quantities essential for the safe operation of
the system, including the voltage and current supplied by each generator.
62. Electrical equipment and installation. Electrical equipment controls, and wiring
must be installed so that operation of any one unit or system of units will not ad-
versely affect the simultaneous operation of
to the safe operation.
63. Distribution system. (a) For the purpose
of complying with this section, the distribu-
tion system includes the distribution busses, their associated feeders and each control and
protective device.
(b) Each system must be designed so that
essential load circuits can be supplied in the
event of reasonably probable faults or open
circuits, including faults in heavy current
carrying cables.
(c) If two independent sources of electrical
power for particular equipment or systems
are required by this regulation, their elec-
trical energy supply must be insured by
means such as duplicate electrical equip-
ment, throwover switching, or multichannel
or loop circuits separately routed.
64. Circuit protective devices. The circuit
protective devices for the electrical circuits
of the airplane must meet the requirements
of FAR 23.1357, and in addition circuits for
loads which are essential to safe operation
must have individual and exclusive circuit
protection.

Subpart A—General

§ 23.3 Airplane categories.

(a) The normal category is limited to
airplanes that have a seating configu-
ration, excluding pilot seats, of nine or
less, manufactured after De-
cember 12, 1986, or any such foreign air-
plane for entry into the United States
must provide a safety belt and shoulder
harness for each forward- or aft-facing
seat which will protect the occupant
from serious head injury when sub-
jected to the inertia loads resulting
from the ultimate static load factors
prescribed in §23.561(b)(2) of this part,
or which will provide the occupant pro-
tection specified in §23.562 of this part
when that section is applicable to the
airplane. For other seat orientations,
the seat/restraint system must be de-
signed to provide a level of occupant
protection equivalent to that provided
for forward- or aft-facing seats with a
safety belt and shoulder harness in-
stalled.
(b) Each shoulder harness installed at
a flight crewmember station, as re-
quired by this section, must allow the
crewmember, when seated with the
safety belt and shoulder harness fas-
tened, to perform all functions nec-
essary for flight operations.
(c) For the purpose of this section,
the date of manufacture is:
(1) The date the inspection accept-
ance records, or equivalent, reflect
that the airplane is complete and
meets the FAA approved type design
data; or
(2) In the case of a foreign manufac-
tured airplane, the date the foreign
civil airworthiness authority certifies
the airplane is complete and issues an
original standard airworthiness certifi-
cate, or the equivalent in that country.

§ 23.2 Special retroactive require-
ments.

(a) Notwithstanding §§21.17 and 21.101
of this chapter and irrespective of the
type certification basis, each normal,
utility, and acrobatic category air-
plane having a passenger seating con-
figuration, excluding pilot seats, of

§ 23.1 Applicability.

(a) This part prescribes airworthiness
standards for the issue of type certifi-
cates, and changes to those certifi-
cates, for airplanes in the normal, utility,
aerobatic, and commuter cat-
ergories.
(b) Each person who applies under
Part 21 for such a certificate or change
must show compliance with the appli-
cable requirements of this part.

[Doc. No. 4080, 29 FR 17655, Dec. 18, 1964, as
amended by Amdt. 23–34, 52 FR 1825, Jan. 15,
1987]

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meets the FAA approved type design
data; or
(2) In the case of a foreign manufac-
tured airplane, the date the foreign
civil airworthiness authority certifies
the airplane is complete and issues an
original standard airworthiness certifi-
cate, or the equivalent in that country.

§ 23.21 Proof of compliance.

(a) Each requirement of this subpart must be met at each appropriate combination of weight and center of gravity within the range of loading conditions for which certification is requested. This must be shown—

(1) By tests upon an airplane of the type for which certification is requested, or by calculations based on, and equal in accuracy to, the results of testing; and

(2) By systematic investigation of each probable combination of weight and center of gravity, if compliance cannot be reasonably inferred from combinations investigated.

(b) The following general tolerances are allowed during flight testing. However, greater tolerances may be allowed in particular tests:

<table>
<thead>
<tr>
<th>Item</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>±5% – 10%</td>
</tr>
<tr>
<td>Critical items affected by weight</td>
<td>±5% – 1%</td>
</tr>
<tr>
<td>C.G</td>
<td>±7% total travel</td>
</tr>
</tbody>
</table>

§ 23.23 Load distribution limits.

(a) Ranges of weights and centers of gravity within which the airplane may be safely operated must be established. If a weight and center of gravity combination is allowable only within certain lateral load distribution limits that could be inadvertently exceeded, these limits must be established for the corresponding weight and center of gravity combinations.

(b) The load distribution limits may not exceed any of the following:

(1) The selected limits;

(2) The limits at which the structure is proven; or

(3) The limits at which compliance with each applicable flight requirement of this subpart is shown.

[Doc. No. 26269, 58 FR 42156, Aug. 6, 1993]

§ 23.25 Weight limits.

(a) Maximum weight. The maximum weight is the highest weight at which compliance with each applicable requirement of this part (other than those complied with at the design landing weight) is shown. The maximum weight must be established so that it is—

(1) Not more than the least of—

(i) The highest weight selected by the applicant; or

(ii) The design maximum weight, which is the highest weight at which compliance with each applicable structural loading condition of this part (other than those complied with at the design landing weight) is shown; or