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PARACHUTE RIGGER

Practical Test Standards

June 2003

FLIGHT STANDARDS SERVICE
Washington, DC 20591

PARACHUTE RIGGER
PRACTICAL TEST STANDARDS

2003

FLIGHT STANDARDS SERVICE
Washington, D.C. 20591

NOTE

FAA-S-8081-25, Parachute Rigger Practical Test Standards (PTS) is to replace the oral and practical test guides currently used. Both testing procedures will be in effect until all examiners have been trained to administer the test in accordance with the PTS, or 2 years after the effective date of Order 8610.5J, Parachute Rigger Examiner Handbook. After which time, **all** tests must be administered under the PTS guidelines. New examiners must use the PTS upon completion of initial training. Previously appointed examiners must transition to the PTS within 60 days after completion of recurrent training.

Record of Changes

Change 1: 6/3/2004

Introduction

Page 3—Practical Test Standard Description: Added reference.

Page 4—Use of the Practical Test Standards Book: Changed text.

Page 6—Examiner Responsibility: Added text.

V. Area of Operation: Parachute Construction Details

TASK B. Webbing Joint Construction

Reason for change: To expand project selection.

TASK E. French Fell Seam Construction

Reason for change: To expand project selection.

TASK H. Fastener Tapes

Reason for change: To modernize project selection.

V. Area of Operation: Parachute Repair

TASK B. Replacement of Lower Control Line (Ram-air Canopy)

Reason for change: To modernize project selection.

TASK C. Application of Non-Destructive Test Method TS-108

Reason for change: To expand project selection.

TASK I. Internal Splice of Braided Line. DELETED

Reason for deletion: Obsolete practice.

TASK J. Replacement of Continuous Suspension Line

Reason for change: To expand project selection.

TASK N. Ram-air Canopy Patch Repair Adjacent to a Seam

Reason for change: To expand and modernize project selection.

FOREWARD

The Parachute Rigger Practical Test Standards book has been published by the Federal Aviation Administration (FAA) to establish the standards for the Parachute Rigger Certification Practical Test for the Senior and Master Certificates. FAA inspectors and Designated Parachute Rigger Examiners (DPRE) shall conduct practical tests in compliance with these standards. Instructors and applicants should find these standards helpful in practical test preparation.

/s/ 2/13/2003

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INTRODUCTION

The Flight Standards Service of the Federal Aviation Administration (FAA) has developed this practical test book as a standard to be used by FAA inspectors and Designated Parachute Rigger Examiners when conducting parachute rigger practical test. Instructors are expected to use this book when preparing applicants for the practical test. Applicants should be familiar with this book and refer to these standards during their training.

Information considered directive in nature is described in this practical test book in terms, such as “shall” and “must” indicating the actions are mandatory. Guidance information is described in terms, such as “should” and “may” indicating the actions are desirable or permissive, but not mandatory.

The FAA gratefully acknowledges the valuable assistance provided by many individuals and organizations throughout the parachuting community who contributed their time and talent in assisting with the revision of these practical test standards.

This practical test standard may be downloaded from the Regulatory Support Division’s, AFS-600, web site at <http://afs600.faa.gov>. Subsequent changes to this standard, in accordance with AC 60-27, Announcement of Availability: Changes to Practical Test Standards, will also be available on AFS-600’s web site and then later incorporated into a printed revision.

This publication can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The official online bookstore web site for the U.S. Government Printing Office is www.access.gpo.gov.

Comments regarding this book should be sent to:

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Practical Test Standard Concept

Title 14 of the Code of Federal Regulations (14 CFR) specifies the areas in which knowledge and skill must be demonstrated by the applicant before the issuance of a Parachute Rigger Certificate with the associated type rating. The CFRs provide the flexibility that permits the FAA to publish practical test standards containing AREAS OF OPERATION and specific TASKS in which competency must be demonstrated. The FAA will revise this book whenever it is determined that changes are needed in the interest of safety. ***Adherence to the provisions of regulations and the practical test standards is mandatory for the evaluation of parachute rigger applicants.***

Practical Test Book Description

This test book contains the following Parachute Rigger Practical Test Standards.

- Senior Parachute Rigger
- Master Parachute Rigger

Practical Test Standard Description

AREAS OF OPERATION are subject areas in which a parachute rigger must have knowledge and/or demonstrate skill. This book contains seven AREAS OF OPERATION beginning with CERTIFICATION REQUIREMENTS and ending with PARACHUTE ALTERATIONS.

TASKs are titles of knowledge areas, skills, and job functions appropriate to an AREA OF OPERATION.

NOTE is used to emphasize special considerations required in the AREA OF OPERATION or TASK.

The REFERENCE identifies the publication(s) that describe(s) the TASK. Descriptions of TASKs are not included in these standards because this information can be found in references listed for each TASK. Publications other than those listed may be used as references if their content conveys substantially the same meaning as the referenced publications.

References listed in this practical test book include the current revisions of the following publications.

