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on

SFAR88 ADs and CDCCL-Equivalent PMAs

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STATEMENT OF ISSUES

The following issues are discussed in the present paper:

ISSUE 1: CDCCL-EQUIVALENT PMA PARTS WERE INCORRECTLY AND WITHOUT WARNING EXCLUDED AS MEANS OF COMPLIANCE WITH SFAR88 ADS.

SFAR No. 88 was issued concurrently with Amendment 25-102 to cause TC and STC holders to evaluate existing designs to the new fuel tank system ignition source prevention regulations. STC holders were included because of the possibility that major modifications could have been introduced to the fuel tank system designs as a result of an STC. The FAA specifically decided to not apply SFAR No. 88 to PMA holders. PMA parts, which by definition are not new designs and may not incorporate major design changes, would be inherently addressed through the TC and STC holder analyses, i.e. their post-SFAR approval status parts would reflect the approval status of the underlying TC holder designs.

In 2008, the FAA issued various ADs implementing the results of the SFAR No.88-mandated analyses. Those ADs incorrectly and without warning excluded from the MOC the PMA equivalents to the CDCCL-listed TC-holder part numbers. The FAA's decision to exclude such CDCCL-equivalent PMAs has no basis in the rules and is contrary to FAA policy at the time of the SFAR and until 2008. In addition, PMA holders were not afforded an opportunity for public comment or time for compliance.

We request that the subject ADs be immediately revised to include as MOC all PMA parts that are currently FAA-approved replacements for the TC-holder part numbers listed in the CDCCLs.

ISSUE 2. THE FAA LACKS POLICY AND GUIDANCE ON APPROVALS OF CDCCL-EQUIVALENT PMA PARTS AS AMOC TO SFAR88 ADS, AND NO COMPLIANCE TIME HAS BEEN PROVIDED.

We believe that any decision by the FAA short of the immediate approval requested above should be accompanied by an NPRM, and that the FAA should provide reasonable public comment and compliance periods similar to those afforded to TC and STC holders in conjunction with the SFAR. During those periods, CDCCL-equivalent PMAs should be granted temporary MOC status.

In the NPRM, the FAA should define the acceptable methods for demonstration of compliance for CDCCL-equivalent PMAs. Those methods should take into account the FAA's prior findings of design identity (for PMAs by identity) and absence of major design changes (for PMAs by T&C). As with the SFAR, the additional showing required should be limited to 25.901 and 25.981 (a) and (b). A full recertification of the PMAs should not be required.

BACKGROUND

A. FAR Amendment 25-102 and SFAR No. 88:

FAR Amendment 25-102 to Part 25 became effective on June 6, 2001¹. Amendment 25-102 modified 14CFR25.981 (a) and (b) to require explicit analysis of ignition sources and related safety analysis. It also revised Appendix H to Part 25 AWL Section to require that Critical Design Configuration Control Limitations (CDCCLs)² be included in the ICAs. The changes came primarily in response to TWA 800 (B747-100, NY 1996) but also to other fuel tank explosions³.

SFAR No. 88 (the SFAR) became effective simultaneously with Amendment 25-102⁴. Its objective was to force retroactive implementation of Amendment 25-102. The SFAR was applicable to holders of TCs for aircraft with capacity of 30 or more passengers or a payload of more than 7,500 lbs, provided the TC was issued between January 1, 1958, and the effective date of SFAR. It was also applicable to holders of STCs affecting the fuel tank systems of those aircraft. It required the TC and STC holders (further jointly referred to as TC holders) to i) conduct a safety review to determine whether the existing design met the requirements of 14CFR25.901 and 25.981(a) and (b) as amended; ii) develop any design changes to the fuel tank system that might be necessary to meet those requirements; iii) develop the maintenance and inspection instructions necessary to maintain the design features required to preclude an ignition source within the fuel tank system; and iv) submit to the FAA a report with substantiation of the fuel tank system design, necessary design changes, and all maintenance and inspection instructions required. Similar JAA policy (INT/POL 25/12, 04/00/02/07/01-03) was issued and adopted in Europe around the same time. Policy was also issued and adopted by Transport Canada (NPA 2002-043) and other CAAs.

The SFAR specified December 6, 2002 as a compliance date, however the period was later extended. Ultimately, the TC holders' reviews determined that with a few exceptions the great majority of design components and parts were compliant with the added regulations and did not require modifications. All non-compliant components and parts were identified and redesigned. As required by the regulation, TC holders also developed one-time and periodic inspections for verification and continued compliance. The instructions developed for the same purpose fixed the TC holder's design configuration and maintenance procedures.

