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Flight Standardization Board Report

Revision: Original Date: XX/XX/XXXX

Manufacturer Textron Aviation, Inc.

Type Certificate Data Sheet (TCDS)	TCDS Identifier	Marketing Name	Pilot Type Rating
A27CE	501	Citation 501	CE-500
A27CE	551	Citation 551	CE-500

Approved by the Aircraft Evaluation Division

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1. RECORD OF REVISIONS

Revision Number	Section(s)	Date
Original	All	XX/XX/XXX

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.

3. HIGHLIGHTS OF CHANGE

This is the original Textron Models 501 and 551 Flight Standardization Board Report (FSBR). The purpose of this FSBR is to originate a Textron Models 501 and 551 FSBR (which share TCDS NO. A27CE) from the Textron 500/550/S550/552 and 560 models (which share TCDS No. A22CE).

4. BACKGROUND

In October, 2011, the Flight Standardization Board (FSB) conducted flight evaluations of Garmin G950 Avionics in a Cessna 501 modified with Supplemental Type Certificate (STC) No. SA11050SC-D. This STC replaces the Sperry SPZ-500 mechanical instruments and radios with dual GDU-1040 primary flight display (PFD), a Garmin Display Unit (GDU)-1040 multifunction display (MFD), dual GMA-1347D panels, GIA-63W, Garmin Data Computer (GDC)-74B Air Data Computer (ADC), GRS-77 Attitude Heading Reference Units (AHRS), Dual GTX-33 Mode S Transponders, GWX-68, and GDL-69 Datalink with optional XM. Radio tuning accomplished through PFDs, MFD, or Flight Management System (FMS) controller instead of separate mechanical control units. Pilot and co-pilot Garmin audio panels replaced the Original Equipment Manufacturer (OEM) audio panels. This installation also provides for new instrument panels, glare shield, and pedestal. Flight Director Mode Select Panel (MSP) is relocated to the pedestal and relocated master warning lights panel from center panel to the glare shield. Electronic standby instrument replaces mechanical gyro, airspeed, and altimeter indicators. This STC includes, "FliteChart" display functions for electronic display of airport diagrams, approach plates, and arrival and departure procedures, which requires a second suitable source. Optional ChartView was not

evaluated and a suitability determination was not made. A specific description for the system configuration appropriate to the installation is available in the approved Airplane Flight Manual (AFM) and Garmin G950 Integrated Flight Deck Pilots Guide for the Cessna Model 501. Electronic engine instruments were not evaluated by the FSB on the Cessna Model 501 for this installation. It as well as the associated AFM change, was found to be operationally suitable. Training and checking and currency requirements are listed in Appendix 3, Differences Tables.

In August 2011, the FSB conducted flight evaluations of a single Garmin 600 (G600) Integrated Flight Display System (IFDS) in a Cessna 501 modified with STC No. ST01395WI. (The STC includes Cessna Models 500/501/550/551 and S550). This Garmin G600 System replaces individual attitude, heading, airspeed, altitude and vertical speed instruments with an integrated electronic display using a flat panel liquid crystal display (LCD). The G600 System integrates with the existing SPZ-500 flight director/autopilot and displays information from the existing navigation equipment (Very High Frequency Omnidirectional Range (VOR), instrument landing system (ILS), Global Positioning System (GPS), localizer performance with vertical guidance (LPV)) as well as limited electronic flight bag (EFB) functions (electronic charts and data link weather information) in the multi-function portion of the display. The system further includes the following components: Garmin Data Computer (GDC)-620 PFD/MFD, Garmin Reference System (GRS) 77 Attitude and Heading Reference System (AHRS) with GMU 44 magnetometer, GDC 74B Air Data Computer (ADC) with GTP 59 Temperature Probe, GAD 43 Autopilot Adapter, Garmin Display Unit (GDU) 620 Roll Steering Output interfaced with existing SPZ-500 AFCS and existing single or dual GNS430W/530W or GTN 650/750 series very high frequency (VHF) communication/VOR-ILS receiver/Global Navigation Satellite System (GNSS) Space Based Augmentation System (SBAS) navigation system. The following components have been removed from the left pilot's panel: Attitude Direction Indicator (ADI) and horizontal situation indicator (HSI), vertical gyro and compass system, airspeed, altitude, and vertical speed indicators (VSI). It as well as the associated AFM change, was found to be operationally suitable. Training checking and currency 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
- ADC Air Data Computer
- ADI Attitude Direction Indicator
- AEG Aircraft Evaluation Group
- AFCS Automatic Flight Control System
- AFM Airplane Flight Manual
- AFMS Airplane Flight Manual Supplement
- AHRS Attitude and Heading Reference System
- ATP Airline Transport Pilot

