BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

CU: U*CT-TS-CA31-IA

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA31-IA
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	3	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	3	ST	TBD	CLAMP COMP DE ASSY VES 4/0 AAAC 7
6	3	ST	30924900	CONN AL CMPRN TERM .522-.563
7	6	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	6	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	12	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA31-IC
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	3	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	3	ST	30926081	CLAMP COMP DE ASSY VES 795 ACSR 26/7
6	3	ST	30925703	CONN CMPRN TERM 795-984 AL TO 4H PAD
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA31-GL
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	3	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	3	ST	TBD	CLAMP COMP DE ASSY 1113 ACSR 45/7
6	3	ST	30925693	CONN CMPRN TERM-1113 TUBE TO 4H PAD 15
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA31-IB
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	3	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	3	ST	30926080	CLAMP COMP DE ASSY VES 477 ACSR 18/1
6	3	ST	30925700	CONN CMPRN TERM 477 18/1 CNTR 15 DEG
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA31-ID
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	3	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	3	ST	30926077	CLAMP COMP DE ASSY VES 1192 ACSR 45/7
6	3	ST	30925235	CONN CMPRN TERM 1192 45/7 CNTR 15 DEG
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

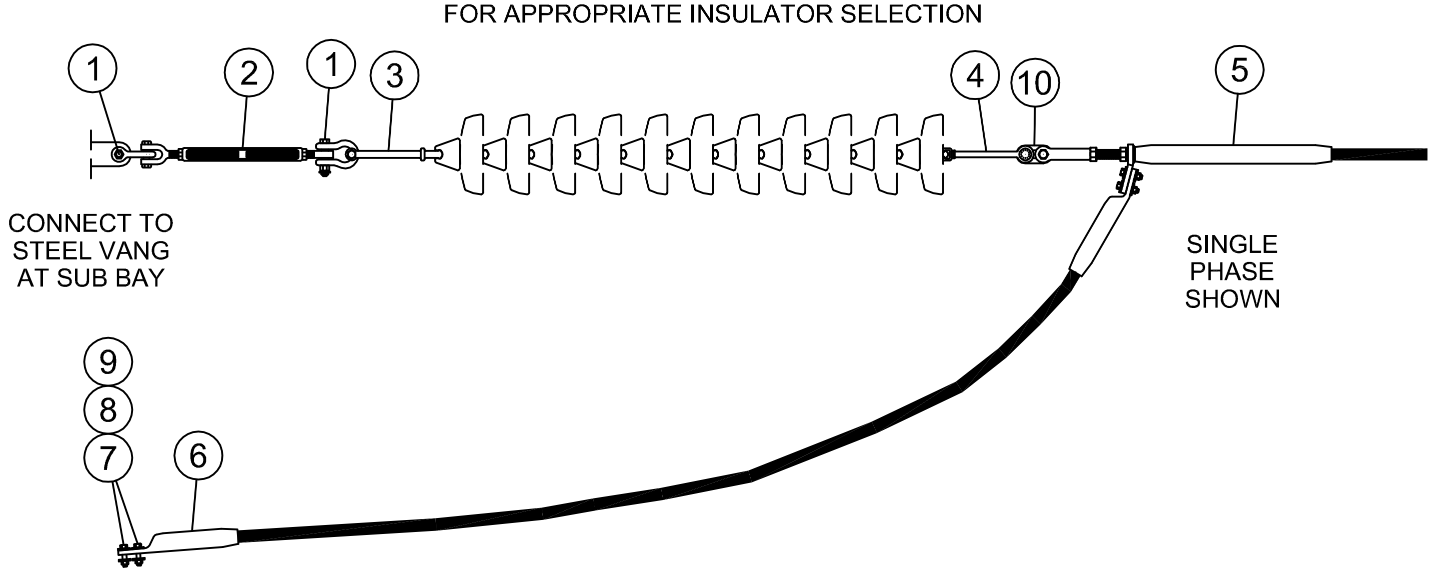
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA31-GJ
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	3	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	3	ST	30926073	CLAMP COMP DE ADJ STL CLV ST 1033 45/7
6	3	ST	30925690	CONN CMPRN TERM 1033 45/7 CNTR 15 DEG
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE
10	3	ST	30923908	LINK CHAIN 3/4 STK 1 X 3-1/2 IS 60K

ALL CUs ARE SINGLE CIRCUIT,
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-04-001 FOR COMPRESSION DEAD END ASSEMBLIES
AND TM2.23.TJ-04-003 FOR COMPRESSION TERMINAL PADS.

REFER TO IBERDROLA USA TRANSMISSION
CONSTRUCTION STANDARDS MANUAL TM2.23.TI
FOR APPROPRIATE INSULATOR SELECTION



PROVIDE SUFFICIENT LENGTH OF CONDUCTOR FOR ATTACHMENT TO
SUBSTATION SWITCH, BUS, LIGHTNING ARRESTER OR TERMINATION

ASSOCIATED STANDARD:
TERMINAL DEAD END
SUBSTATION CONNECTION

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

Contact Engineering Standards - Transmission for the creation of new standards and CUs.	Drawing Scale: 1/2" = 1'-0"

IBERDROLA USA	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION SPECIFY DETAILS NON-BUNDLED CONDUCTOR - TERMINAL DEAD END ANSI CLASS 52-3 OR 52-5 SINGLE INSULATOR STRINGS 3 COMP DEAD END ASSEMBLIES - 3 TERMINAL PADS	Revision 00 Date / /2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:		
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-CA31	Sheet 1

BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

CU: U*CT-TS-CA32-IA

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA32-IA
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	6	ST	TBD	CLAMP COMP DE ASSY VES 4/0 AAAC 7

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA32-IC
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	6	ST	30926081	CLAMP COMP DE ASSY VES 795 ACSR 26/7

BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA32-GL
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	6	ST	TBD	CLAMP COMP DE ASSY 1113 ACSR 45/7

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA32-IB
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	6	ST	30926080	CLAMP COMP DE ASSY VES 477 ACSR 18/1

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA32-ID
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	6	ST	30926077	CLAMP COMP DE ASSY VES 1192 ACSR 45/7

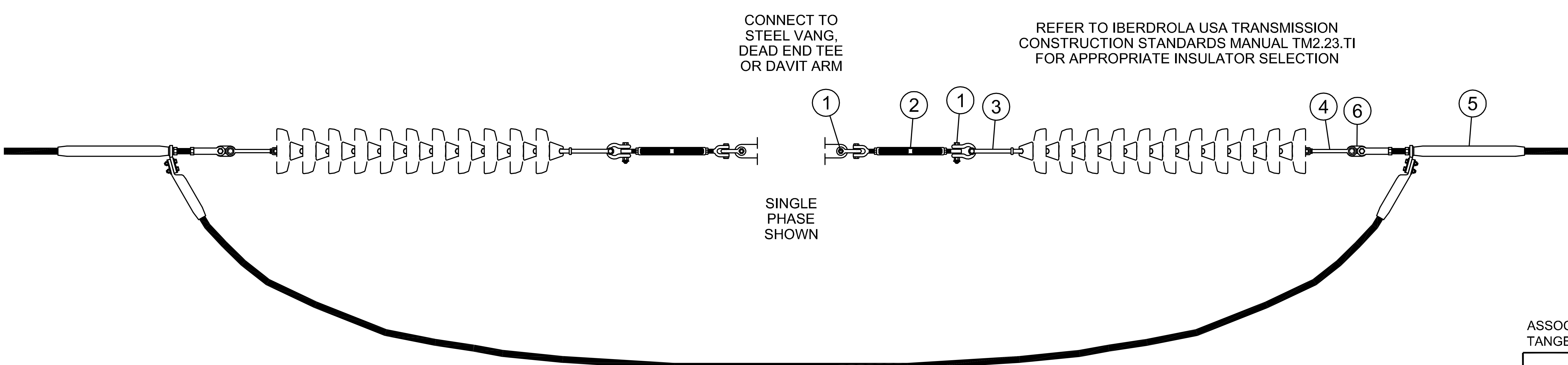
BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CA32-GJ
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
4	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
5	6	ST	30926073	CLAMP COMP DE ADJ STL CLV ST 1033 45/7
6	6	ST	30923908	LINK CHAIN 3/4 STK 1 X 3-1/2 IS 60K

ALL CUs ARE SINGLE CIRCUIT,
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-04-001 FOR COMPRESSION DEAD END ASSEMBLIES



ADD APPROPRIATE JUMPER POST OR IDLER STRING ASSEMBLY WHEN REQUIRED

ASSOCIATED STANDARD:
TANGENT OR ANGLE DEAD END

THIS IS A COMPUTER GENERATED
DRAWING - DO NOT REVISE MANUALLY

CU Function: U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

ANSI B
11" X 17"

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - TANGENT/ANGLE DEAD END
ANSI CLASS 52-3 OR 52-5 SINGLE INSULATOR STRINGS
6 COMPRESSION DEAD END ASSEMBLIES

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015

TM2.23.TS-CA32

Revision: 00

Date: / /2015

Sheet 1

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC31-IC
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	3	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	3	ST	30926081	CLAMP COMP DE ASSY VES 795 ACSR 26/7
6	3	ST	TBD	CONN CMPRN TERM 795 26/7 CNTR 15 DEG
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1590 ACSR 54/19 Falcon

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC31-IE
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	3	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	3	ST	30926087	CLAMP COMP DE 1590 1 PAD 15 DEG
6	3	ST	30925771	CONN CMPRN TERM 1590 61 CNTR 15 DEG
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC31-GJ
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	3	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	3	ST	30926073	CLAMP COMP DE ADJ STL CLV ST 1033 45/7
6	3	ST	30925690	CONN CMPRN TERM 1033 45/7 CNTR 15 DEG
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE
10	3	ST	30923908	LINK CHAIN 3/4 STK 1 X 3-1/2 IS 60K

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC31-ID
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	3	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	3	ST	30926077	CLAMP COMP DE ASSY VES 1192 ACSR 45/7
6	3	ST	30925235	CONN CMPRN TERM 1192 45/7 CNTR 15 DEG
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC31-GL
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	3	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	3	ST	TBD	CLAMP COMP DE ASSY 1113 ACSR 45/7
6	3	ST	30925693	CONN CMPRN TERM-1113 TUBE TO 4H PAD 15
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 2156 ACSR 84/19 Bluebird

