ance permitted for the warning device shall be at a speed not greater than the prescribed warning speed.

81. By amending § 4b.604(q) to read as follows:

§ 4b.604 Powerplant instruments.

* * * * *

(q) An indicator for each turbojet engine to indicate a change in thrust, resulting from any deficiency in the engine or an indicator to indicate a gas stream pressure which can be related to thrust.

§ 4b.612 [Amendment]

82. By amending § 4b.612(a)(3) by deleting the symbol "V_{NO}" and inserting in lieu thereof "V_{MO}".

§ 4b.612–4 [Amendment]

83. By amending § 4b.612–4(a) by deleting the symbols "V_{NE}" and "M_{NE}" and inserting in lieu thereof "V_{FC}" and "M_{FC}".

84. By amending § 4b.612(f) to read as follows:

§ 4b.612 Flight and navigational instruments.

* * * * *

(f) *Duplicate instrument systems.* If duplicate flight instruments are required by the operating parts of the Civil Air Regulations (see note under § 4b.610), the provisions of subparagraphs (1) through (3) of this paragraph shall apply.

(1) The operating system for flight instruments used by the first pilot, which are required to be duplicated at other flight crew stations, shall be completely independent of the operating system provided for other flight crew stations.

(2) Only the required flight instruments and duplicates of required instruments provided for use of the first pilot shall be connected to the operating system provided for the first pilot.

(3) When other than required instruments and duplicates are connected to other than the first pilot's operating system, provision shall be made to disconnect or isolate in flight such other instruments.

85. By amending § 4b.622(b) to read as follows:

§ 4b.622 Generating system.

* * * * *

(b) The generating system shall be designed so that:

(1) The power sources function properly when independent and when connected in combination;

(2) The failure or malfunctioning of any power source cannot create a hazard or impair the ability of the remaining sources to supply essential loads;

(3) The system voltage and frequency (as applicable) at the terminals of all essential load equipment can be maintained within the limits for which the equipment is designed, during any probable operating condition; and

(4) System transients initiated by switching, fault clearing, or other causes, do not render essential loads inoperative, and do not introduce a smoke or fire hazard.

86. By amending § 4b.624(d) to read as follows:

§ 4b.624 Electrical protection.

* * * * *

(d) If the ability to reset a circuit breaker or to replace a fuse is essential to safety in flight, such circuit breaker or fuse shall be so located and identified that it can be readily reset or replaced in flight.

87. By amending § 4b.627 to read as follows:

§ 4b.627 Electrical system tests.

When laboratory tests of the electrical system are conducted they shall be performed on a mock-up utilizing the same generating equipment complement as in the aircraft. The equipment shall simulate the electrical characteristics of the distribution wiring and connected loads to the extent necessary for valid test results. Laboratory generator drives shall simulate the actual prime movers on the airplane with respect to their reaction to generator loading, including loading due to faults. When the conditions of flight cannot adequately be simulated in the laboratory or by ground tests on the prototype airplane, flight tests shall be conducted.

§ 4b.634 [Amendment]

88. By amending Figure 4b–19 referred to in § 4b.634 by deleting the phrase "At least 2 candles" in the intensity column and inserting in lieu thereof "0.05 *I*".

§ 4b.642 [Amendment]

89. By amending § 4b.642(a) by deleting the word "danger" and inserting in lieu thereof "probability".

§ 4b.643 [Amendment]

90. By amending § 4b.643 by adding at the end of the third sentence the words "in lieu of the fitting factor prescribed in § 4b.307(c)."

§ 4b.645 [Amendment]

91. By amending § 4b.645 by deleting from the introductory paragraph the phrase "through (d)" and inserting in lieu thereof "through (e)"

§ 4b.652 [Deletion]

92. By deleting § 4b.652.

§ 4b.659 [Deletion]

93. By deleting § 4b.659

94. By amending § 4b.711 to read as follows:

§ 4b.711 Maximum operating limit speed V_{MO}/M_{MO}.

The maximum operating limit speed is a speed which shall not be deliberately exceeded in any regime of flight (climb, cruise, or descent), except where a higher speed is authorized for flight test or pilot training operations. This operating limitation, denoted by the symbols V_{MO}/M_{MO} (airspeed or Mach number, whichever is critical at a particular altitude), shall be established to be not greater than the design cruising speed V_C and sufficiently below V_D/M_D or V_{DF}/M_{DF} to make it highly improbable that the latter speeds will be inadvertently exceeded in operations. The speed margin between V_{MO}/M_{MO} and V_D/M_D or V_{DF}/M_{DF} shall be determined in accordance with either paragraph (a) or (b) of this section, but shall not be less than the margin found necessary in flight tests in accordance with § 4b.191. (Also see § 4b.603(k) concerning speed warning means.)

(a) The minimum margin shall be the greater of the values determined in accordance with subparagraphs (1) and (2) of this paragraph.

(1) From an initial condition of stabilized flight at V_{MO}/M_{MO}, the airplane shall be assumed to be upset, flown for 20 seconds along a flight path 7.5 degrees below the initial path and pulled up at a load factor of 1.5 (.5g acceleration increment). It shall be acceptable to calculate the speed increase occurring in this maneuver, provided reliable or conservative aerodynamic data are used. Power, as specified in § 4b.155(a), shall be assumed until the pullup is initiated, at which time power reduction and the use of pilot controlled drag devices may be assumed.

(2) The margin shall be sufficient to provide for atmospheric variations, such as horizontal gusts, penetration of jet stream or cold front, and for instrument errors and airframe production variations. It shall be acceptable to consider these factors on a probability basis, but the margin at altitudes where M_{MO} is limited by compressibility effects shall not be less than 0.05M.

(b) V_{MO}/M_{MO} shall not be greater than 0.8 V_D/M_D or 0.8 V_{DF}/M_{DF}.

§ 4b.712 [Deletion]

95. By deleting § 4b.712.

96. By amending § 4b.714 to read as follows:

§ 4b.714 Flap extended speeds, V_{FE}.

Flap extended speeds, V_{FE}, shall be established not to exceed the design flap speeds, V_F, chosen in accordance with §§ 4b.210(b)(1) and 4b.212 for the corresponding flap positions and engine powers.

97. By amending § 4b.718(c) to read as follows:

§ 4b.718 Powerplant limitations.

* * * * *

(c) *Fuel grade or specification designation.* The minimum fuel grade for reciprocating engines or the fuel designation for turbine engines, required for the operation of the engine within the limitations prescribed in paragraphs (a) and (b) of this section.

98. By amending § 4b.718 by adding a new paragraph (d) to read as follows:

(d) *Maximum ambient atmospheric temperature.* The maximum ambient atmospheric temperature at which compliance with the cooling provisions of §§ 4b.450 through 4b.452 is established.

§ 4b.738 [Amendment]

99. By amending § 4b.738(b)(1) by deleting the words "octane number" and inserting in lieu thereof "grade or designation".

100. By amending § 4b.740–1 by deleting paragraph (b)(4)(ii) and by amending paragraphs (b)(4)(i), (vii), and (viii) to read as follows: