

## 6 PROCEDURES

The GTN 6XX allows you to fly non-precision and precision approaches to airports with published instrument approach procedures. The system can also provide visual approach guidance to most airports.

The Procedures Page is displayed by touching the **PROC** key on the Home page. The Procedures Page provides access to approaches, departures and arrivals. Selections are also shown to: Activate Approach, Vectors to Final, and Activate Missed Approach.



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**NOTE:** *Baro-corrected altitude is not required by the GTN unit to meet the requirements of TSO-C146c; however, to take full advantage of the GTN unit's capabilities, an optional baro-corrected altitude source is recommended for automatic sequencing of altitude leg types. If no baro-corrected altitude data is provided to the GTN unit, altitude leg types must be manually sequenced.*

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## 6.1 Basic Approach Operations

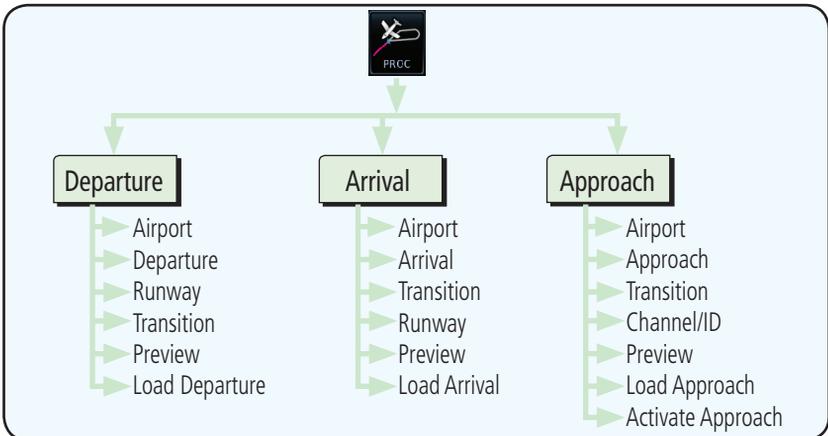
The GTN 6XX provides lateral and, when appropriate, vertical guidance for visual and GPS/RNAV approaches. The moving map pages can also be used as an aid to situational awareness for ILS, VOR, and NDB approaches (and non-precision localizer-based approaches), but the appropriate radio navigational aid **MUST** be used for primary approach course guidance for non-GPS approaches.

Approaches designed specifically for GPS are often very simple and don't require overflying a VOR or NDB. Currently, many non-precision approaches have "GPS overlays" to let you fly an existing procedure (VOR, VOR/DME, NDB, etc.) more accurately using GPS.

Many overlay approaches are more complex (in comparison to GPS-only approaches). The GTN 6XX displays and guides you through each leg of the approach — automatically sequencing through each of these legs, up to the missed approach point (MAP). Approaches may be flown "as published" with the full transition — using any published feeder route or initial approach fix (IAF) — or may be flown with a vectors-to-final transition.

Phase of flight annunciations are provided on the bottom of the display indicating the current mode of flight.

Procedures are arranged around the existing flight plan in the following order: Departure, En Route, Arrival, and Approach. For example, Departure waypoints are inserted before the En Route waypoints in the flight plan and Arrival waypoints are inserted between the En Route waypoints and the approach waypoints. Always verify that the transition waypoints between each phase are correct.



**Figure 6-1 Procedures Functional Diagram**

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Annunciation	Description
LPV	Localizer Performance with Vertical guidance (LPV) approach. Fly to LPV minimums.
LP +V	Localizer Performance using published LP minima. Advisory vertical guidance is provided. Fly to LP minimums.
LP	Localizer Performance with no vertical guidance. Fly to LP minimums.
VISUAL	Advisory visual approach with vertical guidance based on advisory terrain avoidance calculations. CDI scaling is identical to LPV approaches.
L/VNAV	Lateral Navigation and Vertical Navigation (LNAV/VNAV) approach. Fly to LNAV/VNAV minimums.
LNAV+V	GPS approach using published LNAV minima. Advisory vertical guidance is provided. Fly to LNAV minimums.
LNAV	Lateral Navigation approach. Fly to LNAV minimums.
MAPR	Missed Approach indicates the system is providing missed approach integrity and CDI full-scale deflection $\pm 0.3$ NM.
ENR	En route, CDI full-scale deflection is 2.0 NM or current CDI scale selection, whichever is smaller.
TERM	Terminal, CDI full-scale deflection is 1.0 NM or current CDI scale selection, whichever is smaller.
DPRT	Departure, indicates the system is using non-precision approach integrity. CDI full-scale deflection is 0.3 NM.
OCN	Oceanic, CDI full-scale deflection is 2.0 NM.
LOW ALT (lower window)	For LNAV+V, LNAV/VNAV, or LPV approaches, the LOW ALT annunciation indicates the aircraft's estimated height is lower than the Final Approach Waypoint height by approximately 50 meters. This annunciation will not be active when TAWS is operational.

