

APPARATUS	C/O	MANUFACTURER
1. ANNUNCIATOR SERIES 625 - 14 WAY		R.T.K.
2. BLUE PUSHBUTTON - XB2-BA61	22DA	TELEMECANIQUE
3. FUSEBASE BLACK SC32P	E	GE
4. FUSEBASE WHITE - SC32P	E	GE
5. RELAY - CA3-DN40MD + LA1-DN20 + LA4-DC1U		TELEMECANIQUE
6. RELAY - CA3-DN22MD + LA1-DN04 + LA4-DC1U		TELEMECANIQUE
7. RELAY - CA3-DN40MD + LA4-DC1U		TELEMECANIQUE
8. 6A/16A ROUND PIN SWITCHED SOCKET		ANCHOR/ROMA
9. 3 POSITION CONTROL SELECTOR SWITCH (SPRING RETURN TO CENTRE)		GE
10. 3 POSITION CONTROL SELECTOR SWITCH (STAYPUT)		GE
11. 2 POSITION CONTROL SELECTOR SWITCH (STAYPUT)		GE
12. RELAY - CA3-DN22MD + LA4-DC1U		TELEMECANIQUE
13. RELAY - CA3-DN22MD + LA2-DT4 + LA4-DC1U		TELEMECANIQUE
14. RELAY - CA3-DN31MD + LA4-DC1U		TELEMECANIQUE
15. MOTOR CIRCUIT BREAKER - GV2-P10 + GV2-AN20 (SET AT 5A)		TELEMECANIQUE
16. MOTOR CONTACTOR - LP1-D1810MD + LA4-DC1U		TELEMECANIQUE
17. MOTOR CIRCUIT BREAKER - GV2-P14 + GV2-AN20 (SET AT 8.5A)		TELEMECANIQUE
18. MOTOR CONTACTOR - LP1-D1801MD + LA1-DN11 + LA4-DC1U		TELEMECANIQUE
19. 4 POSITION CONTROL SELECTOR SWITCH		GE
20. RELAY - CA3-DN40MD + LA4-DT4U + LA1-DN40 + LA4-DC1U		TELEMECANIQUE
21. RELAY - CA3-DN40MD + LA4-DT4U + LA4-DC1U		TELEMECANIQUE
22. SUPPLY CIRCUIT BREAKER C250N/D200		MERLIN GERIN
23. AUTO CHANGEOVER CONTROL UNIT 44890		MERLIN GERIN
24. SUPPLY SUPERVISION RELAY BAP2703		MIDLAND AUTOMATION

APPARATUS	C/O	MANUFACTURER
25. SUPPLY ISOLATOR - OETL2504 C/W ZX HANDLE		ABB
26. 2 POSITION ON/OFF SWITCH - C10-1 A290-621-12 C/W R HANDLE		KRAUS & NAIMER
27. HEATER UNITS 100W 240V		PENTAGON
28. THERMOSTAT 10-80 DEGREES CENTIGRADE		PENTAGON
29. TERMINAL ARRANGEMENT (TO BE LABELLED AS DRAWING 81CL02882)		KLIPPON
30. DOOR SWITCH		TELEMECANIQUE
31. PADLOCKABLE HANDLE TYPE 1107-SU331 AND BLANKPLUG 1109-09 (C/W S/S LOCK PIN)		EMKA
32. FIXED LOUVRE VENTILATION POINT		TCS
33. INCANDESCENT LIGHT FITTING 60W 240V		MARWOOD
34. RELAY - CA3-DN22MD + LA4-DT2U + LA4-DC1U		TELEMECANIQUE
35. RELAY - CA3-DN40MD + LA1-DN40 + LA4-DT2U + LA4-DC1U		TELEMECANIQUE
36. RELAY - CA3-DN40MD + LA1-DN40 + LA4-DC1U		TELEMECANIQUE
37. STS STUD TERMINALS (4 OFF)		KLIPPON
38. RELAY MODULE TYPE 40001-240AD-1C-4 (LABELLED T1-T14)		KLIPPON
39. KB10/8 DISTRIBUTION TERMINALS (6 OFF)		KLIPPON
40. FUSEBASE BLACK - SC83P		GE
41. FUSEBASE WHITE - SC83P		GE
42. SUPPLY ISOLATOR - OETL4001 C/W ZX HANDLE		ABB
43. ANNUNCIATOR POWER SUPPLY UNIT		R.T.K.
44. TRANSFORMER BUSHING TYPE WB9880-4M		WESTER-WILKINSON
45. TRANSFORMER BUSHING TYPE WB9880-2M		WESTER-WILKINSON
46. VITREOUS ENAMEL WIREWOUND DROPPING RESISTOR		MERLIN GERIN
47. HEATER UNIT 80W 240V		PENTAGON
48. BREATHER 638-805		S.COMPONENTS
49. HYGROSTAT TYPE 8001		PENTAGON
50. HYGROSTAT REPEAT RELAY TYPE 40.51.8.240.0003 + BASE 95.05 + 95.01 + 95.00.2		FINDER
51. RELAY - CA3-DN40MD + LA4-DT4U + LA1-DN22 + LA4-DC1U		TELEMECANIQUE

TYPICAL DETAILS OF LABEL A
(FOR VARIATIONS SEE TABLE BELOW)

TRANSFORMER
MARSHALLING KIOSK
POLE 1 EAST
RED PHASE
= CWT11 + ES5111

MARSHALLING KIOSK ITEM No.	POSITION	DESIGNATION REFERENCES
PTD1659/01	POLE 1 EAST RED PHASE	= CWT11 + ES5111
PTD1659/02	POLE 1 EAST YELLOW PHASE	= CWT11 + ES5112
PTD1659/03	POLE 1 EAST BLUE PHASE	= CWT11 + ES5113
PTD1659/04	POLE 1 SOUTH RED PHASE	= CWT31 + ES5311
PTD1659/05	POLE 1 SOUTH YELLOW PHASE	= CWT31 + ES5312
PTD1659/06	POLE 1 SOUTH BLUE PHASE	= CWT31 + ES5313

REF	LABEL TEXT	MATERIAL
A	DETAILS AS SHOWN ON THIS DRAWING. (PROVIDED AND FITTED BY GECA TRANSFORMERS LTD.)	STAINLESS STEEL
B	TAPCHANGER CONTROL	STAINLESS STEEL
C	COOLER CONTROL	STAINLESS STEEL
D	ALARM INDICATION	STAINLESS STEEL
E	TERMINALS	STAINLESS STEEL
F	POWER SUPPLIES	STAINLESS STEEL
G	DANGER 415VOLTS AC	STAINLESS STEEL
H	DANGER 220VOLTS DC	STAINLESS STEEL
I	PB1 RESET COOLING	TRAFFOLYTE
J	F15/F15 ALARM ANNUNCIATOR 6A 220VDC	TRAFFOLYTE
K	RL1 ALARM INTERPOSING RELAY	TRAFFOLYTE
L	RL2 ALARM INTERPOSING RELAY	TRAFFOLYTE
M	RL3 ALARM INTERPOSING RELAY	TRAFFOLYTE
N	RL4 ALARM INTERPOSING RELAY	TRAFFOLYTE
O	RL5 ALARM INTERPOSING RELAY	TRAFFOLYTE
P	RL6 ALARM INTERPOSING RELAY	TRAFFOLYTE
Q	RL7 ALARM INTERPOSING RELAY	TRAFFOLYTE
R	RL8 ALARM INTERPOSING RELAY	TRAFFOLYTE
S	RL9 ALARM INTERPOSING RELAY	TRAFFOLYTE
T	RL10 ALARM INTERPOSING RELAY	TRAFFOLYTE
U	RL10X ALARM INTERPOSING RELAY	TRAFFOLYTE
V	RL11 ALARM INTERPOSING RELAY	TRAFFOLYTE
W	RL9X ALARM INTERPOSING RELAY	TRAFFOLYTE
X	PCX PUMPS REMOTE CONTROL RELAY	TRAFFOLYTE
Y	SD1 6A/16A SOCKET OUTLET	TRAFFOLYTE
Z	LPP1 6A PLUGPOINT	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A1	CS4 CONTROL : LOWER TAP NO./NEUTRAL/RAISE TAP NO.	TRAFFOLYTE
B1	CS1 CONTROL SELECTOR : LOCAL/REMOTE	TRAFFOLYTE
C1	CS2 MASTER SELECTOR : R PHASE/Y PHASE/B PHASE	TRAFFOLYTE
D1	CS3 CONTROL SELECTOR : INDEPENDENT/COMBINED	TRAFFOLYTE
E1	TPRA TAPCHANGER POSITION MONITORING RELAY	TRAFFOLYTE
F1	TPRB TAPCHANGER POSITION MONITORING RELAY	TRAFFOLYTE
G1	TPRC TAPCHANGER POSITION MONITORING RELAY	TRAFFOLYTE
H1	OSR OUT OF STEP RELAY	TRAFFOLYTE
J1	RCR RAISE CONTROL RELAY	TRAFFOLYTE
K1	LCR LOWER CONTROL RELAY	TRAFFOLYTE
L1	RDR RUNDOWN CONTROL RELAY	TRAFFOLYTE
M1	PMPR1 COOLER 1 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
N1	PMPR2 COOLER 2 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
O1	PMPR3 COOLER 3 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
P1	PMPR4 COOLER 4 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
Q1	PMPR5 COOLER 5 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
R1	PMPR6 COOLER 6 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
S1	PMC1 COOLER 1 PUMP MOTOR CONTACTOR	TRAFFOLYTE
T1	PMC2 COOLER 2 PUMP MOTOR CONTACTOR	TRAFFOLYTE
U1	PMC3 COOLER 3 PUMP MOTOR CONTACTOR	TRAFFOLYTE
V1	PMC4 COOLER 4 PUMP MOTOR CONTACTOR	TRAFFOLYTE
W1	PMC5 COOLER 5 PUMP MOTOR CONTACTOR	TRAFFOLYTE
X1	PMC6 COOLER 6 PUMP MOTOR CONTACTOR	TRAFFOLYTE
Y1	FMPR1.1 COOLER 1 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
Z1	FMPR1.2 COOLER 1 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A2	FMPR2.1 COOLER 2 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
B2	FMPR2.2 COOLER 2 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
C2	FMPR3.1 COOLER 3 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
D2	FMPR3.2 COOLER 3 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
E2	FMPR4.1 COOLER 4 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
F2	FMPR4.2 COOLER 4 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
G2	FMPR5.1 COOLER 5 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
H2	FMPR5.2 COOLER 5 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
J2	FMPR6.1 COOLER 6 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
K2	FMPR6.2 COOLER 6 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
L2	FMC1.1 COOLER 1 FAN MOTOR CONTACTOR	TRAFFOLYTE
M2	FMC1.2 COOLER 1 FAN MOTOR CONTACTOR	TRAFFOLYTE
N2	FMC2.1 COOLER 2 FAN MOTOR CONTACTOR	TRAFFOLYTE
O2	FMC2.2 COOLER 2 FAN MOTOR CONTACTOR	TRAFFOLYTE
P2	FMC3.1 COOLER 3 FAN MOTOR CONTACTOR	TRAFFOLYTE
Q2	FMC3.2 COOLER 3 FAN MOTOR CONTACTOR	TRAFFOLYTE
R2	FMC4.1 COOLER 4 FAN MOTOR CONTACTOR	TRAFFOLYTE
S2	FMC4.2 COOLER 4 FAN MOTOR CONTACTOR	TRAFFOLYTE
T2	FMC5.1 COOLER 5 FAN MOTOR CONTACTOR	TRAFFOLYTE
U2	FMC5.2 COOLER 5 FAN MOTOR CONTACTOR	TRAFFOLYTE
V2	FMC6.1 COOLER 6 FAN MOTOR CONTACTOR	TRAFFOLYTE
W2	FMC6.2 COOLER 6 FAN MOTOR CONTACTOR	TRAFFOLYTE
X2	CS5.1 COOLER 1 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
Y2	CS5.2 COOLER 2 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
Z2	CS5.3 COOLER 3 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A3	CS5.4 COOLER 4 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
B3	CS5.5 COOLER 5 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
C3	CS5.6 COOLER 6 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
D3	F16.1/F16.1 COOLER 1 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
E3	F16.2/F16.2 COOLER 2 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
F3	F16.3/F16.3 COOLER 3 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
G3	F16.4/F16.4 COOLER 4 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
H3	F16.5/F16.5 COOLER 5 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
J3	F16.6/F16.6 COOLER 6 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
K3	F1/NL1 HEATER CIRCUIT 10A 240VAC	TRAFFOLYTE
L3	F2/NL2 LIGHTING CIRCUIT 6A 240VAC	TRAFFOLYTE
M3	F3/NL3 SOCKET OUTLET CIRCUIT 16A 240VAC	TRAFFOLYTE
N3	F4/NL4 PLUGPOINT CIRCUIT 6A 240VAC	TRAFFOLYTE
O3	F10/F10 TAP POSITION RELAYS 2A 220VDC	TRAFFOLYTE
P3	F18/F18 ALARM CIRCUITS 6A 220VDC	TRAFFOLYTE
Q3		TRAFFOLYTE
R3	OFFR OIL FLOW RELAY	TRAFFOLYTE
S3	FFR FAN FAIL RELAY	TRAFFOLYTE
T3	PCR PUMP CONTROL RELAY	TRAFFOLYTE
U3	RL11X COOLING DISABLED RELAY	TRAFFOLYTE
V3	TH1 THERMOSTAT	TRAFFOLYTE
W3	F20/F20 220VDC SUPPLIES 16A 220VDC	TRAFFOLYTE
X3	ISL ISOLATOR	TRAFFOLYTE
Y3	HS1 HEATER SWITCH	TRAFFOLYTE
Z3	LS1 LIGHTING SWITCH	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A4	F11/F11/F11 415V SUPERVISION CIRCUIT 6A 415VAC	TRAFFOLYTE
B4	SSR SUPPLY SUPERVISION RELAY	TRAFFOLYTE
C4	TN NORMAL SUPPLY BREAKER	TRAFFOLYTE
D4	TR STANDBY SUPPLY BREAKER	TRAFFOLYTE
E4	CU AUTO CHANGEOVER CONTROL UNIT	TRAFFOLYTE
F4	H1.1 HEATER	TRAFFOLYTE
G4	H1.2 HEATER	TRAFFOLYTE
H4	H1.3 HEATER	TRAFFOLYTE
J4	H1.4 HEATER	TRAFFOLYTE
K4	H1.5 HEATER	TRAFFOLYTE
L4	H1.6 HEATER	TRAFFOLYTE
M4	H1.7 HEATER	TRAFFOLYTE
N4	H1.8 HEATER	TRAFFOLYTE
O4	F17/F17 TAPCHANGER CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
P4	FCR1 FAN CONTROL RELAY	TRAFFOLYTE
Q4	FCR2 FAN CONTROL RELAY	TRAFFOLYTE
R4	FCR3 FAN CONTROL RELAY	TRAFFOLYTE
S4	FCR4 FAN CONTROL RELAY	TRAFFOLYTE
T4	ISL1 ISOLATOR	TRAFFOLYTE
U4	F19/NL19 240VAC SUPPLIES 40A 240VAC	TRAFFOLYTE
V4	H1.9 HEATER	TRAFFOLYTE
W4	H1.10 HEATER	TRAFFOLYTE
X4	H1.11 HEATER	TRAFFOLYTE
Y4	F21/F21/F21 415V TAPCHANGER CIRCUIT 6A 415VAC	TRAFFOLYTE
Z4	H1.12 HEATER	TRAFFOLYTE

