

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR 33 KV

S.No	DESCRIPTION		33 KV
1	Type/Installation	:	"DB" Double Break - OUTDOOR
2	Manufacturer's Name and country of manufacture	:	GR POWER SWITCHGEAR LTD.,
3	Standards according to which the isolators are manufactured.	:	IS : 9921 Part I to V.
4	Maximum design voltage at which the isolator can operate (kV).	:	36 KV
5	Frequency (Hz)	:	50 Hz
6	Rated voltage (kV)	:	33 KV
7	Maximum current that can be safely interrupted by the Isolator inductive (A & % PF) Capacitive (A & % PF)	:	0.7 Amps at 0.15 p.f.
8	Continuous current rating normal (Amps) under site conditions (Amps).	:	630/800/1250/1600/2000 Amps
9	Rated short time current		<u>MAIN SWITCH/ EARTH SWITCH</u>
	i) For 3 Seconds (kA rms)	:	25 KA rms
	ii) For 1 Second (kA rms)	:	Not Applicable
	iii) Rated peak short time current (KV P)	:	62.5 KA rms
10	Current density at the minimum cross section of		
	a) Moving blade (Amps/Sq.mm)	:	2.0 Amps/Sq.mm for HDE Cu. Tube
	b) Terminal pad	:	1.0 Amp/Sq.mm for EC grade Alu. Flat.
	c) Contacts	:	1.6 Amps/Sq.mm for HDE Cu. Flat.
	d) Terminal connector	:	1.0 Amps/Sq.mm for Alu. Alloy.
11	Maximum temperature rise of current carrying parts when carrying rated current continuously (Deg.C).	:	Within the specified limits of IS - 9921 Part II.
12	Derating factor for specified site conditions	:	Unity
13	Insulation levels		
	i) Impulse withstand voltage (kV Peak) Phase to Earth Isolating Distance.	:	170/195 KV Peak
	ii) Switching surge withstand voltage (kV Peak) Phase to Earth isolating distance.	:	Not applicable

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	iii) Power Frequency withstand voltage (kV rms) Phase to Earth isolating distance.	:	70/80 KV rms
14	Minimum clearance in air		
	i) Between poles (mm)	:	1000 mm for a phase spacing of 1300 mm
	ii) Between live parts and earth (mm)	:	450 mm
	iii) Between live parts when switch is open.		
	a) On the same pole (mm)	:	715 mm
	b) Between adjacent poles (mm)	:	1050 mm
15	Rated mechanical terminal load		
	i) Load along the terminal connector side (Kg).	:	Not Applicable as per IS
	ii) Load across the terminal connector side (Kg).	:	Not Applicable as per IS
16	Torque required to operate the switch in Kg.m.	:	36 Kg m
17	Contact Zone		
	i) Horizontal deflection (mm)		
	ii) Vertical deflection (mm)	:	Not applicable
	iii) Total amplitude of longitudinal movement w.r.t conductor supporting fixed contact		
18	Design and construction		
	i) No. of insulators per pole	:	Three
	ii) No. of breaks per pole	:	Two
	iii) Type of closing / opening mechanism (Horizontal / vertical break straight etc.).	:	Horizontal break for Isolator
	iv. Contacts		
	a) Material and grade	:	Hard Drawn Electrolytic Copper flat, silver plated of 10 to 15 micron thickness.
	b) Cross-sectional area (Sq.mm)	:	400 Sq.mm for 630A 512 Sq.mm for 800A 780 Sq.mm for 1250A 1000 Sq.mm for 1600A 1300 Sq.mm for 2000A
	v Moving blades		
	a) Material and grade	:	Hard Drawn Electrolytic Copper tube, silver plated of 10 to 15 micron thickness.

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	b) Cross-sectional area (Sq.mm)	: 330 Sq.mm for 630A 427 Sq.mm for 800A 643 Sq.mm for 1250A 855 Sq.mm for 1600A 1028 Sq.mm for 2000A
vi)	Contact support	
	a) Material and size of channel / block.	: 6 mm Thick MS HDG
	b) Material and size of plate	: 6mm thick MS HDG Plate
vii)	Rain hood-material grade and size	: N.A
viii)	Banging Type mechanism	
	a) Material and size of clamps	: 6 mm thick M.S. Flat - HDG
	b) Material size of springs	: S.S Sheet
	c) Whether springs are encased	: Not encased
ix)	Nuts and bolts	
	a) Size, material and grade in live parts.	: }
	b) Size, material and grade in other parts.	: } M8 and above are of MS HDG.
x)	Insulator base plate material and size of plate below insulators.	: } 6 mm thick M.S. Hot dip galvanised plate
xi)	Bearings	
	a) Material and size of housing	: MS HDG / LM-6 Alu. Alloy suitable for 40 ID Ball Bearing
	b) No. of bearings, location & size	: 2 Nos. below centre rotating post insulator
xii)	Tandem pipe	
	a) Size, length class and No. of pipes	: 25NB GI pipe for Main Switch/ Earth Switch.
	b) Size of shackle screw	: Suitable for 25 NB
	c) No. of bearings / bush and its material and size.	: 6 Nos. bush bearings, brass, 16 mm ID Size.
xiii)	Type of interlock	: (i) Mechanical interlock between Isolator and Earth Switch. (ii) Electrical interlock between Isolator and circuit breaker.

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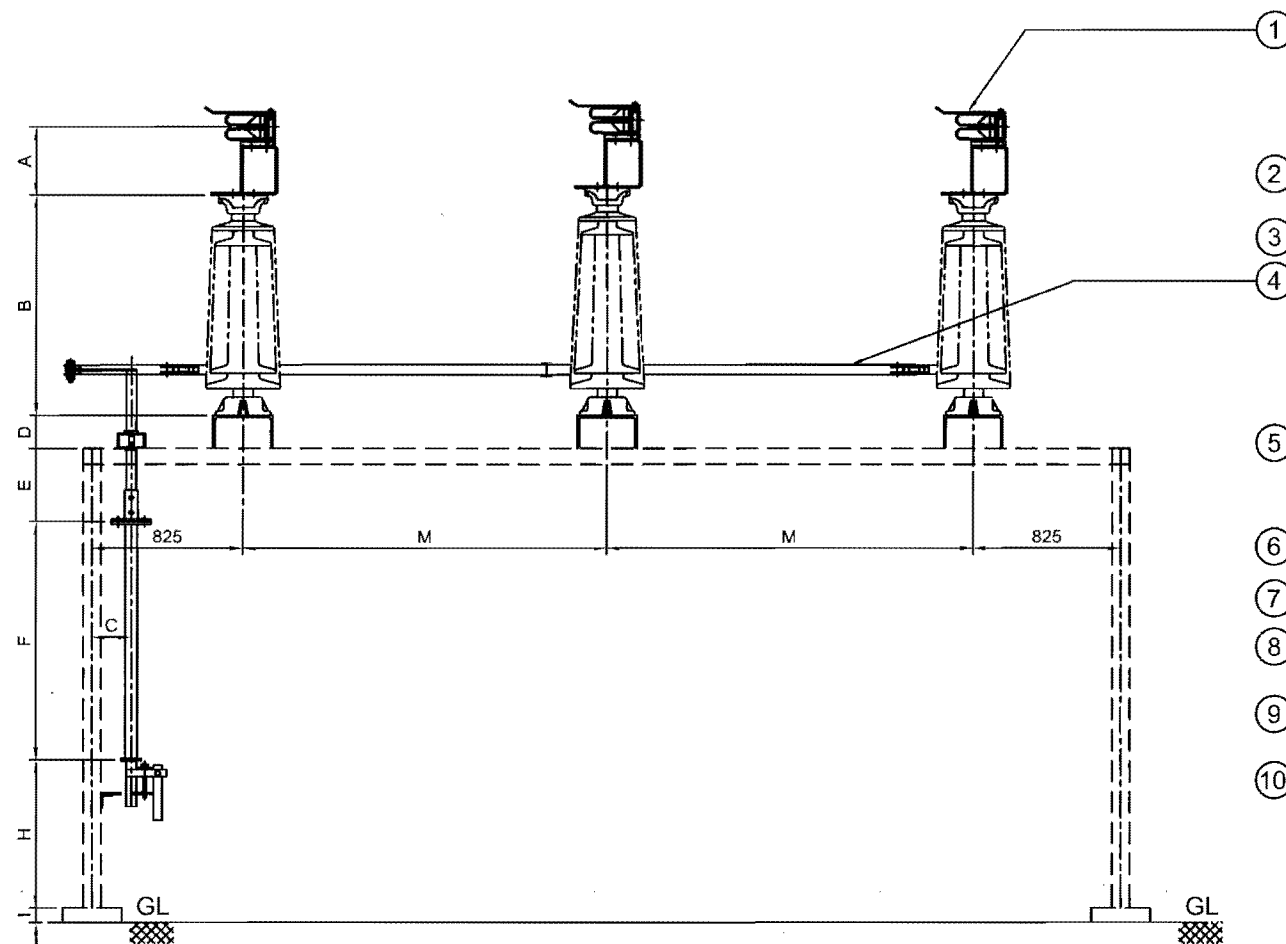
S.No	DESCRIPTION	33 KV
xiv)	Down pipe size, length and class	40 mm NB GI Pipe.
xv)	Type of universal/swivel joint	
	a) Between bearing & down pipe	Universal joint
	b) Between down pipe and operating mechanism.	Vernier Flange
xvi)	Operating mechanism	Manual operated mechanism for M.S. & Manual operated mechanism for E.S.
	a) Control cabinet	
	Material and thickness	2.64 Thick MS Sheet
	Degree of protection	IP : 55 as per IS 2147
	Type size and no. of cable glands.	Double compression type, 2 Nos. 19 mm. (Contractor scope of supply)
	Whether removable gland plate provided.	Yes, removable gland plate provided.
	b) Make type, rating and Qty. of Motors	Not Applicable
	Auxiliary blocks	4 NO / 4 NC contacts for Main Switch 4 NO / 4 NC contacts for Earth Switch Mini 10 A, 2 A DC breaking with 2A - 1 No.
	Terminal blocks	UBT-4
	Insulated Wires	660/1100 V grades, 2.5 Sq.mm PVC
	HRC Fuse	Not Applicable
	Space Heater	Not Applicable
	Interlocks	Not Applicable
xvii)	Base	
	a) Size of steel sections used	100 x 5 mm
	b) Overall size	100 x 1020 mm
	c) Total weight	9 Kgs approx

for GR POWER SWITCHGEAR LTD.,

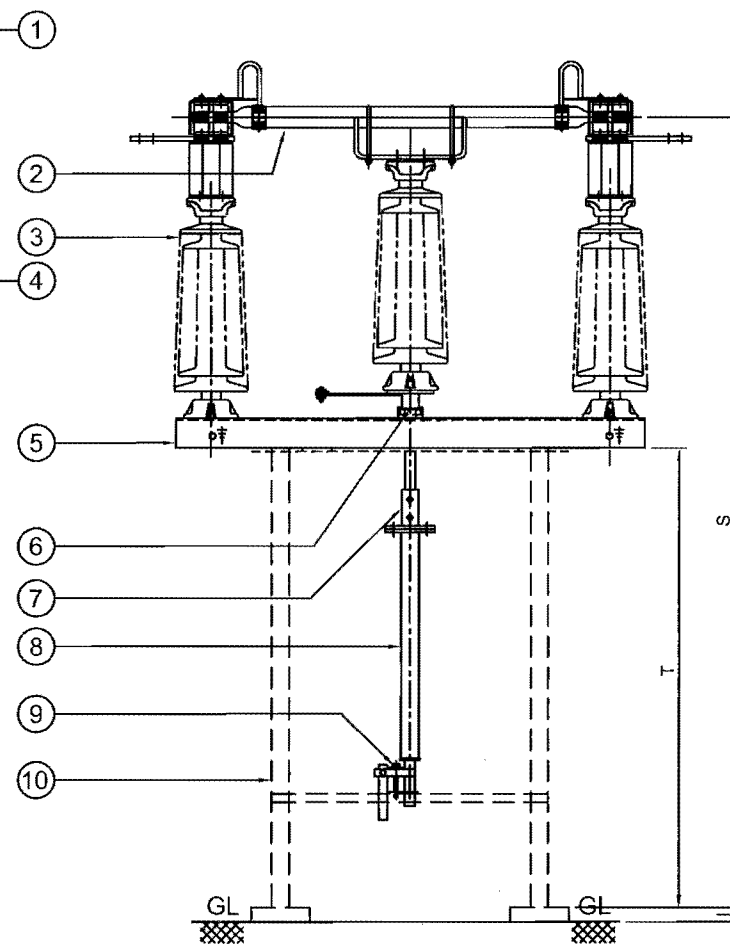
AUTHORIZED SIGNATORY

APPROVED

S. S. Ravishankar
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

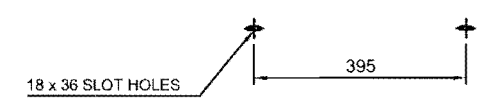


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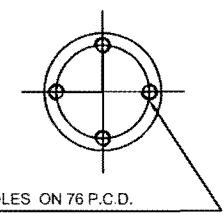


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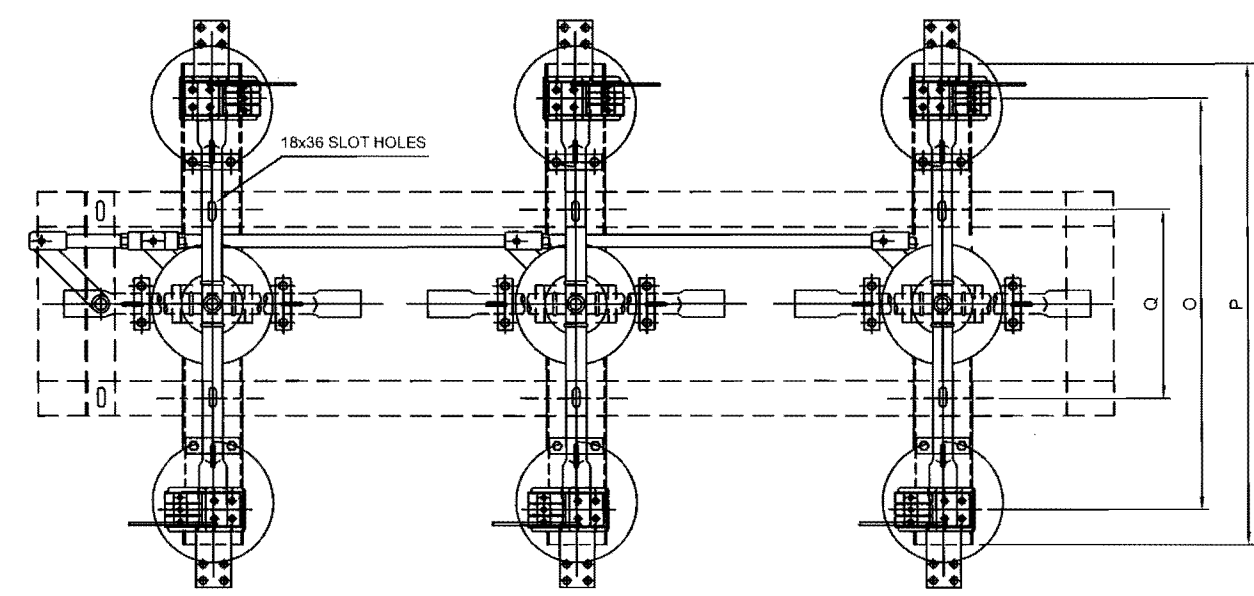
BASE FIXING DETAILS