¹ FR, Vol. 66, No. 88, May 7, 2001

² "Critical design configuration control limitations include any information necessary to maintain those design features that have been defined in the original type design as needed to preclude development of ignition sources." (ibid.) "...CDCCLs are the primary means of managing and controlling the configuration of the ignition source prevention features...CDCCLs are not inspections, maintenance actions, or life-limited items and therefore do not have a specific task or interval associated with them. They are...specific instructions that are designed to ensure [that] whenever maintenance actions, repairs, or design changes occur the critical configuration is not compromised." Mario Giordano, Familiarization Briefing for Fuel Tank Flammability Reduction Rule, FAA, Washington DC, October 2008.

³ According to the FAA, since 1959 there have been a total of seventeen (17) fuel tank ignition events resulting in 11 hull losses (Ref. SFAR88/Related Operating Rules Briefing, Nov 7, 2002, Mario Giordano, AFS-303, Michael Zielinski, ANM-105). In addition to TWA 800, recent ones included a B737-300 at Manila (1990) and a B737-400 at Bangkok (2001). As in TWA 800, the center wing tank (CWT) was implicated in the latter events.

⁴ FR, Vol. 66, No. 88, May 7, 2001

B. SFAR No. 88 and Related Policies Closeout Action:

Following the TC holders' reviews, starting in 2007 the FAA, EASA, and other CAAs issued more than fifty ADs covering virtually every major commercial aircraft make and model. Based on their scope, two types of ADs were issued:

- General ADs were issued for every aircraft make and model affected by the SFAR to require: i) revision of the FAA-approved maintenance programs to incorporate the information provided by the TC holder; ii) revision of the Airworthiness Limitation Section (AWL) of the ICA in accordance with the TC holder's report to incorporate the TC holder-specified inspection, maintenance, and configuration; iii) performance of initial inspections and repairs if necessary; and iv) disallowing alternative inspections, inspection intervals, or CDCCLs. The compliance deadlines for FAA-issued general ADs expired in late 2008. A partial list of general ADs issued by the FAA is shown in TABLE 1 below.

AD Number	Issuing Authority	Applicability
2008-04-10	FAA	B727-all
2008-04-11	FAA	B707, B720-all
2008-06-21	FAA	DC-10, KC-10, MD-11
2008-09-04	FAA	DC8-all
2008-10-06	FAA	B747-400
2008-10-07	FAA	B747-100,-200,-300
2008-10-09	FAA	B737-100,-200,-300,-400,-500
2008-10-10	FAA	B737-600,-700,-800,-900
2008-10-11	FAA	B757-200,-300
2008-11-01	FAA	B767-200,-300,-400ER
2008-11-02	FAA	L-1011
2008-11-13	FAA	B777-200,-200LR,-300,-300ER
2008-11-15	FAA	B717, DC9, MD80, MD90
2007-10-10	FAA	Airbus A300-600
2007-14-01	FAA	Airbus A330, A340
2007-15-06	FAA	Airbus A318, A319, A320, A321
2007-21-14	FAA	Airbus A310-all
2008-06-20	FAA	Fokker F28
2008-07-03	FAA	Saab SF340
2008-09-12	FAA	Bombardier CL-600
2008-09-25	FAA	Bombardier DHC-8-all

TABLE 1. A partial list of general fuel tank system ADs issued by the FAA as part of the SFAR policy close-out action.

- Furthermore, a number of specific ADs were issued to implement fuel tank system modifications when required by a TC holder's findings. In addition to mandating the modifications, many of those ADs contained language and provisions similar to the general ADs, thereby also fixing the entire TC holder configuration including unmodified parts.

For the purposes of this Paper, all FAA-issued general and specific ADs will be referred to jointly as "**SFAR88 ADs**".

The issues presented in this paper concern only PMA replacements for part numbers which the TC holders' SFAR reviews have determined to be compliant with the amended regulation and not requiring design modifications, and which are presently listed as part of the fuel tank system CDCCLs.

ISSUE 1: CDCCL-EQUIVALENT PMA PARTS WERE INCORRECTLY AND WITHOUT WARNING EXCLUDED AS MEANS OF COMPLIANCE WITH SFAR88 ADs.

