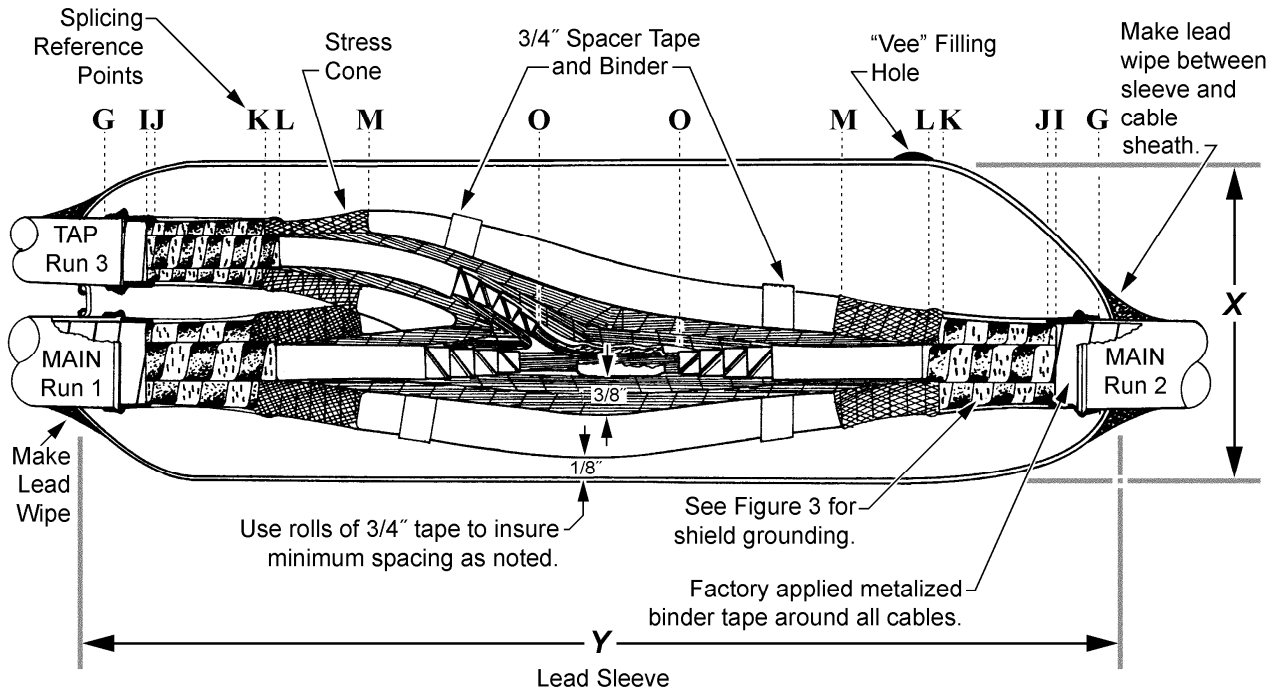


**SPLICE, WYE, THREE CONDUCTOR, 13 KV  
 PAPER INSULATED, LEAD SHEATH**

**Three Conductor Wye Splice – Figure 1**



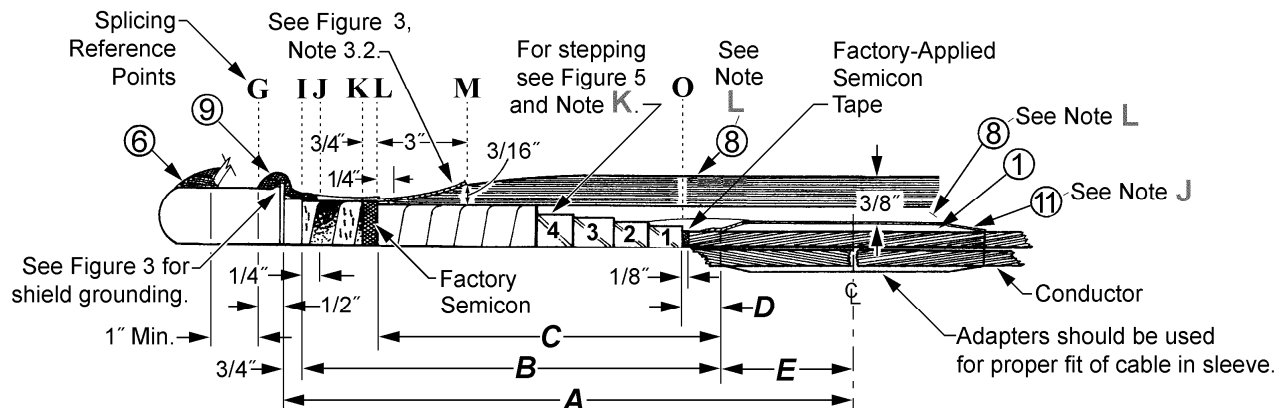
**Splicing Notes**

- A.** Rack cables in their final positions. Cut mains to butt squarely together. Cut tap to dimensions shown. Allow six-inch excess to facilitate cable positioning.
- B.** Prepare joint sleeve and prepare sleeve ends for solder.
- C.** Clean the inside of the sleeve and cable surface where sleeve will rest during splicing. Slip sleeve over cable to this area unless split sleeve is necessary.
- D.** Remove jacket "A" + 6 inches on all cables. Remove lead sheath "A" inches and bell out ends. Remove all burrs and sharp edges and prepare sheaths for soldering.
- E.** Remove overall binder tapes to point **I**. Remove outer filler to point **I** and inner filler. Then bind cables together tightly at point **J** with dry cotton one-inch tape. Do not overbend cable and break insulation!
- F.** Wrap each cable with four wraps of dry cotton one-inch tape for temporary protection and tie at point **O**. Put heat lamp on splice at this time to keep moisture off cable at this time.

STANDARDS COORDINATOR	STANDARDS SUPERVISOR	UNIT DIRECTOR
<i>Charles L. Shaffer</i>	<i>John Schinner</i>	<i>Harold Gray</i>

**CONSTRUCTION GUIDELINE**

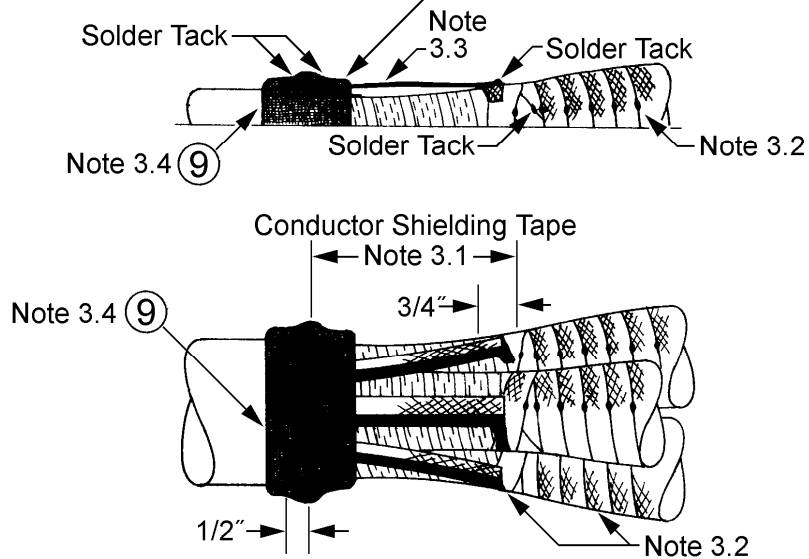
- G.** Remove cable shielding and paper insulation tape from each conductor to point **O**, leaving at least one-quarter inch of semicon on this conductor to run the crepe paper semicon over. Extra exposed conductor on crotch side is needed to form proper crotch.
- H.** Remove shielding tape to point **K** and semicon to point **L** and step insulation per Figure 3. Temporarily tie down stepped insulation with dry left twist. Steps should be torn and not cut sharply; let them feather out.
- I.** Compress connector after conductors are shaped. De-burr connector and smooth out any roughness or sharp points. Use 110° C taping oil for any flushing. Do not use transformer oil!