INSULATOR DETAILS



4 Nos. M12 TAP HOLES ON 76 P.C.D.



PLAN

PART LIST:

1. FIXED CONTACT ASSEMBLY
2. MOVING CONTACT ASSEMBLY
3. INSULATOR STACK
4. PHASE COUPLING (25 NB,GI PIPE)
5. BASE CHANNEL (100 x 50 x 5mm THK.)
6. ROTATING STOOL BASE WITH LEVER ARM & CLAMP (M.S. HOT DIP GALVANIZED)
7. UNIVERSAL JOINT ARRANGEMENT
8. DOWN OPERATING PIPE(40 NB,GI PIPE)
9. OPERATING MECHANISM (LEVER)
10. SUPPORTING STRUCTURE

REFERENCE DRAWINGS :

- FOR MAIN CONTACT ASSEMBLY (800A) ----- 4. JM TS 07
 FOR MAIN CONTACT ASSEMBLY (630A) ----- 4. JM TS 07A
 FOR MAIN CONTACT ASSEMBLY (1250A) ----- 4. JM TS 08
 FOR NAME PLATE DETAILS ----- 4. Z TS 15

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED (10 TO 15 MICRONS)
4. THE INDICATED DIMENSIONS ARE SUBJECT TO THE MANUFACTURING TOLERANCE:
 UP TO 50 mm ---±3%; 51 TO 100 mm ---±2%;
 101 TO 300 mm ---±1%; ABOVE 300 mm ---±0.5%;
5. SHORT TIME CURRENT RATING 25 KA rms. FOR 3 Sec.
6. MIN. CREEPAGE DISTANCE 900 mm
7. APPLICABLE STANDARD : IS:9921 PART I TO V
8. SUPPORT STRUCTURE & INSULATORS INCLUDING FIXING HARDWARE NOT IN OUR SCOPE OF SUPPLY

WEIGHT:

NET WEIGHT OF THE ISOLATOR
 EXCLUDING INSULATOR : 0.21 MT. (Approx.)

DIMENSIONS

A	B	C	D	E	F	G	H	I	J	K	M
130	508	300	50	175	2725	NA	1000	300	NA	NA	1300
N	O	P	Q	R	S	T	U	W			
NA	915	1020	395	NA	4588	3900	NA	NA			

APPROVED

Chief Engineer Transmission
 TSTRANSCO, Vidyut Soudha.
 HYDERABAD - 500 082

REVISIONS
D C B A

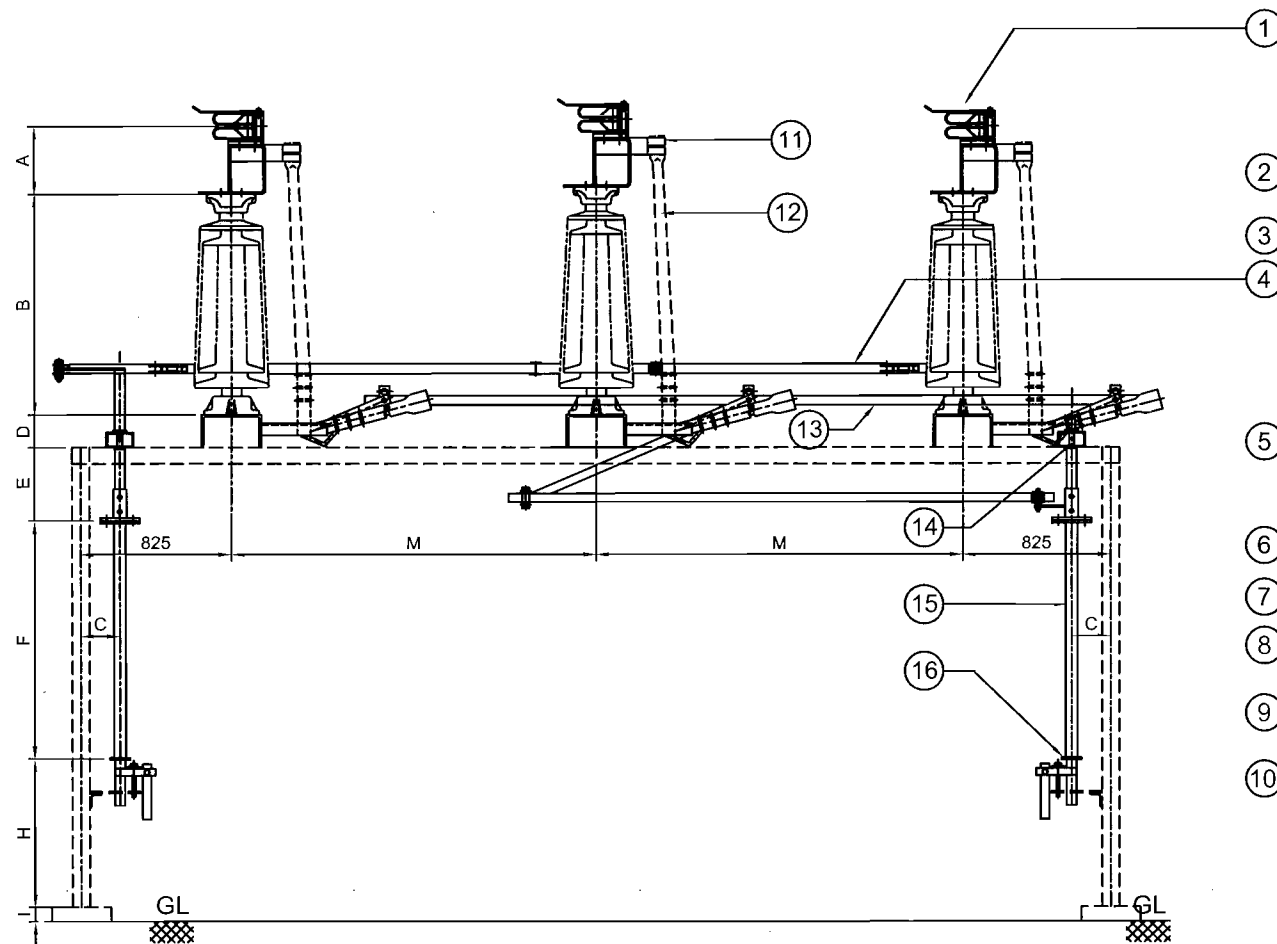
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33 kV, 630/800/1250 A, T.P, DB, BT,
 ISOLATOR WITH OUT E.S.

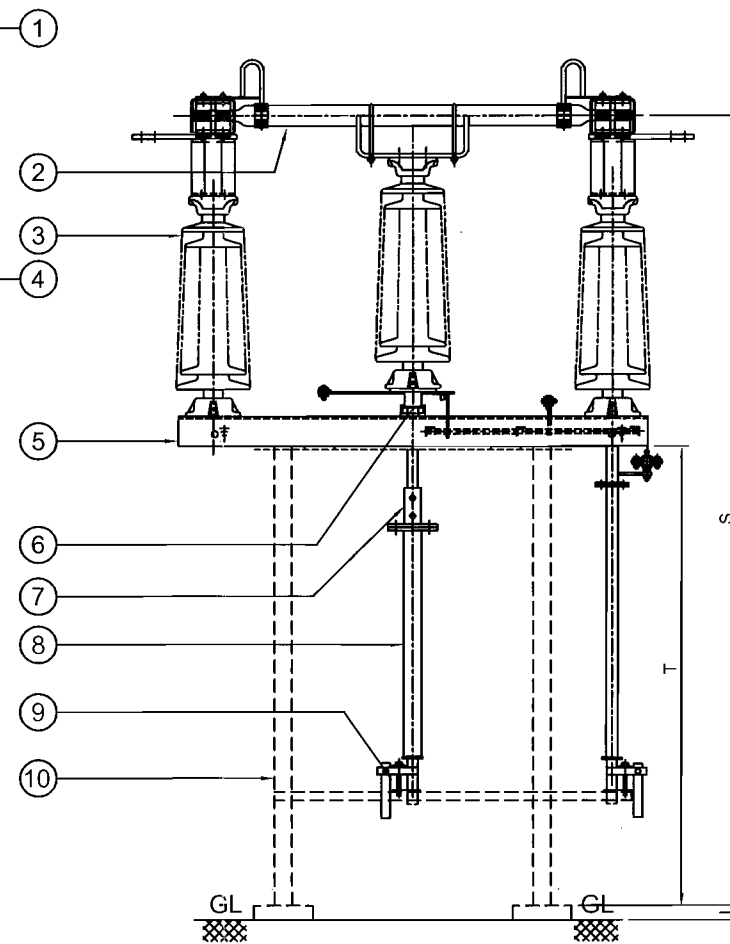


GR POWER SWITCHGEAR LTD.,
 JEEDIMETLA HYDERABAD-500 055 INDIA

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		A



ELEVATION



END VIEW

BASE FIXING DETAILS



INSULATOR DETAILS

4 Nos. M12 TAP HOLES ON 76 P.C.D.

APPROVED

Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

PART LIST:

1. FIXED CONTACT ASSEMBLY
2. MOVING CONTACT ASSEMBLY
3. INSULATOR STACK
4. TANDEM PIPE (25 NB, G.I. PIPE)
5. BASE CHANNEL (100 x 50 x 5 mm THICK CHANNEL)
6. ROTATING STOOL BASE WITH LEVER ARM & CLAMP
(M.S. HOT DIP GALVANIZED)
7. UNIVERSAL JOINT ARRANGEMENT
8. DOWN OPERATING PIPE (40 NB, G.I. PIPE)
9. OPERATING MECHANISM (LEVER)
10. SUPPORTING STRUCTURE
11. EARTH SWITCH FIXED CONTACT ASSEMBLY
12. EARTH SWITCH MOVING CONTACT ASSEMBLY
13. EARTH SWITCH TANDEM PIPE (25 NB, G.I. PIPE)
14. TOP OPERATING MECHANISM FOR EARTH SWITCH
15. EARTH SWITCH DOWN OPERATING PIPE (40 NB, G.I. PIPE)
16. EARTH SWITCH OPERATING MECHANISM (LEVER)
17. MECHANICAL INTER LOCK BETWEEN MAIN SWITCH & EARTH SWITCH
18. AUXILIARY TANDEM FOR EARTH SWITCH

REFERENCE DRAWINGS :

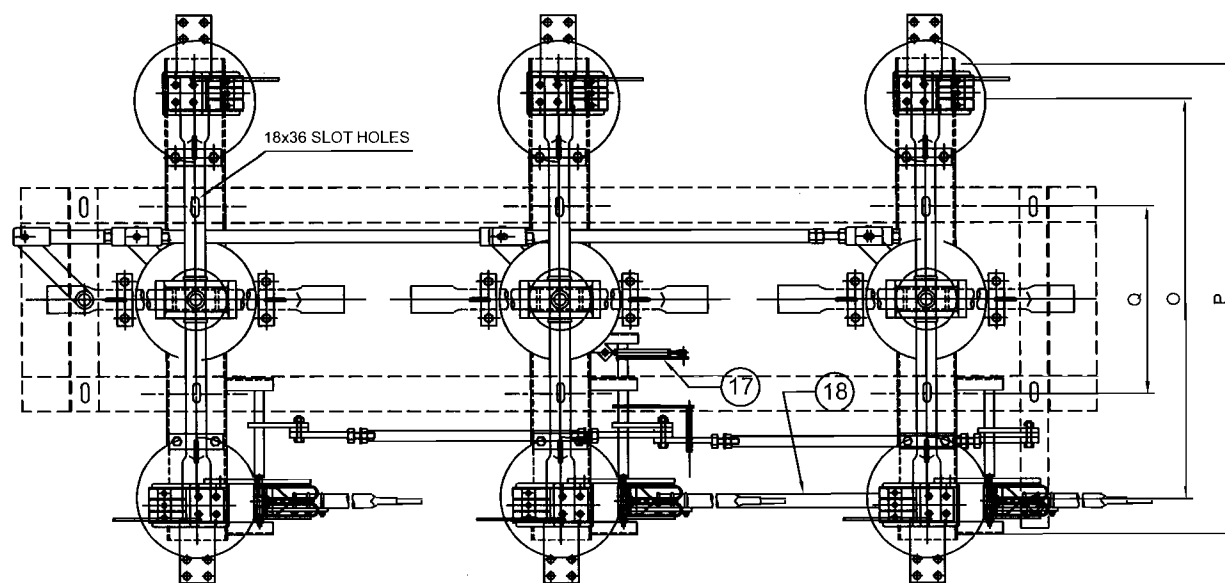
FOR MAIN CONTACT ASSEMBLY (800A)	4. JM TS 07
FOR MAIN CONTACT ASSEMBLY (630A)	4. JM TS 07A
FOR MAIN CONTACT ASSEMBLY (1250A)	4. JM TS 08
FOR EARTH CONTACT ASSEMBLY	4. JE TS 11
FOR NAME PLATE DETAILS	4. Z TS 15
FOR MECHANICAL INTERLOCK DETAILS	4. Z TS 16

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED (10 TO 15 MICRONS)
4. THE INDICATED DIMENSIONS ARE SUBJECT TO THE
MANUFACTURING TOLERANCE:
UP TO 50 mm $\pm 3\%$; 51 TO 100 mm $\pm 2\%$;
101 TO 300 mm $\pm 1\%$; ABOVE 300 mm $\pm 0.5\%$;
5. SHORT TIME CURRENT RATING 25 KA rms. FOR 3 Sec.
6. MIN. CREEPAGE DISTANCE 900 mm
7. APPLICABLE STANDARD : IS:9921 PART I TO V
8. SUPPORT STRUCTURE & INSULATORS INCLUDING FIXING HARDWARE
NOT IN OUR SCOPE OF SUPPLY

WEIGHT:

NET WEIGHT OF THE ISOLATOR
EXCLUDING INSULATOR : 498 KGS. (Approx.)



