

# *Apollo GX50*

## *Dealer/Customer Training Package*



**II MORROW**

VISIONARY THINKING TODAY



II Morrow and Apollo are trademarks of II Morrow Inc.  
© 1998 by II Morrow Inc. All rights reserved.  
Printed in the U.S.A.

II Morrow Inc.  
Consumer Products Division  
2345 Turner Road, S.E.  
Salem, OR 97302

**II MORROW**  
VISIONARY THINKING TODAY



U.S.A. Toll Free	800.525.6726
Canada Toll Free	800.654.3415
International	503.391.3411
FAX	503.364.2138

Visit our web page at <http://www.iimorrow.com>

Send comments about this manual by email to: [techpubs@iim.ups.com](mailto:techpubs@iim.ups.com)

# Table Of Contents

<b>Getting Started the First Time</b> . . . . .	<b>1</b>
Power On . . . . .	1
Seed Position . . . . .	1
Entering a Seed Position . . . . .	2
Change Reference Waypoint . . . . .	2
Using the Direct-To Function. . . . .	3
Waypoint Information . . . . .	4
<b>Navigation Basics</b> . . . . .	<b>5</b>
Estimated Time En Route (Ete). . . . .	5
Bearing (Brg) . . . . .	5
Range (Rge). . . . .	5
Course Deviation Indicator (CDI) and Distance Off Track . . . . .	6
Desired Track (Dtk). . . . .	7
Leg (FROM-TO) Distance . . . . .	7
Track (Trk) Angle. . . . .	7
Track Angle Error (Tae) . . . . .	7
Ground Speed (GS). . . . .	7
Minimum Safe Altitude (MSA). . . . .	8
Minimum En Route Safe Altitude (MESA) . . . . .	8
Flight Time . . . . .	8
Time UTC. . . . .	9
Estimated Time of Arrival (ETA) . . . . .	9
Nearest Waypoint Search . . . . .	9
Starting Nearest Waypoint Search . . . . .	9
Searching Around a Reference Waypoint. . . . .	10
From/To/Next Waypoint . . . . .	11
Creating FROM/TO/NEXT Waypoints (ABCD) . . . . .	11
Placing the TO Waypoint on Hold . . . . .	14
Using Direct-To . . . . .	14
Direct-To Defaults. . . . .	15
Direct-To Operation . . . . .	15
Direct-To Examples . . . . .	16
Center the CDI. . . . .	16
Enter a New Waypoint into a Flight Plan . . . . .	17

<b>Waypoint Database.....</b>	<b>19</b>
Create User Waypoint by Lat/Lon . . . . .	19
Create User Waypoint by Radial/Distance . . . . .	19
<b>Flight Plan Functions.....</b>	<b>21</b>
Flight Plan Pages . . . . .	21
Reaching the Flight Plan Function . . . . .	21
Active Flight Plan . . . . .	21
Creating a Flight Plan . . . . .	22
Flight Plan Sequencing . . . . .	24
Flight Plan Leg Information . . . . .	24
<b>Moving Map Functions.....</b>	<b>25</b>
Full Screen Map . . . . .	25
Controls . . . . .	25
Map Scale . . . . .	25
Map and Nav Info . . . . .	26
Map Setup . . . . .	26
Route Line . . . . .	26
Map Orient. . . . .	26
Identifier and Waypoint Type Selection. . . . .	27
Airspace Setup. . . . .	28
Airspace Buffers. . . . .	28
ATC Ring Selection . . . . .	29
Airspace Selections . . . . .	30

	Customer	Dealer
<b>Getting Started the First Time.....</b>	_____	_____
Power On . . . . .		
Seed Position . . . . .		
Entering a Seed Position . . . . .		
Change Reference Waypoint . . . . .		
Using the Direct-To Function. . . . .		
Waypoint Information . . . . .		
<b>Navigation Basics .....</b>	_____	_____
Estimated Time En Route (Ete). . . . .		
Bearing (Brg) . . . . .		
Range (Rge). . . . .		
Course Deviation Indicator (CDI) and Distance Off Track . . . . .		
Desired Track (Dtk). . . . .		
Leg (FROM-TO) Distance . . . . .		
Track (Trk) Angle. . . . .		
Track Angle Error (Tae) . . . . .		
Ground Speed (GS) . . . . .		
Minimum Safe Altitude (MSA). . . . .		
Minimum En Route Safe Altitude (MESA) . . . . .		
Flight Time . . . . .		
Time UTC. . . . .		
Estimated Time of Arrival (ETA) . . . . .		
Nearest Waypoint Search . . . . .		
Starting Nearest Waypoint Search . . . . .		
Searching Around a Reference Waypoint. . . . .		
From/To/Next Waypoint . . . . .		
Creating FROM/TO/NEXT Waypoints (ABCD) . . . . .		
Placing the TO Waypoint on Hold . . . . .		
Using Direct-To . . . . .		
Direct-To Defaults. . . . .		
Direct-To Operation . . . . .		
Direct-To Examples . . . . .		
Center the CDI. . . . .		
Enter a New Waypoint into a Flight Plan . . . . .		

	Customer	Dealer
<b>Waypoint Database..... 19</b>	_____	_____
Create User Waypoint by Lat/Lon . . . . . 19		
Create User Waypoint by Radial/Distance . . . . . 19		
<b>Flight Plan Functions ..... 21</b>	_____	_____
.....		
Flight Plan Pages . . . . . 21		
Reaching the Flight Plan Function . . . . . 21		
Active Flight Plan . . . . . 21		
Creating a Flight Plan . . . . . 22		
Flight Plan Sequencing . . . . . 24		
Flight Plan Leg Information . . . . . 24		
<b>Moving Map Functions..... 25</b>	_____	_____
Full Screen Map . . . . . 25		
Controls . . . . . 25		
Map Scale . . . . . 25		
Map and Nav Info . . . . . 26		
Map Setup . . . . . 26		
Route Line . . . . . 26		
Map Orient. . . . . 26		
Identifier and Waypoint Type Selection. . . . . 27		
Airspace Setup. . . . . 28		
Airspace Buffers. . . . . 28		
ATC Ring Selection . . . . . 29		
Airspace Selections . . . . . 30		

Dealer Name: \_\_\_\_\_

Dealer Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Dealer No.: \_\_\_\_\_

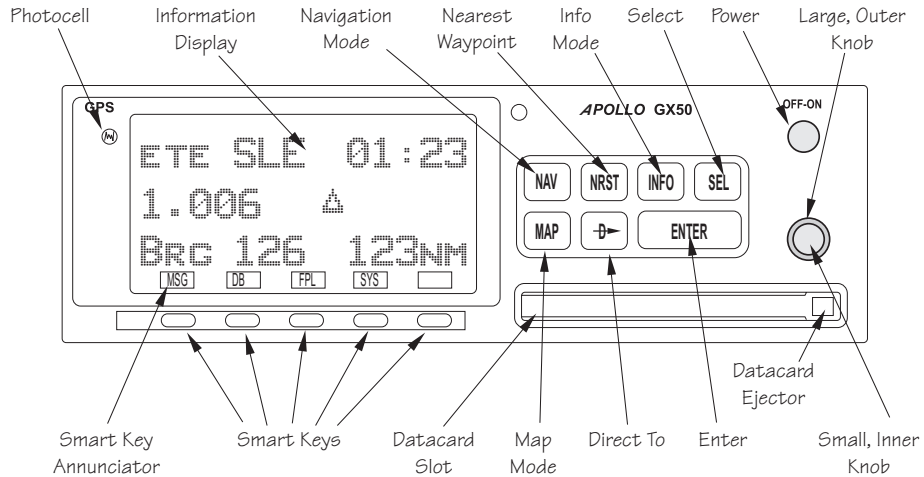
Customer Name: \_\_\_\_\_

Serial Number: \_\_\_\_\_

# Getting Started the First Time

This section explains how to get started using your Apollo GX50. Information in this section explains how to startup the unit, check signals from the GPS satellites, enter a seed position, and go Direct-To a destination waypoint.

