GARMIN

# G500(H)/G600/G700 TXi

## Pilot's Guide Addendum for GDL 60

This pilot's guide addendum contains information regarding the features of GDL 60 Wi-Fi/LTE datalink. Use this manual in conjunction with *G500(H)/G600/G700 TXi Pilot's Guide* for a full understanding of all Garmin TXi product features, including unit setup and operation, related safety information, and system indications and advisory messages.

This manual is intended to supplement the corresponding sections of the pilot's guide. Except for cases when operational differences dictate, the GDU 1060 display is shown as typical.

An electronic version of the pilot's guide is available for viewing on your computer or portable electronic device. Go to garmin.com/manuals.

## COPYRIGHT & TRADEMARKS



## SOFTWARE VERSION

This manual reflects the operation of TXi Main software v3.50. Some differences in operation may be observed when comparing the information in this manual to later software versions.

## INFORMATION & SUPPORT

For information about Garmin TXi product features, consult *G500(H)/G600/G700 TXi Pilot's Guide*, P/N 190-01717-10.

For information about GDL 60 Connext pilot settings on GTN Xi, consult *GTN Xi Series Pilot's Guide Addendum for GDL 60*, P/N 190-02327-A0.

For comprehensive web-based training on the latest TXi software updates and features, purchase *TXi Essentials 2.0 eLearning Course* from garmin.com.

For information regarding the Aviation Limited Warranty, refer to Garmin's website.

For aviation product support, visit flyGarmin.com.

# 1 System at a Glance

# Pilot Interface

## SD Card Slot

**NOTE**

*Do not remove or insert an SD card while in flight. Always verify the system is powered off before inserting or removing an SD card.*

Determine which card slot is appropriate for the task.

| TASK | SD CARD SLOT | | |
|---|---|---|---|
| | GDU 1060 | GDU 700P | GDU 700L |
| Exporting data logs[1] | Top | Top | Left |
| Saving system configurations | | | |
| Transferring crew profiles | | | |
| Capturing screen images[2] | | | |
| Enabling Flight Stream 510 connectivity[3] | Bottom | Bottom | Right |
| Updating databases[1, 4] | Top or bottom | Top or bottom | Left or right |

[1] TXi software v3.50 and later: GDL 60 enables this functionality without the use of an SD card.
[2] Screen images save to the bottom/right card when the top/left card is unavailable.
[3] Install Flight Stream 510 in a GTN, if available.
[4] While either slot may be used, the bottom/left slot has a faster transfer rate and is recommended for all database-related tasks.

### For Mac Users

Do not use macOS to format an SD card or the Flight Stream 510 wireless transceiver if you plan to use either as a media storage device for updating databases.

In the event there is a file corruption problem with the SD card (including the wireless transceiver when used as a database storage device), it may be necessary to reformat the card. This can cause an issue when formatting the SD card using macOS, where the newly formatted card will not be recognized by the avionics system. When using a Macintosh computer to format the SD card, or the wireless transceiver, Garmin recommends using the SD Memory Card Formatter application available as a download from SDcard.org. When running the application, use the Quick Format option.

# Compatible Equipment

## Line Replaceable Units

| SYSTEM REQUIRED LRUS (PFD) |
|---|
| ADAHRS or ADC with AHRS |
| GMU 44/44B |
| GTP 59 |
| Garmin GPS navigator |
| **SYSTEM OPTIONAL LRUS** |
| Backup GPS antenna |
| GAD 43/43e adapter |
| GBB 54 battery |
| GCU 485 PFD controller |
| GEA 110 engine airframe interface[1] |
| GEA 71 engine airframe interface[2] |
| **OPTIONAL INTERFACES** |
| ADF |
| Airborne weather radar |
| Autopilot/flight director |
| DME |
| G5 |
| GDL 60 Wi-Fi/LTE datalink |
| GDL 69/69A SiriusXM datalink |
| GDL 88/GTX 345 ADS-B transceiver |
| GI 275 |
| GSR 56 satellite datalink |
| GTX 330 or GTX 335 mode S transponder (TIS-A) |
| Radar altimeter |
| Stormscope |
| TAS/TCAS/TCAS II |
| VHF NAV and glideslope receiver |

The TXi system consists of multiple LRUs, which are installed behind the instrument panel or in a separate avionics bay. Their modular design aids system maintenance and unit replacement.

Optional LRUs may include compatible equipment from either Garmin or a third party manufacturer.

Some LRUs provide features that require registration and/or enablement prior to activation.