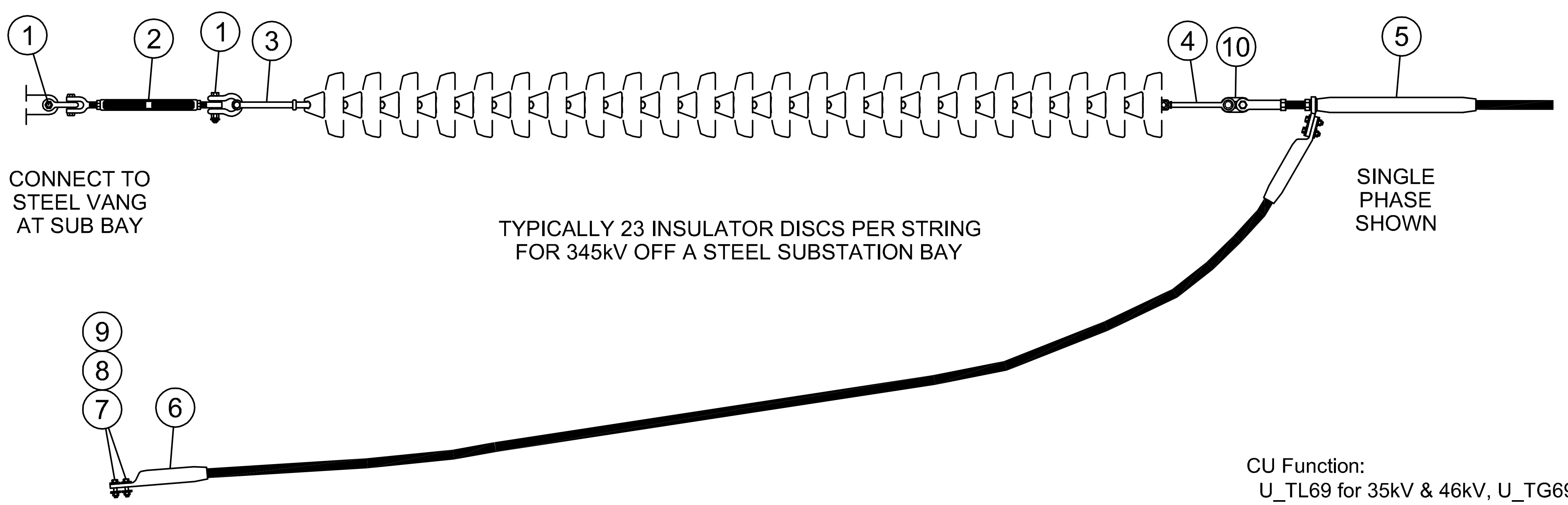
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC31-GR
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	3	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	3	ST	30926074	CLAMP COMP DE ASSY ADJ CLV ST 2156 84/19
6	3	ST	30925696	CONN CMPRN TERM 2156 84/19 CNTR 15 D
7	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
8	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
9	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE
10	3	ST	30923908	LINK CHAIN 3/4 STK 1 X 3-1/2 IS 60K

ALL CUs ARE SINGLE CIRCUIT,
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-04-001 FOR COMPRESSION DEAD END ASSEMBLIES
AND TM2.23.TJ-04-003 FOR COMPRESSION TERMINAL PADS.

REFER TO IBERDROLA USA TRANSMISSION
CONSTRUCTION STANDARDS MANUAL TM2.23.TI
FOR APPROPRIATE INSULATOR SELECTION



CONNECT TO
STEEL VANG
AT SUB BAY

TYPICALLY 23 INSULATOR DISCS PER STRING
FOR 345kV OFF A STEEL SUBSTATION BAY

SINGLE
PHASE
SHOWN

PROVIDE SUFFICIENT LENGTH OF CONDUCTOR FOR ATTACHMENT TO
SUBSTATION SWITCH, BUS, LIGHTNING ARRESTER OR TERMINATION

ASSOCIATED STANDARD:
345kV TERMINAL
SUBSTATION CONNECTION

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ANSI B
11" X 17"

Contact Engineering Standards - Transmission for the creation of new standards and CUs.						Drawing Scale: 1/2" = 1'-0"	
IBERDROLA USA		IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION SPECIFY DETAILS NON-BUNDLED CONDUCTOR - TERMINAL DEAD END ANSI CLASS 52-8 OR 52-11 SINGLE INSULATOR STRINGS 3 COMP DEAD END ASSEMBLIES - 3 TERMINAL PADS				Revision 00 Date / /2015
Drwn. By: L.A. Best	Date Dr.: 4/1/2015	Checked By: Shepard/Becken/Hart	Date Ck.: / /2015	Approved By: Barry R. Hart	Date App.: / /2015	TM2.23.TS-CC31	Sheet 1

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC32-IC
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	6	ST	30926081	CLAMP COMP DE ASSY VES 795 ACSR 26/7

BILL OF MATERIAL for 1590 ACSR 54/19 Falcon

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC32-IE
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	6	ST	30926087	CLAMP COMP DE 1590 1 PAD 15 DEG

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC32-GJ
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	6	ST	30926073	CLAMP COMP DE ADJ STL CLV ST 1033 45/7
6	6	ST	30923908	LINK CHAIN 3/4 STK 1 X 3-1/2 IS 60K

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC32-ID
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	6	ST	30926077	CLAMP COMP DE ASSY VES 1192 ACSR 45/7

BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC32-GL
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	6	ST	TBD	CLAMP COMP DE ASSY 1113 ACSR 45/7

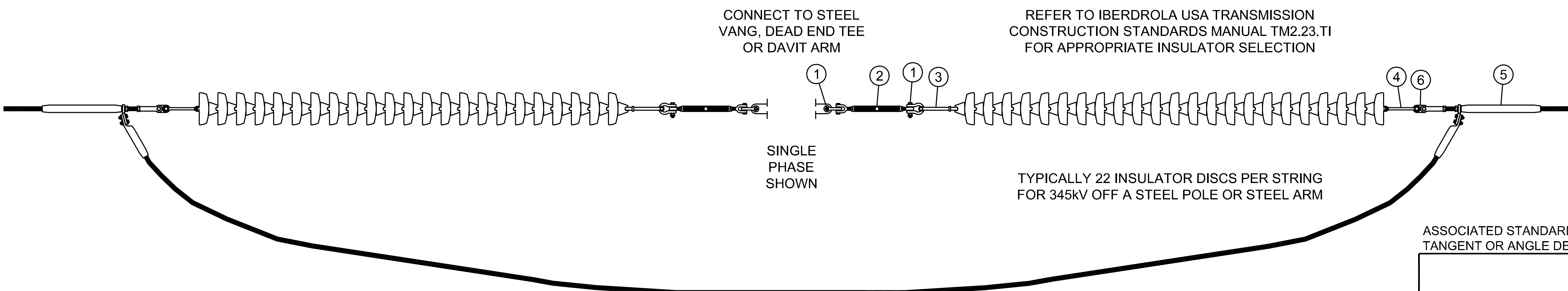
BILL OF MATERIAL for 2156 ACSR 84/19 Bluebird

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-CC32-GR
1	12	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30923940	TURNBUCKLE JAW-EYE 35K 7/8 X 12
3	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
4	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
5	6	ST	30926074	CLAMP COMP DE ASSY ADJ CLV ST 2156 84/19
6	6	ST	30923908	LINK CHAIN 3/4 STK 1 X 3-1/2 IS 60K

ALL CUs ARE SINGLE CIRCUIT,
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-04-001 FOR COMPRESSION DEAD END ASSEMBLIES



ADD APPROPRIATE JUMPER POST OR IDLER STRING ASSEMBLY WHEN REQUIRED

ASSOCIATED STANDARD:
TANGENT OR ANGLE DEAD END

CU Function: U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

Drawing Scale: 3/8" = 1'-0"

IBERDROLA USA
IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - TANGENT/ANGLE DEAD END
ANSI CLASS 52-8 OR 52-11 SINGLE INSULATOR STRINGS
6 COMPRESSION DEAD END ASSEMBLIES

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-CC32

Revision 00
Date / /2015
Sheet 1

ANSI B
11" X 17"

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA62-01
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926092	CLAMP DE BLT STRAIN AL 20K 0.30-0.721

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA62-02
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926093	CLAMP DE BLT STRAIN AL 23K 0.475-0.88

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA62-03
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318

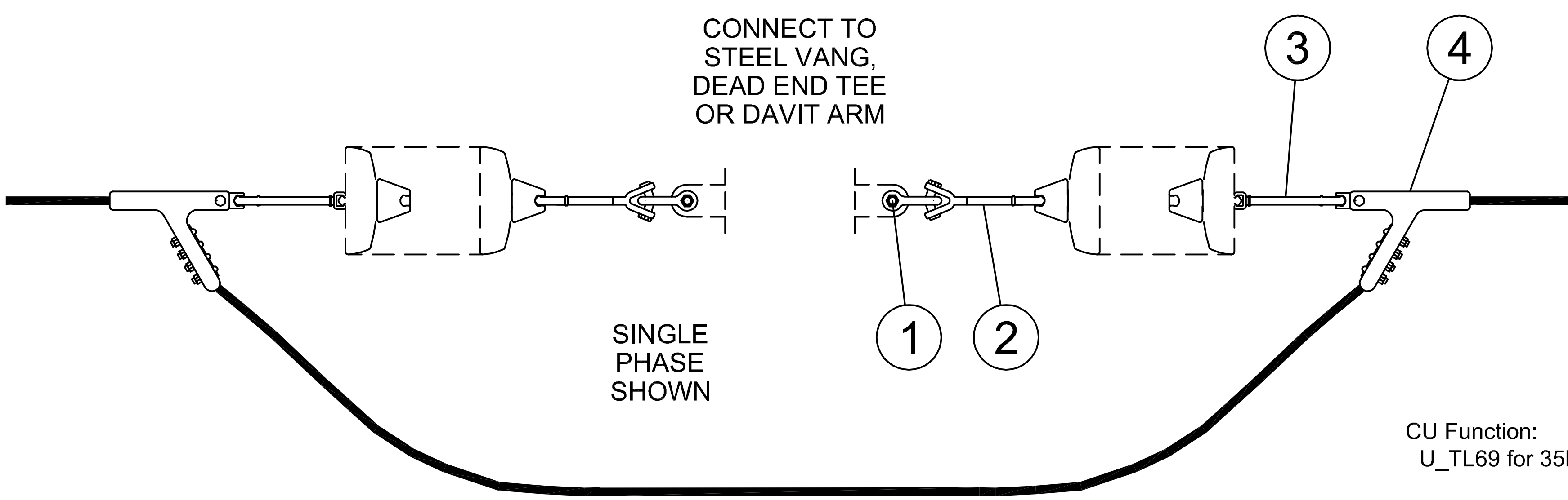
BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA62-04
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA62-21
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926097	CLAMP DE BLT STRAIN STL 19K 0.22-0.55

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA62-22
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926098	CLAMP DE BLT STRAIN STL 25K 0.50-0.96

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA62-23
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926099	CLAMP DE BLT STRAIN STL 30K 0.36-0.84

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-03-001 FOR BOLTED STRAIN CLAMPS.



