CHAPTER 10 — STORAGE

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TABLES

STORAGE

10-1. GENERAL

This section provides preparation procedures to place helicopter in storage for a period of 6 months or less, and depreservation procedures to activate the helicopter after storage. The procedure is divided into four categories of storage: flyable storage, short term storage, intermediate storage, long term storage and individual component storage.

Storage of helicopter includes corrosion control (Chapter 3 or CSSD-PSE-87-001) which consists primarily of preventing moisture from contacting exposed material surfaces by use of preservatives.

Always refer to applicable Flight Manual for approved fuel, oil and hydraulic fluid specifications. Refer to applicable Maintenance Manual for servicing instructions.

10-2. ENVIRONMENTAL CONDITIONS

Existing environmental conditions and available facilities must be taken into account when a helicopter is to be placed in storage. A choice of storage procedures is permissible for short periods of storage. For example, a choice must be made between flyable storage and short term storage for any period of time up to 45 days. The decision will be based on such on-site conditions as availability of people and materials, equipment necessary to perform ground runups, or motoring of engine(s), defueling and purging of fuel cell(s) and other similar elements. Wet weather conditions promotes corrosion, rot, mildew, and mold. To prevent these deteriorating effects, perform inspections regularly and take proper preventive maintenance action. The following practices should be used as a guide during exceptionally wet weather conditions:

1. Prevent rot, mildew, and mold from forming on nonmetallic materials by keeping them clean and as dry as possible. Keep fabric material in the helicopter clean.

2. Treat for visible corrosion in accordance with Chapter 3 of this manual or CSSD-PSE-87-001.

3. Keep fuel cell(s) full to reduce condensation in the cell(s).

4. Store helicopter in a dry, heated and well ventilated hangar or shed, if space permits.

10-3. FLYABLE STORAGE

Flyable storage (no time limit) is the prescribed procedure to maintain a stored helicopter in an operable condition. If daily use is impossible or impractical, this procedure will keep the helicopter in the best possible condition. It requires periodic attention. Date and type of storage must be recorded in helicopter records.

10-4. FLYABLE STORAGE — GENERAL PROCEDURES

1. Preservation should be accomplished in an uninterrupted series of operations. When periods of interruption are necessary, temporary protection shall be provided by partially processed items, as required, to avoid contamination.

2. The prevention of corrosion depends on the control of moisture. One method is ventilation. On days when the relative humidity is 55% or above, windows and other openings can be temporarily opened to allow a circulation of dry air through the helicopter. Use fans or blowers when available.

3. Ensure water drain holes are free from obstruction and are kept open for the duration of the storage period.

4. Lubricate helicopter prior to placing it in storage in accordance with Lubrication Chart in appropriate Maintenance Manual.

10-5. FLYABLE STORAGE — PREPARATION

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-002	Hydraulic Fluid
C-072	Hydraulic Fluid
C-410	Tape
C-427	Barrier Material

1. Power Train.

a. Check and service power train system as described in the appropriate Maintenance Manual.

2. Engine.

a. Exercise every precaution to keep the engine and accessories clean. Keep the air intake duct, plenum chamber, and compressor inlet screens clean and free of foreign materials. Clean and preserve engine(s).

b. Start engine(s). (Refer to appropriate Flight Manual.)

NOTE

This engine run procedure may be omitted if helicopter was recently operated and is known to be dry.

c. After warm-up period, operate engine(s) for approximately 10 minutes at 100% N_P/N_R. Check all instruments for normal operation and ensure engine temperature has stabilized. Shut down engine(s). (Refer to appropriate Flight Manual.)

d. Deleted.

e. Install engine(s) inlet plug assemblies and exhaust cover(s). If engine covers are not available, seal air inlet and exhaust openings with barrier material (C-427) and secure with tape (C-410).

f. Cover any additional engine cowling openings in a similar manner as outlined in preceding step e.

g. Record date engine(s) was placed in flyable storage in helicopter records.

3. Hydraulic System(s).

a. Check hydraulic reservoir(s).

NOTE

Refer to applicable Flight Manual for approved hydraulic fluid specification.

b. Service as necessary with hydraulic fluid (C-002) or hydraulic fluid (C-072).

4. Fuel System.

a. Drain water from fuel cells.

NOTE

Fuel cells filled to normal full capacity will reduce fuel contamination by condensation.

b. Service fuel cells to normal full capacity after each engine preservation run.

5. Airframe.

a. Install pitot tube cover(s), or if the cover is not available, wrap pitot tube(s) with barrier material (C-427) and secure with tape (C-410).

b. Install helicopter all-weather covers, if available.

c. Open (pull) all circuit breakers.

d. Close doors.

e. Install static ground wire.

10-6. FLYABLE STORAGE — MAINTENANCE

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-410	Tape
C-427	Barrier Material

1. Inspect helicopters in flyable storage as follows:

2. Perform a preventive maintenance storage inspection at least once every 14 days (more frequently if required by local environmental conditions).

CAUTION

ENSURE IGNITION CIRCUIT BREAKERS ARE OPEN (PULLED) AND FUEL SHUTOFF VALVES ARE CLOSED.

