

# **EASA PADs No. 08-023, 08-022, 08-021 & 08-020**

## **« JOINT » COMMENT RESPONSE DOCUMENT**

**[officially closed for comments on 14 March 2008]**

<b>COMMENTER(S)</b>	<b>COMMENT(S):</b> ----- <b>EASA RESPONSE(S):</b>
Sotislav Bozhkov, Deputy Executive Director HeliAir Mon 10/03/2008	<p>COMMENT # 1: - Compliance – “[...] Whilst we understand that such safety improvements will allow this type of aircraft to meet the safety standards and continue its operation in EU member states , we consider that the term of compliance – up to 31-DEC-2009 – is quite short.[...] As far as we know there are around 30-35 aircraft of this model registered in EU member states and if we assume that the overall capacity of the Factory is 1 aircraft per month, theoretically they will not be able to complete all aircraft within the time limit. For example our fleet which have to be modified one by one, the Manufacturer will need about 15 months to complete the modification , considering also ferry and acceptance time [...] that means we would be already out of the limit which might reflect in suspension of our long –term agreements for humanitarian flights.</p> <p>Our proposal is about the period of compliance to be extended at least up to 31-DEC-2010 in order air operators to have enough time to complete modification without considerable disruptions of their operations.”</p> <p>-----</p> <p>EASA RESPONSE: -</p> <p>Aircraft Industries assures EASA that they have the capacity to handle this work. Many aircraft are employed for cargo operations so the implementation of the essential safety improvements is relatively straight-forward (i.e. no additional emergency exits). However, if it becomes clear that the intended timescales cannot be met for reasons of delay in implementation of factory facilities, an extension to the deadline can be granted by EASA.</p>
David Barinka Quality Manager Aeroservis Thu 13/03/2008	<p>COMMENT S: - Overall - “Comments to EASA PAD’s No’s 08-020, 08-021, 08-022, 08-023 AEROSERVIS, s.r.o. on behalf of Association of L 410 Operators makes following comments to Proposed Airworthiness Directives Numbers 08-020, 08-021, 08-022,08-023.</p> <p>We would like to strongly underline that:</p> <ol style="list-style-type: none"> <li>1. Below document was prepared as an preliminary material to comply with closing date for comments as published by EASA, i.e. to left discussion opened, and it cannot definitely be considered as exhaustive.</li> <li>2. We consider these PAD’s as so widely affecting “small” commercial aviation industry within EU, that simple closing the issue after one month given for discussion is totally inadequate.</li> </ol> <p><b>1. Background</b></p> <p>Commission Regulation No. 1702/2003 by article 2(3)(a)(i) states, that all EU products are considered having an EASA Type Certificate, or “grandfathered”, except those, where serious doubts about its safety because of certification base used for TC issue exist.</p> <p>In matter of L 410 series type certificate transfer, there was a long history, where the lead point was such, that existing TC holder was not wiling to support transfer of another variants, except last one, i.e. UVP-E20. Many bodies engaged in L 410 business, finally associated in Association of L 410 Operators, using a lot of efforts including technical analyses supported by CAA CZ confirmation to proof, that all L 410</p>

models are of the same safety level compared to L 410 UVP-E20 variant, and of the minimally same safety level as comparable other aircraft types. This is proven by day-to day experience, where minimally tenths of L410 of various models, mostly UVP-E variant, reach every month hundredths of flight hours in EU airspace without any occurrence giving a chance to doubt about its safety.

Finally we strictly declare two facts: This entire issue was opened in very start by EASA standpoint, which was expressed by executive director decision 2004/01/CF. There was identified as reason why to not transfer other L 410 variants their certification basis, which is “not well known” by EASA, and not promising sufficient safety level, as stated by EU Reg. 1702/2003. This argument we consider withdrawn now, after our complaint processed via Euro ombudsman. Following this, after change of LET/ Letecké Závody / Aircraft Industries owner, it started next development of case. Shortly, there was, and regrettably still persists business policy of Aircraft Industries (hereinafter AI), to push all L 410 operators within EU to order from AI various tasks and materials, with reason behind, but as clearly can be seen, manufacturing capacity of AI (or LET plant in Kunovice) is not fully used (plant was capable to produce 40 units of L 410! per year, last year production was around four units), and by this way to improve cash flow and profit. What is the worst, Aircraft Industries, to meet this goal, misuses European legislation in force and threats concerning aviation safety. After all L 410 variants were finally transferred, EASA left open a ”backdoor” for AI, to allow them any time re-open the issue by publishing the TCDS containing a note regarding future issue of AD introducing “essential safety improvements” and publishing the list of applicable serial numbers. Both these items we consider as minimally unusual and endangering free market competition and consistence of legal background.