REF	ANNUNCIATOR WINDOW ENGRAVING TEXT	COLOUR
A6	TRANSFORMER GAS	AMBER
B6	WINDING TEMPERATURE HIGH	AMBER
C6	OIL TEMPERATURE HIGH	AMBER
D6	TRANSFORMER LOW OIL LEVEL	AMBER
E6	DRYCOOL FAULTY	AMBER
F6	OIL FLOW FAIL	AMBER
G6	FAN FAIL	AMBER
H6	LOSS OF 415VAC	AMBER
J6	LOSS OF 220VDC	AMBER
K6	TAPCHANGE INCOMPLETE	AMBER
L6	COOLING DISABLED	AMBER
M6	TAPCHANGERS OUT OF STEP	AMBER

ALL DEVICES LABELLED SUCH * WILL BE FITTED TO ONE MARSHALLING KIOSK ONLY OUT OF EVERY THREE MAKING UP A 3 PHASE GROUP AND ALSO ARE TO BE FITTED TO THE SPARE KIOSK.

REF	LABEL TEXT	MATERIAL
A5	TB X7	TRAFFOLYTE
B5	TB X5	TRAFFOLYTE
C5	TB X6	TRAFFOLYTE
D5	R1 RESISTOR	TRAFFOLYTE
E5	R2 RESISTOR	TRAFFOLYTE
F5	220VDC ISOLATOR	TRAFFOLYTE
G5	240VAC ISOLATOR	TRAFFOLYTE
H5	APSU ANNUNCIATOR POWER SUPPLY UNIT	TRAFFOLYTE
J5	TH3 HYGROSTAT	TRAFFOLYTE
K5	THR HYGROSTAT REPEAT RELAY	TRAFFOLYTE

ASSOCIATED DRAWING
G.A. OF MARSHALLING KIOSK (SHEET 1) 83CL00474

IF IN DOUBT - PLEASE ASK !		ALSTOM T & D Ltd. Transformers
DRAWN DE	FIRST CONTRACT NUMBER PTD1659/01-06	
CHECKED JO	FIRST CUSTOMER VISAKHAPATNAM	DRAWING NUMBER 83CL00475 SHEET 1/1
PASSED/APP'D JO	TITLE HVDC CONVERTOR TRANSFORMER G.A. OF MARSHALLING KIOSK (SHEET 2)	
CATEGORY 01.14	KEYWORD C&A_GA	SCALE DO NOT SCALE - ONLY DIMENSIONS DEFINED IN THIS DRAWING CAN BE CONFIDENTIAL
FILE NAME		DRAWING NUMBER 83CL00475 SHEET 1/1
THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER SET OUT HEREON ARE CONFIDENTIAL AND THE COPYRIGHT OF ALSTOM T & D Ltd. Transformers, STAFFORD, ENGLAND AND MUST NOT BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING, TENDERING OR ANY OTHER PURPOSE WITHOUT THEIR WRITTEN PERMISSION.		
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.	LOCKING METHODS & FIXING TO 4553099 10-SHEETS AND 495130120 4-SHEETS	1. S. D. METRIC THREADS TO BS 3643 60 6H FTT TOLERANCES TO DRG 60500005 THIRD ANGLE PROJECTION

I. D. C. STAMP

AS BUILT

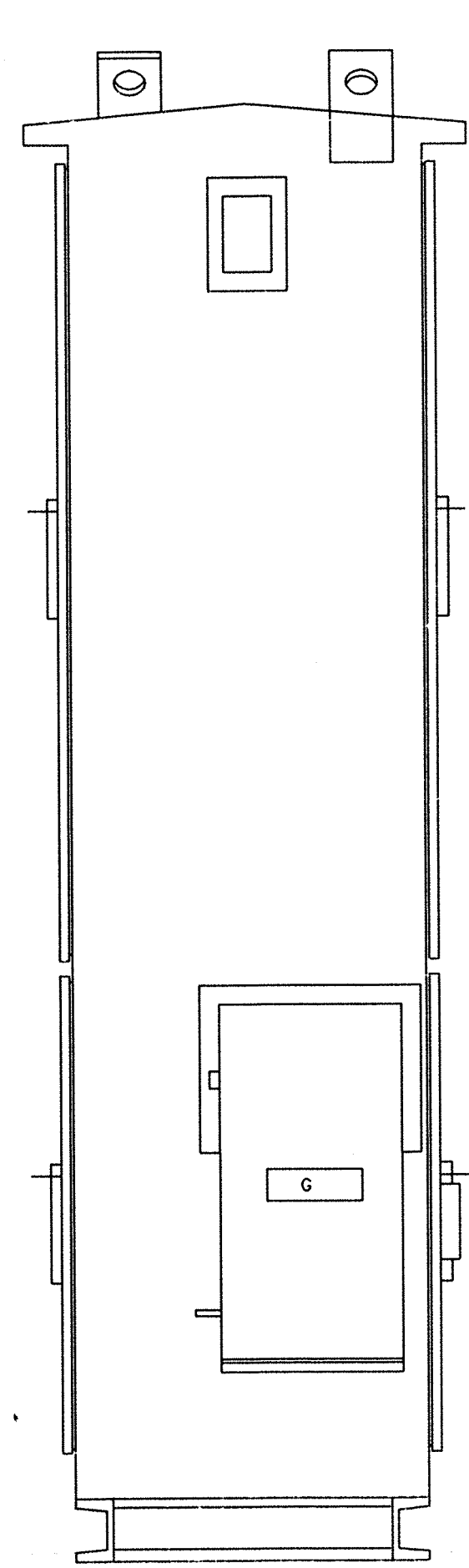
DRAWING

REVISION RECORD

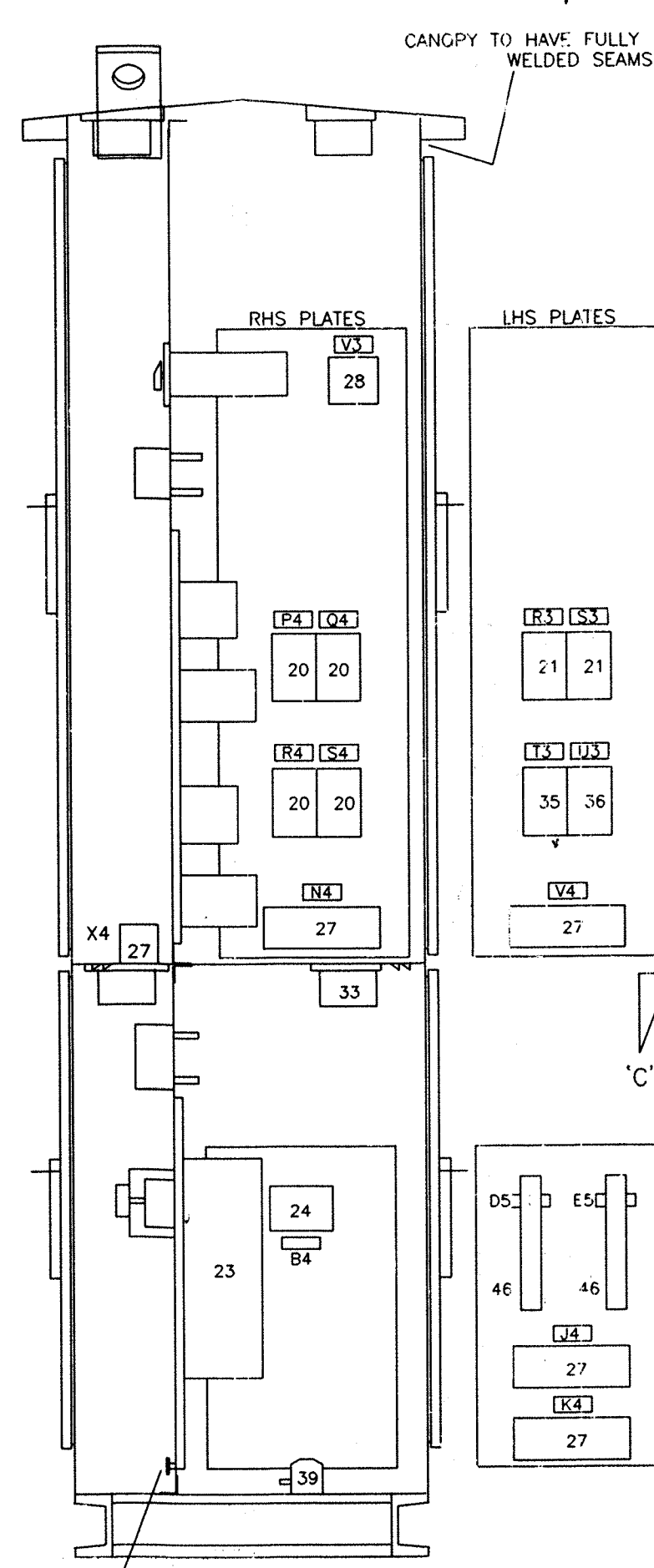
REV	DATE	BY	REASON
1	15TH MAY 1996		
2	18TH DEC 2000		

ITEMS 49, 50, 51, 55, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

TEXT ON FUSE LABEL REF Y4 WAS PREVIOUSLY '...16A 415VAC'.