3. To establish inspection program outlined in the Maintenance Manual for storage of helicopters, Chapters 4 and 5 or other applicable Sections, Chapters or documents may be used for areas to be covered and frequency of inspection. The inspection program shall include the following:

a. When helicopter protective covers are not available, areas concerned will be protected with barrier material (C-427) secured with tape (C-410). Barrier material should be installed so as to prevent the accumulation of water on surface. Provide drains if necessary. Replace damaged or deteriorated barrier materials or protective covers.

b. Determine maximum helicopter interior temperatures during hot weather conditions. Temperature information can be obtained from standard thermometers temporarily installed in helicopter. Record interior temperatures at regular intervals during hottest part of day. Ventilate helicopter if interior temperature exceeds 135°F (57°C). Provide forced air ventilation if normal ventilation procedures are not adequate to prevent mildew and corrosion.

c. Inspect and treat helicopter for corrosion. (Refer to Chapter 3 of this manual or CSSD-PSE-87-001.)

d. Inspect static ground wires, rotor tiedown straps, and mooring devices (ropes, cables, rods, or eyes) at regular intervals. Inspect tiedown devices immediately after the helicopter has been subjected to winds exceeding 35 knots. Replace ground wires, mooring devices, or tiedown straps which are deformed or deteriorated.

e. If possible, the helicopter should be stored in a hangar or under a protective cover. Otherwise, it should be parked and moored.

f. Enter the type of storage and the date helicopter was placed in storage in helicopter records.

10-7. FLYABLE STORAGE — DEPRESERVATION AND ACTIVATION

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-304	Drycleaning Solvent

1. Remove protective covers and stow in designated location.

2. Remove all barrier material and tape; remove tape residue with drycleaning solvent (C-304).

3. Clean helicopter as necessary.

4. Open all doors and ventilate helicopter.

5. Remove main rotor and tail rotor tiedowns, if applicable.

6. Perform appropriate post storage inspections in accordance with procedures in the Maintenance Manual.

7. Record date the helicopter was prepared for service in helicopter records.

8. Remove static ground wire installed for storage.

10-8. SHORT TERM STORAGE

Short term storage (1 to 45 days) is used to store a helicopter up to 45 days with very little attention during storage period.

10-9. SHORT TERM STORAGE — GENERAL PREPARATION

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-101	Corrosion Preventive Compound

1. Ensure all removed components are preserved and stowed in suitable containers.

2. Ensure a record of all removed or disconnected parts is provided in helicopter records.

3. Check fuel, oil, and hydraulic lines and hoses for leakage.

4. Lubricate helicopter.

5. Ensure bolts, washers, nuts, etc., which are removed during disassembly, are coated with a light coat of corrosion preventive compound (C-101) and reinstalled, as removed from the component, unless otherwise specified.

6. Record date and type of storage in helicopter records.

10-10. SHORT TERM STORAGE — PRESERVATION

SPECIAL TOOLS REQUIRED

NUMBER	NOMENCLATURE
T-102102	Dehydrator
T-102103	Dehydrator

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-002	Hydraulic Fluid
C-011	Lubricating Oil
C-030	Lubricating Oil
C-072	Hydraulic Fluid
C-101	Corrosion Preventive Compound
C-105	Corrosion Preventive Compound
C-124	Corrosion Preventive Compound
C-125	Preservative Oil
C-304	Drycleaning Solvent
C-410	Tape
C-427	Barrier Material

1. Engine(s) and Power Train System.

NOTE

If engine(s) is/are operable, complete preservation per step a and step b. If engine(s) is/are inoperable, proceed to step f.

NOTE

Use of corrosion preventive compound (C-124) in MIL-PRF-7808 oil is not recommended.

a. Prior to engine runup:

(1) For components serviced with MIL-PRF-23699 lubricating oil (C-011), add corrosion preventive compound (C-124) to the transmission and tail rotor gearbox in the proportion of 5 ounces of concentrate to 1 U.S. quart (15% concentration) of the

oil system capacity. Refer to appropriate Maintenance Manual.

(2) For components serviced with DOD-PRF-85734 lubricating oil (C-030), add corrosion preventive compound (C-124) to the transmission and tail rotor gearbox in the proportion of 1.5 ounces of concentrate to 1 US quart (5% concentration) of the oil system capacity. Refer to appropriate Maintenance Manual.

b. Preserve engine(s). Refer to appropriate engine Maintenance Manual for preservation and depreservation.

c. Clean the exposed metal surfaces of the power train system with a clean cloth dampened with drycleaning solvent (C-304).

d. Check the power train lubrication system including the sight gauges. Service power train lubrication system. Refer to Maintenance Manual.

e. Coat the exposed metal surfaces with corrosion preventive compound (C-101).

NOTE

If the engine(s) is/are inoperable, complete preservation of power train system in accordance with following step f.

f. Remove transmission oil filler cap and tail rotor gearbox filler cap assembly. Install T102102 dehydrator on transmission and T102103 dehydrator on tail rotor gearbox. Cover breather holes in transmission and gearbox with barrier material (C-427) and secure with tape (C-410).

g. Install engine protective inlet plug assemblies and engine protective exhaust cover, or seal openings with barrier material (C-427) and tape (C-410).

h. If engine(s) cannot be motored, preserve power train as follows:

(1) Preserve engine fuel system.

(2) Remove main rotor. Refer to appropriate Maintenance Manual.

(3) Remove mast assembly. Refer to appropriate Maintenance Manual.

NOTE

Use of corrosion preventive compound (C-124) in MIL-PRF-7808 oil is not recommended.

(4) Spray inside of transmission, through top opening, with approximately 1 gallon of applicable lubricating oil mixed with corrosion preventive compound (C-124). Use 5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-23699 lubricating oil (C-011) (15% concentration) or 1.5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-85734 lubricating oil (C-030) (5% concentration). Refer to appropriate Maintenance Manual. While spraying, manually rotate internal gears and bearings with input drive quill. Spray lower end of mast, and into mast bearing.

