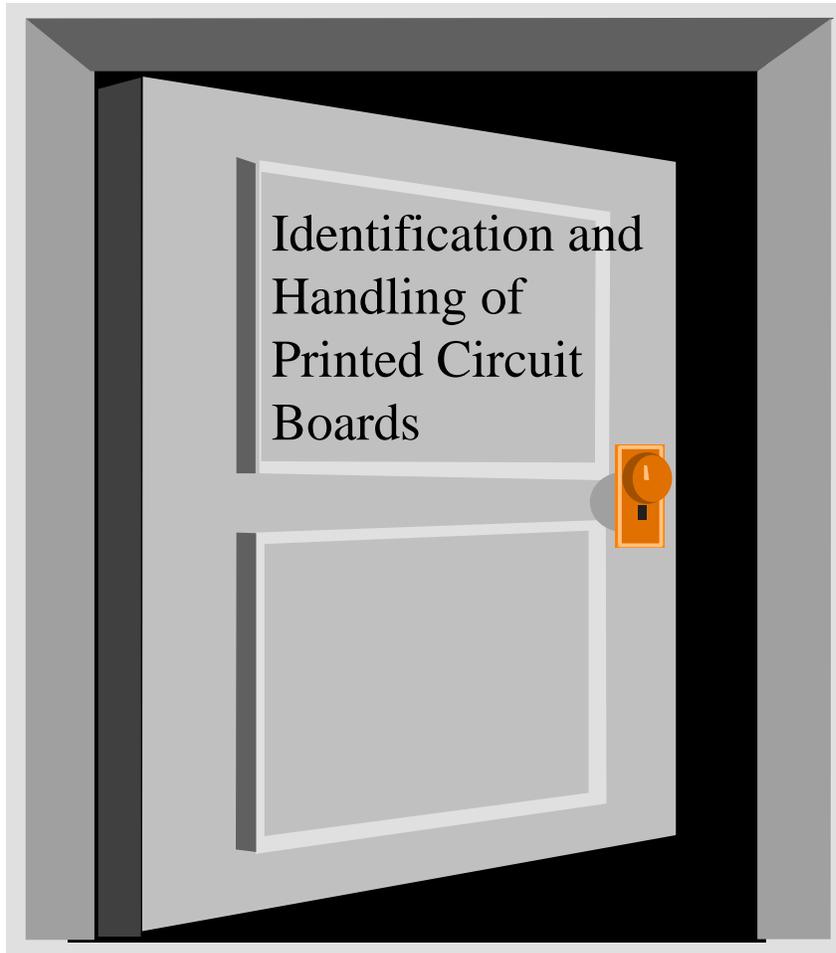


*Open the Door on
procedures*

for...



Prepared by:

AMC Logistics Support Activity

Packaging, Storage, and Containerization Center

Tobyhanna, PA 18466-5097

FORWARD

This information is provided to furnish you, the soldier in the field, with instructions on what to do with Printed Circuit Boards (PCBs) when they are removed from the end item. It also tells you what materials and equipment you need to protect PCBs from electrostatic discharge (ESD) and electromagnetic induction (EMI) forces.

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FOR ANY QUESTIONS, COMMENTS, OR SUGGESTIONS REGARDING THIS
BOOKLET, WRITE TO:

CHIEF
LOGSA PACKAGING, STORAGE,
AND CONTAINERIZATION CENTER
ATTN: AMXLS-TP
11 HAP ARNOLD BOULEVARD
TOBYHANNA, PA 18466-5097

OR CALL: DSN 795-7682/(717) 895-7682

INTRODUCTION

Presently, the Army is faced with two major problems concerning handling and identifying PCBs.

1. Many PCBs are damaged within the repair and supply cycle from ESD or EMI.

2. PCBs are lost because supply personnel are unable to identify them. This damage or loss costs us, the taxpayer, significant resources. It is estimated that the average cost of a PCB is approximately \$1,000.00.

Normally, it is the responsibility of supply personnel to package repairable return items to protect them throughout the supply cycle. Some items, however, must have some protective packaging applied before they can be routed to the supply unit. All items which are protected from normal handling environments such as climatic, shipping, and storage must also be protected from ESD.

This protection must be applied as soon as the PCB's are removed from the end item.

Some PCBs are not marked by a drawing or part number when they are manufactured because of item size or other restrictions. When these items are received as repairable returns, they could be misidentified and lost, or processes to identify them could be hampered. Either way, it costs extra dollars in supply resources.

This booklet provides information on equipment and materials and ordering data. It also provides instructions for marking and identifying the items. The booklet is not intended to provide complete packaging instructions.

I. Equipment.

If you order this....

Field Service Kit: 5920-01-253-5368

You'll get this....

