



U.S. Department of Transportation
Federal Aviation Administration
Washington, DC

Flight Standardization Board Report

Revision: 4
Date: 03/12/2020

Manufacturer:
Textron Aviation, Inc.

Type Certificate Data Sheet (TCDS)	TCDS Identifier	Marketing Name	Pilot Type Rating
A22CE	560XL	Excel, XLS, XLS+	CE-560XL

Approved by the Aircraft Evaluation Division
Federal Aviation Administration (FAA)
Small Aircraft Evaluation Group
901 Locust Street, Room 332
Kansas City, MO 64106-2641

Office Telephone: (816) 329-3233
Office Fax: (816) 329-3241
Office Email: 9-AVS-AFS-100@faa.gov

TABLE OF CONTENTS

Section	Page
1. RECORD OF REVISIONS	3
2. INTRODUCTION	3
3. HIGHLIGHTS OF CHANGE.....	3
4. BACKGROUND	4
5. ACRONYMS	4
6. DEFINITIONS.....	6
7. PILOT TYPE RATING	7
8. RELATED AIRCRAFT.....	7
9. PILOT TRAINING.....	7
10. PILOT CHECKING.....	9
11. PILOT CURRENCY	10
12. OPERATIONAL SUITABILITY.....	10
13. MISCELLANEOUS	10
APPENDIX 1. DIFFERENCES LEGEND	12
APPENDIX 2. MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE.....	14
APPENDIX 3. DIFFERENCES TABLES	15
APPENDIX 4. GARMIN G5000 INTEGRATED FLIGHT DECK DESCRIPTION	29
APPENDIX 5. EFB OPERATIONAL EVALUATION GARMIN G5000	30
APPENDIX 6. EFB OPERATIONAL EVALUATION COLLINS PROLINE 21.....	31
APPENDIX 7. EFB OPERATIONAL EVALUATION HONEYWELL PRIMUS 1000	32

1. RECORD OF REVISIONS

Revision Number	Section(s)	Page(s) Affected	Date
Original	All	All	Not Available
1	All	All	01/21/1999
2	All	All	09/30/2009
3	All	All	06/19/2015
4	All	All	03/12/2020

2. INTRODUCTION

Aircraft Evaluation Groups (AEG) are responsible for working with aircraft manufacturers and modifiers during the development and Federal Aviation Administration (FAA) certification of new and modified aircraft to determine: 1) the pilot type rating; 2) flightcrew member training, checking, and currency requirements; and 3) operational suitability.

This report lists those determinations for use by: 1) FAA employees who approve training programs; 2) FAA employees and designees who certify airmen; and 3) aircraft operators and training providers to assist them in developing their flightcrew member training, checking, and currency programs.

3. HIGHLIGHTS OF CHANGE

The purpose of this revision is to: 1) add the Garmin G5000 Integrated Flight Deck to the Flight Standardization Board (FSB) report; 2) reformat the FSB report using a standardized template; and 3) reflect the change of type certificate (TC) holder from Cessna to Textron Aviation as listed in FAA Type Certificate Data Sheet (TCDS) #A22CE.

This report has been completely modified from the previous revision. Major modifications include the deletion of currency levels depicted in the Master Differences Requirements (MDR) table, renaming of Operator Differences Requirements (ODR) Tables to Differences Tables, and deleting repetitive regulatory information, including hour requirements.

NOTE: Due to significant administrative changes, change bars are not used in this revision.

4. BACKGROUND

The Small AEG formed an FSB that evaluated the 560XL Series aircraft as defined in FAA TCDS #A22CE. The original evaluation was conducted using the methods described in FAA Advisory Circular (AC) 120-53, Guidance for Conducting and Use of Flight Standardization Board Evaluations.

In June 2019, the FSB conducted flight and ground evaluations of the Garmin G5000 Integrated Flight Deck in a Textron Model 560XL airplane. The avionics upgrade removes the Honeywell Primus 1000 flight deck instrument equipment and replaces the primary flight displays (PFD), multifunction displays (MFD), and flight management system (FMS) with the Garmin G5000 Integrated Flight Deck. It, as well as the associated Airplane Flight Manual Supplement (AFMS) change, was found to be operationally suitable. Training and checking requirements are listed in Appendix 3, Differences Tables.

5. ACRONYMS

14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
ACFT	Aircraft
ACS	Airman Certification Standards
ADF	Automatic Direction Finder
ADS-B	Automatic Dependent Surveillance-Broadcast
AEG	Aircraft Evaluation Group
AFCS	Automatic Flight Control System
AFD	Adaptive Flight Display
AFM	Airplane Flight Manual
AFMS	Airplane Flight Manual Supplement
AOA	Angle of Attack (indicator)
AMLCD	Active Matrix Liquid Crystal Display
AV	Audiovisual Presentation
CAS	Crew Alert System
CCP	Cursor Control Panel
CDU	Control Display Unit
CPDLC	Controller-Pilot Data Link Communications
CPT	Cockpit Procedures Trainer
DME	Distance Measurement Equipment
ECL	Electronic Checklist
EDM	Emergency Descent Mode
EEC	Electronic Engine Control
EFB	Electronic Flight Bag
EIS	Engine Indicating System
ESIS	Electronic Standby Instrument System
FAA	Federal Aviation Administration
FADEC	Full-Authority Digital Engine Control
FFS	Full Flight Simulator
FMS	Flight Management System