**It is necessary to enter a seed position and the current time the first time you turn the unit on.**



Apollo GX50 Front Panel Description

- Power on
- Enter a seed position (your dealer may have already completed this step for you), if necessary
- Check satellite signal strength
- Enter a “Direct-To,” or destination, waypoint
- Begin navigating

**Power On** Turn the Power knob clockwise to switch the unit on. The startup screen, testing, position, and database information shows on the display for several seconds and then will go into the Navigation function.

**Seed Position** Each time the Apollo GX50 is switched on, it must locate satellites in the sky to acquire signals before determining a position fix in a complex process involving lengthy mathematical operations. Without a seed position and the current UTC time and date, this process can take 10 minutes or more to complete. Enter a Seed Position to allow the receiver to quickly locate and track available satellites.

### Note



*The seed position and current time only need to be entered the first time the receiver is switched on. This information is stored in memory and need not be entered again. If you move about three hundred miles*

*without the Apollo GX50 turned on and tracking its position, reenter the seed position.*

### Entering a Seed Position

After the start up tests, you will always have the choice of entering a Seed Position. The Seed Position is a starting reference point so the GPS receiver knows what satellites to look for. If a Seed Position has been previously entered, you do not need to select a new Present Position or a Reference Waypoint. If you do not make any selections, the Apollo GX50 will automatically progress into the Navigation function.

**SEL**

**ENTER**

1. The previous Seed Position will display with the choice of **SEL** to change the Seed Position or **ENTER** to accept the previous position. If you don't do anything, the Apollo GX50 will continue normally. You can also press **ENTER** to accept the current position, though this is not required.

```
Ppos: 2.3NM 130°
To NRST WPT SLE
ENT-OK SEL-CHNGE
```

**SEL**

2. Press **SEL** to change the Seed Position.

3. The current Reference Position will be displayed and the Chg? prompt will flash.

```
Ppos: 44°54.46N
122°59.69W
REF WPT: CHG?
```

Press **ENTER** to change the Reference Waypoint or turn the **Large** knob to change to Lat/Lon Reference Position. Use the appropriate following description: Change Reference Waypoint or Change Lat/Lon Reference Position.

### Change Reference Waypoint

**ENTER**

1. After pressing **ENTER**, the waypoint type will flash. Turn the **Small** knob to select the waypoint type.



```
AIRPORT PDX
PORTLAND
CITY OR USA
```



2. Turn the **Large** knob to clockwise (cw) one click so the first character of the Reference Waypoint name will flash. Change the character with the **Small** knob.



Turn the **Large** knob to move to each character of the waypoint name.

**ENTER**

3. When you have entered the waypoint name, press **ENTER**.



### Using the Direct-To Function

Pressing **Direct-To** allows you to quickly make changes to your TO waypoint. When you press **Direct-To**, the default waypoint shown will be the current TO waypoint in the Nav or Flight Plan functions or the waypoint displayed in the Database or Info functions. See page 14 for more details.



1. Press the **Direct-To** key. The waypoint type will flash.

```
VOR      CVO
SALEM
CITY     OR USA
```



2. Turn the **Small** knob to select the waypoint type. You may select: AIRPORT, VOR, NDB, INT, or USER. For instance, with AIRPORT indicated as the type of destination waypoint, only airports show on the display as you select identifier characters.

```
AIRPORT  SLE
SALEM
CITY     OR USA
```



3. Turn the **Large** knob clockwise (cw) one position to the waypoint identifier. The first character of the waypoint identifier will flash.

```
AIRPORT  SLE
SALEM
CITY     OR USA
```



4. Turn the **Small** knob to change the character.

```
AIRPORT  HAB
HAMILTON
CITY     AL USA
```



5. Turn the **Large** knob to move to each character of the waypoint identifier. Change the character with the **Small** knob. Continue using the **Large** and **Small** knobs to select your waypoint.



```
AIRPORT  HIB
HIBBING
CITY     MN USA
```



6. After selecting the desired waypoint identifier, press **ENTER**. Your Apollo GX50 will now switch to the Navigation function and show information based on a direct route from your present position to the Direct-To destination waypoint.

```
ETE AHIO  00:12
      Δ  0.000
BRG 346  35.2NM↔
```

**Waypoint Information** The GX50 contains a wealth of information in its database. Pressing the **INFO** key will access the information about the destination (TO), or displayed, waypoint.

1. Press **INFO** to view information about the TO waypoint.



```
HIO  AIRPORT
PORTLAND
CITY  OR USA
```

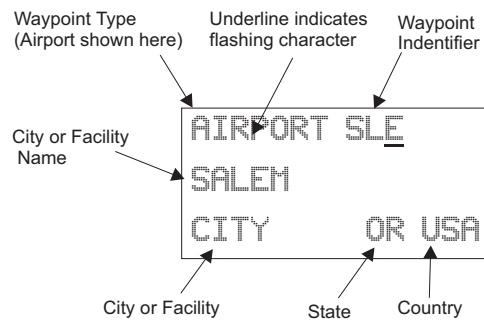
2. Turn the **Small** knob to view the available information about the TO waypoint.



```
HIO  ATIS 127.65
      UNIC 123.00
      TWR  119.30
```

```
HIO  12 /30
      6600FT HARD ILS
      LIGHTED
```

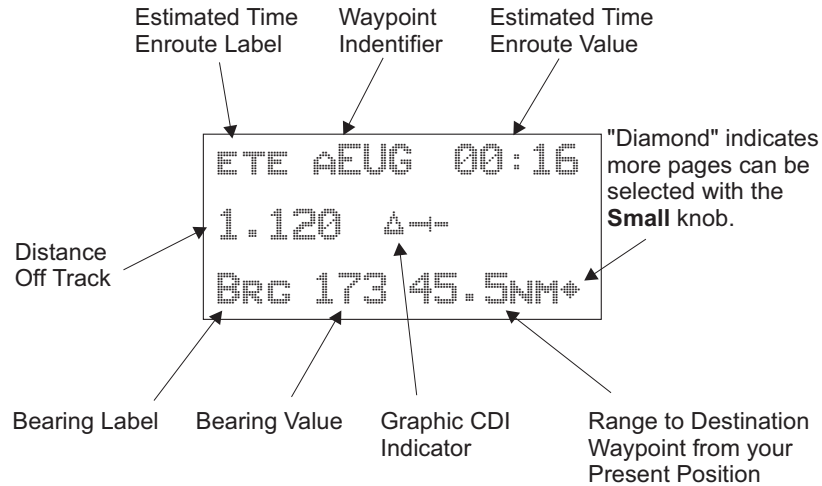
3. Press **INFO** again to return to the previous display.



# Navigation Basics

## Estimated Time En Route (Ete)

ETE is to the current TO (destination) waypoint from your present position based on the current ground speed. The units shown are in hours and minutes, 00:00 to 99:59. If the ground speed is less than or equal to 5 knots, the GPS receiver does not have a valid position, or there is no TO waypoint, the ETE value will be shown as dashes. If there is no TO waypoint, the TO identifier location will be replaced by dashes.



## Bearing (Brge)

Bearing is the angle from your present position to the TO waypoint. Bearing is shown from 0 to 359 degrees in one degree increments. Bearing is computed using the magnetic variation at the Present Position. The Bearing value will be dashed if the FROM or TO waypoints are blank or the GPS receiver does not have a valid position.

## Range (Rge)

The distance from your present position to the TO waypoint. Units can be set as either nautical miles or kilometers in the Nav Info section of the System functions (see page ). Nautical mile units are 0.00 to 9.00 nm in 0.01 nm increments, 10.0 to 99.9 nm in 0.1 nm increments, and 100 to 9999 nm in 1 nm increments. Kilometer units are 0.00 to 99.99 km in 0.01 km increments, 100.0 to 999.9 km in 0.1 km increments, and 1000 to 9999 km in 1 km increments. The Range value will be dashed if the FROM or TO waypoints are blank or the GPS receiver does not have a valid position.

