

## CHAPTER 5 — CLEANING

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## CLEANING

### 5-1. CLEANING

#### NOTE

For detailed description of recommended cleaning agents, refer to [Chapter 11](#).

### 5-2. UPHOLSTERY

#### MATERIALS REQUIRED

Refer to [Chapter 13](#) for specifications.

NUMBER	NOMENCLATURE
C-305	Aliphatic Naphtha



UPHOLSTERY MUST ONLY BE CLEANED WITH AGENTS SPECIFIED ON MANUFACTURERS MATERIAL CARE TAG. IF NO CLEANING AGENT IS SPECIFIED, USE ALIPHATIC NAPHTHA (C-305), COMMERCIAL DRYCLEANING SOLVENT OR EQUIVALENT. DUE TO VARIOUS MATERIALS BEING CLEANED, TESTING SHOULD BE ACCOMPLISHED IN AN INCONSPICUOUS AREA.

ANY FLAMMABLE SOLVENT THAT MAY AFFECT MATERIAL FLAMMABILITY SHOULD BE COMPLETELY REMOVED AFTER CLEANING.

### 5-3. CARPET

#### MATERIALS REQUIRED

Refer to [Chapter 13](#) for specifications.

NUMBER	NOMENCLATURE
C-305	Aliphatic Naphtha



CARPET CLEANING AGENTS SHOULD BE USED WITH CARE TO PREVENT DAMAGE TO UNDERLYING METAL SURFACES. CARPET MUST BE REMOVED FROM HELICOPTER FOR CLEANING. ALLOW CARPET TO DRY PRIOR TO REINSTALLATION.

Clean carpet using aliphatic naphtha (C-305) or any good grade commercial drycleaning solvent.

### 5-4. HEADLINER AND TRIM PANELS

#### MATERIALS REQUIRED

Refer to [Chapter 13](#) for specifications.

NUMBER	NOMENCLATURE
C-305	Aliphatic Naphtha
C-355	Detergent
C-385	Isopropyl Alcohol



99% ISOPROPYL ALCOHOL (C-385) IS FLAMMABLE AND TOXIC. DO NOT INGEST OR INHALE. ISOPROPYL ALCOHOL MAY REMOVE LUBRICANTS OR PRESERVATIVES AND MAY SOFTEN SOME PLASTICS. DO NOT USE ON WINDOWS OR WINDSHIELDS.



USE SOLVENTS SPARINGLY. CERTAIN SOLVENTS MAY SOFTEN OR DULL MATERIAL. TEST IN AN INCONSPICUOUS AREA.

1. Clean headliner and trim panel using aliphatic naphtha (C-305) or isopropyl alcohol (C-385), which should be suitable for most materials. Test inconspicuous area.
2. Finish cleanup with mild soap or detergent (C-355) and clean water.

3. Allow surfaces to air dry.
4. Minor scratches may be reduced or removed by using cleaner (C-330).
5. Apply cleaner (C-330) with a clean soft cloth or tissue in a circular motion until clean. Polish with another clean, soft, cotton cloth.

**5-5. PLASTIC AND GLASS**

**MATERIALS REQUIRED**

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-304	Drycleaning Solvent
C-305	Aliphatic Naphtha
C-330	Cleaner
C-355	Detergent
C-385	Isopropyl Alcohol



IF REQUIRED, IN PLACE OF DETERGENT (C-355), USE ALIPHATIC NAPHTHA (C-305) ONLY. MOST MATERIALS USED IN THESE AREAS ARE PRONE TO SOLVENT DAMAGE. THIS INCLUDES COATED GLASS WINDSHIELDS.

WHEN CLEANING ADJACENT AREAS OR TOUCHING UP PAINT, BE EXTREMELY CAREFUL TO PROTECT TRANSPARENT AREAS FROM SOLVENT SPLASH, FUMES, AND PAINT OVERSPRAY.

6. If required, transparent areas such as windshields, windows, and sight glasses may also be cleaned using or aliphatic naphtha (C-305).



DO NOT USE COMPOUNDS CONTAINING ABRASIVES OR CHLORINATED HYDROCARBONS. AVOID EXCESSIVE SCRUBBING OR POLISHING OF PLASTIC PANELS. HEAT BUILDUP MAY DAMAGE PLASTIC PANELS.

REMOVE RINGS, WATCHES, AND HARD OBJECTS FROM HANDS AND WRISTS BEFORE WASHING TRANSPARENT PANELS.

1. Clean acrylic plastic windshields and windows with large quantities of clean water and a solution of detergent (C-355). Gently free all insects or dirt with soft pads or fingers. Do not use sponges or coarse cloths. Rinse the area continuously while removing insects or dirt.
2. Flush entire area thoroughly with clean water.



WHEN CLEANING OR TOUCHING UP PAINT ON ADJACENT SURFACES, PROTECT PLASTIC AND FIBER REINFORCED PLASTICS FROM SOLVENT SPLASH, FUMES, OR PAINT OVERSPRAY.

DO NOT VAPOR DEGREASE OR SOAK PLASTIC OR FIBER REINFORCED PLASTICS IN ANY SOLVENT.

7. Opaque plastic parts such as heater, air ducts, door, window trim, or shields, covers and fiber reinforced plastics such as fiberglass, graphite, or polycarbonate (Kevlar) shall be degreased using only isopropyl alcohol (C-385), aliphatic naphtha (C-305), or drycleaning solvent (C-304).

**5-6. USE OF HIGH-PRESSURE WASHERS**



BELL HELICOPTER RECOMMENDS THAT HIGH PRESSURE WASHERS NOT BE USED FOR THE PURPOSE OF CLEANING HELICOPTERS OR COMPONENTS.

Operators using high pressure washers need to be aware of the implication when using this type of equipment (Information Letter (IL) GEN-03-95).

The use of high pressure washers has been a primary source of water contamination. Concentration of high-pressure spray will physically push water past gearbox seals and packings, breathers, and caps. The mixture of oil, water, and soap is detrimental to the gears, bearings, and cases of the gearboxes.

High pressure washers will push water past grease-coupling seals and fill the coupling with water and soap. It will also push water past the electrical connectors and backshells. Corroded connectors, pins, and receptacles are liable to cause multiple electrical failures and faults.

Some of our customers have experienced fuel system contaminations attributed to high pressure washers (OSN-GEN-95-26).

It is possible that high pressure washers will push water underneath paint coatings through minute cracks. Trapped water and soap will induce corrosion that will be unnoticed during a visual inspection. When the damage appears, it might be too late to salvage the affected part.

With this information, Bell Helicopter Textron wants to place emphasis on the importance of the proper procedures and advise operators to review their processes and equipment.

**5-7. HYDRAULIC ASSEMBLIES AND SERVICING UNITS**

**MATERIALS REQUIRED**

Refer to [Chapter 13](#) for specifications.

NUMBER	NOMENCLATURE
C-304	Drycleaning Solvent



DO NOT USE ISOPROPYL ALCOHOL TO CLEAN HYDRAULIC ASSEMBLIES. A STICKY ACRYLIC RESIN WILL FORM AND CAN PREVENT CORRECT OPERATION OF COMPONENTS.

Clean hydraulic assemblies and servicing units using drycleaning solvent ([C-304](#)).

**5-8. BEARINGS**

**MATERIALS REQUIRED**

Refer to [Chapter 13](#) for specifications.

NUMBER	NOMENCLATURE
C-304	Drycleaning Solvent
C-305	Aliphatic Naphtha



DO NOT ROTATE BEARINGS WITH COMPRESSED AIR.

1. Clean ball bearings and roller bearings using drycleaning solvent ([C-304](#)) and blow dry with compressed air.

2. Clean du-metal and fabric lined (Teflon) rod end, and other bearings using aliphatic naphtha ([C-305](#)) or drycleaning solvent ([C-304](#)). Blow dry thoroughly using compressed air or hair dryer.

## 5-9. METALS (EXCEPT TITANIUM)

**CAUTION**

### MATERIALS REQUIRED

Refer to [Chapter 13](#) for specifications.

NUMBER	NOMENCLATURE
C-304	Drycleaning Solvent
C-305	Aliphatic Naphtha
C-385	Isopropyl Alcohol
C-563	Perchloroethylene

SOLVENTS MUST BE USED AT AMBIENT TEMPERATURE. DO NOT USE STRONG SOLVENTS, SUCH AS MEK, ACETONE, LACQUER THINNER, ETC.

