

**SHIELDING HARDWARE ENCLOSURE KITS**

CONTACT POSITION	HDE-20 CONNECTOR		HDP-20 CONNECTOR		CONTACT POSITION	HDP-22 CONNECTOR	
	PLUG	RECEPTACLE	PLUG	RECEPTACLE		PLUG	RECEPTACLE
9	1-747944-[]	1-747943-[]	1658655-1	1658654-1	15	1658678-1	1658688-1
15	1-747946-[]	1-747945-5	1658657-1	1658656-1	26	1658679-1	1658689-1
25	1-747948-[]	1-747947-[]	1658659-1	1658658-1	44	1658680-1	5748641-1
37	1-747950-[]	—	5747958-1	1658660-1	62	5748476-1	5748642-1
50	—	—	1658661-1	5747959-1	78	5748477-1	—

Figure 1

**1. INTRODUCTION**

This instruction sheet covers assembly procedures for the shielding hardware enclosure kits with AMPLIMITE HDE-20 IDC and HDP-20 and HDP-22 crimp snap-in contact connectors listed in Figure 1. The kits are used to construct an RFI/EMI-shielded connector assembly.

Read these instructions, and all referenced material, before assembling the kits. Detailed operating procedures are provided in the instructions packaged with the crimping die assemblies and tooling.

**NOTE** *Dimensions on this sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.*

Reasons for reissue of this instruction sheet are provided in Section 6, REVISION SUMMARY.

**2. DESCRIPTION (Figure 1)**

Each kit includes an AMPLIMITE HDE-20, HDP-20, or HDP-22 connector, an inner shield, an outer shield, a shielding enclosure, and two jackscrews.

The enclosure, molded of black, flexible thermoplastic, is designed to fit over a terminated, shielded connector and provide a nonconductive, protective cover for the assembly. The jackscrews are used to secure the connector assembly to a corresponding free-hanging or panel-mounted connector. A shoulder on the jackscrew is a slightly larger diameter than the jackscrew aperture on the flange of the enclosure. This feature retains the jackscrew in the shielding enclosure when the connector is unmated.

The connector (plug or receptacle) features slots on the rear of the metal shell, keyed to accept the corresponding shield. The metal shields are designed to hinge on the rear of the metal shell by inserting the keyed shield into the corresponding slots.

CONTACT POSITION		FERRULE■	CABLE DIAMETER RANGE (mm [in.])	CRIMPING DIE ASSEMBLY•	TOOLING•
HDE-20, HDP-20	HDP-22				
9, 15, 25	15, 26, 44	3-747579-0	4.19-4.83 [.165-.190]	543424-3 (408-9507)	Hand Crimping Tool 543344-1 (408-9315) or 2700-lb Pneumatic Power Unit 312522-3 (409-5843) fitted with Die Holder 58449-1 (408-9721)
			4.83-5.51 [.190-.217]	543424-2 (408-9507)	
			5.51-6.25 [.217-.246]	543424-8 (408-9507)	
		3-747579-2	6.25-7.21 [.246-.284]	543424-1 (408-9507)	
			7.21-8.23 [.284-.324]	543424-7 (408-9507)	
		3-747579-4	8.23-9.52 [.324-.375]	543424-6 (408-9507)	
		2-747579-7	9.52-11.10 [.375-.437]	543424-5 (408-9507)	
3-747579-6	10.16-11.68 [.400-.460]	543424-4 (408-9507)			
37, 50	62, 78	2-747580-4	5.84-6.73 [.230-.265]	543425-2 (408-9508)	
		2-747580-3	8.58-9.78 [.338-.385]	543425-1 (408-9508)	
		2-747580-1	9.52-10.97 [.375-.432]	58238-1 (408-9243)	
		3-747580-1	10.72-12.45 [.422-.490]	58237-2 (408-9242)	
		2-747580-2	12.19-14.27 [.480-.562]	58237-1 (408-9242)	

■ Must be ordered separately from hardware enclosure kit. Instruction material shown in parenthesis.

