Manual 4b.329-2 effective April 30, 1955 [20 F.R. 2278].

(ii) *Tension.* At least one sample of each size turnbuckle and safetying device assembly shall be tested to determine that the turnbuckle assembly (including safetying device) will not fail at any tensile load under the maximum (ultimate) tensile strength for which the comparable standard MIL or NAS turnbuckle is rated. For this test, the sample shall consist of the turnbuckle assembly (including safetying device) with a two (2) foot length of cable appropriately attached to each terminal (end) of the turnbuckle. In making the determination, the sample shall be tested for tensile strength in accordance with Federal Test Method Std. No. 151.[2] If the sample does not fail under the specified maximum load, it need not be tested further to destruction.

(iii) *Vibration.* At least one sample of each of 3 representative sizes of turnbuckle assemblies, i. e., the smallest, the largest, and an intermediate size, shall be vibrated to determine that the lock wire, or other safetying device which relies upon spring action or clamping to safety the turnbuckle, can be depended upon not to jump out of place or otherwise lose its safetying properties, under vibratory conditions apt to be encountered in aircraft service. It is suggested that a cable tension load equal to 25 percent of rated ultimate cable strength and a frequency of 3600 cpm with an overall amplitude of ⅛ inch (parallel to the axis of the hole through the barrel) for 25 hours, be used for this determination.

(iv) *Fatigue (tensile).* At least one sample of each size turnbuckle assembly shall be given a repeated load test, in which a load equal to two-thirds the ultimate tensile strength requirement is applied repeatedly in tension for 300 applications of the load without failure of any component part. For this test, the sample shall consist of the turnbuckle assembly (including safetying device) with a two (2) foot length of cable appropriately attached to each terminal (end) of the turnbuckle.

(v) *Fatigue (bending).* The safety wire used in the conventional lock wire safetying procedure recommended in CAM 4b.329-2 is not considered to be reusable. If the safety device used with the special aircraft turnbuckle assembly is to be considered re-usable, at least three (3) samples of the shortest formed non-standard safety wire (or other finished safetying device) shall be tested by alternate fastening and unfastening of the wire (or other safetying device), to determine that the device will not break after repeated applications of the bending loads involved. 200 on and off cycles, simulating rough treatment apt to be experienced during maintenance should substantiate a reasonable service life. It is felt that the shortest safety wire (or other safetying device) will be subjected to the greatest bending stresses. However, if the stresses may be greater in a longer wire (or other safetying device) intended for a larger size turnbuckle, the larger size turnbuckle and the longer wire (or other safetying device) shall be used for this test.

(vi) *Fatigue (torsion).* At least one sample of each size turnbuckle assembly and/or safetying device shall be given a repeated load test in which a load equal to two-thirds the torque (determined in test No. 1 above) required to overcome the turnbuckle thread friction and break the conventional safety wire (CAM 4b.329-2) is applied in torsion first in one direction and then reversed for 3000 complete cycles of reversal without failure of any component part.

§ 37.132 Safety belts—TSO-C22e.

(a) *Applicability—(1) Minimum performance standards.* Minimum performance standards are hereby established for safety belts which are to be used on civil aircraft of the United States. New models of safety belts manufactured for installation on civil aircraft on or after the effective date of this section shall meet the standards of National Aircraft Standards Specification 802, revised May 15, 1950,[1] with the exceptions covered in subparagraph (2) of this paragraph. Belts approved under prior issuances of this section may continue to be manufactured under the earlier provisions.

(2) *Exceptions.* (i) For the purpose of this section the strengths specified in section 4.1.1 of NAS 802 shall be 1,500 pounds and 3,000 pounds instead of 3,000 pounds and 6,000 pounds.

(ii) In complying with section 4.3.2.2 of NAS 802, the curved portion of the test form may be padded with no more than one inch of medium density sponge rubber, or equivalent, and covered with suitable fabric to simulate a person's body and clothing.

(iii) Synthetic material webbing which is not subject to loss of strength due to the influence of humidity, temperature variations, etc., need not be subjected to the first six-month retesting period specified in section 3.1.2 of NAS 802. Retesting at succeeding six-month periods will be necessary if the belt manufacturer is unable to ascertain by means of textile data available to him that the webbing is unaffected by ambient storage conditions for the period of time involved.

(iv) In complying with section 4.1.3 of NAS 802, the two-inch webbing width shall be considered a nominal width. Thus, after considering all manufacturing processes as are necessary such as weaving, dyeing, mildew proofing, flame resistance and abrasion treatments, a webbing width of $1\frac{15}{16}$ inches $\pm\frac{1}{16}$ inch shall be acceptable.

(v) The slots or openings in the hardware for attachment of the safety belt webbing shall not be less than two inches.

(b) *Marking.* (1) Each half of each safety belt shall be marked in accordance with § 37.7 except that the weight required by paragraph (c) of § 37.7 need not be shown and the rated strength of the safety belt assembly shall be shown, and

(2) *In lieu of* the marking requirement in paragraph (d) of § 37.7 the date of manufacture is required. The serial number may also be marked on the belt but not in lieu of the date of manufacture.

(c) *Data requirements.* (1) The manufacturer shall maintain a current file on complete design data.

(2) The manufacturer shall maintain a current file of complete data describing the inspection and test procedures applicable to his product. (See paragraph (d) of this section.)

(3) One copy of the following shall be furnished to the Chief, Engineering and Manufacturing Branch, Flight Standards Division, Federal Aviation Agency, in the region in which the manufacturer is located: A drawing of the complete belt assembly showing the manufacturer's part numbers together with a notation indicating the minimum webbing strength specified by the belt manufacturer. If the test belts were tested to destruction, the average strength of the belt assembly should also be indicated.

(d) *Quality control.* Each safety belt shall be produced under a quality control system, established by the manufacturer, which will assure that each belt is in conformity with the requirements of this standard. This system shall be described in the data required under paragraph (c) (2) of this section. The Administrator shall be permitted to make such inspections and tests at the manufacturer's facility as may be necessary to determine compliance with the requirements of this standard.

§ 37.133 Parachutes—TSO C23b.

(a) *Applicability—(1) Minimum performance standards.* Minimum performance standards are hereby established for parachutes which are to be used in civil aircraft of the United States. New models of parachutes manufactured for use in civil aircraft of the United States on or after the effective date of this section shall meet the minimum performance standards of National Aircraft Standards Specification 804 dated August 24, 1949,[1] with the exceptions covered in subparagraph (2) of this paragraph. Parachutes approved prior to the effective date of this section may continue to be manufactured under the provisions of the original approval.

(2) *Exceptions.* (i) The auxiliary parachute used in combination with a standard parachute shall be designed for use in combination with the specific main parachute.

(ii) For the purpose of testing an auxiliary type parachute used in combination with a standard parachute the speed specified in section 4.3.8 of NAS Specification 804 shall be 25 feet per second instead of 21 feet per second.

(b) *Marking.* The auxiliary parachute and its pack shall be marked "Auxiliary Parachute" in addition to the

[2] Copies may be obtained from the General Services Administration, Business Service Center, Region 3, Seventh and D Streets, SW., Washington 25, D. C., for 70¢ each.

[1] Copies may be obtained from the National Standards Association, 616 Washington Loan and Trust Building, Washington 4, D.C.

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