RESISTORS
18 - AND 19 - TYPE
PROCEDURES FOR MOUNTING

1. GENERAL

1.01 This section covers the procedures for mounting 18- and 19-type resistors.

1.02 As initially furnished, 18- and 19-type resistors had two mounting studs. These resistors are referred to as double-stud resistors. Subsequently, the resistors were modified to eliminate one of the mounting studs. The later resistors, having the single mounting stud at the center, are referred to as single-stud resistors. Single and double-stud resistors of the same code are interchangeable. However, the methods of mounting single- and double-stud resistors differ and are covered in the section.

1.03 Single-stud resistors have a molded insulated base which is in contact with the mounting plate when the resistor is mounted. Projections from the insulated base around the terminals and mounting stud enter the holes in the mounting plate and insulate the terminals and stud from the mounting plate. These projections eliminate the need for insulator bushings previously required in the mounting plate holes.

2. LIST OF TOOLS AND MATERIALS

CODE OR SPEC. NO.	DESCRIPTION
TOOLS	
48	Combination 7/32- and 1/4-inch Double-end Socket Wrench and Screwdriver
—	3-inch Cabinet Screwdriver
—	4-ounce Riveting Hammer
MATERIALS	
KS-2423	Cloth

3. MOUNTING SINGLE-STUD RESISTORS

3.01 ***General:*** Before mounting the resistor, check whether the mounting plate has insulator bushings in the resistor mounting holes. If the mounting plate has insulator bushings, remove them from the holes in the position where the resistor is to be mounted as covered in 3.02. Mount the resistor as covered in 3.03.

3.02 ***Removing Insulator Bushings From Mounting Plate:*** Place a KS-2423 cloth on the wiring side of the frame below the position from which insulator bushings are to be removed in order to catch the bushings. Working from the apparatus side of the mounting plate, place the end of the blade of the 3-inch cabinet screwdriver across the bushing to be removed. Push the bushing from the hole with the screwdriver. If the bushing sticks, lightly tap the screwdriver with the 4-ounce riveting hammer.

3.03 ***Mounting Resistor: Fig. 1*** — If the resistor is to be mounted vertically, it should be positioned on the mounting plate with the code and resistance markings at the left as viewed from the apparatus side of the mounting plate. If the resistor is to be mounted horizontally, the markings should be at the top. Insert the resistor mounting stud and terminals through the proper holes in the mounting plate. From the wiring side of the mounting plate, hold one of the resistor terminals and position the resistor so that the projections on the insulated base are fully seated in the mounting plate holes. Place an insulating washer on the mounting stud and securely tighten the nut using the wrench portion of the No. 48 combination wrench and screwdriver.

4. MOUNTING DOUBLE-STUD RESISTORS

General

4.01 Before mounting the resistor, check whether the mounting plate has insulator bushings in the resistor mounting holes. If the mounting plate is not equipped with insulator bushings, it is necessary to use the P-10D574 resistor mounting insulator to insulate the resistor mounting studs from the mounting plate. In this case, mount the resistor as covered in 4.05 and 4.06. If the mounting plate is equipped with bushings, mount the resistor as covered in 4.07, 4.08, and 4.09.

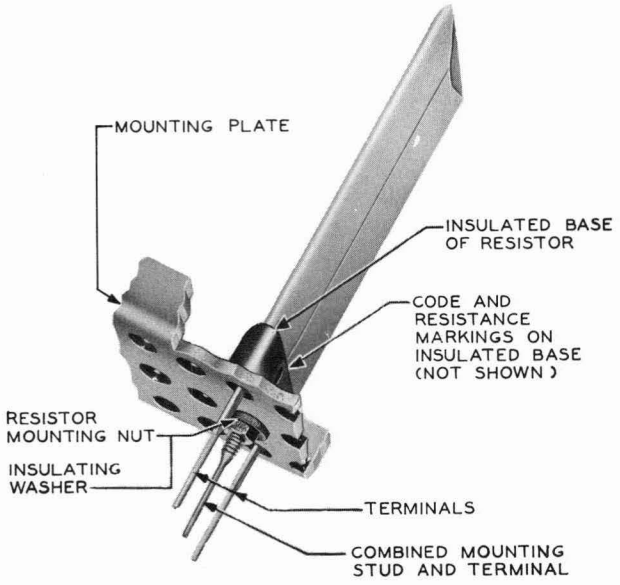

Fig. 1 – Mounting of 18- and 19-type Single Stud Resistors (19-type Resistor Shown)

4.02 ***Use of Terminal Side Post Insulators and Middle Terminal Post Shields:*** Under certain conditions it is necessary to equip 18- and 19-type double-stud resistors with terminal side post insulators and 19-type resistors with a middle terminal post shield. Terminal side post insulators should be used on 18- and 19-type resistors in the following cases.

(a) If the resistor being replaced is equipped with side post insulators.

(b) If the voltage on the resistor exceeds 100 volts.

(c) If there is a possibility of shorting the terminal side posts of the resistor with tools used in adjusting adjacent apparatus.

(d) If there is a possibility of shorting the terminal side posts of the resistor with covers of adjacent apparatus when removing these covers.

A middle terminal post shield, in addition to terminal side post insulators, should be mounted on a 19-type resistor in the following cases.

(e) If the resistor being replaced is equipped with a shield.

(f) If direct battery is connected to the middle terminal of the resistor and there is a possibility of shorting the middle terminal post with tools used in adjusting adjacent apparatus.

