

Ⓜ Model 412A/AR Voltmeter-Ohmmeter-Ammeter  
Serials 134-07482 and Below

INPUT CABLE MODIFICATION KIT, Ⓜ PART NO. 00412-69501

Installation of this modification kit will prevent damage to the input cables by reducing the effects of excess strain. The plastic cable clamps provided in this kit transfer the strain previously experienced at either the cable boots or the tie points to the modified cable support bracket. As a result, you will experience longer and more reliable performance from the Model 412A/AR.

This Service Note is presented in two sections. Section I contains installation procedures to be used with cabinet model instruments. Section II contains installation procedures to be used in conjunction with rack mounted models.

No special tools are required to effect this modification. Either type of modification can be completed in approximately 2 hours.

PARTS SUPPLIED IN MODIFICATION KIT, Ⓜ PART NO. 00412-69501

Quantity		Ⓜ Part No.
1	Bracket, tie point . . . . .	412A-12E
1	Bracket, cable support (cabinet model). . . . .	412A-12C
1	Bracket, cable support (rack mount model). . . . .	412A-12D
6	Clamp, cable . . . . .	428A-21A-1
2	Machine screw, 6-32 x 3/8 BH with lockwasher . . . . .	2390-0009

SECTION I. INSTALLATION INSTRUCTIONS FOR CABINET MODEL.

1. Remove cabinet and turn instrument on its top.
2. Remove shield on the function switch side of the instrument.
3. Unsolder all wires from the tie point bracket located on main chassis where the input cables enter the instrument (see Figure 1).
4. Remove the hexagonal nuts and screws indicated by arrows in Figure 2.

5. Remove FUNCTION, POLARITY, and RANGE knobs from the front panel using an Allen wrench. For ease of removal and replacement, set RANGE switch to .001 volt position before removing knobs. Remove the front panel.
6. Remove old tie point bracket from chassis and discard (see Figure 3).
7. Bolt new tie point bracket to chassis as illustrated in Figure 3.
8. Feed input cables through holes in the cable support bracket provided. There are two brackets included with this kit; one to be used with cabinet models, the other with rack models. Adjust cable clamps around the input cables and seat in place as illustrated in Figures 3 and 4. Insure that at least two inches of cable is available to rear of plastic clamps.
9. When plastic clamps are firmly seated, bolt cable support bracket to tie point bracket as shown in Figures 3 and 4. Insure that forward face of plastic cable clamp fits firmly against rear end of cable boot mounting studs as shown in Figures 3 and 4.
10. Solder the input cable wires as shown in Figure 4.

**CAUTION**

When unsoldering and soldering input cables to tie points, insure that cable shielding strands do not penetrate cable insulation, thus grounding the element.

11. Replace front panel by reversing steps #4 and 5 above.
12. Replace shield cover by reversing step #2 above.
13. Replace instrument cabinet.

SECTION II. INSTALLATION INSTRUCTIONS FOR RACK MOUNTED MODELS.

1. Remove the dust cover from the instrument.
2. Unsolder the input cable wires at the tie points just behind the input cable boots (see Figure 5).