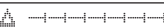
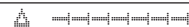



### Course Deviation Indicator (CDI) and Distance Off Track

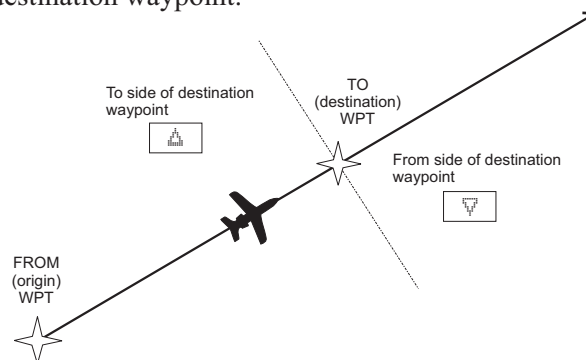
The triangle symbol ( $\triangle$ ) referenced to a bar graph shows your position relative to being on-course. When the bar graph is to the right of the triangle, you must fly right to return on-course; the bar graph indicates you are off-course to the left. Fly the aircraft in the direction of the bar graph to return on-course.

```

ETE ASLE 00:37
  : : : : :  $\triangle$  4.005
BRG 173 42.4NM
    
```

CDI Sensitivity = 0.3 nm	CDI Sensitivity = 1.0 nm	CDI Sensitivity = 5.0 nm
each $\cdot$ = 0.01 nm	each $\cdot$ = 0.05 nm	each $\cdot$ = 0.24 nm
each $\cdot\cdot$ = 0.04 nm	each $\cdot\cdot$ = 0.14 nm	each $\cdot\cdot$ = 0.71 nm
$\triangle$  (full scale) = 0.3 nm	$\triangle$  (full scale) = 1.0 nm	$\triangle$  (full scale) = 5.0 nm

A single dot thickness bar indicates that CDI sensitivity is set to 0.3 nm full scale per side. The two dot bar indicates a sensitivity of 1.0 nm full scale per side. The three dot bar indicates a sensitivity of 5.0 nm full scale per side. The manual sensitivity of the CDI may be set to 0.3, 1.0, or 5.0 nm full scale per side. The triangle symbol is also used as a TO-FROM indicator. When the triangle is facing up, you are on the “TO” side of the destination waypoint. When the triangle is facing upside down, you are on the “FROM” side of the destination waypoint.



The number shown on the edge of the display opposite from the triangle symbol shows the distance off track. The numbered values of Cross Track Error are in the direction you are off course. If the numbers are on the left side, fly right to return on course. The displayed value ranges are: 0.000 to 0.999 nm with 0.001 nm resolution, 1.0 to 9.99 nm with 0.01 nm resolution, and 10.0 to 99.9 nm with 0.1 nm resolution.

```

ETE ASLE 00:37
0.005  $\triangle$ 
BRG 173 42.4NM
    
```

If the GPS sensor is not sending a valid position, or the current TO waypoint is blank, the CDI will display “—Nav Flagged—”.

### Desired Track (Dtk)

Desired Track is the course angle between the FROM and TO waypoints referenced to the magnetic variation at the current FROM waypoint. Desired Track is shown from 0 to 359 degrees in one degree increments.

ETE ASLE	00:37
0.006	△
DTK 173	42.4NM

### Leg (FROM-TO) Distance

The distance from current FROM waypoint to the current TO waypoint is shown as a value on the bottom right of the Desired Track (DTK) Nav page, but does not show any label. In this example, the leg (FROM-TO) distance is 42.4 nm. The nautical mile units are 0.00 to 9.99 nm at 0.01 nm resolution, 10.0 to 99.9 nm at 0.1 nm resolution, and 100 to 9999 nm at one nm resolution. Kilometer units are 0.00 to 99.99 km at 0.01 km resolution, 100.0 to 999.9 km at 0.1 km resolution, and 1000 to 9999 km at 1 km resolution.

### Track (Trk) Angle

Track Angle is the angle of your actual direction of travel. Track is shown from 0 to 359 degrees in one degree increments. Track is computed using the magnetic variation at the Present Position. The Track value will be dashed if the FROM or TO waypoints are blank, if the GPS receiver does not have a valid position, or if ground speed is less than 5 knots.

ETE ASLE	00:37
0.006	△
TRK 175	TAE 002

### Track Angle Error (Tae)

Track Angle Error is the difference between the Desired Track and Track Angle (Dtk - Trk). Track Angle Error is shown from 0 to 359 degrees in one degree increments. Track Angle Error is computed using the magnetic variation at the Present Position. The Track Angle Error value will be dashed if the FROM or TO waypoints are blank, if the GPS receiver does not have a valid position, or if ground speed is less than 5 knots.

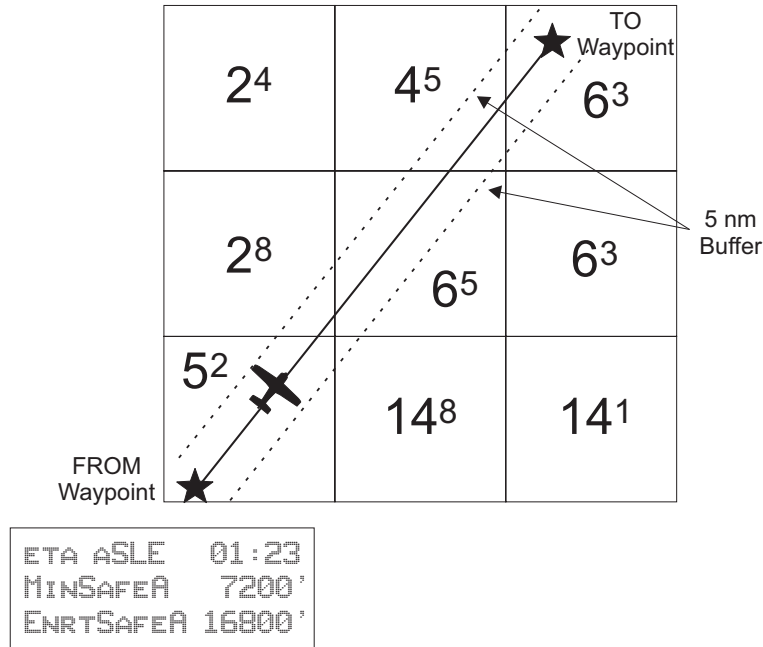
### Ground Speed (GS)

Ground Speed is the measure of your progress over the ground, not airspeed. Ground Speed units are from 0 to 999 knots in 1 knot increments. The Ground Speed value will be replaced with dashes if the speed is less than 5 knots, there is no valid GPS position, or the TO waypoint is blank.

ETE ASLE	00:37
0.006	△
FT01:23	137KTS

**Minimum Safe Altitude (MSA)**

MSA is calculated by taking the Maximum Elevation Figure (MEF) from the sectional chart grid that corresponds to your current position. In areas below 3,000 feet, 1,000 feet is added. In areas above 3,000 feet, 2,000 feet is added. In the example below, the current aircraft would be considered to be at 7,000 feet. If you are within 5 nm of another grid with a higher MEF, the higher MEF will be used. The MEF on the sectional chart is derived by taking the altitude of the highest obstruction within the grid, rounded up to the next 100 feet, and adding 300 feet. For example, if the highest obstruction is 4,728 feet, the MEF would show as 5,100 feet.



**Minimum En Route Safe Altitude (MESA)**

Minimum En Route Safe Altitude is the highest MSA for every point between the aircraft present position and the “TO” waypoint with a 5 nm buffer around the course. The value will be replaced with dashes if there is no valid GPS position, the TO waypoint is blank, or the current position is outside of the database coverage area. In the example shown above, the MESA for the present position of the aircraft would be 16,800 ft. The mountainous terrain would add a 2,000 ft. buffer to the 14,800 ft. Maximum Elevation figure indicated from the sectional chart.

