

## INSTRUCTIONS FOR SPLICING OVERHEAD CONDUCTORS USING FULL-TENSION AUTOMATIC SLEEVES

### I. Preparation of Conductors:

1. Cut the conductor square so that all strands are even, in lay and free of burrs.
2. Straighten the conductor to remove any curvature due to coiling.
3. Clean the conductor thoroughly by using a wire brush which has been coated with a liberal quantity of inhibitor. Wipe off excess inhibitor after cleaning. It is just as important to clean new conductors as well as old conductors.
4. The conductor size and type stamped on the splice must correspond to the size and type of the conductor to be spliced.
5. Measure and mark the conductor with electrical tape to insure full insertion of the conductor into the splice. One half (1/2) the length of the splice is the measure of full insertion.

(Debasish Chakraborty)  
PD, TAPP, BREB

### II. Installation of the Automatic Splice:

1. Remove the colored end plug (if provided) by pulling out with a slight twisting motion.
2. Do not remove the conductor runnel guide or the internal pilot cup (if provided) from the splice. These components confine and guide the conductor strands for easy insertion.
3. Insert end of the conductor into the splice, and with a smooth straight thrust push the conductor through the gripping jaws until the conductor hits the center stop.
4. Visually check tape marker to verify full insertion. Remove the tape marker.
5. As tension is applied the conductor will move 1/4" to 1/2" from the end of the splice due to the sliding action of the gripping jaws.
6. After completion of the splice installation and before the chain hoist or rope blocks have been released, an additional momentary tension (jerk) should be applied to the conductor to "set" the splice and assure proper installation.

(Md. Ahsanul Haque)  
Consultant TAPP, BREB

(Md. Abul Kalam)  
Consultant TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০৩

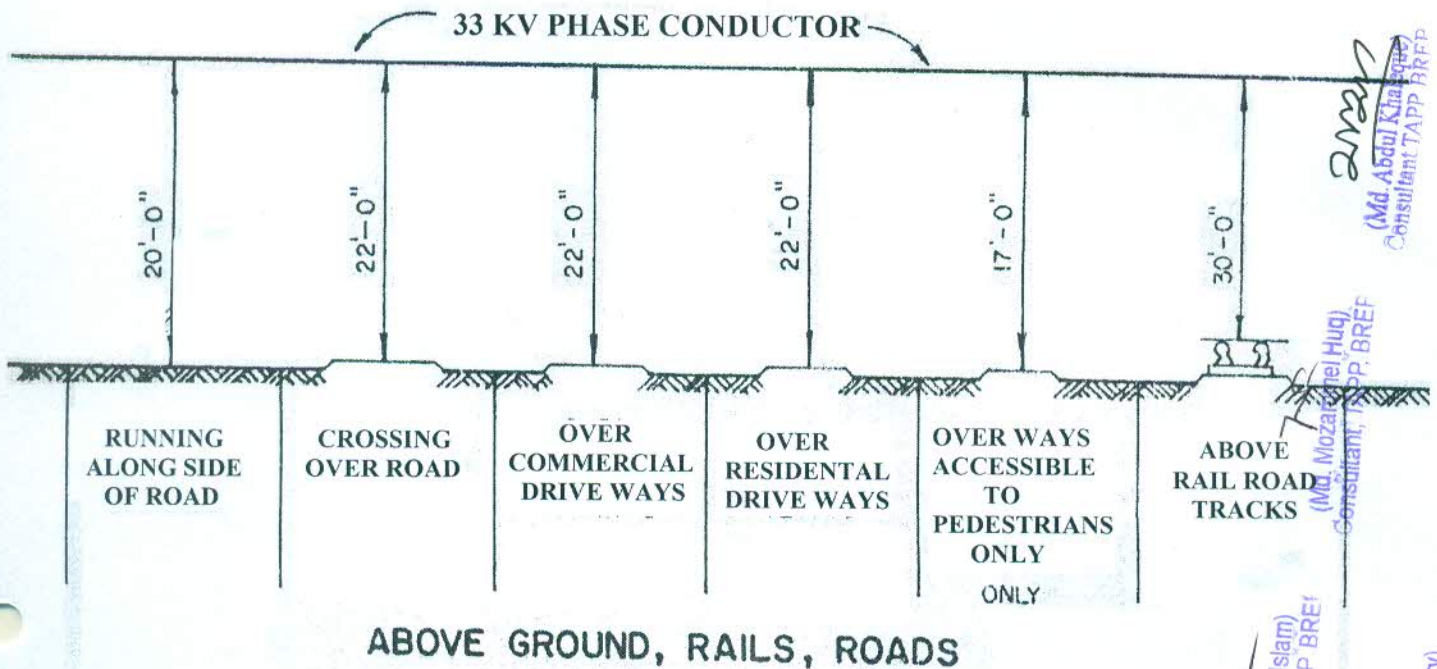
(Kamrul Ahsan Molla)  
Asst. Secy. (Board), BREB

### BANGLADESH RURAL ELECTRIFICATION BOARD

#### Unit Description: 33 KV SPLICING GUIDE FULL-TENSION AUTOMATIC SLEEVES

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM46

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

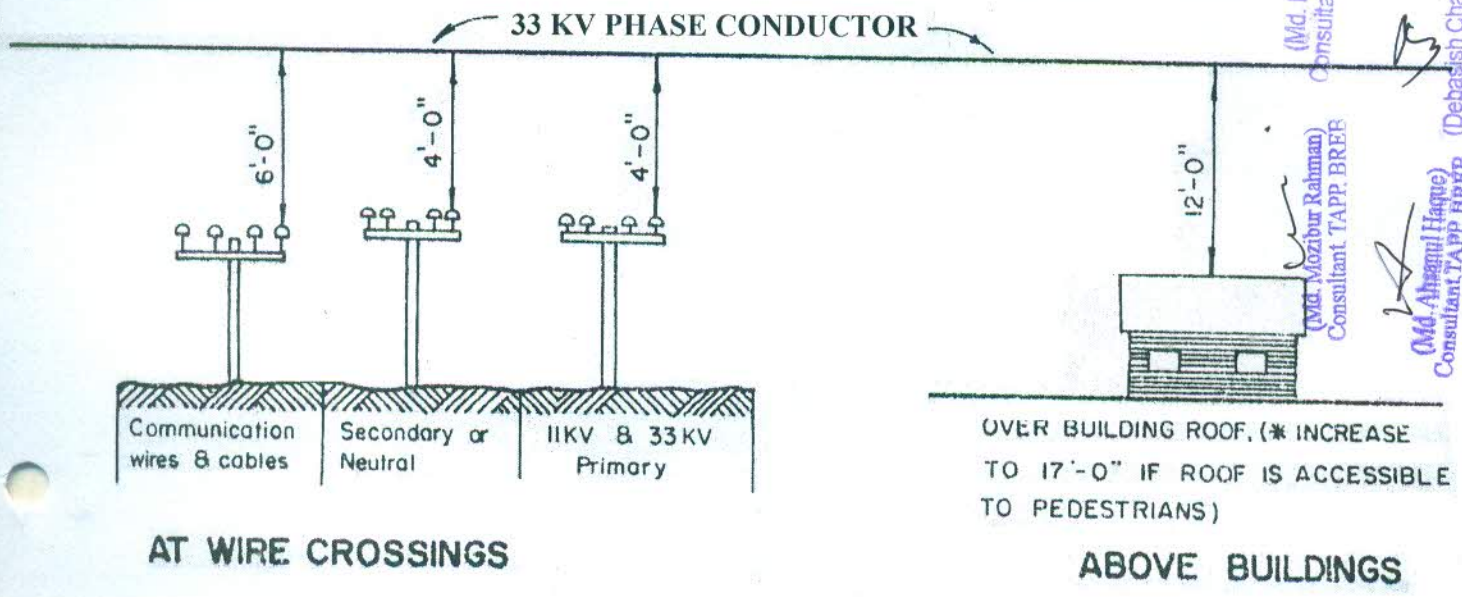


*(Md. Abdul Khair)*  
Consultant, TAPP, BREB

*(Md. Mozammel Haq)*  
Consultant, TAPP, BREB

*(Md. Dujdul Islam)*  
Consultant, TAPP, BREB

*(Debasish Chakraborty)*  
PD, TAPP, BREB



*(Mr. Mozibur Rahman)*  
Consultant, TAPP, BREB

*(Md. Abegunil Haque)*  
Consultant, TAPP, BREB

**NOTE:**

1. CLEARANCES AS SHOWN ARE AT 60°F, NO WIND, FINAL SAG.
2. VERTICAL CLEARANCE OVER NAVIGABLE RIVERS ARE AS AUTHORIZED BY INLAND WATER AUTHORITY.

*(Kamrul Ahsan Mollik)*  
Asst. Secy. (Board), BREB.

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: MINIMUM CONDUCTOR CLEARANCES FOR 33 KV LINE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TM50</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020


## GUYING DATA


### HORIZONTAL CONDUCTOR TENSION AT LINE ANGLES (PER CONDUCTOR)


CONDUCTOR \ LINE ANGLE	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°
N <sup>o</sup> 3 ACSR	360	450	520	600	670	740	810	880	940	1010	1080	1140
4/0 ACSR	610	880	1110	1330	1550	1770	1990	2200	2410	2620	2820	3010
477 mcm ACSR	630	900	1160	1430	1700	1970	2230	2470	2710	2950	3180	3420


## CONDUCTOR DATA


SIZE (AWG)	OUTSIDE DIAMETER (INCHES)	STRANDING		CODE NAME	WEIGHT PER 1000 FT.	ULTIMATE STRENGTH (lbs)	MAXIMUM TENSION (lbs)
		AL.	STEEL				
3	0.281	6	1	SWALLOW	72.3	2290	745
4/0	0.563	6	1	PENGUIN	291.1	8350	2276
477	0.858	26	7	HAWK	657	19500	2687


  
 (Md. Mozibur Rahman)  
 Consultant, TAPP, BREB

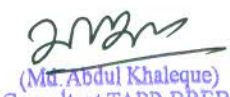
  
 (Md. Duhidul Islam)  
 Consultant, TAPP, BREB

  
 (Md. Mozammel Haque)  
 Consultant, TAPP, BREB

  
 (Md. Ahsanul Haque)  
 Consultant, TAPP, BREB

  
 (Debasish Chakraborty)  
 PD, TAPP, BREB

  
 (Kamrul Ahsan Mollik)  
 Asst. Secy. (Board), BREB

  
 (Md. Abdul Khaleque)  
 Consultant, TAPP, BREB

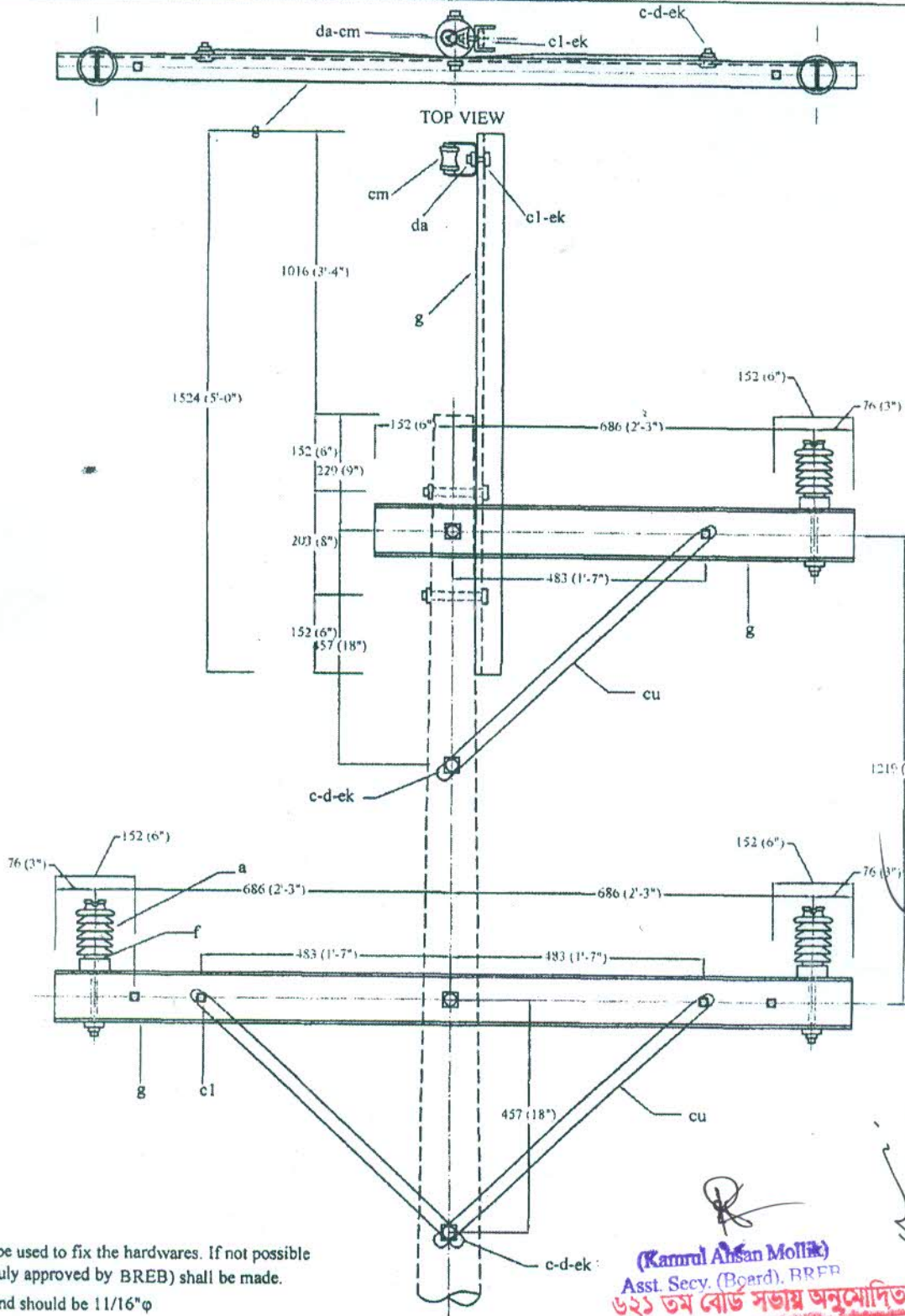
৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

### BANGLADESH RURAL ELECTRIFICATION BOARD

#### Unit Description : 33 KV CONDUCTOR AND GUYING DATA

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TM51</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



(Md. Abdul Khaleque)  
Consultant, TAPP, BRFB

(Md. Mozammel Huq)  
Consultant, TAPP, BRFB

(Debasish Chakraborty)  
PD, TAPP, BRFB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BRFB

(Md. Mozibur Rahman)  
Consultant, TAPP, BRFB

(Md. Ahsanul Haque)  
Consultant, TAPP, BRFB

(Md. Ahsanul Haque)  
Consultant, TAPP, BRFB

**Note :-**

1. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BRFB) shall be made.
2. Brace holes at both end should be 11/16"φ

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

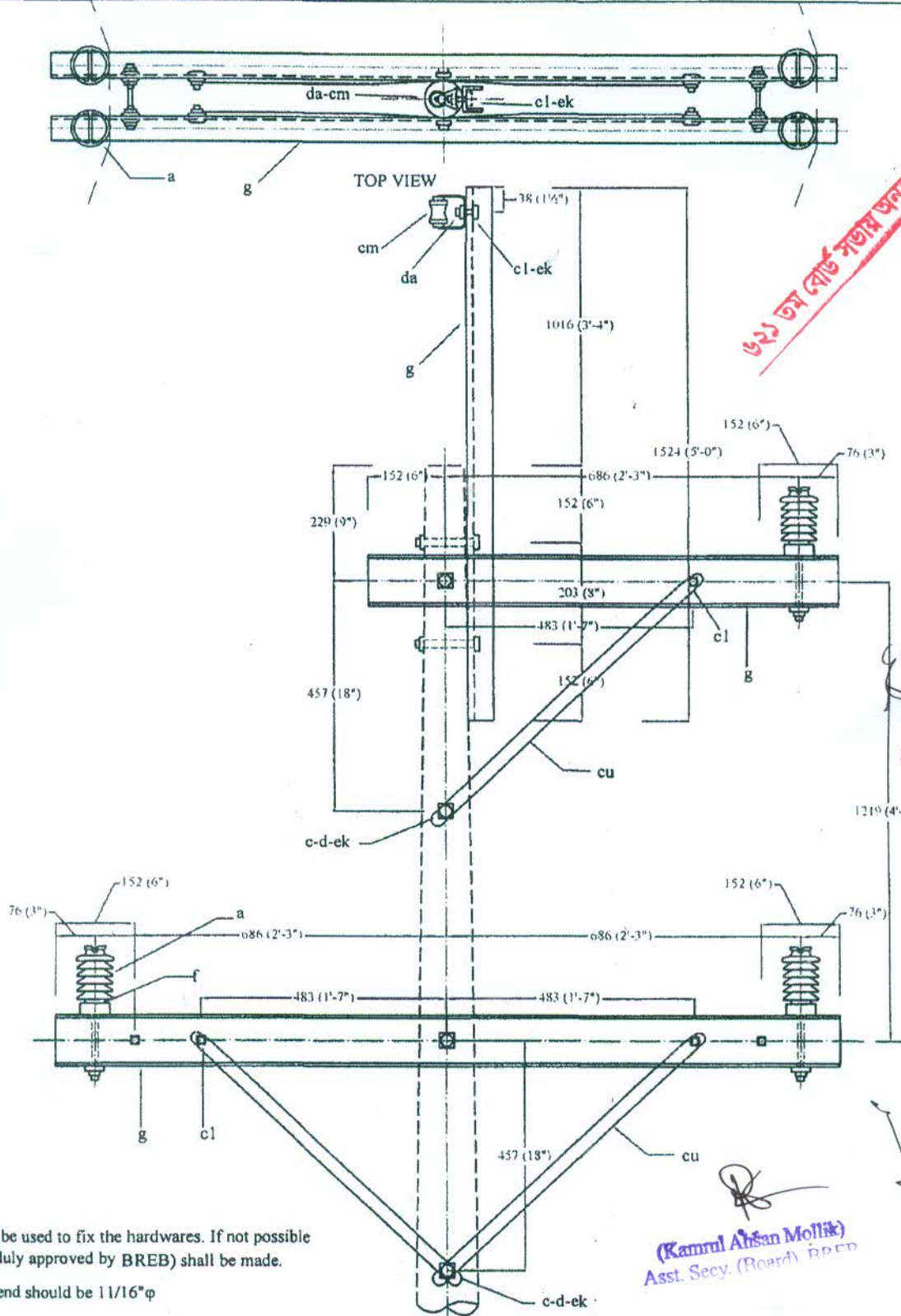
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
dc	B 49	04	Washer, curved, 4" x 1/4"φ, 1/4" x 11/16" hole	ek	B 50/138	10	Locknuts, as required
dc	B 46	02	Washer, flat, 2 1/4" sq. x 11/16" hole	ca	C 13	03	Insulator, post type, 33 KV
g	X 5	01	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 3'-0"	cu	B41/B41.1/B44	03	Brace, Steel / Wood, 28" x 1/4"
g	X 6	02	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	01	Bracket, secondary
cl	B 95	04	Bolt, m/c, 5/8" x req'd. length	cm	C 2/3	01	Insulator, spool
				c	B 6/7/8	06	Bolt, m/c, 5/8" x req'd. length

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION TANGENT POLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BRFB	BRFB Board	6	TM-52

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ ডাম বোর্ড সভার অনুমোদিত নকশা নং ১৯৯০০

(Md. Abdul Khaleque)  
Consultant, TAPP, BREB

(Md. Mozammel Haque)  
Consultant, TAPP, BREB

(Md. Duhidul Islam)  
Consultant, TAPP, BREB  
(Debasish Chakraborty)  
PO, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board) BREB

**Note :-**

- Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.
- Brace holes at both end should be 11/16"φ

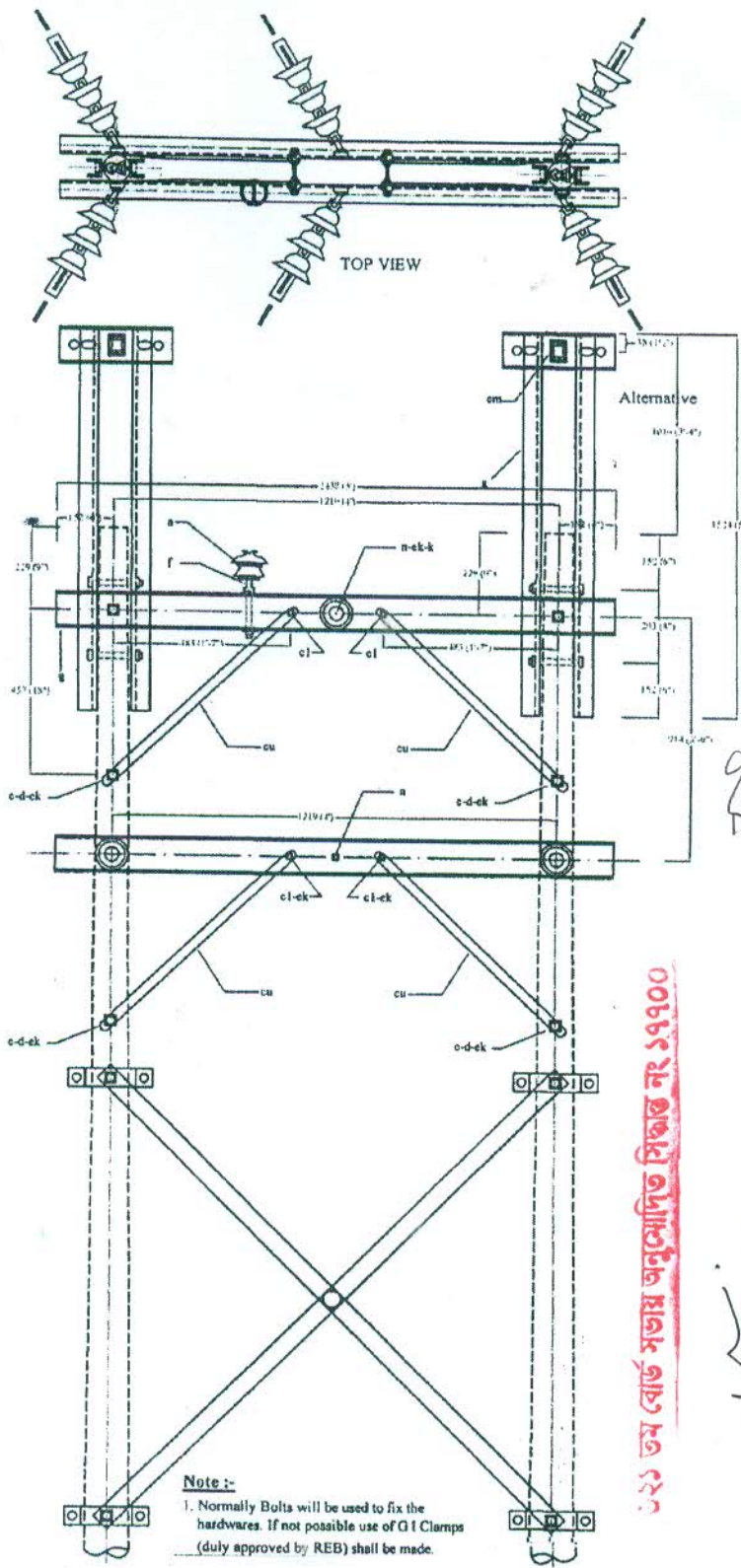
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
dc	B 49	04	Washer, curved, 4" x 1/4"φ, 1/4" x 11/16" hole	ek	B 50/138	27	Locknuts, as required
dc	B 46	02	Washer, flat, 2 1/4" sqx. x 11/16" hole	ca	C 13	06	Insulator, post type, 33 KV
g	X 5	02	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 3'-0"	cu	B41/B41.1/B44	06	Brace, Steel / Wood. 28" x 1/4"
g	X 6	03	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	01	Bracket, secondary
cl	B 95	07	Bolt, m/c, 5/8" x req'd. length	cm	C 2/3	01	Insulator, spool
				c	B 6/7/8	03	Bolt, m/c, 5/8" x req'd. length

**BANGLADESH RURAL ELECTRIFICATION BOARD**

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION SMALL ANGLE SINGLE POLE UPTO 8° ANGLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM-53

