

## **BLOCK AND HOUSE CABLE**

### **GROUNDING—USE OF GROUND CLAMPS**

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#### **1. GENERAL**

1.01 This section has been prepared to describe the types of ground clamps provided for use in terminating ground wire on water pipes, etc., their uses and the methods of installation.

#### **2. LOCATING CLAMP**

2.01 The general location of the ground clamp is determined by the ground wire run, but in establishing its specific location, the following points should be kept in mind:

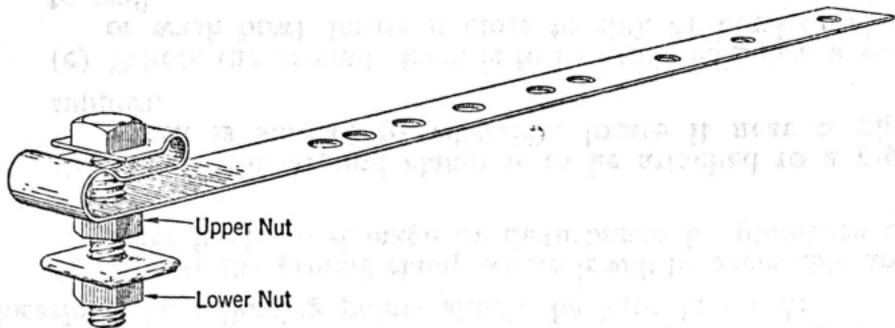
- (a) Locate the ground clamp where it will be accessible and least liable to damage or disturbance by plumbers or others.
- (b) Where the ground clamp is to be attached to a pipe which is subject to vibration, locate it near a pipe support.
- (c) Where the ground clamp is to be attached below a sink or wash bowl, locate it close to sink or bowl or close to wall.

#### **3. L GROUND CLAMP**

3.01 The L Ground Clamp consists essentially of a strap, one end of which is formed to accommodate the ground wire. The wire is held in position by means of a bolt and a

hexagonal nut. The bolt also serves to engage the proper hole in the strap which is fitted around the water pipe and held in position by means of a washer and a second nut.

### L GROUND CLAMP



3.02 The L Ground Clamp is intended for use in connecting No. 6 Ground Wire to the water service pipe or, as described in Paragraph 3.05, to a convenient sleeve.

3.03 The methods of attaching the L Ground Clamp to the water service pipe and of terminating the ground wire are outlined below:

(1) Clean the pipe thoroughly at the location at which the clamp is to be attached. The various types of pipes should be cleaned as follows:

(a) Galvanized, Black and Lead Pipes—Clean with Abrasive Cloth.

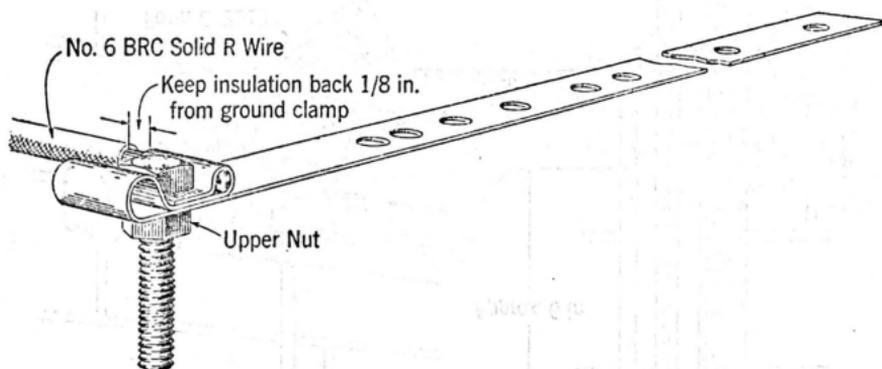
(b) Rusted, Painted and Dirty Pipes—Scrape with edge of file until coating is partially removed and then clean with Abrasive Cloth.

Note: Use a new Abrasive Cloth (1 in. x 9 in. strip) for each clamp to be placed.

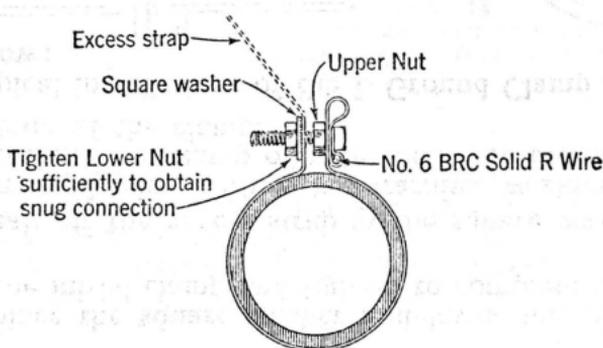
(2) Remove the insulation from the end of the ground wire for approximately 1 in. and thoroughly clean the conductor with Abrasive Cloth.

(3) Remove the lower nut and the square washer from the bolt of the ground clamp.

(4) Insert the ground wire conductor into the proper loop of the ground clamp and secure it by tightening the upper nut on the bolt.