## 2. Legal Framework

Issue and handling the Airworthiness Directives defines Annex to Commission Regulation No. 1702/2003 called Part 21, by article 21A.3B. Here is stated:

(a) An airworthiness directive means a document issued or adopted by the Agency which mandates actions to be performed on an aircraft to restore an acceptable level of safety, when evidence shows that the safety level of this aircraft may otherwise be compromised.

(b) The Agency shall issue an airworthiness directive when:

1. an unsafe condition has been determined by the Agency to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and
2. that condition is likely to exist or develop in other aircraft.

(c) When an airworthiness directive has to be issued by the agency to correct the unsafe condition referred to in paragraph(b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, ETSO authorisation or any other relevant approval deemed to have been issued under this Regulation, shall:

1. Propose the appropriate corrective action or required inspections, or both, and submit details of these proposals to the Agency for approval.
2. Following the approval by the Agency of the proposals referred to under subparagraph (1), make available to all known operators or owners of the product, part or appliance and, on request, to any person required to comply with the airworthiness directive, appropriate descriptive data and accomplishment instructions.

(d) An airworthiness directive shall contain at least the following information:

1. An identification of the unsafe condition;
2. An identification of the affected aircraft;
3. The action(s) required;

4. The compliance time for the required action(s);

5. The date of entry into force.

In other words, points (a) and (b) say, here must be any case or cases reported and documented concerning particular aircraft type, which require an extra action (task performance or inspection performance), and/or such case or cases may occur on other similar aircraft type. In this moment EASA is empowered to issue an AD.

In addition to above declared, as per point (d), AD must identify the unsafe condition, what leads to AD issue.

Concerning set of PAD's being now discussed; we express very strongly, that:

- no unsafe condition was occurred and reported concerning L 410 fleet in respect to tasks required by PAD's. Simply such number of items cannot be defined, proven by exact particular occurrences and justified, as required by above paragraph.

- Nothing relevant, what can be considered as description of unsafe condition recognized during the operation of L 410, and what causes issue of the PAD's, is mentioned by PAD's wording, as required by point (d).

The reason as officially published by PAD text, i.e. the old story regarding certification basis used for older L 410 variants certification, and similar declaration done by AI on Service Bulletin cover page referring to allowing next operations within EU after 31.12.2009, definitely is not compliant with requirement of para (d). There shall be sentence of type: "there and there were found cracks etc...", then the performance of...is mandated" This is the relevant reason to issue an AD! Otherwise we are sorry to conclude, EASA is back, when misused by sales department of Aircraft Industries.

Necessity of all tasks performance as per AD is furthermore impeached by wording of Service Bulletins itself, where we can read: SB performance, for aircraft registered in EU member states – mandatory, for other aircraft – optional. The same does the sentence telling, that aircraft used for parachute operations are excluded from several items to be performed.

First, we cannot agree with back coming disputes on certification base used for L410. CAA CZ many times declare, aircraft type was certified using basis being that time in force, and CAA CZ consider type certification valid and type safe enough in respect to that certification base. However, the same is valid for other aircraft types. Or, is EASA going to issue an AD valid for B737-400/500/600 (by the way, being certified in the same time like UVP-E model), because there exist new generation B737 – 600/700/800/900, what, for sure, is certified according to other amendment of FAR 25, and thus, using the same logic, is more safe than classic generation, which then must be upgraded?

Second, we may understand (without agree with less safety level founded by using these requirements!), that EASA is not familiar with ex-Soviet certification requirement (nevertheless, there was lot of time to study them). But we cannot understand, why EASA has doubts regarding M and MA model, which was certified using BCAR, i.e. western regulation?

Third, an AD is to be issued, when there is evidence, that safety of next operation of an aircraft type is compromised. How is possible, that for operation within EU states is different safety level, than for non-EU states? Aviation safety is only one. So, is the safety of L 410 compromised or is not? This fact decreases trustworthiness of all PAD's in extreme way.

Next issue is proposed way of application PAD's or Service Bulletins. In this field raise a lot of concerns as well. Last clause of para C. of service bulletins says, and similarly Chapter 2, if another maintenance organisation is approved to perform this SB, or exactly to say AD, then this performance is subject of verification by Aircraft Industries certifying staff. In Chapter 1, para H, and similarly Chapter 2, para B and C, in place of Implementation Instruction, an instruction under P/N B042 664X is mentioned.

The 21A.3b para (c) 2. clearly states, that TC holder is obliged to provide all known operators with all data, procedures and instructions needed for proper AD performance. Common praxis is, when published an AD, it comprises fully that material.

Regrettably nothing like this is we can see either in PAD text or SN text, only references to other documents. This, in respect to well

known AI policy, founds serious doubts regarding fairness with distribution of all documents needed to perform PAD, and is definitely not compliant with above cited regulation.

