GNS 480™

color GPS/WAAS/NAV/COM
quick reference

KEYS AND KNOBS

Left-Hand Keys and Knobs

The **Power/Volume** knob controls unit power and radio volume (Nav and Com). Push the knob in to turn the unit on. Pull the knob out to turn the unit off. When in Com or Nav radio modes, turn the knob to control audio volume.

The **COM** key activates control of the Com radio. The Com radio window on the left side of the display will be outlined.

The **VOR** key activates control of the Nav radio. The Nav radio window on the left side of the display will be outlined.

The **XPDR** key activates control of an external transponder, if available. The remote transponder window on the left side of the display will be outlined.

The **CDI** key toggles between the GPS or Nav receivers as the source driving the CDI. GPS or Nav is indicated in the lower left side of the display.

The **SUSP** key toggles between automatic or suspended leg sequencing.

The Data Card ejector is located on the lower left corner of the unit. Software and databases can be updated by replacing the data card. Never remove or insert the data card when the unit is powered on. With the power off, press the ejector button to partially eject the data card and carefully pull it the rest of the way out. Note the orientation of the card. It will only go back in when turned in the right direction. Replace the data card by carefully pressing it into the slot completely. Do not force the card, if it doesn't go in easily it probably isn't turned the right way.

Right-Hand Keys and Knobs

The **MAP** key activates the Map mode. The moving map will cover the right two thirds of the display.

The **Direct-To** key activates the direct-to function that allows you to enter a destination waypoint and establish a direct course to the destination.

The **NRST** key activates the nearest waypoint search function that allows you to find the nearest 20 waypoints of each type.

The **INFO** key provides access to a wide variety of information about the selected waypoint.

The **CLR** key is used to erase information or clear an entry.

The **MENU/ENTER** key is used as an Enter key to approve an operation or complete data entry or as a Menu key to display the available Menu items for the active function.

The **Large** and **Small** concentric knobs are used to edit and select information. Turn the **Large** knob to move the cursor. Turn the **Small** knob to select characters or options.

The **Cursor** knob activates an editing cursor by pressing the **Small** knob in and then turning it. When the Map function is active, pressing in on the Cursor knob activates Panning mode.

KEYS / POWER ON

Bottom Row Keys

The **Func-tion Smart Keys** are the four

unlabeled keys below the right two-thirds of the display. The functions are shown on the display above each **Function Smart Key**. Press the **Function Smart Key** below the function name shown above the key to select the displayed function.

Each press of the **FN** key will step through the available functions.

Menu Items

Menu Item Labels (Selected)

Menu Item Smart Keys

Menu Item Labels (Not Selected)

The **Menu Item** smart keys are on the right side of the unit next to the display. A list of labels customized for each function or mode are shown on the display adjacent to each **Menu Item** key. Press the **Menu Item** key to select the displayed choice.
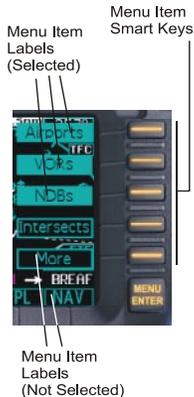
Powering Up the GNS 480

Starting Up
The GNS 480 performs internal checks and shows the status of the tests during start up. The startup screen, owner name (if entered), testing, position, and database information shows on the screen for several seconds and then shows the first Map page.

Power Up
1. Push the **PWR/VOL** knob in to turn on power.
2. When the position display appears, you can press **CHG** to manually enter your present position or just wait a few seconds for the GNS 480 to establish your position. The full power up sequence takes 2-3 minutes.
3. The GNS 480 performs a number of tests at startup to ensure proper operation. You may press **SKIP** to bypass the startup tests, however, completing these tests is required for IFR flight. Observe the tests and needle swings for proper operation.

Database Check
The GNS 480 verifies the integrity and expiration date of the database. Up to two database cycles are supported. The GNS 480 will load the appropriate current database cycle and also let you know if a database is not current (dates invalid or corrupt) with a message in amber.

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SCREEN LAYOUT EXAMPLES

Display of previous function

Active Field Highlighted

"PILOT NAV" indicates no guidance on this flight plan leg

Smart Menu Key Labels for the Active Function

Active Function Indicated in Lower Right Corner

Smart Function Key Labels for the Active Function

Transponder Active

Highlighted Field Active for Editing

Display of previous function

Active Frequency

Monitor Annunciator

Standby Com Frequency

Smart Menu Key Labels for the Active Function

Active Function Indicated in Lower Right Corner

Squelch Function Label Changes to Tx/Rx when Transmitting or Receiving

Monitor Function Label

Recall Frequency Function Label

Flip-Flop Key

Leg Description

Active Leg

Leg Distance (Length)

Leg Time (Estimated Time En Route)

Com Radio Window

Nav Radio Window

Remote Transponder Window with Active Field Highlighted

CDI Graphic Display

CDI Text Display (Arrow show direction to steer to get back on course)

CDI Source

Leg Sequence Suspend Annunciator

Vector To Final Annunciator

Message Annunciator

Magenta Line Describes the Current Leg

Waypoint in Flight Plan ("f" indicates Final Approach Fix)

Waypoint in Flight Plan ("m" indicates Missed Approach Point)

Line highlighted in green is moved by turning Large knob

Waypoint in Flight Plan ("h" indicates a Hold)

Procedure in Flight Plan (indicates a manual Hold)

Active Function Indicated in Lower Right Corner

Green Arrow Indicates More Legs May Be Viewed By Turning the Large Knob in the Direction Shown

Active Flight Plan Page (Expanded)

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DISPLAY SYMBOLS

The following symbols are used on the map display to depict active legs of flight, waypoint types, and your aircraft.

