

This document is created to make public non-proprietary data related to:

**Annex 1** - Special Conditions and Equivalent Safety Finding that are part of the applicable Certification Basis not requiring publication on EASA website.

**Annex 2** – AMC material used by the TC holder in case that CS-23 amendment 5, or later, is applicable.

Disclaimer – This document is not exhaustive and it will be updated gradually.



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## Annex 1 – SC and ESF

### Content:

Annex 1 – SC and ESF .....	2
SC HIRF protection (Project reference CRI F-01).....	3
SC Human Factors in Integrated Avionics Systems (Project reference CRI B-52) .....	4
SC Lithium Battery Installation SC-F23.1353-02 (Project reference CRI F-58) .....	5
ESF Ditching Emergency Exits (Project reference CRI D-01) .....	6
ESF Main Door (Project reference CRI D-02) .....	7
ESF Fire protection of flight controls, engine mounts and other flight structure (Project reference CRI D-03) .....	8
ESF Liquid Cooling – coolant tank (Project reference CRI E-01).....	9
Annex 2 - AMC used in case of CS-23 amendment 5, or later. ....	10

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<b>SC HIRF protection (Project reference CRI F-01)</b>	
APPLICABILITY:	P2006T model
REQUIREMENTS:	CS 23
ADVISORY MATERIAL:	Policy Paper INT/POL/23/1

The Policy Paper INT/POL/23/1 Issue dated 01.06.03 is considered a special condition for the P2006T HIRF protection.

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<b>SC Human Factors in Integrated Avionics Systems (Project reference CRI B-52)</b>	
APPLICABILITY:	P2006T model
REQUIREMENTS:	CS 23
ADVISORY MATERIAL:	-

- a) The design of the integrated flight deck interface must adequately address the foreseeable performance, capability and limitations of the pilot.
- b) More specifically, the team must be satisfied with the following aspects of the flight deck interface design:
- i. Ease of operation including automation;
  - ii. Effects of pilot errors in managing the aircraft systems, including the potential for error, the possible severity of the consequences, and the provision for recognition and recovery from error;
  - iii. Workload during normal and abnormal operation; and
  - iv. Adequacy of feedback, including clear and unambiguous:
    - presentation of information;
    - representation of system condition by display of system status;
    - indication of failure cases, including aircraft status;
    - indication when pilot input is not accepted or followed by the system;
    - indication of prolonged or severe compensatory action by a system when such action could adversely affect aircraft safety.
    - Indication of reversionary modes and back-up status

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<b>SC Lithium Battery Installation SC-F23.1353-02 (Project reference CRI F-58)</b>	
APPLICABILITY:	P2006T model
REQUIREMENTS:	CS 23.1353
ADVISORY MATERIAL:	-

In lieu of the requirements of CS 23.1353(f), (g)(1) through (g)(3) the following applies:

- (a) Lithium batteries and battery installations must be designed and installed as follows:
- (1) Safe cell temperatures and pressures must be maintained during any probable charging or discharging condition, or during any failure of the charging or battery monitoring system not shown to be extremely remote. The Li battery installation must be designed to preclude explosion in the event of those failures.
  - (2) Li batteries must be designed to preclude the occurrence of self-sustaining, uncontrolled increases in temperature or pressure.
  - (3) No explosive or toxic gasses emitted by any Li battery in normal operation or as the result of any failure of the battery charging or monitoring system, or battery installation not shown to be extremely remote, may accumulate in hazardous quantities within the aeroplane.
  - (4) Li battery installations must meet the requirements of CS 23.863(a) through (d).
  - (5) No corrosive fluids or gasses that may escape from any Li battery may damage surrounding aeroplane structures or adjacent essential equipment.
  - (6) Each Li battery installation must have provisions to prevent any hazardous effect on structure or essential systems that may be caused by the maximum amount of heat the battery can generate during a short circuit of the battery or of its individual cells.
  - (7) Li battery installations must have a system to control the charging rate of the battery automatically so as to prevent battery overheating or overcharging, and,
    - (i) A battery temperature sensing and over-temperature warning system with a means for automatically disconnecting the battery from its charging source in the event of an over-temperature condition or,
    - (ii) A battery failure sensing and warning system with a means for automatically disconnecting the battery from its charging source in the event of battery failure.
  - (8) Any Li battery installation whose function is required for safe operation of the aeroplane, must incorporate a monitoring and warning feature that will provide an indication to the appropriate flight crewmembers, whenever the capacity and SOC of the batteries have fallen below levels considered acceptable for dispatch of the aeroplane.
  - (9) The Instructions for Continued Airworthiness must contain maintenance procedures for Lithium-ion batteries in spares storage to prevent the replacement of batteries whose function is required for safe operation of the aeroplane, with batteries that have experienced degraded charge retention ability or other damage due to prolonged storage at low SOC.
- (b) Compliance with the requirements of this Special Condition must be shown by test or, with the concurrence of EASA, by analysis.

