

2024



Overhead Distribution Construction Standards

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REVISION LOG

[illegible]

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1. PURPOSE AND SCOPE

- A. THE FOLLOWING OVERHEAD DISTRIBUTION LINE CONSTRUCTION STANDARDS ADDRESS THE MAJORITY OF CONSTRUCTION ISSUES.
- B. IT IS IMPERATIVE TO MAINTAIN STANDARDIZATION, AND THAT COMPLETED JOB ORDERS REFLECT ANY CHANGES ON THE INSTALLATION RECORDS TO ASSURE THAT ALL RECORD SYSTEMS REFLECT THE ACTUAL LOCATION AND FACILITIES AS THEY HAVE BEEN CONSTRUCTED. THE ACCURACY OF CONSTRUCTION TO STANDARDS WILL ALLOW SRP TO EXPEDITE FUTURE LOCATING, REBUILDING OR REPAIRING OF THESE FACILITIES TO IMPROVE CUSTOMER SERVICE.

2. HOW TO USE THIS BOOK

- A. REVISIONS ARE INDICATED BY RED FONT COLOR.
- B. TITLE BLOCKS ARE USED TO HOLD INFORMATION ABOUT THE BOOK, SECTION, AND STANDARD AND ARE LOCATED AT THE BOTTOM OF THE PAGE.
 - 1. "APPROVAL" REFERS TO THE ENGINEER RESPONSIBLE FOR THAT STANDARD.
 - 2. "ISSUE DATE" IS WHEN THE STANDARD WAS ORIGINALLY CREATED.
 - 3. REVISION DATE ("REV DATE") IS THE DATE THE STANDARD WAS LAST UPDATED. NOTE THAT STANDARDS ARE REVIEWED PERIODICALLY BY THE RESPONSIBLE ENGINEER, AND IF NO UPDATES ARE NECESSARY IN THAT REVIEW, THE REV DATE WILL REMAIN UNCHANGED.
 - 4. REVISION STATEMENTS ARE A SUMMARY OF THE CHANGES MADE ON THE PAGE AND ARE LOCATED AT THE TOP OF THE TITLE BLOCK.
 - 5. IF A REVISION RESULTS IN THE COMPLETE REMOVAL OF A DIAGRAM OR AN ENTIRE SECTION OF A DIAGRAM OR A COMPLETE SECTION OF TEXT, A BRIEF EXPLANATION OF THE REMOVAL WILL BE ENTERED IN THE REVISION STATEMENT LOCATION OF THE TITLE BLOCK.
 - 6. REVISIONS TO FORMATTING AND CORRECTIONS TO TYPOGRAPHICAL ERRORS AND/OR PAGE NUMBERS WILL NOT BE NOTED AS A REVISION DATE CHANGE, HOWEVER, IT WILL BE INDICATED IN RED AND ENTERED AS A CHANGE IN THE STANDARDS REVISION LOG.
- C. UTILIZING SRP STANDARDS
 - 1. WHEN UTILIZING SRP'S STANDARDS IN DESIGN PROJECTS, MODIFICATION OF SAID STANDARDS IS NOT PERMITTED.
 - 2. DETAILS OR IMAGES MAY BE EXTRACTED AND USED IN DESIGN PROJECTS WHEN THEY DO NOT INCLUDE THE TITLE BLOCK OF THE STANDARD AND ARE NOT PRESENTED AS A STANDARD.

3. CHANGES TO STANDARDS

THESE OVERHEAD DISTRIBUTION CONSTRUCTION STANDARDS ARE SUBJECT TO UPDATE AND MODIFICATION AT ANY TIME. PRINTED COPIES OF THIS BOOK MAY NOT INCLUDE THE MOST UP-TO-DATE STANDARDS, REFERENCES, OR REQUIREMENTS.

TO ACCESS CURRENT STANDARDS, VISIT OUR WEBSITE:

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Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PURPOSE & SCOPE, HOW TO USE THIS BOOK, CHANGES TO STANDARDS	ISSUE DATE: 12/03/08
		REV. DATE: 06/04/18
		APPROVAL: S. Duran
	iii	OHIntro.doc

4. CONTACT INFORMATION

A. BUSINESS AND RESIDENTIAL

ELECTRICAL EMERGENCIES	NOTE: CALL 9-1-1 FIRST FOR MEDICAL EMERGENCIES	(602) 236-8811
	FALLEN POWER LINES, ARCING, ELECTRIC SHOCK, DAMAGE TO SRP FACILITIES	
RESIDENTIAL	GENERAL INFORMATION, BILLING INQUIRIES, POWER OUTAGES, MAINTENANCE OF SRP FACILITIES, TEMPORARY DISCONNECT FROM SRP FACILITIES, INSPECTIONS	(602) 236-8888
BUSINESS CENTER	GENERAL INFORMATION, BILLING INQUIRIES, MUNICIPAL CUSTOMERS, PUBLIC AGENCY CUSTOMERS, INSPECTIONS, TEMPORARY DISCONNECT FROM SRP FACILITIES	(602) 236-8833
SPANISH	LA LINEA – SERVICIO EN ESPAÑOL	(602) 236-1111
SRP WATER (IRRIGATION)	EMERGENCIES, WATER (IRRIGATION), FLOODING, GENERAL INFORMATION, BILLING INQUIRIES, IRRIGATION ORDERS, SCHEDULE TIME INQUIRIES	(602) 236-3333
LOCATION OF UNDERGROUND FACILITIES	NATIONAL “CALL BEFORE YOU DIG” NUMBER (“ONE CALL” OFFICE)	811
BLUE STAKE	WITHIN MARICOPA COUNTY OUTSIDE OF MARICOPA COUNTY	(602) 263-1100 (800) 782-5348
SRP EARTHWISE SOLAR ENERGY	MAIN LINE RESIDENTIAL PHOTOVOLTAIC RESIDENTIAL SOLAR WATER HEATERS COMMERCIAL PHOTOVOLTAIC (SOLAR INITIATIVES)	(602) 236-4448 (602) 236-4661 (602) 236-4662 (602) 236-4663

B. ADDITIONAL RESOURCES

GRAPHIC RECORDS:	CONTRACT CONSTRUCTION COMPANIES CAN REQUEST PRINTING SERVICES ONLINE AT SRPNET.COM/ELECTRIC/BUSINESS/GRAPHICREQUEST.ASPX
STANDARDS-RELATED QUESTIONS:	EMAIL ENGINEERING_STANDARDS@SRPNET.COM
SRP’S WEBSITE:	SRPNET.COM RESIDENTIAL / BUSINESS ELECTRIC / WATER ASSISTANCE INFORMATION.

5. AREA BUSINESS OFFICE LOCATIONS

EAST VALLEY SERVICE CENTER.....7050 E. UNIVERSITY DR., MESA 85207
PROJECT ADMINISTRATION BUILDING.....1500 N. MILL AVE., TEMPE 85281
PINAL COUNTY CUSTOMER SERVICE CENTER.....3735 E. COMBS RD., QUEEN CREEK 85242
WEST VALLEY SERVICE CENTER.....221 N. 79TH AVE., TOLLESON 85353

6. REFERENCES

THERE ARE NUMEROUS DOCUMENTS AND STANDARDS THAT WERE USED IN DEVELOPING THESE GUIDELINES. MANY OF THESE DOCUMENTS ARE MODIFIED AND UPDATED OVER TIME. A PARTIAL LIST OF DOCUMENTS USED IS INCLUDED BELOW:

- NATIONAL ELECTRIC CODE (NEC)
- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
- NATIONAL ELECTRIC SAFETY CODE (NESC)
- UNDERWRITER LABORATORIES (UL)
- VARIOUS STATE AND MUNICIPAL REQUIREMENTS

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	CUSTOMER ASSISTANCE INFORMATION AREA BUSINESS OFFICE LOCATIONS AND REFERENCES	ISSUE DATE: 03/22/18
		REV. DATE:
		APPROVAL: S. Duran
	V	OHIntro.doc

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JUA

THE COMPATIBLE UNIT JUA HAS BEEN ESTABLISHED TO SATISFY PLANT ACCOUNTING REQUIREMENTS. A BILL OF MATERIAL IS NOT GENERATED BY THIS UNIT.

USE THIS COMPATIBLE UNIT WHENEVER DISTRIBUTION PRIMARY, SECONDARY OR NEUTRAL CONDUCTORS ARE ATTACHED TO A POLE NOT OWNED BY SRP OR WHEN SUCH CONDUCTORS ARE ATTACHED TO AN SRP-OWNED TRANSMISSION POLE.

WHEN COMPATIBLE UNIT JUA IS INVOLVED, IT MUST BE SHOWN ON THE GRID PORTION OF THE GRID SKETCH. ANY OR ALL ATTACHING HARDWARE CONSTITUTES ONE SUCH ATTACHMENT.

THE COMPATIBLE UNIT JUA IS NOT APPLICABLE TO STREET LIGHTING, DUSK TO DAWN CONDUCTORS, PILOT WIRE OR ACCESSORIES.

RJUA

THIS CODE IS USED SIMILARLY TO THE RW SERIES FOR POLES. THAT IS, WHENEVER FRAMING THAT REPRESENTS A JUA IS TO BE REMOVED, THE CODE RJUA MAY BE USED. QUANTITY SHOWN MUST BE PRECEDED BY THE ACTIVITY CODE "R". THIS WILL PROVIDE A MANHOUR ESTIMATE AS A PERFORMANCE MEASUREMENT FOR REMOVAL OF HARDWARE AND A CPR UNIT FOR ACCOUNTING. AS WITH THE RW POLE SERIES, RJUA POLE HARDWARE SHOULD NOT BE LISTED UNLESS IT REPRESENTS ADDITIONAL CPR UNITS, OR IF IT IS NOT A PART OF THE GENERAL POLE HARDWARE, SUCH AS TRANSFORMERS, GUYS, ETC.

THE COMPATIBLE UNIT RJUA IS NOT APPLICABLE TO STREET LIGHTING, DUSK TO DAWN CONDUCTORS, PILOT WIRE OR ACCESSORIES.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS CODES FOR JOINT USE ATTACHMENT	ISSUE DATE: 08/29/73 REV. DATE: 06/22/11 APPROVAL: B. PRIEST
	1-1-1	8512E355.DGN

RPT

REMOVE POLE TOP

USE THE COMPATIBLE UNIT RPT WHEN TOPPING ANY POLES, INCLUDING SRP OR FOREIGN OWNED.

TELCO POLES WILL BE TOPPED APPROXIMATELY ONE FOOT ABOVE THE TELEPHONE ATTACHMENT, UNDER THE FOLLOWING CIRCUMSTANCES:

1. ON REQUEST OF US WEST WHEN THE POLE THEY WISH TO REMOVE IS IN AN SRP POWER LINE (ANY VOLTAGE)
2. WHEN SRP REPLACES AN EXISTING TELCO POLE IN AN EXISTING OR NEW SRP POWER LINE (ANY VOLTAGE)

THE DECISION TO TOP A TELCO POLE SHOULD BE BASED ON THE KNOWLEDGE THAT US WEST WILL REMOVE THE POLE.

TELCO POLES ARE TOPPED TO REDUCE THE HAZARD OF CONTACTING OVERHEAD POWER LINES WHEN THE POLES ARE REMOVED.

COMPATIBLE UNIT RPT MUST BE ENTERED BY THE DESIGNER ON LINES 13 THROUGH 18 OF THE GRID SKETCH.

RFC

REMOVE FOREIGN CONDUCTOR

RFP

REMOVE FOREIGN POLE

RFD

REMOVE FOREIGN DISCONNECT SWITCH

USE COMPATIBLE UNITS RFC, RFD AND RFP WHEN REMOVING CONDUCTORS, DISCONNECT SWITCHES OR POLES OWNED BY CUSTOMERS FOR WHICH SRP HAS RESPONSIBILITY BY CONTRACT (INDIAN SERVICE - IS OR ROOSEVELT WATER CONSERVATION DISTRICT - RWCD). ENTER THE CODES AS FOLLOWS:

RFC ON LINE 4, 7, OR 9 OF THE GRID SKETCH, AS APPLICABLE

RFD ON ANY LINE, 13 THROUGH 18. THE QUANTITY SHOWN REFLECTS THE NUMBER OF SWITCHES REMOVED.

RFP ON LINE 19

CRA

CUT AND REPAIR ASPHALT

CRC

CUT AND REPAIR CONCRETE

USE THE COMPATIBLE UNITS CRA AND CRC TO PROVIDE MANHOURS NECESSARY TO CUT AND REPAIR ASPHALT AND CONCRETE FOR INSTALLATION OR REMOVAL OF POLES AND ANCHORS.

PB

PHASE BALANCE - PROVIDES 2 1/2 HOURS FOR A 4 MAN CREW.

ENTER THESE UNITS IN THE MISCELLANEOUS SECTION OF THE GRID SKETCH (LINES 13-18).

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PROPRIETARY MATERIAL

MISCELLANEOUS
REMOVAL, REPAIR AND PHASE
BALANCE CODES

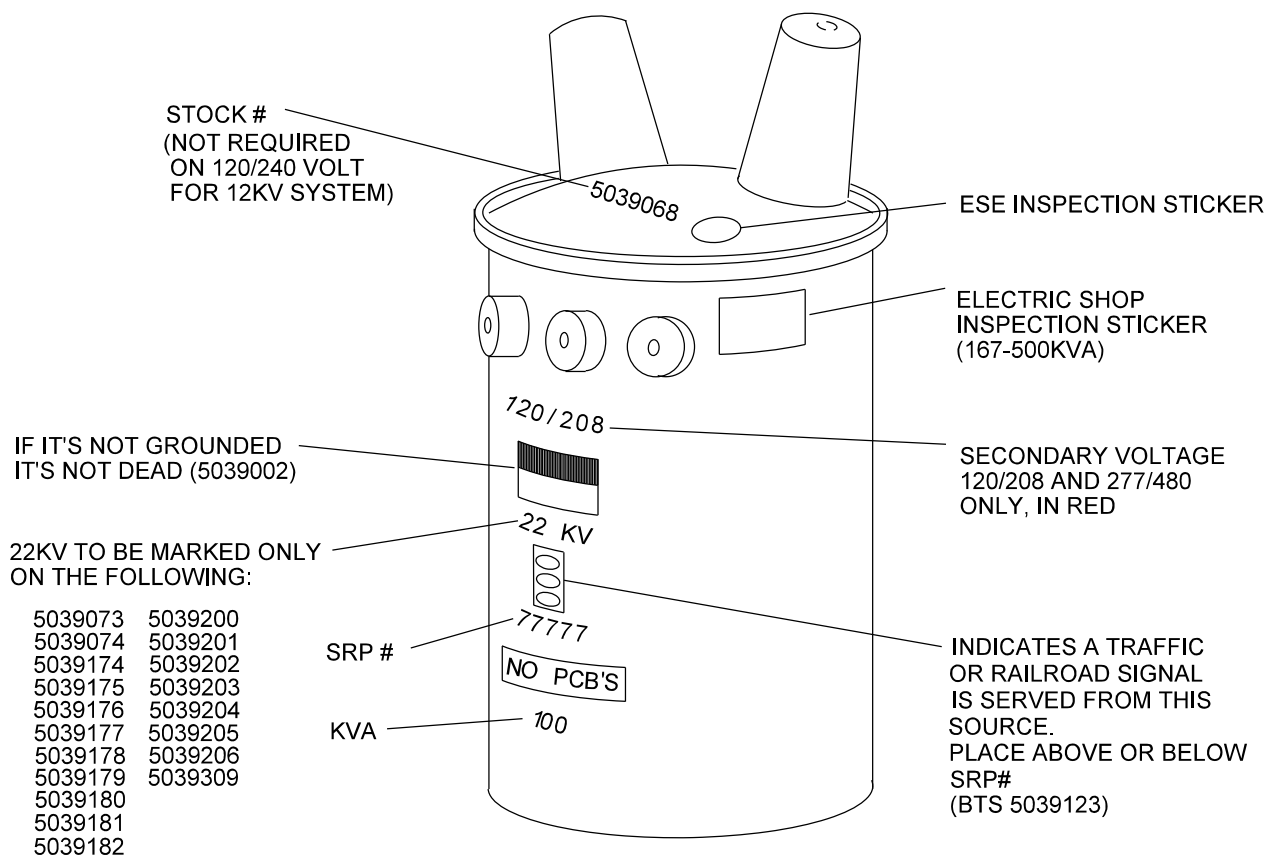
1-2-1

ISSUE DATE: 07/13/05

REV. DATE: 05/05/11

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Construction Standards



PROPRIETARY MATERIAL

MISCELLANEOUS IDENTIFICATION MARKING METHODS

1-3-1

ISSUE DATE: 10/19/83

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8512E23.DGN

DISTRIBUTION LINE DEVICE NUMBER (RISER, RECLOSER, SECTIONALIZER, CAPACITOR BANK, SINGLE BLADE DISCONNECTS, FRINGE AREA INTERCONNECTION FUSE OR GANG OPERATED SWITCH) 1X1.5" ADHESIVE BACKED ALPHA CHARACTERS AND 1-3/4" X 2-7/8" ADHESIVE BACKED NUMERIC CHARACTERS PLACED ON ALUMINUM SHEET (5035692)

NOTE: FOR POLE RISERS SEE UG12-7-7.
NOT ALL RISERS ARE MARKED ON THE POLE.

STREET LIGHT NUMBER-1X1.5" CHARACTERS PLACED ON AN ADHESIVE BACKED 1-1/2" X 12" PLATE (5035695) (DISTRIBUTION USE ONLY)

MILE POST COORDINATES 1"x1-1/2" ALPHA, 1-3/4"x2-7/8" NUMERIC PSL ON ALUMINUM PLATE (5035692)

TRANSMISSION STRUCTURE NUMBER 1-3/4"x2-7/8" NUMERIC PSL ON ALUMINUM PLATE (5035692).

TRANSMISSION SWITCH NUMBER, 1"x 1-1/2" ALPHA, 1-3/4"x2-7-8" NUMERIC PSL ON ALUMINUM PLATE (5035692)

POLE INSPECTION TAGS - ALL POLES (POLE INSPECTION CREW USE)

POLE TAG SHOWING SRP OWNERSHIP (5029151). (TRANSMISSION USE ONLY)

IF DISTRIBUTION TRANSFORMER ON POLE HAS CO-GENERATION, PLACE "CO-GEN", 1-3/4" X 2-7/8" NUMERIC PSL ON ALUMINUM PLATE (5035692).

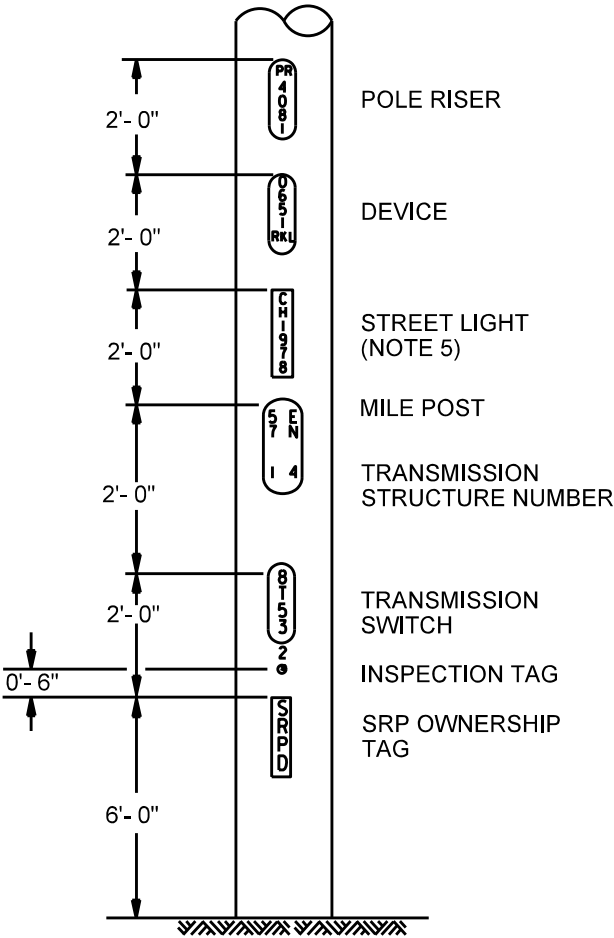


FIGURE 1

NOTES

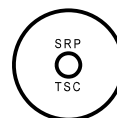
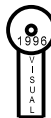
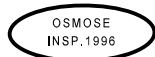
1. ANY POLE LOCATED AT A MILE COORDINATE POINT IN AN AREA LACKING AN INTERSECTION OF BOTH MILE ROADS IS TO BE LABELED WITH THAT COORDINATE POINT. THE COORDINATE LABELING IS TO READ IN A HORIZONTAL DIRECTION ON THE POLE, WITH ONE DIRECTION COORDINATE IMMEDIATELY BELOW THE OTHER.
2. ANY POLE HAVING A STREETLIGHT, RECLOSER, CAPACITOR BANK, SET OF SINGLE BLADE DISCONNECTS, GANGED LOAD BREAK SWITCH, OR POLE RISER IS TO BE LABELED WITH THE PROPER LINE DEVICE NUMBER. THIS NUMBER IS TO BE ATTACHED IN A VERTICAL DIRECTION READING TOP TO BOTTOM ON THE POLE.
3. POLES ARE TO HAVE MARKINGS INSTALLED ON THE MOST VISIBLE SIDE OF THE POLE; e.g; A POLE ON A NORTHEAST CORNER OF AN INTERSECTION SHOULD HAVE MARKINGS FACING WEST, OR SOUTH. THE MARKINGS SHALL NOT COVER THE POLE BRAND.
4. THE ALUMINUM SHEETS ARE ATTACHED TO THE WOOD POLES WITH SPECIAL SCREW NAILS STOCK # 5006221. THE 1 INCH ADHESIVE LABELS FOR STREETLIGHTS ARE APPLIED TO A 10 INCH PLASTIC PLATE WHICH IS THEN ATTACHED TO THE POLE WITH THE SPECIAL SCREW NAILS. ON STEEL POLES, IF PLATE THICKNESS IS 1/2" OR LESS THE SELF DRILL/SELF TAPPING SCREWS (5028982) MAY BE USED. IF PLATE THICKNESS IS GREATER THAN 1/2" DRILL 3/16" DIAMETER HOLE FOR SELF DRILL/SELF TAP SCREWS (5028982).
5. THE OWNER OF THE LIGHT SHALL PLACE STREET LIGHT NUMBERS AT 12' ON SHARED POLES (AS SHOWN ABOVE) AND 8' ON DEDICATED "STREET LIGHT" POLES.
6. PLACEMENT OF POLE MARKINGS SHALL BE IN ACCORDANCE WITH FIGURE 1. IF THRU-BOLTS OR OTHER SRP HARDWARE IMPEDE THE SPECIFIED LOCATION OF THE POLE MARKINGS, PLACEMENT OF POLE MARKINGS MAY BE ADJUSTED. EVERY EFFORT MUST BE MADE TO LOCATE THE MARKINGS AS CLOSE AS POSSIBLE TO THE INDICATED POSITIONS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS POLE MARKING AND IDENTIFICATION	
	1-4-1	
	ISSUE DATE: 08/25/87 REV. DATE: 12/23/20 APPROVAL: J. LUERA	8512E250.DGN

WOOD POLES ARE INSPECTED AND CLASSIFIED AS: SERVICEABLE - POLE STRENGTH MEETS CODE REQUIREMENTS.
 REINFORCEABLE - POLE MUST BE REINFORCED DUE TO WEAKENED GROUND LINE.

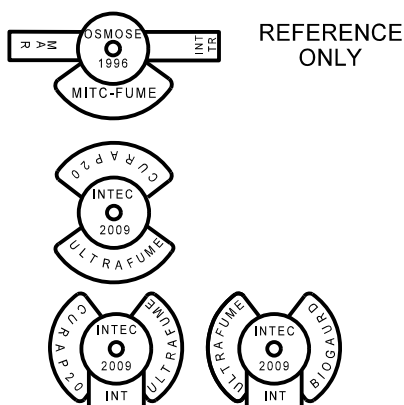
MOST INSPECTED POLES HAVE ALUMINUM INSPECTION TAGS WITH THE YEAR OF INSPECTION AND THE NAME OF THE INSPECTION CONTRACTOR. POLES TREATED WITH OSMOPLASTIC HAVE NO TAG. THE VARIOUS TYPES OF INSPECTION TAGS ARE SHOWN BELOW. FOR QUESTIONS REGARDING OBSOLETE OR INDISCERNIBLE POLE TAGS, CONTACT LINE MAINTENANCE ENGINEERING.

INSPECTED VISUALLY NO TREATMENT: POLE VISUALLY INSPECTED ON DATE BY CONTRACTOR SHOWN. NO TREATMENTS.

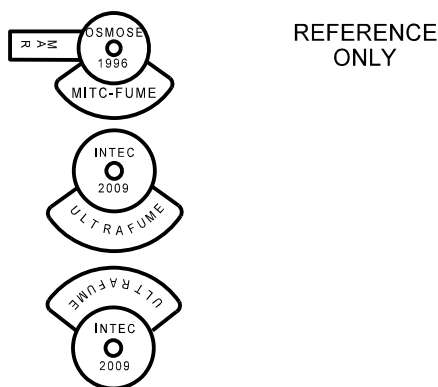


INSPECTED VISUALLY AND TREATED: SERVICEABLE POLE INSPECTED ON DATE BY CONTRACTOR SHOWN AND TREATED WITH PRODUCT SHOWN. TREATMENT TAGS

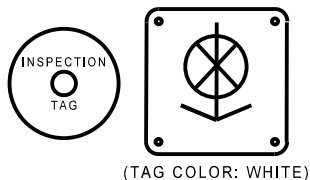
FUMIGANT, INTERNAL VOID



FUMIGANT

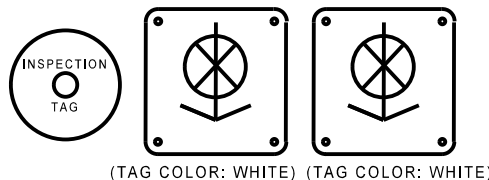


REINFORCE POLE, INSPECTED AND TREATED: CAPACITY LESS THAN 70%. SCHEDULED FOR REINFORCEMENT SINGLE TAG WHITE



(TAG COLOR: WHITE)

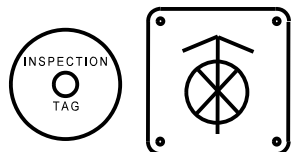
PRIORITY REINFORCE POLE, INSPECTED AND TREATED: CAPACITY LESS THAN 40%. SCHEDULED FOR IMMEDIATE REINFORCEMENT DOUBLE TAG WHITE



(TAG COLOR: WHITE) (TAG COLOR: WHITE)

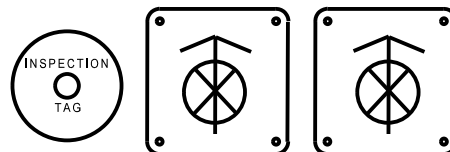
NOTE: CONTACT LINE MAINTENANCE ENGINEERING PRIOR TO UPGRADING OR ADDING FACILITIES TO TAGGED POLES.

REJECT AND REPLACE POLE, NOT SERVICEABLE OR REINFORCEABLE. CAPACITY LESS THAN 70%. NO TREATMENT APPLIED. SCHEDULED FOR REPLACEMENT SINGLE TAG RED



(TAG COLOR: RED)

PRIORITY REJECT AND REPLACE POLE, NOT SERVICEABLE OR REINFORCEABLE. CAPACITY LESS THAN 40%. NO TREATMENT APPLIED. SCHEDULED FOR IMMEDIATE REPLACEMENT DOUBLE TAG RED



(TAG COLOR: RED) (TAG COLOR: RED)

NOTE: FOR REPLACEMENT POLES, ARROW DENOTES DIRECTION OF REJECTION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS POLE MARKING AND IDENTIFICATION WOOD POLE INSPECTION TAGGING SYSTEM 1-4-2	ISSUE DATE: 05/24/04 REV. DATE: 08/19/13 APPROVAL: B. PRIEST 8512E486.DGN
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THE THREE TYPES OF PRESERVATIVE TREATMENTS ON SRP POLES ARE:

1) EXTERIOR

BRAND NAMES INCLUDE "OSMOPLASTIC", "CURAP 20" AND "BIO GUARD PASTE". THESE TREATMENTS ARE APPLIED TO THE POLE BELOW GROUND LEVEL AND COVERED WITH PAPER THAT HAS A PROTECTIVE MEMBRANE FACING THE POLE TO CONFINE THE CHEMICALS. OSMOPLASTIC IS A BLACK CREOSOTE PASTE APPLIED TO THE POLE AND COVERED WITH A BLACK KRAFT PAPER (NOT TAGGED - LOOK FOR KRAFT PAPER TO DETERMINE IF TREATED). BOTH THE CURAP 20 AND BIO GUARD PASTE ARE COVERED WITH A TAN PAPER SIMILAR TO BUTCHER PAPER WITH A WAXY INSIDE MEMBRANE TO CONFINE THE CHEMICALS. POLES TREATED WITH CURAP 20 AND BIO GUARD PASTE ARE TAGGED.

2) INTERNAL VOID

EITHER COPPER-NAPHTHENATE OR PERME8. BOTH ARE A GREEN LIQUID CONSISTING OF COPPER AND DIESEL OIL, APPLIED TO VOIDS IN POLE (TAG "INT TR" OR "IT").

3) FUMIGANT

EITHER "MITC-FUME" OR "ULTRA-FUME". "MITC-FUME" CONSISTS OF METHYLISOTHIOCYANATE IN ALUMINUM CARTRIDGES, INSERTED INTO HOLES DRILLED IN POLE (TAG "MITC-FUME"). "ULTRA-FUME" CONSIST OF DAZOMET IN GRANULAR FORM AND IS "ACTIVATED" USING PERM E8 AND SHOULD BE ABSORBED INTO THE POLE AND LEAVES NO RESIDUAL EVIDENCE IN THE HOLES DRILLED IN POLE (TAG "ULTRA-FUME" AND "PERM E8").

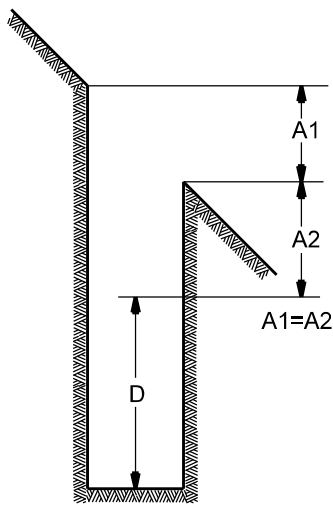
POLES TREATED WITH MITC-FUME WILL ALSO HAVE A MONTH TAG INDICATING THE MONTH THE POLE WAS TREATED.

MSDS SHEETS FOR THESE CHEMICALS ARE ON FILE AND AVAILABLE ON-LINE FOR MSDS SEARCH.

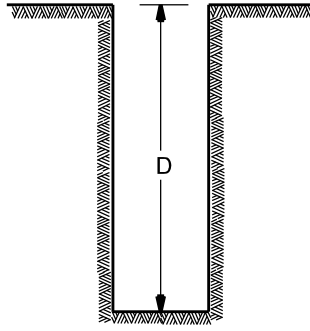
PRECAUTIONS FOR HANDLING:

- FOR SKIN CONTACT WITH ANY OF THESE CHEMICALS, WASH IMMEDIATELY WITH SOAP AND WATER.
- TO DISPOSE OF LOOSE MITC-FUME CARTRIDGES, PICK UP ALUMINUM CARTRIDGES WITH A SHOVEL - DO NOT PICK UP WITH HANDS. PUT IN PLASTIC BUCKET AND COVER WITH DIRT. TRANSPORT ON OUTSIDE OF VEHICLE AND RETURN BUCKET TO TEMPE SERVICE CENTER.

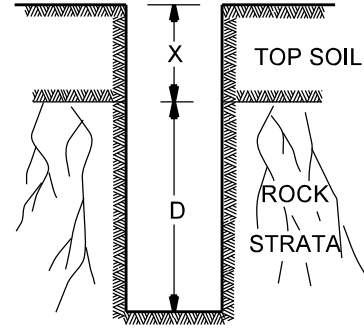
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS POLE MARKING AND IDENTIFICATION WOOD POLE INSPECTION TAGGING SYSTEM	ISSUE DATE: 05/24/04 REV. DATE: 08/19/13 APPROVAL: B. PRIEST
	1-4-3	8512E487.DGN



SETTING DEPTH
IN SLOPING GROUND



SETTING DEPTH
IN LEVEL GROUND



SETTING DEPTH
IN ROCK STRATA

POLE LENGTH (IN FEET)	DEPTH OF SETTING "D"		MAXIMUM VALUES OF "X"*
	IN EARTH	IN SOLID ROCK	
25	4'-6"	3'-0"	1'-6"
30	5'-0"	3'-6"	1'-6"
35	5'-6"	4'-0"	1'-6"
40	6'-0"	4'-6"	1'-6"
45	6'-6"	5'-0"	1'-6"
50	7'-0"	5'-6"	1'-6"
55	7'-6"	5'-6"	1'-6"
60	8'-0"	6'-0"	1'-6"
65	8'-6"	6'-6"	1'-6"
70	9'-0"	6'-6"	2'-0"
75	9'-6"	7'-0"	2'-0"
80	10'-0"	7'-6"	2'-0"
85	10'-6"	7'-6"	2'-6"
90	11'-0"	7'-6"	2'-6"

* IF VALUES OF "X" EXCEED MAXIMUM DEPTH INDICATED, THEN THE SETTING DEPTH IN EARTH SHOULD BE USED.

NOTES

1. MAINTAIN POLE DEPTHS AS ACCURATE AS PRACTICAL DUE TO JOINT USE SPACE AND CLEARANCE REQUIREMENTS. DO NOT SET POLES AT EXTRA DEPTHS EXCEPT WHERE SPECIFIED ON THE CONSTRUCTION SKETCH.
2. ALL POLE-HOLES ARE TO BE OF SUFFICIENT DIAMETER TO ALLOW COMPLETE TAMPING ON ALL SIDES OF THE POLE AND TO FULL DEPTH.
3. THOROUGHLY TAMP THE BACKFILL AROUND A SET POLE FOR THE FULL DEPTH.
4. USE THE SETTING DEPTH IN EARTH IF THE HOLE, AFTER BLASTING, IS CONE SHAPED OR MORE THAN TWICE THE NORMAL DIAMETER AT THE TOP.
5. DISTRIBUTION OR TRANSMISSION POLE EXCAVATIONS SHALL BE COVERED WITH A WOOD CABLE SPOOL END OR EQUIVALENT AND BARRICADED, WITH LIGHTED BARRICADES IF LEFT OVERNIGHT, UNTIL THE POLE IS INSTALLED.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS POLE SETTING DEPTH	ISSUE DATE: 06/29/66 REV. DATE: 01/19/11 APPROVAL: B. PRIEST
	1-5-1	8512E293.DGN

POLE DESCRIPTION				COMPATIBLE UNIT CODING FOR POLE INSTALLATION				COMPATIBLE UNIT CODING FOR POLE REMOVAL (ANY CLASS)			
HEIGHT	CLASS	WT(LBS) ****	STOCK NO.	DIST. PRIM./SEC.	STREET LIGHTS	SECURITY LIGHTS	COM. CABLE	COM. CABLE	DIST. PRIM./SEC.	STREET LIGHTS	SECURITY LIGHTS
				CONSTRUCTION OF WOOD POLES				RETIREMENT OF WOOD POLES			
30'	-		-	-	-	-	-	RW30K	RW30*	RW30L*	RW30D*
35'	5	700	5029021	W35	W35L	W35D	W35K	RW35K	RW35	RW35L	RW35D
40'	4	1000	5029023	W40	W40L	W40D	-	-	RW40	RW40L	RW40D
40'	1	1500	5029022	W401	-	-	-	-	RW40	-	-
45'	3	1300	5029026	W45	-	-	-	-	RW45	RW45L	-
45'	1	1700	5029025	W451	-	-	-	-	RW45	-	-
50'	1	2000	5029027	W501	-	-	-	-	RW50	RW50L	-
55'	1	2300	5029028	W551	-	-	-	-	RW55	-	-
60'	1	2600	5029029	W601	-	-	-	-	RW60	-	RW60D
65'	1	3100	5029030	W651	-	-	-	-	RW65	-	-
65'	H4	5000	5029032	W65H4	-	-	-	-	RW65	-	-
70'	1	3500	5029033	W70	-	-	-	-	RW70	-	-
70'	H4	5600	5029035	W70H4	-	-	-	-	RW70	-	-
75'	1	3900	5029036	W75	-	-	-	-	RW75	-	-
75'	H4	6100	5029038	W75H4	-	-	-	-	RW75	-	-
80'	H4	6800	5029040	W80H4	-	-	-	-	RW80	-	-
85'									RW85		
90'									RW90		

* ALSO USE FOR POLES SHORTER THAN 30'.

** COMPATIBLE UNIT CODE FOR POLE REMOVAL ALSO INCLUDES TANGENT FRAMING FOR PRIMARY AND SECONDARY ATTACHMENTS. LIST REMOVAL OF ALL OTHER ATTACHMENTS SEPARATELY.

*** REFURBISHED POLES USED AS DISTRIBUTION POLES. DESIGNER MUST USE BOTH THE COMPATIBLE UNIT LISTED AND A STOCK CODE. CONTACT POLICIES PROCEDURES & STANDARDS FOR STEEL POLE AVAILABILITY DESIGN AND STOCK CODE.

**** WEIGHTS FOR DOUGLAS FIR (WESTERN RED CEDAR IS LIGHTER) ARE AVERAGES. WEIGH POLE FOR SAFETY RELATED WORK.

NOTES

1. ALWAYS ENTER POLES IN CUS WITH A COMPATIBLE UNIT CODE. DO NOT USE STOCK CODE NUMBERS (EXCEPT FOR REFURBISHED POLES).

COMPATIBLE UNIT CODING FOR DISTRIBUTION METAL POLES	
MC49:	49' MULTI-USE
MC50:	50' MULTI-USE
M37DE:	SEE PG. 2 & 3
M45DE:	SEE PG. 2 & 3
M37DE90:	SEE PG. 2 & 3
M45DE90:	SEE PG. 2 & 3

COMPATIBLE UNIT CODING FOR FOREIGN-OWNED WOOD STREET LIGHT POLES			
HEIGHT	CLASS	CODE	RETIREMENT CODE
35'	5	W35LF	RW35LF
40'	4	W40LF	RW40LF

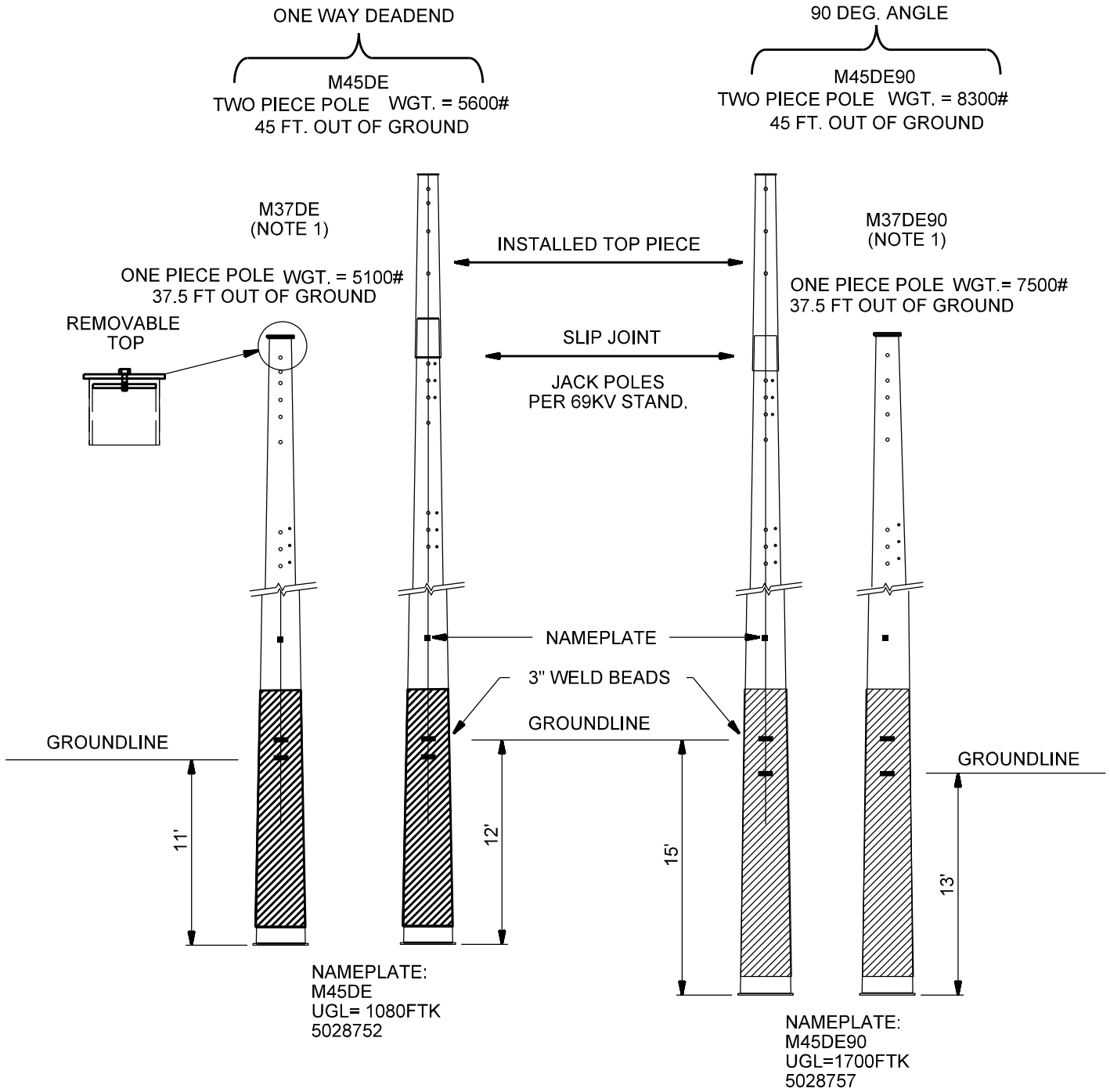
RETIREMENT CODES FOR SPECIAL PURPOSE STEEL POLES	
49' MULTI-USE	RMC49
50' MULTI-USE	RMC50
30' DIRECT BURIAL, TANGENT	RMB30
41' DIRECT BURIAL, ANGLE	RMB41A
41' DIRECT BURIAL, DEADEND	RMB41D
35' TRIPARTITE	RMT35
40' TRIPARTITE	RMT40
45' TRIPARTITE	RMT45
30' WELTRUS	RMW30
35' WELTRUS	RMW35
40' WELTRUS	RMW40
45' WELTRUS	RMW45
50' WELTRUS	RMW50

REFURBISHED STEEL ***			
HEIGHT	C.U.	HEIGHT	C.U.
40'	MG40	60'	MG60
45'	MG45	65'	MG65
50'	MG50	70'	MG70
55'	MG55	75'	MG75
57'	MG57	80'	MG80

COMPATIBLE UNIT CODES FOR RETIREMENT OF SPECIAL PURPOSE STRUCTURES					
HEIGHT	MULTIPLE WOOD POLE STRUCTURES		STEEL TOWERS		WOOD EQUIVALENT
	2-POLE	3-POLE	TANGENT	DEADEND	
30'	-	-	-	RLT30DP	-
35'	RW35P2	-	RLT35TP	-	RM35A
40'	RW40P2	-	-	-	RM40B
45'	RW45P2	RW45P3	RLT45TP	-	RM45C
50'	RW50P2	-	-	-	-
55'	-	RW55P3	-	-	-
60'	RW60P2	-	-	-	-

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS WOOD AND STEEL POLE CODING CONSTRUCTION AND RETIREMENT	ISSUE DATE: 04/14/72 REV. DATE: 05/10/13 APPROVAL: B. PRIEST
	1-6-1	OH1-6-1.doc

12KV STEEL DEADEND POLES SETTING REQUIREMENTS

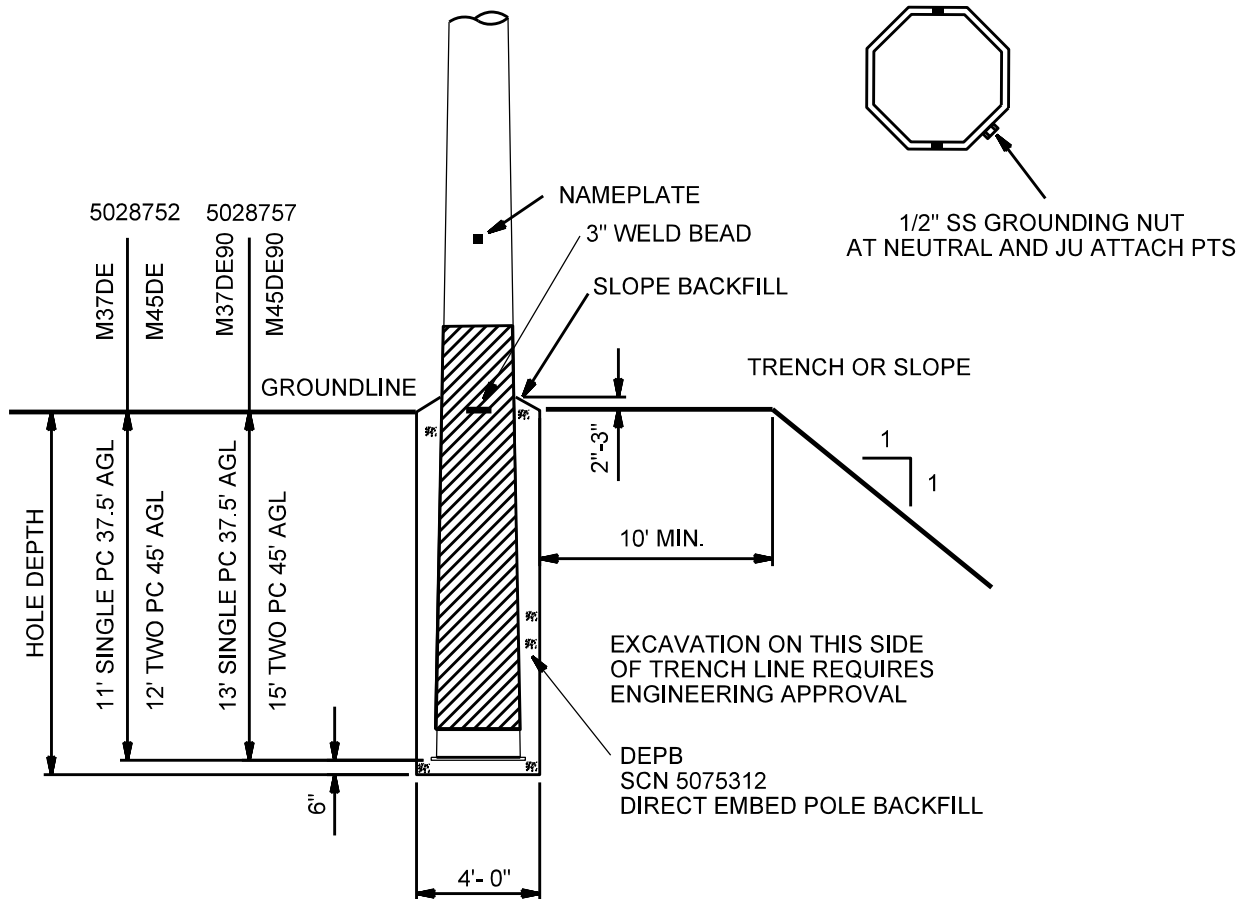


NOTES

- BOTH THE BOTTOM POLE SECTION (FOR A 37.5' OUT OF GROUND) AND THE TOP POLE SECTION (FOR 45' OUT OF GROUND) ARE INCLUDED. SCRAP THE TOP SECTION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS WOOD AND STEEL POLE CODING CONSTRUCTION AND RETIREMENT 1-6-2	ISSUE DATE: 07/17/01 REV. DATE: 05/15/13 APPROVAL: B. PRIEST 8512E340.DGN
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12KV STEEL DEADEND POLES SETTING REQUIREMENTS

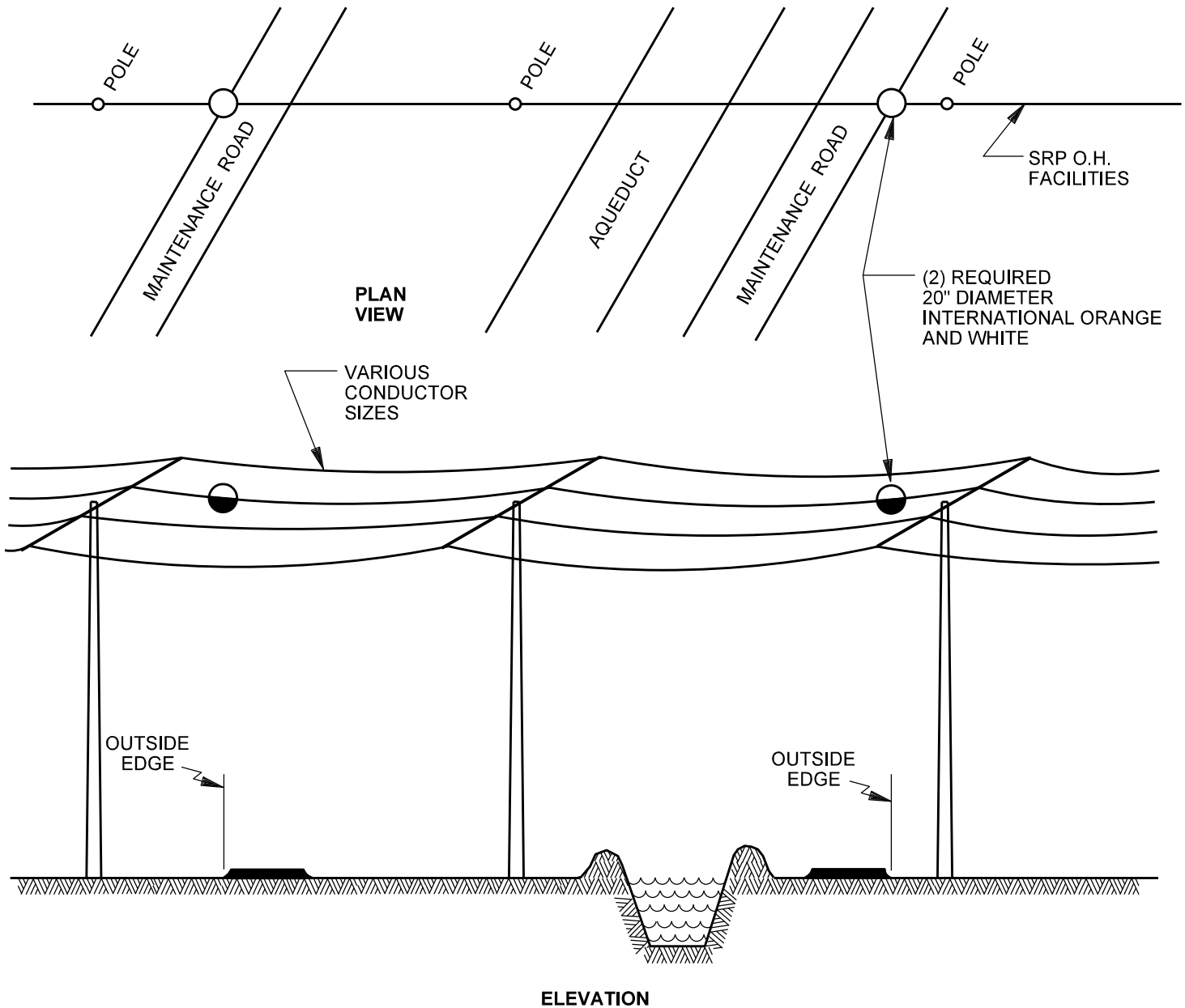


INSTALLATION INSTRUCTIONS

1. POLE MUST BE PLACED AND BACKFILL COMPLETED WITHIN 72 HOURS OF STARTING HOLE EXCAVATION.
2. PLUMB AND BRACE POLE
3. DEPB MATERIAL SHALL BE "DIRECT EMBED POLE BACKFILL", STOCK CODE 5075312.
4. POLE SHALL NOT BE LOADED FOR 72 HOURS AFTER PLACEMENT OF DEPB.
5. ALTERNATE BACKFILL: AGGREGATE AND LEAN FLYASH GROUT. SEE 69KV CONSTRUCTION BOOK, PAGE 1-9-1. FOR INSTALLATION INSTRUCTIONS.
6. SETTING DEPTHS VARY; SEE DIMENSIONS AND NOTES ABOVE FOR PROPER SETTING DEPTH.

ITEM	MATERIAL DESCRIPTION	QUANTITY	STOCK NO.
1	POLE, STEEL, SELF SUPPORTING DEAD END	1	5028752 OR 5028757
2	DIRECT EMBED POLE BACKFILL (DEPB) 1000PSI	5 YARDS	5075312

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	MISCELLANEOUS WOOD AND STEEL POLE CODING CONSTRUCTION AND RETIREMENT		ISSUE DATE: 07/17/01
			REV. DATE: 05/15/13
	1-6-3		APPROVAL: B. PRIEST
8512E488.DGN			



NOTES

1. SPHERE IS TO BE ATTACHED TO THE CENTER PHASE CONDUCTOR (OR TOP PHASE ON VERTICAL) AT THE POINT WHERE IT CROSSES THE OUTSIDE EDGE OF THE MAINTENANCE ROAD.
2. INSTALL SPHERE WITH WHITE SIDE UP, FLANGE PARALLEL TO THE GROUND.
3. EACH SPHERE REQUIRES ONE SET OF LINEGUARDS TO FIT THE CONDUCTOR TO WHICH THE SPHERE IS TO BE ATTACHED.
4. FOR ANY AQUEDUCT CROSSING, NEVER INSTALL SECONDARY **ONLY**, AS WARNING SPHERES CANNOT BE INSTALLED ON CABLED WIRE.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

MISCELLANEOUS
AIRCRAFT WARNING SPHERES
C.A.P. AQUEDUCT CROSSING

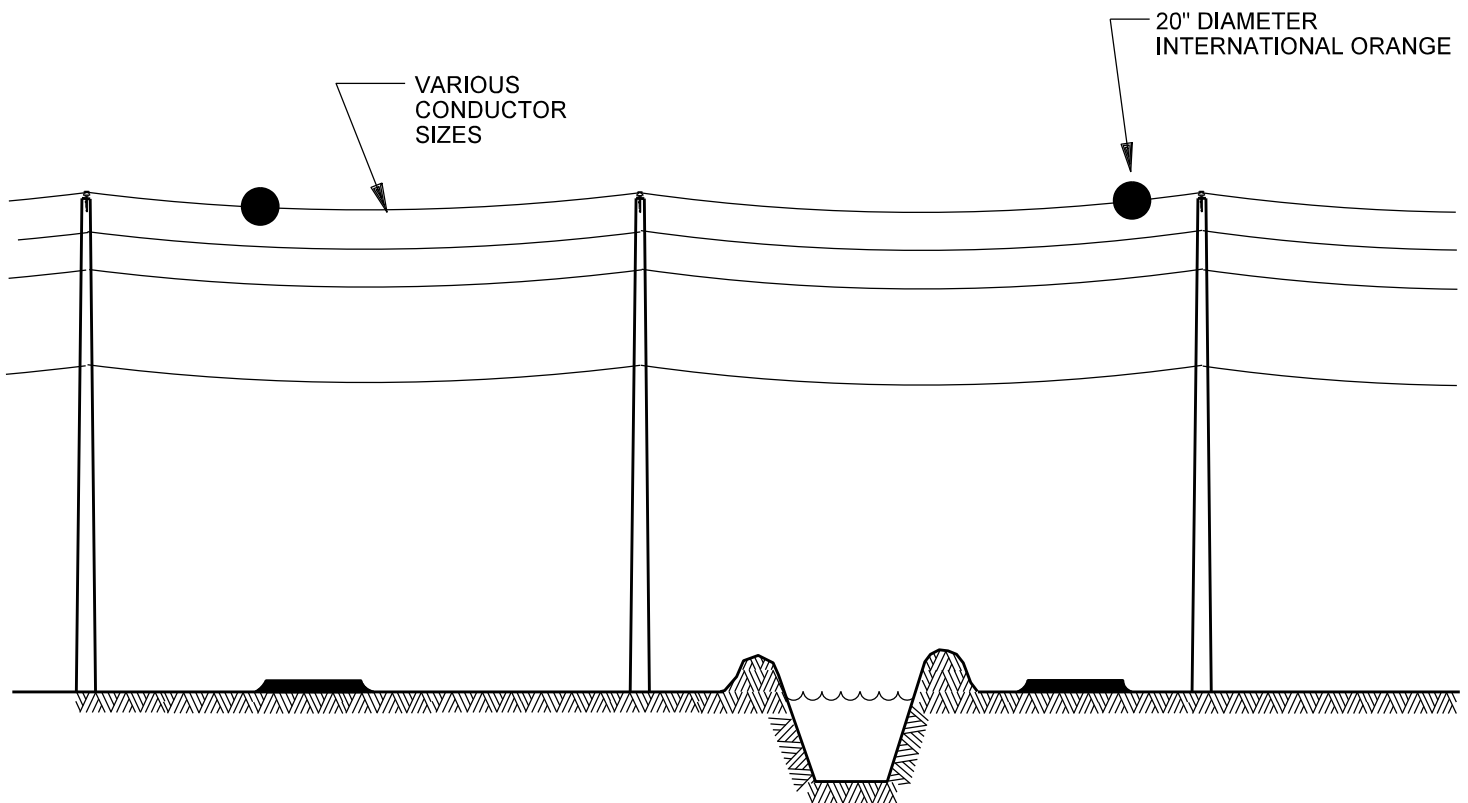
1-7-1

ISSUE DATE: 07/16/81

REV. DATE: 06/15/11

APPROVAL: B. PRIEST

8512E260.DGN



ELEVATION

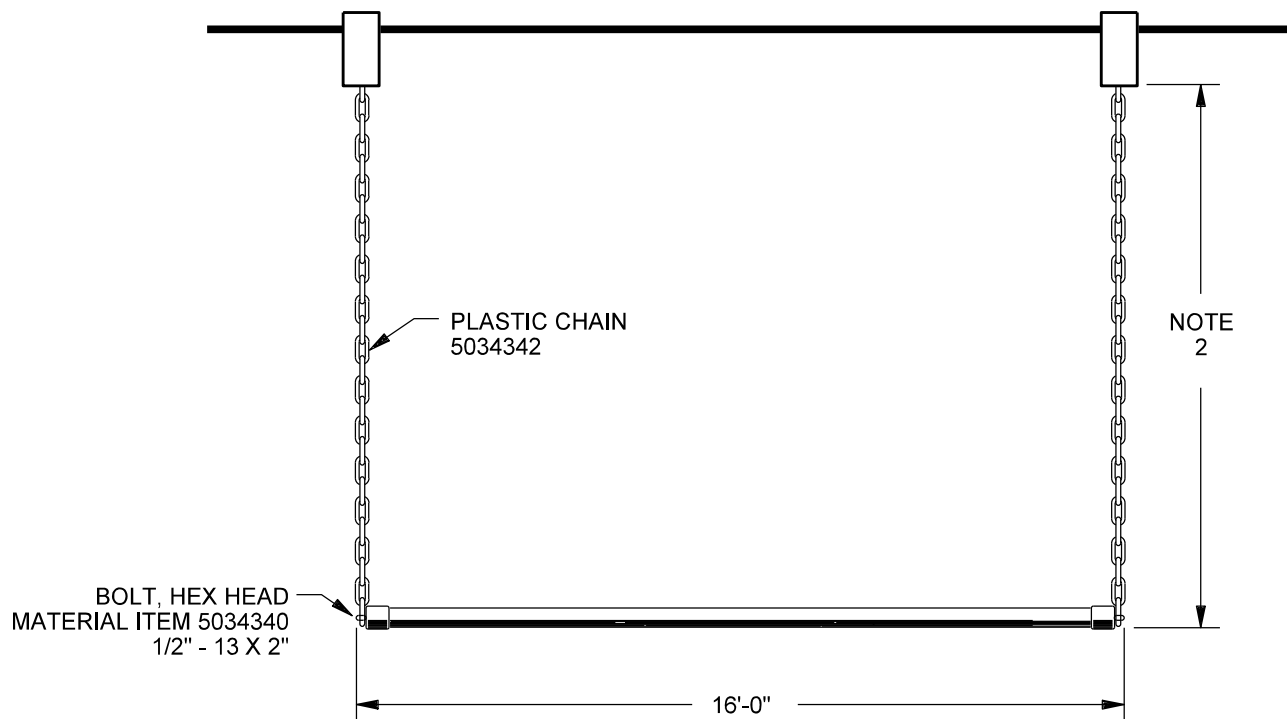
NOTES

1. SPHERE IS TO BE ATTACHED TO THE TOP PHASE CONDUCTOR (OR CENTER PHASE ON FLAT CONSTRUCTION).
2. EACH SPHERE REQUIRES ONE SET OF LINEGUARDS TO FIT THE CONDUCTOR TO WHICH THE SPHERE IS TO BE ATTACHED.
3. NOT TO BE INSTALLED ON SECONDARY, AS WARNING SHPERES CANNOT BE INSTALLED ON CABLED WIRE.
4. WARNING SPHERES TO BE LOCATED WHERE REQUESTED BY THE F.A.A.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS AIRCRAFT WARNING SPHERES FAA REQUIREMENT 1-7-2	ISSUE DATE: 07/17/01 REV. DATE: 06/15/11 APPROVAL: B. PRIEST 8512E261.DGN
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LCM

5034341



NOTES

1. OSHA 1910.333 REQUIRES AN "UNQUALIFIED PERSON" OR EQUIPMENT OPERATED BY SUCH "UNQUALIFIED PERSON" TO MAINTAIN CERTAIN CLEARANCES FROM OVERHEAD LINES. THIS INCLUDES, NEUTRALS, SUPPORTING MESSengers, OVERHEAD GUY WIRES (DOWN GUYS EXCLUDED) AND SECONDARY CABLES (10 FEET) IN ADDITION TO PHASE CONDUCTORS (SEE TABLE).
2. THE LINE CLEARANCE MARKER (5034341), IS PURCHASED WITH A 13 FOOT CLEARANCE LENGTH (CHAINS) WHICH CAN BE REDUCED BY RELOCATING THE ROD END BOLTS THROUGH THE CHAIN OR CABLE TIE (5031993) TO CREATE THE LENGTHS GIVEN FOR THE VOLTAGE INVOLVED PER THE TABLE.

LINE TO LINE VOLTAGE	MARKER LENGTH FEET
0 TO 69KV	10
115KV	11
230KV	13

3. RETURN TO INVESTMENT RECOVERY.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS LINE CLEARANCE MARKER	
	1-8-1	
	ISSUE DATE: 07/27/93 REV. DATE: 05/08/13 APPROVAL: B. PRIEST 8512E211.DGN	

ALUMINUM CONDUCTOR		
PHASE/WIRE	CONDUCTOR DESCRIPTION	CU CODING FOR INSTALLATION OF SERVICES
SINGLE PHASE – THREE WIRE	#6 DUPLEX	SDX6
	#2 TRIPLEX	STX2*
	1/0 TRIPLEX	STX10*
	4/0 TRIPLEX	STX40
	1/0 TRIPLEX – DOUBLED	S2TX10
	4/0 TRIPLEX – DOUBLED	S2TX40
THREE PHASE – FOUR WIRE	1/0 QUADRUPLX	SQX10*
	4/0 QUADRUPLX	SQX40
	1/0 QUADRUPLX – DOUBLED	S2QX10
	4/0 QUADRUPLX – DOUBLED	S2QX40
COPPER CONDUCTOR		
SINGLE PHASE – THREE WIRE	2-350 MCM (4/0 N)	SC3501P
	2-500 MCM (350 MCM N)	SC5001P
THREE PHASE – THREE WIRE (NO NEUTRAL)	3-4/0	SC40N
	3-350 MCM	SC350N
	3-500 MCM	SC500N
	3-4/0 – DOUBLED	S2C40N
	2-350 MCM – DOUBLED	S2C350N
	3-500 MCM – DOUBLED	S2C500N
	3-350 MCM – TRIPLED	S3C350N
	3-500 MCM – TRIPLED	S3C500N
THREE PHASE – FOUR WIRE	3-4/0 (2/0 N)	SC40
	3-350 MCM (350 MCM N)	SC350
	3-500 MCM (350 MCM N)	SC500
	3-4/0 - DOUBLED (500 MCM N)	S2C40
	3-350 MCM – DOUBLED (350 MCM N)	S2C350A
	3-350 MCM – DOUBLED (350 MCM – DOUBLED N)	S2C350
	3-500 MCM – DOUBLED (350 MCM – DOUBLED N)	S2C500
	3-350 MCM – TRIPLED (350 MCM – DOUBLED N)	S3C350
	3-500 MCM – TRIPLED (500 MCM – DOUBLED N)	S3C500
THREE PHASE – FOUR WIRE WITH POWER LEG	2-350 MCM (4/0 N) #2 P.L.	SC350C2
	2-350 MCM (4/0 N) 2/0 P.L.	SC350C20
	2-350 MCM (4/0 N) 4/0 P.L.	SC350C40
	2-500 MCM (350 MCM N) 2/0 P.L.	SC500C20
	2-500 MCM (350 MCM N) 4/0 P.L.	SC500C40
	2-4/0 DOUBLED (350 MCM N) 4/0 P.L.	S2C40C40
	2-4/0 DOUBLED (350 MCM N) 4/0 DOUBLED P.L.	S2C402C40
	2-350 MCM DOUBLED (500 MCM N) 4/0 P.L.	S2C350C40

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS SERVICE CONDUCTOR CODING	ISSUE DATE: 05/05/72
		REV. DATE: 03/21/18
	1-9-1	APPROVAL: N. Sabbah OH1-9-1.doc

COPPER CONDUCTOR (CONT'D.)		
PHASE/WIRE	CONDUCTOR DESCRIPTION	CU CODING FOR INSTALLATION OF SERVICES
THREE PHASE – FOUR WIRE WITH POWER LEG	2-350 MCM DOUBLED (500 MCM N) 350 MCM P.L.	S2C350C350
	2-350 MCM DOUBLED (500 MCM N) 4/0 DOUBLED PL	S2C3502C40
	2-500 MCM DOUBLED (500 MCM N) 4/0 DOUBLED PL	S2C5002C40
	2-500 MCM DOUBLED (500 MCM N) 350 MCM-DOUBLED PL	S2C5002C350

* ADD "W" TO THE COMPATIBLE UNIT NUMBER IF A BOLT-TYPE WIREHOLDER HAS TO BE INSTALLED WHEN CHANGING AN OPEN WIRE SERVICE TO A CABLED SERVICE.

NOTE: SERVICES ARE ORDERED WITH THE UNIT OF ISSUE "EACH", NOT "FOOT".

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS SERVICE CONDUCTOR CODING	ISSUE DATE: 05/05/72 REV. DATE: 03/21/18 APPROVAL: N. Sabbah
	1-9-2	OH1-9-1.doc

CONDUCTOR DESCRIPTION	STOCK CODE	COMPATIBLE UNIT CODING PER CONDUCTOR APPLICATION				
		DISTRIBUTION (PRI. & SEC.)	NEUTRAL	SECONDARY	STREET LIGHTS	SECURITY LIGHTS

ALUMINUM - BARE (AA)

+ #2-7 STRAND	5035625	A2	A2N	A2S	A2L	A2D
1/0-7 STRAND	5035627	A10	A10N	A10S	A10L	A10D
3/0-7 STRAND	5035629	A30	A30N			
266.8 MCM-7 STRAND	5035631	A266				
397.5 MCM-19 STRAND	5035633	A397				

ALUMINUM - STEEL REINFORCED - BARE (ACSR)

#2-6/1 STRAND	5035740	R2	R2N	R2S		
3/0-6/1 STRAND	5035742	R30	R30N			
266.8 MCM-26/7 STRAND	5035744	R266	R266N			
477 MCM-26/7 STRAND	5035745	R477P				

COPPER - BARE

#6 SOLID OR STRAND	5033844	C6	C6N	C6S		
#4-3 STRAND OR SOLID	5033847	C4	C4N	C4S		
#2-7 STRAND OR SOLID	5033850	C2	C2N			
2/0-7 STRAND	5033855	C20	C20N			

COPPER - XLPE INSULATED

#4 SOLID	5033864	WC4				
#2/7 STRAND	5033865	WC2				
2/0-7 STRAND	5033963	WC20				
4/0-7 STRAND	5033964	WC40		WC40S		
350 MCM-19 STRAND	5033965	WC350				
500 MCM-37 STRAND	5033966	WC500				

ALUMOWELD

7-#8	5035756	AW78	AW78N			
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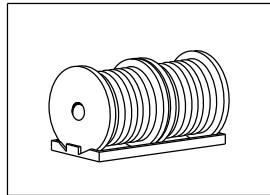
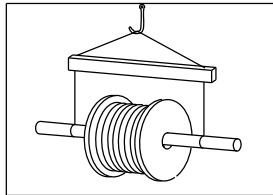
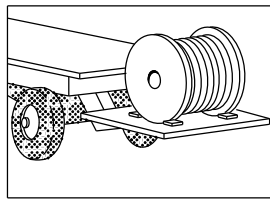
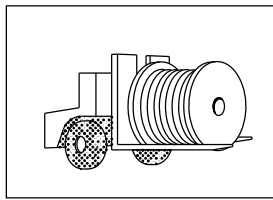
ALUMINUM ALLOY - BARE (AAAC)

312.8 MCM-19 STRAND	5035732	AC312	AC312N			
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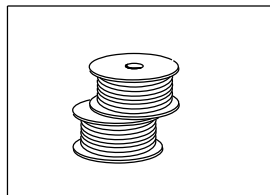
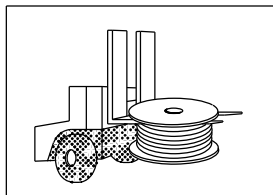
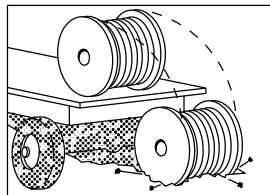
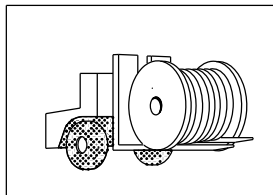
CABLES - 600 VOLT INSULATED

#6 DUPLEX	5028149	DX6			DX6L	DX6D
#2 TRIPLEX	5028373	TX2			TX2L	TX2D
1/0 TRIPLEX	5028375	TX10			TX10L	TX10D
4/0 TRIPLEX	5028381	TX40				
1/0 QUADRUPLX	5028377	QX10				
4/0 QUADRUPLX	5028382	QX40				

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			ISSUE DATE: 12/17/71
	MISCELLANEOUS CONDUCTOR CODING		REV. DATE: 06/12/13
	1-10-1		APPROVAL: B. Priest
			OH1-10-1.doc



PROPER REEL HANDLING



IMPROPER REEL HANDLING

NOTES

1. UNLOADING EQUIPMENT SHALL NOT COME IN CONTACT WITH THE CABLE OR ITS PROTECTIVE COVERING.
2. IF A CRANE IS USED TO UNLOAD CABLE, A SHAFT THROUGH THE ARBOR HOLE OR A CRADLE SUPPORTING BOTH REEL FLANGES SHALL BE USED.
3. FORKLIFTS MUST LIFT THE REEL BY CONTACTING BOTH FLANGES.
4. STORE REELS ON HARD SURFACE SO THAT THE FLANGES WILL NOT SINK AND ALLOW REEL WEIGHT TO REST ON CABLE.
5. PLACE A BOARD UNDER BOTH FLANGES TO PREVENT ROLLING WHEN IN STORAGE, IN ADDITION TO OTHER SECURING METHODS IN SHIPPING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

MISCELLANEOUS REEL HANDLING AND STORAGE GUIDELINES

1-11-1

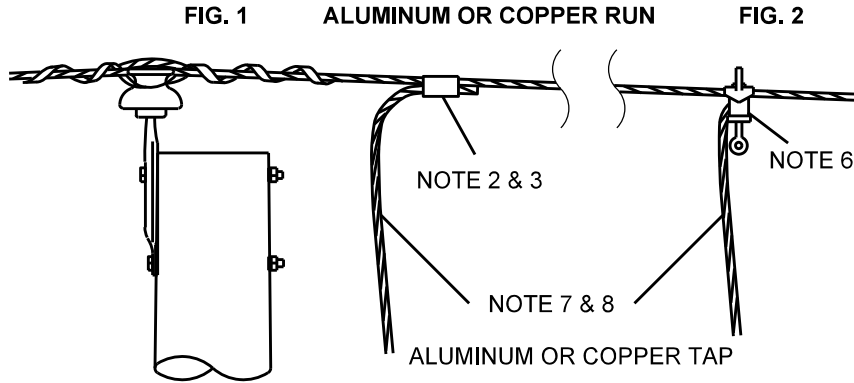
ISSUE DATE: 04/07/03

REV. DATE: 05/04/11

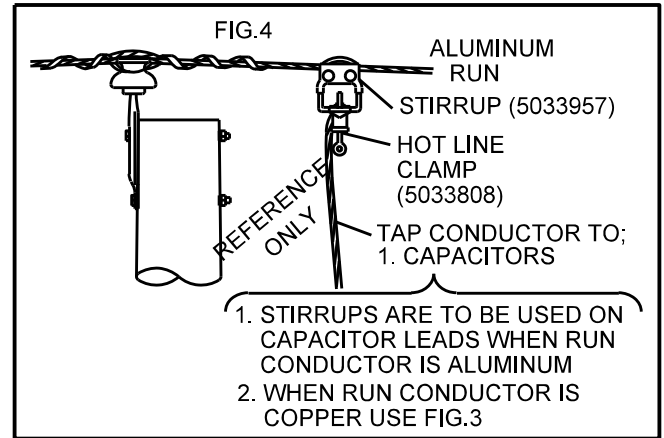
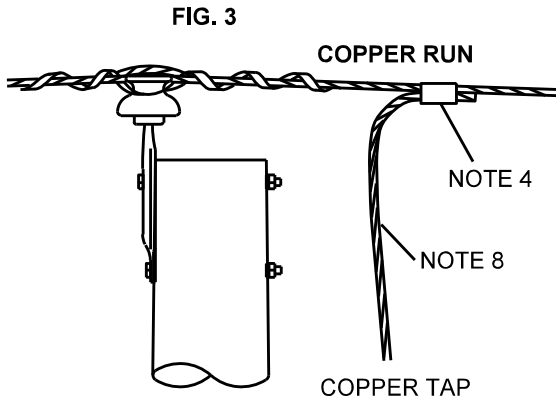
APPROVAL: B. PRIEST

8512E342.DGN

ALUMINUM CONNECTORS



COPPER CONNECTORS



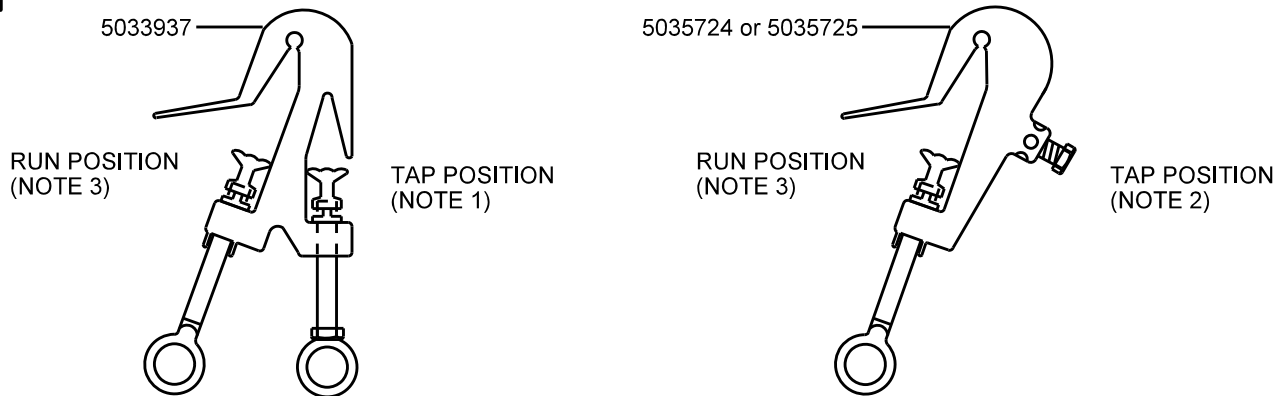
NOTES

1. CONDUCTORS MUST BE BRUSHED AND GREASED BEFORE INSTALLING CONNECTORS.
2. WHEN USING COMPRESSION CONNECTOR ON ALUMINUM TO COPPER, THE ALUMINUM CONDUCTOR MUST BE ABOVE THE COPPER CONDUCTOR.
3. USE ALUMINUM COMPRESSION CONNECTORS ON ALUMINUM OR COPPER RUNS TO ALUMINUM TAPS.
4. USE COPPER COMPRESSION CONNECTORS ON COPPER RUNS TO COPPER TAPS.
5. TWO OR THREE PHASE TAPS MUST BE INSTALLED SO THAT ALL OF THE TAPS ARE FED FROM THE SAME SIDE OF ANY JUMPERS OR SWITCHES IN THE PRIMARY LINE.
6. WHEN USING POWER GRIP CONNECTOR, WITH HOT STICK, TIGHTEN 2 TO 2-1/2 TURNS AFTER FINGER TIGHT.
7. TAP ALUMINUM CONDUCTOR TO LATERALS AND UNDERGROUND RISERS.
8. TAP COPPER CONDUCTOR TO TRANSFORMERS AND CAPACITORS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS - CONNECTORS VARIOUS TYPES OF TAPS OFF OF PRIMARY CONDUCTORS	ISSUE DATE: 06/24/83 REV. DATE: 01/03/23 APPROVAL: J. ROBBINS
	1-12-1	8512E245.DGN

POWER GRIP CONNECTOR FOR ALUMINUM OR COPPER CONDUCTORS

BPG__



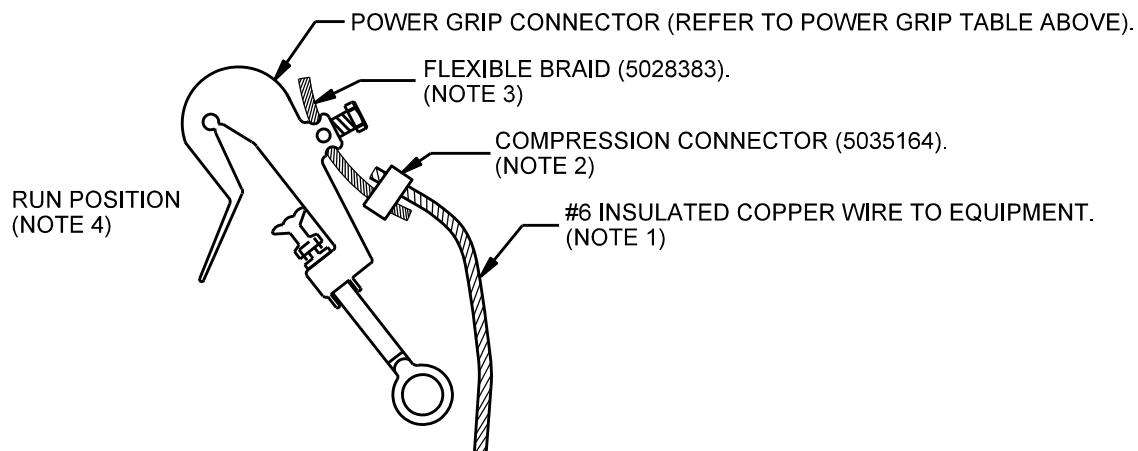
STOCK #	TAP SIZE	RUN SIZE	COMPATIBLE UNIT
5035724	#8 - #2	#4 - 1/0	BPG01
5035725	#8 - #2	1/0 - 397	BPG02
5033937	1/0 - 397	1/0 - 397	BPG03

NOTES

1. THE END OF TAP CONDUCTOR SHALL EXTEND APPROXIMATELY 3" BEYOND CONNECTOR EDGE.
2. THE END OF TAP CONDUCTOR SHALL EXTEND APPROXIMATELY 1" BEYOND SET SCREW BOSS.
3. BRUSH AND GREASE CONDUCTOR PRIOR TO INSTALLATION ONTO RUNNING LINE.

POWER GRIP CONNECTOR WITH FLEXIBLE BRAID

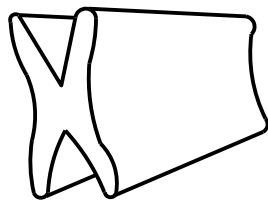
FLEXIBLE BRAID FOR #6 COPPER EQUIPMENT TAPS FOR USE ON SPANS SUBJECT TO VIBRATION (200 FEET AND GREATER) AND AS REPLACEMENT ON BROKEN TAP CONDUCTOR.



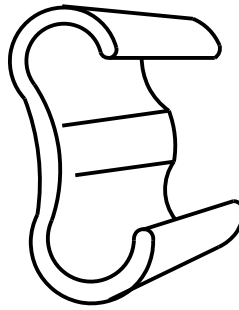
NOTES

1. REMOVE SUFFICIENT INSULATION FROM TAP CONDUCTOR FOR DEPTH OF COMPRESSION CONNECTOR.
2. COMPRESS CONNECTION BETWEEN CABLE AND FLEXIBLE BRAID.
3. INSTALL FLEXIBLE BRAID APPROXIMATELY 1" BEYOND SET SCREW BOSS.
4. BRUSH AND GREASE CONDUCTOR PRIOR TO INSTALLATION ONTO RUNNING LINE.

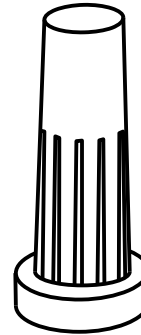
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS - CONNECTORS VARIOUS TYPES OF TAPS OFF OF PRIMARY CONDUCTORS		ISSUE DATE: 06/24/83
	1-12-2		REV. DATE: 01/03/23
			APPROVAL: J. ROBBINS
			8512E489.DGN



WEDGE



"C" MEMBER



SHELL

"A" GROOVE						
CONDUCTOR DIAMETER	CONDUCTOR SIZE & CONFIGURATION					
.464	3/0 STR.	1	2			
.586	266.8 STR.					
.642	312.8 AAAC	3	4		5	
.724	397.5 STR.				6	
"B" GROOVE CONDUCTOR SIZE & CONFIGURATION		#2 STR.	3/0 STR.	266.8 STR.	312.8 AAAC	397.5 STR.

RANGE	TAP	SHELL	AMP NO.
1	5033834	5033935	600448
2	59-1663 **	5033935	600459
3	5033835	5033936	602000
4	59-1665 **	5033936	602003
5	5033836	5033936	602007
6*	5033837	5033936	1-602031-5

* CONNECTOR #6 HAS A LARGE AND SMALL GROOVE. THE SMALLER CONDUCTOR MUST BE IN THE SMALLER GROOVE.

** INDICATES NO SAP MATERIAL STOCKCODE NUMBER EXISTS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

MISCELLANEOUS - CONNECTORS
HOT OR COLD PRIMARY WORK
CONDUCTORS #2 THRU 397.5 MCM AND AMPACT

1-13-1

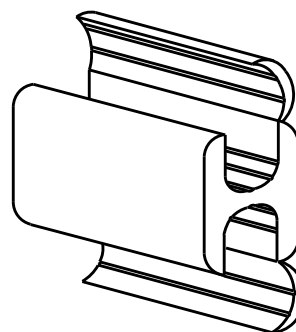
ISSUE DATE: 04/02/84

REV. DATE: 06/11/13

APPROVAL: B. PRIEST

8512E438.DGN

CONDUCTOR SIZE AND CONFIGURATION	VENDOR NO. / CRIMPS ()		MATERIAL ITEM NUMBER	DIE	SIZING CHART #	SECONDARY COVERS MATERIAL ITEM NUMBER
	BURNDY	HOMAC				
#6 SOL.- #3 STR. TO #6 SOL.- #3 STR.	YHO-100 (4)	OB44 (4)	5033812	0	1	5034083
#2 STR.- 1/0 ACSR TO #6 SOL.- #1 STR.	YHO-150 (5)	OB101 (4)	5033813	0	2	5034083
2/0 ACSR - 3/0 STR. TO #6 SOL.- #1 STR.	YHD-200 (5)	DB202 (4)	5033814	D3	3	5034080
4/0 STR. - 4/0 ACSR TO #6 SOL.- #1 STR.	YHD-250 (5)	DB404 (4)	5033815	D3	4	5034080
1/0 STR.- 3/0 STR. TO 1/0 STR.- 2/0 ACSR	YHD-300 (5)	DB2020 (5)	5033816	D3	5	5034080
4/0 STR. - 4/0 ACSR TO 1/0 STR. - 2/0 ACSR	YHD-350 (7)	DB4020 (6)	5033817	D3	6	5034080
3/0 ACSR - 4/0 ACSR TO 3/0 ACSR - 4/0 ACSR	YHD-400 (7)	DB4040 (6)	5033818	D3	7	5034080
250 STR.- 500 STR. TO #6 SOL.-3/0 STR.	YHN-500 (2)		5033819	N	8	5034081
250 STR.- 500 STR. TO 2/0 ACSR - 4/0 ACSR	YHN-550 (2)	NB50040 (2)	5033820	N	9	5034081
250 STR.- 500 STR. TO 250 STR.- 500 STR.	YHN-525 (3)	NB500 (3)	5033821	N	10	5034081
UP TO 4-7/16" LONG CONNECTORS						5034082



NOTES

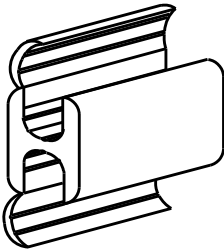
1. THESE CONNECTORS MAY BE USED ON ALUMINUM OR COPPER CONDUCTORS.
2. NUMBER OF CRIMPS SHOWN IN PARENTHESIS ().

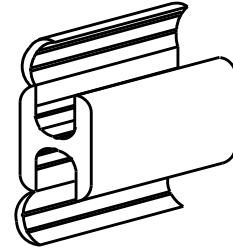
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS - CONNECTORS CONNECTOR AND DIE CHART (NON-TENSION) FOR USE WITH SECONDARY AND COLD PRIMARY RISERS CONDUCTORS #6 SOLID THRU 500 STRANDED		ISSUE DATE: 01/15/87 REV. DATE: 10/13/20 APPROVAL: J. LUERA
	1-13-2		8512E224.DGN

A GROOVE

SEE PAGE 1-18-2 FOR STOCK CODE NUMBER, VENDOR NUMBERS AND DIE INFORMATION

A GROOVE																																																													
CONDUCTOR DIA. (INCHES)		CONDUCTOR SIZE AND CONFIGURATION																																																											
.162	6 SOL																																																												
.168	6 STR. COMP.																																																												
.182	6 ACSR. COMP.																																																												
.184	6 STR.																																																												
.198	6 ACSR.																																																												
.204	4 SOL.																																																												
.213	4 STR. COMP.																																																												
.229	4 ACSR. 6/1 COMP.																																																												
.232	4 STR.	1																																																											
.236	4 ACSR. 7/1 COMP.																																																												
.250	4 AAAC																																																												
.250	4 ACSR. 6/1																																																												
.257	4 ACSR. 7/1																																																												
.258	3 ACSR. 6/1 COMP.																																																												
.258	2 SOL.																																																												
.260	3 STR.																																																												
.268	2 STR. COMP.																																																												
.289	1 SOL.																																																												
.290	2 ACSR. 6/1 COMP.																																																												
.292	2 STR.																																																												
.298	2 ACSR. 7/1 COMP.																																																												
.301	1 STR. COMP.																																																												
.316	2 ACSR. 6/1																																																												
.325	2 ACSR. 7/1																																																												
.325	1/0 SOL.	2																																																											
.326	1 ACSR. 6/1 COMP.																																																												
.328	1 STR.																																																												
.340	1/0 STR. COMP.																																																												
.355	1 ACSR.																																																												
.365	1/0 ACSR. COMP.																																																												
.365	2/0 SOL.																																																												
.368	1/0 STR.																																																												
.382	2/0 STR. COMP.																																																												
.385	7 NO. 8 ALUMOWELD																																																												
.398	1/0 ACSR. 6/1																																																												
.410	2/0 ACSR. COMP.																																																												
.410	3/0 SOL.	5																																																											
.414	2/0 STR.																																																												
.428	3/0 STR. COMP.	3																																																											
.447	2/0 ACSR. 6/1 & 4/3																																																												
.460	4/0 SOL.																																																												
.461	3/0 ACSR. COMP.																																																												
.464	3/0 STR.																																																												
.481	4/0 STR. COMP.																																																												
.502	3/0 ACSR.																																																												
.517	4/0 ACSR. COMP.	4																																																											
.522	4/0 STR.	6																																																											
.523	250 STR. COMP.	7																																																											
.551	266.8 STR. COMP.																																																												
.559	266.8 ACSR. COMP.																																																												
.563	4/0 ACSR.																																																												
.574	250 STR.																																																												
.586	266.8 STR.	8																																																											
.618	350 STR. COMP.	9																																																											
.642	312 AAAC	10																																																											
.642	266.8 ACSR.																																																												
.679	350 STR.																																																												
.724	397.5 STR.																																																												
.728	400 STR.																																																												
.739	500 STR. COMP.																																																												
.811	500 STR.																																																												
CONDUCTOR SIZE AND CONFIGURATION		6 SOL	6 STR. COMP	6 ACSR COMP	6 STR.	6 ACSR	4 SOL	4 STR. COMP	3 SOL	4 ACSR 6/1 COMP	4 STR.	4 ACSR 7/1 COMP	4 AAAC	4 ACSR 6/1	4 ACSR 7/1	2 SOL	3 ACSR 6/1 COMP	3 STR. COMP	1 SOL	2 ACSR 6/1 COMP	2 STR.	2 ACSR 7/1 COMP	1 STR. COMP	2 ACSR 6/1	2 ACSR 7/1	1/0 SOL	1 ACSR 6/1 COMP	1 STR.	1/0 STR. COMP	1 ACSR	1/0 ACSR COMP	2/0 SOL	1/0 STR.	2/0 STR. COMP	7 NO. 8 ALUMOWELD	1/0 ACSR 6/1	2/0 ACSR COMP	3/0 SOL	2/0 STR.	3/0 STR. COMP	2/0 ACSR 6/1 & 4/3	3/0 ACSR COMP	3/0 STR.	4/0 STR. COMP	3/0 ACSR	4/0 ACSR COMP	4/0 STR.	250 STR. COMP	266.8 STR. COMP	266.8 ACSR COMP	4/0 ACSR	250 STR.	266.8 STR.	350 STR. COMP	266.8 ACSR	312 AAAC	350 STR.	397.5 STR.	400 STR.	500 STR. COMP	500 STR.





B GROOVE

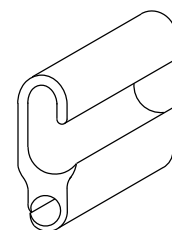
NOTES

1. ALUMINUM CONNECTORS MAY BE USED ON ALUMINUM OR COPPER CONDUCTORS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS - CONNECTORS FOR USE WITH SECONDARY OR COLD PRIMARY WORK CONDUCTORS #6 SOL THRU 500 MCM		ISSUE DATE: 08/06/93
	1-13-3		REV. DATE: 05/07/11 APPROVAL: B. PRIEST
			8512E220.DGN

A GROOVE

CONDUCTOR DIA. (INCHES)	CONDUCTOR SIZE AND CONFIGURATION
-------------------------	----------------------------------



YPC

CONDUCTOR SIZE & CONFIGURATION		CONDUCTOR DIA. (INCHES)	
.162	6 SOL		
.166	6 STR. COMP		
.182	6 ACSR COMP		
.184	6 STR.		
.198	6 ACSR		
.204	4 SOL		
.213	4 STR. COMP		
.229	3 SOL		
.229	4 ACSR 6/1 COMP		
.232	4 STR.		
.236	4 ACSR 7/1 COMP		
.250	4 AAAC		
.250	4 ACSR 6/1		
.257	4 ACSR 7/1		
.258	2 SOL		
.258	3 ACSR 6/1 COMP		
.260	3 STR.		
.268	2 STR. COMP		
.289	1 SOL		
.290	2 ACSR 6/1 COMP		
.292	2 STR.		
.298	2 ACSR 7/1 COMP		
.301	1 STR. COMP		
.316	2 ACSR 6/1		
.325	2 ACSR 7/1		
.325	1/0 SOL		
.326	1 ACSR 6/1 COMP		
.328	1 STR.		
.355	1/0 ACSR		
.365	1/0 ACSR COMP		
.365	2/0 SOL		
.368	1/0 STR.		
.382	2/0 STR. COMP		
.385	7 NO. 8 ALUMOWELD		
.388	1/0 ACSR 6/1		
.410	2/0 ACSR COMP		
.410	3/0 SOL		
.414	2/0 STR.		
.428	3/0 STR. COMP		
.447	2/0 ACSR 6/18 4/3		
.460	4/0 SOL		
.461	3/0 ACSR COMP		
.464	3/0 STR.		
.481	4/0 STR. COMP		
.502	3/0 ACSR		
.517	4/0 ACS		
.522	4/0 STR.		
.551	266.8 STR. COMP		
.559	266.8 ACSR COMP		
.563	4/0 ACSR		
.586	266.8 STR.		
.642	266.8 ACSR		
.642	312 AAAC		
.724	397.5 STR.		

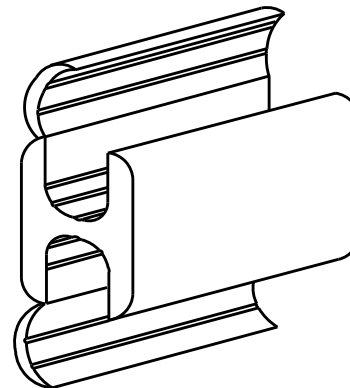
RANGE	MATERIAL ITEM NUMBER †	BURNDY**	DIE
1	5033822	YP26 AU2 (4)	O
2	5033823	YP27 AU4 (4)	D
3	5033824	YPC 28U4 (4)	D
4	5033825	YP27 AU2 (4)	D
5	5033826	YP 28U2 (4)	D
6	5033827	YP25 U25 (4)	D
7	5033828	YP27 AU26(4)	D
8	5033829	YP28 U26 (9)	D*
9	5033830	YPC28U28 (2)	D
10	5033831	YPC33R26U(2)	N
11	5033832	YPC33R28R(3)	N
12	5033833	YPC33R33R(3)	N

1. ALUMINUM CONNECTORS MAY BE USED ON ALUMINUM OR COPPER CONDUCTORS.
2. **THESE CONNECTORS ARE ALSO ACCEPTABLE FOR COPPER-TO-COPPER CONNECTIONS

() INDICATES NUMBER OF CRIMPS
* HYDRAULIC ONLY
† NOT IN IMPREST BIN STOCK

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	MISCELLANEOUS - CONNECTORS FOR HOT PRIMARY WORK CONDUCTORS #6 SOL THRU 397.5 MCM STR, AND DIES		ISSUE DATE: 10/25/73
	1-13-4		REV. DATE: 05/08/13
			APPROVAL: B. PRIEST

TAP CONDUCTOR "B" GROOVE											
.398	1/0 6/1 ACSR	1 BLACKBURN- 4 CRIMPS OTHERS- 3 CRIMPS									
.414	2/0 STR										
.426	3/0 COMP.										
.447	2/0 4/3 ACSR										
.464	3/0 STR										
.480	4/0 COMP.										
.502	3/0 6/1 ACSR										
.522	4/0 STR										
.523	250 MCM COMP.										
.574	250 MCM STR										
.586	266.8 MCM STR										
.613	350 MCM COMP.										
.628	300 MCM STR										
.642	266.8 MCM ACSR										
.642	312 AAAC										
.679	350 MCM STR										
.724	397.5 MCM STR										
.728	400 MCM STR	3 4 CRIMPS									
.735	500 MCM COMP.										
.811	500 MCM STR										
.814	477 MCM ACSR										
.893	600 MCM STR	4 4 CRIMPS									
.897	750 MCM STR										
1.026	795 MCM STR	5 4 CRIMPS									
1.031	800 MCM STR										
1.063	795 45/7 MCM ACSR	6 4 CRIMPS									
1.124	954 MCM STR										
1.140	795 30/19 ACSR										
1.151	1000 MCM STR										
1.165	954 45/7 ACSR										
1.170	1033.5 STR										



RUN CONDUCTOR "A" GROOVE										
	.679	350 MCM STR								
	.724	397.5 MCM STR								
	.728	400 MCM STR								
	.735	500 MCM COMP.								
	.811	500 MCM STR								
	.814	477 MCM ACSR								
	.893	600 MCM STR								
	.897	750 MCM STR								
	1.026	795 MCM STR								
	1.031	800 MCM STR								
	1.063	795 MCM ACSR								
	1.124	954 MCM STR								
	1.140	795 30/19 ACSR								
	1.151	1000 MCM STR								
	1.165	954 45/7 ACSR								
	1.170	1033.5 MCM STR								

TOOL	DIES
Y46	P-KR
Y45	S-KR OR S-Z
WITH S-Z DIE OVERLAP CRIMPS	

RANGE NO.	MATERIAL ITEM NUMBER
1	5035728
2	5035729
3	5035730
4	5035731
5	5033806
6	5033807

NOTES

1. ALUMINUM CONNECTORS MAY BE USED ON ALUMINUM OR COPPER CONDUCTORS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS - CONNECTORS LARGE CONDUCTORS CONDUCTORS #1/0 THRU 795 MCM, AND DIES	ISSUE DATE: 10/25/73 REV. DATE: 05/06/13 APPROVAL: B. PRIEST
	1-13-5	8512E263.DGN

COPPER COMPRESSION CONNECTORS

STOCK CODE	CONNECTOR RANGE		TOOLS		
	RUN	TAP	MD6-8	Y-35	CRIMPS
5033933	2 SOL. 2 STR.	8 SOL. 4 STR.	W-C	—	2
5035164	6 SOL. 2 STR.	6 SOL. 2 STR.	—	U-O	1
5035164	2 STR. 1/0 STR.	4 STR.	—	U-O	1
5035166	2 STR. 1/0 STR.	2 STR. 1/0 STR.	—	U-O	1
5035167	2/0 STR. 4/0 STR.	2 STR. 1/0 STR.	—	U-O	1
5035168	2/0 STR. 4/0 STR.	2/0 STR. 4/0 STR.	—	U-D3	1
5035169	1 STR. 2/0 STR.	1 STR. 2/0 STR.	—	U-O	1

SERVICE ENTRANCE SLEEVES – INSULATED

STOCK CODE	SIDE A		SIDE B		DIE
	SIZE	COLOR	SIZE	COLOR	
5035111	10 STR.	BROWN	10 STR.	BROWN	BG
5035112	6 STR.	BLUE	8 STR.	GREEN	BG
5035113	6 STR.	BLUE	6 STR.	BLUE	BG
5035114	4 STR.	ORANGE	4 STR.	ORANGE	BG
5035115	6 STR.	BLUE	2 STR.	RED	BG
5035116	4 STR.	ORANGE	2 STR.	RED	BG
5035117	2 STR.	RED	2 STR.	RED	BG
5035214	6 STR.	BLUE	1/0 STR.	YELLOW	BG
5035215	2 STR.	RED	1/0 STR.	YELLOW	BG
5035216	1/0 STR.	YELLOW	1/0 STR.	RED	BG
5035217	1/0 STR.	YELLOW	1/0 STR.	YELLOW	BG
5035218	2/0 STR.	GRAY	#2 STR.	RED	840
5035219	2/0 STR.	GRAY	1/0 STR.	YELLOW	840
5035220	2/0 STR.	GRAY	2/0 STR.	GRAY	840
5035221	3/0 STR.	BLACK	#2 STR.	RED	840
5035222	3/0 STR.	BLACK	1/0 STR.	YELLOW	840
5035223	#2 STR.	RED	4/0 STR.	PINK	840
5035224	4/0 STR.	PINK	1/0 STR.	YELLOW	840
5035225	4/0 STR.	PINK	2/0 STR.	GRAY	840
5035226	4/0 STR.	PINK	4/0 STR.	PINK	840

SERVICE NEUTRAL SLEEVE *

STOCK CODE	RANGE	DIE
5035237	1/0 ACSR	BG

* THIS CONNECTOR MAY BE USED FOR SERVICES AND SLACK SPANS. IT WILL HOLD UP TO 40% OF MAXIMUM CONDUCTOR STRENGTH.

PRIMARY JUMPER SLEEVES - NO TENSION

STOCK CODE	RANGE	DIE
5035241	266.8 STR.	U251
5035244	397.5 STR.	U468

NOTES

- ALL CONNECTORS ON THIS PAGE ARE IMPREST BIN STOCK.

CONDUCTOR SIZE	TENSION SLEEVE			TOOLS					
	STOCK #	VENDOR	VENDOR #	MD 6-8		Y-35		60 TON PRESS	
				DIE	CRIMPS	DIE	CRIMPS	DIE	CRIMPS

(# OF STRANDS)

ALL ALUMINUM (AAC)

#4 (7)	5035232	BLACKBURN	AC4-BB	W162	4	U162	1		
		BURNDY	YDS4CA						
		NICOPRESS	AL-4 STR-P						
#2 (7)	5035233	BLACKBURN	AC2-TB	W163	6	U163	2		
		BURNDY	YDS2CA						
		NICOPRESS	AL-2 STR-X						
1/0 (7)	5035235	BLACKBURN	AC10-TB	BG — OR W243 —	12 → 6	U243	3		
		BURNDY	YDS25AT						
		COOPER	OH1-0-7AL						
		BLACKBURN	U 2 A 9						
3/0 (7)	5035238	BURNDY	YDS27AT	W247	8	U247	4		
		BLACKBURN	2169						
268.8 (7)	5035240	BURNDY	YDS291AT			U251	7	6075 AH	4
		BLACKBURN	AC266						3
312.8 (19)	5035242	AFL	7514.719					6014 AH	
397.5 (19)	5035243	HUBBELL	FTA397			U468	9		
		BURNDY	YDS311AT				10		
477 (19)	5035346	AFL	7020.812					6020 AH	OV/LAP

(AL-STEEL)

ACSR

#6 (6-1)	5035231	NICOPRESS	1706-P	W162	4	U162	1		
#2 (6-1)	5035234	BURNDY	YDS2RLY	WBG	10	U243	6		
		COOPER	OH2-61-71AS		12				
		BLACKBURN	DS 267		10				
1/0 (6-1)	5035236	BLACKBURN	RC10	W702	16	U247	8		
		BURNDY	YDS25RL		12				
		BLACKBURN	RS 10						
3/0 (6-1) (NOTE 2)	5035239 (AL SLEEVE)	AFL	8075.547					6075 AH	OV/LAP
	5035368 (STEEL SLEEVE)		4075.179					6075 SH	
266.8 (26-7) (NOTE 2)	5035245 (AL SLEEVE)	AFL	8076.688					6076 AH	OV/LAP
	5035369 (STEEL SLEEVE)		4076.246					6076 SH	

NOTES

1. UNLESS CRIMPS CALL FOR OVERLAP (OV/LAP), LEAVE DISTANCE OF ONE CRIMP EACH SIDE OF CENTER STOP.
2. REQUIRES BOTH STOCK #'S, FOR ONE APPLICATION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS – CONNECTORS TOOL AND DIE CHART FOR TENSION SLEEVES	ISSUE DATE: 01/14/83
		REV. DATE: 06/11/13
		APPROVAL: B. Priest
	1-14-1	OH1-14-1.doc

ALUMINUM REPAIR SLEEVES						
CONDUCTOR SIZE	SLEEVE STOCK NO.	BURNDY NO.	TOOLS			
			MD 6-8		Y-35	
			DIE	CRIMPS	DIE	CRIMPS
#2, 7 STR.	5035227	YCU2CA	W163	27	U163	9
1/0 STR.	5035228	YCU25A	W243	20	U243	10
3/0 STR.	5035229	YCU27A	W247	24	U247	12
266 STR.	5035230	YCU291A	—	—	U251	20

COPPER TENSION SLEEVES						
CONDUCTOR SIZE & SLEEVE STOCK NO.	TENSION SLEEVE		TOOLS			
	VENDOR	VENDOR NO.	MD 6-8		Y-35	
			DIE	CRIMPS EACH SIDE	DIE	CRIMPS EACH SIDE
#6 SOL. 5035364	NICOPRESS THOMAS & BETTS-BLACKBURN BURNDY THOMAS & BETTS-HOMAC MFG CO	1-162-J CTS6 YDS6W J2C3	W161	2	U161	1
#4 SOL. 5035365	NICOPRESS THOMAS & BETTS-BLACKBURN BURNDY THOMAS & BETTS-HOMAC MFG CO	1-204-X 2-1/2" CTS4 YDS4W L2C4	W162	4	U162	1
#4, 3 STR. 5035366	NICOPRESS BURNDY THOMAS & BETTS-HOMAC MFG CO	1-258-X YDS2W Q2C6	W163	6	U163	2
#4, 7 STR. 5093328	NICOPRESS THOMAS & BETTS-BLACKBURN BURNDY	1-204/7-X L2C5 YDS4C	W-162	4	U162	1
#4, 3 TO 7 STR. TENSION LIMIT 1691 LBS. 5093329	NICOPRESS	1-258 X 204/7-X	W-163	6	U163	2
#2, 7 STR. 5035367	NICOPRESS THOMAS & BETTS-BLACKBURN BURNDY THOMAS & BETTS-HOMAC MFG CO	1-258-7X CTS27 YDS2C Q2C7	W163	6	U163	2

PREFORMED SPLICES		
7 NO. 8 ALUMOWELD 5035371	CHANCE	16M AWFS
	HELICAL	HS 525-16M
2/0, 4/3 ACSR 5035372	PREFORMED	LS-MS-1674

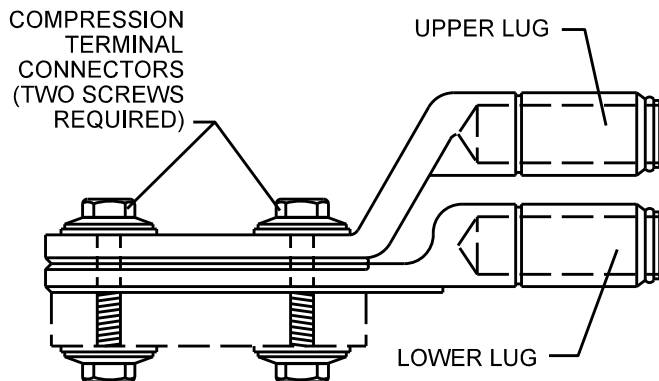
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS – CONNECTORS TOOL AND DIE CHART FOR TENSION SLEEVES	ISSUE DATE: 01/28/93
		REV. DATE: 05/31/22
		APPROVAL: J. Luera
	1-14-2	OH1-14-2.doc

AUTOMATIC SPLICING SLEEVES			
COPPER		ALUMINUM	
STOCK NO.	CONDUCTOR SIZE	MATERIAL ITEM NO.	CONDUCTOR SIZE
5035090 *	#6 SOL.	—	—
5035091 *	#4 SOL.	5035101	#2 AA & #2, 6/1 ACSR
		5035095	1/0, 7 STR.
5035092 *	#4, 3 STR. OR 7 STR	5035096 *	3/0, 7 STR. & NEUTRAL FOR 4/0 AA TX
5035093 *	#2, 7 STR.	5035100	3/0, 6/1 ACSR
—	—	5035097	266.8 MCM, 7 STR.
5035094 *	#1, 7 STR.	5035099	266.8 MCM ACSR & 312.8 AAAC
5035102 *	1/0, 7 STR.	5035098	397.5 MCM 19 STR.
5035103 *	2/0, 7 STR.	STEEL GUY OR STATIC WIRE	
5035104 *	4/0, 7 STR.	5035106	5/16"
		5035107	3/8"
		5035108	7/16"
		5035105	1/4"

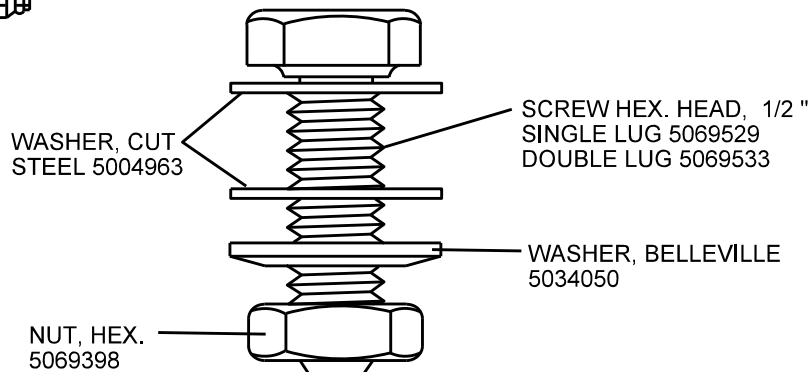
AUTOMATIC GUY CLAMPS			
SHORT BAIL		LONG BAIL	
STOCK NO.	CONDUCTOR SIZE	MATERIAL ITEM NO.	CONDUCTOR SIZE
5028518	1/4"	5028520	5/16"
5028519 *	5/16"	5028522 *	3/8"
5028521 *	3/8"	—	—
5028523 *	7/16"	—	—

* IMPREST BIN STOCK

Overhead Distribution Construction Standards  SNP [®] PROPRIETARY MATERIAL		
	MISCELLANEOUS – CONNECTORS TOOL AND DIE CHART FOR TENSION SLEEVES	ISSUE DATE: 01/28/93 REV. DATE: 05/31/22 APPROVAL: J. Luera
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TIGHTEN NUT JUST ENOUGH TO FLATTEN BELLEVILLE WASHER, THEN BACK OFF 1/2 TURN.



			BURNDY COMPRESSION TOOLS & DIE INDEX NUMBERS	
WIRE SIZE CU OR AL	LUG	MATERIAL ITEM NUMBER	MD6-HAND TOOL	Y35 OR Y39 HYDRAULIC TOOL
#2		5035281	BG	BG OR 243
1/0		5035282	BG	BG OR 243
2/0		5035284	249 OR 840	249 OR 840
3/0		5035285	249 OR 840	249 OR 840
4/0	LOWER	5035286	249 OR 840	249 OR 840
4/0	UPPER	5035287	249 OR 840	249 OR 840
266.8 MCM		5035288	NONE	251
350 MCM	LOWER	5035289	NONE	299 OR 31ART
350 MCM	UPPER	5035290	NONE	299 OR 31ART
397 MCM		5035291	NONE	316
500 MCM	LOWER	5035292	NONE	317
500 MCM	UPPER	5035293	NONE	317
750 MCM	UPPER	5035294	NONE	608
750 MCM	LOWER	5035295	NONE	608

NOTES

1. THE LETTER "W" USUALLY PRECEDES MD6 DIE NUMBERS
2. THE LETTER "U" USUALLY PRECEDES Y35 DIE NUMBERS
3. "U" DIES MAY BE USED IN Y45 TOOLS WITH BURNDY ADAPTER PT-6515.
4. "U" DIES MAY BE USED IN Y46 TOOLS WITH BURNDY ADAPTER P-UADP

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	CONNECTORS TOOL AND DIE CHART 2-HOLE TERMINAL CONNECTORS	ISSUE DATE: 09/27/04 REV. DATE: 05/04/13 APPROVAL: B. PRIEST
	1-15-1	8512E350.DGN

RETIREMENT CODES TO BE USED FOR REMOVAL OF NON-STANDARD CONDUCTORS

CONDUCTOR DESCRIPTION	COMPATIBLE UNIT RETIREMENT CODING		
	DISTRIBUTION	STREETLIGHTS	SECURITY LIGHTS
ALUMINUM – WEATHERPROOF	RCODNS	RCOSLNS	RCOSENS
#4 STRANDED			
#2 STRANDED			
ALUMINUM CONDUCTOR – STEEL REINFORCED – WEATHERPROOF			
#4 STRANDED			
#2 STRANDED			
ALUMINUM CONDUCTOR – STEEL REINFORCED – BARE			
2/0 STRANDED			
ALUMOWELD – BARE			
7 #10 STRANDED			
COPPER – BARE			
#8 SOLID			
#6 SOLID OR STRANDED			
#5 SOLID OR STRANDED			
#4 SOLID OR STRANDED			
1/0 (HEMP CENTER)			
2/0 STRANDED			
3/0 STRANDED			
4/0 STRANDED			
COPPER – WEATHERPROOF			
#8 SOLID			
#6 SOLID			
1/0 STRANDED			
COPPERWELD – BARE			
#6 SOLID OR STRANDED			
#5 STRANDED			
STEEL – BARE			
5/16" STRANDED			
3/8" STRANDED			
MULTIPLEX CABLE			
#4 DUPLEX (INCLUDES CONCENTRIC)			
#2 DUPLEX (INCLUDES CONCENTRIC)			
#4 TRIPLEX			
#4 QUADRUPLIX			
#2 QUADRUPLIX			

NOTES

- USE THE RETIREMENT CODE BASED ON THE CONDUCTOR'S APPLICATION, FOR THESE NON-STANDARD CONDUCTORS, NO LONGER INSTALLED ON THE SYSTEM.

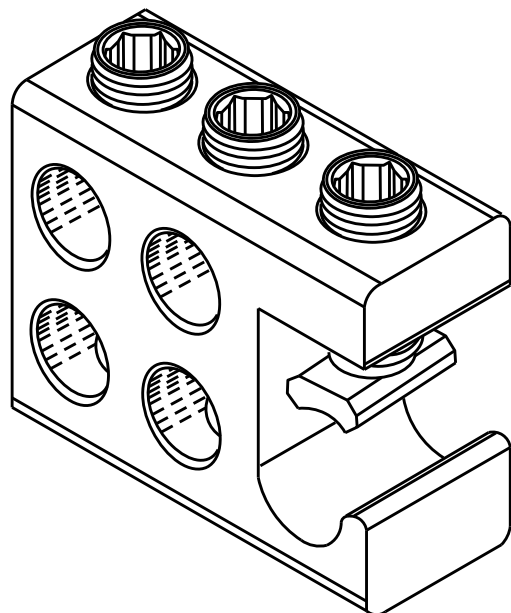
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS CONDUCTOR CODING – REMOVAL ONLY	ISSUE DATE: 04/13/72
		REV. DATE: 07/15/22
		APPROVAL: J. Robbins
	1-16-1	OH1-16-1.doc

CONDUCTOR DESCRIPTION	COMPATIBLE UNIT CODING FOR REMOVAL
ANY TWO-WIRE SERVICE	R2W
ANY THREE-WIRE SERVICE	R3W
ANY FOUR-WIRE SERVICE	R4W

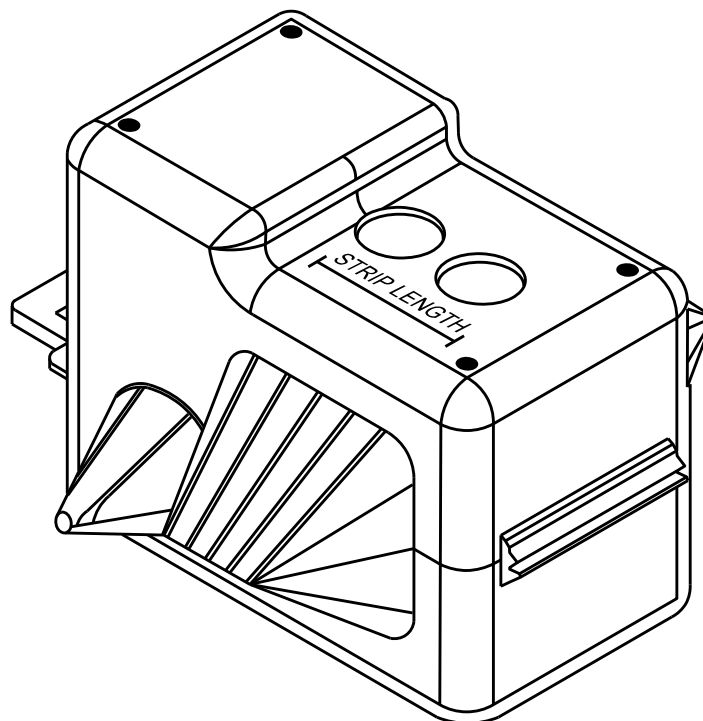
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	MISCELLANEOUS SERVICE CONDUCTOR CODING REMOVAL ONLY	ISSUE DATE: 10/12/99 REV. DATE: 06/09/11 APPROVAL: B. Priest
	1-16-2	OH1-16-2.doc

5077169

CONNECTOR



COVER


**RECOMMENDED TORQUE
FOR SET SCREWS**

CONDUCTOR SIZE	RECOMMENDED TORQUE
#12 - 6 STR	10 - 13 FT - LBS
#4 - 3/0 STR	15 - 20 FT - LBS
4/0 - 350 STR	23 - 35 FT - LBS

**CONDUCTOR RANGE
(AL OR CU)**

MAIN	#2 - 250MCM
TAP	#14 - 4/0

NOTES

1. FOR USE ON OPEN WIRE, MULTIPLEX, OR POT LEADS WITH UP TO 4 SERVICE CONNECTIONS
2. STOCK CODE 5077169 INCLUDES ONE CONNECTOR AND ONE COVER.
3. BRUSH CONDUCTORS PRIOR TO INSTALLATION.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

MISCELLANEOUS & CONNECTORS
SECONDARY ATTACHMENTS
OVERHEAD SECONDARY BOX CONNECTOR WITH COVER

1-17-1

ISSUE DATE: 06/24/15

REV. DATE: 10/13/20

APPROVAL: J. LUERA

8512E463.DGN

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PRIMARY CLAMPS FOR CLAMP-TOP INSULATORS	2-7-2
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SECTION 2: BASIC ASSEMBLY UNITS

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THIS GUIDE RELATES TO THE INSTALLATION, REMOVAL OR REPLACEMENT OF BASIC CONSTRUCTION ASSEMBLIES USED IN DISTRIBUTION LINE CONSTRUCTION. ALTHOUGH MANY OF THESE UNITS ARE INCLUDED AS PARTS OF CONSTRUCTION UNITS, AS IN THE "P" AND "X" SECTIONS, THEY MAY BE CALLED FOR INDIVIDUALLY BY USING THE CODE NUMBER OUTLINED IN THIS SECTION.

COMPATIBLE UNIT CODING FOR SECTION "B"

GENERAL CRITERIA

THIS SECTION IS COMPOSED OF THE FUNDAMENTAL CONSTRUCTION ASSEMBLIES UTILIZED IN THE DESIGN OF OVERHEAD DISTRIBUTION FACILITIES. DASHES IN THE COMPATIBLE UNIT NUMBERS INDICATE A WIRE CODE MUST BE ADDED TO COMPLETE THE NUMBER. REFER TO THE MISCELLANEOUS SECTION FOR CONDUCTOR CODING CHARTS.

SPECIAL NOTE: THE FOLLOWING FREQUENTLY USED BASIC ASSEMBLY UNITS ARE NOT INCLUDED IN OTHER CONSTRUCTION UNITS:

B1-B5BR..... NEUTRAL AND SECONDARY ASSEMBLIES
 B2-B7..... SECONDARY ATTACHMENTS (SERVICES)
 BTC1-BTT26..... MID-SPAN TAPS (PRIMARY & NEUTRAL)
 B29-B29D TEN FOOT CROSSARMS

THESE UNITS MUST BE SPECIFIED ON THE GRID SKETCH WHENEVER THEY ARE REQUIRED.

NEUTRAL AND SECONDARY ASSEMBLIES - STREET LIGHT AND SECURITY LIGHTING CONDUCTOR ASSEMBLIES

THE NEUTRAL, SECONDARY AND SERVICE SUPPORT ATTACHMENTS FOR WOOD POLE APPLICATION ARE AVAILABLE IN TWO TYPES:

1. STEEL BRACKETS – FOR GROUNDED NEUTRALS ONLY (OPEN WIRE OR CABLE)
2. INSULATED BRACKETS – FOR NEUTRALS OR OPEN WIRE SECONDARIES

INSULATED BRACKETS ARE LIMITED TO 900 LBS. TENSION ON DEADENDS AND 900 LBS. RESULTANT FORCE ON ANGLES.

MID-SPAN UNITS FOR OPEN WIRE AND CABLED SECONDARIES ARE ALSO INCLUDED TO PROVIDE MID-SPAN SECONDARY AND SERVICE TAPS.

PRIMARY ASSEMBLIES

THE PRIMARY SUPPORT ATTACHMENTS, INCLUDING INSULATORS, ARE ASSIGNED INDIVIDUAL COMPATIBLE UNIT NUMBERS. EACH NUMBER PROVIDES THE PROPER CLAMP, LINEGUARD, ARMOR ROD, ETC. TO FIT THE CONDUCTOR WHICH IS SPECIFIED ON THE GRID SKETCH.

CUTOUTS, ARRESTERS & COMBINATIONS

THE INDIVIDUAL AND MULTIPLE UNIT ASSEMBLIES FOR FUSE AND LIGHTNING PROTECTION ARE SHOWN WITH THEIR COMPATIBLE UNIT CODE NUMBERS. THE CODING SEQUENCE CAN BE NOTED BY THE FOLLOWING EXAMPLES:

BC1..... COMBO, ONE
 BG1..... GRASSHOPPER COMBO, ONE
 BCF1..... CUTOUT, ONE
 BCA1 CUTOUT AND ARRESTER, ONE
 BUC1 UNDERGROUND CUTOUT AND ARRESTER APPLICATION, ONE
 BCC1 CUTOUT CAPACITOR APPLICATION, ONE

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	BASIC ASSEMBLY UNITS INSTRUCTIONAL GUIDE 2-2-1	ISSUE DATE: 12/03/71 REV. DATE: 06/06/11 APPROVAL: B. Priest OH2-2-1.doc
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BLADE DISCONNECTS

INDIVIDUAL BLADE DISCONNECTS ARE AVAILABLE IN ONE TYPE:

BD6 = BLADE DISCONNECT, 600 AMP

MID-SPAN TAPS

VARIATIONS OF MID-SPAN TAPS ARE AVAILABLE USING THE LISTED CODES. THESE CODES APPLY TO PRIMARY AND NEUTRAL BARE CONDUCTORS.

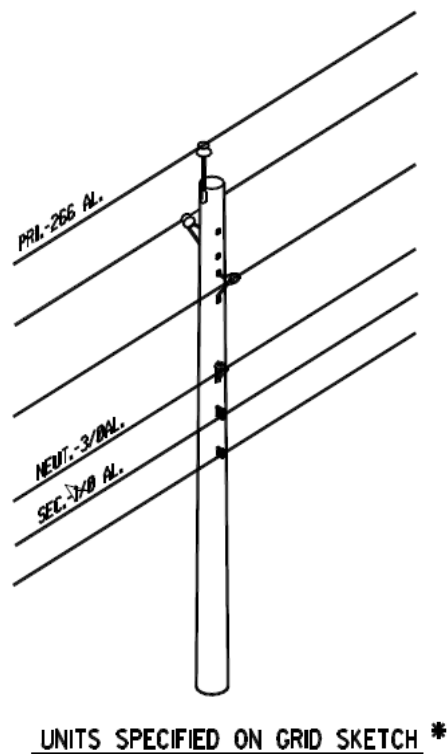
CROSSARMS

FOUR, EIGHT AND TEN FOOT CROSSARMS ARE CODED BY LENGTH AND TYPE. THESE MAY BE CALLED FOR INDIVIDUALLY AND THEN FRAMED BY THE ADDITION OF THE OTHER BASIC UNITS FOR SPECIAL CROSSARM APPLICATIONS WHICH ARE NOT COVERED IN CONSTRUCTION STANDARDS.

GRID SKETCH APPLICATION

MOST OF THE CONDUCTOR SUPPORT UNITS ARE CODED TO FIT A GIVEN WIRE SIZE. THESE UNITS SHOULD BE RECORDED ON LINE 5 OR LINE 6 FOR PRIMARIES, LINE 8 FOR NEUTRALS, LINES 10, 11 OR 12 FOR SECONDARIES, STREET LIGHT CIRCUITS AND DUSK TO DAWN CIRCUITS.

EXAMPLE: TYPICAL GRID SKETCH NOTATION UTILIZING BASIC ASSEMBLY UNITS.



	A	B	C	D
1 TAX CODE	17-18-04			
2 POINT NO.			ACT QUANT	
3 RUN SPAN ☐		200		
Span Length ▶				
Primary Conductor ▶	4 PRI ☐	A266	3	
Basic Assembly Unit ▶	5 STD. NO.	B10	1	
Basic Assembly Unit ▶	6	B30	2	
Neutral Conductor ▶	7 NEUT ☐	A30	1	
Basic Assembly Unit ▶	8 STD. NO.	B13	1	
Secondary Conductor ▶	9 SL- ^{DD} SEC ☐	A10	2	
Basic Assembly Unit ▶	10 STD. NO.	B32	2	
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
Pole Specification ▶	19 POLE	H40	Z	1

Overhead Distribution
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PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS INSTRUCTIONAL GUIDE

2-2-2

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* BASIC ASSEMBLY UNITS DO NOT SPECIFY FRAMING DETAILS, THEREFORE THE ESTIMATOR MUST PROVIDE THAT INFORMATION FOR THE FIELD PERSONNEL. THIS SHOULD BE DONE IN THE FORM OF A REFERENCE NOTE OR STICK SKETCH ON THE CONSTRUCTION DRAWING PORTION OF THE GRID SKETCH FORM.

BASIC ASSEMBLY UNITS WHICH DO NOT VARY WITH CONDUCTOR SIZES ARE TO BE RECORDED ON THE MISCELLANEOUS PORTION OF THE GRID SKETCH – LINES 13 THRU 18. UNITS OF THIS TYPE ARE:

B2, B2M3, B2M4MID-SPAN SECONDARY AND SERVICE ATTACHMENTS

B9, B92.....POLE GROUNDS

B13M.....STRAIN INSULATOR REPLACEMENT UNITS

BC1 THRU BCC4.....ALL CUTOUT-ARRESTER UNITS

BD6BLADE DISCONNECT – SIDE MOUNTED

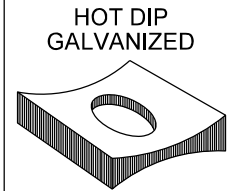
B24 THRU B29DALL CROSSARM UNITS

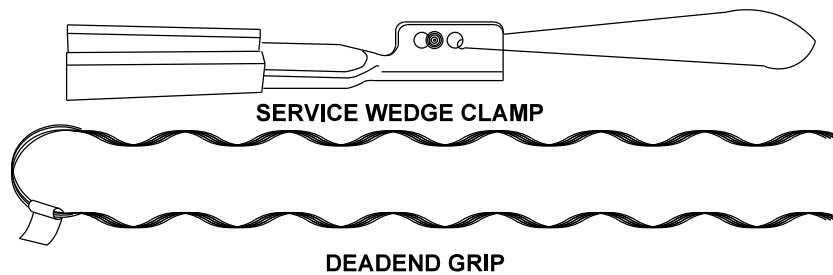
BKM.....KPF OPERATING ROD REPLACEMENT UNIT

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	BASIC ASSEMBLY UNITS INSTRUCTIONAL GUIDE 2-2-3	ISSUE DATE: 12/03/71 REV. DATE: 06/06/11 APPROVAL: B. Priest OH2-2-1.doc
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DOUBLE ARMING BOLTS WITH 4 NUTS

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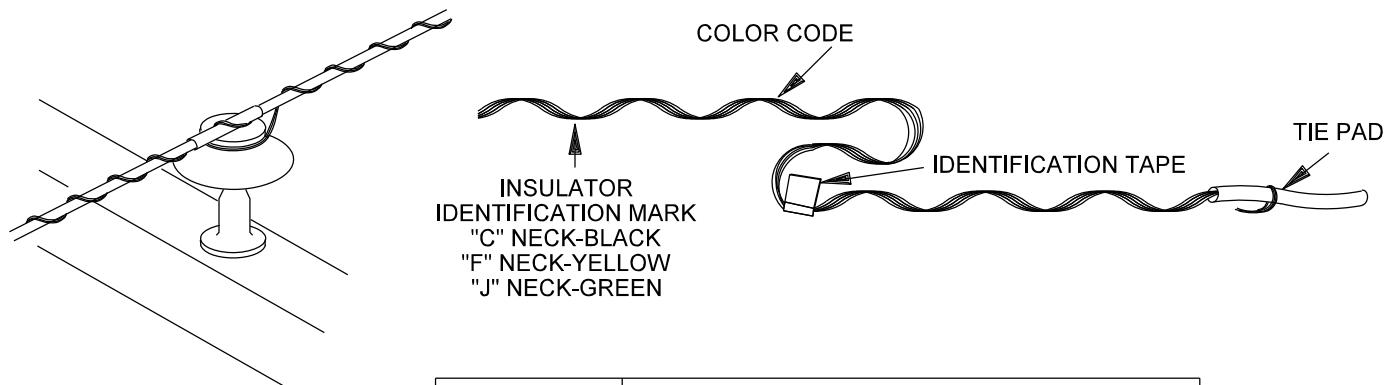


B7 CÜ- WIRE SIZE	CLAMP (1)	GRIP (1)	CONNECTORS & COVERS
NEUTRAL OR SECONDARY			
A2		5034320	5033813 (1)
A10	5035602		5033816 (1)
A30		5034321	5033817 (1)
DX6	5035601		5033813 (2), 5034083 (1)
DX4	5035601		5033813 (2), 5034083 (1)
TX2		5034320	5033813 (3), 5034083 (2)
TX10		5034324	5033817 (3), 5034080 (2)
TX40		5034325	5033816 (1), 5033818 (2), 5034080 (2)
QX2		5034320	5033813 (4), 5034083 (3)
QX10		5034324	5033817 (4), 5034080 (3)
QX40		5034325	5033816 (1), 5033818 (3), 5034080 (3)
SECURITY LIGHTS			
DX6D	5035601		5033813 (2), 5034083 (1)
DX4D	5035601		5033813 (2), 5034083 (1)
TX2D	5035601		5033813 (3), 5034083 (2)
TX10D	5035602		5033817 (3), 5034080 (2)
STREET LIGHTS			
DX6L	5035601		5033813 (2), 5034083 (1)
DX4L	5035601		5033813 (2), 5034083 (1)
TX2L	5035601		5033813 (3), 5034083 (2)
TX10L	5035602		5033817 (3), 5034080 (2)
SERVICES			
SDX6	5035601		5033813 (2), 5034083 (1)
SDX4	5035601		5033813 (2), 5034083 (1)
STX2	5035601		5033813 (3), 5034083 (2)
STX10	5035602		5033817 (3), 5034080 (2)
STX40	5035603		5033816 (1), 5033818 (2), 5034080 (2)
SQX2	5035601		5033813 (4), 5034083 (3)
SQX10	5035602		5033817 (4), 5034080 (3)
SQX40	5035603		5033816 (1), 5033818 (3), 5034080 (3)

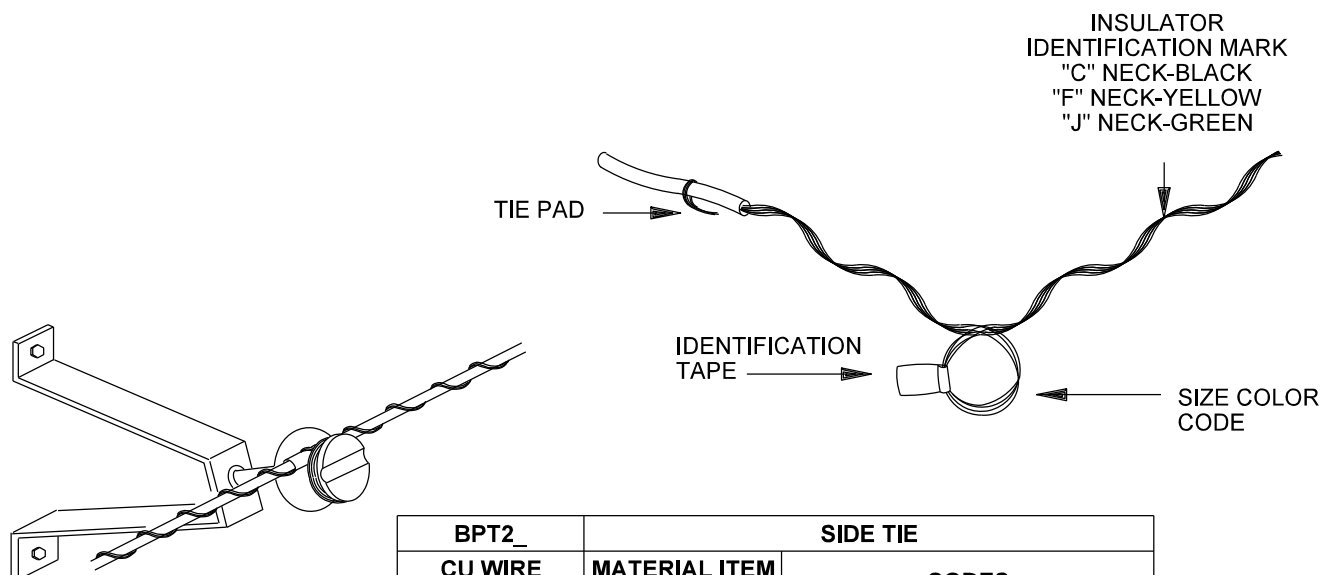
NOTES

1. NUMBER IN PARENTHESIS () IS QUANTITY

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	BASIC ASSEMBLY UNITS SERVICE, STREETLIGHTS & SECONDARY DEADEND ATTACHMENTS		ISSUE DATE: 11/30/77
			REV. DATE: 05/20/13
			APPROVAL: B. PRIEST
	2-4-1	8512E71.DGN	



BPT1_	TOP TIE	
CU WIRE SIZE	MATERIAL ITEM NUMBER	CODES
A2	5035610	F NECK-YELLOW, SIZE-PURPLE
A30	5035612	F NECK-YELLOW, SIZE-ORANGE
A266	5035613	F NECK-YELLOW, SIZE-PURPLE
AC312	5035613	F NECK-YELLOW, SIZE-PURPLE
A397	5035614	F NECK-YELLOW, SIZE-BROWN
R2	5035611	F NECK-YELLOW, SIZE-RED



BPT2_	SIDE TIE	
CU WIRE SIZE	MATERIAL ITEM NUMBER	CODES
A2	5035605	F NECK-YELLOW, SIZE-PURPLE
A266	5035607	F NECK-YELLOW, SIZE-PURPLE
AC312	5035607	F NECK-YELLOW, SIZE-PURPLE
A397	5035506	F NECK-YELLOW, SIZE-BROWN
R2	5035606	F NECK-YELLOW, SIZE-RED

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
PRIMARY
TOP AND SIDE TIES

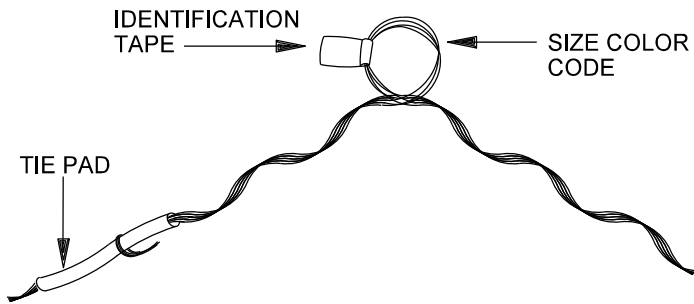
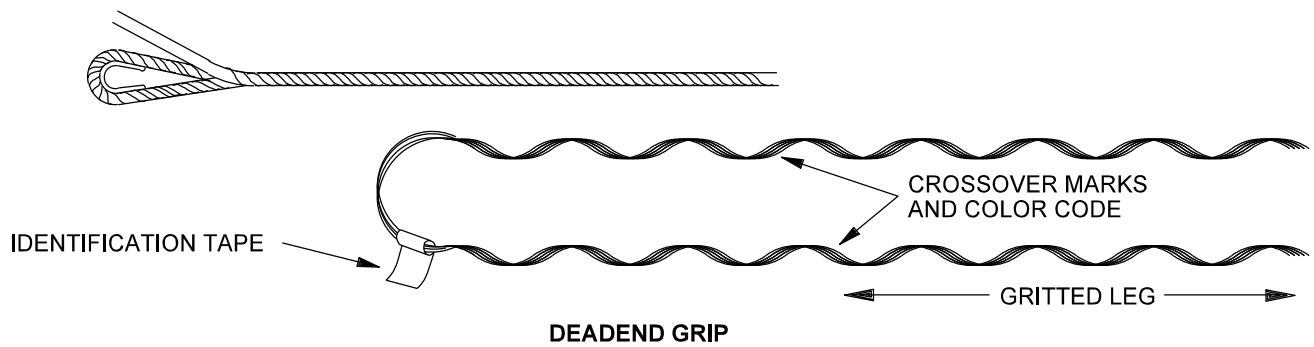
2-5-1

ISSUE DATE: 04/01/92

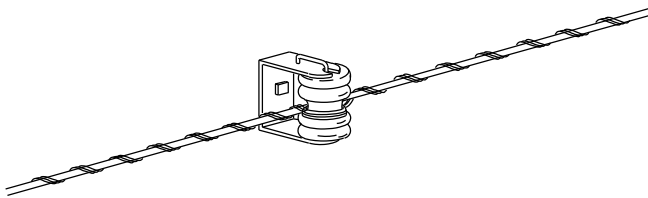
REV. DATE: 05/17/13

APPROVAL: B. PRIEST

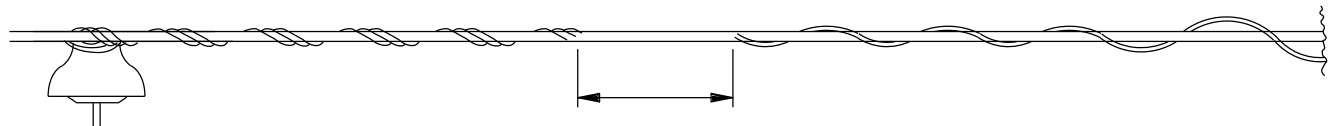
8512E150.DGN



BDG_	DEADEND GRIP	
CU WIRE SIZE	MATERIAL ITEM NUMBER	CODE
A2	5034320	RED
A30	5034321	ORANGE
A266	5034322	BLACK
A397	5034323	ORANGE
AW78	5034326	ORANGE
R2	5034320	RED
R20	5034325	GREEN



BNT_	NEUTRAL TIE	
CU WIRE SIZE	MATERIAL ITEM NUMBER	CODE
A2	5035608	PURPLE
A30	5035609	ORANGE



APPLICATION: THE GRIPPING SECTION SHOULD BE INSTALLED APPROXIMATELY ONE HAND'S WIDTH FROM THE ENDS OF ARMOR ROD OR OTHER HARDWARE

NOTE SMALLER HELIX



BVD_	VIBRATION DAMPERS
CU WIRE SIZE	MATERIAL ITEM NUMBER
A30	5034191
A266	5034188
A397	5034188

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
PRIMARY AND NEUTRAL
GRIPS, TIES & DAMPERS

2-5-2

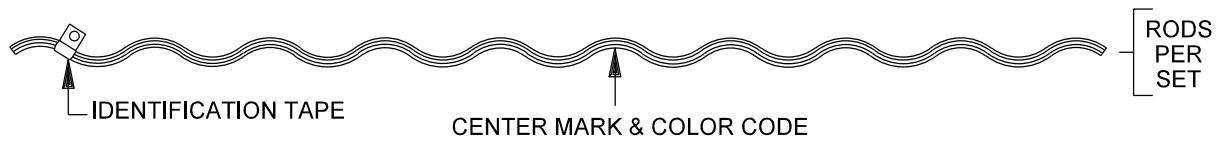
ISSUE DATE: 04/01/92

REV. DATE: 12/04/17

APPROVAL: B. PRIEST

8512E149.DGN

ARMOR ROD OR LINE GUARD



BR_	ARMOR ROD	
CU WIRE SIZE	MATERIAL ITEM NUMBER	PIECES, CODE
A2	5034851	8 - PURPLE
A30	5034852	10 - GREEN
A266	5034854	12 - BLACK
A397	5034856	12 - GREEN
R2	5034848	9 - RED
R30	5034853	11 - ORANGE
R266	5034855	12 - YELLOW
AC312	5034855	12 - YELLOW
AW78	5034968	10 - ORANGE 50"

NOTES

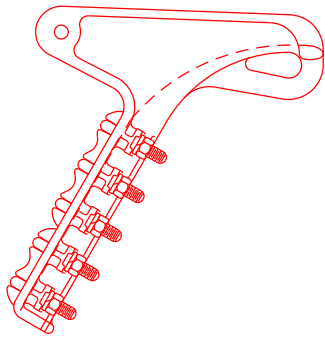
1. ARMOR RODS MAY BE USED AS PATCH RODS WHEN DAMAGE IS LIMITED TO 50% OF OUTER STRANDS. RODS ARE TO BE CENTERED OVER DAMAGED AREA. THE ENDS OF THE ARMOR RODS MUST BE LOCATED AT LEAST 6" FROM SUPPORT POINT (TIES, RODS).
2. THOROUGHLY WIRE BRUSH THE DAMAGED CONDUCTOR THE FULL LENGTH OF THE ARMOR RODS TO BE APPLIED.
3. APPLY INHIBITOR (5012206) ON THE BRUSHED AREA THEN APPLY ARMOR RODS.

BL_	LINE GUARD	
CU WIRE SIZE	MATERIAL ITEM NUMBER	PIECES, CODE
A2	5034978	9 - PURPLE
A30	5034982	13 - GREEN
A266	5034984	14 - BLACK
A397	5034985	16 - GREEN
R2	5034986	9 - RED
R30	5034983	14 - ORANGE
R266	5034987	14 - YELLOW
AC312	5034987	14 - YELLOW

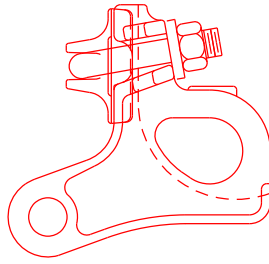
NOTES

1. LINE GUARD MAY BE USED AS PATCH RODS WHEN DAMAGE IS LIMITED TO 25% OF OUTER STRANDS. RODS ARE TO BE CENTERED OVER DAMAGED AREA. THE ENDS OF THE LINE GUARD MUST BE LOCATED AT LEAST 6" FROM SUPPORT POINT (TIES, RODS).
2. THOROUGHLY WIRE BRUSH THE DAMAGED CONDUCTOR THE FULL LENGTH OF THE ARMOR RODS TO BE APPLIED.
3. APPLY INHIBITOR (5012206) ON THE BRUSHED AREA THEN APPLY ARMOR RODS.

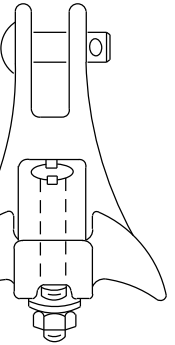
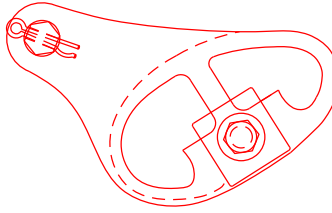
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	BASIC ASSEMBLY UNITS ARMOR ROD & LINE GUARD	ISSUE DATE: 04/01/92 REV. DATE: 05/20/13 APPROVAL: B. PRIEST
	2-6-1	8512E148.DGN



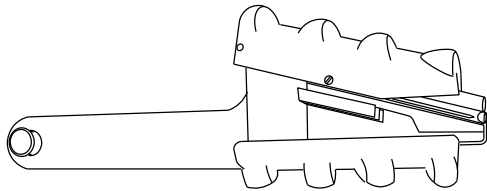
QUADRANT
FIG. 1



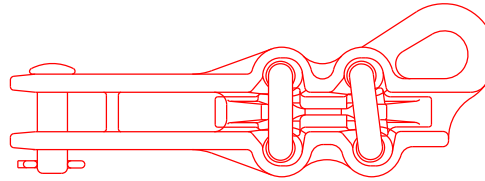
UNIVERSAL
FIG. 2



WEDGE
FIG. 3



STRAIGHT LINE
FIG. 4

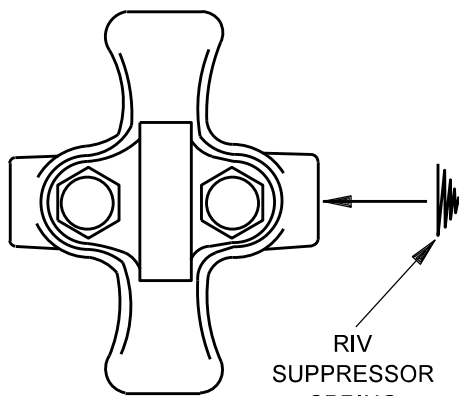


ANGLE
FIG. 5

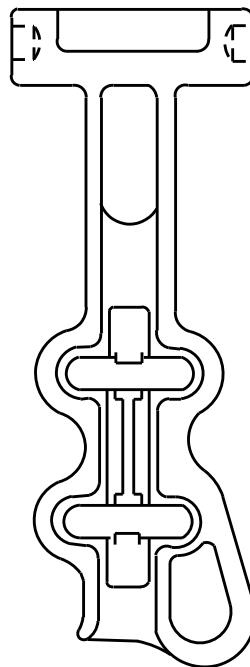
	BA1__	BA2__	BD__	BD2__
	ANGLE CLAMP 30° - 60° (FIG. 5)		DEAD-END CLAMP (FIG. 1 - 4)	
C.U. WIRE SIZE	SPANS 300' OR LESS	SPANS OVER 300'	FULL TENSION ONLY	SLACK SPAN / MID-SPAN TAP / FULL TENSION
C6	5028391	CONSTRUCT AS DOUBLE DEAD-END	5035577 (FIG. 2)	
C4			5035581 (FIG. 3)	5035578 (FIG. 1)
C2				
C1				
C20				
A2	5028387		5035581 (FIG. 3)	5035578 (FIG. 1)
R2				
A30	5028389		5035581 (FIG. 3)	5035579 (FIG. 1) OR 5035583 (FIG. 4)
R30				
A226				5035587 (FIG. 1) OR 5035583 (FIG. 4)
R226				
AC312				
A397		5028388		5035587 (FIG. 1) OR 5035584 (FIG. 4)

AIR GAP DEAD END CLAMPS (FIG. 3)		
#4 - #2/0	TWO CLAMPS ARE USED FOR AIR GAPS WITH INSULATOR 5039548	5035581
266-397 AA	TWO CLAMPS ARE USED FOR AIR GAPS WITH INSULATOR 5039548	5035586

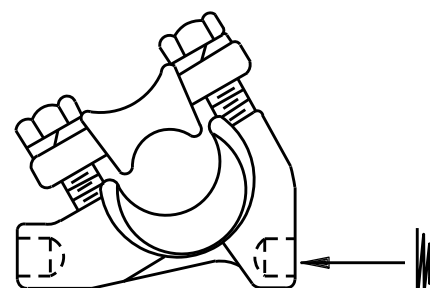
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: ADDED ILLUSTRATIONS, FIGURE CALLOUTS, NEW CU, AND UPDATED TABLE	
	BASIC ASSEMBLY UNITS PRIMARY ANGLE & DEADEND CLAMPS	
	2-7-1	ISSUE DATE: 04/01/92 REV. DATE: 06/04/24 APPROVAL: J. ROBBINS 8512E146.DGN



6 DEG. - 15 DEG.



DEADEND



15 DEG. - 30 DEG.

RIV
SUPPRESSOR
SPRING

	BCT1 __	BCT2 __	BCT3 __	BCT4 __	BCT5 __
	SPANS 300' OR LESS WITH LINEGUARD		SPANS OVER 300' WITH ARMOR ROD		DEADEND CLAMP
CU WIRE SIZE	6 DEG. - 15 DEG.	15 DEG. - 30 DEG.	6 DEG. - 15 DEG.	15 DEG. - 30 DEG.	
A2	5028393	5028397	5028394	5028398	5028401
A30	5028394	5028398	5028394	5028398	5035574
A266	5028394	5028398	5028394	5028398	5035574
A397	5028394	5028398	5028395	5028399	5035575
R2	5028393	5028397	5028394	5028398	5028401
R30	5028394	5028398	5028394	5028398	5035574
R266	5028394	5028398	5028394	5028398	5035574
AC312	5028394	5028398	5028394	5028398	5035575
C2-C20	5028392				

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
PRIMARY
CLAMPS FOR CLAMP-TOP INSULATORS

2-7-2

ISSUE DATE: 04/01/92

REV. DATE: 05/10/13

APPROVAL: B. PRIEST

8512E147.DGN

BLBF

15K CROSSARM MOUNTED KPF

4 1/2 HOURS, 3 WHIPS, 3 WHIP RETAINERS, 3 HOODED ARC CHUTES

BLBV

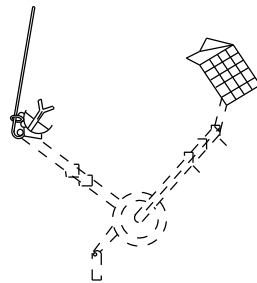
15KV VERTICLE STAGGERED MOUNTED KPF

4 1/2 HOURS, 3 WHIPS, 3 WHIP RETAINERS, 3 HOODED ARC CHUTES

BLBV1

15KV VERTICLE STACKED MOUNTED KPF

4 1/2 HOURS, 3 WHIPS, 3 WHIP RETAINERS, 3 HOODED ARC CHUTES



KPF REPLACEMENT PARTS

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

**BASIC ASSEMBLY UNITS
MAINTENANCE
COMPATIBLE UNITS**

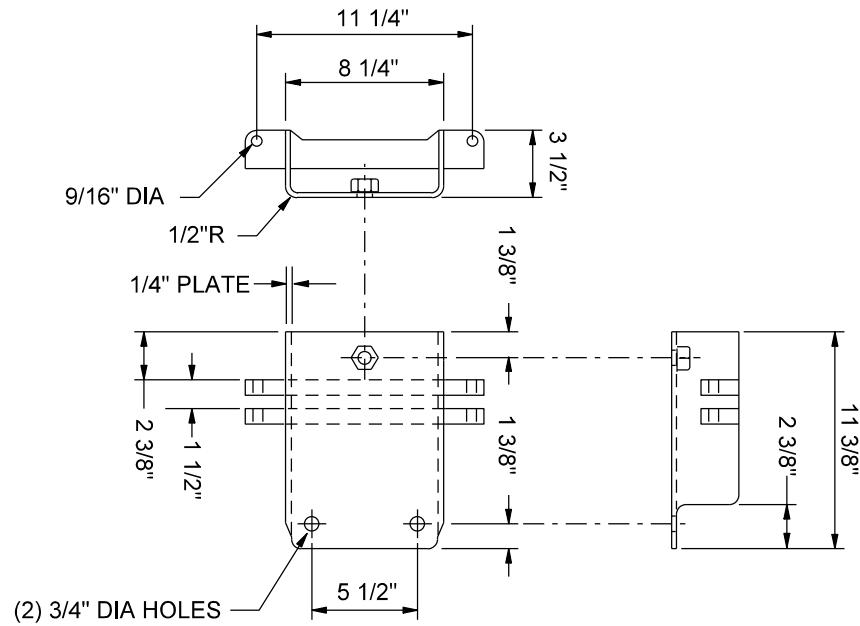
2-8-1

ISSUE DATE: 05/10/01

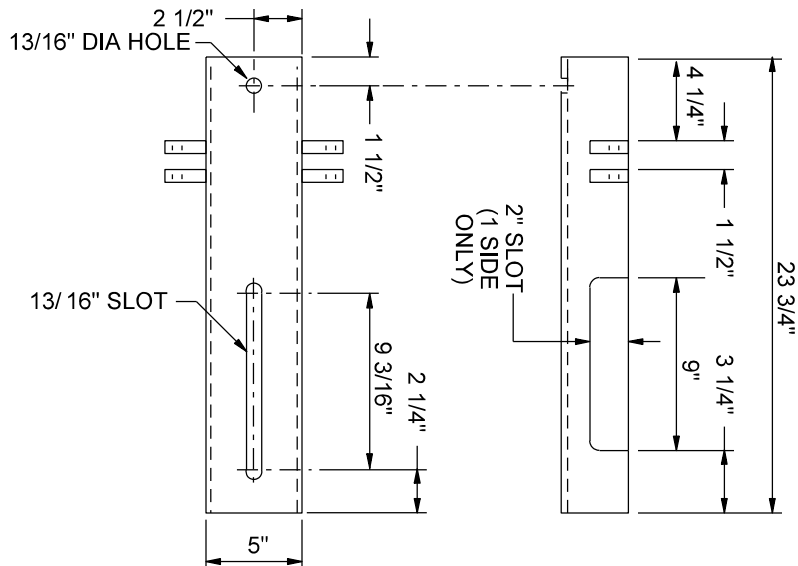
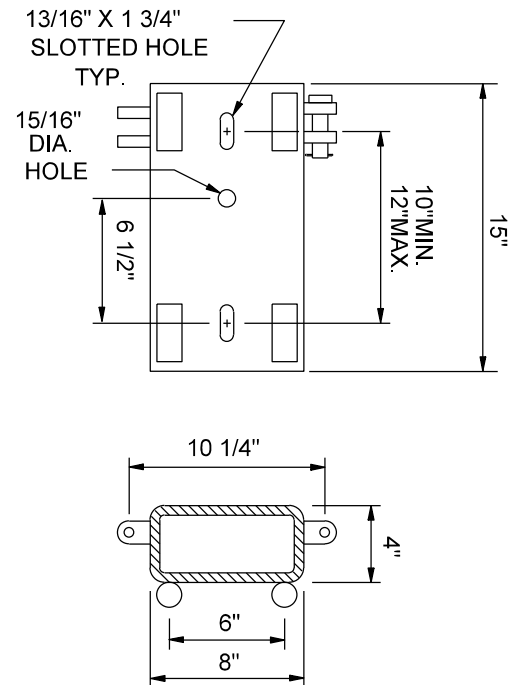
REV. DATE: 06/06/11

APPROVAL: B. PRIEST

8512E339.DGN

5028858**STREET LIGHT ARM BRACKET****NOTES**

1. THE PREFERRED METHOD TO MOUNT STREET LIGHT ARMS ON STEEL POLES IS WITH THE STAINLESS STEEL BANDS. SEE OUTDOOR LIGHTING STANDARDS.

5028857**12kV UNIVERSAL BRACKET****5028961****BOX BRACKET W/PIN**Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
LINK-TYPE POLE BAND
COMPONENTS

2-9-1

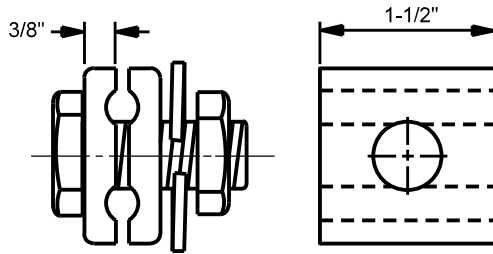
ISSUE DATE: 04/13/95

REV. DATE: 05/01/13

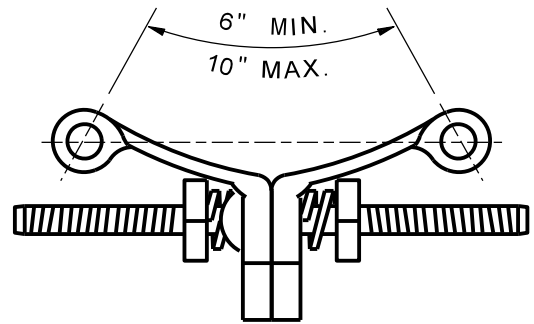
APPROVAL: B. PRIEST

8512E255.DGN

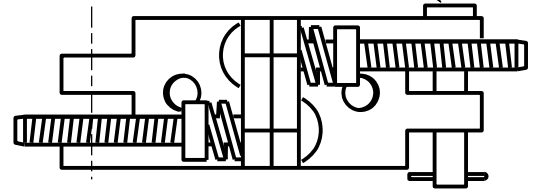
5028897 GROUND CLIP



5028488 TAKEUP ASSEMBLY W/PIN



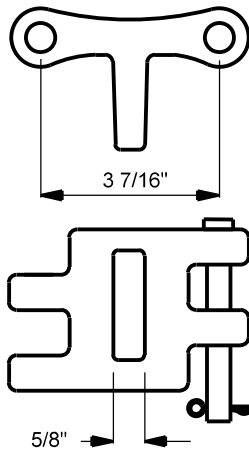
STAINLESS STEEL LINK
PIN W/COTTER PIN



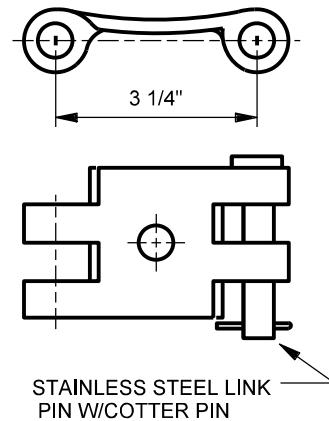
NOTES

1. FOR EASE OF INSTALLATION, INSTALL CARRIAGE BOLTS IN OPPOSITE DIRECTIONS.

5029395 VERTICAL VANG W/LINK PIN

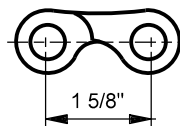


5027576 LINK SEGMENT W/LINK PIN



STAINLESS STEEL LINK
PIN W/COTTER PIN

5027577 1/2 LINK SEGMENT
W/LINK PIN



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
LINK-TYPE POLE BAND
COMPONENTS

2-9-2

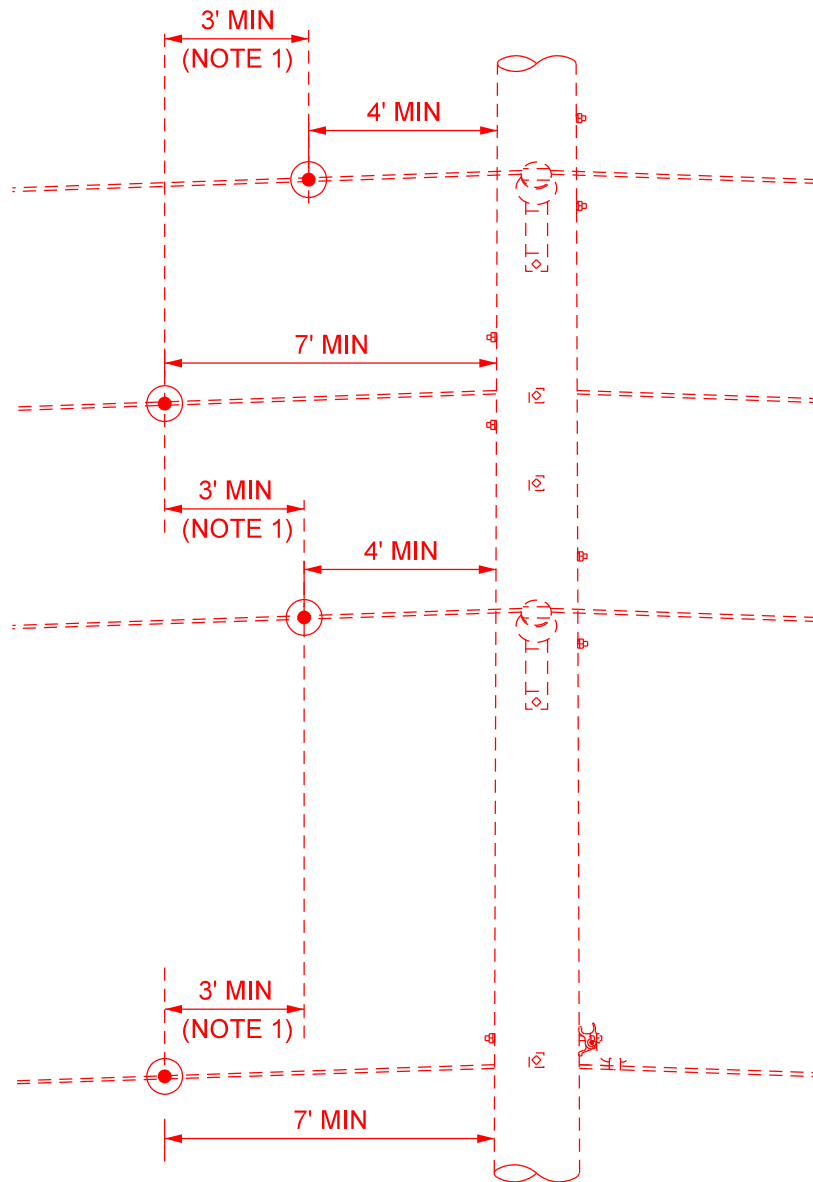
ISSUE DATE: 01/30/94

REV. DATE: 05/01/13

APPROVAL: B. PRIEST

8512E25.DGN

LOCATIONS FOR ALL MID-SPAN TAPS

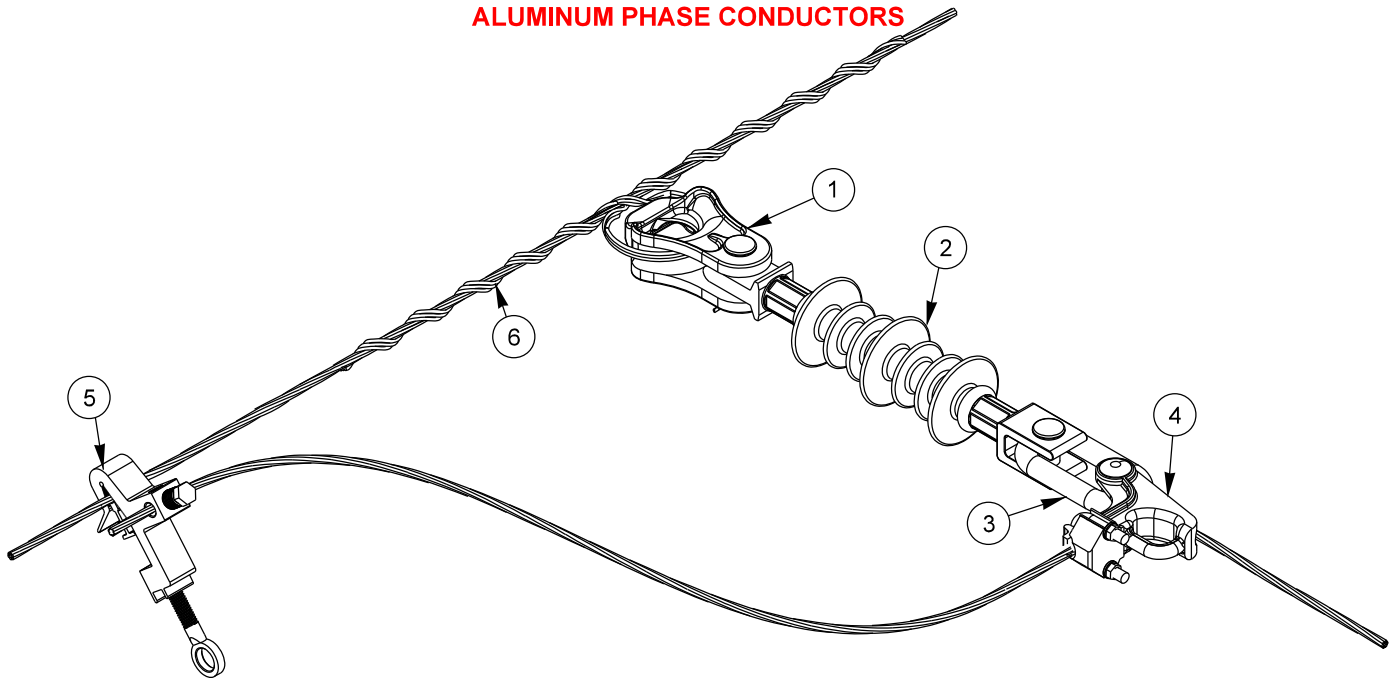


NOTES

1. MAINTAIN 3' STAGGERED SEPARATION BETWEEN ADJACENT VERTICAL TAP CONDUCTORS TO PREVENT A CONDUCTOR SLAP EVENT.
2. MID-SPAN TAPS ARE TO BE CONSTRUCTED ONLY ON FULL TENSION RUNNING LINE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: UPDATE ILLUSTRATION & TITLE AND ADDED NOTES	
	BASIC ASSEMBLY UNITS MID-SPAN TAP LOCATIONS PHASE AND NEUTRAL CONDUCTORS	ISSUE DATE: 06/08/11 REV. DATE: 04/21/25 APPROVAL: J. ROBBINS
	2-10-1	8512E490.DGN

ALUMINUM PHASE CONDUCTORS



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	THIMBLE - CLEVIS	1	5029157
2	INSULATOR	1	5039548
3	LINK	1	5034732
4	DEAD - END (DE) CLAMP	1	*VARIOUS
5	POWER GRIP CONNECTOR	1	BPG__
6	SIDE TIE	1	BPT2__

*ILLUSTRATION SHOWS 5035579 FOR #2 APPLICATIONS, FOR LARGER CONDUCTORS USE 5035583 OR 5035584

COMPATIBLE UNITS

		RUNNING LINE CONDUCTOR		
		A2	A266	A397
TAP CONDUCTOR	A2	BTDD2A2	BTDD26A2	BTDD39A2
	A266		BTDD26A266	BTDD39A266
	A397			BTDD39A397

NOTES

1. MID-SPAN TAPS ARE TO BE CONSTRUCTED ONLY ON FULL TENSION RUNNING LINE.
2. ALUMINIUM NEUTRAL CONDUCTORS SHALL USE T-CONNECTOR (SEE 2-10-3)

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: UPDATED NOTES & TITLE, ADDED CU REFERENCES, ADD PAGE #	
	BASIC ASSEMBLY UNITS INSULATED MID-SPAN TAP PHASE CONDUCTORS ONLY	ISSUE DATE: 06/07/11 REV. DATE: 04/21/25 APPROVAL: J. ROBBINS
	2-10-2	8512E439.DGN

BTT__

ALUMINUM PHASE CONDUCTORS

INTERSECTION
SAME LEVEL

3

2

1

INTERSECTION
DIFFERENT LEVELS

2' MIN.

1

3

2

ALUMINUM NEUTRAL CONDUCTORS

MID-SPAN TAP

1

2

≤30°
NOTE 3

≤30°

ITEM	MATERIAL DESCRIPTION	QTY	MATERIAL ITEM
1	T-CONNECTOR (ONE PAIR)	1	VARIOUS
2	POWER GRIP CONNECTOR	1	BPG__
3	CONDUCTOR (NOTE 2)	AS REQUIRED	*

*NOT INCLUDED IN CU

COMPATIBLE UNITS

CU IS APPLIED IN ANY ONE OF THE THREE VARIATIONS SHOWN IN THE ILLUSTRATIONS ABOVE

		RUNNING LINE CONDUCTOR			
		A2	A30	A266	A397
TAP CONDUCTOR	A2	BTT2A2	BTT30A2	BTT26A2	BTT39A2
	A30		BTT30A30		
	A266			BTT26A266	BTT39A266
	A397				BTT39A397

NOTES

1. MID-SPAN TAPS ARE TO BE CONSTRUCTED ONLY ON FULL TENSION RUNNING LINE.
2. THE JUMPER SHALL BE THE SAME SIZE AS THE LARGEST CONDUCTOR.
3. LINE ANGLE ON T-CONNECTOR SHALL NOT EXCEED DEFLECTION OF 30 DEGREES.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: UPDATE NOTES, PAGE #, CU TABLE, TITLE, ILLUSTRATIONS, & ADDED BOM TABLE

BASIC ASSEMBLY UNITS
INTERSECTION AND MID-SPAN TAP WITH T-CONNECTORS
PHASE AND NEUTRAL CONDUCTORS

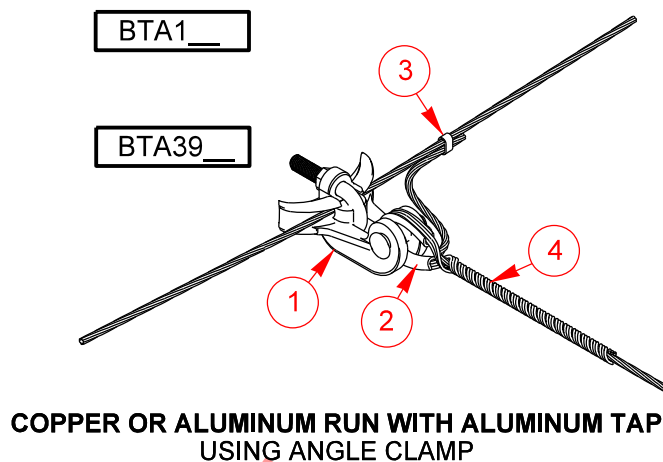
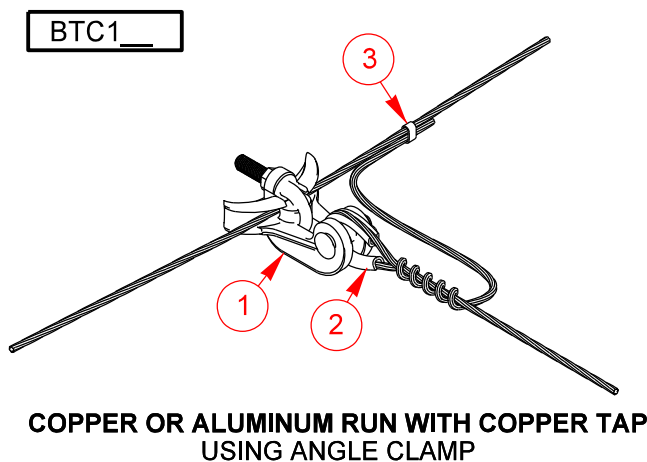
2-10-3

ISSUE DATE: 06/07/11

REV. DATE: 04/21/25

APPROVAL: J. ROBBINS

8512E30.DGN



ITEM	MATERIAL DESCRIPTION	QTY	MATERIAL ITEM
1	ANGLE CLAMP	1	BA__
2	THIBLE-CLEVIS	1	VARIOUS
3	COMPRESSION CONNECTOR	1	VARIOUS
4	DEADEND GRIP	1	BDG__

COMPATIBLE UNITS

		RUNNING LINE CONDUCTOR				
		C6-20	A2	A30	A266	A397
TAP CONDUCTOR	C6-C20	BTC1__	BTC1__ (NOTE 4)	BTC1__		BTA39__
	A2		NOTE 2 & NOTE 3	NOTE 3	NOTE 2 & NOTE 3	NOTE 2 & NOTE 3
	A30			NOTE 3	BTA1__	
	A266				NOTE 3	NOTE 2 & NOTE 3
	A397					NOTE 2 & NOTE 3

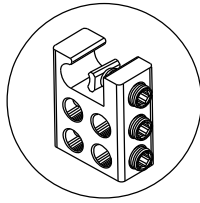
NOTES

1. MID-SPAN TAPS ARE TO BE CONSTRUCTED ONLY ON FULL TENSION RUNNING LINE.
2. ALUMINUM PHASE CONDUCTORS SHALL USE INSULATED MID-SPAN TAP CONFIGURATIONS (SEE 2-10-2)
3. ALUMINUM NEUTRAL CONDUCTORS SHALL USE T-CONNECTOR CONFIGURATIONS (SEE 2-10-3).
4. FOR #2 CU WITH #2 AA, MAY USE T-CONNECTOR CONFIGURATION BTT2A2 (SEE 2-10-3).

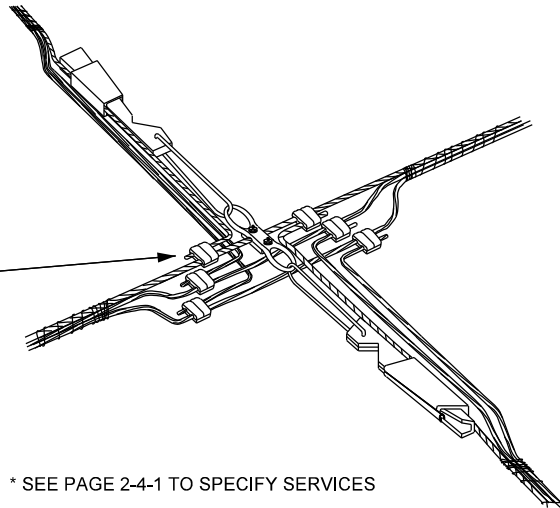
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: SPLIT STANDARD INTO TWO, ADDED CU AND BOM TABLE, AND UPDATE NOTES	
	BASIC ASSEMBLY UNITS MID-SPAN TAP WITH ANGLE CLAMP PHASE AND NEUTRAL CONDUCTORS	
	2-10-4	ISSUE DATE: 06/07/11 REV. DATE: 04/21/25 APPROVAL: J. ROBBINS 8512E503.DGN

B2

MID-SPAN TAP-OFF CLAMP



**BOX CONNECTOR 5077169
OR COMPRESSION**
* IF DONE WITH BOX CONNECTORS
ONLY 3 CONNECTORS REQUIRED



* SEE PAGE 2-4-1 TO SPECIFY SERVICES

B2M3

3-WIRE SPREADER WITH BRIDLES

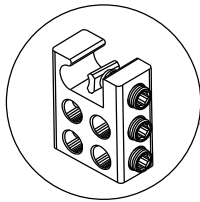
5028147 (1)
5035373 (1)
5035505 (3)

WEDGE CLAMP-NOT INCLUDED

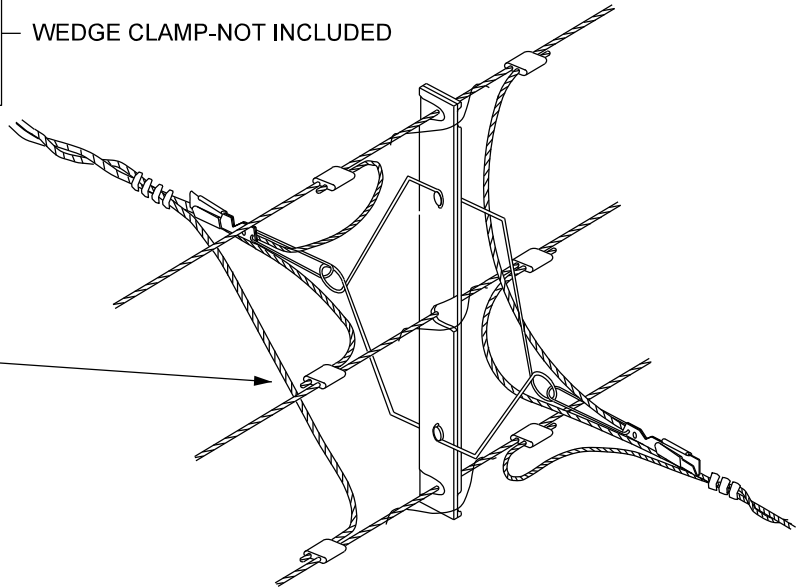
B2M4

4-WIRE SPREADER WITH BRIDLES

5028147 (1)
5035476 (1)
5035505 (4)



**BOX CONNECTOR 5077169
OR COMPRESSION**
* IF DONE WITH BOX CONNECTORS
ONLY 3 CONNECTORS REQUIRED

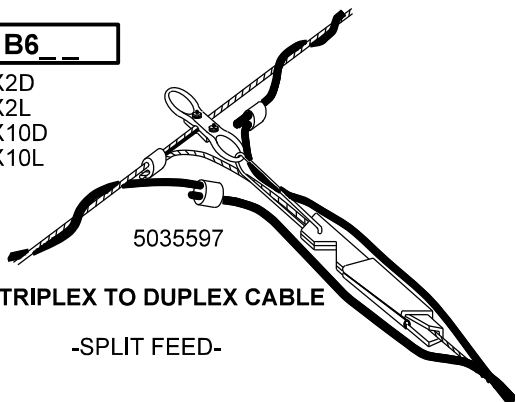


NOTES

1. SERVICES MUST BE 90 DEG. TO SECONDARY.

B6_ _

TX2D
TX2L
TX10D
TX10L



TRIPLEX TO DUPLEX CABLE

-SPLIT FEED-

FOR CU.

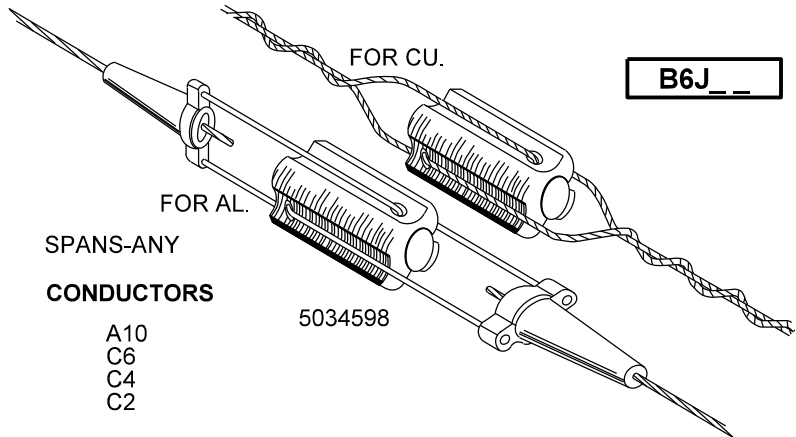
B6J_ _

FOR AL.

SPANS-ANY
CONDUCTORS

A10
C6
C4
C2

5034598



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

**BASIC ASSEMBLY UNITS
SECONDARY ATTACHMENTS**

2-11-1

ISSUE DATE: 11/15/77

REV. DATE: 10/13/20

APPROVAL: J. LUERA

8512E29.DGN

ATTACHMENT DIRECTLY TO WOOD POLE

SPANS 0° TO 300°

ANGLE →	TANGENT - 10°	10° - 45°	45° - 60°
WIRE SIZE ↓			
DX6, DX6L, DX6D	B1__	B1__	B1__
A2, R2, TX2, TX2L, TX2D, QX2, TX10, TX10L, TX10D, QX10	B3__*	B3__*	B3C__*
A30, R20, R30, TX40, QX40	B3__*	B3__*	B3C__
AW78	B3__**	B3__**	B3C__**

SPANS OVER 300°

TANGENT - 10°	10° - 45°	45° - 60°
B3__*	B3R__**	B3CR__**
B3__*	B3CR__**	B3CR__**
B3__**	B3C__**	B3C__**

ATTACHMENT DIRECTLY TO STEEL POLE

(IF ATTACHMENT IS TO 69KV STEEL TRANSMISSION POLE, ALSO USE BK2AL, BK2AM, OR BK2AS.

DX6, DX6L, DX6D	B1M__	B1M__	B1M__
A2, R2, TX2, TX2L, TX2D, QX2	B1M__*	B1A__*	B3C__*
A10, A30, R20, R30, TX10, TX10L, TX10D, QX10, TX40, QX40	B1M__*	B3C__*	B3C__*
AW78	B1M__**	B3C__**	B3C__**

B1M__*	B3CR__**	B3CR__**
B1M__*	B3CR__**	B3CR__**
B1M__**	B3C__**	B3C__**

ATTACHMENT TO EXTENSION OFFSET BRACKET – WOOD POLE

(THIS IS LIMITED TO A MAXIMUM ANGLE OF 30°)

DX6, DX6L, DX6D	B1X__	B1X__	
A2, R2, TX2, TX2L, TX2D, QX2	B1X__	B2X__*	
A10, A30, R20, R30, TX10, TX10L, TX10D, QX10, TX40, QX40	B1X__	B3X__*	
AW78	B1X__	B3XR__**	

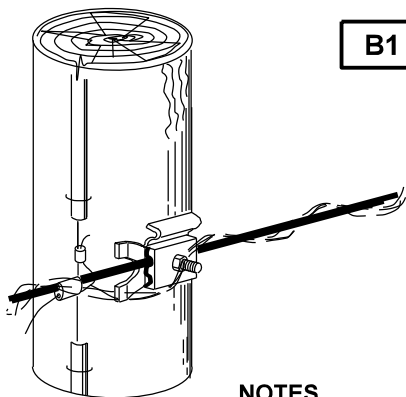
B2X__*	B3XR__**	
B1X__	B3XR__**	
B1X__	B3XR__**	

* WITH LINEGUARD

** WITH ARMOR ROD

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	BASIC ASSEMBLY UNITS NEUTRAL & SECONDARY ASSEMBLIES 0 TO 60 DEG.	ISSUE DATE: 03/24/94
		REV. DATE: 06/02/11
		APPROVAL: B. PRIEST
	2-12-1	OH2-12-1.doc

WOOD POLE



B1 __

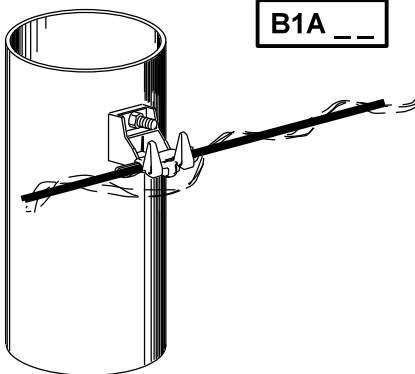
CLAMP: 5028385

NOTES

1. USE TOP GROOVE

STEEL POLE

(ALSO USE BK2AL,BK2AM OR BK2AS)

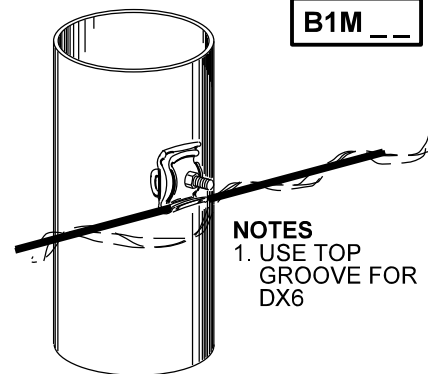


B1A __

CLAMP: 5028384

STEEL POLE

(ALSO USE BK2AL,BK2AM OR BK2AS)



B1M __

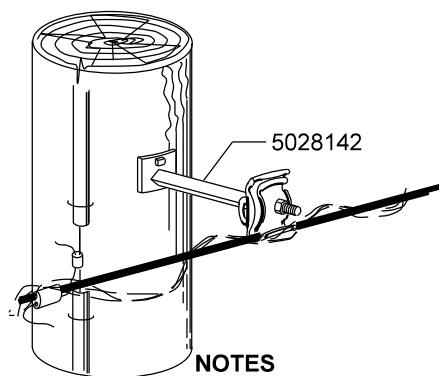
CLAMP: 5035598 OR
5035599

NOTES

1. USE TOP GROOVE FOR DX6

WOOD POLE

B1X __



5028142

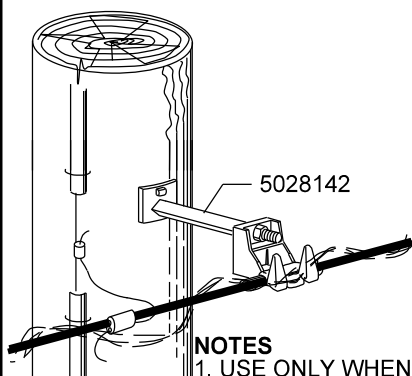
CLAMP: 5035598

NOTES

1. USE ONLY WHEN NECESSARY TO GAIN CLEARANCE FROM TRANSFORMER

WOOD POLE

B2X __



5028142

CLAMP: 5028384

NOTES

1. USE ONLY WHEN NECESSARY TO GAIN CLEARANCE FROM TRANSFORMER

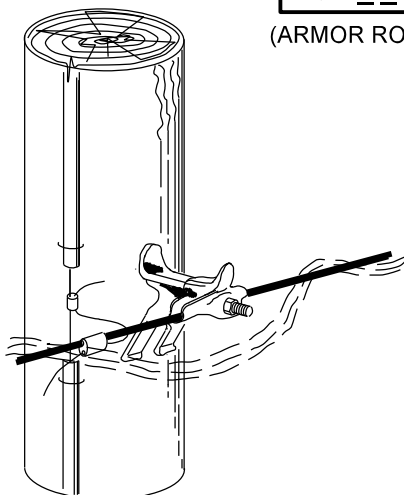
FOR WIRE SIZES
AND PROPER USAGE,
SEE PAGE 2-12-1.

WOOD POLE

B3 __

B3R __

(ARMOR ROD)



CLAMP: 5028386

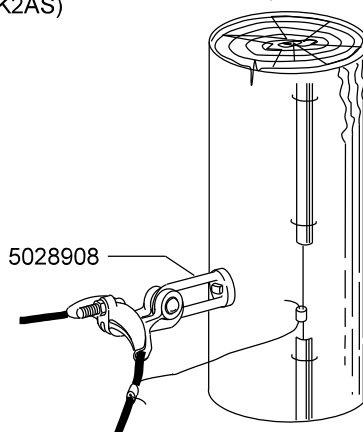
WOOD OR STEEL POLE

(FOR STEEL POLE ALSO
USE BK2AL,BK2AM OR
BK2AS)

B3C __

B3CR __

(ARMOR ROD)



5028908

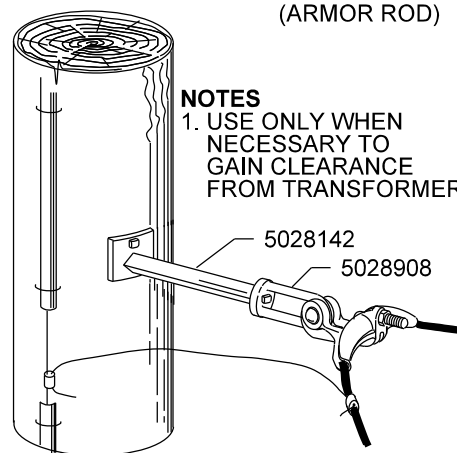
CLAMP: 5028387 OR
5028389

WOOD POLE

B3X __

B3XR __

(ARMOR ROD)



NOTES

1. USE ONLY WHEN NECESSARY TO GAIN CLEARANCE FROM TRANSFORMER

5028142

5028908

CLAMP: 5028387 OR
5028389

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
NEUTRAL AND SECONDARY ASSEMBLIES
0 DEG. - 60 DEG.

2-12-2

ISSUE DATE: 02/21/84

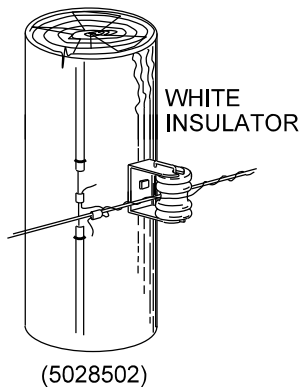
REV. DATE: 10/11/16

APPROVAL: S. DURAN

8512E84.DGN

WOOD OR
STEEL POLE

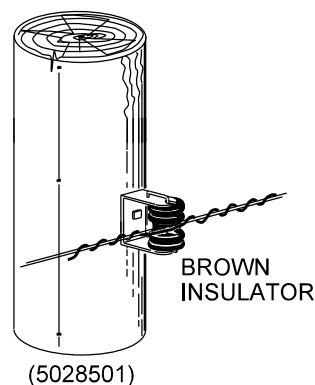
B1B__



- SPANS-0'-300'
- CONDUCTORS (BARE):
ANGLE 0 DEG.-15 DEG.
A2,A2D,A2L
A30
ANGLE 0 DEG.-60 DEG.
A10
C1, C2
C4, C6
C20

WOOD OR
STEEL POLE

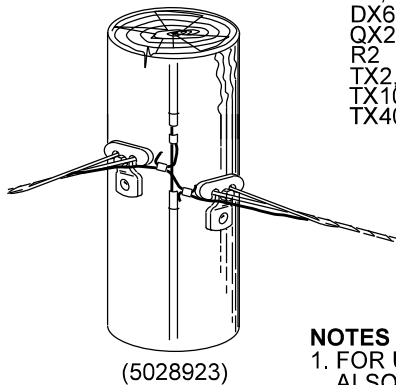
B1BR__



- SPANS-0'-300'
- CONDUCTORS:
ANGLE 0 DEG.-15 DEG.
A2,A2D,A2L
ANGLE 0 DEG.-60 DEG.
A10,A10D,A10L
C6
C4
C2

WOOD OR
STEEL POLE

B4__

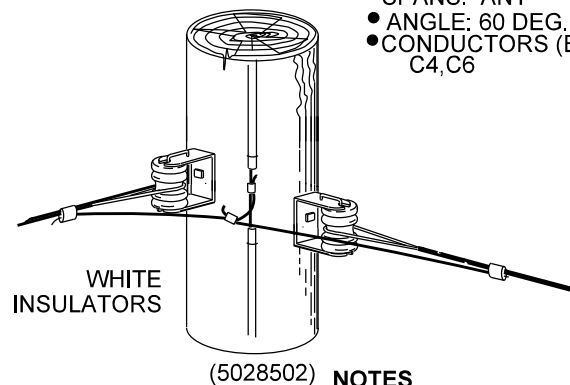


- SPANS: ANY
- ANGLE: 60 DEG.-90 DEG.
- CONDUCTORS:
A2, A10, A30
DX6,DX6D,DX6L
QX2,QX10,QX40
R2
TX2,TX2D,TX2L
TX10,TX10D,TX10L
TX40

NOTES
1. FOR USE ON STEEL POLE
ALSO USE BK2BL, BK2BM
OR BK2BS

WOOD OR
STEEL POLE

B4B__

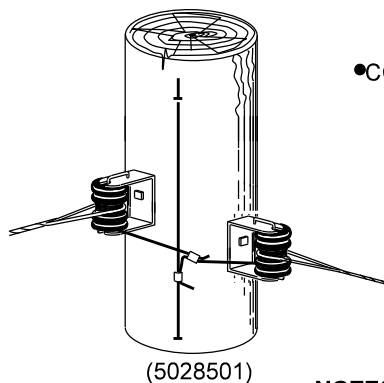


- SPANS: ANY
- ANGLE: 60 DEG.-90 DEG.
- CONDUCTORS (BARE)
C4,C6

NOTES
1. FOR USE ON STEEL POLE
ALSO USE BK2BL, BK2BM
OR BK2BS

WOOD OR
STEEL POLE

B4BR__



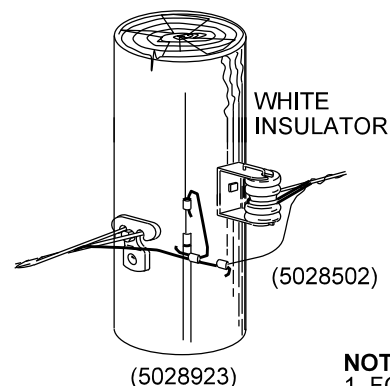
- CONDUCTORS:
A2,A2D,A2L
A10,A10D,A10L
C4, C6
R2

NOTES
1. FOR USE ON STEEL POLE
ALSO USE BK2BL, BK2BM
OR BK2BS

WOOD OR
STEEL POLE

B8__

180 DEG. SLACK SPAN



- CONDUCTORS:
A2, A30
DX6,DX6D,DX6L
QX2,QX10,QX40
R2
TX2,TX2D,TX2L
TX10,TX10D,TX10L
TX40

NOTES
1. FOR USE ON STEEL POLE
ALSO USE BK2BL, BK2BM
OR BK2BS

Overhead Distribution
Construction Standards



BASIC ASSEMBLY UNITS
NEUTRAL AND SECONDARY ASSEMBLIES
0 DEG. - 90 DEG.