(5) Install mast assembly. Refer to appropriate Maintenance Manual. Apply corrosion preventive compound (C-105) to all unpainted surfaces of mast assembly. Wipe mast dry with clean lint-free cloth. Apply corrosion preventive compound (C-101) to all unpainted surfaces.

(6) Install main rotor. Refer to appropriate Maintenance Manual.

(7) Be sure tail rotor gearbox has been filled with applicable lubricating oil and corrosion preventive compound (C-124) to the proper level. Use 5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-23699 lubricating oil (C-011) (15% concentration) or 1.5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-85734 lubricating oil (C-030) (5% concentration).

(8) Transmission may have become overfilled during step (4). If so, drain down to proper level. Refer to appropriate Maintenance Manual.

i. Cover cowling openings and breather holes in transmission and gearboxes with barrier material (C-427) and secure with tape (C-410).

2. Fuel System.

a. Drain any water from the fuel cell(s). Maintain fuel cell(s) at the full level for the duration of the storage period. Full fuel cells help reduce fuel contamination by condensation.

3. Hydraulic System(s).

NOTE

Refer to applicable Flight Manual for approved hydraulic fluid specification.

a. Fill hydraulic reservoir(s) with hydraulic fluid (C-002) or hydraulic fluid (C-072).

b. Wipe exposed portions of hydraulic boost cylinder actuator pistons with lint-free cloth moistened with hydraulic fluid (C-002) or hydraulic fluid (C-072).

4. Rotor and Controls.

a. Lubricate rotor system. Refer to applicable Maintenance Manual.

b. Apply corrosion preventive compound (C-105) to all unpainted metal surfaces. Remove any residue of fingerprint remover with drycleaning solvent (C-304).

c. Wipe all parts dry with clean, lint-free cloth, and apply corrosion preventive compound (C-101) on all unpainted metal surfaces not in contact with bearings.

d. Clean main rotor blades.

e. Apply a light, even coat of oil spray preservative oil (C-125) to entire painted area of rotor blades.

f. Purge lubricate all exposed control bearings that require lubrication in accordance with applicable Maintenance Manual.

5. Battery.

a. Disconnect battery and allow to remain in helicopter.

b. Wrap battery quick-disconnects with barrier material (C-427) and secure with tape (C-410).

6. Instruments.

a. Install cover on pitot tube.

b. Apply electrical tape over static ports, as applicable.

7. Avionics Equipment.

a. Remove and store headsets-microphones to an inside storage area.

b. Leave all avionic equipment installed in helicopter.

8. Landing Gear.

a. Place blocks or shoring under skid tubes to provide free air passage.

b. Clean crosstubes and skid tubes, and treat for corrosion (Chapter 3 or CSSD-PSE-87-001).

c. Repaint any exposed metal surfaces. If the paint system cannot be touched up, coat bare metal surfaces with corrosion preventive compound (C-101).

9. Airframe.

a. Park and moor helicopter with main and tail rotor tie-downs installed.

b. Close compartment doors.

c. Close and secure all cowlings, inspection panels, and covers.

d. Close all openings not already covered with barrier material (C-427) and secure with tape (C-410).

e. Open (pull out) all circuit breakers.

f. Install static ground wire.

10-11. SHORT TERM STORAGE — MAINTENANCE

1. Perform applicable portions of storage inspection at least once every 30 days. Visually inspect dehydrators for approximation of the degree of saturation of desiccant. If dehydrator assembly is a dark blue color, this is acceptable. If dehydrator assembly is a light beige or pink color, replace dehydrator with new unit.

2. If conditions change so a helicopter prepared for a short term storage must remain in storage for a longer period of time, represerve the helicopter in accordance with paragraph 10-14. Do not renew short term storage.

3. Engine(s).

a. Refer to appropriate engine Maintenance Manual for preservation and depreservation.

10-12. SHORT TERM STORAGE — INSPECTION

Perform inspection procedures as required to ensure helicopter is maintained in an acceptable storage condition.

Do a preflight inspection.

10-13. SHORT TERM STORAGE — DEPRESERVATION AND ACTIVATION

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-002	Hydraulic Fluid
C-072	Hydraulic Fluid
C-304	Drycleaning Solvent

1. Airframe.

a. Remove protective covers and stow in designated location.

b. Remove all barrier material and tape; remove tape residue with drycleaning solvent (C-304).

c. Open compartment doors and ventilate the helicopter.

d. Remove main and tail rotor tie-downs.

2. Landing Gear.

a. Remove blocks from under skid gear.

3. Avionics.

a. Remove headset-microphones from storage area and install in helicopter.

4. Instruments.

a. Remove pitot tube covers and electrical tape from static ports. Remove tape residue with drycleaning solvent (C-304).

5. Battery.

a. Remove barrier material and tape from quick-disconnect plugs.

b. Service and connect battery. Refer to the Electrical Standard Practices Manual (BHT-ELEC-SPM).

6. Rotor and Controls.

a. Clean main and tail rotor assemblies with drycleaning solvent (C-304). Wipe dry with lint-free cloth.

b. Lubricate in accordance with lubrication chart of appropriate Maintenance Manual.