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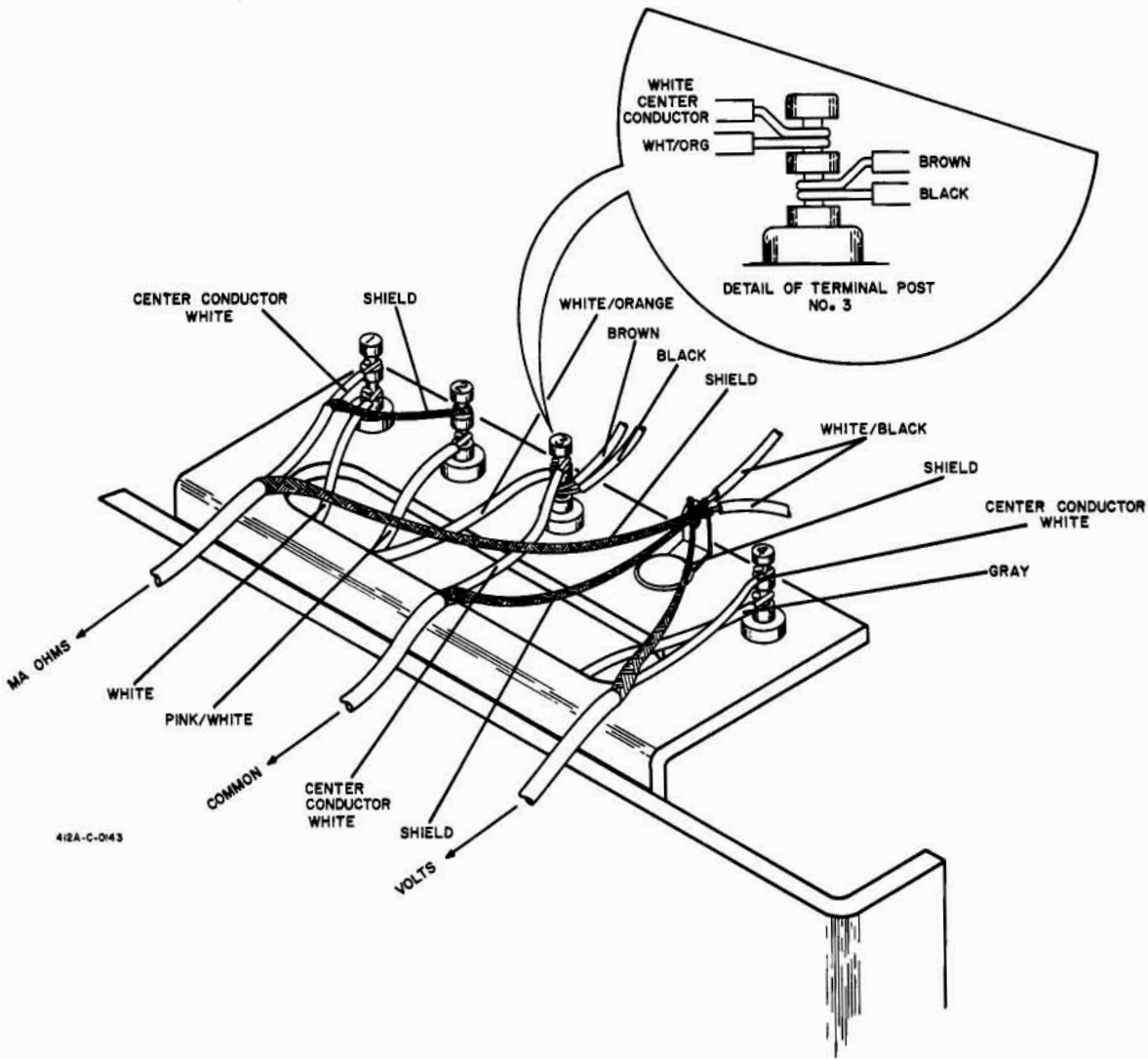


Figure 1

3. Feed the cables through the holes in the cable support bracket provided and seat the plastic cable clamps as indicated in Figure 6. Refer to steps 8 and 9, Section I.
4. Position the cable support bracket so that the front face of the plastic cable clamp sits firmly against the rear end of the cable boot mounting stud. Mark and drill #28 holes in the chassis as indicated in Figure 6, using the bracket as a guide.
5. Fasten cable support bracket to the chassis using the two 6-32 x 3/8 screws.
6. Solder the input cables as illustrated in Figure 6.

**CAUTION**

When unsoldering and soldering input cables to tie points, insure that cable shielding strands do not penetrate cable insulation, thus grounding the element.