ASSOCIATED STANDARD:
TANGENT DEAD END - TENSION
LESS THAN 10,000# NESC

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

REFER TO IBERDROLA USA TRANSMISSION
CONSTRUCTION STANDARDS MANUAL TM2.23.TI
FOR APPROPRIATE INSULATOR SELECTION

Contact Engineering Standards - Transmission for the creation of new standards and CUs.						Drawing Scale: 3/4" = 1'-0"	
IBERDROLA USA	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION SPECIFY DETAILS NON-BUNDLED CONDUCTOR - TANGENT DEAD END ANSI CLASS 52-3 OR 52-5 SINGLE INSULATOR STRINGS 6 BOLTED STRAIN CLAMPS					Revision 00 Date / /2015
Drwn. By: L.A. Best	Date Dr.: 4/1/2015	Checked By: Shepard/Becken/Hart	Date Ck.: / /2015	Approved By: Barry R. Hart	Date App.: / /2015	TM2.23.TS-NA62	Sheet 1

ANSI B
11" X 17"

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2 SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-IA
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926093	CLAMP DE BLT STRAIN AL 23K 0.475-0.88
5	3	ST	30925981	CONN FRD WDG 4/0 TO 266.8
6	3	ST	30926203	CARTRIDGE TAP FIRED-ON CONN AMPACT BLUE

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-GJ
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	3	ST	30925962	CONN FRD WDG 1033 TO 1033
6	3	ST	30926205	CARTRIDGE TAP FIRED-ON CONN AMPACT YELL

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-IB
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	3	ST	30925985	CONN FRD WDG 477 TO 477
6	3	ST	30926205	CARTRIDGE TAP FIRED-ON CONN AMPACT YELL

BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-GL
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	3	ST	TBD	CONN FRD WDG 1192.5 TO 1192.5
6	3	ST	30926205	CARTRIDGE TAP FIRED-ON CONN AMPACT YELL

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-IC
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	3	ST	30925990	CONN FRD WDG 795 TO 795
6	3	ST	30926205	CARTRIDGE TAP FIRED-ON CONN AMPACT YELL

BILL OF MATERIAL for 336.4 ACSR 26/7 Linnet

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-FK
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926093	CLAMP DE BLT STRAIN AL 23K 0.475-0.88
5	3	ST	30925976	CONN FRD WDG 336.4 TO 336.4
6	3	ST	30926205	CARTRIDGE TAP FIRED-ON CONN AMPACT YELL

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

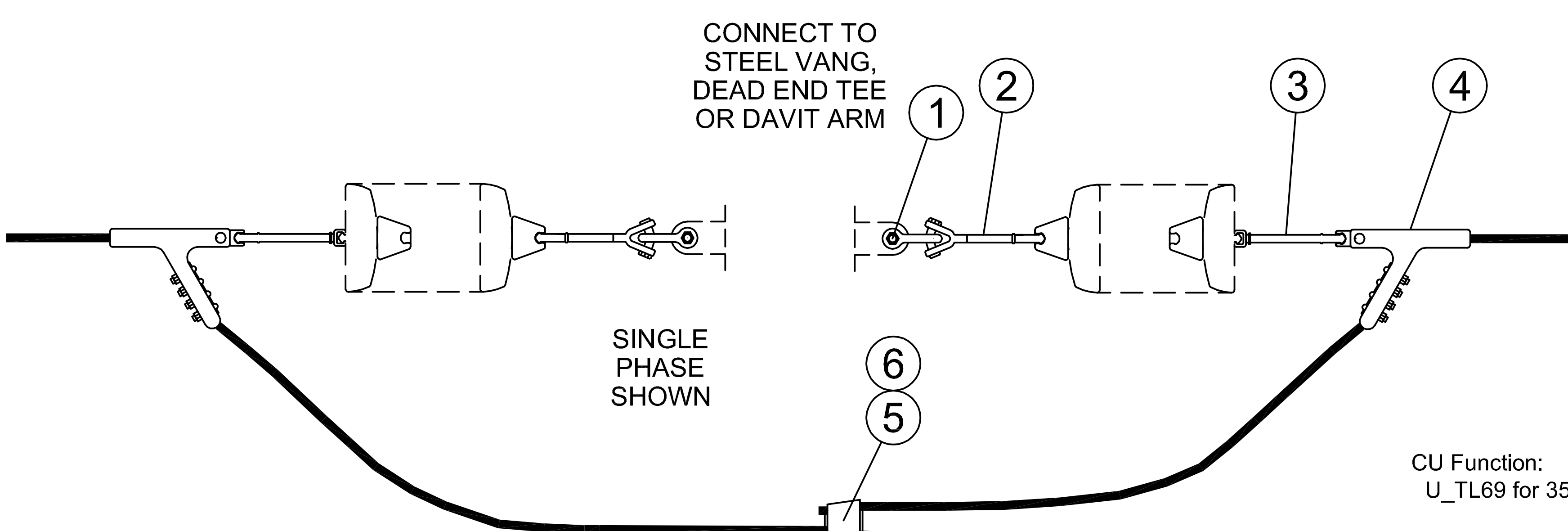
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-ID
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	3	ST	TBD	CONN FRD WDG 1192.5 TO 1192.5
6	3	ST	30926205	CARTRIDGE TAP FIRED-ON CONN AMPACT YELL

BILL OF MATERIAL for 477 ACSR 30/7 Hen

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-FP
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	3	ST	30925985	CONN FRD WDG 477 TO 477
6	3	ST	30926205	CARTRIDGE TAP FIRED-ON CONN AMPACT YELL

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-03-001 FOR BOLTED STRAIN CLAMPS AND
TM2.23.TJ-06-004 FOR FIRED-ON CONNECTORS AND CARTRIDGES.

ASSOCIATED STANDARD:
DEAD END - TENSION
LESS THAN 10,000# NESC
USING FIRED-ON CONNECTORS



CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

ADD APPROPRIATE JUMPER POST OR IDLER STRING ASSEMBLY WHEN REQUIRED

REFER TO IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM2.23.TI FOR APPROPRIATE INSULATOR SELECTION

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - FULL TENSION DEAD END
ANSI CLASS 52-3 OR 52-5 SINGLE INSULATOR STRINGS
6 BOLTED STRAIN CLAMPS - 3 FIRED-ON CONNECTORS

Revision: 00
Date: / /2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015

TM2.23.TS-NA63

Sheet 1

ANSI B
11" X 17"

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA64-IA
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926093	CLAMP DE BLT STRAIN AL 23K 0.475-0.88
5	3	ST	30925128	SPL COMP LOOP 4/0 AAAC 7 OR 19

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA64-GJ
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	3	ST	30925499	SPL COMP LOOP 1033 ACSR 45/7 DIA 1.213

BILL OF MATERIAL for 477 ACSR 18/1 Pelican to 477 ACSR 30/7 Hen

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA64-IBFP
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	3	ST	30925521	SPL COMP RDC 477 30/7 TO 477 18/1

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA64-IB
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	3	ST	30925516	SPL COMP LOOP Q 477 ACSR 18/1 DIA 0.814

BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-GL
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	3	ST	30925514	SPL COMP LOOP Q 1113 ACSR 45/7 DIA 1.259

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA64-IC
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	3	ST	30925512	SPL COMP LOOP 795 ACSR 26/7 TO 54/7

BILL OF MATERIAL for 336.4 ACSR 26/7 Linnet

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-FK
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926093	CLAMP DE BLT STRAIN AL 23K 0.475-0.88
5	3	ST	30925505	SPL COMP LOOP 336 ACSR 26/7 OR 30/7

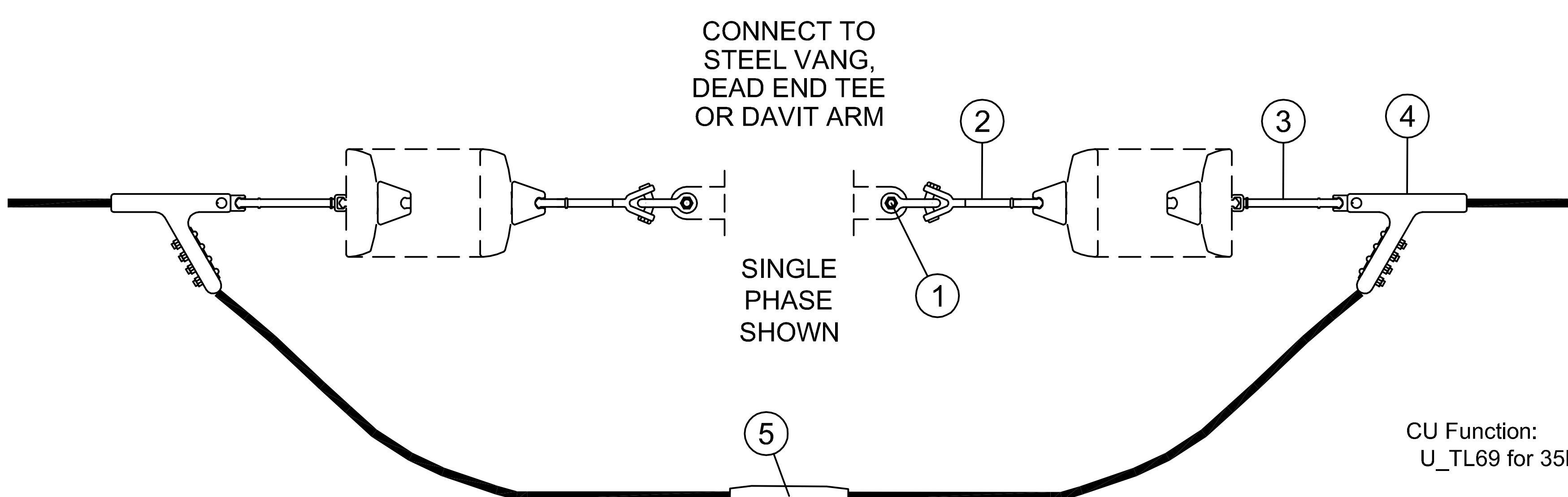
BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA64-ID
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	3	ST	30925500	SPL COMP LOOP 1192 ACSR 45/7 DIA 1.302

BILL OF MATERIAL for 477 ACSR 30/7 Hen

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA63-FP
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924113	FTTG SCKT BALL S HL 9-3/4 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	3	ST	30925510	SPL COMP LOOP 477 ACSR 26/7 OR 30/7

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-03-001 FOR BOLTED STRAIN CLAMPS
AND TM2.23.TJ-07-002 FOR COMPRESSION LOOP SPLICES.