2-13-1

ISSUE DATE: 02/21/84

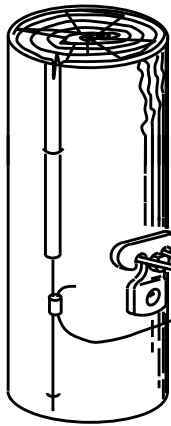
REV. DATE: 01/22/13

APPROVAL: B. PRIEST

8512E85.DGN

WOOD OR
STEEL POLE

B5__



5028923

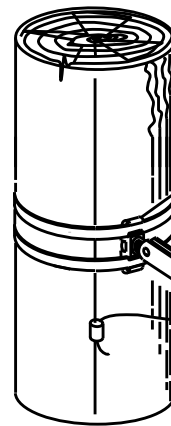
- SPANS: ANY DEADEND
- CONDUCTORS (BARE):
DX6,DX6D,DX6L
A2, A2D, A2L
R2, R20, R30
TX2,TX2D,TX2L
A10
TX10,TX10D,TX10L
A30
TX40
QX2
QX10
QX40
AC312
AW78

NOTES

1. FOR USE ON STEEL POLE
ALSO USE BK2AL, BK2AM
OR BK2AS

WOOD POLE

B5D__



5028260

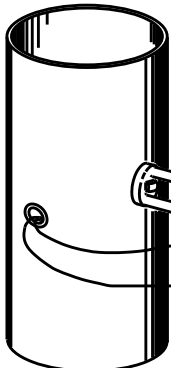
5027470

5028249

- SPANS: ANY DEADEND
- CONDUCTORS (BARE):
AW78
R30

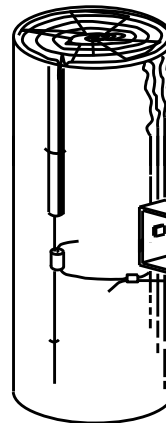
STEEL POLE
(STREET LIGHT)

B5A__



5028908

- SPANS: (ANY DEADEND)
- STREET LIGHT AND
DUSK TO DAWN ONLY
- CONDUCTORS:
DX6D,DX6L
TX2D,TX2L
TX10D,TX10L



5028502

WHITE
INSULATOR

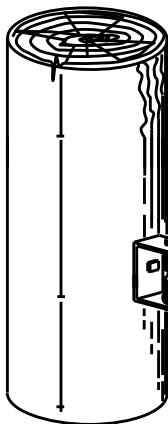
NOTES

1. FOR USE ON STEEL POLE
ALSO USE BK2AL, BK2AM
OR BK2AS

- SPANS: ANY DEADEND
- CONDUCTORS (BARE):
C6
C4
- SLACK SPAN ONLY:
DX6,DX6D,DX6L
R2
A2
TX2,TX2D,TX2L
A10
TX10,TX10D,TX10L
R20
A30
TX40
QX2
QX10
QX40
AC312

WOOD OR
STEEL POLE

B5BR__



5028501

BROWN
INSULATOR

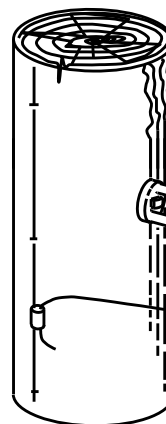
- SPANS: (ANY DEADEND)
- CONDUCTORS (BARE):
C6
C4
C2
- SLACK SPAN ONLY:
A2,A2D,A2L
A10,A10D,A10L

NOTES

1. FOR USE ON STEEL POLE
ALSO USE BK2AL, BK2AM
OR BK2AS

WOOD OR
STEEL POLE

B5C__



5028908

- SPANS: (ANY DEADEND)
- CONDUCTORS (BARE):
C4
C2
C1
C20

NOTES

1. FOR USE ON STEEL POLE
ALSO USE BK2AL, BK2AM
OR BK2AS

5035577 OR 5035578

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: Create missing B5AW78 for 22 kV applications.

BASIC ASSEMBLY UNITS
NEUTRAL AND SECONDARY ASSEMBLIES
DEADENDS

2-14-1

ISSUE DATE: 02/21/84

REV. DATE: 09/16/25

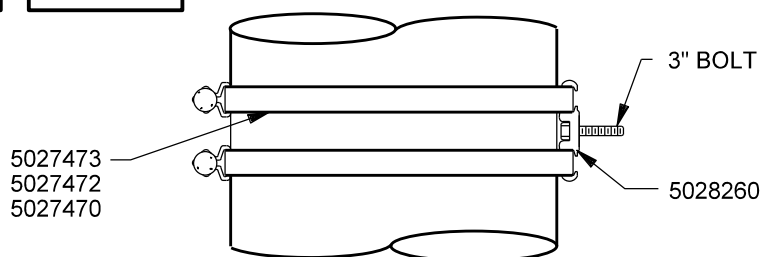
APPROVAL: J. ROBBINS

8512E59.DGN

BK2AL

BK2AM

BK2AS



SECONDARY-NEUTRAL UNDERBUILD

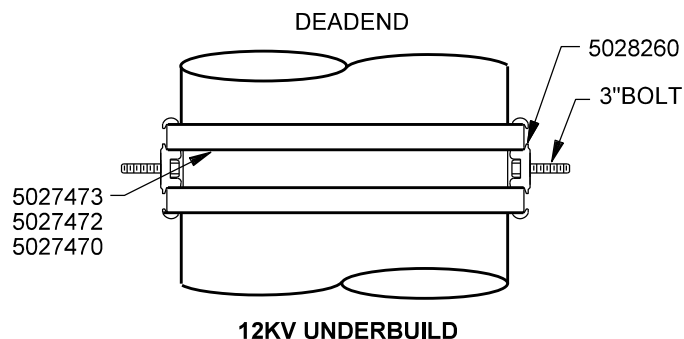
NOTES

- FOR CONDUCTOR ATTACHMENT USE B1A__, B1M__, B3C__, B3CR__, B5__, B5B__, B5BR__, B15__, BK2, BK4T, BK4X, BK5, ETC.

BK2BL

BK2BM

BK2BS



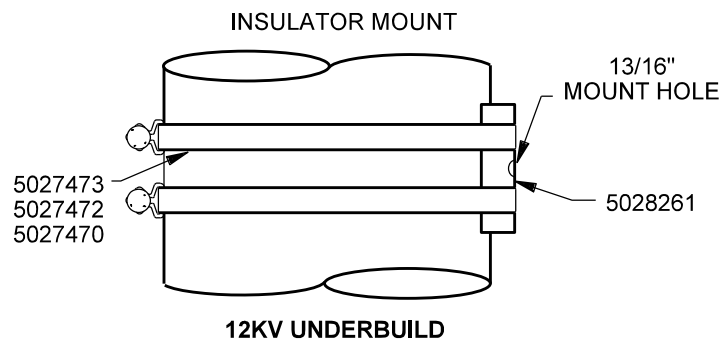
NOTES

- MAXIMUM DEADEND TENSION 5000 LBS.
- FOR CONDUCTOR ATTACHMENT USE B4__, B4B__, B4BR__, B8__, B14__, B15__, BK4, BK5A, ETC.

BK2CL

BK2CM

BK2CS



NOTES

- FOR PRIMARY CONDUCTORS USE POST INSULATOR B22C__ OR B22CA__.

CORRECT BAND COMPATIBLE UNIT TO USE BASED ON POLE DIAMETER

	MAXIMUM ALLOWABLE POLE DIAMETER AT CONTACT LOCATION		
	4" - 25"	25" - 40"	40" - 55"
TANGENT	BK2AS	BK2AM	BK2AL
DEADEND	BK2BS	BK2BM	BK2BL
INSULATOR MOUNT	BK2CS	BK2CM	BK2CL

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
DISTRIBUTION UNDERBUILD
69KV STEEL POLE

2-15-1

ISSUE DATE: 12/03/90

REV. DATE: 05/09/13

APPROVAL: B.PRIEST

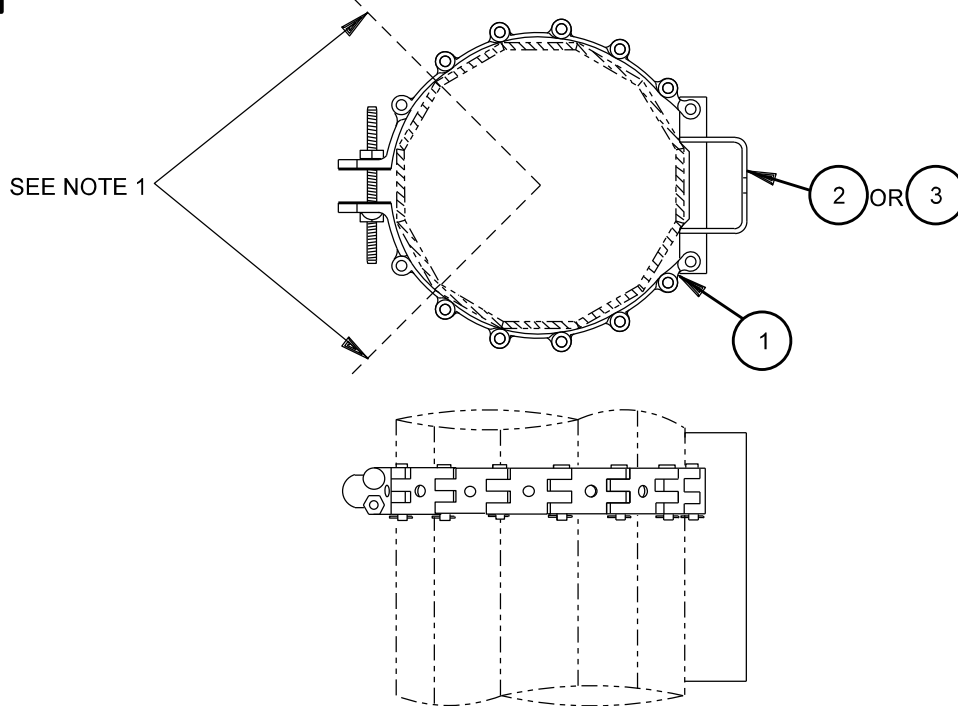
8512E34.DGN

BTA851SC

STREET LIGHT ARM BRACKET

BTA851TC

12KV UNIVERSAL BRACKET



ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QUANTITY
1	BAND, POLE, LINK ASSEMBLY	5028719	3
2	BRACKET, 12KV UNIVERSAL (BTA851T)	5028857	1
3	BRACKET, STREET LIGHT ARM (BTA851S)	5028858	1

NOTES

1. APPROXIMATE LOCATION OF TAKE-UPS FOR BAND.
2. ALWAYS INSTALL CLEVIS PINS WITH THE COTTER KEYS IN THE DOWN POSITION.
3. FOR EASE OF INSTALLATION ON LINK TAKEUP ASSEMBLY, INSTALL CARRIAGE BOLTS IN OPPOSITE DIRECTIONS. TIGHTEN NUTS ONE FULL TURN AFTER ALL SLACK AND "PLAY" IS TAKEN UP.
4. THE ULTIMATE STRENGTH OF ASSEMBLY IS 18,000 LBS. MAXIMUM WORKING LOAD IS 50% OF THE ULTIMATE STRENGTH. THIS RATING IS FOR A DEAD-END TYPE OF LOAD ONLY. DO NOT USE ASSEMBLIES FOR DOWN GUYS.
5. THE PREFERRED METHOD TO MOUNT STREET LIGHT ARMS ON STEEL POLES IS WITH THE STAINLESS STEEL BANDS. SEE OUTDOOR LIGHTING STANDARDS.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
LINK TYPE POLE BAND ASSEMBLY
STREET LIGHT AND 12KV BRACKETS

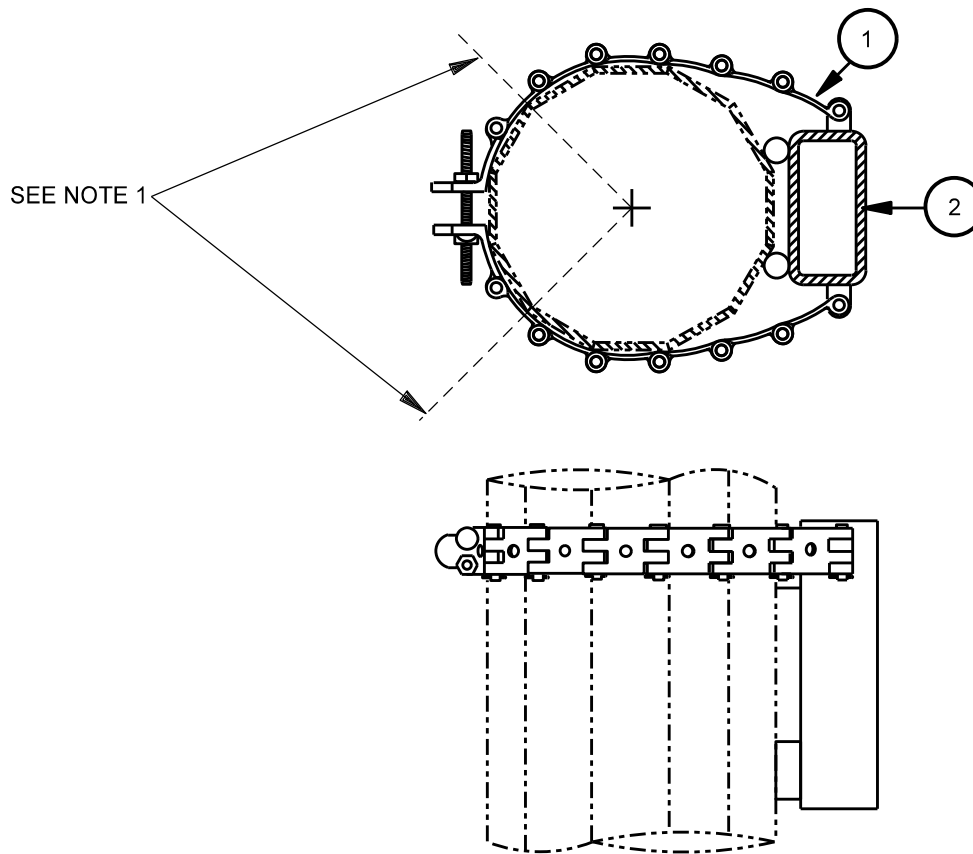
2-16-1

ISSUE DATE: 11/30/92

REV. DATE: 05/02/13

APPROVAL: B. PRIEST

8512E256.DGN

BTA851BC**SINGLE CIRCUIT TANGENT**

ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QUANTITY
1	BAND, POLE, LINK ASSEMBLY	5028719	2
2	BRACKET, POLE BAND (BOX)	5028961	1

NOTES

1. APPROXIMATE LOCATION OF TAKEUPS FOR BAND.
2. SEE 69KV OVERHEAD CONSTRUCTION STANDARDS, CHAPTER 3 FOR NOTES AND KEY.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
LINK TYPE POLE BAND ASSEMBLY
SINGLE CIRCUIT, TANGENT

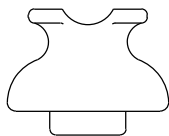
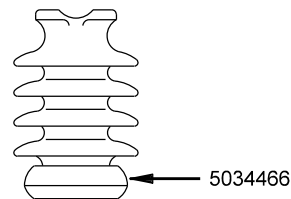
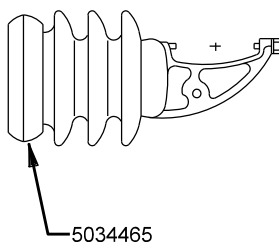
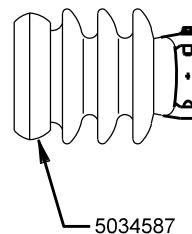
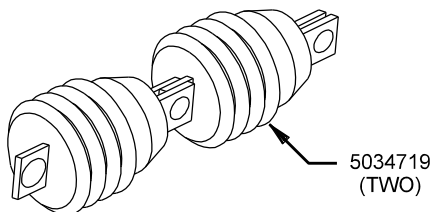
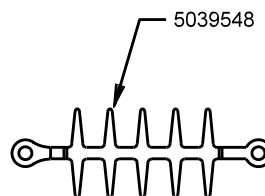
2-17-1

ISSUE DATE: 05/05/95

REV. DATE: 05/01/13

APPROVAL: B. PRIEST

8512E321.DGN

B1M**GRAY 5034594****B1MW****WHITE 5034593****PIN INSULATOR****B2M****POST INSULATOR****B3M****CLAMP TOP INSULATOR****B4M****CLAMP TOP INSULATOR****B13M****STRAIN INSULATORS****B5M****STRAIN INSULATOR, RADIO OR
TV FREQUENCY INTERFERENCE
AVOIDANCE.****NOTES**

1. FOR REPLACEMENT OF B13M
WHEN RADIO INTERFERENCE IS A
PROBLEM AND B35 CANNOT BE USED

**Overhead Distribution
Construction Standards****PROPRIETARY MATERIAL****BASIC ASSEMBLY UNITS
INSULATORS FOR MAINTENANCE****2-18-1**

ISSUE DATE: 01/30/94

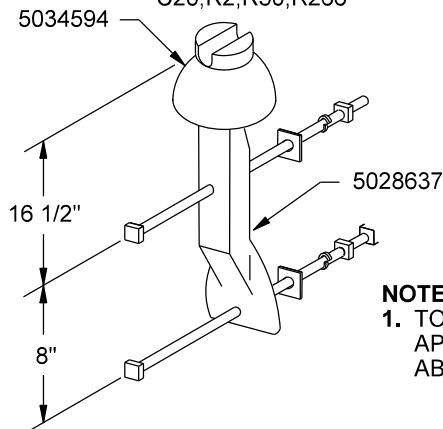
REV. DATE: 05/07/13

APPROVAL: B. PRIEST

8512E225.DGN

B10__ POLE-TOP PIN

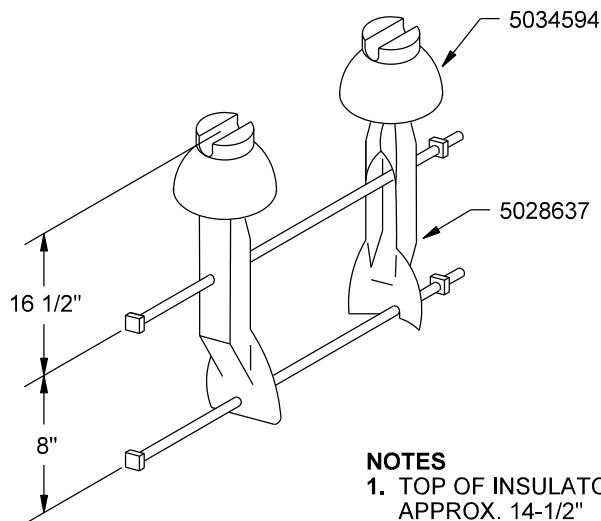
CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C4,C6
C20,R2,R30,R266

**NOTES**

1. TOP OF INSULATOR
APPROX. 14-1/2"
ABOVE POLE TOP

B11A__ DOUBLE POLE-TOP PIN

CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C20,C4,C6
R2,R266,R30

**NOTES**

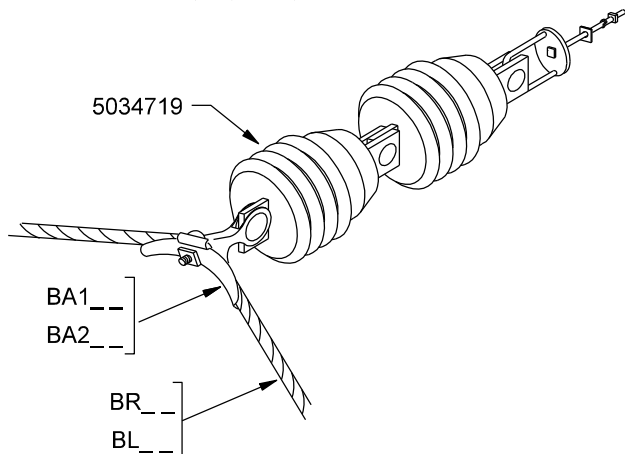
1. TOP OF INSULATOR
APPROX. 14-1/2"
ABOVE POLE TOP

**B13__ PULL-OFF ANGLE
FOR BARE C.W. OR ALUM.W/LINEGUARD**

CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C20,C4,C6
R2,R266,R30

**B13A__ PULL-OFF ANGLE
W/ARMOR ROD**

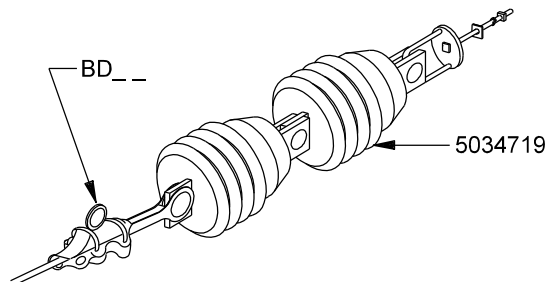
CONDUCTORS - AC312,A2,A266,A30
A397,R2,R266,R30

**B15__ SINGLE DEADEND****BD__ STRAIN CLAMP ONLY**

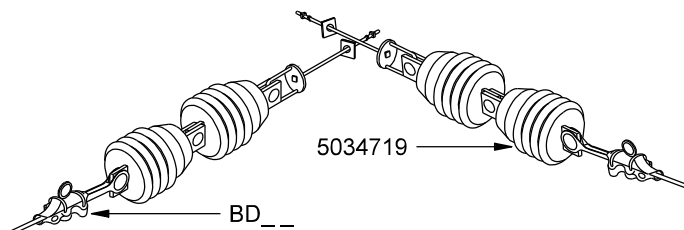
CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C4,C6,C20,R2,R266,R30

B15M__ SINGLE DEADEND - METAL ARM

CONDUCTORS - AC312,A2,A266,A397

**B14__ DOUBLE DEADEND
(SAME SIZE CONDUCTOR)**

CONDUCTORS - AC312,A2,A266,A30,A397,C1
C2,C20,C4,C6,R2,R266,R30



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
PRIMARY INSULATOR ASSEMBLIES
POLE-TOP PINS AND DEADEND BELLS

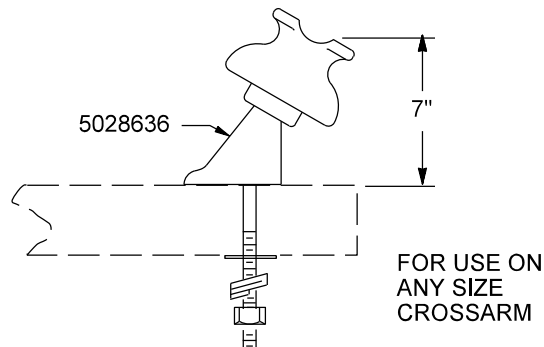
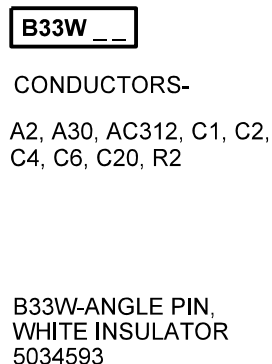
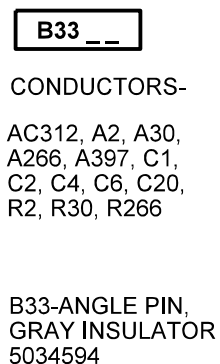
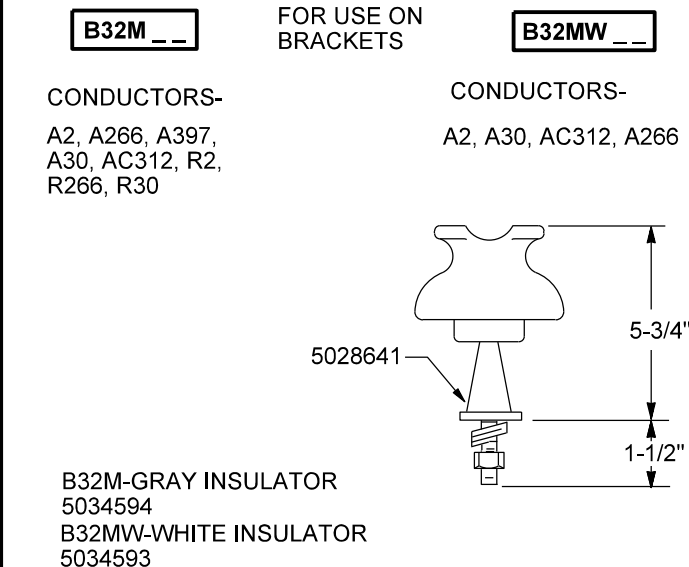
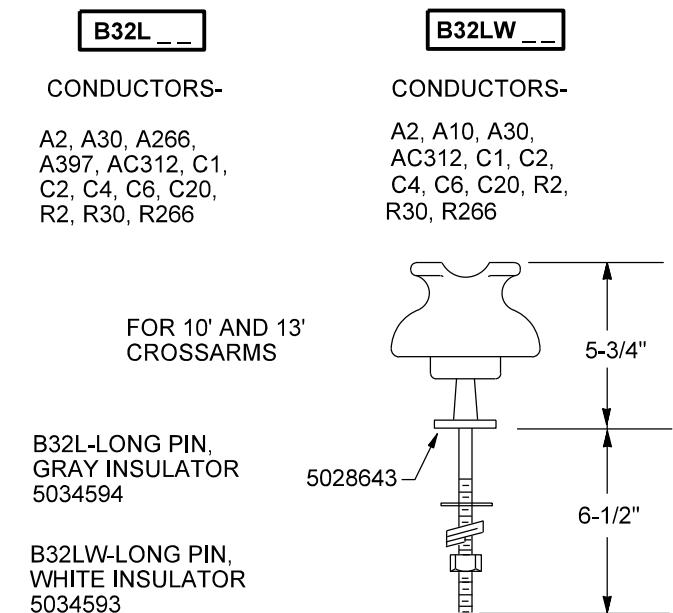
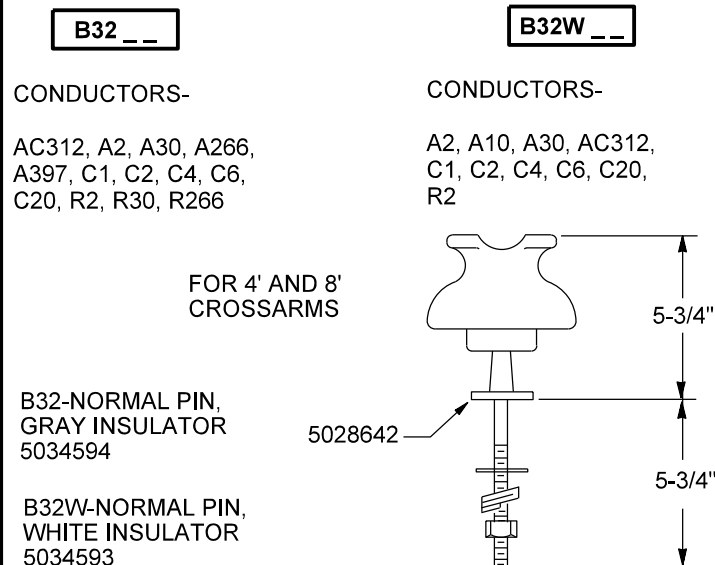
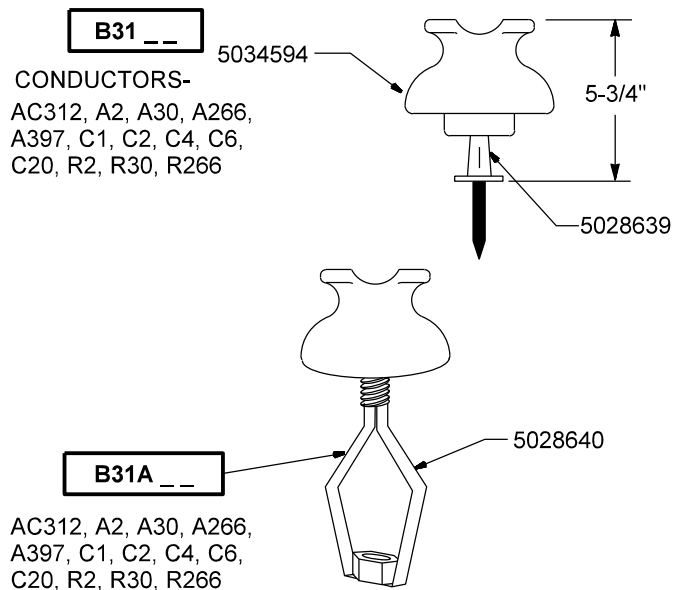
2-19-1

ISSUE DATE: 08/05/93

REV. DATE: 08/30/17

APPROVAL: S. DURAN

8512E219.DGN



Overhead Distribution
Construction Standards



BASIC ASSEMBLY UNITS
PRIMARY INSULATOR ASSEMBLIES
PIN - TYPE INSULATORS

2-20-1

ISSUE DATE: 05/14/82

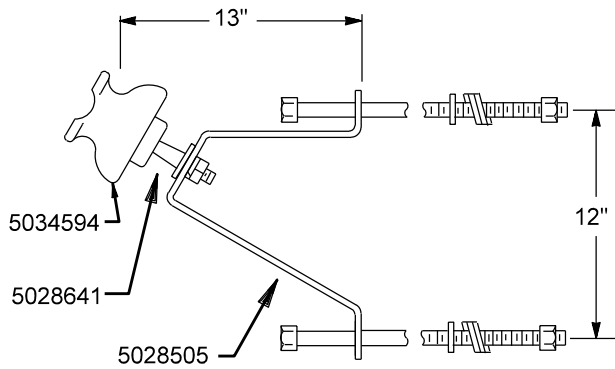
REV. DATE: 05/30/13

APPROVAL: B. PRIEST

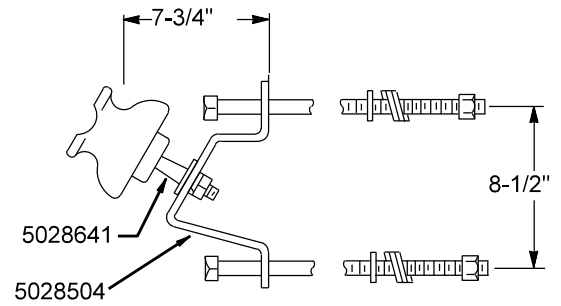
8512E86.DGN

B30__

CONDUCTORS-
A2, A30, A266, A397, AC312, C1,
C2, C4, C6, C20, R2, R30, R266

**B38__**

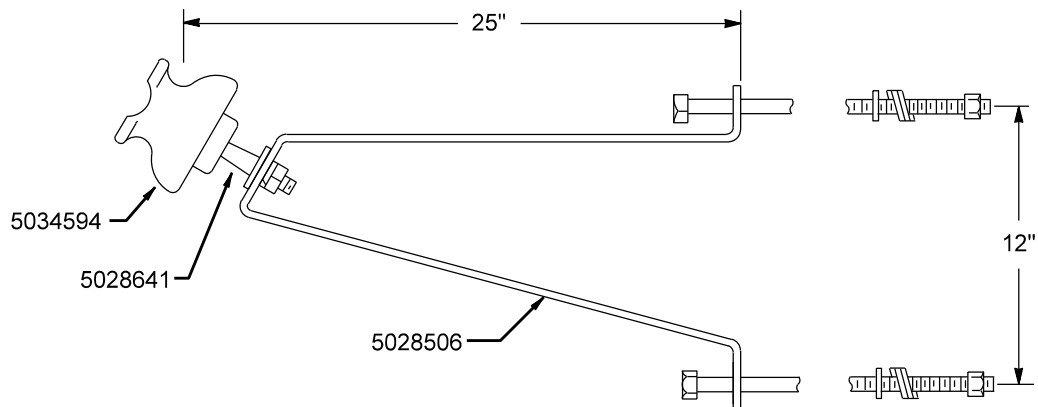
CONDUCTORS-
A2, A30, A266, A397, AC312, C1,
C2, C4, C6, C20, R2, R30, R266



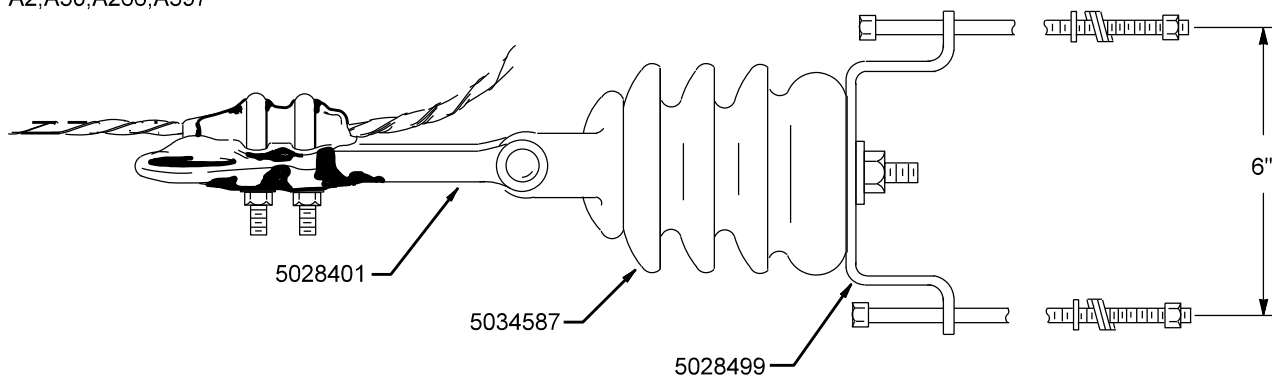
B38WAC312 WHITE INSULATOR
(NEUTRAL ONLY)

B30E__

CONDUCTORS-
A266, A397, AC312

**B35__****SLACK SPAN OFF LINE POST**

CONDUCTORS-
A2, A30, A266, A397



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
PRIMARY INSULATOR ASSEMBLIES
SIDE MOUNTED INSULATORS

2-20-2

ISSUE DATE: 11/12/82

REV. DATE: 06/02/13

APPROVAL: B. PRIEST

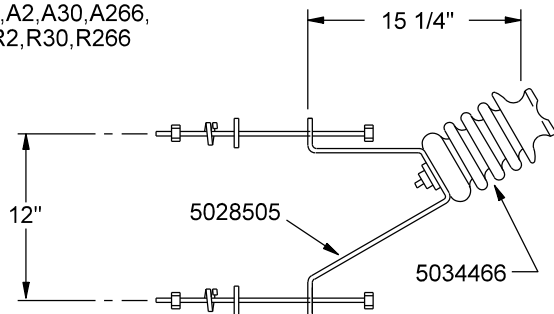
8512E87.DGN

B21

CONDUCTORS-
AC312,A2,A30,A266,
A397,R2,R30,R266

B21A

CONDUCTORS-
AC312,A2,A30,A266,
A397,R2,R30,R266



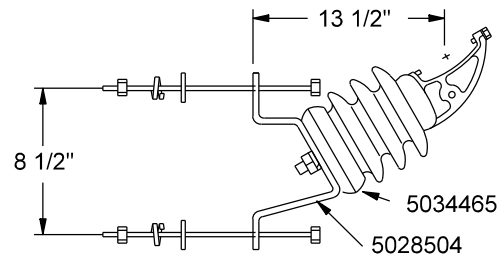
B21 - 0 DEG. - 30 DEG. (SPANS LESS THAN 300')
B21A- 0 DEG. - 30 DEG. (SPANS MORE THAN 300')

B21C

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266,C1,C2,C20

B21CA

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266,C1,C2,C20



B21C - 6 DEG. - 15 DEG. (SPANS LESS THAN 300')
B21CA- 6 DEG. - 15 DEG. (SPANS MORE THAN 300')
B31C -15 DEG. - 30 DEG. (SPANS LESS THAN 300')
B31CA- 15 DEG. - 30 DEG. (SPANS MORE THAN 300')

B31C

CONDUCTORS-
AC312,A2,A30,A266,
A397,R2,R30,R266

B31CA

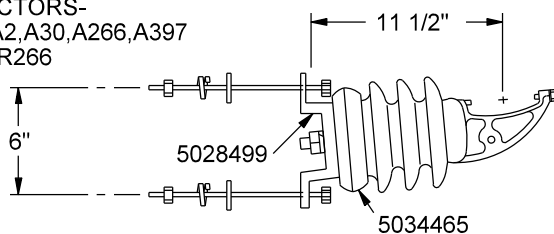
CONDUCTORS-
AC312,A2,A30,A266,
A397,R2,R30,R266

B22C

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266

B22CA

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266



B22C - 15 DEG. - 30 DEG. (SPANS LESS THAN 300')
B22CA- 15 DEG. - 30 DEG. (SPANS MORE THAN 300')
B22CD- SLACK SPAN DEADEND

B22CD

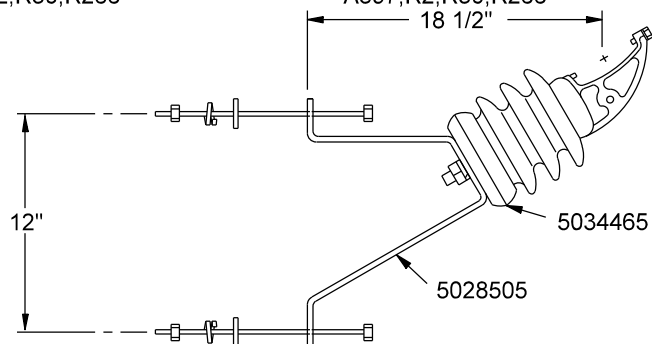
CONDUCTORS-
A2,A30,A266,A397

B23C

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266

B23CA

CONDUCTORS-
AC312,A2,A30,A266
A397,R2,R30,R266



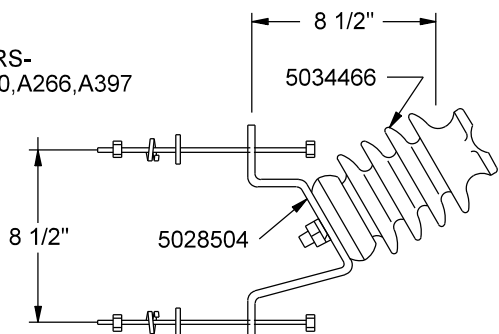
B23C - 6 DEG. - 15 DEG. (SPANS LESS THAN 300')
B23CA- 6 DEG. - 15 DEG. (SPANS MORE THAN 300')

B25

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266

B25A

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266



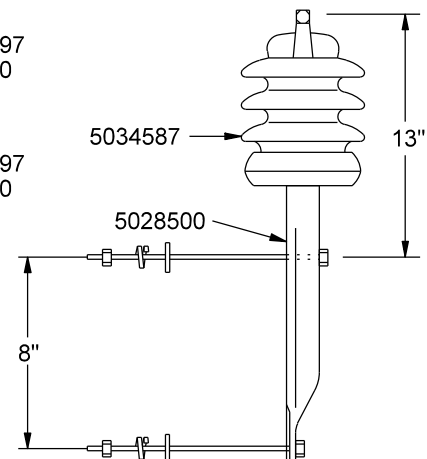
B25 - 0 DEG. - 30 DEG. (SPANS LESS THAN 300')
B25A- 0 DEG. - 30 DEG. (SPANS MORE THAN 300')

B26C

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266,C1,C2,C20

B26CA

CONDUCTORS-
AC312,A2,A30,A266,A397
R2,R30,R266,C1,C2,C20



B26C - 0 DEG. - 15 DEG. (SPANS LESS THAN 300')
B26CA- 0 DEG. - 15 DEG. (SPANS MORE THAN 300')

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
PRIMARY INSULATOR ASSEMBLIES
POST AND CLAMP - TOP INSULATORS

2-21-1

ISSUE DATE: 07/27/93

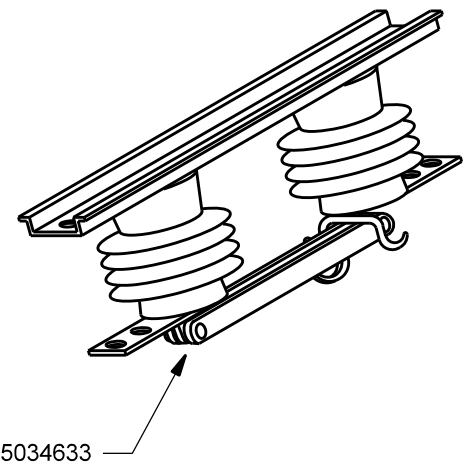
REV. DATE: 05/07/13

APPROVAL: B. PRIEST

8512E207.DGN

BD6M

600A BLADE DISCONNECT

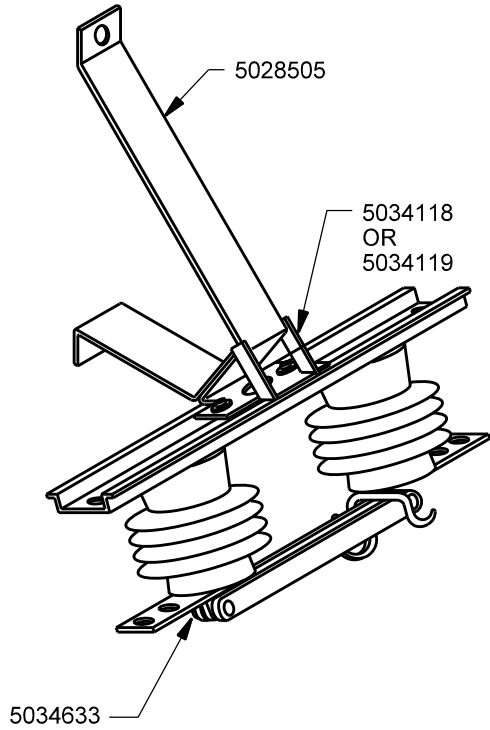


BD6

20 DEG. FROM VERTICAL

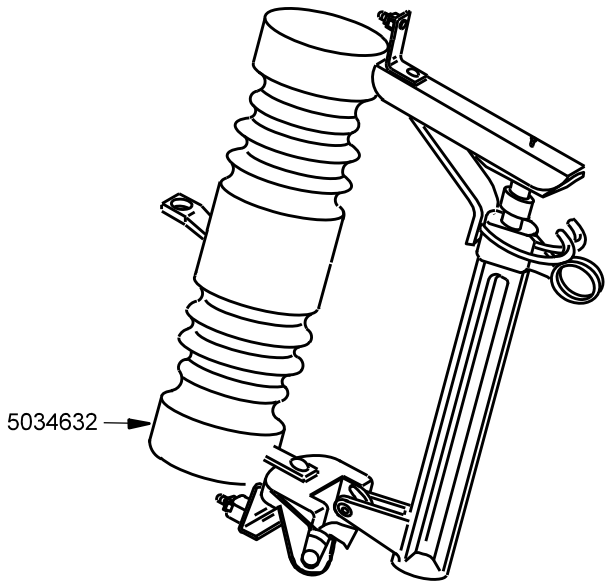
BD6V

VERTICAL



BDC3

300A BLADE DISCONNECT



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
BLADE DISCONNECT SWITCHES

2-22-1

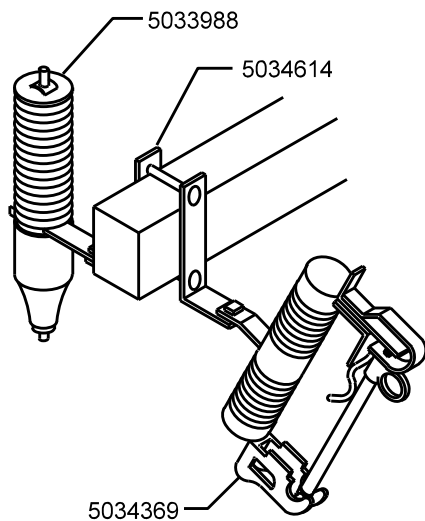
ISSUE DATE: 11/15/71

REV. DATE: 05/02/13

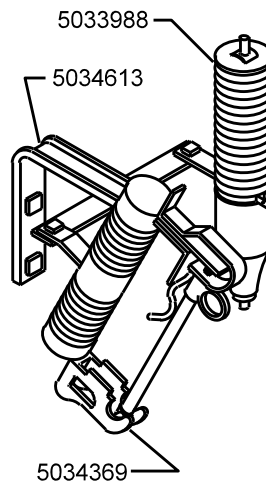
APPROVAL: B. PRIEST

8512E197.DGN

BCA4

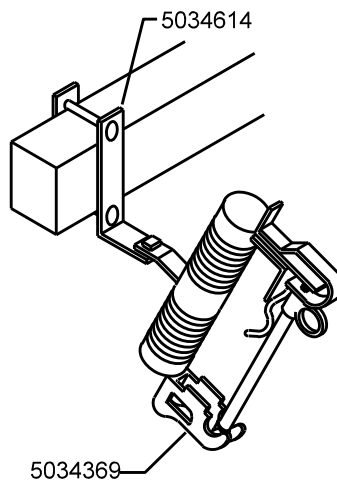


BCA1



BCF1

BCF1M WITHOUT MOUNTING HARDWARE



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
CUTOUT-ARRESTER COMBINATIONS
FOR TRANSFORMERS

2-23-1

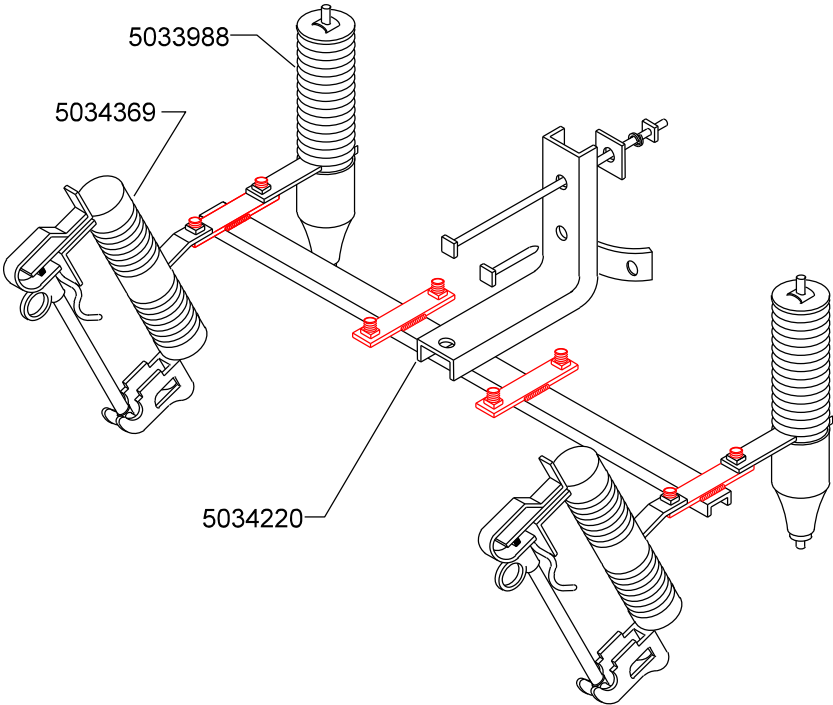
ISSUE DATE: 11/15/71

REV. DATE: 06/05/13

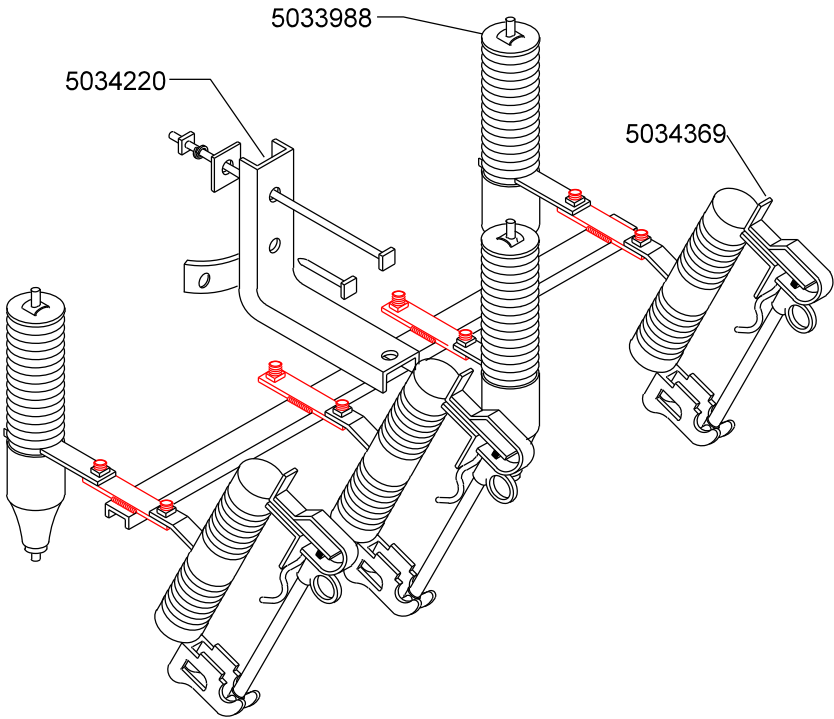
APPROVAL: B. PRIEST

8512E198.DGN

BCA5 40"TRI-MOUNT BRACKET

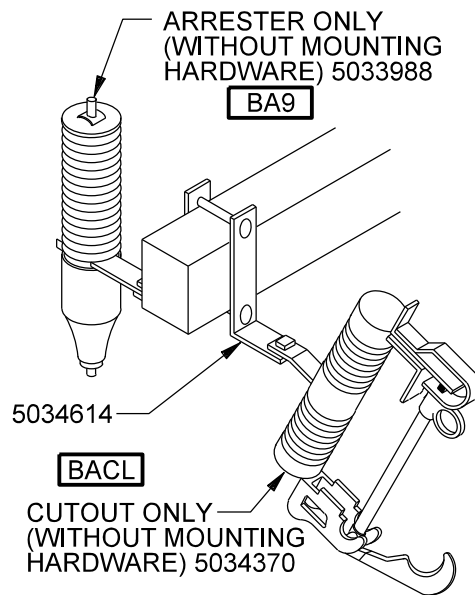


BCA3



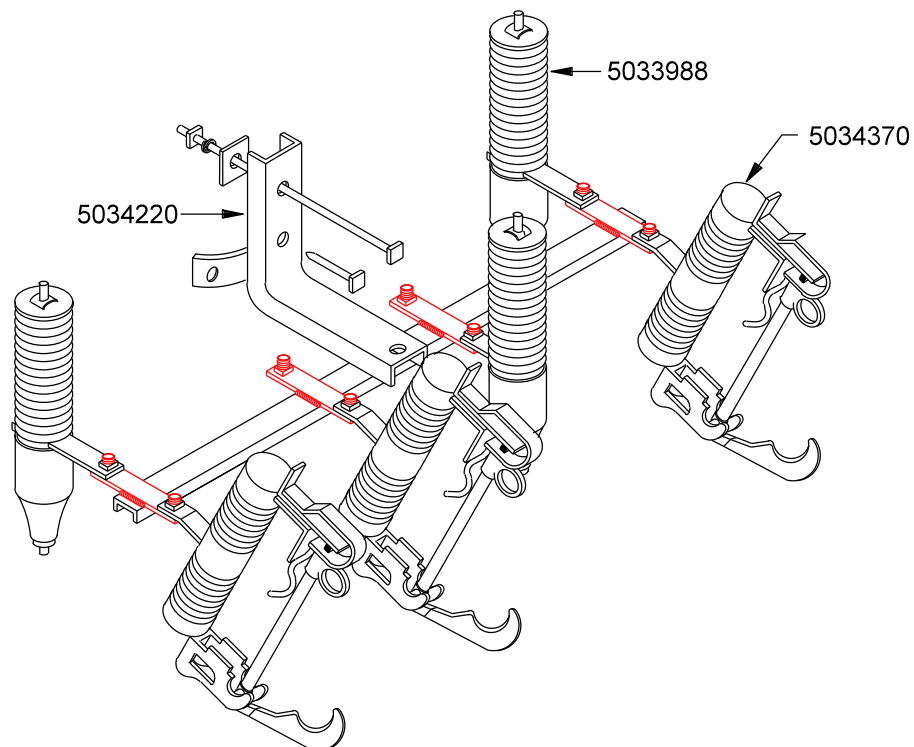
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: ILLUSTRATION TO REFLECT THE WELDED STEEL STOCK THAT REPL 3-BOLT CLAMP.	
	BASIC ASSEMBLY UNITS CUTOUT-ARRESTER COMBINATIONS FOR TRANSFORMERS	
	2-23-2	ISSUE DATE: 11/15/71 REV. DATE: 09/12/24 APPROVAL: J. ROBBINS 8512E492.DGN

BCC1



FOR FIXED CAPACITORS

BCC3



FOR FIXED CAPACITOR BANKS

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: ILLUSTRATION TO REFLECT THE WELDED STEEL STOCK THAT REPL 3-BOLT CLAMP.

BASIC ASSEMBLY UNITS
CUTOUT-ARRESTER COMBINATIONS
FOR CAPACITOR BANKS

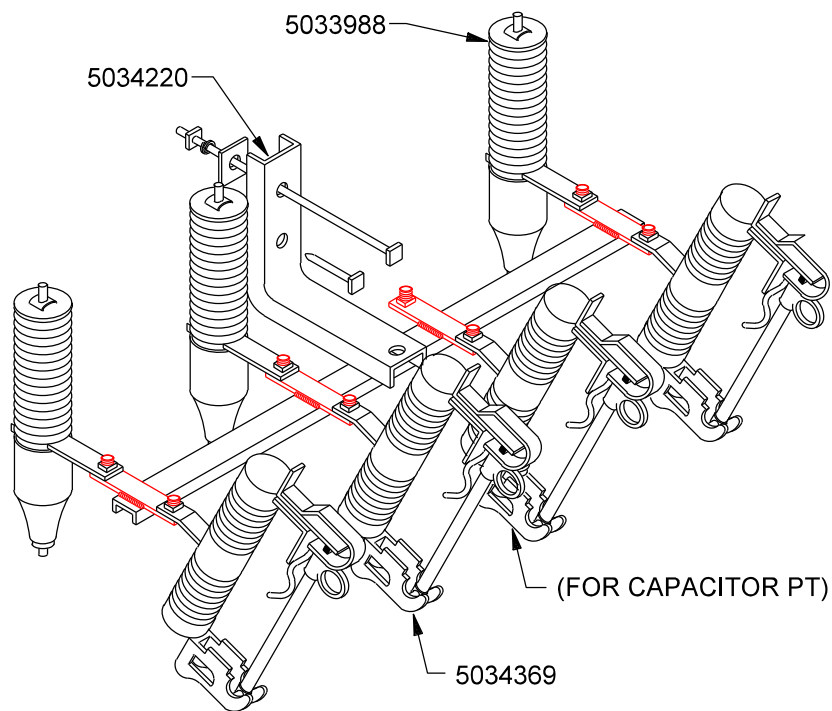
2-24-1

ISSUE DATE: 08/18/81

REV. DATE: 09/12/24

APPROVAL: J. ROBBINS

8512E199.DGN

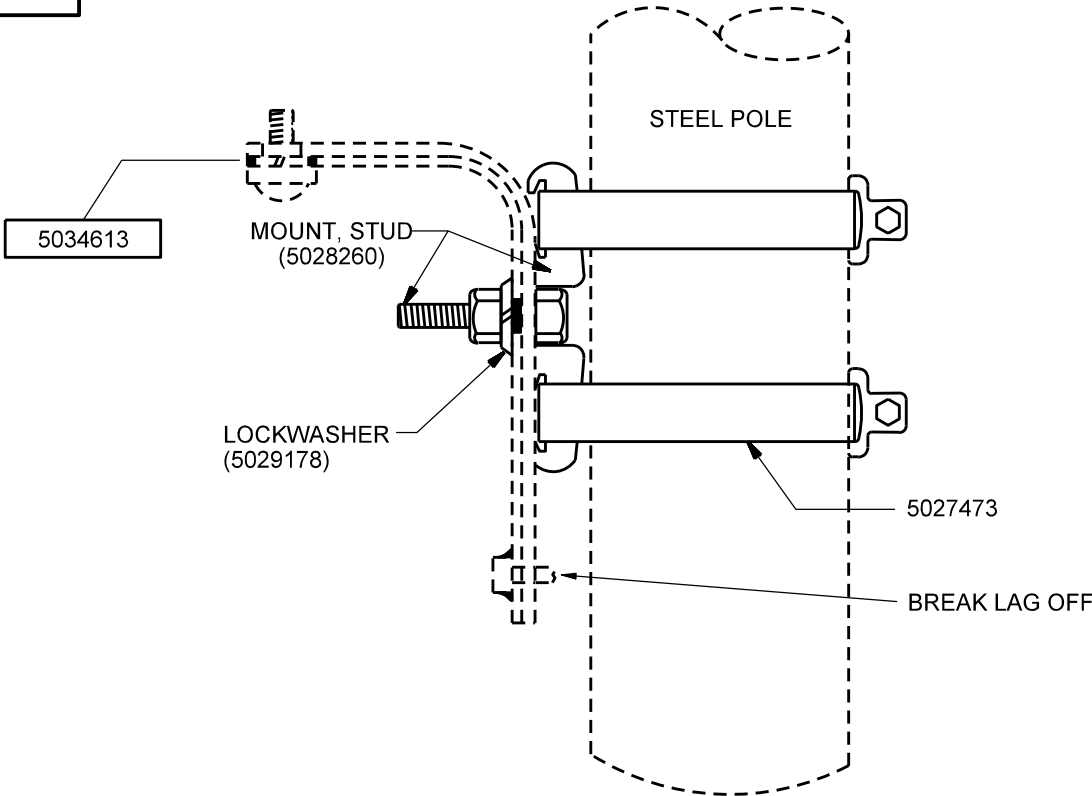


FOR SWITCHED CAPACITOR BANKS

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: ILLUSTRATION TO REFLECT THE WELDED STEEL STOCK THAT REPL 3-BOLT CLAMP.	
	BASIC ASSEMBLY UNITS CUTOUT-ARRESTER COMBINATIONS FOR CAPACITOR BANKS	ISSUE DATE: 08/18/81
		REV. DATE: 09/12/24
		APPROVAL: J. ROBBINS
	2-24-2	8512E493.DGN

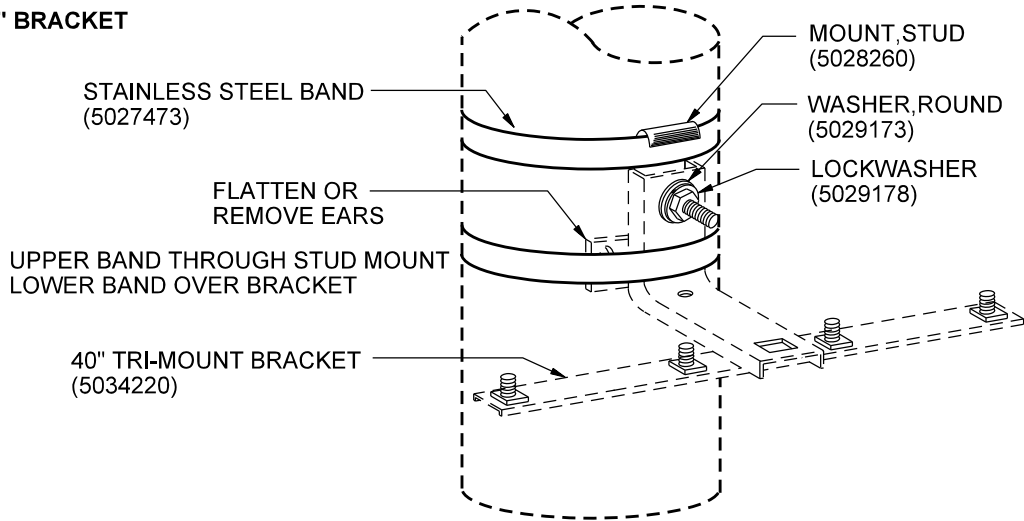
BCA1ST

10" BRACKET



BCA3ST

40" BRACKET



Overhead Distribution
Construction Standards



BASIC ASSEMBLY UNITS
STEEL POLE MOUNTING

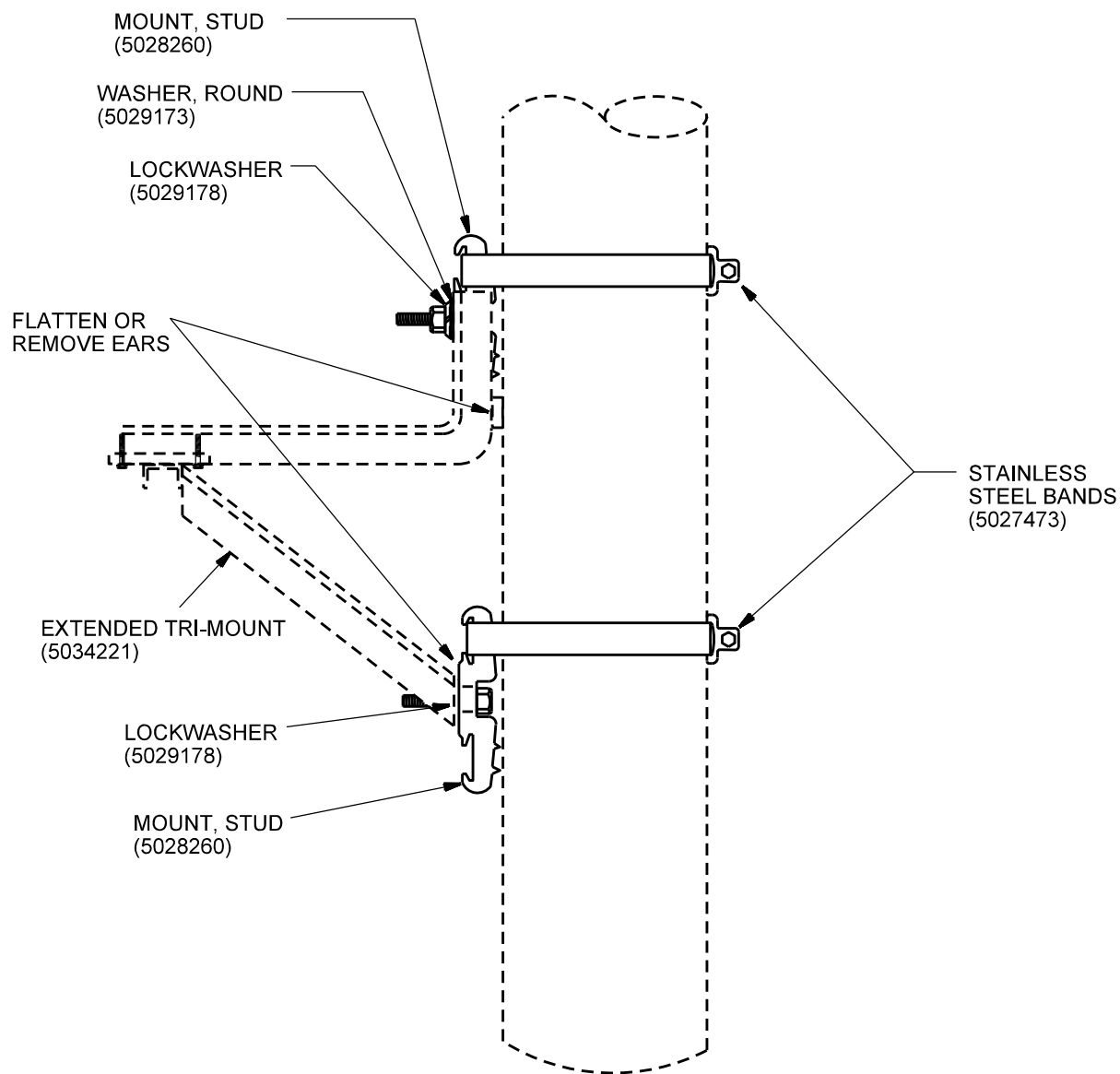
2-25-1

ISSUE DATE: 07/19/04

REV. DATE: 05/12/11

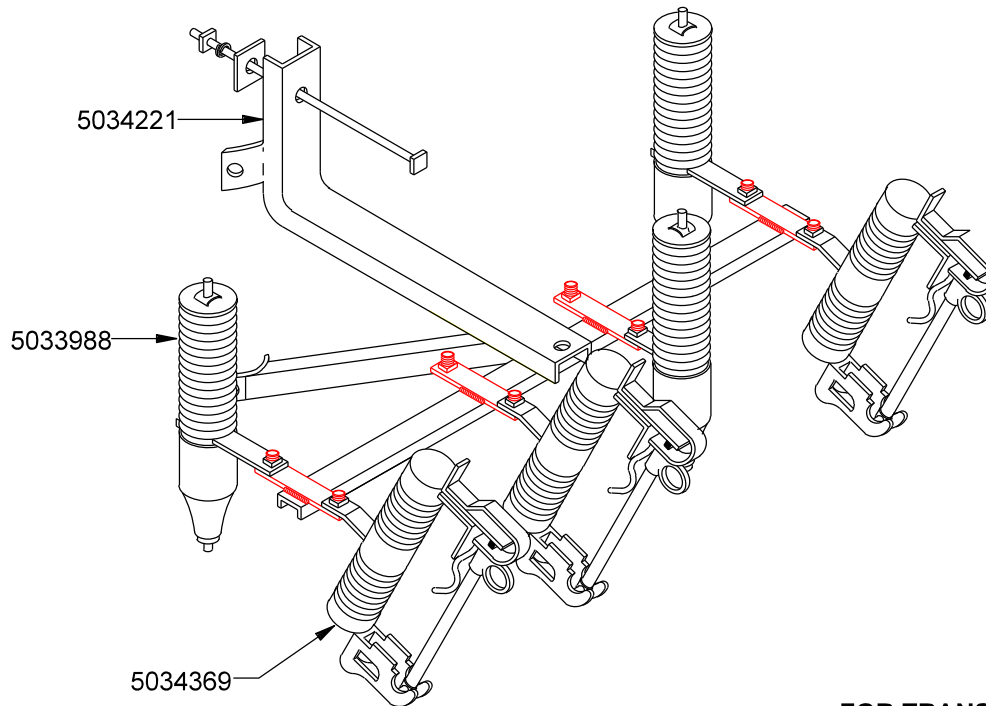
APPROVAL: B. PRIEST

8512E348.DGN



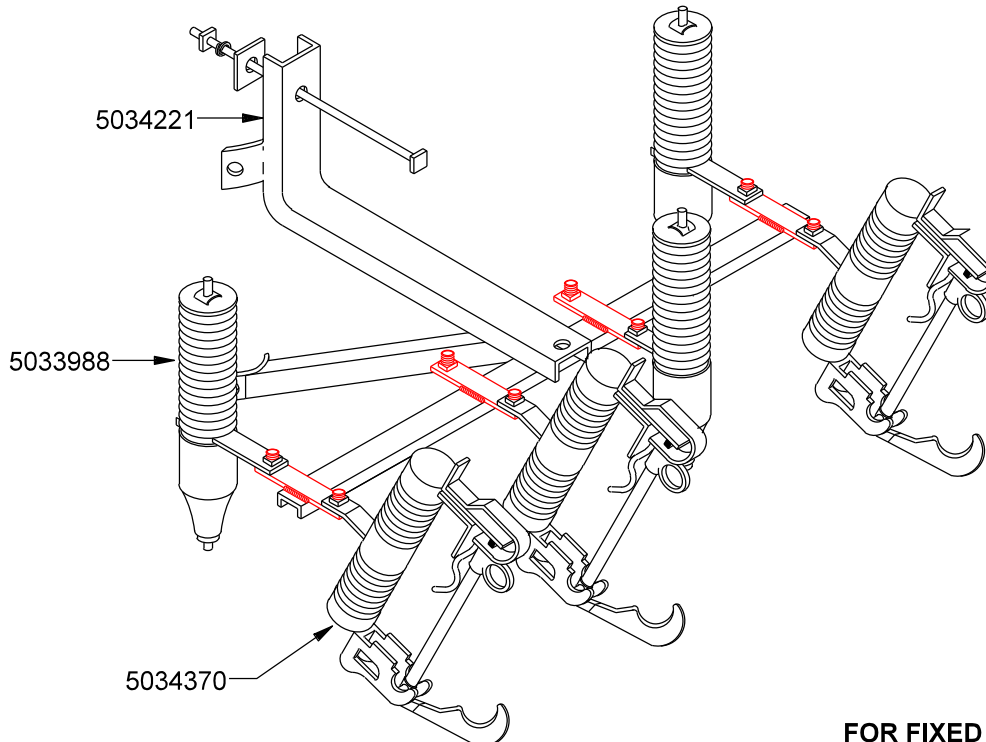
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	BASIC ASSEMBLY UNITS EXTENDED BRACKET STEEL POLE MOUNTING	
	2-26-1	
	ISSUE DATE: 07/19/04 REV. DATE: 05/13/13 APPROVAL: B. PRIEST	8512E349.DGN

BCA3E



FOR TRANSFORMERS

BCC3E



FOR FIXED CAPACITOR

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: ILLUSTRATION TO REFLECT THE WELDED STEEL STOCK THAT REPL 3-BOLT CLAMP.

BASIC ASSEMBLY UNITS
EXTENDED BRACKETS
CUTOUT-ARRESTER COMBINATIONS

2-27-1

ISSUE DATE: 06/06/88

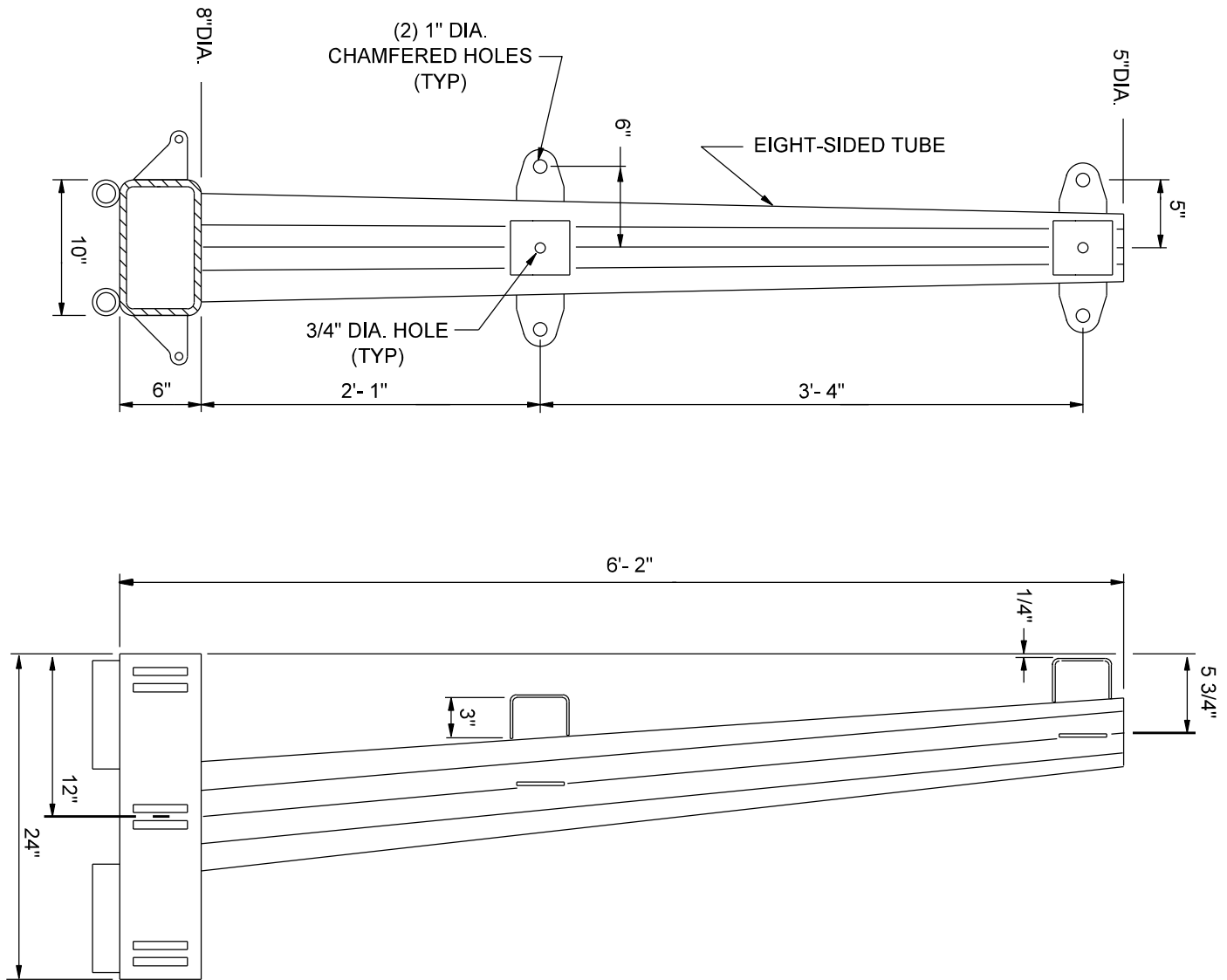
REV. DATE: 09/12/24

APPROVAL: J. ROBBINS

8512E200.DGN

5028595

MAX. LINE ANGLE = 90 DEG.



NOTES

1. WEIGHT = 226 LBS.

REFERENCE DRAWINGS

UNIVERSAL 12kV DEADEND ARM A-967-69.6

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69kV STEEL POLE
UNIVERSAL 12kV HORIZONTAL DEADEND ARM

2-28-1

ISSUE DATE: 11/30/92

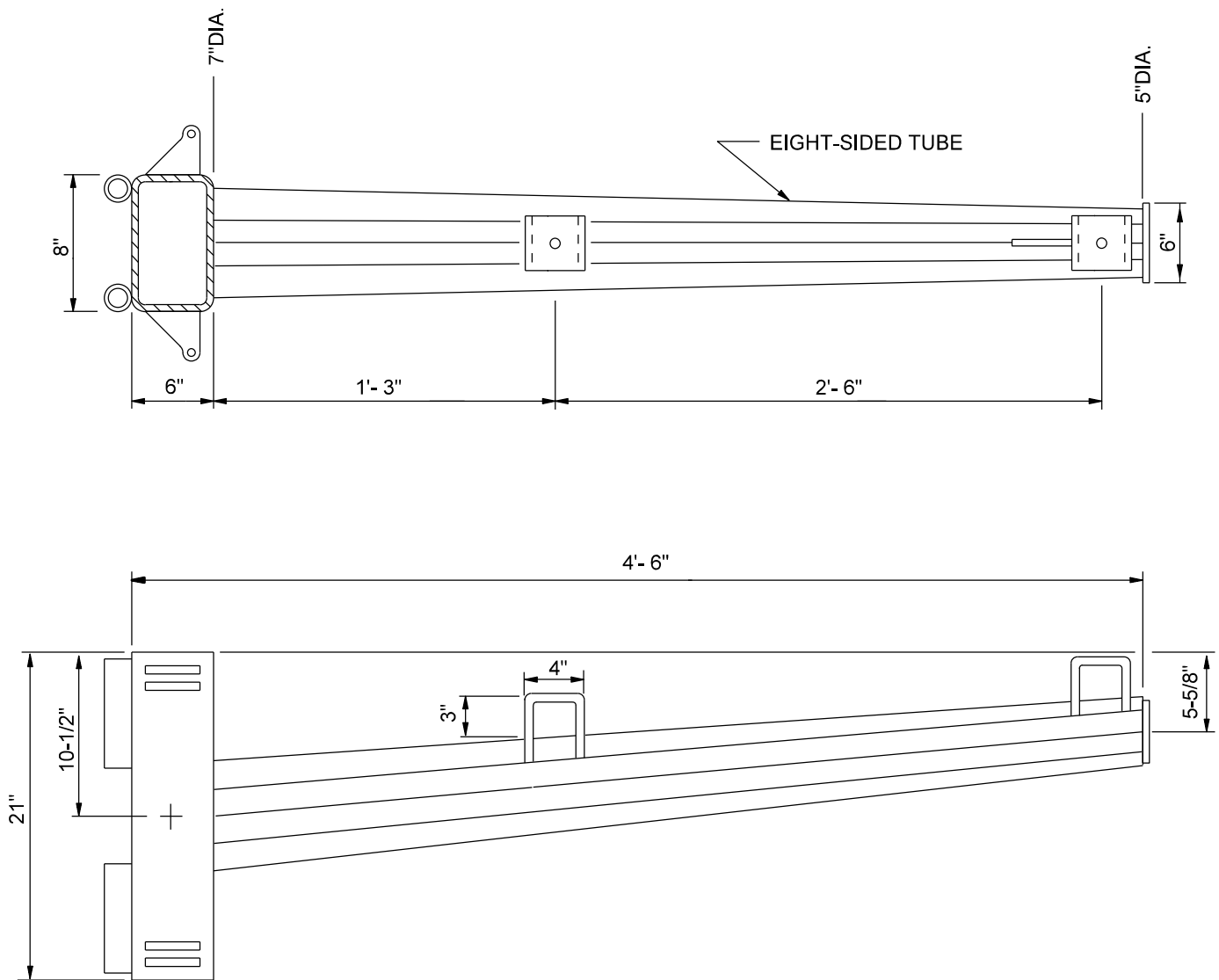
REV. DATE: 05/13/13

APPROVAL: B. PRIEST

8512E238.DGN

5028697

MAX. LINE ANGLE = 2 DEG.



NOTES

1. WEIGHT = 171 LBS. 5028708
2. FABRICATE FROM 57-1223 OR NEW FABRICATION.
3. MAX. SPAN = 500 FT.

REFERENCE DRAWINGS:

EXTENDED UNIVERSAL 12KV TANGENT ARM A-967-69.10

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69KV STEEL POLE
EXTENDED UNIVERSAL 12KV HORIZONTAL TANGENT ARM

2-29-1

ISSUE DATE: 01/25/99

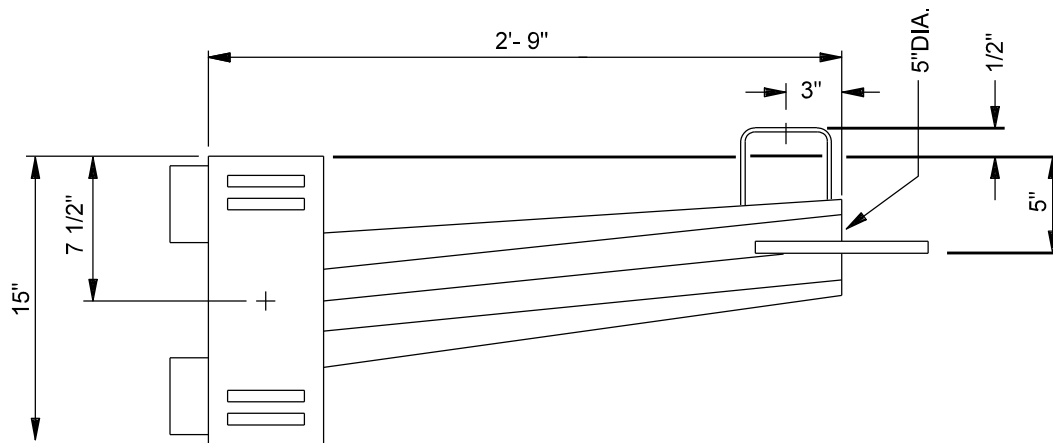
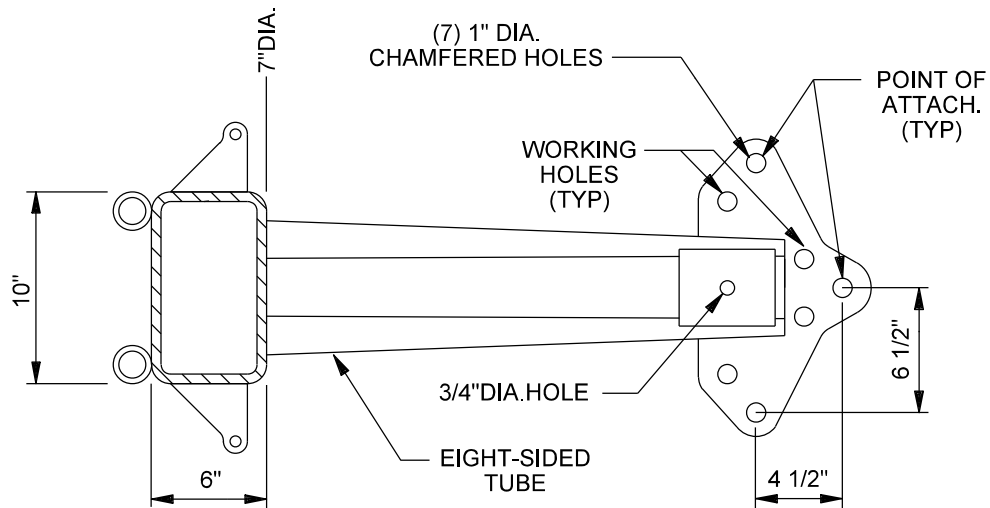
REV. DATE: 05/13/13

APPROVAL: B. PRIEST

8512E346.DGN

5028695

MAX. LINE ANGLE = 90 DEG.



NOTES

1. WEIGHT = 129 LBS.

REFERENCE DRAWINGS:

UNIVERSAL 12KV VERTICAL DEADEND ARM A-967-69.7

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69KV STEEL POLE
UNIVERSAL 12KV VERTICAL DEADEND ARM

2-30-1

ISSUE DATE: 11/30/92

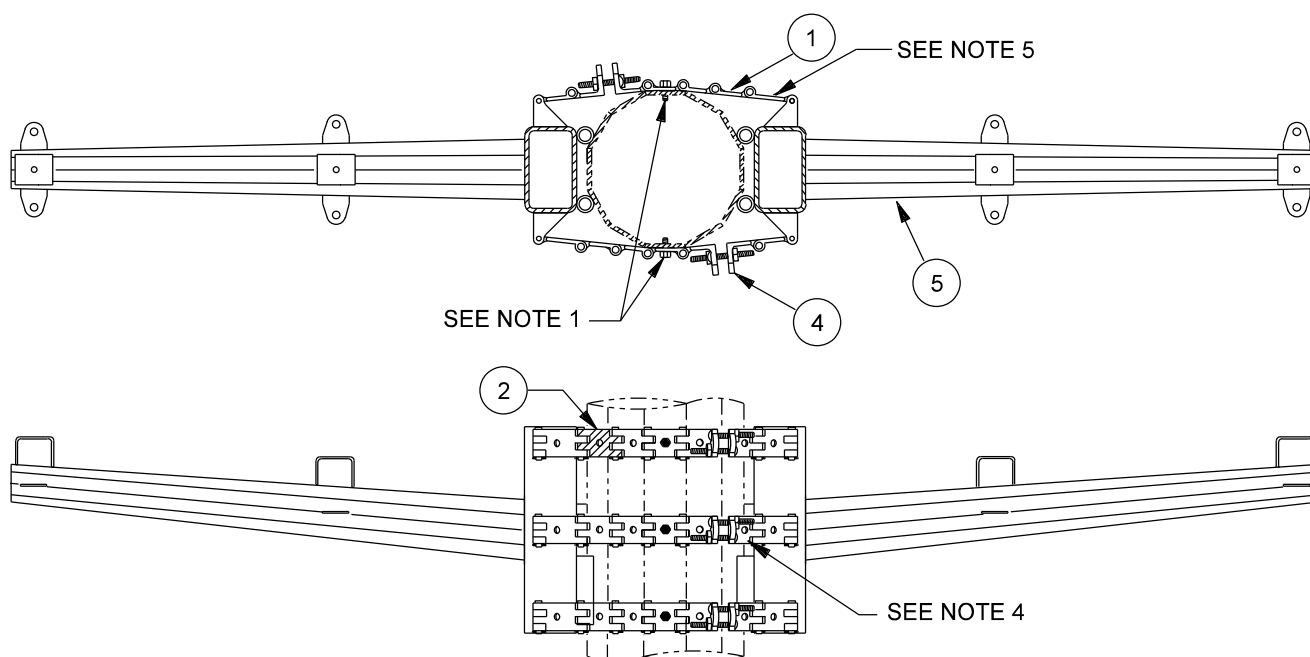
REV. DATE: 05/13/13

APPROVAL: B. PRIEST

8512E239.DGN

BTA892WC

0 DEG.TO 90 DEG. DEADEND



ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QUANTITY FOR BAND RANGE DIAMETER
			C (24"-31")
1	POLE BAND LINK ASSEMBLY	5028719	9
2	LINK SEGMENT	5027576	-
3	1/2 LINK SEGMENT	5027577	-
4	TAKEUP ASSEMBLY	5028488	-
5	UNIVERSAL DEADEND ARM	5028595	2
6	BOLT, HEX, STEEL, 1/2" X 1-1/2"	5029529	6

NOTES

1. DRILL & TAP 6 HOLES FOR 1/2" DIA., SAE GRADE 5, 1 1/2" LONG BOLTS AS SHOWN.
2. ARM DESIGNED FOR THE FOLLOWING:
SINGLE 397.5 KCM AAC AT 3,000 LBS. PER CONDUCTOR WITH 9 LB.WIND,
300 FT. RULING SPAN.
VERTICAL LOAD = 2,040 LBS. WORKING LOAD.
3. SEE DWG. A-967-69.6 FOR DESIGN LOAD CASES.
4. THIS BAND NOT REQUIRED FOR NON-DEADEND APPLICATION.
5. REVERSE FIRST LINK AT ARM VANGS TO IMPROVE FIT-UP.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69KV STEEL POLE
UNIVERSAL 12KV HORIZONTAL DEADEND ARM ASSEMBLY

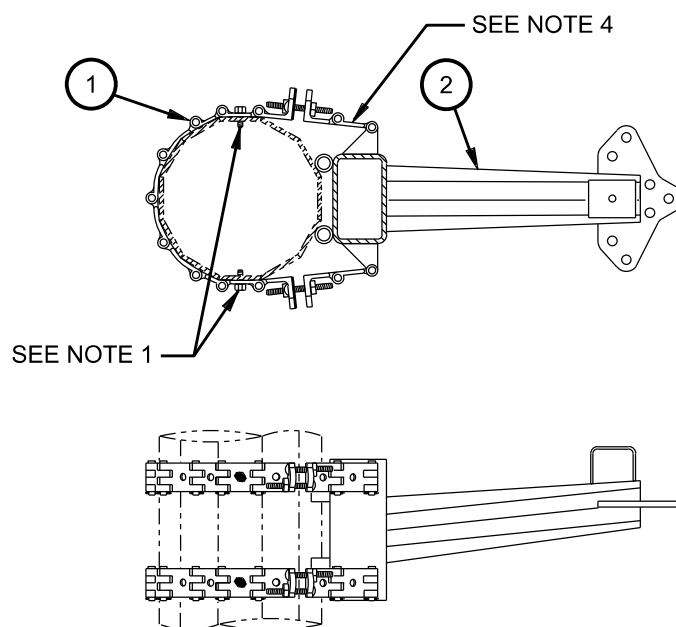
2-31-1

ISSUE DATE: 05/05/95

REV. DATE: 04/03/13

APPROVAL: B. PRIEST

8512E240.DGN

BTA891XD**SINGLE CIRCUIT
0 DEG.-90 DEG.DEADEND**

ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QUANTITY
1	POLE BAND LINK ASSEMBLY	5028719	6
2	UNIVERSAL DEADEND ARM	5028695	1

NOTES

1. DRILL & TAP 4 HOLES FOR 1/2" DIA., SAE GRADE 5, 1 1/2" LONG BOLTS AS SHOWN.
2. ARM DESIGNED FOR THE FOLLOWING:
SINGLE 397.5 KCM AAC AT 3,000 LBS. PER CONDUCTOR WITH 9 LB.WIND,
300 FT. RULING SPAN.
VERTICAL LOAD = 2,040 LBS. WORKING LOAD.
3. SEE DWG. A-967-69.7 FOR DESIGN LOAD CASES.
4. REVERSE FIRST LINK AT ARM VANGS TO IMPROVE FIT-UP.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69 kV STEEL POLE
UNIVERSAL 12 kV VERTICAL DEADEND ARM ASSEMBLY

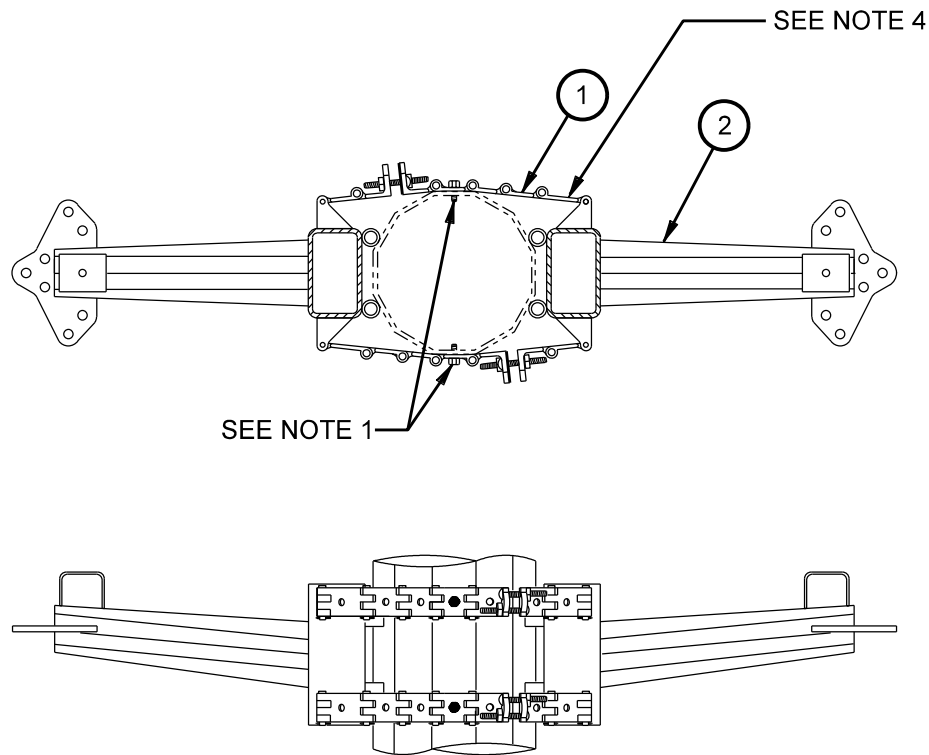
2-32-1

ISSUE DATE: 05/05/95

REV. DATE: 05/03/13

APPROVAL: B. PRIEST

8512E241.DGN

BTA892XD**0 DEG.-90 DEG. DEADEND**

ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QUANTITY
1	POLE BAND LINK ASSEMBLY	5028719	6
2	UNIVERSAL DEADEND ARM	5028695	2

NOTES

1. DRILL & TAP 4 HOLES FOR 1/2" DIA., SAE GRADE 5, 1 1/2" LONG BOLTS AS SHOWN.
2. ARM DESIGNED FOR THE FOLLOWING:
SINGLE 397.5 KCM AAC AT 3,000 LBS. PER CONDUCTOR WITH 9 LB.WIND,
300 FT. RULING SPAN.
VERTICAL LOAD = 2,040 LBS. WORKING LOAD.
3. SEE DWG. A-967-69.7 FOR DESIGN LOAD CASES.
4. REVERSE FIRST LINK AT ARM VANGS TO IMPROVE FIT-UP.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69kV STEEL POLE
UNIVERSAL 12kV VERTICAL DEADEND ARM ASSEMBLY

2-32-2

ISSUE DATE: 05/05/95

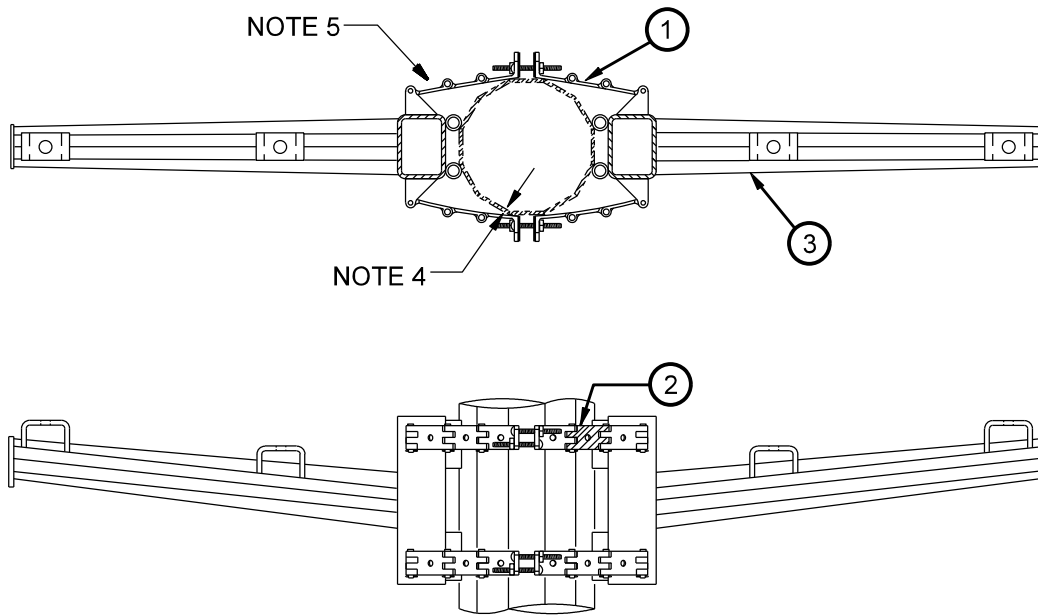
REV. DATE: 05/10/13

APPROVAL: B. PRIEST

8512E242.DGN

BTA892XYD

TANGENT TO 2 DEG.



ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QUANTITY
1	POLE BAND LINK ASSEMBLY	5028719	6
2	LINK SEGMENT	5027576	3
3	UNIVERSAL 12KV TANGENT ARM	5028697	2

NOTES

1. NO BOLTS OR DRILLING REQUIRED.
2. FOR NON-DEADEND APPLICATIONS ONLY.
3. SEE DWG.A-967-69.10 FOR DESIGN LOAD CASES.
4. GAP MAY BE PRESENT BETWEEN BAND AND POLE ON SMALL DIAMETER POLES.
5. REVERSE FIRST LINK AT ARM VANGS TO IMPROVE FIT-UP.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69 kV STEEL POLE
EXTENDED 12 kV TANGENT ARM ASSEMBLY

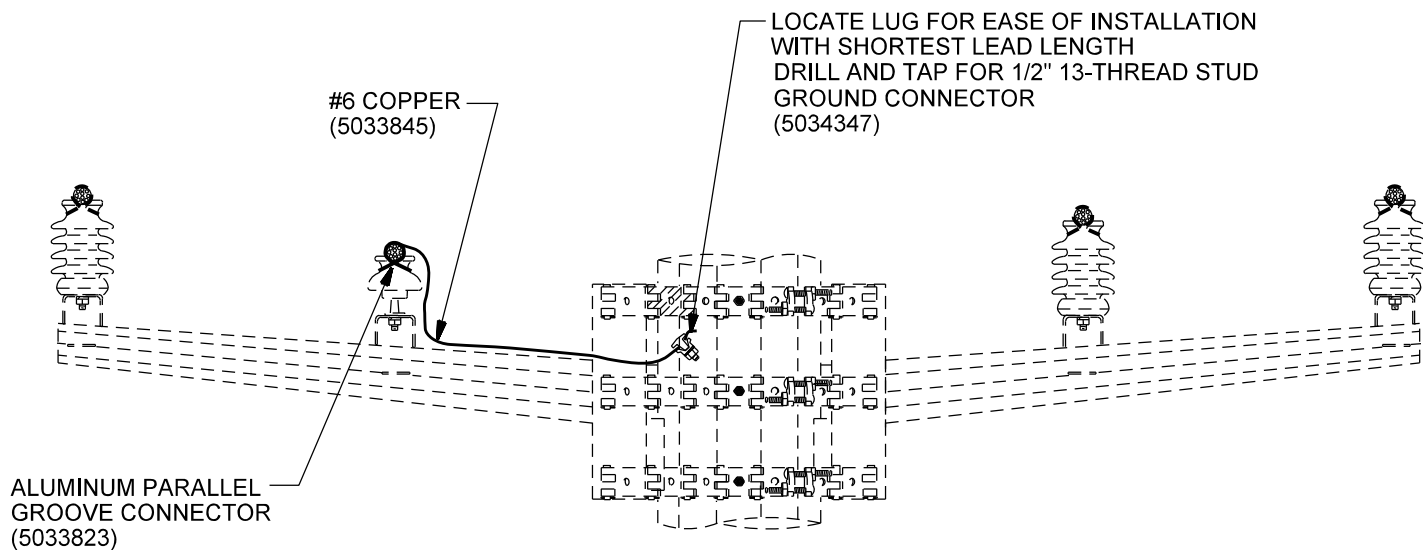
2-33-1

ISSUE DATE: 04/16/04

REV. DATE: 06/03/11

APPROVAL: B. PRIEST

8512E347.DGN



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
STEEL POLE
NEUTRAL GROUND CONNECTION

2-34-1

ISSUE DATE: 03/03/05

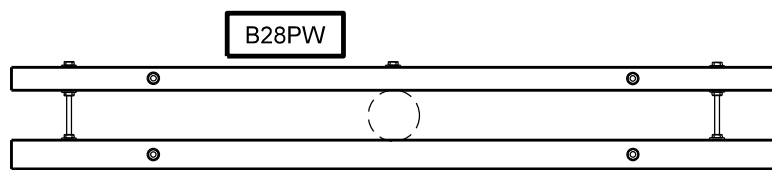
REV. DATE: 05/07/13

APPROVAL: B. PRIEST

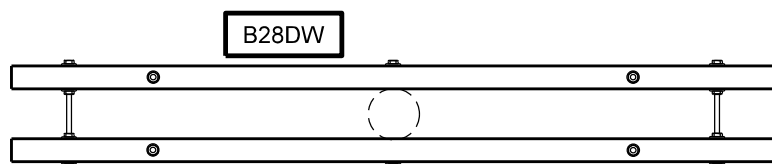
8512E352.DGN



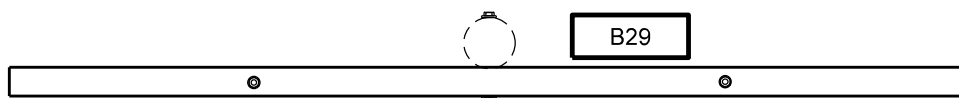
8' CROSSARM WITH WOOD BRACES



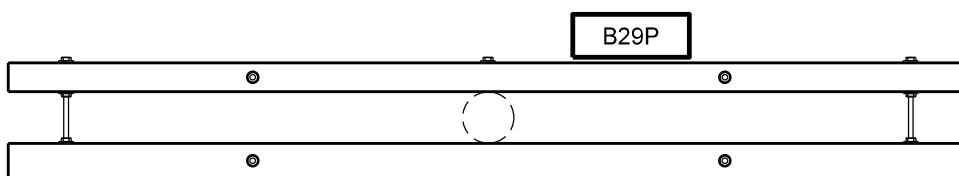
8' CROSSARM & 8' PLANK ARM
WITH WOOD BRACES



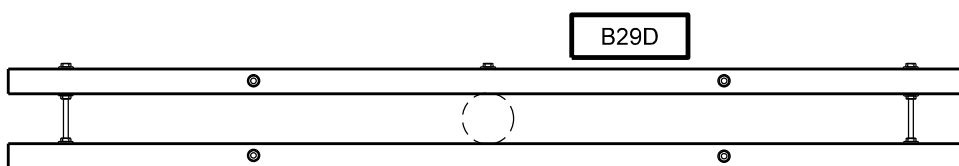
8' DOUBLE CROSSARM WITH WOOD
BRACES



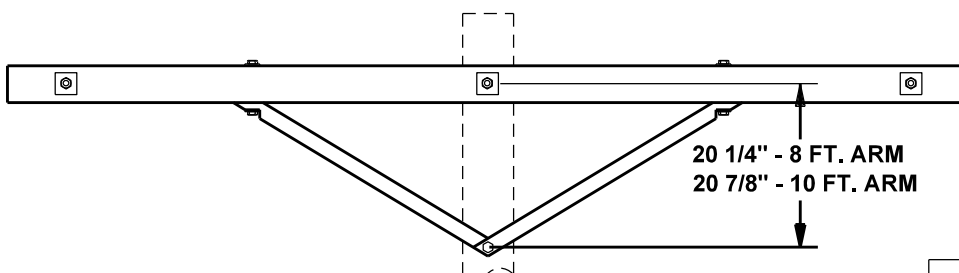
10' CROSSARM WITH WOOD
BRACES



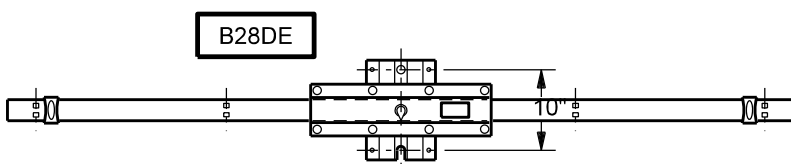
10' CROSSARM & 10'
PLANK ARM WITH WOOD
BRACES



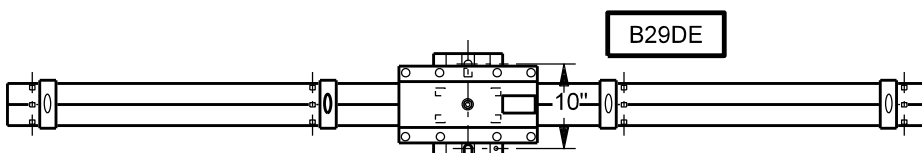
10' DOUBLE CROSSARM
WITH WOOD BRACES



20 1/4" - 8 FT. ARM
20 7/8" - 10 FT. ARM



B28DE



B29DE

5029410	8 FT. CROSSARM
5029411	8 FT. PLANK ARM
5029414	10 FT. CROSSARM
5027456	10 FT. PLANK ARM
5027886	WOOD BRACES
5029412	8 FT. DEADEND ARM
5027457	10 FT. DEADEND ARM

Overhead Distribution
Construction Standards



BASIC ASSEMBLY UNITS
8 FT. AND 10 FT. CROSSARMS (WOOD BRACES)
8 FT. AND 10 FT. DEADEND ARMS (NO BRACES)

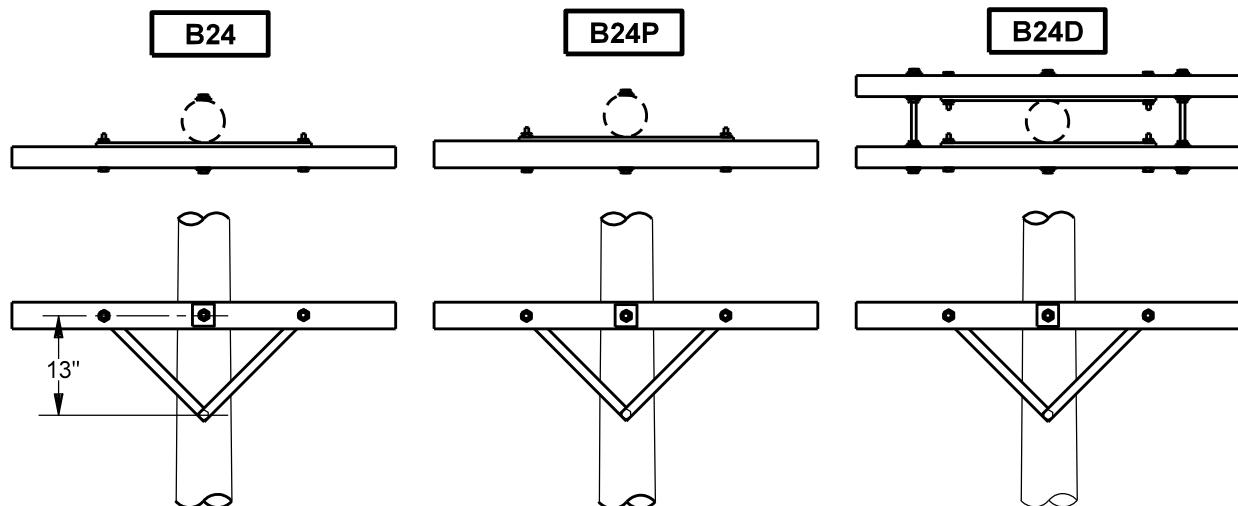
2-35-1

ISSUE DATE: 07/30/93

REV. DATE: 05/07/13

APPROVAL: B. PRIEST

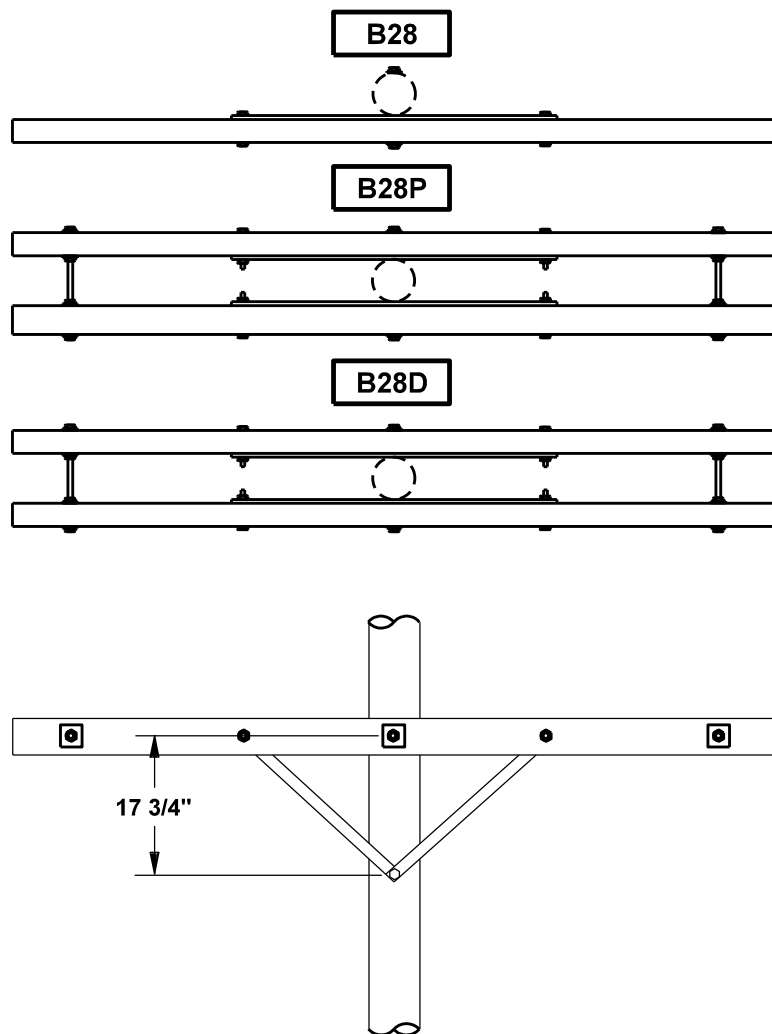
8512E204.DGN



4' CROSSARM WITH
STEEL BRACES

4' PLANK ARM WITH
STEEL BRACES

4' DOUBLE CROSSARM WITH
STEEL BRACES



8' CROSSARM WITH STEEL BRACES

8' CROSSARM & 8' PLANK ARM WITH
STEEL BRACES

8' DOUBLE CROSSARM WITH
STEEL BRACES

5029407	4 FT. CROSSARM
5029408	4 FT. PLANK ARM
5029410	8 FT. CROSSARM
5029411	8 FT. PLANK ARM
5027885	STEEL BRACE

Overhead Distribution
Construction Standards



BASIC ASSEMBLY UNITS
4' AND 8' CROSSARMS (STEEL BRACES)

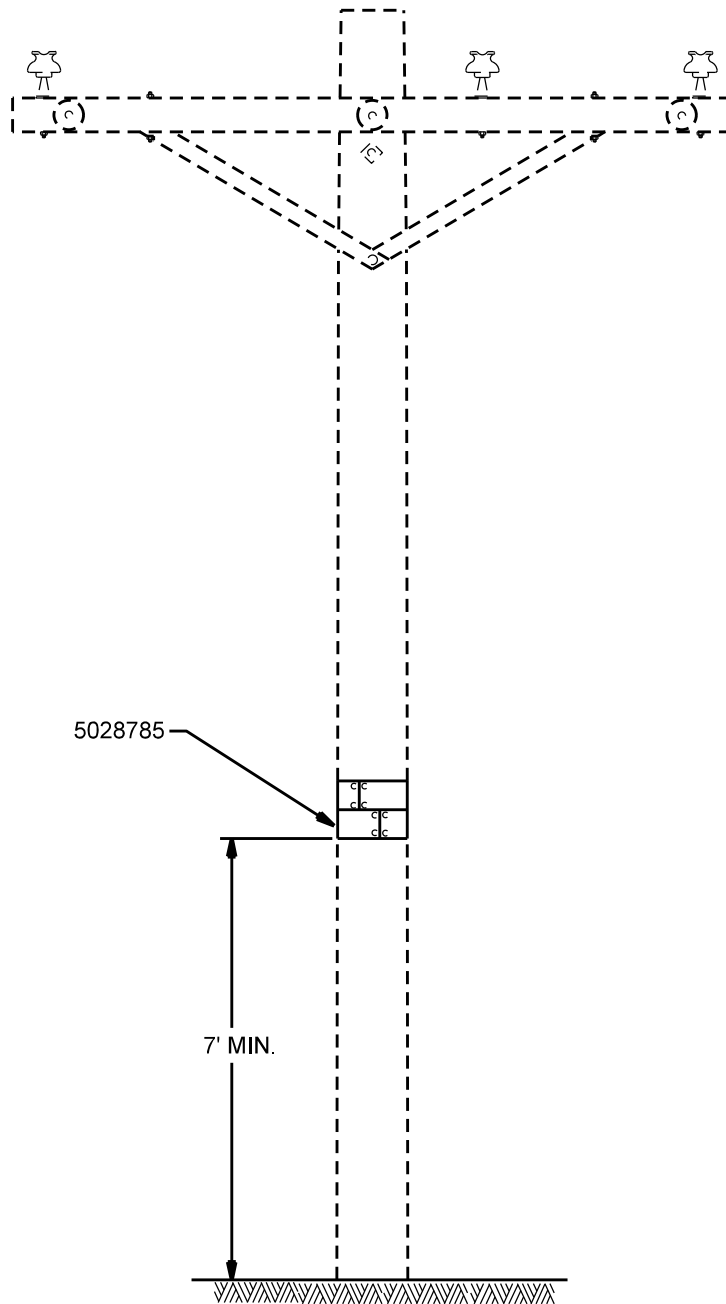
2-36-1

ISSUE DATE: 07/30/93

REV. DATE: 05/07/13

APPROVAL: B. PRIEST

8512E203.DGN

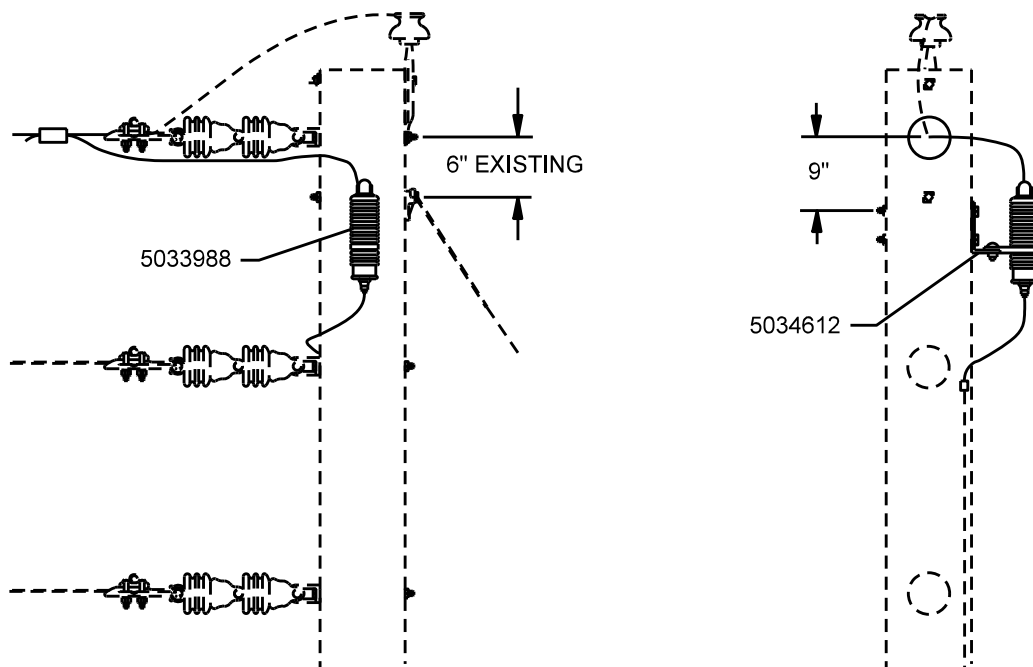


NOTES

1. PLACE ONLY AFTER CUSTOMER REQUEST.
2. MOVE UP OR DOWN POLES SLIGHTLY TO AVOID COVERING POLE MARKINGS, CAPACITOR CONTROL BOX, ETC.
3. COMPLETELY ENCIRCLE POLE BUT DO NOT COVER OR PLACE UNDER A RISER IF ONE EXISTS. OVERLAP PLATES IF NECESSARY.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	BASIC ASSEMBLY UNITS CAT GUARD 2-37-1	ISSUE DATE: 12/14/95 REV. DATE: 05/07/13 APPROVAL: B. PRIEST 8512E254.DGN
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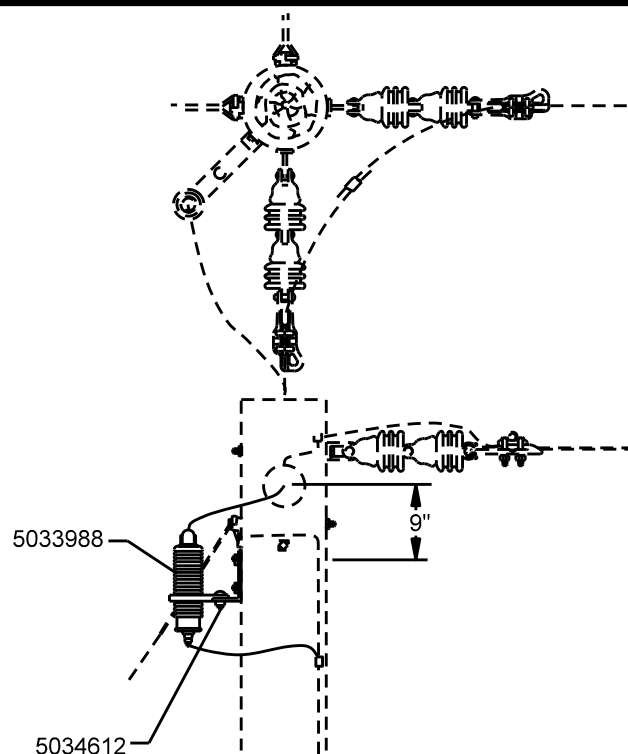
BA91



NOTES

1. THIS IS TO BE USED IN CASES WHERE A FLASH OVER HAS OCCURED OR AS SPECIFIED ON A JOB. ATTACH TO TOP PHASE.
2. GENERAL APPLICATION:
P15,P17,P18,P25A,P28,P35A,P36B,P65.
3. SPECIAL APPLICATION:
+ P28 & P28C-PUT ON THE OPPOSITE SIDE OF POLE FROM THE TOP POST INSULATED.
+ P25N,P35N & P35BJ-PUT ON THE SAME SIDE OF POLE AS LOWEST PHA.
+ PB15,PB25A,PB35A-PUT ON THE OPPOSITE SIDE OF POLE FROM THE STAND OFF PIN INSULATORS.
+ P38 & P38C-PUT ON THE OPPOSITE SIDE OF POLE FROM THE CENTER PHASE.

BA91



NOTES

1. THIS IS TO BE USED IN CASES WHERE A FLASH OVER HAS OCCURED OR AS SPECIFIED ON A JOB. ATTACH TO THE TOP PHASE.
2. GENERAL APPLICATION:
P14,P24,P34.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
ARRESTER ASSEMBLIES

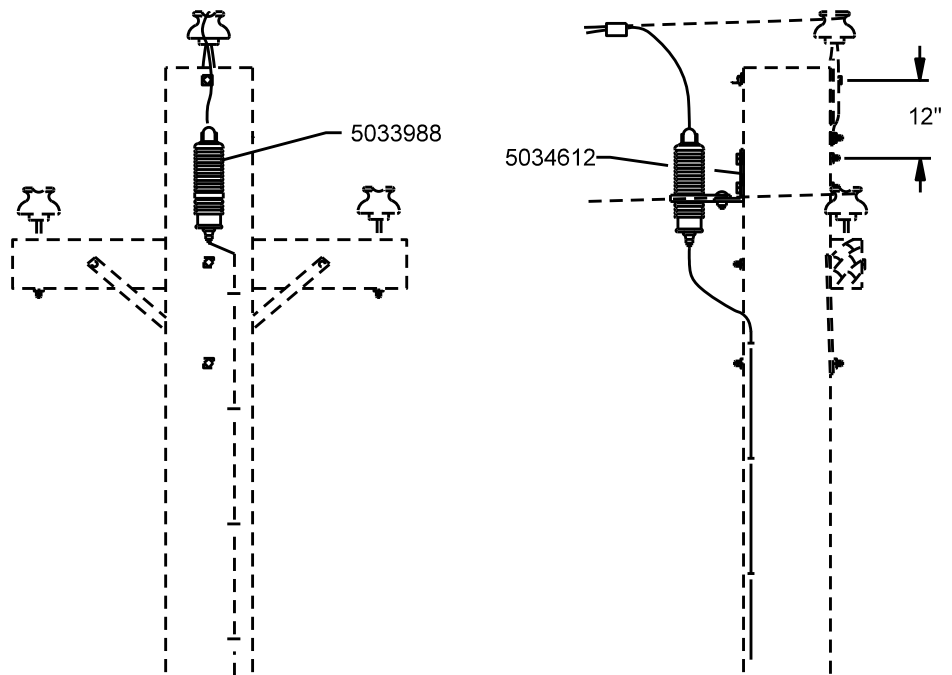
2-38-1

ISSUE DATE: 09/10/85

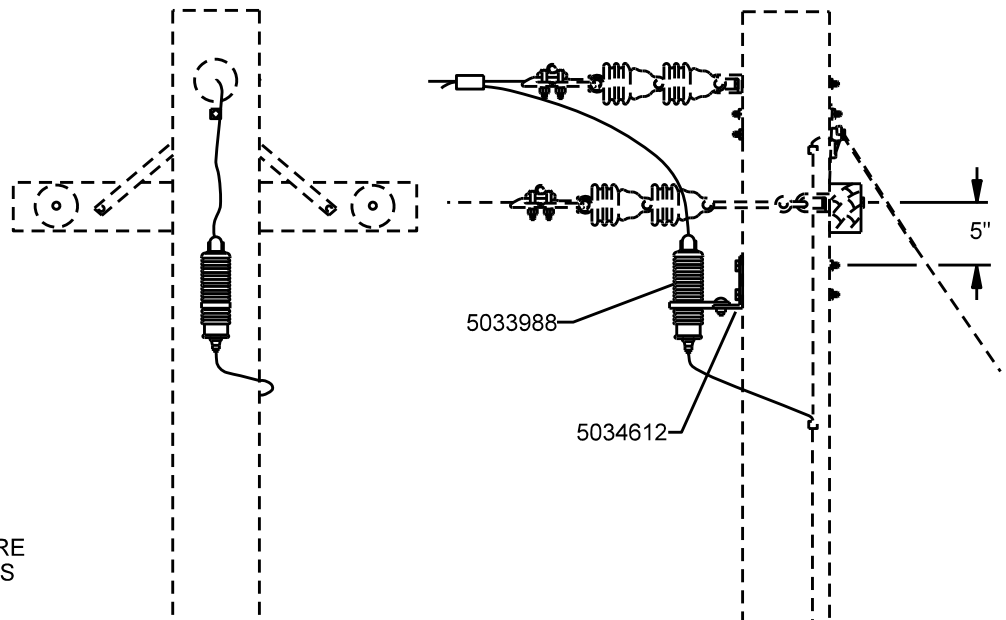
REV. DATE: 06/05/13

APPROVAL: B. PRIEST

8512E35.DGN

BA91**NOTES**

1. THIS IS TO BE USED IN CASES WHERE A FLASH OVER HAS OCCURED OR AS SPECIFIED ON A JOB. ATTACH TO TOP PHASE.
2. GENERAL APPLICATION:
P15N,P35AN, & P36

BA91**NOTES**

1. THIS IS TO BE USED IN CASES WHERE A FLASH OVER HAS OCCURED OR AS SPECIFIED ON A JOB.
2. GENERAL APPLICATION:
P35

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
ARRESTER ASSEMBLIES

2-38-2

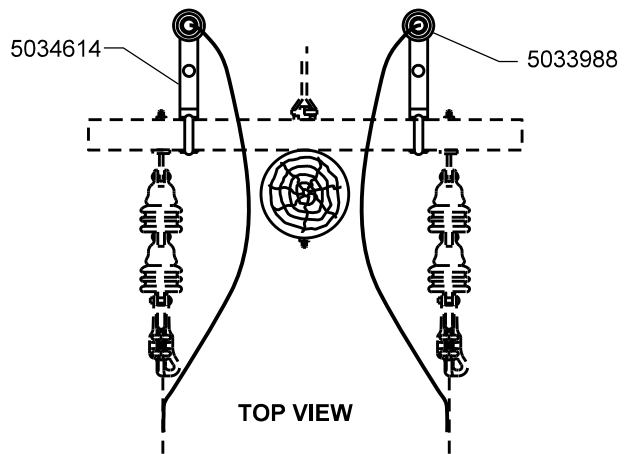
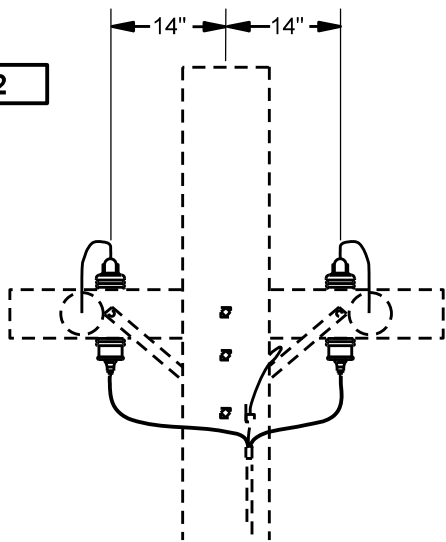
ISSUE DATE: 09/09/85

REV. DATE: 05/1/13

APPROVAL: B. PRIEST

8512E36.DGN

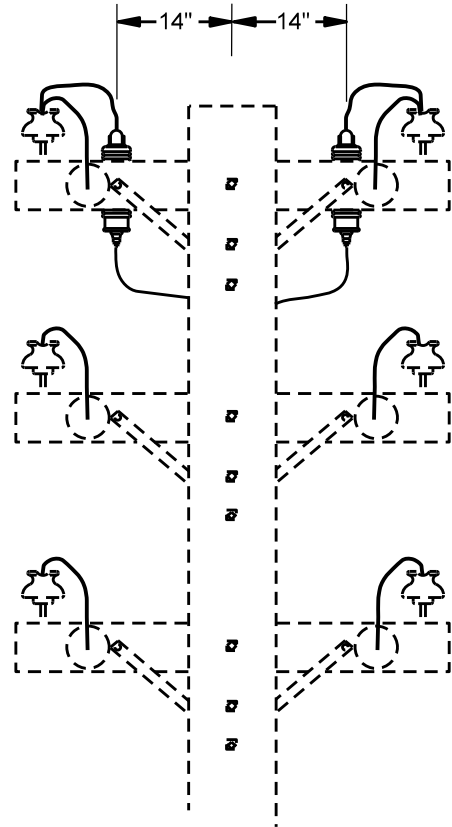
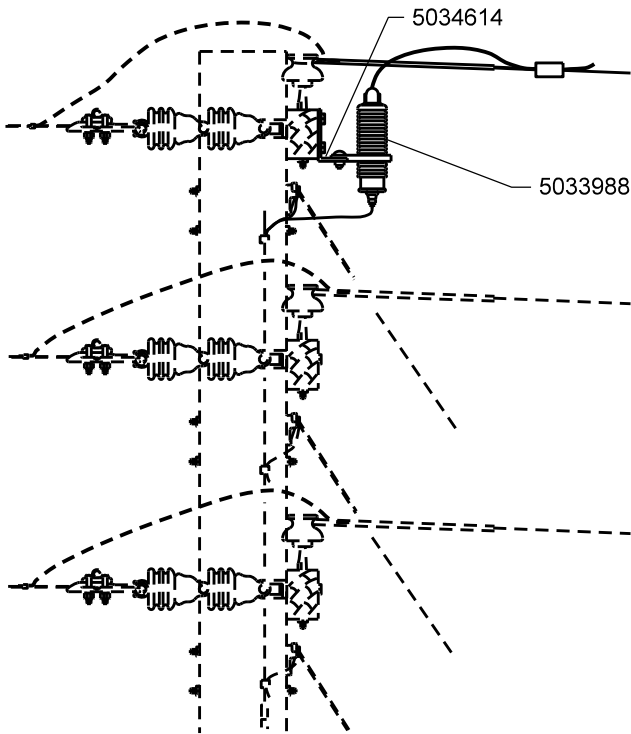
BA92



NOTES

1. THIS IS TO BE USED IN CASES WHERE A FLASH OVER HAS OCCURED OR AS SPECIFIED ON A JOB.
2. GENERAL APPLICATION:P25, & P26

BA92



NOTES

1. THIS IS TO BE USED IN CASES WHERE A FLASH OVER HAS OCCURED OR AS SPECIFIED ON A JOB.
2. GENERAL APPLICATION:P66,PHB25N,PHB35N,PHB25,PHB35, & PHN36.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
ARRESTER ASSEMBLIES

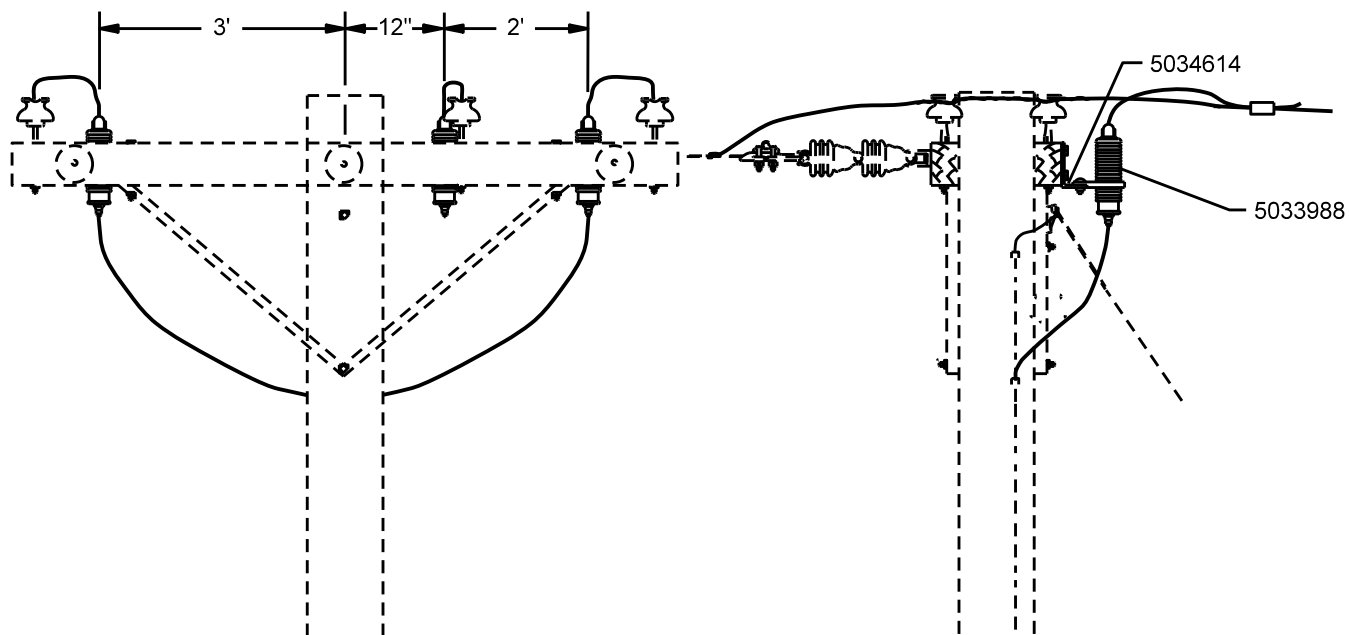
2-38-3

ISSUE DATE: 09/11/85

REV. DATE: 05/03/13

APPROVAL: B. PRIEST

8512E37.DGN

**NOTES**

1. THIS IS TO BE USED IN CASES WHERE A FLASH OVER HAS OCCURED,OR AS SPECIFIED ON A JOB.
2. GENERAL APPLICATION: PH25 THRU PH36, PH29 THRU PH29J.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
ARRESTER ASSEMBLIES

2-38-4

ISSUE DATE: 09/13/85

REV. DATE: 05/02/13

APPROVAL: B. PRIEST

8512E38.DGN

NEW POLE

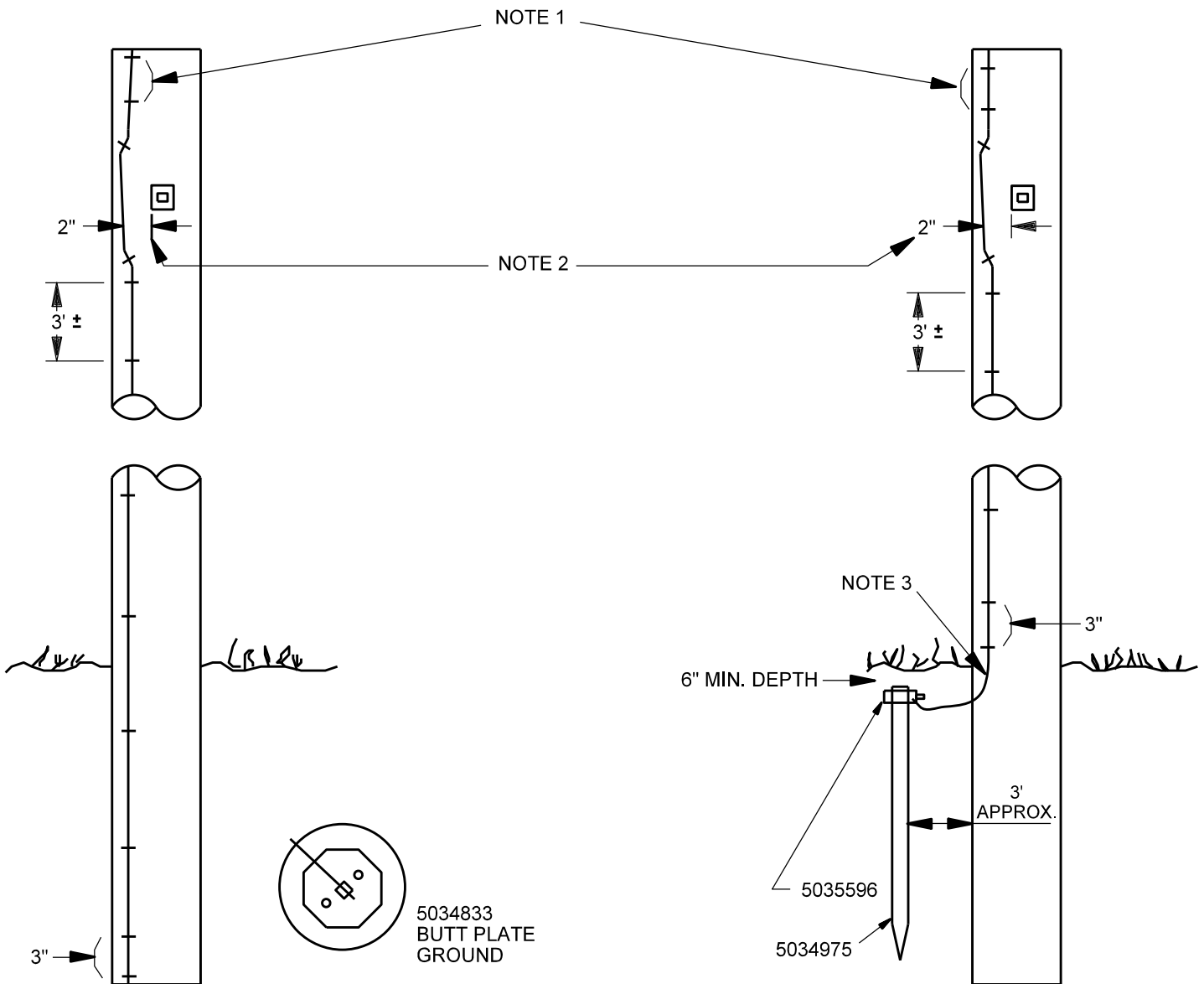
FOR EXISTING STRUCTURE WITHOUT A GROUND

B9

COVERED POLE GROUND
#2 COPPERWELD 5033969

B9R

COVERED POLE GROUND
#2 COPPERWELD 5033969



NOTES

1. INSTALL STAPLES (5035477) 2-3" APART AT THE END OF THE GROUND WIRE, BEND THE GROUND WIRE OVER THE 2 STAPLES BEFORE PULLING TIGHT, THEN INSTALL 2 STAPLES AT THE BOTTOM POLE TO HOLD IN PLACE. INSTALL REMAINDER OF STAPLES APPROXIMATELY 3' APART.
2. 2" MIN. CLEARANCE BETWEEN GROUND WIRE AND ANY WASHER, BRACKET, OR OTHER HARDWARE ITEM.
3. STRIP 12-18 INCHES WITHIN THE 8FT-10FT ABOVE GROUND OF PVC SHIELDING FROM THE #2 COPPERWELD TO MITIGATE FOR FIRE MIGRATION POTENTIAL UP THE WOODEN POLES IN FIRE PRONE AREAS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
POLE GROUND

2-39-1

ISSUE DATE: 04/02/91

REV. DATE: 10/07/21

APPROVAL: E. LUBANDI

8512E39.DGN

B9

POLE GROUND #2 COPPERWELD 5033968

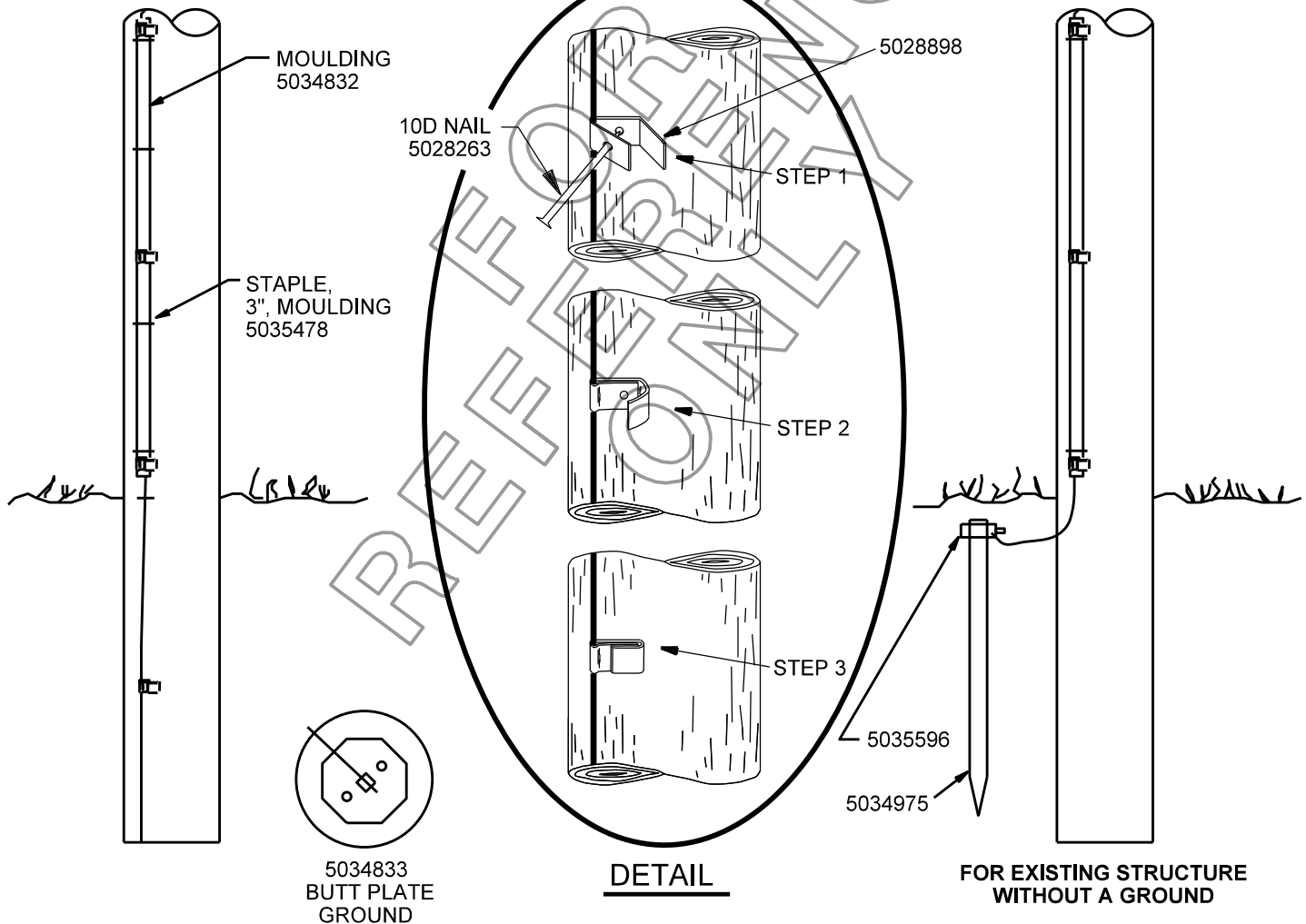
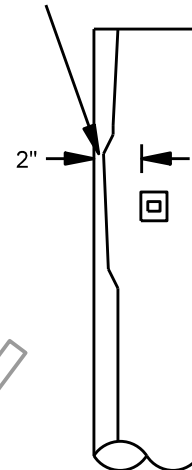
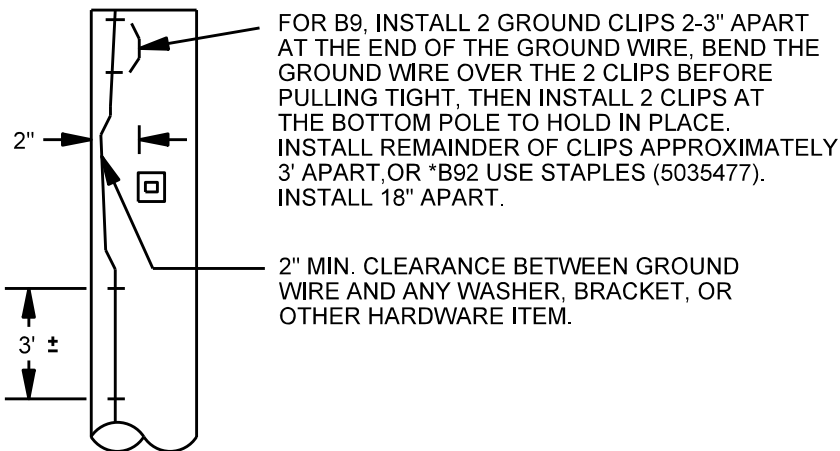
B9R

POLE GROUND #2 COPPERWELD 5033968

B92

POLE GROUND #2/0 COPPER 5033855

2" MIN. CLEARANCE BETWEEN GROUND WIRE AND ANY WASHER, BRACKET, OR OTHER HARDWARE ITEM.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
POLE GROUND

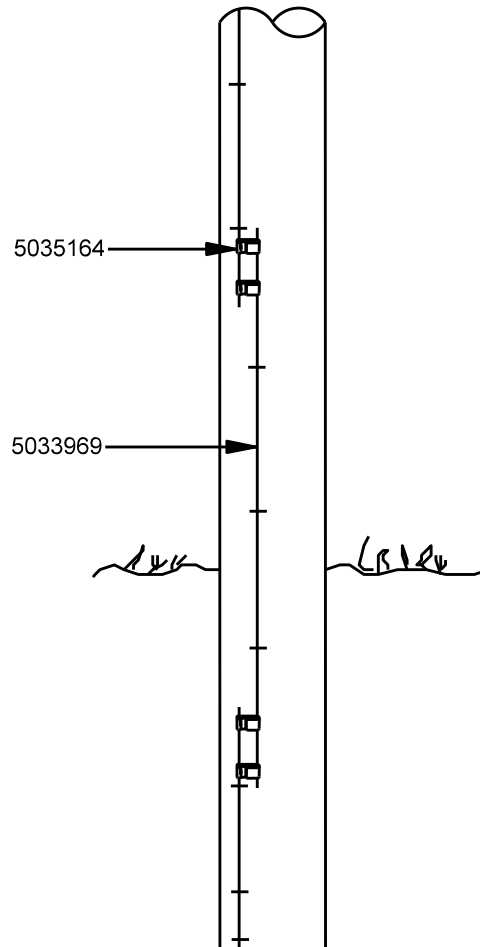
2-39-2

ISSUE DATE: 04/02/91

REV. DATE: 05/23/13

APPROVAL: B. PRIEST

8512E494.DGN



NOTES

- POLE GROUND REPAIR: EXPOSE THE BURIED END AND INSTALL A SEGMENT OF #2 COVERED COPPERWELD 5033969, USING 2 COMPRESSION CONNECTORS 5035164 AT EACH JOINT. IF THE END CANNOT BE LOCATED, INSTALL A GROUND ROD.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	BASIC ASSEMBLY UNITS POLE GROUND REPAIR 2-39-3	ISSUE DATE: 04/02/91 REV. DATE: 11/23/21 APPROVAL: J. LUERA 8512E495.DGN
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MODULAR POLE BUTT

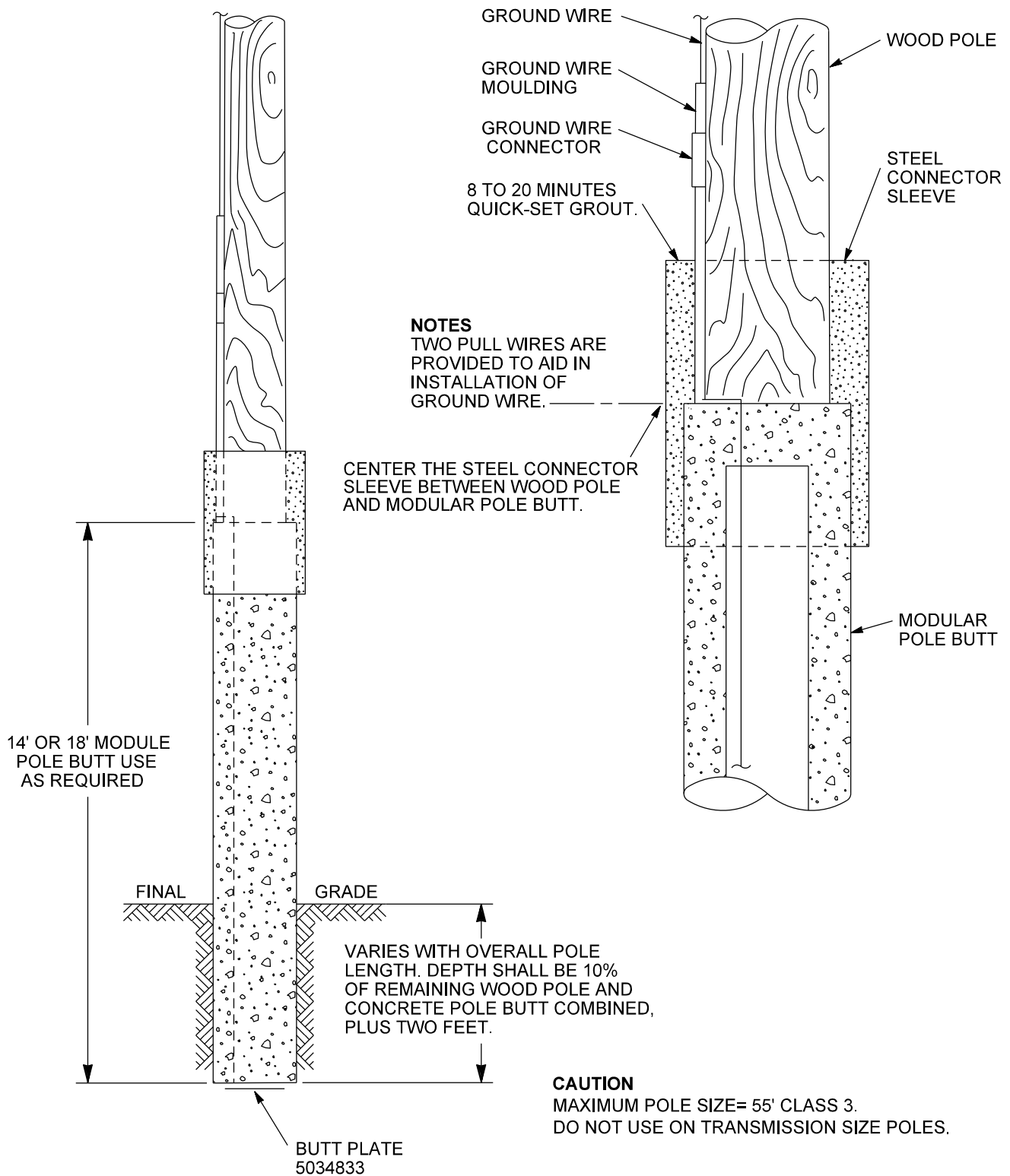
INSTALLATION PROCEDURES

1. SUPPORT EXISTING WOOD POLE.
2. CUT WOOD POLE ABOVE DAMAGED AREA.
3. MOVE WOOD POLE ASIDE AND SUPPORT.
4. REMOVE WOOD POLE BUTT.
5. CLEAN EXISTING HOLE OF LOOSE MATERIAL.
6. INSTALL BUTT PLATE, GROUND WIRE AND MODULAR POLE BUTT.
7. STRIP 12-18 INCHES WITHIN THE 8FT-10FT ABOVE GROUND OF PVC SHIELDING OFF THE #2 COPPERWELD TO MITIGATE THE POTENTIAL OF FIRE MIGRATION UP THE WOODEN POLES IN FIRE PRONE AREAS.
8. CUT WOOD POLE TO DESIRED LENGTH.
9. SLIDE STEEL CONNECTOR UP WOOD POLE AND SECURE WITH LAG BOLT.
10. POSITION WOOD POLE ON MODULAR POLE BUTT AND LOWER STEEL CONNECTOR. SECURE AT NAIL HOLES PROVIDED AT TOP OF CONNECTOR. GROUND WIRE SHOULD PROTRUDE FROM TOP OF STEEL CONNECTOR TO A POINT CONVENIENT TO MAKE CONNECTION WITH EXISTING GROUND WIRE.
11. DRIVE WOOD WEDGES INTO TOP OF CONNECTOR TO CENTER ON POLE.
12. WRAP TWO-INCH TAPE AROUND THE BOTTOM EDGE OF THE CONNECTOR AND THE CONCRETE POLE BUTT TO PREVENT GROUT LEAKAGE. NEOPRENE PLUGS ARE TEMPORARILY PLACED IN CONNECTOR WEEP HOLES.
13. MIX QUICK SETTING GROUT WITH WATER PER INSTRUCTIONS ON CONTAINER.
14. POUR GROUT INTO CONNECTOR TOP USING CARDBOARD FUNNEL. TAP CONNECTOR SEVERAL TIMES TO ENSURE GROUT HAS FILLED THE BOTTOM. IF SPACE BETWEEN THE POLE AND THE CONNECTOR IS MORE THAN ONE INCH, PEA GRAVEL MAY BE USED AS FILLER. ALTERNATE GROUT AND PEA GRAVEL UNTIL COMPLETELY FULL.
15. AFTER THE GROUT IS SET, REMOVE THE NEOPRENE PLUGS AND TAPE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	BASIC ASSEMBLY UNITS MODULAR POLE BUTT INSTALLATION PROCEDURES	ISSUE DATE: 06/03/99 REV. DATE: 10/07/21 APPROVAL: E. Lubandi
	2-40-1	OH2-40-1.doc

BPB14 14' CONCRETE POLE BUTT REPLACEMENT 5028659

BPB18 18' CONCRETE POLE BUTT REPLACEMENT 5029020



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
MODULAR POLE BUTT

2-40-2

ISSUE DATE: 01/06/84

REV. DATE: 05/02/13

APPROVAL: B. PRIEST

8512E74.DGN

WOOD POLE REINFORCING BANDED STEEL STUBS, SINGLE UNIT

DETERMINING STUB SIZE

THE SIZE OF STEEL STUB CHANNELS ARE DETERMINED BY POLE SIZE AND CLASS. BANDED STEEL STUBS PROVIDE APPROXIMATELY 70% OF THE ORIGINAL ULTIMATE STRENGTH GROUND LINE CAPACITY OF THE WOOD POLE. NEVER INSTALL A SMALLER SIZE STUB CHANNEL THAN REQUIRED BY THESE STANDARDS. IF THE REQUIRED STUB SIZE IS OUT OF STOCK, USE A STUB WITH THE NEXT LOWER MATERIAL ITEM NUMBER.

COMPATIBLE UNIT CODES

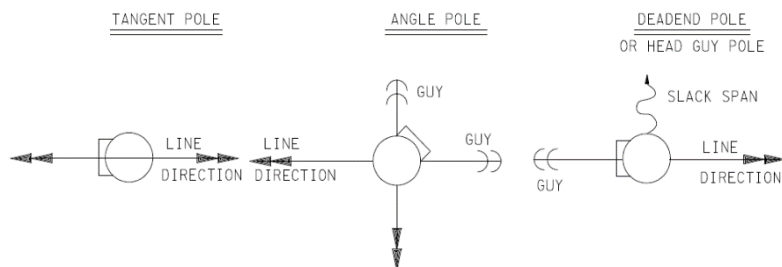
SEE COMPATIBLE UNIT TABLE ON PAGE 2-41-3.

EXAMPLE: **BWPR 25**; BWPR = BASIC ASSEMBLY, WOOD POLE REINFORCEMENT; 25 = STRENGTH OF STEEL STUB IN KIP FEET (1,000 LBS. = 1 KIP)

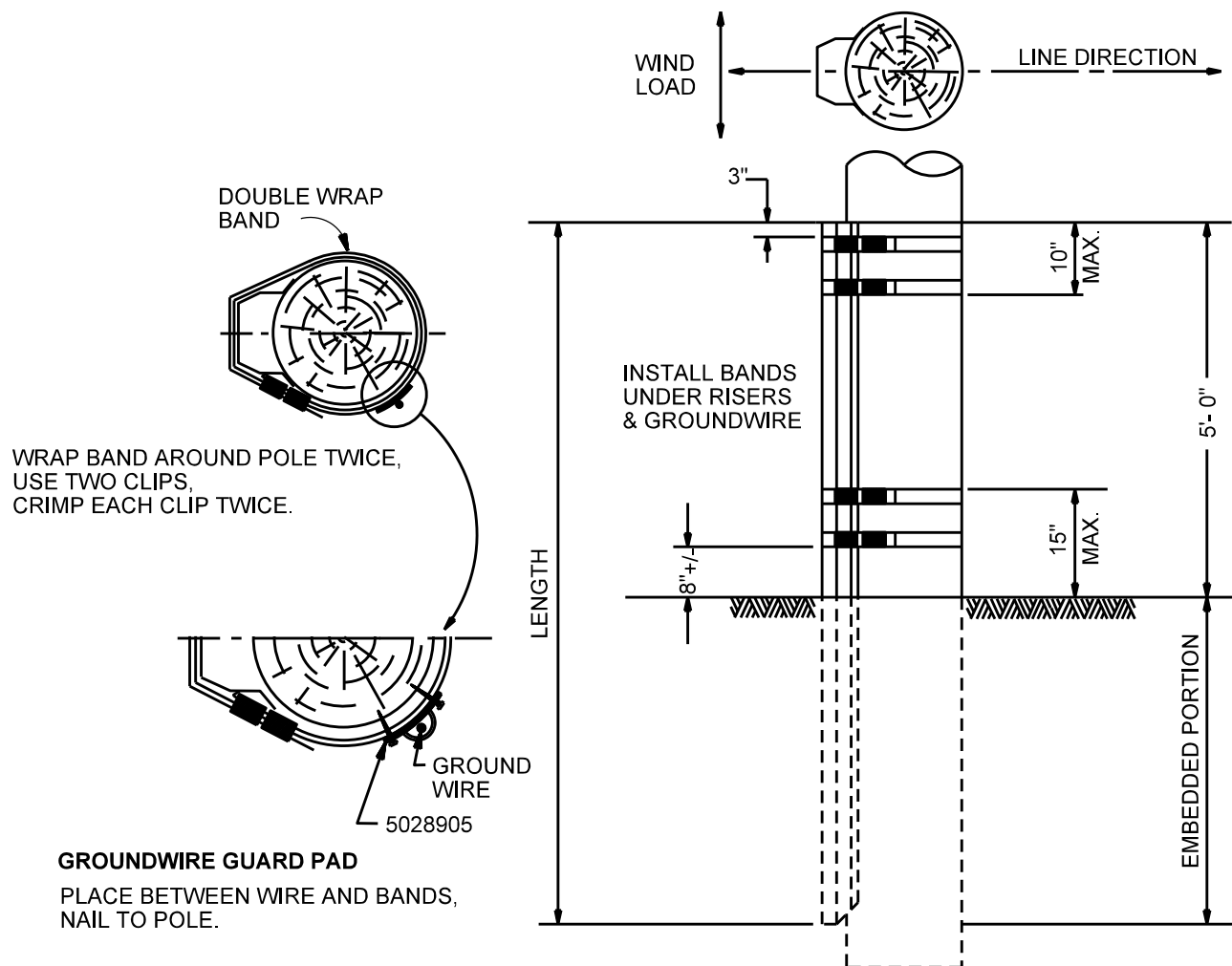
INSTALLATION NOTES

1. BLUE STAKE POLE PRIOR TO REINFORCING.
2. TIGHTEN SWITCH HANDLE BOLTS UNTIL WELL SEATED INTO WOOD. DO NOT DRILL THROUGH OR WELD ON BANDING.
3. INSTALLATION SEQUENCE:
 - A. MARK FINISHED HEIGHT OF STEEL STUB ON WOOD POLE (TYPICAL 5'-0").
 - B. SET STEEL STUB POLE AGAINST WOOD POLE. ALIGN STUB ON POLE (SEE PG. 2-41-2). SECURE STUB TO WOOD POLE WITH CLOTH STRAP. SET WINCH POLE. LIFT AIR HAMMER INTO PLACE. SECURE HOLD-DOWN CHAIN AROUND POLE. ATTACH HAMMER CHAIN BRACKET TO PULL DOWN WINCH ASSEMBLY. SECURE TENSION ROLLER AROUND BASE OF POLE AND STEEL STUB.
 - C. DRIVE STEEL STUB. KEEP PULL DOWN TENSION ON HAMMER TO AVOID HAMMER "DANCING".
NOTE: DURING DIFFICULT DRIVING, IT IS POSSIBLE TO LIFT THE WOOD POLE. MONITOR POLE SETTING DEPTH BY MARKING GRADE LINE AND INSPECTING PERIODICALLY DURING THE DRIVING. STOP DRIVING IF POLE IS LIFTING. STOP HAMMER WHEN STUB IS SET TO APPROPRIATE DEPTH.
 - E. WRAP BANDS TWICE AROUND POLE. *VERTICAL SPACING OF BANDS ON POLE IS CRITICAL*. USE 2 CLIP SEALS PER BAND. AS BANDS ARE BEING TENSIONED, TAP BAND WITH RUBBER Mallet TO PROVIDE EVEN TENSION AROUND POLE. TENSION BANDS STARTING AT THE TOP OF THE POLE AND TENSION BOTH BANDS AT SAME TIME TO AVOID LOOSE BANDS. CRIMP EACH SEAL TWICE. TRIM BANDS BY SCORING AND BENDING.
 - F. ATTACH GUARD CAP WITH GALVANIZED NAILS. TOUCH UP NICKS AND SCRATCHES WITH "GALVANOX". COAT TOP AND BOTTOM OF CRIMPED SEALS THOROUGHLY.
 - G. CONTACT SRP-MCM FOR FINAL PAINTING.

ORIENTATION OF STEEL STUBS ON POLES



Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	BASIC ASSEMBLY UNITS		ISSUE DATE: 03/24/97
	WOOD POLE REINFORCING		REV. DATE: 06/06/11
	BANDED STEEL STUBS, SINGLE UNIT		APPROVAL: B. Priest
	2-41-1		OH2-41-1.doc



BANDED STEEL STUB MATERIAL QUANTITIES									
STEEL STUB								BANDING	DOUBLE SEAL
SRP STOCK CODE →	5028782	5028781	5028780	5028779	5028778	5028777	5028775	5027476	5028903
VENDOR MARKING	LWS	5-10-4	7-10-4	7-11-4	8-11-4	9-11-4	10-12-6	11-12-6	
	OSMOSE	7-10	8-10	9-11	980-11	1280-11	1380-12	1480-12	
COMPATIBLE UNIT									
↓									
BWPR25		1						0.2	8
BWPR36			1					0.2	8
BWPR55				1				0.2	8
BWPR73					1			0.2	8
BWPR129						1		0.2	8
BWPR148							1	0.2	8
BWPR169								1	0.3
							1	0.3	12

THE COMPATIBLE UNIT IS CODED: BASIC UNIT, WOOD POLE REINFORCING.

THE NUMBER IS THE STRENGTH OF THE STEEL STUB IN KIP FEET.

SEE PAGE 2-42-3 TO SELECT CORRECT POLE REINFORCING COMPATIBLE UNIT.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	BASIC ASSEMBLY UNITS WOOD POLE REINFORCING BANDED STEEL STUBS - SINGLE UNIT		ISSUE DATE: 03/24/97
			REV. DATE: 05/13/13
			APPROVAL: B. PRIEST
	2-41-2		8515E92.DGN

COMPATIBLE UNITS FOR REINFORCING DISTRIBUTION WOOD POLES

POLE LENGTH	CLASS								
	1	2	3	4	5	6	7	9	10
20	BWPR55	BWPR36	BWPR36	BWPR25	BWPR25	BWPR25	BWPR25	BWPR25	BWPR25
25	BWPR55	BWPR55	BWPR36	BWPR36	BWPR25	BWPR25	BWPR25	BWPR25	BWPR25
30	BWPR73	BWPR55	BWPR55	BWPR36	BWPR36	BWPR25	BWPR25	BWPR25	
35	BWPR129	BWPR73	BWPR55	BWPR55	BWPR36	BWPR36	BWPR25		
40	BWPR129	BWPR129	BWPR73	BWPR55	BWPR55	BWPR36			
45	BWPR129	BWPR129	BWPR73	BWPR73	BWPR55	BWPR36			
50	BWPR129	BWPR129	BWPR129	BWPR73	BWPR55				
55	BWPR129	BWPR129	BWPR129	BWPR73					
60	BWPR148	BWPR129							
65	BWPR169	BWPR148							

FOR POLES LARGER THAN APPEARING ON THIS TABLE SEE TRANSMISSION WOOD POLE REINFORCING STANDARDS FOR INSTALLATION REQUIREMENTS IN THE 69KV OVERHEAD TRANSMISSION CONSTRUCTION STANDARDS BOOK.

USE RBWPR WHEN REMOVING ANY WOOD DISTRIBUTION POLE REINFORCEMENT.

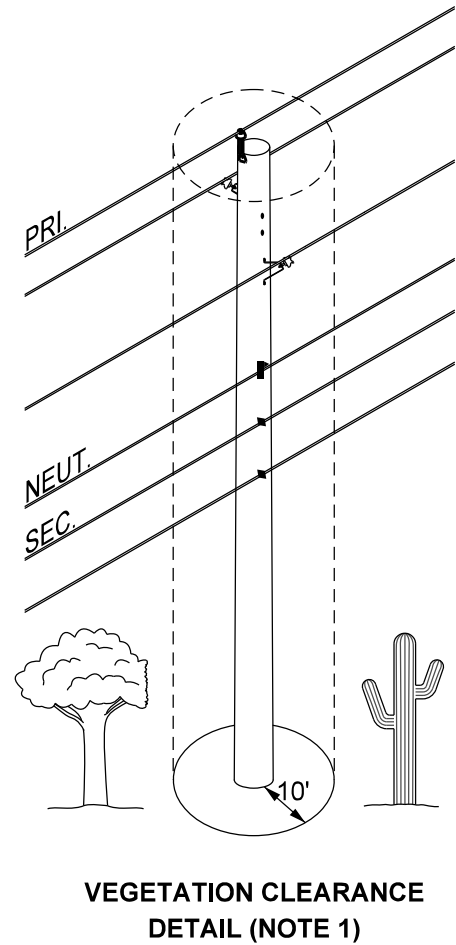
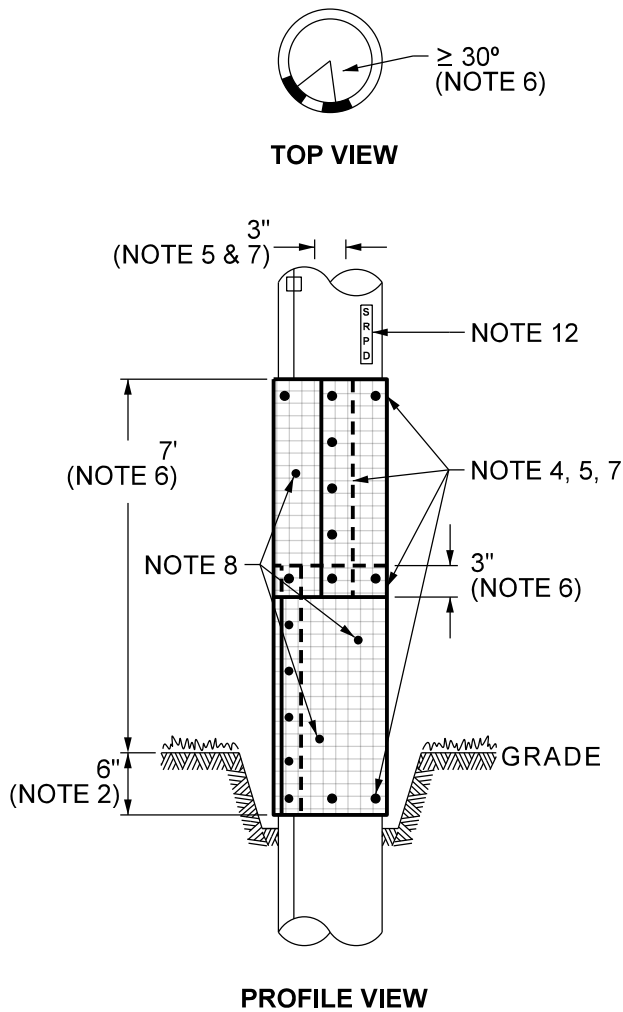
THE FOLLOWING TABLE IS A REFERENCE TO DETERMINE POLE SIZE AND CLASS WHEN THE BRAND CANNOT BE FOUND. ESTIMATE OR MEASURE THE HEIGHT OF POLE ABOVE GROUND, MEASURE THE CIRCUMFERENCE AT GROUND LINE, THEN MATCH THE MEASUREMENTS TO A POLE SIZE.

DIMENSIONS OF DOUGLAS FIR AND SOUTHERN PINE POLES

	CLASS		H4	H3	H2	H1	1	2	3	4	5	6	7	9	10
	MIN. CIRCUMFERENCE AT TOP OF POLE (INCHES)		35	33	31	29	27	25	23	21	19	17	15	15	12
POLE HT. OUT OF GROUND	ACTUAL POLE LENGTH	EMBED DEPTH													
(FEET)			GROUND LINE CIRCUMFERENCE (INCHES)												
16.0	20	4.0					31.6	29.6	27.6	25.6	23.6	21.6	20.1	17.9	
20.5	25	4.5					34	32	30	28	26	23.5	22	19.9	14.3
25.0	30	5.0					36.9	34.4	32.4	29.9	27.9	25.3	23.9	20.7	15.2
29.5	35	5.5			43.7	41.7	39.2	36.7	34.2	31.7	29.2	27.2	21.5		
34.0	40	6.0	51.0	48.5	46	43.5	41	38	36	33.5	31	28.5			
38.5	45	6.5	53.3	50.8	48.3	45.3	42.8	40.3	37.3	34.8	32.3				
43.0	50	7.0	55.0	52.5	50.1	47.1	44.6	41.6	38.6	36.1	33.7				
47.5	55	7.5	57.3	54.3	51.4	48.9	45.9	42.9	40	37.5					
52.0	60	8.0	58.6	56.1	53.1	50.2	47.2	44.3	41.3	38.3					
56.5	65	8.5	60.4	57.4	54.5	51.5	48.5	45.6	42.6	39.7					

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	BASIC ASSEMBLY UNITS WOOD POLE REINFORCING BANDED STEEL STUBS - SINGLE UNIT		ISSUE DATE: 03/24/97
			REV. DATE: 12/17/14
			APPROVAL: B. PRIEST
	2-41-3	OH2-41-3.doc	

FIREMESH



BILL OF MATERIALS			
ITEM	DESCRIPTION	QUANTITY	MATERIAL ITEM
1	FIRE MESH, 4' X 12' ROLL	1	5093895
2	NAIL, ROOFING #11 X 1-1/4 IN. GALVANIZED	0.25	5094838

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	BASIC ASSEMBLY UNITS FIRE MESH WOOD POLE		ISSUE DATE: 08/23/23
			REV. DATE:
			APPROVAL: J. ROBBINS
	2-42-1	8512E470.DGN	

NOTES

1. VEGETATION SHALL HAVE A CLEARING OF 10' HORIZONTAL RADIUS EXTENDING TO THE HEIGHT OF POLE.
2. COMPLETELY EXPOSE THE AREA AROUND THE BASE OF POLE TO A DEPTH OF 6 IN. BELOW EXISTING GRADE.
3. ROLL OUT A SECTION OF MESH AND POSITION THE 4' EDGE OF ROLL VERTICALLY AGAINST THE POLE TO THE BOTTOM OF EXCAVATION.
4. INITIALLY SECURE THE MESH WITH A NAIL TO THE BOTTOM CORNER APPROXIMATELY 1 IN. FROM THE VERTICAL EDGE OF MESH.
5. PULL MESH FIRMLY AROUND THE POLE UNTIL A MINIMUM 3" OVERLAP OF VERTICAL SEAM IS ACHIEVED, CUT SECTION FROM ROLL USING A UTILITY KNIFE. SECURE MESH WITH NAILS APPROXIMATELY 1 IN. FROM THE EDGE OF MESH WITH VERTICAL AND HORIZONTAL SPACING NO MORE THAN 6 IN. APART. A MINIMUM OF 50 NAILS SHALL BE USED PER POLE APPLICATION.
6. POSITION A SECOND WRAP OF MESH ABOVE THE LOWER SECTION TO ACHIEVE A MINIMUM 3" OVERLAP ALONG THE HORIZONTAL EDGE. ENSURE THE VERTICAL SEAMS ARE OFFSET BY AT LEAST 30°. WHEN DONE CORRECTLY, THE COVERAGE OF MESH SHALL EXTEND UP THE POLE A MINIMUM HEIGHT OF 7' ABOVE GRADE AND THE TWO VERTICAL SEAMS ARE NOT ALIGNED.
7. PULL, CUT, AND SECURE THE MESH THE SAME FASHION AS THE LOWER SECTION WITH A MINIMUM 3" OF VERTICAL SEAM OVERLAP AND NAILS ALONG THE UPPER AND BOTTOM EDGES AND VERTICAL SEAM WITH SPACING NO MORE THAN 6 IN. APART.
8. UNIFORMLY APPLY NAILS ALONG THE BODY OF THE MESH (SECTION BETWEEN THE EDGE AND SEAM) AROUND THE POLE WITH A MINIMUM OF 12 IN. SPACING.
9. BACKFILL THE EXCAVATION.
10. ANY DEVIATION LESS THAN THE RECOMMENDED 7' HEIGHT SHALL CONTACT SRP FIRE MANAGEMENT OFFICER (SEE FIRE MANAGEMENT INTERNAL PAGE).
11. MESH IS ALLOWED TO COVER U-GUARDS AND GROUND WIRE. A SEPARATE CUT PIECE MAY BE REQUIRED TO COVER U-GUARD BOOT. FOR EQUIPMENT OR HANDLES ATTACHED TO POLE, MESH MAY BE CUT TO FIT BUT SHALL NOT COVER.
12. DO NOT COVER SRP TAGS OR MARKINGS, RELOCATE AS NEEDED ABOVE THE MESH.

PROBLEM

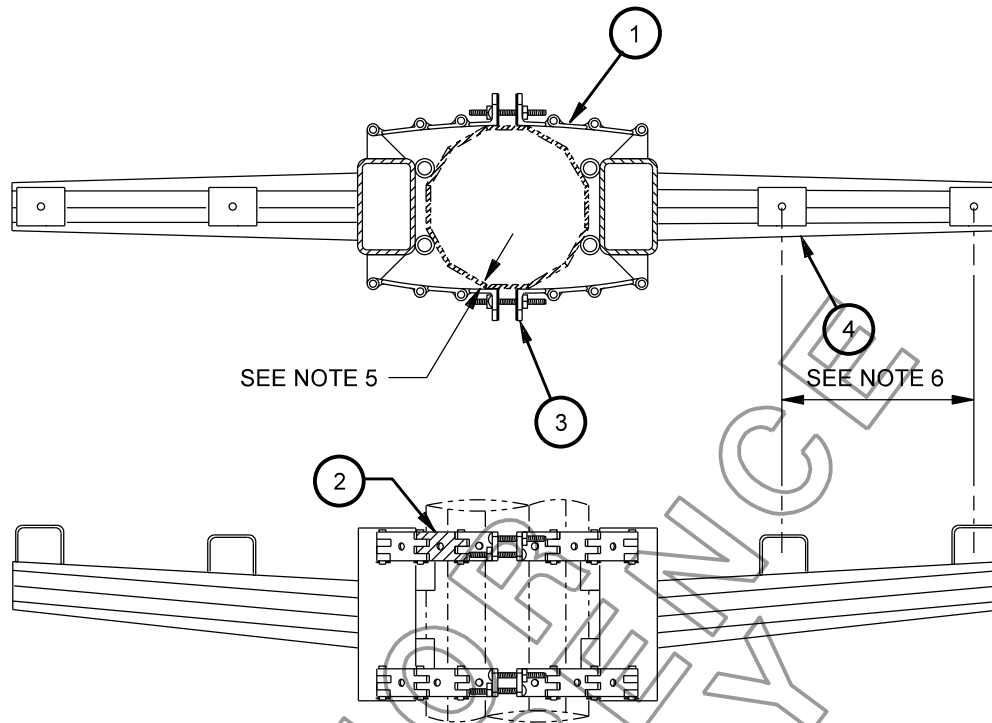
WOOD STRUCTURES PRONE TO WILDFIRES.

SOLUTION

REDUCE DAMAGE TO POLE FROM DIRECT CONTACT WITH FLAMES.

		
	BASIC ASSEMBLY UNITS FIRE MESH WOOD POLE	ISSUE DATE: 08/23/23 REV. DATE: APPROVAL: J. Robbins
	2-42-2	OH2-42-2.doc

BTA892Y__ TANGENT TO 30 DEG.



BILL OF MATERIAL

ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QUANTITY FOR BAND RANGE DIAMETER		
			B (17"-24")	C (24"-31")	D (31"-38")
1	POLE BAND LINK ASSEMBLY	5028719	3	4	4
2	LINK SEGMENT	5027576	8	10	23
3	TAKEUP ASSEMBLY	5028488	1	—	—
4	UNIVERSAL TANGENT ARM	5028596	2	2	2

NOTES

1. NO BOLTS OR DRILLING REQUIRED.
2. FOR NON-DEADEND APPLICATIONS ONLY.
3. ARM DESIGNED FOR THE FOLLOWING:
SINGLE 397.5 KCM AAC AT 3000 LBS. PER CONDUCTOR WITH 9 LB.WIND, 300 FT. RULING SPAN
VERTICAL LOAD = 2040 LBS. WORKING LOAD.
4. SEE DWG. A-967-69.4 FOR DESIGN LOAD CASES.
5. GAP MAY BE PRESENT BETWEEN BAND AND POLE ON SMALL DIAMETER POLES.
6. PHASE SPACING LIMITS SPAN TO 300 FEET MAXIMUM.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69 kV STEEL POLE
UNIVERSAL 12 kV HORIZONTAL TANGENT ARM ASSEMBLY

2-43-1

ISSUE DATE: 05/05/95

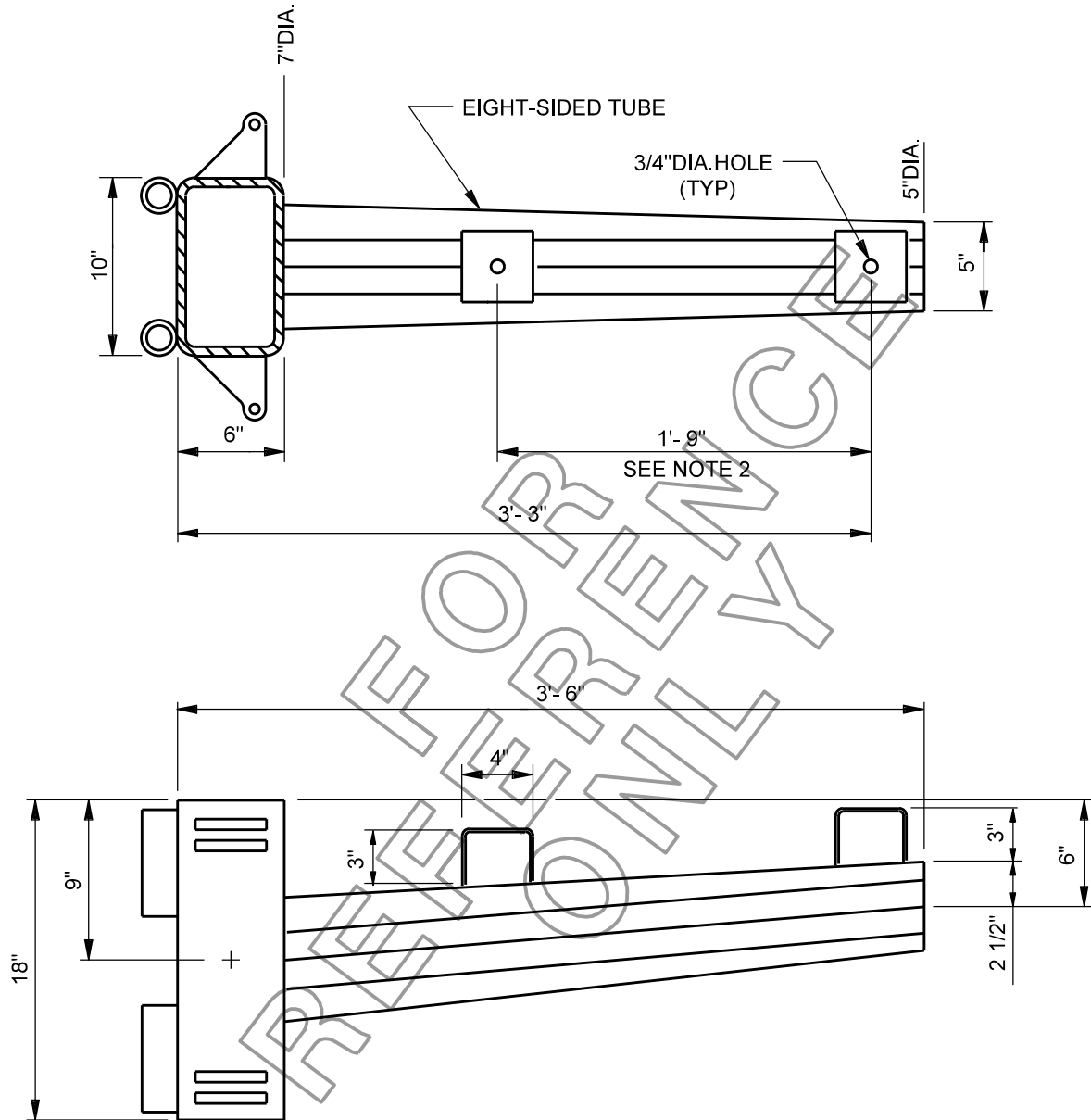
REV. DATE: 05/02/13

APPROVAL: B. PRIEST

8512E243.DGN

5028596

MAX. LINE ANGLE = 30 DEG.

**NOTES**

1. WEIGHT = 138 LBS.
2. PHASE SPACING LIMITS SPAN TO 300 FEET MAXIMUM.

REFERENCE DRAWINGS

UNIVERSAL 12KV TANGENT ARM A-967-69.5

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS
69 kV STEEL POLE
UNIVERSAL 12 kV HORIZONTAL TANGENT ARM

2-43-2

ISSUE DATE: 11/30/92

REV. DATE: 05/03/13

APPROVAL: B. PRIEST

8512E237.DGN

ADAPTOR BRACKETS (3)
(TO MOVE SWITCH
OVER 3 INCHES)

BJA

5033981

THESE ADAPTOR BRACKETS ARE
REQUIRED WHEN INSTALLING A
VERTICAL KPF ON AN H4 POLE
TO PROVIDE ADDITIONAL CLEARANCE
FOR OPERATING LEVERS.

INTERMEDIATE GUIDES
MAY DIFFER PER VENDOR,
SPACE 5' APART

BKM

5 FOOT ROD EXTENSION
5034616
5034631 (SPLICE)

90 DEG. ANGLE BRACKET TO ROTATE
OPERATING HANDLE WHEN OBSTACLES
PREVENT NORMAL HANDLE OPERATION.

*11" FOR KPF
8" FOR S&C

BKH

5033982

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS SWITCH OPERATING ROD & ADAPTER BRACKET

2-44-1

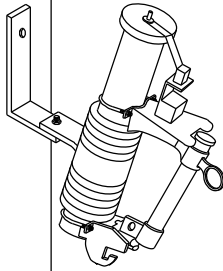
ISSUE DATE: 10/01/82

REV. DATE: 05/02/13

APPROVAL: B. PRIEST

8512E21.DGN

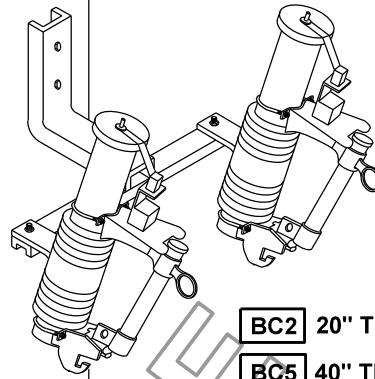
100 A



BC1

BC1M

COMBO ONLY
(WITHOUT MOUNTING HARDWARE)

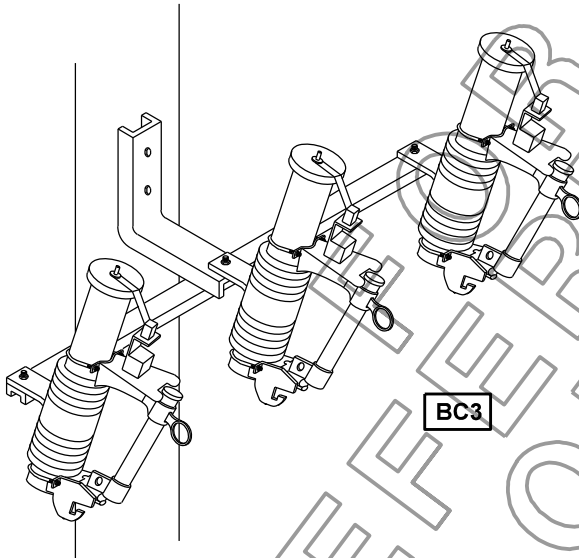


BC2

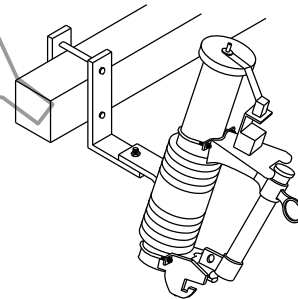
20" TRI-MOUNT BRACKET

BC5

40" TRI-MOUNT BRACKET

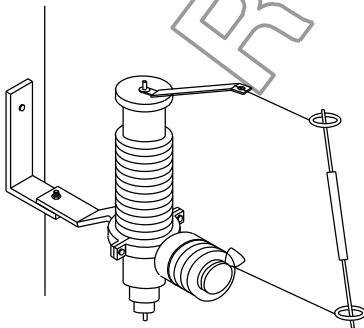


BC3



BC4

50A

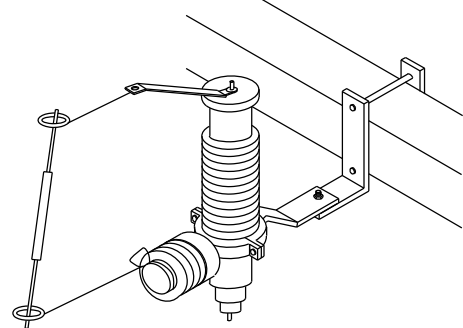


BG1

BG1M

COMBO ONLY
(WITHOUT MOUNTING HARDWARE)

50A



BG3

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

BASIC ASSEMBLY UNITS CUTOUT-ARRESTER COMBINATIONS

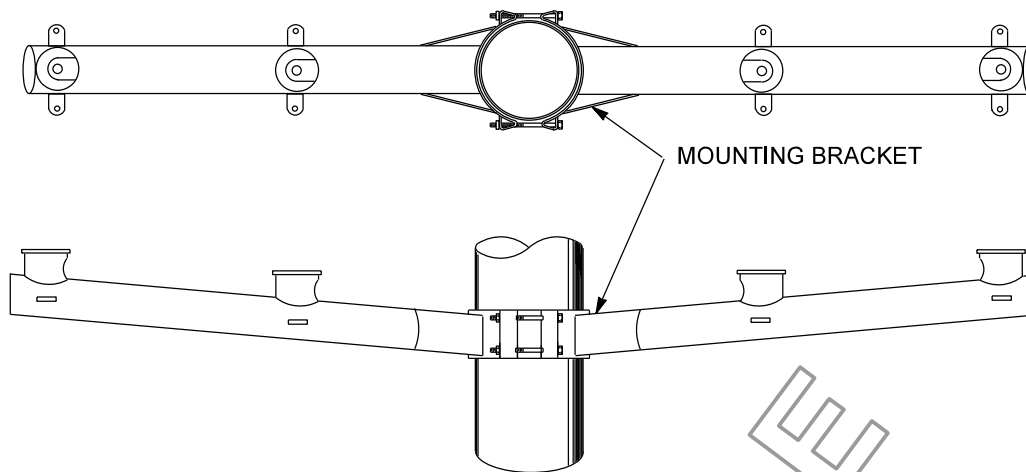
2-45-1

ISSUE DATE: 02/05/91

REV. DATE: 06/02/11

APPROVAL: B. PRIEST

8512E33.DGN



TWO-PIECE 12KV GALVANIZED				
TRANSMISSION POLE STOCK CODE (POLE DESCRIPTION ON SHEET 1)	TOP POSITION CROSSARM BASIC COMPATIBLE UNIT	TOP POSITION CROSSARM STOCK CODE	BOTTOM POSITION CROSSARM BASIC COMPATIBLE UNIT	BOTTOM POSITION CROSSARM STOCK CODE
5027958	BM1	5028701	BM2	57-1201 *
5027961	BM3	57-1209 *	BM4	57-1210 *
5027959	BM5	57-1203 *	BM6	57-1204 *
5027963	BM7	57-1212 *	BM8	57-1213 *
5027964	BM9	57-1218 *	BM10	5028705
5027960	BM11	5028702	BM12	5028703
5027965	BM13	57-1215 *	BM14	5028704

* INDICATES NO SAP MATERIAL NUMBER EXISTS.

NOTES

1. THESE BASIC COMPATIBLE UNITS ISSUE ONLY THE STEEL CROSSARM. ALL OTHER MATERIAL MUST BE ISSUED SEPARATELY WITH OTHER BASIC COMPATIBLE UNITS.

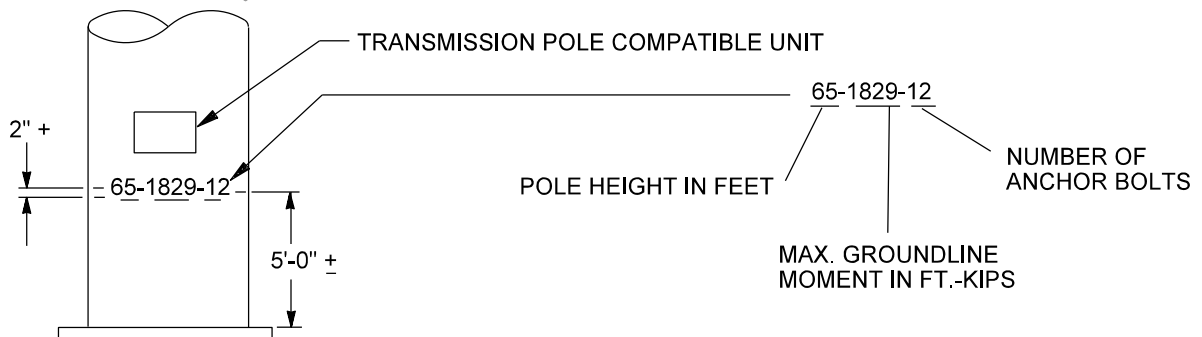
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	BASIC ASSEMBLY UNITS DISTRIBUTION UNDERBUILD STEEL CROSSARMS		ISSUE DATE: 03/27/91
			REV. DATE: 05/20/13
		APPROVAL: B. PRIEST	
	2-46-1	8512E75.DGN	

POLE BANDS REQUIRED FOR SPECIFIC CONTACT POINTS

TRANSMISSION POLE STOCK CODE	TRANSMISSION POLE COMPATIBLE UNIT	12KV PRIMARY ALL POSITIONS REQUIRED POLE BAND COMPATIBLE UNITS	SECONDARY AND POLE EQUIPMENT REQUIRED POLE BAND COMPATIBLE UNITS (INCLUDES STREET LIGHTS)
5027958	TM72S60	*	BK2AL, BK2CL
5027961	TM72S90	*	BK2AL, BK2CL
5027959	TM74D60	*	BK2AL, BK2CL
5027963	TM74D90	*	BK2AL, BK2CL
5027964	TM74D180	*	BK2AL, BK2CL
5027960	TM82D60	*	BK2AL, BK2CL
5027965	TM82D90	*	BK2AL, BK2CL
5027848	TM58S5 (58' TALL, SINGLE CIRCUIT 69KV TRANSMISSION, 0-5 DEGREE ANGLE)	BK2CS, BK2BS	BK2AS, BK2CS
**57-7020	TM64D5 (64' TALL, DOUBLE CIRCUIT 69KV TRANSMISSION, 0-5 DEGREE ANGLE)	BK2CS, BK2BS	BK2AM, BK2CM
5027852	TM64D15 (64' TALL, DOUBLE CIRCUIT 69KV TRANSMISSION, 6-15 DEGREE ANGLE)	BK2CM, BK2BM	BK2AM, BK2CM
5027855	TM64D30 (64' TALL, DOUBLE CIRCUIT 69KV TRANSMISSION, 16-30 DEGREE ANGLE)	BK2CM, BK2BM	BK2AM, BK2CM
**57-7030	TM64S15 (64' TALL, DOUBLE CIRCUIT 69KV TRANSMISSION, 6-15 DEGREE ANGLE)	BK2CS, BK2BS	BK2AM, BK2CM
5027854	TM64S30 (64' TALL, DOUBLE CIRCUIT 69KV TRANSMISSION, 16-30 DEGREE ANGLE)	BK2CM, BK2BM	BK2AM, BK2CM

* MEANS NO POLE BANDS NEEDED; SPECIAL CROSSARM USED. SEE SHEET 2.
OTHER POLE DESCRIPTIONS ARE FOUND ON SHEET 1.