Figure 2

The two parts of the shield are designated as an inner shield and an outer shield due to their mating characteristics. The inner shield always hinges on the shorter side of the keystone configuration of the back face of the connector and the outer shield hinges on the longer side. See Figure 1. The inner shield locks into the outer shield with a pair of latching tabs after the shields are mounted on the connector shell.

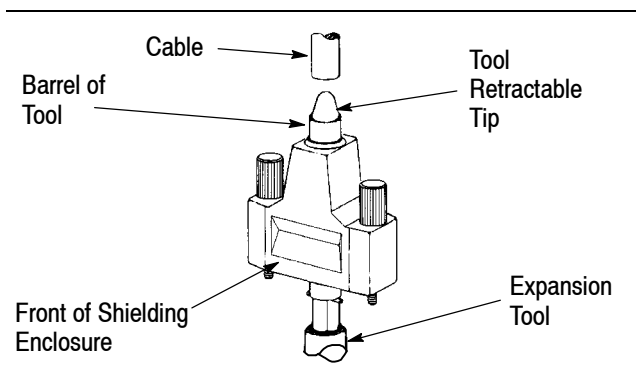
An appropriate ferrule, crimped with applicable crimping dies and crimping tool, is used to secure the shield assembly and cable. The larger diameter of the stepped ferrules is designed to fit onto the braid crimp area of all shield kits while the smaller diameter of the ferrules is sized according to required cable dimensions.

An expansion tool is also required for enclosure installation. The tool is designed to expand the cable exit of the enclosure. The tools feature a retractable tip which is used to facilitate the insertion of the cable through the cable exit of the enclosure and properly orient the neck of the cable exit on the enclosure.

### 3. PREPARATION

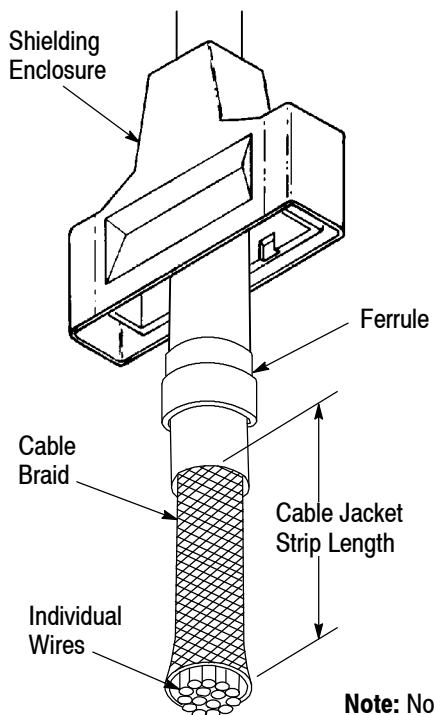
The contacts accept solid or stranded wire with a wire size (AWG) range of 20 through 30 on HDE-20, 18 through 28 on HDP-20, and 22 through 28 on HDP-22.

1. Obtain the shielding hardware enclosure kit and ferrule of the type and size required for your cable and application. See Figures 1 and 2.
2. Refer to Figure 3 and determine the appropriate expansion tool. Insert the tool through the front of the enclosure until the retractable tip is through the cable exit of the enclosure.



MAXIMUM CABLE DIAMETER (mm [in.])	EXPANSION TOOL KIT
8.38 [.330]	58241-4
11.43 [.450]	58241-1
14.52 [.572]	58241-2

Figure 3



Note: Not to Scale

CONNECTOR CONTACT POSITION		CABLE JACKET STRIP LENGTH ±1.27 [±.050] (mm [in.])
HDE-20, HDP-20	HDP-22	CABLE JACKET STRIP LENGTH ±1.27 [±.050] (mm [in.])
9, 15, 25	15, 26, 44	33.02 [1.300]
37	62	43.18 [1.700]
50	78	40.64 [1.600]

Figure 4

3. Retract the tip of the tool and slide the end of the cable into the barrel of the tool.

4. Maintain the position of the cable and withdraw the tool, allowing the cable exit of the enclosure to contract over the outer jacket of the cable.

