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AEROSPACE RECOMMENDED PRACTICE

ARP 695A

Issued 1-1-62
Revised 8-15-70

GALLEY INSTALLATIONS

1. PURPOSE

The purpose of this Aerospace Recommended Practice is to provide criteria for design with respect to overall safety, particularly to afford minimum risk exposure to cabin attendants and passengers, from injuries due to:

A. Routine use of galley installations.

B. Galley components becoming dislodged under routine or abnormal operating conditions and under survivable crash or ditching conditions.

C. Malfunctions of or defects in galley equipment.

NOTE: It is not the purpose of this Aerospace Recommended Practice to specify the design methods or specific design to be followed in the accomplishment of the stated objectives.

2. DEFINITION

A. Galley recommendations referenced herein include:

(1) Items connected to an electrical power supply (ovens, grills, hot plates, etc.)

(2) Those items of food or beverage service equipment not permanently attached to the aircraft structure (liquid container, carrier boxes, serving carts, etc.)

(3) Components of permanently attached units which are non-stationary parts (hinged doors, drawers, etc.)

(4) Special associated equipment and systems (elevator/lift, dumbwaiter, etc.) and

(5) Galley assemblies as complete units at any location or level in the aircraft

B. Basic airframe crash resistance is defined as the structural design criteria (ultimate inertia forces, etc.) applied by the aircraft designer to the basic airframe as well as the passenger seating and seating attachments.

3. DETAIL RECOMMENDATIONS

The following criteria are recommended:

3.1 General:

3.1.1 Refer also to ARP 503A "EMERGENCY ILLUMINATION"
ARP 577 "EMERGENCY PLACARDING - INTERNAL AND EXTERNAL"
ARP 583 "CABIN ATTENDANT STATIONS"
ARP 712 "GALLEY LIGHTING"
ARP 767 "IMPACT PROTECTIVE DESIGN OF OCCUPANT ENVIRONMENT-TRANSPORT AIRCRAFT"
ARP 917 "STOWAGE OF FLIGHT CREW'S SURVIVAL EMERGENCY AND MISCELLANEOUS EQUIPMENT"

3.1.1 Continued:

ARP 997 "PASSENGER CABIN EMERGENCY EQUIPMENT STOWAGE" and
ARP 998 "CREW RESTRAINT SYSTEM"

3.1.2 Design requirements (strength, fire resistance, etc.) of current applicable sections of Federal Aviation Regulations should be considered as minimum requirements only.

3.1.3 Consideration should be given to the possible detrimental effects of abusive handling, liquid spillage, solid spillage, moisture, corrosion, and the like, on safety, structural integrity and air worthiness.

3.1.4 If electromagnetic interference suppression devices are required, they should be a part of the galley or galley equipment.

3.1.5 Construction should facilitate maintenance of sanitary conditions in all areas.

3.2 Galley Provisions:

3.2.1 Structural Provisions Should Include:

3.2.1.1 Galley attachment structural design requirements which accept applied loads and should be at least equal to basic airframe crash resistance (See Definitions). Structural design requirements for galleys and galley equipment located on the same level as cargo compartments, not occupied for takeoff and landing, should be to the structural design requirements applicable to cargo compartments.

3.2.1.2 Attachments for securing removable galley equipment, such as serving carts, units or modules which are located outside the basic galley structure at some phases of flight.

3.2.2 Electrical Provisions Should Include:

3.2.2.1 Electrical power sufficient to meet requirements with protective devices or indicators to permit manual or automatic removal of power if a galley electrical total overload occurs.

3.2.2.2 Bonding of galley internal electrical components to galley unit structure and bonding of galley unit structure to aircraft structure.

3.2.2.3 Provisions for protection of personnel from electrical shock hazards.

3.2.2.4 Location considerations to minimize exposure to galley water interface leakage but be accessible with galley assembly structurally secured in place.

3.2.2.5 An electrical disconnect or terminal junction at the interface.

3.2.3 Water Provisions Should Include:

3.2.3.1 Safety consideration for possible use on the ground.

3.2.3.2 Leakproof self-sealing connection(s) accessible with the galley assembly structurally secured in place.

3.2.3.3 A main shut-off valve.

3.2.4 Refrigerant Provisions Should Include:

3.2.4.1 Leakproof connections accessible with the galley assembly structurally secured in place with venting protection, if required, in the event of connector failure.

3.2.5 Drainage Provisions Should Include:

3.2.5.1 Design requirements should minimize exposure to seepage of galley liquid residue in galley work areas as well as galley base areas. If "pan" protection is used, it must be removable for structural inspection. Also see 3.1.3.

3.2.5.2 Safety considerations for cleaning and draining of galley and work areas.

3.2.6 Waste Provisions Should Include:

3.2.6.1 Design requirements which will minimize exposure to seepage galley liquid residue (see 3.2.5.1 above) and accumulation of waste materials which will retain moisture or, if dry, constitute a fire hazard.

3.2.6.2 Containers and stowage positions which tend to prevent or smother combustion. No chimney effects should exist.

3.3 Galley Structure:

3.3.1 Galley structural design requirements should be at least equal to basic airframe crash resistance (See Definitions).

3.3.2 Detail design should minimize the possibility of injury to the cabin attendants and occupants from sharp corners, protrusions and frangible objects.

3.3.3 Removable components or equipment positive retention devices (doors, latches, bars, etc.) structural design requirements should be at least equal to requirements established for the basic galley structure with consideration given to efficient, or abusive, handling.

3.3.3.1 Doors or equipment should not interfere with operation of escape devices, evacuation of the aircraft, nor foul or damage stowed safety equipment.

