

PAINTING OF ARMY EQUIPMENT

REPAIR POLICY FOR EQUIPMENT PAINTED IN POLYURETHANE PAINT

GENERAL INSTRUCTION

This instruction is authorised for use by command of the Chief of Army. It provides direction, mandatory controls and procedures for the operation, maintenance and support of equipment. Personnel are to carry out any action required by this instruction in accordance with EMEI General A 001.

Introduction

1. Polyurethane paint (PUP) has been introduced into service due to the high quality, durable finish which provides a tough and fade resistant surface. PUP systems are also available as chemical agent resistant coatings (CARC), which provide superior resistance to chemical warfare agent penetration and greatly simplify decontamination. PUP is also produced with specific infra-red (IR) and near infra-red (NIR) reflectance, which can either reduce the equipment's signature or reduce solar heat absorption.

WARNING

Paint systems are to be applied or repaired in accordance with appropriate and applicable material safety data sheets (MSDS).

NOTE

Policies for PUP systems are published in associated publications which are referenced in this document and must be read in addition to this instruction.

DI(A)Tech 15-1 indicates the equipment that PUP systems will be applied to, subject to rebuild and/or overhaul programs.

Associated Publications

2. Reference may be necessary to the following documentation:
- a. Technical Regulation of ADF Materiel Manual - Land ([TRAMM-L](#));
 - b. Defence Safety Manual ([SAFETYMAN](#));
 - c. [DI\(A\) Tech 15-1](#) – Australian Army Equipment Painting Policy;
 - d. [APAS Specification 0154/3](#) – Polyurethane Finishing System for Vehicles and Equipment – Low Gloss Camouflage Topcoat;
 - e. [APAS Specification 0154/6](#) – Epoxy Primer for Polyurethane Finish for Steel Vehicles and Equipment;
 - f. [APAS Specification 0162/1](#) – Zinc Phosphate Metal Primer;
 - g. [APAS Specification 0165/1](#) – Alkyd Disruptive Pattern Paint - Conventional Infra Red (IR) Reflectance;
 - h. [AS/NZS 1580 Series](#) – Paints and Related Materials – Methods of Test;
 - i. [EMEI Workshop E 651](#) – Spray Painting and Spray Booths;
 - j. [EMEI Workshop E 652](#) – Application and Removal of Polyurethane Paints and Solvents;
 - k. [EMEI Workshop D 700](#) – Basic Painting Principles; and
 - l. Access to (SDS) for view or print now available via the [Chem Alert 2](#) database.
3. Army policy dictates that PUP is applied to new or in-service equipment subject to rebuild or complete overhaul programs.

4. PUP is a two part compound material. One compound generally contains polyester, pigments and other additives. The second compound contains aliphatic polyisocyanates and solvents. When these two components are mixed, the resultant paint may be applied by spray, brush or roller methods, until the mix has commenced curing.

NOTE

When mixed, pot life is nominally four hours.

5. The use of PUP produces toxic waste. Waste includes excess cured paint, dust from sanding/grinding, affected personal protective equipment (PPE), solvents and contaminated filters. All waste products require particular handling and disposal procedures to protect both personnel and the environment.

Occupational Health and Safety.

6. There are considerable health risks inherent in the use of PUP and repairs to PUP surfaces. Safety precautions, including the use of PPE must be in accordance with the directions of SAFETYMAN and EMEI Workshops E 652.

WARNING

PUP contains poly-functional isocyanates that are toxic in low concentrations and is a respiratory and skin irritant. Personnel handling, mixing, spraying or repairing PUP coatings must wear suitable PPE, use suitable facilities and adopt appropriate safety systems.

PUP is most toxic as a liquid. Dry PUP is less hazardous but must be treated as industrial waste. Fine PUP particles from sanding are eye and lung irritants.

Maintenance Activities

7. Maintenance activities associated with PUP are:

- a. **Surface Preparation.** This involves the preparation of PUP surfaces under controlled conditions.
- b. **Application.** Specifically, this means the application of PUP and alternative paints over PUP within units authorised to do so.
- c. **Repair.** Repairs involving heating and welding to equipment coated in PUP are to be conducted under controlled conditions.

8. Detailed procedures for each maintenance activity are given in EMEI Workshop D 700.

Repair Policy

9. Painting with PUP is not permitted at light or medium level maintenance facilities. When equipment painted in PUP is repaired as Light And Medium Grade Repairs (i.e. by unit tradespersons or light and medium repair facilities) any painting required will be carried out by patch painting with enamel (alkyd) paint systems in accordance with EMEI Workshop E 652, when surface preparation involving removal of PUP is carried out.

10. Painting with PUP is only permitted at nominated Heavy Grade Repair facilities on designated equipment. PUP facilities require, as a minimum, the following Australian Standard compliant features:

- a. a painting booth that can be sealed, to prevent the escape of PUP contaminates, during spraying or clean up processes;
- b. a ventilation system that is capable of removing suspended PUP particulate from spray booth exhaust, with uniform flow of not less than 0.3 linear metres per second;
- c. provision for the supply of filtered breathing air to the spray painting operator;
- d. appropriate safety signage; and
- e. explosive atmosphere protection.

11. Contractor support for painting or repainting equipment in PUP will be provided through supporting logistic unit trade repair resources.

12. Operational Situation. The use of PUP during operational situations will result in extended battlefield accident/recovery repair times due to the need to wear PPE and breathing apparatus.

Maintenance Training

13. Training. Specialist painters at Heavy Grade Repair facilities and general tradespeople will require additional training on application, hazards and techniques associated with PUP. All unit personnel must undergo awareness training. All members who come in contact with PUP and solvents must have regular training in their use and correct handling procedures. This includes the wearing and correct use of PPE. Awareness training must include general reserve (GRES) personnel.

Documentation

14. Record Book for Service Equipment (GM 120). The GM 120 for all equipment coated with PUP is to be endorsed, in red, on the bottom of page 1-1 with the wording, **‘This equipment is coated with Polyurethane Paint’**.

15. Any repairs to equipment PUP coating are to be entered in part 4 of the GM 120; repair detail is to include a record of safety precautions taken.

16. Units are to arrange for the backloading and removal of toxic waste products and soiled PPE by approved methods. Disposal of waste is to be in accordance with standards detailed in this instruction, associated EMEI and/or applicable unit standing orders.

Patch Repairs

17. PUP surfaces may be repaired at light and medium grade repair using enamel paints in 400 ml pressure packs, as listed in Table 1.

Table 1 Camouflage Paint - Enamel

Item	NIN	APAS Reference	Description
1	66-147-5676	0165	camouflage green
2	66-148-1738	0165	camouflage brown
3	66-148-1737	0165	camouflage black
4	66-147-5678	0162	grey primer

Identification

18. Warning label NSN 7690-66-158-7386 containing the following information **‘THIS EQUIPMENT IS COATED WITH POLYURETHANE PAINT (PUP) REFER TO EMEI WORKSHOP D 701 PRIOR TO ANY SURFACE PREPARATION INVOLVING REMOVAL OF PAINT’** is to be affixed to all equipment coated with PUP.

END

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