


# OVERHEAD CONSTRUCTION MANUAL

## Section 5 – 33kV Construction

Approved by: C Noel

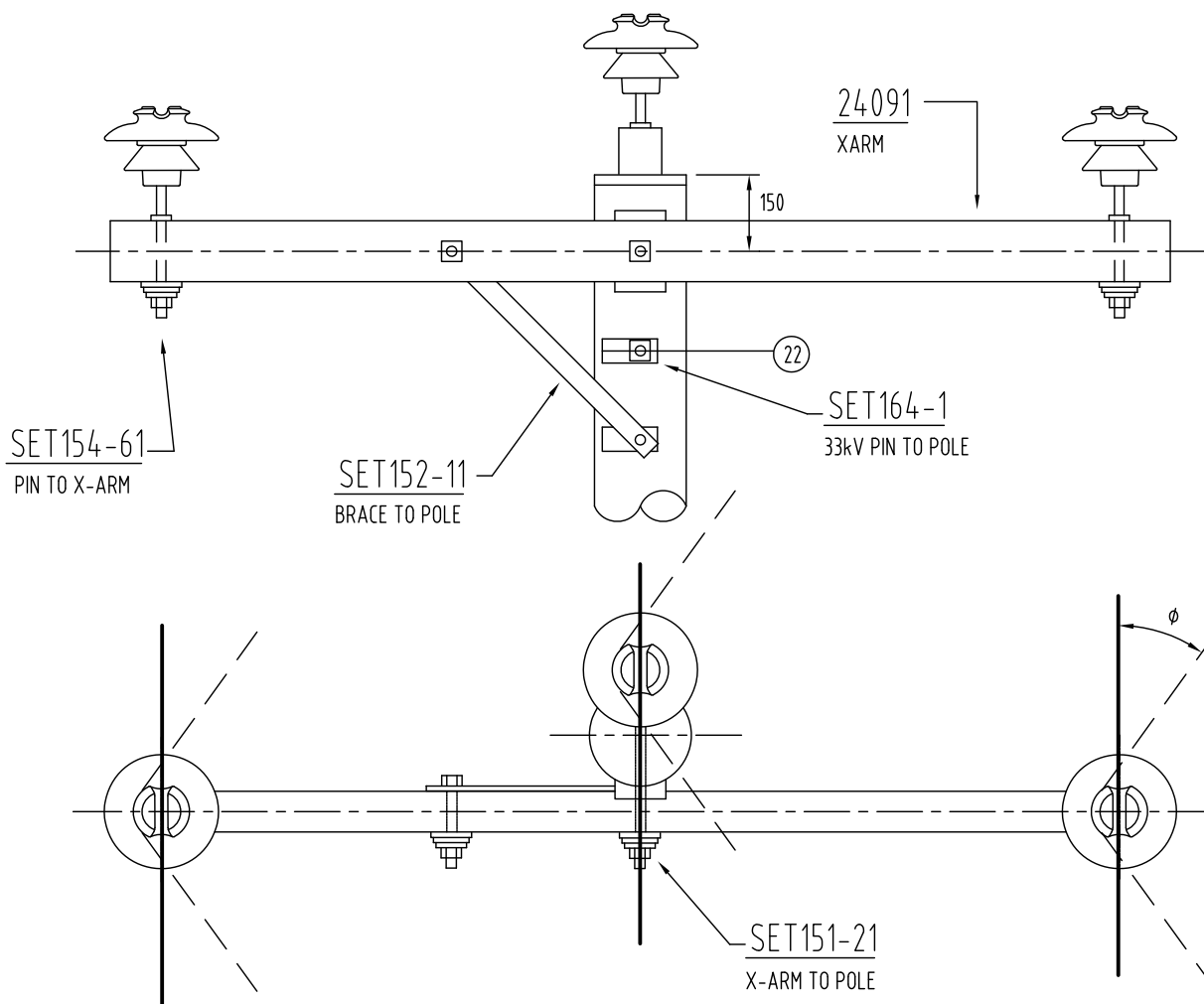
CU	DESCRIPTION	PAGE	DWG.No.	CU	DESCRIPTION	PAGE	DWG.No.
	<u>OPEN WIRE CONSTRUCTIONS</u>				<u>OHEW</u>		
33PC	33kV Pin Construction	5-1	4920-A4-01	OE	OHEW in-line suspension (aac, acsr) for PO, SU, W constructions	5-101	4920-A4-101
33TD	33kV Trident Construction	5-2	4920-A4-02	OEA	OHEW angle suspension (aac, acsr) for SUA, SUAH, WA, TA const.	5-102	4920-A4-102
33POC	33kV Pin Offset Construction	5-3	4920-A4-03	OEV	OHEW suspension (aac, acsr) for VD & VO constructions	5-103	4920-A4-103
33SUC	33kV Suspension Construction	5-4	4920-A4-04	OET	OHEW termination (aac, acsr) for T, T2, TT constructions	5-104	4920-A4-104
33SUAC	33kV Suspension Angle Construction	5-5	4920-A4-05	OES3	OHEW 0-30 deg shackle (aac, acsr) for S, S2, TS, DCS const.	5-105	4920-A4-105
33SUAH	33kV Suspension Angle Heavy Construction	5-6	4920-A4-06	OES9	OHEW 31-90 deg shackle (aac, acsr) for S, S2, TS, DCS const.	5-106	4920-A4-106
33W	33kV Wishbone Construction	5-7	4920-A4-07	OEP	Pole Earth Construction	5-107	4920-A4-107
33WA	33kV Wishbone Angle Construction	5-8	4920-A4-08	OEPR	OHEW pin raiser (aac, acsr) for PO construction	5-108	4920-A4-108
33T	33kV Termination Construction 8kN MWT	5-9	4920-A4-09	OER	OHEW raiser in-line suspension (aac, acsr) for SU construction	5-109	4920-A4-109
33S	33kV Shackle Construction 8kN MWT	5-10	4920-A4-10	OEAR	OHEW raiser angle suspension (aac, acsr) for SUA construction	5-110	4920-A4-110
33T2	33kV Termination Construction 13kN MWT	5-11	4920-A4-11	OETR	OHEW raiser termination (aac, acsr) for T construction	5-111	4920-A4-111
33S2	33kV Shackle Construction 13kN MWT	5-12	4920-A4-12	OESR	OHEW raiser 0-90 deg shackle (aac, acsr) for S, DCS constructions	5-112	4920-A4-112
33TPC	33kV Triangular Pin Construction	5-13	4920-A4-13	OEVR	OHEW raiser suspension (aac, acsr) for VD & VO constructions	5-113	4920-A4-113
33TT	33kV Triangular Termination Construction	5-14	4920-A4-14				
33TS	33kV Triangular Shackle Construction 13kN MWT	5-15	4920-A4-15				
33TA	33kV Triangular Angle Construction	5-16	4920-A4-16				
33VA	33kV Vertical Angle Construction	5-17	4920-A4-17				
33VT	33kV Vertical Termination Construction	5-18	4920-A4-18				
33VS	33kV Vertical Shackle Construction	5-19	4920-A4-19				
33VXS	33kV Vertical Crosscheck Construction	5-20	4920-A4-20				
33BS	33kV Recloser Bridge Support Construction	5-21	4920-A4-21				
-	33kV UG Pole Termination	5-22	4920-A4-22				
-	33kV Underground termination alternative arrangement	5-23	4920-A4-23				
					FOR OPGW REFER SECTION 9 - TELECOMMUNICATIONS		
					<u>BRIDGING</u>		
				-	Normal Bridging - Flat (Over Arm)		
				-	Normal Bridging - Flat (Under Arm)		
33VDR	33kV Vertical Delta Rural Construction	5-25	4920-A4-25	-	Normal Transposition - Flat	5-201	4920-A4-201
33VOR	33kV Vertical Offset Rural Construction	5-26	4920-A4-26	-	Normal Transposition - Triangular	5-202	4920-A4-202
				-	Crosscheck	5-203	4920-A4-203
				-	Tee Off	5-204	4920-A4-204
				-	Vertical Construction	5-205	4920-A4-205
				-	Vertical Delta Construction - Tee Off	5-206	4920-A4-206

B	ORIGINAL ISSUE		APPD F. Zaini	CKD P. RELF	DRN L. Burton	Composite crossarm CU's added		 ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D Paul Rainbird	TECH STDS		AUTOCAD	
	G	DATE 07/08/19							DATE 15-12-97	4920-A4		G			
		REC'D J Tunney							SECT 5	PAGE i					
		CKD J Tunney							SHEET 1 OF 1						
		DWN Rob Wassell							FILE:						
									33kV CONSTRUCTION INDEX						

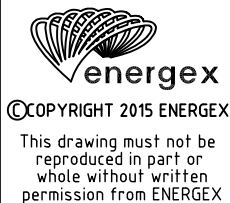
# CU LIST -

33PC  
33PC/N

SET152-11	1	1
SET151-21	1	1
SET164-1		1
SET154-61		2
24091	1	1



ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	UPDATE TO COMPOSITE CROSSARM
D	23/12/2015	F. ZAINI	P. RELF	P. RELF	
E					



## OVERHEAD CONSTRUCTION MANUAL

### 33kV CONSTRUCTION

33PC  
33kV PIN CONSTRUCTION  
(WOOD POLE)

APP'D Paul Rainbird	TECH STDS	AUTOCAD
DATE 31-05-96	4920-A4	E
REC'D John Tunney	SECT 5	PAGE 1
CKD Greg Dowling	SHEET 1 OF 1	
DWN M. Welsh	FILE:	

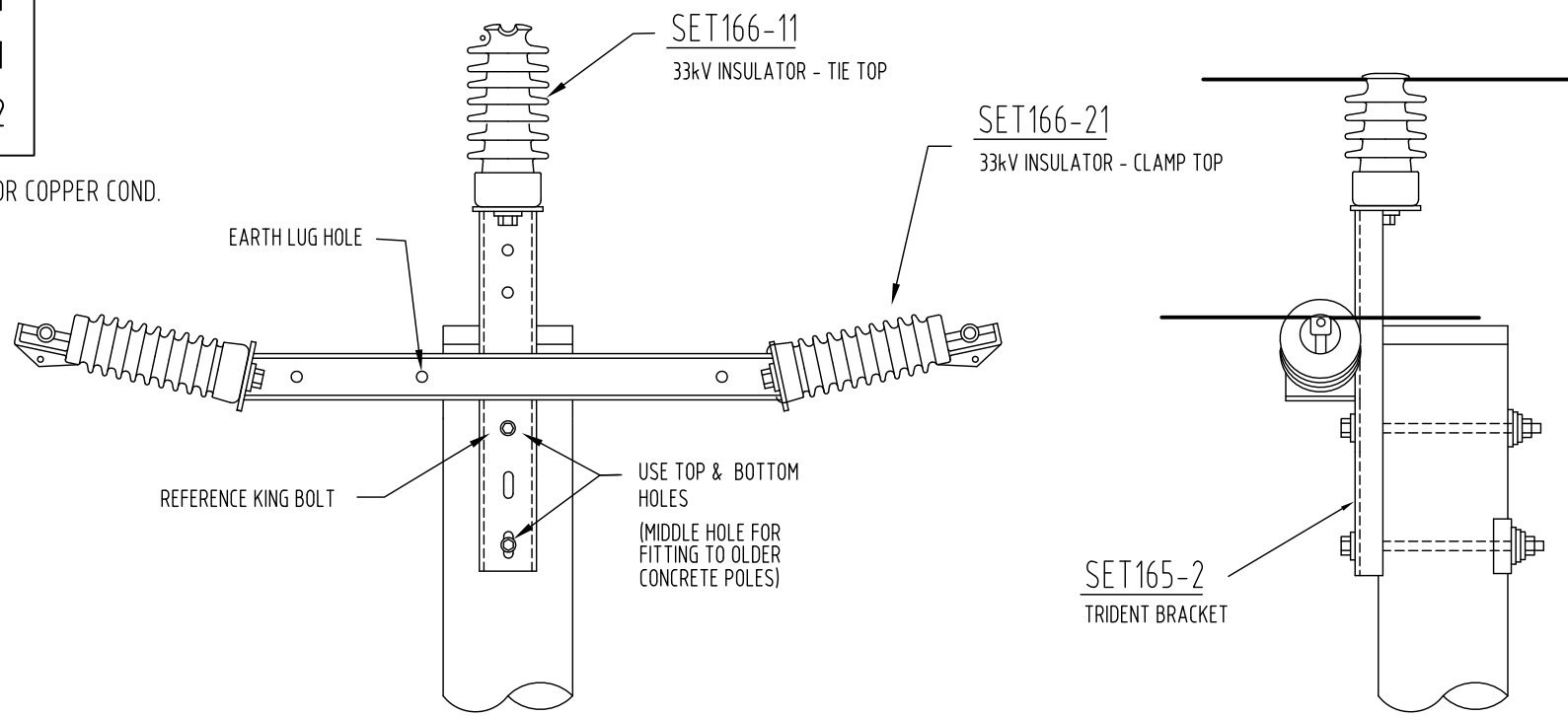
# CU LIST -

33TD


33TD/N

SET165-2	1	1
SET166-11		1
SET166-21		2

SC16385 - TRUNNION CLAMP FOR COPPER COND.



B	ORIGINAL ISSUE	D	DATE	06/02/2017	APPD	F. ZAINI	CKD	P. RELF	DRN	P. RELF	Added SC for Cu Trunnion clamp
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OVERHEAD CONSTRUCTION MANUAL

33kV CONSTRUCTION
33TD
33kV TRIDENT CONSTRUCTION (WOOD POLE)

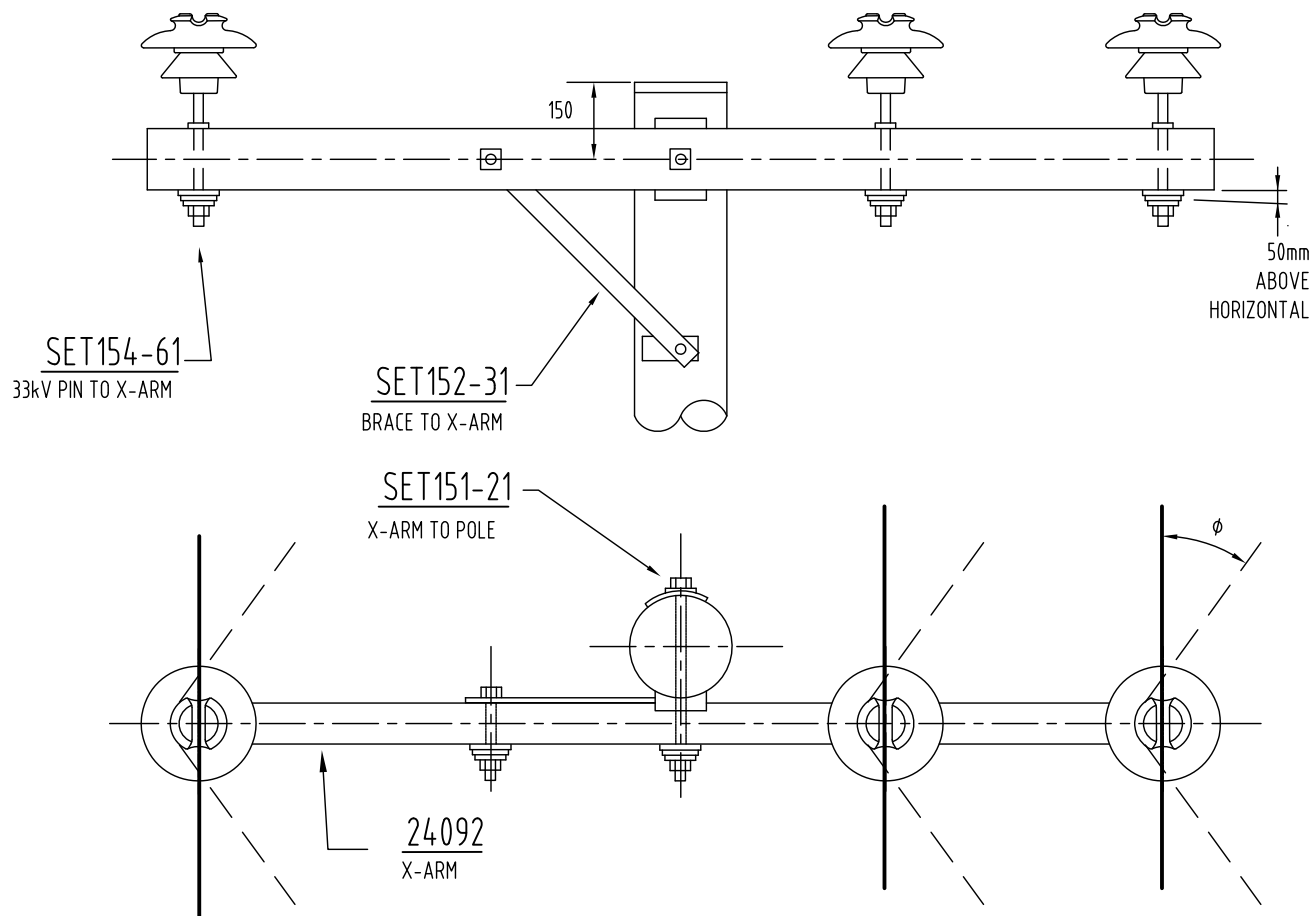
APP'D Paul Rainbird	TECH STDS		AUTOCAD
DATE 28-10-88	4920-A4		D
REC'D	SECT	PAGE	
CKD	5	2	
DWN PT	SHEET 1 OF 1		
FILE:ocm\s5\ohc5-2c.dwg			

## CU LIST -

33POC

33POC/N

SET151-21	1	1
SET152-31	1	1
SET154-61		3
24092 (X-ARM)	1	1



NOTE :

1. STANDARD PIN INSULATOR SHOWN.

ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	UPDATED TO COMPOSITE CROSSARM
E	23/12/2015	F. ZAINI	P. RELF	P. RELF	



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33POC

33kV PIN OFFSET CONSTRUCTION  
(WOOD POLE)

APP'D Paul Rainbird

DATE 28-10-88

REC'D

CKD

DWN

PT

## TECH STDS

AUTOCAD

4920-A4

E

SECT

5

PAGE

3

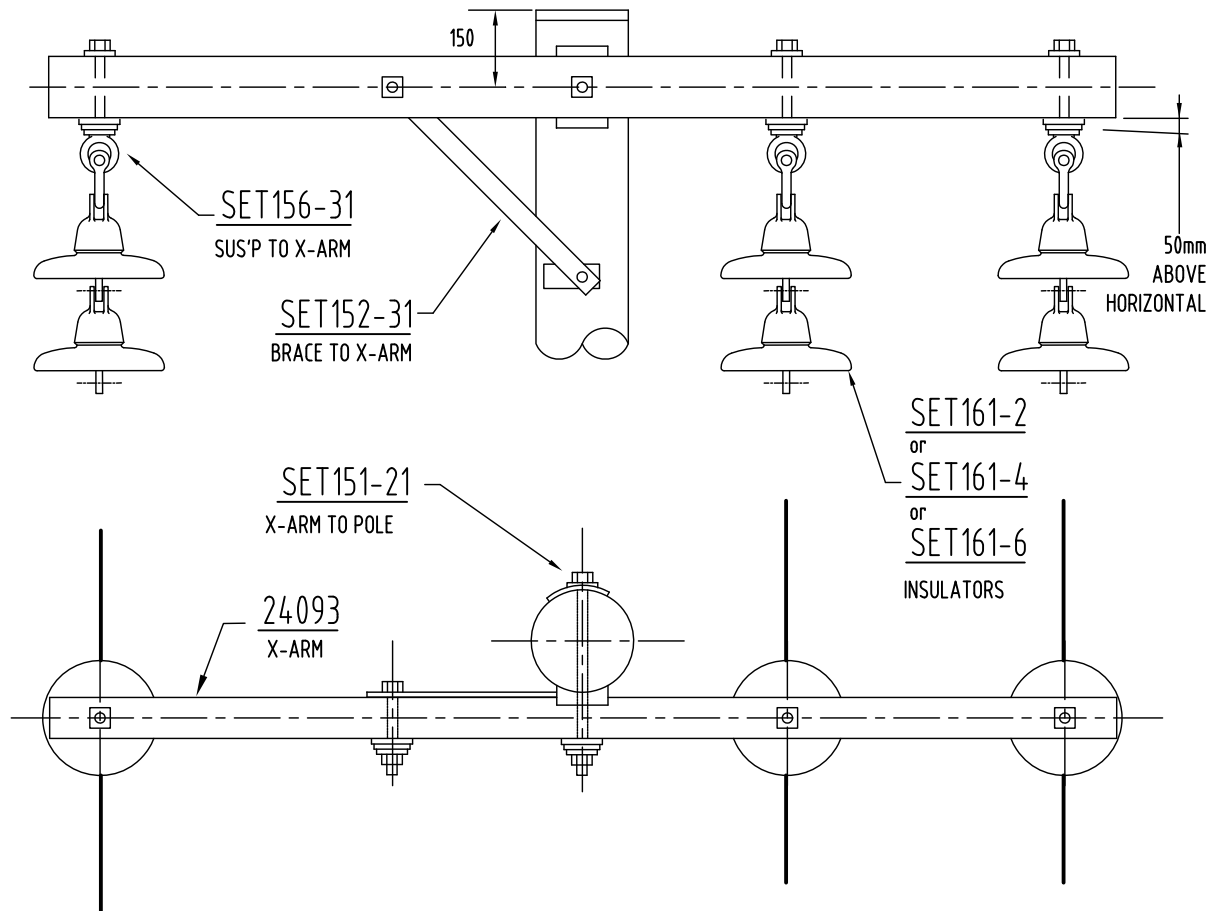
SHEET 1 OF 1

FILE:

## CU LIST -

33SUC  
33SUC/N  
33SUC/F  
33SUC/S

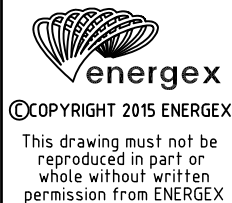
SET151-21	1	1	1	1
SET152-31	1	1	1	1
SET156-31	3	3	3	3
SET161-2		3		
SET161-4			3	
SET161-6				3
24093 (X-ARM)	1	1	1	1



## NOTE :

1. STANDARD DISC INSULATOR SHOWN.

ORIGINAL ISSUE	DATE	23/12/2015	APPD	F. ZAINI	CKD	P. RELF	DRN	P. RELF	UPDATED TO COMPOSITE CROSSARM
D	E								



## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

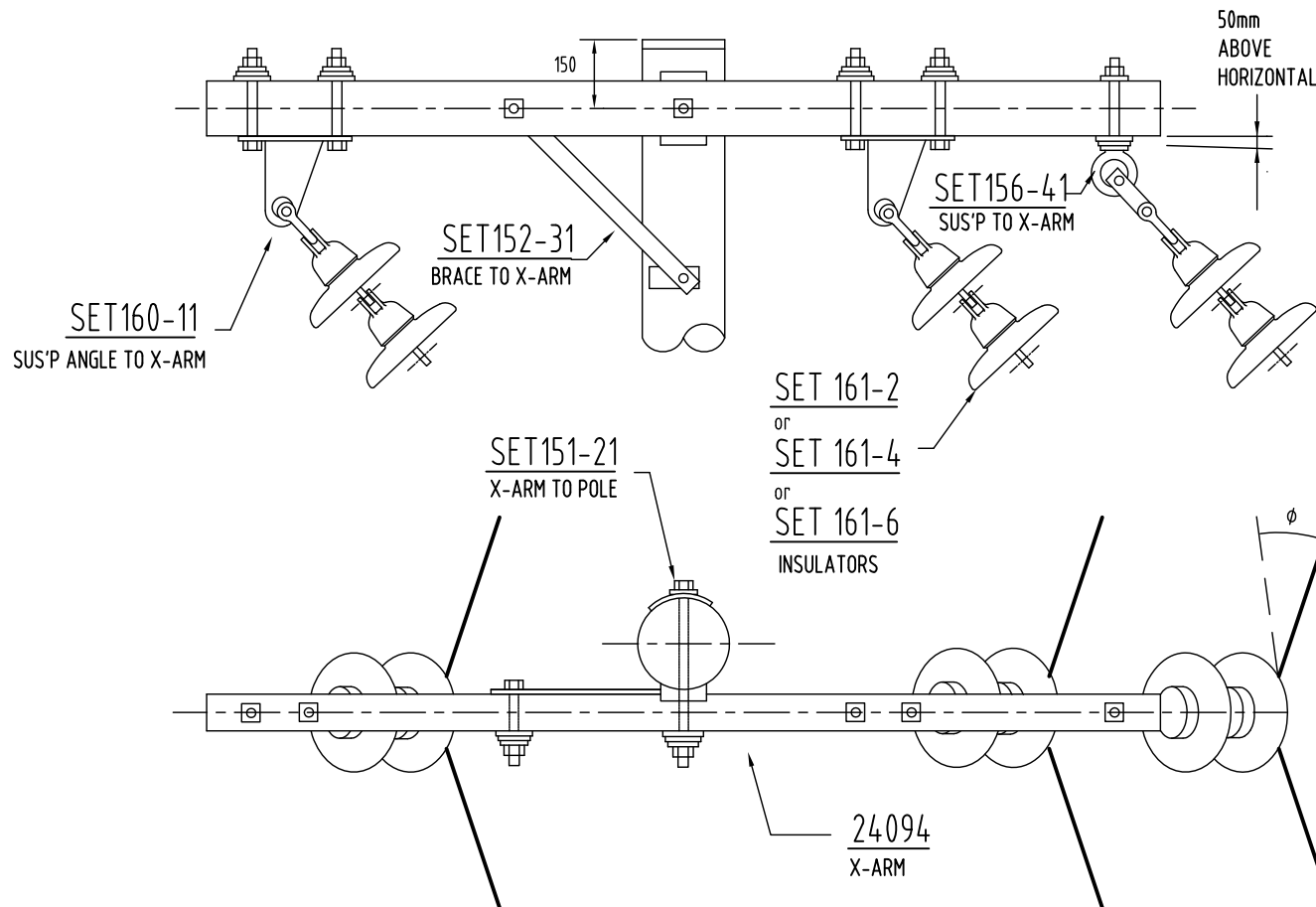
## 33SUC

33kV SUSPENSION CONSTRUCTION  
(WOOD POLE)

