

## INSTRUCTIONS FOR USING THIS SAMPLE FLIGHT MANUAL SUPPLEMENT

1. For those installations not installed in accordance with GDL 82 Mooney M20 Series STC SA02573SE, a flight manual supplement may be created using this document as a guideline. Variations to the configurations recommended in this document, including external switches and annunciators, must be approved by the FAA on an individual basis.
2. This Sample AFMS is intended for use with GDL 82 software version 2.00 or later.
3. These instructions are for reference only and should not be included as part of the flight manual supplement. The text that must be checked or edited for every installation is shown in **RED**; other changes may be required based on your particular installation.
4. The document title “Airplane Flight Manual Supplement OR Supplemental Airplane Flight Manual”. In general, Airplane Flight Manual Supplement applies to Part 23 aircraft and Supplemental Airplane Flight Manual applies to CAR 3 aircraft. Delete the one that does not apply to your aircraft and alter the footer accordingly.
5. Select interfaces/features in Section 1.4 as appropriate to the installation.

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FAA APPROVED

**AIRPLANE FLIGHT MANUAL SUPPLEMENT**  
**Or**  
**SUPPLEMENTAL AIRPLANE FLIGHT MANUAL**  
for the  
Garmin GDL 82

as installed in

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Airplane Make and Model

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

This document serves as an Airplane Flight Manual Supplement or Supplemental Airplane Flight Manual for the installation and operation of the Garmin GDL 82 ADS-B UAT Transmitter. This document must be incorporated into the FAA Approved Airplane Flight Manual or provided as a FAA Approved Supplemental Airplane Flight Manual and carried in the airplane at all times when the Garmin GDL 82 is installed in accordance with \_\_\_\_\_.

The information contained herein supplements the FAA Approved Airplane Flight Manual. For limitations, procedures, loading and performance information not contained in this document, refer to the FAA Approved Airplane Flight Manual, markings, or placards.

FAA Approved By: \_\_\_\_\_

Federal Aviation Administration

City: \_\_\_\_\_

State: \_\_\_\_\_

Date: \_\_\_\_\_

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	Page			
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## Section 1. GENERAL

### 1.1 GDL 82

The Garmin GDL 82 UAT Datalink Transmitter is a remote-mounted ADS-B Out UAT transmitter designed to complement an existing Mode A/C transponder to meet regulation 14 CFR §91.225 and §91.227 in accordance with AC 20-165B. The GDL 82 transmits the ADS-B Out UAT message through a shared L-band antenna while momentarily suppressing the Mode A/C output of the companion transponder. When the GDL 82 is not transmitting, the Mode A/C transponder operates normally. Depending on the model, the GDL 82 can either use its own internal GPS/SBAS receiver or another approved external GPS/SBAS source.

The GDL 82 performs the following functions:

- Transmission of ADS-B out data on 978 UAT (978 MHz)
  - Integration of data from internal and external sources to transmit the following data per 14 CFR §91.227:
    - GPS Position, Altitude, and Position Integrity
    - Ground Track and/or Heading, Ground Speed, and Velocity Integrity
    - Air/Ground Status
    - Flight ID, Call Sign, ICAO Registration Number
    - Capability and Status Information
    - Transponder Squawk Codes between 0000-7777.
    - Emergency Status
    - IDENT - initiates SPI (Special Position Identification) pulse for 18 seconds
- “Anonymous” mode (optional) transmits a temporary address instead of the aircraft’s-assigned ICAO 24-bit address and “VFR” instead of the aircraft’s registration number, when the interfaced Mode A/C transponder is set to the VFR code, “1200”.

1.2 Interfaces

Interfaces to the GDL 82 are shown in Figure 1.