** MEANS NO STOCK CODE NUMBER EXISTS IN SAP



Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	BASIC ASSEMBLY UNITS DISTRIBUTION UNDERBUILD POLE IDENTIFICATION & BANDS		ISSUE DATE: 03/27/91
			REV. DATE: 05/17/13
			APPROVAL: B. PRIEST
	2-47-1	8512E76.DGN	

**RETIREMENT OF NON-STANDARD UNITS
REMOVAL ONLY CODES**

ASSEMBLY DESCRIPTION	COMPATIBLE UNIT CODING FOR REMOVAL ONLY
NON-STANDARD NEUTRAL OR SECONDARY BRACKET	RBK
TWO-SPOOL RACK	RRK2
THREE-SPOOL RACK	RRK3
FOUR-SPOOL RACK	RRK4
FIVE-SPOOL RACK	RRK5
BLADE DISCONNECT, 200 A	RBD2M

Overhead Distribution Construction Standards  SNP [®] PROPRIETARY MATERIAL		
	BASIC ASSEMBLY UNITS RETIREMENT OF NON-STANDARD UNITS REMOVAL ONLY CODES	ISSUE DATE: 06/23/72 REV. DATE: 06/06/11 APPROVAL: B. Priest
	2-48-1	OH2-48-1.doc

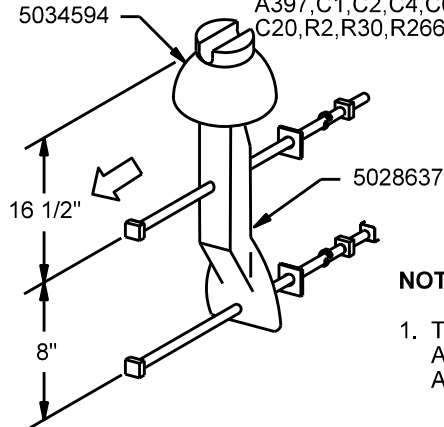
SECTION 3: 22 kV BASIC ASSEMBLY UNITS

TITLE / DESCRIPTION	PAGE
PRIMARY INSULATOR ASSEMBLIES	3-2-1
PRIMARY PIN INSULATOR ASSEMBLIES	3-2-2
BLADE DISCONNECT SWITCHES.....	3-3-1
PRIMARY POST INSULATOR ASSEMBLIES	3-4-1
PRIMARY & NEUTRAL MID-SPAN TAPS	3-5-1
PRIMARY INSULATED MID-SPAN TAPS, PHASE CONDUCTORS ONLY	3-5-2
CUTOUT-ARRESTER ASSEMBLIES	3-6-1
ARRESTER ASSEMBLIES	3-7-1

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	INDEX	ISSUE DATE: 05/14/13
	22 kV BASIC ASSEMBLY UNITS	REV. DATE: 06/20/18
		APPROVAL: N. Sabbah
	3-1-1	OH3-1-1.doc

B10__**POLE-TOP PIN**

CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C4,C6
C20,R2,R30,R266

**NOTES**

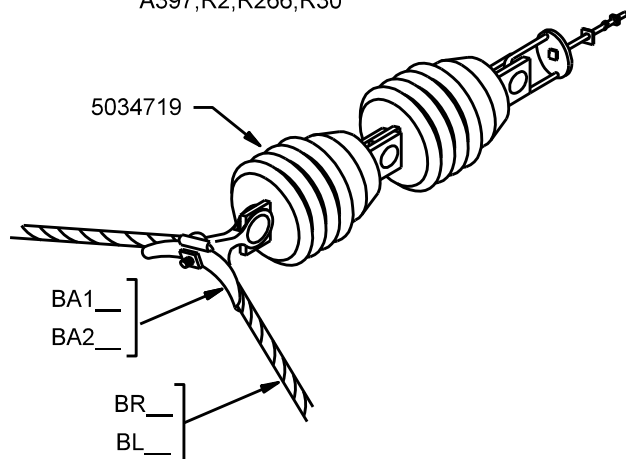
1. TOP OF INSULATOR APPROX. 14-1/2" ABOVE POLE TOP

B13__**PULL-OFF ANGLE FOR BARE C.W. OR ALUM.W/LINEGUARD**

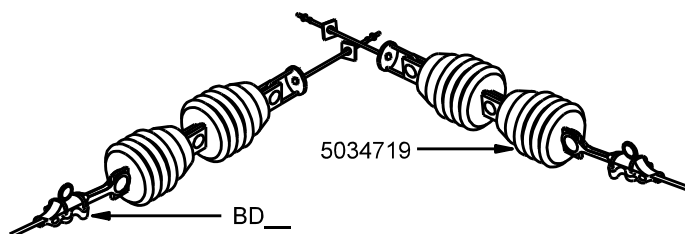
CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C20,C4,C6
R2,R266,R30

B13A__**PULL-OFF ANGLE W/ARMOR ROD**

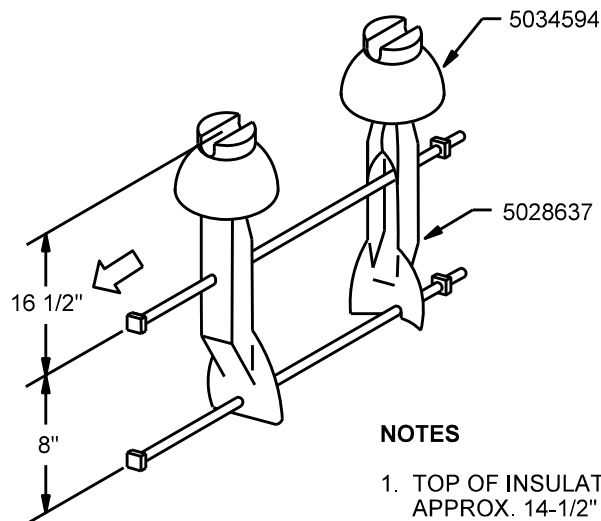
CONDUCTORS - AC312,A2,A266,A30
A397,R2,R266,R30

**B14__****DOUBLE DEADEND (SAME SIZE CONDUCTOR)**

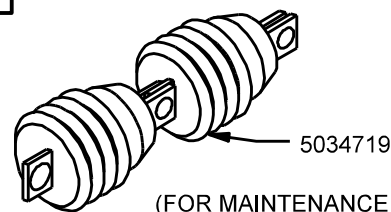
CONDUCTORS - AC312,A2,A266,A30,A397,C1
C2,C20,C4,C6,R2,R266,R30

**B11A__****DOUBLE POLE-TOP PIN**

CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C20,C4,C6
R2,R266,R30

**NOTES**

1. TOP OF INSULATOR APPROX. 14-1/2" ABOVE POLE TOP

B13M**SINGLE DEADEND**

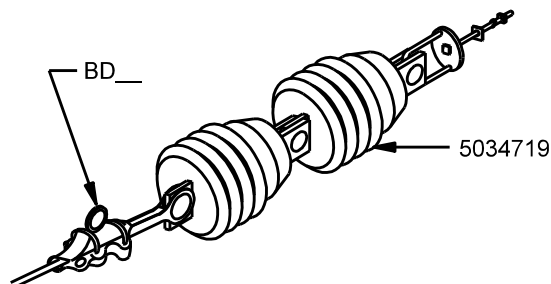
(FOR MAINTENANCE ONLY)

B15__**SINGLE DEADEND****BD__****STRAIN CLAMP ONLY**

CONDUCTORS - AC312,A2,A266,A30
A397,C1,C2,C4,C6,C20,R2,R266,R30

B15M__**SINGLE DEADEND - METAL ARM**

CONDUCTORS - AC312,A2,A266,A397



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV BASIC ASSEMBLY UNITS
PRIMARY INSULATOR ASSEMBLIES
POLE-TOP PINS AND DEADEND BELLS

3-2-1

ISSUE DATE: 12/28/74

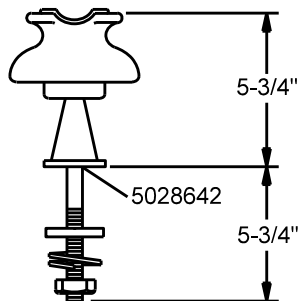
REV. DATE: 04/29/13

APPROVAL: B.PRIEST

8512E322.DGN

B32__ FOR 4' & 8' CROSSARMS

CONDUCTORS:
AC312, A2, A30, A266,
A397, C1, C2, C4, C6,
C20, R2, R30, R266

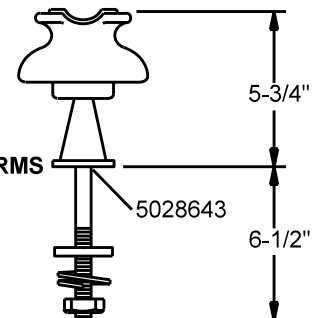
**B32W__** FOR 4' & 8' CROSSARMS

CONDUCTORS:
AC312, A2, A10, A30,
C1, C2, C4, C6, C20,
R2, R30, R266

B32 - NORMAL PIN, GRAY INSULATOR 5034594
B32W - NORMAL PIN, WHITE INSULATOR 5034593

B32L__ FOR 10' CROSSARMS

CONDUCTORS:
AC312, A2, A30, A266,
A397, C1, C2, C4, C6,
C20, R2, R30, R266

**B32LW__** FOR 10' CROSSARMS

CONDUCTORS:
AC312, A2, A10, A30,
C1, C2, C4, C6, C20,
R2, R30, R266

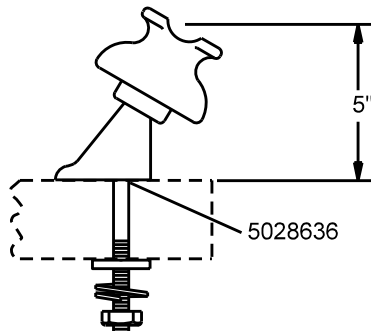
B32L - LONG PIN, GRAY INSULATOR 5034594
B32LW - LONG PIN, WHITE INSULATOR 5034593

B33__

CONDUCTORS:
AC312, A2, A30, A266,
A397, C1, C2, C4, C6,
C20, R2, R30, R266

B33W__

CONDUCTORS:
AC312, A2, A30,
C1, C2, C4, C6,
C20, R2



B33 - ANGLE PIN, GRAY INSULATOR 5034594
B33W - ANGLE PIN, WHITE INSULATOR 5034593

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22KV BASIC ASSEMBLY UNITS
PRIMARY INSULATOR ASSEMBLIES
PIN-TYPE INSULATORS

3-2-2

ISSUE DATE: 12/02/74

REV. DATE: 04/30/13

APPROVAL: B. PRIEST

8512E232.DGN

BD62M

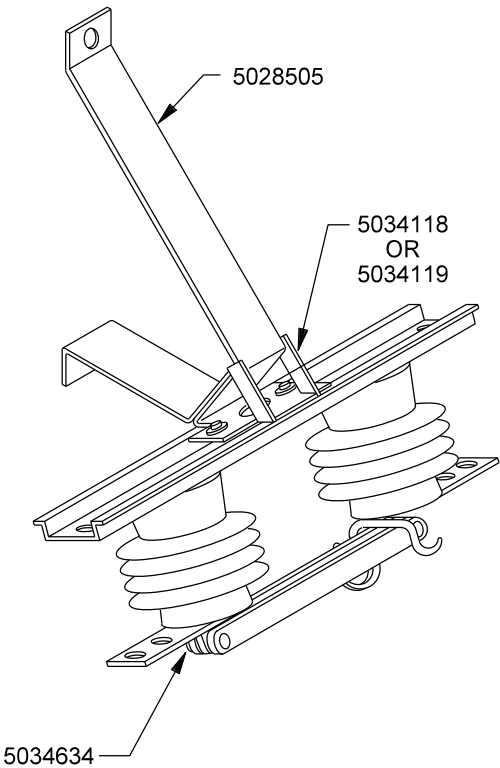
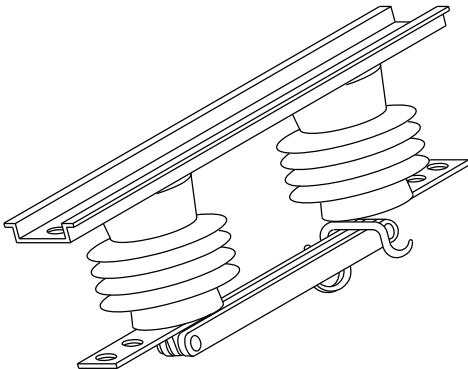
5034634

BD62

20 DEG.FROM VERTICAL

BD62V

VERTICAL



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV BASIC ASSEMBLY UNITS
BLADE DISCONNECT SWITCHES

3-3-1

ISSUE DATE: 12/21/74

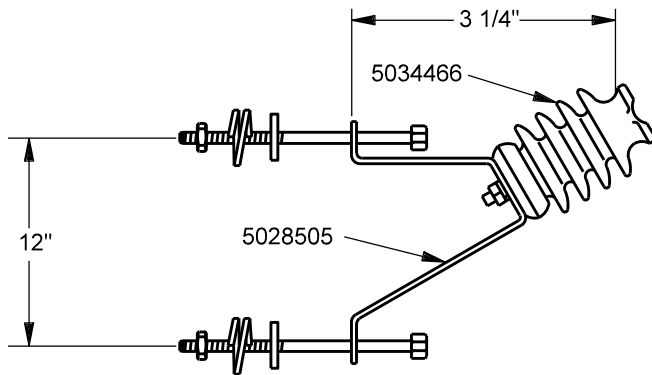
REV. DATE: 05/01/13

APPROVAL: B. PRIEST

8512E228.DGN

B212__

CONDUCTORS-A2, AC312, R2, R30, R266



B212-0 DEG.- 6 DEG. TANGENT

B222C__

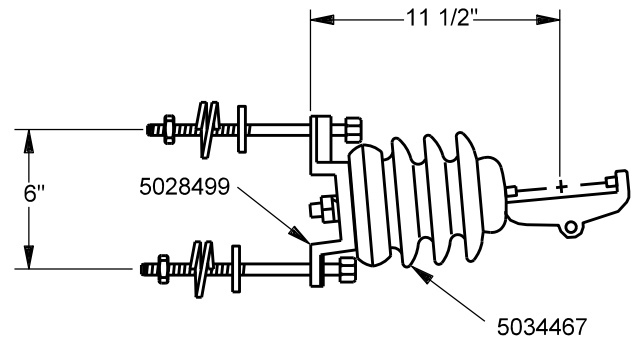
CONDUCTORS-AC312, R2, R30, R266

B222CA__

CONDUCTORS-AC312, R2, R30, R266

B222CD__

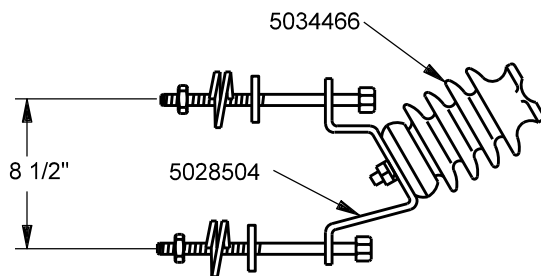
CONDUCTORS-A30, A266, A397



B222C - 6 DEG.-24 DEG. (SPANS LESS THAN 300')
 B222CA- 6 DEG.-24 DEG. (SPANS MORE THAN 300')
 B222CD-SLACK SPAN DEADEND

B252__

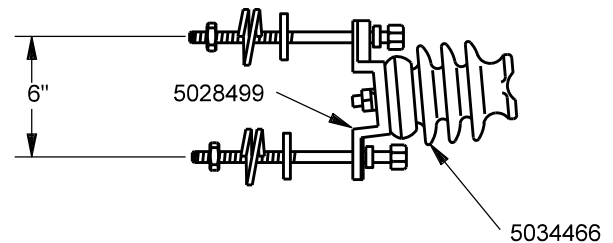
CONDUCTORS-AC312, A2, R2, R30, R266



B252-0 DEG.- 6 DEG. TANGENT

B272__

CONDUCTORS-AC312, R2, R30, R266



*USED AS CLEARANCE INS.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

22KV BASIC ASSEMBLY UNITS
 PRIMARY POST INSULATOR ASSEMBLIES

3-4-1

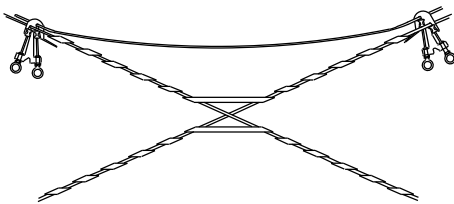
ISSUE DATE: 02/20/74

REV. DATE: 05/01/13

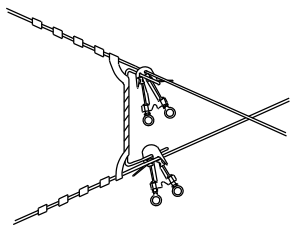
APPROVAL: B. PRIEST

8512E264.DGN

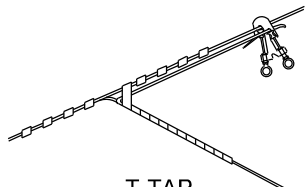
THESE TAPS MAY BE APPLIED
ANY OF THREE WAYS.



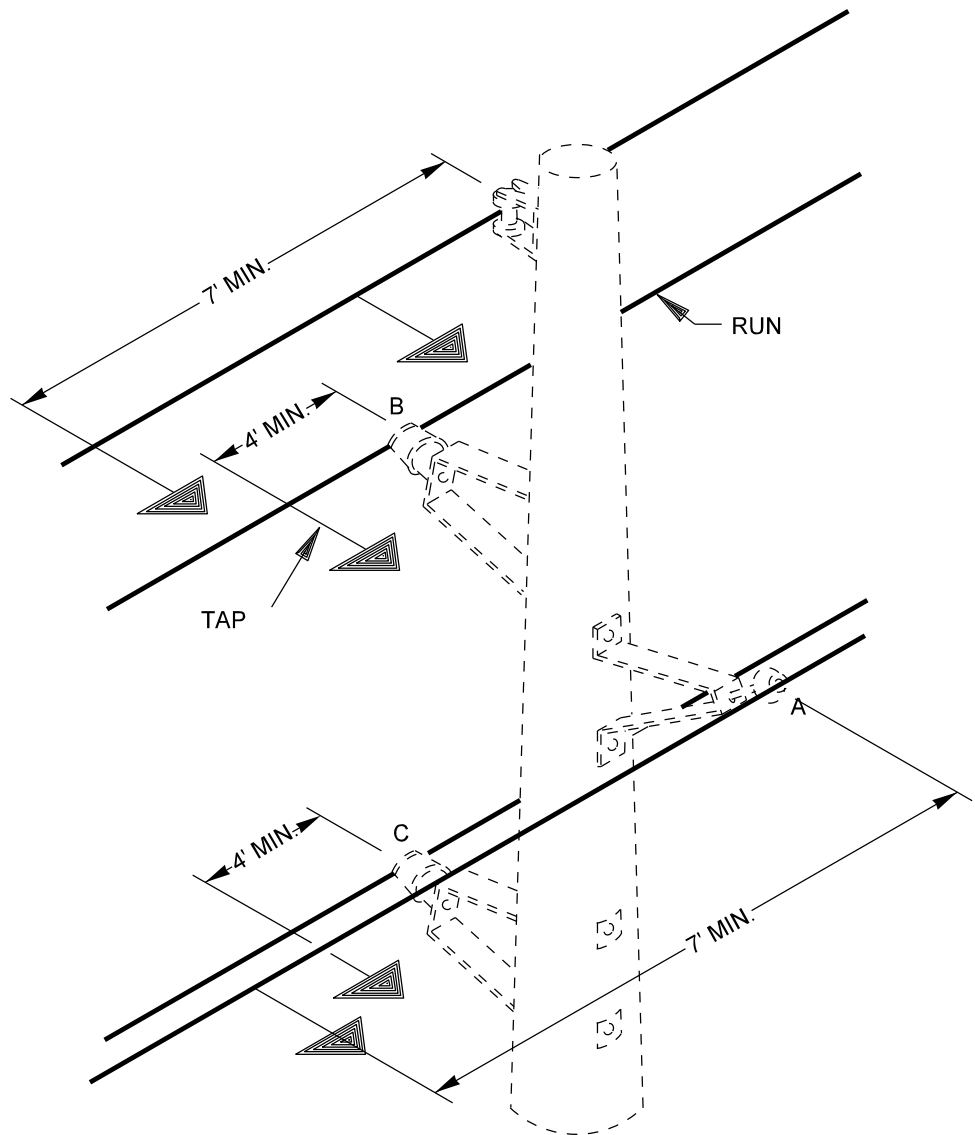
JUMPER SHALL BE SAME
SIZE AS LARGEST CONDUCTOR
INTERSECTION
SAME LEVEL
PHASE OR NEUTRAL CONDUCTOR



INTERSECTION
DIFFERENT LEVELS
PHASE OR NEUTRAL CONDUCTOR



T-TAP
NEUTRAL CONDUCTOR ONLY



RUNNING LINE

	BTT22	BTT262	BTT302	BTT312	BTT782
	(R2)	(R266)	(R30)	(AC312)	(AW78)
TAP	A2	5035724	5035725	5035725	5035724
	A30		5033937	5035725	5033937
	A397		5033937		5033937

NOTES

1. WHEN CONSTRUCTING AN **INTERSECTION** BETWEEN NONSTANDARD CONDUCTORS USE T-TAP WHICH IS CLOSEST IN SIZE TO THE ACTUAL CONDUCTORS.
2. FOR PRIMARY MID - SPAN TAPS, SEE 3-5-2 FOR PHASE CONDUCTOR ASSEMBLY.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV BASIC ASSEMBLY UNITS
PRIMARY AND NEUTRAL MID SPAN TAPS

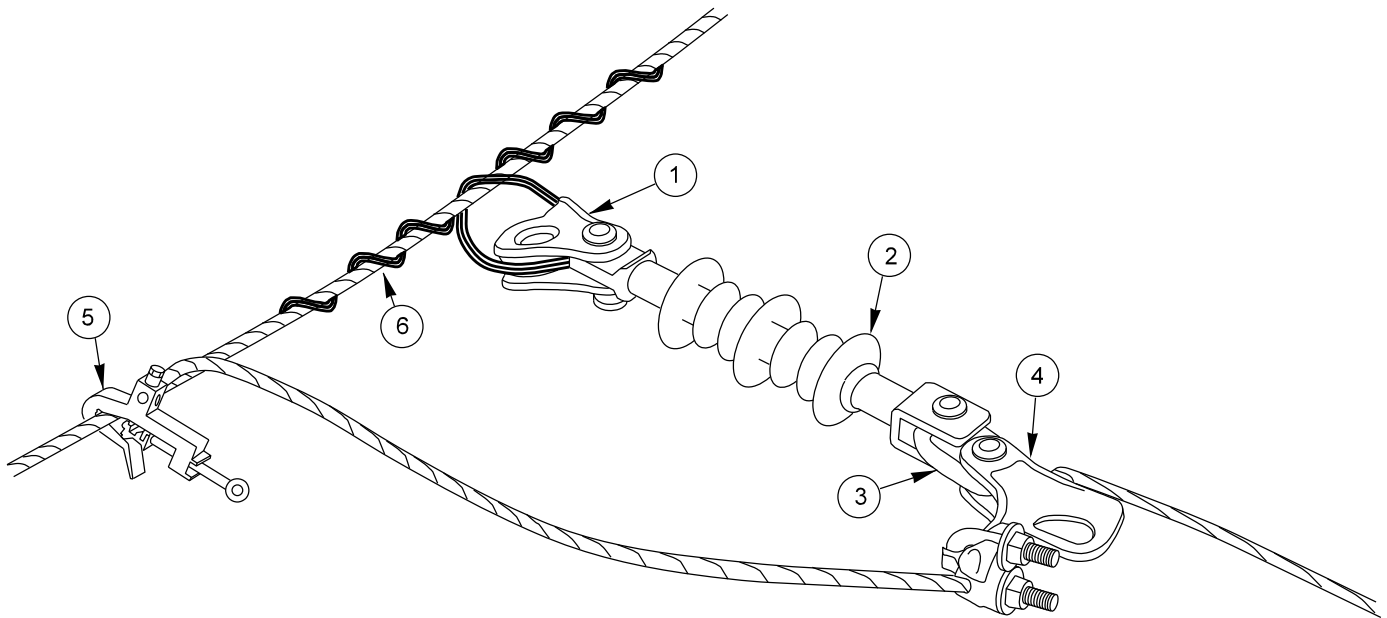
3-5-1

ISSUE DATE: 02/05/91

REV. DATE: 04/29/13

APPROVAL: B. PRIEST

8512E42.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	THIMBLE - CLEVIS	1	5029157
2	INSULATOR	1	5039548
3	LINK	1	5034732
4	DEAD - END CLAMP	1	VARIOUS
5	HOT - LINE CONNECTOR	1	VARIOUS
6	SIDE TIE	1	VARIOUS

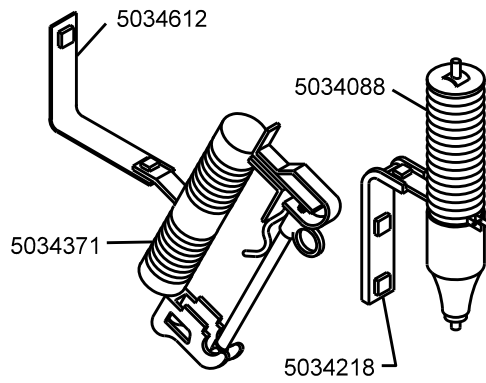
22KV PRIMARY INSULATED MID - SPAN TAP COMPATIBLE UNITS				
		RUNNING LINE CONDUCTOR		
		R2	R266	AC312
TAP CONDUCTOR	A2	BTTD22A2	BTTD262A2	BTTD39A2
	A397		BTTD262A397	BTTD39A397

NOTES

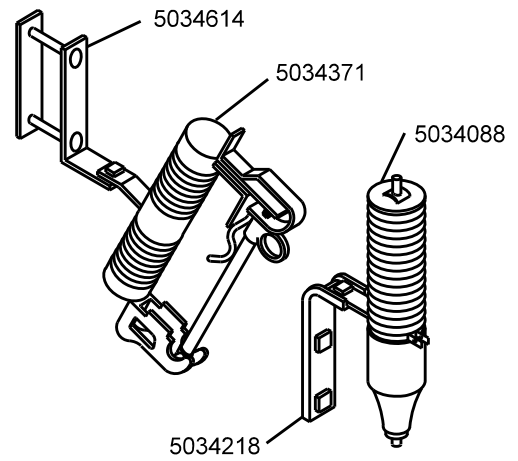
1. FOR NEUTRAL CONDUCTOR MID - SPAN TAP, SEE 3-5-1.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV BASIC ASSEMBLY UNITS PRIMARY INSULATED MID - SPAN TAP PHASE CONDUCTORS ONLY	ISSUE DATE: 06/07/11 REV. DATE: 05/15/13 APPROVAL: B. PRIEST
	3-5-2	8512E491.DGN

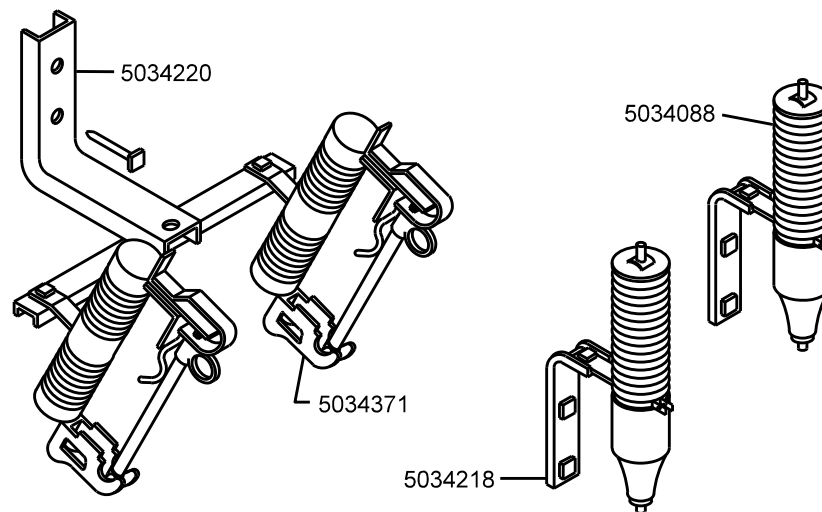
BCA12



BCA42



BCA52 40" TRI-MOUNT BKT.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22KV BASIC ASSEMBLY UNITS
CUTOUT-ARRESTER ASSEMBLIES

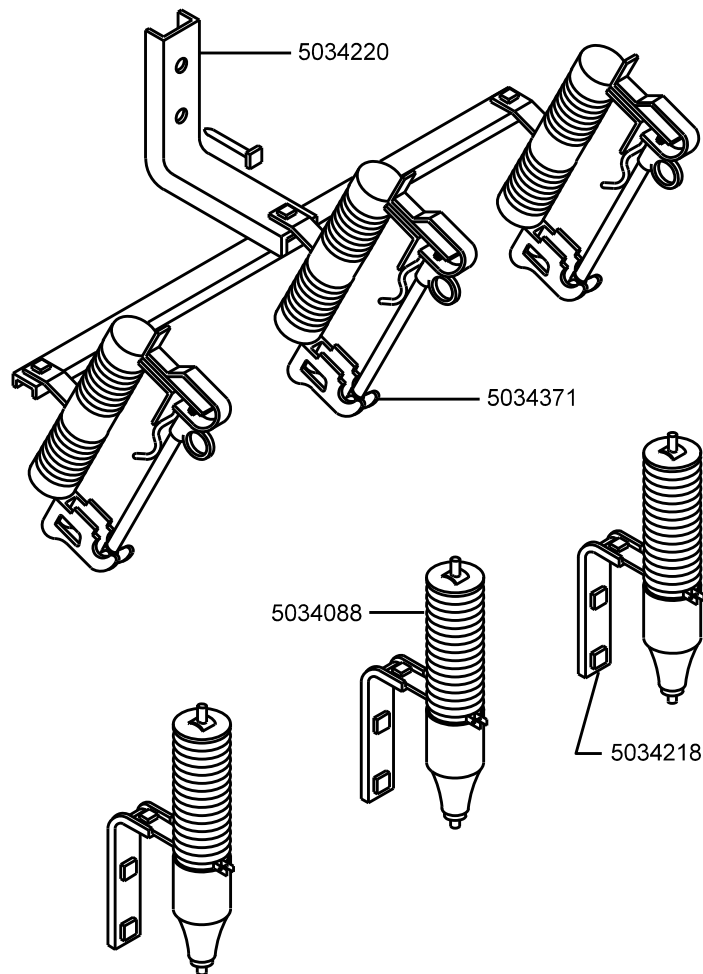
3-6-1

ISSUE DATE: 11/19/74

REV. DATE: 05/22/13

APPROVAL: B. PRIEST

8512E265.DGN



ARRESTER ONLY
5034088

CUTOUT ONLY
5034371

ALL LIGHTNING ARRESTERS SHALL BE MOUNTED ON TRANSFORMER TANK.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22KV BASIC ASSEMBLY UNITS
CUTOUT-ARRESTER ASSEMBLIES

3-6-2

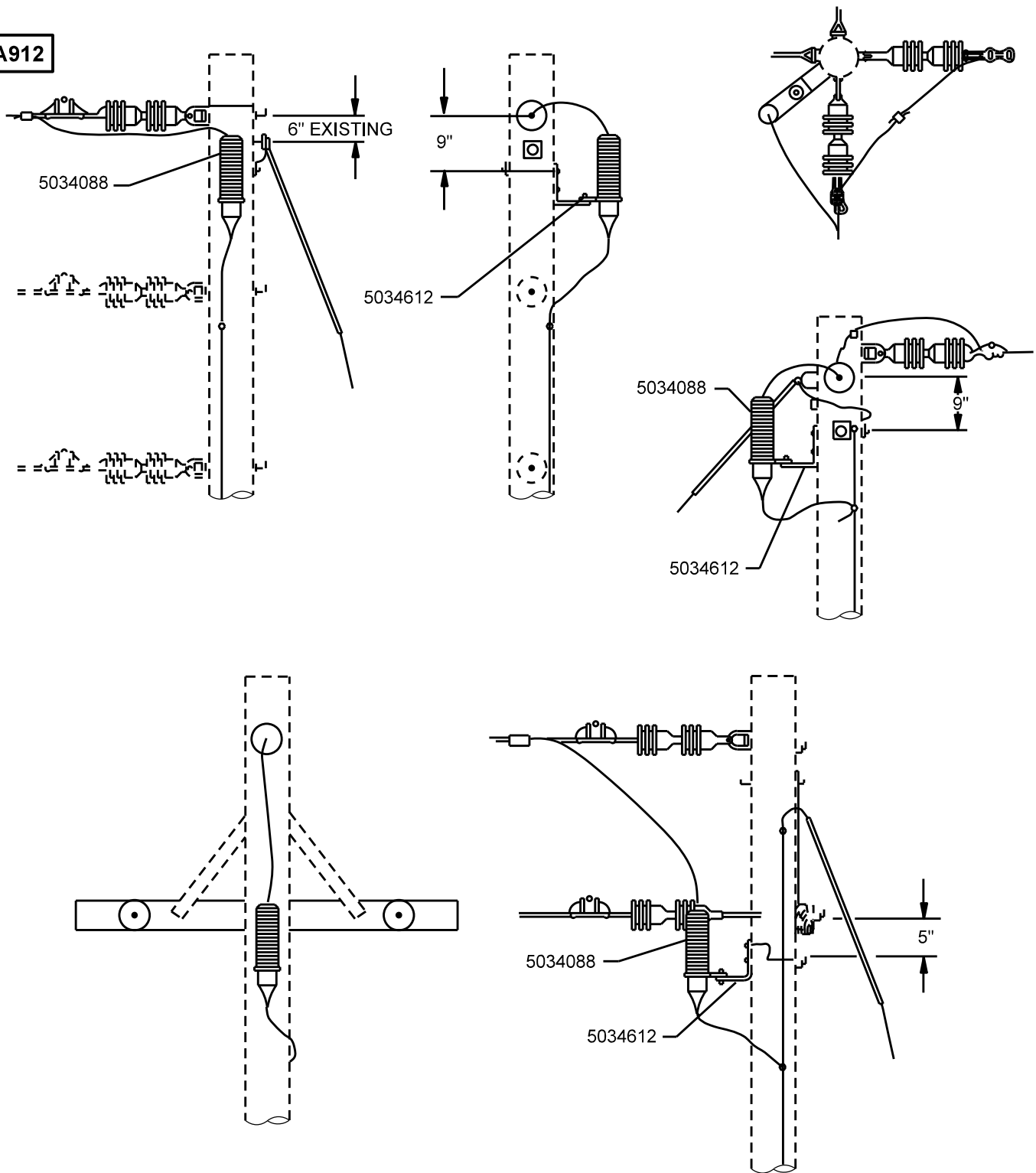
ISSUE DATE: 11/19/74

REV. DATE: 05/22/13

APPROVAL: B. PRIEST

8512E496.DGN

BA912



NOTES

1. TO BE USED IN CASES WHERE FLASHOVER HAS OCCURED, OR STATIC WIRE CONSTRUCTION WAS NOT USED.
2. ARRESTER SHALL BE MOUNTED ON SIDE OF POLE OPPOSITE LINE ATTACHING HARDWARE. TYPICAL EXAMPLES SHOWN ABOVE.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV BASIC ASSEMBLY UNITS ARRESTER ASSEMBLIES

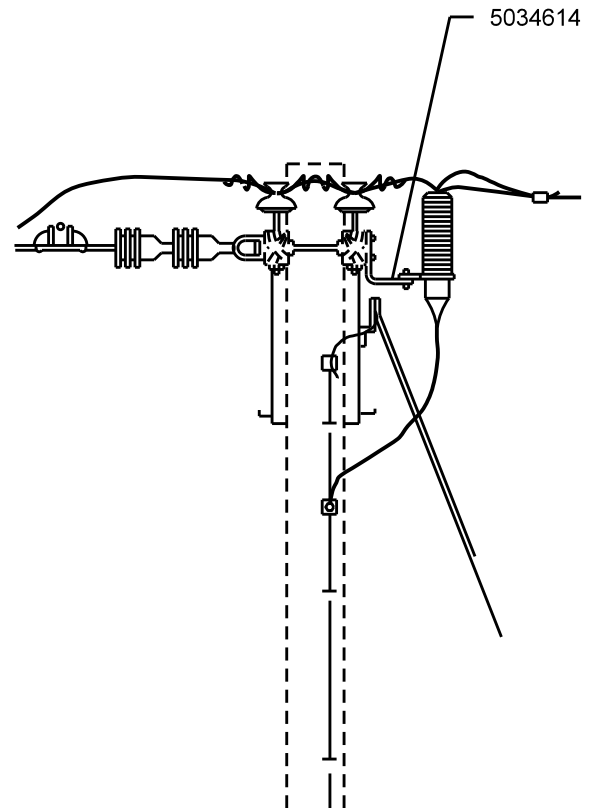
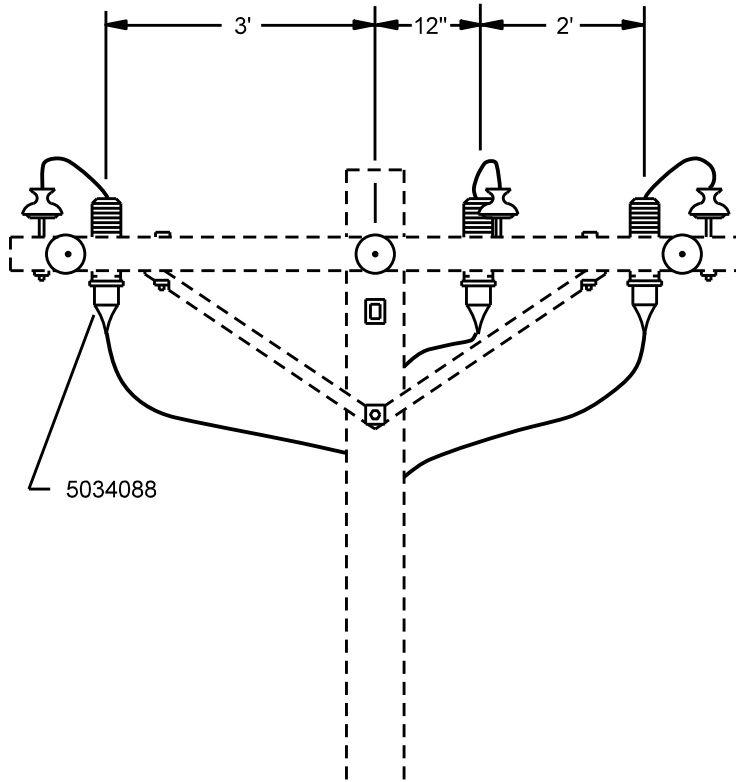
3-7-1

ISSUE DATE: 02/05/91

REV. DATE: 05/02/13

APPROVAL: B. PRIEST

8512E40.DGN



NOTES

1. TO BE USED IN CASES WHERE FLASH OVER HAS OCCURED, OR STATIC WIRE CONSTRUCTION WAS NOT USED.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	22kV BASIC ASSEMBLY UNITS ARRESTER ASSEMBLIES 3-7-2	ISSUE DATE: 02/04/91 REV. DATE: 04/20/13 APPROVAL: B.PRIEST 8512E41.DGN
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Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	INDEX POLE GUYING AND BRACING	ISSUE DATE: 04/14/13 REV. DATE: APPROVAL: D. Poore
	4-1-1	OH4-1-1.doc

SECTION 4: POLE GUYING AND BRACING

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Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	INDEX POLE GUYING AND BRACING 4-1-2	ISSUE DATE: 04/14/13 REV. DATE: APPROVAL: D. Poore
		OH4-1-1.doc

FOR INSTALLATION OR REMOVAL OF GUYS, ANCHORS AND BRACING DEVICES FOR OVERHEAD DISTRIBUTION POLES.

COMPATIBLE UNIT CODING FOR “G” AND “A” SECTION

GUYS

GUYS HAVE BEEN CODED USING A “G” PREFIX.

ANCHORS

STANDARD ANCHORS AND ANCHOR/ROD COMBINATIONS ARE CODED WITH AN “A” PREFIX.

GUY/ANCHOR COMBINATIONS

GUY AND ANCHOR COMBINATIONS ARE AVAILABLE BY COMBINING THE INDIVIDUAL NUMBERS TO FORM ONE COMPATIBLE UNIT NUMBER. THIS APPLIES TO ALL THE RECOMMENDED SINGLE AND DOUBLE DOWN GUY COMBINATIONS WITH THE VARIOUS TYPES OF ANCHORS.

EXAMPLE: COMPATIBLE UNIT NO. **G5 A108**

G5 = ONE DOWN GUY WITH GUY GUARD; A108 = ONE ANCHOR WITH ROD

EXAMPLE: COMPATIBLE UNIT NO. **G3 5 A108**

G3 = TOP GUY WITH GUY GUARD

5 = BOTTOM GUY; A108 = ONE ANCHOR WITH ROD

SPECIAL POLE BRACING

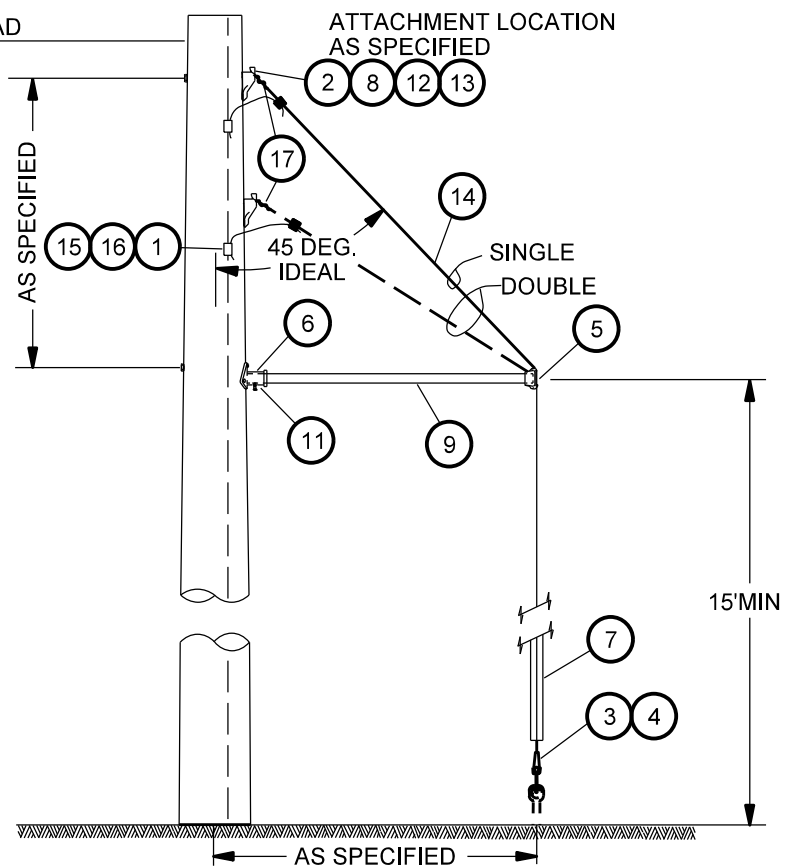
SPECIAL TYPES OF POLE BRACING ARE PROVIDED IN THIS SECTION AND HAVE A "G" PREFIX.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: REVISED INSTRUCTIONS TO REFLECT CURRENT PRACTICE AND IMPROVE CLARITY	
	POLE GUYING AND BRACING INSTRUCTIONAL GUIDE	ISSUE DATE: 12/09/71
		REV. DATE: 07/30/25
		APPROVAL: J. Robbins
4-2-1		OH4-2-1.doc

SINGLE

DOUBLE

**MAXIMUM TOTAL HORIZONTAL LOAD
NOT TO EXCEED 1,000 POUNDS
(TOTAL OF THE TENSION FROM —
THE SAG CHART PLUS WINDLOAD
WITHOUT NESC LOAD FACTORS).**



ITEM	MATERIAL DESCRIPTION	STOCK CODE	QUANTITY	
			GW	GW2
1	CONNECTOR, VISE, 2-#6 SOL TO 2-#4 STR	5034068	1	2
2	BOLT, MACHINE, 3/4" X 14"	5027754*	1	2
3	CLAMP, GUY, AUTOMATIC, LONG BAIL	5028520	0	1
4	CLAMP, GUY, AUTOMATIC, 5/16", SHORT BAIL	5028519*	1	1
5	CLAMP, GUY, SIDEWALK, QUEEN POST FITTING	5028525	1	1
6	FLANGE, POLE, SIDEWALK GUY	5028916	1	1
7	GUARD, GUY, 8'	5028920	1	1
8	HOOK, GUY, 3/4" BOLT	5028923	1	2
9	PIPE, GALVANIZED, 2" X 5'	5028648	1	1
10	CLIP, WIRE ROPE, 5/16" WIRE	5028900	2	2
11	SCREW, LAG, 1/2" X 4"	5028003	3	3
12	WASHER, DOUBLE COIL LOCK, 3/4"	5029169*	1	2
13	WASHER, SQUARE, 3/4"	5029163*	1	2
14	WIRE, STEEL, COIL, 5/16" S.M.	5033973	50'	100'
15	WIRE, COPPER, BARE, #6	5033845	1	2
16	CONNECTOR, COMP, COPPER, 2 SOL-2 STR. TO 8-SOL-4STR.	5033933	1	2
17	GRIP, GUY, 5/16"	5028917	1	2

* IMPREST BIN ITEM

NOTES

1. THIS TYPE OF GUY SHOULD NOT BE USED IF CONVENTIONAL DOWN GUY CAN BE INSTALLED.

Overhead Distribution Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING SIDEWALK GUYING

4-3-1

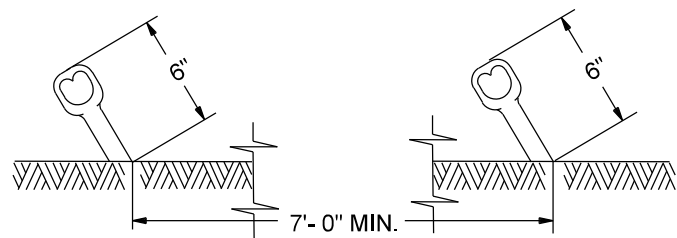
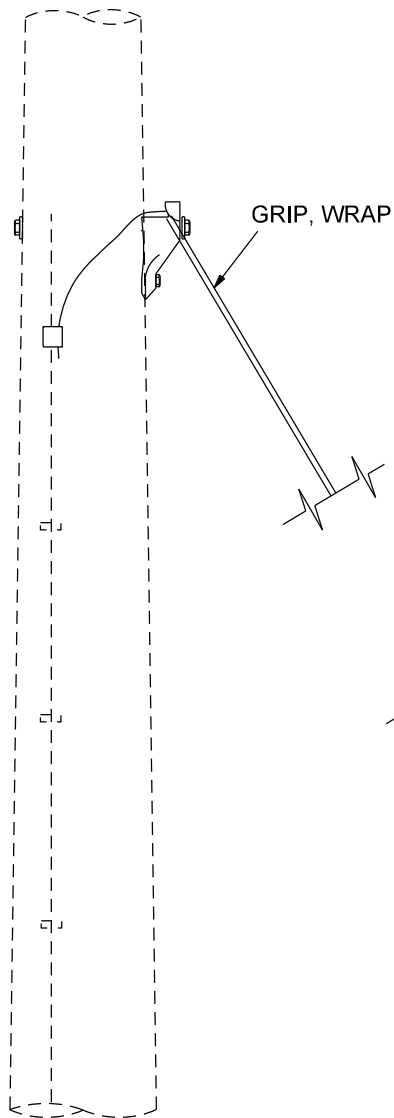
ISSUE DATE: 09/30/71

REV. DATE: 05/02/13

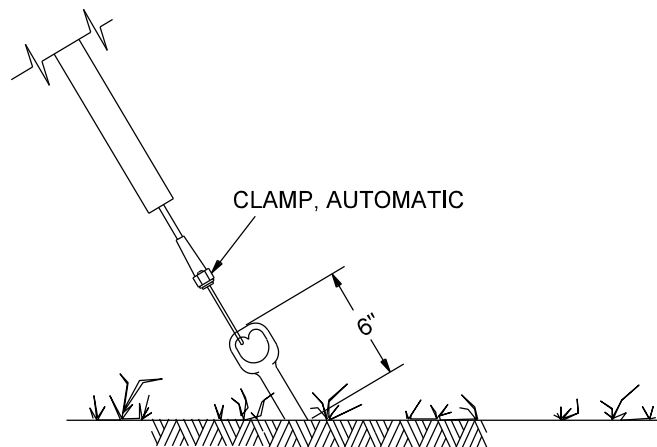
APPROVAL: B. PRIEST

8512E267.DGN

- G5 5/16" DOWN GUY
- G3 3/8" DOWN GUY
- G7 7/16" DOWN GUY

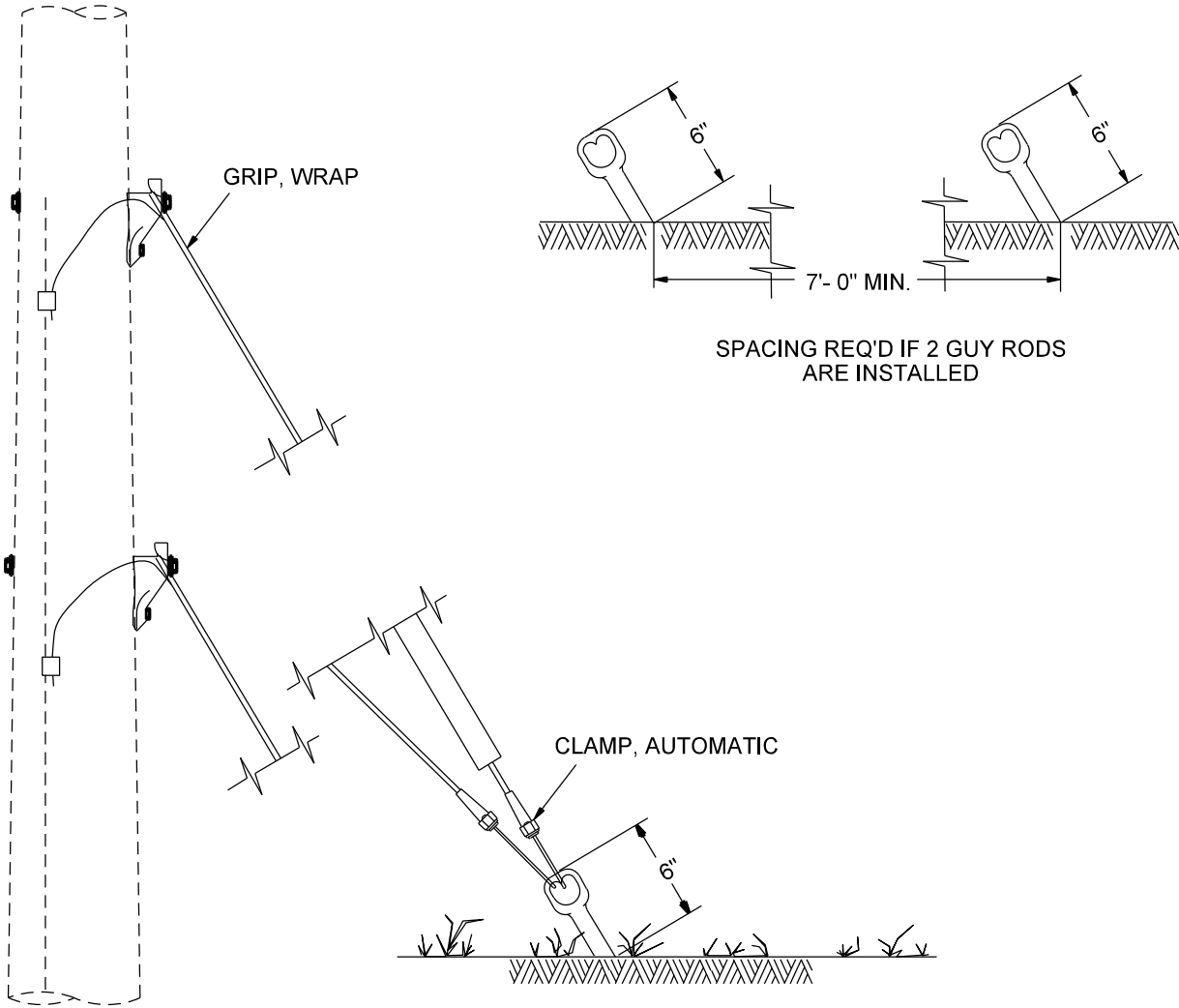


SPACING REQ'D IF 2 GUY RODS
ARE INSTALLED



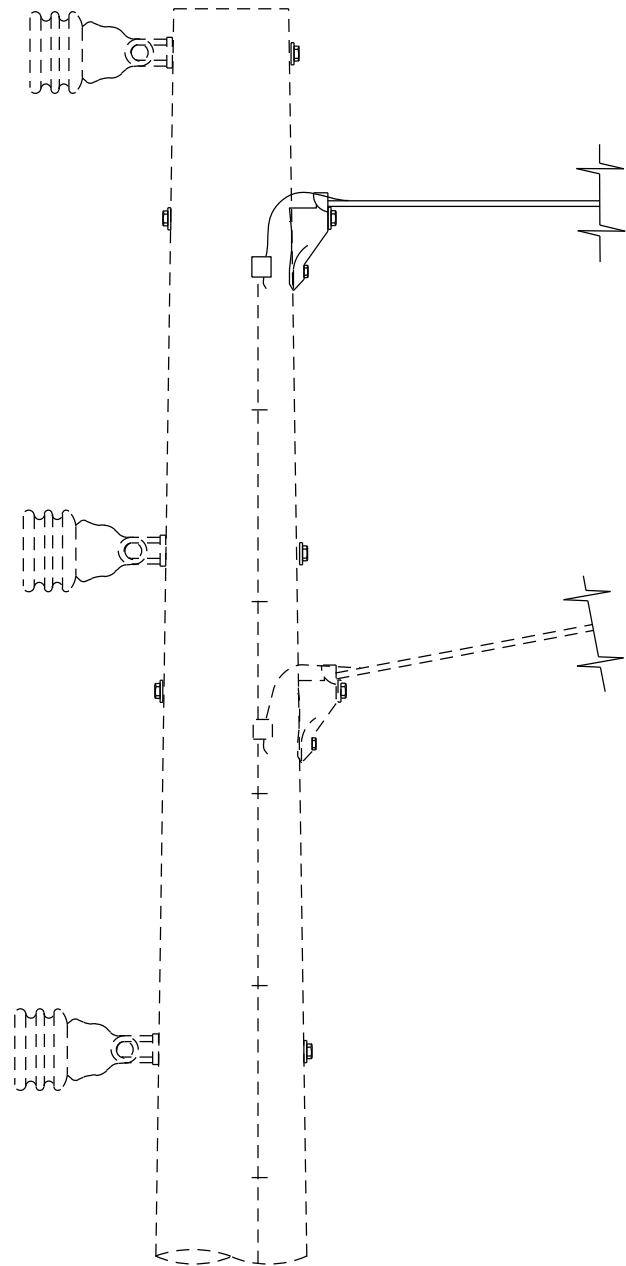
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING DOWN GUYING	
	ISSUE DATE: 09/30/71 REV. DATE: 05/17/12 APPROVAL: B. PRIEST	
	4-4-1	8512E268.DGN

- G55** (TWO) 5/16" DOWN GUYS WITH GUY GUARD
 - G53** (ONE) 5/16" AND (ONE) 3/8" DOWN GUY WITH GUY GUARD
 - G57** (ONE) 5/16" AND (ONE) 7/16" DOWN GUY WITH GUY GUARD
 - G35** (ONE) 3/8" AND (ONE) 5/16" DOWN GUY WITH GUY GUARD
 - G33** (TWO) 3/8" DOWN GUYS WITH GUY GUARD
 - G37** (ONE) 3/8" AND (ONE) 7/16" DOWN GUY WITH GUY GUARD
 - G73** (ONE) 7/16" AND (ONE) 3/8" DOWN GUY WITH GUY GUARD
 - G75** (ONE) 7/16" AND (ONE) 5/16" DOWN GUY WITH GUY GUARD
- DESIGNATES BOTTOM GUY
 ————— DESIGNATES TOP GUY

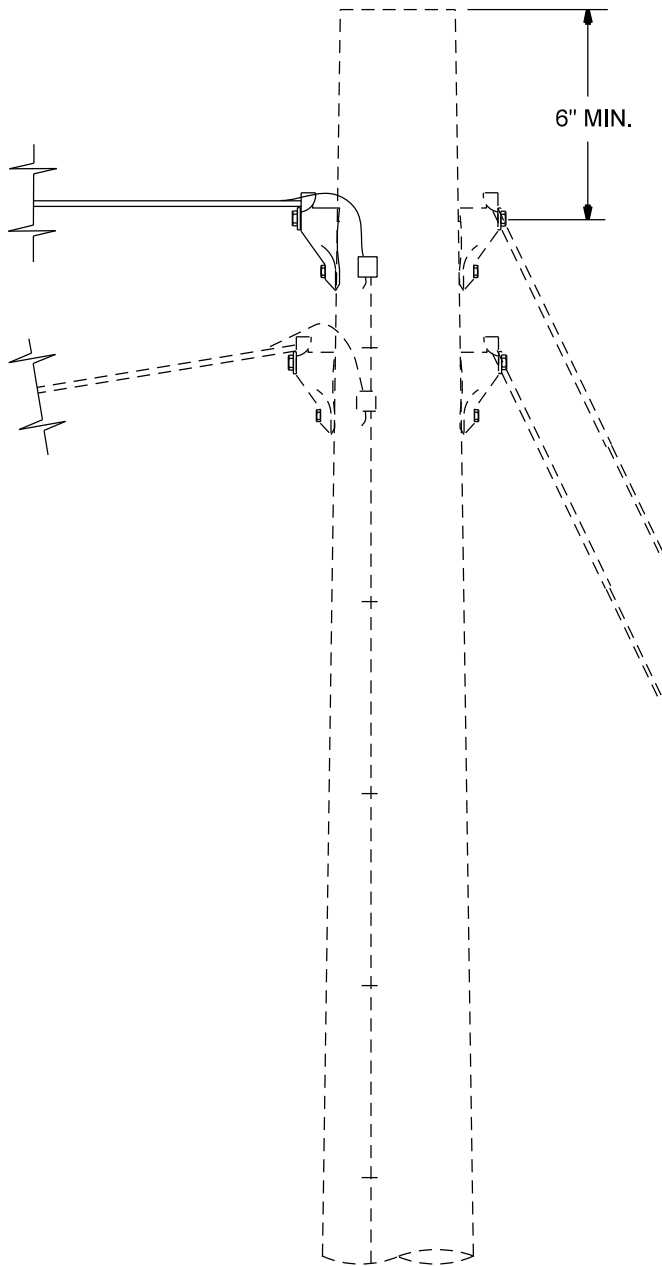


- GH5** 5/16" OVERHEAD GUY
- GH3** 3/8" OVERHEAD GUY
- GH7** 7/16" OVERHEAD GUY

GUYED POLE

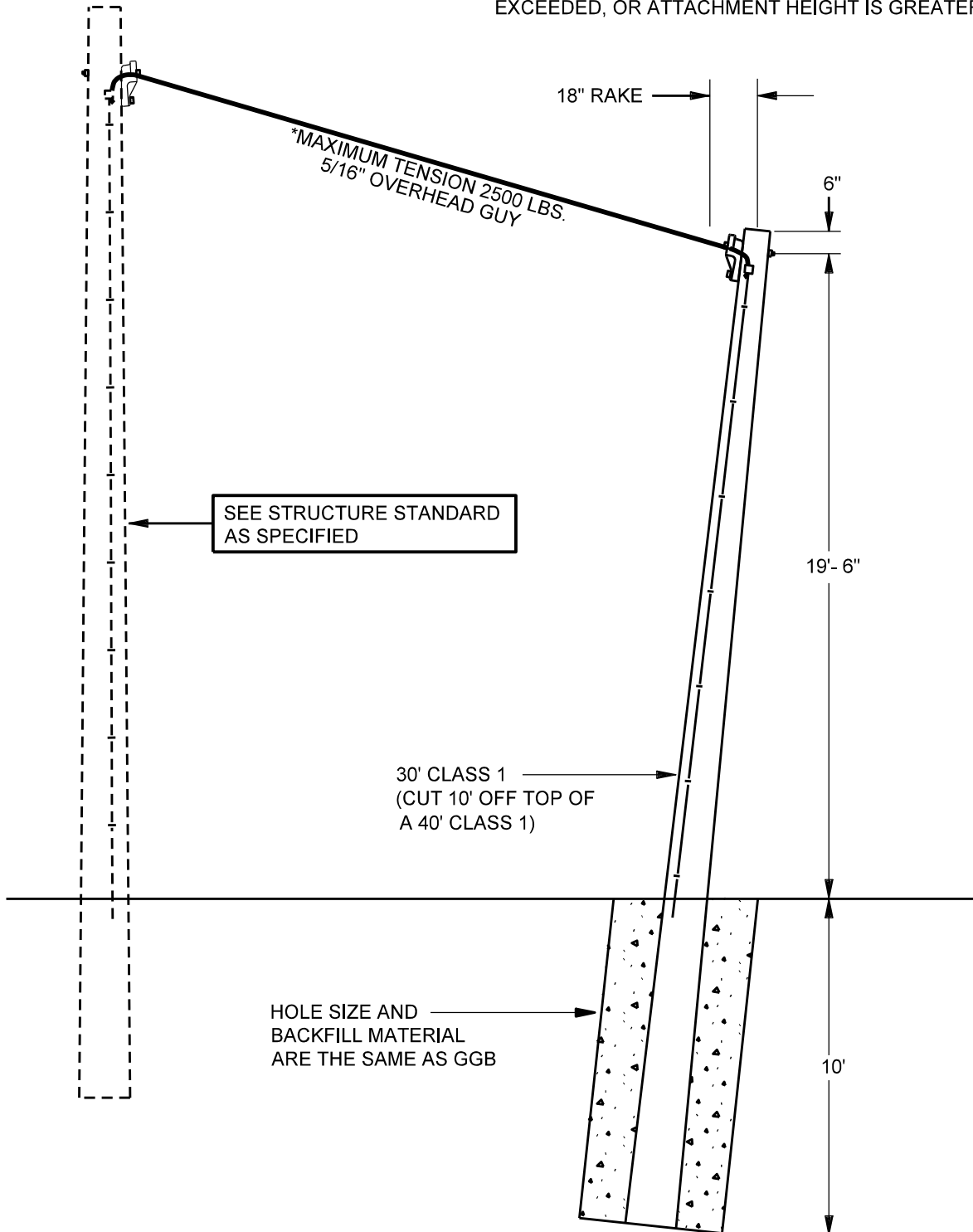


STUB POLE

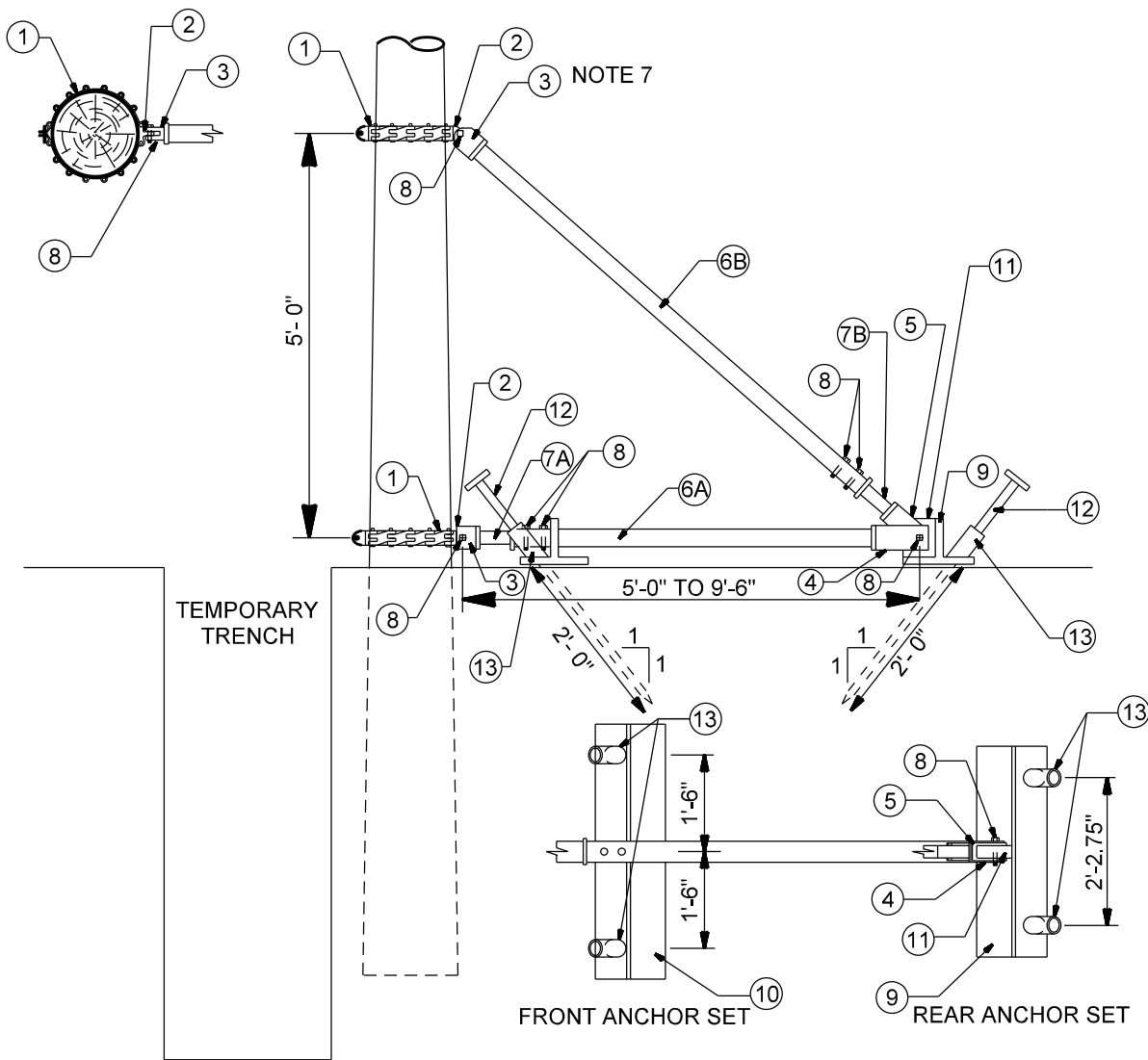


GPH

*IF ATTACHMENT HEIGHT IS GREATER THAN 19'- 6"
THIS TENSION MUST BE REDUCED.
CONTACT ELECTRIC SYSTEM PLANNING & ENGINEERING
FOR ASSISTANCE IF THIS TENSION MUST BE
EXCEEDED, OR ATTACHMENT HEIGHT IS GREATER.



Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING OVERHEAD GUY TO SELF-SUPPORTING STUB POLE	
	4-7-1	ISSUE DATE: 08/04/93 REV. DATE: 05/20/11 APPROVAL: B. PRIEST
		8512E217.DGN



NOTES

- DO NOT USE WHERE PEAK WIND GUSTS EXCEED 30 MPH.
- BRACE IS TO BE USED ONLY FOR CONDITIONS DEFINED ON PAGE 4-20 OF THE EXCAVATION SAFETY RESOURCE MANUAL, 1993 REVISION (LIMITED TIME FRAME AND SPECIFIC TANGENT CONFIGURATION).
- UP TO A 50' CLASS ONE WOOD POLE ONLY PLACED AT NORMAL EMBEDMENT.
- THIS BRACE IS NOT INTENDED TO SUPPORT POLES CARRYING TRANSFORMERS, SWITCHES, CAPACITORS, ETC.
- THE BRACE WILL NOT SUPPORT POLES EMBEDDED IN TYPE C (SOFT, SATURATED OR SUBMERGED) SOILS.
- IF THERE ARE QUESTIONS CONCERNING THE USE OF THIS BRACE CONTACT ELECTRIC SYSTEM ENGINEERING, POLICIES, PROCEDURES AND STANDARDS.
- THE PARTS ARE STOCKED AT DIVISION TOOL ROOMS.
- 3 MANHOURS OF TIME ARE ASSIGNED.

ITEM	DESCRIPTION	LENGTH	QTY
1	POLE LINK BAND ASSEMBLY		2
2	VANG, VERTICAL, 3/8"		2
3	STEEL CLEVIS CONNECTION, 3" X 3/8"	3"	2
4	STEEL CLEVIS CONNECTION, 3" X 3/8"	12"	1
5	STEEL CLEVIS CONNECTION, 2" X 3/8"	8"	1
6A	STEEL PIPE, 2.5" DIA. SCH. 40	4'-0"	1
6B	STEEL PIPE, 2.5" DIA. SCH. 40	5'-0"	1
7A	STEEL PIPE, 2" DIA. SCH. 40	4'-0"	1
7B	STEEL PIPE, 2" DIA. SCH. 40	5'-0"	1
8	A325 BOLT, 3/4" DIA.	4"	7
9	STRUCTURAL TEE STEEL, WT 6 X 26.5	2'-6"	1
10	STRUCTURAL TEE STEEL, WT 6 X 26.5	3'-6"	1
11	STEEL PLATE, 5-1/2" X 1"	4.75"	1
12	1" DIA. GADS	4'-6"	4
13	STEEL PIPE, 2" DIA. SCH. 80	6"	4

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING TEMPORARY TANGENT 12KV POLE BRACE NEAR TRENCH

4-8-1

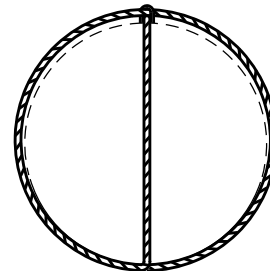
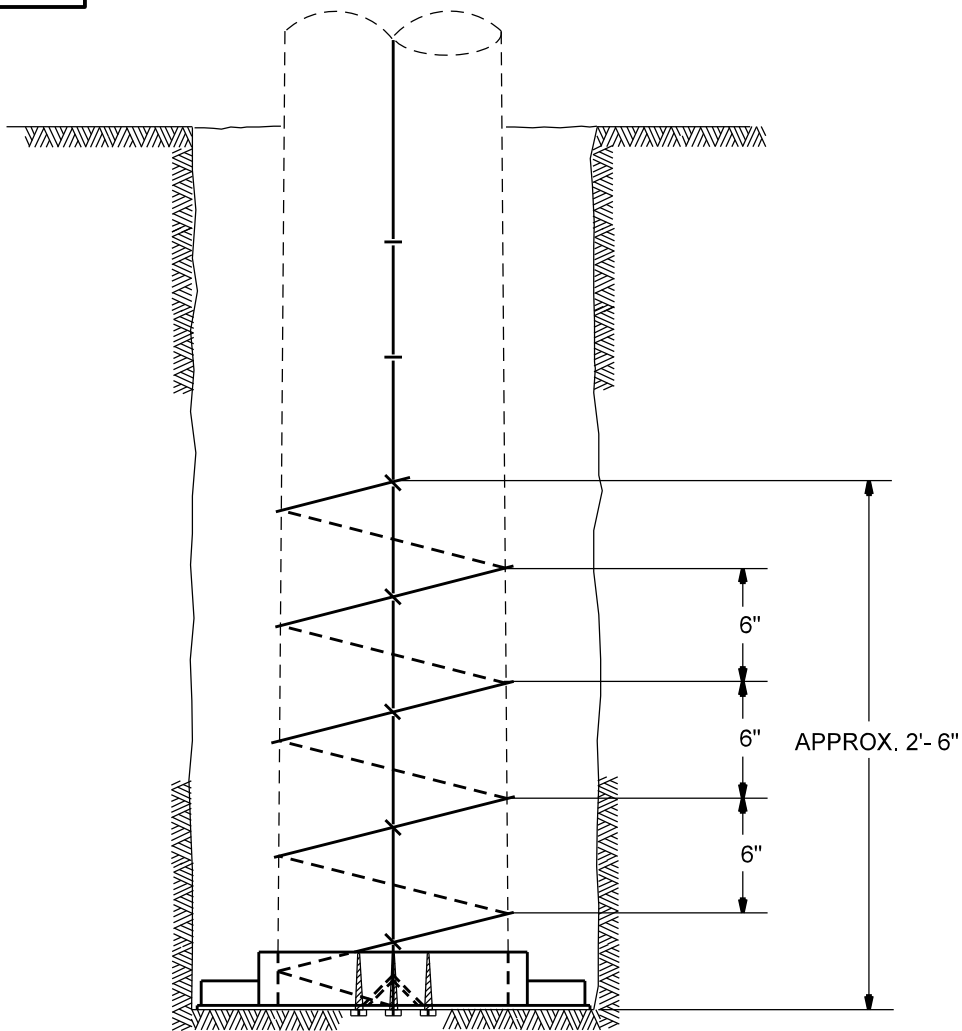
ISSUE DATE: 09/06/00

REV. DATE: 03/27/13

APPROVAL: B. PRIEST

8512E337.DGN

GBP



POLE BUTT PLATE
WRAPPING DETAIL

NOTES

1. THIS BUTT PLATE INSTALLATION FOR USE ON DISTRIBUTION POLES ONLY.
2. DRILL HOLE FOR THIS INSTALLATION WITH A 30" AUGER.
3. SECURE BUTT PLATE TO BUTT OF POLE WITH (3) 1/2" LAG SCREWS.
4. REMOVE COVERING FROM POLE GROUND.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING BUTT PLATE BRACING

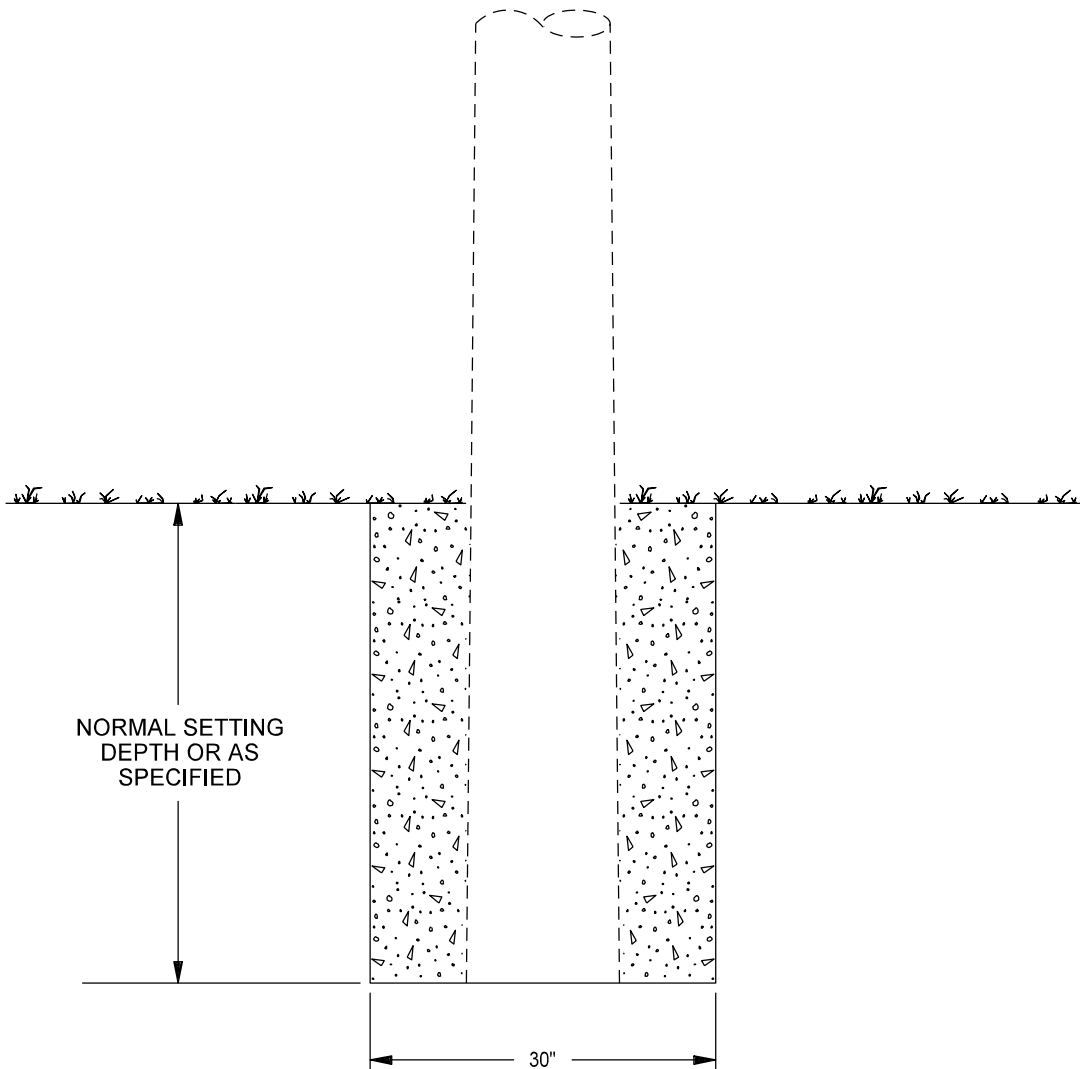
4-9-1

ISSUE DATE: 09/30/71

REV. DATE: 03/25/14

APPROVAL: B. PRIEST

8512E271.DGN



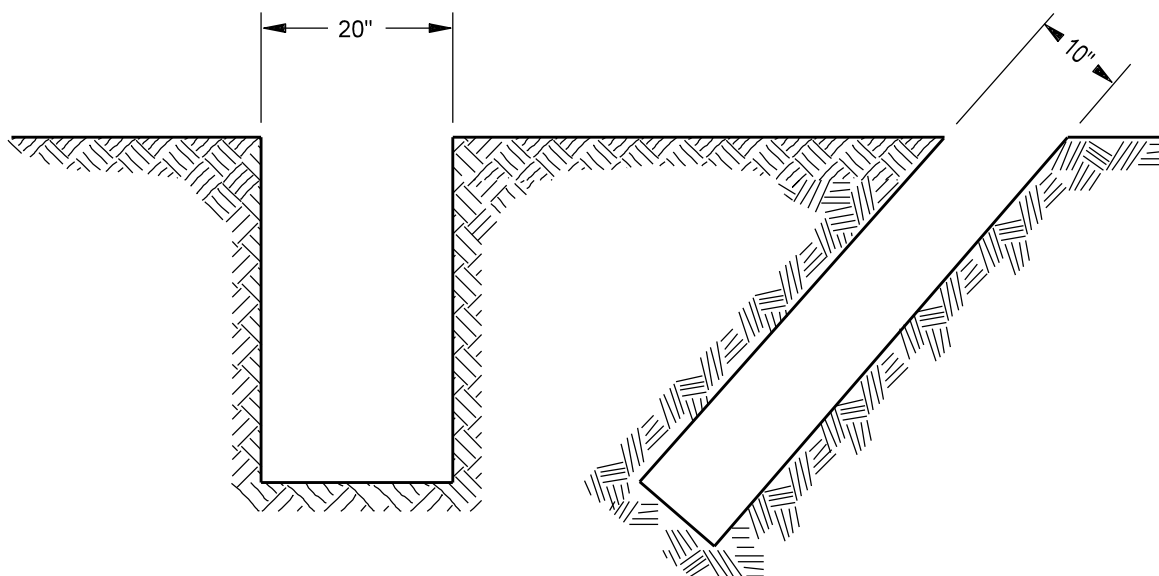
NOTES

1. FOR POLES WITH UNGUYED ANGLED SLACK SPANS OR ANY UNBALANCED LOAD OR POLES SET IN LOOSE OR SWAMPY, MUDDY SOIL.
2. POLE SHOULD HAVE A 6 INCH RAKE OPPOSITE THE STRAIN OF CONDUCTOR.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING STABILIZING BACKFILL	ISSUE DATE: 01/06/81
		REV. DATE: 01/04/16
		APPROVAL: S. DURAN
	4-10-1	8512E120.DGN

GPAH

THIS COMPATIBLE UNIT INCLUDES LABOR ONLY TO HAND DIG A HOLE FOR A POLE OR ANCHOR.
THIS UNIT INCLUDES 4 MANHOURS.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING
HAND DIGGING LABOR CODE

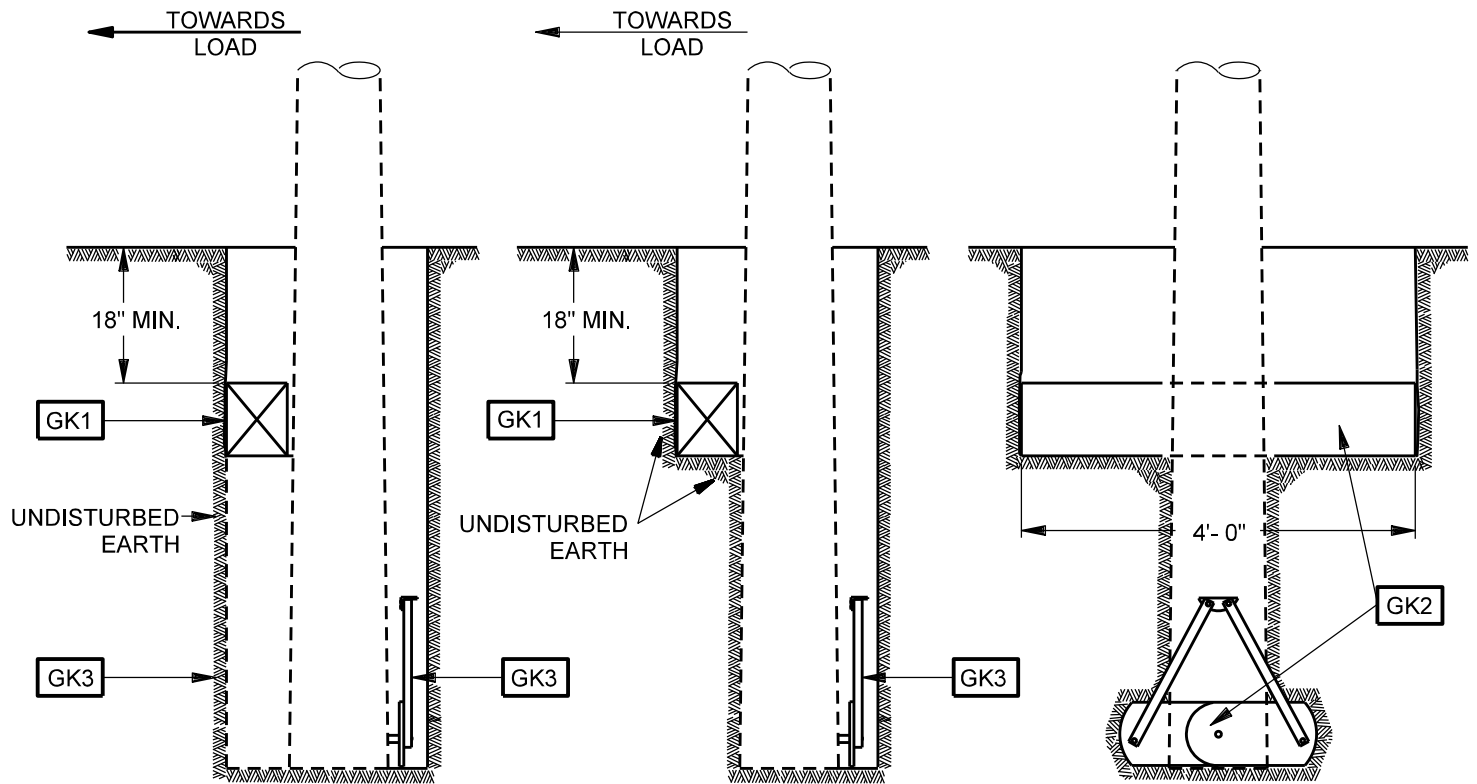
4-11-1

ISSUE DATE: 02/15/94

REV. DATE: 08/02/11

APPROVAL: B. PRIEST

8512E227.DGN

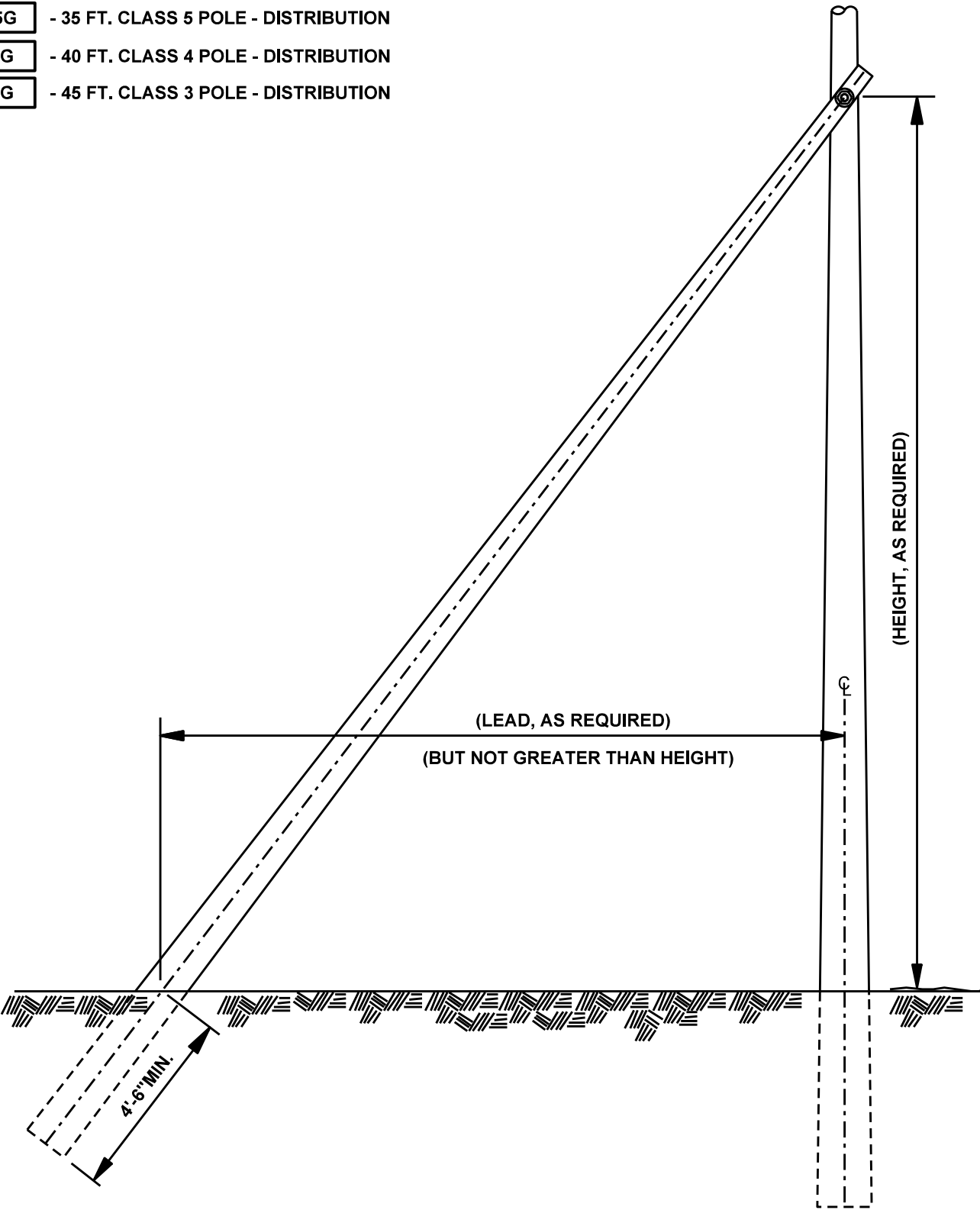


NOTES

1. GK1: TOP POLE KEY MAY BE USED ON EXISTING POLES FOR:
 - STRAIGHTENING LEANING POLES
 - NON-GUYED POLES WITH SLACK SPAN TAKE-OFFS
 - MINOR LINE ANGLE POLES
 - ALLEY ARM CONSTRUCTION
 - UNBALANCED SERVICE TAKE-OFFS
2. GK2: TOP AND BOTTOM POLE KEYS MAY BE USED FOR KEYING NEW POLE INSTALLATIONS WHERE GUYS ARE IMPRACTICAL.
3. GK3: BOTTOM POLE KEY MAY ONLY BE USED ON A NEW POLE IF INSTALLED IN CONCRETE SIDEWALK.
4. GK4: DRILL OVERSIZE HOLE (30" DIAMETER), CENTER POLE IN HOLE, BACKFILL WITH ONE SACK LMB (5075314). DO NOT APPLY LINE LOAD UNTIL 24 HOURS AFTER POURING LMB.
5. RAKE POLES AGAINST LINE TENSION (TYPICALLY 6").
6. TAMP BACKFILL FIRMLY.

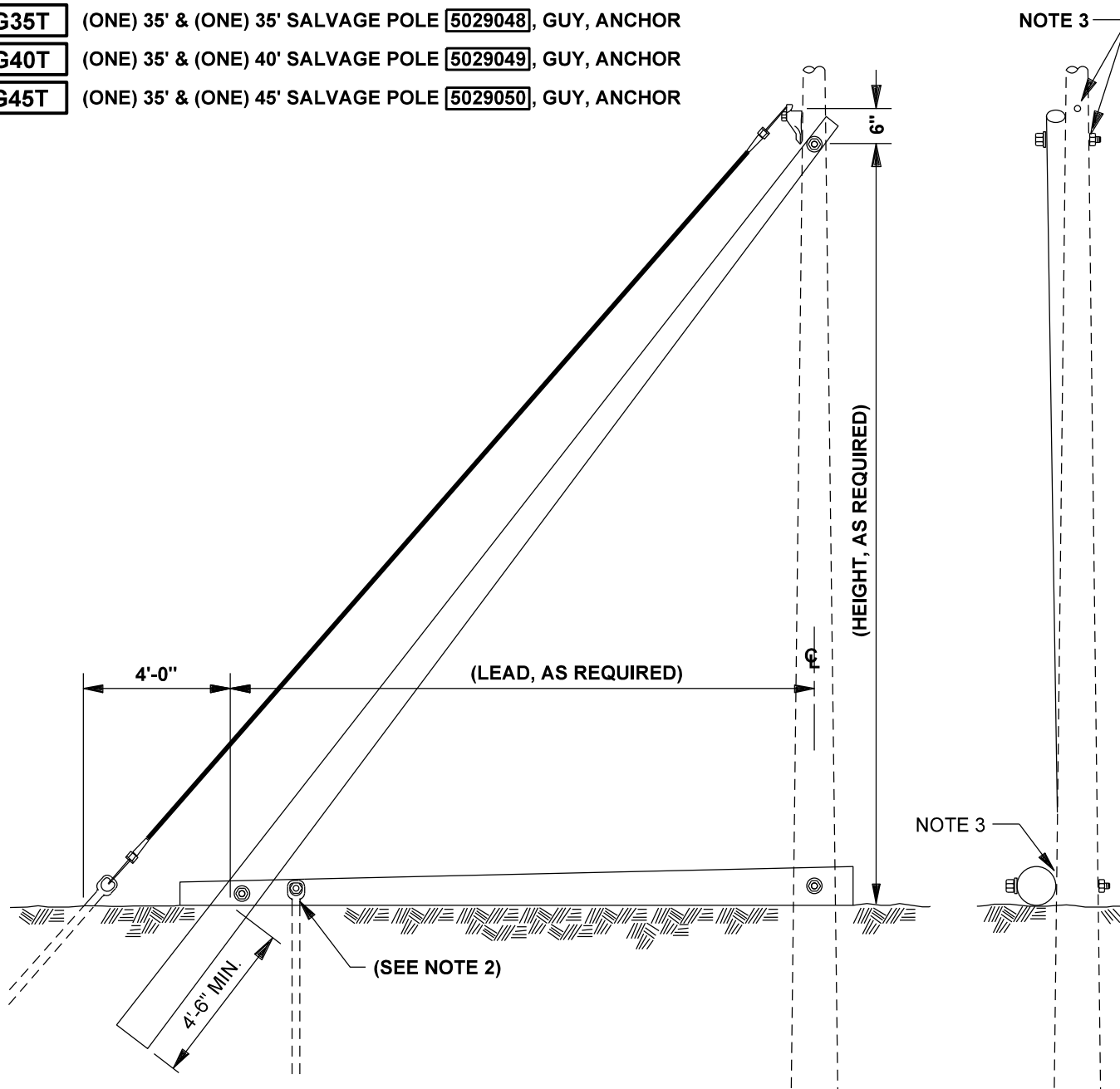
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	POLE GUYING AND BRACING POLE KEY BRACING 4-12-1	ISSUE DATE: 09/30/71 REV. DATE: 05/22/13 APPROVAL: B. PRIEST 8512E55.DGN
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- G35G - 35 FT. CLASS 5 POLE - DISTRIBUTION
- G40G - 40 FT. CLASS 4 POLE - DISTRIBUTION
- G45G - 45 FT. CLASS 3 POLE - DISTRIBUTION



Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING PUSH POLE BRACING	
	4-13-1	
	ISSUE DATE: 12/09/71 REV. DATE: 01/27/11 APPROVAL: B.PRIEST	8512E44.DGN

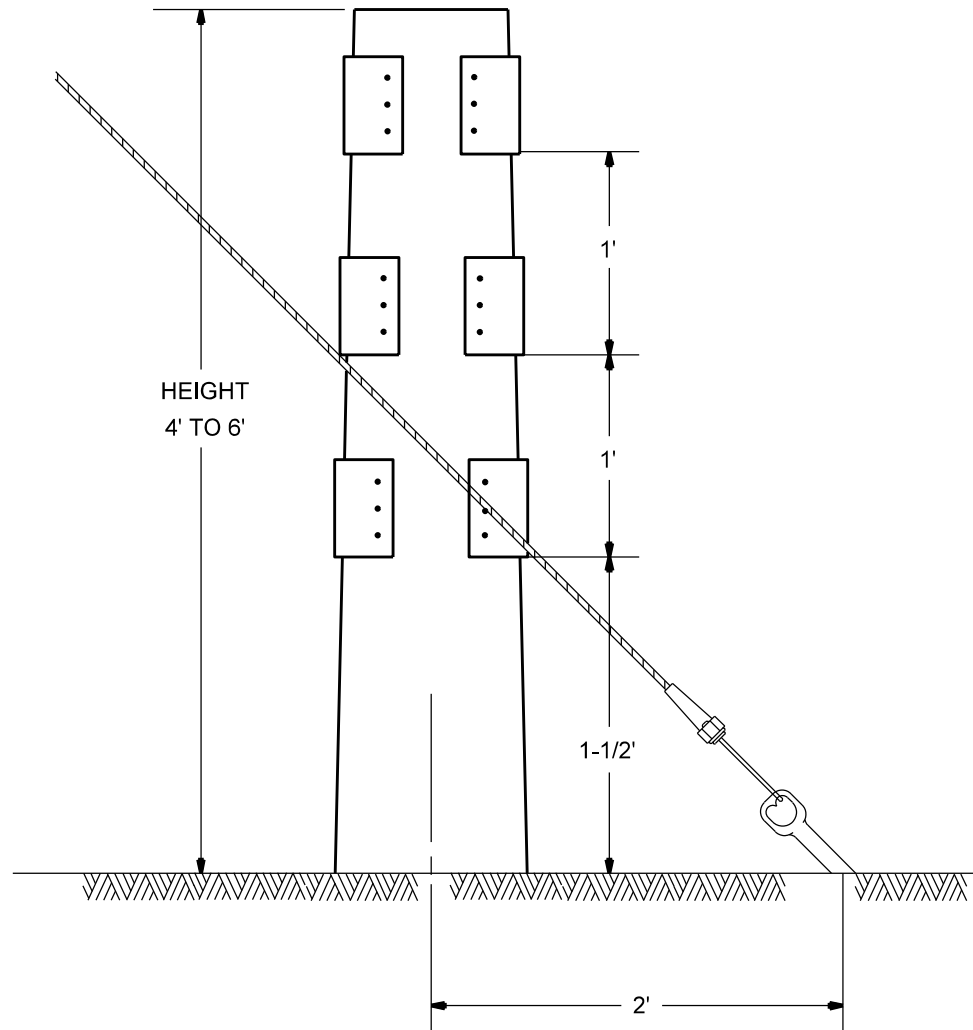
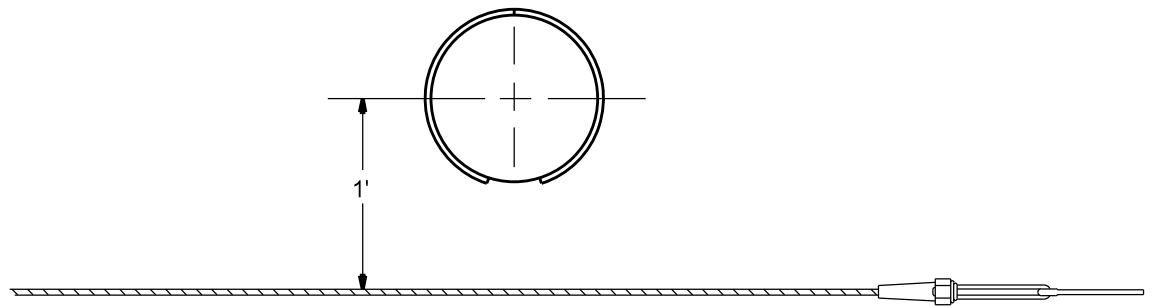
G35T	(ONE) 35' & (ONE) 35' SALVAGE POLE 5029048 , GUY, ANCHOR
G40T	(ONE) 35' & (ONE) 40' SALVAGE POLE 5029049 , GUY, ANCHOR
G45T	(ONE) 35' & (ONE) 45' SALVAGE POLE 5029050 , GUY, ANCHOR



NOTES

1. TEMPORARY SUPPORT FOR EXCAVATION IN LOOSE SOIL ADJACENT TO POLE.
2. AS AN ALTERNATIVE TO USING GUY WIRE, ANCHOR MAY BE INSTALLED VERTICALLY AND BOLTED TO HORIZONTAL BRACE.
3. PLUG HOLES IN LINE POLE AFTER REMOVAL OF BRACING WITH PLUGS 5028906.
4. SINCE THESE ARE TEMPORARY INSTALLATIONS, ENTER BOTH THE CONSTRUCTION AND REMOVAL OF THE COMPATIBLE UNIT ON THE JOB ESTIMATE.
5. NORMAL LENGTH OF EXPOSED ROD IS 6". FOR TEMPORARY GUYING AND BRACING, MAXIMUM EXPOSED ANCHOR ROD OF 24" MAY BE USED.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING TEMPORARY WOOD POLE BRACING	ISSUE DATE: 09/30/71 REV. DATE: 02/02/16 APPROVAL: S.DURAN
	4-14-1	8512E7.DGN



NOTES

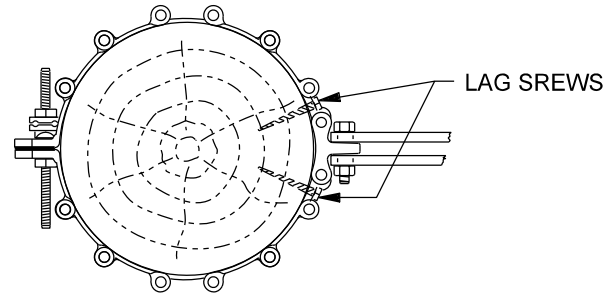
1. SET STUB 4' TO 6' DEEP DEPENDING UPON SOIL CONDITIONS.
2. THIS STANDARD IS FLEXIBLE. ESTIMATORS MAY ADAPT DETAILS TO FIT THE SITUATION, AND CREWS ARE TO CUT THE STUB AS NECESSARY.
3. RESTRICT USAGE TO INSTALLATIONS WHERE PROTECTION IS NECESSARY.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING GUY GUARD STUB	
	4-15-1	
	ISSUE DATE: 08/28/72 REV. DATE: 05/17/12 APPROVAL: B.PRIEST	8512E272.DGN

FOR USE ON DEADENDS WITH GUY TENSION EXCEEDING 11,000 LBS.

GPLH3 3/8" DOWN GUY
W/88" STRAIN INSULATOR

GPLH7 7/16" DOWN GUY
W/88" STRAIN INSULATOR

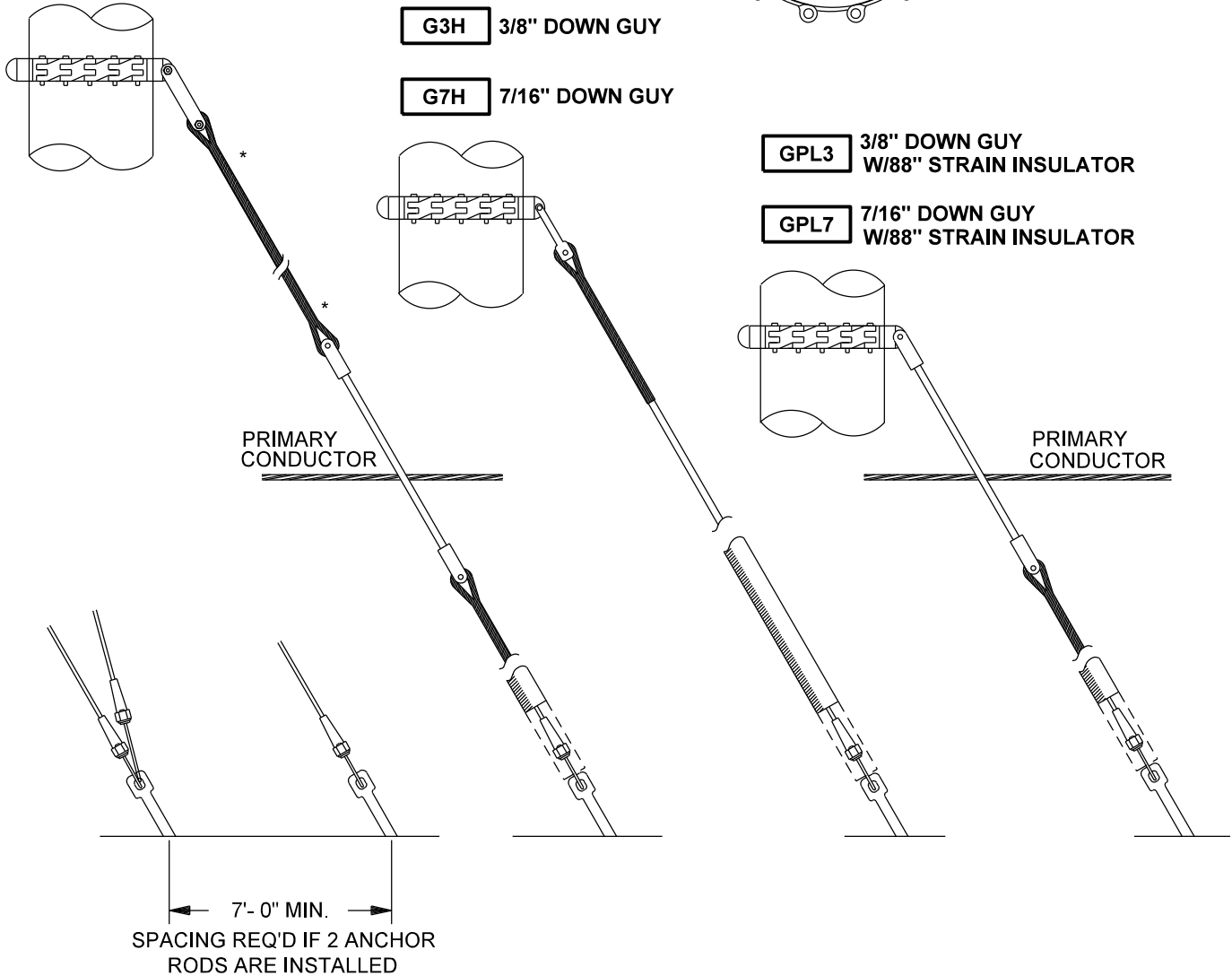


G3H 3/8" DOWN GUY

G7H 7/16" DOWN GUY

GPL3 3/8" DOWN GUY
W/88" STRAIN INSULATOR

GPL7 7/16" DOWN GUY
W/88" STRAIN INSULATOR



NOTES

1. LINK TYPE POLE BANDS ARE INCLUDED WITH THESE UNITS AND ARE SIZED FOR APPROXIMATELY 10 INCH DIAMETER. LINKS MAY BE REMOVED OR ADDITIONAL LINKS, STOCK NUMBER 5027576, MAY BE ADDED IF NEEDED.
2. DOWN GUYS WITH EPOXIGLASS STRAIN INSULATORS ARE TO BE USED WHEN THE GUY WIRE NEEDS PROTECTION FROM ACCIDENTAL CONTACT WITH ENERGIZED CONDUCTORS.
*AUTOMATIC GUY CLAMPS MAY BE SUBSTITUTED WHEN SPACE IS LIMITED.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING DOWN GUYS WITH POLE BANDS

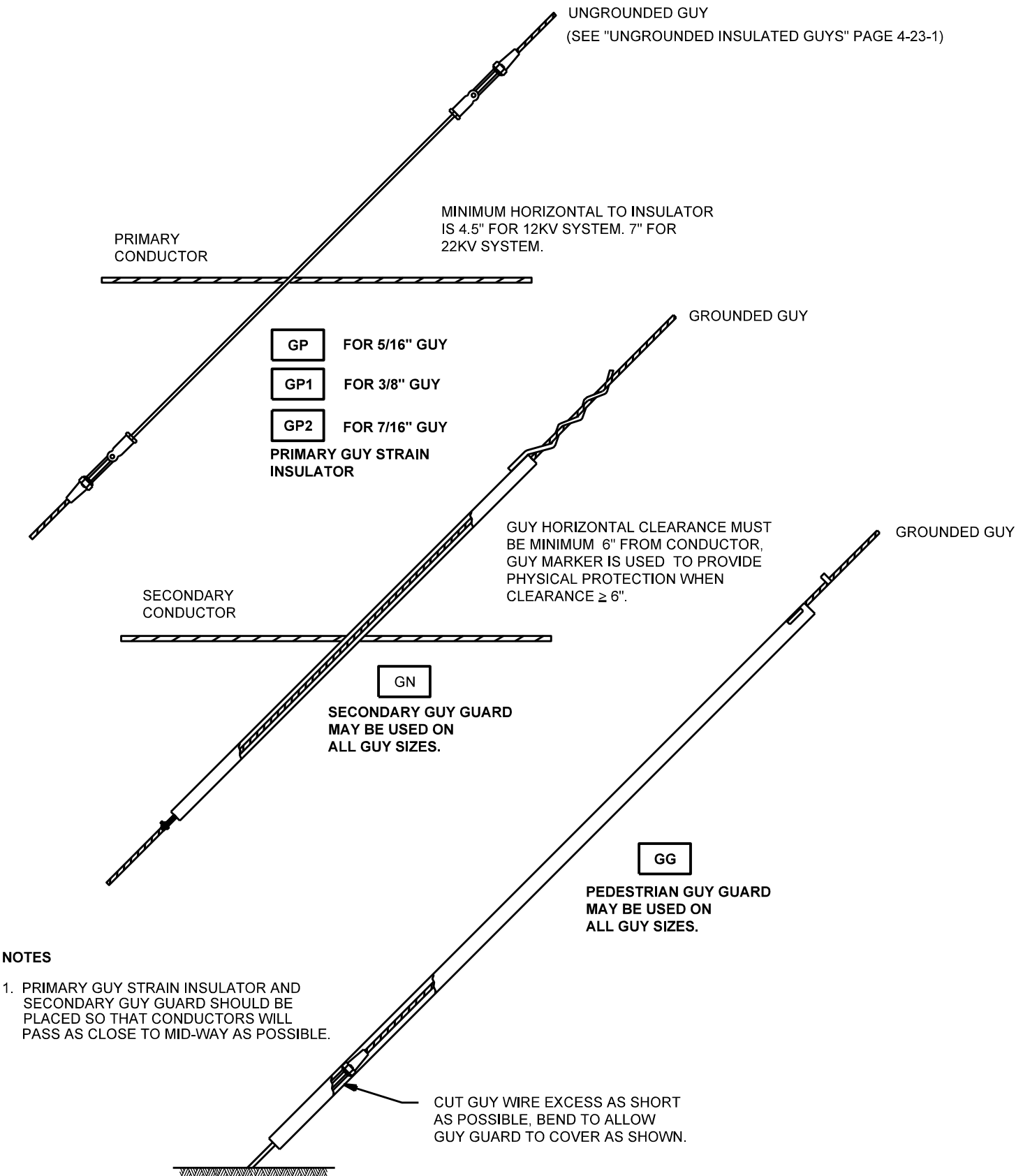
4-16-1

ISSUE DATE: 08/09/93

REV. DATE: 04/30/13

APPROVAL: B.PRIEST

8512E221.DGN

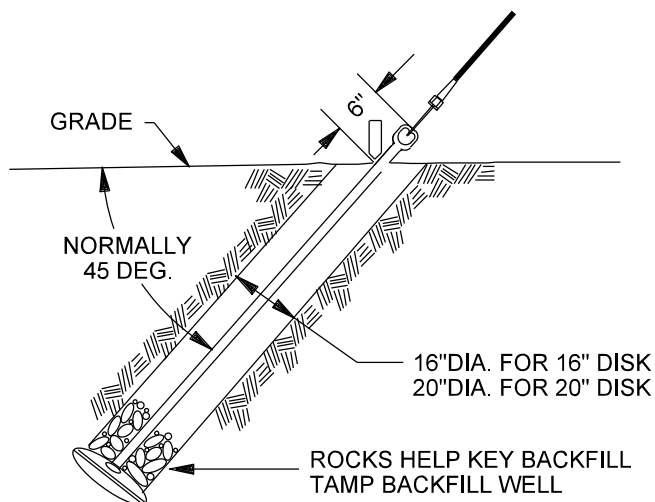


NOTES

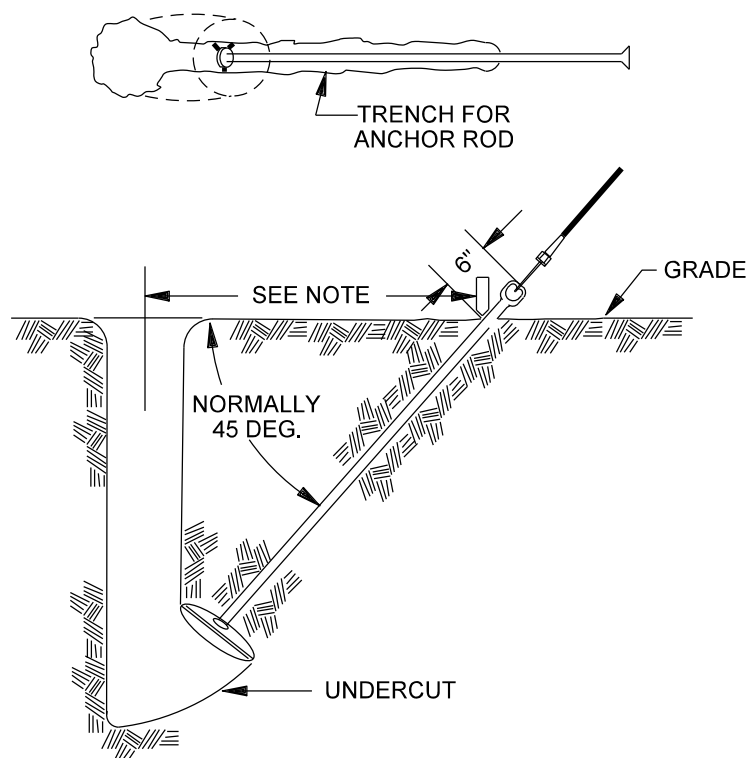
1. PRIMARY GUY STRAIN INSULATOR AND SECONDARY GUY GUARD SHOULD BE PLACED SO THAT CONDUCTORS WILL PASS AS CLOSE TO MID-WAY AS POSSIBLE.

Overhead Distribution Construction Standards SRP[®] PROPRIETARY MATERIAL	POLE GUYING AND BRACING PRIMARY, SECONDARY AND PEDESTRIAN GUY GUARDS 4-17-1	ISSUE DATE: 11/04/71 REV. DATE: 01/27/11 APPROVAL: B.PRIEST 8512E258.DGN
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DRILLED HOLE PREFERRED

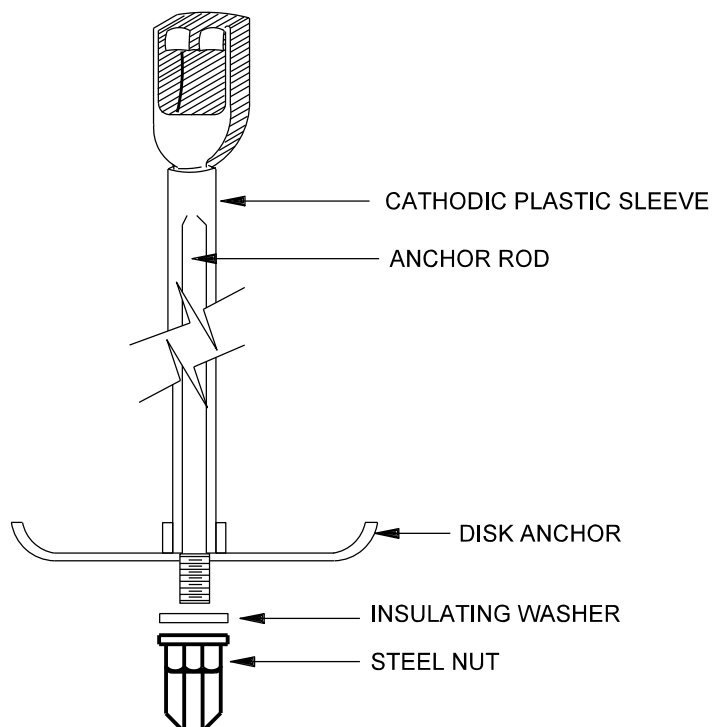


TRENCHED HOLE ALTERNATE



A108 16" DISK ANCHOR & 3/4" X 8'
CORROSION RESISTANT ROD
TWIN EYE

A120 20" DISK ANCHOR & 1" X 10'
CORROSION RESISTANT ROD
TWIN EYE



NOTES

1. DISTANCE FROM ANCHOR STAKE LOCATION:
DIMENSION FOR 8' ANCHOR ROD = 5'
DIMENSION FOR 10' ANCHOR ROD = 6'- 6"

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING CORROSION RESISTANT ANCHOR AND ROD

4-18-1

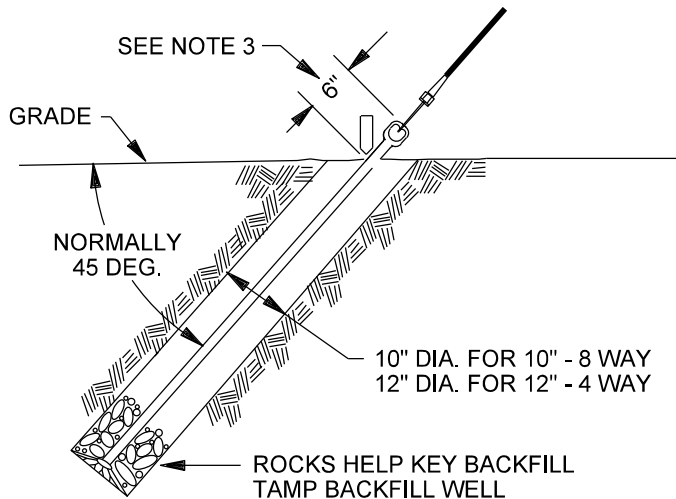
ISSUE DATE: 04/22/83

REV. DATE: 05/17/12

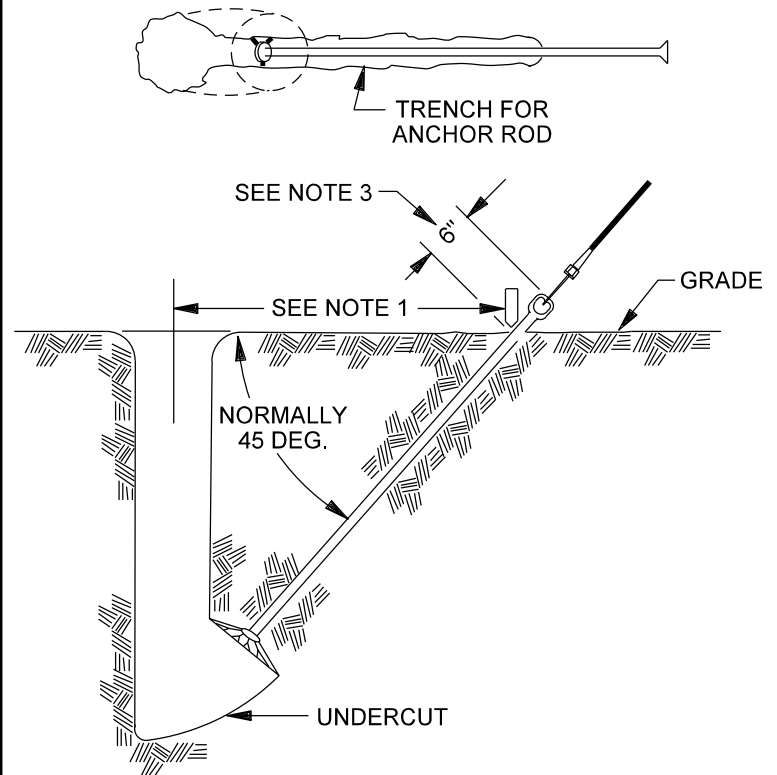
APPROVAL: B. PRIEST

8512E45.DGN

DRILLED HOLE PREFERRED



TRENCHED HOLE ALTERNATE



A108HD

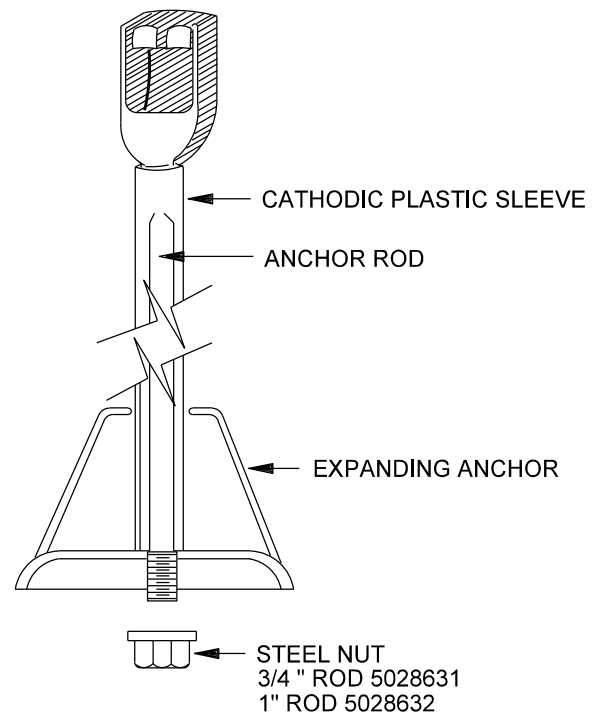
10" EXPANDING ANCHOR & 3/4" X 8'
CORROSION RESISTANT ROD
TWIN EYE & NUT

A120HD

12" EXPANDING ANCHOR & 1" X 10'
CORROSION RESISTANT ROD
TWIN EYE & NUT

NOTES

1. DISTANCE FROM ANCHOR STAKE LOCATION
DIMENSION FOR 8 FT. ANCHOR ROD = 5'
DIMENSION FOR 10 FT. ANCHOR ROD = 6'-6"
2. EXPANDING "BUST" ANCHOR ONLY FOR TEMPORARY
GUYING AND BRACING INSTALLATIONS.
3. NORMAL LENGTH OF EXPOSED ROD IS 6". FOR
TEMPORARY GUYING AND BRACING, MAXIMUM
EXPOSED ANCHOR ROD OF 24" MAY BE USED.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING TEMPORARY INSTALLATION ANCHOR AND ROD

4-19-1

ISSUE DATE: 09/30/71

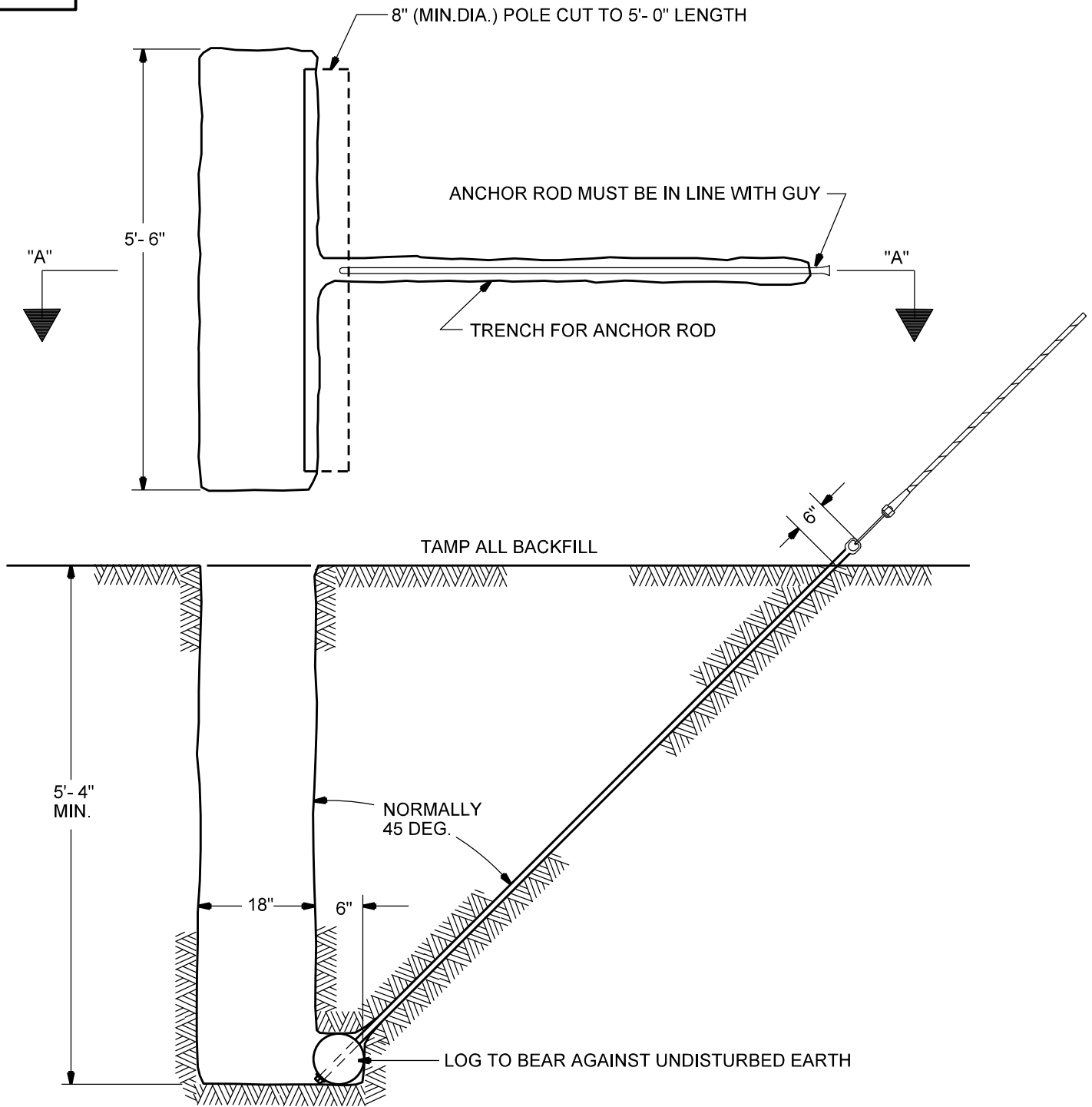
REV. DATE: 03/24/16

APPROVAL: S. DURAN

8512E47.DGN

AL8

5' LOG ANCHOR WITH 8' ROD



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING
LOG ANCHORS

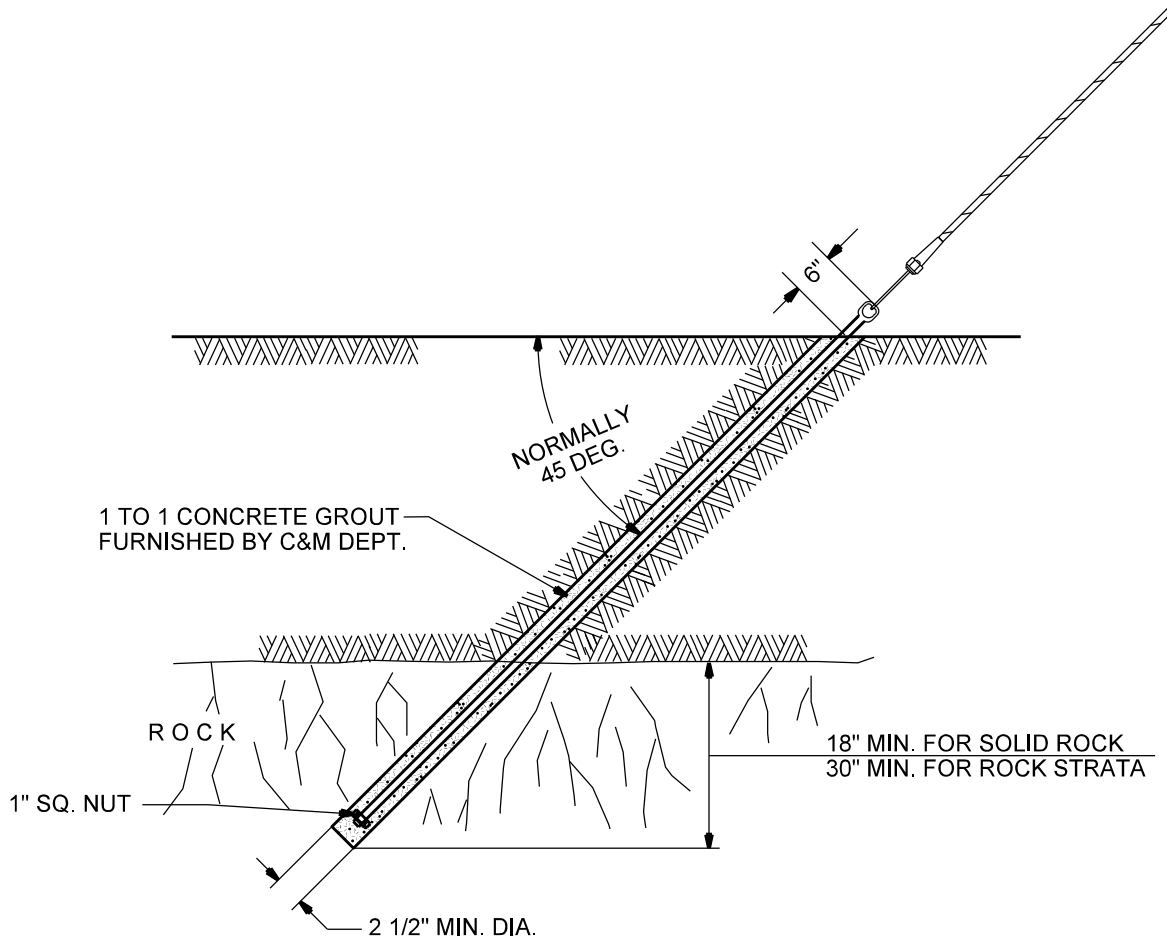
4-20-1

ISSUE DATE: 09/30/71

REV. DATE: 05/17/12

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8512E273.DGN



NOTES

1. THIS ANCHOR NORMALLY INSTALLED BY C&M DEPT.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING AND BRACING GROUTED ROCK ANCHORS

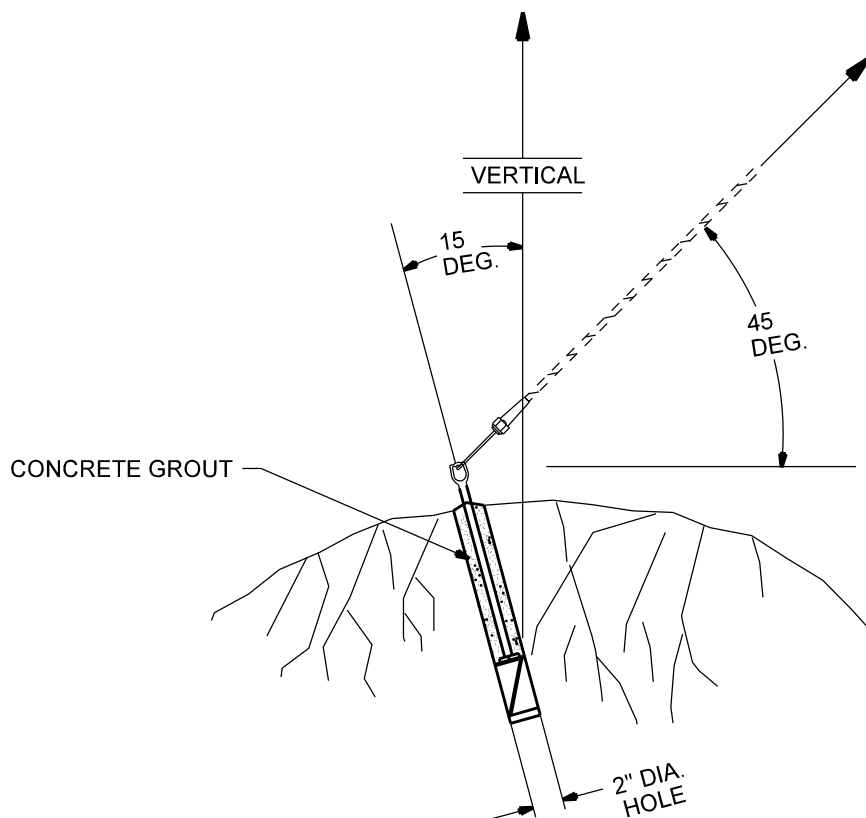
4-21-1

ISSUE DATE: 09/30/71

REV. DATE: 05/17/12

APPROVAL: B. PRIEST

8512E274.DGN



NOTES

1. DO NOT INSTALL ON ANY BOULDERS MEASURING LESS THAN FIVE FEET IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER.
2. THIS ANCHOR NORMALLY INSTALLED BY C&M DEPT.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING SURFACE ROCK ANCHORS	ISSUE DATE: 09/30/71 REV. DATE: 06/02/11 APPROVAL: B. PRIEST
	4-22-1	8512E275.DGN

UNGROUNDED (INSULATED) GUYS

1. OBJECTIVES

THIS PROCEDURE AND EXAMPLES ON THE FOLLOWING PAGES WILL:

DEFINE GUYING

PROVIDE GUIDELINES FOR THE INSTALLATION OF UNGROUNDED (INSULATED) GUYS

2. RESPONSIBILITIES

ESE WILL MAINTAIN PROGRAM PROCEDURES (REVIEW NESC FOR CHANGES), ADVISE AND TRAIN PERSONNEL WHO DESIGN AND BUILD FACILITIES WITH GUYS AND PROVIDE INSPECTION SERVICES IF REQUESTED BY RESPONSIBLE DIVISIONS. THE RESPONSIBLE DIVISIONS WILL ASSURE THAT DESIGNS PROPERLY SHOW HOW GUYS AND GUY INSULATORS ARE USED AND WHERE TO INSTALL THEM. THE LINE CREWS THAT CONSTRUCT THE GUYING MUST BE SURE THAT THE GUYS ARE PROPERLY GROUNDED OR IF UNGROUNDED THE INSULATED SECTIONS ARE PROPERLY INSTALLED.

3. DEFINITIONS:

- A. GUY - A SUPPORTING MEMBER FASTENED BETWEEN A FIXED SUPPORT AND A POLE TO PROVIDE AN OPPOSING FORCE TO BALANCE CONDUCTOR TENSION(S) ACTING ON THE POLE.
- B. DOWN GUY - A DOWN GUY CONSISTS OF A WIRE RUNNING FROM AN ATTACHMENT ON A POLE TO A ROD AND ANCHOR INSTALLED IN THE GROUND.
- C. SPAN OR HEAD GUY - A SPAN GUY CONSISTS OF A WIRE RUNNING FROM AN ATTACHMENT ON A POLE TO AN ADJACENT POLE OPPOSING THE STRAIN FROM THE LINE CONDUCTORS. INSULATED GUY ROD - A DEVICE INSTALLED IN A GUY TO MAINTAIN ADEQUATE ELECTRICAL CLEARANCES, PROVIDE SAFE WORKING SPACE FOR LINEMEN, REDUCE NUISANCE LINE TRIPPING FROM GUY CONTACTS WITH LINE CONDUCTORS AND PROTECT THE PUBLIC AGAINST POSSIBLE EXPOSURE TO AN ENERGIZED GUY.

4. GROUNDING GUY REQUIREMENTS

ALL GUYS SHALL BE EFFECTIVELY GROUNDED UNLESS INSULATED PER ITEM NO. 5.

TO BE EFFECTIVELY GROUNDED, GUYS SHALL BE ELECTRICALLY CONNECTED TO ONE OR MORE OF THE FOLLOWING:

- A. GROUNDED METALLIC SUPPORTING STRUCTURE (GROUNDED STEEL POLE)
- B. AN EFFECTIVE GROUND ON A NONMETALLIC SUPPORTING STRUCTURE (POLE GROUND)
- C. A LINE CONDUCTOR THAT HAS AT LEAST FOUR (4) GROUNDS IN EACH MILE OF LINE (SYSTEM NEUTRAL)

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING UNGROUNDED INSULATED GUYS	ISSUE DATE: 10/13/97 REV. DATE: 05/10/11 APPROVAL: B. Priest
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5. INSULATED GUY RODS

ALL EFFORTS TO GROUND THE GUY WIRE MUST BE EXHAUSTED PRIOR TO INSTALLATION OF THE INSULATED GUY SECTION. WHEN THE GUY TO ENERGIZED PART CLEARANCE CANNOT BE OBTAINED, THE INSULATED GUY MUST COMPLY WITH THE FOLLOWING:

- A. INSULATORS SHALL BE SO PLACED THAT IF THE GUY IS BROKEN BELOW THE INSULATOR OR ANY GUY IS CONTACTED BY AN ENERGIZED CONDUCTOR OR PART, THE VOLTAGE WILL NOT BE TRANSFERRED TO OTHER FACILITIES ON THE STRUCTURE(S) OR BELOW 8' ABOVE GROUND.
- B. INSULATORS SHALL BE SO PLACED THAT IN CASE ANY GUY SAGS DOWN UPON ANOTHER, THE INSULATORS WILL NOT BECOME INEFFECTIVE.

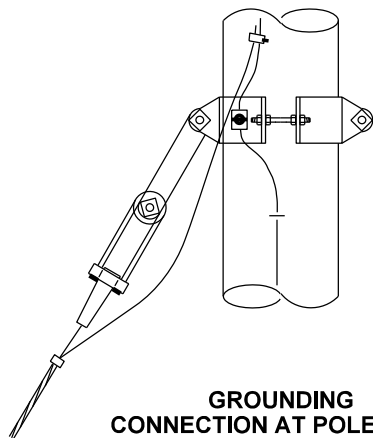
THE PLACEMENT OF INSULATOR(S) IN AN UNGROUNDED GUY IS INTENDED TO PROTECT THE PUBLIC AGAINST A POSSIBLE EXPOSURE TO AN ENERGIZED GUY. THE PROPER LOCATION OF AN INSULATOR IN AN UNGROUNDED GUY MAY BE DETERMINED AS FOLLOWS:

DOWN GUY - THE HORIZONTAL PLANE DEFINED BY THE LOWEST ENERGIZED FACILITY SHALL PASS THROUGH THE CENTER OR UPPER HALF OF THE LOWEST GUY INSULATOR. A FACILITY IS CONSIDERED ENERGIZED IF IT IS AT A SERVICE VOLTAGE (120 VOLTS) OR HIGHER. A CHECK SHALL BE MADE TO DETERMINE, UNDER A BROKEN GUY CONDITION (AT ANCHOR EYE), GUY HANGING VERTICALLY, THAT REQUIREMENTS 5A AND 5B ARE MET.

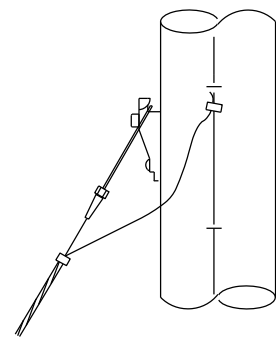
HEAD GUY - TERMINATED TO STUB POLE, NO OTHER ELECTRICAL FACILITIES ADJACENT/ON THE STUB POLE OR BETWEEN THE GUYED AND STUB POLE: THE HORIZONTAL PLANE DEFINED BY THE LOWEST ENERGIZED FACILITY SHALL PASS THROUGH THE CENTER OR UPPER HALF OF THE LOWEST GUY INSULATOR. A CHECK SHALL BE MADE TO DETERMINE, UNDER A BROKEN GUY CONDITION (AT STUB POLE), GUY HANGING VERTICALLY, THAT REQUIREMENTS 5A AND 5B ARE MET.

HEAD GUY - TERMINATED TO STUB POLE, WITH OTHER ELECTRICAL FACILITIES ADJACENT/ON THE STUB POLE OR BETWEEN THE GUYED AND STUB POLE: IN ADDITION TO THE ABOVE CHECK, A CHECK SHALL BE MADE, UNDER A BROKEN GUY CONDITION (AT THE GUYED POLE), GUY HANGING VERTICALLY, THAT REQUIREMENTS 5.A. AND 5.B. ARE MET.

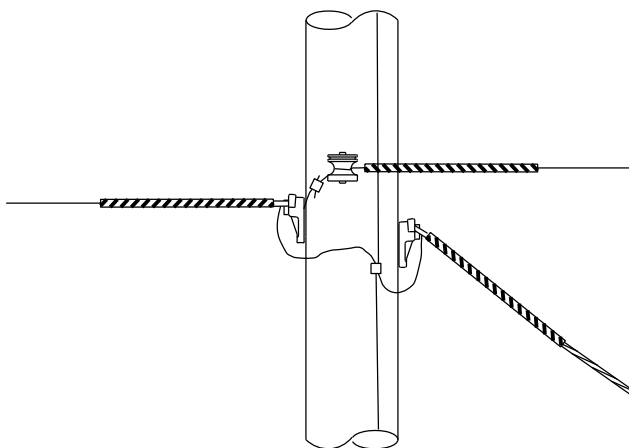
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	POLE GUYING AND BRACING UNGROUND INSULATED GUYS	ISSUE DATE: 10/13/97 REV. DATE: 05/10/11 APPROVAL: B. Priest
	4-23-2	OH4-23-1.doc



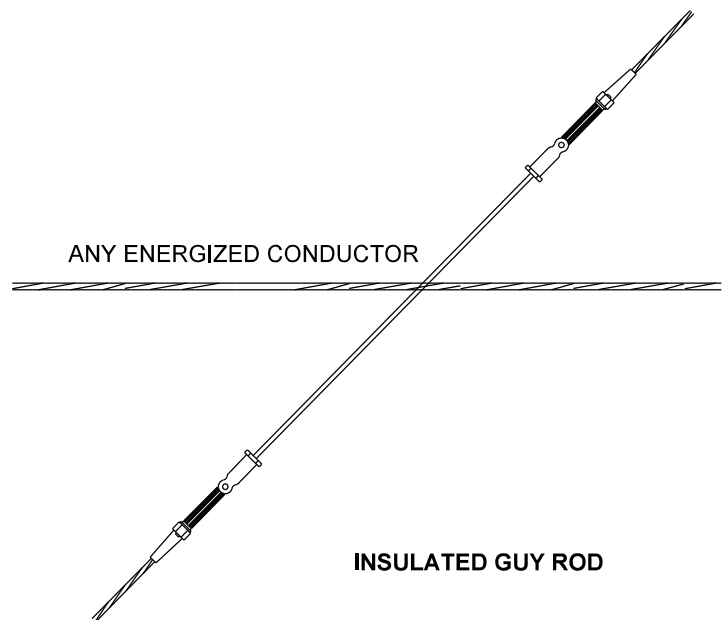
**GROUNDING
CONNECTION AT POLE BAND**



**GROUNDING
CONNECTION AT GUY ATTACHMENT**



**GROUNDING
CONNECTION AT NEUTRAL**



INSULATED GUY ROD

NOTES

1. PRIMARY & SECONDARY GUY STRAIN INSULATOR SHOULD BE PLACED SO THAT CONDUCTORS WILL PASS AS CLOSE TO MID-WAY AS POSSIBLE.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING MISCELLANEOUS GUYING STANDARDS

4-24-1

ISSUE DATE: 10/13/97

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APPROVAL: B. PRIEST

8512E426.DGN

CENTER OR UPPER HALF OF
INSULATED ROD MUST BE IN
HORIZONTAL PLANE PROJECTED
FROM LIVE PART OF DEVICE.

IF SECONDARY IS ON THIS POLE THE ENTIRE
GUY STRAND SHALL BE INSULATED ROD
LEAVING ENOUGH WIRE FOR ADJUSTMENT.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
TRANSMISSION WITH DISTRIBUTION
UNDERBUILD WITH SPAN GUYS

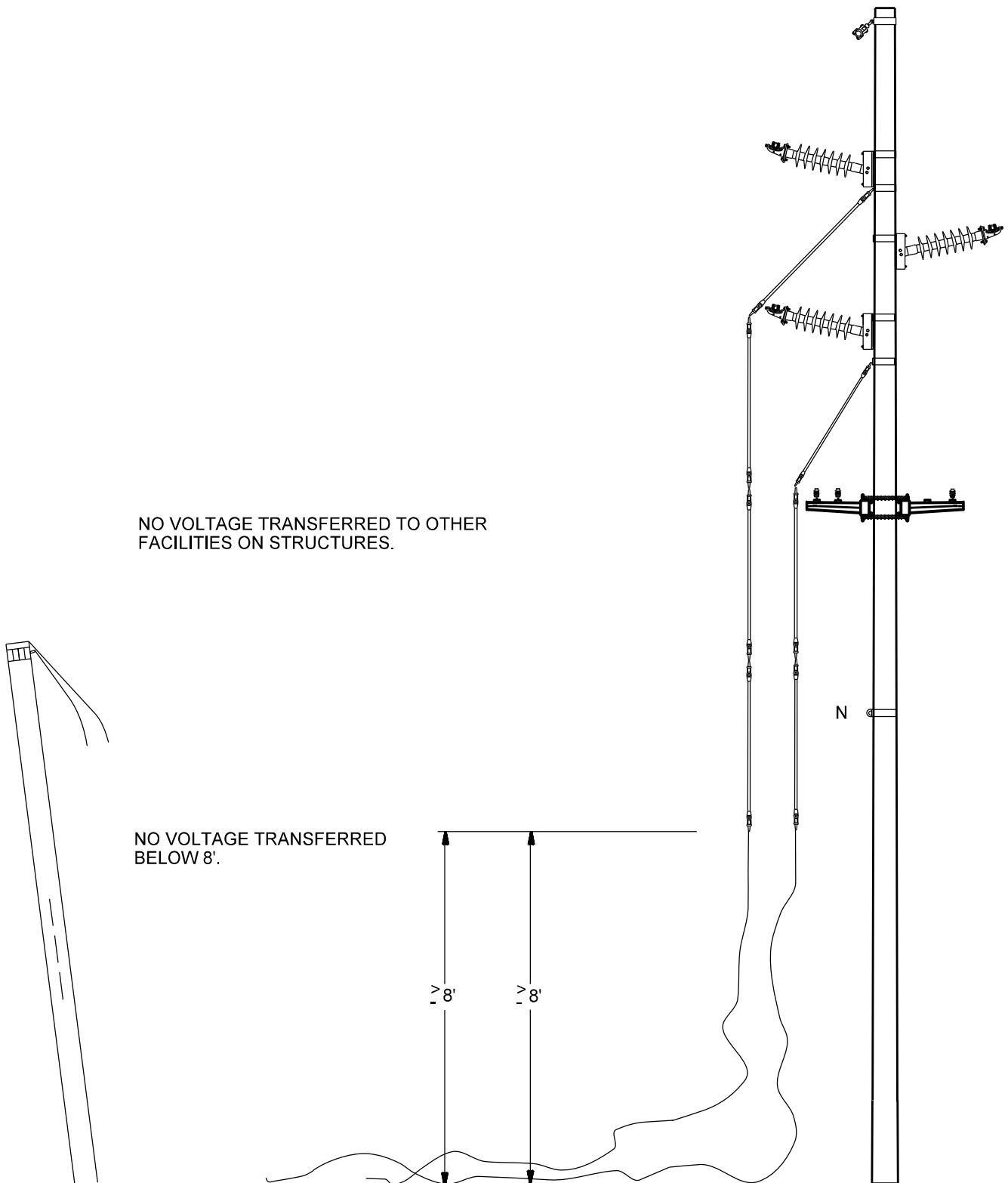
4-25-1

ISSUE DATE: 10/13/97

REV. DATE: 01/27/11

APPROVAL: B. PRIEST

8512E449.DGN



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
TRANSMISSION WITH DISTRIBUTION
UNDERBUILD WITH SPAN GUYS (FAILED)

4-25-2

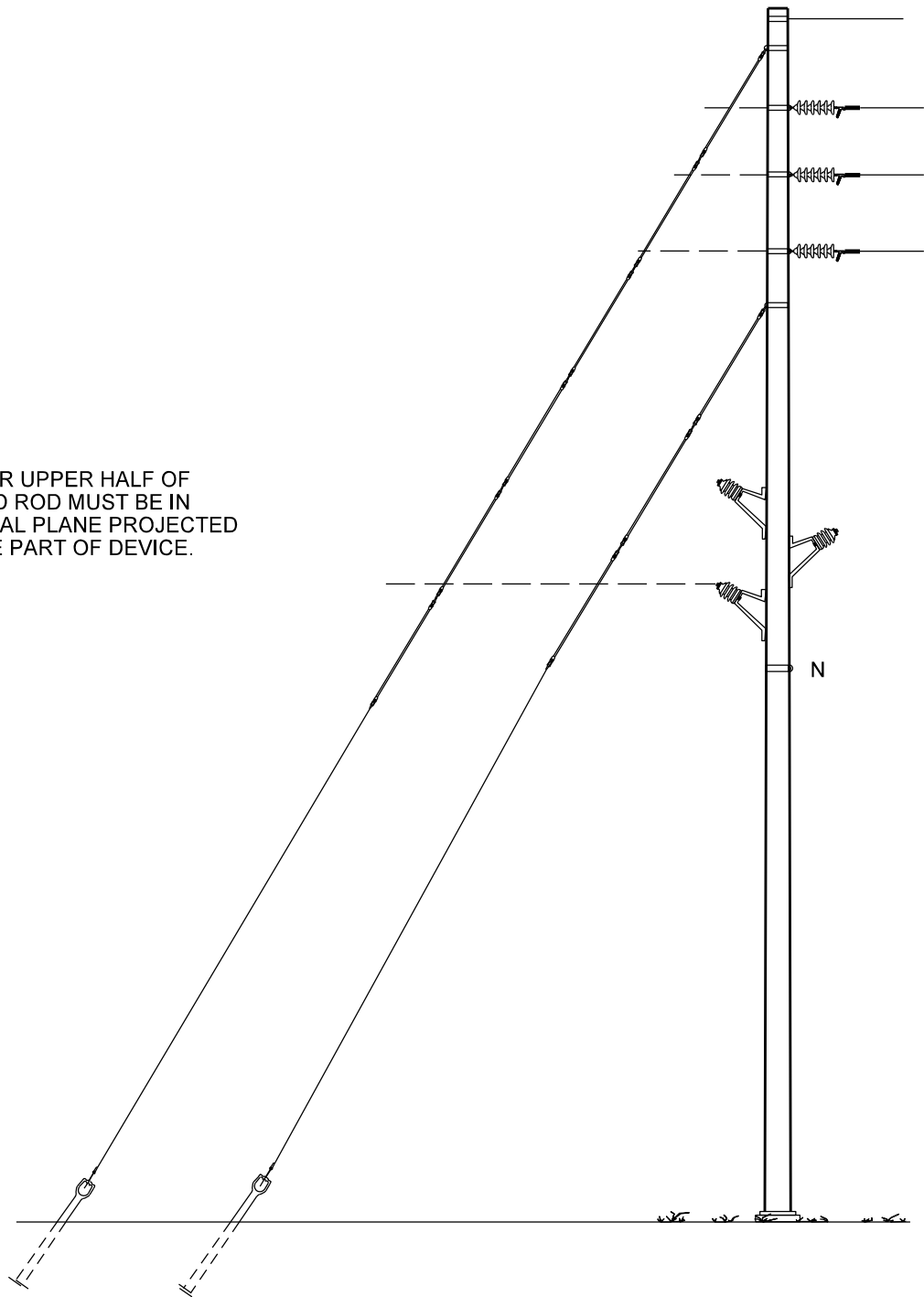
ISSUE DATE: 10/13/97

REV. DATE: 01/27/11

APPROVAL: B. PRIEST

8512E450.DGN

CENTER OR UPPER HALF OF
INSULATED ROD MUST BE IN
HORIZONTAL PLANE PROJECTED
FROM LIVE PART OF DEVICE.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
TRANSMISSION DEAD END WITH DISTRIBUTION
UNDERBUILD AT 90°

4-26-1

ISSUE DATE: 10/13/97

REV. DATE: 01/27/11

APPROVAL: B. PRIEST

8512E451.DGN

NO VOLTAGE TRANSFERRED TO OTHER
FACILITIES ON STRUCTURES.

NO VOLTAGE TRANSFERRED
BELOW 8'.

8'

N

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
TRANSMISSION DEAD END WITH DISTRIBUTION
UNDERBUILD AT 90° (FAILED)

4-26-2

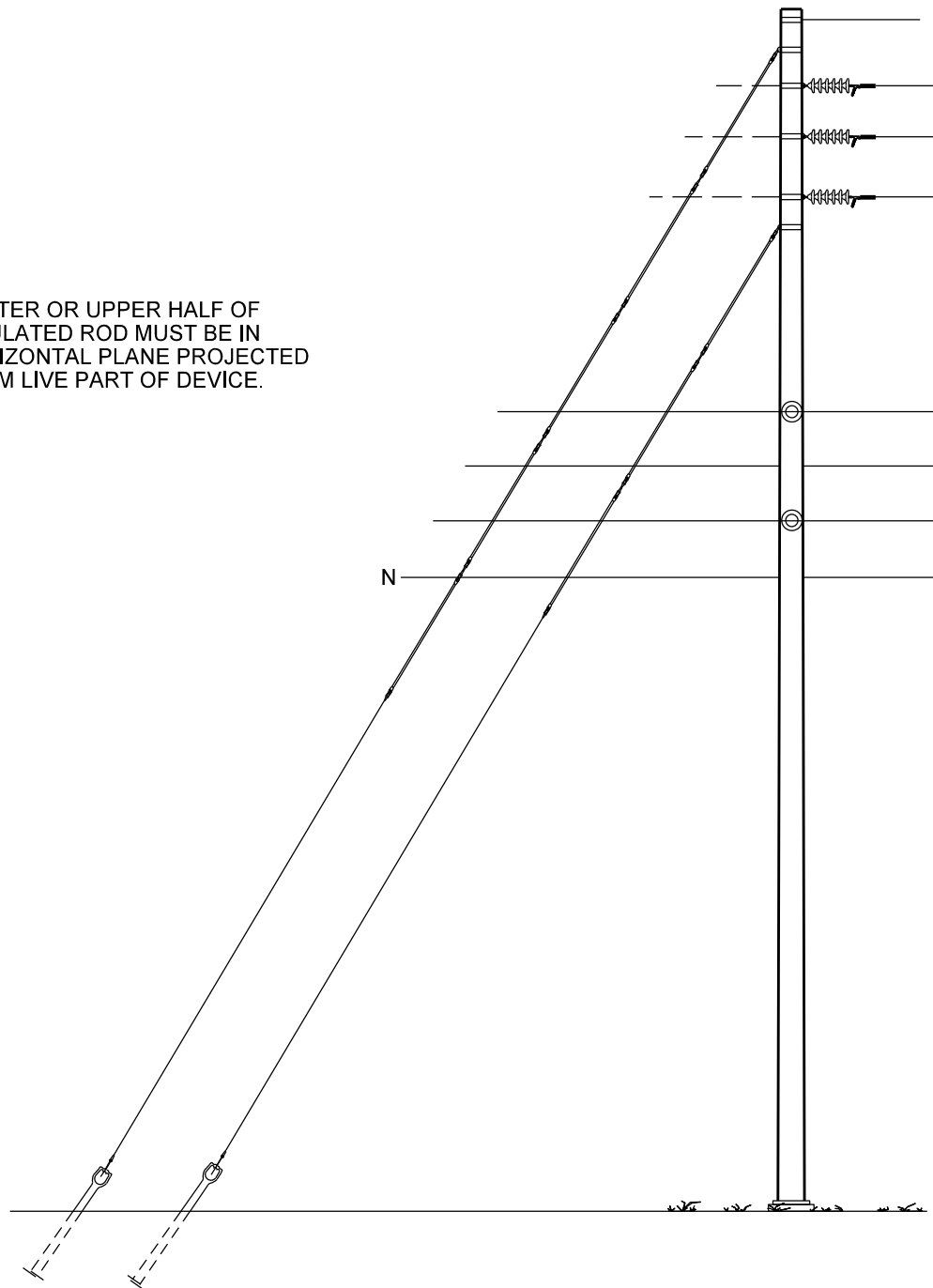
ISSUE DATE: 10/13/97

REV. DATE: 01/27/11

APPROVAL: B. PRIEST

8512E452.DGN

CENTER OR UPPER HALF OF
INSULATED ROD MUST BE IN
HORIZONTAL PLANE PROJECTED
FROM LIVE PART OF DEVICE.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
TRANSMISSION DEAD END WITH DISTRIBUTION
UNDERBUILD CONTINUING ON

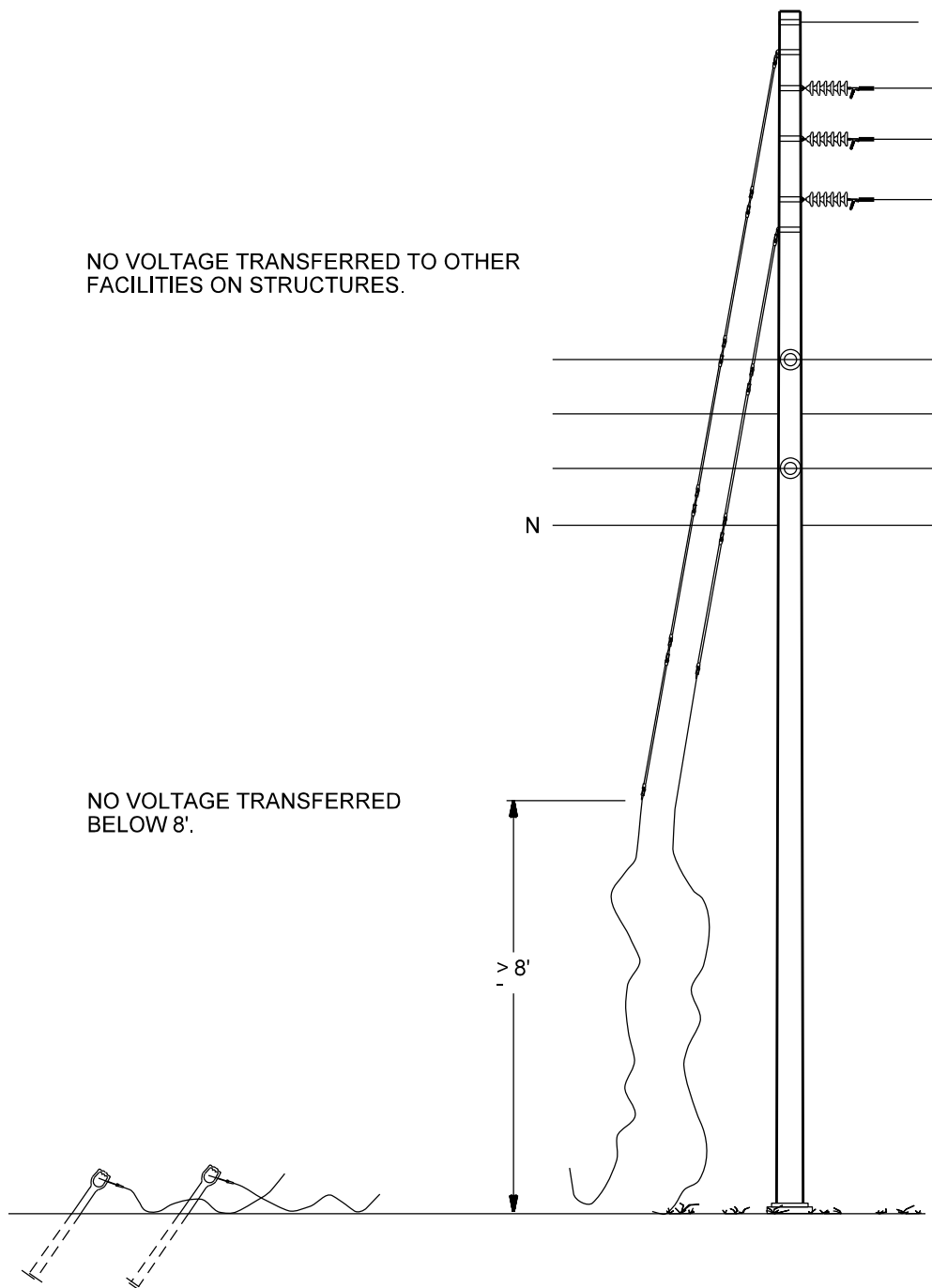
4-27-1

ISSUE DATE: 10/13/97

REV. DATE: 01/27/11

APPROVAL: B. PRIEST

8512E453.DGN



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
TRANSMISSION DEAD END WITH DISTRIBUTION
UNDERBUILD CONTINUING ON (FAILED)

4-27-2

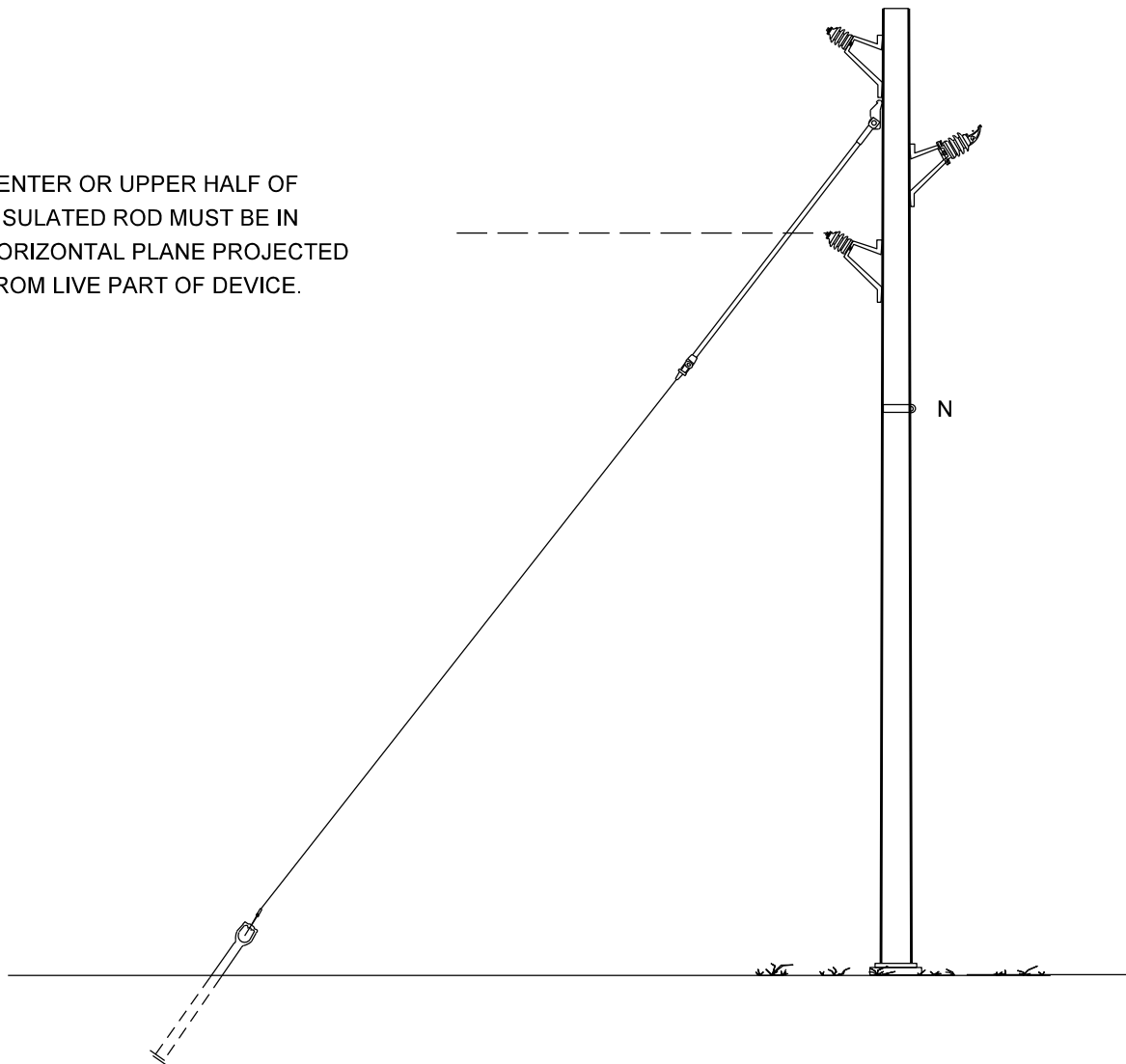
ISSUE DATE: 10/13/97

REV. DATE: 01/27/11

APPROVAL: B. PRIEST

8512E454.DGN

CENTER OR UPPER HALF OF
INSULATED ROD MUST BE IN
HORIZONTAL PLANE PROJECTED
FROM LIVE PART OF DEVICE.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
DISTRIBUTION, VERTICAL CONSTRUCTION

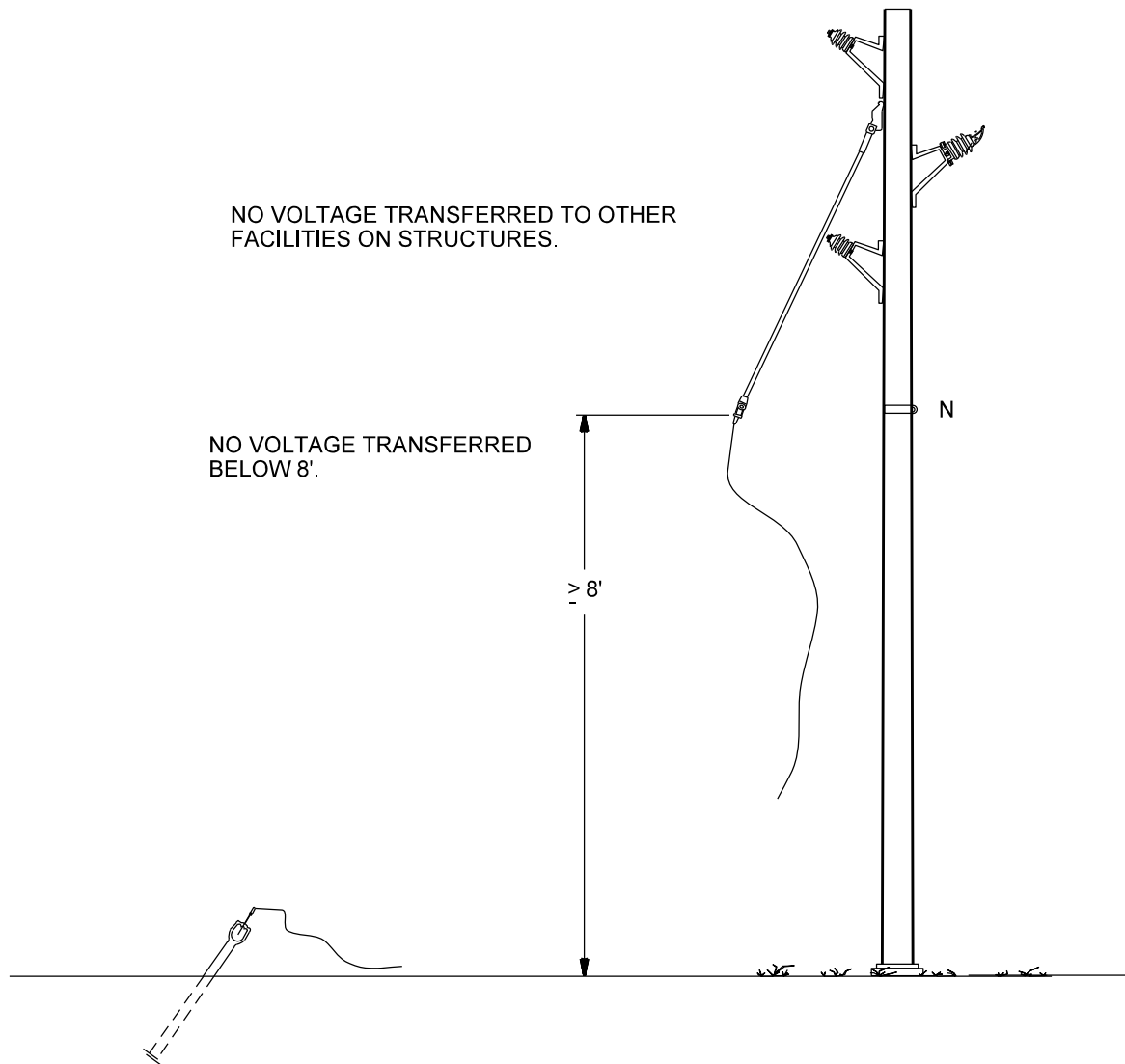
4-28-1

ISSUE DATE: 10/13/97

REV. DATE: 10/21/13

APPROVAL: B. PRIEST

8512E455.DGN



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
DISTRIBUTION, VERTICAL CONSTRUCTION
(FAILED)

4-28-2

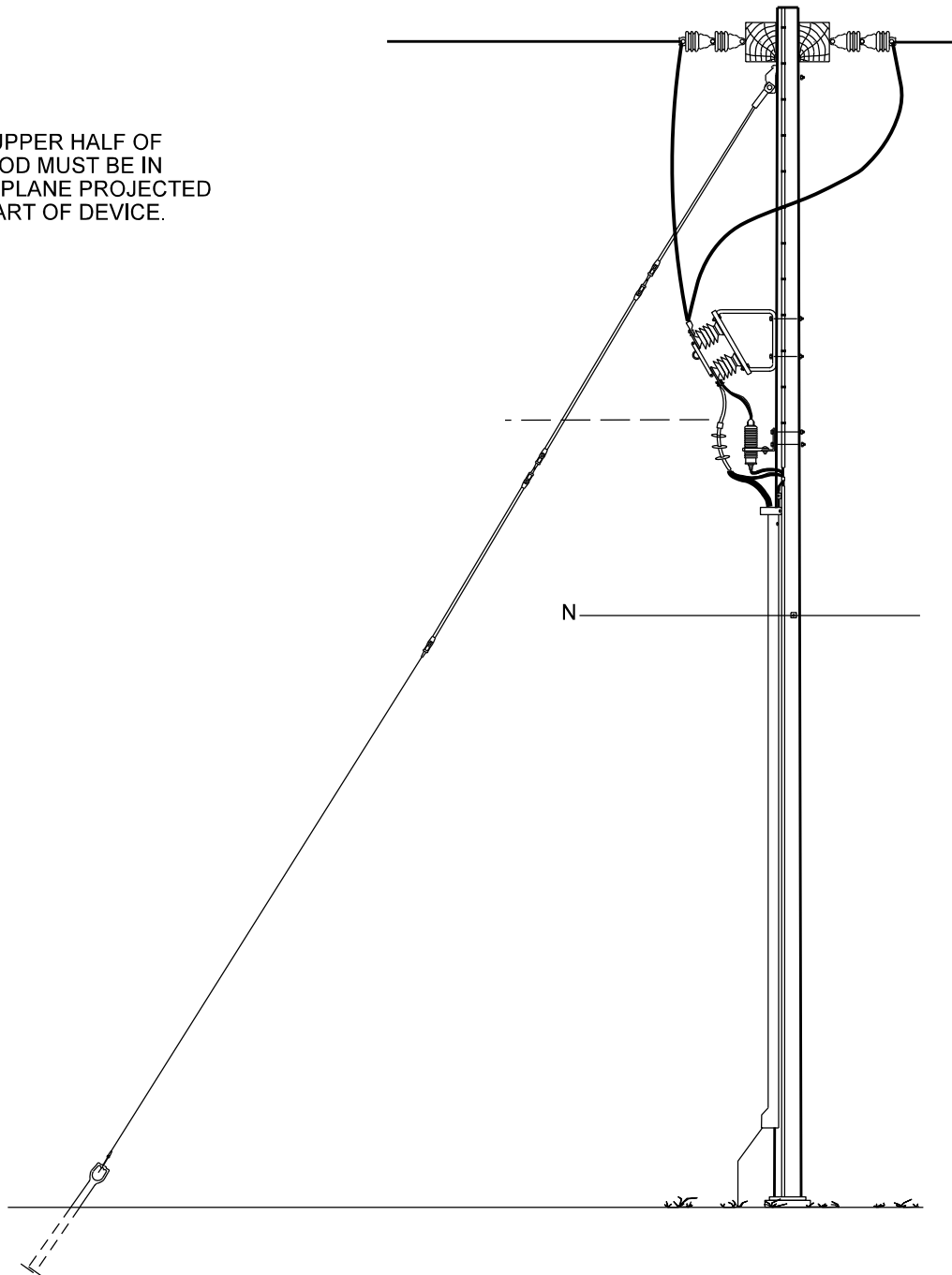
ISSUE DATE: 10/13/97

REV. DATE: 10/27/13

APPROVAL: B. PRIEST

8512E456.DGN

CENTER OR UPPER HALF OF
INSULATED ROD MUST BE IN
HORIZONTAL PLANE PROJECTED
FROM LIVE PART OF DEVICE.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
DISTRIBUTION DOUBLE DEAD END
WITH RISER

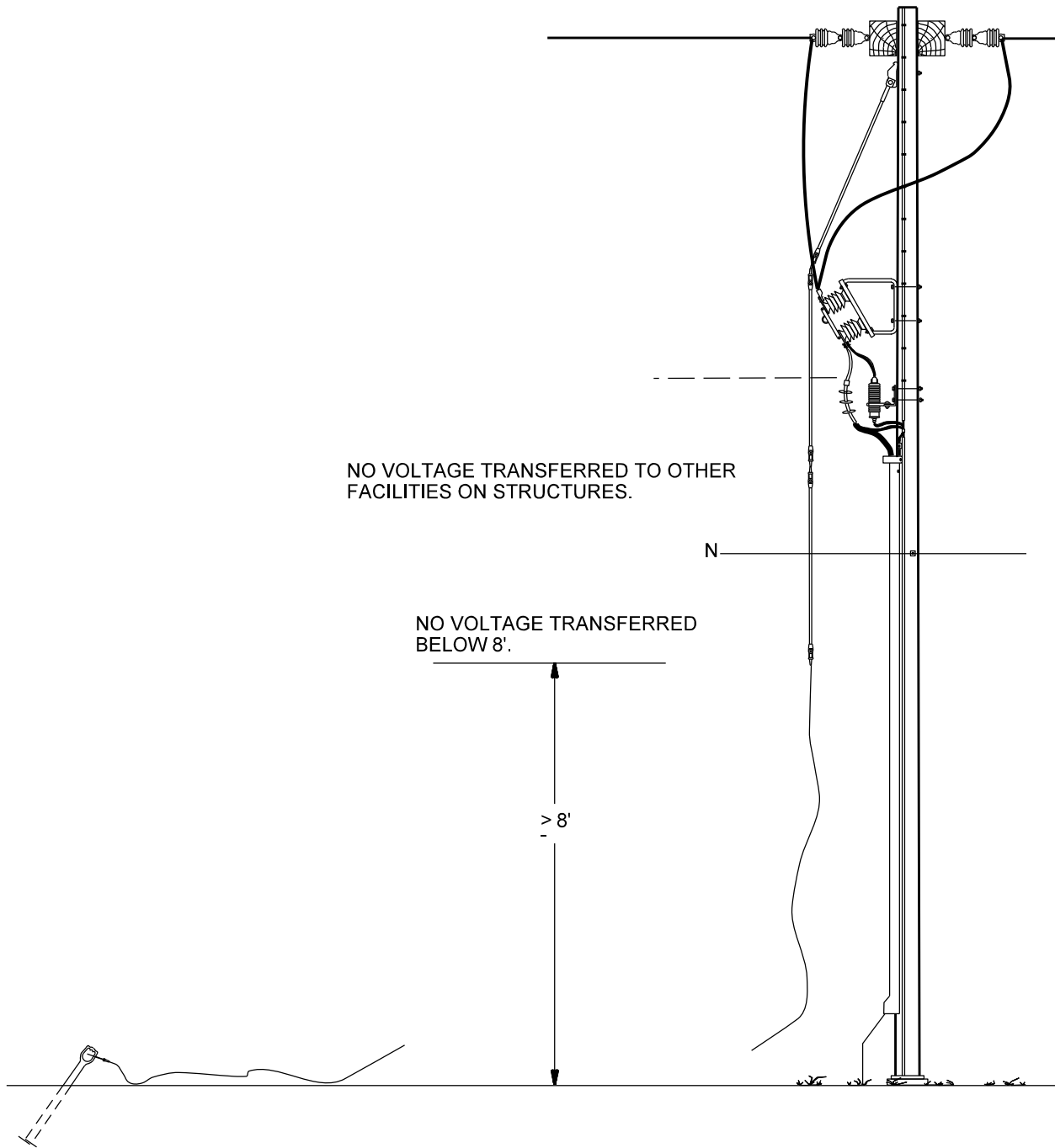
4-29-1

ISSUE DATE: 10/13/97

REV. DATE: 10/27/13

APPROVAL: B. PRIEST

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Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING
DISTRIBUTION DOUBLE DEAD END
WITH RISER (FAILED)

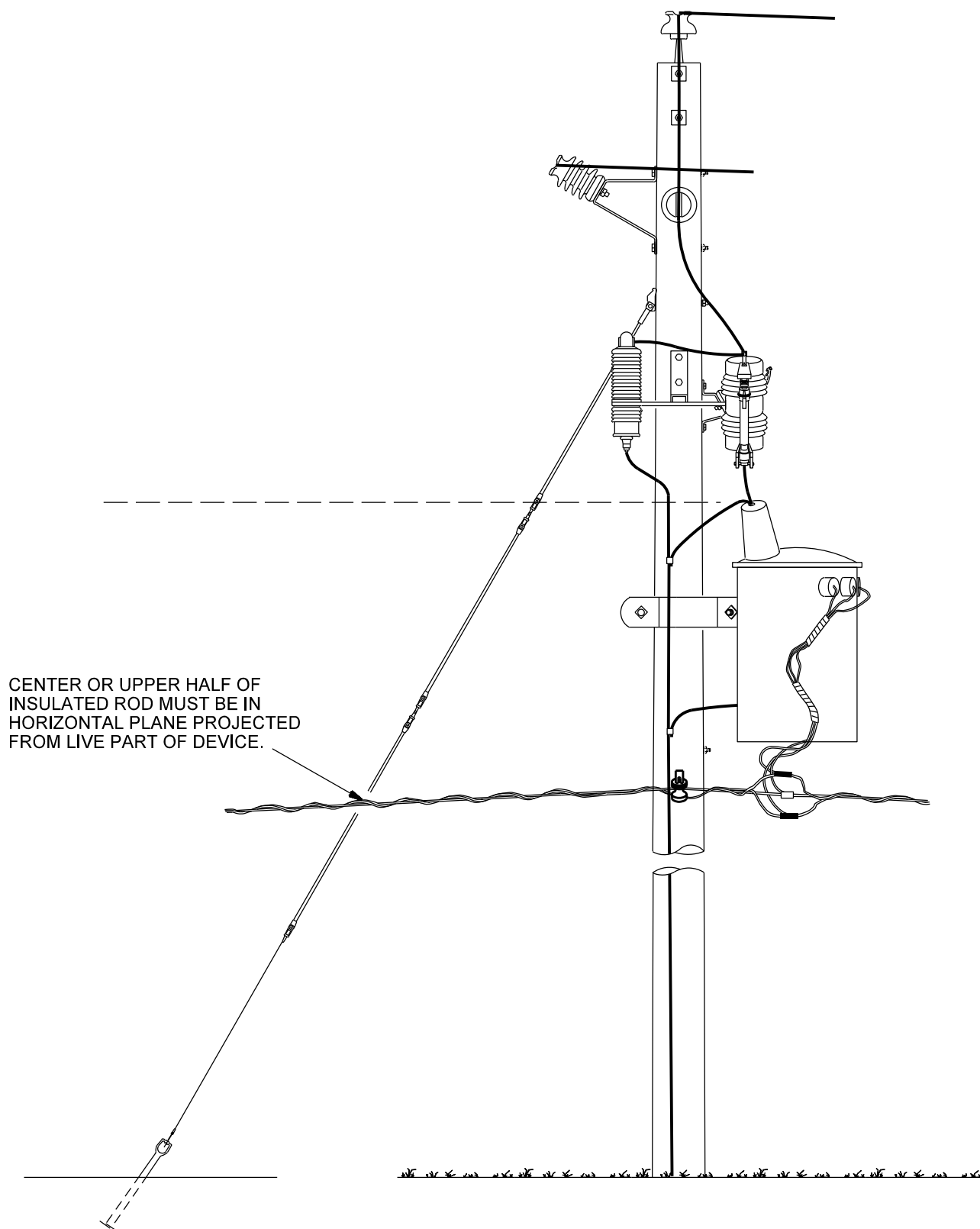
4-29-2

ISSUE DATE: 10/13/97

REV. DATE: 10/29/13

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Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING WITH DISTRIBUTION SECONDARY

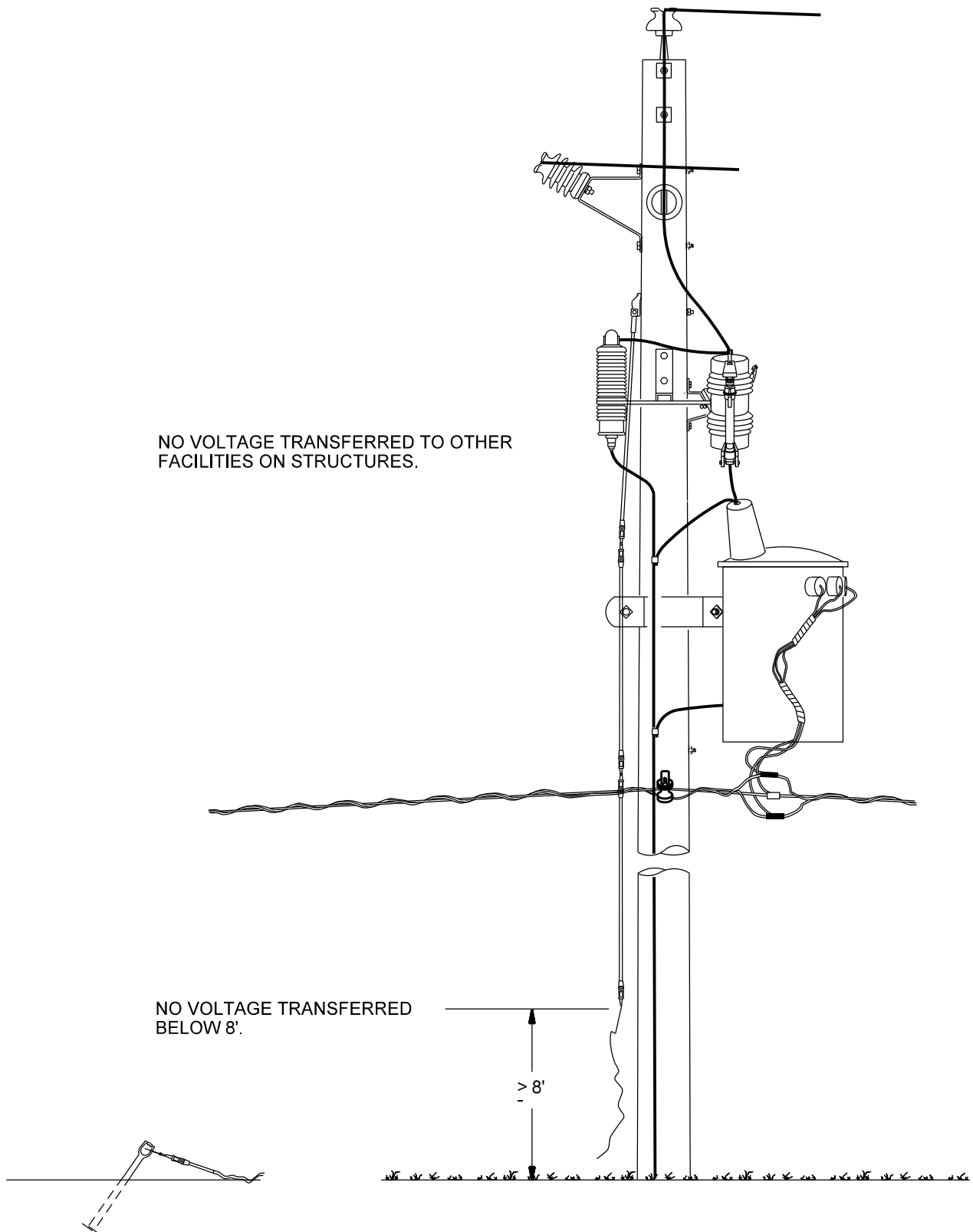
4-30-1

ISSUE DATE: 02/09/07

REV. DATE: 11/25/13

APPROVAL: B. PRIEST

8512E459.DGN



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

POLE GUYING & BRACING WITH DISTRIBUTION SECONDARY (FAILED)

4-30-2

ISSUE DATE: 02/09/07

REV. DATE: 10/24/13

APPROVAL: B. PRIEST

8512E460.DGN

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THIS GUIDE RELATES TO THE INSTALLATION, REMOVAL OR REPLACEMENT OF OVERHEAD DISTRIBUTION PRIMARY CONSTRUCTION UNITS. IN GENERAL, THE ITEMS DIAGRAMED WITH BROKEN OR DASHED LINES IN THE FOLLOWING STANDARDS ARE NOT INCLUDED IN THE COMPATIBLE UNIT.

COMPATIBLE UNIT CODING FOR “P” SECTION

GENERAL CRITERIA

THIS SECTION IS COMPOSED OF THE SINGLE, DUAL AND THREE PHASE UNITS USED IN THE CONSTRUCTION OF 7200/12470 VOLT OVERHEAD DISTRIBUTION LINES. DASHES IN THE COMPATIBLE UNIT NUMBERS INDICATE A WIRE CODE MUST BE ADDED TO COMPLETE THE NUMBER. REFER TO THE MISCELLANEOUS SECTION FOR CONDUCTOR CODING CHARTS.

PRIMARY CODING, STANDARD VERTICAL CONSTRUCTION

THE STANDARDS ARE GENERALLY IN ORDER ACCORDING TO THE NUMBER OF PHASES AND DEGREE OF LINE ANGLE INVOLVED. THE FIRST DIGIT REPRESENTS THE NUMBER OF PHASES. THE SECOND DIGIT REPRESENTS THE DEGREE OF LINE ANGLE AND IS CODED AS FOLLOWS:

- 0TANGENT, 0° - 6°
- 1SMALL ANGLE, 6° - 15°
- 2INTERMEDIATE ANGLE, 15° - 30°
- 3MEDIUM ANGLE, 30° - 60°
- 4LARGE ANGLE, 60° - 90°
- 5DEAD END, SINGLE
- 6CROSSARM DEADEND & 180° SLACK SPAN
- 7TANGENT & 90° BUCK (SINGLE PHASE ONLY)
- 8VERTICAL DEADEND & 180° SLACK SPAN
- 9CROSSARM TENSION DOUBLE DEADEND

THE THIRD INDICATOR OF THE CODE MAY BE AN “A” WHICH INDICATES THAT ARMOR RODS WILL BE USED. OR IT MAY BE AN “A, B, C, D, E, F, G, H, J OR K”, WHICH SPECIFIES THE VARIATION IN FRAMING OR MATERIAL REQUIRED. THE FOURTH INDICATOR, WHEN REQUIRED, WILL ALWAYS BE AN “A” AND DESIGNATES THE USE OF ARMOR RODS FOR THE INSTALLATION. **NOTE:** THE NEUTRAL OR SECONDARY ATTACHMENTS MUST BE REQUESTED SEPARATELY – THEY ARE NOT INCLUDED IN THE “P” SECTION MATERIALS FOR WOOD POLE CONSTRUCTION.

BUCK

BUCK STRUCTURES HAVE BEEN ASSIGNED A “PB” PREFIX. THESE UNITS ARE DESIGNED FOR A SINGLE, DUAL OR THREE PHASE BUCK OFF AN EXISTING LINE POLE.

PRIMARY CODING, HORIZONTAL CONSTRUCTION

A “PH” PREFIX DESIGNATES HORIZONTAL CONSTRUCTION AND THE CODE NUMBERS ARE SIMILAR TO THOSE USED IN OTHER STANDARDS.

STEEL POLE CONSTRUCTION

STEEL POLE CONSTRUCTION UNITS HAVE A “PMH” PREFIX.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	PRIMARY CONSTRUCTION UNITS INSTRUCTIONAL GUIDE 5-2-1	ISSUE DATE: 03/11/91 REV. DATE: 08/31/15 APPROVAL: N. Sabbah OH5-2-1.doc
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GRID SKETCH APPLICATION

PRIMARY CONSTRUCTION UNITS SHOULD BE WRITTEN ON LINES 5 OR 6 OF THE GRID SKETCH. ENTER THE CONDUCTOR CODE NUMBER ON LINE 4 IN ORDER TO INSURE COMPATIBILITY BETWEEN CONDUCTOR AND CONDUCTOR SUPPORT UNITS.

ALTERNATE

WHEN MORE THAN TWO CODE NUMBERS MUST BE RECORDED FOR PRIMARY CONDUCTOR ATTACHMENTS, WRITE THE PRIMARY CONSTRUCTION UNIT CODE NUMBER AND **ADD** THE CONDUCTOR CODE NUMBER IN THE MISCELLANEOUS PORTION OF THE GRID SKETCH (LINES 13 – 18). FOR EXAMPLE, THE NORMAL AND ALTERNATE METHODS FOR SPECIFYING A PULL-OFF (P33) FOR 266.8 MCM AA CONDUCTOR ARE SHOWN BELOW.

	Q	R	S	T	
1	TAX CODE				
2	POINT NO.		ACT QUANT	LABOR DIFF	
3	RUN SPAN				
4	PRI	A266			} NORMAL METHOD
5	STD NO.	P33	1		
6					
7	NEUT				
8	STD NO.				
9	SL-DD SEC.				
10	STD NO.				
11					
12					
13					} ALTERNATE
14		P33A266	1		
15					
16					
17					
18					
19	POLE				

PRIMARY CONDUCTOR CODE

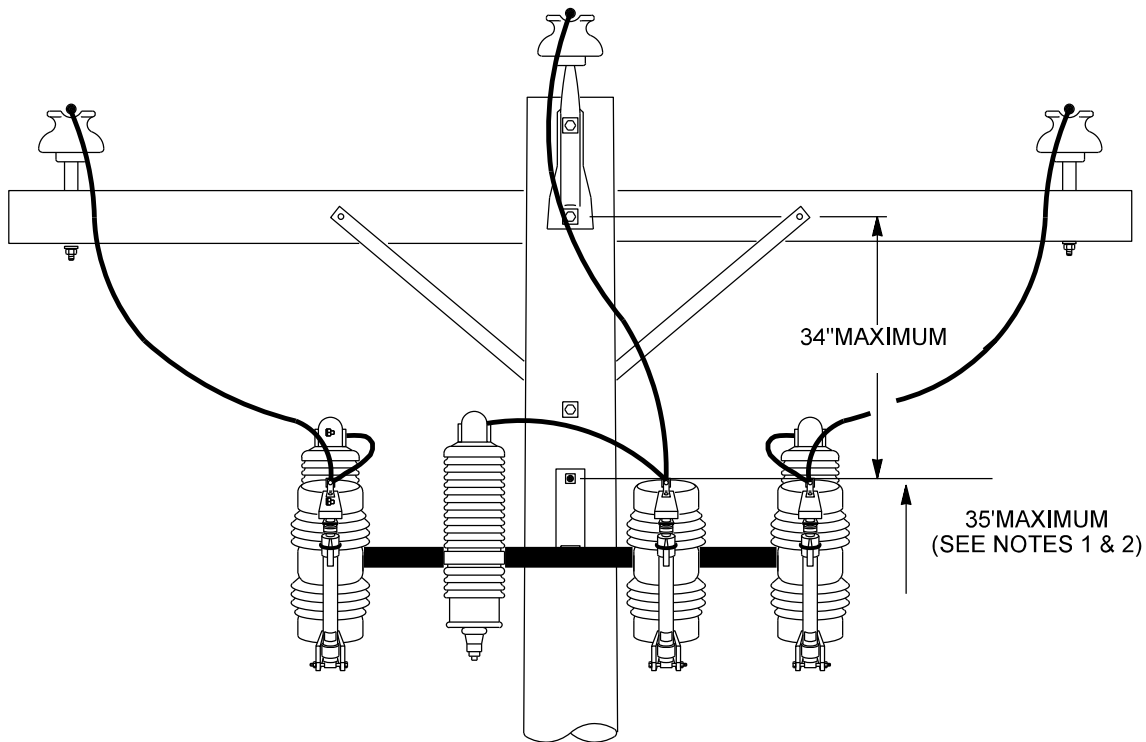
PRIMARY SUPPORTS AND FRAMING FOR CONDUCTOR SHOWN ABOVE WITH LINE GUARD.

PRIMARY SUPPORTS AND FRAMING, CLAMPS TO FIT 266.8 MCM AA CONDUCTOR WITH LINE GUARD.

MULTIPLE NEUTRALS

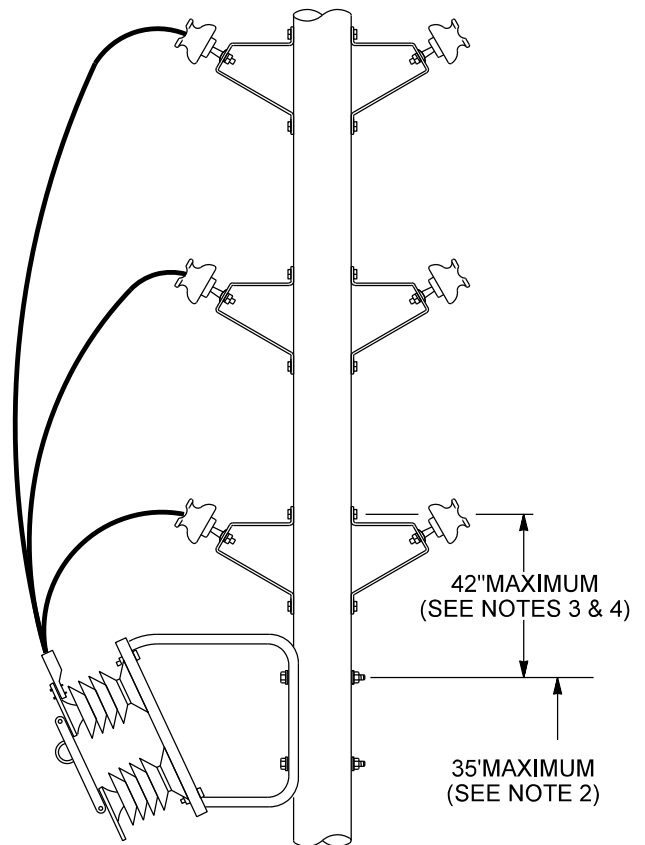
WHENEVER MORE THAN ONE NEUTRAL EXISTS ON A POLE, E.G. A BUCK OR CROSSING STRUCTURE, CONNECT THE NEUTRALS TOGETHER WITH A CONDUCTOR THE SAME SIZE AS THE SMALLER OF THE NEUTRALS AND TIE THEM TO THE POLE GROUND. IF THE NEUTRALS ARE SEPARATED BY MORE THAN SEVEN FEET, THE NEUTRAL CONNECTION CONDUCTOR SHALL BE SECURELY FASTENED TO THE POLE SO AS TO PREVENT MOVEMENT. IN THE CASE OF A NEUTRAL BEING CARRIED ON A CROSSARM, TAKE CARE TO ROUTE AND FASTEN IN A MANNER THAT WILL NOT INTERFERE WITH THE PHASE CONDUCTORS OR INSULATORS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			ISSUE DATE: 03/11/91
	PRIMARY CONSTRUCTION UNITS INSTRUCTIONAL GUIDE		REV. DATE: 08/31/15
			APPROVAL: N. Sabbah
	5-2-2		OH5-2-1.doc



NOTES

1. CUTOUT MOUNTING HEIGHT IS NOT LIMITED TO 35 FT FOR **POLE MOUNTED** TRANSFORMERS OR CAPACITOR BANKS.
2. THE MOUNTING HEIGHT OF ALL BLADE DISCONNECT SWITCHES AND CUTOUTS FOR UNDERGROUND RISERS IS LIMITED TO 35 FT ABOVE GROUND.
3. 18" SPACING MAY BE USED WHEN BOTTOM PHASE IS LOCATED AT OR BELOW 36'-6" ABOVE FINAL GRADE. 42" SPACING **MUST** BE USED WHEN BOTTOM PHASE IS LOCATED AT 38'-6" ABOVE FINAL GRADE.
4. THERE SHALL NOT BE MORE THAN 42" BETWEEN THE TOP MOUNTING BOLT OF THE SWITCHES AND THE BOTTOM PHASE CONDUCTOR. FOR PRIMARY CONDUCTOR CONSTRUCTION AT LEVELS HIGHER THAN THOSE INDICATED IN NOTES 2 & 3, CONSULT POWER SYSTEM ENGINEERING.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS HOT STICK OPERATED SWITCHES

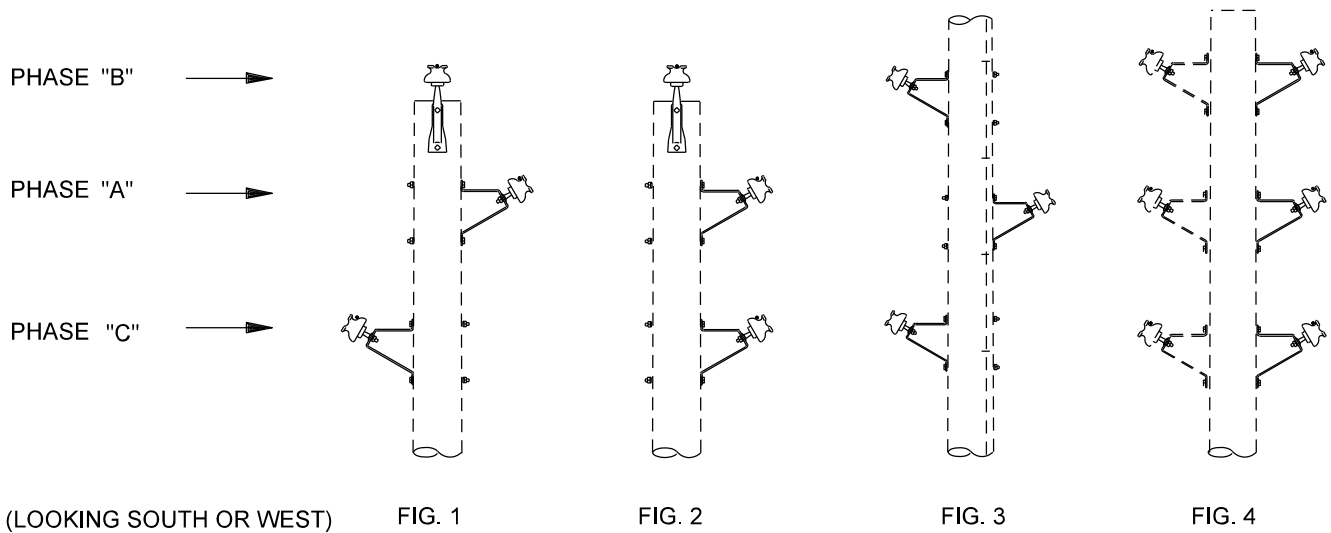
5-3-1

ISSUE DATE: 10/03/89

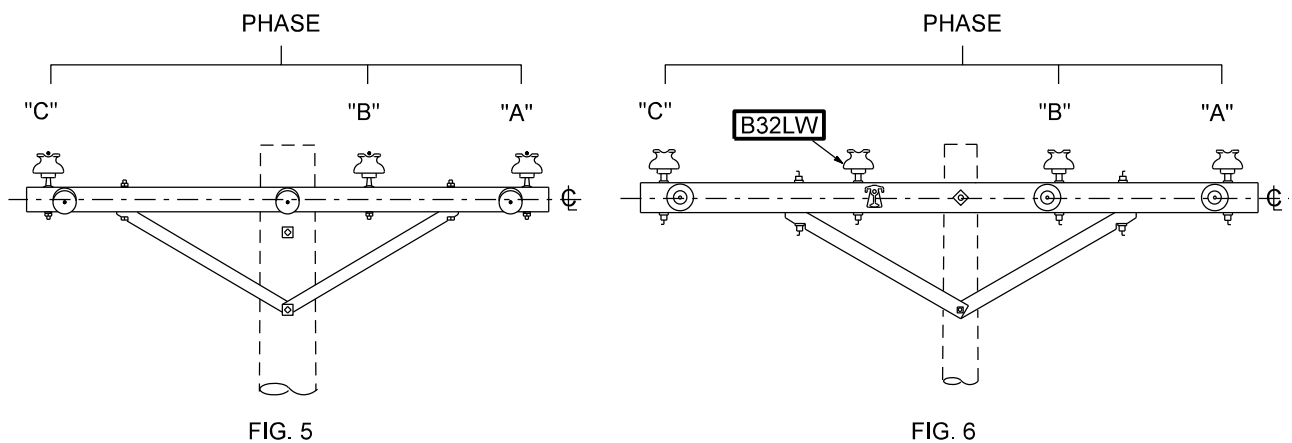
REV. DATE: 04/15/13

APPROVAL: B. PRIEST

8512E22.DGN



PHASING OF VERTICAL CONSTRUCTION SHALL BE "BAC" FROM TOP TO BOTTOM AS IN FIGURES 1 TO 4.
 PHASE "A" IS TO BE LOCATED ON THE WESTERN OR NORTHERN SIDE OF POLE ON NEW LINE CONSTRUCTION.
 FIG.4 MAY HAVE ALL PHASES LOCATED ON OTHER SIDE OF POLE. ONE CIRCUIT OF VERTICAL CONSTRUCTION
 (AS IN FIG.1 TO 4) MAY BE TRANSITIONED DIRECTLY TO HORIZONTAL CONSTRUCTION OF FIG.5 & 6.
 DOUBLE CIRCUITS MAY NOT BE TRANSITIONED IN THE SAME SPAN.