PLAN

DIMENSIONS

A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	S	T	U	W
130	508	300	50	175	2725	NA	1000	300	NA	NA	1300	NA	915	1020	395	NA	4588	3900	175	2725

REVISIONS	D	C	B	A

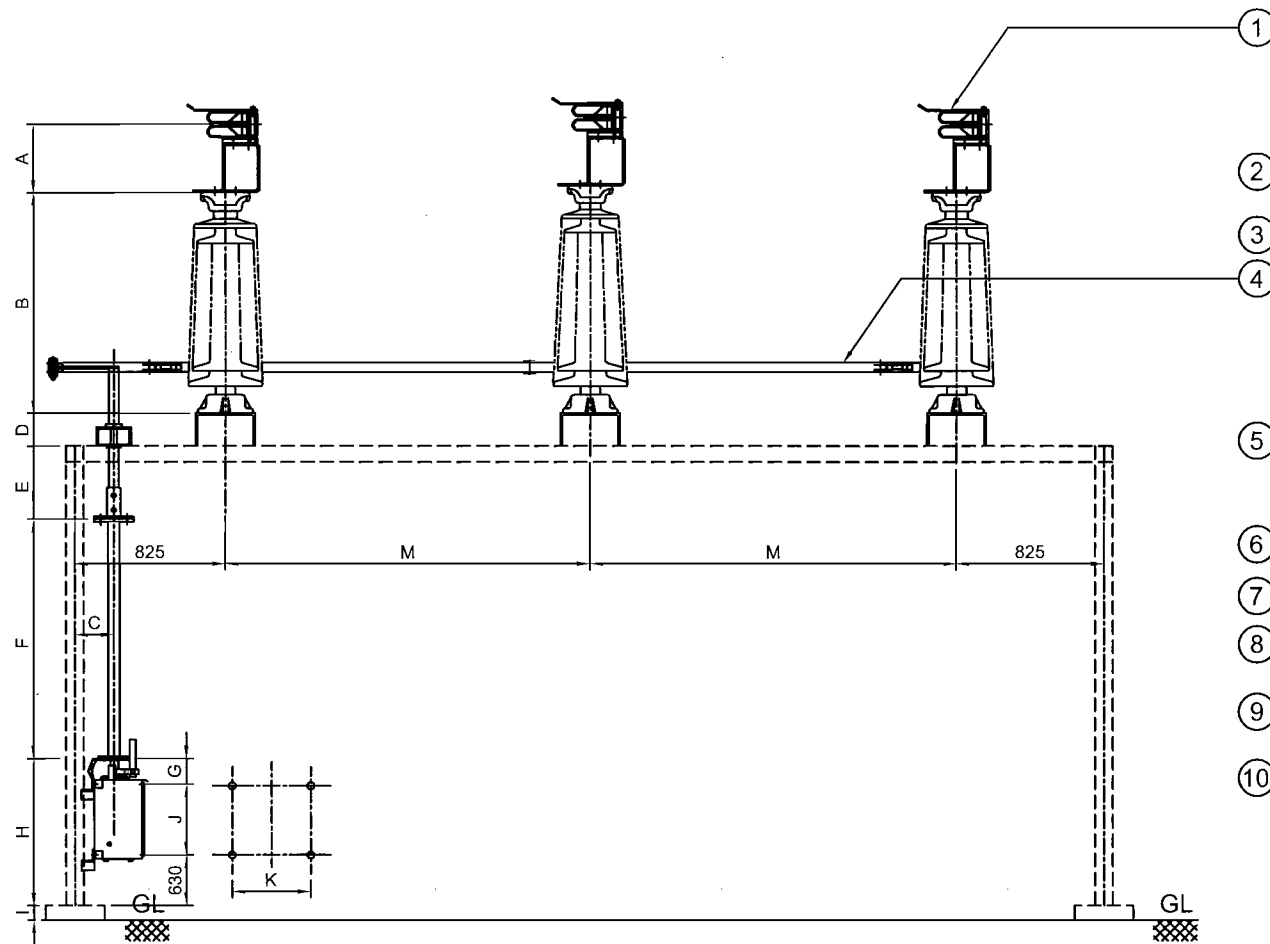
TITLE:

33 kV, 630/800/1250 A, TP, DB, BT,
ISOLATOR WITH ONE E.S.

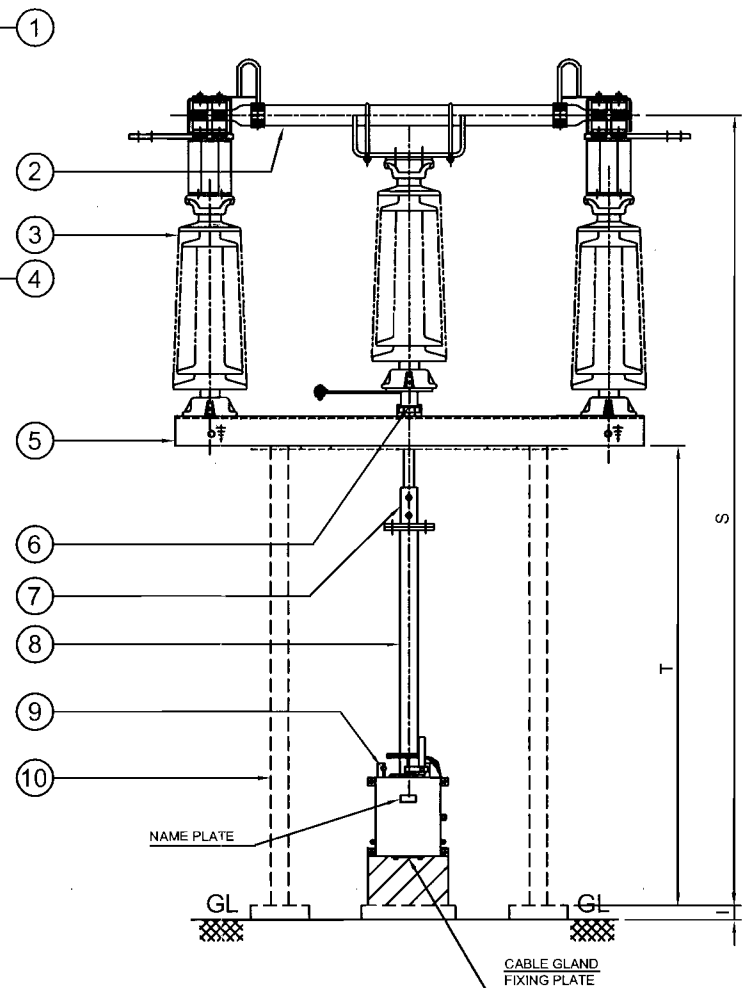


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SCALE: N.T.S.	
DATE	26-05-2016
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DRG.NO:	3.CJ TS 02
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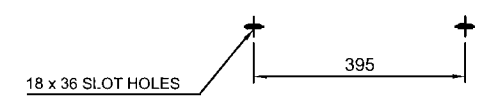


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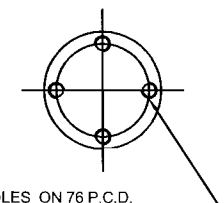


END VIEW

BASE FIXING DETAILS



INSULATOR DETAILS



4 Nos. M12 TAP HOLES ON 76 P.C.D.

APPROVED

Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudra,
HYDERABAD - 500 082

PART LIST:

1. FIXED CONTACT ASSEMBLY
2. MOVING CONTACT ASSEMBLY
3. INSULATOR STACK
4. PHASE COUPLING (25 NB,GI PIPE)
5. BASE CHANNEL (100 x 50 x 5mm THK.)
6. ROTATING STOOL BASE WITH LEVER ARM & CLAMP (M.S. HOT DIP GALVANIZED)
7. UNIVERSAL JOINT ARRANGEMENT
8. DOWN OPERATING PIPE(40 NB,GI PIPE)
9. OPERATING MECHANISM (MANUAL)
10. SUPPORTING STRUCTURE

REFERENCE DRAWINGS :

FOR MAIN CONTACT ASSEMBLY (800A)	4. JM TS 07
FOR MAIN CONTACT ASSEMBLY (630A)	4. JM TS 07A
FOR MAIN CONTACT ASSEMBLY (1250A)	4. JM TS 08
FOR MANUAL OPERATING MECH FOR M.S.	4. N TS 13
FOR NAME PLATE DETAILS	4. Z TS 15

NOTES:

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UP TO 50 mm $\pm 3\%$; 51 TO 100 mm $\pm 2\%$;
101 TO 300 mm $\pm 1\%$; ABOVE 300 mm $\pm 0.5\%$;
5. SHORT TIME CURRENT RATING 25 KA rms. FOR 3 Sec.
6. MIN. CREEPAGE DISTANCE 900 mm
7. APPLICABLE STANDARD : IS:9921 PART I TO V
8. SUPPORT STRUCTURE & INSULATORS INCLUDING FIXING HARDWARE NOT IN OUR SCOPE OF SUPPLY

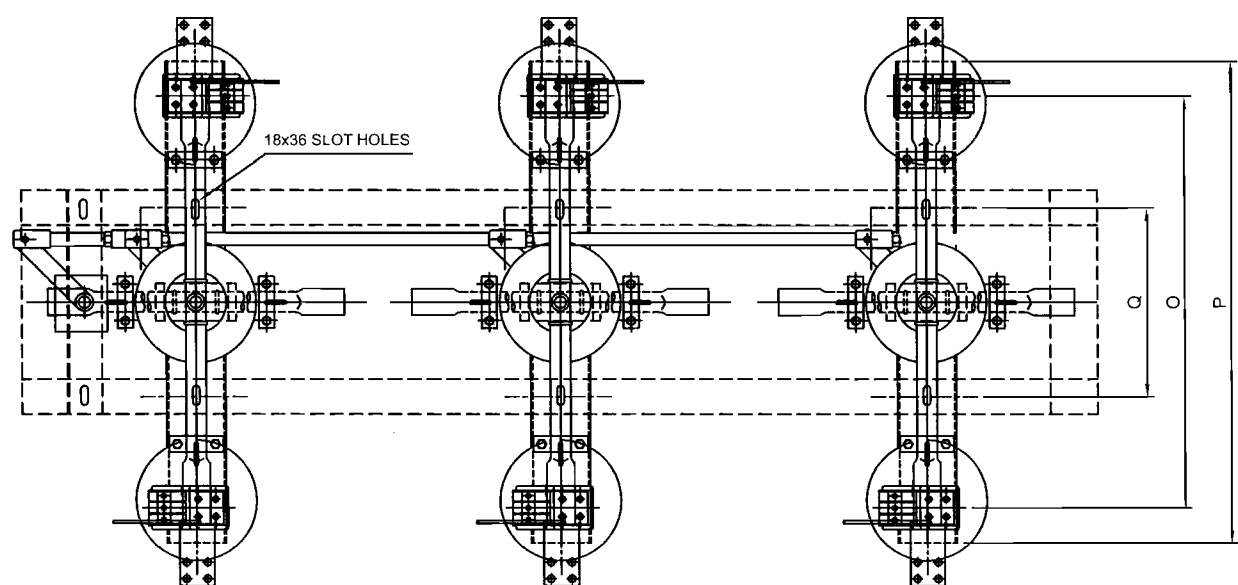
WEIGHT:

NET WEIGHT OF THE ISOLATOR
EXCLUDING INSULATOR : 0.21 MT. (Approx.)

QUANTITY :

DIMENSIONS

A	B	C	D	E	F	G	H	I	J	K	M
130	508	300	50	175	2725	120	1000	300	250	340	1300
N	O	P	Q	R	S	T	U	W			
NA	915	1020	395	NA	4588	3900	NA	NA			



PLAN

REVISIONS

D	C	B	A

TITLE:

33 kV, 630/800/1250 A, T.P, DB, BT,
ISOLATOR WITH OUT E.S.



GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA





SCALE:N.T.S	
DATE	26-05-2016
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DRG.NO:	3.CJ TS 03
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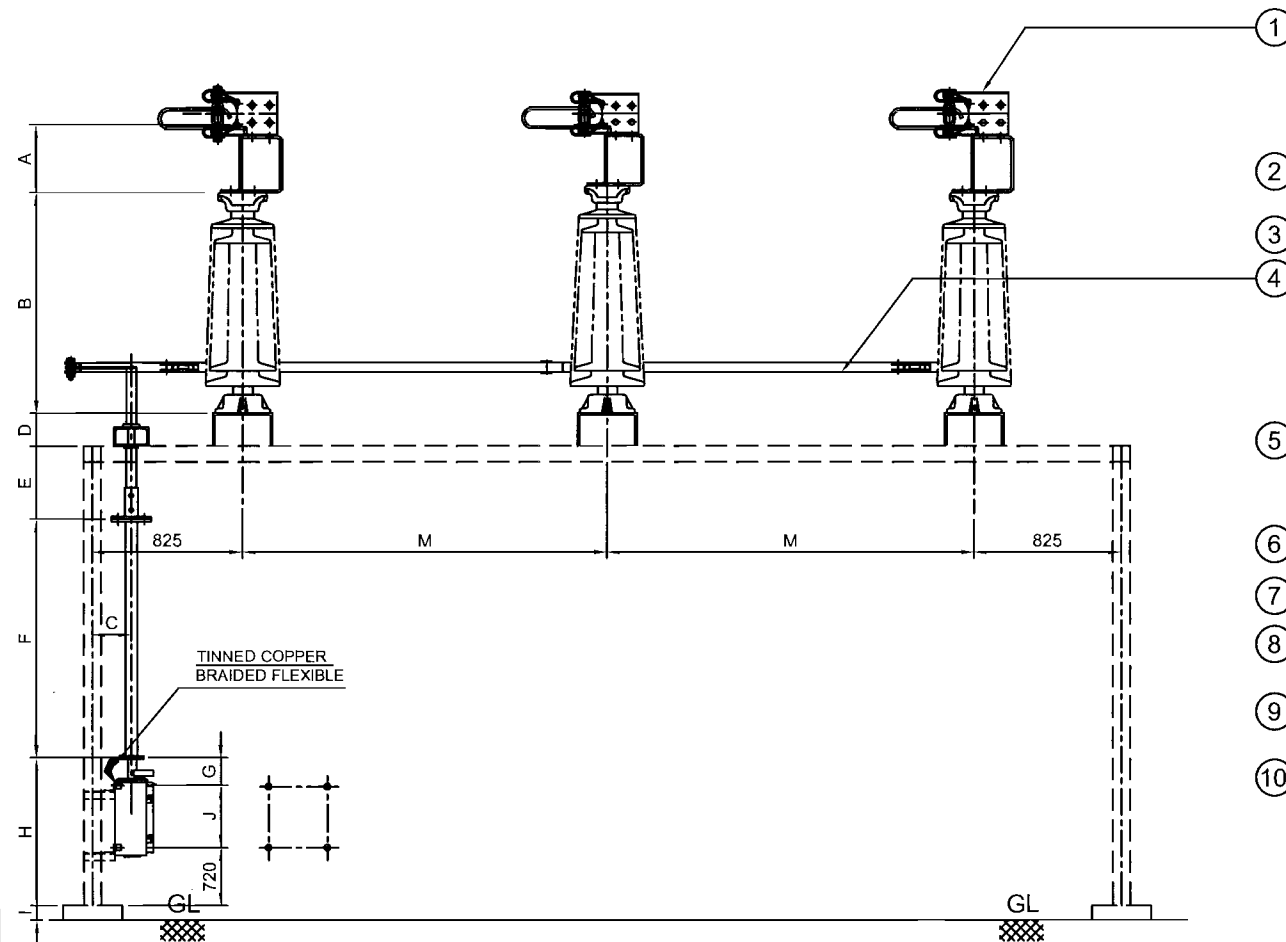


Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudhra,
HYDERABAD - 500 032

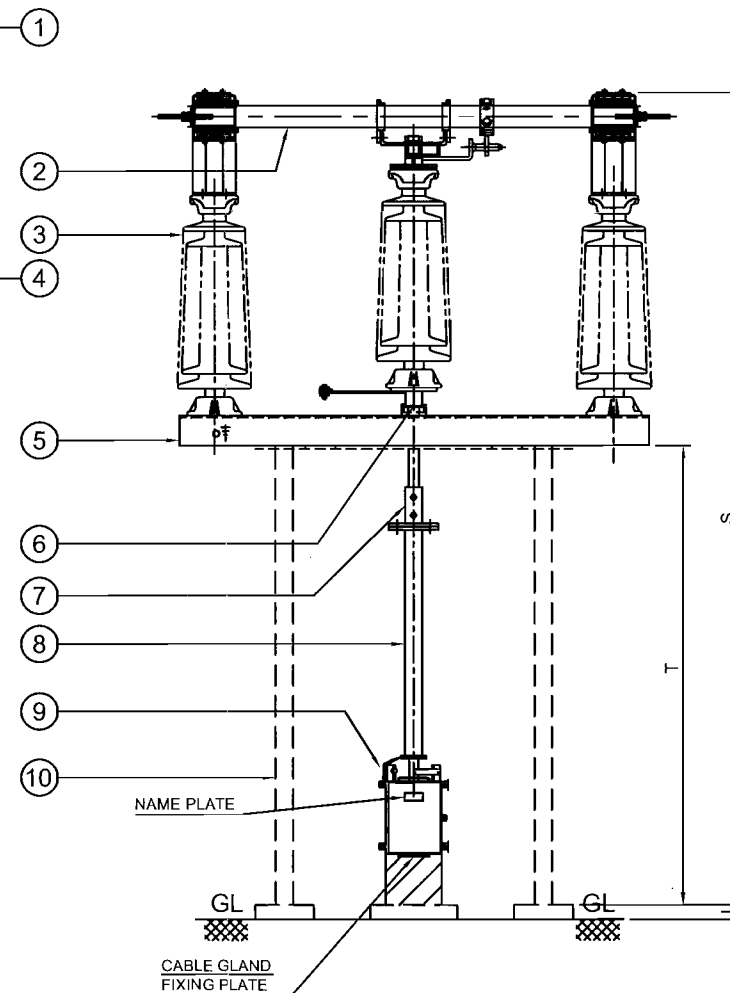
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NET WEIGHT OF THE ISOLATOR
EXCLUDING INSULATOR : 498 KGS. (Approx.)