**Flight Time**

Flight Time shows the elapsed time in hours and minutes (00:00 to 99:59) from departure. If the Flight Timer is not started the value will be replaced with dashes. The Flight Timer Trigger options are set in the System Functions.



### Time UTC

Time is displayed using the 24 hour clock based on Universal Coordinated Time. Units are hours and minutes (00:00 to 23:59).

```
13:15 UTC
```

### Estimated Time of Arrival (ETA)

The ETA is to the current TO waypoint at the current Ground Speed from the present position. The TO waypoint is displayed. Units are hours and minutes (00:00 to 23:59) based on the UTC 24 hour clock. The values will be replaced with dashes if the speed is less than 5 knots, there is no valid GPS position, or the TO and destination waypoints are blank.

```
ETA AEUG 09:11
```

### Nearest Waypoint Search

An important safety feature of the GX50 is its ability to locate waypoints closest to your position. Should you have to land quickly, you can use this feature to locate a nearby waypoint, assign it as a destination, and quickly navigate to it. Besides the nearest waypoints to your present position, as an aid in flight planning, you can also select a reference waypoint from the database and search for waypoints near to it. You can set up the Nearest Waypoint Search function to filter for certain airport types you select, such as: runway length, lighting, and surface type. Press INFO while viewing a Nearest waypoint for more information about that waypoint.

### Starting Nearest Waypoint Search

1. Press the **NRST** key. Turn the **Large** knob to display the waypoint type and options: Airport, VOR, NDB, Intersection (INT), User (USER), Choose Reference Waypoint, Runway Limits, and Special Use Airspace.



```
NEAR 1 TO PPOS
SLE AIRPORT
BRG 352° ↑ 2.4NM
```

2. Turn the **Small** knob to display the nearest 20 waypoints. The waypoints must be within 600 miles of your present position. The Bearing and Distance to the displayed waypoint is shown on the right side of the display. Press **DIRECT-TO** and then **ENTER** to set the displayed waypoint as the new destination (TO) waypoint.



ENTER

```
NEAR 12 TO PPOS
CVO AIRPORT
BRG 188° ↓ 27.6NM
```

### Searching Around a Reference Waypoint

Use this function to search for the 20 nearest waypoints of each type (including airspaces) within 600 miles of a reference waypoint selected from the database. This can be used as an aid to flight planning.



ENTER

1. While in the Nearest Waypoint function, turn the **Large** knob to view “Choose Waypoint to Search Around” and press **ENTER**.

```
CHOOSE WPT TO
SEARCH AROUND
PRESS ENT
```



2. The waypoint type will flash. Turn the **Small** knob to choose Airport, VOR, NDB, Intersection (INT) or User waypoint type.

```
VOR PDX
PORTLAND
FACIL OR USA
```



3. Turn the **Large** knob to the waypoint identifier name. The first character of the identifier will flash. Turn the **Small** knob to change characters. Turn the **Large** knob to select the next character to change.

```
AIRPORT SLE
SALEM
CITY OR USA
```

ENTER

4. Press **ENTER**. The Nearest waypoints (and airspaces) will now be referenced to the selected search waypoint rather than your present position.

```
NEAR 1 TO SLE
SLE AIRPORT
BRG 110° 0.5NM
```



5. Turn the **Small** knob to view the nearest 20 waypoints of the selected type to the selected reference waypoint. Turn the **Large** knob to change waypoint types.



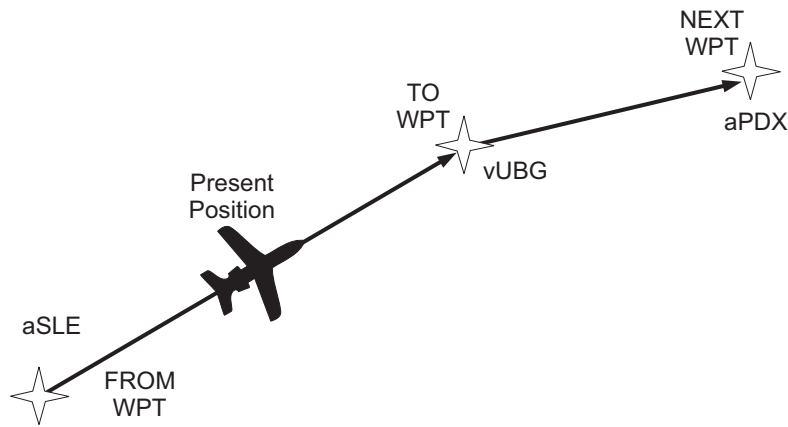
#### Note

*The last viewed Nearest Waypoint will be the waypoint shown the next time you want to insert a waypoint. For instance, if you press NRST and look at PDX, the next time you want to insert a waypoint into a flight plan, PDX will show first.*





**From/To-Next Waypoint** The FROM/TO/NEXT Waypoint allows you to view and/or edit a three waypoint mini-flight plan, or view two legs of your flight plan, while within the Nav function. These waypoints are like a three waypoint window into your Active Flight Plan. Changes to the FROM/TO/NEXT page changes the Active Flight Plan, and vice versa. Select waypoints from the database including the following types: airport, VOR, NDB, Intersection (INT), and User-defined (USER). You can search for waypoints by facility identifier, waypoint type, or by facility name.



FROM SLE	ARPT
To UBG	VOR
NEXT HIO	ARPT

**Creating FROM/TO/NEXT Waypoints (ABCD)**

A - Set the FROM Waypoint



1. While in the Navigation function, turn the **Large** knob to view the FROM/TO/NEXT page.

FROM	_____
To	_____
NEXT	_____



2. Press **SEL** to start editing. Turn the **Large** knob to select the FROM (first) waypoint position. Turn the **Small** knob, if necessary, so the flashing selection shows “Ins?” (Insert). Press **ENTER**.



FROM	<u>INS?</u>
To	_____
NEXT	_____



3. The Waypoint Type will flash. Choose the Waypoint Type with the **Small** knob.

```
AIRPORT  AAF
APALACHIOCOLA
CITY      FL USA
```



4. Turn the **Large** knob to the first character of the waypoint name. The first character of the waypoint name will flash. Turn the **Small** knob to select the desired character.



```
AIRPORT  EAA
EAGLE
CITY      AK USA
```



5. Turn the **Large** knob clockwise one click to move to the next character. Turn the **Small** knob to select the desired character. Continue to select additional characters.



```
AIRPORT  EUF
EUFAULA
CITY      AL USA
```



6. Turn the **Large** knob clockwise one click to move to the next character. Turn the **Small** knob to select the desired character. Continue to select the needed characters.



```
AIRPORT  EUG
EUGENE
CITY      OR USA
```



7. Press **ENTER** when you have selected the desired waypoint.

```
FROM EUG  ARPT
To  _____
NEXT _____
```

B - Set the TO Waypoint



1. Press **SEL** and move to the TO waypoint with the **Large** knob. The insert (Ins?) choice will flash. Press **ENTER** and then select the TO waypoint as you did for the FROM waypoint.



```
FROM EUG  ARPT
To  INS?
NEXT _____
```



2. After selecting a TO waypoint, press **ENTER**.

```
FROM EUG   ARPT
To  SLE
NEXT -----
```

**C - Set the NEXT Waypoint**



1. Press **SEL** and move to the NEXT waypoint with the **Large** knob. The insert (Ins?) choice will flash. Press **ENTER** and then select the NEXT waypoint as you did for the FROM and TO waypoints.



```
FROM EUG   ARPT
To  SLE
NEXT INS?
```



2. After selecting a NEXT waypoint, press **ENTER**.

```
FROM EUG   ARPT
To  SLE     ARPT
NEXT HIO    ARPT
```

**D - Editing FROM/TO/NEXT Waypoints**



1. While in the Navigation function, turn the **Large** knob to view the FROM/TO/NEXT page. Press **SEL** to start editing.



```
FROM EUG   ARPT
To  SLE     ARPT
NEXT CHG?  ARPT
```



2. Turn the **Large** knob to select the FROM, TO, or NEXT waypoint field to edit.

```
FROM EUG   ARPT
To  CHG?  ARPT
NEXT HIO    ARPT
```



3. Turn the **Small** knob to choose the type of editing you want to do. The flashing selection will ask you to choose between Ins (Insert), Chg (Change), or Del (Delete). The TO waypoint can also be placed on Hold. Press **ENTER** when you have selected the editing option. When a waypoint is deleted, its position will be replaced by dashes. The Chg and Ins choices will allow you to select a new waypoint as used in the previous examples.

