14 UTILITIES

The Utilities page provides a group of features that will support your flight planning to make them easier and more efficient. The Vertical Calculator (VCALC) calculates the time to begin descent and vertical speed required to reach a desired altitude at the chosen location. The Flight Timers feature provides a number of timer types to assist in monitoring your time in flight. RAIM Prediction predicts if GPS coverage is available for your current location or at a specified waypoint at any time and date. RAIM performs checks to ensure that the GTN unit has adequate satellite geometry during your flight. The Trip Planning feature allows the pilot to view desired track (DTK), distance (DIS), estimated time en route (ETE), en route safe altitude (ESA) and estimated time of arrival (ETA) information for a direct-to, point-to-point between two specified waypoints or for any programmed flight plan. The Fuel Planning feature will display fuel conditions along the active direct-to or flight plan when equipped with fuel flow (FF) and/or fuel on board (FOB) sensors. The DALT/TAS/Winds feature performs calculations about Altitude, Airspeed, and Winds. The Scheduled Messages function allows you to create scheduled messages by Message, Type, and setting a Timer. The Checklists function provides a built-in method of reviewing your aircraft checklist. The Clean Screen function will lock the touchscreen so the display can be cleaned without activating any functions.

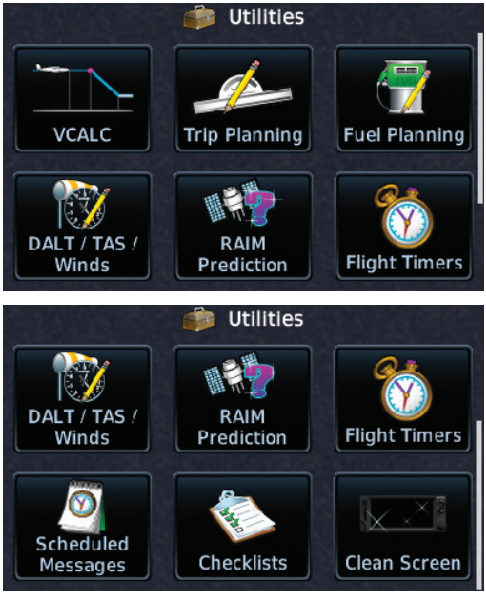


Figure 14-1 Utilities Home Page

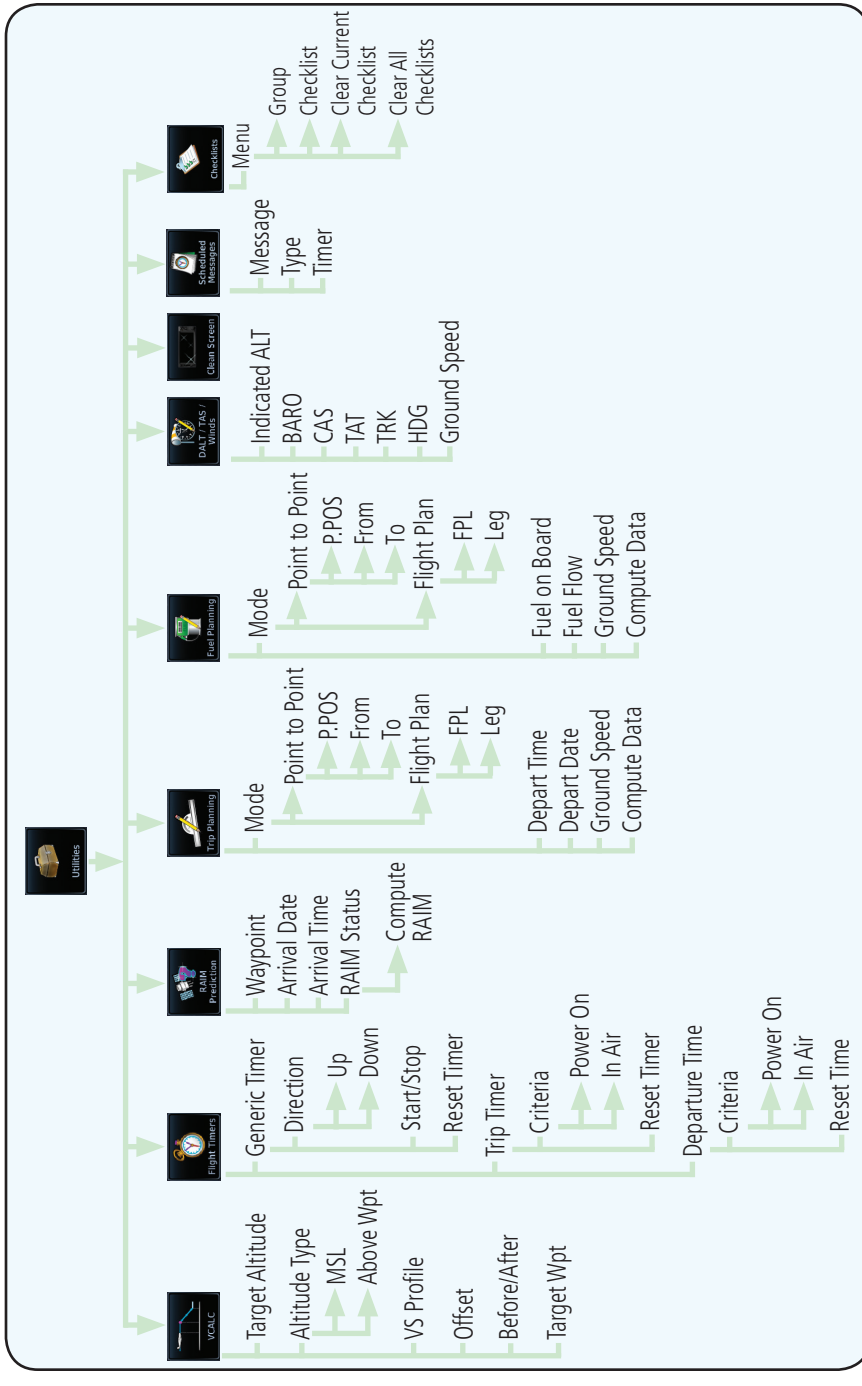


Figure 14-2 Utilities Functional Diagram

14.1 Vertical Calculator (VCALC)

The Vertical Calculator (VCALC) function allows you to create a three-dimensional profile which guides you from your present position and altitude to a final (target) altitude at a specified location. This is helpful when you'd like to descend to a certain altitude near an airport. Once the profile is defined, message alerts and additional data can be configured on the Default NAV and Map Pages to keep you informed of your progress.