SCALE:N.T.S	
DATE	26-05-2016
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ELEVATION

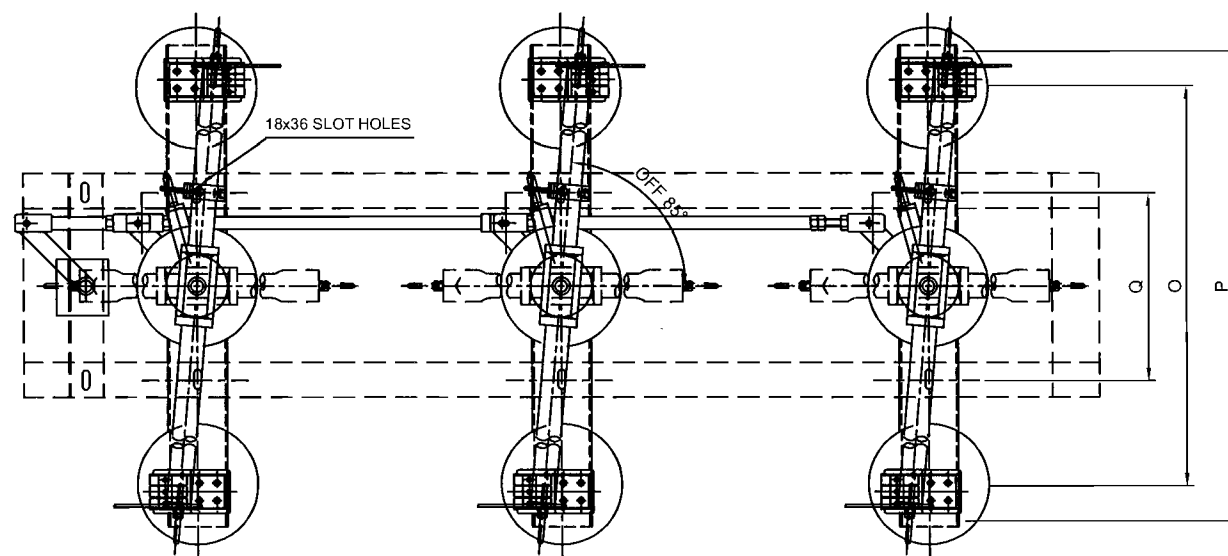
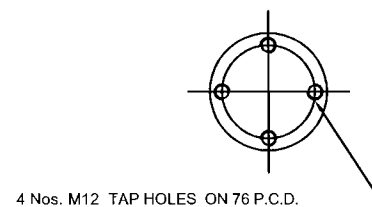


END VIEW

BASE FIXING DETAILS



INSULATOR DETAILS



PLAN

DIMENSIONS

A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	S	T	U	W
175	508	300	50	175	2725	120	1000	300	360	400	1300	NA	915	1020	395	NA	4633	3900	NA	NA

PART LIST:

1. FIXED CONTACT ASSEMBLY
2. MOVING CONTACT ASSEMBLY
3. INSULATOR STACK
4. TANDEM PIPE (25 NB, G.I. PIPE)
5. BASE CHANNEL (100 x 50 x 5 mm THICK CHANNEL)
6. ROTATING STOOL BASE WITH LEVER ARM & CLAMP
7. UNIVERSAL JOINT ARRANGEMENT (M.S. HOT DIP GALVANIZED)
8. DOWN OPERATING PIPE (40 NB, G.I. PIPE)
9. OPERATING MECHANISM (MANUAL)
10. SUPPORTING STRUCTURE

REFERENCE DRAWINGS :

- FOR MAIN CONTACT ASSEMBLY (1600A) ----- 4. RM TS 09
 FOR MAIN CONTACT ASSEMBLY (2000A) ----- 4. RM TS 10
 FOR MANUAL OPERATING MECH FOR M.S. ----- 4. N TS 12
 FOR NAME PLATE DETAILS ----- 4. Z TS 15

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
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 UP TO 50 mm ---±3%; 51 TO 100 mm ---±2%;
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5. SHORT TIME CURRENT RATING 25 KA rms. FOR 3 Sec.
6. MIN. CREEPAGE DISTANCE 900 mm
7. APPLICABLE STANDARD : IS:9921 PART I TO V
8. SUPPORT STRUCTURE & INSULATORS INCLUDING FIXING HARDWARE NOT IN OUR SCOPE OF SUPPLY

WEIGHT:

NET WEIGHT OF THE ISOLATOR
 EXCLUDING INSULATOR : 280 Kg. (Approx.)

APPROVED

S. J. Panigrahi
 Chief Engineer - Transmission
 TSTRANSCO, Vidyut Soudha,
 HYDERABAD - 500 082

REVISIONS
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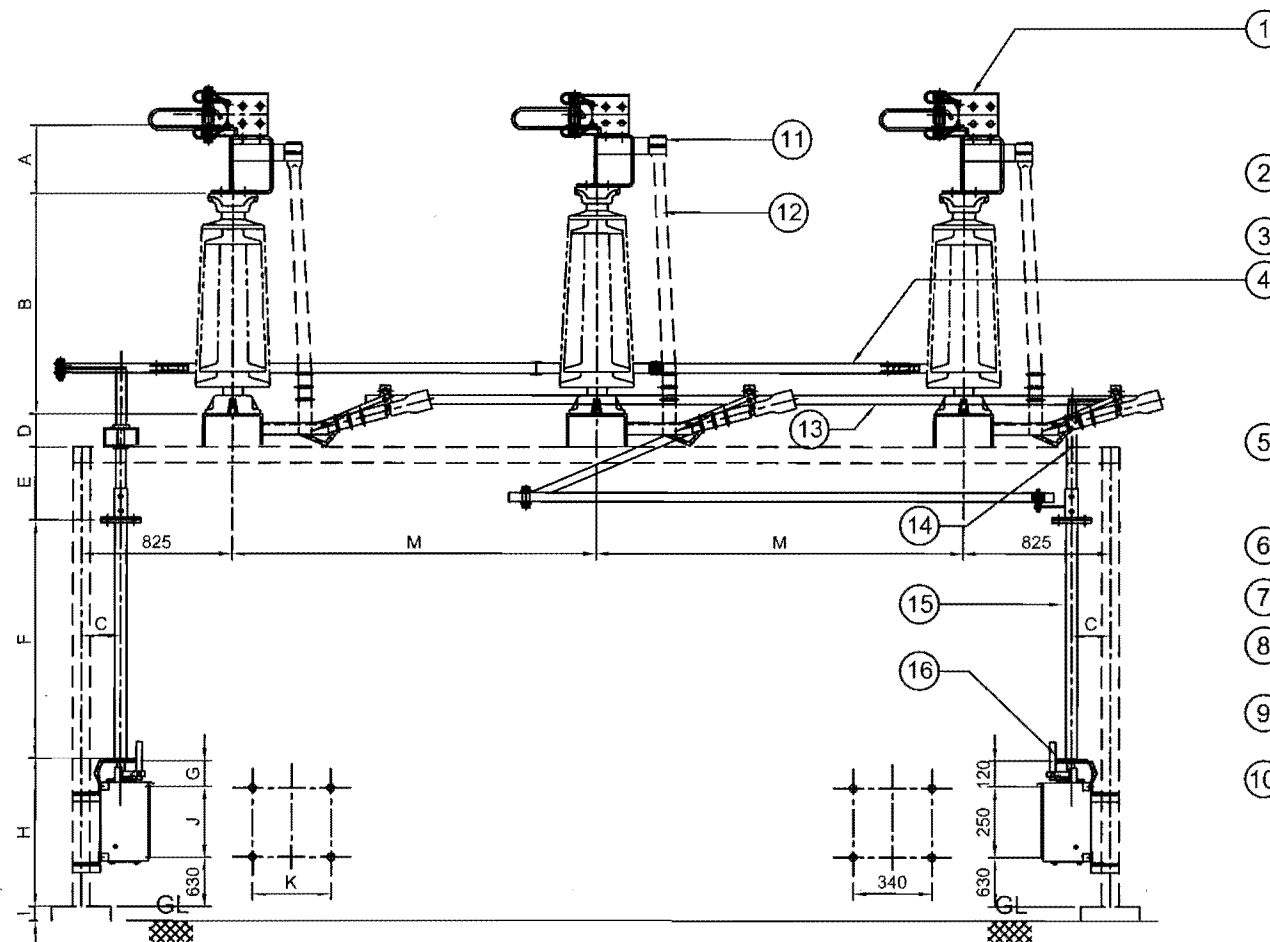
TITLE:

33 kV, 1600 / 2000 A, TRIPLE POLE,
 DB, RT, ISOLATOR WITHOUT E.S.

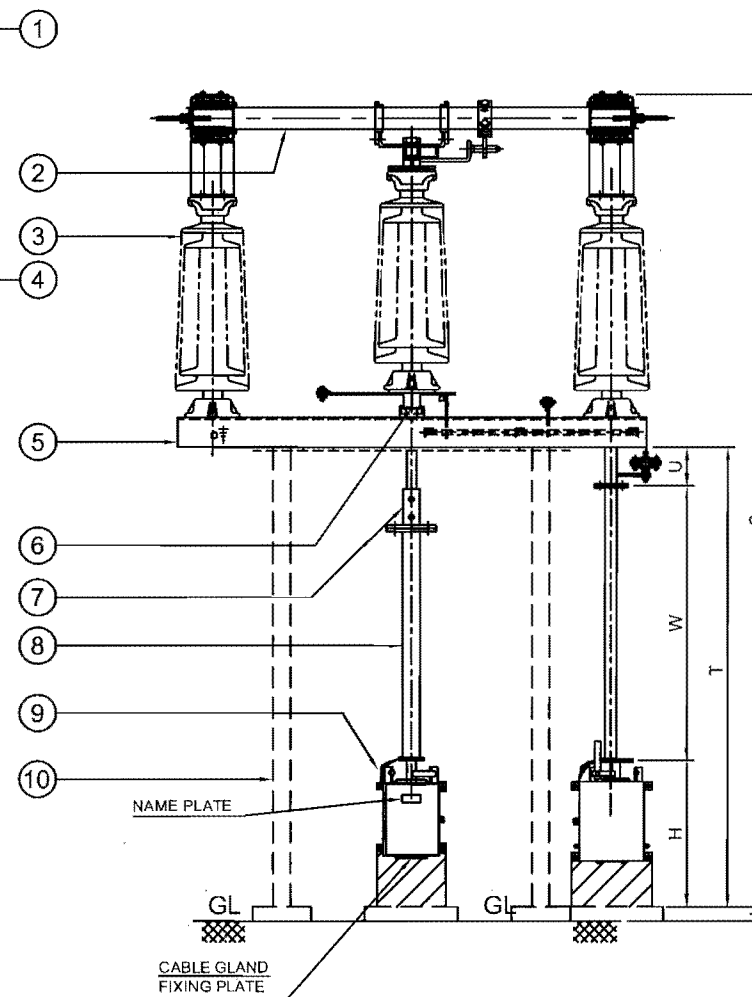


GR POWER SWITCHGEAR LTD.,
 JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE:N.T.S.	
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ELEVATION

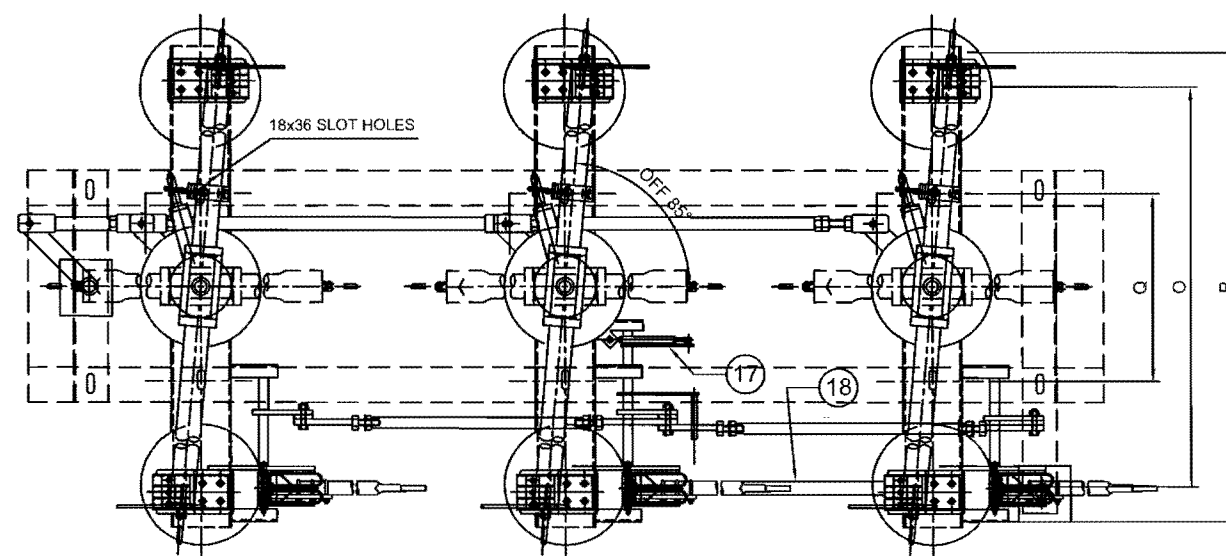
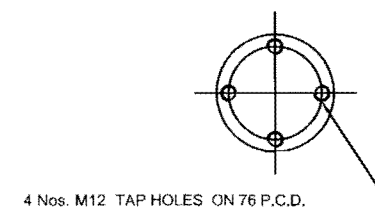