7. Replace dust cover.

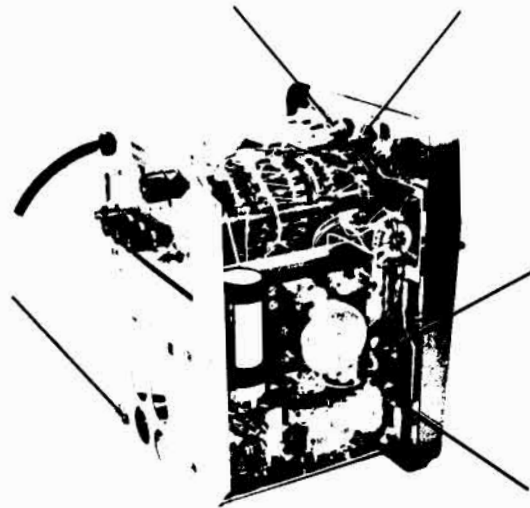


Figure 2

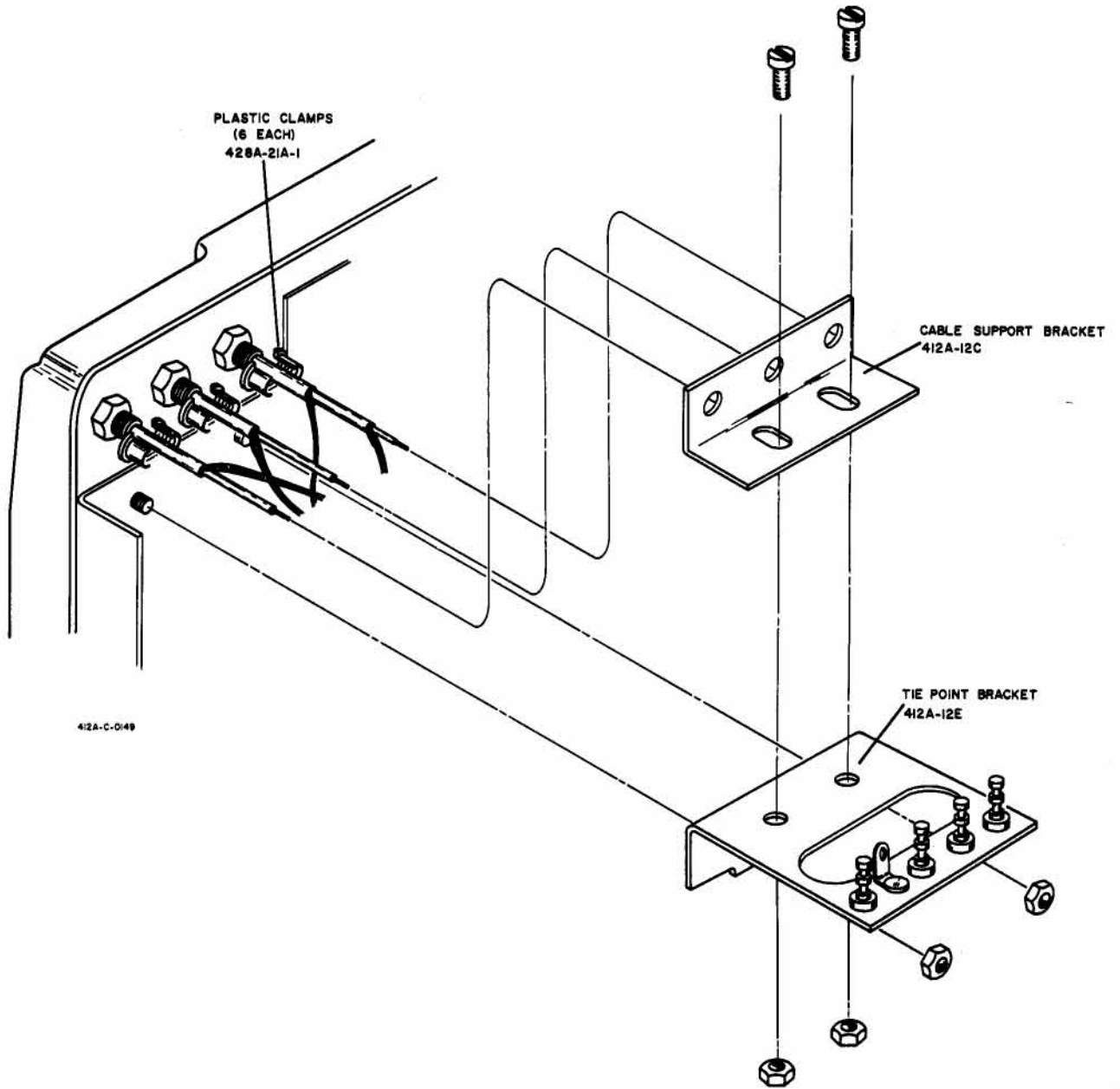


Figure 3

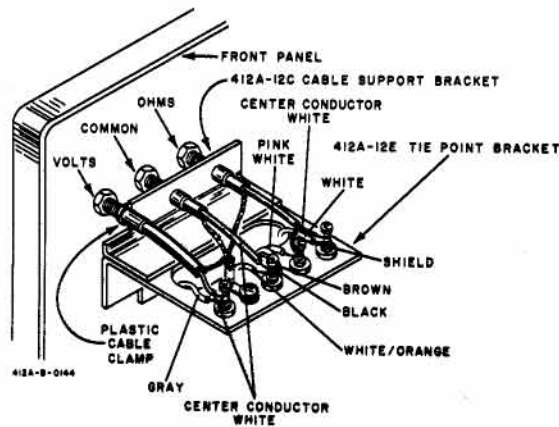