- J.** Apply one layer of crepe paper semicon half-lapped over connector and conductor semicon. Taping oil-saturated shielding braid may be packed into crotch under semicon to form a radiused crotch for taping.
- K.** Fill the corner of each step with dry cotton yarn soaked in 40°C taping oil if necessary to fill sharp steps that are not feathered out. Use a heat lamp to keep taping oil hot.
- L.** Start uniform buildup with three-quarter-inch tape (Stock No. 736682) to conductor O.D. Then apply tape to build up stress cone and overall thickness as shown. Stop three-quarter-inch tape one-quarter inch from end of factory shielding tape. Apply 40° C taping oil between each tape layer. Figure-eight tape (one-half-inch) through crotch to get good early buildup. Use "suspenders" from one-half-inch tape in crotch to firm it up. See Figure 6.
- M.** Install crepe paper between points **K** and **M**. Apply ground mesh tape from **M** to three-quarter inches over point **K**. Also install one-inch copper mesh tape between points **G** and **J**. (See Figure 3 for details.) Solder copper ground mesh to bond cable sheath to all shielding tapes.
- N.** Place tight rolls of three-quarter-inch varnished poly tape between phases to keep one-eighth-inch minimum gap between phases. Bind phases together tightly at tape spacers. Keep one-eighth-inch spacing between unshielded phases and lead sleeve.
- O.** Position sleeve around splice with filling "Vee" hole up. Solder sleeve ends to cable lead sheaths. Put "Vee" hole on single run side if possible.
- P.** Tip joint downward and fill with "Vee" hole on high end. Fill. Allow compound to cool, then add additional compound as required. Close and solder "Vee" hole. (Pour compound at 145° C, approximately 300° F. Do not heat over 400° F (200° C) or it can catch fire.)
- Q.** Tools shall be kept in drip pan under a heat lamp to prevent contamination and condensation. If splice is to be left overnight, bag and place desiccant inside bag.

