Move cursor to desired flight plan.
4) Press the ENT key.
5) Press the ENT key again to activate the stored flight plan.

HONEYWELL APEX

1) If FMW not displayed, move cursor to waypoint list, push scroll wheel to the left, and select FMW.
2) Click on the icon with the aircraft on the ground.
3) Click on FPLN tab.
4) Select a stored flight plan from the list.
5) Click on the Insert virtual button.

WATCH OUT

Saved flight plans get names, not numbers
The G1000 stores to a numbered slot. Apex asks for a name in the FPLN Name field. Establish a naming convention with the client on day one or they will never find the plan again.

No RANGE knob
Map range on Apex is the scroll wheel, and only after the cursor is on the map on that MFD. A Garmin pilot's hand will reach for a knob that is not there.

Cyan means the opposite thing in the waypoint list
On the G1000 all waypoint names are cyan as a normal state. On Apex cyan means pending. A pilot who reads Apex cyan as 'normal' will miss un-activated edits.

Green active waypoint is an Apex-only state
On Apex the active waypoint name is magenta when the FMS is navigating to it and GREEN when it is not. There is no G1000 equivalent — green here is a warning that you are not actually tracking it.

SELF-CHECK

1. On Apex the active waypoint name is green rather than magenta. What does that tell you?
A. The FMS is not navigating to that waypoint. Magenta means the FMS is navigating to it. Green is a prompt to check your lateral mode and coupling.

2. How do you change map range on each system?
A. G1000: rotate the RANGE knob. Apex: move the cursor onto the map on that MFD, then use the scroll wheel.

3. A client wants their standard route stored. What does each system ask you for?
A. G1000 stores it to a numbered flight plan slot. Apex asks for a name in the FPLN Name field under the FMW → FPLN tab, then Save.

4. Where is the VSD on each system?

A. G1000: MAP soft key, then PROFILE soft key. Apex: the VSD bezel soft key on the right side of the MFD — one press.

5. What is the nearest-airport key on each system?

A. G1000: NRST soft key on the PFD bezel. Apex: NRST bezel button on the MFD.

6. Recalling a stored flight plan on Apex ends with which button — Activate or Insert?

A. Insert. It places the stored plan into the flight plan; the usual pending/ACTIVATE logic then applies.

VIDEO

Each title links to Honeywell's free Aero Training TV. DB = the Simcom Dropbox copy, for instructors who already have folder access.

- 5. Situational MFD PC-12 NG | Honeywell DB Apex Day 1
- 9. INAV Maps Display | PC-12 NG | Honeywell DB Apex Day 2 (Part 2 of 2)
- 4. Flight Summary Information | PC-12 NG | Honeywell DB Apex Day 2 (Part 1 of 2)
- 9. Entering Performance Data PC-12 NG | Honeywell DB Apex Day 1
- 10. Entering Takeoff and Climb | PC-12 NG | Honeywell DB Apex Day 1

05 Colors — What the Display Is Telling You

The fastest way to misread an Apex display is to read it with Garmin colour habits. This section is worth more study time than its length suggests.

MAGENTA active / captured	**CYAN** pending / armed	**GREEN** not captured	**AMBER** abnormal

Color overview

DISPLAY FEATURE

GARMIN G1000

- On HSI CDI and glidepath display: **MAGENTA** for FMS/GPS, **GREEN** for ground-based Nav (VOR, LOC, ILS).

HONEYWELL APEX

- In general, **MAGENTA** means active or engaged/captured.
- **CYAN** indicates something pending or about to be captured/engaged.
- **AMBER** indicates something is abnormal.

Colors on map

DISPLAY FEATURE

GARMIN G1000

- Active leg: **MAGENTA**.
- Other legs: WHITE.

HONEYWELL APEX

- Active leg is **GREEN** if the AFCS has not captured the leg, **MAGENTA** if it has captured, white otherwise.
- **CYAN** for modifications that have not yet been activated.
- White is for everything else.

Colors on CDI

DISPLAY FEATURE

GARMIN G1000

- **MAGENTA**: Nav source is GPS.
- **GREEN**: Nav source ground based (VOR, LOC).
- **CYAN**: Bearing pointers.

HONEYWELL APEX

- **CYAN** while nav source is armed but not yet captured.
- **MAGENTA** when nav source is captured.
- White otherwise.
- Bearing pointers are **GREEN**.

Colors of nav source display

DISPLAY FEATURE

GARMIN G1000

- **MAGENTA**: Nav source is GPS.
- **GREEN**: Nav source ground based (VOR, LOC).