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



১২১ তম বোর্ড সভায় অনুমোদিত সিকত নং ১৭৭০০

*[Signature]*  
(Md. Abdul Khabir)  
Consultant TAPP BREB

*[Signature]*  
(Md. Mozammel Haque)  
Consultant TAPP BREB

*[Signature]*  
(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB

*[Signature]*  
(Md. Duhidul Islam)  
Consultant TAPP BREB

*[Signature]*  
(Debashish Chakraborty)  
TAPP BREB

*[Signature]*  
(Md. Mozibur Rahman)  
Consultant TAPP BREB

*[Signature]*  
(Md. Ahsanul Haque)  
Consultant TAPP BREB

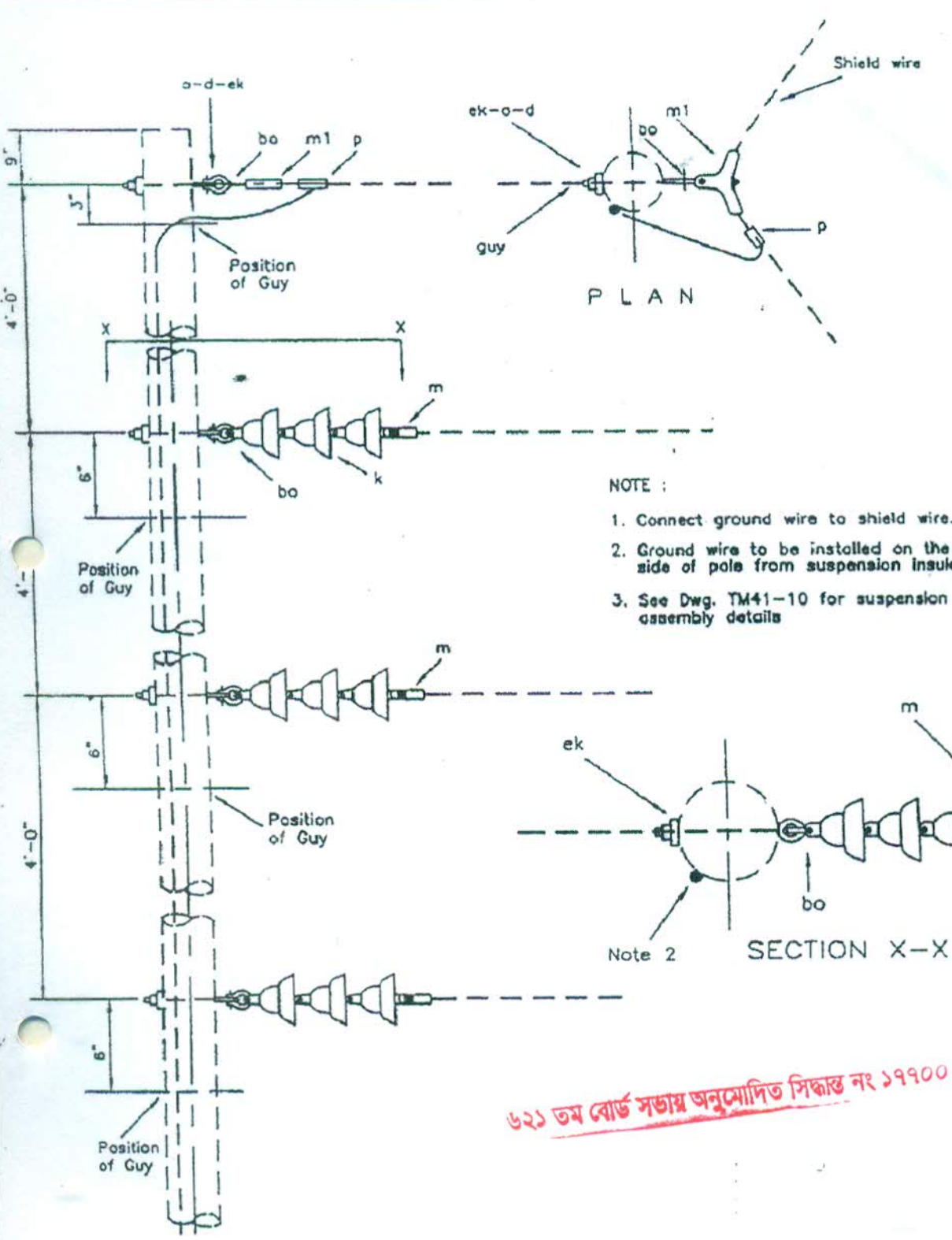
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	01	Insulator, pin, 33KV	ek	B 50/138	33	Locknuts, as required
f	B 122	01	Pin, crossarm, steel, 33KV	da	B 46	06	Insulator, post type, 33 KV
k	C 11	18	Insulator, suspension, 33KV	cu	B41/B41.1/B44	08	Brace, Steel / Wood, 28" x 1/4"
g	X-7	02	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 8'-0"	n	B26/B27/B28	06	Bolt, double arming
g	X-6	06	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 5'-0"	l	B 132/133	06	Clamp, deadend
c	B 5/6/7/8	08	Bolt, m/c, 5/8" x req'd. length	cm	C 2/3	02	Spool, Insulator
s	B 73	02	Clevis, Secondary swinging	o	B 18	01	Bolt, eye 5/8" φ x required length
cl	B 93	08	Bolt, m/c, 5/8" x req'd. length	-	-	02	Plate, arming 14" or 12" x 4" x 1/4"
-	-	04	4-way pole band	dl	B 64	02	Pipe spacer

**BANGLADESH RURAL ELECTRIFICATION BOARD**

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION, 8°- 30° ANGLE, H- FRAME

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TM-53</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



NOTE :

1. Connect ground wire to shield wire.
2. Ground wire to be installed on the opposite side of pole from suspension insulators
3. See Dwg. TM41-10 for suspension assembly details

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Md. Mozammel Haque)  
Consultant, TAPP, BREB

(Kamrul Ahsan Molla)  
Asst. Secy. (Board), BREB

(Md. Mozammel Haque)  
Consultant, TAPP, BREB

(Md. Jubair Hossain)  
Consultant, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

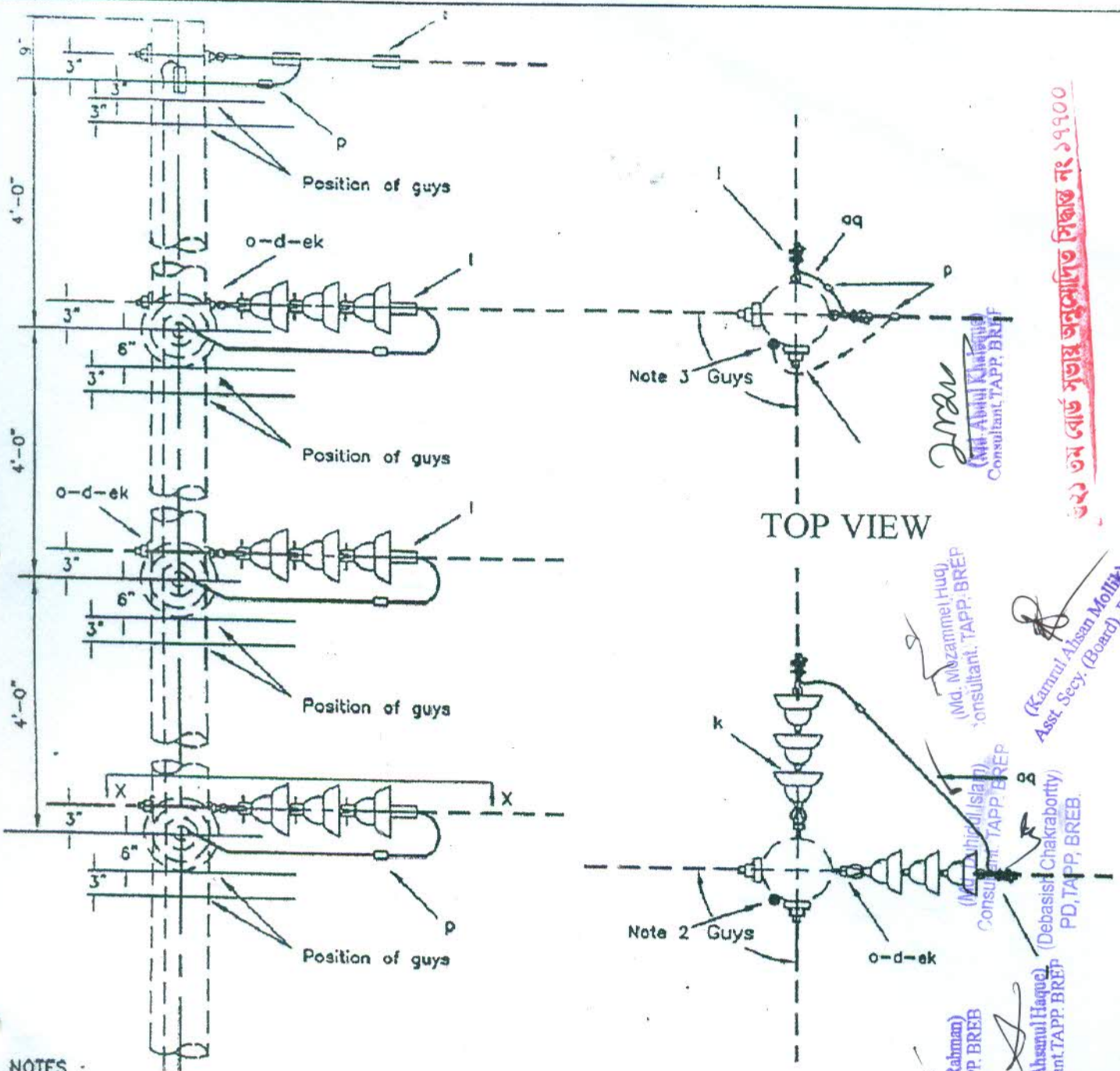
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
d	B 46/118	04	Washer, square, 2 1/4"	m	B 134/135	03	Clamp, suspension, 2 bolt
k	C 11	09	Insulator, suspension, 10", 33kv	ek	B 50	04	Locknuts, as required
bo	B 55	04	Shackle, Anchor	o	B 18/19/20	04	Bolt, eye, 5/8"φ x required length
p	15/16	-	Connectors, as required	m1	B 82	01	Clamp, suspension, 1 bolt

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV VERTICAL CONSTRUCTION 30° TO 50° ANGLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM-55

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



**NOTES :**

1. See Dwg. TM41-10 for deadend assembly details.
2. Connect shield wire to ground wire.
3. Ground wire to be installed on quadrant between guys.
4. Install top eye bolt in pre-drilled slot bolt hole.
3. Instead of secondary clevis, loop deadend clamp & spool insulator, deadend clamp may be used

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
d	B 46/118	08	Washar, square, 2 1/4"	aq	D 3/23/26	-	Jumpers,
k	C 11	18	Insulator, suspension, 10", 33kv	l	B 132/133/112	06	Clamp, deadend
bo	B 55	06	Shackle, Anchor	ek	B 50	08	Locknuts, as required
p	15/16	-	Connectors, as required	o	B 18/19/20	08	Bolt, eye, 5/8"φ x required length
cm	C 2/3	02	Insulator, spool	s	B 73	02	Clevis, secondary, swinging
				bn	B 85/86	04	Clamp, loop deadend

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description:** 33 KV VERTICAL CONSTRUCTION 50° TO 90° ANGLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TM-56</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৩২১ তম বোর্ড সভায় অনুমোদিত সিক্স নং ১৭১০০

(Md. Abul Kalam) Consultant, TAPP, BREB

(Md. Mozammel Haque) Consultant, TAPP, BREB

(Kamrul Ahsan Molla) Asst. Secy. (Board), BREB

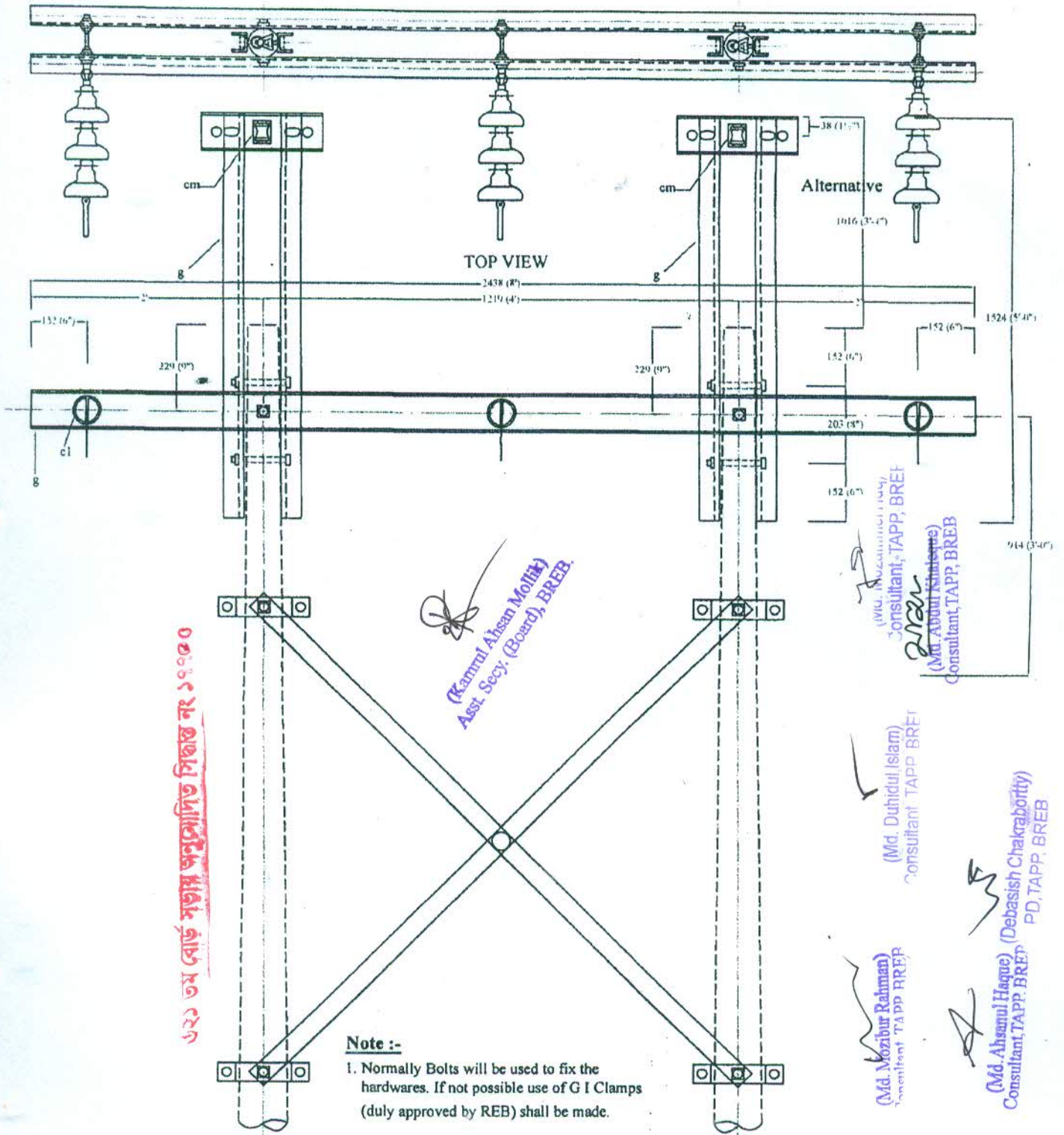
(Md. Abul Hossain) Consultant, TAPP, BREB

(Debasisi Chakraborty) PD, TAPP, BREB

(Md. Mozibur Rahman) Consultant, TAPP, BREB

(Md. Ahsanul Haque) Consultant, TAPP, BREB





**Note :-**  
 1. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by REB) shall be made.

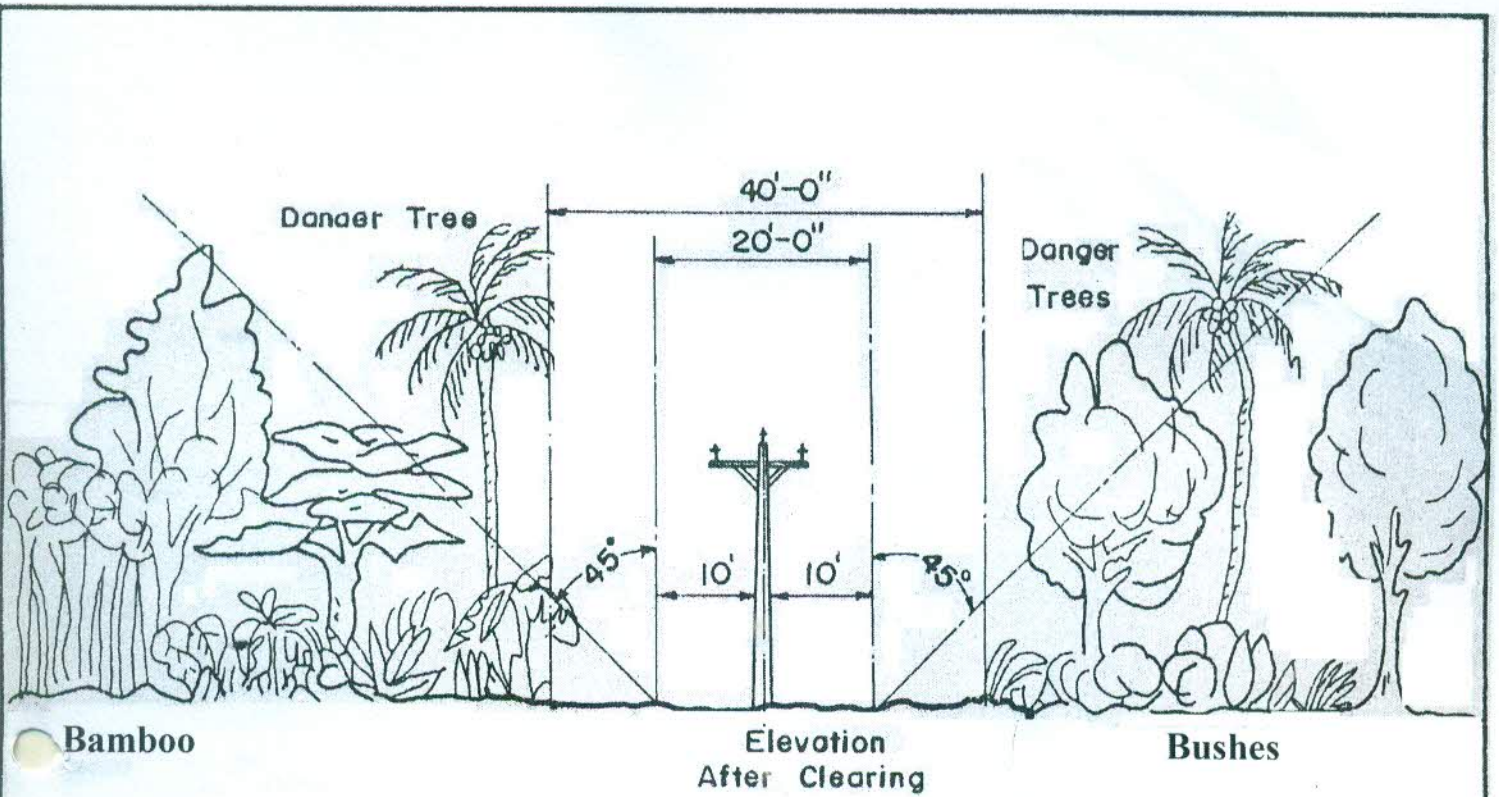
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
c	B 5/6/7/8	04	Bolt, m/c, 5/8" x req'd. length	ek	B 50/138	19	Locknuts, as required
s	B 73	01	Clevis, Secondary swinging	da	B 46	02	Insulator, post type, 33 KV
cl	B 95	08	Bolt, m/c, 5/8" x req'd. length	n	B26/B27/B28	05	Bolt, double arming
k	C 11	09	Insulator, suspension, 33KV	l	B 132/133	03	Clamp, deadend
g	X 7	04	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 8'-0"	cm	C 2/3	01	Spool, Insulator
g	X 6	02	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 5'-0"	o	B 18	01	Bolt, eye 5/8" $\phi$ x required length
-	-	04	4-way pole band	-	-	02	Plate, arming 14" or 12" x 4" x 1/4"
-	-	-	-	-	B 64	02	Pipe spacer

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION TANGENT SINGLE DEADEND  
 (For Grosbeak & Mallard Conductor)**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TM-57</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



**NOTES:-**

More consumers lose service because of tree damage to transmission lines than similar damage to distribution lines, so tree trimming requirements are correspondingly greater and must be strictly enforced for 33KV construction.

Trees like coconut palms which lose all their leafage, when topped because they intrude into the danger zone, must be cut off level with the ground regardless of their location.

On level ground, rapidly growing trees should be considered for topping or removal if they would reach within 5 feet of a point immediately below an outside conductor in falling.

(Md. Mozammar Hossain) Consultant, TAPP, BREB  
 (Md. Juhaimul Islam) Consultant, TAPP, BREB  
 (Md. Mozammar Hossain) Consultant, TAPP, BREB  
 (Md. Abdul Khaleque) Consultant, TAPP, BREB  
 (Md. Ahsanul Haque) Consultant, TAPP, BREB  
 (Debasish Chakraborty) PD, TAPP, BREB  
 (Kamrul Ahsan Mollik) Asst. Secy. (Board), BREB.  
 ৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

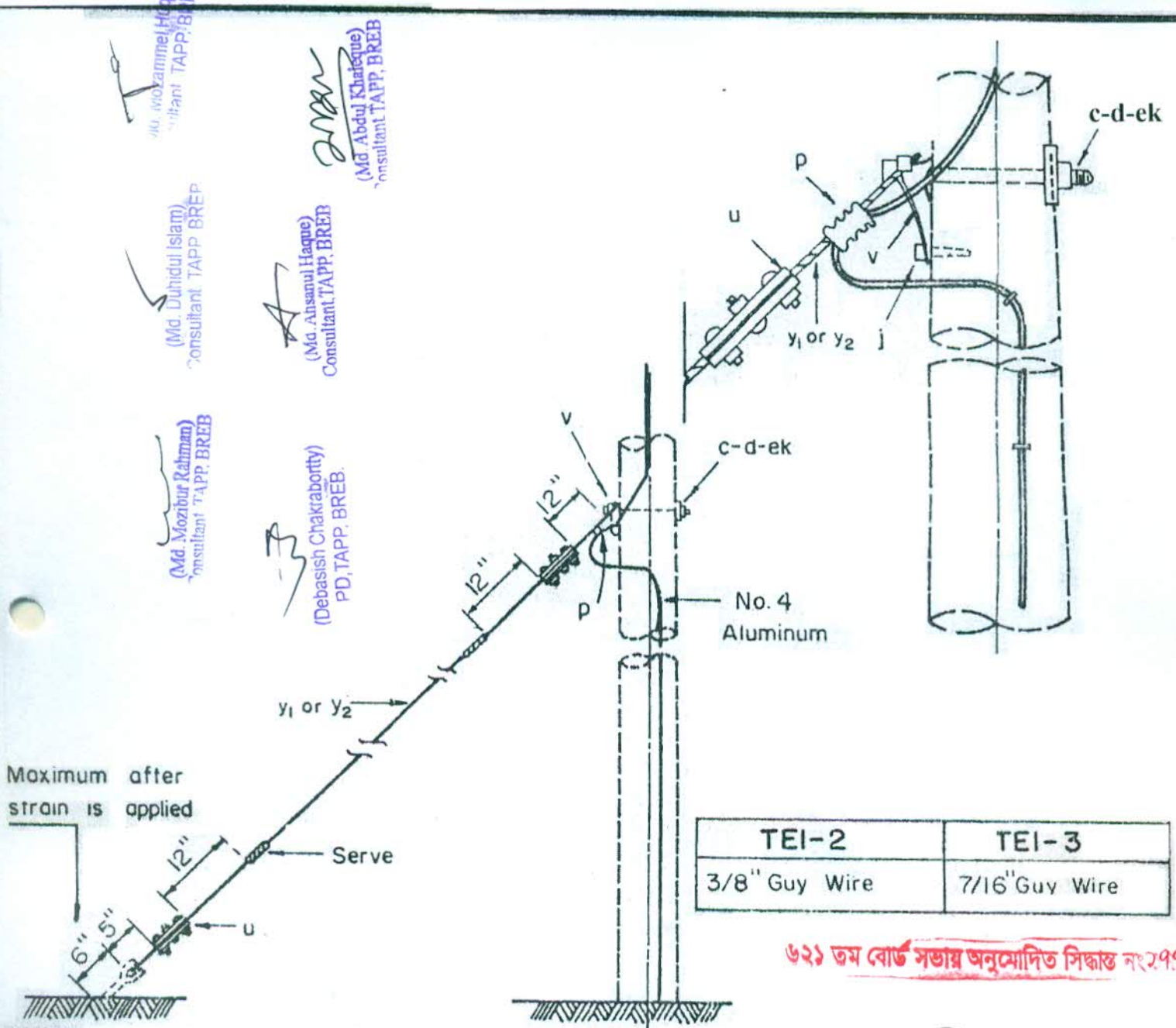
**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV RIGHT OF WAY CLEARING GUIDE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TR1</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020





Maximum after strain is applied

NOTE:  
1. A preformed deadend for guy strand may be substituted for the 3-bolt clamp shown.