### Placing the TO Waypoint on Hold



1. Press **SEL** and move to the TO designation with the **Large** knob. You can also place the To waypoint on hold by pressing the external **WPT SEQ** button, when it is installed. The HOLD annunciator will light when it is installed.

FROM EUG	ARPT
<u>HOLD?</u> SLE	ARPT
NEXT HIO	ARPT



2. Turn the **Small** knob to choose “Hold?” or “To?” Placing the TO waypoint on Hold suspends waypoint sequencing.

FROM EUG	ARPT
<u>To?</u> SLE	ARPT
NEXT HIO	ARPT



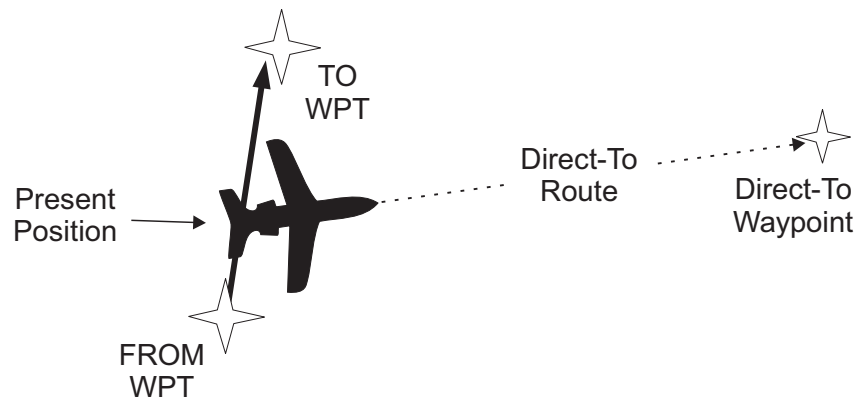
3. Press **ENTER**.

FROM EUG	ARPT
HOLD SLE	ARPT
NEXT HIO	ARPT

Reverse the operation to return to normal sequencing.

### Using Direct-To

Pressing the **DIRECT-TO** key sets the FROM location as your present position. When using the Direct-To function, the FROM waypoint identifier is overwritten with the word “Direct.” If you remove the Direct-To position with the Del? option, the old FROM waypoint is returned to that position. If you edit the FROM position, Direct-To navigation will be replaced by the new entered waypoint.



**Direct-To Defaults**

When you press **DIRECT-TO**, the default waypoint shown will be the current TO waypoint in the Nav or Flight Plan functions or the waypoint displayed in the Database or Info functions.

Function	DIRECT-TO Waypoint Default
Nav	Current TO waypoint
Database	Displayed waypoint
Flight Plan	Displayed leg TO waypoint
Info	Displayed waypoint

You can always select a different Direct-To waypoint, but the default is a useful starting point. While viewing the default waypoint, press **DIRECT-TO** and then **ENTER** to navigate Direct-To that waypoint.

**Direct-To Operation**



1. Press the **DIRECT-TO** key. The waypoint type will flash.

```
AIRPORT  HIO
PORTLAND
CITY     OR USA
```



2. Select the new destination (TO) waypoint using the **Small** and **Large** knobs.



```
AIRPORT  MMV
MC MINNVILLE
CITY     OR USA
```



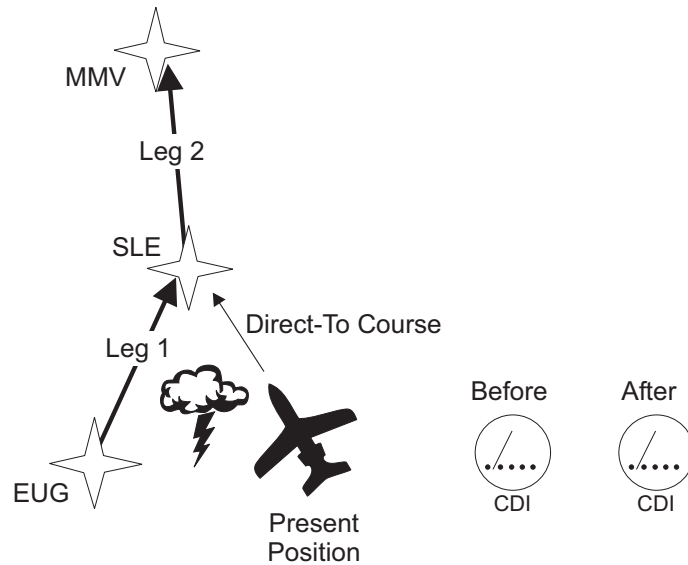
3. Press **ENTER**.

**Direct-To Examples**

The following three examples provide some of the more common ways that you can use the powerful Direct-To function.

**Center the CDI**

After changing your course to avoid weather, an obstacle, or being directed, you may need to reset your course to center your CDI to continue navigating to your intended TO waypoint.



1. You flew to the right to avoid a storm cloud and your CDI tells you to fly left, but you still have the same TO waypoint. Press **DIRECT-TO**. Your current TO waypoint is displayed and the Waypoint Type will flash.

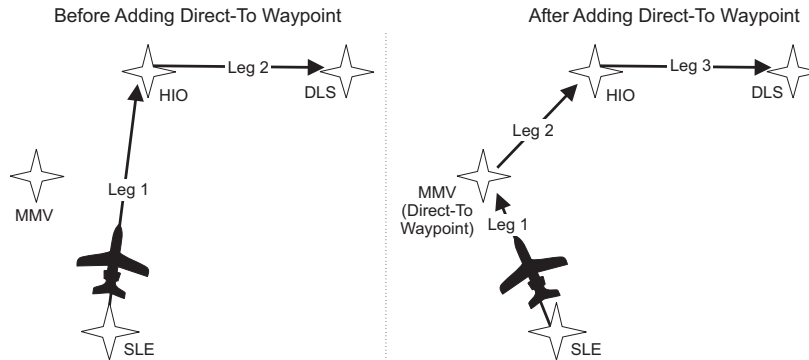
```
AIRPORT SLE
SALEM
CITY OR USA
```



2. Press **ENTER**. You will now fly direct from your present position to your desired TO waypoint. Your CDI will now be centered, as you are “on course.”

**Enter a New Waypoint into a Flight Plan**

While on a flight plan, you may want to temporarily go to a new waypoint to look at something or you may be directed by ATC. By using Direct-To, you can add this new waypoint into your existing flight plan. This way your flight plan is essentially unchanged, but you were still able to react quickly to new conditions.



**FPL**



1. While on the first leg of your active flight plan, you find out that you need to make another stop on the way but you don't want to change the rest of your plan. Press **FPL**. While viewing the Active flight plan, turn the **Small** knob to the first leg.

```
SLE  TO HIO
1** 345° 37.8NM
ARPT  ARPT
```



2. Press **DIRECT-TO**. Select the desired waypoint using the **Large** and **Small** knobs.



```
AIRPORT MMV
MC MINNVILLE
CITY OR USA
```

**ENTER**

3. Press **ENTER**. The Nav function will now be displayed with your new TO waypoint (MMV).

```
ETE AMMV 00:20
0.011 Δ
BRG 321 15.6NM↔
```

FPL



4. Check your active flight plan pages. Press FPL. Turn the Small knob, if necessary. Note that your current leg now shows a direct flight to MMV.

```

DIRECT TO MMV
1** 321° 16.5NM
..      ARPT
    
```



5. Turn the Small knob one click cw to check the next leg. Note that your flight plan continues to HIO as your original plan did. You have inserted a new leg using the Direct-To function.

```

MMV   TO HIO
2* 003° 22.2NM
ARPT   ARPT
    
```



# Waypoint Database

## Create User Waypoint by Lat/Lon

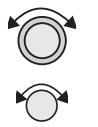
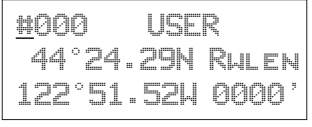
The Apollo GX50 allows you to create up to 500 of your own waypoints to the waypoint database. You can create a waypoint based on a Lat/Lon or using a radial and distance from another waypoint. You can also add the runway length.