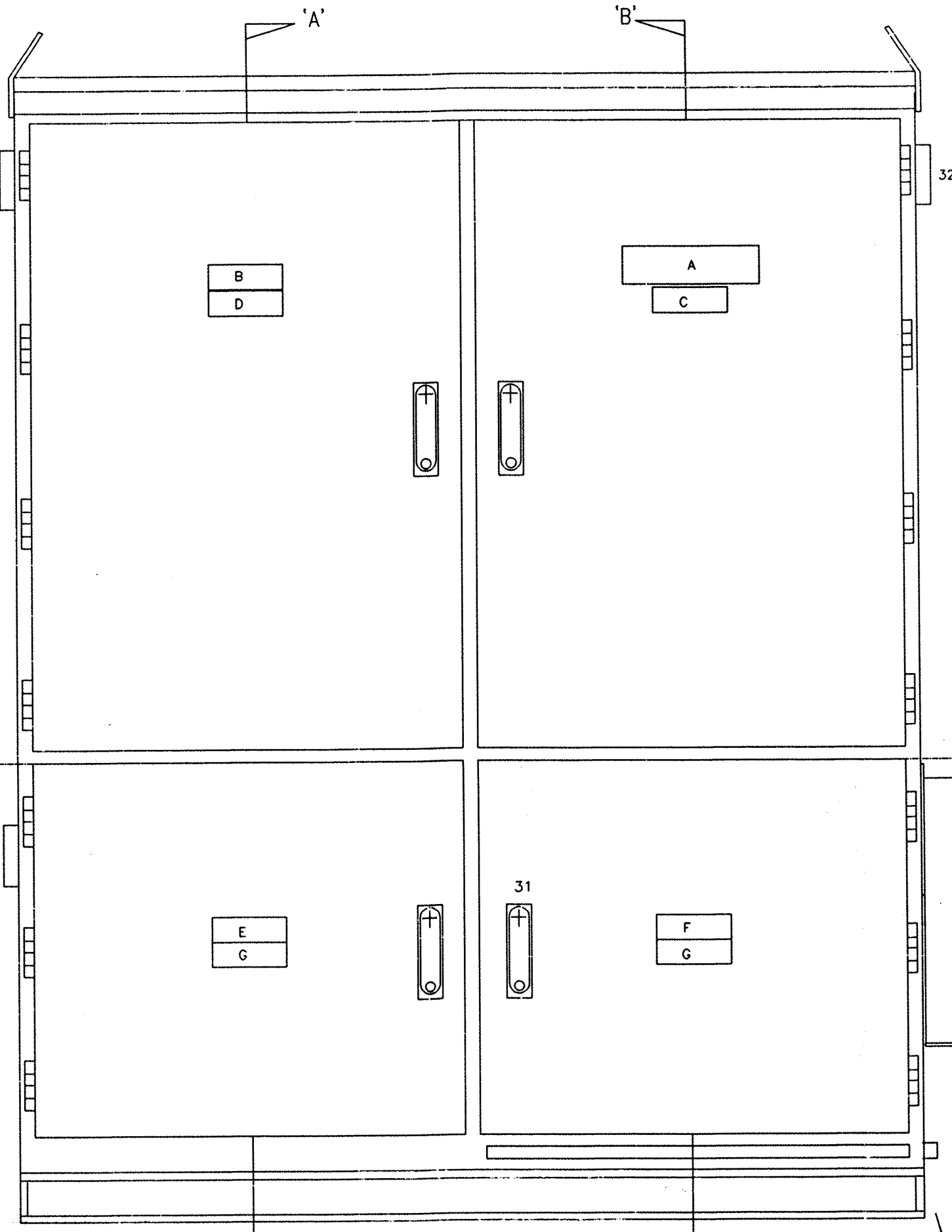


END VIEW



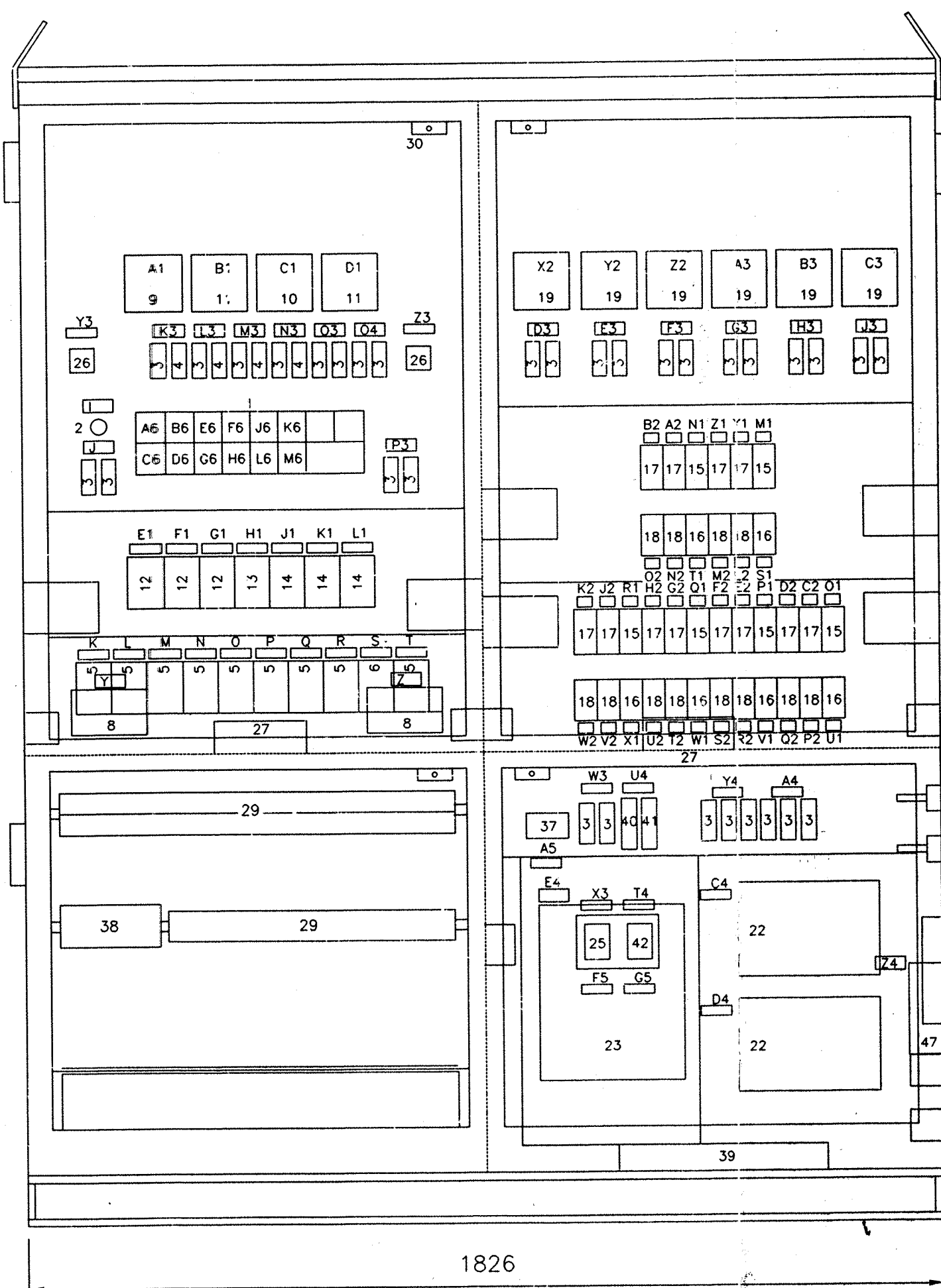
SECTION 'B'-'B'

25mm X 3mm TINNED COPPER EARTH BAR

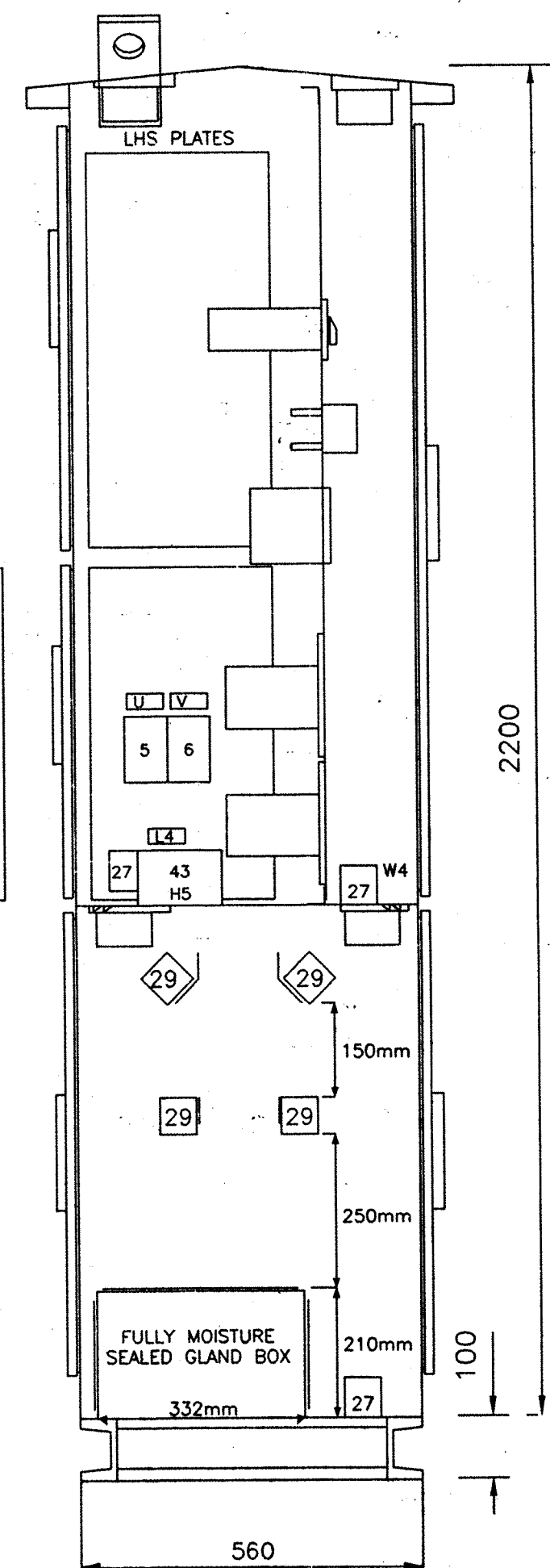


FRONT VIEW

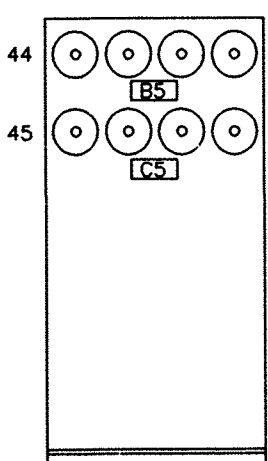
GALVANISED PLINTH TO HAVE REMOVABLE ENDS



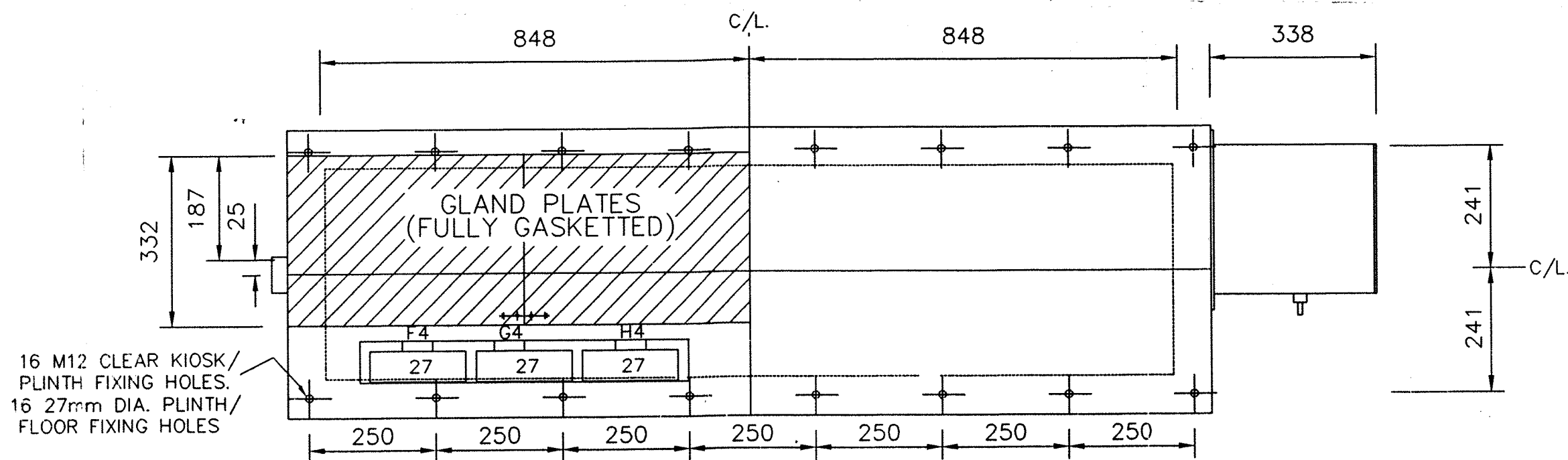
FRONT VIEW WITH COVERS REMOVED (INTERIOR LIGHTING NOT SHOWN)



SECTION 'A'-'A'



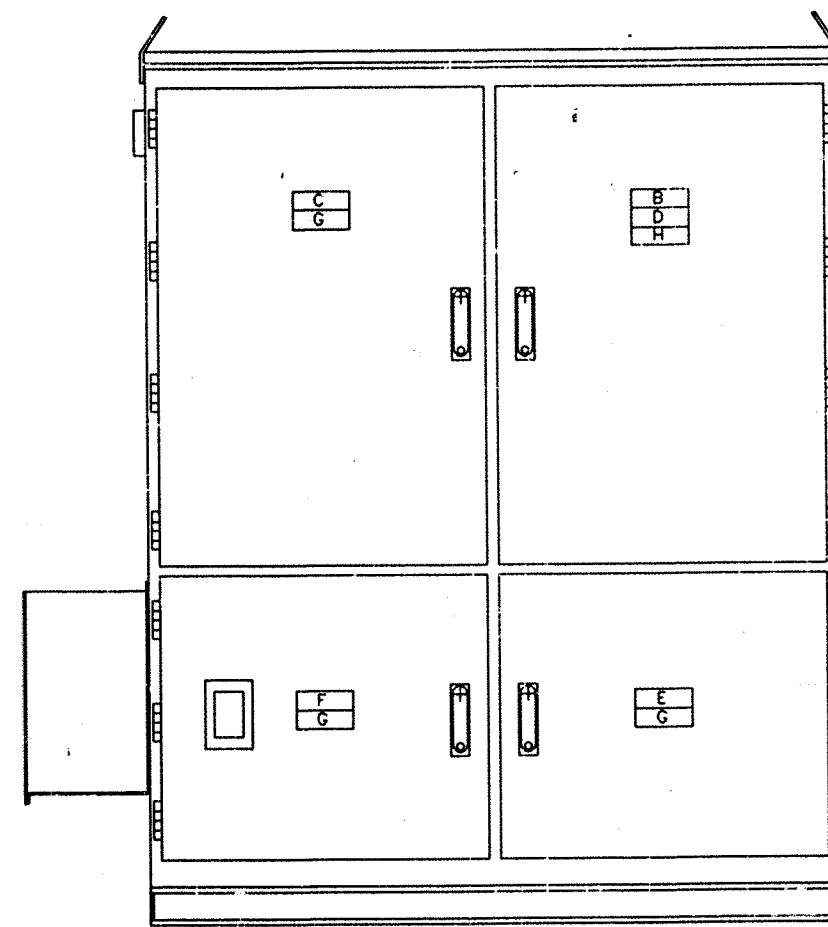
CABLE BOX (COVER REMOVED)



SECTION 'C'-'C'

16 M12 CLEAR KIOSK/ PLINTH FIXING HOLES. 16 27mm DIA. PLINTH/ FLOOR FIXING HOLES

PAINT FINISH	
EXTERNAL SPEC	SUITED FOR 15 YEARS TO BS381C GLOSS SHADE 697
INTERNAL	ANTI CONDENSATION WHITE
MOUNTING PLATE	SEMI-GLOSS WHITE
GALVANISING	GEC SPEC 49CF38778



REAR VIEW TO SHOW LABELLING DETAILS (SCALE 1:20)

