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|                                                                                                                                                                                                     |                                                    |
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| <b>DEVELOPMENT CONSULTANTS<br/>PRIVATE LIMITED</b>                                                                                                                                                  |                                                    |
| Reviewed only for general conformance with contract drawings and specifications.<br>Contractor to be responsible for any errors and for fulfillment of detailed requirements of contract documents. |                                                    |
| ACTION : <b>2</b>                                                                                                                                                                                   | DATE : <b>18.10.16</b>                             |
| DISTRIBUTED BY : <b>SKB/BR</b>                                                                                                                                                                      |                                                    |
| 1 Distributed                                                                                                                                                                                       | 4 Approved except as noted. Resubmission required. |
| 2 <input checked="" type="checkbox"/> Approved                                                                                                                                                      | 5 Disapproved. See accompanying letter.            |
| 3 Approved except as noted. Forward final drawing.                                                                                                                                                  | 6 For information and record only.                 |
| <b>SEE COVERING LETTER</b>                                                                                                                                                                          |                                                    |
| Letter Ref. No.                                                                                                                                                                                     | Date :                                             |



**GUJARAT STATE ELECTRICITY CORPORATION LIMITED**  
**VADODARA, GUJARAT**  
 SWITCHYARD EXTENSION for  
**1x800 MW Wanakbori Thermal Power Station Extn. Unit-8**  
**LOA NO. PP/SE(P.II)/WKB-8/683 DATED 26.09.14**



**DEVELOPMENT CONSULTANTS PVT. LTD.**  
**CONSULTING ENGINEERS**  
 KOLKATA • MUMBAI • CHENNAI • NEW DELHI



**BHARAT HEAVY ELECTRICALS LTD.**  
**P.O. NUMBER : 145P319 DTD 10/04/2016**

**TITLE :**  
**TITLE SHEET FOR 420kV CIRCUIT BREAKER**

Document No. TB-DG-375-316-402

|                            |             |             |
|----------------------------|-------------|-------------|
|                            | <b>NAME</b> | <b>DATE</b> |
| <b>DRAWN</b>               |             |             |
| <b>CHECKED</b>             |             |             |
| <b>APPROVED</b>            |             |             |
| <b>SHEET NO.</b><br>1 OF 1 |             | <b>R 03</b> |

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| SL NO | DRAWING NO         | SHT.NO   | TITLE                                                  | REV 0      |                | REV 1      |                   | REV 2      |                   |
|-------|--------------------|----------|--------------------------------------------------------|------------|----------------|------------|-------------------|------------|-------------------|
|       |                    |          |                                                        | DATE       | DETAILS        | DATE       | DETAILS           | DATE       | DETAILS           |
| 1     | 3271003612ED316001 | 1 OF 19  | CONTENT OF ELECTRICAL DRAWINGS                         | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS | 29.09.2016 | CUSTOMER COMMENTS |
| 2     | 3271003612ED316001 | 2 OF 19  | GENERAL NOTES                                          | 26.07.2016 | ORIGINAL ISSUE |            |                   |            |                   |
| 3     | 3271003612ED316001 | 3 OF 19  | LEGEND                                                 | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS |            |                   |
| 4     | 3271003612ED316001 | 4 OF 19  | LEGEND                                                 | 26.07.2016 | ORIGINAL ISSUE |            |                   |            |                   |
| 5     | 3271003612ED316001 | 5 OF 19  | CLOSING AND ANTIPUMPING CIRCUIT                        | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS |            |                   |
| 6     | 3271003612ED316001 | 6 OF 19  | TRIP SYSTEM 1 AND POLE DISCREPANCY                     | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS |            |                   |
| 7     | 3271003612ED316001 | 7 OF 19  | TRIP SYSTEM 2                                          | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS |            |                   |
| 8     | 3271003612ED316001 | 8 OF 21  | SF6 GAS LOCKOUT, POLE DISCREPANCY & INDICATION CIRCUIT | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS |            |                   |
| 9     | 3271003612ED316001 | 9 OF 21  | REMOTE ALARMS                                          | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS |            |                   |
| 10    | 3271003612ED316001 | 10 OF 21 | AC CIRCUITS                                            | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS | 29.09.2016 | CUSTOMER COMMENTS |
| 11    | 3271003612ED316001 | 11 OF 21 | SPARE AUXILIARY CONTACTS                               | 26.07.2016 | ORIGINAL ISSUE |            |                   |            |                   |
| 12    | 3271003612ED316001 | 12 OF 21 | TERMINAL BLOCK DETAILS                                 | 26.07.2016 | ORIGINAL ISSUE |            |                   |            |                   |
| 13    | 3271003612ED316001 | 13 OF 21 | TERMINAL BLOCK DETAILS                                 | 26.07.2016 | ORIGINAL ISSUE |            |                   |            |                   |
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| 18    | 3271003612ED316001 | 18 OF 21 | CROSS REFERENCE DETAILS                                | 26.07.2016 | ORIGINAL ISSUE | 19.09.2016 | CUSTOMER COMMENTS |            |                   |
| 19    | 3271003612ED316001 | 19 OF 21 | CROSS REFERENCE DETAILS                                | 26.07.2016 | ORIGINAL ISSUE |            |                   |            |                   |
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420kV 50ka SF6 CB TYPE GL316 WITH 3 Nos. SPRING MECH.

SALE ORDER NO.:- 3271003612

TOTAL QUANTITY OF C.B : 6 Nos.

|                                                                                       |                                                                                                                                                                                                              |                                         |                |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------|
|  | GUJARAT STATE ELECTRICITY CORPORATION LIMITED<br>VADODARA, GUJARAT<br>400KV SWITCHYARD EXTENSION FOR<br>1x800 MW Wandalbori Thermal Power Station Extn. Unit-8<br>LOA NO. PP/SE(PJ)/WKD-8/683 DATED 26.09.14 |                                         |                |
|  | DEVELOPMENT CONSULTANTS PVT. LTD.<br>CONSULTING ENGINEERS<br>KOLKATA • MUMBAI • CHENNAI • NEW DELHI                                                                                                          |                                         |                |
|  | BHARAT HEAVY ELECTRICALS LTD.<br>P.O. NUMBER 145PS19 DTD 10/04/2016                                                                                                                                          |                                         |                |
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|  | A3                                                                                                                                                                                                           | CIRCUIT BREAKER<br>TYPE : GL316 (420kV) |                |
| T&D<br>Chennai India                                                                  | SCALE<br>—/—                                                                                                                                                                                                 |                                         |                |
| MODIFICATION<br>DATE: 19.09.2016<br>NAME: KS                                          |                                                                                                                         | CONTENTS OF<br>ELECTRICAL DRAWINGS      | VERSION<br>1   |
| APPROVED<br>DATE: 19.09.2016<br>NAME: KPB                                             |                                                                                                                                                                                                              |                                         | PAGE<br>1 / 21 |
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NOTES :

- 1) SCHEME SHOWS BREAKER TRIPPED, WITHOUT SF6 GAS PRESSURE AND CLOSING SPRING CHARGED
- 2) CONTACTORS SHOWN IN DE-ENERGISED CONDITION
- 3) PANEL WIRED WITH PVC INSULATED COPPER WIRE SIZE 2.5 Sq.mm
- 4) COLOUR OF WIRES: BLACK - AC CIRCUIT, GREY - DC CIRCUIT, GREEN - EARTH
- 5) CONTINUOUS POWER USED FOR SUPERVISION OF COILS SHOULD NOT EXCEED 4 WATT
- 6) ALL TERMINALS USED IN CONTROL CUBICLE ARE OF STUD TYPE ELMEX / CONNECTWELL TYPE CATM3/CSTSB3.
- 7) ALL TERMINALS USED IN MECHANISM CUBICLE ARE OF STUD TYPE ELMEX / CONNECTWELL TYPE CATM3/CSTSB3.
- 8) LOCATION REFERENCE

-  — MULTICORE TERMINAL
- DM — DENSIMETER
- MC — MECHANISM CUBICLE
- CC — CONTROL CUBICLE

9) GAS PRESSURE

| SF6 PRESSURE           | SF6 PRESSURE MPa (ABSOLUTE)<br>AT 20°C | SF6 PRESSURE kg/cm2<br>AT 20°C |
|------------------------|----------------------------------------|--------------------------------|
| FILLING                | 0.70                                   | 7.1                            |
| ALARM (P1)             | 0.67                                   | 6.8                            |
| ALARM (P2) (AUTO TRIP) | 0.64                                   | 6.5                            |
| LOCKOUT (P3)           | 0.61                                   | 6.2                            |

| GENERAL NOTES |  | T&D<br>Chennai India | 3271003612ED316001 | REV | VER | PAGE   |
|---------------|-------------------------------------------------------------------------------------|----------------------|--------------------|-----|-----|--------|
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|---------|-----------------------------------------|--------------------------------------------------------|-----------|----------------------------|-------------------------------|---------------------------|-------|--------------|
| TAGNAME | DESCRIPTION                             | SPECIFICATION                                          | MAKE      | MODEL                      | ALTERNATE MAKE                | ALTERNATE MODEL           | QUANT | PANEL NUMBER |
| 43A     | LOCAL / OFF / REMOTE SWITCH, POLE:4L+4R | LOCAL-OFF-REMOTE NONLOCKABLE SWITCH,25 AMP, POLE:4     | KAYCEE    | 4MD49B0                    | SALZER/EQUIVALENT             | -                         | 1     | CC           |
| 94A     | CONTACTOR - ANTIPUMPING PHASE A         | AUX.CONTACTOR 2NO+2NC 220V DC                          | SIEMENS   | 3RH21 22-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN22MD/DILA-22(220VDC) | 1     | CC           |
| 94B     | CONTACTOR - ANTIPUMPING PHASE B         | AUX.CONTACTOR 2NO+2NC 220V DC                          | SIEMENS   | 3RH21 22-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN22MD/DILA-22(220VDC) | 1     | CC           |
| 94C     | CONTACTOR - ANTIPUMPING PHASE C         | AUX.CONTACTOR 2NO+2NC 220V DC                          | SIEMENS   | 3RH21 22-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN22MD/DILA-22(220VDC) | 1     | CC           |
| A2      | CONTACTOR - SF6 LOW PRESSURE ALARM 2    | AUX.CONTACTOR 2NO+2NC 220V DC                          | SIEMENS   | 3RH21 22-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN22MD/DILA-22(220VDC) | 1     | CC           |
| A2      | ADD ON BLOCK - SF6 LOW PRESSURE ALARM 2 | AUX. CONTACTOR ADD ON BLOCK 1NO+1NC                    | SIEMENS   | 3RH29 11-1HA11             | SCHNEIDER/EATON/GE/EQUIVALENT | LA1KN11/DILA-XHI11        | 1     | CC           |
| A3      | CONTACTOR - SF6 LOW PRESSURE LOCKOUT    | AUX.CONTACTOR 3NO+1NC 220V DC                          | SIEMENS   | 3RH21 31-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN31MD/DILA-31(220VDC) | 1     | CC           |
| A3      | ADD ON BLOCK - SF6 LOW PRESSURE LOCKOUT | AUX.CONTACTOR ADD ON BLOCK 2NO+2NC                     | SIEMENS   | 3RH29 11-1HA22             | SCHNEIDER/EATON/GE/EQUIVALENT | LA1KN22/DILA-XHI22        | 1     | CC           |
| A5      | PHASE DISCREPANCY TIMER                 | TIMING : 0.05-100 HR , 2CO, 24-220V AC/DC              | SIEMENS   | 3RP15 25-1BW30             | ALLENBRADLEY/EQUIVALENT       | FSM4UU18                  | 1     | CC           |
| A6      | CONTACTOR - TRIP 1                      | AUX.CONTACTOR 3NO+1NC 220V DC                          | SIEMENS   | 3RH21 31-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN31MD/DILA-31(220VDC) | 1     | CC           |
| A7      | CONTACTOR - TRIP 2                      | AUX.CONTACTOR 3NO+1NC 220V DC                          | SIEMENS   | 3RH21 31-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN31MD/DILA-31(220VDC) | 1     | CC           |
| A9      | CONTACTOR - PHASE DISCREPANCY           | AUX.CONTACTOR 3NO+1NC 220V DC                          | SIEMENS   | 3RH21 31-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN31MD/DILA-31(220VDC) | 1     | CC           |
| A10     | CONTACTOR - DC SUPPLY 1 SUPERVISION     | AUX.CONTACTOR 2NO+2NC 220V DC                          | SIEMENS   | 3RH21 22-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN22MD/DILA-22(220VDC) | 1     | CC           |
| A10     | ADD ON BLOCK - DC SUPPLY 1 SUPERVISION  | AUX. CONTACTOR ADD ON BLOCK 1NO+1NC                    | SIEMENS   | 3RH29 11-1HA11             | SCHNEIDER/EATON/GE/EQUIVALENT | LA1KN11/DILA-XHI11        | 1     | CC           |
| A11     | CONTACTOR - DC SUPPLY 2 SUPERVISION     | AUX.CONTACTOR 2NO+2NC 220V DC                          | SIEMENS   | 3RH21 22-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN22MD/DILA-22(220VDC) | 1     | CC           |
| A14     | CONTACTOR - DC COMMON SUPPLY            | AUX.CONTACTOR 2NO+2NC 220V DC                          | SIEMENS   | 3RH21 22-1BM40             | SCHNEIDER/EATON/GE/EQUIVALENT | CA3KN22MD/DILA-22(220VDC) | 1     | CC           |
| DS      | DOOR SWITCH                             | DOOR SWITCH NORMALLY CLOSED 2A                         | SURAJ     | DS                         | EQUIVALENT                    | -                         | 1     | CC           |
| H       | PANEL HEATER                            | HEATER 60W, 230V AC                                    | APT       | Mk II A                    | APT/GRISHEGO/SOFIA/EQUIVALENT | Mk II A/EQUIVALENT        | 1     | CC           |
| IL      | CUBICLE ILLUMINATION LAMP               | 25W, 230V AC, INCANDESCENT, CANDLE.MODEL : B22         | PHILIPS   | 25W, 230V AC,TYPE:CANDLE   | OSRAM/EQUIVALENT              | -                         | 1     | CC           |
| IL1     | INDICATION LAMP - CB CLOSED             | LED RED 220V DC                                        | TEKNIC    | 3PLBR4L-220VDC             | SIEMENS/SCHNEIDER/EQUIVALENT  | 3SB52 85-6HC05            | 1     | CC           |
| IL2     | INDICATION LAMP - CB TRIPPED            | LED GREEN 220V DC                                      | TEKNIC    | 3PLBR3L-220VDC             | SIEMENS/SCHNEIDER/EQUIVALENT  | 3SB52 85-6HE05            | 1     | CC           |
| IL3     | INDICATION LAMP - CB SPRING CHARGED     | LED AMBER 220V DC                                      | TEKNIC    | 3PLBR5L-220VDC             | SIEMENS/SCHNEIDER/EQUIVALENT  | 3SB52 85-6HL05            | 1     | CC           |
| MCB1    | MCB - MOTOR SUPPLY - MECHANISM A        | MCB-AC 16A DP 10KA                                     | EATON     | PLSM-C16/2                 | SCHNEIDER/GE/EQUIVALENT       | XC60-A9N2P16C             | 1     | CC           |
| MCB2    | MCB - MOTOR SUPPLY - MECHANISM B        | MCB-AC 16A DP 10KA                                     | EATON     | PLSM-C16/2                 | SCHNEIDER/GE/EQUIVALENT       | XC60-A9N2P16C             | 1     | CC           |
| MCB3    | MCB - MOTOR SUPPLY - MECHANISM C        | MCB-AC 16A DP 10KA                                     | EATON     | PLSM-C16/2                 | SCHNEIDER/GE/EQUIVALENT       | XC60-A9N2P16C             | 1     | CC           |
| MCB4    | CUBICLE ILLUMINATION AND HEATER MCB     | MCB-AC 16A DP 10KA                                     | EATON     | PLSM-C16/2                 | SCHNEIDER/GE/EQUIVALENT       | XC60-A9N2P16C             | 1     | CC           |
| MCB5    | MCB - DC SUPPLY 1                       | MCB-DC 6A 2P 6KA                                       | EATON     | PLS6-C6/2-DC               | SCHNEIDER/GE/EQUIVALENT       | C60H-A9N61526             | 1     | CC           |
| MCB6    | MCB - DC SUPPLY 2                       | MCB-DC 6A 2P 6KA                                       | EATON     | PLS6-C6/2-DC               | SCHNEIDER/GE/EQUIVALENT       | C60H-A9N61526             | 1     | CC           |
| OC-A    | OPERATION COUNTER - PHASE A             | BREAKER OPERATION COUNTER(RESETTABLE -6 DIGIT) - 220DC | GIC       | CR-26_SD51A385             | EQUIVALENT                    | -                         | 1     | CC           |
| OC-B    | OPERATION COUNTER - PHASE B             | BREAKER OPERATION COUNTER(RESETTABLE -6 DIGIT) - 220DC | GIC       | CR-26_SD51A385             | EQUIVALENT                    | -                         | 1     | CC           |
| OC-C    | OPERATION COUNTER - PHASE C             | BREAKER OPERATION COUNTER(RESETTABLE -6 DIGIT) - 220DC | GIC       | CR-26_SD51A385             | EQUIVALENT                    | -                         | 1     | CC           |
| PBS1    | PUSHBUTTON - CB CLOSE                   | PUSHBUTTON GREEN +1NO BLOCK                            | SIEMENS   | 3SB50 00-0AE01+3SB54 00-0B | SCHNEIDER/EQUIVALENT          | XB5AA31N                  | 1     | CC           |
| PBS2    | PUSH BUTTON-CB TRIP                     | PUSHBUTTON RED +1NO BLOCK                              | SIEMENS   | 3SB50 00-0AC01+3SB54 00-0B | SCHNEIDER/EQUIVALENT          | XB5AA41N                  | 1     | CC           |
| PBS2    | PUSH BUTTON-CB TRIP                     | PUSHBUTTON 1NO ADDON BLOCK                             | SIEMENS   | 3SB54 00-0B                | SCHNEIDER/EQUIVALENT          | XB5AA41N                  | 1     | CC           |
| S       | SOCKET WITH SWITCH                      | 6PIN, 5/15A                                            | OSWAL     | SKT                        | LEGRAND/EQUIVALENT            | -                         | 1     | CC           |
| TH      | CUBICLE THERMOSTAT                      | THERMOSTAT 20deg. TO 80deg. C                          | GIRISHECO | DLX-5                      | APT/EQUIVALENT                | 175/30-90(Mk II A)        | 1     | CC           |
| TB1     | TERMINAL BLOCK                          | TYPE:CATM3                                             | ELMEX     | CATM3                      | CONNECTWELL/EQUIVALENT        | CSTS83                    | 45    | CC           |
| TB2     | TERMINAL BLOCK                          | TYPE:CATM3                                             | ELMEX     | CATM3                      | CONNECTWELL/EQUIVALENT        | CSTS83                    | 45    | CC           |
| TB3     | TERMINAL BLOCK                          | TYPE:CATM3                                             | ELMEX     | CATM3                      | CONNECTWELL/EQUIVALENT        | CSTS83                    | 45    | CC           |
| TB4     | TERMINAL BLOCK                          | TYPE:CATM3                                             | ELMEX     | CATM3                      | CONNECTWELL/EQUIVALENT        | CSTS83                    | 45    | CC           |
| TB5     | TERMINAL BLOCK                          | TYPE:CATM3                                             | ELMEX     | CATM3                      | CONNECTWELL/EQUIVALENT        | CSTS83                    | 45    | CC           |
| TB6     | TERMINAL BLOCK                          | TYPE:CATM3                                             | ELMEX     | CATM3                      | CONNECTWELL/EQUIVALENT        | CSTS83                    | 45    | CC           |
| TB7     | TERMINAL BLOCK                          | TYPE:CATM3                                             | ELMEX     | CATM3                      | CONNECTWELL/EQUIVALENT        | CSTS83                    | 45    | CC           |
| TBX     | TERMINAL BLOCK                          | TYPE:CUT4                                              | ELMEX     | CUT4                       | CONNECTWELL/REPUTED           | CTS4UN                    | 4     | CC           |

