OPERATIONAL EVALUATION REPORT

CESSNA AIRCRAFT COMPANY

CITATION 750 X / X+

GRUPO DE AVALIAÇÃO DE AERONAVES – GAA

BRAZILIAN AIRCRAFT EVALUATION GROUP

AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL

SÃO JOSÉ DOS CAMPOS, BRAZIL

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Approval

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1 General

1.1 Evaluation Team

1.1.1. First issue team members

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1.2 Acronyms

- ❑ AAD – Aeronave de Alto Desempenho
- ❑ AEO – All Engine Operative
- ❑ AFM – Airplane Flight Manual
- ❑ ATO – Approved Training Organization
- ❑ BPC - Block Point Change
- ❑ CBT – Computer Based Training
- ❑ CCD – Cursor Control Device
- ❑ CCL – Compliance Checklist
- ❑ CRM – Crew Resource Management
- ❑ EFB – Electronic Flight Bag
- ❑ EFIS – Electronic Flight Instrument System
- ❑ EGPWS – Enhanced Ground Proximity Warning System
- ❑ FAA – Federal Aviation Administration
- ❑ FFS – Full Flight Simulator
- ❑ FMS – Flight Management System
- ❑ FSB – Flight Standardization Board (FAA)
- ❑ FSI – Flight Safety International
- ❑ FSTD – Flight Simulator Training Device
- ❑ FTD – Flight Training Device
- ❑ FTO – Flight Training Organization
- ❑ GPWS – Ground Proximity Warning System
- ❑ HPA – High Performance Aircraft
- ❑ HUD – Head Up Guidance Display
- ❑ IFR – Instrument Flight Rules
- ❑ LNAV – Lateral Navigation
- ❑ LOFT – Line Oriented Flight Training
- ❑ MFD – Multi-Function Display
- ❑ MDR – Master Difference Requirements
- ❑ MMEL – Master Minimum Equipment List
- ❑ ODR – Operational Difference Requirements
- ❑ OEB – Operational Evaluation Board
- ❑ OEI – One Engine Inoperative
- ❑ OSD – Operational Suitability Data
- ❑ PBN – Performance-Based Navigation
- ❑ PF – Pilot Flying
- ❑ PFD – Primary Flight Display

- ❑ PIC – Pilot In Command
- ❑ PM – Pilot Monitoring
- ❑ PNF – Pilot Not Flying
- ❑ QRH – Quick Reference Handbook
- ❑ RBAC – Regulamento Brasileiro de Aviação Civil
- ❑ RBHA – Regulamento Brasileiro de Homologação Aeronáutica
- ❑ RNAV – Area Navigation
- ❑ RNP – Required Navigation Performance
- ❑ SIC – Second In Command
- ❑ SOP – Standard Operating Procedure
- ❑ TASE – Training Area of Special Emphasis
- ❑ TAWS – Terrain Awareness and Warning System
- ❑ TC – Type Certificate
- ❑ TCAS – Traffic Alert Collision Avoidance System
- ❑ TCDS – Type Certificate Data Sheet
- ❑ TRTO – Type Rating Training Organization
- ❑ VNAV – Vertical Navigation

2 Introduction

2.1 Background

The Cessna aircraft C750 (#001 thru #0313) is commercially known by Citation X and the aircraft C750 (#0501 and On) is known by Citation X+.

From now on the commercial names will be used on this report too. Sometimes the name C750 BPC (Block Point Change) is used instead of C750 (#0501 and On).

Under the operational standpoint the main differences between Citation X and X+ are related to the avionics upgrade (Primus 2000 vs. Garmin G5000), the addition of autothrottle and the engines upgrade consequently improving the performance.

The evaluation was first conducted by documentation analysis using the information provided by the manufacturer and the determinations of the Flight Standardization Board (FSB) Report, issued by the Federal Aviation Administration (FAA).

Thereon, it was arranged a visit in Textron Aviation and Flight Safety International in order to perform technical meetings and familiarization flights in 750+ aircraft and its FFS level D. The 750 was evaluated by documental analysis only.

FAA revised its report in January 14th, 2015, while this report was being finalized. The updates were then incorporated into this report.

In case more detailed information is required, it is recommended that the FSB Report is consulted.

2.2 Objective

This report presents ANAC collection of results obtained from the operational evaluation of Cessna aircrafts model Citation X and X+.

2.3 Purpose

The purpose of this report is to:

a. Define the Pilot Type Rating assigned for the Citation X and X+;

b. Define the requirements for training, checking and currency applicable to flight crew for the Citation X and X+ and functionalities;

c. Provide the Master Differences Requirements (MDR) for crews requiring differences qualification for mixed-fleet-flying;

d. Provide an acceptable Operator Differences Requirements (ODR);

e. Provide information about Flight Simulation Training Device (FSTD) for crew training and checking; and

f. Define the areas of special emphasis during a training program.

2.4 Applicability

This report is applicable to:

a. Brazilian operators of Cessna Citation X and X+ under RBHA 91 and RBAC 135 rules;

b. Approved Training Organizations certified under RBAC 142 (TRTO);

c. Civil Aviation Inspectors (INSPAC) engaged to safety oversight of Cessna Citation X and X+; and

d. ANAC Principal Operations Inspectors (POIs) of Citation X and X+ operators.

2.5 Cancelation

Not applicable.