TEI-2	TEI-3
3/8" Guy Wire	7/16" Guy Wire

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ২৭৭০০

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board)

ITEM NO.	MATERIAL	ITEM NO.	MATERIAL
c 1	Bolt, machine, 5/8"	v 1	Guy Attachment, Heavy Duty
d 1	Washer, square curved, 3"	y <sub>1</sub>	3/8" Guy Wire (TEI-2)
j 1	Screw, lag, 1/2" x 4"	y <sub>2</sub>	7/16" Guy Wire (TEI-3)
p 1	Connector, compression type	ek 1	Locknut, 5/8"
u 2	Dead-end for guy strand		

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33KV SINGLE DOWN GUY THROUGH BOLT TYPE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TEI-2 & TEI-3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozammel Haque)  
Consultant TAPP, BREB

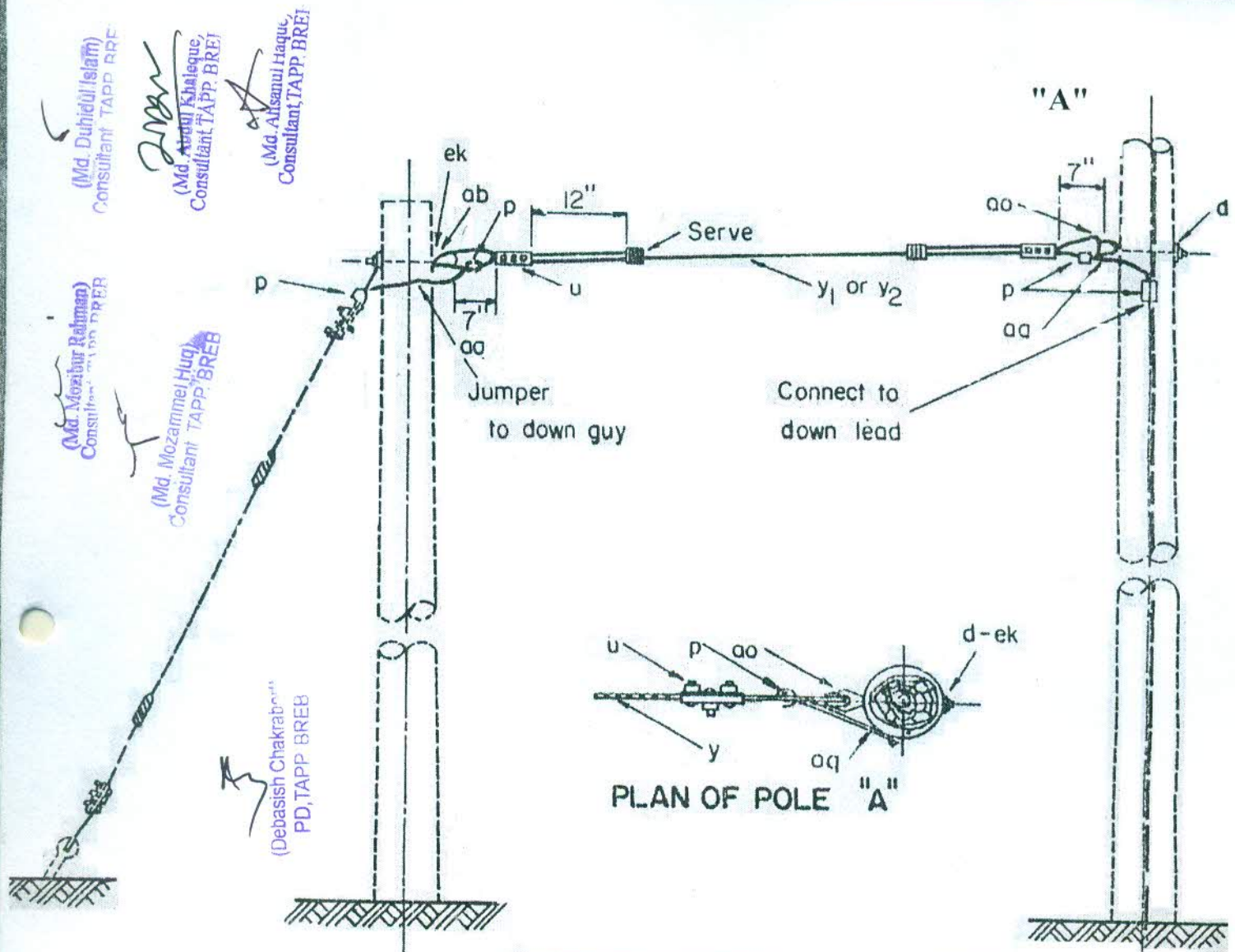
(Md. Duhidul Islam)  
Consultant TAPP, BREB

(Md. Ahsanul Haque)  
Consultant TAPP, BREB

(Md. Abdul Khafiqe)  
Consultant TAPP, BREB

(Md. Mozibur Rahman)  
Consultant TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB.



TE2-2	TE2-3
3/8" Guy Wire	7/16" Guy Wire

NOTE:  
 1. A preformed deadend for guy strand may be substituted for the 3-bolt clamp shown.

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

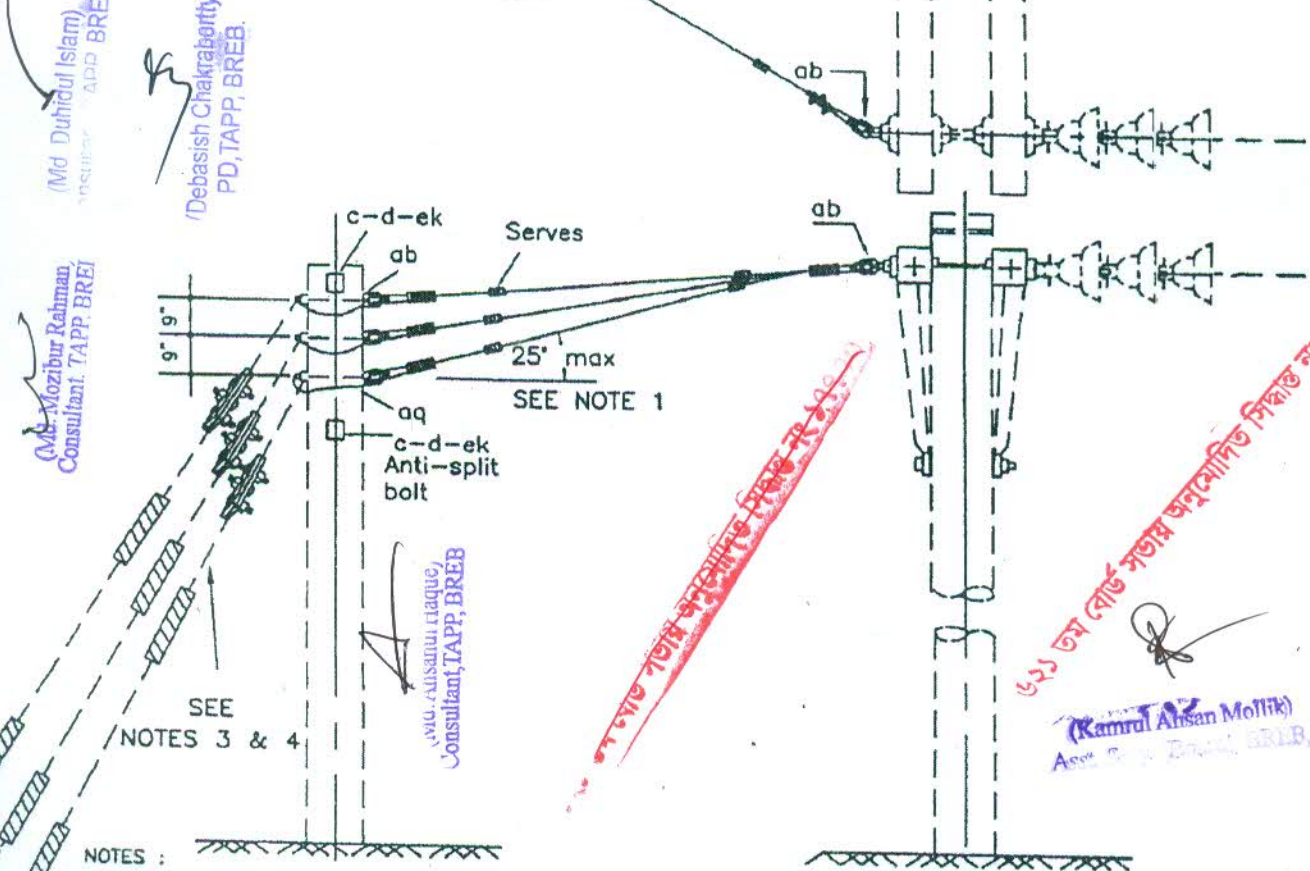
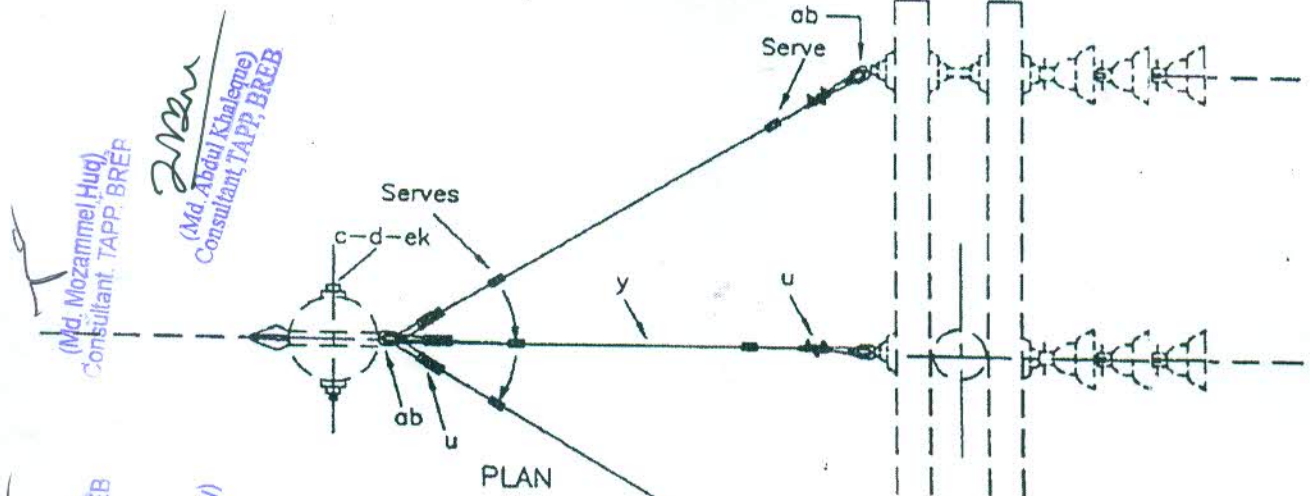
(Kamrul Ahsan Mollik)  
 Asst. Secy (Board)

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
			y <sub>2</sub>		7/16" Guy Wire (TE2-3)
d	1	Washer, Curved, 3"	ab	1	Nut, Thimble Eye, 5/8"
p		Connector, Compression type	aa	1	Bolt, Thimble Eye, 5/8"
u	2	Dead-end for guy strand	aq		Jumper, N-4 Aluminum
y <sub>1</sub>		3/8" Guy Wire (TE2-2)	ek	2	Locknut, 5/8"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV SINGLE OVERHEAD GUY THROUGH BOLT TYPE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TE2-2 & TE2-3



- NOTES :
1. Normally a stub pole 5' shorter than deadend pole will provide the required angle of 25' or less.
  2. For T26A tap take-off a 5' shorter stub pole must be located 25' or more from the take-off pole.
  3. A separate TE1-2 or TE1-3 down guy unit is required for each guy wire of the TE5-2 unit. TE5-2 thimble eye nuts are added to the down guy machine bolts and the suspension insulators double arming bolts.
  4. Two anti-split bolts are required to be installed on the stub pole.
  5. With multiple down guys two or more anchors will be required. The spacing between anchors shall be sufficient to provide the maximum holding power of each anchor. The absolute min. anchor separation shall be 5'.
  6. A preformed deadend for guy strand may be substituted for the 3-bolt clamp shown.

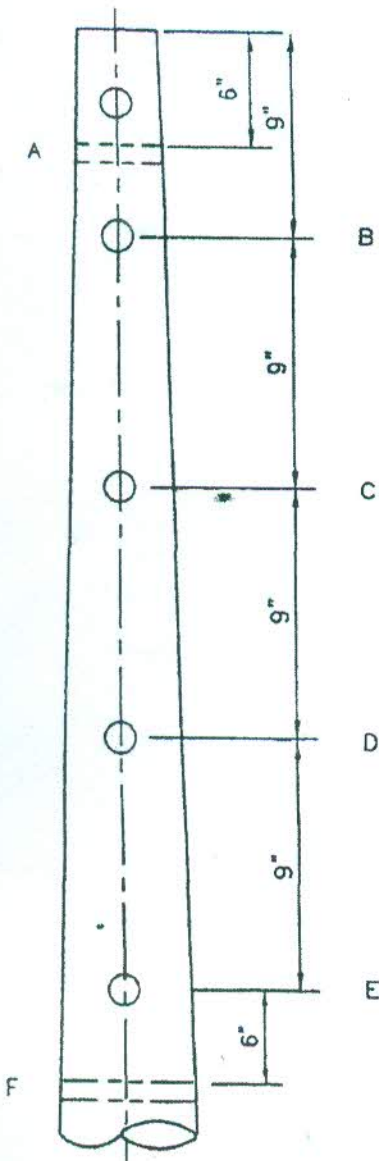
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
c	B 6/7/8	02	Bolt, m/c, 5/8"φ x required length	u	E 22/23	02	Deadend for guy strand
d	B 46/118	04	Washer, square, 2 1/4"	ab	B 54	04	Nut, thimble type, eye, 5/8"φ
p	15/6	-	Connectors, compression type	y	N 2/3	-	Guy wire, 3/8" H.S. 7-strand, as required
ek	B 50/138	04	Locknuts, as required	aq	D 4	-	Jumper, as required
				ao	B 24	02	Bolt, thimble type, eye, 5/8"φ

**BANGLADESH RURAL ELECTRIFICATION BOARD**

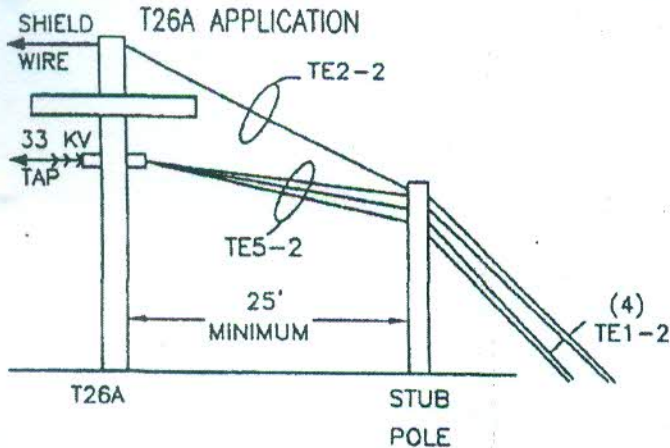
**Unit Description: 33 KV STEEL CROSSARM GUYS FOR HORIZONTAL DEADEND**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TE5-2 (Page 1 of 2)</b>

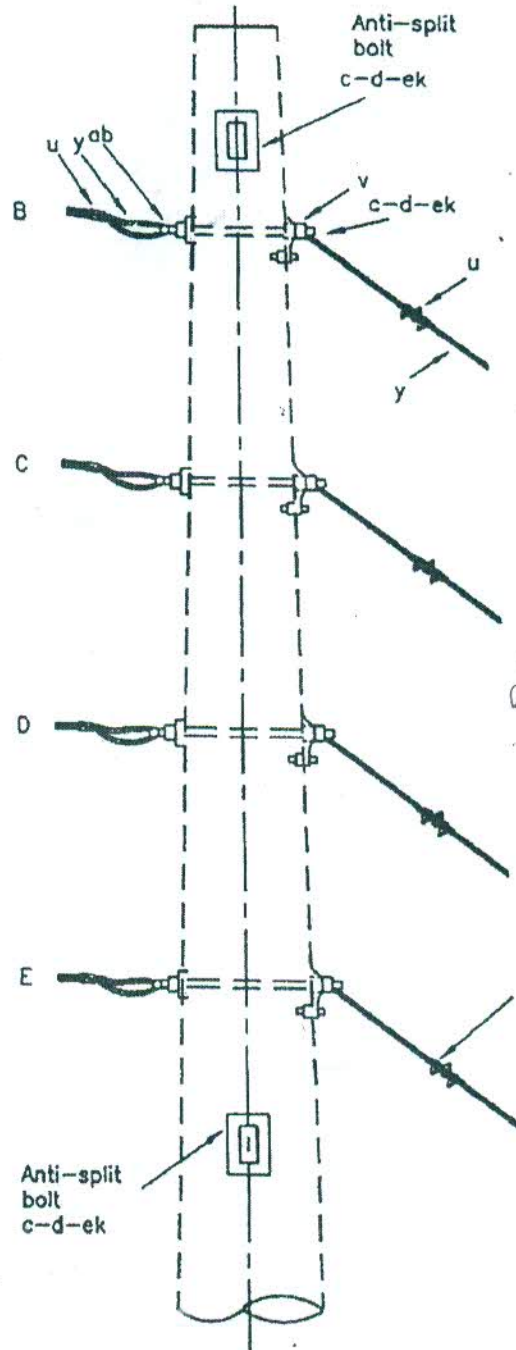
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



STUB POLE DRILLING GUIDE



১২০ ৩৭ ৭১৬ খতার তদারকি বিভাগ নং ১৯৯০০



STUB POLE ASSEMBLY GUIDE

(Md. Abdul Khaleque)  
Consultant, TAPP, BREB

(Md. Mozammel Haque)  
Consultant, TAPP, BREB

(Kamrul Ahsan Mollah)  
Asst. Secy. (Board), BREB

(Md. Ujhidul Islam)  
Consultant, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

(Md. Ahagunul Haque)  
Consultant, TAPP, BREB

- NOTES :
1. Holes A, B, C, F are pre-drilled as per pole framing guide TM20.
  2. For T7 application drill hole D.
  3. For T7A and T26A applications drill holes D and E.

BANGLADESH RURAL ELECTRIFICATION BOARD

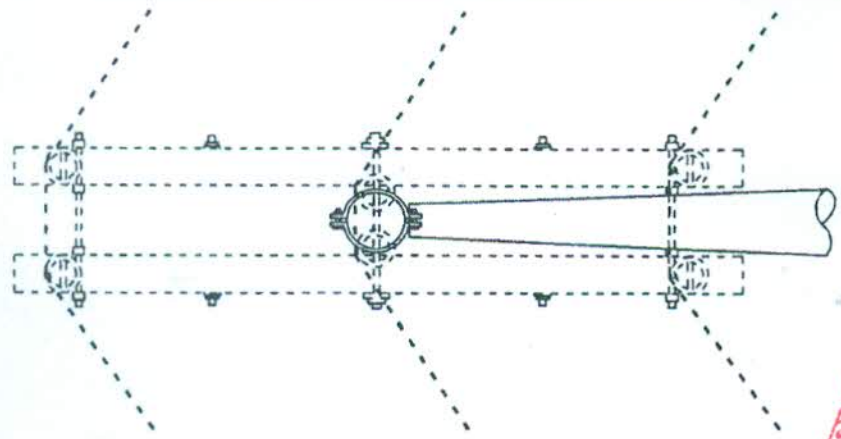
Unit Description: 33 KV STEEL CROSSARM GUYS FOR HORIZONTAL DEADEND

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TE5-2 (Page 2 of 2)

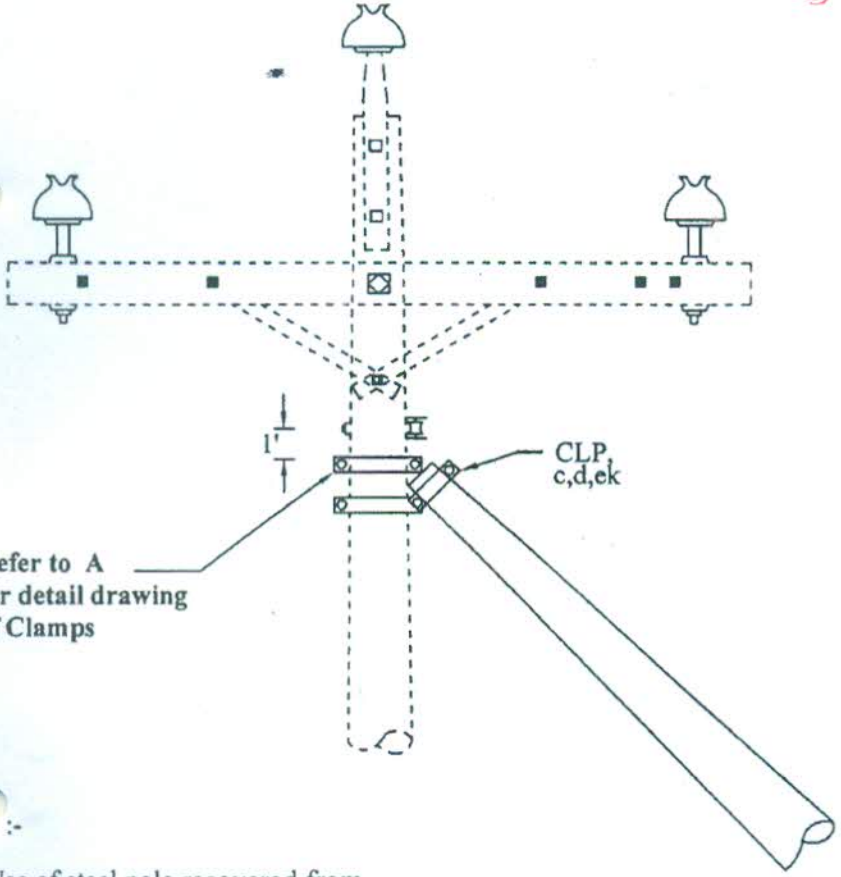
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং-১৭৭০০  
 (Kamrul Akbar Molla)  
 Asst. Secy. (Board), BREB.

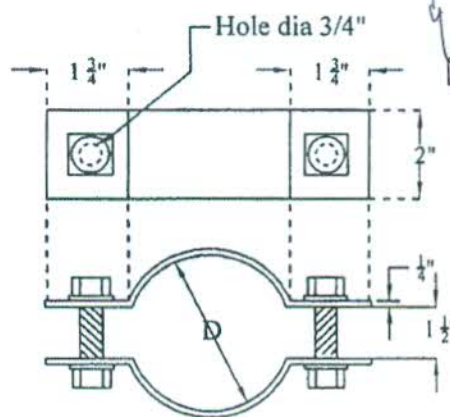
*(Signature)*  
 (Md. Abdul Kalamique)  
 Consultant, TAPP, BREB



Top View



Refer to A  
 for detail drawing  
 of Clamps



Detail - A  
 Galvanized Clamp Set, dia 8" or 10"  
 TM5-30

(Md. Mozammel Haque)  
 Consultant, TAPP, BREB

(Md. Mujibur Rahman)  
 Consultant, TAPP, BREB  
 (Debasish Chakraborty)  
 PD, TAPP, BREB

(Md. Mozibur Rahman)  
 Consultant, TAPP, BREB  
 (Md. Ahsanul Haque)  
 Consultant, TAPP, BREB

Note :-

1. Use of steel pole recovered from DESA/PDB is preferred.
2. D is the diameter of the pole at the place of fixing of clamps

ITEM	NO	MATERIAL	UNIT
LP	1	Leaning pole, req'd size & length.	NO
TM5-30	3	GL Clamp for leaning pole, size as req'd.	PAIR

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: LAY POLE GUY FOR ANGLE / TAP POLE**  
 (This Unit is suitable, where down/overhead guy can not be installed)

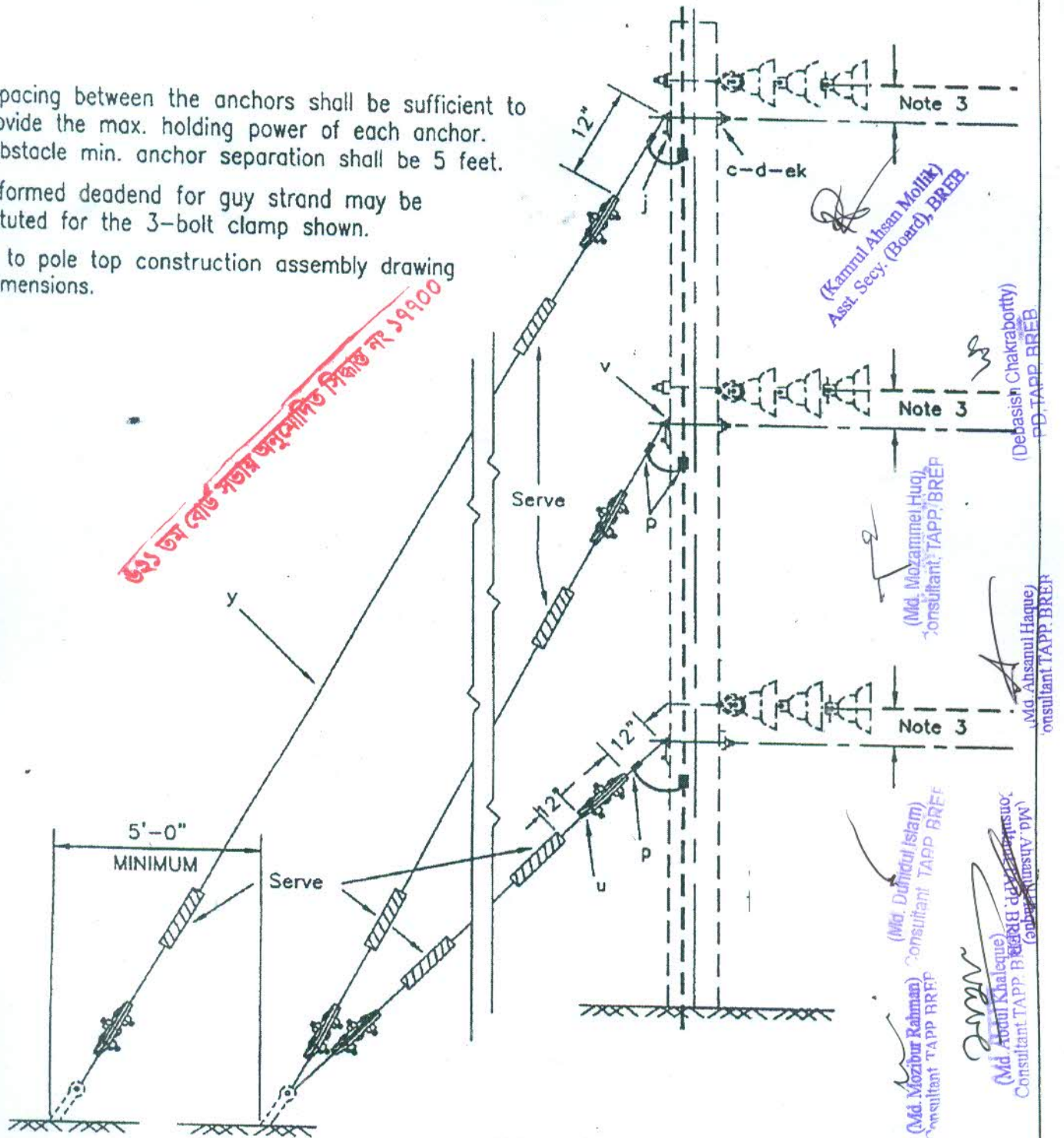
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TE 7</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



NOTES :

1. The spacing between the anchors shall be sufficient to provide the max. holding power of each anchor. The obstacle min. anchor separation shall be 5 feet.
2. A preformed deadend for guy strand may be substituted for the 3-bolt clamp shown.
3. Refer to pole top construction assembly drawing for dimensions.



ITEM	MAT. CODE	MATERIAL	ASSEMBLY UNIT	
			Qty.(TE7-2)	Qty.(TE7-3)
c	B 6/7/8	Bolt Machine 5/8" x required length	03	03
d	B 49	Washer, curved, 3" x 3"	03	03
p	15/16	Connectors, as required	as required	as required
u	E 22/23	Deadend for guy strand	06	06
v	B 57/58	Guy attachment, Mall. Iron, heavy duty	03	03
y	N 3/4	Guy wire, H.S. 7 strand	3/8" diameter	7/16" diameter
av	B 85/86	Clamp, loop deadend	as required	as required
ek	B 50	Locknuts, 5/8"φ	03	03

BANGLADESH RURAL ELECTRIFICATION BOARD

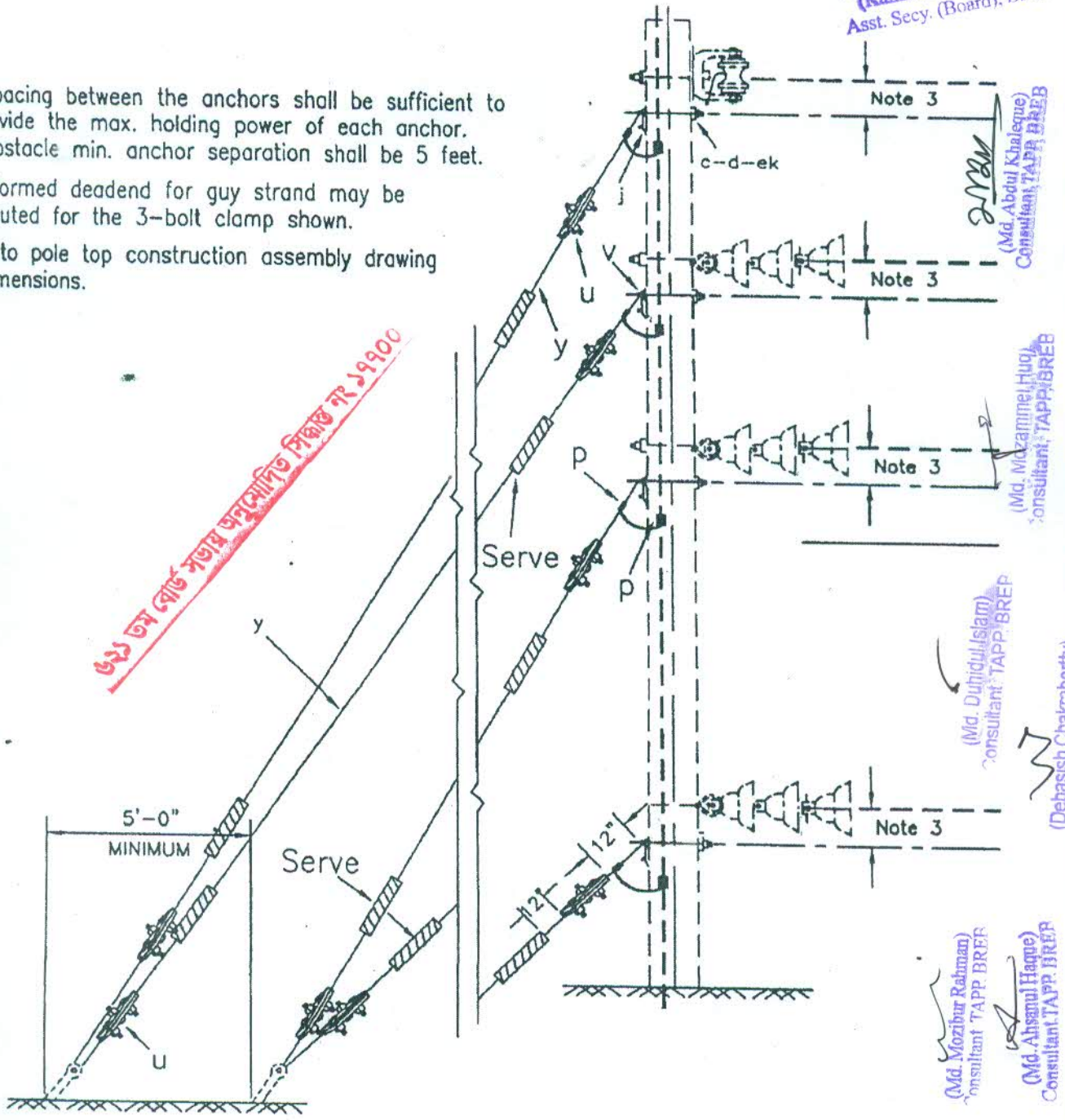
Unit Description: 33 KV THREE DOWN GUYS WITHOUT SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TE7-2 & TE7-3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

NOTES :

1. The spacing between the anchors shall be sufficient to provide the max. holding power of each anchor. The obstacle min. anchor separation shall be 5 feet.
2. A preformed deadend for guy strand may be substituted for the 3-bolt clamp shown.
3. Refer to pole top construction assembly drawing for dimensions.



৬৩ ভল্ট পোল সত্তা অনুমোদিত সিকিউ নং ১৭৭০০

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB

(Md. Abdul Khaleque)  
Consultant, TAPP, BREB

(Md. Mozammel Haque)  
Consultant, TAPP, BREB

(Md. Duhiqul Islam)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

ITEM	MAT. CODE	MATERIAL	ASSEMBLY UNIT	
			Qty.(TE8-2)	Qty.(TE8-3)
c	B 6/7/8	Bolt Machine 5/8" x required length	04	04
d	B 49	Washer, curved, 3" x 3"	04	04
P	15/16	Connectors, as required	as required	as required
u	E 22/23	Deadend for guy strand	08	08
v	B 57/58	Guy attachment, Mall. Iron, heavy duty	04	04
y	N 3/4	Guy wire, H.S. 7 strand	3/8" diameter	7/16" diameter
aq	D 4	Jumpers	as required	as required
ek	B 50	Locknuts, 5/8"φ	04	04

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV FOUR DOWN GUYES

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TE8-2 & TE8-3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

4'-6" min. (TF2-1)  
6'-6" min. (TF2-2)

*(Md. Abdul Khaleque)*  
Consultant, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

*(Kamrul Ahsan Mollik)*  
Asst. Secy. (Board), BREB

PLAN

5'-3" min. (TF2-1)  
6'-6" min. (TF2-2)

Approx. after strain is applied

*(Md. Mozammel Hossain)*  
Consultant, TAPP, BREB

*(Debasish Chakraborty)*  
PD TAPP, BREB

Length of rod

Normally 45°

SECTION X - X

*(Md. Mozibur Rahman)*  
Consultant, TAPP, BREB

*(Md. Ahsanul Haque)*  
Consultant, TAPP, BREB

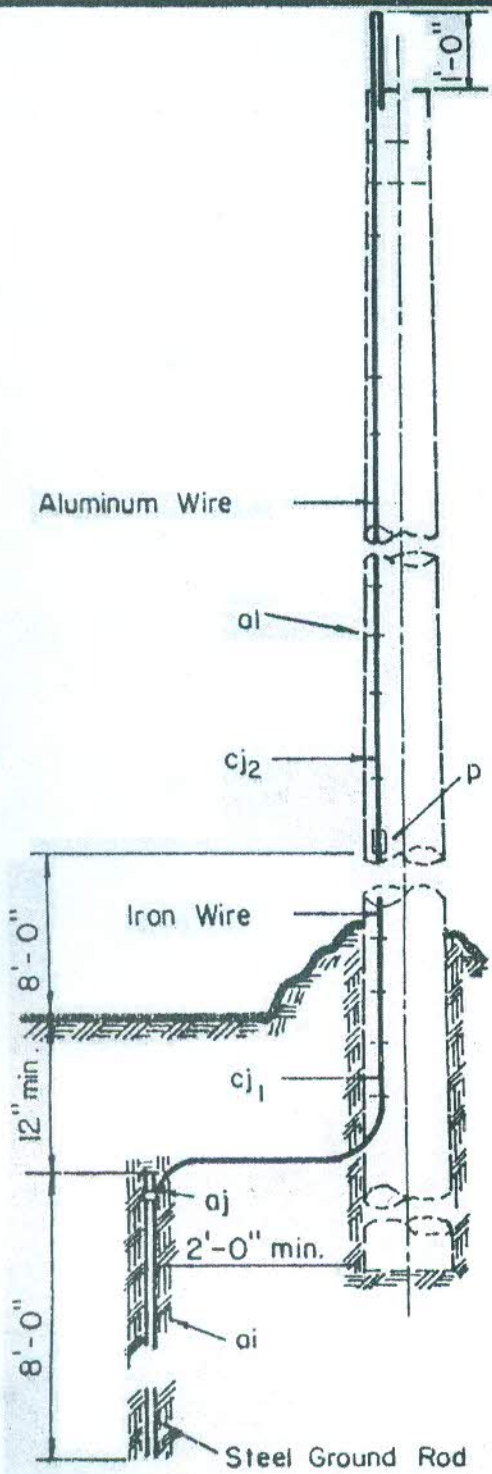
ASSEMBLY UNIT					
		TF2-1		TF2-2	
ITEM	MATERIAL	No	TYPE	No	TYPE
d	Washer, square, 13/16" hole	1	4" x 4" x 1/2"	1	4" x 4" x 1/2"
x	Rod, anchor, twineye	1	5/8" x 8'-0"	1	3/4" x 10'-0"
z	Anchor, log	1	8" dia. x 3'-6"	1	12" dia. x 6'-0"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV LOG ANCHOR ASSRMBLY

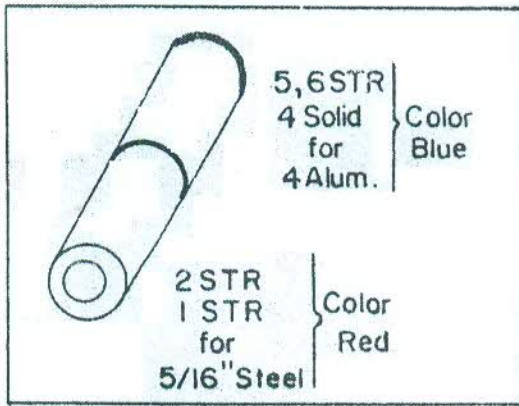
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TF2-1 & TF2-2

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৯২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

### "LINKIT" CONNECTOR



(Md. Mozammel Haque)  
Consultant TAPP BREB

(Md. Agui Ntaleque)  
Consultant TAPP BREB

(Md. Duhidul Islam)  
Consultant TAPP BREB

(Debash Chakraborty)  
PD, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant TAPP BREB

(Md. Abegani Haque)  
Consultant TAPP BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

#### NOTES:

1. Use for equipment and surge arrester grounding.
2. Down lead shall clear all hardware by a minimum of 2 inches, shall not contact crossarms and shall be stapled to maintain this position.
3. Staples shall be 2 feet apart, except for a distance to 8 feet above ground and 8 feet from the top of the pole where they shall be 6 inches apart.
4. On unshielded lines, the ground wire shall be extended beyond the pole top, doubled back on itself and stapled securely to the pole so one foot of doubled up wire protrudes beyond the pole top. On shielded lines, the ground wire shall be attached to the shield wire.
5. Refer to Construction Assembly for installation location on pole.
6. The ground wire shall have a minimum clearance of 2 inches from all pole line hardware and be securely stapled to maintain this position.

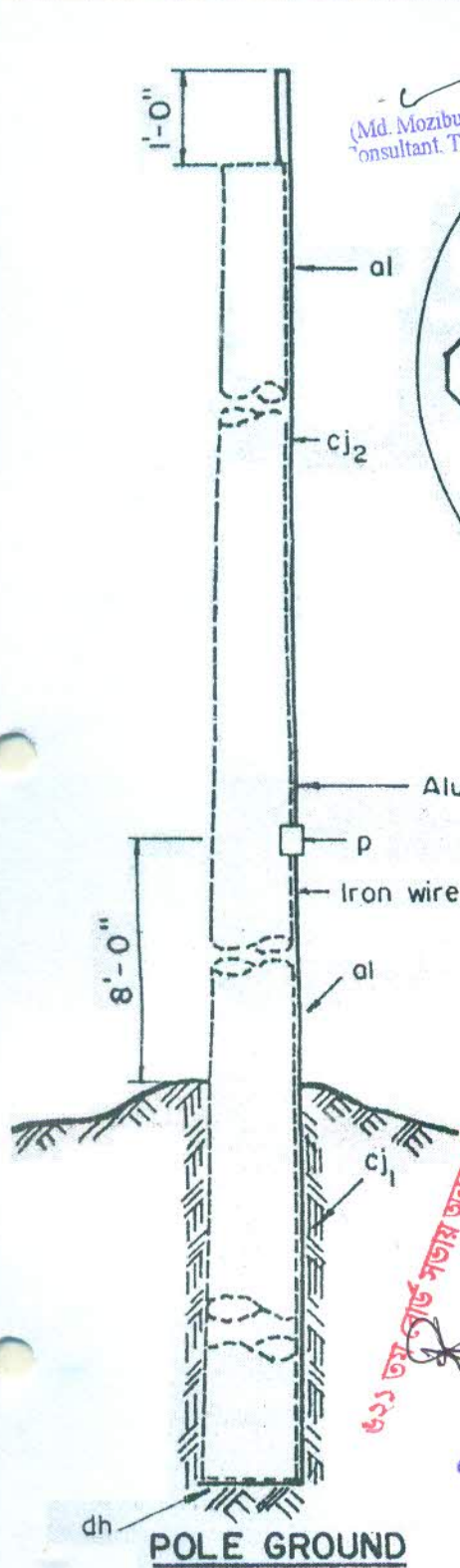
ITEM NO.	MATERIAL	ITEM NO.	MATERIAL
ai	Rod, ground, 5/8" minimum diameter	cj <sub>1</sub>	Ground wire, soft annealed iron
aj	Clamp, ground rod		galvanized, 5/16", 3 strand
al	Staples, ground wire as req'd	cj <sub>2</sub>	Ground wire, No.4 aluminum
p	Sleeve connector, "LINKIT"		

#### BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33 KV GROUNDING ASSEMBLY-GROUND ROD TYPE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM2-1

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

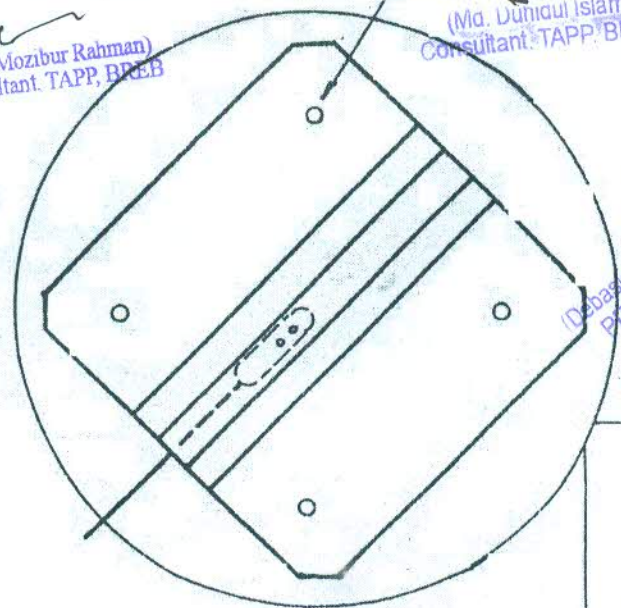
(Md. Duhaiul Islam)  
Consultant, TAPP, BREB

(Md. Mozamimul Haque)  
Consultant, TAPP, BREB

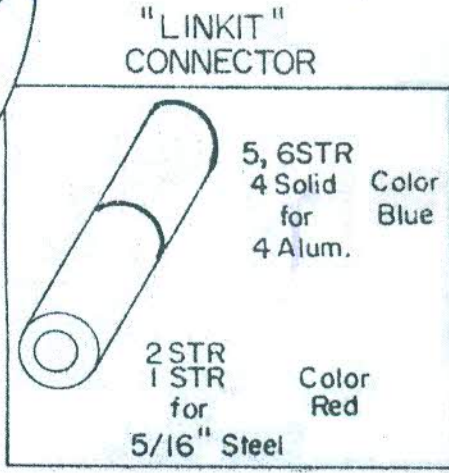
(Md. Abdul Khaleque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PO, TAPP, BREB

(Md. Abbarul Haque)  
Consultant, TAPP, BREB



PLAN OF PLATE



NOTE:

1. Refer to Construction Assembly for Installation Location on Pole.
2. Down lead shall clear all hardware by a minimum of 2 inches, Shall not contact crossarms and shall be stapled to maintain this position.
3. Staples shall be 2 feet apart, except for a distance to 8 feet above the ground and 8 feet from the top of the pole where the shall be 6 inches apart.
4. On unshielded lines, the ground wire shall be extended beyond the pole top, doubled back on itself and stapled securely to the pole so that one foot of doubled up wire protrudes beyond the pole top. On shielded lines, the ground wire shall be attached to the shield wire. In both cases, the ground wire shall be extended down and under the pole to the grounding plate.
5. The ground wire shall have a minimum clearance of 2 inches from all pole line hardware and be securely stapled to maintain this position.

ITEM NO.	MATERIAL	ITEM NO.	MATERIAL
al	Staples, ground wire, as req'd	dh	1 Grounding plate, butt type
cj1	Ground wire, soft annealed Iron galvanized, 5/16", 3 strand	bp	4 Nails galvanized, 1"
cj2	Ground wire, no. 4 aluminum alloy	p	1 Sleeve connector, "LINKIT"

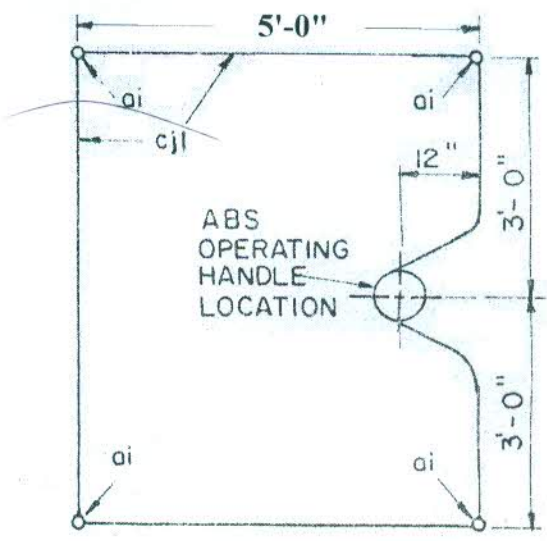
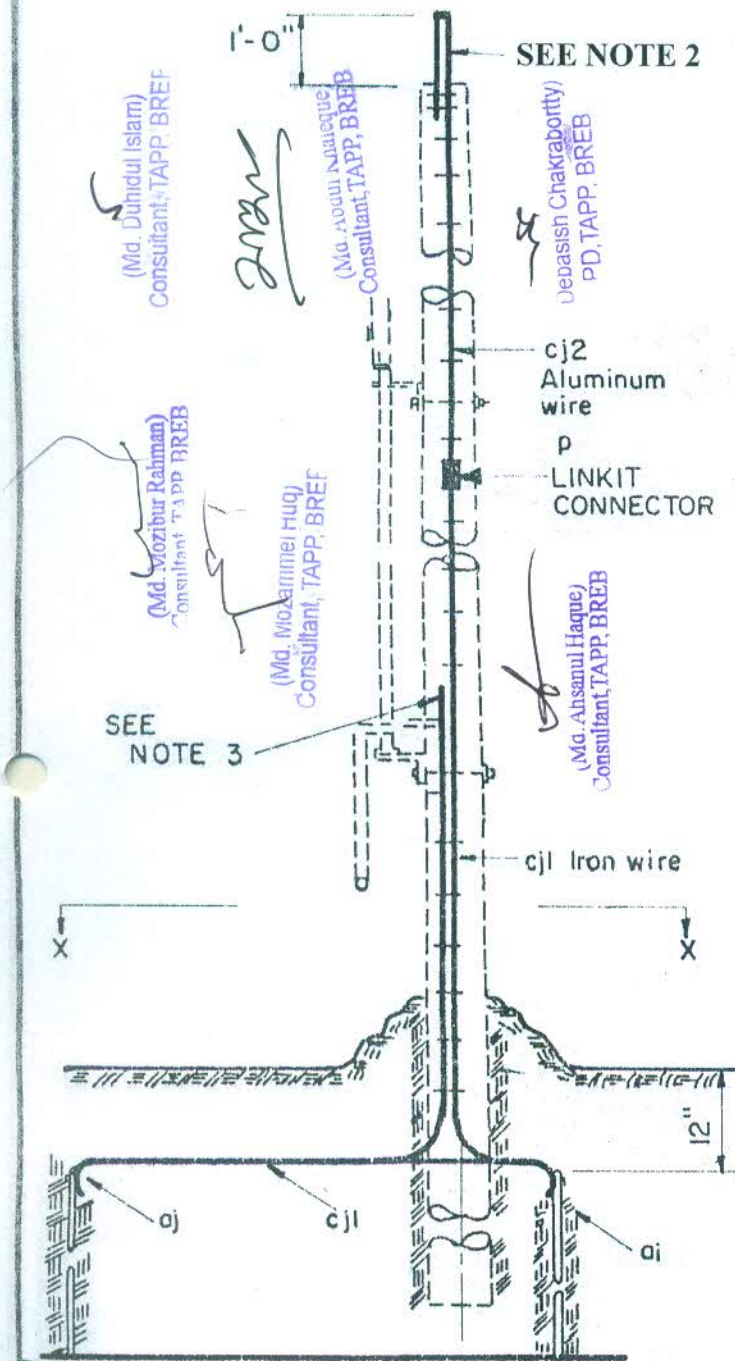
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV POLE PROTECTION ASSEMBLY

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM2-2

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬০৫৯ নং প্রকল্পে অর্থায়ন করা হয়েছে।



SECTION X-X  
(Detail of Ground Grid)

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

**NOTES :**

1. REFER TO POLE PROTECTION ASSEMBLY TM2-2 FOR GROUND WIRE INSTALLATION DETAILS.
2. FOR ABS LOCATION WHERE THERE IS NO SHIELD WIRE, EXTEND GROUND WIRE 1'-0" BEYOND THE POLE TOP. FOR ABS LOCATIONS WHERE THERE IS A SHIELD WIRE, CONNECT GROUND WIRE TO SHIELD WIRE
3. CONNECT ONE GROUND WIRE TO ABS OPERATING MECHANISM.
4. THE GROUND WIRE SHALL HAVE A MINIMUM CLEARANCE OF 2 INCHES FROM ALL POLE LINE HARDWARE AND BE SECURELY STAPLED TO MAINTAIN THIS POSITION.