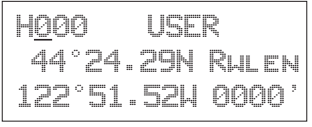
1. Press the **DB** soft key. Turn the **Large** knob to view the the “Create User Wpt By Lat/Lon” page, and then press **ENTER**.



2. The first character of the waypoint name will flash. Turn the **Small** knob to select the desired character.



3. Turn the **Large** knob clockwise one click to move to the next character. Turn the **Small** knob to select the desired character. Continue to select the needed characters for the Waypoint Name, Latitude, Longitude, and Runway Length.



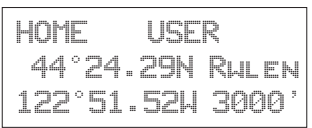
**Note**



*The default Lat/Lon is your present position. This makes it easy to “mark” a location.*

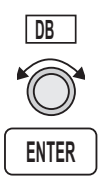


4. Press **ENTER** when you have finished entering the waypoint information.



## Create User Waypoint by Radial/-Distance

A User waypoint may also be created where its position is referenced by a Radial and Distance from another waypoint.



1. Press the **DB** soft key. Turn the **Large** knob to view the “Create User Wpt By Rad/Dis” page, and then press **ENTER**.



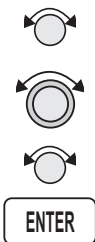
2. The first character of the radial will flash.

```
REF WPT: AAF
 000.0° 000.0NM
```



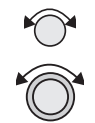
3. Select the Reference Waypoint. Turn the **Large** knob ccw one click to select the waypoint identifier which will be replaced by the change prompt (Chg?). Press **ENTER** to change the waypoint identifier.

```
REF WPT: CHG?
 000.0° 000.0NM
```



4. Turn the **Small** knob to select the desired waypoint type. Only Airports, NDBs, and VORs may be used as reference points. Turn the **Large** knob clockwise one click to move to the first character of the identifier. Turn the **Small** knob to select the desired character. Use the **Large** and **Small** knobs to choose the identifier. After the reference waypoint name is chosen, press **ENTER**.

```
REF WPT: SLE
 000.0° 000.0NM
```



5. The first character of the radial will flash. Now select the needed characters for the Radial and Distance. Turn the **Small** knob to change characters. Turn the **Large** knob to move to the next character.

```
REF WPT: SLE
 040.0° 012.0NM
```



6. Press **ENTER** when you have finished entering the waypoint information. You will be prompted to create a name for the waypoint.

```
#000 USER
 44° 10.96N RWLEN
121° 43.35W 0000'
```



7. Now, use the **Large** and **Small** knobs to enter the waypoint name. You can also adjust Lat/Lon and add the Runway Length. Changing the Lat/Lon will alter the radial/distance value, so you shouldn't change it unless you need to. Press **ENTER** when you are finished.

```
CABIN USER
 44° 10.96N RWLEN
121° 43.35W 0000'
```

# Flight Plan Functions

Flight plans are specific routes between waypoints you may store in the Apollo GX50's memory. This information is used to calculate useful flight statistics. The Flight Plan function allows you to have up to 30 stored flight plans. Each flight plan may have up to 20 legs. The Active flight plan is always used for the current flight. Inactive flight plans may be activated in the Flight Plan function to be copied to the Active flight plan.

Flight Plan Leg pages show the leg number and *FROM* and *TO* waypoint identifiers on the display, along with the bearing and distance between the *FROM* and *TO* waypoints. One asterisk (\*) next to the leg number means that the displayed leg is in the Active flight plan. Two asterisks (\*\*) mean that the displayed leg is the active leg and shows the current *FROM* and *TO* waypoints which are being used for navigation.

## Flight Plan Pages

The first page of each flight plan is the Name Page. The Name Page displays the flight plan name, total distance, and the destination waypoint. Distance is displayed as 0.0 to 99.9 nm at 0.1 nm resolution and 100 to 99999 nm at 1 nm resolution. A diamond  $\blacklozenge$  at the right side of the display indicates that more pages can be viewed by turning the **Small** knob.

### Reaching the Flight Plan Function



1. Press **FPL** to reach the Flight Plan function. You may need to press **NAV** first if you were viewing the moving map. Turn the **Large** knob to view the Flight Plan pages.



```
*ACTIVE* 259NM
DEST WPT: PDT
ACTIVE  ◆
```



2. Turn the **Small** knob to view the individual legs of a flight plan.

```
EUG TO SLE
1** 353° 48.0NM
ARPT ARPT
```

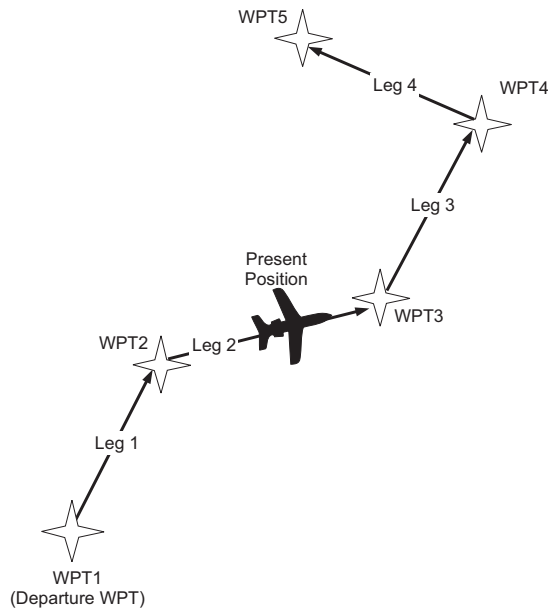
### Active Flight Plan

The first plan in the Flight Plan function is the Active plan and is noted by the name *\*Active\** with asterisks. This name cannot be changed in the Active page.

```
*ACTIVE* 259NM
DEST WPT: PDT
ACTIVE  ◆
```

### Creating a Flight Plan

The basic steps for creating a flight plan include: entering the plan name and inserting waypoints. You may then view flight plan information, activate the plan, and use the other options.



**FPL**

1. Press the **FPL** key. Turn the **Large** knob to view the “Create a New Flightplan” page.



PRESS SEL TO  
CREATE A NEW  
FLIGHT PLAN

**SEL**

2. Press **SEL**.

-----  
ENTER A NEW  
PLAN NAME



3. Turn the **Small** knob to select the first flight plan name character.

R-----  
ENTER A NEW  
PLAN NAME



4. Turn the **Large** knob clockwise one click to move to the next character position. Turn the **Small** knob to select the next name character. You can have up to eight characters in the flight plan name.

ROUTE 2  
ENTER A NEW  
PLAN NAME

ENTER

5. Press **ENTER** when the name is complete. A message will display telling you to turn the **Small** knob to insert waypoints or to press **SEL** for options. Options can be selected later.