3 Aircraft Specifics

3.1 Forward Observer Seat

For compliance with operational requirements purposes, the provision of an observer seat is an operator's responsibility. Cessna 750 aircraft are not equipped with a dedicated forward observer seat, and Cessna does not offer a dedicated forward observer seat as an option.

The closest passenger seat to the cockpit in the passenger configuration flown by GAA was considered not suitable for use in enroute inspections as a forward observer seat. On the other hand, there are various passenger configurations available.

Thus, the determination of suitability of a forward passenger seat for its use in enroute inspections as a forward observer seat needs to be determined by the Inspector conducting the activity.

4 Pilot Type Rating

The specific pilot type rating assigned to the Citation X and Citation X+ aircraft is designated "C750".

Airmen who wish to pursue any specific type rating must comply with the requirements established on subparagraph 61.213(a)(1) of RBAC 61.

The GAA recommends the update of ANAC type rating list (Instrução Suplementar – IS 61-004) with the following information:

Table 1 - Pilot Type Rating

X – Type Rating (Aircraft) – Multi Pilot Operation, Multi Engine				
Manufacturer	**Aircraft**		**RMK**	**Type Rating**
	Model	**Name**		**ANAC**
Cessna Aircraft Company	C750	**Citation X**	**AAD**	**C750**
	C750	**Citation X+**		

*AAD stands for HPA in Portuguese

The GAA does not recommend any training credits, checking credits, currency credits, landing currency credits, or proving test credits between the C750 and any other similar type of aircraft from Cessna.

5 Common Requirements

5.1 Autopilot Engage Altitudes

As referenced by approved AFMs, the C750 has specifically been evaluated for autopilot suitability for engagement at or above 400 feet AGL during Takeoff, Climb and also Missed Approach in the case of C750 (#0501 and On) aircraft.

Autopilot engaged takeoff is not authorized.

5.2 Minimum Altitude for Autopilot Use/Non-Precision Approaches

The C750 has specifically been evaluated for autopilot suitability for continued use during non-precision approaches to an altitude of not less than **400 feet AGL for C750 (#0001 thru 0313) and 200 feet AGL for C750 (#0501 and On)**.

5.3 Normal "Final Landing Flap Setting"

The normal "final landing flap setting" is "Flaps 35/Full" for all C750 aircraft.

5.4 No Flap Approaches

No-flap approaches are not waived. Due to system design, it is more appropriate to train and check pilots in a Flaps 0/Slats Extended configuration to a rejected landing at approximately 50 feet.

5.5 Full Flap Non-Precision Approaches

It should be noted that it is the **normal practice** to execute non-precision instrument approaches and the circling maneuver with **full flaps** extended.

5.6 Approach to Stalls

For aircraft C750 (#0501 and On) approach to stall training and checking is limited to Full Flight Simulators (FFS) due to Auto thrust system design.

6 Master Difference Requirements (MDR)

The Master Difference Requirements matrix for Cessna Citation X and X+ is shown in Table 2. These provisions are applied when there are differences between models which affect crew knowledge, skills, or abilities related to flight safety (e.g., Level A or greater differences) for training, checking and currency, respectively, according to IAC 121-1009.

Table 2 - Master Difference Requirements

		To Airplane	
		Cessna 750 (#0001 thru 0313) **Citation X**	Cessna 750 (#0501 and On) **Citation X+**
From Airplane	Cessna 750 (#0001 thru 0313) **Citation X**	A/A/B*	C/C/C
	Cessna 750 (#0501 and On) **Citation X+**	C/C/C	A/A/B*

A/A/B* accounts for installation of optional equipment

7 Operator Difference Requirements (ODR)

Each operator of a mixed fleet of Cessna Citation X and X+ shall produce its own ODR, as required by IAC 121-1009.

For operators flying the Citation X and Citation X+ aircraft, the ODR tables in Appendix 1 have been found acceptable by the FAA FSB and may be used by the POI for approval of an operator with the specific aircraft equipage.

8   Specifications for Training, Checking and Currency

Specifications for training, checking and currency are detailed on OEB and FSB Reports mentioned before.

Differences Training for C750 (#0001 thru 0313) base to C750 (#0501 and On) variant and Differences Training for C750 (#0501 and On) base to C750 (#0001 thru #0313) variant: refer to Appendix 3.

8.1   Airmen Minimum Experience for Initial Flight Training

There is no minimum experience requirement for airmen who wish to pursue the initial flight training. However, specifications for training detailed in the FSB report apply to programs for airmen who have experience in fractional ownership* or RBAC 135 operations, former military, commuter or corporate pilots and multi-engine transport turbojet aircraft, including glass cockpit and FMS experience. For airmen not having this experience, additional requirements may be appropriate as determined by ANAC Flight Standards Superintendence.

* Applicable in Brazil when related RBAC is published.

8.2   Airmen Minimum Qualification for Differences Training

The candidate pilot for a differences training between the airplanes must hold a valid "C750" type rating and be qualified on the base aircraft.

8.3   Future Air Navigation Systems (FANS) / RNP / ANP / CNS / CPDLC / ADS

Flight Crews operating aircraft equipped with FANS software should receive appropriate instruction in its general operational functions, appropriate uses for areas of operation, routes, or procedures to be flown. General training should address communications, navigation, and surveillance (CNS) functions covered by FANS, RNP, and ANP. In addition, sufficient training in use of data link communication and Automatic Dependent Surveillance (ADS) to ensure adequate knowledge, skill, and proficiency for flight crews to operate the above system(s) in typical daily operations (requiring their use) should be provided.