**Dimension and Taping Details – Figure 2**

"Note" refers to Splicing Notes, above, or notes related to figures on later pages (as Figure 3, note 3.2).

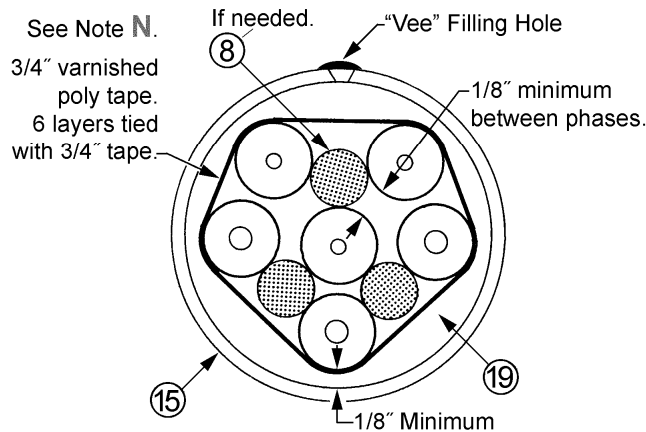
**Termination of Conductor Shielding Tape – Figure 3**

One layer, half lap, copper mesh braid solder tacked to sheath and cable shielding.

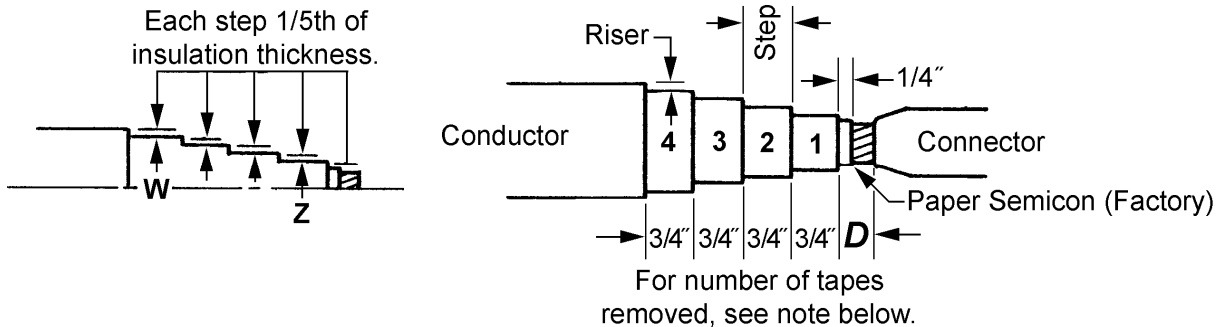


- 3.1 For cutting dimensions of sheath, binder and conductor shielding tape, refer to Splicing Note **H** and Figure 2.
- 3.2 Wrap each conductor with a 1/2 lapped layer of crepe paper semicon from Splicing Reference Point **K** to **M**. Apply shielding braid and secure by passing the end through the last turn applied. This tape to be applied between point **M** and 3/4" past point **K**.
- 3.3 The trailing end of copper braid, after securing, shall be connected to the sheath as illustrated.
- 3.4 Solder ends of braid. Also solder braid between turns to cable shielding and to lead sheath.