HONEYWELL APEX

- **CYAN**: Nav source is armed but not yet captured.
- **MAGENTA**: Nav source is captured.
- **AMBER**: Left and Right side PFDs are on same side Nav source.

Colors on glidepath indicator

DISPLAY FEATURE

GARMIN G1000

- **GREEN** diamond for GS on ILS.
- **MAGENTA** diamond for LPV, LNAV+V, LNAV/VNAV (SBAS approaches).
- **MAGENTA** chevron for VNV.

HONEYWELL APEX

- **MAGENTA** triangle for GS on ILS when captured.
- **CYAN** triangle for GS pending to be captured on ILS.
- White triangle for GS available, but AFCS mode not set to capture it.
- **MAGENTA** chevron for VPTH or VGP path captured.
- **CYAN** chevron for VPTH or VGP path pending to be captured.
- White chevron for VPTH or VGP path available, but AFCS mode not set to capture it.

Colors on waypoint display

DISPLAY FEATURE

GARMIN G1000

- All waypoint names **CYAN**.
- **MAGENTA** arrow pointing to next waypoint.
- Procedure-specified altitudes in white, other altitudes in **CYAN**.

HONEYWELL APEX

- Waypoint names (non-active waypoints) white.
- Waypoint name of active waypoint **MAGENTA** if nav active to the waypoint, otherwise **GREEN**.
- Altitudes and other data on waypoint list **GREEN**.
- Waypoint names **CYAN** when pending to be added to flight plan.

Colors on AFCS mode annunciation (Scoreboard)

DISPLAY FEATURE

GARMIN G1000

- Active modes are **GREEN**. Pending or armed modes are white.

HONEYWELL APEX

- Active modes are **GREEN**. Pending or armed modes are white.

WATCH OUT

Cyan flips meaning entirely

On the G1000, cyan is the resting colour of waypoint names and pilot-entered altitudes — it means nothing special. On Apex, cyan means PENDING: armed but not captured, or edited but not activated. A Garmin pilot's brain treats cyan as background noise. On Apex it is the most important colour on the display.

Green on the CDI reverses

G1000 green on the CDI means a ground-based nav source. Apex green on the CDI belongs to the bearing pointers. Same colour, different object.

A green active leg is not good news

On Apex a green active leg means the AFCS has NOT captured it. On the G1000 the active leg is always magenta regardless of coupling. Pilots read green as 'good' and miss that they are not coupled.

Amber has a specific dual-PFD meaning

Amber on the Apex nav source display means both PFDs are on the same side nav source. The G1000 has no equivalent annunciation. Brief it in any two-pilot operation.

Glidepath: shape as well as colour

Apex adds a third state — WHITE — meaning the path is available but the AFCS is not set to capture it. The G1000 has no 'available but not armed' colour. Teach the sequence white → cyan → magenta as arm and capture progress.

SELF-CHECK

1. Give the one-line rule for Apex colours.

A. Magenta = active/captured. Cyan = pending or armed, not yet captured. Amber = abnormal. White = everything else, or available but not armed.

2. On the G1000 every waypoint name in the list is cyan. What does cyan mean in the Apex waypoint list?

A. Pending — that waypoint is proposed for the flight plan and has not been activated yet. Non-active waypoints on Apex are white.

3. Your Apex active leg is green. What is the aircraft doing?

A. The AFCS has not captured the leg. Check your lateral mode. When it captures, the leg turns magenta.

4. You see a white chevron on the Apex glidepath indicator. What is the state?

A. The VPTH or VGP path is available but the AFCS mode is not set to capture it. Cyan would mean pending capture; magenta would mean captured.

5. Amber appears on the Apex nav source display. What is it telling you?

A. The left and right PFDs are on the same side nav source.

6. On the G1000 a magenta diamond on the glidepath means an SBAS approach. What does a magenta triangle mean on Apex?

A. Glideslope on an ILS, captured. On Apex the triangle is the ILS glideslope symbol and the chevron is the VPTH/VGP path.

7. Which colour convention is identical on both systems?

A. The AFCS mode annunciations on the scoreboard — active modes green, pending or armed modes white.

VIDEO

Each title links to Honeywell's free Aero Training TV. DB = the Simcom Dropbox copy, for instructors who already have folder access.

- 1. Overview of the Apex System PC-12 NG | Honeywell DB Apex Day 1

06 AFCS Modes

The autoflight vocabulary changes. Several mode names carry over, one is a false friend, and two are new.