LABELS-
 OUTDOOR LABELS TO BE OF 1.2mm STAINLESS STEEL BLACK (BS2660 REF 9-103) ON NATURAL FINISH EXCEPT FOR DANGER LABELS WHICH ARE TO BE WHITE (BS2660 REF 9-102) ON RED (BS 2660 REF 0-005)
 WEIGHT APPROX 800KG PROTECTED TO IP55 OF BS 5490.1977
 CASE AND DOORS 2.5mm THICK
 MOUNTING PLATES 3mm THICK
 GLAND PLATES 3mm THICK
NOTE -
 ALL INTERNAL TACK WELDS TO BE NO MORE THAN 100mm APART
 ALL EXTERNAL FIXINGS FOR VENT POINTS AND CABLE BOX TO BE STAINLESS STEEL.
 KIOSK TO BE SUPPLIED WITH M12 HILTI UNDERCUT ANCHORS

ASSOCIATED DRAWING G.A. OF MARSHALLING KIOSK (SHEET 2) 83CL00475

IF IN DOUBT -- PLEASE ASK !		GEC ALSTHOM	
CATEGORY(QI.14) 7	FIRST CONTRACT NUMBER. PTD1659/01-06	T&D	
DRAWN DE	FIRST CUSTOMER VISAKHAPATNAM	GEC ALSTHOM TRANSFORMERS LIMITED STAFFORD ENGLAND	
CHECKED	KEYWORD C&A_GA	SCALE (DO NOT SCALE PRINT)	DRAWING NUMBER 83CL00474
PASSED/APP'D	KEYWORD	SCALE	SHEET 1/1
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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.	LOCKING METHODS & FIXINGS TO DRAWING 499732097 5-SHEETS	I.S.O METRIC THREADS TO BS 3643 69 91 FT	TOLERANCES TO DRG. 60SF00025
THIRD ANGLE PROJECTION		© 1994	

REVISION RECORD
 DATE
 BY
 REVISION

APPARATUS	C/O	MANUFACTURER
1. ANNUNCIATOR SERIES 825 - 14 WAY	R.T.K.	
2. BLUE PUSHBUTTON - XB2-BA61	22DA	TELEMECANIQUE
3. FUSEBASE BLACK SC32P	E	GEC
4. FUSEBASE WHITE - SC32P	E	GEC
5. RELAY - CA3-DN40MD + LA1-DN20 + LA4-DC1U		TELEMECANIQUE
6. RELAY - CA3-DN22MD + LA1-DN04 + LA4-DC1U		TELEMECANIQUE
7. RELAY - CA3-DN40MD + LA4-DC1U		TELEMECANIQUE
8. 6A/16A ROUND PIN SWITCHED SOCKET		ANCHOR/ROMA
9. 3 POSITION CONTROL SELECTOR SWITCH (SPRING RETURN TO CENTRE)		GEC
10. 3 POSITION CONTROL SELECTOR SWITCH (STAYPUT)		GEC
11. 2 POSITION CONTROL SELECTOR SWITCH (STAYPUT)		GEC
12. RELAY - CA3-DN22MD + LA4-DC1U		TELEMECANIQUE
13. RELAY - CA3-DN22MD + LA2-DT4 + LA4-DC1U		TELEMECANIQUE
14. RELAY - CA3-DN31MD + LA4-DC1U		TELEMECANIQUE
15. MOTOR CIRCUIT BREAKER - GV2-P10 + GV2-AN20 (SET AT 5A)		TELEMECANIQUE
16. MOTOR CONTACTOR - LP1-D1810MD + LA4-DC1U		TELEMECANIQUE
17. MOTOR CIRCUIT BREAKER - GV2-P14 + GV2-AN20 (SET AT 6.5A)		TELEMECANIQUE
18. MOTOR CONTACTOR - LP1-D1801MD + LA1-DN11 + LA4-DC1U		TELEMECANIQUE
19. 4 POSITION CONTROL SELECTOR SWITCH		GEC
20. RELAY - CA3-DN40MD + LA4-DT4U + LA1-DN40 + LA4-DC1U		TELEMECANIQUE
21. RELAY - CA3-DN40MD + LA4-DT4U + LA4-DC1U		TELEMECANIQUE
22. SUPPLY CIRCUIT BREAKER C250N/D200		MERLIN GERIN
23. AUTO CHANGEOVER CONTROL UNIT 44890		MERLIN GERIN
24. SUPPLY SUPERVISION RELAY BAP2703		MIDLAND AUTOMATION

APPARATUS	C/O	MANUFACTURER
25. SUPPLY ISOLATOR - DETL2504 C/W ZX HANDLE		ABB
26. 2 POSITION ON/OFF SWITCH - C10-1 A290-621-12 C/W R HANDLE		SAUS & NAIMER
27. HEATER UNITS 100W 240V		PENTAGON
28. THERMOSTAT 10-80 DEGREES CENTIGRADE		PENTAGON
29. TERMINAL ARRANGEMENT (TO BE LABELLED AS DRAWING B1CLO2882)		KLIPPON
30. DOOR SWITCH		TELEMECANIQUE
31. PADLOCKABLE HANDLE TYPE 1107-SU331 AND BLANKPLUG 1109-09 (C/W S/S LOCK PIN)		EMKA
32. FIXED LOUVRE VENTILATION POINT		TCS
33. INCANDESCENT LIGHT FITTING 80W 240V		MARWOOD
34. RELAY - CA3-DN22MD + LA4-DT2U + LA4-DC1U		TELEMECANIQUE
35. RELAY - CA3-DN40MD + LA1-DN40 + LA4-DT2U + LA4-DC1U		TELEMECANIQUE
36. RELAY - CA3-DN40MD + LA1-DN40 + LA4-DC1U		TELEMECANIQUE
37. STS STUD TERMINALS (4 OFF)		KLIPPON
38. RELAY MODULE TYPE 40001-240AD-1C-4 (LABELLED T1-T14)		KLIPPON
39. KB10/8 DISTRIBUTION TERMINALS (8 OFF)		KLIPPON
40. FUSEBASE BLACK - SC63P		GEC
41. FUSEBASE WHITE - SC63P		GEC
42. SUPPLY ISOLATOR - DETL4001 C/W ZX HANDLE		ABB
43. ANNUNCIATOR POWER SUPPLY UNIT		R.T.K.
44. TRANSFORMER BUSHING TYPE W98880-4M		WESTER-WILKINSON
45. TRANSFORMER BUSHING TYPE W98880-2M		WESTER-WILKINSON
46. VITREOUS ENAMEL WIREWOUND DROPPING RESISTOR		MERLIN GERIN
47. HEATER UNIT 80W 240V		PENTAGON
48. BREATHER 838-805		S.COMPONENTS
49. HYGROSTAT TYPE 6001.		PENTAGON
50. HYGROSTAT REPEAT RELAY TYPE 40.51.8.240.0003 + BASE 95.05 + 95.01 + 95.00.2		FINDER
51. RELAY - CA3-DN40MD + LA4-DT4U + LA1-DN22 + LA4-DC1U		TELEMECANIQUE

TYPICAL DETAILS OF LABEL A
(FOR VARIATIONS SEE TABLE BELOW)

TRANSFORMER
MARSHALLING KIOSK
POLE 1 EAST
RED PHASE
= CWT11 + ES5111

MARSHALLING KIOSK ITEM No.	POSITION	DESIGNATION REFERENCES
PTD1659/01	POLE 1 EAST RED PHASE	= CWT11 + ES5111
PTD1659/02	POLE 1 EAST YELLOW PHASE	= CWT11 + ES5112
PTD1659/03	POLE 1 EAST BLUE PHASE	= CWT11 + ES5113
PTD1659/04	POLE 1 SOUTH RED PHASE	= CWT31 + ES5311
PTD1659/05	POLE 1 SOUTH YELLOW PHASE	= CWT31 + ES5312
PTD1659/06	POLE 1 SOUTH BLUE PHASE	= CWT31 + ES5313

REF	LABEL TEXT	MATERIAL
A	DETAILS AS SHOWN ON THIS DRAWING. (PROVIDED AND FITTED BY GECA TRANSFORMERS LTD.)	STAINLESS STEEL
B	TAPCHANGER CONTROL	STAINLESS STEEL
C	COOLER CONTROL	STAINLESS STEEL
D	ALARM INDICATION	STAINLESS STEEL
E	TERMINALS	STAINLESS STEEL
F	POWER SUPPLIES	STAINLESS STEEL
G	DANGER 415VOLTS AC	STAINLESS STEEL
H	DANGER 220VOLTS DC	STAINLESS STEEL
I	PB1 RESET COOLING	TRAFFOLYTE
J	F15/F15 ALARM ANNUNCIATOR 6A 220VDC	TRAFFOLYTE
K	RL1 ALARM INTERPOSING RELAY	TRAFFOLYTE
L	RL2 ALARM INTERPOSING RELAY	TRAFFOLYTE
M	RL3 ALARM INTERPOSING RELAY	TRAFFOLYTE
N	RL4 ALARM INTERPOSING RELAY	TRAFFOLYTE
O	RL5 ALARM INTERPOSING RELAY	TRAFFOLYTE
P	RL6 ALARM INTERPOSING RELAY	TRAFFOLYTE
Q	RL7 ALARM INTERPOSING RELAY	TRAFFOLYTE
R	RL8 ALARM INTERPOSING RELAY	TRAFFOLYTE
S	RL9 ALARM INTERPOSING RELAY	TRAFFOLYTE
T	RL10 ALARM INTERPOSING RELAY	TRAFFOLYTE
U	RL10X ALARM INTERPOSING RELAY	TRAFFOLYTE
V	RL11 ALARM INTERPOSING RELAY	TRAFFOLYTE
W	RL9X ALARM INTERPOSING RELAY	TRAFFOLYTE
X	PCX PUMPS REMOTE CONTROL RELAY	TRAFFOLYTE
Y	S01 6A/16A SOCKET OUTLET	TRAFFOLYTE
Z	LPP1 6A PLUGPOINT	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A1	CS4 CONTROL : LOWER TAP NO./NEUTRAL/RAISE TAP NO.	TRAFFOLYTE
B1	CS1 CONTROL SELECTOR : LOCAL/REMOTE	TRAFFOLYTE
C1	CS2 MASTER SELECTOR : R PHASE/Y PHASE/B PHASE	TRAFFOLYTE
D1	CS3 CONTROL SELECTOR : INDEPENDENT/COMBINED	TRAFFOLYTE
E1	TPRA TAPCHANGER POSITION MONITORING RELAY	TRAFFOLYTE
F1	TPRB TAPCHANGER POSITION MONITORING RELAY	TRAFFOLYTE
G1	TPRC TAPCHANGER POSITION MONITORING RELAY	TRAFFOLYTE
H1	OSR OUT OF STEP RELAY	TRAFFOLYTE
J1	RCR RAISE CONTROL RELAY	TRAFFOLYTE
K1	LCR LOWER CONTROL RELAY	TRAFFOLYTE
L1	RDR RUNDOWN CONTROL RELAY	TRAFFOLYTE
M1	PMPR1 COOLER 1 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
N1	PMPR2 COOLER 2 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
O1	PMPR3 COOLER 3 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
P1	PMPR4 COOLER 4 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
Q1	PMPR5 COOLER 5 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
R1	PMPR6 COOLER 6 PUMP MOTOR PROTECTION RELAY	TRAFFOLYTE
S1	PMC1 COOLER 1 PUMP MOTOR CONTACTOR	TRAFFOLYTE
T1	PMC2 COOLER 2 PUMP MOTOR CONTACTOR	TRAFFOLYTE
U1	PMC3 COOLER 3 PUMP MOTOR CONTACTOR	TRAFFOLYTE
V1	PMC4 COOLER 4 PUMP MOTOR CONTACTOR	TRAFFOLYTE
W1	PMC5 COOLER 5 PUMP MOTOR CONTACTOR	TRAFFOLYTE
X1	PMC6 COOLER 6 PUMP MOTOR CONTACTOR	TRAFFOLYTE
Y1	FMPR1.1 COOLER 1 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
Z1	FMPR1.2 COOLER 1 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A2	FMPR2.1 COOLER 2 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
B2	FMPR2.2 COOLER 2 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
C2	FMPR3.1 COOLER 3 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
D2	FMPR3.2 COOLER 3 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
E2	FMPR4.1 COOLER 4 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
F2	FMPR4.2 COOLER 4 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
G2	FMPR5.1 COOLER 5 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
H2	FMPR5.2 COOLER 5 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
J2	FMPR6.1 COOLER 6 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
K2	FMPR6.2 COOLER 6 FAN MOTOR PROTECTION RELAY	TRAFFOLYTE
L2	FMC1.1 COOLER 1 FAN MOTOR CONTACTOR	TRAFFOLYTE
M2	FMC1.2 COOLER 1 FAN MOTOR CONTACTOR	TRAFFOLYTE
N2	FMC2.1 COOLER 2 FAN MOTOR CONTACTOR	TRAFFOLYTE
O2	FMC2.2 COOLER 2 FAN MOTOR CONTACTOR	TRAFFOLYTE
Q2	FMC3.1 COOLER 3 FAN MOTOR CONTACTOR	TRAFFOLYTE
R2	FMC3.2 COOLER 3 FAN MOTOR CONTACTOR	TRAFFOLYTE
S2	FMC4.1 COOLER 4 FAN MOTOR CONTACTOR	TRAFFOLYTE
T2	FMC4.2 COOLER 4 FAN MOTOR CONTACTOR	TRAFFOLYTE
U2	FMC5.1 COOLER 5 FAN MOTOR CONTACTOR	TRAFFOLYTE
V2	FMC5.2 COOLER 5 FAN MOTOR CONTACTOR	TRAFFOLYTE
W2	FMC6.1 COOLER 6 FAN MOTOR CONTACTOR	TRAFFOLYTE
X2	FMC6.2 COOLER 6 FAN MOTOR CONTACTOR	TRAFFOLYTE
Y2	CSS.1 COOLER 1 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
Z2	CSS.2 COOLER 2 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
Z3	CSS.3 COOLER 3 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A3	CSS.4 COOLER 4 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
B3	CSS.5 COOLER 5 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
C3	CSS.6 COOLER 6 : TEST/OFF/1ST STAGE/2ND STAGE	TRAFFOLYTE
D3	F16.1/F16.1 COOLER 1 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
E3	F16.2/F16.2 COOLER 2 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
F3	F16.3/F16.3 COOLER 3 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
G3	F16.4/F16.4 COOLER 4 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
H3	F16.5/F16.5 COOLER 5 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
J3	F16.6/F16.6 COOLER 6 CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
K3	F1/NL1 HEATER CIRCUIT 10A 240VAC	TRAFFOLYTE
L3	F2/NL2 LIGHTING CIRCUIT 6A 240VAC	TRAFFOLYTE
M3	F3/NL3 SOCKET OUTLET CIRCUIT 16A 240VAC	TRAFFOLYTE
N3	F4/NL4 PLUGPOINT CIRCUIT 6A 240VAC	TRAFFOLYTE
O3	F10/F10 TAP POSITION RELAYS 2A 220VDC	TRAFFOLYTE
P3	F18/F18 ALARM CIRCUITS 8A 220VDC	TRAFFOLYTE
Q3		TRAFFOLYTE
R3	OFFR OIL FLOW RELAY	TRAFFOLYTE
S3	FFR FAN FAIL RELAY	TRAFFOLYTE
T3	PCR PUMP CONTROL RELAY	TRAFFOLYTE
U3	RL11X COOLING DISABLED RELAY	TRAFFOLYTE
V3	TH1 THERMOSTAT	TRAFFOLYTE
W3	F20/F20 220VDC SUPPLIES 18A 220VDC	TRAFFOLYTE
X3	ISL ISOLATOR	TRAFFOLYTE
Y3	HS1 HEATER SWITCH	TRAFFOLYTE
Z3	LS1 LIGHTING SWITCH	TRAFFOLYTE