- AV Audiovisual Presentation
- CDS/R Control Display System/Retrofit
- CPT Cockpit Procedures Trainer
- DCP Display Control Panel
- EFB Electronic Flight Bag
- EFI Electronic Flight Instrument
- EFIS Electronic Flight Instrument System
- EGPWS Enhanced Ground Proximity Warning System
- FAA Federal Aviation Administration
- FADEC Full-Authority Digital Engine Control
- FFS Full Flight Simulator
- FMS Flight Management System
- FSB Flight Standardization Board
- FSBR Flight Standardization Board Report
- FSTD Flight Simulation Training Device
- GDC Garmin Data Computer
- GDL Garmin Datalink Receiver
- GDU Garmin Display Unit
- GIA Garmin Integrated Avionics
- GMA Garmin Marker Beacon Audio
- GNSS Global Navigation Satellite System
- GPS Global Positioning System
- GRS Garmin Reference System
- GTN Garmin Touchscreen Navigator
- GTX Garmin Transponder
- GWX Garmin Weather Radar
- HO Handout
- HSI Horizontal Situation Indicator
- IAP Instrument Approach Procedure
- ICBI Interactive Computer-Based Instruction
- IFDS Integrated Flight Display System
- IFIS Integrated Flight Information System
- ILS Instrument Landing System
- IS&S Innovative Solutions & Support (trade name)
- LED Light-Emitting Diode
- LCD Liquid Crystal Display
- LNAV Lateral Navigation
- LPV Localizer Performance With Vertical Guidance
- METAR Aviation Routine Weather Report
- MFD Multifunction Display
- MFF Mixed Fleet Flying
- MDR Master Differences Requirements
- MSP Mode Select Panel
- MTOW Maximum Takeoff Weight

- NAS National Airspace System
- OEM Original Equipment Manufacturer
- PFD Primary Flight Display
- PI Principal Inspector
- PIC Pilot in Command
- PTT Part Task Trainer
- RMI Radio Magnetic Indicator
- RTO Rejected Takeoff
- SBAS Space Based Augmentation System
- SIC Second in Command
- SID Standard Instrument Departure
- STC Supplemental Type Certificate
- SU Stand-Up Instruction
- TAF Terminal Area Forecast
- TAWS Terrain Awareness and Warning System
- TC Type Certificate
- TCAS Traffic Alert and Collision Avoidance System
- TCBI Tutorial Computer-Based Instruction
- TCDS Type Certificate Data Sheet
- V₁ Takeoff Decision Speed
- VHF Very High Frequency
- VNAV Vertical Navigation
- VOR Very High Frequency Omnidirectional Range
- VS Vertical Speed
- VSI Vertical Speed Indicator
- WAAS Wide Area Augmentation System
- WX Weather
- XM Satellite Radio

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.** Describe the differences between a pair of related aircraft, and the minimum levels operators must use to conduct differences training and checking of flightcrew members. Differences levels range from A to E.

- **6.4 Master Differences Requirements (MDR).** Specifies the minimum levels of training and checking required between a pair of related aircraft, derived from the highest level in the Differences Tables.
- **6.5** Mixed Fleet Flying (MFF). 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.** The AEG process to determine pilot type rating, minimum flightcrew member training, checking and currency requirements, and unique or special airman certification requirements (e.g., specific flight characteristics, no-flap landing).
- **6.7 Operational Suitability.** The 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 the Federal Regulations (14 CFR) parts 91, 121, 133, and 135).
- **6.8 Qualified.** A flightcrew member 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 type certificates (TC) 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 flight simulation training devices (FSTD), 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 Models 501 and 551 type rating designation is CE-500.
 - 7.1.1 Pilot Type Rating-Practical Test as Single Pilot Model 501/551. An applicant who satisfactorily completes a practical test as a single pilot in Model 501 or 551 will be issued a CE-500 pilot type rating.
 - 7.1.2 Pilot Type Rating-Practical Test with Two Pilots Model 501/551. An applicant who satisfactorily completes a practical test utilizing a second in command (SIC) in Model 501/551 will be issued a CE-500 pilot type rating with a Limitation, "CE-500 Second in Command Required."
- 7.2 Common Type Ratings. Not applicable.