8.4 Theoretical Knowledge

The theoretical knowledge curriculum should be the same for pilot-in-command or co-pilot training, and regardless of whether the practical training is performed in an FFS or the aircraft.

Theoretical knowledge training and checking must provide for adequate knowledge and understanding of the aircraft systems and, in addition, should ensure satisfactory knowledge and understanding of outfitted systems common to other aircraft of equivalent complexity and performance. It must not be assumed that pilots undertaking C750 type rating training have a working knowledge and understanding of systems such as FMS, EFIS selection and displays, Automated Flight Guidance and Control Systems, TAWS, TCAS, etc.

System Integration Training in an approved training device is recommended. For pilots with limited or no experience with any or all of the systems mentioned above, the GAA recommends additional modular training, as appropriate, before entering the C750 Ground School training phase.

The GAA further found that for training efficiency the following should be available:

- a consolidated Pilot Training Handbook to contain all relevant documentation required for training and self-study;

- part-task and desktop trainers to support the classroom lessons by hands-on practice;

- The instruction of complex systems should focus on the essential details required for the safe operation of the aircraft.

8.5 Flight Training in Aircraft

For type rating training and checking, full use of a qualified and approved Full Flight Simulator is considered the standard. Flight training in aircraft is considered an exception and should only be permitted according to RBAC 61, RBAC135 and RBHA 91.

8.5.1 Prerequisites

Flight training in aircraft has its limitations with respect to the level and to the extent to which more complex emergency/abnormal situations can be practiced and checked. Therefore, the GAA recommends that flight training in aircraft:

- Should be limited to trainees with previous experience on an equivalent type or category of aircraft; and

- Should be followed by specific emergency procedures training in an FFS during recurrent type rating training within one year.

8.6 Flight training in FFS

Use of a qualified and approved Full Flight Simulator is considered the standard for C750 flight training.

Flight Simulator training offers excellent opportunities to use both skill training, where a number of maneuvers may be performed in a less time consuming sequence, as well as LOFT which is based on a realistic time-line.

It also allows a controlled, gradual increase in complexity of scenarios and the selection of a variety of conditions.

It is recommended the use of these features to their fullest extend to optimize training.

8.7 Training Area of Special Emphasis (TASE)

The following items should receive special emphasis as specified, during ground school and flight training in all referenced training courses:

Ground training in the following subjects for the C750 is required:

a) Crew Resource Management
b) Cockpit Familiarization
c) Aircraft General Description (Interior/Exterior)
d) Review of the AFM and Operating Manuals to include Normal & Abnormal Procedures and Limitations
e) Lighting Systems
f) EICAS (Engine Indicating and Crew Alerting System)
g) Powerplant
h) Fire Protection System
i) Electrical System
j) Fuel System
k) Hydraulic System
l) Landing Gear, Power/Anti-skid Brake Systems
m) Flight Controls
n) Pneumatics
o) Air Conditioning System
p) Ice & Rain Protection Systems

q) Oxygen System
r) Pressurization System
s) Preflight Procedures
t) PFD and MFD Displays & Controls and Avionics Systems (Primus 2000 vs G5000)
u) Flight Management System (FMS)
v) Systems Integration Training
w) MMEL Procedures
x) Introduction to Performance
y) Weight & Balance Procedures
z) Aircraft Performance Procedures and Limitations
aa) Automatic Flight Control System and Autothrust
bb) High Altitude Operations
cc) Electronic Flight Bag (EFB)

Particular emphasis should be placed upon takeoff and landing performance. The definitions of and the significance of: V_1, V_R, V_2, and V_{ref}, should be thoroughly explained. The determination of maximum takeoff and landing weight due to climb capability, obstacle clearance requirements, and brake energy limits should be thoroughly understood by the student.

Flight training for the C750 should focus on the following events or maneuvers:

a) Exterior inspection.
b) Cockpit/Cabin Familiarization.
c) Systems Tests and Checks.
d) Multiple approaches requiring reprogramming of approaches into the avionics system.
e) Stalls to first indication of stall warning (with and without Autothrust available, #0501 and On).
f) No Flap Landing Procedures.
g) Normal Procedures.
h) Abnormal Procedures.
i) Emergency Procedures to include an ILS approach simulating using only Emergency power.
j) Flight Operations in the Reversionary Display Modes.
k) VMC and IMC approaches (with and without Synthetic Vision, #0501 and On)
l) Engine failure, after V_1 and/or missed approach (with and without Autothrust, #0501 and On).
m) Accomplishment of the Landing with Flight Control Manual Reversion Emergency procedure (SIM Only).
n) Crosswind landing approaching Maximum Demonstrated Component.
o) Slats only Approach and Landing (Landing, Simulator only).
p) Alpha Limiting System.

8.8 Special Events Training

Special events training to improve basic crew understanding and confidence regarding aircraft handling qualities, options and procedures as these relate to design characteristics and limitations may include the following:

- recovery from unusual attitudes;

- manual flight with minimum use of automation, including flight under degraded levels of automation;

- handling qualities and procedures during recovery from an upset condition (e.g., wake vortex encounter, loss of control incident);

- high altitude high and low speed buffet margins and flight characteristics;

- Wind shear and predictive wind shear escape maneuvers, as applicable;

- Controlled Flight Into Terrain (CFIT), TCAS, EGPWS (emphasis on avoidance and escape maneuvers, altitude awareness, TCAS / EGPWS warnings, situational awareness and crew co-ordination, as appropriate).