5. Slide the enclosure further onto the cable allowing at least 152 mm [6 in.] of the cable to extend past the front of the enclosure.

**CAUTION** It is extremely important to properly assemble the enclosure onto the cable before installing the metal shields and **BEFORE TERMINATING THE CONNECTOR**.

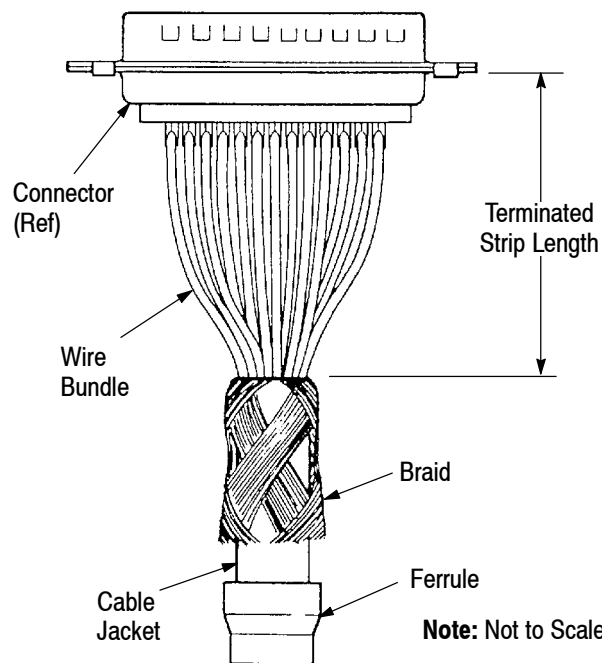
6. Slide the proper ferrule, smaller diameter end first, onto the cable. See Figure 4.

**CAUTION** The ferrule **MUST** be placed on the cable before terminating the connector and installing the metal shields. The metal shields cannot be crimped onto the cable without using a ferrule.

7. Strip the jacket to dimension shown in Figure 4. Then fold braid back over cable jacket. Trim off exposed foil (if present), taking care not to cut insulation of individual wires.

8. Terminate individual wires onto connector contacts.

**NOTE** For information regarding wire termination of AMPLIMITE HDE-20 connectors, refer to Instruction Sheet 408-6645; for HDP-20 connectors, refer to 408-7514; and for HDP-22 connectors, refer to 408-9381.



Note: Not to Scale

CONNECTOR TYPE	CONTACT POSITION	TERMINATED STRIP LENGTH ±1.27 [±.050] (mm [in.])
HDE-20	9, 15, 25	33.02 [1.300]
	37	38.10 [1.500]
HDP-20	9, 15, 25	33.02 [1.300]
	37	40.64 [1.600]
	50	38.10 [1.500]
HDP-22	15, 26, 44	33.02 [1.300]
	62	40.64 [1.600]
	78	38.10 [1.500]

Figure 5

#### 4. SHIELD ASSEMBLY PROCEDURE

1. Measure the terminated length of the assembly as shown in Figure 5.



The length must be as indicated in Figure 5 and must conform to the configuration as shown in the illustration; otherwise, wires may be pinched between the shields when they are closed. The proper length and configuration may be achieved by twisting (and thereby shortening) the wire bundle after termination; however, make certain that no undue stress is placed on the terminated contacts during the procedure. The MAXIMUM amount that the bundle may be twisted to achieve the desired length is 90°.

2. Insert the hinge tabs of the inner shield into the corresponding slots of the connector and rotate the shield 90° toward the cable. See Figure 6.
3. Insert the hinge tabs of the outer shield into the corresponding slots of the connector. See Figure 6.

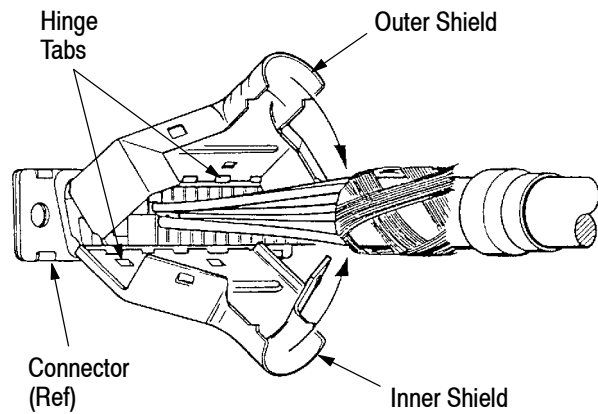


Figure 6

4. Make sure that the inner shield is in its final position and close the outer shield until it latches onto the inner shield with the two latching tabs fully engaged. See Figure 7.



