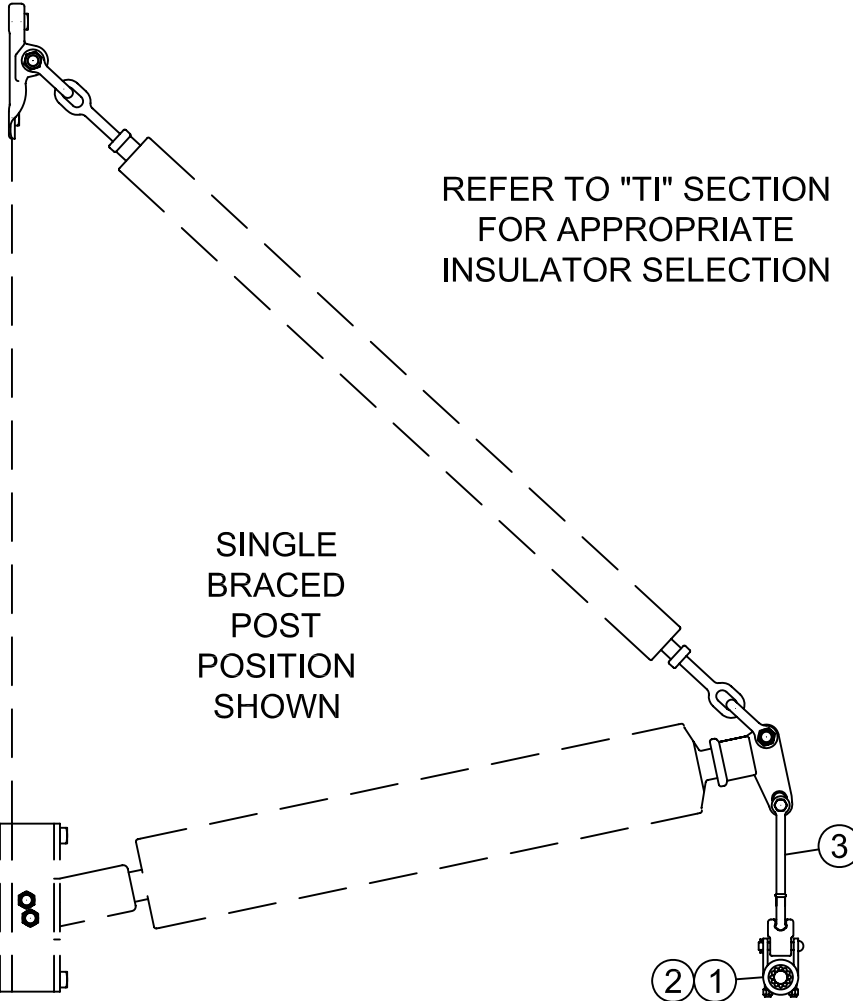


mark	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-B2A2-(mark)
1	6				SET	1007237020	6000220410	ROD ARMOR PREF AL 60IN 0.783-0.814
1		6			SET	1007237068	6000220470	ROD ARMOR PREF AL 1.099-1.139
1			6		SET	1007237075		ROD ARMOR PREF AL 60IN 1.209-1.269
1				6	SET	1007237077		ROD ARMOR PREF AL 60IN 1.270-1.327
2	6				EA	1036090149		CLMP BLT SUSP AL W/SOC 1.00-1.49
2		6			EA	1036090204	6000111464	CLMP BLT SUSP AL W/SOC 1.40-2.04
2			6		EA	1036090204	6000111480	CLMP BLT SUSP AL W/SOC 1.40-2.04
2				6	EA	1036090218	6000111480	CLMP BLT SUSP AL W/SOC 1.40-2.18
3	6	6	6	6	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL 3/4 BNK SM HL 30K



REFER TO "TI" SECTION
FOR APPROPRIATE
INSULATOR SELECTION

SINGLE
BRACED
POST
POSITION
SHOWN

CU Function:
TL69 for 35kV & 46kV,
TG69 for 69kV - 344kV,
T345 for 345kV and greater.

For correct CU:
substitute 5 for NYSEG,
6 for CMP or 9 for RG&E
in place of asterisk (C*_).

ASSOCIATED STANDARD:
TANGENT SUSPENSION
BRACED POST

FOR OTHER WIRE SIZES: REFER TO TJ-01-001 FOR SUSPENSION CLAMPS
AND ASSOCIATED PREFORMED ARMOR RODS.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
DOUBLE CIRCUIT
TANGENT SUSPENSION - BRACED POST
6 SUSPENSION CLAMPS - 6 SETS ARMOR RODS

ISSUE
0
DATE
12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	11/21/2011	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2012

TS-B2A2-x

Sheet 1

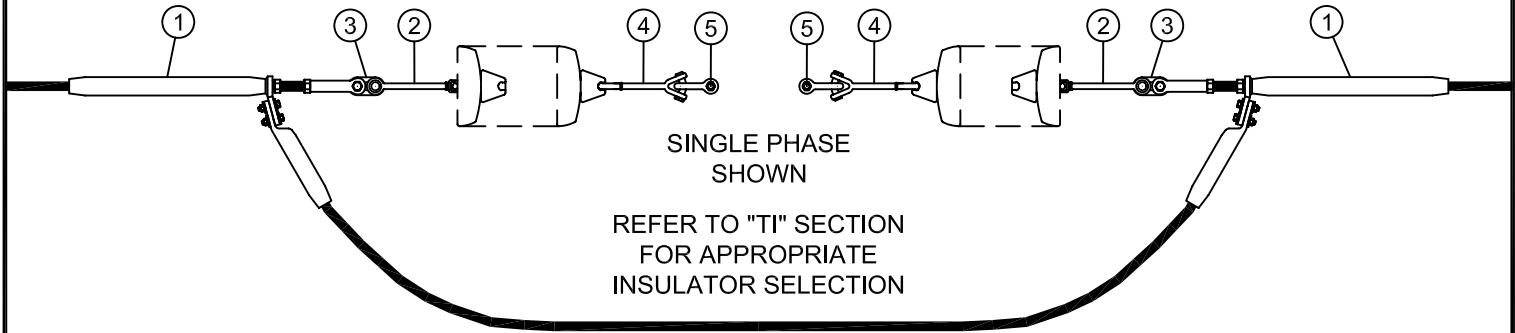
For use with class 52-3 & 52-5 disc insulators

mark		-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-C3-(mark)
1		12			EA	1036346130		CDE ASSY AL SING TNG 1.108 DIA
1			12		EA	1036345156		CDE ASSY AL SING TNG 1.213 DIA
1				12	EA	1036345165		CDE ASSY AL SING TNG 1.302 DIA
2		12	12	12	EA	1036428000		FTTG CLEVIS-Y SOC 3/4 BNK SM HL 30K
3*			12		EA	1036680025		LNK CHN 1 X 3-1/2 OPNG 3/4 STCK
4		12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
5		12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG

ITEM 3 IS ONLY NEEDED IF THE COMPRESSION DEAD END HAS A CLEVIS END FITTING INSTEAD OF AN OVAL END FITTING

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV and greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).