**Table 6-1 Phase of Flight Annunciations**

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## 6.2 Selecting a Departure

A Departure Procedure (DP) is loaded at the departure airport in the flight plan. Only one departure can be loaded at a time in a flight plan. If a departure is loaded when another departure is already in the active flight plan, the new departure replaces the previous departure. The route is defined by selection of a departure, the transition waypoint, and a runway.



**NOTE:** Vector-only departures are not available in the Procedures database as the GTN 6XX cannot provide navigational guidance on vectored legs.



1. Touch the **PROC** key on the Home page and then touch the **Departure** key to display the Departure list.

*Touch To Show  
Departure List*



Figure 6-2 Select Departure

2. If necessary, touch the **Airport** key and enter the departure airport. Touch the key for the desired Departure.
3. Touch the key for the desired Transition.

*Touch To Select  
Desired Departure  
Transition*



Figure 6-3 Selecting a Departure Transition

4. Touch the key for the desired Runway, if necessary.

*Touch To Select  
Desired Departure  
Runway*



Figure 6-4 Selecting a Departure Runway



**NOTE:** If the selected runway is depicted as RW10B, for instance, this means both runways 10L and 10R.

- After selecting the runway, the Departure page will be displayed.



**Figure 6-5 Result of Selecting a Departure**



- Touch the **Preview** key to view the Departure.



**Figure 6-6 Previewing a Departure**



- Touch the **Load Departure** key. The Active Flight Plan page will be displayed.



**Figure 6-7 Flight Plan View of the Selected Departure**

- Remove a departure or select a new one by touching the Departure key and selecting the desired choice.

## 6.3 Selecting an Arrival

A Standard Terminal Arrival (STAR) can be loaded at any airport with a published arrival procedure. Only one arrival can be loaded at a time in a flight plan. If an arrival is loaded when another arrival is already in the active flight plan, the new arrival replaces the previous arrival. The route is defined by selection of an arrival, the transition waypoint, and a runway.



1. Touch the **PROC** key on the Home page to display the Procedures page and then touch the **Arrival** key to display the Arrival page.

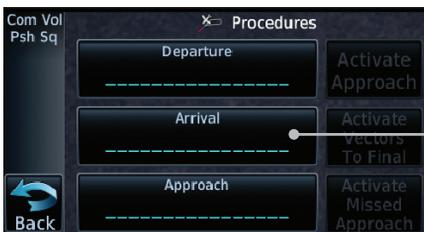


Figure 6-8 Procedure Page

2. If necessary, touch the **Airport** key to select a new airport. Touch the **Arrival** key to display the Arrival list for the selected airport.

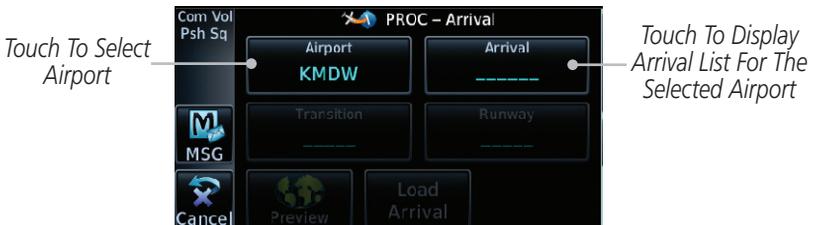


Figure 6-9 Arrival Page

3. Touch the desired Arrival from the Arrival list for the selected airport.



Figure 6-10 Select from Arrival List

4. Touch the **Transition** key and then touch the key for the desired transition.



Figure 6-11 Select from Transition List

5. Touch the key for the desired Runway, if necessary. The completed Arrival page will be displayed.

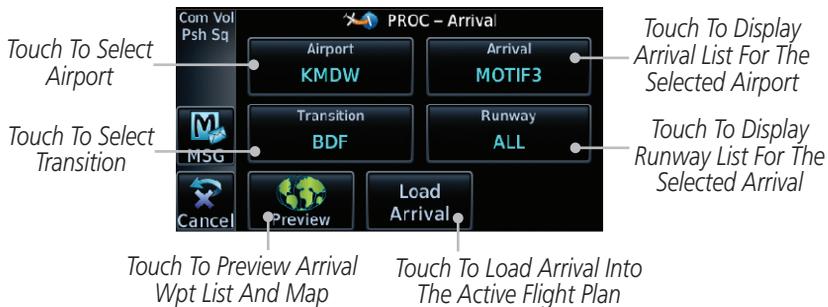


Figure 6-12 Completed Arrival Page



**NOTE:** If the selected runway is depicted as RW10B, for instance, this means both runways 10L and 10R.



6. Touch the **Preview** key. A preview of the Arrival and the Sequence List will be displayed.



Figure 6-13 Arrival Map Preview and Sequence List



7. Touch the **Load Arrival** key to insert the arrival into the flight plan. The Active Flight Plan page will be displayed.



