

BANGLADESH RURAL ELECTRIFICATION BOARD

PBS INSTRUCTION 100-77

**STANDARD SPECIFICATION AND DRAWINGS
FOR SPACER CABLE LINE CONSTRUCTION**

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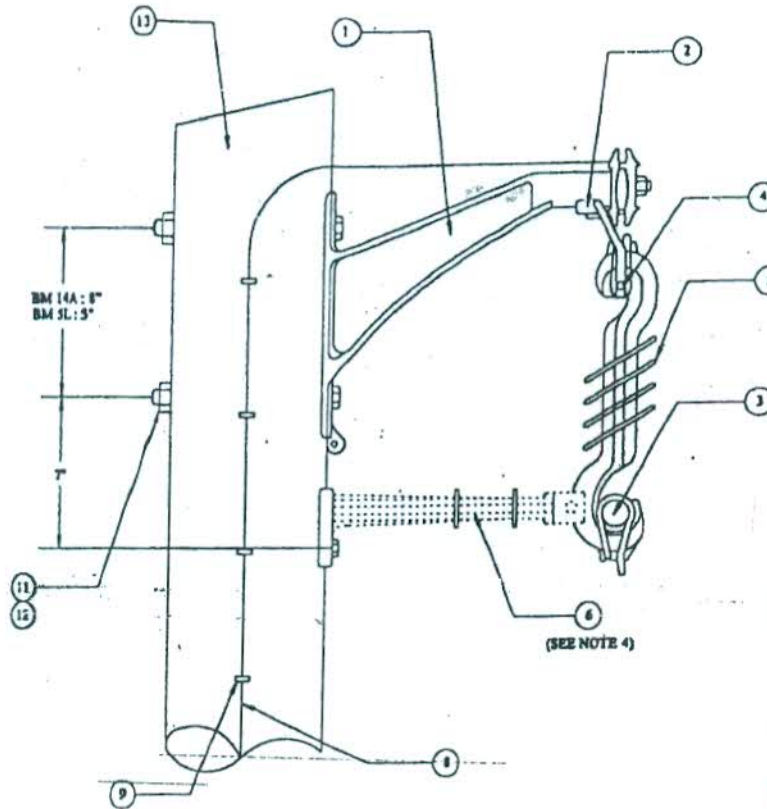

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৬২১ তম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



৬২১ তম বোর্ড সভার অনুমোদিত নং ১৭১০০

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Notes :

- 1) Tangents are defined as line angles up to and including 6° for Hendrix Spacer Cable.
- 2) Any horizontal load created by a minor angle should be guyed for proper construction
- 3) The TS-1 Stirrup should be bolted through the hole closest to the end of the tangent bracket, near the messenger clamp.
- 4) The use of a BAS-14F Anti-Sway Bracket is recommended at transformer taps to minimize the stress on connections caused by movement of the circuit.
- 5) Do not install the TS-1 Stirrup or Make ground connections until the conductors are installed.
- 6) The BM-5L bracket may be used in light loading applications where a bracket with lower ultimate vertical strength would be more compatible with the strength of lower strength poles.

Bill of Materials

Bill of Materials

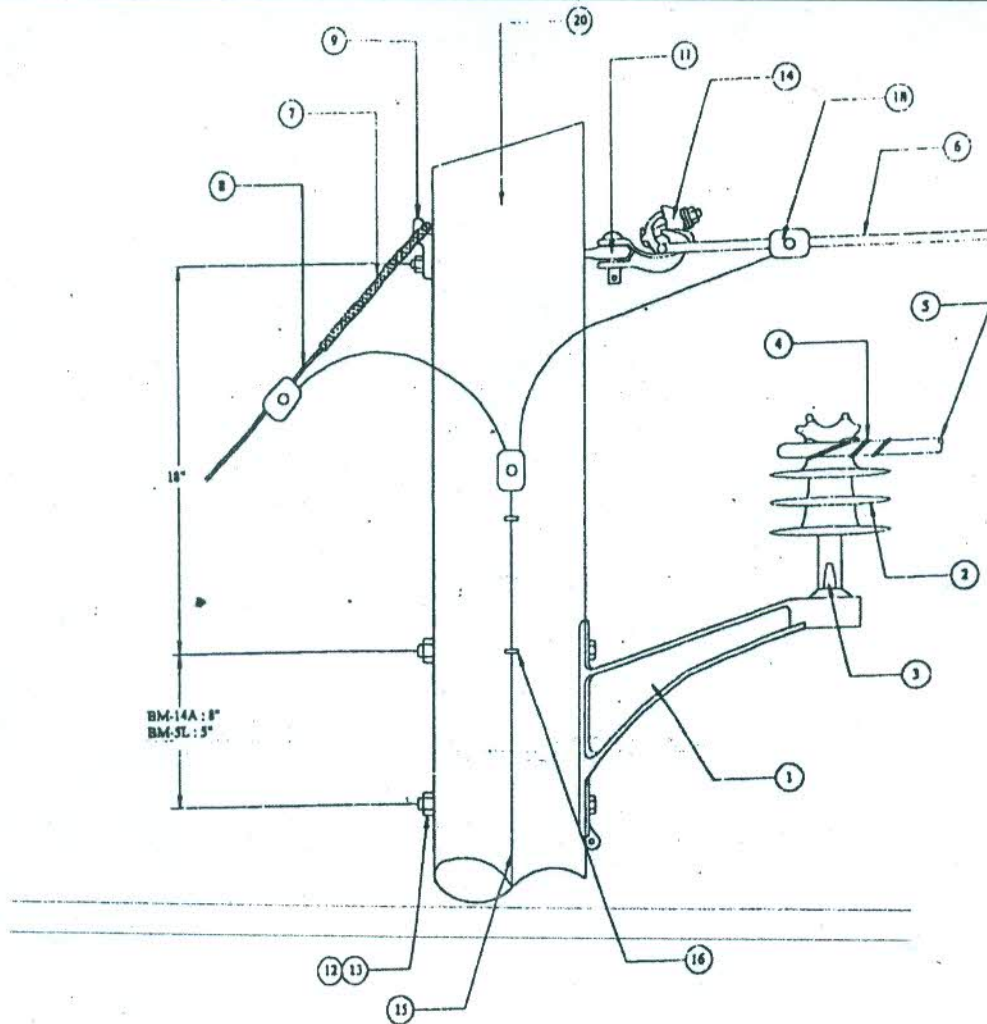
Item No.	Description	Qty	Item No.	Description	Qty
1	Messenger Bracket, Hendrix Type BM-14A or BM-5L	1	8	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
2	Stirrup, hendrix Type TS-1, Supplied with 1/2" Bolt, Flat Washer And Self-Locking Nut	1	9	Ground Wire Staple, Copper Clad or Galvanized	As Req.
3	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	10	Grounding Assembly, (Type As Required, Not Shown)	1
4	Messenger, (Size And Type As Required)	As Req.	11	Machine Bolt, 5/8" x Required Length	2
5	Hendrix Spacer With Ties, (Types As Required)	As Req.	12	Square Washer, 2 1/4" x 2 1/4" x 3/16"	2
6	Anti-Sway Bar, Hendrix Type BAS-14F, Supplied With Plastic Bolt	1	13	Ground Wire Staples, Copper Clad or Galvanized	1
7	Connector, (Size And Kind As Required)	1			

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: TYPICAL SINGLE PHASE TANGENT CONSTRUCTION

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-A1

Revision Date: 19/02/2020



১২১ তম বোর্ড সভায় অনুমোদিত শিফট নং ১৯৯০০

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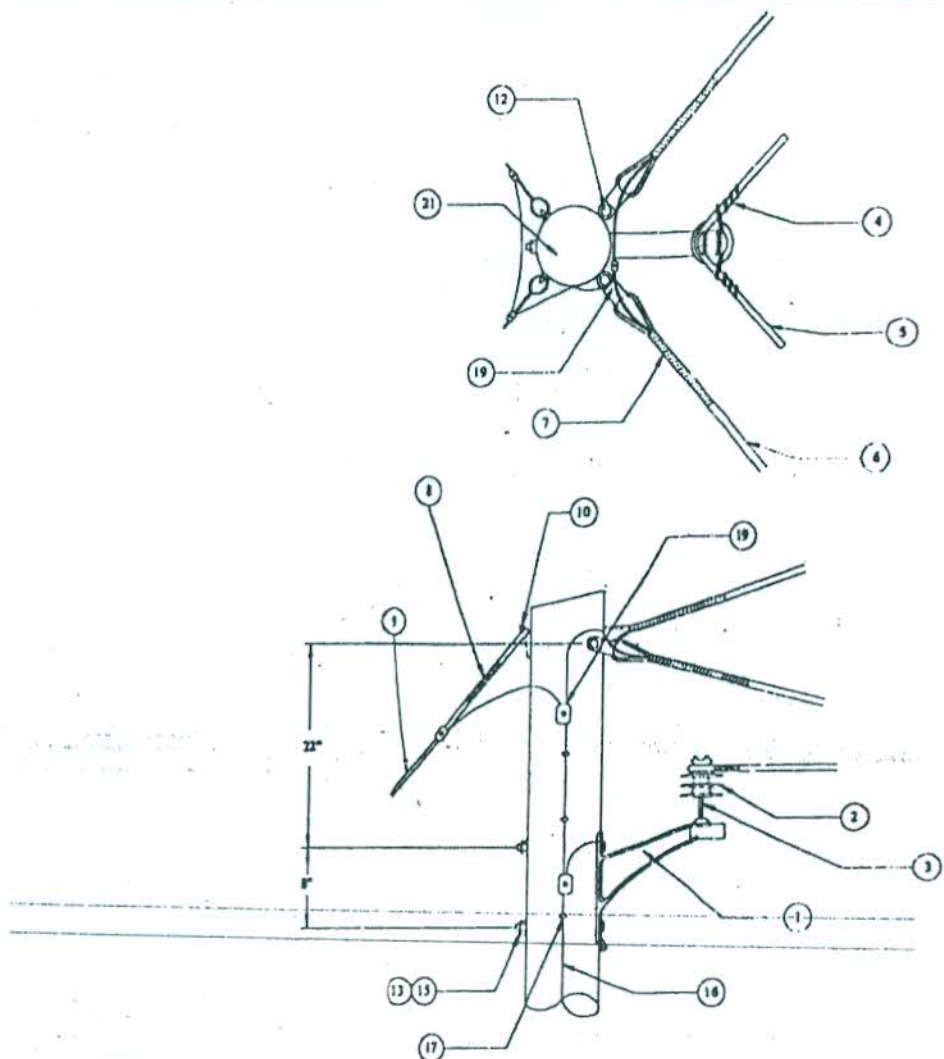
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Notes :

- 1) Structure design for angles from 7 through 60. For line angles greater than 60 refer to drawing number A4(SC) in this section.
- 2) Standard Duty Construction - 8000 lb maximum expected messenger tension. For messenger tensions greater than 8000 lb, the messenger must be double dead-ended.
- 3) The BM-5L bracket may be used in light loading applications where a bracket with lower ultimate vertical strength would be more compatible with the strength of lower strength poles.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Messenger Bracket, Hendrix Type BM-14A or BM-5L	1	11	3-Bolt Eye, 5/8" x Required Length For Standard Construction; 3/4" x Required Length For Heavy Duty Construction	1
2	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25 or HPI-35	1	12	Machine Bolt, 5/8" x Required Length	2
3	Insulator Pin, Hendrix Type SSP-2	1	13	Square Washer, 2 1/4" x 2 1/4" x 3/16", Minimum	3
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	1	14	Angle Clamp, Hendrix Catalog No CMA-1	1
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	15	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
6	Messenger, (Size And Type As Required)	As Req.	16	Ground Wire Staple, Copper Clad Or Galvanized	As Req.
7	Prebaped Guy Grip, (Size And Type As Required)	As Req.	17	Grounding Assembly, (Type As Required, Not Shown)	1
8	Guy Strand, (Size And Type As Required)	As Req.	18	Connector, (Size And Type As Required)	As Req.
9	Guy Hook, Continental No. GA-56X, or Equal	As Req.	19	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
10	3-Bolt Clamp or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	As Req.	20	Pole, (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: SINGLE PHASE 7° - 60° ANGEL CONSTRUCTION				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-A3
Revision Date: 19/02/2020				



Notes :

- 1) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb to 12000 lb maximum messenger tension.
- 2) The BM-5L bracket may be used in light loading applications where a bracket with lower ultimate vertical strength would be more compatible with the strength of lower strength poles.