ASSOCIATED STANDARD:
DEAD END - TENSION
LESS THAN 10,000# NESC
USING LOOP SPLICES

ADD APPROPRIATE JUMPER POST OR IDLER STRING ASSEMBLY WHEN REQUIRED

REFER TO IBERDROLA USA TRANSMISSION
CONSTRUCTION STANDARDS MANUAL TM2.23.TI
FOR APPROPRIATE INSULATOR SELECTION

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - FULL TENSION DEAD END
ANSI CLASS 52-3 AND 52-5 SINGLE INSULATOR STRINGS
6 BOLTED STRAIN CLAMPS - 3 LOOP SPLICES

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	9/11/2014	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015

TM2.23.TS-NA64

Revision 00
Date / /2015
Sheet 1

BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA65-IA
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	6	ST	30926093	CLAMP DE BLT STRAIN AL 23K 0.475-0.88
5	6	ST	30924900	CONN AL CMPRN TERM .522-.563
6	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
7	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
8	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA65-IC
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	6	ST	30925703	CONN CMPRN TERM 795-984 AL TO 4H PAD
6	24	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
7	24	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
8	48	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA65-GJ
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	6	ST	30925690	CONN CMPRN TERM 1033 45/7 CNTR 15 DEG
6	24	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
7	24	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
8	48	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA65-IB
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	6	ST	30926095	CLAMP DE BLT STRAIN AL 30K 0.71-1.318
5	6	ST	30925700	CONN CMPRN TERM 477 18/1 CNTR 15 DEG
6	24	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
7	24	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
8	48	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA65-ID
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	6	ST	30925235	CONN CMPRN TERM 1192 45/7 CNTR 15 DEG
6	24	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
7	24	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
8	48	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA65-GL
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	6	ST	30926096	CLAMP DE BLT STRAIN AL 30K 1.18-1.55
5	6	ST	30925693	CONN CMPRN TERM-1113 TUBE TO 4H PAD 15
6	24	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
7	24	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
8	48	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

BILL OF MATERIAL for 336.4 AAC 19 Tulip

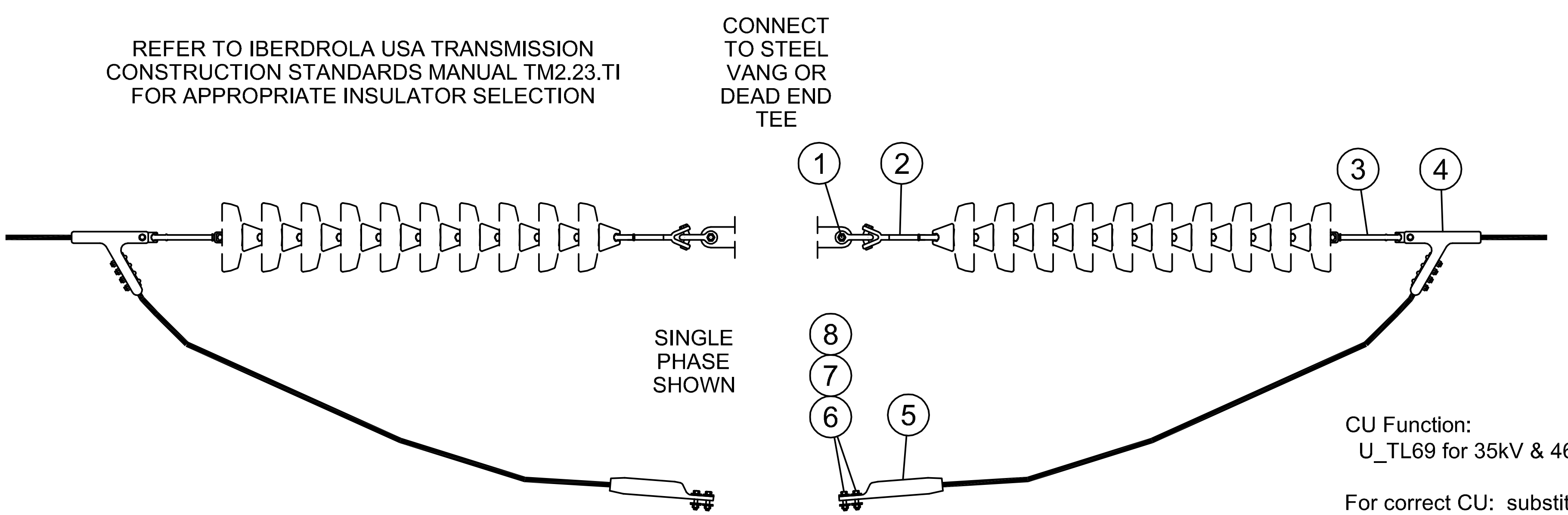
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-NA65-BH
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-11/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	6	ST	30926093	CLAMP DE BLT STRAIN AL 23K 0.475-0.88
5	6	ST	30925526	CONN CMPRN TERM 2H 336
6	12	ST	30918936	BOLT AL BUS BAR HXHD HVY SER
7	12	ST	30919277	NUT HX BUS BAR AL 1/2 DIA 13 TPI
8	24	ST	30919369	WSHR RND 7/8 OD 9/16 HOLE

ALL CUs ARE SINGLE CIRCUIT,
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-03-001 FOR BOLTED STRAIN CLAMPS
AND TM2.23.TJ-04-003 FOR COMPRESSION TERMINAL PADS.

REFER TO IBERDROLA USA TRANSMISSION
CONSTRUCTION STANDARDS MANUAL TM2.23.TI
FOR APPROPRIATE INSULATOR SELECTION



PROVIDE SUFFICIENT LENGTH OF CONDUCTOR FOR
ATTACHMENT TO SWITCH TERMINATION OR LIGHTNING ARRESTER

ASSOCIATED STANDARD:
SWITCH DEAD END
WITH TERMINAL PADS

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - SWITCH DEAD END
ANSI CLASS 52-3 OR 52-5 SINGLE INSULATOR STRINGS
6 STRAIN CLAMPS - 6 TERMINAL PADS

Revision	Date
00	/ /2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015

TM2.23.TS-NA65

Sheet 1

THIS IS A COMPUTER GENERATED
DRAWING - DO NOT REVISE MANUALLY

ANSI B
11" X 17"

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ANSI B 11" X 17"

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT,
USE 2 SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-01
1	3	EA	30926170	CLAMP POST TANG AL 0.25-0.57

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-02
1	3	EA	30926171	CLAMP POST TANG AL 0.35-0.84

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-03
1	3	EA	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-04
1	3	EA	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-05
1	3	EA	30926174	CLAMP POST TANG AL 1.50-2.00

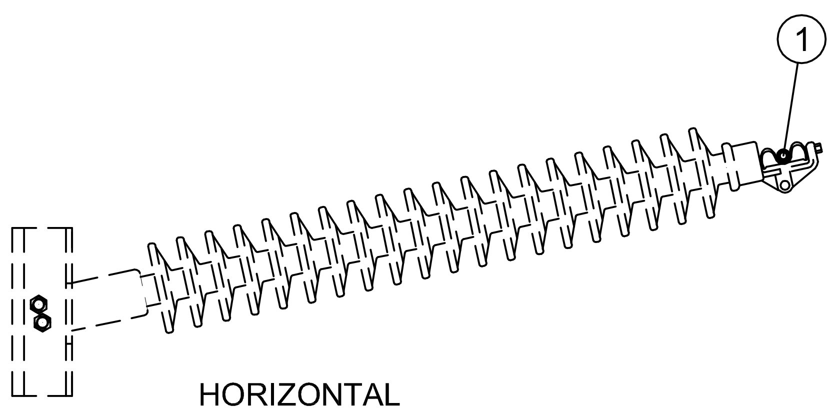
BILL OF MATERIAL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-06
1	3	EA	30926175	CLAMP POST TANG AL 1.90-2.30

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-21
1	3	EA	30926176	CLAMP POST TANG STL 0.25-0.56

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-22
1	3	EA	30926177	CLAMP POST TANG STL 0.35-0.84

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI01-23
1	3	EA	30926178	CLAMP POST TANG STL 0.50-1.06

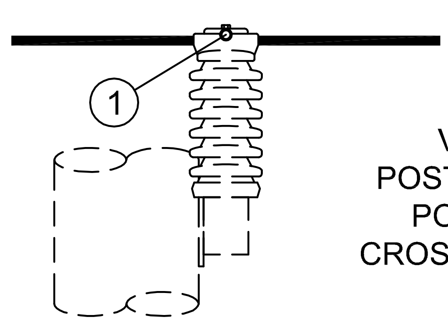
FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-02-001 FOR TRUNNION CLAMPS.



HORIZONTAL
POST INSULATOR
SHOWN

SINGLE
PHASE
SHOWN

OR



VERTICAL
POST INSULATOR
POSITION ON
CROSSARM SHOWN

REFER TO TRANSMISSION CONSTRUCTION
STANDARDS MANUAL TM2.23.TI SECTION
FOR APPROPRIATE INSULATOR SELECTION

ASSOCIATED STANDARD:
HORIZONTAL OR VERTICAL
POST STRUCTURES
THAT DO NOT HAVE ARMOR
ROD ON THE CONDUCTOR

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - POST INSULATOR
JUMPER FOR DEAD END OR VERTICAL POST TANGENT
3 TRUNNION CLAMPS - NO ARMOR ROD

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	
L.A. Best	6/30/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-PI01

Revision	Date	Sheet
00	/ /2015	1

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT,
USE 2 SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-02-001 FOR TRUNNION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.

BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-IA
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	3	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-IB
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	3	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-IC
1	3	ST	30925807	ROD ARMR PREFRM AL 100 IN 1.099-1.139
2	3	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-ID
1	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327
2	3	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 4/0 AAAC 19 Amarillo

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-AC
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	3	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 477 AAC 19 Cosmos

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-BJ
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	3	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1033.5 AAC 37 Bluebell

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-BS
1	3	ST	30925807	ROD ARMR PREFRM AL 72 IN 0.704-0.740
2	3	ST	30926174	CLAMP POST TANG AL 1.50-2.00

BILL OF MATERIAL for 4/0 ACSR 6/1 Penguin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-FD
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	3	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 336.4 ACSR 18/1 Merlin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-FJ
1	3	ST	30925816	ROD ARMR PREFRM AL 68 IN 0.680-0.703
2	3	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 336.4 ACSR 26/7 Linnet

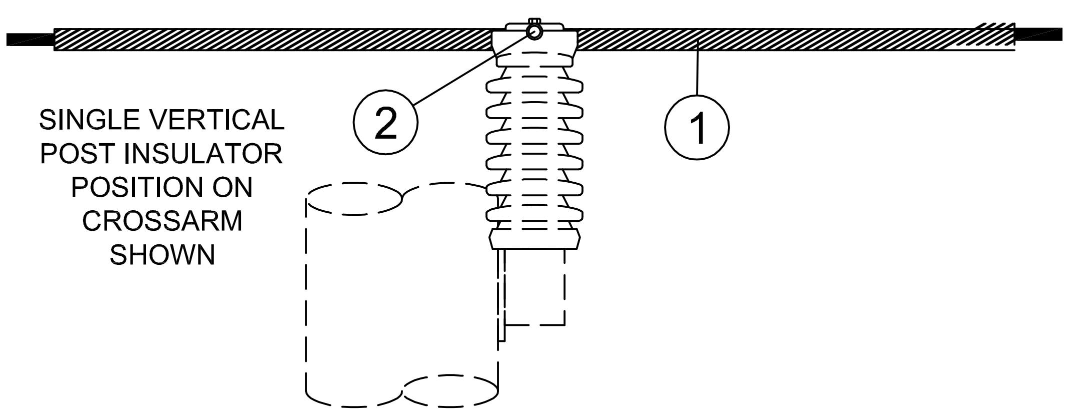
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-FK
1	3	ST	30925817	ROD ARMR PREFRM AL 72 IN 0.704-0.740
2	3	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-GJ
1	3	ST	30925809	ROD ARMR PREFRM AL 100 IN 1.209-1.269
2	3	ST	30926174	CLAMP POST TANG AL 1.50-2.00