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| H       |                                       | G                                                  |  | F |  | E         |                                        | D                             |  | C                  |  | B     |              | A |  |
|---------|---------------------------------------|----------------------------------------------------|--|---|--|-----------|----------------------------------------|-------------------------------|--|--------------------|--|-------|--------------|---|--|
| TAGNAME | DESCRIPTION                           | SPECIFICATION                                      |  |   |  | MAKE      | MODEL                                  | ALTERNATE MAKE                |  | ALTERNATE MODEL    |  | QUANT | PANEL NUMBER |   |  |
| 52CC    | CLOSING COIL PHASE A                  | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-A         |   |  |
| 52TC1   | TRIP COIL 1 PHASE A                   | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-A         |   |  |
| 52TC2   | TRIP COIL 2 PHASE A                   | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-A         |   |  |
| DMA     | DENSITY MONITOR                       | DENSIMETER 3NO(P1- ALARM1,P2-ALARM2 & P3- LOCKOUT) |  |   |  | WIKA      | 851.52.063HS -14131114 (HRCC160200004) | EQUIVALENT/BAOJI              |  | -                  |  | 1     | MC-A         |   |  |
| DS      | MECHANISM A DOOR SWITCH               | DOOR SWITCH NORMALLY CLOSED 2A                     |  |   |  | SURAJ     | DS                                     | EQUIVALENT                    |  | -                  |  | 1     | MC-A         |   |  |
| H       | MECHANISM A HEATER                    | HEATER 60W, 230V AC                                |  |   |  | APT       | Mk II A                                | APT/GRISHEGO/SOFIA/EQUIVALENT |  | Mk II A            |  | 1     | MC-A         |   |  |
| IL      | MECHANISM A CUBICLE ILLUMINATION LAMP | 25W, 230V AC, INCANDESCENT, CANDLE,MODEL : B22     |  |   |  | PHILIPS   | 25W, 230V AC,TYPE:CANDLE               | OSRAM/EQUIVALENT              |  | -                  |  | 1     | MC-A         |   |  |
| LS      | LIMIT SWITCH MECHANISM A              | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-A         |   |  |
| M       | SPRING CHARGE MOTOR MECHANISM A       | 220-250V AC/DC,700WATT                             |  |   |  | AGNI      | HRCC4100029-2 (S310-220)               | GROSCHOPP/WUXI/EQUIVALENT     |  | -                  |  | 1     | MC-A         |   |  |
| S1      | AUXILIARY SWITCHS S1 MECHANISM A      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-A         |   |  |
| S2      | AUXILIARY SWITCHS S2 MECHANISM A      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-A         |   |  |
| S3      | AUXILIARY SWITCHS S3 MECHANISM A      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-A         |   |  |
| S4      | AUXILIARY SWITCHS S4 MECHANISM A      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-A         |   |  |
| TH      | MECHANISM A THERMOSTAT                | THERMOSTAT 20deg. TO 80deg. C                      |  |   |  | GIRISHECO | DLX-5                                  | APT/EQUIVALENT                |  | 175/30-90(Mk II A) |  | 1     | MC-A         |   |  |
| TB1     | TERMINAL BLOCK                        | TYPE:CATM3                                         |  |   |  | ELMEX     | CATM3                                  | CONNECTWELL/EQUIVALENT        |  | CSTSBS3            |  | 45    | MC-A         |   |  |
| TB2     | TERMINAL BLOCK MECHANISM A            | TYPE:CATM3                                         |  |   |  | ELMEX     | CATM3                                  | CONNECTWELL/EQUIVALENT        |  | CSTSBS3            |  | 45    | MC-A         |   |  |
| 52CC    | CLOSING COIL PHASE B                  | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-B         |   |  |
| 52TC1   | TRIPPING COIL 1 PHASE B               | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-B         |   |  |
| 52TC2   | TRIPPING COIL 2 PHASE B               | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-B         |   |  |
| DMB     | DENSITY MONITOR                       | DENSIMETER 3NO(P1- ALARM1,P2-ALARM2 & P3- LOCKOUT) |  |   |  | WIKA      | 851.52.063HS -14131114 (HRCC160200004) | EQUIVALENT/BAOJI              |  | -                  |  | 1     | MC-B         |   |  |
| DS      | MECHANISM B DOOR SWITCH               | DOOR SWITCH NORMALLY CLOSED 2A                     |  |   |  | SURAJ     | DS                                     | EQUIVALENT                    |  | -                  |  | 1     | MC-B         |   |  |
| H       | MECHANISM B HEATER                    | HEATER 60W, 230V AC                                |  |   |  | APT       | Mk II A                                | APT/GRISHEGO/SOFIA/EQUIVALENT |  | Mk II A            |  | 1     | MC-B         |   |  |
| IL      | MECHANISM B CUBICLE ILLUMINATION LAMP | 25W, 230V AC, INCANDESCENT, CANDLE,MODEL : B22     |  |   |  | PHILIPS   | 25W, 230V AC,TYPE:CANDLE               | OSRAM/EQUIVALENT              |  | -                  |  | 1     | MC-B         |   |  |
| LS      | LIMIT SWITCH MECHANISM B              | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-B         |   |  |
| M       | SPRING CHARGE MOTOR MECHANISM B       | 220-250V AC/DC,700WATT                             |  |   |  | AGNI      | HRCC4100029-2 (S310-220)               | GROSCHOPP/WUXI/EQUIVALENT     |  | -                  |  | 1     | MC-B         |   |  |
| S1      | AUXILIARY SWITCHS S1 MECHANISM B      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-B         |   |  |
| S2      | AUXILIARY SWITCHS S2 MECHANISM B      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-B         |   |  |
| S3      | AUXILIARY SWITCHS S3 MECHANISM B      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-B         |   |  |
| S4      | AUXILIARY SWITCHS S4 MECHANISM B      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-B         |   |  |
| TH      | MECHANISM B THERMOSTAT                | THERMOSTAT 20deg. TO 80deg. C                      |  |   |  | GIRISHECO | DLX-5                                  | APT/EQUIVALENT                |  | 175/30-90(Mk II A) |  | 1     | MC-B         |   |  |
| TB1     | TERMINAL BLOCK                        | TYPE:CATM3                                         |  |   |  | ELMEX     | CATM3                                  | CONNECTWELL/EQUIVALENT        |  | CSTSBS3            |  | 45    | MC-B         |   |  |
| TB2     | TERMINAL BLOCK MECHANISM B            | TYPE:CATM3                                         |  |   |  | ELMEX     | CATM3                                  | CONNECTWELL/EQUIVALENT        |  | CSTSBS3            |  | 45    | MC-B         |   |  |
| 52CC    | CLOSING COIL PHASE C                  | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-C         |   |  |
| 52TC1   | TRIPPING COIL 1 PHASE C               | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-C         |   |  |
| 52TC2   | TRIPPING COIL 2 PHASE C               | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |  |   |  | ALSTOM    | HEH4910211023                          | -                             |  | -                  |  | 1     | MC-C         |   |  |
| DMC     | DENSITY MONITOR                       | DENSIMETER 3NO(P1- ALARM1,P2-ALARM2 & P3- LOCKOUT) |  |   |  | WIKA      | 851.52.063HS -14131114 (HRCC160200004) | EQUIVALENT/BAOJI              |  | -                  |  | 1     | MC-C         |   |  |
| DS      | MECHANISM C DOOR SWITCH               | DOOR SWITCH NORMALLY CLOSED 2A                     |  |   |  | SURAJ     | DS                                     | EQUIVALENT                    |  | -                  |  | 1     | MC-C         |   |  |
| H       | MECHANISM C HEATER                    | HEATER 60W, 230V AC                                |  |   |  | APT       | Mk II A                                | APT/GRISHEGO/SOFIA/EQUIVALENT |  | Mk II A            |  | 1     | MC-C         |   |  |
| IL      | MECHANISM C CUBICLE ILLUMINATION LAMP | 25W, 230V AC, INCANDESCENT, CANDLE,MODEL : B22     |  |   |  | PHILIPS   | 25W, 230V AC,TYPE:CANDLE               | OSRAM/EQUIVALENT              |  | -                  |  | 1     | MC-C         |   |  |
| LS      | LIMIT SWITCH MECHANISM C              | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-C         |   |  |
| M       | SPRING CHARGE MOTOR MECHANISM C       | 220-250V AC/DC,700WATT                             |  |   |  | AGNI      | HRCC4100029-2 (S310-220)               | GROSCHOPP/WUXI/EQUIVALENT     |  | -                  |  | 1     | MC-C         |   |  |
| S1      | AUXILIARY SWITCHS S1 MECHANISM C      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-C         |   |  |
| S2      | AUXILIARY SWITCHS S2 MECHANISM C      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-C         |   |  |
| S3      | AUXILIARY SWITCHS S3 MECHANISM C      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-C         |   |  |
| S4      | AUXILIARY SWITCHS S4 MECHANISM C      | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP             |  |   |  | ALSTOM    | JE4910510001                           | -                             |  | -                  |  | 1     | MC-C         |   |  |
| TH      | MECHANISM C THERMOSTAT                | THERMOSTAT 20deg. TO 80deg. C                      |  |   |  | GIRISHECO | DLX-5                                  | APT/EQUIVALENT                |  | 175/30-90(Mk II A) |  | 1     | MC-C         |   |  |
| TB1     | TERMINAL BLOCK                        | TYPE:CATM3                                         |  |   |  | ELMEX     | CATM3                                  | CONNECTWELL/EQUIVALENT        |  | CSTSBS3            |  | 45    | MC-C         |   |  |
| TB2     | TERMINAL BLOCK MECHANISM C            | TYPE:CATM3                                         |  |   |  | ELMEX     | CATM3                                  | CONNECTWELL/EQUIVALENT        |  | CSTSBS3            |  | 45    | MC-C         |   |  |

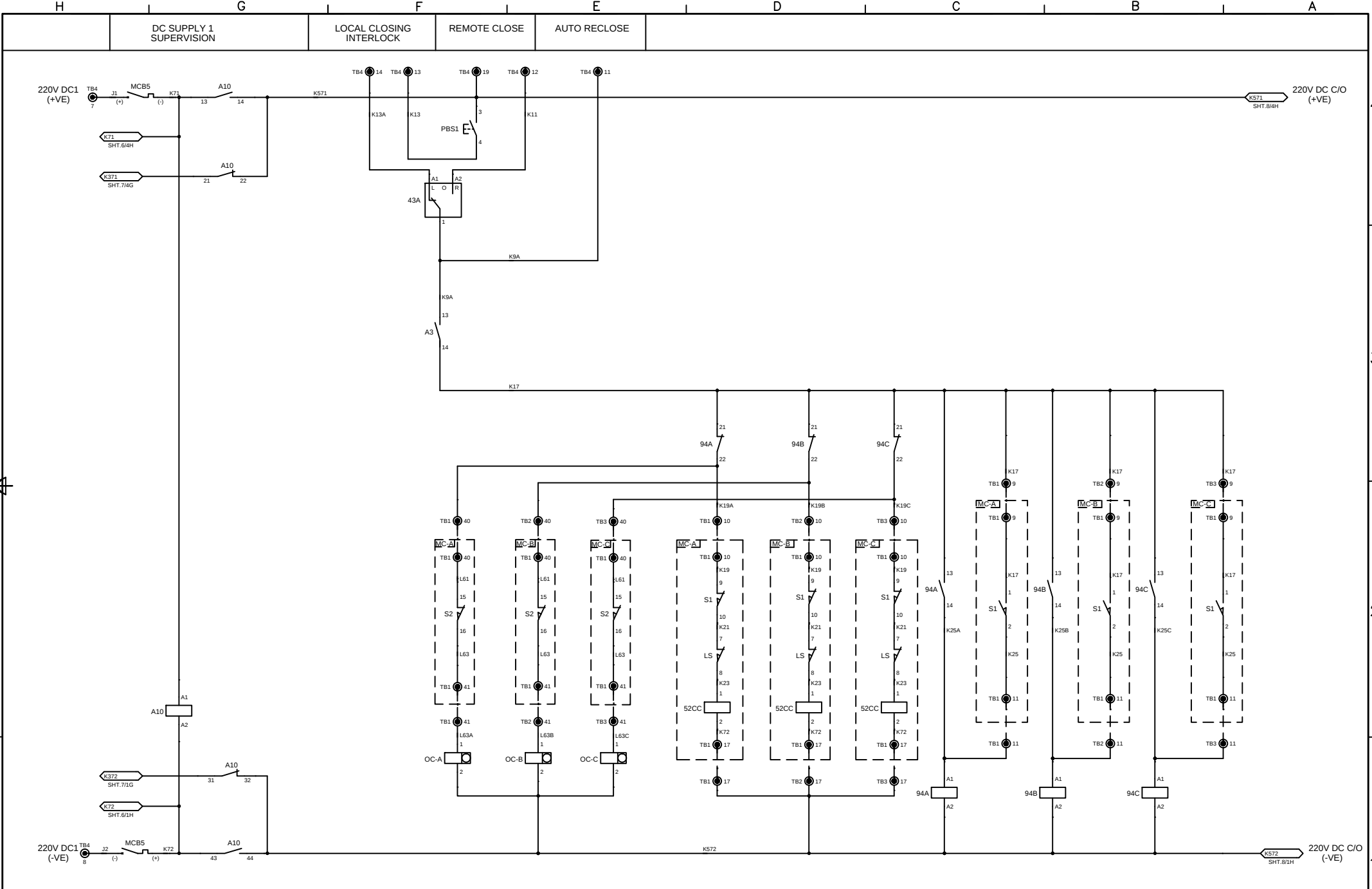
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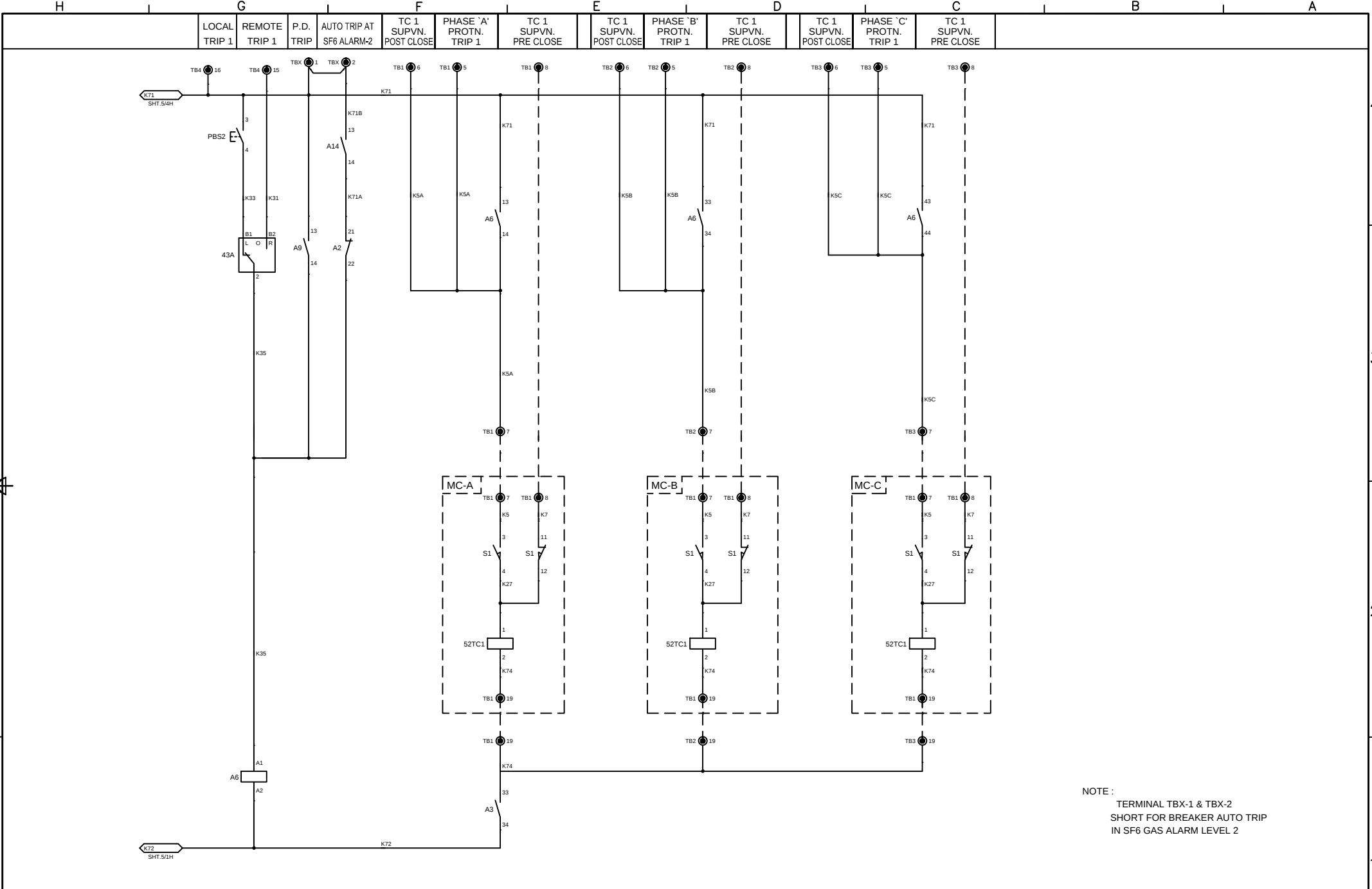
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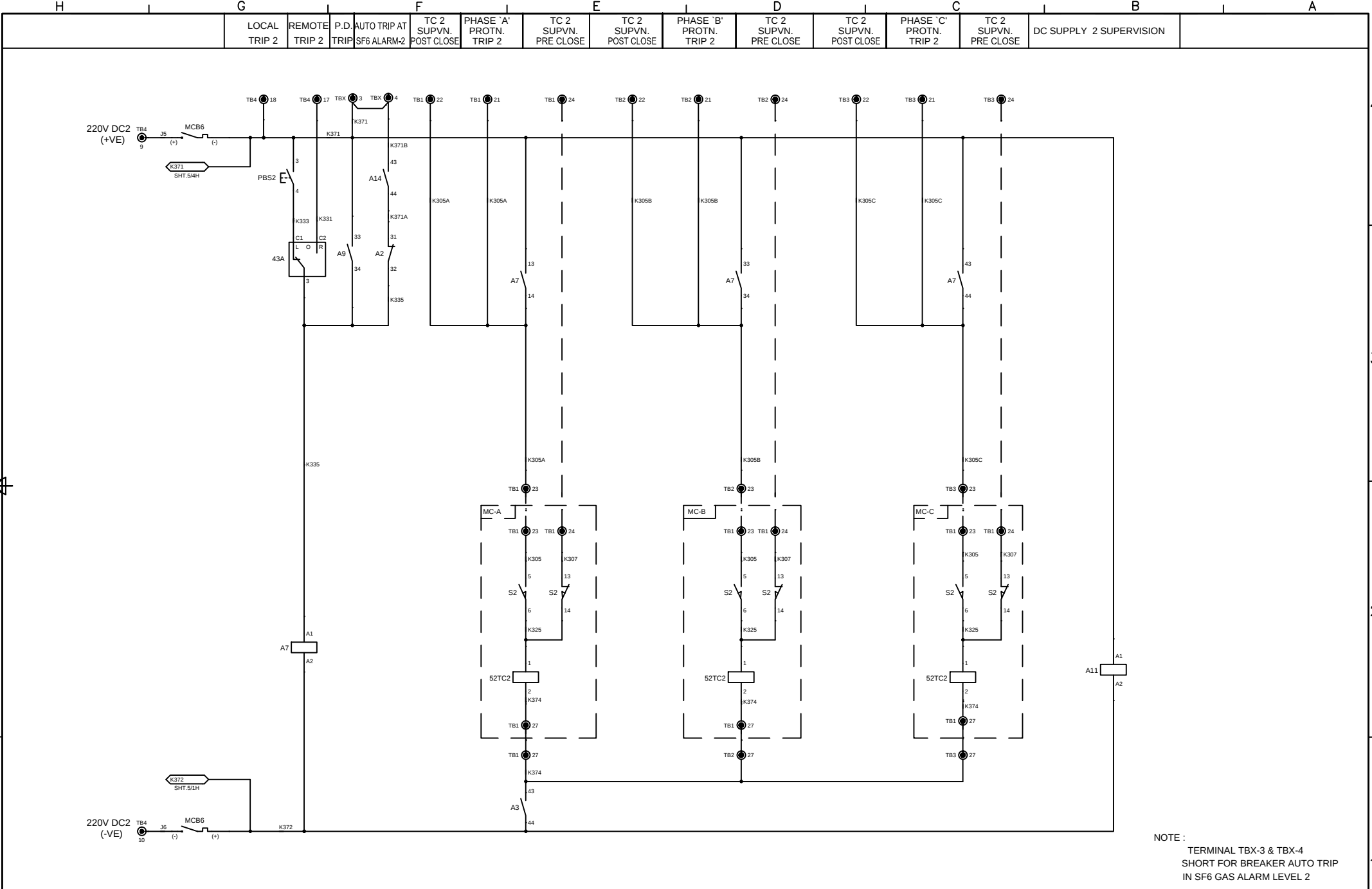
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NOTE :  
TERMINAL TBX-1 & TBX-2  
SHORT FOR BREAKER AUTO TRIP  
IN SF6 GAS ALARM LEVEL 2

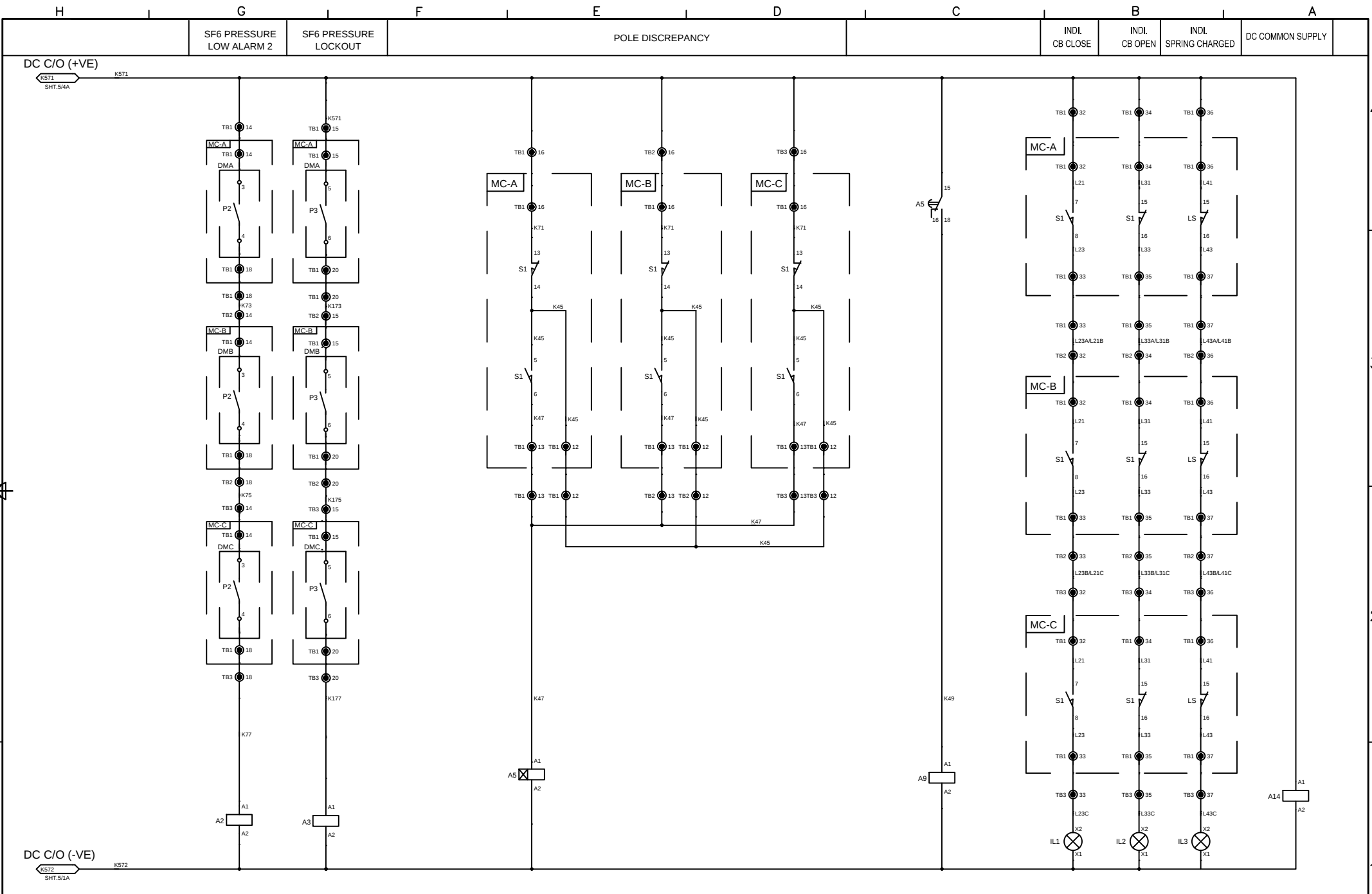
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| TRIP SYSTEM 1 |  |  |  | ALSTOM |  | T&D<br>Chennai India |  | 3271003612ED316001 |  |  |  | REV | VER | PAGE    |
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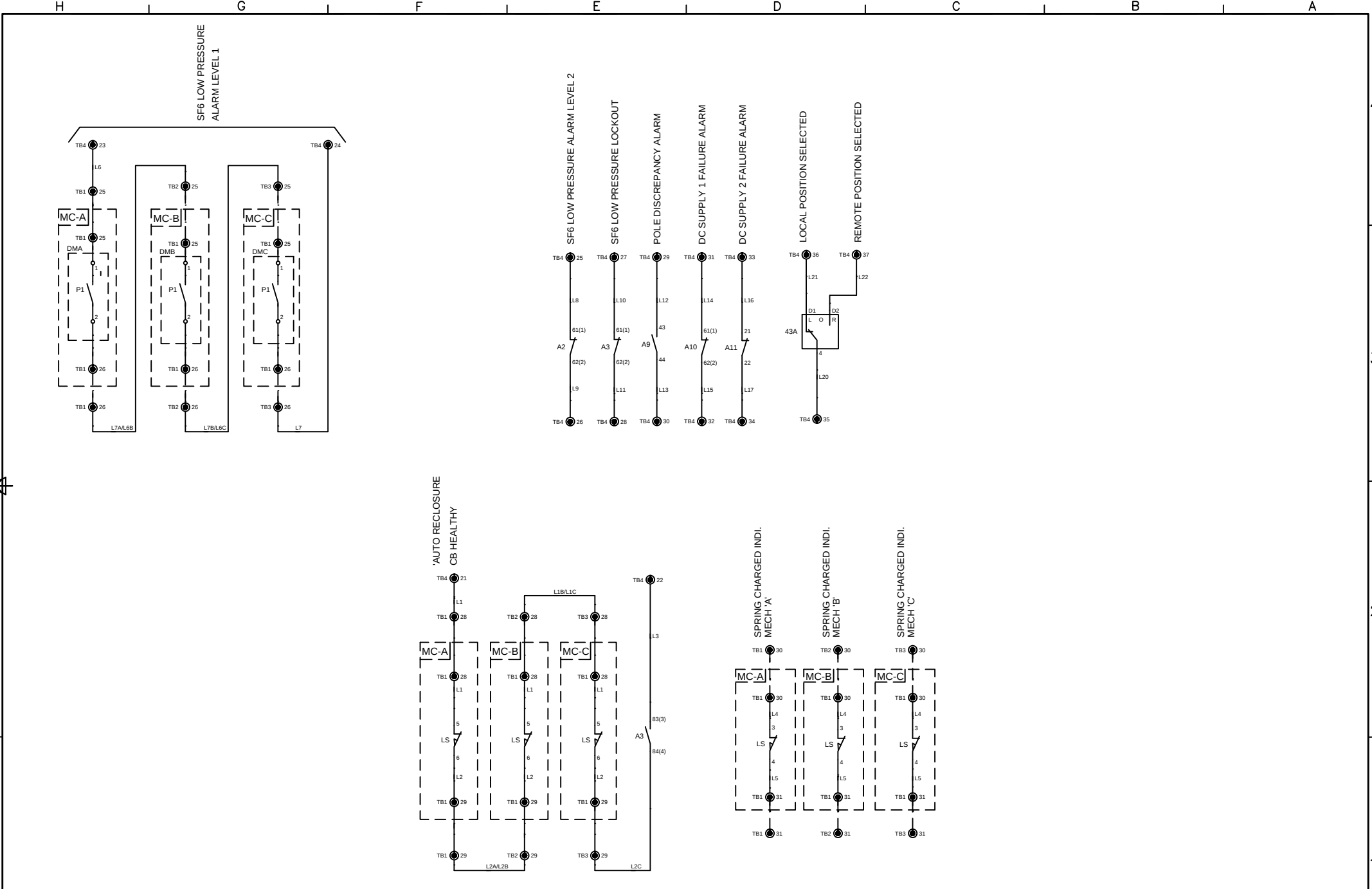