(LOOKING SOUTH OR WEST)

PHASING OF HORIZONTAL (FLAT) CONSTRUCTION SHALL BE "ABC" WEST TO EAST OR NORTH TO SOUTH.
 "B" PHASE CONDUCTOR MAY BE LOCATED ON EITHER SIDE OF THE POLE OR ON THE POLE TOP.
 EXISTING VERTICAL CONSTRUCTION WHICH IS DIFFERENT THAN FIG.1 TO 4 SHOULD BE TRANSITIONED
 TO ONE OF THE ABOVE STANDARD VERTICAL CONSTRUCTIONS BEFORE TRANSITION TO STANDARD
 HORIZONTAL CONSTRUCTION.

Overhead Distribution
Construction Standards



PRIMARY CONSTRUCTION UNITS PHASING ORDER

5-4-1

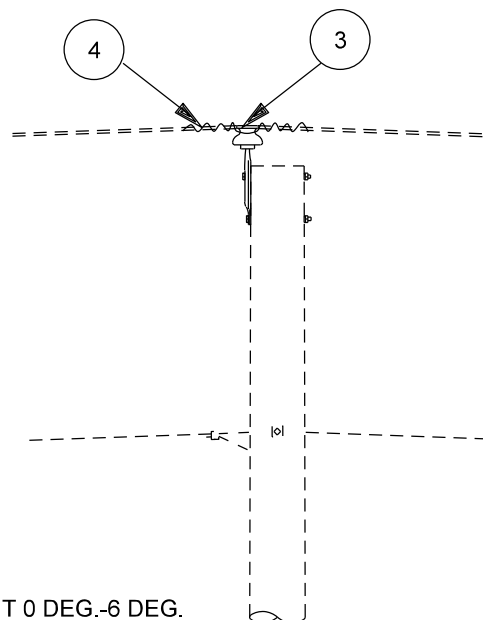
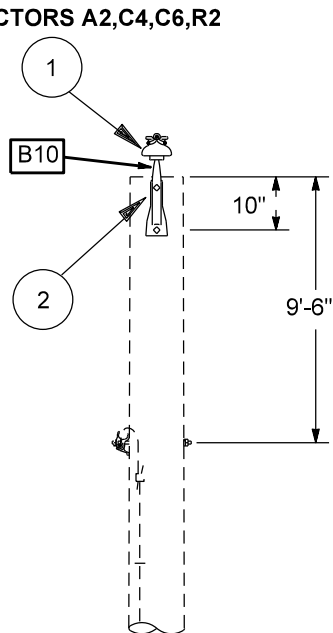
ISSUE DATE: 08/15/92

REV. DATE: 05/23/11

APPROVAL: B. PRIEST

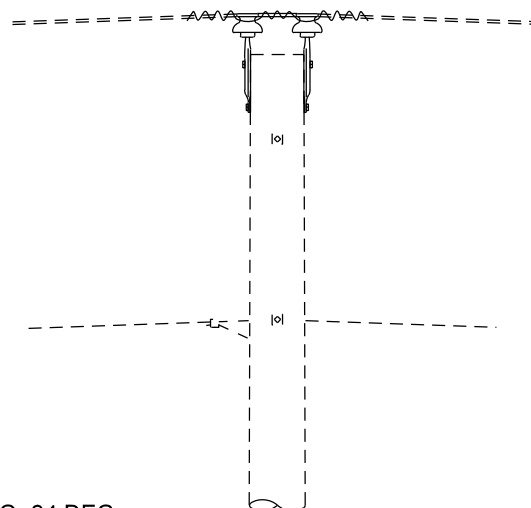
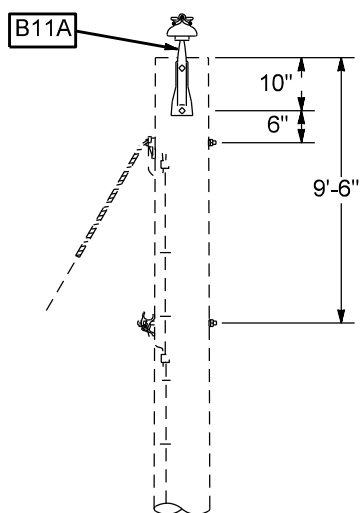
8512E497.DGN

P10_ CONDUCTORS A2,C4,C6,R2



TANGENT 0 DEG.-6 DEG.

P11A_ CONDUCTORS A2,C4,C6,R2



SMALL ANGLE 6 DEG.-24 DEG.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, PIN, 12KV, PORCELAIN GRAY	1 OR 2	5034594
2	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1 OR 2	5028637
3	TOP TIE, VARIOUS	1	BPT1_
4	ARMOR ROD, VARIOUS	0 OR 1	BR_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
SINGLE PHASE
TANGENT AND SMALL ANGLE

5-5-1

ISSUE DATE: 09/30/71

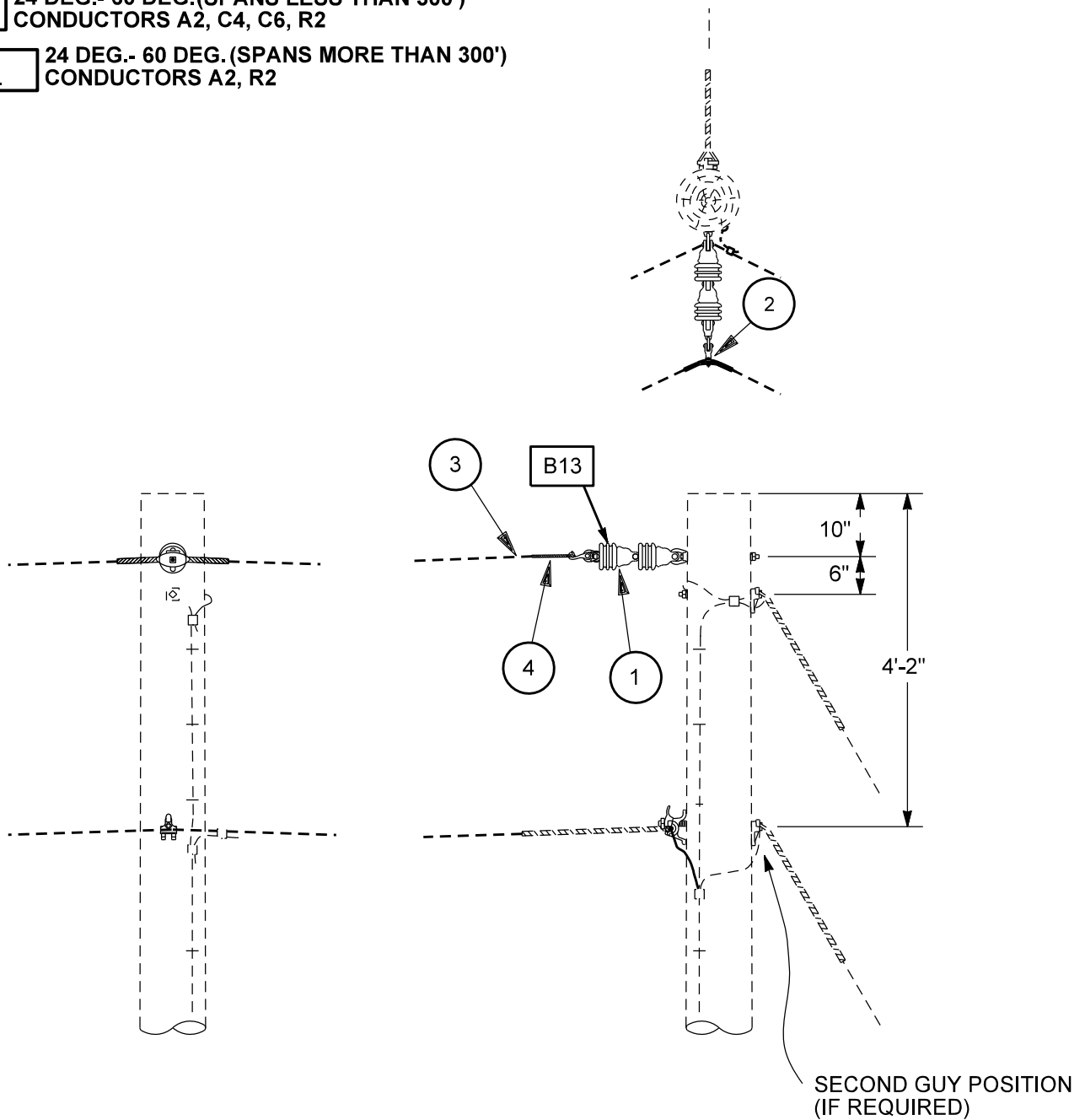
REV. DATE: 05/05/13

APPROVAL: B. PRIEST

8512E77.DGN

P13__ 24 DEG.- 60 DEG.(SPANS LESS THAN 300')
CONDUCTORS A2, C4, C6, R2

P13A__ 24 DEG.- 60 DEG.(SPANS MORE THAN 300')
CONDUCTORS A2, R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2	5034719
2	ANGLE CLAMP, 30 DEG. - 60 DEG., VARIOUS	1	BA1_ OR BA2_
3	LINE GUARD, VARIOUS	0 OR 1	BL_
4	ARMOR ROD, VARIOUS	0 OR 1	BR_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
SINGLE PHASE
MEDIUM ANGLE, 24 DEG. - 60 DEG.

5-6-1

ISSUE DATE: 09/30/71

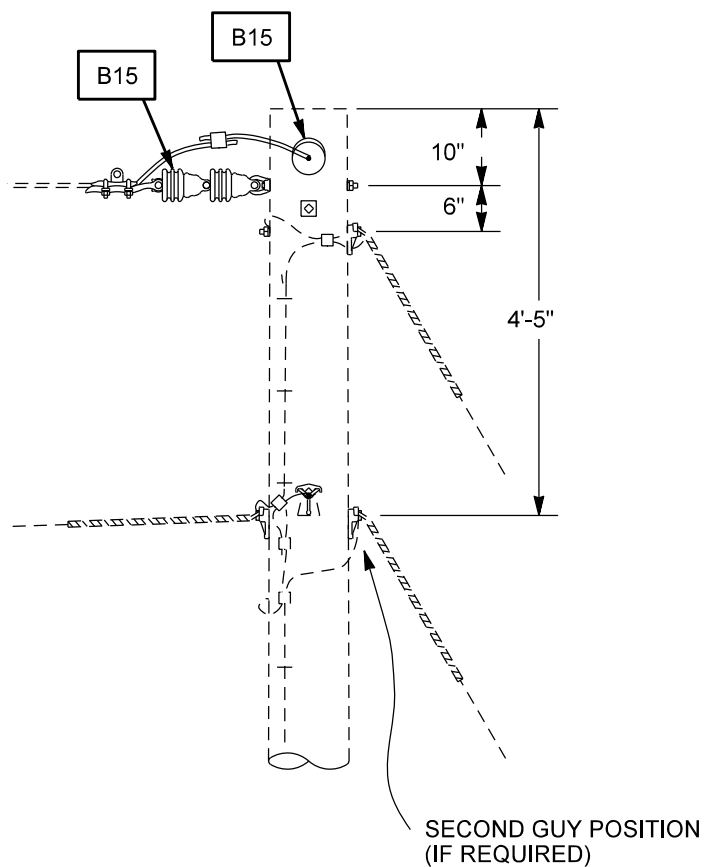
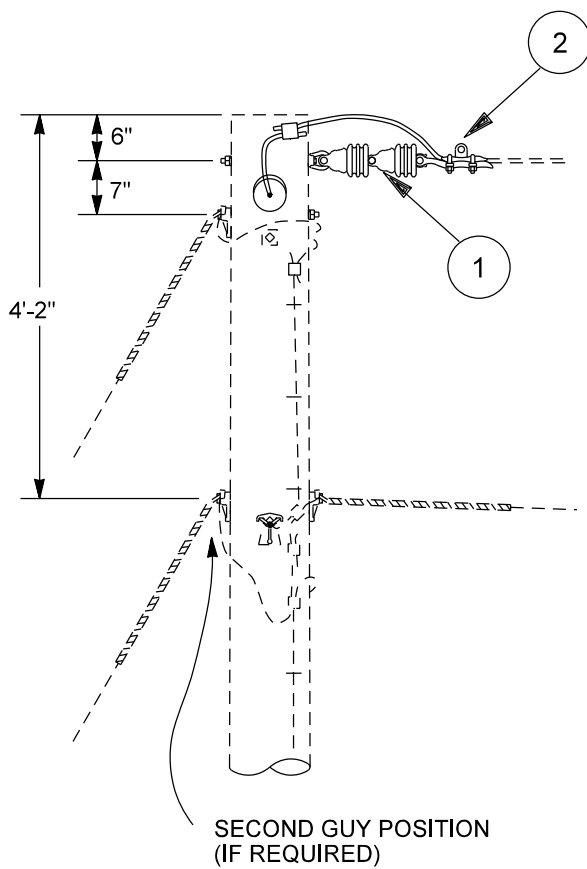
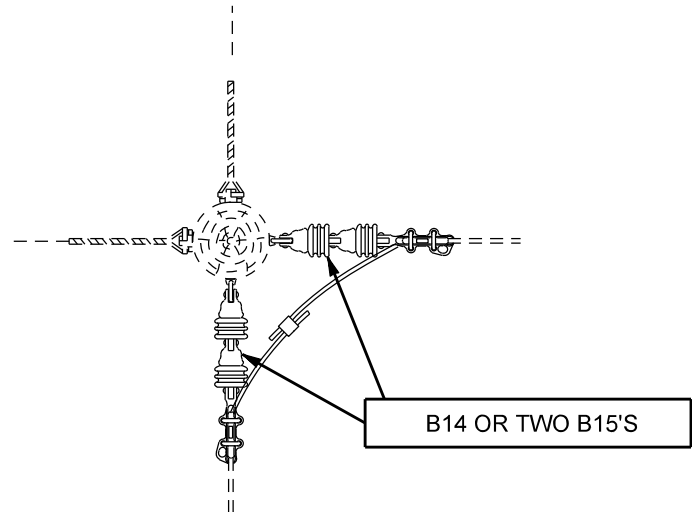
REV. DATE: 05/05/13

APPROVAL: B. PRIEST

8512E78.DGN

P14_**CONDUCTORS A2,C4,C6,R2**

TWO DEADEND UNITS (SAME CONDUCTOR SIZE)
WHEN CONDUCTOR SIZES DIFFER,DELETE ONE B15
AND ADD A B15 FOR SECOND CONDUCTOR.



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN. CLEVIS	4	5034719
2	DEADEND CLAMP, VARIOUS	2	BD_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
SINGLE PHASE
LARGE ANGLE, 60 DEG. - 90 DEG.

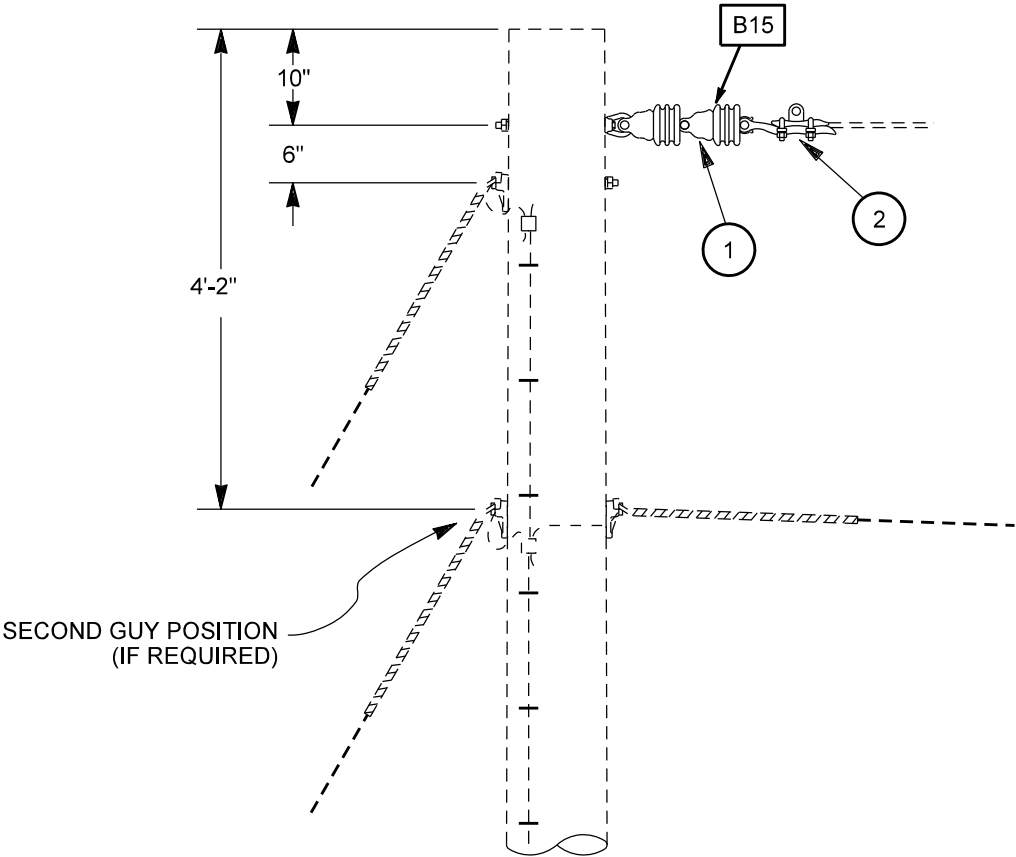
5-7-1

ISSUE DATE: 09/30/71

REV. DATE: 05/06/13

APPROVAL: B. PRIEST

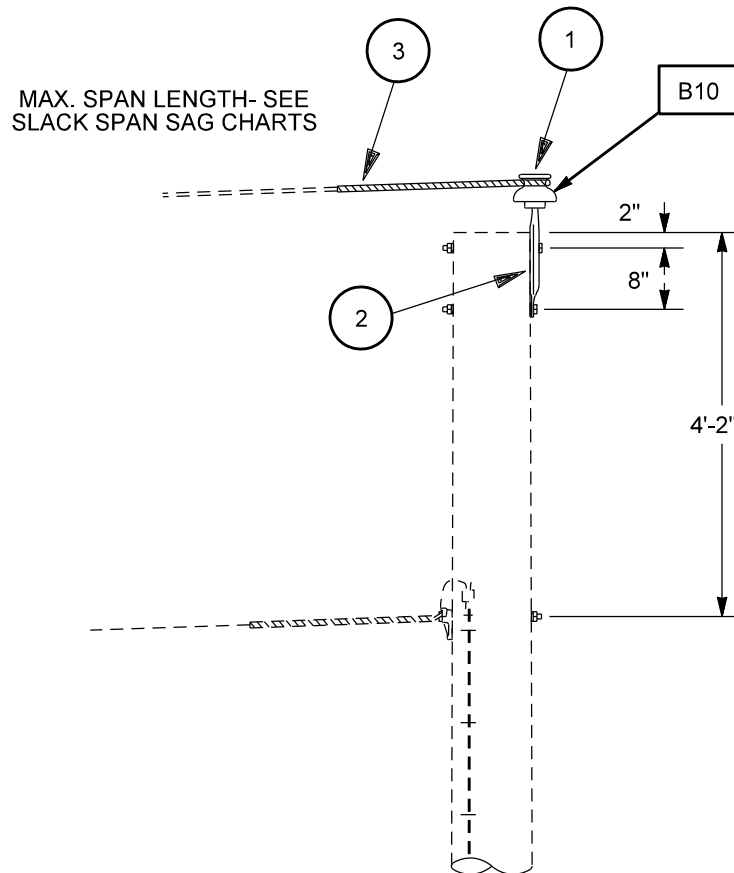
8512E79.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS, EA	2	5034719
2	DEADEND CLAMP, VARIOUS	1	BD_

P15N_

CONDUCTOR A2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, PIN, 12KV, PORCELAIN GRAY EA	1	5034594
2	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV. EA	1	5038637
3	DEADEND GRIP, VARIOUS	1	BDG-_

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
SINGLE PHASE DEADEND
SLACK SPAN

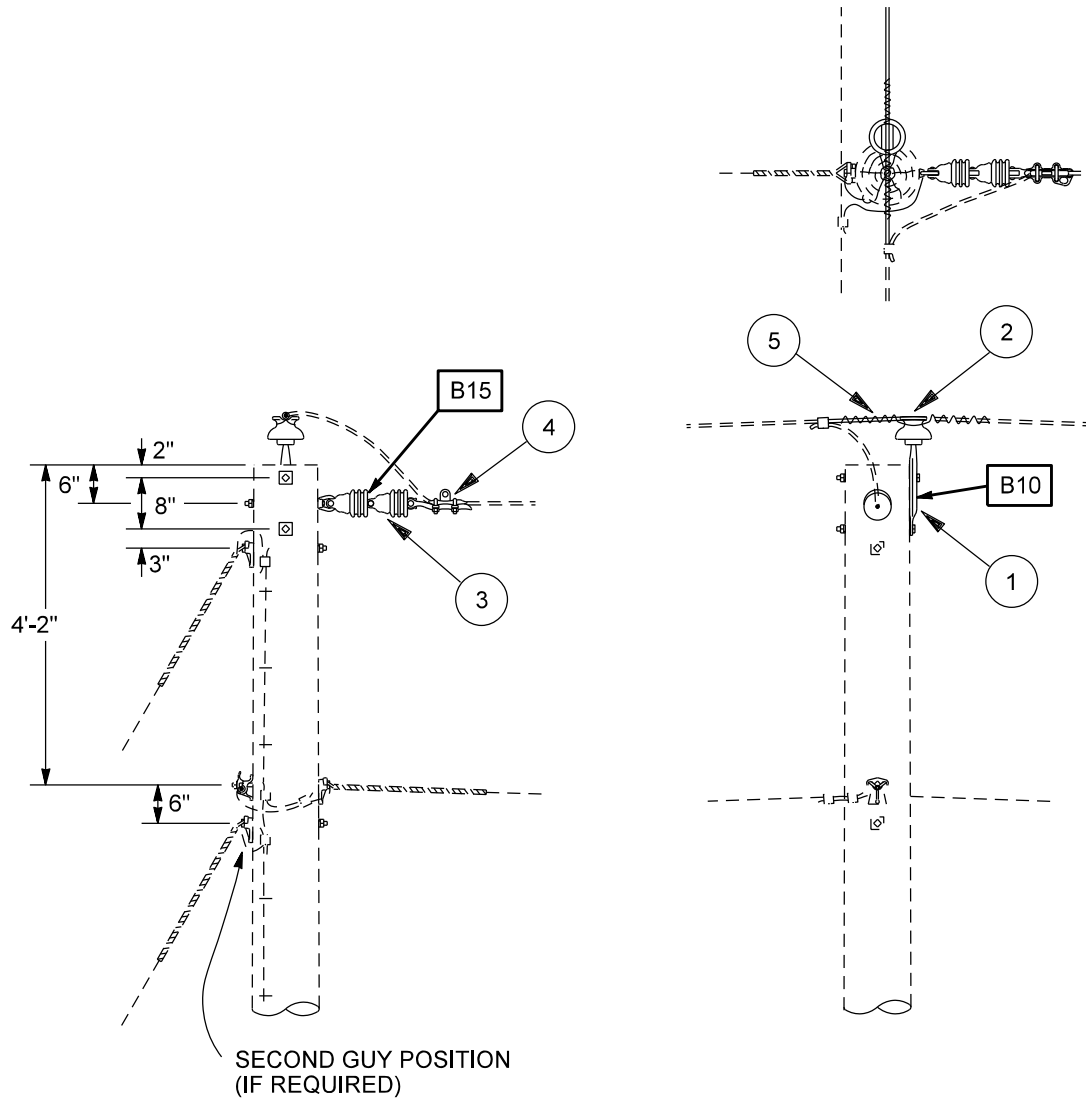
5-9-1

ISSUE DATE: 12/26/74

REV. DATE: 05/06/13

APPROVAL: B. PRIEST

8512E81.DGN

P17__**CONDUCTORS A2,C4,C6,R2**

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028637
2	INSULATOR, PIN, 12KV, PORCELAIN GRAY	1	5034594
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2	5034719
4	DEADEND CLAMP, VARIOUS	1	BD__
5	TOP TIE, VARIOUS	1	BPT1__

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
SINGLE PHASE
TANGENT WITH 90 DEG. BUCK

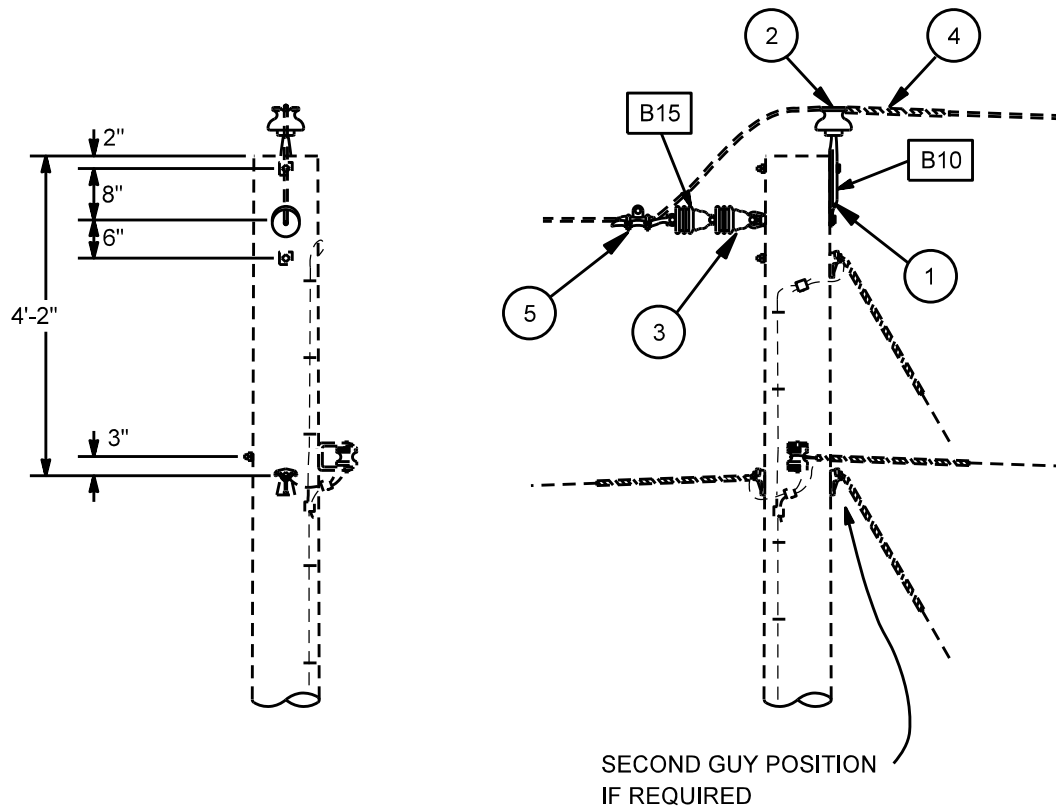
5-10-1

ISSUE DATE: 09/30/71

REV. DATE: 05/01/13

APPROVAL: B. PRIEST

8512E82.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028637
2	INSULATOR, PIN, 12KV, PORCELAIN GRAY	1	5034594
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2	5034719
4	DEADEND GRIP, VARIOUS	1	BDG_
5	DEADEND CLAMP, VARIOUS	1	BD_

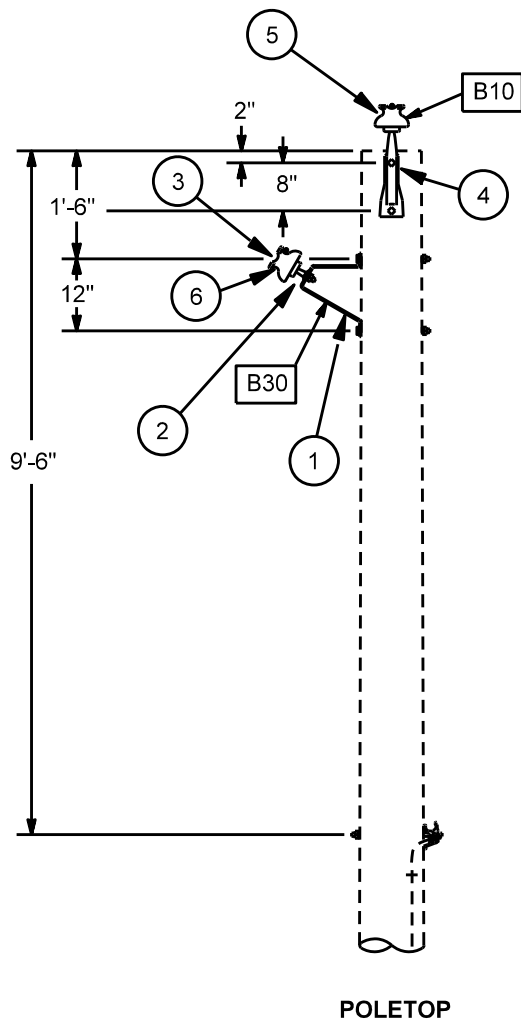
NOTES

1. MAXIMUM SPAN LENGTH - SEE SLACK SPAN SAG CHARTS

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	PRIMARY CONSTRUCTION UNITS		ISSUE DATE: 09/30/71
	SINGLE PHASE DEADEND		REV. DATE: 05/06/13
	180 DEG. SLACK SPAN		APPROVAL: B. PRIEST
	5-11-1	8512E83.DGN	

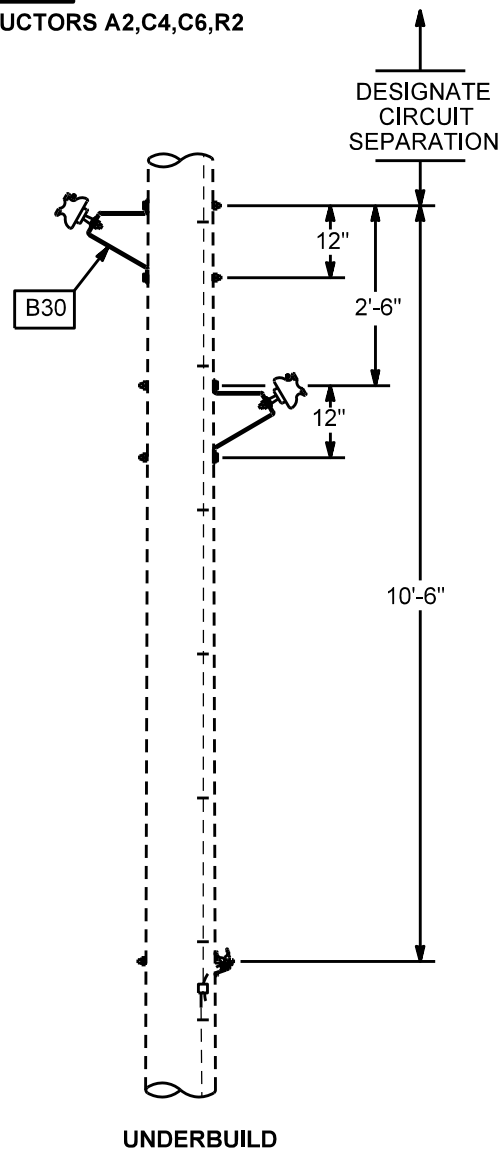
P20A_

CONDUCTORS A2,C4,C6,R2



P20D_

CONDUCTORS A2,C4,C6,R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	1	5028505
2	PIN, INSULATOR, 5/8 X 1.5 IN. SHORT	1	5028641
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2	5034594
4	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028637
5	TOP TIE, VARIOUS	1	BPT1_
6	SIDE TIE, VARIOUS	1	BPT2_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE
TANGENT, 0 DEG. - 6 DEG.

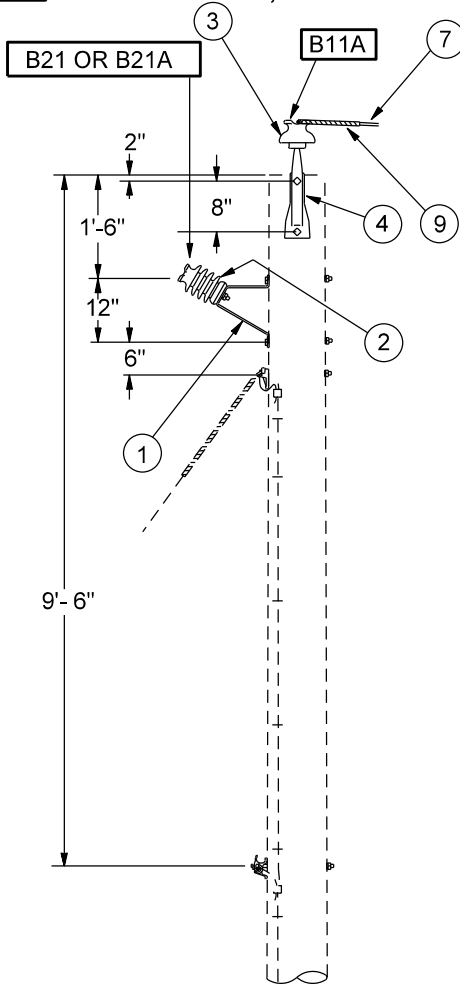
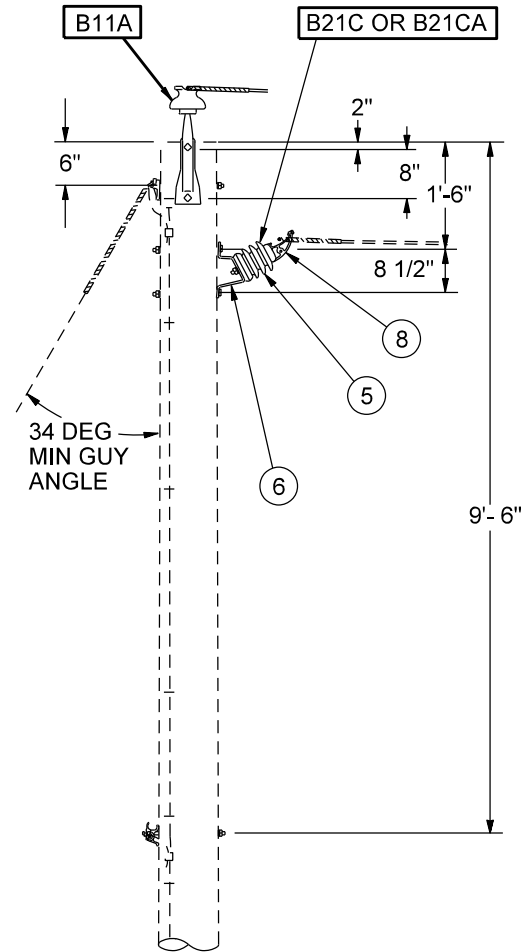
5-12-1

ISSUE DATE: 09/30/71

REV. DATE: 05/05/13

APPROVAL: B. PRIEST

8512E92.DGN

P21B__6 DEG -15 DEG (SPANS LESS THAN 300')
CONDUCTORS A2,R2**P21BA__**6 DEG -15 DEG (SPANS MORE THAN 300')
CONDUCTORS A2,R2**P21D__**6 DEG -15 DEG (SPANS LESS THAN 300')
CONDUCTORS A2,R2**P21DA__**6 DEG -15 DEG (SPANS MORE THAN 300')
CONDUCTORS A2,R2

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	1	5028505
2	INSULATOR, VERTICAL LINE POST, 22KV	1	5034466
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2	5034594
4	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	2	5028637
5	INSULATOR, HORIZONTAL LINE POST, 15KV	1	5034465
6	BRACKET, SIDE MOUNT, HOT GALV. SMALL	1	5028504
7	LINE GUARD, VARIOUS	1	BL__
8	CLAMPTOP CLAMP, 6 DEG. - 15 DEG., VARIOUS	0 OR 2	BCT1_ OR BCT3_
9	ARMOR ROD, VARIOUS	0 OR 2	BR__

Overhead Distribution
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PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE
SMALL ANGLE, 6 DEG. - 15 DEG.

5-13-1

ISSUE DATE: 09/30/71

REV. DATE: 02/27/19

APPROVAL: N. SABBAH

8512E93.DGN

CONDUCTORS A2, R2

P21F__ 6° - 15°
SPANS LESS THAN 300'

P21FA__ 6° - 15°
SPANS MORE THAN 300'

CONDUCTOR A2

PW21F__

PW21FA__

CONDUCTORS A2, R2

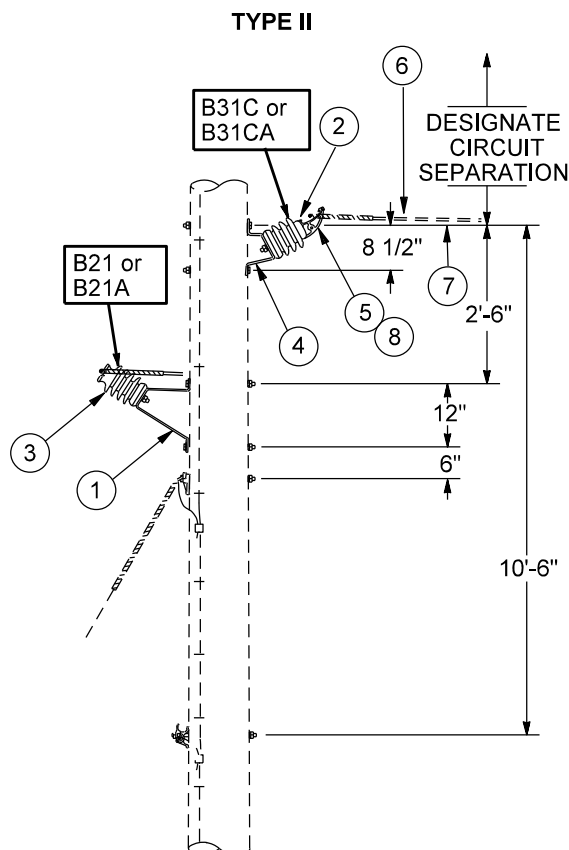
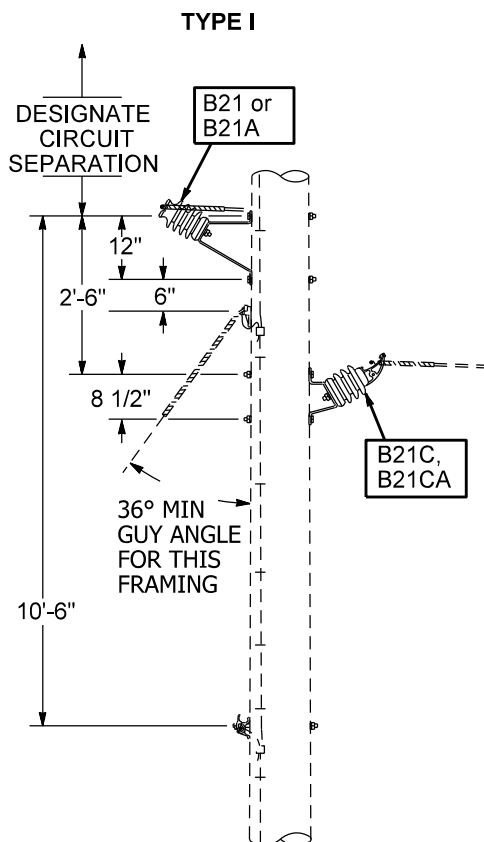
P21G__ 15° - 30°
SPANS LESS THAN 300'

P21GA__ 15° - 30°
SPANS MORE THAN 300'

CONDUCTOR A2

PW21G__

PW21GA__



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	1	5028505
2	INSULATOR, HORIZONTAL LINE POST, 15 KV	1	5034465
3	INSULATOR, VERTICAL LINE POST, 22 KV	1	5034466
4	BRACKET, SIDE MOUNT, HOT GALV. SMALL	2	5028504
5	CLAMPTOP CLAMP, 6° - 15°	1	BCT1_ OR BCT3_
6	LINE GUARD, VARIOUS	0 OR 2	BL_
7	ARMOR ROD, VARIOUS	0 OR 2	BR_
8	CLAMPTOP CLAMP, 15° - 30°	1	BCT2_ OR BCT4_

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PRIMARY CONSTRUCTION UNITS
TWO PHASE
SMALL AND INTERMEDIATE ANGLE
6 DEG. - 15 DEG., 15 DEG. -30 DEG., WOOD POLE

5-14-1

ISSUE DATE: 09/30/71

REV. DATE: 02/27/20

APPROVAL: J. LUERA

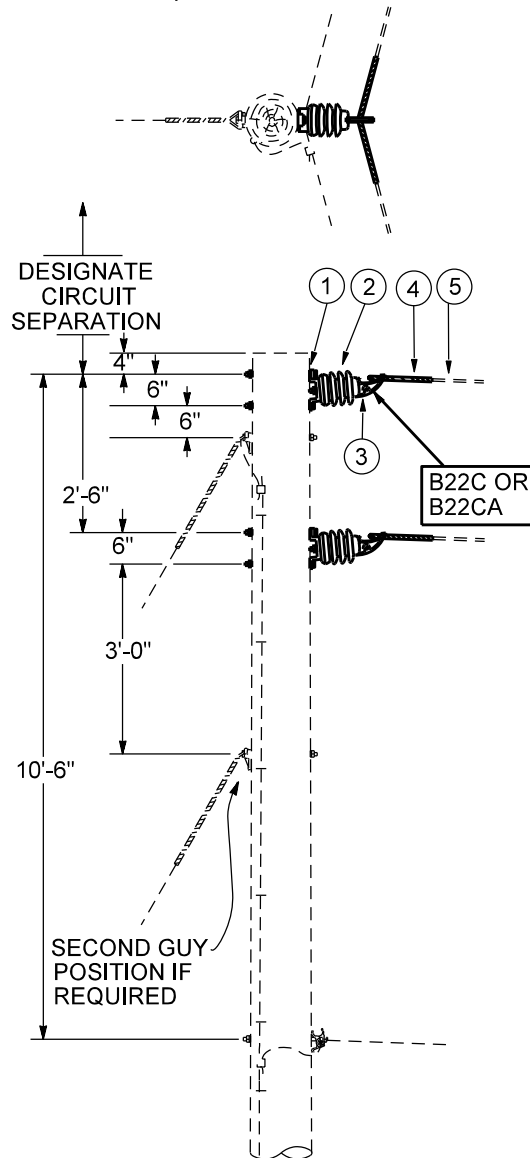
8512E94.DGN

P22__

15 DEG-30 DEG (SPANS LESS THAN 300')
CONDUCTORS A2,R2

P22A__

15 DEG-30 DEG (SPANS MORE THAN 300')
CONDUCTORS A2,R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, INSULATOR, 5/8 IN. STUD	2	5028499
2	INSULATOR, HORIZONTAL LINE POST, 15KV	2	5034465
3	CLAMPTOP CLAMP, 15 DEG.-30 DEG.	2	BCT2_ OR BCT4_
4	LINE GUARD, VARIOUS	0 OR 2	BL_
5	ARMOR ROD, VARIOUS	0 OR 2	BR_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE
INTERMEDIATE ANGLE, 15 DEG. - 30 DEG.

5-15-1

ISSUE DATE: 09/30/71

REV. DATE: 02/27/19

APPROVAL: N. SABBAH

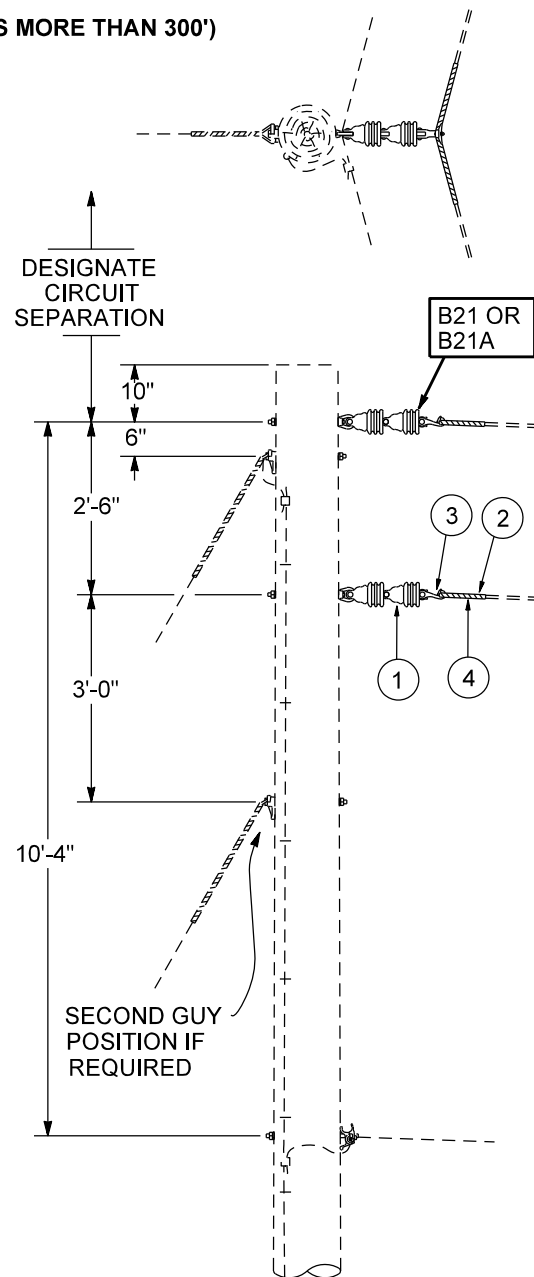
8512E95.DGN

P23__

30 DEG - 60 DEG (SPANS LESS THAN 300')
CONDUCTORS A2,C4,C6,R2

P23A__

30 DEG - 60 DEG (SPANS MORE THAN 300')
CONDUCTORS A2,R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719
2	LINE GUARD, VARIOUS	0 OR 2	BL__
3	ANGLE CLAMP 30 DEG. - 60 DEG., VARIOUS	2	BA1_ OR BA2__
4	ARMOR ROD, VARIOUS	0 OR 2	BR__

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE
MEDIUM ANGLE, 30 DEG. - 60 DEG.

5-16-1

ISSUE DATE: 09/30/71

REV. DATE: 02/27/19

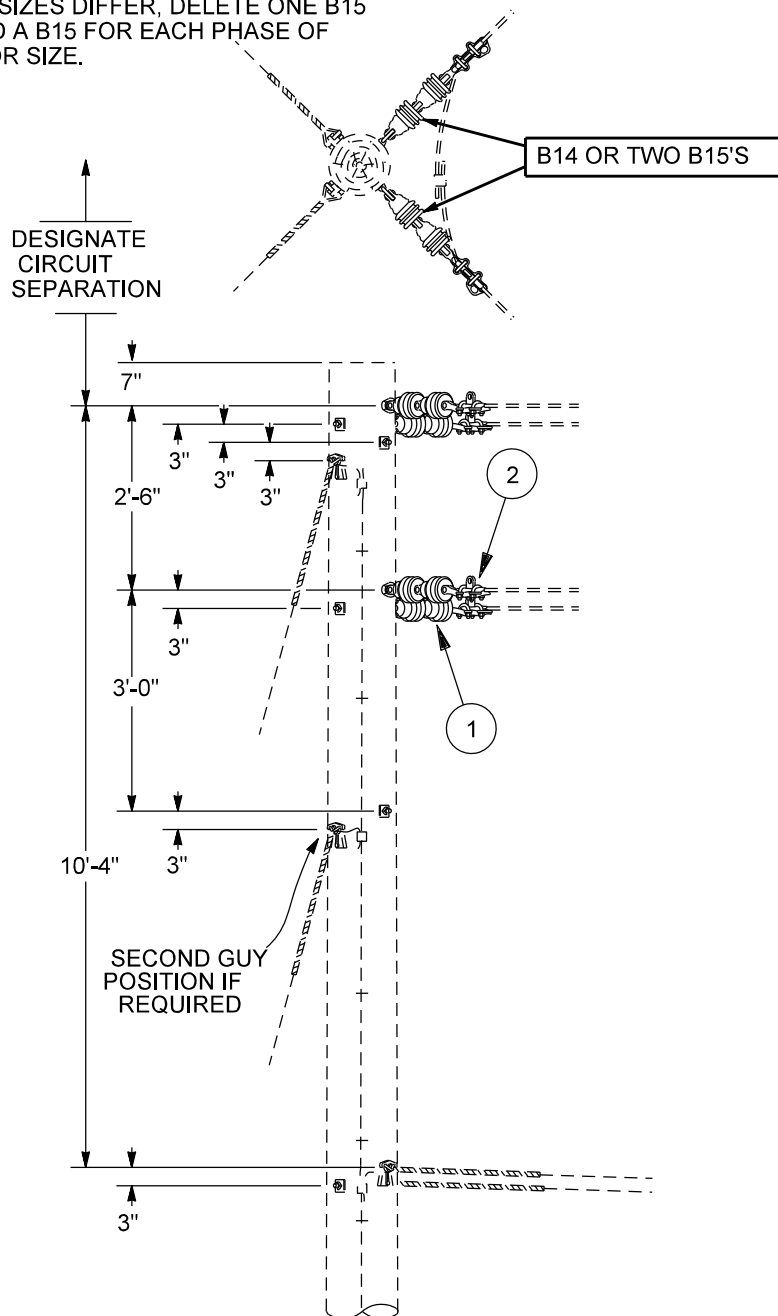
APPROVAL: N. SABBAAH

8512E96.DGN

P24_

**TWO DEADEND UNITS (SAME CONDUCTOR SIZE)
CONDUCTORS A2,C4,C6,R2**

WHEN CONDUCTOR SIZES DIFFER, DELETE ONE B15
PER PHASE AND ADD A B15 FOR EACH PHASE OF
SECOND CONDUCTOR SIZE.



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	8	5034719
2	DEADEND CLAMP, VARIOUS	4	BD_

Overhead Distribution
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PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE
LARGE ANGLE, 60 DEG.- 90 DEG.

5-17-1

ISSUE DATE: 09/30/71

REV. DATE: 05/06/13

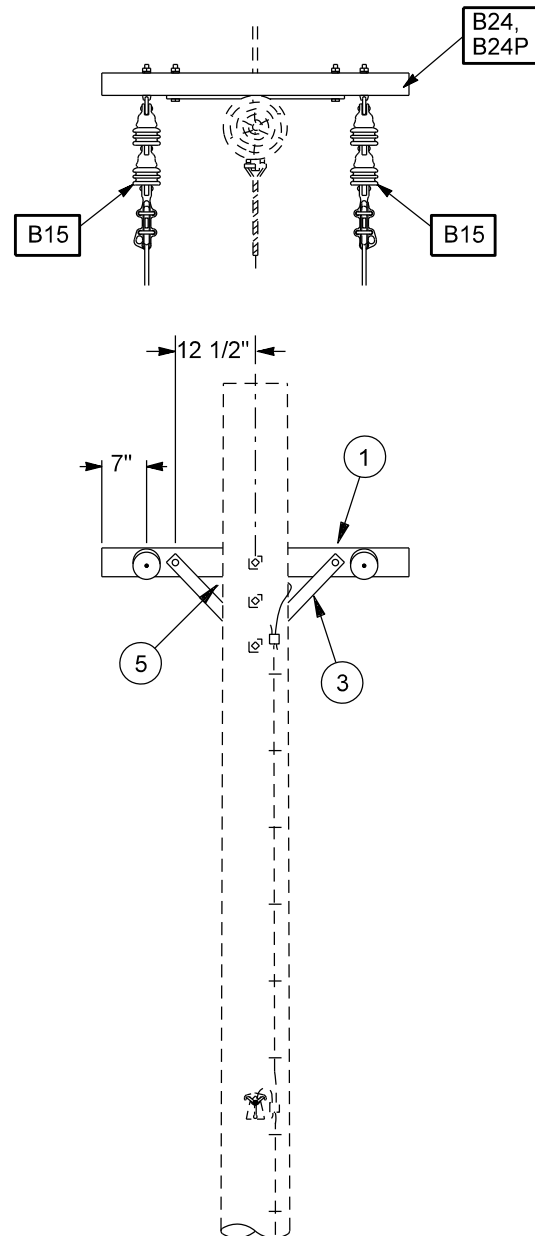
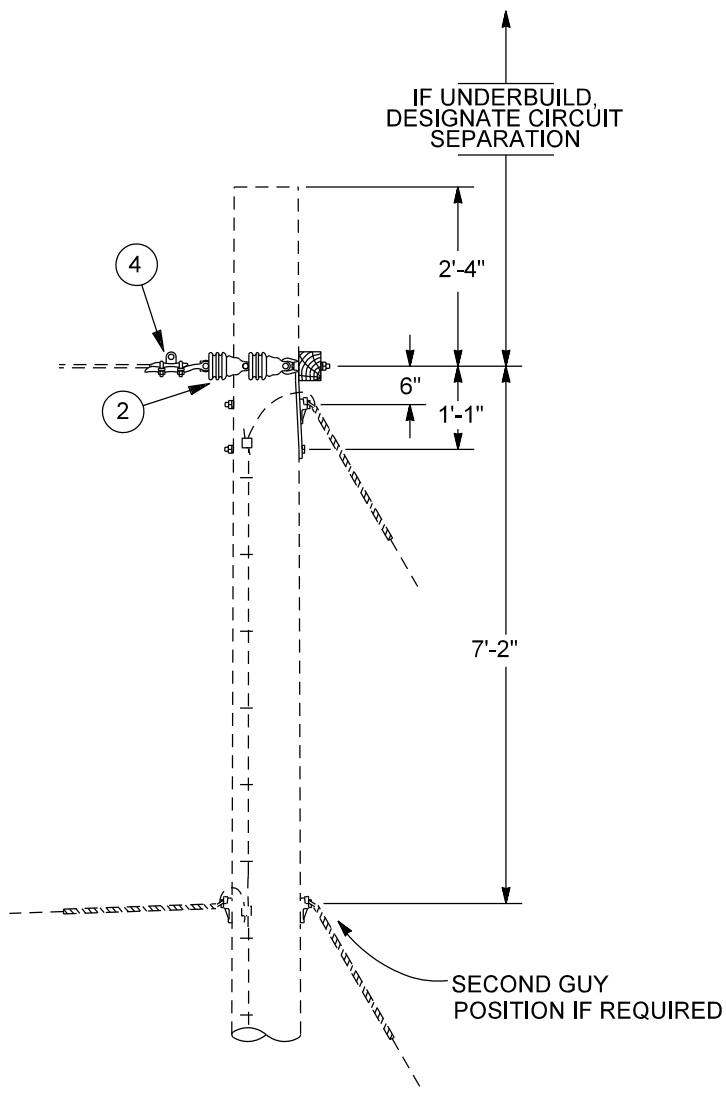
APPROVAL: B. PRIEST

8512E97.DGN

P25_**CONDUCTORS A2,C4,C6,R2**

B24- ONE 4' WOOD CROSSARM

B24P- ONE 4' WOOD PLANK ARM



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 4 F	1	5029407
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719
3	BRACE, CROSSARM, 1.25 X 0.25 X 20 I	2	5027884
4	DEADEND CLAMP, VARIOUS	2	BD_
5	PLATE, GAIN, 5-5/16" X 4"	1	5028652

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PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE DEADEND
CROSSARM

5-18-1

ISSUE DATE: 09/30/71

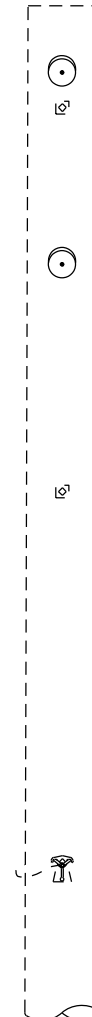
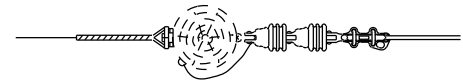
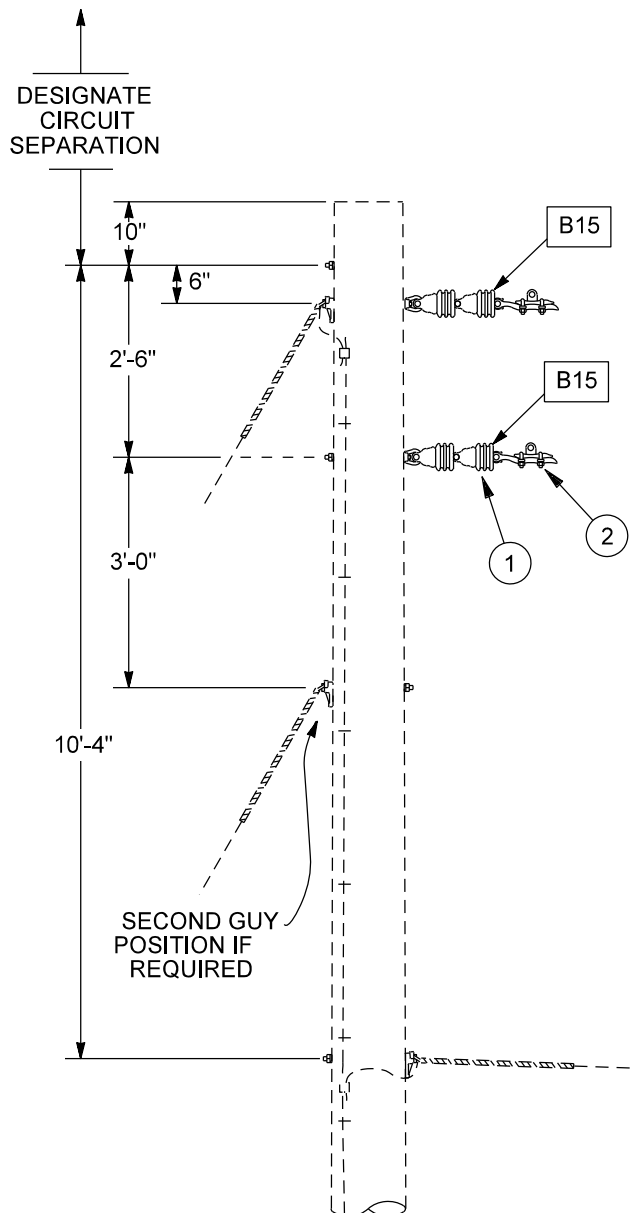
REV. DATE: 05/06/13

APPROVAL: B. PRIEST

8512E49.DGN

P25A_

CONDUCTORS A2,C4,C6,R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719
2	DEADEND CLAMP, VARIOUS	2	BD_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE DEADEND
VERTICAL

5-19-1

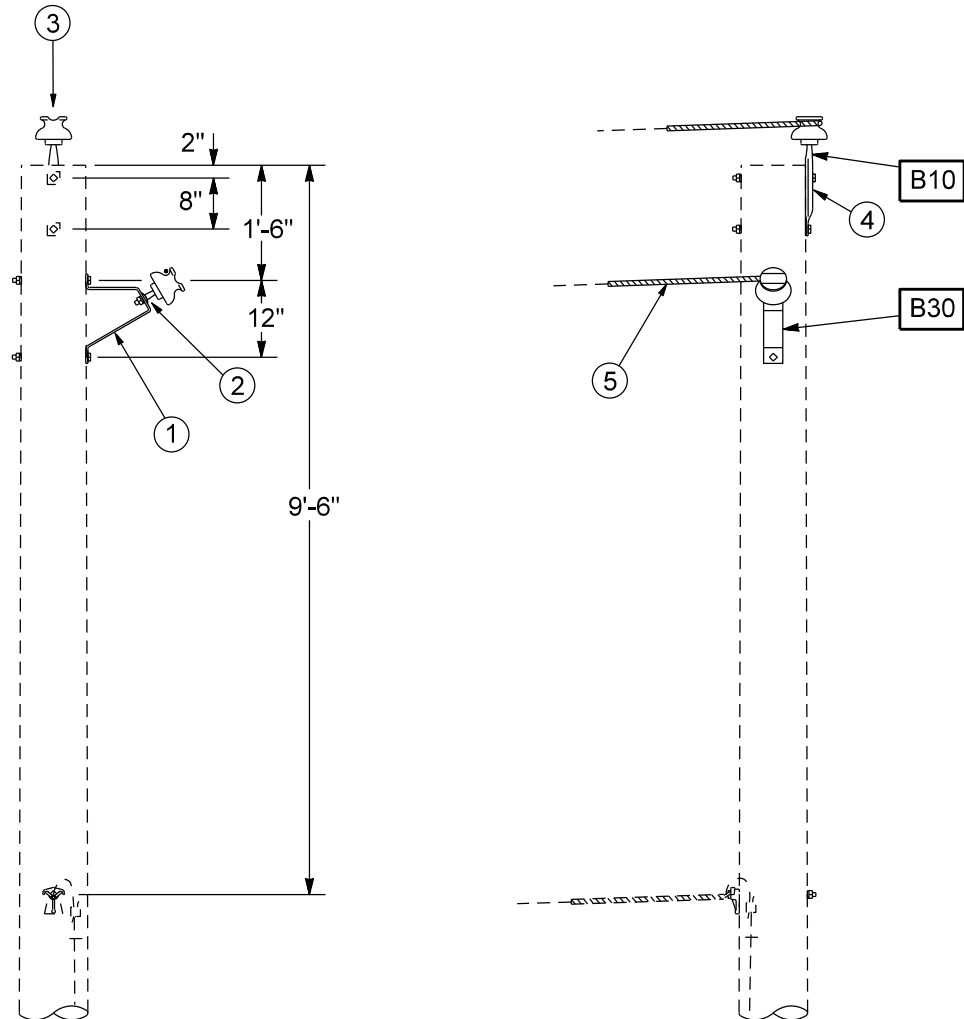
ISSUE DATE: 09/30/71

REV. DATE: 05/06/13

APPROVAL: B. PRIEST

8512E50.DGN

P25N_ CONDUCTOR A2



MAX. SPAN LENGTH- SEE SLACK SPAN SAG CHARTS

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	1	5028505
2	PIN, INSULATOR, 5/8 X 1.5 IN. SHORT	1	5028641
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2	5034594
4	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028639
5	DEADEND GRIP, VARIOUS	2	BDG_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE DEADEND
SLACK SPAN

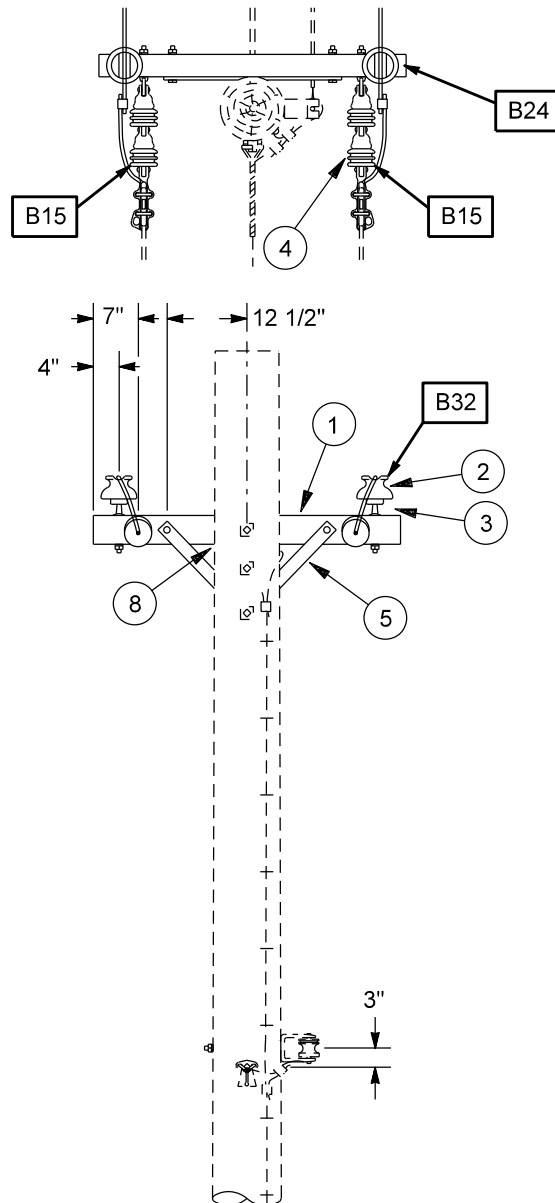
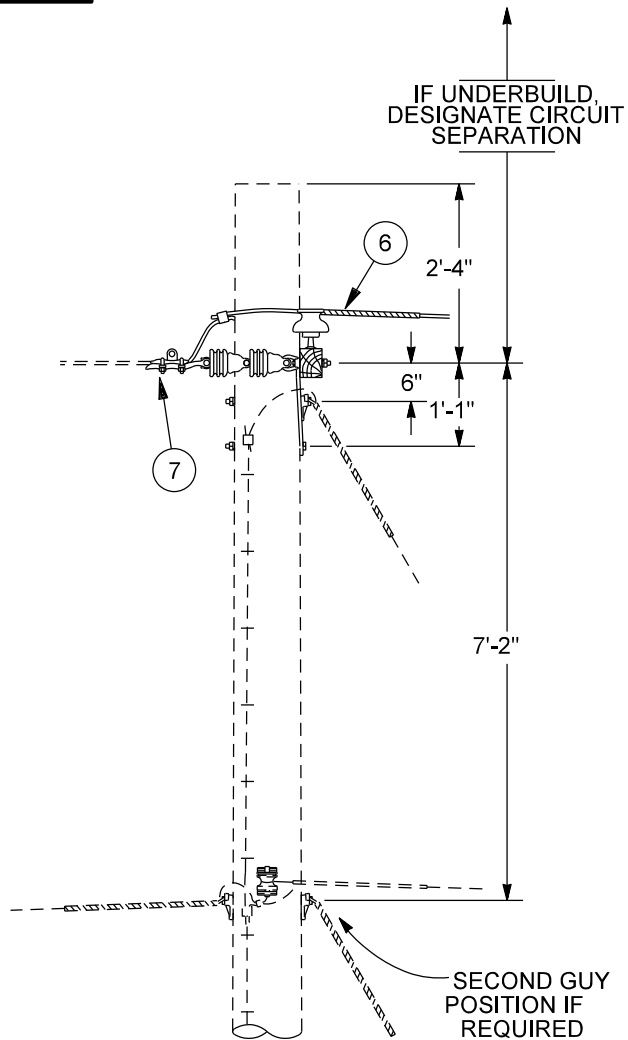
5-20-1

ISSUE DATE: 12/30/74

REV. DATE: 05/06/13

APPROVAL: B.PRIEST

8512E117.DGN

P26_**CONDUCTORS A2,C4,C6,R2**

MAX. SPAN LENGTH- SEE SLACK SPAN SAG CHARTS

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 4 FT.	1	5029407
2	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2	5034594
3	PIN, INSULATOR, 5/8" X 5-3/4" LONG	2	5028642
4	INSULATOR, SUSPENSION, 6-1/4", CLEVIS	4	5034719
5	BRACE, CROSSARM, 1.25" X 0.25" X 20"	2	5027884
6	DEADEND GRIP, VARIOUS	2	BDG_
7	DEADEND CLAMP, VARIOUS	2	BD_
8	PLATE, GAIN, 5-5/16" X 4"	1	5028652

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE DEADEND
180 DEG. SLACK SPAN, CROSSARM

5-21-1

ISSUE DATE: 09/30/71

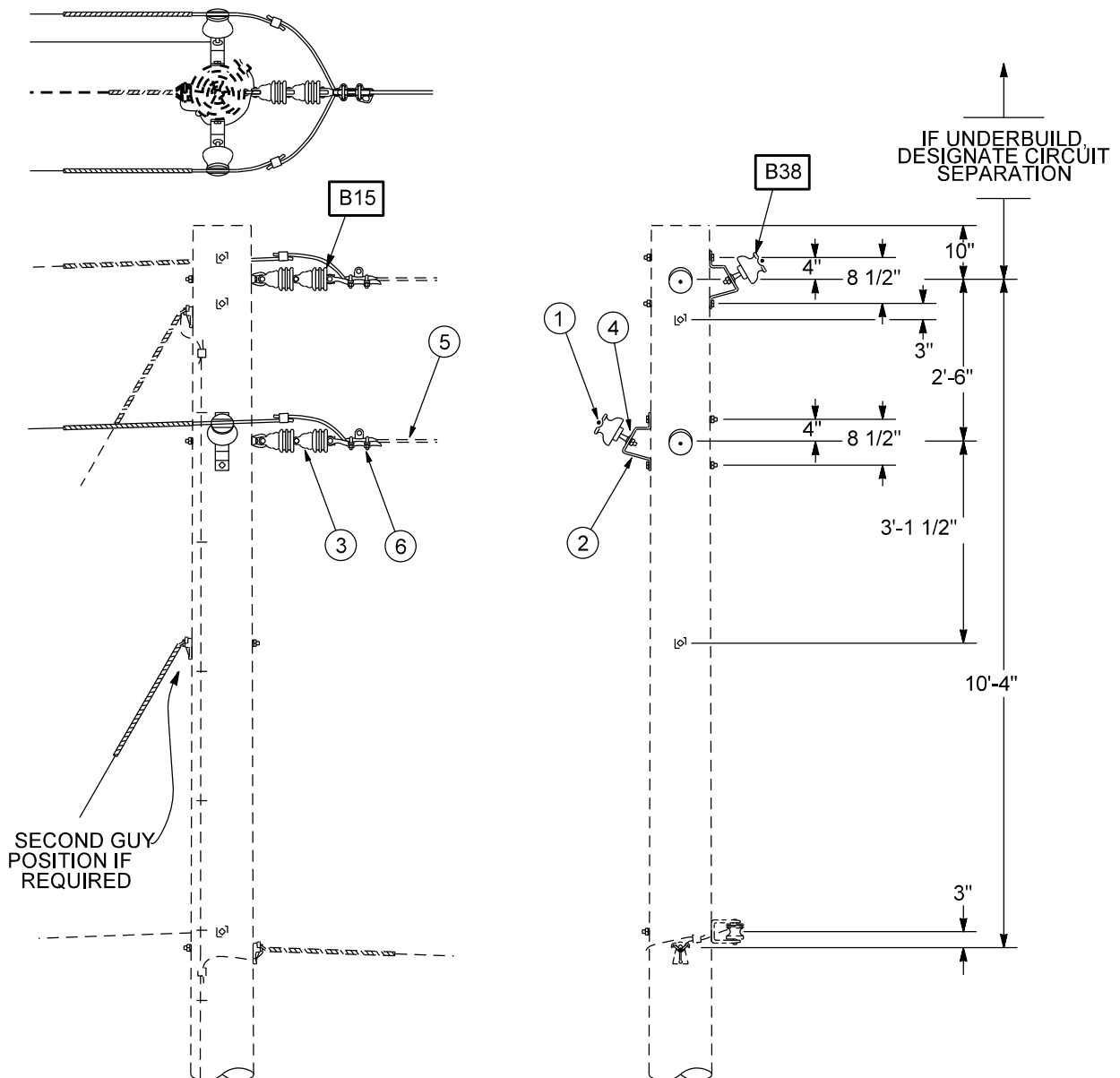
REV. DATE: 05/07/13

APPROVAL: B.PRIEST

8512E118.DGN

P28_

CONDUCTORS A2,C4,C6,R2



MAX. SPAN LENGTH- SEE SLACK SPAN SAG CHARTS

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2	5034594
2	BRACKET, SIDE MOUNT, HOT GALV. SMALL	2	5028504
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719
4	PIN, INSULATOR, 5/8 X 1.5 IN., SHORT	2	5028641
5	DEADEND GRIP, VARIOUS	2	BDG_
6	DEADEND CLAMP, VARIOUS	2	BD_

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO PHASE DEADEND
180 DEG. SLACK SPAN

5-22-1

ISSUE DATE: 09/30/71

REV. DATE: 05/07/13

APPROVAL: B.PRIEST

8512E119.DGN

CONDUCTORS A2, A30, A266, A397, AC312,
C1, C2, C4, C6, C20, R2, R30, R266

P30B__

CONDUCTOR A2, A397

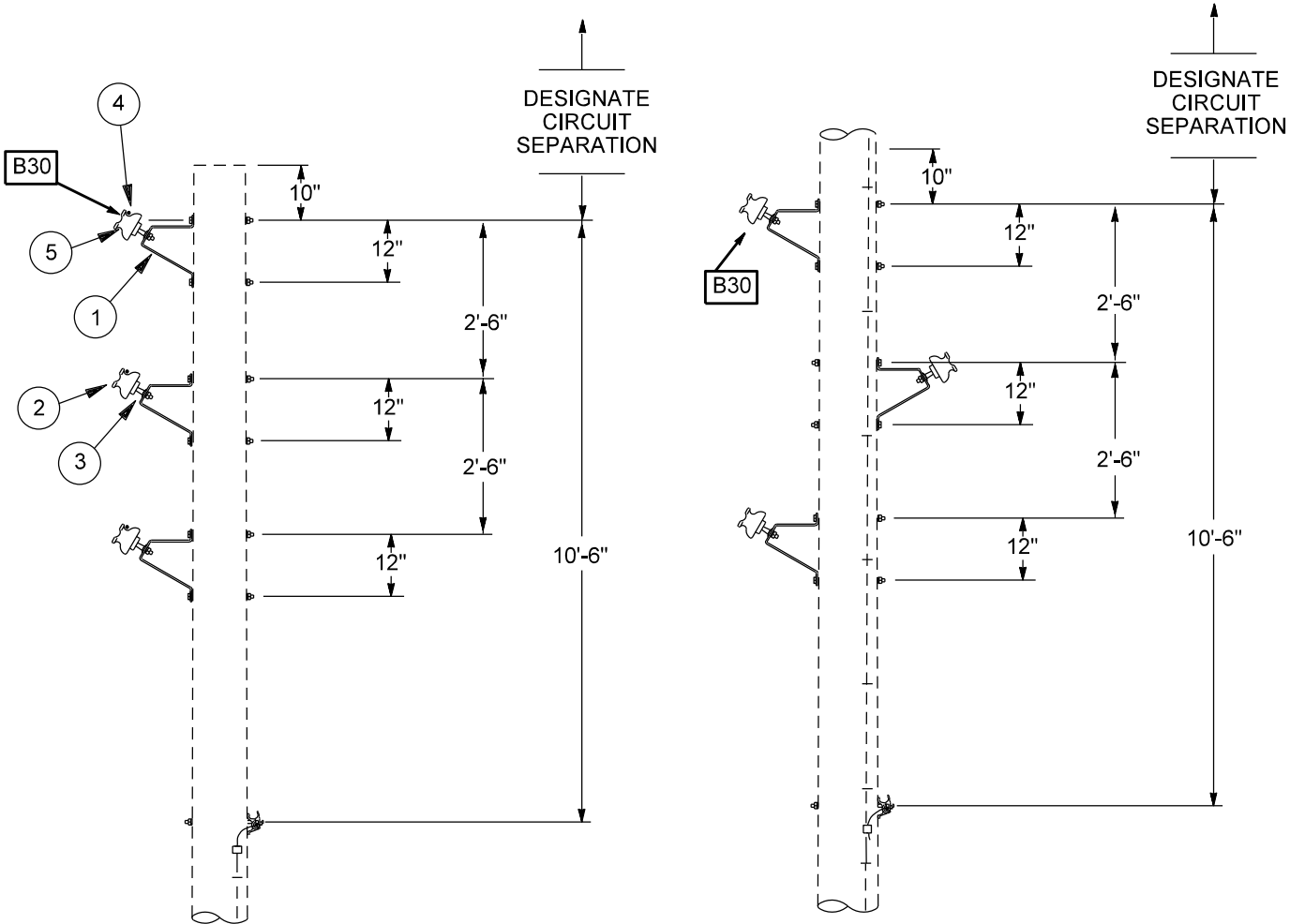
PW30B__

CONDUCTORS A2, A30, A266, A397, AC312,
C1, C2, C4, C6, C20, R2, R30, R266

P30D__

CONDUCTOR A2, A397

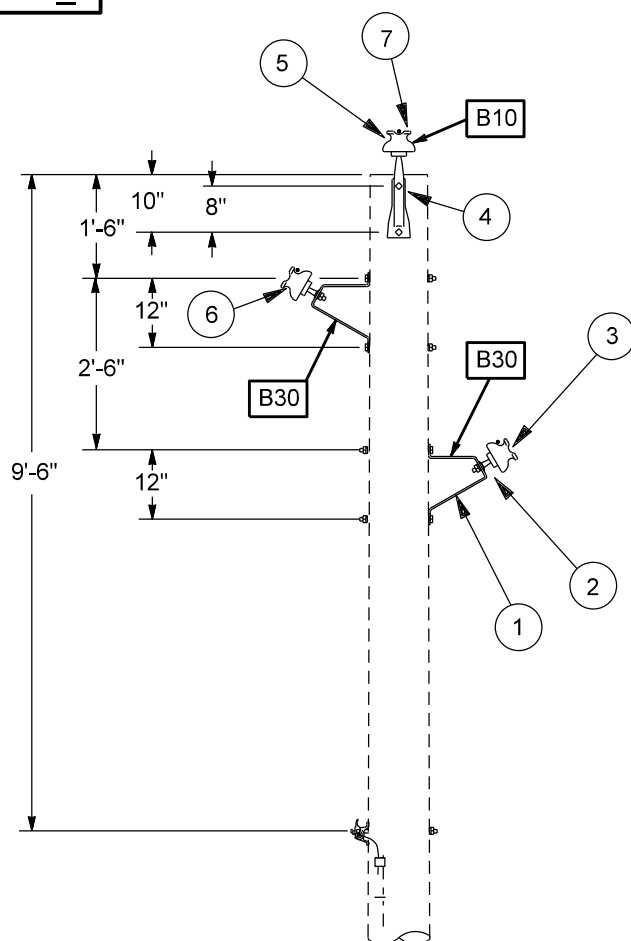
PW30D__



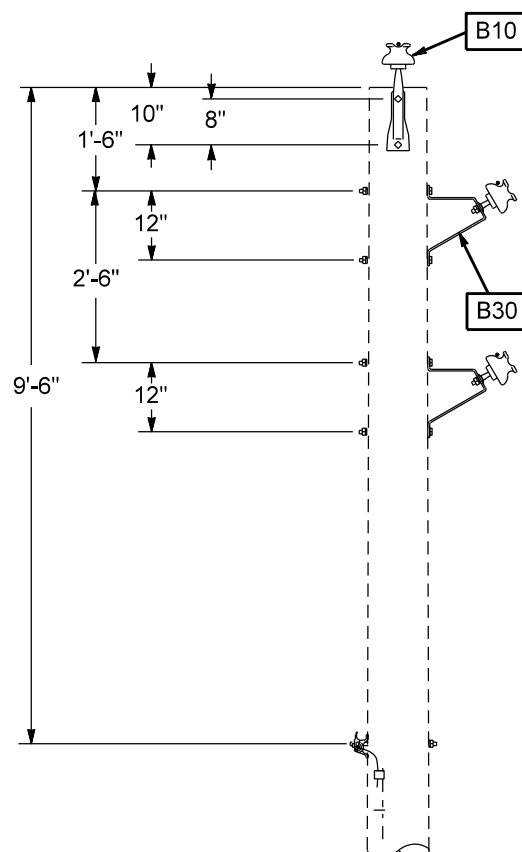
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	3	5028505
2	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
3	PIN, INSULATOR, 5/8" X 1.5" SHORT	3	5028641
4	LINE GUARD, VARIOUS	0 OR 3	BL__
5	SIDE TIE, VARIOUS	3	BPT2__

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS THREE PHASE TANGENT, 0 DEG. - 6 DEG., WOOD POLE	ISSUE DATE: 09/30/71
		REV. DATE: 02/27/20
		APPROVAL: J. LUERA
	5-23-1	8512E151.DGN

P30A_



P30C_



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	2	5028505
2	PIN, INSULATOR, 5/8 X 1.5 IN. SHORT	2	5028641
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028637
5	LINE GUARD, VARIOUS	0 OR 3	BL_
6	SIDE TIE, VARIOUS	2	BPT2_
7	TOP TIE, VARIOUS	1	BPT1_

Overhead Distribution Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE
TANGENT, 0 DEG.- 6 DEG.

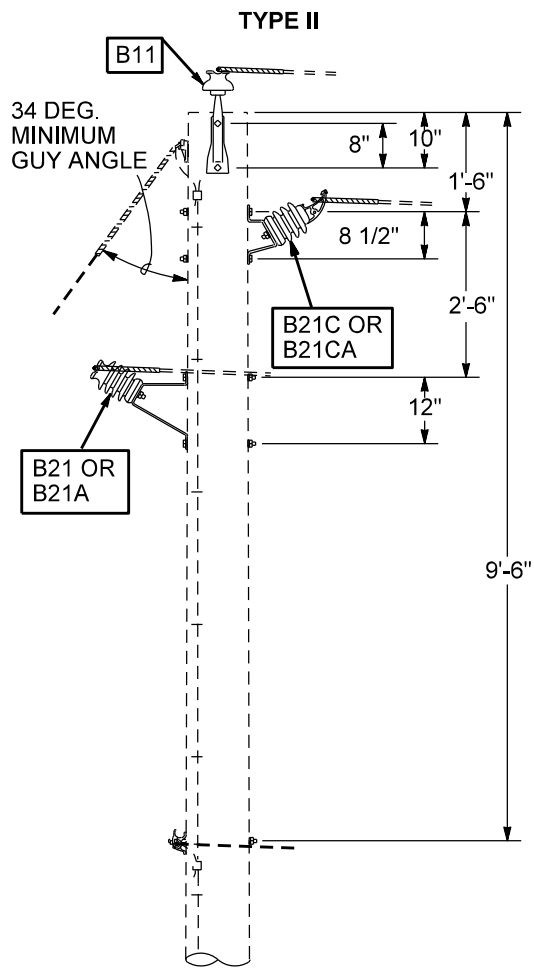
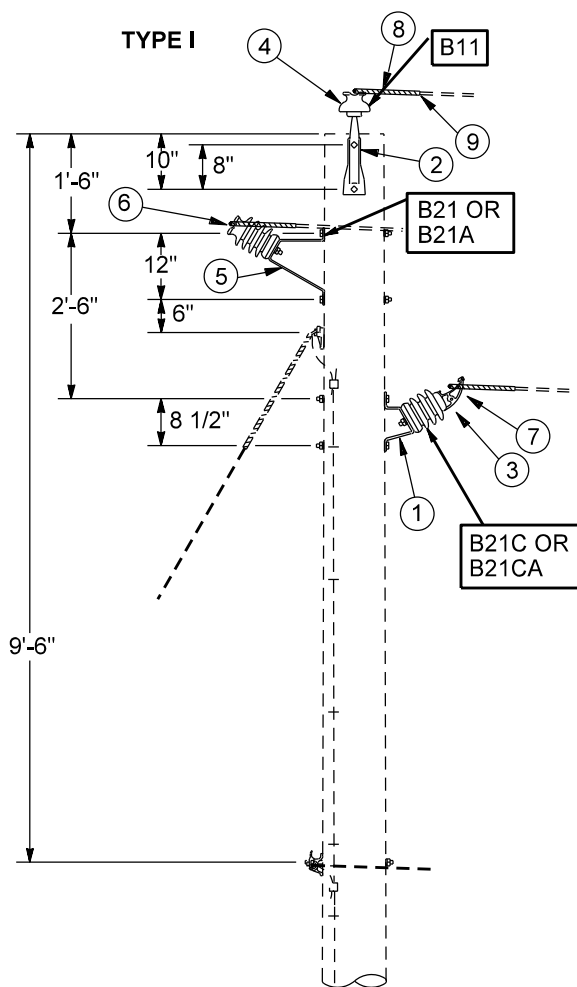
5-23-2

ISSUE DATE: 09/30/71

REV. DATE: 05/05/13

APPROVAL: B.PRIEST

8512E152.DGN



P31B 6 DEG. - 15 DEG. (SPANS LESS THAN 300')

P31BA 6 DEG. - 15 DEG. (SPANS MORE THAN 300')

CONDUCTORS AC312,A2,A266,A30,A397,
C2,C20,R2,R266,R30

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. SMALL	1	5028504
2	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	2	5028637
3	INSULATOR, HORIZONTAL, LINE POST, 15KV	1	5034465
4	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2	5034594
5	BRACKET, SIDE MOUNT, HOT GALV. LARGE	1	5028505
6	INSULATOR, VERTICAL, LINE POST, 22KV	1	5034466
7	CLAMPTOP CLAMP, 6 DEG. - 15 DEG., VARIOUS	1	BCT1_ OR BCT3_
8	LINE GUARD, VARIOUS	0 OR 3	BL_
9	ARMOR ROD, VARIOUS	0 OR 3	BR_

Overhead Distribution
Construction Standards



PRIMARY CONSTRUCTION UNITS
THREE PHASE
SMALL ANGLE, 6 DEG.- 15 DEG.

5-24-1

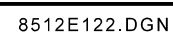
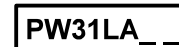
ISSUE DATE: 09/30/71

REV. DATE: 02/27/19

APPROVAL: N. Sabbah

8512E121.DGN

PW31GA__



CONDUCTORS A2, A30, A266, A397, AC312, R2, R30, R266

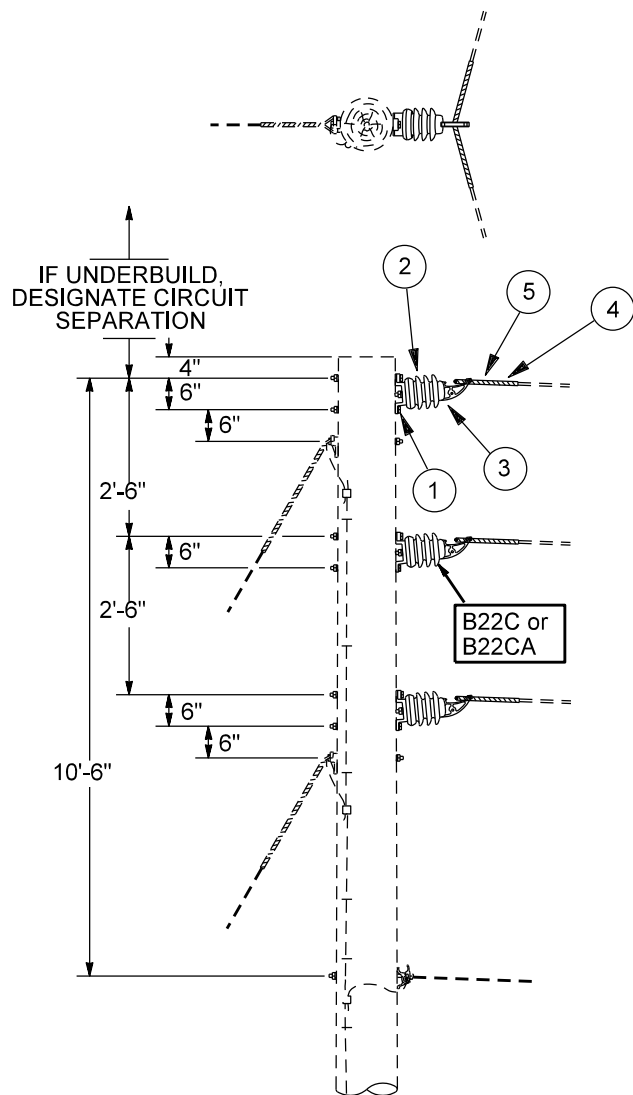
P32__ 15° - 30° SPANS LESS THAN 300'

P32A__ 15° - 30° SPANS MORE THAN 300'

CONDUCTOR A2

PW32__

PW32A__



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, INSULATOR, 5/8" STUD	3	5028499
2	INSULATOR, HORIZONTAL, LINE POST, 15KV	3	5034465
3	CLAMPTOP CLAMP, 15° - 30°, VARIOUS	3	BCT2_ OR BCT4_
4	ARMOR ROD, VARIOUS	0 OR 3	BR_
5	LINE GUARD, VARIOUS	0 OR 3	BL_

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS THREE PHASE INTERMEDIATE ANGLE, 15 DEG. - 30 DEG., WOOD POLE	ISSUE DATE: 09/30/71
		REV. DATE: 02/27/20
		APPROVAL: J. LUERA
	5-26-1	8512E123.DGN

CONDUCTORS A2, A30, A266, A397, AC312
C2, C4, C6, C20, R2, R30, R266

P33__ 30° - 69° SPANS LESS THAN 300'

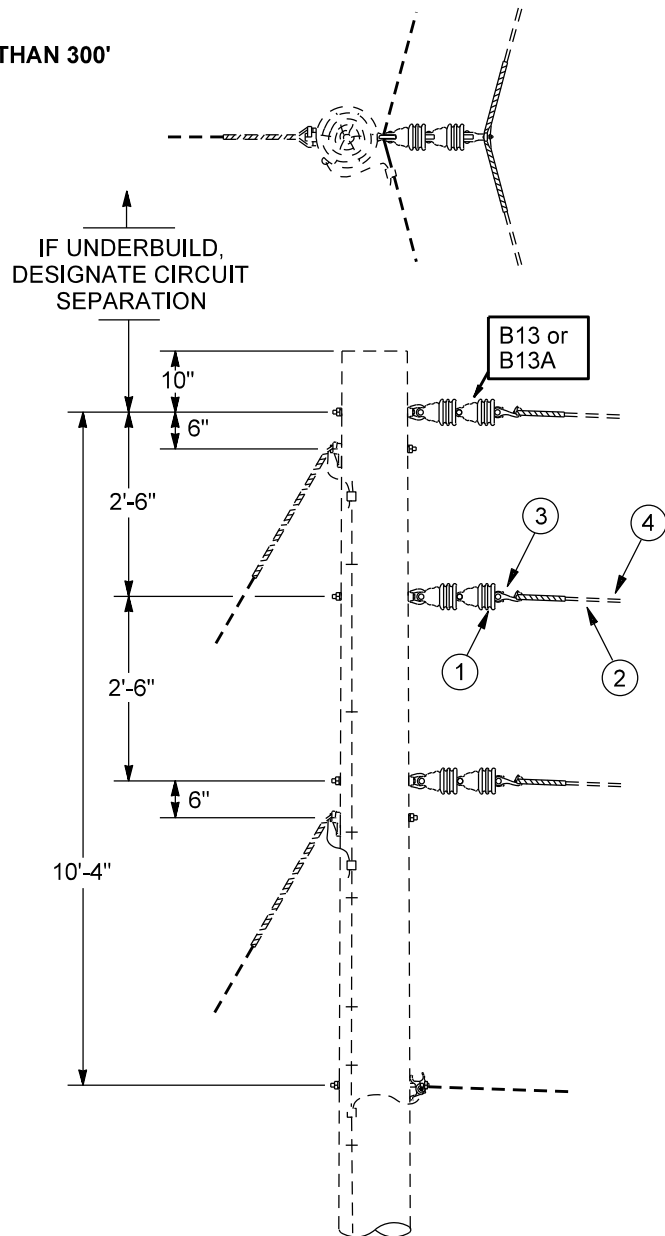
CONDUCTORS A2, A30, A266, A397, AC312,
R2, R30, R266

P33A__ 30° - 69° SPANS MORE THAN 300'

CONDUCTORS A2, A397

PW33__

PW33A__

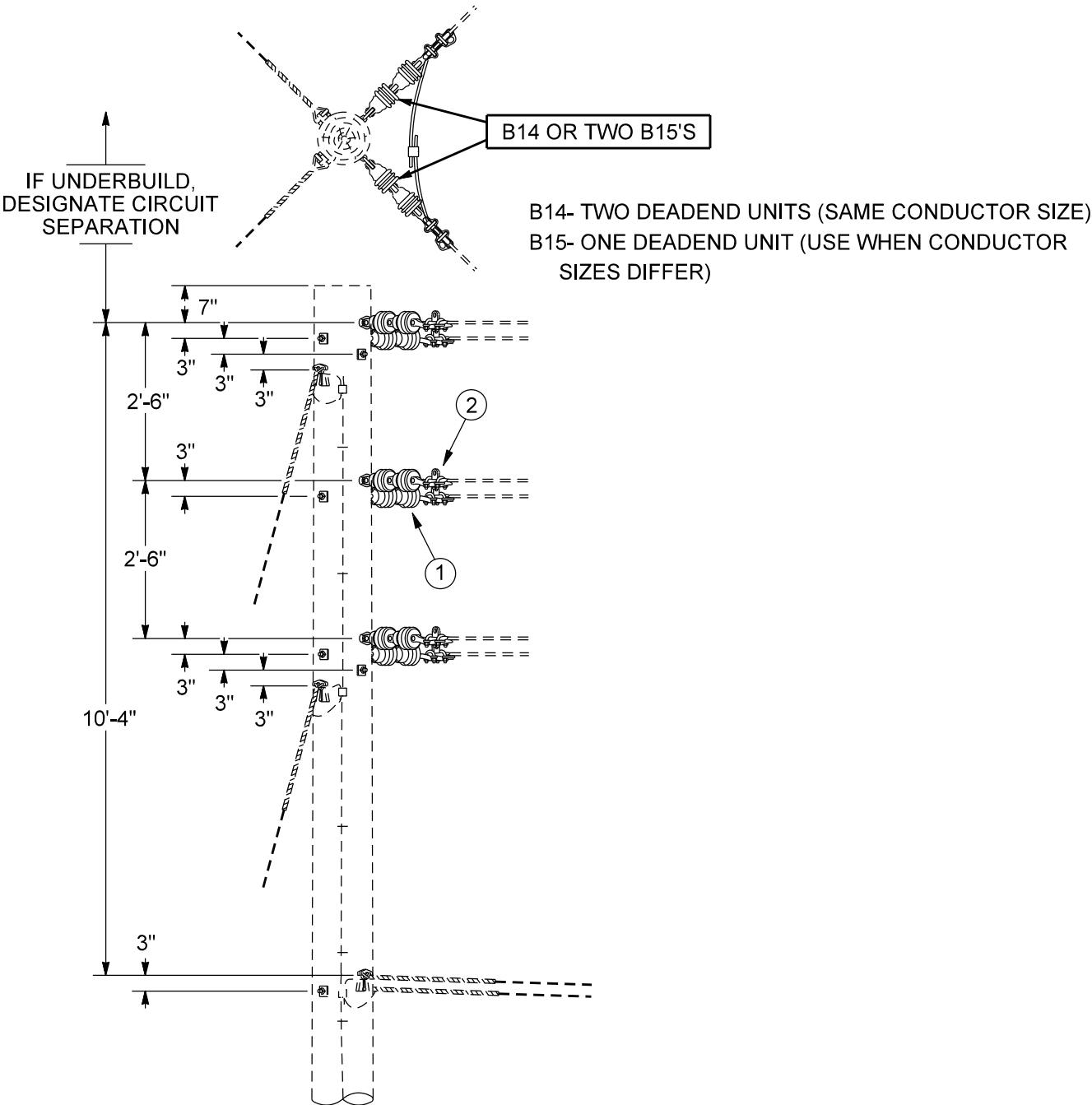


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4", CLEVIS	6	5034719
2	LINE GUARD, VARIOUS	0 OR 3	BL_
3	ANGLE CLAMP, 30° - 60°, VARIOUS	3	BA1_ OR BA2_
4	ARMOR ROD, VARIOUS	0 OR 3	BR_

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS THREE PHASE MEDIUM ANGLE, 30 DEG. - 60 DEG. , WOOD POLE	ISSUE DATE: 09/30/71 REV. DATE: 02/27/20 APPROVAL: J. LUERA
	5-27-1	8512E124.DGN

P34_

CONDUCTORS AC312,A2,A266,A30,A397,
C2,C20,C4,C6,R2,R266,R30

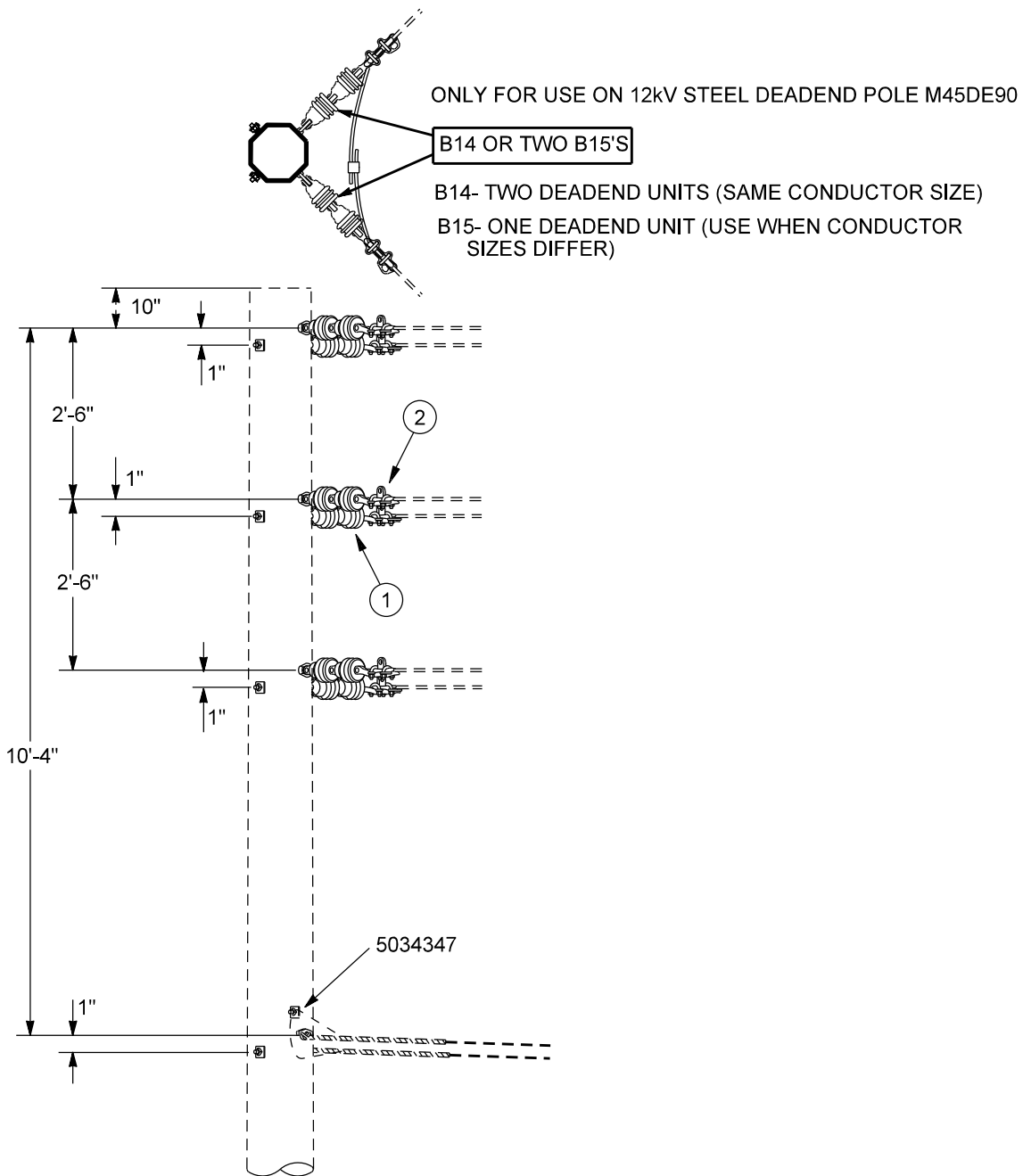


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN, CLEVIS	12	5034719
2	DEADEND CLAMP, VARIOUS	6	BD_

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS THREE PHASE LARGE ANGLE, 60 DEG.- 90 DEG.	ISSUE DATE: 09/30/71
		REV. DATE: 05/06/13
		APPROVAL: B.PRIEST
	5-28-1	8512E125.DGN

P34S _ _

CONDUCTORS AC312,A2,A266,A30,A397,
C2,C20,C4,C6,R2,R266,R30



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
2	DEADEND CLAMP, VARIOUS	6	BD_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE LARGE ANGLE, 60 DEG.- 90 DEG.
ON STEEL POLE

5-28-2

ISSUE DATE: 06/05/02

REV. DATE: 05/02/13

APPROVAL: B.PRIEST

8512E442.DGN

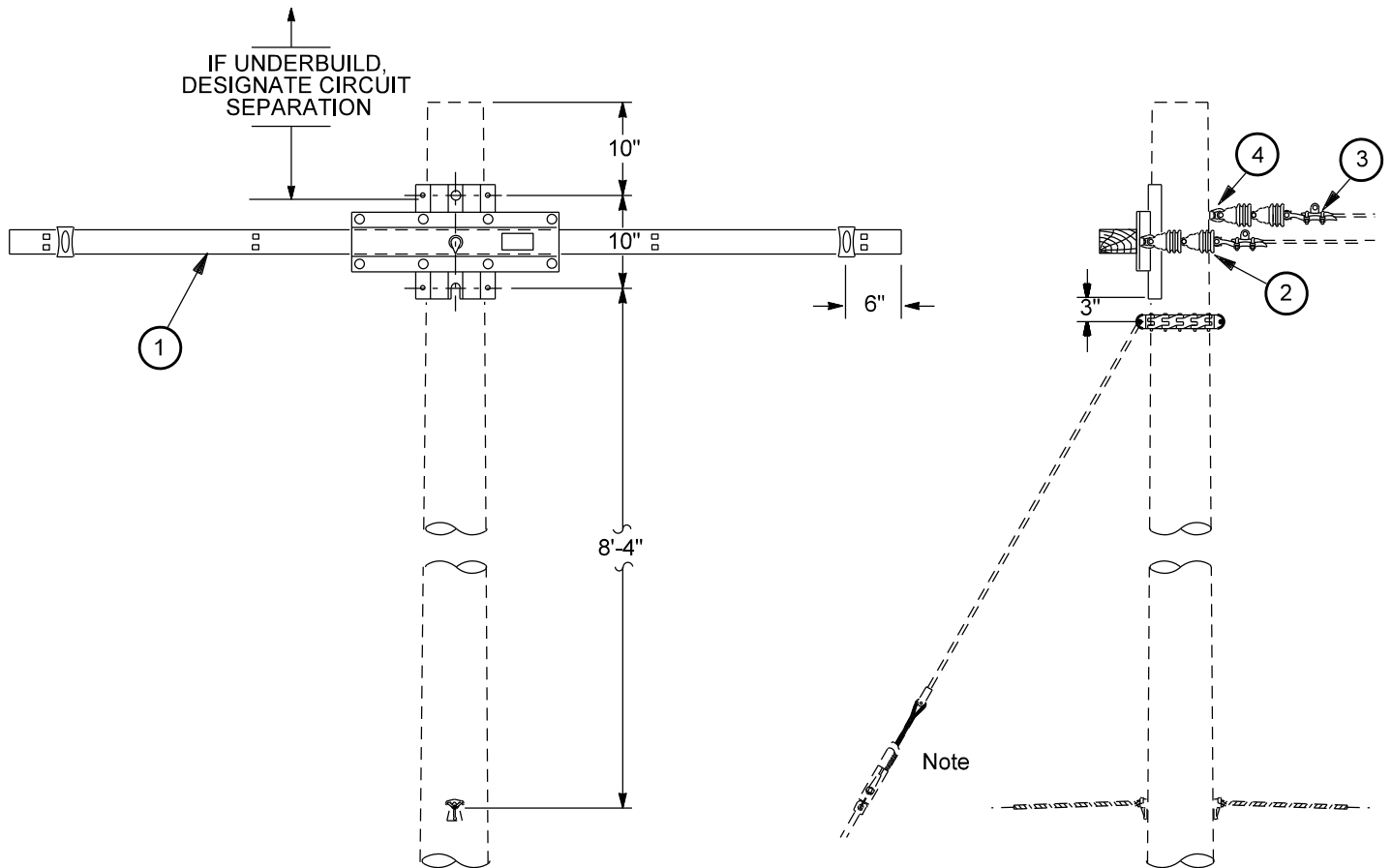
P35__

CONDUCTORS A2, A30, A266, A397,
C2, C4, C6, C20, R2, R30

PW35__

CONDUCTORS A2, A397

PREFERRED FOR RISER



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 8'	1	5029412
2	INSULATOR, SUSPENSION, 6-1/4", CLEVIS	6	5034719
3	DEADEND CLAMP, VARIOUS	3	BL_
4	BOLT, EYE, 1-3/4" X 3" I.D.	1	5028908

NOTES

1. SEE POLE GUYING AND BRACING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND
CROSSARM, WOOD POLE

5-29-1

ISSUE DATE: 09/30/71

REV. DATE: 02/27/20

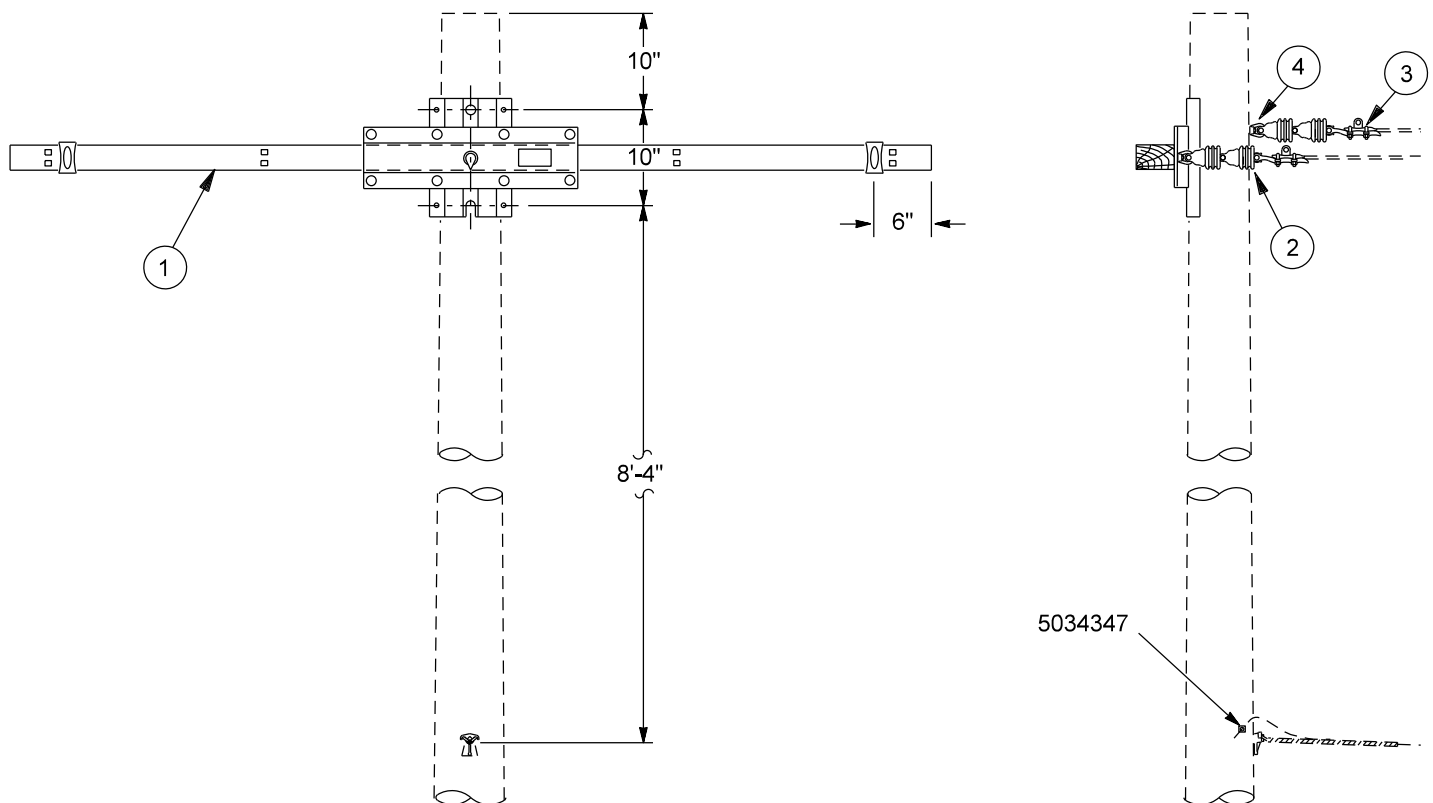
APPROVAL: J. LUERA

8512E126.DGN

P35S_ _

CONDUCTORS A2,A266,A30,A397,
C2,C20,C4,C6,R2,R30

PREFERRED FOR RISER ON STEEL DEADEND POLES (M45DE AND M45DE90 ONLY)



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 10FT.	1	5027457
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
3	DEADEND CLAMP, VARIOUS	3	BD_
4	BOLT, EYE, 1.75 X 3 IN. I.D.	1	5028908

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND ON STEEL POLE
CROSSARM

5-29-2

ISSUE DATE: 06/05/02

REV. DATE: 05/02/13

APPROVAL: B.PRIEST

8512E443.DGN

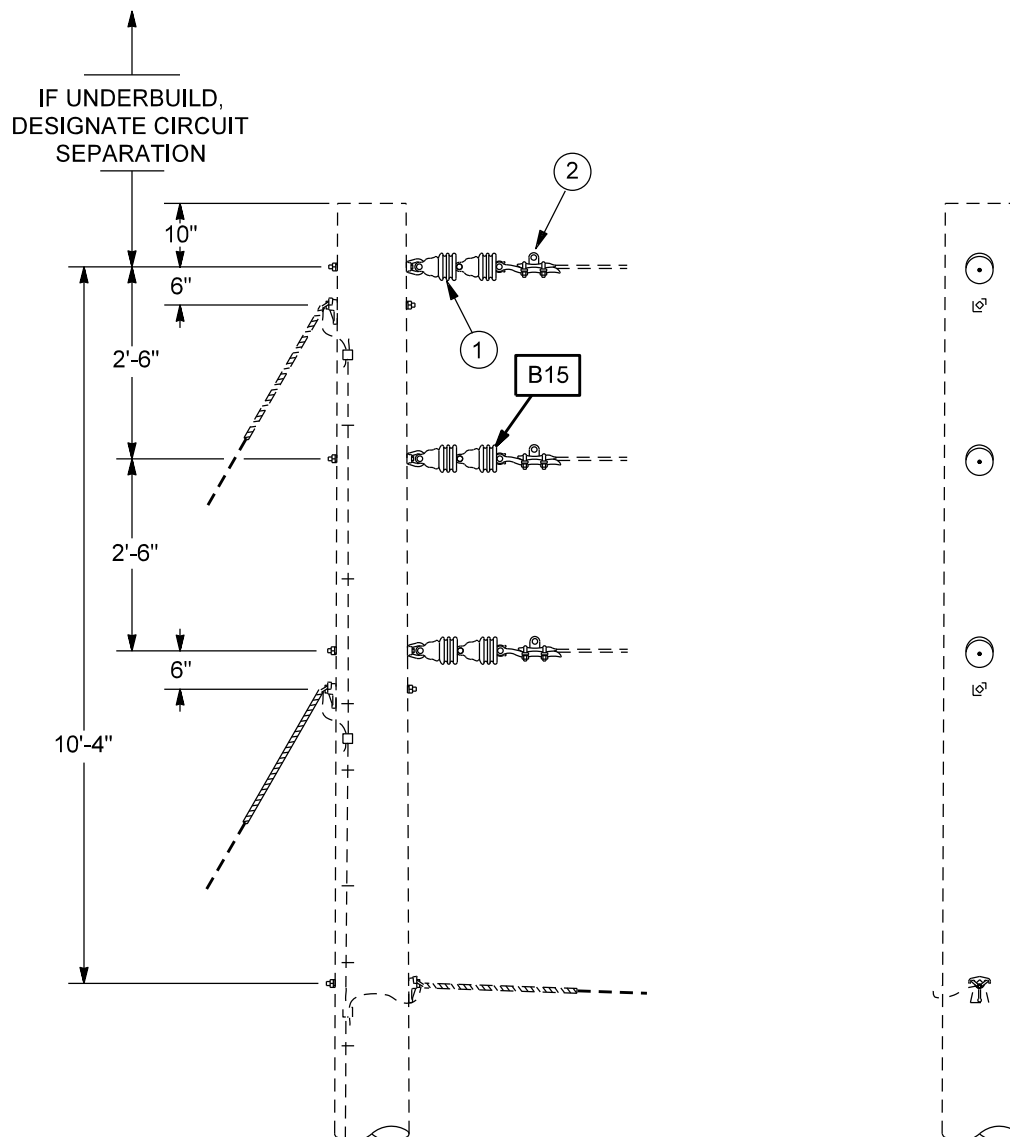
P35A__

CONDUCTORS A2, A30, A266, A397, AC312,
C2, C4, C6, C20, R2, R30, R266

PW35A__

CONDUCTORS A2, A397

ALTERNATE
USE P35 OR P35B WHERE POSSIBLE



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4", CLEVIS	6	5034719
2	DEADEND CLAMP, VARIOUS	3	BD_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND
VERTICAL, WOOD POLE

5-30-1

ISSUE DATE: 09/30/71

REV. DATE: 02/27/20

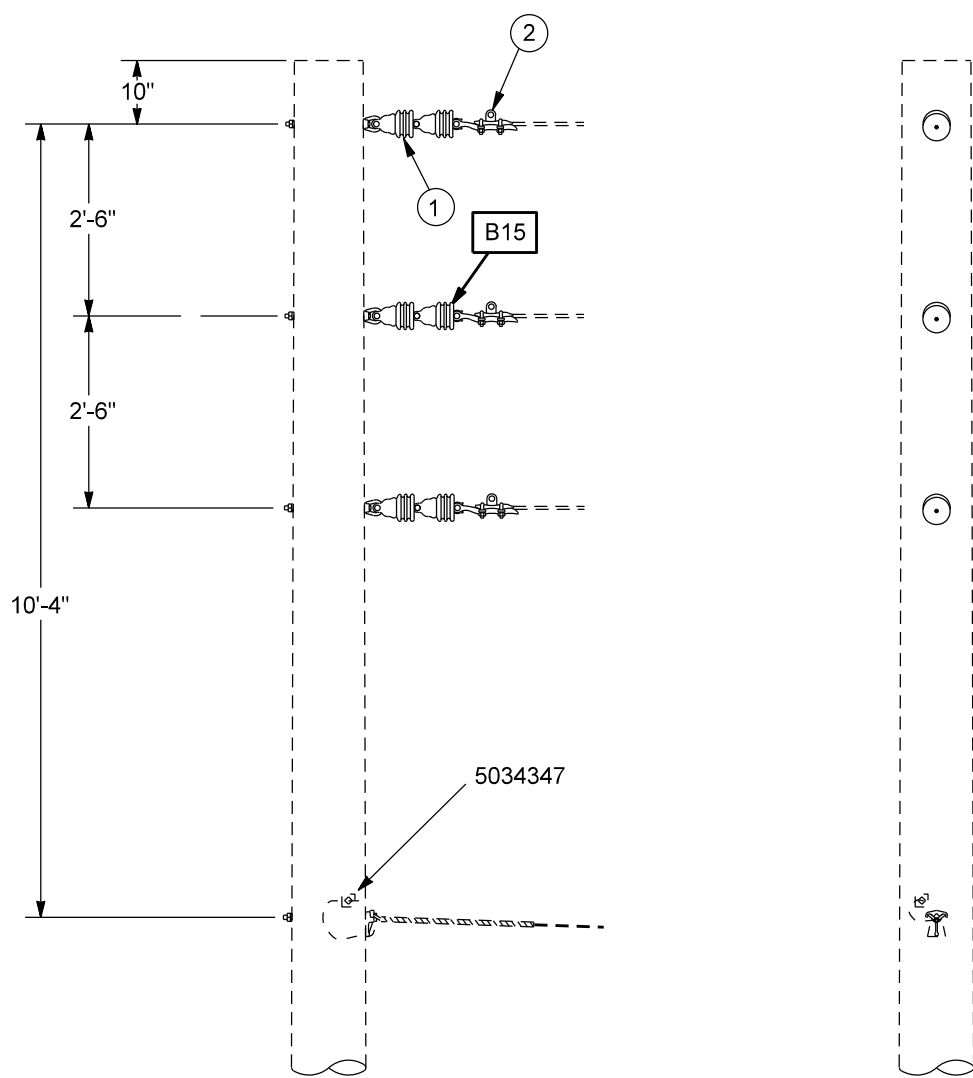
APPROVAL: J. LUERA

8512E127.DGN

P35AS_ _

CONDUCTORS AC312,A2,A266,A30,A397,
C2,C20,C4,C6,R2,R266,R30

ONLY FOR USE ON STEEL DEADEND POLES: M45DE AND M45DE90

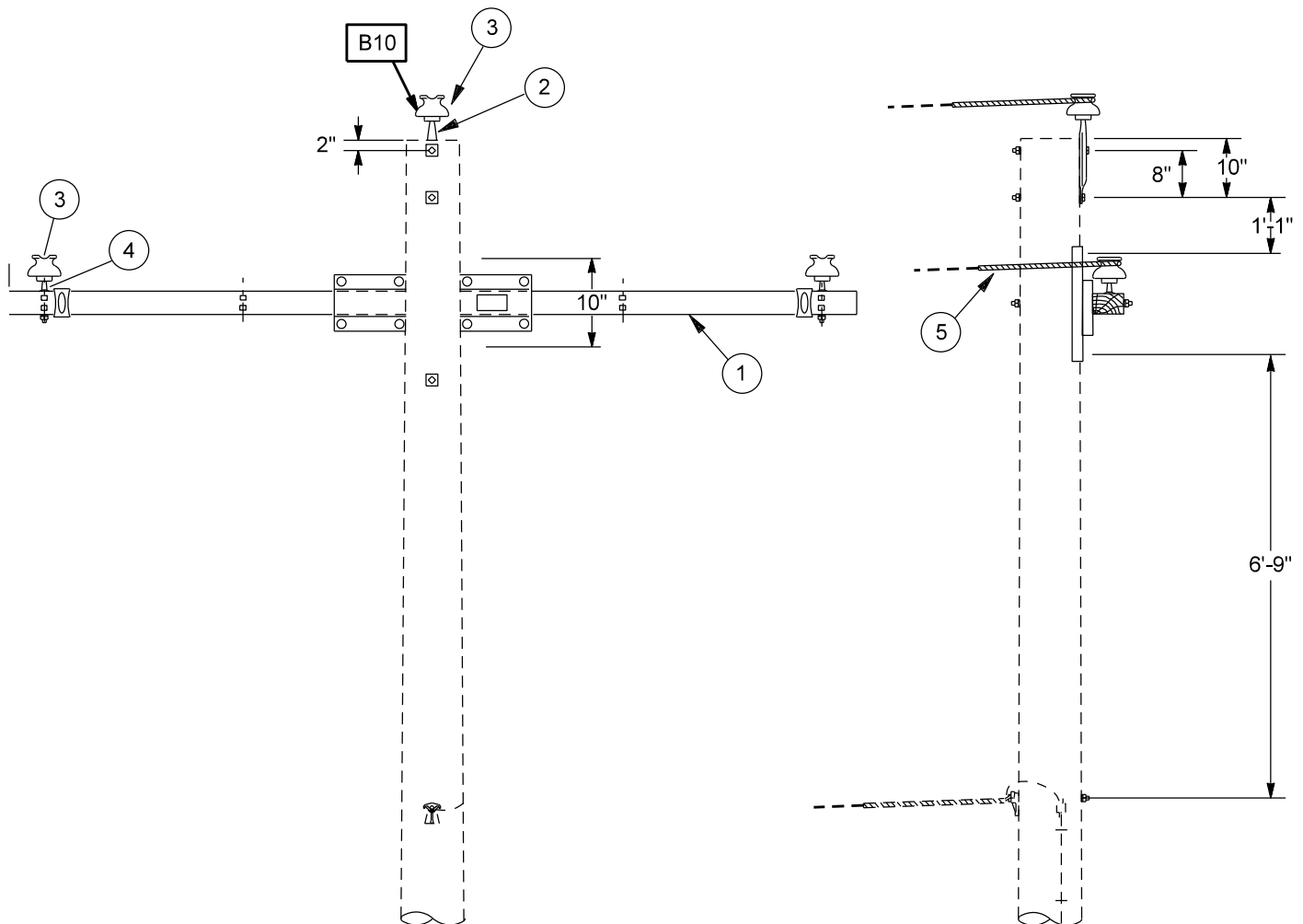


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
2	DEADEND CLAMP, VARIOUS	3	BD_

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS THREE PHASE DEADEND ON STEEL POLE VERTICAL	ISSUE DATE: 06/05/02
		REV. DATE: 05/06/13
		APPROVAL: B.PRIEST
	5-30-2	8512E444.DGN

P35AN_

CONDUCTORS A2,A266,A397



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, 8', 3000 LB. CONDUCTOR TENSION	1	5029412
2	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028637
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	2	5028642
5	DEADEND GRIP, VARIOUS	3	BDG_

NOTES

1. FOR MAXIMUM SPAN LENGTH SEE SLACK SPAN SAG CHARTS.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND
SLACK SPAN

5-31-1

ISSUE DATE: 01/30/84

REV. DATE: 05/06/13

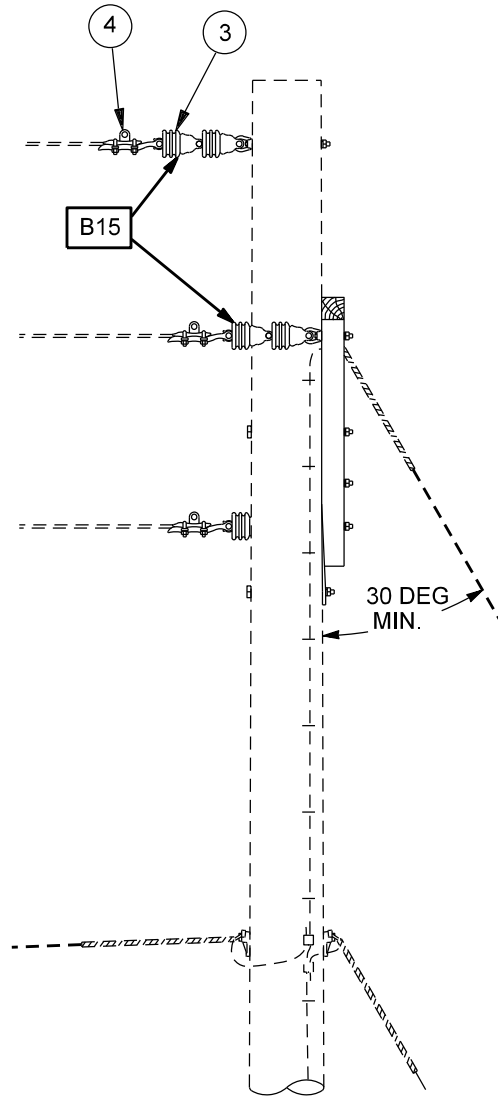
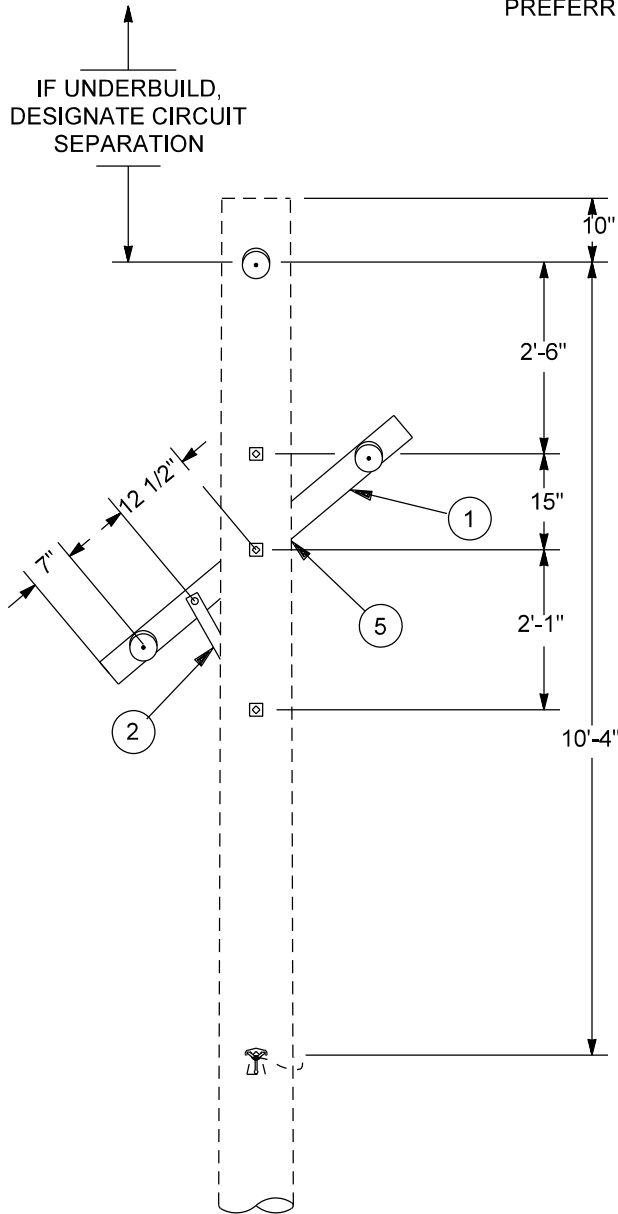
APPROVAL: B.PRIEST

8512E128.DGN

P35B__

CONDUCTORS A2,A266,A30,A397,
C2,C20,C4,C6,R2,R30

PREFERRED FOR 90 DEG TAP



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN	1	5029409
2	BRACE, CROSSARM, 1.25 X 0.25 X 20 IN.	1	5027884
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
4	DEADEND CLAMP, VARIOUS	3	BD_
5	PLATE, GAIN, 9" X 4-1/2"	1	5028653

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND
STAGGERED CONFIGURATION, CROSSARM

5-32-1

ISSUE DATE: 06/07/74

REV. DATE: 04/29/13

APPROVAL: B.PRIEST

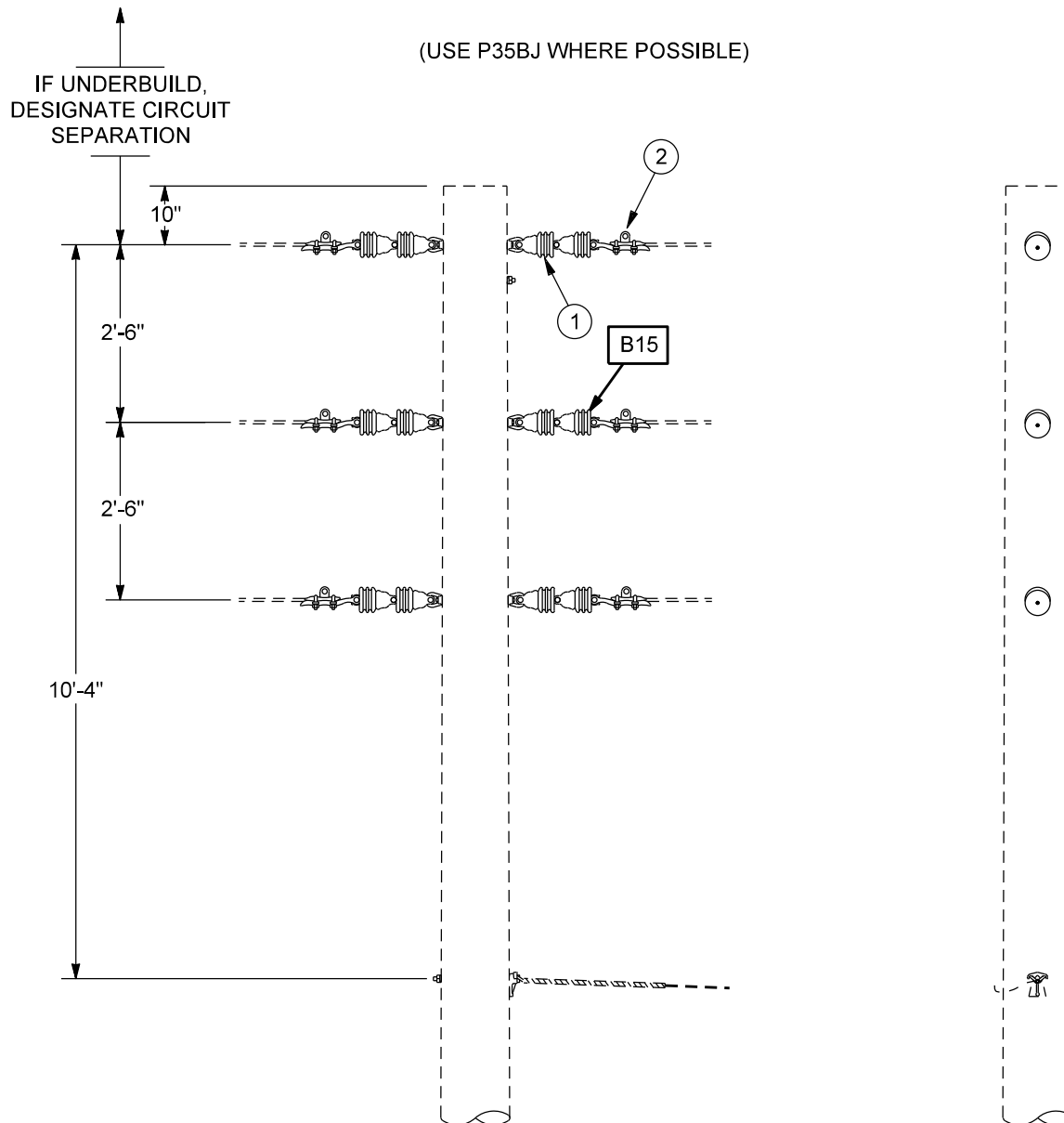
8512E129.DGN

P35D__

CONDUCTORS AC312,A2,A266,A30,A397,
C2,C20,C4,C6,R2,R266,R30

ALTERNATE

(USE P35BJ WHERE POSSIBLE)



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
2	DEADEND CLAMP, VARIOUS	6	BD_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DOUBLE DEADEND
VERTICAL

5-33-1

ISSUE DATE: 07/29/93

REV. DATE: 04/12/13

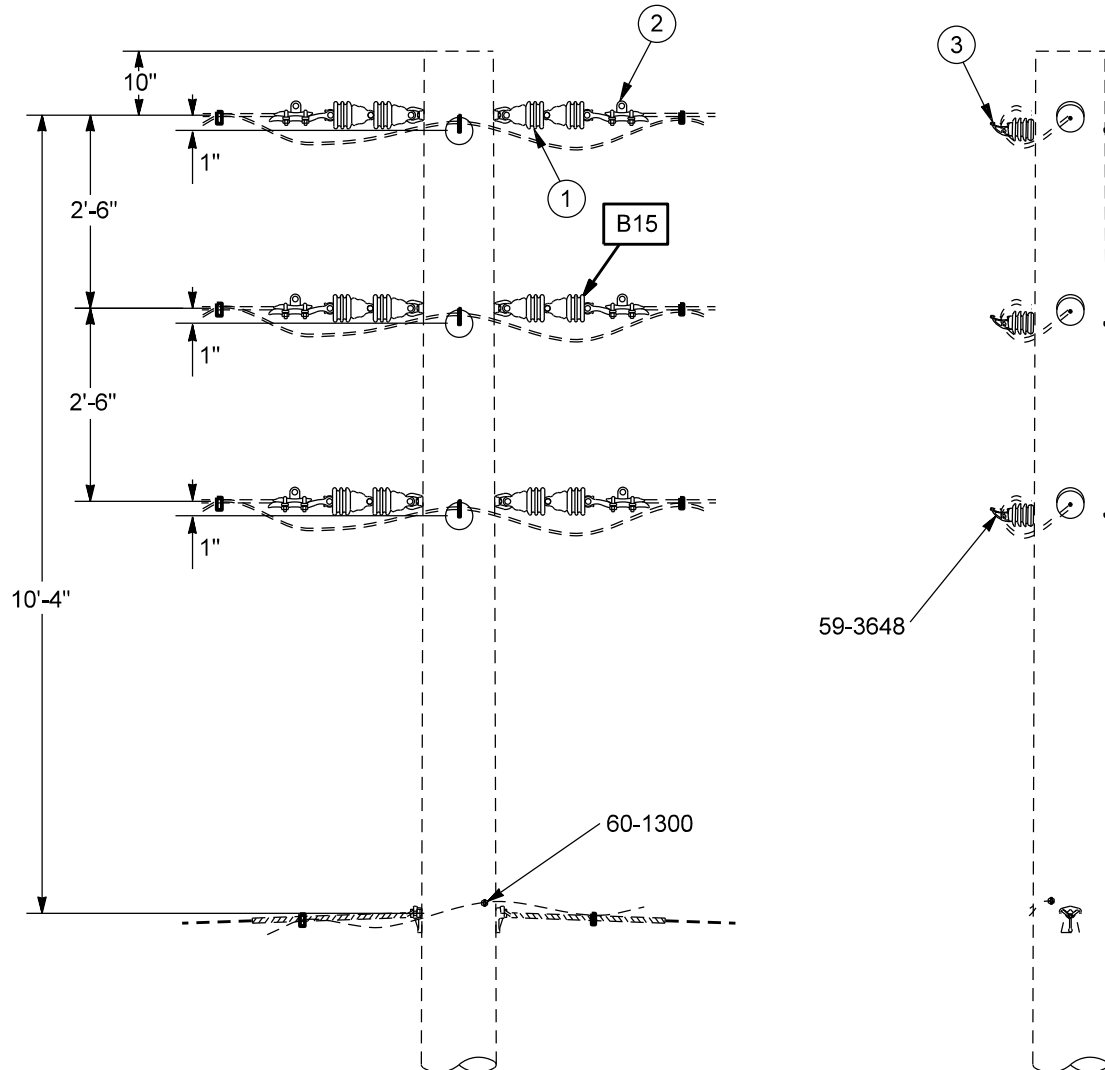
APPROVAL: B.PRIEST

8512E208.DGN

P35DS_ _

CONDUCTORS AC312,A2,A266,A30,A397,
C2,C20,C4,C6,R2,R266,R30

ONLY FOR USE ON STEEL DEADEND POLES: M45DE AND M45DE90



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
2	DEADEND CLAMP, VARIOUS	6	BD_
3	INSULATOR, CLAMPTOP	3	5034465

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DOUBLE DEADEND ON STEEL POLE
VERTICAL

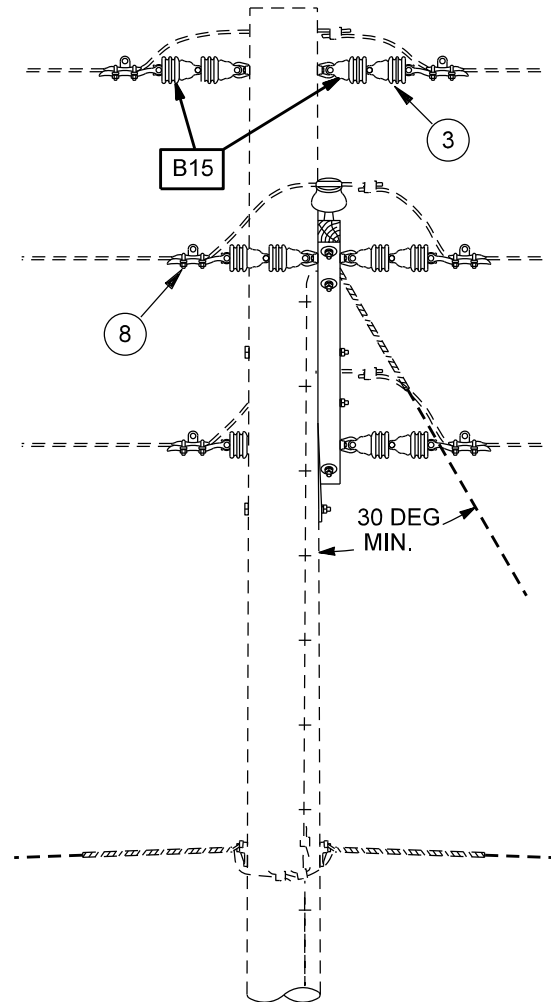
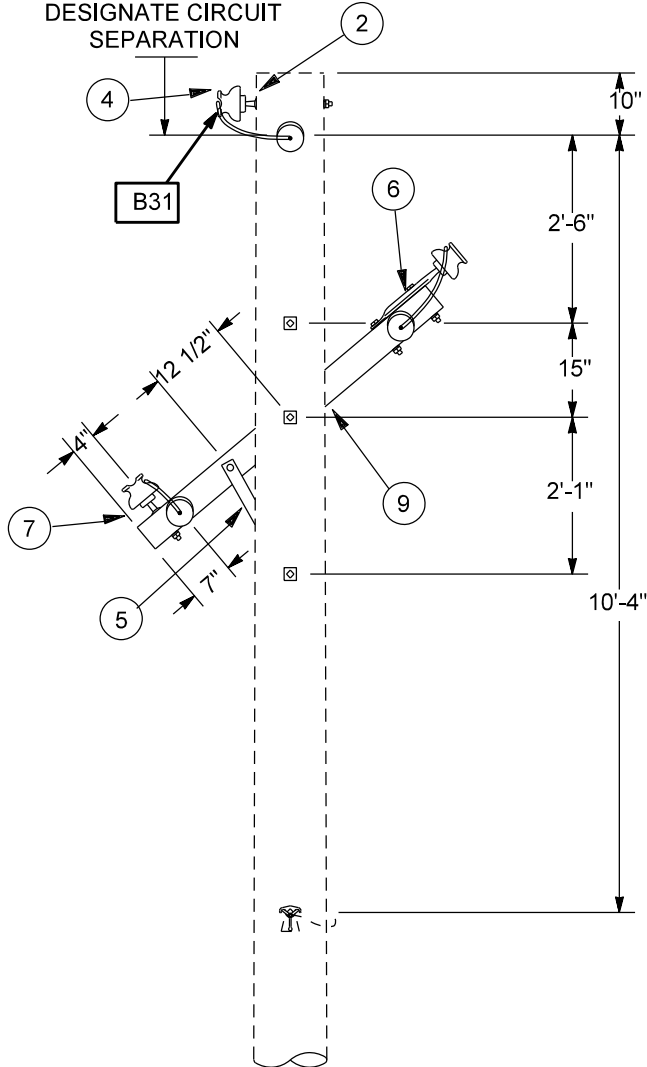
5-33-2

ISSUE DATE: 06/05/02

REV. DATE: 05/06/13

APPROVAL: B.PRIEST

8512E446.DGN

P35BJ**CONDUCTORS A2,A266,A30,A397,
C2,C20,C4,C6,R2,R30**IF UNDERBUILD,
DESIGNATE CIRCUIT
SEPARATION

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN	1	5029409
2	PIN, INSULATOR, 1 IN. LEAD THREAD	1	5028639
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
4	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
5	BRACE, CROSSARM, 1.25 X 0.25 X 20 IN.	1	5027884
6	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028637
7	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	1	5028642
8	DEADEND CLAMP, VARIOUS	6	BD_
9	PLATE, GAIN, 9" X 4-1/2"	1	5028653

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND, JUMPERED
STAGGERED CONFIGURATION, CROSSARM

5-34-1

ISSUE DATE: 06/10/74

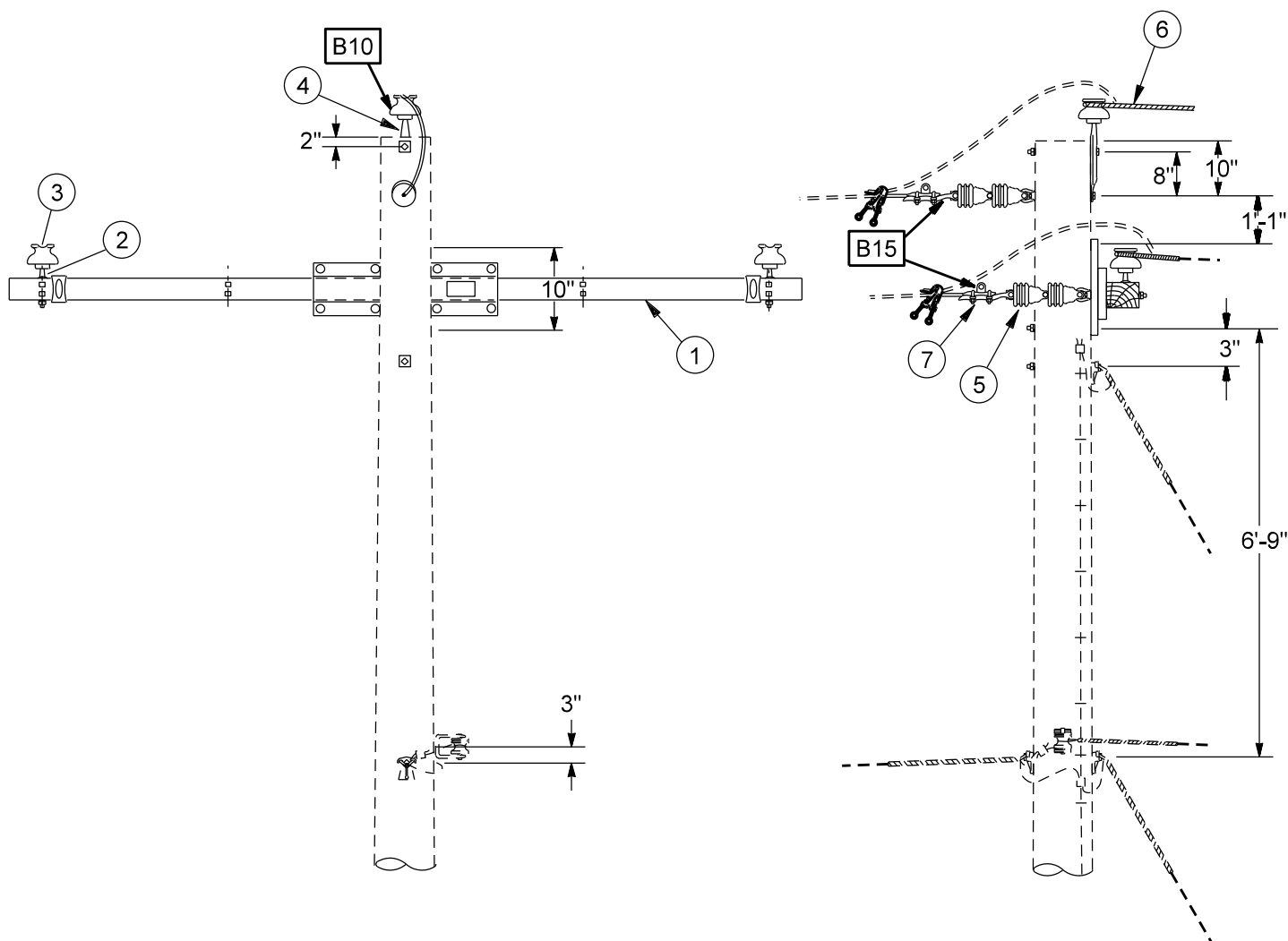
REV. DATE: 04/29/13

APPROVAL: B.PRIEST

8512E130.DGN

P36__

CONDUCTORS A2,A266,A30,A397,
C2,C20,C4,C6,R2,R30



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, 8', 3000 LB. CONDUCTOR TENSION	1	5029412
2	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	2	5028642
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	1	5028637
5	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
6	DEADEND GRIP, VARIOUS	3	BDG_
7	DEADEND CLAMP, VARIOUS	3	BD_

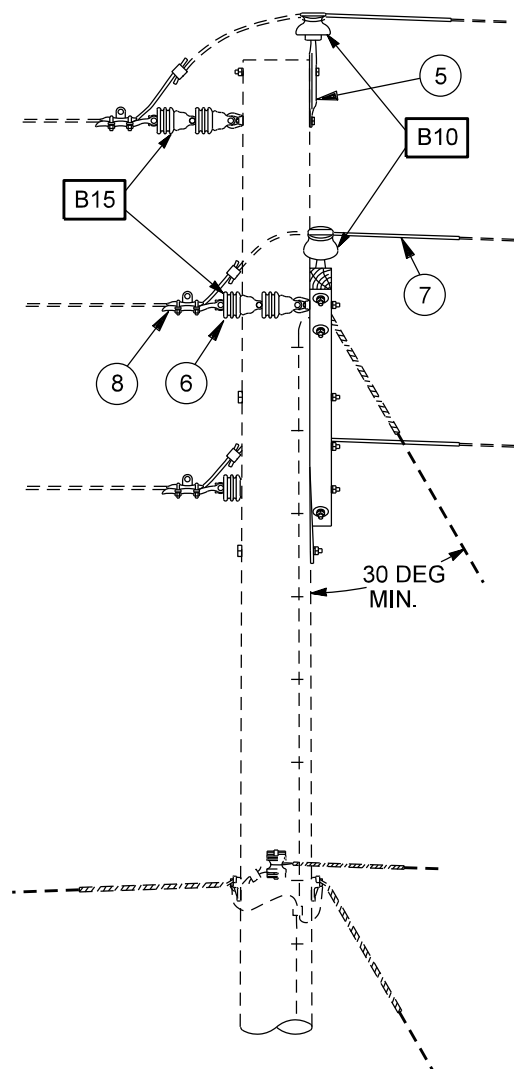
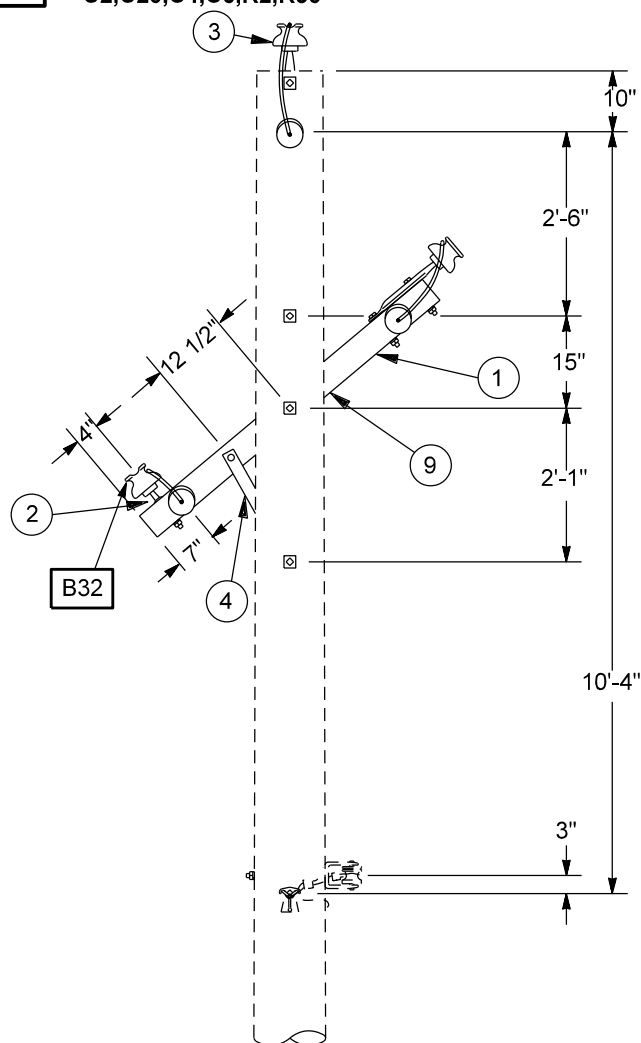
NOTES

1. FOR MAXIMUM SPAN LENGTH SEE SLACK SPAN SAG CHARTS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	PRIMARY CONSTRUCTION UNITS THREE PHASE DEADEND 180 DEG. SLACK SPAN, CROSSARM		ISSUE DATE: 09/30/71 REV. DATE: 05/11/13 APPROVAL: B.PRIEST
	5-35-1		8512E131.DGN

P36B__

CONDUCTORS A2,A266,A30,A397,
C2,C20,C4,C6,R2,R30



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN	1	5029409
2	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	1	5028642
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	BRACE, CROSSARM, 1.25 X 0.25 X 20 IN.	1	5027884
5	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	2	5028637
6	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
7	DEADEND GRIP, VARIOUS	3	BDG_
8	DEADEND CLAMP, VARIOUS	3	BD_
9	PLATE, GAIN, 9" X 4-1/2"	1	5028653

NOTES

1. FOR MAXIMUM SPAN LENGTH SEE SLACK SPAN SAG CHARTS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND
180 DEG. SLACK SPAN
STAGGERED CONFIGURATION, CROSSARM

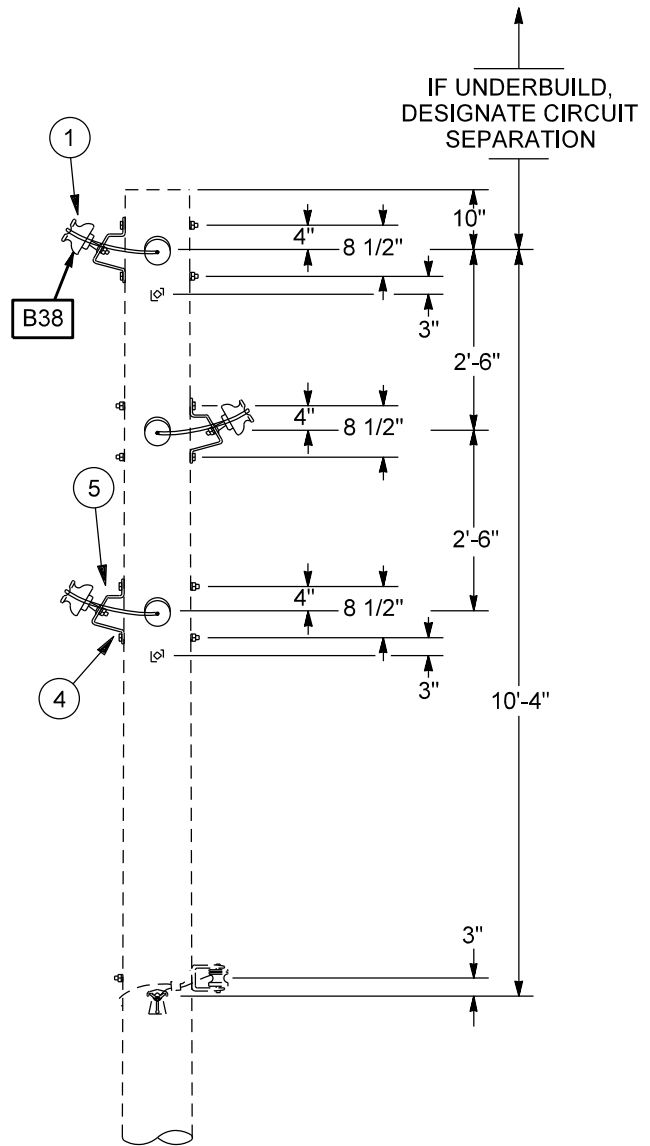
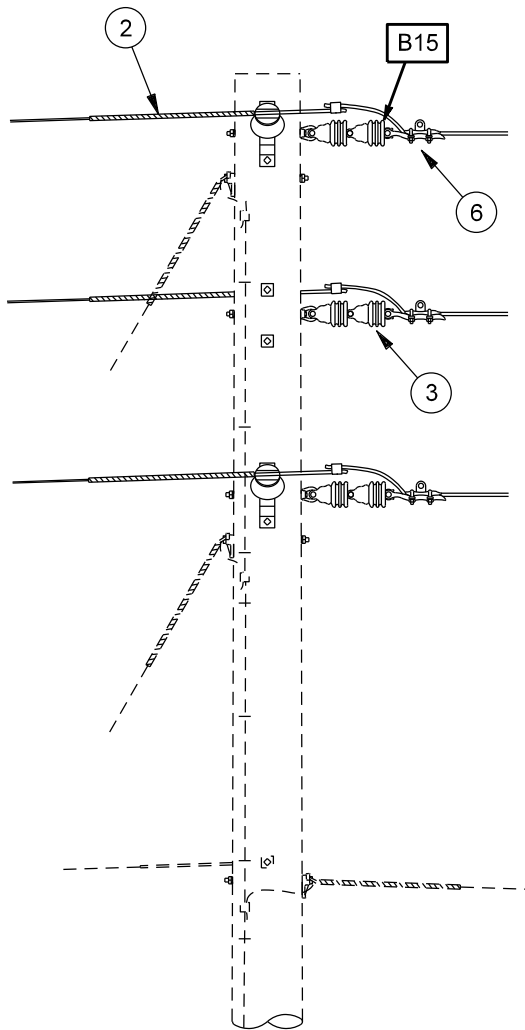
5-36-1

ISSUE DATE: 05/22/75

REV. DATE: 04/29/13

APPROVAL: B.PRIEST

8512E132.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
2	DEADEND GRIP, VARIOUS	3	BDG_
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
4	BRACKET, SIDE MOUNT, HOT GALV. SMALL	3	5038504
5	PIN, INSULATOR, 5/8 X 1.5 IN. SHORT	3	5038641
6	DEADEND CLAMP, VARIOUS	3	BD_

NOTES

1. MAX. SPAN LENGTH- SEE SLACK SPAN SAG CHARTS

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DEADEND
180 DEG. SLACK SPAN

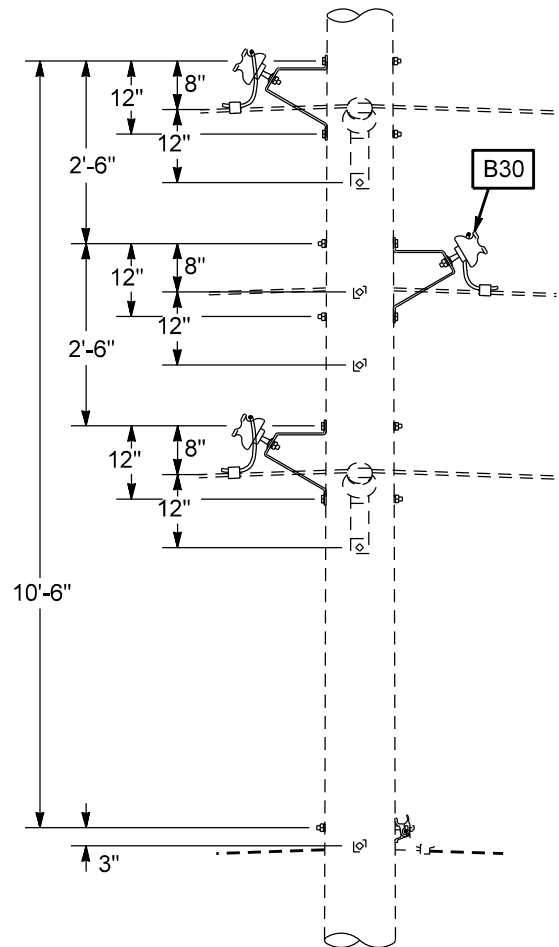
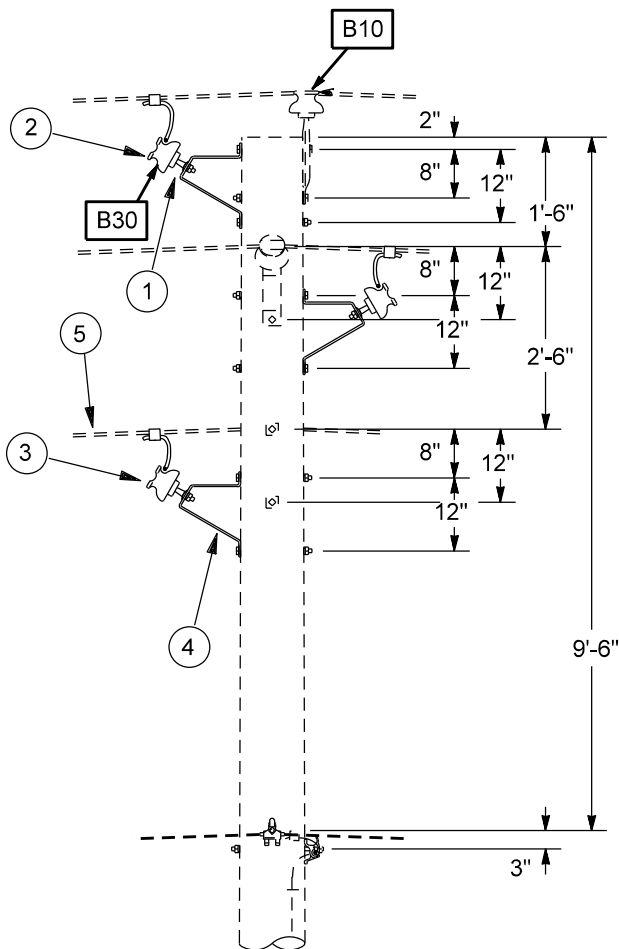
5-37-1

ISSUE DATE: 09/30/71

REV. DATE: 04/25/13

APPROVAL: B. PRIEST

8512E89.DGN



PB10__ 1 Φ TANGENT, INTERSECTION OF SAME CIRCUIT
CONDUCTORS A2,C4,C6,R2

PB20__ 2 Φ TANGENT, INTERSECTION OF SAME CIRCUIT
CONDUCTORS A2,C4,C6,R2

PB30__ 3 Φ TANGENT, INTERSECTION OF SAME CIRCUIT
CONDUCTORS AC312,A2,A266,A30,A397,C2,C20,C4,C6,R2,R266,R30

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	PIN, INSULATOR, 5/8 X 1.5 IN. SHORT	1, 2 OR 3	5028641
2	INSULATOR, PIN 12KV PORCELAIN GRAY	1, 2 OR 3	5034594
3	SIDE TIE, VARIOUS	1, 2 OR 3	BPT2__
4	BRACKET, SIDE MOUNT, HOT GALV. LARGE	1, 2 OR 3	5028505
5	LINE GUARD, VARIOUS	0 OR 3	BL__

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
ONE, TWO OR THREE PHASE TANGENT
INTERSECTION, SAME CIRCUIT

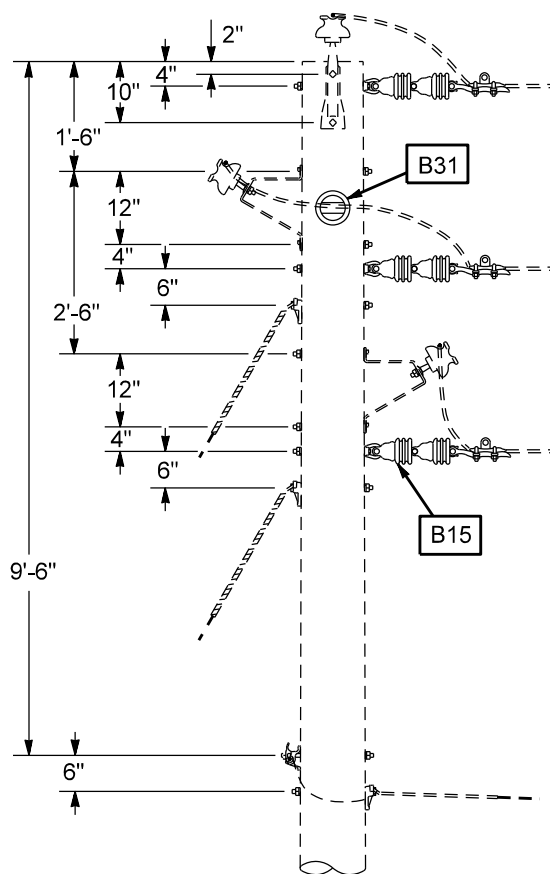
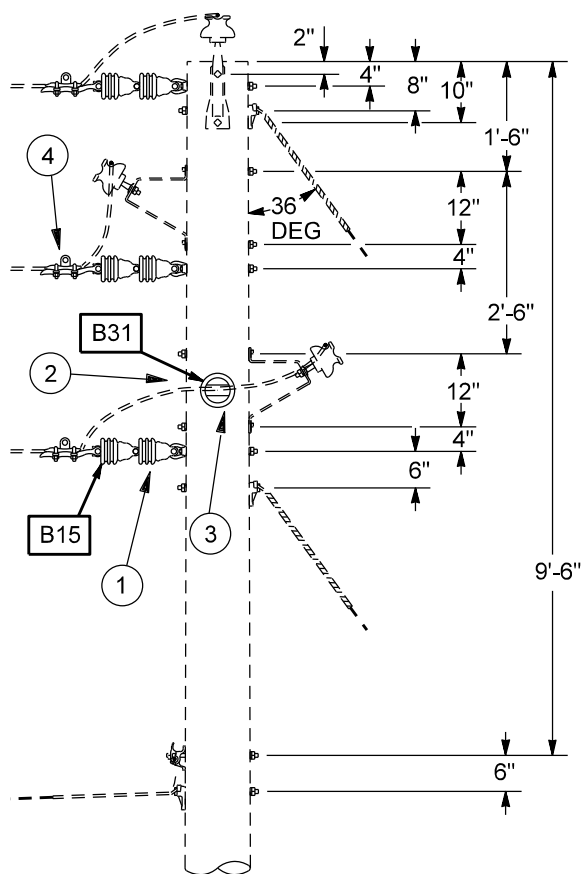
5-38-1

ISSUE DATE: 09/30/71

REV. DATE: 05/06/13

APPROVAL: B.PRIEST

8512E133.DGN



PB15__ 1 Φ BUCK
CONDUCTORS A2,C4,C6,R2

PB25A__ 2 Φ BUCK
CONDUCTORS A2,C4,C6,R2

PB35A__ 3 Φ BUCK
CONDUCTORS AC312,A2,A266,A397,C2,C20,C4,C6,R2,R266,R30

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2, 4 OR 6	5034719
2	PIN, INSULATOR, 1 IN. LEAD THREAD, 1	0 OR 1	5028639
3	INSULATOR, PIN 12KV PORCELAIN GRAY	0 OR 1	5034594
4	DEADEND CLAMP, VARIOUS	1, 2 OR 3	BD__

Overhead Distribution
Construction Standards



PRIMARY CONSTRUCTION UNITS
ONE, TWO OR THREE PHASE BUCK

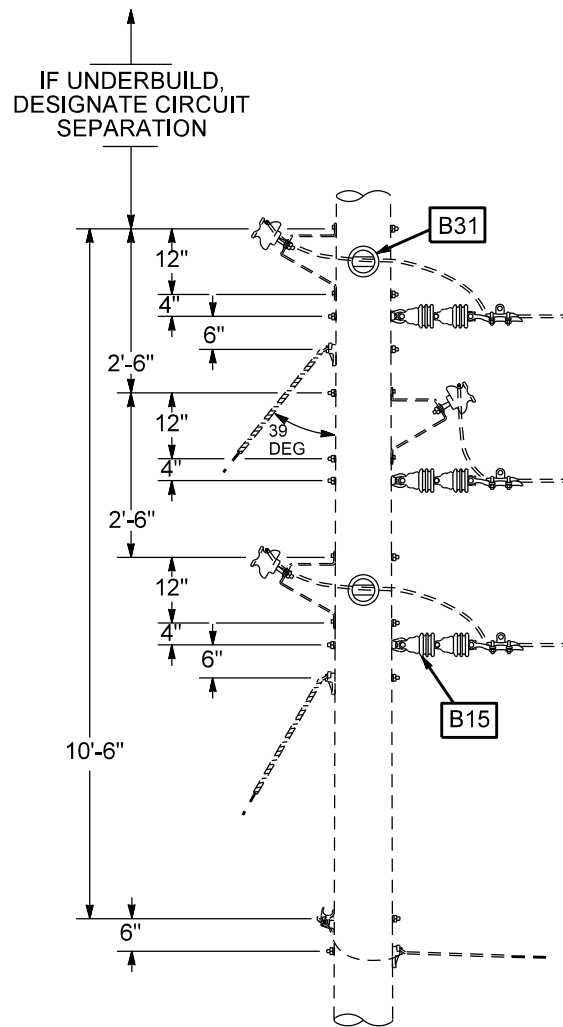
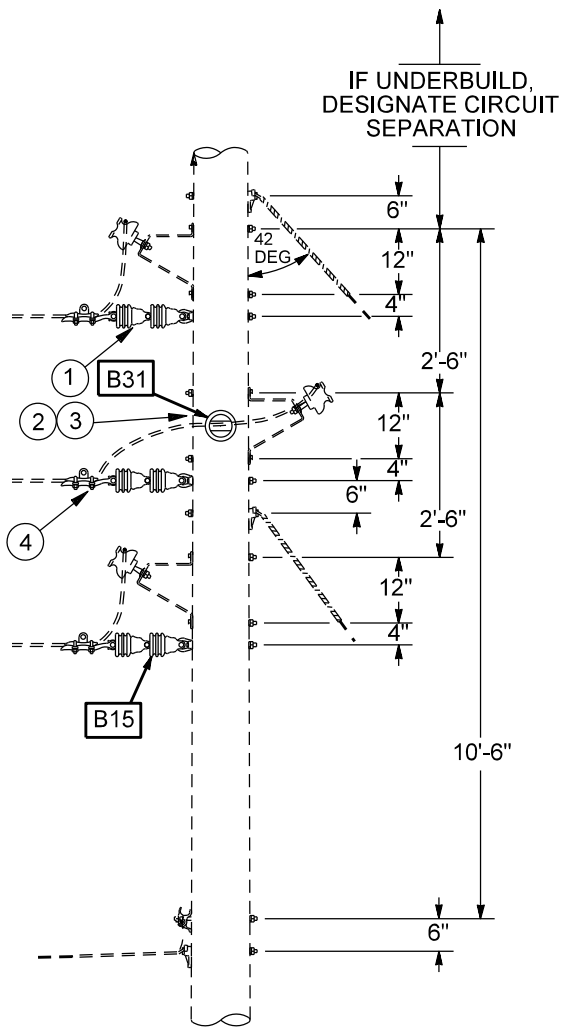
5-39-1

ISSUE DATE: 09/30/71

REV. DATE: 04/30/13

APPROVAL: B.PRIEST

8512E134.DGN



PB15__ 1 Φ BUCK FROM UNDERBUILD
CONDUCTORS A2,C4,C6,R2

PB25A__ 2 Φ BUCK FROM UNDERBUILD
CONDUCTORS A2,C4,C6,R2

PB35A__ 3 Φ BUCK FROM UNDERBUILD
CONDUCTORS AC312,A2,A266,A397,C2,C20,C4,C6,R2,R266,R30

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN. CLEVIS	2, 4 OR 6	5034719
2	INSULATOR, PIN, 12KV, PORCELAIN GRAY	0, 1 OR 2	5034594
3	PIN, INSULATOR, 1 IN. LEAD THREAD, 1	0, 1 OR 2	5028639
4	DEADEND CLIP, VARIOUS	1, 2 OR 3	BD_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
ONE, TWO OR THREE PHASE BUCK
FROM UNDERBUILD

5-39-2

ISSUE DATE: 09/30/71

REV. DATE: 05/06/13

APPROVAL: B.PRIEST

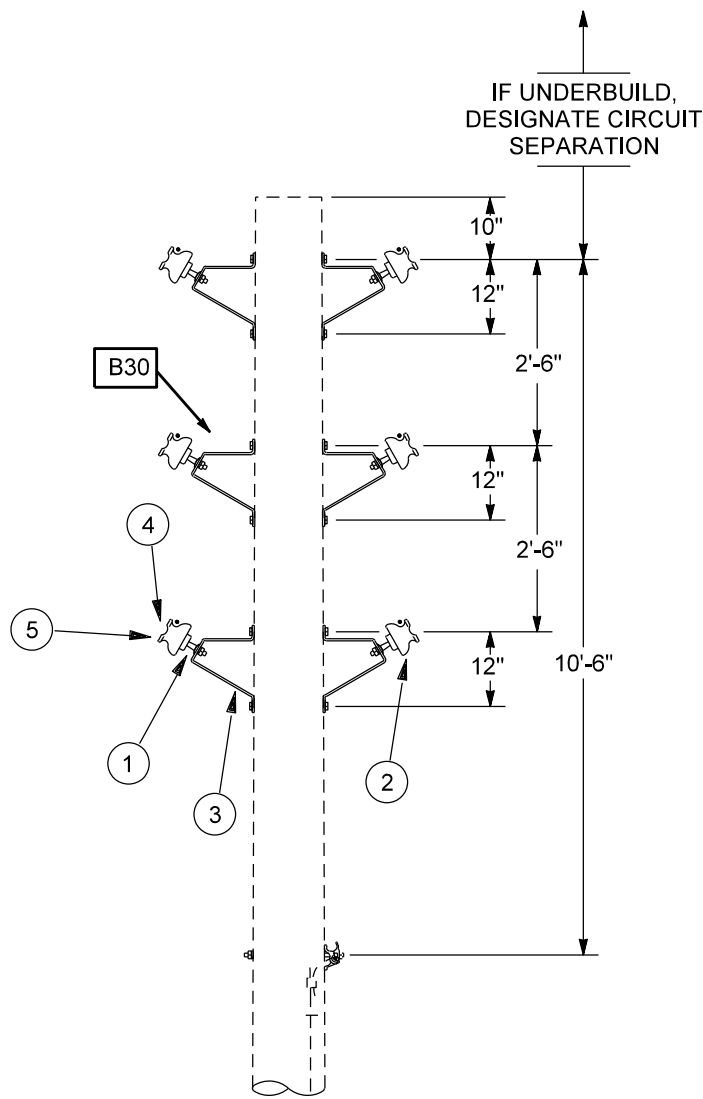
8512E135.DGN

CONDUCTORS A266, A397, AC312,

P60__

CONDUCTORS A397

PW60__



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	PIN, INSULATOR, 5/8" X 1.5" SHORT	6	5028641
2	INSULATOR, PIN 12KV PORCELAIN GRAY	6	5034594
3	BRACKET, SIDE MOUNT, HOT GALV. LARGE	6	5028505
4	LINE GUARD, VARIOUS	0 OR 6	BL__
5	SIDE TIE, VARIOUS	6	BPT2__

NOTES

1. WHEN INSTALLING PARALLELING DISCONNECT SWITCHES ON THIS TYPE OF CONSTRUCTION, REFER TO DB4PV.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS DOUBLE CIRCUIT TANGENT, 0 DEG. - 6 DEG., WOOD POLE	ISSUE DATE: 01/13/75
		REV. DATE: 02/27/20
		APPROVAL: J. LUERA
	5-40-1	8512E136.DGN

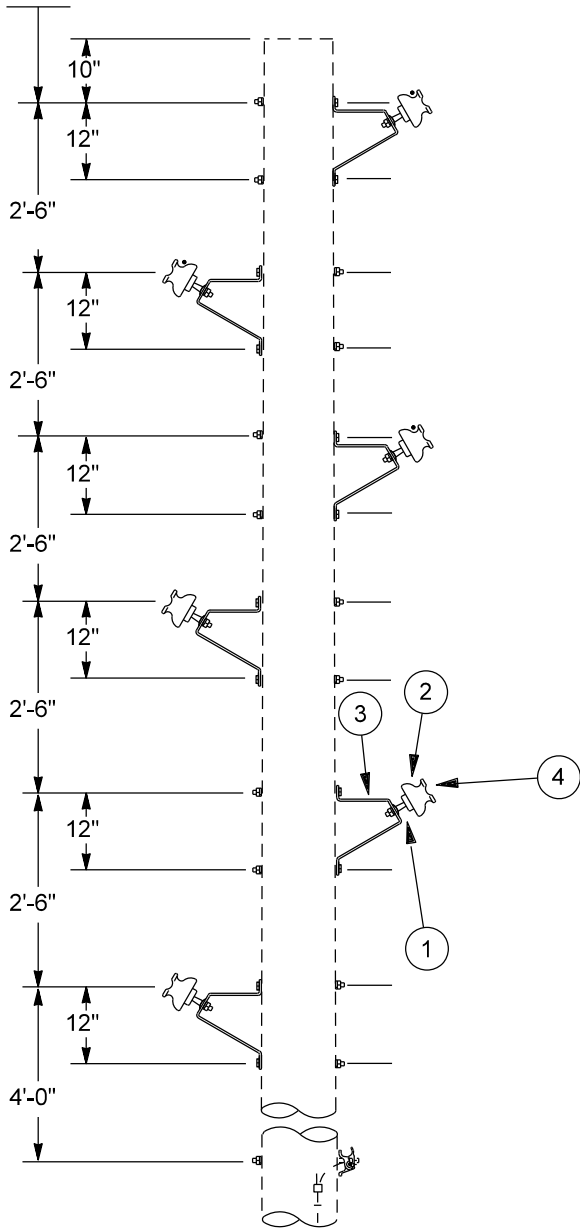
CONDUCTOR A397

P60A__

CONDUCTOR A397

PW60A__

IF UNDERBUILD,
DESIGNATE CIRCUIT
SEPARATION

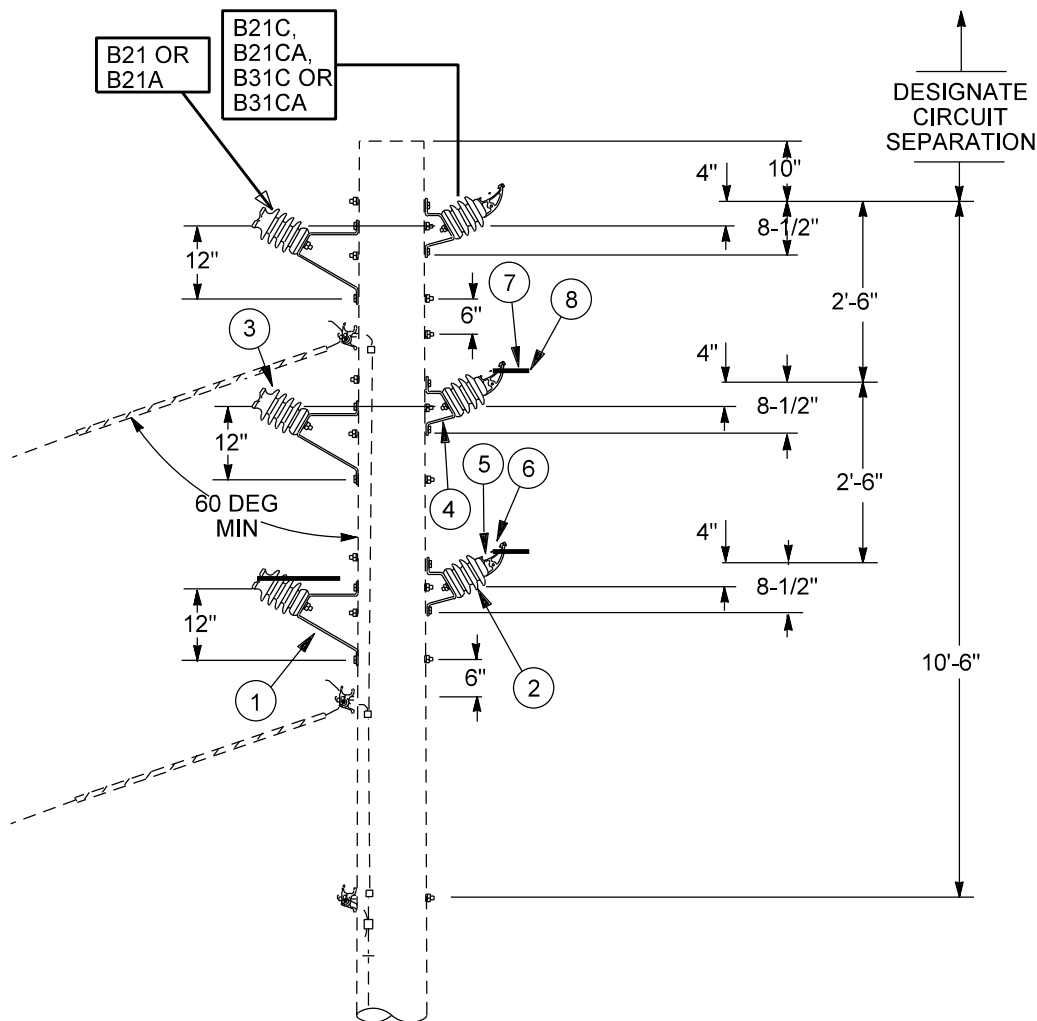


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	PIN, INSULATOR, 5/8" X 1.5" SHORT	6	5028641
2	INSULATOR, PIN 12KV PORCELAIN GRAY	6	5034594
3	BRACKET, SIDE MOUNT, HOT GALV. LARGE	6	5028505
4	SIDE TIE, VARIOUS	6	BPT2_

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	PRIMARY CONSTRUCTION UNITS DOUBLE CIRCUIT VERTICAL, WOOD POLE		ISSUE DATE: 09/30/71
			REV. DATE: 02/27/20
			APPROVAL: J. LUERA
	5-41-1	8512E153.DGN	

P61 ..	6 DEG -15 DEG (SPANS MORE THAN 300')
P61A ..	6 DEG -15 DEG (SPANS MORE THAN 300')
P61B ..	15 DEG -30 DEG (SPANS LESS THAN 300')
P61C ..	15 DEG -30 DEG (SPANS MORE THAN 300')

CONDUCTORS A2, A397, AC312, R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	3	5028505
2	INSULATOR, HORIZONTAL LINE POST, 15KV	3	5034465
3	INSULATOR, VERTICAL LINE POST, 22KV	3	5034466
4	BRACKET, SIDE MOUNT, HOT GALV. SMALL	3	5028504
5	CLAMPTOP CLAMP, 6 DEG-15 DEG, VARIOUS	0 OR 3	BCT1_ OR BCT3
6	CLAMPTOP CLAMP, 15 DEG-30 DEG, VARIOUS	0 OR 3	BCT2_ OR BCT4
7	ARMOR ROD, VARIOUS	0 OR 6	BR_
8	LINE GUARD, VARIOUS	0 OR 6	BL_

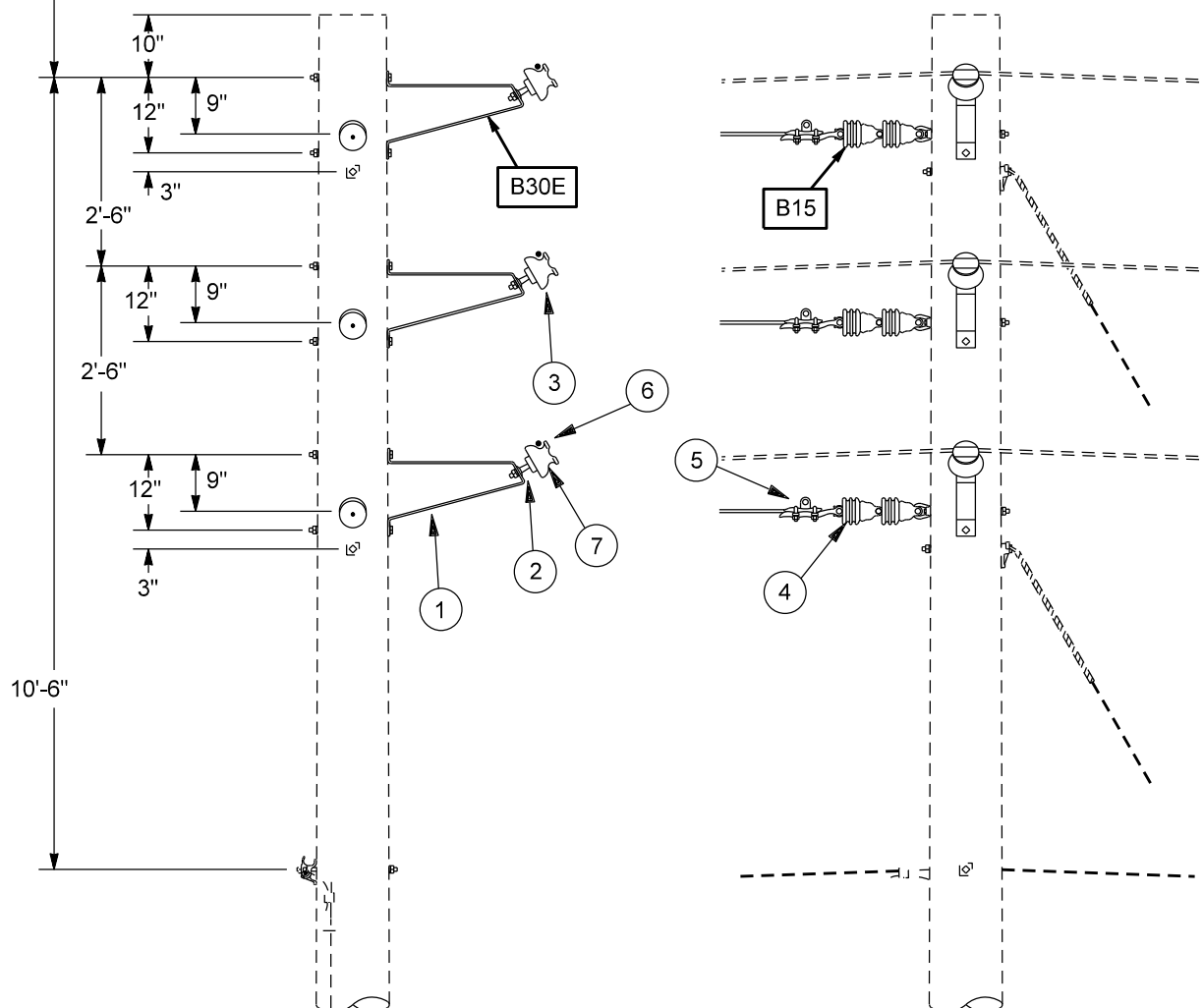
NOTES

1. ARROW INDICATES POSITION OF CONDUCTOR ON INSULATOR.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS DOUBLE CIRCUIT ANGLE, 6 DEG.- 30 DEG.	ISSUE DATE: 01/13/75 REV. DATE: 02/27/19 APPROVAL: N. SABBAH
	5-42-1	8512E154.DGN

P65**CONDUCTORS AC312, A266, A397**

IF UNDERBUILD,
DESIGNATE CIRCUIT
SEPARATION



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALV. LARGE	3	5028506
2	PIN, INSULATOR, 5/8 X 1.5 IN. SHORT	3	5028641
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
5	DEADEND CLAMP, VARIOUS	3	BD_
6	LINE GUARD, VARIOUS	3	BL_
7	SIDE TIE, VARIOUS	3	BPT2_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
DOUBLE CIRCUIT
ONE CIRCUIT DEADEND

5-43-1

ISSUE DATE: 01/31/75

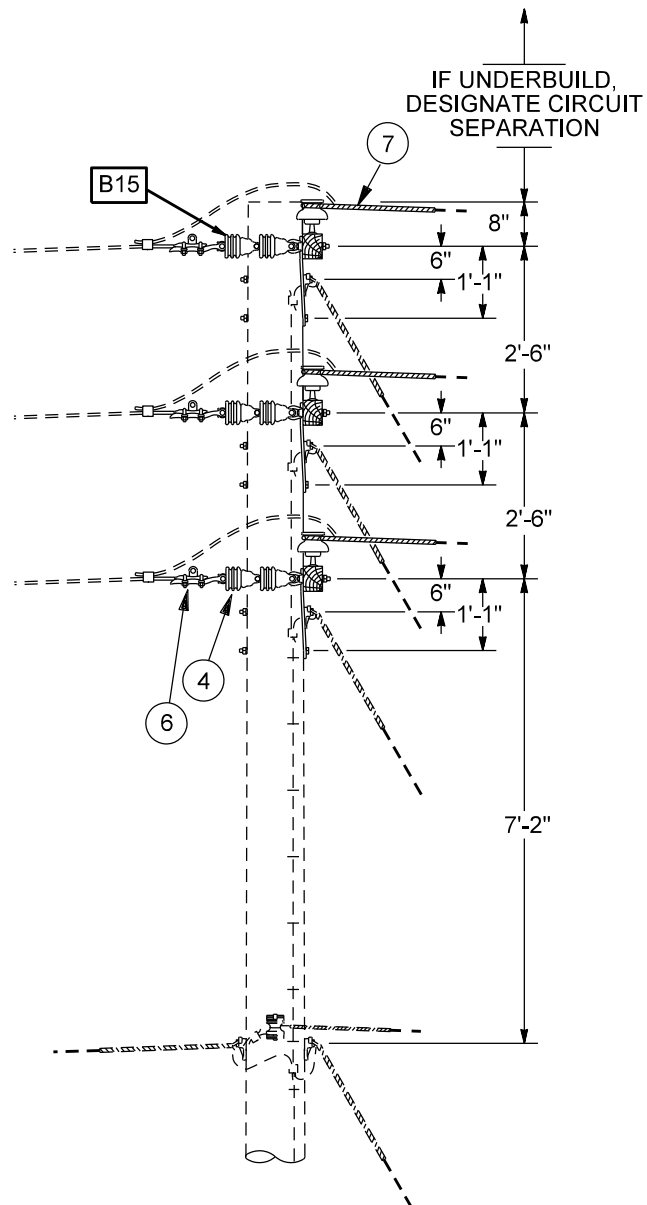
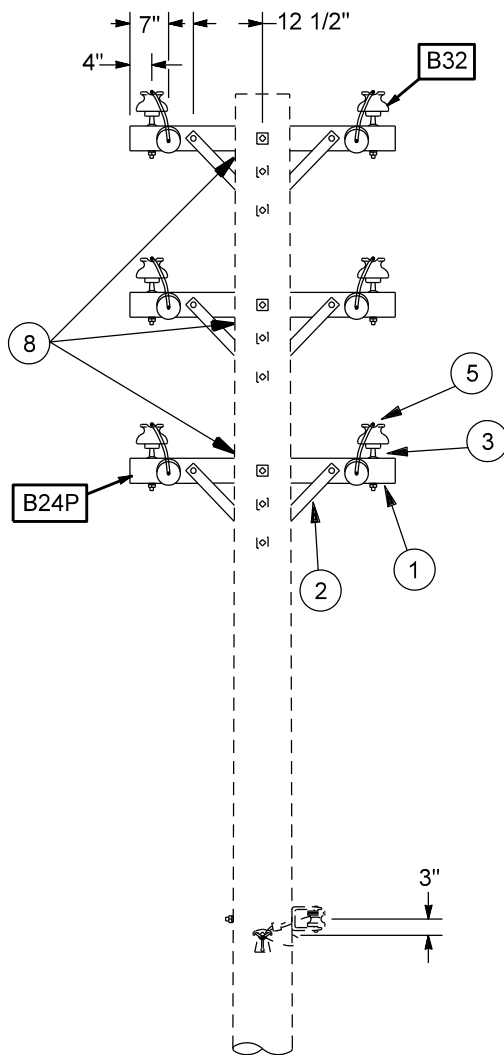
REV. DATE: 04/25/13

APPROVAL: B.PRIEST

8512E137.DGN

P66__

CONDUCTORS A266,A397



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 4 FT, PLANK	3	5029408
2	BRACE, CROSSARM, 1.25 X 0.25 X 20 IN.	6	5027884
3	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	6	5028642
4	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
5	INSULATOR, PIN, 12KV, PORCELAIN GRAY	6	5034594
6	DEADEND CLAMP, VARIOUS	6	BD_
7	DEADEND GRIP, VARIOUS	6	BDG_
8	PLATE, GAIN, 5-5/16" X 4"	3	5028652

NOTES

1. FOR MAXIMUM SPAN LENGTH SEE SLACK SPAN SAG CHARTS.

Overhead Distribution
Construction Standards



PRIMARY CONSTRUCTION UNITS
DOUBLE CIRCUIT
THREE PHASE DEADEND
180 DEG. SLACK SPAN, CROSSARM

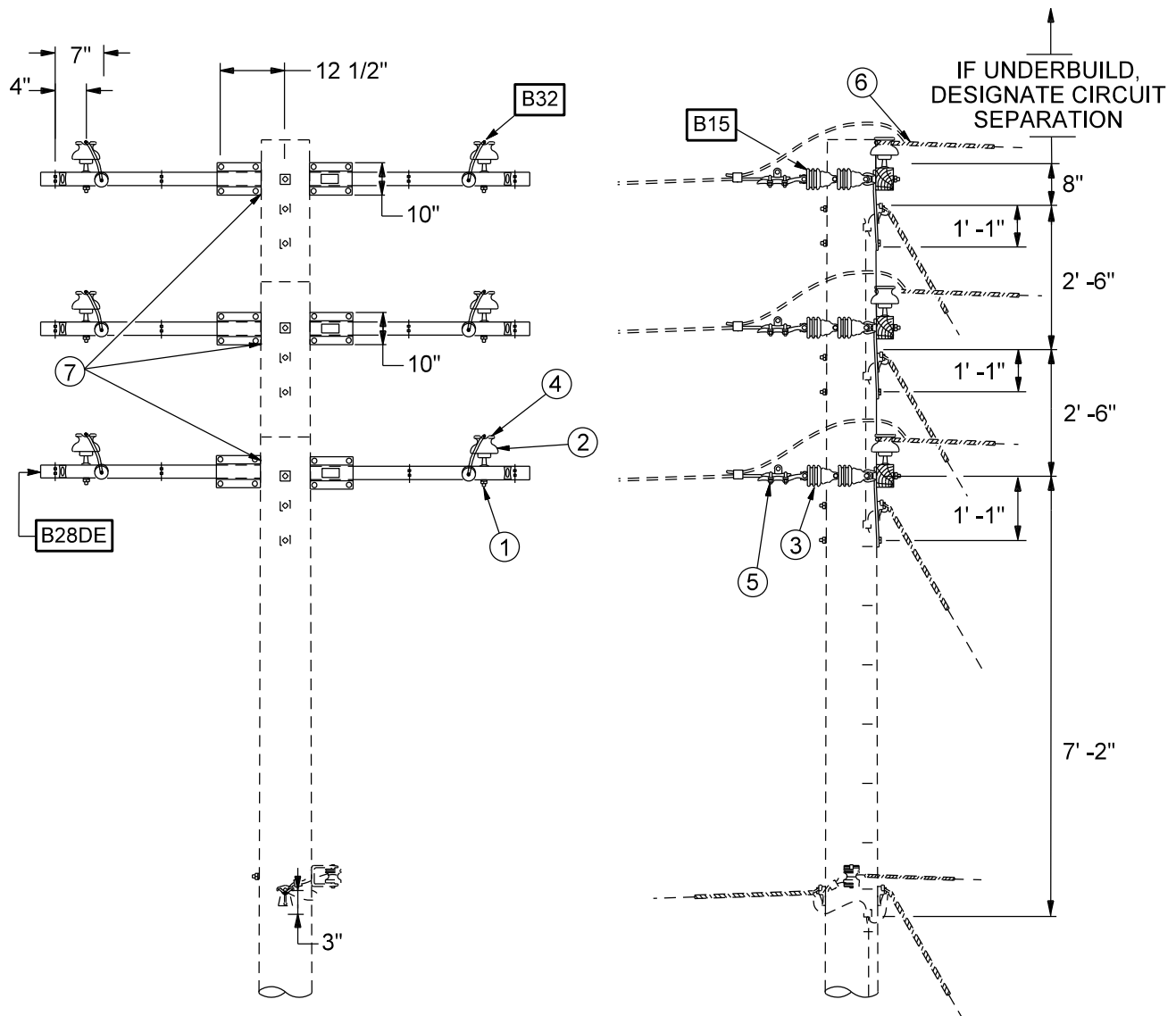
5-44-1

ISSUE DATE: 06/23/83

REV. DATE: 05/16/13

APPROVAL: B.PRIEST

8512E138.DGN



ITEM	DESCRIPTION	MATERIAL ITEM NUMBER	QTY
1	CROSSARM, 8', 3000 LB. CONDUCTOR TENSION	5029412	3
2	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	5026642	6
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	5034719	12
4	INSULATOR, PIN, 12KV, PORCELAIN GRAY	5034594	6
5	DEADEND CLAMP, VARIOUS	BD_	6
6	DEADEND GRIP, VARIOUS	BDG_	6
7	PLATE, GAIN 5-5/16" X 4"	5028652	3

* FOR MAXIMUM SPAN LENGTH SEE SLACK SPAN SAG CHARTS.

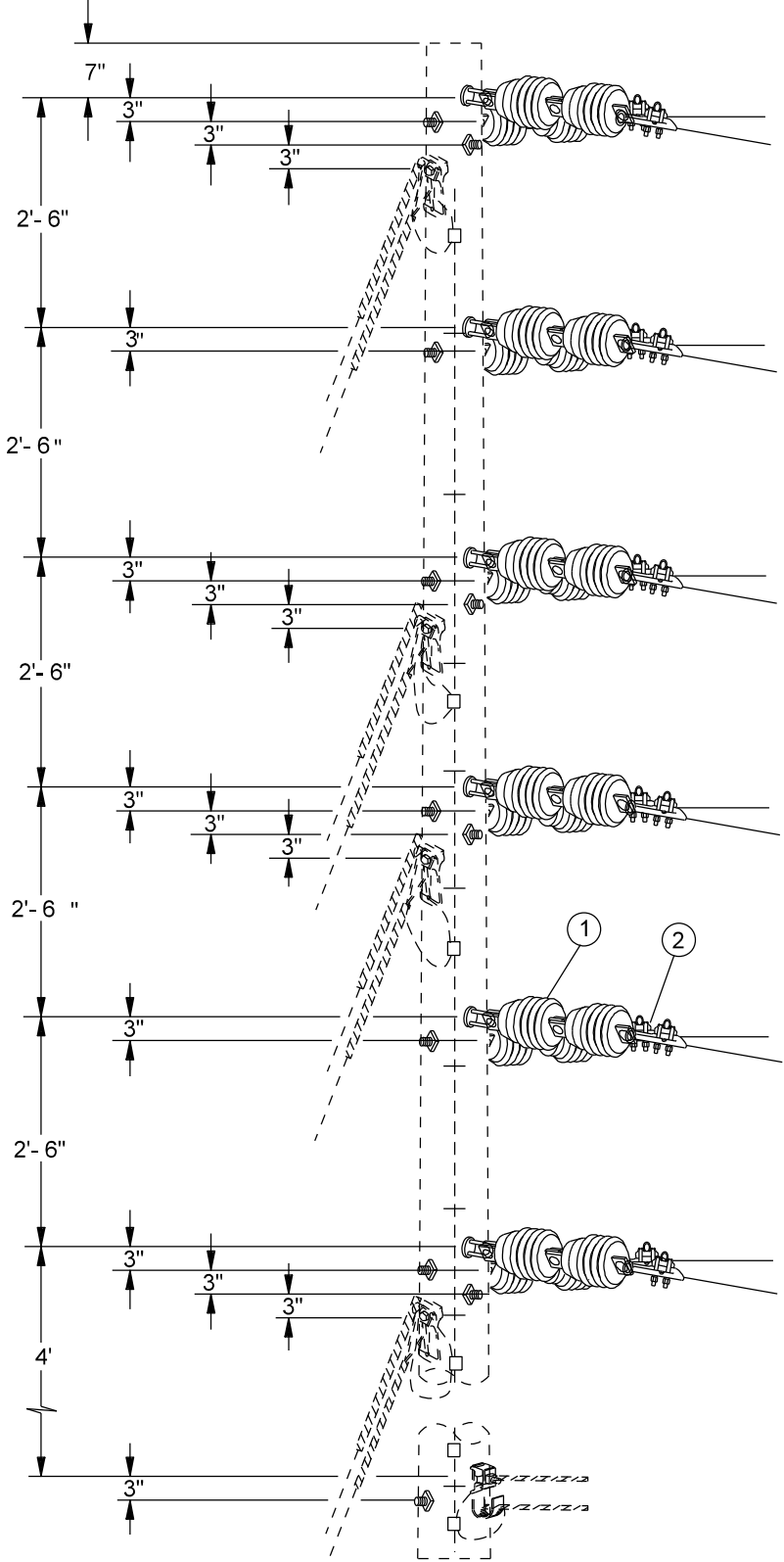
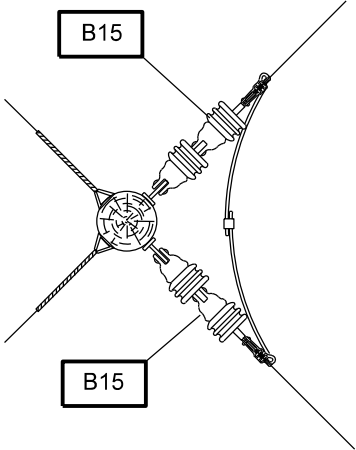
NOTES

1. EVALUATE POLE STRENGTH TO DETERMINE WHETHER DOWN GUYS SHALL BE REQUIRED.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	PRIMARY CONSTRUCTION UNITS DOUBLE CIRCUIT THREE PHASE DEADEND 180 DEGREE SLACK SPAN, CROSSARM		ISSUE DATE: 06/23/83 REV. DATE: 04/11/22 APPROVAL: E.LUBANDI
	5-44-2		8512E502.DGN

P67__

CONDUCTOR - A397
31 DEG TO 90 DEG



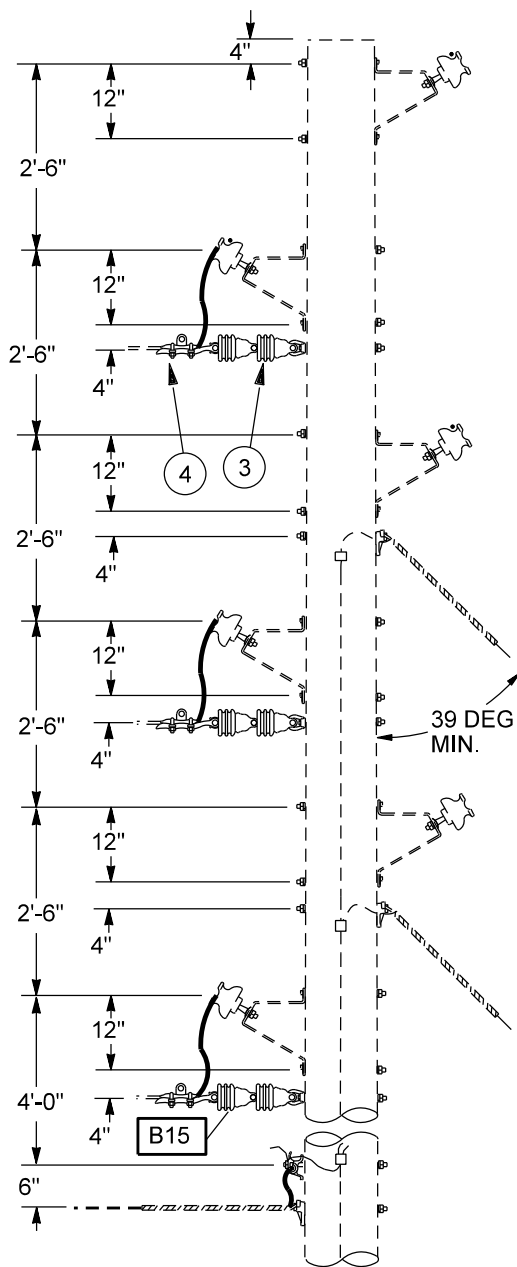
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSP, 6-1/4 IN. CLEVIS	24	5034719
2	DEADEND CLAMP, VARIOUS	12	BD_

NOTES

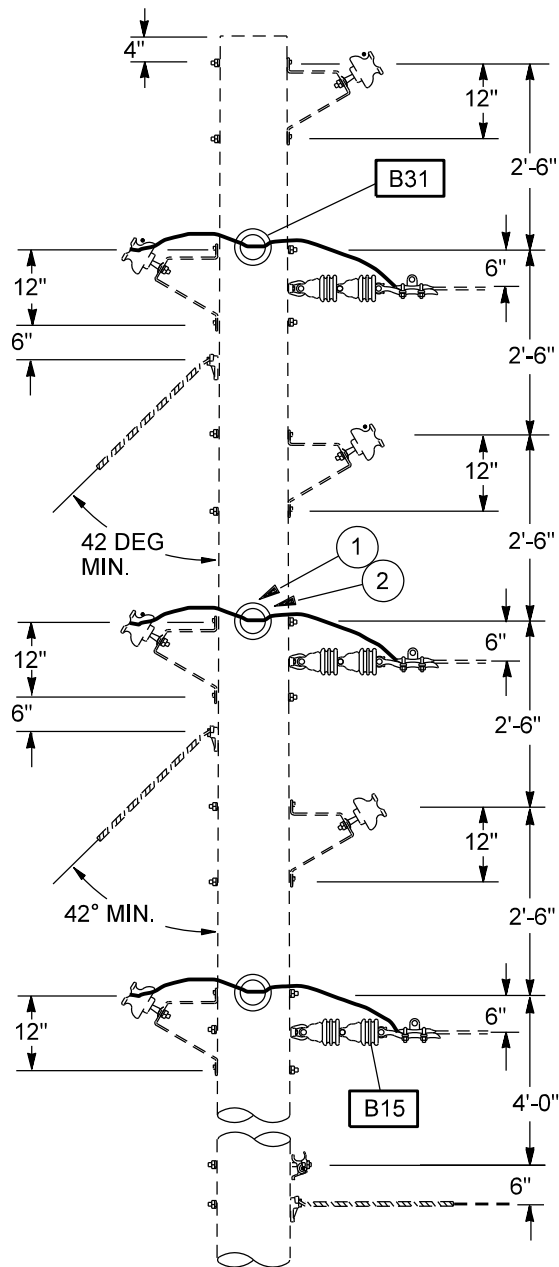
1. THIS FRAMING CANNOT BE USED ON UNDERBUILD OR WITH OTHER EQUIPMENT ON THE POLE DUE TO VERTICAL THRUST.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS DOUBLE CIRCUIT, VERTICAL DEADEND	ISSUE DATE: 05/03/88
		REV. DATE: 04/30/13
		APPROVAL: B.PRIEST
	5-45-1	8512E276.DGN

PB65__



PB65A_



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	PIN, INSULATOR, 1 IN. LEAD THREAD, 1	0 OR 3	5028639
2	INSULATOR, PIN 12KV PORCELAIN GRAY	0 OR 3	5034594
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
4	DEADEND CLAMP, VARIOUS	3	BD_

NOTES

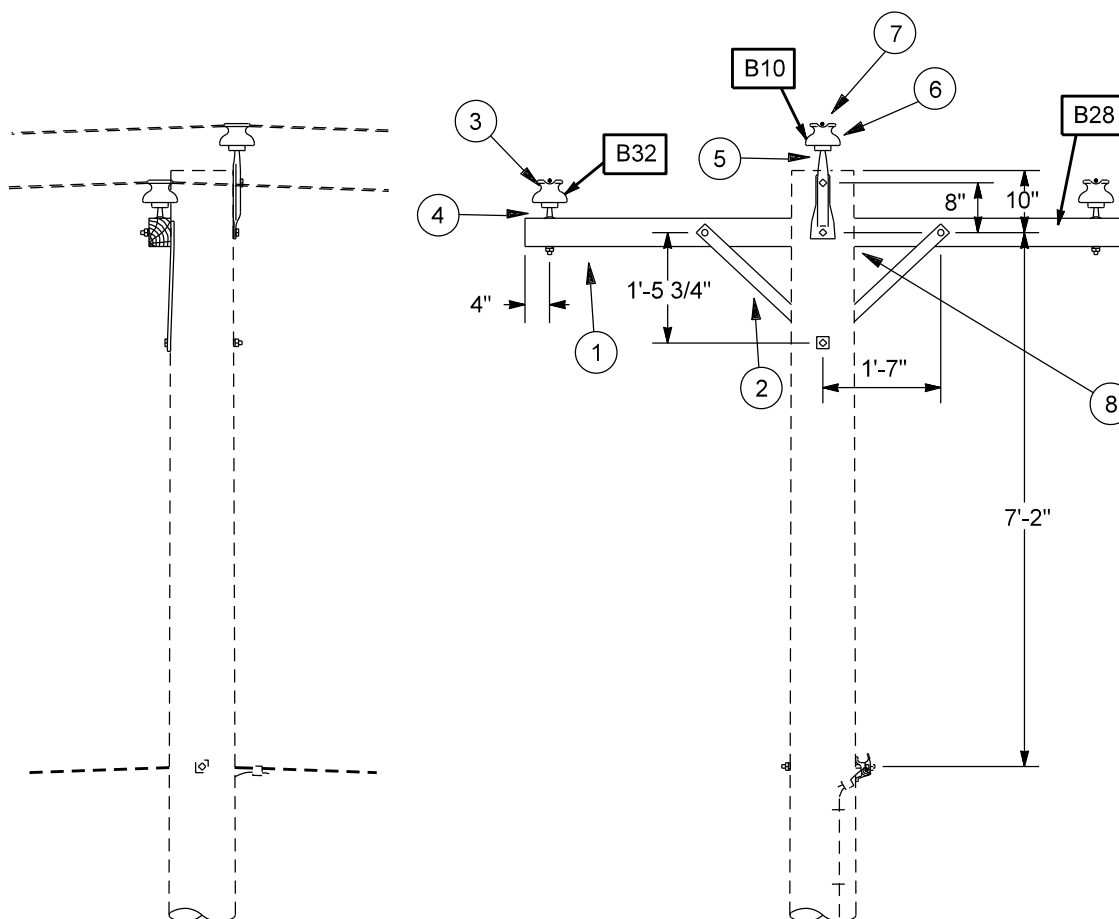
1. THIS FRAMING CANNOT BE USED ON UNDERBUILD OR WITH OTHER EQUIPMENT ON THE POLE.

PH2_

(2 Ø TANGENT, 8' CROSSARM, STEEL BRACES)
CONDUCTORS A2,C4,C6,R2

PH3_

(3 Ø TANGENT, 8' CROSSARM, STEEL BRACES, POLE TOP PIN)
CONDUCTORS AC312,A2,A266,A30,A397,C2,C20,C4,C6
R2,R266,R30



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 8 FOOT	1	5029410
2	BRACE, CROSSARM, 1.25 X 0.25 X 28 IN.	2	5027885
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2 OR 3	5034594
4	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	1 OR 2	5028642
5	PIN, INSULATOR, 18 IN. LENGTH, HOT G	0 OR 1	5028637
6	TOP TIE, VARIOUS	2 OR 3	BPT1_
7	LINE GUARD, VARIOUS	0 OR 3	BL_
8	PLATE, GAIN, 5-5/16" X 4"	1	5028652

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO OR THREE PHASE TANGENT
CROSSARM CONSTRUCTION

5-47-1

ISSUE DATE: 09/30/71

REV. DATE: 05/16/13

APPROVAL: B.PRIEST

8512E139.DGN

CONDUCTORS A2, C4, C6, R2

CONDUCTORS A2, A266, A397, AC312, R2

PH20__ 2Φ TANGENT, 8' CROSSARM, WOOD BRACES

PH30A__ 3Φ TANGENT, 10' CROSSARM, WOOD BRACES

PH21__ 2Φ SMALL ANGLE, 8' DOUBLE ARM, WOOD BRACES.

PH31A__ 3Φ SMALL ANGLE, 10' DOUBLE ARM, WOOD BRACES.

PH22__ 2Φ INTERMEDIATE ANGLE, 8' DOUBLE ARM, ANGLE PINS, WOOD BRACES.

PH32A__ 3Φ INTERMEDIATE ANGLE, 10' DOUBLE ARM, ANGLE PINS, WOOD BRACES.

CONDUCTORS A2, A30, A266, A397, AC312, C2, C4, C6, C20, R2, R30, R266

PH30__ 3Φ TANGENT, 8' CROSSARM, WOOD BRACES

PH31__ 3Φ SMALL ANGLE, 8' DOUBLE ARM, WOOD BRACES.

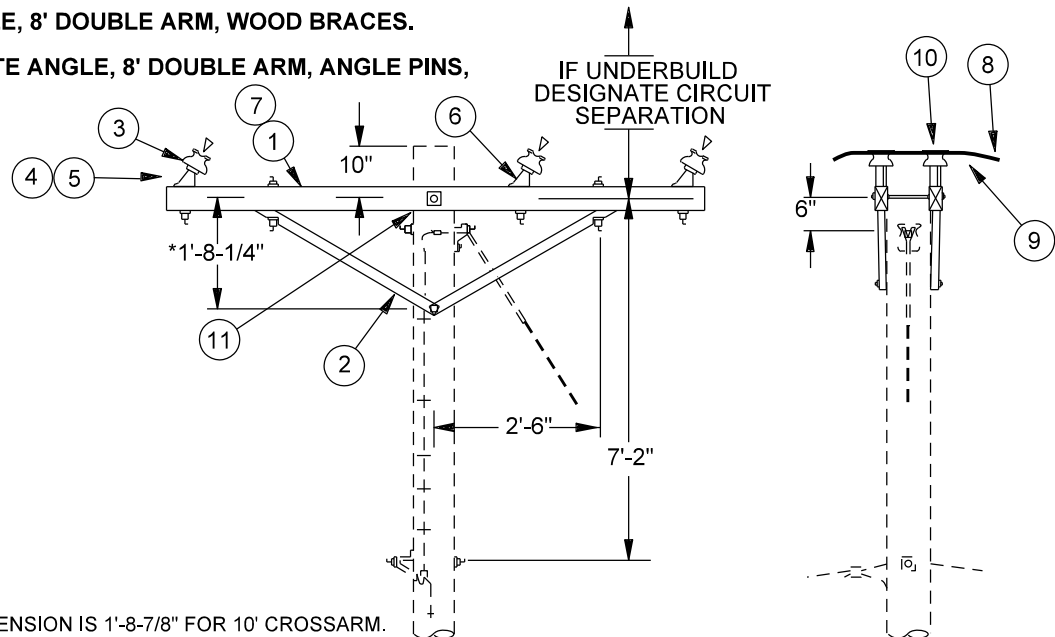
PH32__ 3Φ INTERMEDIATE ANGLE, 8' DOUBLE ARM, ANGLE PINS, WOOD BRACES.

CONDUCTORS A2, A397

PWH30A__

PWH31A__

PWH32A__



* THIS DIMENSION IS 1'-8-7/8" FOR 10' CROSSARM.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE, 8'	0, 1 OR 2	5029410
2	BRACE, CROSSARM, 60" SPAN 18" PR	1 OR 2	5027886
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2 OR 3	5034594
4	PIN, INSULATOR, 5/8" X 5-3/4" LONG	2, 4 OR 6	5028642
5	PIN, INSULATOR, 5/8" X 6-1/2" LONG	3 OR 6	5028643
6	PIN, INSULATOR, 1" LEAD THREAD, H	4 OR 6	5028636
7	CROSSARM, DENSE OR CLOSE GRAIN, 10'	0, 1 OR 2	5029414
8	ARMOR ROD, VARIOUS	0, 2 OR 3	BR__
9	LINE GUARD, VARIOUS	0, 2 OR 3	BL__
10	TOP TIE, VARIOUS	0, 2 OR 3	BPT1__
11	PLATE, GRAIN, 5-5/16" X 4"	1 OR 2	5028652

NOTES

- USE 10' CROSSARMS FOR UNDERBUILD CONSTRUCTION ON CLASS H4 TRANSMISSION POLES.
- ▷ ARROW INDICATES POSITION OF CONDUCTOR ON INSULATOR.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	PRIMARY CONSTRUCTION UNITS TWO PHASE OR THREE PHASE CROSSARM CONSTRUCTION, WOOD POLE		ISSUE DATE: 09/30/71
			REV. DATE: 02/27/20
			APPROVAL: J. LUERA
	5-48-1	8512E60.DGN	

CONDUCTORS A2, C4, C6, R2

PH25__ 2Φ DEADEND, 8' ARM

PH26__ 2Φ DEADEND, 8' ARM, WITH
180° SLACK SPAN

CONDUCTORS A2, A30, A266, A397, AC312,
C2, C4, C6, C20, R2, R30

PH35__ 3Φ DEADEND, 8' ARM

PH36__ 3Φ DEADEND, 8' ARM, WITH
180° SLACK SPAN

CONDUCTORS A2, A266, A397, AC312, R2

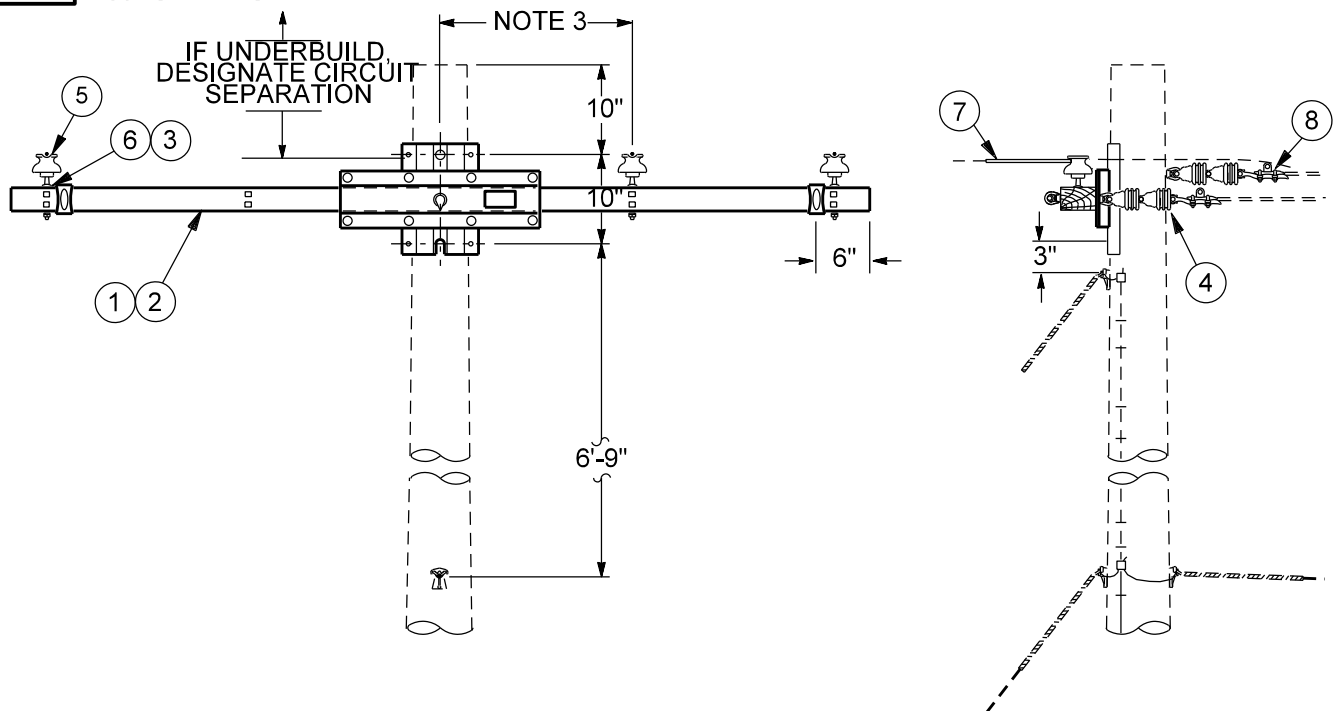
PH35A__ 3Φ DEADEND, 10' ARM

PH36A__ 3Φ DEADEND, 10' ARM, WITH
180° SLACK SPAN

CONDUCTORS A2, A397

PWH35A__

PWH36A__

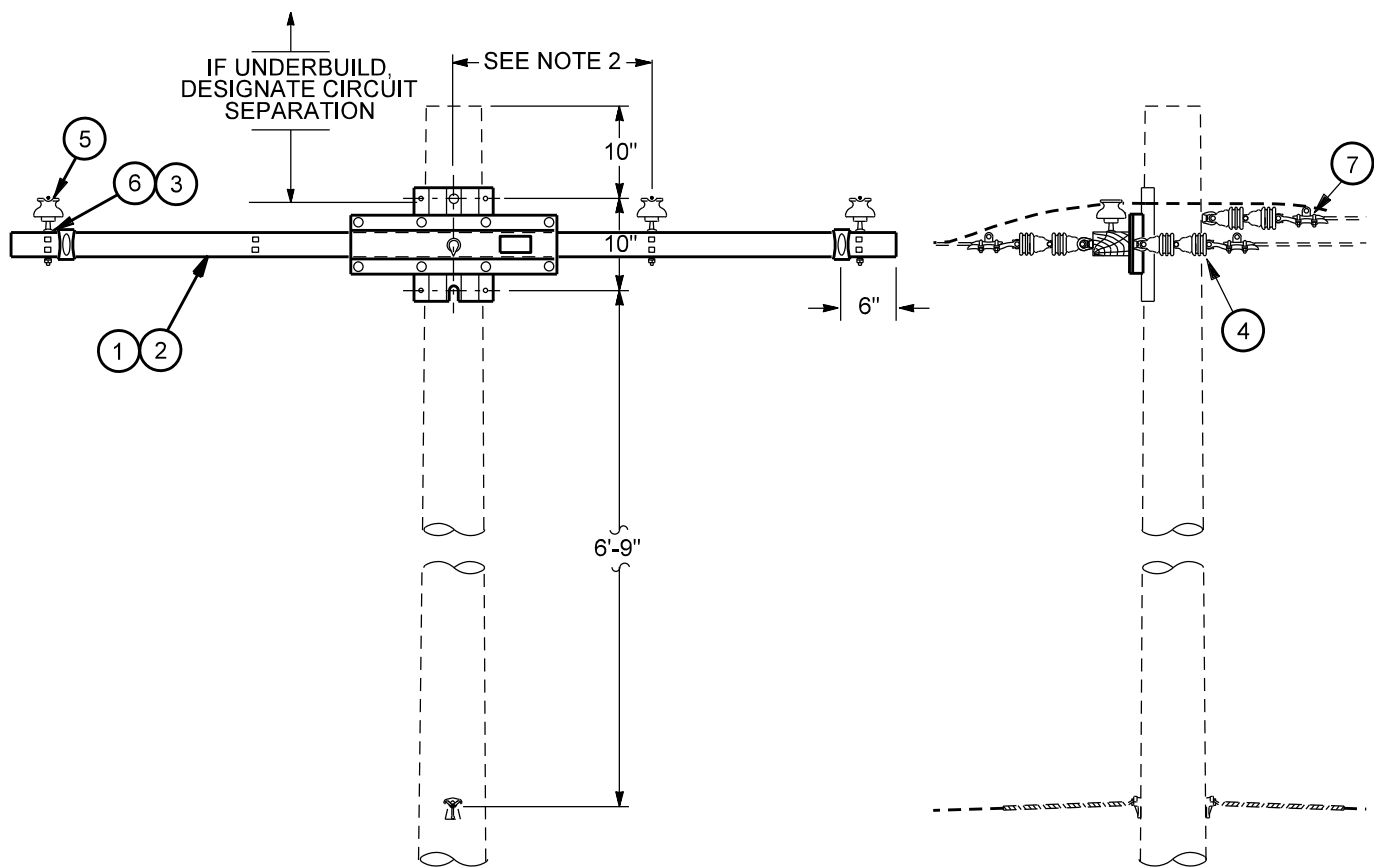


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 8'	0 OR 1	5029412
2	CROSSARM, DEADEND, 10'	0 OR 1	5027457
3	PIN, INSULATOR, 5/8" X 5.75" LONG	0, 2 OR 3	5028642
4	INSULATOR, SUSPENSION, 6-1/4", CLEVIS	4 OR 6	5034719
5	INSULATOR, PIN, 12KV, PORCELAIN GRAY	0, 2 OR 3	5034594
6	PIN, INSULATOR, 5/8" X 6.5" LONG	0, 2 OR 3	5028643
7	DEADEND GRIP, VARIOUS	0, 2 OR 3	BDG__
8	DEADEND CLAMP, VARIOUS	2 OR 3	BD__

NOTES

1. USE 10' CROSSARMS FOR UNDERBUILD CONSTRUCTION ON CLASS H4 TRANSMISSION POLES.
2. FOR MAXIMUM SPAN LENGTH SEE RULE 235E; ELECTRICAL CLEARANCE STANDARDS.
3. THIS DIMENSION IS 21" FOR 8' ARMS AND 20" FOR 10' ARMS.
4. PREFERRED FOR EXISTING LINES WHEN A DEADEND/SLACK SPAN MUST BE CUT IN TO UNDERGROUND A PORTION OF LINE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	PRIMARY CONSTRUCTION UNITS		ISSUE DATE: 09/30/71
	TWO PHASE OR THREE PHASE DEADEND		REV. DATE: 02/27/20
	180° SLACK SPAN, CROSSARM CONSTRUCTION, WOOD POLE		APPROVAL: J. LUERA
	5-49-1		8512E141.DGN



PH29__ (2 Ø DOUBLE DEADEND, 8' ARM)

PH29J__ (2 Ø DOUBLE DEADEND, 8' ARM, JUMPERED)

CONDUCTORS A2, C4, C6, R2

PH39__ (3 Ø DOUBLE DEADEND, 8' ARM)

PH39J__ (3 Ø DOUBLE DEADEND, 8' ARM, JUMPERED)

CONDUCTORS A2, A266, A30, A397, AC312, C2, C20, C4, C6, R2, R30

PH39A__ (3 Ø DOUBLE DEADEND, 10' ARM,)

CONDUCTORS A2, A266, A397, AC312, R2

PH39JA__ (3 Ø DOUBLE DEADEND, 10' ARM, JUMPERED)

CONDUCTORS A2, A266, A30, A397, AC312, C20, R2

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 8 FOOT	0 OR 1	5029412
2	CROSSARM, DEADEND, 10 FOOT	0 OR 1	5027457
3	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	0, 2 OR 3	5028642
4	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	8 OR 12	5034719
5	INSULATOR, PIN 12KV, PORCELAIN, GRAY	0, 2 OR 3	5034594
6	PIN, INSULATOR, 5/8 X 6.5 IN. LONG	0, 2 OR 3	5028643
7	DEADEND CLAMP, VARIOUS	4 OR 6	BD__

NOTES

1. USE 10' CROSSARMS FOR UNDERBUILD CONSTRUCTION ON CLASS H4 TRANSMISSION POLES.
2. THIS DIMENSION IS 21 INCHES FOR 8 FOOT ARMS AND 20 INCHES FOR 10 FOOT ARMS.
3. PREFERRED FOR EXISTING LINES WHEN A DOUBLE DEADEND MUST BE USED DURING AN OH TO UG CONVERSION.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO OR THREE PHASE DOUBLE DEADEND
CROSSARM CONSTRUCTION

5-50-1

ISSUE DATE: 09/30/71

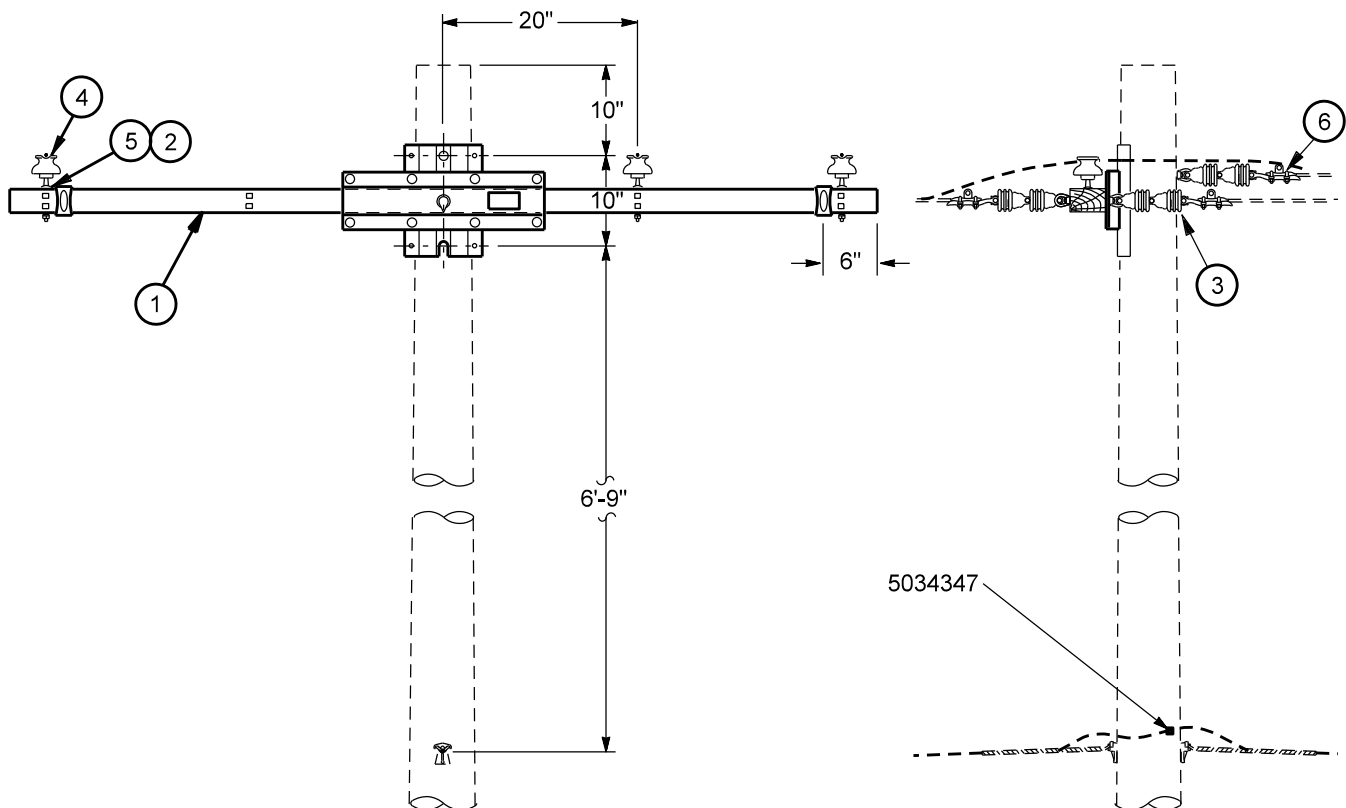
REV. DATE: 05/15/13

APPROVAL: B. PRIEST

8512E142.DGN

PH39JAS_ (3Ø DOUBLE DEADEND,10'ARM,JUMPERED)

CONDUCTORS A2,A266,A30,A397,AC312,C20,R2



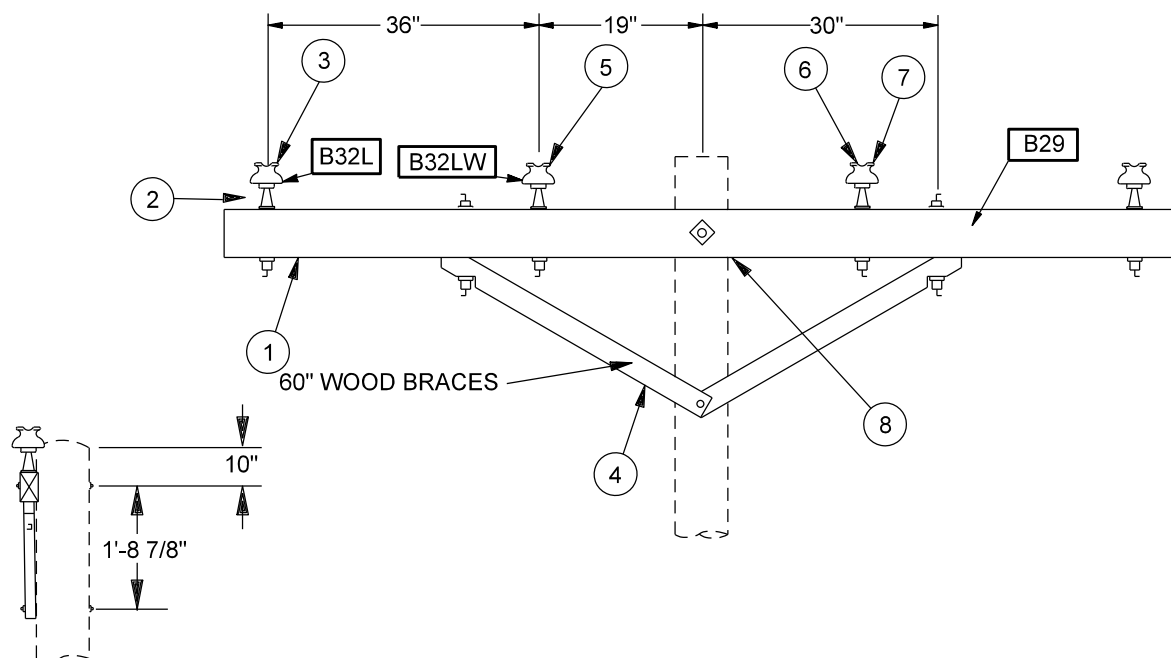
ONLY FOR USE ON STEEL DEADEND POLES: M45DE AND M45DE90

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 10 FOOT	0 OR 1	5027457
2	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	0, 2 OR 3	5028642
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	8 OR 12	5034719
4	INSULATOR, PIN 12KV, PORCELAIN, GRAY	0, 2 OR 3	5034594
5	PIN, INSULATOR, 5/8 X 6.5 IN. LONG	0, 2 OR 3	5028643
6	DEADEND CLAMP, VARIOUS	4 OR 6	BD_

NOTES

1. USE M45DE FOR CHANGE OF GRADE OF CONSTRUCTION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	PRIMARY CONSTRUCTION UNITS		ISSUE DATE: 06/05/02
	THREE PHASE DOUBLE DEADEND ON STEEL POLES		REV. DATE: 05/11/13
	CROSSARM CONSTRUCTION		APPROVAL: B.PRIEST
	5-50-2	8512E445.DGN	



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	1	5029414
2	PIN, INSULATOR, 5/8 X 6-1/2 IN. LONG	4	5028643
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	BRACE, CROSSARM, 60 IN. SPAN 18 IN. PR	1	5027886
5	INSULATOR, PIN, 4KV, PORCELAIN WHITE	1	5034593
6	LINE GUARD, VARIOUS	1	BL_
7	TOP TIE, VARIOUS	3	BPT1_
8	PLATE, GAIN, 5-5/16" X 4"	1	5028652

NOTES

1. THIS UNIT USES A 10-FOOT CROSSARM.
2. MAXIMUM SPAN LENGTH IS LIMITED TO: A MAXIMUM FINAL SAG OF 16FT. AT 60 DEG. F. FOR PHASE SEPARATION REQUIREMENTS.
3. THIS CONSTRUCTION IS FOR 12.47 KV ONLY.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE TANGENT
NEUTRAL ON CROSSARM

5-51-1

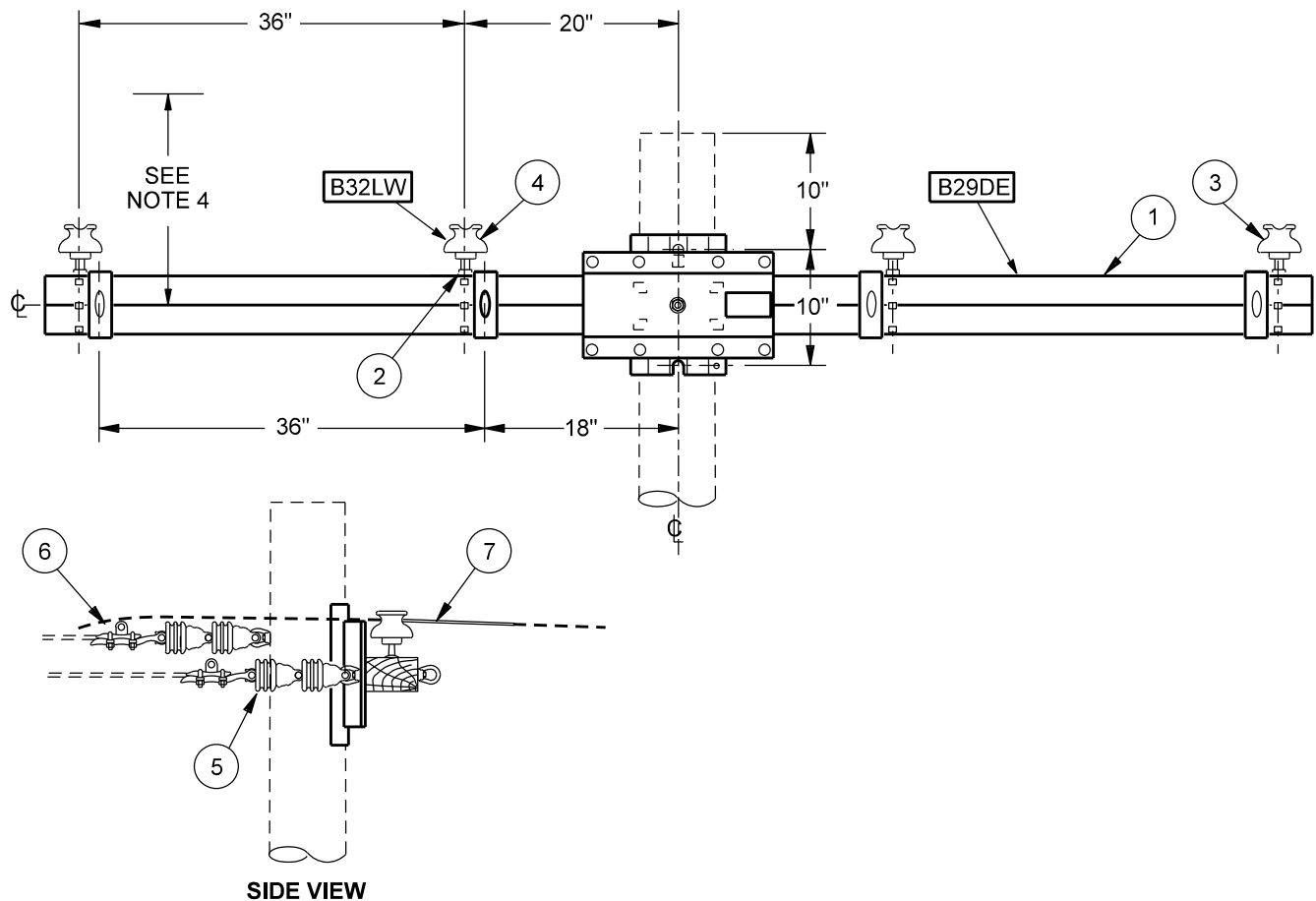
ISSUE DATE: 02/16/81

REV. DATE: 05/02/13

APPROVAL: B.PRIEST

8512E61.DGN

PHN36__ CONDUCTORS A2,A266,A397,AC312



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 10 FOOT	1	5027457
2	PIN, INSULATOR, 5/8 X 6.5 IN. LONG	4	5028643
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	INSULATOR, PIN, 4KV, PORCELAIN WHITE	1	5034593
5	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
6	DEADEND CLAMP, VARIOUS	3	BD_
7	DEADEND GRIP, VARIOUS	4	BDG_

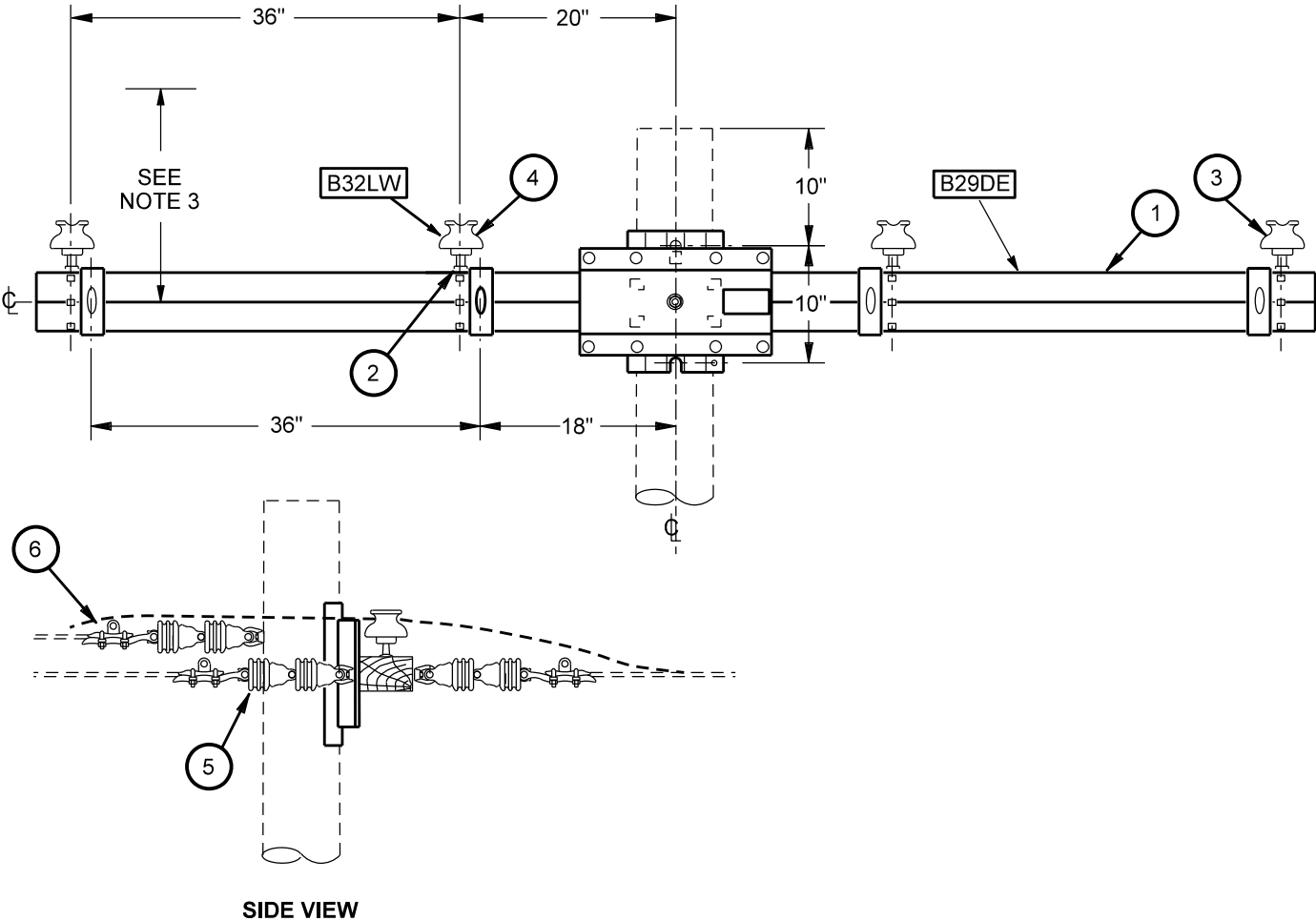
NOTES

1. MAXIMUM SPAN LENGTH IS LIMITED TO A MAXIMUM FINAL SAG OF 16 FEET @ 60 DEG. F. FOR PHASE SEPARATION REQUIREMENTS.
2. FOR MAXIMUM SLACK SPAN LENGTH, SEE RULE 235E; ELECTRICAL CLEARANCE STANDARDS.
3. THIS CONSTRUCTION IS FOR 12.47KV ONLY.
4. IF UNDERBUILD, DESIGNATE CIRCUIT SEPARATION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	PRIMARY CONSTRUCTION UNITS		ISSUE DATE: 02/27/81
	THREE PHASE DEADEND, 180 DEG. SLACK SPAN		REV. DATE: 05/15/13
	NEUTRAL ON CROSSARM		APPROVAL: B.PRIEST
	5-52-1	8512E62.DGN	

PHN39J_

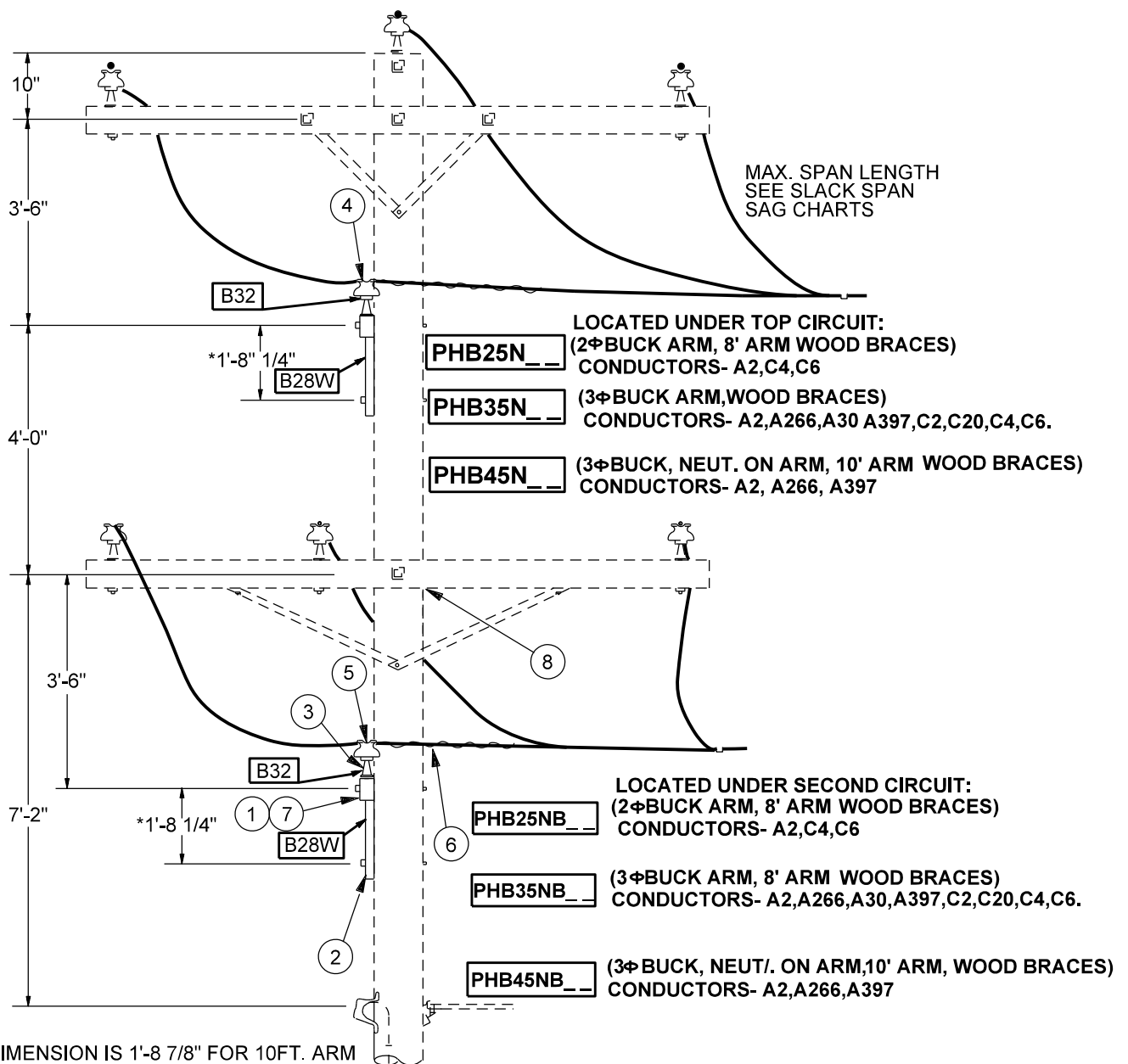
CONDUCTORS A2,A266,A397



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 10 FOOT	1	5027457
2	PIN, INSULATOR, 5/8 X 6.5 IN. LONG	4	5028643
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	INSULATOR, PIN, 4KV, PORCELAIN WHITE	1	5034593
5	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
6	DEADEND CLAMP, VARIOUS	6	BD_

- NOTES**
1. MAXIMUM SPAN LENGTH IS LIMITED TO A MAXIMUM FINAL SAG OF 16 FEET @ 60 DEG. F. FOR PHASE SEPARATION REQUIREMENTS.
 2. THIS CONSTRUCTION IS FOR 12.47kV ONLY.
 3. IF UNDERBUILD, DESIGNATE CIRCUIT SEPARATION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	PRIMARY CONSTRUCTION UNITS THREE PHASE DOUBLE DEADEND NEUTRAL ON CROSSARM		ISSUE DATE: 03/02/81
			REV. DATE: 05/11/13
			APPROVAL: B.PRIEST
	5-53-1	8512E63.DGN	



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 8 FOOT	0 OR 1	5029410
2	BRACE, CROSSARM, 60 IN. SPAN 18 IN. PR	1	5027886
3	PIN, INSULATOR, 5/8 X 5-3/4 IN. LONG	2, 3 OR 4	5028642
4	INSULATOR, PIN, 4KV, PORCELAIN WHITE	0 OR 1	5034593
5	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2 OR 3	5034594
6	DEADEND GRIP, VARIOUS	2, 3 OR 4	BDG__
7	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	0 OR 1	5029414
8	PLATE, GAIN, 5-5/16 X 4 IN.	1	5028652

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
TWO OR THREE PHASE BUCK, SLACK
CROSSARM CONSTRUCTION

5-54-1

ISSUE DATE: 11/26/85

REV. DATE: 04/29/13

APPROVAL: B.PRIEST

8512E64.DGN

LOCATED UNDER TOP CIRCUIT:

PHB25_ (2 Ø BUCK ARM, 8')
CONDUCTORS: A2,C4,C6,R2.

PHB35_ (3 Ø BUCK ARM, 8')
CONDUCTORS: A2,A266,A30,A397,
AC312,C2,C20,C4 C6,R2.

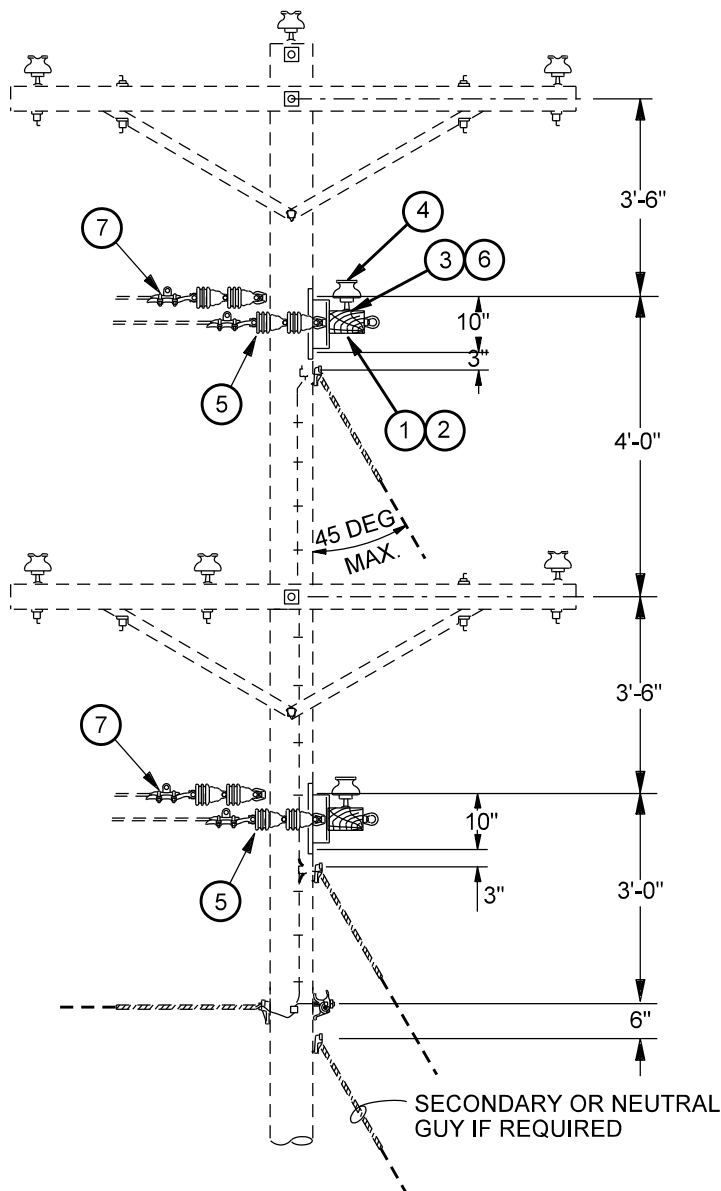
PHB45_ (3 Ø BUCK NEUTRAL ON ARM, 10')
CONDUCTORS: A2,A266,A397,
AC312,R2.

LOCATED UNDER SECOND CIRCUIT:

PHB25B_ (2 Ø BUCK ARM, 8')
CONDUCTORS: A2,C4,C6.

PHB35B_ (3 Ø BUCK ARM, 8')
CONDUCTORS: A2,A266,A30,A397,AC312
C2,C20,C4 C6,R2.

PHB45B_ (3 Ø BUCK NEUTRAL ON ARM, 10')
CONDUCTORS-A2,A266,A397,AC312,R2.



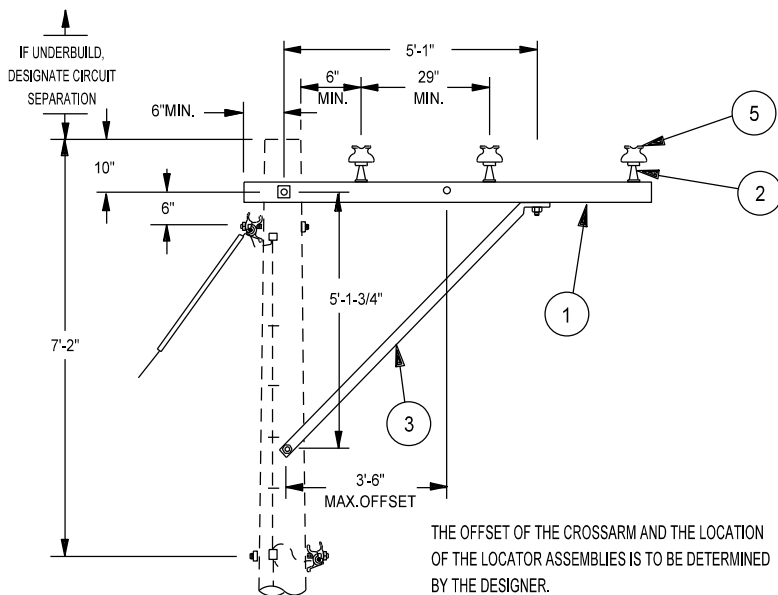
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DEADEND, 8 FOOT	0 OR 1	5029412
2	CROSSARM, DEADEND, 10 FOOT	0 OR 1	5027457
3	PIN, INSULATOR, 5/8 X 5-3/4 IN. LONG	1 OR 2	5028642
4	INSULATOR, PIN, 12KV, PORCELAIN GRAY	1 OR 2	5034594
5	INSULATOR, SUSPENSION, 6-1/4 IN. CLEVIS	4 OR 6	5034719
6	PIN, INSULATOR, 5/8 X 6-1/2 IN. LONG	1 OR 2	5028643
7	DEADEND CLAMP, VARIOUS	2, 3 OR 4	BD_
8	PLATE, GAIN, 5-5/16 X 4 IN.	1	5028652

NOTES

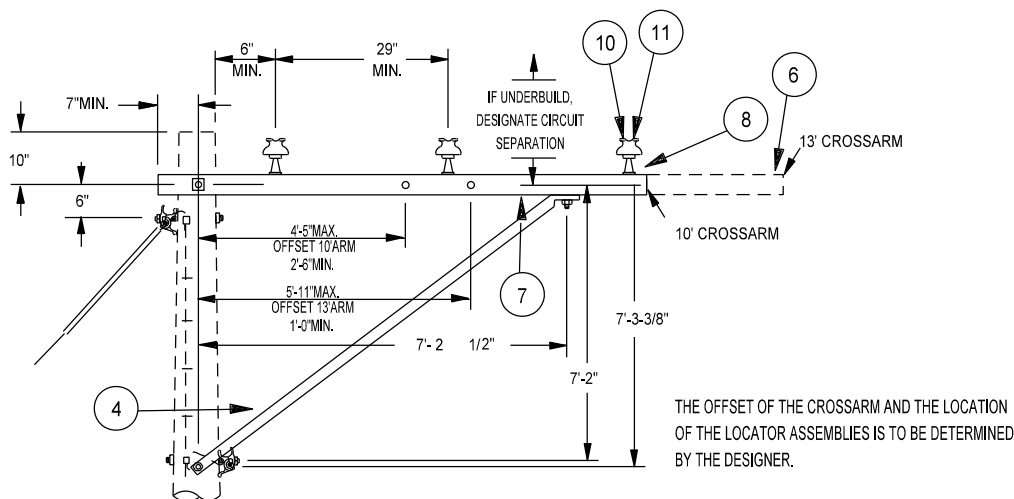
1. WHEN THE NEUTRAL IS INSTALLED ON THE BUCK ARM, A #2/0 CU. NEUTRAL MUST BE INSTALLED ON THE POLE FROM THE BUCK ARM TO THE EXISTING SYSTEM NEUTRAL.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS TWO OR THREE PHASE BUCK CROSSARM CONSTRUCTION	ISSUE DATE: 04/29/88
		REV. DATE: 04/29/13
		APPROVAL: B.PRIEST
	5-55-1	8512E156.DGN

- PHA208__** 2 Φ - 8' ARM
CONDUCTORS- A2,C4,C6,R2
- PHA308__** 3 Φ -8' ARM
CONDUCTORS- AC312,A2,A266,A30
- PHA308P__** A397,C2,C20,C4,C6,R2,R266,R30
(INCLUDES POLE TOP PIN)



- PHA301__** 3 Φ 10' ARM
- PHA301P__** 3 Φ 10' ARM
(INCLUDES POLE TOP PIN)
- PHA303__** 3 Φ 13' ARM
- CONDUCTORS AC312,A2,A266,A30,
A397,C2,C20,C4,C6,R2,R266,R30



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 8 FOOT	0 OR 1	5029410
2	PIN, INSULATOR, 5/8 X 5-3/4 IN. LONG	0, 2 OR 3	5028642
3	BRACE, ALLEY ARM, 7 FT LONG X 1.75	0 OR 1	5027880
4	BRACE, ALLEY ARM, 10 FR LONG X 2 X	0 OR 1	5027881
5	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2 OR 3	5034594
6	CROSSARM, DENSE OR CLOSE GRAIN, 13 FOOT	0 OR 1	5027458
7	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	0 OR 1	5029414
8	PIN, INSULATOR, 5/8 X 6-1/2 IN. LONG	0, 2 OR 3	5028643
9	PIN, INSULATOR, 18 IN. LENGTH, HOT GALV.	0 OR 1	5028637
10	LINE GUARD, VARIOUS	2 OR 3	BL__
11	TOP TIE, VARIOUS	2 OR 3	BPT1__
12	PLATE, GAIN, 5-5/16 X 4 IN.	1	5028652

Overhead Distribution
Construction Standards



PRIMARY CONSTRUCTION UNITS
8' AND 10', ALLEY ARMS
STEEL BRACES

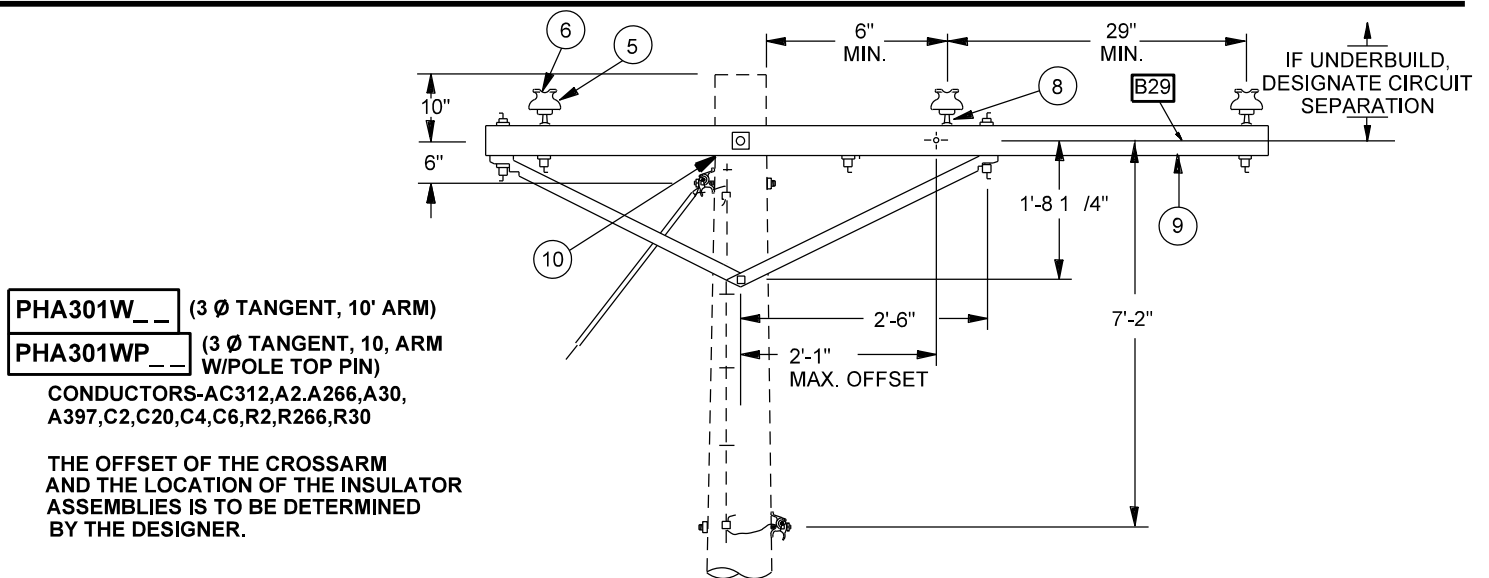
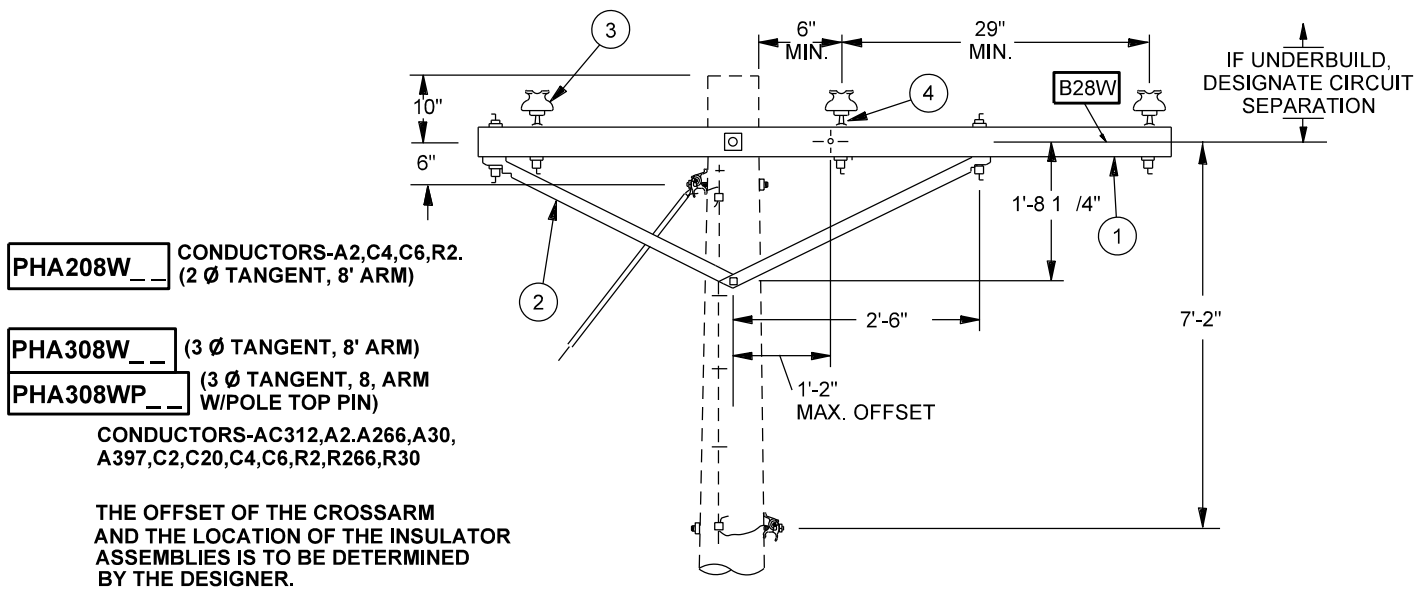
5-56-1

ISSUE DATE: 11/26/85

REV. DATE: 05/02/13

APPROVAL: B.PRIEST

8512E157.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 8 FOOT	0 OR 1	5029410
2	BRACE, CROSSARM, 60 IN. SPAN 18 IN. PR.	1	5027886
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2 OR 3	5034594
4	PIN, INSULATOR, 5/8 X 5-3/4 IN. LONG	2 OR 3	5028642
5	TOP TIE, VARIOUS	2 OR 3	BPT1_
6	LINE GUARD, VARIOUS	2 OR 3	BL_
7	PIN INSULATOR, 18 IN. LENGTH, HOT GALV.	0 OR 1	5028637
8	PIN, INSULATOR, 5/8 X 6-1/2 IN. LONG	0, 2 OR 3	5028643
9	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	0 OR 1	5029414
10	PLATE, GAIN, 5-5/16 X 4 IN.	1	5028652

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
8' AND 10' ALLEY ARMS
WOOD BRACES

5-57-1

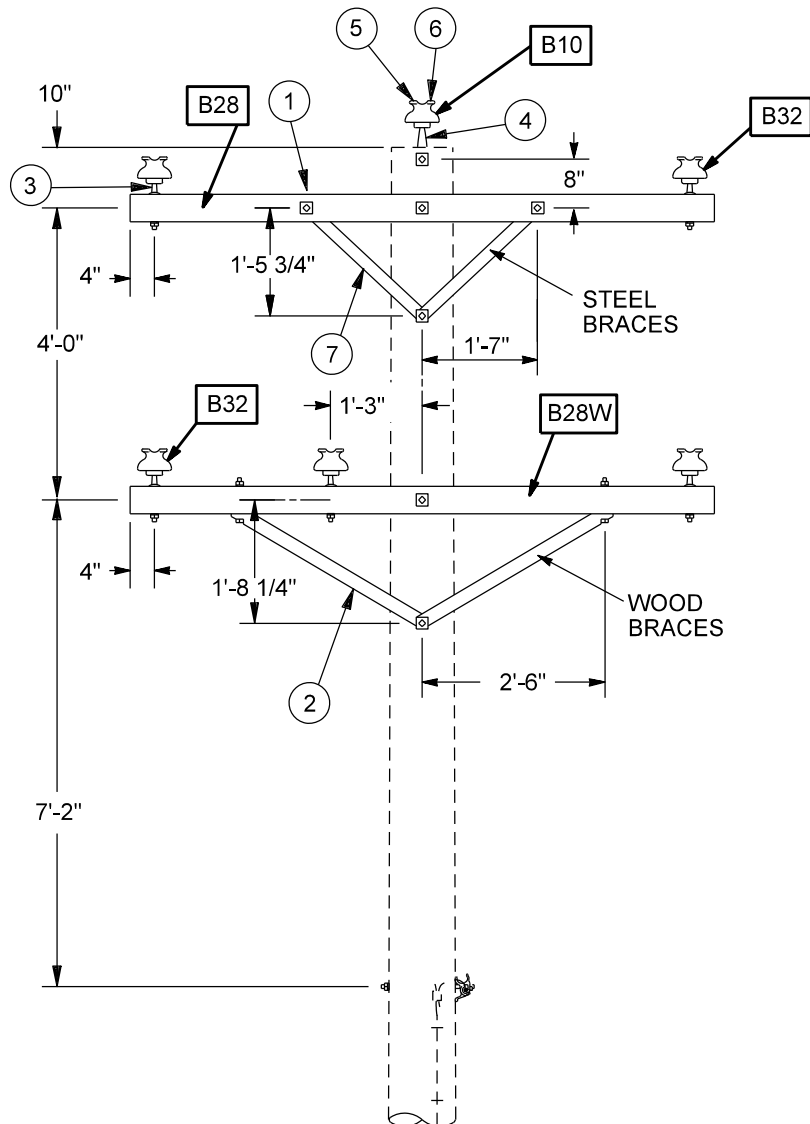
ISSUE DATE: 04/29/88

REV. DATE: 05/15/13

APPROVAL: B.PRIEST

8512E158.DGN

PH60__

(8 FT ARMS)
CONDUCTORS AC312,A266,A397

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 8 FOOT	2	5029410
2	BRACE, CROSSARM, 60 IN. SPAN 18 IN. PR.	1	5027886
3	PIN, INSULATOR, 5/8 X 5-3/4 IN. LONG	5	5028642
4	PIN, INSULATOR, 18 IN. LENGTH HOT, GALV.	1	5028637
5	LINE GUARD, VARIOUS	6	BL__
6	TOP TIE, VARIOUS	6	BPT1__
7	BRACE, CROSSARM, 1.25 X 0.25 X 28 IN.	2	5027885
8	PLATE, GAIN, 5-5/16 X 4 IN.	2	5028652

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
DOUBLE CIRCUIT, TANGENT
CROSSARM CONSTRUCTION

5-58-1

ISSUE DATE: 11/04/75

REV. DATE: 04/17/13

APPROVAL: B.PRIEST

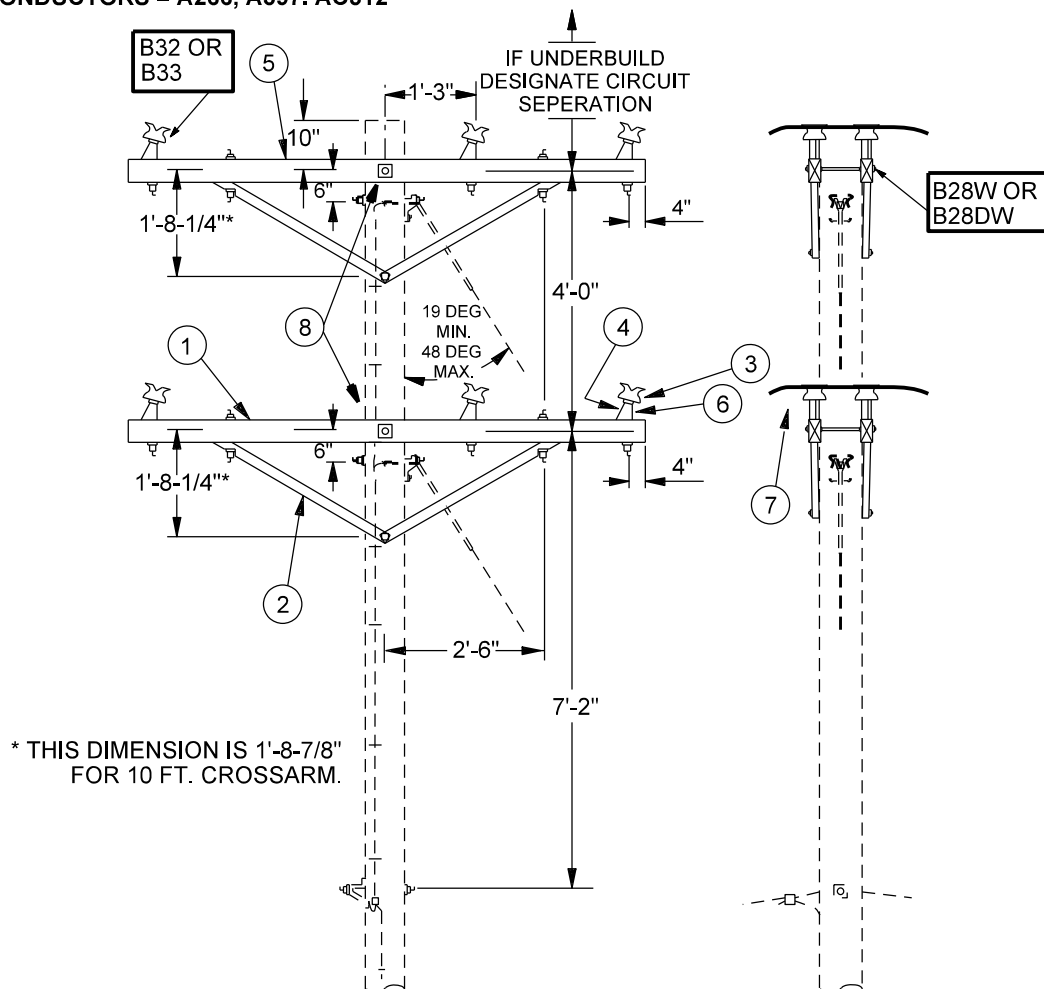
8512E91.DGN

PH61__ (3Ø SMALL ANGLE, 8' DOUBLE ARM, WOOD BRACES) UP TO 15 DEG

PH62__ (3Ø INTERMEDIATE ANGLE, 8' DOUBLE ARM, ANGLE PINS, WOOD BRACES) 15 DEG -30 DEG

PH63__ (3Ø SMALL ANGLE, 10' DOUBLE ARM, WOOD BRACES) UP TO 15 DEG

PH64__ (3Ø INTERMEDIATE ANGLE, 10' DOUBLE ARM, ANGLE PINS, WOOD BRACES) 15 DEG -30 DEG
CONDUCTORS = A266, A397. AC312



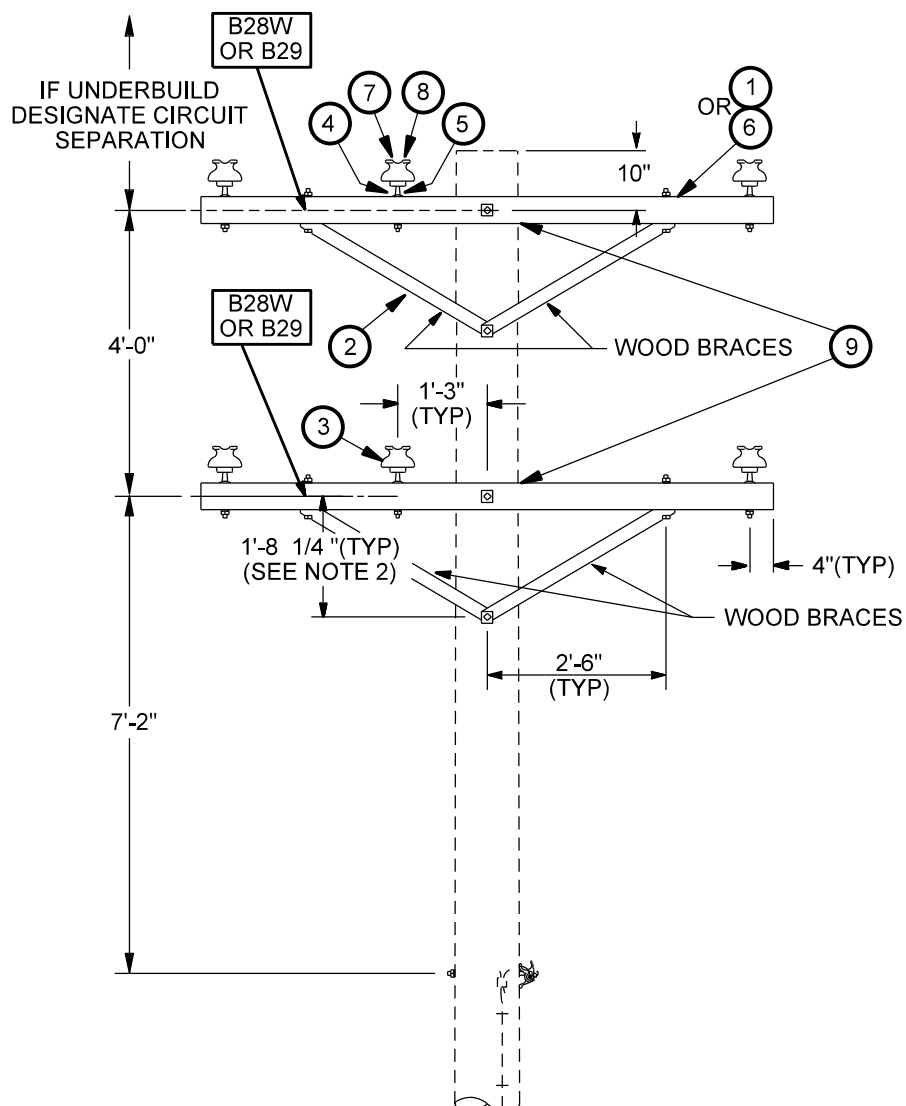
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	0 OR 4	5029414
2	BRACE, CROSSARM, 60 IN. SPAN 18 IN. PR.	4	5027886
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	12	5034594
4	PIN, INSULATOR, 5/8 X 5-3/4 IN. LONG	12	5028642
5	CROSSARM, DENSE OR CLOSE GRAIN, 8 FOOT	0 OR 4	5029410
6	PIN, INSULATOR, 1 IN. LEAD THREAD	12	5028636
7	ARMOR ROD, VARIOUS	0 OR 6	BR__
8	PLATE, GAIN, 5-5/16 X 4 IN.	4	5028652

NOTES

1. DO NOT USE 8' CROSSARMS FOR UNDERBUILD CONSTRUCTION ON CLASS H4 TRANSMISSION POLES.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS DOUBLE CIRCUIT, CROSSARM ANGLE	
	5-59-1	
	ISSUE DATE: 04/29/88 REV. DATE: 05/17/13 APPROVAL: B.PRIEST	8512E65.DGN

PH65__ (8 FT ARMS)
 PH70__ (10 FT ARMS)
 CONDUCTORS: AC312,A266,A397



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE, 10 FT.	0 OR 2	5029414
2	BRACE, CROSSARM, 60 IN. SPAN, 18 IN. PR.	2	5027886
3	INSULATOR, PIN, 12KV, PORCELAIN GREY	6	5034594
4	PIN, INSULATOR, 5/8 X 5-3/4 IN. LONG	0 OR 6	5028642
5	PIN, INSULATOR, 5/8 X 6-1/2 IN. LONG	0 OR 6	5028643
6	CROSSARM, DENSE OR CLOSE GRAIN, 8 FT.	0 OR 2	5029410
7	LINE GUARD, VARIOUS	0 OR 6	BL__
8	TOP TIE, VARIOUS	6	BPT1__
9	PLATE, GAIN, 5-5/16 IN. X 4 IN. LONG	2	5028652

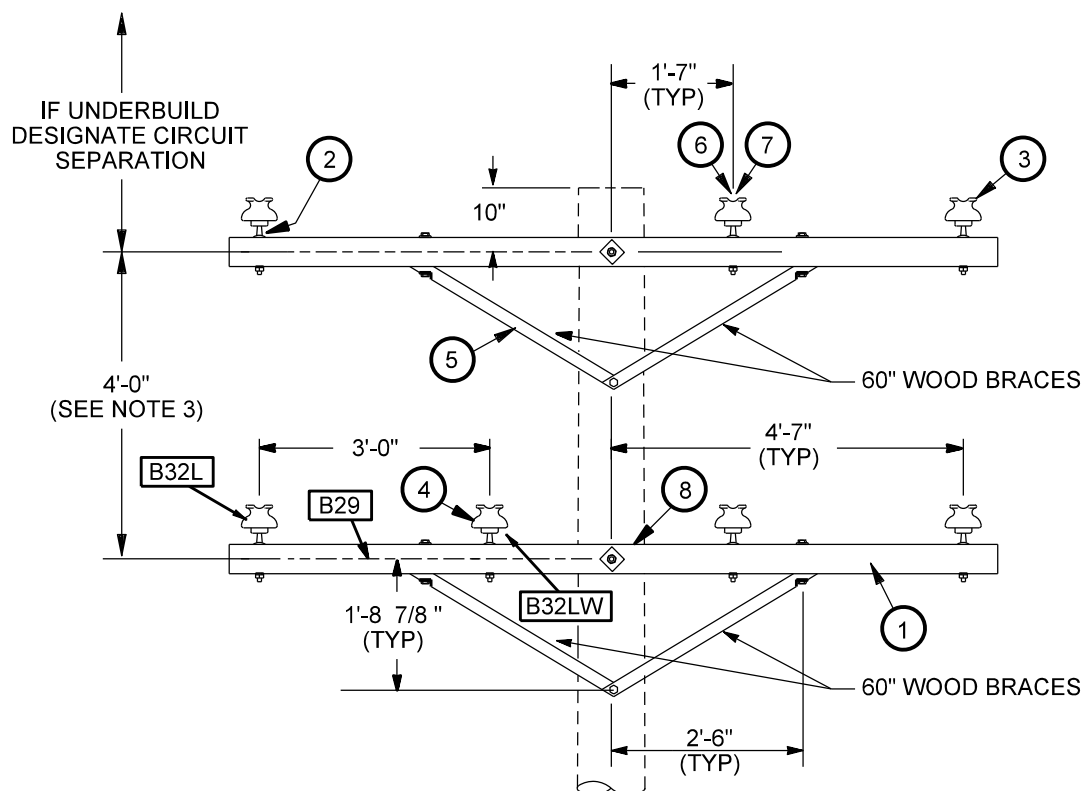
NOTES

1. USE 10 FOOT CROSSARM ON ALL H4 POLES.
2. THIS DIMENSION IS 1'- 8 7/8" FOR 10 FOOT CROSSARM.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS DOUBLE CIRCUIT, TANGENT UNDERBUILD CROSSARM CONSTRUCTION	ISSUE DATE: 08/20/87 REV. DATE: 05/13/13 APPROVAL: B.PRIEST
	5-60-1	8512E234.DGN

PHN32__

CONDUCTORS: A2,A266,A397



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 10 FT.	2	5029414
2	PIN, INSULATOR, 5/8 X 6-1/2 IN. LONG	7	5028643
3	INSULATOR, PIN, 12KV, PORCELAIN GREY	6	5034594
4	INSULATOR, PIN, 4KV, PORCELAIN WHITE	1	5034593
5	BRACE, CROSSARM, 60 IN. SPAN, 18 IN. PR.	2	5027886
6	TOP TIE, VARIOUS	6	BPT1_
7	LINE GUARD, VARIOUS	1	BL_
8	PLATE, GAIN, 5-5/16 IN. X 4 IN. LONG	2	5028652

NOTES

1. THIS UNIT USES TWO (2) 10 FOOT CROSSARMS.
2. MAXIMUM SPAN LENGTH IS LIMITED TO A MAXIMUM FINAL SAG OF 16 FT. @ 60 DEG F FOR PHASE SEPARATION REQUIREMENTS.
3. THIS CONSTRUCTION IS FOR 12.47KV ONLY AND FOR THE SAME WIRE SIZE. DIFFERENT WIRE SIZE MAY REQUIRE MORE CIRCUIT SEPARATION FOR CLEARANCE.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
DOUBLE CIRCUIT TANGENT
NEUTRAL ON CROSSARM

5-61-1

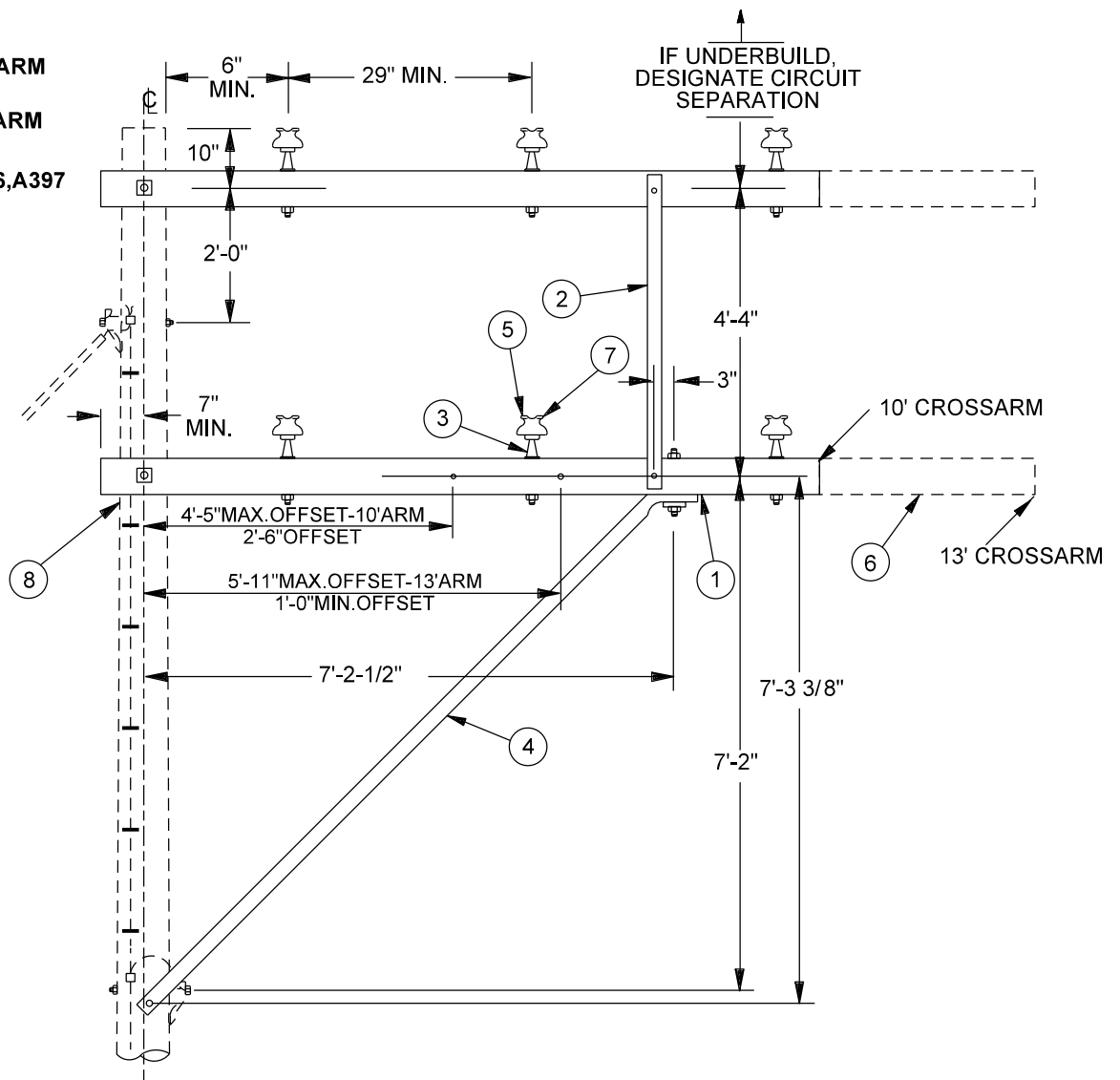
ISSUE DATE: 09/18/87

REV. DATE: 05/13/13

APPROVAL: B.PRIEST

8512E235.DGN

PHA601_ 3Φ -10' ARM
 PHA603_ 3Φ -13' ARM
 CONDUCTORS-A2,A266,A397

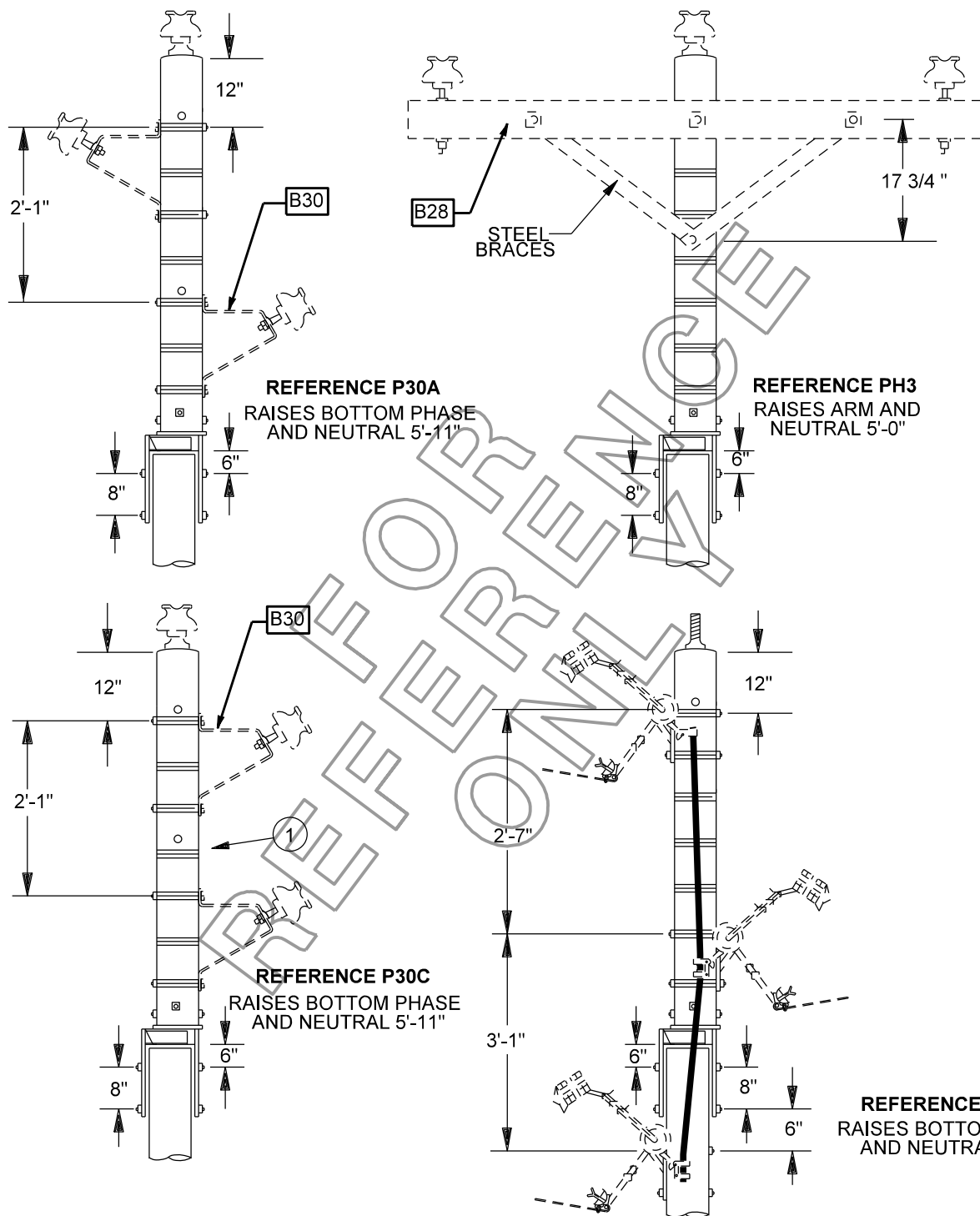


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 10 FT.	0 OR 2	5029414
2	BRACE, DOUBLE CIRCUIT, 57 IN. LONG	1	5027879
3	PIN, INSULATOR, 5/8 X 6-1/2 IN. LONG	6	5028643
4	BRACE, ALLEY ARM, 10 FT LONG X 2 X 2 X 1/4"	1	5027881
5	INSULATOR, PIN, 12KV, PORCELAIN GRAY	6	5034594
6	CROSSARM, DENSE OR CLOSE GRAIN, 13 FT.	0 OR 2	5027458
7	TOP TIE, VARIOUS	6	BPT1_
8	PLATE, GAIN, 5-5/16 X 4 IN.	2	5028652

NOTES

1. THE OFFSET OF THE CROSSARM AND THE LOCATION OF THE INSULATOR ASSEMBLIES IS TO BE DETERMINED BY THE ESTIMATOR.
2. IF A 397MCM AA FEEDER IS USED IN CONJUNCTION WITH ANOTHER SIZE FEEDER, THE 397MCM AA MUST BE THE TOP CIRCUIT.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	PRIMARY CONSTRUCTION UNITS 10' AND 13' ALLEY ARMS, DOUBLE CIRCUIT STEEL BRACES		ISSUE DATE: 11/05/81
			REV. DATE: 05/13/13
			APPROVAL: B.PRIEST
	5-62-1	8512E159.DGN	



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	POLE, EXTENSION, 60 IN. X 7-1/4 IN.	1	58-8010 *

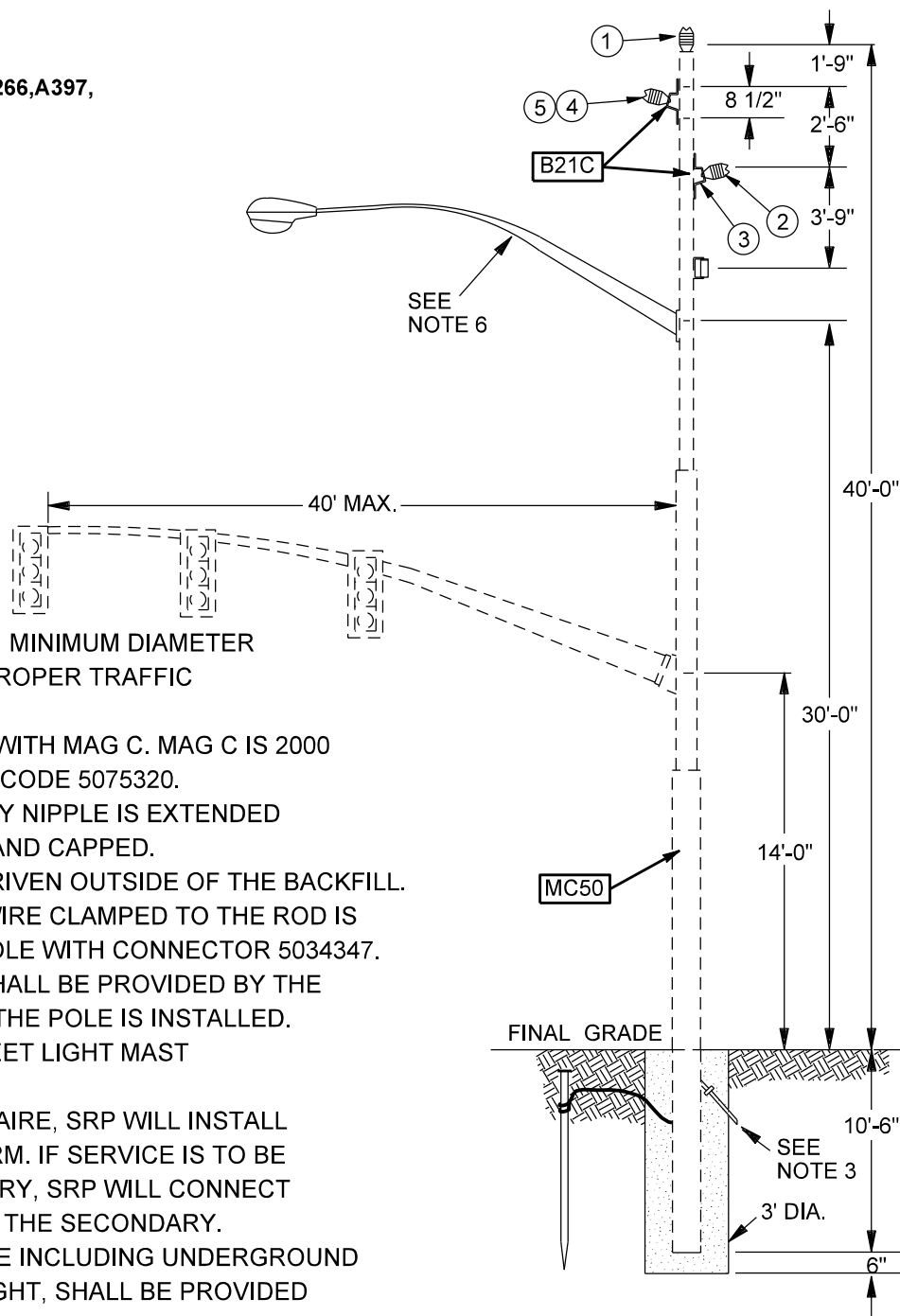
* INDICATES NO SAP MATERIAL NUMBER EXISTS.

NOTES

1. THIS EXTENSION IS FOR USE IN TANGENT LINES ONLY.
2. USE CURVED WASHER 5029162 ON BOLT END OPPOSITE THE HARDWARE BEING ATTACHED TO THE FIBERGLASS EXTENSION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS POLE TOP EXTENSION	ISSUE DATE: 03/12/91
		REV. DATE: 05/18/13
		APPROVAL: B.PRIEST
	5-63-1	8512E66.DGN

PM30A_ CONDUCTORS-A2,A266,A397,
C1,C2,C20,C4



NOTES

1. POLE IS TO BE SET IN A 3 FT. MINIMUM DIAMETER HOLE AND ORIENTED FOR PROPER TRAFFIC LIGHT INSTALLATION.
2. POLE IS TO BE BACKFILLED WITH MAG C. MAG C IS 2000 PSI CONCRETE, SRP STOCK CODE 5075320.
3. MAKE SURE THE WIRE ENTRY NIPPLE IS EXTENDED OUTSIDE OF THE BACKFILL AND CAPPED.
4. A GROUND ROD MUST BE DRIVEN OUTSIDE OF THE BACKFILL. A #6 OR LARGER GROUND WIRE CLAMPED TO THE ROD IS TO BE ATTACHED TO THE POLE WITH CONNECTOR 5034347.
5. STREET LIGHT MAST ARM SHALL BE PROVIDED BY THE MUNICIPALITY AT THE TIME THE POLE IS INSTALLED.
6. SRP WILL INSTALL THE STREET LIGHT MAST ARM TO THIS POLE.
7. IF SRP INSTALLS THE LUMINAIRE, SRP WILL INSTALL THE WIRING IN THE MAST ARM. IF SERVICE IS TO BE FROM OVERHEAD SECONDARY, SRP WILL CONNECT THE STREET LIGHT WIRE TO THE SECONDARY.
8. ALL WIRING INSIDE THE POLE INCLUDING UNDERGROUND SERVICE TO THE STREET LIGHT, SHALL BE PROVIDED AND INSTALLED BY THE MUNICIPALITY.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, VERTICAL, LINE POST, 12KV	1	5034587
2	INSULATOR, HORIZONTAL, LINE POST, 15KV	2	5034465
3	BRACKET, SIDE MOUNT, HOT GALVANIZED, SMALL	2	5028504
4	CLAMPTOP CLAMP, 6 DEG-15 DEG, VARIOUS	3	BCT1_
5	LINE GUARD, VARIOUS	3	BL_

Overhead Distribution
Construction Standards



PRIMARY CONSTRUCTION UNITS
VERTICAL CONSTRUCTION
50'-6" MULTI-USE STEEL POLE
STREET LIGHT AND TRAFFIC SIGNAL

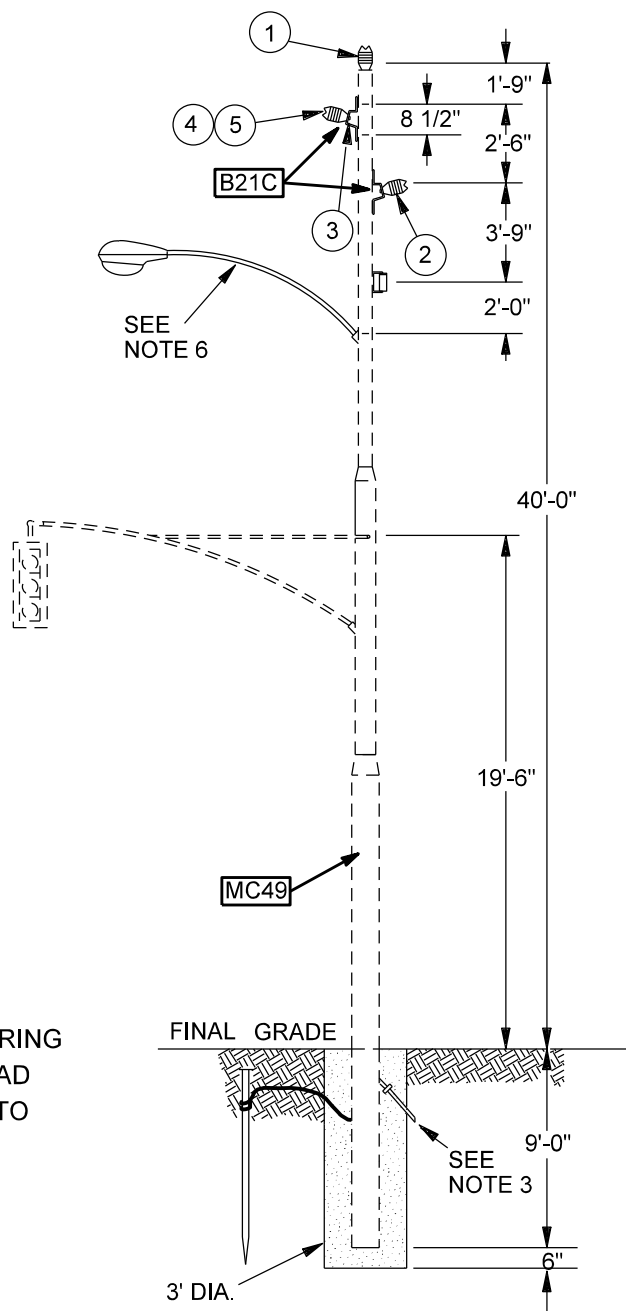
5-64-1

ISSUE DATE: 11/05/81

REV. DATE: 05/07/13

APPROVAL: B.PRIEST

8512E68.DGN



NOTES

1. POLE IS TO BE SET IN A 3 FT. MINIMUM DIAMETER HOLE AND ORIENTED FOR PROPER TRAFFIC LIGHT INSTALLATION.
2. POLE IS TO BE BACKFILLED WITH MAG C. MAG C IS 2000 PSI CONCRETE, SRP STOCK CODE 5075320.
3. MAKE SURE THE WIRE ENTRY NIPPLE IS EXTENDED OUTSIDE OF THE BACKFILL AND CAPPED.
4. A GROUND ROD MUST BE DRIVEN OUTSIDE OF THE BACKFILL. A #6 OR LARGER GROUND WIRE CLAMPED TO THE ROD IS TO BE ATTACHED TO THE POLE WITH CONNECTOR 5034347.
5. STREETLIGHT MAST ARM SHALL BE PROVIDED BY THE MUNICIPALITY AT THE TIME THE POLE IS INSTALLED.
6. SRP WILL INSTALL THE STREETLIGHT MAST ARM TO THIS POLE.
7. IF SRP INSTALLS THE LUMINAIRE, SRP WILL INSTALL THE WIRING IN THE MAST ARM. IF SERVICE IS TO BE FROM THE OVERHEAD SECONDARY, SRP WILL CONNECT THE STREETLIGHT WIRE TO THE SECONDARY.
8. ALL WIRING INSIDE THE POLE INCLUDING UNDERGROUND SERVICE TO THE STREETLIGHT, SHALL BE PROVIDED AND INSTALLED BY THE MUNICIPALITY.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, VERTICAL LINE POST, 15KV	1	5034587
2	INSULATOR, HORIZONTAL, LINE POST, 15KV	2	5034465
3	BRACKET, SIDE MOUNT, HOT GALVANIZED, SMALL	2	5028504
4	LINE GUARD, VARIOUS	3	BL__
5	CLAMPTOP CLAMP, 6 DEG-15 DEG, VARIOUS	3	BCT1__

Overhead Distribution
Construction Standards



PRIMARY CONSTRUCTION UNITS
VERTICAL CONSTRUCTION
49' MULTI-USE STEEL POLE
STREET LIGHT AND TRAFFIC SIGNAL

5-65-1

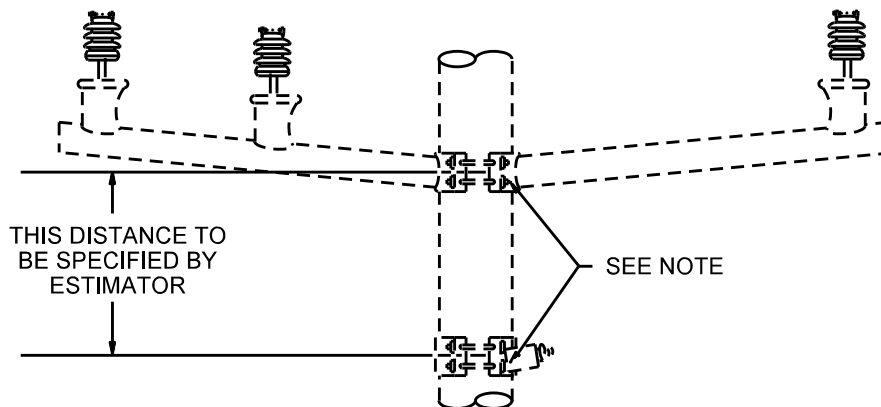
ISSUE DATE: 08/29/73

REV. DATE: 05/07/13

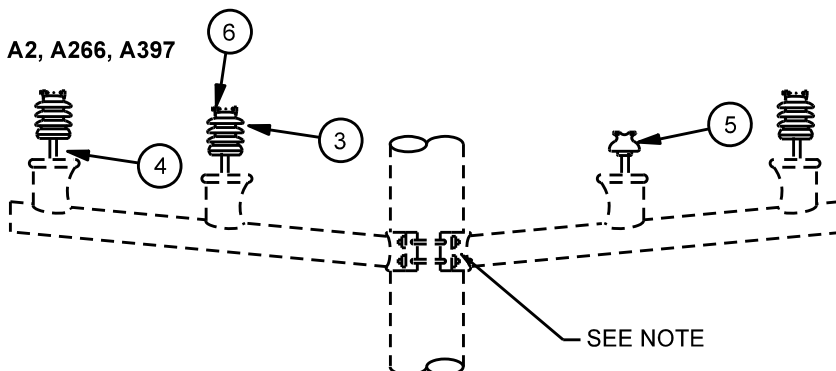
APPROVAL: B.PRIEST

8512E67.DGN

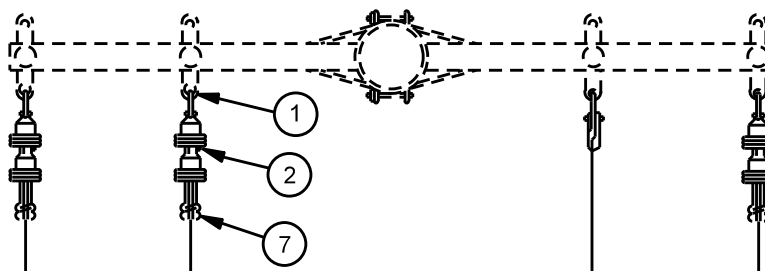
PMH3_ _ CONDUCTORS - A2, A266, A397



PMH4_ _ CONDUCTORS - A2, A266, A397



PMH5_ _ CONDUCTORS - A2, A266, A397



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CLEVIS, FORGED STEEL, 7/8 X 2.75 IN.	0 OR 4	5028895
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	0 OR 6	5034719
3	INSULATOR, VERTICAL, LINE POST, 12KV	0 OR 3	5034587
4	PIN, INSULATOR, 5/8 X 1.5 IN. SHORT	0 OR 1	5028641
5	INSULATOR, PIN, 4KV, PORCELAIN WHITE	0 OR 1	5034593
6	CLAMPTOP CLAMP	0 OR 3	BCT1_
7	DEADEND CLAMP, VARIOUS	0 OR 4	BL_

NOTES

1. SEE 69KV TRANSMISSION CONSTRUCTION STANDARDS TA88 & TA89 FOR THE ARMS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
69kV STEEL POLE, UNDERBUILD
TANGENT AND DEADEND

5-66-1

ISSUE DATE: 09/30/71

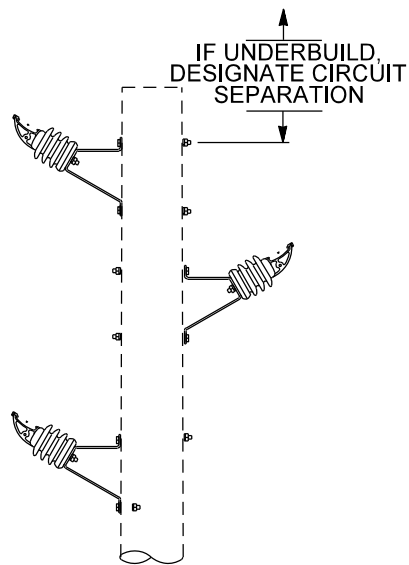
REV. DATE: 05/15/13

APPROVAL: B.PRIEST

8512E69.DGN

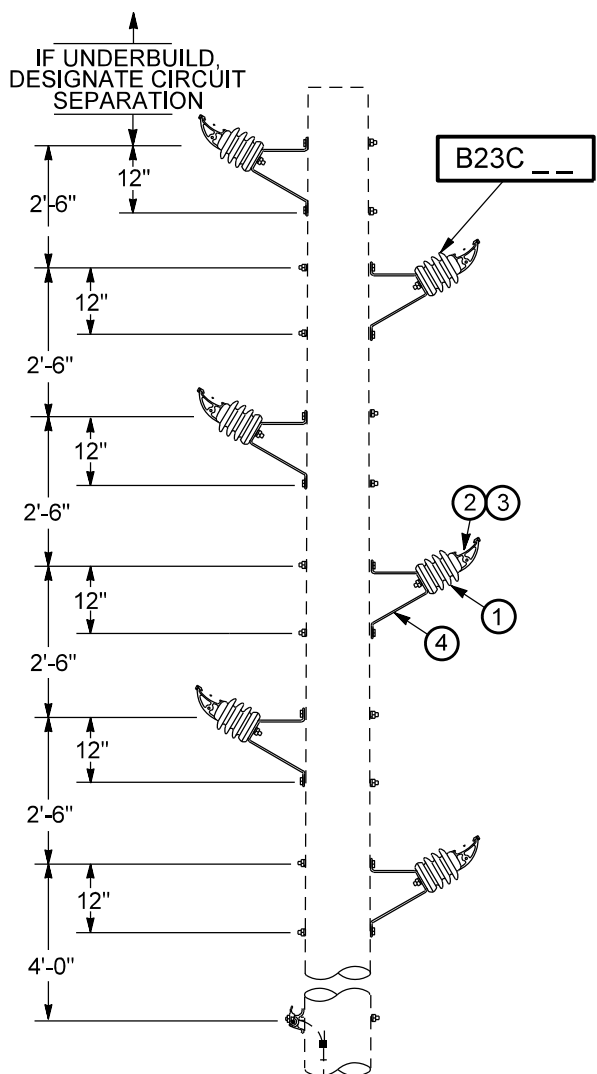
CONDUCTORS, A2, A266, A397, AC312

PWM30D _ _



CONDUCTORS, A2, A266, A397, AC312

PWM60A _



ITEM	MATERIAL DESCRIPTION	QUANTITY		MATERIAL ITEM NUMBER
		PWM3S1 _	PWM3S2 _	
1	INSULATOR, HORIZONTAL, LINE POST, 12KV	3	6	5034465
2	LINE GUARD, 300' OR LESS, ARMOR ROD OVER 300'	3	6	BL _ _ BR _ _
3	CLAMPTOP, 6° - 15°, VARIOUS	3	6	BCT1 _ _ OR BCT3 _ _
4	BRACKET, SIDE MOUNT	3	6	5028505

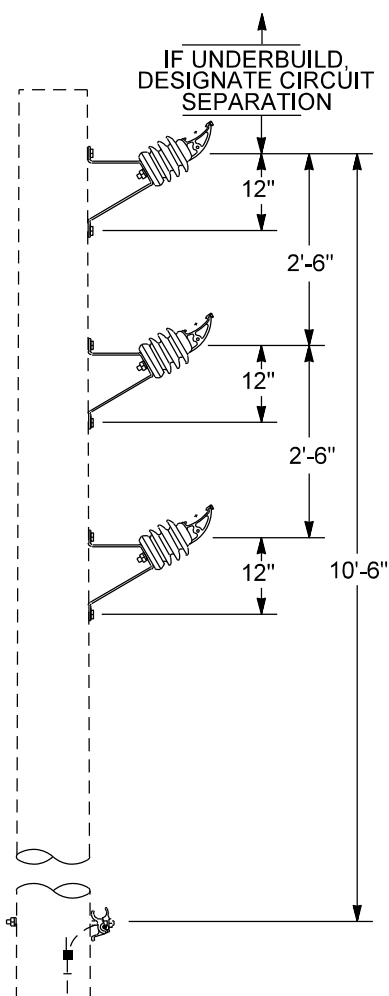
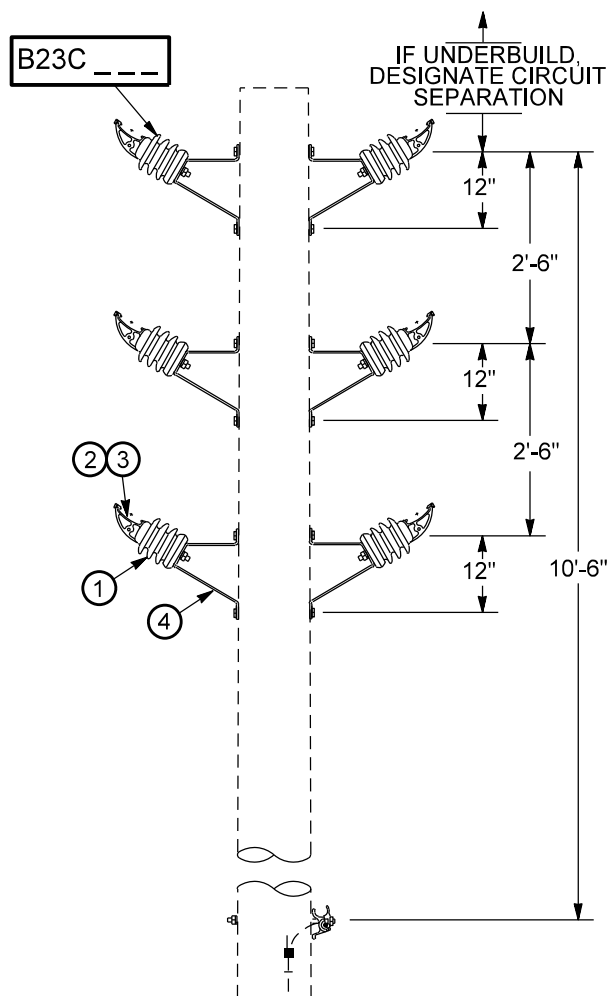
NOTES

1. ALL COMPATIBLE UNITS ARE SUPPLIED WITH 12" BOLTS.
2. FOR SPANS LESS THAN 300' "BLANK" OVER 300' "L"

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS LIGHT DUTY STEEL POLE DOUBLE CIRCUIT VERTICAL THREE PHASE, TANGENT	ISSUE DATE: 10/01/07
		REV. DATE: 02/27/20
		APPROVAL: J. LUERA
	5-67-1	8512E429.DGN

PWM60__

PWM30B



ITEM	MATERIAL DESCRIPTION	QUANTITY		MATERIAL ITEM NUMBER
		PWM31__	PWM32__	
1	INSULATOR, HORIZONTAL, LINE POST, 12KV	3	6	5034465
2	LINE GUARD, 300' OR LESS, ARMOR ROD OVER 300'	3	6	BL___ BR___
3	CLAMPTOP, 6° - 15°, VARIOUS	3	6	BCT1___ OR BCT3___
4	BRACKET, SIDE MOUNT	3	6	5028505

1. ALL COMPATIBLE UNITS ARE SUPPLIED WITH 12" BOLTS.
2. FOR SPANS LESS THAN 300' "BLANK" OVER 300' "L".

CONDUCTOR A397, 40"-55" DIA.

PM30BL__ 0° - 10° SPAN LESS THAN 300'

PM30BLA__ 0° - 10° SPAN MORE THAN 300'

CONDUCTOR A397, 25" - 40" DIA.

PM30BM__ 0° - 10° SPAN LESS THAN 300'

PM30BMA__ 0° - 10° SPAN MORE THAN 300'

CONDUCTOR A2, A397, AC312, UP TO 25" DIA.

PM30BS__ 0° - 10° SPAN LESS THAN 300'

PM30BSA__ 0° - 10° SPANS MORE THAN 300'

CONDUCTOR A397, 40"-55" DIA.

PM30DL__ 0° - 10° SPANS LESS THAN 300'

PM30DLA__ 0° - 10° SPANS MORE THAN 300'

CONDUCTOR A397, 25" - 40" DIA.

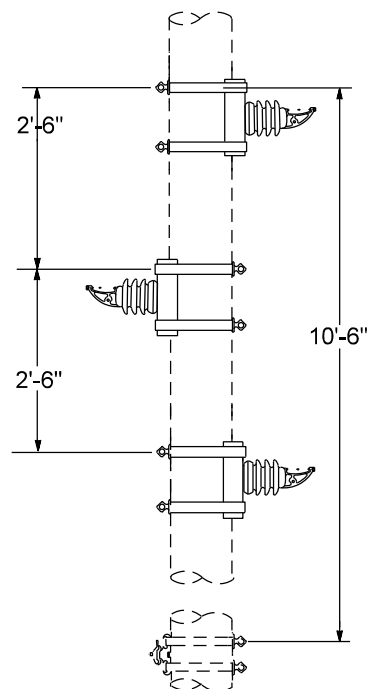
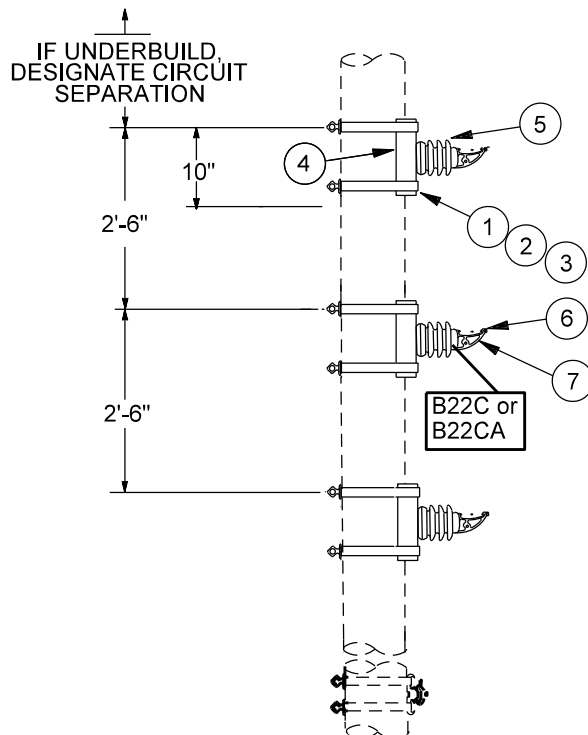
PM30DM__ 0° - 10° SPANS LESS THAN 300'

PM30DMA__ 0° - 10° SPANS MORE THAN 300'

CONDUCTOR A2, A397, AC312, UP TO 25" DIA.

PM30DS__ 0° - 10° SPANS LESS THAN 300'

PM30DSA__ 0° - 10° SPAN MORE THAN 300'



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BAND, POLE, 1.25" WIDE 180"	0 OR 6	5027473
2	BAND, POLE, 1.25" WIDE 132"	0 OR 6	5027472
3	BAND, POLE, 1.25" WIDE 84"	0 OR 6	5027470
4	MOUNT, BRACKET, 10" X 5" FORMED	3	5028261
5	INSULATOR, HORIZONTAL, LINE POST, 12KV	3	5034465
6	LINE GUARD, VARIOUS	3	BL__
7	CLAMPTOP CLAMP, 15° - 30°, VARIOUS	3	BCT2_ OR BCT4_

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
HEAVY DUTY STEEL POLE
THREE PHASE, SMALL ANGLE, 0 DEG. - 10 DEG.

5-69-1

ISSUE DATE: 09/14/89

REV. DATE: 02/27/20

APPROVAL: J. LUERA

8512E18.DGN

40"-55" DIA.

PM33L__ 10 DEG - 60 DEG (SPAN LESS THAN 300')

PM33LA__ 10 DEG - 60 DEG (SPAN MORE THAN 300')

25"-40" DIA.

PM33M__ 10 DEG - 60 DEG (SPAN LESS THAN 300')

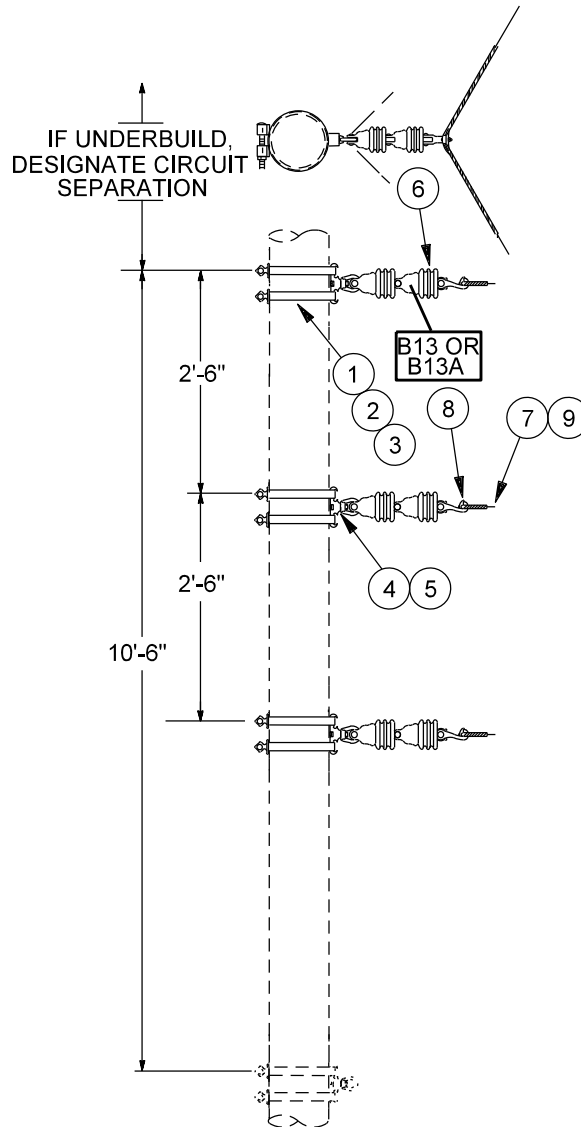
PM33MA__ 10 DEG - 60 DEG (SPAN MORE THAN 300')

UP TO 25" DIA.

PM33S__ 10 DEG - 60 DEG (SPAN LESS THAN 300')

PM33SA__ 10 DEG - 60 DEG (SPAN MORE THAN 300')

CONDUCTORS- AC312, A2, A397



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BAND, POLE, 1.25 IN. WIDE 180 IN.	0 OR 6	5027473
2	BAND, POLE, 1.25 IN. WIDE 132 IN.	0 OR 6	5027472
3	BAND, POLE, 1.25 IN. WIDE 84 IN.	0 OR 6	5027470
4	NUT, HEXAGON, 5/8 IN. HOT GALVANIZED	3	5028628
5	MOUNT, STUD, 3 X 5/8 IN. BOLT HEAVY	3	5028260
6	INSULATOR, SUSPENSION, 6-1/4 IN. CLEVIS	6	5034719
7	LINE GUARD, VARIOUS	0 OR 3	BL__
8	ANGLE CLAMP, 30 DEG-60 DEG, VARIOUS	3	BA1__ OR BA2__
9	ARMOR ROD, VARIOUS	0 OR 3	BR__

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
STEEL POLE
THREE PHASE, MEDIUM ANGLE, 10 DEG.- 60 DEG.

5-70-1

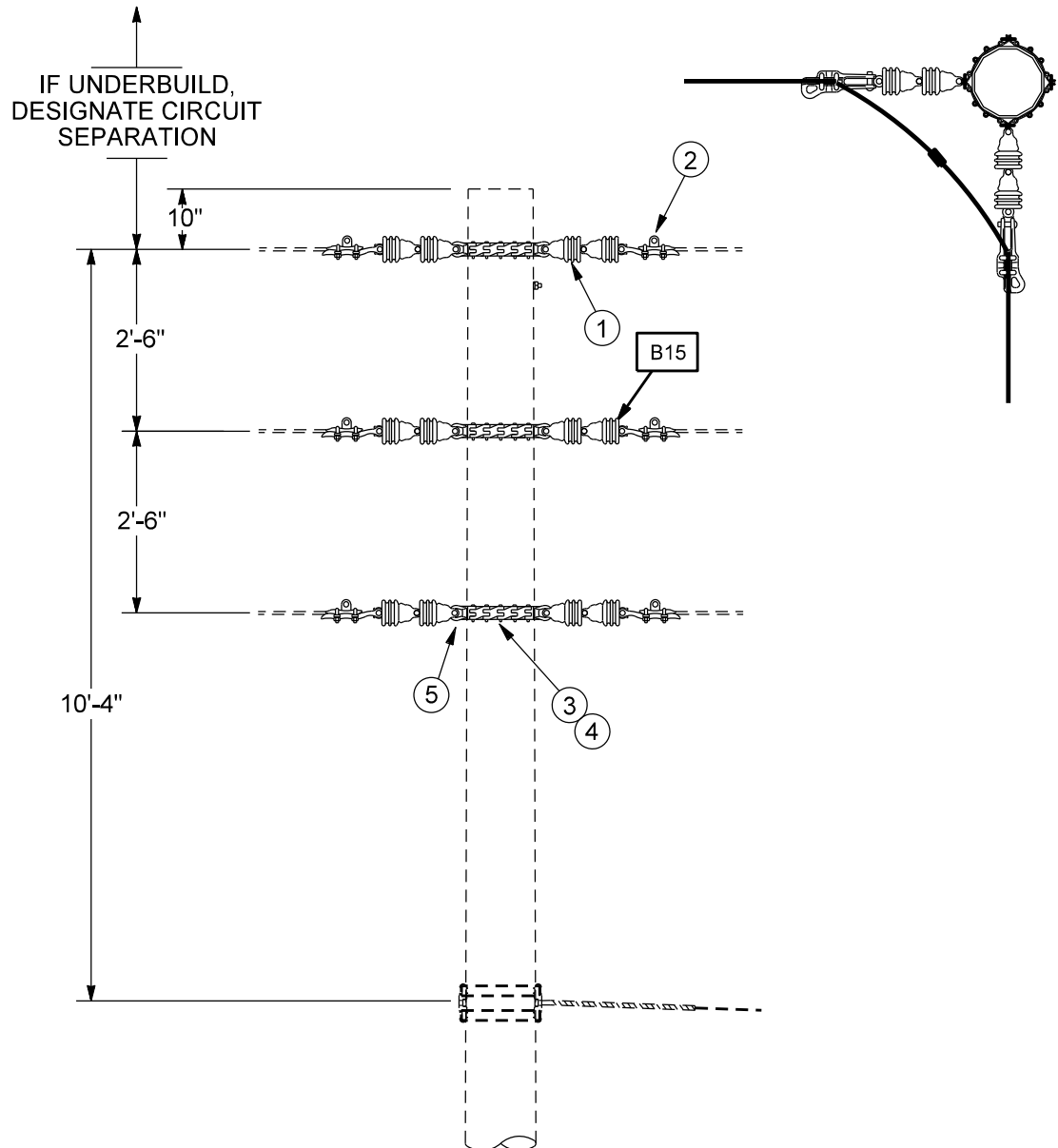
ISSUE DATE: 09/16/88

REV. DATE: 02/27/19

APPROVAL: N. SABBAAH

8512E19.DGN

PM35D_ _ CONDUCTORS A2, A266, A397, AC312



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
2	DEADEND CLAMP, VARIOUS	6	BD_
3	LINK, SEGMENT	18	5027576
4	LINK, TAKEUP ASSEMBLY	3	5028488
5	LINK, VERTICAL VANG	6	5029395

NOTES

1. ANGLES OF 60 TO 90 DEGREES MAY BE JUMPERED ACROSS. ANGLES LESS THAN 60 DEGREES MAY NOT BE JUMPERED WITHOUT ADDITIONAL SUPPORTS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

PRIMARY CONSTRUCTION UNITS
THREE PHASE DOUBLE DEADEND
VERTICAL, ON STEEL POLE, 0 - 90 DEG.

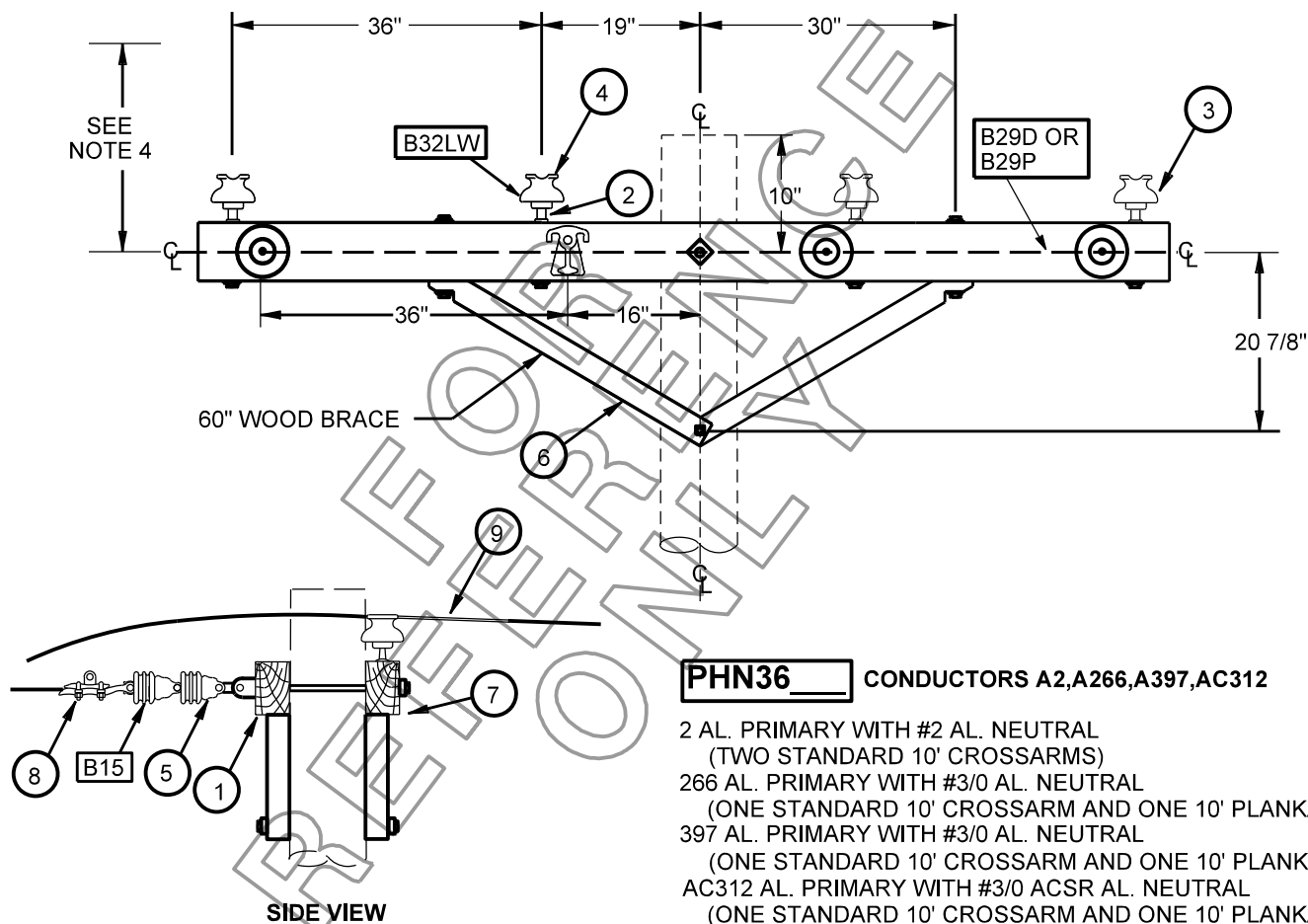
5-71-1

ISSUE DATE: 01/30/94

REV. DATE: 05/13/13

APPROVAL: B.PRIEST

8512E226.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	1 OR 2	5029414
2	PIN, INSULATOR, 5/8 X 6.5 IN. LONG	4	5028643
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	INSULATOR, PIN, 4KV, PORCELAIN WHITE	1	5034593
5	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
6	BRACE, CROSSARM, 60 IN. SPAN 18 IN. PR.	2	5027886
7	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT, PLANK	0 OR 1	5027456
8	DEADEND CLAMP, VARIOUS	3	BD__
9	TOP TIE, VARIOUS	4	BPT1__

NOTES

- MAXIMUM SPAN LENGTH IS LIMITED TO:
 - A MAXIMUM FINAL SAG OF 16 FEET @ 60 DEG. F. FOR PHASE SEPARATION REQUIREMENTS.
 OR:
 - CROSSARM DEADEND TENSION LIMITATIONS.
- FOR MAXIMUM SLACK SPAN LENGTH, SEE SLACK SPAN SAG CHARTS.
- THIS CONSTRUCTION IS FOR 12.47 KV ONLY.
- IF UNDERBUILD, DESIGNATE CIRCUIT SEPARATION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	PRIMARY CONSTRUCTION UNITS THREE PHASE DEADEND, 180 DEG. SLACK SPAN NEUTRAL ON CROSSARM	ISSUE DATE: 02/27/81 REV. DATE: 05/15/13 APPROVAL: B.PRIEST
	5-72-1	8512E499.DGN

SECTION 6: 22 kV PRIMARY CONSTRUCTION UNITS

TITLE / DESCRIPTION	PAGE
SHIELD WIRE CONFIGURATION, SINGLE PHASE, TANGENT AND SMALL ANGLE.....	6-2-1
SHIELD WIRE CONFIGURATION, SINGLE PHASE, MEDIUM ANGLE, 24° - 60°.....	6-3-1
SHIELD WIRE CONFIGURATION, SINGLE PHASE, LARGE ANGLE 60° - 90°	6-4-1
SHIELD WIRE CONFIGURATION, SINGLE PHASE, DEADEND	6-5-1
SHIELD WIRE CONFIGURATION, SINGLE PHASE, DEADEND, SLACK SPAN	6-6-1
SHIELD WIRE CONFIGURATION, SINGLE PHASE, TANGENT WITH 90° BUCK.....	6-7-1
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SHIELD WIRE CONFIGURATION, TWO PHASE, TANGENT, 0° - 6°	6-9-1
SHIELD WIRE CONFIGURATION, TWO PHASE, SMALL ANGLE, 6° - 24°	6-10-1
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SHIELD WIRE CONFIGURATION, TWO PHASE, LARGE ANGLE, 60° - 90°	6-12-1
SHIELD WIRE CONFIGURATION, TWO PHASE, DEADEND, VERTICAL	6-13-1
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SHIELD WIRE CONFIGURATION, THREE PHASE, MEDIUM ANGLE, 24° - 60°	6-18-1
SHIELD WIRE CONFIGURATION, THREE PHASE, LARGE ANGLE, 60° - 90°	6-19-1
SHIELD WIRE CONFIGURATION, THREE PHASE, DEADEND, VERTICAL	6-20-1
SHIELD WIRE CONFIGURATION, THREE PHASE, DEADEND, CROSSARM	6-21-1
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SHIELD WIRE CONFIGURATION, ONE, TWO, OR THREE PHASE BUCK	6-24-1
THREE PHASE TANGENT, MAINTENANCE, CROSSARM CONSTRUCTION	6-25-1
THREE PHASE DEADEND, MAINTENANCE, CROSSARM CONSTRUCTION.....	6-26-1
THREE PHASE TANGENT, NEUTRAL ON ARM, MAINTENANCE, CROSSARM CONSTRUCTION.....	6-27-1
THREE PHASE DEADEND, NEUTRAL ON ARM, MAINTENANCE, CROSSARM CONSTRUCTION	6-28-1

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	INDEX 22kV PRIMARY CONSTRUCTION UNITS		ISSUE DATE: 05/14/13
			REV. DATE:
	6-1-1		APPROVAL: D. Poore
OH6-1-1.doc			

P112__ 6 DEG - 24 DEG (SPANS MORE THAN 300')

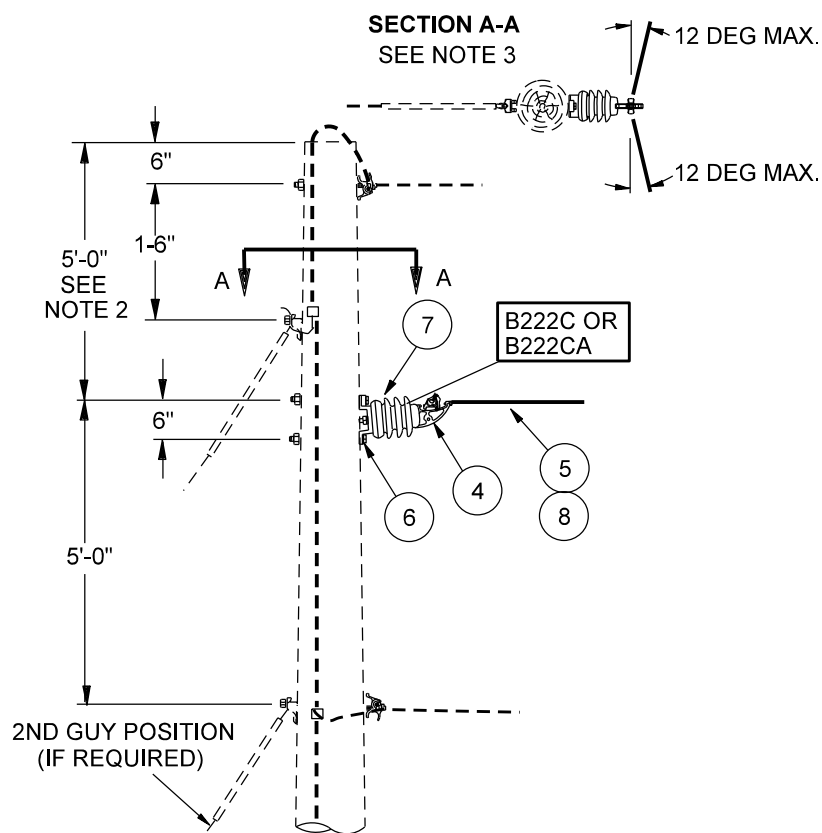
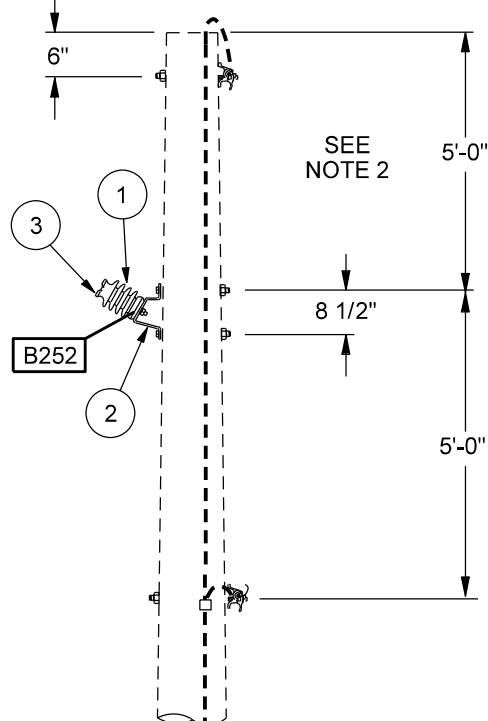
CONDUCTOR R2

P112A__ 6 DEG - 24 DEG (SPANS MORE THAN 300')

CONDUCTOR R2

P102__ 0 DEG - 6 DEG

CONDUCTOR R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, VERTICAL, LINE POST, 22KV PO	1	5034466
2	BRACKET, SIDE MOUNT, HOT GALV. SMALL	1	5028504
3	SIDE, TIE, VARIOUS	1	BPT2_
4	CLAMPTOP CLAMP, 15 DEG - 30 DEG, VARIOUS	1	BCT2_ OR BCT4_
5	ARMOR, ROD, VARIOUS	1	BR_
6	BRACKET, INSULATOR, 5/8 IN. STUD BA	1	5028637
7	INSULATOR, HORIZONTAL, LINE POST, 22KV, P	1	5034467
8	LINE GUARD, VARIOUS	1	BL_

NOTES

1. WHEN GUY TENSION EXCEEDS 11.000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.
3. IF THE INSULATOR CANNOT BE INSTALLED TO BISECT THE ANGLE AND MAINTAIN THE 12 DEG. MAX. AS SHOWN, USE P132 OR P132A.

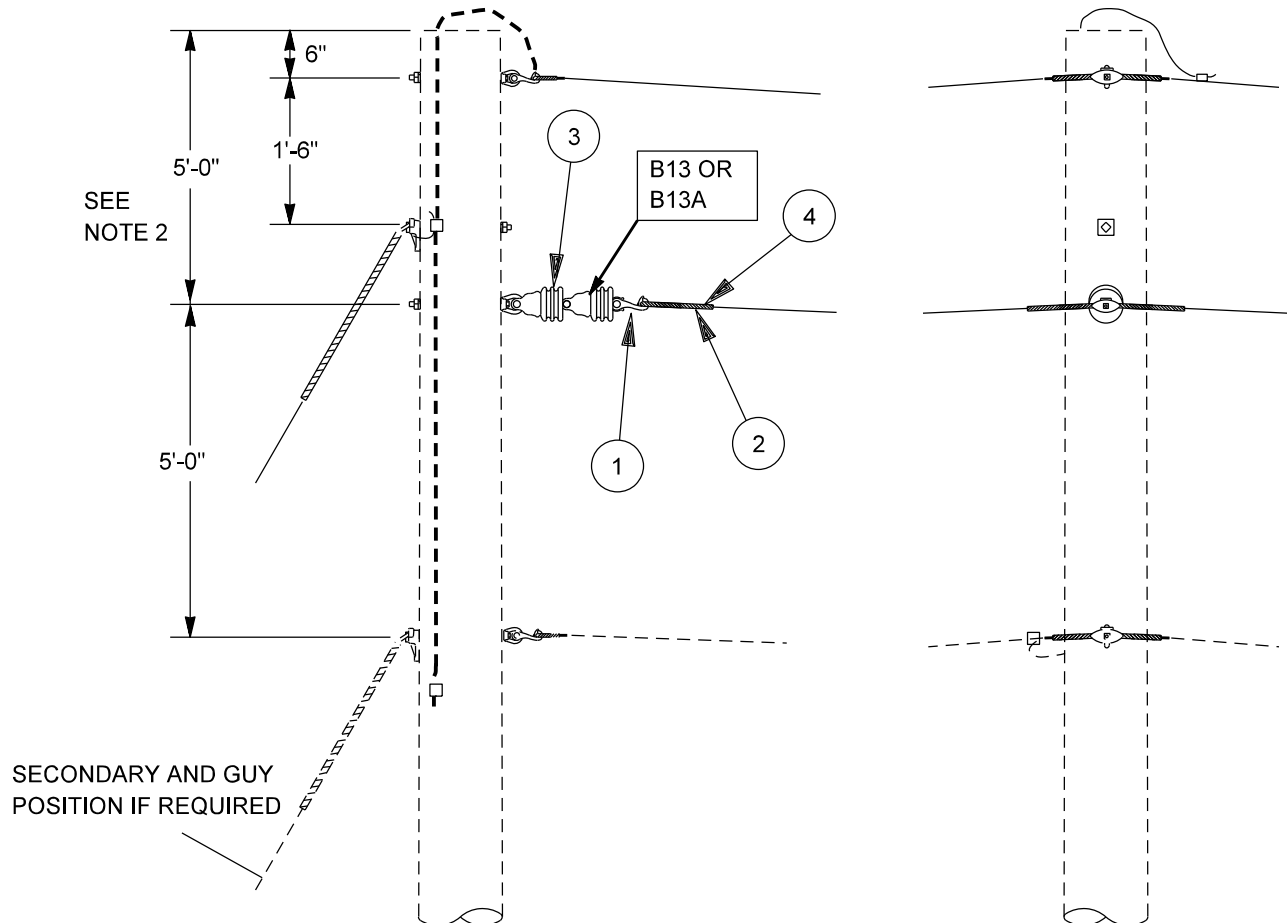
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	22kV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION SINGLE PHASE, TANGENT AND SMALL ANGLE		ISSUE DATE: 12/05/74
			REV. DATE: 05/08/13
			APPROVAL: B.PRIEST
	6-2-1	8512E160.DGN	

P132__ 24 DEG.- 60 DEG. (SPANS LESS THAN 300')

CONDUCTOR R2

P132A__ 24 DEG.- 60 DEG. (SPANS LESS THAN 300')

CONDUCTOR R2

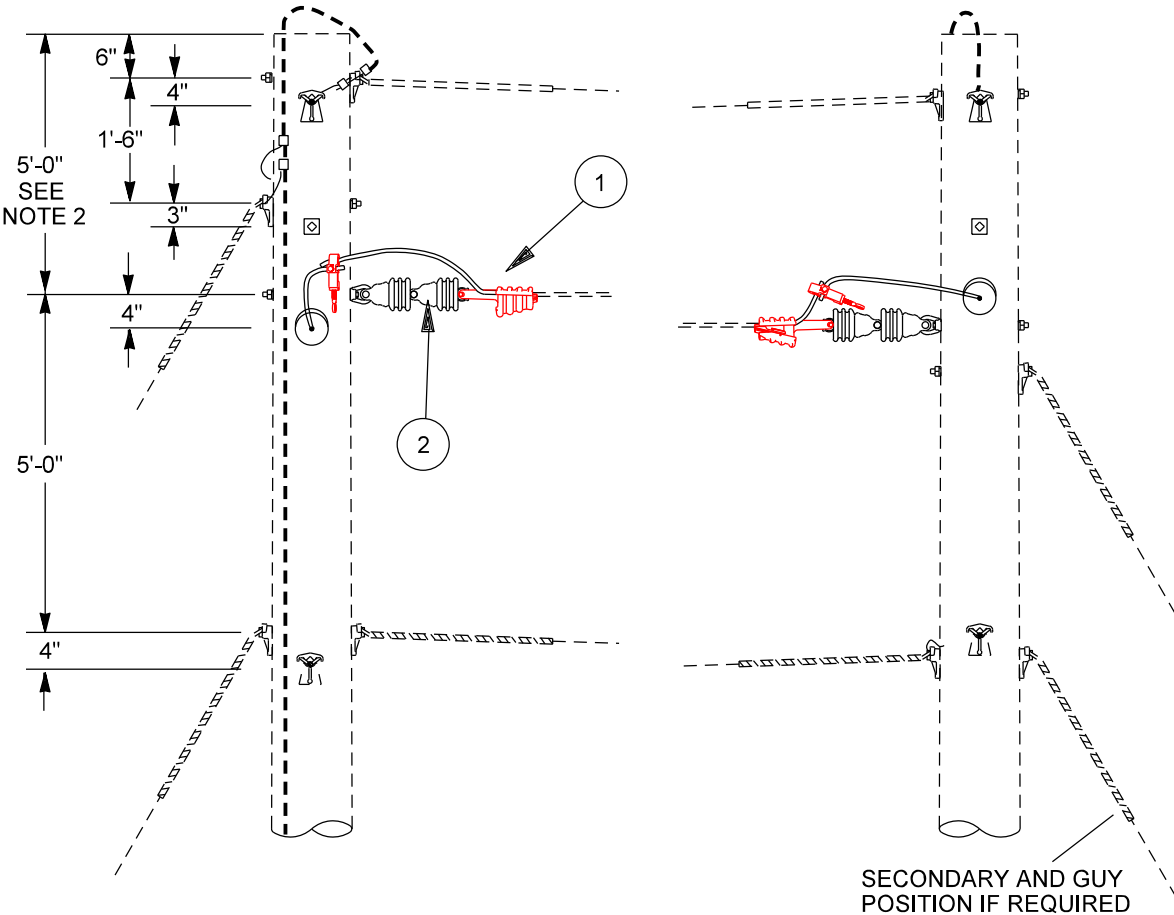
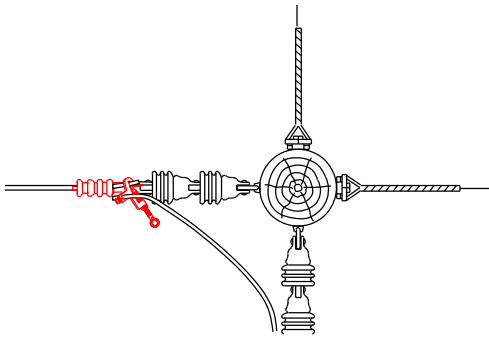


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	ANGLE CLAMP, 30 DEG - 60 DEG., VARIOUS	1	BA1_ OR BA2_
2	ARMOR ROD, VARIOUS	0 OR 1	BR_
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2	5034719
4	LINE GUARD, VARIOUS	0 OR 1	BL_

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV PRIMARY CONSTRUCTION UNITS	ISSUE DATE: 09/30/92
	SHIELD WIRE CONFIGURATION	REV. DATE: 05/06/13
	SINGLE PHASE, MEDIUM ANGLE, 24 DEG. - 60 DEG.	APPROVAL: B.PRIEST
	6-3-1	8512E161.DGN

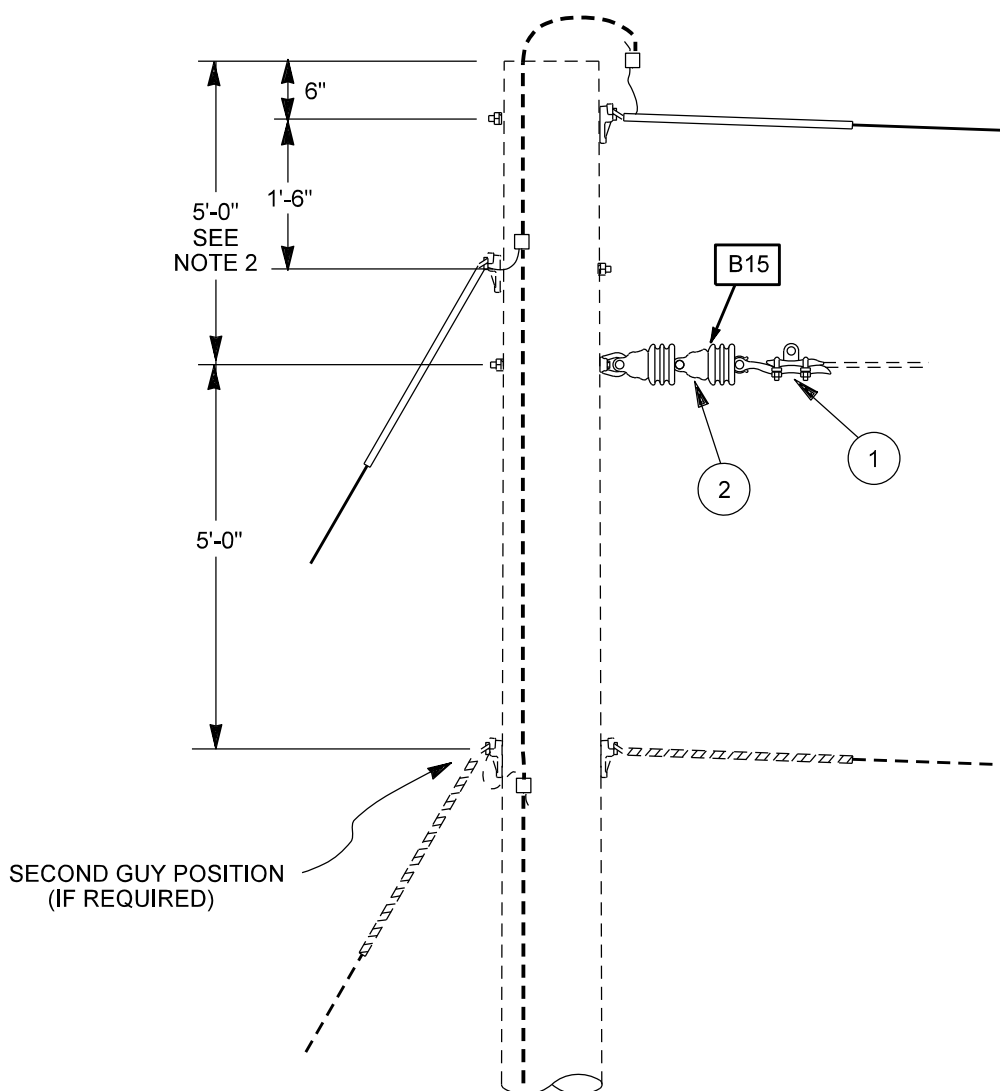


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	2	BD_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.	
	22KV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION SINGLE PHASE, LARGE ANGLE, 60 DEG. - 90 DEG.	ISSUE DATE: 12/11/74 REV. DATE: 09/23/25 APPROVAL: J. ROBBINS
	6-4-1	8512E162.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	1	BD_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS, EA	2	5034719

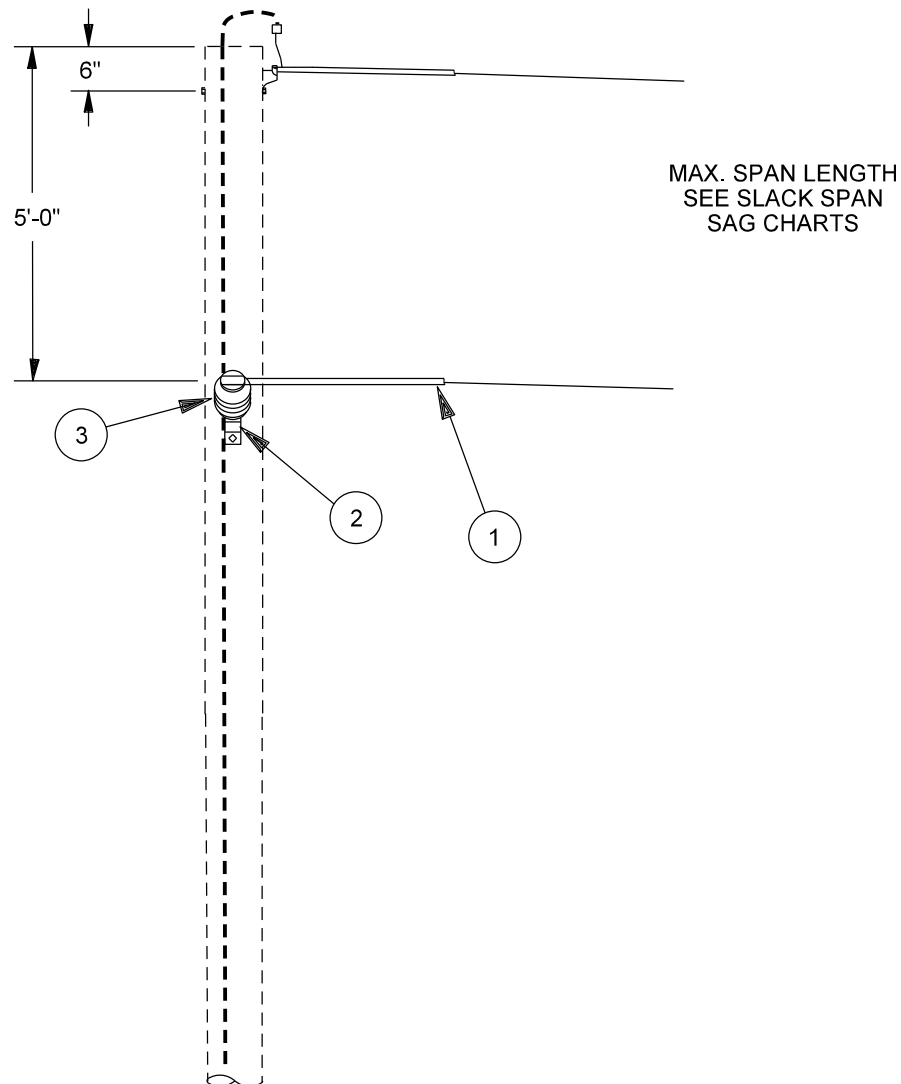
NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION SINGLE PHASE DEADEND	ISSUE DATE: 12/13/74 REV. DATE: 05/06/13 APPROVAL: B.PRIEST
	6-5-1	8512E163.DGN

P152__

CONDUCTOR R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND GRIP, VARIOUS	1	BDG_
2	BRACKET, SIDE MOUNT, HOT GALVANIZED SMALL	1	5028504
3	INSULATOR, VERT. LINE POST, 22KV	1	5034466

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22 KV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
SINGLE PHASE DEADEND, SLACK SPAN

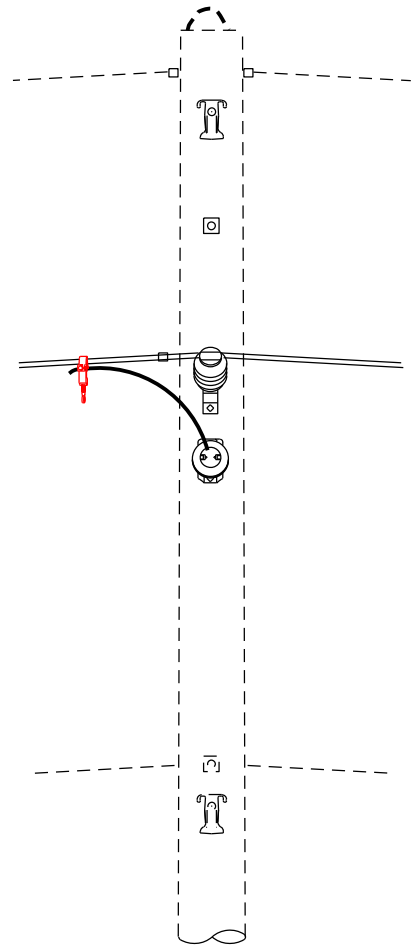
6-6-1

ISSUE DATE: 09/15/89

REV. DATE: 05/09/13

APPROVAL: B.PRIEST

8512E10.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALVANIZED SMALL	1	5028504
2	DEADEND CLAMP, VARIOUS	1	BD_
3	INSULATOR, VERTICAL LINE POST, 22KV	1	5034466
4	SIDE TIE, VARIOUS	1	BPT2_
5	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2	5034719

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.



PROPRIETARY MATERIAL

REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.

22KV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
SINGLE PHASE, TANGENT WITH 90 DEG. BUCK

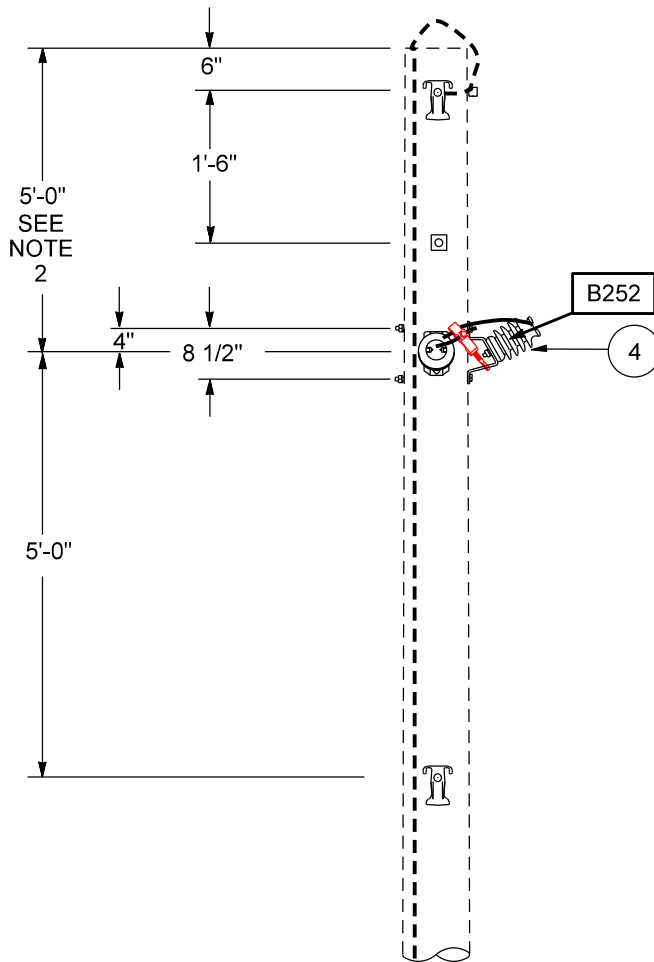
6-7-1

ISSUE DATE: 12/31/74

REV. DATE: 09/23/25

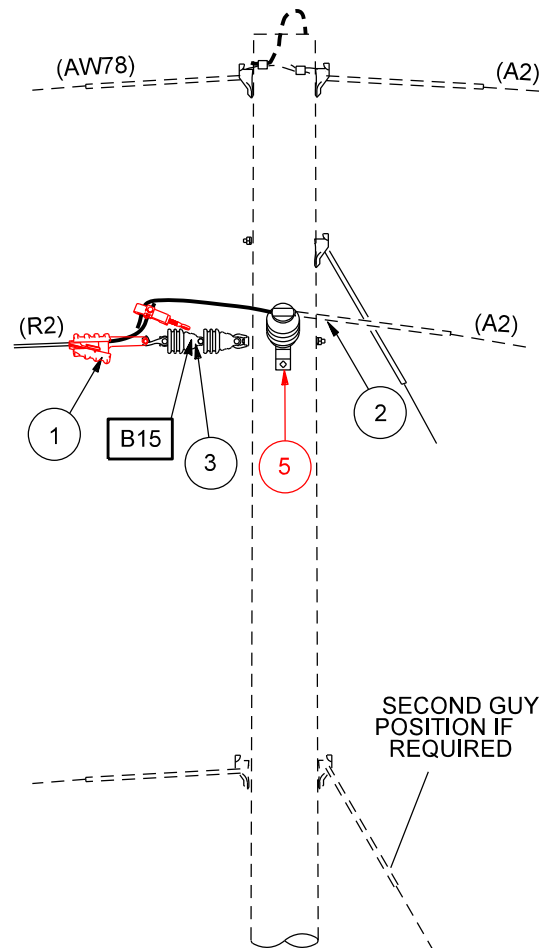
APPROVAL: J. ROBBINS

8512E164.DGN



**FULL TENSION
(ACSR)**

**SLACK SPAN
(ALUMINUM)**



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	1	BD_
2	DEADEND GRIP, VARIOUS	1	BDG_
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2	5034719
4	INSULATOR, VERTICAL LINE POST, 22KV, PO	1	5034466
5	BRACKET, SIDE MOUNT, HOT GALVANIZED SMALL	1	5028504

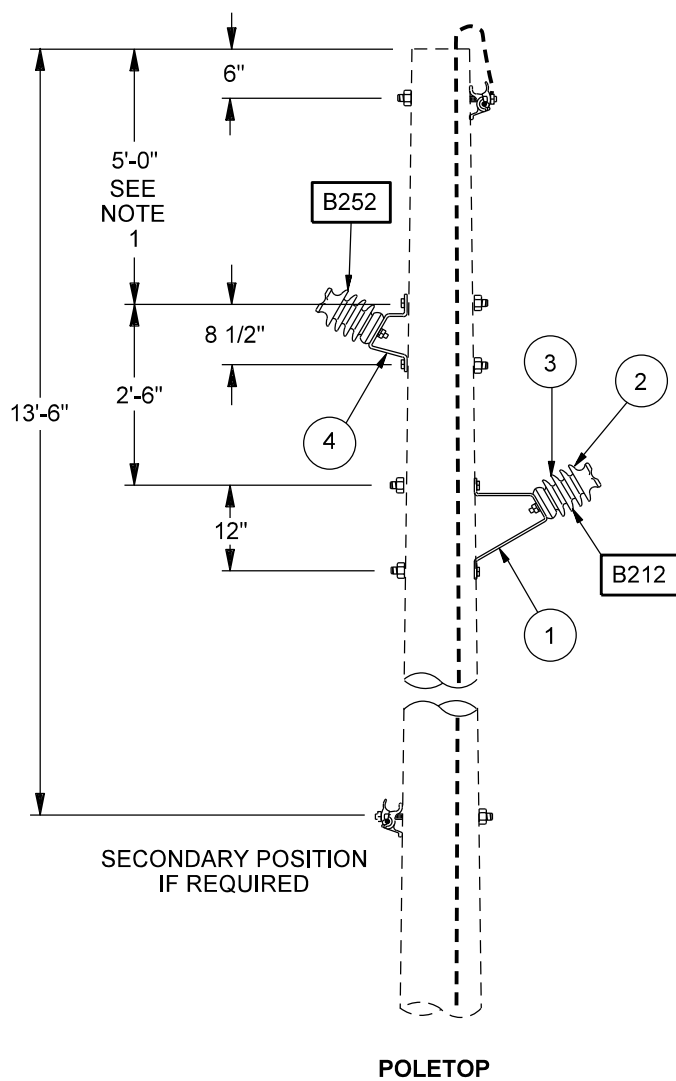
NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.
3. FOR MAXIMUM SLACK SPAN LENGTH SEE SLACK SPAN SAG CHARTS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.	
	22KV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION DEADEND WITH 180 DEG. SLACK SPAN	ISSUE DATE: 12/13/74 REV. DATE: 09/23/25 APPROVAL: J. ROBBINS
	6-8-1	8512E165.DGN

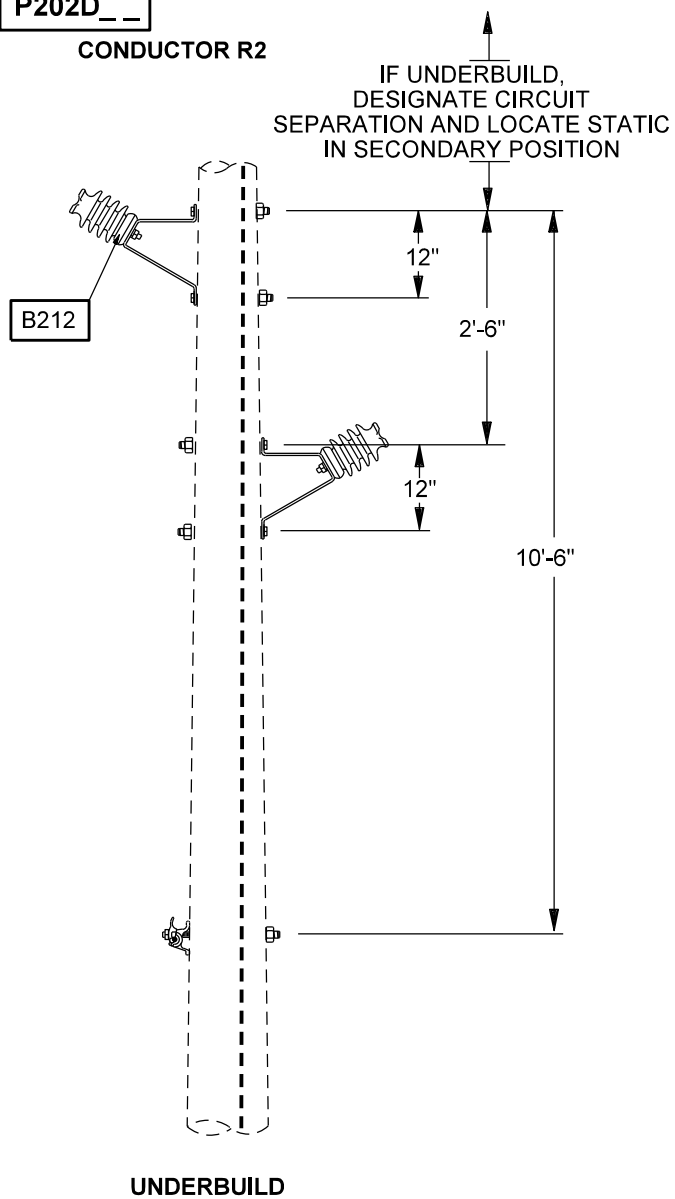
P202A__

CONDUCTOR R2



P202D__

CONDUCTOR R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALVANIZED LARGE	1	5028505
2	SIDE TIE, VARIOUS	2	BPT2_
3	INSULATOR, VERTICAL LINE POST, 22KV	2	5034466
4	BRACKET, SIDE MOUNT, HOT GALVANIZED SMALL	1	5028504

NOTES

1. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
TWO PHASE, TANGENT, 0 DEG. - 6 DEG.

6-9-1

ISSUE DATE: 12/17/74

REV. DATE: 05/13/13

APPROVAL: B.PRIEST

8512E166.DGN

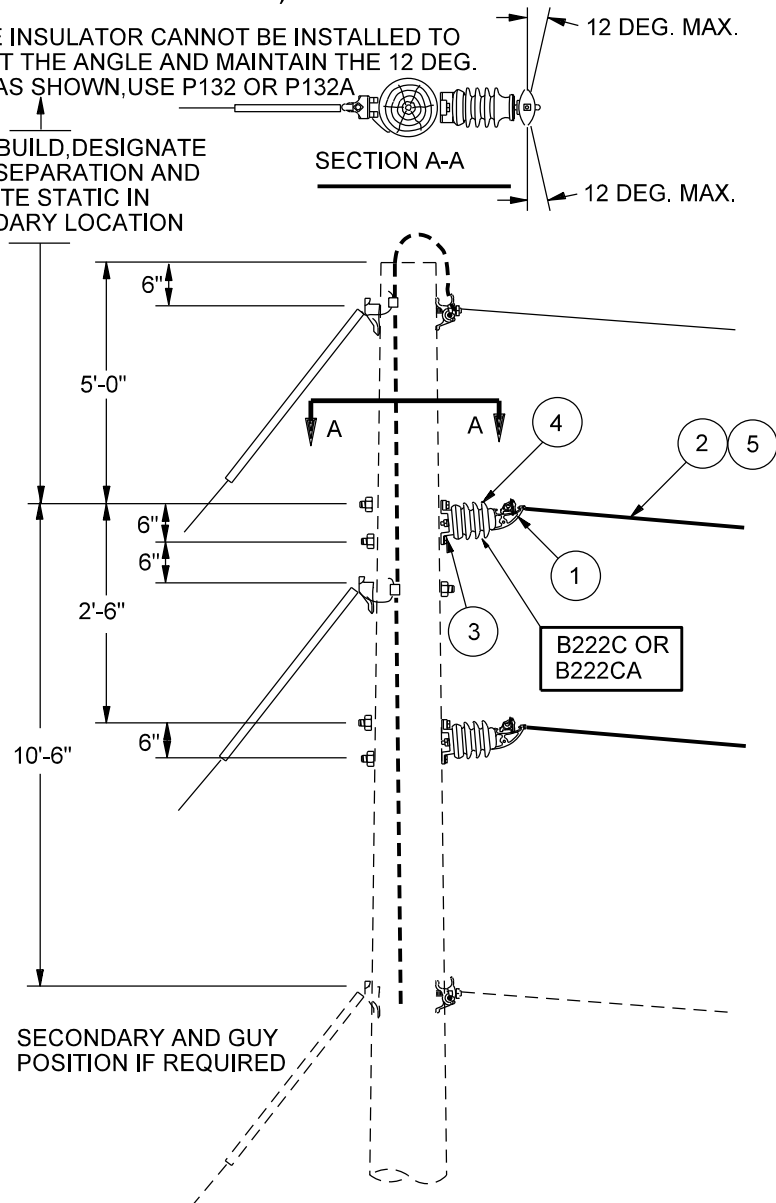
P222 __ 6 DEG.-24 DEG. (SPANS LESS THAN 300')

P222A __ 6 DEG.-24 DEG. (SPANS MORE THAN 300')

CONDUCTOR R2

IF THE INSULATOR CANNOT BE INSTALLED TO
BISECT THE ANGLE AND MAINTAIN THE 12 DEG.
MAX. AS SHOWN, USE P132 OR P132A

IF UNDERBUILD, DESIGNATE
CIRCUIT SEPARATION AND
LOCATE STATIC IN
SECONDARY LOCATION



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CLAMPTOP CLAMP, 15 DEG - 30 DEG, VARIOUS	1	BCT2_ OR BCT4_
2	ARMOR ROD, VARIOUS	0 OR 2	BR_
3	BRACKET, INSULATOR, 5/8 IN. STUD	2	5028499
4	INSULATOR, HORIZONTAL, LINE POST, 22KV P	2	5034467
5	LINE GUARD, VARIOUS	0 OR 2	BL_

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
TWO PHASE, SMALL ANGLE, 6 DEG. - 24 DEG.

6-10-1

ISSUE DATE: 12/18/74

REV. DATE: 05/12/13

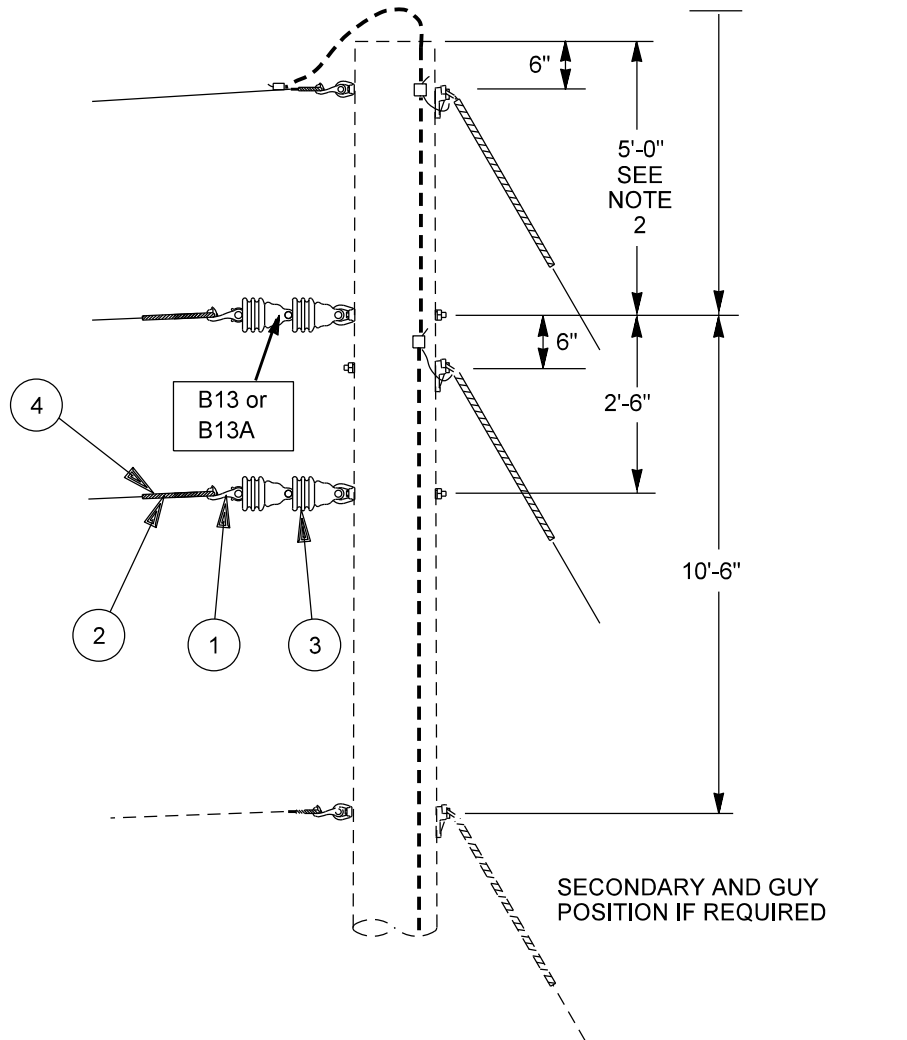
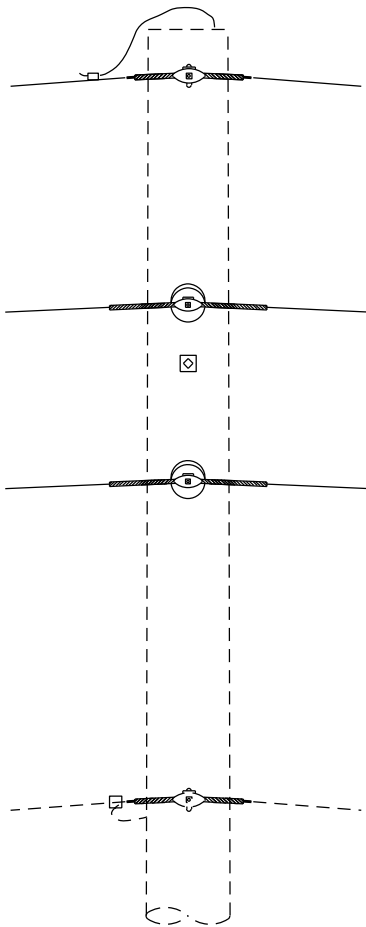
APPROVAL: B.PRIEST

8512E167.DGN

P232 __ 24 DEG - 60 DEG (SPANS LESS THAN 300')

P232A __ 24 DEG - 60 DEG (SPANS LESS THAN 300')

CONDUCTOR R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	ANGLE CLAMP, 30 DEG - 60 DEG, VARIOUS	2	BA1_ OR BA2_
2	ARMOR ROD, VARIOUS	0 OR 2	BR_
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719
4	LINE GUARD, VARIOUS	0 OR 2	BL_

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution
Construction Standards



22kV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
TWO PHASE, MEDIUM ANGLE, 24 DEG. - 60 DEG.

6-11-1

ISSUE DATE: 12/17/74

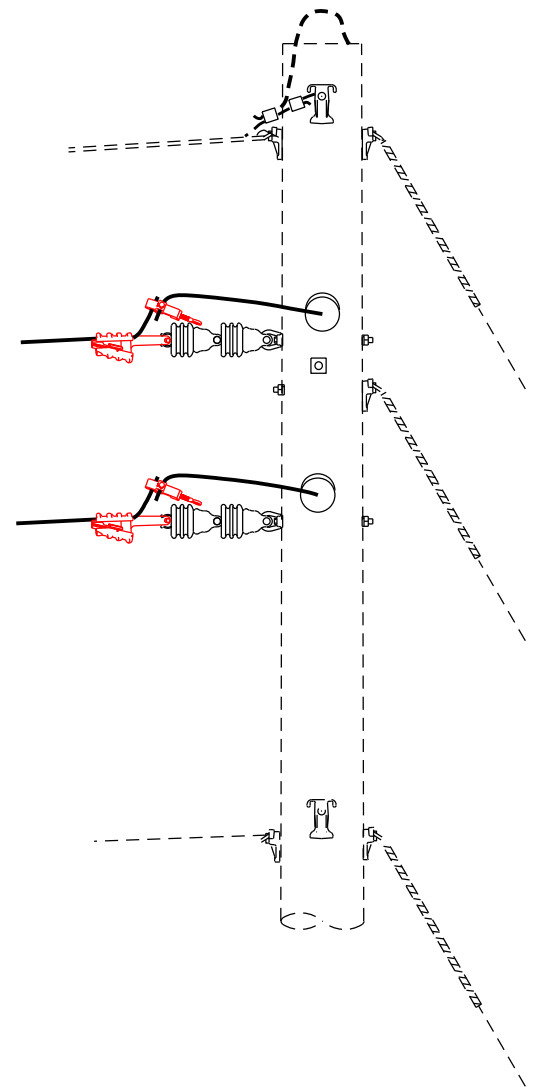
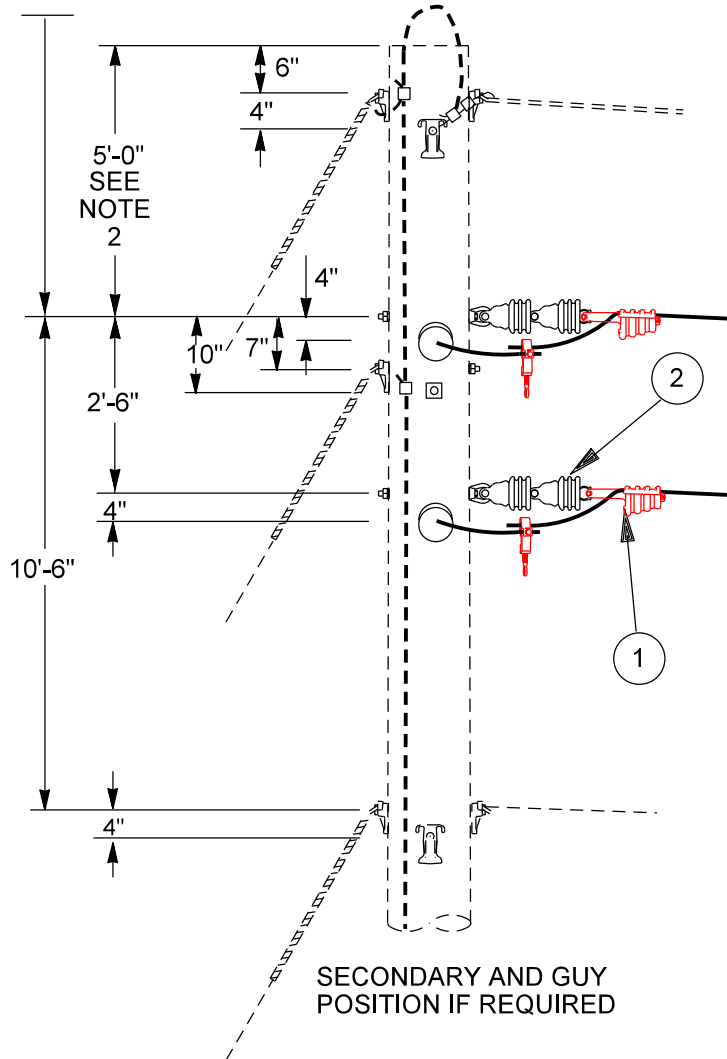
REV. DATE: 05/10/13

APPROVAL: B.PRIEST

8512E168.DGN

P242__ CONDUCTOR R2

IF UNDERBUILD, DESIGNATE
CIRCUIT SEPARATION AND
LOCATE STATIC IN
SECONDARY POSITION



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	4	BD_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	8	5034719

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.

22KV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
TWO PHASE, LARGE ANGLE, 60 DEG. - 90 DEG.

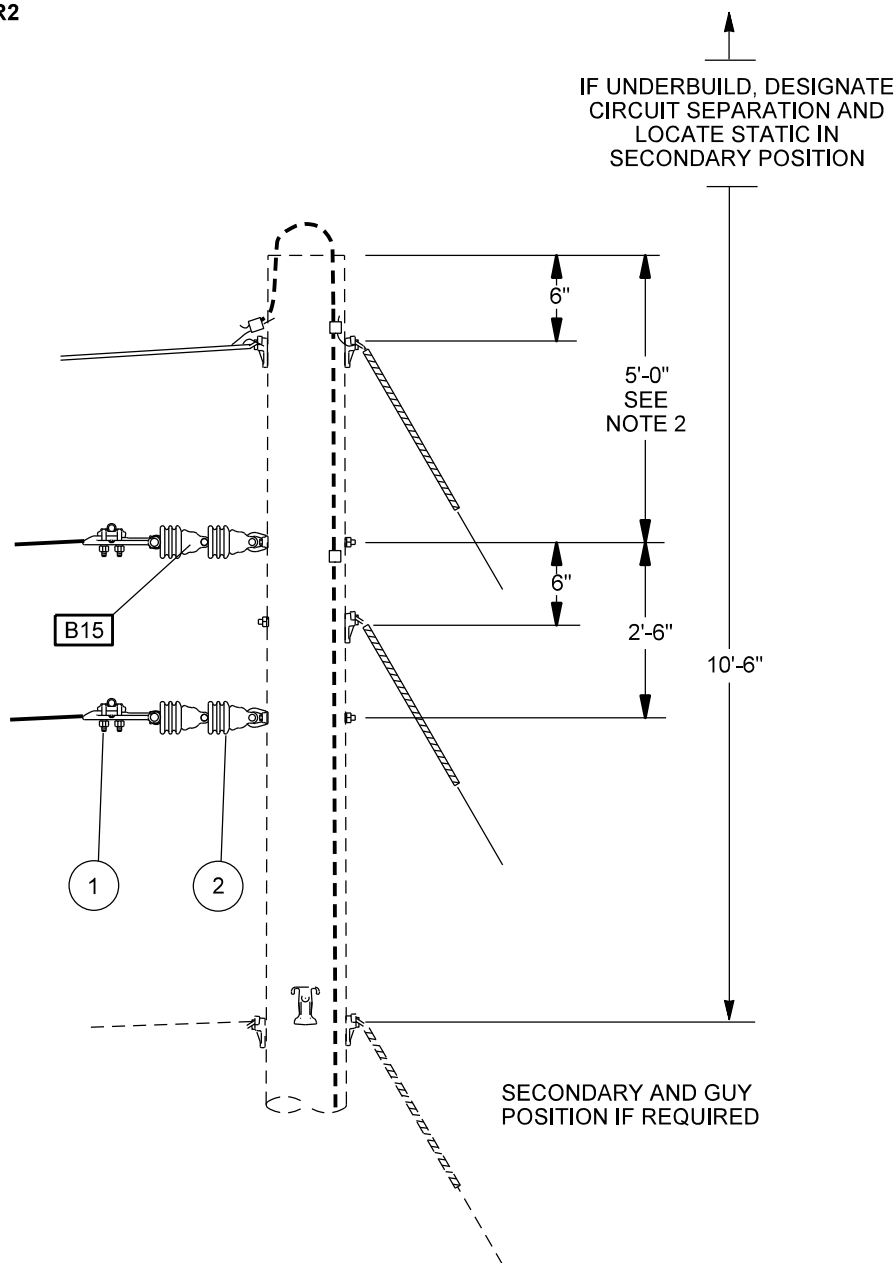
6-12-1

ISSUE DATE: 12/27/74

REV. DATE: 09/23/25

APPROVAL: J. ROBBINS

8512E169.DGN

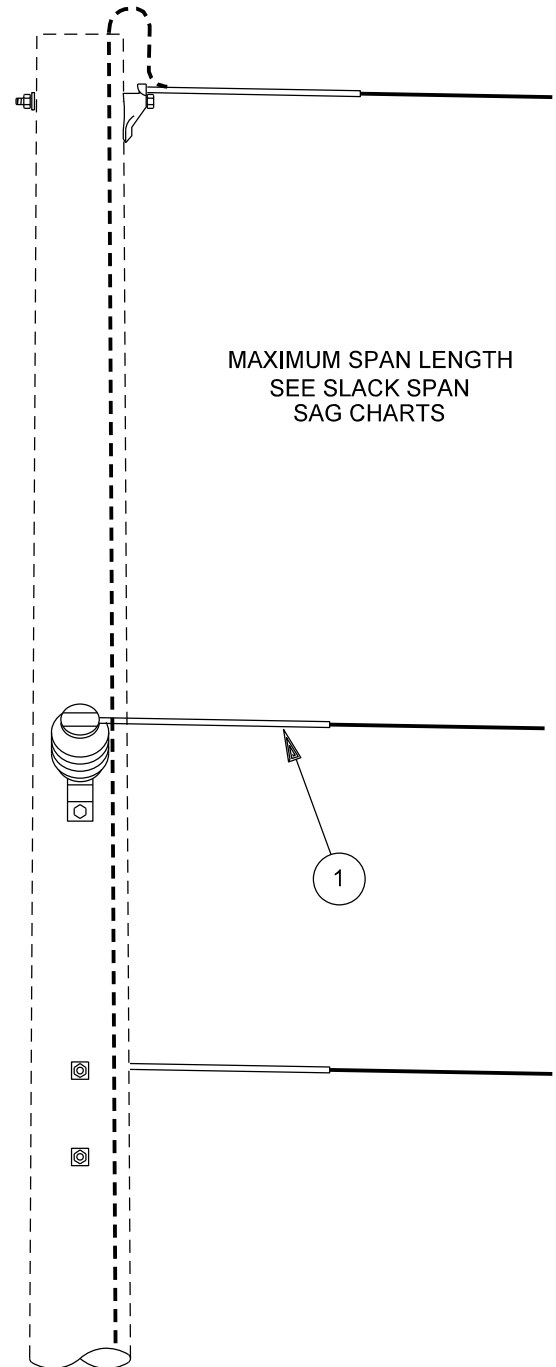
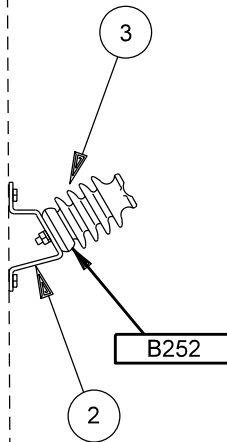
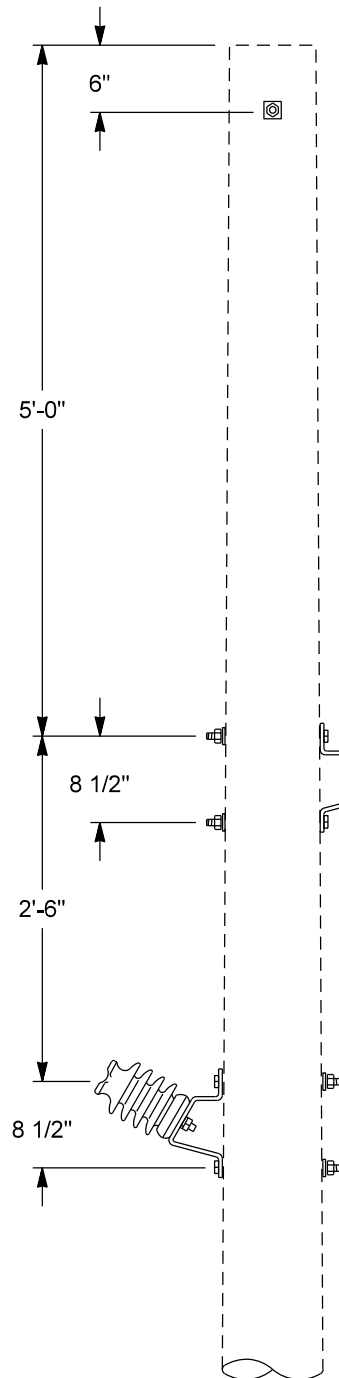


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	2	BD_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719

- NOTES**
1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
 2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION TWO PHASE, DEADEND, VERTICAL	ISSUE DATE: 12/17/74
		REV. DATE: 05/12/13
		APPROVAL: B.PRIEST
	6-13-1	8512E170.DGN

P252N_ _ CONDUCTOR A2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND GRIP, VARIOUS	2	BDG_
2	BRACKET, SIDE MOUNT, HOT GALVANIZED SMALL	2	5028504
3	INSULATOR, VERT. LINE POST, 22KV	2	5034466

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
TWO PHASE, DEADEND, SLACK SPAN

6-14-1

ISSUE DATE: 09/26/89

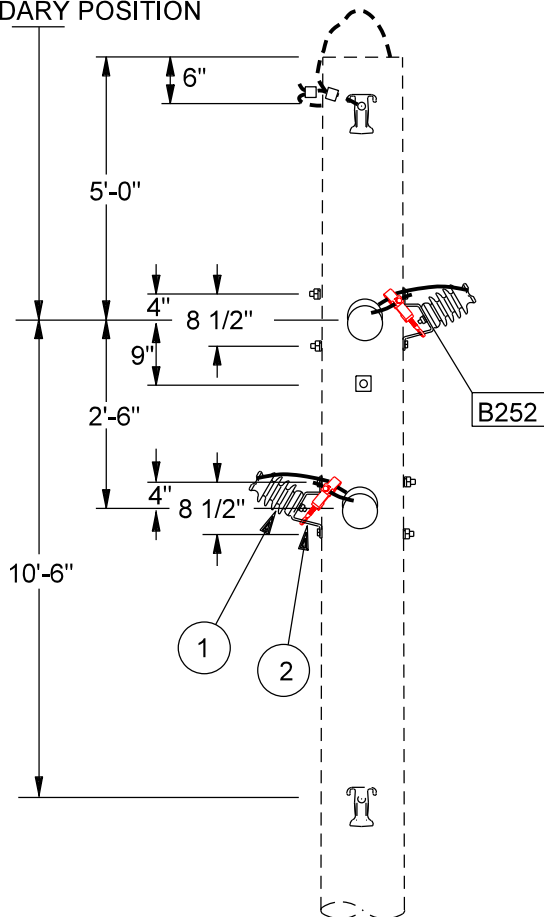
REV. DATE: 05/12/13

APPROVAL: B.PRIEST

8512E11.DGN

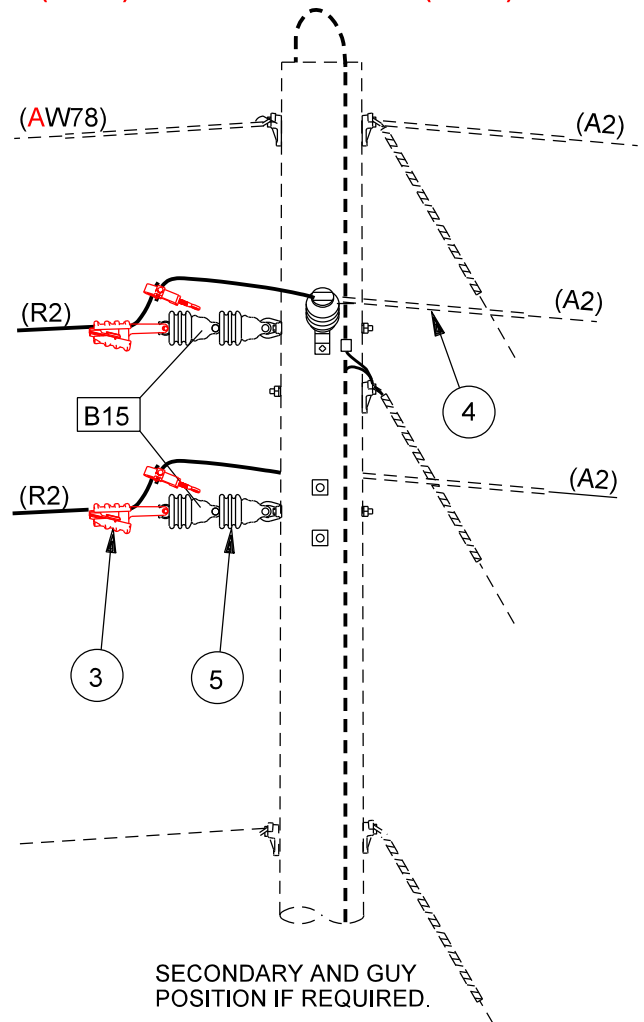
P282 __ CONDUCTOR R2

IF UNDERBUILD, DESIGNATE
CIRCUIT SEPARATION AND
LOCATE STATIC IN
SECONDARY POSITION



**FULL TENSION
(ACSR)**

**FULL TENSION
(ACSR)**



SECONDARY AND GUY
POSITION IF REQUIRED.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, VERTICAL LINE POST, 22KV	2	5034466
2	BRACKET, SIDE MOUNT, HOT GALVANIZED SMALL	2	5028504
3	DEADEND CLAMP, VARIOUS	2	BD_
4	DEADEND GRIP, VARIOUS	2	BDG_
5	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	4	5034719

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.