ASSOCIATED STANDARD:
 TANGENT DEAD ENDS
 TENSIONS 10,000#
 OR GREATER

FOR OTHER WIRE SIZES:
 REFER TO TJ-04-001 FOR COMPRESSION DEAD END ASSEMBLIES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 1/2" = 1'-0"



IBERDROLA USA
 TRANSMISSION
 CONSTRUCTION
 STANDARDS
 MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
 DOUBLE CIRCUIT
 12 SINGLE INSULATOR STRINGS
 12 COMPRESSION DEAD END ASSEMBLIES

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	6/7/2011	Bartczak/Becken/Shepard	12/5/2011	Barry R. Hart	12/13/2012

TS-C3-x

Sheet 1

For use with class 52-3 & 52-5 disc insulators

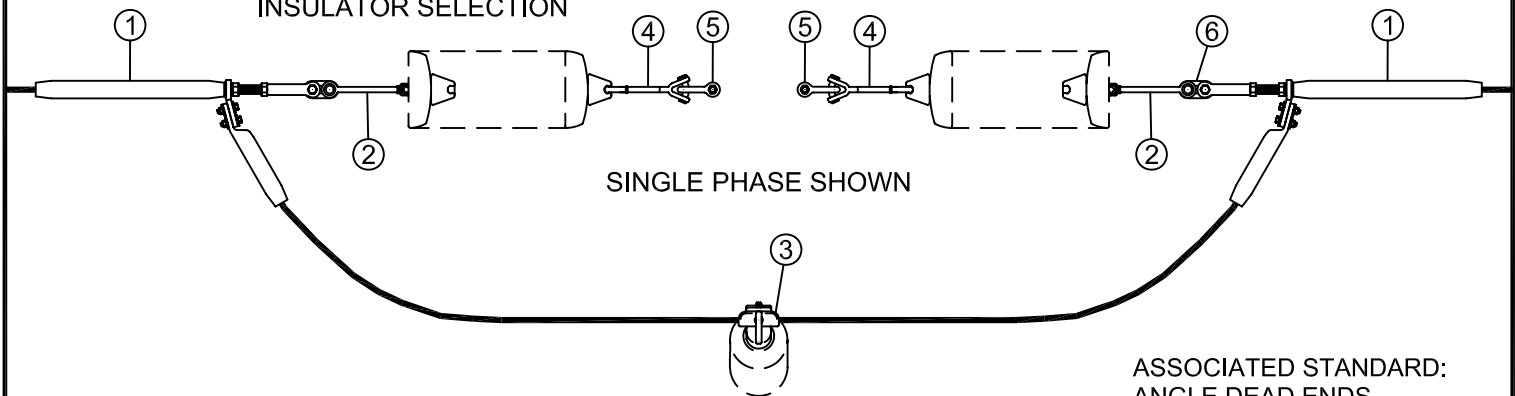
mark	-I 795 45/7	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.				UOM	NYSEG MID	CMP MID	CU: C*CT-TS-C3P2-(mark)
1		12			EA	1036346130		CDE ASSY AL SING TNG 1.108 DIA
1			12		EA	1036345156		CDE ASSY AL SING TNG 1.213 DIA
1				12	EA	1036345165		CDE ASSY AL SING TNG 1.302 DIA
1	12				EA	1036350043		CDE ASSY AL SING TNG 1.063 DIA
2	12	12	12	12	EA	1036428000		FTTNG CLV-Y SOC SM HL 30K 3/4 BNK
3	6	6	6	6	EA	1036160150		CLMP BLT POST 1.00-1.50 AL TNGT
4	12	12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
5	12	12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG
6*			12		EA	1036680025		LNK CHN 1 X 3-1/2 OPNG 3/4 STCK

ITEM 6 IS ONLY NEEDED IF THE COMPRESSION DEAD END HAS A CLEVIS END FITTING INSTEAD OF AN OVAL END FITTING

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

REFER TO "TI" SECTION FOR APPROPRIATE INSULATOR SELECTION



ASSOCIATED STANDARD:
 ANGLE DEAD ENDS
 W/ JUMPER POST
 TENSIONS 10,000#
 OR GREATER

FOR OTHER WIRE SIZES:
 REFER TO TJ-04-001 FOR COMPRESSION DEAD END ASSEMBLIES
 AND TJ-02-001 FOR POST INSULATOR CLAMPS (W/O RODS).

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 1" = 25



IBERDROLA USA
 TRANSMISSION
 CONSTRUCTION
 STANDARDS
 MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
 DOUBLE CIRCUIT
 12 SINGLE INSULATOR STRINGS - 6 POST INSULATORS
 12 COMPRESSION DEAD END ASSEMBLIES - 6 POST CLAMPS

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	6/7/2011	Bartczak/Becken/Shepard	12/5/2011	Barry R. Hart	12/13/2012

TS-C3P2-x

Sheet 1

For use with class 52-3 & 52-5 disc insulators

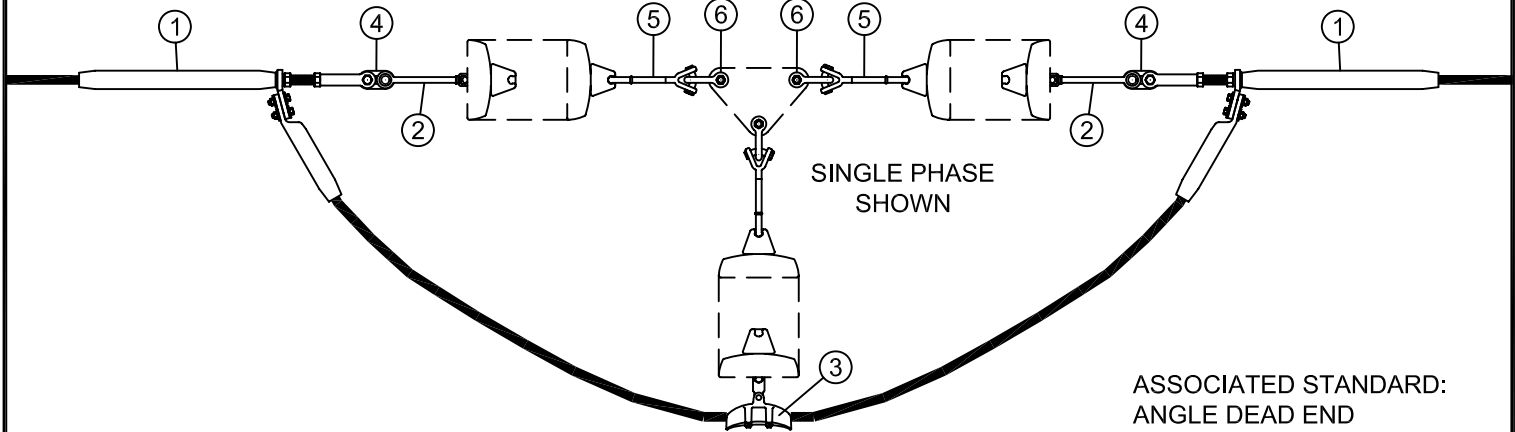
mark		-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-C3S2-(mark)
1		12			EA	1036346130		CDE ASSY AL SING TNG 1.108 DIA
1			12		EA	1036345156		CDE ASSY AL SING TNG 1.213 DIA
1				12	EA	1036345165		CDE ASSY AL SING TNG 1.302 DIA
2		12	12	12	EA	1036428000		FTTNG CLV-Y SOC SM HL 30K 3/4 BNK
3		6	6	6	EA	1036090136		CLMP BLT SUSP AL W/SOC 0.87-1.36
4*		12	12	12	EA	1036680025		LNK CHN 1 X 3-1/2 OPNG 3/4 STCK
5		12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
6		12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG

ITEM 4 IS ONLY NEEDED IF THE COMPRESSION DEAD END HAS A CLEVIS END FITTING INSTEAD OF AN OVAL END FITTING

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV and greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

REFER TO "TI" SECTION FOR APPROPRIATE INSULATOR SELECTION



ASSOCIATED STANDARD:
 ANGLE DEAD END
 W/ SUSP IDLER STRING
 TENSIONS 10,000#
 OR GREATER

FOR OTHER WIRE SIZES:
 REFER TO TJ-04-001 FOR COMPRESSION DEAD END ASSEMBLIES
 AND TJ-01-001 FOR SUSPENSION CLAMPS (W/O RODS).