ITEM NO.	MATERIAL	ITEM NO.	MATERIAL
aj	4 Rod, ground, 5/8" dia.	cj2	Ground wire, No. 4 aluminum
aj	4 Clamp, ground rod	p	Connector, if req'd
aj	Staples, ground wire	p 1	Sleeve connector, "LINKIT"
cj1	Ground wire, soft annealed iron, galv. 5/16"		

**BANGLADESH RURAL ELECTRIFICATION BOARD**

Unit Description: **33KV GROUNDING ASSEMBLY-GROUND ROD TYPE FOR SECTIONALIZING AIR BREAK SWITCH**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM2-15

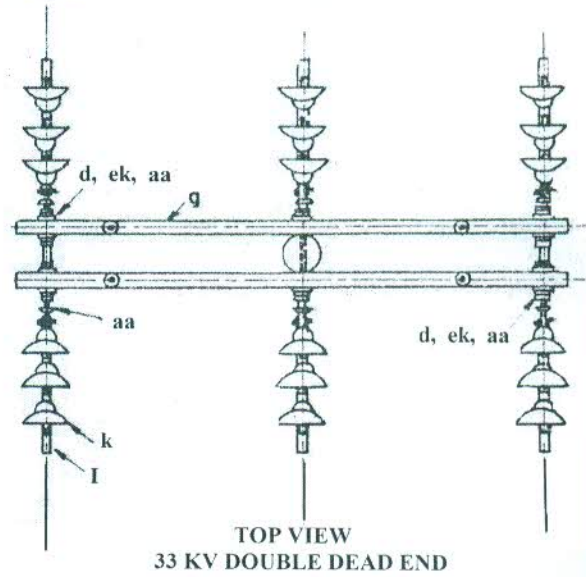
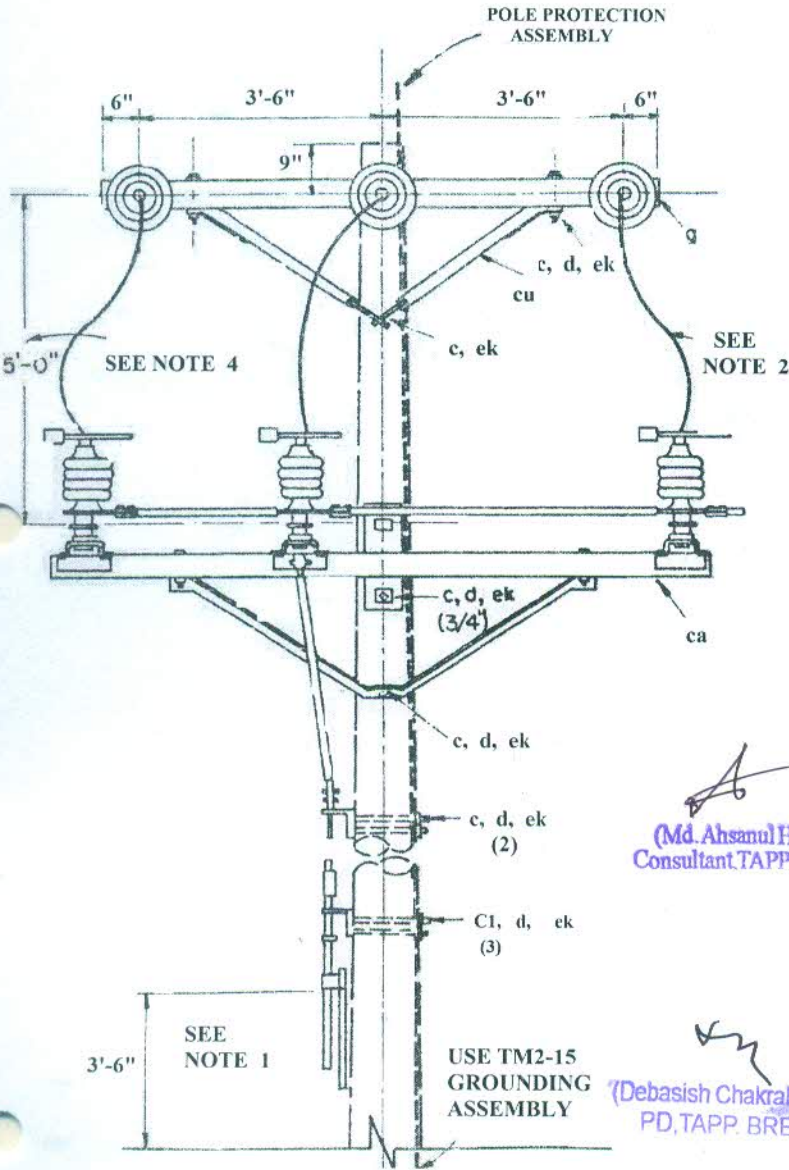
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Danial Islam)  
Consultant, TAPP, BREB

(Md. Mozammel Haque)  
Consultant, TAPP, BREB

(Md. Abdul Khaleque)  
Consultant, TAPP, BREB



ITEM	QTY	MATERIAL
c	4	Bolt, Machine, 1/2"x6"
c	9	Bolt, Machine, 5/8"x as req length
c	2	Bolt, Machine, 3/4"x as req length
d	4	Washer, Round, 1-1/2" dia
d	18	Washer, Square, 2-1/4"x2-1/4"
g	2	Crossarm, 3-3/4"x4-3/4"x8'-0"
j	2	Lag Screw, 1/2"x4"
k	18	Insulator, Suspension, 10" Dia
i	6	Clamp, Deadend
n	3	Bolt, D/A, 5/8"x as req length
p	-	Connectors, as required
aa	6	Nut, eye, 5/8"
aq	-	Jumpers, as required
cu	2	Brace, Steel/Wood, 60" Span
ek	-	Lock Nuts, as required
cg	1	Air Break Switch (ABS) Assembly
d	2	Washer, Sqare Curve, 3"x 3"

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

**NOTES:**

1. REFER TO SWITCH MANUFACTURER'S INSTRUCTION FOR INSTALLATION DETAILS AND RECOMENDATIONA
2. CONNECT THE 33 KV SOURCE JUMPERS TO SWITCH SO THAT WHEN SWITCH IS OPEN THE SWITCH BLADES ARE NOT ENERGIZI
3. INSTALLATION OF THE TM2-15, ABS GROUND MAT, IS REQUIRED AT ALL POLE MOUNTED 33 KV ABS LOCATIONS
4. THIS DRAWING DEPICTS A CHANCE TYPE COMPANY D7 ABS, SIDE BREAK. FOR VERTICAL BREAK ABS INCREASE THIS DIMENSION TO 6'-0"
5. MATERIAL AND QUANTITIES WILL VARY WITH TYPE/MANUFACTURER OF SWITCH INSTALLED

**BANGLADESH RURAL ELECTRIFICATION BOARD**

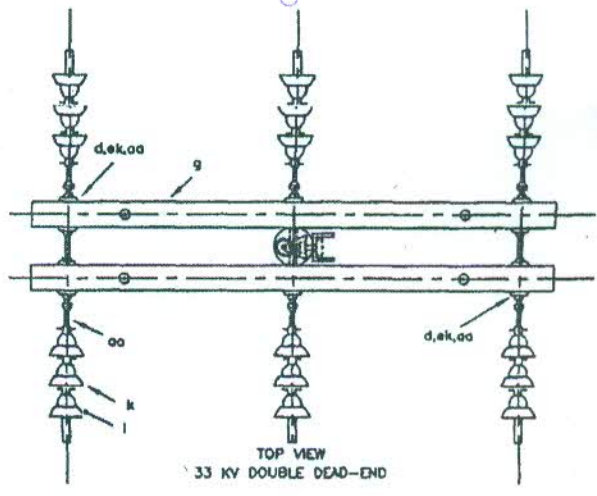
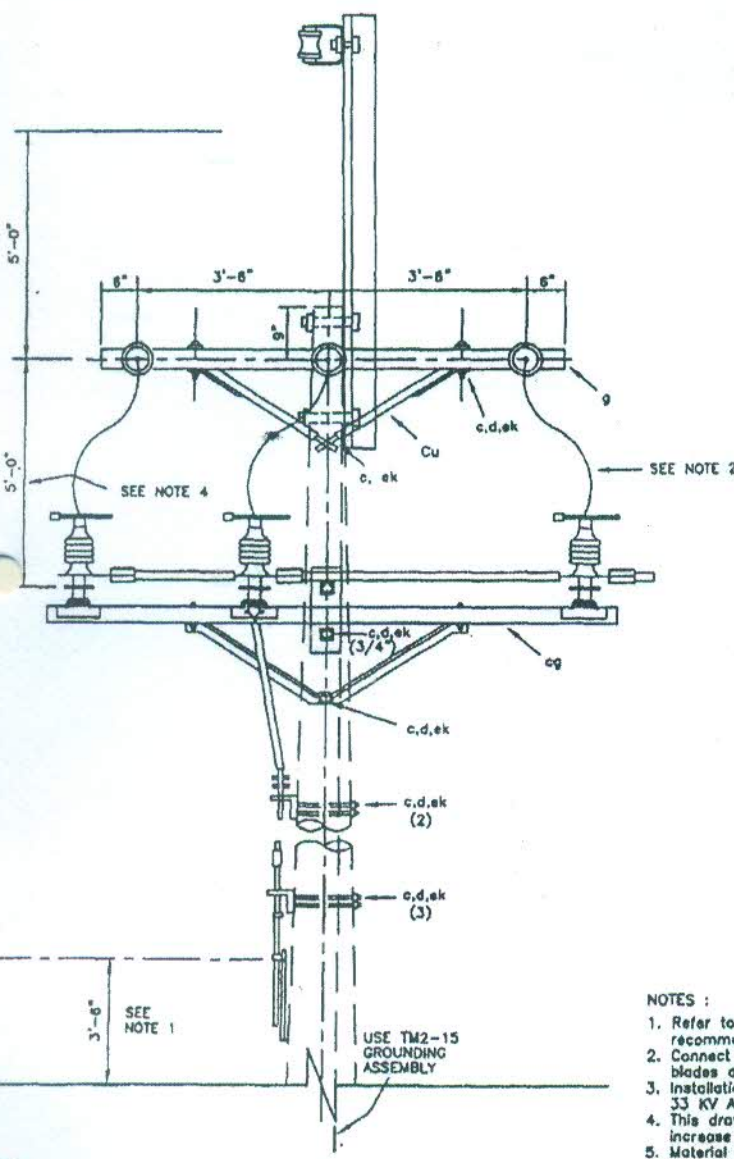
Unit Description: 33 KV SECTIONALIZING AIR BREAK SWITCH WITH NO SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TM3-15A</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.



**NOTES :**

1. Refer to switch manufacturer's "Instructions for Installation" for installation details and recommendations.
2. Connect the 33 KV source jumpers to switch so that when switch is open the switch blades are not energized.
3. Installation of the TM2-15, Air-Break Switch ground mat, is required at all pole mounted 33 KV Air Break Switch locations.
4. This drawing depicts a chance type D& ABS, side break type. For vertical break ABS increase this dimension to 6'-0".
5. Material and quantities will vary with type/manufacturer of switch installed.
6. Brace holes at both end should be 11/16"φ

(Md. Dujidul Islam) (Md. Mozammel Haque)  
 Consultant, TAPP, BRE Consultant, TAPP, BRE  
 (Md. Mozibur Rahman) (Md. Ahsanul Haque)  
 Consultant, TAPP, BRE Consultant, TAPP, BRE  
 (Debasish Chakraborty)  
 PD, TAPP, BRE

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
c	B 6/7/8	13	Bolt, m/c, 5/8" x req'd. length	p	15/16	-	Connectors, as required
c	B 13/14/15/16/17	2	Bolt, m/c, 1/4" x req'd. length	aa	B 53	06	Nut, eye, 5/8"φ
d	B 46	8	Washer, square, 3/4"	aq	D 4	-	Jumpers, as required
g	X 6	1	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 5'-0"	cu	B42/B42.1/B45	02	Brace, Steel/ Wood, 60" Span
g	X 7	2	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 8'-0"	ek	B 50	28	Locknuts, as required
j	B 40	2	Log, screw, 1/2" x 4" for wooden poles	cg	H 13	01	Air break switch assembly
k	C 11	18	Insulator, suspension, 10" diameter	d	B 49	02	Washer, curved, 3" x 3"
l	81/132	6	Clamp, deadend	c	B 18/19	01	Bolt, eye, 5/8"φ
n	B 26/27/28	3	Bolt, double arming, 5/8" x req'd. length	da	B 72	01	Bracket, secondary
cm	C 2	1	Insulator, spool				

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV SECTIONALIZING AIR BREAK SWITCH**

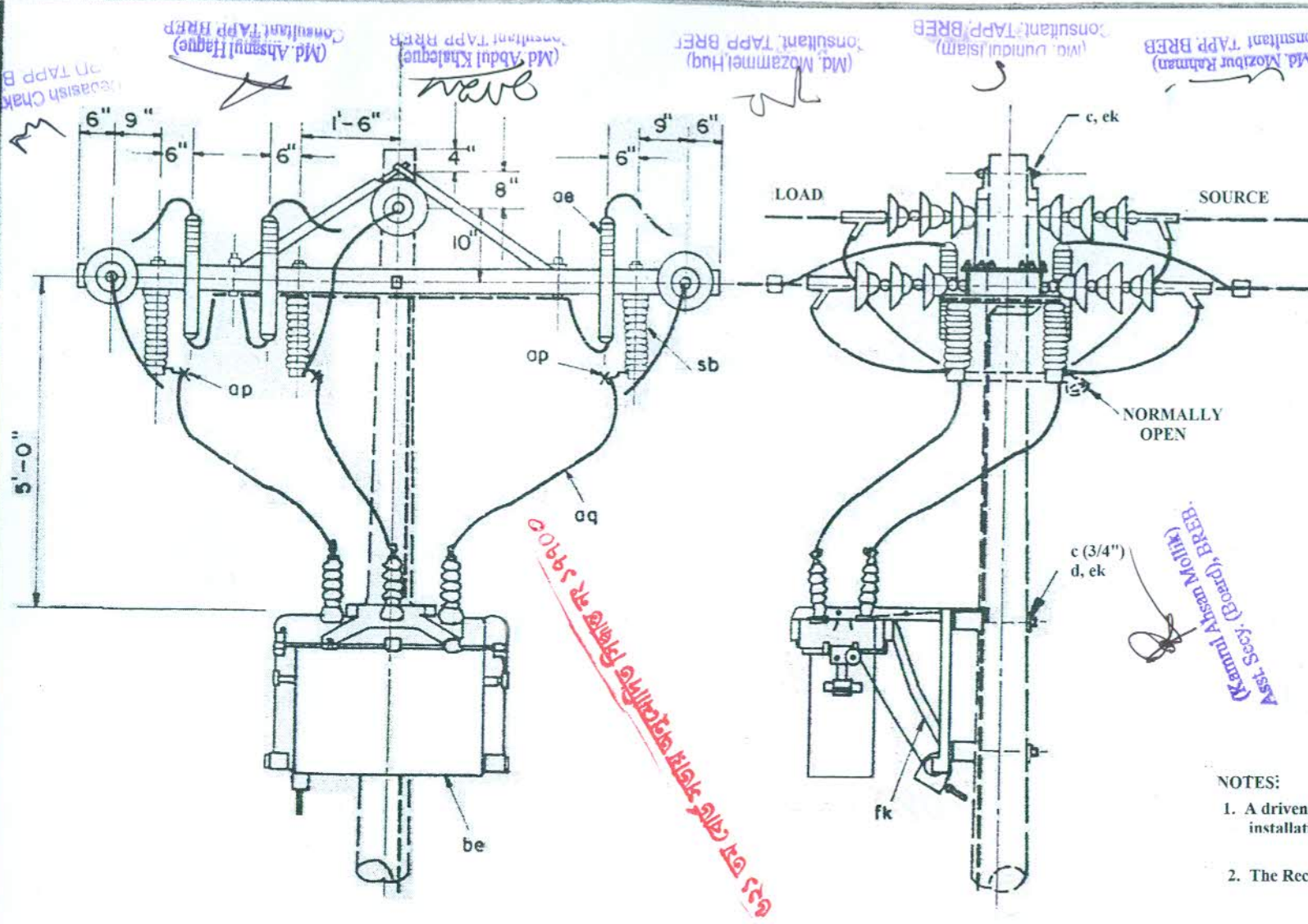
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TM3-15B</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Ahsan Mollah)  
 Asst. Secy. (Board), BREB.





ITEM	NO.	MATERIAL
c	1	Bolt, Machine, 5/8" x required length
c	2	Bolt, Machine, 3/4" x required length
c	4	Bolt, Machine, 1/2" x 6"
d	14	Washer, Square, 2-1/4" x 2-1/4"
d	4	Washer, Round, 1-3/8" Diameter
g	2	Crossarm, 3-3/4" x 4-3/4" x 10'-0"
k	18	Insulator, Suspension, 10" Diameter
i	6	Clamp, Deadend
n	3	Bolt D/A, 5/8" x as required length
o	1	Bolt, eye, 5/8" x as required length
p	-	Connectors, as required
aa	5	Nut, eye, 5/8"
ae	6	Surge, Arrester
aq	-	Jumpers, Stranded, as required
be	1	Automatic Circuit Recloser
cu	2	Btace, Steel / Wood, 60" Span
ek	-	Locknuts
ap	6	Connectors, Hot line tap assembly
fk	1	Hanger, Recloser, Pole Mounting
	3	Switch, Recloser By-Pass (H 19.6)

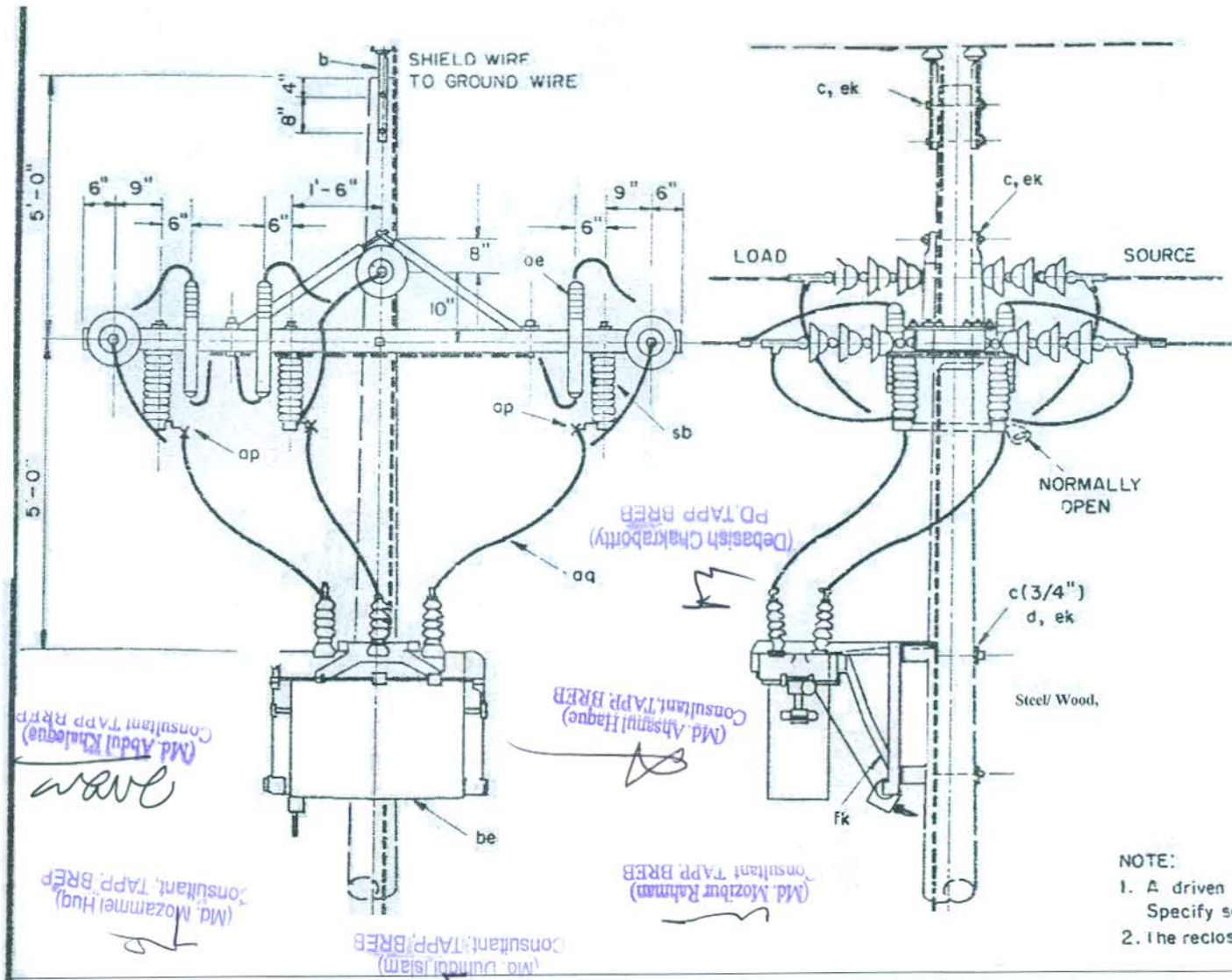
- NOTES:
1. A driven around rod is required for this installation. Specify separately as TM2-1
  2. The Recloser shall have two connections to ground.

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description:** 33 KV THREE PHASE SECTIONALIZING OIL CIRCUIT RECLOSER WITH NO SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM3-30

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



ITEM	NO	DESCRIPTION
a	2	Insulator, pin type, 11 KV
b	2	Pin, pole top, 20"
c	3	Bolt, machine, 5/8" x req'd length
c	2	Bolt, machine, 3/4" x req'd length
c	4	Bolt, machine, 1/2" x 6"
d	14	Washer, square, 2-1/4"
d	4	Washer, round, 1-3/8" diameter
g	2	Crossarm, 3-3/4" x 4-3/4" x 10'-0"
k	18	Insulator, suspension, 10" dia.
i	6	Clamp, deadend
n	3	Bolt, double arming, 5/8" x req'd length
o	1	Bolt, eye, 5/8" x req'd length
p	-	Connectors, as required
aa	5	Nut, eye, 5/8"
ae	6	Surge arrester
cq	-	Jumpers, standard, as required
be	1	Automatic circuit recloser
cu	2	Brace, Steel/Wood, 60" span
ek	-	locknuts
ap	6	Connector, hot line tap assembly
fk	1	Hanger, recloser, pole mounting
sb	3	Switch, recloser by-pass (H19.6)

NOTE:  
 1. A driven ground rod is required for this installation. Specify separately as TM2-1  
 2. The recloser shall have two connections to ground

**BANGLADESH RURAL ELECTRIFICATION BOARD**

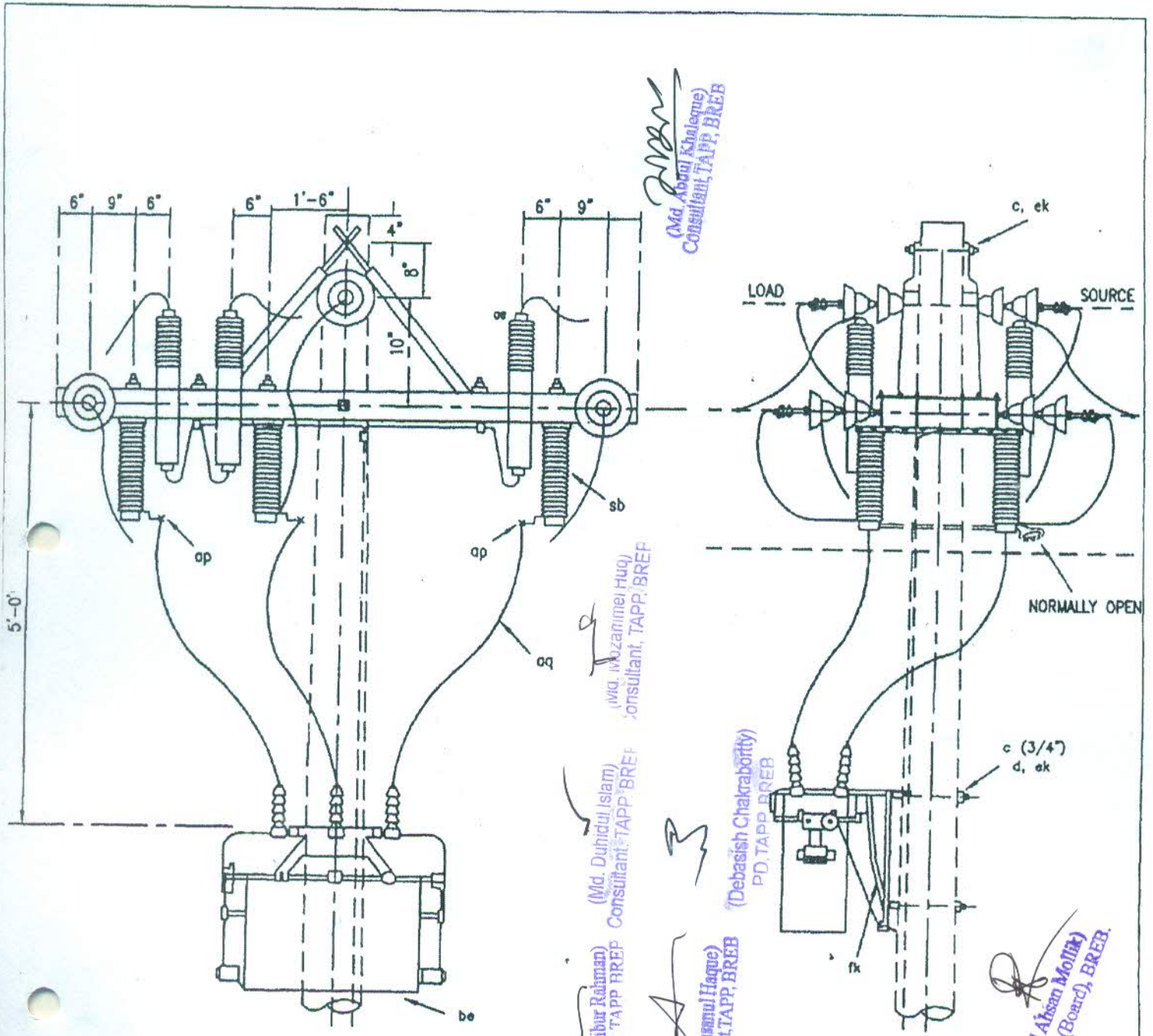
Unit Description: 33 KV AUTOMATIC CIRCUIT RECLOSER POLE MOUNTED WITH BY-PASS SWITCHES AND SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM3-30A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



(Md. Abul Khabir)  
Consultant, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant TAPP BREB

(Md. Duhidul Islam)  
Consultant TAPP BREB

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB

- Note :-
1. A driven ground rod is required for this installation. Specify separately as TM2-1
  2. The recloser shall have two connections to ground.

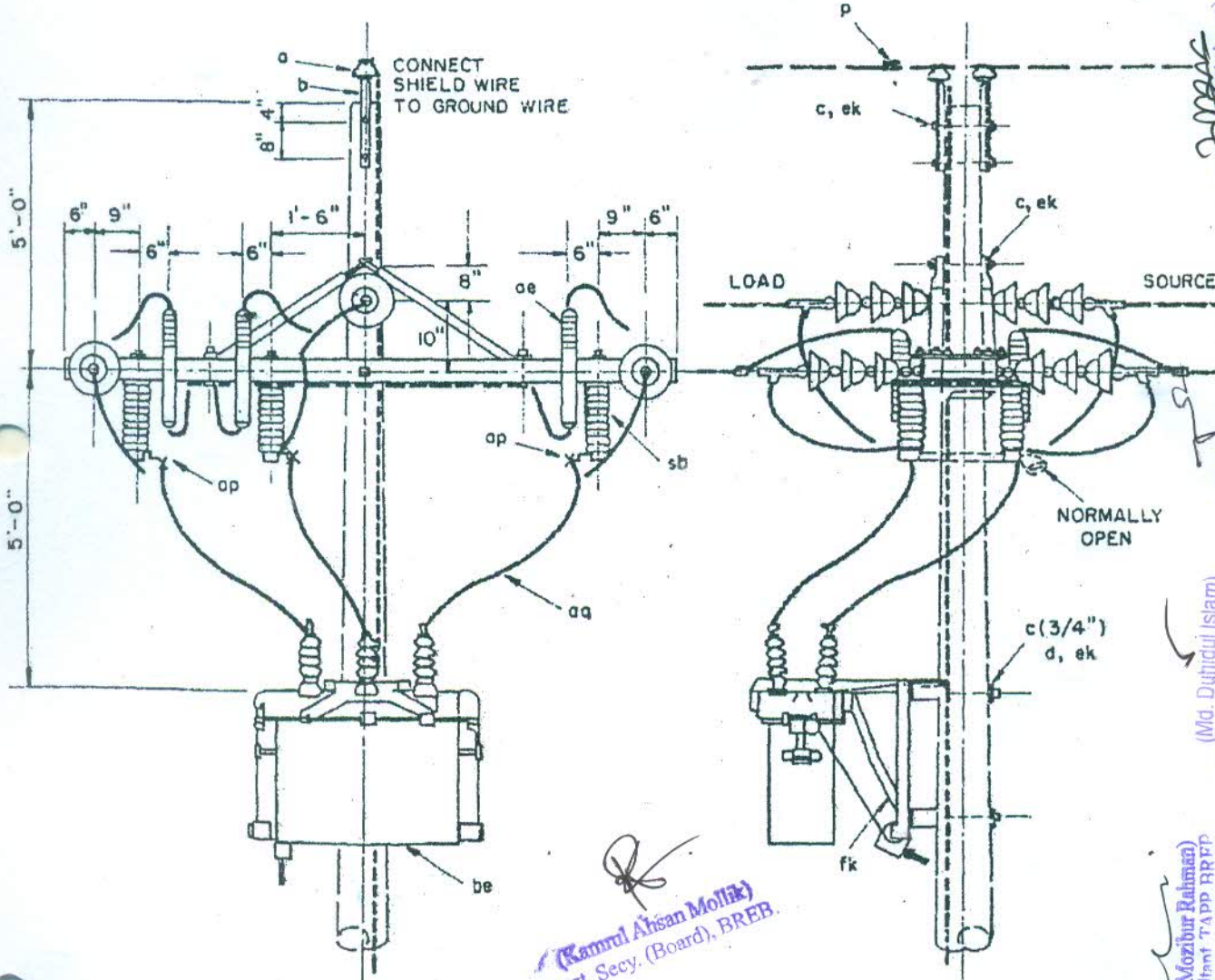
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
c	B 6/7/8	5	Bolt, m/c, 5/8" x req'd. length	p	15/16	-	Connectors, as required
c	B 13/14/15/16/17	2	Bolt, m/c, 3/4" x req'd. length	aa	B 53	05	Nut, eye, 5/8"φ
d	B 46	3	Washer, square, 3-1/4"	aq	D 4	-	Jumpers, as required
g	X 7	2	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 8'-0"	cu	B42/B42.1/B45	02	Brace, Steel / Wood, 60" Span
o	B 18/19/20	1	Bolt, eye, 5/8"φ	ek	B 50	20	Locknuts, as required
k	C 11	18	Insulator, suspension, 10" diameter	ap	I 24/46	06	Connectors, hot line top assembly
l	81/132	6	Clamp, deadend	fk	-	01	Hanger, recloser, pole mounting
n	B 26/27/28	3	Bolt, double arming, 5/8" x req'd. length	ae	H 2	06	Surge, arrester
sb	H 19.6	3	Switch, recloser by-pass (H 19.6)	be	-	01	Automatic circuit recloser

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV THREE PHASE SECTIONALIZING OIL CIRCUIT RECLOSER WITHOUT SHIELD WIRE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM3-30B

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



(Md. Ahsanul Haque)  
 Consultant, TAPP, BREB  
 (Md. Asadul Khaleque)  
 Consultant, TAPP, BREB  
 (Md. Mazamir Hujj)  
 Consultant, TAPP, BREB  
 (Md. Durrul Islam)  
 Consultant, TAPP, BREB  
 (Md. Mozibur Rahman)  
 Consultant, TAPP, BREB  
 (Debasish Chakraborty)  
 PD, TAPP, BREB

1. A driven ground rod is required for this installation. Specify separately as TM2-1  
 2. The recloser shall have two connections to ground.

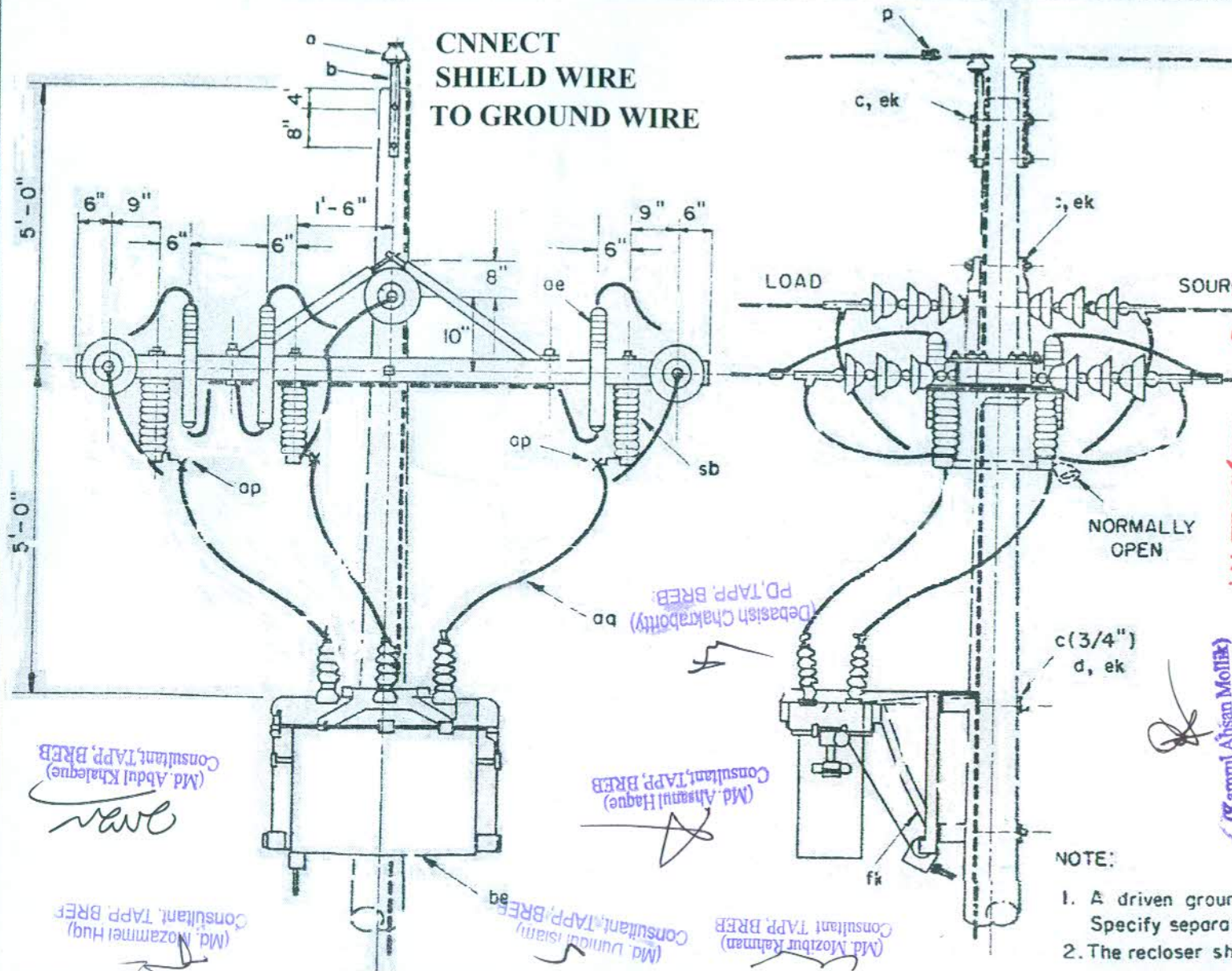
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
c	B 6/7/8	5	Bolt, m/c, 5/8" x req'd. length	p	15/16	-	Connectors, as required
e	B 13/14/15/16/17	2	Bolt, m/c, 3/4" x req'd. length	aa	B 53	05	Nut, eye, 5/8"φ
d	B 46	3	Washer, square, 3/4-1/4"	aq	D 4	-	Jumpers, as required
g	X-7	2	Crossarm, steel, channel 4" x 2" x 2" x 1/4" x 8'-0"	cu	B42/B42.1/B45	02	Brace, Steel / Wood, 60" Span
o	B 18/19/20	1	Bolt, eye, 5/8"φ	ek	B 50	20	Locknuts, as required
k	C 11	18	Insulator, suspension, 10" diameter	ap	I 24/46	06	Connectors, hot line top assembly
l	81/132	6	Clamp, deadend	fk	-	01	Hanger, recloser, pole mounting
n	B 26/27/28	3	Bolt, double arming, 5/8" x req'd. length	ae	H 2	06	Surge, arrester
sb	H 19.6	3	Switch, recloser by-pass (H 19.6)	be	-	01	Automatic circuit recloser

**BANGLADESH RURAL ELECTRIFICATION BOARD**

Unit Description: 33 KV THREE PHASE SECTIONALIZING OIL CIRCUIT RECLOSER WITH SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM3-30C

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



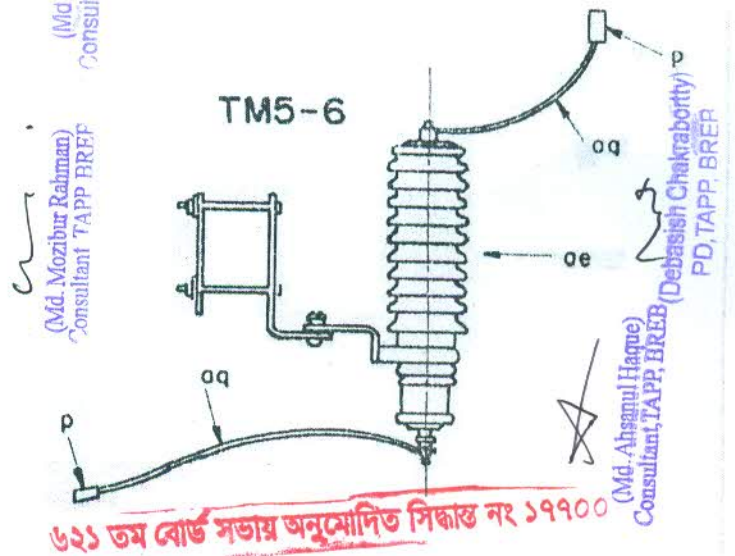
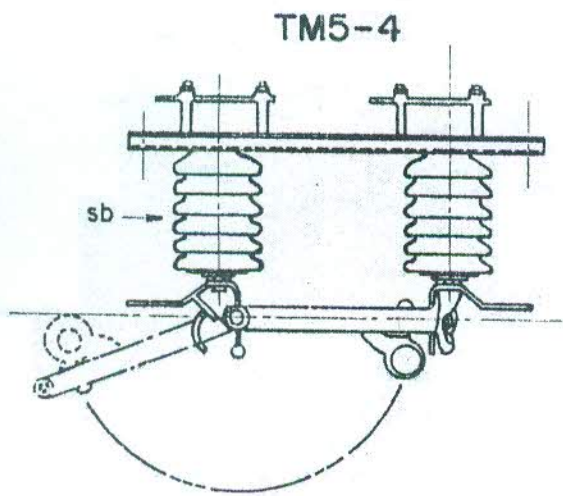
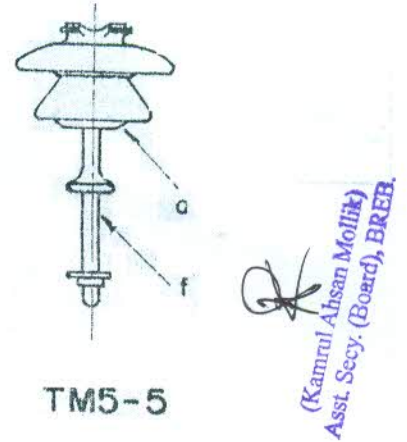
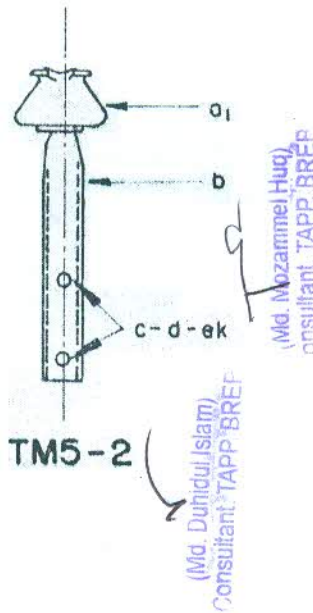
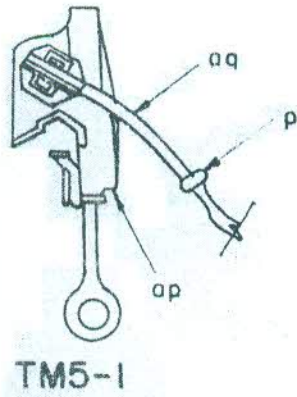
ITEM NO.	DESCRIPTION
a 2	Insulator, pin type, 11 KV
b 2	Pin, pole top, 20"
c 3	Bolt, machine, 5/8" x req'd length
c 2	Bolt, machine, 3/4" x req'd length.
c 4	Bolt, machine, 1/2" x 6"
d 14	Washer, square, 2-1/4"
d 4	Washer, round, 1-3/8" diameter
g 2	Crossarm, 3-3/4" x 4-3/4" x 10'-0"
k 18	Insulator, suspension, 10" dia.
l 6	Clamp, deadend
n 3	Bolt, double arming, 5/8" x req'd length
o 1	Bolt, eye, 5/8" x req'd length
p -	Connectors, as required
oo 5	Nut, eye, 5/8"
ae 6	Surge arrester
aq -	Jumpers, standard, as required
be 1	Automatic circuit recloser
cu 2	Brace, crossarm, wood, 60' span
ek -	locknuts
op 6	Connector, hot line tap assembly
fk 1	Hanger, recloser, pole mounting
sb 3	Switch, recloser by-pass (H19.6)

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description:** 33KV AUTOMATIC CIRCUIT RECLOSER POLE MOUNTED WITH BY-PASS SWITCHES and SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM3-30A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

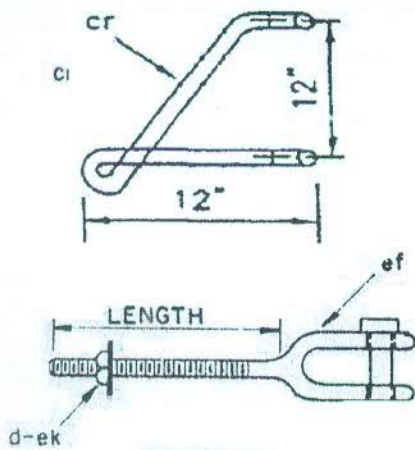
ITEM	MATERIAL	TM5-1	TM5-2	TM5-4	TM5-5	TM5-6
a	Insulator, pin type, 33 KV				1	
a1	Insulator, pin type, 11 KV		1			
b	Pin, pole top, 20"		1			
c	Bolt, machine, 5/8" x req'd length		2			
d	Washer, square, 2 1/4"		2			
f	Pin, crossarm, steel, 3/4" x 17"				1	
p	Connector	1				2
ae	Surge arrester					1
ap	Clamp, hot line	1				
aq	Jumper	1				2
ek	Locknut		2			
sb	Switch disconnect ( HI9.6)			1		

BANGLADESH RURAL ELECTRIFICATION BOARD

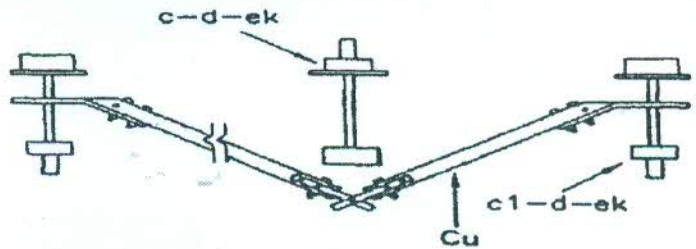
Unit Description: 33 KV MISCELLANEOUS ASSEMBLIES

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM5-1 TO TM5-6

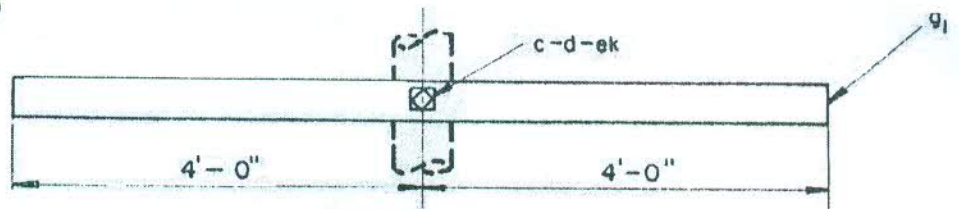
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



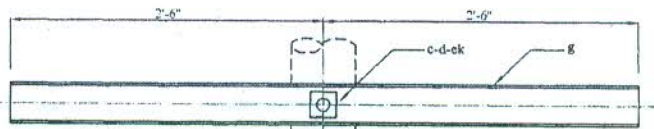
TM5-10



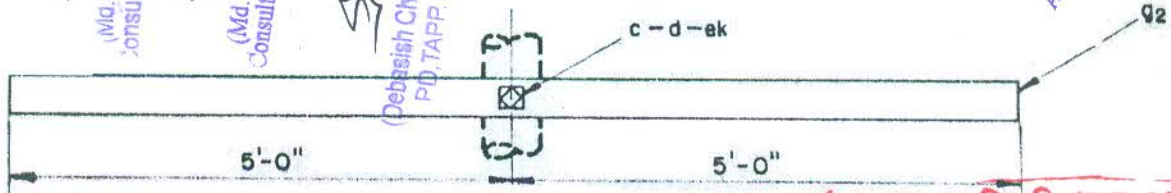
TM5-13



TM5-14



TM5-15



TM5-16

(Md. Duhidul Islam) Consultant, TAPP, BREB

(Md. Abdul Khaleque) Consultant, TAPP, BREB

(Md. Mozibur Rahman) Consultant, TAPP, BREB

(Md. Mozammel Huq) Consultant, TAPP, BREB

(Md. Ahsanul Haque) Consultant, TAPP, BREB

(Debasis Chakraborty) PD, TAPP, BREB

(Kamrul Ahsan Mollik) Asst. Secy. (Board), BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

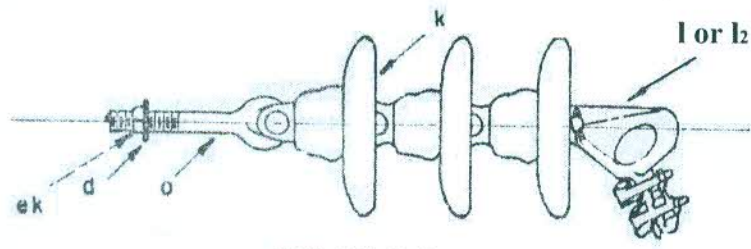
ITEM	MATERIAL	TM5-10	TM5-13	TM5-14	TM5-15	TM5-16
c	Bolt, Machine, 5/8" x req'd Length		1	1	1	1
c <sub>1</sub>	Bolt, Machine, 1/2" x 6"		2			
d	Washer, round, 1-3/8 diameter		2		1	
d	Washer, Square, 2-1/4"	2	1	2		2
q <sub>1</sub>	Crossarm, 3-1/2" x 4-1/2" x 8'-0"			1		
q <sub>2</sub>	Crossarm, 3-3/4 x 4-3/4 x 10'-0"					1
cr	Bracket, Angle, 5/8" (Item # B98)	1				
cu	Brace, Wood, 60" Span		1			
ef	Bolt, Clavis, 5/8" x req'd Length	2				
ek	Locknuts		3	1	1	1

BANGLADESH RURAL ELECTRIFICATION BOARD

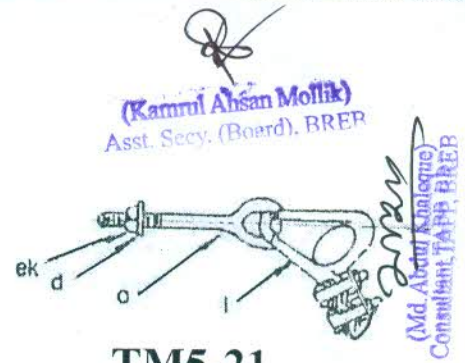
Unit Description: 33 KV MISCELLANEOUS ASSEMBLIES

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM5-10 TO TM5-16

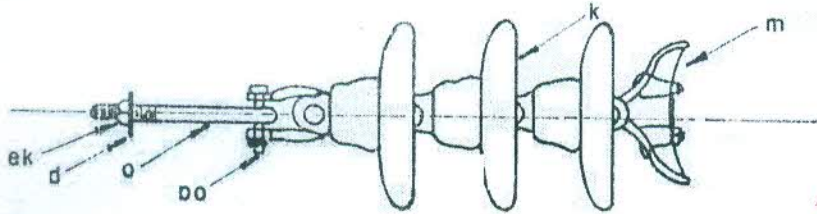
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



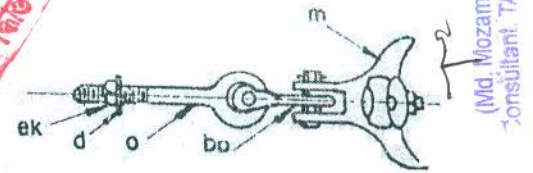
TM5-20



TM5-21

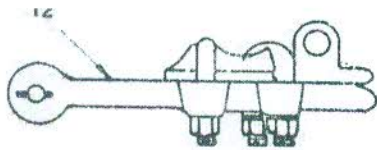
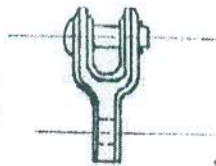


TM5-22



TM3-23

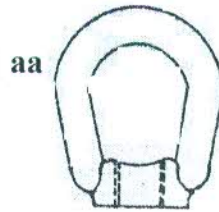
CLEVIS EYE  
TO BE SUPPLIED  
WITH ITEM B-133



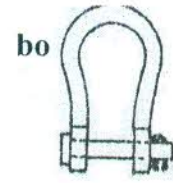
for 477 mcm ACSR

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB



TM5-24



TM5-25

(Md. Dujidul Islam)  
Consultant, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

ITEM	MATERIAL	TM5-20	TM5-21	TM5-22	TM5-23	TM5-24	TM5-25
d	Washer, square, 2 1/4"	1	1	1	1		
k	Insulator, suspension, 10" diameter	3		3			
l	Clamp, deadend, 4/O, 1/O, N <sup>o</sup> 3 (B-81 or B-132)	1	1				
l2	Clamp, deadend, 477 mcm (B-133)						
m	Clamp, Suspension			1	1		
o	Bolt, eye, 5/8" x req'd length	1	1	1	1		
ac	Nut, eye, 5/8"						
bc	Shackle, anchor					1	
ek	Locknuts	1	1	1	1		1

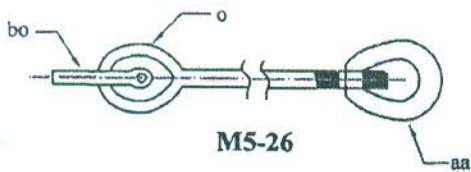
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV MISCELLANEOUS ASSEMBLIES

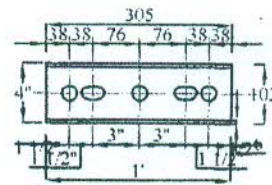
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM5-20 TO TM5-25

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

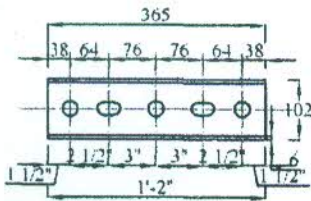




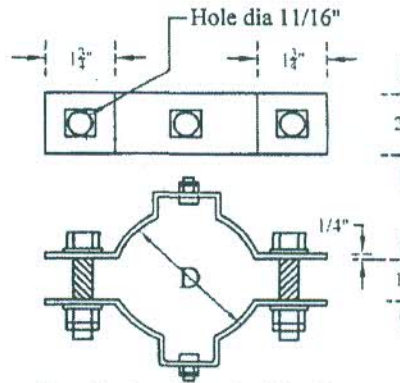
M5-26



M5-27

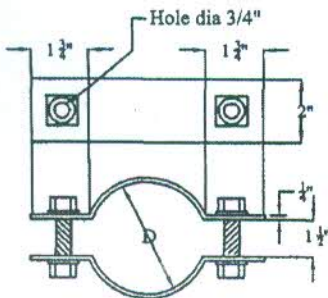


M5-28



Detail - A : Galvanized Steel Clamp

M5-29



Detail - A  
Galvanized Clamp Set, dia 8" or 10"

TM5-30

৬২১ ডম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Abisappul Haque)  
Consultant, TAPP, BREB

(Md. Nozatinul Haque)  
Consultant, TAPP, BREB

(Md. Dabirul Islam)  
Consultant, TAPP, BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

ITEM	MAT. CODE	MATERIAL	ASSEMBLY UNIT				
			TM5-26	TM5-27	TM5-28	TM5-29	TM5-30
k	C 11	Insulator, Suspension, 10" diameter	-	-	-	-	-
d	B 46/118	Washer, square, 2 1/4"	-	-	-	-	-
l	C 5	Clamp, deadend, 4/0, 1/0, No.-3	-	-	-	-	-
m	B 82-84/134/135	Clamp, suspension	-	-	-	-	-
ek	B 50	Locknuts, 5/8"φ	01	-	-	-	-
aa	B 53	Nut, eye, 5/8" x required length	01	-	-	-	-
bo	B 55	Anchor, shackle	01	-	-	-	-
o	B 18/19/20	Bolt, eye, 5/8" x required length	01	-	-	-	-
-	-	4-way pole band with nut bolt & locknuts complete	01	-	-	-	-
-	-	Plate, arming 14" or 12" x 4" x 1/4"	-	01	01	01	01

