

**ENSTROM F-28F/280FX OPERATOR'S MANUAL
AND
FAA APPROVED
ROTORCRAFT FLIGHT MANUAL
SUPPLEMENT
GARMIN GNC 255A NAV/COM TRANSCEIVER**

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REPORT NO. 28-AC-074

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HELICOPTER SERIAL NO. _____

HELICOPTER REGISTRATION NO. _____

**THIS SUPPLEMENT MUST BE CARRIED IN THE
HELICOPTER AT ALL TIMES IF EQUIPPED WITH THE
GARMIN GNC 255A NAV/COM INSTALLATION.
CHAPTERS 1, 2, 3, AND 4 ARE FAA APPROVED.**

FAA APPROVED.  _____

MANAGER, SOUTHWEST FLIGHT TEST SECTION, AIR-713
FEDERAL AVIATION ADMINISTRATION
FT. WORTH, TX


DATE 12/6/17 _____

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LOG OF REVISIONS

Rev. No.	Date	FAA Approved
	12/6/17	 (E. Kinney)

APPROVED BY THE MANAGER
SOUTHWEST FLIGHT TEST SECTION, AIR-713
FEDERAL AVIATION ADMINISTRATION
FT. WORTH, TX

EASA LOG OF REVISIONS

Rev. No.	Date	EASA Approved	FAA Approval on Behalf of EASA

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INTRODUCTION

Intro-1. General

This supplement contains the operating instructions, procedures, and limitations for the Garmin GNC 255A NAV/COM and, if equipped, the Mid-Continent Instruments MD200-() CDI.

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 GNC 255A NAV/COM is installed.

For additional information regarding the supplement format and text emphasis or definitions, refer to the Basic Flight Manual. Abbreviations noted in this supplement are listed in Table Intro-1.

Intro-1. List of Abbreviations

ACC	Air Control Center
AMP	Amperage
APT	Airport
AVI	Avionic
CB	Circuit Breaker
CCW	Counter Clockwise
CDI	Course Deviation Indicator
COM	Communication
CRSR	Cursor
CW	Clockwise
DME	Distance Measuring Equipment
FAA	Federal Aviation Administration
FSS	Flight Service Station
GS	Glideslope
ICS	Intercom System
ID	Identifier
kHz	Kilohertz

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

LOC	Localizer
MSTR	Master
MHz	Megahertz
MIC	Microphone
NAV	Navigation
OBS	Omni Bearing Selector
POW	Power
RFM	Rotorcraft Flight Manual
RX	Receive
STB	Standby
TX	Transmit
USB	Universal Serial Bus
VHF	Very High Frequency
VOL	Volume
VOR	VHF Omni-Directional Range
VOX	Voice Activated
W	Watt
WX	Weather

CHAPTER 1. OPERATING LIMITATIONS

1-1. Purpose

This chapter includes operating limitations and restrictions that must be observed during ground and flight operations.

1-2. General

The operating limitations set forth in this chapter are the direct results of design analysis and flight tests. Compliance with these limitations will allow the pilot to derive maximum utility from the helicopter.

1-3. Operational Limits

1. This RFM supplement is intended for use with the GNC 255A NAV/COM. If so equipped, this supplement provides data regarding system interface with the MD200-() CDI.
2. The Pilot's Guide for the GNC 255A, Part Number 190-01182-01, Revision B, or later revision, should be referred to for operating instructions. It must be kept accessible to the flight crew at all times.
3. An aircraft radio station license is not required in U.S. airspace but may be required when operating internationally.
4. The GNC 255A must utilize the software versions listed below.

GNC 255A Approved Software Version	
Display	2.12
Nav	6.02
Com	2.20

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CHAPTER 2. NORMAL PROCEDURES

2-1. General

Refer to the basic RFM.

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CHAPTER 3. EMERGENCY PROCEDURES

3-1. Electrical System Failure

Refer to the basic RFM.

3-2. Stuck Mic

A “Stuck Mic” message will display on the GNC 255A if the microphone sticks in the ON or Transmit position. If the microphone is keyed for longer than 35 seconds, the GNC 255A will return to the receive mode on the selected frequency.

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CHAPTER 4. PERFORMANCE DATA

4-1. General

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. Refer to the basic RFM.

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CHAPTER 7. SYSTEM DESCRIPTION AND OPERATION

7-1. System Description

The GNC 255A is a VHF communications transceiver combined with 200-channel VOR, LOC, and GS navigation receivers. The com radio operates from 118.000 to 139.975 MHz in either 25 kHz or 8.33 kHz channel spacing. Transmitting power is 10W. Features of the GNC 255A include automatic decoding of the Morse code station identifier for VOR/LOC, memory storage for most-used frequency, built-in course deviation indicator, standby Com and Nav frequency monitoring, Nav receiving for both VOR and LOC navigation signals, and built in Glideslope receiver.