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 1/2" = 1'-0"



IBERDROLA USA
 TRANSMISSION
 CONSTRUCTION
 STANDARDS
 MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
 DOUBLE CIRCUIT - 12 SINGLE INSULATOR STRINGS
 12 COMPRESSION DEAD END ASSEMBLIES
 6 IDLER STRINGS WITH 6 SUSPENSION CLAMPS

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	10/24/2011	Bartczak/Becken/Shepard	12/5/2011	Barry R. Hart	12/13/2012

TS-C3S2-x

Sheet 1

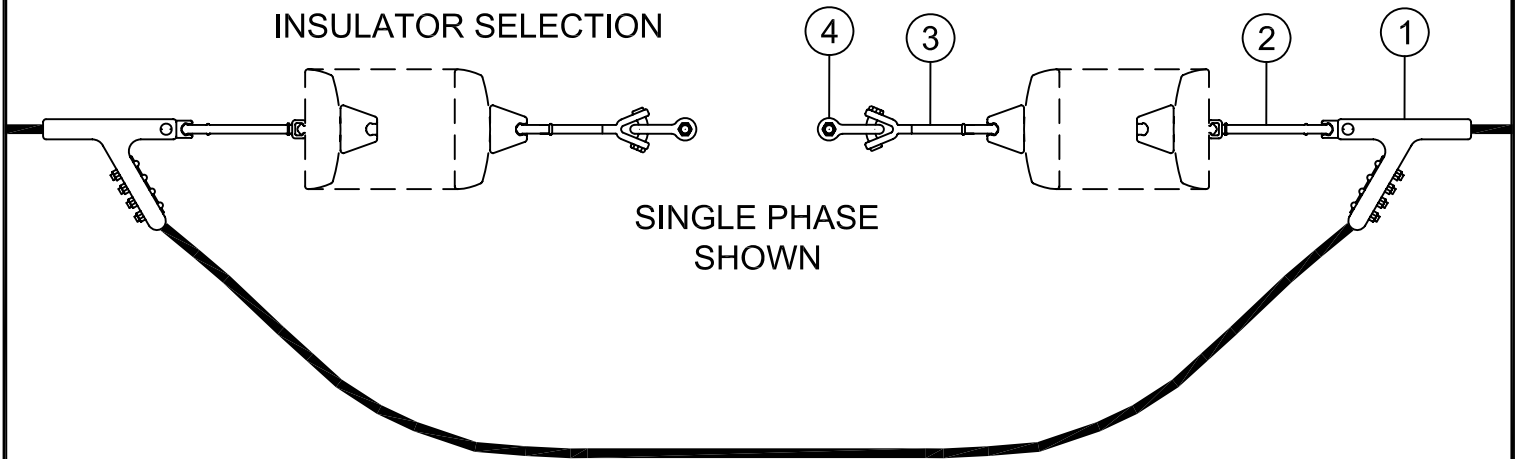
For use with class 52-3 & 52-5 disc insulators

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-N3-(mark)
1	12	12				EA	1036070086		CLMP BLT DE STRN AL 23K 0.46-0.86
1			12	12		EA	1036070130	6000111000	CLMP BLT DE STRN AL 30K 0.71-1.31
1					12	EA	1036080140	6000111000	CLMP BLT DE STRN AL 30K 0.90-1.40
2	12	12	12	12	12	EA	1036432000		FTTNG SOC BALL SM HL 30K
3	12	12	12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
4	12	12	12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

REFER TO "TI" SECTION
FOR APPROPRIATE
INSULATOR SELECTION



ASSOCIATED STANDARD:
TANGENT DEAD ENDS
TENSIONS LESS THAN 10,000#

FOR OTHER WIRE SIZES: REFER TO TJ-03-001 FOR BOLTED STRAIN CLAMPS.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
DOUBLE CIRCUIT
12 DEAD END INSULATOR STRINGS
12 BOLTED DEAD END STRAIN CLAMPS

ISSUE
0
DATE
12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	6/7/2011	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2012

TS-N3-x

Sheet 1

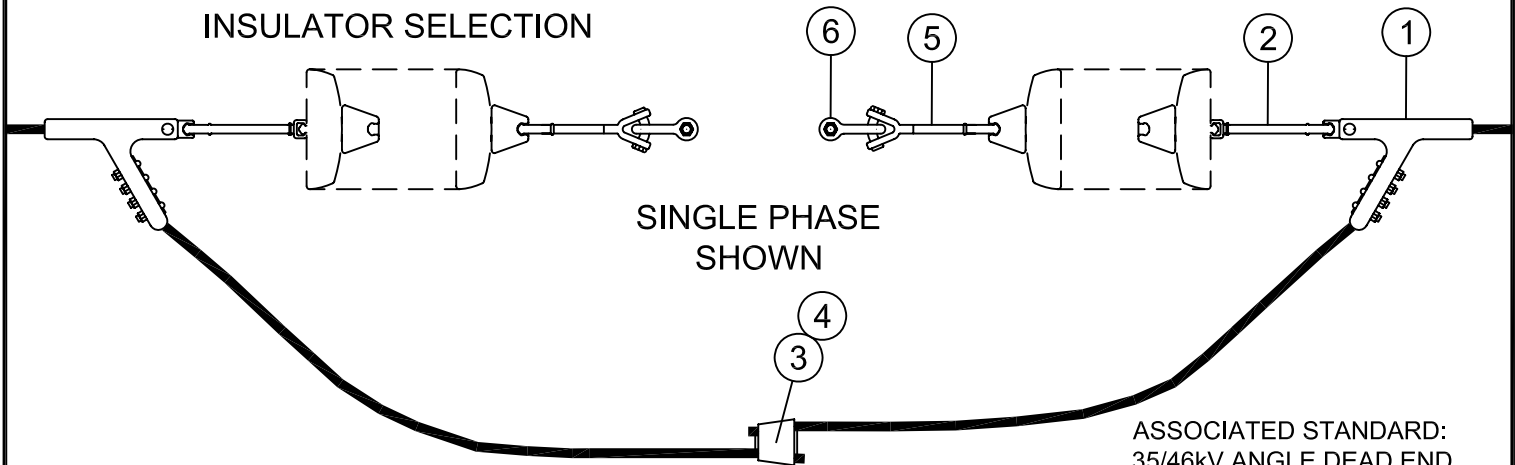
For use with class 52-3 & 52-5 disc insulators

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-N3F2-(mark)
1	12	12				EA	1036070086		CLMP BLT DE STRN AL 23K 0.46-0.86
1			12	12		EA	1036070130	6000111000	CLMP BLT DE STRN AL 30K 0.71-1.31
1					12	EA	1036080140	6000111000	CLMP BLT DE STRN AL 30K 0.90-1.40
2	12	12	12	12	12	EA	1036432000		FTTNG SOC BALL SM HL 30K
3	6					EA	197122		CART TAP CNCTR BLU
3		6	6	6	6	EA	196185		CART TAP CNCTR YEL
4	6					EA	1003825700		CONN FRD WDG 4/0 TO 4/0
4		6				EA	1003832000		CONN FRD WDG 477 TO 477
4			6			EA	1003837000		CONN FRD WDG 795 TO 795
4				6		EA	1003842500		CONN FRD WDG 1033 TO 1033
4					6	EA	038-480-00		CONN FRD WDG 1192 TO 1192
5	12	12	12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
6	12	12	12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