Furthermore, when AI requires, that in case the PAD is performed by other performer, AI staff is going to verify correctness of works, it once again disputes fairness of the issue, and, what we feel more dangerous, AI try to usurp duties, which belong to CAA of state of registry of particular aircraft. An AD or SB is considered according to 145.A.145 as Maintenance Data. In other words, any Part 145 maintenance organisation approved for L 410 maintenance must have a possibility to perform that AD! Checking adherence to these instructions as well as general Part 145 rules is duty of continuing auditing by EASA, or national CAA issuing to the particular organisation a Part 145 approval, and not TC holder staff.

#### Legal Framework – Conclusion

1. There is not proven a reason for issue the AD's as required by 21A.3b

2. The wording of PAD's is not compliant with 21A.3b requirements in many ways.

3. Especially the proposed way of application is in dissent to 21A.3b requirements.

Overall style of PAD seems that reason for its issue is other than focus to aviation safety. Only reason is continuation of Aircraft Industries unfair and free market principles endangering policy. Regrettably very sensitive case, what aviation safety definitely is, is misused for that goal in irresponsible way.

**3. Technical Analysis, Proposal of Compromise Solution in Respect to Aviation Safety** If we disregard poor level of legal side of the issue, we can analyse particular points to be modified as proposed by Aircraft Industries. Modifications consist from two parts. Part A, what is proposed obligatory for continuing passenger operations with more than 9 seats; and Part B obligatory for all units. Generally, all modifications, when performed, simply upgrade older models, especially E and E9, to E20 variant. We would say, we are back before 28.th March 2007, when AI strictly requires rebuild of all units to E20 standard.

#### A. Part A

Part A by points 1. to 8. simply mandates installation of two (for UVP model one) under wing emergency exits.

This modification is in present standard equipment of E20 variant, and as option can be introduced to other versions. Origin of this installation is, that E20 variant was certified using FAR 23 Amdt. 34, effective 17.02.1987. Here the Sec. 23.807, (d) (1) (ii) requires in total three emergency exits for an aircraft with seating capacity of 16 to 19; one emergency exit on side of main entrance door and two on the opposite side. Next point (3) states rules for marking the exits by self illuminated or internally electrically illuminated placards. However, in time when older variants were certified (UVP-E application date 1981, TC issue date 30th January 1986; etc.), Sec. 23.807 in wording of Amdt. 10, effective 13.03.2007 was in force, where only one emergency exit on side opposite to main door was required. This requirement is complied with by present design of older L 410 variants having one right side front emergency exit. Furthermore, there, as far as known to the Association of L 410 Operators, was not reported any L 410 accident, especially within common EU member states, where was determined by investigation authority, that a lack of emergency exits caused increase of victims or injured. So there is no reason to mandate installation of additional emergency exits by an Airworthiness Directive. In respect to principle, that after an aircraft type is certified, this type design is not revoked, or subjected to further re-designs, as certification basis changes during the time, we consider requirement to install next emergency exits as inappropriate. In respect to acceptability of possible changes to existing L 410 units by owners and operators, we consider that installations as most problematic. First, this is a major airframe change affecting hardly existing structures. Many parts manufactured directly by AI are necessary. All these facts make this task very expensive, even not looking to possible and very probable AI step to increase price of parts needed. This also will require long term removal of subject aircraft from operation, causing thus next financial losses to operator. Our proposal of solution is, for all L 410 carrying more than

9 passengers, to introduce following changes:  
 - to install self-illuminating placards of size and colour of both placard and letters as mandated by Sec.23.807, Amdt. 34 (i.e. placard of red colour 2 inches high, letters of white colour of 1 inch height)