14 CFR part 1	Definitions and Abbreviations
14 CFR part 21	Certification Procedures for Products and Parts
14 CFR part 43	Maintenance, Preventive Maintenance Rebuilding, and Alteration
14 CFR part 65	Certification: Airmen Other Than Flight Crewmembers
14 CFR part 91	Air Traffic and General Operating Rules

14 CFR part 105	Parachute Jumping
AC 105-2	Sport Parachute Jumping
TSO-C23b	Parachutes
TSO-C23c	Personnel Parachute Assemblies
TSO-C23d	Personnel Parachute Assemblies
TS 108	Parachute Industry Association Publication
AS 8015B	Aerospace Standard
NAS 804	National Aircraft Standards Specification
PPM	Poynter Parachute Manual Vol. I, 3rd edition
PPM VOL. II	Poynter Parachute Manual Vol. II

Each TASK has an objective. The objective lists the important knowledge and/or skill elements that must be satisfactorily performed to demonstrate competency in a TASK. The objective includes:

1. specifically what the applicant shall be able to do.
2. conditions under which the TASK is to be performed.
3. minimum acceptable standards of performance.

The examiner determines that the applicant meets the TASK Objective through the demonstration of competency in various elements of knowledge and/or skill.

Use of the Practical Test Standards Book

The FAA requires that all practical tests be conducted in accordance with the appropriate Parachute Rigger Practical Test Standards and the policies set forth in this INTRODUCTION, and the current revision of FAA Order 8610.5, Parachute Rigger Examiner Handbook.

This practical test book contains standards for the issuance of both Senior and Master Parachute Rigger Certificates.

When using the practical test book, the examiner must evaluate the applicant's knowledge and skill in sufficient depth to determine that the objective for each TASK selected is met at a return-to-service proficiency. The examiner must personally observe all elements being performed by the applicant. There is no standard length of time prescribed for parachute rigger practical tests. However, the testing period must be long enough to make a valid determination in each AREA OF OPERATION for the certificate and/or rating(s) sought. Progressive tests are not to be given. Although it may be necessary to continue a test for more than 1 day, tests should not be allowed to continue for long periods of time. Before starting the test, advise the applicant when the day's activities will be terminated and when testing will resume if more than 1 day is needed.

The applicant should be prepared to demonstrate ability in **all** TASKs included in the AREAS OF OPERATION appropriate to the certificate and/or rating(s) sought.

Change 1 (6/3/04)

In preparation for each test, the examiner shall develop a “test plan.” The examiner shall vary each test plan to ensure variety of the selected TASKs. A copy of the test plan shall be forwarded to the supervising FAA District Office, unless that office has established other notification requirements.

The “test plan” will indicate all selected TASKs in each AREA OF OPERATION appropriate to the certificate and/or rating(s) sought. If the elements in one TASK have already been evaluated in another TASK, they need not be repeated. For example: the test plan need not include evaluation of the applicant in AREA OF OPERATION VI, TASK F, “SEWING MACHINE OPERATION” if that TASK was sufficiently observed during the completion of AREA OF OPERATION V, TASK J, “RADIAL SEAM CONSTRUCTION.” Any TASKs selected for evaluation during the practical test shall be evaluated in its entirety.

The examiner is not required to follow the precise order in which the AREAS OF OPERATION and TASKs appear in this book. The examiner may change the sequence or combine TASKs with similar Objectives to have an orderly and efficient flow of the practical test.

Some AREAS OF OPERATION contain required TASKs. These TASKs are noted immediately following the AREA OF OPERATION title and must be selected by the examiner. The examiner may select additional TASKs if deemed necessary.

AREA OF OPERATION III contains the various packing TASKs for the type ratings (seat, back, chest, and lap), the examiner must select the corresponding packing TASK for each rating sought by the applicant.

AREA OF OPERATION VII contains alteration TASKs, these are required for master rigger applicants only and shall not be selected for senior rigger applicants. The examiner must select a minimum of two TASKs from this area when evaluating master rigger applicants.

Parachute Rigger Practical Test Prerequisites

An applicant for a **Senior Parachute Rigger** practical test is required to present to the examiner the following.

1. Two original applications (FAA form 8610-2, Airman Certificate and/or Rating Application) signed by an FAA Aviation Safety Inspector (airworthiness), verifying experience requirement evaluation.
2. Proof of having passed the Senior Parachute Rigger (RIG) Knowledge Test by presenting a certified original Airman Knowledge Test Report.
3. Identification with a photograph and a signature.

An applicant for a **Master Parachute Rigger** practical test is required to present to the examiner the following.

1. Senior Parachute Rigger Certificate or proof of having passed the Master Parachute Rigger (RMP) Knowledge Test if not a Senior Parachute Rigger, by presenting a certified original Airman Knowledge Test Report.
2. Two original applications (FAA form 8610-2) signed by an FAA Aviation Safety Inspector (airworthiness), verifying experience requirement evaluation.
3. Identification with a photograph and a signature.

A Senior or Master Parachute Rigger requesting an **additional type rating**, shall present two original applications (FAA form 8610-2) signed by an FAA Aviation Safety Inspector (airworthiness), verifying experience requirement evaluation and identification with a photograph and a signature.

Retest Requirements

When application is made for a retest after failure of a previous test, the applicant must accomplish the following.

1. Complete two FAA Forms 8610-2's (both originals) in accordance with the instructions furnished by the Designated Parachute Rigger Examiner (DPRE) or Inspector.

NOTE: FAA Form 8610-2, block V does not need to be signed by an inspector again when the original FAA Form 8610-2 (with authorizing signature) is attached to the file.

