

ORGANIZATIONAL, INTERMEDIATE AND DEPOT MAINTENANCE

PARACHUTE LOFT REQUIREMENTS/ADMINISTRATION

List of Effective Work Package Pages

<u>Page</u> <u>No.</u>	<u>Chg.</u> <u>No.</u>	<u>Page</u> <u>No.</u>	<u>Chg.</u> <u>No.</u>	<u>Page</u> <u>No.</u>	<u>Chg.</u> <u>No.</u>	<u>Page</u> <u>No.</u>	<u>Chg.</u> <u>No.</u>
1 thru 16		10					

Reference Material

Cartridge Actuated Devices (CADS) and Propellant Actuated Devices (PADS) (IETM)	NAVAIR 11-100-1.1
Naval Aviation Maintenance Program	OPNAVINST 4790.2
Naval Aviation Safety Program	OPNAVINST 3750.6
Organizational, Intermediate, and Depot Maintenance, Support Equipment	WP 005 00

Alphabetical Index

<u>Title</u>	<u>Page</u>
Description	3
Environmental Conditions	5
Control	6
General	5
Lighting	6
Requirements	5
Inspection	16
Acceptance/Transfer Inspection	16
Calendar/Phased/Conditional	16
Conditional	16
Maintenance and Maintenance Documents	9
Aircraft Accident Report Inspection	10
Canopy Damage Charts	10
Expiration of Canopy Assembly	10
General	9
Naval Aviation Maintenance Program	10
Parachute Maintenance Records	9
Parachute Record (OPNAV 4790/101)	9
Periodic Maintenance Requirements Cards Manual	10
Post-Combat Inspection	10
Recording of Modifications	10
Recording of Repairs	16
Shelf Life of Repair Materials	10
VIDS/MAF (OPNAV 4790/60)	9
Parachute Loft Equipment	6
Cutting Tables	6
Inspection Tables	6
Packing Tables	6
Sewing Machines	6

Alphabetical Index (Cont.)

<u>Title</u>	<u>Page</u>
Parachute Loft Layout	4
Fabric Area	4
General	4
Packing Area	4
Storage Facilities	5
Washroom	5
Wet Locker	4
Parachute Loft Requirements	6
Safety Requirements	6
Parachute RFI (Ready-for-Issue) Pool Asset Storage Requirements	8
Taking Parachute Assemblies Out of Service	8
Storage of Parachute Assemblies	6

Record of Applicable Technical Directives

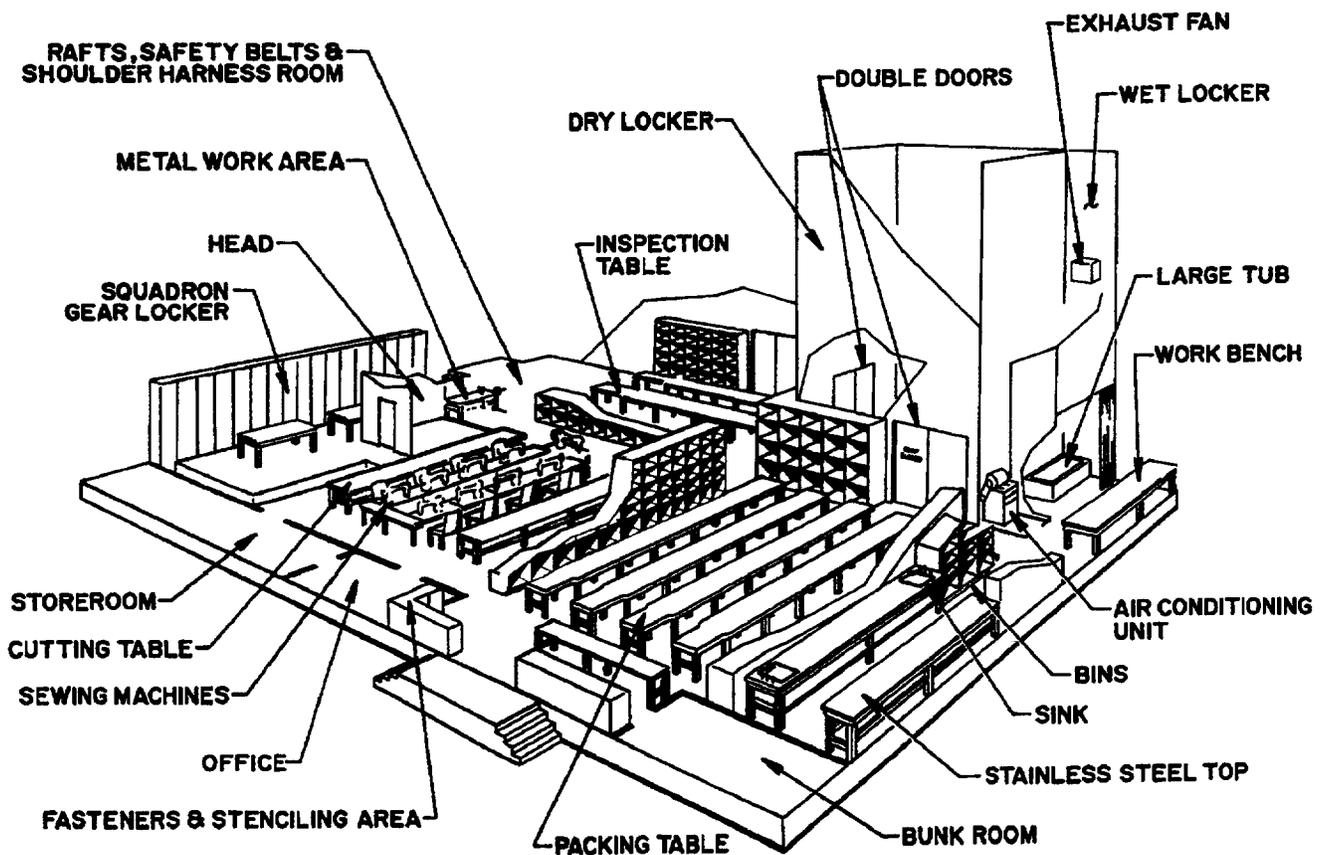
None

1. DESCRIPTION.

a. The parachute loft is the work area designated for the maintenance of parachute assemblies, systems and parts. If possible, the loft shall be centrally located and at ground level, so that it is accessible to all organizations serviced. The parachute loft shall be large enough to accommodate parachute packing tables 36-in. high, at least 36-in. wide, and long enough to service the longest parachute presently in service. Other related

parachute items may be necessary, and room for additional shops, such as oxygen and survival gear, should be made available. Two general types of parachute lofts currently in use are the shore-based parachute loft and the shipboard parachute loft (Figure 1).

b. All parachute lofts are equipped to perform specific levels of maintenance procedures (depending on equipment and personnel). These lofts shall be manned by qualified Aircrew Survival Equipmentmen.