Figure 14-3 VCALC Target

VCALC is inhibited in the following conditions:

- Groundspeed is less than 35 knots
- No active flight plan or direct-to destination
- SUSP mode
- Vectors-to-Final mode
- VLOC mode
- After the FAF on an approach
- OBS mode

WARNING: *Do not use VCALC messages as the only means of either avoiding terrain/obstacles or following ATC guidance. VCALC provides advisory information only and must be used in concert with all other available navigation data sources.*

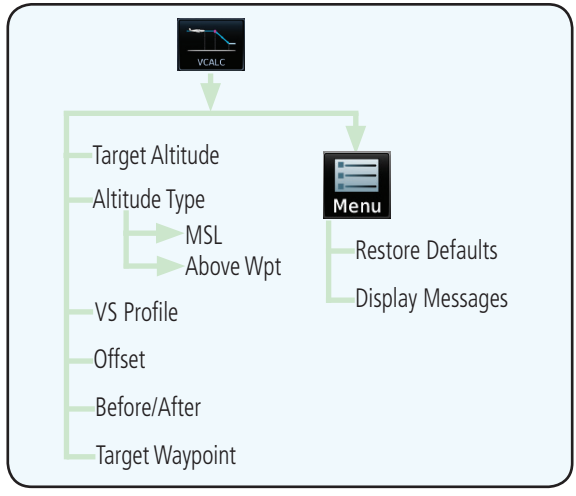


Figure 14-4 VCALC Page Functional Diagram

1. From the Utilities page, touch **VCALC.**

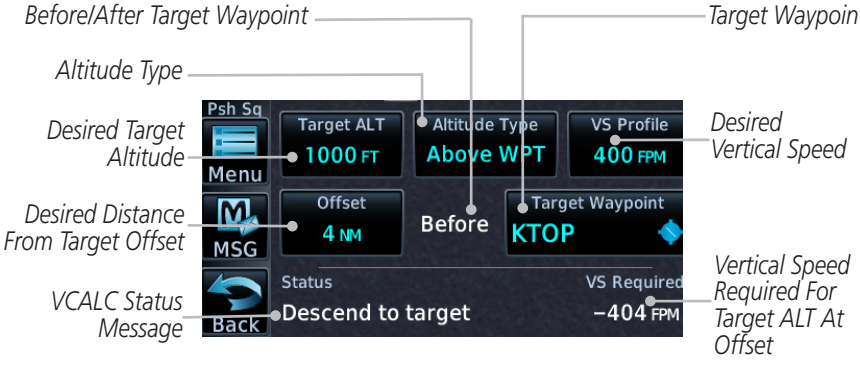
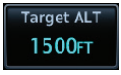


Figure 14-5 VCALC Page

2. Select the VCALC items as necessary to set up parameters for the next waypoint. Touch the **Back** key when finished.

14.1.1 Target Altitude

This sets the desired ending altitude for the VCALC setup.



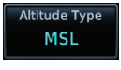
1. While viewing the VCALC page, touch **Target ALT**.

Figure 14-6 Select VCALC Target Altitude

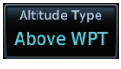
2. Use the numeric keypad to select the desired Target Altitude and then touch the **Enter** key.

14.1.2 Altitude Type

This value selects the altitude reference that will be used for VCALC calculations.



1. While viewing the VCALC page, touch **Altitude Type**.



2. Touching the **Altitude Type** key will toggle between MSL and Above WPT. "Above WPT" is only available for waypoints that are airports.

14.1.3 Vertical Speed (VS) Profile

This value sets the vertical speed.

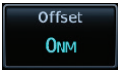
1. While viewing the VCALC page, touch the **VS Profile** key.

Figure 14-7 Select VCALC Vertical Speed

2. Use the numeric keypad to select the desired Vertical Speed and then touch the **Enter** key.

14.1.4 Target Offset

The Target Offset is a pilot-selected distance value that represents the geographical location where you wish to arrive at the target altitude. This distance is measured from the Target Waypoint and, in a separate data field on the VCALC page, designated as either before or after the Target Waypoint.



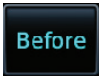
1. While viewing the VCALC page, touch the **Offset** key.

Figure 14-8 Select VCALC Target Offset

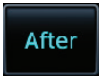
2. Use the numeric keypad to select the desired Target Offset and then touch the **Enter** key.

14.1.5 Before/After Target Waypoint

This setting designates whether the offset distance defines a point before you reach the target reference waypoint or after you reach the waypoint. The "After" selection is not available for the last waypoint in a flight plan.



1. While viewing the VCALC page, touch the **Before/After** key.



2. Touching the **Before/After** key will toggle between Before and After the Target Waypoint.

14.1.6 Target Waypoint

Select the waypoint in the flight plan that will be used for planning a descent. When using a flight plan, the target waypoint is a reference that can be specified from the waypoints contained in the flight plan. By default, the last waypoint in the flight plan is selected.

1. While viewing the VCALC page, touch **Target Waypoint**.

Figure 14-9 Select VCALC Target Waypoint List

2. A list of the remaining waypoints in the flight plan will be shown. Touch the desired waypoint to select it as the Target Waypoint.

14.1.7 Display VCALC Messages

Selecting **Display Messages** will allow the display of messages about the VCALC function when they occur. With **Display Messages** not selected, VCALC messages will not be displayed.

1. While viewing the VCALC page, touch the **Menu** key and then **Display Messages** to toggle the display of VCALC messages in the Message function.

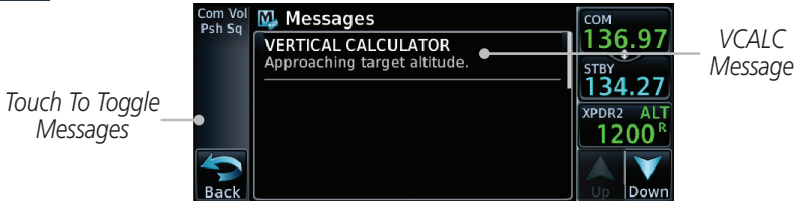


Figure 14-10 VCALC Approaching Target Altitude Message

2. Touch the **MSG** key to toggle the display of available messages.

14.1.8 Restore VCALC Defaults

While viewing the VCALC page menu, touching the **Restore Defaults** key will reset all of the VCALC values back to their default values. The Target Waypoint will not be changed.

14.2 Flight Timers

The Flight Timers function provides count up/down timers, plus automatic recording of departure time, and total trip time. Departure and total trip time recording can be configured to run either any time unit power is on, or only when your ground speed exceeds the in-air threshold set by the installer (for example, 30 knots). A flexible Generic Timer is available for general timing needs.

