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FAA Approved AIRPLANE FLIGHT MANUAL SUPPLEMENT

G1000 NXi Integrated Avionics System and GFC 700 AFCS for Textron Aviation Inc. NAV III Series Aircraft

Dwg. Number: 190-02128-02 Rev. 1

This Supplement is Applicable to the Following Manuals:

172SPHBUS-02
172RPHBUS-02
182TPHBUS-03
T182TPHBUS-03
206HPHBUS-04
T206HPHBUS-04

This Supplement must be attached to the FAA Approved Airplane Flight Manual when the GARMIN G1000 NXi Integrated Avionics System is installed in accordance with STC **SA01830WI**. The information contained herein supplements the information of the FAA Approved Airplane Flight Manual. For Limitations, Procedures, Performance information not contained in this Supplement, consult the FAA Approved Airplane Flight Manual and the basic Pilot's Operating Manual.

Airplane Serial Number: _____

Airplane Registration Number: _____

FAA Approved By: _____

Robert G. Murray
ODA STC Unit Administrator
GARMIN International, Inc.
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Date: 12/20/2016

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Log of Revisions

Pilot's Operating Handbook and FAA Approved Airplane Flight Manual Supplement for

G1000 NXi Integrated Avionics System and GFC 700 AFCS for Textron NAV III

REV NO.	PAGE NO(S)	DESCRIPTION	DATE OF APPROVAL	FAA APPROVED
1	ALL	Original Issue	See Cover	See Cover

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GENERAL

The information in this supplement is FAA-approved material and must be attached to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (POH/AFM) when the airplane has been modified by installation of the GARMIN G1000 NXi Integrated Avionics System and GFC 700 Digital Automatic Flight Guidance System in accordance with GARMIN International, Inc. approved data, STC SA01830WI

The information in this supplement supersedes or adds to the basic Pilot's Operating Handbook and FAA Approved Airplane Flight Manual only as set forth below. Users of the manual are advised to always refer to the supplement for possibly superseding information and placarding applicable to operation of the airplane.

The GARMIN G1000 NXi system installed in this aircraft provides a fully integrated Display, Communications, Navigation and Flight Control System. Functions provided by the G1000 NXi system include: Primary Flight Information, Powerplant Monitoring, Navigation, Communication, Traffic Surveillance, TAWS Class B, Weather Avoidance, and a two-axis automatic flight control / flight director system.

Use of this supplement requires the installation of Garmin G1000 NXi hardware and system software version 2501.00, or later, in the aircraft. Pilots are advised to carefully review the contents of this revision before operating the airplane.

The installed ADS-B OUT system has been shown to meet the equipment performance requirements of 14 CFR 91.227.

USE OF THE AFMS

The following definitions apply to WARNINGS, CAUTIONS and NOTES found throughout the AFMS:

WARNING

OPERATING PROCEDURES, TECHNIQUES, ETC., WHICH COULD RESULT IN PERSONAL INJURY OR LOSS OF LIFE IF NOT CAREFULLY FOLLOWED.

CAUTION

OPERATING PROCEDURES, TECHNIQUES, ETC., WHICH COULD RESULT IN DAMAGE TO EQUIPMENT IF NOT CAREFULLY FOLLOWED.

NOTE

Operating procedures, techniques, etc., which is considered essential to emphasize.

SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

The following glossary is applicable within the airplane flight manual supplement

AC	Advisory Circular
ADC	Air Data Computer
ADF	Automatic Direction Finder
ADS-B	Automatic Dependent Surveillance - Broadcast
AFCS	Automatic Flight Control System
AFM	Airplane Flight Manual
AFMS	Airplane Flight Manual Supplement
AHRS	Attitude and Heading Reference System
ALT	Altitude, or AFCS altitude hold mode, or ALT button on the GDU.
AMMD	Airport Moving Map Display
AP	Autopilot
ATC	Air Traffic Control
AUX	Auxiliary
BARO	Barometric Setting
BC	Back Course
CDI	Course Deviation Indicator
COM	Communication radio
CWS	Control Wheel Steering
DME	Distance Measuring Equipment
DR	Dead Reckoning
EIS	Engine Indication System
FD	Flight Director
FIS-B	Flight Information Service-Broadcast