6.2-5600

Figure 1. Typical Parachute Loft

2. PARACHUTE LOFT LAYOUT.

3. GENERAL.

a. The wet locker and washroom shall be separate areas. The packing area, store rooms, and fabric areas should be separated if room is available. The packing tables shall be adequately spaced. The fabric area shall be kept clean. All local fire regulations shall be adhered to.

4. PACKING AREA.

a. The packing area is used for inspection, rigging, and packing of parachutes and related equipment.

5. FABRIC AREA.

a. All sewing, manufacturing, modifications, or repairs shall be performed in the fabric area. The fabric area shall be equipped with a cutting table, sewing machine and miscellaneous authorized hand tools.

6. WET LOCKER.

a. The wet locker is used for drying parachutes after washing. It should be separated from the dry locker and provided with dehumidification and floor water drains. The ceiling should be of enough height to permit the parachutes to be hung full-length without touching the walls, floors, or other parachutes. The wet locker shall not have windows or sky-lights. If enough height is not available, the suspension lines shall be chained to prevent entanglement and the harness and container should be placed on a smooth table or suspended above the floor (Figures 1 and 2). The hoist lines shall be spaced at least 24-in. apart and at least 12-in. from wall. Hoist line must be free of harmful agents, such as tars, oils and acid. Also an adequate number of low-heat, flush type incandescent lighting fixtures shall be installed in wet locker walls and ceiling (Figure 2).

NOTE

Airing a parachute full length is no longer required unless damp or wet. If damp or wet, the assembly shall be suspended full length from its apex lines, in a wet locker unit assembly feels dry. Inspect assembly after drying per this applicable assembly chapter.

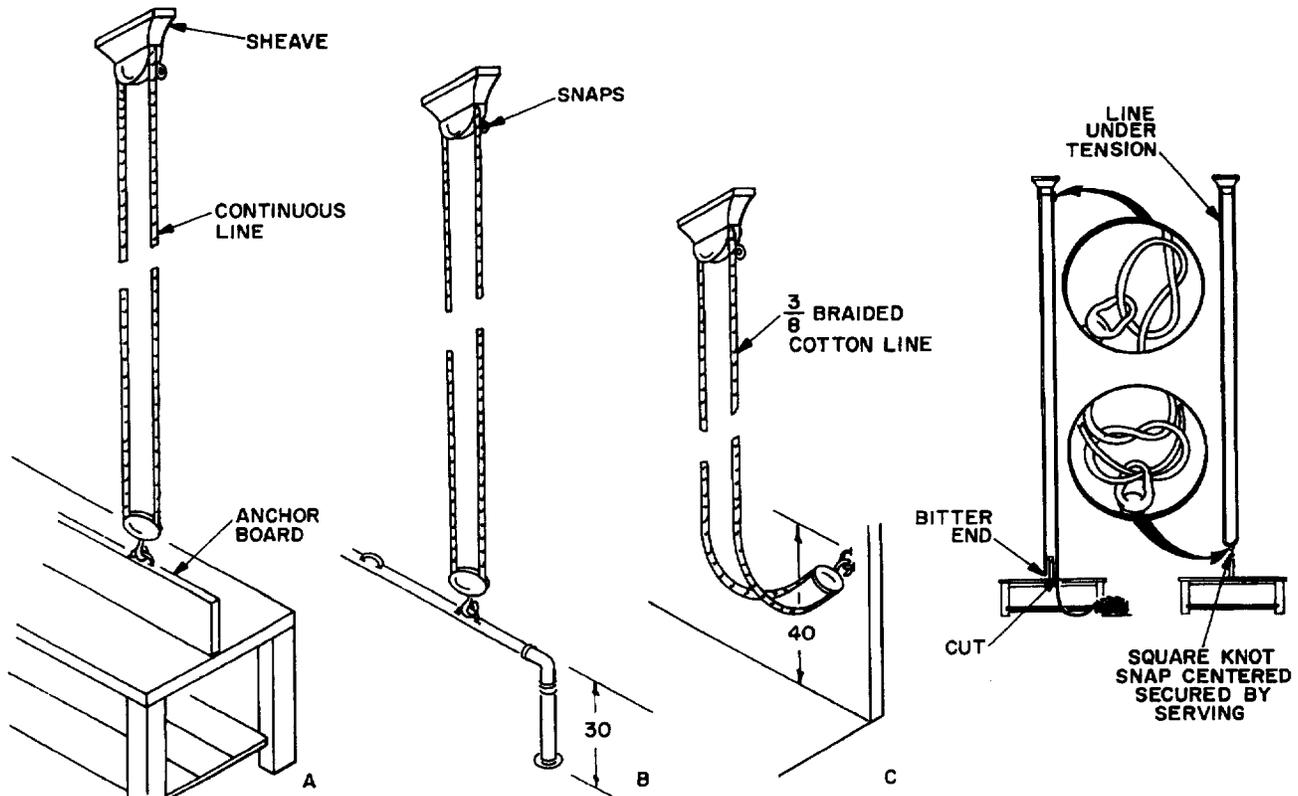


Figure 2. Hoisting Line Installation

7. WASHROOM.

a. The washroom is used for cleaning parachutes. It shall contain a large tub and a spin drier. Hoist lines should be installed over these units to facilitate parachute handling.

8. STORAGE FACILITIES.

a. Bins and other storage facilities should be constructed to accommodate packed and unpacked parachutes. These facilities should consist of closed lockers or cupboards divided into compartments large enough to accommodate single parachutes. Open racks or shelves may be used as a substitute for closed lockers. The shelves should be designed to allow storage of parachutes at least 4-in. from walls and 12-in. from the floor. Storage facilities shall be well-ventilated and free of dust and other contaminants such as oil, acid, and cleaning fluids. Parachutes shall not be stored directly over hot water pipes, heating apparatus, or in direct

sunlight. Additional adequate storage facilities shall be established for organizational level use by squadrons.

9. ENVIRONMENTAL CONDITIONS.

10. GENERAL.

a. Parachutes should be inspected, repaired and packed under regulated temperature and humidity conditions. So, these conditions must be controlled in all parachute lofts. In general, the loft shall not be excessively damp or dusty. It shall be continuously or frequently ventilated.

11. REQUIREMENTS.

a. The temperature and relative humidity in packing loft and dry locker shall be maintained within limits indicated in (Figure 3). Ideal conditions are a temperature of 24-degrees C (75-degreesF) and a relative humidity of 60%.