REFER TO "TI" SECTION
FOR APPROPRIATE
INSULATOR SELECTION



SINGLE PHASE
SHOWN

ASSOCIATED STANDARD:
35/46kV ANGLE DEAD END
W/O JUMPER POST
TENSIONS LESS THAN 10,000#

FOR OTHER WIRE SIZES: REFER TO TJ-03-001 FOR BOLTED STRAIN CLAMPS AND
TJ-06-004 FOR FIRED-ON CONNECTORS.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
DOUBLE CIRCUIT - 12 DEAD END INSULATOR STRINGS
12 BOLTED DEAD END STRAIN CLAMPS
6 FIRED-ON CONNECTORS

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	6/13/2011	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2012

TS-N3F2-x

Sheet 1

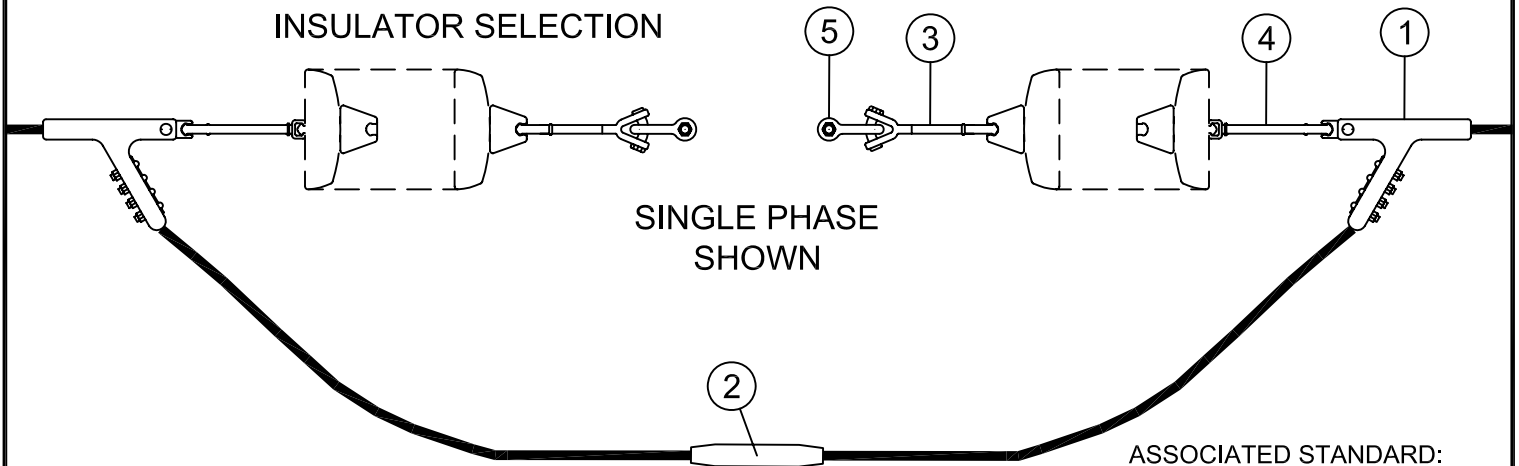
For use with class 52-3 & 52-5 disc insulators

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-N3L2-(mark)
1	12	12				EA	1036070086		CLMP BLT DE STRN AL 23K 0.46-0.86
1			12	12		EA	1036070130	6000111000	CLMP BLT DE STRN AL 30K 0.71-1.31
1					12	EA	1036080140	6000111000	CLMP BLT DE STRN AL 30K 0.90-1.40
2	6					EA	1039245005		SPLC LOOP 0.563-0.570
2		6				EA	1039244515		SPLC LOOP 0.518 DIA
2			6			EA	1039245035		SPLC LOOP 1.063-1.108
2				6		EA	1039245055		SPLC LOOP 1.212 DIA
2					6	EA	1039245065		SPLC LOOP 1.302 DIA
3	12	12	12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
4	12	12	12	12	12	EA	1036432000		FTTG SOC BALL SM HL 30K
5	12	12	12	12	12	EA	1039220531		SHACKLE ANCH 7/8 BNK 1-1/4 OPNG

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

REFER TO "TI" SECTION
FOR APPROPRIATE
INSULATOR SELECTION



SINGLE PHASE
SHOWN

ASSOCIATED STANDARD:
69-230kV ANGLE DEAD ENDS
W/O JUMPER POST
TENSIONS LESS THAN 10,000#

FOR OTHER WIRE SIZES: REFER TO TJ-03-001 FOR BOLTED STRAIN CLAMPS
AND TJ-07-002 FOR LOOP SPLICES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
DOUBLE CIRCUIT
12 DEAD END INSULATOR STRINGS
12 BOLTED DEAD END STRAIN CLAMPS - 6 LOOP SPLICES

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	6/7/2011	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2012

TS-N3L2-x

Sheet 1

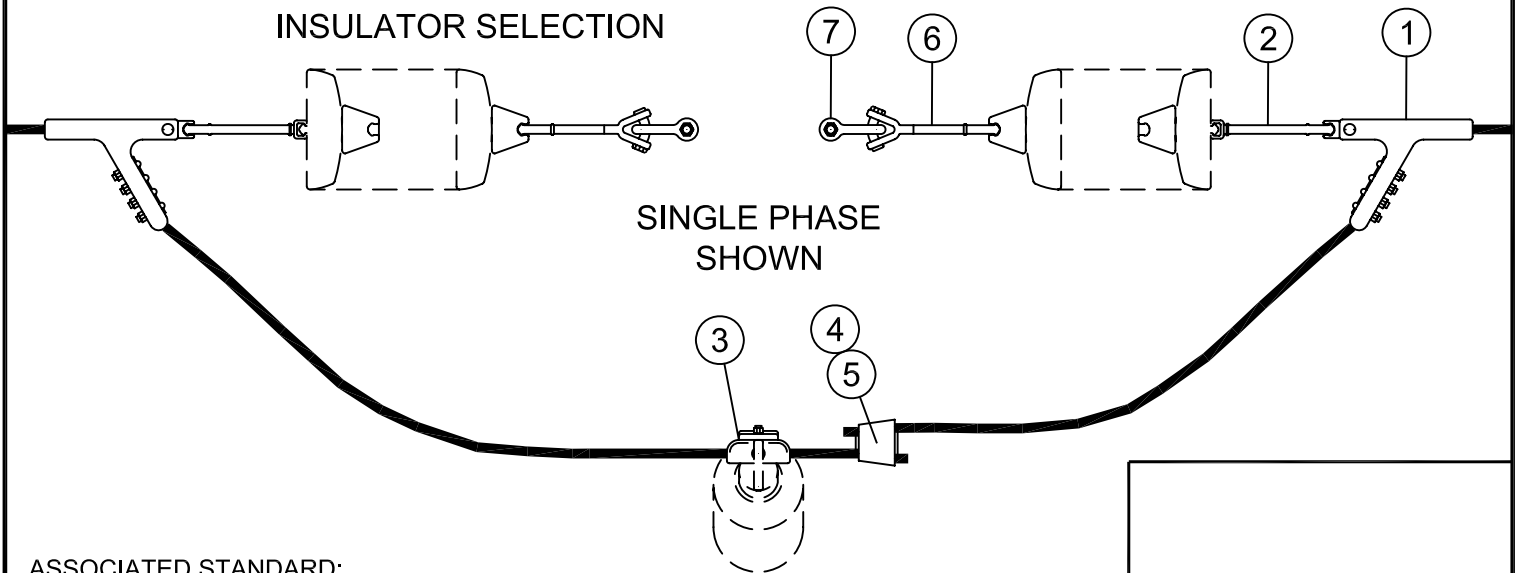
For use with class 52-3 & 52-5 disc insulators