7.3 Military Equivalent Designations. Military aircraft that qualify for the CE-500 type rating 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 certification/.

8. RELATED AIRCRAFT

- 8.1 Related Aircraft on Same TCDS. Not applicable.
- **8.2 Related Aircraft on Different TCDS.** The Textron Models 501 and 551 are related to the Textron Models 500, 550, S550 and 560 (TCDS No. A22CE).

8.3 Related Aircraft Model Information

- 8.3.1 Model 501: The Model 501 was type certificated on January 7, 1977 in the normal category. The aircraft has the common type rating as the Model 500 and is type certificated for one pilot plus equipment specified in the AFM, or two pilots. This model is a straight-wing aircraft powered by two JT15D-1A or JT15D-1B turbofans used in any combination with a static thrust at standard day, sea level of 2,200 lb. The maximum operating altitude for the Model 501 is 41,000 ft. The maximum takeoff weight (MTOW) for the Model 501 is 11,850 lb. The Model 501 has the same avionics installed as the Model 500 aircraft.
- 8.3.2 Model 551: The Model 551 was type certificated on June 30, 1978 in the normal category. The aircraft has the common pilot type rating as the Model 500 and is type certificated for one pilot plus equipment specified in the AFM, or two pilots. This model is a straight wing aircraft powered by two JT15D-4 turbofans with a static thrust at standard day, sea level of 2,500 lb. The maximum operating altitude for the Model 551 is 43,000 ft. The maximum takeoff weight for the Model 551 is 12,500 lb. The Model 551 is equipped with individual mechanical flight instruments and has the option for the Bendix EFS-10, Sperry EDZ-600, Sperry EDZ-601 and Sperry EDZ-603 EFIS.

9. PILOT TRAINING

9.1 Airman Experience.

- 9.1.1 Airmen receiving initial CE-500 training should have previous training in high-altitude operations in multiengine turbojet aircraft, new generation avionics, and flight management system (FMS) experience. Airmen without this experience may require additional training.
- 9.1.2 Airmen receiving differences, upgrade, or transition training are assumed to have previous experience in a variation of the Textron Model 501 or 551 Series.
- 9.2 Special Emphasis Areas. There are no special emphasis areas.

- **9.3** Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the Airline Transport Pilot (ATP) 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. However, when the minimum crew determination listed in the Airplane Flight Manual (AFM) and the TCDS is one pilot, the pilot must occupy the left pilot seat for all pilot in command (PIC) training as a single pilot.
- **9.5 Regulatory Training Requirements Which Are Not Applicable to the Textron Model 501 or 551.** Part 135 Ground Training: Propellers.
- **9.6 Flight Simulation Training Devices (FSTD).** There are no specific systems, procedures, or maneuvers that are unique to Textron Model 501 or 551 that require a specific FSTD for training.
- **9.7 Training Equipment.** There are no specific systems or procedures that are unique to the Textron Model 501 or 551 that require specific training equipment.
- **9.8 Differences Training Between Related Aircraft.** Pilots must receive differences training between the Textron Models 501 and 551 aircraft variations as applicable to their operation. The level of training is specified in Appendix 3, Differences Tables. Differences Tables are only provided for aircraft the FSB has validated. Therefore, Appendix 3 does not include Differences Tables for all possible configurations.

10. PILOT CHECKING

- 10.1 Landing from a No-Flap or Nonstandard Flap Approach. The probability of flap extension failure on the Textron Model 501 or 551 is not extremely remote due to system design. Therefore, demonstration of a no-flap approach and landing during pilot certification is required. During a [§§ 61.58 proficiency check, 91.1065 competency check, 121.441 proficiency check, 125.287 competency check, or 135.293 competency check], this task may be required. Refer to Order 8900.1, Volume 5, Airman Certification, when the test or check is conducted in an aircraft versus an FFS.]
- **10.2** Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the ATP and Type Rating for Airplane ACS. There are no specific flight characteristics.
- **10.3 Seat-Dependent Tasks.** There are no specific seat-dependent tasks. However, when the minimum crew determination listed in the AFM and the TCDS is one pilot, the pilot must occupy the left pilot seat for all practical tests and proficiency checks as a single pilot.
- 10.4 Other Checking Items. Not applicable.
- **10.5 FSTD.** There are no specific systems, procedures, or maneuvers that are unique to the Textron Model 501 or 551 that require a specific FSTD for checking.