SEL

```

TURN SMALL KNOB
TO INS WPTS OR
SEL FOR OPTIONS
    
```



6. After turning the **Small** knob, the first waypoint position is ready for a FROM waypoint to insert.

```

----- TO -----
1 PRESS SEL
  TO EDIT LEG
    
```

SEL

7. Press **SEL** to insert a FROM waypoint. The Ins? prompt will flash. Press **ENTER** to insert a FROM waypoint.

ENTER

```

INS?   TO -----
1    ___ ° ___ . NM
-----
    
```



8. Turn the **Small** knob to select the waypoint type. Turn the **Large** knob to the waypoint identifier. Turn the **Small** knob to select the first character of the waypoint identifier.



```

AIRPORT  EAA
EAGLE
CITY      AK USA
    
```



9. Turn the **Large** knob clockwise one click to move to the next character position. Turn the **Small** knob to select the next name character.

```

AIRPORT  EUG
EUGENE
CITY      OR USA
    
```

ENTER

10. After selecting the waypoint name, press **ENTER**. The Ins? prompt will flash in the TO waypoint position. Press **ENTER** again to start the waypoint retriever. Repeat steps 7-10 for the remaining waypoints in your flight plan.

ENTER

```

EUG     TO INS?
1    ___ ° ___ . NM
-----
    
```

SEL

11. Press **SEL** when your flight plan is complete. Turn the **Small** knob to view the legs in your flight plan.

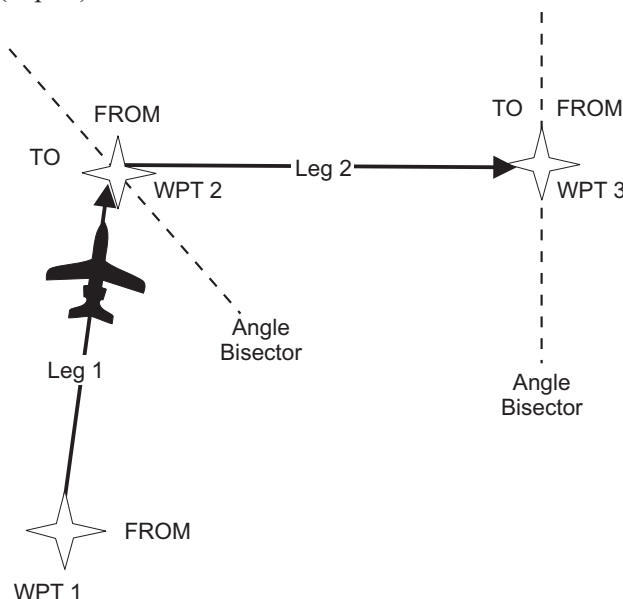


Press **SEL** while viewing a flight plan leg page to make changes.

Press **SEL** and then turn the **Small** knob while viewing the flight plan name page to activate or to choose other options.

**Flight Plan Sequencing**

The GX50 will automatically sequence from one leg to the next as you fly past each waypoint. A line that evenly divides (bisects) the angle between the two legs determines when the flight plan sequences to the next leg. In the example below, the dashed line describes the area where the flight plan will sequence from Leg 1 to Leg 2 and for the last waypoint (Wpt 3).



**Flight Plan Leg Information**

Two types of information are available within flight plan legs: waypoint and flight information. Pressing **INFO** will provide information about the destination waypoint. Information about the ETA, ETE, Ground Speed, and Fuel is also available for each leg by selecting which option you like to view in the leg display.



1. While viewing a flight plan leg, press **SEL**. The From waypoint field will flash.

```

CHG?  TO SLE
1  353° 48.0NM
ARPT  ARPT
    
```



2. Turn the **Large** knob clockwise two clicks to choose the third line for selection. The line will flash.

```

EUG  TO SLE
1  353° 48.0NM
ARPT  ARPT
    
```



3. Turn the **Small** knob to choose from the list of available leg information options. The options are described on the following pages.

```

EUG  TO SLE
1  353° 48.0NM
LEG ETE 00:30
    
```



4. Press **ENTER** to keep your choice displayed or press **SEL** to cancel viewing and return to the Bearing and Distance information.

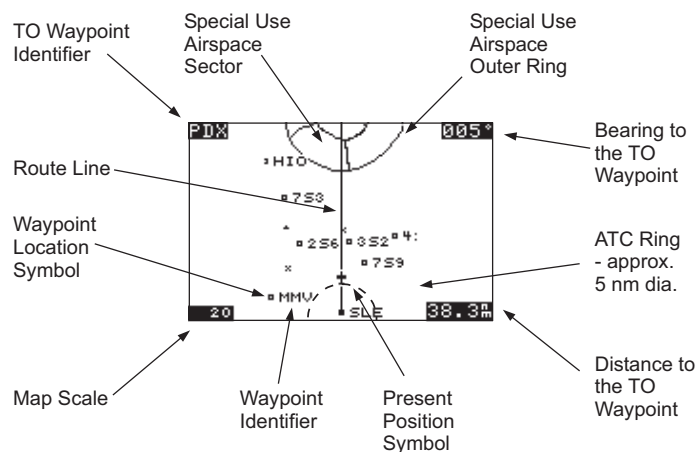


# Moving Map Functions

Press the **MAP** key to reach the Moving Map function and view the progress of your flight on a graphic display. Your present position, nearby waypoints, and special use airspaces display options are user-selectable. Three pages are available in the Moving Map function: full screen map, split screen with map and Nav info, and map setups.

## Full Screen Map

The full screen map page of the Moving Map function shows a graphic map of the aircraft position, nearby user-selected waypoints, and your route. The aircraft position is shown by an airplane symbol near the center of the display. The TO waypoint identifier is shown in reversed text on the upper left corner. The bearing from your current position to the TO waypoint is shown on the upper right corner. The map scale is shown in the lower left corner. The distance from the current position to the TO waypoint is shown in the lower right corner. A 5 nm “ATC Ring” can be drawn around airports that have a control tower.



## Controls

The **Large** knob moves to different pages of the Map function. The **Small** knob changes the map scale. The smart Keys select the display of the waypoint types. The waypoint types selectable from the map view are: airports, VORs, INTersections, and NDBs. Press the smart key to control the display of the waypoint type. There are three selections possible: waypoint identifier and location symbol, location symbol only, and off. Pressing the smart key subsequent times will control which selection is made. The change will also be displayed on the map setup pages. A solid, reversed waypoint type annunciator above the smart key means the waypoint identifier and location symbol will both be displayed. A bold outline of the waypoint type annunciator will show only a symbol on the waypoint location. A thin outline around the waypoint type means that it is turned off and no information for that waypoint type will be displayed on the map.



## Map Scale

The Map Scaling is controlled by turning the **Small** knob while viewing the map. The map scale value shown is the distance from the top point of the airplane icon to the top of the screen. Map scale choices in nautical miles are: 0.1, 0.2, 0.5, 1, 2, 5, 10, 15, 20, 30, 40, 50, 75, 100, 150, 200, 250, and auto. The auto selection automatically adjusts the map scale so the “TO” remains at the top of the display until the aircraft passes over the waypoint. With “auto” selected, the map scale is approximately equal to the distance to the TO waypoint for distances greater than 0.2 nm.



1. Press **MAP**.



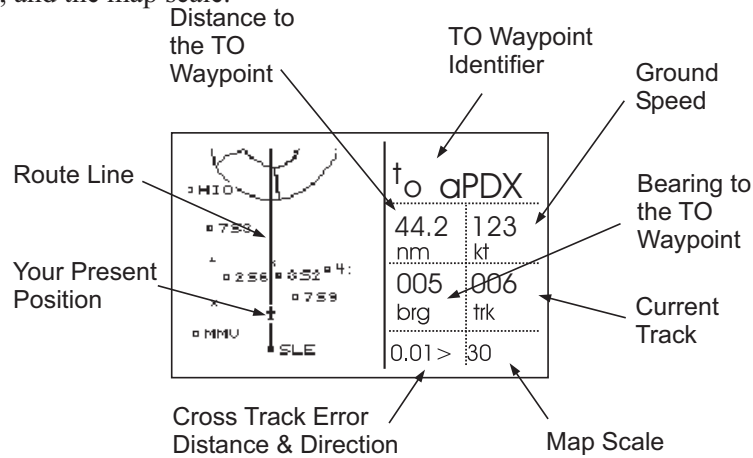
2. Turn the **Small** knob to adjust the map scale.