APP'D Paul Rainbird	TECH STDS	AUTOCAD
DATE 28-10-88	4920-A4	E
REC'D	SECT 5	PAGE 4
CKD	SHEET 1 OF 1	
DWN PT	FILE:	

## CU LIST -

	33SUAC	33SUAC/N	33SUAC/F	33SUAC/S
SET151-21	1	1	1	1
SET152-31	1	1	1	1
SET156-41	1	1	1	1
SET160-11	2	2	2	2
SET161-2		3		
SET161-4			3	
SET161-6				3
24094 (X-ARM)	1	1	1	1



## NOTE :

1. STANDARD DISC INSULATOR SHOWN.

ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	UPDATE TO COMPOSITE CROSSARM
E	23/12/2015	F. ZAINI	P. RELF	P. RELF	



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33SUAC

33kV SUSPENSION ANGLE CONSTRUCTION (WOOD POLE)

APP'D C.WILLIAMSON

DATE 28-10-88

REC'D

CKD

DWN

TECH STDS AUTOCAD

4920-A4 E

SECT PAGE

5 5

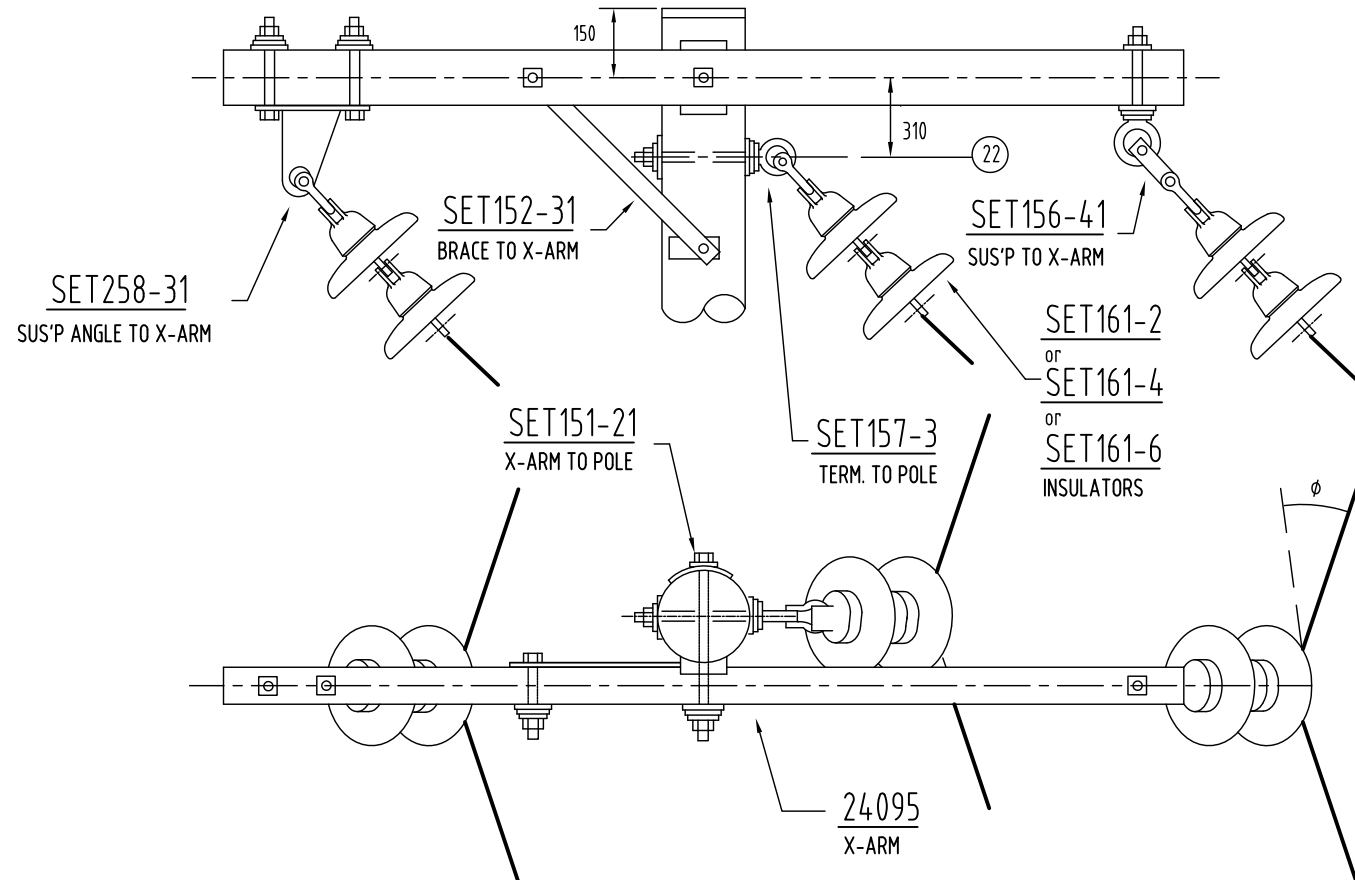
SHEET 1 OF 1

FILE:

## CU LIST -

33SUAHC  
33SUAHC/N  
33SUAHC/F  
33SUAHC/S

SET151-21	1	1	1	1
SET152-31	1	1	1	1
SET156-41	1	1	1	1
SET157-3	1	1	1	1
SET258-31	1	1	1	1
SET161-2		3		
SET161-4			3	
SET161-6				3
24095 (X-ARM)	1	1	1	1



## NOTE :

1. STANDARD DISC INSULATOR SHOWN.

ORIGINAL ISSUE	DATE	24/12/2015	APP'D	F. ZAINI	CKD	P. RELF	DRN	P. RELF	UPDATE TO COMPOSITE CROSSARM
D	E								



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33SUAHC

33kV SUSPENSION ANGLE HEAVY CONSTRUCTION (WOOD POLE)

APP'D	C.WILLIAMSON	TECH STDS	AUTOCAD
DATE	28-10-88	4920-A4	E
REC'D		SECT	PAGE
CKD		5	6
DWN	PT	SHEET	1 OF 1
		FILE:	



## CU LIST -

33W

33W/N

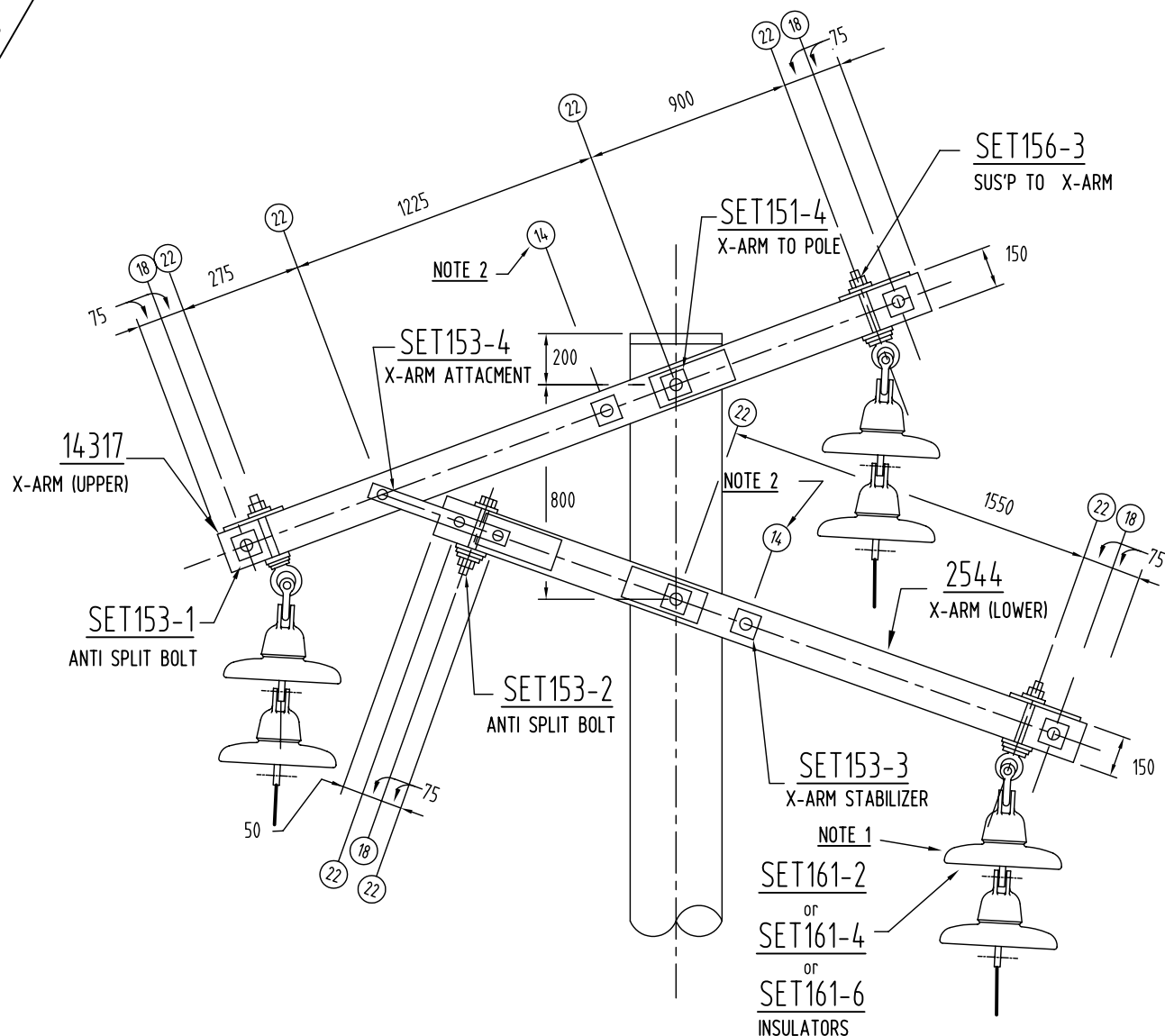
33W/F

33W/S

SET151-4	2	2	2	2
SET153-3	2	2	2	2
SET156-3	3	3	3	3
SET153-4	1	1	1	1
SET153-1	3	3	3	3
SET153-2	1	1	1	1
SET161-2		3		
SET161-4			3	
SET161-6				3
2544 (X-ARM)	1	1	1	1
14317 (X-ARM)	1	1	1	1

## NOTES:

- STANDARD DISC INSULATOR SHOWN
- STABILISING BRACKET HOLES TO BE DRILLED ON SITE.



ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	NEW TEMPLATE
	15/11/06	K.NUTTALL	J.TUNNEY	G.JAYAVEERA	
C	D				



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33W

33kV WISHBONE CONSTRUCTION  
(WOOD POLE)

APP'D C.WILLIAMSON

DATE 28-10-88

REC'D

CKD

DWN PT

TECH STDS AUTOCAD

4920-A4 D

SECT PAGE

5 7

SHEET 1 OF 1

FILE:ocm\s5\ohc5-7d.dwg

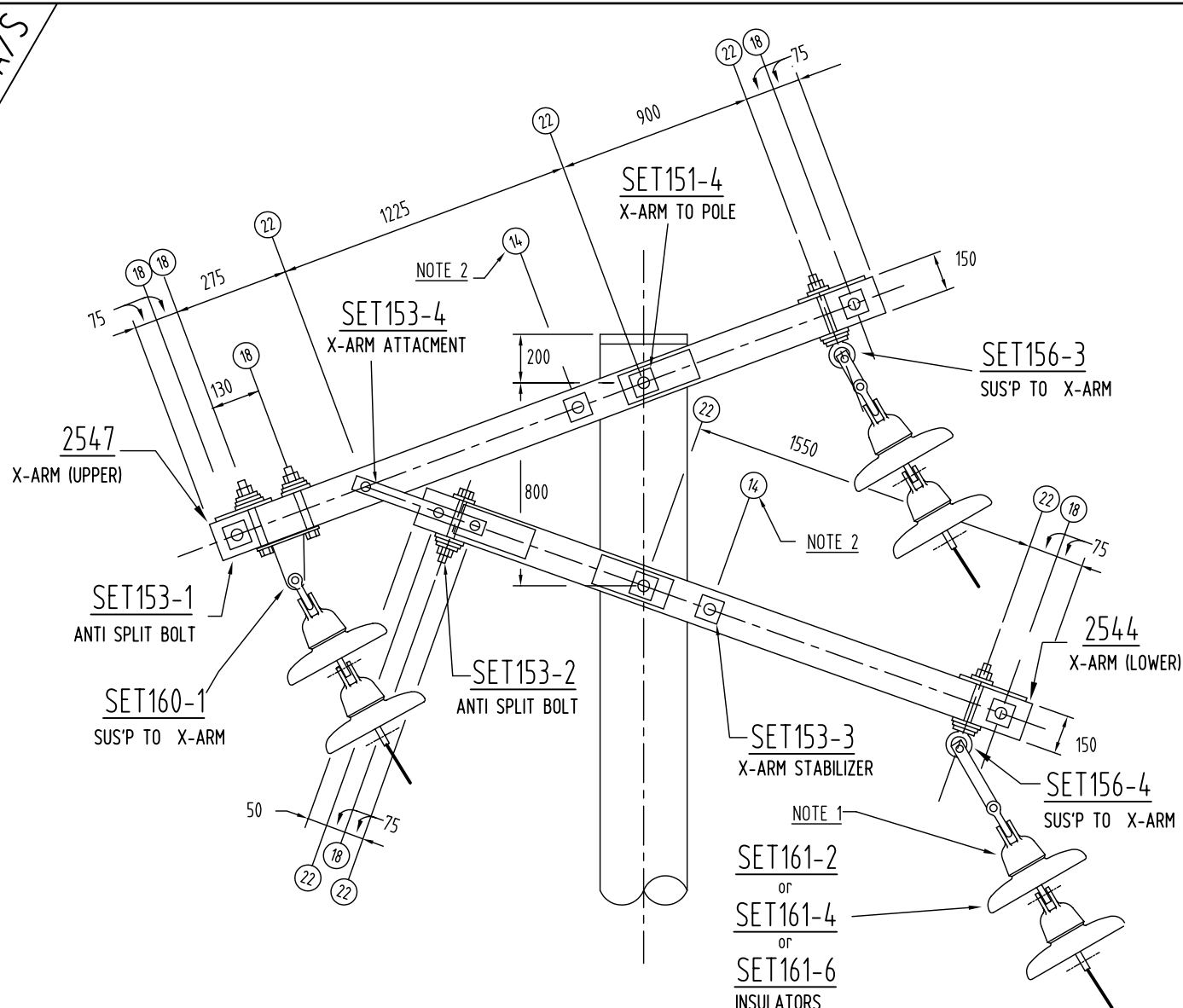
## CU LIST -

33WA  
33WA/N  
33WA/F  
33WA/S

SET151-4	2	2	2	2
SET153-3	2	2	2	2
SET156-3	1	1	1	1
SET156-4	1	1	1	1
SET160-1	1	1	1	1
SET153-1	3	3	3	3
SET153-2	1	1	1	1
SET153-4	1	1	1	1
SET161-2		3		
SET161-4			3	
SET161-6				3
2544 (X-ARM)	1	1	1	1
2547 (X-ARM)	1	1	1	1

## NOTES.

- STANDARD DISC INSULATOR SHOWN
- STABILISING BRACKET HOLES TO BE DRILLED ON SITE.



ORIGINAL ISSUE	DATE 15/11/06	APPD K NUTTALL	CKD J TUNNEY	DRN G JAYAVEERA	NEW TEMPLATE
C	D				



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33WA

33kV WISHBONE ANGLE CONSTRUCTION (WOOD POLE)

APP'D C.WILLIAMSON

DATE 28-10-88

REC'D

CKD

DWN PT

TECH STDS AUTOCAD

4920-A4 D

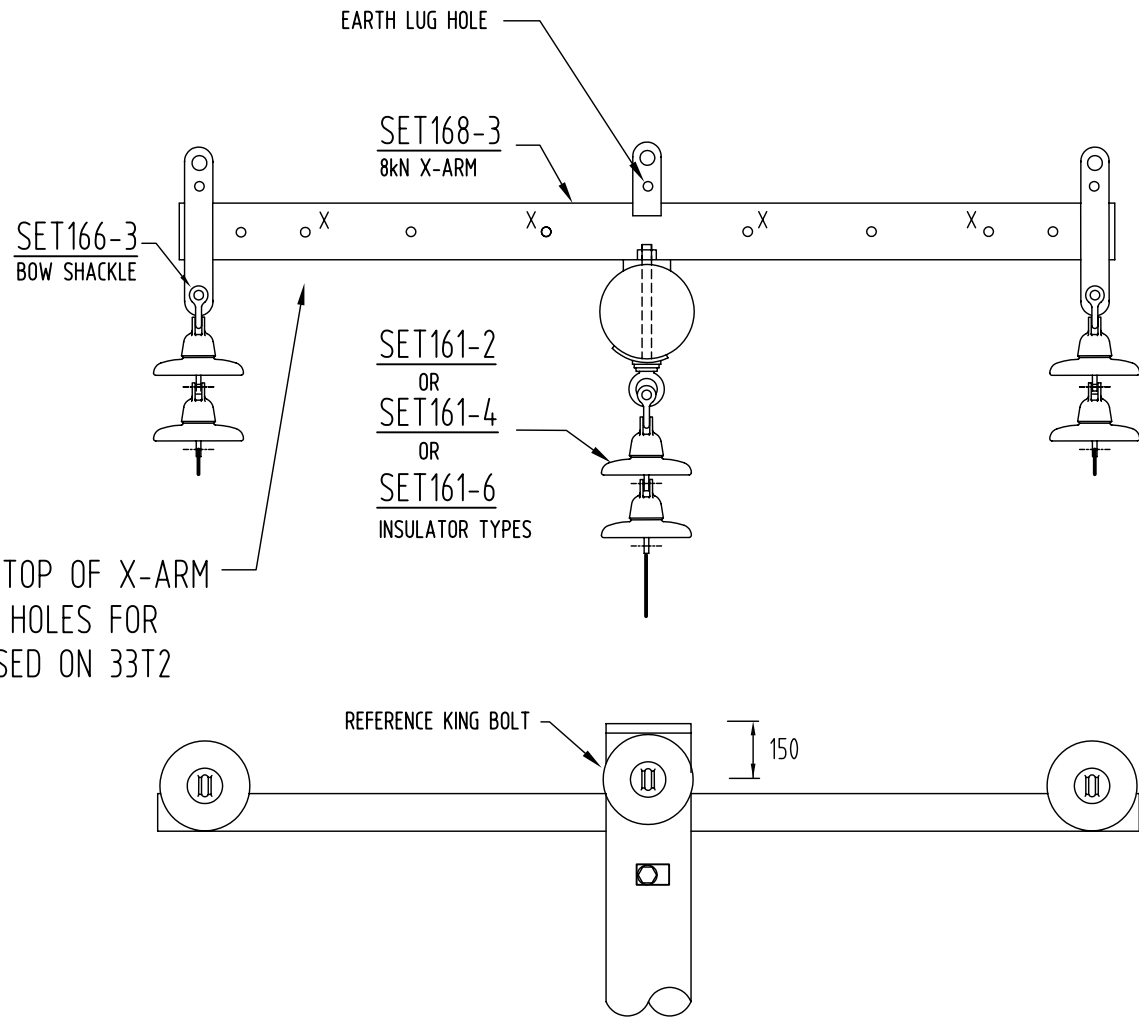
SECT 5 PAGE 8

SHEET 1 OF 1

FILE:ocm\s5\ohc5-8d.dwg

CU LIST -

	33T	33T/N	33T/F	33T/S
SET168-3	1	1	1	1
SET166-3	3	3	3	3
SET161-2		3		
SET161-4			3	
SET161-6				3



'X' MARKS ON TOP OF X-ARM  
INDICATE BOLT HOLES FOR  
REINFORCING USED ON 33T2

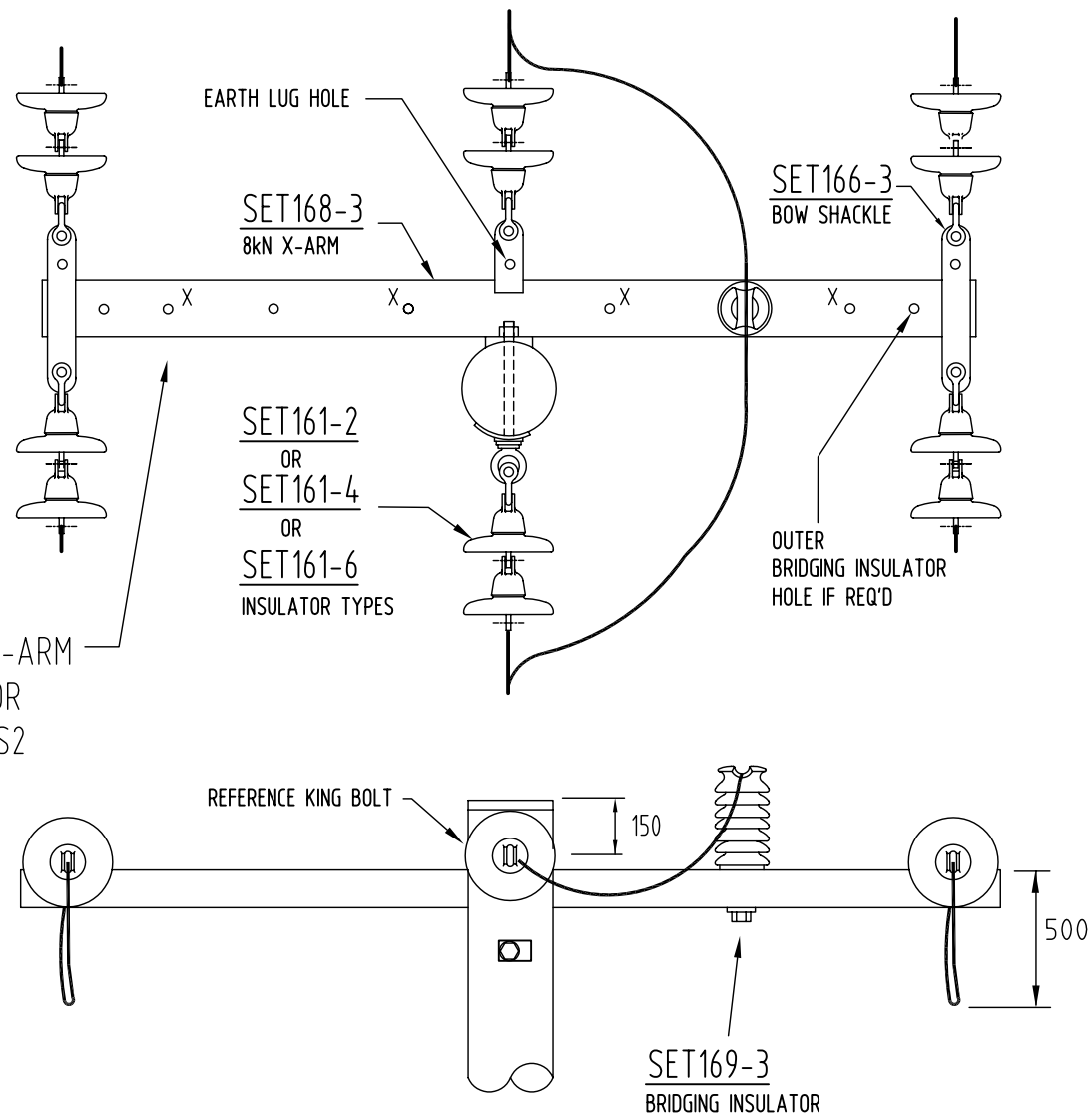
NOTE :

- 1. STANDARD DISC INSULATOR SHOWN.