Symbol	Description	Symbol	Description	Symbol	Description
	Turn Left for next flight plan leg		Airport		Ownship - Single
	Turn Right for next flight plan leg		VOR		Ownship - Twin
	No course change		VORTAC		Ownship - Jet
	Left Procedure Turn Outbound		VOR-DME		Ownship - Helicopter
	Arc to the Left		NDB		Flight Plan Waypoint
	Arc to the Right		User Waypoint		Intersection
	Left Procedure Turn Inbound		Entering Procedure Turn Left		Left Hand Holding Pattern Inbound
	Entering Procedure Turn Right		Direct-To		Left Hand Holding Pattern Outbound
	Right Hand Holding Pattern Outbound		Right Hand Holding Pattern Inbound		

PAGE SELECTION

COM Group

Com Radio - Main Page	*Weather Frequencies*	*Signal Level*	*Audio Levels*	*Save Channel*

Moving Map Group

Map - Menu Page 1	*Map - Menu Page 2*	*Map - Menu Page 3*	*Map - Menu Page 4*

Direct-To Group

Direct-To - Page 1	*Direct-To - Page 2*	*Direct-To - Dest*	*Direct-To - Hold*
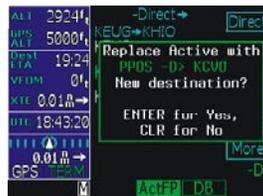
Nearest Waypoint Group

NRST - Page 1

NRST - Page 2

NRST - Page 3

XPDR Group

XPDR - Menu Page*

XPDR - Code Select Page*

* Available with appropriate external equipment

Info Group

INFO - Airport Page

Present Position Page

Frequency Page

Frequency Narrative Page

NAV Group

Map Page

Runway/Approach Info Page

RAIM Prediction Page

Nav Radio - Main Page

Test Log

Signal Level, Audio Levels, and Save Channel are the same as the Com radio

PAGE SELECTION

Function Key Group

Messages

Procedures

Flight Plan Library

Nav with VDI

Pan Mode

Checklist

User Waypoint

Press the FN key to show the available functions. Press the function smart key to access the function.

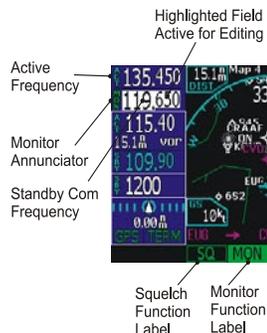Within each function, the function and menu smart keys display more information.

Pressing the FN key will display the main functions on the bottom of the display.

System - GPS Page

System - Versions

System - Configuration

* Available with appropriate external equipment

Parallel Track

Timers

Traffic Display*

Traffic Menu*

Traffic Advisory Pop-Up*

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Comm Radio (COM)

- Press **COM** to activate Com mode.
- Turn **Large** knob to change MHz.
- Turn **Small** knob to change kHz.
- Press **<—>** to toggle Active and Standby frequency.
- Press **SQ** to toggle activation of auto squelch.
- Press **MON** to monitor Standby frequency.
- Press **Com** again to return to previous function or page.

- Press **Menu/Enter** for Menu items.
  Press **Signal** to view levels.
  Press **Weather** to view frequencies.
    1. Turn **Large** knob to highlight.
    2. Press **<-SBY** or **<-A->**.
  Press **Audio** to view and edit levels.
  Press **Save Chnl**.
    1. Turn **Large** and **Small** knobs to choose name and frequency.
    2. Press **Menu/Enter** to save.

- Press **RCL** to recall (Recent) stored frequencies.
  Turn the **Large** knob to select frequencies.
  Press **User** to view list of User-created frequencies.
  Press **Emrgncy** to insert the Emergency frequency into Standby.
  Press **<SBY** or **<-A->**.

Highlighted Field Active for Editing

Active Frequency

Monitor Annunciator

Standby Com Frequency

Squelch Function Label

Monitor Function Label

VOR/ILS Radio (VOR)

- Press **VOR**.
- Turn **Large** knob to change MHz.
- Turn **Small** knob to change kHz.
- Press **<—>** to toggle Active and Standby frequency.
- Press **Menu/Enter** for Menu items.
- Press **ID** to toggle Nav Audio - ID/Voice.
- Press **MON** to monitor Standby frequency.
- Press **RCL** to recall (Recent) stored frequencies.