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| TRIP SYSTEM 2 |  |  |  | ALSTOM |  | T&D<br>Chennai India |  | 3271003612ED316001 |  |  |  | REV | VER | PAGE    |
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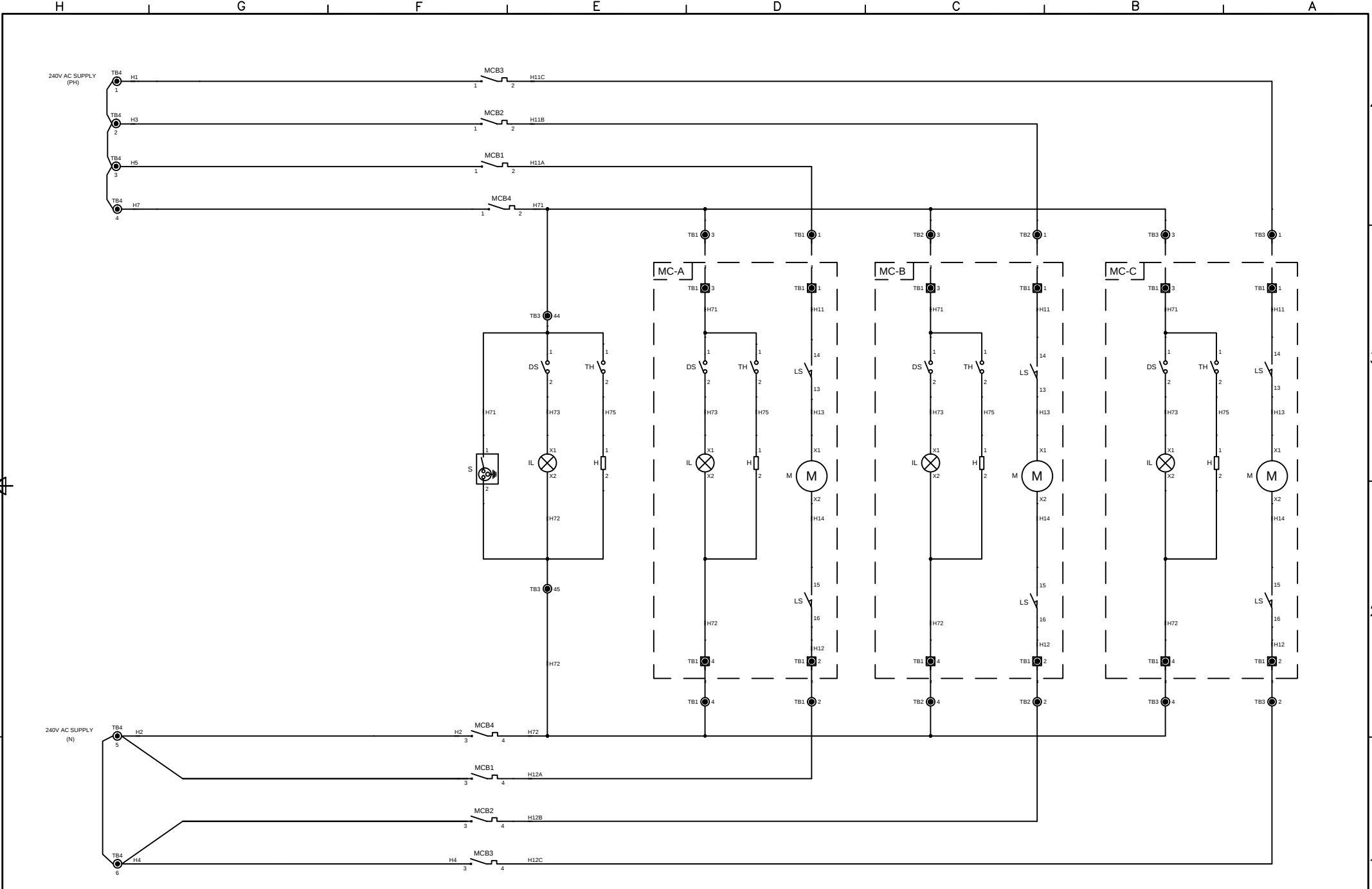


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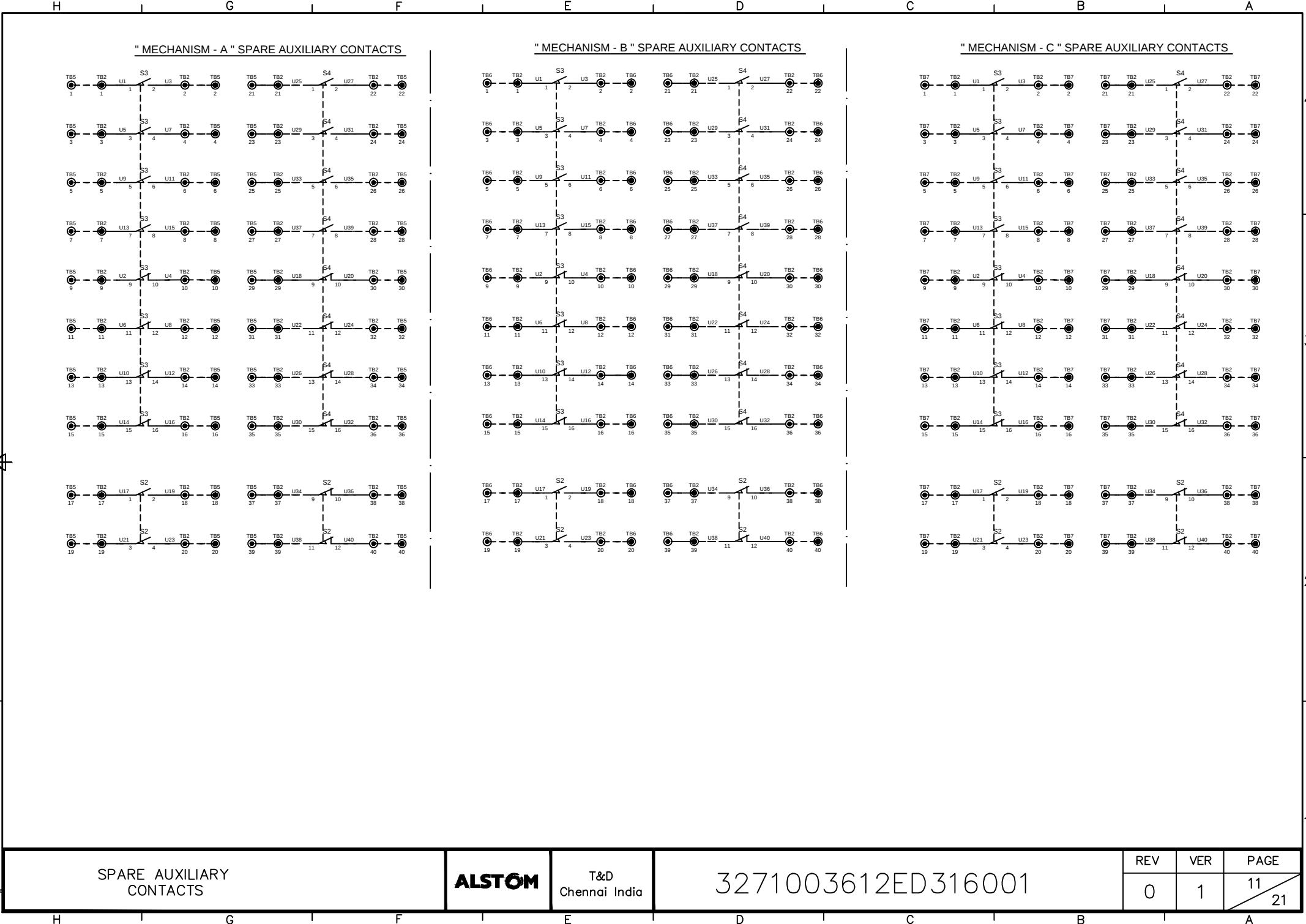


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| REMOTE ALARMS | <b>ALSTOM</b> | T&D<br>Chennai India | 3271003612ED316001 | REV | VER | PAGE    |
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SPARE AUXILIARY  
CONTACTS