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV MISCELLANEOUS ASSEMBLIES

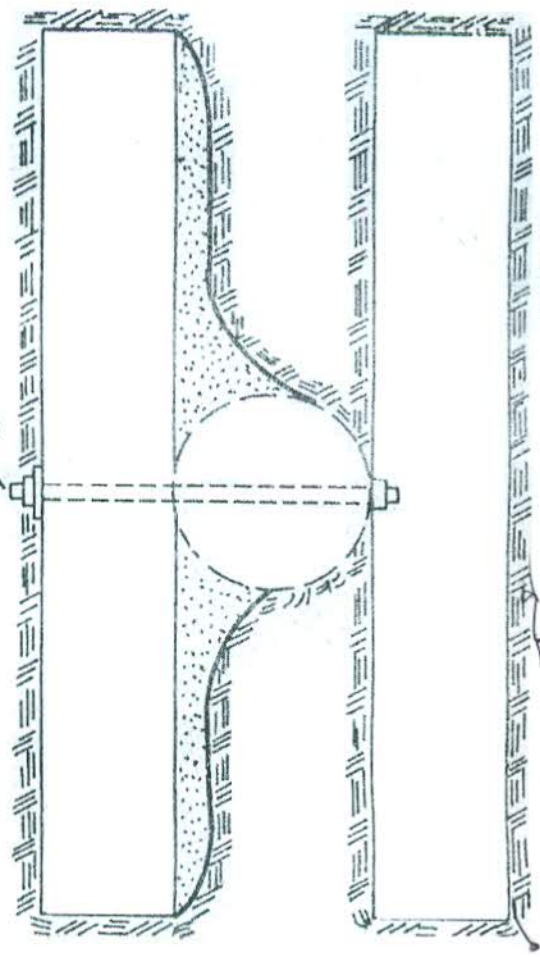
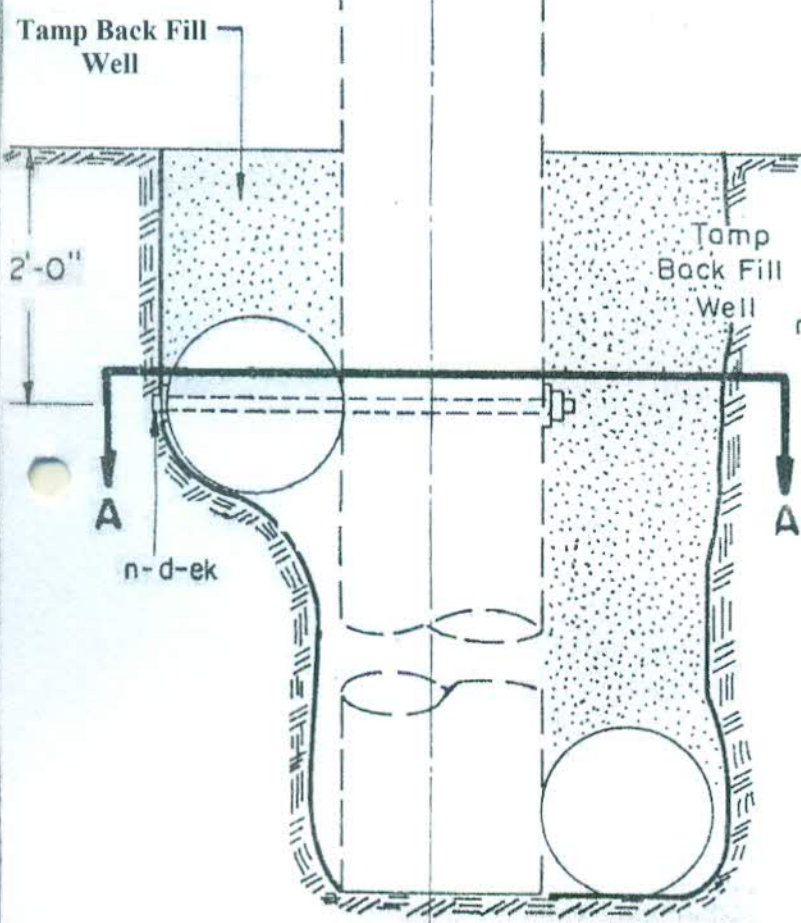
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM5-26 To TM5-30

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

Direction of

learning

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB



**SECTION A-A**

(Md. Abdul Kalamique)  
Consultant, TAPP, BREB

(Md. Mozammel Huj)  
Consultant, TAPP, BREB

(Md. Ulliqui Ishty)  
Consultant, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

ITEM	MATERIAL	TM18	TM18-1
n	Bolt, Double Arming, 5/8" x req'd Length	1	1
ek	Locknuts	2	2
d	Washer, Square, 2-1/4"	2	2
z	Anchor log, 3'-6" x 8" Diameter	2	1

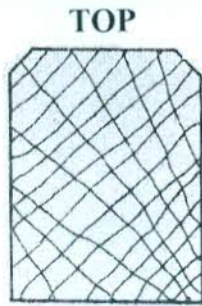
**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV POLE STABILIZER LOG**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM18 & TM18-1

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

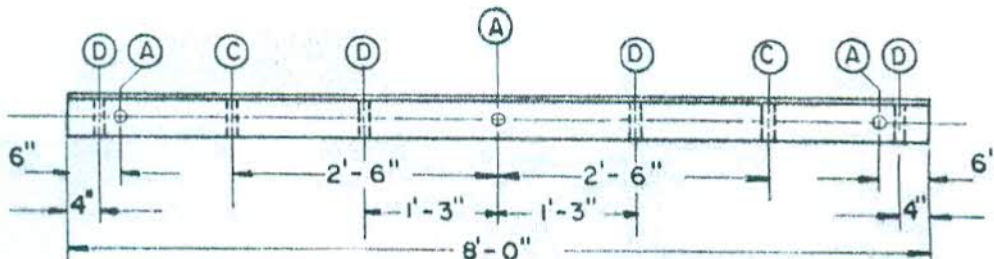
BOLT SIZE	
A	5/8"
C	1/2"
D	3/4"



END VIEW

*(Kamrul Ahsan Mollik)*  
Asst. Secy. (Board), BREB

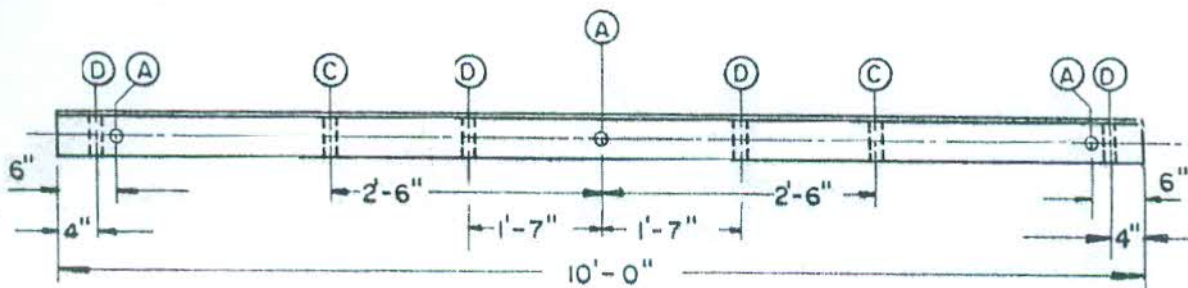
*(Md. Abdul Khaleque)*  
Consultant, TAPP, BREB



TYPE-T04

*(Md. Mozaimme) Hujj*  
Consultant, TAPP, BREB

*(Md. Ujjirul Islam)*  
Consultant, TAPP, BREB



TYPE-T05

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭৩০

NOTES:

- For conversion of distribution type crossarms (Type 04 and Type 05) re-drill necessary (D) holes from 11/16" diameter to 13/16" diameter.

*(Md. Mozibur Rahman)*  
Consultant, TAPP, BREB

*(Debasish Chakraborty)*  
TAPP, BREB

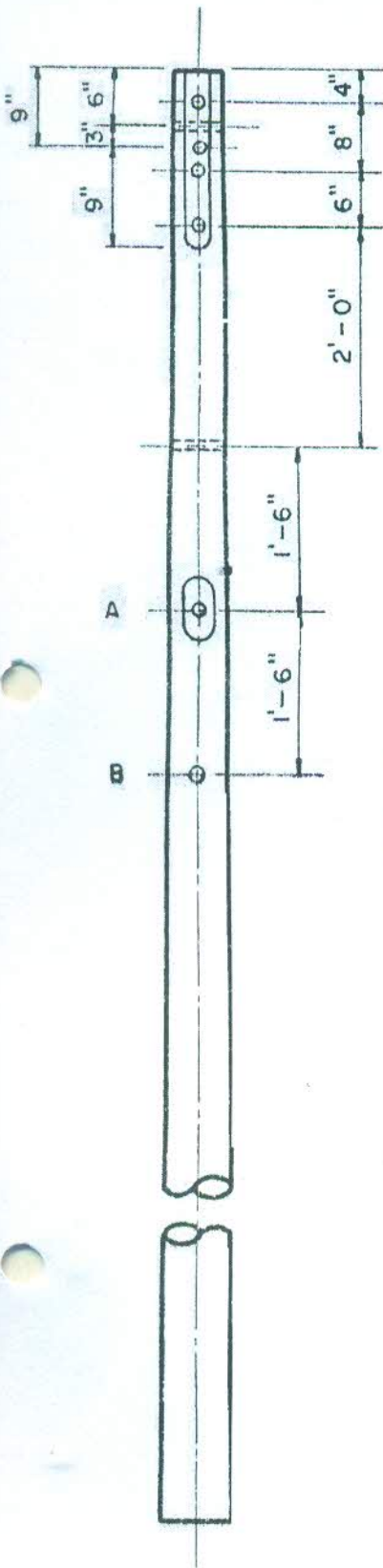
*(Md. Ahsanul Haque)*  
Consultant, TAPP, BREB

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV CROSSARM DRILLING GUIDE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM19

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



All holes shown are existing except those at A and B.  
Holes A and B are for shielded pole top horizontal construction units.

A. Drill 11/16" hole and gain for crossarm through bolt.  
B. Drill 11/16" hole for crossarm brace

NOTE:

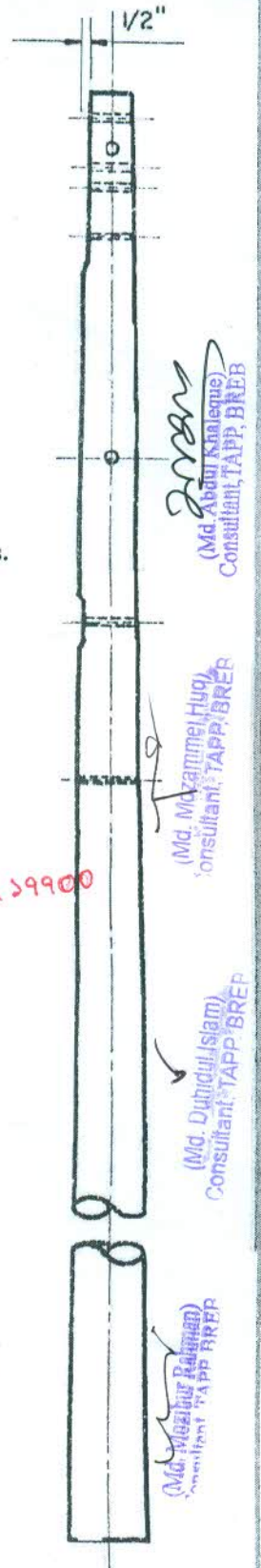
New bolt holes must be parallel to and in the same plane as existing holes and new gain must be of 90° to them

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

*(Signature)*  
(Debashish Chakraborty)  
PD, TAPP, BREB.

*(Signature)*  
(Md. Ahsanul Haque)  
Consultant, TAPP, BREB.

*(Signature)*  
(Kamrul Ahsan Monir)  
Asst. Secy. (Board), BREB.



*(Signature)*  
(Md. Abdul Khaleque)  
Consultant, TAPP, BREB.

*(Signature)*  
(Md. Mazammel Haque)  
Consultant, TAPP, BREB.

*(Signature)*  
(Md. Duhidul Islam)  
Consultant, TAPP, BREB.

*(Signature)*  
(Md. Moshirul Kabir)  
Consultant, TAPP, BREB.

### BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV DRILLING GUIDE FOR CONVERTING DISTRIBUTION POLES 30 FOOT AND LONGER TO TRANSMISSION POLES

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM20

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

**INITIAL SAG TABLE**  
**No. 3 ACSR "SWALLOW"**  
**(300ft. Ruling Span)**

Temp ° F	TENSION in pounds	SAG INCHES for SPANS IN FEET																					
		150	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
120	358	6.9	12.2	13.4	14.7	16.1	17.5	19.0	20.6	22.2	23.9	25.6	27.4	29.3	31.2	33.2	35.2	37.3	39.5	41.7	44.0	46.3	48.7
115	374	6.6	11.6	12.8	14.1	15.4	16.8	18.2	19.7	21.2	22.8	24.5	26.2	28.0	29.8	31.7	33.7	35.7	37.7	39.9	42.0	44.3	46.6
110	391	6.3	11.1	12.3	13.4	14.7	16.0	17.4	18.8	20.3	21.8	23.4	25.0	26.7	28.4	30.3	32.1	34.0	36.0	38.0	40.1	42.3	44.4
105	408	6.0	10.6	11.7	12.9	14.0	15.3	16.6	18.0	19.4	20.8	22.3	23.9	25.5	27.2	28.9	30.7	32.5	34.4	36.4	38.3	40.4	42.5
100	426	5.7	10.2	11.2	12.3	13.5	14.7	15.9	17.2	18.5	19.9	21.4	22.9	24.5	26.1	27.7	29.4	31.2	33.0	34.8	36.7	38.7	40.7
95	444	5.5	9.8	10.8	11.9	13.0	14.1	15.3	16.6	17.9	19.3	20.7	22.1	23.6	25.1	26.7	28.4	30.1	31.8	33.6	35.5	37.3	39.3
90	462	5.3	9.4	10.3	11.3	12.4	13.5	14.7	15.8	17.1	18.4	19.7	21.1	22.5	24.0	25.5	27.1	28.7	30.4	32.1	33.9	35.7	37.5
85	480	5.1	9.1	10.0	11.0	12.0	13.1	14.2	15.3	16.5	17.8	19.1	20.4	21.8	23.2	24.7	26.2	27.8	29.4	31.0	32.7	34.5	36.3
80	498	4.9	8.8	9.7	10.6	11.6	12.6	13.7	14.8	16.0	17.2	18.4	19.7	21.0	22.4	23.8	25.3	26.8	28.4	30.0	31.6	33.3	35.0
75	516	4.8	8.4	9.3	10.2	11.2	12.2	13.2	14.3	15.4	16.6	17.8	19.0	20.3	21.6	23.0	24.4	25.9	27.4	28.9	30.5	32.1	33.8
70	534	4.6	8.1	8.9	9.8	10.7	11.6	12.6	13.7	14.7	15.9	17.0	18.2	19.4	20.7	22.0	23.4	24.8	26.2	27.7	29.2	30.8	32.4
65	553	4.4	7.8	8.6	9.5	10.3	11.3	12.2	13.2	14.3	15.3	16.4	17.6	18.8	20.0	21.3	22.6	24.0	25.3	26.8	28.2	29.7	31.3
60	571	4.3	7.6	8.4	9.2	10.1	11.0	11.9	12.9	13.9	15.0	16.1	17.2	18.4	19.6	20.8	22.1	23.4	24.8	26.2	27.6	29.1	30.6
55	589	4.2	7.4	8.1	8.9	9.8	10.6	11.5	12.5	13.4	14.5	15.5	16.6	17.7	18.9	20.1	21.3	22.6	23.9	25.3	26.6	28.1	29.5
50	607	4.0	7.2	7.9	8.7	9.5	10.3	11.2	12.1	13.0	14.0	15.0	16.1	17.2	18.3	19.5	20.7	21.9	23.2	24.5	25.8	27.2	28.6

(Kamrul Ahsan Mollik)  
 Asst. Secy. (Board), BREB.

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০৬

INITIAL No. 3 ACSR

NOTE : THIS TABLE IS FOR DESIGN PURPOSE ONLY

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV NO. 2 ACSR (6/1) "SWALLOW" INITIAL SAG TABLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS-3-I

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman) Consultant, TAPP, BREB

(Md. Duhidul Islam) Consultant, TAPP, BREB

(Md. Mozammel Haque) Consultant, TAPP, BREB

(Md. Abdul Khaleque) Consultant, TAPP, BREB

(Md. Ahsanul Haque) Consultant, TAPP, BREB

(Debasish Chakraborty) PD, TAPP, BREB

Initial Sag of 1/0 ACSR(6/1)																						
300 Feet Ruling Span																						
Temperature	Tension	Sag in Inches for Span in Feet																				
°F	Pounds	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
120	728	12.0	13.2	14.5	15.9	17.3	18.8	20.3	21.9	23.5	25.2	27.0	28.8	30.7	32.7	34.7	36.8	38.9	41.1	43.3	45.6	48.0
115	758	11.5	12.7	13.9	15.2	16.6	18.0	19.5	21.0	22.6	24.2	25.9	27.7	29.5	31.3	33.3	35.3	37.3	39.4	41.6	43.5	46.0
110	788	11.1	12.2	13.4	14.7	16.0	17.4	18.8	20.2	21.8	23.4	25.0	26.7	28.4	30.2	32.1	34.0	36.0	38.0	40.1	42.2	44.0
105	818	10.7	11.8	12.9	14.1	15.4	16.7	18.0	19.4	20.9	22.4	24.0	25.6	27.3	29.0	30.8	32.7	34.6	36.5	38.5	40.6	42.7
100	849	10.3	11.4	12.5	13.6	14.8	16.1	17.4	18.8	20.2	21.7	23.2	24.8	26.4	28.1	29.8	31.6	33.4	35.3	37.2	39.2	41.2
95	880	9.9	10.9	12.0	13.1	14.3	15.5	16.7	18.1	19.4	20.8	22.3	23.8	25.4	27.0	28.6	30.4	32.1	33.9	35.8	37.7	39.6
90	911	9.6	10.6	11.6	12.7	13.8	15.0	16.2	17.5	18.8	20.2	21.6	23.1	24.6	26.1	27.7	29.4	31.1	32.9	34.7	36.5	38.4
85	941	9.3	10.2	11.2	12.3	13.4	14.5	15.7	16.9	18.2	19.5	20.9	22.3	23.8	25.3	26.8	28.4	30.1	21.8	33.5	35.3	37.2
80	972	9.0	9.9	10.9	11.9	12.9	14.0	15.2	16.4	17.6	18.9	20.2	21.6	23.0	24.4	25.9	27.5	29.1	30.7	32.4	34.1	35.9
75	1003	8.7	9.6	10.5	11.5	12.5	13.6	14.7	15.9	17.1	18.3	19.6	20.9	22.3	23.7	25.2	26.7	28.2	29.8	31.4	33.1	34.8
70	1034	8.4	9.3	10.2	11.2	12.2	13.2	14.3	15.4	16.6	17.8	19.0	20.3	21.6	23.0	24.4	25.9	27.4	28.9	30.5	32.1	33.8
65	1065	8.2	9.1	9.9	10.9	11.8	12.8	13.9	15.0	16.1	17.3	18.5	19.8	21.0	22.4	23.8	25.2	26.6	28.1	29.7	31.3	32.9
60	1095	8.0	8.8	9.6	10.5	11.5	12.4	13.4	14.5	15.6	16.7	17.9	19.1	20.4	21.7	23.0	24.4	25.8	27.2	28.7	30.3	31.8
55	1125	7.7	8.5	9.4	10.2	11.1	12.1	13.1	14.1	15.2	16.3	17.4	18.6	19.8	21.1	22.3	23.7	25.1	26.5	27.9	29.4	30.9
50	1155	7.5	8.3	9.1	9.9	10.8	11.7	12.7	13.7	14.7	15.8	16.9	18.0	19.2	20.4	21.7	23.0	24.3	25.7	27.1	28.6	30.0

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: INITIAL SAG 1/0 ACSR				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB	6	S-1/0-I
Revision Date: July 1981, August 1989, July 1995, August 2013, February 2020				

  
(Md. Mozibur Rahman)  
Consultant TAPP BREB

  
(Md. Durdul Islam)  
Consultant TAPP BREB

  
(Md. Mozammel Haq)  
Consultant TAPP BREB

  
(Md. Abdul Khaleque)  
Consultant TAPP BREB

  
(Md. Ahsanul Haque)  
Consultant TAPP BREB

  
(Debasish Chakraborty)  
PD, TAPP BREB

  
(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

৩২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

**INITIAL SAG TABLE**  
**4/0 ACSR "PENGUIN"**  
(300ft. Ruling Span)

Temp °F	TENSION in pounds	SAG INCHES for SPANS IN FEET																					
		150	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
120	1.359	7.2	12.8	14.2	15.5	17.0	18.5	20.1	21.7	23.4	25.2	27.0	28.9	30.9	32.9	35.0	37.1	39.3	41.6	44.0	46.4	48.8	51.4
115	1.416	6.9	12.3	13.6	14.9	16.3	17.7	19.2	20.8	22.4	24.1	25.9	27.7	29.6	31.5	33.5	35.6	37.7	39.9	42.1	44.4	46.8	49.2
110	1.475	6.7	11.8	13.0	14.3	15.6	17.0	18.5	20.0	21.5	23.2	24.9	26.6	28.4	30.3	32.2	34.2	36.2	38.3	40.5	42.7	45.0	47.3
105	1.534	6.4	11.4	12.5	13.8	15.0	16.4	17.8	19.2	20.7	22.3	23.9	25.6	27.3	29.1	31.0	32.9	34.8	36.9	38.9	41.1	43.3	45.5
100	1.595	6.2	10.9	12.1	13.2	14.5	15.7	17.1	18.5	19.9	21.4	23.0	24.6	26.3	28.0	29.8	31.6	33.5	35.4	37.4	39.5	41.6	43.7
95	1.656	6.0	10.6	11.7	12.8	14.0	15.2	16.5	17.9	19.3	20.7	22.2	23.8	25.4	27.1	28.8	30.6	32.4	34.3	36.2	38.2	40.2	42.3
90	1.717	5.7	10.2	11.2	12.3	13.5	14.7	15.9	17.2	18.5	19.9	21.4	22.9	24.5	26.1	27.7	29.4	31.2	33.0	34.8	36.7	38.7	40.7
85	1.779	5.5	9.8	10.8	11.8	12.9	14.1	15.3	16.5	17.8	19.2	20.6	22.0	23.5	25.0	26.6	28.3	29.9	31.7	33.5	35.3	37.2	39.1
80	1.841	5.4	9.5	10.5	11.5	12.6	13.7	14.9	16.1	17.3	18.6	20.0	21.4	22.9	24.3	25.9	27.5	29.1	30.8	32.6	34.3	36.2	38.0
75	1.903	5.2	9.2	10.1	11.1	12.1	13.2	14.3	15.5	16.7	17.9	19.2	20.6	22.0	23.4	24.9	26.5	28.0	29.7	31.3	33.1	34.8	36.6
70	1.965	5.0	8.9	9.8	10.8	11.8	12.8	13.9	15.0	16.2	17.4	18.7	20.0	21.4	22.8	24.2	25.7	27.2	28.8	30.4	32.1	33.8	35.6
65	2.026	4.9	8.6	9.5	10.4	11.4	12.4	13.5	14.6	15.7	16.9	18.1	19.4	20.7	22.1	23.5	24.9	26.4	27.9	29.5	31.1	32.8	34.5
60	2.087	4.7	8.4	9.2	10.1	11.1	12.0	13.1	14.1	15.2	16.4	17.6	18.8	20.1	21.4	22.7	24.1	25.6	27.1	28.6	30.2	31.8	33.4
55	2.149	4.6	8.1	8.9	9.8	10.7	11.6	12.6	13.7	14.7	15.9	17.0	18.2	19.4	20.7	22.0	23.4	24.8	26.2	27.7	29.2	30.8	32.4
50	2.209	4.4	7.9	8.7	9.5	10.4	11.3	12.3	13.3	14.3	15.4	16.5	17.7	18.9	20.1	21.4	22.7	24.1	25.5	26.9	28.4	29.9	31.5

**INITIAL 4/0 ACSR**

NOTE : THIS TABLE IS FOR DESIGN PURPOSE ONLY

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV 4/0 ACSR (6/1) "PENGUIN" INITIAL SAG TABLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS-4/0-I

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)  
Consultant TAPP BREB

(Md. Dunaidul Islam)  
Consultant TAPP BREB

(Md. Mozammel Haque)  
Consultant TAPP BREB

(Md. Abdul Khaleque)  
Consultant TAPP BREB

(Md. Ahsanul Haque)  
Consultant TAPP BREB

(Debasish Chakraborty)  
PD TAPP BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (BREB)

**INITIAL SAG TABLE**  
**477 MCM (26/7) "HAWK"**  
**(300ft. Ruling Span)**

Temp °F	TENSION in pounds	SAG INCHES for SPANS IN FEET																					
		150	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
120	1732	12.8	22.8	25.1	27.5	30.1	32.8	35.6	38.5	41.5	44.6	47.8	51.2	54.7	58.3	62.0	65.8	69.7	73.7	77.9	82.1	86.5	91.0
115	1792	12.4	22.0	24.2	26.6	29.0	31.6	34.3	37.1	40.0	43.0	46.2	49.4	52.7	56.2	59.8	63.5	67.2	71.1	75.1	79.3	83.5	87.8
110	1857	12.0	21.2	23.4	25.7	28.1	30.6	33.2	35.9	38.7	41.6	44.7	47.8	51.0	54.4	57.8	61.4	65.1	68.8	72.7	76.7	80.8	85.0
105	1926	11.5	20.4	22.5	24.7	27.0	29.4	31.9	34.6	37.3	40.1	43.0	46.0	49.1	52.3	55.7	59.1	62.6	66.2	70.0	73.8	77.7	81.8
100	2001	11.1	19.7	21.7	23.8	26.0	28.4	30.8	33.3	35.9	38.6	41.4	44.3	47.3	50.4	53.6	56.9	60.3	63.8	67.4	71.1	74.9	78.8
95	2081	10.7	18.9	20.9	22.9	25.0	27.3	29.6	32.0	34.5	37.1	39.8	42.6	45.5	48.5	51.5	54.7	58.0	61.3	64.8	68.3	72.0	75.7
90	2166	10.2	18.2	20.0	22.0	24.0	26.2	28.4	30.7	33.1	35.6	38.2	40.9	43.7	46.5	49.5	52.5	55.7	58.9	62.2	65.6	69.1	72.7
85	2257	9.8	17.4	19.2	21.1	23.0	25.1	27.2	29.4	31.8	34.1	36.6	39.2	41.9	44.6	47.4	50.4	53.4	56.4	59.6	62.9	66.2	69.7
80	2354	9.4	16.8	18.5	20.3	22.2	24.1	26.2	28.3	30.5	32.8	35.2	37.7	40.3	42.9	45.6	48.4	51.3	54.3	57.3	60.5	63.7	67.0
75	2456	9.0	16.0	17.7	19.4	21.2	23.1	25.1	27.1	29.2	31.4	33.7	36.1	38.5	41.1	43.7	46.4	49.1	52.0	54.9	57.9	61.0	64.2
70	2565	8.7	15.4	17.0	18.6	20.3	22.1	24.0	26.0	28.0	30.1	32.3	34.6	36.9	39.4	41.9	44.4	47.1	49.8	52.6	55.5	58.5	61.5
65	2679	8.3	14.7	16.2	17.8	19.5	21.2	23.0	24.9	26.8	28.8	30.9	33.1	35.3	37.7	40.1	42.5	45.1	47.7	50.3	53.1	55.9	58.8
60	2799	7.9	14.1	15.5	17.0	18.6	20.3	22.0	23.8	25.7	27.6	29.6	31.7	33.8	36.1	38.4	40.7	43.1	45.6	48.2	50.9	53.6	56.4
55	2924	7.6	13.5	14.9	16.3	17.9	19.5	21.1	22.8	24.6	26.5	28.4	30.4	32.5	34.6	36.8	39.0	41.4	43.8	46.2	48.8	51.4	54.0
50	3053	7.3	12.9	14.2	15.6	17.0	18.6	20.1	21.8	23.5	25.3	27.1	29.0	31.0	33.0	35.1	37.2	39.5	41.8	44.1	46.5	49.0	51.6

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

INITIAL 477 mcm ACSR

NOTE : THIS TABLE IS FOR DESIGN PURPOSE ONLY

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV 477 mcm (26/7) "HAWK" INITIAL SAG TABLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS-477-I

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Duhidul Islam)  
Consultant, TAPP, BREB

(Md. Mozammel Haque)  
Consultant, TAPP, BREB

(Md. Abdul Khaleque)  
Consultant, TAPP, BREB

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
TAPP, BREB

(Kamrul Ahsan Mollah)  
Asst. Secy. (Power)



**INITIAL SAG CHART  
CONDUCTOR : GROSBEAK (636 mcm)  
150 FEET RULING SPAN**

**Rated Strength : 12600 lbs**

Temp °F	TENSION in pounds	SAG in FEET							
		130	140	150	160	170	180	190	200
120	1073.9	2.26	2.62	3.01	3.42	3.86	4.33	4.82	5.34
110	1132.2	2.14	2.48	2.85	3.24	3.66	4.10	4.57	5.07
100	1201.1	2.02	2.34	2.69	3.06	3.46	3.87	4.32	4.78
90	1284.4	1.89	2.19	2.51	2.86	3.23	3.62	4.03	4.47
80	1387.8	1.75	2.03	2.33	2.65	2.99	3.35	3.73	4.13
70	1521.0	1.59	1.85	2.12	2.41	2.72	3.05	3.40	3.77
60	1701.5	1.42	1.65	1.90	2.16	2.43	2.73	3.04	3.37
50	1966.6	1.23	1.43	1.64	1.87	2.11	2.36	2.63	2.92

**DRG. NO. : TS 636-I (150 RS)**

Debasish Chakraborty  
PD, TAPP, BREB.

