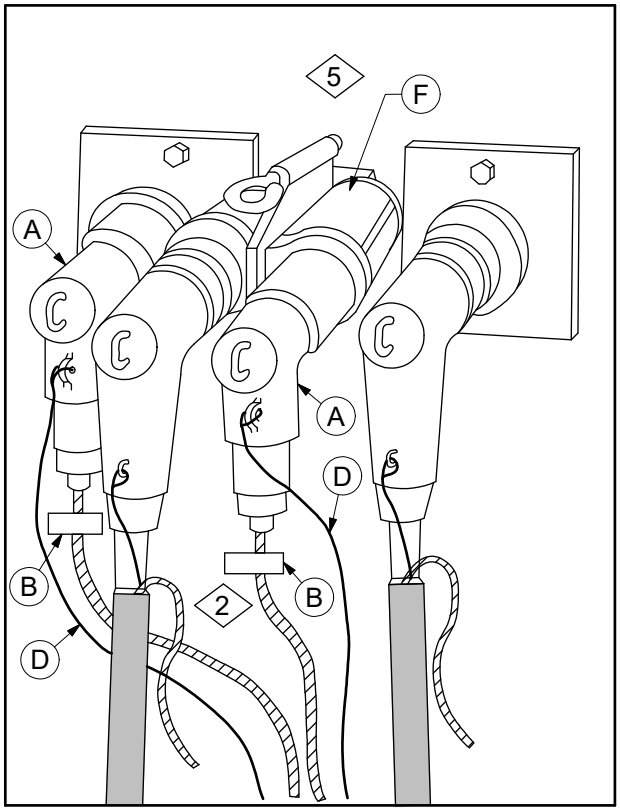
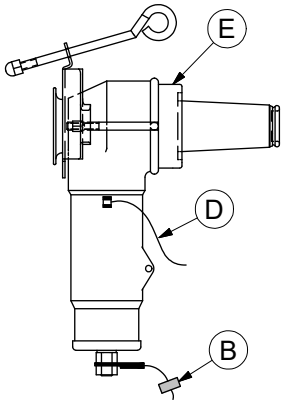
ELBOW ARRESTER - FOR OPEN-POINT PADMOUNT EQUIPMENT - 5kV, 15kV.....54 11 01 **

SINGLE-PHASE PDMT XFMR - REPLACEMENT OF
LOW WITH HIGH PROFILE - 5kV, 15kV.....54 12 01 **





Parking Stand Arrester

DCS #	DESCRIPTION
54 11 01 01	Installation on transformer w/ under oil arrester
54 11 01 01	No under oil arrester, increase items A & B to 2 each
54 11 01 02	No under oil arrester and limited space between bushings
54 11 01 03	Installation on transformer w/ under oil arrester and limited space between bushings
54 11 01 04	Installation on 25 kV transformer and no under oil arresters

CONSTRUCTION NOTE(s):

1. Care must be taken to avoid confusing elbow arresters with grounding elbows. Grounding elbows are for grounding isolated URD primary cables and are generally either yellow or orange in color. Care must also be taken to avoid confusing a parking stand arrester with an insulating standoff bushing.

2. Elbow arresters and parking stand arresters should always be identified with the special “Lightning Arrester” nameplate. The nameplate should be attached to the ground lead prior to installing the arrester.

3. The arrester mating interface must be coated with a thin layer of silicone lubricant prior to installation.

4. When installing arresters, the ground lead must always be attached first. The ground lead must be attached to the transformer/enclosure ground using a hot line clamp. A #14 copper drain wire must be attached from the arrester body to the transformer/enclosure ground connection.

5. All transformers shall have an arrester installed at open points unless the transformer is equipped with an under oil lightning arrester. If the transformer has an under oil arrester, an arrester will not be placed on the open transformer bushing. Instead of an arrester an insulating cap (Stock # 17 55 227) will be placed on the open transformer bushing.