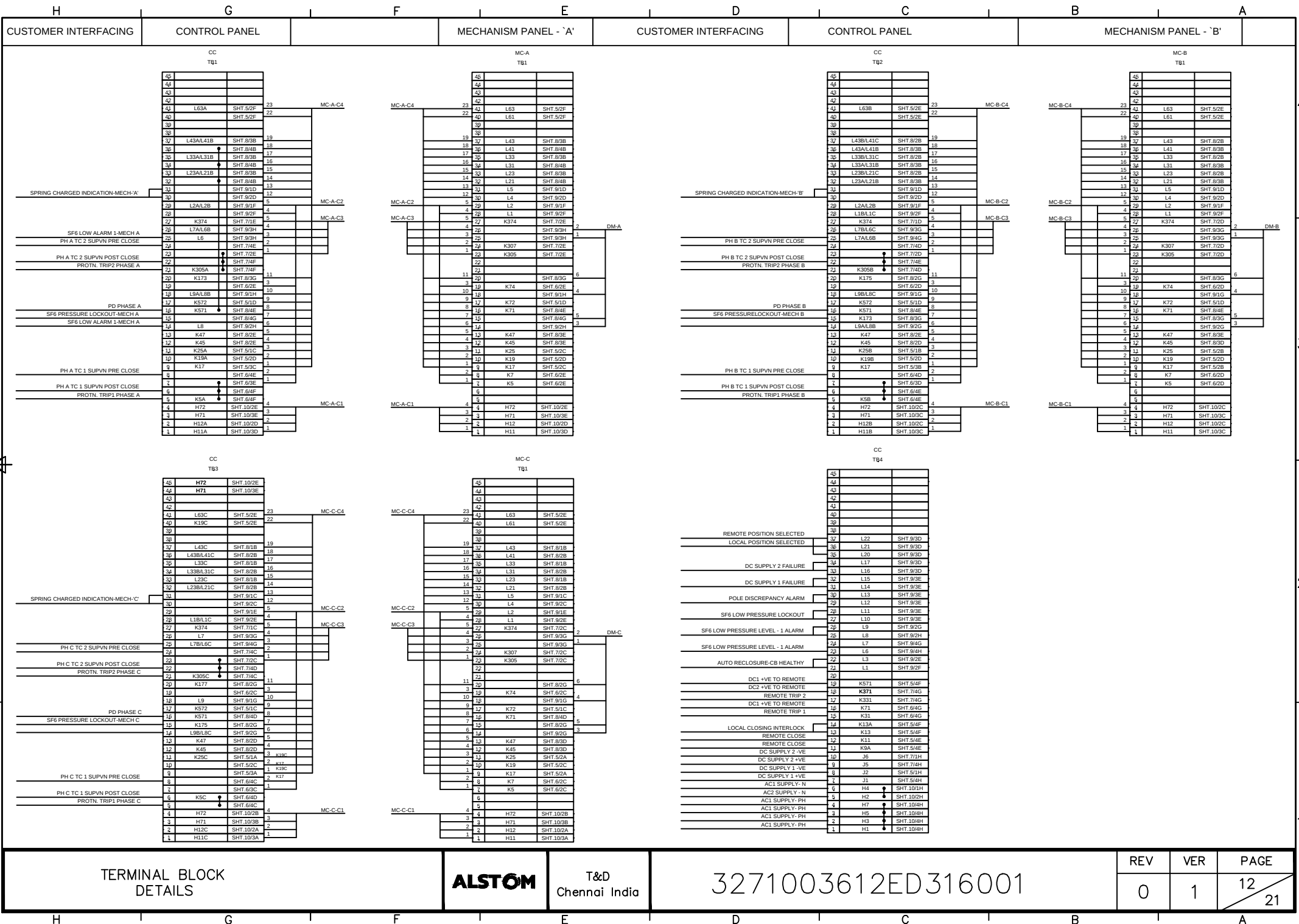


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TERMINAL BLOCK  
DETAILS

**ALSTOM** T&D  
Chennai India

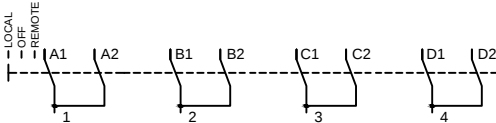
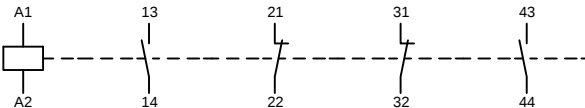
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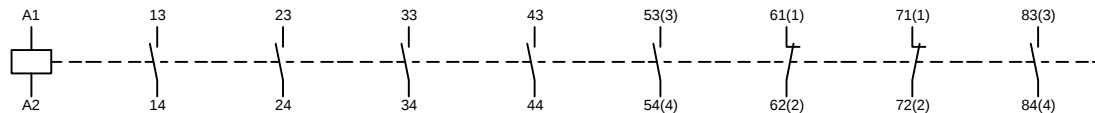
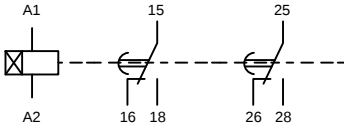
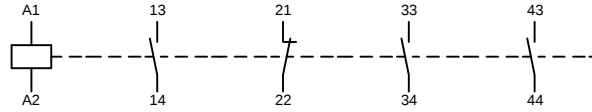
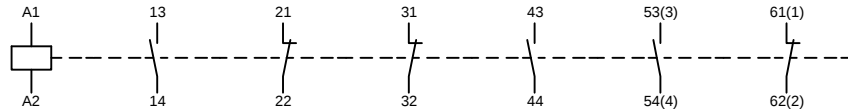
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|----------------------------------------|---------------|----------------------|-----------------|----------------------|---------------|----------------------|----|---------------|
| CUSTOMER INTERFACING                   | CONTROL PANEL |                      | MECHANISM PANEL | CUSTOMER INTERFACING | CONTROL PANEL | MECHANISM PANEL      |    |               |
|                                        | CC<br>T85     |                      | MC-A<br>T82     |                      | CC<br>T86     | MC-B<br>T82          |    |               |
|                                        | 45            |                      | 45              |                      | 45            | 45                   |    |               |
|                                        | 44            |                      | 44              |                      | 44            | 44                   |    |               |
|                                        | 43            |                      | 43              |                      | 43            | 43                   |    |               |
|                                        | 42            |                      | 42              |                      | 42            | 42                   |    |               |
|                                        | 41            |                      | 41              |                      | 41            | 41                   |    |               |
|                                        | 40            | SHT.11/2F 20 MC-A-C6 | 40              | U40 SHT.11/2F        | 40            | SHT.11/2D 20 MC-B-C6 | 40 | U40 SHT.11/2D |
|                                        | 39            | SHT.11/2G 19         | 39              | U39 SHT.11/2G        | 39            | SHT.11/2D 19         | 39 | U39 SHT.11/2D |
|                                        | 38            | SHT.11/2F 18         | 38              | U38 SHT.11/2F        | 38            | SHT.11/2D 18         | 38 | U38 SHT.11/2D |
|                                        | 37            | SHT.11/2G 17         | 37              | U37 SHT.11/2G        | 37            | SHT.11/2D 17         | 37 | U37 SHT.11/2D |
|                                        | 36            | SHT.11/2F 16         | 36              | U36 SHT.11/2F        | 36            | SHT.11/2D 16         | 36 | U36 SHT.11/2D |
|                                        | 35            | SHT.11/2G 15         | 35              | U35 SHT.11/2G        | 35            | SHT.11/2D 15         | 35 | U35 SHT.11/2D |
|                                        | 34            | SHT.11/2F 14         | 34              | U34 SHT.11/2F        | 34            | SHT.11/2D 14         | 34 | U34 SHT.11/2D |
|                                        | 33            | SHT.11/2G 13         | 33              | U33 SHT.11/2G        | 33            | SHT.11/2D 13         | 33 | U33 SHT.11/2D |
|                                        | 32            | SHT.11/2F 12         | 32              | U32 SHT.11/2F        | 32            | SHT.11/2D 12         | 32 | U32 SHT.11/2D |
|                                        | 31            | SHT.11/2G 11         | 31              | U31 SHT.11/2G        | 31            | SHT.11/2D 11         | 31 | U31 SHT.11/2D |
|                                        | 30            | SHT.11/2F 10         | 30              | U30 SHT.11/2F        | 30            | SHT.11/2D 10         | 30 | U30 SHT.11/2D |
|                                        | 29            | SHT.11/2G 9          | 29              | U29 SHT.11/2G        | 29            | SHT.11/2D 9          | 29 | U29 SHT.11/2D |
|                                        | 28            | SHT.11/2F 8          | 28              | U28 SHT.11/2F        | 28            | SHT.11/2D 8          | 28 | U28 SHT.11/2D |
|                                        | 27            | SHT.11/2G 7          | 27              | U27 SHT.11/2G        | 27            | SHT.11/2D 7          | 27 | U27 SHT.11/2D |
|                                        | 26            | SHT.11/2F 6          | 26              | U26 SHT.11/2F        | 26            | SHT.11/2D 6          | 26 | U26 SHT.11/2D |
|                                        | 25            | SHT.11/2G 5          | 25              | U25 SHT.11/2G        | 25            | SHT.11/2D 5          | 25 | U25 SHT.11/2D |
|                                        | 24            | SHT.11/2F 4          | 24              | U24 SHT.11/2F        | 24            | SHT.11/2D 4          | 24 | U24 SHT.11/2D |
|                                        | 23            | SHT.11/2G 3          | 23              | U23 SHT.11/2G        | 23            | SHT.11/2D 3          | 23 | U23 SHT.11/2D |
|                                        | 22            | SHT.11/2F 2          | 22              | U22 SHT.11/2F        | 22            | SHT.11/2D 2          | 22 | U22 SHT.11/2D |
|                                        | 21            | SHT.11/2G 1          | 21              | U21 SHT.11/2G        | 21            | SHT.11/2D 1          | 21 | U21 SHT.11/2D |
| 10NO + 10NC AUX. CONTACTS<br>PHASE 'A' | 20            | SHT.11/2G 20 MC-A-C5 | 20              | U20 SHT.11/2G        | 20            | SHT.11/2D 20 MC-B-C5 | 20 | U20 SHT.11/2D |
|                                        | 19            | SHT.11/2F 19         | 19              | U19 SHT.11/2F        | 19            | SHT.11/2D 19         | 19 | U19 SHT.11/2D |
|                                        | 18            | SHT.11/2G 18         | 18              | U18 SHT.11/2G        | 18            | SHT.11/2D 18         | 18 | U18 SHT.11/2D |
|                                        | 17            | SHT.11/2F 17         | 17              | U17 SHT.11/2F        | 17            | SHT.11/2D 17         | 17 | U17 SHT.11/2D |
|                                        | 16            | SHT.11/2G 16         | 16              | U16 SHT.11/2G        | 16            | SHT.11/2D 16         | 16 | U16 SHT.11/2D |
|                                        | 15            | SHT.11/2F 15         | 15              | U15 SHT.11/2F        | 15            | SHT.11/2D 15         | 15 | U15 SHT.11/2D |
|                                        | 14            | SHT.11/2G 14         | 14              | U14 SHT.11/2G        | 14            | SHT.11/2D 14         | 14 | U14 SHT.11/2D |
|                                        | 13            | SHT.11/2F 13         | 13              | U13 SHT.11/2F        | 13            | SHT.11/2D 13         | 13 | U13 SHT.11/2D |
|                                        | 12            | SHT.11/2G 12         | 12              | U12 SHT.11/2G        | 12            | SHT.11/2D 12         | 12 | U12 SHT.11/2D |
|                                        | 11            | SHT.11/2F 11         | 11              | U11 SHT.11/2F        | 11            | SHT.11/2D 11         | 11 | U11 SHT.11/2D |
|                                        | 10            | SHT.11/2G 10         | 10              | U10 SHT.11/2G        | 10            | SHT.11/2D 10         | 10 | U10 SHT.11/2D |
|                                        | 9             | SHT.11/2F 9          | 9               | U9 SHT.11/2F         | 9             | SHT.11/2D 9          | 9  | U9 SHT.11/2D  |
|                                        | 8             | SHT.11/2G 8          | 8               | U8 SHT.11/2G         | 8             | SHT.11/2D 8          | 8  | U8 SHT.11/2D  |
|                                        | 7             | SHT.11/2F 7          | 7               | U7 SHT.11/2F         | 7             | SHT.11/2D 7          | 7  | U7 SHT.11/2D  |
|                                        | 6             | SHT.11/2G 6          | 6               | U6 SHT.11/2G         | 6             | SHT.11/2D 6          | 6  | U6 SHT.11/2D  |
|                                        | 5             | SHT.11/2F 5          | 5               | U5 SHT.11/2F         | 5             | SHT.11/2D 5          | 5  | U5 SHT.11/2D  |
|                                        | 4             | SHT.11/2G 4          | 4               | U4 SHT.11/2G         | 4             | SHT.11/2D 4          | 4  | U4 SHT.11/2D  |
|                                        | 3             | SHT.11/2F 3          | 3               | U3 SHT.11/2F         | 3             | SHT.11/2D 3          | 3  | U3 SHT.11/2D  |
|                                        | 2             | SHT.11/2G 2          | 2               | U2 SHT.11/2G         | 2             | SHT.11/2D 2          | 2  | U2 SHT.11/2D  |
|                                        | 1             | SHT.11/2F 1          | 1               | U1 SHT.11/2F         | 1             | SHT.11/2D 1          | 1  | U1 SHT.11/2D  |
|                                        | 45            |                      | 45              |                      | 45            |                      |    |               |
|                                        | 44            |                      | 44              |                      | 44            |                      |    |               |
|                                        | 43            |                      | 43              |                      | 43            |                      |    |               |
|                                        | 42            |                      | 42              |                      | 42            |                      |    |               |
|                                        | 41            |                      | 41              |                      | 41            |                      |    |               |
|                                        | 40            | SHT.11/2A 20 MC-C-C6 | 40              | U40 SHT.11/2A        | 40            | SHT.11/2C 20 MC-C-C6 | 40 | U40 SHT.11/2C |
|                                        | 39            | SHT.11/2B 19         | 39              | U39 SHT.11/2B        | 39            | SHT.11/2C 19         | 39 | U39 SHT.11/2C |
|                                        | 38            | SHT.11/2A 18         | 38              | U38 SHT.11/2A        | 38            | SHT.11/2C 18         | 38 | U38 SHT.11/2C |
|                                        | 37            | SHT.11/2B 17         | 37              | U37 SHT.11/2B        | 37            | SHT.11/2C 17         | 37 | U37 SHT.11/2C |
|                                        | 36            | SHT.11/2A 16         | 36              | U36 SHT.11/2A        | 36            | SHT.11/2C 16         | 36 | U36 SHT.11/2C |
|                                        | 35            | SHT.11/2B 15         | 35              | U35 SHT.11/2B        | 35            | SHT.11/2C 15         | 35 | U35 SHT.11/2C |
|                                        | 34            | SHT.11/2A 14         | 34              | U34 SHT.11/2A        | 34            | SHT.11/2C 14         | 34 | U34 SHT.11/2C |
|                                        | 33            | SHT.11/2B 13         | 33              | U33 SHT.11/2B        | 33            | SHT.11/2C 13         | 33 | U33 SHT.11/2C |
|                                        | 32            | SHT.11/2A 12         | 32              | U32 SHT.11/2A        | 32            | SHT.11/2C 12         | 32 | U32 SHT.11/2C |
|                                        | 31            | SHT.11/2B 11         | 31              | U31 SHT.11/2B        | 31            | SHT.11/2C 11         | 31 | U31 SHT.11/2C |
|                                        | 30            | SHT.11/2A 10         | 30              | U30 SHT.11/2A        | 30            | SHT.11/2C 10         | 30 | U30 SHT.11/2C |
|                                        | 29            | SHT.11/2B 9          | 29              | U29 SHT.11/2B        | 29            | SHT.11/2C 9          | 29 | U29 SHT.11/2C |
|                                        | 28            | SHT.11/2A 8          | 28              | U28 SHT.11/2A        | 28            | SHT.11/2C 8          | 28 | U28 SHT.11/2C |
|                                        | 27            | SHT.11/2B 7          | 27              | U27 SHT.11/2B        | 27            | SHT.11/2C 7          | 27 | U27 SHT.11/2C |
|                                        | 26            | SHT.11/2A 6          | 26              | U26 SHT.11/2A        | 26            | SHT.11/2C 6          | 26 | U26 SHT.11/2C |
|                                        | 25            | SHT.11/2B 5          | 25              | U25 SHT.11/2B        | 25            | SHT.11/2C 5          | 25 | U25 SHT.11/2C |
|                                        | 24            | SHT.11/2A 4          | 24              | U24 SHT.11/2A        | 24            | SHT.11/2C 4          | 24 | U24 SHT.11/2C |
|                                        | 23            | SHT.11/2B 3          | 23              | U23 SHT.11/2B        | 23            | SHT.11/2C 3          | 23 | U23 SHT.11/2C |
|                                        | 22            | SHT.11/2A 2          | 22              | U22 SHT.11/2A        | 22            | SHT.11/2C 2          | 22 | U22 SHT.11/2C |
|                                        | 21            | SHT.11/2B 1          | 21              | U21 SHT.11/2B        | 21            | SHT.11/2C 1          | 21 | U21 SHT.11/2C |
| 10NO + 10NC AUX. CONTACTS<br>PHASE 'A' | 20            | SHT.11/2B 20 MC-C-C5 | 20              | U20 SHT.11/2B        | 20            | SHT.11/2C 20 MC-C-C5 | 20 | U20 SHT.11/2C |
|                                        | 19            | SHT.11/2A 19         | 19              | U19 SHT.11/2A        | 19            | SHT.11/2C 19         | 19 | U19 SHT.11/2C |
|                                        | 18            | SHT.11/2B 18         | 18              | U18 SHT.11/2B        | 18            | SHT.11/2C 18         | 18 | U18 SHT.11/2C |
|                                        | 17            | SHT.11/2A 17         | 17              | U17 SHT.11/2A        | 17            | SHT.11/2C 17         | 17 | U17 SHT.11/2C |
|                                        | 16            | SHT.11/2B 16         | 16              | U16 SHT.11/2B        | 16            | SHT.11/2C 16         | 16 | U16 SHT.11/2C |
|                                        | 15            | SHT.11/2A 15         | 15              | U15 SHT.11/2A        | 15            | SHT.11/2C 15         | 15 | U15 SHT.11/2C |
|                                        | 14            | SHT.11/2B 14         | 14              | U14 SHT.11/2B        | 14            | SHT.11/2C 14         | 14 | U14 SHT.11/2C |
|                                        | 13            | SHT.11/2A 13         | 13              | U13 SHT.11/2A        | 13            | SHT.11/2C 13         | 13 | U13 SHT.11/2C |
|                                        | 12            | SHT.11/2B 12         | 12              | U12 SHT.11/2B        | 12            | SHT.11/2C 12         | 12 | U12 SHT.11/2C |
|                                        | 11            | SHT.11/2A 11         | 11              | U11 SHT.11/2A        | 11            | SHT.11/2C 11         | 11 | U11 SHT.11/2C |
|                                        | 10            | SHT.11/2B 10         | 10              | U10 SHT.11/2B        | 10            | SHT.11/2C 10         | 10 | U10 SHT.11/2C |
|                                        | 9             | SHT.11/2A 9          | 9               | U9 SHT.11/2A         | 9             | SHT.11/2C 9          | 9  | U9 SHT.11/2C  |
|                                        | 8             | SHT.11/2B 8          | 8               | U8 SHT.11/2B         | 8             | SHT.11/2C 8          | 8  | U8 SHT.11/2C  |
|                                        | 7             | SHT.11/2A 7          | 7               | U7 SHT.11/2A         | 7             | SHT.11/2C 7          | 7  | U7 SHT.11/2C  |
|                                        | 6             | SHT.11/2B 6          | 6               | U6 SHT.11/2B         | 6             | SHT.11/2C 6          | 6  | U6 SHT.11/2C  |
|                                        | 5             | SHT.11/2A 5          | 5               | U5 SHT.11/2A         | 5             | SHT.11/2C 5          | 5  | U5 SHT.11/2C  |
|                                        | 4             | SHT.11/2B 4          | 4               | U4 SHT.11/2B         | 4             | SHT.11/2C 4          | 4  | U4 SHT.11/2C  |
|                                        | 3             | SHT.11/2A 3          | 3               | U3 SHT.11/2A         | 3             | SHT.11/2C 3          | 3  | U3 SHT.11/2C  |
|                                        | 2             | SHT.11/2B 2          | 2               | U2 SHT.11/2B         | 2             | SHT.11/2C 2          | 2  | U2 SHT.11/2C  |
|                                        | 1             | SHT.11/2A 1          | 1               | U1 SHT.11/2A         | 1             | SHT.11/2C 1          | 1  | U1 SHT.11/2C  |
|                                        | 45            |                      | 45              |                      | 45            |                      |    |               |
|                                        | 44            |                      | 44              |                      | 44            |                      |    |               |
|                                        | 43            |                      | 43              |                      | 43            |                      |    |               |
|                                        | 42            |                      | 42              |                      | 42            |                      |    |               |
|                                        | 41            |                      | 41              |                      | 41            |                      |    |               |
|                                        | 40            | SHT.11/2C 20 MC-C-C4 | 40              | U40 SHT.11/2C        | 40            | SHT.11/2A 20 MC-C-C4 | 40 | U40 SHT.11/2A |
|                                        | 39            | SHT.11/2D 19         | 39              | U39 SHT.11/2D        | 39            | SHT.11/2A 19         | 39 | U39 SHT.11/2A |
|                                        | 38            | SHT.11/2C 18         | 38              | U38 SHT.11/2C        | 38            | SHT.11/2A 18         | 38 | U38 SHT.11/2A |
|                                        | 37            | SHT.11/2D 17         | 37              | U37 SHT.11/2D        | 37            | SHT.11/2A 17         | 37 | U37 SHT.11/2A |
|                                        | 36            | SHT.11/2C 16         | 36              | U36 SHT.11/2C        | 36            | SHT.11/2A 16         | 36 | U36 SHT.11/2A |
|                                        | 35            | SHT.11/2D 15         | 35              | U35 SHT.11/2D        | 35            | SHT.11/2A 15         | 35 | U35 SHT.11/2A |
|                                        | 34            | SHT.11/2C 14         | 34              | U34 SHT.11/2C        | 34            | SHT.11/2A 14         | 34 | U34 SHT.11/2A |
|                                        | 33            | SHT.11/2D 13         | 33              | U33 SHT.11/2D        | 33            | SHT.11/2A 13         | 33 | U33 SHT.11/2A |
|                                        | 32            | SHT.11/2C 12         | 32              | U32 SHT.11/2C        | 32            | SHT.11/2A 12         | 32 | U32 SHT.11/2A |
|                                        | 31            | SHT.11/2D 11         | 31              | U31 SHT.11/2D        | 31            | SHT.11/2A 11         | 31 | U31 SHT.11/2A |
|                                        | 30            | SHT.11/2C 10         | 30              | U30 SHT.11/2C        | 30            | SHT.11/2A 10         | 30 | U30 SHT.11/2A |
|                                        | 29            | SHT.11/2D 9          | 29              | U29 SHT.11/2D        | 29            | SHT.11/2A 9          | 29 | U29 SHT.11/2A |
|                                        | 28            | SHT.11/2C 8          | 28              | U28 SHT.11/2C        | 28            | SHT.11/2A 8          | 28 | U28 SHT.11/2A |
|                                        | 27            | SHT.11/2D 7          | 27              | U27 SHT.11/2D        | 27            | SHT.11/2A 7          | 27 | U27 SHT.11/2A |
|                                        | 26            | SHT.11/2C 6          | 26              | U26 SHT.11/2C        | 26            | SHT.11/2A 6          | 26 | U26 SHT.11/2A |
|                                        | 25            | SHT.11/2D 5          | 25              | U25 SHT.11/2D        | 25            | SHT.11/2A 5          | 25 | U25 SHT.11/2A |
|                                        | 24            | SHT.11/2C 4          | 24              | U24 SHT.11/2C        | 24            | SHT.11/2A 4          | 24 | U24 SHT.11/2A |
|                                        | 23            | SHT.11/2D 3          | 23              | U23 SHT.11/2D        | 23            | SHT.11/2A 3          | 23 | U23 SHT.11/2A |
|                                        | 22            | SHT.11/2C 2          | 22              | U22 SHT.11/2C        | 22            | SHT.11/2A 2          | 22 | U22 SHT.11/2A |
|                                        | 21            | SHT.11/2D 1          | 21              | U21 SHT.11/2D        | 21            | SHT.11/2A 1          | 21 | U21 SHT.11/2A |
| 10NO + 10NC AUX. CONTACTS<br>PHASE 'A' | 20            | SHT.11/2C 20 MC-C-C3 | 20              | U20 SHT.11/2C        | 20            | SHT.11/2A 20 MC-C-C3 | 20 | U20 SHT.11/2A |
|                                        | 19            | SHT.11/2D 19         | 19              | U19 SHT.11/2D        | 19            | SHT.11/2A 19         | 19 | U19 SHT.11/2A |
|                                        | 18            | SHT.11/2C 18         | 18              | U18 SHT.11/2C        | 18            | SHT.11/2A 18         | 18 | U18 SHT.11/2A |
|                                        | 17            | SHT.11/2D 17         | 17              | U17 SHT.11/2D        | 17            | SHT.11/2A 17         | 17 | U17 SHT.11/2A |
|                                        | 16            | SHT.11/2C 16         | 16              | U16 SHT.11/2C        | 16            | SHT.11/2A 16         | 16 | U16 SHT.11/2A |
|                                        | 15            | SHT.11/2D 15         | 15              | U15 SHT.11/2D        | 15            | SHT.11/2A 15         | 15 | U15 SHT.11/2A |
|                                        | 14            | SHT.11/2C 14         | 14              | U14 SHT.11/2C        | 14            | SHT.11/2A 14         | 14 | U14 SHT.11/2A |
|                                        | 13            | SHT.11/2D 13         | 13              | U13 SHT.11/2D        | 13            | SHT.11/2A 13         | 13 | U13 SHT.11/2A |
|                                        | 12            | SHT.11/2C 12         | 12              | U12 SHT.11/2C        | 12            | SHT.11/2A 12         | 12 | U12 SHT.11/2A |
|                                        | 11            | SHT.11/2D 11         | 11              | U11 SHT.11/2D        | 11            | SHT.11/2A 11         | 11 | U11 SHT.11/2A |
|                                        | 10            | SHT.11/2C 10         | 10              | U10 SHT.11/2C        | 10            | SHT.11/2A 10         | 10 | U10 SHT.11/2A |
|                                        | 9             | SHT.11/2D 9          | 9               | U9 SHT.11/2D         | 9             | SHT.11/2A 9          | 9  | U9 SHT.11/2A  |
|                                        | 8             | SHT.11/2C 8          | 8               | U8 SHT.11/2C         | 8             | SHT.11/2A 8          | 8  | U8 SHT.11/2A  |
|                                        | 7             | SHT.11/2D 7          | 7               | U7 SHT.11/2D         | 7             | SHT.11/2A 7          | 7  | U7 SHT.11/2A  |
|                                        | 6             | SHT.11/2C 6          | 6               | U6 SHT.11/2C         | 6             | SHT.11/2A 6          | 6  | U6 SHT.11/2A  |
|                                        | 5             | SHT.11/2D 5          | 5               | U5 SHT.11/2D         | 5             | SHT.11/2A 5          | 5  | U5 SHT.11/2A  |
|                                        | 4             | SHT.11/2C 4          | 4               | U4 SHT.              |               |                      |    |               |

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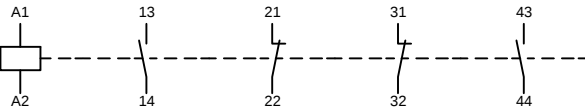
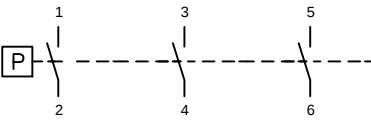
|               |                                                    |           |                                                                                      |          |          |          |          |       |  |
|---------------|----------------------------------------------------|-----------|--------------------------------------------------------------------------------------|----------|----------|----------|----------|-------|--|
| SPECIFICATION | LOCAL-OFF-REMOTE NONLOCKABLE SWITCH,25 AMP, POLE:4 |           |   |          |          |          |          |       |  |
| MAKE          | KAYCEE                                             |           |                                                                                      |          |          |          |          |       |  |
| MODEL         | 4MD49BO                                            |           |                                                                                      |          |          |          |          |       |  |
| TAG           | DESCRIPTION                                        | PANEL REF | HANDLE                                                                               | POLE     | POLE     | POLE     | POLE     |       |  |
| 43A           | LOCAL / OFF / REMOTE SWITCH, POLE:4L+4R            | CC        |                                                                                      | SHT.5/4F | SHT.6/3H | SHT.7/3G | SHT.9/3D |       |  |
| SPECIFICATION | BREAKER COIL 345W, 220V DC, 4W CONTINUOUS          |           |   |          |          |          |          |       |  |
| MAKE          | ALSTOM                                             |           |                                                                                      |          |          |          |          |       |  |
| MODEL         | HEH4910211023                                      |           |                                                                                      |          |          |          |          |       |  |
| TAG           | DESCRIPTION                                        | PANEL REF | COIL                                                                                 |          |          |          |          |       |  |
| 52CC          | CLOSING COIL PHASE A                               | MC-A      |                                                                                      | SHT.5/2D |          |          |          |       |  |
| 52CC          | CLOSING COIL PHASE B                               | MC-B      |                                                                                      | SHT.5/2D |          |          |          |       |  |
| 52CC          | CLOSING COIL PHASE C                               | MC-C      |                                                                                      | SHT.5/2C |          |          |          |       |  |
| 52TC1         | TRIP COIL 1 PHASE A                                | MC-A      |                                                                                      | SHT.6/2F |          |          |          |       |  |
| 52TC1         | TRIPPIING COIL 1 PHASE B                           | MC-B      |                                                                                      | SHT.6/2E |          |          |          |       |  |
| 52TC1         | TRIPPIING COIL 1 PHASE C                           | MC-C      |                                                                                      | SHT.6/2D |          |          |          |       |  |
| 52TC2         | TRIP COIL 2 PHASE A                                | MC-A      |                                                                                      | SHT.7/2E |          |          |          |       |  |
| 52TC2         | TRIPPIING COIL 2 PHASE B                           | MC-B      |                                                                                      | SHT.7/2D |          |          |          |       |  |
| 52TC2         | TRIPPIING COIL 2 PHASE C                           | MC-C      |                                                                                      | SHT.7/2C |          |          |          |       |  |
| SPECIFICATION | AUX.CONTACTOR 2NO+2NC 220V DC                      |           |  |          |          |          |          |       |  |
| MAKE          | SIEMENS                                            |           |                                                                                      |          |          |          |          |       |  |
| MODEL         | 3RH21 22-1BM40                                     |           |                                                                                      |          |          |          |          |       |  |
| TAG           | DESCRIPTION                                        | PANEL REF | COIL                                                                                 | NO       | NC       | NC       | NO       |       |  |
| 94A           | CONTACTOR - ANTIPUMPING PHASE A                    | CC        |                                                                                      | SHT.5/1C | SHT.5/2C | SHT.5/3D | SHT.5/3E | SPARE |  |
| 94B           | CONTACTOR - ANTIPUMPING PHASE B                    | CC        |                                                                                      | SHT.5/1B | SHT.5/2B | SHT.5/3D | SHT.5/3E | SPARE |  |
| 94C           | CONTACTOR - ANTIPUMPING PHASE C                    | CC        |                                                                                      | SHT.5/1B | SHT.5/2B | SHT.5/3C | SHT.5/3E | SPARE |  |

|                            |                                                                                     |                      |                    |     |     |          |
|----------------------------|-------------------------------------------------------------------------------------|----------------------|--------------------|-----|-----|----------|
| CROSS REFERENCE<br>DETAILS |  | T&D<br>Chennai India | 3271003612ED316001 | REV | VER | PAGE     |
|                            |                                                                                     |                      |                    | 0   | 1   | 14<br>21 |

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|               |                                           |           |                                                                                       |          |          |          |          |          |          |       |          |  |
|---------------|-------------------------------------------|-----------|---------------------------------------------------------------------------------------|----------|----------|----------|----------|----------|----------|-------|----------|--|
| SPECIFICATION | AUX.CONTACTOR 4NO 220V DC                 |           |    |          |          |          |          |          |          |       |          |  |
| MAKE          | SIEMENS                                   |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| MODEL         | 3RH21 40-1BM40                            |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| TAG           | DESCRIPTION                               | PANEL REF | COIL                                                                                  | NO       | NO       | NO       | NO       | NO       | NC       | NC    | NO       |  |
| A3            | CONTACTOR - SF6 LOW PRESSURE LOCKOUT      | CC        | SHT.8/1G                                                                              | SHT.5/3F | SHT.5/3E | SHT.6/1F | SHT.7/1E | SHT.6/3G | SHT.9/3E | SPARE | SHT.9/1E |  |
| SPECIFICATION | TIMING : 0.05-100 HR , 2CO, 24-220V AC/DC |           |    |          |          |          |          |          |          |       |          |  |
| MAKE          | SIEMENS                                   |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| MODEL         | 3RP15 25-1BW30                            |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| TAG           | DESCRIPTION                               | PANEL REF | TIMER                                                                                 | C/O      | C/O      |          |          |          |          |       |          |  |
| A5            | PHASE DISCREPANCY TIMER                   | CC        | SHT.8/1E                                                                              | SHT.8/4C | SPARE    |          |          |          |          |       |          |  |
| SPECIFICATION | AUX.CONTACTOR 3NO+1NC 220V DC             |           |    |          |          |          |          |          |          |       |          |  |
| MAKE          | SIEMENS                                   |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| MODEL         | 3RH21 31-1BM40                            |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| TAG           | DESCRIPTION                               | PANEL REF | COIL                                                                                  | NO       | NC       | NO       | NO       |          |          |       |          |  |
| A6            | CONTACTOR - TRIP 1                        | CC        | SHT.6/1G                                                                              | SHT.6/4F | SPARE    | SHT.6/4E | SHT.6/4D |          |          |       |          |  |
| A7            | CONTACTOR - TRIP 2                        | CC        | SHT.7/2G                                                                              | SHT.7/3E | SPARE    | SHT.7/3D | SHT.7/3C |          |          |       |          |  |
| A9            | CONTACTOR - PHASE DISCREPANCY             | CC        | SHT.8/1C                                                                              | SHT.6/3G | SPARE    | SHT.7/3F | SHT.9/3E |          |          |       |          |  |
| SPECIFICATION | AUX.CONTACTOR 2NO+2NC 220V DC             |           |  |          |          |          |          |          |          |       |          |  |
| MAKE          | SIEMENS                                   |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| MODEL         | 3RH21 22-1BM40                            |           |                                                                                       |          |          |          |          |          |          |       |          |  |
| TAG           | DESCRIPTION                               | PANEL REF | COIL                                                                                  | NO       | NC       | NC       | NO       | NO       | NC       |       |          |  |
| A10           | CONTACTOR - DC SUPPLY 1 SUPERVISION       | CC        | SHT.5/2G                                                                              | SHT.5/4G | SHT.5/4G | SHT.5/1G | SHT.5/1G | SPARE    | SHT.9/3E |       |          |  |