8.9 Recurrent Training

Recurrent training must be compliant with the Brazilian regulations and include the Training Areas of Special Emphasis as identified in this report.

Recurrent training should incorporate special events training as described in this report on a rotational basis, performing all items every two years.

For Mixed fleet flying, recurrent training will alternate between Citation X and X+.

Maneuvers and procedures must account for differences between each related C750 aircraft operated. The ODR tables must identify the differences.

8.10 Other Trainings

Instrument Approaches. ILS Category II (CAT II) instrument approach was not evaluated for C750 (#0501 and On).

Note: Operators should assure that flight crews are familiar with appropriate use of the flight control automation, including modes to be used, for the types of instrument approaches to be flown. This emphasis is also appropriate for aircraft that do not have certain navigation system sensors, such as ADF, installed.

Long Range/Extended Range/Overwater Flights. Due to criticality of fuel computations, flight crews should be familiar with all aspects of fuel management to include normal and abnormal procedures, published flight planning information, and the manner in which fuel computations are made.

Hazardous Weather and Winter Operations. Proper precautions and procedures regarding hazardous weather/winter operations should be addressed.

Controlled Flight Into Terrain (CFIT). Emphasis on altitude awareness, Ground Proximity Warning Systems (GPWS) warnings, situational awareness and crew coordination.

Reduced Vertical Separation Minimums (RVSM). Operating practices and procedures to include Traffic Alert and Collision Avoidance System (TCAS) alerts and annunciations.

Future Air Navigation Systems (FANS). Instruction in general operational functions, appropriate uses for areas of operation, routes, or procedures to be flown. Training to address Communications, Navigation, and Surveillance (CNS) functions, Required Navigation Performance (RNP), and Actual Navigation Performance (ANP). Training in Controller Pilot Data Link Communication (CPDLC) and Automatic Dependent Surveillance (ADS) to ensure adequate knowledge, skill, and proficiency to operate the above systems in typical daily operations should be provided (when installed).

8.11 Specifications for Checking

Checking must be conducted in accordance with IS 00-002B or revision that comes to succeed it.

The GAA recommends the use of ANAC HPA checkride profile and that the following items should be included in the skill test and proficiency check schedules:

- Proficiency with manual and automatic flight must be demonstrated;

- Proper selection and use of PFD/MFD displays, raw data, flight director, and Flight Guidance System modes should be demonstrated, particularly during instrument approaches;

- Demonstration of FMS navigation (departures, arrivals, holds and approaches) proficiency;

- Proper outside visual scan without prolonged fixation on FMS operation should be demonstrated, and failure of component(s) of the FMS should be addressed;

- Demonstration of a No Flap approach and landing during a check is appropriate. When the flight check is conducted in the airplane in actual flight, a touchdown from a no flap is not required. The approach should be flown to the point where the inspector, check airman or examiner can determine whether the landing would or would not occur in the touchdown zone.

8.12 Recency of Experience

Recency of experience must include operation and programming of the FMS and use of AFCS/Autopilot for departure, enroute, arrival and approaches.

Takeoff and landing performed in C750 (#0001 thru #0313) or C750 (#0501 and On) are equivalent and may be credited to either aircraft.

Currency for Mixed Fleet Flying are shown in MDR/ODR tables.

When MDR/ODR specifies **Level B Currency**, currency is maintained by operating the variant aircraft within the previous 180 days. Currency may be re-established by review of all ODR Level B items identified for the pertinent variant aircraft to include Bulletins, Placards, Memos, Limitation, Operating Procedures and Manual Updates prior to operating the related aircraft. A proficiency check in the variant aircraft or by completing applicable differences training requirements for the variant airplane is also an acceptable means to re-establish currency.

When MDR/ODR specifies **Level C Currency**, currency is maintained by operating/flying the variant aircraft through a complete flight cycle (takeoff, departure, arrival, approach and landing) including an instrument approach procedure within the previous 90 days. Currency may be reestablished by operating the variant aircraft, Full Flight Simulator (FFS), or Level 6-7 Flight Training Device (FTD) with a qualified PIC for a minimum of one complete flight cycle, completing an approved differences course, completing a type rating practical test, completing any of the following checks in the variant aircraft, FFS or FTD.

The currency level for flight crews, who are **trained and qualified in both Citation X and X+, and who will be operating both Citation X and X+,** a pilot in command (PIC) must:

Within the 6 calendar months preceding the month of the flight, that person performed and logged at least the following tasks and iterations in both the Citation X and X+:

- Six flight cycles, a cycle includes: takeoff, departure, arrival, approach and landing, and

- Meet the currency requirements of Level B or C prior listed.

A PIC who is engaged in **mixed fleet flying, with the C750 (#0501 and On) and another type rated aircraft**, need only perform and log six flight cycles in the C750 (#0501 and On) and meet the currency requirements of Level B or C prior listed.

Use of a flight simulator (FFS) or flight training device (FTD) for maintaining recency of experience: within the 6 calendar months preceding the month of the flight, that person performed and logged at least the following tasks and iterations in an FFS or FTD, provided the FFS or FTD represents the C750 (#0001 thru #0313) and C750 (#0501 and On):

- Six flight cycles, a cycle includes: takeoff, departure, arrival, approach and landing, and

- Meet the currency requirements of Level B or C prior listed.