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<b>ESF Ditching Emergency Exits (Project reference CRI D-01)</b>	
APPLICABILITY:	P2006T model
REQUIREMENTS:	CS 23.807(e) (CS 23 initial issue)
ADVISORY MATERIAL:	-

CS 23.807(e) requires that :

*“for twin-engine aeroplanes, ditching emergency exits must be provided in accordance with the following requirements, unless the emergency exits required by sub-paragraph (a) or (d) s already comply with them:  
(1) One exit above the waterline on each side of the aeroplane having the dimensions specified in sub-paragraph (b) or (d), as applicable; and  
(2) If side exits cannot be above the waterline; there must be a readily accessible overhead hatch emergency exit that has a rectangular opening measuring not less than 51 cm (20 in) wide by 91 cm (36 in) long, with corner radii not greater than one-third width of the exit.”*

This ESF is issued to justify a rectangular overhead hatch opening of 61,4 cm wide by 63,3 cm long, being the side exits not above the waterline.

CS 23.807(e) prescribes the ditching emergency exit for twin engine aeroplanes, applicable for all categories, including commuter.

The subparagraph 23.807(e) has been introduced by FAA as amendment 46 to FAR 23 with the motivation that there will be an increase in the use of commuter category airplanes and multiengine normal category airplanes in over water operation.

Historical accident data do not indicate that any fatalities have occurred as a result of passengers or crewmember not being able to exit a Part 23 aeroplane after a controlled landing in water.

However such an occurrence is a possibility.

The rectangular opening of not less than 51 cm wide and 91 cm long is requested also by CS 23 initial issue in order to allow escape without crowding in any probable crash attitude in consideration of worst case condition.

In order to justify the design, the following compensating factors have been considered:

- The aeroplane will be certified only for four (no.4) occupants, including pilot and only in normal category;
- Fuselage size of this 4 seat occupants aeroplane are incompatible with the required opening Size;
- Cabin height allows an ease reach of the overhead hatch;
- The proposed opening size would not result in a difficult escaping procedure and exit overcrowding;
- An evacuation test is performed i.a.w CS 23.803 and according to AMC 23.803, which is covered in AC 20.118A.

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<b>ESF Main Door (Project reference CRI D-02)</b>	
APPLICABILITY:	P2006T model
REQUIREMENTS:	CS 23.783(b) (CS 23 initial issue)
ADVISORY MATERIAL:	FAA AC 23.17b

CS 23.783(b) requires that :

*“Passenger doors must not be located with respect to any propeller disc or any other potential hazard so as to endanger persons using that door.”*

The aircraft is a twin engine, high wing configuration with four seat arranged.

The airplane is provided with:

a forward left main door, situated near the left propeller disc, an aft right emergency door (with respect to propeller disk) and a ditching emergency exit on top side.