2. Present the appropriate Airman Knowledge Test Report. The applicable knowledge test must have been passed within the previous 24-calendar months.
3. Present the original FAA Form 8610-2 from the previous test showing the ratings passed or failed.
4. If the retest is within 30 days of the previous test, present a statement by a person authorized in 14 CFR section 65.19, that the applicant has received additional instruction for each AREA OF OPERATION failed and that the applicant is ready for retesting. This statement of training is required only when the applicant failed portions of the previous test and is NOT required if the applicant did not complete the previous test.

NOTE: Applicants who apply for retest within 60 days to the same DPRE who administered the failed test may, at the option of the DPRE, be tested in only the TASK(s) failed on the previous test provided the applicant has successfully passed all other TASKs. During a retest and at the discretion of the examiner, any TASK may be re-evaluated, including those previously passed.

Change 1 (6/3/04)

Required Material for the Practical Test

The examiner is responsible for supplying all equipment and materials to support the test.

Examiner Responsibility

The examiner who conducts the practical test is responsible for determining that the applicant meets acceptable standards of knowledge and skill in the assigned TASKs. The TASKs selected by the examiner will be appropriate to the certificate and/or rating(s) sought by the applicant.

Knowledge (oral) TASKs are indicated by the use of the words, “*Exhibits knowledge of...*” in the objective description.

Skill (practical) TASKs are indicated by the use of the word, “*Demonstrates...*” in the objective description.

The examiner must ask at least two oral questions on each of the selected TASKs. Oral questioning may be used at any time during the practical test.

If the selected TASK is a skill (practical) TASK, the examiner must devise at least two oral questions to accompany the practical demonstration. The questions must be directly applicable to the assigned TASK.

If the selected TASK is a knowledge (oral) TASK, no additional oral questions are required. The examiner may however ask additional oral questions if deemed necessary.

The questions the examiner asks are to be clearly stated and have a definite correct response. An applicant’s oral answers must show an understanding of the subject. The correct answers to all questions should be available in the regulations, manufacturer’s manuals, or other references containing information on parachutes, parachute systems and standard industry practices. The extent of questioning necessary to determine that the applicant exhibits adequate knowledge of a particular element topic will vary depending upon the complexity of the question and the complexity of the applicant’s response. The examiner must find a balance between asking simple questions with simple responses and asking complex questions requiring extensive responses during the testing process.

Conducting the Practical Test

Examiners shall conduct the practical test as follows:

1. Original issuance of a Senior Parachute Rigger Certificate.

The examiner shall select at least one TASK from each AREA OF OPERATION, except AREA OF OPERATION VII. A senior applicant is not tested in AREA OF OPERATION VII, Parachute Alteration.

In AREA OF OPERATION III, the examiner will select the corresponding packing TASK for each rating requested.

2. Original issuance of a Master Parachute Rigger Certificate to a non-certificated applicant (applicant not holding a senior certificate).

The examiner shall select at least two type rating TASKs from AREA OF OPERATION III, two TASKs from AREA OF OPERATION VII, and at least one TASK from each of the other AREAS OF OPERATION.

3. Original issuance of a Master Parachute Rigger Certificate to the holder of a Senior Certificate.

Senior applicant holding two or more ratings.

If the applicant currently holds two ratings and is not requesting any additional rating(s) the examiner shall select one TASK from each AREA OF OPERATION, except in AREA OF OPERATION VII where two TASKs are required. In AREA OF OPERATION III, the examiner should select one of the alternate packing TASK, item E, F, or G. However, the examiner may at his/her discretion require the applicant to demonstrate the packing of any type rating current held.

Senior applicant holding one rating.

If the applicant holds only one rating on his/her Senior Parachute Rigger Certificate, the examiner shall select one TASK from each of the of AREAS OF OPERATION, except in AREA OF OPERATION VII, where two TASKs are required. The examiner shall select the type-rating TASK that is sought by the applicant from AREA OF OPERATION III.

4. Additional Ratings

For an added rating to either a senior or master certificate the applicant shall be tested from AREA OF OPERATION III on the type rating sought. The examiner may at his/her discretion require the applicant to demonstrate any TASK(s) appropriate to the certificate held.

5. For military competence test no practical test is required, only a knowledge test is required.

Satisfactory Performance

The practical test is passed if, in the judgment of the examiner, the applicant demonstrates a Return-to-Service proficiency on the assigned TASKs in each AREA OF OPERATION required for the certificate and/or rating(s) sought.

Unsatisfactory Performance

If, in the judgment of the examiner, the applicant does not meet the standards of performance (return-to-service) on each assigned TASK in each required AREA OF OPERATION, the associated AREA OF OPERATION is failed; therefore, the practical test is failed. When it becomes obvious during the test that an applicant does not possess sufficient proficiency and is failing an AREA OF OPERATION, the examiner may discontinue testing. However, in some cases it may be advantageous to continue the test to the end. The test will be continued only with the consent of the applicant.

The applicant is entitled credit for only those AREAS OF OPERATION satisfactorily performed. However, during the retest and at the discretion of the examiner, any TASK may be re-evaluated, including those previously considered satisfactory.

I. AREA OF OPERATION: CERTIFICATION

A. TASK: SENIOR PARACHUTE RIGGER EXPERIENCE REQUIREMENTS

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant exhibits knowledge of the senior parachute rigger experience requirements by describing the:

1. Required number of parachutes to be packed per type.
2. Required method of packing.
3. Appropriate supervisors for a student rigger.