REF	LABEL TEXT	MATERIAL
A4	F11/F11/F11 415V SUPERVISION CIRCUIT 6A 415VAC	TRAFFOLYTE
B4	SSR SUPPLY SUPERVISION RELAY	TRAFFOLYTE
C4	TN NORMAL SUPPLY BREAKER	TRAFFOLYTE
D4	TR STANDBY SUPPLY BREAKER	TRAFFOLYTE
E4	CU AUTO CHANGEOVER CONTROL UNIT	TRAFFOLYTE
F4	H1.1 HEATER	TRAFFOLYTE
G4	H1.2 HEATER	TRAFFOLYTE
H4	H1.3 HEATER	TRAFFOLYTE
J4	H1.4 HEATER	TRAFFOLYTE
K4	H1.5 HEATER	TRAFFOLYTE
L4	H1.6 HEATER	TRAFFOLYTE
M4	H1.7 HEATER	TRAFFOLYTE
N4	H1.8 HEATER	TRAFFOLYTE
O4	F17/F17 TAPCHANGER CONTROL CIRCUIT 6A 220VDC	TRAFFOLYTE
P4	FCR1 FAN CONTROL RELAY	TRAFFOLYTE
Q4	FCR2 FAN CONTROL RELAY	TRAFFOLYTE
R4	FCR3 FAN CONTROL RELAY	TRAFFOLYTE
S4	FCR4 FAN CONTROL RELAY	TRAFFOLYTE
T4	ISL1 ISOLATOR	TRAFFOLYTE
U4	F19/NL19 240VAC SUPPLIES 40A 240VAC	TRAFFOLYTE
V4	H1.9 HEATER	TRAFFOLYTE
W4	H1.10 HEATER	TRAFFOLYTE
X4	H1.11 HEATER	TRAFFOLYTE
Y4	F21/F21/F21 415V TAPCHANGER CIRCUIT 6A 415VAC	TRAFFOLYTE
Z4	H1.12 HEATER	TRAFFOLYTE

REF	ANNUNCIATOR WINDOW ENGRAVING	COLOUR
A6	TRANSFORMER GAS	AMBER
B6	WINDING TEMPERATURE HIGH	AMBER
C6	OIL TEMPERATURE HIGH	AMBER
D6	TRANSFORMER LOW OIL LEVEL	AMBER
E6	DRYCOOL FAULTY	AMBER
F6	OIL FLOW FAIL	AMBER
G6	FAN FAIL	AMBER
H6	LOSS OF 415VAC	AMBER
J6	LOSS OF 220VDC	AMBER
K6	TAPCHANGE INCOMPLETE	AMBER
L6	COOLING DISABLED	AMBER
M6	TAPCHANGERS OUT OF STEP	AMBER

ALL DEVICES LABELLED SUCH * WILL BE FITTED TO ONE MARSHALLING KIOSK ONLY OUT OF EVERY THREE MAKING UP A 3 PHASE GROUP AND ALSO ARE TO BE FITTED TO THE SPARE KIOSK.

REF	LABEL TEXT	MATERIAL
A5	TB X7	TRAFFOLYTE
B5	TB X5	TRAFFOLYTE
C5	TB X6	TRAFFOLYTE
D5	R1 RESISTOR	TRAFFOLYTE
E5	R2 RESISTOR	TRAFFOLYTE
F5	220VDC ISOLATOR	TRAFFOLYTE
G5	240VAC ISOLATOR	TRAFFOLYTE
H5	APSU ANNUNCIATOR POWER SUPPLY UNIT	TRAFFOLYTE
J5	TH3 HYGROSTAT	TRAFFOLYTE
K5	THR HYGROSTAT REPEAT RELAY	TRAFFOLYTE