Lateral modes

DISPLAY FEATURE

GARMIN G1000

- ROL — Holds current roll angle.
- HDG — Adjusts roll to maintain bugged heading.
- GPS — Adjusts roll to maintain active GPS course.
- LOC — Adjusts roll to maintain active LOC course.
- VOR — Adjusts roll to maintain active VOR course.
- VAPP — Tracks VOR on approach, but CDI at higher sensitivity than en route.

HONEYWELL APEX

- ROL — Holds current roll angle.
- HDG — Commands roll to maintain bugged heading.
- TRK — Adjusts roll to maintain ground track.
- NAV — Adjusts roll to maintain active GPS or VOR course.
- LOC/BC — Adjusts roll to maintain active LOC or BC course.

Vertical modes

DISPLAY FEATURE

GARMIN G1000

- ALT — Adjusts pitch to maintain altitude in altitude selector.
- ALTS — Indicates capturing altitude.
- VS — Adjusts pitch to maintain climb or descent rate.
- GP — Adjusts pitch to maintain glide path on ILS or LPV glide path or LNAV+V glide path.
- FLC — Adjusts pitch to maintain selected indicated airspeed.
- GA — Sets pitch for takeoff or go-around.

HONEYWELL APEX

- ALT — Adjusts pitch to maintain altitude in altitude selector.
- ASEL — Indicates capturing altitude.
- VS — Adjusts pitch to maintain climb or descent rate.
- VGP — Adjusts pitch to maintain glide path on an approach where vertical guidance is available, such as LPV, but also any approach with a published glide path, including LNAV and VOR approaches. When descending in this mode, the altitude selector will be IGNORED and descent will continue below altitude selection.
- FLC — Adjusts pitch to maintain selected indicated airspeed.
- GA — Sets pitch for takeoff or go-around.

WATCH OUT

VGP ignores the altitude selector
This is the most consequential AFCS difference in the guide. G1000 GP will not descend through the altitude in the selector. Apex VGP will. A Garmin pilot who leaves the selector as a backstop on a VOR or LNAV approach does not have one. Brief this on every transition, every time.

VGP covers far more approaches than GP
Garmin GP works on ILS, LPV and LNAV+V. Apex VGP works on any approach with a published glide path, including LNAV and VOR approaches. Pilots will be surprised to get a path where they never had one.

GPS becomes NAV, and NAV does both
The G1000 separates GPS and VOR into different lateral modes. Apex has one NAV mode that maintains the active GPS or VOR course. Fewer modes, but the pilot must now check the nav source rather than read the mode.

ALTS becomes ASEL
Same function, different four letters. Easy to teach, easy to forget under pressure.

TRK is new
Apex adds a ground-track mode with no G1000 equivalent. Useful and worth demonstrating, particularly in wind.

VAPP has no Apex equivalent
The G1000's higher-sensitivity VOR approach mode does not exist on Apex. NAV covers the VOR course.

SELF-CHECK

1. Which Apex vertical mode will descend through the altitude in the altitude selector, and why does that matter?
A. VGP. Unlike the G1000's GP, VGP ignores the altitude selector and continues the descent. The selector is not a backstop on Apex — the pilot is.

2. On which approaches does Apex give you a vertical path that the G1000 would not?
A. Any approach with a published glide path, including LNAV and VOR approaches. Garmin GP is limited to ILS, LPV, and LNAV+V.

3. Name the G1000 lateral modes that collapse into a single Apex mode.
A. GPS and VOR both become NAV on Apex. NAV maintains the active GPS or VOR course depending on the selected nav source.

4. Translate: ALTS.
A. ASEL on Apex. Both indicate capturing the selected altitude.

5. Which lateral mode exists on Apex but not on the G1000?
A. TRK — maintains ground track.

6. Which G1000 mode has no Apex equivalent?
A. VAPP, the higher-sensitivity VOR approach mode. On Apex, NAV handles the VOR course.

7. A pilot sets 4,000 ft in the altitude selector and arms VGP on an LNAV approach. What happens at 4,000?
A. Nothing stops the descent. VGP ignores the altitude selector and continues down the published path. This is the trap.

VIDEO

Each title links to Honeywell's free Aero Training TV. DB = the Simcom Dropbox copy, for instructors who already have folder access.

- 1. Overview of the Apex System PC-12 NG | Honeywell DB Apex Day 1
- 13. Approach and Landing Pilatus PC-12 NG | Honeywell DB Apex Day 1

07 VNAV

Both systems descend on a computed path. Only one of them will climb.

VNAV modes

DISPLAY FEATURE

GARMIN G1000

- ALT — Adjusts pitch to maintain altitude in vertical flight plan.
- ALTV — Indicates capturing altitude.
- VPTH — Adjusts pitch to maintain descent angle to next altitude in vertical flight plan. Will not fly through altitude in altitude selector.