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-N3P2F2-(mark)
1	12	12				EA	1036070086		CLMP BLT DE STRN AL 23K 0.46-0.86
1			12	12		EA	1036070130	6000111000	CLMP BLT DE STRN AL 30K 0.71-1.31
1					12	EA	1036080140	6000111000	CLMP BLT DE STRN AL 30K 0.90-1.40
2	12	12	12	12	12	EA	1036432000		FTTNG SOC BALL SM HL 30K
3	6					EA	1036160084		CLMP BLT POST 0.35-0.84 TNGT
3		6				EA	1036160106		CLMP BLT POST 0.70-1.06 TNGT
3			6	6	6	EA	1036160150		CLMP BLT POST 1.00-1.50 TNGT
4	6					EA	197122		CART TAP CNCTR BLU
4		6	6	6	6	EA	196185		CART TAP CNCTR YEL
5	6					EA	1003825700		CONN FRD WDG 4/0 TO 4/0
5		6				EA	1003832000		CONN FRD WDG 477 TO 477
5			6			EA	1003837000		CONN FRD WDG 795 TO 795
5				6		EA	1003842500		CONN FRD WDG 1033 TO 1033
5					6	EA	038-480-00		CONN FRD WDG 1192 TO 1192
6	12	12	12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
7	12	12	12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

REFER TO "TI" SECTION
FOR APPROPRIATE
INSULATOR SELECTION



ASSOCIATED STANDARD:
35 & 46kV ANGLE DEAD END W/ JUMPER POST,
TENSIONS LESS THAN 10,000#

FOR OTHER WIRE SIZES:
REFER TO TJ-03-001 FOR BOLTED STRAIN CLAMPS, TJ-02-001 FOR POST
INSULATOR CLAMPS (W/O RODS) AND TJ-06-004 FOR FIRED-ON CONNECTORS.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS - DOUBLE CIRCUIT
12 DEAD END INSULATOR STRINGS - 6 POST INSULATORS
12 BOLTED DEAD END STRAIN CLAMPS
6 POST CLAMPS - 6 FIRED-ON CONNECTORS

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	10/24/2011	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2013

TS-N3P2F2-x

Sheet 1

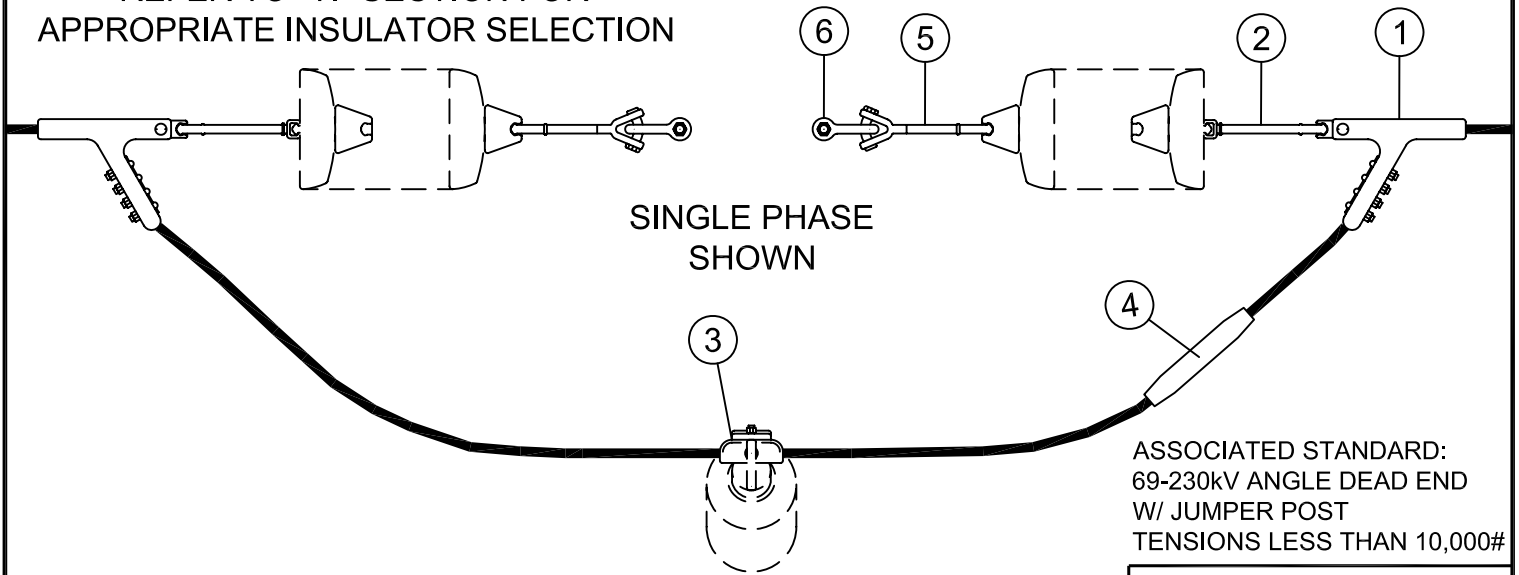
For use with class 52-3 & 52-5 disc insulators

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-N3P2L2-(mark)
1	12	12				EA	1036070086		CLMP BLT DE STRN AL 23K 0.46-0.86
1			12	12		EA	1036070130	6000111000	CLMP BLT DE STRN AL 30K 0.71-1.31
1					12	EA	1036080140	6000111000	CLMP BLT DE STRN AL 30K 0.90-1.40
2	12	12	12	12	12	EA	1036432000		FTTNG SOC BALL SM HL 30K
3	6					EA	1036160084		CLMP BLT POST 0.35-0.84 TNGT
3		6				EA	1036160106		CLMP BLT POST 0.70-1.06 TNGT
3			6	6	6	EA	1036160150		CLMP BLT POST 1.00-1.50 TNGT
4	6					EA	1039245005		SPLC LOOP 0.563-0.570
4		6				EA	1039244515		SPLC LOOP 0.518 DIA
4			6			EA	1039245035		SPLC LOOP 1.063-1.108
4				6		EA	1039245055		SPLC LOOP 1.212 DIA
4					6	EA	1039245065		SPLC LOOP 1.302 DIA
5	12	12	12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
6	12	12	12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

REFER TO "TI" SECTION FOR APPROPRIATE INSULATOR SELECTION



ASSOCIATED STANDARD:
69-230kV ANGLE DEAD END
W/ JUMPER POST
TENSIONS LESS THAN 10,000#

FOR OTHER WIRE SIZES:

REFER TO TJ-03-001 BOLTED STRAIN CLAMPS, TJ-02-001 FOR POST INSULATOR CLAMPS (W/O RODS) AND TJ-07-002 FOR LOOP SPLICES.