Figure 6-14 Flight Plan With Arrival Loaded

## 6.4 Selecting an Approach

Only one approach can be loaded at a time in a flight plan. If an approach is loaded when another approach is already in the active flight plan, the new approach replaces the previous approach. The route is defined by selection of an approach, the transition waypoint, and a runway.

**NOTE:** In software v6.21 and later, the pilot may load an alternate approach during a missed approach procedure. The GTN retains all missed approaches in the flight plan.



1. Touch the **PROC** key on the Home page. The Approach, Arrival, and Departure fields will be dashed until a selection is made.

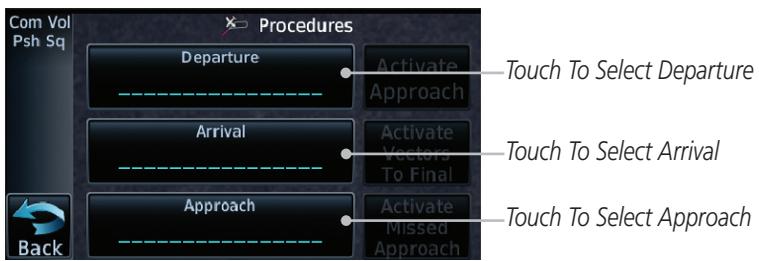
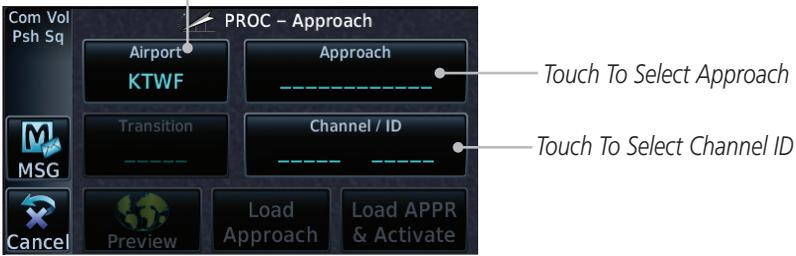


Figure 6-15 Procedures Selection Window

2. Touch the **Approach** key on the Procedures page to select an approach for the destination airport. Confirm that the intended airport is shown or touch the **Airport** key and select the desired airport.

*Touch To Select Airport*



**Figure 6-16 Selecting an Approach**

3. Touch the **Approach** key on the Procedures-Approach page and then touch the key for the desired approach. Selections are listed according to approach type: instrument first, visual second.



**Figure 6-17 Selecting an Approach from the List**

4. After selecting the approach for the destination airport, the approach overview will be displayed.



**Figure 6-18 Selected Approach Overview**

5. Touch the **Transition** key and then touch the key for the desired transition. The selected Transition diagram will be shown in white on the Procedure page Approach diagram. Unselected Transitions will be shown in gray.

Transition  
Vectors



Figure 6-19 Select Approach Transition

6. If desired, touch the **Channel/ID** key, then use the numeric keypad to select the channel number, and then touch the **Enter** key. The Channel and ID are typically loaded automatically if they are present.

Channel / ID  
56311 W25A



**NOTE:** As an alternate means of loading an approach, the Channel ID key allows you to select the channel ID for a SBAS approach for the current destination. The channel ID for the SBAS approach is available from an approved approach chart. If duplicate numbers are available for a channel, a list will be available where you may select the desired approach.

7. Touch the **Preview** key.

Preview

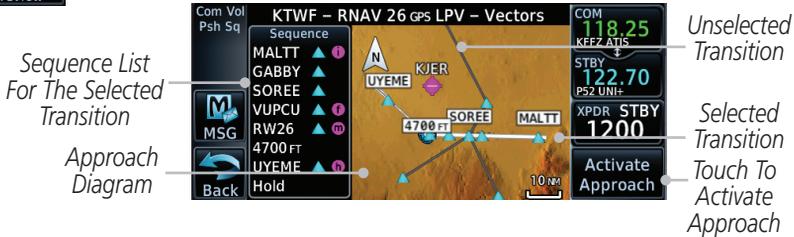


Figure 6-20 Selected Approach Preview

8. Touch the **Load Approach** key. The Active Flight Plan page will be displayed. The approach waypoints are placed at the end of the flight plan and the unit will automatically sequence to them after the en route waypoints.

Load Approach



**NOTE:** In software v6.00 and later, if you build your flight plan with the destination airport at the end and then load an approach procedure, the destination airport will be removed from the end of the flight plan. If the leg to the destination airport is the active leg when loading an approach procedure, you will navigate all the way to the destination airport before joining the procedure. Be sure when **LOADING** and not **ACTIVATING** an approach procedure that the route to be flown is correct.



