

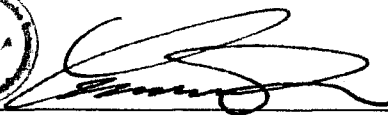
SECTION 9

Supplement AVE12

Garmin GTX 330 Transponder

When a Garmin GTX 330 Mode-S Transponder is installed in the AQUILA AT01, this Supplement is applicable and must be inserted in the Supplements Section (Section 9) of the Airplane Flight Manual (AFM). Information in this supplement either adds to, supersedes, or deletes information of the basic AQUILA AT01 Pilot's Operating Handbook.

Approved by: _____



Date: _____

30.6.05

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1.0 General

This Supplement supplies together with the original Garmin Pilot’s Guide for the GTX 330 the information necessary for the efficient operation of the airplane when the Transponder GTX 330 is installed.

2.0 Operating Limitations

- Display of TIS traffic information is advisory only and does not relieve the pilot of the responsibility to ‘see and avoid’ other airplanes. Airplane maneuvers shall not be predicated on the TIS displayed information.
- Display of TIS traffic information does not constitute a TCAS I or TCAS II collision avoidance System as required by 14 CFR Part 121 or Part 135.

NOTE

The GTX 330 Mode S Transponder provides a data link for Traffic Information Service (TIS). TIS is presently only available in North America.

3.0 Emergency Procedures

To transmit an emergency Signal:

- ALT Key: PRESS
- Numeric Keys O-7: Select 7700 operating Code

To transmit a Signal representing loss of all communication (when in a controlled airspace):

- ALT Key: PRESS
- Numeric Keys O-7: Select 7600 operating Code

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4.0 Normal Procedures

NOTE

Expected coverage from the GTX 330 is limited to „line of sight“. Low altitude or aircraft antenna shielding by the airplane itself may result in reduced range. Range can be improved by climbing to a higher altitude.

4.1 After Engine Start

1. Avionic Master Switch ON

The transponder will turn ON into standby (STBY) mode.
The transponder is ON but will not respond to interrogations from ATC secondary surveillance radar.

4.2 Before Take Off

1. Transponder Mode Selector Keys ALT

In this mode the transponder will respond in Mode A and Mode C (altitude and identification) interrogations from ATC and TCAS equipped aircraft.

NOTE

Selecting ON puts the transponder in Mode A (identification) only. The transponder will respond to Mode C (altitude) interrogations with signals that contain no altitude information.

4.3 After Landing

1. Transponder Mode Selector Keys STBY or OFF

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5.0 Performance

No change from basic handbook

6.0 Weight & Balance

Upon removal or installation of the Transponder GTX 330 the change of empty mass and corresponding Center of gravity of the airplane must be recorded according to chapter 6 of the Airplane Flight Manual (AFM).

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7.0 Aircraft- and Systems Description

NOTE

This supplement provides a general description of the Garmin GTX 330 transponder, its operation and its integration in the instrument panel of the Aquila AT01 airplane. For a detailed description of the GTX 330 and full operation instructions refer to the „Garmin GTX 330 Mode S Transponder Pilot`s Guide (Revision A, dated Sept. 2002 or later appropriate revision).

The Garmin GTX 330 transponder system consists of the integrated receiver/transmitter control unit, an antenna and an altitude digitizer.

The Garmin GTX 330 Panel mounted Mode S Transponder is a radio transmitter and receiver that operates on radar frequencies, receiving ground radar or TCAS interrogations at 1030 MHz and transmitting a coded response of pulses to groundbased radar on a frequency of 1090 MHz. The GTX 330 is equipped with IDENT capability that activates the Special Position Identification (SPI) pulse for 18 seconds. Mode S transmit/receive capability also requires 1090 MHz transmitting and 1030 MHz receiving for Mode S functions.

In addition to displaying the Code Reply Symbol and Mode of Operation, the GTX 330 Screen will display pressure altitude, and timer functions. The unit also features an altitude monitor and flight timers. A voice or tone audio output announces altitude deviation and count down timer expiration.

To activate the transponder the Battery Main Switch as well as the Avionic Master Switch have to be in position ON.

The GTX 330 transponder is powered ON by pressing the STBY, ALT or ON keys. After Power ON a start-up page will be displayed while the unit performs a self test.

Mode Selection Keys

- OFF -** Powers off the GTX 330. Pressing STBY, ON or ALT key powers on the transponder displaying the last active identification Code.
- STBY -** Selects the standby mode. When in STBY the transponder will not reply to any interrogations.
- ON-** Selects Mode A. In this mode the transponder replies to interrogations, as indicated by the Reply Symbol ('R'). Replies do not include altitude information.
- ALT -** Selects Mode A and Mode C. In ALT mode the transponder replies to identification and altitude interrogations as indicated by the Reply Symbol

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(‘R’). Replies to altitude interrogations include the Standard Pressure Altitude received from an external altitude source, which is not adjusted for barometric pressure.

Any time the function ON or ALT is selected the transponder becomes an active part of the Air Traffic Control Radar Beacon System (ATCRBS). The transponder also responds to interrogations from TCAS equipped airplanes.

Code Selection

Code selection is done with eight keys (0 - 7) that provide 4096 active identification codes. Pushing one of these keys begins the code selection sequence. The new code will not be activated until the fourth digit is entered. Pressing the CLR key will move the cursor back to the previous digit. Pressing the CLR key when the cursor is on the first digit of the Code, or pressing the CRSR key during code entry, will remove the cursor and cancel data entry, restoring the previous code. You may press the CLR key up to five seconds after code entry is complete to return the cursor to the fourth digit. The numbers 8 and 9 are not used for code entry, only for entering a count down time, contrast and display brightness, and data selection in the Configuration Mode.