The GNC 255A provides output to a VOR/LOC/GS indicator, such as the MD200-(), to provide a visual presentation of VOR, LOC, and GS information (refer to paragraph 7-17 for MD200-() operation). The GNC 255A is also interfaced with either a VOX ICS or an audio panel. When interfaced with a GPS receiver, the GNC 255A can report the 25 nearest APT, ACC, FSS, WX, and VOR frequencies. The system interface is shown in Figure 7-1.

- Power to the GNC 255A unit is provided via the **COM (COM, COM 1, or COM 2)** circuit breaker (5 Amp) and the **NAV (NAV, NAV 1, or NAV 2)** circuit breaker (2 Amp) located on the left side of the center pedestal.

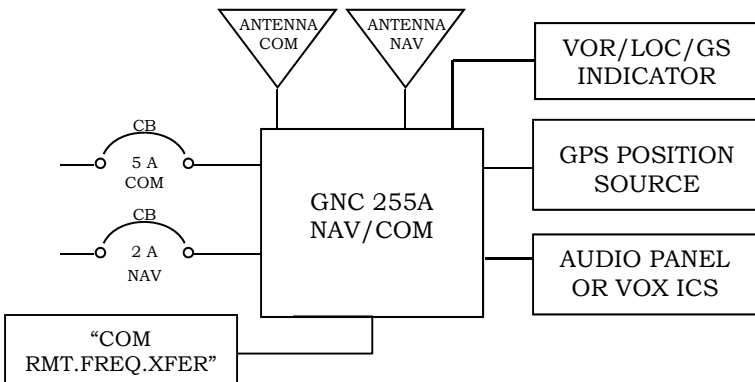


Figure 7-1. GNC 255A System Interface

7-2 ENSTROM F-28F/280FX RFM SUPPLEMENT

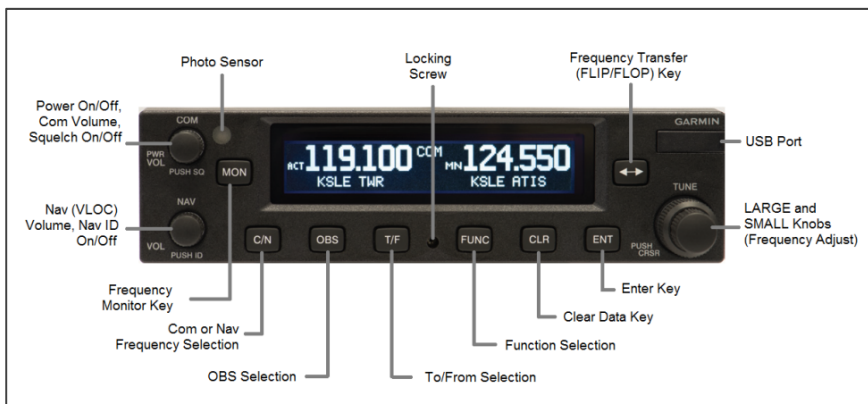


Figure 7-2. GNC 255A Display

7-2. Controls and Basic Operation

The GNC 255A controls are shown in Figure 7-2. Table 7-1 briefly describes the controls and functions.









Basic operation steps begin in paragraph 7-3.

Refer to the Garmin GNC 255A Pilot's Guide for complete operational instructions, including use of the Functions key for managing frequencies and performing database updates.

7-3. Power On

1. Position the **AVI MSTR** switch to ON to apply system power, if not already switched on.
2. Rotate **PWR/COM/VOL** knob CW past the detent to turn unit power on.

Table 7-1. GNC 255A Controls

Control	Function
PWR/COM/VOL	Rotate to turn power On/Off and control Com audio volume. Press to toggle automatic squelch control On/Off for the Com radio.
NAV/VOL	Rotate to control Nav audio volume. Press to hear Morse code tones
TUNE/CRSR	Rotate LARGE/SMALL knobs to tune frequencies and enter data.
FLIP/FLOP 	Press and release to switch between Active and Standby frequency. (The remote frequency transfer button on the cyclic (if equipped) performs the same function.)
C/N (COM/NAV) 	Press to select Com or Nav mode.
OBS 	Press to see current OBS setting and graphic CDI.
T/F (TO/FROM) 	Press to toggle between bearing TO or radial FROM the active VOR.
CLR (CLEAR) 	Press to erase information, cancel entries, and reset timer.
ENT (ENTER) 	Press to save selected values, confirm a prompt, or to save the Standby frequency.
FUNC (FUNCTION) 	Press to access radio, ICS, system, and timer configurations. Press again to exit the Function mode.
MON (MONITOR) 	Press to monitor the Standby frequency while listening to the Active frequency.
USB Port	Use the USB port to update the frequency database.