10.6 Equipment. There are no specific systems or procedures that are unique to the Textron Model 501 or 551 that require specific equipment.

10.7 Differences Checking Between Related Aircraft.

- 10.7.1 Pilots must receive differences checking between the Textron Model 501 and 551 aircraft variations as applicable to their operation. The level of checking is specified in Appendix 3, Differences Tables.
- 10.7.2 For operators with a Textron Models 501 and 551 mixed fleet, recurrent checks should alternate for PICs and SICs. The knowledge portion of initial and recurrent checks should address all variations operated by the flightcrew member.

11. PILOT CURRENCY

There are no additional currency requirements for the Textron Models 501 and 551 other than those already specified in parts 61, 91, and 135.

11.1 Differences Currency Between Related Aircraft. Not applicable.

12. OPERATIONAL SUITABILITY

The Textron Models 501 and 551 are operationally suitable for operations under parts 91 and 135. The list of operating rules evaluated is on file at the Small Aircraft AEG.

13. MISCELLANEOUS

- 13.1 Forward Observer Seat. Textron Models 501 and 551 aircraft are not equipped with a dedicated forward observer seat. Some available forward passenger seats with the standard passenger seat/seatbelt, passenger oxygen and splitter cord for audio have been found suitable for conducting enroute inspections per part 135, § 135.75(b). Audio jacks may be installed at the forward seat to provide for enroute inspections. Due to the availability of various passenger seat for use in conducting enroute inspections or flight checks in accordance with part 135 will need to be determined by the FAA inspector conducting the enroute inspections or flight checks.
- **13.2** Aircraft Approach Category. The Textron Models 501 and 551 are considered a Category B aircraft for the purposes of determining the appropriate instrument approach procedure category in accordance with § 97.3.
- **13.3 Normal Landing Flaps.** The Textron Models 501 and 551 normal "final flap setting" per § 91.126(c) is Flaps Land/Full.

13.4 Electronic Flight Bag (EFB).

- 13.4.1 G600 Electronic Charts. The EFB evaluation determined functions were not suitable as a source for electronic display of airport diagrams, approach plates, arrival procedures, and departure procedures. This was due to display size, which requires excessive pilot actions to select viewable charts, and competing MFD functions. Using G600 electronic charts increases pilot workload negatively and affects pilot performance. While it is possible to view electronic approach charts on G600, they are not operationally suitable to meet regulatory requirements of § 91.503.
- 13.4.2 Innovative Solutions & Support (IS&S) Electronic Charts. Electronic charts have been evaluated for operational suitability. Refer to the EFB evaluation report in Appendix 4, EFB Operational Evaluation for Cessna 501 Aircraft Modified by Sierra Industries, Inc. G950 STC No. SA11050SC-D.

APPENDIX 1. DIFFERENCES LEGEND

Training Differences Legend

Differences Level	Туре	Training Method Examples	Conditions
A	Self-Instruction	 Operating manual revision (handout (HO)) Flightcrew operating bulletin (HO) 	 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.
В	Aided Instruction	 Audiovisual presentation (AV) Tutorial computer-based instruction (TCBI) Stand-up instruction (SU) 	 Systems are functionally similar. Crew understanding required. Issues need emphasis. Standard methods of presentation required.
C	Systems Devices	 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) 	 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	 Level 6 or 7 flight training device (FTD 6-7) Level A or B full flight simulator (FFS A-B) 	 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	 Level C or D full flight simulator (FFS C-D) Aircraft (ACFT) 	 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 Leger	iu iu
Differences Level	Checking Method Examples	Conditions
А	None	None
В	• Oral or written exam	Individual systems or related groups of
	• Tutorial computer-based instruction (TCBI) self-test	systems.
С	• Interactive (full-task) computer-based instruction (ICBI)	• Checking can only be accomplished using
	Cockpit Procedures Trainers (CPT)	systems devices.
	• Part task trainers (PTT)	• Checking objectives focus on mastering
	• Level 4 or 5 flight training device (FTD 4-5)	individual systems, procedures, or tasks.
D	• Level 6 or 7 flight training device (FTD 6-7)	• Checking can only be accomplished in
	• Level A or B full flight simulator (FFS A-B)	flight maneuver devices in a real-time
		chooling requires mostory of intervaleted
		• Checking requires mastery of interrelated
		• Motion visual control loading and
		specific environmental conditions may be
		required
E	• Level C or D full flight simulator (FFS C-D)	Significant full-task differences that require
	• Aircraft (ACFT)	a high fidelity environment.