## CU LIST -

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SET168-3	1	1	1	1
SET169-3	1	1	1	1
SET166-3	6	6	6	6
SET161-2		6		
SET161-4			6	
SET161-6				6

'X' MARKS ON TOP OF X-ARM  
INDICATE BOLT HOLES FOR  
REINFORCING USED ON 11S2



ORIGINAL ISSUE	DATE	APPD	CKD	DRN	X-ARM CONSTRUCTION CHANGED
C	D 15/11/06	D K NUTTALL	J TUNNEY	G JAYAWEERA	

  
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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

33S

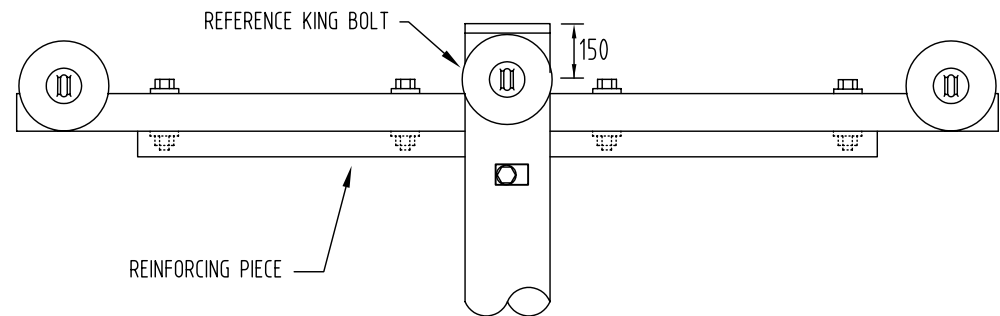
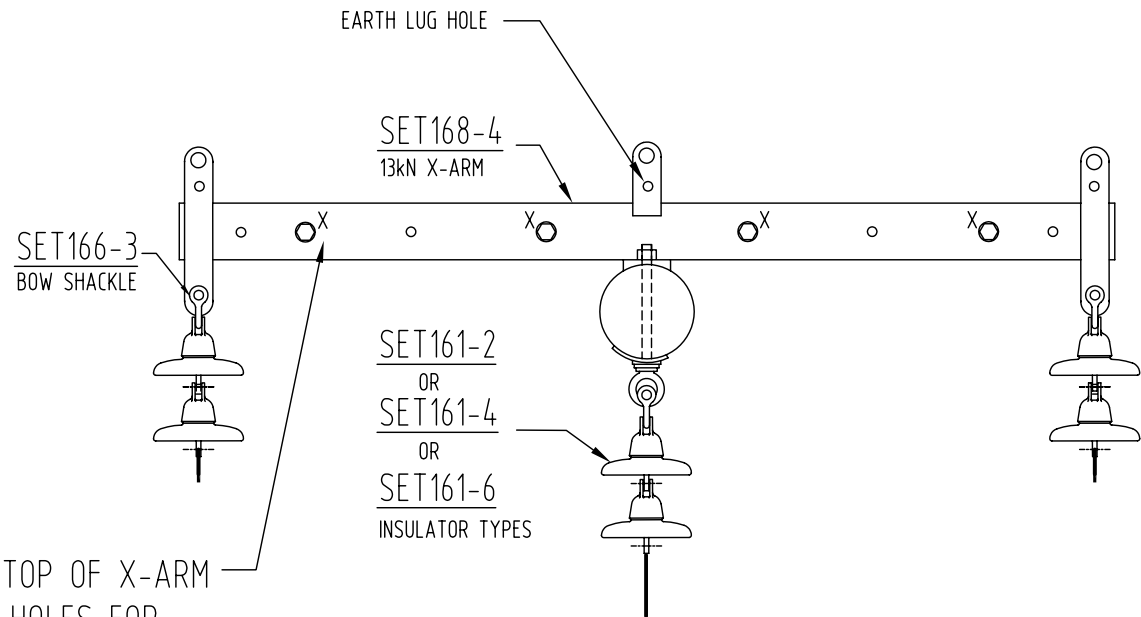
33kV SHACKLE CONSTRUCTION 8kN MWT  
(WOOD POLE)

APP'D	P. PEARL	TECH STDS	AUTOCAD
DATE	31-05-96	4920-A4	D
REC'D	John Tunney	SECT	PAGE
CKD	John Tunney	5	10
DWN	M. Welsh	SHEET	1 OF 1
FILE:ocm\s5\ohc\10d.dwg			


## CU LIST -

33T2  
33T2/N  
33T2/F  
33T2/S

SET168-4	1	1	1	1
SET166-3	3	3	3	3
SET161-2		3		
SET161-4			3	
SET161-6				3

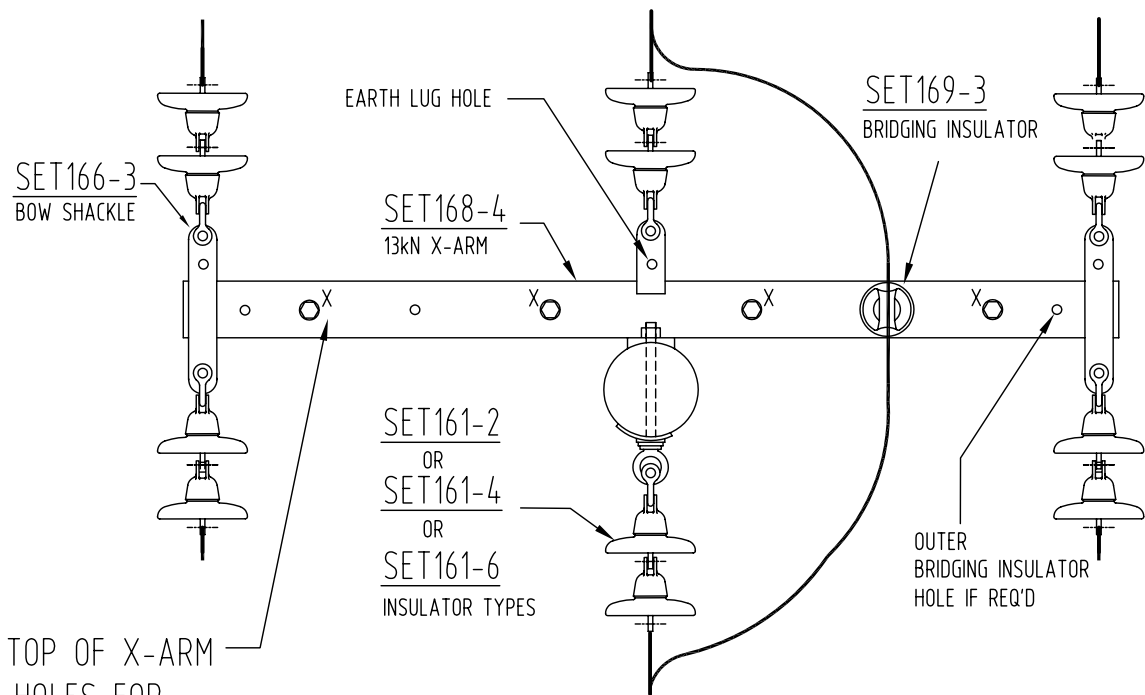
**NOTE:-**

WHEN FITTING IN AIR TO EXISTING POLE  
FIT X-ARM FIRST, THEN FIT REINFORCING PIECE

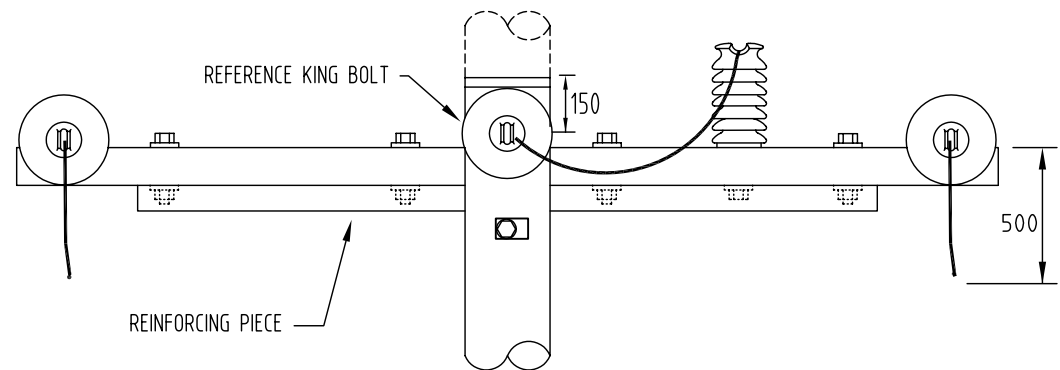
ORIGINAL ISSUE	DATE 15/11/06	APPD K. NUTTALL	CKD J. TUNNEY	DRN G. JAYAWERA	X-ARM CONSTRUCTION CHANGED		 ©COPYRIGHT 2006 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL <b>33kV CONSTRUCTION</b> <b>33T2</b> 33kV TERMINATION CONSTRUCTION 13kN MWT (WOOD POLE)	APP'D Paul Rainbird DATE 31-05-96 REC'D John Tunney CKD Greg Dowling DWN M. Welsh	TECH STDS <b>4920-A4</b> SECT 5 SHEET 1 OF 1 FILE:ocm\s5\ohc5-11d.dwg	AUTOCAD D PAGE 11
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## CU LIST -

	33S2	33S2/N	33S2/F	33S2/S
SET168-4	1	1	1	1
SET169-3	1	1	1	1
SET166-3	6	6	6	6
SET161-2		6		
SET161-4			6	
SET161-6				6



'X' MARKS ON TOP OF X-ARM  
INDICATE BOLT HOLES FOR  
REINFORCING PIECE

**NOTE:-**

1. WHEN FITTING IN AIR TO EXISTING POLE  
FIT X-ARM FIRST, THEN FIT REINFORCING PIECE

ORIGINAL ISSUE	DATE 15/11/06	APPD K NUTTALL	CKD J TUNNEY	DRN G JAYAWEERA	X-ARM CONSTRUCTION CHANGED
C	D	APPD	CKD	DRN	X-ARM CONSTRUCTION CHANGED



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**OVERHEAD CONSTRUCTION MANUAL****33kV CONSTRUCTION****33S2**

33kV SHACKLE CONSTRUCTION 13kN MWT  
(WOOD POLE)

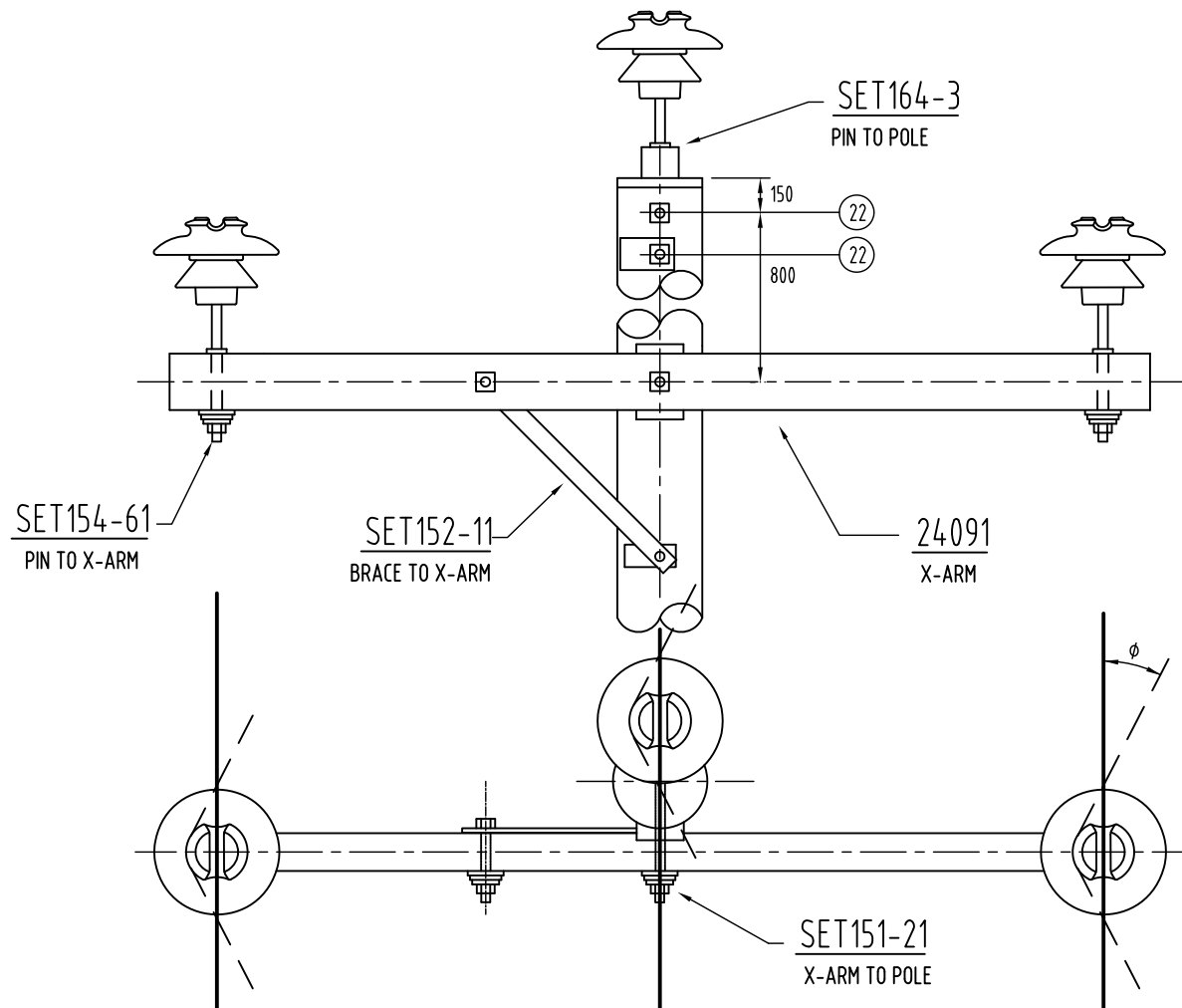
APP'D P. PEARL	TECH STDS	AUTOCAD
DATE 24-07-98	4920-A4	D
REC'D John Tunney	SECT 5	PAGE 12
CKD John Tunney	SHEET 1 OF 1	
DWN M. Welsh	FILE:ocm\s5\ohc5-12d.dwg	

## CU LIST -

33TPC

33TPC/N

SET151-21	1	1
SET152-11	1	1
SET154-61		2
SET164-3		1
24091 (X-ARM)	1	1



ORIGINAL ISSUE	DATE	24/12/2015	APP'D	F. ZAINI	CKD	P. RELF	DRN	P. RELF	UPDATED TO COMPOSITE CROSSARM
D	E								



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33TPC

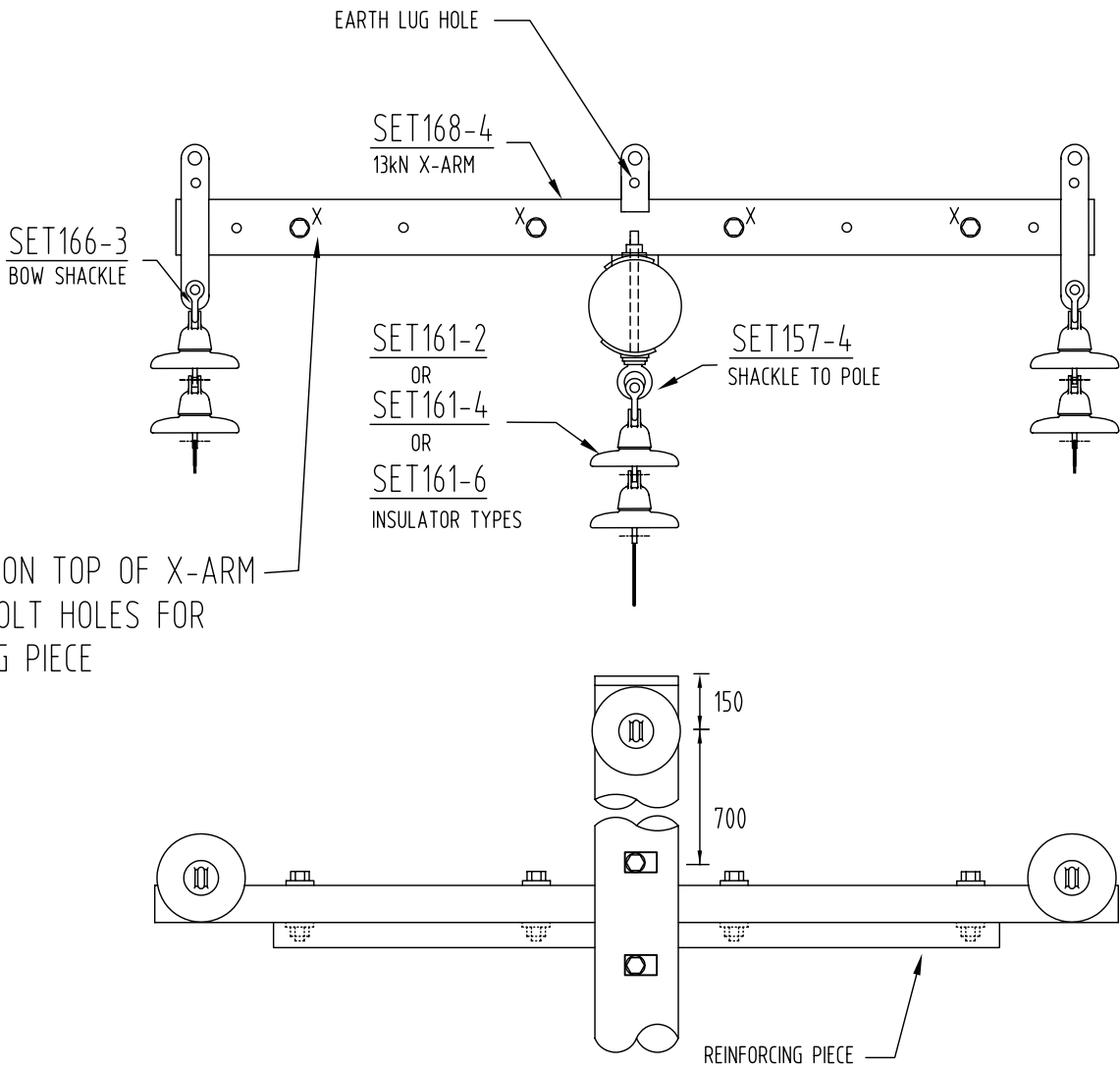
33kV TRIANGULAR PIN CONSTRUCTION  
(WOOD POLE)

APP'D	P. PEARL	TECH STDS		AUTOCAD
DATE	28-10-88	4920-A4		E
REC'D	J. TUNNY	SECT	PAGE	
CKD	J. TUNNY	5	13	
DWN	PT	SHEET 1 OF 1		FILE:

CU LIST -

	33TT	33TT/N	33TT/F	33TT/S
SET168-4	1	1	1	1
SET166-3	3	3	3	3
SET157-4	1	1	1	1
SET161-2		3		
SET161-4			3	
SET161-6				3

'X' MARKS ON TOP OF X-ARM  
INDICATE BOLT HOLES FOR  
REINFORCING PIECE



NOTE:-

WHEN FITTING IN AIR TO EXISTING POLE  
FIT X-ARM FIRST, THEN FIT REINFORCING PIECE

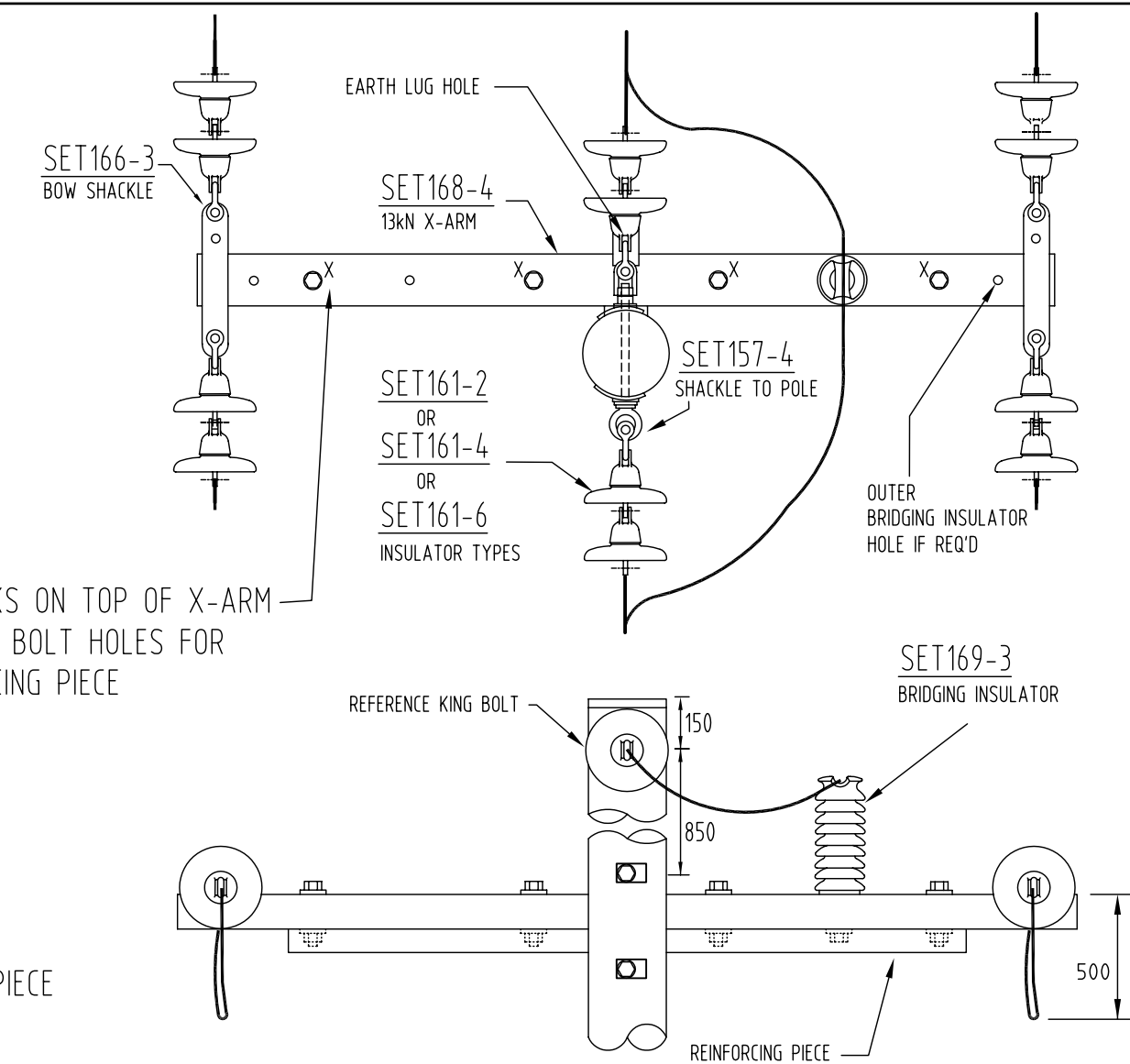


CU LIST -	33TS	33TS/N	33TS/F	33TS/S
SET168-4	1	1	1	1
SET169-3	1	1	1	1
SET166-3	6	6	6	6
SET157-4	1	1	1	1
SET161-2		6		
SET161-4			6	
SET161-6				6


'X' MARKS ON TOP OF X-ARM  
INDICATE BOLT HOLES FOR  
REINFORCING PIECE

**NOTE:-**

1. WHEN FITTING IN AIR TO EXISTING POLE  
FIT X-ARM FIRST, THEN FIT REINFORCING PIECE



ORIGINAL ISSUE	DATE	APPD	CKD	DRN	X-ARM CONSTRUCTION CHANGED
	15/11/06	K.NUTTALL	J.TUNNEY	G.JAYAVEERA	
C	D				



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OVERHEAD CONSTRUCTION MANUAL

33kV CONSTRUCTION  
33TS  
11kV TRIANGULAR SHACKLE CONSTRUCTION (WOOD POLE)

APP'D	Paul Rainbird
DATE	24-07-98
REC'D	John Tunney
CKD	John Tunney
DWN	R.Wassel

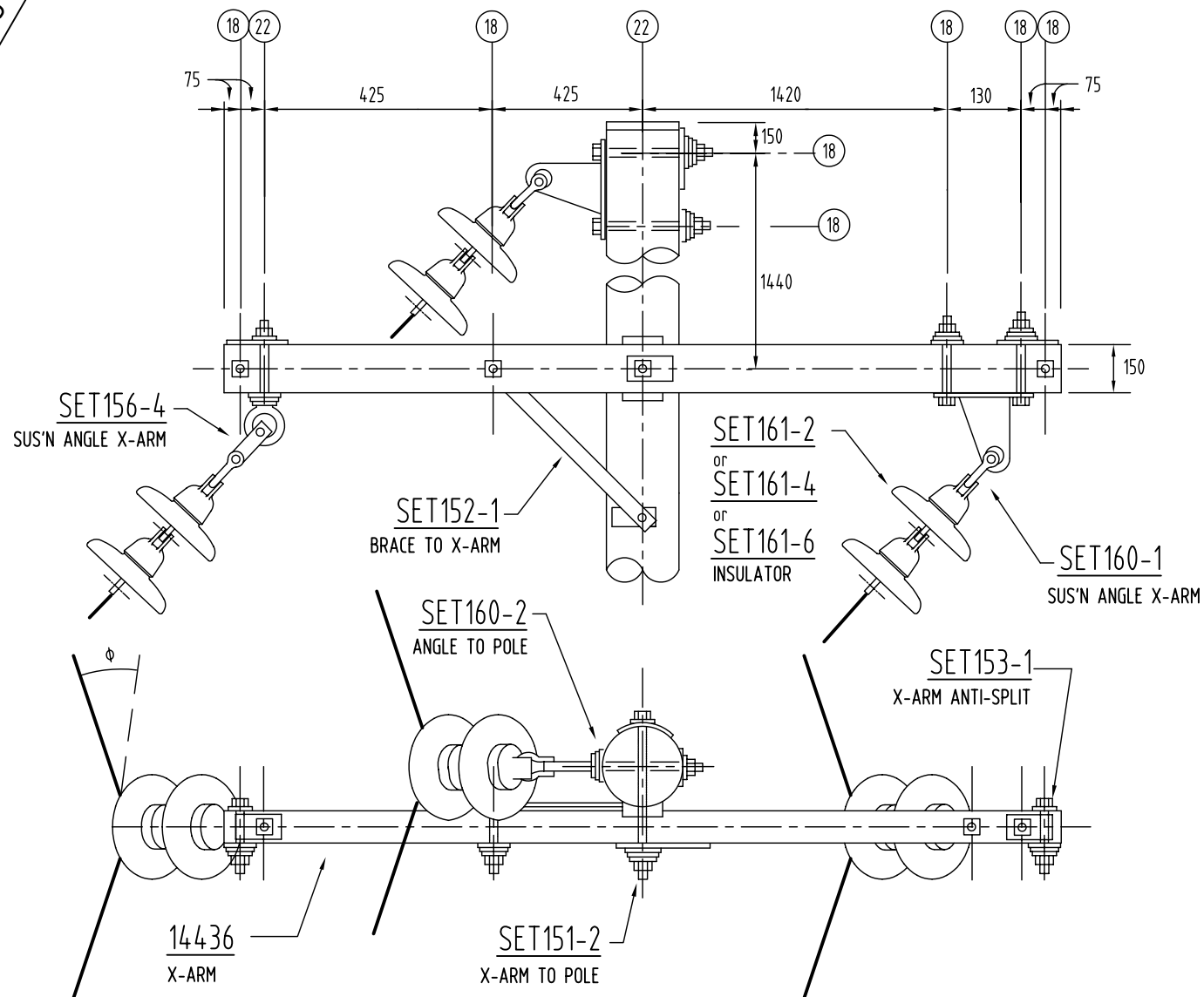
TECH STDS		AUTOCAD
4920-A4		D
SECT	PAGE	
5	15	
SHEET 1 OF 1		
FILE:ocm\s5\ohc5-15d.dwg		