  Turn the **Large** knob to select frequencies.

  Press **User** to view list of User-created frequencies.

  Press **<SBY** or **<-A->**.
- Press **Menu/Enter** for Menu items.

  Press **Test Log** to enter calibration info.
    1. Turn **Large** and **Small** knobs to modify calibration info.
    2. Press **Menu/Enter** to save.
  Press **ID/TO/FR** to view the bearing To/From the VOR or Ident.
  Press **Audio** to view or edit levels.
  Press **Save Chnl**.
    1. Turn **Large** and **Small** knobs to choose name and frequency.
    2. Press **Menu/Enter** to save.
- Press **Com** again to return to previous function or page.

Direct-To Navigation

Press the **Direct-To** key to get to the Direct-To function which allows you to quickly navigate from your present position directly to a selected waypoint. You can also use this function to make changes to a flight plan, set up a user-defined holding pattern, sequence directly to a selected leg in your flight plan, fly a Course To or Course From a selected waypoint, or activate the OBS function.

ActFP

With the **ActFP** key highlighted, turn the **Large** knob to highlight waypoints in your active flight plan. Press the menu item smart key on the right side of the screen to perform the selected action.

DB

Press the **DB** key to select any waypoint from the database. Use the **Large** and **Small** knobs to select the waypoint.

Direct

The **Direct** Menu item key activates the direct course to the selected waypoint from your present position.

1. When you press **Direct-To**, the default waypoint shown will be the active (highlighted) waypoint in your flight plan (unless another waypoint is highlighted in another operation, then that waypoint would be used). You can turn the **Large** knob to select a different waypoint in your flight plan.

2. You may select a waypoint that is not in your flight plan by pressing the **DB** key and then use the **Large** and **Small** knobs.

3. Press the **Direct** key to navigate directly to the selected waypoint.

4. Select a waypoint nearest you location using the NRST function.

FlyLeg

With the FlyLeg menu selection you can activate a particular leg of your flight plan for navigation guidance. If you have picked an invalid leg, a message will warn you.

1. Press the **Direct-To** key. Press the **ActFP** key, if necessary.

2. Select the desired leg of your flight plan with the **Large** knob.

3. Press the **FlyLeg** menu item key to activate guidance to the selected Leg.

Intercept Course-To a Waypoint

Course-To operation allows you to add an intercept course to the selected waypoint either in your active flight plan or to a waypoint in the database. Upon reaching the selected waypoint, the flight plan will sequence to the next waypoint in the flight plan normally.

1. Press the **Direct-To** key.

   a. Press **ActFP** and turn the **Large** knob to select a waypoint in your flight plan.

   or

   b. Press **DB** to select a waypoint not in your active flight plan with the **Large** and **Small** knobs.

2. Press the **CrsTo** menu item key (you may have to press the **More** menu item key first.

3. Change the course bearing, if desired. Use the **Large** knob for 10° steps and the **Small** knob for 1° steps.

4. Press **Menu/Enter**.

Intercept Course-From a Waypoint

Course-From operation allows you to navigate from a waypoint on a selected course. When the Course From operation is executed, the CDI will indicate FROM and the flight plan will go into Suspend mode (the SUSP annunciator will appear); it will not automatically sequence the flight plan waypoints. The airplane will track outbound on the selected radial until instructed otherwise.

1. Press the **Direct-To** key.

2. Press **ActFP** and turn the **Large** knob to select a new waypoint from the flight plan or press **DB** and select a waypoint from the database, if desired.

3. Press the **CrsFr** menu item key (you may have to press the **More** menu item key first.

3. Change the course bearing, if desired. Turn the **Large** knob to change the course 10° value. Turn the **Small** knob to change the course 1° value.

4. Press **Menu/Enter**.

OBS Mode

When the OBS mode is active, use the CDI/HSI control to set an intercept course to any waypoint as you would with a radial for a VOR.

1. Press **Direct-To**. Highlight the desired waypoint in your active flight plan with the **Large** knob. For waypoints not in your flight plan, select a new waypoint with the **Large** and **Small** knobs, otherwise the destination waypoint is used.

2. Press **OBS**. Now use the external CDI/HSI resolver to control the selected course. Press **SUSP** when the course is complete, which allows normal sequencing.

Direct-To a Waypoint in Your Active Flight Plan

1. Press **Direct-To**.

2. Press the **ActFP** function smart key.

3. Use the **Large** knob to select the waypoint in the flight plan.

4. Press the **Direct** menu item smart key. The GNS 480 will navigate direct to the selected waypoint.

Direct-To a Waypoint Not in Your Active Flight Plan

1. Press the **Direct-To** key.

2. Press the **DB** function smart key.

3. Use the **Large** and **Small** knobs to select the waypoint ident or name.

4. Press the **Dest** menu item smart key and then press **Menu/Enter**. Now, fly direct to the selected waypoint.

5. To set an approach, press the **PROC** function smart key and then the **Appch** menu item smart key.

6. Use the **Large** and **Small** knobs to select the approach and then press **Menu/Enter**.

7. Press the **EXEC** function smart key and then **Menu/Enter** to execute the change in your flight plan.

MOVING MAP MODE (MAP)

Moving Map Mode

The Map mode provides a moving map for a graphic display of your flight including the surrounding area as well as navigation information. Maps are generally drawn with aircraft Ground Track at the top of the display (Up). True North is at the top of the display for the non-moving maps for inserting holds, procedures, and intercepts. Press **MAP** twice to go to Map page 1.