As stated in the text of the regulation and noted above, the SFAR applied only to TC and STC holders. The FAA discussed the rationale for the SFAR's applicability at the time of its publication in the Federal Register⁵. Essentially, the SFAR applied to STC holders because of the possibility that STCs had introduced modifications to the fuel tank systems or to the fuel tanks' immediate surroundings. Although PMAs by T&C may introduce minor changes to the original design (in the narrowest of interpretations even the lack of reference to the TC holder's drawings and specifications represents a minor change), it was clear from the discussion in the FR and the examples therein that the modifications contemplated by the SFAR were major in nature, such as "installation of auxiliary fuel tanks, installation of or modification to other system such as the fuel quantity indication system...", etc (ibid, p. 23095). In contrast to STCs, PMAs may not incorporate major design changes⁶. The FAA was knowledgeable about the design change standards applicable to PMAs at the time of the regulation, had clearly considered those, and had conscientiously decided to exclude PMAs from the requirement of the SFAR, correctly determining that for the purposes of the SFAR PMAs did not constitute modifications or involve design changes.

The fact that the SFAR did not apply to PMAs was also emphasized in FAA briefing materials⁷. Accordingly, Wencor's understanding was that holders of PMAs would have to wait for the outcome of the TC holder's design analysis which would "inherently address" existing PMAs for any given A/C fuel tank system. If the result of that analysis did not require a design change to the TC holder part for which the PMA part was an FAA-approved replacement, then the airworthiness of that PMA part would remain unaffected. The only additional substantiation that might be required involved existing PMA-part specific ICAs which would have to be evaluated against changes to the ICAs of the TC holder part. However, given the restrictions on design changes in PMAs such ICAs are very rare, and none of Wencor's PMAs applicable to fuel tank systems included any PMA-part specific ICA.

Our understanding of the FAA's policy concerning PMAs of fuel tank system parts was further enforced by the fact that in more than seven years after the effective date of Amendment 25-102 and the SFAR, and over two Order 8110.42 iterations⁸ and one further fuel-tank related FAR amendment⁹ the FAA did not issue retroactive rules for such PMAs, and did not specifically address such PMAs in any way. The FAA continued to evaluate and issue PMAs for fuel tank systems parts using the existing PMA regulatory basis, and in fact about half of Wencor's fuel tank system PMAs have been issued since 2001.

⁵ FR, Vol. 66, No. 88, May 7, 2001

⁶ FAA Order 8110.42C, Ch1.5.

⁷ "SFAR 88 applies to TCs and STCs, not PMAs. Any PMA issue associated with TC/STC holders, who have PMAs, will be inherently addressed in [TC/STC holders] system safety assessment. Similarly any PMAs that are identical to the TC/STC holders PMAs will automatically be addressed." FAA Memorandum 2002-0120, Subject: INFORMATION: Compliance Questions and Answers with Respect to SFAR No. 88, Fuel Tank Safety, for Transport Category Airplanes; From Manager, Transport Standards Staff, ANM-110, dated April 30, 2002.

⁸ FAA Order 8110.42B, dated September 9, 2005; FAA Order 8110.42C, dated June 23, 2008.

⁹ Amendment 25-125 (FR, Vol. 73, No. 140, July 21, 2008) became effective September 19, 2008. For the purposes of this Paper we have disregarded Amendment 25-125 as the only changes introduced concern flammability, and those changes are not applicable to PMAs (specifically, the changes introduced by Amendment 25-125 are as follows: Amendment 25-102's 25.981(b) became Amendment 25-125's 25.981(d), a new 25.981(b) was introduced to address flammability exposure, and 25.981(c) was modified to not require 25.981(b) when vapor ignition is contained). As far as ignition sources are concerned, the regulatory basis has remained unchanged since Amendment 25-102.

As noted earlier, at the end of the SFAR-mandated design reviews the TC holders generally concluded that the vast majority of fuel tank system parts and components were already compliant with Amendment 25-102 as designed and did not require modifications. Yet, when the NPRMs for the SFAR88 ADs were published, those uniformly specified the TC holder's configuration and maintenance instructions as the only acceptable MOC, to the exclusion of all existing PMAs including the FAA-approved PMA replacements for the TC-holder parts incorporated into the MOC CDCCLs ("CDCCL-equivalent PMAs").

Various organizations including Wencor commented on the SFAR88 AD NPRMs asking for inclusion of the existing PMAs as means of compliance¹⁰. Commenters also pointed out that the costs estimated in the NPRMs did not at all consider the expense and impact of elimination of alternate parts¹¹.

Without exception, the FAA refused to change the NPRM language. In brief, the FAA's response was that alternate parts had not been considered in the TC holder's SFAR review and therefore needed to be submitted via AMOC.