Combination of completing instrument experience in an aircraft, FFS, FTD, and ATD: a person who elects to complete the instrument experience with a combination of an aircraft, FFS, FTD, and ATD must have performed and logged the following within the 6 calendar months preceding the month of the flight in both, C750 (#0001 thru #0313) and C750 (#0501 and On)

- Six flight cycles, a cycle includes: takeoff, departure, arrival, approach and landing, and

- Meet the currency requirements of Level B or C prior listed.

Instrument proficiency check: Except as provided in this section, a person who has failed to meet the instrument experience requirements for more than six calendar months may reestablish instrument currency only by completing an instrument proficiency check. The instrument proficiency check must consist of the areas of operation and instrument tasks required in the instrument rating practical test standards in the configuration applicable C750 (#0001 thru #0313) and/or C750 (#0501 and On).

9 Compliance to RBHA 91 and RBAC 135

The GAA conducted a documental analysis of the Compliance Checklist with RBHA 91 and RBAC 135 provided by Cessna and it was considered satisfactory.

It does not constitute an approval and the compliance with the Brazilian operational regulations must be evaluated during the initial inspections preceding the aircraft registration with Brazilian marks.

The CCL is contained in Cessna report number AW-750-023 dated October 17th, 2014. It may be requested to GAA-ANAC if needed and can be used as a reference for operations approval.

Regarding the forward observer seat and item 135.75(b), please refer to item 3.1 of this report.

10 Technical Publications

10.1 Master Minimum Equipment List - MMEL

The FAA MMEL shall be used by Brazilian operators as a basis for developing their MEL. These documents are available at FAA website, through the link http://fsims.faa.gov/PublicationForm.aspx.

10.2 Airplane Flight Manual - AFM

C750 AFM approved by GGCP/SAR shall be used by Brazilian operators as a basis for developing their Operator Airplane Operation Manual (AOM).

APPENDIX 1 – ACCEPTABLE OPERATOR DIFFERENCE REQUIREMENTS (ODR) TABLES

Definitions used in the ODR Tables:

X   = Pilot's Operating Handbook and or Flight Manual Supplement

CBT   = Computer Based Training

ICBT = Interactive Computer Based Training

FTD-6 = Level 6 Flight Training Device

CPT   = Cockpit Procedure Trainer

AC   = Aircraft

ODR Tables – Cessna 750 (#0001 thru 0313) to Cessna 750 BPC (#0501 and On)

DESIGN OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC

BASE AIRCRAFT: Cessna 750   **COMPLIANCE METHOD**

APPROVED BY

(POI)_____

| DESIGN FEATURE | REMARKS | FLT CHAR | PROC CHNG | TRAINING | | | | CHKG/CURR | |
				LVL A	LVL B	LVL C	LVL D	CHK	CURR
Airplane Configuration	- 15 inch fuselage extension forward of cabin door added - Winglets added - 8.7% takeoff thrust increase over s/n750-001 - Engine Inlet diameter increased by 1 inch	Minor	No		SU/ CBT			B	B
Cockpit Panel	Garmin G5000 avionics replaces Honeywell P2000 avionics	No	Major		SU/ CBT			B	B
Aircraft Weight	MTOW increased 500 lb to 36,600 lb MLW increased 200 lb to 32,000 lb	Minor	No		SU/ CBT			B	B

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC	COMPLIANCE METHOD
BASE AIRCRAFT: Cessna 750	
APPROVED BY	
(POI)_____	

				TRAINING				CHKG/CURR	
SYSTEM	**REMARKS**	**FLT CHAR**	**PROC CHNG**	**LVL A**	**LVL B**	**LVL C**	**LVL D**	**CHK**	**CURR**
21 Environmental Control	Auto temperature and pressurization control via soft keys in the GTC 570 controller	No	Major		SU/ CBT			B	B
22 Auto Flight	Garmin G5000 AFCS with autothrottle capability added	No	Major			FTD-6		B	B
23 Communications	P2000 FMS/CDUs and Primus radios deleted 4 - Garmin GTC 570 touch screen controllers added. Backup tuning provided by 2 GCU 275 backup controls added	No	Major			FTD-6		B	B
24 Electrical Power	Two Transformer Rectifier Units (TRU) added as backup to	No	Major		SU/ CBT			B	B

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: Cessna 750 BPC				COMPLIANCE METHOD						
BASE AIRCRAFT: Cessna 750										
APPROVED BY										
(POI)_____										
				TRAINING					CHKG/CURR	
SYSTEM	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D		CHK	CURR
	maintain power to emergency bus									
26 Fire Protection	APU Fire switch relocated to center pedestal	No	Minor		SU/CBT				B	B
28 Fuel	Fuel crossfeed knob, L-R boost pump, L-R center wing transfer and L-R gravity crossflow switches relocated to center pedestal	No	Major		SU/CBT				B	B
31 Indicating and Recording	Rotary System Test knob deleted Systems test soft keys in GTC 570 added	No	Major			FTD-6			B	B
31 Indicating	Synoptic displays on	No	Major		SU/				B	B

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC	COMPLIANCE METHOD
BASE AIRCRAFT: Cessna 750	
APPROVED BY	
(POI)_____	

				TRAINING				CHKG/CURR	
SYSTEM	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D	CHK	CURR
and Recording	MFD for flight controls, hydraulics, fuel and electrical systems added				CBT				
33 Lights	Interior and Exterior lighting controls relocated to overhead lighting panel added GTC 570 soft keys added for Nav and Ground recognition	No	Major		SU/ CBT			B	B

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC	COMPLIANCE METHOD
BASE AIRCRAFT: Cessna 750	
APPROVED BY	
(POI)_____	

