§ 23.1589 Loading information.

The following loading information must be furnished:

(a) The weight and location of each item of equipment that can be easily removed, relocated, or replaced and that is installed when the airplane was weighed under the requirement of § 23.25.

(b) Appropriate loading instructions for each possible loading condition between the maximum and minimum weights established under § 23.25, to facilitate the center of gravity remaining within the limits established under § 23.23.

APPENDIX A TO PART 23—SIMPLIFIED DESIGN LOAD CRITERIA

A23.1 General.

(a) The design load criteria in this appendix are an approved equivalent of those in §§23.321 through 23.459 of this subchapter for an airplane having a maximum weight of 6,000 pounds or less and the following configuration:

1. A single engine excluding turbine powerplants;

2. A main wing located closer to the airplane’s center of gravity than to the aft, fuselage-mounted, empennage;

3. A main wing that contains a quarter-chord sweep angle of not more than 15 degrees fore or aft;

4. A main wing that is equipped with trailing-edge controls (ailerons or flaps, or both);

5. A main wing aspect ratio not greater than 7;

6. A horizontal tail aspect ratio not greater than 4;

7. A horizontal tail volume coefficient not less than 0.34;

8. A vertical tail platform area not greater than 10 percent of the wing platform area; and

9. Symmetrical airfoils must be used in both the horizontal and vertical tail designs.

(b) Appendix A criteria may not be used on any airplane configuration that contains any of the following design features:

1. Canard, tandem-wing, close-coupled, or tailless arrangements of the lifting surfaces;

2. Biplane or multiplane wing arrangements;

3. T-tail, V-tail, or cruciform-tail (+) arrangements;

4. Highly-swept wing platform (more than 15-degrees of sweep at the quarter-chord), delta planforms, or slatted lifting surfaces; or

5. Winglets or other wing tip devices, or outboard fins.

A23.3 Special symbols.

\( n_1 \) = Airplane Positive Maneuvering Limit Load Factor.

\( n_2 \) = Airplane Negative Maneuvering Limit Load Factor.

\( n_3 \) = Airplane Positive Gust Limit Load Factor at \( V_C \).

\( n_4 \) = Airplane Negative Gust Limit Load Factor at \( V_C \).

\( n_{flap} \) = Airplane Positive Limit Load Factor With Flaps Fully Extended at \( V_F \).

A23.5 Certification in more than one category.

The criteria in this appendix may be used for certification in the normal, utility, and acrobatic categories, or in any combination of these categories. If certification in more than one category is desired, the design category weights must be selected to make the term \( n_1 W \) constant for all categories or greater for one desired category than for others. The wings and control surfaces (including wing flaps and tabs) need only be investigated for the maximum value of \( n_1 W \), or for the category corresponding to the maximum design weight, where \( n_1 W \) is constant.

If the acrobatic category is selected, a special unsymmetrical flight load investigation in accordance with paragraphs A23.9(c)(2) and A23.11(c)(2) of this appendix must be completed. The wing, wing carrythrough, and the horizontal tail structures must be checked for this condition. The basic fuselage structure need only be investigated for the highest load factor design category selected. The local supporting structure for dead weight items need only be designed for the highest load factor imposed when the