**NOTE:** In software v5.13 and earlier, if you build your flight plan with the destination airport at the end and then load an approach procedure, you will navigate all the way to the destination airport before joining the procedure. Be sure when **LOADING** and not **ACTIVATING** an approach procedure that the route to be flown is correct.



9. Touch the **Load APPR & Activate** key, which makes the active leg Direct-To the selected transition waypoint, or for Vector approaches to activate a leg that is an extended final approach course. You can also "activate" the selected procedure on the Procedures page, if the approach is not activated on this page.



**NOTE:** When re-activating an approach, the decision as to whether a hold is inserted at the IAF or not is assumed to be the same as the first time the approach was activated, regardless of current aircraft position. If the pilot wishes to have the hold inserted or removed from the procedure, the procedure must be re-loaded or activated from the **PROC-Approach** page.

## 6.5 Approaches with Procedure Turns

The procedure turn portion of an approach is stored as one of the legs of the approach. For this reason, the GTN 6XX unit requires no special operations from the pilot — other than flying the procedure turn itself — beyond what is required for any other type of approach. Roll steering is provided to aircraft with compatible autopilots.



**NOTE:** *The steering provided for the procedure turn does not guarantee that the aircraft will stay within charted procedure turn boundaries. As such the crew will need to ensure that the approach is flown within the confines of the charted procedure.*

## 6.6 Flying the Missed Approach

Upon reaching the Missed Approach Point, the GTN 6XX unit continues to give guidance along an extension of the final course segment (FAF to MAP) until you manually initiate the missed approach procedure (as mentioned in reference to the “SUSP” advisory).



**NOTE:** *If the unit is not configured for a CDI key, then the “activate GPS missed approach” will only resume automatic waypoint sequencing. The user must switch to GPS navigation, if desired, by using their external source selection method (this is typical an EFIS system).*

1. When the MAP is reached, a pop-up will appear.



Figure 6-21 Pop-Up Upon Reaching the MAP

2. Touch the **Remain Suspended** key to continue with sequencing suspended or touch **Activate GPS Missed Approach** for guidance to the Missed Approach Hold Point.



The Activate GPS Missed Approach function is the same for the on screen controls or a remote switch. Activating the missed approach prior to the MAP can be accomplished on either the Flight Plan or Procedures pages. If using the Flight Plan page, the approach banner must be touched to display the Approach Options where Activate Missed Approach can be selected.



**Figure 6-22 Approach Option Selection on the Flight Plan Page**



**Figure 6-23 Approach Option Selection on the Procedures Page**

Once an option is selected, the GTN will continue to provide guidance along the final approach course. Upon reaching the MAP, the unit will automatically sequence to the first leg of the missed approach. This is used when a pilot needs to execute the missed approach prior to reaching the MAP.

## 6.7 Flying an Approach with a Hold

Upon activating an RNAV GPS approach, you are given the option to skip any non-required holding patterns during the initial transitions of the approach.

The Default NAV Page and Flight Plan Page displays a timer or distance, as appropriate, during the holding pattern. Use this timer or distance to fly the outbound portion of the holding pattern. (The holding pattern is displayed on the Map Page and indicated as the active leg on the Default NAV and Active Flight Plan pages.)



**NOTE:** If you need to lose extra altitude or speed by going around the holding pattern again, touch **SUSP** to manually suspend waypoint sequencing **BEFORE** crossing the holding waypoint the second time. If you've already passed this waypoint, re-activate the holding pattern.

As you cross the MAP, a “SUSP” annunciation will appear, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A “from” indication is displayed on the CDI and Default NAV Page, but course guidance along the final approach course continues.

## 6.8 Flying a DME Arc Approach

Approaches that contain DME arcs are supported by the GTN. The GTN will provide guidance (left / right) relative to the arc. If you wish to activate the DME arc leg manually, the aircraft must be near the arc, as shown in the shaded area below.

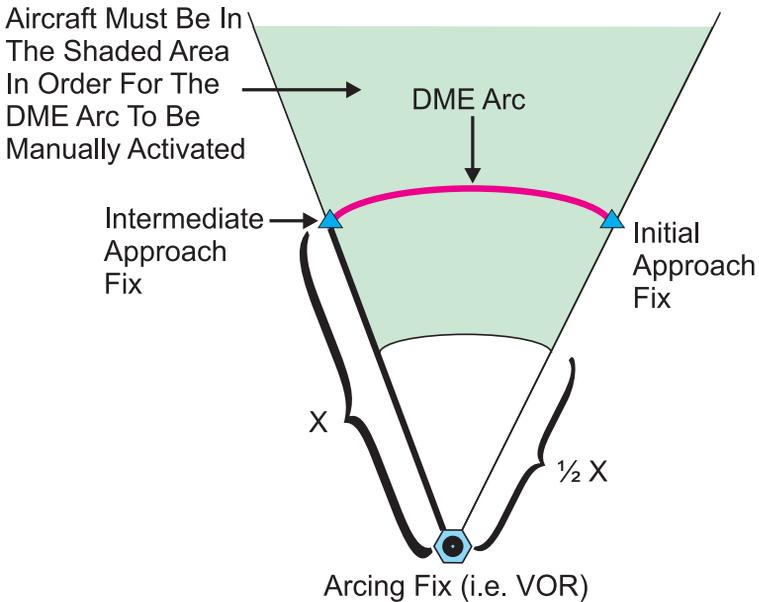


Figure 6-24 DME Arc Example

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## 6.9 Radius-to-Fix (RF) Approaches

