

**ENSTROM F-28F/280FX OPERATOR'S  
MANUAL  
AND  
FAA APPROVED  
ROTORCRAFT FLIGHT MANUAL  
SUPPLEMENT  
GTX 330 TRANSPONDER WITH ADS-B OUT**

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HELICOPTER SERIAL NO. \_\_\_\_\_

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**THIS SUPPLEMENT MUST BE CARRIED IN THE  
HELICOPTER AT ALL TIMES IF EQUIPPED WITH THE  
GTX 330 INSTALLATION. CHAPTERS 1, 2, 3, AND 4  
ARE FAA APPROVED.**

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APPROVED FOR THE MANAGER  
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**ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**  
**GTX 330 TRANSPONDER WITH ADS-B OUT**

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GTX 330 TRANSPONDER WITH ADS-B OUT**

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**GTX 330 TRANSPONDER WITH ADS-B OUT****INTRODUCTION****Intro-1. General**

This supplement contains the operating instructions, procedures, and limitations for the Garmin GTX 330 Transponder with Automatic Dependent Surveillance-Broadcast (ADS-B) OUT functionality.

The supplement is divided into two basic parts, the FAA approved RFM Supplement and Supplemental Data provided by the Enstrom Helicopter Corporation (Enstrom). Chapters 1, 2, 3, and 4 make up the FAA approved RFM Supplement. It is required by Federal Regulations that this supplement be carried in the helicopter at all times if the Garmin GTX 330 with ADS-B Out is installed.

**Intro-2. List of Abbreviations**

Abbreviations noted in this supplement are listed in Intro-1.

**Intro-1. List of Abbreviations**

ADS-B	Automatic Dependent Surveillance-Broadcast
ATC	Air Traffic Control
CFR	Code of Federal Regulations
ES	Extended Squitter
FAA	Federal Aviation Administration
GPS	Global Positioning System
ICS	Intercom System
MHz	Megahertz
PABI	Pressure Altitude Broadcast Inhibit
RFM	Rotorcraft Flight Manual
SBAS	Satellite-Based Augmentation System
TCAS	Traffic Collision Avoidance System
TX	Transmit
VOX	Voice Transmission

INTRO-2 ENSTROM F-28F/280FX RFM SUPPLEMENT

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## CHAPTER 1. OPERATING LIMITATIONS

### 1-1. Minimum Equipment

1. The GTX 330 with ADS-B Out must have the following system interfaces fully functional in order to be compliant with the requirements of 14 CFR 91.227 ADS-B Out operations:

**Table 1-1. ADS-B Out Required Equipment**

<b>Interfaced Equipment</b>	<b>Number Installed</b>	<b>Number Required</b>
Uncorrected pressure altitude source	1	1
GPS SBAS position source	1	1
GTN series navigator	1	1

### 1-2. ADS-B Out

1. The GTX 330 only complies with 14 CFR 91.227 for ADS-B Out when all required functions are operational. When the system is not operational, ADS-B Out transmit failure messages will be annunciated on the GTX display.

### 1-3. Software Version

1. The system must utilize the software version 7.04 (or later FAA approved version). The software version is displayed on the front panel of the GTX 330 during system start-up.

### 1-4. Pressure Altitude Broadcast Inhibit (PABI)

1. Pressure Altitude Broadcast Inhibit shall only be enabled when requested by ATC while operating within airspace requiring an ADS-B Out compliant transmitter, per 14 CFR 91.227. PABI is enabled by selecting the GTX to **ON** mode. Pressure altitude will be broadcast in **ALT** mode.

1-2 ENSTROM F-28F/280FX RFM SUPPLEMENT

**1-5. Placards**

1. A placard in close proximity to the GTX 330 shall state:

**ADS-B OUT INSTALLED**

**NOTE**

**The ADS-B Out system operates on frequency 1090 MHz. This frequency is also accepted for ADS-B Out equipment in most countries**

**1-6. Pilot's Guide**

1. The GTX 330/330D Pilot's Guide, Part Number 190-00207-00, Revision G (or later revision), should be referred to for operating instructions. It must be kept accessible to the flight crew at all times.
2. The GTN 625/635/650 Pilot's Guide, P/N 190-01004-03 Rev. H (or later revision), or the GTN 625/635/650 Cockpit Reference Guide, Part Number 190-01004-04, Revision G (or later revision), should be referred to for interfaced displays, transponder control, and GPS source operation. It must be kept accessible to the flight crew at all times.

## CHAPTER 2. NORMAL PROCEDURES

### 2-1. General

Refer to the basic RFM for procedures not specific to the GTX 330.

### 2-2. ADS-B Out Operation

#### NOTE

**The installed ADS-B Out System has been shown to meet the equipment requirements of 14 CFR 91.227.**

#### NOTE

**The ADS-B Out system must be operational (“NO ADSB” annunciator extinguished before takeoff) in certain airspaces after January 1, 2020, as specified by 14 CFR 91.225.**

The ADS-B Out system is a single point of entry system for Mode 3/A code, Flight ID, IDENT functionality and activating or deactivating emergency status for both transponder and ADS-B Out functions. Parameters are set in the transponder at the time of installation and are automatically incorporated in ADS-B Out broadcasts.