BILL OF MATERIAL for 2/0 CU 7

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI02-MS
1	3	ST	30925831	ROD ARMR PREFRM CWLD 54 IN 0.409-0.425
2	3	ST	30926177	CLAMP POST TANG STL 0.35-0.86

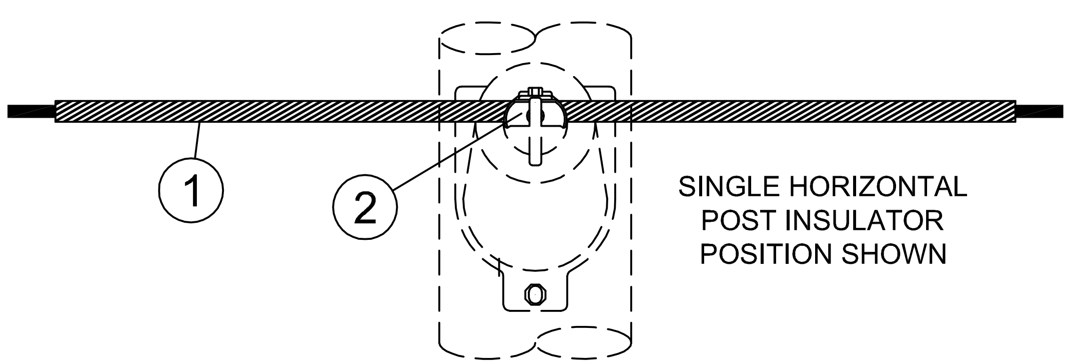


SINGLE VERTICAL
POST INSULATOR
POSITION ON
CROSSARM
SHOWN

SINGLE
PHASE
SHOWN

OR

REFER TO IBERDROLA
USA TRANSMISSION
CONSTRUCTION STANDARDS
MANUAL TM2.23.TI
FOR APPROPRIATE
INSULATOR SELECTION



SINGLE HORIZONTAL
POST INSULATOR
POSITION SHOWN

ASSOCIATED STANDARD:
VERTICAL OR HORIZONTAL
POST TANGENT

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

Drawing Scale: 1" = 1'-0"

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - POST INSULATOR
HORIZONTAL OR VERTICAL CONFIGURATION
3 TRUNNION CLAMPS - 3 SETS ARMOR ROD

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	
L.A. Best	10/13/2014	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-PI02

Revision
00
Date
/ /2015
Sheet 1

THIS IS A COMPUTER GENERATED
DRAWING - DO NOT REVISE MANUALLY

ANSI B
11" X 17"

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT,
USE 2 SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-02-001 FOR TRUNNION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.

BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-IA
1	3	ST	30925828	ROD ARMR PREFRM AL 72 IN 0.552-0.585 DBL
2	6	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-IB
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	6	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-IC
1	3	ST	30925807	ROD ARMR PREFRM AL 100 IN 1.099-1.139
2	6	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-ID
1	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327
2	6	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 4/0 AAAC 19 Amarillo

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-AC
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	6	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 477 AAC 19 Cosmos

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-BJ
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	6	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1033.5 AAC 37 Bluebell

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-BS
1	3	ST	30925807	ROD ARMR PREFRM AL 72 IN 0.704-0.740
2	6	ST	30926174	CLAMP POST TANG AL 1.50-2.00

BILL OF MATERIAL for 4/0 ACSR 6/1 Penguin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-FD
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	6	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 336.4 ACSR 18/1 Merlin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-FJ
1	3	ST	30925816	ROD ARMR PREFRM AL 68 IN 0.680-0.703
2	6	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 336.4 ACSR 26/7 Linnet

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-FK
1	3	ST	30925817	ROD ARMR PREFRM AL 72 IN 0.704-0.740
2	6	ST	30926173	CLAMP POST TANG AL 1.00-1.50

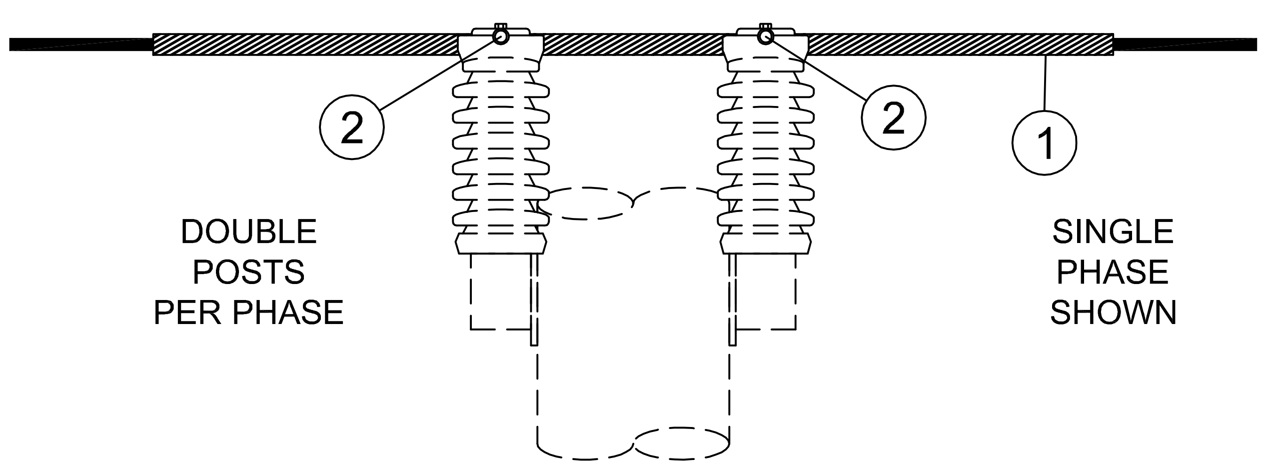
BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-GJ
1	3	ST	30925809	ROD ARMR PREFRM AL 100 IN 1.209-1.269
2	6	ST	30926174	CLAMP POST TANG AL 1.50-2.00

BILL OF MATERIAL for 2/0 CU 7

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI03-MS
1	3	ST	30925831	ROD ARMR PREFRM CWLD 54 IN 0.409-0.425
2	6	ST	30926177	CLAMP POST TANG STL 0.35-0.86

REFER TO IBERDROLA USA TRANSMISSION
CONSTRUCTION STANDARDS MANUAL TM2.23.TI
FOR APPROPRIATE INSULATOR SELECTION



DOUBLE
POSTS
PER PHASE

SINGLE
PHASE
SHOWN

ASSOCIATED STANDARD:
VERTICAL POST TANGENT
ON DOUBLE ARMS

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

Drawing Scale: 1" = 1'-0"

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - DOUBLE CROSSARMS
TWO VERTICAL POSTS PER PHASE
6 TRUNNION CLAMPS - 3 SETS ARMOR ROD

Revision	Date	Sheet
00	/ /2015	1

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	10/13/2014	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015

TM2.23.TS-PI03

THIS IS A COMPUTER GENERATED
DRAWING - DO NOT REVISE MANUALLY

ANSI B
11" X 17"

ALL CUs ARE SINGLE CIRCUIT

ONLY APPLICABLE
FOR SINGLE CIRCUIT

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-02-001 FOR TRUNNION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.

BILL OF MATERIAL for 246.9 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-IA
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	5	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-IB
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	5	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-IC
1	3	ST	30925807	ROD ARMR PREFRM AL 100 IN 1.099-1.139
2	5	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-ID
1	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327
2	5	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 4/0 AAAC 19 Amarillo

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-AC
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	5	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 477 AAC 19 Cosmos

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-BJ
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	5	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1033.5 AAC 37 Bluebell

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-BS
1	3	ST	30925807	ROD ARMR PREFRM AL 72 IN 0.704-0.740
2	5	ST	30926174	CLAMP POST TANG AL 1.50-2.00

BILL OF MATERIAL for 4/0 ACSR 6/1 Penguin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-FD
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	5	ST	30926172	CLAMP POST TANG AL 0.50-1.06

BILL OF MATERIAL for 336.4 ACSR 18/1 Merlin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-FJ
1	3	ST	30925816	ROD ARMR PREFRM AL 68 IN 0.680-0.703
2	5	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 336.4 ACSR 26/7 Linnet

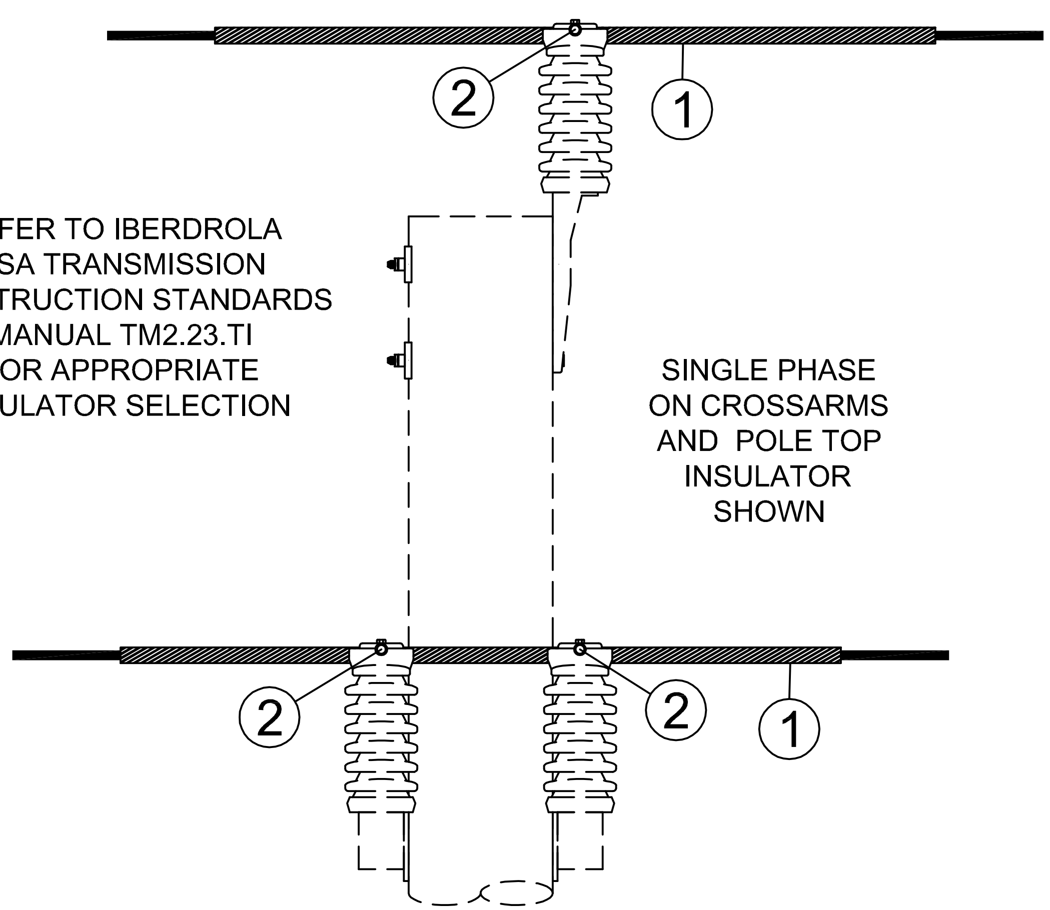
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-FK
1	3	ST	30925817	ROD ARMR PREFRM AL 72 IN 0.704-0.740
2	5	ST	30926173	CLAMP POST TANG AL 1.00-1.50