B. Part B

1. Requirement to modify locking mechanism of front emergency exit. We have no evidence about problems with locking of front emergency exit. Together with application of existing service bulletin adding installation of front emergency exit locking warning (almost installed on all operated L 410), we consider existing status safe enough. Our proposal of solution is, to verify, and if not yet performed, to perform Mandatory Bulletin L410UVP-E/073a (installation of terminal switch for signalling of closed front emergency door)
2. Requirement to Installation of indication of closing of the entry door, front emergency exit and covers of front baggage compartment. We do not understand requirement to do anything with main entry door indication, as this is standard equipment of all L 410 variants since production started. Requirement for front emergency exit – solution see point 1. above. Regarding introduction of front baggage compartments covers closing indication; the AI requirement is to use the same system, as used on E20 variant. This solution is reported by operators as not reliable, giving false warnings very often. We consider standard closing system, while the front one is lockable by key, and by this way prevented against opening during flight, safe in acceptable level provided the flight crew is adhering walk-around procedure as given by aircraft flight manual, i.e. checking proper locking of hooks of closing system. Our proposal is, safety standard is not insufficient.
3. Requirement to install handle at front emergency exit. It seems there AI mentions a very simple handle mounted above top frame of front emergency exit on E20 variant. This we consider of minor value related to safety of the L 410.
4. Requirement for installations of labels on front emergency exit. This requirement is fulfilled (may be in better way) by our proposal in para regarding Part A.
5. Requirement for installation of temperature indication of the onboard batteries. We can agree with this requirement, as far as Ni-Cd batteries are installed on the aircraft, where rapid overheat is possible.
6. Requirement of non-return flaps into wing fuel filler necks and withdrawal of internal fuel filler necks on the wing. Our point of view is, there is no necessity to withdraw internal filler necks. Contrariwise, we consider useful to leave these filler necks on place, because these increase velocity of filling-up the wing fuel tanks system. Regarding non-return flaps: first, it is responsibility of person, who performs refuelling, to verify proper closing of all filler necks covers. Second, the non-return flaps used on E20 do not provide tight closing of unclosed filler neck cover. It, we would say, decrease velocity of fuel leak only. So in any case, when it may happen, crew shall return to departure airport, or divert to alternate as soon as possible. Our point of view is, the existing system does not require any safety improvement.
7. Requirement of fuel flow meters installation. In our point of view this requirement does not make sense. Engine power settings are for all L 410 models including E20 variant defined only by: TRQ, ITT, Ng, Prop RPM. The engine manufacturer, Walter Engines, does not require installation of fuel flow meters. Moreover, L410 is equipped by two separate fuel pressure indications: first is indication of fuel pressure provided by electrical booster pumps, second indication of constant fuel pressure provided by gear pump, which is an integral part of fuel control unit. Our point of view is, the existing system is adequate and efficient to monitor engines operation and fuel delivery and does not require installation of fuel flow meters.
8. Requirement to install warning of exceeding of Vmo. We agree with this requirement.
9. Requirement for re-routing of rudder and aileron trim tab cabling. No incident occurred because of routing of said cabling as used on older L 410 models is known. We cannot see any reason to make such modification.

10. Requirement for installation of fire resistant coating on hoses inside the engine nacelle. We agree with this requirement.

11. Requirement to modify passenger seats to prevent shifting the cabin baggage stored under seat. This means welding of tube to passenger seat legs blocking possible shifting of baggage. We agree with this requirement.

12. Requirement of water collector into pressure air piping of de-icing system of tail unit. Our experience does not show any problem with water collection inside the pipes delivering pressurized air into de-icers of the tail unit, even on aircraft operating in extremely wet areas. We consider this requirement not necessary and proven.

13. Requirement to modify fuselage harness. The PAD's or SB's do not describe in detail, what harness is to be modified. However, we have no knowledge, that here is or was any problem with fuselage harness. We consider this requirement inappropriate.

14. Requirement to replace rudder blocking device. This is total nonsense. Said rudder blockage is removable device, which is used to connect rudder pedals with control wheel, while aircraft parked, to block free movement of rudder by wing gusts. It is responsibility each operator, how he takes care on his aircraft during parking. To connect that ground equipment with type design is crazy.

4. Conclusion, Proposal of Compromise Solution

i. We, L 410 operators are very disappointed from continuing unfair and desperate Aircraft Industries behaviour, and wondering how anybody can misuse European legislation, which was developed to protect right of ALL European Union citizens, jeopardize confidence into legal status being in force, doing unfair steps against free market, and misuse very sensitive area, which the aviation safety in any case is.

ii. Proposed Airworthiness Directives, as published, accompanied by AI Service Bulletins, we consider as violation of valid regulations. They do not fulfil many criteria for issuing an AD, in light of AI policy what we experience for long time; the goal is clear for us: inadequate profit of Aircraft Industries only.

iii. But yet we, having in mind aviation safety, notwithstanding we know and having experience, that L 410 all versions is extremely reliable and safe aircraft, would use this opportunity to really improve safety of our airplanes.

Our proposal is: AEROSERVIS, as holder the design organisation approval will design and issue a set of minor changes described below, its compliance will be an alternative mean of compliance for introducing of really essential safety improvements. The package of changes will comprise:

1. For aircraft continuing passengers operations with more than 9 passengers: introducing placards in format as required by Sec 23.807 Amdt. 34
2. Verifying performance of Mandatory Bulletin L410 UVP-E/73a
3. Installation of system of onboard batteries temperature measurement
4. Installation of Vmo exceeding warning
5. Installation of fire resistant coats on pressure hoses inside the engine nacelle
6. Modification of passengers seats by blockages against shifting of the baggage

All above modifications are straightforward in matter of safety improvements. Moreover, none of them affect heavily existing structures or systems of aircraft, they are simple to be introduced, cost effective, and any Part 145 approved maintenance organisation can perform the work package, getting all material needed directly from manufacturers or distributors, and not via monopoly deliverer. This, we hope, will be a real contribution to safety."