FSB	Flight Standardization Board
FSTD	Flight Simulation Training Device
FSU	File Server Unit
FTD	Flight Training Device
GDR	Garmin Digital Receiver
GDU	Garmin Display Unit
GMA	Garmin Remote Audio Panel
GMC	Garmin Mode Controller
GTC	Garmin Touchscreen Controller
HO	Handout
HSI	Horizontal Situation Indicator
ICBI	Interactive Computer-Based Instruction
IFIS	Integrated Flight Information System
IFR	Instrument Flight Rules
MDR	Master Differences Requirements
METAR	Meteorological Terminal Aerodrome Report
MFD	Multifunction Display
NAS	National Airspace System
NEXRAD	Next Generation Weather Radar
Part 91K	Part 91 Subpart K
PFD	Primary Flight Display
PIC	Pilot in Command
PTT	Part Task Trainer
RMU	Radio Management Unit
SATCOM	Satellite Communications
SIC	Second in Command
STC	Supplemental Type Certificate
SU	Stand-Up Instruction
SVS	Synthetic Vision System
TAF	Terminal Aerodrome Forecast
TC	Type Certificate
TCAS	Traffic Alert and Collision Avoidance System
TCBI	Tutorial Computer-Based Instruction
TCDS	Type Certificate Data Sheet
USP	Underspeed Protection
VFR	Visual Flight Rules
WX	Weather Radar

6. DEFINITIONS

These definitions are for the purposes of this report only.

- 6.1 Base Aircraft.** An aircraft identified for use as a reference to compare differences with another aircraft.
- 6.2 Current.** A crewmember meets all requirements to operate the aircraft under the applicable operating part.
- 6.3 Differences Tables.** Describes the differences between a pair of related aircraft and the minimum levels operators must use to conduct differences training and checking of crewmembers. Differences levels range from A to E.
- 6.4 Master Differences Requirements (MDR).** Specifies the highest training and checking differences levels between a pair of related aircraft derived from the Differences Tables.
- 6.5 Mixed Fleet Flying.** The operation of a base aircraft and one or more related aircraft for which credit may be taken for training, checking, and currency events.
- 6.6 Operational Evaluation.** An AEG process to determine pilot type rating, minimum crewmember training, checking, and currency requirements, and unique or special airman certification requirements (e.g., specific flight characteristics and no-flap landing).
- 6.7 Operational Suitability.** An AEG determination that an aircraft or system may be used in the National Airspace System (NAS) and meets the applicable operational regulations (e.g., Title 14 of the Code of Federal Regulations (14 CFR) parts 91, 121, 133, and 135).
- 6.8 Qualified.** A crewmember holds the appropriate airman certificate and ratings as required by the applicable operating part.
- 6.9 Related Aircraft.** Any two or more aircraft of the same make with either the same or different TCs that have been demonstrated and determined by the Administrator to have commonality.
- 6.10 Seat-Dependent Tasks.** Maneuvers or procedures using controls that are accessible or operable from only one flightcrew member seat.
- 6.11 Special Emphasis Area.** A training requirement unique to the aircraft, based on a system, procedure, or maneuver, which requires additional highlighting during training. It may also require additional training time, specialized training devices, or training equipment.
- 6.12 Specific Flight Characteristics.** A maneuver or procedure with unique handling or performance characteristics that the FSB has determined must be checked.

7. PILOT TYPE RATING

7.1 Type Rating. The Textron Aviation 560XL type rating designation is CE-560XL. The Garmin G5000 Integrated Flight Deck was evaluated and has the same CE-560XL type rating.

7.2 Common Type Ratings. Not applicable.

7.3 Military Equivalent Designations. Military aircraft that qualify for the CE-560XL type rating designation can be found at www.faa.gov under “Licenses & Certificates,” “Airmen Certification,” “Online Services,” “Aircraft Type Rating Designators.” This webpage is kept up-to-date and can be found at https://www.faa.gov/licenses_certificates/airmen_certification/.

8. RELATED AIRCRAFT

8.1 Related Aircraft on Same TCDS.

- Excel Serial 560-5001 thru 560-5500
- XLS Serial 560-5501 thru 560-6000
- XLS+ Serial 560-6001 and on

NOTE: 560XL Series is used throughout this report and includes aircraft variations Excel, XLS, and XLS+

8.2 Related Aircraft on Different TCDS. Not applicable.

9. PILOT TRAINING

9.1 Airman Experience. Airmen receiving initial 560XL training should have previous training in high-altitude operations in multiengine turbojet aircraft, new generation avionics, and FMS experience. Pilots without this experience may require additional training.

NOTE: Airmen receiving differences, upgrade, or transition training are assumed to have previous experience in a variation of the 560XL Series.