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB.

**Table-8.2  
INITIAL SAG CHART  
CONDUCTOR : GROSBEAK (636 mcm)  
200 FEET RULING SPAN**

**Rated Strength : 12600 lbs**

Temp °F	TENSION in pounds	SAG in FEET										
		150	160	170	180	190	200	210	220	230	240	250
120	1428	2.26	2.57	2.90	3.26	3.63	4.02	4.43	4.86	5.32	5.79	6.28
110	1505	2.15	2.44	2.76	3.09	3.44	3.81	4.20	4.61	5.04	5.49	5.96
100	1596	2.02	2.30	2.60	2.91	3.24	3.60	3.96	4.35	4.75	5.18	5.62
90	1705	1.89	2.15	2.43	2.72	3.04	3.36	3.71	4.07	4.45	4.84	5.26
80	1841	1.75	1.99	2.25	2.52	2.81	3.12	3.43	3.77	4.12	4.49	4.87
70	2016	1.60	1.82	2.06	2.31	2.57	2.85	3.14	3.45	3.77	4.10	4.45
60	2251	1.43	1.63	1.84	2.07	2.30	2.55	2.81	3.09	3.37	3.67	3.98
50	2595	1.24	1.41	1.60	1.79	1.99	2.21	2.44	2.67	2.92	3.18	3.45

**DRG. NO. : TS 636-I (200 RS)**

(Md. Abdul Kjalique)  
Consultant, TAPP, BREB.

(Md. Mozammel Haque)  
Consultant, TAPP, BREB.

(Md. Dujridul Islam)  
Consultant, TAPP, BREB.

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: INITIAL SAG TABLE OF GROSBEAK CONDUCTOR.**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS 636-I

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB.

**INITIAL SAG CHART  
CONDUCTOR : MALLARD (795 mcm)  
150 FEET RULING SPAN**

**Rated Strength : 19200 lbs**

Temp °F	TENSION in pounds	SAG in FEET							
		130	140	150	160	170	180	190	200
120	1441.4	2.20	2.55	2.93	3.33	3.76	4.22	4.70	5.21
110	1519.9	2.09	2.42	2.78	3.16	3.57	4.00	4.46	4.94
100	1612.8	1.97	2.28	2.62	2.98	3.36	3.77	4.20	4.66
90	1725.1	1.84	2.13	2.45	2.79	3.15	3.53	3.93	4.35
80	1864.7	1.70	1.97	2.27	2.58	2.91	3.26	3.63	4.03
70	2044.7	1.55	1.80	2.07	2.35	2.65	2.98	3.31	3.67
60	2289.4	1.39	1.61	1.85	2.10	2.37	2.66	2.96	3.28
50	2649.5	1.20	1.39	1.59	1.81	2.05	2.30	2.56	2.83

TABLE NO. : TS 795-I (150 RS)

(Debasish Chakraborty)  
PD TAPP, BREB

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

**INITIAL SAG CHART  
CONDUCTOR : MALLARD (795 mcm)  
200 FEET RULING SPAN**

**Rated Strength : 19200 lbs**

Temp °F	TENSION in pounds	SAG in FEET										
		150	160	170	180	190	200	210	220	230	240	250
120	1917	2.20	2.51	2.83	3.17	3.54	3.92	4.32	4.74	5.18	5.64	6.12
110	2021	2.09	2.38	2.68	3.01	3.35	3.72	4.10	4.50	4.91	5.35	5.81
100	2144	1.97	2.24	2.53	2.84	3.16	3.50	3.86	4.24	4.63	5.04	5.47
90	2292	1.84	2.10	2.37	2.65	2.96	3.28	3.61	3.96	4.33	4.72	5.12
80	2476	1.71	1.94	2.19	2.46	2.74	3.03	3.34	3.67	4.01	4.37	4.74
70	2713	1.56	1.77	2.00	2.24	2.50	2.77	3.05	3.35	3.66	3.99	4.33
60	3034	1.39	1.58	1.79	2.01	2.23	2.48	2.73	3.00	3.27	3.56	3.87
50	3503	1.21	1.37	1.55	1.74	1.93	2.14	2.36	2.59	2.84	3.09	3.35

TABLE NO. : TS 795-I (200 RS)

(Md. Abdul Khaleque)  
Consultant, TAPP, BREB

(Md. Mozammel Huj)  
Consultant, TAPP, BREB

(Md. Duhidul Islam)  
Consultant, TAPP, BREB

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

**BANGLADESH RURAL ELECTRIFICATION BOARD**

Unit Description: INITIAL SAG TABLE OF MALLARD CONDUCTOR

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS 795-I

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

(Md. Ahsanul Haque) (Debasish Chakraborty)  
 Consultant, TAPP, BREB PD, TAPP, BREB.

FINAL SAG TABLE  
 No. 3 ACSR "SWALLOW"  
 (300ft. Ruling Span)  
 MAXIMUM DESIGN TENSION = 745 POUNDS

Temp °F	TENSION in pounds	SAG INCHES for SPANS IN FEET																					
		150	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
120	243	10.1	17.9	19.7	21.6	23.6	25.7	27.9	30.2	32.6	35.0	37.6	40.2	42.9	45.7	48.6	51.6	54.7	57.9	61.1	64.5	67.9	71.5
115	255	9.6	17.0	18.8	20.6	22.5	24.5	26.6	28.8	31.0	33.4	35.8	38.3	40.9	43.6	46.3	49.2	52.1	55.2	58.3	61.5	64.7	68.1
110	264	9.1	16.2	17.9	19.6	21.5	23.4	25.3	27.4	29.6	31.8	34.1	36.5	39.0	41.5	44.2	46.9	49.7	52.6	55.5	58.6	61.7	64.9
105	282	8.7	15.4	17.0	18.7	20.4	22.2	24.1	26.1	28.1	30.2	32.4	34.7	37.1	39.5	42.0	44.6	47.2	50.0	52.8	55.7	58.6	61.7
100	298	8.2	14.6	16.1	17.7	19.3	21.1	22.8	24.7	26.6	28.7	30.7	32.9	35.1	37.4	39.8	42.3	44.8	47.4	50.0	52.8	55.6	58.5
95	314	7.8	13.8	15.2	16.7	18.3	19.9	21.6	23.4	25.2	27.1	29.1	31.1	33.2	35.4	37.6	39.9	42.3	44.8	47.3	49.9	52.6	55.3
90	332	7.4	13.1	14.5	15.9	17.3	18.9	20.5	22.2	23.9	25.7	27.6	29.5	31.5	33.6	35.7	37.9	40.2	42.5	44.9	47.3	49.9	52.4
85	350	7.0	12.4	13.7	15.1	16.5	17.9	19.4	21.0	22.7	24.4	26.2	28.0	29.9	31.9	33.9	36.0	38.1	40.3	42.6	44.9	47.3	49.8
80	370	6.6	11.7	12.9	14.2	15.5	16.9	18.3	19.8	21.4	23.0	24.7	26.4	28.2	30.0	31.9	33.9	35.9	38.0	40.2	42.4	44.6	46.9
75	391	6.3	11.2	12.3	13.5	14.8	16.1	17.4	18.9	20.3	21.9	23.5	25.1	26.8	28.6	30.4	32.2	34.2	36.1	38.2	40.3	42.4	44.6
70	412	6.0	10.6	11.7	12.8	14.0	15.2	16.5	17.9	19.3	20.7	22.2	23.8	25.4	27.1	28.8	30.6	32.4	34.3	36.2	38.2	40.2	42.3
65	435	5.6	10.0	11.0	12.0	13.2	14.3	15.6	16.8	18.1	19.5	20.9	22.4	23.9	25.5	27.1	28.8	30.5	32.3	34.1	35.9	37.9	39.8
60	458	5.4	9.5	10.5	11.5	12.6	13.7	14.9	16.1	17.3	18.6	20.0	21.4	22.9	24.3	25.9	27.5	29.1	30.8	32.6	34.3	36.2	38.0
55	482	5.1	9.0	9.9	10.9	11.9	13.0	14.1	15.2	16.4	17.7	19.0	20.3	21.7	23.1	24.6	26.1	27.6	29.2	30.9	32.6	34.3	36.1
50	506	4.8	8.6	9.5	10.4	11.3	12.4	13.4	14.5	15.6	16.8	18.0	19.3	20.6	22.0	23.4	24.8	26.3	27.8	29.4	31.0	32.6	34.3

(Md. Mozibur Rahman)  
 Consultant TAPP BREB

(Md. Duhidul Islam)  
 Consultant TAPP BREB

(Md. Mozammel Haq)  
 Consultant TAPP BREB

FINAL No. 3 ACSR **৬৯১ ক্রম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০**

(Md. Abdul Khaleque)  
 Consultant TAPP BREB  
 (Kamrul Ahsan Mollik)  
 Asst. Secy. (Board), BREB

NOTE: THIS TABLE IS FOR DESIGN PURPOSE ONLY

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: 33 KV NO. 3 ACSR (6/1) "SWALOW" FINAL SAG TABLE				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS-3-F
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020				

**FINAL SAG TABLE**  
**4/0 ACSR "PENGUIN"**  
 (300ft. Ruling Span)  
**MAXIMUM DESIGN TENSION = 2276 POUNDS**

Temp °F	TENSION in pounds	SAG INCHES for SPANS IN FEET																					
		150	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
120	770	12.8	22.7	25.0	27.5	30.0	32.7	35.5	38.4	41.4	44.5	47.8	51.1	54.6	58.1	61.8	65.6	69.6	73.6	77.7	82.0	86.4	90.8
150	800	12.3	21.9	24.1	26.5	28.9	31.5	34.2	37.0	39.9	42.9	46.0	49.2	52.5	56.0	59.5	63.2	67.0	70.8	74.8	78.9	83.1	87.5
110	833	11.8	21.0	23.2	25.4	27.8	30.3	32.8	35.5	38.3	41.2	44.2	47.3	50.5	53.8	57.2	60.8	64.4	68.1	71.9	75.9	79.9	84.1
105	868	11.4	20.2	22.2	24.4	26.7	29.1	31.5	34.1	36.8	39.5	42.4	45.4	48.5	51.7	54.9	58.3	61.8	65.4	69.1	72.8	76.7	80.7
100	906	10.9	19.3	21.3	23.3	25.5	27.8	30.1	32.6	35.2	37.8	40.6	43.4	46.3	49.4	52.5	55.7	59.1	62.5	66.0	69.6	73.3	77.2
95	948	10.4	18.4	20.3	22.3	24.4	26.6	28.8	31.2	33.6	36.2	38.8	41.5	44.3	47.2	50.2	53.3	56.5	59.8	63.1	66.6	70.1	73.8
90	992	9.9	17.6	19.4	21.3	23.3	25.3	27.5	29.7	32.1	34.5	37.0	39.6	42.3	45.1	47.9	50.9	53.9	57.0	60.2	63.5	66.9	70.4
85	1040	9.5	16.8	18.5	20.3	22.2	24.2	26.3	28.4	30.6	32.9	35.3	37.8	40.4	43.0	45.7	48.6	51.5	54.4	57.5	60.6	63.9	67.2
80	1092	9.0	16.0	17.6	19.4	21.2	23.0	25.0	27.0	29.2	31.4	33.6	36.0	38.4	41.0	43.6	46.2	49.0	51.8	54.8	57.8	60.8	64.0
75	1147	8.6	15.2	16.8	18.4	20.2	22.0	23.8	25.8	27.8	29.9	32.1	34.3	36.6	39.0	41.5	44.1	46.7	49.4	52.2	55.0	58.0	61.0
70	1206	8.2	14.5	16.0	17.5	19.2	20.9	22.6	24.5	26.4	28.4	30.5	32.6	34.8	37.1	39.4	41.9	44.4	46.9	49.6	52.3	55.1	58.0
65	1268	7.8	13.8	15.2	16.7	18.2	19.8	21.5	23.3	25.1	27.0	29.0	31.0	33.1	35.3	37.5	39.8	42.2	44.6	47.2	49.7	52.4	55.1
60	1334	7.4	13.1	14.5	15.9	17.3	18.9	20.5	22.2	23.9	25.7	27.6	29.5	31.5	33.6	35.7	37.9	40.2	42.5	44.9	47.3	49.9	52.4
55	1403	7.0	12.4	13.7	15.1	16.5	17.9	19.4	21.0	22.7	24.4	26.2	28.0	29.9	31.9	33.9	36.0	38.1	40.3	42.6	44.9	47.3	49.8
50	1475	6.7	11.8	13.0	14.3	15.6	17.0	18.5	20.0	21.5	23.2	24.9	26.6	28.4	30.3	32.2	34.2	36.2	38.3	40.5	42.7	45.0	47.3

FINAL 4/0 ACSR

NOTE : THIS TABLE IS ONLY FOR CONDUCTOR INSTALLATION

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV 4/0 ACSR (6/1) "PENGUIN" FINAL SAG TABLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS-4/0-F

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Duhida Islam)  
Consultant, TAPP, BREB

(Md. Mohammed Hujj)  
Consultant, TAPP, BREB

(Md. Abdul Khaieque)  
Consultant, TAPP, BREB

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board)

**FINAL SAG TABLE**  
**477 mcm (26/7) ACSR "HAWK"**  
**(300ft. Ruling Span)**  
**MAXIMUM DESIGN TENSION = 2,687 POUNDS**

Temp °F	TENSION in pounds	SAG INCHES for SPANS IN FEET																					
		150	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
120	1478	15.0	26.7	29.4	32.3	35.3	38.4	41.7	45.1	48.6	52.3	56.1	60.0	64.1	68.3	72.6	77.1	81.7	86.4	91.3	96.3	101.4	106.7
115	1499	14.8	26.3	29.0	31.8	34.8	37.9	41.1	44.5	48.0	51.6	55.3	59.2	63.2	67.4	71.6	76.0	80.6	85.2	90.0	95.0	100.0	105.2
110	1520	14.6	25.9	28.6	31.4	34.3	37.3	40.5	43.8	47.2	50.8	54.5	58.3	62.3	66.3	70.5	74.9	79.4	84.0	88.7	93.5	98.5	103.6
105	1555	14.3	25.3	27.9	30.7	33.5	36.5	39.6	42.8	46.2	49.7	53.3	57.0	60.9	64.9	69.0	73.2	77.6	82.1	86.7	91.5	96.3	101.3
100	1605	13.8	24.5	27.0	29.7	32.4	35.3	38.3	41.5	44.7	48.1	51.6	55.2	58.9	62.8	66.8	70.9	75.1	79.5	84.0	88.6	93.3	98.1
95	1660	13.4	23.7	26.2	28.7	31.4	34.2	37.1	40.1	43.3	46.5	49.9	53.4	57.0	60.8	64.6	68.6	72.7	76.9	81.2	85.7	90.2	94.9
90	1719	12.9	22.9	25.3	27.7	30.3	33.0	35.8	38.8	41.8	44.9	48.2	51.6	55.1	58.7	62.4	66.3	70.2	74.3	78.5	82.8	87.2	91.7
85	1783	12.5	22.2	24.5	26.8	29.3	31.9	34.7	37.5	40.4	43.5	46.6	49.9	53.3	56.8	60.4	64.1	67.9	71.9	75.9	80.1	84.3	88.7
80	1852	12.0	21.3	23.5	25.8	28.2	30.7	33.3	36.0	38.8	41.7	44.8	47.9	51.1	54.5	58.0	61.5	65.2	69.0	72.9	76.9	81.0	85.2
75	1928	11.5	20.4	22.5	24.7	27.0	29.4	31.9	34.6	37.3	40.1	43.0	46.0	49.1	52.3	55.7	59.1	62.6	66.2	70.0	73.8	77.7	81.8
70	2010	11.0	19.6	21.6	23.7	25.9	28.2	30.6	33.0	35.6	38.3	41.1	44.0	47.0	50.1	53.2	56.5	59.9	63.4	66.9	70.6	74.4	78.2
65	2099	10.6	18.8	20.7	22.7	24.8	27.0	29.3	31.7	34.2	36.8	39.4	42.2	45.1	48.0	51.1	54.2	57.4	60.8	64.2	67.7	71.3	75.0
60	2196	10.1	17.9	19.7	21.7	23.7	25.8	28.0	30.3	32.6	35.1	37.7	40.3	43.0	45.9	48.8	51.8	54.9	58.0	61.3	64.7	68.1	71.6
55	2301	9.6	17.1	18.9	20.7	22.6	24.6	26.7	28.9	31.2	33.5	36.0	38.5	41.1	43.8	46.6	49.5	52.4	55.4	58.6	61.8	65.1	68.4
50	2415	9.2	16.3	18.0	19.7	21.6	23.5	25.5	27.6	29.7	32.0	34.3	36.7	39.2	41.8	44.4	47.1	50.0	52.8	55.8	58.9	62.0	65.2

**FINAL 477 mcm ACSR**

NOTE : THIS TABLE IS ONLY FOR CONDUCTOR INSTALLATION

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: 33 KV 477 MCM ACSR (26/7) "HAWK" FINAL SAG TABLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	<b>TS-477-F</b>

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)  
Consultant TAPP BREB

(Md. Duhidul Islam)  
Consultant TAPP BREB

(Md. Mozammar Haq)  
Consultant TAPP BREB

(Md. Abdul Khaleque)  
Consultant TAPP BREB

(Md. Ahsanul Haque)  
Consultant TAPP BREB

(Debasish Chakraborty)  
PD, TAPP BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board)

**FINAL SAG CHART  
CONDUCTOR : GROSBEAK (636 mcm)  
150 FEET RULING SPAN**

**Rated Strength : 7056 lbs**

Temp °F	TENSION in pounds	SAG in FEET							
		130	140	150	160	170	180	190	200
120	814.25	2.27	2.63	3.02	3.44	3.88	4.35	4.85	5.37
110	857.92	2.16	2.50	2.87	3.27	3.69	4.13	4.60	5.10
100	909.46	2.03	2.36	2.71	3.08	3.47	3.90	4.34	4.81
90	971.57	1.90	2.20	2.53	2.88	3.25	3.64	4.06	4.50
80	1048.4	1.76	2.04	2.35	2.67	3.01	3.38	3.77	4.17
70	1146.9	1.61	1.87	2.15	2.44	2.76	3.09	3.44	3.81
60	1279.7	1.45	1.68	1.92	2.19	2.47	2.77	3.09	3.42
50	1472.4	1.25	1.45	1.67	1.90	2.15	2.40	2.68	2.97

TABLE NO. : TS 636-F (150 RS)

**Table-8.4  
FINAL SAG CHART  
CONDUCTOR : GROSBEAK (636 mcm)  
200 FEET RULING SPAN**

**Rated Strength : 7056 lbs**

Temp °F	TENSION in pounds	SAG in FEET										
		150	160	170	180	190	200	210	220	230	240	250
120	1080	2.28	2.59	2.93	3.28	3.66	4.05	4.47	4.90	5.36	5.83	6.33
110	1137	2.16	2.46	2.78	3.11	3.47	3.84	4.24	4.65	5.08	5.54	6.01
100	1205	2.04	2.32	2.62	2.94	3.28	3.63	4.00	4.39	4.80	5.23	5.67
90	1286	1.91	2.18	2.46	2.76	3.07	3.40	3.75	4.12	4.50	4.90	5.32
80	1386	1.78	2.02	2.28	2.56	2.85	3.16	3.48	3.82	4.18	4.55	4.93
70	1513	1.63	1.85	2.09	2.34	2.61	2.89	3.19	3.50	3.82	4.16	4.52
60	1684	1.46	1.66	1.88	2.11	2.35	2.60	2.87	3.15	3.44	3.74	4.06
50	1929	1.28	1.45	1.64	1.84	2.05	2.27	2.50	2.74	3.00	3.27	3.54

TABLE NO. : TS 636-F (200 RS)

**BANGLADESH RURAL ELECTRIFICATION BOARD**

Unit Description: FINAL SAG TABLE OF GROSBEAK CONDUCTOR

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS 636-F

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)  
Consultant, TAPP, BREB

(Md. Dujidul Islam)  
Consultant, TAPP, BREB

(Md. Mozammel Haq)  
Consultant, TAPP, BREB

(Md. Abdul Kader)  
Consultant, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Md. Ahsanul Haque)  
Consultant, TAPP, BREB

(Debasish Chakraborty)  
PD, TAPP, BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

**FINAL SAG CHART  
CONDUCTOR : MALLARD (795 mcm)  
150 FEET RULING SPAN**

Rated Strength : 10752 lbs

Temp °F	TENSION in pounds	SAG in FEET							
		130	140	150	160	170	180	190	200
120	1177.9	2.22	2.57	2.95	3.36	3.79	4.25	4.73	5.24
110	1241.2	2.10	2.44	2.80	3.18	3.60	4.03	4.49	4.98
100	1315.9	1.98	2.30	2.64	3.00	3.39	3.80	4.23	4.69
90	1406.1	1.86	2.15	2.47	2.81	3.17	3.56	3.96	4.39
80	1517.7	1.72	1.99	2.29	2.60	2.94	3.30	3.67	4.07
70	1660.8	1.57	1.82	2.09	2.38	2.69	3.01	3.36	3.72
60	1854.0	1.41	1.63	1.87	2.13	2.41	2.70	3.01	3.33
50	2135.0	1.22	1.42	1.63	1.85	2.09	2.34	2.61	2.89

TABLE NO. : TS 795-F (150 RS)

**FINAL SAG CHART  
CONDUCTOR : MALLARD (795 mcm)  
200 FEET RULING SPAN**

Rated Strength : 10752 lbs

Temp °F	TENSION in pounds	SAG in FEET										
		150	160	170	180	190	200	210	220	230	240	250
120	1563	2.22	2.53	2.85	3.20	3.57	3.95	4.36	4.78	5.22	5.69	6.17
110	1646	2.11	2.40	2.71	3.04	3.39	3.75	4.14	4.54	4.96	5.40	5.86
100	1744	1.99	2.27	2.56	2.87	3.19	3.54	3.90	4.28	4.68	5.10	5.53
90	1862	1.87	2.12	2.40	2.69	2.99	3.32	3.66	4.01	4.39	4.78	5.18
80	2007	1.73	1.97	2.22	2.49	2.78	3.08	3.39	3.72	4.07	4.43	4.81
70	2193	1.58	1.80	2.03	2.28	2.54	2.82	3.10	3.41	3.72	4.05	4.40
60	2443	1.42	1.62	1.82	2.05	2.28	2.53	2.78	3.06	3.34	3.64	3.95
50	2802	1.24	1.41	1.59	1.79	1.99	2.20	2.43	2.67	2.91	3.17	3.44

TABLE NO. : TS 795-F (200 RS)

**BANGLADESH RURAL ELECTRIFICATION BOARD**

**Unit Description: FINAL SAG TABLE OF MALLARD CONDUCTOR**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TS 795-F

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)  
Consultant TAPP BREB

(Md. Durdul Islam)  
Consultant TAPP BREB

(Md. Mozammel Haq)  
Consultant TAPP BREB

(Md. Abdul Khaleque)  
Consultant TAPP, BREB

(Kamrul Ahsan Mollik)  
Asst. Secy. (Board), BREB.

(Md. Ahsanul Haque)  
Consultant TAPP BREB

(Debasish Chakraborty)

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০