The FAA's response contradicted earlier FAA policy and had no basis in the existing regulations. It disregarded the fact that no SFAR reviews had been required of PMA holders in the first place; and that the FAA had not required or expected of TC holders to consider PMAs in their SFAR analyses. As noted earlier, the FAA's stated policy had been that any PMAs would be "inherently addressed" by the TC holders' design analysis, meaning that the post-SFAR approval status of any PMA would be the same as that of the underlying TC holder design. Furthermore, in issuing the original PMA approval the FAA had already made a finding of equivalence¹² between the design of the PMA part and that of the TC holder's part number (now part of the CDCCLs). That finding could not have been compromised in any way by the TC holder's re-affirmation of the airworthiness of the original design.

When published in 2008, the SFAR88 ADs created the illogical situation that PMA parts remained FAA-approved replacements for the parts in the CDCCLs (generally with unrestricted interchangeability with the TC holder parts), yet their installation was disallowed by those ADs and the associated ICA changes. FAA Form-8130s could continue to be issued for such PMA parts and they could continue to be sold, but not installed. As a further paradox, the subject PMAs had been obsoleted as a result of TC holder reviews that had re-affirmed the airworthiness of the underlying designs, which usually is one of the main concerns in PMA application evaluations. Finally, while the FAA had provided TC holders with ample opportunity to comment on the SFAR NPRM, and while they had been allowed several years for demonstration of SFAR compliance, PMA holders were not provided with any advance notice or opportunity to comment, nor allowed a reasonable time for compliance with the FAA's new policy.

¹⁰ Docket FAA 2007-27339, Document 009, Wencor letter dated March 27, 2008; Docket 2008-0032, Document 002, ATA on behalf of Delta Airlines, dated February 22, 2008; Docket 2008-0032, Document 005, ATA on behalf of American Airlines, dated March 26, 2008; Docket 2007-28338 Document 002, Comments by AN, dated July 6, 2007; and numerous others.

¹¹ Docket 2008-0032, Letter by American Airlines dated March 24, 2008: "without Federally Regulated parts supply chains with price controls (over the OEMs), the proposed process makes it impossible for airlines to ensure they have multiple sources for parts that they may obtain at reasonable prices - causing potential operational difficulties for airlines. In addition, for airlines to ensure the CMM approved parts cannot be interchanged with other approved substitute parts, airlines will be forced into expensive redesigns of their inventory systems, or special procedures to permanently segregate parts for those specified CMMs. The cost of incorporating the requirements of [the SFAR88 AD] will certainly far exceed that listed in the NPRM."

¹² FAA Order 8110.42C, Ch2.6, Special Requirements for Test and Computation Applications: the FAA's standard for evaluation of PMAs by T&C is "equivalent", or "at least equivalent" to the original part.

The FAA's sudden policy reversal has had a profound effect on Wencor's business. Wencor holds a significant number of CDCCL-equivalent PMAs that have been instantaneously shelved as a result of the SFAR88 ADs. The FAA's action has also caused significant issues for Wencor's customers, as the TC holder parts are always associated with substantially higher costs and are not always available.

Wencor believes that the FAA's decision to disallow CDCCL-equivalent PMAs as MOC to SFAR88 ADs, and the FAA's failure to provide PMA holders with advance notice, opportunity for public comment, and reasonable compliance time were in error. Wencor further believes that CDCCL-equivalent PMAs should have been automatically approved as MOC and that the latter would have been the only action consistent with existing FAA regulations and guidance. Even in the most conservative interpretation involving retroactive policy-making, CDCCL-equivalent PMAs should have been divided into subgroups and treated separately based on the type and date of the PMA approval. For instance, by definition PMAs by identity do not change the part's design¹³ and do not require explicit demonstration of compliance¹⁴. Under any interpretation, such PMAs should have been automatically approved. Similarly, PMAs by T&C whose design approval date was after the effective date of Amendment 25-102 should also have been automatically and unconditionally approved as acceptable MOC to the SFAR88 ADs without further analysis, because in issuing PMAs after the effective date of Amendment 25-102 the FAA would have already considered the regulatory basis in effect today.¹⁵ Even those T&C PMAs whose design approval dated prior to the effective date of Amendment 25-102 should have been approved as acceptable MOC to the SFAR88 ADs without further analysis as long as compliance had been demonstrated by comparative (rather than general) analysis¹⁶, because the added airworthiness standards of Amendment 25-102 would have been satisfied implicitly by the prior comparative analysis of the significant characteristics of the PMA and TC holder parts¹⁷.