FLC	AFCS Flight Level Change mode, or FLC button on the GDU.
FLTA	Forward Looking Terrain Awareness
FMS	Flight Management System
FPL	Flight Plan
GA	Go-around or Garmin Antenna
GDU	Garmin Display Unit
GEA	Garmin Engine/Airframe Unit
GFC	Garmin Flight Control
GNSS	Global Navigation Satellite System
GP	GPS Glide Path
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
GS	Glide Slope
HDG	AFCS heading mode or the HDG button on the GDU.
HSI	Horizontal Situation Indicator
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INH	Inhibit
LNAV	Lateral Navigation
LNAV + V	Lateral Navigation with Advisory Vertical Guidance
LNAV/VNAV	Lateral Navigation / Vertical Navigation
LOC	Localizer
LOI	Loss of Integrity (GPS)
LP	Localizer Performance
LPV	Localizer Performance with Vertical Guidance
MAXSPD	Maximum Speed, AFCS Overspeed Protection mode
MFD	Multi Function Display

MSL	Mean Sea Level
NAV	Navigation, or AFCS navigation mode, or NAV button on the GDU.
NEXRAD	Next Generation Radar (XM/FIS-B Weather Product)
NM	Nautical Mile
OAT	Outside Air Temperature
ODA	Organization Designation Authorization
OPT	Option
PDA	Premature Descent Alert
PFD	Primary Flight Display
PFT	Pre-Flight Test
PIT	AFCS Pitch Mode
POH	Pilot's Operating Handbook
PROC	Procedure Button on the GDU
PTCH	Pitch
ROL	AFCS roll mode
SBAS	Satellite Based Augmentation System
STC	Supplemental Type Certificate
SVT	Synthetic Vision Technology
TAWS	Terrain Awareness and Warning System
TWY	Taxiway
VAPP	AFCS VOR Approach Mode
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VNAV	Vertical Navigation
VNV	Vertical Navigation Button on the GDU
VOR	VHF Omni-directional Range
VPTH	Vertical Path

VS	Vertical Speed
WAAS	Wide Area Augmentation System
WFDE	WAAS Fault Detection/Exclusion
WGS-84	World Geodetic System – 1984
XM LTNG	XM Satellite System Lighting

LIMITATIONS

INTRODUCTION

This AFMS is applicable to the System Software Version 2501.00. The System Software Version number is displayed at the top right side of the MFD Power-up page.

COCKPIT REFERENCE GUIDE

The G1000 NXi Cockpit Reference Guide, GARMIN part number 190-02178-00, for Textron NAVIII series aircraft must be immediately available to the pilot during all phases of flight. Use the G1000 NXi Cockpit Reference Guide, GARMIN part number 190-02178-00, Revision A or later revision when system software 2501.00, or later, is installed.

G1000 NXI LIMITATIONS

GROUND MANEUVERING

Do not use SafeTaxi, FliteCharts, ChartView, or SurfaceWatch functions as the basis for ground maneuvering. These functions do not comply with the requirements of AC 20-159 and are not qualified to be used as an airport moving map display (AMMD). These functions are to be used by the flight crew to orient themselves on the airport surface to improve pilot situational awareness during ground operations

IFR/VFR CHARTS

Do not use the IFR/VFR CHARTS page for pilotage navigation. The IFR/VFR CHARTS are intended only to improve pilot situational awareness.

DATA LINK WEATHER (XM, OR FIS-B WEATHER)

Use of the NEXRAD, XM LTNG data on the MAP – NAVIGATION MAP, MAP – WEATHER DATA LINK (XM) and MAP – WEATHER DATA LINK (FIS-B) pages for hazardous weather, e.g., thunderstorm penetration, is prohibited. Datalink weather information displayed by the G1000 NXi system is limited to supplemental use only. XM, or FIS-B weather data is not a source of official weather information and is intended only as an aid to enhance situational awareness of hazardous weather.

FMS FLIGHT PLAN

Do not delete the arrival airport or runway waypoint within a loaded arrival procedure. Arrival procedures loaded into the G1000 NXi FMS must be associated with the destination airport.