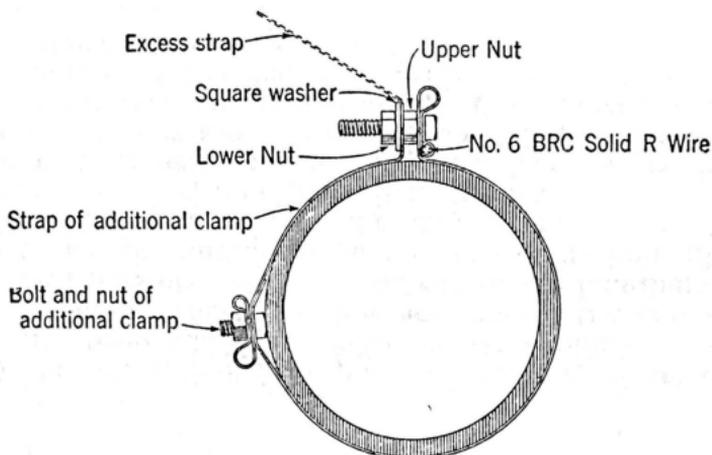


- (5) On 3 in. and smaller pipe, fit the strap around the pipe and engage the bolt with the farthest possible hole from the end of the strap.



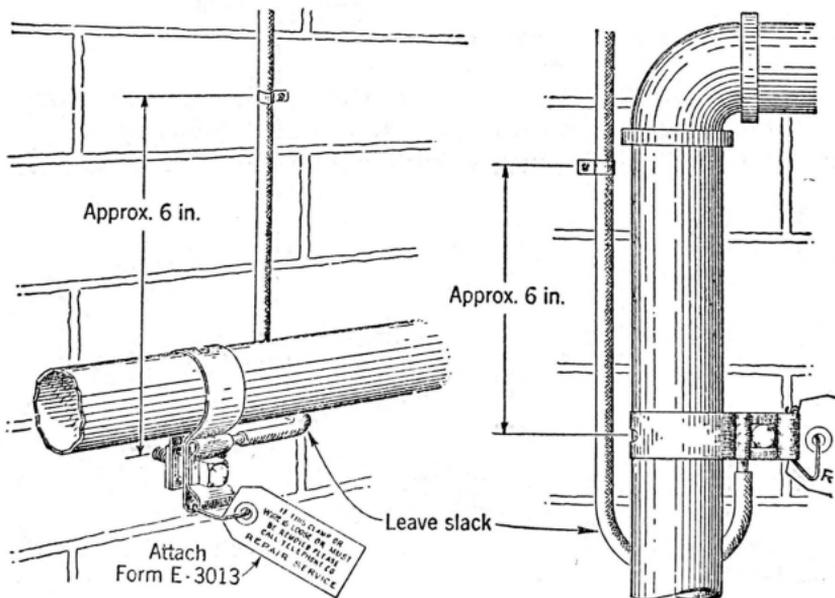
- (6) On larger than 3 in. pipe, fit the strap to which there has been added an additional strap obtained from another clamp, around the pipe and engage the bolt with the farthest possible hole from the end of the lengthened strap. To attach the additional clamp, remove its bolt, place this bolt in the last hole of the initial clamp with the head toward the pipe, then place it in the first hole of the additional clamp with the ground wire loops away from the pipe, apply nut and tighten by turning the bolt head. Cut off the excess length of the bolt if it interferes with the installation of the clamp or projects in a manner that is hazardous.

LARGER THAN 3 IN. PIPE

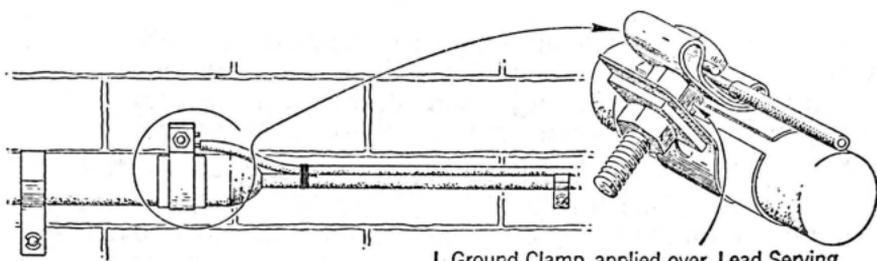


- (7) Replace the square washer and lower nut on the bolt of the initial clamp and tighten to complete the attachment.
- (8) Break off the excess strap at the square washer.
- (9) A ground wire caution tag warning workmen against disturbing the clamp or wire should be attached to the larger loop of the clamp.

3.04 Typical installations of the L Ground Clamp are shown below:



3.05 The preferred method of connecting ground wire to cable sheath is outlined in the splicing instructions. However, if splicing facilities are not available it may be connected as shown in the following illustration. This illustration indicates the method of terminating the smaller ground wires. No. 6 BRC Solid R Wire should be inserted in the proper loop of the clamp.