B. TASK: SENIOR PARACHUTE RIGGER TEST REQUIREMENTS

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant exhibits knowledge of the senior parachute rigger test requirements by describing:

1. What tests are required.
2. The subject areas of each test.

C. TASK: MASTER PARACHUTE RIGGER EXPERIENCE REQUIREMENTS

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant exhibits knowledge of the master parachute rigger experience requirements by describing the:

1. Years of experience required.
2. Required method of packing.
3. Minimum number and types of parachutes packed.
4. Appropriate supervisor for the packing instruction (non-certificated applicant).

D. TASK: MASTER PARACHUTE RIGGER TEST REQUIREMENTS

REFERENCE: 14 CFR part 65.

Objective: To determine that the applicant exhibits knowledge of the master parachute rigger test requirements by describing:

1. When a written test is required.
2. What subject areas the written test covers.
3. What the practical test requires.

E. TASK: ADDITIONAL RATING REQUIREMENTS

REFERENCE: 14 CFR part 65.

Objective: To determine that the applicant exhibits knowledge of additional ratings requirements by describing the:

1. Required number of parachutes to be packed per type.
2. Required method of packing.
3. Appropriate supervisor for packing instruction.
4. Test requirement.

II. AREA OF OPERATION: PRIVILEGES, LIMITATIONS, AND OPERATING RULES

A. TASK: SENIOR PARACHUTE RIGGER CERTIFICATE PRIVILEGES

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant exhibits knowledge of Senior Parachute Rigger Certificate privileges by describing the:

1. Job functions a senior rigger is authorized to perform.
2. Supervisory privileges the senior parachute rigger has.

B. TASK: MASTER PARACHUTE RIGGER CERTIFICATE PRIVILEGES

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant exhibits knowledge of Master Parachute Rigger Certificate privileges by describing the:

1. Job functions a master rigger is authorized to perform.
2. Supervisory privileges the master parachute rigger has.

C. TASK: REQUIRED FACILITIES AND EQUIPMENT

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant exhibits knowledge of required facilities and equipment by listing:

1. Required facilities.
2. Required equipment.

D. TASK: PERFORMANCE STANDARDS

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant exhibits knowledge of the required performance standards of 14 CFR part 65, section 65.129 by describing what the rule states concerning certificated parachute rigger with regard to:

1. Requirements for type rating.
2. Unsafe parachutes.
3. Drying and airing requirement.
4. Alteration of parachutes.
5. Requirements to exercise privileges.

E. TASK: RECORDATION

REFERENCE: 14 CFR part 65.

Objective. To determine that the applicant demonstrates knowledge of recordation by making an example record of a:

1. Packing record.
2. Maintenance record.

F. TASK: MANUFACTURER'S PACKING INSTRUCTIONS

REFERENCES: Parachute Manufacturer's Instructions; 14 CFR part 65, section 65.133.

Objective. To determine that the applicant demonstrates use of manufacturer's packing instructions by:

1. Layout and inspection.
2. Folding canopy and stowing lines.
3. Closure of pack flaps and routing of ripcord.
4. Sealing pack.

NOTE: (This TASK maybe demonstrated simultaneously with any packing TASK from AREA OF OPERATION III.)

G. TASK: REPAIR CLASSIFICATIONS

REFERENCES: 14 CFR part 1; AC 105-2.

Objective. To determine that the applicant exhibits knowledge of repair classifications by listing:

1. What constitutes a major repair.
2. Three examples of major repairs.
3. Who may perform major repairs.
4. What data is used to make the repair.

H. TASK: ALTERATIONS

REFERENCE: AC 105-2.

Objective. To determine that the applicant exhibits knowledge of alterations by describing:

1. What constitutes a parachute alteration.
2. What are the certificate requirements for a rigger to perform alterations.
3. Who besides riggers may perform alterations.

I. TASK: EQUIPMENT REQUIREMENTS FOR INTENTIONAL PARACHUTE JUMPING

REFERENCE: 14 CFR part 105.

Objective. To determine that the applicant exhibits knowledge of equipment requirements for intentional parachute jumping by describing:

1. Required equipment.
2. Packing requirements.

J. TASK: TSO 23c REQUIREMENTS

REFERENCES: TSO 23c; Aerospace Standard 8015A.

Objective. To determine that the applicant exhibits knowledge of TSO 23c requirements by listing the:

1. Seven major components.
2. Required marking and location of marking on stowage container.
3. Required marking and location of marking on canopy.
4. Required marking on primary actuation device/ripCORD.

III. AREA OF OPERATION: PACKING PARACHUTES

NOTE: EXAMINER MUST SELECT THE CORRESPONDING PACKING TASK FOR EACH TYPE RATING SOUGHT.

A. TASK: PACKING SEAT-TYPE PARACHUTE (Seat-type Rating)

REFERENCE: Manufacturer's instructions.

Objective. To determine that the applicant demonstrates the procedure for packing a seat-type parachute in accordance with manufacturer's instructions by:

1. Inspecting complete assembly to include a pull test.
2. Flaking canopy.
3. Folding canopy.
4. Diaper closure (where applicable).
5. Canopy and line stowage (sequence dependent on model).
6. Placement of pilot chute.
7. Container closure.
8. Sealing pack.
9. Recordation.

B. TASK: PACKING BACK-TYPE PARACHUTE, Excluding Piggyback (Back-type Rating)

REFERENCE: Manufacturer's instructions.