## CU LIST -

	33TA	33TA/N	33TA/F	33TA/S
SET151-2	1	1	1	1
SET152-1	1	1	1	1
SET156-4	1	1	1	1
SET160-1	1	1	1	1
SET160-2	1	1	1	1
SET153-1	2	2	2	2
SET161-2		3		
SET161-4			3	
SET161-6				3
14436 (X-ARM)	1	1	1	1

## NOTE :

1. STANDARD PIN INSULATOR SHOWN.



ORIGINAL ISSUE	DATE 15/11/06	APPD K. NUTTALL	CKD J. TUNNEY	DRN G. JAYAVEERA	NEW TEMPLATE
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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33TA

33kV TRIANGULAR ANGLE CONSTRUCTION (WOOD POLE)

APP'D	DATE 28-10-88	REC'D	CKD	DWN PT	TECH STDS	AUTOCAD
					4920-A4	D
					SECT 5	PAGE 16
					SHEET 1 OF 1	
					FILE:ocm\s5\ohc5-16d.dwg	

## CU LIST -

33VA

33VA/N

33VA/F

33VA/S

SET157-3

3

3

3

3

SET161-2

3

SET161-4

3

SET161-6

3

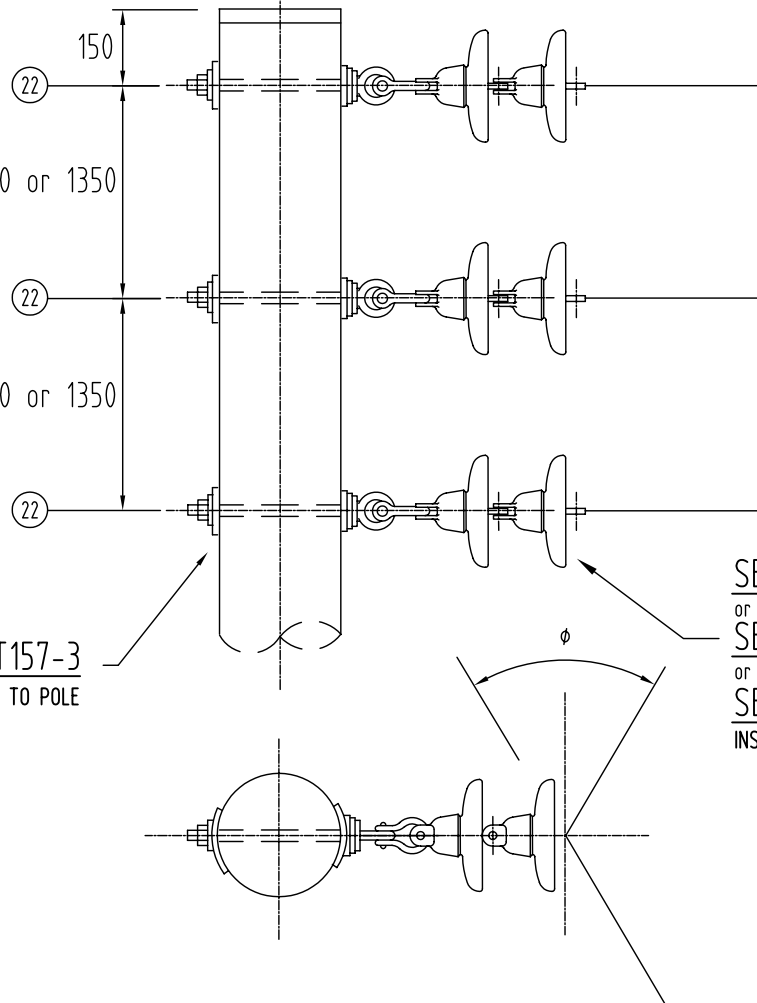
REFER NOTE 2 → 1050 or 1350

REFER NOTE 2 → 1050 or 1350

SET157-3  
TERM'N TO POLESET161-2  
or  
SET161-4  
or  
SET161-6  
INSULATORS

## NOTES :

1. STANDARD DISC INSULATOR SHOWN.
2. FOR TRANSITION TO FLAT CONSTRUCTION FROM VA, INCREASE LOWER PHASE SPACING TO 1350mm.



ORIGINAL ISSUE	DATE 15/11/06	APPD K.NUTTALL	CKD J.TUNNEY	DRN G.JAYAVEERA	NEW TEMPLATE
C	D				



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33VA

33kV VERTICAL ANGLE CONSTRUCTION  
(WOOD POLE)

APP'D	DATE 28-10-88	REC'D	CKD	DWN PT	TECH STDS	AUTOCAD
					4920-A4	D
					SECT 5	PAGE 17
					SHEET 1 OF 1	
					FILE:ocm\s5\ohc5-17d.dwg	

## CU LIST -

	33VT	33VT/N	33VT/F	33VT/S
--	------	--------	--------	--------

SET157-3	3	3	3	3
SET161-2		3		
SET161-4			3	
SET161-6				3

REFER NOTE 2 → 1050 or 1350

REFER NOTE 2 → 1050 or 1350

SET157-3  
TERM'N TO POLESET161-2  
OR  
SET161-4  
OR  
SET161-6  
INSULATOR

## NOTES :

- STANDARD DISC INSULATOR SHOWN.
- FOR TRANSITION TO FLAT CONSTRUCTION FROM VT, INCREASE LOWER PHASE SPACING TO 1350mm.

ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	NEW TEMPLATE
C	D 15/11/06	K.NUTTALL	J.TUNNEY	G.JAYAVEERA	



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33VT

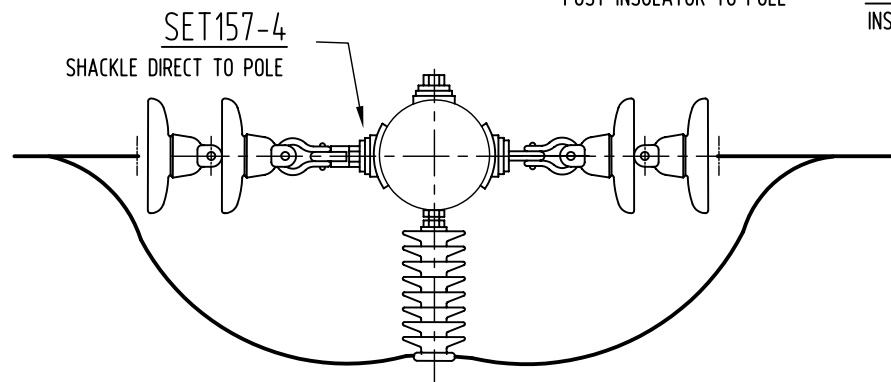
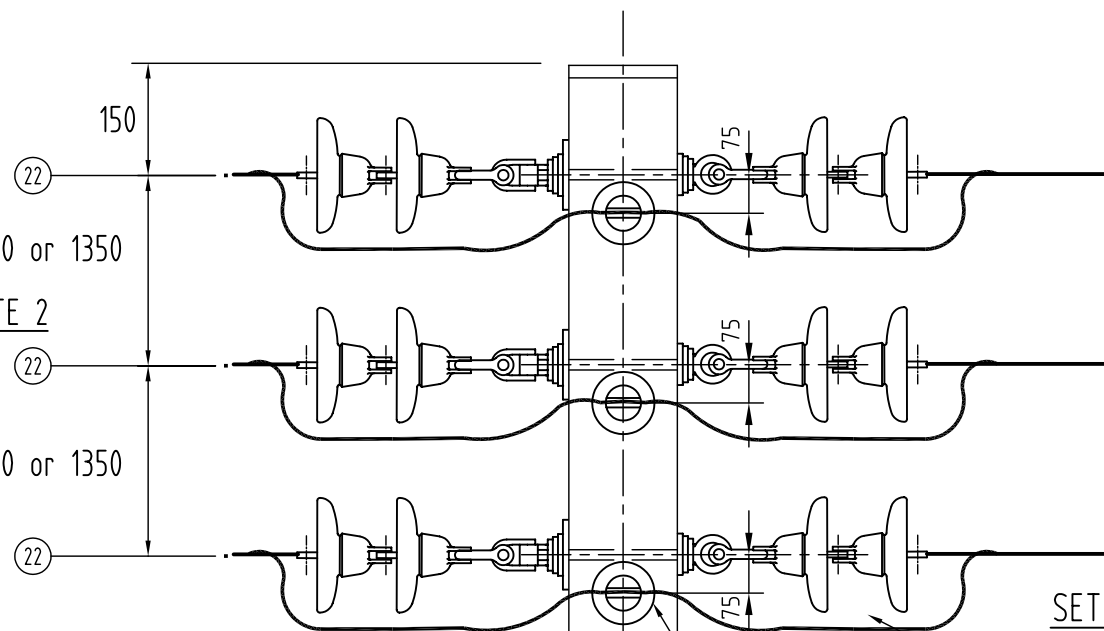
33kV VERTICAL TERMINATION CONSTRUCTION  
(WOOD POLE)

APP'D	P.PEARL	TECH STDS	AUTOCAD
DATE	28-10-97	4920-A4	D
REC'D	J.TUNNEY	SECT	PAGE
CKD	J.TUNNEY	5	18
DWN	R.W.	SHEET	1 OF 1
FILE:ocm\s5\ohc5-18d.dwg			

# CU LIST -

	33VS	33VS/N	33VS/F	33VS/S
SET157-4	3	3	3	3
SET155-4	3	3	3	3
SET161-2		3		
SET161-4			3	
SET161-6				3

1050 or 1350  
 REFER NOTE 2  
 1050 or 1350



SET161-2  
 or  
 SET161-4  
 or  
 SET161-6  
 INSULATOR

## NOTES :

- STANDARD DISC INSULATOR SHOWN.
- FOR TRANSITION TO FLAT CONSTRUCTION FROM VS, INCREASE LOWER PHASE SPACING TO 1350mm.

ORIGINAL ISSUE	DATE 15/11/06	APPD K.NUTTALL	CKD J.TUNNEY	DRN G.JAYAVEERA	NEW TEMPLATE
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## OVERHEAD CONSTRUCTION MANUAL

### 33kV CONSTRUCTION

### 33VS

33kV VERTICAL SHACKLE CONSTRUCTION (WOOD POLE)

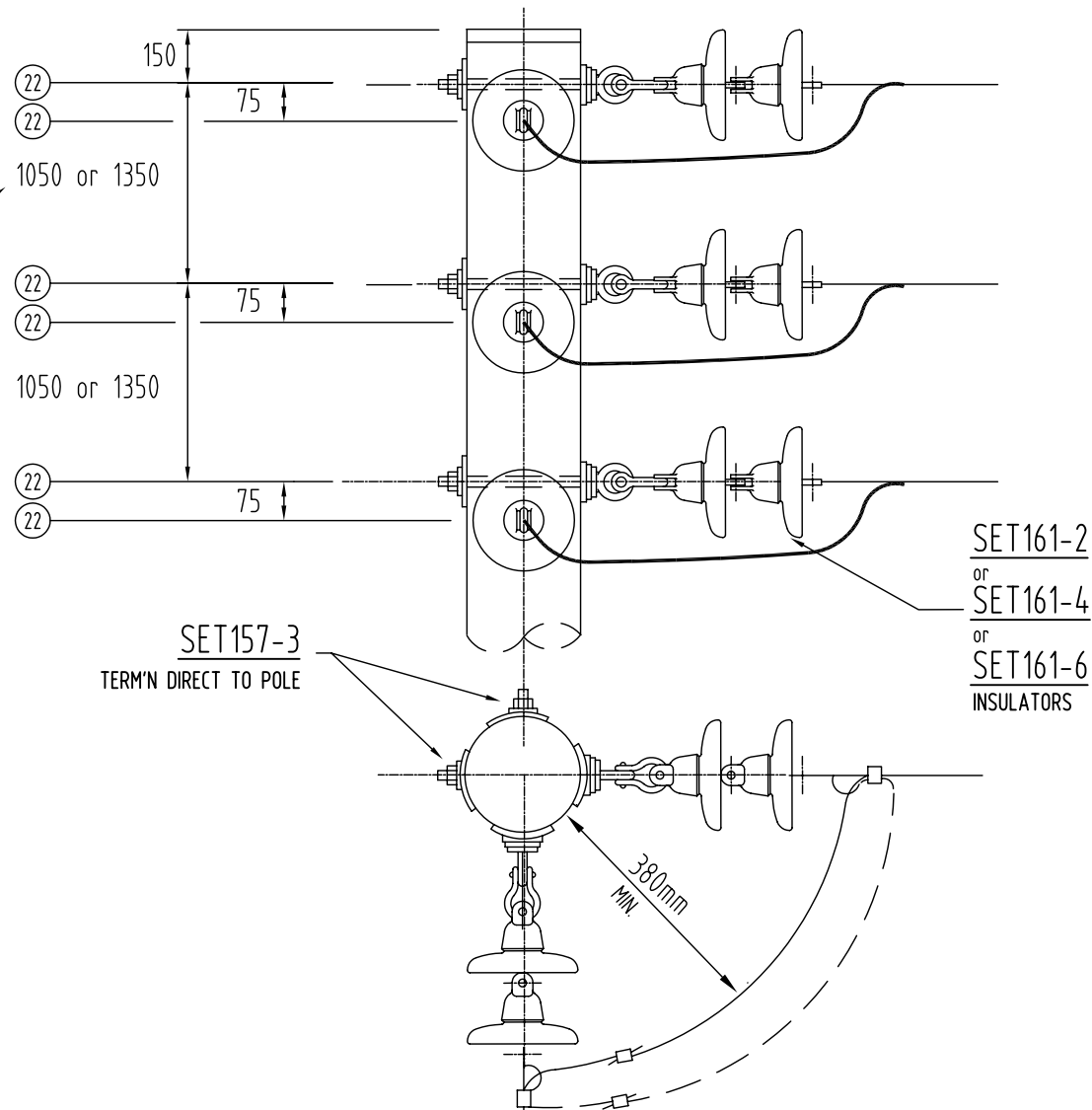
APP'D P.PEARL	TECH STDS	AUTOCAD
DATE 28-10-97	4920-A4	D
REC'D J.TUNNEY	SECT 5	PAGE 19
CKD J.TUNNEY	SHEET 1 OF 1	
DWN PT	FILE:ocm\s5\ohc5-19d.dwg	

## CU LIST -

33VXS  
33VXS/N  
33VXS/F  
33VXS/S

SET157-3	6	6	6	6
SET161-2		3		
SET161-4			3	
SET161-6				3

REFER NOTE 2



## NOTES :

1. STANDARD DISC INSULATOR SHOWN.
2. FOR TRANSITION TO FLAT CONSTRUCTION FROM VXS, INCREASE LOWER PHASE SPACING TO 1350mm.

ORIGINAL ISSUE	DATE 15/11/06	APPD K.NUTTALL	CKD J.TUNNEY	DRN G.JAYAVEERA	NEW TEMPLATE
C	D				



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33VXS

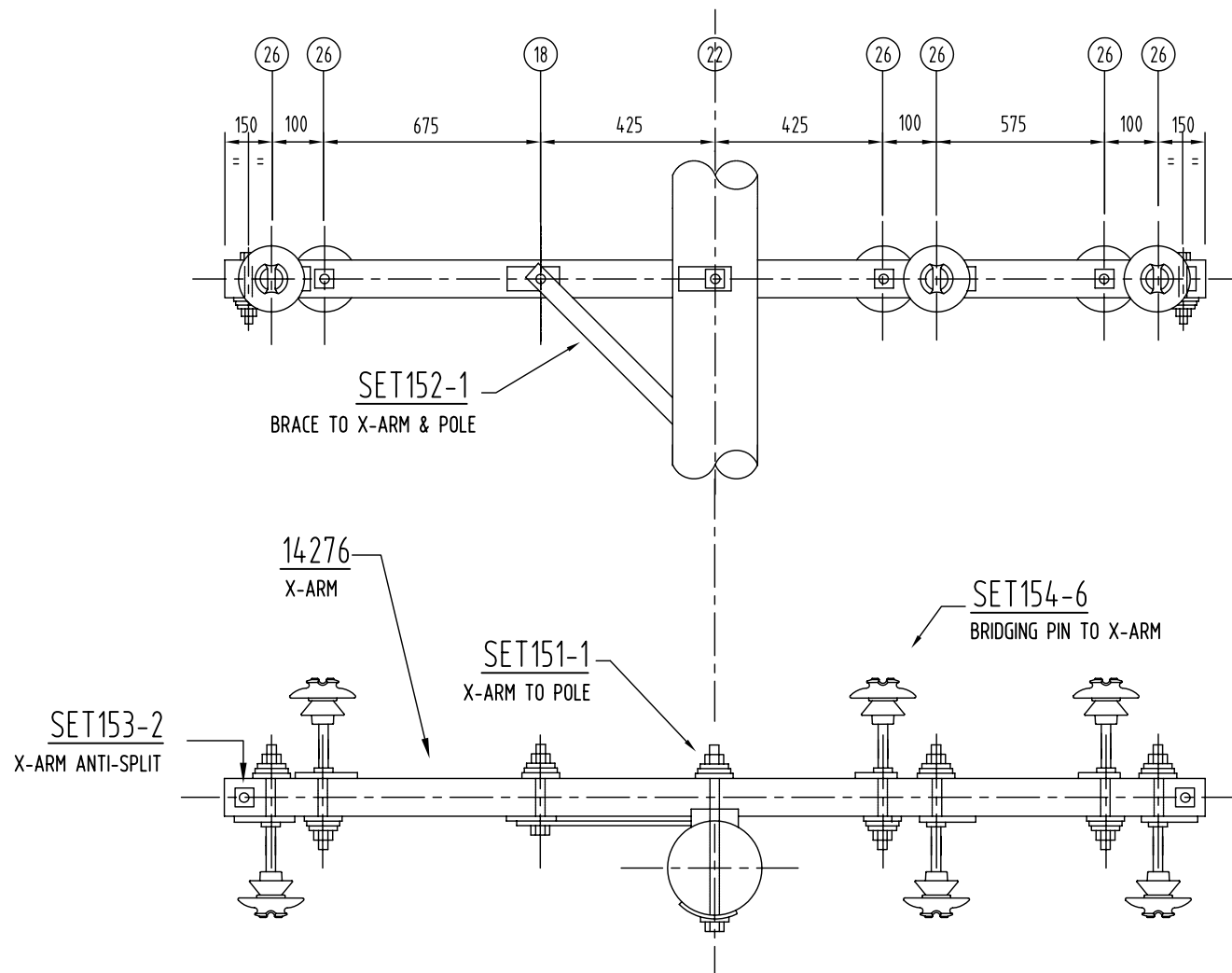
33kV VERTICAL CROSSCHECK CONSTRUCTION  
(WOOD POLE)

APP'D	P.PEARL	TECH STDS	AUTOCAD
DATE	28-10-88	4920-A4	D
REC'D		SECT 5	PAGE 20
CKD		SHEET 1 OF 1	
DWN	PT	FILE:ocm\s5\ohc5-20d.dwg	

CU LIST -

33BS

SET153-2	2
SET151-1	1
SET152-1	1
SET154-6	6
14276 (X-ARM)	1



B ORIGINAL ISSUE

New construction



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33BS

33kV RECLOSER BRIDGE SUPPORT CONSTRUCTION (WOOD POLE)

APP'D K.NUTTALL

DATE 15/11/06

REC'D

CKD John Tunney

DWN PT

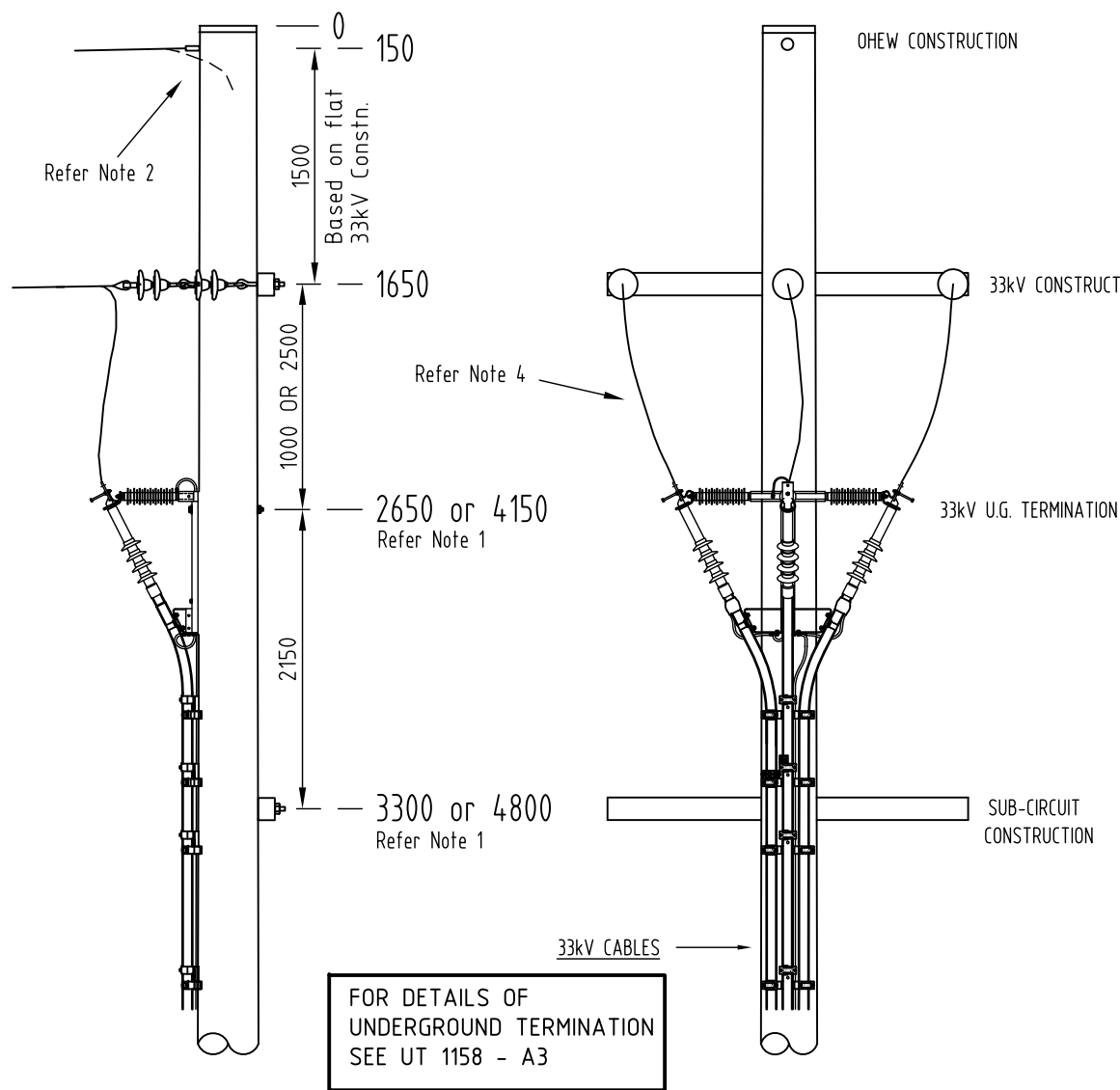
TECH STDS AUTOCAD

4920-A4 B

SECT 5 PAGE 21

SHEET 1 OF 1

FILE:ocm\s5\ohc5-21c.dwg



## NOTES:

### 1. INSTALLATION

UG TERMINATION FRAME KINGBOLT TO BE 1000mm FROM OH CROSSARM KINGBOLT IF 33KV IS DE-ENERGISED. IF UG TERMINATION IS TO BE INSTALLED BENEATH LIVE OH 33KV, THEN CRUCIFIX KINGBOLT IS TO BE AT LEAST 2500mm BELOW ANY LIVE CONDUCTOR.