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|               |                                                    |           |                                                                                     |          |          |       |       |
|---------------|----------------------------------------------------|-----------|-------------------------------------------------------------------------------------|----------|----------|-------|-------|
| SPECIFICATION | AUX.CONTACTOR 2NO+2NC 220V DC                      |           |  |          |          |       |       |
| MAKE          | SIEMENS                                            |           |                                                                                     |          |          |       |       |
| MODEL         | 3RH21 22-1BM40                                     |           |                                                                                     |          |          |       |       |
| TAG           | DESCRIPTION                                        | PANEL REF | COIL                                                                                | NO       | NC       | NC    | NO    |
| A11           | CONTACTOR - DC SUPPLY 2 SUPERVISION                | CC        | SHT.7/2B                                                                            | SPARE    | SHT.9/3D | SPARE | SPARE |
| SPECIFICATION | DENSIMETER 3NO(P1- ALARM1,P2-ALARM2 & P3- LOCKOUT) |           |  |          |          |       |       |
| MAKE          | WIKA                                               |           |                                                                                     |          |          |       |       |
| MODEL         | 851.52.063HS -14131114 (HRCC160200004)             |           |                                                                                     |          |          |       |       |
| TAG           | DESCRIPTION                                        | PANEL REF | NO                                                                                  | NO       | NO       |       |       |
| DMA           | DENSITY MONITOR                                    | MC-A      | SHT.9/3H                                                                            | SHT.9/2H | SHT.8/4G |       |       |
| DMB           | DENSITY MONITOR                                    | MC-B      | SHT.9/3G                                                                            | SHT.9/2G | SHT.8/3G |       |       |
| DMC           | DENSITY MONITOR                                    | MC-C      | SHT.9/3G                                                                            | SHT.9/2G | SHT.8/2G |       |       |

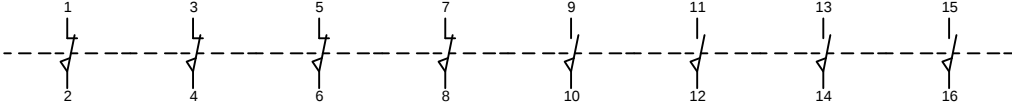
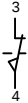
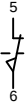
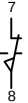
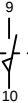
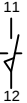
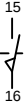
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|               |                                       |                                                |  |                                                             |  |  |
|---------------|---------------------------------------|------------------------------------------------|--|-------------------------------------------------------------|--|--|
| SPECIFICATION |                                       | DOOR SWITCH NORMALLY CLOSED 2A                 |  | <div><div>1</div><div><div></div></div><div>2</div></div>   |  |  |
| MAKE          | SURAJ                                 |                                                |  |                                                             |  |  |
| MODEL         | DS                                    |                                                |  |                                                             |  |  |
| TAG           | DESCRIPTION                           | PANEL REF                                      |  |                                                             |  |  |
| DS            | DOOR SWITCH                           | CC                                             |  | SHT.10/3E                                                   |  |  |
| DS            | MECHANISM A DOOR SWITCH               | MC-A                                           |  | SHT.10/3E                                                   |  |  |
| DS            | MECHANISM B DOOR SWITCH               | MC-B                                           |  | SHT.10/3C                                                   |  |  |
| DS            | MECHANISM C DOOR SWITCH               | MC-C                                           |  | SHT.10/3B                                                   |  |  |
| SPECIFICATION |                                       | HEATER 60W, 230V AC                            |  | <div><div>1</div><div><div></div></div><div>2</div></div>   |  |  |
| MAKE          | APT                                   |                                                |  |                                                             |  |  |
| MODEL         | Mk II A                               |                                                |  |                                                             |  |  |
| TAG           | DESCRIPTION                           | PANEL REF                                      |  |                                                             |  |  |
| H             | PANEL HEATER                          | CC                                             |  | SHT.10/3E                                                   |  |  |
| H             | MECHANISM A HEATER                    | MC-A                                           |  | SHT.10/3D                                                   |  |  |
| H             | MECHANISM B HEATER                    | MC-B                                           |  | SHT.10/3C                                                   |  |  |
| H             | MECHANISM C HEATER                    | MC-C                                           |  | SHT.10/3B                                                   |  |  |
| SPECIFICATION |                                       | 25W, 230V AC, INCANDESCENT, CANDLE,MODEL : B22 |  | <div><div>X1</div><div><div></div></div><div>X2</div></div> |  |  |
| MAKE          | PHILIPS                               |                                                |  |                                                             |  |  |
| MODEL         | 25W, 230V AC,TYPE:CANDLE              |                                                |  |                                                             |  |  |
| TAG           | DESCRIPTION                           | PANEL REF                                      |  |                                                             |  |  |
| IL            | CUBICLE ILLUMINATION LAMP             | CC                                             |  | SHT.10/3E                                                   |  |  |
| IL            | MECHANISM A CUBICLE ILLUMINATION LAMP | MC-A                                           |  | SHT.10/3E                                                   |  |  |
| IL            | MECHANISM B CUBICLE ILLUMINATION LAMP | MC-B                                           |  | SHT.10/3C                                                   |  |  |
| IL            | MECHANISM C CUBICLE ILLUMINATION LAMP | MC-C                                           |  | SHT.10/3B                                                   |  |  |
| SPECIFICATION |                                       | LED RED 220V DC                                |  | <div><div>X2</div><div><div></div></div><div>X1</div></div> |  |  |
| MAKE          | TEKNIC                                |                                                |  |                                                             |  |  |
| MODEL         | 3PLBR4L-220VDC                        |                                                |  |                                                             |  |  |
| TAG           | DESCRIPTION                           | PANEL REF                                      |  |                                                             |  |  |
| IL1           | INDICATION LAMP - CB CLOSED           | CC                                             |  | SHT.8/1B                                                    |  |  |

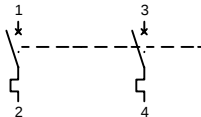
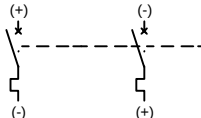
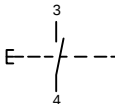
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|---------------|----------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|----------|----------|-------|-------|-----------|-----------|--|
| SPECIFICATION | LED GREEN 220V DC                      |           | <div><div>X2</div><div></div><div>X1</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |          |          |          |       |       |           |           |  |
| MAKE          | TEKNIC                                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| MODEL         | 3PLBR3L-220VDC                         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| TAG           | DESCRIPTION                            | PANEL REF |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| IL2           | INDICATION LAMP - CB TRIPPED           | CC        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.8/1B  |          |          |          |       |       |           |           |  |
| SPECIFICATION | LED AMBER 220V DC                      |           | <div><div>X2</div><div></div><div>X1</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |          |          |          |       |       |           |           |  |
| MAKE          | TEKNIC                                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| MODEL         | 3PLBR5L-220VDC                         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| TAG           | DESCRIPTION                            | PANEL REF |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| IL3           | INDICATION LAMP - CB SPRING CHARGED    | CC        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.8/1B  |          |          |          |       |       |           |           |  |
| SPECIFICATION | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP |           | <div><div>1</div><div></div><div>2</div></div> <div><div>3</div><div></div><div>4</div></div> <div><div>5</div><div></div><div>6</div></div> <div><div>7</div><div></div><div>8</div></div> <div><div>9</div><div></div><div>10</div></div> <div><div>11</div><div></div><div>12</div></div> <div><div>13</div><div></div><div>14</div></div> <div><div>15</div><div></div><div>16</div></div> |           |          |          |          |       |       |           |           |  |
| MAKE          | ALSTOM                                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| MODEL         | JE4910510001-                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| TAG           | DESCRIPTION                            | PANEL REF | NC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | NC        | NC       | NC       | NO       | NO    | NO    | NO        |           |  |
| LS            | LIMIT SWITCH MACHANISM A               | MC-A      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.8/4B  | SHT.9/1C | SHT.9/1E | SHT.5/2D | SPARE | SPARE | SHT.10/3D | SHT.10/2D |  |
| LS            | LIMIT SWITCH MACHANISM B               | MC-B      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.8/3B  | SHT.9/1C | SHT.9/1E | SHT.5/2D | SPARE | SPARE | SHT.10/3C | SHT.10/2C |  |
| LS            | LIMIT SWITCH MACHANISM C               | MC-C      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.8/2B  | SHT.9/1C | SHT.9/1D | SHT.5/2C | SPARE | SPARE | SHT.10/3A | SHT.10/2A |  |
| SPECIFICATION | 220-250V AC/DC,700WATT                 |           | <div><div>X1</div><div></div><div>X2</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |          |          |          |       |       |           |           |  |
| MAKE          | AGNI                                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| MODEL         | HRCC4100029-2 (S310-220)               |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| TAG           | DESCRIPTION                            | PANEL REF |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |          |          |          |       |       |           |           |  |
| M             | SPRING CHARGE MOTOR MECHANISM A        | MC-A      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.10/3D |          |          |          |       |       |           |           |  |
| M             | SPRING CHARGE MOTOR MECHANISM B        | MC-B      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.10/3C |          |          |          |       |       |           |           |  |
| M             | SPRING CHARGE MOTOR MECHANISM C        | MC-C      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHT.10/3A |          |          |          |       |       |           |           |  |

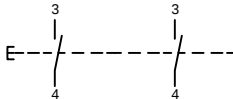
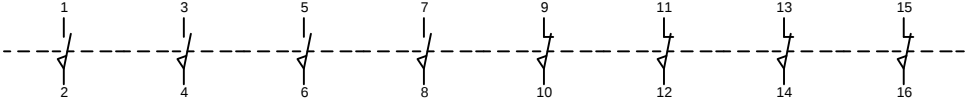
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|---------------|--------------------------------------------------------|-----------|--------------------------------------------------------------------------------------|-----------|-----------|
| SPECIFICATION | MCB-AC 16A DP 10KA                                     |           |   |           |           |
| MAKE          | EATON                                                  |           |                                                                                      |           |           |
| MODEL         | PLSM-C16/2                                             |           |                                                                                      |           |           |
| TAG           | DESCRIPTION                                            | PANEL REF | POLE 1                                                                               | POLE 2    |           |
| MCB1          | MCB - MOTOR SUPPLY - MECHANISM A                       | CC        |                                                                                      | SHT.10/4F | SHT.10/1F |
| MCB2          | MCB - MOTOR SUPPLY - MECHANISM B                       | CC        |                                                                                      | SHT.10/4F | SHT.10/1F |
| MCB3          | MCB - MOTOR SUPPLY - MECHANISM C                       | CC        |                                                                                      | SHT.10/4F | SHT.10/1F |
| MCB4          | CUBICLE ILLUMINATION AND HEATER MCB                    | CC        |                                                                                      | SHT.10/4F | SHT.10/2F |
| SPECIFICATION | MCB-DC 6A 2P 6KA                                       |           |   |           |           |
| MAKE          | EATON                                                  |           |                                                                                      |           |           |
| MODEL         | PLS6-C6/2-DC                                           |           |                                                                                      |           |           |
| TAG           | DESCRIPTION                                            | PANEL REF | POLE 1                                                                               | POLE 2    |           |
| MCB5          | MCB - DC SUPPLY 1                                      | CC        |                                                                                      | SHT.5/4H  | SHT.5/1H  |
| MCB6          | MCB - DC SUPPLY 2                                      | CC        |                                                                                      | SHT.7/4G  | SHT.7/1G  |
| SPECIFICATION | BREAKER OPERATION COUNTER(RESETTABLE -6 DIGIT) - 220DC |           |   |           |           |
| MAKE          | GIC                                                    |           |                                                                                      |           |           |
| MODEL         | CR-26_SD51A385                                         |           |                                                                                      |           |           |
| TAG           | DESCRIPTION                                            | PANEL REF | COIL                                                                                 |           |           |
| OC-A          | OPERATION COUNTER - PHASE A                            | CC        |                                                                                      | SHT.5/1F  |           |
| OC-B          | OPERATION COUNTER - PHASE B                            | CC        |                                                                                      | SHT.5/1E  |           |
| OC-C          | OPERATION COUNTER - PHASE C                            | CC        |                                                                                      | SHT.5/1E  |           |
| SPECIFICATION | PUSHBUTTON GREEN +1NO BLOCK                            |           |  |           |           |
| MAKE          | SIEMENS                                                |           |                                                                                      |           |           |
| MODEL         | 3SB50 00-0AE01+3SB54 00-0B                             |           |                                                                                      |           |           |
| TAG           | DESCRIPTION                                            | PANEL REF | PB                                                                                   | NO        |           |
| PBS1          | PUSHBUTTON - CB CLOSE                                  | CC        |                                                                                      | SHT.5/4F  |           |

|                            |                                                                                     |                      |                    |     |     |          |
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| SPECIFICATION | PUSHBUTTON RED +1NO BLOCK              |           |   |           |           |           |           |           |           |           |           |  |
| MAKE          | SIEMENS                                |           |                                                                                     |           |           |           |           |           |           |           |           |  |
| MODEL         | 3SB50 00-0AC01+3SB54 00-0B             |           |                                                                                     |           |           |           |           |           |           |           |           |  |
| TAG           | DESCRIPTION                            | PANEL REF | PB                                                                                  | NO        | NO        |           |           |           |           |           |           |  |
| PBS2          | PUSH BUTTON-CB TRIP                    | CC        |                                                                                     | SHT.6/4G  | SHT.7/4G  |           |           |           |           |           |           |  |
| SPECIFICATION | 6PIN, 5/15AMP                          |           |  |           |           |           |           |           |           |           |           |  |
| MAKE          | OSWAL                                  |           |                                                                                     |           |           |           |           |           |           |           |           |  |
| MODEL         | SKT                                    |           |                                                                                     |           |           |           |           |           |           |           |           |  |
| TAG           | DESCRIPTION                            | PANEL REF |                                                                                     |           |           |           |           |           |           |           |           |  |
| S             | SOCKET WITH SWITCH                     | CC        |                                                                                     | SHT.10/3F |           |           |           |           |           |           |           |  |
| SPECIFICATION | AUX. SWITCH CONTACTS: 4NO + 4NC, 15AMP |           |   |           |           |           |           |           |           |           |           |  |
| MAKE          | ALSTOM                                 |           |                                                                                     |           |           |           |           |           |           |           |           |  |
| MODEL         | JE4910510001                           |           |                                                                                     |           |           |           |           |           |           |           |           |  |
| TAG           | DESCRIPTION                            | PANEL REF | NO                                                                                  | NO        | NO        | NO        | NC        | NC        | NC        | NC        |           |  |
| S1            | AUXILIARY SWITCHS S1 MECHANISM A       | MC-A      |                                                                                     | SHT.5/2C  | SHT.6/2E  | SHT.8/3E  | SHT.8/4B  | SHT.5/2D  | SHT.6/2E  | SHT.8/3E  | SHT.8/4B  |  |
| S1            | AUXILIARY SWITCHS S1 MECHANISM B       | MC-B      |                                                                                     | SHT.5/2B  | SHT.6/2D  | SHT.8/3E  | SHT.8/3B  | SHT.5/2D  | SHT.6/2D  | SHT.8/3E  | SHT.8/3B  |  |
| S1            | AUXILIARY SWITCHS S1 MECHANISM C       | MC-C      |                                                                                     | SHT.5/2A  | SHT.6/2C  | SHT.8/3D  | SHT.8/2B  | SHT.5/2C  | SHT.6/2C  | SHT.8/3D  | SHT.8/2B  |  |
| S2            | AUXILIARY SWITCHS S2 MECHANISM A       | MC-A      |                                                                                     | SHT.11/2H | SHT.11/2H | SHT.7/2E  | SPARE     | SHT.11/2G | SHT.11/2G | SHT.7/2E  | SHT.5/2F  |  |
| S2            | AUXILIARY SWITCHS S2 MECHANISM B       | MC-B      |                                                                                     | SHT.11/2E | SHT.11/2E | SHT.7/2D  | SPARE     | SHT.11/2D | SHT.11/2D | SHT.7/2D  | SHT.5/2E  |  |
| S2            | AUXILIARY SWITCHS S2 MECHANISM C       | MC-C      |                                                                                     | SHT.11/2C | SHT.11/2C | SHT.7/2C  | SPARE     | SHT.11/2B | SHT.11/2B | SHT.7/2C  | SHT.5/2E  |  |
| S3            | AUXILIARY SWITCHS S3 MECHANISM A       | MC-A      |                                                                                     | SHT.11/4H | SHT.11/4H | SHT.11/3H | SHT.11/3H | SHT.11/3H | SHT.11/3H | SHT.11/3H | SHT.11/2H |  |
| S3            | AUXILIARY SWITCHS S3 MECHANISM B       | MC-B      |                                                                                     | SHT.11/4E | SHT.11/4E | SHT.11/3E | SHT.11/3E | SHT.11/3E | SHT.11/3E | SHT.11/3E | SHT.11/2E |  |
| S3            | AUXILIARY SWITCHS S3 MECHANISM C       | MC-C      |                                                                                     | SHT.11/4C | SHT.11/4C | SHT.11/3C | SHT.11/3C | SHT.11/3C | SHT.11/3C | SHT.11/3C | SHT.11/2C |  |
| S4            | AUXILIARY SWITCHS S4 MECHANISM A       | MC-A      |                                                                                     | SHT.11/4G | SHT.11/4G | SHT.11/3G | SHT.11/3G | SHT.11/3G | SHT.11/3G | SHT.11/3G | SHT.11/2G |  |
| S4            | AUXILIARY SWITCHS S4 MECHANISM B       | MC-B      |                                                                                     | SHT.11/4D | SHT.11/4D | SHT.11/3D | SHT.11/3D | SHT.11/3D | SHT.11/3D | SHT.11/3D | SHT.11/2D |  |
| S4            | AUXILIARY SWITCHS S4 MECHANISM C       | MC-C      |                                                                                     | SHT.11/4B | SHT.11/4B | SHT.11/3B | SHT.11/3B | SHT.11/3B | SHT.11/3B | SHT.11/3B | SHT.11/2B |  |

CROSS REFERENCE  
DETAILS

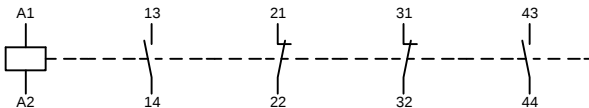
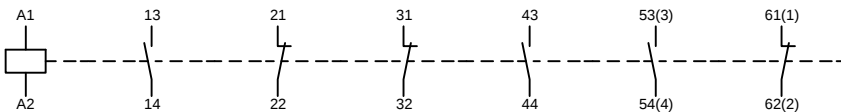
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Chennai India

3271003612ED316001

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|               |                                          |           |                                                                                     |           |          |          |          |          |       |          |  |
|---------------|------------------------------------------|-----------|-------------------------------------------------------------------------------------|-----------|----------|----------|----------|----------|-------|----------|--|
| SPECIFICATION | THERMOSTAT 20deg. TO 80deg. C            |           |  |           |          |          |          |          |       |          |  |
| MAKE          | GIRISHECO                                |           |                                                                                     |           |          |          |          |          |       |          |  |
| MODEL         | DLX-5                                    |           |                                                                                     |           |          |          |          |          |       |          |  |
| TAG           | DESCRIPTION                              | PANEL REF |                                                                                     |           |          |          |          |          |       |          |  |
| TH            | CUBICLE THERMOSTAT                       | CC        |                                                                                     | SHT.10/3E |          |          |          |          |       |          |  |
| TH            | MECHANISM A THERMOSTAT                   | MC-A      |                                                                                     | SHT.10/3D |          |          |          |          |       |          |  |
| TH            | MECHANISM B THERMOSTAT                   | MC-B      |                                                                                     | SHT.10/3C |          |          |          |          |       |          |  |
| TH            | MECHANISM C THERMOSTAT                   | MC-C      |                                                                                     | SHT.10/3B |          |          |          |          |       |          |  |
| SPECIFICATION | AUX.CONTACTOR 2NO+2NC 220V DC            |           |  |           |          |          |          |          |       |          |  |
| MAKE          | SIEMENS                                  |           |                                                                                     |           |          |          |          |          |       |          |  |
| MODEL         | 3RH21 22-1BM40                           |           |                                                                                     |           |          |          |          |          |       |          |  |
| TAG           | DESCRIPTION                              | PANEL REF | COIL                                                                                | NO        | NC       | NC       | NO       |          |       |          |  |
| A14           | CONTACTOR - DC COMMON SUPPLY SUPERVISION | CC        |                                                                                     | SHT.8/1A  | SHT.6/4F | SPARE    | SPARE    | SHT.7/4F |       |          |  |
| SPECIFICATION | AUX.CONTACTOR 2NO+2NC 220V DC            |           |  |           |          |          |          |          |       |          |  |
| MAKE          | SIEMENS                                  |           |                                                                                     |           |          |          |          |          |       |          |  |
| MODEL         | 3RH21 22-1BM40                           |           |                                                                                     |           |          |          |          |          |       |          |  |
| TAG           | DESCRIPTION                              | PANEL REF | COIL                                                                                | NO        | NC       | NC       | NO       | NO       | NC    |          |  |
| A2            | CONTACTOR - SF6 LOW PRESS. ALARM         | CC        |                                                                                     | SHT.8/1G  | SPARE    | SHT.6/3F | SHT.7/3F | SPARE    | SPARE | SHT.9/3E |  |

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| SL NO | DRAWING NO         | SHT.NO   | TITLE                                       | REV 0      |                | REV 1    |                   | REV 2 |         |
|-------|--------------------|----------|---------------------------------------------|------------|----------------|----------|-------------------|-------|---------|
|       |                    |          |                                             | DATE       | DETAILS        | DATE     | DETAILS           | DATE  | DETAILS |
| 1     | 3271003612GA316001 | 1 OF 14  | CONTENTS OF GENERAL ARRANGEMENT             | 26.07.2016 | ORIGINAL ISSUE | 19.09.16 | CUSTOMER COMMENTS |       |         |
| 2     | 3271003612GA316001 | 2 OF 14  | OUTLINE AND GENERAL ARRANGEMENT             | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 3     | 3271003612GA316001 | 3 OF 14  | FOUNDATION PLAN                             | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 4     | 3271003612GA316001 | 4 OF 14  | SUPPORT STRUCTURE                           | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 5     | 3271003612GA316001 | 5 OF 14  | MECHANISM CUBICLE                           | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 6     | 3271003612GA316001 | 6 OF 14  | CONTROL CUBICLE                             | 26.07.2016 | ORIGINAL ISSUE | 16.09.16 | CUSTOMER COMMENTS |       |         |
| 7     | 3271003612GA316001 | 7 OF 14  | EQUIPMENT LAYOUT OF MECHANISM CUBICLE       | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 8     | 3271003612GA316001 | 8 OF 14  | EQUIPMENT LAYOUT OF CONTROL CUBICLE         | 26.07.2016 | ORIGINAL ISSUE | 19.09.16 | CUSTOMER COMMENTS |       |         |
| 9     | 3271003612GA316001 | 9 OF 14  | PLATFORM / LADDER ASSEMBLY                  | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 10    | 3271003612GA316001 | 10 OF 14 | INTERRUPTER INSULATOR                       | 26.07.2016 | ORIGINAL ISSUE | 19.09.16 | CUSTOMER COMMENTS |       |         |
| 11    | 3271003612GA316001 | 11 OF 14 | SUPPORT INSULATOR                           | 26.07.2016 | ORIGINAL ISSUE | 19.09.16 | CUSTOMER COMMENTS |       |         |
| 12    | 3271003612GA316001 | 12 OF 14 | CORONA CAP                                  | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 13    | 3271003612GA316001 | 13 OF 14 | SF6 GAS LINE DIAGRAM                        | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |
| 14    | 3271003612GA316001 | 14 OF 14 | CROSS SECTIONAL VIEW OF OPERATING MECHANISM | 26.07.2016 | ORIGINAL ISSUE |          |                   |       |         |

420kV 50kA SF6 CB TYPE GL316 WITH 3 Nos. SPRING MECH.  
SALE ORDER NO.- 3271003612  
TOTAL QUANTITY OF C.B : 6 Nos.