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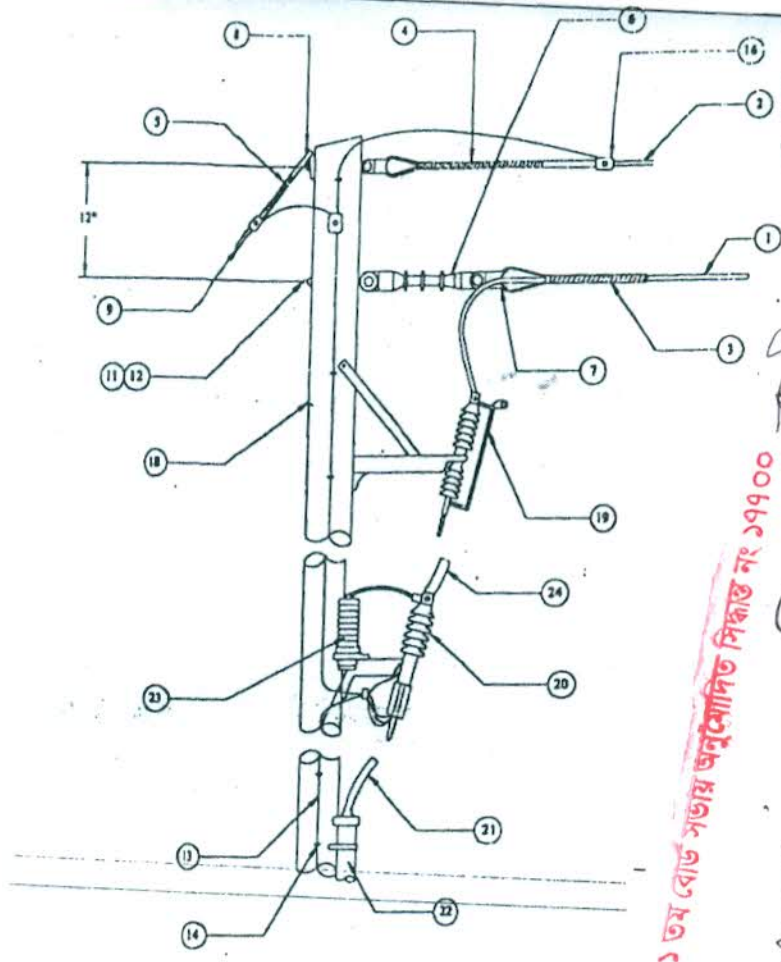
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৯৩ তম বোর্ড সভায় অনুমোদিত নিকট নং ১৯৯০০

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Messenger Bracket, Hendrix Type BM-14A or BM-5L	1	12	3-Bolt Eye, 5/8" x Required Length For Standard Construction; 3/4" x Required Length For Heavy Duty Construction	2
2	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25 or HPI-35	1	13	Machine Bolt, 5/8" x Required Length	2
3	Insulator Pin, Hendrix Type SSP-2	1	14	Thimble Clevis, Hendrix Catalog No. TC For Standard Construction; Hendrix Catalog No. HDTC For Heavy Duty Construction	2
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	1	15	Square Washer, 2 1/4" x 2 1/4" x 3/16", Minimum	4
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	16	Ground Wire, Soft Drawn copper, Solid, #6 AWG Min.	As Req.
6	Messenger, (Size And Type As Required)	As Req.	17	Ground Wire Staple, Copper Clad Or Galvanized	As Req.
7	Preshaped Messenger Grip	2	18	Grounding Assembly, (Type As Required, Not Shown)	1
8	Preshaped Guy Grip	As Req.	19	Connector, (Size And Type As Required)	As Req.
9	Guy Strand, (Size And Type As Required)	As Req.	20	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
10	Guy Hook, Continental No. GA-56X, or Equal	As Req.	21	Pole, (Length And Class As Required)	1
11	3-Bolt Clamp or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	As Req.			

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: SINGLE PHASE 61° - 90° ANGEL CONSTRUCTION				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-A4
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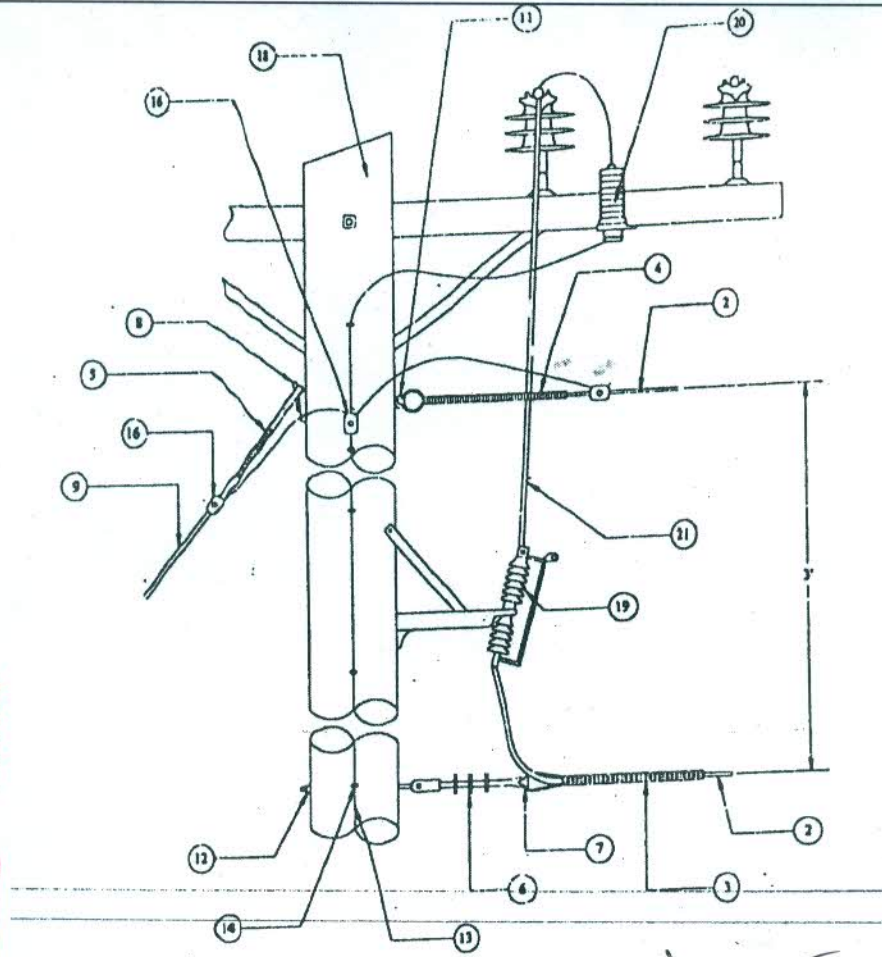
Notes :

- 1) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb to 12000 lb maximum messenger tension.
- 2) Types, quantities and voltage ratings of materials, as well as clearances for various voltage classifications are to be in accordance with the National Electric Safety Code (NESC) and the user's standard construction practices.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	12	Square Washer, 2 1/4" x 2 1/4" x 3/16"	1
2	Messenger, (Size And Type As Required)	As Req.	13	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
3	Pre-shaped Conductor Grip, Coated	1	14	Ground Wire Staples, Copper Clad or Galvanized	As Req.
4	Pre-shaped Messenger Grip	1	15	Grounding Assembly, (Type As Required, Not Shown)	1
5	Pre-shaped Guy Grip	As Req.	16	Connector, (Size And Type As Required)	1
6	Insulator, Polymer Dead-end Type (Size And Voltage Rating As Required)	1	17	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
7	Thimble, Clevis, Hendrix Catalog No. TC For Standard Duty Construction, Hendrix Catalog No. HDTC For Messenger on Heavy Duty Construction; Conductors Require Standard Duty Thimbles Only.	2	18	Pole, (Length And Class As Required)	1
			19	Cutouts, Fused	1
8	Guy Hook, Continental No. GA-56X, or Equal	As Req.	20	Terminators	1
9	Guy Strand, (Size And Type As Required)	As Req.	21	UD, Pole Riser Cable	As Req.
10	3-Bolt Clamp or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	As Req.	22	Conduit	As Req.
11	Eye Bolt, 5/8" x Required Length; For Heavy Duty Construction; a 3/4" Eyebolt shall be used for the Messenger	2	23	Lightning Arrester	1
			24	Insulated Leads	As Req.

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: SINGLE PHASE DEADEND WITH UNDERGROUND RISER				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-A5
Revision Date: 19/02/2020				

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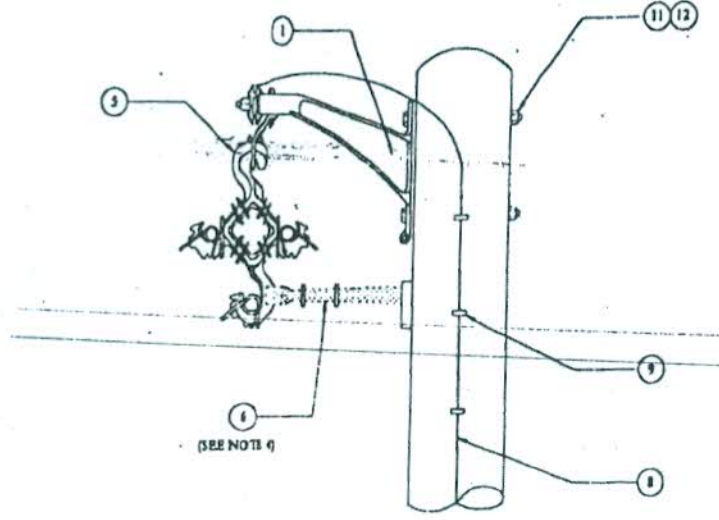
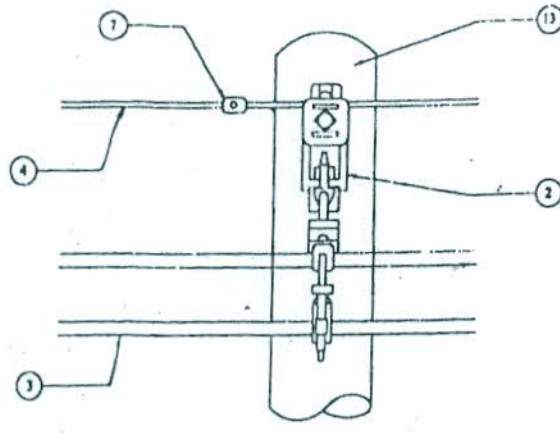
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Notes :

- 1) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb to 12000 lb maximum messenger tension.
- 2) Types, quantities and voltage ratings of materials, as well as clearances for various voltage classifications are to be in accordance with the National Electric Safety Code (NESC) and the user's standard construction practices.

Bill of Materials			Bill of Materials		
em No.	Description	Qty	Item No.	Description	Qty
1	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	11	Eye Bolt, 5/8" x Required Length; For Heavy Duty Construction; a 3/4" Eyebolt shall be used for the Messenger	2
2	Messenger, (Size And Type As Required)	As Req.	12	Square Washer, 2 1/4" x 2 1/4" x 3/16", Minimum	1
3	Preshaped Conductor Grip, Coated	1	13	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
4	Preshaped Messenger Grip	1	14	Ground Wire Staple, Copper Clad Or Galvanized	As Req.
5	Preshaped Guy Grip	As Req.	15	Grounding Assembly, (Type As Required, Not Shown)	1
6	Insulator, Polymer Dead-end Type	1	16	Connector, (Size And Type As Required)	As Req.
7	Thimble Clevis, hendrix Catalog No. TC. For Standard Duty Construction, Hendrix Catalog No. HDTC For Messenger on Heavy Duty Construction; Conductors Require Standard Duty Thimbles Only.	2	17	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	1
			18	Pole, (Length And Class As Required)	1
			19	Cutouts, Fused	1
8	Guy Hook, Continental No. GA-56X, or Equal	As Req.	20	Lightning Arrester	1
9	Guy Strand, (Size And Type As Required)	As Req.	21	Insulated Leads	As Req.
10	3-Bolt Clamp Or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	As Req.			