9.2 Special Emphasis Areas.

Pilots must receive special emphasis on the following areas during initial, recurrent, requalification, upgrade, and transition ground training (when installed):

- Emergency Descent Mode (EDM)
- Underspeed Protection (USP) (includes coupled go-around)
- Controller-Pilot Data Link Communications (CPDLC)
- Synthetic Vision System (SVS)

Pilots must receive special emphasis on, and perform the following areas during initial, recurrent, requalification, upgrade, and transition flight training (when installed):

- EDM
- USP (includes coupled go-around)
- CPDLC
- SVS

9.3 Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the Airline Transport Pilot and Type Rating for Airplane Airman Certification Standards (ACS). There are no specific flight characteristics.

9.4 Seat-Dependent Tasks. There are no seat-dependent tasks.

9.5 Regulatory Training Requirements That are Not Applicable to the 560XL Series. Part 135 Ground Training: Propellers.

9.6 Flight Simulation Training Devices (FSTD). There are no specific systems, procedures, or maneuvers that are unique to the 560XL Series that require a specific FSTD for training.

9.7 Training Equipment. There are no specific systems or procedures that are unique to the 560XL series that require specific training equipment.

9.8 Differences Training Between Related Aircraft. Pilots must receive differences training between the 560XL Series aircraft variations as applicable to their operation. The level of training is specified in Appendix 3.

9.9 Multiple Curricula Training Programs (Reduced Planned Hour Training Programs).

In accordance with Order 8900.1 Volume 3, Chapter 19, Section 1, paragraph 3-1078, Multiple Curricula of a Single Category, reduced hour curriculums may be established for the CE-560XL type rating based on the following prerequisites.

If the pilot:	Then the pilot may enter reduced hour training curriculum for:
Holds a CE-500 type rating and has completed Initial or Transition CE-550 Bravo training within the previous 24 calendar-months ¹	CE-560XL type rating with Honeywell Avionics ²
Holds a CE-500 type rating and has completed Initial or Transition CE-560 Ultra training within the previous 24 calendar-months ¹	CE-560XL type rating with Honeywell Avionics ²

If the pilot:	Then the pilot may enter reduced hour training curriculum for:
Holds a CE-500 type rating and has completed Recurrent CE-550 Bravo or CE-560 Ultra training within the previous 24 calendar-months ¹	CE-560XL type rating with Honeywell Avionics ²

¹Initial, transition, or recurrent training in other than the CE-550 Bravo or CE-560 Ultra does not meet the prerequisite requirement for a reduced hour curriculum for the CE-560XL type rating.

²Reduced hour curriculums do not apply to training curriculums for the CE-560XLS+ with Collins ProLine 21 Avionics, or for the CE-560XL Series with Garmin G5000 Avionics.

In accordance with Order 8900.1 Volume 3, Chapter 19, Section 1, paragraph 3-1078, reduced hour curriculums may be established for the CE-500 type rating based on the following prerequisites.

If the pilot:	Then the pilot may enter reduced hour training curriculum for:
Holds a CE-560XL type rating and has completed Initial or Transition CE-560XL training within the previous 24 calendar-months ³	CE-500 type rating
Holds a CE-560XL type rating and has completed Initial or Transition CE-560XLS training within the previous 24 calendar-months ³	CE-500 type rating
Holds a CE-560XL type rating and has completed Recurrent CE-560XL or CE-560XLS training within the previous 24 calendar-months ³	CE-500 type rating

³Initial, transition, or recurrent training in the CE-560XLS+ with Collins ProLine 21 Avionics, or in the CE-560XL Series with Garmin G5000 Avionics does not meet the prerequisite requirement for a reduced hour curriculum for the CE-500 type rating.

10. PILOT CHECKING

10.1 Landing from a No-Flap or Nonstandard Flap Approach. The probability of flap extension failure on the 560XL Series is not extremely remote, due to system design. Therefore, demonstration of a no-flap approach and landing during pilot certification or a part 61, § 61.58 proficiency check, § 91.1065 competency check, or § 135.293 competency check is required. Refer to FAA Order 8900.1, Volume 5 when the test or check is conducted in an aircraft versus a full flight simulator (FFS).

10.2 Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the Airline Transport Pilot and Type Rating for Airplane ACS.

NOTE: There are no specific flight characteristics.

10.3 Seat-Dependent Tasks. There are no specific seat-dependent tasks.

10.4 Other Checking Items. Not applicable.

10.5 FSTDs. There are no specific systems, procedures, or maneuvers that are unique to the 560XL Series that require a specific FSTD for checking.

10.6 Equipment. There are no specific systems or procedures that are unique to the 560XL Series that require specific equipment.

10.7 Differences Checking Between Related Aircraft. Pilots must receive differences checking between the 560XL Series aircraft variations as applicable to their operation. The level of checking is specified in Appendix 3.

NOTE: For operators with a 560XL Series mixed fleet, recurrent checks should alternate between variations for pilot in commands (PIC) and second in commands (SIC). The knowledge portion of initial and recurrent checks should address all variations with different avionics suites operated by the flightcrew member.

11. PILOT CURRENCY

There are no additional currency requirements for the 560XL Series other than those already specified in 14 CFR parts 61, 91, and 135.

11.1 Differences Currency Between Related Aircraft. Not applicable.

12. OPERATIONAL SUITABILITY

The 560XL Series aircraft are operationally suitable for operations under 14 CFR parts 91, 91K, and 135. The list of operating rules evaluated is on file at the Small AEG.