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-GJ
1	3	ST	30925809	ROD ARMR PREFRM AL 100 IN 1.209-1.269
2	5	ST	30926174	CLAMP POST TANG AL 1.50-2.00

BILL OF MATERIAL for 2/0 CU 7

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-PI09-MS
1	3	ST	30925831	ROD ARMR PREFRM CWLD 54 IN 0.409-0.425
2	5	ST	30926177	CLAMP POST TANG STL 0.35-0.86



REFER TO IBERDROLA
USA TRANSMISSION
CONSTRUCTION STANDARDS
MANUAL TM2.23.TI
FOR APPROPRIATE
INSULATOR SELECTION

SINGLE PHASE
ON CROSSARMS
AND POLE TOP
INSULATOR
SHOWN

ASSOCIATED STANDARD:
VERTICAL POST SINGLE
CIRCUIT DOUBLE ARM
UNPROTECTED
TANGENT STRUCTURE

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR
5 VERTICAL POST INSULATORS
5 TRUNNION CLAMPS - 3 SETS ARMOR ROD

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TS-PI09	Revision 00
L.A. Best	2/13/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015		Date / /2015
							Sheet 1

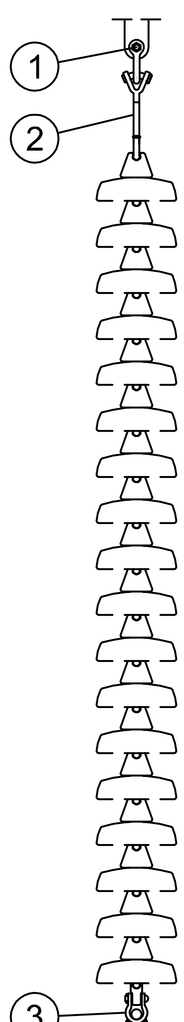
THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ANSI B 11" X 17"

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

CONNECT TO
STEEL VANG,
DEAD END TEE
OR DAVIT ARM



SINGLE
PHASE
SHOWN

REFER TO IBERDROLA
USA TRANSMISSION
CONSTRUCTION STANDARDS
MANUAL TM2.23.TI
FOR APPROPRIATE
INSULATOR SELECTION

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-01
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926118	CLAMP SUSP AL W/SCKT 18K 0.40-0.85

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-02
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926121	CLAMP SUSP AL W/SCKT 25K 0.50-1.04

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-03
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926123	CLAMP SUSP AL W/SCKT 25K 0.90-1.37

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-04
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926126	CLAMP SUSP AL W/SCKT 25K 1.25-1.82

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-05
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-06
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-07
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926130	CLAMP SUSP AL W/SCKT 25K 2.00-2.52

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-08
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926131	CLAMP SUSP AL W/SCKT 40K 2.40-2.80

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-21
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926142	CLAMP SUSP STL W/SCKT 16K 0.20-0.46

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-22
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926143	CLAMP SUSP STL W/SCKT 18K 0.30-0.70

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA10-23
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926144	CLAMP SUSP STL W/SCKT 18K 0.40-0.82

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS.

ASSOCIATED STANDARD:
IDLER STRING OR ANY
TANGENT SUSPENSION
WITHOUT ARMOR RODS

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - IDLER STRING/TANGENT SUSP
ANSI CLASS 52-3 OR 52-5 SINGLE INSULATOR STRINGS
3 SUSPENSION CLAMPS - NO ARMOR ROD

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015

Revision: 00
Date: / /2015

TM2.23.TS-SA10

Sheet 1

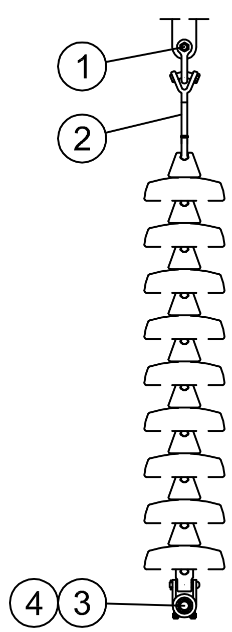
THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.

CONNECT TO
STEEL VANG,
DEAD END TEE
OR DAVIT ARM



SINGLE
PHASE
SHOWN

REFER TO IBERDROLA
USA TRANSMISSION
CONSTRUCTION STANDARDS
MANUAL TM2.23.TI
FOR APPROPRIATE
INSULATOR SELECTION

BILL OF MATERIAL for 246.8 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-IA
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
4	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0585 SGL

BILL OF MATERIAL for 477 AAC 19 Cosmos

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-BJ
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926125	CLAMP SUSP AL W/SCKT 25K 1.10-1.62
4	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-IB
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926125	CLAMP SUSP AL W/SCKT 25K 1.10-1.62
4	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814

BILL OF MATERIAL for 1033.5 AAC 37 Bluebell

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-BS
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
4	3	ST	30925807	ROD ARMR PREFRM AL 72 IN 0.704-0.740

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-IC
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
4	3	ST	30925807	ROD ARMR PREFRM AL 100 IN 1.099-1.139

BILL OF MATERIAL for 4/0 ACSR 6/1 Penguin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-FD
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
4	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-ID
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
4	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327

BILL OF MATERIAL for 336.4 ACSR 18/1 Merlin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-FJ
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
4	3	ST	30925816	ROD ARMR PREFRM AL 68 IN 0.680-0.703

BILL OF MATERIAL for 4/0 AAAC 19 Amarillo

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-AC
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
4	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-GJ
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
4	3	ST	30925809	ROD ARMR PREFRM AL 100 IN 1.209-1.269

ASSOCIATED STANDARD:
TANGENT OR ANGLE
IN SUSPENSION

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA		IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION SPECIFY DETAILS NON-BUNDLED CONDUCTOR - TANGENT/ANGLE SUSPENSION ANSI CLASS 52-3 OR 52-5 SINGLE INSULATOR STRINGS 3 SUSPENSION CLAMPS - 3 SETS ARMOR ROD				Revision 00 Date / /2015
Drwn. By: L.A. Best	Date Dr.: 4/1/2015	Checked By: Shepard/Becken/Hart	Date Ck.: / /2015	Approved By: Barry R. Hart	Date App.: / /2015	TM2.23.TS-SA11	Sheet 1

ANSI B
11" X 17"

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-01
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926118	CLAMP SUSP AL W/SCKT 18K 0.40-0.85

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-02
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926121	CLAMP SUSP AL W/SCKT 25K 0.50-1.04

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-03
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926123	CLAMP SUSP AL W/SCKT 25K 0.90-1.37

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-04
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926126	CLAMP SUSP AL W/SCKT 25K 1.25-1.82

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-05
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-06
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-07
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926130	CLAMP SUSP AL W/SCKT 25K 2.00-2.52

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-08
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926131	CLAMP SUSP AL W/SCKT 40K 2.40-2.80

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-21
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926142	CLAMP SUSP STL W/SCKT 16K 0.20-0.46

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

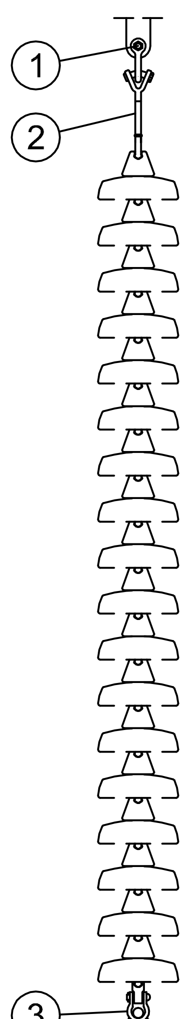
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-22
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926143	CLAMP SUSP STL W/SCKT 18K 0.30-0.70

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC10-23
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL 6 HL 9-11/16 LNG 50K
3	3	ST	30926144	CLAMP SUSP STL W/SCKT 18K 0.40-0.82

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS.

CONNECT TO
STEEL VANG,
DEAD END TEE
OR DAVIT ARM



SINGLE
PHASE
SHOWN

REFER TO IBERDROLA
USA TRANSMISSION
CONSTRUCTION STANDARDS
MANUAL TM2.23.TI
FOR APPROPRIATE
INSULATOR SELECTION

ASSOCIATED STANDARD:
IDLER STRING OR ANY
TANGENT SUSPENSION
WITHOUT ARMOR RODS

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

THIS IS A COMPUTER GENERATED
DRAWING - DO NOT REVISE MANUALLY

ANSI B
11" X 17"

Contact Engineering Standards - Transmission for the creation of new standards and CUs.					Drawing Scale: 1/2" = 1'-0"	
IBERDROLA USA	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION SPECIFY DETAILS NON-BUNDLED CONDUCTOR - IDLER STRING/TANGENT SUSP ANSI CLASS 52-8 OR 52-11 SINGLE INSULATOR STRINGS 3 SUSPENSION CLAMPS - NO ARMOR ROD				Revision 00 Date / /2015
Drwn. By: L.A. Best	Date Dr.: 4/1/2015	Checked By: Shepard/Becken/Hart	Date Ck.: / /2015	Approved By: Barry R. Hart	Date App.: / /2015	TM2.23.TS-SC10 — Sheet 1

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

BILL OF MATERIAL for 795 ACSR 26/7 Drake				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC11-IC
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
4	3	ST	30925807	ROD ARMR PREFRM AL 100 IN 1.099-1.139

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC11-GJ
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
4	3	ST	30925809	ROD ARMR PREFRM AL 100 IN 1.209-1.269

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC11-ID
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
4	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327

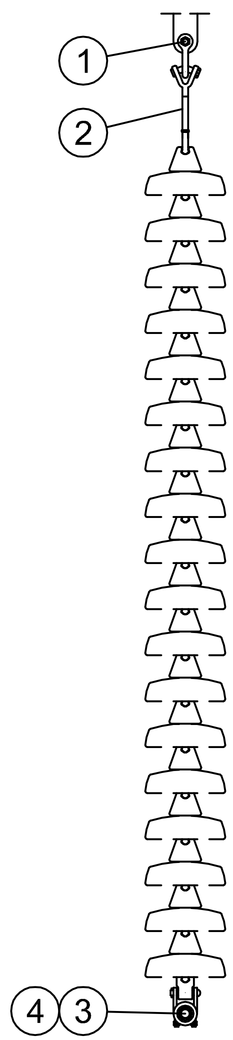
BILL OF MATERIAL for 1113 ACSR 45/7 Bluejay				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC11-GL
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
4	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327

BILL OF MATERIAL for 1590 ACSR 54/19 Falcon				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC11-IE
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	3	ST	30926130	CLAMP SUSP AL W/SCKT 25K 2.00-2.52
4	3	ST	30931294	ROD ARMR PREFRM AL 100 IN 1.509-1.578 E

BILL OF MATERIAL for 2156 ACSR 84/19 Bluebird				
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SC11-GR
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	3	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	3	ST	30926131	CLAMP SUSP AL W/SCKT 40K 2.40-2.80
4	3	ST	30925811	ROD ARMR PREFRM AL 100 IN 1.729-1.809

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.