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EASA RESPONSE: -

[EASA does not consider that these proposals 'widely affect' small industry as asserted by the commenter. There are approximately 56 LET](#)

410 aircraft that would be affected (all variants except UVP-E20), being in civil operation in EU member states plus possibly a further 32 operating in the government sector of EU member states where compliance with EASA regulations is a national decision. In addition, there are approximately 154 operating in both civil and government sectors of non-EU European/CIS countries (Croatia, Ukraine, Serbia, Russia, Bosnia & Herzegovina) that need not be affected by these proposals. These figures date from 2006 and may not be precise at the date of the CRD but give an idea of the number of aircraft affected. The minimum number affected is around 55, which is not considered to 'widely affect' small industry.

The justification for the ADs is that EASA believes that an unsafe condition exists within the meaning of 21A.3B(b) for reasons stated in paragraph 3 below.

The one month consultation is established in EASA procedures and is deemed to be adequate to elicit comments from affected organisations. The one month consultation is established in EASA Certification Procedure C.P006-01 which is published on the EASA website at:

[http://www.easa.eu.int/ws\\_prod/c/doc/Working\\_Procedures/C.P006-01%20Continuing%20Airworthiness%20of%20Type%20Design%20%20\(CAP\).pdf](http://www.easa.eu.int/ws_prod/c/doc/Working_Procedures/C.P006-01%20Continuing%20Airworthiness%20of%20Type%20Design%20%20(CAP).pdf). Paragraph 5.1.1, step 130 refers. The consultation period is established because the procedure concerns the issue of airworthiness directives which, even if not emergency ADs, usually have a degree of urgency. It should be noted that when the consultation period is over this does not prevent people from commenting and that we also consider any comment addressed to any published AD.

#### 1. Background

Commission Regulation 1702/2003 Art 2(3)(a)(i) does not refer to the Agency having 'serious doubts'; it states '..... unless the Agency determines, taking into account in particular, airworthiness codes used and service experience, that such type-certification basis does not provide for a level of safety equivalent to that required by the basic regulation and this regulation....' The resolution of the argument over the non-transfer of the earlier LET 410 models was proposed by the European Ombudsman; this proposal was accepted by EASA and a decision was made to transfer all models of the LET 410, subject to the incorporation of certain minimum essential safety improvements to bring these aircraft to a level of safety equivalent to other Commuter category aircraft certificated at around the same time. This was made clear in the Type Certificate Data Sheet issued by EASA when these variants were transferred. EASA is only concerned with issues relating to aviation safety.

#### 2. Legal Framework

The commenter quotes Regulation 1702/2003 Part 21 paragraph 21A.3B relating to airworthiness directives. Normally these provisions are intended to address in-service difficulties. In the context of 21A.3B(a), 'restore an acceptable level of safety' cannot be applied in the conventional sense as these aircraft were not certificated to an acceptable code of airworthiness requirements in the first place. The paragraph goes on to say, 'when evidence shows that the safety level of this aircraft may otherwise be compromised.' In the Agency's opinion, this evidence can be considered to be provided in two forms:

- a) non-compliance with certification standards applied to western products certificated at the same time
- b) service record and accident history

It is not the intention of the Agency to be reactive; that is, we do not wait for lives to be lost if we feel there is a risk which could otherwise

be addressed by applying certain proven preventative measures. Therefore, looking at the accident record to determine remedies is reactive as lives may already have been lost. It is normal in aviation safety regulation to try to minimise the probability of loss of life so that it is statistically extremely unlikely. The proactive mechanism used to minimise the chance of this is to show compliance with airworthiness requirements. In this context, arguments in favour of the Russian code NGLS-2 are not meaningful because it has no equivalence with western codes.

For a detailed justification please refer to paragraph 3 below.

It is incorrect to state that the intent of EASA is to retrospectively require the same standards for earlier LET 410 models as for the LET 410 UVP-E20; we are only requiring this for aircraft that carry more than 9 passengers for reasons set out below. For aircraft carrying 9 passengers or less, those engaged in cargo or parachuting operations, the minimum essential safety improvements are far reduced.

The commenter criticises the fact that the rectification action should be carried out by the type certificate holder, Aircraft Industries. EASA Airworthiness Directives are addressed to the Type Certificate holder, so this is normal. In addition, EASA believes that this is reasonable as the work will involve detailed knowledge of the aircraft structure and systems that only the type certificate holder will have. The EASA regulation allows the option of alternative means of compliance to any Airworthiness Directive however, provided that the applicant shows that he has access to the appropriate technical information.

The commenter questions why the title of each refers to aircraft in EU member states. The applicability of the AD is, in fact, all examples of the LET L-410 aircraft referred to in each AD but it is the responsibility of the state of registry for aircraft outside the EASA member states. In this case EASA acts as State of Design to fulfil the ICAO obligations of the member state.