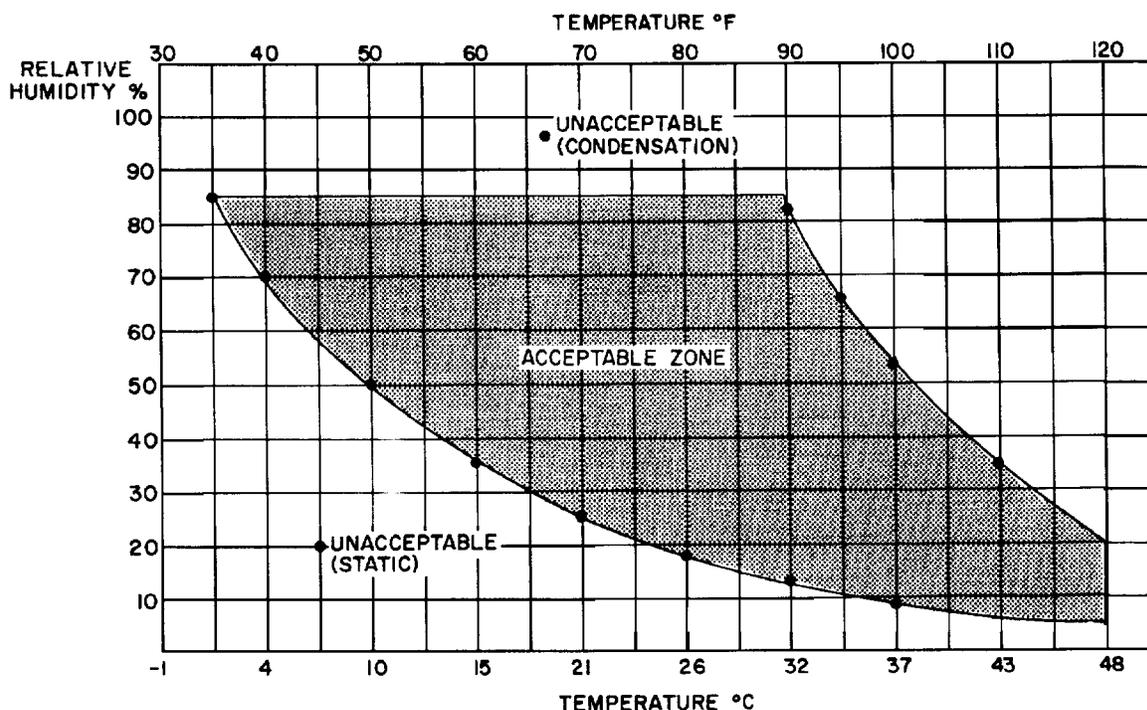


Figure 3. Packing Loft and Dry Locker Temperature-Humidity Conditions

b. The shaded area on temperature-humidity chart, shown in (Figure 3), outlines the allowable environmental limits inside parachute loft and illustrates favorable and unfavorable conditions. Parachutes should not be packed when conditions are in the unacceptable zone. These limits are affected by two variables: relative humidity and temperature. Recordings of these variables shall be taken at least 3 times daily, using the relative humidity and temperature indicator (WP 005 00) to ensure that favorable conditions are maintained.

NOTE

Do not pack parachutes when conditions are outside acceptable conditions

c. Relative humidity is ratio between amount of water vapor in air and amount the air could hold at a given temperature. Relative humidity is usually written as a percent-age. Specific humidity is the weight of the water vapor found in a given volume of air. Relative humidity limits must be maintained to prevent condensation in actuators and other metal parts. Specific humidity limits must be maintained to prevent static electricity in canopy cloth.

d. Given any two of these variables, it can be determined, by using the chart, if the packing loft and dry locker have safe environmental conditions.

12. CONTROL.

a. The ideal method for regulating air temperature and humidity is an air-conditioning system. To obtain most effectiveness from the air-conditioner, a continuous check shall be made of the physical conditions of the loft.

13. LIGHTING.

a. The nylon material in parachutes is subject to deterioration by sunlight and some forms of artificial lighting. Avoid exposure of parachutes to sun-light; also, avoid prolonged exposure over inspection lights. Lighting should be adequate and free of shadows. Fluorescent lighting is most desirable for this purpose. But, parachutes should not be exposed to fluorescent lights closer than 5 ft. for long periods of time. Keep parachutes under cover except when being inspected and/or worked on.

14. PARACHUTE LOFT EQUIPMENT.**15. PACKING TABLES.**

a. Basic requirements for a packing table are that it be long enough to lay out complete assembly for

inspection and servicing (45 ft. by 36-in. by 36-in.) and that it be smooth and free of slivers and burrs. Two types of packing tables are generally used for packing personnel type parachutes; cutaway table and portable table (Figure 4). When procuring for a new parachute loft, packing table detailed in MIL-T-43150 should be considered for use with personnel parachutes. Each packing table can be equipped with tension attachments and a tensioning strap device. Packing tables shall not be used as cutting tables.

16. INSPECTION TABLES.

a. An inspection table shall be long enough to inspect an entire gore at one time, smooth and free of slivers and burrs, and radiate minimum heat from lighting. Fluorescent lighting is recommended. This does not conflict with requirements of Paragraph 13, due to the protection provided by the glass. When procuring for a parachute loft, the table detailed in MIL-T-43238 should be considered, if room is available for an inspection table. Do not leave parachutes on lighted table longer than required for inspection. Excessive exposure to artificial lighting will degrade nylon. Lights shall be turned off when table is not in use.

17. CUTTING TABLES.

a. Cutting tables are used for laying out and cutting cloth flat patterns. They are located in the fabric area and shall have clean smooth surfaces (Figure 5).