**GUJARAT STATE ELECTRICITY CORPORATION LIMITED**  
VADODARA, GUJARAT  
400KV SWITCHYARD EXTENSION FOR  
1x800 MW Wanakbori Thermal Power Station Extn. Unit-8  
LOA NO. PP/SE(P-II)/WKB-8/683 DATED 26.09.14

**DEVELOPMENT CONSULTANTS PVT. LTD.**  
CONSULTING ENGINEERS  
KOLKATA • MUMBAI • CHENNAI • NEW DELHI

**BHARAT HEAVY ELECTRICALS LTD.**  
P.O. NUMBER 14SP319 DTD 10/04/2016

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Chennai India

MODIFICATION  
DATE: 19.09.2016  
NAME: KS

APPROVED  
DATE: 19.09.2016  
NAME: KPB

A3

SCALE  
-/-



PAGE  
1 / 14

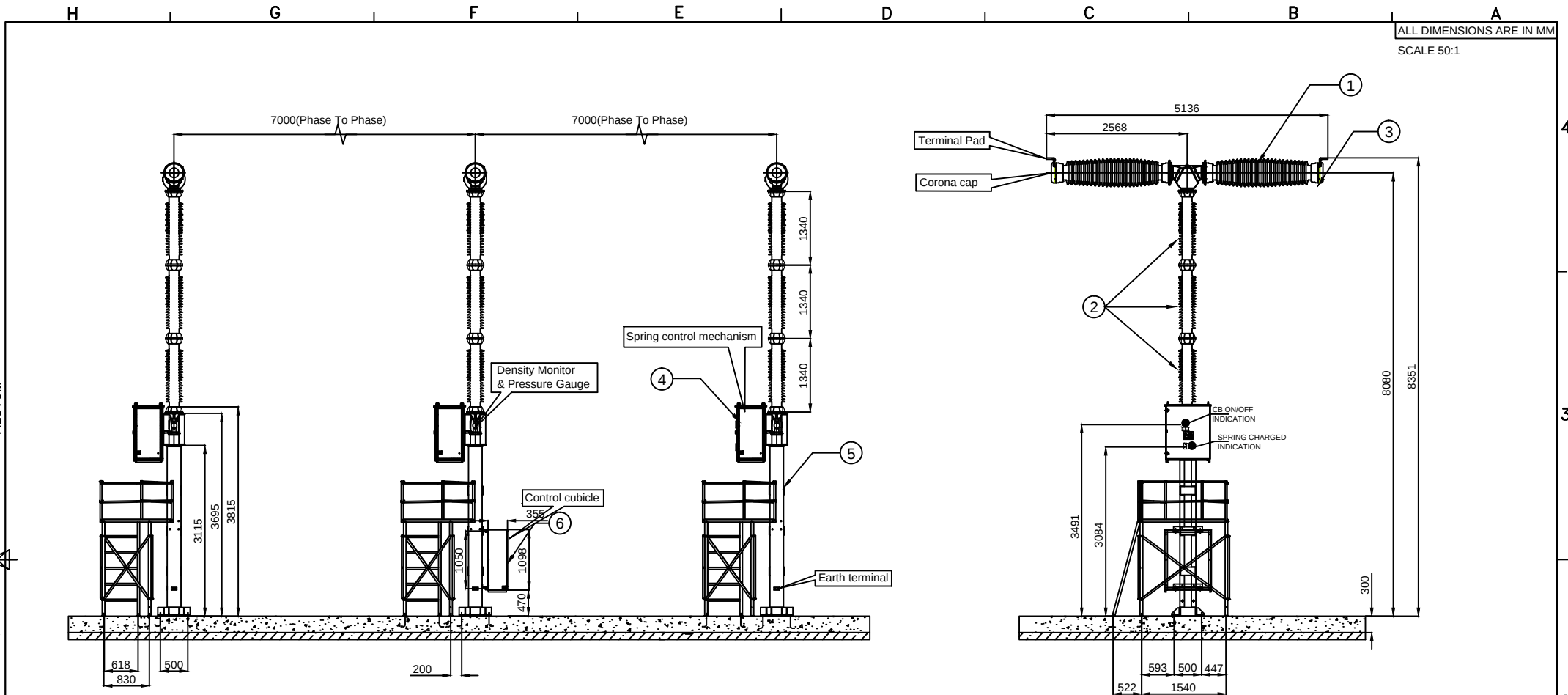
CIRCUIT BREAKER  
TYPE : GL316 (420kV)

CONTENTS OF  
GENERAL ARRANGEMENT

3271003612GA316001

VERSION  
1

REVISION  
1



ALL DIMENSIONS ARE IN MM  
SCALE 50:1

| PERMISSIBLE STRENGTH ON THE TERMINALS               |                                              |
|-----------------------------------------------------|----------------------------------------------|
| HORIZONTAL TENSILE STRENGTH                         | 175 daN ( $\underline{\underline{178}}$ Kgf) |
| TRANSVERSAL HORIZONTAL STRENGTH                     | 125 daN ( $\underline{\underline{127}}$ Kgf) |
| VERTICAL STRENGTH                                   | 150daN (153 kgf)                             |
| MASS OF AN INTERRUPTING PART (POLE COLUMN)          | 1310 kg                                      |
| MASS OF THE ONE COMPLETE SUPPORT STRUCTURE          | 300 kg                                       |
| MASS OF ONE COMPLETE MECHANISM                      | 200 kg                                       |
| MASS OF CONTROL CUBICLE                             | 150 kg                                       |
| MASS OF CIRCUIT BREAKER (WITHOUT SUPPORT STRUCTURE) | 4530 kg                                      |
| MASS OF CIRCUIT BREAKER (WITH SUPPORT STRUCTURE)    | 5430 kg                                      |

| MAXIMUM STATIC & DYNAMIC LOADS           |                                                |
|------------------------------------------|------------------------------------------------|
| UPWARD F2                                | 0 daN ( $\underline{\underline{0}}$ Kgf)       |
| DOWNWARD F1                              | 3170 daN ( $\underline{\underline{3230}}$ Kgf) |
| CREEPAGE DISTANCE TO EARTH IN mm         | 13125 mm(Min.)                                 |
| CREEPAGE DISTANCE BETWEEN TERMINAL IN mm | 13480 mm(Min.)                                 |

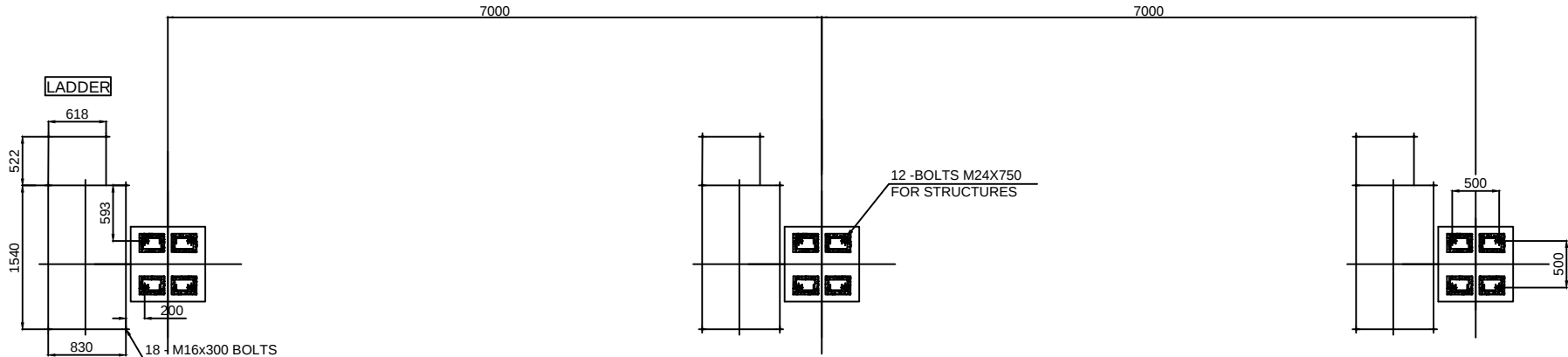
- NOTES :
- CUBICLE SHEET THICKNESS SHALL BE OF 2mm CR SHEET
  - PAINT SHADE FOR  
EXTERIOR : 631 OF IS5  
INTERIOR : 631 OF IS5
  - SUPPORT STRUCTURE SHALL BE GALVANISED TO 610g/SQ.M
  - TERMINAL CONNECTORS ARE NOT IN CB MANUFACTURER SCOPE OF SUPPLY

| SL. NO. | DESCRIPTION         | MATERIAL                        |
|---------|---------------------|---------------------------------|
| 1       | INTERRUPTER CHAMBER | PORCELAIN                       |
| 2       | SUPPORT INSULATOR   | PORCELAIN                       |
| 3       | TERMINAL PAD        | ALUMINIUM ALLOY                 |
| 4       | MECHANISM CUBICLE   | CR SHEET                        |
| 5       | SUPPORT STRUCTURE   | STRUCTURAL STEEL AS PER IS 2062 |
| 6       | CONTROL CUBICLE     | CR SHEET                        |

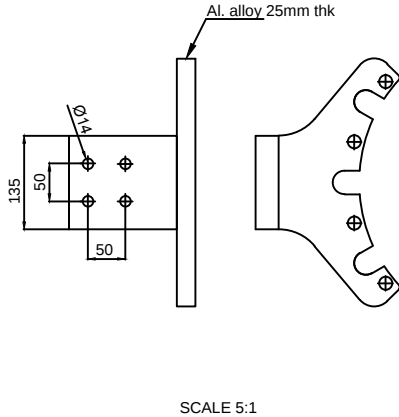
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FOUNDATION PLAN (NOT IN CB MANUFACTURER'S SCOPE OF WORK)

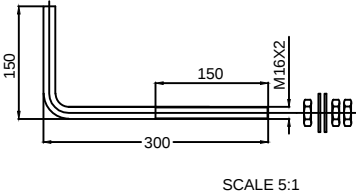
ALL DIMENSIONS ARE IN MM  
SCALE 35:1



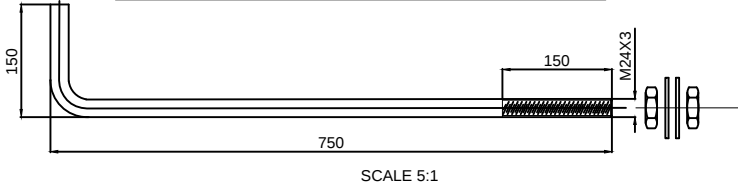
TERMINAL PAD DETAILS



FOUNDATION BOLT FOR PLATFORM



FOUNDATION BOLT FOR SUPPORT STRUCTURE



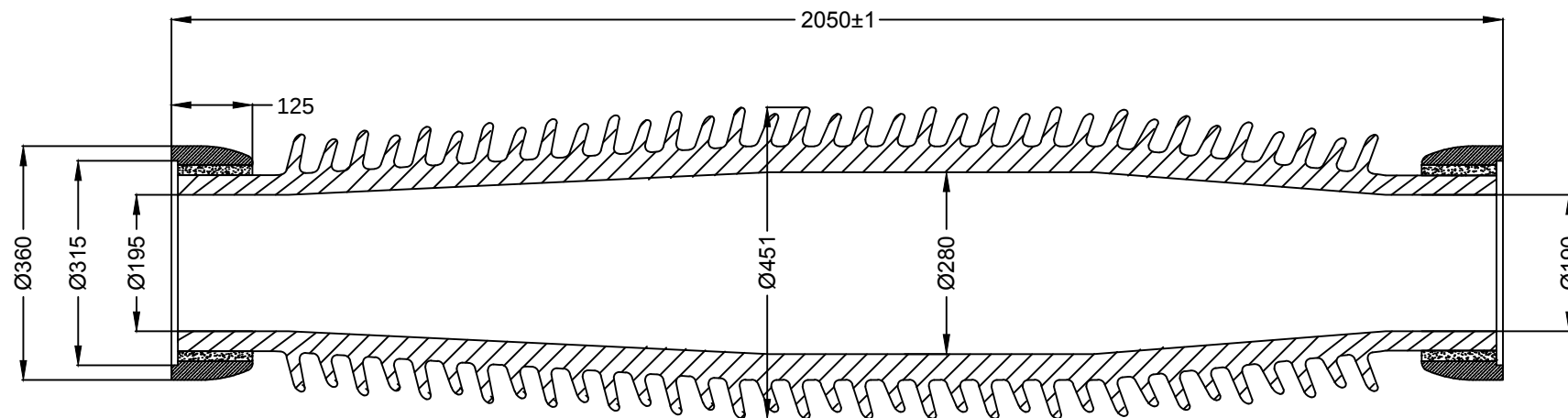
FOUNDATION PLAN

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#### MECHANICAL CHARACTERISTICS:

- |   |                                                   |   |      |
|---|---------------------------------------------------|---|------|
| 1 | BENDING STRENGTH, Kgm (AT BASE)                   | : | 2000 |
| 2 | HYDRAULIC PRESSURE TEST (routine), bar for 1 min. | : | 33   |

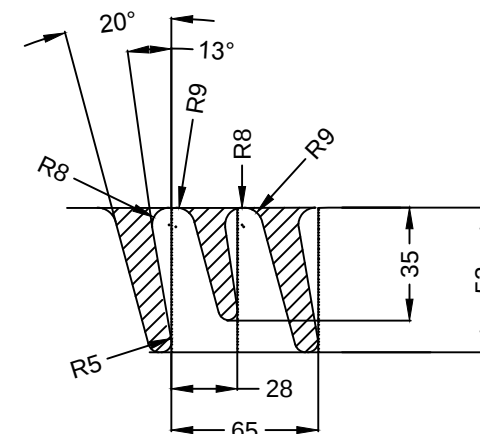
#### ELECTRICAL CHARACTERISTICS:

- |   |                                              |   |      |
|---|----------------------------------------------|---|------|
| 1 | 1 min. P.F. WITHSTAND VOLTAGE, kV rms        | : | 460  |
| 2 | LIGHTNING IMPULSE WITHSTAND VOLTAGE, kV peak | : | 1050 |
| 3 | CREEPAGE DISTANCE, mm                        | : | 6740 |

REFERENCE IEC STANDARD : IEC 62155

RATED LIGHTNING IMPULSE WITHSTAND VOLTAGE PER BREAKER (kVpeak)

- a) BETWEEN PHASE TO EARTH : 1425
- b) BETWEEN PHASES TO CB OPEN : 1425
- c) ACROSS ISOLATING DISTANCE :1425+(240)  
(IMPULSE ON ONE TERMINAL AND OTHER TERMINAL  
TERMINAL EARTHED)



SCALE : 3 : 1

**SHED PROFILE**

(As per IEC-60815)

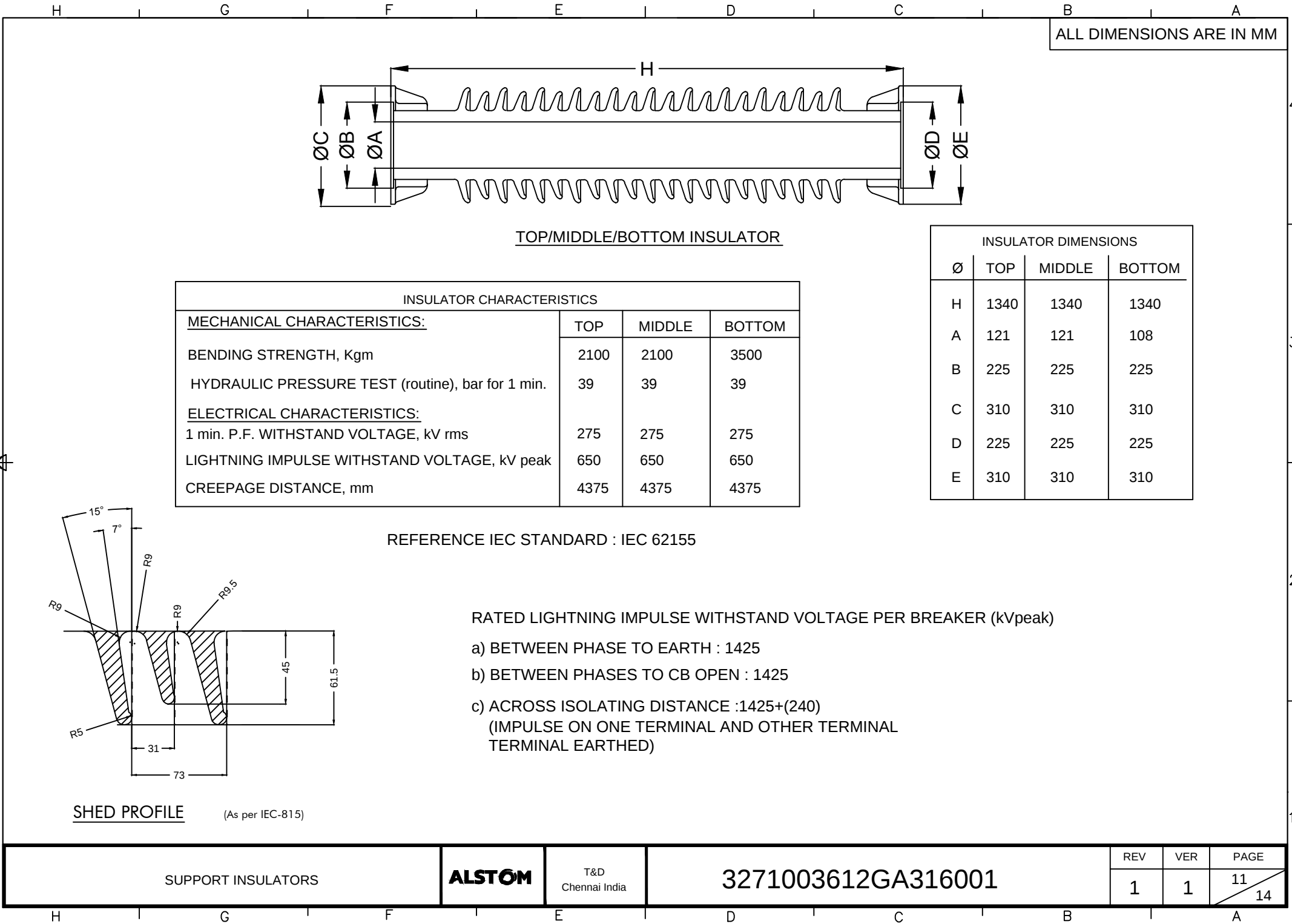
INTERRUPTER INSULATOR

**ALSTOM**

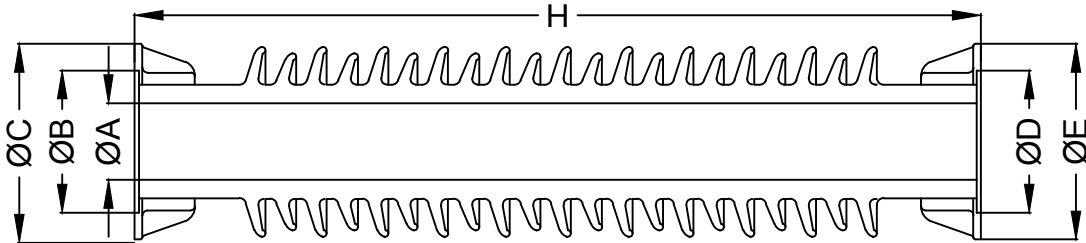
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Chennai India