22KV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
TWO PHASE, DEADEND, 180 DEG. SLACK SPAN

6-15-1

ISSUE DATE: 09/30/92

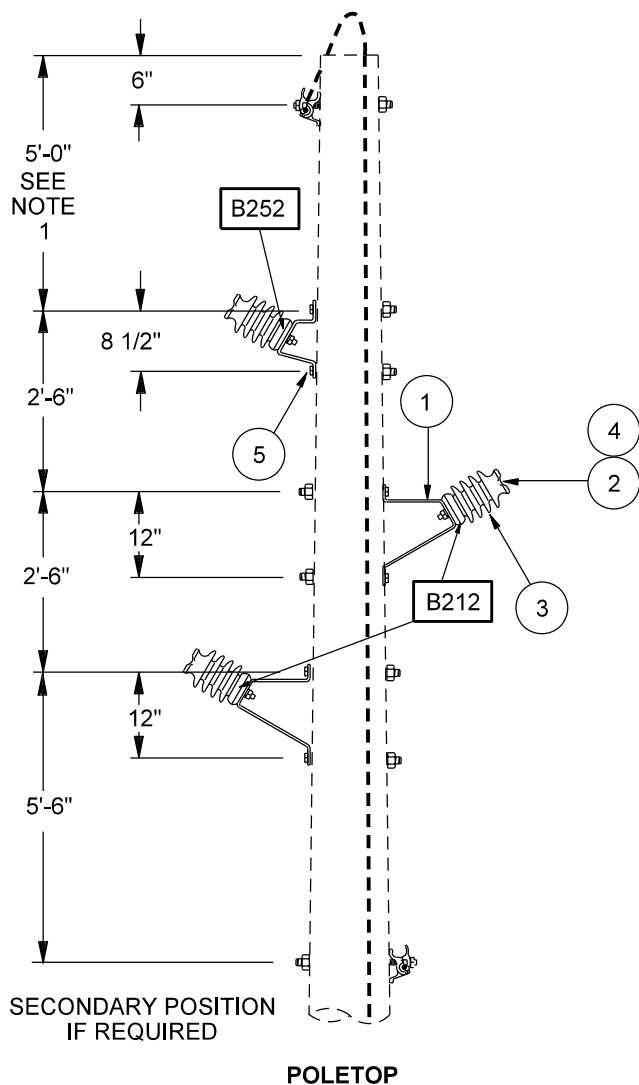
REV. DATE: 09/23/25

APPROVAL: J. ROBBINS

8512E171.DGN

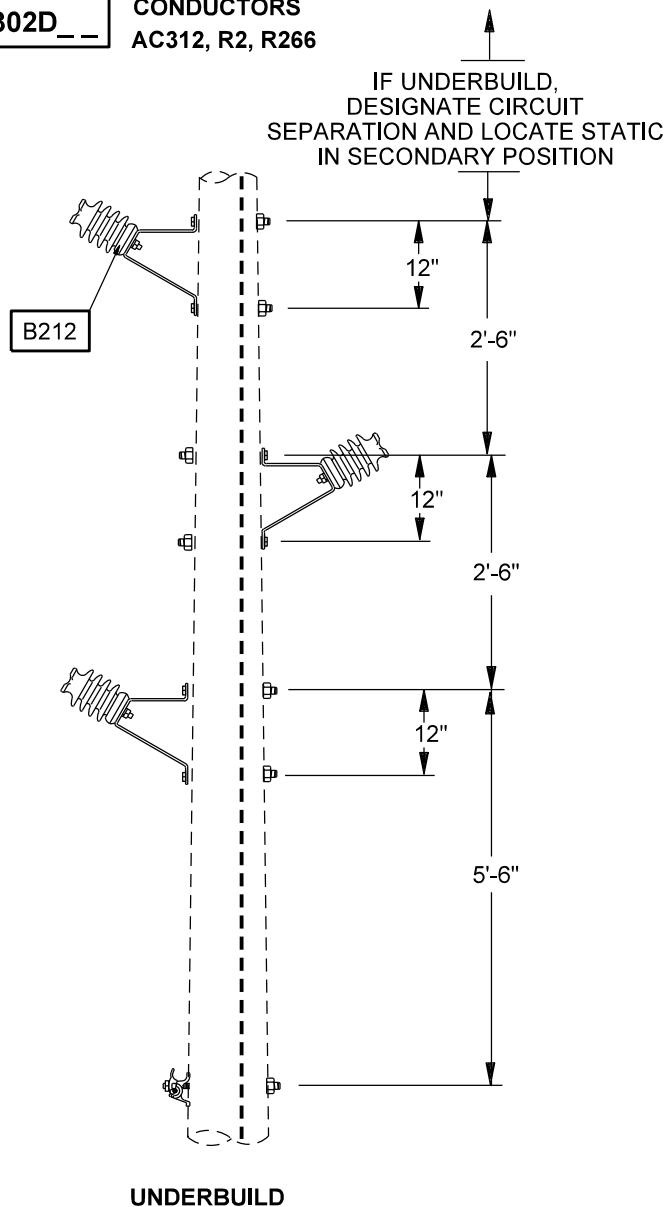
P302A__

CONDUCTORS
AC312, R2, R266



P302D__

CONDUCTORS
AC312, R2, R266



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACKET, SIDE MOUNT, HOT GALVANIZED LARGE	2 OR 3	5028505
2	LINE GUARD, VARIOUS	0 OR 3	BL__
3	INSULATOR, VERTICAL LINE POST, 22KV	3	5034466
4	SIDE TIE, VARIOUS	3	BPT2__
5	BRACKET, SIDE MOUNT, HOT GALVANIZED SMALL	0 OR 1	5028504

NOTES

1. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
THREE PHASE, TANGENT, 0 DEG. - 6 DEG.

6-16-1

ISSUE DATE: 11/09/74

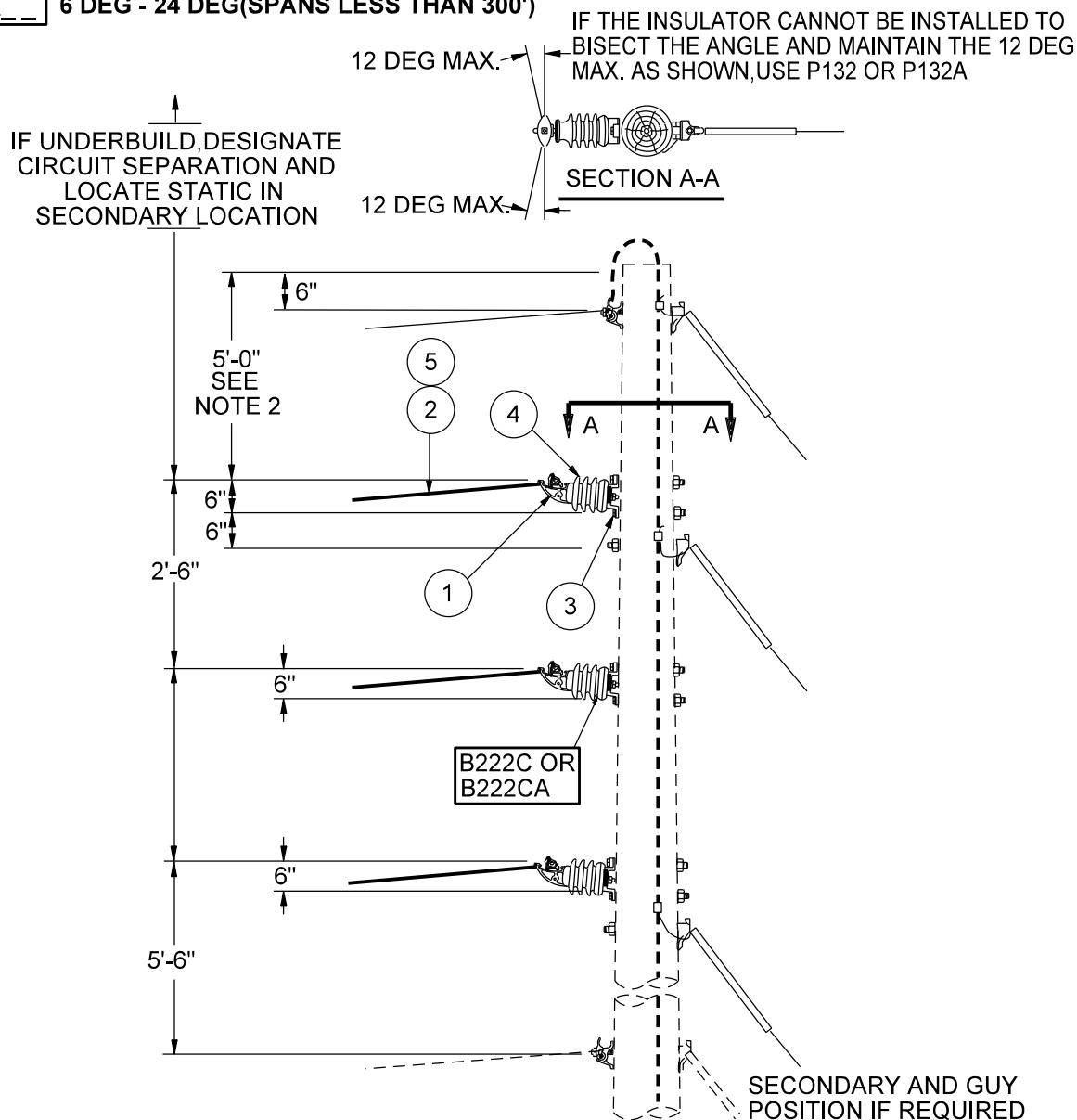
REV. DATE: 05/13/13

APPROVAL: B.PRIEST

8512E172.DGN

CONDUCTORS
AC312, R2, R266 **P322__** 6 DEG - 24 DEG(SPANS LESS THAN 300')

P322A__ 6 DEG - 24 DEG(SPANS LESS THAN 300')



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CLAMPTOP CLAMP, 15 DEG - 30 DEG, VARIOUS	3	BCT2__ OR BCT4__
2	ARMOR ROD, VARIOUS	0 OR 3	BR__
3	BRACKET, INSULATOR, 5/8 IN. STUD BA	3	5028499
4	INSULATOR, HORIZONTAL, LINE POST, 22KV	3	5034467
5	LINE GUARD, VARIOUS	0 OR 3	BL__

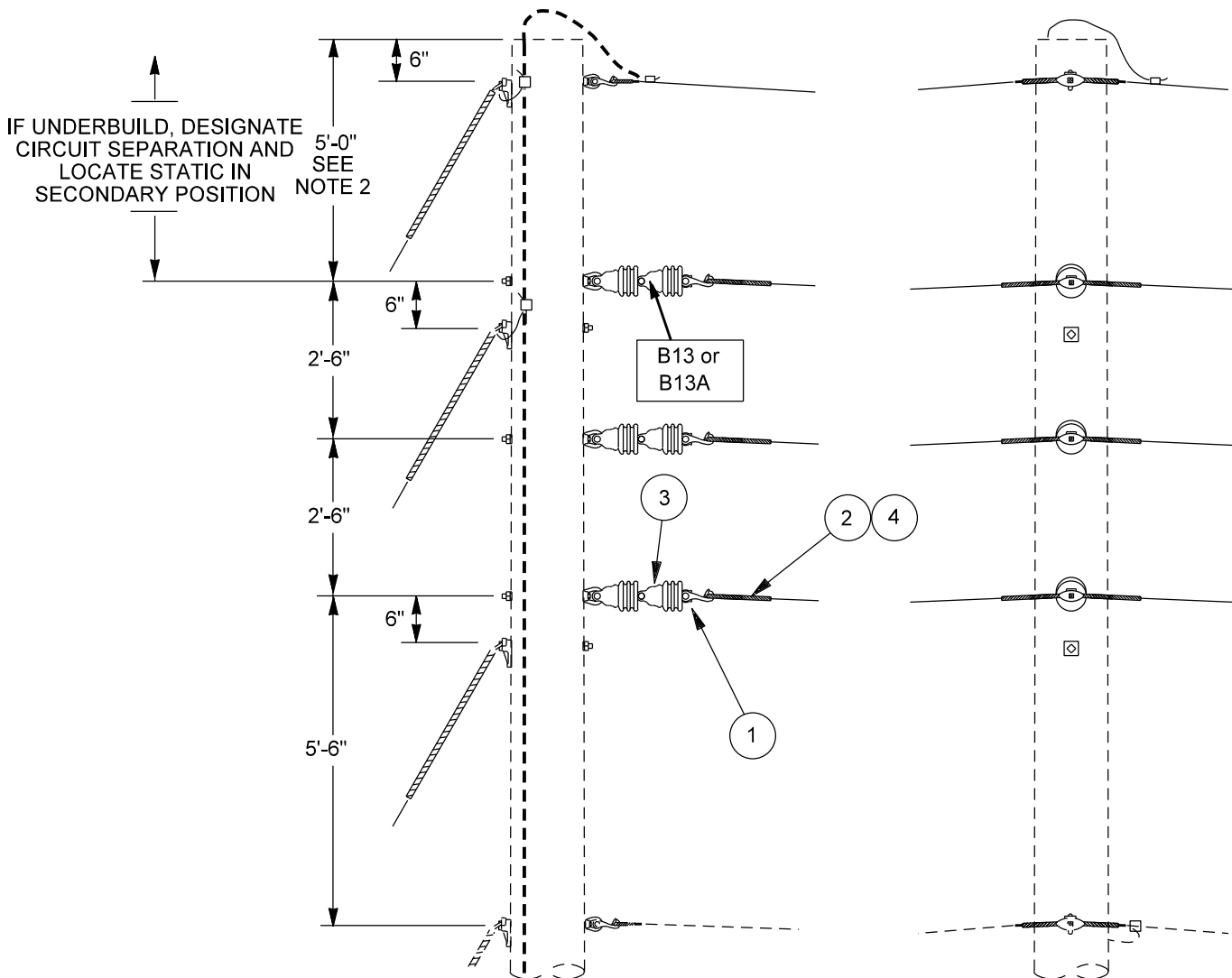
NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION THREE PHASE, SMALL ANGLE, 6 DEG. - 24 DEG.	ISSUE DATE: 11/14/74 REV. DATE: 05/12/13 APPROVAL: B.PRIEST
	6-17-1	8512E173.DGN

P332__ 24 DEG - 60 DEG (SPANS LESS THAN 300')
CONDUCTORS AC312, R2, R266

P332A__ 24 DEG - 60 DEG (SPANS LESS THAN 300')
CONDUCTORS AC312, R2, R266



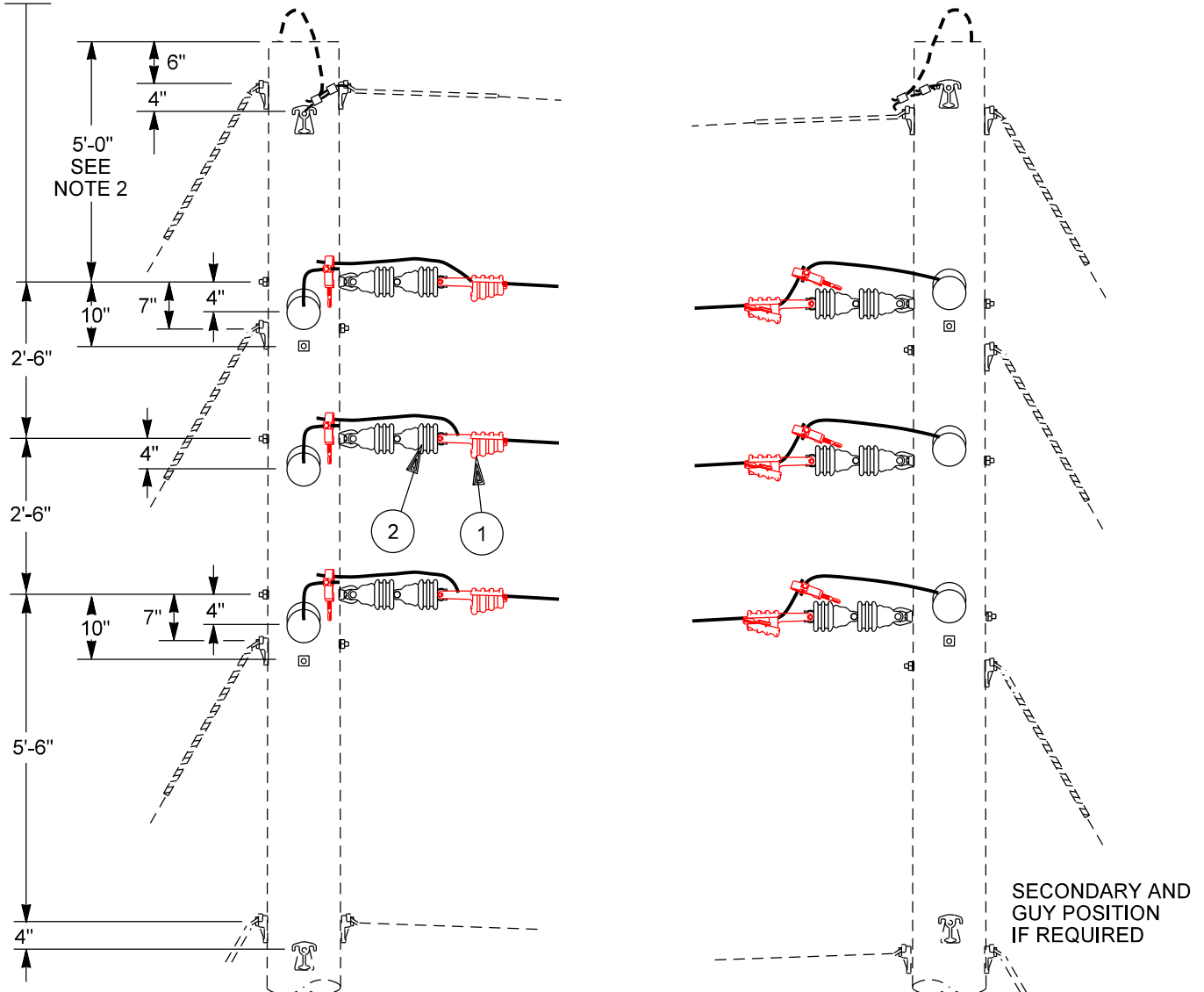
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	ANGLE CLAMP, 30-60, VARIOUS	3	BA1_ OR BA2_
2	ARMOR ROD, VARIOUS	0 OR 3	BR_
3	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
4	LINE GUARD, VARIOUS	0 OR 3	BL_

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	22kv PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION THREE PHASE, MEDIUM ANGLE, 24 DEG. - 60 DEG.		ISSUE DATE: 11/15/74
			REV. DATE: 05/12/13
			APPROVAL: B.PRIEST
	6-18-1	8512E174.DGN	

IF UNDERBUILD, DESIGNATE
CIRCUIT SEPARATION AND
LOCATE STATIC IN
SECONDARY POSITION



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	6	BD_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719

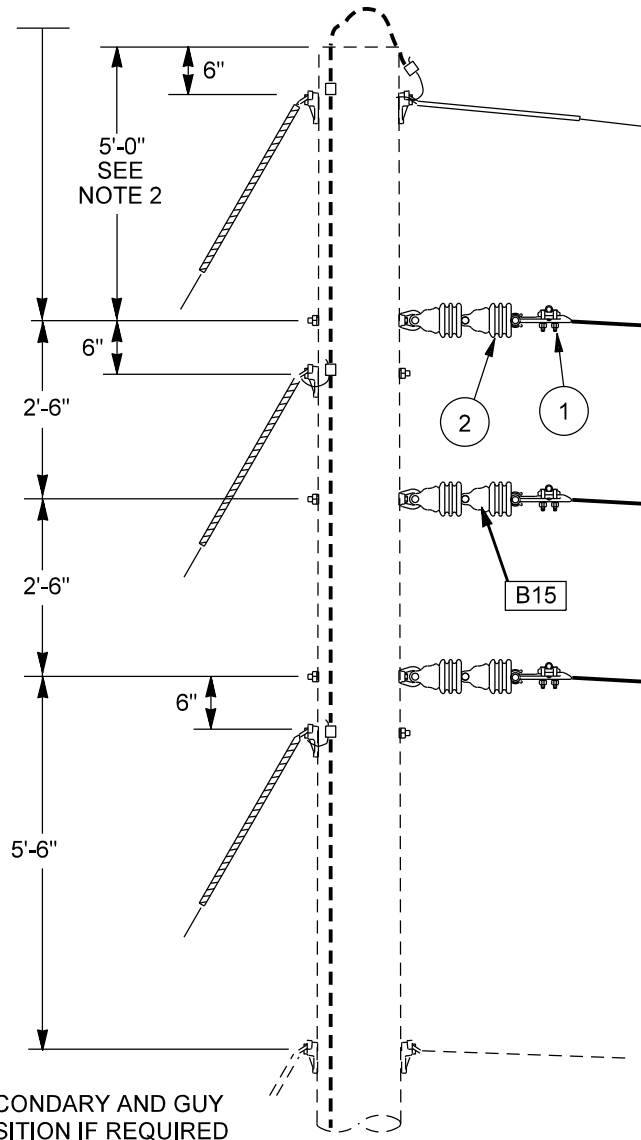
NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.	
	22KV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION THREE PHASE, LARGE ANGLE, 60 DEG. - 90 DEG.	ISSUE DATE: 11/15/74 REV. DATE: 09/23/25 APPROVAL: J. ROBBINS
	6-19-1	8512E175.DGN

P352A__ CONDUCTORS AC312, R2, R266

IF UNDERBUILD, DESIGNATE
CIRCUIT SEPARATION AND
LOCATE STATIC IN
SECONDARY POSITION

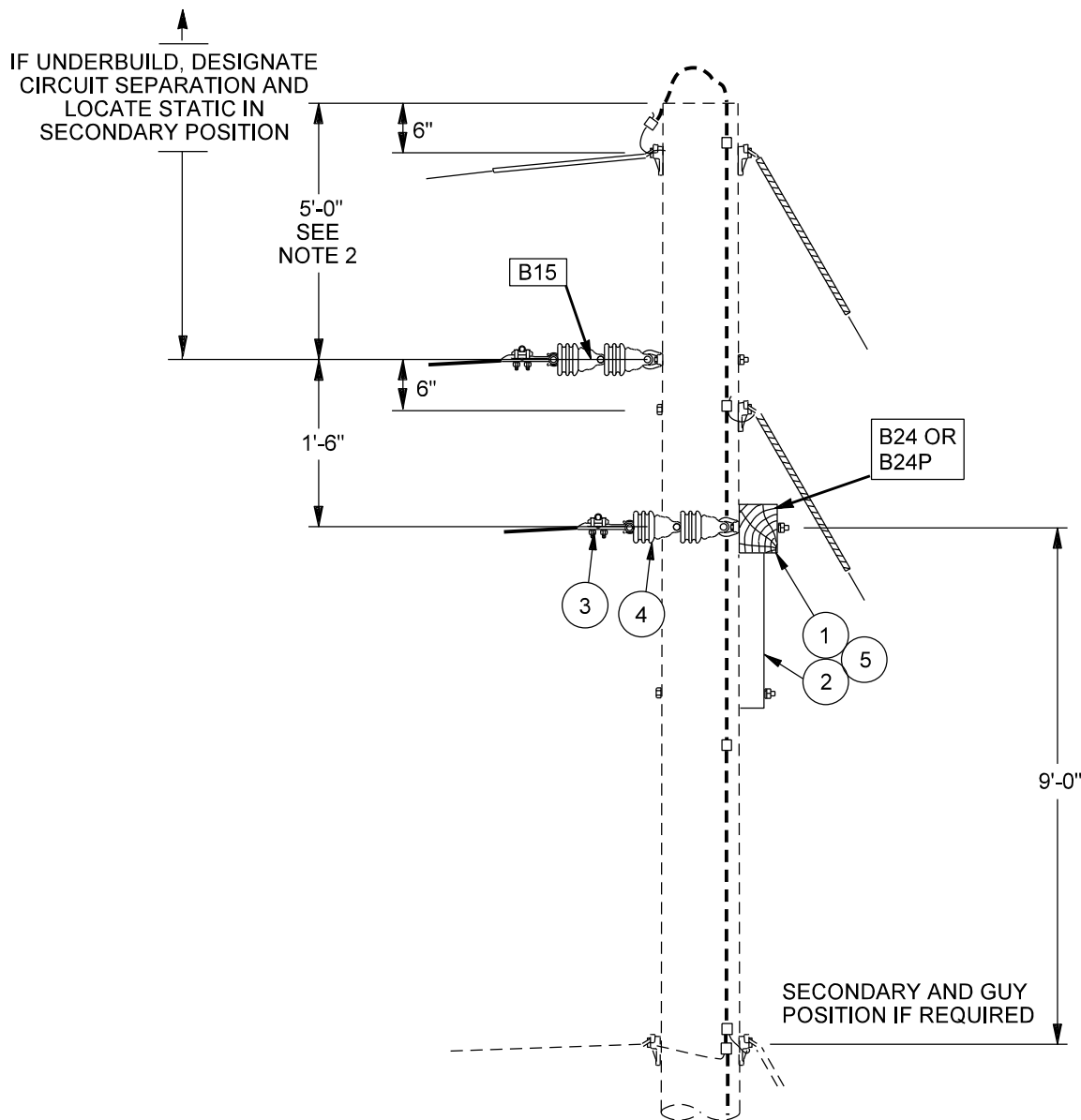


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	3	BD_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	22kv PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION THREE PHASE, DEADEND, VERTICAL		ISSUE DATE: 11/16/74
			REV. DATE: 05/13/13
			APPROVAL: B.PRIEST
	6-20-1	8512E176.DGN	



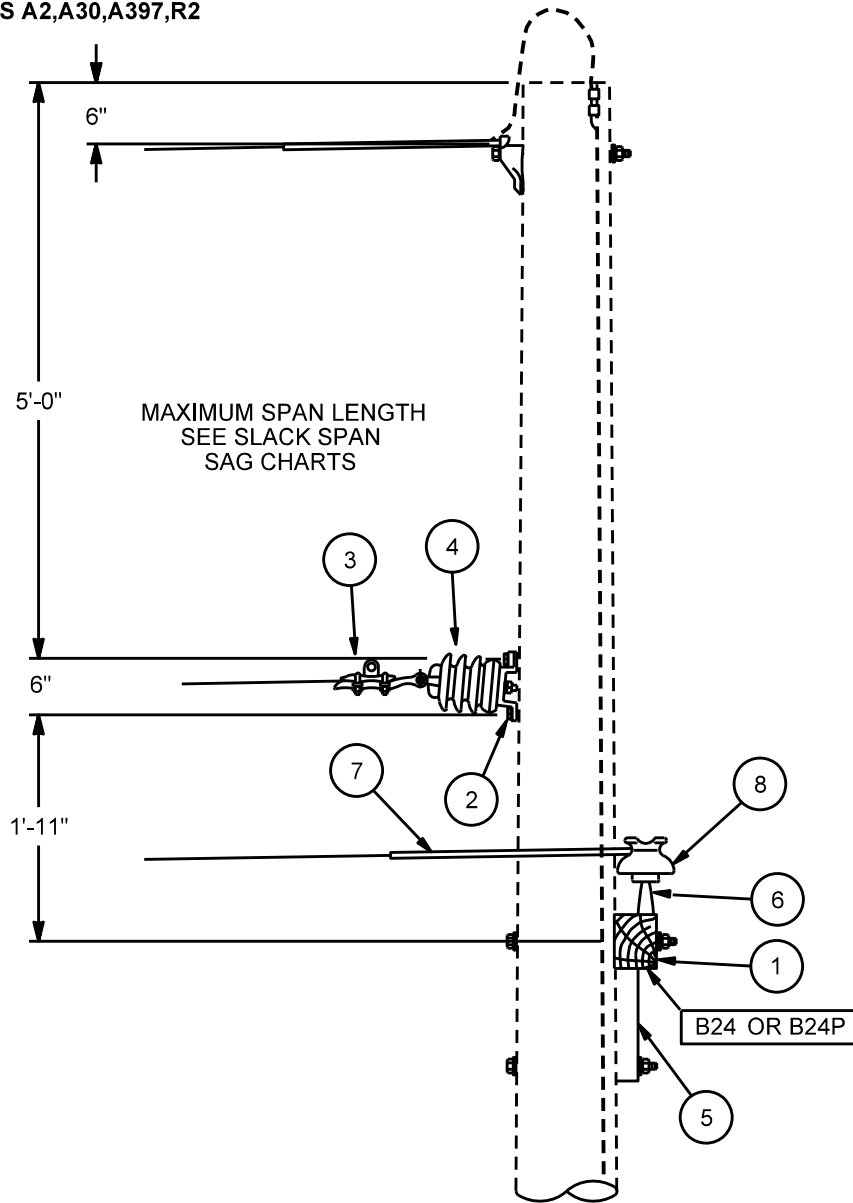
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 4F PLANK	0 OR 1	5029408
2	BRACE, CROSSARM, 1.25 X 0.25 X 20 IN.	2	5027884
3	DEADEND CLAMP, VARIOUS	3	BD__
4	INSULATOR, SUSPENSION, 6-1/4, CLEVIS	6	5034719
5	CROSSARM, DENSE OR CLOSE GRAIN, 4F	0 OR 1	5029407

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	22kV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION THREE PHASE, DEADEND, CROSSARM		ISSUE DATE: 11/19/74
			REV. DATE: 05/11/13
			APPROVAL: B.PRIEST
	6-21-1		8512E177.DGN

P352AN__ CONDUCTORS A2,A30,A397,R2



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 4F	1	5029407
2	BRACKET, INSULATOR, 5/8 IN. STUD BA	1	5028499
3	CLAMPTOP CLAMP, DEADEND, VARIOUS	1	BCT5__
4	INSULATOR, VERTICAL LINE POST, 15KV, PO	1	5034587
5	BRACE, CROSSARM, 1.25 X 0.25 X 20 IN.	2	5027884
6	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	2	5028642
7	DEADEND GRIP, VARIOUS	2	BDG__
8	INSULATOR, PIN, 12KV, PORCELAIN GRAY	2	5034594

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
THREE PHASE, DEADEND, SLACK SPAN

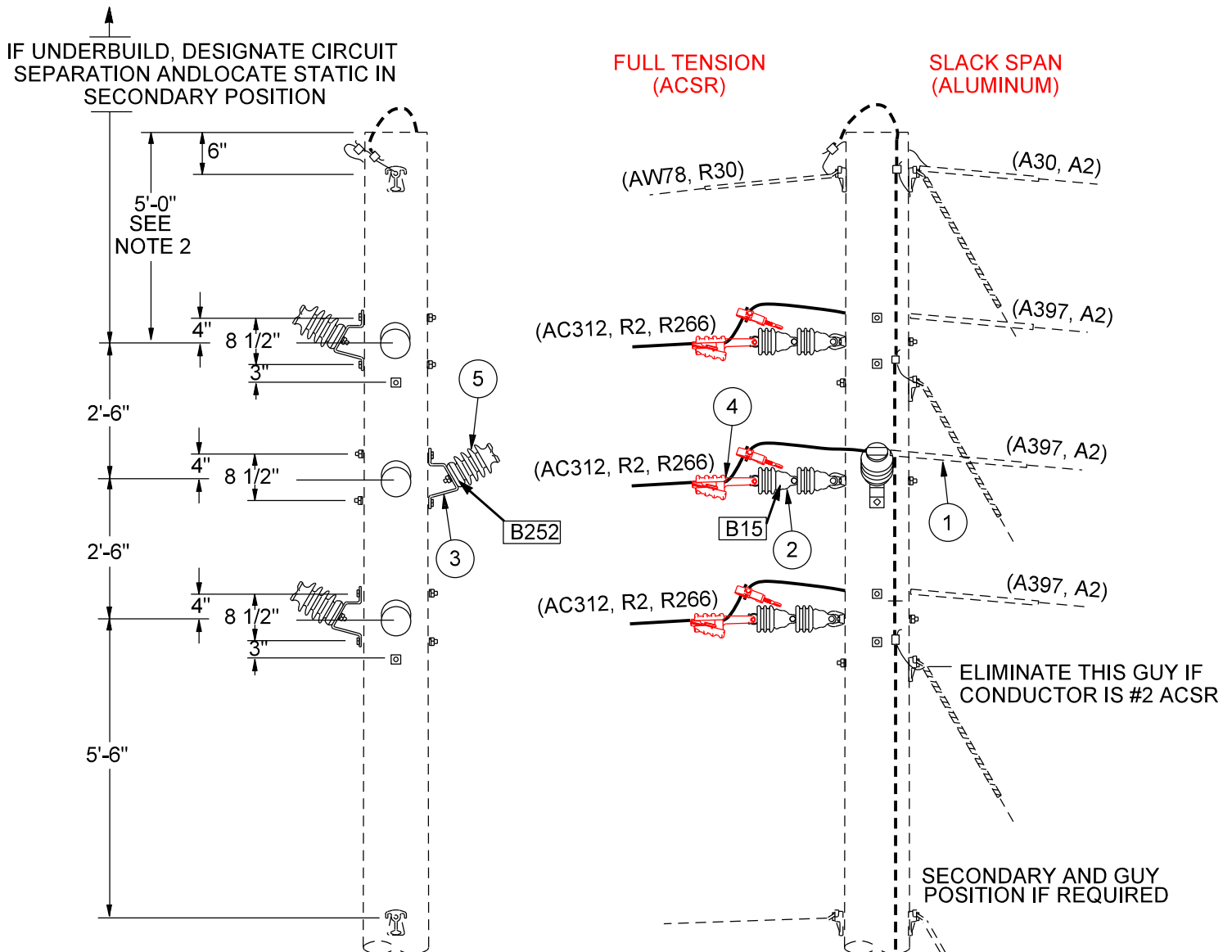
6-22-1

ISSUE DATE: 09/26/89

REV. DATE: 05/15/13

APPROVAL: B.PRIEST

8512E12.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND GRIP, VARIOUS	3	BDG_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
3	BRACKET, SIDE MOUNT, HOT GALVANIZED, SMALL	3	5028504
4	DEADEND CLAMP, VARIOUS	3	BD_
5	INSULATOR, VERTICAL LINE POST, 22KV, PO	3	5034466

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.
3. FOR MAXIMUM SLACK SPAN LENGTH SEE SLACK SPAN SAG CHARTS.

Overhead Distribution Construction Standards SRP PROPRIETARY MATERIAL	REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.	
	22KV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION THREE PHASE, DEADEND, 180 DEG SLACK SPAN	ISSUE DATE: 11/17/74 REV. DATE: 09/23/25 APPROVAL: J. ROBBINS
	6-23-1	8512E178.DGN

PB152__

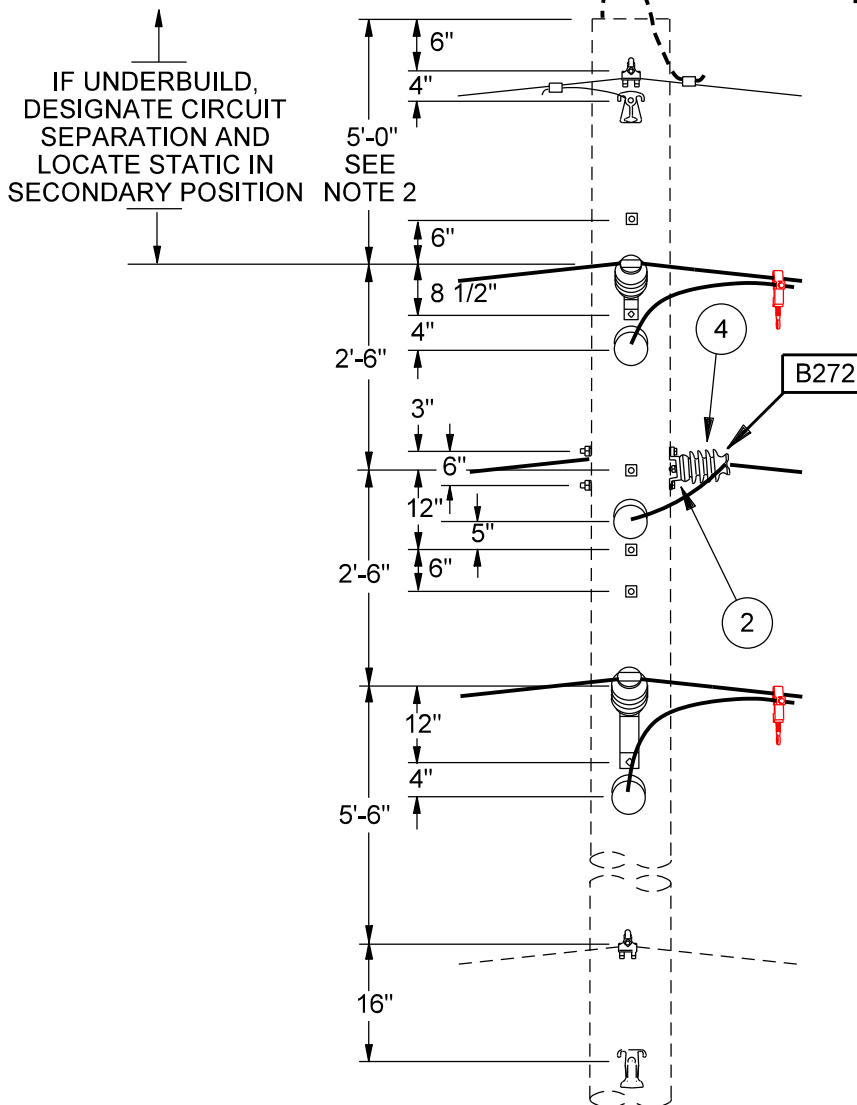
1 ϕ BUCK
CONDUCTOR = R2

PB252A__

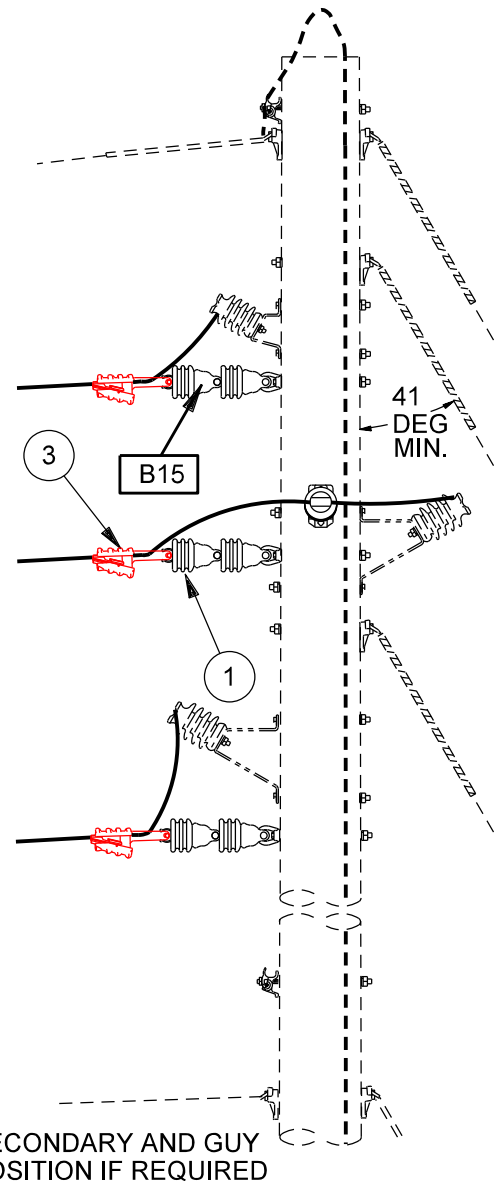
2 ϕ BUCK
CONDUCTOR = R2

PB352A__

3 ϕ BUCK
CONDUCTORS = AC312, R2, R266



TYPE I



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2, 4 OR 6	5034719
2	BRACKET, INSULATOR, 5/8 IN. STUD BA	0 OR 1	5028499
3	DEADEND CLAMP, VARIOUS	1, 2 OR 3	BD__
4	INSULATOR, VERTICAL LINE POST, 22KV, PO	0 OR 1	5034466

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: Update connections with power grip connector and update straightline dead-end to wedge type dead-end.

22KV PRIMARY CONSTRUCTION UNITS
SHIELD WIRE CONFIGURATION
ONE, TWO OR THREE PHASE BUCK

6-24-1

ISSUE DATE: 12/04/74

REV. DATE: 09/23/25

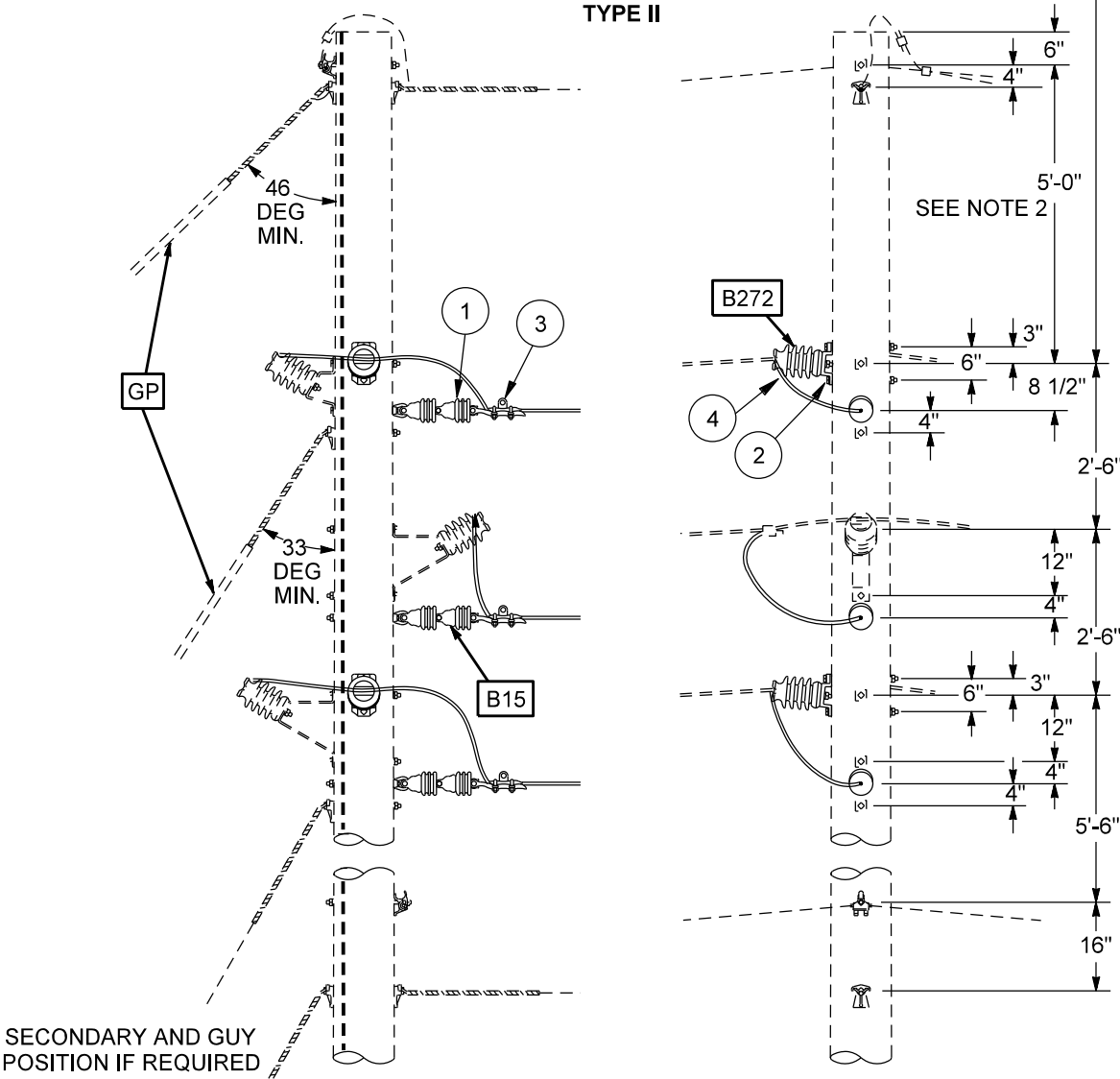
APPROVAL: J. ROBBINS

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PB152
PB252A
PB352A

1Φ BUCK }
 2Φ BUCK } CONDUCTOR: R2
 3Φ BUCK - CONDUCTORS: AC312,R2,R266

IF UNDERBUILD, DESIGNATE
 CIRCUIT SEPARATION AND
 LOCATE STATIC IN
 SECONDARY POSITION.

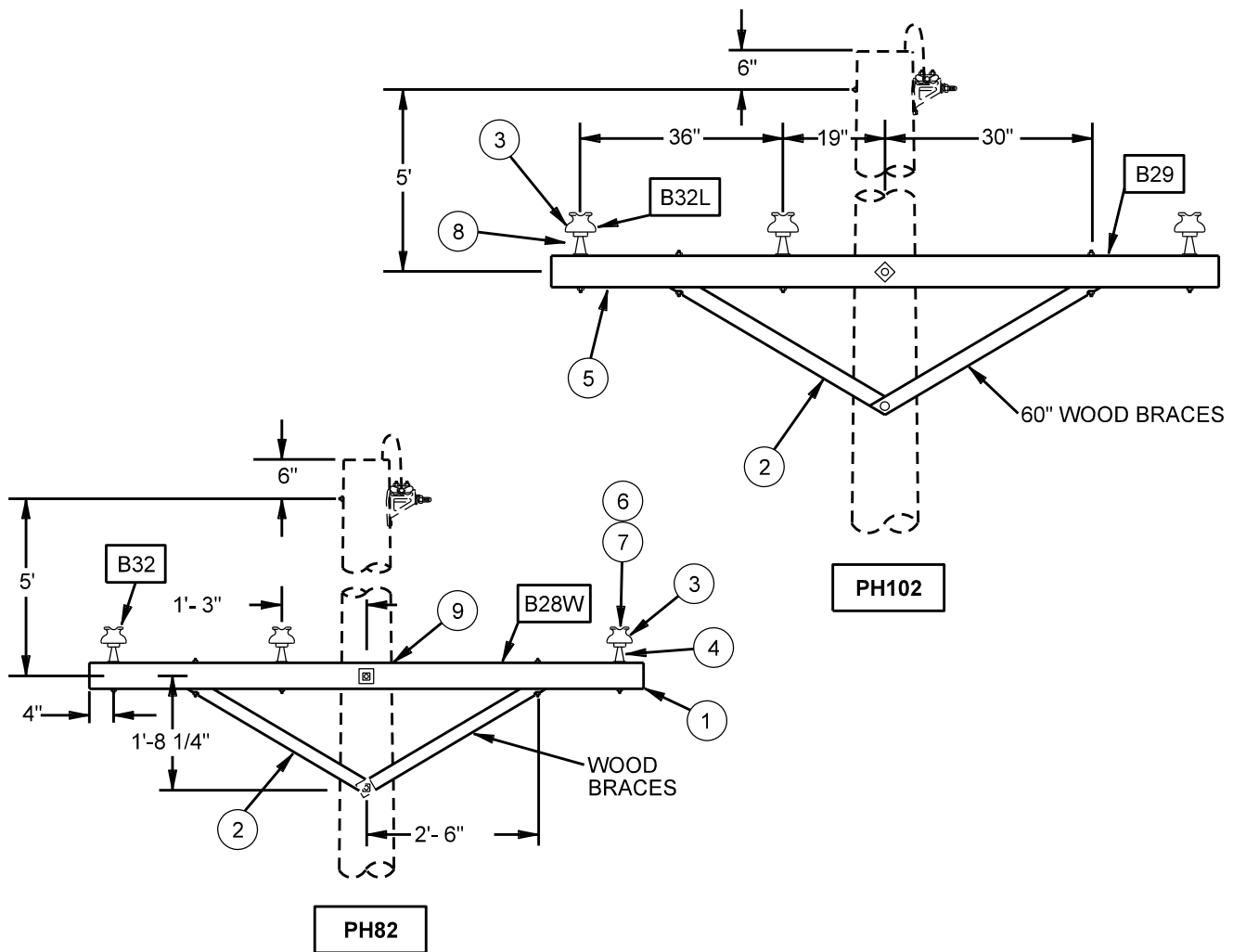


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	2, 4 OR 6	5034719
2	BRACKET, INSULATOR, 5/8 IN. STUD BA	0, 1 OR 2	5028499
3	DEADEND CLAMP, VARIOUS	1, 2 OR 3	BD_
4	INSULATOR, VERTICAL LINE POST, 22KV, PO	0, 1 OR 2	5034466

NOTES

1. WHEN GUY TENSION EXCEEDS 11,000 LBS. POLE BANDS ARE REQUIRED (REFER TO GPLH3-G7H).
2. THE DESIGNER MAY SPECIFY A GREATER SEPARATION FOR CERTAIN WIRE SIZE COMBINATIONS OR LONG SPANS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV PRIMARY CONSTRUCTION UNITS SHIELD WIRE CONFIGURATION ONE, TWO, OR THREE PHASE BUCK	ISSUE DATE: 12/15/74
		REV. DATE: 05/06/11
		APPROVAL: B. PRIEST
	6-24-2	8512E51.DGN

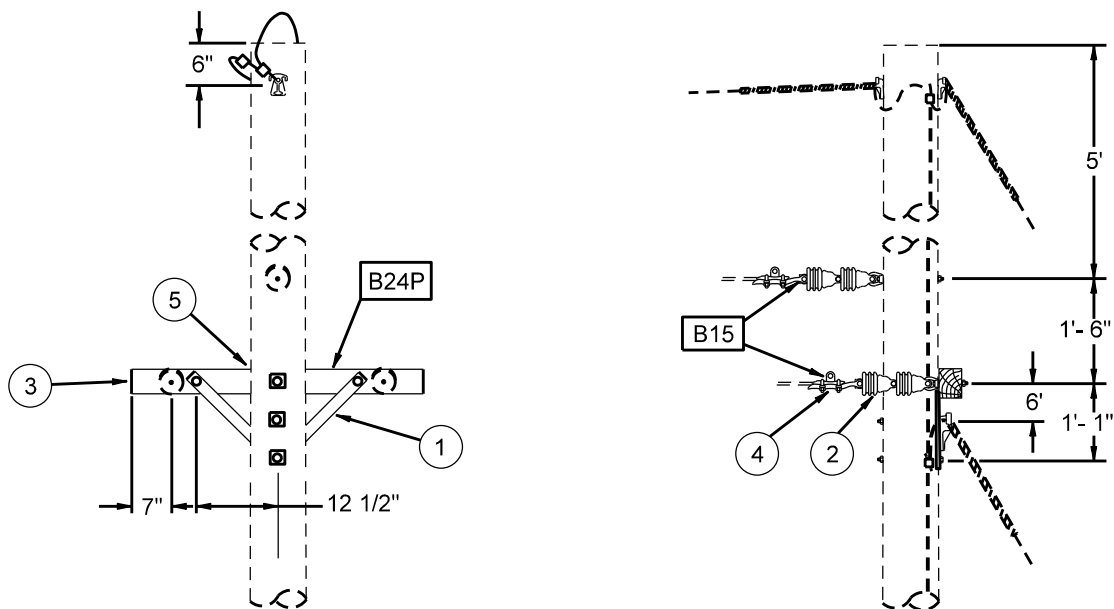


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 8 FOOT	0 OR 1	5029410
2	BRACE, CROSSARM, 60 IN. SPAN, 18 IN. PR.	2	5027886
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	PIN, INSULATOR, 5/8 X 5.75 IN. LONG	0 OR 3	5028642
5	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	0 OR 1	5029414
6	TOP TIE, VARIOUS	3	BP1_
7	LINE GUARD, VARIOUS	0 OR 3	BL_
8	PIN, INSULATOR, 5/8 X 6.5 IN. LONG	0 OR 3	5028643
9	PLATE, GAIN, 5-5/16" X 4"	1	5028652

NOTES

- THIS CONSTRUCTION IS FOR MAINTENANCE IN EXISTING LINES AND DOES NOT CONTAIN CONDUCTOR HOLDING COMPONENTS. FOR SPECIFIC SIZE WIRE ATTACHMENTS, SOME BASIC UNIT (OR UNITS) WILL ALSO BE REQUIRED AS NEEDED.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	22KV PRIMARY CONSTRUCTION UNITS THREE PHASE TANGENT MAINTENANCE, CROSSARM CONSTRUCTION		ISSUE DATE: 08/11/93
			REV. DATE: 05/06/13
			APPROVAL: B. PRIEST
	6-25-1	8512E192.DGN	

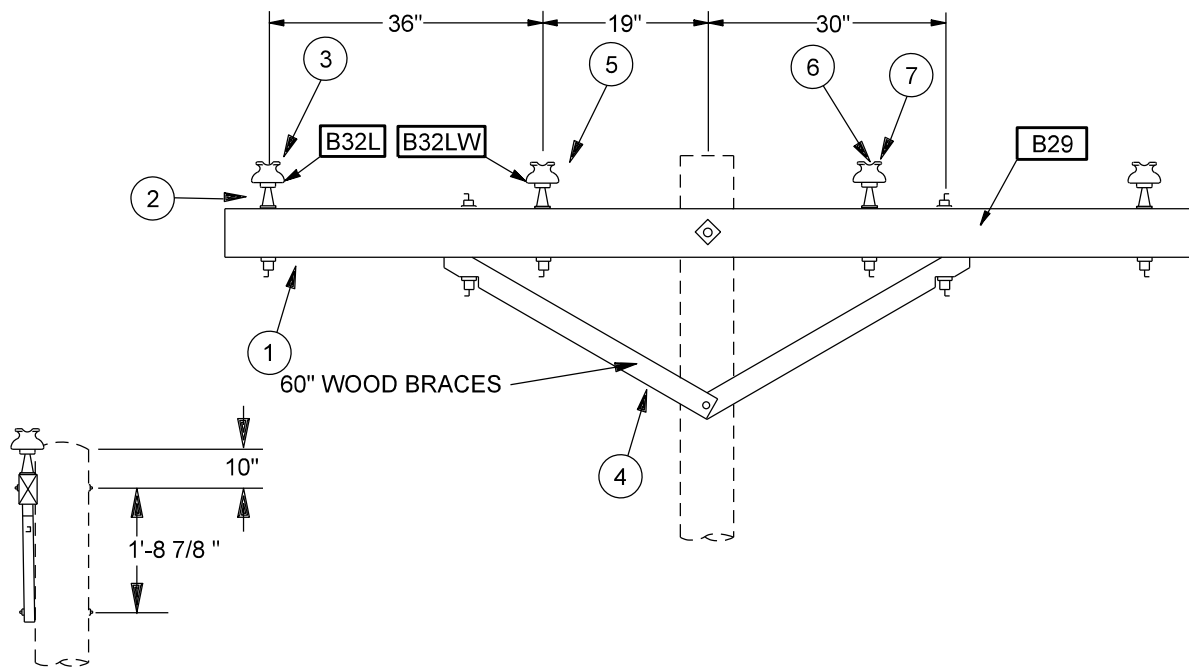


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	BRACE, CROSSARM, 1.25 X 0.25 X 20 IN.	2	5027884
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6	5034719
3	CROSSARM, DENSE OR CLOSE GRAIN, PLANK	1	5029408
4	DEADEND CLAMP, VARIOUS	3	BD_
5	PLATE, GAIN, 5-5/16" X 4"	1	5028652

NOTES

- THIS CONSTRUCTION IS FOR MAINTENANCE IN EXISTING LINES AND DOES NOT CONTAIN CONDUCTOR HOLDING COMPONENTS. FOR SPECIFIC SIZE WIRE ATTACHMENTS, SOME BASIC UNIT (OR UNITS) WILL ALSO BE REQUIRED AS NEEDED.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV PRIMARY CONSTRUCTION UNITS THREE PHASE DEADEND MAINTENANCE, CROSSARM CONSTRUCTION	ISSUE DATE: 08/11/93
		REV. DATE: 05/16/13
		APPROVAL: B. PRIEST
	6-26-1	8512E193.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	1	5029414
2	PIN, INSULATOR, 5/8 X 6.5" LONG	4	5028643
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	BRACE, CROSS ARM, 60" SPAN 18" PR	2	5027886
5	INSULATOR, PIN, 4KV, PORCELAIN WHITE	1	5034593
6	LINE GUARD, VARIOUS	4	BL_
7	TOP TIE, VARIOUS	4	BPT1_

NOTES

1. THIS CONSTRUCTION IS FOR MAINTENANCE IN EXISTING LINES AND DOES NOT CONTAIN CONDUCTOR HOLDING COMPONENTS. FOR SPECIFIC SIZE WIRE ATTACHMENTS, SOME BASIC UNIT (OR UNITS) WILL ALSO BE REQUIRED AS NEEDED.
2. WHEN USING LINE GUARD, TOP TIES MAY NOT BE COMPATIBLE DUE TO INCREASED DIAMETER. UTILIZE A COMPATIBLE HAND TIE AS AN ALTERNATIVE.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22KV PRIMARY CONSTRUCTION UNITS
THREE PHASE TANGENT, NEUTRAL ON ARM
MAINTENANCE, CROSSARM CONSTRUCTION

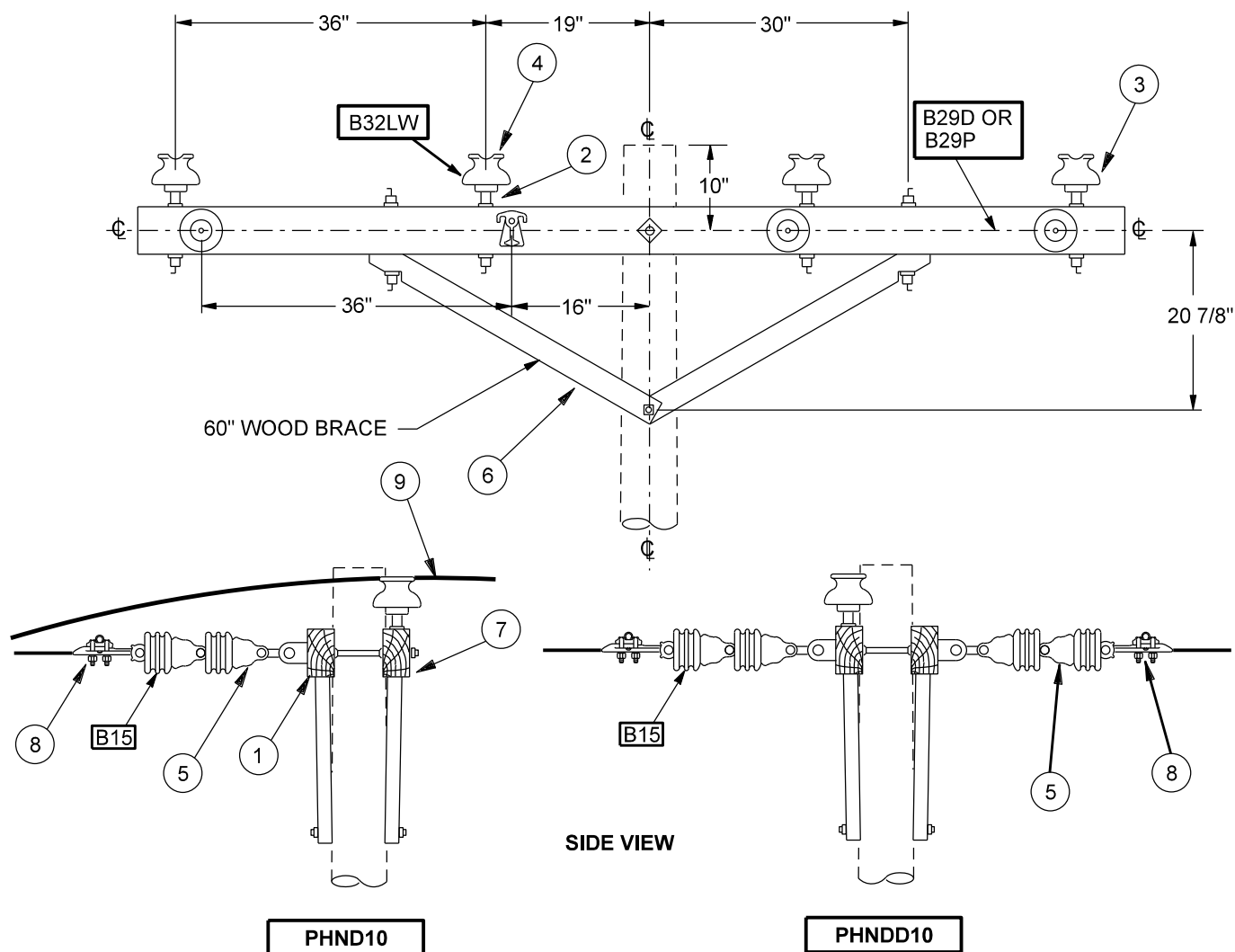
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ISSUE DATE: 06/25/93

REV. DATE: 08/30/17

APPROVAL: S. DURAN

8512E194.DGN



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT	1 OR 2	5029414
2	PIN, INSULATOR, 5/8 X 6.5 IN. LONG	4	5028643
3	INSULATOR, PIN, 12KV, PORCELAIN GRAY	3	5034594
4	INSULATOR, PIN, 4KV, PORCELAIN WHITE	1	5034593
5	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	6 OR 12	5034719
6	BRACE, CROSSARM, 60 IN. SPAN 18 IN. PR.	2	5027886
7	CROSSARM, DENSE OR CLOSE GRAIN, 10 FOOT, PLANK	0 OR 1	5027456
8	DEADEND CLAMP, VARIOUS	3 OR 6	BD_
9	DEADEND GRIP, VARIOUS	0 OR 4	BDG_

NOTES

1. THIS CONSTRUCTION IS FOR MAINTENANCE IN EXISTING LINES AND DOES NOT CONTAIN CONDUCTOR HOLDING COMPONENTS. FOR SPECIFIC SIZE WIRE ATTACHMENTS, SOME BASIC UNIT (OR UNITS) WILL ALSO BE REQUIRED AS NEEDED.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV PRIMARY CONSTRUCTION UNITS THREE PHASE DEADEND, NEUTRAL ON ARM MAINTENANCE, CROSSARM CONSTRUCTION	ISSUE DATE: 06/25/93 REV. DATE: 05/16/13 APPROVAL: B. PRIEST
	6-28-1	8512E195.DGN

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	7-1-2	APPROVAL: S. Duran
		OH7-1-1.doc

TRANSFORMER CONNECTIONS INSTRUCTIONAL GUIDE

THIS GUIDE RELATES TO THE INSTALLATION, REMOVAL, OR REPLACEMENT OF 7.2/12.47 KV POLE-MOUNTED DISTRIBUTION TRANSFORMERS.

COMPATIBLE UNIT CODING FOR "X" SECTION

SIZE AND CONNECTION CODING

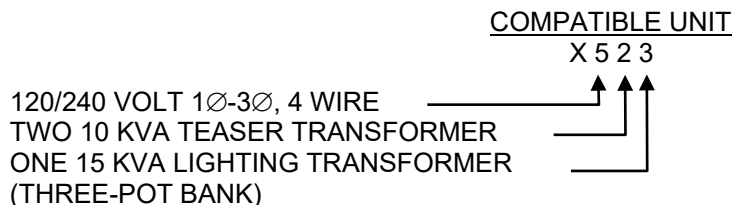
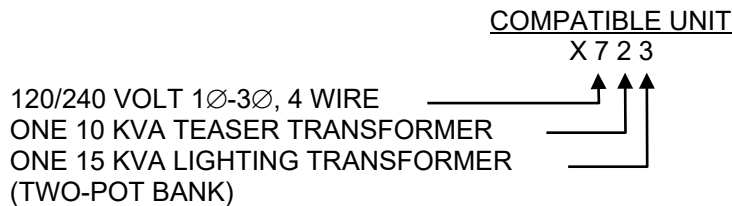
EACH TRANSFORMER, OR BANK OF TRANSFORMERS, HAS BEEN ASSIGNED AN INDIVIDUAL CODE NUMBER. "X" IS THE PREFIX FOR ALL CODE NUMBERS. THE FIRST DIGIT IS NUMERICAL AND REPRESENTS THE SECONDARY VOLTAGE AND CONNECTION ARRANGEMENT. THE SECOND (AND THIRD, WHEN REQUIRED) DIGIT ESTABLISHES THE TRANSFORMER SIZE BY KVA RATING.

EXAMPLE:



FOR TWO-POT OR THREE-POT BANKS INVOLVING TRANSFORMERS OF DIFFERENT SIZES IN THE BANK, THE SECOND AND THIRD DIGITS REPRESENT THE TEASER TRANSFORMER AND LIGHTING TRANSFORMER SIZES RESPECTIVELY.

EXAMPLES:



TAPS AND IMPEDANCE

IF EITHER TAPS AND/OR A SPECIFIC IMPEDANCE ARE REQUIRED, THE DESIRED IMPEDANCE AND/OR THE DESIRED TAP SETTING MUST BE SHOWN ON THE DISTRIBUTION LINE TRANSFORMER ORDER.

TRANSFORMER REPLACEMENT

TO REPLACE ONE, TWO, OR THREE TRANSFORMERS IN AN EXISTING TRANSFORMER BANK, THE CODES ARE GIVEN ON STANDARD X815-X11167. THESE CODES INDICATE THE SIZE AND VOLTAGE OF THE TRANSFORMER(S) TO BE INSTALLED. REPLACEMENT TRANSFORMER(S) SHOULD BE THE SAME SIZE AS THE TRANSFORMER(S) THEY REPLACE, UNLESS INFORMATION FROM ELECTRIC SYSTEM PLANNING AND ENGINEERING SHOWS THEM TO BE OVERLOADED, OR A FIELD MEASUREMENT OF LOAD CURRENT INDICATES AN OVERLOAD. PEELING PAINT MAY OR MAY NOT INDICATE AN OVERLOAD.

	12kV TRANSFORMERS TRANSFORMER CONNECTIONS INSTRUCTIONAL GUIDE		ISSUE DATE: Prior to 1987
			REV. DATE: 06/10/11
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	7-2-1		OH7-2-1.doc

TRANSFORMER CONNECTIONS INSTRUCTIONAL GUIDE

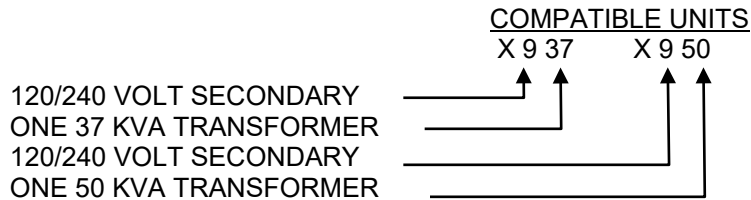
EXAMPLE: TO REPLACE A 25 KVA TRANSFORMER IN A 75 KVA BANK, SERVING 480 VOLTS, 3Ø, 3-WIRE:



NOTE: INDICATE THE NUMBER OF TRANSFORMERS TO BE REPLACED IN THE ACTIVITY/QUANTITY COLUMN OF THE GRID SKETCH. TRANSFORMERS THAT ARE BEING REMOVED DUE TO REPLACEMENT WILL NOT BE SHOWN ON THE GRID PORTION OF THE GRID SKETCH.

THE CODE NUMBERS IN THE REPLACEMENT TABLES SPECIFY INDIVIDUAL SIZES AND VOLTAGES OF TRANSFORMERS. WHEN REPLACING TRANSFORMERS IN A BANK REQUIRING THE INSTALLATION OF TWO DIFFERENT SIZES, USE THE APPROPRIATE COMPATIBLE UNIT FOR EACH SIZE.

EXAMPLE: TO REPLACE THE LIGHTING TRANSFORMER AND ONE TEASER TRANSFORMER IN AN X554 BANK, THE FOLLOWING COMPATIBLE UNITS MUST BE USED:



“X” CODED MATERIALS, NEW BANKS

THE FOLLOWING MATERIALS ARE PROVIDED WITH A TRANSFORMER OR A BANK OF TRANSFORMERS WHEN REQUESTED AS PART OF COMPATIBLE UNITS X11 THRU X767.

- TRANSFORMER(S) REQUIRED
- MOUNTING BRACKET(S) FOR TRANSFORMER(S)
- COMBINATION CUT-OUT/ARRESTER
- SECONDARY RISER WIRES
- SECONDARY CONNECTORS
- INSULATED CONNECTOR COVERS
- CABLE LASHING
- INSULATED TUBING
- GROUNDING WIRE
- TRANSFORMER TANK GROUNDING CONNECTORS (AS NEEDED)
- FUSE LINK(S)

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS TRANSFORMER CONNECTIONS INSTRUCTIONAL GUIDE	ISSUE DATE: Prior to 1987
		REV. DATE: 06/10/11
	7-2-2	APPROVAL: B. Priest OH7-2-1.doc

TRANSFORMER CONNECTIONS INSTRUCTIONAL GUIDE

“X” CODED MATERIALS, REPLACEMENTS

THE FOLLOWING MATERIALS ARE PROVIDED WHEN TRANSFORMER REPLACEMENT IS REQUESTED, USING COMPATIBLE UNITS X815 THRU X11167.

- TRANSFORMER(S) REQUIRED
- TRANSFORMER TANK GROUNDING CONNECTORS (AS NEEDED)
- FUSE LINK(S)

COMPATIBLE UNIT CODING FOR “XP” SECTION

TRANSFORMER FRAMING

THE CODING OF TRANSFORMER FRAMING IN THE “XP” SECTION IS BASED ON THE NUMBER OF TRANSFORMERS BEING INSTALLED (ONE, TWO, OR THREE), AND HOW THE POLE IS FRAMED (HORIZONTAL OR VERTICAL). THE TABLE BELOW SHOWS THE TRANSFORMER FRAMING COMPATIBLE UNITS THAT ARE AVAILABLE.

FRAMING	1 TRANSFORMER	2 TRANSFORMERS	3 TRANSFORMERS
VERTICAL FRAMING	XP1	XP2	XP3
HORIZONTAL FRAMING	XP1	XP2	XP3

“XP” CODED MATERIALS

THE MATERIALS INCLUDED IN EACH OF THE TRANSFORMER FRAMING COMPATIBLE UNITS ARE SHOWN ON PAGES 7-3-1 AND 7-3-2.

		
	12kV TRANSFORMERS TRANSFORMER CONNECTIONS INSTRUCTIONAL GUIDE	ISSUE DATE: Prior to 1987 REV. DATE: 06/10/11 APPROVAL: B. Priest
	7-2-3	OH7-2-1.doc

XP1**TRANSFORMER FRAMING**

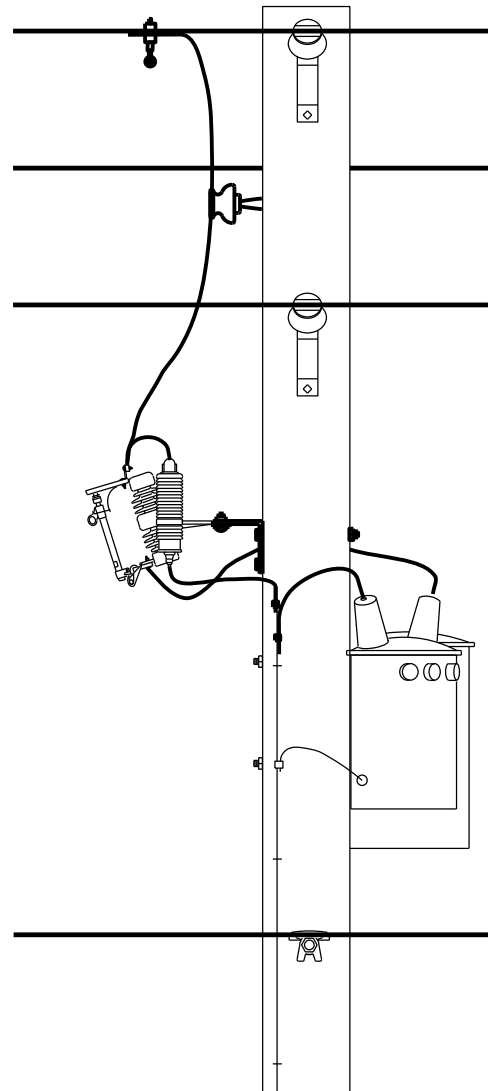
VERTICALLY FRAMED POLES WITH ONE TRANSFORMER

XP2**TRANSFORMER FRAMING**

VERTICALLY FRAMED POLES WITH TWO TRANSFORMERS

XP3**TRANSFORMER FRAMING**

VERTICALLY FRAMED POLES WITH THREE TRANSFORMERS



MATERIAL ITEM NUMBER	QUANTITY BY CU			UOI	DESCRIPTION
	XP1	XP2	XP3		
5034220		1	1	EA	BRACKET TRI-MOUNT, 40"
5034613	1			EA	HANGER POLE MTG 2
5027738	1	1	1	EA	BOLT MACHINE HOT GALV., ROLLED THREAD 5/8 X 12"
5028639	1	2	2	EA	PIN INSULATOR 5" HEIGHT ABOVE BASE HOT GALV.
5028003	1	1	1	EA	SCREW LAG HOT DIP GALV. 1/2 X 4"
5029168	1	1	1	EA	WASHER DOUBLE COIL LOCK GALVANIZED .219 X .188"
5029180	1	1	1	EA	WASHER SQUARE 5/8" BOLT 2-1/4 X 2-1/4 X 3/16"
5035724	1	2	3	EA	CONNECTOR EQUIPMENT OR LINE TAP NON-TENSION
5033933	2	4	6	EA	CONNECTOR COMPR. COPPER PARALLEL GROOVE
5034594	1	2	2	EA	INSULATOR PIN PORCELAIN GRAY 12KV, 18 PER PACK
5033845	6	12	12	EA	WIRE COPPER, BARE SOFT DRAWN #6 AWG SOLID
5033863	15	30	42	EA	SOLID COPPER CABLE #6 600V INSULATED

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

12KV TRANSFORMERS
TRANSFORMER FRAMING
VERTICALLY FRAMED POLES

7-3-1

ISSUE DATE: 06/13/11

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APPROVAL: B. PRIEST

8512E440.DGN

XPH1**TRANSFORMER FRAMING**

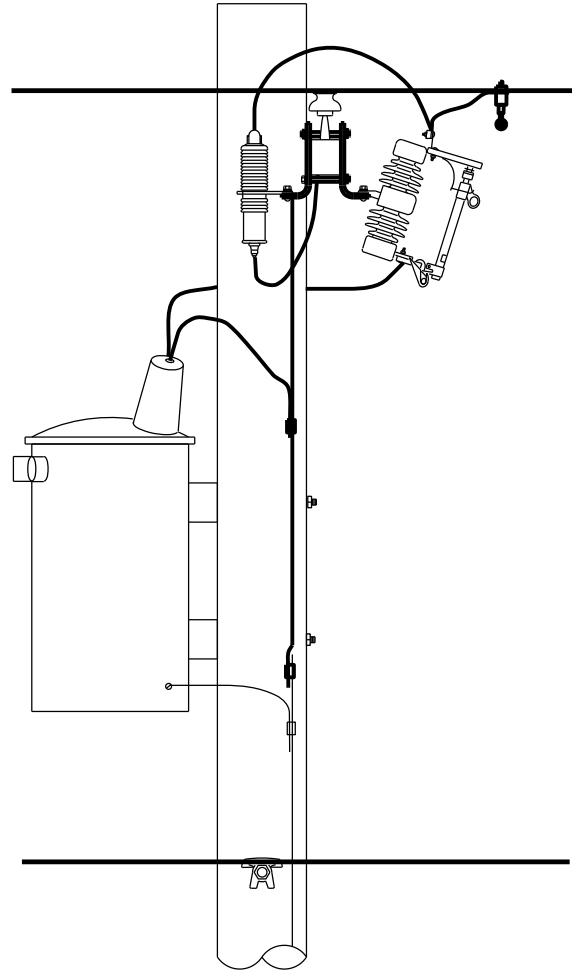
HORIZONTALLY FRAMED POLES WITH ONE TRANSFORMER

XPH2**TRANSFORMER FRAMING**

HORIZONTALLY FRAMED POLES WITH TWO TRANSFORMERS

XPH3**TRANSFORMER FRAMING**

HORIZONTALLY FRAMED POLES WITH THREE TRANSFORMERS



MATERIAL ITEM NUMBER	QUANTITY BY CU			UOI	DESCRIPTION
	XPH1	XPH2	XPH3		
5034614	2	4	6	EA	HANGER CO-ARR
5028898	7	11	11	EA	CLIP GROUND WIRE 1000 PER CARTON PLATED STEEL
5028263	0.1	0.1	0.1	EA	NAIL HOT DIP GALV. 10D BOX; 50 LBS/BOX
5035724	1	2	3	EA	CONNECTOR EQUIPMENT OR LINE TAP NON-TENSION
5033933	2	4	6	EA	CONNECTOR COMPR. COPPER PARALLEL GROOVE
5034832	1	1	1	EA	MOULDING GROUND WIRE DOUGLAS FIR 8' LENGTH
5035478	6	6	6	EA	STAPLE MOULDING HOT DIP GALV. CEMENT RESIN
5033845	10	18	18	EA	WIRE COPPER, BARE SOFT DRAWN #6 AWG SOLID
5033863	12	24	36	EA	SOLID COPPER CABLE #6 600V INSULATED

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

12kV TRANSFORMERS
TRANSFORMER FRAMING
HORIZONTALLY FRAMED POLES

7-3-2

ISSUE DATE: 06/13/11

REV. DATE: 06/11/13

APPROVAL: B. PRIEST

8512E498.DGN

1. TRANSFORMER SECONDARY VOLTAGE RATINGS.

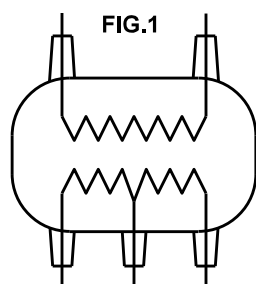
- A. A NAMEPLATE VOLTAGE WRITTEN 120/240 OR 240/480 INDICATES THE TRANSFORMER SECONDARY MAY BE CONNECTED EITHER SERIES FOR 2 OR 3-WIRE OPERATION, OR PARALLEL FOR 2-WIRE OPERATION.
- B. A NAMEPLATE VOLTAGE WRITTEN 240/120 INDICATES THE TRANSFORMER SECONDARY MAY BE CONNECTED SERIES FOR 2 OR 3-WIRE OPERATION BUT CAN NOT BE CONNECTED PARALLEL FOR 2 WIRE OPERATION.
- C. A NAMEPLATE VOLTAGE WRITTEN 240X480 INDICATES THE TRANSFORMER SECONDARY MAY BE CONNECTED EITHER PARALLEL OR SERIES FOR 2-WIRE OPERATION BUT CAN NOT BE USED FOR SERIES 3 WIRE OPERATION.
- D. A NAMEPLATE VOLTAGE WRITTEN 277/480 INDICATES THE TRANSFORMER SECONDARY IS CONNECTED FOR 2 WIRE OPERATION AND IS TO BE ONLY CONNECTED WYE ON THE SECONDARY.

2. TRANSFORMER SECONDARY WINDING CONNECTIONS.

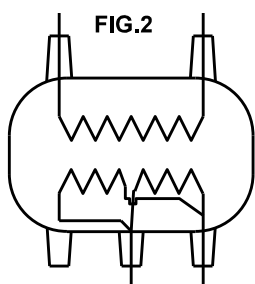
TRANSFORMERS HAVING THREE
SECONDARY LEADS OR BUSHINGS

TRANSFORMERS HAVING TWO
SECONDARY LEADS OR BUSHINGS

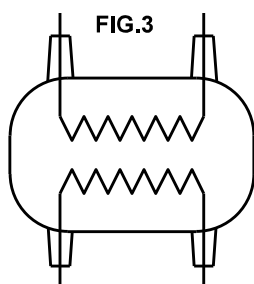
TRANSFORMERS HAVING FOUR
SECONDARY LEADS OR BUSHINGS



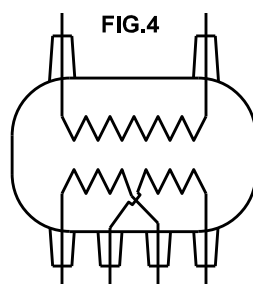
SERIES 2 OR 3-WIRE
OPERATION



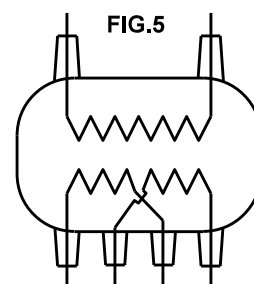
PARALLEL 2-WIRE
OPERATION



2-WIRE OPERATION ONLY



SERIES 2 OR 3-WIRE
OPERATION SUPPLIED
AS EITHER 120/240
OR 240/480V. TIE
JUMPER MUST BE SAME
SIZE AS SERVICE
CONDUCTORS.



PARALLEL 2-WIRE
OPERATION SUPPLIED
AS EITHER 120 OR
240V. TIE JUMPERS
MAY BE HALF THE
SIZE OF SERVICE
CONDUCTORS.

3. TRANSFORMERS CONNECTED IN PARALLEL.

- A. NAMEPLATE VOLTAGE RATING AND PRIMARY WINDING TAPS OF PARALLELED TRANSFORMERS MUST BE IDENTICAL.
- B. EXCEPT IN SPECIALLY APPROVED CASES, THE NAMEPLATE IMPEDANCE AND KVA RATING MUST BE IDENTICAL.
- C. ALL PARALLEL CONNECTIONS MUST BE BETWEEN TERMINALS HAVING THE SAME POLARITY DESIGNATION.

4. STANDARD POLARITY OF DISTRIBUTION TRANSFORMERS.

- A. 2300V OR 7200V TRANSFORMERS 200 KVA AND SMALLER HAVE "ADDITIVE POLARITY."
- B. 2300V OR 7200V TRANSFORMERS LARGER THAN 200 KVA HAVE "SUBTRACTIVE POLARITY."
- C. ALL 12,000V TRANSFORMERS REGARDLESS OF SIZE HAVE "SUBTRACTIVE POLARITY."

SOME OF THE OLDER TRANSFORMERS DO NOT CONFORM TO THIS STANDARD AND IT IS THEREFORE IMPORTANT THAT THE POLARITY OF ALL BANKED TRANSFORMERS BE CHECKED BEFORE CONNECTIONS ARE MADE.

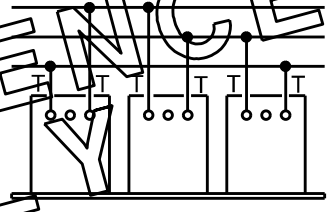
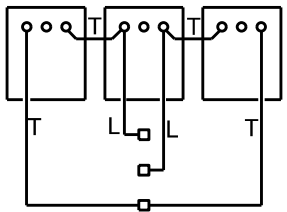
PARTICULAR ATTENTION IS CALLED TO THE FACT THAT OPPOSITE POLARITY RESULTS WHEN 7200V TRANSFORMERS LARGER THAN 200 KVA ARE BANKED WITH TRANSFORMERS 200 KVA AND SMALLER.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS TRANSFORMER CONNECTIONS GENERAL INFORMATION	ISSUE DATE: 02/08/68 REV. DATE: 06/11/11 APPROVAL: B. PRIEST
	7-4-1	8512E294.DGN

KVA SIZE	SECONDARY VOLTAGE	PRIMARY VOLTAGE	MATERIAL ITEM NO.	FIGURE NO. FROM TRANSFORMER CONNECTIONS GENERAL INFORMATION
SINGLE PHASE – WITHOUT TAPS				
5	120/240	7200/12470Y	5071739	1
10	120/240	7200/12470Y	5039051	1
15	120/240	7200/12470Y	5039052	1
25	120/240	7200/12470Y	5039053	1
37.5	120/240	7200/12470Y	5039054	1
50	120/240	7200/12470Y	5039055	1
75	120/240	7200/12470Y	5039056	1
100	120/240	7200/12470Y	5039057	1
SINGLE PHASE – WITH TAPS				
15	120	7200/12470Y	5039058	2
25	120	7200/12470Y	5039059	2
37.5	120	7200/12470Y	5039060	2
50	120	7200/12470Y	5039061	2
75	120	7200/12470Y	5039062	2
100	120	7200/12470Y	5039063	2
167	120/240 OR 120/208	7200/12470Y	5039064	4 OR 5
10	120/240	12000/20780Y	5039073	1
15	120/240	12000/20780Y	5039074	1
25	120/240	12000/20780Y	5039174	1
37.5	120/240	12000/20780Y	5071803	1
50	120/240	12000/20780Y	5039175	1
75	120/240	12000/20780Y	5039176	1
100	120/240	12000/20780Y	5039177	1
167	120/240	12000/20780Y	5039178	4
250	120/240	12000/20780Y	5039179	4
333	120/240	12000/20780Y	5039180	4
500	120/240	12000/20780Y	5039181	4
250	120/240 OR 120/208	12000 DELTA	5039183	4 OR 5
333	120/240 OR 120/208	12000 DELTA	5039184	4 OR 5
500	120/240 OR 120/208	12000 DELTA	5039185	4 OR 5
25	277/480Y	12470	5039186	3
37.5	277/480Y	12470	5039187	3
50	277/480Y	12470	5039188	3
75	277/480Y	12470	5039189	3
100	277/480Y	12470	5039190	3
167	277/480Y	12470	5039191	3
250	277/480Y	12470	5039192	3
333	277/480Y	12470	5039193	3
500	277/480Y	12470	5039194	3
25	277/480Y	12470/21600Y	5039200	3
37.5	277/480Y	12470/21600Y	0861637 *	3
50	277/480Y	12470/21600Y	5039201	3
75	277/480Y	12470/21600Y	5039202	3
100	277/480Y	12470/21600Y	5039203	3
167	277/480Y	12470/21600Y	0861687 *	3
250	277/480Y	12470/21600Y	5039204	3
333	277/480Y	12470/21600Y	5039205	3
500	277/480Y	12470/21600Y	5039206	3

* INDICATES NO MATERIAL STOCK CODE EXISTS IN SAP.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS TRANSFORMER CONNECTIONS GENERAL INFORMATION		ISSUE DATE: 07/16/86
	7-4-2		REV. DATE: 06/12/13
			APPROVAL: B. Priest
			OH7-4-2.doc

COMPATIBLE UNIT CODES				SECONDARY CONNECTION DIAGRAMS	
240 VOLT- 3Ø- 3 WIRE				240 VOLT 3Ø - 3 WIRE	
CODE NO.	KVA OF BANK	T RISER SIZE	N RISER SIZE		
X11	30	# 2	# 2		
X12	45	# 2	# 2		
X13	75	# 2	# 2/0		
X14	112	# 2/0	# 4/0		
X15	150	# 4/0	350MCM		
X16	225	350MCM	2-#4/0		
X17	300	350MCM	2-350MCM		
X18	500	2-350MCM	2-500MCM		
				PLATFORM BANK	POLE MOUNTED BANK

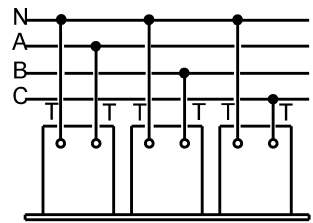
120/208V.- 3Ø - 4 WIRE 120/208Y V. OR 120 V.			
CODE NO.	KVA OF BANK	T RISER SIZE	N RISER SIZE
X41	45	# 2	# 2
X42	75	# 2/0	# 2/0
X43	112	350MCM	# 4/0
X44	150	500MCM	350MCM
X45	225	2-350MCM	350MCM
X46	300	2-350MCM	500MCM
X47	500	3-500MCM	2-350MCM
X48	750	4-500MCM	2-500MCM
X49	1000	5-500MCM	3-500MCM

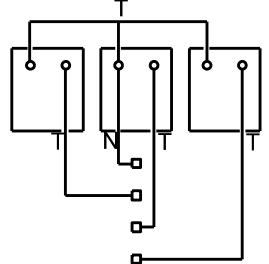
SEE
NOTE 4

SEE
NOTE 5

277/480V.- 3Ø - 4 WIRE 277/480Y V. OR 277 V.			
CODE NO.	KVA OF BANK	T RISER SIZE	N RISER SIZE
X31	75	# 2	# 2
X33	150	# 2/0	# 2/0
X34	225	# 4/0	# 2/0
X35	300	350MCM	# 4/0
X36	500	2-#4/0	350MCM
X37	750	2-500MCM	2-350MCN
X38	1000	3-350MCM	2-350MCM
X39	1500	4-350MCM	2-350MCM

120/208 V. OR 277/480V. - 3Ø - 4 WIRE





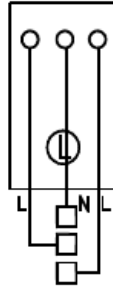
PLATFORM BANK

POLE MOUNTED BANK

NOTES

1. ALL TRANSFORMER BANKS CONSIST OF THREE (3) EQUALLY SIZED TRANSFORMERS.
2. RISER SIZES SHOWN ARE FOR CROSSLINKED POLYETHYLENE INSULATED COPPER CONDUCTORS.
3. WHEN SPECIFIC IMPEDANCE AND/OR TAPS ARE REQUIRED, REFER TO THE INSTRUCTIONAL GUIDE OF THIS SECTION.
4. CONNECTED FOR 120V. OPERATION (SEE FIG.2, TRANSFORMER CONNECTIONS GENERAL INFORMATION).
5. CONNECTED FOR 120V. OPERATION USING 4 SECONDARY BUSHINGS (SEE FIG. 5, TRANSFORMER CONNECTIONS GENERAL INFORMATION).

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS COMPATIBLE UNIT CODES 3Ø TRANSFORMER BANKS BALANCED LOADS		ISSUE DATE: 11/22/82 REV. DATE: 06/10/13 APPROVAL: B. PRIEST
	7-5-1		8512E231.DGN

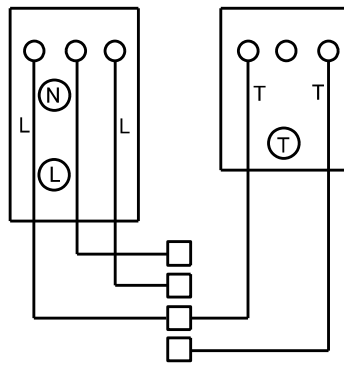


POLE MOUNTED BANK

SECONDARY CONNECTION DIAGRAMS
120/240 VOLT 1Ø 3 WIRE
TRANSFORMER INSTALLATIONS

120/240 VOLT, 1 PHASE, 3-WIRE			
CODE NO.	TRANSFORMER SIZE	RISER SIZE "L"	RISER SIZE "N"
X62	10KVA	#2	#2
X63	15KVA	#2	#2
X64	25KVA	#2	#2
X65	37KVA	2/0	#2
X66	50KVA	4/0	2/0
X67	75KVA	350MCM	4/0
X68	100KVA	350MCM	4/0
X69	167KVA	2 - 350MCM	500MCM

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS		ISSUE DATE: 09/30/71
	TRANSFORMER BANK AND RISER CODING		REV. DATE: 06/10/11
	ONE TRANSFORMER, 120/240 VOLT		APPROVAL: B. Priest
	1Ø, 3 WIRE		
	7-6-1		OH7-6-1.doc



POLE MOUNTED BANK

SECONDARY CONNECTION DIAGRAM
120/240 VOLT 1Ø - 3Ø 4-WIRE
TRANSFORMER INSTALLATIONS

		120/240 VOLT 1Ø - 3Ø 4-WIRE						
		CODE NUMBER "L" AND TRANSFORMER SIZE "L"						
CODE NO. "T"	TRANSF. SIZES "T"	1	2	3	4	5	6	7
		5 KVA	10 KVA	15 KVA	25 KVA	37 KVA	50 KVA	75 KVA
X72	10 KVA		T # 2 L # 2 N # 2	T # 2 L # 2 N # 2	T # 2 L # 2 N # 2	T # 2 L # 2/0 N # 2	T # 2 L # 4/0 N # 2/0	T # 2 L 350 MCM N # 4/0
X73	15 KVA			T # 2 L # 2 N # 2	T # 2 L # 2 N # 2	T # 2 L # 2/0 N # 2	T # 2 L # 4/0 N # 2/0	T # 2 L 350 MCM N # 4/0
X74	25 KVA				T # 2 L # 2 N # 2	T # 2 L # 2/0 N # 2	T # 2 L # 4/0 N # 2/0	T # 2 L 350 MCM N # 4/0
X75	37 KVA				T # 2 L # 2 N # 2	T # 2/0 L # 2/0 N # 2	T # 2 L # 4/0 N # 2/0	T # 2/0 L 350 MCM N # 4/0
X76	50 KVA						T # 4/0 L # 4/0 N # 2/0	T # 4/0 L 350 MCM N # 4/0

NOTES

1. TO DESIGNATE THE DESIRED TRANSFORMER BANK, REQUEST THE "T" CODE NUMBER FIRST THEN ADD THE APPROPRIATE "L" CODE NUMBER.

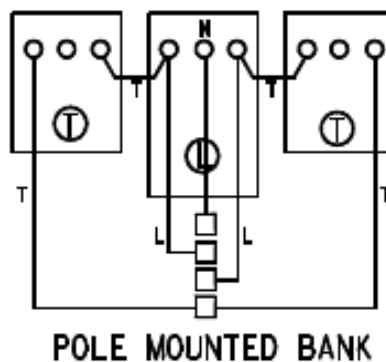
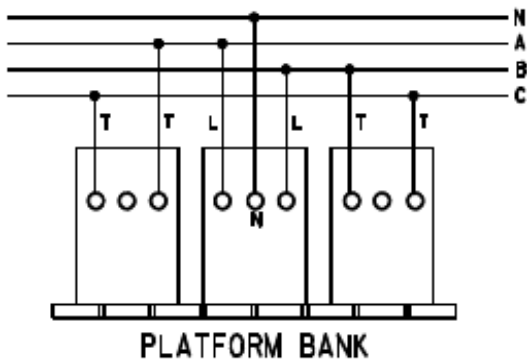
EXAMPLE: TO REQUEST A TRANSFORMER BANK CONSISTING OF A 25 KVA TRANSFORMER AND ONE 37 KVA TRANSFORMER, THE CODE NUMBER IS X 745.

X74..... INDICATES THE 25 KVA TRANSFORMER.

5..... INDICATES THE 37 KVA TRANSFORMER.

2. RISER SIZES FOR THE "T", "L" AND "N" RISERS ARE DISPLAYED IN THE TABLE WHERE "X74" AND "5" INTERSECT.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS	ISSUE DATE: 09/30/71
	TRANSFORMER BANK AND RISER CODING	REV. DATE: 06/11/11
	TWO TRANSFORMERS, 120/240 VOLT, 1Ø - 3Ø, 4 WIRE	APPROVAL: B. PRIEST
	7-7-1	8512E278.DGN



**SECONDARY
CONNECTION
DIAGRAMS
120/240 VOLT, 1Ø - 3Ø,
4 WIRE
TRANSFORMER
INSTALLATIONS**

120/240 VOLT, 1Ø - 3Ø, 4 WIRE

CODE NO. "T"	TRANSF. SIZES "T"	CODE NO. "L" AND TRANSFORMER SIZE "L"						
		1	2	3	4	5	6	7
		15KVA	25KVA	37KVA	50KVA	75KVA	100KVA	167KVA
X52	10KVA			T #2 L 2/0 N #2	T #2 L 4/0 N 2/0	T #2 L 350MCM N 4/0	T #2 L 500MCM N 350MCM	T #2 L 2 - 350MCM N 500MCM
X53	15KVA	T #2 L #2 N #2	T #2 L #2 N #2	T #2 L 2/0 N #2	T #2 L 4/0 N 2/0	T #2 L 350MCM N 4/0	T #2 L 500MCM N 350MCM	T #2 L 2 - 350MCM N 500MCM
X54	25KVA		T #2 L 2/0 N #2	T #2 L 2/0 N #2	T #2 L 4/0 N 2/0	T #2 L 350MCM N 4/0	T #2 L 500MCM N 350MCM	T #2 L 2 - 350MCM N 500MCM
X55	37KVA			T 2/0 L 4/0 N 2/0	T 2/0 L 350MCM N 4/0	T 2/0 L 500MCM N 350MCM	T 2/0 L 500MCM N 350MCM	T #2 L 2 - 350MCM N 500MCM
X56	50KVA				T 4/0 L 350MCM N 4/0	T 4/0 L 500MCM N 350MCM	T 4/0 L 2 - 4/0 N 350MCM	T 4/0 L 2 - 350MCM N 500MCM
X57	75KVA					T 350MCM L 2 - 4/0 N 350MCM	T 350MCM L 2 - 4/0 N 350MCM	T 350MCM L 2 - 500MCM N 500MCM
X58	100KVA						T 350MCM L 2 - 350MCM N 500MCM	T 350MCM L 2 - 500MCM N 500MCM
X59	167KVA							T 2 - 350MCM L 2 - 500MCM N 500MCM

NOTES

1. TO DESIGNATE THE DESIRED TRANSFORMER BANK, REQUEST THE "T" CODE NUMBER FIRST, THEN ADD THE APPROPRIATE "L" CODE NUMBER.

EXAMPLE: TO REQUEST A TRANSFORMER BANK CONSISTING OF TWO 25KVA TRANSFORMERS AND ONE 37KVA TRANSFORMER, THE CODE NUMBER IS X543.

X54INDICATES THE TWO 25KVA TRANSFORMERS

3INDICATES THE 37KVA TRANSFORMER

2. RISER SIZES FOR THE "T", "L" AND "N" RISERS ARE DISPLAYED IN THE TABLE WHERE "X54" AND "3" INTERSECT.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	12kV TRANSFORMERS TRANSFORMER BANK AND RISER CODING THREE TRANSFORMERS, 120/240 VOLT 1Ø – 3Ø, 4 WIRE		ISSUE DATE: 09/30/71
			REV. DATE: 06/10/11
			APPROVAL: B. Priest
	7-8-1	OH7-8-1.doc	

120/208V

(120/280Y VOLT TRANSFORMERS OR 120 VOLT TRANSFORMERS)

CODE NUMBER	TRANSFORMER SIZE (kVA)
X815	15
X825	25
X837	37
X850	50
X875	75
X8100	100
X8167	167
X8250	250
X8333	333

120/240V

CODE NUMBER	TRANSFORMER SIZE (kVA)
X910	10
X915	15
X925	25
X937	37
X950	50
X975	75
X9100	100
X9167	167

277/480V

(277/480Y VOLT TRANSFORMERS OR 277 VOLT TRANSFORMERS)

CODE NUMBER	TRANSFORMER SIZE (kVA)
X1025	25
X1050	50
X1075	75
X10100	100
X10167	167
X10250	250
X10333	333
X10500	500

240/480V

FOR EMERGENCY REPLACEMENT ONLY. PREFER TO REBUILD BANK WITH 277/480V. USE ONLY SALVAGED UNITS, NO NEW UNITS ARE PURCHASED.

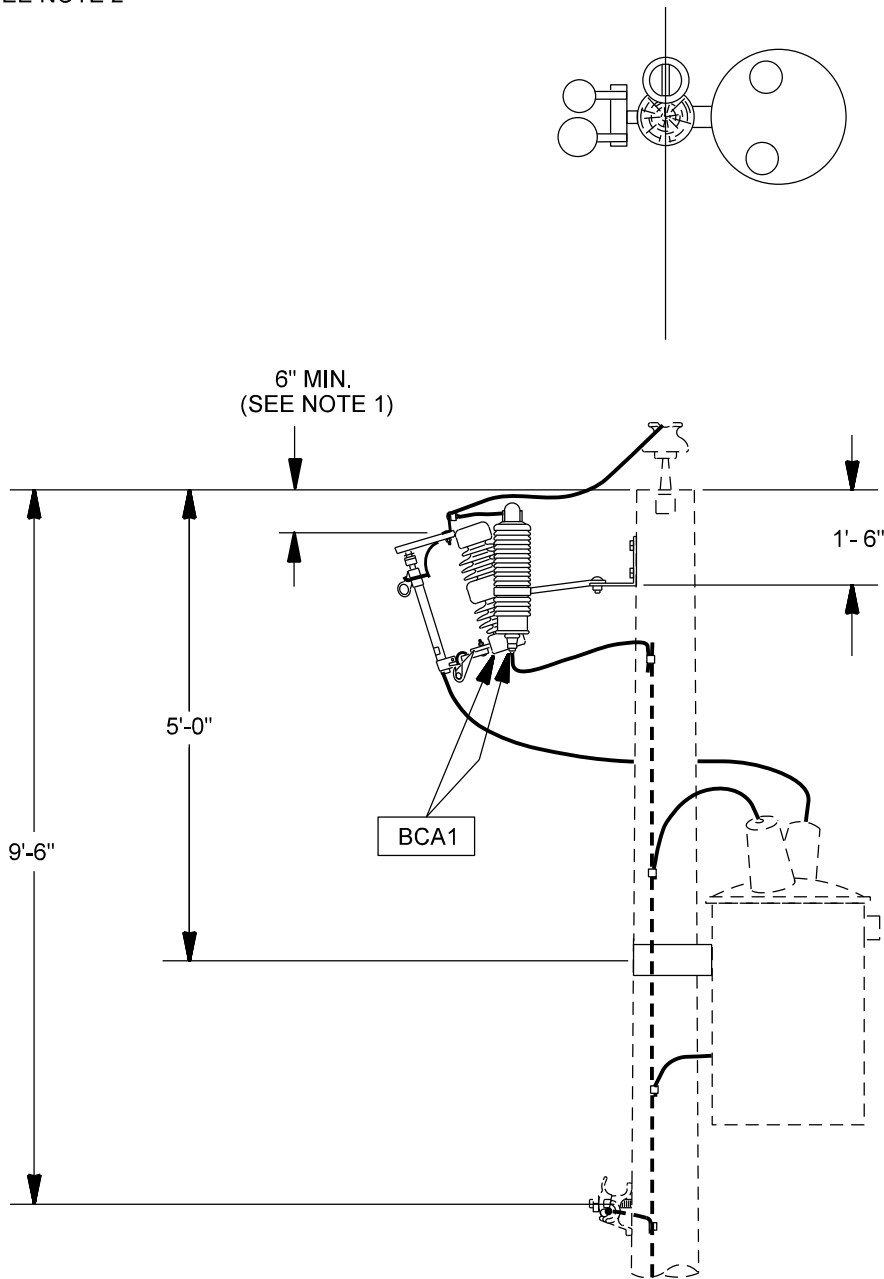
CODE NUMBER	TRANSFORMER SIZE (kVA)
XW25	25
XW50	50
XW75	75
XW100	100

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12KV TRANSFORMERS COMPATIBLE UNIT CODES REPLACEMENT OF INSTALLED TRANSFORMERS	ISSUE DATE: 09/30/71 REV. DATE: 06/11/11 APPROVAL: B. Priest
	7-9-1	OH7-9-1.doc

CODE NUMBER	NUMBER OF CANS
RX1	1
RX2	2
RX3	3

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS TRANSFORMER REMOVAL CODE ANY VOLTAGE	ISSUE DATE: 09/30/71 REV. DATE: 06/10/11 APPROVAL: B. Priest
	7-10-1	OH7-10-1.doc

XP1 SEE NOTE 2



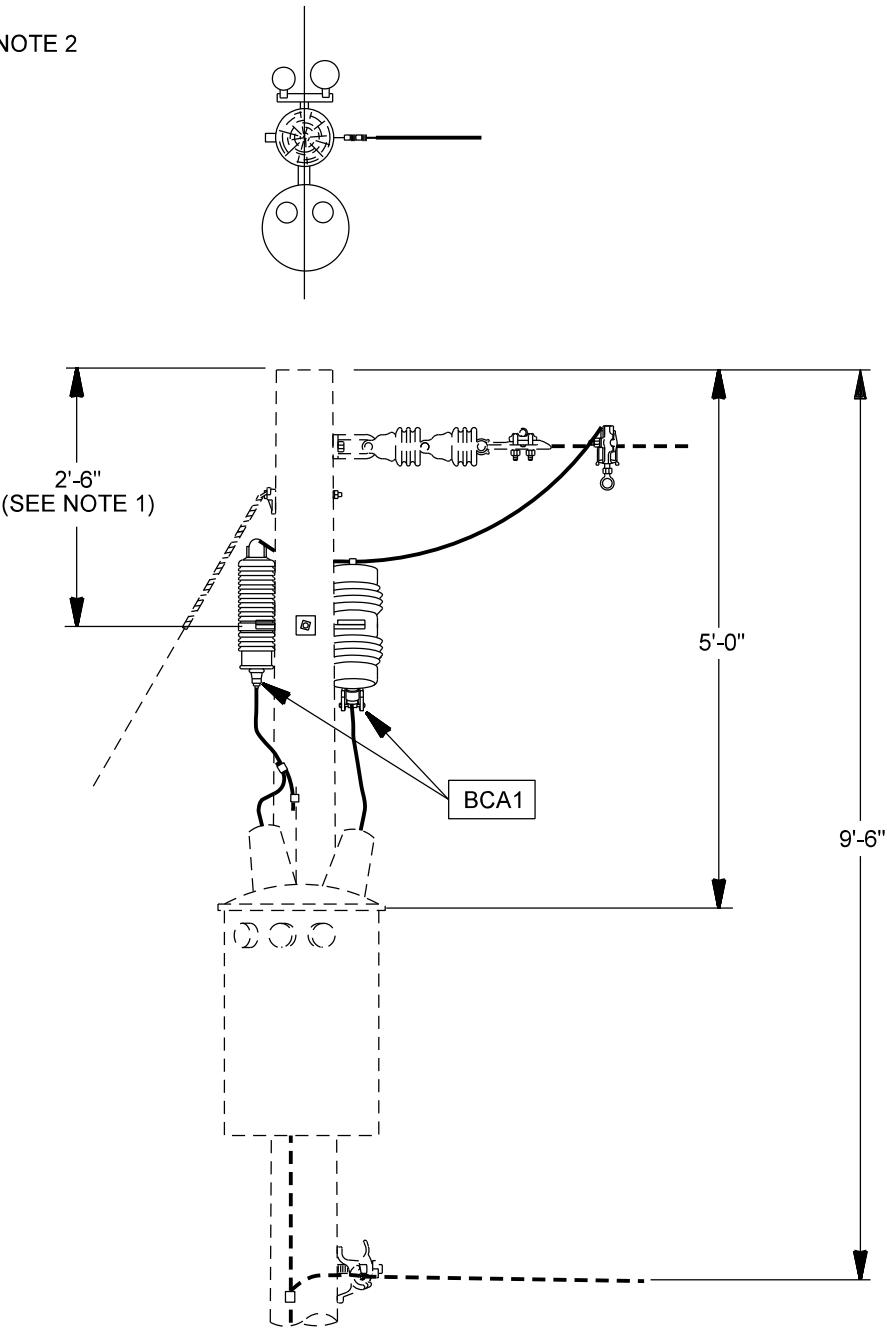
NOTES

1. THIS DIMENSION 3'-6" MAXIMUM WITH NUETRAL LOCATED 7'-2" FROM TOP OF POLE.
2. USE XP1 FOR P10, P11A, OR P15N FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION SINGLE PHASE, TANGENT, SMALL ANGLE AND SLACK DEADEND, POLE TOP 7-11-1	ISSUE DATE: 09/30/71 REV. DATE: 06/11/10 APPROVAL: B. PRIEST 8512E98.DGN
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XP1

SEE NOTE 2

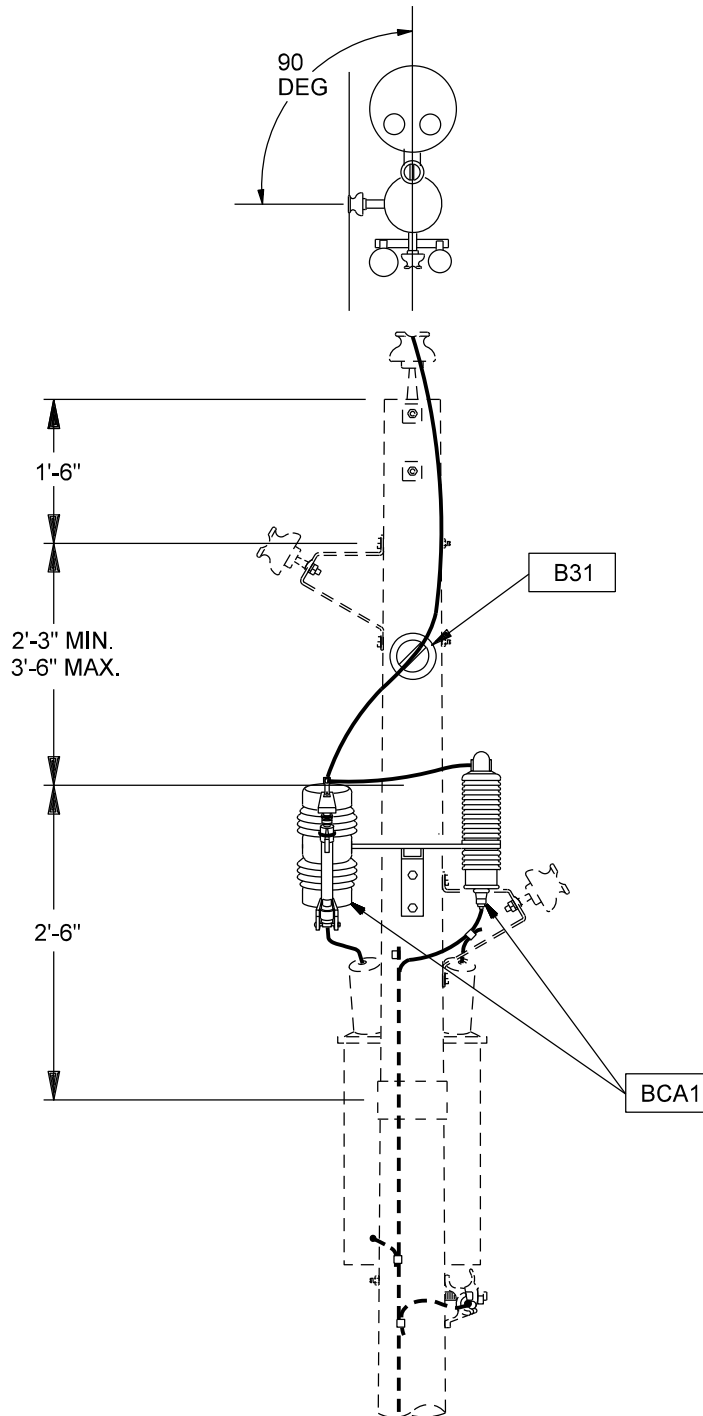


NOTES

1. THIS DIMENSION 3'-6" MAXIMUM WITH NEUTRAL LOCATED 7'-2" FROM TOP OF POLE.
2. USE XP1 FOR P13, P13A, P15, OR P18 FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS	ISSUE DATE: 11/15/71
	SINGLE TRANSFORMER INSTALLATION	REV. DATE: 06/11/11
	SINGLE PHASE, MEDIUM ANGLE & DEADEND	APPROVAL: B. PRIEST
	7-12-1	8512E99.DGN

XP1 SEE NOTE 2

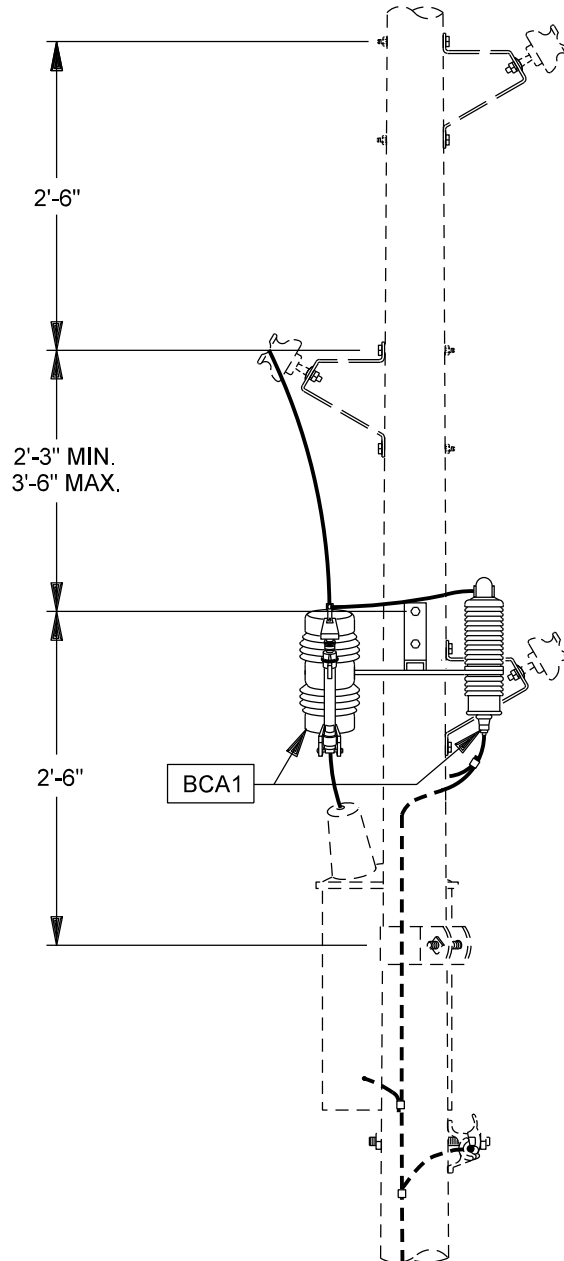
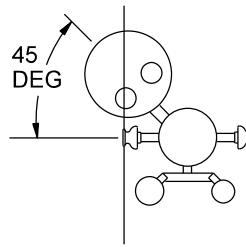


NOTES

1. LOCATE TRANSFORMER ON OPPOSITE SIDE OF POLE FROM PHASE CONDUCTOR FOR P30C FRAMING.
2. USE XP1 FOR P20A, P30A, P30B, P30C, P25N OR P35N FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS		ISSUE DATE: 04/30/91
	SINGLE TRANSFORMER INSTALLATION		REV. DATE: 06/11/11
	TWO AND THREE PHASE, TANGENT AND SLACK DEADEND, POLE TOP		APPROVAL: B. PRIEST
	7-13-1		8512E100.DGN

XP1 SEE NOTE 1



NOTES

1. USE XP1 FOR P20D OR P30D FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
SINGLE TRANSFORMER INSTALLATION
TWO AND THREE PHASE, TANGENT UNDERBUILD

7-14-1

ISSUE DATE: 09/30/71

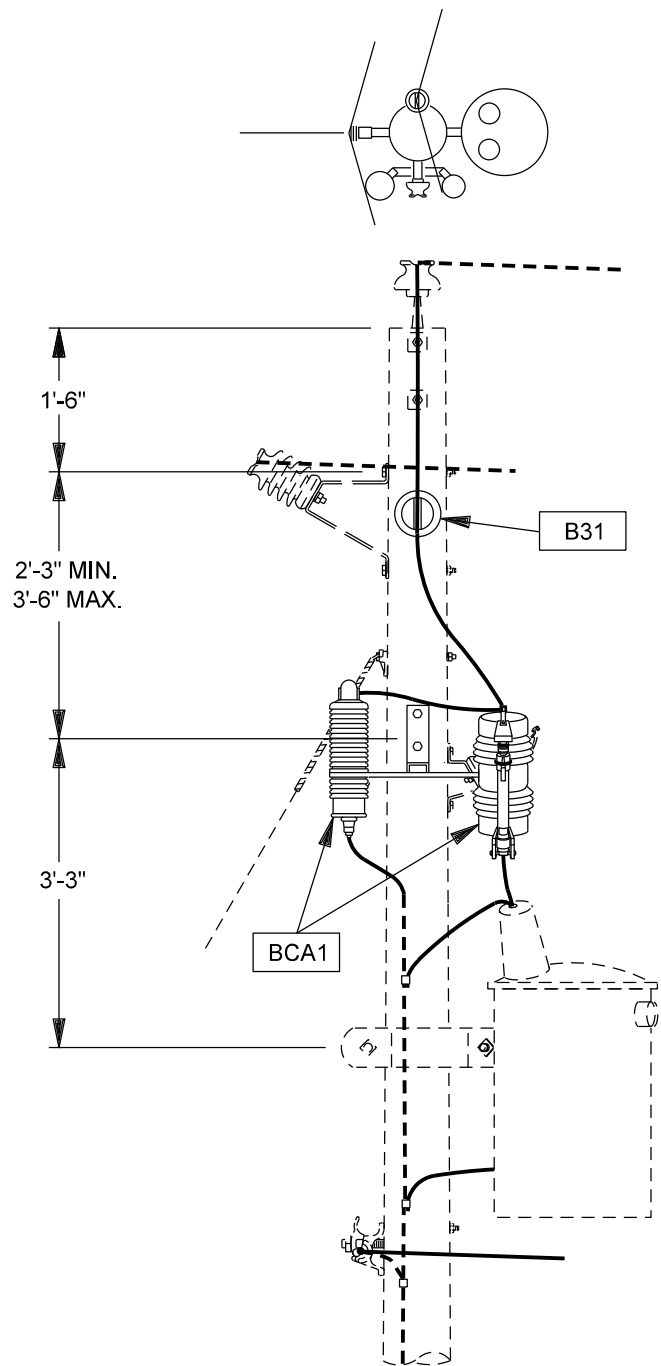
REV. DATE: 06/10/11

APPROVAL: B. PRIEST

8512E101.DGN

XP1

SEE NOTE 1



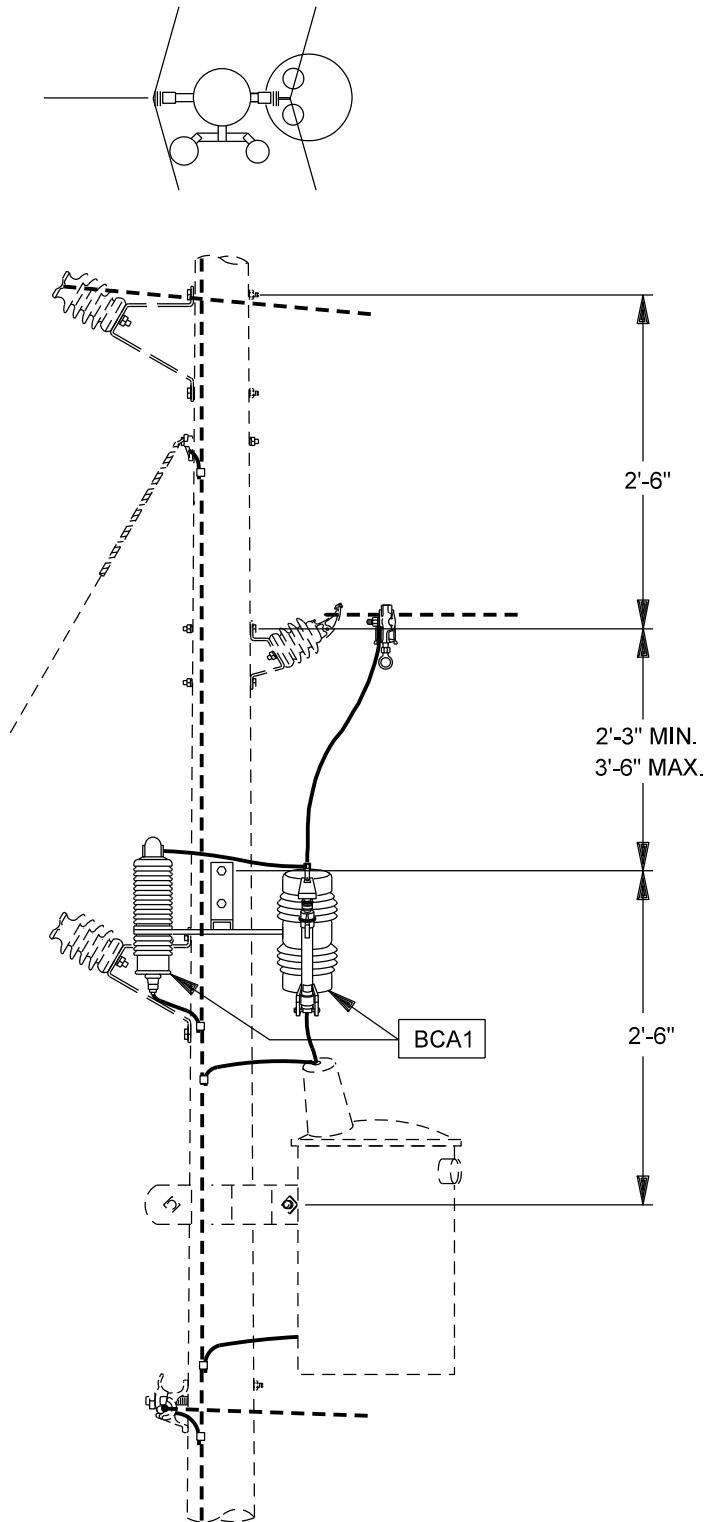
NOTES

1. USE XP1 FOR P21B, P31B, P21BA, P31BA, P21D, OR P21DA FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS	
	SINGLE TRANSFORMER INSTALLATION	
	TWO AND THREE PHASE, SMALL ANGLE	
	POLE TOP	
	7-15-1	
	8512E102.DGN	
		ISSUE DATE: 01/15/87
		REV. DATE: 06/11/11
		APPROVAL: B. PRIEST

XP1

SEE NOTE 1



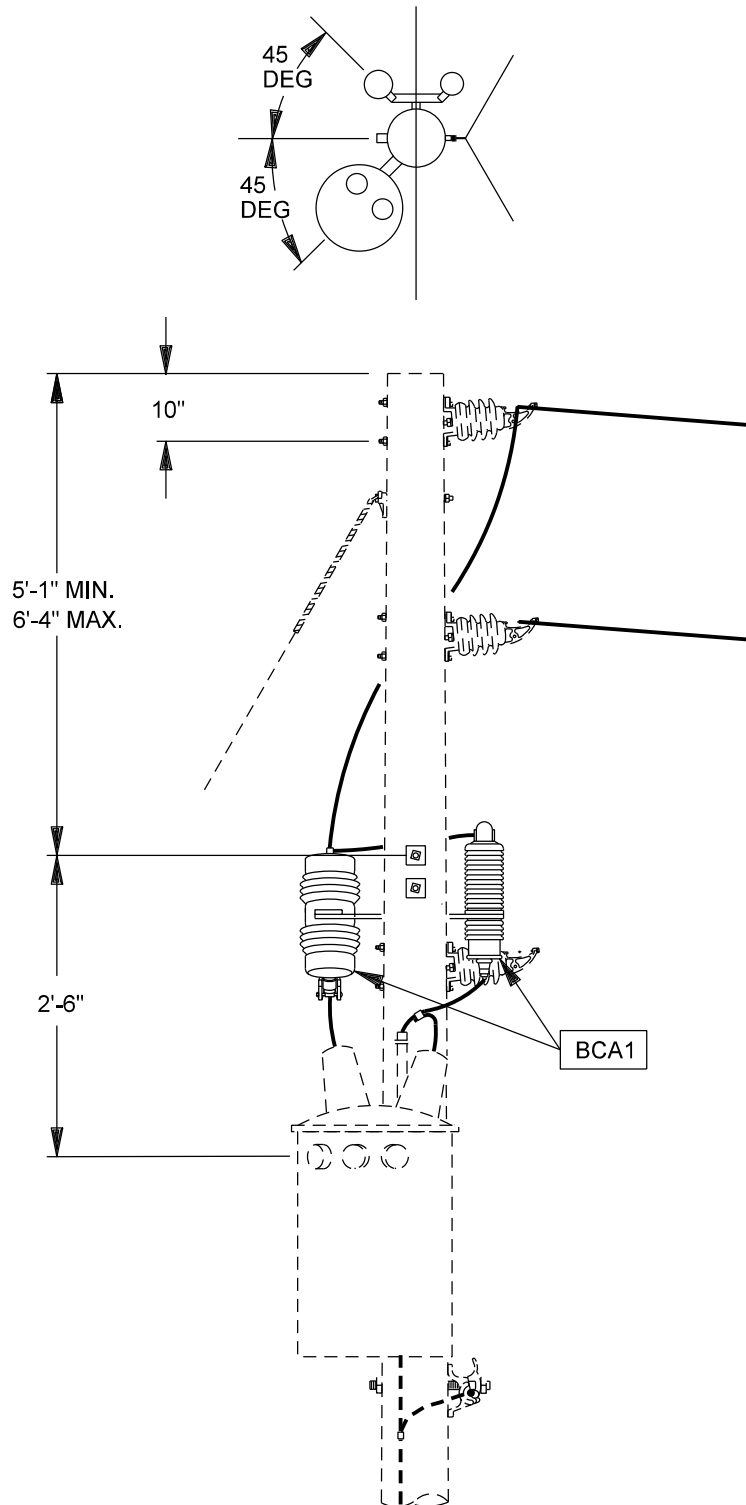
NOTES

1. USE XP1 FOR P21F, P31F, P21FA, P31FA, P21G, P31G, P21GA, P31GA, P31K, P31KA, P31L, OR P31LA FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION TWO AND THREE PHASE, SMALL ANGLE AND INTERMEDIATE ANGLES, UNDERBUILD	ISSUE DATE: 09/30/71
		REV. DATE: 06/11/11
		APPROVAL: B. PRIEST
	7-16-1	8512E103.DGN

XP1

SEE NOTE 1



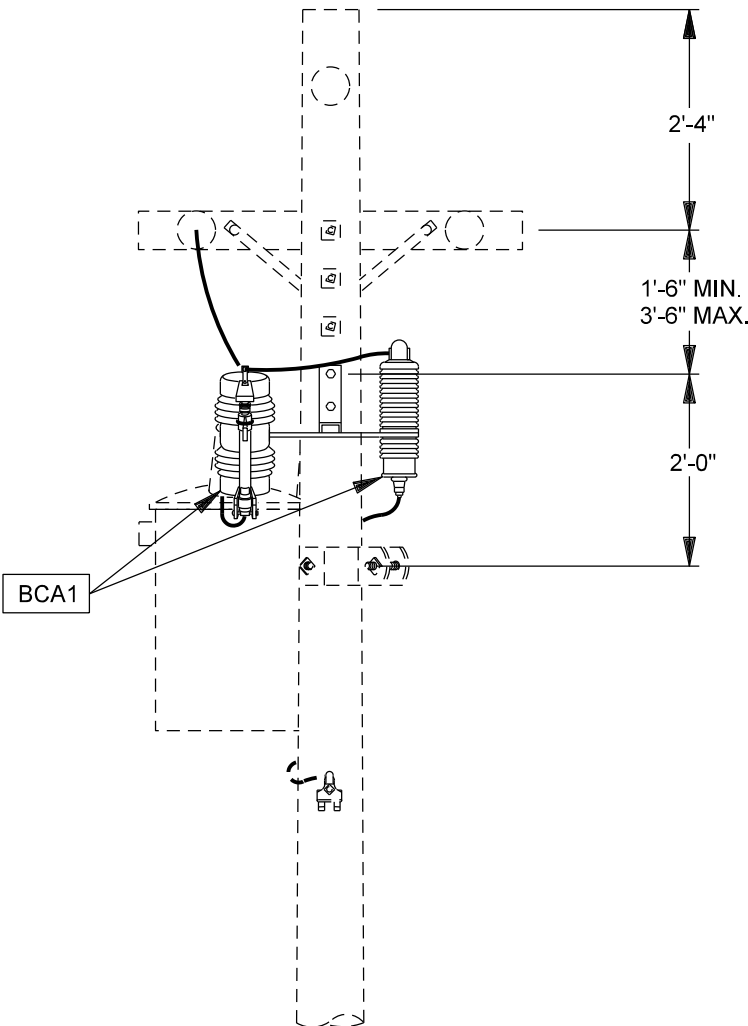
NOTES

1. USE XP1 FOR P22, P32, P22A, P32A, P23, P33, P23A, P33A, P25A OR P35A FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION TWO AND THREE PHASE, INTERMEDIATE OR MEDIUM ANGLE AND VERTICAL DEADEND 7-17-1	ISSUE DATE: 09/30/71 REV. DATE: 06/11/11 APPROVAL: B. PRIEST 8512E104.DGN
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XP1

SEE NOTE 2



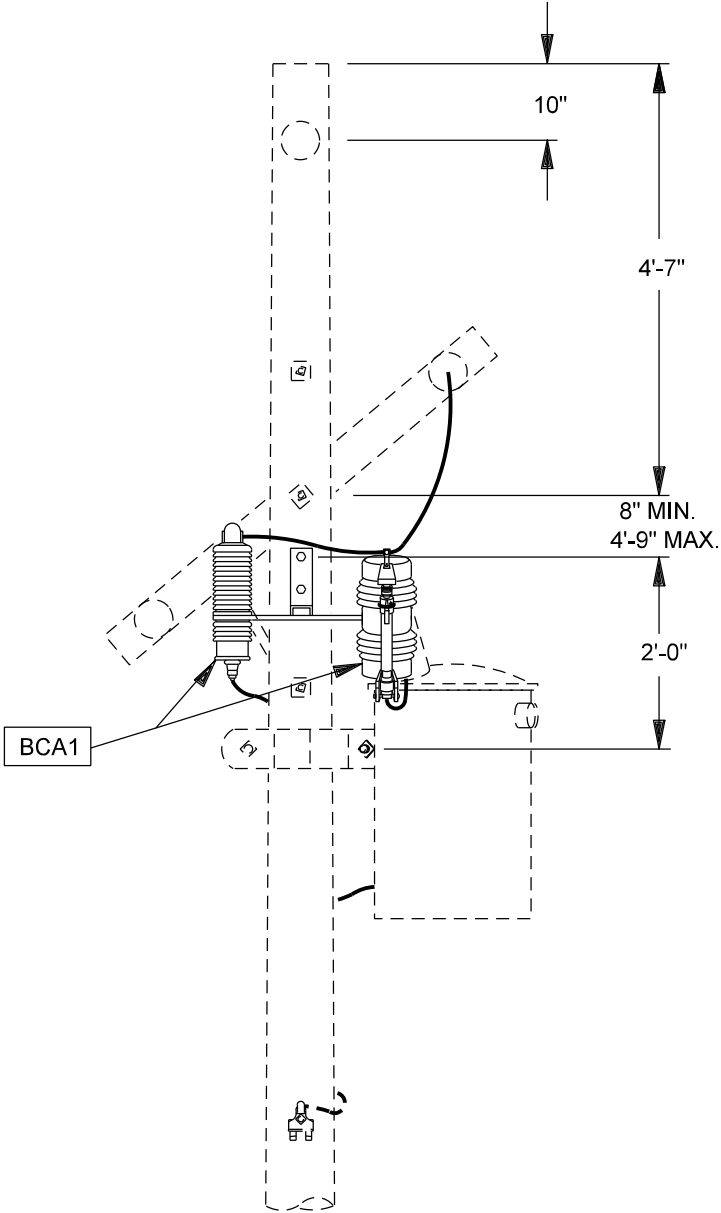
NOTES

- 1. OFFSET TRANSFORMER 45 DEG.
- 2. USE XP1 FOR P25 OR P35 FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION TWO AND THREE PHASE, DEADEND CROSSARM 7-18-1	ISSUE DATE: 09/30/71 REV. DATE: 06/11/11 APPROVAL: B. PRIEST 8512E105.DGN
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XP1

SEE NOTE 1



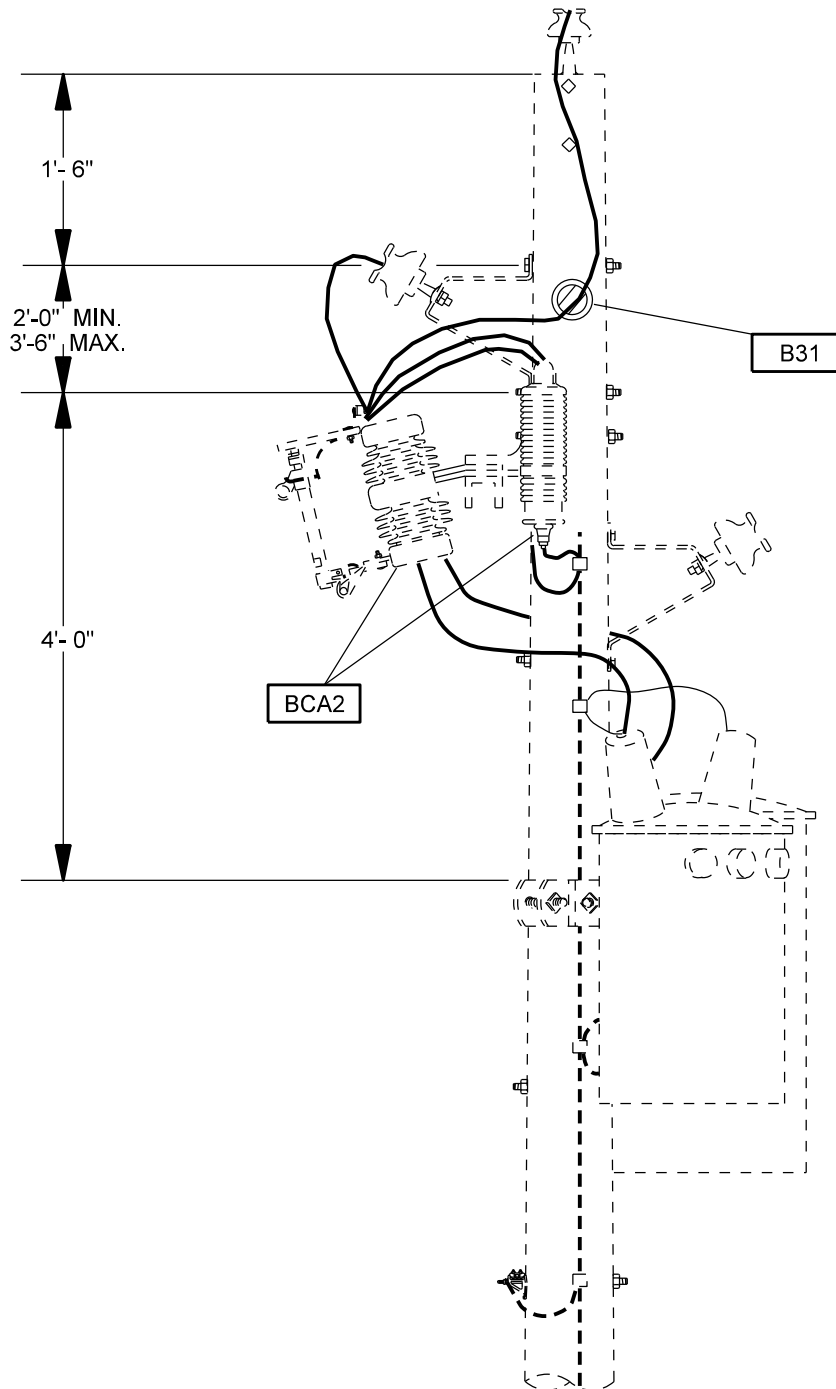
NOTES

1. USE XP1 FOR P35B, P35BJ OR P36B FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV TRANSFORMERS		ISSUE DATE: 05/02/11
	SINGLE TRANSFORMER INSTALLATION		REV. DATE: 06/11/11
	THREE PHASE DEADEND		APPROVAL: B. PRIEST
	STAGGERED CONFIGURATION, CROSSARM		
	7-19-1		8512E106.DGN

XP2

SEE NOTE 1



NOTES

1. USE XP2 FOR P20A, P30A, P30C, P25N OR P35N FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TWO TRANSFORMER INSTALLATION
TWO AND THREE PHASE, TANGENT AND SLACK DEADEND
POLE TOP

7-20-1

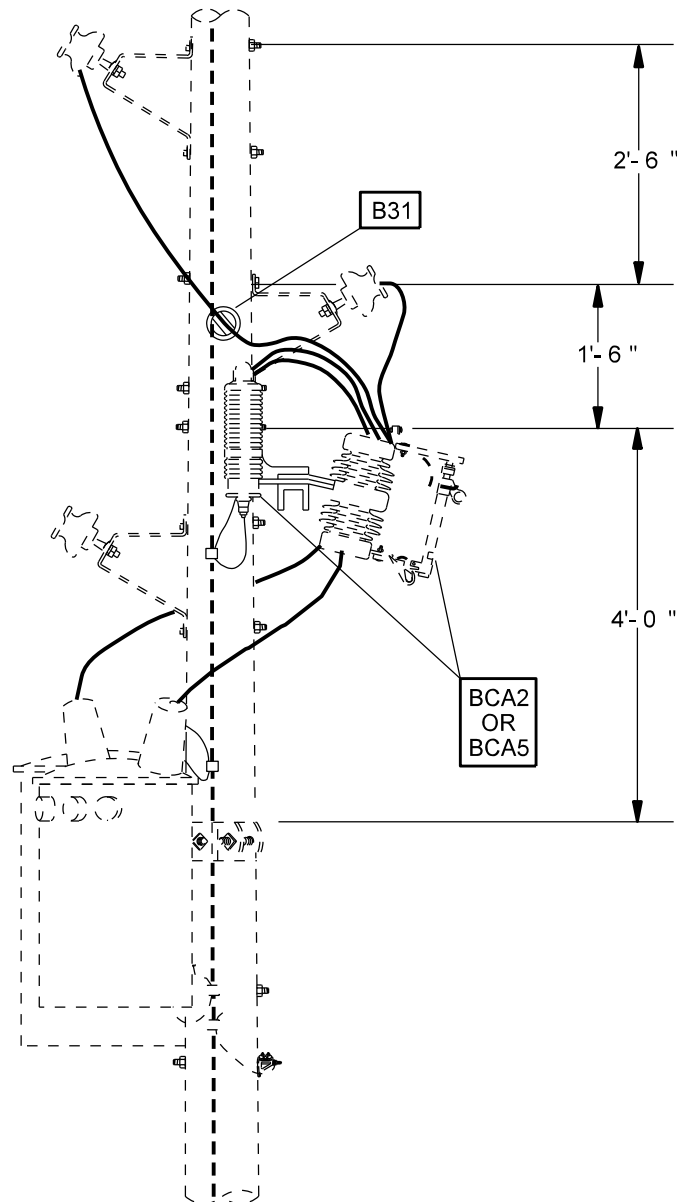
ISSUE DATE: 09/30/71

REV. DATE: 06/11/11

APPROVAL: B. PRIEST

8512E279.DGN

XP2 SEE NOTES 1 AND 2

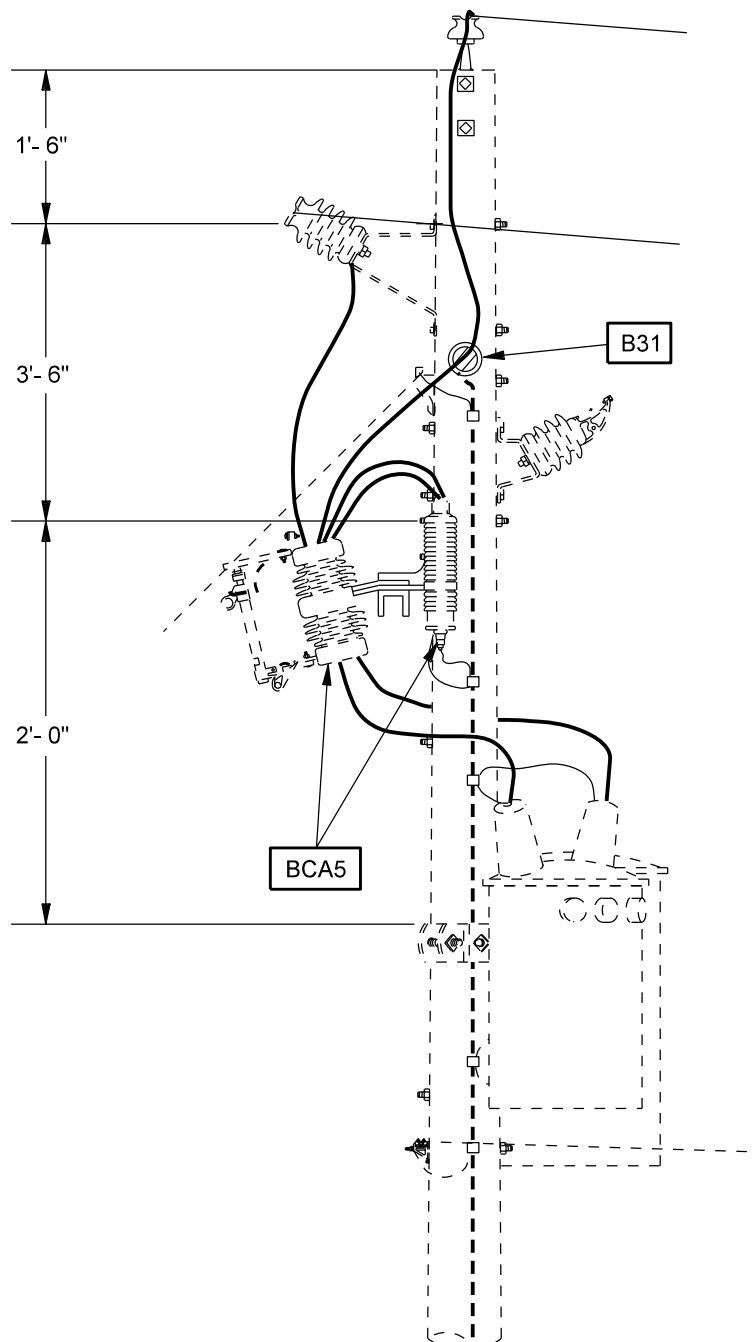


- NOTES**
- 1. USE XP2 FOR P20D, P21F, P21FA, P30D, P31F OR P31FA FRAMING.
 - 2. USE XP2 FOR P21D, P21GA, P31G, P31GA, P31K, P31KA, P31L OR P31LA FRAMING, AND LOWER DOWN GUY 12".

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS TWO TRANSFORMER INSTALLATION TWO AND THREE PHASE, TANGENT SMALL AND INTERMEDIATE ANGLE, UNDERBUILD	ISSUE DATE: 09/30/71 REV. DATE: 06/11/11 APPROVAL: B. PRIEST
	7-21-1	8512E280.DGN

XP2

SEE NOTE 1



NOTES

1. USE XP2 FOR P21B, P31B, P21BA, OR P31BA FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TWO TRANSFORMER INSTALLATION
TWO AND THREE PHASE, SMALL ANGLE
POLE TOP

7-22-1

ISSUE DATE: 09/30/71

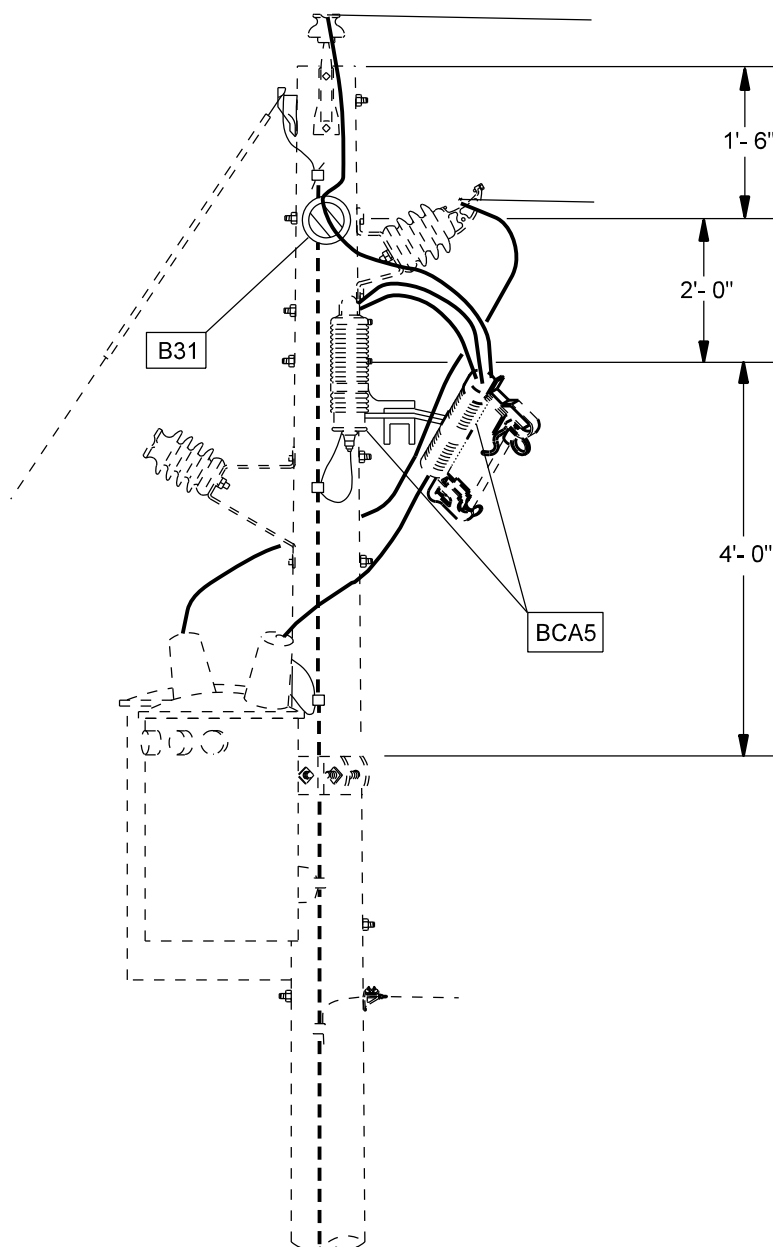
REV. DATE: 06/11/11

APPROVAL: B. PRIEST

8512E281.DGN

XP2

SEE NOTE 1



NOTES

1. USE XP2 FOR P21D, P31B, P21DA OR P31BA FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TWO TRANSFORMERS INSTALLATION
TWO AND THREE PHASE, SMALL ANGLE
POLE TOP

7-22-2

ISSUE DATE: 09/30/71

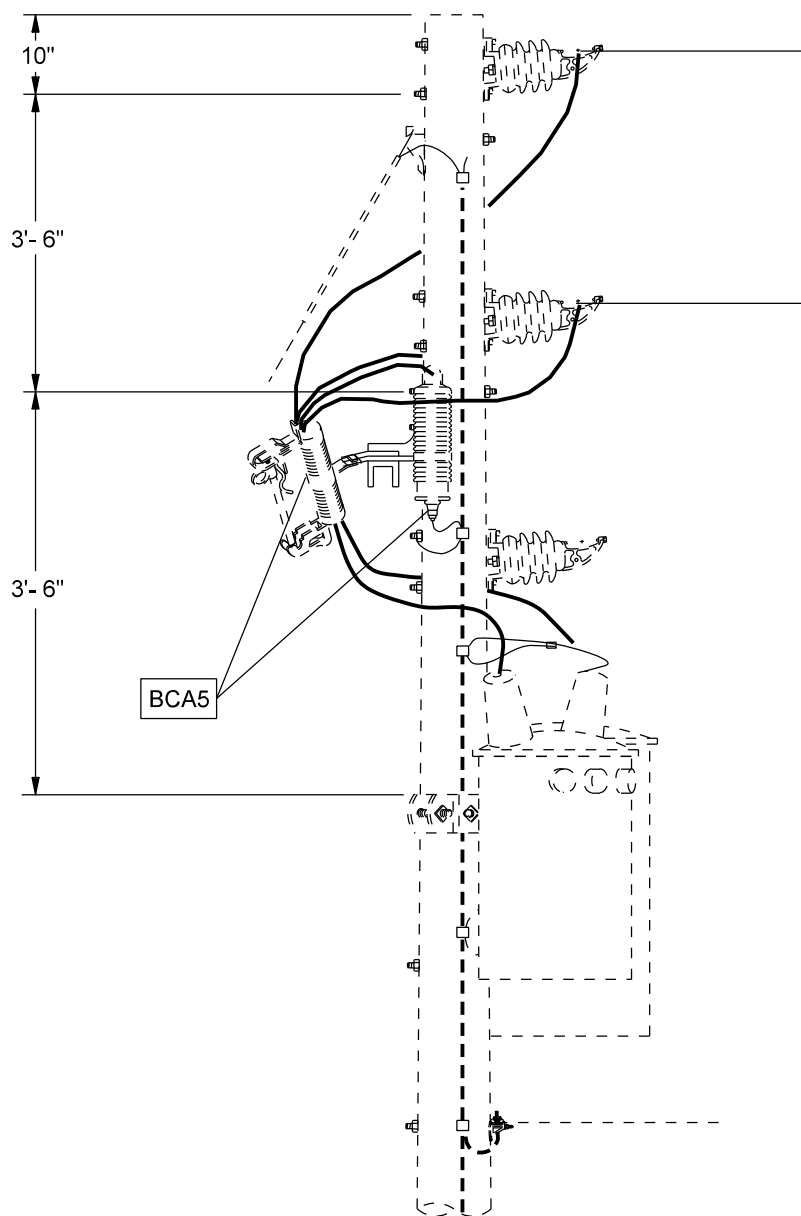
REV. DATE: 06/11/11

APPROVAL: B. PRIEST

8512E283.DGN

XP2

SEE NOTE 1



NOTES

1. USE XP2 FOR P22, P22A, P23, P23A, P25A, P32, P32A, P33, P33A, OR P35A FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TWO TRANSFORMER INSTALLATION
TWO AND THREE PHASE, INTERMEDIATE OR
MEDIUM ANGLE AND VERTICAL DEADEND

7-23-1

ISSUE DATE: 09/30/71

REV. DATE: 06/11/11

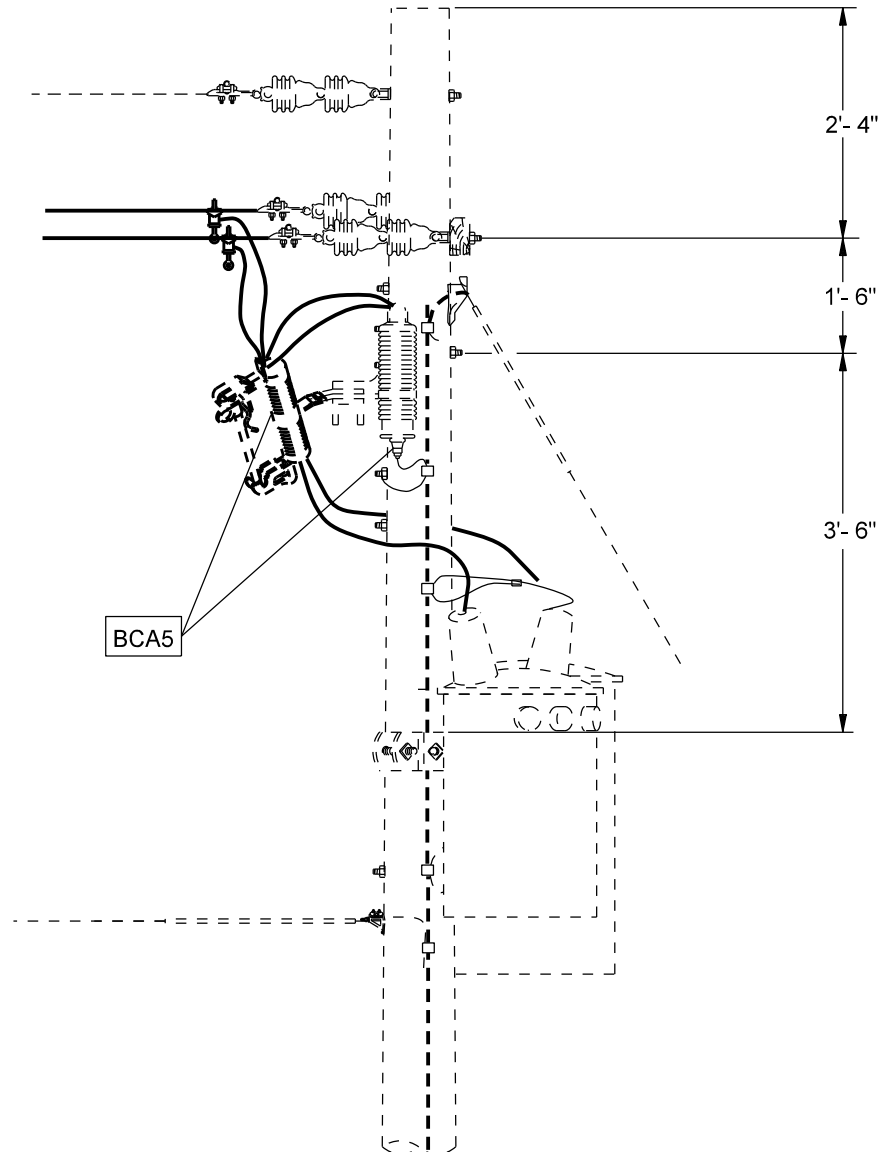
APPROVAL: B.PRIEST

8512E284.DGN

XP2

SEE NOTE 1

NEUTRAL AND/OR BOTTOM DOWN GUY
MAY BE LOWERED FOR LARGER TRANSFORMERS.



NOTES

1. USE XP2 P252 OR P352 FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TWO TRANSFORMER INSTALLATION
TWO AND THREE PHASE DEADEND
CROSSARM

7-24-1

ISSUE DATE: 09/30/71

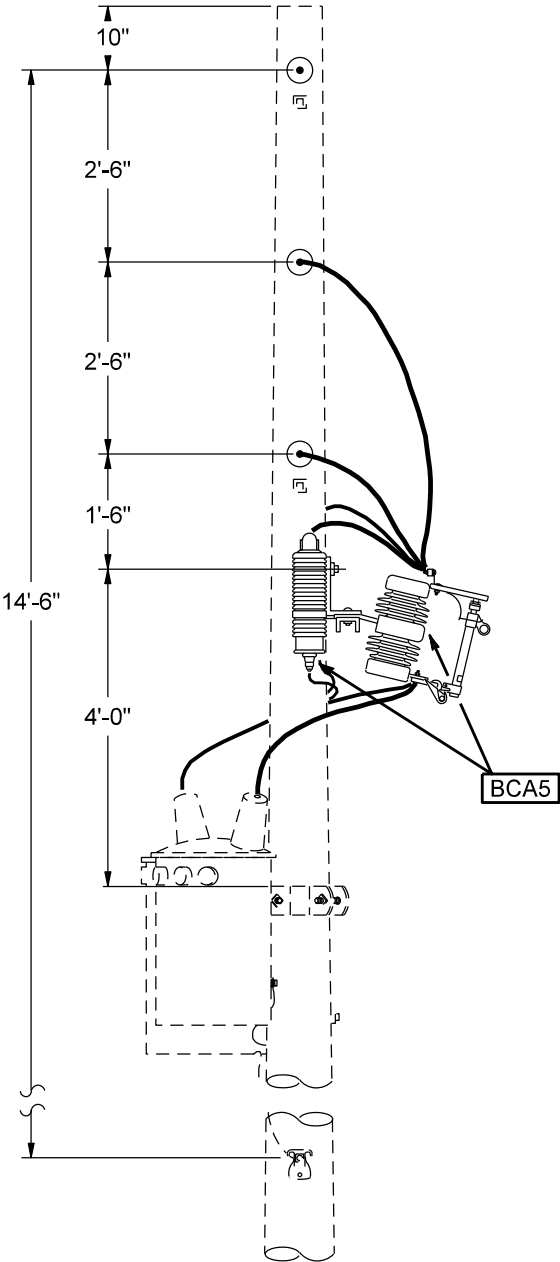
REV. DATE: 06/12/11

APPROVAL: B.PRIEST

8512E286.DGN

XP2

SEE NOTE 1



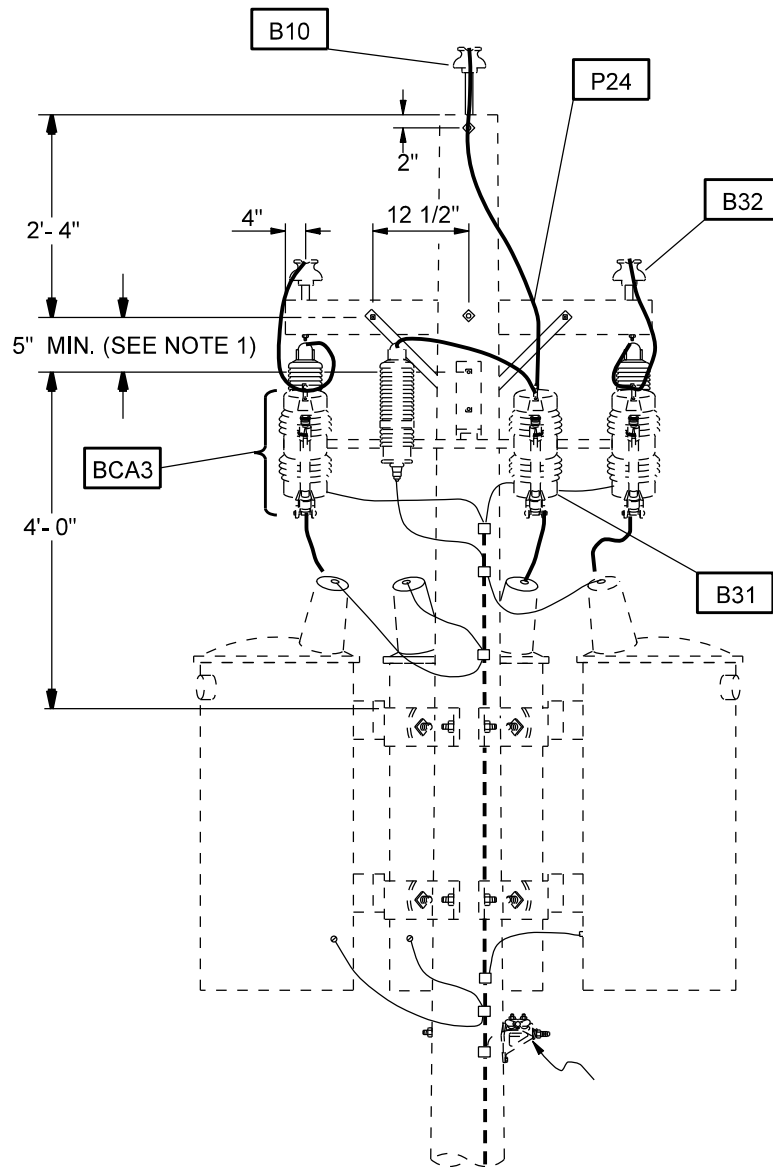
NOTES

1. USE XP2 FOR P35A FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS TWO TRANSFORMER INSTALLATION THREE PHASE DEADEND VERTICAL	ISSUE DATE: 04/26/76 REV. DATE: 06/12/11 APPROVAL: B.PRIEST
	7-25-1	8512E56.DGN

XP3

SEE NOTE 2

**NOTES**

1. THIS DIMENSION IS 2'-0" MAX. WITH NEUTRAL LOCATED 10'-4" FROM TOP OF POLE.
2. USE XP3 FOR P35AN FRAMING.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

12kV TRANSFORMERS
THREE TRANSFORMER INSTALLATION
THREE PHASE, TANGENT AND SLACK DEADEND
POLE TOP

7-26-1

ISSUE DATE: 09/30/71

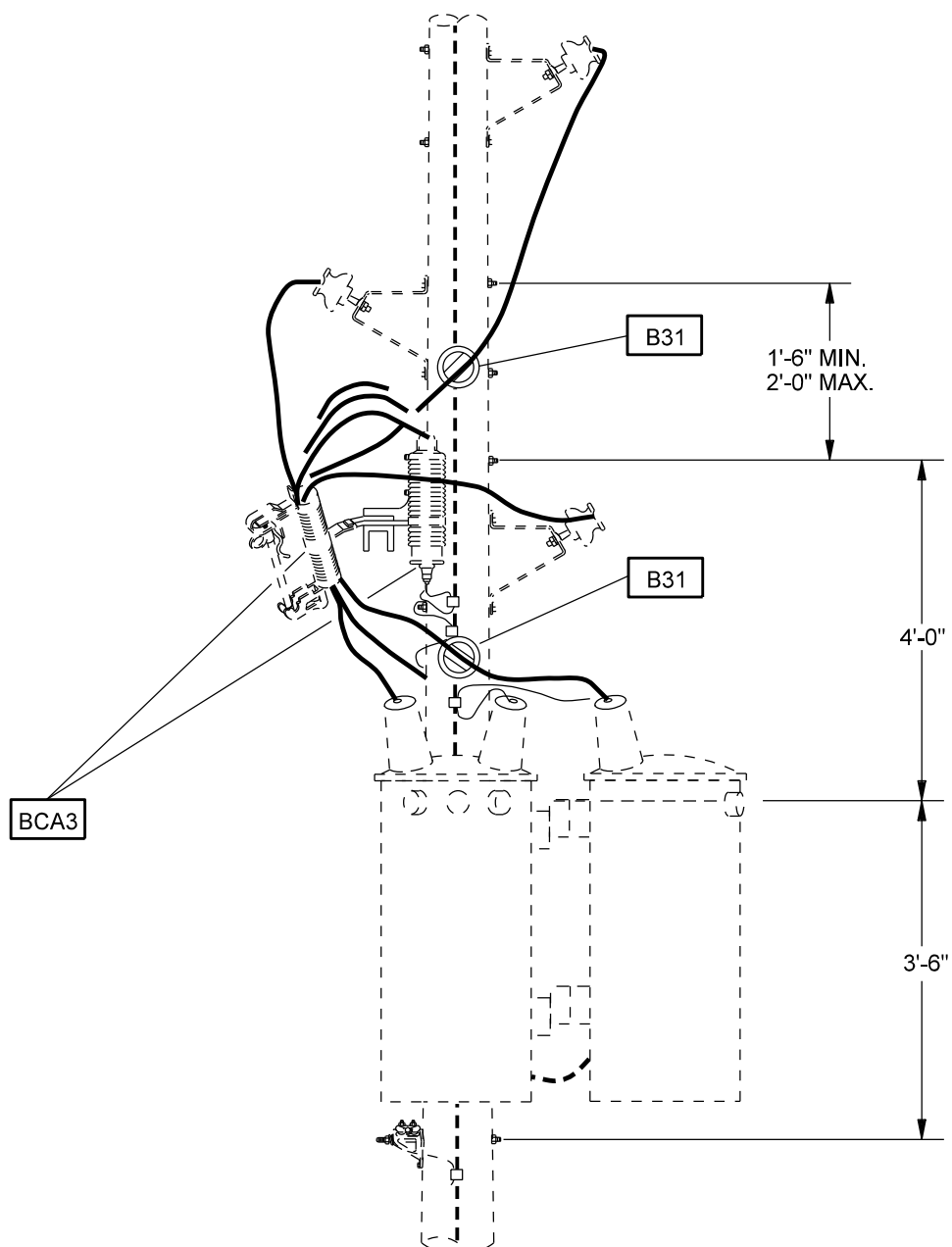
REV. DATE: 06/12/11

APPROVAL: B.PRIEST

8512E287.DGN

XP3

SEE NOTE 1



NOTES

1. USE XP3 FOR P30A, P30C, OR P30D FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
THREE TRANSFORMER INSTALLATION
THREE PHASE TANGENT
UNDERBUILD

7-27-1

ISSUE DATE: 06/26/81

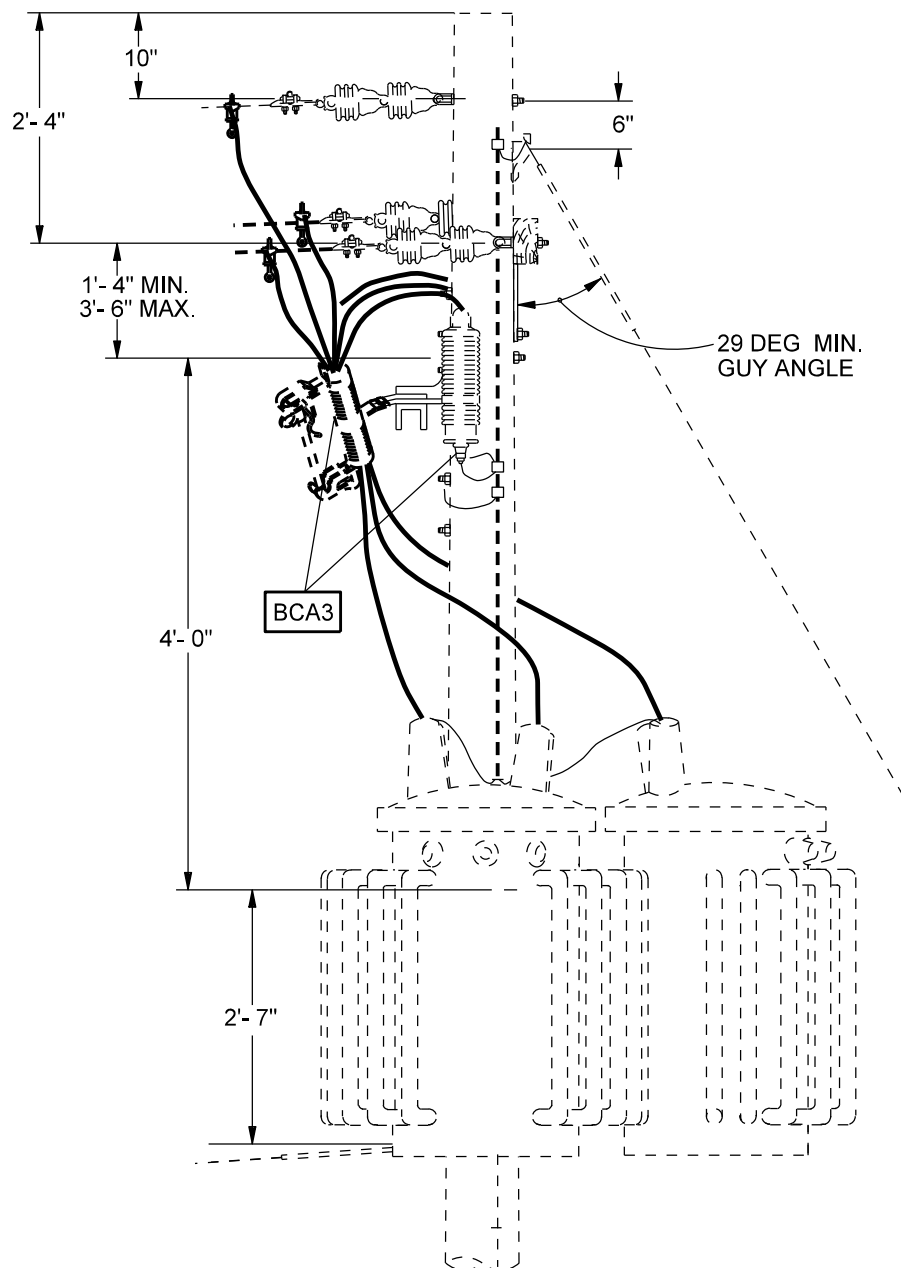
REV. DATE: 06/11/11

APPROVAL: B.PRIEST

8512E288.DGN

XP3

SEE NOTE 1



NOTES

1. USE XP3 FOR P35 FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
THREE TRANSFORMER INSTALLATION
THREE PHASE DEADEND
CROSSARM

7-28-1

ISSUE DATE: 09/30/71

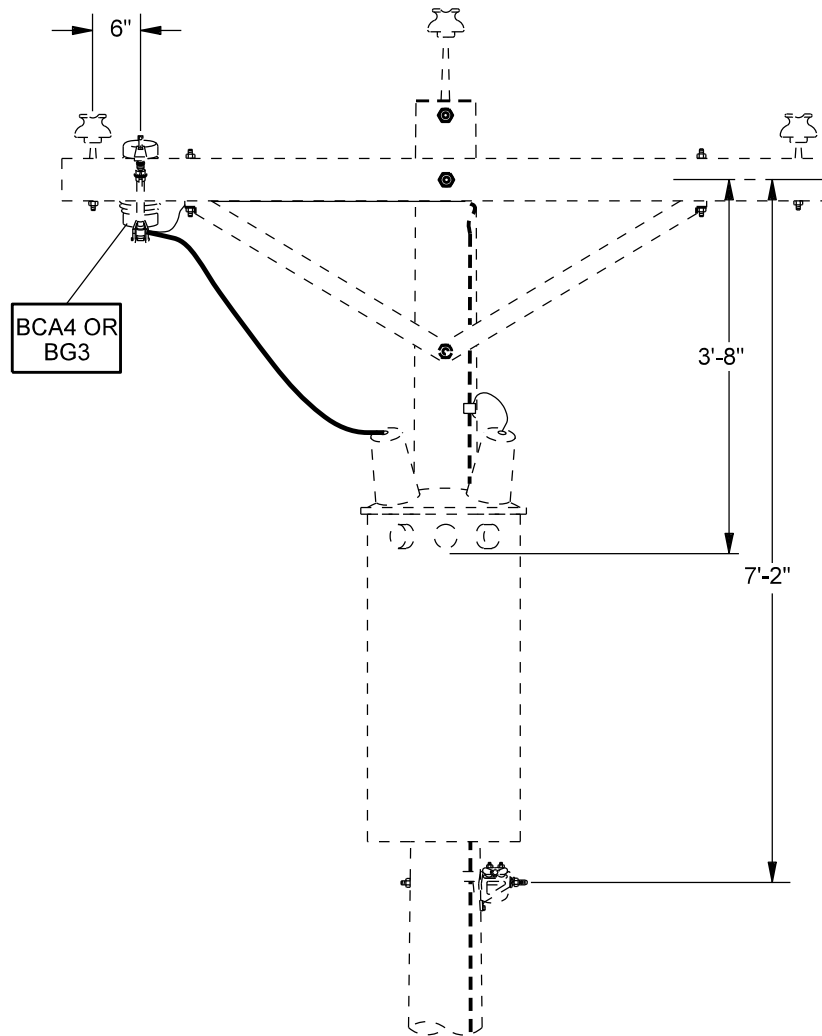
REV. DATE: 06/12/11

APPROVAL: B. PRIEST

8512E289.DGN

XPH1

SEE NOTE 1



NOTES

1. USE XPH1 FOR PH20 OR PH30 FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
SINGLE TRANSFORMER INSTALLATION
TWO OR THREE PHASE TANGENT
CROSSARM CONSTRUCTION

7-29-1

ISSUE DATE: 09/30/71

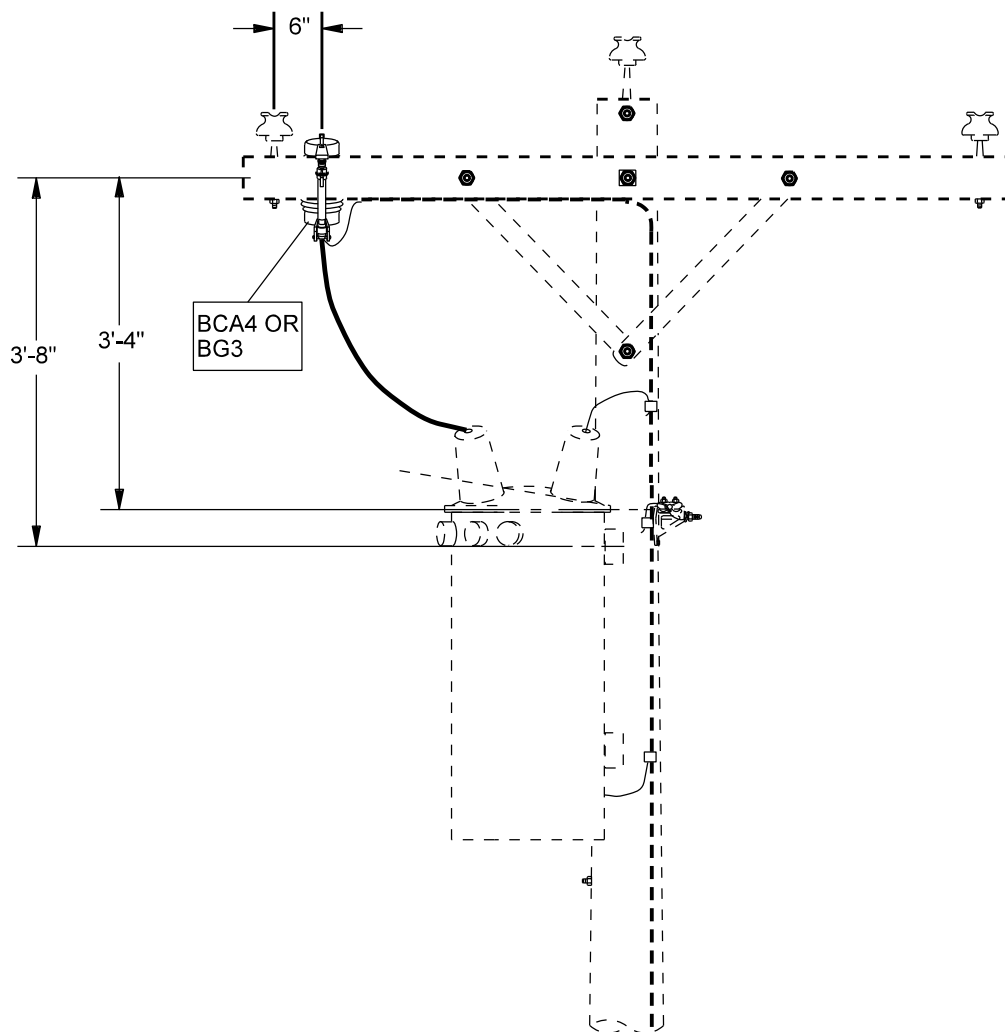
REV. DATE: 06/12/11

APPROVAL: B.PRIEST

8512E290.DGN

XPB1

SEE NOTE 3

**NOTES**

1. THIS STANDARD SHOULD ONLY BE USED WHEN INSTALLING A SINGLE TRANSFORMER ON AN **EXISTING 35' POLE** WITH CROSSARM.
2. POLE MUST BE IN SOUND CONDITION.
3. USE XPB1 FOR PH20 OR PH30 FRAMING.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

12kV TRANSFORMERS
SINGLE TRANSFORMER INSTALLATION
TWO OR THREE PHASE TANGENT
CROSSARM CONSTRUCTION, 35' POLE

7-30-1

ISSUE DATE: 05/21/76

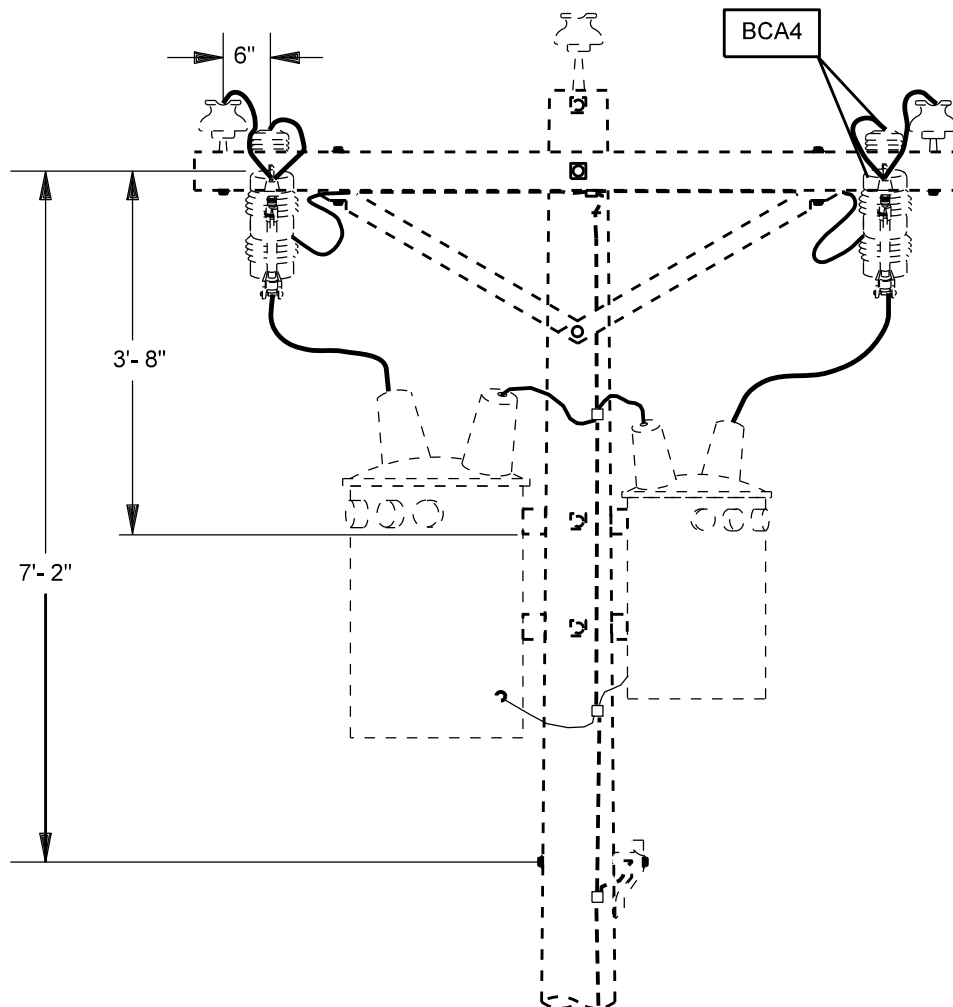
REV. DATE: 06/12/11

APPROVAL: B. PRIEST

8512E291.DGN

XPH2

SEE NOTE 1



NOTES

1. USE XPH2 FOR PH20 OR PH30 FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TWO TRANSFORMER INSTALLATION
TWO OR THREE PHASE TANGENT
CROSSARM CONSTRUCTION

7-31-1

ISSUE DATE: 09/30/71

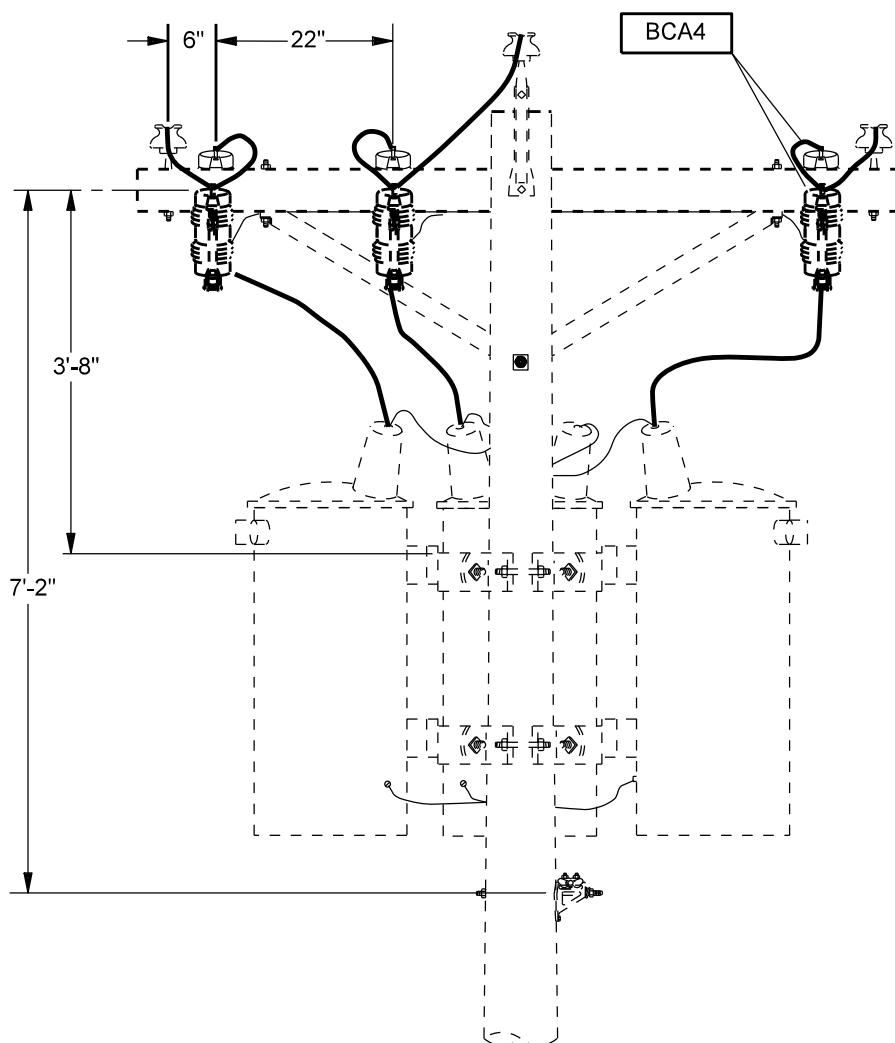
REV. DATE: 06/12/11

APPROVAL: B.PRIEST

8512E253.DGN

XPH3

SEE NOTE 1



NOTES

1. USE XPH3 FOR PH30 FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
THREE TRANSFORMER INSTALLATION
THREE PHASE TANGENT
CROSSARM CONSTRUCTION

7-32-1

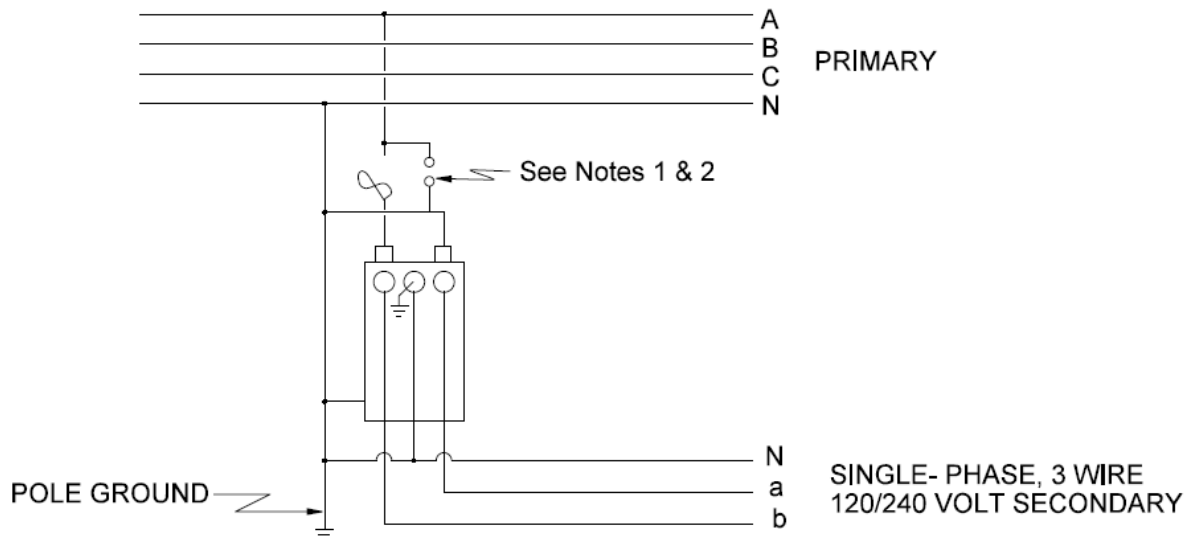
ISSUE DATE: 09/30/71

REV. DATE: 06/12/11

APPROVAL: B.PRIEST

8512E292.DGN

SINGLE PHASE PRIMARY ONE PHASE TO COMMON NEUTRAL



8512E295.DGN

1. USE

SINGLE PHASE ONLY: THIS CONNECTION WILL BE USED FOR ALL SINGLE-PHASE LOADS ON THE 7.2/12.4 AND 12.6/21.8KV SYSTEMS, EXCEPT FOR SPECIAL APPLICATIONS. TRANSFORMERS ARE RATED 7.200/12.470 Y FOR THE 7.2/12.4 KV SYSTEM AND 12000/20780 GRDY OR 12470/21600 FOR THE 12.4/21.6 KV SYSTEM.

2. LOAD CAPACITY

THE CAPACITY IS EQUAL TO THE PERMISSIBLE KVA LOADING OF THE TRANSFORMER.

3. CONNECTIONS

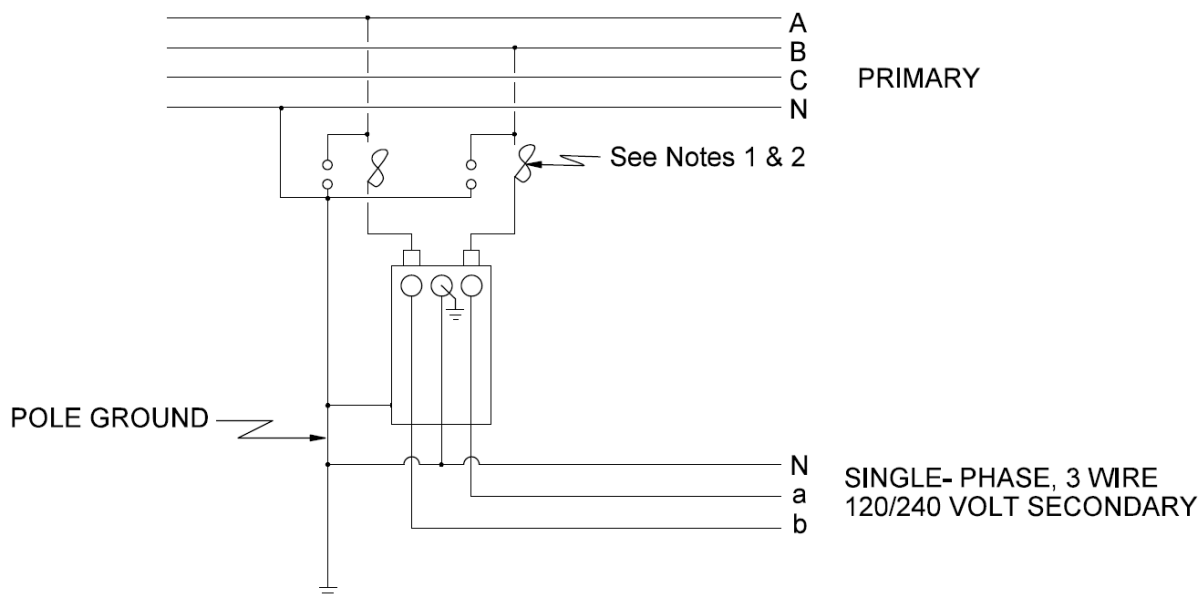
- A. THE TRANSFORMER MUST BE RATED FOR PRIMARY LINE TO NEUTRAL VOLTAGE AND MAY BE CONNECTED TO ANY PRIMARY PHASE AVAILABLE, BUT AS REQUIRED TO MAINTAIN SYSTEM PHASE BALANCING.
- B. SINGLE PRIMARY BUSHING TRANSFORMERS MAY BE USED.

NOTES

1. ARRESTER AND CUTOUT AS REQUIRED. SEE CUTOUT & ARRESTER REQUIREMENTS, PAGE 7-43-1.
2. SEE STANDARD PRIMARY FUSE SIZES ON PAGE 7-42-1 FOR STANDARD FUSING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS SINGLE PHASE PRIMARY ONE PHASE TO COMMON NEUTRAL 7-33-1	ISSUE DATE: 02/08/68 REV. DATE: 06/10/11 APPROVAL: B. Priest OH7-33-1.doc
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2Ø PRIMARY, 1Ø SECONDARY PHASE-TO-PHASE CONNECTION



8512E296.DGN

1. USE

SINGLE PHASE ONLY: THIS CONNECTION MAY BE USED ON THE 7.2/12.4 KV SYSTEM FOR SPECIAL SINGLE PHASE APPLICATIONS. TRANSFORMERS ARE RATED 12000/20780 GRDY, 12470/21600 GRDY, 12000 OR 12470.

2. LOAD CAPACITY

THE CAPACITY IS EQUAL TO THE PERMISSIBLE KVA LOADING OF THE TRANSFORMER.

3. CONNECTIONS

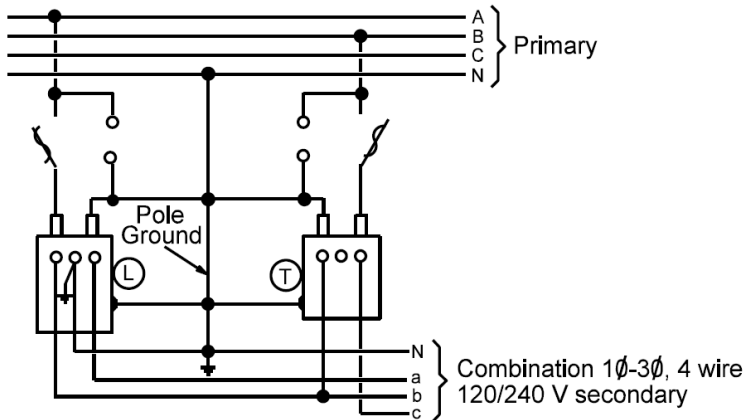
- A. THE TRANSFORMER MUST BE RATED FOR PRIMARY LINE TO LINE VOLTAGE AND MAY BE CONNECTED TO ANY TWO PRIMARY PHASES AVAILABLE, BUT AS REQUIRED TO MAINTAIN SYSTEM PHASE BALANCING.
- B. TWO PRIMARY BUSHING TRANSFORMERS MUST BE USED.

NOTES

1. ARRESTER AND CUTOUT AS REQUIRED. SEE CUTOUT & ARRESTER REQUIREMENTS, PAGE 7-43-1.
2. SEE STANDARD PRIMARY FUSE SIZES ON PAGE 7-42-1 FOR STANDARD FUSING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV TRANSFORMERS	ISSUE DATE: 02/08/68
	2Ø PRIMARY, 1Ø SECONDARY	REV. DATE: 06/10/11
	PHASE-TO-PHASE CONNECTION	APPROVAL: B. Priest
	7-34-1	OH7-34-1.doc

TRANSFORMER CONNECTIONS **OPEN WYE PRIMARY, OPEN DELTA SECONDARY**



8512E53.DGN

1. USE

- A. USE THIS CONNECTION FOR ALL THREE-PHASE 240 V LOADS LESS THAN 43 KVA. IF THREE-PHASE PRIMARY IS NOT READILY AVAILABLE, THE THREE-PHASE LOAD SERVED MAY BE INCREASED TO 87 KVA. TRANSFORMERS ARE RATED 7200/12470 Y FOR THE 7.2/12.4 KV SYSTEM, AND 12000/20780 GRD Y OR 12470/21600 GRD Y FOR THE 12.4/21.6 KV SYSTEM.
- B. COMBINATION LOADS: USE THIS CONNECTION FOR ALL LOADS WHICH TOTAL LESS THAN 45 KVA (1Ø & 3Ø) AND FOR LARGER LOADS AS DETERMINED BY THE DESIGNER.
- C. THREE-WIRE SERVICES ARE NOT PERMITTED FOR NEW CONSTRUCTION.