EMERGENCY PROCEDURES

AUTOMATIC FLIGHT CONTROL SYSTEM (IF EQUIPPED)

SURFACEWATCH WARNING (IF EQUIPPED)

TAXIWAY TAKEOFF

(Red TWY TAKEOFF Annunciator Is Displayed and Aural “Taxiway” Message)

1. **Takeoff ..... ABORT**
2. **Throttle Control ..... IDLE**
3. **Brakes ..... APPLY**
4. Aircraft Position and Runway Assignment ..... CONFIRM

If Aircraft Position and Runway Assignment are Correct:

5. SurfaceWatch Alerts ..... OFF
    - From the MFD AUX – System Setup page
    - Set SurfaceWatch Alerts: OFF

NOTE

SurfaceWatch Alerts should be turned ON as soon as practical after takeoff to restore functionality for remainder of flight.

TAXIWAY LANDING

(Red TWY LANDING Annunciator Is Displayed and Aural “Taxiway” Message)

1. **BALKED LANDING Procedure ..... EXECUTE**
2. Aircraft Position and Runway Assignment ..... CONFIRM

If Aircraft Position and Runway Assignment are Correct:

3. SurfaceWatch Alerts ..... OFF
    - From the MFD AUX – System Setup page
    - Set SurfaceWatch Alerts: OFF

NOTE

SurfaceWatch Alerts should be turned ON as soon as practical after landing to restore functionality for ground operations.

RUNWAY TOO SHORT DURING TAKEOFF

(Red RWY TOO SHORT Annunciator Is Displayed and Aural “Runway Too Short” Message)

1. **Takeoff ..... ABORT**
2. **Throttle Control ..... IDLE**
3. **Brakes ..... APPLY**
4. Aircraft Position and Runway Assignment ..... Confirm
5. Ensure correct origin, runway, and required takeoff distance have been entered into the G1000 system.
    - From the FPL – SurfaceWatch Setup page

RUNWAY TOO SHORT DURING LANDING

(Red RWY TOO SHORT Annunciator Is Displayed and Aural “Runway Too Short” Message)

1. **BALKED LANDING Procedure ..... EXECUTE**
2. Aircraft Position and Runway Assignment ..... CONFIRM
3. Ensure correct destination, runway, and required landing distance have been entered into the G1000 NXi system:
   - From the FPL – SurfaceWatch Setup page

ABNORMAL PROCEDURES

SURFACEWATCH CAUTION MESSAGES (IF EQUIPPED)

CHECK RUNWAY DURING TAKEOFF

(Amber CHECK RUNWAY annunciator displayed on PFD and aural “CHECK RUNWAY”)

This caution alert is issued when the aircraft is taking off from a runway different than that entered in the FPL – SurfaceWatch Setup Page on the MFD.

1. Aircraft Position/Runway Assignment ..... CONFIRM

If Aircraft Position and Runway Assignment are Correct:

2. Takeoff ..... CONTINUE AS DESIRED

If Aircraft Position and Runway Assignment are Not Correct or Cannot be Determined:

3. Takeoff .....ABORT
4. Throttle Control … .....…IDLE (pull full out)
5. Brakes …… ..... ……APPLY
6. Enter correct origin, runway, and required takeoff distance into the G1000 NXi system:
    - From the FPL – SurfaceWatch Setup Page on the MFD.

CHECK RUNWAY DURING LANDING

(Amber CHECK RUNWAY annunciator displayed on PFD and aural “CHECK RUNWAY”)

This caution alert is issued when the aircraft is landing on a runway different than that entered on the MFD FPL – SurfaceWatch Setup Page.

1. Aircraft Position/Runway Assignment ..... CONFIRM

   If Aircraft Position and Runway Assignment are Correct:

2. Approach and Landing..... CONTINUE AS DESIRED

   If Aircraft Position and Runway Assignment are Not Correct or Cannot be Determined:

3. BALKED LANDING Procedure ..... EXECUTE
4. Enter correct destination, runway, and required landing distance into the G1000 NXi system:
   - From the FPL – SurfaceWatch Setup Page on the MFD.