7. Power Train Assembly.

a. Remove dehydrator assemblies T102102 and T102103 from transmission and tail rotor gearbox. Drain and fill transmission and tail rotor gearbox with new lubricating oil (specification per applicable Flight Manual) in accordance with appropriate Maintenance Manual. Install oil filler caps in transmission and in tail rotor gearbox.

b. Replace transmission oil filter.

c. Clean driveshafts as necessary with drycleaning solvent (C-304).

8. Fuel System(s).

a. Check fuel cells for the presence of water and drain water as necessary.

b. Fill fuel cells as necessary with approved fuel.

9. Hydraulic System(s).

NOTE

Refer to applicable Flight Manual for approved hydraulic fluid specification.

a. Clean exposed portion of all hydraulic boost cylinder actuator pistons with a clean cloth dampened

with hydraulic fluid (C-002) or hydraulic fluid (C-072) and service reservoirs to full level.

b. Coat hydraulic pistons with a light coat of hydraulic fluid (C-002) or hydraulic fluid (C-072).

10. Engine(s).

a. For preservation and depreservation of engine(s) refer to applicable engine Maintenance Manual.

11. Miscellaneous.

a. Clean helicopter as necessary.

b. Ensure all removed components have been reinstalled on the helicopter. Check helicopter records for components that have been removed or disconnected. Check for subsequent installation or connection.

c. Ensure systems have been properly depreserved and serviced before any system or component operational check is performed. Perform necessary inspections and system operational checks as required.

d. Perform necessary inspections and system operational checks as required. Do a preflight inspection.

e. Remove static ground wire installed for storage.

f. Record the date the helicopter was prepared for service in helicopter records.

10-14. INTERMEDIATE STORAGE

Intermediate storage (46 to 180 days) is the type storage to be used for helicopters that will be inactive for more than 45 days but not exceeding 180 days.

10-15. INTERMEDIATE STORAGE — GENERAL STORAGE PROCEDURES

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-011	Lubricating Oil
C-030	Lubricating Oil
C-124	Corrosion Preventive Compound

NOTE

Use of corrosion preventive compound (C-124) in MIL-PRF-7808 oil is not recommended.

Prior to engine runup, add corrosion preventive compound (C-124) to transmission and gearbox oil systems as follows:

a. For components serviced with MIL-PRF-23699 lubricating oil (C-011), add corrosion preventive compound (C-124) to the transmission and tail rotor gearbox in the proportion of 5 ounces of concentrate to 1 U.S. quart (15% concentration) of the oil system capacity. Refer to appropriate Maintenance Manual.

b. For components serviced with DOD-PRF-85734 lubricating oil (C-030), add corrosion preventive compound (C-124) to the transmission and tail rotor gearbox in the proportion of 1.5 ounces of concentrate to 1 U.S. quart (5% concentration) of the oil system capacity. Refer to appropriate Maintenance Manual.

10-16. INTERMEDIATE STORAGE — PREPRESERVATION GENERAL INSPECTION

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-104	Corrosion Preventive Compound

1. Inspect the helicopter in accordance with applicable Maintenance Manual requirements, and as follows:

a. Ensure all removed components are preserved and either stowed in the helicopter or at a designated location as prescribed in the respective paragraph.

b. Main rotor blades should be removed and placed in a metal shipping and storage container and stored under cover.

c. Ensure a record of all removed or disconnected components is entered in helicopter records.

d. Check fuel, oil, and hydraulic lines and hoses for leakage.

e. Lubricate helicopter in accordance with information provided in the appropriate Maintenance Manual.

f. Ensure bolts, washers, nuts, etc., which are removed during disassembly, are coated with a light coat of corrosion preventive compound (C-104) and reinstalled, as removed from the component, unless otherwise specified.

10-17. INTERMEDIATE STORAGE — PRESERVATION

SPECIAL TOOLS REQUIRED

NUMBER	NOMENCLATURE
T102102	Dehydrator
T102103	Dehydrator

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-002	Hydraulic Fluid

MATERIALS REQUIRED (Cont)

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-072	Hydraulic Fluid
C-101	Corrosion Preventive Compound
C-105	Corrosion Preventive Compound
C-125	Preservative Oil
C-304	Drycleaning Solvent
C-410	Tape
C-427	Barrier Material

1. Preserve engine and power train system (paragraph 10-10).

2. Preserve engine(s).

a. Refer to applicable engine Maintenance Manual for preservation and depreservation.

3. Fuel System.

a. Drain and purge fuel cells. Refer to fuel purging information in applicable Maintenance Manual.

4. Hydraulic System(s).

NOTE

Refer to applicable Flight Manual for approved hydraulic fluid specification.

a. Fill hydraulic reservoir(s) with hydraulic fluid (C-002) or hydraulic fluid (C-072).

b. Wipe exposed portions of hydraulic boost cylinder actuator pistons with lint-free cloth moistened with hydraulic fluid (C-002) or hydraulic fluid (C-072).

5. Main Rotor and Controls.

a. Lubricate rotor system.

b. Apply corrosion preventive compound (C-105) to all unpainted metal surfaces. Remove any residue of fingerprint remover with drycleaning solvent (C-304).

c. Wipe all parts dry with clean, lint-free cloth, and apply corrosion preventive compound (C-101) on all unpainted metal surfaces not in contact with bearings.

d. Remove and clean main rotor blades. Refer to applicable Maintenance Manual.

e. Apply a light, even coat of oil spray preservative oil (C-125) to entire painted area of rotor blades. Place blades in a metal shipping and storage container and store under cover.

f. Purge lubricate all exposed control bearings that require lubrication in accordance with applicable Maintenance Manual.