3.3.3.2 Secondary retention devices should be included.

3.3.3.3 Visual indications at each latch of complete latching should be provided.

3.3.3.4 Application of design forward and down crash loads should not unlatch retention devices.

3.3.4 Should make provision (hand hold, shaped edge of shelf, etc.) for cabin attendant's self-support during minor short duration turbulent flying conditions.

3.3.5 Cabin attendant's seating, if secured to galley structure, may be integrated into the galley structural design requirements with provisions (seating, equipment, communication, stowage, etc.) in accordance with ARP 583. The location of such seating should be evaluated in its relation to galley equipment which, if its retention failed in the survivable crash condition, could cause personnel injury.

3.3.6 All structural compartments (particularly those which have sealed doors and heated liquid vessels) should be designed to allow for rapid decompression without hazard to personnel.

3.3.7 Decorative trim or closure (curtains, etc.) attachments should not constitute a hazard in normal use nor in the crashworthiness case.

3.4 Galley Systems:

3.4.1 General:

3.4.1.1 Placards regarding safe operation of systems should follow design objectives of ARP 577.

3.4.2 Electrical System Should Include:

3.4.2.1 Appropriate bonding to aircraft ground to avoid all personnel electrical shock, burns, etc.

3.4.2.2 Provisions in the galley area for de-energizing power to the galley units and removable equipment, such as serving carts, before electrically connecting or disconnecting the units and/or equipment.

3.4.2.3 Plainly identified controls and electrical equipment visible to and operated by cabin attendants or other personnel.

3.4.2.4 Water, steam, or other fluids should be prevented from contacting any electrical equipment not designed to operate under exposure to such materials.

3.4.2.5 Protective devices in the form of fuses, limiters or circuit breakers should be provided to automatically remove power from the units when an electrical fault occurs.

3.4.2.6 Design details of electrical units such that cabin attendants cannot contact any hazardous voltage in performing their duties.

3.4.2.7 Light level should be adequate for personnel avoidance of hazard (See ARP 712).

3.4.2.8 Emergency lighting for securing or other emergency duties and should follow design objectives of ARP 503A.

3.4.2.9 Indicator Lights As Required For Safe Operation By Cabin Attendants For:

(1) Operation of fixed or removable galley units
(2) Crew communications call signal
(3) Passenger call
(4) Fasten seat belt
(5) No smoking
(6) Flight deck security signal

3.4.2.10 Audible signals as required to supplement above signal lights.

3.4.2.11 Communication to other galley areas or on-board galley support compartments as required for cabin attendant coordination in emergency situations.

3.4.3 Cooling/Refrigeration System Should Include:

3.4.3.1 Ventilation or overboard venting of refrigerants which, due to normal use or leakage, could constitute a hazard or lead to deterioration of surrounding equipment.

3.4.3.2 Indicators, as required, for hazardous fume or gas accumulation.

3.4.4 Heating System Should Include:

3.4.4.1 Design details of fixed units containing electronic heating devices or heating elements such that cabin attendants or other personnel cannot inadvertently touch hot heating elements or otherwise be exposed to heat or radiation hazard in performing their duties. Indicators should be provided to warn attendants that heating elements or other heating devices are in operation.

3.4.4.2 Insulation or equivalent protection to avoid personnel exposure to burn injury.

3.4.5 Water System Should Include For Safety Reasons:

3.4.5.1 Isolation valve to shut off water supply in event of system leakage.

3.5 Galley Removable Equipment:

3.5.1 Removable and loose items of galley equipment, such as coffee makers, removable galley doors when removed, serving carts, hot cups, bottle warmers, modular roll-in buffets, coffee servers, etc., should be restrained under design requirements equal to the aircraft design requirements.

3.5.2 Should have retention devices for contents equal to galley design retention requirements (see 3.3.3) if that retention device is primary means of restraint. If the galley retention device is the primary means of restraint, then the equipment content retention device may be designed as a secondary security means.

3.5.3 Visual indication of complete latching should be provided.

3.5.4 Application of forward and down crash loads should not unlatch retention devices.

3.5.5 All metal parts that may come in contact with hazardous voltages due to damaged or defective electrical equipment or wiring should be electrically bonded to aircraft ground or equivalent protection provided.

3.5.6 Design details should be such that personnel cannot contact any hazardous surfaces (sharp edges, etc.) in performance of their duties.

3.5.7 All units using or dispensing hot liquids should be plainly marked and designed to minimize the possibility of burning or scalding personnel.

3.5.8 Serving Equipment Which Is Moved Through The Passenger Compartment, Such As Service Carts, Should Have:

(1) Maneuverability (control) within the design use envelope of cart load, personnel physical capability of control, handle design, floor angle, rolling resistance, etc.

(2) A braking device easily operable from either end of the equipment

(3) Means to restrain the equipment at various specific points in the passenger compartment (such as seats, tracks, etc.) in the event of turbulence

(4) Means to retain contents and loose equipment when design gust load turbulence occurs with equipment secured in the passenger compartment

(5) A specific location designated for stowage and retention when not in active use

3.5.9 Design tolerance should be to same standards as basic structure to avoid passage past a retention device and to permit easy installation and removal for avoidance of personnel hazard.

3.5.10 Compartmentized equipment should be designed to allow for explosive decompression.

3.5.11 Trash containers and their compartments must be fire resistant and must promote smothering any fire in the container.

3.6 Galley Associated Equipment Provisions:

3.6.1 Galley Or Food Service Support Compartments Remote From The Passenger Compartment Should Be Designed:

3.6.1.1 To the same crashworthiness and evacuation design requirements as the passenger cabin if the area is to be occupied for take-off and landing.

3.6.1.2 To provide attendants' seats with suitable restraints for all personnel in the compartment in the event of turbulence (see ARP 583 and ARP 998).

3.6.1.3 To the same standards as galley installations described elsewhere in this ARP.