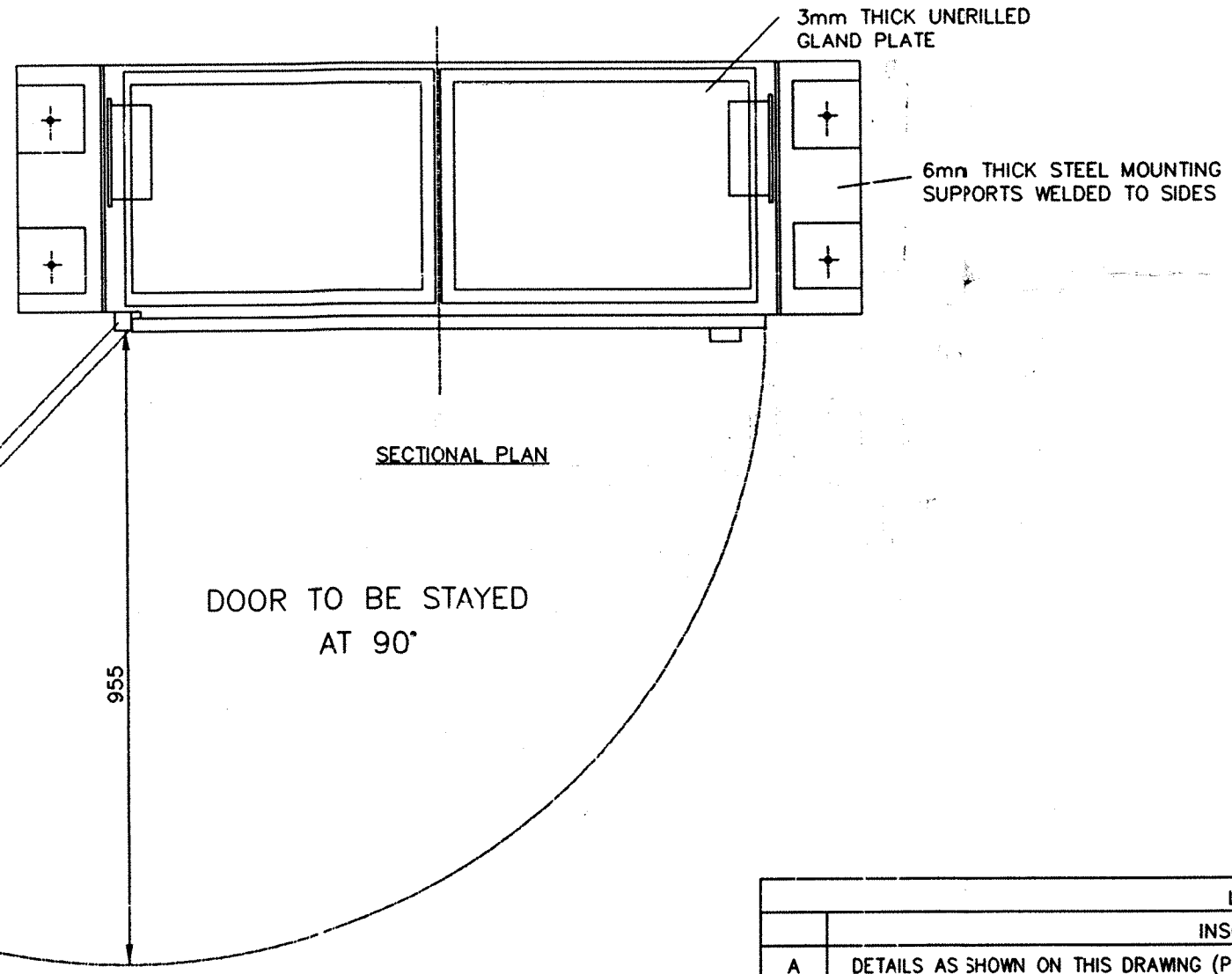
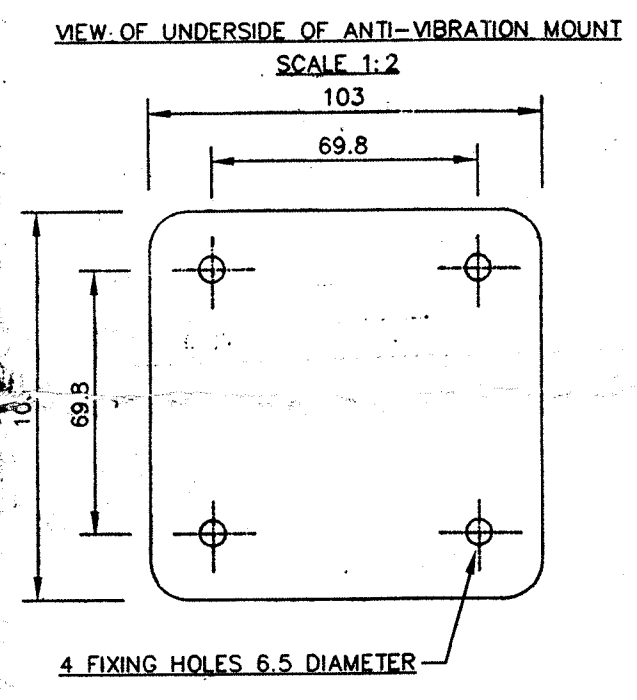
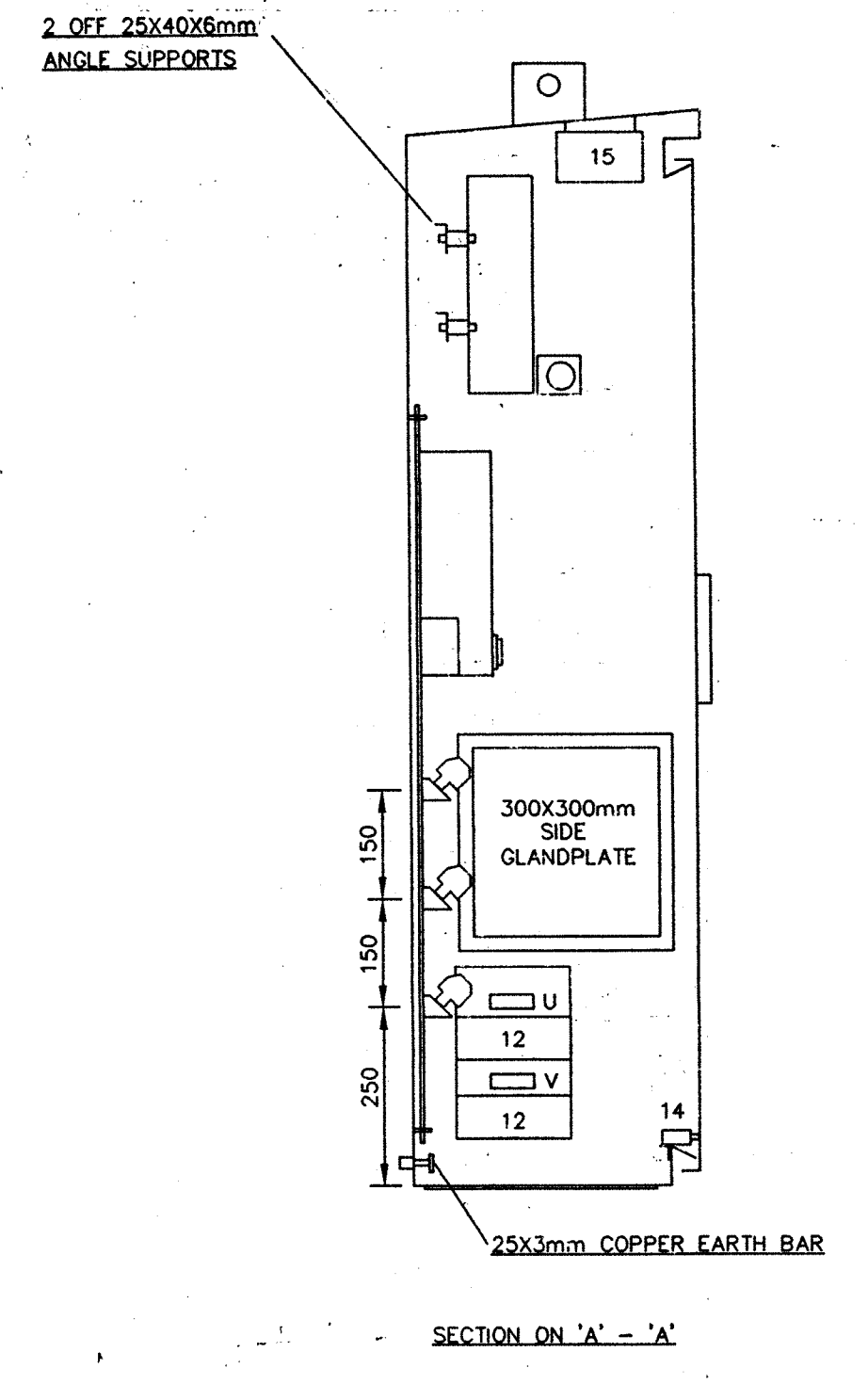
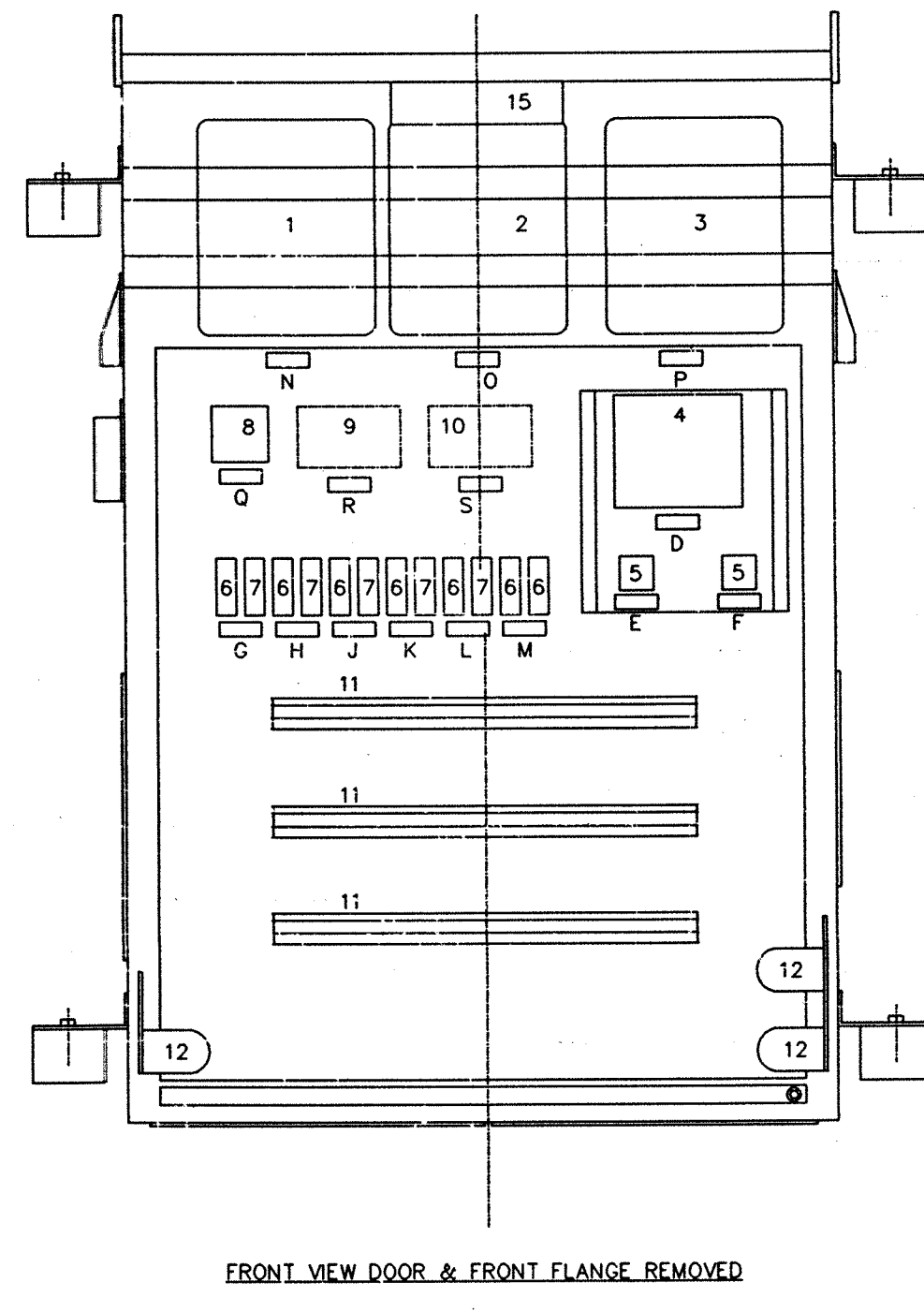
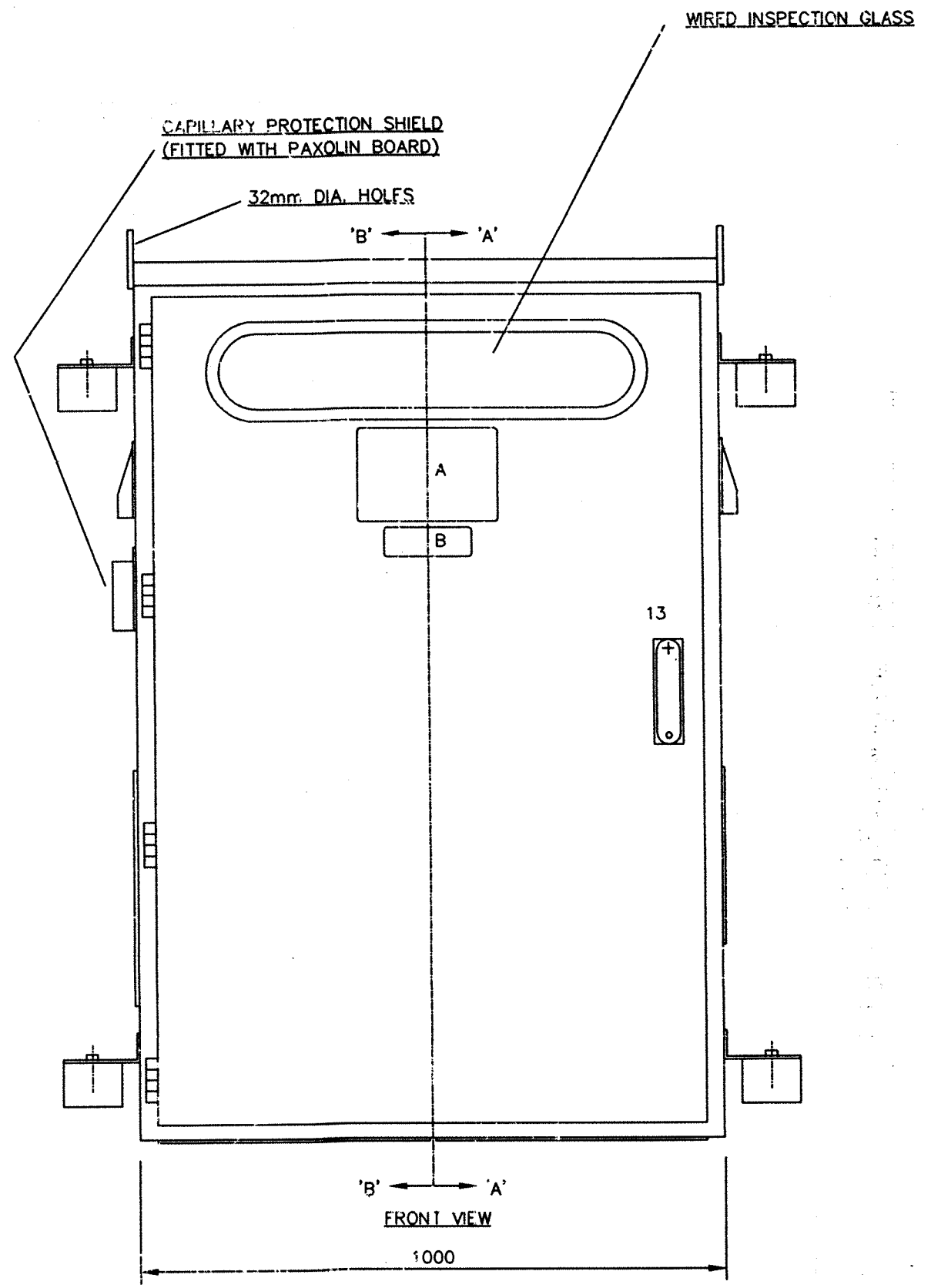
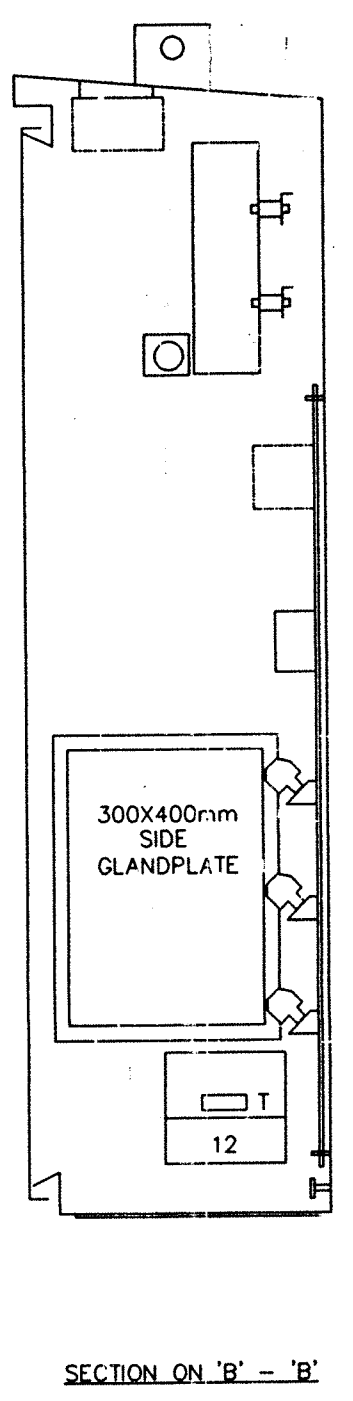
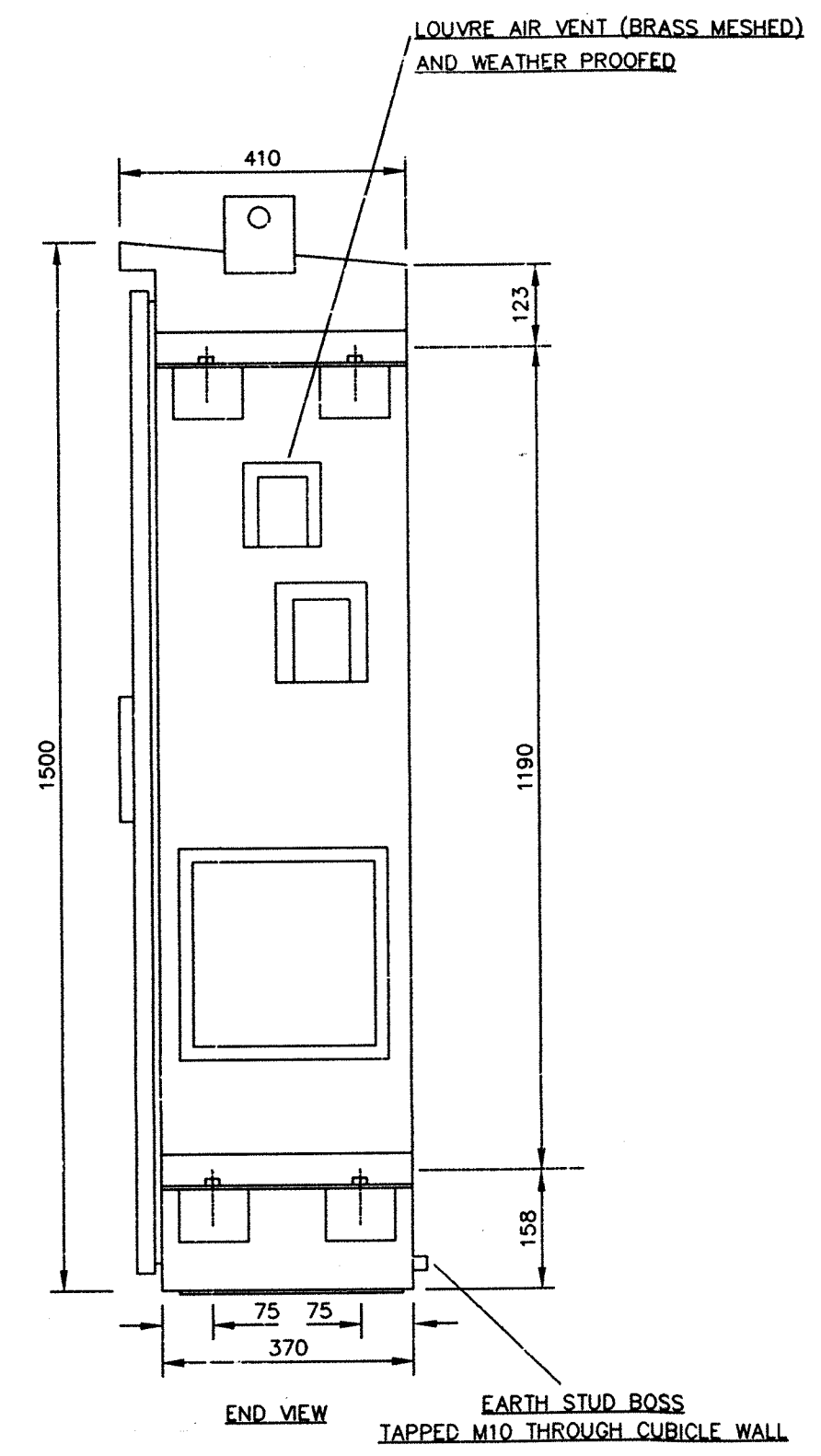
ASSOCIATED DRAWING
G.A. OF MARSHALLING KIOSK (SHEET 1) 83CL00474