HONEYWELL APEX

- VALT — Commands pitch to maintain altitude in vertical flight plan.
- VSEL — Indicates capturing altitude.
- VFLC — Commands pitch to maintain selected airspeed to climb or descend to next altitude in vertical flight plan. Will not fly through altitude in altitude selector.
- VPTH — Adjusts pitch to maintain descent angle to next altitude in vertical flight plan. Will not fly through altitude in altitude selector.

VNAV logic

DISPLAY FEATURE

GARMIN G1000

- Creates TODs to each altitude in the vertical flight plan with default glide path.
- Will delay descent until reaching computed TOD.
- Will level off at BOD/waypoint until next TOD.
- At FAF vertical guidance is removed, unless GP has been captured on an approach with SBAS.
- While in VNAV, descent will be stopped at altitude in altitude selector.
- CANNOT CLIMB in VNAV, only descend.

HONEYWELL APEX

- CLIMB — Will climb in VFLC as soon as possible to next altitude in vertical flight plan. Will not climb through altitude in altitude selector.
- DESCENT — Creates a TOD with default glidepath to next waypoint in vertical glidepath. Will delay descent until reaching computed TOD.
- When there are multiple altitudes in the vertical flight plan, will use glidepath angles that change as little as possible while respecting altitude constraints.
- If there are hard constraints between two waypoints, will create a constant glidepath angle between the two.
- Will not descend through altitude in altitude selector.

WATCH OUT

Apex VNAV climbs. Garmin VNAV does not.
The G1000 cannot climb in VNAV — descent only. Apex will climb in VFLC to the next altitude in the vertical flight plan as soon as it can. A Garmin pilot who builds a vertical flight plan on Apex and does not expect climbs will be surprised by a pitch-up.

Every VNAV mode name gains a V
ALT → VALT, ALTV → VSEL, and Apex adds VFLC. VPTH is the one name that survives unchanged. Write the translation table on the whiteboard.

Apex smooths the path across constraints
Where the G1000 steps down altitude to altitude, Apex builds glidepath angles that change as little as possible across multiple constraints, and a constant angle between hard constraints. The descent feels different in the seat.

The altitude selector still protects you in VNAV
Unlike VGP, both systems honour the altitude selector in VNAV — Apex will not climb or descend through it. Do not let pilots generalise the VGP exception to all vertical modes.

Garmin drops vertical guidance at the FAF
On the G1000, vertical guidance is removed at the FAF unless GP has been captured on an SBAS approach. Pair this with the VGP discussion so the pilot understands why Apex keeps flying a path where Garmin quit.

SELF-CHECK

1. Can either system climb in VNAV?
A. Apex can — in VFLC, to the next altitude in the vertical flight plan, as soon as possible. The G1000 cannot climb in VNAV at all; it descends only.

2. Translate the VNAV mode names from Garmin to Apex.
A. ALT → VALT. ALTV → VSEL. VPTH stays VPTH. Apex adds VFLC, which has no G1000 VNAV equivalent.

3. Does the altitude selector stop a VNAV descent on Apex?
A. Yes. Apex will not descend through the altitude in the selector in VNAV. The exception is VGP, which ignores it.

4. You have three altitude constraints on an arrival. How does Apex build the path?
A. It uses glidepath angles that change as little as possible while respecting the constraints, and a constant glidepath angle between hard constraints. The G1000 computes a TOD to each altitude with a default glide path.

5. On the G1000, what happens to vertical guidance at the FAF?
A. It is removed, unless GP has been captured on an approach with SBAS.

6. What does VFLC command?
A. Pitch to maintain a selected airspeed while climbing or descending to the next altitude in the vertical flight plan. It will not fly through the altitude in the altitude selector.

VIDEO

Each title links to Honeywell's free Aero Training TV. DB = the Simcom Dropbox copy, for instructors who already have folder access.

- 2. VNAV Overview | PC-12 NG | Honeywell DB Apex Day 2 (Part 2 of 2)
- 3. VNAV PC-12 NG | Honeywell [NO PUBLIC UPLOAD] DB Apex Day 2 (Part 2 of 2)
- 4. VNAV Climbs PC-12 NG | Honeywell DB Apex Day 2 (Part 2 of 2)
- 5. VNAV Descents | PC-12 NG | Honeywell DB Apex Day 2 (Part 2 of 2)
- 6. VNAV Approaches | PC-12 NG | Honeywell DB Apex Day 2 (Part 2 of 2)
- 7. FMS Speed Schedule PC-12 | Honeywell [NO PUBLIC UPLOAD] DB Apex Day 2 (Part 2 of 2)

Quick Reference Card

Print this page on its own and keep it on the kneeboard. Shaded rows change what the aeroplane does, not just which button you press.

