

## CLEANING ELECTRICAL / ELECTRONIC COMPONENTS

### References:

- A. AP 113A-0308-1
- B. AP 119G-0133-135
- C. AP 1464B Vol 1 Pt 2 Sect 3 Chap 2

### INTRODUCTION

1. The main cleaning fluids available for electrical and electronic cleaning are:
  - a. Trichloroethane (Ref No 33D/2201949) - commercial examples are Genklene and Inhibsol. This fluid should be used as the principal general purpose cleaner for electrical components, after ensuring that it is compatible with the material being cleaned.
  - b. Trichlorotrifluoroethane - eg, Arklone 'P' (33D/2204018) and Arklone 'W' (33D/506). Only to be used where high standards of cleanliness are vital and in plant and conditions designed for Ultrasonic cleaning.
  - c. Methyl-Ethyl-Ketone (Ref No 33C/2203584) - Used for cleaning Fire Wire.

### CLEANING USING TRICHLOROETHANE (M 11) (HAZ CHEM)

#### SERVICING NOTES

2.
  - a. Components are not to be immersed in Trichloroethane for longer than one minute.
  - b. Components, with the exception of those containing solid state devices (transistors, integrated circuits etc), which have been immersed are to be dried immediately in a drying oven, the temperature of which is to be between 90 deg C and 150 deg C.
  - c. All components are to be dry before reassembly.
  - d. Equipment containing solid state devices is to be dried using controlled dry clean air blast in a dust cabinet.

#### PROCEDURE

3.
  - a. Read servicing notes.
  - b. If necessary, remove all traces of sealing compound using Methylated Spirit (M18) (HAZ CHEM).
  - c. Remove loose dust using controlled air blast in a cabinet.
  - d. Clean, using Trichloroethane by immersion, cleaning brush or lint free cloth.
  - e. Dry, using a controlled air blast in a dust cabinet, and if necessary, by finally heating in an oven at a controlled temperature.

ULTRASONIC CLEANING USING ARKLONE 'P' (M 20 )(HAZ CHEM)AND ARKLONE 'W' (M 21 )(HAZ (

4. a. Refer to AP 119G-0133-135F for safety notes and operating instructions for Ultrasonic Cleaning equipment.

The ultrasonic cleaning of electrical components is only to be carried out by authorised personnel, and the procedures given in local orders relating to safety precautions and operating instructions applicable to the various types of ultrasonic cleaning equipment in service are to be strictly observed.

NOTE: Some solvents used in ultrasonic cleaning, because of their vigorous action, are not suitable for cleaning electrical or electronic sub-assemblies.

5. Ultrasonic cleaning involves the use of high frequency mechanical vibrations transmitted from an ultrasonic generator which produces a cavitation effect in the cleaning solution. The cavitation consists of the alternate formation and rupture of vapour globules in the liquid; these produce a 'scrubbing' effect on the surface of the component being cleaned which effectively detaches minute particles of dirt from all surfaces and areas which are inaccessible to brushing.

6. For rotary electrical equipment, this method of cleaning supplements, rather than replaces, other methods, and is normally employed in the final stage to obtain a higher degree of cleanliness than is obtainable by other means. In the normal sequence, the component is pre-cleaned using the conventional servicing techniques to remove heavy grease/carbon deposits, then finally subjected to ultrasonic cleaning.

7. Ultrasonic cleaning, using Trichlorotrifluoroethane solvent, is a highly efficient cleaner for electronic sub-assemblies.