Objective. To determine that the applicant demonstrates the procedure for packing a back-type parachute in accordance with manufacturer's instructions by:

1. Inspecting complete assembly to include a pull test.
2. Flaking canopy.
3. Folding canopy.
4. Installation of deployment bag or diaper (where applicable).
5. Canopy and line stowage (sequence dependent on model).
6. Placement of pilot chute.
7. Container closure.
8. Sealing pack.
9. Recordation.

C. TASK: PACKING CHEST-TYPE PARACHUTE (Chest-type Rating)

REFERENCE: Manufacturer's instructions.

Objective. To determine that the applicant demonstrates the procedure for packing a chest-type parachute in accordance with manufacturer's instructions by:

1. Inspecting complete assembly to include a pull test.
2. Flaking canopy.
3. Folding canopy.
4. Closure of diaper (where applicable).
5. Canopy and line stowage (sequence dependent on model).
6. Placement of pilot chute.
7. Container closure.
8. Sealing pack.
9. Recordation.

D. TASK: PACKING LAP-TYPE PARACHUTE (Lap-type Rating)

REFERENCE: Manufacturer's instructions.

Objective. To determine that the applicant demonstrates the procedure for packing a lap-type parachute in accordance with manufacturer's instructions by:

1. Inspecting complete assembly to include a pull test.
2. Flaking canopy.
3. Folding canopy.
4. Canopy and line stowage (sequence dependent on model).
5. Placement of pilot chute.
6. Container closure.
7. Sealing pack.
8. Recordation.

E. TASK: PACKING ROUND PARACHUTE

REFERENCE: Manufacturer's instructions.

Objective. To determine that the applicant demonstrates the procedure for packing a round parachute in accordance with manufacturer's instructions by:

1. Inspecting complete assembly to include a pull test.
2. Flaking canopy.
3. Folding canopy.
4. Closure of diaper (where applicable).
5. Canopy and line stowage (sequence dependent on model).
6. Placement of pilot chute.
7. Container closure.
8. Sealing pack.
9. Recordation.

F. TASK: PACKING RAM-AIR PARACHUTE

REFERENCE: Manufacturer's instructions.

Objective. To determine that the applicant demonstrates the procedure for packing a ram-air parachute in accordance with manufacturer's instructions by:

1. Inspecting complete assembly to include a pull test.
2. Flaking canopy.
3. Folding canopy.
4. Installation of deployment bag or diaper closure (where applicable).
5. Canopy and line stowage (sequence dependent on model).
6. Placement of pilot chute.
7. Container closure.
8. Sealing pack.
9. Recordation.

G. TASK: PACKING PIGGYBACK CONTAINER PARACHUTE

REFERENCE: Manufacturer's instructions.

Objective. To determine that the applicant demonstrates the procedure for packing a piggyback container parachute assembly in accordance with manufacturer's instructions by:

1. Inspecting complete assembly to include a pull test.
2. Flaking canopy.
3. Folding canopy.
4. Installation of deployment bag or diaper closure (where applicable).
5. Canopy and line stowage (sequence dependent on model).
6. Placement of pilot chute.
7. Container closure.
8. Sealing pack.
9. Recordation.

IV. AREA OF OPERATION: PARACHUTE OPERATION AND CARE

A. TASK: PARACHUTE STORAGE

REFERENCES: 14 CFR part 65; AC 105- 2; PPM.

Objective. To determine that the applicant demonstrate preparing a parachute for extended storage by:

1. Unpacking parachute.
2. Roll packing the canopy.
3. Positioning slider if installed.
4. Daisy chaining lines.
5. Removing rubber bands from assembly.
6. Separating canopy assembly from container (if necessary).
7. Placing assembly in storage carton (canopy on the bottom, lines, pack and harness on top).

B. TASK: PARACHUTE DRYING AND AIRING

REFERENCES: 14 CFR part 65; PPM Vol. II.

Objective. To determine that the applicant:

1. Exhibits knowledge of procedure for drying and airing parachute assemblies by describing—
 - a. recommended airing time.
 - b. method and conditions when airing time maybe reduced.
 - c. recommended atmospheric conditions in the packing area.
2. Demonstrates hanging a round canopy and chaining the suspension lines.
3. Demonstrates hanging a ram-air canopy.

C. TASK: PARACHUTE ASSEMBLY INSPECTION

REFERENCES: PPM Vol.; Canopy Manufacturer Manual; Container Manufacturer Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of parachute assembly inspection by—
 - a. layout and straightening of the complete canopy, container and harness assembly.
 - b. ensuring all components are compatible, complete, free from manufacturer's errors, and in compliance with approved changes.
2. Demonstrates inspection of the following components—
 - a. pilot chute.
 - b. pilot chute bridle.
 - c. deployment device (bag, diaper, etc.).
 - d. lines (suspension steering).
 - e. risers and links.
 - f. harness.
 - g. container.
 - h. ripcord.
 - i. ram-air canopy.

D. TASK: CLEANING PARACHUTE CANOPIES

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant:

1. Exhibits knowledge of cleaning parachute canopies by describing—
 - a. which canopies could be washed if absolutely necessary.
 - b. the effect washing would have on the permeability of a ram-air canopy.
 - c. how hard water maybe softened.
 - d. the washing process (including the handling of the canopy during the wash).
 - e. how the canopy should be dried and the maximum temperature and time a heated drying room maybe used.
2. Demonstrates spot cleaning a sample piece of nylon canopy material soiled with grease.