¹³ FAA Order 8110.42C, Ch1.5.b.

¹⁴ Only PMA applicants on basis of Test and Computation (T&C) are required to specifically address compliance with airworthiness standards (FAA Order 8110.42C, Ch. 2 Paragraph 6. Special Requirements for T&C Applications).

¹⁵ The FAA has previously agreed with such argument in the context of the SFAR and SFAR88 ADs. For instance, in FAA AD 2008-22-01, Docket FAA 2008-0298, Air National Australia commented, "clearly the certification given to the supplemental type certificate [STC ST 00936NY-D] in late January 2007 by the FAA would indicate that, at the time, the installation was compliant with the requirements of SFAR 88." The FAA responded, "we agree with Air National Australia that the installation for its fleet (STC ST 00936NY-D, Configuration 3) is compliant with SFAR 88. We have also revised Table 1 of this AD to specify that STC ST 00936NY-D, Configuration 3 is not affected by this AD." In the same docket, PATS, Limited Brands, Boeing, All Nippon Airways, and Amiri all requested that certain STCs be removed from the applicability of the NPRM: "Limited Brands states that, as written, the NPRM includes FAA-approved PATS SFAR 88-compliant STCs. Boeing points out that the STC holder has determined that the specific STCs listed in its submission were developed and approved to section 25.981, amendment 25-102, of the Federal Aviation Regulations (14 CFR 25.981, amendment 102). All Nippon Airways understands that STC ST01716NY-D is in compliance with SFAR 88 and is mistakenly listed in the NPRM. This STC is the updated version of STC ST00936NY-D, and complies with SFAR 88 and 14 CFR 25.981, amendment 102." In all cases, the FAA agreed.

¹⁶ "The applicant can prove compliance with applicable airworthiness standards by comparative or general test and analysis. Comparative test and analysis substantiates that the PMA part is at least equal to the approved original part. Thus the PMA part meets the same airworthiness standards as the original part." (FAA Order 8110.42C, Ch. 2 Paragraph 6. Special Requirements for T&C Applications).

¹⁷ All part characteristics and properties relevant to ignition sources must have already been addressed on a comparative basis for the purposes of the pre-Amendment 102-25 airworthiness compliance showing. Those include dimensional and materials type and processing characteristics such as tolerances, strength, hardness, type of materials, coatings, etc. Additional properties such as spark energy, electrical and thermal conductivity, frictional properties, etc., vary insignificantly between equivalent materials and process specifications and are unaffected by minor design changes.

ISSUE 2: THERE IS NO FAA POLICY OR GUIDANCE ON APPROVALS OF CDCCL-EQUIVALENT PMA PARTS AS AMOC TO SFAR88 ADs, AND NO COMPLIANCE TIME HAS BEEN PROVIDED.

As discussed above, we believe that the immediate approval as MOC of CDCCL-equivalent PMAs is the only action consistent with current FAA policy and regulations. Failing such immediate action, Wencor has expressed to the FAA our intent to apply for global AMOCs for PMA parts that are FAA-approved replacements for CDCCL-listed part numbers.

Administratively, the AMOC applications would follow the provisions of the SFAR88 ADs and Order 8110.103. However, preliminary discussions with the FAA have highlighted a lack of agreement regarding the content of such AMOC approval requests. Briefly, areas of disagreement include the FAA's position that i) PMAs by identity would have to be resubmitted as part of an AMOC request in their entirety, with their complete original substantiation data packages and also with a system safety analysis report addressing the entire fuel tank system; that ii) for PMAs by T&C, regardless of the date of design approval, a complete re-certification would be required which would also need to include a system safety analysis report addressing the entire fuel tank system; and further that iii) for PMAs by T&C, a demonstration of compliance by comparative analysis as provided for in Order 8110.42C would not be acceptable.

Furthermore, during our preliminary discussions the FAA stated that they lacked internal guidance on the compliance evaluation of PMAs submitted for SFAR88 AD AMOC approvals. The FAA recommended that Wencor postpone submittal of any AMOC requests for T&C PMAs until such guidance had been created. Unfortunately, we cannot follow the FAA's recommendation. Our business and our customers depend on the prompt resumption of the supply of CDCCL-equivalent PMA parts and we hereby ask for a quick resolution of this issue.