18. SEWING MACHINES.

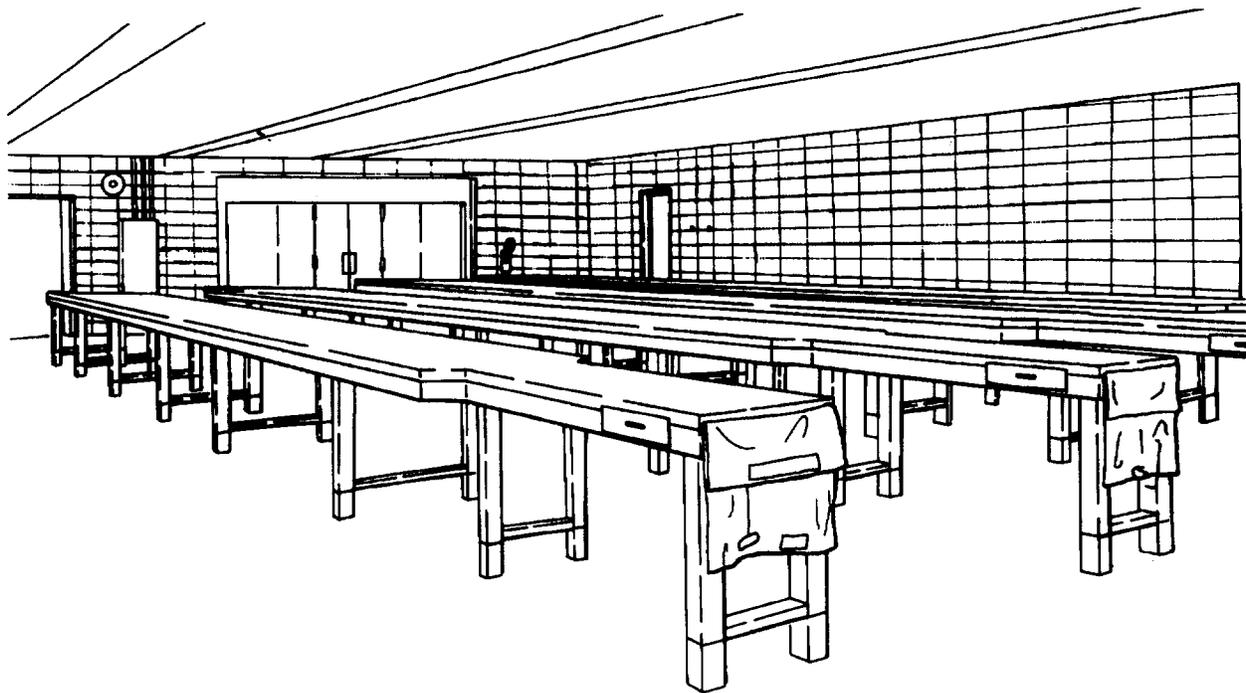
a. Service manuals covering each class and variety of sewing machine are furnished with new machines. Replacement manuals may be ordered, thru open purchase, from the sewing machine manufacturer. Servicing of all sewing machines shall be performed per the applicable sewing machine maintenance manual. Adjustments to sewing machines shall be made only by qualified personnel.

19. PARACHUTE LOFT REQUIREMENTS.**20. SAFETY REQUIREMENTS.**

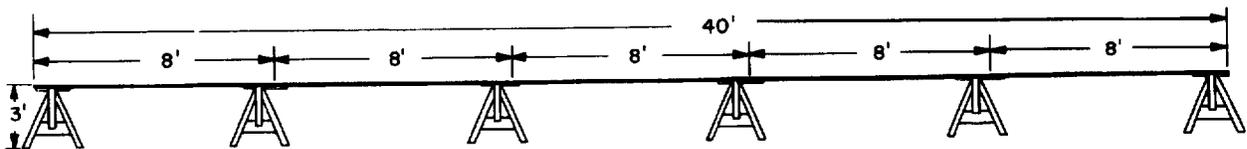
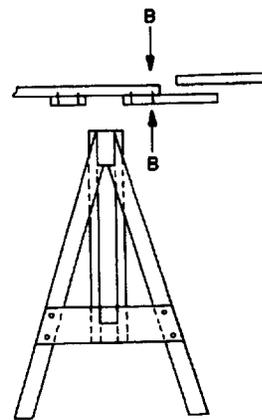
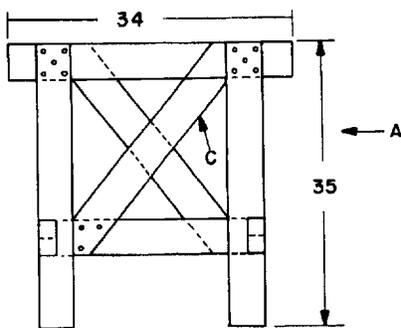
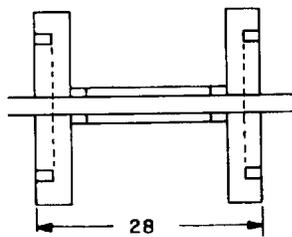
a. Handling, shipping, and storing of pyrotechnics shall be done per NAVAIR 11-100-1.1.

21. STORAGE OF PARACHUTE ASSEMBLIES.**NOTE**

Packed parachute assemblies may be left in aircraft during accomplishment of Class C preservation.



CUTAWAY TYPE



PORTABLE TYPE

Figure 4. Packing Tables

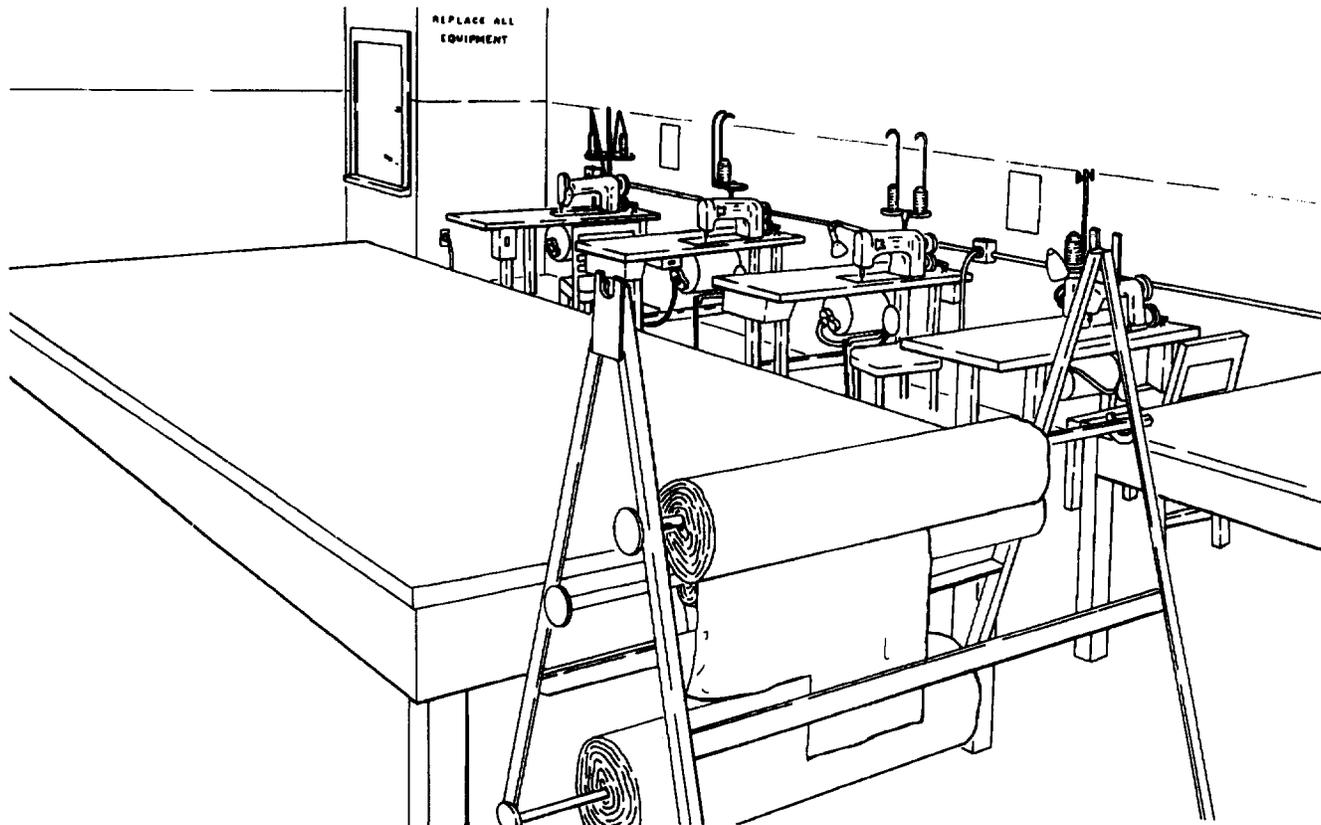


Figure 5. Cutting Table and Miscellaneous Loft Equipment

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22. PARACHUTE RFI (READY-FOR-ISSUE) POOL ASSET STORAGE REQUIREMENTS.

