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.

Annex 1 – SC and ESF

Content:

ESF to CS VLA 1145(a) Engine ignition switches	
APPLICABILITY:	BK160TR
REQUIREMENTS:	CS-VLA 1145 (a)
ADVISORY MATERIAL:	-

The CS-VLA 1145 “Ignition switches” requires:

“(a) Each ignition circuit must be independently switched and must not require the operation of any other switch for it to be made operative.
(b) Ignition switches must be arranged and designed to prevent inadvertent operation.
(c) The ignition switch must not be used as the master switch for other circuits“

The BK 160TR aircraft model presents a forward and rear cockpit (“tandem configuration”) where the controls are duplicated, including the ignition switches (“magnetos”), one for each magneto.
Two flight controls configurations/mode can exist (SOLO/PASSENGER and TRAINING): A control key is allowing modes selection, enabling relevant ignition switch forward or rear side. In these configurations, the “ignition circuit operation” is function of either the forward or the rear ignition switches.
This design require selection of the appropriate mode to make the relevant switches operative.

The BK 160TR aircraft model therefore does not comply directly with CS-VLA 1145(a) regarding ignition switches as the operation of ignition circuit requires additional switches to be operative.

The intent of the requirement CS-VLA 1145(b), is to ensure that inadvertent magnetos switch off by a student flying in the front seat is extremally improbable, in addition any malicious voluntary magnetos switch off by the student (e.g. suicide) shall be avoided.

Compensating factors shall be established with reference to human factor aspect, operational procedures, failure modes, aircraft safety (for example engine fire prevention).

ESF to CS VLA 1147 Mixture Control	
APPLICABILITY:	BK160TR
REQUIREMENTS:	CS-VLA 1147
ADVISORY MATERIAL:	-

The CS-VLA 1147 “Mixture control” states:

“The control must require a separate and distinct operation to move the control toward lean or shut-off position.”

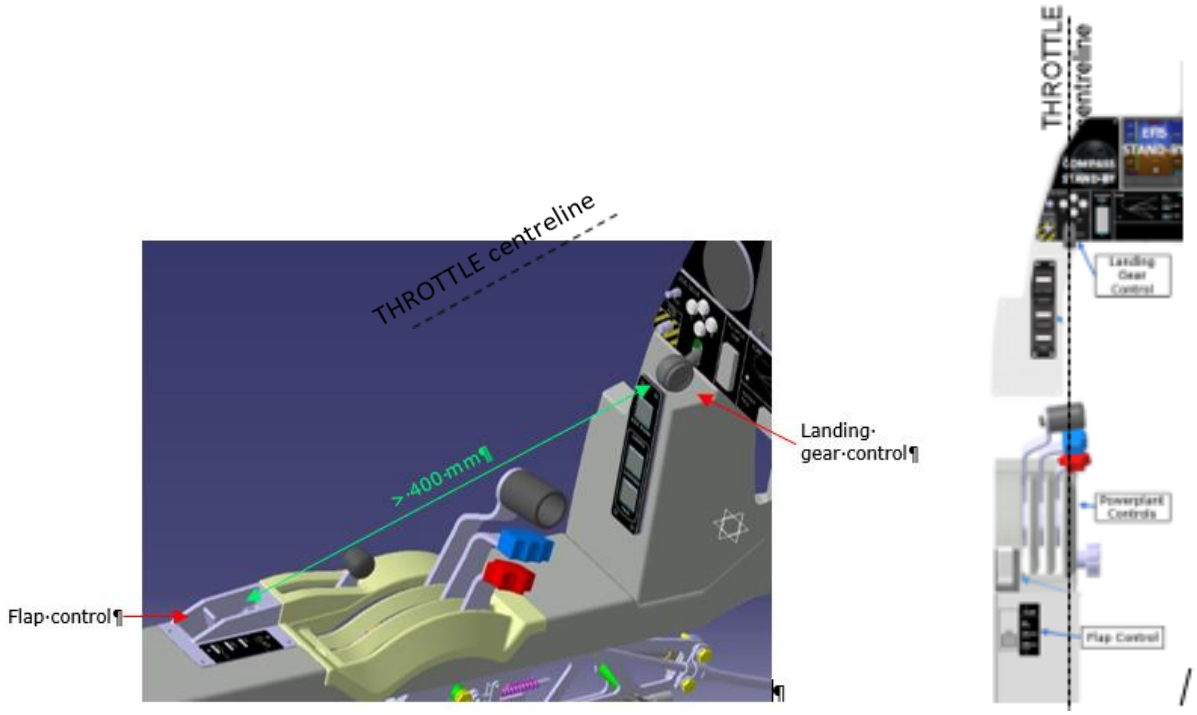
For BK 160TR aircraft model, the mixture control lever is designed so that, in order to move the control toward shut-off position, it is necessary to carry out two actions instead of a separate and distinct operation, as required by CS-VLA 1147.