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Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS - DOUBLE CIRCUIT
12 DEAD END INSULATOR STRINGS - 6 POST INSULATORS
12 BOLTED DEAD END STRAIN CLAMPS
6 POST CLAMPS - 6 LOOP SPLICES

ISSUE
0
DATE
12/13/2012

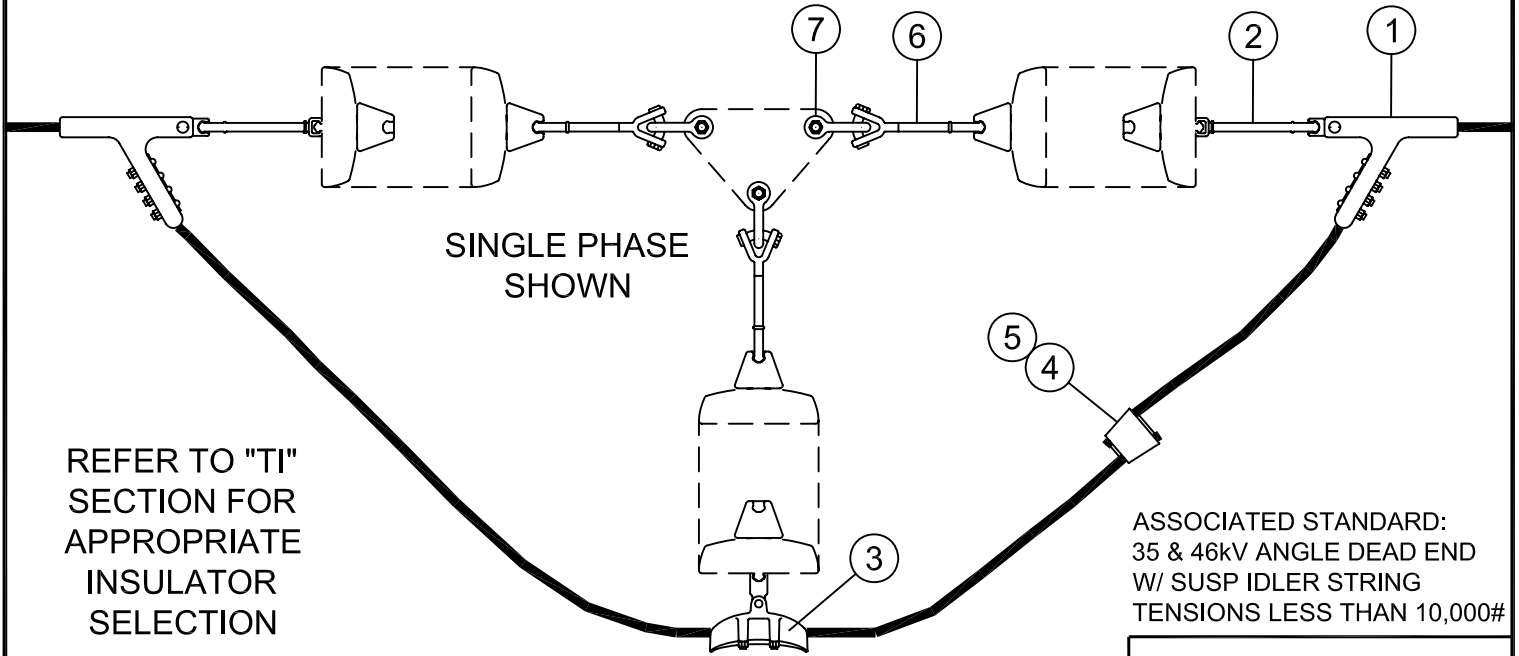
Drwn. By: L.A. Best | Date Dr.: 6/7/2011 | Checked By: Bartczak/Becken/Shepard | Date Ck.: 11/17/2011 | Approved By: Barry R. Hart | Date App.: 12/13/2012

TS-N3P2L2-x

Sheet 1

For use with class 52-3 & 52-5 disc insulators

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-N3S2F2-(mark)
1	12	12				EA	1036070086		CLMP BLT DE STRN AL 23K 0.46-0.86
1			12	12		EA	1036070130	6000111000	CLMP BLT DE STRN AL 30K 0.71-1.31
1					12	EA	1036080140	6000111000	CLMP BLT DE STRN AL 30K 0.90-1.40
2	12	12	12	12	12	EA	1036432000		FTTNG SOC BALL SM HL 30K
3	6					EA	1036090070	6000111408	CLMP BLT SUSP AL W/SOC 0.20-0.70
3		6				EA	1036090085	6000111424	CLMP BLT SUSP AL W/SOC 0.40-0.85
3			6	6	6	EA	1036090136		CLMP BLT SUSP AL W/SOC 0.87-1.36
4	6					EA	197122		CART TAP CNCTR BLU
4		6	6	6	6	EA	196185		CART TAP CNCTR YEL
5	6					EA	1003825700		CONN FRD WDG 4/0 TO 4/0
5		6				EA	1003832000		CONN FRD WDG 477 TO 477
5			6			EA	1003837000		CONN FRD WDG 795 TO 795
5				6		EA	1003842500		CONN FRD WDG 1033 TO 1033
5					6	EA	038-480-00		CONN FRD WDG 1192 TO 1192
6	12	12	12	12	12	EA	1036427000	6000111424	FTTG CLEVIS-Y BALL SM HL 30K
7	12	12	12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG



CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

FOR OTHER WIRE SIZES:

REFER TO TJ-03-001 FOR BOLTED STRAIN CLAMPS, TJ-01-001 FOR SUSPENSION CLAMPS (W/O RODS) AND TJ-06-004 FOR FIRED-ON CONNECTORS.

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Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS - DOUBLE CIRCUIT
12 DEAD END INSULATOR STRINGS - 6 IDLER STRINGS
12 BOLTED DEAD END STRAIN CLAMPS
6 SUSPENSION CLAMPS - 6 FIRED-ON CONNECTORS

ISSUE
0
DATE
12/13/2012

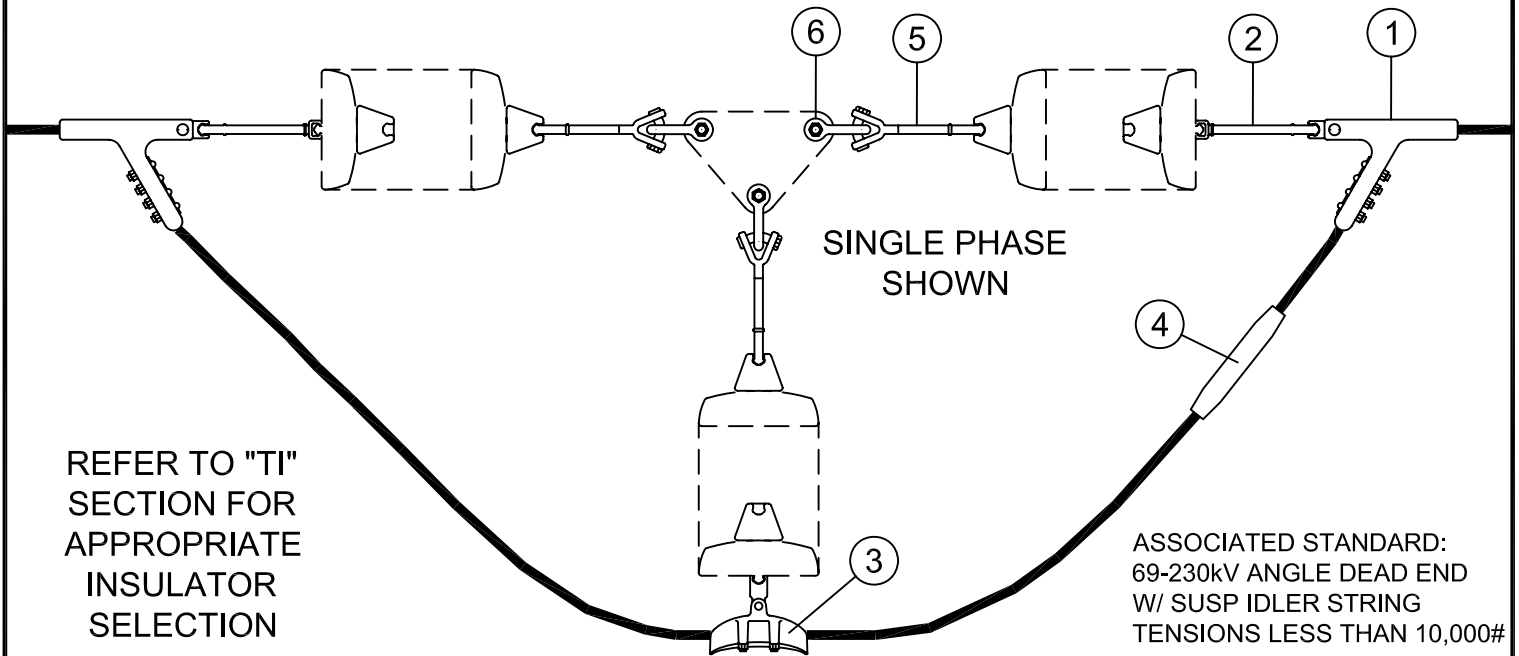
Drwn. By: L.A. Best | Date Dr.: 11/21/2011 | Checked By: Bartczak/Becken/Shepard | Date Ck.: 11/17/2011 | Approved By: Barry R. Hart | Date App.: 12/13/2012