***NOTE:** When a count up timer is used, the preset value has no function.*

1. While viewing the Utilities page, touch the **Flight Timers** key.
2. If the Generic Timer Direction counter is set to "Up," the Reset Timer key will be shown and when touched will return the timer to 00:00:00. If the Direction counter is set to "Down," the Preset Timer key will be shown and the key will return the timer to the Preset time value.

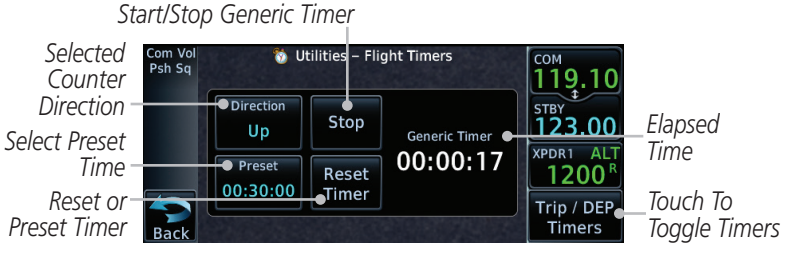


Figure 14-11 Utility Flight Timers Page (Generic Timer)

3. Touch the **Trip/DEP Timers** or **Generic Timer** keys to toggle between the timer types.

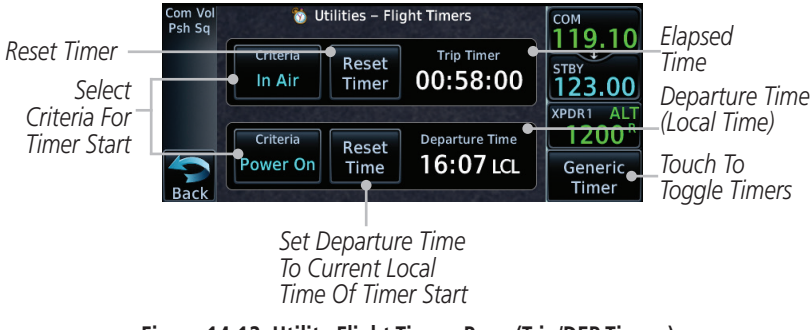


Figure 14-12 Utility Flight Timers Page (Trip/DEP Timers)

4. Touch each key as desired to set up timer operation.

14.3 RAIM Prediction

RAIM Prediction predicts if GPS coverage is available for your current location or at a specified waypoint at any time and date. RAIM performs checks to ensure that the GTN unit has adequate satellite geometry during your flight. RAIM availability is near 100% in Oceanic, En Route and Terminal phases of flight. Because the FAA's TSO requirements for non-precision approaches specify significantly better satellite coverage than other flight phases, RAIM may not be available when flying some approaches. The GTN unit automatically monitors RAIM during approach operations and warns you if RAIM is not available. In such cases, use a non-GPS based approach. RAIM prediction helps you plan for a pending flight to confirm GPS operation during an approach.

RAIM prediction only predicts the availability of Fault Detection (FD) integrity in the absence of SBAS corrections. It cannot predict the availability of LPV or L/VNAV approaches. The FAA provides a NOTAM service for LPV approach availability.

1. While viewing the Utilities page, touch the **RAIM Prediction** key.

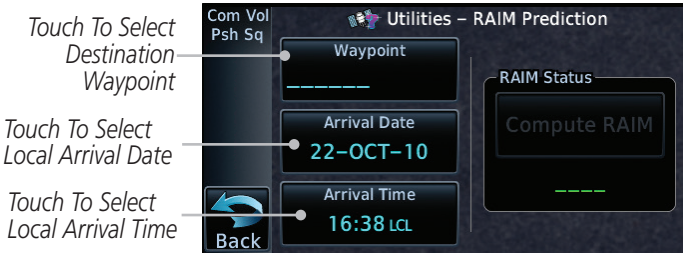
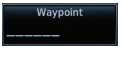
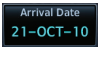


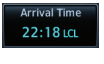
Figure 14-13 Utility RAIM Prediction Page



2. Touch the **Waypoint** key and select the waypoint for RAIM Prediction.



3. Touch the **Arrival Date** key and select the date of arrival at the selected waypoint.



4. Touch the **Arrival Time** key and select the local time of expected arrival at the selected waypoint.

Compute RAIM

5. When the Waypoint, Arrival Date, and Arrival Time values have been entered, touch the **Compute RAIM** key to determine if RAIM is available.

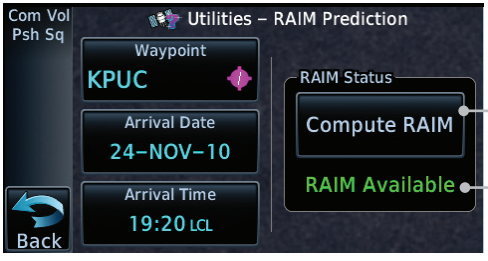


Figure 14-14 RAIM Prediction Completed

14.4 Trip Planning

The GTN 6XX allows the pilot to view desired track (DTK), distance (DIS), estimated time en route (ETE), en route safe altitude (ESA) and estimated time of arrival (ETA) information for a direct-to, point-to-point between two specified waypoints or for any programmed flight plan. This item also displays the sunrise/sunset times for your destination waypoint (for the selected departure date). All times are based on the time set in System-Setup. For trip planning inputs: departure time and date are manually entered, while ground speed can be provided by sensor data, if selected.

The trip statistics are calculated based on the selected starting and ending waypoints and the trip planning inputs.

In Flight Plan mode with a stored flight plan selected, and the entire flight plan (CUM) selected, the waypoints are the starting and ending waypoints of the selected flight plan.

In Flight Plan mode with a stored flight plan selected, and a specific leg selected, the waypoints are the endpoints of the selected leg.

In Point-To-Point mode these are manually selected waypoints (if there is an active flight plan, these default to the endpoints of the active leg).

Some of the calculated trip statistics are dashed when the selected leg of the active flight plan has already been flown.

- Desired Track (DTK) - DTK is shown as nnn° and is the desired track between the selected waypoints. It is dashed unless only a single leg is selected.
- Distance (DIS) - The distance is shown in tenths of units up to 99.9, and in whole units up to 9999.
- Estimated time en route (ETE) - ETE is shown as hours:minutes until less than an hour, then it is shown as minutes:seconds.
- Estimated time of arrival (ETA) - ETA is shown as hours:minutes and is the local time at the destination.
  - If in Point-To-Point mode then the ETA is the ETE added to the departure time.