13. MISCELLANEOUS

13.1 Forward Observer Seat. The 560XL Series aircraft are not equipped with a dedicated forward observer seat, nor is one offered as an option. Due to the availability of various passenger configurations, the determination of suitability for use of a forward passenger seat for use in conducting enroute inspections or flight checks in accordance with 14 CFR part 135 will need to be determined by the FAA inspector conducting the enroute inspections or flight checks.

13.2 Landing Minima Categories (Refer to 14 CFR Part 97, § 97.3). All 560XL Series aircraft are considered Category B aircraft for the purposes of determining “straight-in landing weather minima.” If operating at a speed in excess of the upper limit of the speed range for the aircraft’s category, the minimums for the higher category must be used.

13.3 Normal Landing Flaps. The 560XL Series normal “final flap setting” per § 91.126(c) is flaps 35° or Land, as applicable to the variation.

APPENDIX 1. DIFFERENCES LEGEND

Training Differences Legend

Differences Level	Type	Training Method Examples	Conditions
A	Self-Instruction	<ul style="list-style-type: none"> • Operating manual revision (handout (HO)) • Flightcrew operating bulletin (HO) 	<ul style="list-style-type: none"> • Crew has already demonstrated understanding on base aircraft (e.g., updated version of engine). • Minor or no procedural changes required. • No safety impact if information is not reviewed or is forgotten (e.g., different engine vibration damping mount). • Once called to attention of crew, the difference is self-evident.
B	Aided Instruction	<ul style="list-style-type: none"> • Audiovisual presentation (AV) • Tutorial computer-based instruction (TCBI) • Stand-up instruction (SU) 	<ul style="list-style-type: none"> • Systems are functionally similar. • Crew understanding required. • Issues need emphasis. • Standard methods of presentation required.
C	Systems Devices	<ul style="list-style-type: none"> • Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4–5) 	<ul style="list-style-type: none"> • Training can only be accomplished through systems training devices. • Training objectives focus on mastering individual systems, procedures, or tasks versus highly integrated flight operations or “real-time” operations. • Training devices are required to assure attainment or retention of crew skills to accomplish more complex tasks usually related to aircraft systems.
D	Maneuvers Devices	<ul style="list-style-type: none"> • Level 6 or 7 flight training device (FTD 6–7) • Level A or B full flight simulator (FFS A–B) 	<ul style="list-style-type: none"> • Training can only be accomplished in flight maneuver devices in a real-time environment. • Training requires mastery of interrelated skills versus individual skills. • Motion, visual, control-loading, and specific environmental conditions may be required.
E	Level C/D FFS or Aircraft	<ul style="list-style-type: none"> • Level C or D full flight simulator (FFS C–D) • Aircraft (ACFT) 	<ul style="list-style-type: none"> • Motion, visual, control-loading, audio, and specific environmental conditions are required. • Significant full-task differences that require a high fidelity environment. • Usually correlates with significant differences in handling qualities.

Checking Differences Legend

Differences Level	Checking Method Examples	Conditions
A	None	None
B	<ul style="list-style-type: none"> • Oral or written exam • Tutorial computer-based instruction (TCBI) self-test 	Individual systems or related groups of systems.
C	<ul style="list-style-type: none"> • Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4–5) 	<ul style="list-style-type: none"> • Checking can only be accomplished using systems devices. • Checking objectives focus on mastering individual systems, procedures, or tasks.
D	<ul style="list-style-type: none"> • Level 6 or 7 flight training device (FTD 6–7) • Level A or B full flight simulator (FFS A–B) 	<ul style="list-style-type: none"> • Checking can only be accomplished in flight maneuver devices in a real-time environment. • Checking requires mastery of interrelated skills versus individual skills. • Motion, visual, control loading, and specific environmental conditions may be required.
E	<ul style="list-style-type: none"> • Level C or D full flight simulator (FFS C–D) • Aircraft (ACFT) 	Significant full-task differences that require a high fidelity environment.

APPENDIX 2. MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE

These are the minimum levels of training and checking required, derived from the highest level in the Differences Tables in Appendix 3. Differences levels are arranged as training/checking.

Related Aircraft ↓	Base Aircraft →	560XL (Excel)	560XL (XLS)	560XL (XLS+)	560XL (Excel and XLS) with G5000
560XL (Excel)		Not Applicable	A/A	C/C	Not Evaluated
560XL (XLS)		A/A	Not Applicable	C/C	Not Evaluated
560XL (XLS+)		C/C	C/C	Not Applicable	Not Applicable
560XL (Excel and XLS) with G5000		C/C	C/C	Not Applicable	Not Applicable

For optional equipment, training and checking is only required when installed.

