(e) The portion of each APU control located in a designated fire zone that is required to be operated in the event of a fire must be at least fire resistant.

[Amdt 25/1]

CS 25J1163 APU accessories

ED Decision 2005/006/R

(a) APU mounted accessories must be approved for installation on the APU concerned and use the provisions of the APU for mounting.

(b) Electrical equipment subject to arcing or sparking must be installed to minimise the probability of contact with any flammable fluids or vapours that might be present in a free state.

(c) For essential APUs:

If continued rotation of a failed aeroplane accessory driven by the APU affects the safe operation of the aeroplane, there must be means to prevent rotation without interfering with the continued operation of the APU.

[Amdt 25/1]

CS 25J1165 APU ignition systems

ED Decision 2005/006/R

Each APU ignition system must be independent of any electrical circuit except those used for assisting, controlling, or analysing the operation of that system.

[Amdt 25/1]

APU FIRE PROTECTION

CS 25J1181 Designated fire zones

ED Decision 2005/006/R

(a) Any APU compartment is a designated fire zone.

(b) Each designated fire zone must meet the requirements of CS 25J1185 through CS 25J1203.

[Amdt 25/1]

CS 25J1183 Lines, fittings and components

ED Decision 2005/006/R

(a) Except as provided in sub-paragraph (b) of this paragraph, each line, fitting, and other component carrying flammable fluid in any area subject to APU fire conditions, and each component which conveys or contains flammable fluid in a designated fire zone must be fire resistant, except that flammable fluid tanks and supports in a designated fire zone must be fireproof or be enclosed by a fireproof shield unless damage by fire to any non-fireproof part will not cause leakage or spillage of flammable fluid. Components must be shielded or located to safeguard against the ignition of leaking flammable fluid.

(b) Sub-paragraph (a) of this paragraph does not apply to:

(1) Lines and fittings already approved as part of an APU, and

(2) Vent and drain lines, and their fittings, whose failure will not result in, or add to, a fire hazard.

(c) All components, including ducts, within a designated fire zone which, if damaged by fire could result in fire spreading to other regions of the aeroplane, must be fireproof. Those components within a designated fire zone, which could cause unintentional operation of, or inability to operate essential services or equipment, must be fireproof.

[Amdt 25/1]

CS 25J1185 Flammable fluids

ED Decision 2005/006/R

(a) No tank or reservoir that is a part of a system containing flammable fluids or gases may be in a designated fire zone unless the fluid contained, the design of the system, the materials used in the tank, the shut-off means, and all connections, lines, and controls provide a degree of safety equal to that which would exist if the tank or reservoir were outside such a zone.

(b) There must be at least 12,7 mm of clear airspace between each tank or reservoir and each firewall or shroud isolating a designated fire zone.

(c) Absorbent materials close to flammable fluid system components that might leak must be covered or treated to prevent the absorption of hazardous quantities of fluids.

[Amdt 25/1]

CS 25J1187 Drainage and ventilation of fire zones

ED Decision 2005/006/R

(a) There must be complete drainage of each part of each designated fire zone to minimise the hazards resulting from failure or malfunctioning of any component containing flammable fluids. The drainage means must be:

(1) Effective under conditions expected to prevail when drainage is needed; and

(2) Arranged so that no discharged fluid will cause an additional fire hazard.

(b) Each designated fire zone must be ventilated to prevent the accumulation of flammable vapours.

(c) No ventilation opening may be where it would allow the entry of flammable fluids, vapours, or flame from other zones.

(d) Each ventilation means must be arranged so that no discharged vapours will cause an additional fire hazard.

(e) Unless the extinguishing agent capacity and rate of discharge are based on maximum air flow through a zone, there must be means to allow the crew to shut off sources of forced ventilation to any fire zone.

[Amdt 25/1]

CS 25J1189 Shut-off means

ED Decision 2005/006/R

(See AMC 25.1189)

(a) Each APU compartment specified in CS 25J1181(a) must have a means to shut-off or otherwise prevent hazardous quantities of flammable fluids, from flowing into, within, or through any designated fire zone, except that shut-off means are not required for:

(1) Lines, fittings and components forming an integral part of an APU; and

(2) Oil systems for APU installations in which all external components of the oil system, including the oil tanks, are fireproof.

(b) The closing of any fuel shut-off valve for any APU may not make fuel unavailable to the main engines.

(c) Operation of any shut-off may not interfere with the later emergency operation of other equipment.

(d) Each flammable fluid shut-off means and control must be fireproof or must be located and protected so that any fire in a fire zone will not affect its operation.

(e) No hazardous quantity of flammable fluid may drain into any designated fire zone after shut-off.

(f) There must be means to guard against inadvertent operation of the shut-off means and to make it possible for the crew to reopen the shut-off means in flight after it has been closed.

(g) Each tank to APU shut-off valve must be located so that the operation of the valve will not be affected by the APU mount structural failure.