IF YOU USED TO, ON THE G1000…	ON THE HONEYWELL APEX
Press ENT and it's in the flight plan	**Edit is PENDING in cyan — click ACTIVATE to commit**
Cursor on the TO waypoint to insert	**Select the FROM waypoint → AMEND ROUTE**
Direct To keeps the earlier waypoints	**Direct To DELETES every waypoint before it**
Divert To keeps the flight plan behind you	**Divert To deletes the rest of the plan and changes destination**
Vectors to Final keeps the approach waypoints	**Vectors keeps only the FAF**
GP will not descend through the altitude selector	**VGP IGNORES the altitude selector**
Cyan = ordinary waypoint name	**Cyan = PENDING / armed, not captured**
PROC → SELECT APPROACH → LOAD	Waypoint list → destination → DEP/ARR → Arrival tab → runway → approach → transition → Insert → ACTIVATE
PROC → ACTIVATE APPROACH	No equivalent — DIRECT TO the waypoint where the approach starts
PROC pages for minimums	Minimums knob on the AFCS Guidance panel
PFD → HSI FRMT → 360/ARC	HSI button on the PFD Controller
CDI soft key to change nav source	NAV SEL button on the PFD Controller
BRG1 / BRG2 soft keys	Bearing pointer 1 / 2 buttons
RANGE knob for map range	Cursor onto the map, then the scroll wheel
MENU → Map Setup → ORIENTATION	Right bezel key on the MFD
MAP → PROFILE for the VSD	VSD bezel soft key, right side of the MFD
FPL key for the waypoint list	Scroll wheel LEFT → Waypoint 1/6 or 1/3
Store Flight Plan to a numbered slot	FMW → FPLN tab → name it → Save
Recall by flight plan number	FMW → FPLN tab → select → Insert
ENR / TERM / LNAV / LPV scale on the HSI	**No CDI scale on Apex at all**
GPS mode (lateral)	NAV — covers GPS and VOR
VOR mode (lateral)	NAV
VAPP mode	No equivalent — use NAV
ALTS (capturing altitude)	ASEL
ALT / ALTV in VNAV	VALT / VSEL
No VNAV climb — descent only	**VFLC climbs to the next vertical flight plan altitude**
Command bars cannot be changed	Avionics → FCS tab → SD icon: Single Cue, Cross pointer, Flight Path
NRST soft key on the PFD	NRST bezel button on the MFD
Cursor on the TO waypoint → ACTIVATE LEG	Select the FROM waypoint → FROM WPT → ACTIVATE
Intercept a course: not a function (use OBS)	Select waypoint → Intercept → enter course → Apply → Activate → NAV

Suggested Use — A Four-Block Ground Sequence

This guide is built to be worked through in four blocks. Each block is roughly 60–90 minutes of ground plus a sim period, and each closes with the self-check questions from the sections listed.

BLOCK 1

Cockpit orientation and the pending concept

COVERS — Start Here + Section 3 (PFD) + Section 4 (MFD)

GOAL — The pilot can drive the cursor, the scroll wheel and the TSC without thinking, open any page menu, and explain the pending/ACTIVATE cycle in their own words.

VIDEO — Apex Day 1 videos 1–6

BLOCK 2

Building and amending the route

COVERS — Section 1 (Flight Plans) + Section 5 (Colors)

GOAL — The pilot builds a full flight plan with a departure, airway and arrival, and reads the display's colour state correctly at every step.

VIDEO — Apex Day 1 videos 7–10; Day 2 Part 1 videos 10–11

BLOCK 3

En route changes and the destructive functions

COVERS — Section 2 (En Route Changes)

GOAL — The pilot demonstrates Direct To, Divert To and Vectors to Final and states out loud, before each one, what the function will delete.

VIDEO — Apex Day 1 videos 11–15; Day 2 Part 1 videos 2–9

BLOCK 4

Autoflight and vertical navigation

COVERS — Section 6 (AFCS Modes) + Section 7 (VNAV)

GOAL — The pilot flies a VGP approach and correctly briefs that the altitude selector will not stop the descent, and flies a VNAV climb.

VIDEO — Apex Day 2 Part 2 videos 1–7

The Quick Reference Card is intended to be printed separately and kept on the kneeboard for the first several flights. It is not a substitute for the full sections.