a. Storage facilities shall be well-ventilated and free of dust and other contaminants such as oil, acid, and cleaning fluids. The temperature and relative humidity in the storage area should be from 10-degrees to 35-degrees C (50-degrees to 95-degrees F) and relative humidity of 25 to 80 percent. Occasional temperatures between 0-degrees and 48-degrees C (32-degrees and 120-degrees F) are allowable.

b. Place RFI material in storage container, cardboard or plastic including parachute record, and all other related documents.

c. Store in bins or other storage facilities to accommodate RFI assets. Do not store on floor or deck.

d. Parachute pool assets are authorized up to 90 days RFI shelf life before they begin to accumulate time for inspection purposes.

23. TAKING PARACHUTE ASSEMBLIES OUT OF SERVICE.

a. To take a parachute assembly out of service conduct the following:

(1) Place parachute on parachute packing table; inspect assembly per applicable personnel parachute assembly.

WARNING

Automatic parachute ripcord releases shall not be taken out of service and returned to supply with cartridge installed.

(2) Remove and disarm automatic parachute ripcord release. Assemble parachute release and tag.

CAUTION

Cartridge-actuated devices for parachutes shall not be taken out of service and returned to supply with cartridge installed.

(3) Remove cartridges from all cartridge-actuated devices. Store cartridges per NAVAIR 11-100-1.1 instructions.

(4) Release all snap fasteners, open all slide fasteners, and remove one end of all container spring opening bands.

(5) Chain suspension lines.

(6) Remove/separate parachute assembly parts, tag and place each part in a plastic bag and seal.

(7) Turn in parts to supply per applicable supply directives.

24. MAINTENANCE AND MAINTENANCE DOCUMENTS.

25. GENERAL.

a. All parachutes shall be scheduled for periodic maintenance under direction and control of Maintenance Control Officer. The parachute periodic inspection cycles shall coincide with applicable aircraft inspection cycles specified in OPNAVINST 4790.2 (series). For those assemblies procured from other agencies and not specifically covered by this document, maintenance documents of those agencies shall be used unless otherwise specified or authorized by TYCOM. The different types of periodic inspection are as follows: acceptance/transfer, calendar and conditional.

b. Any parachute assembly, harness, survival equipment, or component that requires maintenance shall be handled at the lowest level of maintenance equipped to satisfactorily perform the work. Mission, time, equipment, trained personnel, and operational needs are the basic considerations involved in determining which level shall be used.

26. PARACHUTE MAINTENANCE RECORDS.

a. The records and documents used by Aircrew Survival Equipmentmen, under the direction of the Maintenance Control Officer, to provide a systematic means of control consist of the following:

- Aircrew Systems Record (OPNAV 4790/138)
- Canopy Damage Chart
- DOD Single Line Item Requisition System Document (DD 1348 series)
- Parachute Record (OPNAV 4790/101)
- Quality Deficiency Report (Cat II, SF-368)
- Support Action Form (OPNAV 4790/42)
- Technical Publication Deficiency Report (OPNAV 4790/66)
- VIDS/MAF Form (OPNAV 4790/60)

NOTE

Reproduce proper canopy damage charts from this manual as may be required at local level. All entries are to be printed in blue or black ink or typewritten. Felt tip pens and pencils are unacceptable for log book entry purposes.

27. VIDS/MAF (OPNAV 4790/60).

a. The VIDS/MAF is used to record special (7/14 day) inspection per applicable Aircraft Maintenance Requirements Cards Manual and OPNAVINST 4790.2 (series).

28. PARACHUTE RECORD (OPNAV 4790/101).

a. Prepare Parachute Record per OPNAV 4790.2 (series).

b. After the parachute assembly has been repaired, inspected, and repacked, and the packer is satisfied the parachute assembly is ready for flight, the packer shall legibly sign his name and rate. After the Quality Assurance Inspector is sure all QA inspection points have been inspected, the Quality Assurance Inspector shall legibly sign his name and rate, QA stamp the inspector block, and enter the date and 3-M organization code of the IMA at the bottom of the parachute record (OPNAV 4790/101). The stamp shall not obscure the signatures.

c. If the part number of the parachute assembly is changed by the technical directive, the directive will be annotated on the parachute record at the time of incorporation. During following parachute repacks the TD need not be listed in the TD section of the parachute record. Aircrew system bulletins must be annotated every repack as they do not change the parachute assembly part number until recended.

d. If service life has been extended for a part, enter issuing authority and date time group of authorizing message on form.

29. EXPIRATION OF CANOPY ASSEMBLY.

a. When a parachute canopy is retired from service because its total/service life has expired or because repair is beyond capabilities of IMA history record and permanent file may be destroyed. Subassembly parts with service life remaining may be salvaged. Proper service life information must be annotated and securely attached to salvaged items if they are to be reused or installed on another parachute assembly. Under no circumstances shall a salvaged part be reused if history of part cannot be firmly established.

30. CANOPY DAMAGE CHARTS.

a. Whenever a canopy is inspected and found to need repairs, proper Canopy Damage Chart shall be filled out. If repairs cannot be accomplished locally, a damage chart shall go with canopy to next higher level of maintenance. This form shall not be discarded. Upon completion of repairs, Canopy Damage Chart shall be affixed to Parachute Record (OPNAV 4790/101) (Figures 6, 7, 8, 9 and 10).

31. SHELF LIFE OF REPAIR MATERIALS.

a. There are no limits on shelf life of repair materials. Materials that can not be identified shall not be used.