We believe that any decision by the FAA short of the immediate approval requested above should be accompanied by an NPRM, and that the FAA should provide reasonable public comment and compliance periods similar to those afforded to TC and STC holders in conjunction with the SFAR. During those periods, CDCCL-equivalent PMAs should be granted temporary MOC status.

In the NPRM, the FAA should define acceptable methods of compliance for CDCCL-equivalent PMA parts. Those methods should take into account the FAA's prior findings of design identity (for PMAs by identity) and absence of major design changes (for PMAs by T&C). As in the SFAR, the additional showing of compliance should only be limited to 25.901 and 25.981 (a) and (b), and a full recertification of the PMAs should not be required.

Specifically, we propose the following guidelines:

- For PMAs by Identically, regardless whether with or without a license, AMOC approval requests would have to be submitted within six (6) months and would have to include the following:
 - a copy of the PMA Supplement identifying Identity as the approval basis,
 - a post-SFAR88 AD eligibility analysis to show that the equivalent TC holder part is part of the FAA-approved CDCCLs,
 - a report and analysis of any service difficulties with the PMA part, and
 - a statement that the TC holder's ICA apply without changes.
- For PMAs by T&C with design approval dated after the effective date of the SFAR, and for all PMAs for which the original compliance had been shown by comparative analysis, AMOC

approval requests would have to be submitted within six (6) months and would have to include the following:

- a copy of FAA's design-approval letter with the PMA design approval date,
 - a copy of the PMA Supplement,
 - a post-SFAR88 AD eligibility analysis to show that the equivalent TC holder part is part of the FAA-approved CDCCLs,
 - a report and analysis of any service difficulties experienced by the PMA part,
 - for PMA's with a pre-June, 2001 design approval date, a statement by the PMA holder that compliance with airworthiness regulations had been shown predominantly by comparative analysis in accordance with Order 8110.42, and
 - a statement that the TC holder's ICAs apply without changes; or a copy of the original, FAA-approved additional or revised ICAs and AWLs.
- For PMAs by T&C with design approval dated before the effective date of the SFAR, for which compliance had been shown predominantly by general analysis, AMOC approval request would have to be submitted within eighteen (18) months and would have to include the following additional report:
 - a supplemental compliance report including safety analysis to the next higher assembly addressing only the changes to the regulatory basis introduced by Amendment 25-102 (25.901, and 25.981 (a) and (b)). The safety analysis would be performed to the standards defined at the time of the SFAR publication¹⁸. The supplemental compliance showing can be performed either by comparative or general analysis, in accordance with 8110.42C. The compliance showing would be carried out to the OEM interface (next-higher assembly), and the following limitation would have to be provided as an AWL: "*This FAA-PMA part complies with 25.981, Amendment 25-102 when installed in accordance with all CDCCLs approved by the FAA for [next higher assembly] listed in the eligibility of this FAA-PMA*"¹⁹.

SUMMARY AND CONCLUSION

The major issues discussed in this paper are the erroneous exclusion of CDCCL-equivalent PMAs from the MOC to SFAR88 ADs, the lack of advance warning and reasonable compliance time provided to PMA holders before the exclusion became effective, and the lack of regulatory guidance for correcting the resultant situation by either revised MOCs or AMOCs. Those issues remain unresolved and have had a profound effect on our business and on our customers.

Hereby, we request a formal evaluation and prompt resolution of the issues raised in this paper.

¹⁸ "The level of [safety] evaluation that is intended would be dependent upon the type of [design] modification. In most cases a simple qualitative evaluation of the modification in relation to the fuel tank system, and a statement that the change has no effect on the fuel tank system, would be all that is necessary. In other cases where the initial qualitative assessment shows that the modification may affect the fuel tank system, a more detailed safety review would be required.", FR, Vol. 66, No. 88, May 7, 2001, p. 23095.

¹⁹ The specific language about the required extent of the safety analysis ("at least to the OEM interface") and the required limitation was quoted from FAA guidance material in reference to the required showing in completing SFAR 88 STC reviews: "[To comply with SFAR88, carry out] complete [system safety analysis] for the STC installation at least to the OEM's interface. Then, provide the following limitation, with any other appropriate limitation(s) for the own STC: "*This STC complies with SFAR 88 when installed in accordance with all critical design configuration control limitations approved by the FAA for this STC and for the airplane model(s) listed in this STC*"." Ref: FAA Briefing for Operators, FAA Inspectors, and FAA Engineers, by Mario Giordano and Michael Zielinski, November 2007, on SFAR88-Related Operating Rules, Special Maintenance Requirements, and Compliance.