



## DEPARTMENT OF THE NAVY

CHIEF OF NAVAL AIR TRAINING  
CNATRA  
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CORPUS CHRISTI TX 78419-5041

CNATRAINST 11130.2J  
N423

14 APR 09

### CNATRA INSTRUCTION 11130.2J

Subj: AIRCRAFT GROUNDING POINTS REQUIREMENTS

Ref: (a) MIL-HDBK-274 (AS)  
(b) NAVAIR 00-80T-103  
(c) NAVAIR 00-80T-109  
(d) NAVAIRWARCENACDIV LAKEHURST NJ 231112Z Sep 96

Encl: (1) Measured Ground Point Identification  
(2) Mooring Eye Details

1. Purpose. To issue requirements for initial and periodic testing of electrical and static grounding points and aircraft grounding cables.

2. Cancellation. CNATRAINST 11130.2H

3. Background. The generation of electrical static charges is a natural phenomenon. The charge is normally dissipated harmlessly to ground; however, an arc produced in the presence of flammable vapors is a hazardous condition that can be avoided if proper preventive procedures are followed. References (a) and (b) define when aircraft will be effectively and securely grounded prior to performing maintenance, while fueling/defueling, and when stores loading/downloading operations are being performed. Reference (c) is Aircraft Refueling Manual.

4. Action

a. Chief of Naval Air Training (CNATRA) Detachments will ensure the following:

(1) The specific types of connectors to be used on grounding cables will depend on the type of aircraft supported. Many Navy aircraft only have grounding receptacles adjacent to airframe refueling points and they may not be readily available as a static grounding point for the aircraft. In these instances, a cable having a surface connector on each end may be used; one end should be attached to an approved static ground point, the other to a clean metal surface on the aircraft. Cable shall be of 7 X 7 construction, 0.094 inch nominal diameter wire rope in accordance with MIL-HDBK-274, and with part number M83413-1 clamps at each end. Cable length shall be determined by user requirements but shall not exceed 40 feet.

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The maximum resistance allowable for the cable (MS27574) itself shall not exceed 0.5 ohms. The cable's operational (in use) maximum resistance shall not exceed 10 ohms. The cables must be identified and serialized. As a minimum, resistance of complete cable assemblies must be measured, recorded, and verified annually.

NOTE: The use of alligator clips or braided panel strips to ground or bond aircraft is prohibited.

(2) Power Ground Points (Driven Electrodes)

(a) Determine the location of the power ground points on the aircraft parking apron and in the hangars. Where aircraft maintenance functions require the use of external power (AC or DC) with grounded neutral (i.e., facility power or mobile electric power plant), the aircraft must be connected to a power ground point before energizing.

(b) When performing aircraft maintenance in the hangar, ensure the aircraft is grounded to a power ground.

(c) Train maintenance personnel in the location and proper use of power ground points to ensure that aircraft are grounded in accordance with references (a) through (c) and applicable tie-down maintenance instruction manuals and that only approved power grounds are utilized.

(3) Static Ground Points

(a) Determine the tie-down anchors required to be used as static grounding points for fueling/defueling, stores loading/downloading operations, and maintenance evolutions requiring external (AC or DC) power sources.

(b) Train maintenance personnel in the location and proper use of static ground points to ensure that aircraft are grounded in accordance with references (a) through (c) and applicable maintenance instruction manuals and that only approved static grounds are utilized.

b. CNATRA Detachments will ensure the following:

(1) Power and static ground points will be tested in accordance with reference (a) to ensure that resistance to ground is 10 ohms or less (power ground) and 10,000 ohms or less (static ground).

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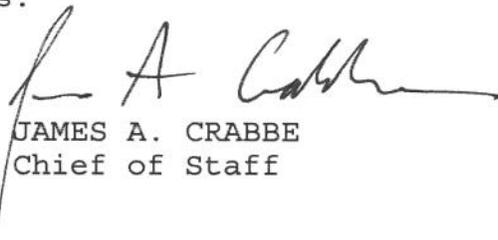
(2) Label all approved power and static ground points as shown in enclosure (1).

(3) Repair of power and static ground points that do not meet ohmic requirements as necessary in accordance with reference (a).

NOTE: Prior to testing, tie-down anchors that may be used as static ground points shall be thoroughly cleaned to remove all corrosion and electro-static primer and paint.

c. Retest Requirements. All power ground points and tie-down anchors imbedded in concrete ramps/hangar decks that are used as grounding points shall be retested, using procedures outlined in reference (a), every 24 months as outlined in reference (d).

d. Mooring Eyes (also referred to as padeyes). These may be used as static ground points, provided they have been measured and identified in a proper manner. Mooring eyes selected for use as static grounds must have their resistance measured and verified at 24-month intervals. Enclosure (2) shows typical mooring eye installation details.



