

CONSTRUCTION GUIDELINE

CABLE, EQUIPMENT AND FACILITY IDENTIFICATION

A. Cable Tagging and Phase Marking

Identification tags are the primary means of identifying all cables in the field. In order that these tags may be relied upon, they shall be fastened to each cable immediately after the cable is pulled in.

Tags shall be made as follows:

1. Stainless Steel Embossing Tape

The lettering shall be made with a hand embossing tool on stainless steel embossing tape (Item 1). The tape shall be 1/2-inch wide with letters 5/32-inch high. When embossing the letters on the tape, a 1-inch space should be left between the ends of the tape and the metal tape protector so that the tags can be securely fastened to the cables, as shown.

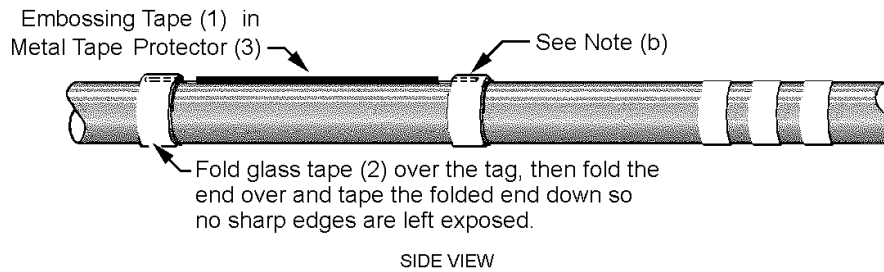
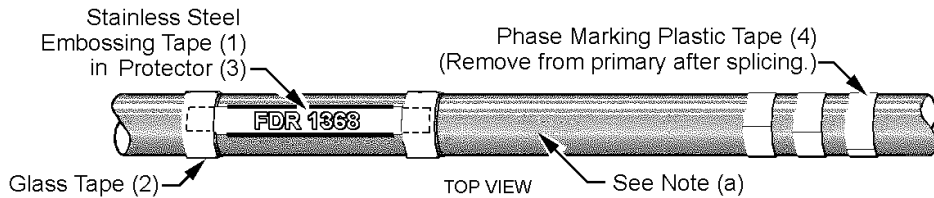
2. Tags




Tags should be placed at all duct mouths and, if possible, also at a location so they can be read from the ladder.

Cables shall be identified by descriptions similar to the following examples:

- **PRI CABLE: 26CI23**
- **NETWORK: 208Y/120V BUS TIE**
- **BUS TIE WEST**
- **SERVICE 1015-3RD AVE.**
- **FDR 1368**
- **FDR 1396P2**

There shall be no sharp edges left exposed on metal tags. Use metal tape protector (Item 3). Note, parallel feeders are identified in the feeder number as with the example, FDR 1396**P2**.



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A. Cable Tagging and Phase Marking, continued

3. Phase Marking

On new cables, both primary and secondary, indicate the phases with bands of overlapping yellow plastic tape (Item 4). For primary cable, remove the phase marking after splicing.

- **Phase One - one band of yellow plastic tape around cable**
- **Phase Two - two bands**
- **Phase Three - three bands**

4. Cable Tagging for Cables when Cable Identification is Covered by Arc Proofing or Jacket.

When imprinted cable identification such as conductor size, cable type, manufacturer's name, and year of manufacture is covered by arc proofing or is on the inside of jacketing, tag the cables with stainless steel embossing tape, as above, labeled with the cable identification information. Separate tags should be placed on each side of a splice near the splice (for the splice itself, see section A5., below). The feeder number should be on a separate tag from the cable information.

Cables shall be identified by descriptions similar to the following examples:

- **3/0 S X H 99** (conductor size, 3/0; conductor shape, sector; cable type, XLP; manufacturer, Hitachi; date of manufacture, 1999). The feeder number for this cable will be placed on a separate tag, as, **FDR 1317**.
- **500 R E K 01** (conductor size, 500; conductor shape, round; cable type, EPR; manufacturer, Okonite; date of manufacture, 2001). The feeder number for this cable will be placed on a separate tag, as, **FDR 1396P2**. Note, parallel feeders are identified in the feeder number as with this example, **FDR 1396P2**.
- **HS** (splice type). Place a separate tag on the splice (see section A5 below).

