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CIVIL AERONAUTICS ADMINISTRATION
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Parachute Loft Certificates and Ratings

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Civil Aeronautics Manual 54

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INTRODUCTORY NOTE

This manual contains material interpreting and explaining the parachute loft certificates and ratings and the pertinent requirements as specified in the Civil Air Regulations, Part 54.

It should be understood that equipment which can be shown to be the equivalent of that set forth in this manual will be equally acceptable to the Administrator of Civil Aeronautics. Likewise, any interpretation herein shown to be inapplicable to a particular case may be suitably modified on request. This manual will be revised from time to time as equally acceptable equipment, methods, new interpretations, or the need for additional explanation are brought to the attention of the Administrator of Civil Aeronautics.

Each section of this manual is arranged and numbered to correspond with the section in the Civil Air Regulations, Part 54, pertaining to the same subject. To provide a convenient reference, each section of the Civil Air Regulations appears, in smaller type, at the head of the applicable section of the manual.

A form which may be used conveniently in maintaining a record of subsequent revisions will be found on page 11.

Parachute Loft Certificates and Ratings

RATINGS

54.1 Parachute loft ratings. The following ratings may be issued prescribing the type of work the holder of a parachute loft certificate is qualified to perform:

(*a*) General maintenance and minor repair;
(*b*) Canopy overhaul;
(*c*) Harness overhaul;
(*d*) Metal parts and container overhaul;
(*e*) Drop testing.

A. General Maintenance and Minor Repair

This rating authorizes the parachute loft to conduct the following operations on parachutes for which the loft is properly equipped.

1. General maintenance, including—
   a. The packing of parachutes.
   b. The cleaning of harness, containers, seat cushions, and back pads.
   c. The removal of grease spots or other foreign matter from the canopy.
   d. The replacement of pack-opening elastics, suspension-line retaining devices such as rubber bands, tape loops or snap fasteners, harness tacking, etc.
2. Minor repairs, including—
   a. The replacement of:
      (1) Completely assembled pilot chutes;
      (2) Pilot chute bridles;
      (3) Rubber vent rings;
      (4) Completely assembled containers;
      (5) Opening elastics;
      (6) Suspension-line retaining devices such as rubber bands, tape loops or snap fasteners;
      (7) Seat and back cushions;
      (8) Ripcord pockets;
      (9) Ripcord housing;
      (10) End tabs;
      (11) Hook-eyes, grommets, and other small parts not requiring unusual techniques or special equipment for their installation.
   b. The patching of holes not more than 6 inches in diameter and tears totaling not more than 12 linear inches.

B. Canopy Overhaul

This rating authorizes the parachute loft to conduct the following operations on parachutes for which the loft is properly equipped:

1. General maintenance,
2. Minor repairs,

3. Major repairs, including—
   a. The replacement of:
      (1) Pilot chute canopies,
      (2) Vent collars,
      (3) Sections of canopies,
      (4) Panels of canopies,
      (5) Suspension lines,
      (6) Suspension-line reinforcement tapes,
      (7) Skirt reinforcement tapes.
   b. Other operations common to parachute canopy repair.

C. Harness Overhaul

This rating authorizes the parachute loft to conduct the following operations on parachutes for which the loft is properly equipped:

1. General maintenance,
2. Minor repairs,
3. Major repairs, including the—
   a. Stitching of completely assembled harness to canopies,
   b. Replacement of:
      (1) Leg straps,
      (2) Back straps,
      (3) Hardware.
   c. Other operations common to parachute harness repair.[1]

D. Metal Parts and Container Overhaul

This rating authorizes the parachute loft to conduct the following operations on parachutes for which the loft is properly equipped.

1. General maintenance,
2. Minor repairs,
3. Major repairs, including—
   a. The replacement of:
      (1) Ripcord cables,
      (2) Ripcord grips on handles,
      (3) Container wire frames,
      (4) Pilot chute frames or springs,
      (5) Ripcord pins,
      (6) Main container panels,
      (7) Auxiliary container panels,
      (8) Corner tabs,
      (9) End panels.
   b. Other operations common to parachute metal parts and container repair.

E. Drop Testing

This rating authorizes the parachute loft to conduct drop testing operations on parachutes for which the loft is properly equipped.

[1] This does not include the fabrication of a complete harness nor the replacement of any principal load bearing member.

PARACHUTE LOFT CERTIFICATE REQUIREMENTS

54.2 Certificate requirements. To be eligible for a rating as a parachute loft and certification as such an applicant shall comply with the following requirements:

Self Explanatory.

54.20 Personnel. Applicant shall have adequate personnel certificated in accordance with provisions of Part 25 of the Civil Air Regulations and qualified to perform or supervise the type of work involved.

"Adequate personnel" shall consist of a sufficient number of certificated parachute technicians to adequately handle the volume of business anticipated.