7-4. Selecting a Com Frequency

1. Press **C/N**, if necessary, to access the Com radio function. The COM annunciation will appear on the display (Figure 7-3).
2. Turn the **LARGE TUNE** knob to change the values in one MHz increments. Turn the **SMALL TUNE** knob to change the values in 25 kHz or 8.33 kHz increments.
3. Turn the **LARGE** and **SMALL TUNE** knobs CW to increase and CCW to decrease the frequency values. Standby frequency selection is not inhibited during transmit. (When connected to a position source, nearby station identifiers will be shown for the selected frequency. An asterisk next to the identifier indicates multiple types.)
4. Press and release the **FLIP/FLOP** key or the remote frequency transfer button on the cyclic (if equipped) to toggle the Standby frequency to the Active frequency.
5. Rotate the **PWR/COM/VOL** knob to desired volume level.
6. To override the automatic squelch function, press the **PWR/COM/VOL** knob momentarily. Press the knob again to return to automatic squelch operation.

NOTE

Refer to Figure 7-3 for Com annunciator display descriptions.

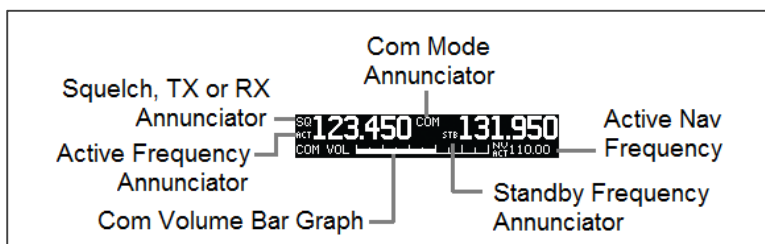


Figure 7-3. Com Frequency Selection

7-5. Monitoring the Standby Com Frequency

1. Press the **MON** key in the Com function to listen to the standby frequency. The 'MN' annunciation will replace the 'STB' annunciation to the left of the Standby frequency.

7-6. Saving a Com Channel into the Com User Frequency Database

NOTES

When switching from 8.33 kHz to 25 kHz mode, any 8.33 kHz-specific user frequencies will be deleted from the user frequency list.

The Com User Frequency Database can store up to 15 frequencies.

1. Press **ENT**. The Standby frequency is selected and the Waypoint name field will be active.
2. Turn the SMALL knob to select characters.
3. Turn the LARGE knob to move the cursor.
4. Press **ENT** after selecting the desired characters.
5. Turn the LARGE knob to select Waypoint type.
6. Turn the SMALL knob to select the type from the list.
7. Press **ENT** after selecting the desired characters.
8. To recall a saved frequency, see paragraph 7-10.

7-7. Emergency Channel

1. Press and hold the **FLIP/FLOP** key or the remote frequency transfer button on the cyclic (if equipped) for approximately two seconds.
2. The Emergency Channel will be inserted into the Active Frequency position and the previous Active Frequency will become the Standby Frequency.

7-8. Selecting a Nav Frequency

1. Press **C/N**, if necessary, to access the Nav radio function. The NAV annunciation will appear on the display (Figure 7-4).
2. Turn the **LARGE TUNE** knob to change the values in one MHz increments. Turn the **SMALL TUNE** knob to change the values in 25 kHz or 8.33 kHz increments.
3. Turn the **LARGE** and **SMALL TUNE** knobs CW to increase and CCW to decrease the frequency values. Standby frequency selection is not inhibited during transmit.
4. Press and release the **FLIP/FLOP** key to toggle the Standby frequency to the Active frequency.
5. Press the **NAV/VOL** knob to hear Morse code tones.

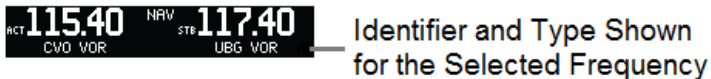


Figure 7-4. Nav Frequency Selection

7-9. Saving a Nav Channel into the Nav User Frequency Database

NOTE

The Nav User Frequency Database can store up to 15 frequencies.

1. Press **ENT**. The Standby frequency is selected and the Waypoint name field will be active.
2. Turn the **SMALL** knob to select characters.
3. Turn the **LARGE** knob to move the cursor.
4. Press **ENT** after selecting the desired characters.
5. Turn the **LARGE** knob to select Waypoint type.
6. Turn the **SMALL** knob to select the type from the list.
7. Press **ENT** after selecting the desired characters.
8. To recall a saved frequency, see paragraph 7-10.

7-10. Recalling a Saved Com or Nav User Frequency

1. Press the **FUNC** key. Turn the **LARGE** knob to select the Com or Nav Frequency Function, as desired.
2. Turn the **SMALL** knob to view the Com or Nav User Frequency function. Then, press **ENT**.
3. Turn the **SMALL** knob to scroll through the list of User frequencies.
4. Press **ENT** to copy the frequency into the Standby frequency location.
5. Press and release the **FLIP/FLOP** key to swap the Active and Standby frequencies.
6. Refer to the GNC 255A Pilot's Guide for additional database information.

