

HEMS introduction workshop

Structures requirements

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EU-China Aviation Partnership Project

直升机紧急医疗救护专题研讨会

结构要求

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中欧民航合作项目



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➤ HEMS - Structure requirements

➤ HEMS-结构要求

- › Weight and balance CS 27/29.25, 27, 29
- › Items of mass CS 27/29.561, 301 flight loads
- › Seat installation CS 27/29.561, 562, 785
- › Seat adapter plate CS 27/29.562, 561,
TSO C127a, Generic CRI
- › Corrosion, Drainage CS 27/29.609
- › Vibrations CS 27/29.251
- › Fuel tank crash CS 27/29.952
- › Special factors CS 27/29.619, 621, 623, 625
- › 1.33 wear & tear factor CS 27/29.625 (CM-S-002 for CS 25)
- › 重量与平衡 CS 27/29.25, 27, 29
- › 重物 CS 27/29.561, 301 飞行载荷
- › 座椅安装 CS 27/29.561, 562, 785
- › 座椅安装板 CS 27/29.562, 561,
TSO C127a, 通用 CRI
- › 腐蚀、排水 CS 27/29.609
- › 震动 CS 27/29.251
- › 油箱碰撞 CS 27/29.952
- › 特殊因素 CS 27/29.619, 621, 623, 625
- › 1.33磨损系数 CS 27/29.625 (CM-S-002针对 CS 25)



- ▶ Items of mass CS 27/29.561, 301 flight loads
 - ▶ Each items of mass within the cabin must be sized statically against flight loads and emergency landing conditions
 - ▶ Stretcher can be considered as an item of mass. In addition, CS 27/29.785 (k) must be fulfilled
- ▶ 重物CS 27/29.561, 301 飞行载荷
 - ▶ 机舱内的每个重物都必须针对飞行载荷和紧急降落条件进行静态称量
 - ▶ 担架可以看做重物。此外，必须符合CS 27/29.785 (k)



➤ Seat adapter plate - Generic CRI (IM)座椅安装板-通用CRI (IM)

- Introducing a stiff adapter plate can move the problems created by floor deformation from the seat to track interface to the adapter to floor interface. The same level of safety is appropriate for the occupant of the seat whether it is installed in the aircraft with or without an adapter plate. The floor structure itself is not subject to the dynamic requirements of CS 25.562, therefore when additional structure such as an adapter plate is introduced to fix the seat to the floor it is very important to determine if that structure should be considered as part of the seat or part of the floor. The installation of any interface between the existing floor and the seat should not create a weak element between the seat and the existing airframe.
- 采用硬质安装板会把地板变形造成的问题从座椅转移到轨道接口再到安装板，最后到地板接口。不论安装到飞机上时有没有用到安装板，对座椅使用者来说安全性是一样的。地板结构本身不受CS 25.562动态要求约束，因此通过安装板等附加结构把座椅固定到地板上时，须判断应该把该结构看做座椅的一部分还是地板的一部分，这非常重要。在原有地板和座椅之间安装任何接口不得在座椅和机身之间形成脆弱的接触面。



- Corrosion, Drainage CS 27/29.609
 - Floor structure exposed to corrosive environment
 - Efficient drainage in the floor structure must be ensured
 - Maintenance instructions to incorporate regular inspections + floor /drainage holes cleaning
- 腐蚀、排水CS 27/29.609
 - 地板结构暴露在腐蚀性环境中
 - 必须保证地板结构有高效的排水系统
 - 维护说明应包含定期检查+地板/排水孔清洁



➤ Vibrations CS 27/29.251

- Investigation of each individual installation item of the rotorcraft
- Absence of coupling with the rotors vibration frequencies must be demonstrated

➤ 震动CS 27/29.251

- 检查旋翼机的每个安装项目
- 必须证明不存在与旋翼震动频率的耦合



- Fuel tank crash resistance CS 27/29.952
 - Installations in the vicinity of the surrounding fuel tank structure may potentially affect compliance with .952.
 - If the type certification assumptions are invalidated by HEMS installation items, compliance to .952 must be re-evaluated
- 油箱耐撞击性CS 27/29.952
 - 油箱结构附近的装置可能会影响符合.952。
 - 如果HEMS装置使得该型号合格证假设前提无效，须重新评估是否符合.952 。



- ▶ Special factors CS 27/29.619, 621, 623, 625
 - ▶ When applicable, these factors must be considered for the determination of Static Margins

- ▶ 特殊因素CS 27/29.619, 621, 623, 625
 - ▶ 如果适用，确定静稳定裕度时，须考虑这些因素。



➤ CS27/29.625(d) 1.33 ‘Wear and Tear’

- Each seat, berth, litter, safety belt and harness attachment to the structure must be shown by analysis, tests, or both, to be able to withstand the inertia forces prescribed in CS 29.561(b)(3) multiplied by a fitting factor of 1.33.

➤ CS27/29.625(d) 1.33 ‘磨损’

- 必须通过分析、测试或者结合这两种方法证明每个座椅、卧铺、担架、安全带和结构附带的安全带都能够承受CS 29.561(b)(3) 规定的惯性力乘以拟合系数1.33。



- CS27/29.625(d) 1.33 ‘Wear and Tear’
 - EASA CM-S-002 developed for CS 25 but might be extended to CS 27/29
 - CM addresses large items of mass in cabin, eg. galleys, racks, class dividers, etc...
- CS27/29.625(d) 1.33 ‘磨损’
 - EASA CM-S-002是针对CS 25制定的，不过也可能延伸到CS 27/29
 - CM针对的是机舱内的大型重物，如厨房、架子、头等舱隔墙等等





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Questions? 问题?

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