6. Battery.

a. Remove battery and store in appropriate storage area.

b. Clean battery compartment and accessories. Service and store battery (Chapter 12).

c. Wrap battery quick-disconnect plugs with barrier material (C-427) and secure with tape (C-410).

7. Instruments.

a. Install cover on pitot tube. Apply electrical tape over static ports, as applicable.

8. Avionics Equipment.

a. Remove and store headsets-microphones to an inside storage area.

b. Leave all avionic equipment installed in helicopter.

9. Utility Equipment.

a. Remove, apply tag, and store inside in a secure storage area, first aid kit and other equipment subject to mildew or deterioration.

10. Landing Gear.

a. Place blocks or shoring under skid tubes to provide free air passage.

b. Clean crosstubes and skid tubes, and treat for corrosion (Chapter 3 or CSSD-PSE-87-001).

c. Repaint any exposed metal surfaces. If the paint system cannot be touched up, coat bare metal surfaces with corrosion preventive compound (C-101).

11. Airframe.

a. Park and moor helicopter with tail rotor tiedowns installed.

b. Close and secure all cowlings, inspection panels, and covers.

c. Close all openings in the fuselage not already covered with barrier material (C-427), and secure with tape (C-410).

d. Open (pull out) all circuit breakers.

e. Install static ground wire.

10-18. INTERMEDIATE STORAGE — MAINTENANCE

1. Helicopters in intermediate storage will be inspected in accordance with applicable Maintenance Manual and the following instructions:

2. Perform applicable portion of a storage inspection at least once every 30 days in accordance with applicable Maintenance Manual. Visually inspect dehydrator assembly for approximation of the degree of saturation of desiccant. If dehydrator assembly is a dark blue color, this is acceptable. If dehydrator assembly is a light beige or pink color, replace dehydrator with a new unit.

3. If conditions change so a helicopter prepared for intermediate storage must remain in storage for a longer period of time refer to paragraph 10-21.

4. Engine(s).

a. Refer to applicable engine Maintenance Manual.

10-19. INTERMEDIATE STORAGE — INSPECTION

Perform inspection procedures as required to ensure helicopter is maintained in an acceptable storage condition.

Do a preflight inspection.

10-20. INTERMEDIATE STORAGE — DEPRESERVATION AND ACTIVATION

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-002	Hydraulic Fluid
C-072	Hydraulic Fluid
C-304	Drycleaning Solvent

1. Airframe.

a. Remove protective covers and stow in designated location.

b. Remove all barrier material and remove tape residue with drycleaning solvent (C-304).

c. Open all compartment doors and ventilate helicopter.

d. Remove tail and main rotor tie-downs.

2. Landing Gear.

a. Remove blocks from under skid gear.

3. Avionics.

a. Remove headset-microphones from storage and install in helicopter.

4. Instruments.

a. Remove pitot tube cover and store with other protective covers.

b. Remove barrier material and tape from static vents in airspeed system; remove tape residue with drycleaning solvent (C-304).

5. Battery.

a. Remove battery from storage. Service and verify charge in accordance with Electrical Standard Practices Manual (BHT-ELEC-SPM). Install in helicopter.

b. Remove barrier material and tape from quick-disconnect plugs.

c. Connect battery.

6. Rotor and Controls.

a. Clean main and tail rotor assemblies with drycleaning solvent (C-304). Wipe dry with lint-free cloth.

b. Install main rotor blades. Refer to applicable Maintenance Manual.

c. Lubricate in accordance with applicable Maintenance Manual instructions.

7. Utility Equipment.

a. Remove first aid kit(s) and other equipment, from storage and install in helicopter.

8. Hydraulic System(s).

NOTE

Refer to applicable Flight Manual for approved hydraulic fluid specification.

a. Clean exposed portion of hydraulic boost cylinder actuator pistons with clean cloth dampened with hydraulic fluid (C-002) or hydraulic fluid (C-072).

b. Coat hydraulic pistons with a light coat of hydraulic fluid (C-002) or hydraulic fluid (C-072).

c. Service hydraulic reservoir(s) with hydraulic fluid (C-002) or hydraulic fluid (C-072). Refer to applicable Maintenance Manual.

9. Fuel System.

a. Drain any water from the fuel cells.

b. Fill fuel cells as required with approved fuel. Refer to applicable Flight Manual.

c. Accomplish engine fuel system priming in accordance with engine Maintenance Manual.

10. Power Train Assembly.

a. Remove dehydrator assemblies T102102 and T102103 from transmission and tail rotor gearbox. Drain and fill transmission and tail rotor gearbox with new lubricating oil (specification per applicable Flight Manual) in accordance with applicable Maintenance Manual. Install oil filler cap in transmission and tail rotor gearbox assembly.

b. Replace transmission oil filter.

c. Clean driveshafts as necessary with drycleaning solvent (C-304).

11. Engine(s).

a. Refer to applicable engine Maintenance Manual for preservation and depreservation.

12. Miscellaneous.

a. Clean helicopter as necessary.

b. Ensure all removed components have been installed. Check helicopter records for a record of components that have been removed or disconnected. Check for subsequent installation or connection.

c. Ensure systems have been properly depreserved and serviced before any system or component operational check is performed.

d. Perform necessary inspections and system operational checks as required. Do a preflight inspection.

e. Remove static ground wire installed for storage.

f. Record the date helicopter was prepared for service in helicopter records.

10-21. LONG TERM STORAGE

For storage beyond 180 days renew Intermediate Storage procedures in accordance with paragraph 10-14 through paragraph 10-19.