1. Press **MAP** to reach Map mode. Radio, Nav, Transponder, CDI, Annunciator, or pilot-customized information is shown on the left side of the display and the map display is shown on the right side.

2. There are four Map pages that you select by turning the **Large** knob.

3. Turn the **Small** knob to change the Map scale. Map pages 2-4 allow you to customize the Nav display items on the left side of the display and map display detail. Using the Nav Data and Sel Data functions allows you to select the data fields. *See "Setting Nav Info in Map Mode" for details*.

4. Press **Menu/Enter** to view the Menu items for the choices to customize your display.

5. Press the key next to the Menu item to change the values.

6. Press the **More** key to go to the next page of Menu items.

True North

The Map can be referenced to True North after setting the Magnetic Variation to 0° in the Configuration section of System mode. When set to True North, the degree values on the map display will show a "T" along with the degree symbol. To reset magnetic variation for normal

"T" for True North

"T" for True North

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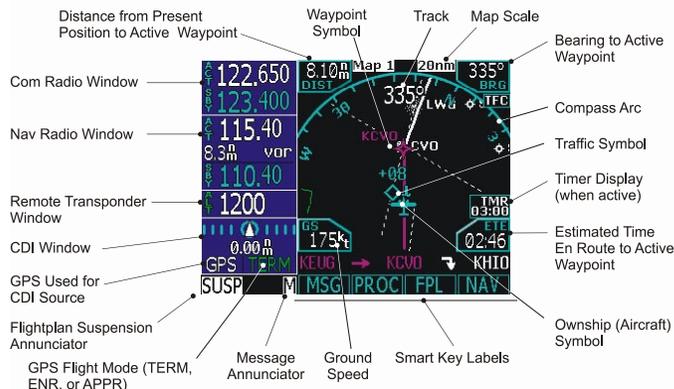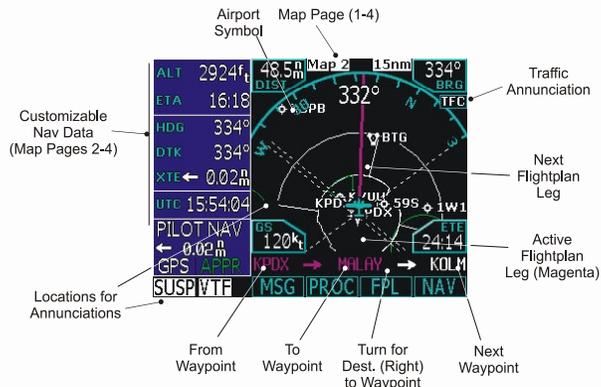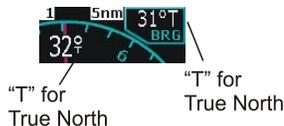
MAP NAV INFO (MAP) / PAN MODE (PAN)

Setting Nav Info in Map Mode

You can customize the Nav information displayed on the left side of the display for Map Mode pages 2, 3, and 4. You can select these options as described below.

1. Press **MAP** to reach Map mode.

2. Turn the **Large** knob to select pages 2-4. You can't change the Nav information options for page 1.

3. Press the **Menu/Enter** key.

4. Press the **More** selection key until the Nav Data selection is available.

5. Press the **Nav Data** selection key.

6. Press the **Sel Data** selection key to activate selection of options of Nav Data information.

7. Turn the **Large** knob to highlight the desired Nav Data item. Turn the **Small** knob to change the displayed option.

8. Press **Menu/Enter** when you have completed your selections.

9. If desired, turn the **Large** knob to another Map Mode page and customize that page.

Pan Mode

Activate the Panning feature by pressing the **PAN** key or the **CRSR** button on the **Small** knob when in Map mode.

The cross hair cursor (+) starts at your present position when starting the Pan mode. Turning the **Large** knob pans left/right of pan track. Turn the **Small** knob to pan forward and back of pan track. A green line is drawn between your present position and the cross hair position. Range and bearing to the cross hair position from your present position and the Lat/Lon of the cross hair position is shown at the bottom of the map display.

Range

Press the **Range** key to highlight the Range menu item. When Range is selected, turn the **Small** knob to change the map range to zoom in or out at the cross hair position.

MRK Press **MRK** to create a User Waypoint at the cursor position.

Create a New User waypoint

User waypoints allow you to create unique waypoints not already present in the database.