Check unit software version for compatibility.

[1] Piston aircraft only. [2] Turboprop aircraft only.

# 2 Get Started

# Databases

## Database Updates

**NOTE**

*GDU supports SD cards in the FAT32 format only, with capacities ranging between 8 GB and 32 GB.*

Databases are stored in the internal memory of each display. To view update cycles, or to purchase individual databases or database packages, go to flyGarmin.com.

The TXi system offers multiple methods for loading and updating databases. Do not attempt any of these while in flight (on ground only).

- **Load databases via SD card.** Once loading completes, you may power off the unit and remove the card.
- **Transfer databases from a portable electronic device using Database Concierge.** This method requires the Garmin Pilot app on a portable electronic device and either GDL 60 or Flight Stream 510.
- **Transfer databases from a GTN or another GDU using Database SYNC.** If enabled, databases synchronize across all capable Garmin avionics.
- **Transfer databases automatically from GDL 60 using Database SYNC.** If enabled, databases download to GDL 60 while aircraft power is off and then synchronize across all capable Garmin avionics once the aircraft powers up.

### Database Updates: Using an SD card when you have GDL 60 Wi-Fi/LTE datalink

Loading a database via SD card while GDL 60 Wi-Fi/LTE datalink is present in the system excludes the database from automatic updates.

To re-enable automatic updates from GDL 60, update the database to its latest version using the manual controls on the Database Update page. Read *Automatic Updates* for details.

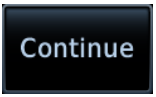
GDU prioritizes database transfers via SD card over all other available means of transfer. Updates via Database Concierge have priority over database synchronization with capable Garmin avionics (e.g., GTN, a second GDU, GDL 60).

# Automatic Updates

Updates occur during power up when a newer version of a database is available. The same process occurs when you install a new database for the first time.


*Indications show when an automatic database transfer is in progress. Message text varies according to installation method.*

Tapping **Continue** advances to the next page. Databases will continue to transfer in the background as you use other features.




**Automatic updates occur when:**

- A newer database is detected on the SD card or in the internal standby queue
- A newer database is within its effective dates
- A recommended database is available for transfer from a capable LRU via the Database SYNC function (e.g., GDL 60, GTN Xi)
- The aircraft is on ground

If enabled, the Database SYNC function synchronizes databases across all capable Garmin avionics. A coordinated restart of each unit completes the installation. Read more about database synchronization in *Synchronize Databases Across Multiple Units*.

## DATABASE TRANSFER SEQUENCE

Databases transfer in three major steps:

| Step 1: Small Databases | Step 2: Charts | Step 3: Terrain |
|---|---|---|
| Includes:<br>• Navigation<br>• Basemap<br>• Obstacle<br>• SafeTaxi<br>• Airport Directory | Available ChartView or FliteCharts database. | Available Terrain database. |
| Restart required to complete installation. | No restart required. | Installation occurs during the next unit power cycle. |

## SYSTEM RESTART OPTIONS

A system restart is required to complete installation of all small databases and Terrain. This occurs automatically when you remain on the splash page during the transfer sequence.

If you choose to advance to another page, confirmation is needed once database transfer is complete.

- *For systems with a GTN Xi Series navigator:* Confirm the restart request on the primary GTN Xi to complete installation for all capable Garmin avionics.[1]
- *For all other systems:* A pop-up informs you when newer databases are available.

*Database Update Pop-up, GDU TXi*


Tapping **Update** opens the Database Update page. Review the list of recommended updates and tap **Start**. Confirm the restart request on each LRU if necessary.

Updates are indicated in the list of currently installed databases. In the event that an automatic database update is undesirable, you can revert to the previous database version from the Database Update page.[2]

[1] Requires GDU TXi software v3.30 or later with GTN Xi v20.20 or later.
[2] Available only with GDU TXi software v3.50 and later.

# Transfer Databases Using Database Concierge

Database Concierge allows wireless transfer of databases from a portable electronic device while the aircraft is on ground.