Cable identification information should be transferred to the tag using the codes in the table below. If the information is not available, place a "U" or "UN" in any of the fields. **Record the information in the following field order with a space between each field.**



Conductor		Insulation Type	Number of Conductors	Manufacturer	Year of Manufacture	Conductor Material	Splice Type
Size	Shape						
Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	-
4	RD = round	X = XLPE	1 = single conductor	B = BICC	last two digits	A = aluminum	HT = hand tape
1	SC = sector	X = TRXLPE	2 = concentric neutral	C = CABLEC	02 = 2002	blank = copper	HS = heat shrink
3/0	UN = unknown	E = EPR	3 = 3 conductor	D = Dainichi-Nippon	UN = unknown	for copper cable leave this field blank	for tagging straight splices only
300		L = PILC (lead)	6 = 6 conductor (full size neutral)	H = Hatachi			
350		U = unknown	T = triplex	K = Okonite			
500			6 = 6 conductor (full size neutral)	P = Prysmian, formerly Pirelli			
750			U = unknown	S = Sumitomo			
1000	U = unknown	U = unknown	W = Showa	X = Condumex	U = unknown	this separate tag contains splice type only - see section A5	

5. Splice Tags

In addition to the separate tags placed on each side of a splice with cable information, place a tag on **straight** splices indicating the splice type: hand tape (HT) or heat shrink (HS). "Wyes" and 4-Ways are self-evident and don't need tags.

A. Cable Tagging and Phase Marking, continued**6. Material List for Cable Tagging and Phase Marking**

Item	Quantity	Description	Stock No.	Material Standard
1	as required	TAPE, Stainless Steel Embossing	723370	7658.5
2	as required	TAPE, Glass	736632E	–
3	as required	PROTECTOR, Metal Tape	723378	–
4	as required	TAPE, Plastic	736776	7367.5

B. Vault, Manhole, Handhole, Switchroom and Major Equipment Identification in Network Areas**1. General**

All transformer vaults, manholes, handholes, switchrooms, transformers, network protectors and 13-kV metal-enclosed switchgear shall have self-sticking letters and/or numbers. These letters and/or numbers shall be 2-7/8" x 1-3/4", yellow on black background. On unfinished concrete or concrete block, the letters and/or numbers shall be yellow on black. A plastic panel shall be in accordance with Stock Catalog, Stock No. 766300 with four anchor nail drive, Stock No. 780010E. On outside of vault or switchroom doors, use sign, Stock Nos. 765182 and 765209, and self-stick letters. The locations shall be as follows.

2. Area Numbers (Vaults, Manholes, etc.)

Self-stick designated letters and/or numbers shall be applied on a minimum of three walls at 5 to 7 feet above the floor and on the outside of the vault doors. Two of these shall be in a direct line of sight from the entrance. In addition to labeling the three walls, when the access to the vault or manhole is through the roof, the assigned letters and/or numbers shall be applied to a plastic panel which shall be fastened on the neck so it can be seen from above when the hatch or cover is opened or removed.

3. Feeder Numbers

Self-sticking numbers of all feeders that enter the walk-in vaults or switchrooms shall be applied in a prominent location that can be seen from the entrance door without actually entering the area. Apply the feeder number in five locations:

- one feeder number on the transformer high side,
- one feeder number on the door of the network protector,
- one feeder number on the side wall of the network protector under the protector switch,
- and feeder numbers on both the front and back of the 13 kV metal-enclosed switchgear.

In some installations, the 13 kV metal-enclosed switchgear will not be used. In those cases, omit all references to it. In transformer vaults having access through the roof, the feeder numbers shall be applied to a plastic panel which shall be fastened on the neck so that it can be seen from above when the hatch or cover is opened or removed.

4. Phase Numbers

Apply self-sticking phase numbers on the transformer high voltage terminal chamber, Phase 3, 2, 1 left to right facing the high voltage chamber. Apply phase numbers on the network protector door near the top, Phase 1, 2, 3 left to right facing the door. Apply phase numbers on the IWCB to correspond to the phasing on the network protectors. Apply phase numbers using a plastic panel adjacent to the service bus to correspond to the phasing on the IWCB. Apply phase numbers on the front and rear of the 13-kV metal-enclosed switchgear. On the front, they are read 1, 2, 3; left to right. On the rear, 3, 2, 1 left to right at two places (see page 4).

5. Transformer Numbers

Apply the transformer number vertically (reading down) on the left side (facing high voltage chamber) of the high voltage chamber cover plate. Apply the kVA rating vertically (reading down) on the right side of the high voltage chamber cover plate. Apply the feeder number near the bottom. Note: These numbers may be on the transformer as delivered. If so, do not apply.

B. Vault, Manhole, Handhole, Switchroom and Major Equipment Identification, continued

6. Network Protector Numbers

Apply the network protector number on the door of the network protector near the middle. Apply the voltage and ampere rating below. Apply the feeder number near the bottom and on the side under the protector switch.