- If a flight plan other than the active flight plan is selected it shows the ETA by adding to the departure time all of the ETEs of the legs up to and including the selected leg. If the entire flight plan is selected, then the ETA is calculated as if the last leg of the flight plan was selected.
- If the active flight plan is selected the ETA reflects the current position of the aircraft and the current leg being flown. The ETA is calculated by adding to the current time the ETEs of the current leg up to and including the selected leg. If the entire flight plan is selected, then the ETA is calculated as if the last leg of the flight plan was selected.

- En Route safe altitude (ESA) - The ESA is shown as nnnnnFT
- Destination sunrise and sunset times - These times are shown as hours:minutes and are the local time at the destination.

***NOTE:** The capability of using Sensor Data for the trip planning functions is available in SW Versions 2.00, 4.10, and later.*

14.4.1 Point-To-Point Mode

The Trip Planning Point-to-Point mode shows trip calculations between two selected points: either two waypoints from the database or from your present position to a selected waypoint.

1. While viewing the Utilities page, touch the **Trip Planning** key.

2. Touch the **Mode** key to toggle to Point-to-Point.

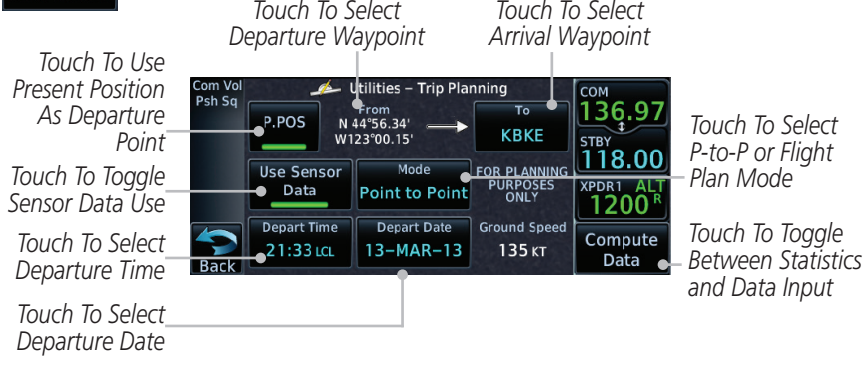
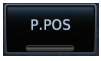


Figure 14-15 Utility Trip Planning Page To Edit Input Data (Point-To-Point Mode) -Sensor Data Used



3. Touch the **P.POS** key to toggle between using your present position as the From waypoint when selected or a waypoint selected from the database when **P.POS** is deselected. If **P.POS** is selected, the Lat/Lon of the present position will be shown in the From position.

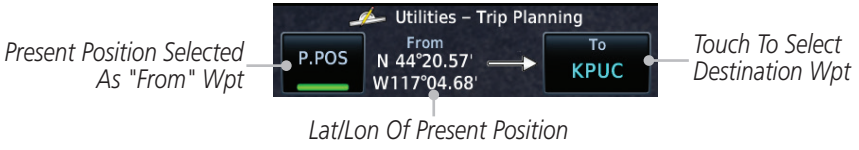


Figure 14-16 Selecting Present Position as the From Waypoint

4. If **P.POS** is not selected for the From point, touch the **From** key and then use the keypad to select a waypoint from the database and touch **Enter**.

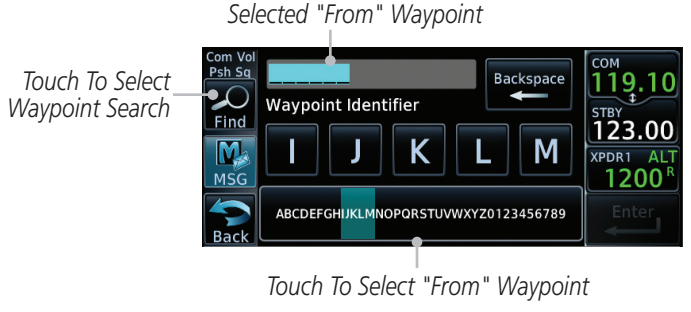


Figure 14-17 Selecting a From Waypoint

5. Touch the **To** key and then use the keypad to select a waypoint from the database for the destination waypoint and touch **Enter**.

6. Touch the **Depart Time** key and then use the keypad to select the departure time (local time at From waypoint) and touch **Enter**.

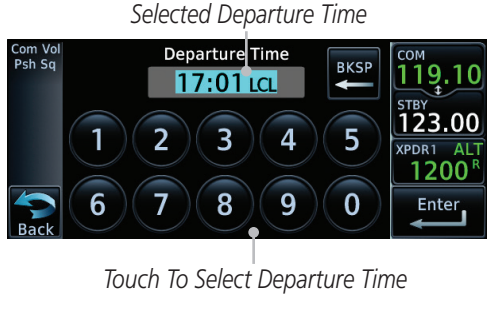


Figure 14-18 Selecting Departure Time

Depart Date
23-NOV-10

7. Touch the **Depart Date** key and then use the Departure Date page to select the departure year, month, and day and then touch **Enter**.

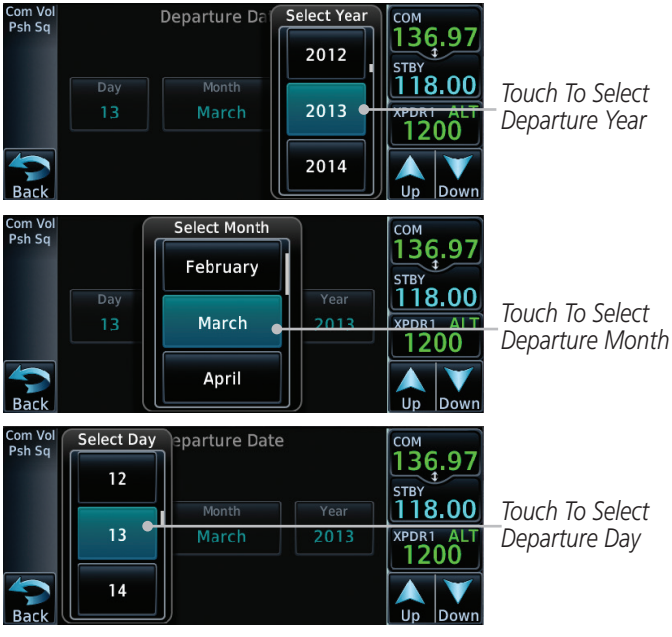


Figure 14-19 Selecting Departure Date

Ground Speed
120 KT

8. Touch the **Ground Speed** key and then the keypad to select the average ground speed for the trip and touch **Enter**.