REV	DATE	ENG	DESCRIPTION
9	07/01/21	EJB	Converted to new format; Added 04 standard; Revised Title
8	05/31/13	EJB	

6. Install elbow arresters on feed thru bushings or equipment bushings in a manner similar to installing a loadbreak elbow. Due to space limitations in the Type II transformers it may be necessary to use a parking stand arrester instead of a feed thru bushing and elbow arrester. The parking stand arrester is installed in a manner similar to installing a feed thru bushing. The open point loadbreak elbow is installed on the parking stand arrester and an elbow arrester is installed on the open equipment bushing.

	ITEM	STK / DCS #	DESCRIPTION 54 11 01 **	01	02	03	04
	A	10 01 138	10 kV Elbow Arrester	1	1	-	-
		10 01 267	18 kV Elbow Arrester	-	-	-	2
2	B	16 01 147	Plate, Name, 1 1/4" x 2", Red, "Lightning Arrester"	1	2	1	2
	C	23 78 183	Hot Line Clamp	1	2	1	2
4	D	18 52 018	Wire, Copper, Binding, #14 (ft.)	4	8	4	8
6	E	10 01 151	Parking Stand Arresor - 10kV	-	1	1	-
@	F	17 55 228	Bushing - Feed Thru, 15 kV	1	-	-	1

DESIGN NOTE(s):

7. Single-phase installation shown. Adjust quantities for three-phase applications.

8. Arresters are for 4160 Grd. Y/2400V, 12470 Grd. Y/7200V,13200 Grd. Y/7620 and 13800 Grd. Y/7970 volt padmounted transformers and padmounted junction enclosures. Elbow arresters are not installed on radial feed 3 phase padmount transformers.

9. If an elbow arrester is to be installed on both the feed thru bushing and the spare transformer / enclosure bushing, then enter a quantity of 2 when estimating DCS 54 11 01 01 standard.

OPERATING NOTE(s):

10. Elbow arresters are to be removed with an elbow pulling tool (Stk.#83 29 136). The pulling tool must be attached to the pull ring on the back of the elbow arrester.

11. Whenever installing or removing arresters, care must be taken to avoid bending or twisting the arrester. If arresters are subjected to excessive bending, twisting, or pounding or if the arresters appear to be defective they must not be used.

12. If open points are found while performing routine work, they should be retrofitted with arresters.

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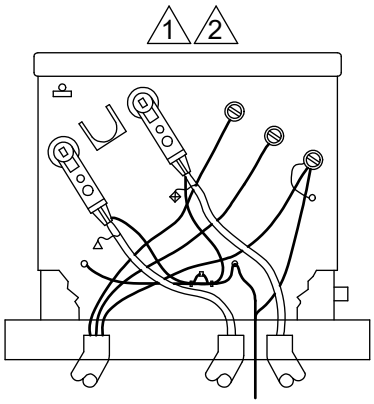
9	07/01/21	EJB	Converted to new format; Added 04 standard; Revised Title
8	05/31/13	EJB	

Option 1 - Rotate Pad 180 Degrees

The Transformer pad can be rotated 180 degrees if:

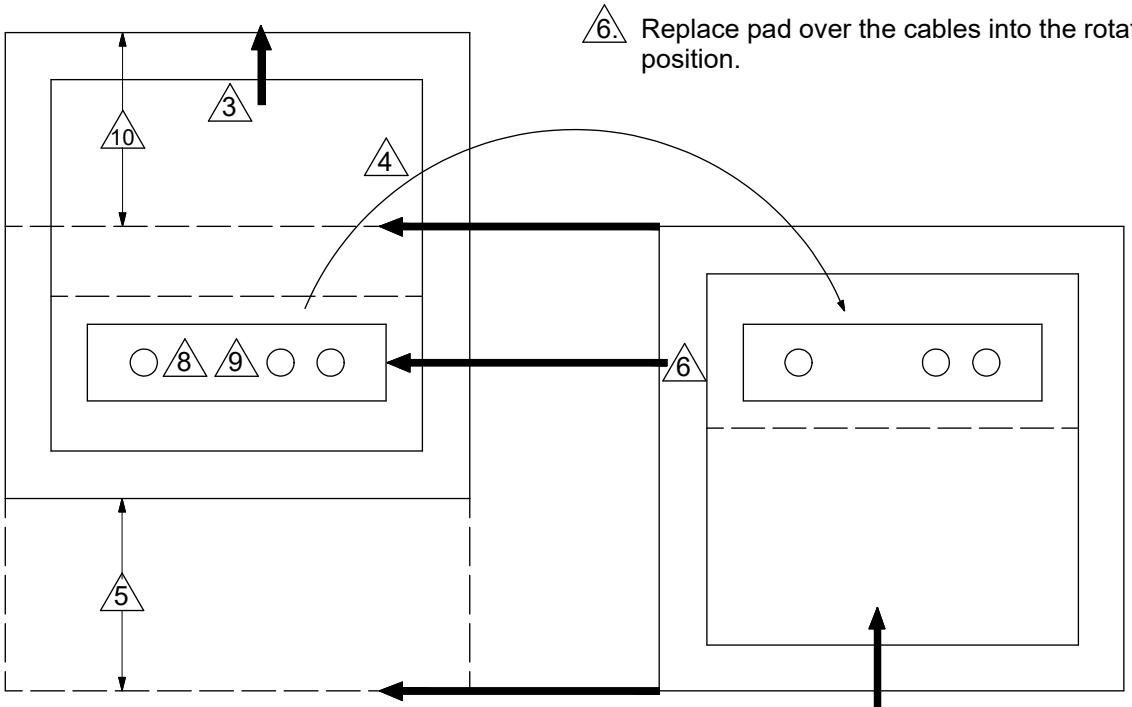
A) The easement allows
B) There are no obstructions in front of the rotated pad to prevent 10 ft. access
C) primary cables and secondary wire were installed per low-profile standards.



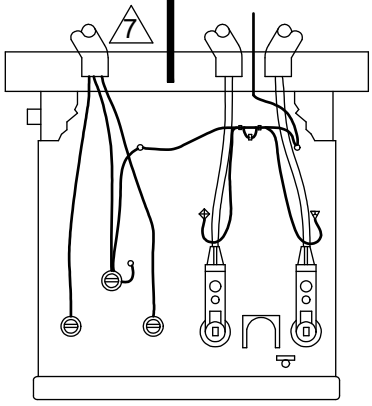
TYPE II - 24" HIGH

INSTRUCTIONS - Option 1

1. De-energize the transformer and primary cables feeding into the transformer.
2. Disconnect and ground all cable and wire connections.
3. Remove the low-profile transformer from the pad.
4. Remove the pad.
5. Level and prepare rotated pad location.
6. Replace pad over the cables into the rotated position.



7. Place new high-profile transformer onto the rotated pad.
8. Reorient and reconnect all cables and wires to the new transformer.
9. Reenergize the primary cables and the new transformer.
10. Back-fill and restore remainder of the old pad location as needed.