**Cross Section – Figure 4**

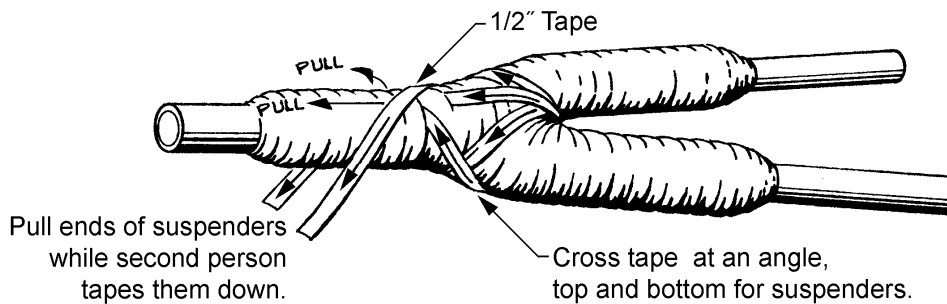


**Stepping Insulation – Figure 5**



- 5.1 To allow for variations in paper insulation thickness, if required, riser "W" and one step adjacent to it may be as high as 1/16". Riser "Z" may be as low as 1/32".
- 5.2 See splice dimensions for "D" values (Key for Figures 1, 2 and 5).
- 5.3 The number of tapes to be removed for any given step can be determined by counting the total number of paper insulation layers and dividing them by 5.

**Typical Suspenders – Figure 6**



- 6.1 Apply one suspender and tape down to hold. Trim excess ends used to pull on.
- 6.2 Suspenders also will help to build up the sides of "Wye".
- 6.3 Do not apply suspenders all at once; use as necessary. Stagger between layers of tape and don't end in the same place causing a lump.

SEATTLE CITY LIGHT  
**CONSTRUCTION GUIDELINE**

STANDARD NUMBER: **NSP-80**

PAGE: 5 of 5

SUPERCEDING: May 23, 2001

EFFECTIVE DATE: October 27, 2004

**Material List**

Item	Quantity	Description	Stock No.
1, 2, or 3	*3 EA	Connector, Tinned Copper Compression	*
4	As Required	Adapters, Copper	As Required
5	As Required	Solder, Rosin Core	728504
6	As Required	Wiping Metal	728528
8	23 RL	Tape, 3/4" Varnished Poly	736682
9	4 RL	Tape, Mesh, 1" Tinned Copper Shielding Braid	736244
10	As Required	Tape, Cotton, Woven, 1"	736170
11	As Required	1" Tape, Crepe Paper, Semicon	736245
12	As Required	Yarn, Dry, 100% Cotton	727340
13	1 QT	Oil, Taping	726320
15	1 EA	Tube, 8" ID Lead, 36" Long	Non-stock
17	As Required	Solder, 40-60 Bar	728496
18	1 EA	Flux, Solder	728112
19	As Required	Compound, Filling	726318

\*See tabulation for proper item and stock numbers.

**Key for Figures 1, 2 and 5**

Splice Groups	Dimensions, inches							Compression Connector	
	A	B	C*	D	E	X	Y	Item	Stock No.
500 kcmil RUN 1	16-7/8	13-1/4	9	2	-	-	36	1	677347
500 kcmil RUN 2	14-5/8	11	6-3/4	1/2	1-3/4	8	-	1	677347
#4 RUN 3	21	14-1/2	9	2	-	-	-	1	677347
#3/0 RUN 1	16	13-1/4	9	2	-	7	34	2	677340
#3/0 RUN 2	13-3/4	11	6-3/4	1/2	1-1/4	-	-	2	677340
#4 RUN 3	19-1/4	14-1/2	9	2	-	-	-	2	677340

Approximate measurements. They may have to be adjusted for conditions such as a phasing "Wye" splice and material. For explanation of "RUN 1", etc., see Figure 1.

\* Dimension "C" should not be reduced below 6-3/4" (creepage).