## WARNING

***Do not install Flight Stream 510 if your aircraft is equipped with GDL 60 Wi-Fi/LTE datalink. Doing so will affect all Connext wireless functionality. Flight Stream 510 and GDL 60 are mutually exclusive. An aircraft can be equipped with only one of these devices.***

### *FEATURE REQUIREMENTS*

- *The aircraft is on ground*
- *Garmin Pilot app on a mobile device*
- *One of the following Garmin Connext devices: Flight Stream 510 wireless transceiver or GDL 60 Wi-Fi/LTE datalink (with TXi software v3.50 or later and GTN Xi v20.30 or later)*

A pilot selects and downloads databases inside the Garmin Pilot app. Transfers occur once the Garmin Connext device establishes a wireless connection inside the aircraft. Depending on the device, prompts to connect to a Wi-Fi network and database transfer indications may appear only on Garmin Pilot (GDL 60) or on both Garmin Pilot and GTN Xi (Flight Stream 510).

### Database Concierge Transfer Function

- Provides automatic updates for databases with effective dates
- Preloads databases that are not yet effective by placing them in the internal standby queue
- Supports Database SYNC with capable Garmin avionics
- Displays database type, cycle, effective date, and transfer progress
- Allows you to initiate transfer from the Database Update page via the **Start** key[1]
- Requires pilot confirmation[1]

[1] Flight Stream 510 only.

## TRANSFER DATABASES VIA GDL 60

GDL 60 automatically transfers databases to the aircraft's primary GTN Xi Series navigator. Wi-Fi connection options and database transfer indications appear only on Garmin Pilot.

1. Purchase database(s) from flyGarmin.com.
2. Open Garmin Pilot and follow the download instructions.
3. Power on the system.
4. Ensure that GDL 60 establishes a Wi-Fi connection with the portable electronic device.

**Once database transfer is complete:**

A system restart is required to complete installation. System restarts are initiated by the primary GTN Xi. The manner in which restart occurs depends on the navigator's active page status.

- *If you remain on the splash page:* No action is necessary.
  The system automatically restarts once the update is complete.
- *If you advance to another page during the transfer process:*
  A pop-up informs you when newer databases are available. Tap **Update** and review the list of recommended updates, then tap **Start**.[1]

Updates are indicated in the list of currently installed databases.

For information about GDL 60 Connext setup options, including how GDL 60 connects devices over wireless networks, consult *GTN Xi Series Pilot's Guide Addendum for GDL 60*.

[1] Installations with GDU TXi v3.50 or later and GTN Xi v20.30 or later: Confirmation is requested on the primary GTN Xi.

# Synchronize Databases Across Multiple Units


The Database SYNC function minimizes database maintenance by synchronizing active and standby databases across all capable Garmin avionics.

***FEATURE REQUIREMENTS***

- *Database SYNC function enabled on all participating LRUs*
- *For background updates and coordinated LRU restart: GDU TXi software v3.50 or later & GTN Xi v20.30 or later*

***FEATURE LIMITATIONS***

- *Functionality not available for EIS-only configurations*

## Database SYNC Transfer Function

- Enables automatic database synchronization across all capable Garmin avionics[1]
- Background updates allow the use of features without having to wait for individual LRUs to complete the update process[2]
- Coordinated automatic restart of all capable LRUs to complete installation (initiated via the aircraft's primary GTN Xi Series navigator)[3]
- Available for all supported databases[4]
- Includes active and standby databases
- Informs you that enabling Database SYNC may overwrite any databases currently in standby
- Prompts unit restart if a new database is effective and the aircraft is on ground

[1] Database transfers to G500/G600 flight displays with software v7.00 and later available with GDU TXi software v3.50 and later. Transfers from these units to TXi not available.
[2] Applicable only to GDU TXi software v3.50 and later.
[3] Requires GTN Xi v20.30 or later. If required, system restart confirmation is via the primary GTN Xi.
[4] Terrain database synchronization not available for units with GDU TXi software earlier than v3.50.

For information regarding database packages, and individual database purchases, visit flyGarmin.com.

## ENABLE DATABASE SYNC

**From the 700P/1060 MFD Home page:**

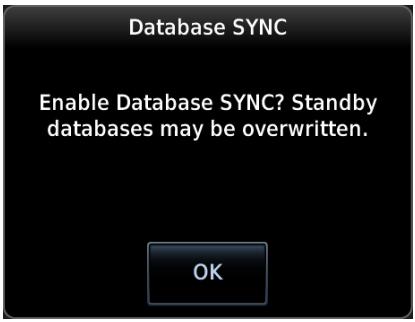
Tap **System** > **System Status** > **Menu** > **Database SYNC**.

**From the 700L MFD Home page:**

Tap **System** > **System Status** > **Database Information** > **Menu** > **Database SYNC**.

**From the 700( ) PFD:**

Tap **Menu** > **System** > **PFD Setup** > **Database SYNC**.