1. While in the Pan function, press **MRK**.

2. Press **Menu/Enter** to save the displayed user name.

or

3. Create a name of your choice and add other information as desired using the **Small** knob to change characters and the **Large** knob to move the cursor. Press **CLR** to delete a highlighted character. Then, press **Menu/Enter** to save the information.

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User Waypoints (USER)

The GNS 480 can hold up to 500 user-defined waypoints. These waypoints can be based on either lat/lon position or range and bearing from a reference point. In the User Waypoint function, you can create new waypoint, edit existing ones, or search for a User waypoint.

Creating or Editing a User Waypoint

1. Press **FN** and then the **USER** key to start the User Waypoint function. You can also create User waypoint by using the PAN function.

2. Press the **NEW** or **EDIT** key.

3. Use the **Small** and **Large** knobs to name or edit the waypoint name. You can also set a range and bearing from a reference waypoint.

4. Turn the **Large** knob to go to each field on the page and edit the values.

5. Press **Menu/Enter** when finished.

Searching for a User Waypoint

1. Press **FN** and then the **USER** key to start the User Waypoint function.

2. Press the **SEARCH** key.

3. Use the **Small** and **Large** knobs to select the waypoint name. You can also search through a given field by pressing the **CRSR** knob, moving to a field with the Large knob, and then searching within a field by turning the **Small** knob.

4. Press **Menu/Enter** when finished.

System Mode (SYS)

1. Press the **FN** key and then the **SYS** function smart key to reach the System mode.

2. Press the **GPS**, **VERS**, or **CNFG** function smart keys to go to each page.

GPS

GPS/WAAS status, GPS Time, satellites available with overhead view, and signal strength of the available satellites are shown.

VERS (Software Versions)

Unit serial number and software versions are shown. This information should be noted before calling customer service.

CNFG (User Configuration)

The User Configuration function allows you to set values for your aircraft.

1. Turn the **Large** knob to highlight the value.

2. Press the **CRSR** knob in and then turn the **Small** knob to change the value.

3. Press the **Menu/Enter** key to save the value.

Nearest Waypoints (NRST)

The Nearest Waypoint Search function allows you to search for the 20 waypoints nearest to your present position in each waypoint type. There are eight waypoints types: Airport, VOR, NDB, INT, User, FSS (Flight Service Station), Airspace, and Air Route Traffic Control Center (ARTCC). The last Menu item lets you set limits to select a range of airport types to show up for the Nearest Airport type. You can then look up information about the selected waypoint by pressing **INFO** or fly direct to it by pressing the **Direct-To** key.

1. Press **NRST** to display the Nearest waypoints. The default type is airports.
2. The Nearest waypoint type labels are shown on the right side of the display. Press the menu item key next to the waypoint type label that you want.
3. Turn the **Large** knob to highlight (green) the waypoint you want to select.
4. You can press **INFO** to learn more about the highlighted waypoint or press **Direct-To** to fly direct to that waypoint.

Nearest Airport Search Limits

1. Press **NRST**, press **Menu/Enter**, and then press **More** to show the Limits menu item.
2. Press the **Limits** menu item smart key.
3. Turn the **Large** knob to move between Runway Type, Runway Length, and Night Lighting.
4. Turn the **Small** knob while highlighting a field to view the options.
5. Press **Menu/Enter** to accept the search limits.

Nearest Frequency

While viewing the Nearest waypoints that have frequency information, you can transfer the displayed frequency to the Active or Standby frequency. The GNS 480 automatically knows if it is a Com or a VOR frequency.

1. Press **NRST**.
2. Press the menu item key for the waypoint type you want to search.
3. Turn the **Large** knob to scroll thru the list of nearest waypoints, such as Airport, VOR, User if a frequency is present, FSS, or ARTCC. Highlight the desired waypoint.

4. Press **INFO** and then **Freqs**. Turn the **Large** knob to scroll through the list. For frequencies with an asterisk (*), press **Freqs** again for narrative information.
5. Press **<-SBY** to insert the highlighted frequency into the Standby position or **<-A->** to insert the frequency into the Active position.

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WAYPOINT INFO (INFO)

Waypoint Information (INFO)

Info mode allows you to view information about the se-lected waypoint. Examples of selecting a waypoint can be: highlighted waypoint in the flight plan, waypoint selected from Nearest Waypoint list, waypoint selected in Pan mode, or a waypoint selected from the database. When viewing information that contains Com or VOR frequen-cies, pressing the **<-SBY** or **<-A->** keys will insert the highlighted frequency into the appropriate radio.

Viewing Waypoint Information

1. With either the active waypoint or with the desired waypoint highlighted, press **INFO**.

2. Press the menu item on the right side of the screen to select the type of information.

3. Turn the **Large** knob to scroll, if more than one page of info is available.

4. Press **INFO** again to return to the previous mode.

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Checklist (CHK)

The Checklist function allows you to create up to eight checklists with up to 100 lines of text in each. You can use this feature as a method to create customized checklists for in-cockpit review.