This ESF is based on compensating factors taken by the AC 23.17b, stating:

*An ELOS finding process for part 23, § 23.783(b), should include:*

- a) Pilot operated locks when the propeller stops turning.*
- b) A special operating procedure to assure the door is opened only after the propeller has stopped turning should be provided in the flight manual and on the inside of the door.*
- c) If an electric lock is used, complete loss of electric power should not affect opening the door.*
- d) The door should be designed and placarded so it can be opened from the inside by passengers and from outside by ground personnel.*
- e) A railing or guard that would deploy to guide passengers away from the propeller plane should be provided as an integral part of the door.*
- f) If engagement of the engine starter would be an immediate hazard to a person near the propeller, an interconnection between the door and the engine starting circuit should be included in the design.*

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<b>ESF Fire protection of flight controls, engine mounts and other flight structure (Project reference CRI D-03)</b>	
APPLICABILITY:	P2006T model
REQUIREMENTS:	CS 23.865 (CS 23 initial issue)
ADVISORY MATERIAL:	FAA AC 23-17B

CS 23.865 requires that:

*“Flight controls, engine mounts, and other flight structure located in designated fire zones, or in adjacent areas that would be subjected to the effects of fire in the designated fire zones, must be constructed of fireproof material or be shielded so that they are capable of withstanding the effects of a fire. Engine vibration isolators must incorporate suitable features to ensure that the engine is retained if the non-fireproof portions of the isolators deteriorate from the effects of a fire”.*

Associated paragraphs are also CS 23.1181, CS 23.1182 and AMC 23.865.

Designated power plant fire zone is isolated from the rest of the aeroplane by a stainless steel firewall.

As explained in AC 23-17B para. 23.865:

*the intent of this section in the rules is to require the materials and components, in the designated fire zone, that are essential to flight safety:*

- 1) be fabricated either from a material meeting defining fireproof, or*
- 2) be shown capable of maintaining their integrity or performing their function under the conditions of fire at least as well as steel.*

*The intent of this section is also to require that materials and components, in adjacent areas to a designated fire zone, that are essential to flight safety, be capable of:*

- 1) maintaining their integrity or*
- 2) performing their function under the conditions of fire in the designated fire zone.*

*The fire condition characterized by a 2000-degree Fahrenheit (F) [1093 C°] flame can be treated as a failure condition that should not prevent continued safe flight and landing for at least 15 minutes.*

*The rule requires the structures (composite and metallic) behind the firewall and subjected to the heat effects of the fire be able to withstand the flight loads expected to occur during completion of the flight. It also requires these flight loads to not be less than the gust loads expected to be encountered during the completion of the flight. These loads can be treated as ultimate loads. Design features, including multiple load path arrangement, can be considered when establishing the remaining structural capacity. Freedom from flutter and whirl mode should also be shown.*

*Compliance with this requirement must be shown by tests, or by analysis supported by tests.*

*Assessing heat effects needs to include all heat transfer mechanisms that may occur.*

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<b>ESF Liquid Cooling – coolant tank (Project reference CRI E-01)</b>	
APPLICABILITY:	P2006T model
REQUIREMENTS:	CS 23.1061 (b); CS 23.1063 (CS 23 initial issue)
ADVISORY MATERIAL:	-

CS 23.1061 (b) requires that :

*Coolant tank. The tank capacity must be at least 3-8 litres (0-83 Imperial gallon/1 USgallon), plus 10% of the cooling system capacity.*

*In addition –*

*(1) Each coolant tank must be able to withstand the vibration, inertia and fluid loads to which it may be subjected in operation;*

*(2) Each coolant tank must have an expansion space of at least 10% of the total cooling system capacity; and*

*(3) It must be impossible to fill the expansion space inadvertently with the aeroplane in the normal ground attitude.”*

CS 23.1063 requires that:

*Each coolant tank must be tested under CS 23.965, except that –*

*(a) The test required by CS 23.965 (a) (1) must be replaced with a similar test using the sum of the pressure developed during the maximum ultimate acceleration with a full tank or a pressure of 24 kPa (3-5 psi), whichever is greater, plus the maximum working pressure of the system; and*

*(b) For a tank with a non-metallic liner the test fluid must be coolant rather than fuel as specified in CS 23.965 (d) and the slosh test on a specimen liner must be conducted with the coolant at operating temperature.*

Rotax 912 engines requires, in the installation manual, an expansion tank of 0,25 litres and an overflow bottle of 0,5 litres. The minimum capacity of the Rotax cooling system is not in compliance with CS 23.1061(b) requirements.