Checking Differences Legend

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.

To Related Aircraft ↓	From Base Aircraft →	500	501	550	551	S 550	560
501		B/A (1)(6)(7)(9)(10)	A/A (1)(7)(9)	B/A (1)(2)(3)(6)(7)(8)(9)(10)	B/A (1)(2)(7)(9)	C/C (1)(2)(6)(7)(9)(10)	C/C (1)(2)(4)(5)(6)(7)(10)
551		B/A (1)(2)(6)(9)(10)	B/A (1)(2)(7)(9)	B/A (1)(2)(3)(6)(8)(9)(10)	A/A (1)(2)(9)	B/A (1)(2)(6)(9)(10)	C/B (1)(2)(4)(5)(6)(10)

NOTES:

- 1. For Traffic Alert and Collision Avoidance System (TCAS) II or Terrain Awareness and Warning System (TAWS) B, C/B may apply.
- 2. For Bendix EFS-10, Sperry EDZ-600/601/603 Electronic Flight Instrument System (EFIS), C/C applies.
- 3. For Pratt & Whitney PW530A and Honeywell SPZ-8000/P1000, D/D applies to Citation Bravo from Citation II.
- 4. For Honeywell P-1000 from Honeywell EDZ-60x, D/D applies. For PW535B with FADEC and Pro Line 21 from PW535A and P-1000, C/B applies.
- 5. For Control Display System/Retrofit (CDS/R) (Supplemental Type Certificate (STC) No. ST01165LA) on Honeywell EDZ-60x, D/C applies.
- 6. For IS&S display retrofits by STC No. ST02739NY, D/D applies.
- 7. For G950 Textron Model 501, modified with display retrofit by STC No. SA11050SC-D, D/D applies.
- For Electronic Flight Instrument (EFI)-890R Model 550, modified with display retrofit (STC No. ST03947AT)-D/D applies. For Master Caution Panel with light-emitting diode (LED) lighting on Model 550 (STC No. ST03948AT), C/C/C applies and for Advanced Digital Audio Management System on Model 550 (STC No. ST03946AT), C/C applies.
- For 500/501/550/551/S550 with SPZ-500 Automatic Flight Control System (AFCS) retrofitted with Garmin G600 Integrated Flight Display System (IFDS) (STC No. ST01395WI) is D/D. For pilots currently § 61.58 qualified in 500/501/550/551/S550 with Garmin G950/G1000/ G600 to aircraft retrofitted with Garmin G600 IFDS STC No. ST01395WI C/C applies.
- 10. For operation from an aircraft type certificated for two pilots to single pilot operation, E/E applies.

APPENDIX 3. DIFFERENCES TABLES

This Design Differences Table, from the Textron Model 501 to the Textron Model 501 with (G950) STC No. SA11050SC-D, was validated by the FSB on October 7, 2011. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: Textron Model 501 TO RELATED AIRCRAFT: Textron Model 501 with (G950) STC NO. SA11050SC-D	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Limitations	Limitations related to the avionics/flight instruments as per AFMS.	No	Yes	В	В
	Placards and Markings	New placards per AFMS.	No	No	А	А
	Flight Deck	Garmin G950 avionics suite installed replacing Sperry SPZ-500, mechanical flight instruments, and radios. New instrument panels, new Glareshield, and a new pedestal.	No	Yes	C FTD	С

FROM BASE AIRCRAFT: Textron Model 501 TO RELATED AIRCRAFT: Textron Model 501 with (G950) STC NO. SA11050SC-D	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Instrument Panel/Layout	 G950 PFD/MFD format replaces all Primary Flight Instruments. Change from mechanical primary flight instruments to dual PFD (Garmin Display Unit (GDU)- 1040). Audio panels replaced by dual Garmin Marker Beacon Audio (GMA)-1347D panels. Installed GDU-1040 MFD Controller. Install Garmin Integrated Avionics (GIA)-63W. Install Garmin Reference System (GRS)-77 Attitude and Heading Reference System (AHRS). Install Garmin Weather Radar (GWX)-68. Install Garmin Datalink Receiver (GDL) with optional Satellite Radio (XM). 	No	Yes	C FTD	C
	22 Autoflight	Mode Control Selections.	No	Yes	C FTD	В