Creating a New or Editing an Existing Checklist

1. Press **FN** and then the **CHK** key to start the Checklist function.

2. Press the **NEW** or **EDIT** key. Press the **CRSR** knob in and use the **Small** and **Large** knobs to name the new list. Press **Menu/Enter** when finished.

3. With the name of your new list highlighted, press the **EDIT** key.

4. Turn the **Small** knob to choose the desired checklist item. See the following table for available checklist items. If you want to make your own item, press the **CRSR** knob in and use the **Small** and **Large** knobs to name the new item. Press **Menu/Enter** when finished.

5. Then, turn the **Large** knob to the checklist result for that item. Turn the **Small** knob to choose the desired checklist result. See the following table for available checklist results. If you want to make your own result, press the **CRSR** knob in and use the **Small** and **Large** knobs to name the new result. Press **Menu/Enter** when finished.

6. Turn the **Large** knob to the next checklist item. Continue with the process in the previous steps until finished with your list. Press the **LIST** key or other key to leave the Checklist function.

Using Your Checklist

1. Press **FN** and then the **CHK** key to start the Checklist function.

2. Turn the **Large** knob to highlight the desired list and then press **Enter/Menu**. The selected list will be displayed with the first line highlighted.

3. Press the **CHK** key, or the **Menu/Enter** key, as you check each item in the list. After pressing the **CHK** key, the next item in the list will be highlighted.

4. After the last item is checked, the >CHECKLIST COMPLETE< line will be highlighted. Press **CHK** to check this item and return to the main Checklist page.

Move a Checklist

1. Press **FN** and then the **CHK** key to start the Checklist function.

2. Press the **MOV** key.

3. Turn the **Large** knob to the position in the order of lists where you want to put the highlighted list and press the **Menu/Enter** key.

Messages

1. Press **FN** and then the **MSG** function smart key.

2. Turn the **Large** knob or press the **New** or **Old** function smart keys to switch between Old or New messages.

3. Turn the **Small** knob to view the available messages.

Create a New Flight Plan

1. Press **FN** and then the **FPL** function smart key.

2. Press the **New** function smart key.

3. Use the **Large** and **Small** knobs to select the Origin waypoint and then press **Menu/Enter**.

4. Use the **Large** and **Small** knobs to select the Destination waypoint and then press **Menu/Enter**.

5. Highlight (green) the departure waypoint and insert a Standard Instrument Departure (SID) waypoint or airway. Continue until the flight plan is complete. You may add text comments to the flight plan.

6. The flight plan is named and saved in the Library by the Origin and Destination waypoints.

7. Pre the **EXEC** function smart key to execute the flight plan and make it the active flight plan. Press **Menu/Enter** to make your new flight plan the active flight plan.

Activate a Flight Plan

1. Press the **FPL** function smart key to display the Flight Plan library. If the active flight plan is displayed, press the **BACK** function smart key.

2. Turn the **Large** knob to the desired active flight plan.

3. Press the **EXEC** function smart key.

Delete the Active Flight Plan

1. Press the **FPL** function smart key to display the Flight Plan library.

2. Turn the **Large** knob if necessary to highlight the active flight plan.

3. Press the **CLR** key.

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Edit a Flight Plan
Changing Origin, Destination, & Alternate Waypoints

1 Press **FN** and then the **FPL** function smart key.

2. Turn the **Large** knob to highlight the flight plan to edit and press the **EDIT** function smart key.

3. Turn the **Large** knob to highlight the flight plan name.

4. Press the **Origin** or **Dest** or **Alternate** menu item smart keys to change these waypoints.

5. The flight plan is renamed and shown in the Library by the new Origin and Destination waypoint names.

6. Press the **SAVE** function smart key to save the flight plan.
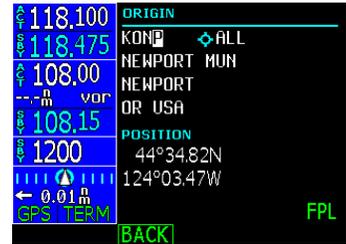
Inserting a Waypoint or Airway in Your Flight Plan

1. Highlight a waypoint with the **Large** knob.

2. Press the **->Wpt** menu item smart key to insert another waypoint.

3. Use the **Large** and **Small** knobs to select a waypoint and then press **Menu/Enter**. The new waypoint will be inserted after the highlighted waypoint or en route intersection.

4. If the waypoint is on an airway, Airways will be available to insert into your flight plan. Press the **->Arwy** menu item smart key. Use the **Large** and **Small** knobs (or smart keys) to select the Airway and exit waypoints. Press **Menu/Enter**.

5. Press the **XPND** function smart key to view all of the waypoint inserted automatically by inserting the airway.

6. You may remove an entire airway by highlighting it in the compacted (unexpanded) view with the **Large** knob and then pressing the **CLR** key.

Deleting a Waypoint or Airway in Your Flight Plan

1. While editing your flight plan, turn the **Large** knob to highlight the waypoint or airway you want to delete.

2. You can edit in the expanded or compressed view of your flight plan. In the expanded view, you can select each individual segment of your plan. In the compressed view, you can select and remove waypoints or airways that will also include associated part of that waypoint or airway.