A pop-up informs you that enabling Database SYNC may overwrite any databases currently in standby.

Tapping **OK** confirms the request.

Tapping **Cancel** closes the pop-up and aborts the request.

Toggling **Database SYNC** off disables the Chart Streaming function (if enabled).

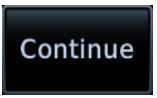
## SYNCHRONIZATION STATUS INDICATIONS

Synchronization occurs automatically at power up.


*As each database uploads to the unit, a counter informs you of transfer status. Total number of available databases excludes chart databases.*

All sync-enabled displays pause momentarily on the splash page until the transfer process is complete.

Tap **Continue** at any time to advance to the next page.



## DATABASE ACTIVATION

A restart of all capable Garmin avionics is required to complete installation.

- *If you remain on the splash page:* No action is necessary. All capable LRUs automatically restart once the update is complete.
- *If you advance to another page during the transfer process:* A pop-up requests a system restart once the update is complete. Tap **Yes** and confirm the request.
  - *For systems with a GTN Xi Series navigator:* Confirm the restart request on the primary GTN Xi to complete installation for all capable LRUs.[1]
  - *For all other systems:* Confirm the update request on each LRU.

Once installation is complete, all previously installed databases transfer to each unit's standby queue. You may revert to the previous database version at any time from the Database Update page on each unit.

Updates are indicated in the unit's list of currently installed databases.

### Systems with a GTN Xi Series Navigator

During power-up, the primary GTN Xi provides a summary of active databases across all capable Garmin avionics. For more information about coordinated restart functionality, consult *GTN Xi Series Pilot's Guide*.

[1] Requires GDU TXi software v3.50 or later with GTN Xi v20.30 or later.

## SYNCHRONIZED DATABASE LIST

***FEATURE LIMITATIONS***

*Available only with TXi software v3.50 and later.*

You can view a list of the databases currently synchronizing with other LRUs from the associated information tab.

**From the MFD Home page:**

Tap **System** > **System Status** > **DB SYNC**.

**From the GDU 700( ) PFD:**

Tap **Menu** > **System** > **Databases** > **DB SYNC**.


*A progress bar shows when a database transfer is complete.*

Status messages inform when:

- The unit is transmitting or receiving databases
- GDL 60 is downloading a database
- The Database SYNC function is disabled
- The LRU is offline
- A database is not authorized for synchronization
- A unit restart is required


A message informs you when database synchronization is not in progress.

If a particular LRU is not accepting a database, refer to the Database SYNC tab to determine the possible cause.

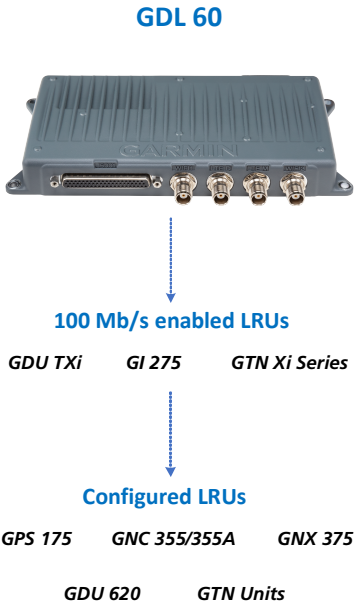
# Synchronize Databases from GDL 60

***FEATURE REQUIREMENTS***

- *TXi software v3.50 or later*
- *GDL 60 Wi-Fi/LTE datalink (with GTN Xi v20.30 or later)*

***FEATURE LIMITATIONS***

*Terrain database synchronization is available only for 100 Mb/s enabled LRUs.*




While on-ground, GDL 60 automatically downloads databases as new database cycles become available. Downloads may occur while the aircraft is powered on or off depending on the Connext pilot setting on GTN Xi.

When the aircraft is powered on, GDL 60 transfers databases independently to all 100 Mb/s enabled LRUs (e.g., GTN Xi, GDU TXi, GI 275). Once all transfers are complete, these LRUs then transfer the databases to other capable display LRUs in the system.

For more information about the GDL 60 Connext pilot settings on GTN Xi, consult *GTN Xi Series Pilot's Guide Addendum for GDL 60*.

# Stream Charts

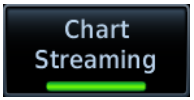



Chart Streaming allows streaming of individual charts on an as-needed basis until database sync is complete. Toggling the function off has no effect on Database SYNC.