### 2. WOOD POLES

DO NOT INSTALL OHEW DOWNLEAD TO EARTH AT THIS POLE. IF DOWNLEAD IS PRE-EXISTING, REMOVE BRIDGING CONNECTION TO OHEW AT HEAD OF POLE AND REMOVE DOWNLEAD FROM HEAD OF POLE DOWN TO THE HEIGHT OF THE CABLE GUARD. THE PRE-EXISTING DOWNLEAD IS USUALLY BUTT EARTHED AND MAY BE USED AS A SEPARATE EARTH FOR THE CABLE GUARD.

WHERE OPGW IS INSTALLED AND REQUIRED TO BE TERMINATED AT THIS POLE, RUN THE OPGW DOWN THE POLE TO THE CANNISTER AS PER SECT 9 PAGE 109. DO NOT CONNECT THE CANNISTER TO EARTH.

### 3. CONCRETE POLES


ENSURE FOOTING RESISTANCE IS LESS THAN 10 ohms. MEASUREMENTS TO BE CONFIRMED PRIOR TO ATTACHMENT OF ANY CABLES, MAINS OR STAY WIRES TO THE POLE.

### 4. BRIDGING BETWEEN OVERHEAD MAINS AND UG TERMINATION

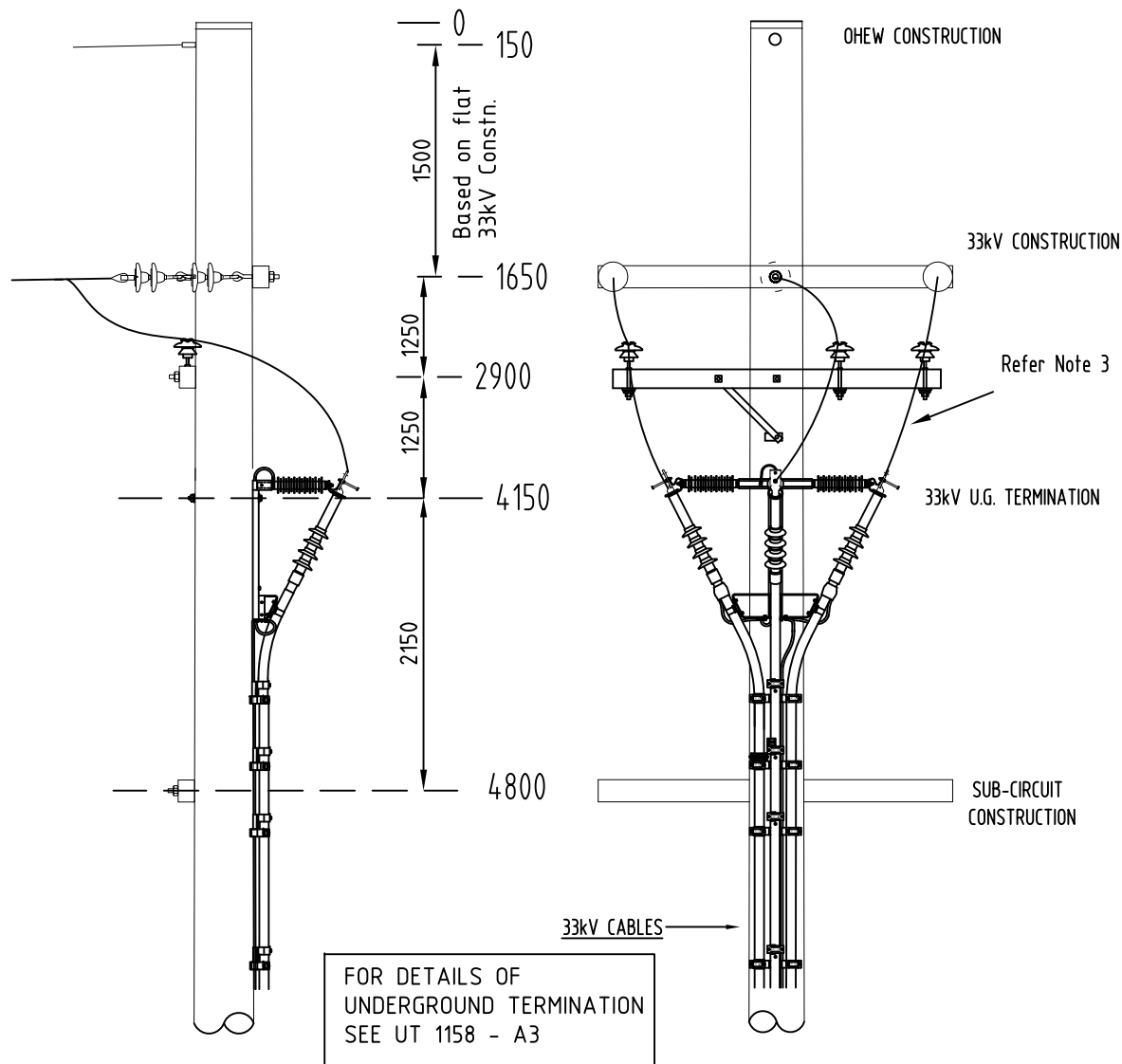
BRIDGING TO BE THE TAIL OF THE OVERHEAD MAINS OR AN EQUIVALENT CURRENT CARRYING CONDUCTOR. USE 2 PG CLAMPS PER PHASE AT MAINS CONNECTION IF TAIL OF EXISTING MAINS ARE NOT USED.

### 5. EARTHING

REFER SECTION 7 CGE33 FOR EARTHING REQUIREMENTS.

B	ORIGINAL ISSUE		APPD	F. ZAINI	CKD	JLANSLEY	DRN	P. RELF	EARTHING NOTE ADDED		 © COPYRIGHT 2012 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D	P. PEARL	TECH STDS		AUTOCAD	
	G	DATE										12/12/12	DATE	15-12-97	4920-A4				G
													REC'D	J. TUNNEY	SECT		PAGE		
															5	22			
															SHEET 1 OF 1				
		DWN	R. W	FILE:ocm\s5\ohc5-22c.dwg															
												33kV CONSTRUCTION							
												33kV UNDERGROUND TERMINATION							
												GENERAL ARRANGEMENT							





## NOTES:

### 1. WOOD POLES

DO NOT INSTALL OHEW DOWNLEAD TO EARTH AT THIS POLE. IF DOWNLEAD IS PRE-EXISTING, REMOVE BRIDGING CONNECTION TO OHEW AT HEAD OF POLE AND REMOVE DOWNLEAD FROM HEAD OF POLE DOWN TO THE HEIGHT OF THE CABLE GUARD. THE PRE-EXISTING DOWNLEAD IS USUALLY BUTT EARTHED AND MAY BE USED AS A SEPARATE EARTH FOR THE CABLE GUARD.

WHERE OPGW IS INSTALLED AND REQUIRED TO BE TERMINATED AT THIS POLE, RUN THE OPGW DOWN THE POLE TO THE CANNISTER AS PER SECT 9 PAGE 109. DO NOT CONNECT THE CANISTER TO EARTH.

### 2. CONCRETE POLES

ENSURE FOOTING RESISTANCE IS LESS THAN 10 ohms. MEASUREMENTS TO BE CONFIRMED PRIOR TO ATTACHMENT OF ANY CABLES, MAINS OR STAY WIRES TO THE POLE.

### 3. BRIDGING BETWEEN OVERHEAD MAINS AND UG TERMINATION

BRIDGING TO BE THE TAIL OF THE OVERHEAD MAINS OR AN EQUIVALENT CURRENT CARRYING CONDUCTOR. USE 2 PG CLAMPS PER PHASE AT MAINS CONNECTION IF TAIL OF EXISTING MAINS ARE NOT USED. MAINTAIN 450MM CLEARANCE FROM BRIDGING TO POLE. WILDLIFE PROOFING OF BRIDGING TO BE USED WHERE APPROPRIATE.

### 4. EARTHING

REFER SECTION 7 CGE33 FOR EARTHING REQUIREMENTS.

ORIGINAL ISSUE

A



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## OVERHEAD CONSTRUCTION MANUAL

### 33kV CONSTRUCTION

### 33kV UNDERGROUND TERMINATION ALTERNATIVE ARRANGEMENT

APP'D	F.ZAINI	TECH STDS	AUTOCAD
DATE	17/12/18	4920-A4	A
REC'D	J.CHUNG	SECT	PAGE
CKD	P.RELF	5	23
DWN	J.CHUNG	SHEET	1 OF 1
FILE:ocm\s5\ohc5-23a.dwg			

CU LIST -

33VDR

33VDR/N

SET168-1

3

3

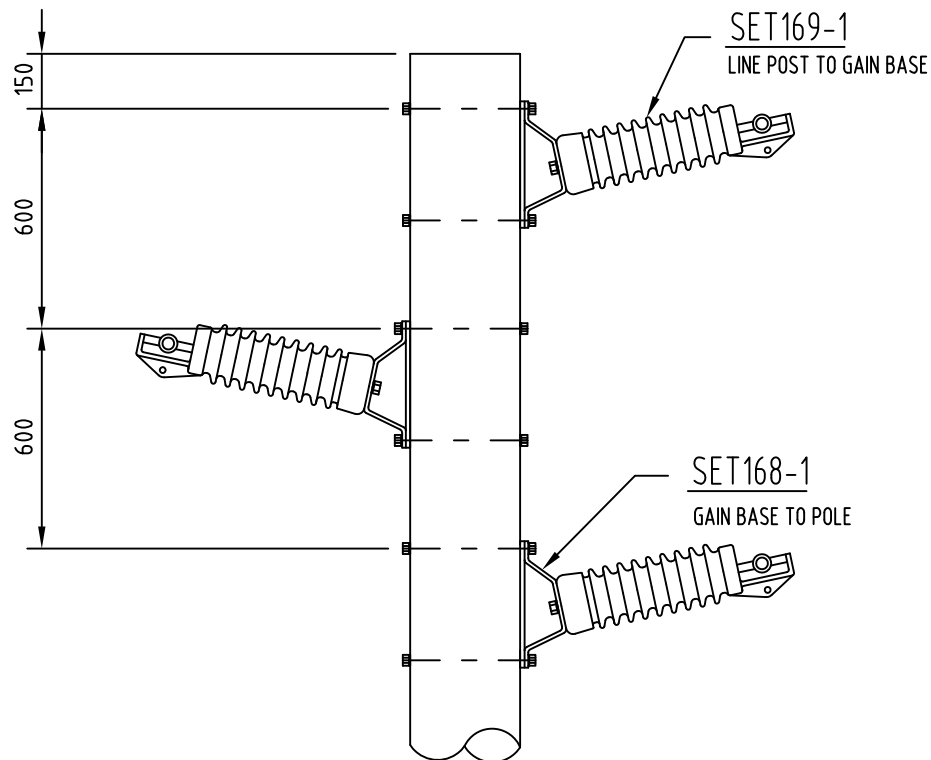
SET169-1

3

16385

AR

SC16385 - TRUNNION CLAMP FOR COPPER MAINS



ORIGINAL ISSUE	DATE	APPD	CKD	DRN	SC16385 ADDED
A	27/01/2016	F. ZAINI	P. RELF	P. RELF	
C					



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

## 33VDR

33kV VERTICAL DELTA RURAL CONSTRUCTION  
(WOOD POLE)

APP'D Paul Rainbird	TECH STDS	AUTOCAD
DATE 15-12-97	4920-A4	C
REC'D John Tunney	SECT 5	PAGE 25
CKD John Tunney	SHEET 1 OF 1	
DWN R.W.	FILE:	

CU LIST -

33VOR

33VOR/N

SET168-1

3

3

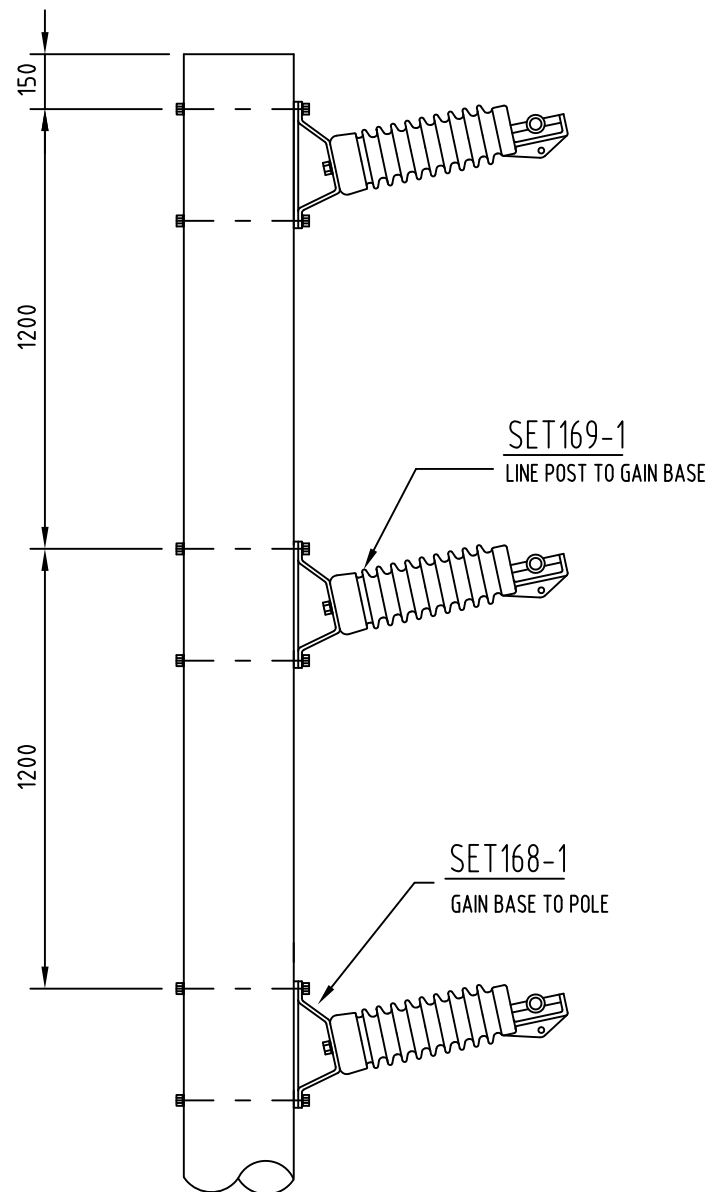
SET169-1

3

16385

AR

SC16385 - TRUNNION CLAMP FOR COPPER MAINS



A	ORIGINAL ISSUE		D	DATE 27/01/2016		APPD F. ZAINI	CKD P. RELF	DRN P. RELF	ADDED SC16385



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## OVERHEAD CONSTRUCTION MANUAL

## 33kV CONSTRUCTION

33VOR

33kV VERTICAL OFFSET RURAL CONSTRUCTION  
(WOOD POLE)

APP'D Paul Rainbird		TECH STDS		AUTOCAD	
DATE 15-12-97		4920-A4		D	
REC'D John Tunney		SECT 5		PAGE 26	
CKD John Tunney		SHEET 1 OF 1			
DWN R.W.		FILE:			

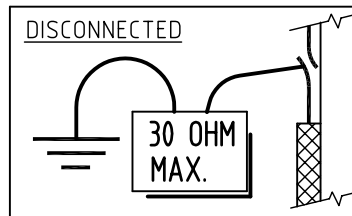
CU LIST

OE

3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
14693	1
02612	1
SET261-1	1

**NOTES:**

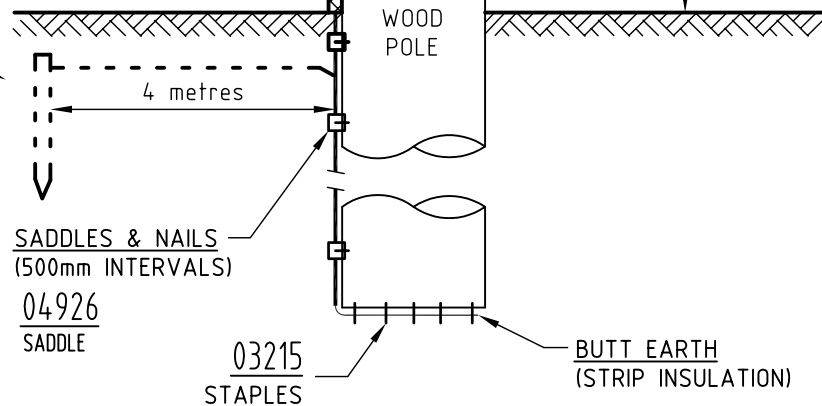
1. KEEP DOWNLOADS AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLOAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M



**ADDITIONAL EARTHING**  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional earthrods required, contact local ENERGEX Office)

**EARTHGUARD & NAILS**

06162	EARTH GUARD
11430	NAIL 30mm Lg.
11431	NAIL 75mm Lg.

SET261-1  
OHEW SUSPENSION14693  
PG CONNECTOR02612  
CLAMP 2M07235  
EARTHWIRE DOWNLOAD 19/1.78 Cu.  
PVC INSULATED06122  
PG CONNECTOR

150

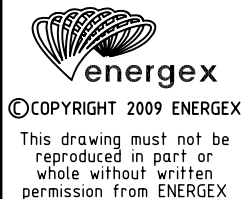
OHEW

CLAMP INSTALLED TO  
SIDE OF POLE WITH  
2 PHASES

'X'=2300 FOR 33PO  
'X'=1650 FOR 33SU  
'X'=1650 FOR 33W

XARM KINGBOLT

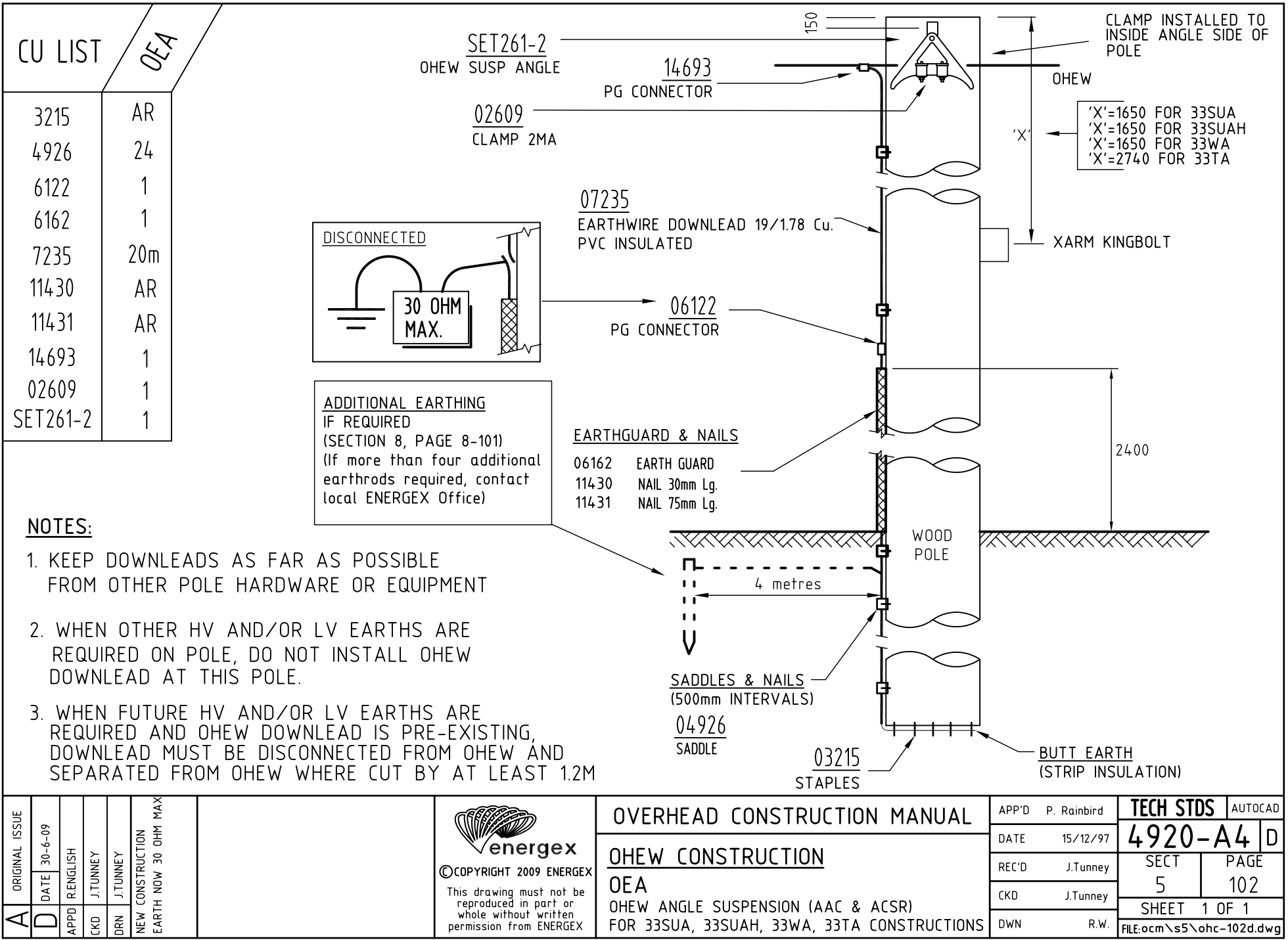
ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	NEW CONSTRUCTION
A	30-6-09	RENGISH	J.TUNNEY	J.TUNNEY	EARTH NOW 30 OHM MAX

**OVERHEAD CONSTRUCTION MANUAL****OHEW CONSTRUCTION**

OE

OHEW IN-LINE SUSPENSION (AAC & ACSR)  
FOR 33PO, 33SU, 33W CONSTRUCTIONS

APP'D	P. Rainbird	TECH STDS		AUTOCAD
DATE	15/12/97	4920-A4		D
REC'D	J.Tunney	SECT 5	PAGE 101	
CKD	J.Tunney	SHEET 1 OF 1		
DWN	R.W.	FILE:ocm\s5\ohc-101d.dwg		



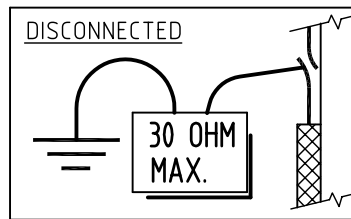
CU LIST -

OEV

SET261-1	1
3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
14693	1
02612	1

**NOTES:**

1. KEEP DOWNLOAD AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT CONNECT DOWNLOAD TO OHEW. TREAT DOWNLOAD AS HV EARTH.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M

**ADDITIONAL EARTHING**

IF REQUIRED

(SECTION 8, PAGE 8-101)

(If more than four additional earthrods required, contact local ENERGEX Office)

**EARTHGUARD & NAILS**

06162	EARTH GUARD
11430	NAIL 30mm Lg.
11431	NAIL 75mm Lg.

SADDLES & NAILS  
(500mm INTERVALS)

04926  
SADDLE

03215  
STAPLES

BUTT EARTH  
(STRIP INSULATION)

SET261-1

OHEW SUSPENSION

14693

PG CONNECTOR

02612

CLAMP 2M

07235

EARTHWIRE DOWNLOAD 19/1.78 Cu.  
PVC INSULATED

06122

PG CONNECTOR

TOP GAINBASE KINGBOLT

2400

WOOD  
POLE

4 metres

CLAMP INSTALLED TO  
SIDE OF POLE WITH  
MOST PHASES FOR UP  
TO 5 DEG DEVIATION  
OTHERWISE FIT TO  
INSIDE ANGLE

ORIGINAL ISSUE	DATE	REVISION	APP'D	CKD	DRN	PREF	REMOVE EARTH CONNECTION BETWEEN STEEL CROSS ARM AND OHEW
F	7/10/10	RENGLISH	J.TUNNEY	J.TUNNEY	J.TUNNEY	J.TUNNEY	



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**OVERHEAD CONSTRUCTION MANUAL****OHEW CONSTRUCTION****OEV**

OHEW SUSPENSION (AAC & ACSR)  
FOR 33VDR, 33VOR CONSTRUCTIONS

APP'D P. Rainbird

DATE 15/12/97

REC'D J.Tunney

CKD J.Tunney

DWN R.W.