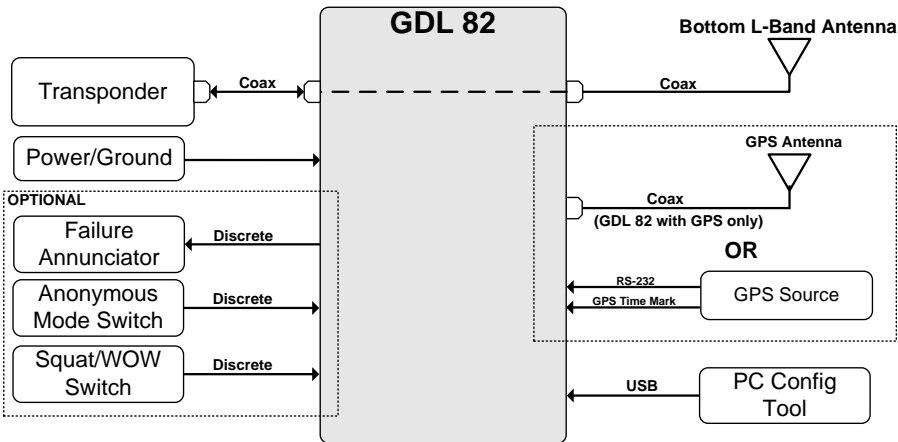


Figure 1 – GDL 82 Interface Summary

1.3 Capabilities

The Garmin GDL 82 as installed in this aircraft has been shown to meet the equipment performance requirements of 14 CFR Part 91, §91.227, when operating in accordance with sections 2.1 through 2.3 of this supplement.

## 1.4 Installation Configuration

This aircraft is equipped with a GDL 82 with the following interfaces / features:

### Equipment Installed:

#### GDL 82 Unit:

- ☐ GDL 82 (external GPS/SBAS source with Time Mark required)
- ☐ GDL 82 w/ Internal GPS/SBAS

Companion Mode A/C Transponder:

Make: \_\_\_\_\_

Model: \_\_\_\_\_



### NOTE

*The installed and combined GDL 82 and Mode A/C transponder system shall continue to meet the requirements of 14 CFR §91.413(b) and the performance required by 14 CFR §43, Appendix E, pgh. (c) and Appendix F.*

### Interfaced GPS/SBAS Position Source:

The GDL 82 requires a GPS/SBAS position source and is noted below.

- ☐ Internal – or –

External GPS/SBAS source (select one):

- ☐ GTN 6XX/7XX Series
- ☐ GNS 400W/500W Series
- ☐ GNS 480



## 1.5 Definitions

The following terminology is used within this document:

**ADS-B:** Automatic Dependent Surveillance-Broadcast

**AFM:** Airplane Flight Manual

**AFMS:** Airplane Flight Manual Supplement

**AIM:** Aeronautical Information Manual

**CFR:** Code of Federal Regulations

**GDL:** Garmin Data Link

**GNS:** Garmin Navigation System

**GPS:** Global Positioning System

**GTN:** Garmin Touchscreen Navigator

**ICAO:** International Civil Aviation Organization

**POH:** Pilot Operating Handbook

**SBAS:** Satellite-Based Augmentation System

**SW:** Software

**UAT:** Universal Access Transceiver

**VFR:** Visual Flight Rules

**Section 2. LIMITATIONS**

**2.1 Required Equipment**

The GDL 82 must have the following system interfaces fully functional to be compliant with the requirements for 14 CFR §91.227 ADS-B Out operations:

Interfaced Equipment	Number Installed	Number Required
Mode A/C Transponder	1	1
GPS/SBAS Position Source	1	1

**Table 1 – Required Equipment**

**2.2 ADS-B OUT**

The GDL 82 will only comply with 14 CFR §91.227 for ADS-B OUT when all the above required equipment are operational. If the optional ADS-B OUT FAIL annunciator is installed, it will illuminate when the GDL 82 is not transmitting a valid or complete ADS-B OUT message.

**2.3 Maximum Operating Altitude**

In accordance with 14 CFR §91.225, aircraft with ADS-B Out UAT equipment, operating on 978 MHz and meeting the requirements in TSO-C154c, are limited to operations below 18,000 feet MSL.

Aircraft Operational Ceiling:

- ☐ 18,000 feet (UAT Operating Altitude Limit per AC 20-165B)
- ☐ 15,000 feet (Class B Transponder Equipment Operating Altitude Limit per 14 CFR Part 91.413)

## 2.4 Anonymous Mode Operation (if installed)

In the event the GDL 82 is installed with an ADS-B In device (e.g., GDL 39), when the GDL 82 anonymous mode is initially enabled, the ADS-B In receiver may detect the aircraft's registration number change as a nuisance ownship shadow and report a traffic alert (TA) at the aircraft's location and altitude. This is due to the aircraft's identification changing from the known registration number to "VFR" and a temporary address.

It is not recommended to enable the anonymous mode during flight. To enable the anonymous mode, it must be activated on-ground to avoid receiving an ownship-shadow TA.

Anonymous Mode Switch Installed:

- ☐ YES (comply with anonymous mode operation limitations in AFMS)
- ☐ NO

**Section 3. EMERGENCY PROCEDURES**

**3.1 Emergency Procedures**

No Change.

