



**PILOT'S OPERATING HANDBOOK AND FAA APPROVED  
AIRPLANE FLIGHT MANUAL SUPPLEMENT  
FOR  
TEXTRON AVIATION (CESSNA) MODEL 172S AIRCRAFT WITH  
NAV III AVIONICS (G1000 NXi) WITH DUAL GARMIN GMA 1360D  
AUDIO CONTROL PANELS AND CIVIL AIR PATROL SPECIAL  
MISSION EQUIPMENT**


**S/N: 172S12731**

**REG. NO.: N592CP**

This supplement must be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual when the airplane is modified by installation of dual Garmin audio control panels and Civil Air Patrol special mission equipment in accordance with FAA Form 337 dated \_\_\_\_\_.

The information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

This Pilot's Operating Handbook and Airplane Flight Manual Supplement is FAA Approved by Designated Engineering Representative Ralph W. Rissmiller, DERT-832516-CE, as authorized by the FAA Central Flight Test Section.

FAA APPROVED:   
DERT-832516-CE

DATE: November 5, 2021

FAA Approved Date: November 5, 2021



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## SECTION 1 – GENERAL

This Pilot's Operating Handbook and Airplane Flight Manual Supplement is intended for use in the Textron Aviation (Cessna) 172S aircraft with NAV III avionics (Garmin G1000 NXi) and modified by addition of the following Civil Air Patrol Special Mission Equipment:

Table 1: Modifications

Description	Manufacturer Model/Part Number
Dual GMA 1360D audio panels	Garmin International 011-01340-20
PAX 1 communication modifications	N/A
TDFM-136( ) VHF/FM radio system	Technisonic Industries Limited TDFM-136( )
28-14VDC power converter with auxiliary power outlet	KGS Electronics RG 28

### NOTE

Interference may be observed on the receiving VHF COM transceiver when transmitting on the opposite VHF COM transceiver. This effect is most noticeable when the selected frequencies are within 2 MHz or less of each other.

### DUAL GARMIN GMA 1360D AUDIO PANELS

The two GMA 1360D audio panels are designated as follows:

- GMA #1: Left (pilot's) audio panel
- GMA #2: Right (copilot's) audio panel

In the dual audio configuration, the pilot always hears the audio selected on GMA #1 and the copilot always hears the audio selected on GMA #2.



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GMA 1360D

## ICS OPERATION

The Intercom system provides two modes of isolation: CREW ICS and PASS ICS. Each button activates the intercom audio heard by the onside headset.

- CREW ICS mode – The pilot and copilot can communicate with each other and the passengers are isolated from the crew. The state of this button is shared between the two audio panels.
- PASS ICS mode – Intercom audio from the passengers can be heard on the onside headset and allows passengers to hear the intercom audio from the onside MIC.

The pilot and copilot or rear left seat passenger (seat 3) when selected positions can independently choose which receivers to monitor, COM1, COM2, AUX (VHF/FM), NAV1, NAV2. The selected COM receiver will automatically be selected along with the corresponding transmitter.

The pilot's volume is adjusted by the GMA #1, PFD, or MFD volume controls. The copilot's volume is adjusted by the GMA #2 volume control only.

## DISPLAY BACKUP AND SPEAKER

The SPKR and red DISPLAY BACKUP buttons are functional on the pilot side only. The SPKR and red DISPLAY BACKUP buttons on GMA #2 are disabled.



## MUS 1, MUS 2, AND TEL

Each button selects the corresponding audio source. A solid white annunciation indicates the wired source is active. The TEL button is inoperative in this installation. A solid blue annunciation indicates the Bluetooth source is active.

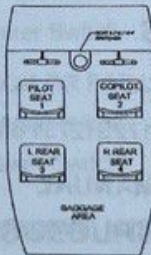
## PAX 1 COMMUNICATIONS MODIFICATION

The PAX 1 communications modification allows radio transmissions to be made from either the copilot position (seat 2) or the left rear passenger position (seat 3). A switch/annunciator located in the avionics sub-panel labeled SEAT 2/3 and an external relay are used to connect either the passenger or copilot to the copilot input on GMA #2. When SEAT 2 is selected, the copilot is connected to the GMA #2 copilot input and the passenger is connected to the passenger input for intercom capability. The copilot can transmit on the selected radio. When SEAT 3 is selected, the passenger is connected to the GMA #2 copilot input and the copilot is connected to the passenger input for intercom capability and to receive selected radio transmissions. The passenger can transmit on the selected radio. When SEAT 3 is selected, the copilot cannot transmit on the selected radio. The states of this switch are:

Table 2: SEAT 2/3 Switch States

STATES OF SEAT 2/3 SWITCH	CONNECTION TO GMA # 2
Seat 2 on copilot; Seat 3 on Passenger	Seat 2 is connected to the copilot input on GMA #2 Seat 3 is connected to a passenger input on GMA #2
Seat 3 on copilot; Seat 2 on Passenger	Seat 3 is connected to the copilot input on GMA #2 Seat 2 is connected to a passenger input on GMA #2

The pilot has transmit priority on COM1. The copilot (when SEAT 2 is selected on the SEAT 2/3 switch) or rear left seat passenger (when SEAT 3 is selected on the SEAT 2/3 switch) has transmit priority on COM2. There is no transmit prioritization for AUX.