10-22. COMPONENT STORAGE — GENERAL

This portion of the chapter gives the preparation procedures to put the parts, sub-assemblies, and components in storage for different lengths of time. The instructions for depreservation are also given. The procedures are divided into four categories of storage: the parts and sub-assemblies temporary storage (1 to 14 days) (paragraph 10-24), the parts and sub-assemblies long term storage (15 to 180 days) (paragraph 10-25), component temporary storage (1 to 180 days) (paragraph 10-26), and component long term storage (180 to 365 days) (paragraph 10-33).

1. You must wear rubber or canvas gloves when you do the preservation steps for the parts.

2. Do not preserve the self-lubricating bearings (Teflon lined or oil impregnated).

3. Do not use newspaper, supermarket bags, tissue paper, or disposable wipers to wrap the parts or components.

4. Do not apply the preservative to the parts that have elastomeric rubber. When you store elastomeric material, you must keep it away from circulating air, sunlight, fuel, oil, water, dust, and ozone (generated by electric arc, fluorescent lamps, and other equivalent electrical equipment).

5. The parts and sub-assemblies that are in long term storage (15 to 180 days) and the components that are in temporary storage (1 to 180 days) or long term storage (180 to 365 days) must be examined every 30 days for condition.

6. Desiccant material in the plug of dehydrators has a dark blue color. If the color changes to beige or pink, change the plug or the dehydrator desiccant material in the plug.

10-23. STORAGE — ENVIRONMENTAL CONDITIONS

The storage instructions are applicable if the parts, sub-assemblies, or components are stored in the controlled conditions that follow:

- Temperature: 40 to 80°F (4 to 27°C)
- Relative humidity: 50% maximum

10-24. PARTS AND SUB-ASSEMBLIES — TEMPORARY STORAGE (1 TO 14 DAYS)

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-105	Corrosion Preventive Compounds
C-304	Drycleaning Solvent
C-516	Low-lint Cleaning Cloth

1. Clean the parts and sub-assemblies per Chapter 5 and/or special instructions given in the applicable cleaning section of the applicable manual.

NOTE

Only exposed metal is subject to application of corrosion preventive compound (C-105) or preservative. Painted surfaces must be protected.

2. For parts or sub-assemblies that cannot be fully placed into preservative, do the steps that follow:

a. Apply a layer of corrosion preventive compound (C-105) to the necessary surfaces with a clean low-lint cleaning cloth (C-516).

b. Apply a layer of applicable preservative (Table 10-1) to the surfaces with a clean low-lint cleaning cloth (C-516).

3. For parts or sub-assemblies that can be fully placed into preservative, do the steps that follow:

a. Gently shake the part or sub-assembly in corrosion preventive compound (C-105) for 2 minutes.

b. Drain the corrosion preventive compound (C-105) from the part or sub-assembly.

c. Flush the part or sub-assembly in drycleaning solvent (C-304).

d. Dry the part or sub-assembly with filtered compressed air.

e. Apply a layer of applicable preservative (Table 10-1) to the part or sub-assembly by dipping or by brush.

4. Put the part or sub-assembly in a controlled and dust-free environment.

5. If 14-day storage needs to be extended, examine the corrosion protective coat and apply a coat of system lubricant to the part or sub-assembly, as necessary. If the conditions change and the part or sub-assembly must stay in storage, do the long term storage (15 to 180 days) procedure (paragraph 10-25).

CAUTION

MAKE SURE THAT ALL OF THE LUBRICATION PASSAGES ARE CLEAN AND FREE OF OBSTRUCTION.

6. If you have to use the part or sub-assembly, refer to Chapter 5 for instructions on how to clean the part or sub-assembly before you use it.

10-25. PARTS AND SUB-ASSEMBLIES — LONG TERM STORAGE (15 TO 180 DAYS)

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-105	Corrosion Preventive Compound
C-304	Drycleaning Solvent
C-410	Tape
C-427	Barrier Material
MIL-B-22191	Plastic Material

1. Clean the parts and sub-assemblies per Chapter 5 and/or special instructions given in the applicable cleaning section of the applicable manual.

NOTE

Only exposed metal is subject to application of corrosion preventive compound (C-105) or preservative. Painted surfaces must be protected.

2. For parts or sub-assemblies that cannot be fully placed into preservative, do the steps that follow:

a. Apply a layer of corrosion preventive compound (C-105) to the necessary surfaces with a clean low-lint cleaning cloth (C-516).

b. Apply a layer of applicable preservative (Table 10-1) to the surfaces with a clean low-lint cleaning cloth (C-516).

3. For parts or sub-assemblies that can be fully placed into preservative, do the steps that follow:

a. Gently shake the part or sub-assembly in corrosion preventive compound (C-105) for 2 minutes.

b. Drain the corrosion preventive compound (C-105) from the part or sub-assembly.

c. Flush the part or sub-assembly in drycleaning solvent (C-304).

d. Dry the part or sub-assembly with filtered compressed air.

e. Apply a layer of applicable preservative (Table 10-1) to the part or sub-assembly by dipping or by brush.

4. After the preservation is completed, individually wrap the part into barrier material (C-427) and safety with tape (C-410) or put the part in a bag made of plastic material (MIL-B-22191) and do a heat seal or safety with tape (C-410).

5. If the condition requires that the storage be extended, examine the corrosion protective coat and apply a new coat of corrosion protective preservative to the part or sub-assembly if necessary. You will extend the storage time for 180 days. Do this procedure each time the storage time needs to be extended.