1. ADS-B system operation defaults to ON at each power cycle.
2. The “NO ADSB” annunciation (or associated display annunciations) may illuminate as the unit powers on and begins to receive input from external systems.
3. Before takeoff, the “NO ADSB” annunciation must be extinguished for the system to meet the requirements specified 14 CFR § 91.227.

**NOTE**

**ADS-B Out may be required in certain airspace. Do not turn off ADS-B OUT unless directed by air traffic control.**

**NOTE**

**The annunciation “NO ADSB” appears in the upper left corner of the GTX 330 when the ADS-B TX is manually turned off or when there is a transmission malfunction.**

## **CHAPTER 3. EMERGENCY PROCEDURES**

### **3-1. General**

Refer to the basic RFM for emergency procedures not specific to the GTX 330.

### **3-2. Abnormal Procedures**

The loss of an interfaced input to the GTX 330 may cause the transponder to stop transmitting ADS-B Out data.

If the GTX 330 detects a loss of adequate GPS position data or if the ADS-B TX (transmit) is selected OFF, the GTX 330 will annunciate this event via the “NO ADSB” annunciator on the GTX display screen.

When the GTX 330 annunciates “FAIL”, the GTX 330 has detected an internal failure and no transponder data is transmitted.

1. In the event of either a “NO ADSB” or a “FAIL” annunciation, verify proper operation of all interfaced equipment (Table 1-1).

### **3-3. Loss of Aircraft Electrical Power Generation**

1. In the event of loss of electrical power generation, remove power from the GTX 330. ADS-B Out data will not be available.

### **3-4. Loss of GPS/SBAS Navigation Data**

1. In the event of an inoperative GPS/SBAS receiver or unavailable or invalid GPS position information, ADS-B Out data will not be transmitting from the GTX 330. The annunciation “NO ADSB” will be displayed on the GTX display screen.

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## **CHAPTER 4. PERFORMANCE DATA**

### **4-1. General**

No change. Refer to the basic RFM.

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## **CHAPTER 6. WEIGHT/BALANCE AND LOADING**

### **6-1. General**

This installation is included in the basic aircraft weight.

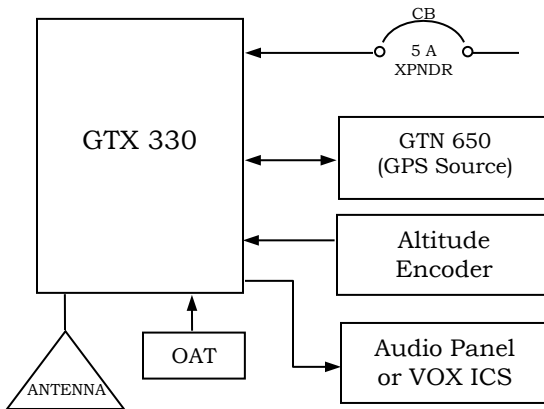
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## CHAPTER 7. SYSTEM DESCRIPTION AND OPERATION

### 7-1. System Description

1. The GTX 330, a Mode S transponder, is a radio transmitter/receiver that operates on radar frequencies, receiving ground radar or TCAS interrogations at 1030 MHz and transmitting a coded response of pulses to ground-based radar on a frequency of 1090 MHz. The configured ES option provides ADS-B extended squitter functionality.
2. The GTX 330 performs the following ADS-B Out functions:
  - Transmission of ADS-B Out data on 1090 extended squitter (1090ES) (1090 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 Code, IDENT, and Emergency Status
  - Pressure Altitude Broadcast Inhibit
3. The GTX 330 with ADS-B Out installation configuration includes the equipment interfaces shown in Figure 7-1.
  - a. “Traffic” and “Traffic Not Available” audio alerts are available only if the installation is interfaced to a traffic avoidance system.

4. Power to the GTX 330 is provided via the **XPNDR** circuit breaker (CB) (5 Amp) located on the left side of the instrument console.



**Figure 7-1. GTX 330 with ADS-B Out System Interface**

## 7-2. Operation

1. Position the **AVI MSTR** switch to ON to apply system power, if not already switched on.
  - a. Press either the **STBY**, **ALT**, or **ON** keys to turn on the unit.
  - b. After power-on, a start-up page is displayed while the system performs a self-test. If the unit detects an internal failure, the screen displays FAIL.
  - c. Press the **OFF** key to power off the unit. Switching the **AVI MSTR** switch to OFF will also turn off the unit.
2. The Garmin GTX 330/330D Pilot's Guide contains additional information regarding GTX system description, control, and function. The Garmin GTN 625/635/650 Cockpit Reference Guide contains additional information for interfaced operation and display.