FROM BASE AIRCRAFT: Textron Model 501 TO RELATED AIRCRAFT: Textron Model 501 with (G950) STC NO. SA11050SC-D	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	23 Communications	G950 Dual Very High Frequency (VHF) (GIA-63W) replaces Pro Line 2 radios, tuned with DCP on GDU-1040s, added GMA-1347D panels and Abnormal Tuning Procedures.	No	Yes	C FTD	С
	24 Electrical	Standby power for G950.	No	Yes	В	В
	33 Lighting	Cockpit instrument panel lighting.	No	No	В	А
	34 Navigation	G950 PFD replaces mechanical flight instruments with air data computer (ADC) and AHRS.	No	Yes	C FTD	С
	34 Navigation	Navigation Display & Flight Plan Dual Global Positioning System (GPS) wide area augmentation system (WAAS) with GIA-63W. Lateral navigation (LNAV)/vertical navigation (VNAV) & localizer performance with vertical guidance (LPV) approaches.	No	Yes	D FFS	D

FROM BASE AIRCRAFT: Textron Model 501 TO RELATED AIRCRAFT: Textron Model 501 with (G950) STC NO. SA11050SC-D	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	34 Navigation	 G950 integrated ADC with Pitot/Static interface changes. Baro set & Alt. Alerter. Low Speed Alert on speed tape. Tape Altimeter & VS. G950 integrated AHRS (GRS-77). 	No	Yes	C FTD	В
	34 Navigation	Garmin Transponder (GTX)-33 controlled by PFD DCP or GDU- 477. GWX-68.	No	No	В	В
	34 Navigation	Electronic Standby Instruments.	No	Yes	C FTD	С
	46 Information Systems	G950 EFB Functions. Instrument Approach Procedure (IAP) only, no Enroute Charts. Emergency Power Chart availability. XM Weather (WX) Data (GDL-69).	No	Yes	C ICBT/FTD	В

This Maneuver Differences Table, from the Textron Model 501 to the Textron Model 501 with (G950) STC No. SA11050SC-D, was validated by the FSB on October 7, 2011. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: Textron Model 501 TO RELATED AIRCRAFT: Textron Model 501 with (G950) STC NO. SA11050SC-D	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Preflight	G950 Cockpit preflight procedures.	No	Yes	В	В
	Engine Start	No change.	No	No		
	After Start and Taxi.	G950 System checks.	No	Yes	C FTD	В
	Takeoff	G950 PFD/MFD setup, V-speeds, PFD/MFD instrument reference for Takeoff.	No	Yes	D FFS/AC	D
	RTO or V ₁ Fail	PFD airspeed and attitude reference and MFD engine indications.	No	No	C FTD	В
	Climb Cruise Decent	Flight Director use, Low-speed awareness, altitude alerter use, Navigation, Nav source and Flight Director.	No	Yes	D FFS/AC	С

FROM BASE AIRCRAFT: Textron Model 501 TO RELATED AIRCRAFT: Textron Model 501 with (G950) STC NO. SA11050SC-D	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	In-Flight Maneuvers	Maneuvers affected by PFD/Flight Instruments. Steep turns, Stalls, LSA, Flight Director, and Navigation.	No	Yes	D FFS/AC	
	Instrument Approaches	Flight plan selection procedures. Approach selection, activation, Flight Director use, LNAV/VNAV and LPV approach procedures.	No	Yes	D FFS/AC	D
	Landing	PFD instrument reference and setting V-speeds.	No	Yes	C FTD	В
	Normal Procedures	AFMS Procedures for G950 Display System, TCAS, EGPWS.	No	Yes	C FTD	С
	Abnormal Procedures	AFMS Procedures for G950 Display System, TCAS, EGPWS.	No	Yes	C FTD	В
	Emergency Procedures	Emergency Procedures were revised. AFMS Procedures for G950 Display System, TCAS, EGPWS.	No	Yes	C FTD	С

This Design Differences Table, from the Textron Model 500/501/550/551/S550 with SPZ-500 AFCS to the Textron Model 501/551 with G600 STC No. ST01395WI, was validated by the FSB on August 18, 2011. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: Textron Model 500/501/550/551/ S550 with SPZ-500 AFCS TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Avionics	Garmin G600 System replaces individual attitude, heading, airspeed, altitude, and VS instruments. The G600 System integrates with the existing SPZ-500 Flight Director/autopilot.	No	Yes	В	В
	Flight Deck	G600 replaces individual attitude, heading, airspeed, altitude and VS instruments using a flat panel liquid crystal display (LCD). G600 integrates with the existing SPZ-500 Flight Director/autopilot.	No	Yes	C FTD	С
	Instrument Panel Layout	G600 PFD/MFD replaces primary flight instruments.	No	Yes	C FTD	С