Note: These numbers may be on the network protector as delivered. If so, do not apply.

7. 13 kV Metal Enclosed Switchgear Numbers

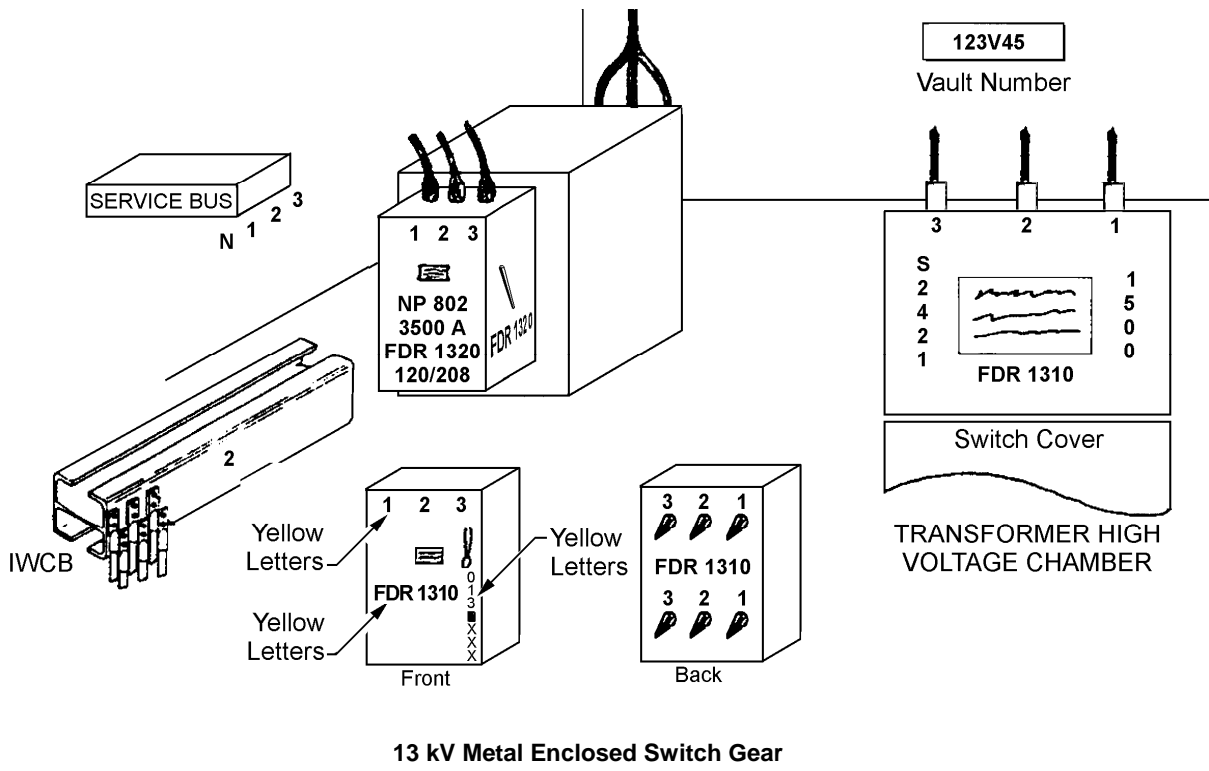
Apply the 13 kV metal-enclosed switchgear number on both the front and rear of the switch enclosure at 5 to 7 feet from the floor. Do not apply number on viewing window(s). Switch numbers will be on the installation drawing(s). The switch letters and numbers shall be applied yellow on black background located as shown on page 4.

8. In-Building Vault Doors

Apply self-sticking "DANGER HIGH VOLTAGE" sign with top of sign 6 feet from floor (Stock No. 765182). Beneath this sign apply self-sticking sign "ELECTRICAL VAULT -- FOR ENTRY CALL 625-3000" (Stock No. 765209). Apply self-sticking yellow on black numbers and letters in space provided to identify facility.

9. Material List for area and Equipment Identification

Stock Number	Description
766310 to 766335	LETTERS AND NUMERALS, Yellow on Black, 2-7/8" x 1-3/4", 25/pk
765209	SIGN, "Electrical Vault, Authorized Personnel Only"
766300	BLANK PANEL, 8-Position, for use with 2-7/8" x 1-3/4" letters
780010E	ANCHOR NAIL DRIVE, 1/4" x 1"
765182	SIGN, "DANGER - HIGH VOLTAGE", self adhesive



13 kV Metal Enclosed Switch Gear