Procedures for mounting insulators and shields are covered in 4.03 and 4.04. These parts should be mounted on the resistor before mounting the resistor on the mounting plate.

4.03 ***Mounting Terminal Side Post Insulators on 18- and 19-type Resistors: Fig. 2 —*** Hold the insulator with the flared end of its slot toward the outer end of one of the terminal side posts. Slide the insulator over this post so that it completely covers the post. Similarly, mount an insulator on the other side post.

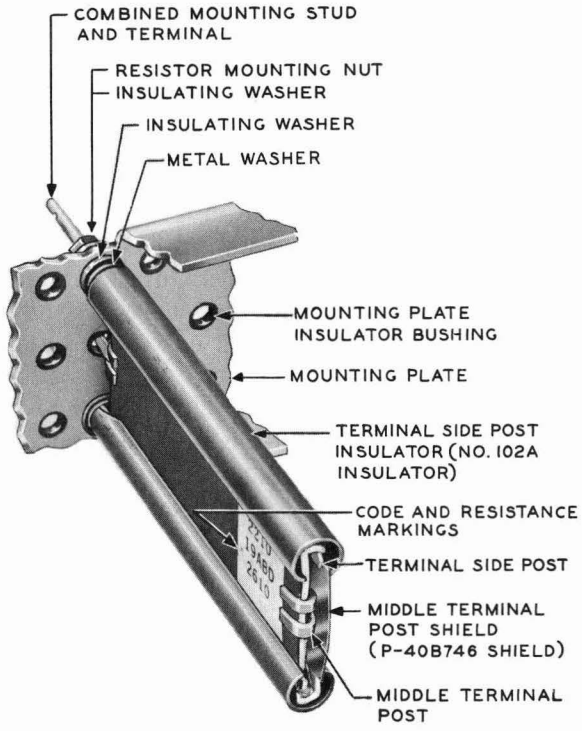

Fig. 2 – Mounting of 18- and 19-type Double Stud Resistors on Mounting Plate Equipped With Insulator Bushings — (19-type Resistor Equipped With Terminal Side Post Insulators and Middle Post Shield Shown)

4.04 ***Mounting Middle Terminal Post Shields and Terminal Side Post Insulators on 19-type Resistors: Fig. 2*** — Position the shield on the resistor so that it is centered between the terminal side posts and covers the middle terminal post. While holding the shield in this position, mount terminal side post insulators on the

resistor, as covered in 4.03, so that the insulators hold the shield in place on the resistor.

Mounting Resistor on Mounting Plate Not Equipped With Insulator Bushings — Fig. 3

4.05 First, remove the nuts and four insulating washers from the mounting studs. Only two of the insulating washers are required in this case. Leave the metal washers on each stud. With a metal washer on each stud, place the P-10D574 resistor mounting insulator on the studs with the flat side of the insulator against the washers.

4.06 If the resistor is to be mounted vertically, it should be positioned on the mounting plate with the code and resistance markings at the left as viewed from the apparatus side of the mounting plate. If the resistor is to be mounted horizontally, the markings should be at the top. Insert the resistor studs through the proper holes in the mounting plate. From the wiring side of the mounting plate, position the resistor so that the projections on the resistor mounting insulator are fully seated in the mounting plate holes. Place an insulating washer on each stud and securely tighten the nuts using the wrench portion of the No. 48 combination wrench and screwdriver.

Mounting Resistor on Mounting Plate Equipped With Insulator Bushings — Fig. 2

4.07 In this case, the P-10D574 resistor mounting insulator is not required.

4.08 To mount the resistor, first remove the nut and an insulating washer from each mounting stud. Leave the metal and one insulating washer on each stud with the metal washers against the terminal side posts.

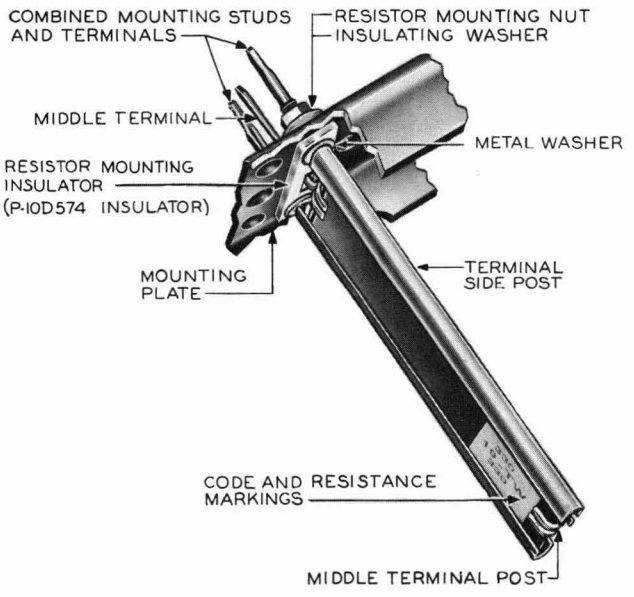

Fig. 3 — Mounting of 18- and 19-type Double Stud Resistors on Mounting Plate Not Equipped With Insulator Bushings (19-type Resistor Shown)

4.09 If the resistor is to be mounted vertically, it should be positioned on the mounting plate with the code and resistance markings at the left as viewed from the apparatus side of the mounting plate. If the resistor is to be mounted horizontally, the markings should be at the top. Insert the studs through the proper holes in the mounting plate. From the wiring side of the mounting plate, place another insulating washer on each stud and securely tighten the nuts using the wrench portion of the No. 48 combination wrench and screwdriver.