**TECH STDS**

AUTOCAD

**4920-A4** F

SECT

PAGE

5

103

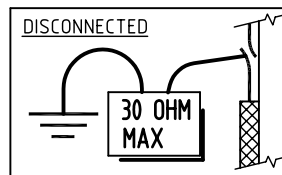
SHEET 1 OF 1

FILE:ocm\s5\ohc-103e.dwg

OET

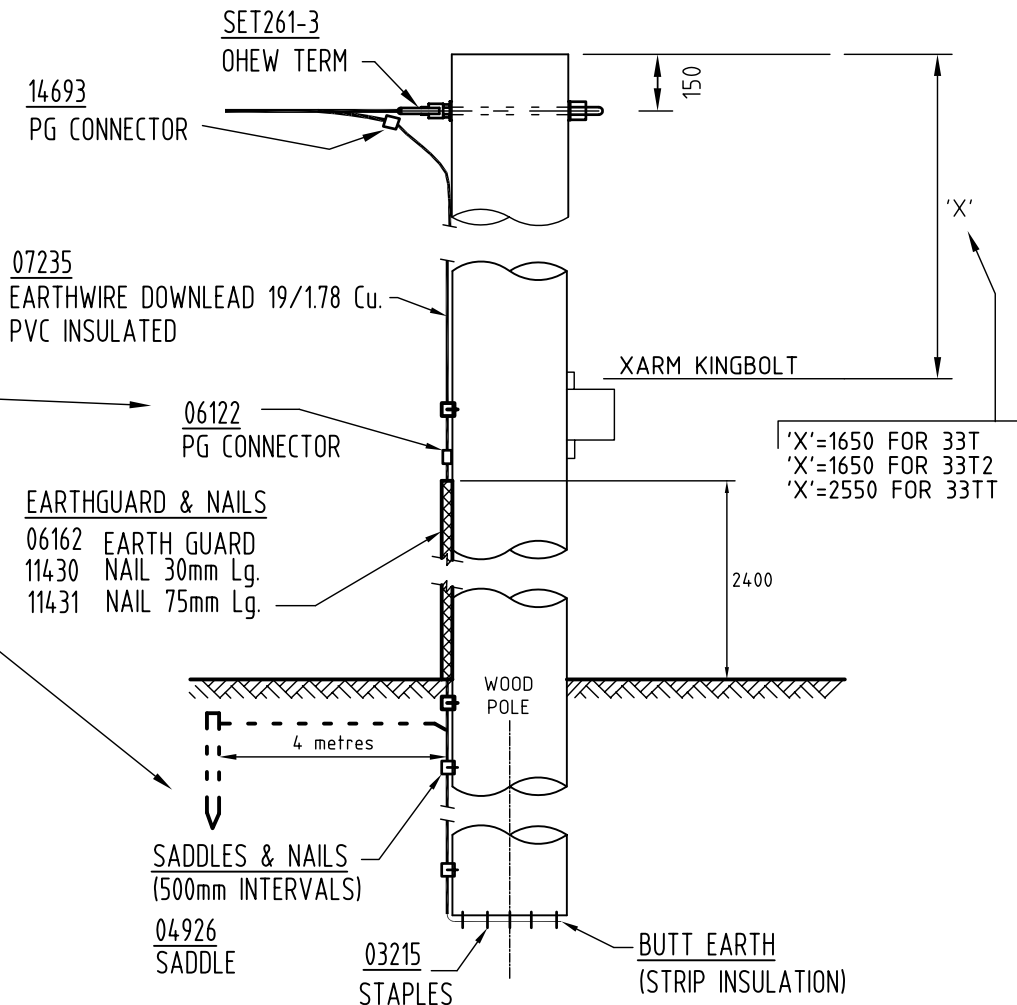
SET261-3	1
3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
14693	1


DO NOT CONNECT  
OHEW DOWNLEAD  
TO STEEL CROSSARM



**ADDITIONAL EARTHING**  
**IF REQUIRED**  
 (SECTION 8, PAGE 8-101)  
 (If more than four additional  
 earthrods required, contact  
 local ENERGEX Office)

1. KEEP DOWNLOAD AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLOAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M



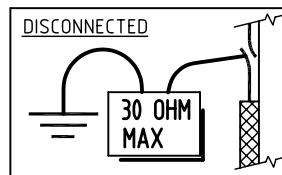
A	ORIGINAL ISSUE		APPD	R.ENGUSH	CKD	J.TUNNEY	DRN	J.TUNNEY	NEW CONSTRUCTION EARTH NOW 30 OHM MAX		 ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		
	D	DATE										30-6-09	OHEW CONSTRUCTION	
													OET	
													OHEW TERMINATION (AAC & ACSR)	
													FOR 33T, 33T2, 33TT CONSTRUCTIONS	
APP'D	P. Rainbird	TECH STDS		AUTOCAD										
DATE	15/12/97	4920-A4		D										
REC'D	J.Tunney	SECT	PAGE											
CKD	J.Tunney	5	104											
DWN	R.W.	SHEET		1 OF 1										
		FILE:ocm\s5\ohc-104d.dwg												

CU LIST -

OES3

SET261-4	1
SET54-3	1
3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
14693	1
05891	1

DO NOT CONNECT  
OHEW DOWNLEAD  
TO STEEL CROSSARM



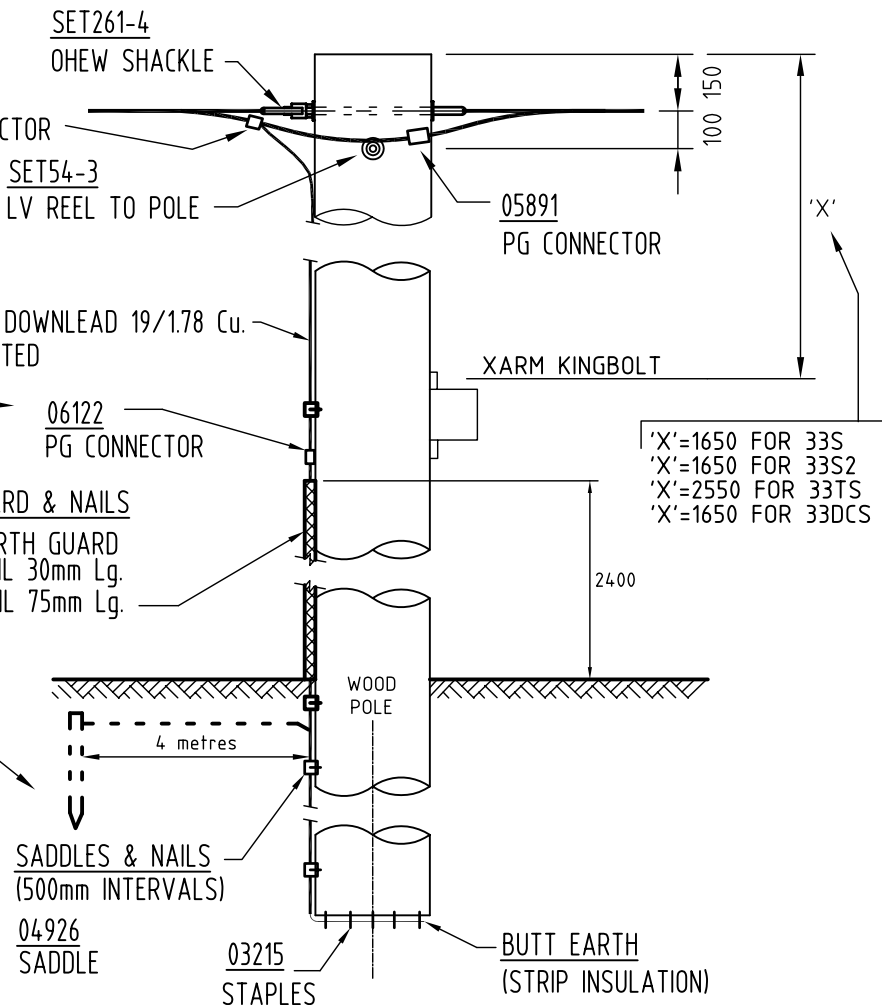
**ADDITIONAL EARTHING  
IF REQUIRED**  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

07235  
EARTHWIRE DOWNLEAD 19/1.78 Cu.  
PVC INSULATED

06122  
PG CONNECTOR

**EARTHGUARD & NAILS**

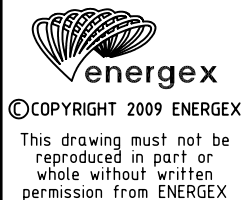
06162 EARTH GUARD  
11430 NAIL 30mm Lg.  
11431 NAIL 75mm Lg.



### NOTES:

- KEEP DOWNLEAD AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
- WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLEAD AT THIS POLE.
- WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLEAD IS PRE-EXISTING, DOWNLEAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M

ORIGINAL ISSUE	DATE	REVISION	APP'D	CKD	DRN	NEW CONSTRUCTION
A	30-6-09	RENGISH	J.TUNNEY	J.TUNNEY		EARTH NOW 30 OHM MAX



## OVERHEAD CONSTRUCTION MANUAL

### OHEW CONSTRUCTION

OES3

OHEW 0-30° SHACKLE (AAC & ACSR)  
FOR 33S, 33S2, 33TS, 33DCS CONSTRUCTIONS

APP'D	P. Rainbird	TECH STDS	AUTOCAD
DATE	15/12/97	4920-A4	D
REC'D	J.Tunney	SECT	PAGE
CKD	J.Tunney	5	105
DWN	R.W.	SHEET	1 OF 1

FILE:ocm\s5\ohc-105d.dwg

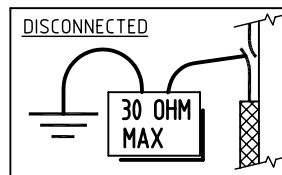


## CU LIST -

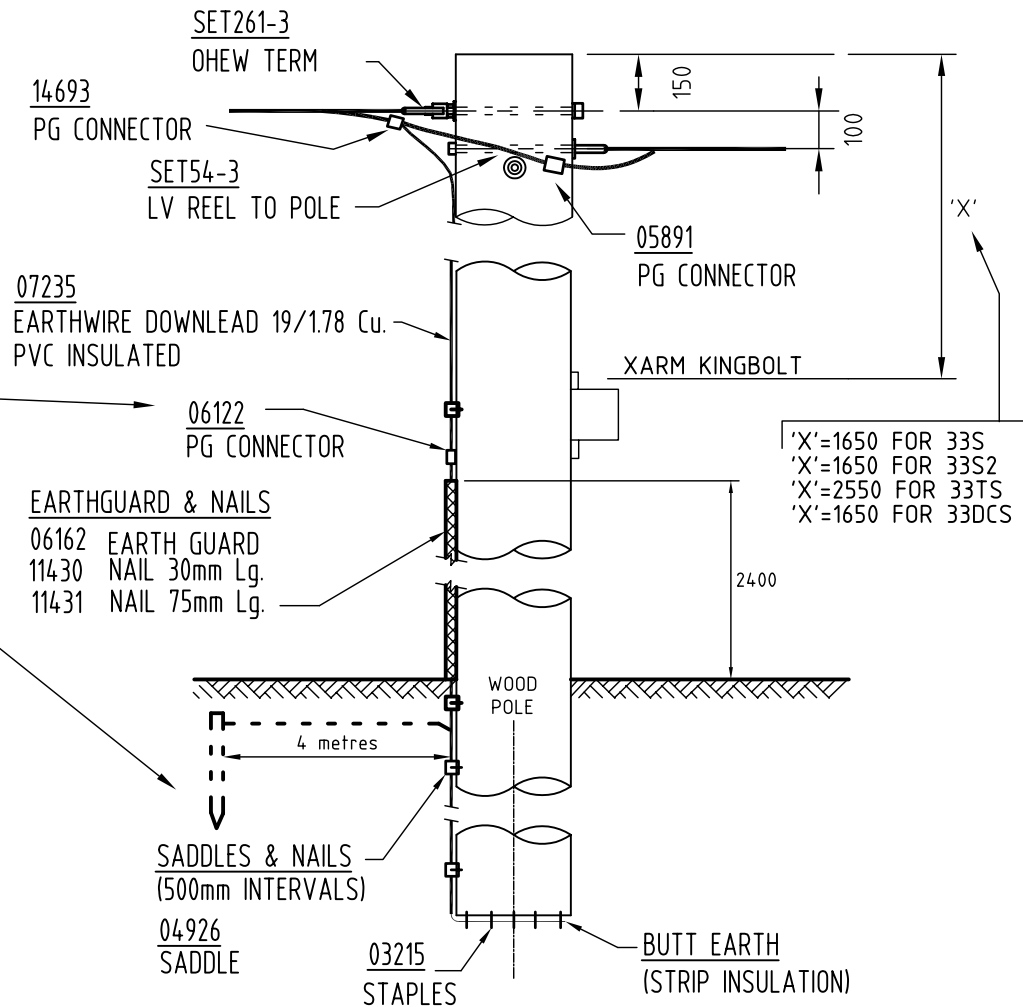
OES9

SET261-3	2
SET54-3	1
3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
14693	1
05891	1

DO NOT CONNECT  
OHEW DOWNLEAD  
TO STEEL CROSSARM

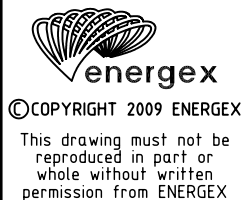


**ADDITIONAL EARTHING  
IF REQUIRED**  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

**NOTES:**

- KEEP DOWNLEAD AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
- WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLEAD AT THIS POLE.
- WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLEAD IS PRE-EXISTING, DOWNLEAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M

ORIGINAL ISSUE	DATE	RENGISH	J.TUNNEY	J.TUNNEY	NEW CONSTRUCTION EARTH NOW 30 OHM MAX
A	D	APPD	CKD	DRN	

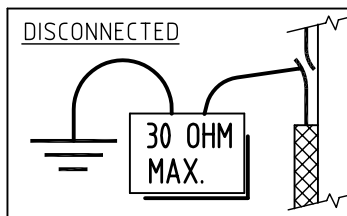
**OVERHEAD CONSTRUCTION MANUAL****OHEW CONSTRUCTION****OES9**OHEW 31-90° SHACKLE (AAC & ACSR)  
FOR 33S, 33S2, 33TS, 33DCS

APP'D	P. Rainbird	TECH STDS	AUTOCAD
DATE	15/12/97	4920-A4	D
REC'D	J.Tunney	SECT	PAGE
CKD	J.Tunney	5	106
DWN	R.W.	SHEET	1 OF 1
FILE:ocm\s5\ohc-106d.dwg			

CU LIST -

OEP

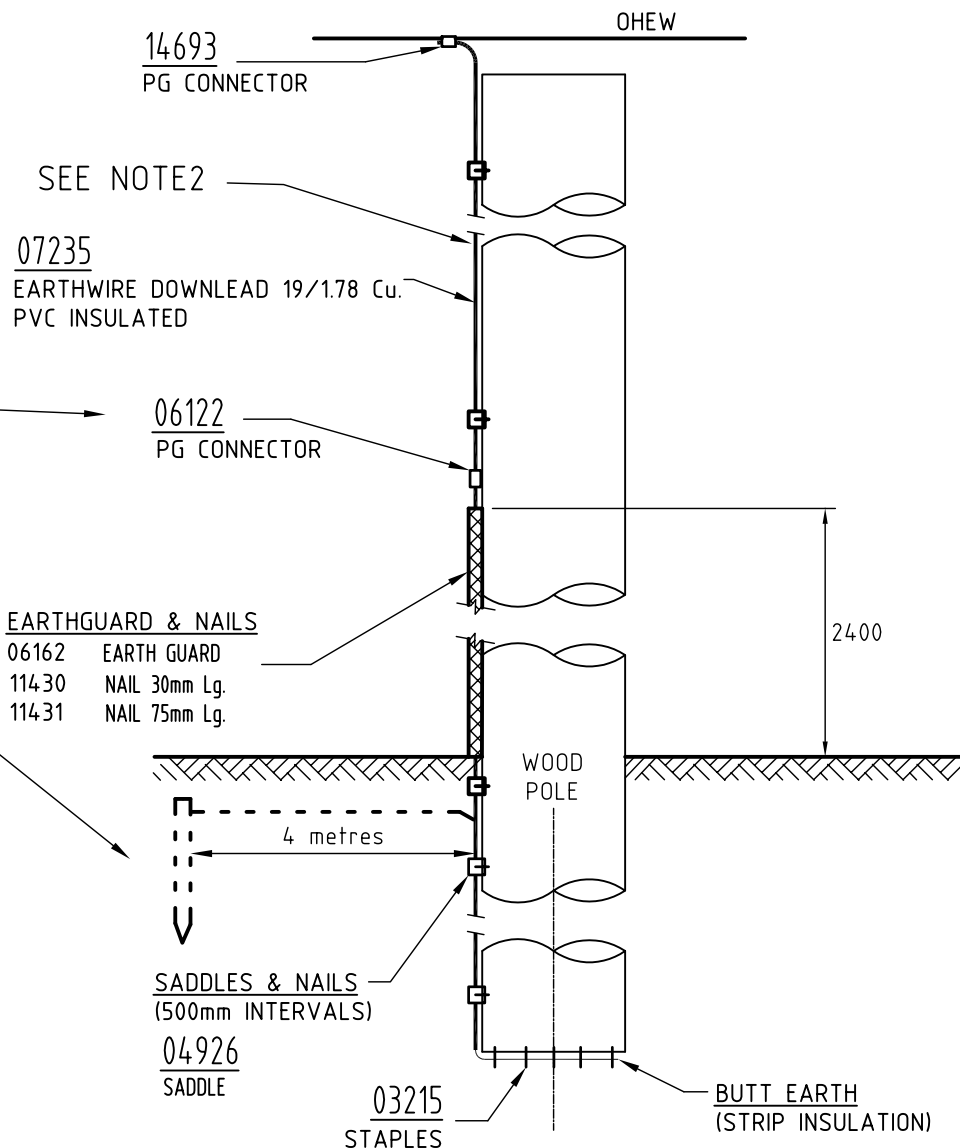
3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
14693	1



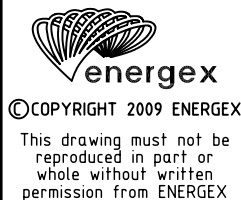
ADDITIONAL EARTHING  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

**NOTES:**

1. KEEP DOWNLOADS AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLOAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M



ORIGINAL ISSUE	DATE	RENGISH	J.TUNNEY	G.JAYAWERA	TOP PG CLAMP NOW	14693	EARTH NOW 30 OHM MAX
A	C	APPD	CKD	DRN	14693		

**OVERHEAD CONSTRUCTION MANUAL****OHEW CONSTRUCTION****OEP**

33kV OHEW POLE EARTH  
(WOOD POLE)

APP'D	P. Rainbird	TECH STDS		AUTOCAD
DATE	15/12/97	4920-A4		C
REC'D	J.Tunney	SECT	PAGE	
CKD	J.Tunney	5	107	
DWN	R.W.	SHEET 1 OF 1		

FILE:ocm\s5\ohc-107c.dwg

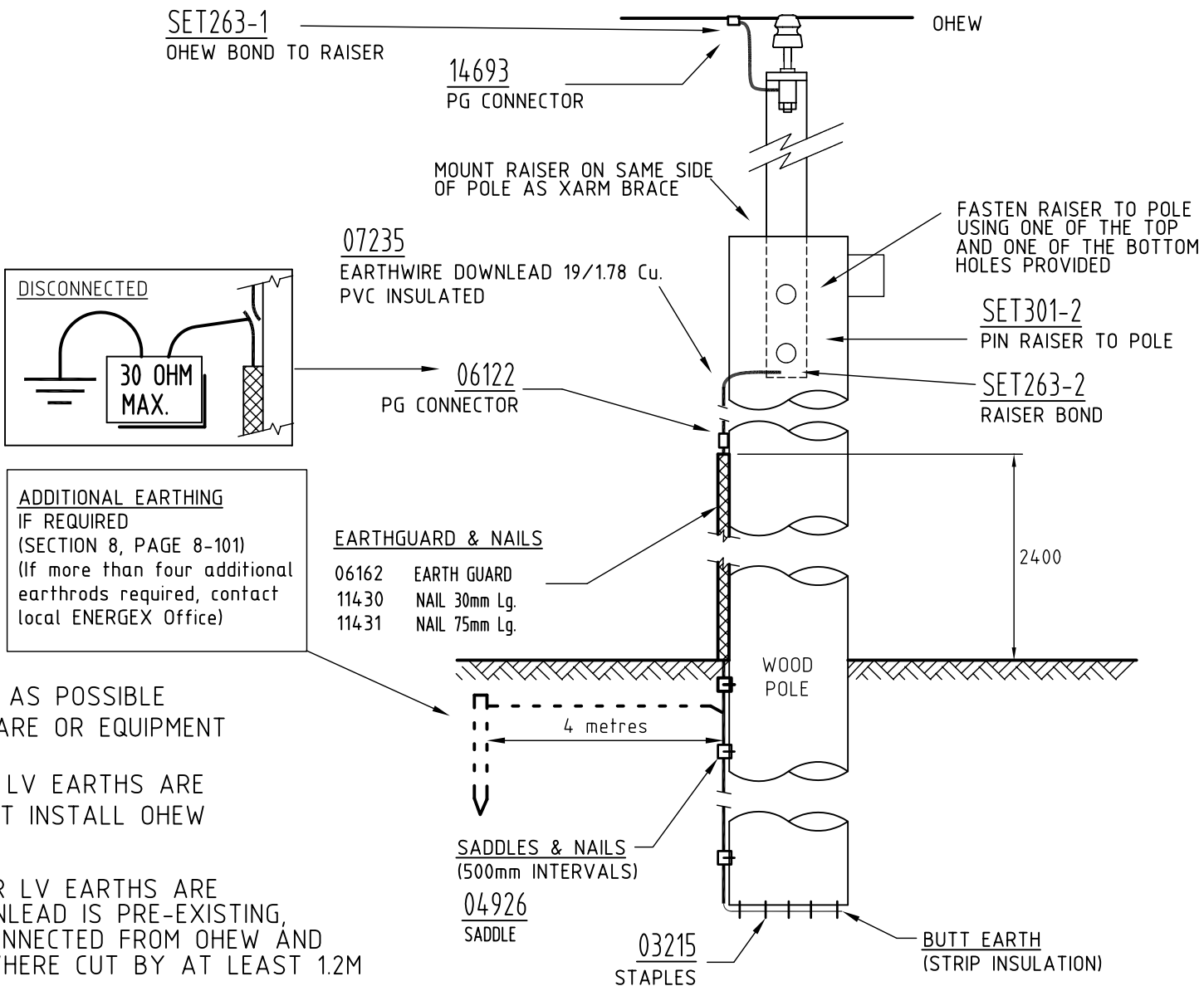
CU LIST


OEPR

3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
SET301-2	1
SET263-1	1
SET263-2	1

NOTES:

1. KEEP DOWNLOADS AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLOAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M



A	ORIGINAL ISSUE		APPD CKD DRN	RENGISH J.TUNNEY J.TUNNEY	NEW CONSTRUCTION EARTH NOW 30 OHM MAX		 ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D P. Rainbird	TECH STDS		AUTOCAD
	C	DATE 30-6-09						OHEW CONSTRUCTION		DATE 15/12/97	4920-A4		C
	OEPR							REC'D J.Tunney	SECT 5	PAGE 108			
	OHEW PIN RAISER (AAC & ACSR) FOR 33PO CONSTRUCTION							CKD J.Tunney	SHEET 1 OF 1				
								DWN R.W.	FILE:ocm\s5\ohc-108c.dwg				

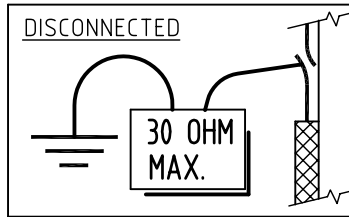
# CU LIST

OER

3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
02612	1
11597	1
SET300-4	1
SET261-1	1
SET263-1	1
SET263-2	1

## NOTES:

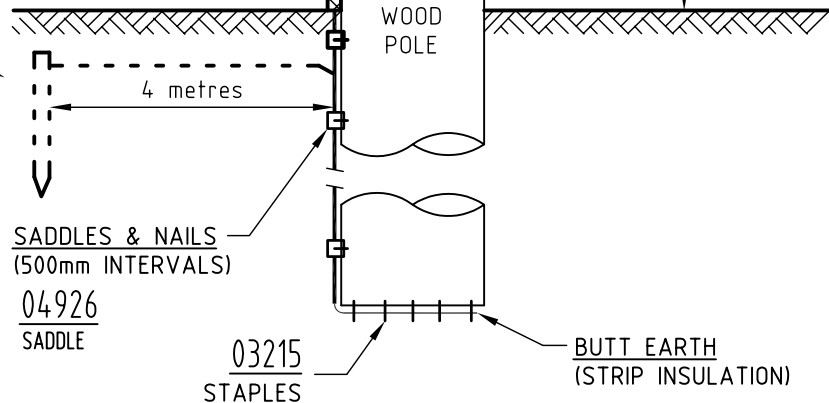
1. KEEP DOWNLOADS AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLOAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M



**ADDITIONAL EARTHING**  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional earthrods required, contact local ENERGEX Office)

### EARTHGUARD & NAILS

06162	EARTH GUARD
11430	NAIL 30mm Lg.
11431	NAIL 75mm Lg.



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## OVERHEAD CONSTRUCTION MANUAL