32. AIRCRAFT ACCIDENT REPORT INSPECTION.

a. Any personnel and drogue parachute, along with related subassemblies or equipment which have been recovered following use in an emergency bailout or ejection, will be returned to nearest Naval Supply Activity for shipment to: Commander, Code 461000D, NAVAIRWARCENWPNDIV, 1900 N. Knox Road Stop 6206, China Lake, CA 93555-6106. Related subassemblies or equipment are: pilot/drogue stabilization parachutes, cushions, containers, automatic parachute ripcord releases, canopy, spreading guns, harnesses, parachute harness sensing release units (PHSRU), etc. Parts shall not be tampered with during or after recovery. **Do not chain the canopy suspension lines.**

NOTE

Under no circumstances will any part be returned to service subsequent to an ejection or bailout.

b. Stencil outside of container in 1-in. letters as follows: **THIS EQUIPMENT HAS BEEN USED IN AN EMERGENCY.** These items of equipment are required

for evaluation and determination of design deficiency and to establish requirements for product improvement.

c. Per OPNAVINST 3750.6 and to provide the Naval Air Warfare Center Weapon Division (NAVAIRWAR-CENWPNDIV) with enough information to critically inspect/evaluate parts, reporting custodian of the aircraft involved shall provide NAVAIRWARCENWPNDIV, when possible, with following information:

(1) Name of submitting activity and aircraft accident report number and aircraft type BUNO number.

(2) Parachute Records with canopy damage charts and PHSRU X-rays.

33. POST-COMBAT INSPECTION.

a. Organizational level maintenance shall inspect parachute assemblies for external damage or abnormal condition after each combat mission. When an aircraft has been subjected to flak, missile, or gun-fire all parachutes shall be examined for damage prior to next flight. If externally foreign objects have entered parachute assembly, remove it from service and perform a conditional inspection.

34. PERIODIC MAINTENANCE REQUIREMENTS CARDS MANUAL.

a. This manual contains minimum scheduled maintenance requirements to inspect for material degradation that may have occurred during preceding inspection interval, and to perform essential preventive maintenance. Tolerances, illustrations, and support equipment required are included.

35. NAVAL AVIATION MAINTENANCE PROGRAM.

a. The following forms used in the Naval Aviation Maintenance Program (NAMP) are applicable to parachute maintenance: VIDS/MAF Form, support Action Form, and DOD Single Line Item Requisition System Document. Proper completion of documents is essential to function of program. Detailed instructions on their use may be found in Naval Aviation Maintenance Program Manual, OPNAVINST 4790.2 (series).

36. RECORDING OF MODIFICATIONS.

a. When a modification is performed on a parachute assembly, record the assigned Technical Directive Code and Modification Code numbers on Parachute Record. Other records shall be completed per OPNAVINST 4790.2 (series).