Take care not to pinch any individual wires between the shields.

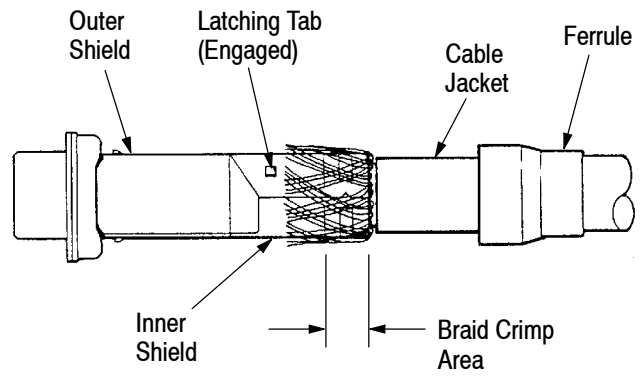


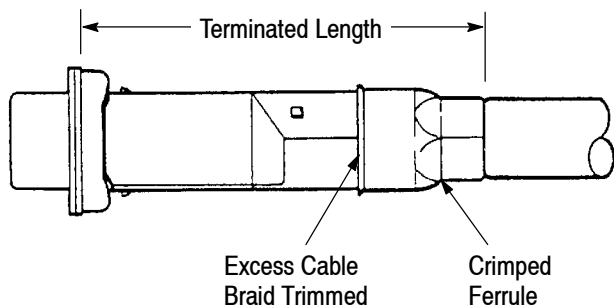
Figure 7

5. Fold the braid over the braid crimp area of the mated shields. See Figure 7.
6. Slide ferrule forward until it is over the braid and butted against the shield assembly.

#### 5. CRIMPING THE FERRULE

1. Refer to Figure 2 and determine the crimping die assembly and tooling to be used for crimping the ferrule.
2. Crimp the ferrule onto the shield assembly and cable.
3. Examine the terminated assembly and measure the terminated length according to Figure 8. If necessary, trim excess cable braid from the braid crimp area.
4. Place the connector face on a flat surface and apply even pressure to the enclosure flanges until the shielding enclosure is completely seated on the connector assembly.
5. Push the threaded end of each jackscrew through the apertures in the flanges of the enclosure and then through the holes in the metal flanges of the connector shell.

Figure 9 shows the terminated connector with shielding enclosure and jackscrews installed.



CONNECTOR TYPE	CONTACT POSITION	TERMINATED LENGTH $\pm 0.64$ [ $\pm .025$ ] (mm [in.])
HDE-20	9, 15, 25	38.61 [1.520]
	37	47.42 [1.867]
HDP-20	9, 15, 25	38.99 [1.535]
	37	48.06 [1.892]
	50	47.42 [1.876]
HDP-22	15, 26, 44	38.99 [1.535]
	62	48.06 [1.892]
	78	47.42 [1.876]

Figure 8

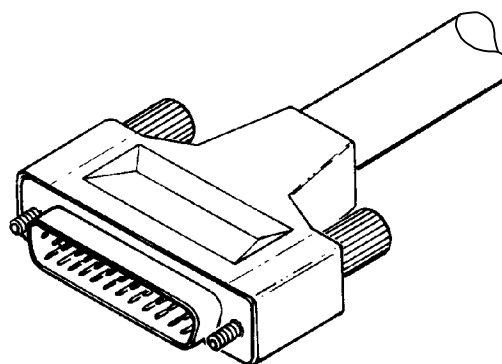


Figure 9

## 6. REVISION SUMMARY

Revisions to this instruction sheet include:

- Updated document to corporate requirements.