7-11. Listening to the Nav Audio Channel

1. Press the **NAV/VOL** knob to enable Nav ident. The ID annunciation will appear to the left of the active Nav frequency.
2. If interfaced with an audio panel, press the applicable NAV key on the audio panel to hear the selected frequency information.
3. If interfaced with an ICS/VOX system, toggle the remote NAV audio switch located on the lower side of the instrument panel to hear the selected frequency information.
4. Rotate the **NAV/VOL** knob to adjust the volume.

7-12. OBS Mode

1. Press the **OBS** key to see the current OBS setting and graphic CDI.
2. Use the **LARGE** and **SMALL** knobs to change the displayed OBS values.

7-13. Distance/Speed/Time (DST) Display

DST data is available when input is received from a GPS receiver or DME sensor device. When so equipped, press the **T/F** key to show DST data in the lower part of the display (Figure 7-5). This display is not available if an external GPS or DME sensor is not connected.

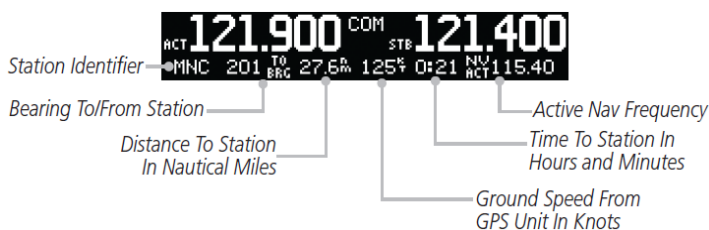


Figure 7-5. DST Data Display

7-14. Display Messages

When a message is displayed, press the **ENT** key to acknowledge the message and return to the previously viewed page. Pressing the **ENT** key will not correct the condition. Refer to the GNC Pilot's Guide for the message descriptions and course of action for troubleshooting.

7-15. Database Updates

Refer to the GNC 255A Pilot's Guide for updating database information.

7-16. Display Brightness and Contrast

The GNC 255A automatically adjusts display brightness for current lighting conditions. For night operation, the display brightness can be adjusted with the **PANEL LT** dimmer.

7-17. MD200-() Controls and Operation

If equipped, the MD200-() unit is located in the instrument panel. It is interfaced to a NAV receiver to display VOR, localizer, and glideslope information. Illumination of the **NAV** annunciator on the MD200-() display indicates that the GNC 255A is the NAV source (Figure 7-6). For night operation, the display brightness can be adjusted with the **PANEL LT** dimmer.

The modes of operation are as follows:

1. VOR Operation
 - a. Tune the NAV receiver to the desired VOR frequency. Observe that the NAV/VOR pointer is in the viewing area of the dial.
 - b. Rotate the OBS dial to fly inbound/outbound to/from a VOR station.

2. Localizer Operation

- a. Tune the NAV receiver to the desired localizer frequency. Observe that the vertical pointer is fully in view.
- b. Set the OBS dial under the lubber line. This is for reference only; it will not affect the pointer movement.

3. Glideslope Operation – The glideslope pointer provides the pilot with vertical steering information during approaches.

- a. Tune the NAV receiver to the desired localizer frequency. Observe that the glideslope pointer is in view.

NOTE

The VLOC and GPS annunciators, as depicted in Figure 7-6, are operative only if the MD200-() is interfaced with a GPS receiver or a second NAV receiver, as applicable.

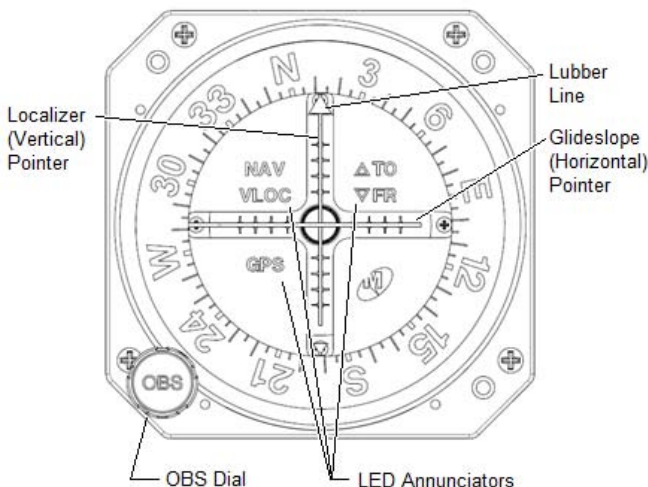


Figure 7-6. MD200-706 Display and Controls