SYSTEM	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D	CHK	CURR
	lights								
34 Navigation	Garmin G5000 PFDs/MFDs replaces Honeywell P2000 PFDs/MFDs	No	Major			FTD-6		B	B
34 Navigation	Garmin Synthetic Vision Technology added.	No	Major			FTD-6		B	B
34 Navigation	Dual Honeywell Laseref 5 Inertial Reference System deleted Dual Litef LCR 100 Hybrid Navigation System added	No	Major		SU/ CBT			B	B
34 Navigation	Garmin G5000 FMS replaces dual Honeywell FMZ series,	No	Major			FTD-6		C	C

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC	COMPLIANCE METHOD
BASE AIRCRAFT: Cessna 750	
APPROVED BY	
(POI)_____	

				TRAINING				CHKG/CURR	
SYSTEM	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D	CHK	CURR
	P-2000 FMS								
35 Oxygen	Mechanical oxygen pressure gages deleted Low pressure warning lights deleted Misc/FLT Controls/Oxygen pressure synoptic on MFD added	No	Major		SU/ CBT			B	B
49 Airborne Auxiliary Power	APU Hobbs meter deleted APU RPM, EGT and Volts indicators deleted Garmin G5000 EIS display with APU	No	Major		SU/ CBT			B	B

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC				COMPLIANCE METHOD					
BASE AIRCRAFT: Cessna 750									
APPROVED BY									
(POI)_____									
				TRAINING				**CHKG/CURR**	
SYSTEM	**REMARKS**	**FLT CHAR**	**PROC CHNG**	**LVL A**	**LVL B**	**LVL C**	**LVL D**	**CHK**	**CURR**
	parameters added APU hours and cycles depicted on GTC 570 propulsion page								
74 Ignition	Engine ignition control keys deleted GTC 570 propulsion page ignition soft keys added	No	Major		SU/CBT			B	B
76 Engine Controls	Throttle lever idle/cut-off triggers deleted Engine run/stop switches added FADEC in-control indication toggle switches deleted	No	Major			FTD-6		B	B

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC   **COMPLIANCE METHOD**

BASE AIRCRAFT: Cessna 750

APPROVED BY

(POI)_____

SYSTEM	REMARKS	FLT CHAR	PROC CHNG	LVL A	LVL B	LVL C	LVL D	CHK	CURR
				TRAINING				**CHKG/CURR**	
	FADEC in control indication soft keys in GTC 570 added Thrust reverser piggy-back levers deleted								
	Throttle levers with thrust reverser paddles and pull-through for reverse throttle levers added								
	Cruise and climb thrust detents deleted								
	Cruise and climb thrust indication on EIS display (G5000)								
77 Engine Indicating	Standby Engine Indicator deleted	No	Major		SU/ CBT			B	B

SYSTEMS OPERATOR DIFFERENCES REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC   **COMPLIANCE METHOD**

BASE AIRCRAFT: Cessna 750

APPROVED BY

(POI)_____

				TRAINING				CHKG/CURR	
SYSTEM	**REMARKS**	**FLT CHAR**	**PROC CHNG**	**LVL A**	**LVL B**	**LVL C**	**LVL D**	**CHK**	**CURR**
	Garmin G5000 EIS display added								
91 Charts	Electronic chart display capability added	No	Major		SU/ CBT			B	B

MANVEUVER OPERATOR DIFFERENCE REQUIREMENTS TABLE

DIFFERENCE AIRCRAFT: Cessna 750 BPC   **COMPLIANCE METHOD**

BASE AIRCRAFT: Cessna 750

APPROVED BY

(POI)_____

MANEUVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	CHK	CURR
Rejected Takeoff	With autothrottle ON	Minor	Yes			FTD-6		C	C
Multi-engine go- around	With autothrottle OFF	No	No			FTD-6		C	C
Multi-engine go-around	With autothrottle ON	Minor	Yes			FTD-6		C	C
Low Altitude Level Off	With Autothrottle ON	Minor	Yes			FTD-6		C	C
Deployment and stowing of thrust reversers	New throttle quadrant with paddles in lieu of piggy levers	No	Yes			FTD-6		C	C
Modulation of reverse thrust	Reverse thrust is modulated moving the thrust levers aft of the IDLE REV detent after thrust reversers deployment	No	Yes			FTD-6		C	C

APPENDIX 2 – Footprint Training

GROUND TRAINING CURRICULUM SEGMENT

INITIAL Course:

General Operational Subjects -- 10.0 hours

Aircraft Systems (Includes Systems Review, Examinations and Critique -------------------- 32.0 hours

Systems Integrations --- 14.0 hours

TOTAL 56.0 hours

RECURRENT Course:

General Operational Subjects -- 2.0 hours

Aircraft Systems (Includes Systems Review, Examinations and Critique ---------------------- 9.0 hours

Systems Integrations --- 2.0 hours

TOTAL 13.0 hours

FLIGHT TRAINING CURRICULUM SEGMENT

INITIAL Course:

These tables summarize the training hours and modules required when the flight simulator is capable of crediting 100% of the training events required by the course. In such cases, all training and testing can be accomplished in a Level C or D flight simulator.