TS-N3S2F2-x

Sheet 1

For use with class 52-3 & 52-5 disc insulators

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-N3S2L2-(mark)
1	12	12				EA	1036070086		CLMP BLT DE STRN AL 23K 0.46-0.86
1			12	12		EA	1036070130	6000111000	CLMP BLT DE STRN AL 30K 0.71-1.31
1					12	EA	1036080140	6000111000	CLMP BLT DE STRN AL 30K 0.90-1.40
2	12	12	12	12	12	EA	1036432000		FTTNG SOC BALL SM HL 30K
3	6					EA	1036090070	6000111408	CLMP BLT SUSP AL W/SOC 0.20-0.70
3		6				EA	1036090085	6000111424	CLMP BLT SUSP AL W/SOC 0.40-0.85
3			6	6	6	EA	1036090136		CLMP BLT SUSP AL W/SOC 0.87-1.36
4	6					EA	1039245005		SPLC LOOP 0.563-0.570
4		6				EA	1039244515		SPLC LOOP 0.518 DIA
4			6			EA	1039245035		SPLC LOOP 1.063-1.108
4				6		EA	1039245055		SPLC LOOP 1.212 DIA
4					6	EA	1039245065		SPLC LOOP 1.302 DIA
5	12	12	12	12	12	EA	1036427000	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
6	12	12	12	12	12	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG



CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

FOR OTHER WIRE SIZES:

REFER TO TJ-03-001 FOR BOLTED STRAIN CLAMPS, TJ-01-001 FOR SUSPENSION CLAMPS (W/O RODS) AND TJ-07-002 FOR LOOP SPLICES.

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Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 3/4" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS - DOUBLE CIRCUIT
12 DEAD END INSULATOR STRINGS - 6 IDLER STRINGS
12 BOLTED DEAD END STRAIN CLAMPS
6 SUSPENSION CLAMPS - 6 LOOP SPLICES

ISSUE
0
DATE
12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	6/7/2011	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2012

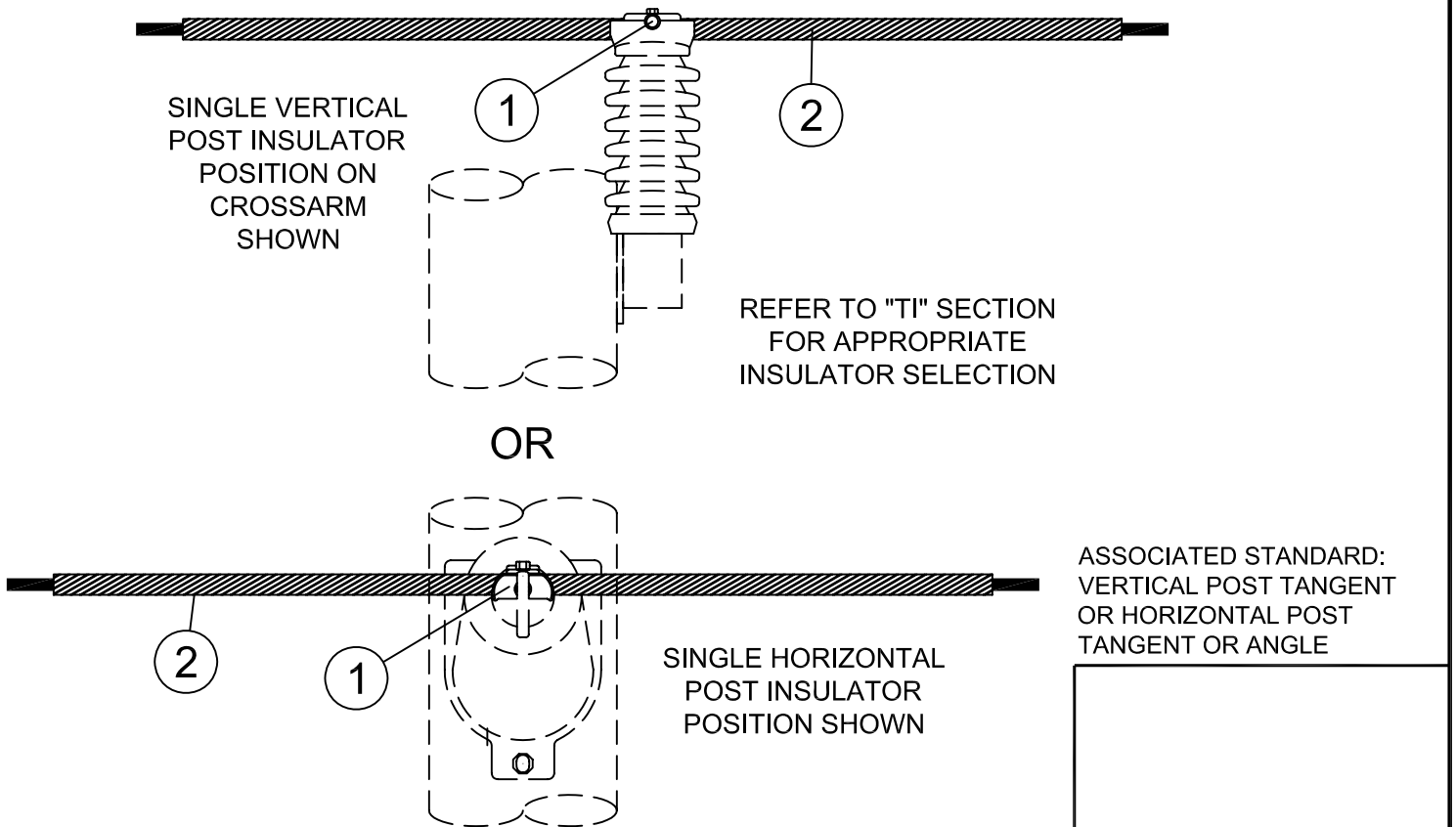
TS-N3S2L2-x

Sheet 1

mark	-I 795 45/7	-3 4/0 AAAC 7	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL		Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	MID	CU: C*CT-TS-P2A2-(mark)
1		6					SET	1007235505	ROD ARM PREFORM AL 0.552-0.585
1			6				SET	1007237020	ROD ARM PREFORM AL 0.783-0.814
1				6			SET	1007237068	ROD ARM PREFORM AL 1.099-1.139
1					6		SET	1007237075	ROD ARM PREFORM AL 1.209-1.269
1						6	SET	1007237077	ROD ARM PREFORM AL 1.270-1.327
1	6						SET	1007237065	ROD ARM PREFORM AL 1.036-1.064
2		6	6				EA	1036160106	CLMP BLT POST 0.70-1.06 TNGT
2				6			EA	1036160150	CLMP BLT POST 1.00-1.50 TNGT
2	6				6		EA	1036160199	CLMP BLT POST 1.50-2.00 TNGT
2						6	EA	1036160230	CLMP BLT POST 1.90-2.30 TNGT

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*).