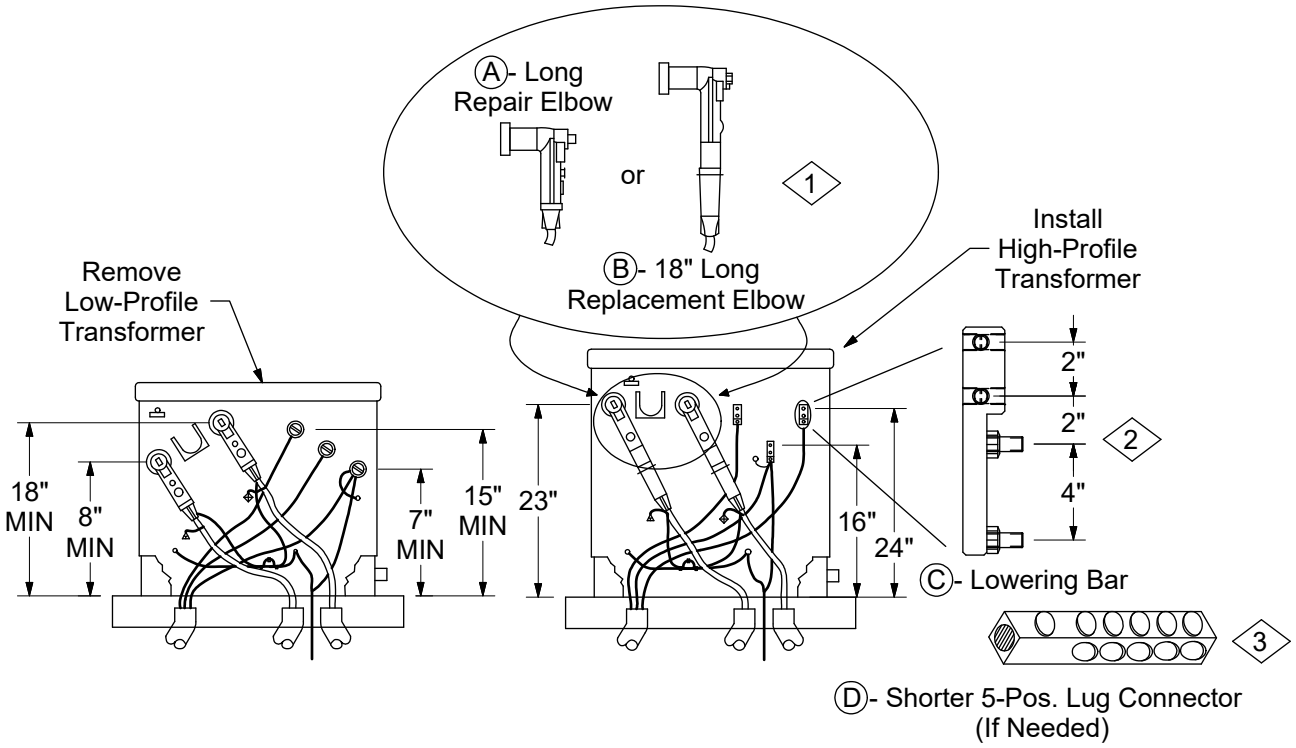


TYPE I - 32" HIGH

REV	DATE	ENG	DESCRIPTION
1	07/01/21	DG	Updated to new format; Changed Lowering Bar stock #s; & more
0	10/22/15	DG	Initial Release

Option 2 - Keep Pad Orientation and Re-Terminate Primary Cables and Secondary Wires

If the transformer pad cannot be rotated 180 degrees, the primary cables and secondary wires will likely not be long enough. The following materials can be used as needed to re-terminate the cable and wires to the new High-Profile transformer.

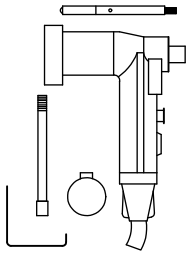


CONSTRUCTION NOTE(s):

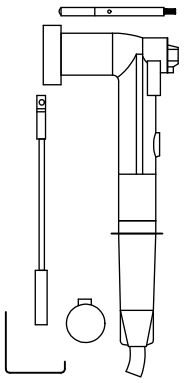
1. Load-Break Repair or Replacement Elbows
There are two versions of longer load-break elbows available that can be used to re-terminate the primary cables so they will reach the higher mounted primary bushings:

Ⓐ - The “Long Repair” elbow has an extended length contact and elbow housing that results in a net gain of 3-1/4 inches in length.

Ⓑ - The “18” Long Replacement” elbow has an extended length contact and elbow housing that results in a net gain of 8-7/8 inches in length.



Ⓐ- Long Repair Elbow



Ⓑ- 18" Long Replacment Elbow

REV	DATE	ENG	DESCRIPTION
1	07/01/21	DG	Updated to new format; Changed Lowering Bar stock #s; & more
0	10/22/15	DG	Initial Release

2. Secondary Bushing Lowering Bar

The secondary connectors can be disconnected from the low−profile transformer and secondary lowering bars installed to provide lower conductor connection points on the replacement high−profile transformer. The existing connectors are then reinstalled onto one of the studs of the lowering bar. In many cases this may lower the connectors enough to allow connection of the secondary conductors without splicing.