3. Press the **CLR** key.

4. Press the **SAVE** function smart key to save your changes and return to the flight plan library.

Nav Display (NAV)

The GNS 480 displays a track-based Horizontal Situation Indicator (HSI) view. The Nav function is reached by pressing the **NAV** smart function key. The layout, annunciations, and nav data are similar to Map mode. Distance to the destination is shown in the top left corner. Bearing to the destination is shown in the top right corner. Current Ground Speed (GPS determined) is shown in the lower left corner. The Estimated Time En Route from your current position to the next waypoint is shown in the lower right corner. You may also select the categories of Nav Data shown on the left side of the display. When vertical guidance is provided, a vertical deviation indicator is shown on the left side of the display. The CDI/VDI is driven by one of the following: GPS data if GPS CDI annunciation is selected or Nav radio data if LOC, VOR, or ILS annunciation is selected. The HSI is always oriented to GPS track. In some cases, GPS track may not line up perfectly with a VOR radial, but wind compensation is not necessary.

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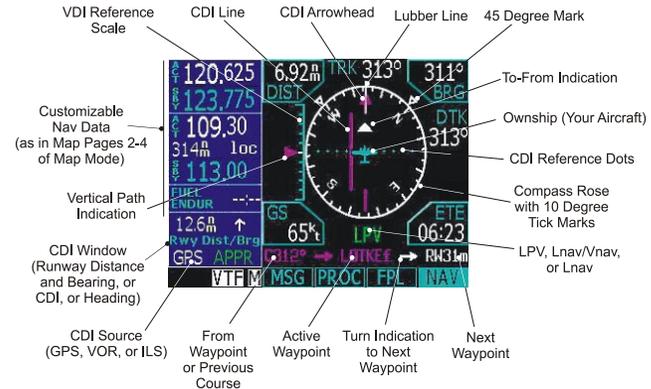
PROCEDURES (PROC)

Adding SIDs, STARs, and Approaches

SIDs are associated with the departure airport. STARs and IAPs are associated with the destination airport.

After creating your flight plan, you can select an approach, departure, or arrival procedure so the GNS 480 can guide you through the procedure.

1. Press the **PROC** function smart key for Procedure Mode. The Origin and Destination waypoint of your active flight plan are shown.

2. Press the **Depart** menu item smart key to select the Departure procedure. If available, select the departure runway (with the **Small** knob or the menu item keys).

3. Turn the **Large** knob to move between fields and turn the **Small** knob to select the transition. Press **Menu/Enter** to accept the procedure.

4. Press the **BACK** function smart key to return to the Procedures mode. Depending on the procedure for your destination, press the Destination **Arrival** or **Appch** menu item smart key.

5. Choose the transition and the runway by moving to a selection with the **Large** knob and listing the choices with the **Small** knob. Press **Menu/Enter** to accept the transition.

6. If desired, select an alternate airport by pressing the Alternate **Select** menu item key.

7. Press **EXEC** to activate the procedures for your flight plan.

Perform a RAIM Prediction

RAIM prediction predicts if GPS coverage is available for any waypoint. This is used when WAAS satellites are not available.

1. Highlight a waypoint in the active flight plan or select a waypoint from the database. Press **INFO** and then press the **RAIM** function smart key when it is shown.

2. Press the **CRSR** knob in. One of the fields will be highlighted. Change the values of the Arrival Date and/or Arrival Time (in UTC time) with the **Small** knob while moving to a value with the **Large** knob. The default calculation is the ETA to the last waypoint in the active flight plan. When selecting a waypoint from the database other than one in the active flight plan, the default calculation is the ETA from the present position to the waypoint.

3. After setting the values, press the **Menu/Enter** key to compute the RAIM prediction.

PROCEDURES (PROC)

Flying the Missed Approach

The GNS 480 will automatically sequence to the missed approach. Fly the heading legs manually. When the course leg becomes active, press the **SUSP** key to "unsuspend" waypoint sequencing. You may reengage roll steering on your autopilot. The GNS 480 will then fly the Hold Entry and Holding automatically. Non-roll steering autopilots or manual flight may be accomplished by flying to the CDI.

1. Follow the missed approach procedures, as published on your approach plate. The GNS 480 guides you to the Missed Approach Point holding pattern.

2. A message on the bottom of the screen recommends entry procedures for the holding pattern (i.e., "HOLD DIRECT", "HOLD PARALLEL", or "HOLD TEARDROP"). You may use the holding pattern dashed magenta lines for reference in manual flight. The hold is automatically sized for a one minute leg makes corrections for winds aloft with an AOC input. Roll steering-capable autopilots will fly the hold and hold entry automatically.

3. The GNS 480 provides course guidance only on the inbound side of the holding pattern. When leaving the holding pattern to re-fly the approach (or another approach) press the **PROC** key to activate Vector To Final (VTF) mode for vectors or for a full procedure direct to the airport using the **Direct-To** key.