E. TASK: PARACHUTE HARNESS ADJUSTMENT

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant demonstrates parachute harness adjustment by:

1. Selecting the correct size harness.
2. Loosening adjustable back, chest, and leg straps.
3. Donning harness and positioning pack over shoulders.
4. Position and tighten leg straps.
5. Adjust main lift webs (if adjustable).
6. Tighten diagonal back straps or horizontal adjustments (if adjustable).
7. Adjust chest strap.
8. Thread and tighten belly band if installed.
9. Stow excess webbing.

F. TASK: PIN-TYPE STATIC LINE REQUIREMENTS

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant:

1. Exhibits knowledge by describing the Federal Aviation Regulations requirements concerning—
 - a. when an assist device will be employed.
 - b. the length of the assist device.
 - c. the static load strength of the assist device.
 - d. who may attach an assist device to a main parachute.
2. Exhibits knowledge of pilot chute deployment by pin-type static line by describing the sequence of events in the deployment cycle.
3. Demonstrates inspection of a pin-type static line with attached assist device.

G. TASK: BREAK CORD STATIC LINE REQUIREMENTS

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant:

1. Exhibits knowledge by describing the Federal Aviation Regulations requirements concerning—
 - a. when an assist device will be employed.
 - b. the length of the assist device.
 - c. the static load strength of the assist device.
 - d. who may attach an assist device to a main parachute.
2. Exhibits knowledge of direct deployment of main parachute canopy by break cord static line, by describing the sequence of events in the deployment cycle.
3. Demonstrates inspection of a break cord static line with attached assist device.

H. TASK: CLEANING PARACHUTE HARNESS/CONTAINER

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant:

1. Exhibits knowledge of cleaning parachute harness/container assembly by describing—
 - a. how the harness/container maybe cleaned.
 - b. how Velcro should be protected during washing.
 - c. the effect of washing the harness webbing in too hot water or too strong a soap solution.
 - d. how the hardware should be protected after cleaning.
 - e. effects of cleaning solvents on nylon and lexan plastic.
2. Demonstrates litmus testing an area of suspected acid contamination on a sample piece of container material.

Change 1 (6/3/04)

V. AREA OF OPERATION: PARACHUTE CONSTRUCTION DETAILS

A. TASK: SEAM CONSTRUCTION DEFECTS

REFERENCE: PPM Vol. I or Vol. II.

Objective. To determine that the applicant exhibits knowledge of seam construction defects by identifying from examples:

1. A correctly sewn seam.
2. A raw edge defect.
3. Excess material beyond desired seam width underfold condition (insufficient material inside seam width).
4. Underfold condition (insufficient material inside seam width).
5. Overfold condition (excess material inside seam width).

B. TASK: WEBBING JOINT CONSTRUCTION

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant:

1. Exhibits knowledge of webbing joint construction by describing—
 - a. Which yarns of the webbing material provide the load bearing capacity.
 - b. Which stitches patterns provide the greatest strength in webbing.
 - c. The stitches per inch commonly used on webbing and the minimum edge distance.
 - d. Why stitching on webbing should extend 1 stitch over the end of the webbing material.
2. Demonstrates constructing a sewn sample harness chest strap joint, using 3 point W W stitching on Type 8 webbing.
3. Demonstrates constructing a sewn sample harness hip junction, using 4 point W W stitching on Type 7 webbing.

C. TASK: PARACHUTE CONSTRUCTION KNOTS

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates forming the following types of parachute construction knots.

1. Clove hitch.
2. Larks head.
3. Two overhand.
4. Bowline.
5. Surgeon's with locking knot.

D. TASK: FABRIC CONSTRUCTION

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant exhibits knowledge of fabric construction by indicating on a sample of parachute cloth a:

1. Fabric warp yarn.
2. Fabric fill yarn.
3. Selvage edge.

E. TASK: FRENCH FELL SEAM CONSTRUCTION

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant exhibits knowledge of 301 LSc-2 french fell seam construction by:

1. Selecting the correct sewing machine.
2. Setting up the sewing machine to sew with E size V-T-295 thread on MIL-C-4438 cloth at the correct stitches per inch.
3. Constructing a 1-foot sample of a French fell seam on MIL-C-4438 cloth.
4. Examining the sewn sample for any irregularities.

Change 1 (6/3/04)

F. TASK: TECHNICAL STANDARD ORDER TSO-C23c

REFERENCES: TSO-C23c; Aerospace Standard 8015A.

Objective. To determine that the applicant exhibits knowledge of technical standard order requirements by listing:

1. Types of parachutes specified.
2. Categories of parachutes specified.
3. Seven major components of a parachute assembly.
4. Primary actuation device test load and functional requirements.
5. Marking requirements for stowage container, canopy, primary actuation device.
6. Strength test requirements for a category B parachute assembly.

G. TASK: TECHNICAL STANDARD ORDER TSO-C23b

REFERENCES: TSO-C23b; NAS-804.

Objective. To determine that the applicant exhibits knowledge of technical standard order requirements by listing:

1. Types of parachutes specified.
2. Fitting material requirements.
3. Maximum pull force required to open pack.
4. Required information marking on pack.
5. Required information marking on canopy.
6. Ripcord tension test requirements.
7. Requirement for inspection data pocket.
8. Strength test requirement for a low speed parachute drop at 125 mph.