APPENDIX 3. DIFFERENCES TABLES

This **Design Differences** Table, from the **560XL (Excel and XLS)** to the **560XL (Excel and XLS) with G5000**, was validated by the FSB on June 19, 2019. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XL (Excel and XLS) TO RELATED AIRCRAFT: 560XL (Excel and XLS) with G5000	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Airworthiness Limitations	See AFMS.	No	Yes	A	A
	Placards and Markings	See AFMS.	No	No	A	A
	Avionics	Garmin G5000 replaces Honeywell Primus 1000. PFD/MFD displays with softkeys. Two touchscreen controllers (Garmin Touchscreen Controller (GTC)) used for avionics functions including G5000 radio tuning, FMS navigation, flight planning, and flight control.	No	Yes	C	C
	Instrument Panel Layout	G5000 flight and engine instruments.	No	Yes	B	B
	Instrument Panel Layout	Altimeter setting, display format, reversion mode and dimming.	No	Yes	C	A
	Instrument Panel Layout	Annunciator panel is replaced by Crew Alert System (CAS) message system on the MFD.	No	Yes	C	B

FROM BASE AIRCRAFT: 560XL (Excel and XLS) TO RELATED AIRCRAFT: 560XL (Excel and XLS) with G5000	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 22 Autoflight	G5000 Garmin Mode Controller (GMC)-7200 automatic flight control system (AFCS) on glareshield. AP mode annunciation moved to PFD (LH and RH).	No	Yes	C	C
	ATA 23 Communications	GMA-36 remote audio processor, GTC-575 radio tuning.	No	Yes	C	C
	ATA 23 Communications	Garmin Digital Receiver (GDR)-66 CPDLC and GSR-56 satellite communications (SATCOM) (optional).	No	Yes	B	B
	ATA 24 Electrical Power	Avionics power distribution.	No	Yes	B	A
	ATA 28 Fuel	Fuel gauges, fuel flow, fuel temp move to Garmin Display Unit (GDU)-1450.	No	No	B	B
	ATA 31 Indicating/Recording Systems	Annunciator panel replaced with CAS messages; angle of attack (AOA) to PFD; Standby Electronic Standby Instrument System (ESIS) relocated; Slip-Skid to PFD.	No	Yes	C	B

FROM BASE AIRCRAFT: 560XL (Excel and XLS) TO RELATED AIRCRAFT: 560XL (Excel and XLS) with G5000	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 34 Navigation	Nav display control now a GDU and GTC function, weather radar (WX) control, transponder Automatic Dependent Surveillance-Broadcast (ADS-B).	No	Yes	C	C
	ATA 46 Information Systems	Added FliteCharts, SafeTaxi, (optional ChartView and SurfaceWatch).	No	Yes	C	C
	ATA 77 Engine Indicating	Active Matrix Liquid Crystal Display (AMLCD) or mechanical tape gauges replaced with Garmin Engine Indicating System (EIS) displays.	No	Yes	B	B

This **Maneuver Differences** Table, from the **560XL (Excel and XLS)** to the **560XL (Excel and XLS) with G5000**, was validated by the FSB on June 19, 2019. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XL (Excel and XLS) TO RELATED AIRCRAFT: 560XL (Excel and XLS) with G5000	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Instrument Procedures	PFD/MFD display control, FMS Nav control, Autopilot mode selection, and SVS display control. USP and coupled go-around (optional).	No	Yes	C	C
	Landing	Landing speeds calculated manually and entered via touchscreen controller (GTC).	No	No	A	A
	Normal Procedures	See AFMS for new or changed Normal Procedures.	No	Yes	C	C
	Abnormal Procedures	See AFMS for new or changed Abnormal Procedures.	No	Yes	C	C
	Emergency Procedures	See AFMS for new or changed Emergency Procedures EDM is a new function on the Excel.	No	Yes	C	C
	Emergency Procedures	EDM on XLS.	No	No	B	B

This **Design Differences** Table, from the **560XL (Excel)** to the **560XL (XLS)**, was validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XL TO RELATED AIRCRAFT: 560XLS	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	General	More engine thrust, hyd. and brake system differences, larger cockpit displays, added body fairings, max gross weight change (20,200 lb to 20,400 lb ramp load).	No	Yes	A	A

This **Design Differences** Table, from the **560XLS** to the **560XL**, was validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XLS TO RELATED AIRCRAFT: 560XL	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	General	Less engine thrust, hyd. and brake system differences, smaller cockpit displays, no body fairings, max gross weight change (20,400 lb to 20,200 lb ramp load).	No	Yes	A	A

This **Design Differences** Table, from the **560XL** to the **560XLS+** was validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XL TO RELATED AIRCRAFT: 560XLS+	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Engine PW545C replaces PW545A	Full-authority digital engine control (FADEC) controlled. More engine thrust. Thrust reverser deployment emergency procedures changed.	No	Yes	B	B
	Avionics	Collins Proline 21 replaces Honeywell P-1000.	No	Yes	C FTD 5	C FTD 5
	Cockpit Structure	Full span tilt panel added. Emergency gear release controls changed.	No	Yes	A	A
	ATA 21 Air Conditioning	Relocated temperature and pressurization controllers.	No	Yes	A	A
	ATA 22 Autoflight	Collins autopilot and flight guidance control panel. Single flight guidance panel located below glareshield replaces dual flight guidance panels located above PFDs.	No	Yes	C FTD 5	C FTD 5
	ATA 23 Communications	Collins radios. Radio tuning through control display units (CDU) or Cursor Control Panels (CCP) instead of Radio Management Units (RMU).	No	Yes	C FTD 5	C FTD 5