If any rating is applied for other than "General Maintenance and Minor Repair," the applicant must be a certificated parachute technician with the grade of Senior Parachute Rigger or Master of Parachute Maintenance, or employ such a parachute technician to direct and supervise the operation of the parachute loft.

All personnel engaged in parachute packing or repair in a certificated parachute loft must be certificated parachute technicians as provided in Part 25 of the Civil Air Regulations.

Not more than five certificated parachute technicians of grades lower than Senior Parachute Rigger or Master of Parachute Maintenance shall be under the supervision of one parachute technician holding either of the higher grades.

54.21 Facilities and equipment. Applicant shall have such equipment, facilities, and material as are necessary for the competent and efficient performance of the type of work for which a rating is sought. Such facilities shall include suitable and adequately heated, lighted, and ventilated housing; an adequate system of inspection; adequate equipment for making drawings and adequate facilities for the segregation and storage of parts and materials.

A. Drawings

The applicant must provide at least the minimum equipment necessary for making legible simple drawings or present satisfactory proof that such equipment is available.

B. Storage

"Adequate facilities" shall consist of proper cabinets or bins to provide for the storage of all parachutes and the required spare parts and materials.

Such cabinets and bins need not be of an elaborate nature, but should be constructed in such a manner as to be comparatively dust and weather-proof.

C. Equipment

1. *General Maintenance and Minor Repair.*—An applicant having the equipment and facilities listed below may be considered to have met the requirements governing this classification:

(1) A single-needle sewing machine of a type commonly used in parachute repair operations for stitching canvas, duck, and other medium weight fabrics. (Example: A Singer Model 111–W100 or a similar factory-type machine.)

(2) A single-needle sewing machine of a type commonly used in parachute repair operations for stitching silk, pongee, cotton, and other light fabrics. (Example: A Singer Model 31–15, 31–19, 31–20, or a similar factory-type machine.)

(3) A table at least 3 feet by 40 feet with smooth top.

(4) Suitable equipment for airing and drying parachutes.

(5) A suitable locker for the isolation of chemicals or other material likely to be harmful to parachute fabrics.

(6) Suitable racks or bins for storage of parachutes.

(7) All necessary small tools commonly used in the packing of various types of parachutes.

(8) All necessary hand tools commonly required for setting grommets and other fittings.

(9) An assortment of fabrics commonly used in parachute repair. (Two or three yards of each material likely to be used is considered a reasonable supply.)

2. *Canopy Overhaul.*—An applicant having the equipment and facilities listed below may be considered to have met the requirements governing this classification:

(1) A single-needle sewing machine of a type commonly used in parachute repair operations for stitching silk, pongee, cotton, and other light fabrics. (Example: A Singer Model 31–15, 31–19, 31–20, or a similar factory-type machine.)

(2) A two-needle sewing machine of a type commonly used in parachute repair operations for stitching silk, pongee, cotton, and other light fabrics. (Example: A Singer Model 112–W115, 112–W116, or a similar factory-type machine.)

(3) A zigzag, two-stitch, sewing machine of a type commonly used in parachute repair operations. (Example: A Singer Model 17–W15, 143–WSV–8, or a similar factory-type machine.)

(4) A suitable device for placing suspension lines under tension. This tension must be evenly distributed.

(5) An assortment of small tools commonly used in parachute-canopy repair operations. (Needles for stringing lines into canopy, etc.)

(6) A table, in addition to the packing table, upon which all operations pertaining to measurement, marking, cutting, basting, etc., may be performed.

(7) A reasonable supply of materials commonly used in parachute-canopy repair operations. (Silk, pongee, silk suspension line, thread, and other materials.)

3. *Harness Overhaul.*—An applicant having the equipment and facilities listed below may be considered to have met the requirements governing this classification:

(1) A sewing machine of a type commonly used in parachute-harness repair operations for stitching light and heavy harness webbing. (Example: A Singer Model 7–34, 97–5, 97–10, or a Champion Combination Shoe and Harness machine, properly adjusted for stitching parachute-harness webbing.)

(2) An assortment of small tools commonly used in parachute-harness repair operations. (Harness needles, sailmaker's palm, etc.)

(3) An assortment of webbings, threads, harness hardware, etc., commonly used in parachute-harness repair operations. (No. 5 cord, No. 3 cord, linen or cotton thread, snaps, D rings, V rings, adapters, etc.)

4. *Metal Parts and Container Overhaul.*—An applicant having the equipment and facilities listed below may be considered to have met the requirements governing this classification:

(1) A single-needle sewing machine of a type commonly used in parachute-container repair operations for stitching canvas, duck, and other medium-weight fabrics. (Example: A singer Model 111–W112 or a similar factory-type machine.)

(2) Suitable jigs and fixtures commonly used in forming parachute-container wire frames. (Usually shop-built equipment.)

(3) Suitable jigs and fixtures commonly used in parachute-ripcord repair operations (Usually self-made equipment.)

(4) Necessary soldering equipment and supplies.