CONNECT TO
STEEL VANG,
DEAD END TEE
OR DAVIT ARM



SINGLE
PHASE
SHOWN

REFER TO IBERDROLA
USA TRANSMISSION
CONSTRUCTION STANDARDS
MANUAL TM2.23.TI
FOR APPROPRIATE
INSULATOR SELECTION

ASSOCIATED STANDARD:
TANGENT OR ANGLE
IN SUSPENSION

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR - TANGENT/ANGLE SUSPENSION
ANSI CLASS 52-8 OR 52-11 SINGLE INSULATOR STRINGS
3 SUSPENSION CLAMPS - 3 SETS ARMOR ROD

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:		Revision	Date
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-SC11	00	/ /2015

Sheet 1

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ANSI B
11" X 17"

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-01
1	3	ST	30926118	CLAMP SUSP AL W/SCKT 18K 0.40-0.85
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-02
1	3	ST	30926121	CLAMP SUSP AL W/SCKT 25K 0.50-1.04
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-03
1	3	ST	30926123	CLAMP SUSP AL W/SCKT 25K 0.90-1.37
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-04
1	3	ST	30926126	CLAMP SUSP AL W/SCKT 25K 1.25-1.82
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-05
1	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-06
1	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-07
1	3	ST	30926130	CLAMP SUSP AL W/SCKT 25K 2.00-2.52
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-08
1	3	ST	30926131	CLAMP SUSP AL W/SCKT 40K 2.40-2.80
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-21
1	3	ST	30926142	CLAMP SUSP STL W/SCKT 16K 0.20-0.46
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

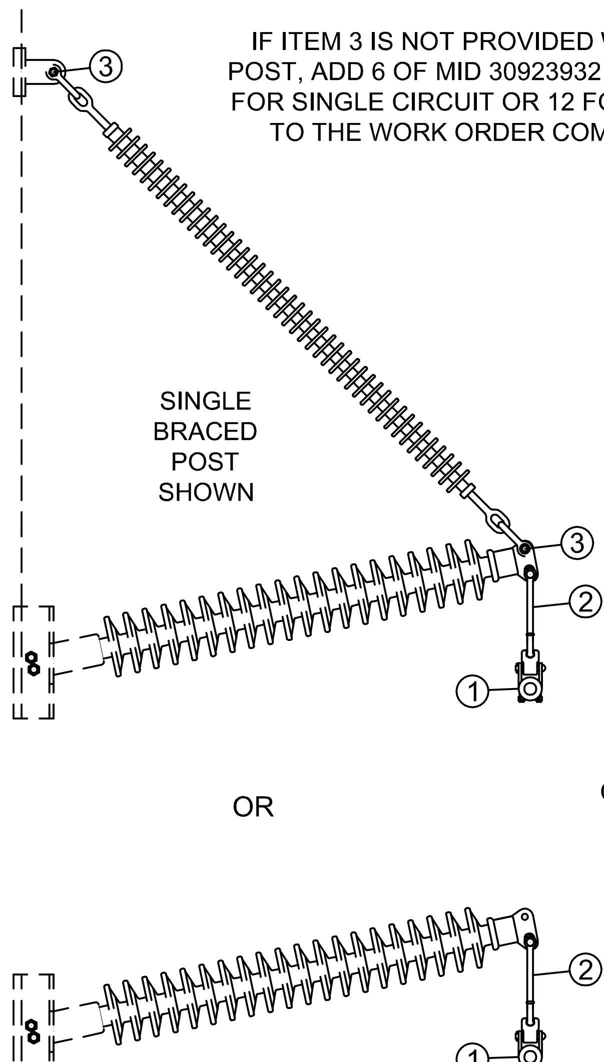
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-22
1	3	ST	30926143	CLAMP SUSP STL W/SCKT 18K 0.30-0.70
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for CU, CWLD, CWLD/CU, STL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI10-23
1	3	ST	30926144	CLAMP SUSP STL W/SCKT 18K 0.40-0.82
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS.

IF ITEM 3 IS NOT PROVIDED WITH THE BRACED POST, ADD 6 OF MID 30923932 (ANCHOR SHACKLE) FOR SINGLE CIRCUIT OR 12 FOR DOUBLE CIRCUIT TO THE WORK ORDER COMPONENTS PAGE.



SINGLE BRACED POST SHOWN

OR

SINGLE HORIZONTAL DROP TONGUE POST INSULATOR SHOWN

REFER TO IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM2.23.TI FOR APPROPRIATE INSULATOR SELECTION

ASSOCIATED STANDARD:
SINGLE SUSPENSION ON BRACED POST INSULATOR OR DROP TONGUE POST INSULATOR JUMPER.

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR
BRACED POST OR DROP TONGUE POST INSULATOR
3 SUSPENSION CLAMPS - NO ARMOR ROD

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:		Revision	Date	Sheet
L.A. Best	2/13/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-SI10	00	/ /2015	1

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ANSI B 11" X 17"

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.

BILL OF MATERIAL for 246.8 (4/0) AAAC 7 Alliance

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-IA
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0585 SGL
2	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 477 AAC 19 Cosmos

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-BJ
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	3	ST	30926125	CLAMP SUSP AL W/SCKT 25K 1.10-1.62
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-IB
1	3	ST	30925819	ROD ARMR PREFRM AL 76 IN 0.783-0.814
2	3	ST	30926125	CLAMP SUSP AL W/SCKT 25K 1.10-1.62
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 1033.5 AAC 37 Bluebell

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-BS
1	3	ST	30925807	ROD ARMR PREFRM AL 72 IN 0.704-0.740
2	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-IC
1	3	ST	30925807	ROD ARMR PREFRM AL 100 IN 1.099-1.139
2	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 4/0 ACSR 6/1 Penguin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-FD
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-ID
1	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327
2	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 336.4 ACSR 18/1 Merlin

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-FJ
1	3	ST	30925816	ROD ARMR PREFRM AL 68 IN 0.680-0.703
2	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

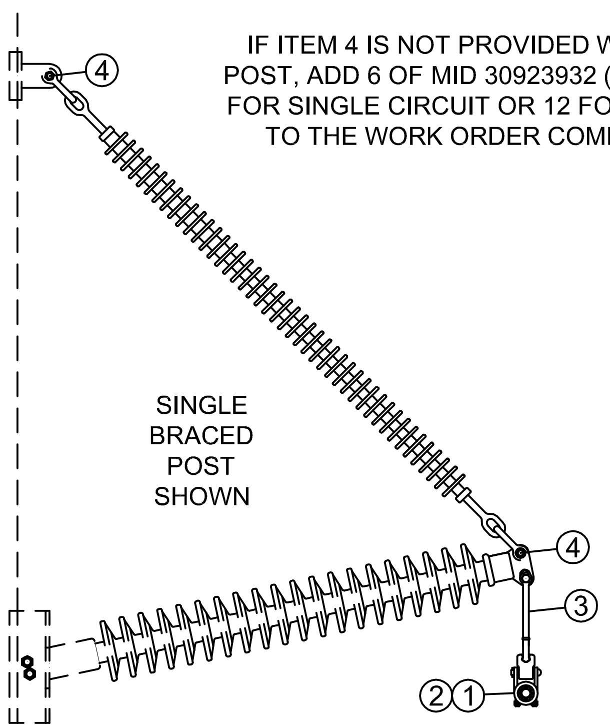
BILL OF MATERIAL for 4/0 AAAC 19 Amarillo

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-AC
1	3	ST	30925814	ROD ARMR PREFRM AL 60 IN 0.552-0.585 SGL
2	3	ST	30926122	CLAMP SUSP AL W/SCKT 25K 0.75-1.18
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

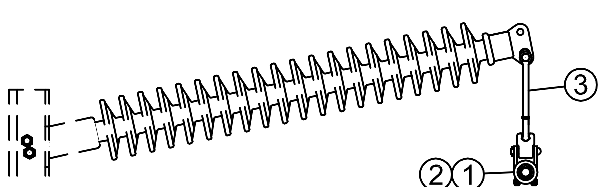
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SI11-GJ
1	3	ST	30925809	ROD ARMR PREFRM AL 100 IN 1.209-1.269
2	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27
3	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K

IF ITEM 4 IS NOT PROVIDED WITH THE BRACED
POST, ADD 6 OF MID 30923932 (ANCHOR SHACKLE)
FOR SINGLE CIRCUIT OR 12 FOR DOUBLE CIRCUIT
TO THE WORK ORDER COMPONENTS PAGE.