RF legs associated with RNAV RNP 1.0 non-AR (Approval Required) approaches are supported by the GTN in v6.00, or later, when approved by the installation.

- AC 90-101A defines RF leg as “a constant radius circular path, around a defined turn center, that starts and terminates at a fix. An RF leg may be published as part of a procedure.”
- Flying the RF leg of an approach is similar to flying a DME arc approach. All GTN annunciations and indications are identical whether flying DME arcs or RF legs with the GTN.
- RF legs may have a larger or smaller radius than DME arcs.
- Unlike DME arcs, RF legs are not based on a VOR.
- Refer to the aircraft AFMS for specific details regarding RF legs for a specific aircraft.

## 6.10 Vectors to Final

With “Vectors-To-Final” (VTF) selected, the CDI needle remains off center until you’re established on the final approach course. With the approach activated, the Map Page displays an extension of the final approach course in magenta (remember, magenta is used to depict the active leg of the flight plan) and “vtf” appears as part of the active leg on the Map page (as a reminder that the approach was activated with vectors-to-final).



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**NOTE:** In software v5.13 and earlier, once VTF is activated all waypoints in the approach prior to the FAF are removed.

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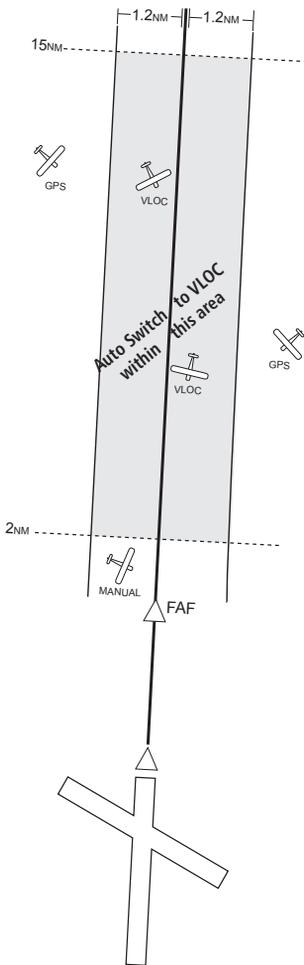
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**NOTE:** In software v6.00 and later, all waypoints along the final approach course, including waypoints before the FAF, are included in the flight plan and the final approach course to the FAF is activated.

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## 6.11 ILS Approaches (GTN 650 Only)

Precision ILS approaches can be performed with the built-in VLOC (VOR/localizer/glideslope) receivers. The GPS receiver can be used for guidance prior to reaching the final approach fix, but once there, the proper frequency must be selected on the VLOC window (right side of screen) and the CDI output set to "VLOC."



The GTN 6XX can be set to automatically switch the external CDI output from GPS to VLOC as you intercept the final approach course (if used with a KAP140/KFC225 autopilot, you will need to manually enable outputs. See instructions in the "Enabling Autopilot Outputs for the King KAP140/KFC225" section). When the ILS approach is activated and the correct ILS frequency is active in the VLOC window, the GTN 6XX automatically switches to VLOC within 1.2 NM left or right of the final approach course. This switch can take place anywhere from 2.0 to 15.0 NM from the FAF.

The illustration shows multiple locations along the approach path and the CDI selection that you can expect: GPS or VLOC. Within the area of the shaded box, the automatic switch from GPS to VLOC should occur.



**NOTE:** If you attempt to intercept the approach course at a distance less than 2.0 NM from the FAF, the GTN 6XX does not automatically switch the CDI to VLOC. In this case, touch the **CDI** key to manually switch from GPS to VLOC.

The automatic switch from GPS to VLOC is not immediate, but instead occurs gradually to prevent abrupt CDI changes when coupled to an autopilot. The CDI selection can also be changed manually by touching the **CDI** key.

## 6.12 RNAV Approach Procedures

The GTN 6XX allows for flying LNAV/VNAV, LNAV, LNAV +V, LPV, LP, and LP +V approaches according to the published chart.