END VIEW

BASE FIXING DETAILS



INSULATOR DETAILS



PLAN

DIMENSIONS

A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	S	T	U	W
175	508	300	50	175	2725	120	1000	300	360	400	1300	NA	915	1020	395	NA	4633	3900	175	2725

PART LIST:

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10. SUPPORTING STRUCTURE
11. EARTH SWITCH FIXED CONTACT ASSEMBLY
12. EARTH SWITCH MOVING CONTACT ASSEMBLY
13. EARTH SWITCH TANDEM PIPE (25 NB, G.I. PIPE)
14. TOP OPERATING MECHANISM FOR EARTH SWITCH
15. EARTH SWITCH DOWN OPERATING PIPE (40 NB, G.I. PIPE)
16. EARTH SWITCH OPERATING MECHANISM (MANUAL)
17. MECHANICAL INTER LOCK BETWEEN MAIN SWITCH & EARTH SWITCH
18. AUXILIARY TANDEM FOR EARTH SWITCH

REFERENCE DRAWINGS :

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FOR MAIN CONTACT ASSEMBLY (2000A)	4. RM TS 10
FOR EARTH CONTACT ASSEMBLY	4. JE TS 11
FOR MANUAL OPERATING MECH FOR M.S.	4. N TS 12
FOR MANUAL OPERATING MECH FOR E.S.	4. N TS 14
FOR NAME PLATE DETAILS	4. Z TS 15
FOR MECHANICAL INTERLOCK DETAILS	4. Z TS 16

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED (10 TO 15 MICRONS)
4. THE INDICATED DIMENSIONS ARE SUBJECTED TO THE MANUFACTURING TOLERANCE:
UP TO 50 mm $\pm 3\%$; 51 TO 100 mm $\pm 2\%$;
101 TO 300 mm $\pm 1\%$; ABOVE 300 mm $\pm 0.5\%$;
5. SHORT TIME CURRENT RATING 25 KA rms. FOR 3 Sec.
6. MIN. CREEPAGE DISTANCE 900 mm
7. APPLICABLE STANDARD : IS:9921 PART I TO V
8. SUPPORT STRUCTURE & INSULATORS INCLUDING FIXING HARDWARE NOT IN OUR SCOPE OF SUPPLY

WEIGHT:

NET WEIGHT OF THE ISOLATOR
EXCLUDING INSULATOR : 510 Kg. (Approx.)

APPROVED

Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS
D C B A

TITLE:

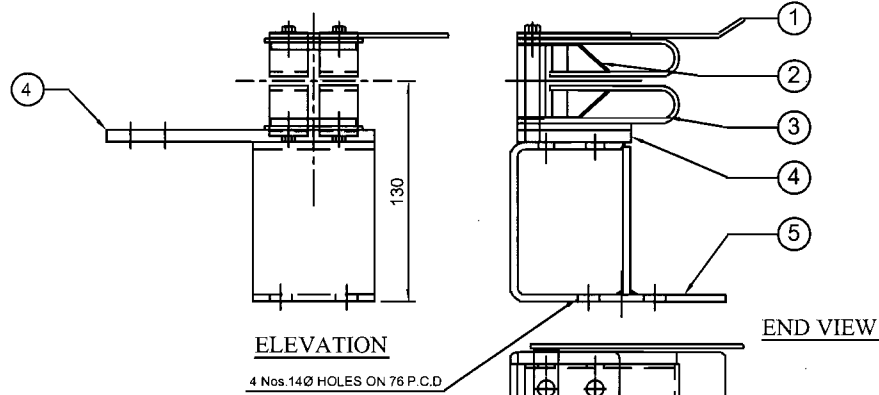
33 kV, 1600 / 2000 A, TRIPLE POLE,
DB, RT, ISOLATOR WITH ONE E.S.



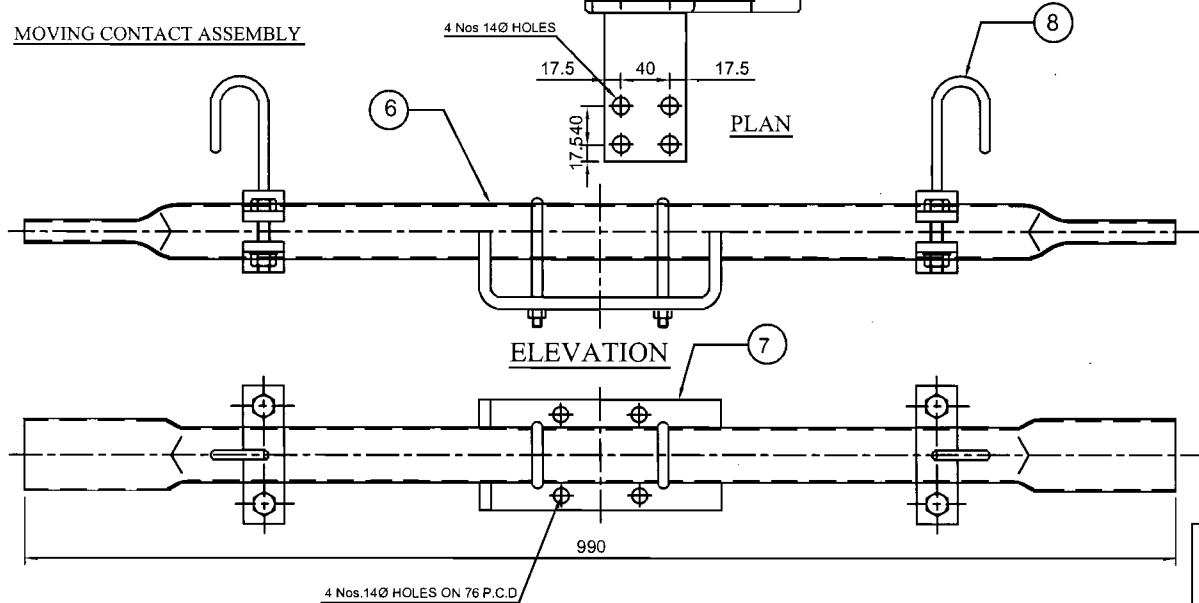
GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE:N.T.S.	01 - 08 - 2014
DATE	
DRAWN	
CHECKED	
APPROVED	
DRG.NO:	3. CR TS 06
REV	A

FIXED CONTACT ASSEMBLY:



MOVING CONTACT ASSEMBLY



PART LIST

1. FIXED CONTACT ARCING HORN (Ø10 ROD M.S. HDG)
2. SPRINGS (STAINLESS STEEL)
3. CONTACT FINGER (32 x 4 HDECu. FLAT 4 NO'S, SILVER PLATED)
4. JUMPER PAD (75 X 12 thik Alu. FLAT)
5. SUPPORTING PLATE (6 mm THICK, M.S. HDG)
6. MOVING CONTACT (38 OD x 30 ID CU TUBE)
7. CENTER MECHANISM (M.S.HDG)
8. MOVING CONTACT ARCING HORN (Ø10 ROD M.S. HDG)

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED
(10 TO 15 MICRONS)
4. THE MOVING CONTACT ASSEMBLY SHOWN IS FOR BANGING TYPE
ASSEMBLY

APPROVED

S. S. Kumar
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 052

REVISIONS			
D	C	B	A

TITLE:

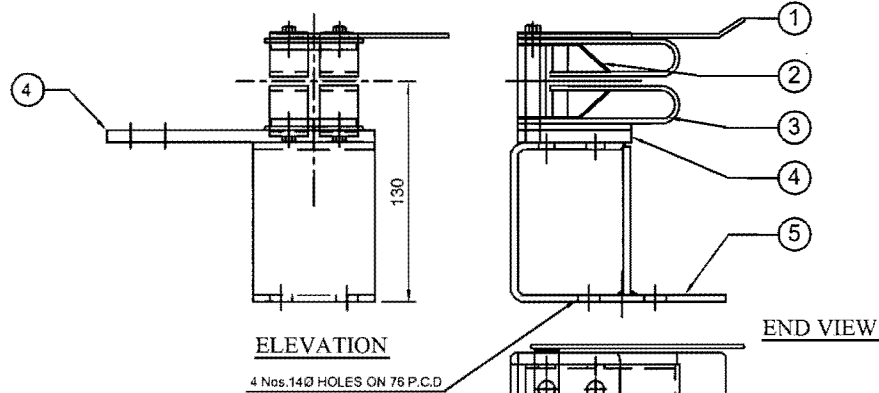
MAIN CONTACT ASSEMBLY
(FOR 33 KV 800 AMPS)



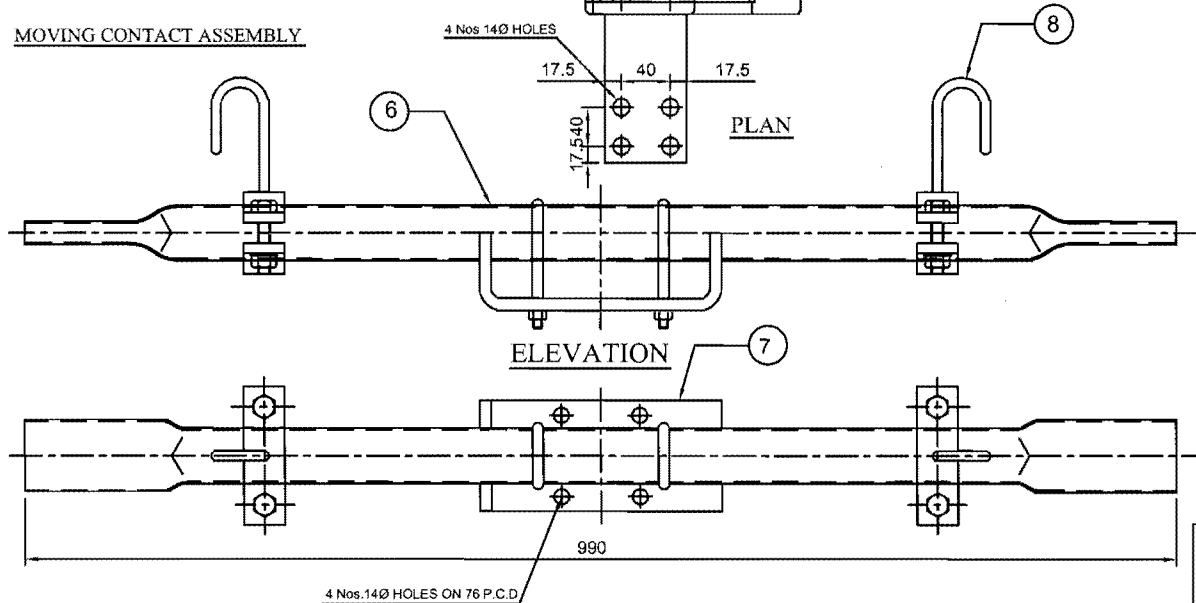
GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE:N.T.S.	
DATE	26-05-2016
DRAWN	
CHECKED	
APPROVED	
DRG.NO:	4. JM TS 07
REV	A

FIXED CONTACT ASSEMBLY:



MOVING CONTACT ASSEMBLY



PART LIST

1. FIXED CONTACT ARCING HORN (Ø10 ROD M.S. HDG)
2. SPRINGS (STAINLESS STEEL)
3. CONTACT FINGER (25 x 4 HDECu. FLAT 4 NO'S, SILVER PLATED)
4. JUMPER PAD (75 X 10 thik Alu. FLAT)
5. SUPPORTING PLATE (6 mm THICK, M.S. HDG)
6. MOVING CONTACT (38 OD x 32 ID CU TUBE)
7. CENTER MECHANISM (M.S.HDG)
8. MOVING CONTACT ARCING HORN (Ø10 ROD M.S. HDG)

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED
(10 TO 15 MICRONS)
4. THE MOVING CONTACT ASSEMBLY SHOWN IS FOR BANGING TYPE
ASSEMBLY

APPROVED

S. A. Kumar
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS				
D	C	B	A	

TITLE:

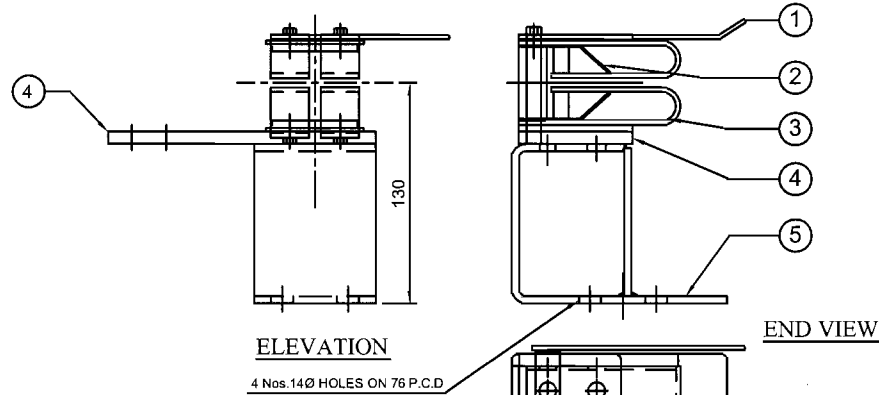
MAIN CONTACT ASSEMBLY
(FOR 33 KV 630 AMPS)



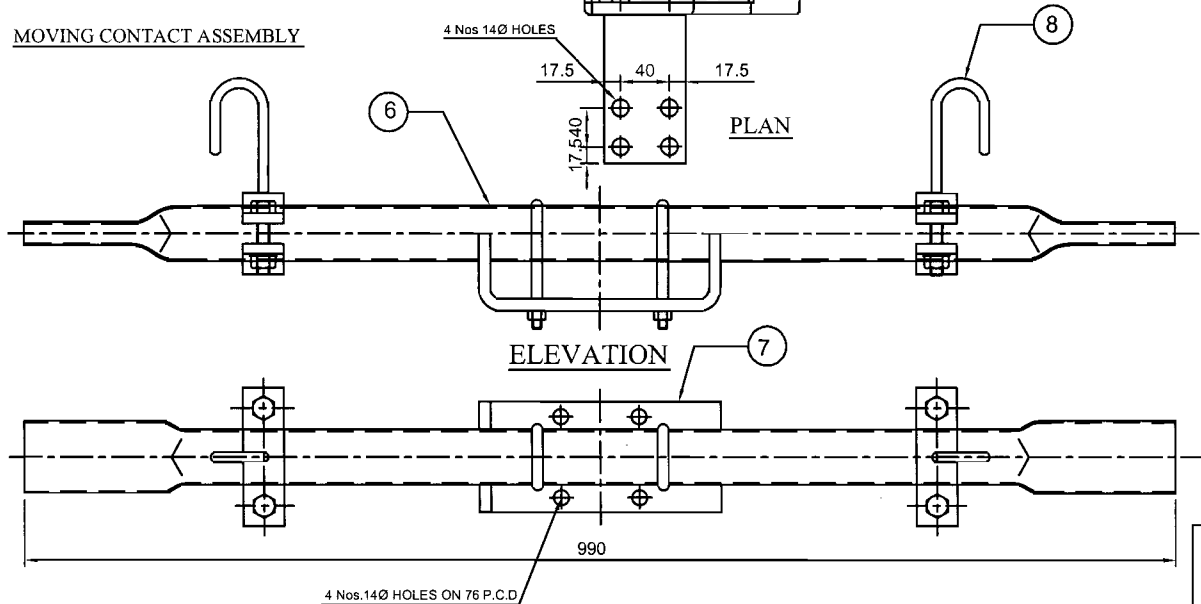
GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE:N.T.S	
DATE	26 - 05 - 2016
DRAWN	<i>[Signature]</i>
CHECKED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>
DRG.NO:	4. JM TS 07A
REV	A