The ESF based on the following compensating factors:

- The Rotax Installation Manual requires in detail the minimum standards for the Radiator, Expansion Tank, hoses, attachments including the minimum overflow tank capacity. The minimum total capacity of cooling system is 1,6 Liter.
- Engine is partially liquid-cooled, the cylinders are ram air cooled while the cylinders heads are liquid cooled.
- The liquid provides cooling only for cylinder heads. Therefore a larger volume of liquid coolant is not necessary.
- The liquid cooling system is a closed loop with external expansion tank and overflow bottle.
- In normal Operation a closed loop cooling system does not have loss of cooling fluid, the expansion tank ensure a proper fluid level in various temperature and pressure situations.
- The overflow bottle is in the non pressure area of the system and ensure that additional fluid amount is available.
- The overflow bottle collect surplus of coolant and returned back into the circuit at the cooling down period.
- No refill of coolant prior to flight is necessary so that no direct access of the pilot to the system for pre-flight check is necessary.

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## Annex 2 - AMC used in case of CS-23 amendment 5, or later.

Following lists are provided only for awareness of the specific “non-binding” AMC materials used by the TC holder, which could have driven specific design features to comply with the objective requirements (design-independent) introduced from the CS 23 amendment 5.

### <Model P2006T>:

Affected CS req.	Amendment	AMC
CS 23.2515	6	ASTM F3061M-23b Standard Specification for Systems and Equipment in Small Aircraft
CS 23.2520	6	ASTM F3061M-23b Standard Specification for Systems and Equipment in Small Aircraft

### <Model P2006T NG>:

Affected CS req.	Amendment	AMC
CS 23.2100	6	ASTM F3082/F3082M-17 Standard Specification for Weights and Centers of Gravity of Aircraft ASTM F3114-21 Standard Specification for Structures
CS 23.2105	6	ASTM F3179/F3179M-20 Standard Specification for Performance of Aircraft
CS 23.2110	6	ASTM F3179/F3179M-20 Standard Specification for Performance of Aircraft
CS 23.2115	6	ASTM F3179/F3179M-20 Standard Specification for Performance of Aircraft
CS 23.2120	6	ASTM F3179/F3179M-20 Standard Specification for Performance of Aircraft
CS 23.2125	6	ASTM F3179/F3179M-20 Standard Specification for Performance of Aircraft
CS 23.2130	6	ASTM F3179/F3179M-20 Standard Specification for Performance of Aircraft
CS 23.2135	6	ASTM F3173/F3173M-21 Standard Specification for Aircraft Handling Characteristics
CS 23.2140	6	ASTM F3173/F3173M-21 Standard Specification for Aircraft Handling Characteristics
CS 23.2145	6	ASTM F3173/F3173M-21 Standard Specification for Aircraft Handling Characteristics
CS 23.2150	6	ASTM F3180/F3180M-21 Standard Specification for Low-Speed Flight Characteristics of Aircraft
CS 23.2155	6	ASTM F3173/F3173M-21 Standard Specification for Aircraft Handling Characteristics
CS 23.2160	6	ASTM F3173/F3173M-21 Standard Specification for Aircraft Handling Characteristics
CS 23.2165	6	ASTM F3120/F3120M-20 Standard Specification for Ice Protection for General Aviation Aircraft