H. TASK: FASTENER TAPES

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant exhibits knowledge of fastener tapes (hook & loop) and factors that affect their functions by describing:

1. Position at installation of the two sides.
2. One way hook tape.
3. Replacement of tape.
4. Effect of cutting the tape lengthwise.
5. Effect of temperature on tapes.
6. Effect of water on tape.

I. TASK: FINGER TRAP LOOP CONSTRUCTION

REFERENCE: PPM Vol. II.

Objective. To determine that applicant:

1. Exhibits knowledge of finger trap construction by describing—
 - a. tools necessary to form loop.
 - b. method of tensioning and marking cord.
 - c. types of stitching used to secure the loop.
 - d. method of trimming cord end.
 - e. length of stitching necessary to secure loop.
 - f. construction irregularities to be avoided.
2. Demonstrates constructing a 1-inch finger trap loop in a coreless Dacron cord sample.

J. TASK: RADIAL SEAM CONSTRUCTION

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant exhibits knowledge of LSc-4 radial seam construction by:

1. Setting up a sewing machine to sew with E size MIL-C-7020 cloth at the correct stitch per inch.
2. Constructing a bias 1-foot sample of a 301- LSc-4 radial seam enclosing a section of suspension line.
3. Examining the sewn sample for any seam defects.

Change 1 (6/3/04)

VI. AREA OF OPERATION: PARACHUTE REPAIR

A. TASK: SINGLE PATCH CANOPY REPAIR

REFERENCE: PPM Vol. I or II.

Objective. To determine that the applicant demonstrates constructing a single patch canopy repair by:

1. Laying out and marking the damaged area.
2. Selecting proper material.
3. Orientating patch material warp and filler threads to the canopy.
4. Cutting and folding the patch.
5. Sewing inside seam.
6. Removing damaged area.
7. Sewing outside seam.
8. Thoroughly inspecting and ensure the stitching has not captured a line or adjacent material.

B. TASK: REPLACEMENT OF LOWER CONTROL LINE (RAM-AIR CANOPY)

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant demonstrates replacement of a lower steering control lines on a ram-air canopy by:

1. Cutting a new line.
2. Finger-trapping one end of the line.
3. Attaching finger-trapping to upper control lines with the same knot as original and sewing.
4. Using the manufacturers specified measurement, finger-trap a brake loop into the new steering line.
5. Threading the new steering line through the slider and steering line guide ring, and tying on the steering toggle.
6. Tensioning and readjusting line then sewing.

**C. TASK: APPLICATION OF NON-DESTRUCTIVE TEST METHOD
TS-108**

REFERENCE: Parachute Industry Association Publications Technical Standard 108.

Objective. To determine that the applicant:

1. Exhibits knowledge of the—
 - a. purpose of the test.
 - b. tools and materials required.
 - c. test procedure.
 - d. chemical indications
2. Demonstrates the test procedure.

D. TASK: LINE ATTACHMENT LOOP REPLACEMENT

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant:

1. Demonstrates preparation for suspension line attachment loop replacement on a ram-air canopy by selecting—
 - a. required repair materials.
 - b. appropriate sewing machine.
 - c. required tools.
2. Demonstrates replacing a suspension line loop.

E. TASK: REMOVAL AND INSTALLATION OF GROMMETS

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates removal and installation of grommets by:

1. Cutting the rolled barrel of the old grommet, then separating the barrel and washer from the material.
2. Stitching the perimeter of the hole to reinforce.
3. Installing new grommet tight enough that it cannot be rotated in the material by hand and with no rough edges.

F. TASK: SEWING MACHINE OPERATION

REFERENCES: PPM Vol. I; Sewing Machine Manual.

Objective. To determine that the applicant demonstrates sewing machine operation by:

1. Threading machine.
2. Setting tension.
3. Adjusting number of stitches per inch.
4. Stitching a canopy seam.

G. TASK: CASCADE LINE REPLACEMENT

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant:

1. Demonstrates preparation for replacement of a cascade line by selecting—
 - a. repair materials.
 - b. and adjusting sewing machine.
 - c. equipment (tools).
2. Demonstrates procedure for replacing a cascade line.

H. TASK: NICOPRESS SLEEVE INSTALLATION

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates nicopress sleeve installation by:

1. Selecting proper size fitting.
2. Cutting cable.
3. Gauging sleeve after pressing.

I. TASK: REPLACEMENT OF V-TAB (BUTTERFLY TAB)

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates replacement of V-tab (butterfly tab) by:

1. Removing only those stitches required.
2. Fabricating a new V-tab.
3. Positioning and tacking new tab in place.
4. Applying straight stitching to appropriate area.
5. Applying zig-zag stitching to appropriate area.
6. Repositioning suspension line in V-tab and applying final stitching.

J. TASK: REPLACEMENT OF CONTINUOUS SUSPENSION LINE

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates replacement of continuous suspension line by:

1. Stitch removal.
2. Pre-stretching replacement line.
3. Measurement of the replacement line.
4. Installing a new line into canopy.
5. Positioning of lines in respective links, including knotting and sewing.

K. TASK: SUSPENSION LINE REPLACEMENT IN RAM-AIR CANOPY

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant demonstrates suspension line replacement in a ram-air canopy by:

1. Removal of damaged line.
2. Measurement of the replacement line.
3. Positioning of lines in respective links, including knotting and sewing.
4. Positioning of the main line to the canopy.
5. Installing cascade line.
6. Rechecking all measurement.
7. Bar tacking all open line ends.
8. Inspecting work.