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: TYPICAL SINGLE PHASE TAP FROM BARE WIRE				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-A5-2
Revision Date: 19/02/2020				



১৭২ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

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Notes :

- 1.) Tangents are defined as line angles up to and including 6° for Hendrix Spacer Cable.
- 2.) Any horizontal load created by a minor angle should be guyed for proper construction.
- 3.) The TS-1 Stirrup should be bolted through the hole closest to the end of the tangent bracket, near the messenger clamp.
- 4.) The use of a BAS-14F Anti-Sway Bracket is recommended at transformer taps to minimize the stress on connections caused by movement of the circuit.
- 5.) Do not install the TS-1 Stirrup or make ground connections until the conductors are installed.

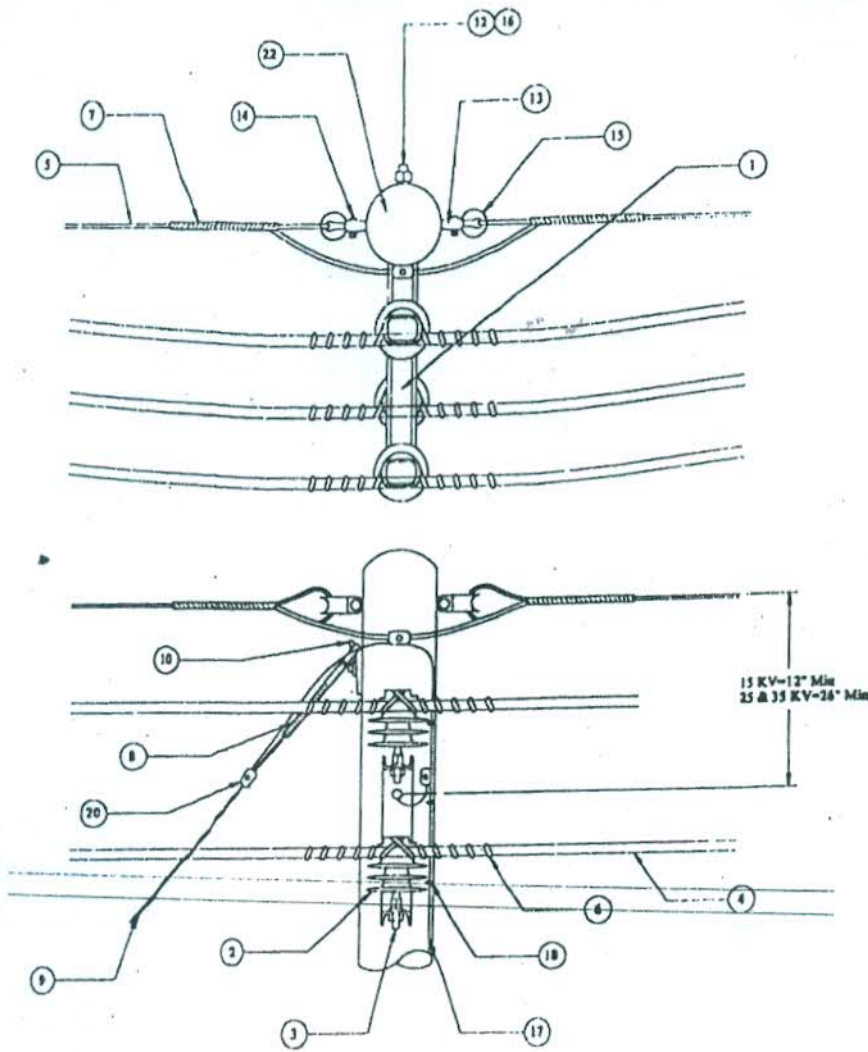
Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Messenger Bracket, Hendrix Type BM-14A	1	8	Ground Wire, Soft Drawn Copper, Solid, # 6 AWG Min.	As Req.
2	Stirrup, Hendrix Type TS-1, Supplied With 1/2" Bolt, Flat Washer And Self-Locking Nut.	1	9	Ground Wire, Staple Ground Clad or Galvanized	As Req.
3	Hendrix Ariel Cable (Size and Voltage Rating As Required)	As Req.	10	Grounding Assembly. (Type as required, not shown)	1
4	Messenger, (Size and Type As Required)	As Req.	11	Machine Bolt, 5/8" x Required Length	2
5	Hendrix Spacer With Ties, (Type As Required)	As Req.	12	Square Washer 2 1/4" x 2 1/4" x 3/16", Minimum	2
6	Anti-Sway Bar, Hendrix Type BAS-14F or Supplied with Plastic Bolt	1	13	Pole, (Length and Class as required)	1
7	Connector (size and Kind as required)	1			

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: TYPICAL THREE PHASE TANGENT CONSTRUCTION, 15 KV

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C1

Revision Date: 19/02/2020



Notes :

- 1.) Standard Duty Construction - 8000 lb maximum expected messenger for tension.
Heavy Duty Construction - 8000 lb 12000 lb maximum messenger tension.
- 2.) For standard duty construction, a 5/8" eye bolt and 5/8" eye nut can be used.

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Bill of Materials

Item No.	Description	Qty
1	Angle Bracket, Hendrix Type BA3-15 (15kV) or BA3-35 (25kV-46kV)	1
2	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25, or HPI-35	3
3	Insulator Pin, Hendrix Type SSP-2	3
4	Hendrix Aerial Cable, (Size And Voltage As Required)	As Req.
5	Messenger, (Size And Type As Required)	As Req.
6	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	3
7	Pre-shaped Messenger Grip	2
8	Pre-shaped Guy Grip	As Req.
9	Guy Standard, (Size And Type As Required)	As Req.
10	Guy Hook, Continental No. GA-56X, or Equal	As Req.
11	3-Bolt Guy Clamp or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	1

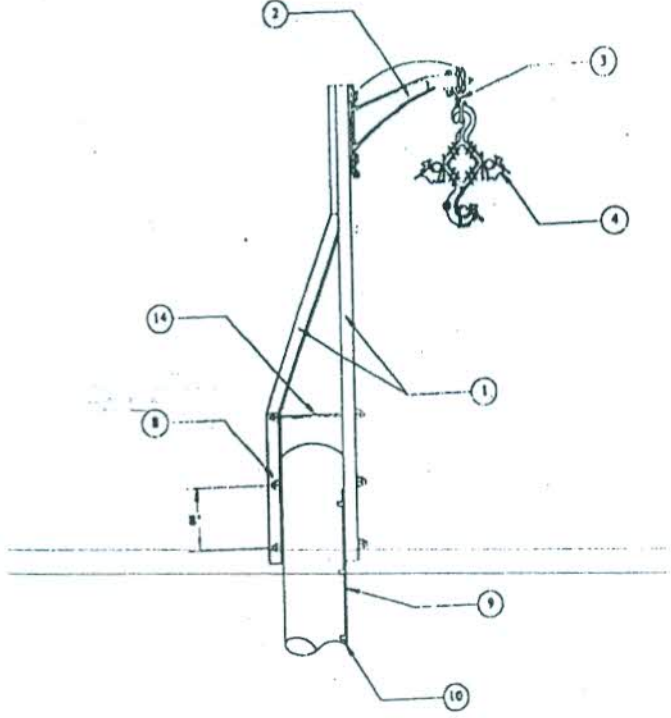
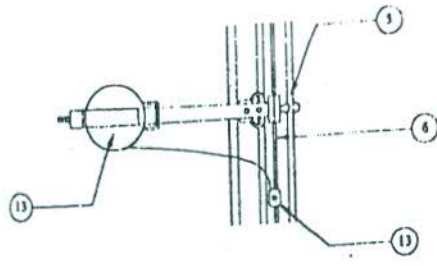
Bill of Materials

Item No.	Description	Qty
12	Machine Bolt, 5/8" x Required Length	2
13	Eye Bolt, 3/4" x Required Length	1
14	Eye Nut, Standard 5/8"	1
15	Thimble Clevis, Hendrix Catalog No. HDTC, Or Equal	2
16	Square Washer, 2 1/4" x 2 1/4" x 3/16", Minimum	5
17	Grounding Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
18	Ground Wire Staples, Copper Clad or Galvanized	As Req.
19	Grounding Assembly, (Type As Required, Not Shown)	1
20	Connector, (Size And Type As Required)	As Req.
21	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
22	Pole, (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE TANGENT CONSTRUCTION, MESSENGER DEADEND LONG SPAN

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C1-1
Revision Date : 19/02/2020				



৩২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০৩

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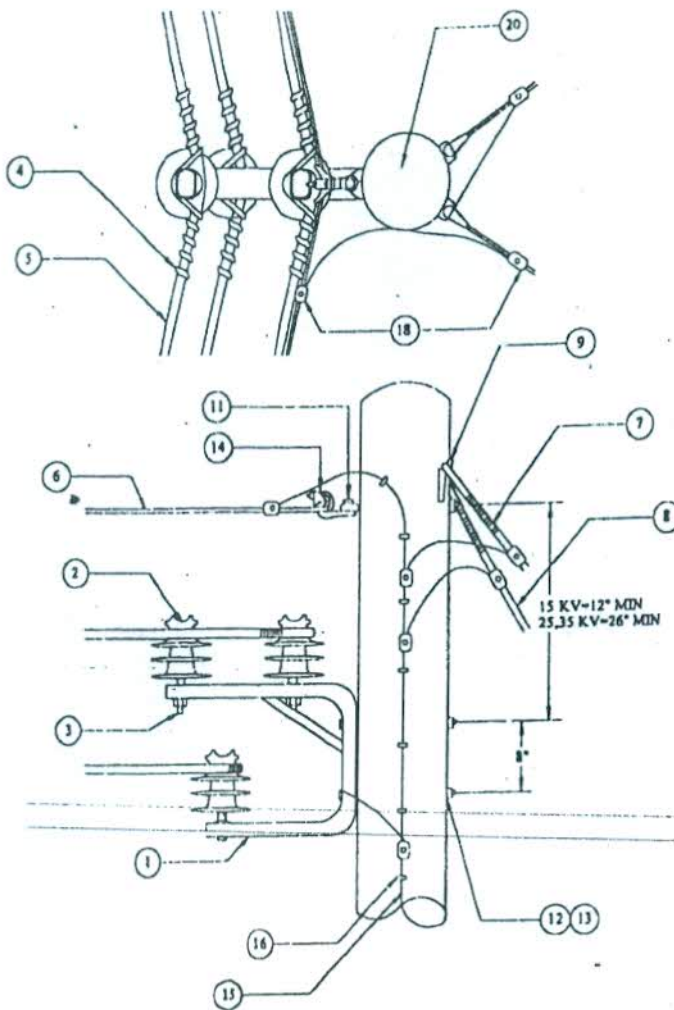
(Debasish Chakraborty)
PD, TAPP, BREB

Notes :

- 1) Tangents are defined as line angles up to and including 6° for Hendrix Spacer Cable.
- 2) Any horizontal load created by a minor angle should be guyed for proper construction
- 3) The TS-1 Stirrup should be bolted through the hole closest to the end of the tangent bracket, near the messenger clamp.
- 5) Do not install the TS-1 Stirrup or make ground connections until the conductors are installed.
- 6) For circuits up to and including 15 kV, the BM-14A Tangent Bracket is recommended. For circuits above 15kV, the BM-24A Tangent Bracket is recommended.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Pole Top Extension, Hendrix Type XPT-60 or XPT-75, Supplied with Two 5/8" x 2 1/2" Machine Bolts And Nuts	1	8	Machine Bolt, 5/8" x Required Length	As Req.
2	Messenger Bracket, Hendrix Type BM-14A (Alternate BM-24A)	1	9	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
3	Stirrup, Hendrix Type TS-1, Supplied With 1/2" Bolt, Flat Washer And Self-Locking Nut	3	10	Angle Clamp, Hendrix Catalog No. CMA-1	1
4	Hendrix Spacers With Ties, (Type As Required)	3	11	Grounding Assembly, (Type As Required, Not Shown)	2
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	12	Connector, (Size And Type As Required)	As Req.
6	Messenger, (Size And Type As Required)	As Req.	13	Pole, (Existing)	As Req.
			14	Double Arming Bolt, 5/8" x 12" (Supplied And Required With XPT-75 Extension Only)	1

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: THREE PHASE TANGENT CONSTRUCTION WITH POLE TOP EXTENSION				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C2
Revision Date: 19/02/2020				



Notes :

- 1.) Standard Duty Construction-8000 lb maximum expected messenger tension. For messenger tensions greater than 8000 lb, the messenger must be double dead-end.
- 2.) The use of Hendrix 2IP Plates is required on large angles and circuits with large conductors.