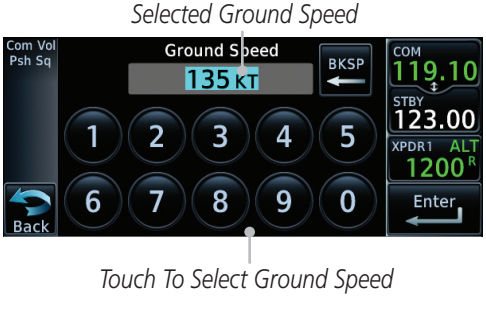


Figure 14-20 Selecting Expected Average Ground Speed

Compute Data

9. After completing the Trip Planning selections, touch the **Compute Data** key to display the trip statistics.

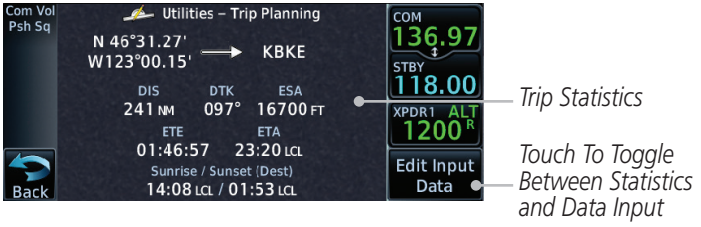


Figure 14-21 Utility Trip Planning Page With Computed Data (Point-To-Point Mode)

NOTE: When Local Time is selected in the Setup-Date/Time feature, Sunrise/Sunset calculations in the Trip Planning feature are based on the From waypoint time zone. For instance, a flight plan originating in the Pacific time zone and ending in the Central time zone would show Sunset/Sunrise times at the destination in Pacific time. This potential offset does not occur when UTC time is used.

14.4.2 Flight Plan Mode

Mode Point to Point

1. Touch the **Mode** key to select Flight Plan mode, if required.

Figure 14-22 Utility Trip Planning Page Edit Input Data View (Flight Plan Mode)

Flight Plan Active FPL

2. Touch the **Flight Plan** key to select the flight plan.

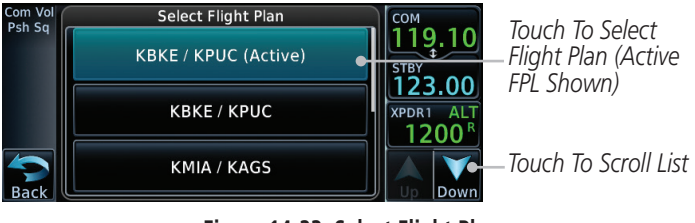


Figure 14-23 Select Flight Plan

Leg
KBKE → KTWF

3. Touch the **Leg** key to select the flight plan leg. If the "Cumulative" selection is chosen, statistics will relate to the entire flight plan.

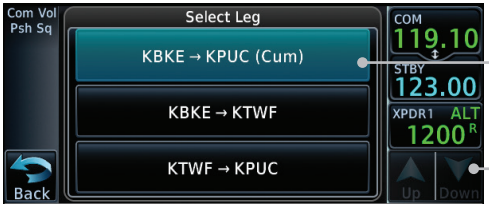


Figure 14-24 Select Flight Plan Leg

Depart Time
21:36 LCL

4. Touch the **Depart Time** key and then use the keypad to select the departure time (local time at From waypoint) and touch **Enter**.

Depart Date
23–NOV–10

5. Touch the **Depart Date** key and then use the Departure Date page to select the departure year, month, and day and then touch **Enter**.

Ground Speed
120 KT

6. Touch the **Ground Speed** key and then the keypad to select the average ground speed for the trip and touch **Enter**.

Compute Data

7. Touch the **Compute Data** key to view statistics for the current flight plan leg. The Cumulative flight plan is shown.

Figure 14-25 Utility Trip Planning Page Computed Data View (Flight Plan Mode)

8. Touch the **Next** key to view statistics for the next leg in the flight plan.

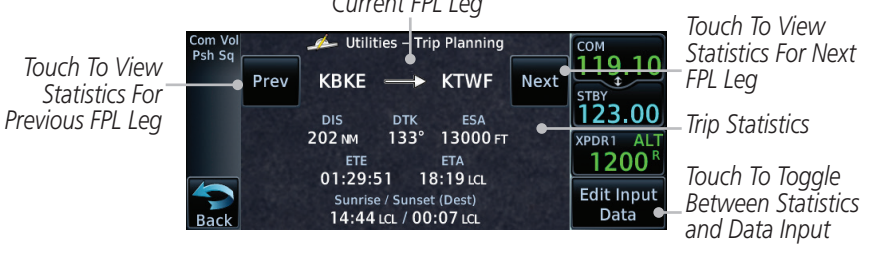


Figure 14-26 Utility Trip Planning Page Computed Data View Of Next Waypoint (Flight Plan Mode)

14.5 Fuel Planning

Fuel Planning — You may manually enter fuel flow, ground speed (GS) and fuel on board figures for planning purposes. Fuel planning figures can be displayed not only for the currently active flight plan or direct-to, but also point-to-point between two specified waypoints and for any programmed flight plan.

Fuel on board and fuel flow may be manually entered in the unit start-up sequence and used to recalculate fuel on board as it is consumed. When fuel flow or fuel on board is manually entered, the figures are retained the next time you view the page (with fuel on board continuously recalculated).

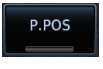
***NOTE:** The capability of using Sensor Data is available in SW Versions 2.00, 4.10, and later.*

14.5.1 Point-To-Point Mode

The Fuel Planning Point-to-Point mode shows fuel calculations between two selected points: either two waypoints from the database or from your present position to a selected waypoint.

1. While viewing the Utilities page, touch the **Fuel Planning** key.

2. Touch the **Mode** key to toggle to Point-to-Point, if required.



3. Touch the **P.POS** key to toggle between using your present position as the From waypoint when selected or a waypoint selected from the database when **P.POS** is deselected. If **P.POS** is selected, the Lat/Lon of the present position will be shown in the From position.