(h) Each shut-off valve must have a means to relieve excessive pressure accumulation unless a means for pressure relief is otherwise provided in the system.

[Amdt 25/1]

CS 25J1191 Firewalls

ED Decision 2005/006/R

(a) Each APU must be isolated from the rest of the aeroplane by firewalls, shrouds, or equivalent means.

(b) Each firewall and shroud must be:

(1) Fireproof;

(2) Constructed so that no hazardous quantity of air, fluid, or flame can pass from the compartment to other parts of the aeroplane;

(3) Constructed so that each opening is sealed with close fitting fireproof grommets, bushings, or firewall fittings; and

(4) Protected against corrosion.

[Amdt 25/1]

CS 25J1193 APU compartment

ED Decision 2013/010/R

(a) Each compartment must be constructed and supported so that it can resist any vibration, inertia, and air load to which it may be subjected in operation.

(b) Each compartment must meet the drainage and ventilation requirements of CS 25J1187.

(c) Reserved

(d) Each part of the compartment subject to high temperatures due to its nearness to exhaust system parts or exhaust gas impingement must be fireproof.

(e) Each aeroplane must:

(1) Be designed and constructed so that no fire originating in any APU fire zone can enter, either through openings or by burning through external skin, any other zone or region where it would create additional hazards,

(2) Meet sub-paragraph (e)(1) of this paragraph with the landing gear retracted (if applicable), and

(3) Have APU compartment external skins, in areas subject to flame if a fire starts in an APU fire zone, complying with the following:

(i) For in-flight operations, APU compartment external skins must be fireproof in the complete concerned areas, and

(ii) For ground operations, APU compartment external skins must be:

(a) Fireproof in the portions of the concerned areas where a skin burn through would affect critical areas of the aeroplane, and

(b) Fire-resistant or compliant with subparagraph (e)(1) of this paragraph in the remaining portions of the concerned areas.

(See AMC 25.1193(e))

[Amdt 25/1]
[Amdt 25/13]

CS 25J1195 Fire extinguisher systems

ED Decision 2016/010/R

(See AMC 25J1195)

(a) There must be a fire extinguisher system serving the APU compartment.

(b) The fire extinguishing system, the quantity of the extinguishing agent, the rate of discharge, and the discharge distribution must be adequate to extinguish fires. An individual 'one shot' system is acceptable. (See AMC 25J1195(b).)

(c) The fire-extinguishing system for an APU compartment must be able to simultaneously protect each zone of the APU compartment for which protection is provided.

[Amdt 25/1]
[Amdt 25/18]

AMC 25J1195(b) Fire extinguisher systems

ED Decision 2018/010/R

Acceptable methods to establish the adequacy of the fire extinguisher system are laid down in FAA Advisory Circular 20 – 100, with reference to Halon concentration levels. This AC is not applicable to extinguishing agents alternative to Halon.

[Amdt No: 25/1]
[Amdt No: 25/22]

CS 25J1197 Fire extinguishing agents

ED Decision 2005/006/R

(a) Fire extinguishing agents must:

(1) Be capable of extinguishing flames emanating from any burning of fluids or other combustible materials in the area protected by the fire extinguishing system; and

(2) Have thermal stability over the temperature range likely to be experienced in the compartment in which they are stored.

(b) If any toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or fluid vapours (from leakage during normal operation of the aeroplane or as a result of discharging the fire extinguisher on the ground or in flight) from entering any personnel compartment, even though a defect may exist in the extinguishing system.

[Amdt 25/1]

CS 25J1199 Extinguishing agent containers

ED Decision 2005/006/R

(a) Each extinguishing agent container must have a pressure relief to prevent bursting of the container by excessive internal pressures.

(b) The discharge end of each discharge line from a pressure relief connection must be located so that discharge of the fire extinguishant agent would not damage the aeroplane. The line must be located or protected to prevent clogging caused by ice or other foreign matter.

(c) There must be a means for each fire extinguishing agent container to indicate that the container has discharged or that the charging pressure is below the established minimum necessary for proper functioning.

(d) The temperature of each container must be maintained, under intended operating conditions, to prevent the pressure in the container from:

(1) Falling below that necessary to provide an adequate rate of discharge; or

(2) Rising high enough to cause premature discharge.

(e) If a pyrotechnic capsule is used to discharge the extinguishing agent, each container must be installed so that temperature conditions will not cause hazardous deterioration of the pyrotechnic capsule.

[Amdt 25/1]

CS 25J1201 Fire extinguishing system materials

ED Decision 2005/006/R

(a) No material in any fire extinguishing system may react chemically with any extinguishing agent so as to create a hazard.

(b) Each system component in an APU compartment must be fireproof.

[Amdt 25/1]

CS 25J1203 Fire-detector system

ED Decision 2005/006/R

(a) There must be approved, quick acting fire or overheat detectors in each APU compartment in numbers and locations ensuring prompt detection of fire.