### OHEW CONSTRUCTION

#### OER

OHEW RAISER IN-LINE SUSPENSION (AAC & ACSR) FOR 33SU CONSTRUCTION

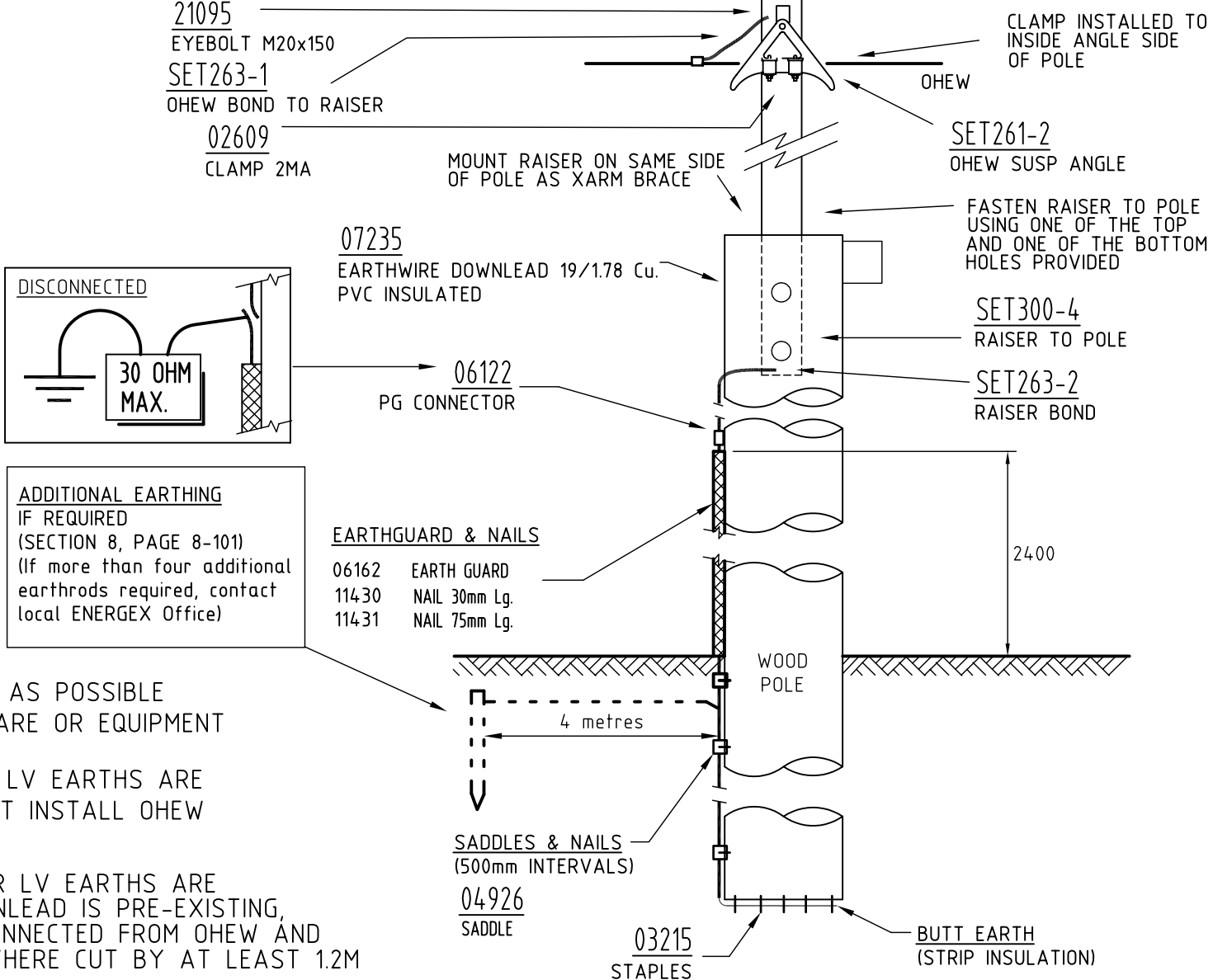
APP'D	P. Rainbird	TECH STDS		AUTOCAD
DATE	15/12/97	4920-A4		C
REC'D	J.Tunney	SECT	PAGE	
		5	109	
CKD	J.Tunney	SHEET 1 OF 1		
DWN	R.W.	FILE:ocm\s5\ohc-109c.dwg		

CU LIST

3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
02609	1
21095	1
SET300-4	1
SET261-2	1
SET263-1	1
SET263-2	1

NOTES:

1. KEEP DOWNLOADS AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLOAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M

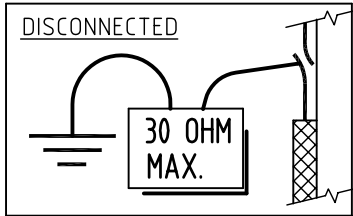


CU LIST

OETR

3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
05926	1
00412	1
01081	1
01053	1
SET301-1	1
SET263-2	1

- TERMINAL LUG  
05926  
BOLT & NUT, M12 x 40  
00412  
WASHER, M12, LOCK, SS  
01081  
WASHER, M12, RD., SS.  
01053



ADDITIONAL EARTHING  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

OHEW TAIL BOND TO RAISER

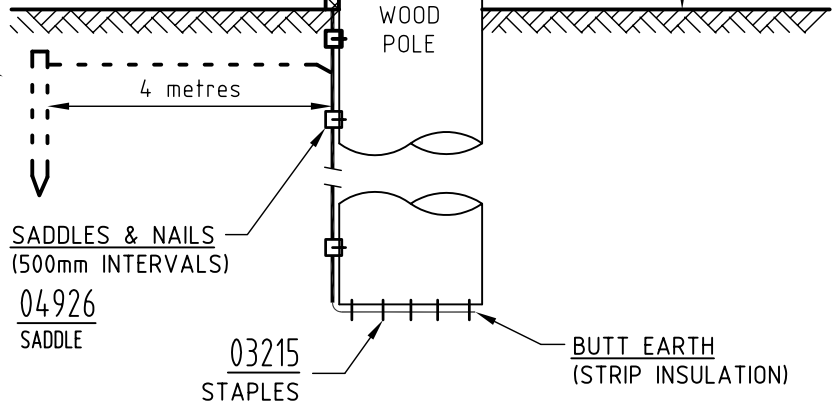
OHEW  
2.8kN Max. Working Load

07235  
EARTHWIRE DOWNLOAD 19/1.78 Cu.  
PVC INSULATED

06122  
PG CONNECTOR

EARTHGUARD & NAILS

- 06162 EARTH GUARD  
11430 NAIL 30mm Lg.  
11431 NAIL 75mm Lg.



FASTEN RAISER TO POLE  
USING ONE OF THE TOP  
AND ONE OF THE BOTTOM  
HOLES PROVIDED

SET301-1  
RAISER TO POLE


SET263-2  
RAISER BOND

2400

WOOD  
POLE

NOTES:

1. KEEP DOWNLOADS AS FAR AS POSSIBLE  
FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE  
REQUIRED ON POLE, DO NOT INSTALL OHEW  
DOWNLOAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE  
REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING,  
DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND  
SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M

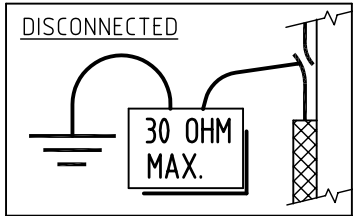
A	ORIGINAL ISSUE		NEW CONSTRUCTION EARTH NOW 30 OHM MAX	 ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL	APP'D P. Rainbird	TECH STDS		AUTOCAD			
	C	DATE 30-6-09				RENGISH	J.TUNNEY	DRN J.TUNNEY	DATE 15/12/97	4920-A4		C
		REC'D J.Tunney							SECT 5	PAGE 111		
		CKD J.Tunney							SHEET 1 OF 1			
		DWN R.W.							FILE:ocm\s5\ohc-111c.dwg			

CU LIST

OESR

3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
05926	2
00412	2
01081	2
01053	2
SET301-1	1
SET263-2	1

TERMINAL LUG  
05926  
BOLT & NUT, M12 x 40  
00412  
WASHER, M12, LOCK, SS  
01081  
WASHER, M12, RD., SS.  
01053



ADDITIONAL EARTHING  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

OHEW TAIL BOND TO RAISER

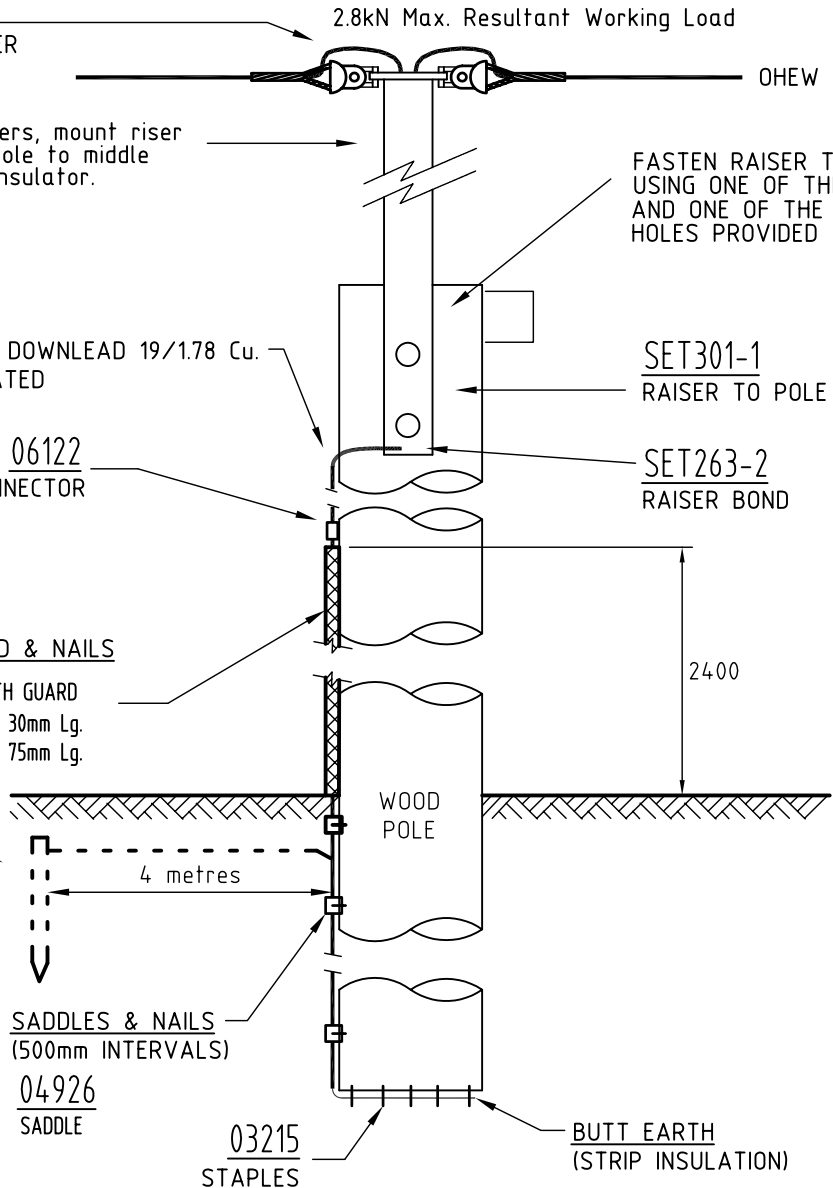
On single circuit feeders, mount riser  
on opposite side of pole to middle  
phase bridging post insulator.

07235  
EARTHWIRE DOWNLEAD 19/1.78 Cu.  
PVC INSULATED

06122  
PG CONNECTOR

EARTHGUARD & NAILS


06162 EARTH GUARD  
11430 NAIL 30mm Lg.  
11431 NAIL 75mm Lg.



NOTES:

1. KEEP DOWNLEADS AS FAR AS POSSIBLE  
FROM OTHER POLE HARDWARE OR EQUIPMENT
2. WHEN OTHER HV AND/OR LV EARTHS ARE  
REQUIRED ON POLE, DO NOT INSTALL OHEW  
DOWNLEAD AT THIS POLE.
3. WHEN FUTURE HV AND/OR LV EARTHS ARE  
REQUIRED AND OHEW DOWNLEAD IS PRE-EXISTING,  
DOWNLEAD MUST BE DISCONNECTED FROM OHEW AND  
SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M

ORIGINAL ISSUE	DATE	RENGUSH	J.TUNNEY	J.TUNNEY	NEW CONSTRUCTION EARTH NOW 30 OHM MAX
A	C	APPD	CKD	DRN	

  
**energex**  
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**OVERHEAD CONSTRUCTION MANUAL**  
**OHEW CONSTRUCTION**  
**OESR**  
OHEW RAISER 0-90° SHACKLE (AAC & ACSR)  
FOR 33S, 33DCS CONSTRUCTIONS 2.8kN MWT

APP'D P. Rainbird	TECH STDS	AUTOCAD
DATE 15/12/97	4920-A4	C
REC'D J.Tunney	SECT 5	PAGE 112
CKD J.Tunney	SHEET 1 OF 1	
DWN R.W.	FILE:ocm\s5\ohc-112c.dwg	

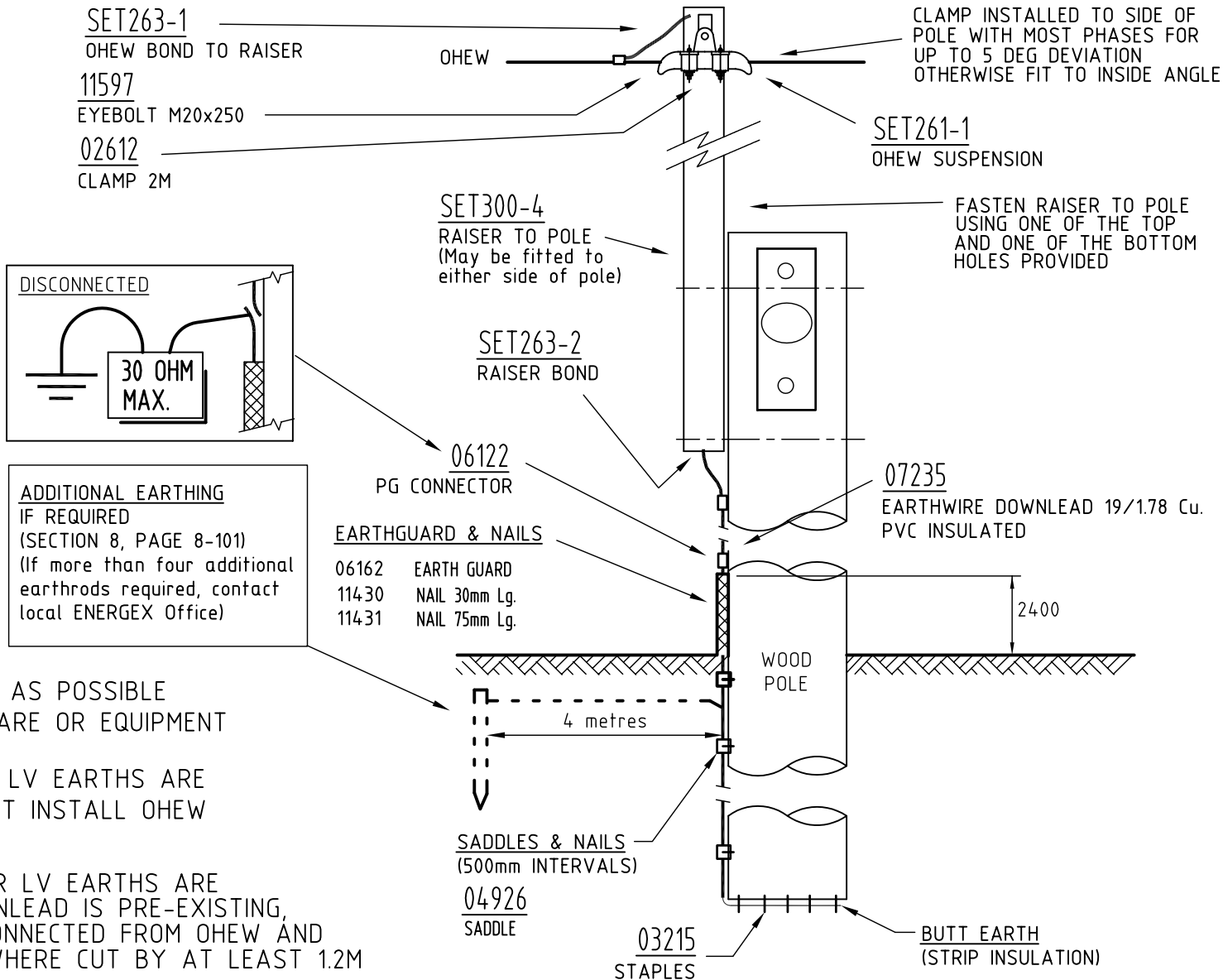
# CU LIST

OEVR

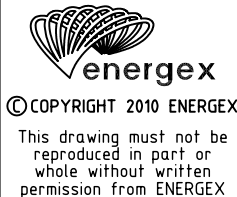
3215	AR
4926	24
6122	1
6162	1
7235	20m
11430	AR
11431	AR
02612	1
11597	1
SET300-4	1
SET261-1	1
SET263-1	1
SET263-2	1

## NOTES:

- KEEP DOWNLOADS AS FAR AS POSSIBLE FROM OTHER POLE HARDWARE OR EQUIPMENT
- WHEN OTHER HV AND/OR LV EARTHS ARE REQUIRED ON POLE, DO NOT INSTALL OHEW DOWNLOAD AT THIS POLE.
- WHEN FUTURE HV AND/OR LV EARTHS ARE REQUIRED AND OHEW DOWNLOAD IS PRE-EXISTING, DOWNLOAD MUST BE DISCONNECTED FROM OHEW AND SEPARATED FROM OHEW WHERE CUT BY AT LEAST 1.2M



ORIGINAL ISSUE	DATE	RENGGLISH	J.TUNNEY	PREF	REMOVE EARTH CONNECTION BETWEEN STEEL CROSS ARM AND OHEW
A	7/10/10	APPD	CKD	DRN	
B					



## OVERHEAD CONSTRUCTION MANUAL

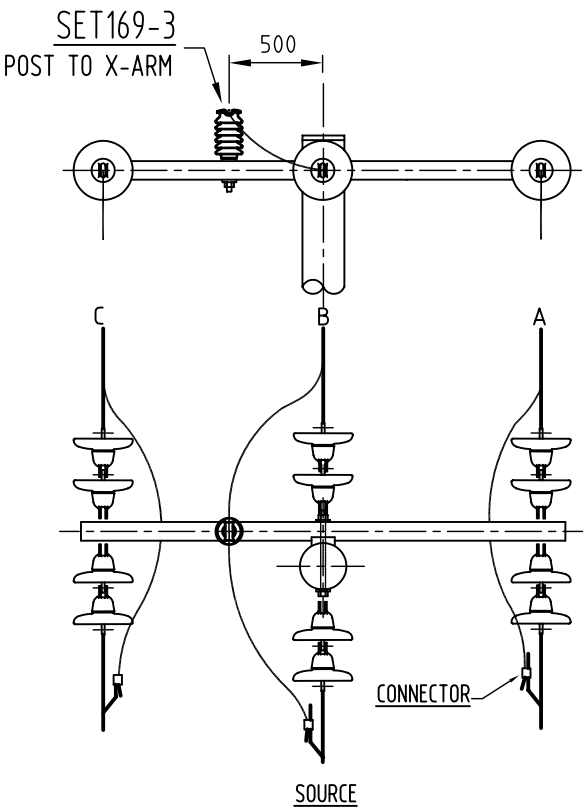
### OHEW CONSTRUCTION

#### OEVR

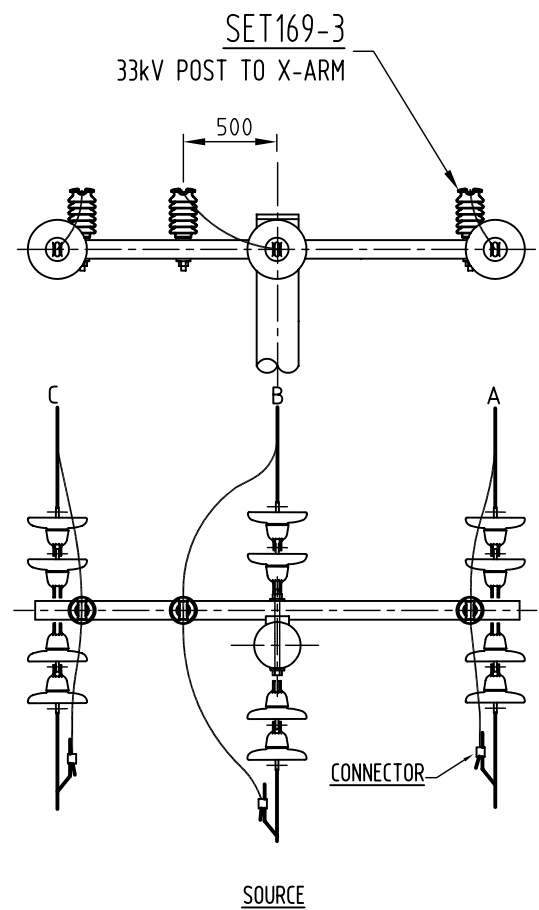
OHEW RAISER SUSPENSION (AAC & ACSR)  
FOR 33VDR, 33VOR CONSTRUCTIONS

APP'D Roy English	TECH STDS	AUTOCAD
DATE 3-8-09	4920-A4	B
REC'D J.Tunney	SECT 5	PAGE 113
CKD J.Tunney	SHEET 1 OF 1	
DWN R.W.	FILE:	

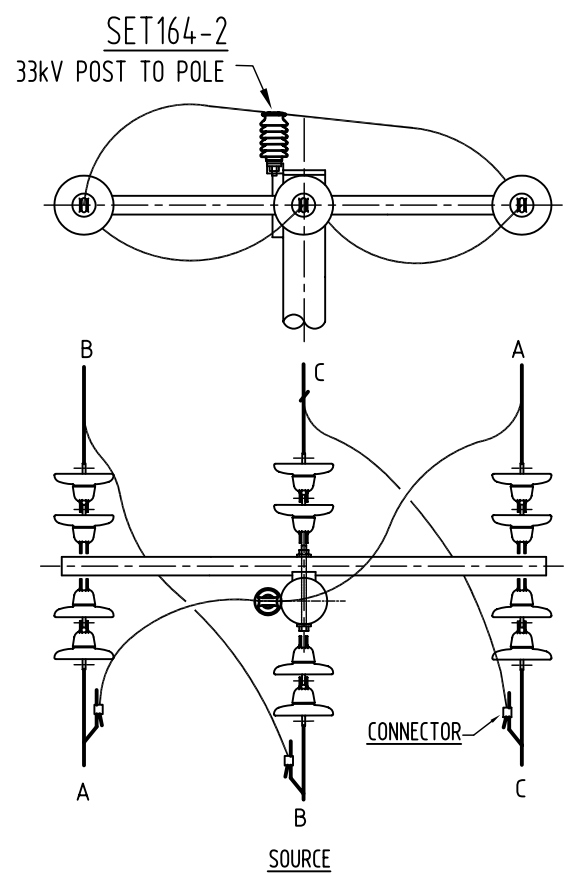




NORMAL BRIDGING - FLAT




NORMAL BRIDGING - FLAT OVER ARM



TRANSPOSITION - FLAT

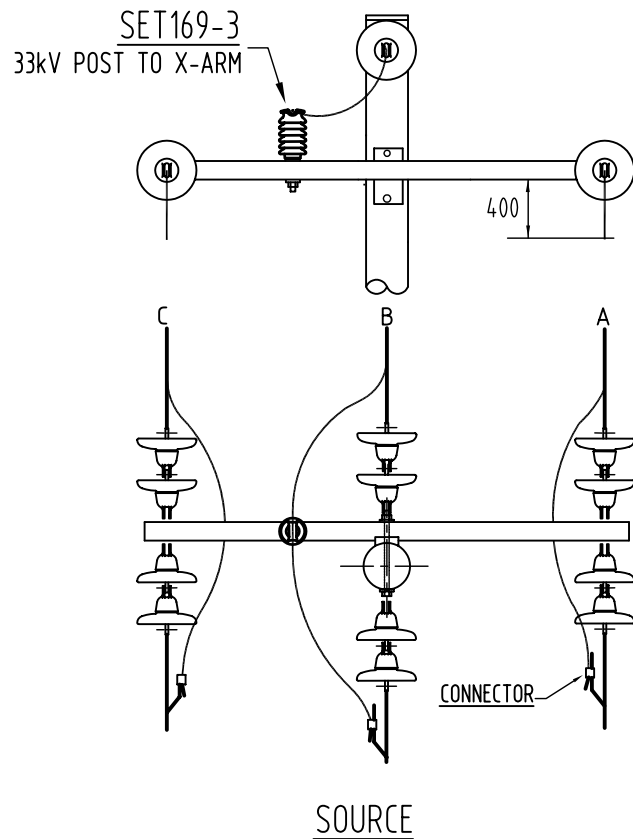
ORIGINAL ISSUE	DATE 15/11/06	APPD K.NUTTALL	CKD J.TUNNEY	DRN G.JAYAWERA	NEW TEMPLATE STIRRUP REMOVED.
D	E				

  
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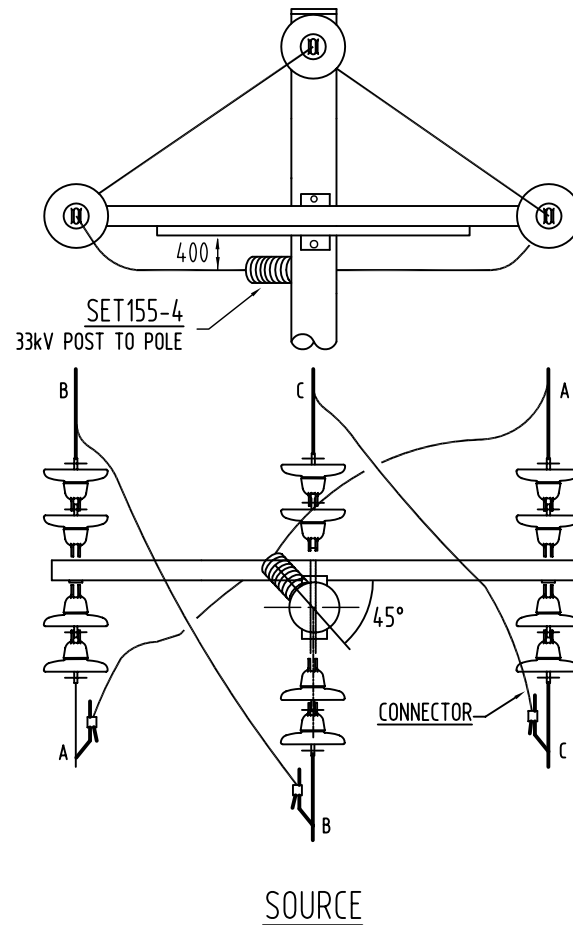
OVERHEAD CONSTRUCTION MANUAL

