



**SECTION 9**

**Supplement AVE5**

**Garmin GNS 430 GPS Navigator  
with VHF NAV and COM**

When the Garmin GNS 430 GPS Navigator with NAV and COM is installed in the AQUILA AT01, this Supplement is applicable and must be inserted in the Supplements Section (Section 9) of the Pilot's Operating Handbook. Information in this supplement either adds to, supersedes, or deletes information of the basic AQUILA AT01 Pilot's Operating Handbook.



Approved by:

Date:

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## 1.0 General

The airplane is equipped with a Garmin GNS 430 Navigator with VHF-NAV and VHF COM herein referred as the „Navigator“.

The GNS 430 is capable of providing IFR enroute, terminal and approach navigation with position accuracies better than 15 meters. In this installation only functions which are necessary for VFR-operation are discussed. The system utilizes the Global Positioning System (GPS) satellite network to derive the airplane`s position (latitude, longitude and altitude).



Figure 1  
Garmin GNS 430 Front Panel

## 2.0 Limitationes

The airplane AQUILA AT01 is limited to operations under the definitions of VFR-day only. The airplane must have other approved navigation equipment, defined as minimum equipment installed and operating appropriate to the route of flight.

The Garmin GNS 430 Navigator is listed and installed as optional equipment the failure of which is uncritical in all operations of flight.

## 3.0 Emergency Procedures

If GPS Navigator information is not available or is invalid, utilize remaining operational navigation equipment as required. (see also Section 2)

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## 4.0 Normal Procedures

Normal operating procedures are outlined in the „Garmin GNS 430 Pilot’s Guide and Reference“ (Rev. A, dated Dec. 1998 or later appropriate revision). It is recommended because of the variety and complexity of the functions to have the original manual on board the airplane.

### 4.1 Activate GPS

- |    |                             |            |
|----|-----------------------------|------------|
| 1. | Battery Master Switch       | ON         |
| 2. | Avionics Master Switch      | ON         |
| 3. | Navigator COM /Power Switch | Rotate, ON |

The Navigator will display a welcome page while the self-test is in progress. When the self-test is successfully completed, the Navigator asks for NavData database confirmation, acquires position and then displays the acquired position on the Navigator’s display.

NOTE

The GPS Navigator utilizes altitude information from the altitude encoder’s altitude digitizer to enhance altitude information.

### 4.2 Deactivate GPS

- |    |                             |                                 |
|----|-----------------------------|---------------------------------|
| 1. | Navigator COM /Power Switch | Rotate , OFF (counterclockwise) |
|----|-----------------------------|---------------------------------|

## 5.0 Performance

No change from basic handbook

## 6.0 Weight & Balance

No change from basic handbook

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## 7.0 Systems Description

NOTE
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This supplement provides a general description of the Garmin GNS 430, its operation and its integration in the instrument panel of the Aquila AT01 airplane. For a detailed description of the GNS 430 and full operation instructions refer to the „Garmin GNS 430 Pilot’s Guide and Reference“ (Revision A, dated Dec. 1998 or later appropriate revision).

### ***GPS 430 Integrated GPS/NAV/COM System***

The airplane is equipped with a GNS 430 integrated GPS-Navigator, NAV receiver and COM transceiver. The GPS Navigator consists of a GPS receiver, a navigation computer and a Jeppesen NavData database all contained in the GNS 430 control unit mounted in the center console of the instrument panel.

A VHF NAV receiver and tuner for receiving VHF Omni-range (VOR), Localizer (LOC) and Glideslope (G/S) is also integrated into the control unit. Additionally a VHF communications receiver is also integrated into the unit.

The following paragraphs describe the GPS, NAV and COM functions of this unit.

For a complete description, as well as full operating instructions, refer to the Garmin GNS 430 Pilot’s Guide and Reference.

### ***GPS Navigator***

The GNS 430 is capable of providing IFR enroute, terminal and approach navigation with position accuracies better than 15 meters. In this installation only functions which are necessary for VFR-operation are discussed. The system utilizes the Global Positioning System (GPS) satellite network to derive the airplane’s position (latitude, longitude and altitude).

The GPS-antenna is located behind the rear window in the center of the upper fuselage. All GPS and navigator controls are accessible through the GNS 430 front control panel located in the center console. The panel includes function keys, power switches, status annunciators a LCD-colour display, two concentric selector knobs on each panel and a card slot for the Jeppesen NavData card.

The GPS-Navigator is powered by 14 VDC through the 3 Amp GPS circuit breaker placed on the right side of the instrument panel.

The Jeppesen Navigation Database provides access to data on airports, approaches, and VOR’s and NDB’s frequencies.

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North American and International databases are available. Database information is provided on a card that can be inserted into the card slot on the GPS unit. Subscription information is provided in a subscription package provided with each system.

**Navigation-Receiver (NAV)**

The Garmin GNS 430 system provides an integrated Navigation (NAV) receiver with VHF Omnitrange/Localizer (VOR/LOC) and Glideslope capability.

The VOR/LOC receiver receives on a frequency range from 108.000 Mhz to 117.950 Mhz with 50 Khz spacing.

The NAV-receiver controls are integrated into the Garmin GNS 430 control mounted in the center console. The receiver control provides active and standby frequency indication, frequency memory storage and knob operated frequency selection. IDENT Audio output for VOR and LOC is provided to the audio system.

The NAV-antenna is located on the fuselage ground behind the baggage bulkhead.

The Navigation receiver is powered by 14 VDC through the Avionic Master Switch and a 10 Amp COM/NAV circuit breaker placed on the right side of the instrument panel.

**COM Transceiver (COM)**

The Garmin GNS 430 system includes a digitally tuned integrated VHF communications transceiver. The transceiver and integrated controls are mounted in the Garmin GNS 430 unit. The transceiver receives all narrow- and wide-band VHF communication transmissions transmitted within a frequency range of 118.000 MHz to 136.975 MHz in 25.0 kHz steps (720 channels).

For European operations, the COM can be operator configured for 8.33kHz channel spacing (2280 channels).

The tuning controls are collocated with the NAV at the left side of the GNS 430 front panel. Frequency tuning is accomplished by rotating the large and small concentric knobs to select a standby frequency and then transferring the frequency to the active window. The COM frequency display window is at the upper left corner of the GNS 430 display. Auto-tuning can be accomplished by entering a frequency from the window.

The COM 1 Antenna is placed inside the upper part of the vertical tail.

The Navigation receiver is powered by 14 VDC through the Avionic Master Switch and a 10 Amp COM/NAV circuit breaker placed on the right side of the instrument panel.

When a second COM/NAV receiver is installed, the GNS 430 is powered by the circuit breaker COM/NAV 1“ and the additional COM/NAV is powered by an additional circuit breaker „COM/NAV 2“. The antenna for the COM2 receiver is mounted on the underside of the behind the baggage compartment as bent whip antenna type.

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