Flight Simulator as a Crew (Training Together)	PF (Hours)	PM (Hours)	Total Time (Hours)
Flight Simulator Module 1	2.0	2.0	4.0
Flight Simulator Module 2	2.0	2.0	4.0
Flight Simulator Module 3	2.0	2.0	4.0
Flight Simulator Module 4	2.0	2.0	4.0
Flight Simulator Module 5	2.0	2.0	4.0
Flight Simulator Module 6	2.0	2.0	4.0
Flight Simulator as a Crew (Training Alone – Second Pilot Provided)	**PF (Hours)**	**PM (Hours)**	**Total Time (Hours)**
Flight Simulator Module 1	2.0	1.0 / 2.0*	3.0 / 4.0*
Flight Simulator Module 2	2.0	1.0 / 2.0*	3.0 / 4.0*
Flight Simulator Module 3	2.0	1.0 / 2.0*	3.0 / 4.0*
Flight Simulator Module 4	2.0	0.0	2.0
Flight Simulator Module 5	2.0	0.0	2.0
Flight Simulator Module 6	2.0	0.0	2.0

* C750+ Only

RECURRENT Course:

Flight Simulator as a Crew (Training Together)	PF (Hours)	PM (Hours)	Total Time (Hours)
Flight Simulator Module 1	2.0	2.0	4.0
Flight Simulator Module 2	2.0	2.0	4.0
Flight Simulator Module 3	2.0	2.0	4.0

Flight Simulator as a Crew (Training Alone – Second Pilot Provided)	PF (Hours)	PM (Hours)	Total Time (Hours)
Flight Simulator Module 1	2.0	0.0	2.0
Flight Simulator Module 2	2.0	0.0	2.0
Flight Simulator Module 3	2.0	0.0	2.0

APPENDIX 3 – Differences Training

Differences Training C750 (#0001 thru 0313) to C750 (#0501 and On)

Program Hours (per Pilot)

Differences Course consists of the following minimum hours:

Aircraft Systems Differences	2.0 Hrs
Avionics Lecture	6.0 Hrs
Avionics Ground Training	4.0 Hrs
Simulator/FTD/Aircraft Flight Training	8.0 Hrs (4.0 PF/4.0 PNF)
Demonstration of Proficiency	2.0 Hrs (each PIC)
(Partial Proficiency Check)	
Minimum Total Hours	22.0 Hrs

Aircraft Systems

The training modules presented in the aircraft systems subject area consist of a breakdown of the various systems of the aircraft. These modules may be taught in any sequence, however all modules will be covered.

SYSTEMS

Aircraft General
Electrical
Lighting
Master Warning
Fuel
APU
Powerplant / Thrust Reversers
Fire Protection

Pneumatics
Ice and Rain Protection
Air Conditioning
Pressurization
Hydraulics
Landing Gear and Brakes
Flight Controls
Avionics
Oxygen

AVIONICS

General Overview
Displays
PFDs
MFD
GTCs
Standby Flight Display
AHRS / ADC
Radio and Audio Systems
Hazard Avoidance
Weather
Terrain
TCAS II
Flight Guidance
Autothrottles
Additional Features
Safe Taxi
ChartView
FliteCharts
Satellite Phone / Datalink
WiFi
XM Radio
Scheduled Messages
Electronic Documents
Limitations
Avionics Initialization

Demonstration of Proficiency

Completion Standards:

The pilot must be able to describe, locate, and identify aircraft systems; perform normal, abnormal, and emergency checklists; and demonstrate proficiency with the Garmin G5000 Avionics.

The Demonstration of Proficiency is a partial proficiency check administered in a Line Oriented Evaluation (LOE) profile of approximately 1:30. The tasks listed below will be evaluated during the LOE. A sample LOE would include: Preflight and Before Takeoff checks, Departure, Climb to a cruise altitude, Descent, Arrival, Instrument approach and missed approach, Load and fly a different instrument approach, After Landing and Shutdown checks. The evaluator would provide normal ATC instructions, weather, weight and balance data, etc. The crew is expected to perform the tasks without assistance from the evaluator. Normally, the evaluator is not the instructor that trained the Flight Crewmembers.

The Demonstration of Proficiency minimum tasks include:

- Avionics Initialization
- Check database expiry dates
- Input appropriate Weight & Balance information
- Load and activate a flight plan
- Accomplish Systems Tests
- Set v-speeds and display on airspeed tape
- Access and display an appropriate instrument procedure (IP) chart
- Select/Deselect SVT for display
- Tune/swap a COM frequency
- Tune/swap a NAV frequency
- Set a Transponder code
- Manually change navigation source
- Change altimeter setting on PFD
- Change altimeter setting on SFD
- Change between Full and Split mode on PFD
- Change between Full and Half mode on MFD
- Insert and delete flight plan waypoints
- Select and fly "Direct-To" a waypoint
- Program and initiate a VNAV descent
- Change arrival airport and procedure
- Create/enter/depart a holding pattern

- Identify LOS for an RNAV approach
- Set minimums for an approach
- Select/deselect/adjust Auto-Throttles

Sample Evaluation Sheet

(Recommended Minimum tasks to be Evaluated)

Place an "S" in the box if Satisfactorily demonstrated and an "N" if Not Satisfactorily demonstrated.