***FEATURE LIMITATIONS***

- *Available only when Database SYNC is active and a current chart database is available*
- *Not available when synchronizing chart databases from GDL 60 Wi-Fi/LTE datalink (GDL 60 does not support chart streaming functionality)*

## Chart Streaming Function

- Enables automatic streaming of individual charts from the newest chart database
- LRUs with chart streaming enabled display the most current chart information
- Current charts display on MFD Charts page; chart overlays are available for display on Map page
- Chart database effective date displays on Charts page if database has expired
- Previously installed chart database remains available in the unit's internal standby queue[1]
- Available for both ChartView and FliteCharts
- No restart required

[1] Applicable only to TXi software v3.50 and later.

A typical chart database may take up to one hour to synchronize across multiple LRUs. For 100 Mb/s enabled LRUs (e.g., GDU TXi, GI 275, GTN Xi), synchronization may take up to 10 minutes.[1]

[1] Available only with TXi software v3.50 and later.

## CHART STREAMING STATUS ICONS & NOTATIONS

The following indications appear during the update process.


A spinning arrow appears on the Charts Home page icon when a new chart database is streaming.


Chart database update status annunciates on the start-up page. Spinning arrow icon appears until any mismatches are resolved and synchronization is complete.


Textual annunciations at the bottom of the Charts display inform you of update status.

For information about Charts page features, consult *G500(H)/G600/G700 TXi Pilot's Guide*.

# Connectivity

Connext works via wireless connectivity links to provide up-to-date, wireless information to and from the cockpit. The Connext interface allows wireless communication with Garmin Pilot from a portable electronic device.

Available remote features and setup options are dependent upon aircraft interfaces or enablement, and the Garmin Connext device (Flight Stream 510 or GDL 60).


**Flight Stream 510**

Wireless transceiver installed in the slot by the pilot. Allows data streaming via Wi-Fi and Bluetooth wireless connectivity.


**GDL 60**

Connext device installed in the aircraft that uses Wi-Fi and LTE networks to provide a high-bandwidth means of exchanging data between Garmin avionics and cloud servers.

## CONNEXT FEATURES AT A GLANCE

| FEATURE | FS 510 | GDL 60 |
|---|---|---|
| ADS-B In Traffic Data | • | • |
| AHRS Data from Compatible Display | • | • |
| Connext Weather | • | • |
| Database Concierge | • | • |
| FIS-B Weather and Flight Information | • | • |
| Flight Data Log Streaming | • | • |
| Flight Plan Transfer | • | • |
| GPS/WAAS Position, Velocity & Time Information | • | • |
| GSR 56 Phone/SMS Text | • | • |
| Remote Aircraft Status[1] | | • |
| Primary Flight Data | • | • |
| SiriusXM Audio Remote Control | • | • |
| SiriusXM Weather | • | • |

Set up and manage GDL 60 features from any interfaced GTN Xi Series navigator. For more information, consult *GTN Xi Series Pilot's Guide Addendum for GDL 60*.

[1] Availability dependent upon installation.

# Logs


The data logging function is capable of storing approximately 100 hours of flight data in the unit's internal memory. This information is available for export to an SD card for later analysis.

***FEATURE REQUIREMENTS***

*For external data logging:*

- *SD card*

*For data streaming, a flyGarmin user account and one of the following Connext devices.*

*Flight data:*

- *Flight Stream 510 wireless transceiver (with Garmin Pilot)*
- *GDL 60 Wi-Fi/LTE datalink (with GDU TXi v3.50 or later and GTN Xi v20.30 or later)*

*Engine data:*

- *Flight Stream 510 wireless transceiver (with Garmin Pilot and GDU TXi EIS)*
- *GDL 60 Wi-Fi/LTE datalink (with GTN Xi v20.30 or later and either GDU TXi EIS v3.50 or GI 275 EIS v2.60)*

***FEATURE LIMITATIONS***

- *Engine exceedance logs are available only for turbine aircraft*
- *External data logging stops when the SD card is full*
- *Automatic data logging with GDL 60 dependent upon LTE or Wi-Fi signal strength*

## Data Logging Function

- Generates log files automatically upon unit power-up
- Records various parameters related to aircraft flight instruments, engine indications, and configuration
- Streams logged flight and engine data to Garmin Pilot
- Exports logged flight and engine data to flyGarmin[1]
- Writes logged data to an SD card if one is present in the top/left slot
- Overwrites oldest files when the internal log reaches capacity
- Saves files in the .csv format and stores them in the "data_log" folder