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| 1   | 1   | 10 / 14 |



ALL DIMENSIONS ARE IN MM

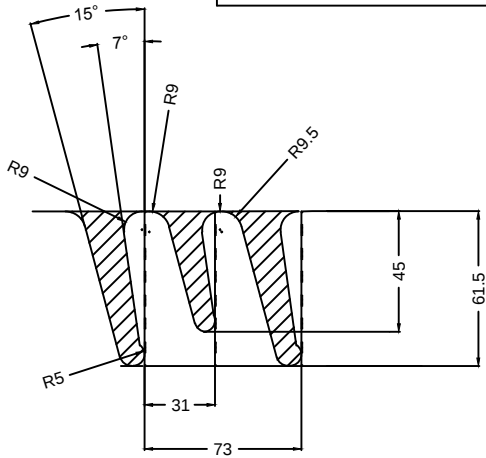


TOP/MIDDLE/BOTTOM INSULATOR

| INSULATOR CHARACTERISTICS                         |      |        |        |
|---------------------------------------------------|------|--------|--------|
| MECHANICAL CHARACTERISTICS:                       | TOP  | MIDDLE | BOTTOM |
| BENDING STRENGTH, Kgm                             | 2100 | 2100   | 3500   |
| HYDRAULIC PRESSURE TEST (routine), bar for 1 min. | 39   | 39     | 39     |
| ELECTRICAL CHARACTERISTICS:                       |      |        |        |
| 1 min. P.F. WITHSTAND VOLTAGE, kV rms             | 275  | 275    | 275    |
| LIGHTNING IMPULSE WITHSTAND VOLTAGE, kV peak      | 650  | 650    | 650    |
| CREEPAGE DISTANCE, mm                             | 4375 | 4375   | 4375   |

| INSULATOR DIMENSIONS |      |        |        |
|----------------------|------|--------|--------|
| Ø                    | TOP  | MIDDLE | BOTTOM |
| H                    | 1340 | 1340   | 1340   |
| A                    | 121  | 121    | 108    |
| B                    | 225  | 225    | 225    |
| C                    | 310  | 310    | 310    |
| D                    | 225  | 225    | 225    |
| E                    | 310  | 310    | 310    |

REFERENCE IEC STANDARD : IEC 62155



SHED PROFILE (As per IEC-815)

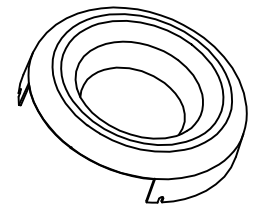
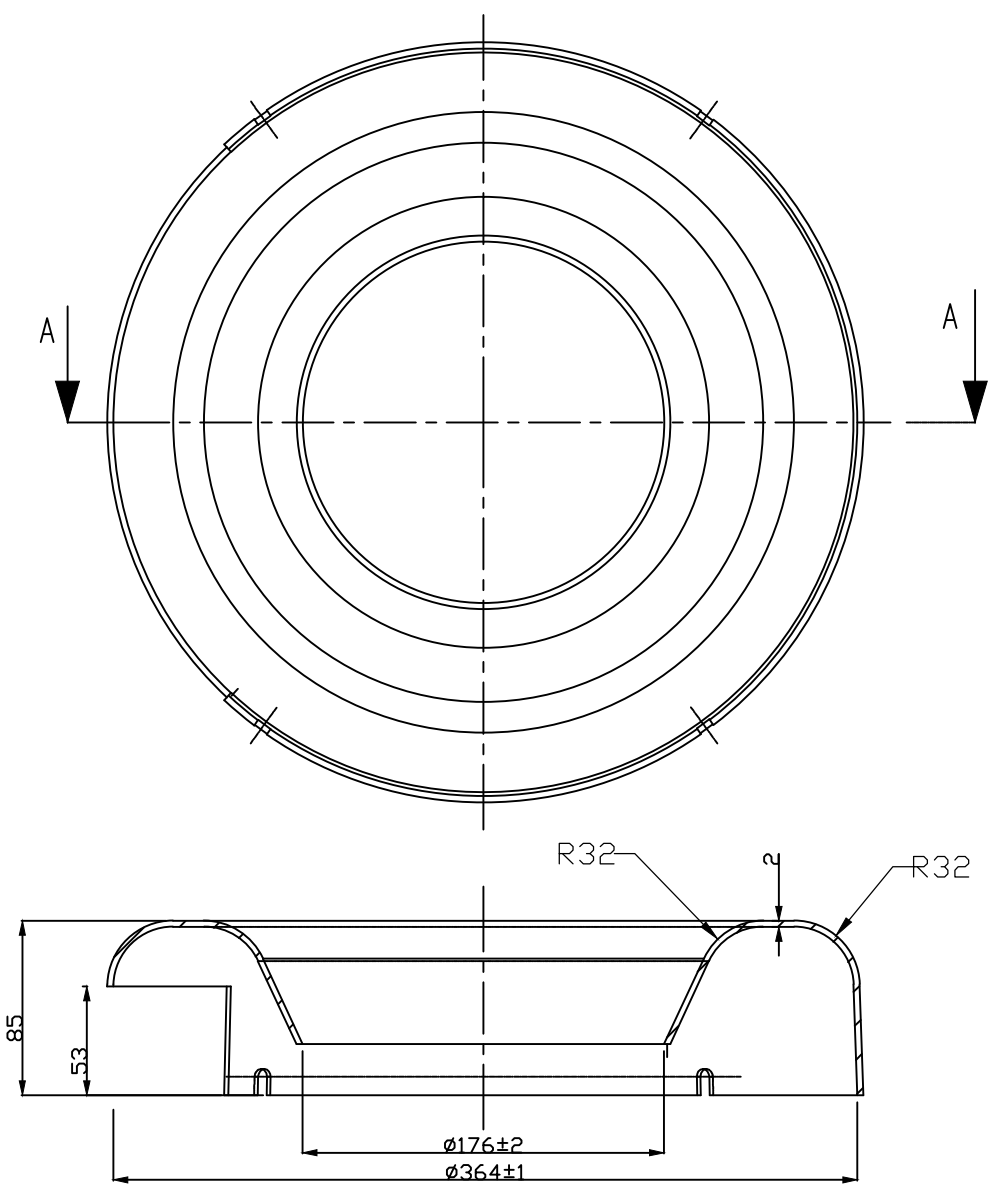
RATED LIGHTNING IMPULSE WITHSTAND VOLTAGE PER BREAKER (kVpeak)

- a) BETWEEN PHASE TO EARTH : 1425
- b) BETWEEN PHASES TO CB OPEN : 1425
- c) ACROSS ISOLATING DISTANCE :1425+(240)  
(IMPULSE ON ONE TERMINAL AND OTHER TERMINAL EARTHED)

| SUPPORT INSULATORS | ALSTOM | T&D<br>Chennai India | 3271003612GA316001 | REV | VER | PAGE    |
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|                    |        |                      |                    | 1   | 1   | 11 / 14 |

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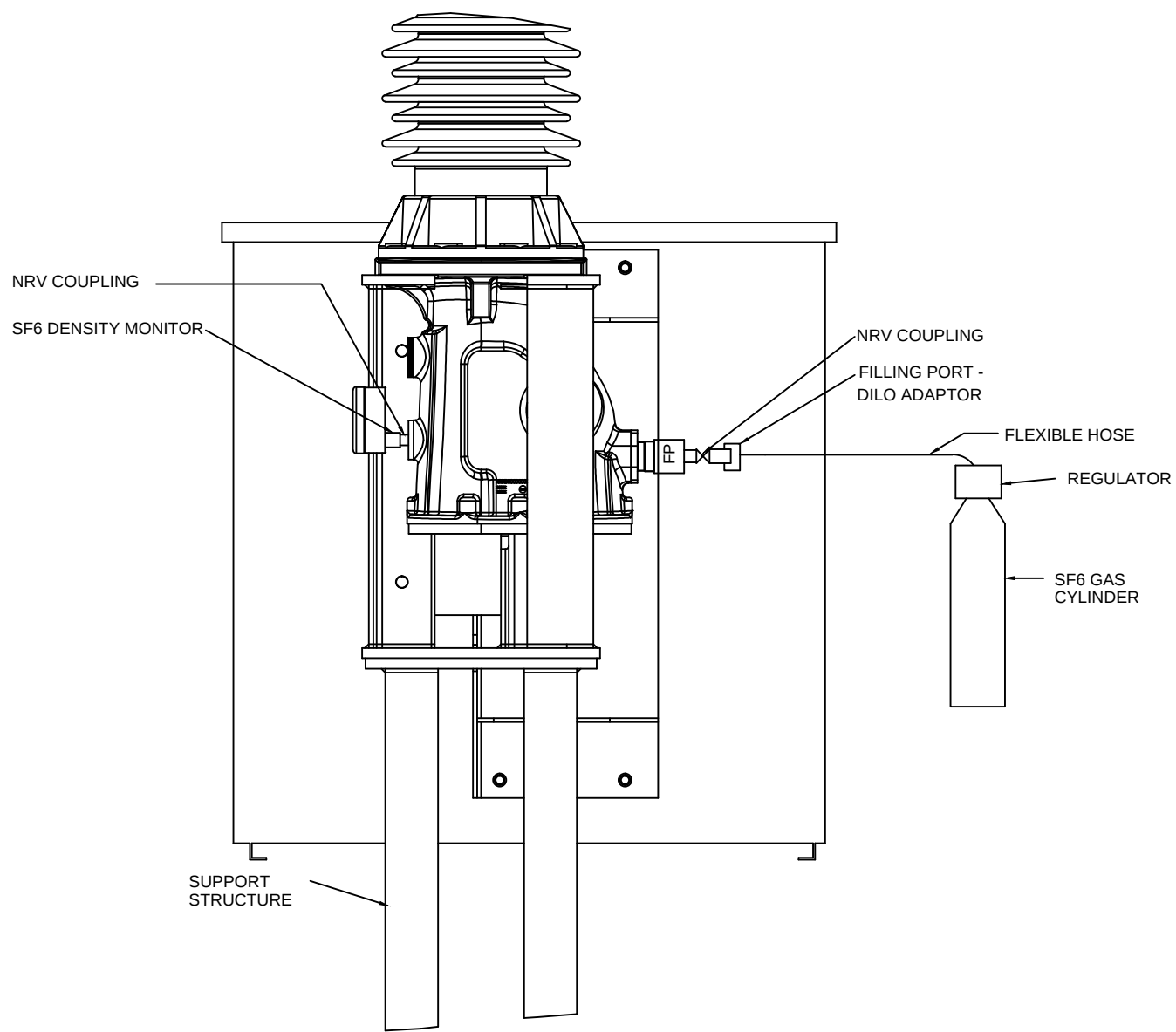
ALL DIMENSIONS ARE IN MM



MATERIAL :  
ALUMINIUM SHEET AS PER IS737-1986 40800

|            |  |  |        |                      |                    |     |     |         |
|------------|--|--|--------|----------------------|--------------------|-----|-----|---------|
| CORONA CAP |  |  | ALSTOM | T&D<br>Chennai India | 3271003612GA316001 | REV | VER | PAGE    |
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SF6 GAS LINE DIAGRAM

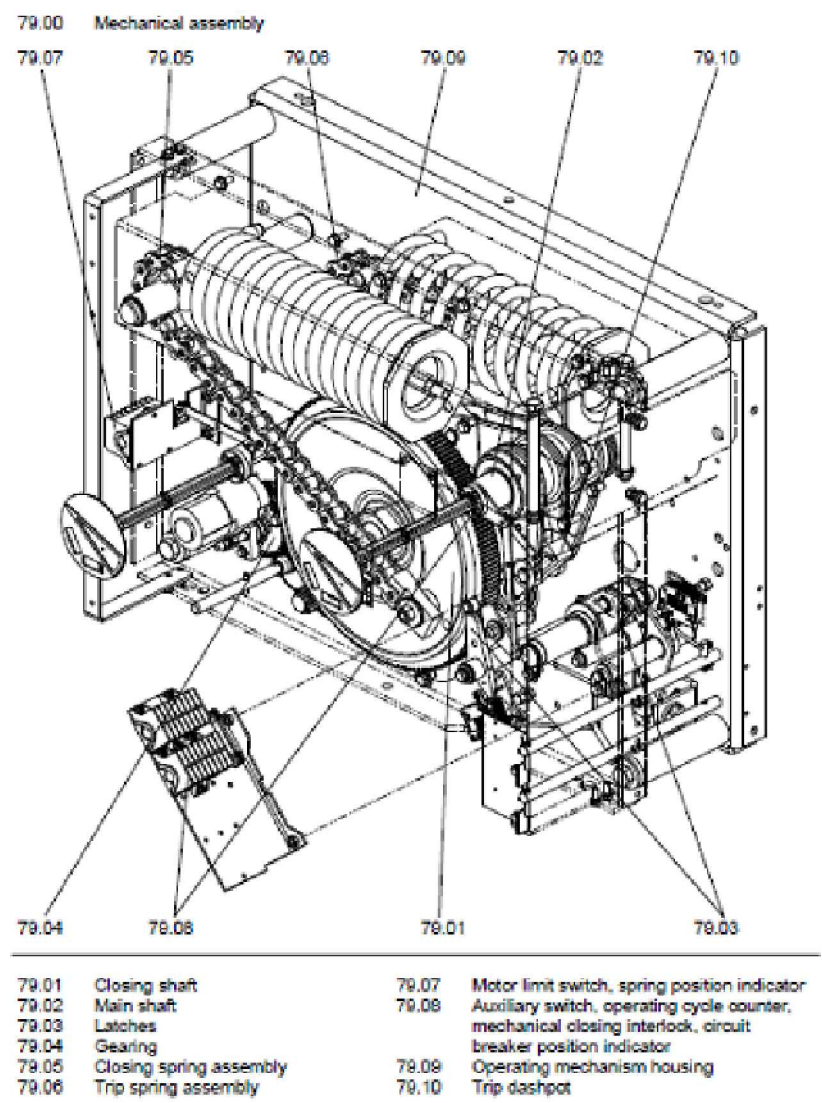


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CROSS SECTIONAL VIEW OF OPERATING MECHANISM

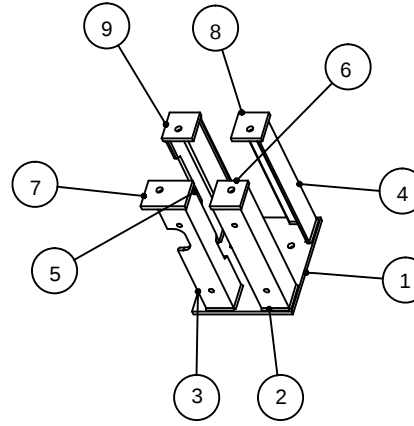
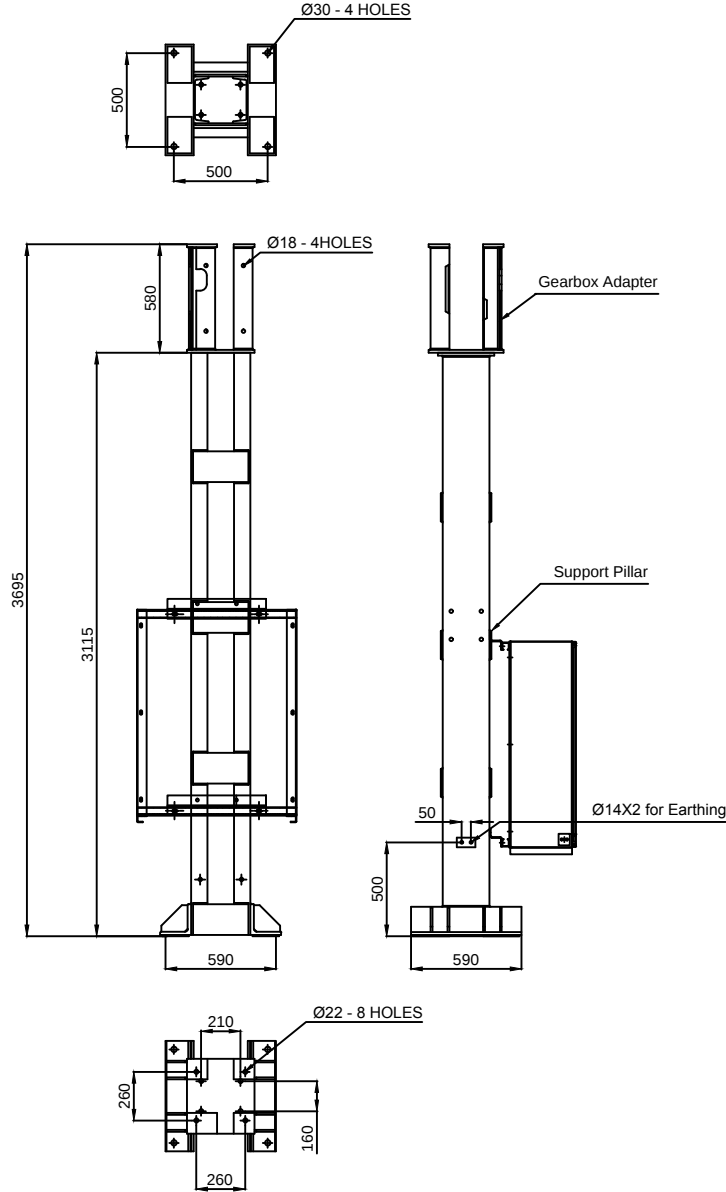


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Chennai India

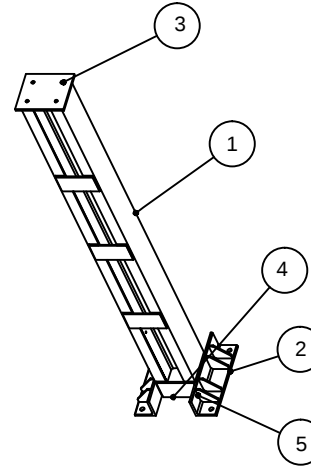
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|       |                |              |                                  |     |
|-------|----------------|--------------|----------------------------------|-----|
| 9     | HRCC4100010_P9 | □ 110x110x16 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 8     | HRCC4100010_P8 | □ 110x110x16 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 7     | HRCC4100010_P7 | □ 160x110x16 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 6     | HRCC4100010_P6 | □ 110x110x16 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 5     | HRCC4100010_P5 | ∠ 100x100x12 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 4     | HRCC4100010_P4 | ∠ 100x100x12 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 3     | HRCC4100010_P3 | ∠ 100x100x12 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 2     | HRCC4100010_P2 | ∠ 100x100x12 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 1     | HRCC4100010_P1 | □ 400x360x16 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| Sl No | Dwg No         | Size         | Material                         | Qty |



|       |                |              |                                  |     |
|-------|----------------|--------------|----------------------------------|-----|
| 5     | HRCC4100009_P5 | □ 129x129x10 | IS2062:2006-E250-Fe410W (B or C) | 8   |
| 4     | HRCC4100009_P4 | □ 270x150x10 | IS2062:2006-E250-Fe410W (B or C) | 8   |
| 3     | HRCC4100009_P3 | □ 350x300x16 | IS2062:2006-E250-Fe410W (B or C) | 1   |
| 2     | HRCC4100009_P2 | ∠ 150x150x16 | IS2062:2006-E250-Fe410W (B or C) | 2   |
| 1     | HRCC4100009_P1 | L 250 ISMC   | IS2062:2006-E250-Fe410W (B or C) | 2   |
| Sl No | Dwg No         | Size         | Material                         | Qty |

1- Hot dip galvanising Zn 50 (III) - (P)  
Average mass of coating - 610 g/m<sup>2</sup>

2- Weight - 280 + 60 Kg

SUPPORT STRUCTURE

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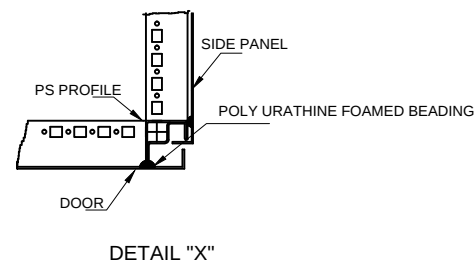
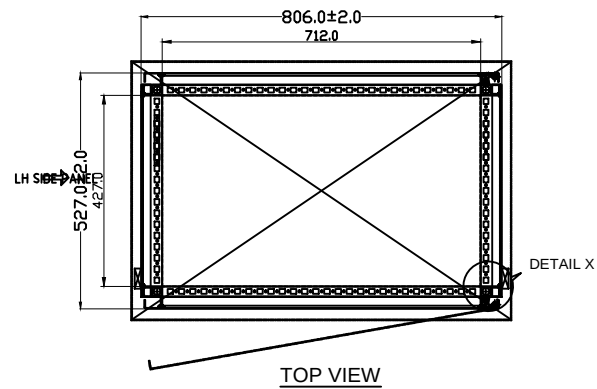
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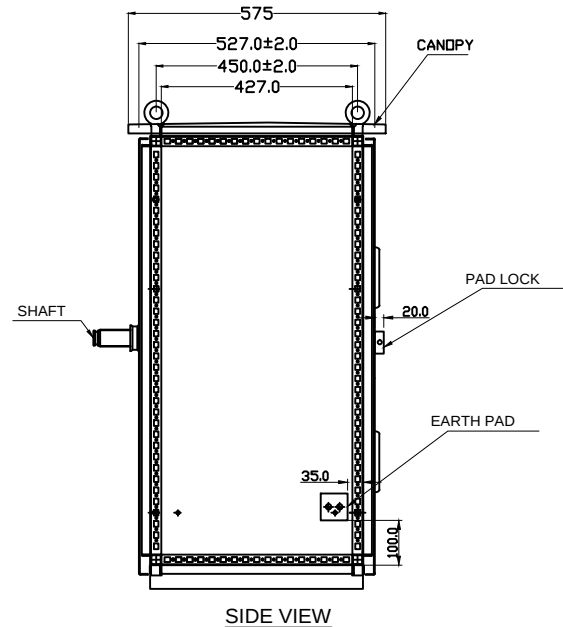
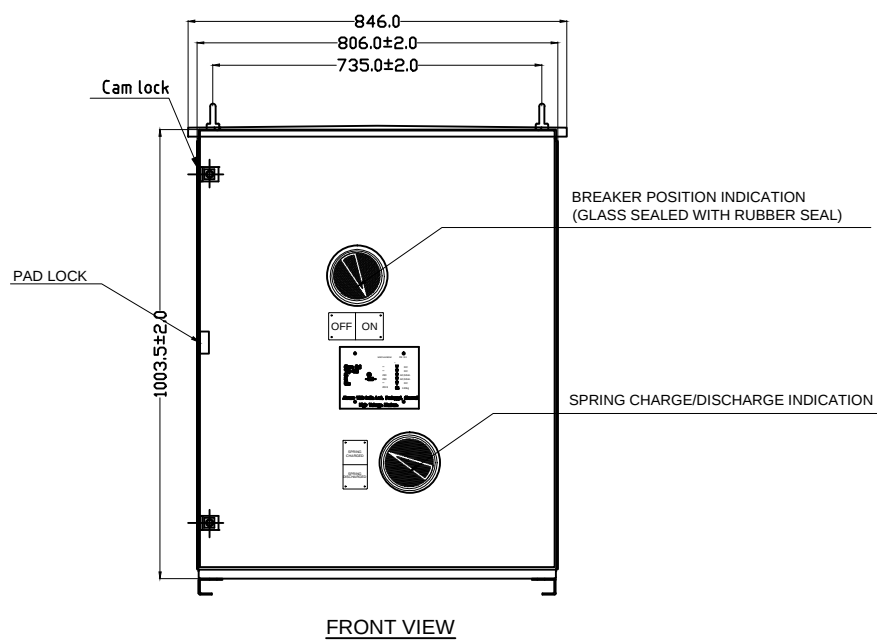
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ALL DIMENSIONS ARE IN MM