There are two secondary bushing lowering bars. Both provide for lowering the connectors either 2”, 4”, 6" or 8".

- Stock #18 12 128 has 5/8” slip-fit holes for connection to transformers up to 75 kVA.
- Stock #18 12 129 has 1” slip-fit holes for connection to transformers from 100 to 167 kVA.

3. Shorter 5-Position Secondary Lug Connector

In some cases, the connectors on the transformer being replaced may be too long and when installed on the lowering bar, cause inadequate clearance to the door of the transformer. In these cases, the lug connectors will need to be replaced with shorter lug connectors. These shorter lug connectors are limited to 5 conductors with a range of 1/0 to 750 per conductor position.

- Stock #17 55 230 has 5/8” slip-fit holes for connection to transformers up to 75 kVA.
- Stock #17 55 229 has 1” slip-fit holes for connection to transformers from 100 to 167 kVA.

	ITEM	STK / DCS #	DESCRIPTION 54 12 01 **	01	02	03	04	05	06	07	08	09	10
	A	17 05 250	#2 AWG Al, STR, 175 or 220 Mil (Long Repair)	2	-	-	-	-	-	-	-	-	-
		17 05 303	#2 AWG Al, SOL,175 Mil (Long Repair)	-	2	-	-	-	-	-	-	-	-
		17 05 304	1/0 AWG Al, STR, 175 Mil (Long Repair)	-	-	2	-	-	-	-	-	-	-
		17 05 514	3/0 AWG Al, CPR, 175 Mil (Long Repair)	-	-	-	2	-	-	-	-	-	-
		17 05 305	4/0 AWG Al, STR, 175 Mil (Long Repair)	-	-	-	-	2	-	-	-	-	-
	B	17 05 494	#2 AWG Al, STR, 175 or 220 Mil (18 Inch Long Replacement)	-	-	-	-	-	2	-	-	-	-
		17 05 498	#2 AWG Al, SOL, 175 or 220 Mil (18 Inch Long Replacement)	-	-	-	-	-	-	2	-	-	-
		17 05 499	1/0 AWG Al, STR, 175 Mil (18 Inch Long Replacement)	-	-	-	-	-	-	-	2	-	-
		17 05 515	3/0 AWG Al, CPR, 175 Mil (18 Inch Long Replacement)	-	-	-	-	-	-	-	-	2	-
		17 05 493	4/0 AWG Al, STR, 175 Mil (18 Inch Long Replacement)	-	-	-	-	-	-	-	-	-	2
@	C	18 12 128	Lowering Bar, 5/8” Slip-Fit for Up to 75 kVA	3	3	3	3	3	3	3	3	3	3
		18 12 129	Lowering Bar, 1” Slip−Fit for 100−167 kVA	3	3	3	3	3	3	3	3	3	3
@	D	17 55 230	Lug, 5−Pos., 5/8” Slip−Fit for Up to 75 kVA	3	3	3	3	3	3	3	3	3	3
		17 55 229	Lug, 5−Pos., 1” Slip−Fit for 100−167kVA	3	3	3	3	3	3	3	3	3	3

Option 3 - Splice or Replace Primary Cables and Secondary Conductors

If neither Options 1 or 2 allow the primary cables and secondary conductors to be reconnected to the replacement high-profile transformer, then splicing or replacement of primary and secondary cables/conductors will be required.

For the 600 V secondary, refer to DCS **41 14 36 ** or 41 14 37 01** for splicing materials and instructions.

For the 15 kV primary cable, refer to DCS **41 34 34 **, or 41 34 35 **** for splicing materials and instructions. Refer to DCS **42 34 62 **** for load break elbow materials and instructions.

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0	10/22/15	DG	Initial Release

NOTES