Proposed Equivalent Safety Finding to CS 23.777(d):

Cockpit Controls

Statement of Issue

The hereby presented Equivalent Level of Safety (ELOS) to the EASA Certification Basis shall be subject to public consultation, in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) of which states:
"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

Background

Already the cockpit control layout on L 410 UVP-E20 and L 410 UVP-E20 CARGO models is not compliant with FAR 23.777(d), Amendment 23-33 (which is technically concurrent with CS 23.777(d) at amendment 3) in a literal way. However, these airplanes have proven to be adequately safe by several means including the airplane's required type rating program and the large fleet (over 1,000) of the Model L 410 series flying safely without accidents/incidents associated with the same fuel stop cock/emergency throttle levers locations.

For the new L 410 NG design Aircraft Industries a.s. intends to use a similar cockpit control layout for the Fuel Stop Cock/Emergency Throttle Levers as utilized on the L 410 UVP-E20 airplane. By that, also the L 410 NG design does not comply with the powerplant control layout with CS 23.777(d) at amendment 3 in the literal way. The applicant requested an ELOS for this issue.

Certification Basis

CS-23, all amendment level (as well as the except for some editorial differences identical US standard FAR-23) include a specific wording in respect to the order of the cockpit controls.

The relevant parts of CS-23, 23.777 at amendment 3 reads as follows.

> ***Cockpit controls***
> *…*
> *(d) The control location order from left to right must be power (thrust) lever, propeller (rpm control) and mixture control (condition lever and fuel cut-off for turbine-powered aeroplanes).*
> *…*

Description of cockpit control arrangement:

The existing design has been accepted and approved by the (pre-EASA) Primary Certifying Authority for the whole L410 fleet. The AI location of the Fuel Stop Cock/Emergency Throttle in those models is shown in Figure 1.

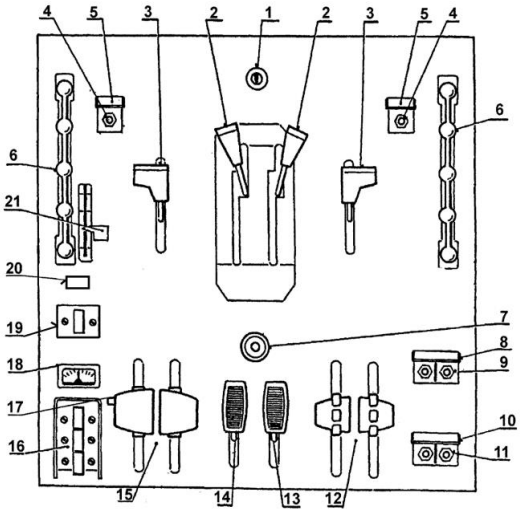

Figure 1
Powerplant Controls of the L410UVP-E20

Item	Description
2	Fuel Stop Cock/Emergency Throttle Levers
3	Fuel Fire Cocks
12	Propeller Control Levers
13	Friction Lever for Propeller Control Levers
14	Friction Lever for Throttle Control Levers
15	Throttle Control Levers

The cockpit controls, especially the Fuel Stop Cock/Emergency Throttle Levers on the L-410NG should be located in a similar way, which has been shown in Figure 2:

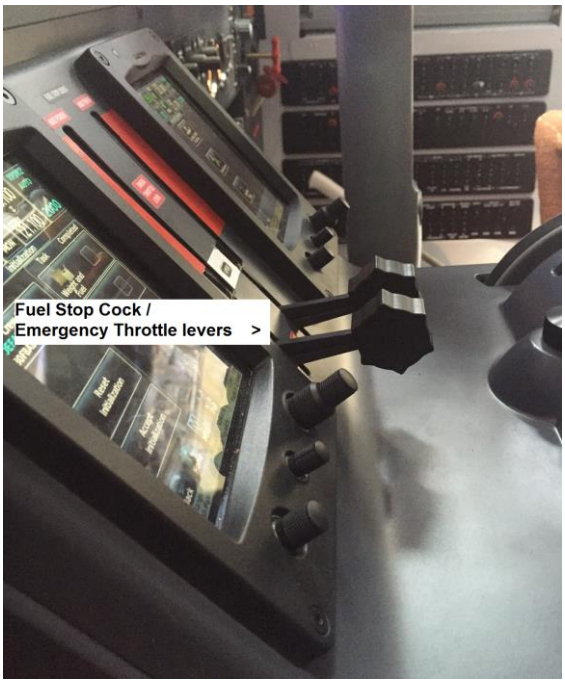

Figure 2: Powerplant Controls of the L-410NG

EASA Safety Equivalency Demonstration proposal

Description of compensating features, which allow the granting of the ELOS:

The Fuel Stop Cock/Emergency Throttle Levers are used for two purposes:
- stop of fuel flow to the engine,
- control of engine through emergency circuit in case of FCU failure.

With regard to emergency throttle control function, the used location has an advantage, because these levers are better accessible for both pilots (shorter distance, no overcoming other levers from pilot in command position, availability of more accurate emergency control).

Explanation of how features provide equivalent safety:

Pilots are familiarized with the location during the type rating training and they get accustomed with their location by frequent using these levers at each flight. From the above it follows that a misuse of these controls is improbable.

AI assumes that the location of the Fuel Stop Cock/Emergency Throttle Levers on the slope part of the pedestal is from the point of view of safety equivalent to those required by the regulations.