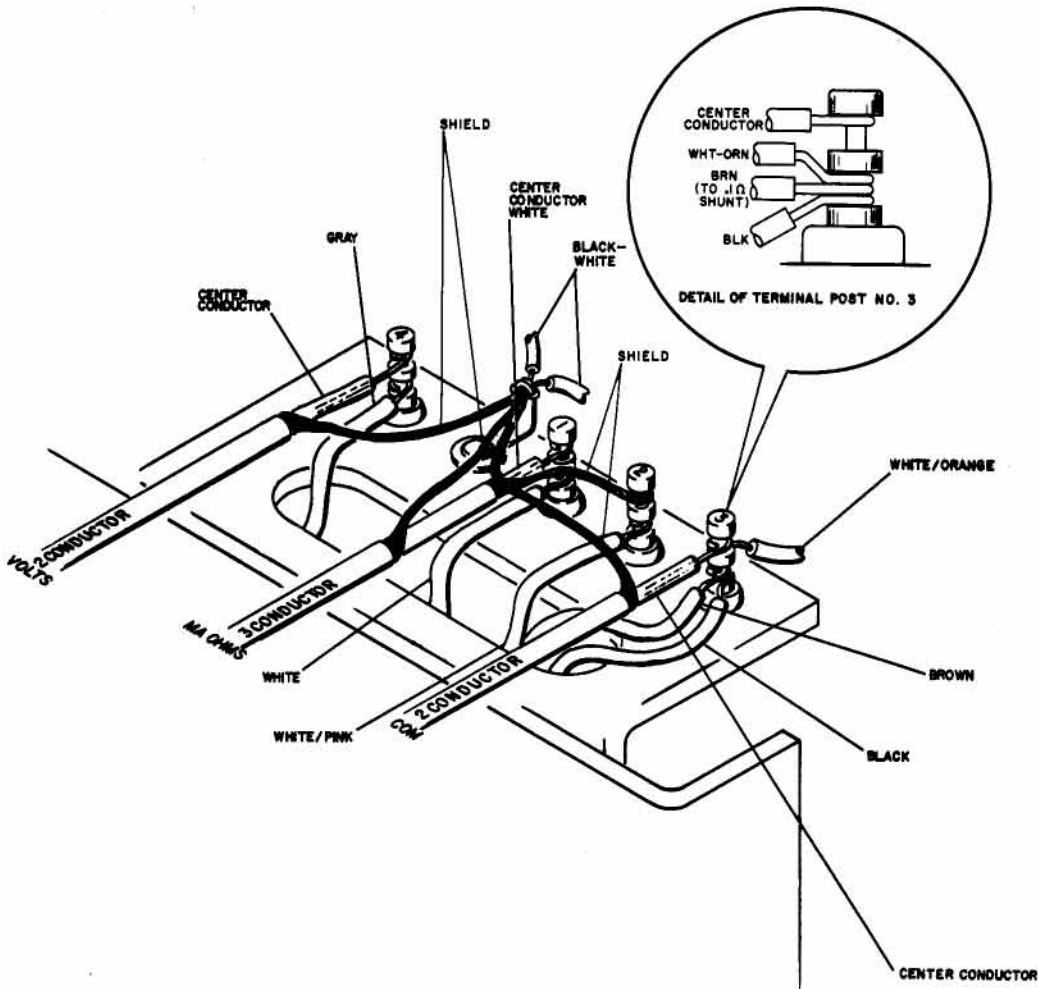
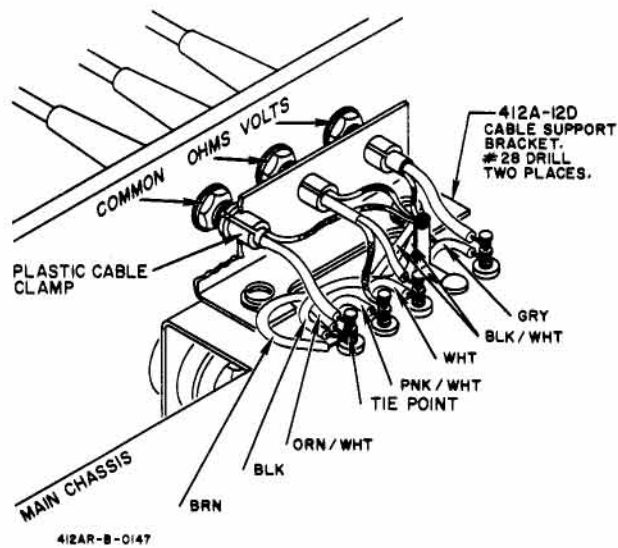


Figure 4



412A-LD-L-11-CBA

Figure 5



412AR-B-0147

Figure 6