CAUTION

MAKE SURE THAT ALL OF THE LUBRICATION PASSAGES ARE CLEAN AND FREE OF OBSTRUCTION.

6. If you have to use the part or sub-assembly, refer to Chapter 5 for instructions on how to clean the part or sub-assembly before you use it.

10-26. COMPONENTS — TEMPORARY STORAGE (1 TO 180 DAYS)

Refer to Chapter 5 for instructions on how to clean the exposed metal surfaces of a component.

If the conditions change and the component must stay in storage, apply a coat of preservative to the component as described in Table 10-1. For the transmission, intermediate and the tail rotor gearbox, do the preservation in agreement with the long term storage (180 to 365 days) (paragraph 10-33).

If you have to use the component, refer to Chapter 5 for instructions on how to clean the part or sub-assembly before you use it. Always drain residual oil and fill with new oil in accordance with applicable Maintenance Manual. Refer to Flight Manual for approved oils. Make sure the transmission intermediate or the tail rotor gearbox are not overfilled.

10-27. Main Rotor Hub — Temporary Storage (1 to 180 days)

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-410	Tape
C-427	Barrier Material
MIL-B-22191	Plastic Material

1. Apply a protective coat to the main rotor hub as described in Table 10-1.

CAUTION

IF APPLICABLE, DO NOT APPLY THE PRESERVATIVE TO PARTS THAT HAVE ELASTOMERIC RUBBER.

2. Wrap the main rotor hub in barrier material (C-427) or plastic material (MIL-B-22191) and safety with tape (C-410).

3. If there are elastomeric rubber parts in the main rotor hub, put the main rotor hub away from circulating air, sunlight, fuel, oil, water, dust, and ozone (generated by electric arc, fluorescent lamps, and other equivalent equipment).

10-28. Swashplate — Temporary Storage (1 to 180 days)

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-410	Tape
C-427	Barrier Material
MIL-B-22191	Plastic Material

1. Apply a protective coat to the swashplate as described in Table 10-2.

2. Refer to applicable Maintenance Manual and purge lubricate the swashplate.

3. Wrap the swashplate in barrier material (C-427) or plastic material (MIL-B-22191) and safety with tape (C-410).

10-29. Mast — Temporary Storage (1 to 180 days)

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-011	Lubricating Oil
C-030	Lubricating Oil
C-410	Tape
MIL-B-22191	Plastic Material

NOTE

Refer to applicable Flight Manual for specification of lubricating oil.

1. Spray lubricating oil (C-011) or lubricating oil (C-030) in the mast and mast bearing.

2. Apply a protective coat to the mast per Table 10-1.

3. Wrap the lower mast end (include the bearing and the support sub-assembly) in plastic material (MIL-B-22191) and safety with tape (C-410).

10-30. Freewheel — Temporary Storage (1 to 180 days)

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-011	Lubricating Oil
C-030	Lubricating Oil
C-410	Tape
C-427	Barrier Material
MIL-B-22191	Plastic Material

NOTE

Refer to applicable Flight Manual for specification of lubricating oil.

1. Ensure the internal components of the freewheel have a coating of lubricating oil (C-011) or lubricating oil (C-030).

2. Apply a protective coat to the freewheel per Table 10-1.

3. Wrap the freewheel in barrier material (C-427) or plastic material (MIL-B-22191) and safety with tape (C-410).

10-31. Transmission — Temporary Storage (1 to 180 days)

SPECIAL TOOLS REQUIRED

NUMBER	NOMENCLATURE
(1)	Transmission Cover and Lift Plate Assembly
T102102	Dehydrator

NOTE:

(1) Refer to the applicable Maintenance Manual (MM) for the part number.

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-011	Lubricating Oil
C-030	Lubricating Oil
C-410	Tape
C-427	Barrier material
MIL-B-22191	Plastic Material

NOTE

Refer to applicable Flight Manual for specification of lubricating oil.

1. Spray lubricating oil (C-011) or lubricating oil (C-030) in the transmission. Rotate and ensure all gears, bearings and surfaces are coated. Drain the transmission.

2. Apply a protective coat to the transmission per Table 10-1.

3. Wrap the transmission in barrier material (C-427) or plastic material (MIL-B-22191) and safety with tape (C-410).

10-32. Intermediate/Tail Rotor Gearbox — Temporary Storage (1 to 180 days)

SPECIAL TOOLS REQUIRED

NUMBER	NOMENCLATURE
(1)	Transmission Cover and Lift Plate Assembly
T102103	Dehydrator

NOTE:

(1) Refer to the applicable Maintenance Manual (MM) for the part number.

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-011	Lubricating Oil
C-030	Lubricating Oil
C-410	Tape
C-427	Barrier Material
MIL-B-22191	Plastic Material

NOTE

Refer to applicable Flight Manual for specification of lubricating oil.

1. Spray lubricating oil (C-011) or lubricating oil (C-030) in the tail rotor gearbox. Rotate and ensure all gears, bearings and surfaces are coated. Drain the gearbox.

2. Apply a protective coat to the tail rotor gearbox per Table 10-1.

3. Wrap the tail rotor gearbox in barrier material (C-427) or plastic material (MIL-B-22191) and safety with tape (C-410).

10-33. COMPONENTS — LONG TERM STORAGE (180 TO 365 DAYS)

To do the long term storage (180 to 365 days) of the main rotor hub, swashplate, mast, and freewheel, do the procedure for temporary storage (1 to 180 days) every 180 days (paragraph 10-26).