(Md. Ahsanul Haque)
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(Md. Abul Khaleque)
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(Md. Mozammel Haque)
Consultant TAPP RPF

(Md. Duhidul Islam)
Consultant TAPP BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

৩২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭.০০

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

(Debashish Chakrabarti)
PD, TAPP, BREB.

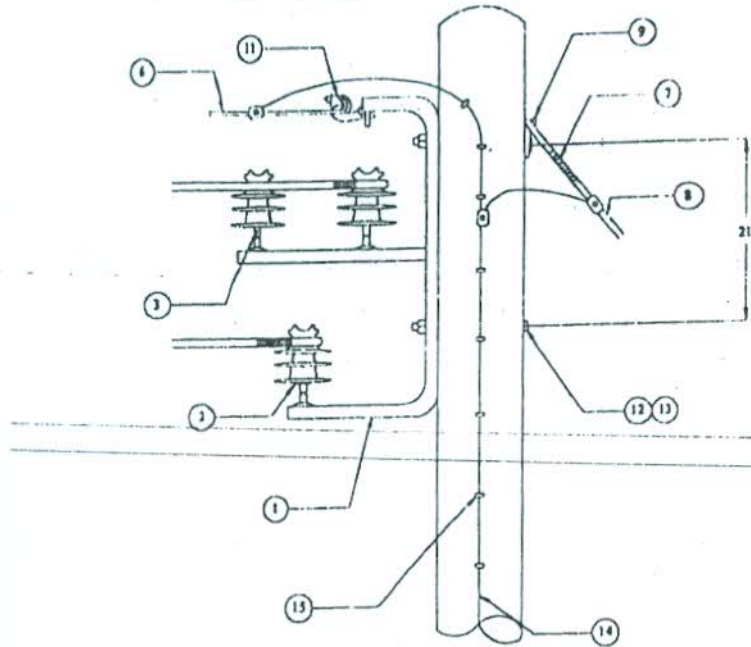
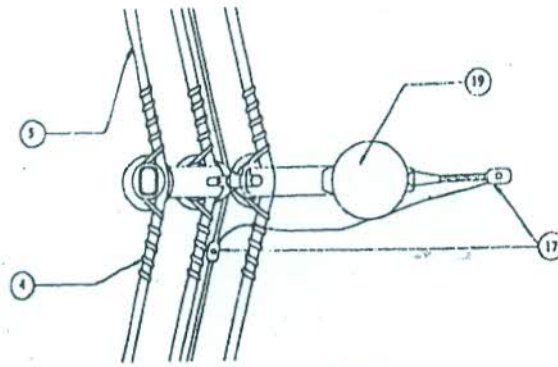
Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Angle Bracket, Hendrix Type BA3-15(15 KV) or BA3-35 (25 KV-46 KV)	1	11	Eye Bolt, 5/8" x Required Length For Standard Duty Construction 3/4" x Required Length For Heavy Duty Construction.	1
2	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25, or HPI-35	3	12	Machine Bolt, 5/8" x Required Length	2
3	Insulator Pin, Hendrix Type SSP-2	3	13	Square Washer 2 1/4" x 2 1/4" x 3/16", Minimum	3
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	3	14	Angle Clamp, Hendrix Catalog No. CMA-1	1
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	15	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
6	Messenger, (Size And Type As Required)	As Req.	16	Ground Wire Staple, Copper Clad or Galvanized	As Req.
7	Pre-shaped Guy Grip, (Size And Type As Required)	As Req.	17	Grounding Assembly, (Size And Type As Required, Not Shown)	1
8	Guy Strand, (Size And Type As Required)	As Req.	18	Connector, (Size And Type As Required)	As Req.
9	Guy Hook, Continental No. GA-56X, or Equal	As Req.	19	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
10	3-Bolt Guy Clamp or Automatic Type Dead-end. (Size And Kind As Required (Lower End of Guy, Not Shown))	As Req.	20	Pole, (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE 7° - 60° OUTSIDE ANGLE CONSTRUCTION USING BA3-15 or BA3-35

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C3

Revision Date: 19/02/2020



(Md. Abdul Khaleque)
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(Md. Mozammel Haq)
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Consultant TAPP BREB

(Md. Mozibur Rahman)
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(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
D. TAPP, BREB

(Md. Ahsanul Haque)
Consultant TAPP, BREB

Notes :

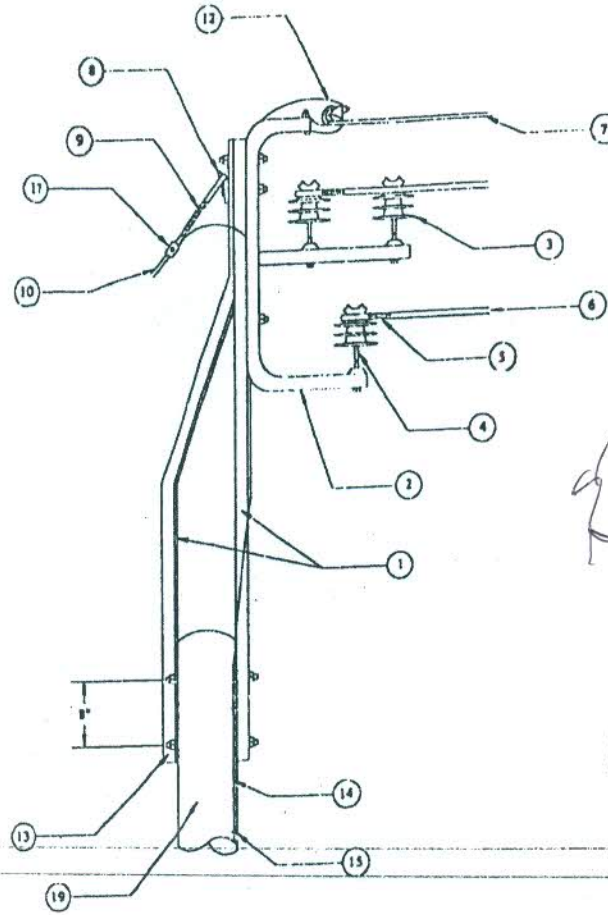
- 1.) The BA4-15 is designed for standard duty, Spacer Cable circuits through 15 kv, on angles up to a maximum of 60°
- 2.) Standard Duty Construction - 8000lb maximum expected messenger tension.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Angle Bracket, Hendrix Type BA3-15	1	10	3-Bolt Guy Clamp or Automatic Type Dead-end. (Size And Kind As Required (Lower End of Guy, Not Shown))	As Req.
2	Insulator, Pin Type, Hendrix Type HPI-15F	3	11	Angle Clamp, Hendrix Catalog No. CMA-1 or Equal	1
3	Insulator, Pin Type Hendrix Type HPI-15F	3	12	Machine Bolt, 5/8" x Required Length	2
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	3	13	Square Washer 2 1/4" x 2 1/4" x 3/16", Minimum	1
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	14	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
6	Messenger, (Size And Type As Required)	As Req.	15	Ground Wire Staple, Copper Clad or Galvanized	As Req.
7	Preshaped Type Guy Grip, (Size And Type As Required)	As Req.	16	Grounding Assembly, (Size And Type As Required, Not Shown)	1
8	Guy Strand, (Size And Type As Required)	As Req.	17	Connector, (Size And Type As Required)	As Req.
9	Guy Hook, Continental No. GA-56X, or Equal	As Req.	18	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
			19	Pole, (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE 7° - 60° OUTSIDE ANGEL CONSTRUCTION USING BA4-15

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C3-1
Revision Date: 19/02/2020				



(Md. Abul Khaleque)
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(Md. Mozammel Haq)
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(Md. Duhidul Islam)
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(Md. Mozibur Rahman)
Consultant TAPP BRER

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭৬০০

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

(Debasish Chakraborty)
PD, TAPP BRER

(Md. Ahsanul Haque)
Consultant TAPP BRER

Notes :

- 1) The BA4-15 is designed for standard duty, Spacer Cable Circuits through 15 kV, on angles up to a maximum of 60°
- 2) Standard Duty Construction - 8000 lb maximum expected messenger tension.

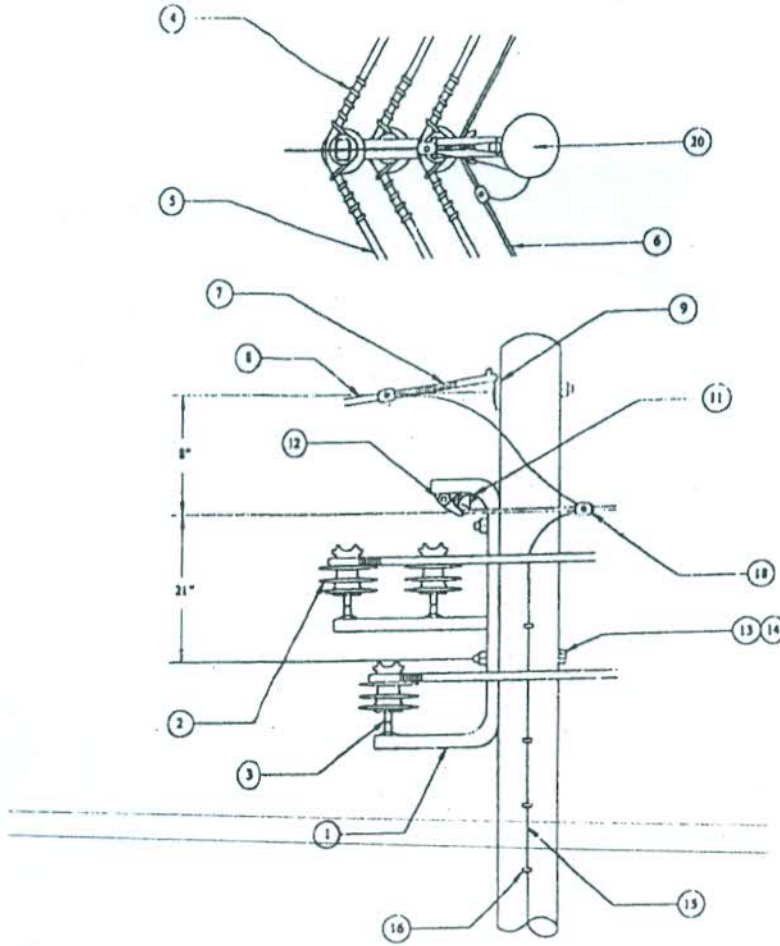
Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Pole Top Extension, Hendrix Type XPT-60 or XPT-75, Supplied with Two 5/8" x 2 1/2" Machine Bolts And Nuts	1	11	3-Bolt Clamp, Or Automatic Type Dead-end, Carriage Bolts, 3/8" x 4 1/2"	As Req.
2	Angle Bracket, hendrix Type BA4-15	1	12	Angle Clamp, Hendrix Catalog No. CMA-1	1
3	Insulator, Pin Type, hendrix Type HPI-15F	3	13	Machine Bolt, 5/8" x Required Length	2
4	Insulator Pin, Hendrix Type SSP-2	3	14	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
5	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	3	15	Ground Wire Staples, Copper Clad or Galvanized	As Req.
6	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	16	Grounding Assembly, (Size And Type As Required, Not Shown)	1
7	Messenger, (Size And Type As Required)	As Req.	17	Conneccto, (Size And Type As Required)	As Req.
8	Guy Attachment, Joslyn Type J6502, or Equal	As Req.	18	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
9	Guy Grip, Preform Or Automatic (Size And Type As Required)	1	19	Pole, Existing	1
10	Guy Strand, (Size And Type As Required)	As Req.			

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE 7° - 60° ANGEL CONSTRUCTION WITH POLE EXTENSION

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C3-2

Revision Date: 19/02/2020



Notes :

- 1) The BA4-15 is designed for standard duty, Spacer Cable circuits through 15 kv, on angles up to a maximum of 60°.
- 2) Standard Duty Construction - 8000 lb maximum expected messenger tension.
- 3) A stub pole and down guy are required to properly support this construction. A Pole brace (push guy) is an acceptable alternative guying method.