(b) Each fire detector system must be constructed and installed so that:

(1) It will withstand the vibration, inertia, and other loads to which it may be subjected in operation;

(2) There is a means to warn the crew in the event that the sensor or associated wiring within a designated fire zone is severed at one point, unless the system continues to function as a satisfactory detection system after the severing; and

(3) There is a means to warn the crew in the event of a short circuit in the sensor or associated wiring within a designated fire zone, unless the system continues to function as a satisfactory detection system after the short circuit.

(c) No fire or overheat detector may be affected by any oil, water, other fluids, or fumes that might be present.

(d) There must be means to allow the crew to check, in flight, the functioning of each fire or overheat detector electric circuit.

(e) Wiring and other components of each fire or overheat detector system in a fire zone must be at least fire-resistant.

(f) No fire or overheat detector system component for any fire zone may pass through another fire zone, unless:

(1) It is protected against the possibility of false warnings resulting from fires in zones through which it passes; or

(2) Each zone involved is simultaneously protected by the same detector and extinguishing system.

(g) Each fire detector system must be constructed so that when it is in the configuration for installation it will not exceed the alarm activation time approved for the detectors using the response time criteria specified in ETSO-2C11e or an acceptable equivalent, for the detector.

[Amdt 25/1]

CS 25J1207 Compliance

ED Decision 2005/006/R

Unless otherwise specified, compliance with the requirements of CS 25J1181 through CS 25J1203 must be shown by a full scale test or by one or more of the following methods:

(a) Tests of similar APU installations.

(b) Tests of components.

(c) Service experience of aircraft with similar APU installations.

(d) Analysis unless tests are specifically required.

[Amdt 25/1]

GENERAL

CS 25J1305 APU instruments

ED Decision 2005/006/R

(a) The following instruments are required for all installation:

(1) A fire warning indicator.

(2) An indication than an APU auto-shutdown has occurred.

(3) Any other instrumentation necessary to assist the flight crew in:

(i) Preventing the exceedence of established APU limits, and

(ii) Maintaining continued safe operation of the APU.

(4) Instrumentation per subparagraph (3) need not be provided if automatic features of the APU and its installation provide a degree of safety equal to having the parameter displayed directly.

(b) For essential APUs:

In addition to the items required by CS 25J1305(a), the following indicators are required for an essential APU installation :

(1) An indicator to indicate the functioning of the ice protection system, if such a system is installed; and

(2) An indicator to indicate the proper functioning of any heater used to prevent ice clogging of fuel system components.

[Amdt 25/1]

CS 25J1337 APU instruments

ED Decision 2005/006/R

(a) *Reserved*

(b) *Reserved*

(c) *Reserved*

(d) There must be a stick gauge or equivalent means to indicate the quantity of oil in each tank.

[Amdt 25/1]

OPERATING LIMITATIONS

CS 25J1501 General

ED Decision 2005/006/R

(a) *Reserved*

(b) The operating limitations and other information necessary for safe operation must be made available to the crew members as prescribed in CS 25J1549, 25J1551, and 25J1583.

[Amdt 25/1]

CS 25J1521 APU limitations

ED Decision 2005/006/R

The APU limitations must be established so that they do not exceed the corresponding approved limits for the APU and its systems. The APU limitations, including categories of operation, must be specified as operating limitations for the aeroplane.

[Amdt 25/1]

CS 25J1527 Ambient air temperature and operating altitude

ED Decision 2005/006/R

The extremes of the ambient air temperature and operating altitude for which operation is allowed, as limited by flight, structural, APU installation, functional, or equipment characteristics, must be established.

[Amdt 25/1]

MARKINGS AND PLACARDS

CS 25J1549 APU instruments

ED Decision 2005/006/R

For each APU instrument either a placard or colour markings or an acceptable combination must be provided to convey information on the maximum and (where applicable) minimum operating limits. Colour coding must comply with the following:

(a) Each maximum and, if applicable, minimum safe operating limit must be marked with a red radial or a red line;

(b) Each normal operating range must be marked with a green arc or green line, not extending beyond the maximum and minimum safe limits;

(c) Each precautionary operating range must be marked with a yellow arc or a yellow line; and

(d) Each APU speed range that is restricted because of excessive vibration stresses must be marked with red arcs or red lines.

[Amdt 25/1]

CS 25J1551 Oil quantity indicator

ED Decision 2005/006/R

Each oil quantity indicator must be marked with enough increments to indicate readily and accurately the quantity of oil.

[Amdt 25/1]

CS 25J1557 Miscellaneous markings and placards

ED Decision 2005/006/R

(a) *Reserved*

(b) APU fluid filler openings. The following applies:

(1) *Reserved*

(2) Oil filler openings must be marked at or near the filler cover with the word "oil".

[Amdt 25/1]