Phase of flight Annunciation	Description	Minimums
L/VNAV	Lateral Navigation/Vertical Navigation. RNAV non-precision approach with vertical guidance.	Published LNAV/VNAV minimums.
LNAV	Lateral Navigation. RNAV non-precision approach.	Published LNAV minimums.
LNAV + V	Lateral Navigation with Advisory Vertical Guidance. RNAV non-precision LNAV approach with advisory vertical guidance. The glidepath is typically denoted by a light dashed line on the vertical profile (Jeppesen only) with an associated glidepath angle (usually in the 3.00 degree range) and is provided to assist the pilot in maintaining a constant vertical glidepath, similar to an ILS glideslope.	Published LNAV minimums.
LPV	Localizer Performance with Vertical guidance (LPV) approach. RNAV precision approach.	Published LPV minimums.
LP	LP indicates Localizer Performance with no vertical guidance.	Published LP minimums.
LP +V	LP +V indicates Localizer Performance with advisory vertical guidance. This annunciation is available in software v6.00 and later. This advisory guidance follows the same nature as set by the LNAV +V as shown above.	Published LP minimums.

**Table 6-2 RNAV Approach Annunciations**

## 6.12.1 Flying the LPV Approach

1. Within 31 NM of the destination, the GTN switches from en route mode to terminal mode and the CDI scale transitions from 2.0 to 1.0 NM, full scale deflection.
2. As you approach the IAF, a waypoint message appears on the bottom of the screen.
3. As the distance (DIST) to the IAF approaches zero, the message is replaced by a turn advisory that counts down 10 seconds prior to the turn.
4. As you approach the FAF, the GTN will begin to automatically rescale in an angular fashion. This will allow the LPV approach to be flown in an identical fashion to a standard ILS. At 2.0 NM from the FAF, CDI scaling is tightened from 1.0 NM to the angular full scale deflection (typically the angular full-scale deflection is 2.0°, but will be as defined for the approach).
5. Sixty seconds prior to reaching the FAF, the unit will check the required Horizontal Alarm Limit (HAL) and Vertical Alarm Limit (VAL) to ensure the GPS position integrity is within limits to complete the LPV precision approach. In the event the HAL or VAL limits are exceeded, the approach will be downgraded to a non-precision approach indicated by “LNAV” on the moving map, a message that the approach is downgraded (“APPROACH DOWNGRADE - GPS approach downgraded. Use LNAV minima.”), and the glideslope indicator will be flagged. You may continue the approach using LNAV non-precision minimums if there are LNAV minimums for this approach. In the rare event the GPS integrity cannot meet the non-precision HAL limits, the unit will send a message to the pilot to abort the approach (“ABORT APPROACH - GPS approach no longer available.”). The unit will revert to terminal limits to support navigation to the missed approach when the message is acknowledged. After the aircraft has passed the FAF, a loss of WAAS integrity will cause the approach to abort instead of downgrade.
6. Capture the glideslope as you would an ILS glideslope.

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7. As you cross the FAF, the destination sequences to the MAP (e.g., "RW31," the runway threshold). With the needle on the external CDI (or HSI) centered, fly toward the MAP, observing the altitude minimums published on the approach plate.
8. When viewing the Map Page, you'll note that the final course segment is displayed in magenta (the active leg of the flight plan always appears in magenta).
9. As you approach the MAP, a waypoint message appears on the bottom of the screen.
10. Once the unit crosses the MAP (defined as the runway end waypoint), sequencing will be suspended. Prepare the aircraft for missed approach operation. Touch the **Unsuspend** key to sequence to the Missed Approach procedure.
11. Fly the guidance provided by the unit to the MAHP and hold.

## 6.12.2 Flying the LP Approach

An LP approach is flown similarly to an LNAV approach, except the precision is greater as it utilizes the SBAS accuracy. It has similar lateral accuracy as an LPV approach. Angular scaling is similar to a localizer approach. Most LP approaches have step down altitudes associated with them. The approach still results in an MDA and missed approach point.

If the approach is indicated as LP +V, advisory vertical guidance will be provided. This does not change how the approach should be flown, and the pilot is still responsible for descending to the correct altitude at each step down. The approach still results in an MDA and missed approach point.

1. Within 30 NM of the destination, the GTN switches from en route mode to terminal mode and the CDI scale transitions from 2.0 to 1.0 NM, full scale deflection.
2. As you approach the IAF, a turn direction message appears on the bottom of the screen.
3. As the distance (DIST) to the IAF approaches zero, the message is replaced by a time to turn advisory that counts down 10 seconds prior to the turn.
4. As you approach the FAF, the GTN will begin to automatically rescale in an angular fashion. This will allow the LP approach to be flown in the same fashion as a standard localizer approach. At 2.0 NM from the FAF, CDI scaling is tightened from up to either 2° or 0.3 NM, full scale deflection, whichever is smaller.