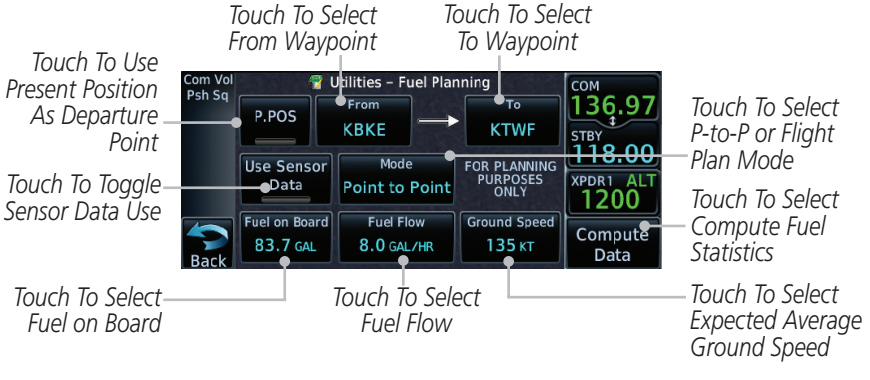


Figure 14-27 Utility Fuel Planning Page Showing Edit Input Data (Point-to-Point Mode)

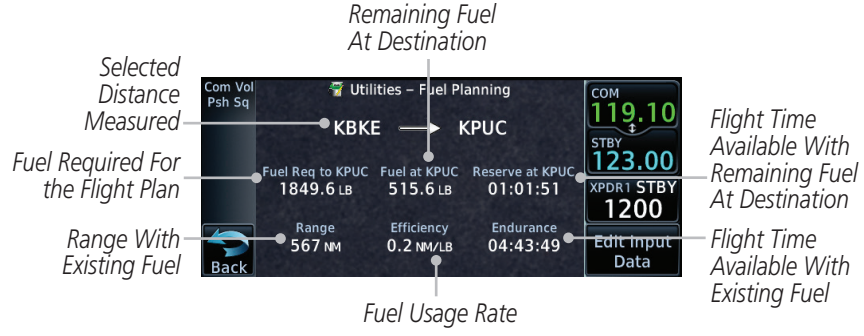


Figure 14-28 Utility Fuel Planning Page Showing Computed Data (Point-to-Point Mode)

4. If **P.POS** is not selected for the From point, touch the **From** key and then use the keypad to select a waypoint from the database and touch **Enter**.

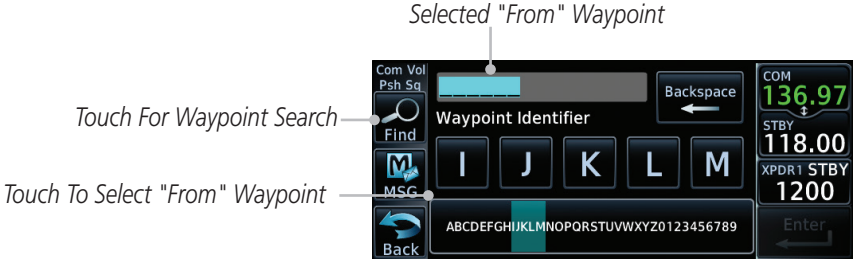


Figure 14-29 Selecting a "From" Waypoint

5. Touch the **To** key and then use the keypad to select a waypoint from the database for the destination waypoint and touch **Enter**.

6. Touch the **Fuel on Board** key and then use the keypad to select the current amount of fuel on board and touch **Enter**.

Figure 14-30 Selecting Current Fuel On Board

7. Touch the **Fuel Flow** key and then use the keypad to select the average fuel flow and touch **Enter**.

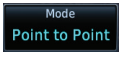
Figure 14-31 Selecting Fuel Flow

8. Touch the **Ground Speed** key and then the keypad to select the average ground speed for the trip and touch **Enter**.

Figure 14-32 Selecting Ground Speed

14.5.2 Flight Plan Mode

The Fuel Planning Flight Plan mode shows fuel calculations between two legs of the flight plan or the cumulative flight plan.



1. Touch the **Mode** key to select Flight Plan mode, if required.

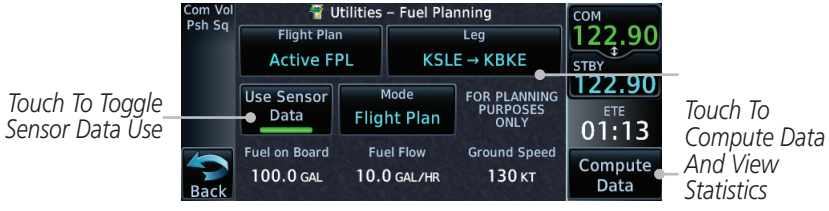
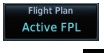


Figure 14-33 Utility Fuel Planning Page Showing Edit Input Data (Flight Plan Mode)



2. Touch the **Flight Plan** key to select the flight plan.

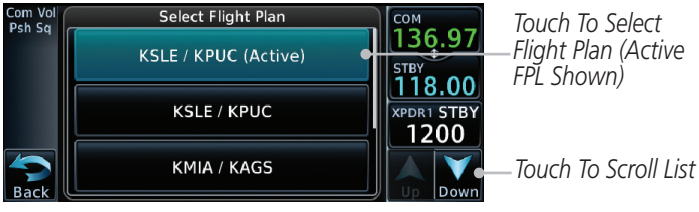
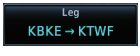


Figure 14-34 Select Flight Plan



3. Touch the **Leg** key to select the flight plan leg. If the "Cumulative" selection is chosen, statistics will relate to the entire flight plan.

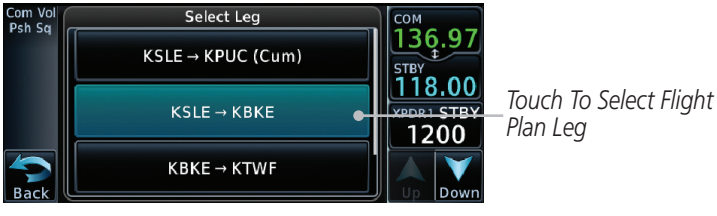


Figure 14-35 Select Flight Plan Leg

4. If desired, touch the **Fuel on Board** key and then use the keypad to select the Fuel on Board value and touch **Enter**.

5. If desired, touch the **Fuel Flow** key and then use the keypad to select the Fuel Flow value and touch **Enter**.

6. Touch the **Ground Speed** key and then the keypad to select the average ground speed for the trip and touch **Enter**.

Compute Data

7. Touch the **Compute Data** key to display Statistics for the current flight plan leg.

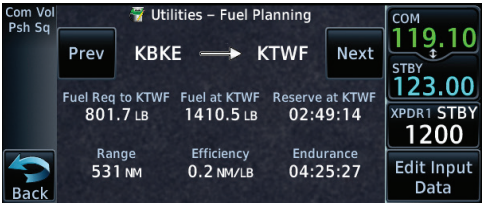


Figure 14-36 Utility Fuel Planning Page Showing Computed Data (Flight Plan Mode)

Prev

Next

8. Touch the **Previous** and **Next** keys to view statistics for the previous and next legs in the flight plan.

Edit Input Data

9. Touch the **Edit Input Data** key to return to the display for selecting Fuel Planning data.

14.6 DALT/TAS/Winds

Density Alt / TAS / Winds — indicates the theoretical altitude at which your aircraft performs depending upon several variables, including indicated altitude (Indicated ALT), barometric pressure (BARO) and total air temperature (TAT; the temperature, including the heating effect of speed, read on a standard outside temperature gauge). This item computes true airspeed (TAS) and density altitude, based upon the factors above. Also, this feature determines winds aloft — the wind direction and speed — and a head wind/tail wind component, based on true airspeed, aircraft heading (HDG) and ground speed. When a FADC provides pressure altitude and the Use Sensor Data option is selected, the Baro key will not be present in the edit mode and the Baro indication will not be shown in computed results.