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Affected CS req.	Amendment	AMC
CS 23.2170	6	ASTM F3174/F3174M-19 Standard Specification for Establishing Operating Limitations and Information for Aeroplanes
CS 23.2200	6	ASTM F3116/F3116M-18e2 Standard Specification for Design Loads and Conditions
CS 23.2210	6	ASTM F3116/F3116M-18e2 Standard Specification for Design Loads and Conditions
CS 23.2215	6	ASTM F3116/F3116M-18e2 Standard Specification for Design Loads and Conditions
CS 23.2220	6	ASTM F3116/F3116M-18e2 Standard Specification for Design Loads and Conditions
CS 23.2225	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3116/F3116M-18e2 Standard Specification for Design Loads and Conditions
CS 23.2230	6	ASTM F3114-21 Standard Specification for Structures
CS 23.2235	6	ASTM F3114-21 Standard Specification for Structures
CS 23.2240	6	ASTM F3115/F3115M-20 Standard Specification for Structural Durability for Small Aeroplanes
CS 23.2245	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3093/F3093M-21 Standard Specification for Aeroelasticity Requirements
CS 23.2250	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3114-21 Standard Specification for Structures
CS 23.2255	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3114-21 Standard Specification for Structures
CS 23.2260	6	ASTM F3114-21 Standard Specification for Structures
CS 23.2265	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3114-21 Standard Specification for Structures
CS 23.2270	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3083/F3083M-20a Standard Specification for Emergency Conditions, Occupant Safety and Accommodations

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Affected CS req.	Amendment	AMC
CS 23.2300	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation ASTM F3117/F3117M-20 Standard Specification for Crew Interface in Aircraft
CS 23.2305	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft
CS 23.2315	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3083/F3083M-20a Standard Specification for Emergency Conditions, Occupant Safety and Accommodations
CS 23.2320	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3227/F3227M-21 Standard Specification for Environmental Systems in Aircraft ASTM F3114-21 Standard Specification for Structures ASTM F3117/F3117M-20 Standard Specification for Crew Interface in Aircraft
CS 23.2325	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3231/F3231M-21 Standard Specification for Electrical Systems for Aircraft with Combustion Engine Electrical Power Generation ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation ASTM F3083/F3083M-20a Standard Specification for Emergency Conditions, Occupant Safety and Accommodations
CS 23.2330	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation ASTM F3114-21 Standard Specification for Structures
CS 23.2335	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3231/F3231M-21 Standard Specification for Electrical Systems Aircraft with Combustion Engine Electrical Power Generation
CS 23.2340	6	ASTM F3117/F3117M-20 Standard Specification for Crew Interface in Aircraft
CS 23.2400	6	ASTM F3062/F3062M-20 Standard Specification for Aircraft Powerplant Installation ASTM F3063/F3063M-20 Standard Specification for Aircraft Fuel Storage and Delivery ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication

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Affected CS req.	Amendment	AMC
		ASTM F3065/F3065M-21a Standard Specification for Aircraft Propeller System Installation ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation MOC – Electric fuel pumps (Project reference CRI E-101)
CS 23.2410	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3062/F3062M-20 Standard Specification for Aircraft Powerplant Installation ASTM F3063/F3063M-20 Standard Specification for Aircraft Fuel Storage and Delivery ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation
CS 23.2415	6	ASTM F3063/F3063M-20 Standard Specification for Aircraft Fuel Storage and Delivery ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation
CS 23.2425	6	ASTM F3062/F3062M-20 Standard Specification for Aircraft Powerplant Installation ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3065/F3065M-21a Standard Specification for Aircraft Propeller System Installation ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation ASTM F3117-20 Standard Specification for Crew Interface in Aircraft
CS 23.2430	6	ASTM F3062/F3062M-20 Standard Specification for Aircraft Powerplant Installation ASTM F3063/F3063M-20 Standard Specification for Aircraft Fuel Storage and Delivery ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation
CS 23.2435	6	ASTM F3062/F3062M-20 Standard Specification for Aircraft Powerplant Installation
CS 23.2440	6	ASTM F3062/F3062M-20 Standard Specification for Aircraft Powerplant Installation ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation MOC – Ventilating air duct passage through any Designated Fire Zone (Project reference CRI E-102)