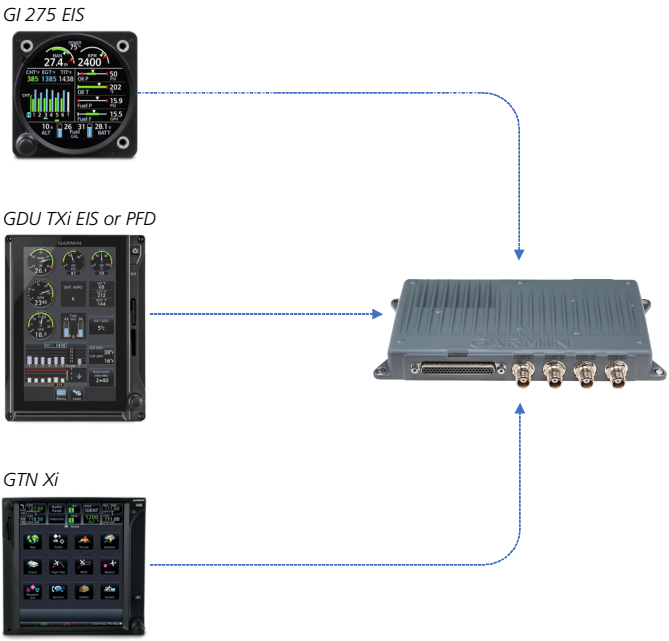
[1] Available with GDL 60 only.

# Data Logging at a Glance

Upon power up, GDU begins logging flight and engine data automatically, storing the data in its internal memory.

## DATA LOGGING WITH GDL 60

GDL 60 receives logged data from one of the following LRUs during flight and then automatically uploads data logs to flyGarmin.com upon landing. No pilot interaction necessary.



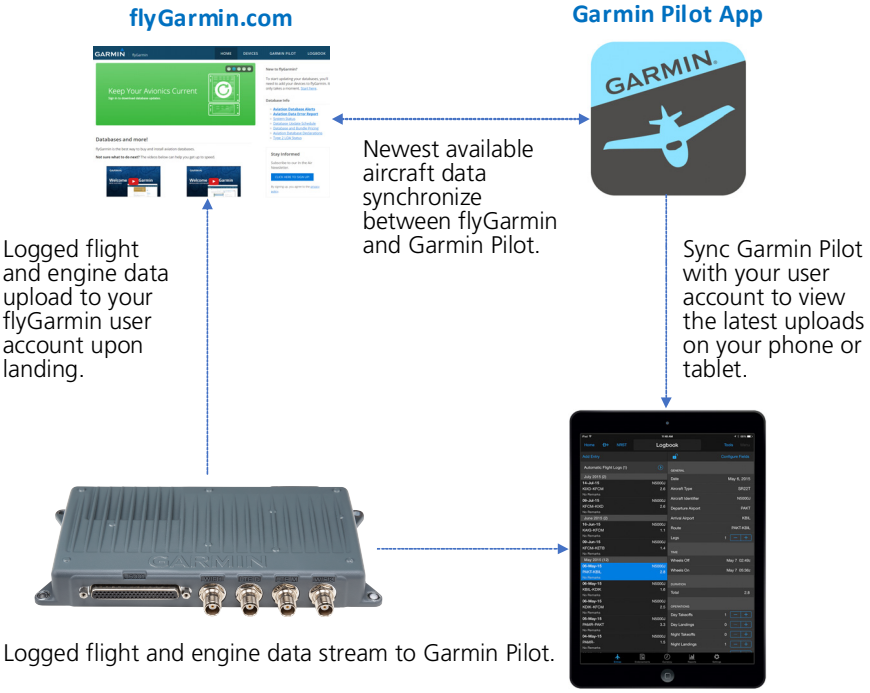

**If GDL 60 is present in the system:**

- Compatible Garmin displays (i.e., GI 275 EIS, GDU TXi EIS or PFD) stream flight and engine data to Garmin Pilot via GDL 60 during flight[1]
- GTN Xi streams flight data to GDL 60 if no compatible displays are present[2]
- GDL 60 automatically uploads all received flight and engine data to flyGarmin.com upon landing

[1] EIS displays have priority over PFD. GI 275 EIS has priority over GDU TXi PFD.
[2] GTN Xi software v20.30 required at minimum for GDL 60 setup and configuration.

# Data Logging with GDL 60

Upon landing, GDL 60 automatically uploads logged flight and engine data directly to flyGarmin.com. You can view the data from your phone or tablet using the Garmin Pilot app.



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