NOTE: *The capability of using Sensor Data is available in SW Versions 2.00, 4.10, and later.*

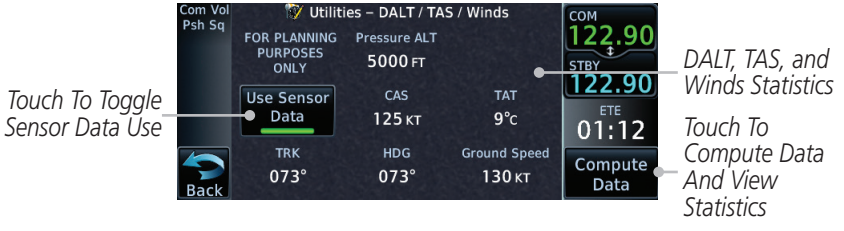


Figure 14-37 Utility DALT/TAS/Winds Page Using Sensor Data and Pressure Altitude

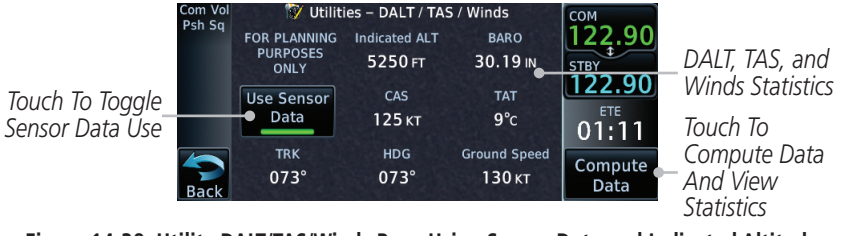


Figure 14-38 Utility DALT/TAS/Winds Page Using Sensor Data and Indicated Altitude

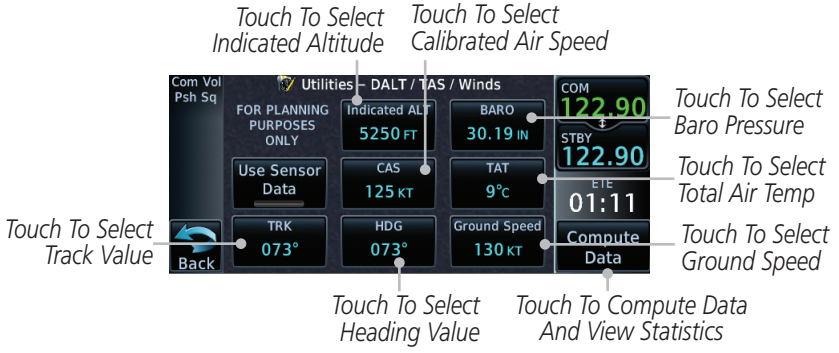


Figure 14-39 Utility DALT/TAS/Winds Page Using Manually Entered Data

Figure 14-40 Utility DALT/TAS/Winds Page (Computed Data)

1. Touch the **Indicated ALT** key and then the keypad to select the Indicated Altitude and then touch **Enter**.

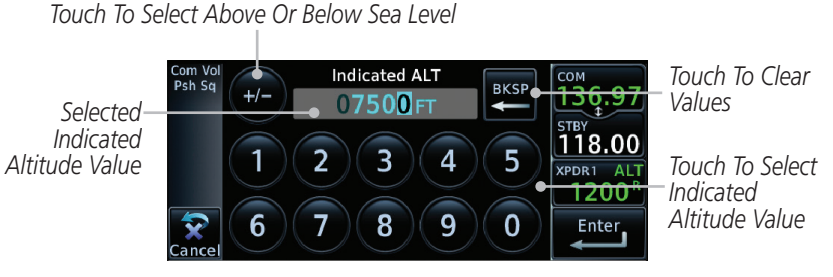


Figure 14-41 Select Indicated Altitude Value

2. Touch the **BARO** key and then the keypad to select the Barometric Pressure and then touch **Enter**.

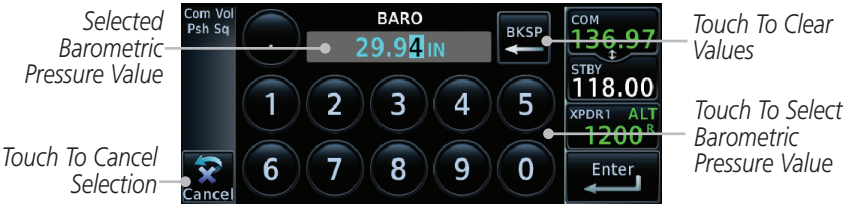


Figure 14-42 Select Barometric Pressure Value

CAS 140 KT

3. Touch the **CAS** key and then the keypad to select the Calibrated Air Speed and then touch **Enter**.

Figure 14-43 Select Calculated Air Speed Value

TAT 15°C

4. Touch the **TAT** key and then the keypad to select the Total Air Temperature and touch **Enter**.

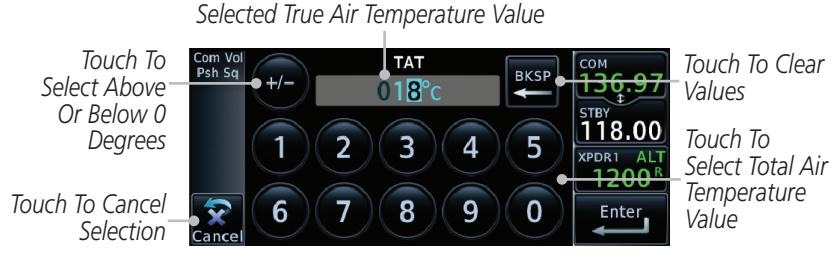


Figure 14-44 Select Total Air Temperature Value

TRK 122°

5. Touch the **TRK** key and then the keypad to select the Track Angle and then touch **Enter**.

Figure 14-45 Select Track Angle Value

HDG 122°

6. Touch the **HDG** key and then the keypad to select the Heading value and then touch **Enter**.

Figure 14-46 Select Heading Value

7. Touch the **Ground Speed** key and then the keypad to select the average ground speed for the trip and then touch **Enter**.