Task #	Area	Task	1st Attempt	Retrain	2nd Attempt
	Avionics Initialization	Check database expiry dates			
	Avionics Initialization	Input appropriate Weight & Balance information			
	Avionics Initialization	Load and activate a flight plan			
	Avionics Initialization	Accomplish Systems Tests			
	Avionics Initialization	Set v-speeds and display on airspeed tape			
	Charts	Access and display an appropriate IP chart			
	Hazard Avoidance	Select/Deselect SVT for display			
	Radio Tuning	Tune/swap a COM frequency			
	Radio Tuning	Tune/swap a NAV frequency			
	Radio Tuning	Set a Transponder code			
	Navigation	Manually change navigation source			

	Navigation	Insert and delete flight plan waypoints			
	Navigation	Select and fly "Direct-To" a waypoint			
	Navigation	Program and initiate a VNAV descent			
	Navigation	Change arrival airport and procedure			
	Navigation	Create/enter/depart a holding pattern			
	Navigation	Identify LOS for an RNAV approach			
	Navigation	Set minimums for an approach			
	Displays	Change altimeter setting on PFD			
	Displays	Change altimeter setting on SFD			
	Displays	Change between Full and Split mode on PFD			
	Displays	Change between Full and Half mode on MFD			
	Autothrottle	Select/deselect/adjust Autothrottle			
	Autothrottle	Multi-engine go around with Autothrottle engaged			
	Autothrottle	Multi-engine go around without Autothrottle engaged			
	Autothrottle	Low altitude level off with autothrottle engaged			

Differences Training C750 (#0501 and On) to C750 (#0001 thru 500)

Program Hours (per Pilot)

Differences Course consists of the following minimum hours:

Aircraft Systems Differences	2.0 Hrs
Avionics Lecture	6.0 Hrs
Avionics Ground Training	4.0 Hrs
Simulator/FTD/Aircraft Flight Training	8.0 Hrs (4.0 PF/4.0 PNF)
Demonstration of Proficiency	2.0 Hrs (each PIC)
(Partial Proficiency Check)	
Minimum Total Hours	22.0 Hrs

Aircraft Systems

The training modules presented in the aircraft systems subject area consist of a breakdown of the various systems of the aircraft. These modules may be taught in any sequence, however all modules will be covered.

SYSTEMS

Aircraft General	APU
Electrical	Powerplant / Thrust Reversers
Lighting	Fire Protection
Master Warning	Pneumatics
Fuel	Ice and Rain Protection

Air Conditioning

Pressurization

Hydraulics

Landing Gear and Brakes

Flight Controls

Avionics

Oxygen

AVIONICS

General Overview

Displays

PFDs

MFD

Standby Flight Display

AHRS / ADC

Radio and Audio Systems

Hazard Avoidance

Weather

Terrain

TCAS II

Flight Guidance

Limitations

Avionics Initialization

Demonstration of Proficiency

Completion Standards

The pilot must be able to describe, locate, and identify aircraft systems; perform normal, abnormal, and emergency checklists; and demonstrate proficiency with the Honeywell Epic.

The Demonstration of Proficiency is a partial proficiency check administered in a Line Oriented Evaluation (LOE) profile of approximately 1:30. The tasks listed below will be evaluated during the LOE. A sample LOE would include: Preflight and Before Takeoff checks, Departure, Climb to a cruise altitude, Descent, Arrival, Instrument approach and missed approach, Load and fly a different instrument approach, After Landing and Shutdown checks. The evaluator would provide normal ATC instructions, weather, weight and balance data, etc. The crew is expected to perform the tasks without assistance from the evaluator. Normally, the evaluator is not the instructor that trained the Flight Crewmembers.

The Demonstration of Proficiency minimum tasks include:

- Avionics Initialization
- Check database expiry dates
- Input appropriate Weight & Balance information
- Load and activate a flight plan
- Accomplish Systems Tests
- Set v-speeds/display on airspeed tape
- Access and display an appropriate instrument procedure (IP) chart
- Tune/swap a COM frequency
- Tune/swap a NAV frequency
- Set a Transponder code
- Manually change navigation source
- Change altimeter setting on PFD
- Change altimeter setting on SFD
- Insert and delete flight plan waypoints
- Select and fly "Direct-To" a waypoint
- Program and initiate a VNAV descent
- Change arrival airport and procedure
- Create/enter/depart a holding pattern
- Identify LOS for an RNAV approach
- Set minimums for an approach
- Use of Cursor Control Device (CCD)

Sample Evaluation Sheet

(Reccomended Minimum tasks to be Evaluated)

Place an "S" in the box if Satisfactorily demonstrated and an "N" if Not Satisfactorily demonstrated.

Task #	Area	Task	1st Attempt	Retrain	2nd Attempt
1	Avionics Initialization	Check database expiry dates			
2	Avionics Initialization	Input appropriate Weight & Balance information			
3	Avionics Initialization	Load and activate a flight plan			
4	Avionics Initialization	Accomplish Systems Tests			
5	Avionics Initialization	Set v-speeds/display on airspeed tape			
6	Charts	Access and display an appropriate IP chart			
7	Hazard Avoidance	Select/Deselect Terrain on display			
8	Radio Tuning	Tune/swap a COM frequency			
9	Radio Tuning	Tune/swap a NAV frequency			
10	Radio Tuning	Set a Transponder code			
11	Navigation	Manually change navigation source			
12	Navigation	Insert and delete flight plan waypoints			
13	Navigation	Select and fly "Direct-To"			

		a waypoint			
14	Navigation	Program and initiate a VNAV descent			
15	Navigation	Change arrival airport and procedure			
16	Navigation	Create/enter/depart a holding pattern			
17	Navigation	Identify LOS for an RNAV approach			
18	Navigation	Set minimums for an approach			
19	Displays	Change altimeter setting on PFD			
20	Displays	Change altimeter setting on SFD			