IF IN DOUBT - PLEASE ASK !		
DRAWN DE CHECKED JO	FIRST CONTRACT NUMBER PTD1659/01-06 FIRST CUSTOMER VISAKHAPATNAM	
PASSED/APP'D JO CATEGORY(Q1.14) 7 FILE NAME C&A_GA	TITLE HVDC CONVERTOR TRANSFORMER G.A. OF MARSHALLING KIOSK (SHEET 2) KEYWORD NTS SCALE(DO NOT SCALE ONLY DIMENSIONS DEFINED CAN BE CONFIRMATORY)	DRAWING NUMBER 83C_00475 SHEET 1/1
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<small>ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED. LOCKING METHODS & FITTING TO 495/8097 10-SHEETS AND 495/82120 4-SHEETS. I. S. 0 METRIC THREADS. TOLERANCES TO DPG 605/00005. THIRD ANGLE PROJECTION.</small>		

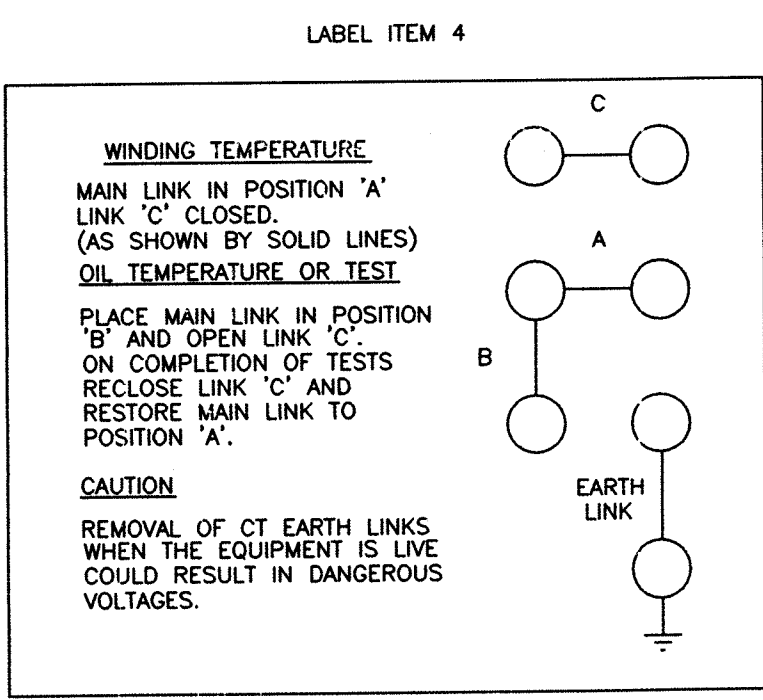
I. D. C STAMP
AS BUILT
DRAWING

REVISION	DATE	BY	REASON
1	15TH MAY 1996	JD	REVISED
2	18TH DEC 2000	JD	REVISED
3	18TH OCT 2002	JD	REVISED

TEXT ON FUSE LABEL REF Y4 WAS PREVIOUSLY '... 16A 415VAC'.



PAINT FINISH
EXTERNAL SPEC SUITED FOR 15 YEARS TO BS381C GLOSS SHADE 697
INTERNAL ANTI CONDENSATION WHITE
MOUNTING PLATES SEMI GLOSS WHITE



TYPICAL DETAILS OF LABEL A (FOR VARIATIONS SEE TABLE BELOW)

TRANSFORMER MARSHALLING CUBICLE POLE 1 EAST RED PHASE = CWT11 + EW5111

MARSHALLING CUBICLE ITEM No.	POSITION	DESIGNATION REFERENCES
PTD1659/01	POLE 1 EAST RED PHASE	= CWT11 + EW5111
PTD1659/02	POLE 1 EAST YELLOW PHASE	= CWT11 + EW5112
PTD1659/03	POLE 1 EAST BLUE PHASE	= CWT11 + EW5113
PTD1659/04	POLE 1 SOUTH RED PHASE	= CWT31 + EW5311
PTD1659/05	POLE 1 SOUTH YELLOW PHASE	= CWT31 + EW5312
PTD1659/06	POLE 1 SOUTH BLUE PHASE	= CWT31 + EW5313

LABEL	INSCRIPTION	MATERIAL
A	DETAILS AS SHOWN ON THIS DRAWING (PROVIDED AND FITTED BY GECA TRANSFORMERS LTD)	STAINLESS STEEL
B	DANGER 240V AC/220V DC	-
C		
D	WTI TEST LINKS	TRAFFOLYTE
E	HS2 HEATER SWITCH	-
F	LS2 LIGHT SWITCH	-
G	F5/NL5 HEATER CIRCUIT 6A 240VAC	-
H	F6/NL6 LIGHTING CIRCUIT 6A 240VAC	-
J	F7/NL7 SOCKET OUTLET CIRCUIT 16A 240VAC	-
K	F8/NL8 PLUGPOINT CIRCUIT 6A 240VAC	-
L	F9/NL9 DRYCOL CIRCUITS 6A 240VAC	-
M	F12/F12 TEMPERATURE INDICATOR 2A 220VDC	-
N	OIL	-
O	HV WINDING	-
P	REMOTE HV WINDING	-
Q	TH2 THERMOSTAT	-
R	SO2 6A/16A SOCKET OUTLET	-
S	LPP2 6A PLUGPOINT	-
T	H2.1 HEATER	-
U	H2.2 HEATER	-
V	H2.3 HEATER	-

No	DESCRIPTION / PART No	QTY	MANUFACTURER
1	OIL TEMPERATURE INDICATOR A275		ACCURATE
2	WINDING TEMPERATURE INDICATOR A275		ACCURATE
3	REMOTE WINDING TEMPERATURE INDICATOR A639		ACCURATE
4	W.T.I. TEST LINK BOARD (SEE DETAIL)		STYLE
5	2 POSITION SWITCH C10-1 A290-621-12 C/W 'R' TYPE HANDLE & LEGEND ENGRAVED OFF/ON		KRAUS & NAIMER
6	FUSE BASE SC32P BLACK		GEC/EE
7	LINK BASE SC32P WHITE		GEC/EE
8	THERMOSTAT		PENTAGON
9	6A/16A SINGLE GANG SOCKET OUTLET		ANCHOR/ROMA
10	6A/16A SINGLE GANG SOCKET OUTLET		ANCHOR/ROMA
11	TERMINAL ASSEMBLY		KLIPPON
12	METALCLAD HEATER 100W 240V		PENTAGON
13	PADLOCKABLE HANDLE TYPE 1107-SU331 & BLANKPLUG 1109-09		EMKA
14	DOOR OPERATED SWITCH		TELEMECANIQUE
15	BULKHEAD LIGHT FITTING C/W 60W B/C BULB		MARWOOD
16			
17			
18			
19			
20			

LABELS-
OUTDOOR LABELS TO BE OF 1.2mm STAINLESS STEEL BLACK (BS2660 REF 9-103) ON NATURAL FINISH EXCEPT FOR DANGER LABELS WHICH ARE TO BE WHITE (BS2660 REF 9-102) ON RED (BS2660 REF 0-005)

WEIGHT APPROX 300KG

CASE AND DOORS 2.5mm THICK MILD STEEL MOUNTING PLATES 3mm THICK MILD STEEL GLAND PLATES 3mm THICK MILD STEEL

PROTECTED TO IP55 OF IEC529
NOTE - ALL INTERNAL TACK WELDS TO BE NO MORE THAN 100mm APART

ALL EXTERNAL FIXINGS TO BE STAINLESS STEEL

IF IN DOUBT - PLEASE ASK!