FROM BASE AIRCRAFT: 560XL						
TO RELATED AIRCRAFT: 560XLS+	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 24 Electrical Power	Relocated controls and ammeters.	No	Yes	A	A
	ATA 31 Indicating/Recording Systems	CAS on display unit 3 replaces annunciator panel.	No	Yes	C FTD 5	C FTD 5
	ATA 32 Landing Gear	Relocated emergency gear release and blow down handles.	No	Yes	A	B
	ATA 33 Lights	Lighting controls relocated.	No	Yes	A	A
	ATA 34 Navigation	Four-tube Collins displays and controllers replace three-tube Honeywell displays and controllers. Integrated Flight Information System (IFIS)-5000 system added. Collins radios and FMS. Radio tuning through CDUs and CCPs instead of RMUs. Electronic standby horizontal situation indicator (HSI) replaces mechanical HSI.	No	Yes	C FTD 5	C FTD 5
	ATA 35 Oxygen	Relocated oxygen controls and gauge.	No	Yes	A	A
	ATA 73 Engine Fuel and Control	Dual channel FADEC engines with new throttles.	No	Yes	B	B
	ATA 77 Engine Indicating	Engine information system on display unit 2. New standby engine gauge.	No	Yes	C FTD 5	C FTD 5

This **Design Differences** Table, from the **560XLS** to the **560XLS+** was validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XLS TO RELATED AIRCRAFT: 560XLS+	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Engine PW545C replaces PW545B	FADEC controlled.	No	Yes	B	B
	Avionics	Collins Proline 21 replaces Honeywell P-1000.	No	Yes	C FTD 5	C FTD 5
	Cockpit Structure	Full span tilt panel added. Emergency gear release controls changed.	No	Yes	A	A
	ATA 21 Air Conditioning	Relocated temperature and pressurization controllers.	No	Yes	A	A
	ATA 22 Autofight	Collins autopilot and flight guidance control panel. Single flight guidance panel located below glareshield replaces dual flight guidance panels located above PFDs.	No	Yes	C FTD 5	C FTD 5
	ATA 23 Communications	Collins radios. Radio tuning through CDUs or CCPs instead of RMUs.	No	Yes	C FTD 5	C FTD 5
	ATA 24 Electrical Power	Relocated controls and ammeters.	No	Yes	A	A

FROM BASE AIRCRAFT: 560XLS TO RELATED AIRCRAFT: 560XLS+	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 31 Indicating/Recording Systems	CAS on display unit 3 replaces annunciator panel.	No	Yes	C FTD 5	C FTD 5
	ATA 32 Landing Gear	Relocated emergency gear release and blow down handles.	No	Yes	A	B
	ATA 33 Lights	Lighting controls relocated.	No	Yes	A	A
	ATA 34 Navigation	Four-tube Collins displays and controllers replace three-tube Honeywell displays and controllers. IFIS-5000 system added. Collins radios and FMS. Radio tuning through CDUs and CCPs instead of RMUs. Electronic standby HSI replaces mechanical HSI.	No	Yes	C FTD 5	C FTD 5
	ATA 35 Oxygen	Relocated oxygen controls and gauge.	No	Yes	A	A
	ATA 73 Engine Fuel and Control	Dual channel FADEC engines with new throttles.	No	Yes	B	B
	ATA 77 Engine Indicating	Engine information system on display unit 2. New standby engine gauge.	No	Yes	C FTD 5	C FTD 5

This **Design Differences** Table, from the **560XLS+** to the **560XL** was validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XLS+ TO RELATED AIRCRAFT: 560XL	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Engine PW545A replaces PW545C	Electric Engine Control (EEC) controlled instead of FADEC controlled, and less thrust.	No	Yes	C FTD 5	C FTD 5
	Avionics	Honeywell P-1000 replaces Collins Proline 21.	No	Yes	C FTD 5	C FTD 5
	Cockpit Structure	Full span tilt panel removed. Emergency gear release controls changed.	No	Yes	A	A
	ATA 21 Air Conditioning	Relocated temperature and pressurization controllers.	No	Yes	A	A
	ATA 22 Autoflight	Honeywell autopilot and flight guidance control panel. Dual flight guidance panels located above PFDs replace single flight guidance panel located below glareshield.	No	Yes	C FTD 5	C FTD 5
	ATA 23 Communications	Honeywell radios. Radio tuning through RMUs instead of CDUs or CCPs.	No	Yes	C FTD 5	C FTD 5
	ATA 24 Electrical Power	Relocated controls and ammeters.	No	Yes	A	A

FROM BASE AIRCRAFT: 560XLS+ TO RELATED AIRCRAFT: 560XL	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 31 Indicating/Recording Systems	Annunciator Panel replaces CAS on display unit 3.	No	Yes	C FTD 5	C FTD 5
	ATA 32 Landing Gear	Relocated emergency gear release and blow down handles.	No	Yes	A	A
	ATA 33 Lights	Lighting controls relocated.	No	Yes	A	B
	ATA 34 Navigation	Three-tube Honeywell displays and controllers replace four-tube Collins displays and controllers. Honeywell radios and FMS. Radio tuning through RMUs instead of CDUs and CCPs. Mechanical standby HSI replaces electrical HSI.	No	Yes	C FTD 5	C FTD 5
	ATA 35 Oxygen	Relocated oxygen controls and gauge.	No	Yes	A	A
	ATA 73 Engine Fuel and Control	Single channel EEC Engines with different throttles and AUTO/MANUAL switches.	No	Yes	C FTD 5	C FTD 5
	ATA 77 Engine Indicating	AMLCD or mechanical tape gauges. Standby engine gauge is half of AMLCD or just mechanical N ₁ tapes.	No	Yes	C FTD 5	C FTD 5