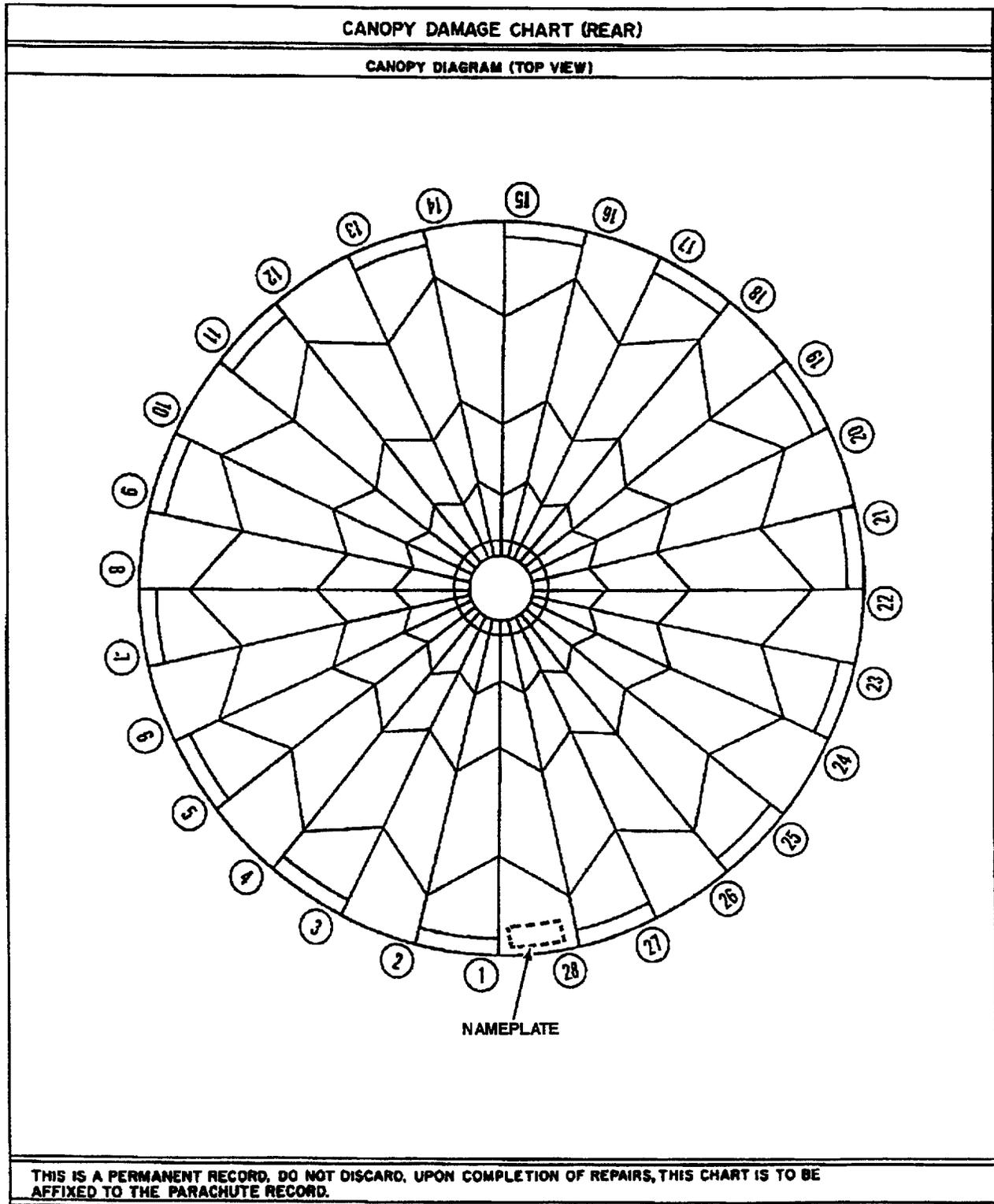


Figure 7. Canopy Damage Chart for 28-Foot Diameter Canopy

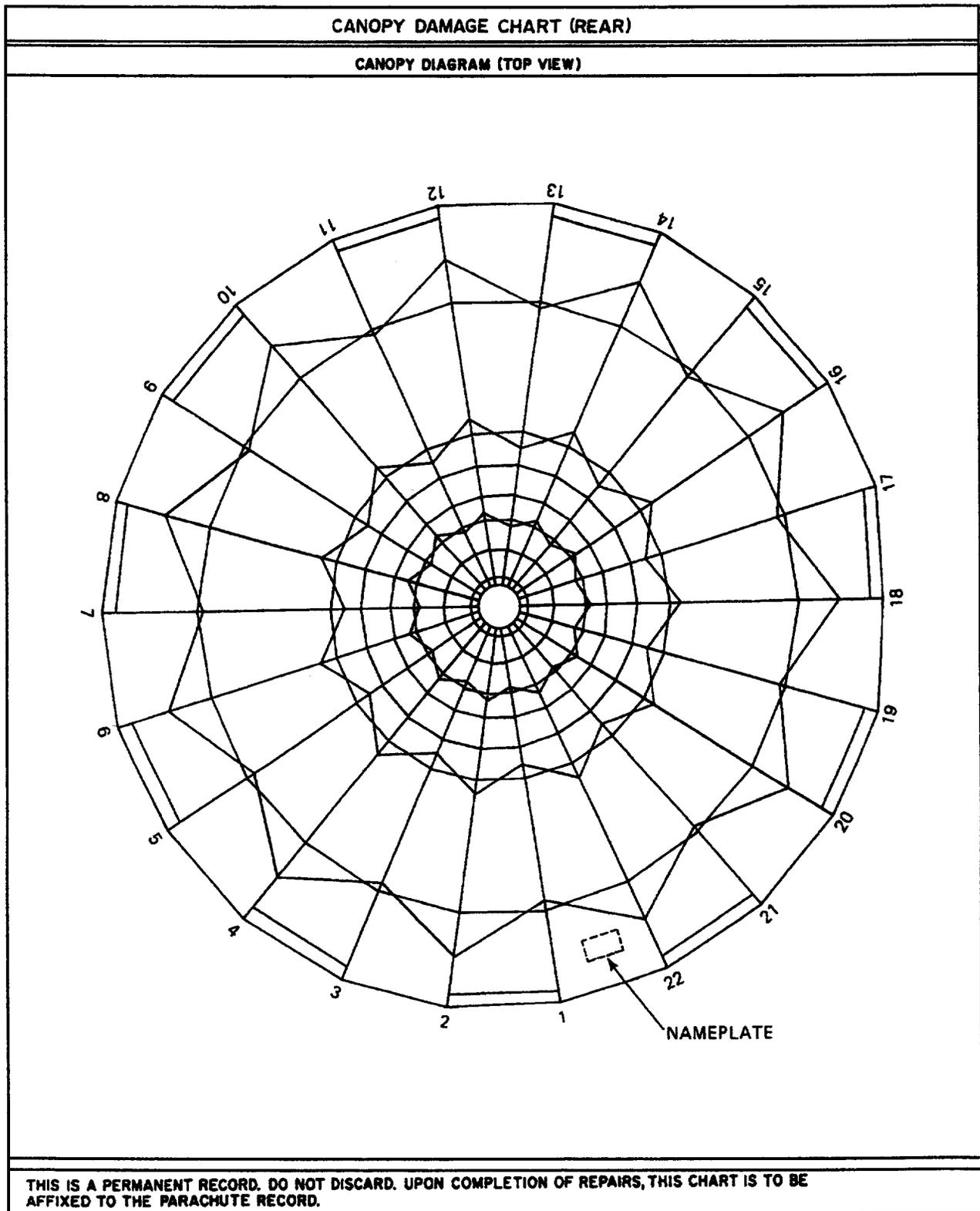
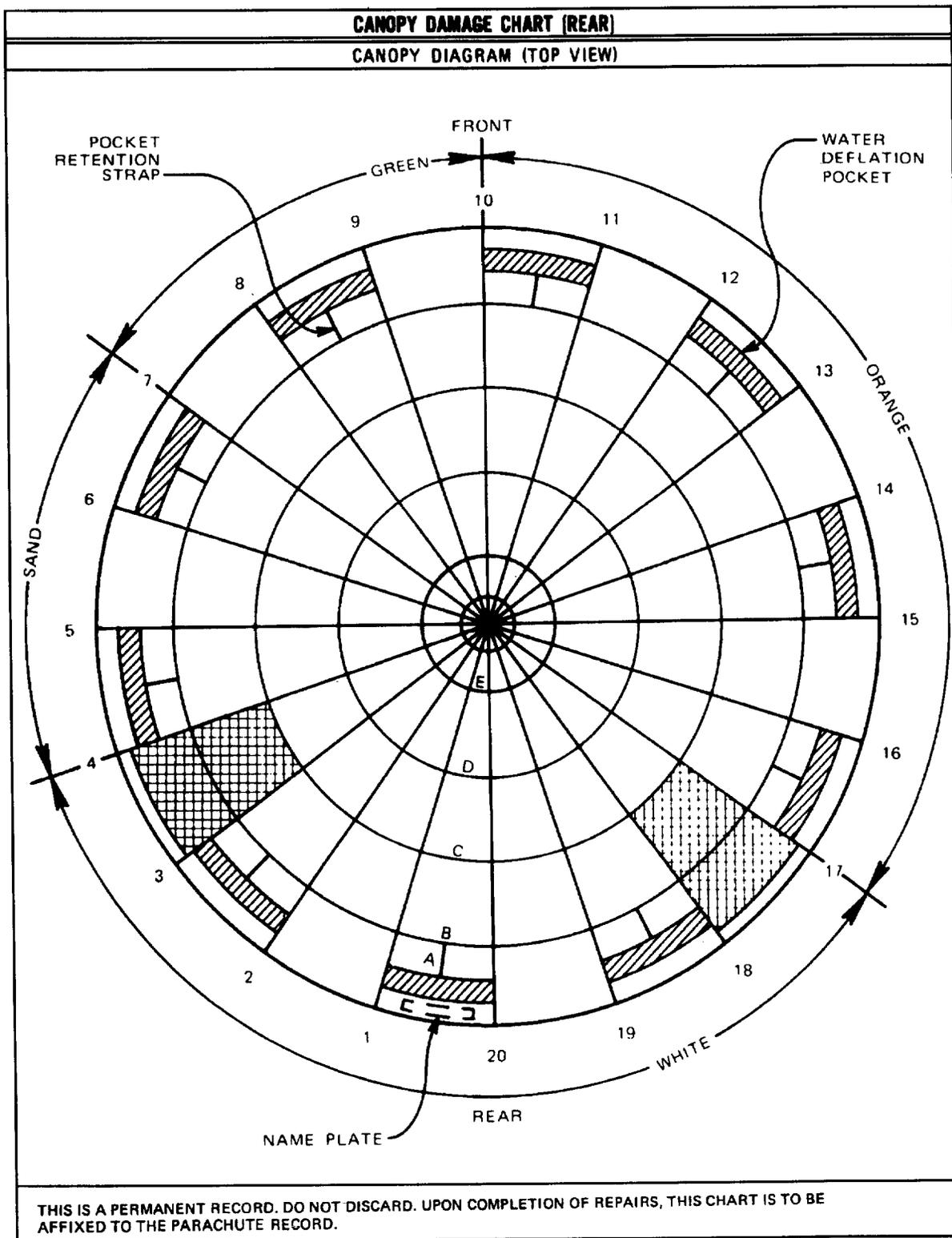