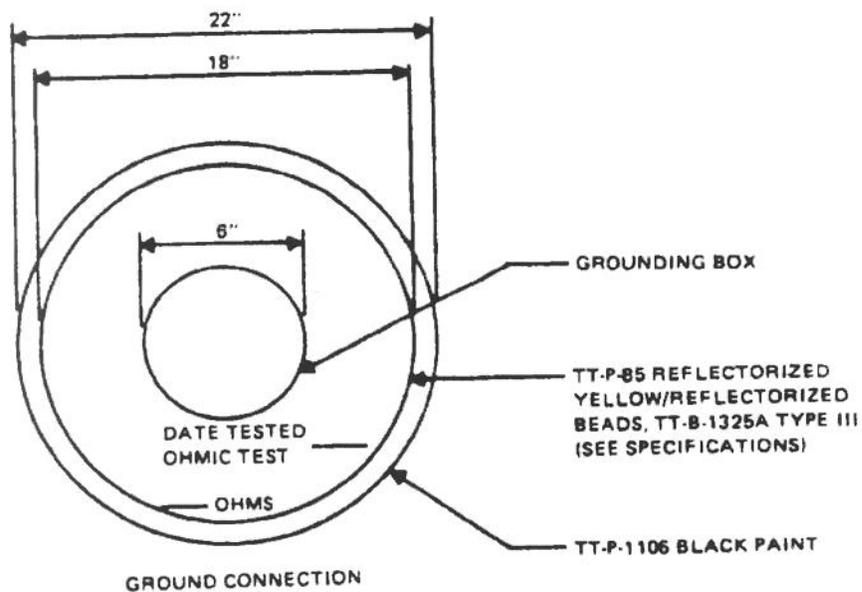
JAMES A. CRABBE  
Chief of Staff

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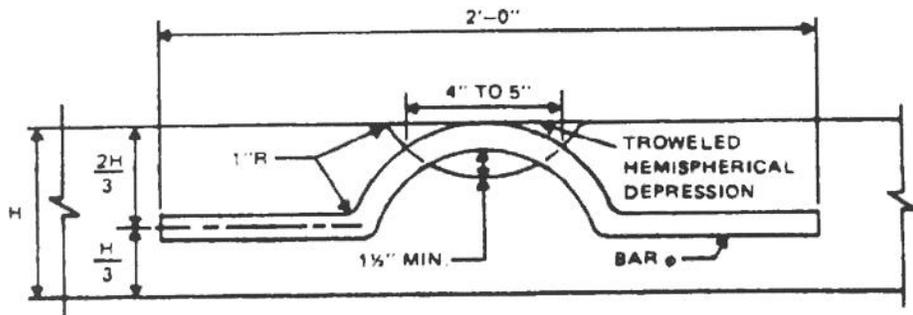
NOTES:

1. ALL LETTERS SHALL BE 1" HIGH.
2. TESTING INFORMATION SHALL BE CENTERED AS SHOWN WITH 3/4" SPACING BETWEEN LINES.

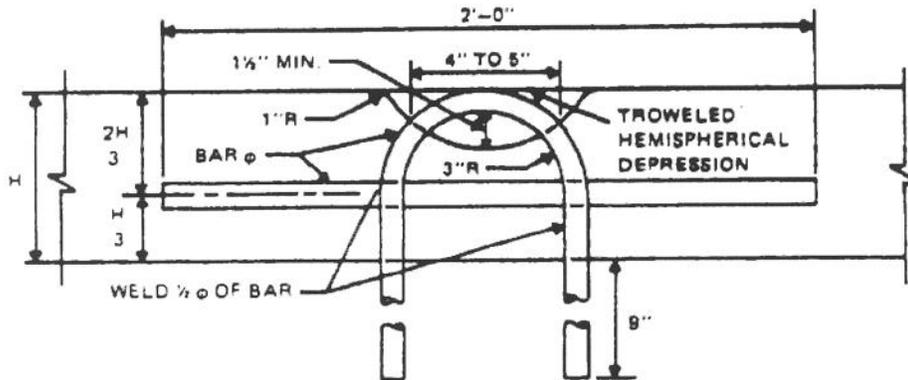


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FIGURE 5-7. Measured ground point identification.



TYPE "A"



TYPE "B"

BAR SIZES FOR TYPES A & B	
H	BAR $\phi$
<10"	3/4"
10" TO 12"	1"
13" TO 16"	1-1/4"

NOTES:

- 1 PLACE MOORING EYES IN THE CENTER OF EACH 12.5' BY 15.0' SLAB OVER ENTIRE SURFACE OF WARM-UP OR PARKING AREA PAVEMENTS UNLESS OTHERWISE INDICATED
- 2 PLACE MOORING EYES IN HANGAR FLOORS AS DETERMINED BY PROJECT REQUIREMENTS

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FIGURE 5-8. Mooring eye details.