L. TASK: CONTAINER PATCHING

REFERENCE: PPM Vol.II.

Objective. To determine that the applicant:

1. Demonstrates preparation for patching a container tear by selecting—
 - a. repair material.
 - b. and adjusting sewing machine.
 - c. required tools.
2. Demonstrates the procedure for repair of a tear in the container.

M. TASK: RAM-AIR CANOPY REPAIR LIMITATIONS

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant demonstrates knowledge of ram-air canopy repair limitations for both certificated and non-certificated canopies, by listing limits for the following repairs.

1. Restitching.
2. Single outside patch.
3. Basic patch.
4. Panel patch.
5. Suspension lines.

N. TASK: RAM-AIR CANOPY PATCH REPAIR ADJACENT TO A SEAM

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant demonstrates fabrication of a patch on a ram-air canopy in an area that requires the opening of a seam to accept the patch material. The applicant:

1. Indicates the personal certification requirements for this repair to both a certificated and non-certificated canopy.
2. Selects materials for the repair (fabric and thread).
3. Selects sewing machine.
4. Selects other required tools.
5. Lays out canopy and removes stitching.
6. Lays in patch and pins.
7. Sews patch and seam.
8. Inspects work.

VII. AREA OF OPERATION: PARACHUTE ALTERATIONS

NOTE: The following TASKS are for MASTER rigger applicants only. (Examiner must select at least two TASKs.)

A. TASK: ALTERATION DATA APPROVAL

REFERENCE: AC 105-2.

Objective. To determine that the applicant exhibits knowledge of alteration data approval by:

1. Listing those sources where previously approved data can be found.
2. Explaining the procedure for obtaining data approval in cases where no previously approved data exist.

B. TASK: INSTALL AN AUTOMATIC ACTIVATION DEVICE (container not factory ready)

REFERENCE: Manufacturer's data.

Objective. To determine that the applicant can alter parachute container to accept an automatic activation device by:

1. Exhibiting knowledge of the required approved data for the installation.
2. Assembling necessary materials and equipment.
3. Performing layout of material.
4. Cutting material to size and shape.
5. Performing sewing operations.
6. Installing grommets.
7. Installing automatic activation device (AAD).
8. Function test AAD if required making appropriate record entices.

C. TASK: FABRICATION BINDING CORNERS

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates fabrication of 90 degree binding corners by:

1. Cutting binding tape for the corner, folding and sewing a simple bound corner.
2. Constructing an example of a binding finishing corner on a panel.

D. TASK: ALTERING RISER CONNECTORS

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant demonstrates altering a riser "L" links to rapide links by:

1. Selecting replacement link.
2. Inspecting new links.
3. Removing stitches that parallel the "L" link across the top of the riser.
4. Folding in the corners of the riser.
5. Orientating the rapide link to the proper operating position.
6. Hand tacking riser web.
7. Torquing the rapide link.

E. TASK: BRIDLE CORD ALTERATION

REFERENCE: PPM.

Objective. To determine that the applicant exhibits knowledge of bridle cord alteration by describing:

1. Function of bridle cord.
2. Possible effects of change in length.
3. Data required to alter.
4. Attachment methods (including tacking).
5. Strength requirements.

F. TASK: THREADING FRICTION ADAPTER

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates threading friction adapters by:

1. Selecting compatible webbing.
2. Threading adapter.
3. Preparing the terminal either by split, wrap, and sew method or by folding over and sewing.

G. TASK: D- or V-RING INSTALLATION

REFERENCE: PPM Vol. I.

Objective. To determine that the applicant demonstrates D- or V-rings installation by:

1. Selecting compatible snap and ring.
2. Selecting appropriate webbing.
3. Determining proper stitches per inch.
4. Determining stitch pattern.
5. Sewing an example installation.

H. TASK: CONVERSION OF RIPCORDER DEPLOYMENT TO HAND DEPLOYED PILOT CHUTE

REFERENCE: PPM Vol. II.

Objective. To determine that the applicant exhibits knowledge of conversion of ripcorder deployment to hand deployed pilot chute by describing:

1. Removal of ripcorder pocket and housing.
2. Removal of pilot chute.
3. Selection of replacement bridle cord.
4. Installation of Velcro.
5. Installation of curved locking pin to bridle.
6. Installation of pilot chute pouch and pilot chute.
7. Recordation.

I. TASK: FABRICATE A CANOPY DEPLOYMENT BAG

REFERENCE: Manufacturer's Manual.

Objective. To determine that the applicant can fabricate a canopy deployment bag by:

1. Selecting proper data (for the subject container).
2. Assembling the necessary materials and equipment.
3. Laying out the materials.
4. Cutting to size and shape.
5. Installing grommet(s).
6. Performing sewing operations.

J. TASK: CONVERT THROW-OUT PILOT CHUTE FROM REAR OF LEG POSITION TO THE BOTTOM OF CONTAINER POSITION

REFERENCE: Manufacturer's Data.

Objective: To determine that the applicant can perform all operations, as required by the manufacturer's data, to relocate a throw-out pilot chute pouch. Moving it from a leg mounted position to a bottom of container position by:

1. Removal of leg mounted pouch and harness bridle Velcro.
2. Layout of material for new pilot chute pouch.
3. Sewing operations for construction of new pouch.
4. Sewing operations for attachment of new pouch to container.
5. Fabrication and attachment of new pilot chute bridle including Velcro attachments as required.
6. Recordation.