Figure 8. Canopy Damage Chart for 26-Foot Diameter Canopy



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Figure 9. Canopy Damage Chart for A/P28S-24, Aeroconical Type 1000 Canopy

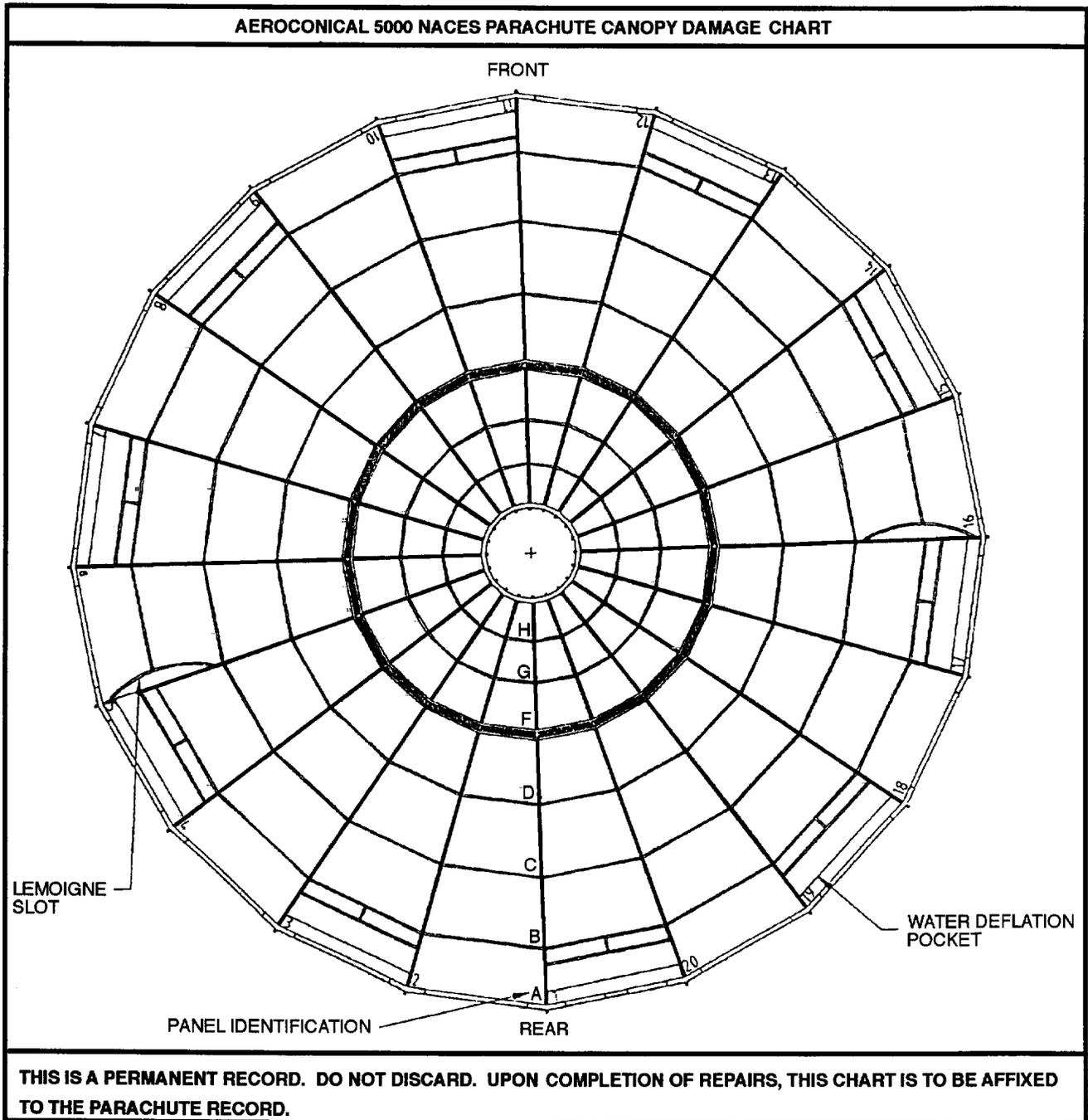


Figure 10. Canopy Damage Chart for A/P28S-32

37. RECORDING OF REPAIRS.

a. When a repair is performed on a parachute assembly or subassembly, a notation shall be made in the Local Use block when specified in the procedure.

38. INSPECTION.**39. CALENDAR/PHASED/CONDITIONAL.**

a. The acceptance calendar/conditional inspection shall be performed at lowest level of maintenance possible. Inspections include, but are not limited to, aircraft emergency escape assemblies and/or systems.

40. ACCEPTANCE/TRANSFER INSPECTION.

a. An acceptance/transfer inspection is required when custody of a parachute assembly is changed (squadron, contractor, depot, or air station transfer). The acceptance/transfer inspection does not void the last packing facilities repack or initial issue inspection of the parachute assembly. An acceptance/transfer inspection consists of a review of the Parachute Record, and an external visual inspection per the applicable daily inspection requirements. If discrepancies are found with the parachute record, correspondence (message, letter, and/or telephone) with the In Service Support Team (ISST) is required. (The Naval Air Warfare Center Weapons Division, China Lake, CA, is the ISST for parachutes unless otherwise specified in the current edition of NAVAIRINST 5400.15). A repack of the parachute assembly may or may not be directed by the ISST. Repacking of the parachute assembly as a result of an acceptance/transfer inspection discrepancy may only be directed by the ISST of the specific parachute assembly type or by the Naval Air Systems Command. This inspection is also applicable to parachute assemblies

packed, repacked or placed in service by Navy authorized contractors facility and warranted by that facility. Sealed or warranted parachutes with time/life remaining, will not be subjected to disassembly by the receiving custodian.

b. The regular inspection cycle of a parachute assembly shall correspond either to aircraft calendar inspection or to phase maintenance cycle program. Ensure parachute assembly inspection period does not expire before scheduled maintenance period of aircraft. To meet unusual situations and facilitate workload scheduling, a plus or minus one week or portion thereof may be applied to the authorized inspection interval. To enable a ferry flight to return to home station/ship after any away from home grounding discrepancy of such duration that inspection interval expired, necessary additional days may be added. However, in each instance deviations shall only apply to the immediate inspection due. If unusual circumstances dictate deviations of succeeding inspection interval, each shall be computed from the date on which inspection would have been due if the preceding deviation had not been granted.

NOTE**CONDITIONAL INSPECTION DOES NOT CHANGE REPACK CYCLE.****41. CONDITIONAL.**

a. When a parachute assembly must be inspected as the result of a specific situation or set of conditions unrelated to the normal inspection interval, a conditional inspection shall be performed. A conditional inspection, shall include a repack of the parachute assembly. This does not change the repack cycle. A parachute assembly repack is not required if the parachute assembly pack is not opened or the part is external.