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Consultant TAPP BREB

৬২২ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

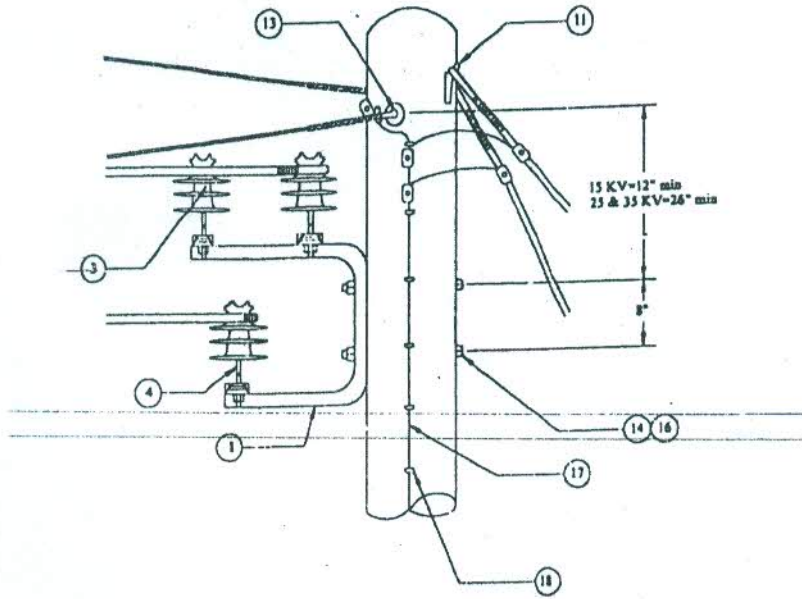
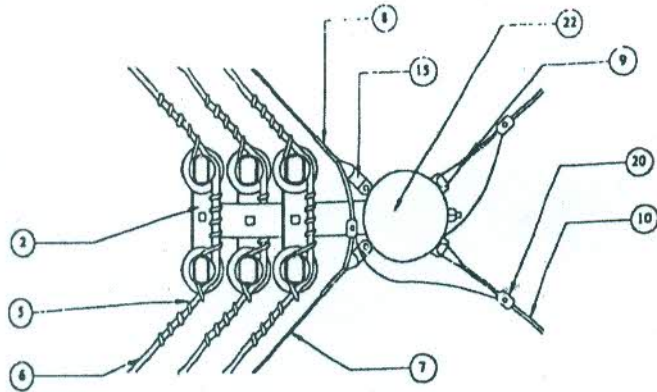
(Kamrul Ahsan Mollik)
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(Debasish Chakraborty)
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(Md. Ahsanul Haque)
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Bill of Materials			Bill of Materials		
cm No.	Description	Qty	Item No.	Description	Qty
1	Angle Bracket, Hendrix Type BA4-15	1	11	Angle Clamp, Hendrix Catalog No. CMA-1, Or Equal	1
2	Insulator, Pin Type, Hendrix Type HPI-15F	3	12	"U" Bolt, Hendrix Type UB	1
3	Insulator Pin, Hendrix Type SSP-2	3	13	Machine Bolt, 5/8" x Required Length	4
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	3	14	Square Washer, 2 1/4" x 2 1/4" x 3/16"	3
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	15	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
6	Messenger, (Size And Type As Required)	As Req.	16	Ground Wire Staples, Copper Clad or Galvanized	As Req.
7	Preshaped Type Guy Grip, (Size And Kind As Required)	2	17	Grounding Assembly, (Size And Type As Required, Not Shown)	1
8	Guy Strand, (Size And Type As Required)	As Req.	18	Connecto, (Size And Type As Required)	As Req.
9	Guy Hook, Continental No. GA-56X, or Equal	3	19	Anchor And Anchor Rod. (Size And Type As Required, Not Shown)	1
10	3-Bolt Guy Clamp or Automatic Type Dead-end, (Size And Kind As Required; Lower End of Guv. Not Shown)	2	20	Pole (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: THREE PHASE 7° - 60° INSIDE ANGEL CONSTRUCTION USING BA4-15				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C3-3
Revision Date: 19/02/2020				



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(Md. Mozibur Rahman)
Consultant TAPP BRRE

৬২২ ডাঃ মোঃ মাহমুদ হোসেন এম বি এ ১৯৭০
(Karnat Ahsan Molik)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
PD, TAPP, BREB.

(Md. Ahsanul Haque)
Consultant TAPP, BREB

Notes :

- 1.) Standard Duty Construction - 8000 Ib maximum expected messenger tension. Heavy Duty Construction - 8000 Ib to 12000 Ib maximum messenger tension.
- 2.) The use of Hendrix 2IP plates is required on large angles and circuits with large conductors.

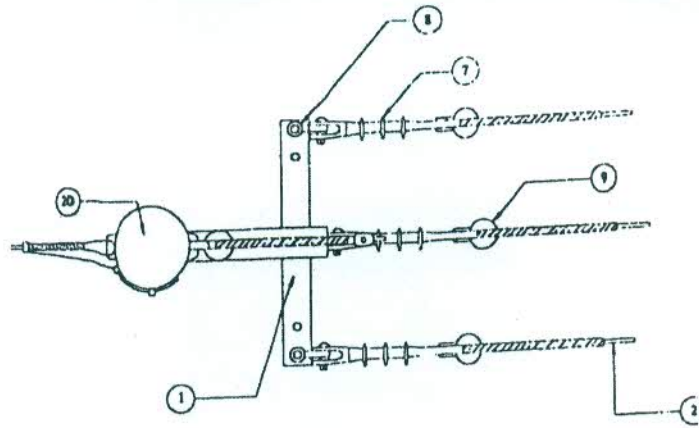
Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Angle Bracket, Hendrix Type BA3-15(15 KV) or BA3-35 (25 KV-46 KV)	1	12	3-Bolt Guy Clamp or Automatic Type Dead-end. (Size And Kind As Required (Lower End of Guy, Not Shown))	As Req.
2	Double Insulator Plate, Hendrix Type 2IP (Supplied with bolt and nut)	3	13	Eye Bolt, 5/8" x Required Length For Standard Construction 3/4" x Required Length For Heavy Duty Construction.	2
3	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25, or HPI-35	6	14	Machine Bolt, 5/8" x Required Length	2
4	Insulator Pin, Hendrix Type SSP-2	6	15	Thimble Clevis, Hendrix Catalog No. TC For Standard Construction, Hendrix Catalog No. HDTC for Heavy Duty Construction.	2
5	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drwn. Aluminum With .045" Thermoplastic Rubber, 6 to 1 ft. length	6	16	Square Washer 2 1/2" x 2 1/2" x 3/16", Minimum	4
6	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	17	Grounding Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
7	Messenger, (Size And Type As Required)	As Req.	18	Ground Wire Staple, Copper Clad or Galvanized	As Req.
8	Preshaped Messenger Grip	2	19	Grounding Assembly, (Type As Required, Not Shown)	1
9	Preshaped Guy Grip	As Req.	20	Connector, (Size And Type As Required)	As Req.
10	Guy Strand, (Size And Type As Required)	As Req.	21	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
11	Guy Hook, Continental No. GA-56X, or Equal	As Req.	22	Pole, (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD

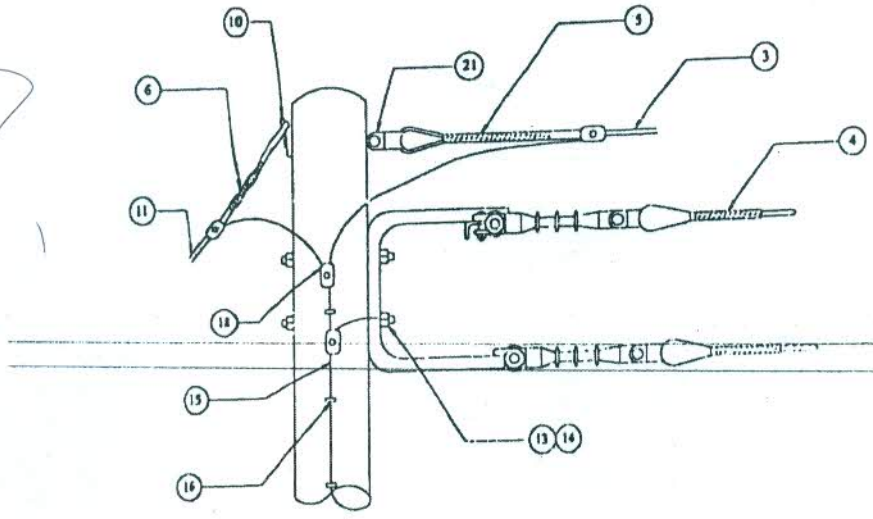
Unit Description: THREE PHASE 61° - 90° ANGEL CONSTRUCTION USING BA3-15, BA3-35 AND 2IP PLATES

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C4

Revision Date: 19/02/2020



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

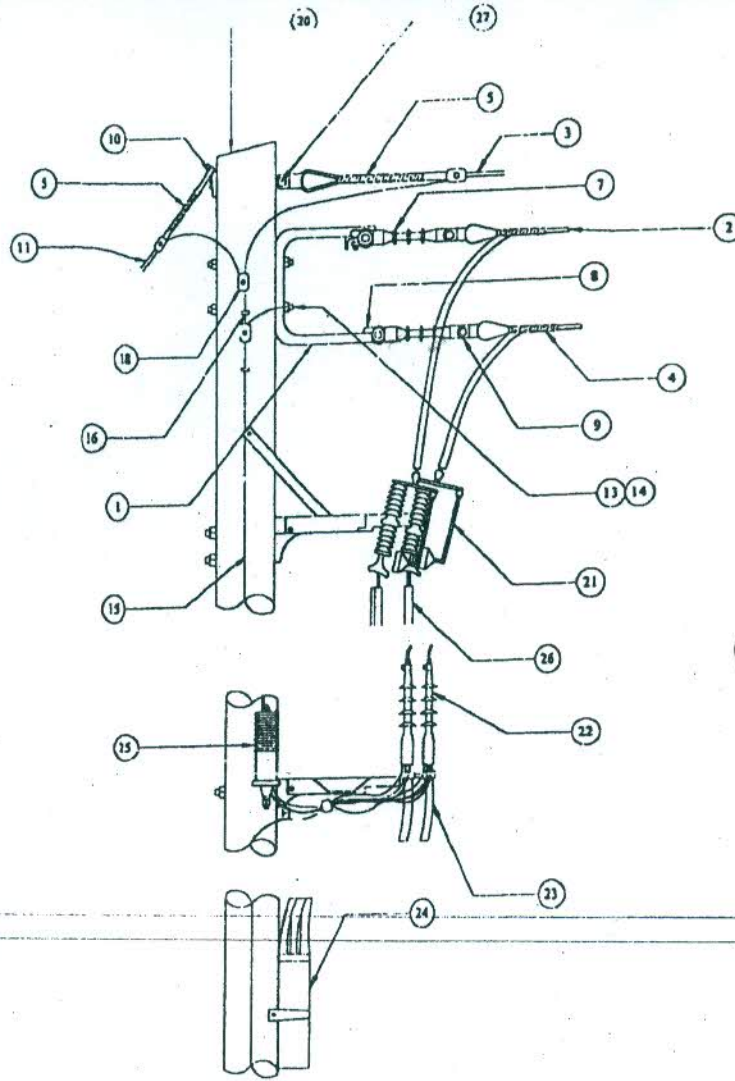
৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৯০
(Kamrul Ahsan Mohtak)
Asst. Secy. (Board), BREB.
(Debasish Chakraborty)
PD, TAPP, BREB.
(Md. Ahsanul Haque)
Consultant, TAPP, BREB

Notes :
1) Standard Duty Construction - 8000 Ib maximum expected messenger tension.
Heavy Duty Construction - 8000 Ib 12000 Ib maximum messenger tension.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Dead End Bracket, Hendrix Type BD-35	1	12	3-Bolt Clamp or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	As Req.
2	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	1	13	Machine Bolt, 5/8" x Required Length	2
3	Messenger, (Size And Type As Required)	As Req.	14	Square Washer 2 1/4" x 2 1/4" x 3/16", Min.	1
4	Preshaped Conductor Grip, Coated	As Req.	15	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
5	Preshaped Messenger Grip	2	16	Ground Wire Staples, Copper Clad or Galvanized	As Req.
6	Preshaped Guy Grip	6	17	Grounding Assembly, (Size And Type As Required, Not Shown)	1
7	Insulator, Polymer Dead-end Type	6	18	Connecto, (Size And Type As Required)	3
8	Shackle Clevis, Hendrix Catalog No. SC (Equiv. To Joslyn No. J2742)	6	19	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	1
9	Thimble Clevis, Hendrix Catalog No. TC for Standard Duty Construction, hendrix Catalog No. HDTC For Messenger On Heavy Duty Construction; Conductors Required Standard Duty. Thimbles Only.	6	20	Pole, (Length And Class As Required)	As Req.
10	Guy Hook, Continental No. GA-56X, or Equal	3	21	Eye Bolt, 5/8" x Required Length	1
11	Guy Strand, (Size And Type As Required)	3			

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: TYPICAL THREE PHASE DEADEND CONSTRUCTION, 15KV - 45 KV				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C5
Revision Date: 19/02/2020				

৩২১ তম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Md. Mozammel Haq)
Consultant, TAPP, BREB

(Md. Duhidul Islam)
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(Md. Mozibur Rahman)
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(Kannul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
D. TAPP, BREB.