FIXED CONTACT ASSEMBLY:



MOVING CONTACT ASSEMBLY



PART LIST

1. FIXED CONTACT ARCING HORN (Ø10 ROD M.S. HDG)
2. SPRINGS (STAINLESS STEEL)
3. CONTACT FINGER (32 x 6 HDECu. FLAT 4 NO'S, SILVER PLATED)
4. JUMPER PAD (100 X 12.5 thik Alu. FLAT)
5. SUPPORTING PLATE (6 mm THICK, M.S. HDG)
6. MOVING CONTACT (50 OD x 41 ID CU TUBE)
7. CENTER MECHANISM (M.S.HDG)
8. MOVING CONTACT ARCING HORN (Ø10 ROD M.S. HDG)

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED
(10 TO 15 MICRONS)
4. THE MOVING CONTACT ASSEMBLY SHOWN IS FOR BANGING TYPE
ASSEMBLY

APPROVED

S. A. Rao
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS			
D	C	B	A

TITLE:

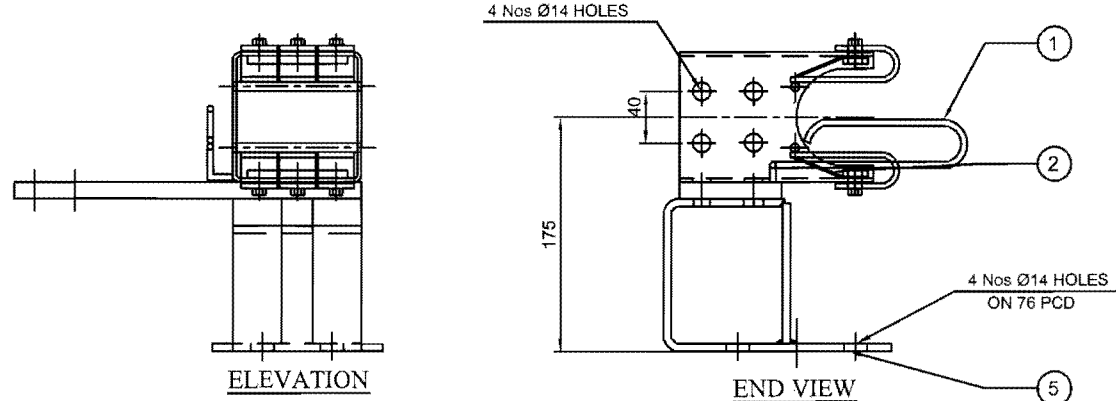
MAIN CONTACT ASSEMBLY
(FOR 33 KV 1250 AMPS)



GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

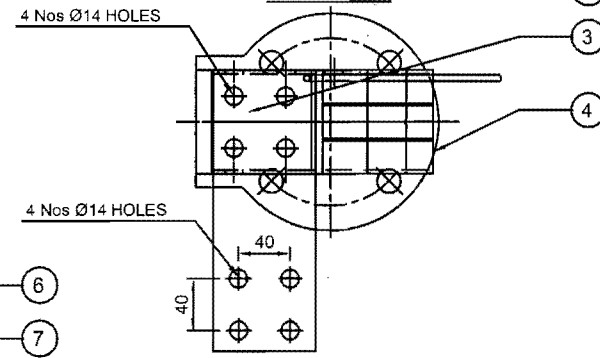
SCALE:N.T.S.	
DATE	26-05-2016
DRAWN	
CHECKED	
APPROVED	
DRG.NO:	4. JM TS 08
REV	A

FIXED CONTACT ASSEMBLY:



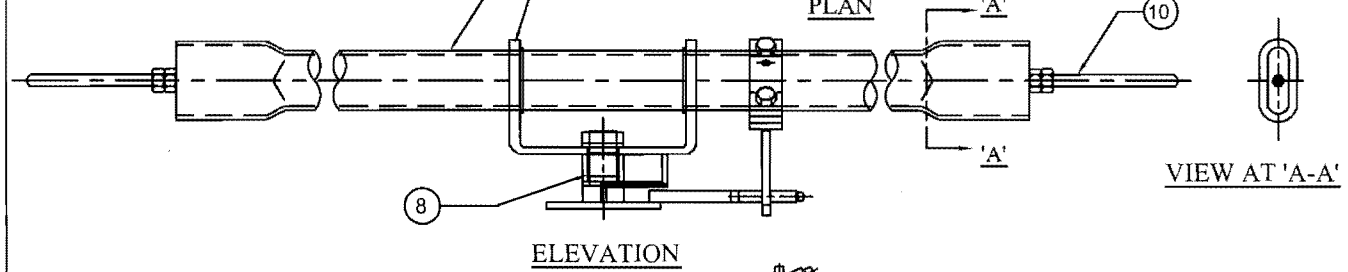
ELEVATION

END VIEW



PLAN

MOVING CONTACT ASSEMBLY



ELEVATION

PLAN

PART LIST

	BOQ
1. ARCING HORN FOR FIXED CONTACT(Ø10 ROD M.S. HDG)	06 Nos
2. SPRINGS (STAINLESS STEEL)	12 Nos
3. CONTACT SUPPORT (Alu.)	06 Nos
4. CONTACT FINGER (100 x 5 HDECu. FLAT 2 Nos. SILVER PLATED)	12 Nos
5. SUPPORTING PLATE (6 mm THICK, M.S. HDG)	06 Nos
6. MOVING CONTACT ARM (65 OD x 56 ID CU. TUBE)	03 Nos
7. BEARING BLOCK	06 Nos
8. CENTER MECHANISM (M.S. HDG, TURN & TWIST MECHANISM)	03 Nos
9. TERMINAL PAD (100 x 16 AL FLAT)	06 Nos
10. ARCING HORN FOR MOVING CONTACT(Ø10 ROD M.S. HDG)	06 Nos

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON-FERROUS CONTACT POINTS ARE SILVER PLATED
10 TO 15 MICRONS REMAINING CONTACT AREA TIN PLATED.
4. THE MOVING CONTACT ASSEMBLY SHOWN FOR TURN & TWIST ASSEMBLY

APPROVED

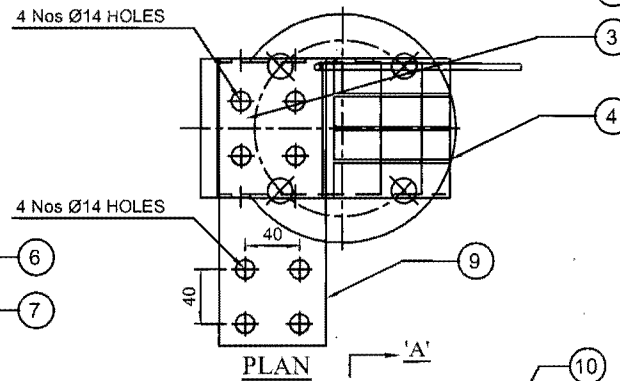
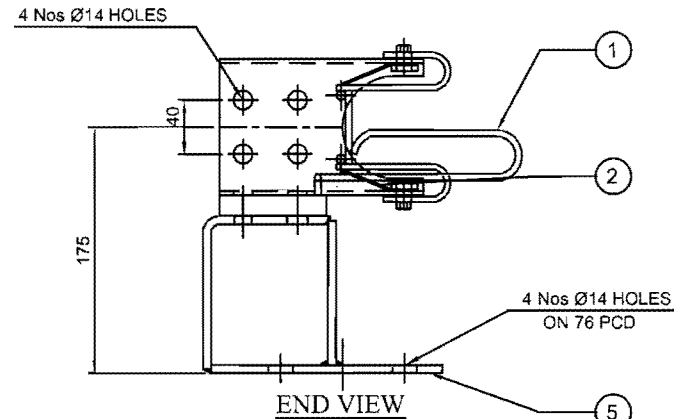
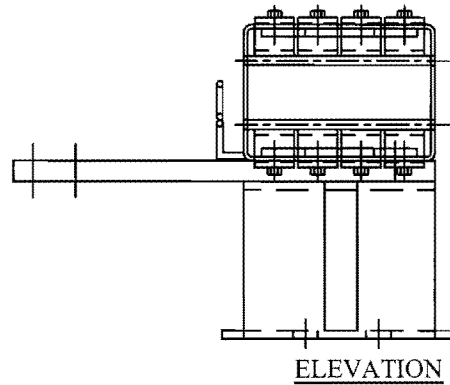
P. A. Ramesh
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS			
D	C	B	A

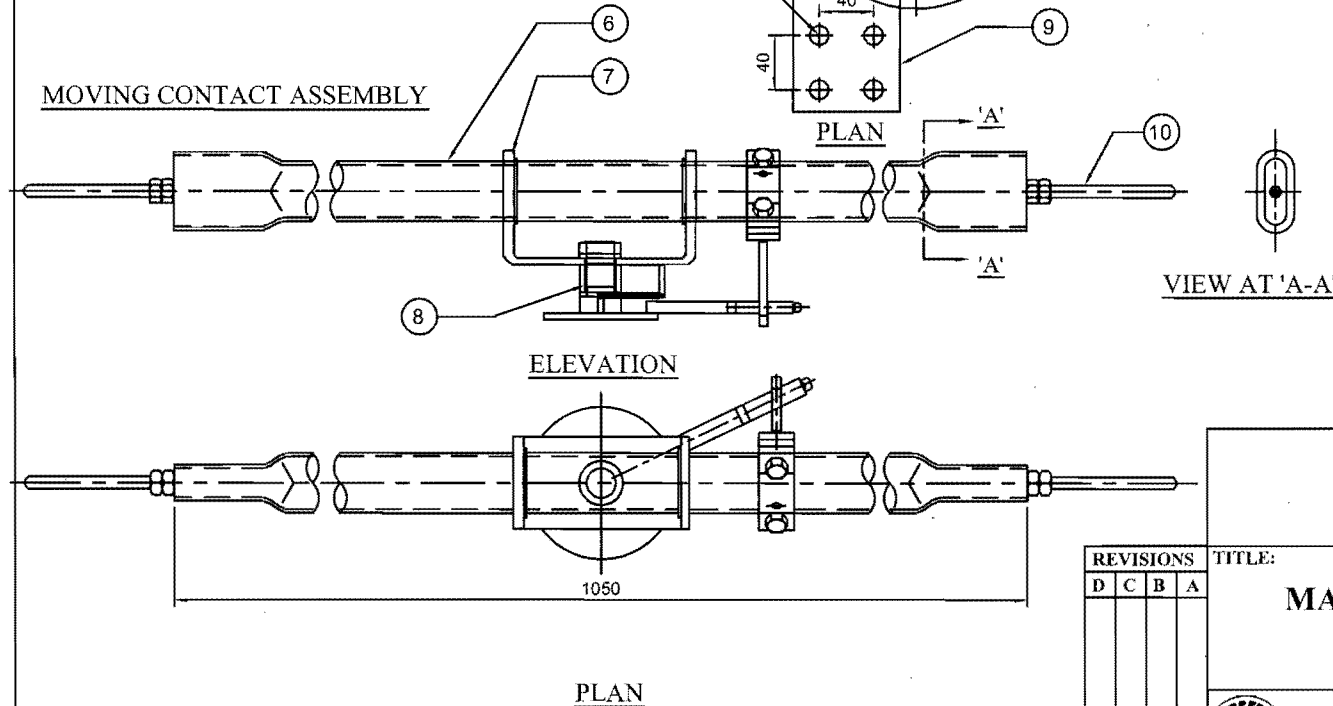
TITLE:	
MAIN CONTACT ASSEMBLY	
(FOR 33 kV 1600 Amps)	
GR POWER SWITCHGEAR LTD.,	
JEEDIMETLA HYDERABAD-500 055 INDIA	

SCALE:N.T.S	DATE
DRAWN	CHECKED
APPROVED	DRG NO:
4. RM TS 09	REV
	A

FIXED CONTACT ASSEMBLY:



MOVING CONTACT ASSEMBLY



PART LIST

	BOQ
1. ARCING HORN FOR FIXED CONTACT(Ø10 ROD M.S. HDG)	06 Nos
2. SPRINGS (STAINLESS STEEL)	24 Nos
3. CONTACT SUPPORT (Alu. EXTRUCTION)	06 Nos
4. CONTACT FINGER (65 x 5 HDECu. FLAT 4 Nos. SILVER PLATED)	24 Nos
5. SUPPORTING PLATE (6 mm THICK, M.S. HDG)	06 Nos
6. MOVING CONTACT ARM (65 OD x 54 ID CU. TUBE)	03 Nos
7. BEARING BLOCK	06 Nos
8. CENTER MECHANISM (M.S. HDG, TURN & TWIST MECHANISM)	03 Nos
9. TERMINAL PAD (100 x 20 AL FLAT)	06 Nos
10. ARCING HORN FOR MOVING CONTACT(Ø10 ROD M.S. HDG)	06 Nos

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON-FERROUS CONTACT POINTS ARE SILVER PLATED
10 TO 15 MICRONS REMAINING CONTACT AREA TIN PLATED.
4. THE MOVING CONTACT ASSEMBLY SHOWN FOR TURN & TWIST ASSEMBLY

APPROVED

S. S. Kumar
Chief Engineer / Transmission,
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS			
D	C	B	A

TITLE:

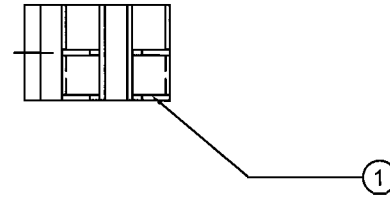
MAIN CONTACT ASSEMBLY
(FOR 33 kV 2000 Amps)



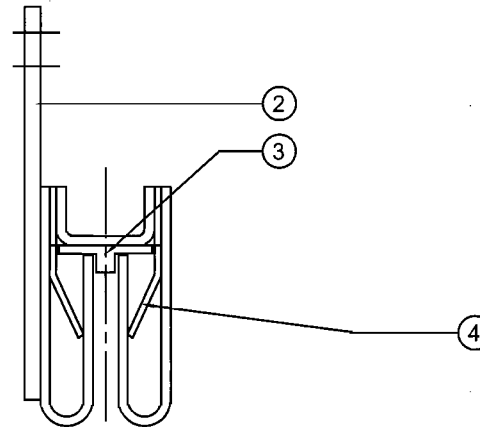
GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE:N.T.S	
DATE	26-05-2016
DRAWN	<i>[Signature]</i>
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APPROVED	<i>[Signature]</i>
DRG.NO:	4. RM TS 10
REV	A

FIXED CONTACT ASSEMBLY :

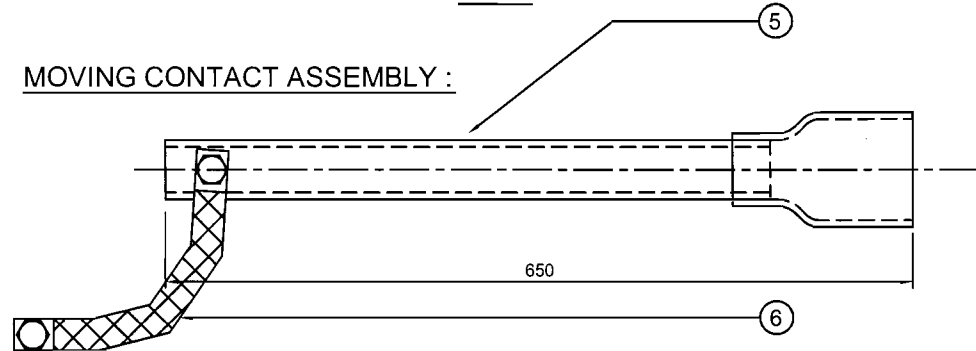


ELEVATION



PLAN

MOVING CONTACT ASSEMBLY :



PART LIST

1. JAWS (25 x 4 mm Cu. FLAT 2 PAIRS, SILVER PLATED)
2. F.C. SUPPORT PLATE (50 x 10 mm THK. Alu. FLAT)
3. SPACER (NYLON)
4. SPRINGS (STAINLESS STEEL)
5. MOVING CONTACT ARM (30 OD GI PIPE END CU. TIPPED)
6. COPPER FLEXIBLE (25 x 3 mm, 350 mm LONG) 2 Nos.