   Note: In the event that you wish to divert direct to another destination, use the Destination (DEST) function on the Direct-To page.

Vectors To Final

When you are in the Terminal area, you may be directed to fly a vector to final approach.

1. Press **FN** and then **PROC**.

2. Press **VTF**.

3. This extends the inbound course from the FAF for the intercept.

TRANSPONDER (XPDR)

Remote Transponder Mode C/S(XPDR)
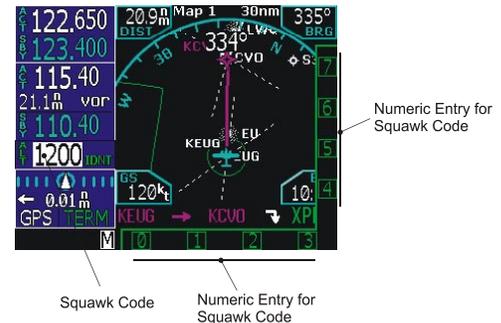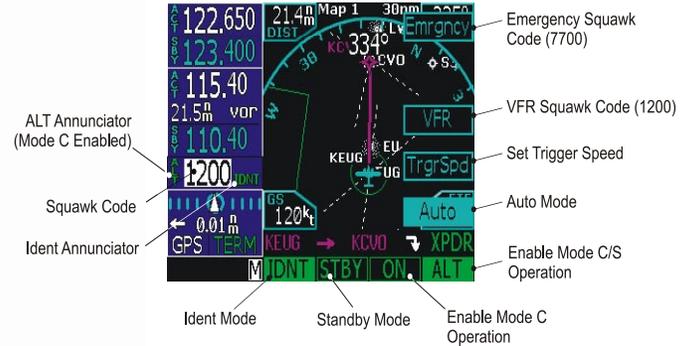
Change Ident

1. Turn the **Large** knob to highlight numbers.

2. Turn **Small** knob to change numbers.

3. Automatically saved after selecting 4th number or press **Menu/Enter**.

or

1. Press **CRSR** knob in.

2. Press **0 - 7** numbers in the order desired.

- Press **Menu/Enter** to view options.
- Press **Emrgncy** then **Menu/Enter** to insert 7700 Squawk code.
- Press **VFR** to insert 1200 Squawk code.
- Press **TrgrSpd** to select Trigger Speed to automatically activate transponder when in Auto mode. *

1. Turn **Large** and **Small** knob to edit speed.

2. Press **Menu/Enter** to save.

- Press **Auto** to toggle Auto Activate mode (Active or Standby mode when passing the Trigger Speed). *
- Press **IDNT** to activate Ident mode.
- Press **STBY** to place transponder in Standby.
- Press **ON** to enable Mode A operation (sends squawk code).
- Press **ALT** to enable Mode C operation (sends squawk code).
- Press **XPDR** again to return to previous view.

    * Availability of some menu selection depend on the installed external transponder.

ALT Annunciator (Mode C Enabled)
Squawk Code
Ident Annunciator
Ident Mode
Standby Mode

Emergency Squawk Code (7700)
VFR Squawk Code (1200)
Set Trigger Speed
Auto Mode
Enable Mode C/S Operation
Enable Mode C Operation

Numeric Entry for Squawk Code
Squawk Code
Numeric Entry for Squawk Code

TRAFFIC (TFC)

Traffic Mode (TFC)

The Traffic function is reached by pressing the **FN** key and then the **TFC** function smart key. Traffic is displayed relative to the latest reported position. The relative altitude of the traffic from your aircraft is shown as above (+) or below (-) in hundreds of feet. An altitude that is invalid is shown by three dashes below the symbol. An arrow next to the altitude value shows the direction of traffic that is climbing or descending at a rate greater than 500 fpm. See your traffic sensor documentation for more details on symbols and other attributes of your particular system. A Traffic pop-up screen will appear on any other page when a traffic advisory condition occurs. The Map display can also be configured to add traffic as an overlay. For Skywatch details, see the Pilot's Guide.

Traffic Pop-Up

A small Traffic window will "Pop-Up" when a Traffic Advisory (TA) occurs. The Traffic Pop-Up will appear over any existing display except for the Traffic mode display. When the Traffic Pop-Up appears you can:

- Press **Menu/Enter** to go to Traffic Mode.
- Turn the **Small** knob to change the Traffic Pop-Up range.
- Press **CLR** to remove the Traffic Pop-Up window.

Traffic Display Range Ring

Range rings are used to display relative distances on the display. The current range values are shown on the lower left edge the rings. The range is changed by turning the **Small** knob. At the 2 nm level only one ring is displayed.

Traffic Symbols

- Traffic Advisories - filled amber circle outlined in black is positioned to show its relative bearing and distance to the Traffic advisory aircraft.

- Proximate Traffic - filled cyan diamond. (Skywatch only)

- Other Traffic - cyan diamond outline.

- Traffic Direction Indicator (TIS only) - an indicator line is oriented to the approximate track that the TIS traffic is flying. Direction data is provided in 45 degree increments.

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GARMIN