## TECHNISONIC TDFM-136( ) VHF/FM RADIO SYSTEM

The Technisonic TDFM-136( ) VHF/FM radio is located in the copilot's instrument panel and is accessed using the AUX button on the audio panels.





### KGS 28-14 POWER CONVERTER/AUX POWER OUTLET

The KGS 24-14VDC power conversion system provides 28VDC and 14VDC to connectors at the pax 2 position (seat 4). The system is activated through the AFT ACCESSORY OUTLET circuit breaker switch in the Avionics Circuit Breaker Panel located in the copilot's instrument panel. The 28VDC output of the system is regulated to 5 amps by an in-line fuse located below the copilot's instrument panel adjacent to the glove box. The 14VDC output of the system is regulated to 20 amps by a circuit breaker located just aft of the aft cabin wall in the avionics rack area.

### POWER

Power for the mission equipment is provided as follows:

Table 3: Mission Equipment Power

Equipment	Circuit Breaker	CB Size (Amps)	Bus
#2 GMA 1360D	AUDIO 2	5	Avionics Bus 2
PAX 1 communication modification	SEAT RELAY	1	Avionics Bus 1
KGS 28-14 power converter/auxiliary power outlet	AUX 12VDC	20	Main DC Bus 3
TDFM-136 VHF/FM radio	TDFM	3	Mission power panel

## SECTION 2 – LIMITATIONS

### APPLICABILITY

This AFMS is valid for N592CP, S/N 172S12731 only.

### PILOT'S GUIDE/OPERATING MANUAL

The applicable Pilot's Guides/Operation Manuals listed below must be immediately available to the flight crew:



Table 4: Pilot's Guides/Operating Manuals

INSTALLATION CONFIGURATION/EQUIPMENT	PILOT'S GUIDE/OPERATION MANUAL (or later applicable revision)
G1000 NXi with dual GMA 1360D audio panels	G1000 NXi Pilot's Guide, Garmin P/N 190-02177-01, Rev A
TDFM-136 VHF/FM radio system	TDFM-136( ) Installation and Operation Manual, Technisonic P/N I08RE399, Rev. A

### KGS 28-14 POWER CONVERTER

The maximum allowable load that can be connected to the AUX POWER OUTLET connectors at the PAX 2 seat is 14VDC @ 20 amps.

### PLACARDS

The following placard must be installed on the instrument panel adjacent to GMA #2 (copilot's side):

DISPLAY BACKUP  
BUTTON INACTIVE

## SECTION 3 – EMERGENCY PROCEDURES

### EMERGENCY PROCEDURES

No change.

### ABNORMAL PROCEDURES

#### GENERAL

Should any of the mission equipment circuit breakers "trip" or "open" in flight, DO NOT reset the circuit breaker.

- MISSION MASTER Circuit Breaker Switch ..... OFF

#### ELECTRICAL SYSTEM MALFUNCTION OR FAILURE

If the aircraft experiences electrical system failure:

- MISSION MASTER Circuit Breaker Switch ..... OFF

## SECTION 4 – NORMAL PROCEDURES

### DUAL GMA 1360D AUDIO PANELS

Operating procedures for the dual Garmin GMA 1360D audio system are contained in the G1000 NXi Pilot's Guide for Textron NAV III Series Aircraft.



### MISSION EQUIPMENT POWER

Power to the mission equipment is provided through the MISSION MASTER circuit breaker switch.

To turn Mission Equipment on:

1. MISSION MASTER Circuit Breaker Switch ..... ON

To turn Mission Equipment off:

1. MISSION MASTER Circuit Breaker Switch ..... OFF

### SEAT SELECT 2/3 COMMUNICATIONS SELECTOR SWITCH

The SEAT SELECT 2/3 switch allows selection of either the copilot (seat 2) or left rear passenger (seat 3) position for interface with the radio selected on GMA #2.

To provide radio access from the copilot position (seat 2) using GMA #2:

1. SEAT SELECT 2/3 Switch ..... SEAT 2

To provide radio access from the left rear passenger position (seat 3) using GMA #2:

1. SEAT SELECT 2/3 Switch ..... SEAT 3

#### NOTE

The copilot will only communicate over the intercom when the SEAT 2/3 switch is selected to the SEAT 3 position. When SEAT 3 is selected, the copilot cannot transmit on the selected radio.

### TECHNISONIC TDFM-136( ) VHF/FM RADIO

Operating procedures for the TDFM-136( ) VHF/FM radio system are contained in the TDFM-136( ) Operating Instructions.

### KGS 28-14 POWER CONVERTER

The KGS 24-14VDC power converter/auxiliary power outlet system provides 28VDC and 14VDC to connectors at the PAX 4 position (seat 4).

To turn the KGS 28-14 power converter system on:

1. AFT ACCESSORY OUTLET Circuit Breaker Switch ..... ON

To turn the KGS 28-14 power converter system off:

1. AFT ACCESSORY OUTLET Circuit Breaker Switch ..... OFF

### SECTION 5 – PERFORMANCE

No change.



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Document No. AFMS 23738-12731-1

## **SECTION 6 – WEIGHT AND BALANCE**

Refer to the current aircraft weight and balance information.

FAA Approved Date: November 5, 2021

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