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5. Sixty seconds prior to reaching the FAF, the GTN will check the required Horizontal Alarm Limit (HAL) to ensure the GPS position integrity is within limits to complete the LP non-precision approach. In the event the HAL limits are exceeded, the approach will be downgraded, when available, indicated by "LNAV" on the moving map, otherwise the approach will be aborted. A message will note that the approach is downgraded and the NAV indicator will be flagged until the message is viewed. You may continue the approach using LNAV non-precision minimums if there are LNAV minimums for this approach. In the rare event the GPS HAL limits cannot meet non-precision limits, the GTN will notify the pilot with a message to abort the approach. The GTN will revert to terminal limits of 1.0 NM to support navigation to the missed approach. If the approach is indicating an LP +V, it is possible that the advisory vertical guidance could be removed without annunciation due to the vertical guidance not being within tolerances. This does not constitute a downgrade, and the approach can still be flown to LP minimums.
6. As you cross the FAF, the destination sequences to the MAP. With the needle on the external CDI (or HSI) centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
7. When viewing the Map Page, you'll note that the final course segment is displayed in magenta (the active leg of the flight plan always appears in magenta).
8. As you approach the MAP, a waypoint message ("Arriving at Waypoint") appears on the bottom of the screen.
9. At the MAP initiate the missed approach, if necessary. Once the GTN crosses the MAP, sequencing will be suspended. Prepare the aircraft for missed approach operation. Touch the **Unsuspend** key to sequence to the Missed Approach procedure.




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**NOTE:** For missed approaches with heading legs, fly manually until the first active course leg is reached.

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10. Fly the guidance provided by the GTN to the MAHP and hold.

## 6.13 Visual Approach Procedures



**NOTE:** This feature is available in software v6.30 and later. Not all airports in the database support visual approaches.

The GTN generates visual approaches, providing advisory horizontal and optional vertical guidance for the selected runway. Advisory guidance aids in the performance of a stabilized approach and ensures the aircraft is in line with the destination runway.

There are three different methods for loading and activating visual approaches.

**Method 1:** Select the **Visual** key on the map. When the aircraft is within 10 NM of the destination airport the **Visual** key displays. For information about key configuration, refer to "Visual Approach Selector".



Figure 6-25 Visual Approach Key Flying Near Destination

**Method 2:** Select the **Visual** key located on the left edge of the screen. This key appears when a visual approach supported airport is selected on the map during pan mode.

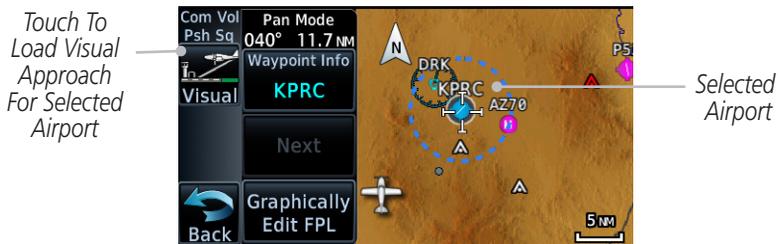


Figure 6-26 Visual Approach Key When Selecting Airport

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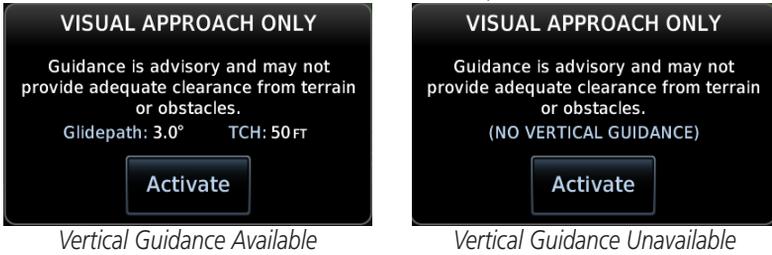
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For both methods, pressing the **Visual** key prompts a list of available visual approaches. Once selected, the visual approach immediately loads and becomes active.

**Method 3:** Visual approaches load from the PROC – Approach page or the Airport Info - Procedures tab (similar to published instrument approaches). For information on how to use this page, see section 6.4.

After a visual approach loads, a confirmation pop-up prompts, detailing the glidepath angle (GPA) and threshold crossing height (TCH) when vertical guidance is available. When unavailable it reads, “NO VERTICAL GUIDANCE.”



**Figure 6-27 Visual Approach Configuration Pop-up**

The availability of vertical guidance advisories for visual approaches is dependent on terrain and obstacle obstructions along the approach path. If no known obstructions are within the approach path, vertical guidance is provided to a maximum distance of 28 NM from the runway. If there are known obstructions further than 3 NM, but within the 28 NM maximum distance from the runway along the approach, vertical guidance is limited to the approach path portion after crossing the known obstructions. This is indicated by the shortened magenta line on the map after loading the approach. If obstructions are within 3 NM to the runway, along the approach path, advisory vertical guidance is not provided. Lateral guidance is always provided for visual approaches.

Published data is used to determine the visual approach GPA and TCH for the selected runway. If no published data is available, the default is 3° GPA and 50 FT TCH.