Keys for other GTX 330 Functions

- IDENT -** Pressing the IDENT key activates the Special Position Identification (SPI) Pulse for 18 seconds, identifying your transponder return from others on the air traffic controller’s Screen. The word ‘IDENT’ will appear in the upper left corner of the display while the IDENT mode is active.
- VFR -** Sets the transponder code to the pre-programmed VFR code selected in Configuration Mode. Pressing the VFR button again will restore the previous identification code.
- FUNC -** Changes the page shown on the right side of the display. Displayed data includes Pressure Altitude, Flight Time, Count up timer and Count down timer. In the Configuration Mode Steps through the function pages.
- START/STOP -** Starts and Stops the Altitude Monitor, Count Up, Count Down and Flight timers. In Configuration Mode, Steps through functions in reverse .

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- CRSR -** Initiates starting time entry for the Count Down timer and cancels transponder code entry. Returns cursor to last code digit within five seconds after entry. Selects changeable fields in Configuration Mode.

- CLR -** Resets the Count Up, Count Down and Flight timers. Cancels the previous keypress during code selection and Count Down entry. Returns cursor to the fourth code digit within five seconds after entry. Used in Configuration Mode.

- 8 -** Reduces Contrast and Display Brightness when the respective fields are displayed and enters the number eight into the Count Down timer. Used in Configuration Mode.

- 9 -** Increases Contrast and Display Brightness when the respective fields are displayed and enters the number nine into the Count Down timer. Used in Configuration Mode.

Function Display

Pressure ALT: Displays the altitude data supplied to the GTX 330 in feet, hundreds of feet (i.e., flight level), or meters, depending on configuration.

Flight Time: Displays the flight time, which is controlled by the START/STOP and CLR keys.

Altitude Monitor: Controlled by the START/STOP key. Activates a voice alarm when altitude limit is exceeded.

Count Up Timer: Controlled by START/STOP and CLR keys.

Count Down Timer: Controlled by START/STOP, CLR, and CRSR keys. The initial Count Down time is entered with the 0 - 9 keys.

Contrast: This page is only displayed if manual contrast mode is selected in Configuration Mode. Contrast is controlled by the 8 and 9 keys.

Display Brightness: This page is only displayed if manual backlighting mode is selected in Configuration Mode. Backlighting is controlled by the 8 and 9 keys.

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Altitude Trend Indicator

When the 'PRESSURE ALT' page is displayed, an arrow may be displayed to the right of the altitude, indicating that the altitude is increasing or decreasing. Two sizes of arrows may be displayed depending on the rate of climb/descent. The sensitivity of these arrows is set using the GTX 330 Configuration Mode.

Timer Operation

TO OPERATE THE FLIGHT TIMER:

1. Press the FUNC key until 'FLIGHT TIME' is displayed.
2. If desired, you may press START/STOP to pause or restart the timer.
3. Press CLR to reset the timer to Zero.

TO OPERATE THE COUNT UP TIMER:

1. Press the FUNC key until 'COUNT UP' is displayed.
2. If necessary, press CLR to reset the Count Up timer to Zero.
3. Press START/STOP to count up.
4. Press START/STOP again to pause the timer.
5. Press CLR to reset the timer to Zero.

TO OPERATE THE COUNT DOWN TIMER:

1. Press the FUNC key until 'COUNT DOWN' is displayed.
2. Press CRSR and use the 0 - 9 keys to set the initial time. All digits must be entered (use the 0 key to enter leading Zeros).
3. Press START/STOP to count down.
4. Press START/STOP again to pause the timer.

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5. When the Count Down timer expires, the words 'COUNT DOWN' are replaced with a flashing 'EXPIRED', and the time begins counting up.
6. Press CLR to reset the timer to the initial time value.

Automatic ALT/GND Mode Switching

If the GTX 330 is configured with Automated Airborne Determination, normal Operation begins when liftoff is sensed. When the airplane is on the ground the Screen automatically displays GND. The transponder does not respond to ATCRBS interrogations when GND is annunciated. When a delay time is set in the Configuration Mode, the GTX 330 waits a specified length of time after landing before changing to GND mode.

Failure Annunciation

If the unit detects an internal failure, the screen displays FAIL.

GTX 330 Mode S Transponder Features

Traffic Information Service

The GTX 330 Mode S transponder provides a data link for Traffic Information Service (TIS). TIS is presently only available in North America. TIS provides a graphic display of traffic information in the cockpit for non-TCAS equipped airplanes. Transponder equipped airplanes can be displayed within the coverage volume on indicators such as a Garmin GNS 430 or GNS 530, within range of your position. Airplanes without an operating transponder are invisible to TIS. Refer to 400/500 series pilot literature for details.

Mode S Data transmission

In addition to 4096 Codes and pressure altitude, the GTX 330 is capable of transmitting airplane registration number or flight ID, transponder capability and maximum speed range.

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Audio Alerts

(Configuration Options: male/female voice or tone and volume level.)

- 'Leaving Altitude': Altitude deviation exceeded.
- 'Traffic': TIS traffic alert is received.
- 'Traffic Not Available': TIS Service is not available or out of range.
- 'Timer Expired': for Count Down time.

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