3. Metal parts with adhesive bonded joints shall be cleaned with aliphatic naphtha (C-305), or drycleaning solvent (C-304).

**CAUTION**

1. Bare metals — no paint, adhesive, rubber etc.:

- a. Grease, oil, and corrosion preventive compounds may be removed by vapor degreasing or solvent cleaning.

#### NOTE

Make sure materials used are inhibited vapor degreasing quality solvents.

- b. Vapor degreasing may be accomplished by using the following chlorinated solvent:

- (1) Perchloroethylene (C-563) — use at 248 to 252°F (120 to 122°C).

- c. Solvent cleaning may be accomplished using the above materials or similar solvents at ambient temperature or by using aliphatic naphtha (C-305), drycleaning solvent (C-304), mineral spirits, paint thinners, etc.

2. Painted metal parts:

- a. If part is to be stripped and repainted any solvent suitable for bare metal may be used.

- b. If the painted part is to be installed without stripping and repainting, solvents must be used at ambient temperature only. Also, solvents such as MEK (C-309), acetone (C-316), lacquer thinner (C-206) and other strong solvents which attack the paint must be avoided.

DO NOT SOAK RUBBER PARTS IN SOLVENT. DO NOT VAPOR DEGREASE AND DO NOT USE CHLORINATED SOLVENTS SUCH AS, TRI-CHLOROETHANE, TRICHLOROETHYLENE AND PERCHLOROETHYLENE. USE SOLVENTS SPARINGLY.

4. Metal parts containing rubber such as, elastomeric bearings, grease and oil seals, and rubber boots shall be cleaned using aliphatic naphtha (C-305), isopropyl alcohol (C-385), or drycleaning solvent (C-304).

## 5-10. TITANIUM

### MATERIALS REQUIRED

Refer to [Chapter 13](#) for specifications.

NUMBER	NOMENCLATURE
C-304	Drycleaning Solvent
C-305	Aliphatic Naphtha
C-306	Toluene
C-309	MEK
C-385	Isopropyl Alcohol
C-395	Cleaner



DO NOT VAPOR DEGREASE AND DO NOT USE CHLORINATED SOLVENTS.

1. Clean titanium parts using cleaner (C-395), isopropyl alcohol (C-385), aliphatic naphtha (C-305), drycleaning solvent (C-304), or toluene (C-306).

**NOTE**

If vapor degreasing or chlorinated hydrocarbons are used inadvertently, part should be alkaline cleaned, rinsed and dried, or scrubbed with soap and water, rinsed and thoroughly dried, before assembly.

2. If paint or solid film lubricant must be removed from titanium, use MEK (C-309) or nonchlorinated paint remover.s

**5-11. TREATMENT OF FUNGUS**

Fungi growth is ideal in an environment with a temperature between 68 to 104°F (20 to 40°C) with relative humidity of 85 to 100%. Most paint type coatings used in the helicopter are resistant to fungi, but small amounts of dust, debris, oils or lubricants may accumulate and promote fungal growth. Paint damage may result.

**5-12. INSPECTION FOR FUNGUS**

Inspect all closed compartments and areas for fungus growth. Pay particular attention to the following:

1. Nose section interior
2. Baggage compartment
3. Under the floor
4. Tailboom interior
5. Behind sound deadening on the bulkheads and overhead

6. Closed compartment interiors
7. Cowling interiors
8. Float covers
9. In and around doors
10. Under and behind auxiliary tanks.

**5-13. CLEANING OF FUNGUS**

**MATERIALS REQUIRED**

Refer to Chapter 13 for specifications.

NUMBER	NOMENCLATURE
C-304	Drycleaning Solvent
C-355	Detergent
C-385	Isopropyl Alcohol



99% ISOPROPYL ALCOHOL (C-385) MAY REMOVE LUBRICANTS AND PRESERVATIVES, BUT MAY SOFTEN SOME PLASTICS. DO NOT USE ON ACRYLIC OR POLYCARBONATE WINDOWS OR WINDSHIELDS.

1. Clean the area of fungus growth with drycleaning solvent (C-304) to remove grease and oil residue.
2. Remove debris or foreign matter with detergent (C-355) and water.
3. Allow area to dry or wipe dry with clean cloth.
4. Treat area of fungal growth with 99% isopropyl alcohol (C-385) and wipe with a clean cloth or sponge.