- 3 ea Pouch, MIL-P-81997, Type II
- 3 ea Barrier Bag, MIL-B-81705, Type I
- 2 ea Wrist Wrap
- 1 ea Ground Cord
- 1 ea Mat, static dissipating

When used correctly, this kit will protect PCBs from ESD which is generated by personnel who handle them. The damage, which often occurs during removal or replacement of these items, is neither felt nor detected. That is why it is very important to use this kit whenever you are handling PCBs.

II. Materials.

The packaging materials listed here are designed to protect PCBs and other sensitive items from ESD/EMI damage as well as from climatic and handling environments. These materials are approved for DOD applications because they meet or exceed the referenced material specifications. They should not be substituted unless the substitute material is known to be antistatic or static dissipating.

Materials are listed according to the sequence of their application. Application instructions are contained in section III.

PPP-C-1842; Cushioning Material, Plastic, Open Cell; (Type III, Style A).

<u>NSN</u>	<u>UI</u>	<u>SIZE</u>
8135-01-057-3607	RO	1/4" X 48" X 500'

NOTE: Protection against ESD and physical damage.

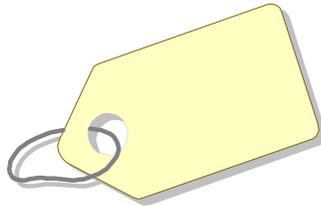
**Optional.* See section III for application.

MIL-P-81997, Pouches, Cushioned, Flexible, Electrostatic-free Reclosable, Transparent.

<u>NSN</u>	<u>UI</u>	<u>SIZE</u>
8105-01-197-2965	EA	12" x 12"
8105-01-197-2966	EA	10" x 10"
8105-01-197-7846	EA	10" x 12"
8105-01-205-0207	EA	8" x 12"
8105-01-215-0462	EA	8" x 8"
8105-01-215-4752	EA	11" x 15"

NOTE: Protection against ESD and physical damage.

* Tag, Shipping, Cotton String, White, Metal Eyelet, Grade 3.



<u>NSN</u>	<u>UI</u>	<u>SIZE</u>
8135-00-292-2343	MX	1 7/8" x 3 3/4"

NOTE: Protection against loss.

* A suitable substitute may be used providing the tag is compatible with common marking devices and has a cotton string.

* MIL-B-81705, Barrier Materials, Flexible, Electrostatic-free, Heat Sealable (Type I, Opaque Foil).

<u>NSN</u>	<u>UI</u>	<u>SIZE</u>
8135-00-092-3220	RO	3' x 600'

NOTE: Protection against EMI and watervapors.

* Optional. See section III for application.

PPP-B-1672, Boxes, Shipping, Reusable with cushioning (Type II, Convoluted, Folding).

<u>NSN</u>	<u>UI</u>	<u>SIZE</u>
8115-00-101-7638	EA	9" x 6" x 3 1/2"
8115-00-101-7647	EA	9" x 6" x 2 1/2"
8115-00-787-2142	EA	6" x 5" x 2 1/2"
8115-00-787-2146	EA	12" x 8" x 2 1/2"
8115-00-787-2147	EA	6" x 5" x 3 1/2"
8115-00-787-2148	EA	12" x 8" x 3 1/2"
8115-01-019-4084	EA	18" x 12"x 3 1/2"
8115-01-019-4085	EA	18" x 12"x 2 1/2"
8115-01-057-1243	EA	13" x 13"x 3 1/2"
8115-01-057-1244	EA	10" x 10"x 3 1/2"
8115-01-057-1245	EA	16" x 16"x 3 1/2"
8115-01-093-3730	EA	24" x 16"x 3 1/2"

NOTE: Protection against ESD and rough handling.

Antistatic boxes are identified by the word ANTISTATIC on both ends of the box and have pink tinted cushioning.

III. Procedures.

WARNING

To avoid personal injury, disconnect all electrical power sources before proceeding.

The following procedure should be used:

1. Ground yourself to the field service kit and ground the kit to the equipment chassis.
2. Remove PCB.
3. Mark and tag with the following information:
 - Item name (if known)
 - NSN (if known)
 - Part/Drawing No. (if known)
 - Removed from:
 - Nomenclature
 - NSN
 - Part/drawing No.
 - Date

4. Wrap the PCB with antistatic material or place it in an antistatic pouch. If barrier bags, made from MIL-B-81705, type I, are furnished, place the wrapped PCB in the bag.

*Leave tag hanging outside of the pouch or wrap

5. Place the PCB in an antistatic box and route to DSU/GSU.

SUMMARY

The materials and processes shown in this booklet are provided to protect PCBs from loss and damage. The materials listed are known to be the best available for protection from ESD. Others are available and may be used if they qualify under the applicable specifications as being antistatic or static dissipating. The field service kit and all materials discussed within this booklet are available through normal supply channels.