If the conditions change and the transmission, intermediate or the tail rotor gearbox must stay in storage, apply a coat of preservative to the component as described in Table 10-1. Drain the residual oil mixture from the component and do the spray procedure again. Refer to paragraph 10-34 and paragraph 10-35.

If you have to use the component, refer to Chapter 5 for instructions on how to clean a part or sub-assembly before you use it. Always drain the residual oil mixture and fill with new oil in accordance with applicable Maintenance Manual. Refer to Flight Manual for approved oils.

10-34. Transmission — Long Term Storage (180 to 365 days)

SPECIAL TOOLS REQUIRED

NUMBER	NOMENCLATURE
△1	Transmission Cover and Lift Plate Assembly

SPECIAL TOOLS REQUIRED (Cont)

NUMBER	NOMENCLATURE
T102102	Dehydrator

NOTE:

△1 Refer to the applicable Maintenance Manual (MM) for the part number.

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-011	Lubricating Oil
C-030	Lubricating Oil
C-124	Corrosion Preventive Compound
C-410	Tape
C-427	Barrier Material
MIL-B-22191	Plastic Material

NOTE

Refer to applicable Flight Manual for specification of lubricating oil.

NOTE

Use of corrosion preventive compound (C-124) in MIL-PRF-7808 oil is not recommended.

1. Spray inside of transmission, through top opening, with approximately 1 gallon of applicable lubricating oil mixed with corrosion preventive compound (C-124). Use 5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-23699 lubricating oil (C-011) (15% concentration) or 1.5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-85734 lubricating oil (C-030) (5% concentration). While spraying, manually rotate internal gears and bearings with input drive quill. Ensure all gears, bearings and surfaces are coated. Drain the transmission.

2. Apply a protective coat to the external areas described in Table 10-1.

3. Wrap the transmission in barrier material (C-427) or plastic material (MIL-B-22191) and safety with tape (C-410).

10-35. Intermediate/Tail Rotor Gearbox — Long Term Storage (180 to 365 days)

SPECIAL TOOLS REQUIRED

NUMBER	NOMENCLATURE
⚠1	Transmission Cover and Lift Plate Assembly
T102103	Dehydrator

NOTE:

⚠1 Refer to the applicable Maintenance Manual (MM) for the part number.

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-011	Lubricating Oil
C-030	Lubricating Oil
C-124	Corrosion Preventive Compound
C-410	Tape

MATERIALS REQUIRED

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-427	Barrier Material
MIL-B-22191	Plastic Material

NOTE

Refer to applicable Flight Manual for specification of lubricating oil.

NOTE

Use of corrosion preventive compound (C-124) in MIL-PRF-7808 oil is not recommended.

1. Be sure intermediate or tail rotor gearbox has been filled with applicable lubricating oil and corrosion preventive compound (C-124) to the proper level. Use 5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-23699 lubricating oil (C-011) (15% concentration) or 1.5 ounces of corrosion preventive compound (C-124) per 1 US quart of MIL-PRF-85734 lubricating oil (C-030) (5% concentration). To coat internal component surfaces with oil, manually rotate internal gears and bearings with input drive. Ensure all gears, bearings and surfaces are coated. Drain the gearbox.

2. Apply a protective coat to the external areas described in Table 10-1.

3. Wrap the tail rotor gearbox in barrier material (C-427) or plastic material (MIL-B-22191) and safety with tape (C-410).

Table 10-1. Preservation Requirement

ITEM	MATERIAL AND/OR ITEM	PROCEDURE OF PRESERVATION	PRESERVATIVE ⚠1
1	**Aluminum alloy parts** Bare, not fully anodized, not fully chemical film treated, or not fully painted.	Apply a coat of preservative to the bare surfaces.	PR-1 or PR-2
2	**Bearings** 1. Sealed or shielded – grease lubricated. 2. Oil lubricated. 3. Teflon lined.	1. Purge the lubricant and apply a coat of preservative to the bare and external surfaces of the bearing. 2. Apply a coat of preservative to the surfaces of the bearing. 3. Individually wrap in barrier material.	1. PR-3 2. PR-4 3. None
3	**Ferrous (steel) parts, or a ferrous part in an aluminum or magnesium sub-assembly (bearing liner)** 1. Bare, not fully painted or plated, or not fully coated with a solid film lubricant. 2. Black oxide coated parts.	1. Apply a coat of preservative to the bare surface. 2. Apply a coat of preservative to black oxide coated parts.	1. PR-1 or PR-2 2. PR-5
4	**Magnesium parts** Bare or Dow 19 treated or not fully painted.	Apply a coat of preservative to the bare and Dow 19 treated surfaces.	PR-5

NOTE:

⚠1 Refer to Table 10-2 for the identification of the preservatives.

Table 10-2. Preservatives Identification

TYPE	DESCRIPTION	MATERIAL CODE OR SPECIFICATION
PR-1	Thin film preservative (soft film, cold application)	Corrosion preventive compound (C-104)
PR-2	Preservative oil	MIL-L-21260, Type I, Grade 10, 30, or 50 or Type II, Grade 10 or 30 (C-578)
PR-3	Grease	Grease (C-001), unless otherwise stated in applicable Maintenance Manual, Mobile 28 is preferred
PR-4	Low volatile preservative oil	Lubricating oil (C-020)
PR-5	Preservative oil	MIL-C-6085, Type II (C-579)