The Applicant must demonstrate in particular that no spurious action on the control may shut-off inadvertently the engine.

ESF to CS-VLA 777 (a) ;(b) ;(e)(1)(2); (f) Cockpit controls - flaps	
APPLICABILITY:	BK160TR
REQUIREMENTS:	CS-VLA 777 (a) ;(b) ;(e)(1)(2); (f)
ADVISORY MATERIAL:	-

CS-VLA 777 "Cockpit controls" requires:
a) Each cockpit control must be located to provide convenient operation, and to prevent confusion and inadvertent operation.
(b) The controls must be located and arranged so that the pilot, when seated, has full and unrestricted movement of each control without interference from either his clothing or the cockpit structure.
(…)
e) Wing flap and auxiliary lift device controls must be located -
(1) Centrally, or to the right of pedestal or powerplant throttle control centreline; and
(2) Far enough away from the landing gear control to avoid confusion.
f) The landing gear control must be located to the left of the throttle centreline or pedestal centreline.
(…)

The wing flap control is located on the left armrest, behind the throttle, while the landing gear control is located on the left side of the instrument panel, as in figure:



They are approximately aligned with the throttle centreline and located at approx. 400 mm distance from each other.
Their location is not strictly complying to CS-VLA 777 (e) and (f).

A review of paragraph CS-VLA 777 shows that subparagraph (a) and (b) are high level requirements, while the other subparagraphs are detailed requirements for powerplant (c, d and e), flap (f), landing gear (g) and fuel selector (h).
It appears that tandem option detailed configuration requirements have been introduced only for the powerplant, ref. CS-VLA 777 (c)(1), and not for landing gear and flap, which are instead detailed only for conventional side by side cockpit.
The strict application of those subparagraphs on a tandem airplane is therefore recognised to have a potential detrimental effect on the Human Machine Interface.
Finally, following compensating factors have been established:

- proper demonstration of compliance with the high level requirements CS-VLA 777 (a) and (b) shall be provided for these controls and their respective locations;
- the proposed design should be in line with the AMC VLA 777.

Annex 2 - AMC used in case of CS-23 amendment 5, or later.
Following lists are provided only for awareness of the specific 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.

BS 115: N/A

BK 160: N/A

BK 160-200:

Affected CS req.	Amendment	AMC
CS 23.2440	6	ASTM F3066/F3066M-18 par. 8.1 to 8.7
CS 23.2605 (b)	5	ASTM F3064/F3064M-18a

BK 160TR:

Affected CS req.	Amendment	AMC
CS 23.2205	5	ASTM F3254-19 Par. 4.2 to 4.4
CS 23.2225 (a)	5	ASTM F3116M-18 Par. 7.3.1
CS 23.2300 (a)	5	ASTM F3232-17
CS 23.2440	6	ASTM F3066/F3066M-18 par. 8.1 to 8.7
CS 23.2500	5	ASTM F3061M-17 ASTM F3117-18b ASTM F3231-17
CS 23.2510 (a)	5	ASTM F3232-17 ASTM F3230-17
CS 23.2520 (a)	5	ASTM F3236-17
CS 23.2605 (b)	5	CS VLA.1305 complemented with ASTM F3064/F3064M-18a par 6.2.1.6.
CS 23.2605 (c)	5	ASTM F3061/F3061M-17

Acronyms and Abbreviations

TC	Type Certificate
TCDS	Type Certificate Data Sheet
SC	Special Condition
ESF	Equivalent Safety Findings
AMC	Acceptable Means of Compliance
GM	Guidance Material
CS	Certification Specifications

– END –