SURFACEWATCH SYSTEM MESSAGES (IF EQUIPPED)

SURFACEWATCH INHIBITED

During certain flight operations, there may be a desire by the crew to inhibit the SurfaceWatch system, although it is considered abnormal to do so. Use the following procedures to inhibit the SurfaceWatch system:

1. MFD AUX – System Setup Page ..... VIEW
2. SurfaceWatch Alerts ..... SELECT
3. SurfaceWatch Alerts ..... SELECT OFF

NOTE

After inhibiting SurfaceWatch, the following will post as an alert on the PFD, in the Alerts window:

"SURFACEWATCH INHIBITED SurfaceWatch Inhibited."

SurfaceWatch Alerts will remain inhibited until manually un-inhibited by the pilot, or a power-cycle of the system. After a shutdown of the G1000 NXi system, SurfaceWatch will return to its normal state of operation and will not be inhibited.

SURFACEWATCH FAIL

If any of the required inputs for SurfaceWatch operation are failed, invalid, or unavailable (such as GPS position), SurfaceWatch will be inoperative until the required parameters are restored. If SurfaceWatch has failed, the following will post as a message on the PFD, in the Alerts window:

> "SURFACEWATCH FAIL One or more inputs invalid."

SurfaceWatch will automatically return to its normal state of operation without crew action once the required inputs are restored.

NO SURFACEWATCH RUNWAY POSITION DATA

There are certain runways at various worldwide airports that do not have valid position data for the SurfaceWatch system to use. If such a runway is entered into the system for either takeoff or landing via the FPL – SurfaceWatch Setup Page on the MFD, the following will post as a message on the PFD, in the alerts window:

> "NO RUNWAY POSITION DATA Inhibit SurfaceWatch. No runway position data."

SurfaceWatch should then be inhibited according to the SURFACEWATCH INHIBIT procedures outlined above. Failure to do so will result in nuisance TWY TAKEOFF or TWY LANDING warnings as applicable. After performing the takeoff or landing with SurfaceWatch inhibited, the system should be un-inhibited as soon as practical so that functionality will be restored for the remainder of the flight.

NORMAL PROCEDURES

No Change. Refer to Pilot's Operating Handbook and FAA Approved Airplane Flight Manual or appropriate supplement.

PERFORMANCE

No Change. Refer to Pilot's Operating Handbook and FAA Approved Airplane Flight Manual or appropriate supplement.

WEIGHT AND BALANCE/EQUIPMENT LIST

No Change. Refer to Pilot's Operating Handbook and FAA Approved Airplane Flight Manual or appropriate supplement.

AIRPLANE AND SYSTEMS DESCRIPTIONS

STANDARD AVIONICS

GSU 75 AIRDATA, ATTITUDE AND HEADING REFERENCE SYSTEM (ADAHRS) AND MAGNETOMETER (GMU)

If installed, the optional GSU 75 ADAHRS combines information from the airplane's pitot/static system, as well as the aircraft's attitude, to provide the following indications on the G1000 NXi displays: attitude, altitude, airspeed, true airspeed, vertical speed, OAT, and heading information. The ADAHRS is located in the tailcone of the airplane, and contains both an Air Data Computer (ADC), as well as an Attitude and Heading Reference System (AHRS). The magnetometer, located in the left wing panel, provides heading information to the ADAHRS unit.

HANDLING, SERVICE, AND MAINTENANCE

No Change. Refer to Pilot's Operating Handbook and FAA Approved Airplane Flight Manual or appropriate supplement.

OTHER PROCEDURES

ADS-B OUT

The installed ADS-B OUT system has been shown to meet the equipment performance requirements of 14 CFR 91.227.

The ADS-B OUT system should be operational during all phases of flight, including airport surface movement operations.

The ADS-B OUT system is operational when the transponder is in the ON or ALT mode. This will be indicated in the transponder window in the lower right corner of the PFD.

If the G1000 NXi system is unable to transmit ADS-B OUT messages, the following message will post on the PFD in the alerts window:

XPDR1 ADS-B NO POS – Transponder: ADS-B is not transmitting position.

If the above message is received, verify valid GPS position is available.

1. MFD AUX – GPS Status Page.....VERIFY GPS Position

PRESSURE ALTITUDE BROADCAST INHIBIT

While conducting operations within airspace that requires ADS-B Out transmissions, operate the transponder in ALT mode unless requested otherwise by ATC. If ATC requests the inhibit of pressure altitude transmissions, select the transponder to ON mode:

1. XPDR Softkey on PFD.....PRESS
2. ON Softkey .....PRESS