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

Notes :

- Types, quantities and voltage ratings of materials as well as clearances for various voltage classifications are to be in accordance with the National Electric Safety Code (NESC) and the user's standard construction practices.

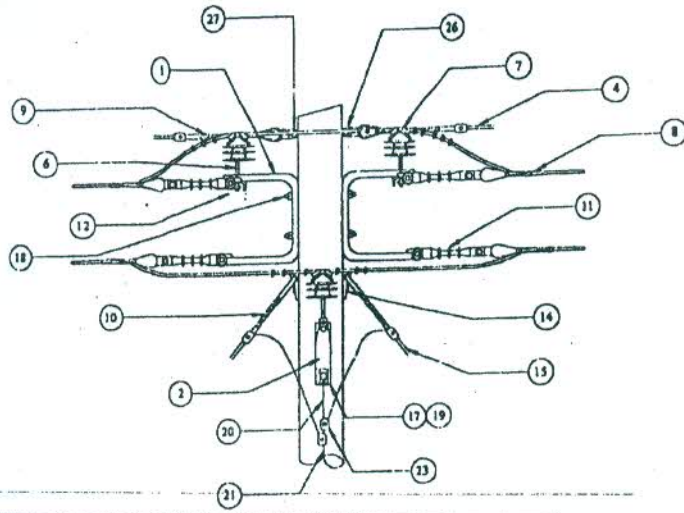
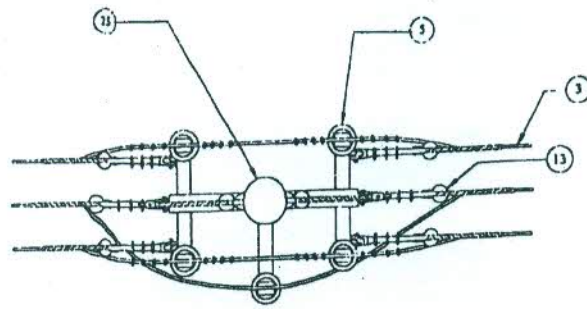
Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Dead End Bracket, Hendrix Type BD-35	1	14	Square Washer, 2 1/4" x 2 1/4" x 3/16", Min.	1
2	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	15	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
3	Messenger, (Size And Type As Required)	As Req.	16	Ground Wire Staples, Copper Clad or Galvanized	As Req.
4	Preshaped Conductor Grip, Coated	3	17	Grounding Assembly, (Size And Type As Required, Not Shown)	1
5	Preshaped Messenger Grip	1	18	Connecto, (Size And Type As Required)	3
6	Preshaped Guy Grip	As Req.	19	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	As Req.
7	Insulator, Polymer Dead-end Type	3	20	Pole, (Length And Class As Required)	1
8	Shackle Clevis, Hendrix Catalog No. SC (Equiv. To Joslyn No. J2742)	3	21	Cutouts, Fused	3
9	Thimble Clevis, Hendrix Catalog No. TC for Standard Duty Construction, hendrix Catalog No. HDTC For Messenger On Heavy Duty Construction; Conductors Required Standard Duty. Thimbles Only.	4	22	Terminators	3
10	Guy Hook, Continental No. GA-56X, or Equal	As Req.	23	UD, Pole Riser Cable	As Req.
11	Guy Strand, (Size And Type As Required)	As Req.	24	Conduit	As Req.
12	3-Bolt Clamp or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	As Req.	25	Lightning Arrestor	3
13	Machine Bolt, 5/8" x Required Length	2	26	Insulated Leads	As Req.
			27	Eye Bolt, 5/8" x Required Length	1

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE DEADEND CONSTRUCTION WITH UNDERGROUND RISER

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C5-1

Revision Date: 19/02/2020



Notes :

- 1) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb to 12000 lb maximum messenger tension.
- 2) For Heavy Duty Construction, the messenger should be dead-ended using a 3/4" eyebolt and HDTC Thimble Clevis.

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(Md. Mozammel Haq)
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Consultant TAPP BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৯০০

(Kamruddin Mollik)
Asst. Secy. (Board), BREB.

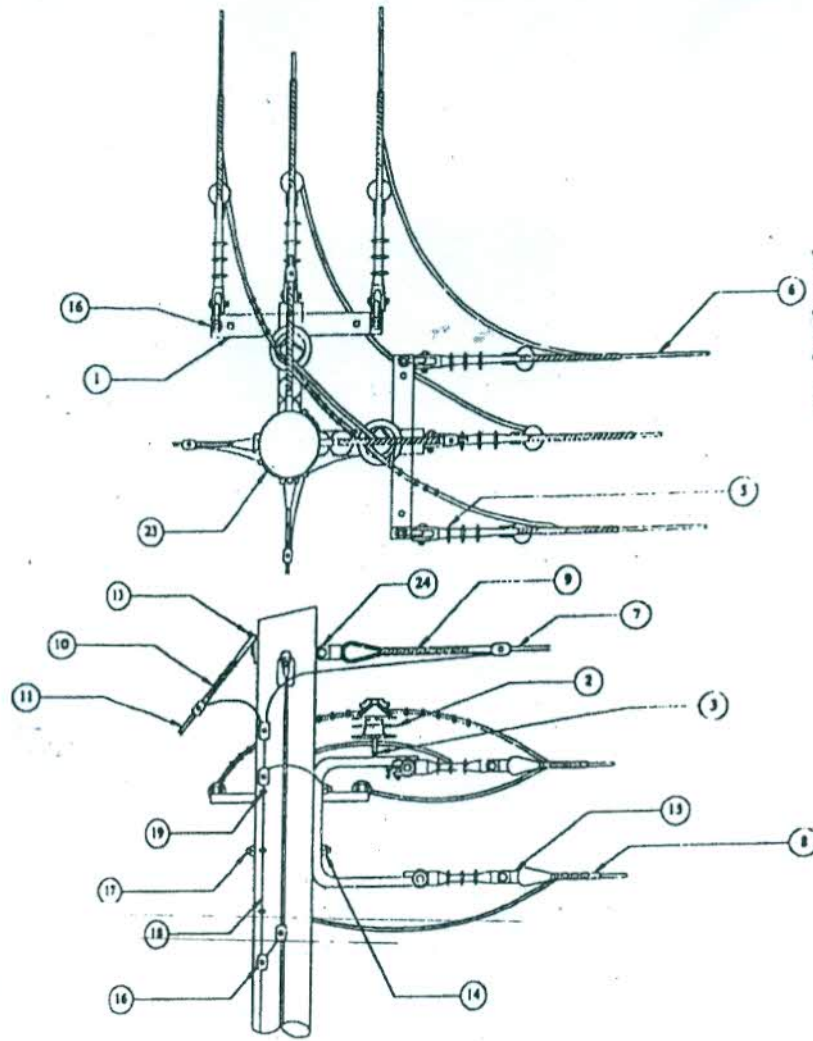
(Debashish Chakraborty)
Asst. Secy. (Board), BREB.

(Md. Ahsanul Haque)
Consultant TAPP BREB

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Dead End Bracket, Hendrix Type BD-35	2	15	Guy Strand, (Size And type As Required)	As Req.
2	Messenger Bracket, Hendrix Type BM-14A	1	16	3-Bolt Clamp or Automatic Type Dead-end (Size And Kind As Required; Lower End of Guy, Not Shown)	2
3	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	17	Machine Bolt, 5/8" x Required Length	3
4	Messenger, (Size And Type As Required)	As Req.	18	Double Arming Bolt, 5/8" x Required Length	2
5	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25, or HPI-35	5	19	Square Washer 2 1/4" x 2 1/4" x 3/16", Min.	4
6	Insulator Pin, Hendrix Type SSP-2	5	20	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
7	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	5	21	Ground Wire Staple, Copper Clad Or Galvanized	As Req.
8	Preshaped Conductor Grip, Coated	6	22	Grounding Assembly, (Type As Required, Not Shown)	1
9	Preshaped Messenger Grip	2	23	Connector, (Size And Type As Required)	As Req.
10	Preshaped Guy Grip	2	24	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	2
11	Insulator, Polymer Dead-end Type	6	25	Pole, (Length And Class As Required)	1
12	Shackle Clevis, hendrix Catalog No. SC	6	26	Eye Bolt, 5/8" x Required Length	1
13	Thimble Clevis, Hendrix Catalog No. TC For Standard Duty Construction, Hendrix Catalog No. HDTC For Messenger as Heavy Duty Construction; Conductors Use TC Thimble Clevis Only	8	27	Eye Nut, 5/8"	1
14	Guy Hook, Continental No. GA-56X, or Equal	2			

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: THREE PHASE TANGENT, DOUBLE DEADEND CONSTRUCTION				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C8
Revision Date: 19/02/2020				

৩১ তম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



Notes :

- 1.) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb 12000 lb maximum messenger tension.
- 2.) For heavy duty construction, the messenger should be dead-ended on the pole, above the tangent bracket, using a 3/4" eyebolt and HDTC Thimble Clevis.

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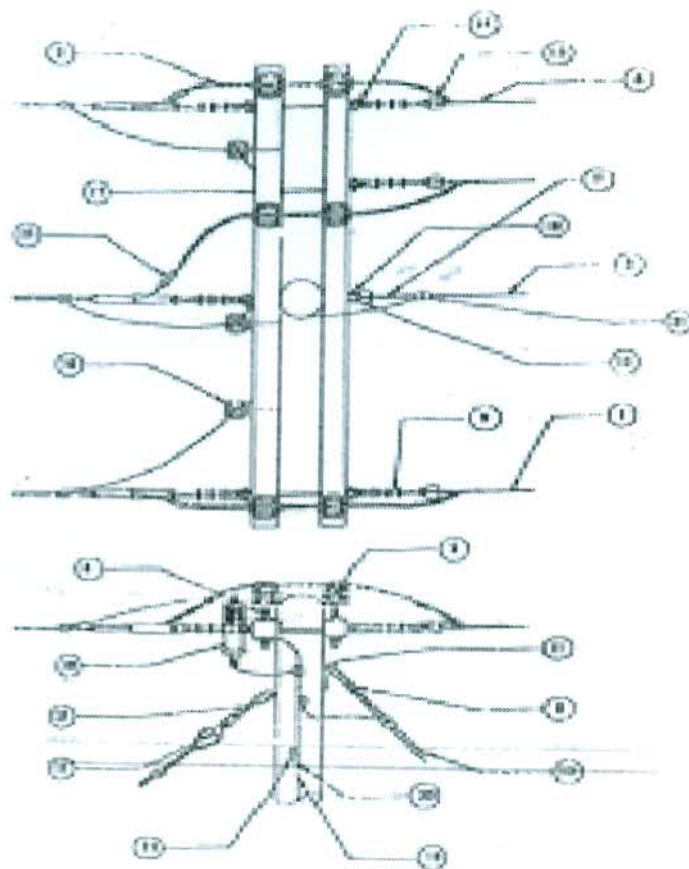
Bill of Materials			Bill of Materials		
cm No.	Description	Qty	Item No.	Description	Qty
1	Dead-end Bracket, Hendrix Type BD-35	2	13	Guy Hook, Continental No. GA-56X, or Equal	2
2	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25, or HP-35	2	14	Machine Bolt, 5/8" x Required Length	4
3	Insulator Pin, Hendrix Type SSP-2	2	15	Thimble Clevis, Hendrix Catalog No. TC For Standard Duty Construction, Hendrix Catalog No. HDTC For Messenger on Heavy Duty Construction, Conductors use Standard Duty Thimbles	8
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	2			3
5	Insulator, Polymer Dead-end Type	6	16	Shackle Clevis, Hendrix Catalog No. SC	6
6	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	17	Square Washer, 2 1/4" x 2 1/4" x 3/16", Min	2
7	Messenger, (Size And Type As Required)	As Req.	18	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
8	Pre-shaped Conductor Grip, Coated	6	19	Ground Wire Staples, Copper Clad or Galvanized	As Req.
9	Pre-shaped Type Messenger Grip	2	20	Grounding Assembly, (Size And Type As Required, Not Shown)	1
10	Pre-shaped Guy Grip	2	21	Connectors, (Size And Type As Required)	As Req.
11	Guy Strand, (Size And Type As Required)	As Req.	21	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	2
12	3-Bolt Clamp or Automatic Type Dead-end (Size And Type As Required; Lower End of Guy, Not Shown)	2	23	Pole, (Length And Class As Required)	1
			24	Eye Bolt, 5/8" x Required Length	1