14.7 Clean Screen Mode

The Clean Screen mode makes the touchscreen inactive so the display can be manually cleaned. The front bezel, keypad, and display can be cleaned with a microfiber cloth or with a soft cotton cloth dampened with clean water. DO NOT use any chemical cleaning agents. Care should be taken to avoid scratching the surface of the display.

1. While viewing the Utilities page group, touch the **Clean Screen** key to start Screen Cleaning Mode.

Figure 14-47 Utilities Home Page

2. Touch the **HOME** key to exit Screen Cleaning Mode.

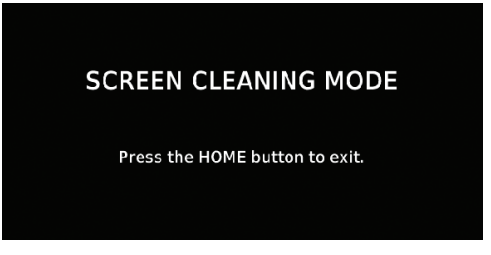


Figure 14-48 Screen Cleaning Mode

14.8 Scheduled Messages

The Scheduled Messages utility displays reminder messages (such as "Change oil," "Switch fuel tanks," "Overhaul," etc.). One-time, periodic, and event-based messages are allowed. One-time messages appear once the timer expires and reappear each time the GTN-series unit is powered on, until the message is deleted. Periodic messages automatically reset to the original timer value, once the message is displayed. Event-based messages do not use a timer, but rather a specific date and time.

NOTE: *This feature is available in SW V5.00, and later.*

1. While viewing the Utilities page group, touch the **Scheduled Messages** key to start the Scheduled Messages function.

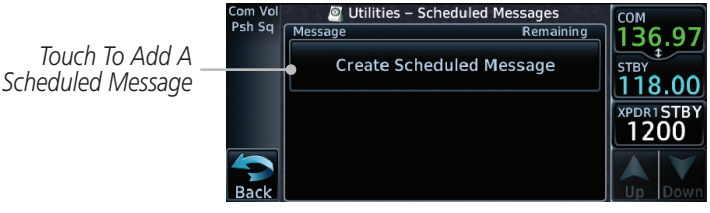


Figure 14-49 Scheduled Messages Page

2. Touch the **Message** selection and enter the desired message to be displayed. Touch the **Type** selection to choose the message type. Touch the **Timer** selection to set the countdown time for the message to be displayed.

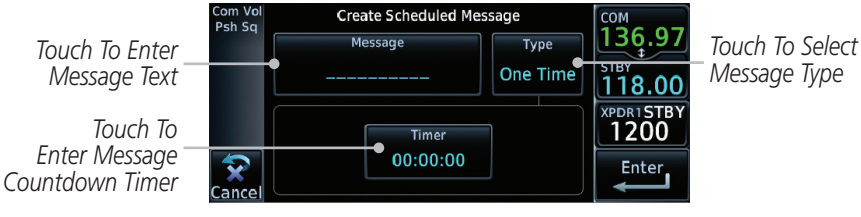


Figure 14-50 Create a Scheduled Message

3. After completing the selections, touch the **Enter** key.

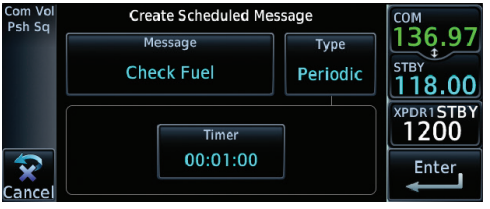


Figure 14-51 Sample Scheduled Message

14.9 Checklists

The Checklists function provides a built-in method of reviewing your aircraft checklist. Checklists are created using the Garmin Checklist Editor software (available online) and stored on the datacard as "chklist.ace." As each Checklist is completed, you can advance to the next one in order. In the Checklist Menu, you can access any Checklist, or group of Checklists, and clear the current or all Checklists.

NOTE: *This feature is available in SW V5.10, and later. In software v6.00 and later, the installer may configure the title of this feature to be Task Lists or Checklists.*

14.9.1 Checklists Menu

1. While viewing the Utilities page group, touch the **Checklists** key to start the Checklists function.

2. Touch the **Menu** key to select an option from the Checklist Menu.

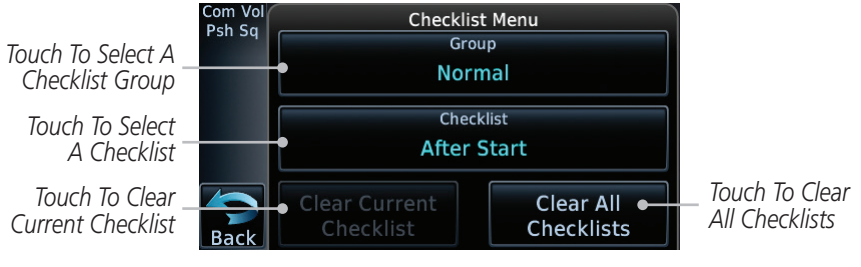


Figure 14-52 Utility Checklist Menu

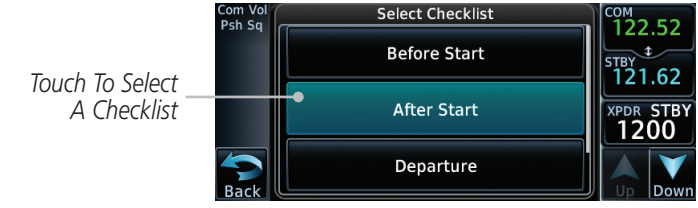


Figure 14-53 Select a Checklist from the Checklist Menu

14.9.2 Viewing Checklists

1. While viewing the Utilities function, touch the **Checklist** key. Use the existing Checklists in the order provided or touch the **Menu** key to select another checklist.

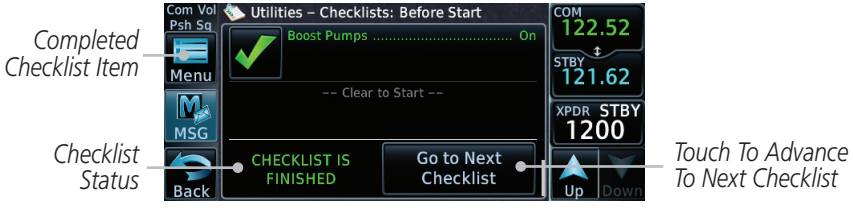


Figure 14-54 Checklist Completion

2. After completing the Checklist, touch **Go to Next Checklist**, **Menu**, or **Back** to exit the Checklist function.

NOTE: *All checklists are cleared after a power cycle.*

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