- NOTES :
- 1. CUBICLE SHEET THICKNESS SHALL BE OF 2mm CR SHEET
  - 2. PAINT SHADE FOR  
EXTERIOR : 631 OF IS5  
INTERIOR : 631 OF IS5
  - 3. INGRESS PROTECTION : IP 55
  - 4. 1 No. OF UNDRILLED GLAND PLATE WILL BE PROVIDED



MECHANISM CUBICLE

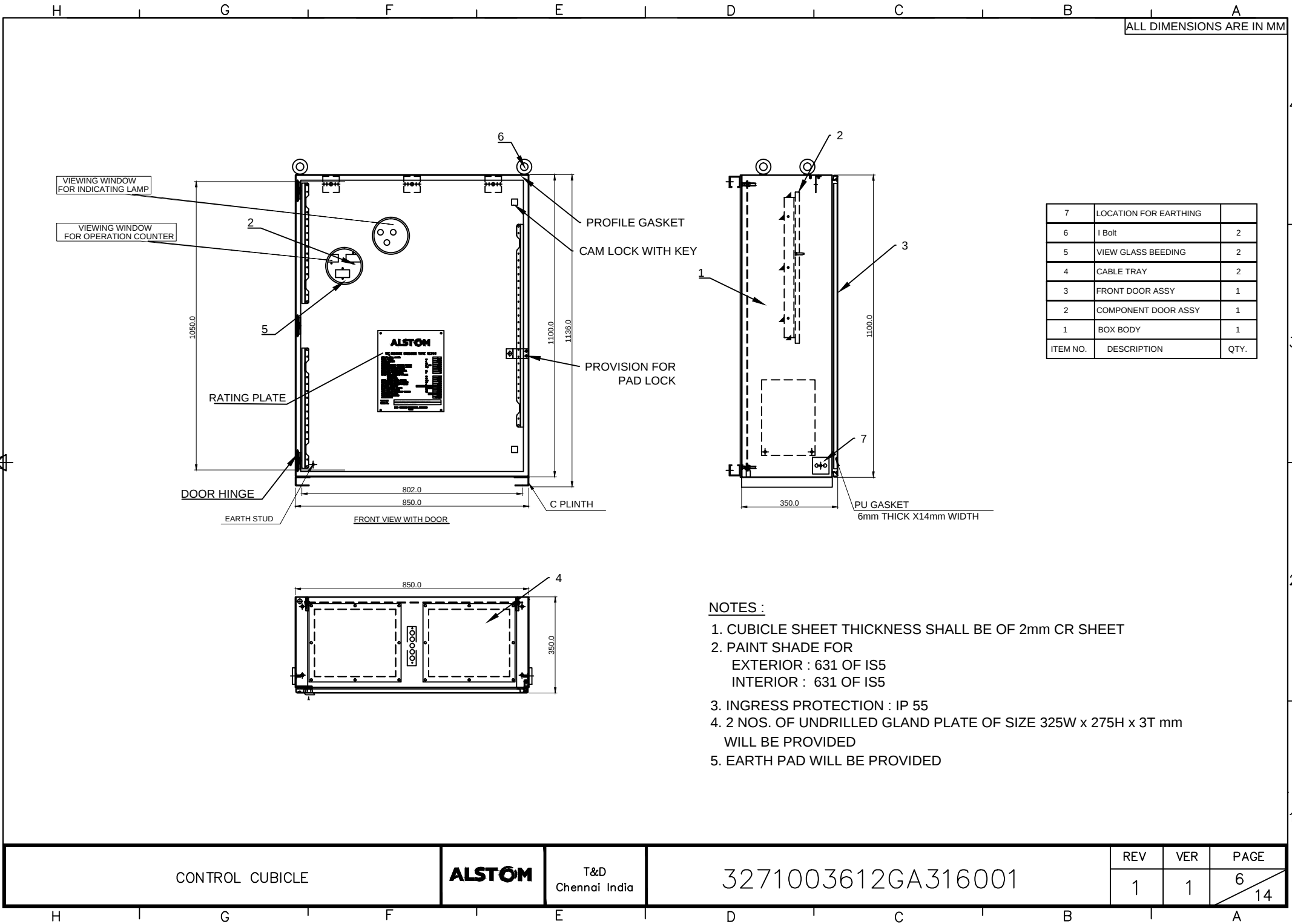
ALSTOM

T&D  
Chennai India

3271003612GA316001

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ALL DIMENSIONS ARE IN MM

|          |                       |      |
|----------|-----------------------|------|
| 7        | LOCATION FOR EARTHING |      |
| 6        | I Bolt                | 2    |
| 5        | VIEW GLASS BEEDING    | 2    |
| 4        | CABLE TRAY            | 2    |
| 3        | FRONT DOOR ASSY       | 1    |
| 2        | COMPONENT DOOR ASSY   | 1    |
| 1        | BOX BODY              | 1    |
| ITEM NO. | DESCRIPTION           | QTY. |

CONTROL CUBICLE

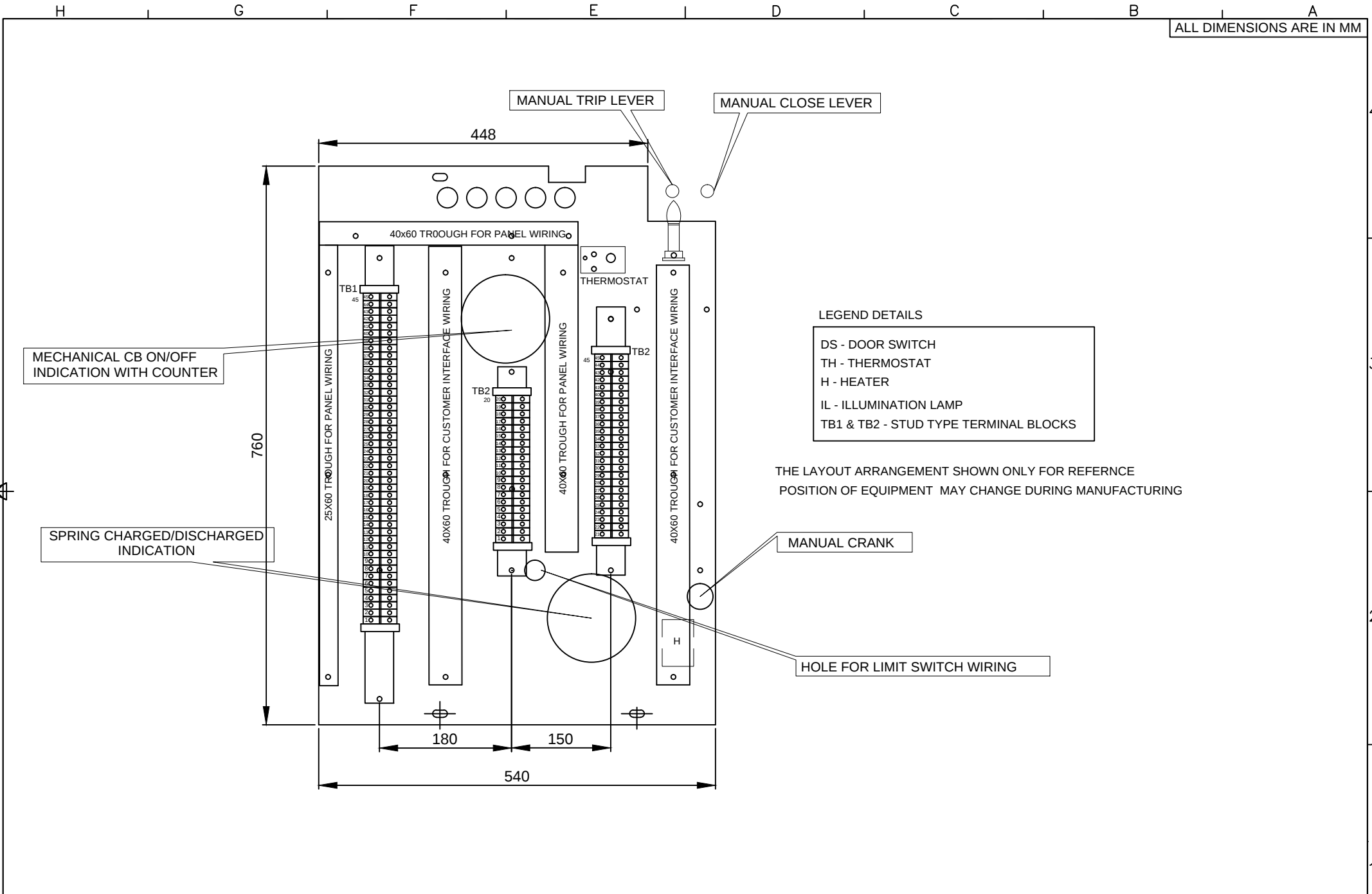
ALSTOM

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Chennai India

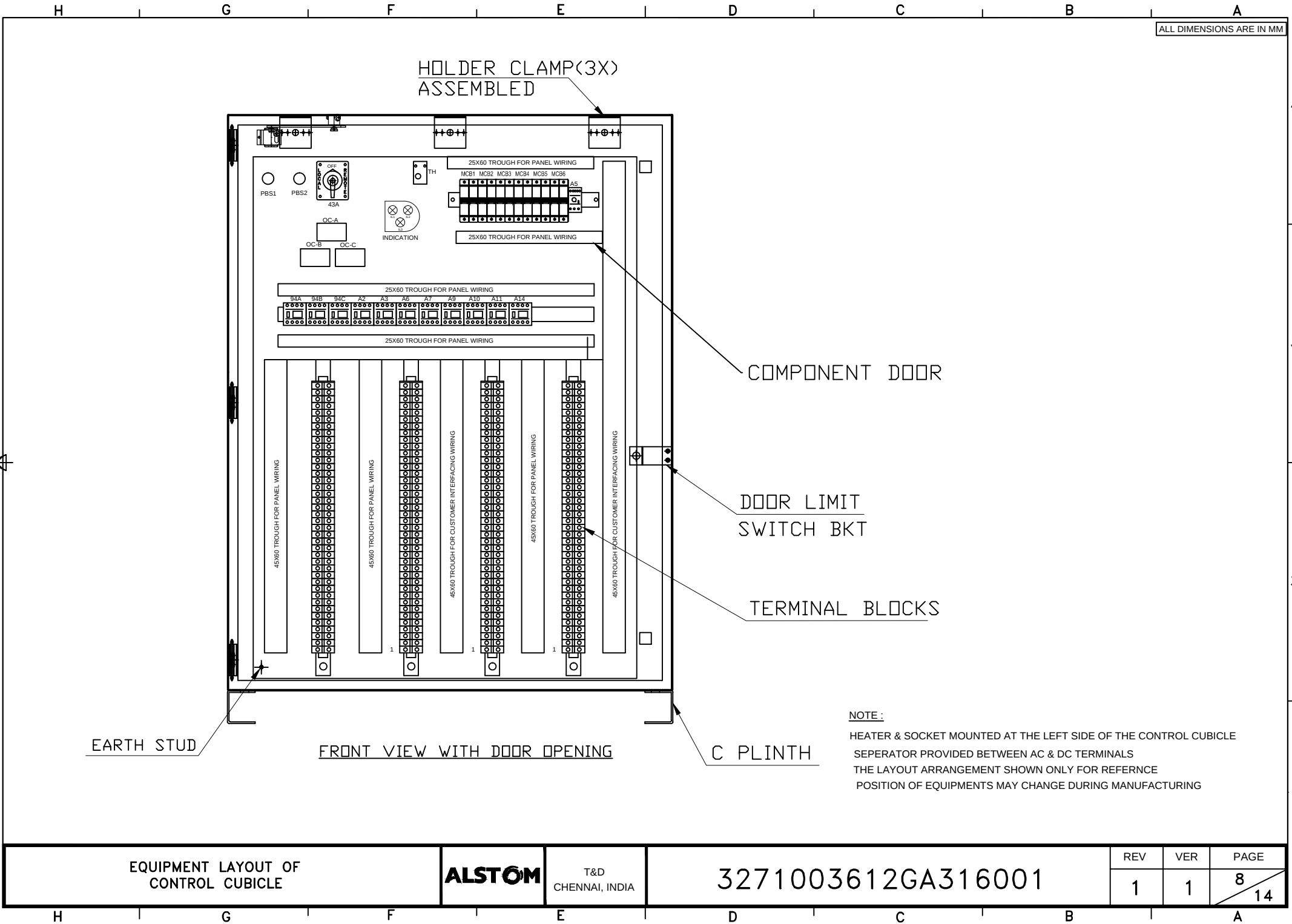
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EQUIPMENT LAYOUT OF  
CONTROL CUBICLE

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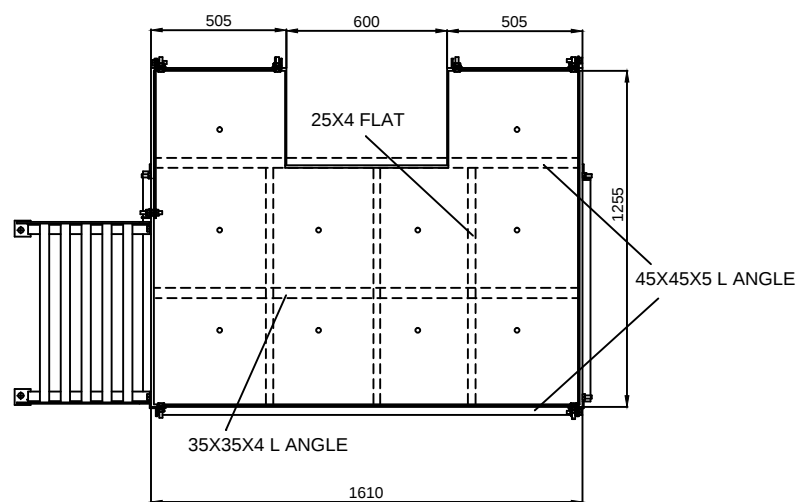
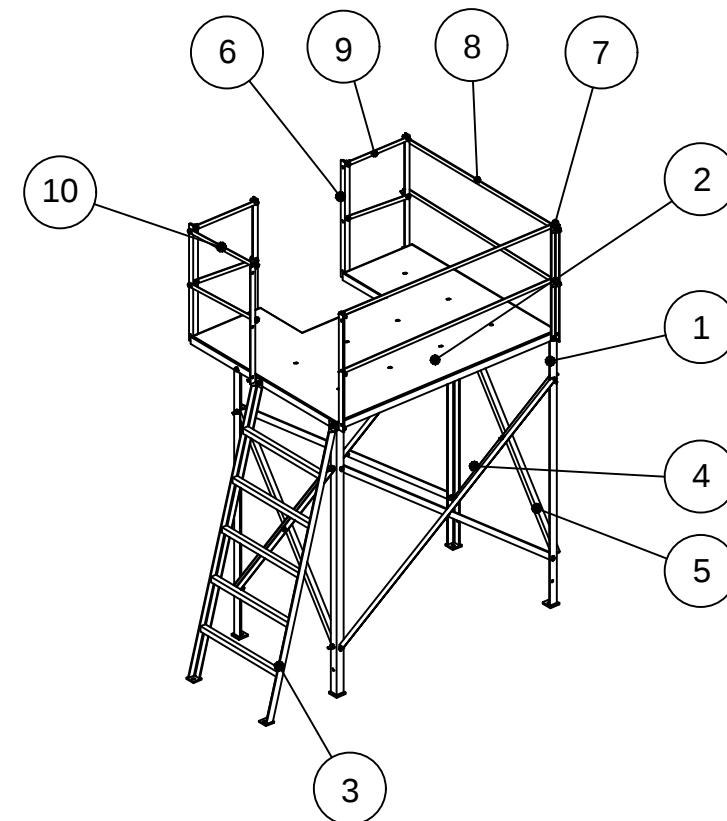
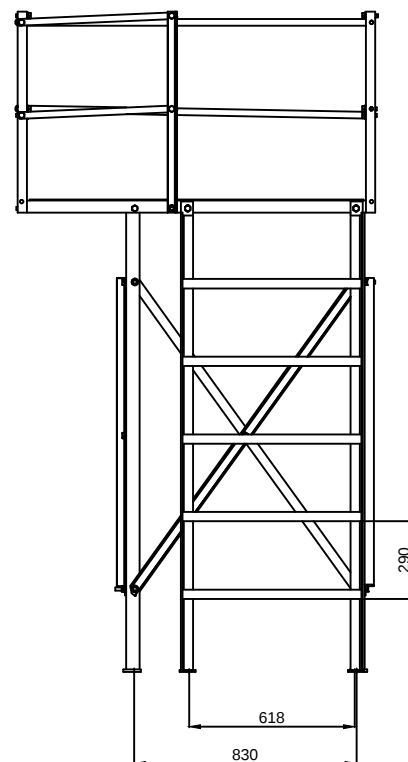
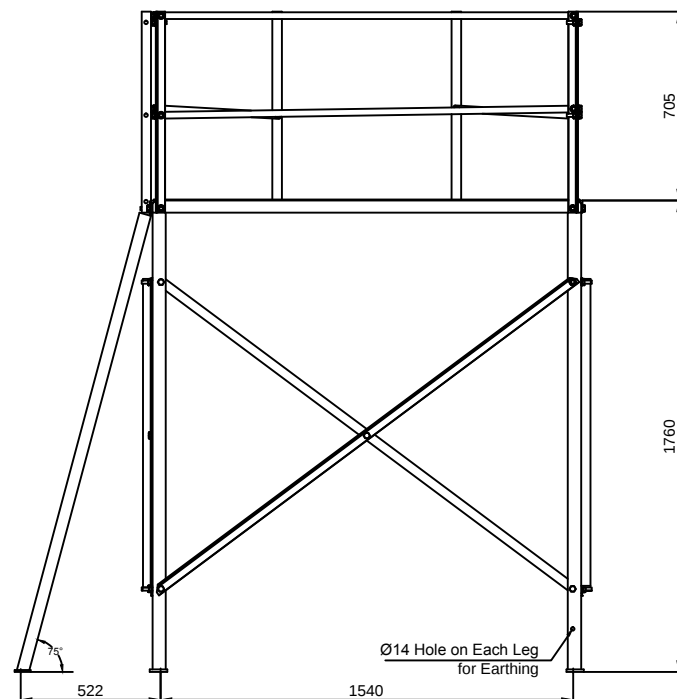
T&D  
CHENNAI, INDIA

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ALL DIMENSIONS ARE IN MM  
SCALE 14:1



|      |             |                       |               |                 |     |
|------|-------------|-----------------------|---------------|-----------------|-----|
| 13   | WASHER_D12  | WASHER 12MM           | NT417 002     |                 | 65  |
| 12   | M12_NUT     | HEX NUT M12 HDG       | NT416 121     |                 | 57  |
| 11   | M12X40_BOLT | HEX BOLT M12 X 40 HDG | NT411 022     |                 | 55  |
| 10   | 2400058_P10 | HAND RAIL BRACING D   | IS 2062 Fe410 | FLAT 25X4       | 2   |
| 9    | 2400058_P09 | HAND RAIL BRACING C   | IS 2062 Fe410 | FLAT 25X4       | 4   |
| 8    | 2400058_P08 | HAND RAIL BRACING B   | IS 2062 Fe410 | FLAT 25X4       | 2   |
| 7    | 2400058_P07 | HAND RAIL BRACING A   | IS 2062 Fe410 | FLAT 25X4       | 2   |
| 6    | 2400058_P06 | HAND RAIL LEG         | IS 2062 Fe410 | ISLA 35X35X4    | 7   |
| 5    | 2400058_P05 | STIFFENER SHORT       | IS 2062 Fe410 | ISLA 35X35X4    | 4   |
| 4    | 2400058_P04 | STIFFENER LONG        | IS 2062 Fe410 | ISLA 35X35X4    | 4   |
| 3    | 2400058_P03 | LADDER ASSY           | IS 2062 Fe410 |                 | 1   |
| 2    | 2400058_P02 | LANDING               | IS 2062 Fe410 | Chequered Plate | 1   |
| 1    | 2400058_P01 | LEG                   | IS 2062 Fe410 | ISLA 50X50X5    | 4   |
| S.NO | PART NUMBER | DESCRIPTION           | MATERIAL      | SECTION         | QTY |

PLATFORM / LADDER ASSEMBLY

**ALSTOM**

T&D  
Chennai India

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| SL NO | DRAWING NO         | SHT.NO | TITLE                 | REV 0      |                | REV 1      |                   | REV 2 |         |
|-------|--------------------|--------|-----------------------|------------|----------------|------------|-------------------|-------|---------|
|       |                    |        |                       | DATE       | DETAILS        | DATE       | DETAILS           | DATE  | DETAILS |
| 1     | 3271003612NP316001 | 1 OF 2 | CONTENT OF NAME PLATE | 26.07.2016 | ORIGINAL ISSUE | 29.09.2016 | CUSTOMER COMMENTS |       |         |
| 2     | 3271003612NP316001 | 2 OF 2 | NAME PLATE            | 26.07.2016 | ORIGINAL ISSUE | 29.09.2016 | CUSTOMER COMMENTS |       |         |

420kV 50kA SF6 CB TYPE GL316 WITH 3 Nos. SPRING MECH.

SALE ORDER NO.:- 3271003612

TOTAL QUANTITY OF C.B : 6 Nos.

|                                                                                       |                                                                                                                                                                                                               |                                         |  |   |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--|---|
|  | GUJARAT STATE ELECTRICITY CORPORATION LIMITED<br>VADODARA, GUJARAT<br>400KV SWITCHYARD EXTENSION FOR<br>1x800 MW Wanakbori Thermal Power Station Extn. Unit-8<br>LOA NO. PP/SE(P-II)/WYB-8/683 DATED 26.09.14 |                                         |  |   |
|  | DEVELOPMENT CONSULTANTS PVT. LTD.<br>CONSULTING ENGINEERS<br>KOLAKATA • MUMBAI • CHENNAI • NEW DELHI                                                                                                          |                                         |  |   |
|  | BHARAT HEAVY ELECTRICALS LTD.<br>P.O. NUMBER 145P319 DTD 10/04/2016                                                                                                                                           |                                         |  |   |
| All rights reserved.                                                                  |                                                                                                                                                                                                               |                                         |  |   |
|  | A3                                                                                                                                                                                                            | CIRCUIT BREAKER<br>TYPE : GL316 (420kV) |  | 1 |
| T&D<br>Chennai India                                                                  | SCALE<br>-/-                                                                                                                                                                                                  |                                         |  |   |
| MODIFICATION<br>DATE: 26.07.2016<br>NAME: KS                                          |                                                                                                                          | CONTENTS OF<br>NAME PLATE               |  | 1 |
| APPROVED<br>DATE: 26.07.2016<br>NAME: KPB                                             | PAGE<br>1 / 2                                                                                                                                                                                                 |                                         |  |   |
|                                                                                       |                                                                                                                                                                                                               | 3271003612NP316001                      |  | 1 |