SINGLE
BRACED
POST
SHOWN

OR



SINGLE HORIZONTAL
DROP TONGUE
POST INSULATOR
SHOWN

REFER TO IBERDROLA
USA TRANSMISSION
CONSTRUCTION STANDARDS
MANUAL TM2.23.TI
FOR APPROPRIATE
INSULATOR SELECTION

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ANSI B
11" X 17"

ASSOCIATED STANDARD:
SINGLE SUSPENSION ON
BRACED POST INSULATOR
OR DROP TONGUE POST
INSULATOR

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

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

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

IBERDROLA USA

IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL

TRANSMISSION SPECIFY DETAILS
NON-BUNDLED CONDUCTOR
BRACED POST OR DROP TONGUE POST INSULATOR
3 SUSPENSION CLAMPS - 3 SETS ARMOR ROD

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:		Revision	Date
L.A. Best	4/1/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-SI11	00	/ /2015

Sheet 1

BILL OF MATERIAL for 477 ACSR 18/1 Pelican

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-ST21-IB
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926124	CLAMP SUSP AL W/SCKT 25K 1.00-1.47
7	3	ST	30931292	ROD ARMR PREFRM AL 76 IN 0.783-0.814

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-ST21-ID
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
7	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327

BILL OF MATERIAL for 795 ACSR 45/7 Tern

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-ST21-GC
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
7	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327

BILL OF MATERIAL for 795 ACSR 26/7 Drake

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-ST21-IC
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
7	3	ST	30925807	ROD ARMR PREFRM AL 100 IN 1.099-1.139

BILL OF MATERIAL for 1590 ACSR 54/19 Falcon

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-ST21-IE
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
7	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-ST21-GJ
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926128	CLAMP SUSP AL W/SCKT 25K 1.40-2.13
7	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

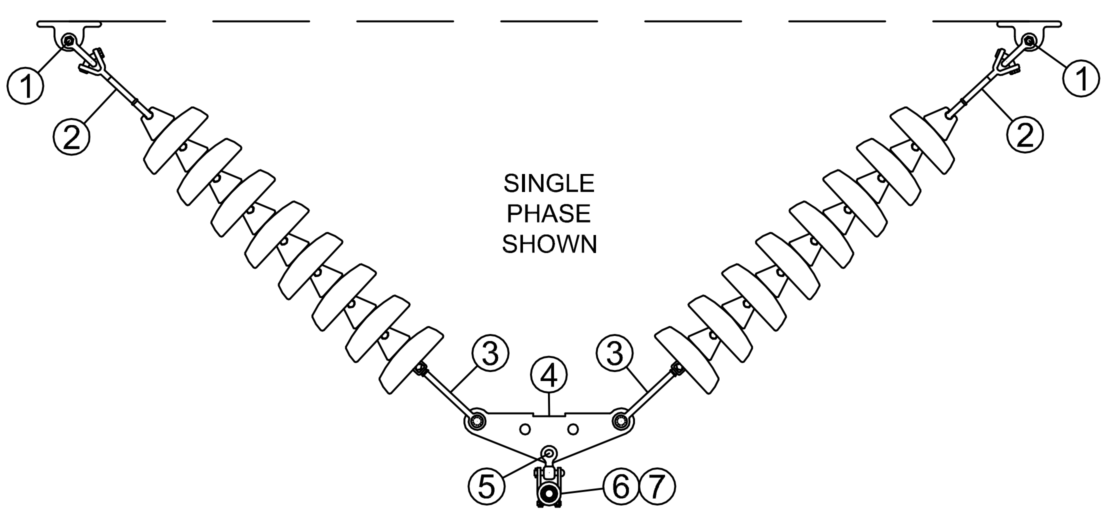
CU Type:
UC_CNDO

BILL OF MATERIAL for

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-ST21-
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K
3	6	ST	30924105	FTTG Y-CLV SCKT S HL 10-1/16 LNG 30K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	309X	CLAMP SUSP AL W/SCKT
7	3	ST	309X	ROD ARMR PREFRM AL

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.

REFER TO IBERDROLA USA TRANSMISSION
CONSTRUCTION STANDARDS MANUAL TM2.23.TI
FOR APPROPRIATE INSULATOR SELECTION



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ANSI B
11" X 17"

ASSOCIATED STANDARD:
TANGENT OR ANGLE
VEE STRING SUSPENSION

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

Contact Engineering Standards - Transmission for the creation of new standards and CUs.	Drawing Scale: 1/2" = 1'-0"

IBERDROLA USA	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION SPECIFY DETAILS NON-BUNDLED CONDUCTOR - VEE STRING ANSI CLASS 52-3 OR CLASS 52-5 DISC INSULATORS 3 SUSPENSION CLAMPS - 3 SETS ARMOR ROD	Revision: 00 Date: / /2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:		
L.A. Best	5/21/2015	Shepard/Becken/Hart	/ /2015	Barry R. Hart	/ /2015	TM2.23.TS-ST21	Sheet 1

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ANSI B 11" X 17"

BILL OF MATERIAL for 795 ACSR 26/7 Drake

CU: U*CT-TS-SV20-IC

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST		

BILL OF MATERIAL for 1280 ACAR 42/19

CU: U*CT-TS-SV20-CA

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926110	CLAMP SUSP AL EHV NO CONN 30K 1.33 MAX

BILL OF MATERIAL for 1033.5 ACSR 54/7 Curlew

CU: U*CT-TS-SV20-GK

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926110	CLAMP SUSP AL EHV NO CONN 30K 1.33 MAX

BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting

CU: U*CT-TS-SV20-ID

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926110	CLAMP SUSP AL EHV NO CONN 30K 1.33 MAX

BILL OF MATERIAL for 795 ACSR 45/7 Tern

CU: U*CT-TS-SV20-GC

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926107	CLAMP SUSP AL EHV NO CONN 25K 1.25 MAX

BILL OF MATERIAL for 1431 ACSR 45/7 Bobolink

CU: U*CT-TS-SV20-GO

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	tbd	CLAMP SUSP AL EHV NO CONN 25K X MAX

BILL OF MATERIAL for 1590 ACSR 54/19 Falcon

CU: U*CT-TS-SV20-IE

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926108	CLAMP SUSP AL EHV NO CONN 25K 1.84 MAX

BILL OF MATERIAL for 1033.5 ACSR 45/7 Ortolan

CU: U*CT-TS-SV20-GJ

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926110	CLAMP SUSP AL EHV NO CONN 30K 1.33 MAX

BILL OF MATERIAL for 2156 ACSR 84/19 Bluebird

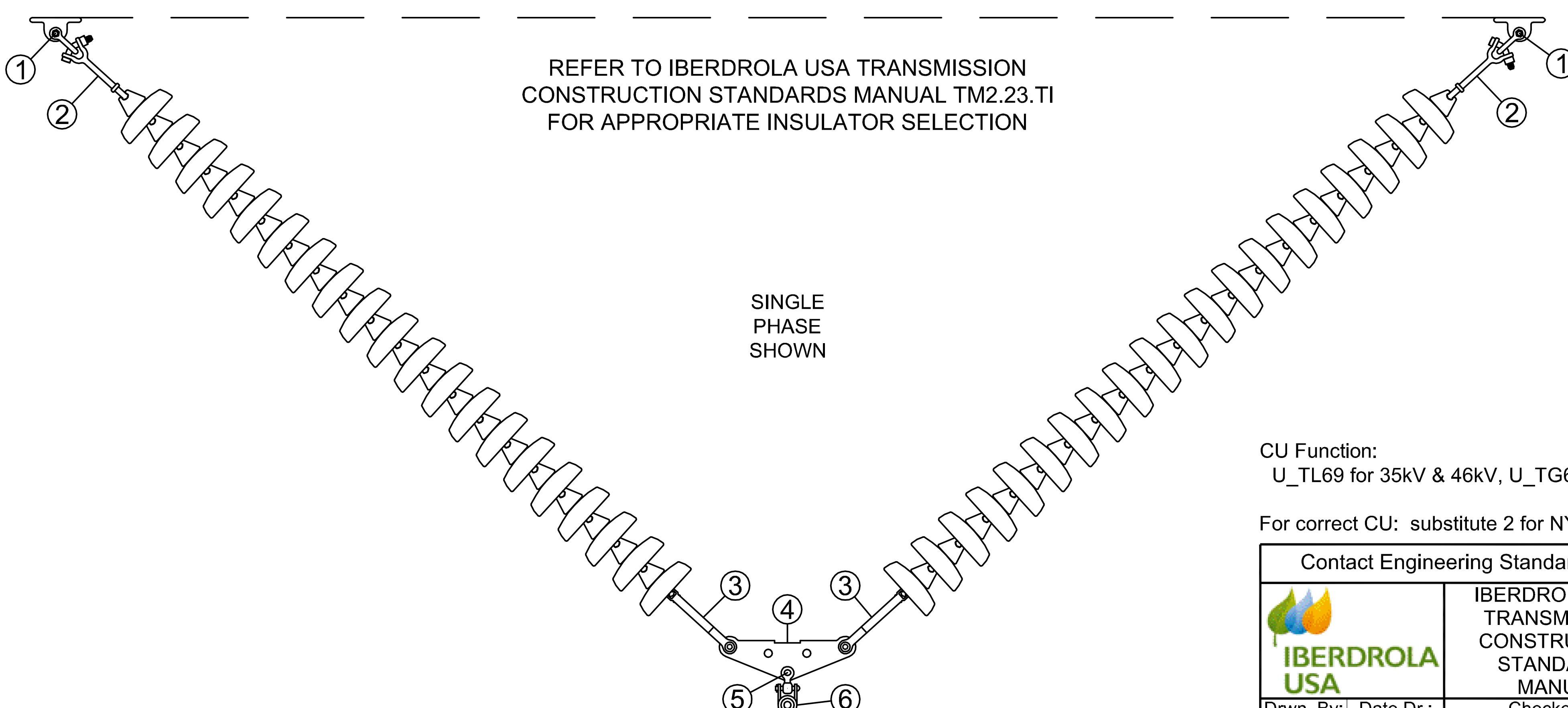
CU: U*CT-TS-SV20-GR

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	DESCRIPTION
1	6	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K
2	6	ST	30924090	FTTG Y-CLV BALL L HL 9-11/16 LNG 50K
3	6	ST	30924103	FTTG Y-CLV SCKT L HL 1-5/16 SHANK 50K
4	3	ST	30923947	YOKE CAST IRON 18 SPC 1-3/4 H 40K
5	3	ST	30924098	FTTG Y-CLV EYE S NHL 1-3/8W 90 DEG 30K
6	3	ST	30926108	CLAMP SUSP AL EHV NO CONN 25K 1.84 MAX

ALL CUs ARE SINGLE CIRCUIT.
FOR DOUBLE CIRCUIT, USE 2
SINGLE CIRCUIT CUs.

CU Type:
UC_CNDO

FOR OTHER WIRE SIZES:
REFER TO TM2.23.TJ-01-001 FOR SUSPENSION CLAMPS
AND TM2.23.TJ-05-001 FOR PREFORMED ARMOR RODS.



CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

Contact Engineering Standards - Transmission for the creation of new standards and CUs.				Drawing Scale: 1/2" = 1'-0"	
IBERDROLA USA	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION SPECIFY DETAILS 345kV - NON-BUNDLED CONDUCTOR - VEE STRING ANSI CLASS 52-8 OR CLASS 52-11 DISC INSULATORS 3 SUSPENSION CLAMPS - NO ARMOR ROD			Revision 00 Date / /2015
Drwn. By: L.A. Best	Date Dr.: 5/21/2015	Checked By: Shepard/Becken/Hart	Date Ck.: / /2015	Approved By: Barry R. Hart Date App.: / /2015	TM2.23.TS-SV20 — Sheet 1