This **Design Differences** Table, from the **560XLS+** to the **560XLS** was validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: 560XLS+ TO RELATED AIRCRAFT: 560XLS	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Engine PW545B replaces PW545C	EEC controlled instead of FADEC controlled.	No	Yes	C FTD 5	C FTD 5
	Avionics	Honeywell P-1000 replaces Collins Proline 21.	No	Yes	C FTD 5	C FTD 5
	Cockpit Structure	Full span tilt panel removed. Emergency gear release controls changed.	No	Yes	A	A
	ATA 21 Air Conditioning	Relocated temperature and pressurization controllers.	No	Yes	A	A
	ATA 22 Autoflight	Honeywell autopilot and flight guidance control panel. Dual flight guidance panels located above PFDs replace single flight guidance panel located below glareshield.	No	Yes	C FTD 5	C FTD 5
	ATA 23 Communications	Honeywell radios. Radio tuning through RMUs instead of CDUs or CCPs.	No	Yes	C FTD 5	C FTD 5
	ATA 24 Electrical Power	Relocated controls and ammeters.	No	Yes	A	A

FROM BASE AIRCRAFT: 560XLS+ TO RELATED AIRCRAFT: 560XLS	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	ATA 31 Indicating/Recording Systems	Annunciator panel replaces CAS on display unit 3.	No	Yes	C FTD 5	C FTD 5
	ATA 32 Landing Gear	Relocated emergency gear release and blow down handles.	No	Yes	A	A
	ATA 33 Lights	Lighting controls relocated.	No	Yes	A	A
	ATA 34 Navigation	Three-tube Honeywell displays and controllers replace four-tube Collins displays and controllers. Honeywell radios and FMS. Radio tuning through RMUs instead of CDUs and CCPs. Mechanical standby HSI replaces electrical HSI.	No	Yes	C FTD 5	C FTD 5
	ATA 35 Oxygen	Relocated oxygen controls and gauge.	No	Yes	A	A
	ATA 73 Engine Fuel and Control	Single channel EEC Engines with different throttles and AUTO/MANUAL switches.	No	Yes	C FTD 5	C FTD 5
	ATA 77 Engine Indicating	AMLCD or mechanical tape gauges. Standby engine gauge is half of AMLCD or just mechanical N ₁ tapes.	No	Yes	C FTD 5	C FTD 5

APPENDIX 4. GARMIN G5000 INTEGRATED FLIGHT DECK DESCRIPTION

The Supplemental Type Certificate (STC) No. ST01918WI modifies a Textron Model 560XL (Excel or XLS) aircraft by replacing the Honeywell Primus 1000 Avionics with the Garmin G5000 Integrated Flight Deck.

The G5000 installation in the Model 560XL features the following:

- Instrument panel reworked to include 3 LCD displays.
 - Two 14-inch PFD and one 14-inch MFD.
 - Engine instrument display incorporated into MFD.
 - Annunciator panel lights replaced by equivalent CAS messages normally displayed in the MFD CAS window.
- Two touchscreen controllers added to center pedestal for data entry and control of the G5000 system. Among other things, the functions include communications (COM) and navigation (NAV) radio tuning, FMS flight planning, and terminal procedure selection.
- Autopilot controller installed under glareshield.
- Full suite of Garmin G5000 interfacing equipment including XM datalink, iridium phone and datalink systems, and CPDLC – FAA Datacom and Link 2000+.
- GFC 700 autopilot (roll, pitch, yaw, and pitch trim axes),
- Interfaces to existing non-Garmin systems such as Traffic Alert and Collision Avoidance System (TCAS) II, distance measuring equipment (DME), automatic direction finder (ADF), and Radio Altimeter.
- USP and Coupled go-around. (Coupled go-around is optional but is bundled with the USP option. You cannot have USP without Coupled Go-Around, and vice-versa. USP is available at any time the autopilot is engaged, regardless of the active flight director mode.
- EDM.

There are dedicated panels for barometric correction adjustment. Display format and dimming panel is installed in the center pedestal for G5000 display dimming, split screen selection, and reversionary display selection.

The existing standby indicator was relocated in the instrument panel.

Optional equipment evaluated:

- Electronic charts.
- Electronic checklist (ECL).
- CPDLC.
- SVS.

APPENDIX 5. EFB OPERATIONAL EVALUATION GARMIN G5000

1. Purpose and Applicability. The following is provided for the benefit of FAA principal inspectors and aircraft operators for their use in determining the acceptance of Electronic Flight Bag (EFB) applications. The Garmin G5000 was evaluated using AC 120-76D, Authorization for Use of Electronic Flight Bags, dated October 27, 2017.