**NOTE:** If the GTN does not have a valid terrain database, advisory vertical guidance is not available for visual approaches.



**NOTE:** Only external CDI/VDI displays provide vertical deviation indications.

## 6.14 Points to Remember for All Procedures

- The GTN 6XX Map page is designed to complement your printed approach plates and vastly improve situational awareness throughout the approach. However, *you must always fly an approach as it appears on the approach plate.*
- The active leg (or the portion of the approach currently in use) is depicted in magenta on the Map Page. As you fly the approach, the GTN 6XX automatically sequences through each leg of the approach unless “SUSP” appears at the annunciation bar at the bottom of the display. “SUSP” indicates that automatic sequencing of approach waypoints is *suspended* on the current leg and normally appears at holding patterns and upon crossing the missed approach point (MAP), for Climb to Altitude legs, and for Hold to Altitude legs.
- For roll steering autopilots: roll steering is terminated when approach mode is selected on the autopilot and is available once the missed approach is initiated.
- If Vectors-to-Final is activated while on the “FROM” side of the FAF, automatic waypoint sequencing is suspended and the SUSP annunciation will appear. Automatic waypoint sequencing will resume once the aircraft is on the “TO” side of the FAF and within full-scale deflection.
- For all procedures, make sure to check the runway, transition, and all waypoints.
- Most legs are “TO” legs on which the TO/FROM flag on the CDI indicates “TO” and the Distance field on the flight plan decreases as you navigate along the leg. However, some procedures include legs which are “FROM” legs. On these legs, the TO/FROM flag on the CDI indicates “FROM” and the Distance field on the flight plan increases as you navigate the leg. “FROM” legs are typically found on procedure turns and on some missed approach procedures.



**CAUTION:** *Not all autopilots will follow guidance when on a heading leg using NAV, GPSS, or APR mode on the autopilot. Heading legs for procedures can be identified by “HDG XXX°” in white on the Flight Plan page, as well as the procedure chart indicating that the aircraft must fly a particular heading. Certain autopilots will revert to a “Roll Only” or “Wings Level” mode on these leg types and the pilot must engage the heading (HDG) mode of the autopilot and set the heading bug appropriately in order to use the autopilot on these legs.*

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## 6.15 Points to Remember for Localizer or VOR-based Approaches

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- The default factory setting allows the CDI output to automatically switch from the GPS receiver to the LOC receiver. This may be changed to manual in some installations. If the “ILS CDI Selection” setting is changed to “Manual,” you must determine when to select “GPS” or “VLOC” guidance during the approach. Remember, “VLOC” is required for the final course segment from the Final Approach Fix (FAF) to the MAP.



**NOTE:** Installations with certain autopilots, such as the KAP 140 and KFC225, do not allow automatic ILS CDI switching.



**NOTE:** GPS phase of flight annunciations (LPV, ENR, etc.) are not applicable to the external CDI (or HSI) when VLOC is active.

- If the CDI output has not automatically switched from GPS to ILS upon reaching the FAF, you must manually switch to the VLOC receiver by touching the **CDI** key. Verify that “VLOC” is displayed.
- Automatic switching of CDI output is available for ILS, localizer, SDF and LDA approaches. Automatic CDI switching is *not* available for backcourse approaches or VOR approaches.
- When flying an approach with the autopilot-coupled, you must monitor system functions at all times and verify that the autopilot and external CDI (or HSI) switch to the VLOC receiver with sufficient time to capture and track the approach course. Switching to “VLOC” late in the approach may not provide the autopilot enough time to respond and intercept the approach course prior to the FAF (depending upon the performance characteristics of your autopilot and aircraft).
- When an ILS or VOR approach is first selected or executed, the frequency is automatically checked. If the frequency is incorrect, you will receive a message and you must place the correct ILS or VLOC frequency in the active frequency field.

- When flying a localizer-based approach (other than backcourse) with automatic CDI switching enabled:
  1. “GPS” guidance may be used while flying outbound and on the initial portion of the procedure turn.
  2. “VLOC” guidance is used on the remainder of the approach from the time you turn inbound on the procedure turn.
  3. The localizer frequency must be active to use “VLOC” guidance at the MAP.
- When flying a localizer-based approach with automatic CDI switching disabled:
  1. You may select “VLOC” guidance at any point on the approach prior to reaching the FAF.
  2. The localizer frequency must be active to use “VLOC” guidance.



## 6.16 Enabling Autopilot Outputs for the King KAP140/KFC225

Autopilot outputs for the King KAP140/KFC225 autopilots are activated manually by the pilot after being prompted during the approach procedure. After enabling outputs, the GTN 6XX will provide guidance information consistent with what the autopilot expects (i.e., angular CDI scaling and glideslope capture for an LPV or other vertically guided GPS approach).



Figure 6-28 Prompt To Activate Autopilot Outputs

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