FROM BASE AIRCRAFT: Textron Model 500/501/550/551/ S550 with SPZ-500 AFCS TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	22 Autoflight	No Change.	No	No		
	23	No Change.	No	No		
	Communications	E .				
	34 Navigation	Garmin G620 PFD/MFD replaces pilot original Attitude Direction Indicator (ADI), HSI, Mach/Airspeed, Altimeter, Radio Magnetic Indicator (RMI), Vertical Speed Indicators (VSI), Pilot Radio Altimeter, indicator and Radar Display.	No	Yes	D FFS/AC	D
	34 Navigation	Garmin Synthetic Vision Technology.	No	Yes	D FFS/AC	D
	34 Navigation	Single GRS-77 AHRS.	No	Yes	C FTD	C
	34 Navigation	Pilot PFD/MFD Integrated Controls (bezel buttons).	No	Yes	C ICBT	C
	34 Navigation	Pilot PFD/MFD Navigation Source Integrated Controls (bezel buttons) added.	No	Yes	C ICBT	С

This Maneuver Differences Table, from the Textron Model 500/501/550/551/S550 with SPZ-500 AFCS to the Textron Model 501/551 with G600 STC No. ST01395WI, validated on August 18, 2011 by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: Textron Model 500/501/550/551/ S550 with SPZ-500 AFCS TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Preflight	G600 Cockpit preflight procedures.	No	Yes	C FTD	В
	Engine Start	No Change.				
	After Start and Taxi	AFMS Procedures for G600.	No	Yes	C ICBT	С
	Takeoff	Reference for Airspeed and Attitude. G600 PFD/MFD for takeoff.	No	Yes	D FFS/AC	D
	RTO/V ₁ Fail	PFD Reference for Airspeed and Attitude.	No	Yes	D FFS/AC	D
	Climb Cruise Descent	Flight Director use, Low-speed awareness, altitude alerter, use of navigation sources.	No	Yes	D FFS/AC	D

FROM BASE AIRCRAFT: Textron Model 500/501/550/551/ S550 with SPZ-500 AFCS TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	In-Flight Maneuvers	Maneuvers affected by PFD Flight instruments, Steep Turns, and Stalls. Low-speed awareness Flight Director and navigation.	No	Yes	D FFS/AC	D
	Instrument Approaches	PFD Flight Instrument and navigation selection.	No	Yes	D FFS/AC	D
	Landing	PFD Flight Instruments, Set V-speed.	No	Yes	D FFS/AC	D
	Shutdown	No Change.				
	Normal Procedures	AFMS Procedures for G600.	No	Yes	C FTD	В
	Abnormal Procedures	AFMS Procedures for G600.	No	Yes	C FTD	В
	Emergency Procedures	AFMS Procedures for G600.	No	Yes	C FTD	В

This Design Differences Table, from the Textron Model 500/501/550/551/S550 with G950/G1000/G600 installed to the Textron Model 501/551 with G600 STC No. ST01395WI, was validated by the FSB on August 18, 2011. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: Textron Model 501/551 with G950/G1000/ G600 installed TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Avionics	Garmin G600 System is PFD/MFD installation. The G600 System integrates with the existing Flight Director/autopilot.	No	Yes	В	В
	Flight Deck	G600 may incorporate previously individual functions and controls.	No	Yes	C FTD	С
	Instrument Panel Layout	G600 PFD/MFD replaces primary flight instruments.	No	Yes	C FTD	С

FROM BASE AIRCRAFT: Textron Model 500/501/550/551/ S550 with G950/G1000/ G600 installed TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	22 Autoflight	Autoflight Mode Controls may change.	No	Yes	C FTD	С
	23 Communications	Nav/Comm/GPS may be GIA-63, Garmin Touchscreen Navigators (GTN), or Garmin Navigation Systems.	No	Yes	В	A
	34 Navigation	Garmin G620 PFD/MFD replaces previous PFDs.	No	Yes	C FTD	С
	34 Navigation	Garmin Synthetic Vision Technology.	No	Yes	C FTD	С
	34 Navigation	Single GRS-77 AHRS.	No	Yes	В	В
	34 Navigation	Pilot PFD/MFD Integrated Controls (bezel buttons).	No	Yes	C ICBT	С
	34 Navigation	Pilot PFD/MFD Navigation Source Integrated Controls (bezel buttons) added.	No	Yes	C ICBT	С