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED
10 TO 15 MICRONS REMAINING CONTACT AREA TIN PLATED

APPROVED

S. S. Ramesh
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS				
D	C	B	A	

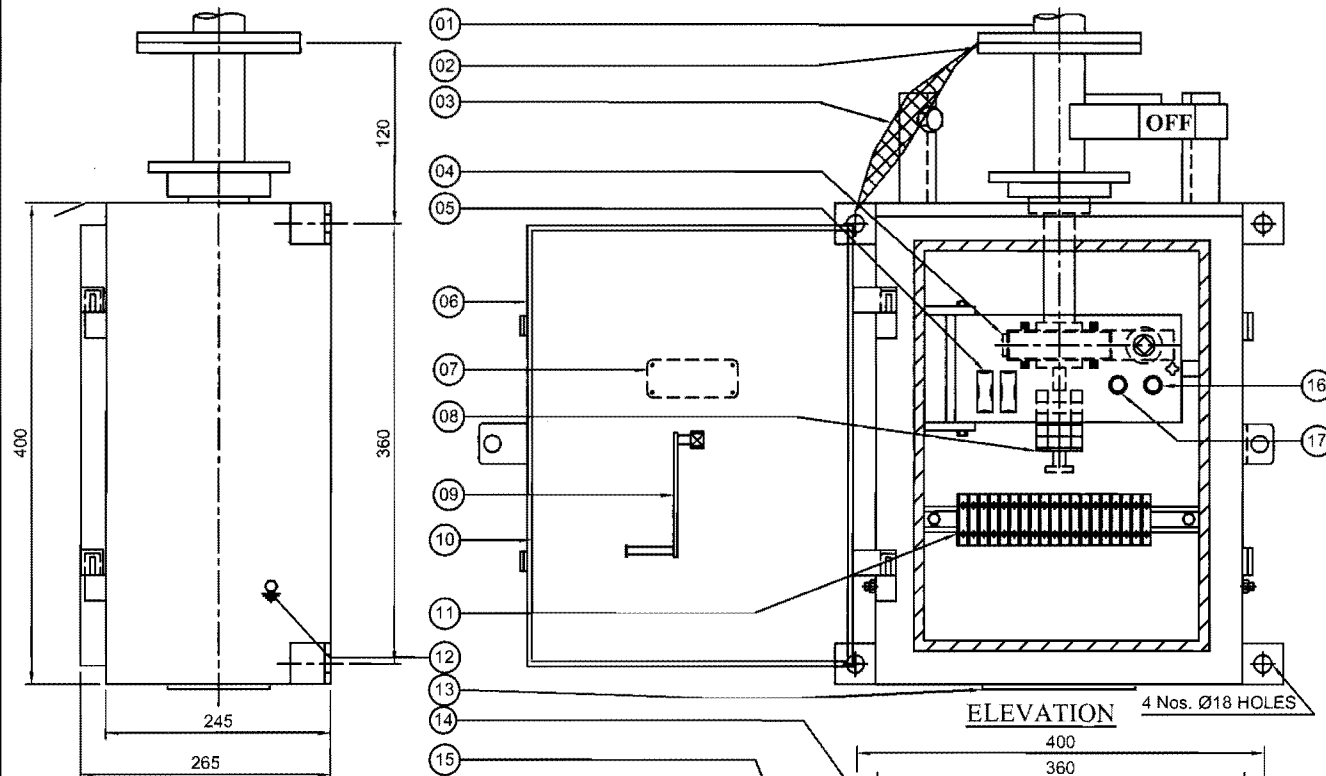
TITLE:

**EARTH SWITCH CONTACT
ASSEMBLY**
(FOR 33 kV EARTH SWITCH)

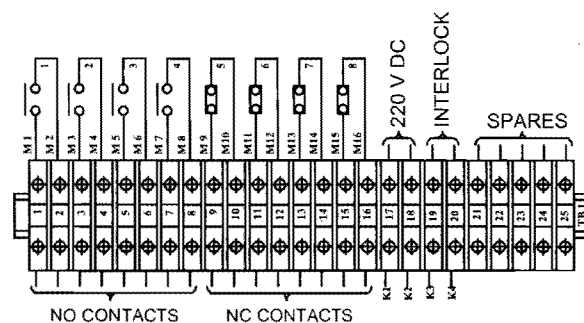


GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE:N.T.S	
DATE	01-08-2014
DRAWN	
CHECKED	
APPROVED	<i>[Signature]</i>
DRG.NO:	4. JE TS 11
REV	



END VIEW
AUX. SWITCH CONTACT DETAILS FOR ISOLATOR(4NO/4NC)



LEGEND:

F1,F2 ----- FUSES (2 Amp Rating)
PB ----- PUSH BUTTON
L----- INDICATION LAMP
SC----- SOLENOID COIL

APPROVED

S. R. Kumar
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS			
D	C	B	A

TITLE:

OPERATING MECHANISM
(33 KV,2000/1600 A ISOLATOR)



GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE:N.T.S	DATE	DRAWN	CHECKED	APPROVED	DRG.NO:	REV
	01-08-2014					

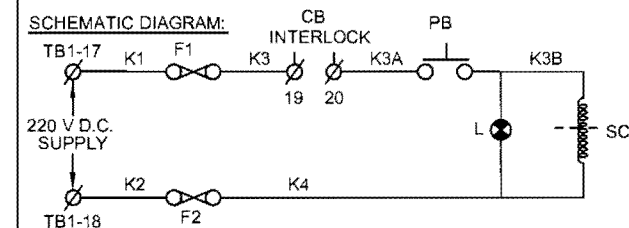
PART LIST

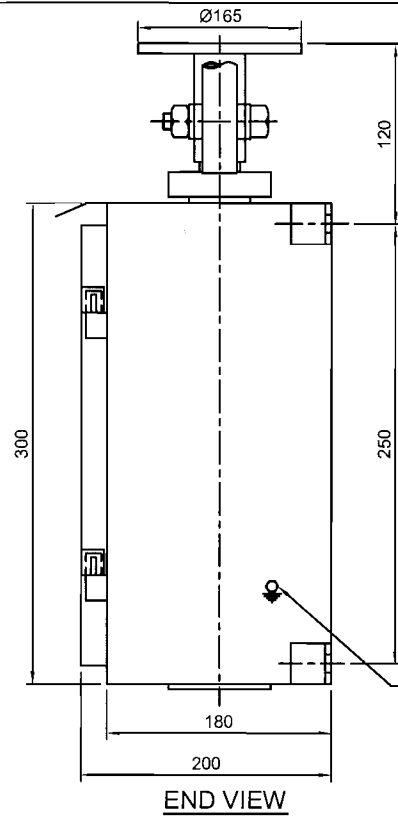
01. DOWN OPERATING PIPE
02. OUTPUT FLANGE (08 MM THICK M.S. PLATE)
03. COPPER FLEXIBLE (25 x 3 mm TINNED Cu. FLEXIBLE)
04. REDUCTION GEAR BOX (MATERIAL : EN8 / FORGED STEEL)
05. FUSES (2 A)
06. CUBICLE WITH DOOR (2.64 mm THICK, M.S. SHEET)
07. NAME PLATE
08. AUXILIARY SWITCH (4 NO + 4 NC)
09. OPERATING HANDLE
10. GASKET (EPDM)
11. TERMINAL BLOCKS (UBT - 4 OF ELEMx / VINMECH OR ITS EQVT.)
12. PROVISION FOR EARTHING TERMINALS
13. DETACHABLE CABLE GLAND FIXING PLATE (WITHOUT GLANDS)
14. ON - OFF STOPPERS (M.S. ANGLE PAINTED)
15. RAIN SHADE
16. INDICATION LAMP
17. PUSH BUTTON (4 A)

NOTES:

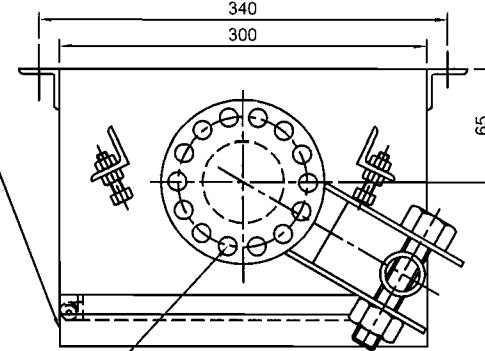
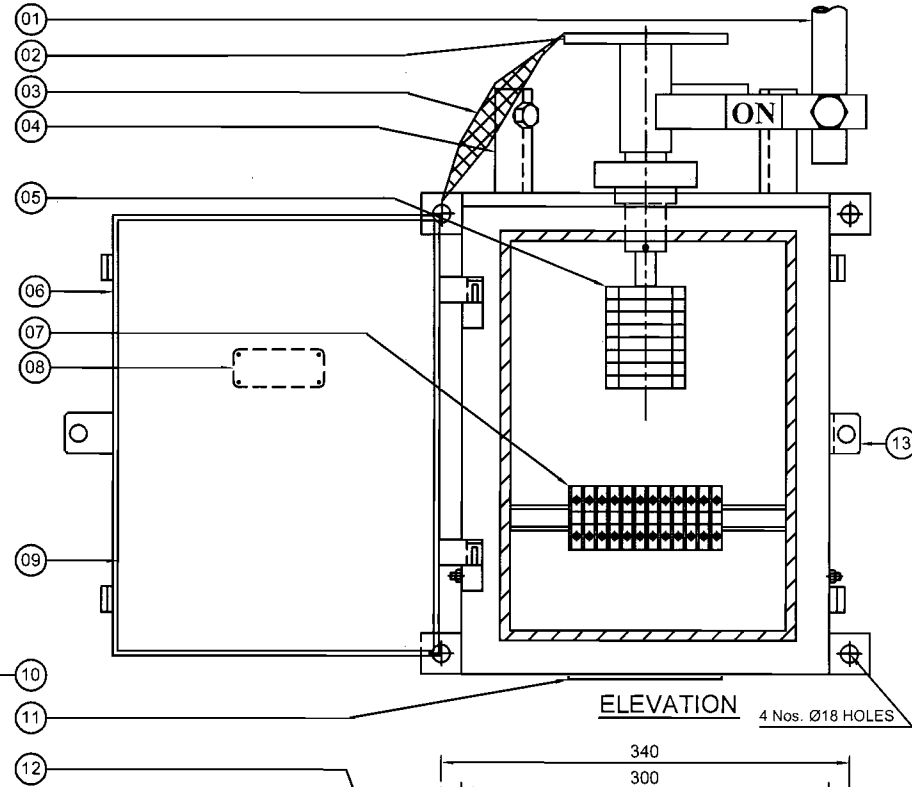
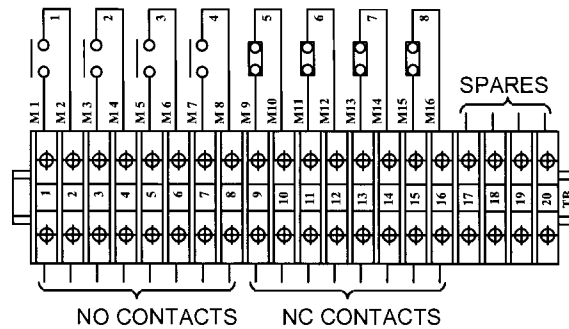
1. ALL DIMENSIONS ARE IN MILLIMETER
2. CUBICLE WILL BE POWDER COATED WITH LIGHT GRAY SHADE NO:631 OF IS:5
3. DEGREE OF PROTECTION IP:55 AS PER IS:2147
4. WEIGHT OF THE BOX :28 Kg (Approx.)
5. WIRING WILL BE DONE WITH 660/1100 V GRADE 2.5 Sq. mm Cu. STANDED P.V.C. INSULATED CONDUCTOR
6. 20% SPARE TERMINALS PROVIDED
7. REDUCTION GEAR RATIO 20 : 1 MAKE GRPS MATERIAL OF GEAR EN8 / STEEL
8. LUBRICATION OF GEARS : NON HARDENED GREASE FILLED GEAR BOX

SCHEMATIC DIAGRAM:





AUX. SWITCH CONTACT DETAILS
(4 NO + 4 NC)



14 NOS. Ø18 HOLES
ON 127 PCD

PART LIST

01. OPERATING HANDLE (Ø32 G.I. PIPE, 600 mm LONG)
02. OUTPUT FLANGE (8 MM THICK, M.S.PLATE)
03. COPPER FLEXIBLE (2 Nos. 25 x 3 mm TINNED Cu. FLEXIBLE)
04. ON - OFF STOPPER
05. AUXILIARY SWITCH (4 NO / 4 NC, 10 A SILVER PLATED)
06. CUBICLE WITH DOOR (2.64 mm THICK, M.S. SHEET)
07. TERMINAL BLOCK (UBT - 4 OF ELEM X / VINMECH OR ITS EQVT.)
08. NAME PLATE
09. GASKET (EPDM)
10. PROVISION FOR EARTHING TERMINAL
11. DETACHABLE CABLE GLAND FIXING PLATE (WITHOUT GLANDS)
12. RAIN SHADE
13. PROVISION FOR PAD LOCK WITHOUT KEY

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. CUBICLE WILL BE POWDER COATED WITH LIGHT GRAY SHADE NO:631 OF IS:5
3. DEGREE OF PROTECTION IP:55 AS PER IS:2147
4. WEIGHT OF THE BOX : 18 Kg (Approx.)
5. 20% SPARE TERMINALS PROVIDED
6. WIRING WILL BE DONE WITH 1100 V. GRADE
 - a) FOR AUXILIARY CIRCUIT (DC SUPPLY) : 2.5 Sq.MM Cu. STRANDED P.V.C. INSULATED CONDUCTOR