**3.2 Abnormal Procedures**

**3.2.1 LOSS OF AIRCRAFT ELECTRICAL POWER GENERATION**

When the aircraft electrical charging system becomes inoperative or degraded, avionics will continue to operate for a limited time using aircraft battery power. The pilot should become familiar with electrical load-shedding methods and equipment requirements for the various phases of flight. If an electrical emergency exists or the aircraft’s charging system is compromised, the pilot should consider turning off the GDL 82 to preserve the operation of more essential avionics when using only battery power.

Subject to aircraft equipment electrical load-shedding priorities,

XPDR UAT Circuit Breaker Position ..... **CONSIDER**

**NOTE**

Pulling the XPDR UAT circuit breaker will turn off both the GDL 82 and the companion transponder. ADS-B OUT UAT and transponder functions will no longer be available. Also, without power, the GDL 82’s ADS-B OUT FAIL annunciator will not illuminate.

This guidance is supplementary to any guidance provided in the Pilot’s Operating Handbook (POH) for the \_\_\_\_\_ aircraft for loss of power generation.

**3.2.2 LOSS OF GPS/SBAS POSITION DATA**

When the configured GPS/SBAS receiver is inoperative or GPS position information is not available or invalid, the GDL 82’s ADS-B OUT FAIL annunciator will illuminate. In this case, though the GDL 82 will continue to transmit ADS-B OUT UAT data without a valid GPS position, the ADS-B OUT message is neither complete nor compliant.

ADS-B OUT FAIL Annunciator (if installed).....**ILLUMINATED**

For GDL 82 installations that use an external GPS position source:

Interfaced GPS position source..... **VERIFY GPS POSITION SOURCE IS ON AND FUNCTIONING PROPERLY WITH A VALID POSITION**

Section 4. NORMAL PROCEDURES

The GDL 82 requires no pilot intervention or control for normal operation. The GDL 82 is powered on with avionics and will automatically begin to operate once the configured Mode A/C transponder is set to ALT and a GPS/SBAS position is available.

The pilot may select the Anonymous Mode if the optional Anonymous Mode switch is installed and the transponder code is set to “1200”.

4.1 GDL 82 Unit Power On

Avionics Master .....	<b>ON</b>
Transponder .....	<b>Code set, ALT</b>
Anonymous mode switch (if installed) .....	<b>AS DESIRED</b>
ADS-B OUT FAIL annunciation (if installed) .....	<b>EXTINGUISHED</b>

NOTE

AIM 4-1-20 a. 3. encourages pilots to operate with the transponder in the altitude reporting mode and ADS-B Out transmissions enabled (if equipped) at all airports, any time the aircraft is positioned on any portion of an airport movement area.

If the ADS-B OUT FAIL annunciator is installed, it may illuminate momentarily as the unit powers on and begins to receive input from external systems, including the GPS/SBAS position source. Ensure lamp is operational prior to flight by pressing-to-test.

The configured Mode A/C transponder must be set to ALT and the optional ADS-B OUT FAIL annunciation must be **EXTINGUISHED** for the system to meet the requirements specified in 14 CFR §91.227. This system must be operational in certain airspaces after January 1, 2020 as specified by 14 CFR §91.225.

**Section 5. PERFORMANCE**

No change.

**Section 6. WEIGHT AND BALANCE**

See current weight and balance data.

**Section 7. SYSTEM DESCRIPTION**

The Garmin GDL 82 Quick Reference Pilot’s Guide, part numbers, and revisions listed below contain additional information regarding GDL 82’s system description, function, and optional control and annunciation.

<u><b>Title</b></u>	<u><b>Part Number</b></u>	<u><b>Revision</b></u>
GDL 82 Quick Reference Pilot’s Guide	190-01810-03	Rev. 1 (or later)

Pilot’s Guides for interfaced external GPS/SBAS sources, part numbers and revisions listed below, provide additional operating information for the Garmin GPS Navigators.

<u><b>Title</b></u>	<u><b>Part Number</b></u>	<u><b>Revision</b></u>
Garmin GTN 725/750 Pilot’s Guide	190-01007-03	Rev. E (or later)
Garmin GTN 625/635/650 Pilot’s Guide	190-01004-03	Rev. E (or later)
Garmin GNS 400W Pilot’s Guide & Reference	190-00356-00	Rev. K (or later)
Garmin GNS 500W Pilot’s Guide & Reference	190-00357-00	Rev. K (or later)
GNS 480 Pilot’s Guide	190-00502-00	Rev. D (or later)