2. LOAD CAPACITY

- A. THREE PHASE ONLY: TWO TRANSFORMERS OF EQUAL SIZE ARE USED AND THE CAPACITY OF THE BANK IS 1.73 TIMES THE PERMISSIBLE KVA LOADING OF EITHER TRANSFORMER
- B. COMBINATION LOADS: THE THREE-PHASE CAPACITY IS 1.73 TIMES THE PERMISSIBLE KVA LOADING OF TRANSFORMER (T). THE SINGLE PHASE CAPACITY IS THE PERMISSIBLE KVA LOADING OF THE TRANSFORMER (L) MINUS 50% OF THE ACTUAL THREE PHASE KVA LOAD.

3. CONNECTIONS

- A. THE DIAGRAM ABOVE IS FOR TRANSFORMERS HAVING LIKE POLARITY. IF THEY HAVE OPPOSITE POLARITY, REVERSE THE SECONDARY CONNECTION OF EITHER TRANSFORMER.
- B. REVERSE PHASE ROTATION BY INTERCHANGING THE TWO SECONDARY PHASE CONDUCTORS (A AND B) WHICH SUPPLY SINGLE-PHASE LOAD. FOR A GROUP OF CUSTOMERS, THIS CHANGE SHOULD BE MADE AT THE TRANSFORMER SECONDARY BUS WHEREAS, FOR A SINGLE CUSTOMER, IT SHOULD BE MADE AT THE SERVICE ENTRANCE.
- C. TRANSFORMERS MUST BE RATED FOR PRIMARY LINE TO NEUTRAL VOLTAGE AND HAVE IDENTICAL NAMEPLATE VOLTAGE RATINGS. THE TRANSFORMER TAPS MUST BE SET TO POSITIONS GIVING THE SAME PERCENTAGES OF PRIMARY WINDINGS
- D. ON 120/240 VOLT INSTALLATIONS, THE VOLTAGE BETWEEN THE POWER LEG (PHASE C) AND NEUTRAL (N) IS APPROXIMATELY 200 VOLTS. 120 VOLT SERVICES ARE NOT TO BE CONNECTED TO THIS PHASE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS OPEN WYE PRIMARY OPEN DELTA SECONDARY 7-35-1	ISSUE DATE: 02/08/68 REV. DATE: 06/12/11 APPROVAL: B. Priest OH7-35-1.doc
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**TRANSFORMER CONNECTIONS
OPEN WYE PRIMARY, OPEN DELTA SECONDARY**

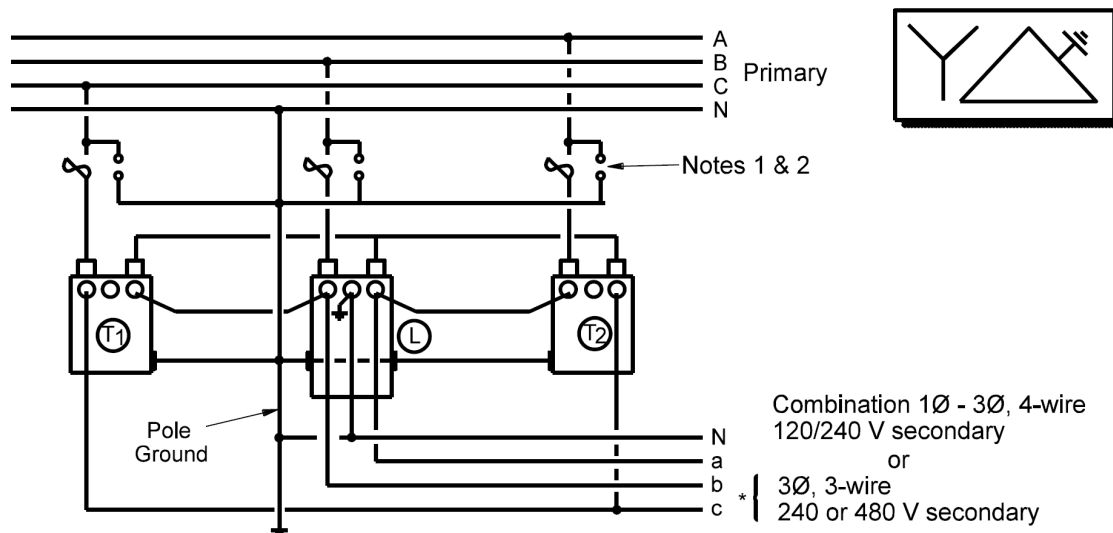
- E. THREE-WIRE SERVICES ARE NO LONGER PERMITTED FOR NEW CONSTRUCTION. ON EXISTING 240 OR 480 VOLT THREE-PHASE, THREE-WIRE UNGROUNDED SECONDARIES, THE VOLTAGE MEASURED BETWEEN ANY PHASE AND GROUND MAY VARY GREATLY, HOWEVER, THIS IS NOT SIGNIFICANT.

4. IMPEDANCE

- A. TRANSFORMER IMPEDANCES DO NOT NEED TO MATCH.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS OPEN WYE PRIMARY OPEN DELTA SECONDARY	ISSUE DATE: 02/08/68 REV. DATE: 06/12/11 APPROVAL: B. Priest
	7-35-2	OH7-35-1.doc

TRANSFORMER CONNECTIONS **WYE PRIMARY, DELTA SECONDARY, FLOATING PRIMARY NEUTRAL**



8512E247.DGN

1. USE

- THREE PHASE ONLY: USE THIS CONNECTION FOR ALL 240 VOLT LOADS GREATER THAN 43 KVA. IN ADDITION, 480 VOLT LOADS GREATER THAN 43 KVA MAY BE SERVED USING THIS CONNECTION IF 7.2/12.4 KV - 240/480 V TRANSFORMERS OF THE CORRECT KVA RATING ARE AVAILABLE. TRANSFORMERS ARE RATED 7200/12470 Y FOR THE 7.2/12.4 KV SYSTEM AND 12000/20780 GRD Y OR 12470/21600 GRD Y FOR THE 12.4/21.6 KV SYSTEM.
- COMBINATION LOADS: USE THIS CONNECTION WHEN THE SINGLE-PHASE LOAD DOES NOT EXCEED 2/3 OF THE THREE-PHASE LOAD AND THE COMBINED LOAD IS TOO LARGE TO BE SERVED BY THE OPEN - WYE DELTA CONNECTION.

2. LOAD CAPACITY

- THREE PHASE ONLY: THE CAPACITY OF THE BANK IS THREE TIMES THE PERMISSIBLE KVA LOADING OF ONE TRANSFORMER, USING THREE EQUAL SIZE TRANSFORMERS.
- COMBINATION LOADS: TRANSFORMERS "T1" AND "T2" EACH SUPPLY 1/3 THE THREE-PHASE LOAD AND 1/3 THE SINGLE-PHASE LOAD. TRANSFORMER "L" SUPPLIES 1/3 THE THREE-PHASE AND 2/3 THE SINGLE-PHASE LOAD.

3. CONNECTIONS

- DO NOT CONNECT THE PRIMARY WYE NEUTRAL POINT TO GROUND OR LINE NEUTRAL.
- THE DIAGRAM ABOVE IS FOR TRANSFORMERS HAVING LIKE POLARITY. IF ONE TRANSFORMER IS OF OPPOSITE POLARITY, REVERSE ITS PRIMARY CONNECTION. IF IT IS DESIRED TO REVERSE ONE PRIMARY CONNECTION FOR OTHER REASONS, THEN PRIMARY CONNECTIONS OF ALL THREE TRANSFORMERS MUST BE REVERSED.
- REVERSE PHASE ROTATION BY INTERCHANGING THE TWO SECONDARY PHASE CONDUCTORS (A AND B) WHICH SUPPLY SINGLE-PHASE LOAD. FOR A GROUP OF CUSTOMERS, THIS CHANGE SHOULD BE MADE AT THE TRANSFORMER SECONDARY BUS, WHEREAS, FOR A SINGLE CUSTOMER, IT SHOULD BE MADE AT THE SERVICE ENTRANCE.
- TRANSFORMERS MUST BE RATED FOR PRIMARY LINE TO NEUTRAL VOLTAGE AND HAVE TWO PRIMARY BUSHINGS. NAMEPLATE VOLTAGE RATINGS MUST BE IDENTICAL AND THE TAPS SET TO GIVE THE SAME PERCENTAGE OF THE PRIMARY WINDINGS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS WYE PRIMARY, DELTA SECONDARY FLOATING PRIMARY NEUTRAL	ISSUE DATE: 05/24/95
	7-36-1	REV. DATE: 04/17/13 APPROVAL: B. Priest OH7-36-1.doc

TRANSFORMER CONNECTIONS
WYE PRIMARY, DELTA SECONDARY, FLOATING PRIMARY NEUTRAL

- E. ON 120/240 VOLT INSTALLATIONS, THE VOLTAGE BETWEEN THE POWER LEG (PHASE C) AND NEUTRAL (N) IS APPROXIMATELY 200 VOLTS. 120 VOLT SERVICES ARE NOT TO BE CONNECTED TO THIS PHASE.
- F. ON 240 OR 480 VOLT THREE-PHASE, THREE-WIRE SECONDARIES, THE VOLTAGE MEASURED BETWEEN ANY PHASE AND GROUND MAY VARY GREATLY, HOWEVER, THIS IS NOT SIGNIFICANT.

4. IMPEDANCE

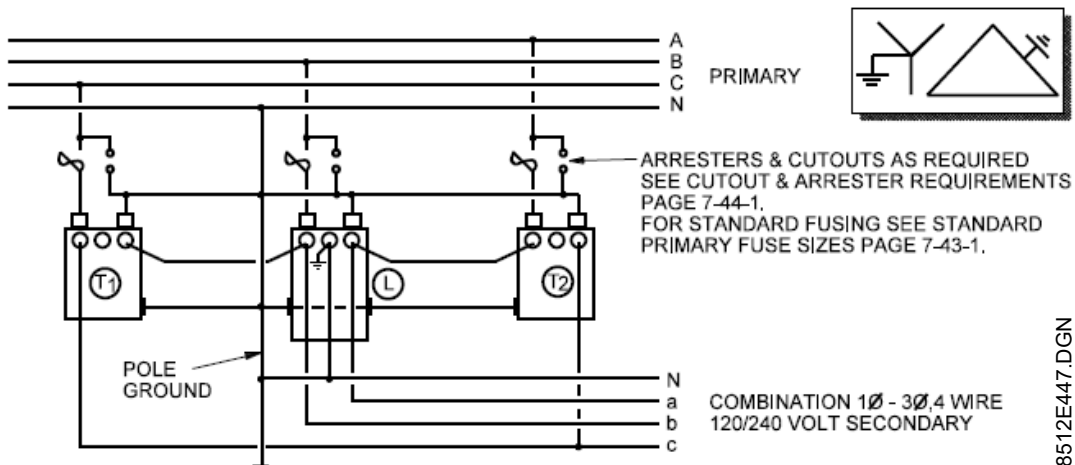
- A. TRANSFORMER IMPEDANCES DO NOT NEED TO MATCH. *THREE-WIRE SECONDARY IS NO LONGER AVAILABLE FOR NEW INSTALLATIONS OR FOR REVAMP OF EXISTING INSTALLATIONS. NO NEUTRAL REQUIRED FOR EXISTING THREE-WIRE SERVICES

NOTES

- 1. ARRESTER AND CUTOUT AS REQUIRED. SEE CUTOUT & ARRESTER REQUIREMENTS, PAGE 7-43-1.
- 2. SEE STANDARD PRIMARY FUSE SIZES ON PAGE 7-42-1 FOR STANDARD FUSING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS		ISSUE DATE: 05/24/95
	TRANSFORMER CONNECTIONS		REV. DATE: 04/17/13
	WYE PRIMARY, DELTA SECONDARY		APPROVAL: B. Priest
	FLOATING PRIMARY NEUTRAL		
	7-36-2		OH7-36-1.doc

TRANSFORMER CONNECTIONS **WYE PRIMARY, DELTA SECONDARY, GROUNDED PRIMARY NEUTRAL**



1. USE

- A. DO NOT USE THIS CONNECTION, IT ACTS AS A GROUND SOURCE FOR THE PRIMARY SYSTEM. USE "WYE PRIMARY - DELTA SECONDARY, FLOATING PRIMARY NEUTRAL CONNECTION".
- B. COMBINATION LOADS: USE THIS CONNECTION WHEN THE SINGLE-PHASE LOAD EXCEEDS 2/3 OF THE THREE- PHASE LOAD AND THE COMBINED LOAD IS TOO LARGE TO BE SERVED BY THE OPEN WYE – OPEN DELTA CONNECTION. TRANSFORMERS ARE RATED 7200/12470 Y FOR THE 7.2/12.4 KV SYSTEM AND 12000/20780 GRD Y OR 12470/21600 GRD Y FOR THE 12.4/21.6 KV SYSTEM.

2. LOAD CAPACITY

- A. EACH TRANSFORMER SUPPLIES 1/3 THE THREE-PHASE LOAD PLUS SOME PERCENTAGE OF THE SINGLE-PHASE LOAD, WHICH IS DETERMINED PRIMARILY BY THE RELATIVE KVA RATING OF THE TRANSFORMERS USED.

3. CONNECTIONS

- A. THE COMMON WYE POINT OF THE PRIMARY MUST BE CONNECTED TO LINE NEUTRAL
- B. THE DIAGRAM ABOVE IS FOR TRANSFORMERS HAVING LIKE POLARITY. IF ONE TRANSFORMER IS OF OPPOSITE POLARITY, REVERSE ITS PRIMARY CONNECTION. IF IT IS DESIRED TO REVERSE ONE PRIMARY CONNECTION FOR OTHER REASONS, THEN PRIMARY CONNECTIONS OF ALL THREE TRANSFORMERS MUST BE REVERSED
- C. REVERSE PHASE ROTATION BY INTERCHANGING THE TWO SECONDARY PHASE CONDUCTORS (A AND B) WHICH SUPPLY SINGLE-PHASE LOAD. FOR A GROUP OF CUSTOMERS, THIS CHANGE SHOULD BE MADE AT THE TRANSFORMER SECONDARY BUS, WHEREAS, FOR A SINGLE CUSTOMER, IT SHOULD BE MADE AT THE SERVICE ENTRANCE
- D. TRANSFORMERS MUST BE RATED FOR PRIMARY LINE TO NEUTRAL VOLTAGE AND HAVE IDENTICAL VOLTAGE RATINGS. THE TRANSFORMER TAPS MUST BE SET TO POSITIONS GIVING THE SAME PERCENTAGE OF THE PRIMARY WINDINGS. SINGLE PRIMARY BUSHING TRANSFORMERS MAY BE USED IF THEY HAVE LIKE POLARITY.
- E. ON 120/240 VOLT INSTALLATIONS, THE VOLTAGE BETWEEN THE POWER LEG (PHASE C) AND NEUTRAL (N) IS APPROXIMATELY 200 VOLTS. 120 VOLT SERVICES ARE NOT TO BE CONNECTED TO THIS PHASE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS WYE PRIMARY, DELTA SECONDARY GROUNDED PRIMARY NEUTRAL	ISSUE DATE: 05/24/95
	7-37-1	REV. DATE: 06/12/11 APPROVAL: B. Priest OH7-37-1.doc

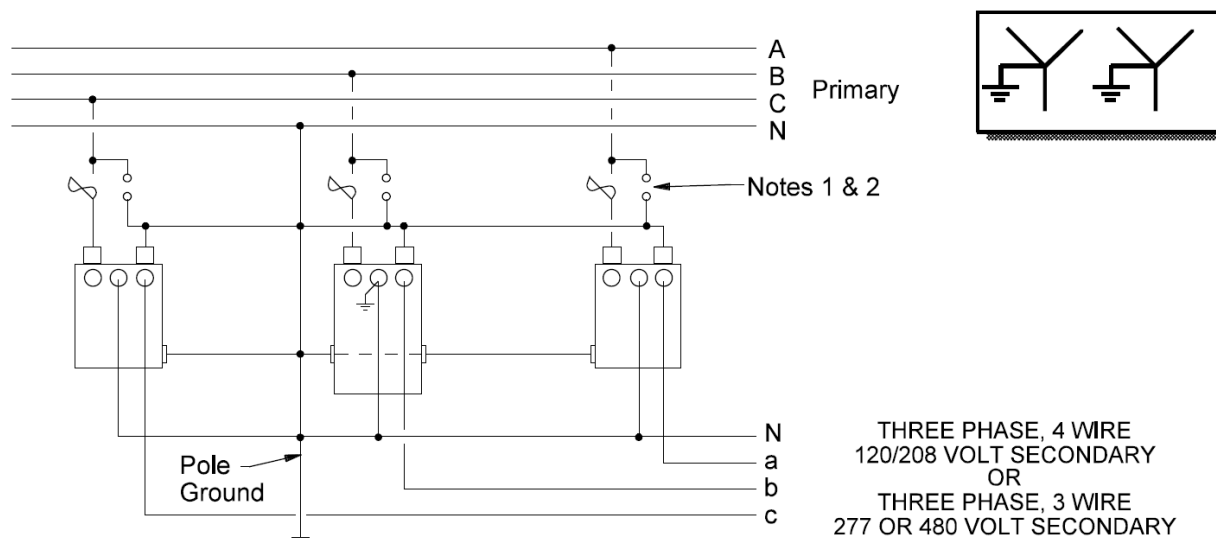
TRANSFORMER CONNECTIONS
WYE PRIMARY, DELTA SECONDARY, GROUNDED PRIMARY NEUTRAL

4. IMPEDANCE

- A. IMPEDANCE OF TRANSFORMER "L" SHALL NOT EXCEED 4.1%. THE LARGEST NAMEPLATE IMPEDANCE SHALL NOT BE MORE THAN 1.14 TIMES THE SMALLEST IMPEDANCE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS WYE PRIMARY, DELTA SECONDARY GROUNDED PRIMARY NEUTRAL	ISSUE DATE: 05/24/95 REV. DATE: 06/12/11 APPROVAL: B. Priest
	7-37-2	OH7-37-1.doc

WYE PRIMARY – WYE SECONDARY



1. USE

- A. 120/208 V SECONDARIES ON 7.2/12.4 KV SYSTEMS: USE TO SUPPLY LOADS 500 KVA OR LESS. TRANSFORMERS ARE RATED 7200/12470 Y.
- B. 277/480 V SECONDARIES ON 7.2/12.4 KV SYSTEMS. USE TO SUPPLY LOADS 500 KVA OR LESS (VERIFY TRANSFORMER AVAILABILITY).
- C. 120/208 AND 277/480 V SECONDARIES ON 12.4/21.6 KV SYSTEMS: USE TO SUPPLY ALL LOADS. TRANSFORMERS ARE RATED 12000/20780 GRD Y OR 12470/21600 GRD Y FOR THE 120/208 V SECONDARIES AND 12470/21600 GRD Y FOR THE 277/480 V SECONDARIES.

2. LOAD CAPACITY

- A. THE TOTAL BANK CAPACITY IS THREE TIMES THE PERMISSIBLE KVA LOADING OF ONE TRANSFORMER, USING THREE EQUAL SIZE TRANSFORMERS.

3. CONNECTIONS

- A. THE COMMON WYE POINTS OF BOTH PRIMARY AND SECONDARY MUST BE CONNECTED TO LINE NEUTRAL.
- B. FOR 120/208 V BANKS, THE TWO SECONDARY WINDINGS OF EACH TRANSFORMER MUST BE CONNECTED IN PARALLEL FOR 120 V OPERATION. SEE FIG. 2 FOR BANKS 3-15 THRU 3-100 KVA, FIG. 5 FOR BANKS 3-167 KVA, TRANSFORMER CONNECTIONS, GENERAL INFORMATION.
- C. THE DIAGRAM ABOVE IS FOR TRANSFORMERS HAVING LIKE POLARITY. IF ONE TRANSFORMER IS OF OPPOSITE POLARITY, REVERSE ITS PRIMARY CONNECTION. IF IT IS DESIRED TO REVERSE ONE PRIMARY CONNECTION FOR OTHER REASONS, THEN PRIMARY CONNECTIONS OF ALL THREE TRANSFORMERS MUST BE REVERSED.
- D. REVERSE PHASE ROTATION BY INTERCHANGING ANY TWO SECONDARY PHASE CONDUCTORS. FOR A GROUP OF CUSTOMERS, THIS CHANGE SHOULD BE MADE AT THE TRANSFORMER SECONDARY BUS, WHEREAS, FOR A SINGLE CUSTOMER, IT SHOULD BE MADE AT THE SERVICE ENTRANCE.
- E. TRANSFORMERS MUST BE RATED FOR PRIMARY LINE TO NEUTRAL VOLTAGE AND HAVE IDENTICAL NAMEPLATE VOLTAGE RATINGS. THE TRANSFORMER TAPS MUST BE SET TO POSITIONS GIVING THE SAME PERCENTAGE OF PRIMARY WINDINGS. SINGLE BUSHING TRANSFORMERS MAY BE USED IF THEY HAVE LIKE POLARITY.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS WYE PRIMARY – WYE SECONDARY	ISSUE DATE: 06/10/11
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WYE PRIMARY – WYE SECONDARY

F. IT IS THE CUSTOMER'S RESPONSIBILITY TO MAINTAIN BALANCED LOADING BETWEEN THE THREE PHASES.

4. IMPEDANCE

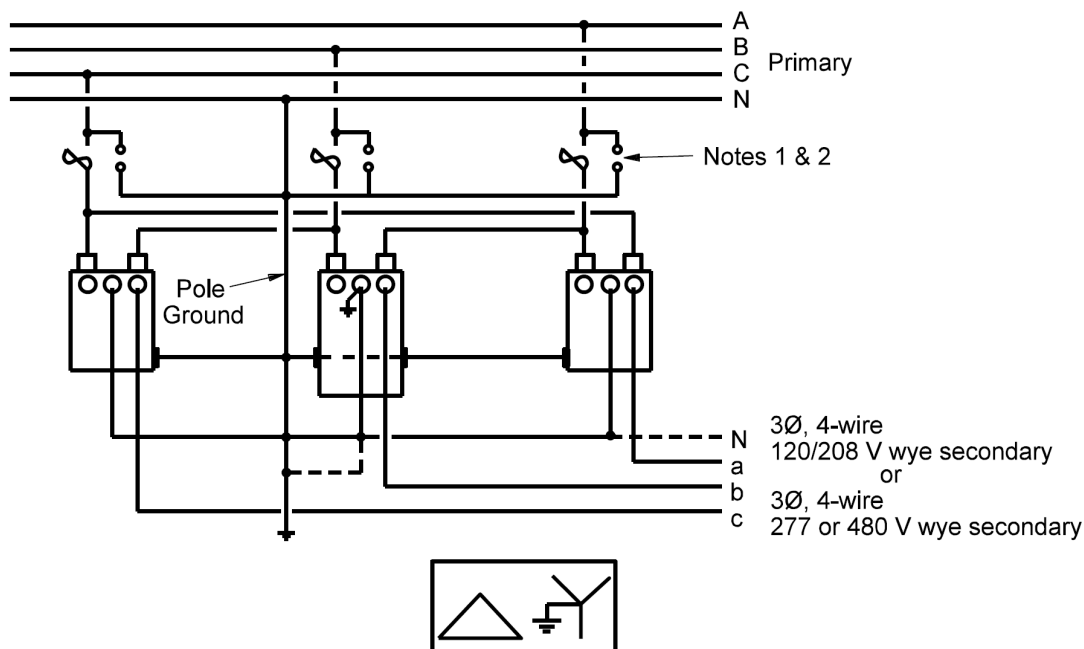
A. THE LARGEST IMPEDANCE SHALL NOT BE MORE THAN 1 ½ TIMES THE SMALLEST IMPEDANCE.

NOTES

1. ARRESTER AND CUTOUT AS REQUIRED. SEE CUTOUT & ARRESTER REQUIREMENTS, PAGE 7-43-1.
2. SEE STANDARD PRIMARY FUSE SIZES ON PAGE 7-42-1 FOR STANDARD FUSING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV TRANSFORMERS WYE PRIMARY – WYE SECONDARY	ISSUE DATE: 06/10/11 REV. DATE: APPROVAL: B. Priest
	7-38-2	OH7-38-1.doc

TRANSFORMER CONNECTIONS **DELTA PRIMARY, WYE SECONDARY (WYE SYSTEMS)**



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1. USE

- A. 120/208 V SECONDARIES ON 7.2/12.4 KV SYSTEMS: USE TO SUPPLY LOADS LARGER THAN 500 KVA. TRANSFORMERS OF THE FOLLOWING VOLTAGES MAY BE USED: 12000/20780 GRD Y, 12470/21600 GRD Y, 12000 OR 12470 V.
- B. 277/480 V FOUR-WIRE OR 480 V THREE-WIRE SECONDARIES ON 7.2/12.4 KV SYSTEMS: USE TO SUPPLY ALL LOADS. TRANSFORMERS RATED 12470/12600 GRD Y OR 12470 V MAY BE USED.

2. LOAD CAPACITY

- A. THE TOTAL BANK CAPACITY IS THREE TIMES THE PERMISSIBLE KVA LOADING OF ONE TRANSFORMER, USING THREE EQUAL SIZE TRANSFORMERS.

3. CONNECTIONS

- A. FOR 120/208 V BANKS, THE TWO SECONDARY WINDINGS OF EACH TRANSFORMER MUST BE CONNECTED IN PARALLEL FOR 120 V OPERATION. SEE FIG. 2 FOR BANKS 3-15 THRU 3-100 KVA, FIG. 5 FOR BANKS 3-167 KVA THRU 3-500 KVA, TRANSFORMER CONNECTIONS, GENERAL INFORMATION.
- B. THE DIAGRAM ABOVE IS FOR TRANSFORMERS HAVING LIKE POLARITY. IF ONE TRANSFORMER IS OF OPPOSITE POLARITY, REVERSE ITS PRIMARY CONNECTION. IF IT IS DESIRED TO REVERSE ONE PRIMARY CONNECTION FOR OTHER REASONS, THEN PRIMARY CONNECTIONS OF ALL THREE TRANSFORMERS MUST BE REVERSED.
- C. REVERSE PHASE ROTATION BY INTERCHANGING ANY TWO SECONDARY PHASE CONDUCTORS. FOR A GROUP OF CUSTOMERS, THIS CHANGE SHOULD BE MADE AT THE TRANSFORMER SECONDARY BUS, WHEREAS, FOR A SINGLE CUSTOMER, IT SHOULD BE MADE AT THE SERVICE ENTRANCE.
- D. TRANSFORMERS MUST BE RATED FOR PRIMARY LINE TO LINE VOLTAGE AND HAVE TWO PRIMARY BUSHINGS. NAMEPLATE VOLTAGE RATINGS MUST BE IDENTICAL AND THE TAPS SET TO GIVE THE SAME PERCENTAGE OF THE PRIMARY WINDINGS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS DELTA PRIMARY, WYE SECONDARY (WYE SYSTEMS) 7-39-1	ISSUE DATE: 10/26/99 REV. DATE: 06/12/11 APPROVAL: B. Priest OH7-39-1.doc
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TRANSFORMER CONNECTIONS
DELTA PRIMARY, WYE SECONDARY (WYE SYSTEMS)

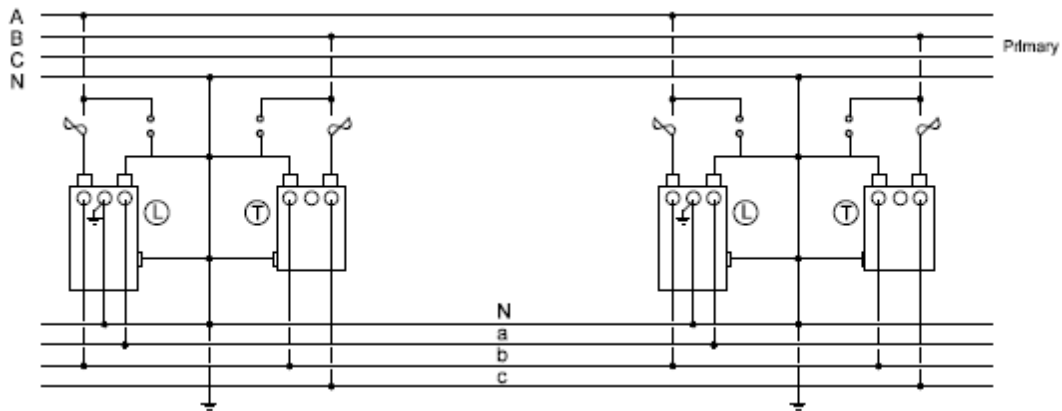
- E. IT IS THE CUSTOMER'S RESPONSIBILITY TO MAINTAIN BALANCED LOADING BETWEEN THE THREE PHASES.
- F. THE 480 V, THREE-WIRE, UNGROUNDED SECONDARY VOLTAGE MEASURED BETWEEN ANY PHASE AND GROUND MAY VARY GREATLY, HOWEVER, THIS IS NOT SIGNIFICANT.

NOTES

1. ARRESTER AND CUTOUT AS REQUIRED. SEE CUTOUT & ARRESTER REQUIREMENTS, PAGE 7-43-1.
2. SEE STANDARD PRIMARY FUSE SIZES ON PAGE 7-42-1 FOR STANDARD FUSING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS DELTA PRIMARY, WYE SECONDARY (WYE SYSTEMS)	ISSUE DATE: 10/26/99 REV. DATE: 06/12/11 APPROVAL: B. Priest
	7-39-2	OH7-39-1.doc

TEMPORARILY PARALLELING TRANSFORMERS SINGLE AND THREE PHASE



1. USE

A. TEMPORARILY PARALLELING DISTRIBUTION TRANSFORMERS TO PERMIT REMOVAL OF EXISTING TRANSFORMER OR TRANSFORMER BANK WITHOUT INTERRUPTING CONTINUITY OF ELECTRICAL SERVICE.

2. REQUIRED TRANSFORMER CHARACTERISTICS

- A. LIKE POLARITY
- B. IDENTICAL NAMEPLATE VOLTAGE RATING
- C. SAME TAP PERCENTAGES
- D. THE TOTAL IMPEDANCE OF EACH BANK NEED NOT MATCH ONE ANOTHER. IMPEDANCE IS AN IMPORTANT FACTOR IN PERMANENTLY PARALLELED TRANSFORMERS BUT NEED NOT BE CONSIDERED IN TEMPORARY PARALLELING WHEN EITHER BANK OF TRANSFORMERS HAS SUFFICIENT CAPACITY TO CARRY THE TOTAL LOAD ALONE.

3. CONNECTION PROCEDURE

- A. SET TAPS ON NEW TRANSFORMERS IDENTICAL TO THOSE OF EXISTING BANK. TRANSFORMERS WITH DIFFERENT TAP SETTINGS SHOULD NOT BE PARALLELED, EVEN FOR SHORT PERIODS OF TIME, BECAUSE OF RESULTING HIGH CIRCULATING CURRENTS. CONTACT DISTRIBUTION OPERATIONS CENTER WHEN A TAP CHANGE IS NEEDED FOR VOLTAGE CORRECTION.
- B. CONSTRUCT NEW BANK EXACTLY LIKE EXISTING BANK, BOTH PHYSICALLY AND ELECTRICALLY.
- C. MAKE SECONDARY GROUND CONNECTION ON NEW BANK SIMILAR TO THAT ON PRESENT BANK.
- D. ENERGIZE THE PRIMARY OF NEW TRANSFORMER INSTALLATION.
 - 1) OBSERVE PRIMARY CIRCUITRY CAREFULLY WHEN NEW INSTALLATION IS ON A DIFFERENT POLE TO BE SURE THERE IS NO TRANSPOSED PHASING OR OPEN PRIMARY SWITCHES BETWEEN THE TWO INSTALLATIONS. TRANSFORMERS WITH SECONDARIES TO BE PARALLELED SHOULD NEVER BE CONNECTED TO DIFFERENT PRIMARY CIRCUITS.
 - 2) IT IS IMPORTANT TO NOTE THAT THE PRIMARY SIDE OF BOTH THE OLD AND NEW TRANSFORMER INSTALLATIONS MUST BE CONNECTED TO THE PRIMARY LINES AND ENERGIZED AT ALL TIMES DURING THE PERIOD OF TESTING, PARALLELING AND BREAKING PARALLEL BETWEEN THE TWO TRANSFORMER SECONDARIES. THIS IS NECESSARY TO AVOID THE EXTREMELY HIGH MAGNETIZING CURRENTS THAT FLOW IN THE SECONDARY FOR A FEW CYCLES WHEN A TRANSFORMER IS ENERGIZED FROM THE SECONDARY SIDE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS TEMPORARILY PARALLELING TRANSFORMERS SINGLE AND THREE PHASE 7-40-1	ISSUE DATE: 06/10/11 REV. DATE: APPROVAL: B. Priest OH7-40-1.doc
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TEMPORARILY PARALLELING TRANSFORMERS SINGLE AND THREE PHASE

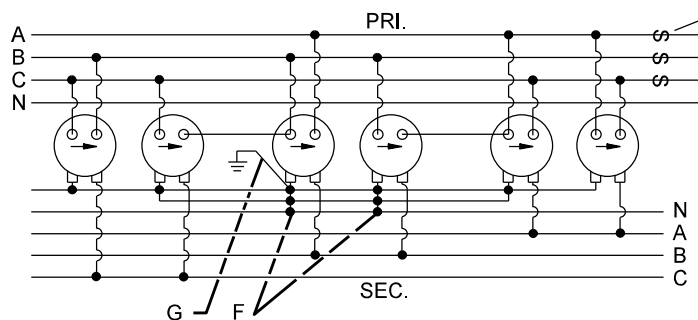
- E. USE A VOLTMETER TO ACCURATELY MEASURE THE VOLTAGE ACROSS THE SECONDARY OF EACH NEW TRANSFORMER BEFORE PARALLELING AND COMPARE WITH THE VOLTAGES OF THE EXISTING BANK TO DETERMINE IF THE CORRECT TAP SETTING HAS BEEN SELECTED. IF EXISTING TRANSFORMERS ARE LOADED TO NAMEPLATE CAPACITY, THEIR SECONDARY VOLTAGE WILL BE APPROXIMATELY 2% LESS THAN THOSE OF THE NEW TRANSFORMERS HAVING THE SAME TAP SETTING WITH NO LOAD. CONSIDER THIS DIFFERENCE WHEN SELECTING IDENTICAL TAP SETTINGS.
- F. MEASURE THE VOLTAGE BETWEEN ANY TWO SECONDARY PHASE WIRES TO BE PARALLELED. IF THE VOLTAGE IS ZERO, OR NEAR ZERO, THE TWO WIRES MAY BE SOLIDLY CONNECTED TOGETHER. PROCEED IN SIMILAR MANNER WITH THE OTHER SECONDARY PHASE WIRES TO BE PARALLELED.
 - 1) WHEN TWO BANKS BEING PARALLELED HAVE THREE-PHASE, THREE-WIRE UNGROUNDED SECONDARY, THE FIRST TWO PHASE WIRES SHOULD BE TEMPORARILY CONNECTED UNTIL IT IS DEFINITELY DETERMINED THAT THE REMAINING WIRES WILL ALSO PARALLEL.
 - 2) THE ONLY VOLTAGE THAT SHOULD BE MEASURED BETWEEN TWO PHASE WIRES BEFORE PARALLELING IS THE SMALL DIFFERENCE BETWEEN LOAD AND NO-LOAD VOLTAGE OF THE TWO BANKS (2% OR LESS), PROVIDING OTHER CONNECTIONS ARE MADE CORRECTLY.

4. DISCONNECT PROCEDURE

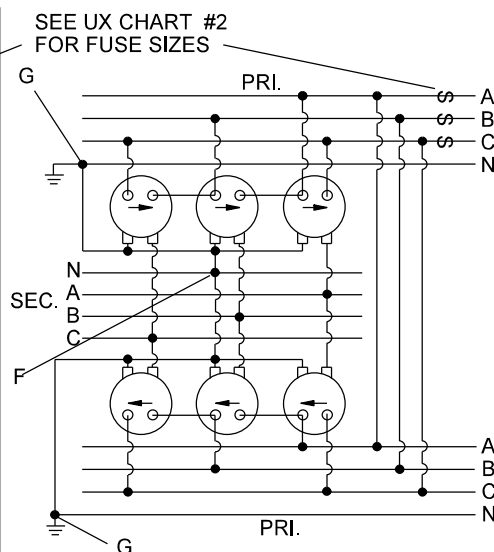
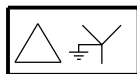
- A. AFTER THE PARALLELING HAS BEEN COMPLETED, REMOVE THE EXISTING TRANSFORMER BANK.
- B. WITH THE PRIMARY STILL ENERGIZED, DISCONNECT THE SECONDARY PHASE WIRES FROM THE EXISTING TRANSFORMER INSTALLATION.
- C THE PRIMARY OF THE DISCONNECTED TRANSFORMER INSTALLATION MAY BE DE-ENERGIZED IMMEDIATELY AFTER ALL SECONDARY PHASE WIRES TO BE REMOVED HAVE BEEN DISCONNECTED.

NOTE: OPEN WYE PRIMARY – OPEN DELTA SECONDARY SHOWN, APPLICABLE TO ALL CONNECTIONS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV TRANSFORMERS TEMPORARILY PARALLELING TRANSFORMERS SINGLE AND THREE PHASE	ISSUE DATE: 06/10/11 REV. DATE: APPROVAL: B. Priest
	7-40-2	OH7-40-1.doc



METHOD #1



METHOD #2

1. **USE** 120/208V. OR 277/480V. SECONDARIES TO SUPPLY 2000 KVA AND LARGER LOADS.

2. **LOAD CAPACITY**

THE TOTAL BANK CAPACITY IS SIX (6) TIMES THE PERMISSIBLE KVA LOADING OF ONE (1) TRANSFORMER.

3. **CONNECTIONS**

A. TRANSFORMERS MUST BE RATED FOR PRIMARY LINE TO LINE VOLTAGE AND HAVE TWO (2) PRIMARY BUSHINGS. NAMEPLATE VOLTAGE RATINGS MUST BE IDENTICAL AND THE TAPS SET TO GIVE THE PERCENTAGE OF THE PRIMARY WINDING.

B. THE DIAGRAMS ABOVE ARE FOR TRANSFORMERS HAVING LIKE POLARITY. IF ONE TRANSFORMER IS OF OPPOSITE POLARITY, REVERSE THE PRIMARY CONNECTION. IF IT'S DESIRED TO REVERSE ONE PRIMARY CONNECTION FOR OTHER REASONS, PRIMARY CONNECTIONS FOR ALL SIX TRANSFORMERS MUST BE REVERSED.

C. FOR 120/208V. BANKS, THE TWO SECONDARY WINDINGS OF EACH TRANSFORMER MUST BE CONNECTED IN PARALLEL FOR 120V. OPERATION.

D. PHASE ROTATION MAY BE REVERSED BY INTERCHANGING ANY TWO SECONDARY PHASE CONDUCTORS. FOR A GROUP OF CUSTOMERS, THIS CHANGE SHOULD BE MADE AT THE TRANSFORMER SECONDARY BUS. FOR A SINGLE CUSTOMER, IT SHOULD BE MADE AT THE SERVICE ENTRANCE.

E. IT IS THE CUSTOMER'S RESPONSIBILITY TO MAINTAIN BALANCED LOADING BETWEEN THE THREE PHASES.

F1. METHOD 1: THE NEUTRAL TIE FROM THE CENTER OF THE WYE TO THE CUSTOMER'S BUS SHOULD BE MADE AT THE CENTER PAIR OF TRANSFORMERS.

F2. METHOD 2: THE NEUTRAL TIE FROM THE CENTER OF THE WYE TO THE CUSTOMER'S BUS SHOULD BE MADE AT ONE LOCATION FOR EACH THREE POT BANK.

G1. METHOD 1: THE TIE FROM THE CENTER OF THE WYE TO THE GROUND GRID OF THE VAULT SHOULD BE MADE AT ONE LOCATION FOR THE ENTIRE BANK.

G2. METHOD 2: THE TIE FROM THE CENTER OF THE WYE TO THE GROUND GRID OF THE VAULT SHOULD BE MADE AT ONE LOCATION FOR EACH THREE POT BANK.

4. **IMPEDANCE**

THE LARGEST NAMEPLATE IMPEDANCE SHALL NOT BE MORE THAN 1.075 TIMES THE SMALLEST IMPEDANCE.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TRANSFORMER CONNECTIONS
DELTA PRIMARY, WYE SECONDARY
PARALLEL, 3-POT BANKS

7-41-1

ISSUE DATE: 07/01/76

REV. DATE: 06/12/11

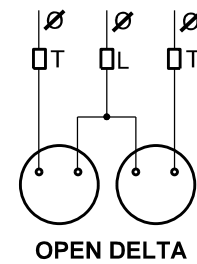
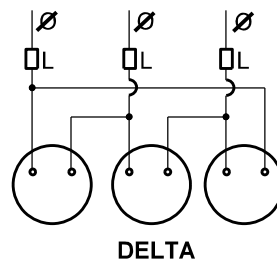
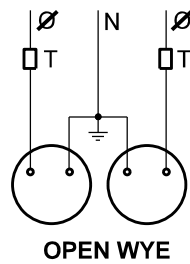
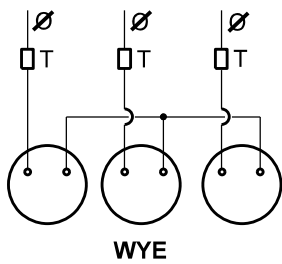
APPROVAL: B.PRIEST

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TRANSFORMER SIZE KVA	2400V TRANSFORMERS ON 2.4/4.16KV CKTS.	7200/12470Y V TRANSFORMERS ON 7.2/12.47KV CKTS.	12000 OR 12000/20780Y OR 12470V TRANSFORMERS ON 7.2/12.47KV CKTS		12000 OR 12470/21600Y V TRANSFORMERS ON 12.47/21.6 CKTS.
	"T" FUSE	"T" FUSE	"T" FUSE	"L" FUSE	"T" FUSE
3	1-1/2	3/4	3/4	3/4	3/4
5	2-1/2	1	3/4	1	3/4
7-1/2	4	1-1/2	1	1-1/2	1
10	5-1/2	2	1-1/2	2	1
15	10	2-1/2	2	2-1/2	2
25	15	4	2-1/2	4	2-1/2
37-1/2	20	5-1/2	4	5-1/2	4
50	30	10	5-1/2	10	5-1/2
75	40	15	10	15	10
100	50	20	10	20	10
150		30	15	30	15
167		30	20	30	20
250		50	25	50	30
333		65	40	65	40
500		85N	50	85N	50

STOCK CODE NUMBERS FOR FUSES		
FUSE SIZE	UNIVERSAL	OPEN
3/4	5034484	5034373
1	5034485	5034374
1-1/2	-	5034375
2	5034486	5034376
2-1/2	5034487	5034377
4	5034488	5034378
5-1/2	5034489	5034476
10	5034491	5034478
15	5034492	5034479
20	5034493	5034480
25	5034494	5034481
30	5034495	5034482
40	5034496	5034483
50	5034497	-
65	5034500	-
85N	5034502	-

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS TRANSFORMER CONNECTIONS STANDARD TRANSFORMER FUSE SIZES	ISSUE DATE: 08/05/70 REV. DATE: 05/20/13 APPROVAL: B. PRIEST
	7-42-1	OH7-42-1.doc



NOTES

1. ALL SINGLE PHASE, OPEN WYE AND CLOSED WYE CONNECTED TRANSFORMERS ARE TO BE FUSED WITH "T" FUSES. OPEN DELTA CONNECTED TRANSFORMERS ARE TO BE FUSED WITH TWO "T" FUSES AND ONE "L" FUSE. CLOSED DELTA CONNECTED TRANSFORMERS ARE TO BE FUSED WITH "L" FUSES. WHEN USING AN "OPEN DELTA" TRANSFORMER ARRANGEMENT, THE "L" FUSE MUST BE SIZED TO MEET THE REQUIREMENTS OF THE LARGER TRANSFORMER.
2. TRANSFORMER BANK FUSES MUST BE OF THE SAME STYLE AND MANUFACTURE TO INSURE PROPER COORDINATION. THE PRESENT POLICY IS TO USE:
 - A. KEARNEY TRIPOLINK "TYPE X" (SIZES 3/4A TO 5-1/2A) AND "TYPE KS" (SIZES 7A TO 30A) FOR OPEN CUTOUTS.
 - B. KEARNEY FITALL CABLE "TYPE X" (SIZES 3/4A TO 5-1/2A) AND "TYPE KS" (SIZES 7A TO 100A) FOR HEAVY DUTY ENCLOSED CUTOUTS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS TRANSFORMER CONNECTIONS STANDARD TRANSFORMER FUSE SIZES

7-42-2

ISSUE DATE: 08/05/70

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TRANSFORMER AND CAPACITOR CUTOUT & ARRESTER REQUIREMENTS NEW CONSTRUCTION

TRANSFORMER INSTALLATIONS

SYSTEM VOLTAGE	TRANSFORMER PRIMARY RATING	FUSED CUTOUTS		REQUIRED ARRESTER RATING
		3 TO 25 KVA TRANSFORMERS	37.5 KVA & LARGER TRANSFORMERS	
2.3 KV 25 CYCLE 3-WIRE DELTA	2.3 KV	OPEN-LINK COMBINATION * 15 KV, 50 AMP MI# 5034369	DROPOUT TYPE 15 KV, 200 AMP MI# 5034372	9 KV MI# 5033988 (GRAY)
7.2/12.4 KV WYE SYSTEM	7200/ 12470 Y	DROPOUT TYPE 7.2 KV, 100 AMP MI# 5034369	DROPOUT TYPE 7.2 KV, 100 AMP MI# 5034369	9 KV MI# 5033988 (GRAY)
	12000 V 12470 V 12470/21600 GRD Y 12000/20780 GRD Y	DROPOUT TYPE 7.2 KV, 100 AMP MI# 5034369	DROPOUT TYPE 7.2 KV, 100 AMP MI# 5034369	9 KV MI# 5033988 (GRAY)
12.4/21.6 KV WYE SYSTEM	12470/21600 GRD Y 12000/20780 GRD Y PROPER TAP	DROPOUT TYPE 25 KV, 100 AMP MI# 5034371 (GRAY)	DROPOUT TYPE 25 KV, 100 AMP MI# 5034371 (GRAY)	18 KV MI# 5034088 (GRAY)

* USE DROPOUT TYPE CUTOUT (5034369) AND 9 KV ARRESTER ON CLUSTER-MOUNTED (2 & 3) TRANSFORMER BANKS TO MINIMIZE ARCING AND PICK-UP TIME.

FIXED CAPACITOR INSTALLATIONS

SYSTEM VOLTAGE	CUTOUTS	REQUIRED ARRESTER RATING
7.2/12.4 KV WYE SYSTEM	DROPOUT TYPE CUTOUT WITH LINK BREAK, 15 KV, 100 AMP, MI# 5034370	9 KV, MI# 5033988 (GRAY)
12.4/21.6 KV WYE SYSTEM	DROPOUT TYPE CUTOUT, 27 KV, 100 AMP, MI# 5034371	18 KV, MI# 5034088 (GRAY)

NOTES

1. CUTOUTS ARE AVAILABLE IN FOUR BASIC TYPES:
 - A. DROPOUT: FUSE LINK ENCLOSED IN A FIBER TUBE; ARC IS EXTINGUISHED IN TUBE, WHICH HANGS DOWN WHEN FUSE IS BLOWN.
 - B. CUTOUT/ARRESTER COMBINATION WITH OPEN LINK-TYPE FUSE; ARC EXTINGUISHED IN AIR.
 - C. DROPOUT TYPE WITH LINK BREAK.
 - D. DROPOUT TYPE WITH LOAD BREAK ARC CHUTE.
2. THE ABOVE IS TO BE USED AS A GUIDE FOR NEW CONSTRUCTION.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS TRANSFORMER AND CAPACITOR CUTOUT & ARRESTER REQUIREMENTS NEW CONSTRUCTION		ISSUE DATE: 05/15/13
	7-43-1		REV. DATE: APPROVAL: B. Priest OH7-43-1.doc

TRANSFORMER CONNECTIONS TAP SETTING CHART

TRANSFORMER NAME PLATE VOLTAGE RATING		CUSTOMER SERVICE VOLTAGE	TRANSFORMER TAPS PROVIDED (2-1/2 % EACH)	TAP SETTING	
PRIMARY	SECONDARY			7.2/12.47 KV AREA	12/21.6 KV AREA
7200/12470 Y OR 12470	120/240	120/240	4 BELOW	1 OR A	
	120/240 OR 120/208	120/208 Y	2 ABOVE & 2 BELOW	3 OR C	
			4 BELOW	2 OR B	
	240/480	480	2 ABOVE & 2 BELOW	4 OR D	
			4 BELOW	1 OR A *	
	277/480 Y	277/480 Y	2 ABOVE & 2 BELOW	2 OR B	
12000 12000/20780 Y	120/240	120/240	4 BELOW	1 OR A *	1 OR A
	120/240 OR 120/208	120/208 Y	2 ABOVE & 2 BELOW	2 OR B	3 OR C
			4 BELOW	1 OR A *	2 OR B
	240/480	480	2 ABOVE & 2 BELOW	3 OR C ***	4 OR D
			4 BELOW		1 OR A *
	277/480 Y	277/480 Y	2 ABOVE & 2 BELOW	1 OR A	2 OR B
12470/21600 Y	120/240	120/240	4 BELOW		3 OR C
	120/240 OR 120/208	120/208 Y	2 ABOVE & 2 BELOW		5 OR E
			4 BELOW		4 OR D
	277/480 Y	277/480 Y	2 ABOVE & 2 BELOW		5 OR E **
			4 BELOW		4 OR D
	277/480 Y	277/480 Y	2 ABOVE & 2 BELOW		

* TAP RESULTS IN HIGHER THAN DESIRED NOMINAL VOLTAGE. REMAINING TAPS WILL INCREASE SECONDARY VOLTAGE FURTHER.

** TAP RESULTS IN LOWER THAN DESIRED NOMINAL VOLTAGE. REMAINING TAPS WILL DECREASE SECONDARY VOLTAGE FURTHER.

*** TAP SETTING IS FOR ALL NEW INSTALLATIONS. FOR CHANGE OUT OF EXISTING TRANSFORMERS, THE EXISTING TAP SETTING AND VOLTAGE SHOULD BE CHECKED AS SOME OLDER EQUIPMENT WAS DESIGNED FOR 440 VOLTS. FOR THOSE CASES, THE TAP SETTING SHOULD BE 2 OR B.

TO INCREASE THE SECONDARY VOLTAGE, THE PRIMARY TAP SETTING MUST BE LOWERED. TO DECREASE THE SECONDARY VOLTAGE, THE PRIMARY TAP SETTING MUST BE RAISED.

TAP SETTINGS OTHER THAN SHOWN ABOVE SHOULD BE USED TO MAINTAIN THE VOLTAGE AT THE CUSTOMER'S METER WITHIN THE FOLLOWING LIMITS:

NOMINAL SYSTEM VOLTAGE	SERVICE VOLTAGE	
	MINIMUM	MAXIMUM
120/240	114/228	126/252
120/208 Y	114/197	126/218
277/480 Y	263/456	291/504
480	456	504

NOTES

1. MINIMUM SERVICE VOLTAGE IS GIVEN AT FULL LOAD; MAXIMUM SERVICE VOLTAGE IS GIVEN AT NO LOAD.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV TRANSFORMERS TRANSFORMER CONNECTIONS TAP SETTING CHART		ISSUE DATE: 06/06/73
	7-44-1		REV. DATE: 06/10/11 APPROVAL: B. Priest

OH7-44-1.doc

SINGLE PHASE

KVA	VOLTS								
	120	240	277	480	2400	4160	7200	12000	12470
3	25.0	12.5	10.8	6.3	1.25	.72	.42	.25	.24
5	41.7	20.8	18.1	10.4	2.08	1.20	.69	.42	.40
10	83.3	41.7	36.1	20.8	4.17	2.40	1.39	.83	.80
15	125.0	62.5	54.2	31.3	6.25	3.61	2.08	1.25	1.20
25	208.0	104.0	90.3	52.1	10.40	6.01	3.47	2.08	2.00
37.5	313.0	156.0	135.0	78.1	15.60	9.01	5.21	3.13	3.01
50	417.0	208.0	180.0	104.0	20.80	12.00	6.94	4.17	4.01
75	625.0	313.0	271.0	156.0	31.30	18.00	10.40	6.25	6.01
100	833.0	417.0	361.0	208.0	41.70	24.00	13.90	8.33	8.02
167	1392.0	696.0	603.0	348.0	69.60	40.10	23.20	13.90	13.40
250	2083.0	1042.0	903.0	521.0	104.00	60.10	34.70	20.80	20.00
333	2775.0	1388.0	1191.0	694.0	139.00	80.00	46.30	27.70	26.70
500	4167.0	2083.0	1805.0	1042.0	208.00	120.00	69.40	41.70	40.10

$$\text{FULL LOAD CURRENT} = \frac{\text{KVA} \times 1000}{\text{LINE TO GROUND VOLTAGE}}$$

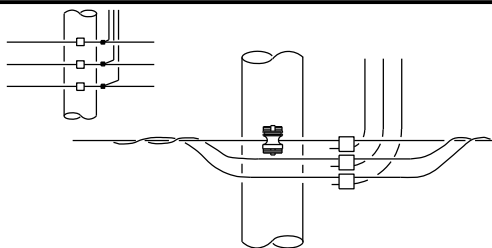
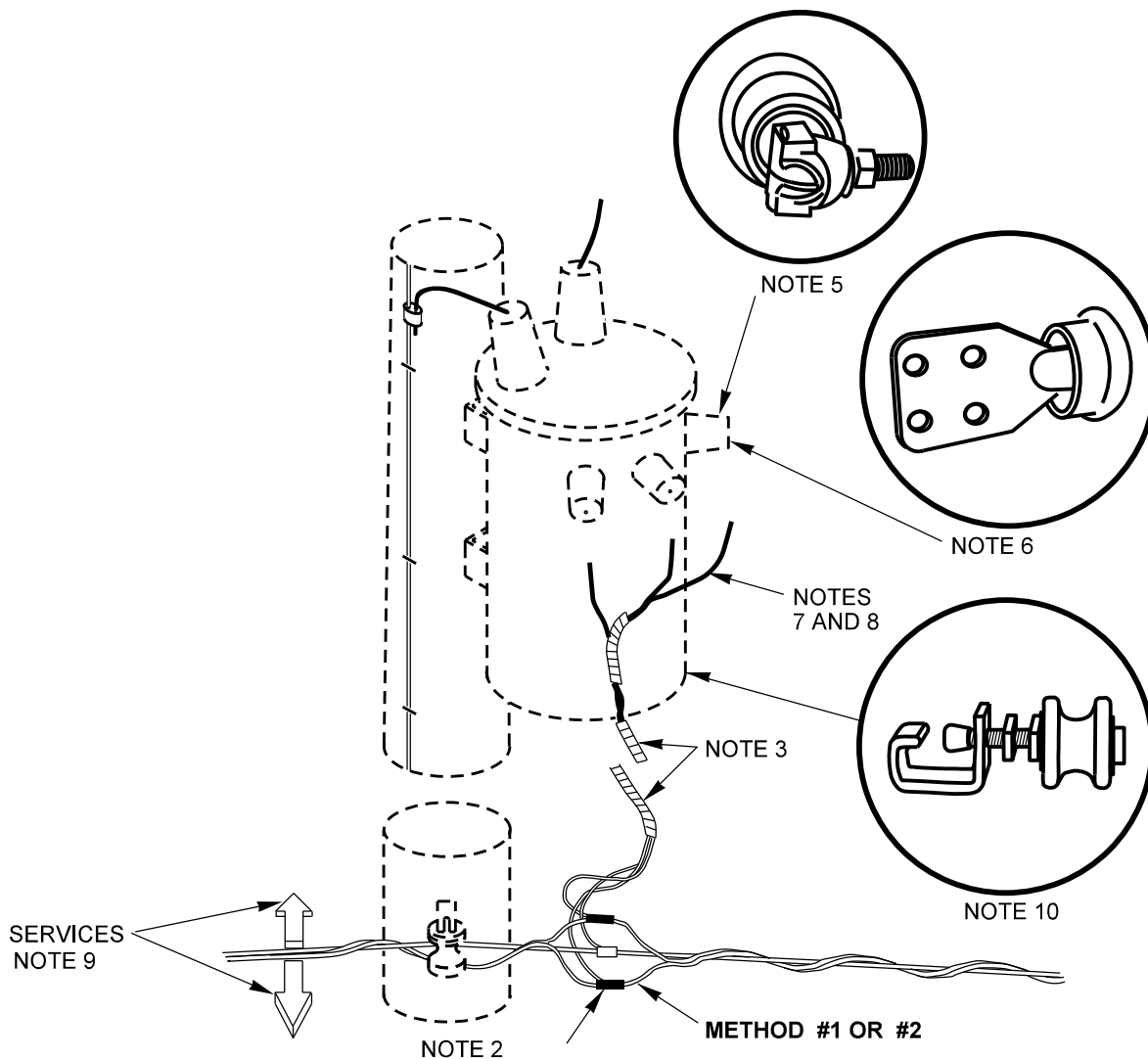
THREE PHASE *

KVA	VOLTS								
	208	240	480	2400	4160	7200	12000	12470	21600
15	41.6	36.1	18.0	3.61	2.08	1.20	.72	.69	.40
30	83.3	72.2	36.1	7.22	4.17	2.41	1.44	1.39	.80
45	125.0	108.0	54.1	10.80	6.25	3.61	2.17	2.08	1.20
75	208.0	180.0	90.2	18.00	10.4	6.01	3.61	3.48	2.00
112.5	312.0	271.0	135.0	27.10	15.6	9.02	5.41	5.21	3.01
150	416.0	361.0	180.0	36.10	20.8	12.00	7.22	6.95	4.01
225	625.0	541.0	271.0	54.10	31.3	18.00	10.80	10.40	6.01
300	833.0	722.0	361.0	72.20	41.7	24.10	14.40	13.90	8.02
500	1388.0	1203.0	601.0	120.0	69.4	40.10	24.10	23.20	13.40
750	2082.0	1804.0	902.0	180.0	104.0	60.10	36.10	34.70	20.00
1000	2776.0	2406.0	1203.0	241.0	139.0	80.20	48.10	46.30	26.70
1500	4164.0	3608.0	1804.0	361.0	208.0	120.00	72.20	69.40	40.10
2000	5552.0	4811.0	2406.0	481.0	278.0	160.00	96.20	92.60	53.50
2500	6940.0	6014.0	3007.0	601.0	347.0	200.00	120.00	116.00	66.80

* APPLIES TO THREE-POT BANKS HAVING EQUAL SIZE TRANSFORMERS, OR THREE-PHASE PAD MOUNT.

$$\text{FULL LOAD CURRENT} = \frac{\text{KVA} \times 1000}{(1.732 \times \text{LINE TO LINE VOLTAGE})}$$

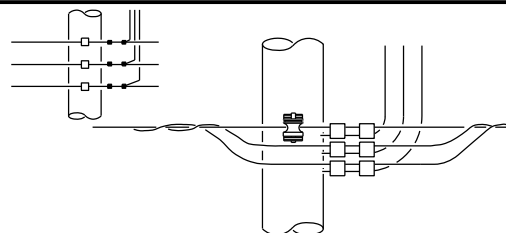
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12KV TRANSFORMERS TRANSFORMERS FULL LOAD CURRENT IN AMPS	ISSUE DATE: 07/11/05 REV. DATE: 06/12/11 APPROVAL: B. Priest
	7-45-1	OH7-45-1.doc



SECONDARY CONNECTIONS FOR
5 to 25 KVA TRANSFORMERS

1/0 TX
1/0 AA OPEN
4/3 CU.
4/0 TX

METHOD #1



SECONDARY CONNECTIONS FOR
37 KVA TRANSFORMERS & LARGER USING
4/0 TX

WHEN COMPRESSION CONNECTOR IS 2" LONG USE 2.
WHEN COMPRESSION CONNECTOR IS 3.5" LONG, OR
BOX CONNECTOR, USE 1.

METHOD #2

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TRANSFORMER CONNECTIONS
SECONDARY WIRING DIAGRAM
SINGLE TRANSFORMER

7-46-1

ISSUE DATE: 02/12/76

REV. DATE: 10/21/20

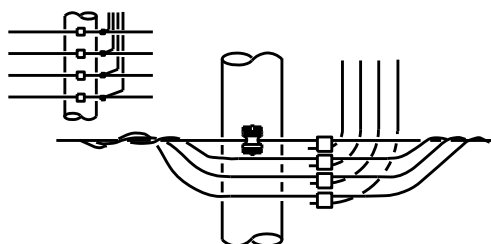
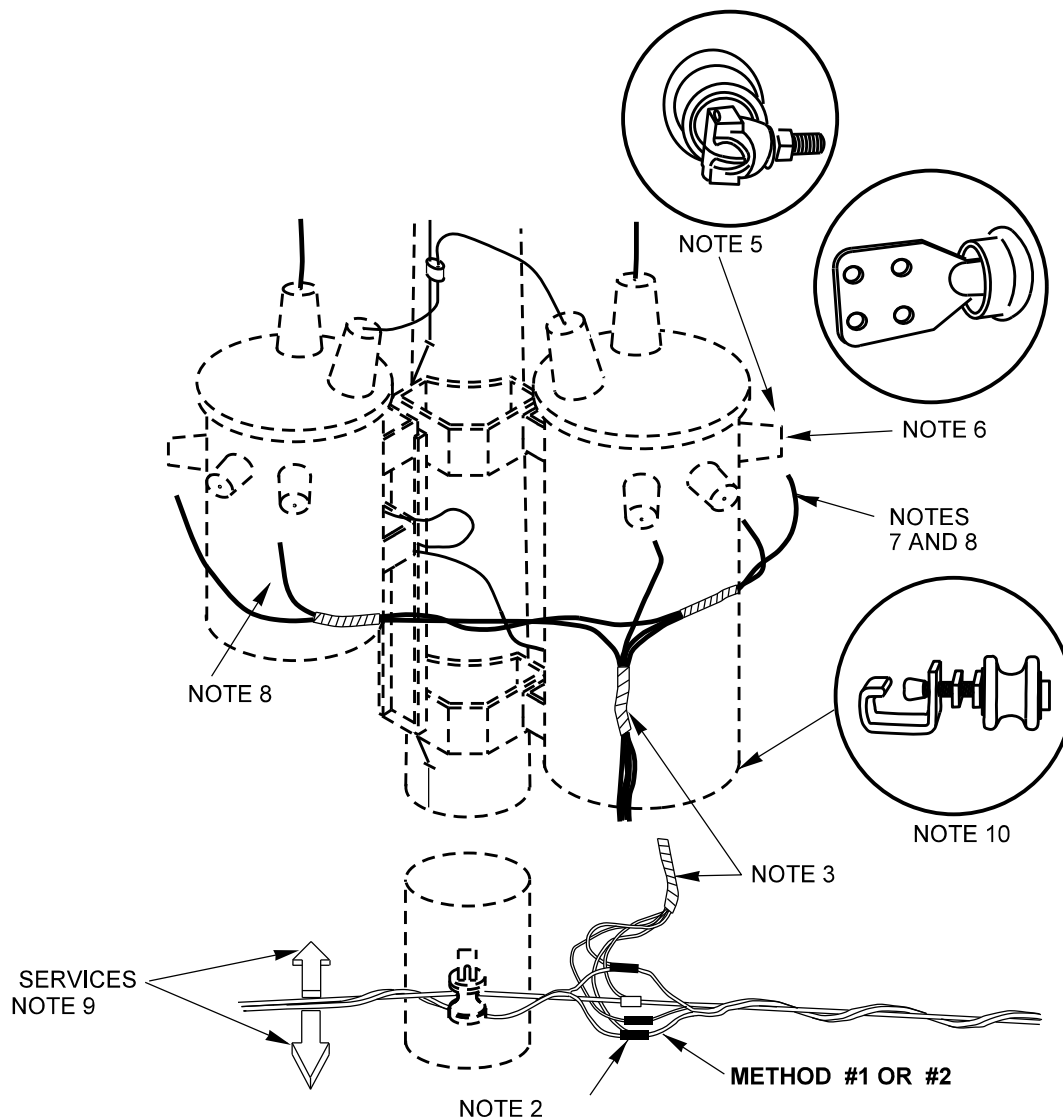
APPROVAL: J. Luera

8512E299.DGN

NOTES

1. WRAP NEUTRAL CONDUCTOR WITH WHITE PLASTIC TAPE ONLY.
2. INSTALL CONNECTORS AND WRAP WITH BLACK PLASTIC TAPE. THEN INSTALL CONNECTOR COVERS AND SECURE WITH TWO WRAPS OF BLACK PLASTIC TAPE AROUND CENTER OF COVER. SEE 1-13-2 AND 1-17-1 FOR CONNECTORS. NO TAPE REQUIRED FOR 1-17-1.
3. BUNDLE ALL TRANSFORMER LEAD CONDUCTORS AND SECURE WITH BLACK PLASTIC TAPE.
4. SEE TRANSFORMER FRAMING DETAILS IN THIS CHAPTER FOR INDIVIDUAL TRANSFORMER FRAMING.
5. TRANSFORMERS 100 KVA AND SMALLER HAVE EYE-BOLT TYPE BUSHING TERMINALS. TRANSFORMER POT LEADS SHALL BE INSERTED DIRECTLY INTO EYE-BOLTS. MULTIPLE POT LEADS SHALL BE CONNECTED USING TRANSFORMER TERMINAL ADAPTERS (2-WIRE 5033983 OR 3-WIRE 5033984).
6. TRANSFORMERS 167 KVA AND LARGER HAVE NEMA PAD TYPE BUSHING TERMINALS. TLS TYPE CONNECTORS OR PADDLES ARE USED TO CONNECT POT LEADS TO NEMA PADS. MULTIPLE POT LEADS SHALL BE CONNECTED USING MULTIPLE TLS CONNECTORS.
7. BRING ALL CONDUCTORS DOWN 8" FROM SECONDARY TERMINALS AND THEN BEND 90° AND TRAIN INTO BUNDLE. THIS IS TO ALLOW SPACE FOR A RECORDING VOLT-METER AND CLAMP STYLE AMP-METER.
8. REFER TO SECONDARY CONNECTION DIAGRAMS IN THIS CHAPTER FOR SPECIFIC POT LEAD CONNECTIONS.
9. INDIVIDUAL SERVICES REQUIRE A SINGLE CONNECTOR ONLY.
10. ATTACH TRANSFORMER LINE TRAINER (5028503) TO THE BOTTOM EDGE OF A LARGE TRANSFORMER TO PROVIDE AN INSULATED SUPPORT FOR HEAVY SECONDARY LEADS.

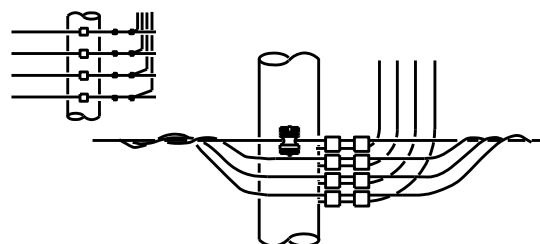
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS TRANSFORMER CONNECTIONS SECONDARY WIRING DIAGRAM SINGLE TRANSFORMER	ISSUE DATE: 02/12/76
		REV. DATE: 10/21/20
		APPROVAL: J. Luera
	7-46-2	8512E299.DGN



SECONDARY CONNECTIONS FOR
5 to 25 KVA TRANSFORMERS

1/0 QX
1/0 AA OPEN
4/3 CU.
4/0 QX

METHOD #1



SECONDARY CONNECTIONS FOR
37 KVA TRANSFORMERS & LARGER USING
4/0 QX

WHEN COMPRESSION CONNECTOR IS 2" LONG USE 2.
WHEN COMPRESSION CONNECTOR IS 3.5" LONG, OR
BOX CONNECTOR, USE 1.

METHOD #2

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12KV TRANSFORMERS
TRANSFORMER CONNECTIONS
TWO TRANSFORMER BANK

7-47-1

ISSUE DATE: 1973

REV. DATE: 10/21/20

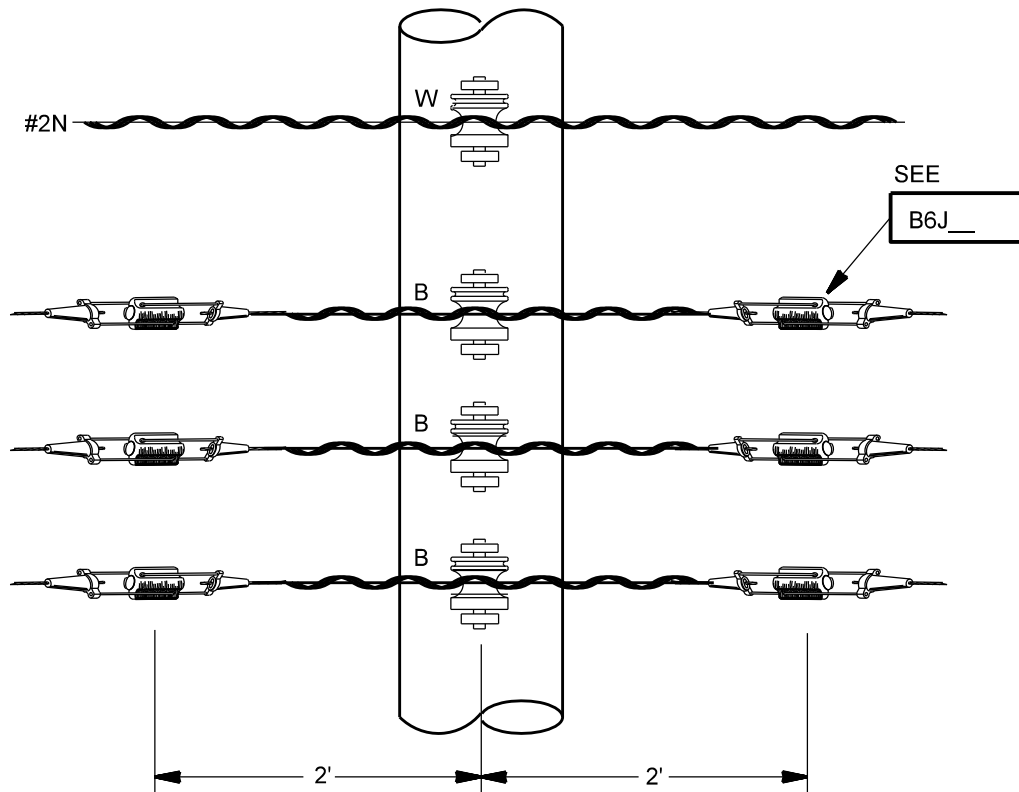
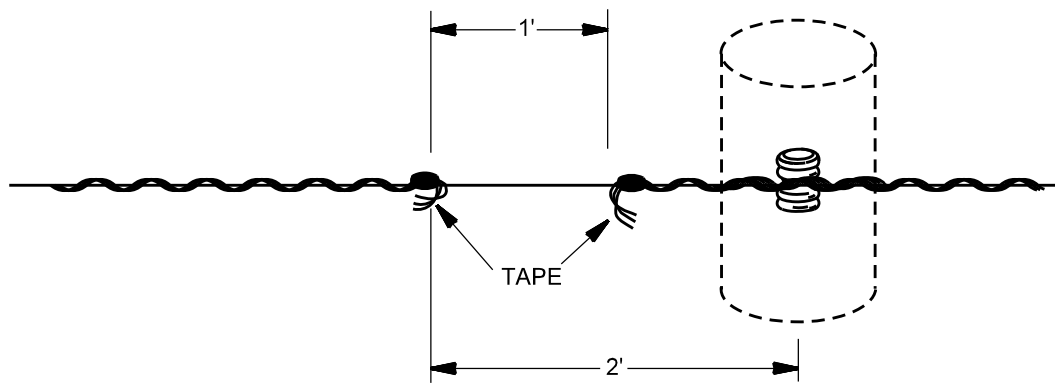
APPROVAL: J. Luera

8512E300.DGN

NOTES

1. WRAP NEUTRAL CONDUCTOR WITH WHITE PLASTIC TAPE ONLY.
2. INSTALL CONNECTORS AND WRAP WITH BLACK PLASTIC TAPE. THEN INSTALL CONNECTOR COVERS AND SECURE WITH TWO WRAPS OF BLACK PLASTIC TAPE AROUND CENTER OF COVER. SEE 1-13-2 AND 1-17-1 FOR CONNECTORS. NO TAPE REQUIRED FOR 1-17-1.
3. BUNDLE ALL TRANSFORMER LEAD CONDUCTORS AND SECURE WITH BLACK PLASTIC TAPE.
4. SEE TRANSFORMER FRAMING DETAILS IN THIS CHAPTER FOR INDIVIDUAL TRANSFORMER FRAMING.
5. TRANSFORMERS 100 KVA AND SMALLER HAVE EYE-BOLT TYPE BUSHING TERMINALS. TRANSFORMER POT LEADS SHALL BE INSERTED DIRECTLY INTO EYE-BOLTS. MULTIPLE POT LEADS SHALL BE CONNECTED USING TRANSFORMER TERMINAL ADAPTERS (2-WIRE 5033983 OR 3-WIRE 5033984).
6. TRANSFORMERS 167 KVA AND LARGER HAVE NEMA PAD TYPE BUSHING TERMINALS. TLS TYPE CONNECTORS OR PADDLES ARE USED TO CONNECT POT LEADS TO NEMA PADS. MULTIPLE POT LEADS SHALL BE CONNECTED USING MULTIPLE TLS CONNECTORS.
7. BRING ALL CONDUCTORS DOWN 8" FROM SECONDARY TERMINALS AND THEN BEND 90° AND TRAIN INTO BUNDLE. THIS IS TO ALLOW SPACE FOR A RECORDING VOLT-METER AND CLAMP STYLE AMP-METER.
8. REFER TO SECONDARY CONNECTION DIAGRAMS IN THIS CHAPTER FOR SPECIFIC POT LEAD CONNECTIONS.
9. INDIVIDUAL SERVICES REQUIRE A SINGLE CONNECTOR ONLY.
10. ATTACH TRANSFORMER LINE TRAINER (5028503) TO THE BOTTOM EDGE OF A LARGE TRANSFORMER TO PROVIDE AN INSULATED SUPPORT FOR HEAVY SECONDARY LEADS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV TRANSFORMERS TRANSFORMER CONNECTIONS TWO TRANSFORMER BANK	ISSUE DATE: 1973
		REV. DATE: 10/21/20
		APPROVAL: J. Luera
	7-47-2	8512E300.DGN



NOTES

1. THERE SHALL BE NO MORE THAN ONE SECONDARY SOURCE AT A POLE.
2. THE SECONDARY BUS MUST BE SPLIT A MINIMUM OF TWO FEET FROM THE POLE

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TRANSFORMER CONNECTIONS
SECONDARY CONNECTIONS
SECONDARY SECTIONALIZING

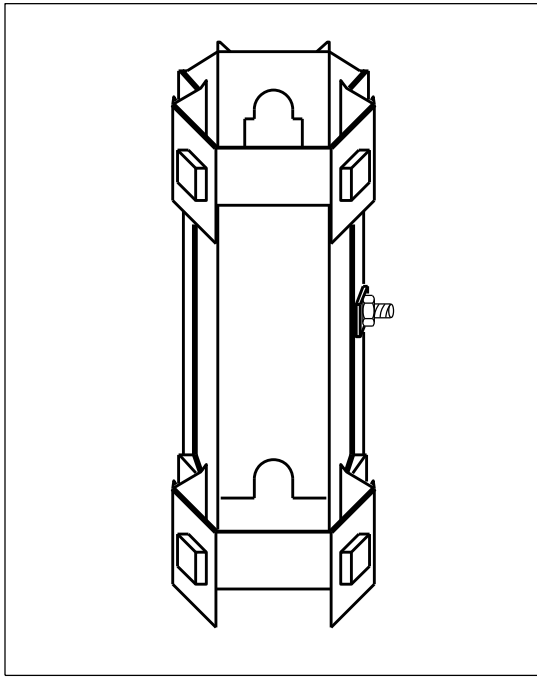
7-48-1

ISSUE DATE: 08/29/79

REV. DATE: 06/12/11

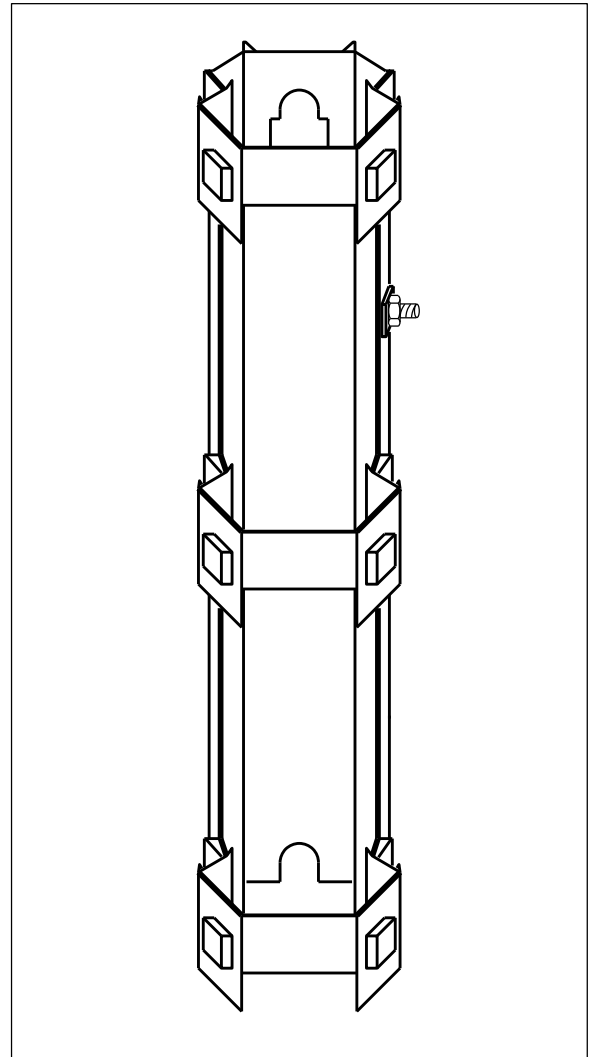
APPROVAL: B.PRIEST

8512E301.DGN



0-50 kVA
5028507

I



0-100 kVA
5028508

II

THREE TRANSFORMER BANKS			
BRACKET NUMBER	LUG TYPES AND COMBINATIONS	BOLT SPACING FOR MOUNTING TO POLE	NO. OF ADAPTER PLATES
I	A	12"	NONE
II	A & B	25-3/4"	NONE

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV TRANSFORMERS
TRANSFORMER MOUNTING BRACKETS
TWO TRANSFORMERS, 0-100kVA

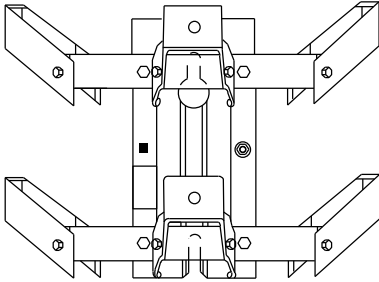
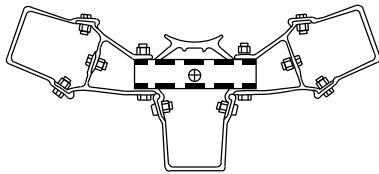
7-49-1

ISSUE DATE: 01/04/74

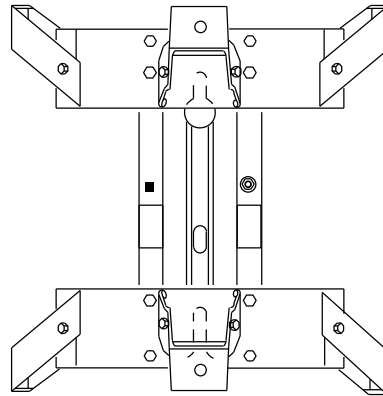
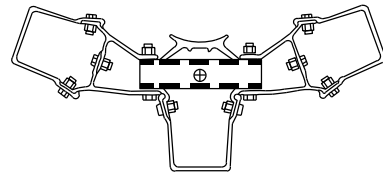
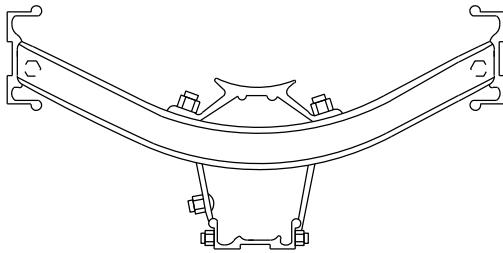
REV. DATE: 03/30/13

APPROVAL: B. PRIEST

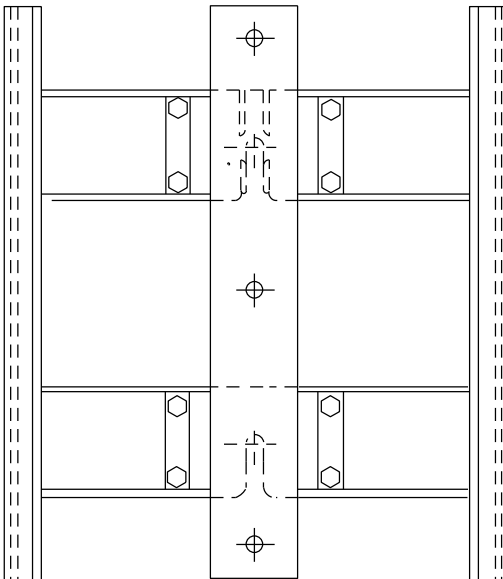
8512E140.DGN



0-50 kVA 1000 #/ POSITION
5028510
III



MAXIMUM CAPACITY = 2,000 LBS PER TRANSFORMER
5028512
IV



MAXIMUM CAPACITY = 2,000 LBS PER TRANSFORMER
5028512
V

THREE TRANSFORMER BANKS			
BRACKET NUMBER	LUG TYPES AND COMBINATIONS	BOLT SPACING FOR MOUNTING TO POLE	NO. OF ADAPTER PLATES
III	A	12"	NONE
IV	A & B	17-1/2"	NONE
V	A & B	14"	NONE

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12 kV TRANSFORMERS
TRANSFORMER MOUNTING BRACKETS
THREE TRANSFORMERS, 0-100 kVA

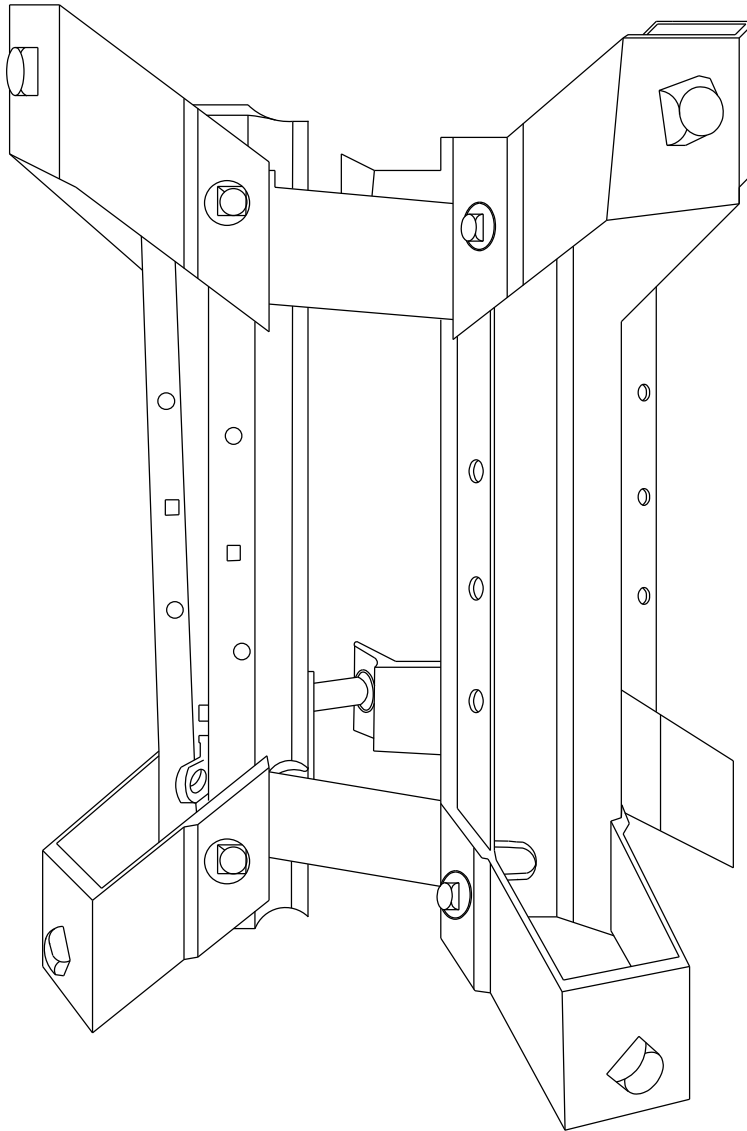
7-50-1

ISSUE DATE: 01/04/74

REV. DATE: 12/11/18

APPROVAL: S. DURAN

8512E144.DGN



MAXIMUM CAPACITY = 2,500 LBS PER TRANSFORMER
5028511

**9-1/2" - 19" POLE DIAMETER
 VI**

THREE TRANSFORMER BANKS			
BRACKET NUMBER	LUG TYPES AND COMBINATIONS	BOLT SPACING FOR MOUNTING TO POLE	NO. OF ADAPTER PLATES
VI	C	NONE	6

Overhead Distribution
 Construction Standards



PROPRIETARY MATERIAL

12 kV TRANSFORMERS
 TRANSFORMER MOUNTING BRACKETS
 THREE TRANSFORMERS, 167-333 kVA

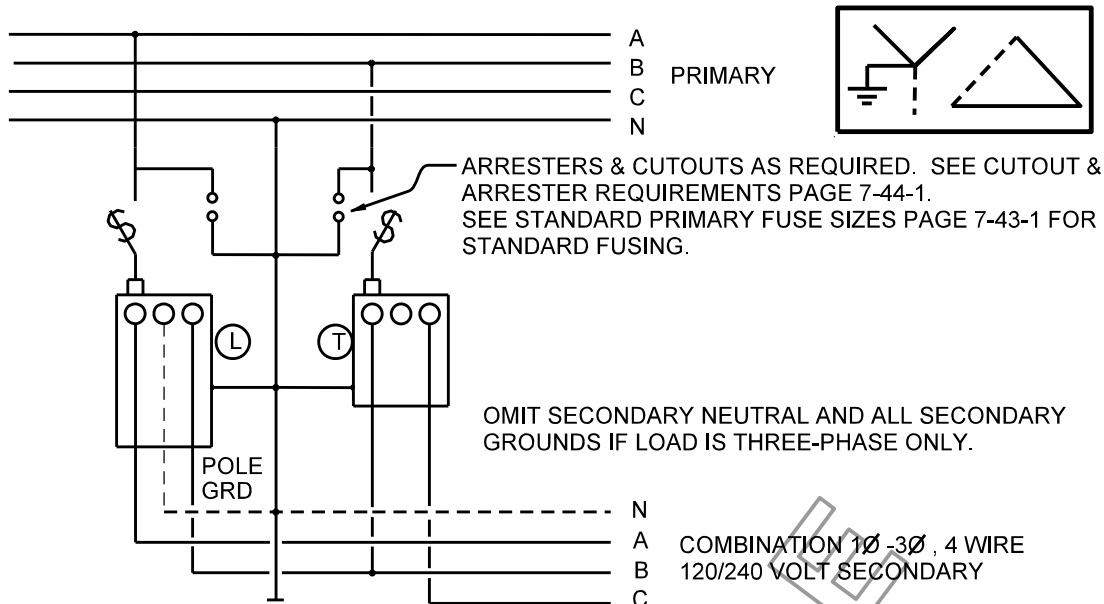
7-51-1

ISSUE DATE: 01/04/74

REV. DATE: 12/10/18

APPROVAL: S. DURAN

8512E143.DGN



1. USE

- USE THIS CONNECTION FOR ALL 3Ø 240V LOADS LESS THAN 43KVA. IF THREE PHASE PRIMARY IS NOT READILY AVAILABLE, THE 3Ø LOAD SERVED MAY BE INCREASED TO 87KVA. TRANSFORMERS ARE RATED 7200/12470 Y FOR THE 7.2/12.4KV SYSTEM.
- COMBINATION LOADS: USE THIS CONNECTION FOR ALL LOADS WHICH TOTAL LESS THAN 45KVA (1Ø & 3Ø) AND FOR LARGER LOADS AS DETERMINED BY THE DESIGNER.

2. LOAD CAPACITY

- THREE PHASE ONLY: TWO TRANSFORMERS OF EQUAL SIZE ARE USED AND THE CAPACITY OF THE BANK IS 1.73 TIMES THE PERMISSIBLE KVA LOADING OF EITHER TRANSFORMER.
- COMBINATION LOADS: THE THREE-PHASE CAPACITY IS 1.73 TIMES THE PERMISSIBLE KVA LOADING OF TRANSFORMER (T). THE SINGLE PHASE CAPACITY IS THE PERMISSIBLE KVA LOADING OF THE TRANSFORMER (L) MINUS 58% OF THE ACTUAL THREE PHASE KVA LOAD.

3. CONNECTIONS

- THE DIAGRAM ABOVE IS FOR TRANSFORMERS HAVING LIKE POLARITY. IF THEY HAVE OPPOSITE POLARITY, REVERSE THE SECONDARY CONNECTION OF EITHER TRANSFORMER.
- REVERSE PHASE ROTATION BY INTERCHANGING THE TWO SECONDARY PHASE CONDUCTORS ("A" & "B") WHICH SUPPLY SINGLE PHASE LOAD. FOR A GROUP OF CUSTOMERS THIS CHANGE SHOULD BE MADE AT THE TRANSFORMER SECONDARY BUS WHEREAS, FOR A SINGLE CUSTOMER IT SHOULD BE MADE AT THE SERVICE ENTRANCE.
- TRANSFORMERS MUST BE RATED FOR PRIMARY LINE TO NEUTRAL VOLTAGE AND HAVE IDENTICAL NAMEPLATE VOLTAGE RATINGS. THE TRANSFORMER TAPS MUST BE SET TO POSITIONS GIVING THE SAME PERCENTAGES OF PRIMARY WINDINGS.
- ON 120/240 VOLT INSTALLATIONS, THE VOLTAGE BETWEEN THE POWER LEG (PHASE "C") AND NEUTRAL ("N") IS APPROXIMATELY 200 VOLTS. 120 VOLT SERVICES ARE NOT TO BE CONNECTED TO THIS PHASE.
- ON EXISTING 240 OR 480 VOLT 3Ø, THREE-WIRE UNGROUNDED SECONDARIES, THE VOLTAGE MEASURED BETWEEN ANY ANY PHASE AND GROUND MAY VARY GREATLY, HOWEVER, THIS IS NOT SIGNIFICANT.

4. IMPEDANCE

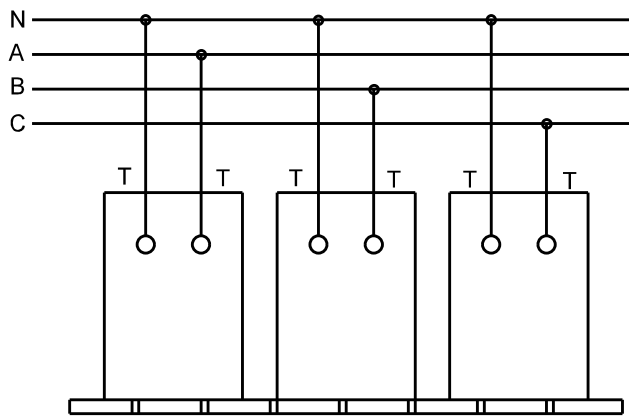
TRANSFORMER IMPEDANCES DO NOT NEED TO MATCH.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	12kV TRANSFORMERS TRANSFORMER CONNECTIONS, SINGLE BUSHING OPEN WYE PRIMARY, OPEN DELTA SECONDARY		ISSUE DATE: 06/15/78
			REV. DATE: 04/30/13
			APPROVAL: B.PRIEST
	7-52-1	8512E298.DGN	

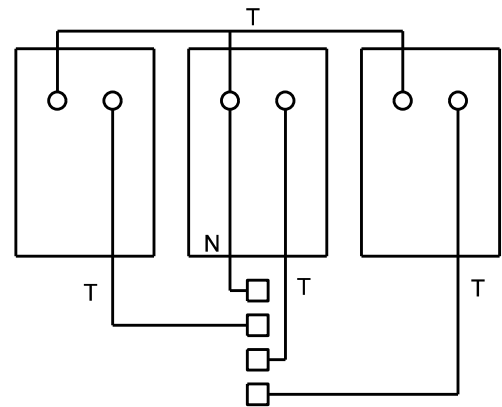
SECTION 8: 22 kV TRANSFORMERS

TITLE / DESCRIPTION	PAGE
TRANSFORMER BANK & RISER CODING, BALANCED 3Ø LOADS	8-2-1
TRANSFORMER BANK & RISER CODING, UNBALANCED 3Ø AND 1Ø LOADS	8-3-1
TRANSFORMER BANK & RISER CODING, 3Ø LOADS, TWO TRANSFORMER BANKS.....	8-4-1
REPLACEMENT OF INSTALLED TRANSFORMERS	8-5-1
SINGLE TRANSFORMER INSTALLATION, 1Ø TANGENT	8-6-1
SINGLE TRANSFORMER INSTALLATION, 1Ø SMALL, MEDIUM ANGLE AND DEADEND	8-7-1
SINGLE TRANSFORMER INSTALLATION, 2 AND 3Ø TANGENT	8-8-1
SINGLE TRANSFORMER INSTALLATION, 2 AND 3Ø SMALL, MEDIUM ANGLE AND DEADEND.....	8-9-1
SINGLE TRANSFORMER INSTALLATION, 3Ø DEADEND, CROSSARM.....	8-10-1
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TWO TRANSFORMER INSTALLATION, 2 AND 3Ø SMALL, MEDIUM ANGLE AND DEADEND	8-12-1
TWO TRANSFORMER INSTALLATION, 3Ø DEADEND, CROSSARM.....	8-13-1
THREE TRANSFORMER INSTALLATION, 3Ø TANGENT	8-14-1
THREE TRANSFORMER INSTALLATION, 3Ø DEADEND, CROSSARM.....	8-15-1
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TWO TRANSFORMER INSTALLATION, 2 OR 3Ø TANGENT, CROSSARM CONSTRUCTION	8-16-2
THREE TRANSFORMER INSTALLATION, 3Ø TANGENT, CROSSARM CONSTRUCTION	8-17-1

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	INDEX	ISSUE DATE: 05/14/13
	22 kV TRANSFORMERS	REV. DATE:
		APPROVAL: D. Poore
	8-1-1	OH8-1-1.doc



PLATFORM BANK



POLE MOUNTED BANK

SECONDARY CONNECTION DIAGRAMS

12.4/21.8 PRIMARY TRANSFORMER INSTALLATIONS

277/480 VOLT 3Ø 4-WIRE				
CODE NO.	kVA PER TRANSFORMER	kVA OF BANK	T RISER SIZE	N RISER SIZE
X 312	25	75	2	2
X 332	50	150	2/0	2/0
X 342	75	225	4/0	2/0
X 352	100	300	350 MCM	4/0
X 362	167	500	2-4/0	350 MCM

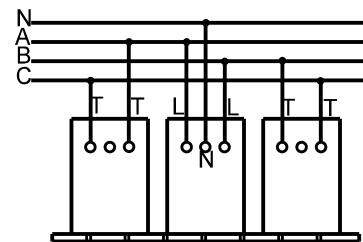
120/208 VOLT 3Ø 4-WIRE (SEE NOTE 2)				
CODE NO.	kVA PER TRANSFORMER	kVA OF BANK	T RISER SIZE	N RISER SIZE
X 422	25	75	2/0	2/0
X 442	50	150	500 MCM	350 MCM
X 452	75	225	2-350 MCM	350 MCM
X 462	100	300	2-350 MCM	500 MCM

NOTES

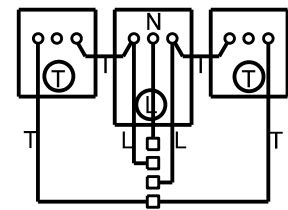
1. RISER SIZES GIVEN IN ABOVE TABLES ARE FOR CROSS-LINK POLYETHYLENE INSULATED COPPER CONDUCTORS.
2. TRANSFORMERS ARE STOCKED WITH 120/240V SECONDARY AND MUST BE SENT TO THE SHOP FOR RECONNECTION TO 120V SECONDARY BEFORE INSTALLING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	22kV TRANSFORMERS TRANSFORMER BANK AND RISER CODING BALANCED 3-PHASE LOADS		ISSUE DATE: 06/17/93
			REV. DATE: 06/08/11
			APPROVAL: B. PRIEST
	8-2-1	8512E191.DGN	

		120/240 VOLT 1Ø - 3Ø 4-WIRE			
		CODE NUMBER L AND TRANSFORMER SIZE L			
CODE NO. T	TRANSFORMER SIZES T	12 15 KVA	22 25 KVA	42 50 KVA	52 75 KVA
X 52	10 KVA			T # 2 L # 4/0 N # 2/0	L 350 MCM N # 4/0
X 53	15 KVA	T # 2 L # 2 N # 2	T # 2 L # 2 N # 2	T # 2 L # 4/0 N # 2/0	T # 2 L 350 MCM N # 4/0
X 54	25 KVA		T # 2 L # 2 N # 2	T # 2 L # 4/0 N # 2/0	T # 2 L 350 MCM N # 4/0
X 56	50 KVA			T # 4/0 L 350 MCM N # 4/0	T # 4/0 L 500 MCM N 350 MCM
X 57	75 KVA				T 350 MCM L 2 # 4/0 N 350 MCM



PLATFORM BANK



POLE MOUNTED BANK

SECONDARY CONNECTION DIAGRAMS
120/240 VOLT 1Ø - 3Ø 4 WIRE
12.4/21.8 KV PRIMARY
TRANSFORMER INSTALLATIONS

NOTES

1. TO DESIGNATE THE DESIRED TRANSFORMER BANK - CALL FOR THE **T** CODE NUMBER FIRST, THEN ADD THE APPROPRIATE **L** CODE NUMBER.

EXAMPLE

TO CALL FOR A TRANSFORMER BANK CONSISTING OF TWO 25 KVA TRANSFORMERS AND ONE 50 KVA TRANSFORMER, THE CODE NUMBER IS X5442 .

X54 INDICATES THE TWO 25 KVA TRANSFORMERS

42 INDICATES THE ONE 50 KVA TRANSFORMER

2. RISER SIZES FOR THE T, L, AND N RISERS ARE GIVEN IN THE BLOCK WHERE **X54** AND **42** INTERSECT.

120/240 VOLT 1Ø 3-WIRE			
CODE NO.	TRANSFORMER SIZE	L RISER SIZE	N RISER SIZE
X 622	10 KVA	#2	#2
X 632	15 KVA	#2	#2
X 642	25 KVA	#2	#2
X 662	50 KVA	#4/0	#2/0
X 672	75 KVA	350 MCM	#4/0
X 682	100 KVA	350 MCM	#4/0



POLE MOUNTED BANK

SECONDARY CONNECTION DIAGRAM

120/240 VOLT 1Ø 3 WIRE
12.4/21.8 KV PRIMARY
TRANSFORMER INSTALLATIONS

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV TRANSFORMERS
TRANSFORMER BANK AND RISER CODING
UNBALANCED 3Ø AND 1Ø

8-3-1

ISSUE DATE: 06/17/93

REV. DATE: 06/09/10

APPROVAL: B. PRIEST

8512E188.DGN

120/240 VOLT 1Ø - 3Ø 4 WIRE

		CODE NUMBER (L) AND TRANSFORMER SIZE (L)				
CODE NO. (T)	TRANSFORMER SIZES (T)	22 10 KVA	32 15 KVA	42 25 KVA	62 50 KVA	72 75 KVA
X 72	10 KVA	T # 2 L # 2 N # 2	T # 2 L # 2 N # 2	T # 2 L # 2 N # 2	T # 2 L # 4/0 N # 2/0	
X 73	15 KVA		T # 2 L # 2 N # 2	T # 2 L # 2 N # 2	T # 2 L # 4/0 N # 2/0	T # 2 L 350 MCM N # 4/0
X 74	25 KVA			T # 2 L # 2 N # 2	T # 2 L # 4/0 N # 2/0	T # 2 L 350 MCM N # 4/0
X 76	50 KVA				T # 4/0 L # 4/0 N # 4/0	T # 2 L 350 MCM N # 4/0

NOTES

1. TO DESIGNATE THE DESIRED TRANSFORMER BANK - CALL FOR THE **(T)** CODE NUMBER FIRST, THEN ADD THE APPROPRIATE **(L)** CODE NUMBER.

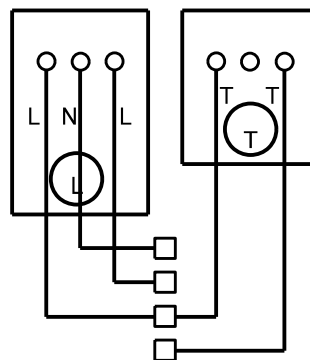
EXAMPLE

TO CALL FOR A TRANSFORMER BANK CONSISTING OF A 25 KVA TRANSFORMERS AND A 50 KVA TRANSFORMER, THE CODE NUMBER IS X7462.

X74 INDICATES THE 25 KVA TRANSFORMER.

62 INDICATES THE 50 KVA TRANSFORMER.

2. RISER SIZES FOR THE T, L, AND N RISERS ARE GIVEN IN THE BLOCK WHERE **X74** AND **62** INTERSECT.



POLE MOUNTED BANK

SECONDARY CONNECTION DIAGRAM
120/240 VOLT 1Ø - 3Ø 4 WIRE
12.4/21.8 KV PRIMARY
TRANSFORMER INSTALLATIONS

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV TRANSFORMERS TRANSFORMER BANK AND RISER CODING 3Ø LOADS - 2 TRANSFORMER BANKS	ISSUE DATE: 06/17/93 REV. DATE: 06/08/11 APPROVAL: B. PRIEST
	8-4-1	8512E189.DGN

**REPLACEMENT OF TRANSFORMER(S) IN
X5242 – X5752, X622 – X672 AND X7222 – X7672 TYPE BANKS**

CODE NO.	TRANSFORMER KVA
X9102	10
X9152	15
X9252	25
X9502	50
X9752	75

USE THESE CODE NUMBERS FOR REPLACEMENT OF ONE, TWO OR THREE TRANSFORMERS IN A 120/240 VOLT BANK OR A 240 VOLT 3Ø BANK.

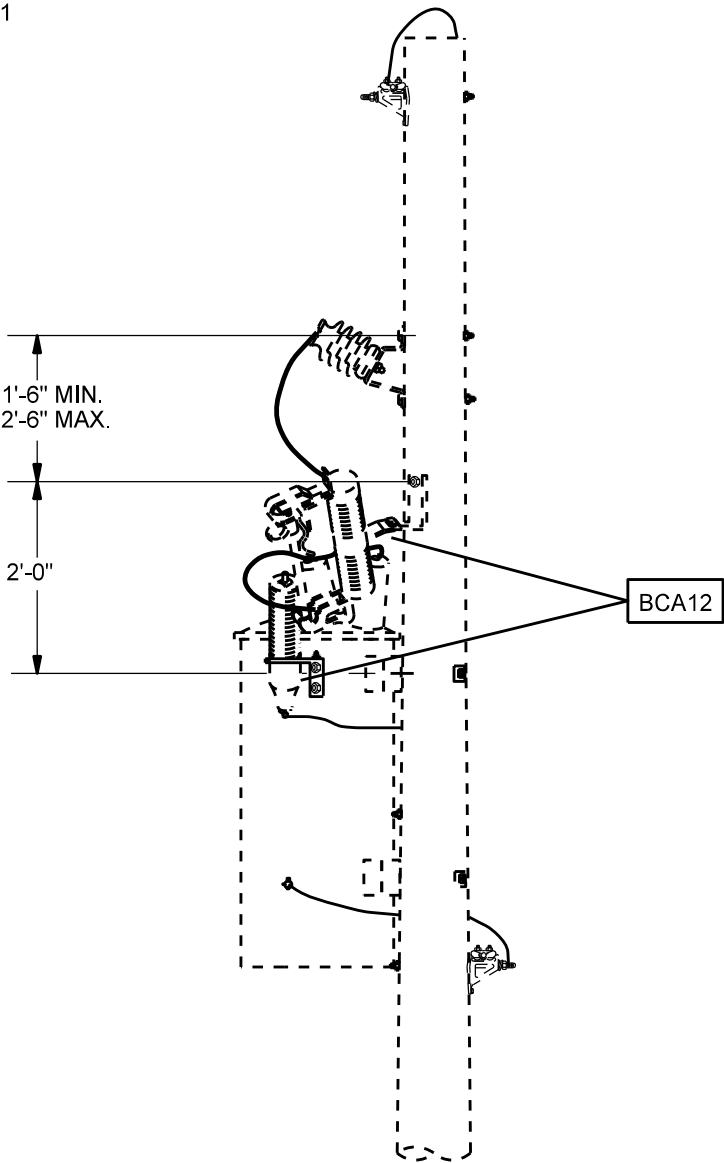
CODE NO.	TRANSFORMER KVA
X10252	25
X10502	50
X10752	75
X101002	100
X101672	167

USE THESE CODE NUMBERS FOR REPLACEMENT OF ONE, TWO OR THREE TRANSFORMERS IN A 277/480 VOLT BANK.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV TRANSFORMERS REPLACEMENT OF INSTALLED TRANSFORMERS	ISSUE DATE: 06/17/93 REV. DATE: 05/24/11 APPROVAL: B. Priest
	8-5-1	OH8-5-1.doc

XP1

SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
40'	Z	B

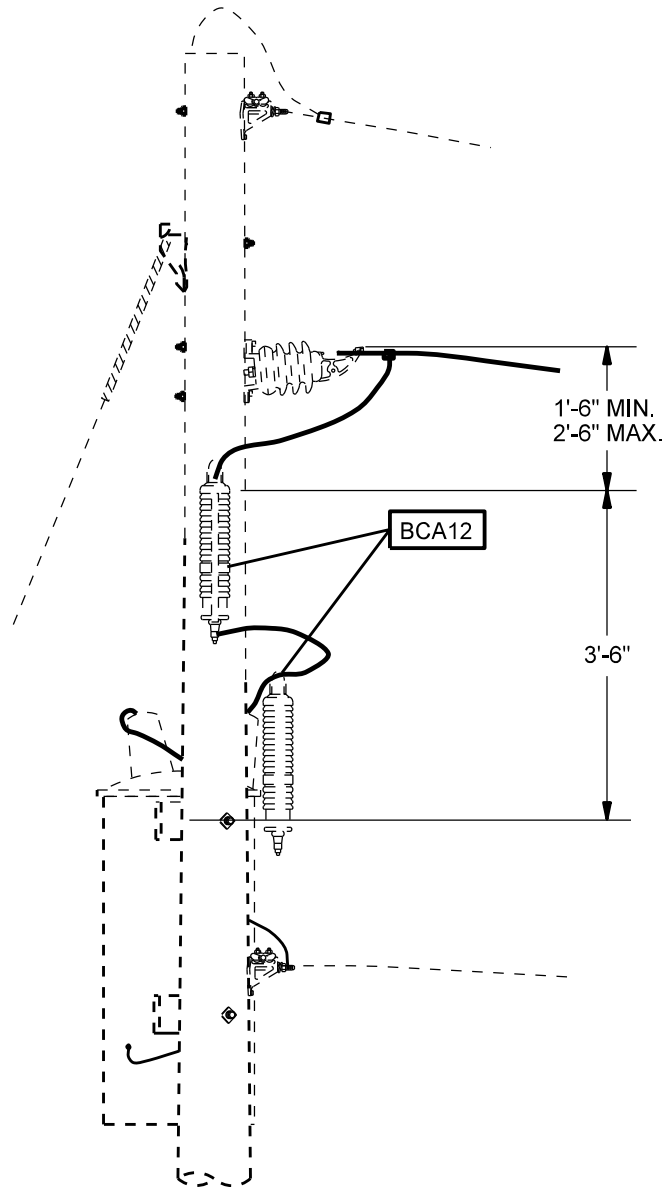
NOTES

1. USE XP1 FOR P102 FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22kV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION SINGLE PHASE TANGENT	
	8-6-1	ISSUE DATE: 11/24/74 REV. DATE: 06/08/11 APPROVAL: B. PRIEST 8512E302.DGN

XP1

SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
40'	Z	B

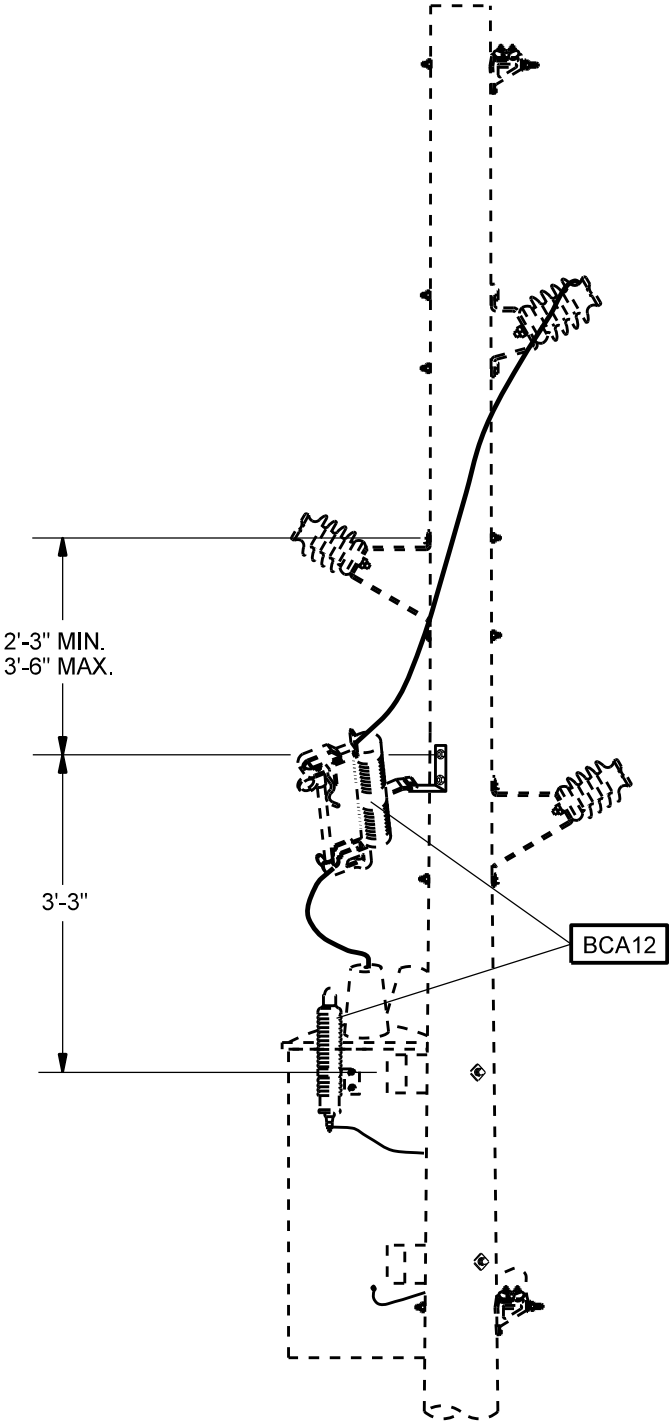
NOTES

1. USE XP1 FOR P112, P112A, P132, P132A OR P152 FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION SINGLE PHASE SMALL, MEDIUM ANGLE AND DEADEND	
	8-7-1	ISSUE DATE: 12/13/74 REV. DATE: 06/08/10 APPROVAL: B. PRIEST 8512E303.DGN

XP1

SEE NOTE 1



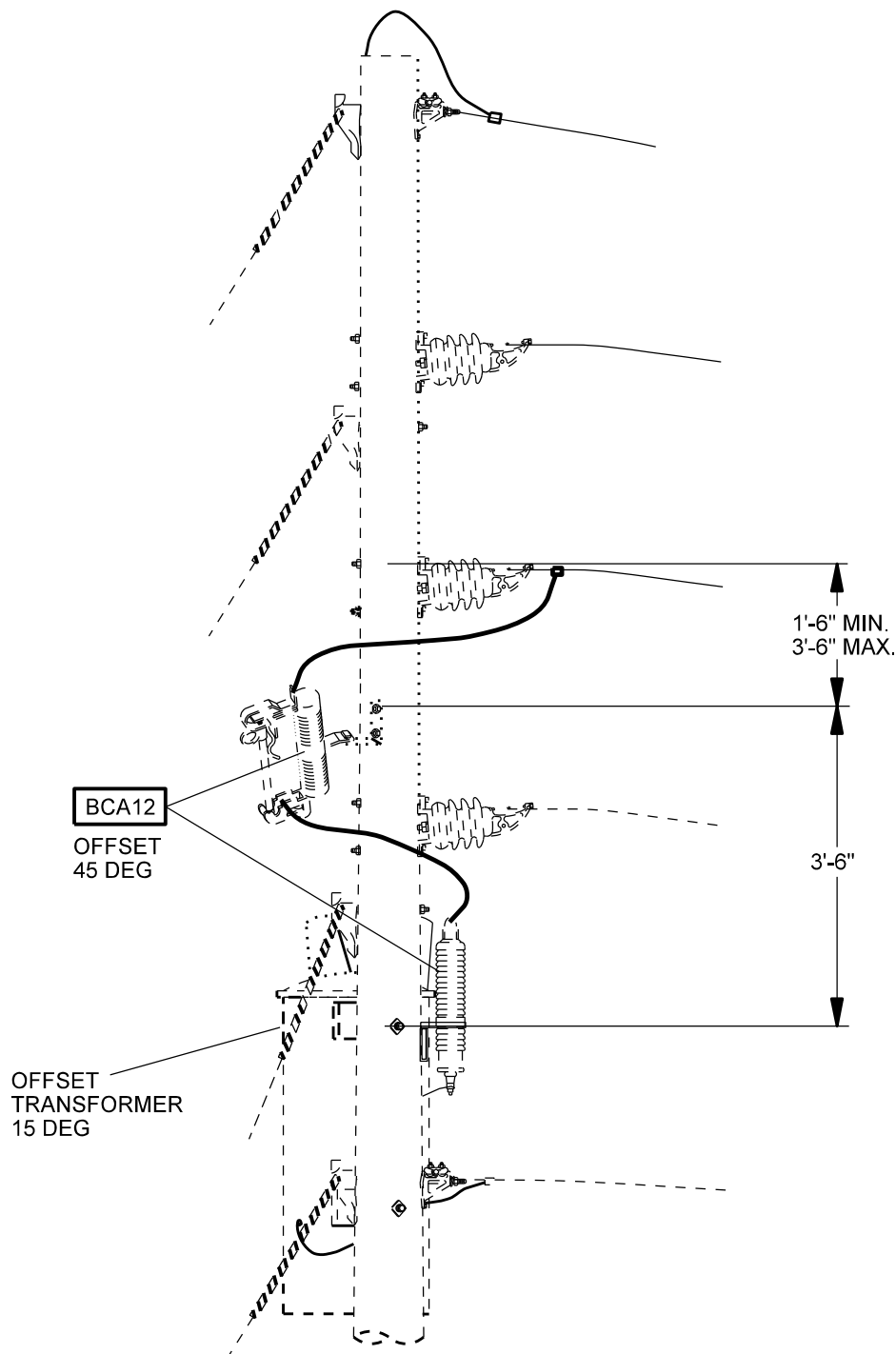
POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
45'	Z	B

NOTES

1. USE XP1 FOR P202A, P202D, P302A OR P302D FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION TWO AND THREE PHASE TANGENT	
	8-8-1	ISSUE DATE: 10/16/74 REV. DATE: 06/08/10 APPROVAL: B. PRIEST 8512E304.DGN

XP1 SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
45'	Z	B

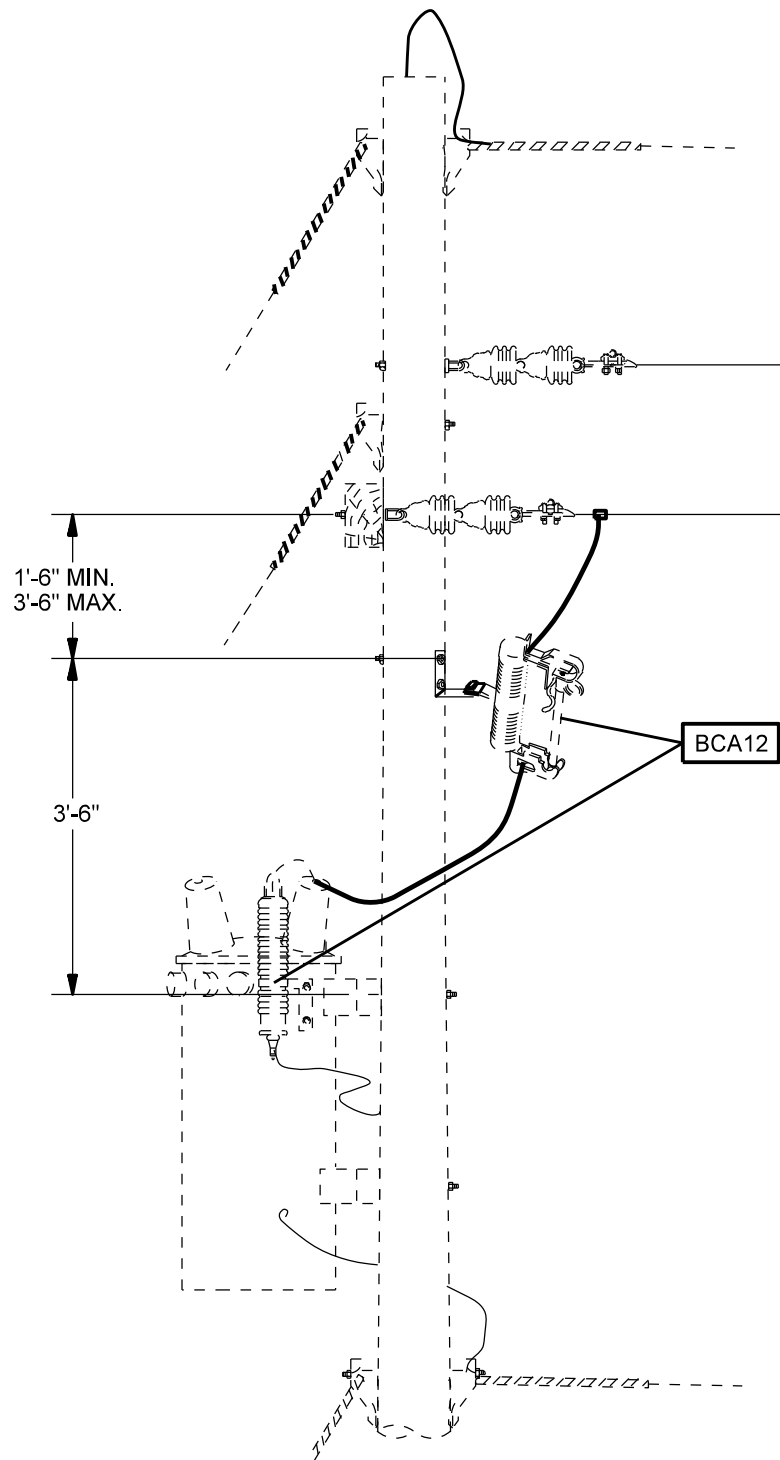
NOTES

1. USE XP1 FOR P222, P222A, P232, P232A, P252A, P322, P322A, P332, P332A OR P352A FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION TWO AND THREE PHASE SMALL, MEDIUM ANGLE AND DEADEND	ISSUE DATE: 10/16/74 REV. DATE: 06/08/10 APPROVAL: B. PRIEST
	8-9-1	8512E305.DGN

XP1

SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
45'	Z + 4'-6"	B

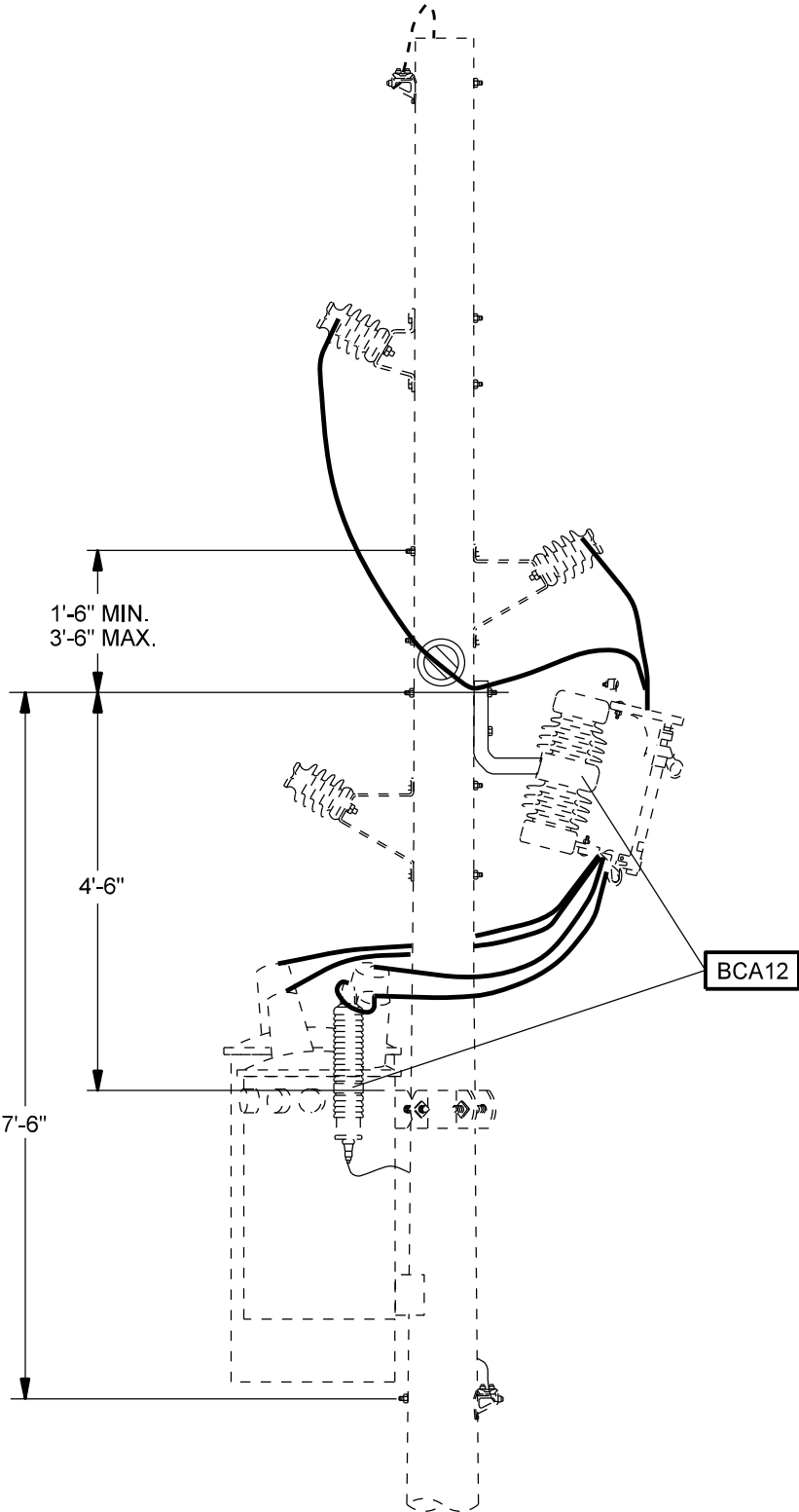
NOTES

1. USE FOR XP1 FOR P352 FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV TRANSFORMERS SINGLE TRANSFORMER INSTALLATION THREE PHASE DEADEND, CROSSARM	
	8-10-1	ISSUE DATE: 12/23/74 REV. DATE: 06/08/11 APPROVAL: B. PRIEST 8512E306.DGN

XP2

SEE NOTE 1



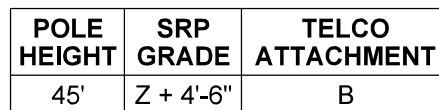
POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
45'	Z + 4'-6"	B

NOTES

1. USE XF2 FOR P202A, P202D, P302A OR P302D FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV TRANSFORMERS TWO TRANSFORMER INSTALLATION TWO AND THREE PHASE TANGENT	ISSUE DATE: 11/20/74 REV. DATE: 06/08/10 APPROVAL: B. PRIEST
	8-11-1	8512E307.DGN

SEE NOTE 1



1. USE XP2 FOR P222, P222A, P232, P232A, P252A, P322, P322A, P332, P332A, OR P352A FRAMING.



22KV TRANSFORMERS
TWO TRANSFORMER INSTALLATION
TWO AND THREE PHASE
SMALL, MEDIUM ANGLE AND DEADEND

ISSUE DATE: 10/22/74

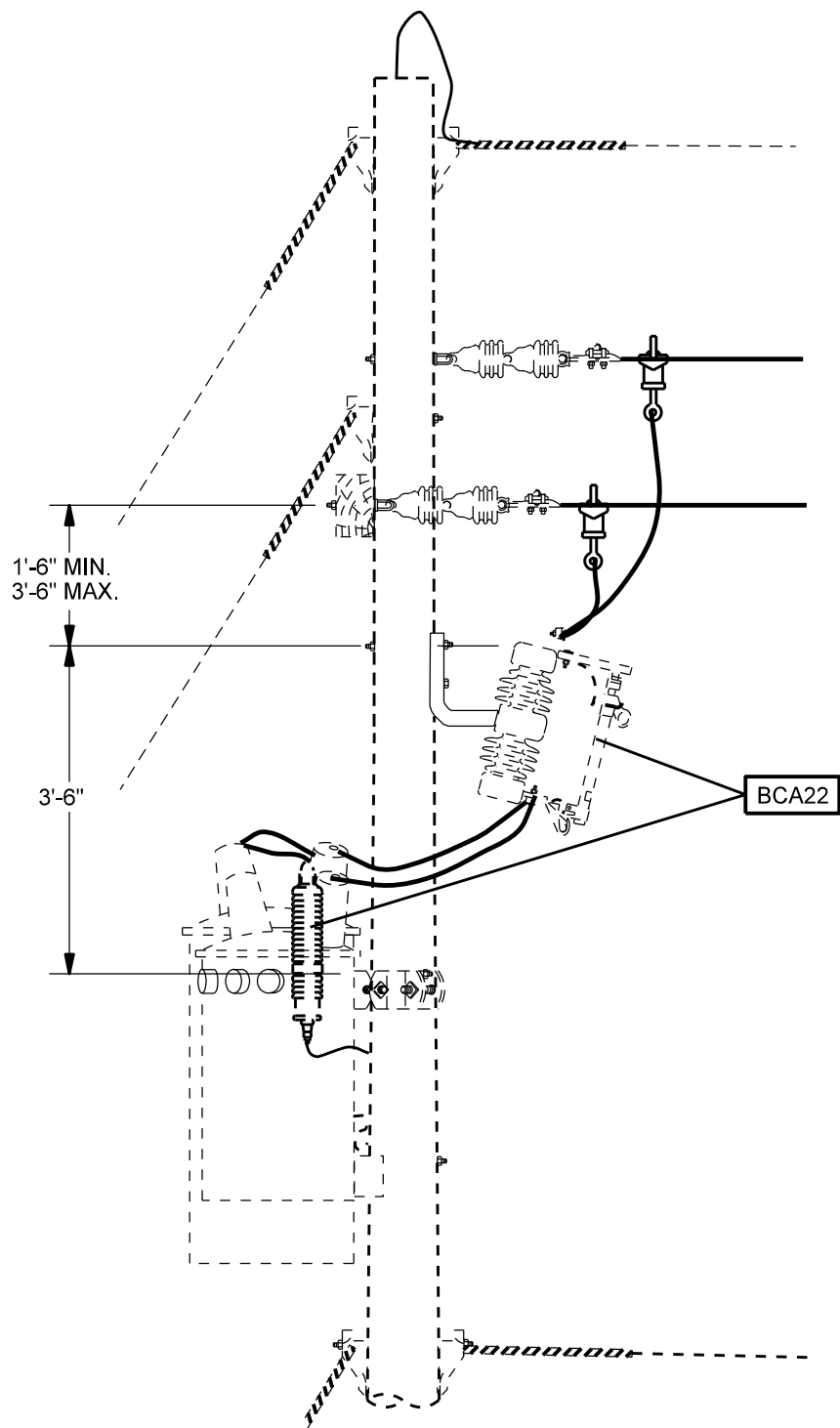
REV. DATE: 06/08/11

APPROVAL: B. PRIEST

8512E308.DGN

XP2

SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
45'	Z + 4'-6"	B

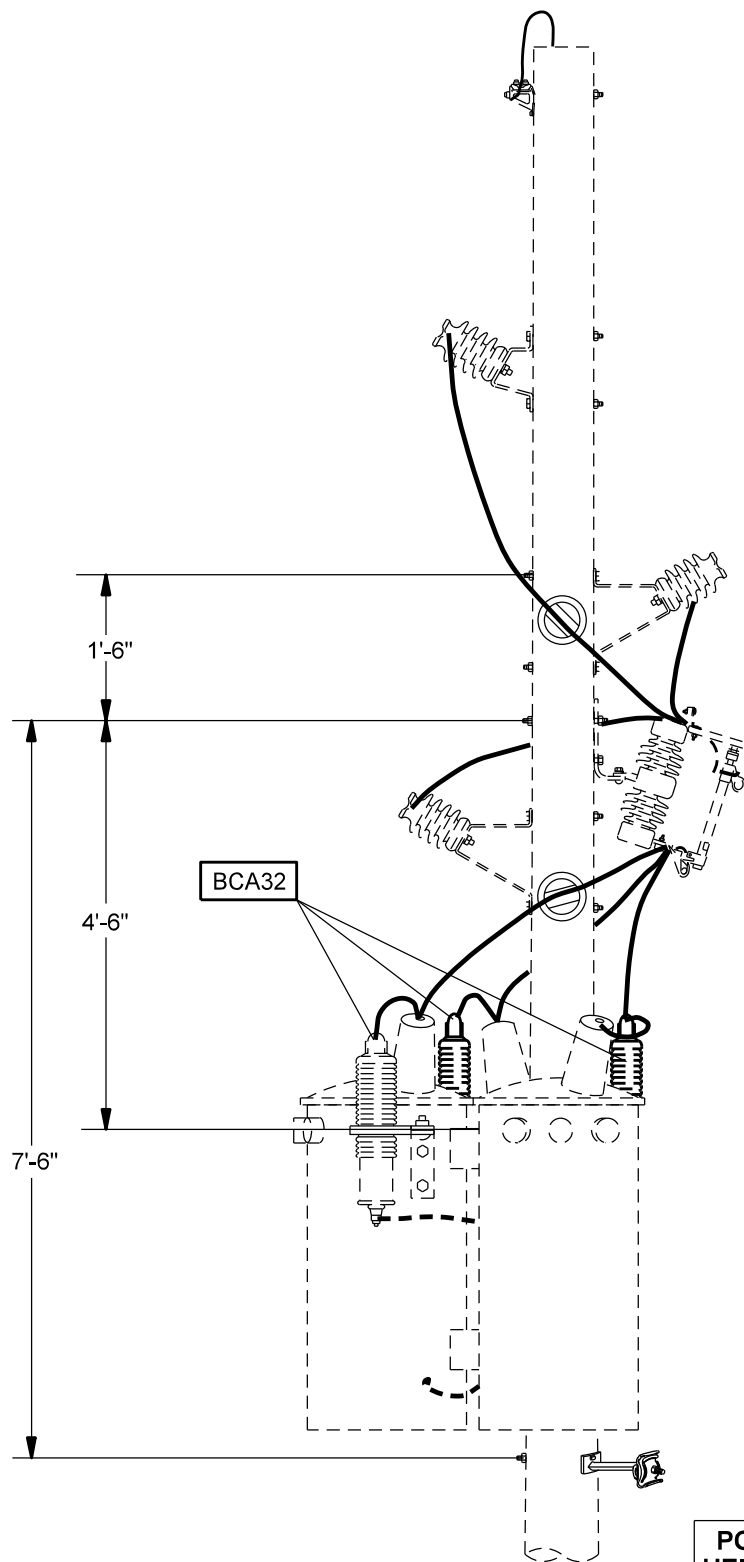
NOTES

1. USE XP2 FOR P352 FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV TRANSFORMERS TWO TRANSFORMER INSTALLATION THREE PHASE DEADEND, CROSSARM	ISSUE DATE: 08/22/74 REV. DATE: 06/08/10 APPROVAL: B. PRIEST
	8-13-1	8512E309.DGN

XP3

SEE NOTE 1



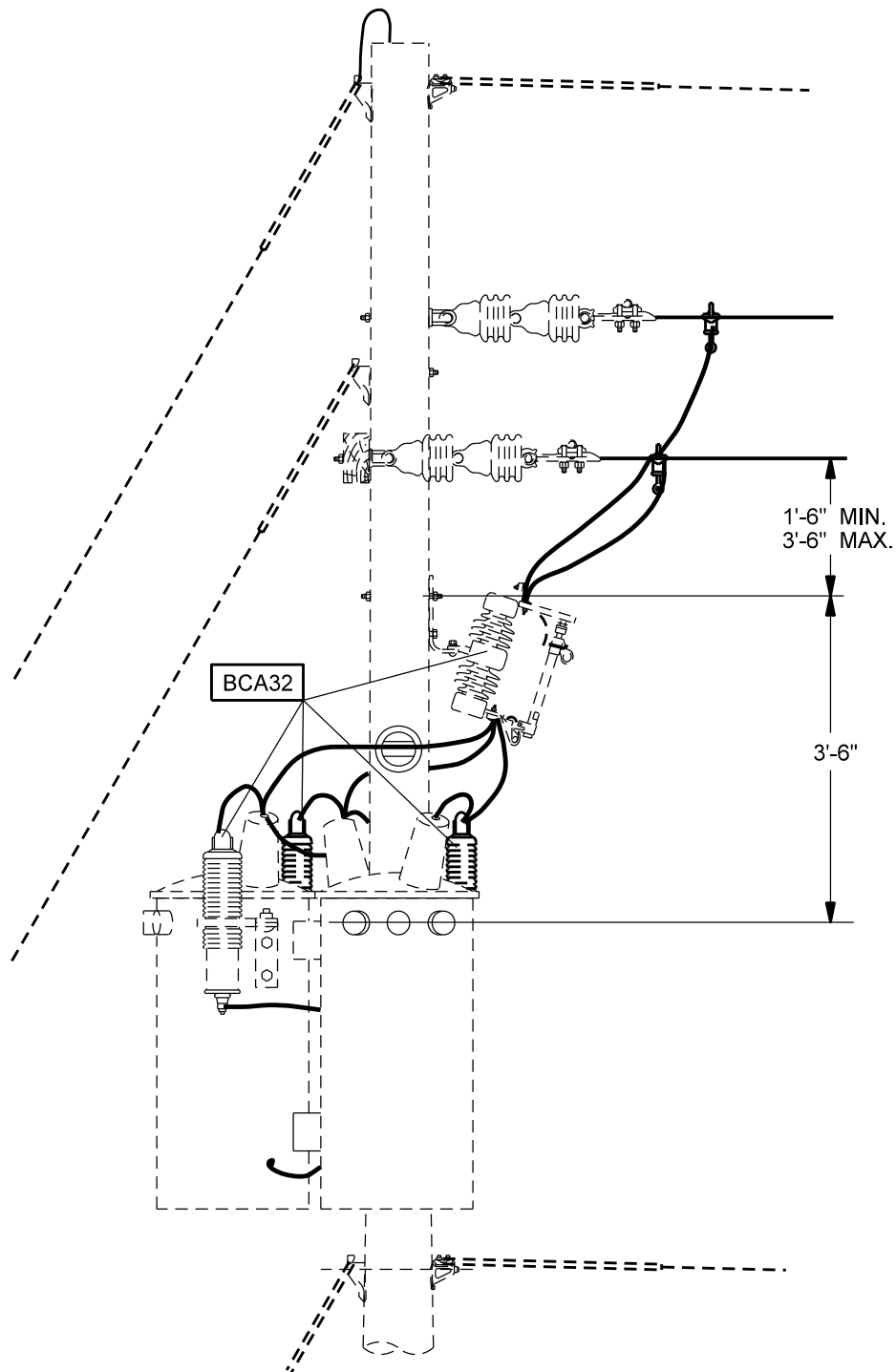
POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
45'	Z + 4'-6"	B

NOTES
1. USE XP3 FOR P302A OR P302D FRAMING.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22KV TRANSFORMERS THREE TRANSFORMER INSTALLATION THREE PHASE TANGENT	ISSUE DATE: 11/05/74 REV. DATE: 06/08/10 APPROVAL: B. PRIEST
	8-14-1	8512E310.DGN

XP3

SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
45'	Z + 4'-6"	B

NOTES

1. XP3 FOR P352 FRAMING.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

22KV TRANSFORMERS
THREE TRANSFORMER INSTALLATION
THREE PHASE DEADEND, CROSSARM

8-15-1

ISSUE DATE: 11/16/74

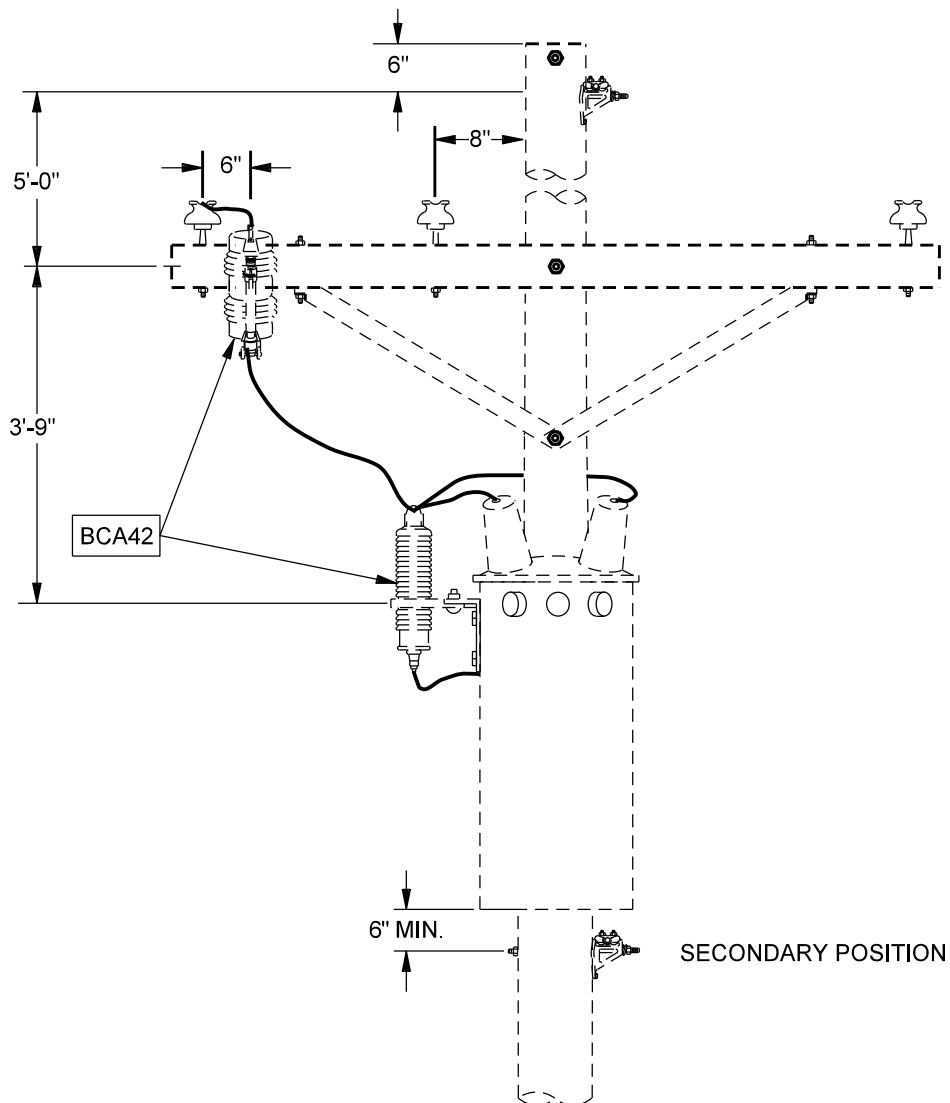
REV. DATE: 06/08/10

APPROVAL: B. PRIEST

8512E311.DGN

XPH1

SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
40'	Z	B
45'	Z + 4'-6"	B

NOTES

1. USE XPH1 FOR PH102 OR PH82 FRAMING.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

22KV TRANSFORMERS
SINGLE TRANSFORMER INSTALLATION
TWO OR THREE PHASE TANGENT
CROSSARM CONSTRUCTION

8-16-1

ISSUE DATE: 12/04/74

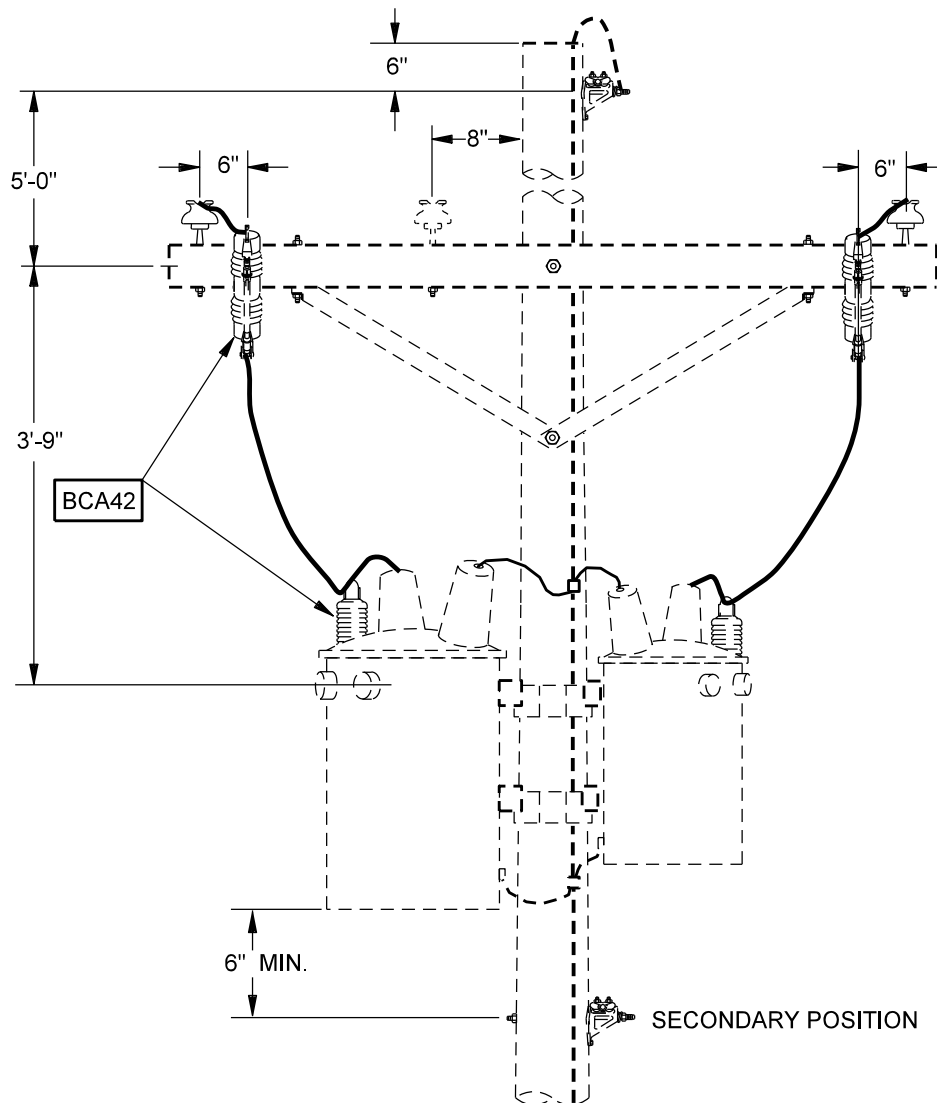
REV. DATE: 06/08/11

APPROVAL: B. PRIEST

8512E312.DGN

XPH2

SEE NOTE 1



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
40'	Z	B
45'	Z + 4'-6"	B

NOTES

1. USE XPH2 FOR PH102 OR PH82 FRAMING.

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

22KV TRANSFORMERS
TWO TRANSFORMER INSTALLATION
TWO OR THREE PHASE TANGENT
CROSSARM CONSTRUCTION

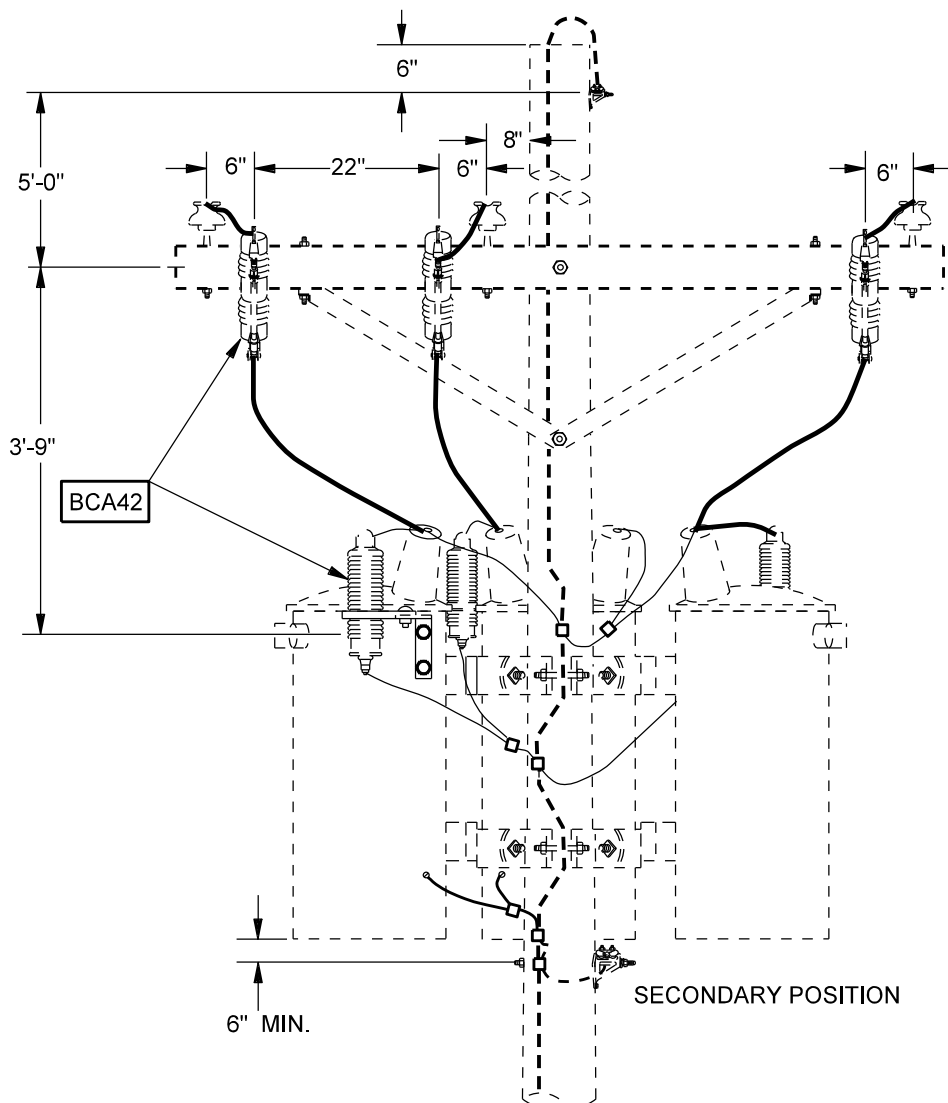
8-16-2

ISSUE DATE: 11/06/74

REV. DATE: 06/09/10

APPROVAL: B. PRIEST

8512E316.DGN



POLE HEIGHT	SRP GRADE	TELCO ATTACHMENT
40'	Z	B
45'	Z + 4'-6"	

NOTES

1. USE XPH3 FOR PH102 OR PH82 FRAMING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22KV TRANSFORMERS
THREE TRANSFORMER INSTALLATION
THREE PHASE TANGENT
CROSSARM CONSTRUCTION

8-17-1

ISSUE DATE: 11/11/74

REV. DATE: 06/08/11

APPROVAL: B. PRIEST

8512E317.DGN

SECTION 9: 12 kV LINE DEVICES

TITLE / DESCRIPTION	PAGE
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SWITCH OPENING	9-3-1
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600 AMP LINE DISCONNECTS, VERTICAL DOUBLE DEADEND, INTERMEDIATE ANGLE	9-5-1
600 AMP LINE DISCONNECTS, VERTICAL DEADEND WITH 180° SLACK SPAN	9-6-1
600 AMP LINE DISCONNECTS, TANGENT, CROSSARM CONSTRUCTION	9-7-1
600 AMP POLE MOUNTED DISCONNECTS, CROSSARM CONSTRUCTION	9-8-1
CUTOUT TYPE SWITCHES, 300 AMP, SWITCHED SLACK SPAN TO CUSTOMER WELL, VERTICAL	9-9-1
CUTOUT TYPE SWITCHES, 300 AMP, SWITCHED SLACK SPAN TO CUSTOMER WELL, CROSSARM	9-9-3
SINGLE PHASE DEADEND WITH SLACK SPAN, FUSED LATERAL	9-10-1
TWO OR THREE PHASE DEADEND WITH SLACK SPAN, FUSED LATERAL	9-11-1
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TWO OR THREE PHASE BUCK SLACK SPAN, FUSED LATERAL	9-13-1
GANG OPERATED SWITCH, 600 AMP UNITIZED, SPACE RESERVED FOR FUTURE EQUIPMENT ON POLE	9-14-1
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GANG OPERATED SWITCH, 600 AMP, UNITIZED PARALLELING, CROSSING CIRCUITS	9-20-1
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GANG OPERATED SWITCH, 600 AMP UNITIZED, VERTICAL, ON STEEL POLE	9-22-1
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S&C INTELLIRUPTER, RC PULSE RECLOSER, WOOD POLE, FLAT CONSTRUCTION	9-24-1
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SCADA-MATE SWITCH, REMOTE SUPERVISORY CONTROL, STEEL POLE, FLAT CONSTRUCTION	9-26-1
12 kV PRIMARY METERING INSTALLATION	9-27-1
DISCONNECT SWITCH, 400 AMP LINE TENSION DISCONNECT, CROSSARM CONSTRUCTION	9-28-1
IN-LINE GANG OPERATED HORIZONTAL KPF	9-29-1
600 AMP PARALLELING DISCONNECTS, VERTICAL CONSTRUCTION	9-30-1
600 AMP PARALLELING DISCONNECTS, CROSSARM CONSTRUCTION	9-31-1
COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD DEVICES	9-32-1
12 kV & 22 kV OVERHEAD FAULT INDICATOR (DOC USE ONLY)	9-33-1

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	INDEX 12 kV LINE DEVICES	ISSUE DATE: 06/04/13 REV. DATE: 10/17/24 APPROVAL: J. Robbins
	9-1-1	OH9-1-1.doc

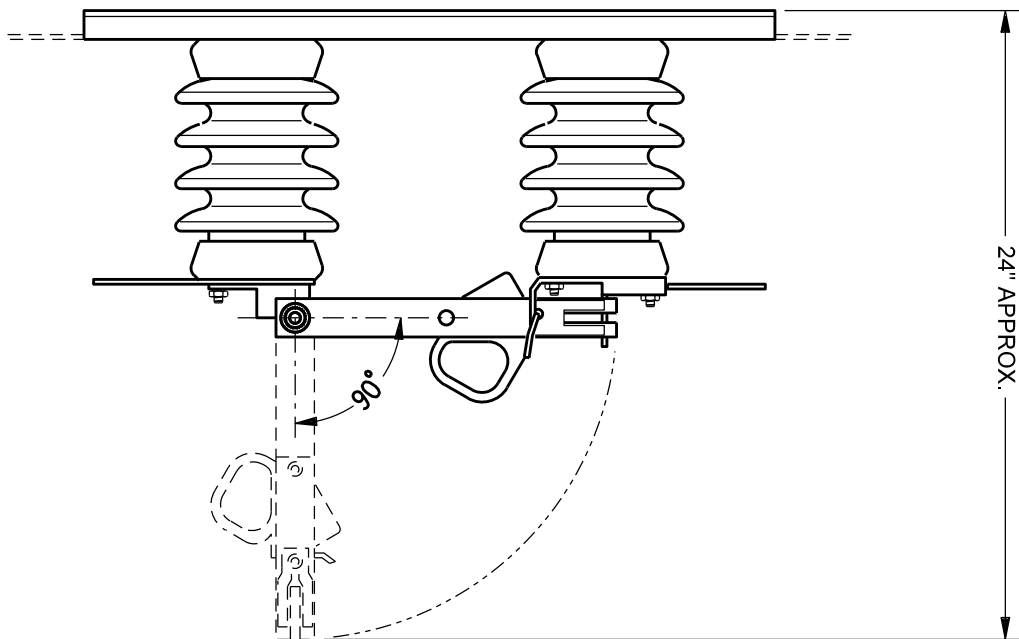
THIS GUIDE CONCERNS THE INSTALLATION OR REMOVAL OF THREE PHASE SETS OF LINE DISCONNECT SWITCHES.

COMPATIBLE UNIT CODING FOR "LINE DEVICES"

OVERHEAD LINE SWITCHES HAVE BEEN ASSIGNED COMPATIBLE UNIT CODES WITH VARIOUS PREFIX DESIGNATIONS AS FOLLOWS:

- DB = BLADE DISCONNECT SWITCHES, OPERATED SINGLE PHASE
- DC = CUTOUT TYPE DISCONNECT SWITCHES, OPERATED SINGLE PHASE
- DG = GANG OPERATED, THREE PHASE UNITIZED (PRE-ASSEMBLED) SWITCH TO BE USED FOR NEW CONSTRUCTION
- KPF = GANG OPERATED, THREE PHASE SWITCH TO BE ASSEMBLED WHEN INSTALLED ON A WOOD POLE; NO LONGER STANDARD FOR NEW CONSTRUCTION
- DR = RECLOSURE, THREE PHASE, TO BE SPECIAL ORDERED FOR SPECIFIC APPLICATIONS
- DS = SECTIONALIZER, THREE PHASE, TO BE SPECIAL ORDERED FOR SPECIFIC APPLICATIONS

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV LINE DEVICES INSTRUCTIONAL GUIDE	ISSUE DATE: 03/23/94
		REV. DATE: 05/27/11
		APPROVAL: B. Priest
	9-2-1	OH9-2-1.doc



600 AMP BLADE DISCONNECT

SWITCH BLADE MAY BE ENERGIZED IN OPEN POSITION.
CLEARANCE MUST BE MAINTAINED BETWEEN SWITCH BLADE
AND ANY OTHER EQUIPMENT OR GROUNDS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
SWITCH OPENING

9-3-1

ISSUE DATE: 04/30/94

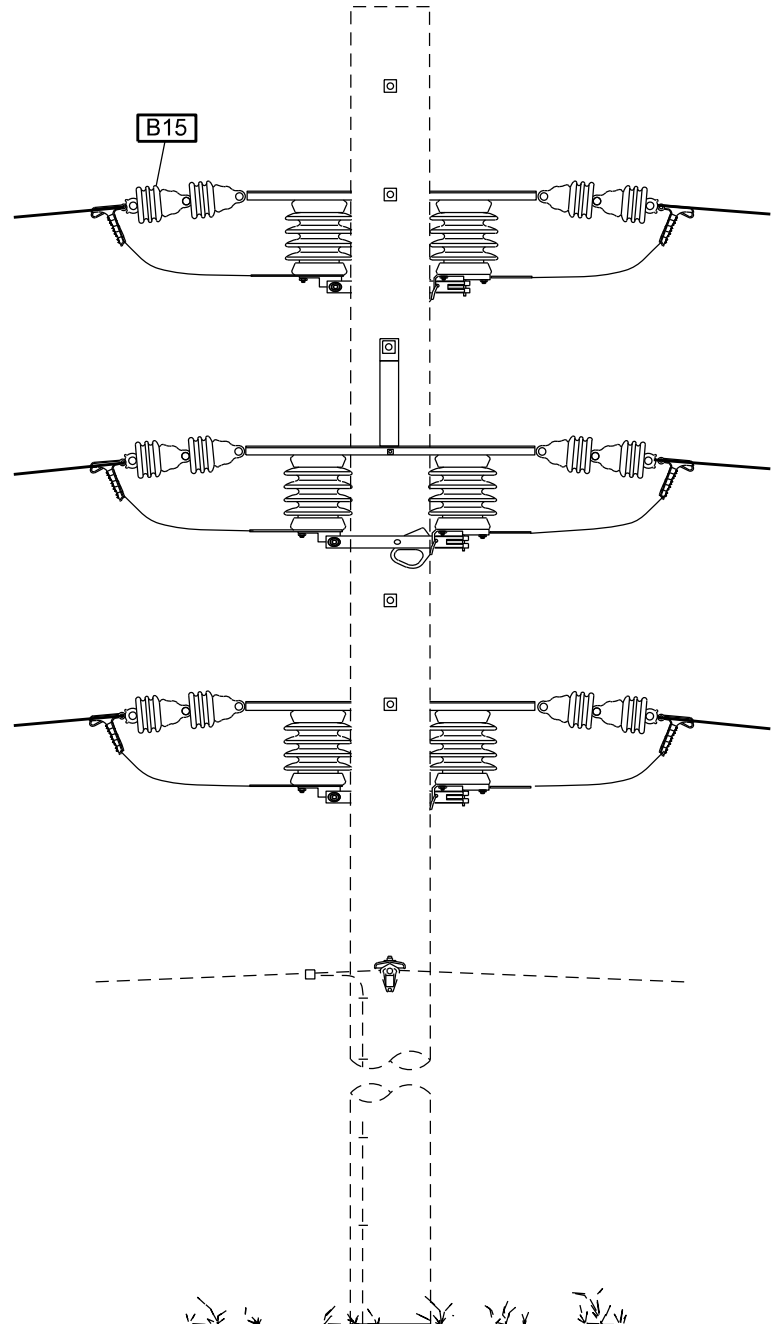
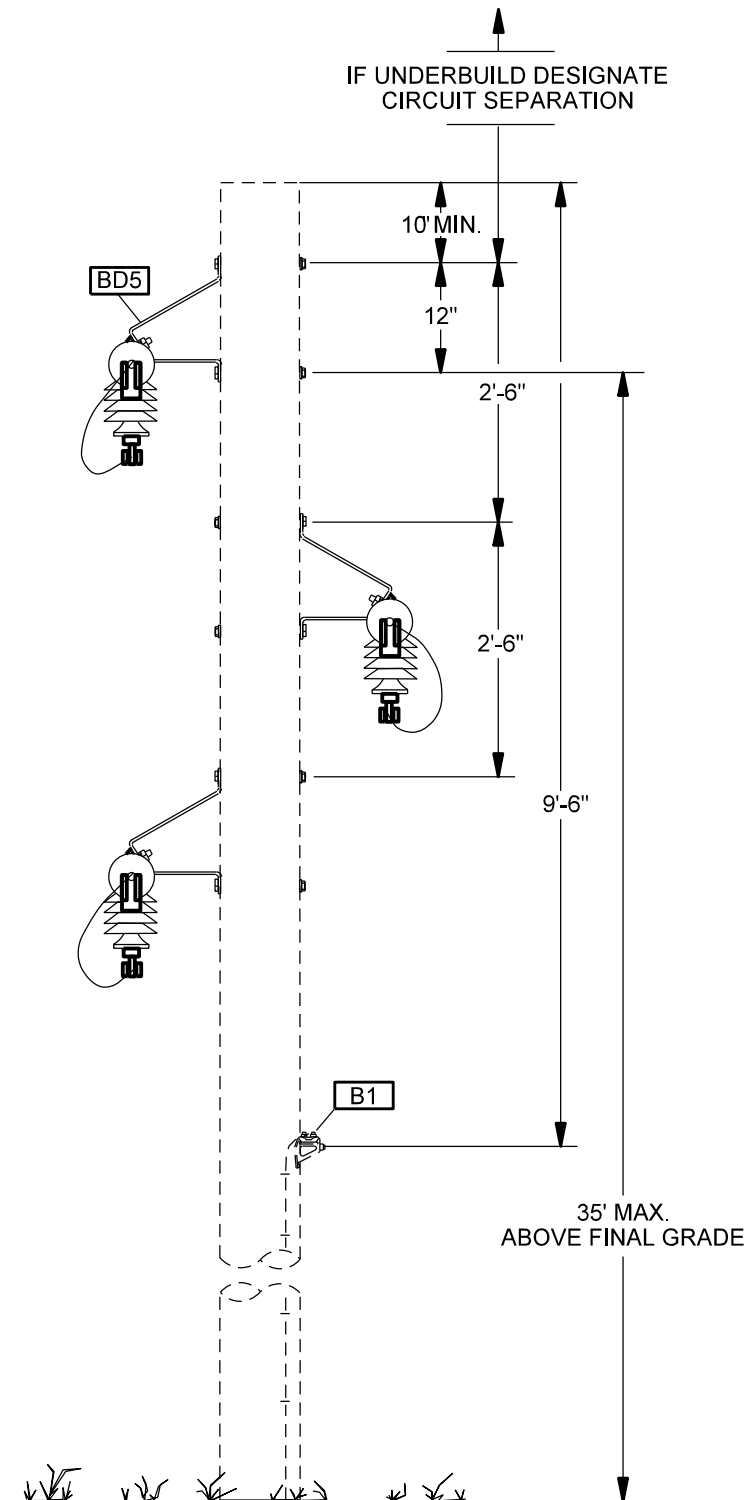
REV. DATE: 06/01/11

APPROVAL: B. PRIEST

8512E52.DGN

DB30__

CONDUCTORS-AC312, A2, A266, A397,
C1, C2, C20, C4, C6, R2, R266, R30



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
600 AMPERE LINE DISCONNECTS
VERTICAL CONSTRUCTION, TANGENT ONLY

9-4-1

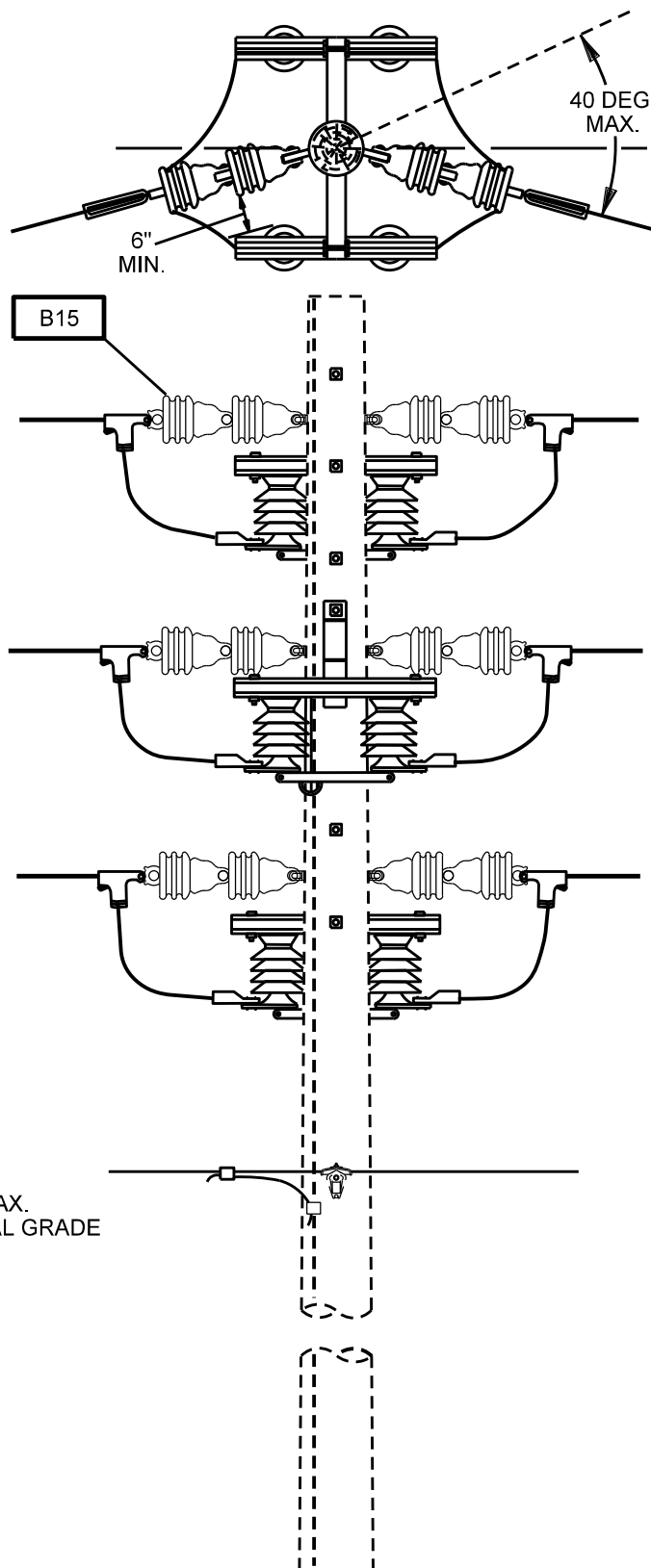
ISSUE DATE: 1989

REV. DATE: 06/09/11

APPROVAL: B. PRIEST

8512E318.DGN

**CONDUCTORS - AC312, A2, A266, A30, A397, C1,
C2, C20, C4, C6, R2, R266, R30**

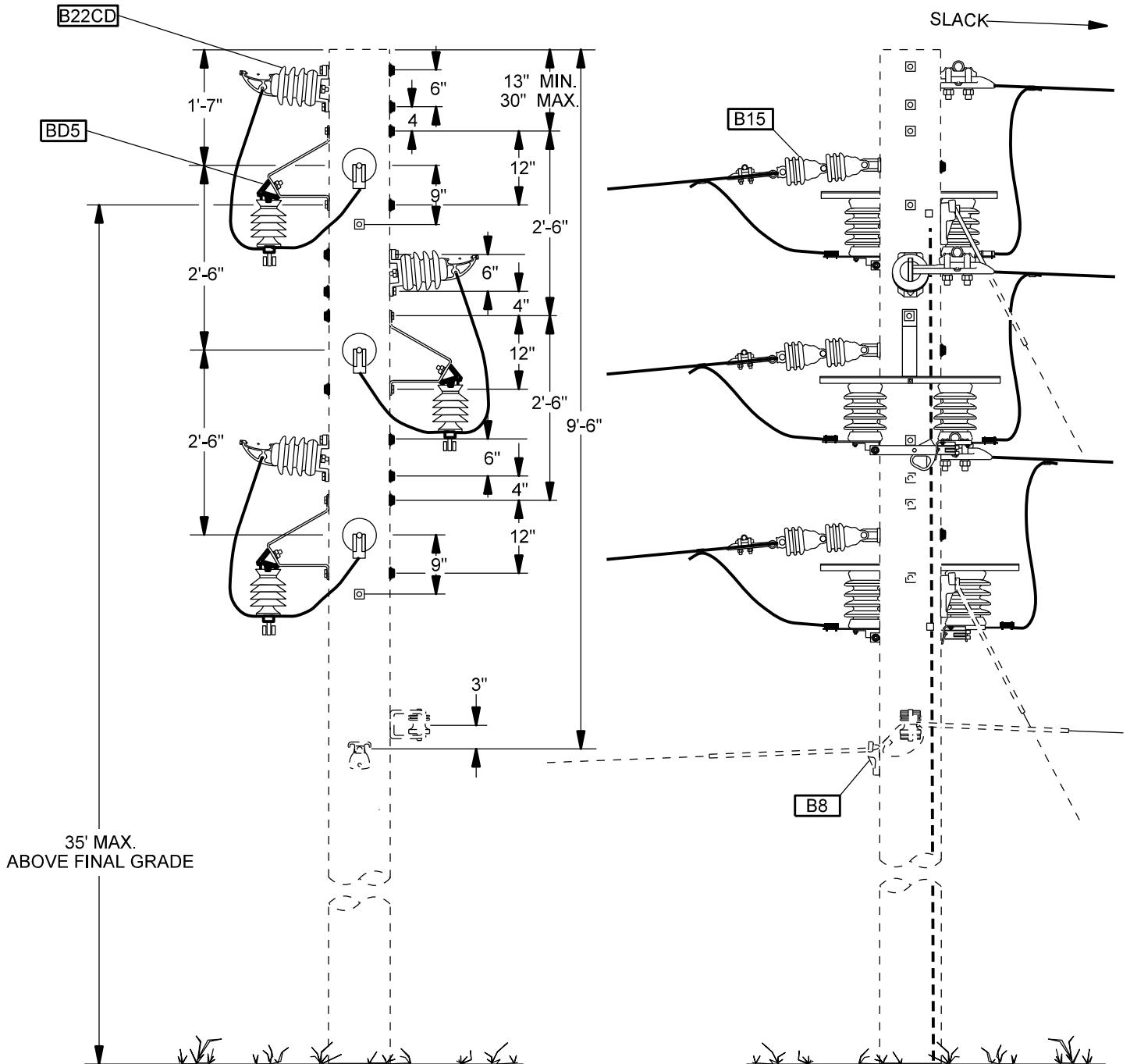


SRP[®]

PROPRIETARY MATERIAL

9-5-1

8512E233.DGN



NOTES

1. MAXIMUM POLE HEIGHT OF 45'

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
600 AMPERE LINE DISCONNECTS, VERTICAL
DEADEND WITH 180 DEG.SLACK SPAN

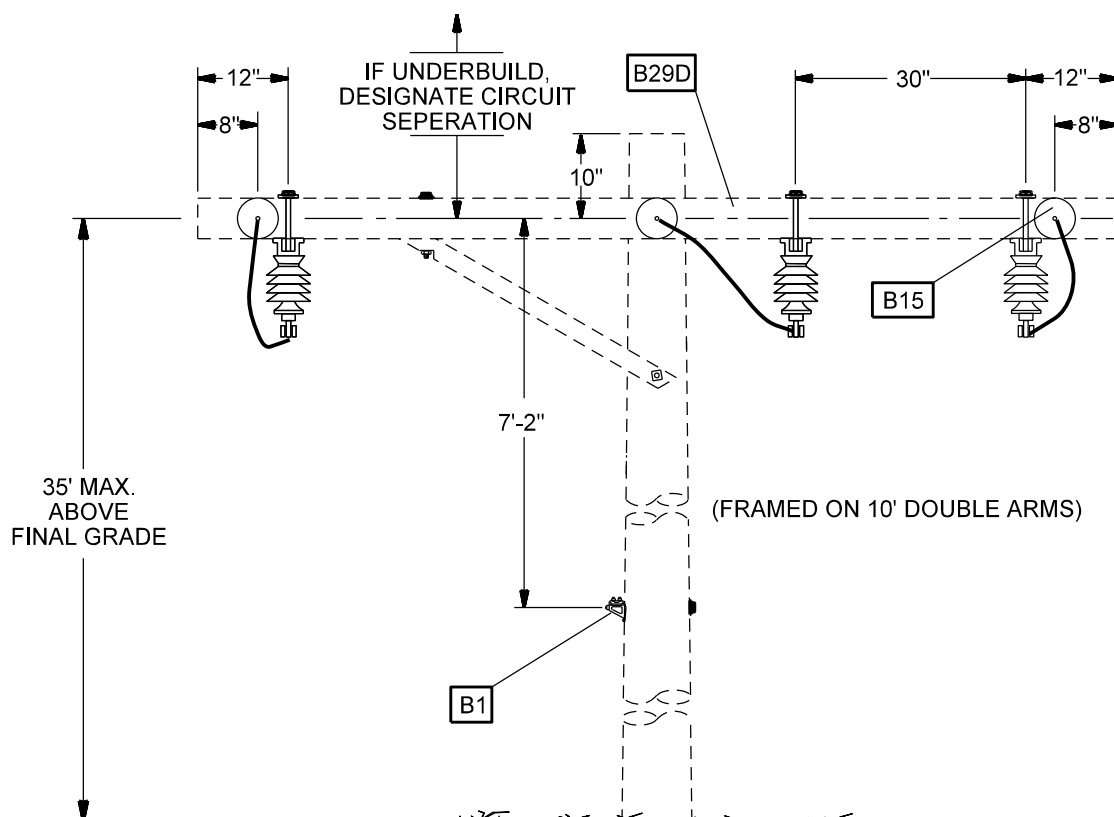
9-6-1

ISSUE DATE: 1985

REV. DATE: 06/06/11

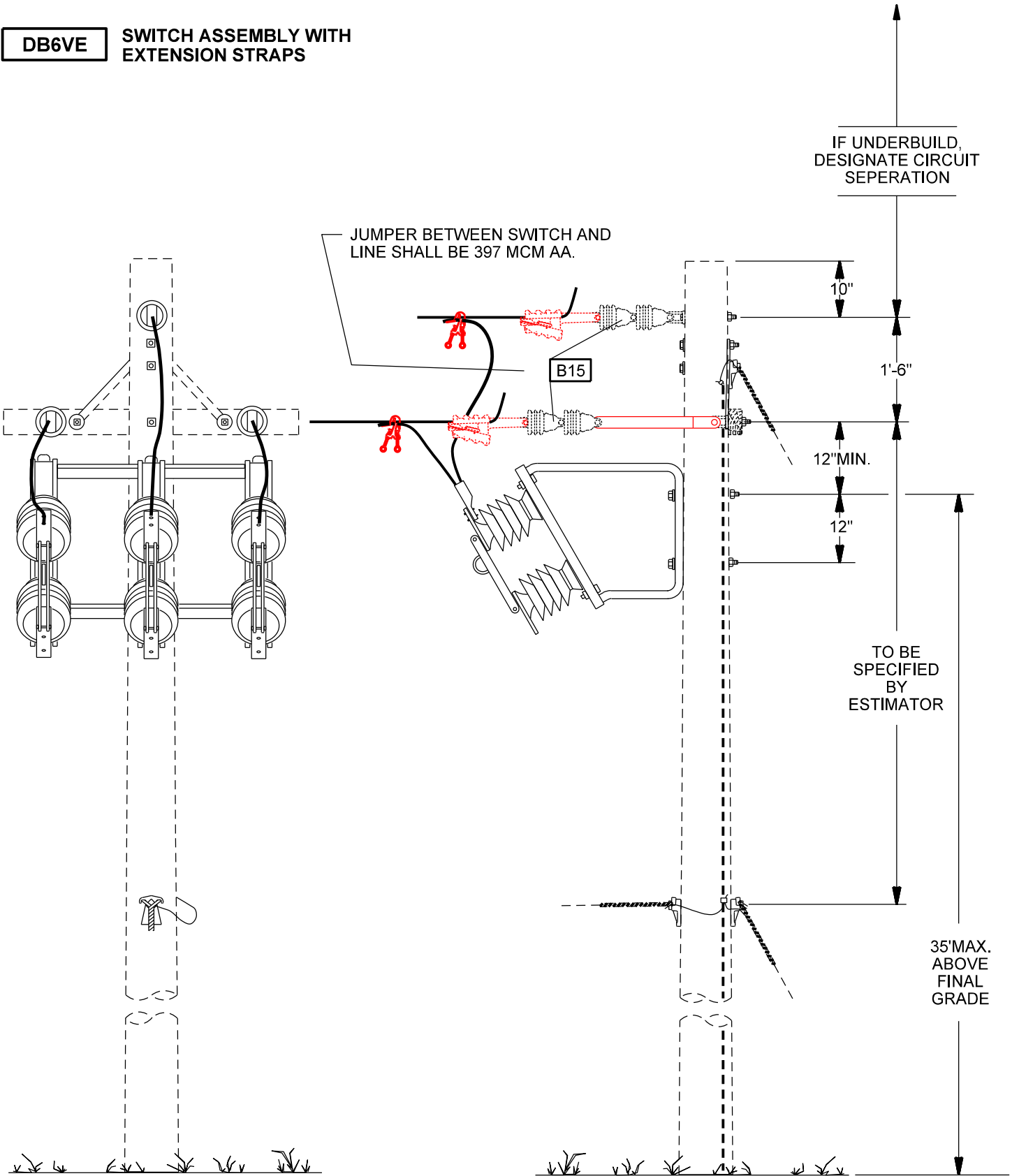
APPROVAL: B.PRIEST

8512E319.DGN



DB6VE

SWITCH ASSEMBLY WITH
EXTENSION STRAPS

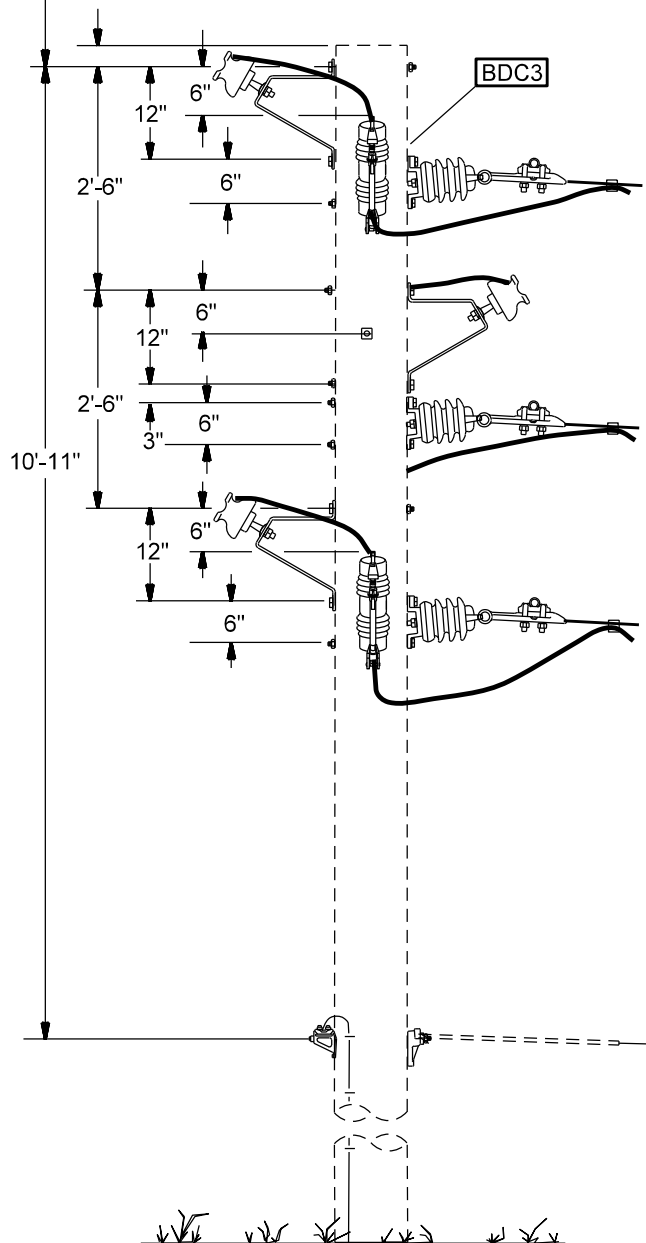


Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.	
	12 kV LINE DEVICES 600 A POLE MOUNTED DISCONNECTS CROSSARM CONSTRUCTION	ISSUE DATE: 09/13/76 REV. DATE: 12/26/24 APPROVAL: J. ROBBINS
	9-8-1	8512E325.DGN

DC30N

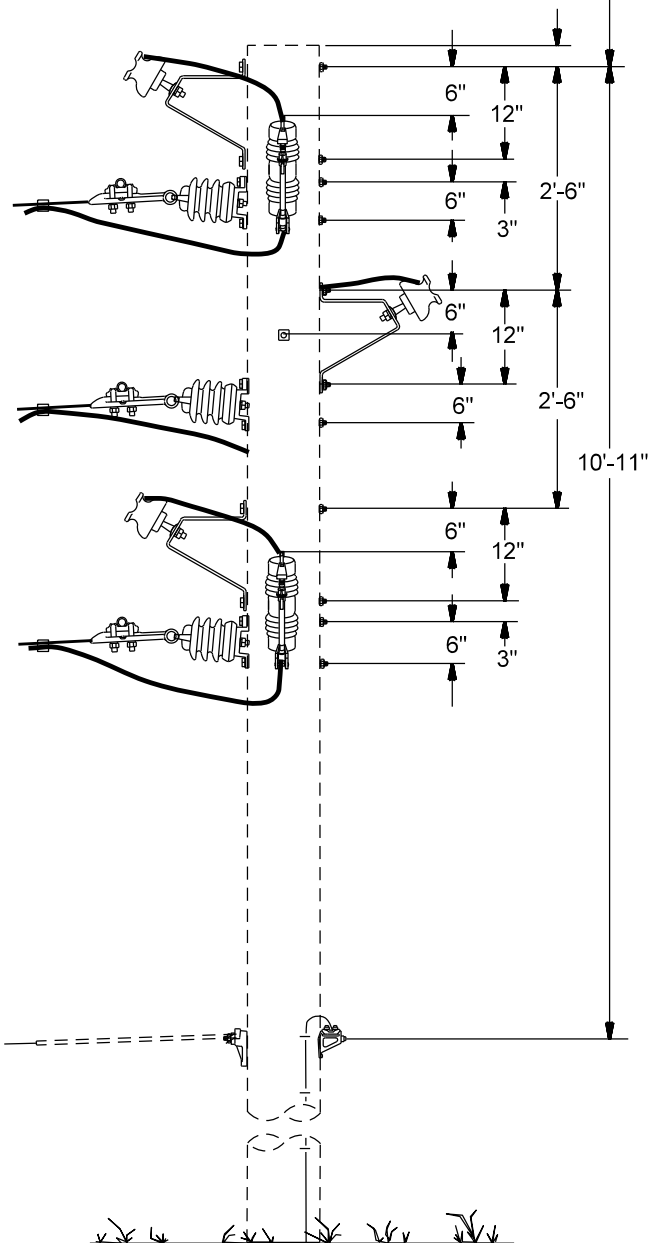
TYPE 1

IF UNDERBUILD,
DESIGNATE CIRCUIT
SEPERATION



TYPE 2

IF UNDERBUILD,
DESIGNATE CIRCUIT
SEPERATION



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
CUTOUT TYPE SWITCHES, 300 AMP
SWITCHED SLACK SPAN TO CUSTOMER WELL, VERTICAL

9-9-1

ISSUE DATE: 04/30/91

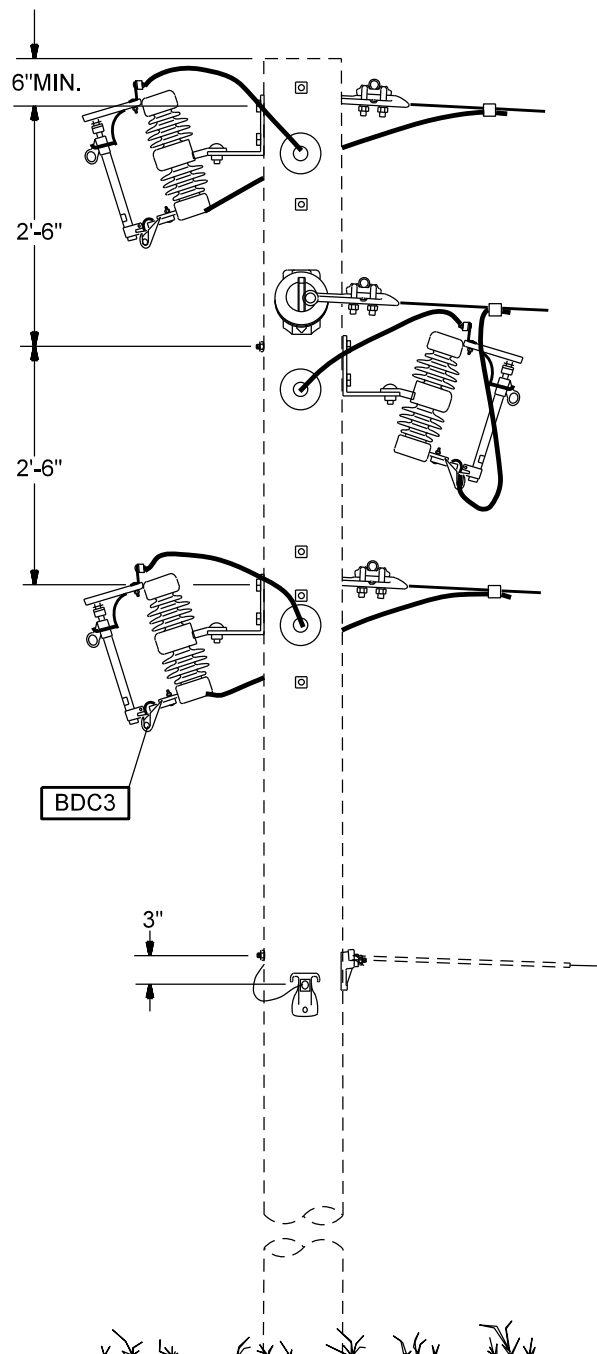
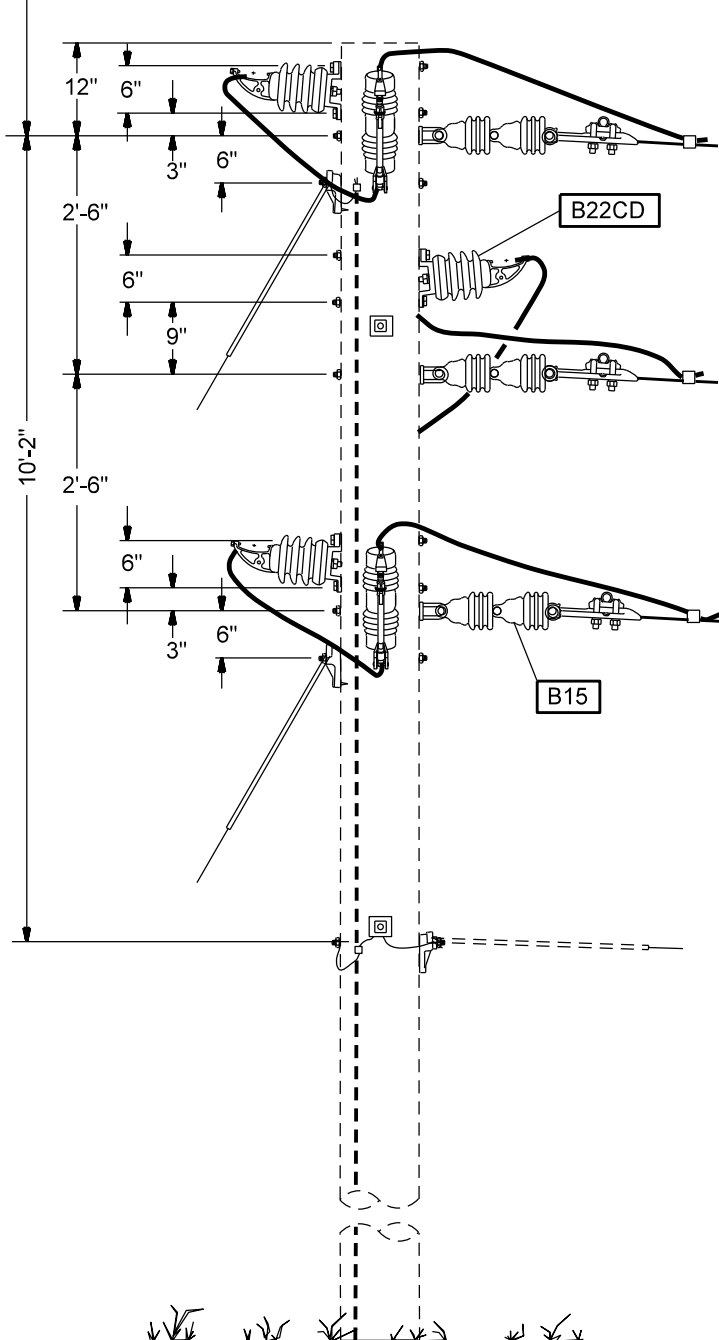
REV. DATE: 06/10/13

APPROVAL: B. PRIEST

8512E327.DGN

DC35N

IF UNDERBUILD,
DESIGNATE CIRCUIT
SEPERATION



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
CUTOUT TYPE SWITCHES, 300 AMP
SWITCHED SLACK SPAN TO CUSTOMER WELL

9-9-2

ISSUE DATE: 04/30/91

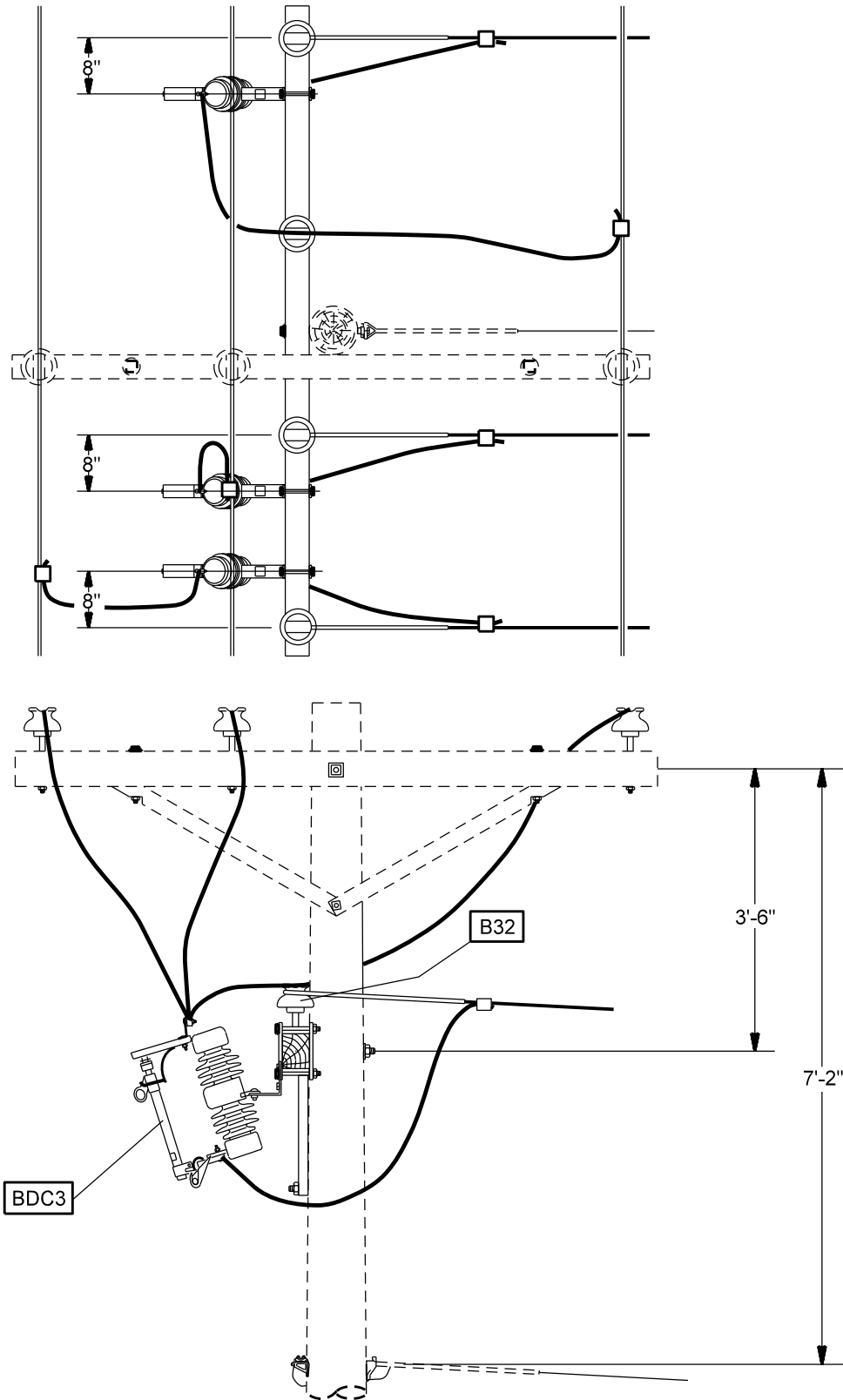
REV. DATE: 06/08/11

APPROVAL: B. PRIEST

8512E323.DGN

DCH30N__

CONDUCTORS A2, C4, C6



Overhead Distribution
Construction Standards



12kV LINE DEVICES
CUTOUT TYPE SWITCHES, 300 AMP
SWITCHED SLACK SPAN TO CUSTOMER WELL, CROSSARM

9-9-3

ISSUE DATE: 07/20/76

REV. DATE: 06/09/11

APPROVAL: B. PRIEST

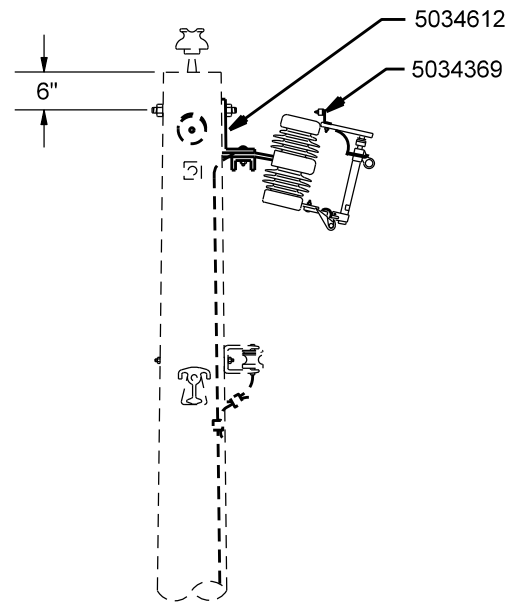
8512E324.DGN

DC1

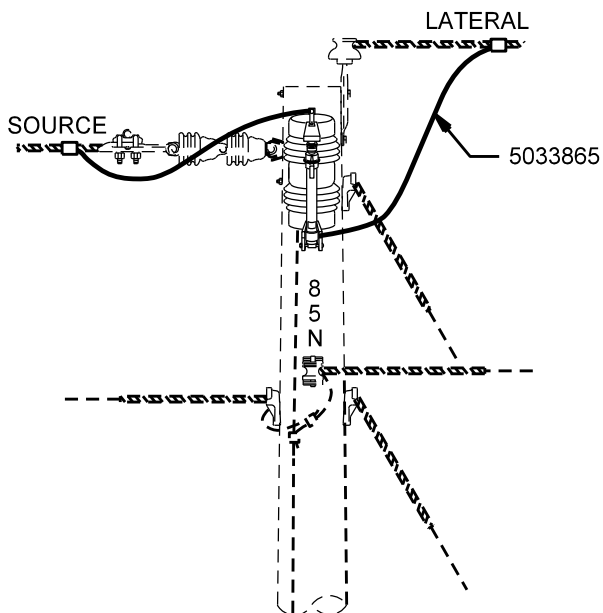
FUSE SIZE 100 A. OR LESS

DC1A

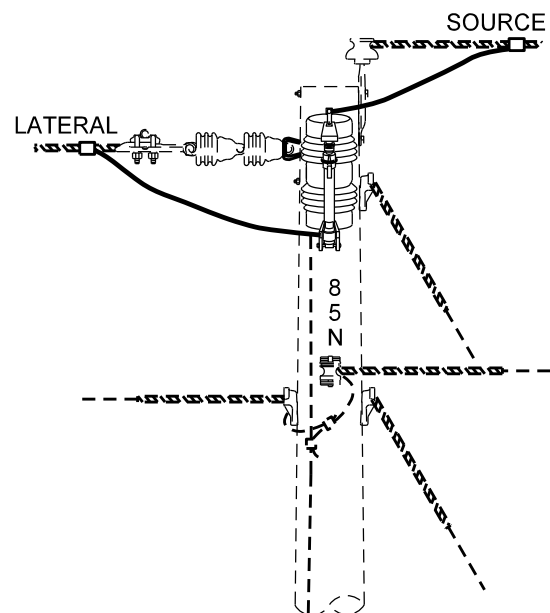
FUSE SIZE GREATER THAN 100 A.