This Maneuver Differences Table, from the Textron Model 500/501/550/551/S550 with G950/G1000/G600 installed to the Textron Model 501/551 with G600 STC No. ST01395WI, was validated by the FSB on August 18, 2011. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: Textron Model 500/501/550/551/ S550 with G950/G1000/ G600 installed TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Preflight	G600 Cockpit preflight procedures.	No	Yes	C FTD	С
	Engine Start	Engine instruments may change.	No	Yes	В	В
	After Start and Taxi	AFMS Procedures for G600.	No	Yes	C ICBT	С
	Takeoff	Reference for Airspeed and Attitude. G600 PFD/MFD for takeoff.	No	Yes	C FTD	В
	RTO/V ₁ Fail	No Change.				
	Climb Cruise Descent	Flight Director use, Low-speed awareness, altitude alerter, use of navigation sources.	No	Yes	C FTD	В

FROM BASE AIRCRAFT: Textron Model 500/501/550/551/ S550 with G950/G1000/ G600 installed TO RELATED AIRCRAFT: Textron Model 501/551 with G600 STC No. ST01395WI	MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	In-Flight Maneuvers	Maneuvers affected by Flight Director and navigation mode control.	No	Yes	C FTD	В
	Instrument Approaches	PFD Flight Instrument and navigation selection.	No	Yes	C FTD	В
	Landing	PFD, Set V-speeds.	No	Yes	В	А
	Shutdown	No Change.				
	Normal Procedures	AFMS Procedures for G600.	No	Yes	C FTD	С
	Abnormal Procedures	AFMS Procedures for G600.	No	Yes	C FTD	В
	Emergency Procedures	AFMS Procedures for G600.	No	Yes	C FTD	В

APPENDIX 4. EFB OPERATIONAL EVALUATION FOR CESSNA 501 AIRCRAFT MODIFIED BY SIERRA INDUSTRIES, INC. G950 STC NO. SA11050SC-D

1. Purpose and Applicability

The following is provided for the benefit of FAA principal inspectors (PI) and aircraft operators for their use in determining the acceptance of EFB applications. As described in AC 120-76, Authorization for Use of Electronic Flight Bags (current edition), the G950 electronic charts are certified Class 3 EFB Hardware and Type C applications. Class 3 hardware is installed equipment and requires Aircraft Certification Service (AIR) and AEG involvement. Applications are classified as Type C due to interaction of the Electronic Charts with the aircraft. The charts can be manipulated (i.e., zoomed, scrolled, etc.) as Type B, but are classified Type C because aircraft present position is provided on the installed display on the airport depictions and charts.

2. Suitability Determination

The EFB evaluation determined FliteChart display functions to be suitable as one source for electronic display of airport diagrams, approach plates, arrival procedures, and departure procedures. Since EFB information cannot be displayed while on emergency power or in the event of certain avionics failures, a second suitable source is required. Optional ChartView was not evaluated and a suitability determination was not made. PIs should contact the Small Aircraft AEG regarding authorization for use of ChartView. The Approved Airplane Flight Manual Supplement (AFMS) provides operating limitations for the installation.

3. Description

The STC includes "FliteChart" and optional ChartView electronic charts. A specific system description for the system configuration appropriate to the installation is available in the approved AFMS and Garmin G950 Integrated Flight Deck Pilot's Guide for the Cessna Citation I/SP.

4. Mounting

EFB applications are displayed on the MFD and have been certified as part of the type design.

5. Display and Reflectivity

The EFB has been evaluated as part of the type design.

6. Database Revisions

The database currency requirements are specified in the approved AFMS and Garmin G950 Integrated Flight Deck Pilot's Guide for the Cessna 501.

7. Specifications for Training

As a minimum, the crew should use the FMS to flight plan and the EFB Electronic Chart functions to pull up the airport depiction charts, Standard Instrument Departures (SID), arrival procedures, and approach charts. Pilots should master the weather functions to obtain Aviation Routine Weather Reports (METAR) and Terminal Area Forecasts (TAF) for origin, destination, and alternate airports, if Satellite Radio (XM) weather functions are enabled.

8. 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.