APPROVED

S. X. Ramani
Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS			
D	C	B	A

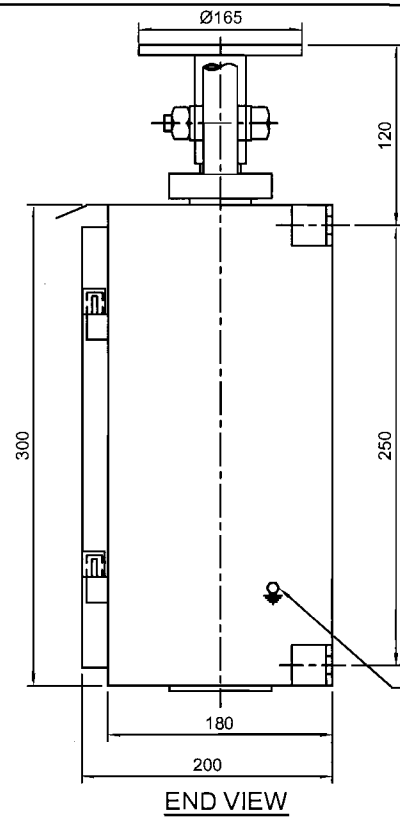
TITLE:

**OPERATING MECHANISM FOR
MAIN SWITCH
(33 KV,1250/800 A)**



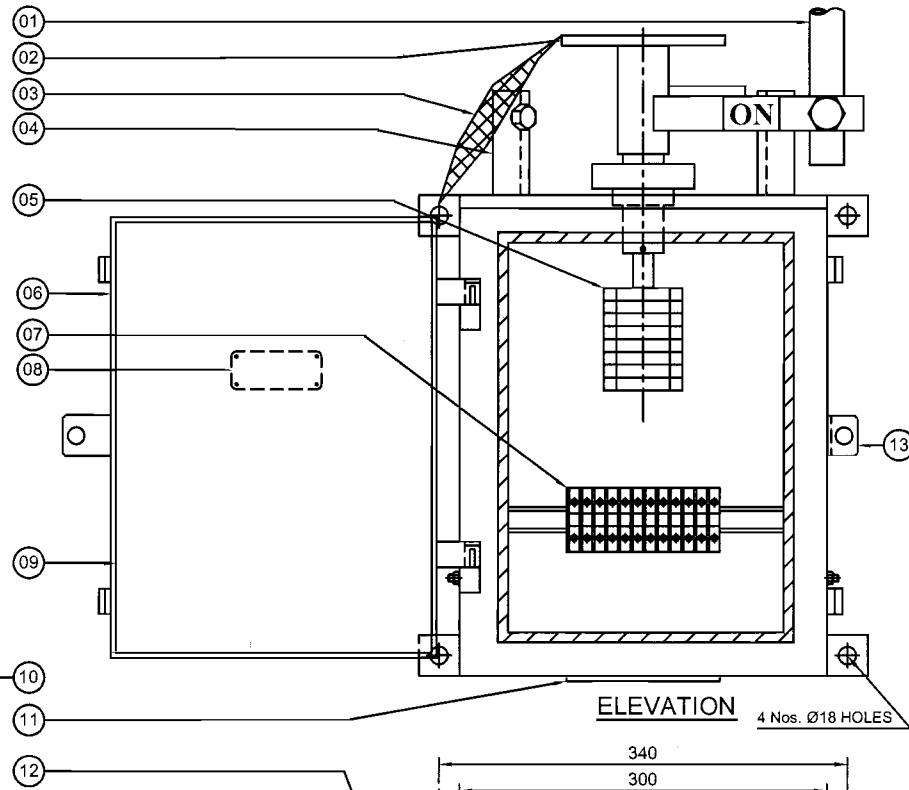
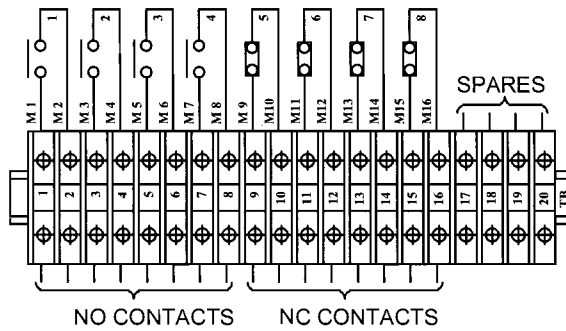
**GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA**

SCALE:N.T.S	
DATE	01 - 08 - 2014
DRAWN	
CHECKED	
APPROVED	
DRG.NO:	4. N TS 13
REV	



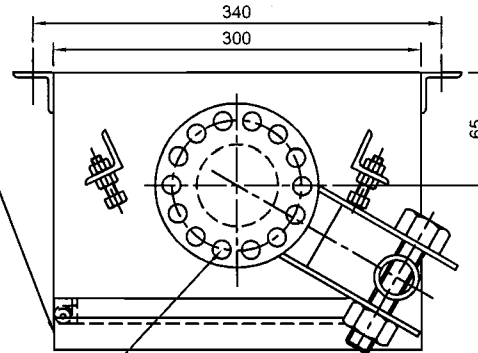
END VIEW

AUX. SWITCH CONTACT DETAILS
(4 NO + 4 NC)



ELEVATION

4 NOS. Ø18 HOLES



PLAN

PART LIST

01. OPERATING HANDLE (Ø32 G.I. PIPE, 600 mm LONG)
02. OUTPUT FLANGE (8 MM THICK, M.S. PLATE)
03. COPPER FLEXIBLE (2 Nos. 25 x 3 mm TINNED Cu. FLEXIBLE)
04. ON - OFF STOPPER
05. AUXILIARY SWITCH (4 NO / 4 NC, 10 A SILVER PLATED)
06. CUBICLE WITH DOOR (2.64 mm THICK, M.S. SHEET)
07. TERMINAL BLOCK (UBT - 4 OF ELEM X / VINMECH OR ITS EQVT.)
08. NAME PLATE
09. GASKET (EPDM)
10. PROVISION FOR EARTHING TERMINAL
11. DETACHABLE CABLE GLAND FIXING PLATE (WITHOUT GLANDS)
12. RAIN SHADE
13. PROVISION FOR PAD LOCK WITHOUT KEY

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. CUBICLE WILL BE POWDER COATED WITH LIGHT GRAY SHADE NO:631 OF IS:5
3. DEGREE OF PROTECTION IP:55 AS PER IS:2147
4. WEIGHT OF THE BOX : 18 Kg (Approx.)
5. 20% SPARE TERMINALS PROVIDED
6. WIRING WILL BE DONE WITH 1100 V. GRADE
a) FOR AUXILIARY CIRCUIT (DC SUPPLY) : 2.5 Sq.MM Cu. STRANDED
P.V.C. INSULATED CONDUCTOR

APPROVED

S. S. K. Roy
Chief Engineer / Transmission
TSTRANS CO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS	D	C	B	A

TITLE:


OPERATING MECHANISM FOR
33 kV EARTH SWITCH



GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA

SCALE: N.T.S.	DATE	01-08-2014
DRAWN	CHECKED	APPROVED
DRG.NO:	REV	4. N TS 14


NAME PLATE DETAILS FOR ISOLATOR

		MANUFACTURED & SUPPLIED BY GR POWER SWITCHGEAR LTD., JEEDIMETLA, HYDERABAD - 500 055	
CUSTOMER :		M/s. TRANSMISSION CORPORATION OF TS LIMITED	
PROJECT :			
CONTRACTOR :			
P.O. NO :		Dt. :	
TYPE :	HDB	SL. NO :	AS APPLICABLE
YEAR OF Mfg. :			
RATING : Un		33	KV ; In : 830/800/1250 A ; WEIGHT IN KG :
IMPLUSE(UI) :		170	KV Peak; SWITCHING(Us): NA KV Peak;
P.F. :		70	KV rms; STC(lth): 25 KA rms; DURATION: 3 Sec;
OPERATING MECHANISM :		LEVER / MANUAL	
CONTROL VOLTAGE :		NA	

100

150


NAME PLATE DETAILS FOR EARTH SWITCH

		MANUFACTURED & SUPPLIED BY GR POWER SWITCHGEAR LTD., JEEDIMETLA, HYDERABAD - 500 055	
CUSTOMER :		M/s. TRANSMISSION CORPORATION OF TS LIMITED	
PROJECT :			
CONTRACTOR :			
L.O.A./ P.O. NO :		Dt. :	
TYPE :	VB	SL. NO :	AS APPLICABLE
YEAR OF Mfg. :			
RATING : Un		33	KV ; In : A ; WEIGHT IN KG :
IMPLUSE(UI) :		170	KV Peak; SWITCHING(Us): NA KV Peak;
P.F. :		70	KV rms; STC(lth): 25 KA rms; DURATION: 3 Sec;
OPERATING MECHANISM :		MANUAL	
CONTROL VOLTAGE :		---	

100

150

NAME PLATE DETAILS FOR ISOLATOR

		MANUFACTURED & SUPPLIED BY GR POWER SWITCHGEAR LTD., JEEDIMETLA, HYDERABAD - 500 055	
CUSTOMER :		M/s. TRANSMISSION CORPORATION OF TS LIMITED	
PROJECT :			
CONTRACTOR :			
P.O. NO :		Dt. :	
TYPE :	HDB	SL. NO :	AS APPLICABLE
YEAR OF Mfg. :			
RATING : Un		33	KV ; In : 1600/2000 A ; WEIGHT IN KG :
IMPLUSE(UI) :		170	KV Peak; SWITCHING(Us): NA KV Peak;
P.F. :		70	KV rms; STC(lth): 25 KA rms; DURATION: 3 Sec;
OPERATING MECHANISM :		MANUAL(RG)	
CONTROL VOLTAGE :		220 VDC	


100

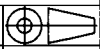
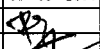
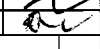
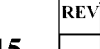

150

NOTES :

1. ENGRAVED LETTER SIZE : 3 mm
2. LETTER ETCHED WHITE ON BLACK BACKGROUND
3. MATERIAL : ALUMINIUM
4. THICKNESS : 1 mm

APPROVED


 Chief Engineer / Transmission
 TSTRANSCO, Vidyut Soudha,
 HYDERABAD - 500 082

REVISIONS				TITLE:		SCALE: N.T.S.			
D	C	B	A	NAME PLATE DETAILS (FOR 33 KV)		DATE		01 - 08 - 2014	
						DRAWN			
						CHECKED			
						APPROVED			
				 GR POWER SWITCHGEAR LTD., JEEDIMETLA HYDERABAD-500 055 INDIA		DRG.NO:		4. Z TS 15	
						REV			

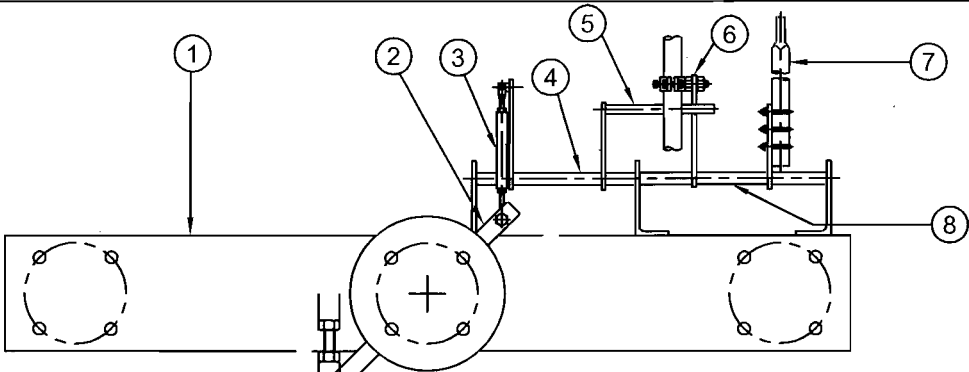


FIG - 1 : ISOLATOR IN "CLOSE" POSITION
EARTH SWITCH IN "OPEN" POSITION

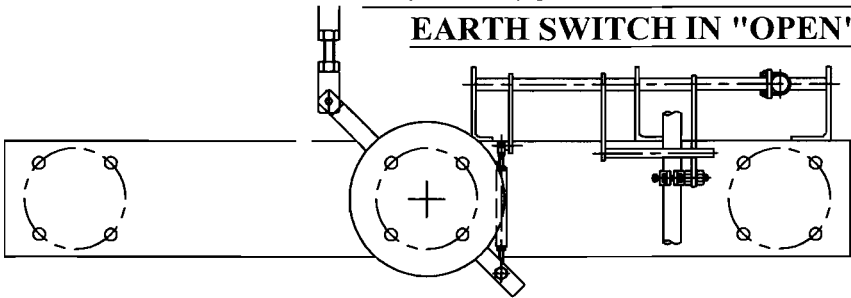


FIG - 2 : ISOLATOR IN "OPEN" POSITION
EARTH SWITCH IN "CLOSE" POSITION

NOTES :

- 1. BASE CHANNEL
- 2. ISOLATOR OPERATING LEVER
- 3. LINK ROD
- 4. ROTATING PIPE - 1
- 5. STOPPER ROD
- 6. E.S. OPERATING LEVER
- 7. E.S. MOVING CONTACT
- 8. ROTATING PIPE - 2

CONSTRUCTION :

ISOLATOR OPERATING LEVER (2) IS CONNECTED TO THE ROTATION PIPE - 1 (4) THROUGH THE LINK ROD (3), THE STOPPER ROD (5) ALSO MOVES ALONG WITH THE ROTATING PIPE (4) EARTH SWITCH OPERATING LEVER (6) MOVES THE ROTATING PIPE - 2 (8) WITH EARTH SWITCH MOVING CONTACT (7) INDIVIDUALLY

FUNCTION :

IN FIG - 1 : THE ISOLATOR OPERATING LEVER (2) IS CONNECTED TO THE ROTATING PIPE - 1 (4) AND STOPPER ROD (5) THE STOPPER ROD (5) ABOVE THE EARTH SWITCH OPERATING LEVER (6) WHICH WILL NOT PERMIT TO MOVE EARTH SWITCH OPERATING LEVER (6) AND THE E.S. MOVING CONTACT (7) TO CLOSE POSITION

IN FIG - 2 : THE ROTATING PIPE - (4) AND STOPPER ROD (5) ARE BELOW THE EARTH SWITCH OPERATING LEVER (6) AND THE EARTH SWITCH MOVING CONTACT (7) IN CLOSED CONDITION. EARTH SWITCH OPERATING LEVER (6) WILL NOT PERMIT TO MOVE THE STOPPER ROD (5) AND ISOLATOR OPERATING LEVER (2) TO CLOSE POSITION

APPROVED

Chief Engineer / Transmission
TSTRANSCO, Vidyut Soudha,
HYDERABAD - 500 082

REVISIONS					TITLE:	SCALE:N.T.S	
D	C	B	A				
					MECHANICAL INTERLOCK BETWEEN MAIN SWITCH AND EARTH SWITCH (FOR 33 KV ISOLATOR)	DATE	01 - 08 - 2014
						DRAWN	
						CHECKED	
						APPROVED	
						DRG.NO:	REV
						4. Z TS 16	

GR POWER SWITCHGEAR LTD.,
JEEDIMETLA HYDERABAD-500 055 INDIA