**NOTES**

1. CUTOUT LEADS ARE #2 CU, INSULATED WHICH ARE SUITABLE FOR USE WITH 200 AMP FUSES.
2. SECTIONALIZER MAY BE MOUNTED IN DC1 CUTOUTS. SECTIONALIZER MUST BE ORDERED SPECIFICALLY FOR JOB.
3. FUSE SIZE SHALL BE IDENTIFIED ON POLE USING 2 INCH ALUMINUM NUMBERS AND CHARACTER.
4. SEE HIGH FIRE RISK AREA IN DDS FOR USE OF DOCL. 5091194



OR

Overhead Distribution
Construction Standards

PROPRIETARY MATERIAL

12kV LINE DEVICES
SINGLE PHASE DEADEND W/SLACK SPAN
FUSED LATERAL

9-10-1

ISSUE DATE: 07/28/93

REV. DATE: 09/16/21

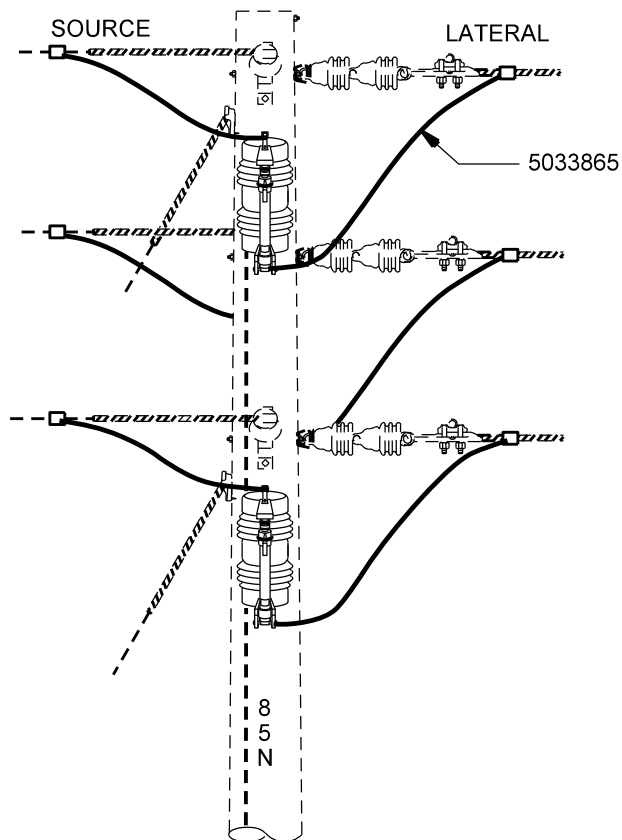
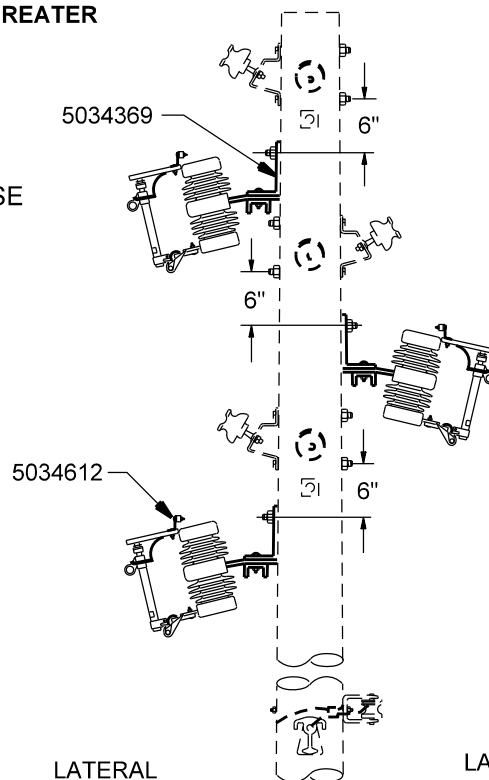
APPROVAL: J. LUERA

8512E212.DGN

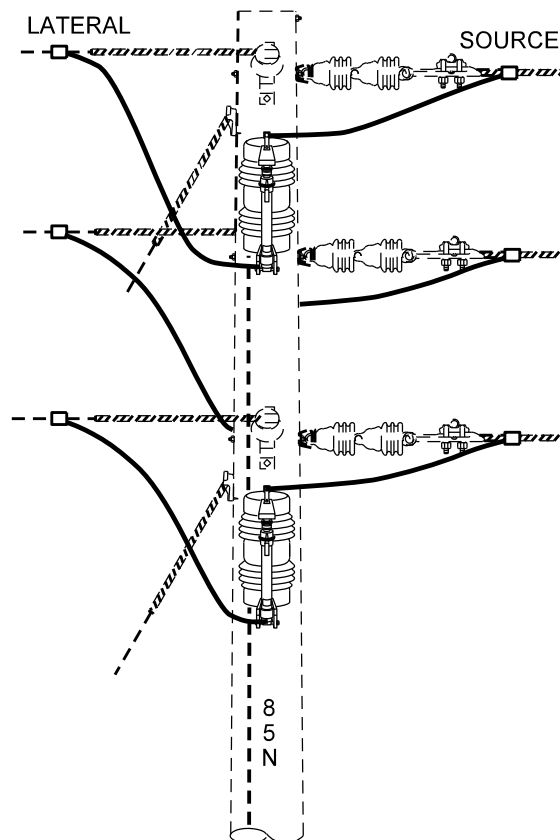
DC2	2 PHASE	FUSE SIZE 100 A. OR LESS
DC3	3 PHASE	
DC2A	2 PHASE	FUSE SIZE GREATER THAN 100 A.
DC3A	3 PHASE	

NOTES

1. CUTOUT LEADS ARE #2 CU WHICH ARE SUITABLE FOR USE WITH 200 AMP FUSES.
 2. SECTIONALIZER MAY BE MOUNTED IN DC2 OR DC3 CUTOUTS. SECTIONALIZER MUST BE ORDERED SPECIFICALLY FOR JOB.
 3. FUSE SIZE SHALL BE IDENTIFIED ON POLE USING 2 INCH ALUMINUM NUMBERS AND CHARACTER.
 4. SEE HIGH FIRE RISK AREA IN DDS FOR USE OF DOCL.
- 5091194



OR



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
TWO OR THREE PHASE DEADEND W/SLACK SPAN
FUSED LATERAL

9-11-1

ISSUE DATE: 07/29/93

REV. DATE: 09/16/21

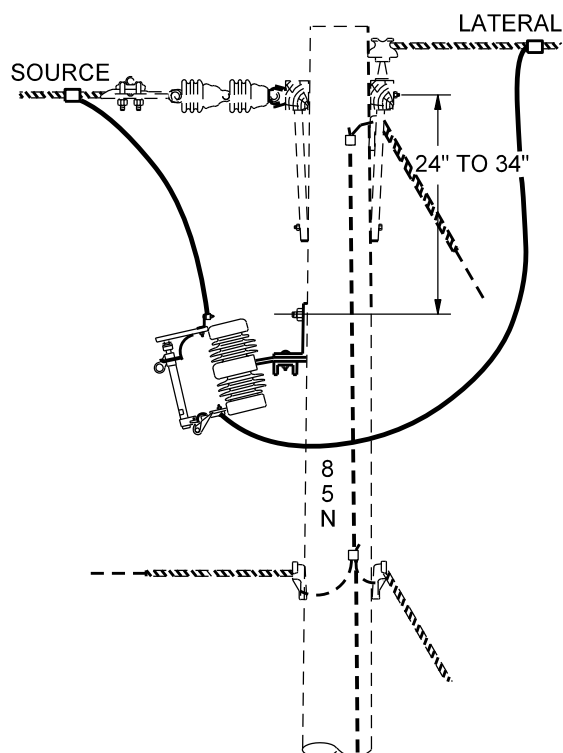
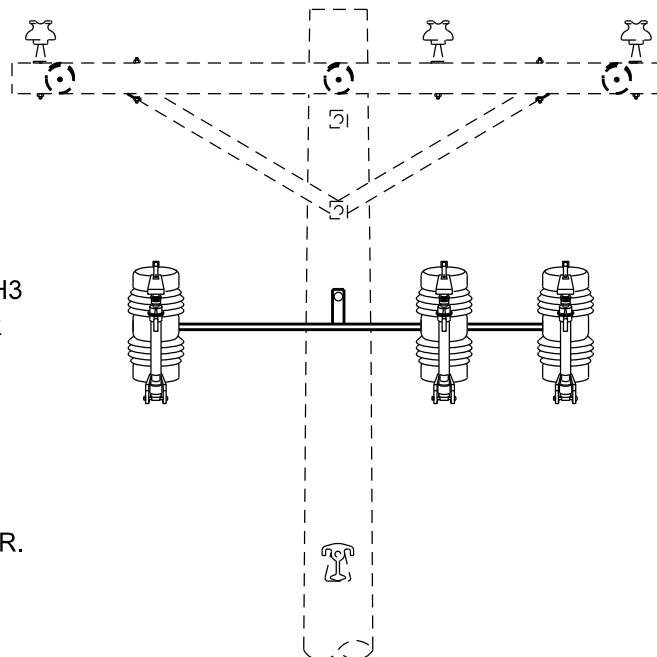
APPROVAL: J. LUERA

8512E213.DGN

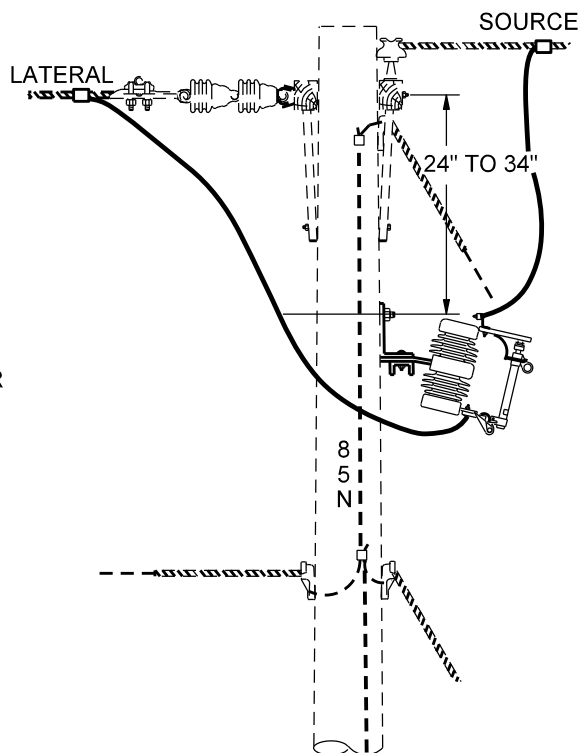
DCH2	2 PHASE	FUSE SIZE 100 A. OR LESS
DCH3	3 PHASE	
DCH2A	2 PHASE	FUSE SIZE GREATER THAN 100 A.
DCH3A	3 PHASE	

NOTES

1. CUTOUT LEADS ARE #2 CU, INSULATED, WHICH ARE SUITABLE FOR USE WITH 200 AMP FUSES.
2. SECTIONALIZER MAY BE MOUNTED IN DCH2 OR DCH3 CUTOUTS. SECTIONALIZER MUST BE ORDERED SPECIFICALLY FOR JOB.
3. FUSE SIZE SHALL BE IDENTIFIED ON POLE USING 2 INCH ALUMINUM NUMBERS AND CHARACTER.
4. SEE HIGH FIRE RISK AREA IN DDS FOR USE OF DOCL. 5091194



OR



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
TWO OR THREE PHASE DEADEND, CROSSARM
FUSED LATERAL

9-12-1

ISSUE DATE: 08/01/93

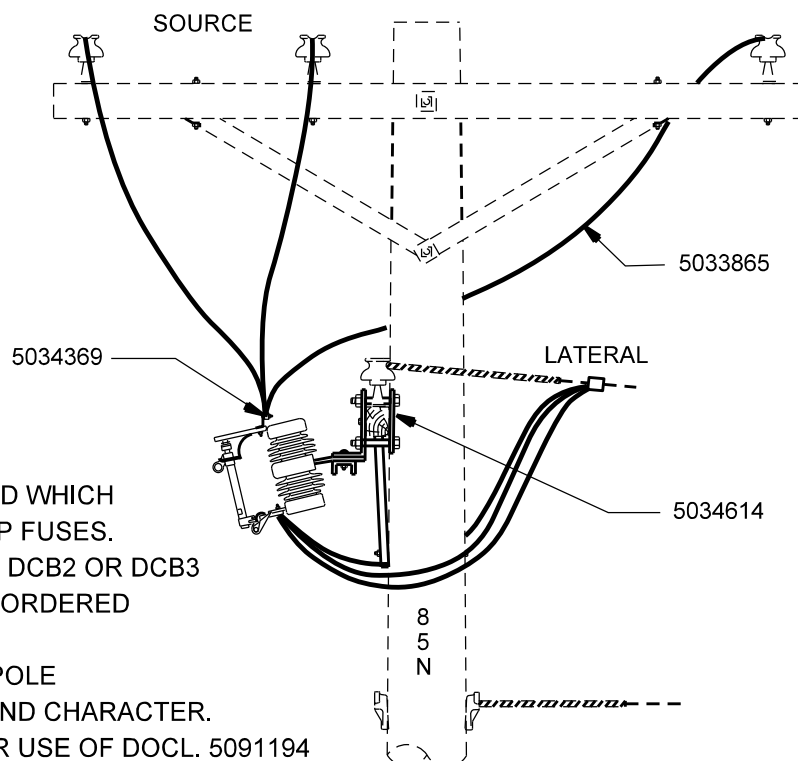
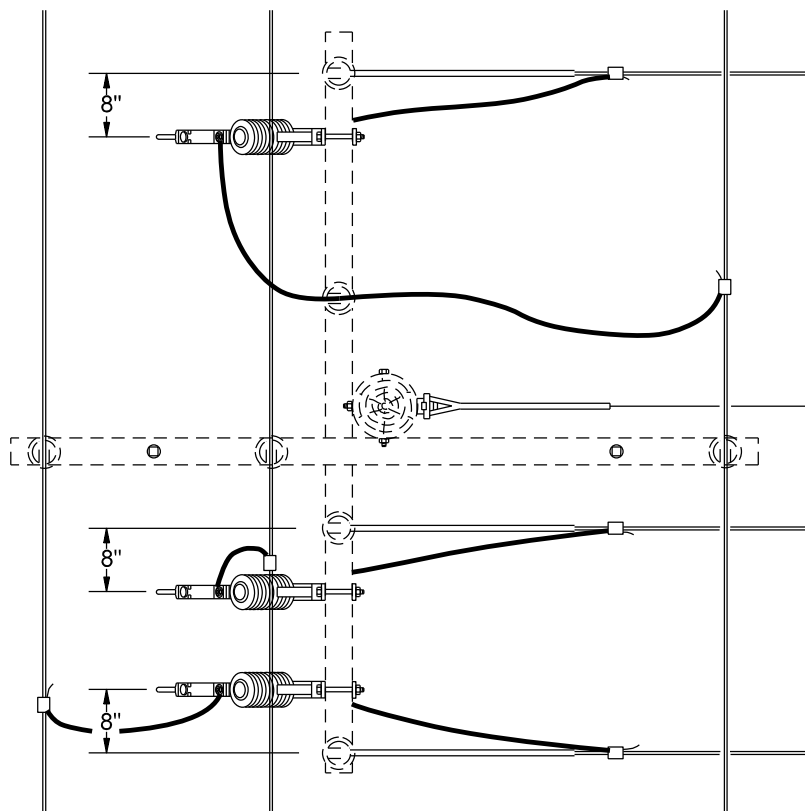
REV. DATE: 09/16/21

APPROVAL: J. LUERA

8512E214.DGN

DCB2	2 PHASE	} FUSE SIZE 100 A. OR LESS
DCB3	3 PHASE	

DCB2A	2 PHASE	} FUSE SIZE GREATER THAN 100 A.
DCB3A	3 PHASE	



NOTES

1. CUTOUT LEADS ARE #2 CU, INSULATED WHICH ARE SUITABLE FOR USE WITH 200 AMP FUSES.
2. SECTIONALIZER MAY BE MOUNTED IN DCB2 OR DCB3 CUTOUTS. SECTIONALIZER MUST BE ORDERED SPECIFICALLY FOR JOB.
3. FUSE SIZE SHALL BE IDENTIFIED ON POLE USING 2 INCH ALUMINUM NUMBERS AND CHARACTER.
4. SEE HIGH FIRE RISK AREA IN DDS FOR USE OF DOCL. 5091194

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
TWO OR THREE PHASE BUCK SLACK SPAN
FUSED LATERAL

9-13-1

ISSUE DATE: 08/02/93

REV. DATE: 09/16/21

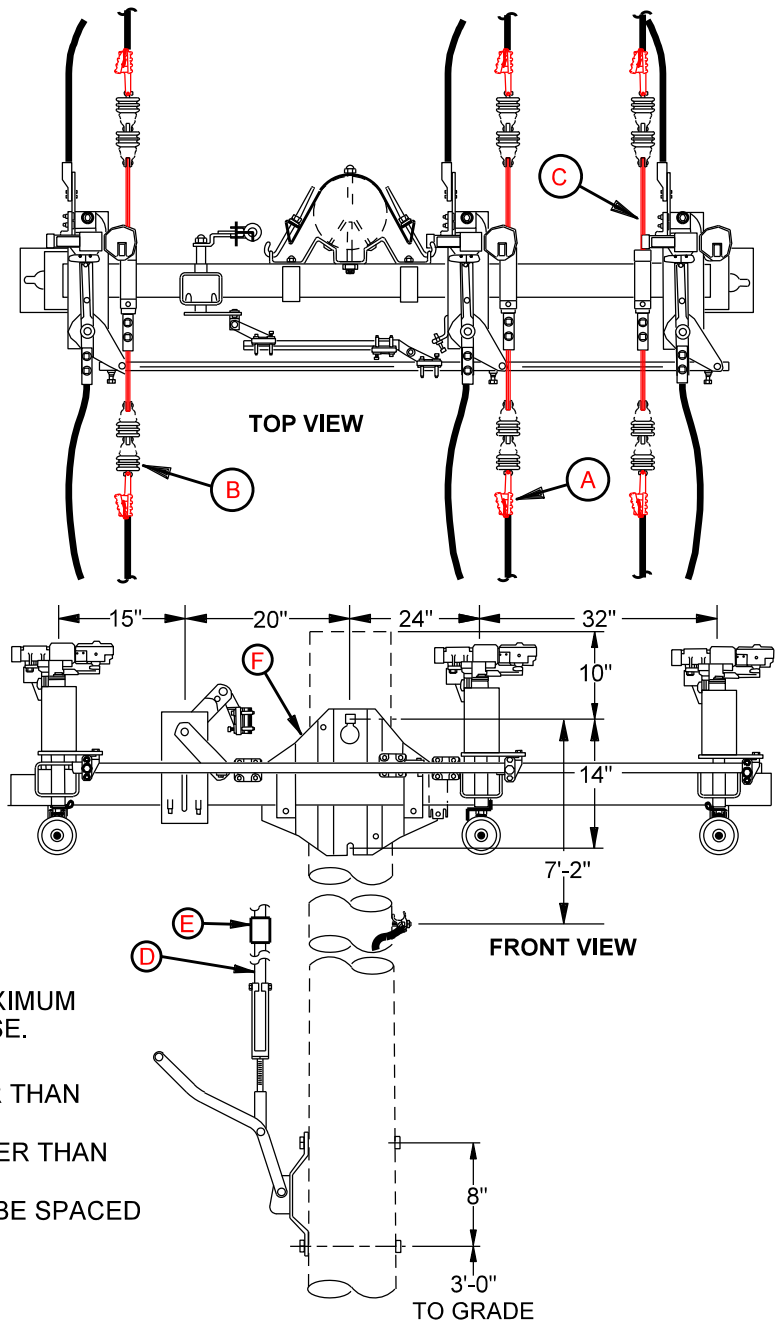
APPROVAL: J. LUERA

8512E215.DGN

DGH6__

CONDUCTORS A266, A397

USE WHEN FUTURE
EQUIPMENT WILL BE
INSTALLED ON POLE



NOTES

1. THIS CONSTRUCTION IS LIMITED TO A MAXIMUM LINE TENSION OF 2000 POUNDS PER PHASE.
2. OPERATING ROD GUIDES
 - TOP BOLT EYE SHALL NOT BE GREATER THAN 5FT FROM SWITCH CRANK.
 - BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8FT FROM GRADE.
 - INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5FT.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
A	DEADEND CLAMP, VARIOUS	6	BD_
B	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
C	STRAP, EXTENSION, 14" CLEVIS-TONGUE	6	5034722
D	ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS	30	5034616
E	SPLICE, FOR INTERPHASE ROD	1	5034631
F	SWITCH, UNITIZED POLE MOUNT, 600A	1	5034638

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.

12 kV LINE DEVICES
GANG OPERATED SWITCH, 600 A UNITIZED
SPACE RESERVED FOR FUTURE EQUIPMENT ON POLE

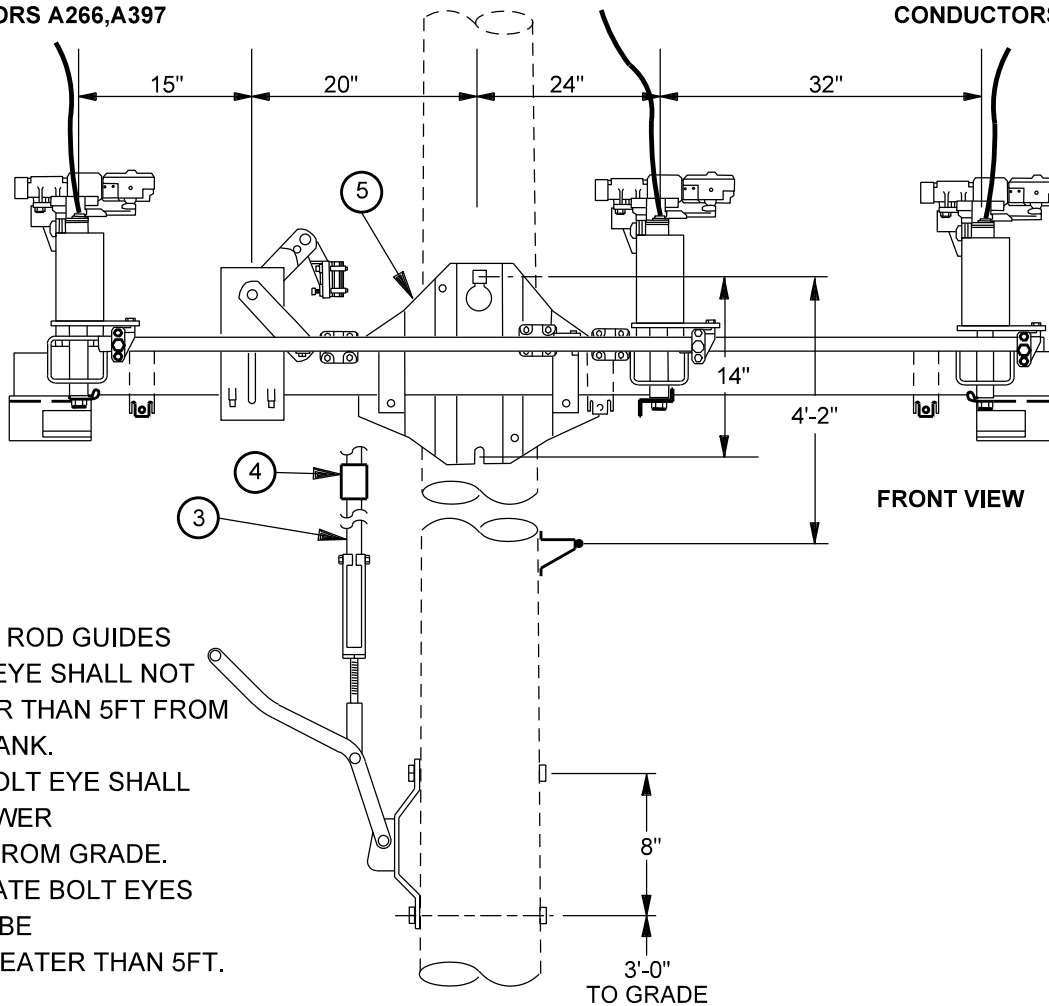
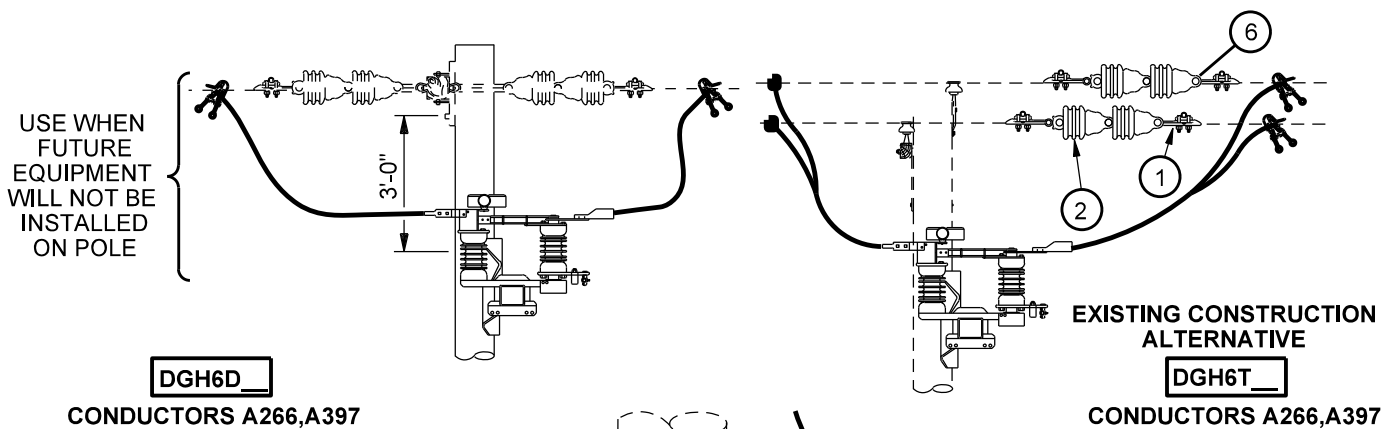
9-14-1

ISSUE DATE: 07/22/93

REV. DATE: 12/26/24

APPROVAL: J. ROBBINS

8512E206.DGN



NOTES

1. OPERATING ROD GUIDES
 - TOP BOLT EYE SHALL NOT BE GREATER THAN 5FT FROM SWITCH CRANK.
 - BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8FT FROM GRADE.
 - INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5FT.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	DEADEND CLAMP, VARIOUS	0 OR 6	BD_
2	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	0 OR 6	5034719
3	ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS	30	5034616
4	SPLICE, FOR INTERPHASE ROD	1	5034631
5	SWITCH, UNITIZED POLE MOUNTED, 600A	1	5034638
6	LINK	3	5034732

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
GANG OPERATED SWITCHES
600A UNITIZED, EXISTING HORIZONTAL

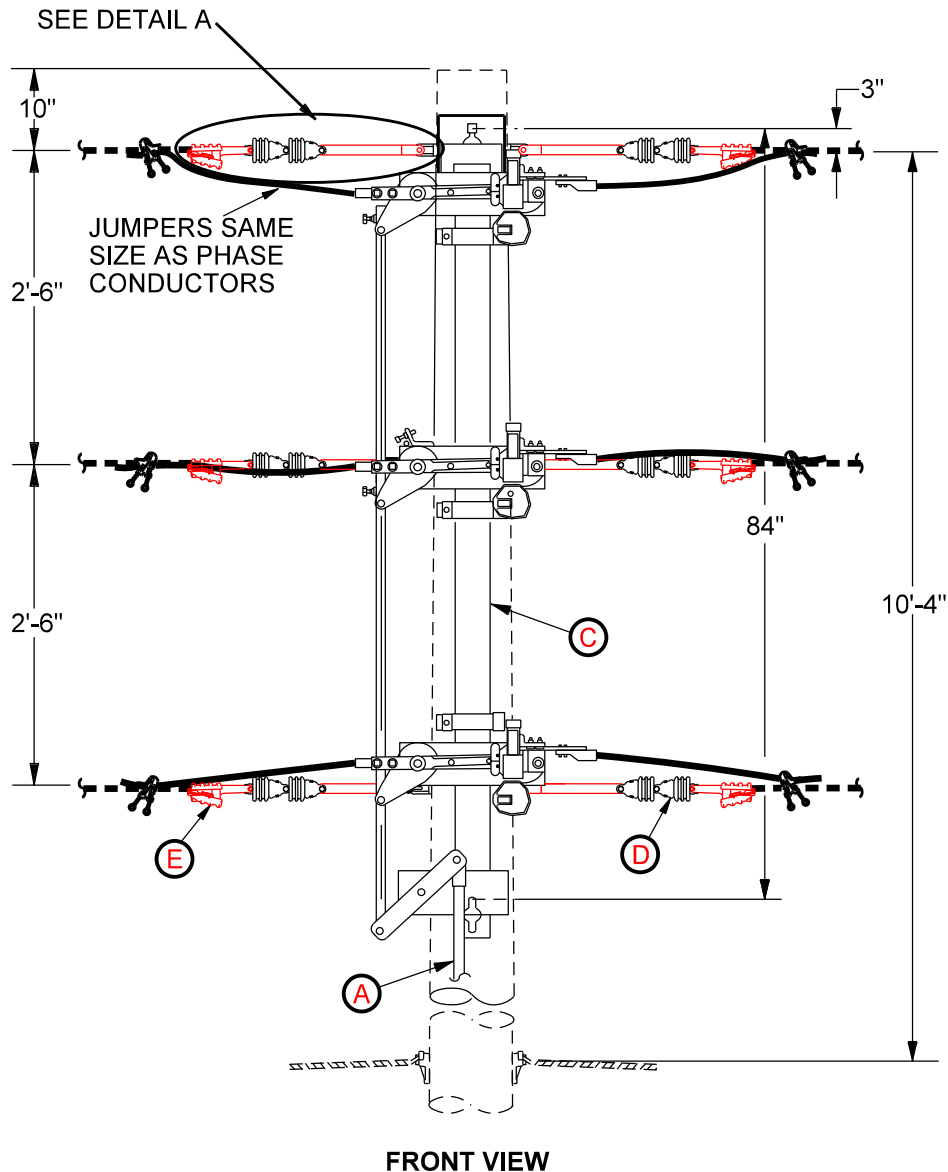
9-15-1

ISSUE DATE: 05/20/91

REV. DATE: 04/25/13

APPROVAL: B. PRIEST

8512E115.DGN


NOTES

1. FOR DOUBLE CIRCUIT THE TANGENT CIRCUIT MUST BE REBUILT PER P65. THE BOLT HEADS FOR THE EXTENDED BRACKETS SHALL BE ON THE POLE SIDE.

 Overhead Distribution
Construction Standards


PROPRIETARY MATERIAL

REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.

 12 kV LINE DEVICES
GANG OPERATED SWITCHES
600 A UNITIZED, VERTICAL

9-16-1

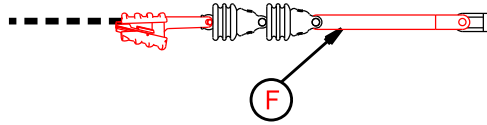
ISSUE DATE: 05/20/91

 REV. DATE: **12/26/24**

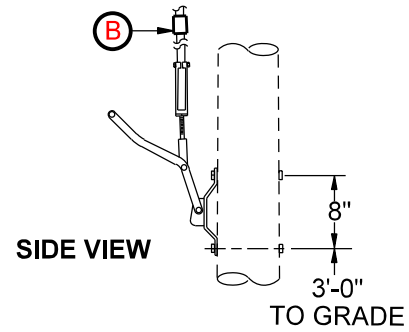
 APPROVAL: **J. ROBBINS**

8512E116.DGN

DETAIL A



DETAIL B



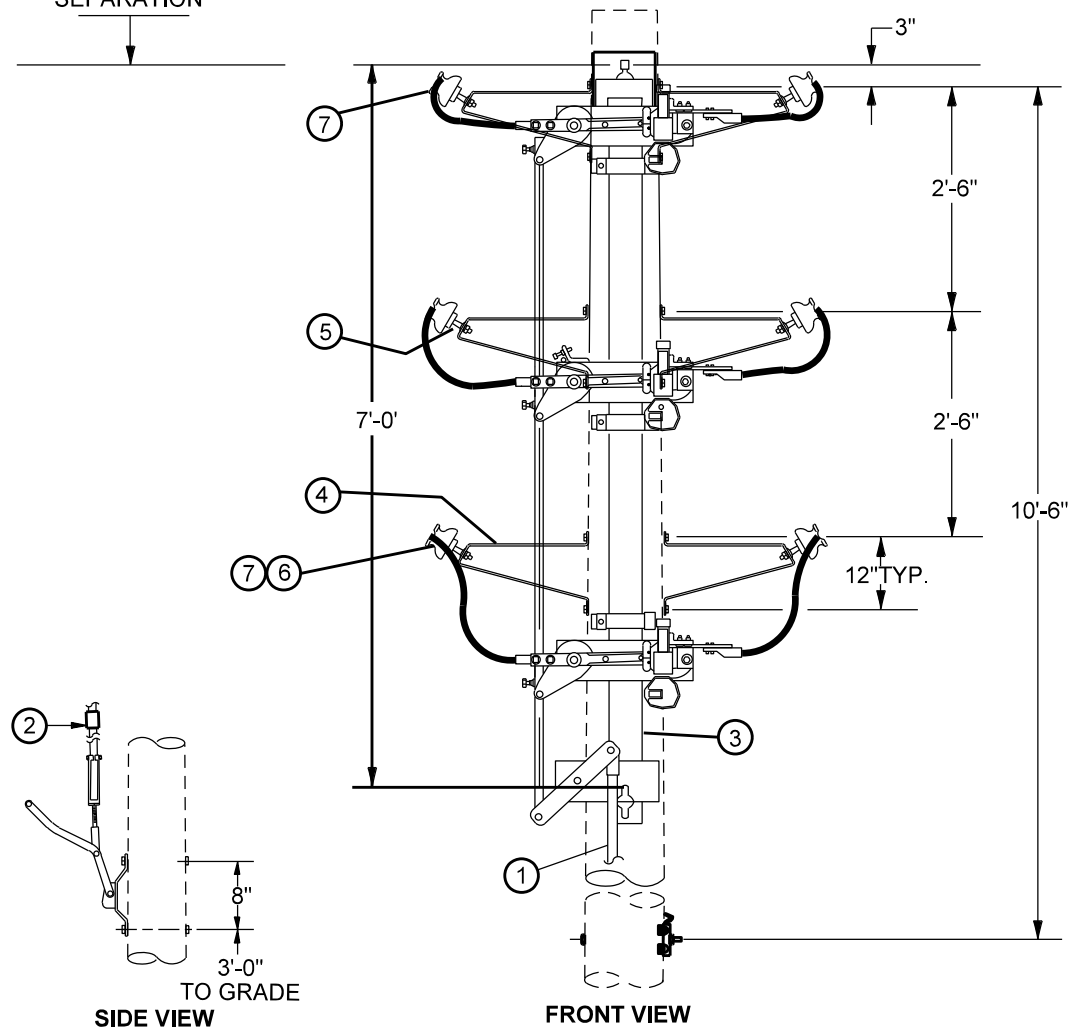
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
A	ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS	30	5034616
B	SPLICE, FOR INTERPHASE ROD	1	5034631
C	SWITCH, UNITIZED POLE MOUNTED, 600A	1	5034639
D	INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS	12	5034719
E	DEADEND CLAMP, VARIOUS	6	BD_
F	STRAP, EXTENSION, 14" CLEVIS-TONGUE	6	5034722

NOTES

1. THE BOLT EYE OF OPERATING ROD GUIDE SHALL NOT BE GREATER THAN 5 FEET FROM SWITCH CRANK.
2. BOTTOM BOLT EYE OF OPERATING ROD GUIDE SHALL NOT BE LOWER THAN 8 FEET FROM GRADE.
3. INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5 FEET.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.	
	12 kV LINE DEVICES GANG OPERATED SWITCHES 600 A UNITIZED, VERTICAL	ISSUE DATE: 05/20/91 REV. DATE: 12/26/24 APPROVAL: J. ROBBINS
	9-16-2	8512E441.DGN

IF UNDERBUILD,
 DESIGNATE CIRCUIT
 SEPARATION



ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS	30	5034616
2	SPLICE, FOR INTERPHASE ROD	1	5034631
3	SWITCH, UNITIZED POLE MOUNTED, 600A	1	5034639
4	BRACKET, SIDE MOUNT, HOT GALV. EXTENDED	6	5028506
5	PIN, INSULATOR, 5/8" X 1.5 IN. SHORT	6	5028641
6	INSULATOR, PIN, 12KV, PORCELAIN GRAY	6	5034594
7	SIDE TIE, VARIOUS	6	BPT2__

Overhead Distribution
 Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
 GANG OPERATED SWITCHES, PARALLELING
 600A UNITIZED, VERTICAL

9-17-1

ISSUE DATE: 05/23/95

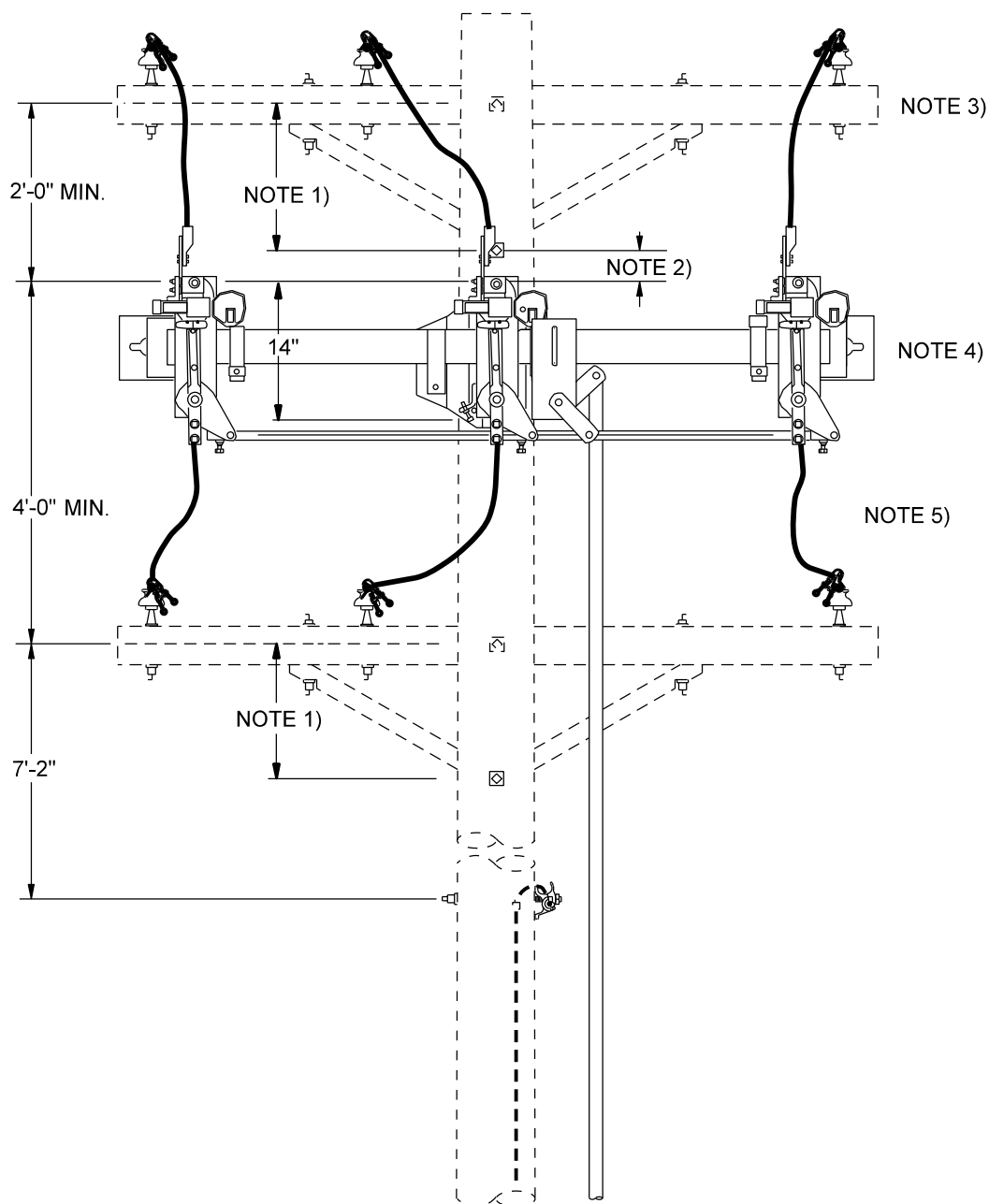
REV. DATE: 05/01/13

APPROVAL: B.PRIEST

8512E246.DGN

DGH6PB__

CONDUCTORS A266, A397



NOTES

1. DIMENSION MAY BE 1'-5 3/4" (W/STEEL BRACES), 1'-8 1/4" (WOOD BRACES) OR 1'-8 7/8" (10' ARMS). SEE NOTE 2.
2. 2" MINIMUM.
3. SEE PRIMARY CONSTRUCTION UNITS SECTION FOR CONSTRUCTION DETAIL.
4. SEE DGR6 IN LINE DEVICES SECTION FOR CONSTRUCTION DETAIL.
5. JUMPERS TO BE A397 OR SAME AS LARGEST PHASE CONDUCTOR.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES GANG OPERATED PARALLEL SWITCH BRACED ARMS

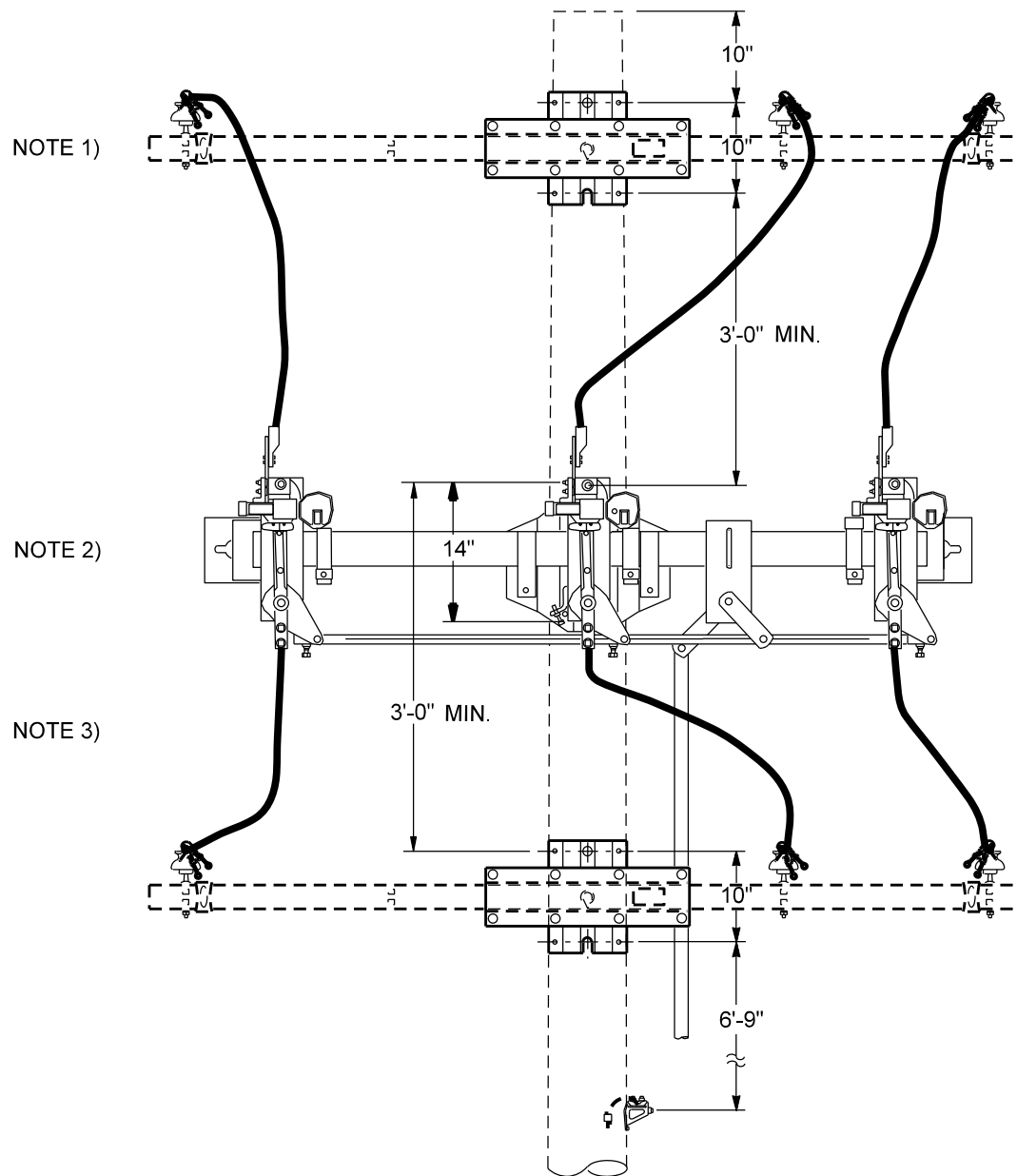
9-18-1

ISSUE DATE: 11/14/02

REV. DATE: 06/06/11

APPROVAL: B. PRIEST

8512E333.DGN

**NOTES**

1. SEE PH39__ FOR ARM CONSTRUCTION DETAILS AND OPTIONS.
2. SEE DGR6, IN LINE DEVICES SECTION, FOR CONSTRUCTION DETAIL.
3. JUMPERS TO BE A397 OR SAME AS LARGEST PHASE CONDUCTOR.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
GANG OPERATED PARALLEL SWITCH
DEADEND ARMS

9-19-1

ISSUE DATE: 11/05/02

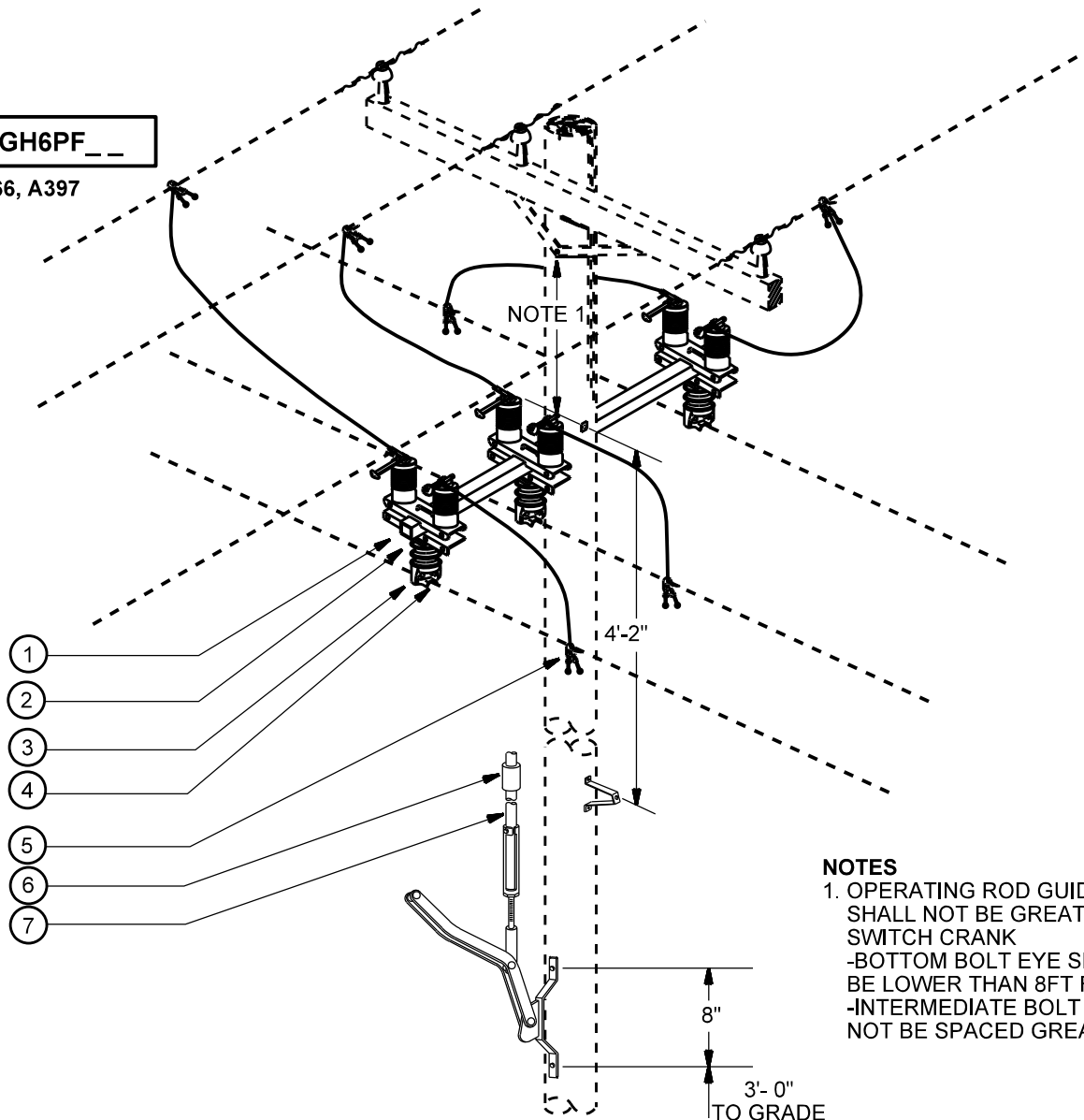
REV. DATE: 06/06/11

APPROVAL: B. PRIEST

8512E332.DGN

DGH6PF__

A266, A397



NOTES

1. OPERATING ROD GUIDES -TOP BOLT EYE SHALL NOT BE GREATER THAN 5 FT FROM SWITCH CRANK
-BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8FT FROM GRADE
-INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5FT.

ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
1	SWITCH, UNITIZED POLE MOUNTED, 600A	1	5034638
2	BRACKET, POST INSULATOR	3	5034741
3	INSULATOR, VERTICAL LINE POST	3	5034587
4	CLAMP, PINTLE BOLT	3	5028394
5	CONNECTOR, ALUM, NON-TENSION, HOT LINE	6	5033937
6	SPLICE, FOR INTERPHASE ROD	1	5034631
7	ROD, INTERPHASE, 1 IN. DIA. FIBERGLASS	30	5034616

NOTES

1. DIMENSION MAY BE 1'- 5 3/4" (W/STEEL BRACES), 1'- 8 1/4" (WOOD BRACES) OR 1'-8 7/8" (10' ARMS). SEE NOTE 2.
2. SEE DGR6 IN LINE DEVICES SECTION FOR CONSTRUCTION DETAIL.
3. JUMPERS TO BE A397 OR SAME AS LARGEST PHASE CONDUCTOR.
4. LOOSEN THE U-BOLT HOLDING EACH SINGLE PHASE SWITCH TO THE SWITCH ARM. AFTER BOLTING THE LINE POST INSULATOR (5034587) TO BRACKET (5034741) ATTACH THE BRACKET TO THE SWITCH ARM VIA THE U-BOLT.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
GANG OPERATED SWITCHES
600 A UNITIZED PARALLELING
CROSSING CIRCUITS

9-20-1

ISSUE DATE: 04/20/06

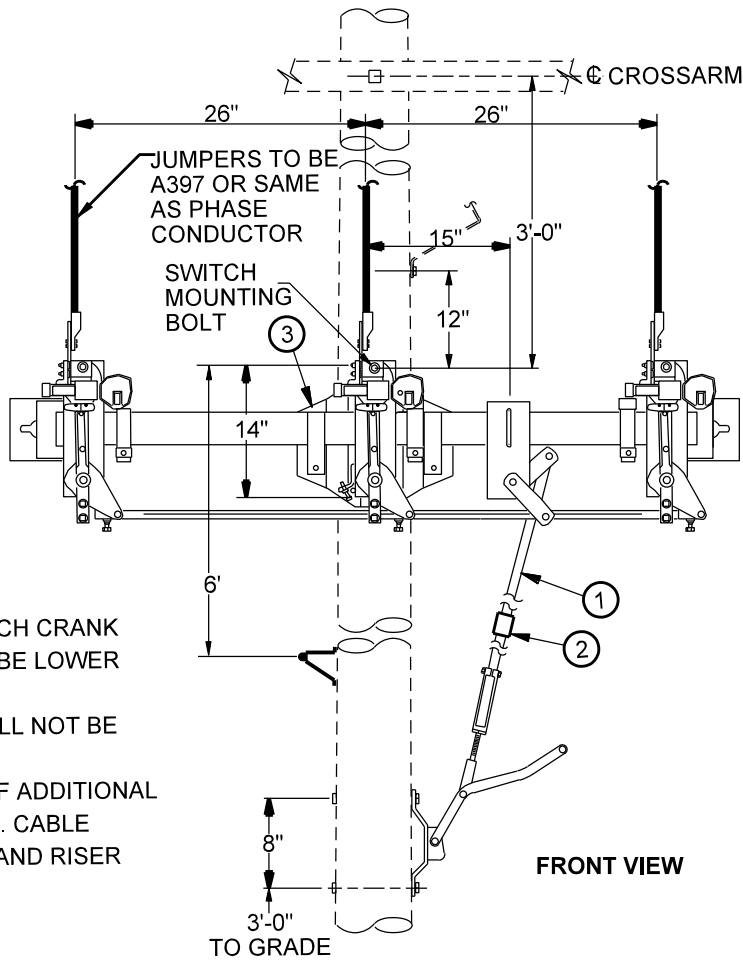
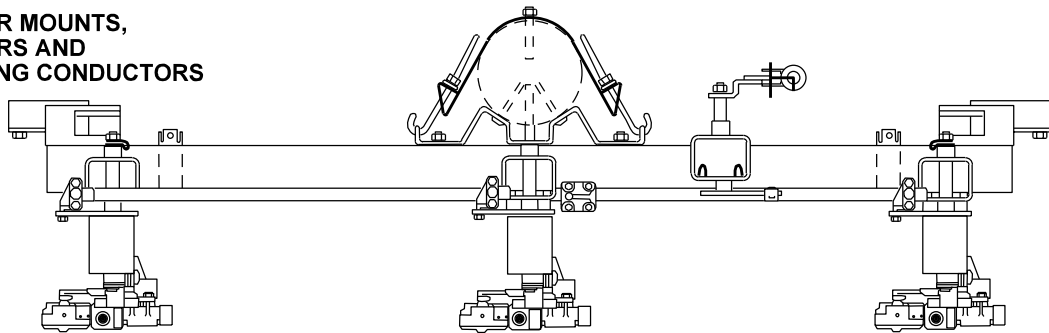
REV. DATE: 05/01/13

APPROVAL: B. PRIEST

8512E353.DGN

DGR6
DGR6B

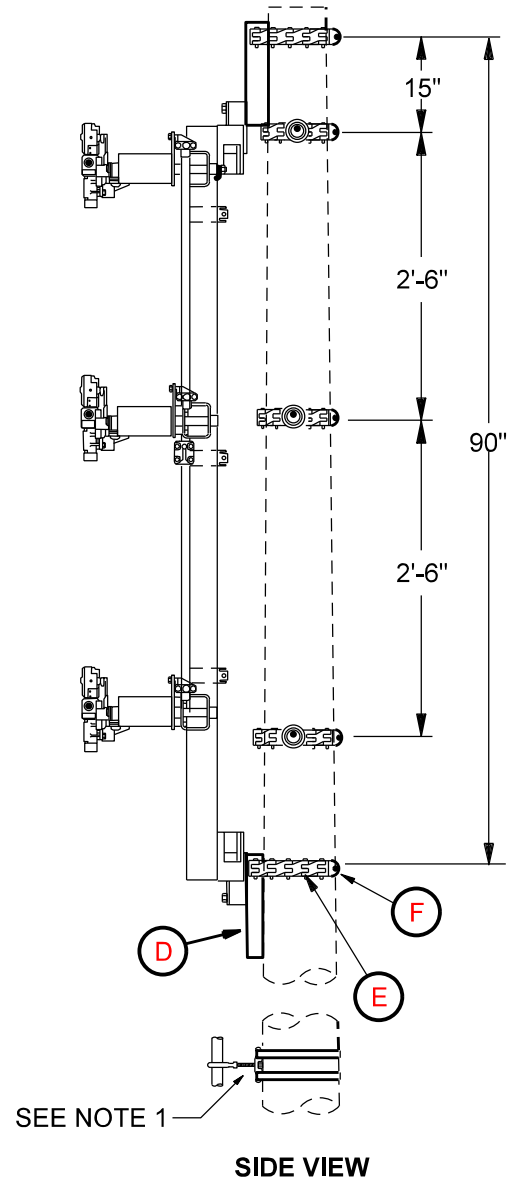
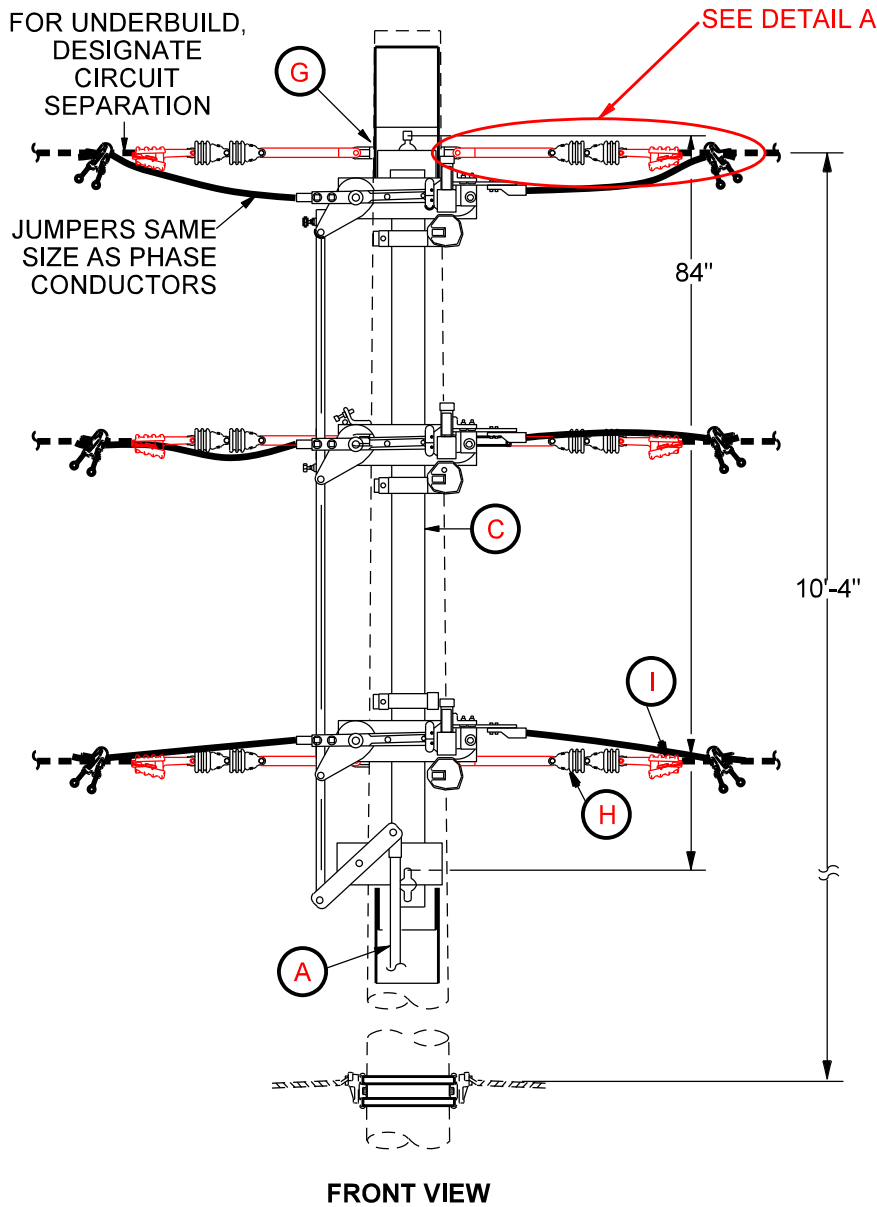
ARRESTER MOUNTS,
ARRESTERS AND
GROUNDING CONDUCTORS



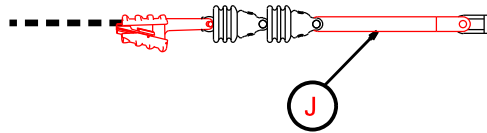
- NOTES**
1. OPERATING ROD GUIDES
-TOP BOLT EYE SHALL NOT BE GREATER THAN 5FT FROM SWITCH CRANK
-BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8FT FROM GRADE
-INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5FT.
 2. SEE URF3UA750K FOR DETAIL OF ADDITIONAL PARTS FURNISHED WITH DGR6B. CABLE TERMINATORS, FEEDER CABLE AND RISER MOLD NOT SUPPLIED.

ITEM	MATERIAL DESCRIPTION	QUANTITY		MATERIAL ITEM NUMBER
		DGR6	DGR6B	
1	ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS	30	0	5034616
2	SPLICE, FOR INTERPHASE ROD	1	0	5034631
3	SWITCH, UNITIZED POLE MOUNTED, 600A	1	0	5034637
4 (NOTE 2)	TUBING, SPLIT, 3/8"	0	14'	5035615
5 (NOTE 2)	GUARD, BUSHING (BIRD GUARD)	0	3	5034511
6 (NOTE 2)	ARRESTER, LIGHTING, HD (YELLOW GROUND LEAD)	0	3	5033991
7 (NOTE 2)	BRACKET, TRI-MOUNT	0	1	5034220

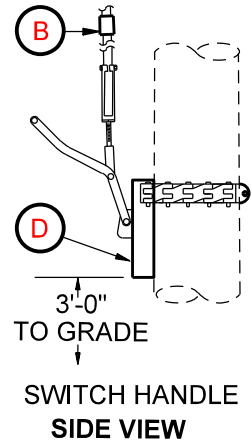
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV LINE DEVICES GANG OPERATED SWITCHES 600A UNITIZED, FOR RISERS		ISSUE DATE: 05/20/91
	9-21-1		REV. DATE: 04/30/13
			APPROVAL: B.PRIEST
			8512E114.DGN



DETAIL A



DETAIL B



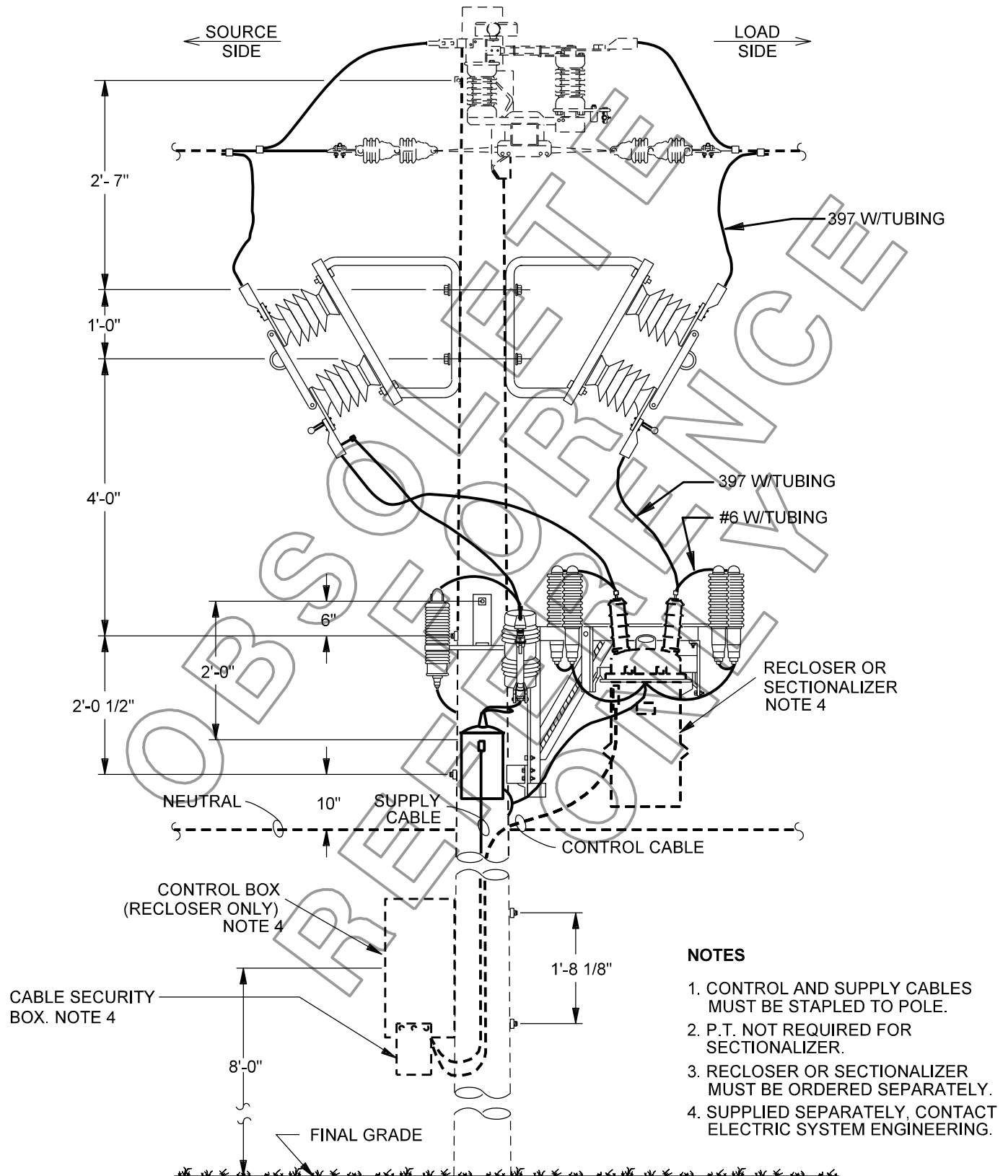
ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
A	ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS	30	5034616
B	SPLICE, FOR INTERPHASE ROD	1	5034631
C	SWITCH, UNITIZED POLE MOUNTED, 600A	1	5034639
D	BRACKET, BOX	3	5028961
E	LINK, SEGMENT	36	5027576
F	LINK, TAKEUP ASSEMBLY	6	5028488
G	LINK, VANG	6	5029395
H	INSULATOR, SUSPENSION, 6-1/4" CLEVIS	12	5034719
I	DEADEND CLAMP, VARIOUS	6	BD_
J	STRAP, EXTENSION, 14" CLEVIS-TONGUE	6	5034722

NOTES

1. OPERATING ROD GUIDES

- TOP BOLT EYE SHALL NOT BE GREATER THAN 5FT FROM SWITCH CRANK
- BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8FT FROM GRADE
- INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5FT.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.	
	12 kV LINE DEVICES GANG OPERATED SWITCHES 600 A UNITIZED, VERTICAL, ON STEEL POLE	ISSUE DATE: 11/30/94 REV. DATE: 12/26/24 APPROVAL: J. ROBBINS
	9-22-2	8512E552.DGN

DRKD
RECLOSER
DSKD
SECTIONALIZER


NOTES

1. CONTROL AND SUPPLY CABLES MUST BE STAPLED TO POLE.
2. P.T. NOT REQUIRED FOR SECTIONALIZER.
3. RECLOSER OR SECTIONALIZER MUST BE ORDERED SEPARATELY.
4. SUPPLIED SEPARATELY, CONTACT ELECTRIC SYSTEM ENGINEERING.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
RECLOSER OR SECTIONALIZER
THREE PHASE
SWITCH WITH BLADE DISCONNECTS

9-23-1

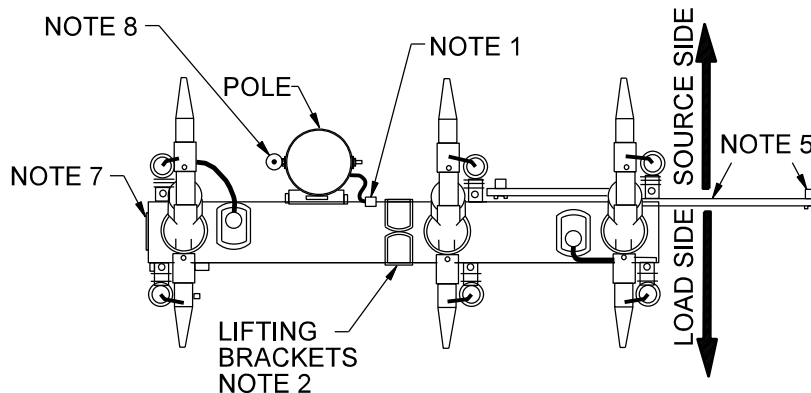
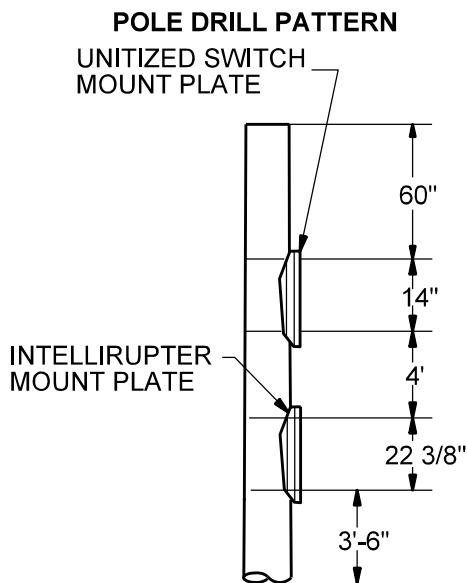
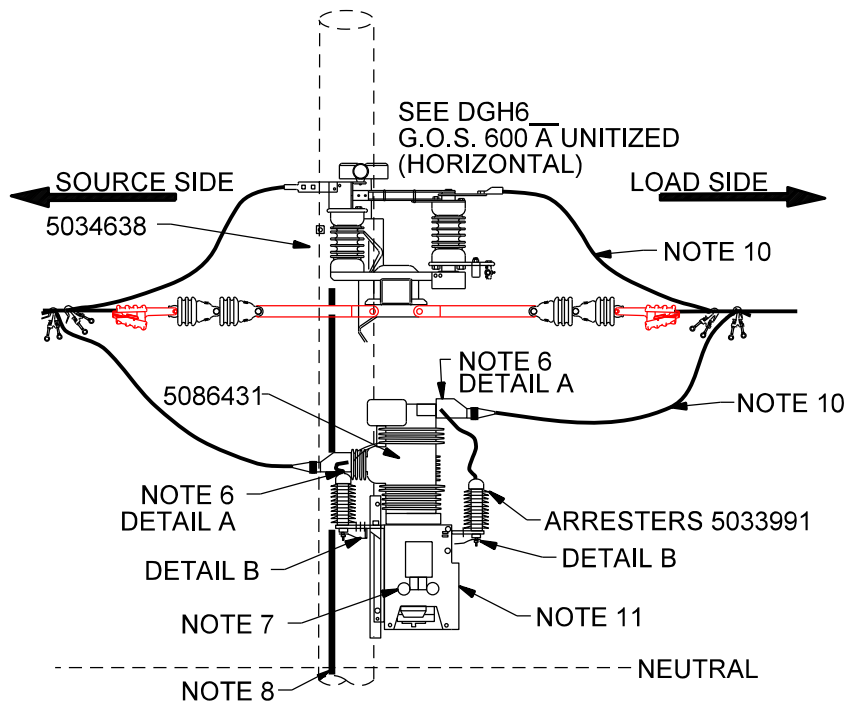
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REV. DATE: 04/30/13

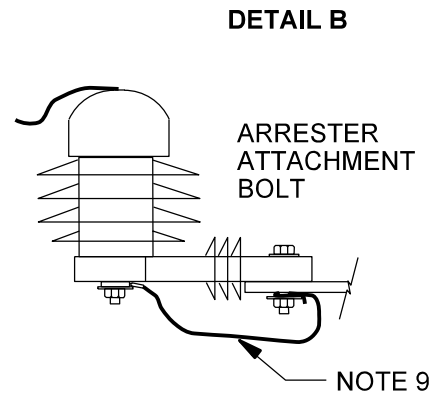
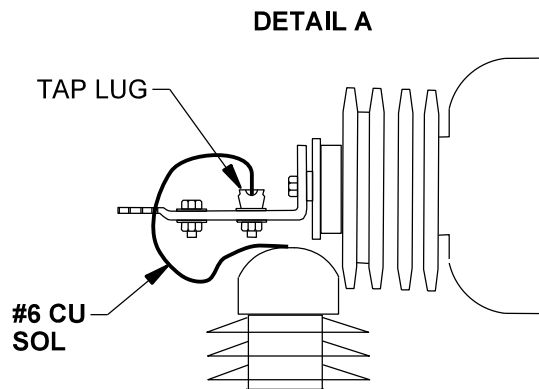
APPROVAL: B.PRIEST

8512E113.DGN

G.O.S. 600 A UNITIZED
DPW **A266, A397**



Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.	
	12 kV LINE DEVICES S&C INTELLIRUPTER, RC PULSE RECLOSER FAN WOOD POLE, FLAT CONSTRUCTION	
	9-24-1	ISSUE DATE: 03/21/19 REV. DATE: 12/26/24 APPROVAL: J. ROBBINS 8513E506.DGN

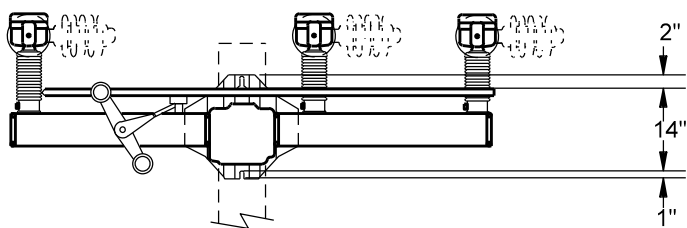


NOTES

1. CONNECT GROUND LUGS TO POLE NEUTRAL WITH #2 COPPER 5033850.
2. ATTACH LIFTING SLING ONLY TO LIFTING BRACKETS. LIFT INTELLIRUPTER UNTIL SLING IS TAUT. UNBOLT INTELLIRUPTER FROM STEEL BRACKETS ATTACHED TO SHIPPING SKIDS. BOLT INTELLIRUPTER TO POLE.
3. MUST HAVE BUCKET TRUCK ACCESS.
4. 5034742 WEIGHS 1,100 LBS. EPA= 4,266 INCHES SQUARE.
5. CONTROL ENGINEERING TO PROVIDE ANTENNA DETAIL.
6. CONNECT ARRESTER HOT LEAD (#6 CU SOL 600 V, 5033863) TO PHASE TERMINAL WITH TAP LUG 5016725. TRAIN HOT LEAD TO SIDE.
7. HOLD TAG OPERATOR.
8. G.O.S. OPERATION ROD.
9. ARRESTER GROUND LEAD 5033990.
10. A397 OR SAME AS PHASE CONDUCTOR. COVER WITH INSULATED TUBING 5035617.
11. STICK OPERATED INTEGRAL DISCONNECT.
12. COORDINATE WITH CONTROL ENGINEERING FOR INSTALLATION OF RADIO CONTROLLER (RTU).

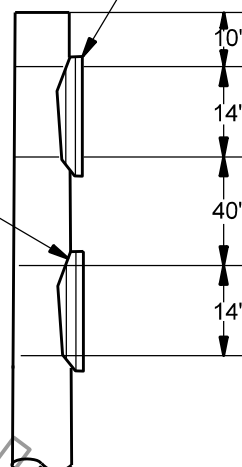
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV LINE DEVICES S & C INTELLIRUPTER, RC PULSE RECLOSER WOOD POLE, FLAT CONSTRUCTION	ISSUE DATE: 02/24/09 REV. DATE: 06/10/19 APPROVAL: M. DYER
	9-24-2	8513E572.DGN

SWITCH OPEN FRONT VIEW



POLE DRILL PATTERN

UNITIZED SWITCH
MOUNT PLATE



SWITCH CLOSED END VIEW

SCADA-MATE
MOUNT PLATE

SEE DGH6
G.O.S. 600A UNITIZED
(HORIZONTAL)

5034638

A397 OR SAME AS
PHASE CONDUCTOR

#6 COPPER W/TUBING

5034740

16-1/8"

4'

NEUTRAL

* 18'-4" MAX.

* DICTATED BY
CONTROL CABLE
LENGTH

CONTROL
GABINET

NOTE
1

9-3/8"

8'

CONNECT GROUND LUG ON
CONTROL CASE TO POLE
GROUND WITH #6 COPPER.

FINAL GRADE

NOTES

1. MOUNT CONTROL CASE ON
NON-TRAFFIC SIDE OF POLE.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
SCADA-MATE SWITCH
FOR REMOTE SUPERVISORY CONTROL
ON WOOD POLE FLAT CONSTRUCTION

9-25-1

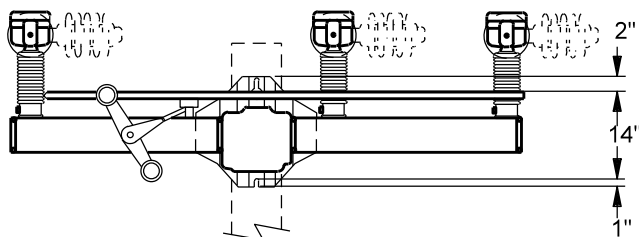
ISSUE DATE: 09/10/99

REV. DATE: 05/28/13

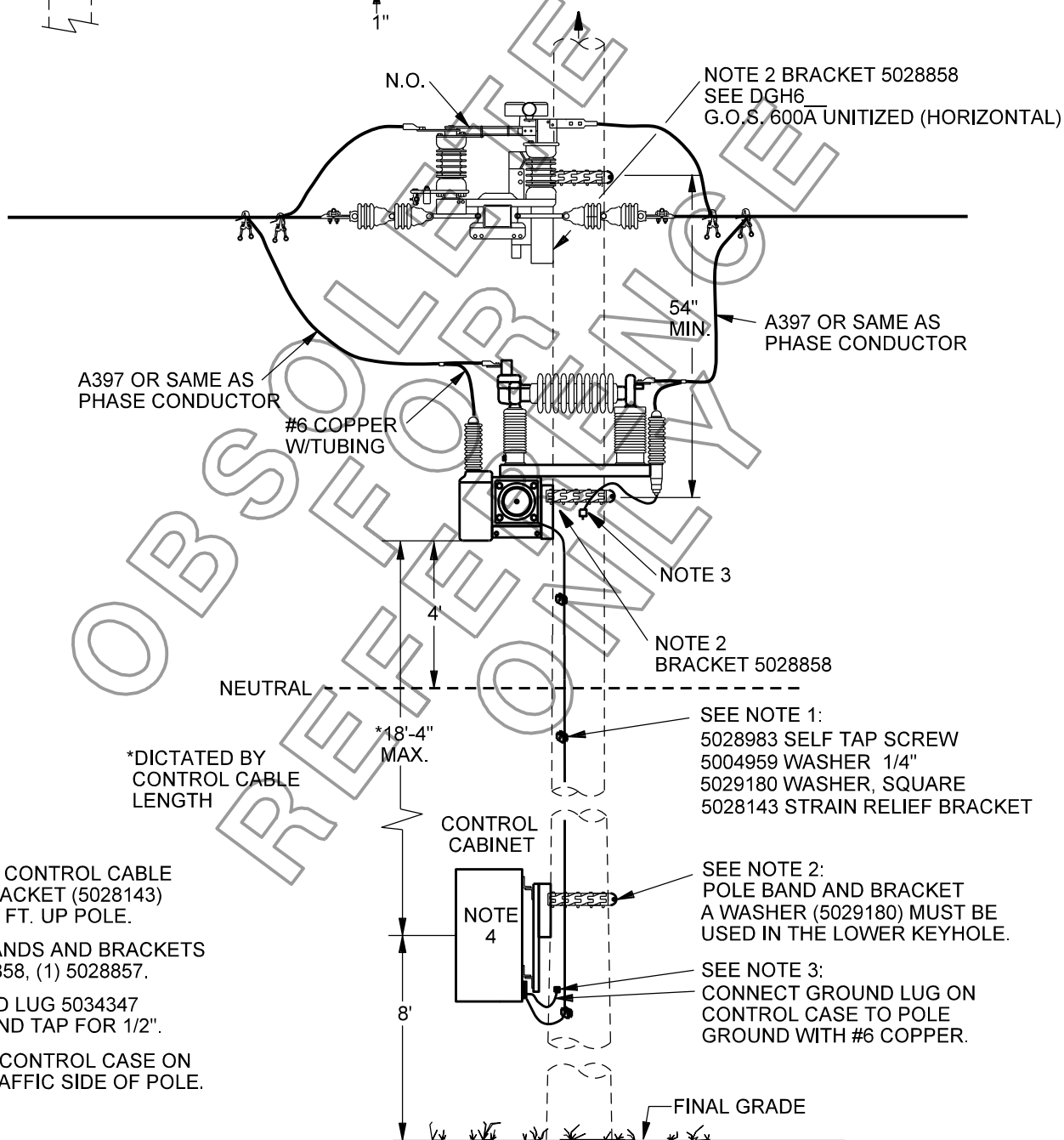
APPROVAL: B. PRIEST

8512E315.DGN

SWITCH OPEN FRONT VIEW



SWITCH CLOSED END VIEW



NOTES

1. SECURE CONTROL CABLE WITH BRACKET (5028143) EVERY 5 FT. UP POLE.
2. POLE BANDS AND BRACKETS (2) 5028858, (1) 5028857.
3. GROUND LUG 5034347 DRILL AND TAP FOR 1/2".
4. MOUNT CONTROL CASE ON NON-TRAFFIC SIDE OF POLE.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12KV LINE DEVICES
SCADA-MATE SWITCH
FOR REMOTE SUPERVISORY CONTROL
ON STEEL POLE, FLAT CONSTRUCTION

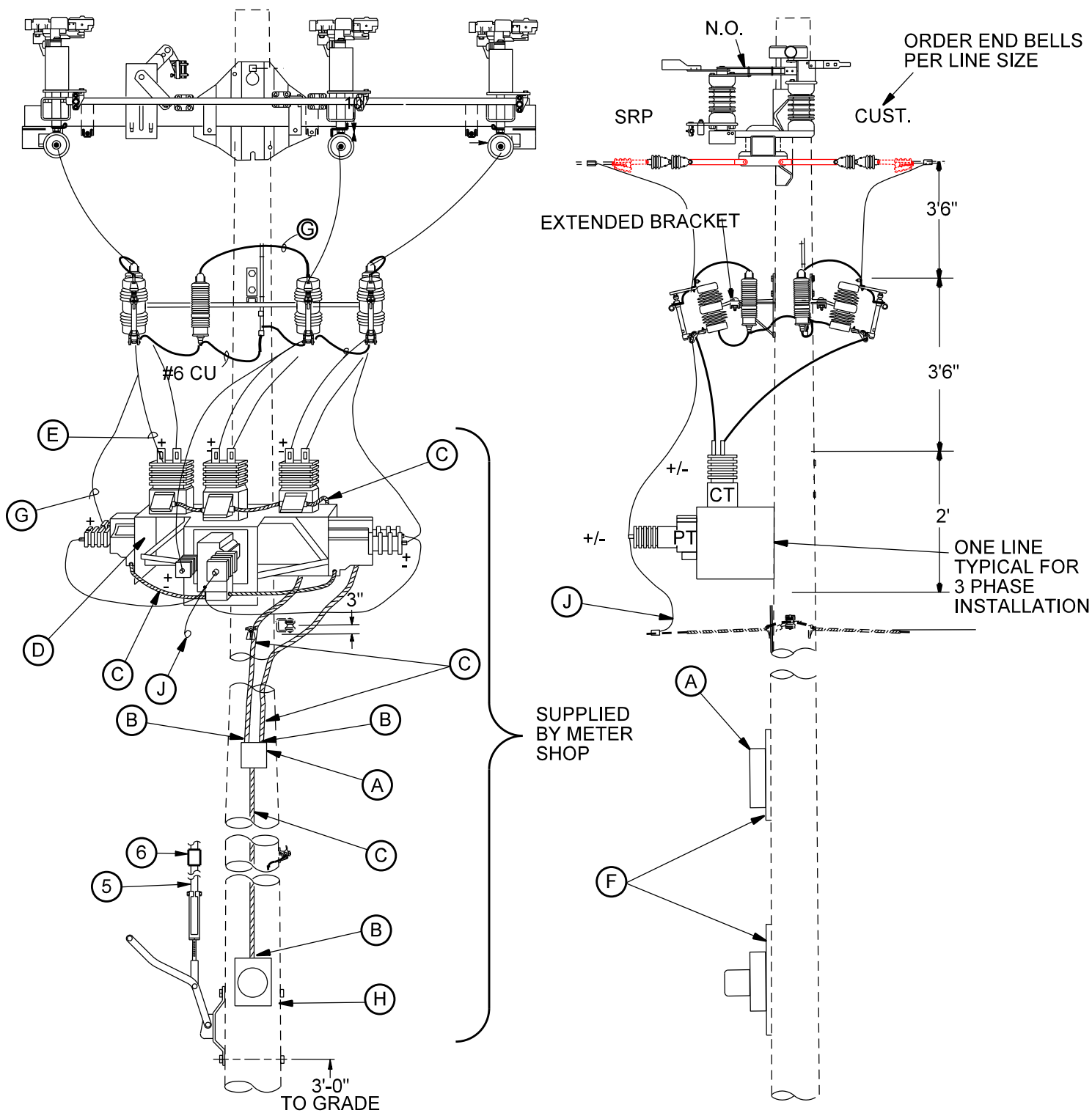
9-26-1

ISSUE DATE: 09/22/99

REV. DATE: 05/28/13

APPROVAL: B. PRIEST

8512E501.DGN



PRIMARY METERING DETAIL

NOTES

1. CONTACT POLICY, PROCEDURES & STANDARDS TO USE THIS ON 22KV.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.

12 kV LINE DEVICES
12 kV PRIMARY METERING INSTALLATION

9-27-1

ISSUE DATE: 10/13/71

REV. DATE: 12/26/24

APPROVAL: J. ROBBINS

8512E259.DGN

STOCK CODE DEFINITION TABLE

A.	5022489	8" X 8" X 6" JUNCTION BOX
B.	5022778	1" LIQUID TIGHT CONNECTOR – 14 EA.
C.	5022634	LIQUID TIGHT FLEX CONDUIT – 65'
	5021220	1" CONDUIT STRAPS – 15 EA.
D.	5031100	ALUMAFORM CLUSTER MOUNT
E.	5008706	1/0 COPPER WIRE, 600V
F.	5033845	#6 COPPER WIRE, 600V BARE – GROUNDING
	5035188	FRAMING CHANNEL – 10' (BRACKETS FOR J-BOX & METER BOX)
G.	5008700	#6 COPPER WIRE, 600V INSULATED
H.	—	METER SOCKET M/S

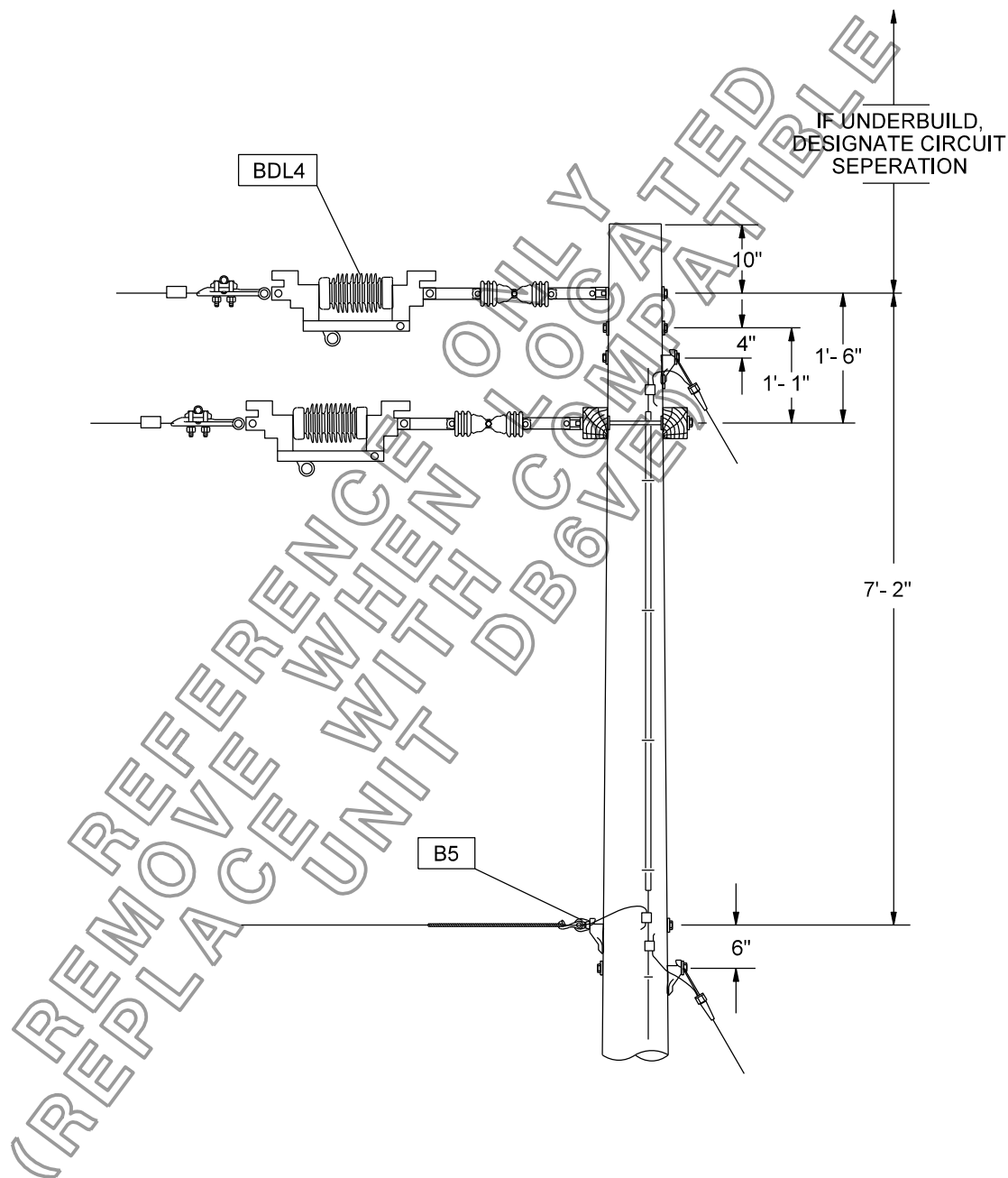
CT'S AND PT'S ORDERED BY METER SHOP ON A JOB-BY-JOB BASIS:

5008690	#10 COPPER WIRE, 600V BLACK		METERING M/S WIRE
5008691	#10 COPPER WIRE, 600V RED		
5008693	#10 COPPER WIRE, 600V WHITE		
5008694	#10 COPPER WIRE, 600V BLUE		
5008583	#14 COPPER WIRE, 600V BLACK		
5008584	#14 COPPER WIRE, 600V RED		
5008585	#14 COPPER WIRE, 600V WHITE		
5008582	#14 COPPER WIRE, 600V BLUE		

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV LINE DEVICES PRIMARY METERING INSTALLATION	ISSUE DATE: 10/13/71
		REV. DATE: 05/22/13
		APPROVAL: B. Priest
	9-27-2	OH9-27-2.doc

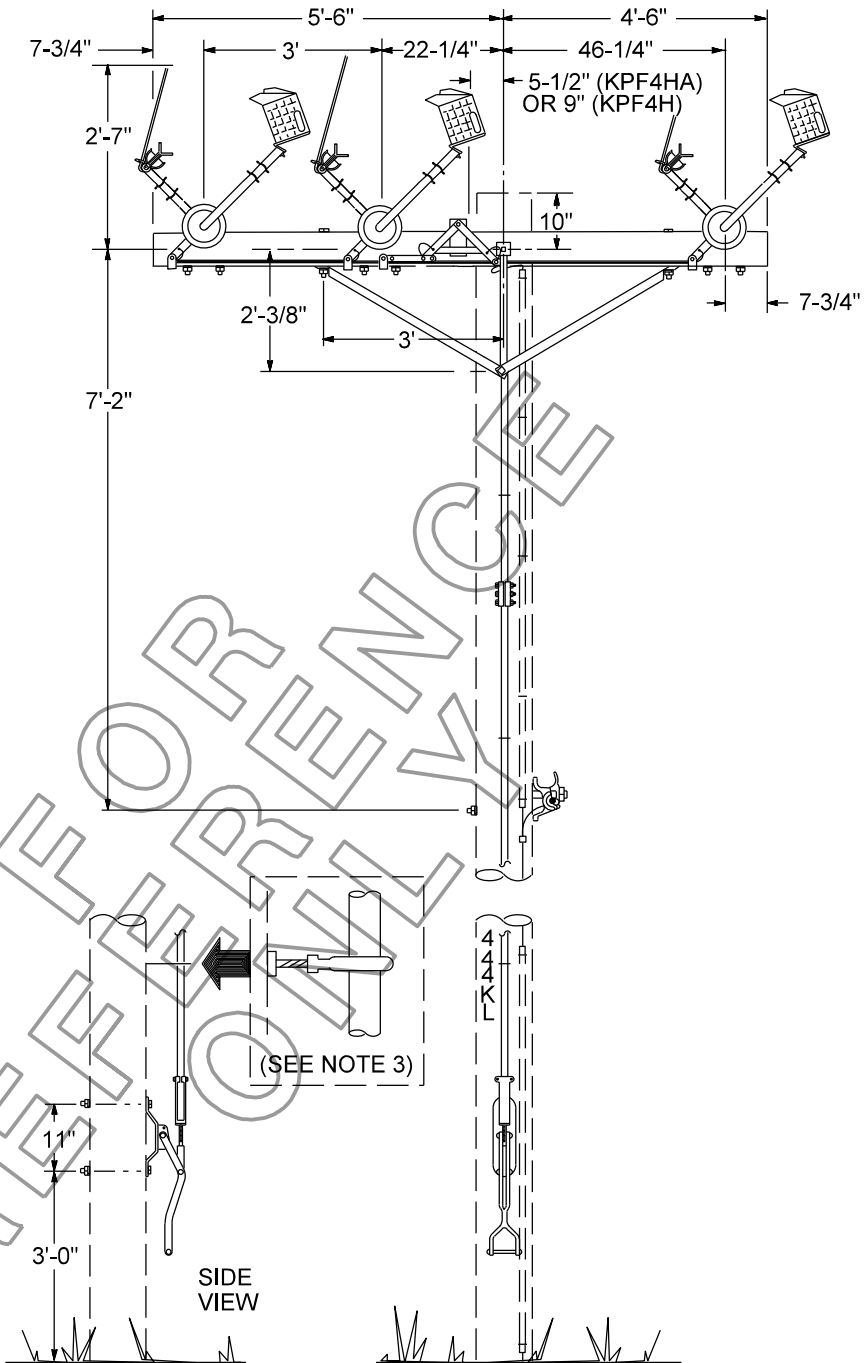
DBL4_ _

CONDUCTORS: A266, A397, AC312, R266



Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12kV LINE DEVICES DISCONNECT SWITCHES 400 AMPERE LINE TENSION DISCONNECTS CROSSARM CONSTRUCTION	ISSUE DATE: 01/01/72 REV. DATE: 06/11/11 APPROVAL: B.PRIEST
	9-28-1	8512E252.DGN

RKPF



CONDUCTOR	MAX. ANGLE
#6 CU.& #2 AA	6 DEG
#4 CU.	6 DEG
#2 CU.& #2 ACSR	6 DEG
#1 CU.& #3/0 AA	6 DEG
#2/0 CU.\$266.8 AA	6 DEG
397.5 AA & 312 AAAC	5 DEG
266 ACSR & 3/0 ACSR	5 DEG

NOTES

1. THIS STANDARD IS DESIGNED FOR INSTALLATION ON A 40' POLE. FOR USE WITH TALLER POLES, ORDER ONE BKM FOR EACH 5' OF LENGTH IN EXCESS OF 40'.
2. FOR IN-LINE CONSTRUCTION ONLY. SINGLE DEAD END CANNOT BE MADE TO HORIZONTAL KPF.
3. SPACE INTERMEDIATE GUIDES 5' APART.



PROPRIETARY MATERIAL

12KV LINE DEVICES
IN-LINE GANG OPERATED HORIZONTAL KPF

9-29-1

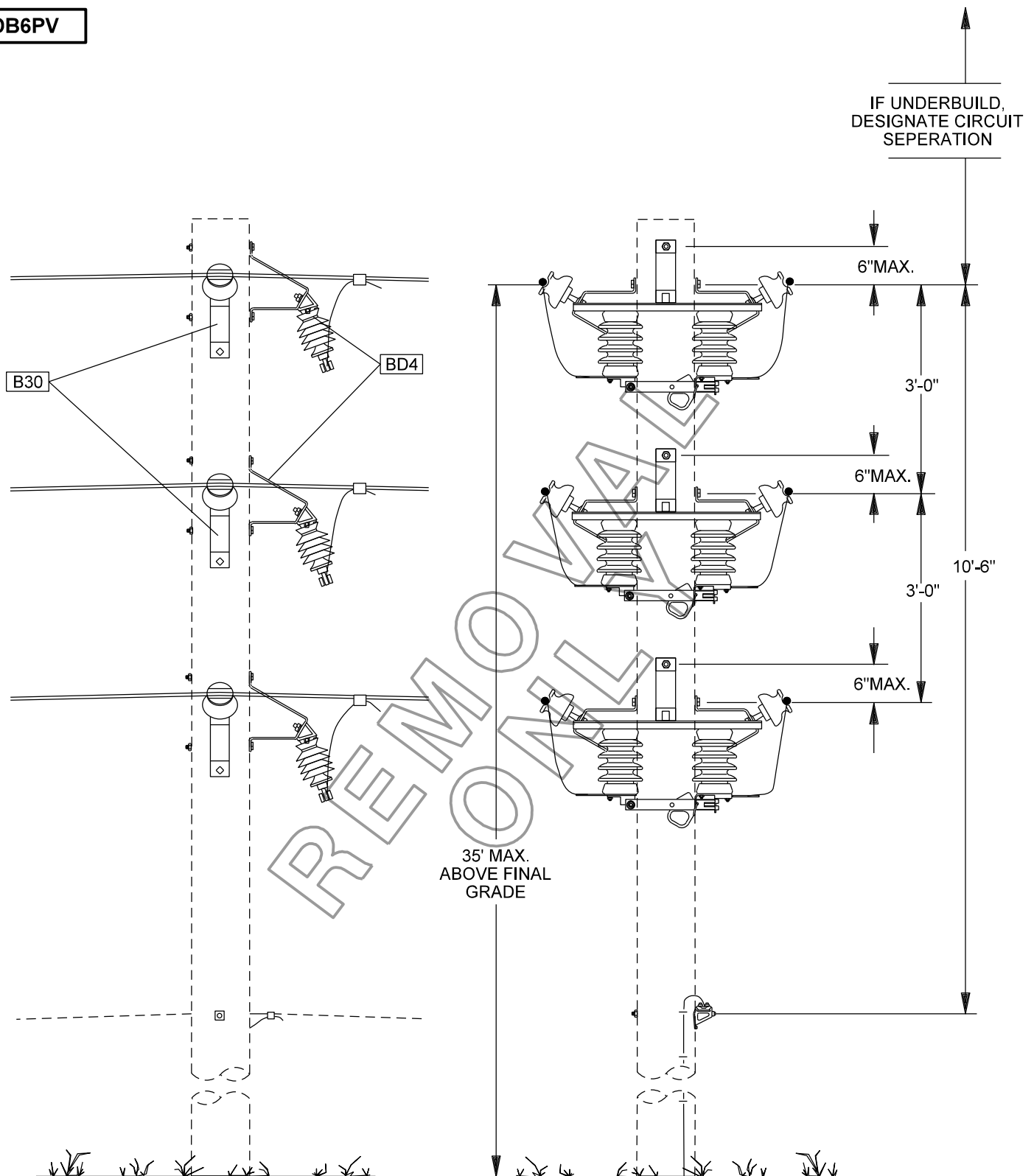
ISSUE DATE: 09/01/88

REV. DATE: 06/01/11

APPROVAL: B. PRIEST

8512E3.DGN

DB6PV



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
600A PARALLELING DISCONNECTS
VERTICAL CONSTRUCTION

9-30-1

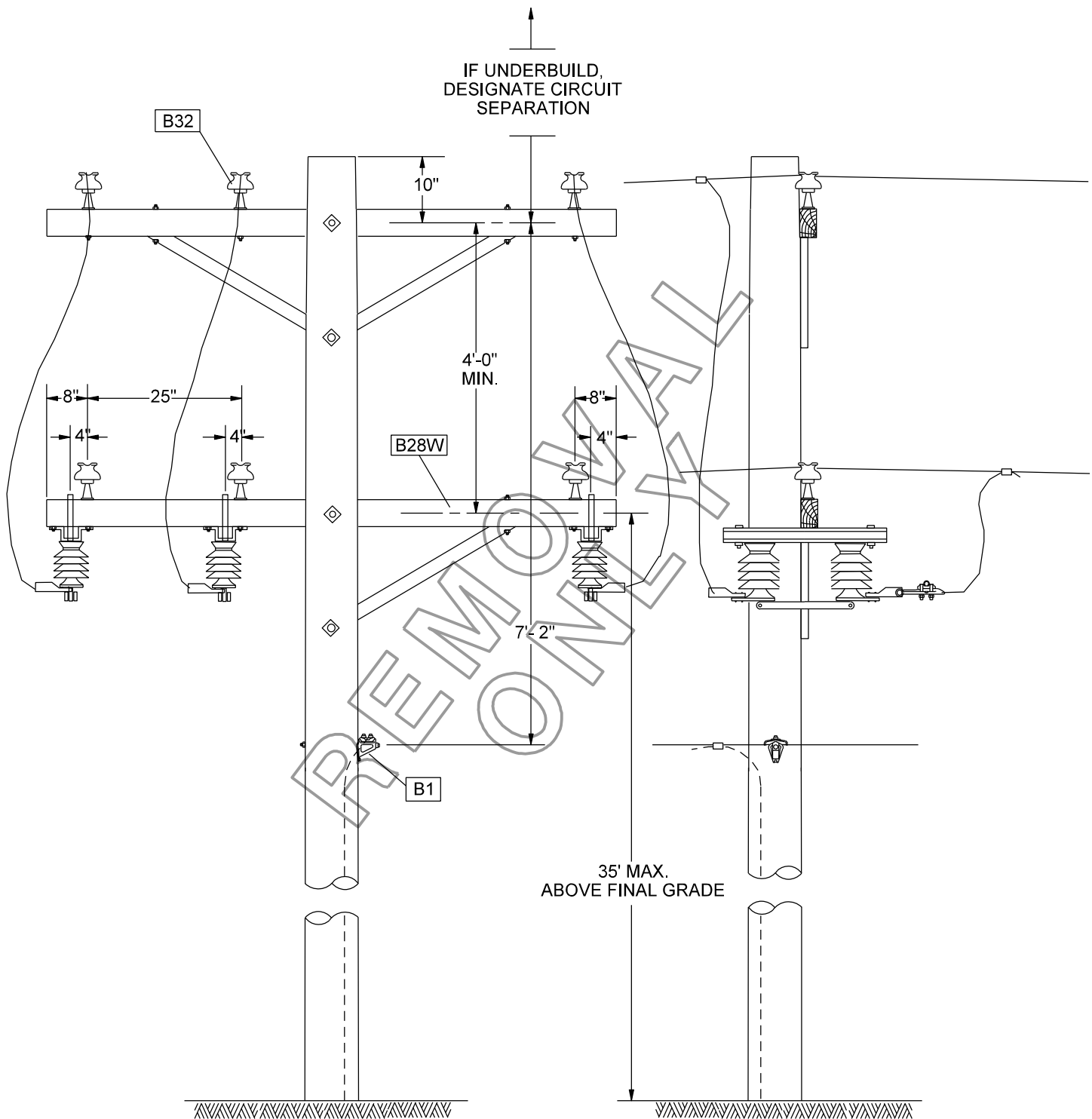
ISSUE DATE: 02/13/75

REV. DATE: 06/11/11

APPROVAL: B.PRIEST

8512E326.DGN

DB6P



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV LINE DEVICES
600A PARALLELING DISCONNECTS
CROSSARM CONSTRUCTION

9-31-1

ISSUE DATE: 01/01/72

REV. DATE: 06/06/11

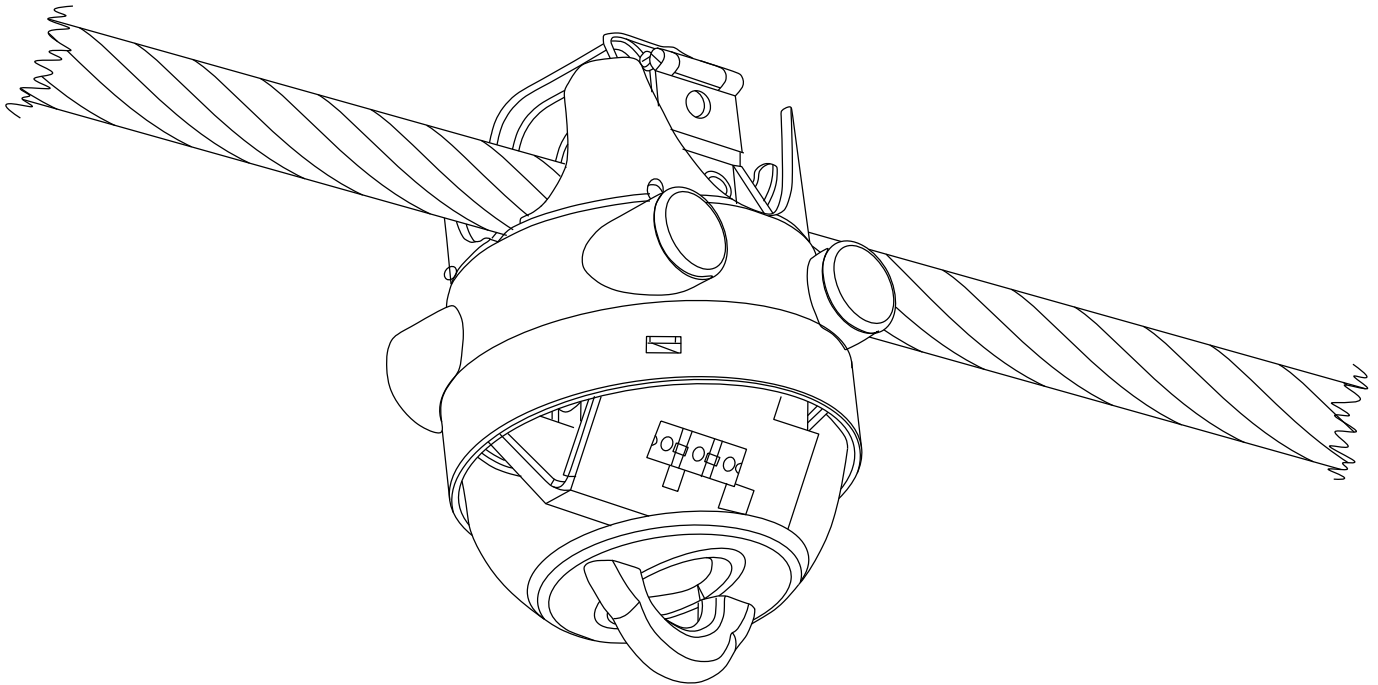
APPROVAL: B.PRIEST

8512E257.DGN

UNIT DESCRIPTION	COMPATIBLE UNIT CODE
SWITCH, DIRECTIONAL, 15KV, 200 AMP, 3-PHASE	RAT152
DISCONNECTS, SINGLE-POLE, 15KV, 100 AMP	RD151
DISCONNECTS, SINGLE-POLE, 15KV, 200 AMP	RD152
DISCONNECTS, SINGLE-POLE, 15KV, 300 AMP	RD153
DISCONNECTS, THREE-POLE, 15KV, 250 AMP, GANG-OPERATED	RK1525
SWITCH, OIL, 15KV, 200 AMP, STREETLIGHT	RLD2
SWITCH, RECLOSER, 15KV, UNDER 600 AMP, 3-PHASE	RCL15
SWITCH, SECTIONALIZER, 15KV, UNDER 600 AMP, 3-PHASE	RAD15
REGULATOR, VOLTAGE, 14KV, UNDER 600 AMP, 3-PHASE	RR34
DISCONNECTS, SINGLE-POLE, 15KV, 400 AMP	RD154

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV LINE DEVICES COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD DEVICES	ISSUE DATE: 10/13/71 REV. DATE: 06/09/11 APPROVAL: B. Priest
	9-32-1	OH9-32-1.doc

5095101



CONDUCTOR DIA. RANGE	DESCRIPTION
0.3" - 1.25"	FAULT INDICATOR, 1Ø OH 3/0 - 1,000 KCMIL AAC & ACSR

NOTES

1. WILL FLASH 6 RED LEDS 30 TIMES PER MINUTE (6 PER MINUTE ON LOW BATTERY) WHEN THE FAULT CURRENT EXCEEDS THE TRIP RATING. RESETS AFTER 8HRS.
2. FLASHES OF A SINGLE AMBER LED ON ONE SIDE INDICATES LOW BATTERY WHICH SHOULD BE REPLACED WITHIN 6 MONTHS.
3. REFER TO DOC'S FAULT INDICATOR OPERATING PROCEDURE FOR INSTALLATION, REMOVAL AND MAINTENANCE.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV & 22 kV LINE DEVICES OVERHEAD FAULT INDICATOR (DOC USE ONLY)	ISSUE DATE: 10/17/23 REV. DATE: APPROVAL: J. ROBBINS
	9-33-1	8512E551.DGN

SECTION 10: 22 kV LINE DEVICES

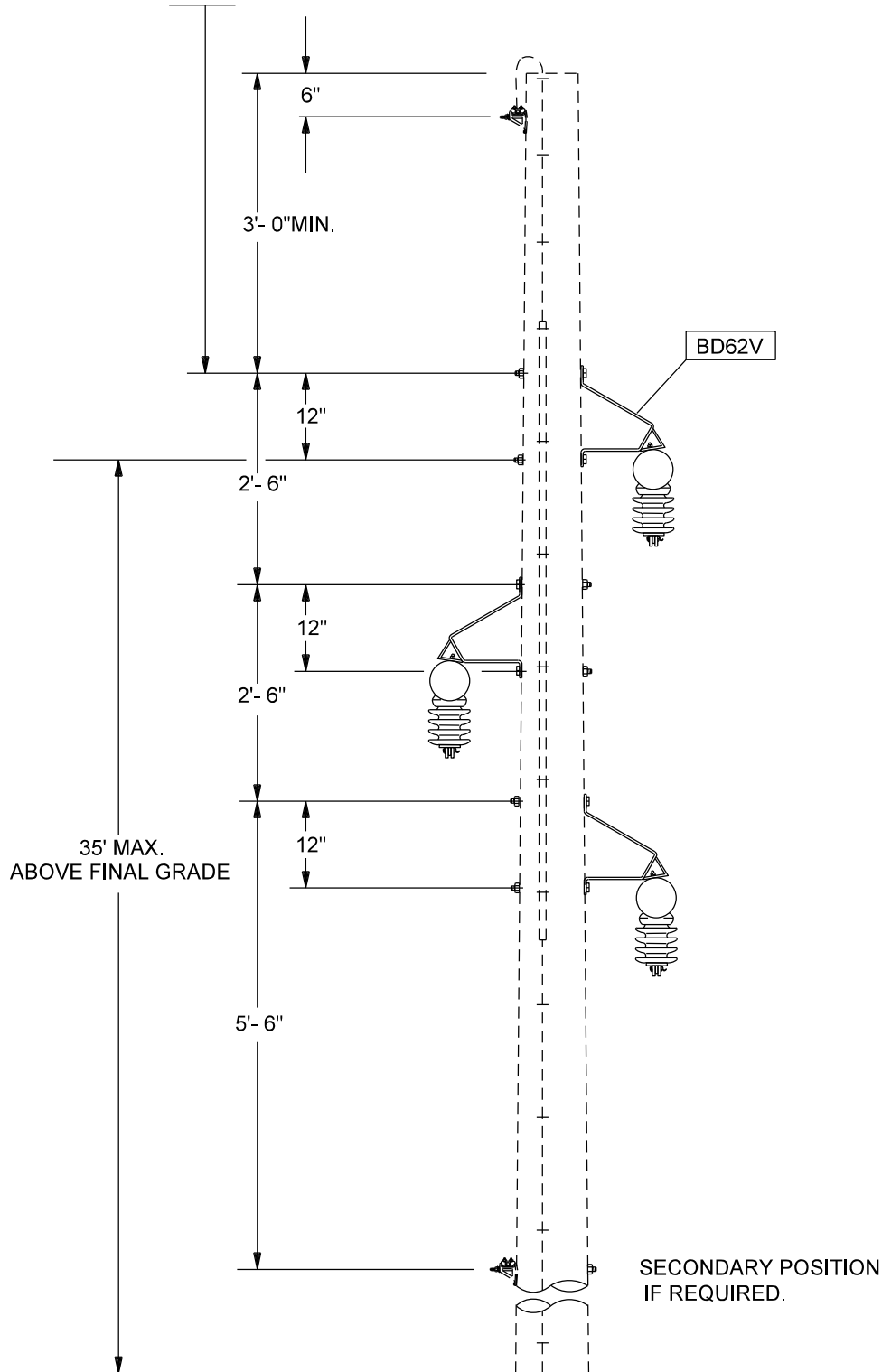
TITLE / DESCRIPTION	PAGE
DISCONNECT SWITCH, 600 AMP, SHIELD WIRE CONFIGURATION	10-2-1
DISCONNECT SWITCH, 600 AMP, CROSSARM CONSTRUCTION	10-3-1
GANG OPERATED SWITCH, 600 AMP UNITIZED, VERTICAL	10-4-1
S & C INTELLIRUPTER, RC PULSE RECLOSER, WOOD POLE, FLAT CONSTRUCTION	10-5-1
COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD DEVICES	10-6-1

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	INDEX 22 kV LINE DEVICES	ISSUE DATE: 05/14/13
		REV. DATE: 06/17/19
		APPROVAL: J. Luera
	10-1-1	OH10-1-1.doc

DB302_ _

CONDUCTORS - AC312, R2, R30

IF UNDERBUILD, DESIGNATE
CIRCUIT SEPARATION AND
LOCATE STATIC IN SECOND-
ARY POSITION.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22 kV LINE DEVICES
DISCONNECT SWITCHES, 600 AMP
SHIELD WIRE CONFIGURATION

10-2-1

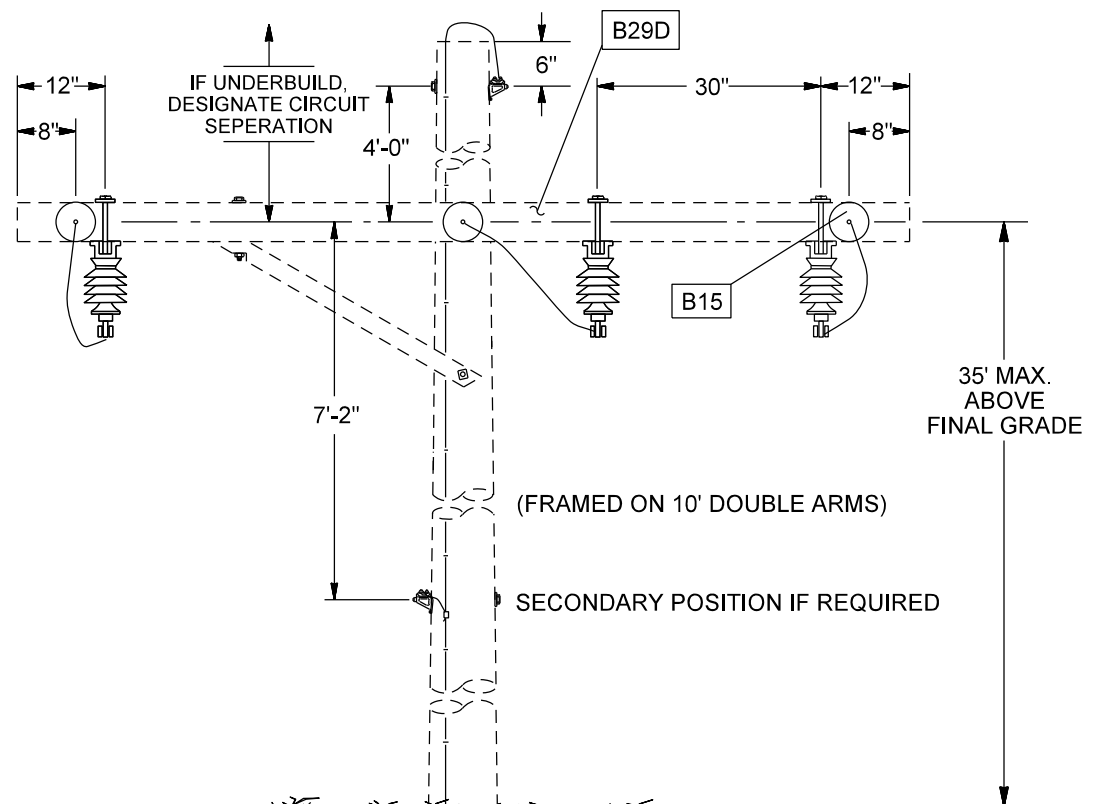
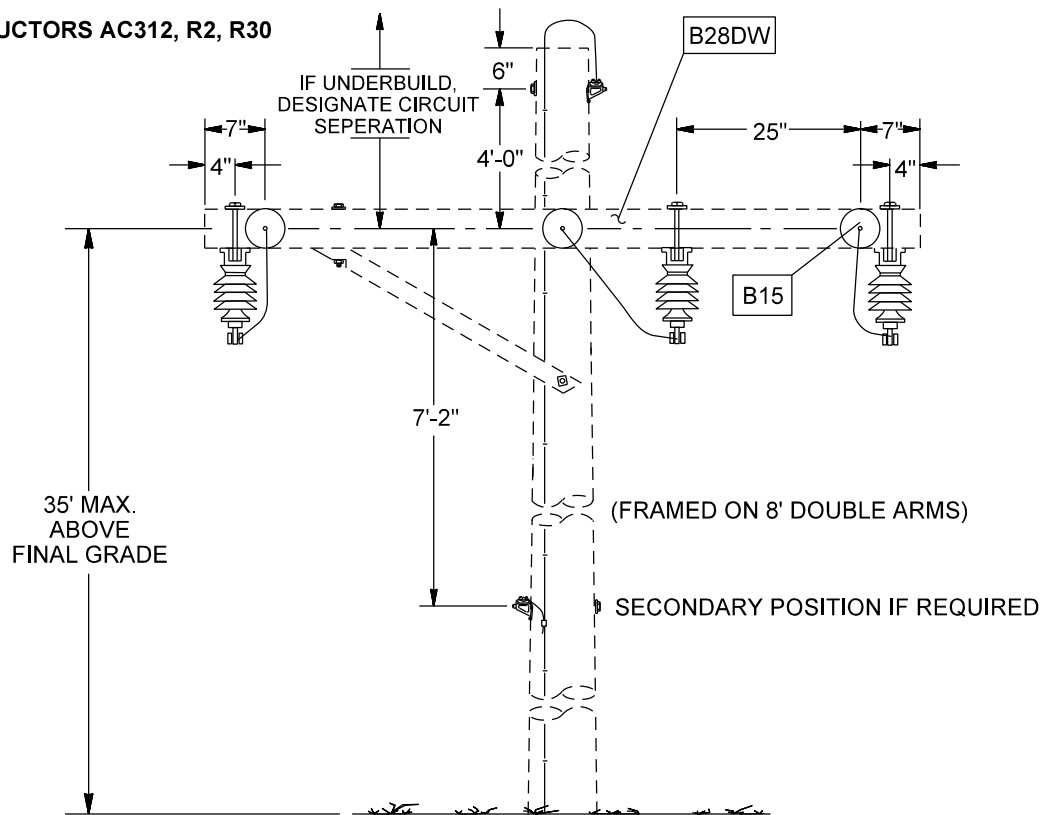
ISSUE DATE: 11/15/71

REV. DATE: 06/08/11

APPROVAL: B. PRIEST

8512E229.DGN

DB62_ _ CONDUCTORS AC312, R2, R30



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

22kV LINE DEVICES
DISCONNECT SWITCHES, 600 AMP
CROSSARM CONSTRUCTION

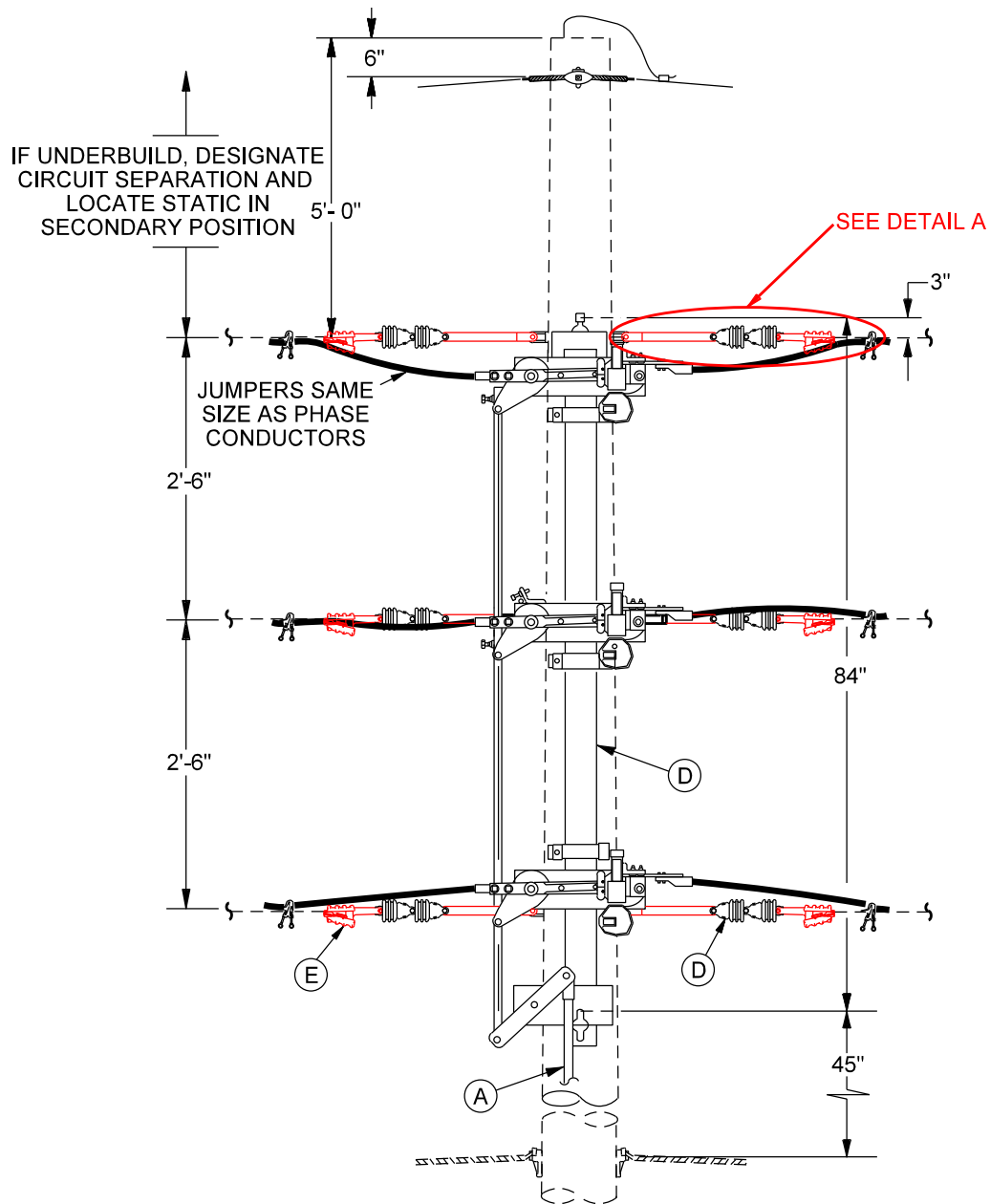
10-3-1

ISSUE DATE: 03/08/75

REV. DATE: 06/04/13

APPROVAL: B.PRIEST

8512E328.DGN



FRONT VIEW

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT. & MOVE DETAILS, BOM & NOTES

22 kV LINE DEVICES
GANG OPERATED SWITCHES
600 A UNITIZED, VERTICAL

10-4-1

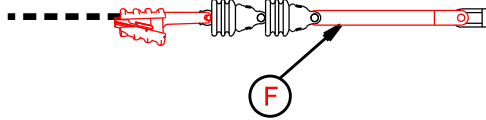
ISSUE DATE: 08/08/05

REV. DATE: 12/26/24

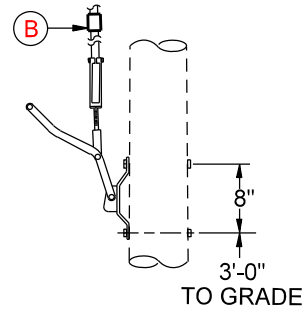
APPROVAL: J. ROBBINS

8512E351.DGN

DETAIL A



DETAIL B

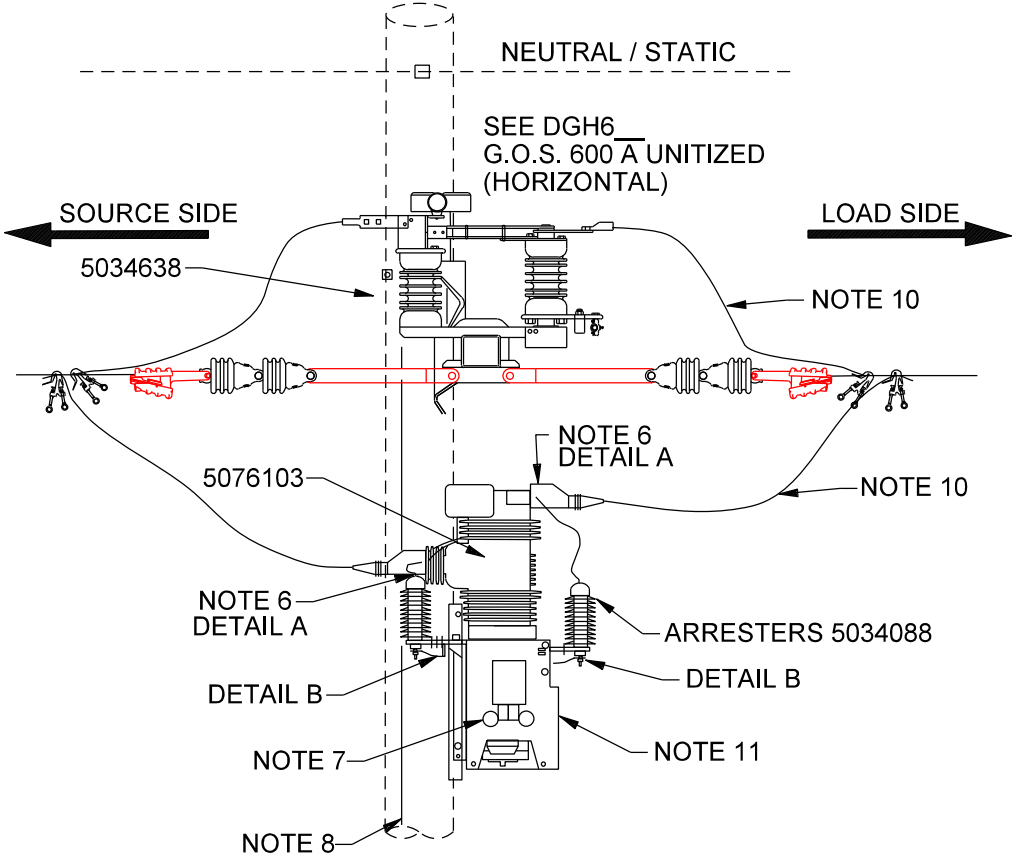


ITEM	MATERIAL DESCRIPTION	QUANTITY	MATERIAL ITEM NUMBER
A	ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS	30	5034616
B	SPLICE, FOR INTERPHASE ROD	1	5034631
C	SWITCH, UNITIZED POLE MOUNTED, 600A	1	5034639
D	INSULATOR, SUSPENSION, 6-1/4 IN. CLEVIS	12	5034719
E	DEADEND CLAMP, VARIOUS	6	BD_
F	STRAP, EXTENSION, 14" CLEVIS-TONGUE	6	5034722

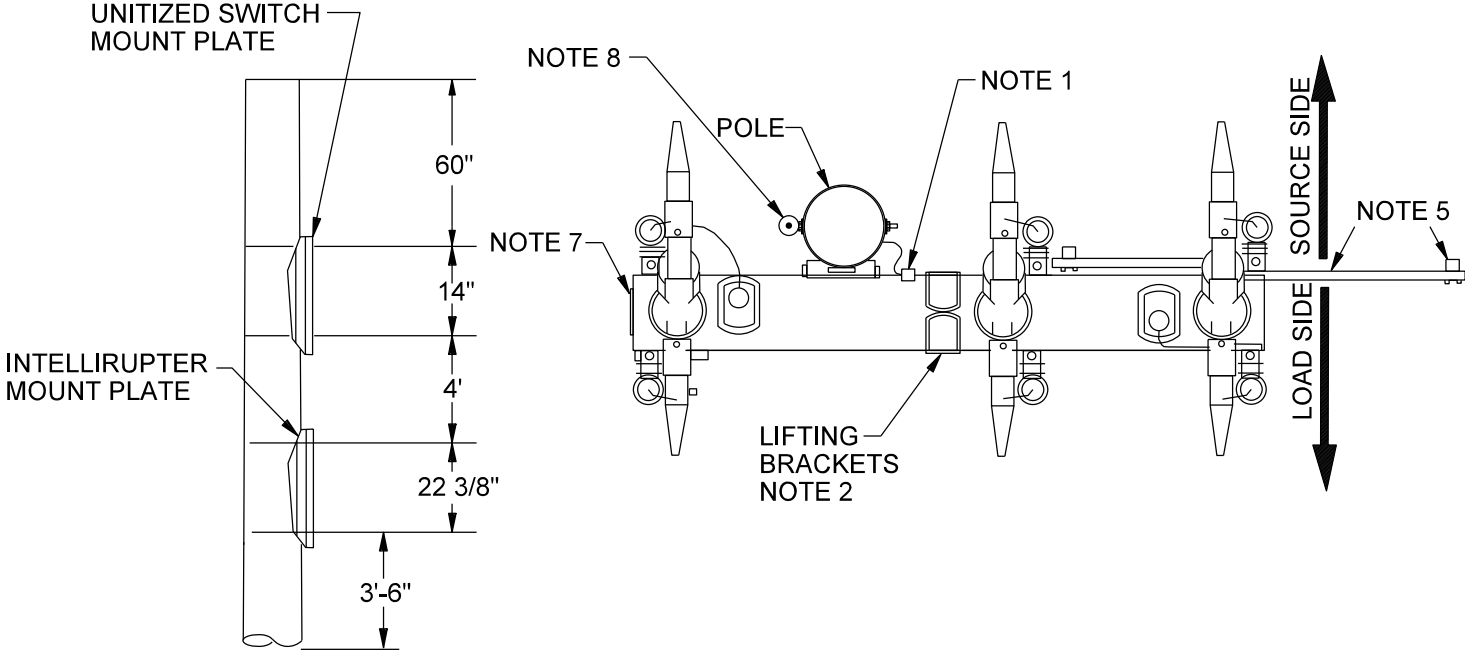
NOTES

1. FOR DOUBLE CIRCUIT THE TANGENT CIRCUIT MUST BE REBUILT PER P65. THE BOLT HEADS FOR THE EXTENDED BRACKETS SHALL BE ON THE POLE SIDE.
2. OPERATING ROD GUIDES
 - TOP BOLT EYE SHALL NOT BE GREATER THAN 5FT FROM SWITCH CRANK
 - BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8FT FROM GRADE
 - INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5FT.

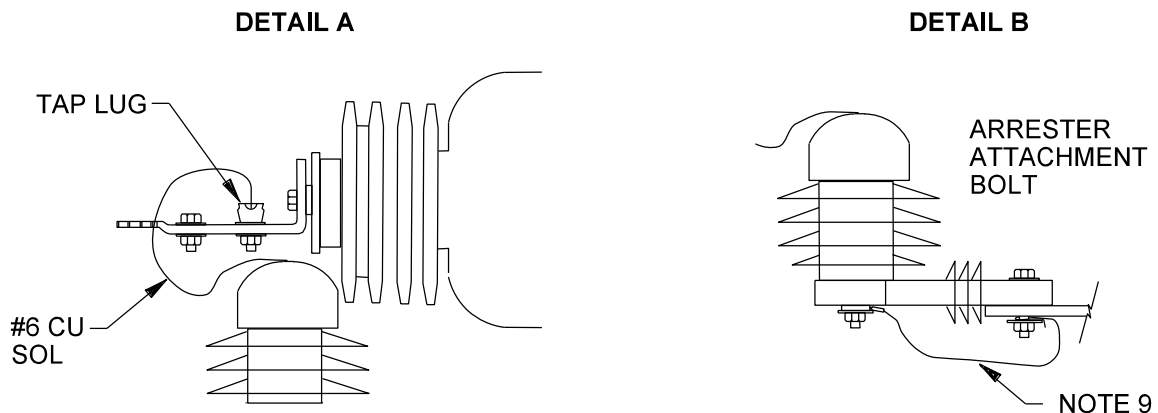
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.	
	22 kV LINE DEVICES GANG OPERATED SWITCHES 600 A UNITIZED, VERTICAL	ISSUE DATE: 08/08/05 REV. DATE: 12/26/24 APPROVAL: J. ROBBINS
	10-4-2	8512E553.DGN



POLE DRILL PATTERN



Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	REV: REPL CLEVIS & STRAIGHT EXT. W/ THE ONE 14" CLEVIS-TONGUE EXT.	
	22 kV LINE DEVICES S&C INTELLIRUPTER, RC PULSE RECLOSER WOOD POLE, FLAT CONSTRUCTION	
	10-5-1	
	ISSUE DATE: 06/17/19 REV. DATE: 12/26/24 APPROVAL: J. ROBBINS 8513E591.DGN	



NOTES

1. CONNECT GROUND LUGS TO POLE NEUTRAL WITH #2 COPPER 5033850.
2. ATTACH LIFTING SLING ONLY TO LIFTING BRACKETS. LIFT INTELLIRUPTER UNTIL SLING IS TAUT. UNBOLT INTELLIRUPTER FROM STEEL BRACKETS ATTACHED TO SHIPPING SKIDS. BOLT INTELLIRUPTER TO POLE.
3. MUST HAVE BUCKET TRUCK ACCESS.
4. 5076103 WEIGHS 1,100 LBS. EPA= 4,266 INCHES SQUARE.
5. CONTROL ENGINEERING TO PROVIDE ANTENNA DETAIL.
6. CONNECT ARRESTER HOT LEAD (#6 CU SOL 600 V, 5033863) TO PHASE TERMINAL WITH TAP LUG 5016725. TRAIN HOT LEAD TO SIDE.
7. HOLD TAG OPERATOR.
8. G.O.S. OPERATION ROD.
9. ARRESTER GROUND LEAD 5033990.
10. RC312 OR SAME AS PHASE CONDUCTOR. COVER WITH INSULATED TUBING 5035617.
11. CONTROL MODULE 5081582 INCLUDED IN CU.
12. TANGENT CONSTRUCTION ONLY. MAXIMUM LINE TENSION DIFFERENCE 1,500 POUNDS PER POSITION.
13. THE REQUIRED COMMUNICATION MODULE MUST BE REQUESTED SEPARATELY: MIMO MX TORANADO RADIO 5081717 OR MDS INET 900-DG RADIO RTU-DFAINETRADIO (5081618).
14. COORDINATE WITH CONTROL ENGINEERING FOR INSTALLATION OF RADIO CONTROLLER (RTU).

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	22 kV LINE DEVICES S & C INTELLIRUPTER, RC PULSE RECLOSER WOOD POLE, FLAT CONSTRUCTION 10-5-2	ISSUE DATE: 06/17/19 REV. DATE: APPROVAL: M. DYER 8513E592.DGN
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UNIT DESCRIPTION	COMPATIBLE UNIT
SWITCH, RECLOSER, 22 KV, UNDER 600 AMP, 3 PHASE	RCL22
DISCONNECTS, SINGLE POLE, 22 KV, 400 AMP	RD224

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	22 kV LINE DEVICES COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD DEVICES	ISSUE DATE: 01/30/94 REV. DATE: 06/01/11 APPROVAL: B. Priest
	10-6-1	OH10-6-1.doc

SECTION 11: 12 kV CAPACITORS

TITLE / DESCRIPTION	PAGE
INSTRUCTIONAL GUIDE	11-2-1
PRIMARY AND GROUND CONNECTIONS	11-3-1
APPROXIMATE WEIGHTS FOR VARIOUS 12 KV CAPACITORS	11-4-1
SWITCHED BANK, VERTICAL OR HORIZONTAL CONSTRUCTION.....	11-5-1
450-1200 KVAR SWITCHED BANK, VERTICAL DOUBLE CIRCUIT TANGENT CONSTRUCTION	11-6-1
SWITCHED BANK, CROSSARM CONSTRUCTION	11-7-1
CAPACITOR CONTROL GROUNDING INSTRUCTIONS	11-8-1
CONTROL WIRING DIAGRAM	11-9-1
PROTECTIVE EQUIPMENT AND FUSING, 12.47 KV CAPACITOR FUSES	11-10-1
PROCEDURE FOR TESTING DISTRIBUTION CAPACITOR BANKS, RATED 7.2 KV FOR 12.4 KV SYSTEM.....	11-11-1
COMPATIBLE UNIT CODING FOR MAINTENANCE OF CAPACITOR BANKS.....	11-12-1
COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD CAPACITOR BANKS	11-13-1
CURRENT CONTROL CAPACITOR WIRING DIAGRAM	11-14-1

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	INDEX 12 kV CAPACITORS	ISSUE DATE: 05/14/13 REV. DATE: 12/03/21 APPROVAL: J. Robbins
	11-1-1	OH11-1-1.doc

THIS GUIDE PERTAINS TO THE INSTALLATION OF CAPACITOR BANKS ON THE 7.2/12.4 KV DISTRIBUTION SYSTEM.

COMPATIBLE UNIT CODING FOR “C” SECTION

GENERAL CRITERIA

THE CAPACITOR BANKS IN THIS SECTION CONSIST OF PRE-ASSEMBLED UNITS. THE THREE TYPES TO BE INSTALLED ARE:

- 450 KVAR SWITCHED BANK
- 600 KVAR SWITCHED BANK
- 900 KVAR SWITCHED BANK
- 1,200 KVAR SWITCHED BANK

THE PREFIX LETTERS OF THE COMPATIBLE UNIT CODE DESIGNATE THE POLE FRAMING ON WHICH THE CAPACITOR BANK IS INSTALLED. THE FOLLOWING CODES INDICATE:

- CA = VERTICAL CONSTRUCTION
- CAH = CROSSARM CONSTRUCTION (FOR REFERENCE ONLY – SEE PAGE 11-5-1)

THE NEXT CHARACTER IN THE CODE DESIGNATES THE TOTAL KVAR:

- 45 = 450 KVAR
- 6 = 600 KVAR
- 9 = 900 KVAR
- 12 = 1,200 KVAR

THE CAPACITOR BANK CONSISTS OF SINGLE-PHASE CAPACITORS.

SWITCHED CAPACITOR BANKS

ALL SWITCHED CAPACITOR BANKS REQUIRE AN EXTERNAL 120 V SOURCE FOR OPERATION. IF 120 V IS AVAILABLE ON THE CAPACITOR BANK POLE, OR NEAR ENOUGH TO THE BANK POLE TO RUN A 120 V SECONDARY, THEN THE CONTROLS SHOULD BE SERVED FROM THE AVAILABLE SOURCE.

IF 120 V IS NOT AVAILABLE, THEN A 1/2 KVA SINGLE-PHASE TRANSFORMER WILL HAVE TO BE INSTALLED TO PROVIDE THE CONTROL VOLTAGE FOR THE BANK SWITCHING. THIS IS ACCOMPLISHED BY ADDING AN “X” TO THE CAPACITOR BANK CODE.

EXAMPLE: COMPATIBLE UNIT

CA6X

CAH9X

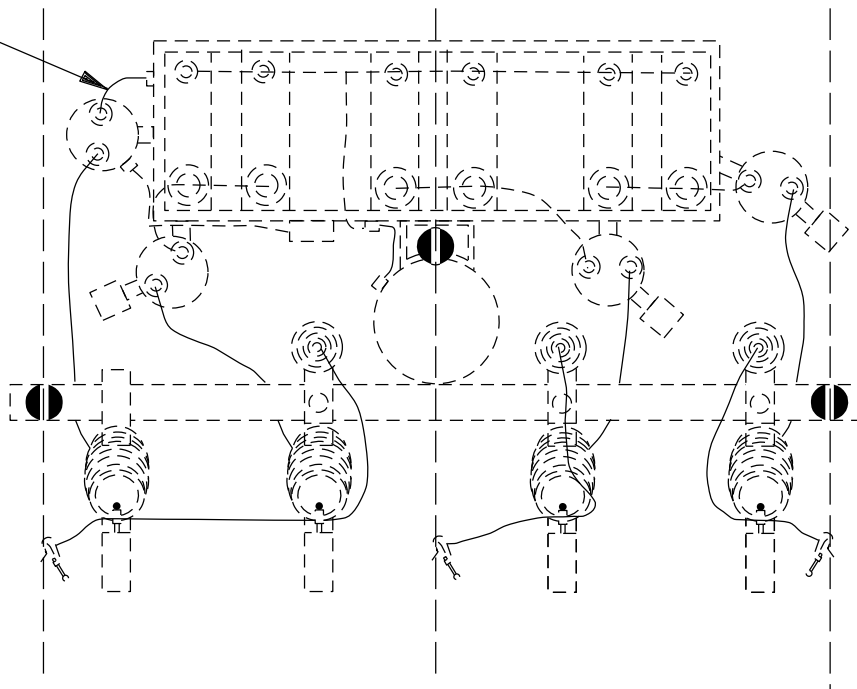
POLYCHLORINATED BIPHENYL (PCB) CONTENT

DUE TO GOVERNMENTAL REGULATIONS, IT IS NECESSARY TO ACCOUNT FOR CAPACITORS FILLED WITH POLYCHLORINATED BIPHENYL (PCB) DIELECTRIC FLUID. THERE MUST NOT BE ANY PCB CAPACITORS LEFT WITHIN THE DISTRIBUTION SYSTEM. IF ANY IS FOUND, CONTACT POWER DELIVERY ENGINEERING.

 Overhead Distribution Construction Standards OSDP PROPRIETARY MATERIAL		
	12 kV CAPACITORS OVERHEAD CAPACITOR SECTION INSTRUCTIONAL GUIDE	ISSUE DATE: 04/08/91 REV. DATE: 05/15/19 APPROVAL: M. Dyer
	11-2-1	OH11-2-1.doc

FOR TWO
BUSHING
TRANSFORMERS
ONLY

HORIZONTAL CONSTRUCTION

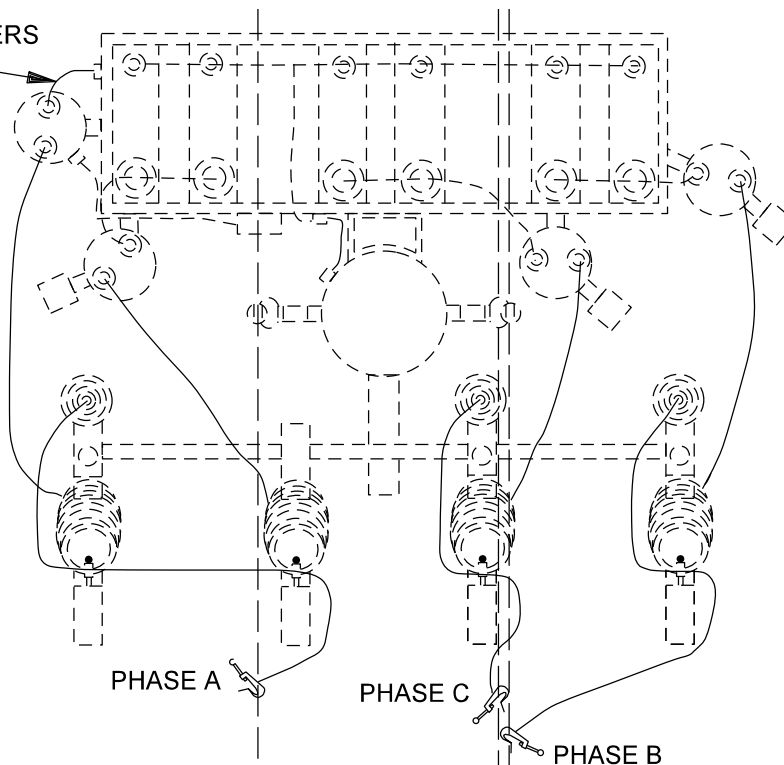


NOTES

1. THREE STINGERS TO LINE, MAXIMUM.

FOR TWO
BUSHING
TRANSFORMERS
ONLY

VERTICAL CONSTRUCTION



NOTES

1. THREE STINGERS TO LINE, MAXIMUM.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12 kV CAPACITORS
PRIMARY AND GROUND CONNECTIONS

11-3-1

ISSUE DATE: 07/09/02

REV. DATE: 05/27/11

APPROVAL: B.PRIEST

8512E341.DGN

APPROXIMATE WEIGHTS FOR VARIOUS 12 KV CAPACITORS

SWITCHED BANKS

SIZE	WEIGHT (LBS.)
450 KVAR	498
600 KVAR	519
900 KVAR	711
1,200 KVAR	831

IF UNSWITCHED, SUBTRACT 135 LBS.

TANKS

SIZE	WEIGHT (LBS.)
150 KVAR	45
200 KVAR	52
300 KVAR	68
400 KVAR	82

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12 KV CAPACITORS APPROXIMATE WEIGHTS FOR VARIOUS 12 KV CAPACITORS

11-4-1

ISSUE DATE: 06/01/11

REV. DATE: 05/15/19

APPROVAL: M. Dyer

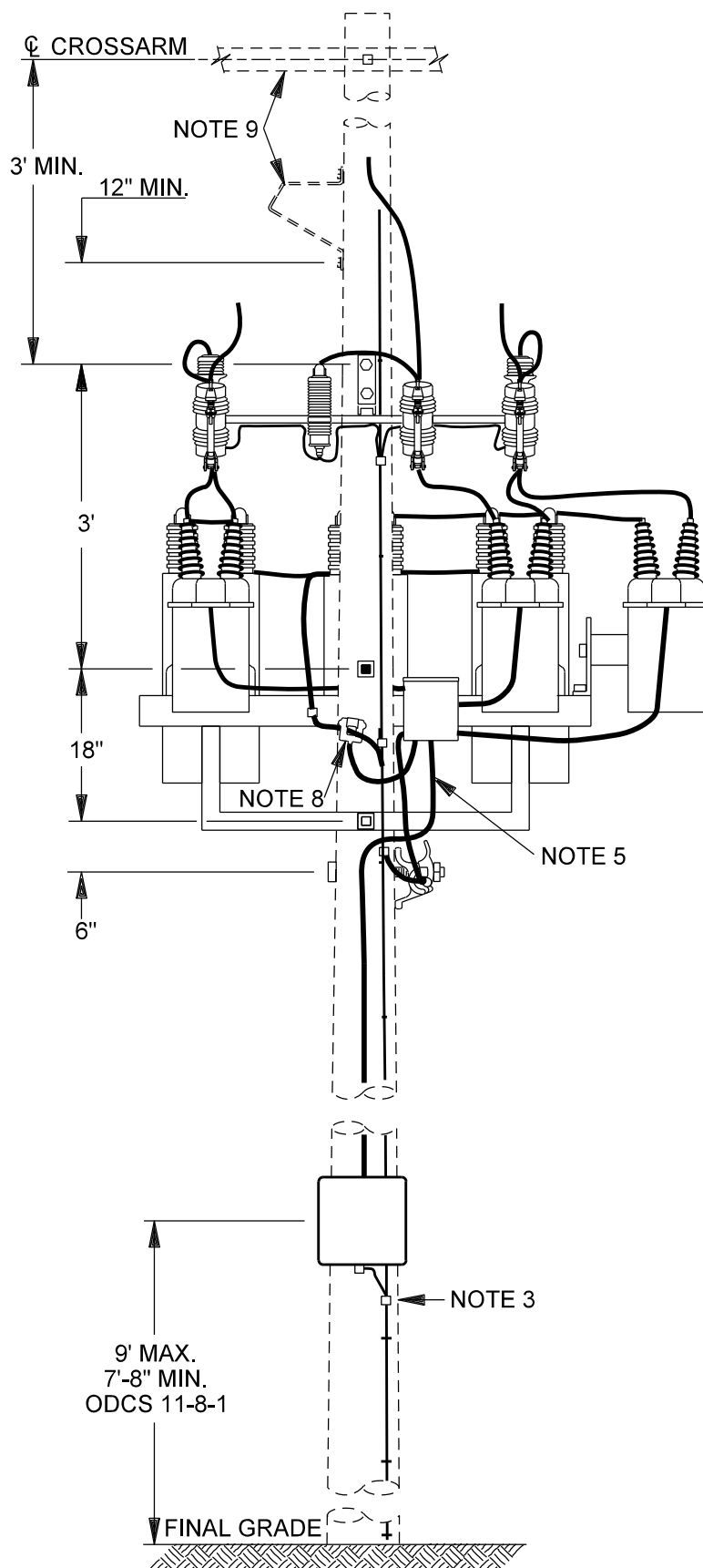
OH11-4-1.doc

COMPATIBLE UNIT	BANK SIZE	CAP. UNITS	TRANSFORMER INCLUDED*
CA45	450 kVAR	1 ϕ	NO
CA45X	450 kVAR	1 ϕ	YES
CA6	600 kVAR	1 ϕ	NO
CA6X	600 kVAR	1 ϕ	YES
CA9	900 kVAR	1 ϕ	NO
CA9X	900 kVAR	1 ϕ	YES
CA12	1200 kVAR	1 ϕ	NO
CA12X	1200 kVAR	1 ϕ	YES

*CONTROL VOLTAGE TRANSFORMER FOR INSTALLATION WHERE 120 V IS NOT AVAILABLE

NOTES

1. EACH BANK IS TO HAVE ALL NEUTRALS, ARRESTORS & CAPACITOR RACK CONNECTED TO THE POLE GROUND.
2. CAPACITOR NEUTRAL CONNECTION MUST BE GROUNDED.
3. GROUND CONTROL BOX (CB) TO POLE GROUND (SEE ODCS 11-8-1 FOR GROUNDING INSTRUCTIONS).
4. SECONDARY POWER FOR THE CONTROL MUST ORIGINATE FROM THE SAME CIRCUIT TO WHICH THE CAPACITOR IS CONNECTED (I.E. NO SWITCHES BETWEEN TRANSFORMER AND CAPACITOR BANK).
5. 28'-6" CONTROL CABLE AND FLEX CONDUIT ARE INCLUDED IN COMPATIBLE UNIT.
6. LOCATE CONTROLS ON OPPOSITE SIDE OF POLE FROM BANK.
7. CUSTOMER OWNED/SRP MAINTAINED CAPACITOR SHALL BE MARKED WITH THE CB NUMBER FOLLOWED BY AN "F" (I.E. CB 123F).
8. CLAMP NEUTRAL CURRENT SENSOR ON THE GROUND WIRE BETWEEN CAPACITOR RACK AND POLE GROUND. RUN THE SENSOR CABLE THROUGH THE JUNCTION BOX AND DOWN INSIDE THE CONTROL CABLE CONDUIT TO THE CONTROLLER.
9. THE HEIGHT OF THE BANKS ARE LOWER RELATIVE TO THE NEUTRAL ATTACHMENT, ALLOWING FLEXIBILITY FOR EITHER VERTICAL (USING MOUNTING BRACKETS) OR HORIZONTAL (USING CROSSARM) CONSTRUCTION.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12 kV CAPACITORS SWITCHED BANK VERTICAL AND HORIZONTAL CONSTRUCTION

11-5-1

ISSUE DATE: 12/16/71

REV. DATE: 01/25/24

APPROVAL: J. ROBBINS

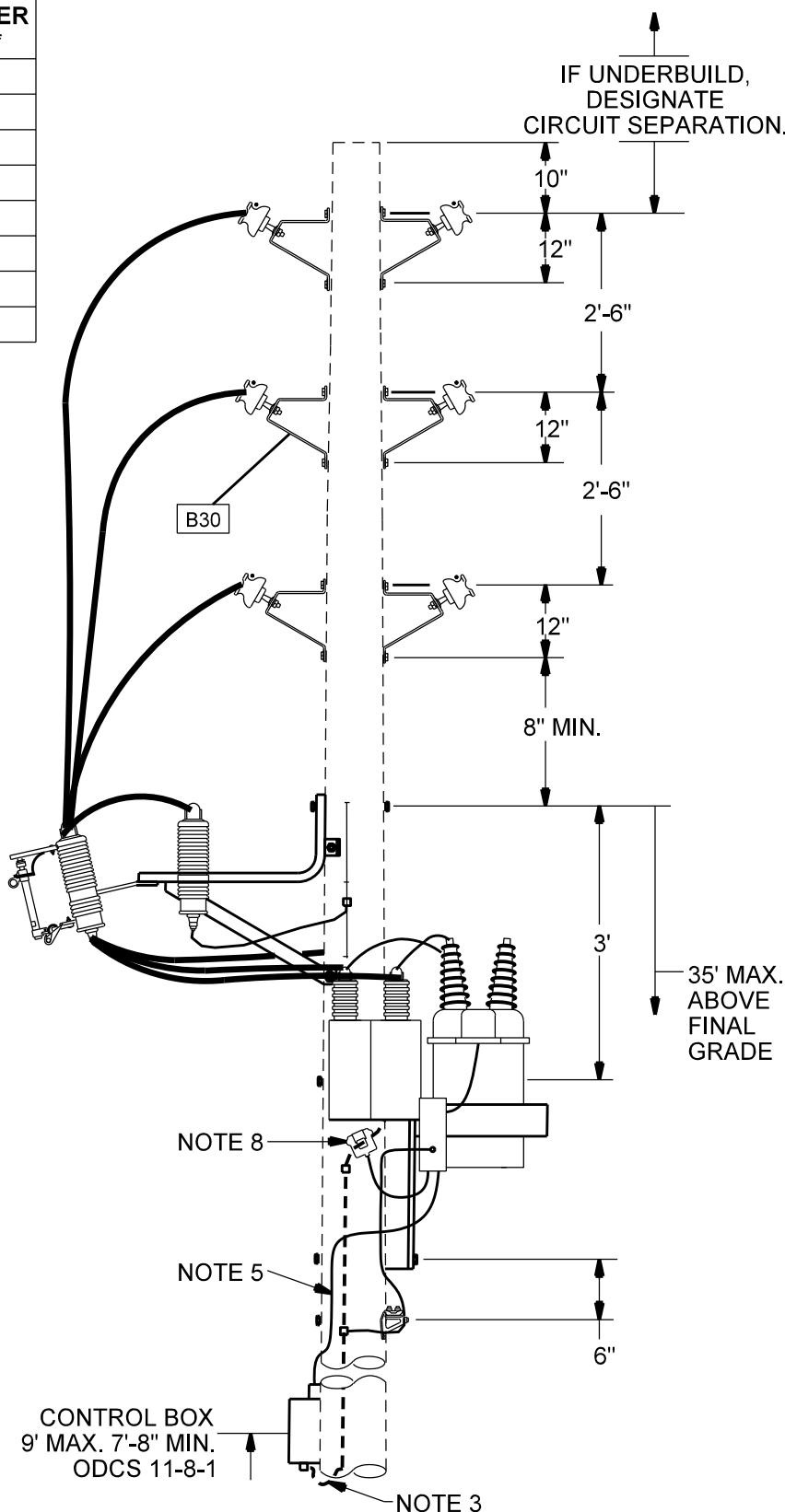
8512E187.DGN

COMPATIBLE UNIT	BANK SIZE	CAP. UNITS	TRANSFORMER INCLUDED*
CAE452	450 kVAR	1 ϕ	NO
CAE45X2	450 kVAR	1 ϕ	YES
CAE62	600 kVAR	1 ϕ	NO
CAE6X2	600 kVAR	1 ϕ	YES
CAE92	900 kVAR	1 ϕ	NO
CAE9X2	900 kVAR	1 ϕ	YES
CAE122	1200 kVAR	1 ϕ	NO
CAE12X2	1200 kVAR	1 ϕ	YES

*CONTROL VOLTAGE TRANSFORMER FOR INSTALLATION WHERE 120 V IS NOT AVAILABLE

NOTES

1. EACH BANK IS TO HAVE ALL NEUTRALS, ARRESTORS & CAPACITOR RACK CONNECTED TO THE POLE GROUND.
2. CAPACITOR NEUTRAL CONNECTION MUST BE GROUNDED.
3. GROUND CONTROL BOX TO POLE GROUND (SEE ODCS 11-8-1 FOR GROUNDING INSTRUCTIONS).
4. SECONDARY POWER FOR THE CONTROL MUST ORIGINATE FROM THE SAME CIRCUIT TO WHICH THE CAPACITOR IS CONNECTED (I.E. NO SWITCHES BETWEEN TRANSFORMER AND CAPACITOR BANK).
5. 28'-6" CONTROL CABLE AND FLEX CONDUIT ARE INCLUDED IN COMPATIBLE UNIT.
6. LOCATE CONTROLS ON OPPOSITE SIDE OF POLE FROM BANK.
7. CUSTOMER OWNED/SRP MAINTAINED CAPACITOR SHALL BE MARKED WITH THE CB NUMBER FOLLOWED BY AN "F" (I.E. CB 123F).
8. CLAMP NEUTRAL CURRENT SENSOR ON THE GROUND WIRE BETWEEN CAPACITOR RACK AND POLE GROUND. RUN THE SENSOR CABLE THROUGH THE JUNCTION BOX AND DOWN INSIDE THE CONTROL CABLE CONDUIT TO THE CONTROLLER.



Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12 kV CAPACITORS
450 - 1200 KVAR, SWITCHED BANK
VERTICAL DOUBLE CIRCUIT TANGENT CONSTRUCTION

11-6-1

ISSUE DATE: 11/20/85

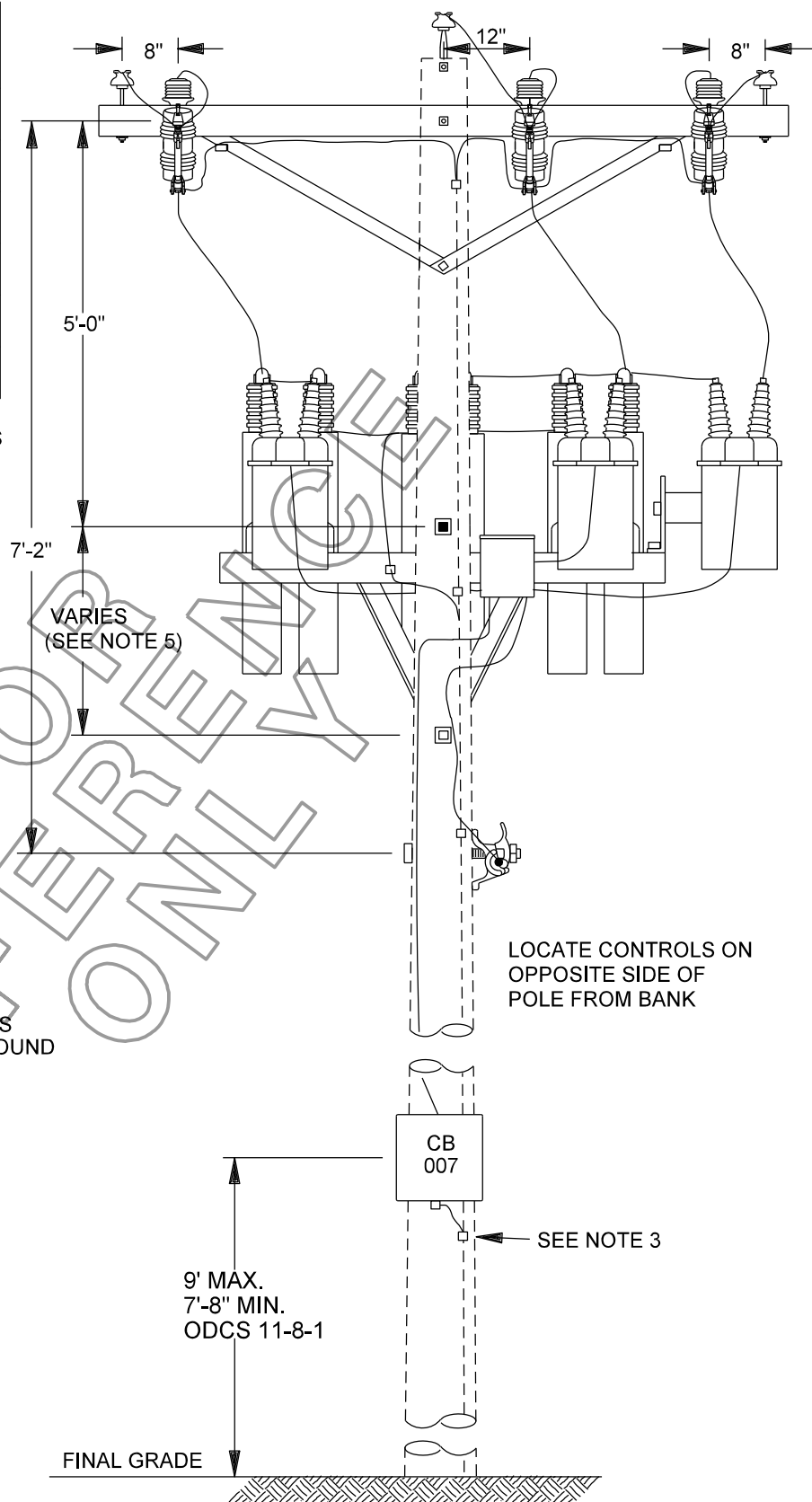
REV. DATE: 01/25/24

APPROVAL: J. ROBBINS

8512E244.DGN

COMPATIBLE UNIT	BANK SIZE	CAP. UNITS	TRANSFORMER INCLUDED*
CAH6	600 KVAR	1 ϕ	NO
CAH6X	600 KVAR	1 ϕ	YES
CAH9	900 KVAR	1 ϕ	NO
CAH9X	900 KVAR	1 ϕ	YES
CAH12	1200 KVAR	1 ϕ	NO
CAH12X	1200 KVAR	1 ϕ	YES

*CONTROL VOLTAGE TRANSFORMER FOR INSTALLATIONS WHERE 120V IS NOT AVAILABLE



NOTES

1. EACH BANK IS TO HAVE ALL NEUTRALS, ARRESTORS & CAPACITOR RACK CONNECTED TO THE POLE GROUND
2. CAPACITOR NEUTRAL CONNECTION MUST BE GROUNDED
3. GROUND CONTROL BOX (CB) TO POLE GROUND (SEE ODCS 11-8-1 FOR GROUNDING INSTRUCTIONS).
4. SECONDARY POWER FOR THE CONTROL MUST ORIGINATE FROM THE SAME CIRCUIT TO WHICH THE CAPACITOR IS CONNECTED. (I.E. NO SWITCHES BETWEEN TRANSFORMER AND CAPACITOR BANK)
5. DIMENSION VARIES WITH MANUFACTURER. MEASURE RACK BEFORE BORING BOTTOM HOLE.
6. 28'-6" CONTROL CABLE INCLUDED IN COMPATIBLE UNITS.

Overhead Distribution
Construction Standards



PROPRIETARY MATERIAL

12kV CAPACITORS
SWITCHED BANK
CROSSARM CONSTRUCTION

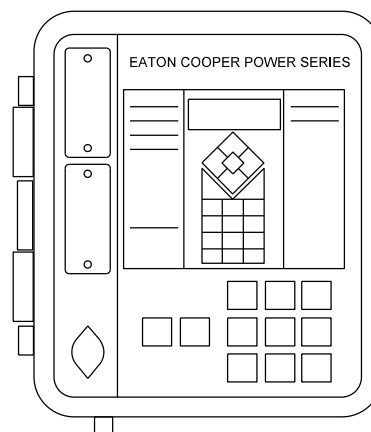
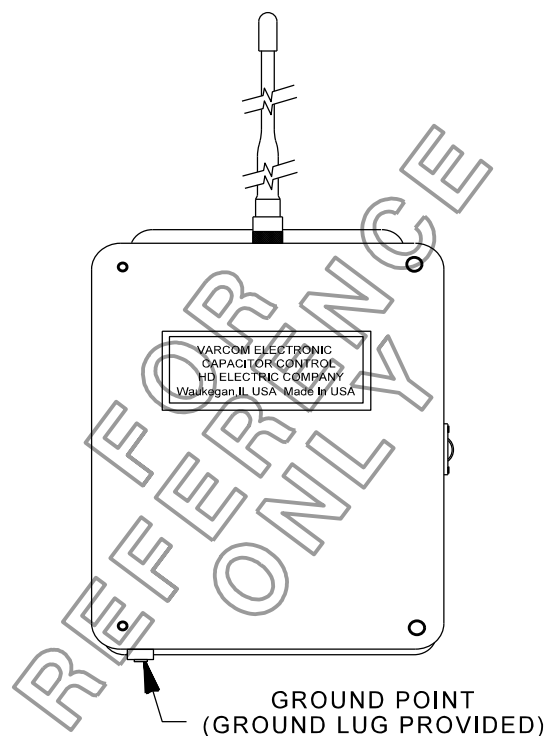
11-7-1

ISSUE DATE: 06/23/93

REV. DATE: 11/05/21

APPROVAL: J. ROBBINS

8512E185.DGN



NOTES

1. ALL CAPACITOR CONTROL BOXES (CB) MUST BE GROUNDED.
2. GROUNDING OF THE METER SOCKET DOES NOT HAVE SUFFICIENT CONTINUITY THROUGH THE METER RING.
3. USE THE GROUNDING TERMINAL (AS NOTED IN ABOVE DIAGRAM) TO GROUND CB.
4. USE A MINIMUM OF #6 SOFT DRAWN COPPER FROM CB TO POLE GROUND OR TO THE SYSTEM GROUND IN PAD-MOUNTED APPLICATION.
5. ALL CAPACITOR CONTROLS MUST BE INSTALLED BETWEEN 9' MAXIMUM AND 7'-8" MINIMUM CENTERLINE FROM FINAL GRADE. (NESC 232 & ADA RULE 307.3)

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV CAPACITORS CAPACITOR CONTROLLER AND GROUNDING INSTRUCTIONS 11-8-1	ISSUE DATE: 07/19/85 REV. DATE: 01/10/24 APPROVAL: J. ROBBINS 8512E330.DGN
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PROTECTIVE EQUIPMENT AND FUSING 12.47 kV CAPACITOR FUSES

PRIMARY FUSES FOR DISTRIBUTION CAPACITOR BANKS	
3 PHASE CAPACITOR BANK SIZE (KVAR)	7.2/12.47 KV WYE AREA HAVING PRIMARY NEUTRAL
	LOAD BREAK CUTOUT
300	KS 15 FITALL (5034492)
450	KS 20 FITALL (5034493)
600	KS 30 FITALL (5034495)
900	KS 50 FITALL (5034497)
1200	KS 65 FITALL (5034500)

PRIMARY FUSE FOR ½ KVA CONTROL VOLTAGE TRANSFORMER	
ALL KVAR SIZES	KS ¾ FITALL (5034484)

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV CAPACITORS PROTECTIVE EQUIPMENT AND FUSING 12.47 kV CAPACITOR FUSES	ISSUE DATE: 07/09/08 REV. DATE: 06/04/18 APPROVAL: N. Sabbah
	11-10-1	OH11-10-1.doc

**PROCEDURE FOR TESTING 12.47 KV OVERHEAD DISTRIBUTION CAPACITOR BANKS
RATED 7.2 KV, 60 HZ**

1. DE-ENERGIZE CAPACITOR BANK WITH AUTOMATIC CONTROL, OR LINK-BREAK CUTOUT.
2. USE HIGH VOLTAGE AMP METER TO VERIFY OIL SWITCHES ARE OPEN.
3. OPEN CUTOUTS AND REMOVE STINGERS, WAIT FIVE MINUTES FOR CAPACITOR TO DISCHARGE.
4. USING A HOT STICK AND TEMPORARY JUMPERS, SHUNT ACROSS EACH OF THE THREE GROUPS OF CAPACITOR TANKS.
5. VISUALLY INSPECT ALL OIL SWITCHES, CAPACITOR TANKS, AND POTENTIAL TRANSFORMER; CHECKING FOR BROKEN BUSHINGS, BULGING TANKS AND OBVIOUS OIL LEAKS.
6. USING A MULTI-METER ON THE MICROFARAD SETTING, MEASURE THE MICROFARAD RANGE BETWEEN THE BUSHINGS OF EACH CAPACITOR TANK. IF THE MEASURED VALUE OF THE CAPACITOR TANK IS NOT IN THE ACCEPTABLE RANGE SHOWN IN THE CHART BELOW, THEN THE CAPACITOR NEEDS TO BE REPLACED.

PHASE VOLTAGE (V)	TANK SIZE (kVAR)	ACCEPTABLE MICROFARAD VALUES			ACCEPTABLE PHASE CURRENT		
		MINIMUM (μ F)	NOMINAL (μ F)	MAXIMUM (μ F)	MINIMUM (A)	NOMINAL (A)	MAXIMUM (A)
7,200	100	4.61	5.12	6.14	12.51	13.90	16.67
	150	6.91	7.68	9.21	18.76	20.85	25.00
	200	9.21	10.23	12.28	25.00	27.77	33.33
	300	13.82	15.35	18.42	37.51	41.67	50.00
	400	18.42	20.46	24.56	50.00	55.54	66.66

7. WHEN REMOVING CAPACITORS BANKS OR CAPACITOR TANKS FROM SERVICE, A PIECE OF CONDUCTOR SHALL BE INSTALLED BETWEEN THE BUSHINGS OF EACH TANK.
8. LOW VOLTAGE FUSES IN THE CONTROLLERS ARE:
 - HD ELECTRIC (VARCOM) 15 AMP SLOW-BLOW (5034355) – REFERENCE ONLY
 - EATON COOPER 10 AMP SLOW-BLOW (5089126)

NOTES

1. PRIOR TO PLACING IN SERVICE, ON-LINE TEST EACH PHASE OF THE CAPACITOR BANK USING THE ABOVE CHART FOR ACCEPTABLE PHASE CURRENT BASED ON CAPACITOR SIZE.
2. THE FIRST FOUR STEPS OF THE ABOVE PROCEDURE MAY BE OMITTED FOR NEW INSTALLATIONS THAT HAVE NEVER BEEN ENERGIZED.
3. MULTI-METER WITH MICROFARAD SETTING REPLACES THE CAPACITANCE AND SIMPSON METER FOR CHECKING CAPACITORS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12 kV CAPACITORS PROCEDURE FOR TESTING DISTRIBUTION CAPACITOR BANKS RATED 7.2 kV FOR 12.4 kV SYSTEM		ISSUE DATE: 07/23/01 REV. DATE: 01/10/24 APPROVAL: J. Robbins
	11-11-1		OH11-11-1.doc

DESCRIPTION	MATERIAL ITEM	NOTE	COMPATIBLE UNIT
150 KVAR 1Ø	5034234		BCM15
200 KVAR 1Ø, 1 BUSHING	5034237		BCM21
200 KVAR 1Ø, 2 BUSHINGS	5034238*	1	BCM2
300 KVAR 1Ø	5034235*	2	BCM3
400 KVAR 1Ø	5034239	4	BCM4
300 KVAR 3Ø		3	

- NOT PURCHASED BUT SALVAGE USEABLE.

AUXILIARY EQUIPMENT USED WITH CAPACITOR BANKS

DESCRIPTION	MATERIAL ITEM	COMPATIBLE UNIT
12 KV 200 AMP, OIL SWITCH (SPECIFY MFG. TO MATCH EXISTING)	5034754	BCD
0.5 KVA TRANSFORMER	5034764	BCT
CONTROLLER CBC8000 W/O RADIO	5087345	TC-CAPCTRL
CONTROLLER CBC8000 WITH RADIO	5086438	TC-CAPCTRLEP
OH CAP CONTROL ANTENNA	5087111	
NEUTRAL CURRENT SENSOR	5090920	

NOTES

1. WHEN OUT, USE 5034237.
2. WHEN OUT, REPLACE BANK OR REPLACE EACH TANK WITH TWO 5034234.
3. REPLACE BANK.
4. REPLACE DAMAGED 400 KVAR 1Ø CAPACITORS WITH:
 - ONE 400 KVAR 1Ø CAPACITOR (5034239) OR
 - TWO 200 KVAR 1Ø CAPACITORS (5034237). USE #2 COPPER, 600 V, 7-STRAND (5033865) FOR NEW CONNECTS.

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kv CAPACITORS COMPATIBLE UNIT CODING FOR MAINTENANCE OF CAPACITOR BANKS	ISSUE DATE: 07/23/01 REV. DATE: 01/10/24 APPROVAL: J. Robbins
	11-12-1	OH11-12-1.doc

**COMPATIBLE UNIT CODING FOR RETIREMENT OF
NON-STANDARD CAPACITOR BANKS**

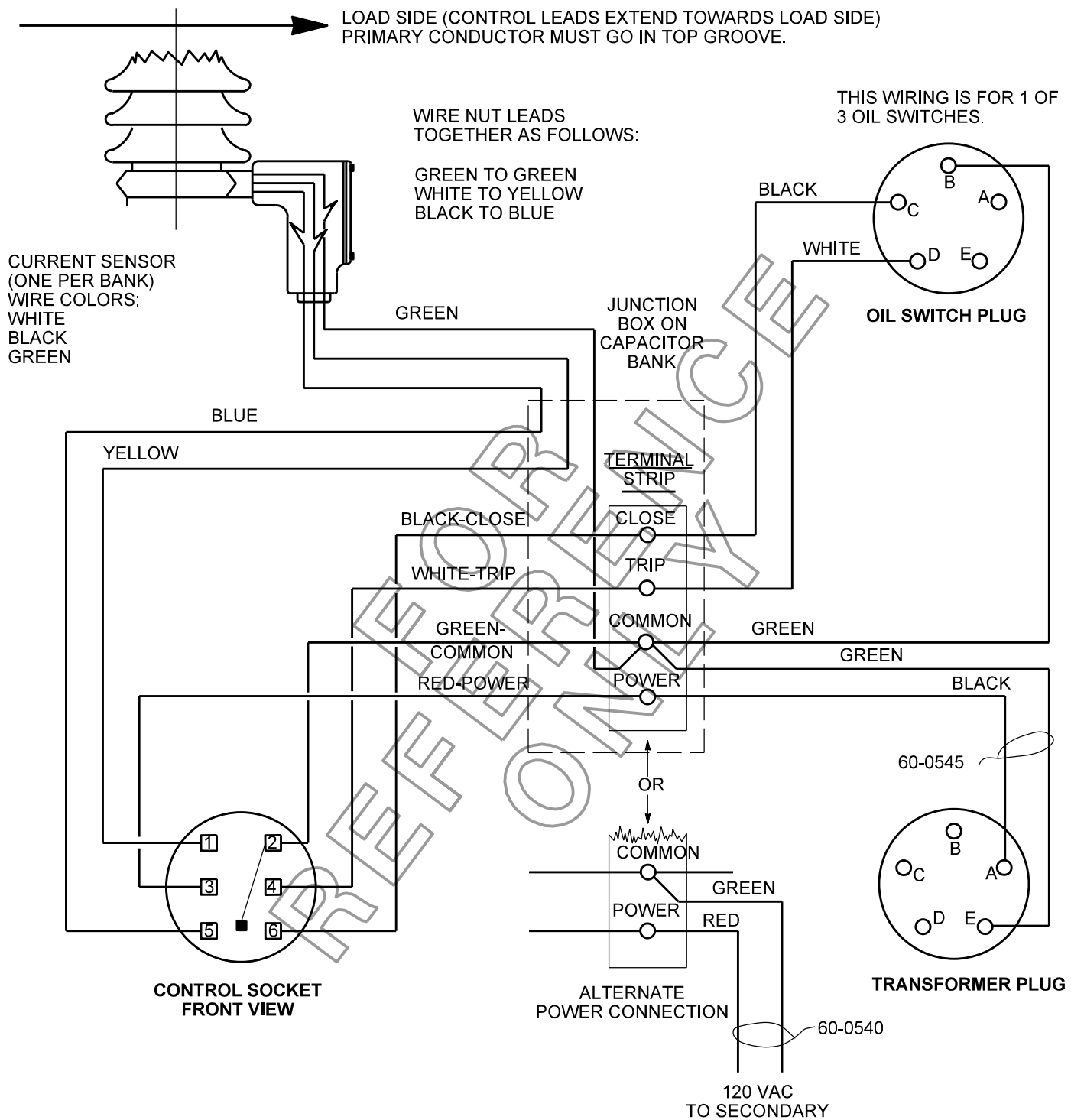
CONTROLLED CAPACITOR BANKS

BANK SIZE KVAR	UNIT SIZE KVAR	UNITS		COMPATIBLE UNIT CODE
		1Ø	3Ø	NO PCBS
300	100	X		RCC1003
600	300		X	RCC30036
900	300		X	RCC30039
1,200	300		X	RCC300312

FIXED CAPACITOR BANKS

BANK SIZE KVAR	UNIT SIZE KVAR	UNITS		COMPATIBLE UNIT CODE
		1Ø	3Ø	NO PCBS
300	100	X		RCF1003
450	150	X		RCF1504
600	300		X	RCF30036
600	200	X		RCA6F
900	150	X		RCF1509

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	12 kV CAPACITORS	ISSUE DATE: 07/15/08
	COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD CAPACITOR BANKS	REV. DATE: 04/10/14
		APPROVAL: B. Priest
	11-13-1	OH11-13-1.doc



NOTES

1. CURRENT SENSOR IS NOT A TRANSFORMER. IT MAY BE LEFT OPEN CIRCUITED OR SHORT CIRCUITED WITH NO ADVERSE AFFECT. IT MAY BE USED ON A OR C PHASE.

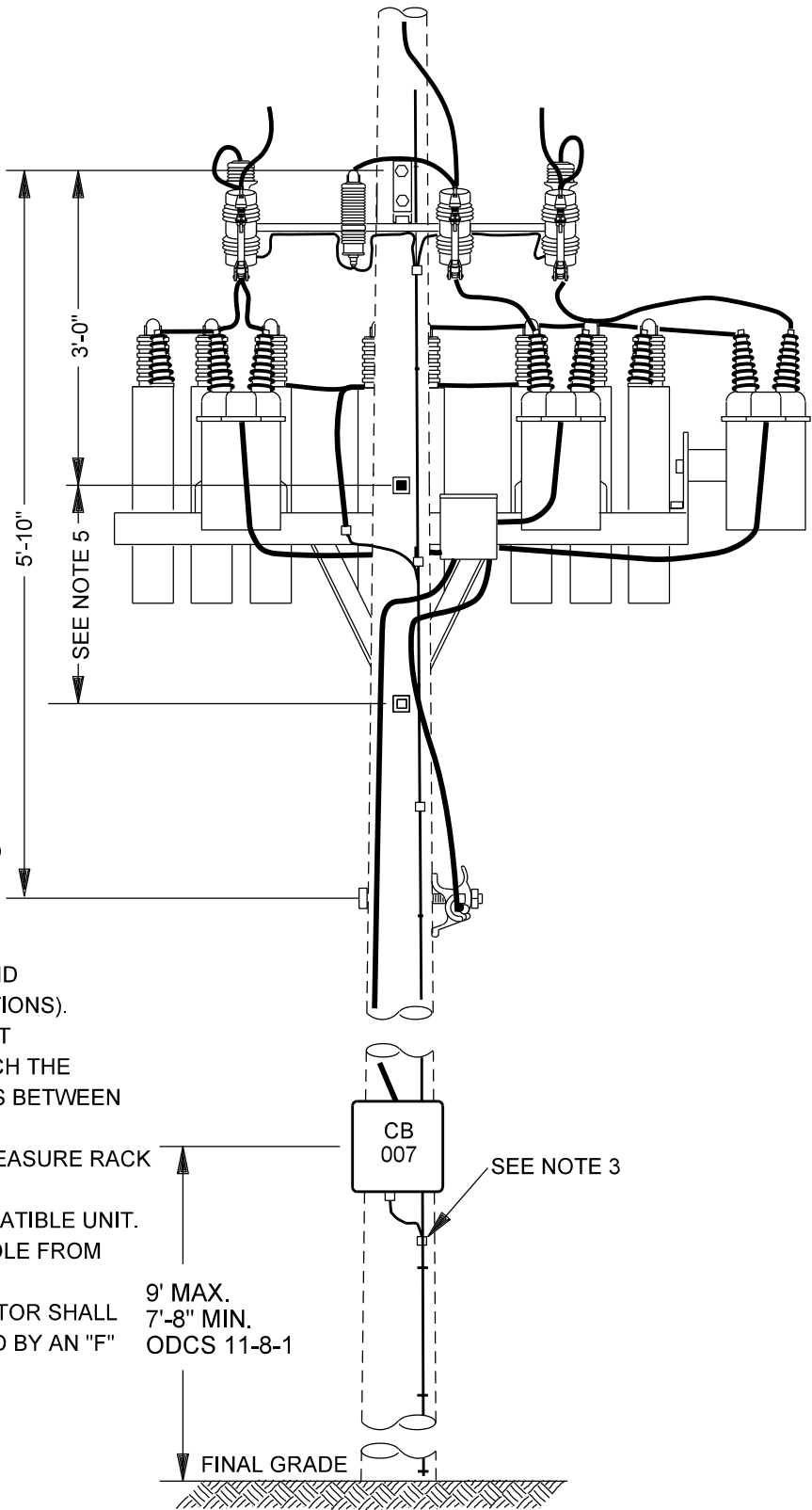
Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	12kV CAPACITORS CURRENT CONTROL CAPACITOR WIRING DIAGRAM 11-14-1	ISSUE DATE: 01/21/87 REV. DATE: 08/14/13 APPROVAL: H.CRUZ 8512E285.DGN
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SECTION 12: 22 kV CAPACITORS

TITLE / DESCRIPTION	PAGE
1350 KVAR, SWITCHED BANK	12-2-1
PROTECTIVE EQUIPMENT AND FUSING, 21.6 KV CAPACITOR FUSES	12-3-1
PROCEDURE FOR TESTING DISTRIBUTION CAPACITOR BANKS RATED 12.47 KV FOR 22 KV SYSTEM	12-4-1

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL		
	INDEX 22 kV CAPACITORS	ISSUE DATE: 05/14/13 REV. DATE: 11/05/21 APPROVAL: J. Robbins
	12-1-1	OH12-1-1.doc

C.U.	BANK SIZE	CAP. UNITS	TRANSFORMER INCLUDED
CA132	1350 KVAR	1Ø	NO



NOTES

1. EACH BANK IS TO HAVE ALL NEUTRALS, ARRESTORS & CAPACITOR RACK CONNECTED TO THE POLE GROUND.
2. CAPACITOR NEUTRAL CONNECTION MUST BE GROUNDED.
3. GROUND CONTROL BOX (CB) TO POLE GROUND (SEE ODCS 11-8-1 FOR GROUNDING INSTRUCTIONS).
4. SECONDARY POWER FOR THE CONTROL MUST ORIGINATE FROM THE SAME CIRCUIT TO WHICH THE CAPACITOR IS CONNECTED (I.E. NO SWITCHES BETWEEN TRANSFORMER AND CAPACITOR BANK).
5. DIMENSION VARIES WITH MANUFACTURER. MEASURE RACK BEFORE BORING BOTTOM HOLE.
6. 20 FOOT CONTROL CABLE INCLUDED IN COMPATIBLE UNIT.
7. LOCATE CONTROLS ON OPPOSITE SIDE OF POLE FROM BANK.
8. CUSTOMER OWNED/SRP MAINTAINED CAPACITOR SHALL BE MARKED WITH THE CB NUMBER FOLLOWED BY AN "F" (i.e. CB 123F).

Overhead Distribution Construction Standards SRP PROPRIETARY MATERIAL		
	22kV CAPACITORS 1350 KVAR SWITCHED BANK	ISSUE DATE: 09/15/88 REV. DATE: 11/05/21 APPROVAL: J. Robbins
	12-2-1	8512E48.DGN

PROTECTIVE EQUIPMENT AND FUSING 21.6 KV CAPACITOR FUSES

3 PHASE CAPACITOR BANK SIZE	12.47 / 21.6 KV WYE WITH PRIMARY NEUTRAL
1350 KVAR	KS 40 FITALL (5034496)

COMPATIBLE UNIT FOR MAINTENANCE OF CAPACITOR BANKS

DESCRIPTION	MATERIAL ITEM	COMPATIBLE UNIT
150 KVAR 1Ø, 22 KV	5034240	BCM152

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL	22 kv CAPACITORS PROTECTIVE EQUIPMENT & FUSING 21.6 kv CAPACITOR FUSES AND COMPATIBLE UNIT FOR MAINT. OF CAPACITOR BANKS		ISSUE DATE: 03/23/94
			REV. DATE: 05/16/19
			APPROVAL: M. Dyer
	12-3-1		OH12-3-1.doc

**PROCEDURE FOR TESTING 22 KV OVERHEAD DISTRIBUTION CAPACITOR BANKS
RATED 12.47 KV, 60 HZ**

1. DE-ENERGIZE CAPACITOR BANK WITH AUTOMATIC CONTROL, OR LINK-BREAK CUTOUT.
2. USE HIGH VOLTAGE AMP METER TO VERIFY OIL SWITCHES ARE OPEN.
3. OPEN CUTOUTS AND REMOVE STINGERS, WAIT 5 MINUTES FOR CAPACITOR TO DISCHARGE.
4. USING A HOT STICK AND TEMPORARY JUMPERS, SHUNT ACROSS EACH OF THE THREE GROUPS OF CAPACITOR TANKS.
5. VISUALLY INSPECT ALL OIL SWITCHES, CAPACITOR TANKS, AND POTENTIAL TRANSFORMER; CHECKING FOR BROKEN BUSHINGS, BULGING TANKS AND OBVIOUS OIL LEAKS.
6. USING A MULTI-METER ON THE MICROFARAD SETTING, MEASURE THE MICROFARAD RANGE BETWEEN THE BUSHINGS OF EACH CAPACITOR TANK. IF THE MEASURED VALUE OF THE CAPACITOR TANK IS NOT IN THE ACCEPTABLE RANGE SHOWN IN THE CHART BELOW, THEN THE CAPACITOR NEEDS TO BE REPLACED.

PHASE VOLTAGE	TANK SIZE	ACCEPTABLE MICROFARAD VALUES			ACCEPTABLE PHASE CURRENT		
		MINIMUM VALUE	NOMINAL VALUE	MAXIMUM VALUE	MINIMUM PHASE CURRENT	NOMINAL PHASE CURRENT	MAXIMUM PHASE CURRENT
(V)	(kVAR)	(μ F)	(μ F)	(μ F)	(A)	(A)	(A)
12,470	150	2.30	2.56	3.07	6.24	6.95	8.33

7. WHEN REMOVING CAPACITORS BANKS OR CAPACITOR TANKS FROM SERVICE, A PIECE OF CONDUCTOR SHALL BE INSTALLED BETWEEN THE BUSHINGS OF EACH TANK.
8. LOW VOLTAGE FUSES IN THE CONTROLLERS ARE:
 - EATON COOPER 10 AMP SLOW-BLOW (5089126)

NOTES

1. PRIOR TO PLACING IN SERVICE, ON-LINE TEST EACH PHASE OF THE CAPACITOR BANK USING THE ABOVE CHART FOR ACCEPTABLE PHASE CURRENT BASED ON CAPACITOR SIZE.
2. THE FIRST FOUR STEPS OF THE ABOVE PROCEDURE MAY BE OMITTED FOR NEW INSTALLATIONS THAT HAVE NEVER BEEN ENERGIZED.
3. MULTI-METER WITH MICROFARAD SETTING REPLACES THE CAPACITANCE AND SIMPSON METER FOR CHECKING CAPACITORS

Overhead Distribution Construction Standards  PROPRIETARY MATERIAL			
	22 kV CAPACITORS PROCEDURE FOR TESTING DISTRIBUTION CAPACITOR BANKS RATED 12.47 kV FOR 22 kV SYSTEM		ISSUE DATE: 08/02/93
			REV. DATE: 01/10/24
			APPROVAL: J. Robbins
	12-4-1	OH12-4-1.doc	