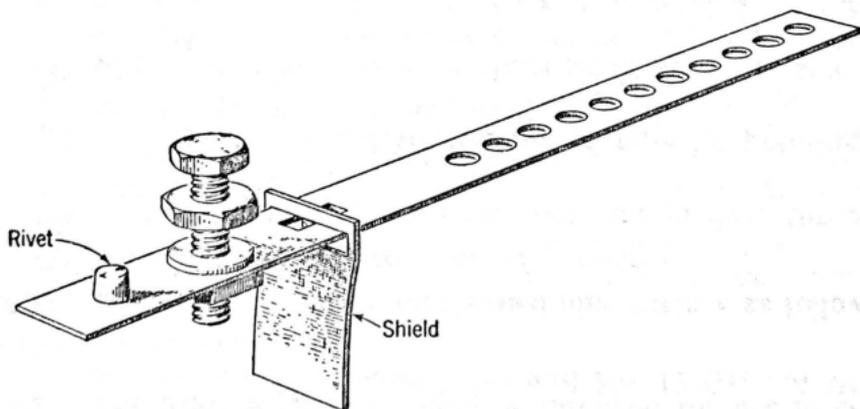


L Ground Clamp applied over Lead Serving Tape where necessary. Terminate ground wire under head of bolt and secure it by tightening this nut.

#### 4. STATION GROUND CLAMP

4.01 The Station Ground Clamp consists essentially of a strap, at one end of which is a set screw by means of which the clamp is tightened on the pipe and on which the ground wire is terminated. Adjacent to the screw is a shield on which the screw bears and a rivet which serves to engage the proper hole in the strap after it has been fitted around the water pipe.

STATION GROUND CLAMP



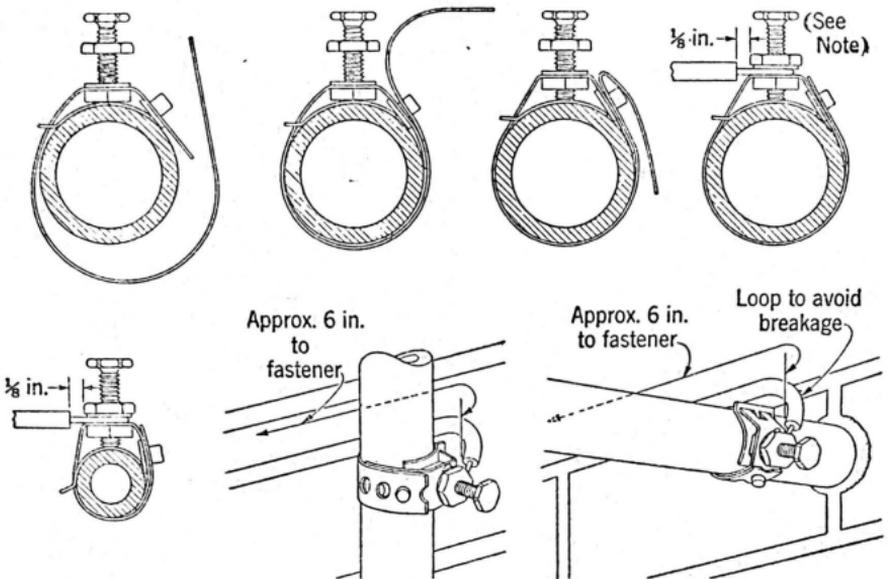
4.02 The Station Ground Clamp is intended for use in connecting No. 14 Ground Wire and No. 12 Ground Wire to the water service pipe.

4.03 Install ground clamp on cleaned pipe surface as follows :

- (1) Back off lock nut to head of set-screw.
- (2) Back off set-screw until it does not project through soldered nut.
- (3) Form copper shield to contour of pipe by pressing it firmly against the pipe.
- (4) With a pair of long nose pliers bend the strap sharply on each side of the soldered nut.
- (5) Bend strap around the pipe and place strap on the rivet using the hole that will provide the least slack in the strap.
- (6) Bend strap sharply at next hole beyond the rivet. Hold clamp in place by grasping it between the thumb and forefinger with the thumb holding the strap firmly on the rivet.
- (7) Tighten set-screw. If tightened beyond reasonable limits, clamp will break or set-screw will unduly dent brass piping or copper tubing. Avoid producing a dent which is more than barely perceptible.
- (8) If pipe is too large for the ground clamp use two clamps bolted together as shown below.
- (9) If a ground wire caution tag warning workmen against disturbing the ground clamp or ground wire connection is used, it should be attached to the ground clamp strap between the screw and the tip of the copper shield.

Note: Ground clamps installed on small pipes can be turned by grasping the pipe with the fingers and pushing on the clamp near the soldered nut with the thumb. This does not indicate that the clamp is too loose to provide an adequate electrical connection.

## INSTALLATION ON SMALL PIPES



Note: Place ground wire under washer and tighten lock nut firmly.

## INSTALLATION ON LARGE PIPES