The other comments under this heading 'legal framework' relate to commercial issues, criticism of Aircraft Industries, safety record and drafting of ADs and are not legal issues. They are dealt with in the next paragraph.

### 3. Technical analysis, proposal of compromise solution in respect of aviation safety Part A (1-8)

It is not the intention to retrospectively apply current requirements to an old design but to bring all aircraft up to a similar standard. The purpose of the addition of emergency exits to aircraft carrying more than 9 passengers is to bring LET 410 aircraft up to the same standards as other aircraft of similar capacity certificated at the same time. Examples of these aircraft are:

- a. BAe and Scottish Aviation Jetstream series
- b. De Havilland Canada DHC-6 Twin Otter
- c. Fairchild-Swearingen Metro series
- d. Beechcraft 1900

In the case of the Jetstream models, the certification code was BCAR Section D which applies large aircraft certification standards to this small aircraft. It requires emergency exits. Normally BCAR Section K would apply to aircraft of this size and weight but the higher standards were applied; this was because Section K was not intended to apply to turboprop powered aircraft. The early models of the LET 410 were, however, certificated to the lower standards of BCAR Section K. Application had been made for UK validation. UK required 14



modifications which the manufacturer intended to comply with and 20 that the manufacturer did not intend to incorporate. No aircraft were ever built to this standard and the type never entered into service in UK. For the DHC-6, Metro series and Beechcraft 1900, the FAA's commuter category provisions apply. However, these designs pre-date the commuter category of FAR 23 and were certificated to Special Federal Aviation Regulations (SFARs); initially SFAR 23-1, then SFAR 41. These were later incorporated into FAR Part 23 Commuter Category. All of these require emergency exits:

SFAR 23-1 (effective 24/12/69):

### **32. Doors and Exits.**

The airplane must meet the requirements of FAR 23.783 and FAR 23.807(a)(3), (b) and (c), and in addition:

- (a) There must be a means to lock and safeguard each external door and exit against opening in flight either inadvertently by persons, or as a result of mechanical failure. Each external door must be operable from both the inside and the outside.
- (b) There must be means for direct visual inspection of the locking mechanism by crew-members to determine whether external doors and exits, for which the initial opening movement is outward, are fully locked. In addition, there must be a visual means to signal to crewmembers when normally used external doors are closed and fully locked.
- (c) The passenger entrance door must qualify as a floor level emergency exit. Each additional required emergency exit except floor level exits must be located over the wing or must be provided with acceptable means to assist the occupants in descending to the ground. In addition to the passenger entrance door:
  - (1) For a total seating capacity of 15 or less, an emergency exit as defined in FAR 23.807(b) is required on each side of the cabin.
  - (2) For a total seating capacity of 16 through 23, three emergency exits as defined in 23.807(b) are required with one on the same side as the door and two on the side opposite the door.
- (d) An evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is denied. It must be conducted under simulated night conditions utilizing only the emergency exits on the most critical side of the aircraft. The participants must be representative of average airline passengers with no prior practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.
- (e) Each emergency exit must be marked with the word "EXIT" by a sign which has white letters one inch high on a red background two inches high, be self-illuminated or independently internally electrically illuminated, and have a minimum luminescence (brightness) of at least 160 micro-lamberts. The colours may be reversed if the passenger compartment illumination is essentially the same.

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SFAR 41 (effective 12/8/82):

*Doors and exits.* The airplane must meet the requirements of Secs. 23.783 and 23.807 (a)(3), (b), and (c) of this chapter, and in addition the following requirements:

(a) Each cabin must have at least one easily accessible external door.

(b) There must be a means to lock and safeguard each external door against opening in flight (either inadvertently by persons or as a result of mechanical failure or failure of a single structural element). Each external door must be operable from both the inside and the outside, even though persons may be crowded against the door on the inside of the airplane. Inward opening doors may be used if there are means to prevent occupants from crowding against the door to an extent that would interfere with the opening of the door. The means of opening must be simple and obvious and must be arranged and marked so that it can be readily located and operated, even in darkness. Auxiliary locking devices may be used.

(c) Each external door must be reasonably free from jamming as a result of fuselage deformation in a minor crash.

(d) Each external door must be located where persons using it will not be endangered by the propellers when appropriate operating procedures are used.

(e) There must be a provision for direct visual inspection of the locking mechanism by crewmembers to determine whether external doors, for which the initial opening movement is outward (including passenger, crew, service, and cargo doors), are fully locked. In addition, there must be a visual means to signal to appropriate crewmembers when normally used external doors are closed and fully locked.