33kV CONSTRUCTION  
BRIDGING ARRANGEMENTS  
NORMAL BRIDGING FLAT  
TRANSPOSITION - FLAT


APP'D P. Rainbird	TECH STDS	AUTOCAD
DATE 15/12/97	4920-A4	E
REC'D J.Tunney	SECT 5	PAGE 201
CKD J.Tunney	SHEET 1 OF 1	
DWN R.W.	FILE:ocm\s5\ohc-201e.dwg	

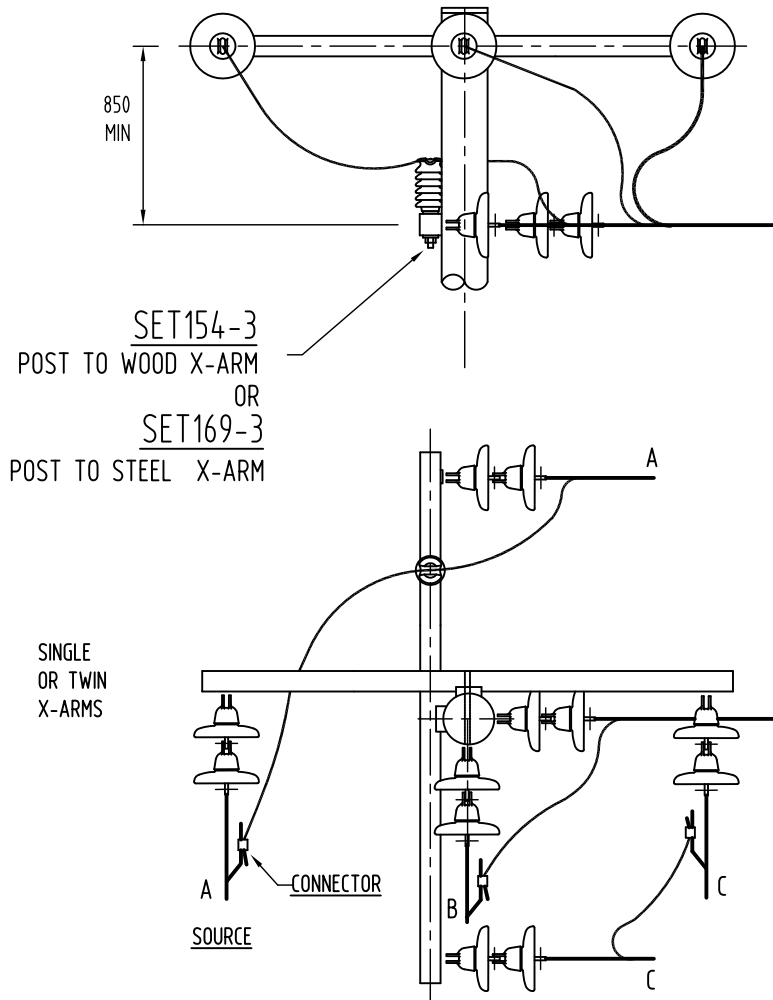


NORMAL BRIDGING - TRIANGULAR

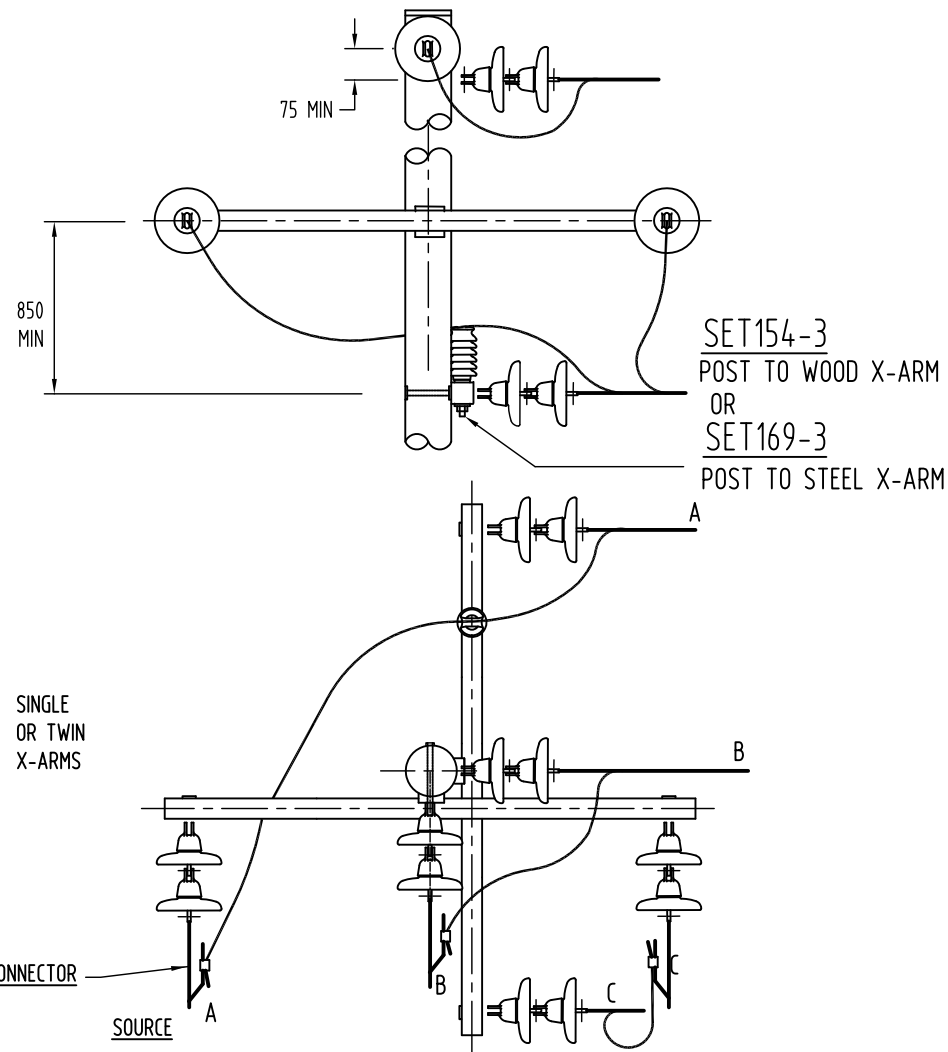


TRANSPOSITION - TRIANGULAR

B	ORIGINAL ISSUE		APPD K.NUTTALL	CKD J.TUNNEY	DRN G.JAYAWERA	NEW TEMPLATE STIRRUP REMOVED.		<div> ©COPYRIGHT 2006 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX</div>	OVERHEAD CONSTRUCTION MANUAL		APP'D P. Rainbird	TECH STDS		AUTOCAD	
	C	DATE 15/11/06							33kV CONSTRUCTION		DATE 15/12/97	4920-A4		C	
		DATE 15/11/06							BRIDGING ARRANGEMENTS		REC'D J.Tunney	SECT 5	PAGE 202		
		DATE 15/11/06							NORMAL, TRANSPOSITION - TRAINGULAR		CKD J.Tunney	SHEET 1 OF 1			
		DATE 15/11/06									DWN R.W.	FILE:ocm\s5\ohc-202c.dwg			

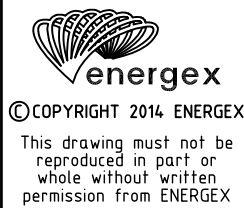


CROSSCHECK - FLAT



CROSSCHECK - TRIANGULAR

ORIGINAL ISSUE	DATE	APPD	CKD	DRN	remove SET164-2
B	23-05-2014		P. Relf	P. Relf	



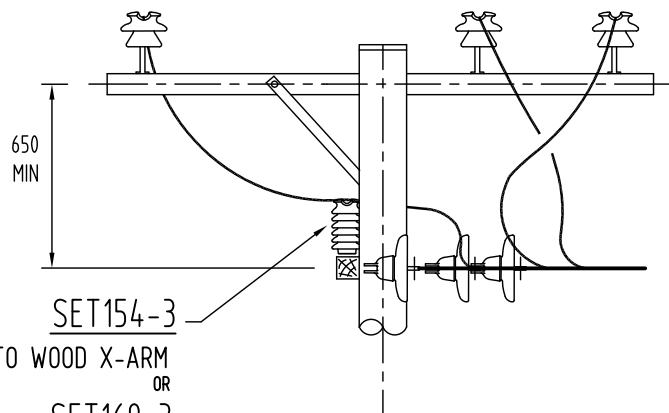
OVERHEAD CONSTRUCTION MANUAL

33kV CONSTRUCTION

BRIDGING ARRANGEMENTS

- CROSSCHECK

APP'D	P. Rainbird	TECH STDS	AUTOCAD
DATE	15/12/97	4920-A4	D
REC'D	J.Tunney	SECT	PAGE
CKD	J.Tunney	5	203
DWN	R.W.	SHEET	1 OF 1
FILE:ocm\s5\ohc-203d.dwg			

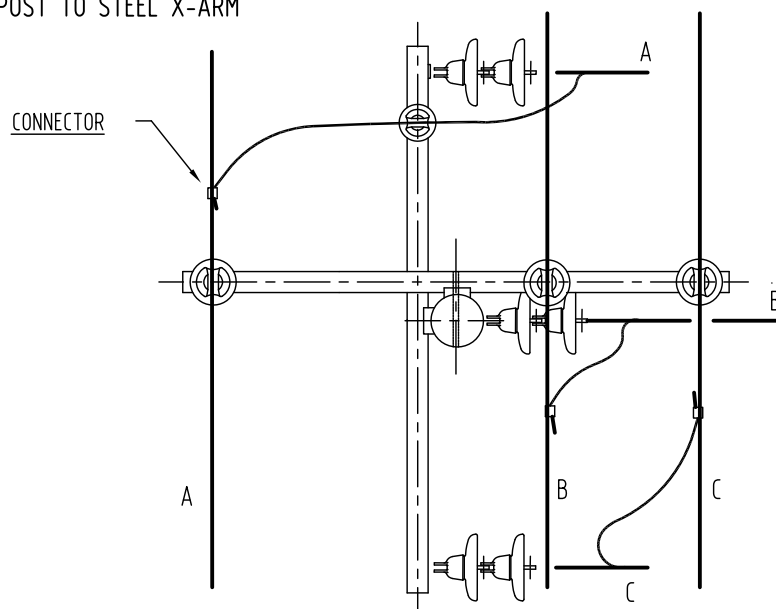


SET154-3

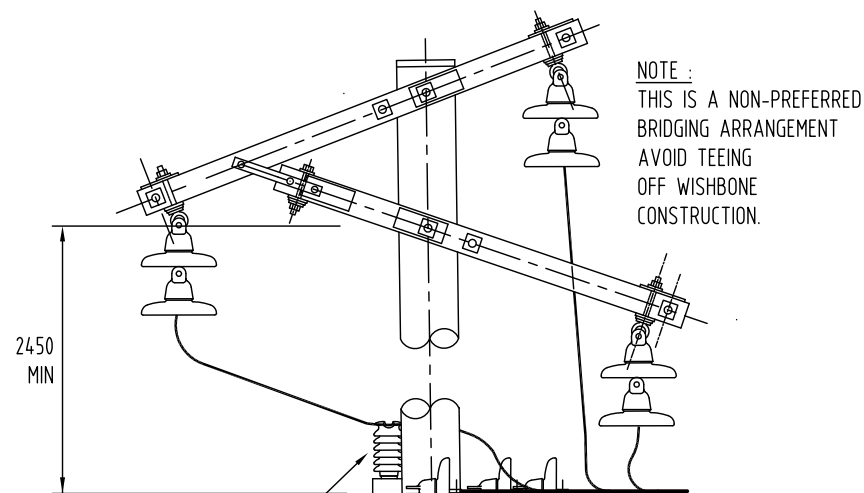
POST TO WOOD X-ARM  
OR

SET169-3

POST TO STEEL X-ARM



TEE OFF - FLAT

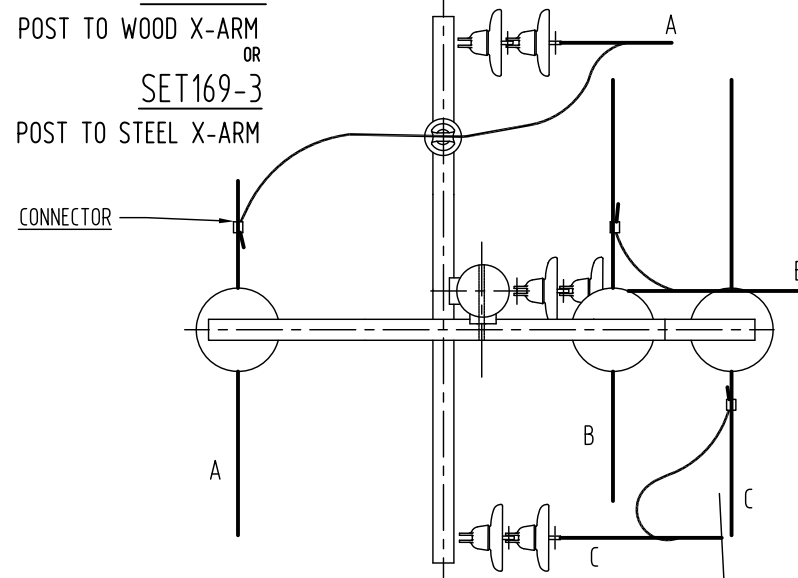


SET154-3

POST TO WOOD X-ARM  
OR

SET169-3

POST TO STEEL X-ARM



TEE OFF - WISHBONE

ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	TEE Off to Flat kbs was 750 now 650. TEE Off to W'bone was 2100, now 2450
B	D	ROY ENGLISH	J.TUNNEY	J.TUNNEY	



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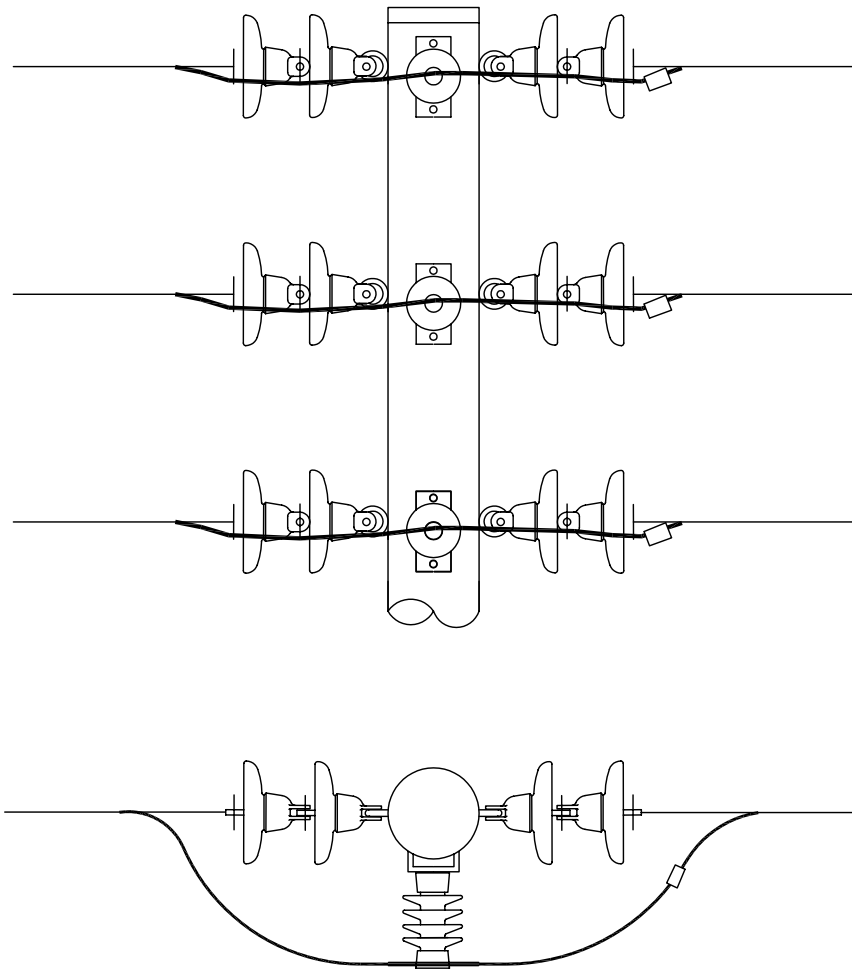
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## OVERHEAD CONSTRUCTION MANUAL

### 33kV CONSTRUCTION BRIDGING ARRANGEMENTS

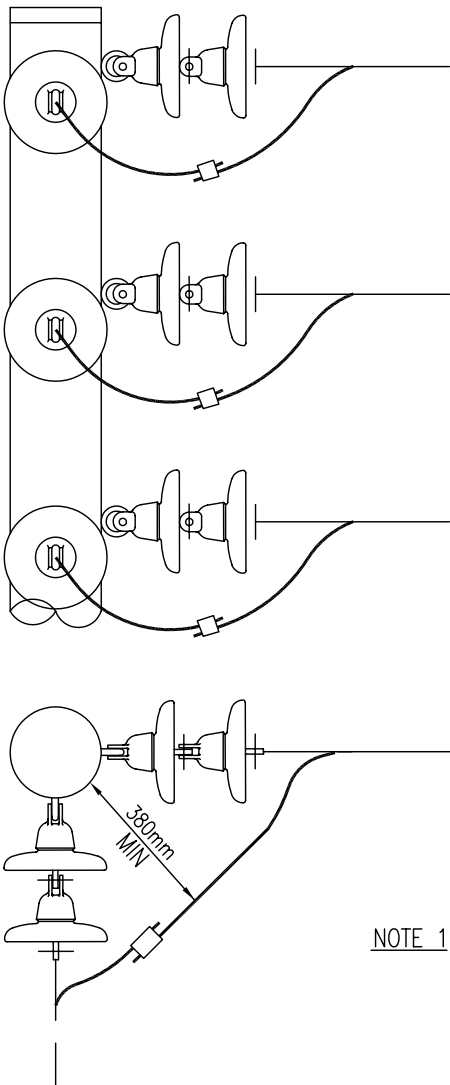
- TEE OFF

APP'D	P. Rainbird	TECH STDS	AUTOCAD
DATE	15-12-97	4920-A4	D
REC'D	J Tunney	SECT	PAGE
CKD	J Tunney	5	204
DWN	Rob Wassell	SHEET	1 OF 1
		FILE:	




VERTICAL SHACKLE

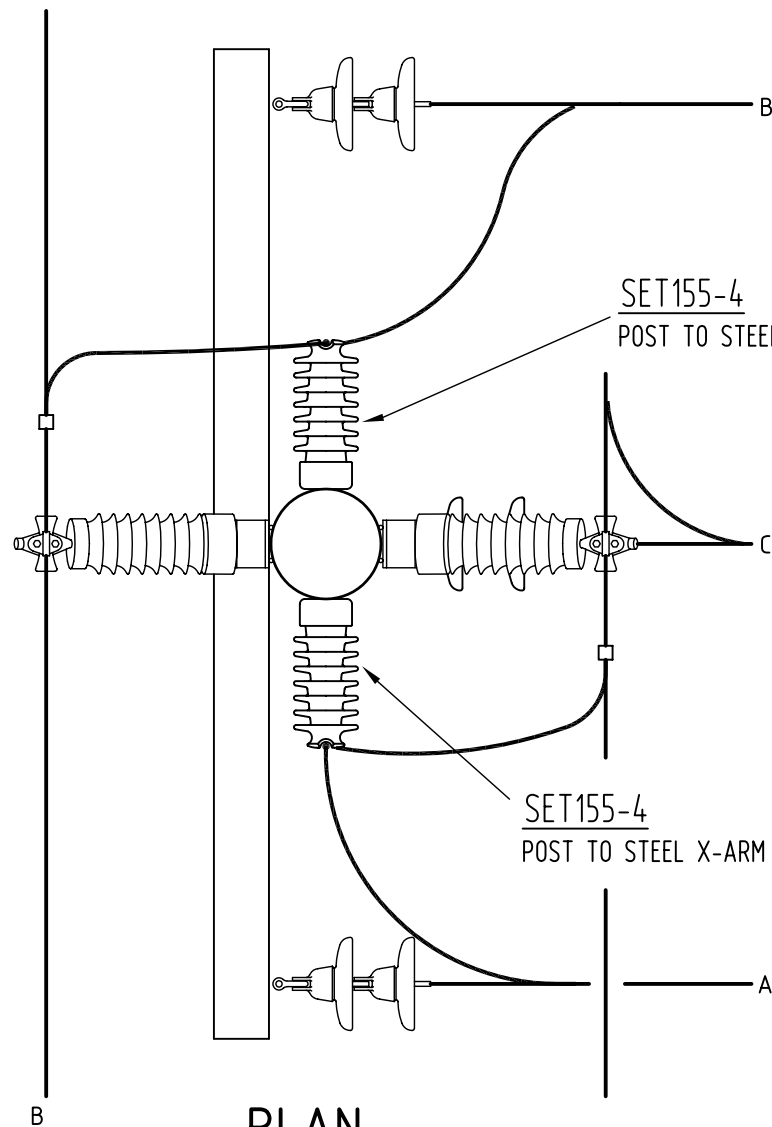
NOTE :  
1. FOLD BRIDGING BACK IF NECESSARY TO MAINTAIN MIN. DISTANCE FROM POLE.



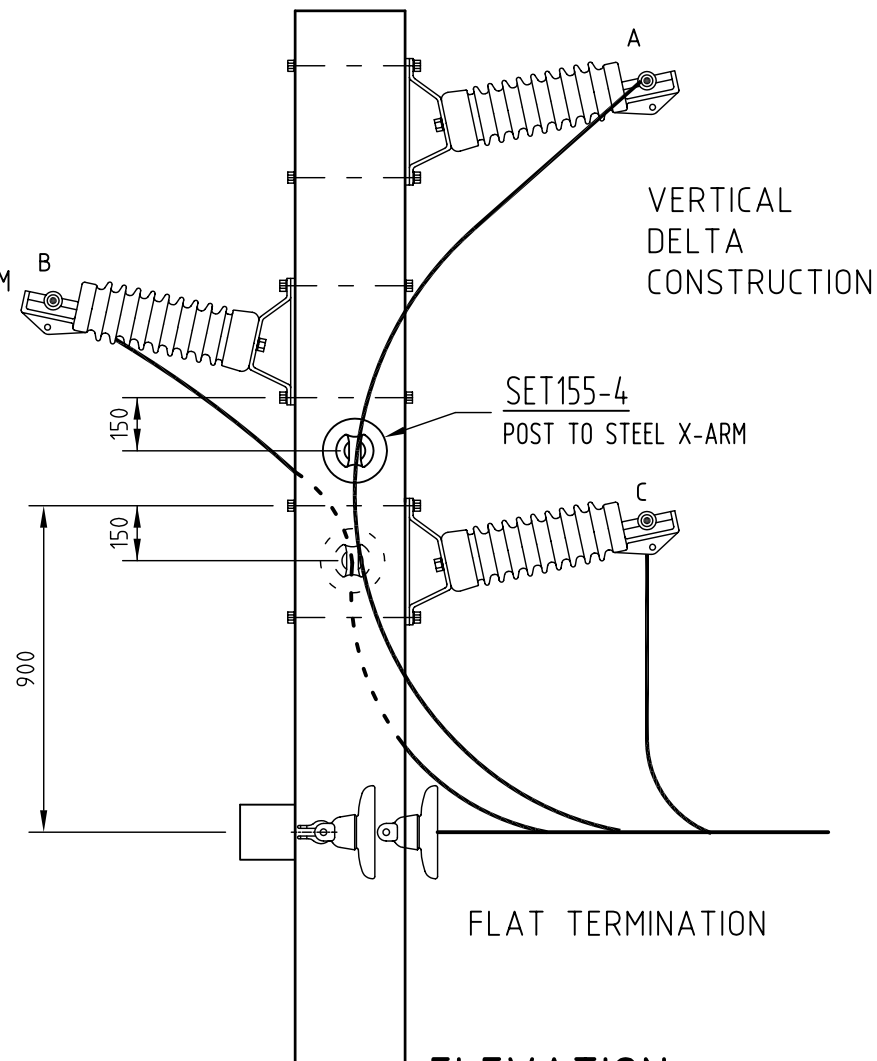
NOTE 1

VERTICAL CROSSCHECK


B	ORIGINAL ISSUE		APPD	K.NUTTALL	CKD	J.TUNNEY	DRN	G.JAYAWERA	TEMPLATE CHANGE			 ©COPYRIGHT 2006 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D	TECH STDS		AUTOCAD
	C	DATE											'15/11/06	DATE		4920-A4		C
		REC'D											SECT		PAGE			
		CKD											5		205			
		DWN											M.W		SHEET 1 OF 1			
FILE:																		



**PLAN**



**ELEVATION**

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**33kV CONSTRUCTION**  
**BRIDGING ARRANGEMENTS**  
 VERTICAL DELTA CONSTRUCTION  
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