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Affected CS req.	Amendment	AMC
CS 23.2445	6	ASTM F3117/F3117M-20 Standard Specification for Crew Interface in Aircraft
CS 23.2500	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3231/F3231M-21 Standard Specification for Electrical Systems for Aircraft with Combustion Engine Electrical Power Generation ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3233/F3233M-21 Standard Specification for Flight and Navigation Instrumentation in Aircraft ASTM F3229/F3229M-17 Standard Practice for Static Pressure System Tests in Small Aircraft ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation ASTM F3117-20 Standard Specification for Crew Interface in Aircraft ASTM F3120/F3120M-20 Standard Specification for Ice Protection for General Aviation Aircraft
CS 23.2505	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft
CS 23.2510	6	F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft F3230-20a Standard Practice for Safety Assessment of Systems and Equipment in Small Aircraft ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3117-20 Standard Specification for Crew Interface in Aircraft ASTM F3231/F3231M-21 Standard Specification for Electrical Systems for Aircraft with Combustion Engine Electrical Power Generation ASTM F3229/F3229M-17 Standard Practice for Static Pressure System Tests in Small Aircraft ASTM F3120/F3120M-20 Standard Specification for Ice Protection for General Aviation Aircraft ASTM F3233/F3233M-21 Standard Specification for Flight and Navigation Instrumentation in Aircraft
CS 23.2515	6	ASTM F3061M-23b Standard Specification for Systems and Equipment in Small Aircraft
CS 23.2520	6	ASTM F3061M-23b Standard Specification for Systems and Equipment in Small Aircraft
CS 23.2525	6	ASTM F3231/F3231M-21 Standard Specification for Electrical Systems for Aircraft with Combustion Engine Electrical Power Generation ASTM F3233/F3233M-21 Standard Specification for Flight and Navigation Instrumentation in Aircraft ASTM F3117-20 Standard Specification for Crew Interface in Aircraft

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Affected CS req.	Amendment	AMC
		SC Lithium Battery Installation SC-F23.1353-02 (Project reference CRI F-58)
CS 23.2530	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3233/F3233M-21 Standard Specification for Flight and Navigation Instrumentation in Aircraft ASTM F3234/F3234M-17 Standard Specification for Exterior Lighting in Small Aircraft ASTM F3117-20 Standard Specification for Crew Interface in Aircraft
CS 23.2535	6	ASTM F3083/F3083M-20a Standard Specification for Emergency Conditions, Occupant Safety and Accommodations
CS 23.2540	6	ASTM F3233/F3233M-21 Standard Specification for Flight and Navigation Instrumentation in Aircraft ASTM F3120/F3120M-20 Standard Specification for Ice Protection for General Aviation Aircraft ASTM F3229/F3229M-17 Standard Practice for Static Pressure System Tests in Small Aircraft
CS 23.2545	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft
CS 23.2600	6	F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication F3117-20 Standard Specification for Crew Interface in Aircraft ASTM F3174/F3174M-19 Standard Specification for Establishing Operating Limitations and Information for Aeroplanes ASTM F3066/F3066M-18 Standard Specification for Aircraft Powerplant Installation Hazard Mitigation ASTM F3114-21 Standard Specification for Structures ASTM F3227/F3227M-21 Standard Specification for Environmental Systems in Aircraft CS-23 773(b) SC Human Factors in Integrated Avionics Systems (Project ref. CRI B-52)
CS 23.2605	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3232/F3232M-20 Standard Specification for Flight Controls in Small Aircraft ASTM F3233/F3233M-21 Standard Specification for Flight and Navigation Instrumentation in Aircraft ASTM F3231/F3231M-21 Standard Specification for Electrical Systems for Aircraft with Combustion Engine Electrical Power Generation