(f) Cargo and service doors not suitable for use as exits in an emergency need only meet paragraph (e) of section 5(e) of this regulation and be safeguarded against opening in flight as a result of mechanical failure or failure of a single structural element.

(g) The passenger entrance door must qualify as a floor level emergency exit. If an integral stair is installed at such a passenger entry door, the stair must be designed so that when subjected to the inertia forces specified in Sec. 23.561 of this chapter, and following the collapse of one or more legs of the landing gear, it will not interfere to an extent that will reduce the effectiveness of emergency egress through the passenger entry door. Each additional required emergency exit except floor level exits must be located over the wing or must be provided with acceptable means to assist the occupants in descending to the ground. In addition to the passenger entrance door--

(1) For a total passenger seating capacity of 15 or less, an emergency exit, as defined in Sec. 23.807(b) of this chapter, is required on each side of the cabin; and

(2) For a total passenger seating capacity of 16 through 19, three emergency exits, as defined in Sec. 23.807(b) of this chapter, are required with one on the same side as the door and two on the side opposite the door.

(h) An evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is desired. It must be conducted under simulated night conditions utilizing only the emergency exits on the most critical side of the aircraft. The participants must be representative of average airline passengers with no prior practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.

(i) Each emergency exit must be marked with the word "Exit" by a sign which has white letters 1 inch high on a red background 2 inches high, be self-illuminated or independently internally electrically illuminated, and have a minimum luminescence (brightness) of at least 160 micro-lamberts. The colours may be reversed if the passenger compartment illumination is essentially the same.

.....

FAA NPRM Notice 83-17 (15/11/83) proposed incorporating these into FAR 23 which was done at Amendment 34, effective 17/2/87. The requirement for three emergency exits in addition to the entrance door is clear.

The LET 410 series (apart from the UVP-E20 model) are not fitted with emergency exits; there being simply one access door to the fuselage and a single 'emergency exit' which is an access door to the cockpit for the crew.

The requirement for the introduction of emergency exits is to bring LET 410 models used for the carriage of more than 9 passengers to the same standards as other similar aircraft. EASA does not propose to apply these standards to aircraft used for cargo operation, parachuting or limited carriage of passengers (maximum 9). Knowing the foregoing, EASA cannot take the risk of loss of life due to these aircraft not conforming to western design standards that have existed for almost forty years.

In addition to the foregoing, it must be noted that many non-CIS countries that have accepted the early versions of the LET 410 aircraft have required the mandatory installation of emergency exits. These are: Venezuela, Dominican Republic and Honduras. Mexico and Panama would only accept the 410 UVP-E20, which is fitted with emergency exits. In fact the list of other countries that have accepted the UVP-E20 model (Sweden, Brazil, Denmark, Argentina, Chile, Cuba, Germany, Australia, Indonesia, Peru, South Africa, Korea) are those countries that would not certificate the earlier versions not fitted with emergency exits. A Venezuelan LET 410-UVP without emergency exits crashed into the sea in January 2008; there were no survivors. It is postulated that there would have been a better chance to evacuate the aircraft if emergency exits had been fitted.

The installation of self-illuminating placards for the emergency exits is essential for aircraft operating at night.

The commenter refers to the satisfactory in-service accident record of the LET-410. In fact the accident record of the LET 410 is poor in comparison with other similar types. Around 1100 aircraft have been produced since 1969.

EASA Report IP 06/2008 'Safety Record of the Let L-410' and this shows an increasing number of accidents over the past ten years. There were four fatal accidents in 2007. Since 1994 the five-year average was around 2 per million flying hours in 1990 but has risen to 5.5 in 2007. This is in contrast with a decreasing trend for other similar aircraft; in 2006 over 30% of all accidents to small turboprop aircraft (below 20 seats) involved LET 410s.

A CAA-UK report (dated 2004) shows that between 1990 and 2003 there were 19 fatal accidents with 159 fatalities out of 255 people in the aircraft, giving a fatality ratio of 62%. The three-year moving average fatal accident rate has varied from 3.2 per million flying hours from 1997 to 1999 to 24.4 per million flying hours for 2000-2003. For the period 1990-2003 the accident rate was 6.9 per million flying hours in passenger operation (8.4 in cargo operations). Comparable figures for the DHC-6 are 4.7 and 3.2. Whilst this information is not directly related to the design of the aircraft (that is, the fatal accident rate may be due to other actors than design) the high accident rate makes it more important to make it easy to leave an aircraft in an emergency.

#### Part B

1, 2 & 3 The PAD requires indication in the cockpit that the entrance door, front emergency exit and door of the front baggage compartment are closed and locked. This is justified by five occurrences, two involving the baggage compartment door, two involving the emergency exit (1/6/93, 21/9/93, 24/8/03, 22/3/97, 11/5/98) where doors opened in flight. UK AAIB reported an accident in 1997 (AAIB Bulletin No 7/97 ref: EW/G97/01/08category:1.1) in which the crew door came open on take-off and hit the right-hand propeller. In addition there is a requirement for an external handle to the front emergency door so that it can be opened from the outside by intervention staff. This is non-negotiable for a passenger aircraft. The in-service occurrences justify these modifications.

