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| CARC/AWSD | Airworthiness Instruction |
| Subject | Fuel Tank Safety Training and Related CDCCL's Guidance and Acceptable Measures Introduction |
| AI No. 18/ADMIN/PUB/475 Date: 29/03/2012 | |
| Applicability | ALL JORDANIAN APPROVED CAMOs and 145 AMOs ORGANIZATIONS |
| Effective Date | 01/04/2012 |
| Introduction | <p>Following the issue of Notice of Proposed Rule Making (NPRM) released on 1st June 2007 to review and amend the current regulations to become more closely aligned with the European Aviation Safety Agency and Joint Aviation Authority regulations as appropriate</p> <p>CARC is hereby issuing this airworthiness instruction as guidance and a means of compliance with the implementing rules. It is expected that operators' CAMO's and Part-145 organizations affected by this airworthiness instruction to take the necessary implementing measures.</p> |
| Fuel Tank Safety Training Levels | <p>The level of training required should reflect the following criteria:</p> <ul style="list-style-type: none"> · Awareness Training (level 1) addressed to all personnel involved in maintenance and in management of airworthiness of the aircraft and/or components. · Detailed Training (level 2) addressed only to the personnel that are recommended to have level 2 training (ref. 8 and 9 of the next paragraph below). |
| Fuel Tank Safety Measures | <p>CAMO's and Part-145 organizations are expected to adopt the following measures to comply with Part-M.704, 706(f), 708(b)3 Part-145.30(e):</p> <ol style="list-style-type: none"> 1. Adherence to maintenance instructions related to CDCCL's issued by the Type Certificate Holder has to be ensured in a systematic manner. 2. Modification of such maintenance instruction linked to Critical Design Configuration Control Limitations which are Airworthiness Limitations should not be initiated before CARC is informed. 3. Applicable Airworthiness Limitations should be included in the maintenance programs amendments at the earliest possible. (these Airworthiness Limitations have already been published as either AD's and/or MPD amendments). 4. Related CAME and MOE Procedures should be submitted for approval by the CARC. 5. Review should be performed of job-cards/task-sheets for any maintenance tasks classified as CDCCL and marking of such tasks on the job-card/task-sheets. 6. Organizations should have a procedure to cover:- Control, repair, maintenance, modification affecting CDCCL's, CDCCL tracking, planning, maintenance practices, inspection and supervision. 7. Organizations should develop a Training program to cover affected personnel. It is recommended that training personnel in the CAMO and Part-145 organizations attend recognized Fuel Tank Safety training courses at Level 1 |

and Level 2 as applicable. This shall enable familiarization with the training content and organization of in-house training to their affected personnel based on the abovementioned criteria.

8. Continuing airworthiness organizations personnel involved in Fuel Tank Safety systems should be trained in accordance with the following criteria:

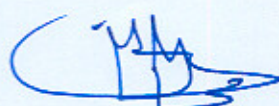
| Organization | Personnel | Level of Knowledge | Continuing Training |
|--------------|---|--------------------|---------------------|
| CAMOs | Any personnel required by M.706 except the Accountable Manager. The airworthiness review staff as required by M.712 | 2 | Yes |
| CAMOs | Quality Manager as required by M.712 | 1 | Not required |

9. Maintenance organizations personnel involved in Fuel Tank Safety systems should be trained in accordance with the following criteria:

| Organization | Personnel | Level of knowledge | Continuing training |
|--|--|--------------------|---------------------|
| Aircraft and component maintenance organizations | Personnel in aircraft and component shop maintenance organizations involved in maintenance task planning, all personnel carrying maintenance tasks on aircraft or components classified as Fuel tasks Safety items, support staff and certifying staff | 2 | Yes |
| Aircraft and component maintenance organizations | Management, quality assurance personnel and auditors, personnel in charge of stores and any personnel not directly involved in maintenance activities as required by the organization. | 1 | Not required |

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| General requirements | <p>The training shall be carried out at the earliest for the personnel needing level 1 training. Nevertheless, the training for the personnel needing level 2 training has to be carried out before any maintenance task is commenced on an aircraft or a component.</p> <p>The training should be made in appropriate facilities containing examples of components, systems and parts affected by FTS issues and having access to aircraft or component where typical examples of FTS issues can be shown. The use of pictures, films and practical examples of the maintenance on fuel tank system is recommended.</p> <p>The training shall include a representative number of repair and inspections as required by the maintenance program showing the necessity of using the manufacturer's data.</p> |
| Characteristics of the training | <p>The following characteristics shall be taken into consideration when the level 1 or 2 training program are being established:</p> <ul style="list-style-type: none"> a) understanding of the background and concepts of fuel tank safety as developed during the last 10 years, and b) how in maintenance organizations mechanics can recognize, interpret and handle the improvements that have been made or are being made during fuel tank system maintenance, c) awareness of any hazards working on the Fuel System, and especially with a Flammability Reduction System using nitrogen. <p>Para (a), (b) and (c) should be introduced in the training program addressing the following issues:</p> <ul style="list-style-type: none"> i) The theoretical background behind the fuel tank safety: the explosions of mixtures of fuel and air, the behavior of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc, the 'fire triangle', <ul style="list-style-type: none"> - Explain 2 concepts to prevent explosions: (1) ignition source prevention and (2) flammability reduction, ii) The major accidents and accident investigations and their conclusions, iii) SFARs from 14 CFR SFAR 88 of the FAA and JAA Internal Policy INT/POL/ 25/12: reason of these documents, and what was the ultimate goal, margins of fuel system safety improvements (from 10-6 to 10-9, in fact improvement by a factor 100- 1000, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance), iv) Explain the concepts that are being used: the results of SFAR 88 of the FAA and JAA INT/POL 25/12: modifications, airworthiness limitations and CDCCL, v) Where relevant information can be found by the mechanics and how to use and interpret this information (maintenance manuals, component maintenance manuals |

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| | <p>vi) Fuel Tank Safety and Maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc,</p> <p>vii) Flammability reduction systems: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS,</p> <p>viii) Recording maintenance actions, recording measures and results of inspections.</p> |
| Training Deadlines | <p>Level 1 and Level 2 training shall be in place by the end of 2012.</p> <p>Airworthiness review staff shall be trained up to Level 1 by the 29th July 2012 and Level 2 by end of 2012.</p> |



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