FOR OTHER WIRE SIZES: REFER TO TJ-02-001 FOR POST INSULATOR CLAMPS AND TJ-05-001 FOR PREFORMED ARMOR RODS.

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Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 1" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
DOUBLE CIRCUIT
6 HORIZONTAL OR 6 VERTICAL POST INSULATORS
6 POST CLAMPS - 6 SETS ARMOR RODS

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	10/1/2011	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2012

TS-P2A2-x

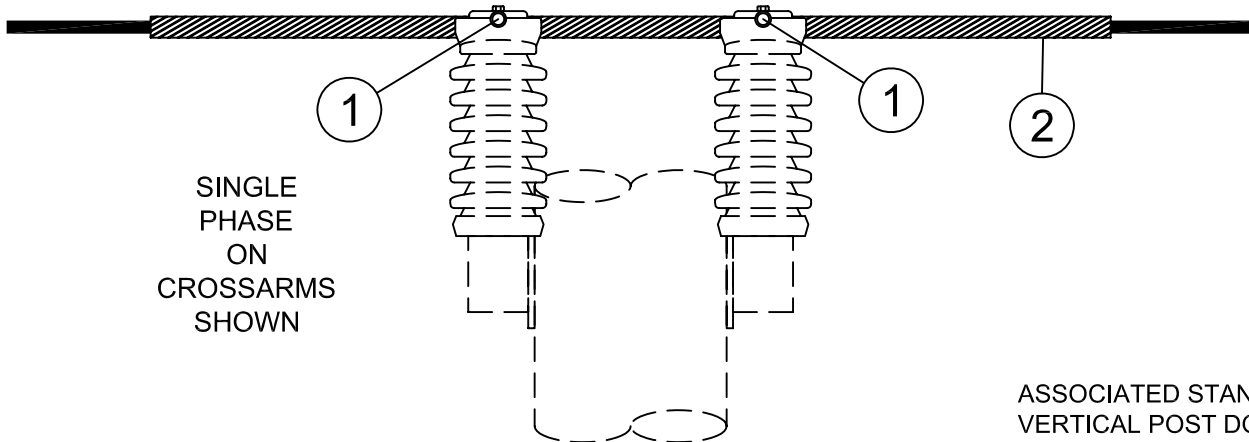
Sheet 1

mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-P3A2-(mark)
1	6					SET	1007235505		ROD ARM PREFORM AL 0.552-0.585
1		6				SET	1007237020	6000220410	ROD ARM PREFORM AL 0.783-0.814
1			6			SET	1007237068	6000220470	ROD ARM PREFORM AL 1.099-1.139
1				6		SET	1007237075		ROD ARM PREFORM AL 1.209-1.269
1					6	SET	1007237077		ROD ARM PREFORM AL 1.270-1.327
2	12					EA	1036160106		CLMP BLT POST 0.70-1.06 TNGT
2		12				EA	1036160150		CLMP BLT POST 1.00-1.50 TNGT
2			12	12		EA	1036160199		CLMP BLT POST 1.50-2.00 TNGT
2					12	EA	1036160230		CLMP BLT POST 1.90-2.30 TNGT

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

REFER TO "TI" SECTION
FOR APPROPRIATE
INSULATOR SELECTION



ASSOCIATED STANDARD:
VERTICAL POST DOUBLE
CIRCUIT DOUBLE ARM
TANGENT STRUCTURE

FOR OTHER WIRE SIZES: REFER TO TJ-02-001 FOR POST INSULATOR CLAMPS
AND TJ-05-001 FOR PREFORMED ARMOR RODS.

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Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 1" = 1'-0"



IBERDROLA USA
TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
DOUBLE CIRCUIT

12 VERTICAL POST INSULATORS
12 POST CLAMPS - 6 SETS ARMOR RODS

ISSUE	0
DATE	12/13/2012

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	10/1/2012	Bartczak/Becken/Shepard	11/17/2011	Barry R. Hart	12/13/2012

TS-P3A2-x

Sheet 1

For use with class 52-3 & 52-5 disc insulators

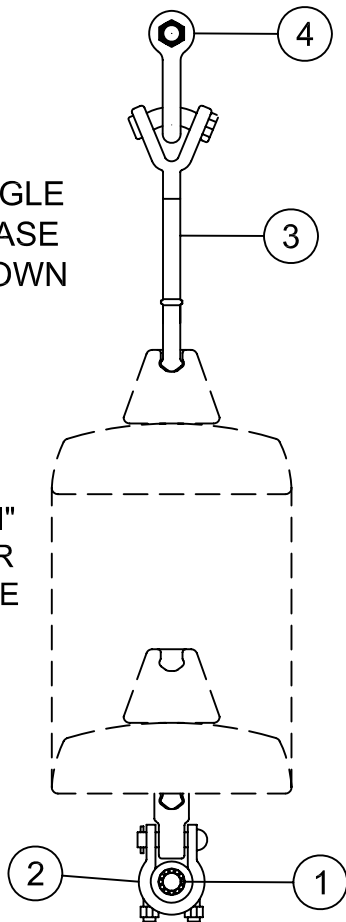
mark	-3 4/0 alliance	-B 477 18/1	-X 795 26/7	-F 1033 45/7	-K 1192 45/7	BILL OF MATERIAL			Type of CU: CNDO
ITEM NO.	QTY.	QTY.	QTY.	QTY.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TS-S2A2-(mark)
1	6					SET	1007235505		ROD ARM PREFORM AL 0.552-0.585
1		6				SET	1007237020	6000220410	ROD ARM PREFORM AL 0.783-0.814
1			6			SET	1007237068	6000220470	ROD ARM PREFORM AL 1.099-1.139
1				6		SET	1007237075		ROD ARM PREFORM AL 1.209-1.269
1					6	SET	1007237077		ROD ARM PREFORM AL 1.270-1.327
2	6					EA	1036090095		CLMP BLT SUSP AL W/SOC 0.50-1.04
2		6				EA	1036090149		CLMP BLT SUSP AL W/SOC 1.00-1.49
2			6	6		EA	1036090204	6000111464	CLMP BLT SUSP AL W/SOC 1.40-2.04
2					6	EA	1036090218	6000111480	CLMP BLT SUSP AL W/SOC 1.40-2.18
3	6	6	6	6	6	EA	1036427000-	6000272910	FTTG CLEVIS-Y BALL SM HL 30K
4	6	6	6	6	6	EA	1039220531		SHCKL ANCH 7/8 BNK 1-1/4 OPNG

CU Function: TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

SINGLE
 PHASE
 SHOWN

REFER TO "TI"
 SECTION FOR
 APPROPRIATE
 INSULATOR
 SELECTION



ASSOCIATED STANDARD:
 TANGENT OR ANGLE
 SUSPENSION 0° - 28°

FOR OTHER WIRE SIZES: REFER TO TJ-01-001 FOR SUSPENSION CLAMPS
 AND ASSOCIATED PREFORMED ARMOR RODS.

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Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: 1-1/2" = 1'-0"



IBERDROLA USA
 TRANSMISSION
 CONSTRUCTION
 STANDARDS
 MANUAL TM2.23.00

TRANSMISSION SPECIFY DETAILS
 DOUBLE CIRCUIT - 6 INSULATOR STRINGS
 TANGENT OR ANGLE SUSPENSION 0° - 28°
 6 SUSPENSION CLAMPS - 6 SETS ARMOR RODS

ISSUE
 0
 DATE
 12/13/2012

Drwn. By: L.A. Best | Date Dr.: 6/7/2011 | Checked By: Bartczak/Becken/Shepard | Date Ck.: 11/17/2011 | Approved By: Barry R. Hart | Date App.: 12/13/2012

TS-S2A2-x

Sheet 1