4. The proposal for placards for the front emergency exit is commonsense and easy to carry out. EASA does not understand the resistance to this. Placarding for emergency exits is a standard requirement for civil aircraft.

5. PAD agreed

6. Non-return valves in the fuel fillers is justified by one occurrence of fuel siphoning out during flight (26/9/97). In view of the large quantity of fuel that can be lost and the possibility of operation at a distance from a suitable landing field, this simple modification is justified.

7. The requirement for installation of fuel flow meters into commuter category aircraft has existed since the very origin of commuter category with the goal to ensure an adequate safety level by providing to the pilots the additional information in the field of engine regimes monitoring and fuel management. The fuel flow information plays an essential safety role, especially under failure conditions when the indication of some essential engine parameter is lost or if there is a failure in fuel quantity sensing and indication system. This simple modification is justified by considerable contribution to the operation safety.

8. PAD agreed

9.. The usefulness of the modification to re-route the rudder and aileron trim tab cabling can not be derived from or justified by limited

operation experience as this can not prove the improbability of some occurrences causing hazard to the aircraft. The purpose of this modification is in compliance with aviation regulations requirements to prevent a hazardous situation which would occur after breaking out of both the primary and secondary aircraft controls routed close to each other as the result of some possible failures (engine rotor break, accidental damage of fuselage structure). The separation of primary and secondary controls routing eliminates the hazard of concurrent loss of both controls and increases considerably the operation safety of the aircraft, which justifies this modification.

10. PAD agreed

11. PAD agreed

12. The purpose of the installation of a water collector into the pressure air piping of the de-icing system of the tail unit is to prevent a hazard to the airplane in the event of the malfunction or failure of the tail de-icing system due to condensation water or frozen water deposits in the piping. The water content of the pressurized air tapped from the engine compressor equals the water content of outside air which can achieve high values under certain weather conditions which justifies the installation of the water collector. The very simple modification consisting of installation of the water collector of the same type as is currently installed in the aircraft's pitot static system and increases substantially operational safety under icing conditions and justifies this modification.

13. The fuselage electrical harness modification is not in fact an additional or separate modification item. The modification of fuselage harness comprises only the addition of new electrical wires which are part of above stated safety modifications (indication of entrance door, front emergency exit and door of the front baggage compartment closing and locking, the lighting of the escape paths from additional emergency exits, etc.).

14. There are two primary controls locking devices delivered with the aircraft. The first one is a short time parking lock device mounted in the cockpit locking all controls together. The second one consists of individual locking devices for direct locking of the control surface which shall be used for longer time parking providing also a higher level of protection against strong wing effects. The safety modification concerns the rudder locking device only. According to FAR 23.697 if there is on the aircraft a device to lock the control system on the ground or water, there must be a means to give unmistakable warning to the pilot when the lock is engaged. The original design of the rudder lock fixing the rudder in the neutral position does not give the pilots such a warning as the corresponding neutral position of the rudder pedals is considered as normal. There was one occurrence reported during L 410 testing and operation at the former LET company when an attempt to take-off was carried out with rudder lock engaged and one occurrence when take-off was completed with rudder lock engaged. The simple modification of rudder lock fixing the rudder in maximum deflected position and the ruder pedals in unsymmetrical position provides the pilots with clear and distinct warning of the rudder locking.

Vytautas Tamosiunas Accountable Manager transaviabaltika Thu 27/03/2008	<p>COMMENT # 1: - Overall - “First of all we would like to complain about closing dates for comments. It is very short time and we can not even get price offer from AI for proposed scope of works. Seems to us that we are back in time before March 28, 2007 when AI asked all L410 UVP-E airplanes to be modified to E20 model. AI keeps monopole on EU market and dictates to all operators of L410 airplanes what has to be done. Proposed AD can be performed only by AI. If will be performed by Part 145 AMO, Certifying staff of AI has to supervise works done. Such practices do not have any Aircraft Manufacturer in EU. This is Russian style of performing SB's. How is possible that CAA of Czech Republic is allowing such practices to AI as TC holder?</p> <p>PAD is not in compliance with Regulation No. 1702/2003. If really safety is concerned than AI had to report identification of any L410 in EU where unsafe condition happened since March 28 2007, with action required.</p> <p>If PAD is issued because of safety how is possible that for non EU operators AD will be optional.</p> <p>With best regards.”</p> <p>-----</p> <p>EASA RESPONSE: -</p> <p><a href="#">Please see the responses above which address all of these points.</a></p>