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE DOUBLE DEADEND ANGLE CONSTRUCTION, 15KV – 45KV

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C8-1
Revision Date: 19/02/2020				

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৬২১ তম বোর্ড সভায় অনুমোদিত নিকট নং ১৭১০০

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Notes :

- 1.) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb-12000 lb maximum expected messenger tension.
- 2.) Types, quantities and voltage ratings of materials as well as clearances for various voltage classifications are to be in accordance with the National Electric Safety Code (NESC) and the user's standard construction practices.
- 3.) Material list does not include materials for the open wire circuit dead-end.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Bondix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	13	Thimble Clevis, Bondix Catalog No. TC For Standard Construction;	
	Messenger, (Size And Type As Required)	As Req.		Bondix Catalog No. HDTC or Equal For Messenger On Heavy	4
2	Insulator, Pin Type, Bondix Type: NPS-11F, NPS-11, or NPS-23	6	14	Eye Nut, Standard 3/4"	4
3	Insulator Pin, Long Shank, Bondix Catalog No. LSP-1, (Spec. or Insulec No. 1587)	6	15	Double Acting Bolt, 5/8" x Required Length	3
4	Bondix Covered Tie Wire, #4 AWG Solid Soft Drawn	6	16	Square Washer 3/4" x 3/4" x 3/16", Minimum	6
5	Messenger With #15" Tetracyclic Rubber 8 to 10" length	6	17	3-Bolt Guy Clamp or Automatic Type Dead-end, (Size And Kind As Required) (Lower End of Guy, Not Shown)	As Req.
6	Preformed Conductor Grip, Coated	3	18	Grounding Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
7	Preformed Messenger Grip	1	19	Ground Wire Staple, Copper Clad or Galvanized	As Req.
8	Preformed Guy Grip	As Req.	20	Connector, (Size And Type As Required)	As Req.
9	Insulator, Polymer Dead-end Type	3	21	Grounding Assembly, (Type As Required, Not Shown)	1
10	Lighting Accessory With Mounting Bracket, (Type And Voltage Rating As Required)	3	22	Fiberglass Glass Insulator, Conventional No. GOC21-24R, Or Equal (Optional)	1
11	Guy Shank, Conventional No. GA-36C, or Equal	As Req.	23	Anchor And Anchor Bolts, (Size And Type As Required, Not Shown)	As Req.
12	Guy Strand, (Size And Type As Required)	As Req.			

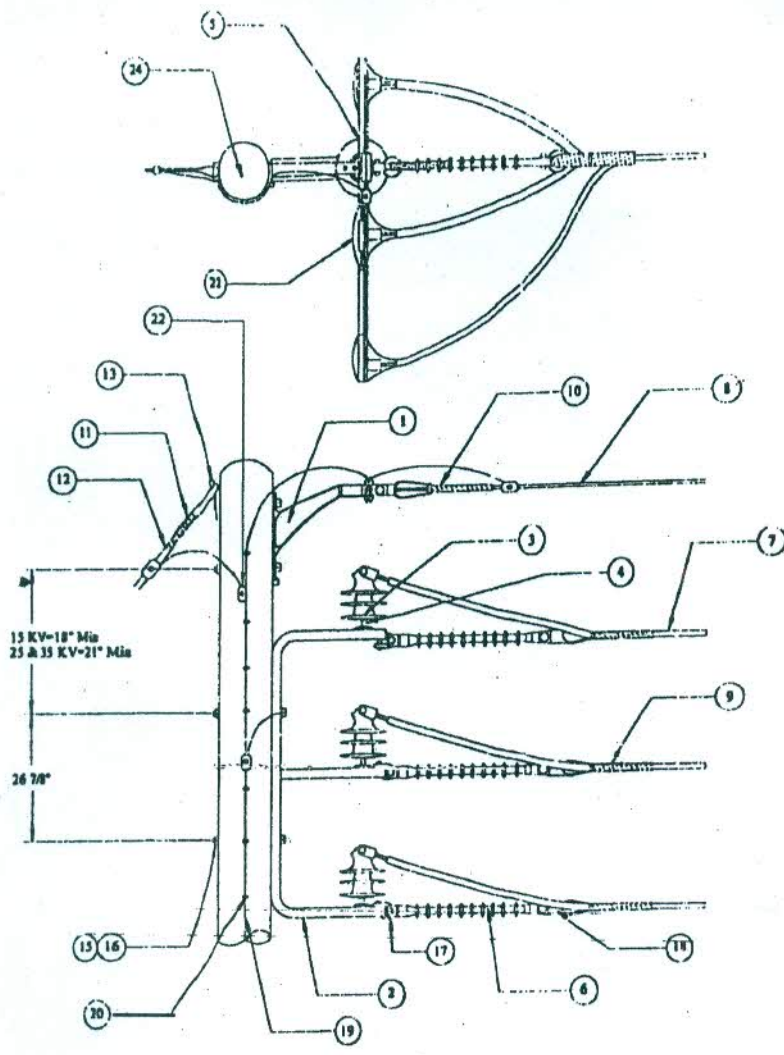
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE CROSS-ARM DEAD-END TRANSITION, SPACER CABLE TO BARE WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C8-2

Revision Date: 19/02/2020

বিস্তারিত বিবরণী পৃষ্ঠা নং ১১৭০০



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Notes :

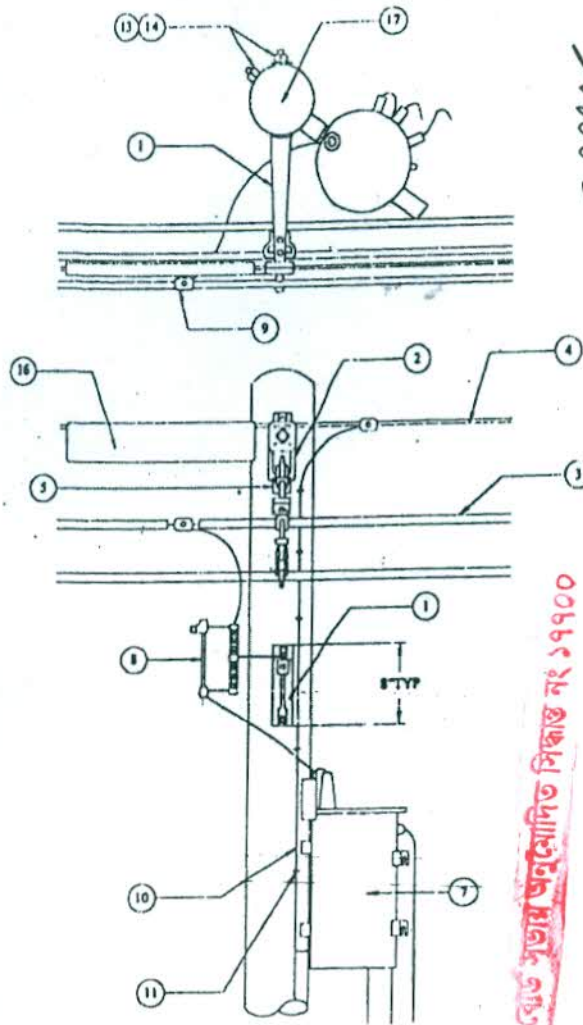
- 1.) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb 12000 lb maximum messenger tension.
- 2) For heavy duty construction, the messenger should be dead-ended on the pole, above the tangent bracket, using a 3/4" eyebolt and HDTC Thimble Clevis.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Messenger Bracket, Hendrix Type BM-14A (15 kV) or BM-24A (25kV-46kV)	1	13	Guy Hook, Continental No. GA-56X, or Equal	1
2	Vertical Tap Bracket, hendri Type BV-35	1	14	3-Bolt Clamp or Automatic Type Dead-end (Size And Type As Required; Lower End of Guy, Not Shown)	As Req.
3	Insulator, Pin Type, Hendrix HPI-15, HPI-25 or HPI-35	3	15	Machine Bolt, 5/8" x Required Length	4
4	Insulator Pin, Hendrix SSP-2	3	16	Square Washer, 2 1/4" x 2 1/4" x 3/16", Min	3
5	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminium With .045" Thermoplastic Rubber, 6 w 8 ft. length	3	17	Shackle Clevis, Hendrix Catalog No. SC	4
6	Insulator, Polymer Dead-end Type	3	18	Thimble Clevis, hendrix Catalog No. TC	As Req.
7	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	19	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
8	Messenger, (Size And Type As Required)	As Req.	20	Ground Wire Staples, Copper Clad or Galvanized	1
9	Preshaped Conductor Grip, Coated	3	21	Grounding Assembly, (Size And Type As Required, Not Shown)	As Req.
10	Preshaped Messenger Grip	1	22	Connectors, (Size And Type As Required)	1
11	Preshaped Guy Grip	As Req.	23	Pole, (Length And Class As Required)	1
12	Guy Strand. (Size And Type As Required)	As Req.	24	Pole, (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE LATERAL TAP CONSTRUCTION USING BV-35

Date of Origin	Reviewed by	Approved by	Revision No.
25/11/2002	BREB	BREB	1
Revision Date: 19/02/2020			Unit Designation
			SC-C25



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১১১৩৭ নম্বর জাতীয় অর্থসচিবালয় সিকিউর নং ১৭৭০০

Notes :

- 1.) Type, quantities and voltage ratings of materials as well as clearances for various voltage classifications are to be in accordance with the National Electric Safety Code (NESC) and the user's standard construction practices.
- 2.) Refer to drawing numbers C1 (SC) or T1 (SC) for typical tangent construction details.

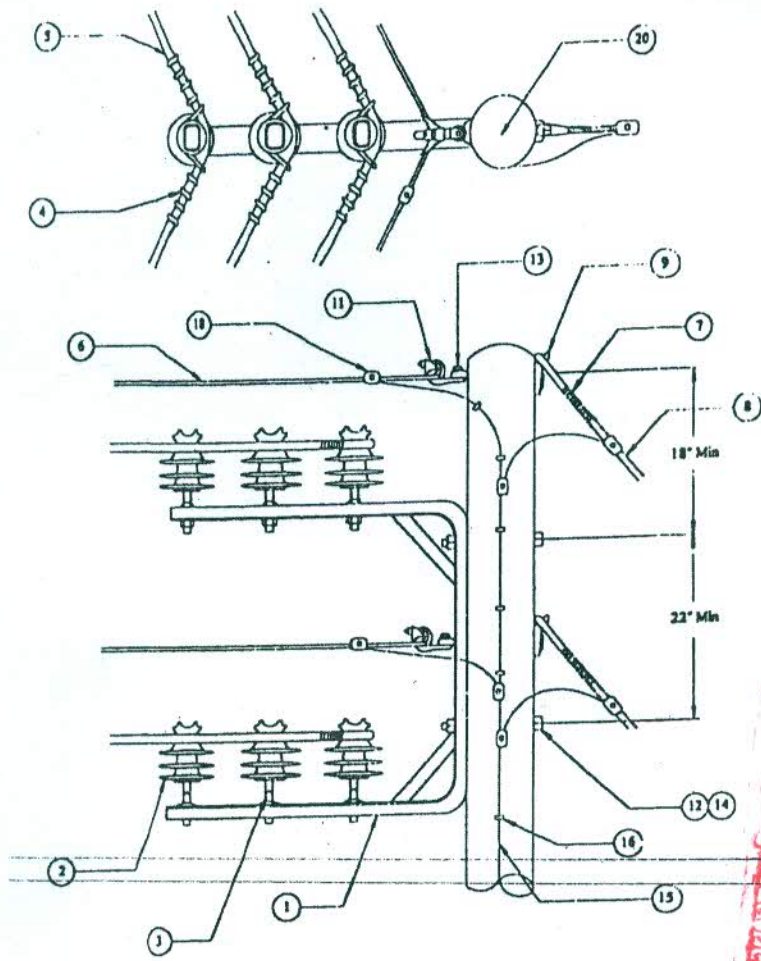
Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Messenger Bracket, Hendrix Type BM-14A or BM-24A	2	10	Ground Wire, Soft Drawn Copper, Solid, # 6 AWG Minimum	As Req.
2	Stirrup, Hendrix Type TS-1, Supplied With 1/2" Bolt, Flat Washer And Self-Locking Nut.	1	11	Ground Wire, Staple Copper Clad or Galvanized	As Req.
3	Hendrix Aerial Cable (Size and Voltage Rating As Required)	As Req.	12	Grounding Assembly, (Size and type as required, not shown)	1
4	Messenger, (Size and Type As Required)	As Req.	13	Machine Bolt, 5/8" x Required Length	6
5	Hendrix Spacer With Ties, (Type As Required)	1	14	Square Washer 2 1/4" x 2 1/4" x 3/16", Minimum	6
6	Anti-Sway Bar, Hendrix Type Bas-14F or BAS-14F (Not Shown)	1	15	Lag Fetter Drive, 1/2" x 4" (Not Shown)	1
7	Transformer, Single Phase, Type SP, (KVA and Voltage Ratings Required)	1	16	Hendrix LINE-DUC With Metallic Tie	2 Fl
8	Fused Cut-out, (Type and Kind As Required)	1	17	Pole, (Length and Class as required)	1
9	Connector (size and type as required)	As Req.			