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Affected CS req.	Amendment	AMC
		ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3117-20 Standard Specification for Crew Interface in Aircraft ASTM F3120/F3120M-20 Standard Specification for Ice Protection for General Aviation Aircraft ASTM F3432-20a Standard Practice for Powerplant Instruments
CS 23.2610	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft F3117-20 Standard Specification for Crew Interface in Aircraft ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3174/F3174M-19 Standard Specification for Establishing Operating Limitations and Information for Aeroplanes
CS 23.2615	6	ASTM F3061/F3061M-20 Standard Specification for Systems and Equipment in Small Aircraft ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3432-20a Standard Practice for Powerplant Instruments ASTM F3117/F3117M-20 Standard Specification for Crew Interface in Aircraft ASTM F3233/F3233M-21 Standard Specification for Flight and Navigation Instrumentation in Aircraft ASTM F3064/F3064M-21 Standard Specification for Aircraft Powerplant Control, Operation, and Indication ASTM F3229/F3229M-17 Standard Practice for Static Pressure System Tests in Small Aircraft ASTM F3120/F3120M-20 Standard Specification for Ice Protection for General Aviation Aircraft
CS 23.2620	6	ASTM F3120/F3120M-20 Standard Specification for Ice Protection for General Aviation Aircraft ASTM F3117/F3117M-20 Standard Specification for Crew Interface in Aircraft
CS 23.2625	6	ASTM F3117/F3117M-20 Standard Specification for Crew Interface in Aircraft

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<b>MOC – Electric fuel pumps (Project reference CRI E-101)</b>	
APPLICABILITY:	P2006T NG
REQUIREMENTS:	CS 23.2430(a)(3) amdt. 6
ADVISORY MATERIAL:	-

The purpose of this CRI is to define an acceptable means of compliance to CS 23.2430(a)(3) for fuel system equipped only with electrical fuel pumps.

**M-TS-0000506**

**M-TS Issue: 1**

### **Means of Compliance**

#### **Piston engine electric fuel pumps**

A design incorporating two electrical fuel pumps will be considered compliant to CS 23.2430(a)(3) if:

1. The main electrical pump is powered directly by the electrical generation system driven by the engine.
2. The main fuel pump is protected from inadvertent inflight switch off.
3. An independent back-up fuel pump is available in the case of failure of the main fuel pump.
4. Normal and emergency procedures for the electrical fuel pumps management are provided in the Flight Manual

Disclaimer – This document is not exhaustive and it will be updated gradually.



<b>MOC – Ventilating air duct passage through any Designated Fire Zone (Project reference CRI E-102)</b>	
APPLICABILITY:	P2006T NG
REQUIREMENTS:	CS 23.2440
ADVISORY MATERIAL:	-

The purpose of this CRI is to define an acceptable means of compliance to CS 23.2430 for the ducts made of fire-resistant material installed in the fire regions.

**M-TS-0000507**

**M-TS Issue: 1**

### **Means of Compliance**

#### **Ventilating air duct passage through any Designated Fire Zone**

##### **Discussion**

Ducts made of fire-resistant materials grants 5 minutes protection in the event of a fire. This time can be used to accomplish actions to isolate fire region restoring the firewall requirements.

##### **AMC**

1. There must be means that ensures the prompt detection of a fire. Each fire detector must be installed in accordance with ASTM F3066/F3066M – 18 §9.
2. Ventilating duct passage through firewall must be isolated by fireproof valves.
3. Fire proof valve actuation system must be constructed of such materials and located at such distances from the firewall that they will not suffer damage sufficient to affects the closure of the valve if a portion of the engine side of the firewall is subjected to a flame temperature of not less than 1093°C (2 000°F) for 15 minutes.
4. The fireproof valve must be demonstrated by test or analysis supported by test that no flame passage through valve for 10 minutes in the event of any fire originating in the fire region.
5. Ventilating air duct downstream of each fireproof valve must be fire-resistant for a distance great enough to ensure that heat originating in the engine side of the firewall following a fire can be contained in the duct.
6. Emergency procedure for detection and closure of the fireproof valve must be provided in the flight manual.
7. Inspections and/or tests must be included in the ICA to grant continues functioning of the fireproof valve and its actuating system.

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## Acronyms and Abbreviations

<b>TC</b>	Type Certificate
<b>TCDS</b>	Type Certificate Data Sheet
<b>SC</b>	Special Condition
<b>ESF</b>	Equivalent Safety Findings
<b>AMC</b>	Acceptable Means of Compliance
<b>GM</b>	Guidance Material
<b>MOC</b>	Means of Compliance
<b>CS</b>	Certification Specifications
<b>CRI</b>	Certification Review Item

– END –

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