3. Turn the **Large** knob to view the other Map function displays.

**Map and Nav Info**

The Map and Nav Info page of the Map function provides a split screen showing the moving map and selected navigation information. The navigation information provided on the right side of the display includes: the current TO waypoint identifier, distance and bearing to the TO waypoint from your current position, ground speed, aircraft current track, and the map scale.



**Map Setup**

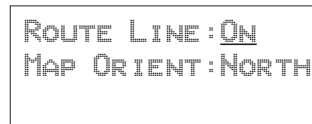
The map setup functions are provided on three pages. The map setup function allows you to select the route line, map orientation, map scale for viewing identifiers, waypoint types that will be displayed, airspace type, and special use airspaces.

**Route Line**

A Route Line can be drawn for the current and next leg of the active route when the selection is turned on.



1. In the Map function, turn the **Large** knob to reach the Map Setup page. Press **SEL** to start selection of the Route Line. The Route Line selection will flash.



2. Turn the **Small** knob to choose On or Off.



3. Press **ENTER** when you made your selection, or turn the **Large** knob to the next item.

**Map Orient**

The Map Orient selection allows you to choose how the top of the map display is oriented.

**North Up** - The display is oriented so that vertical lines on the map are aligned with magnetic north. The aircraft symbol is centered in the display and will point towards the direction you are flying.



**DTK Up** - The Desired Track for the current flight plan leg is the top of the display. The aircraft symbol is at the bottom of the display and will point towards the direction you are flying.

**Track Up** - The direction that your aircraft is aligned vertically and moving towards is at the top of the display. The aircraft symbol is at the bottom of the display.



1. In the Map function, turn the **Large** knob to reach the Map Setup page. Press **SEL**. Turn the **Large** knob to choose Map Orient for selection.



```
ROUTE LINE : ON
MAP ORIENT : NORTH
```



2. Turn the **Small** knob to choose North, DTK, or Track.



3. Press **ENTER** when you made your selection, or turn the **Large** knob to the next item.



### Identifier and Waypoint Type Selection

The Identifier & Waypoint Type page allows you to choose the type of waypoint identifiers that will be displayed. You may control the look of your map screen for each type of waypoint by choosing to show the symbol and Identifier, symbol only, or to turn that type of waypoint “Off.” The symbol for each waypoint type is shown in each selection. When “Off” is selected, no symbol or identifier will be displayed for that waypoint type. The “smart” keys always allow to select their waypoint type.



1. In the Map function, turn the **Large** knob to reach the Map Setup page. Turn the **Small** knob to the Identifier & Waypoint Type page. Press **SEL** to start editing the waypoint types.



```
APT : □ ID INT : + ID
VOR : ▲ ID NDB : × ID
USR : ▯ ID
```



2. Turn the **Large** knob to choose the waypoint type that you want to edit. Turn the **Small** knob to choose symbol and identifier (ID), symbol only, or “Off.” In this example, the flashing (underlined) selection would show both the symbol and identifier for intersections.



```
APT : □ ID INT : + ID
VOR : ▲ ID NDB : × ID
USR : ▯ ID
```



3. Turn the **Small** knob to select the combination you want shown on the Map display. In this example, only the symbol (+) will be shown on the Map display.

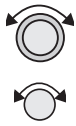
```
APT : □ ID INT : +
VOR : ▲ ID NDB : × ID
USR : ▯ ID
```



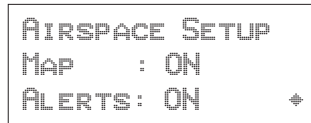
4. Press **ENTER** when you have completed your selections, or turn the **Large** knob to the next item.

### Airspace Setup

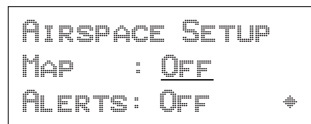
The Airspace Setup selections allows you to turn Airspace notification or map display of Airspaces On or Off, select the distance and time buffers, turn ATC rings On or Off, and to choose the Airspace types that will be used.



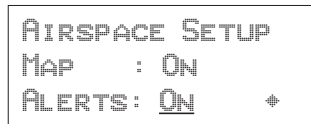
1. In the Map function. Turn the **Large** knob to reach the Route Line/Map Orient page, then turn the **Small** knob two clicks clockwise. The Airspace Setup page is shown.



2. Turn the **Small** knob to view the pages for Airspace Setup. On this page you may select whether Airspaces are shown on the Map display or whether Airspace Alerts are provided. Press **SEL** to start selection. The Map choice will flash. Turn the **Small** knob to select On or Off.



3. Turn the **Large** knob to move to the Alerts choice. Turn the **Small** knob to select On or Off. Press **ENTER** after completing your choices.

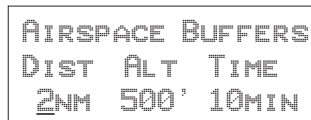


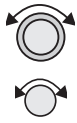
### Airspace Buffers

Three values may be adjusted for Airspace Buffers for determining CLOSE information: distance, elevation, and time. CLOSE distance may be from 0 to 99 nm at one nm intervals. Altitude values are from 0 to 9900 feet in 100 foot intervals. Time values are from 0 to 20 minutes in one minute intervals.



1. While viewing the Airspace Buffer page, press **SEL**. The distance value will flash.





2. Turn the **Large** knob to select the desired value to change. Turn the **Small** knob to change the value.

```
AIRSPACE BUFFERS
DIST ALT TIME
2NM 500' 10MIN
```



3. Press **ENTER** when the desired values have been selected.

```
AIRSPACE BUFFERS
DIST ALT TIME
2NM 200' 10MIN
```

**ATC Ring Selection**

When this choice is turned ON, a 5 nm artificial “ATC Ring” is drawn on the Map display around airports that have a control tower.



1. While viewing the ATC Ring page, press **SEL** to start selection.

```
5 NM ATC RINGS
MAP : OFF
```



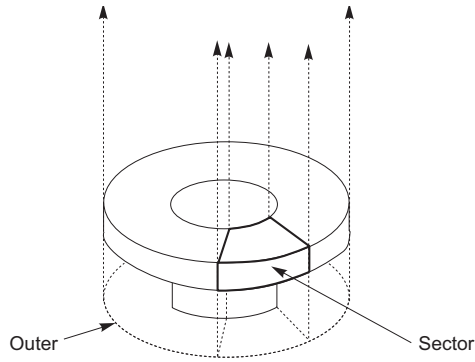
2. Turn the **Small** knob to choose ON or OFF. Press **ENTER** after completing your selection.



```
5 NM ATC RINGS
MAP : ON
```

### Airspace Selections

The Airspaces available for selection are: Class B (Off, Outer, or Sector), Class C (Off, Outer, or Sector), MOA, Training, Unknown, Alert, Caution, Danger, Restricted, Prohibited, and Warning. You may select ON or OFF for map display and alerts for each Airspace type. The Outer selection refers to the outline of the outside ring extended from the ground on up. The sector selection refers to the outside edges of the sector from the ground on up.



1. In the Navigation Info section of the System functions, turn the **Large** knob to the Airspace Setup page. Turn the **Small** knob to view the desired Airspace selection page.

```
CLASS B AIRSPACE
MAP : OFF
ALERT : OFF
```



2. Press **SEL** to activate selection. Turn the **Small** knob to change the selection.

```
CLASS B AIRSPACE
MAP : SECTOR
ALERT : OFF
```



3. Turn the **Large** knob to move to the next selection. Turn the **Small** knob to select your choice.

```
CLASS B AIRSPACE
MAP : SECTOR
ALERT : OUTER
```



4. Press **ENTER** after making the selection. Turn the **Small** knob to view the other Airspace pages.



**II MORROW**

V I S I O N A R Y   T H I N K I N G   T O D A Y