2. Suitability Determination.

The Garmin G5000 is operationally suitable for Type B EFB Applications, including but not limited to:

- Electronic display of aeronautical charts.
- Weather and aeronautical information.
- ECLs.

The evaluation determined chart display functions to be suitable as one source for electronic display of airport diagrams, approach plates, arrival procedures, departure procedures and visual flight rules (VFR) and instrument flight rules (IFR) enroute charts (both low- and high-altitude). Since chart information cannot be displayed in the event of certain avionics failures, a suitable secondary source is required to be available to the flightcrew.

3. Description. The G5000 includes “FliteCharts” and optional “ChartView” electronic charts. A specific system description for the system configuration appropriate to the installation is available in the approved Airplane Flight Manual (AFM), and applicable Garmin G5000 Integrated Avionics System Pilot’s Guide.

4. Specifications for Training. At a minimum, training should include use of the FMS to flight plan and use of the electronic chart functions to display the enroute charts, airport depiction charts, departure and arrival procedures, and approach charts. Pilots should master the weather functions to obtain current and forecast weather and for origin, destination, and alternate airports if datalink weather functions are enabled.

5. Specification for Checking. Recommended tasks include demonstrating competency in using the FMS to integrate use of the electronic chart functions to display departures, arrivals, and approaches, and utilizing the graphical weather functions if XM weather functions are enabled.

APPENDIX 6. EFB OPERATIONAL EVALUATION COLLINS PROLINE 21

1. Purpose and Applicability. The following is provided for the benefit of FAA principal inspectors and aircraft operators for their use in determining the acceptance of EFB applications. This evaluation was conducted using a previous revision of AC 120-76. However, the data/terminology has been updated to reflect AC 120-76D.

2. Suitability Determination.

The Collins Proline 21 with IFIS-5000 is operationally suitable for Type B EFB Applications, including but not limited to:

- Electronic display of aeronautical charts.
- Weather and aeronautical information.

Single or Dual File Server Unit (FSU)-5010 installations will not support EFB operational authorization as sole source of aeronautical information. Since chart information cannot be displayed while on emergency power, or in the event of certain avionics failures, a suitable secondary source is required to be available to the flightcrew.

Collins IFIS-5000 Operator's Guide must be immediately available to the flightcrew.

NOTE: ECLs were not evaluated by the FSB.

3. Description. The IFIS provides supplemental information, such as weather and electronic charts, in the cockpit via Adaptive Flight Displays (AFD). The IFIS functions are intended to provide situational awareness only and do not provide alerts or warnings. The three major functions provided by the IFIS-5000 are; support for navigational charts, enhanced map overlays, and graphical weather images. The charts function allows the viewing of selected Jeppesen aeronautical charts. The Enhanced Maps function is split into an application and a server that together provide map overlays of geopolitical, airspace, airway data and visual navigation information. The Graphical Weather function option provides various weather images, such as Next Generation Weather Radar (NEXRAD). The Graphical Weather System is operator selected as either XM or Universal.

4. FSB Specifications for Training. At a minimum, training should include use of the FMS to flight plan and the EFB electronic chart functions to access the airport depiction charts, departure and arrival procedures, and approach charts. Pilots should master the graphical weather depiction functions, if enabled, to obtain Meteorological Terminal Aerodrome Reports (METAR) and Terminal Aerodrome Forecasts (TAF) for origin, destination, and alternate airports.

5. FSB Specification for Checking. Recommended tasks include demonstrating competency in using the FMS to integrate use of the electronic chart functions to display departures, arrivals, and approaches, and utilizing the graphical weather functions if enabled.

APPENDIX 7. EFB OPERATIONAL EVALUATION HONEYWELL PRIMUS 1000

1. Purpose and Applicability. The following is provided for the benefit of FAA principal inspectors and aircraft operators for their use in determining the acceptance of EFB applications. This evaluation was conducted using a previous revision of AC 120-76. However, the data/terminology has been updated to reflect AC 120-76D.

2. Suitability Determination.

The Honeywell Primus 1000 Charts and/or MFD Uplink Graphical Weather are operationally suitable for Type B EFB Applications, including but not limited to:

- Electronic display of aeronautical charts.
- Weather and aeronautical information.

The EFB evaluation determined chart display functions to be suitable as one source for electronic display of airport diagrams, approach plates, arrival procedures, and departure procedures. Since chart information cannot be displayed in the event of certain avionics failures, a suitable secondary source is required to be available to the flightcrew.

AFM limitations must be complied with regarding use of Honeywell Charts and/or MFD Uplink Graphical Weather as an EFB.

3. Description. A specific system description for the system configuration appropriate to the installation is available in the approved AFM and the Honeywell Primus 1000 Control Display System for the Citation XLS Pilot's Manual.

4. FSB Specifications for Training. At a minimum, training should include use of the FMS to flight plan and the EFB electronic chart functions to access the airport depiction charts, departure and arrival procedures, and approach charts. Pilots should master the graphical weather depiction functions, if enabled, to obtain METARS and TAF's for origin, destination, and alternate airports.

5. FSB Specification for Checking. Recommended tasks include demonstrating competency in using the FMS to integrate use of the electronic chart functions to display departures, arrivals, and approaches, and utilizing the graphical weather functions if enabled.