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE TRANSFORMER TAP POLE CONSTRUCTION

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-C25-1

Revision Date: 19/02/2020



Notes :

- 1) Standard Duty Construction - 8000 lb maximum expected messenger tension. For messenger tensions greater than 8000 lb, the messenger must be double dead-ended
- 2) The use of Hendrix 2IP Plates is required on large angles and circuits with large conductors.

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Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Angle Bracket, Hendrix Type BA6-15	1	11	Angle Clamp, Hendrix Catalog No. CMA-1, Or Equal	2
2	Insulator, Pin Type, Hendrix Type HPI-15F, HPI-25, or HPI-35	6	12	Machine Bolt, 5/8" x Required Length	2
3	Insulator Pin, Hendrix Type SSP-2	6	13	Eye Bolt, 5/8" x Required Length For Standard Duty Construction; 3/4" x Required Length For Heavy Duty Construction	2
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminum With .045" Thermoplastic Rubber, 6 to 8 ft. length	6	14	Square Washer, 2 1/4" x 2 1/4" x 3/16"	3
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	15	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
6	Messenger, (Size And Type As Required)	As Req.	16	Ground Wire Staples, Copper Clad or Galvanized	As Req.
7	Prehaped Type Guy Grip, (Size And Kind As Required)	As Req.	17	Grounding Assembly, (Size And Type As Required, Not Shown)	1
8	Guy Strand, (Size And Type As Required)	As Req.	18	Connecto, (Size And Type As Required)	As Req.
9	Guy Hook, Continental No. GA-56X, or Equal	As Req.	19	Anchor And Anchor Rod. (Size And Type As Required, Not Shown)	As Req.
10	3-Bolt Guy Clamp or Automatic Type Dead-end, (Size And Kind As Required; Lower End of Guy, Not Shown)	As Req.	20	Pole (Length And Class As Required)	1

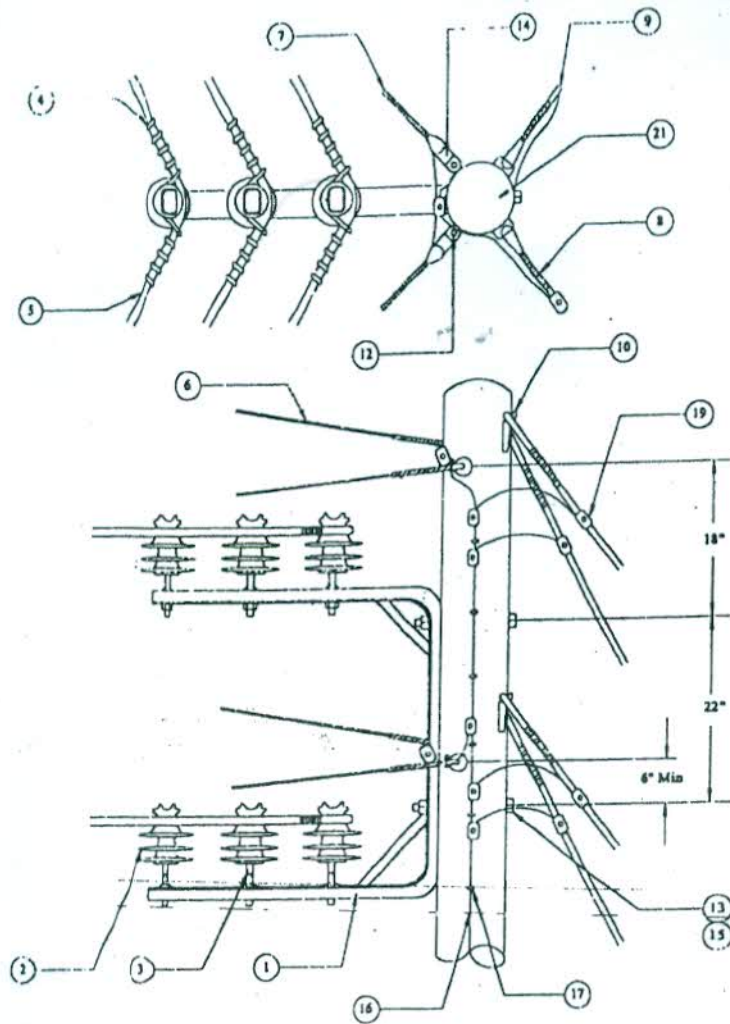
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE DOUBLE CIRCUIT 70 - 60° ANGLE CONSTRUCTION USING BA6-15

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-DCC3

Revision Date: 19/02/2020

৬২১ তম বোর্ড সভার অনুমোদিত নিকট নং ১৭৭০০



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Notes :

- 1) Standard Duty Construction - 8000 lb maximum expected messenger tension.
Heavy Duty Construction - 8000 lb to 12000 lb maximum messenger tension.
- 2) The use of Hendrix 2IP Plates is required on large angles and circuits with large conductors.
- 3) The BA6-15 is designed for circuit voltages through 46kV with line angles up to and including 60°. For circuits above 15kV, with line angles from 61-90°, two single circuit angle brackets should be used.

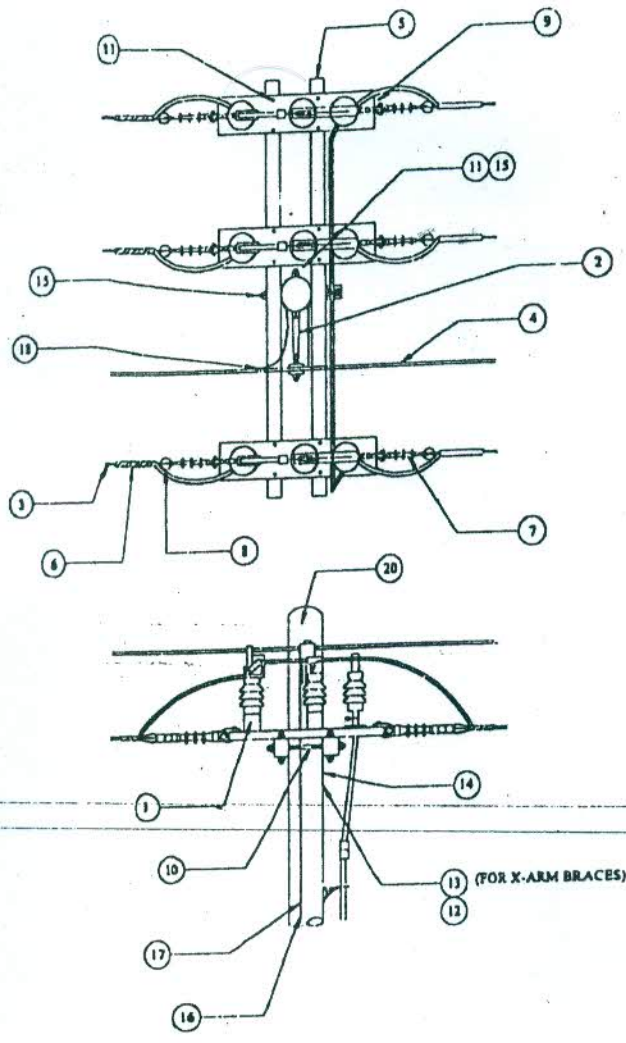
Bill of Materials			Bill of Materials		
cm No.	Description	Qty	Item No.	Description	Qty
1	Angle Bracket, Hendrix Type BA6-15	1	12	Eye Bolt, 5/8" x Required Length For Standard Duty Construction; 3/4" x Required Length For Heavy Duty Construction	2
2	Insulator, Pin Type, Hendrix Type HPI-15F	6	13	Machine Bolt, 5/8" x Required Length	
3	Insulator Pin, Hendrix Type SSP-2	6	14	Thimble Clevis, hendrix Catalog No. TC For Standard Duty Construction; Hendrix Catalog No. HDTC For Heavy Duty Construction.	
4	Hendrix Covered Tie Wire, #4 AWG Solid Soft Drawn Aluminium With .045" Thermoplastic Rubber, 6 to 8 ft. length	6	15	Square Washer, 2 1/4" x 2 1/4" x 3/16"	As Req.
5	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	16	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
6	Messenger, (Size And Type As Required)	As Req.	17	Ground Wire Staple, Copper Clad or Galvanized	1
7	Preshaped Type Guy Grip, (Size And Kind As Required)	4	18	Grounding Assembly, (Type As Required, Not Shown)	As Req.
8	Preshaped Guy Grip	4	19	Connector, (Size And Type As Required)	As Req.
9	Guy Strand, (Size And Type As Required)	As Req.	20	Anchor And Anchor Rod, (Size And Type As Required, Not Shown)	1
10	Guy Hook, Continental No. GA-56X, or Equal	4	21	Pole (Length And Class As Required)	
11	3-Bolt Guy Clamp or Automatic Type Dead-end, (Size And Kind As Required; Lower End of Guy, Not Shown)	4			

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: THREE PHASE DOUBLE CIRCUIT 61° - 90° ANGLE CONSTRUCTION USING BA6-15

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-DCC4

Revision Date: 19/02/2020



১১১ তম কোর্ড সভায় অনুমোদিত নিন্মে ৯১৯০০

(Md. Abdul Khaleque)
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Notes :

1) Types, quantities and voltage ratings of materials as well as clearances for various voltage classifications are to be in accordance with the National Electric Safety Code (NESC) and the user's standard construction practices.

Bill of Materials			Bill of Materials		
Item No.	Description	Qty	Item No.	Description	Qty
1	Switch, Air Break, Group Operated (Top Mounted or Underhung)	1	11	Machine Bolts, 5/8" x Required Length	14
2	Messenger Bracket, hendrix Type BM-14A	1	12	Carriage Bolts, 3/8" x 4 1/2"	4
3	Hendrix Aerial Cable, (Size And Voltage Rating As Required)	As Req.	13	Leg, Fetter Drive, 1/2" x 4 1/2"	2
4	Messenger, (Size And Type As Required)	As Req.	14	Cross Arm Brace, 1/4" x 1 1/4" x 28"	4
5	Cross Arm, Fir, 3 1/2" x 4 1/2" x Required Length	2	15	Square Washer, 2 1/4" x 2 1/4" x 3/16"	24
6	Preshaped Conductor Grip, Coated	6	16	Ground Wire, Soft Drawn Copper, Solid, #6 AWG Min.	As Req.
7	Insulator, Polymer Dead-end Type	6	17	Ground Wire Staples, Copper Clad or Galvanized	As Req.
8	Thimble Clevis, Hendrix Catalog No. TC	6	18	Connecto, (Size And Type As Required)	As Req.
9	Thimble Clevis, hendrix Catalog No. SC	6	19	Grounding Assembly, (Size And Type As Required, Not Shown)	1
10	Double Arming Bolts, 5/8" x Required Length	3	20	Pole, (Length And Class As Required)	1

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: THREE PHASE SECTIONALIZAIING SWITCH CONSTRUCTION				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
25/11/2002	BREB	BREB	1	SC-M3-15
Revision Date: 19/02/2020				