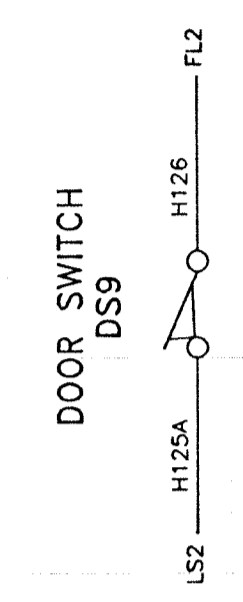
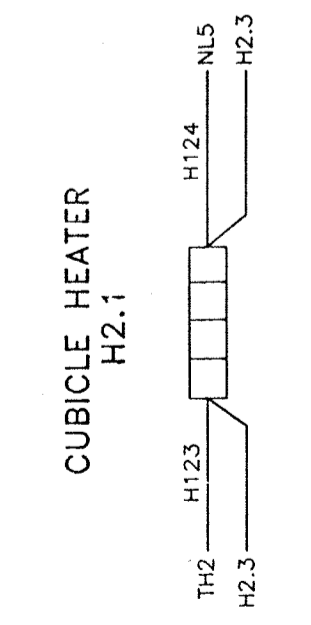
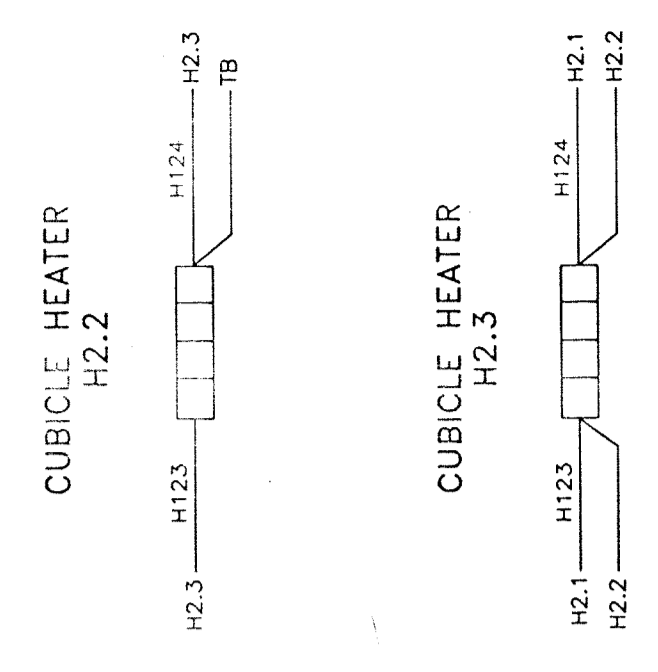
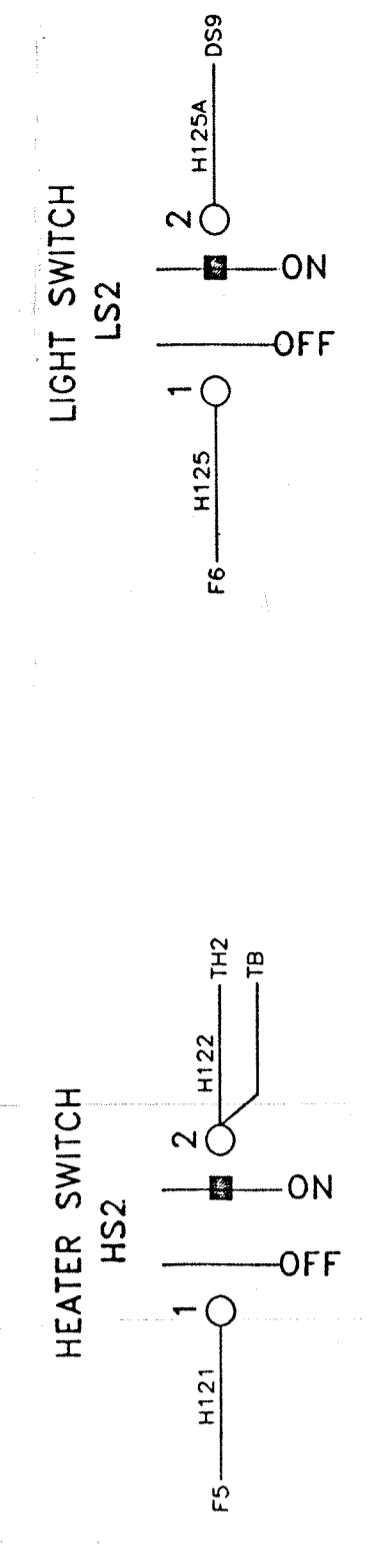
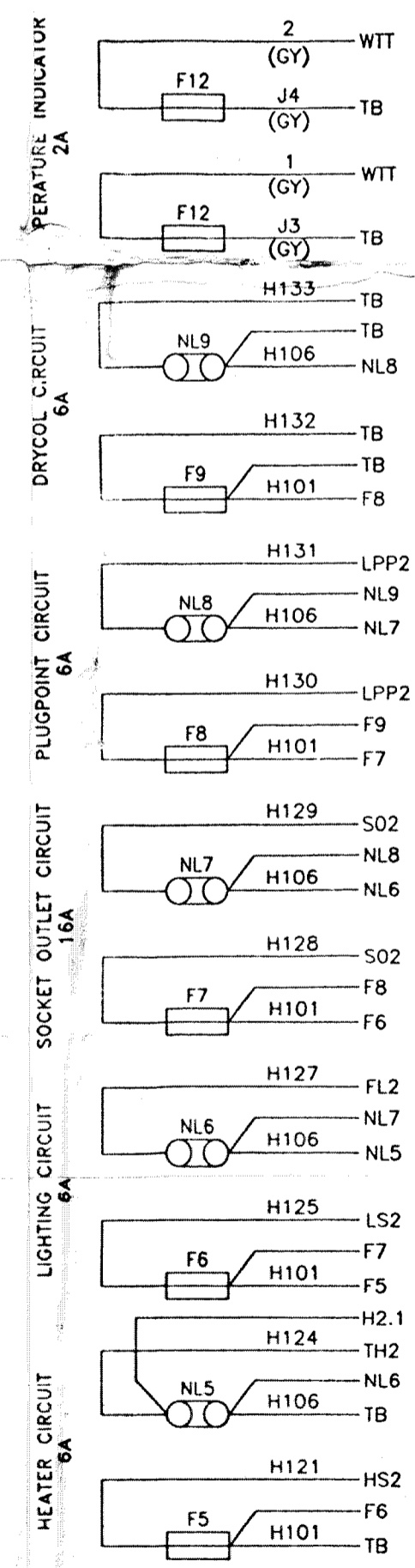
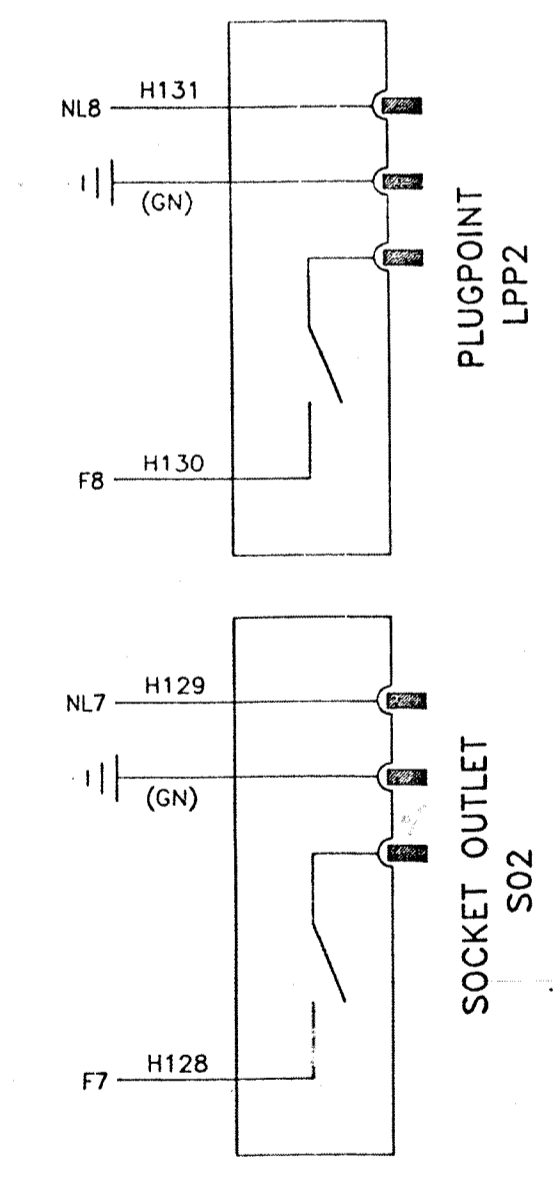
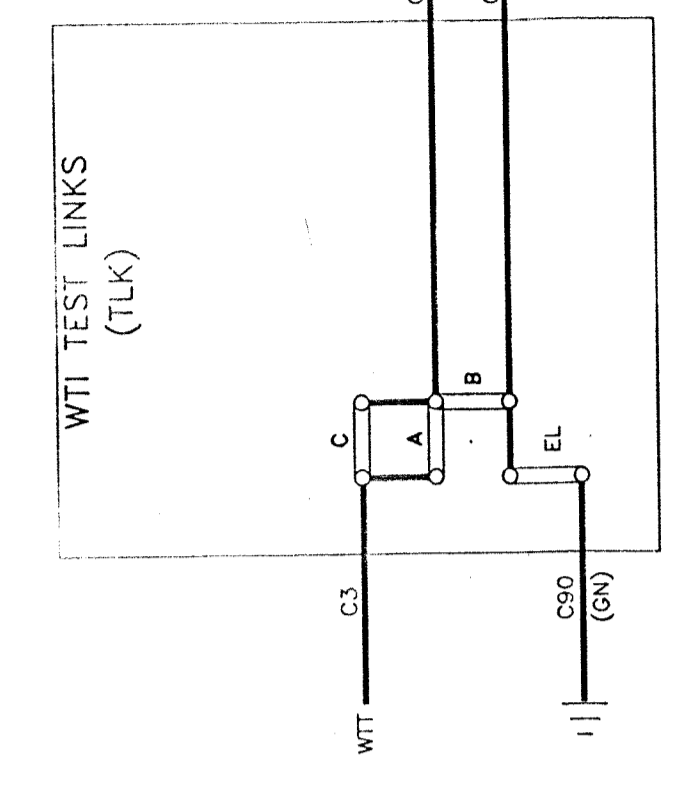
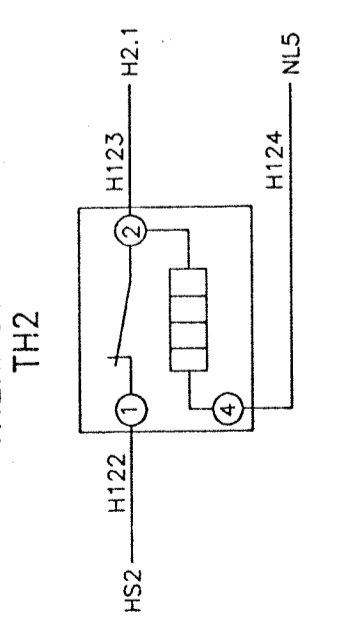
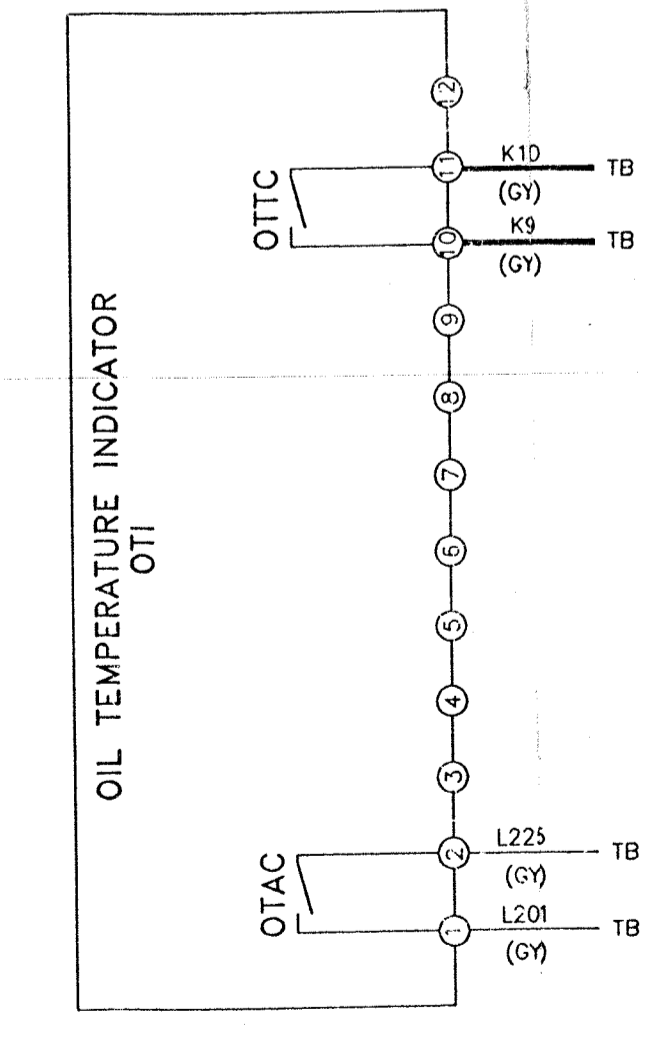
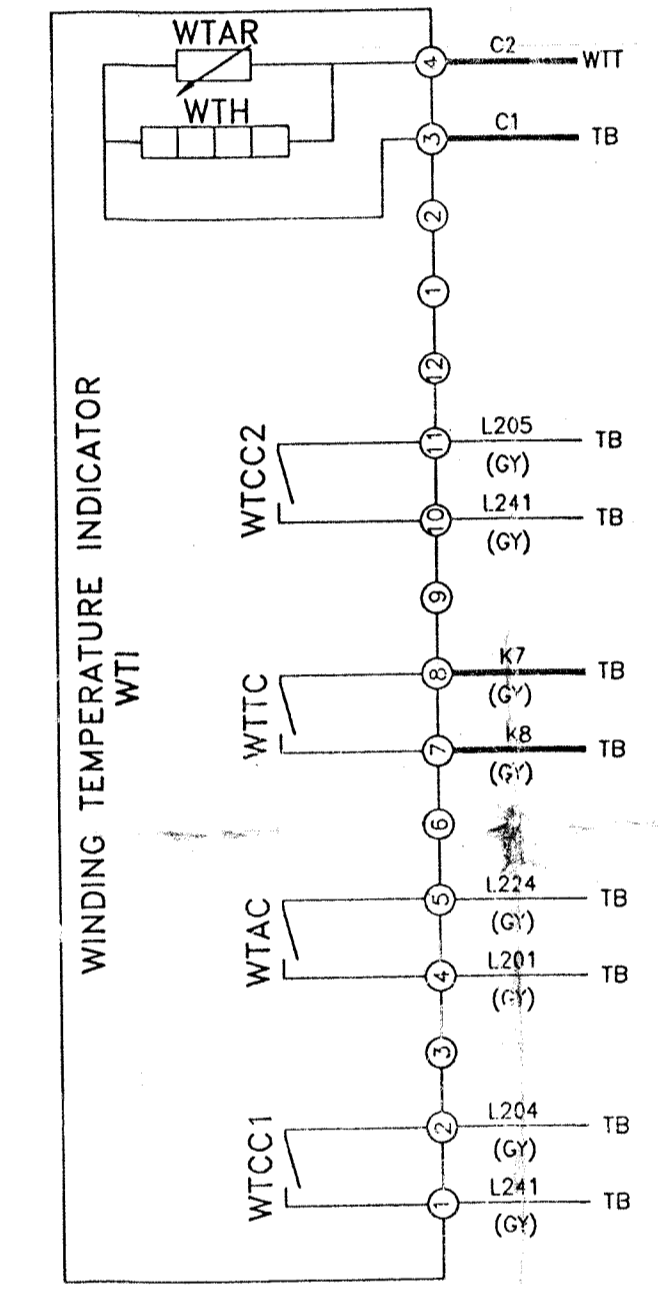
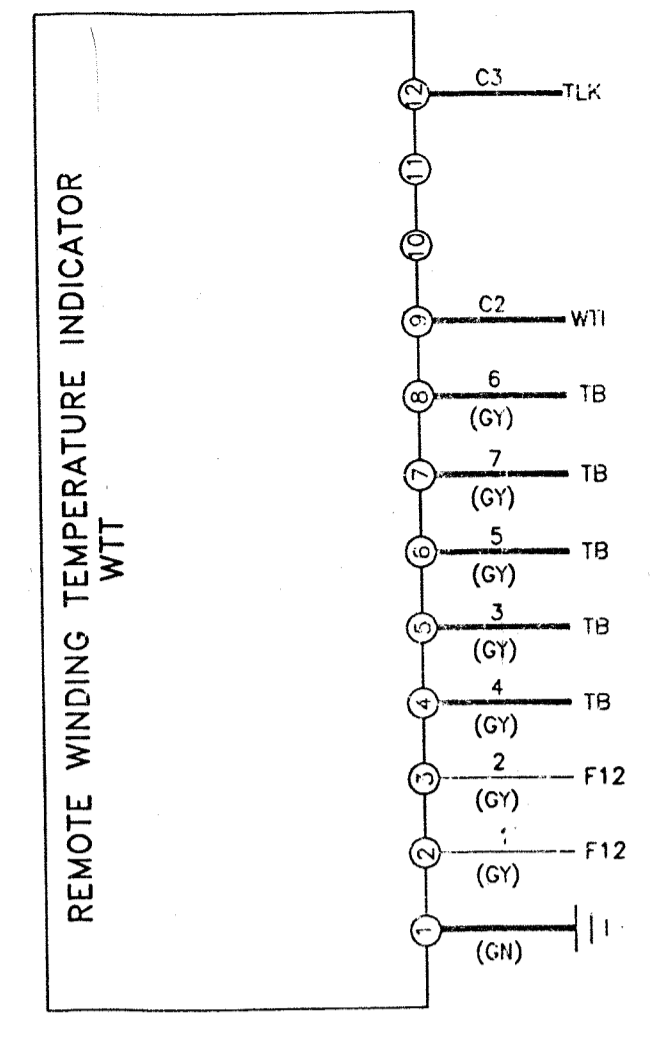
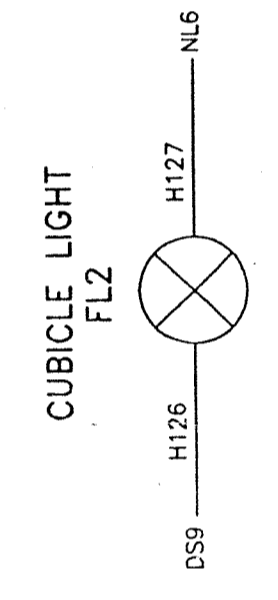
CATEGORY(01.14)	FIRST CONTRACT NUMBER	GEC ALSTHOM
7	PTD1659/01-06	
DRAWN DE	FIRST CUSTOMER	T&D
CHECKED Jlu	VISAKHAPATNAM	GEC ALSTHOM TRANSFORMERS LIMITED STAFFORD ENGLAND
	TITLE HVDC CONVERTOR TRANSFORMER G.A. OF MARSHALLING CUBICLE	
PASSED/APP'D	KEYWORD	SCALE
	C&A_GA	(DO NOT SCALE PRINT)
	DRAWING NUMBER	SHEET
	83CL00473	1/1

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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED. LOCKING METHODS & FIXINGS TO DRAWING 450/500/7 5-SHEETS. I.S.O METRIC THREADS TO BS 3643 60 6H FIT. TOLERANCES TO DRG. 60SF00025. THIRD ANGLE PROJECTION.

I.B.C. STAMP A
SECTION VALID UNTIL 5 DEC 1996
REVISION RECORD

INTERIOR OF CUBICLE



- SEGREGATE ALL CABLES INTO FOLLOWING GROUPS :-
 - LESS THAN OR EQUAL TO 110V (SHOWN HIGHLIGHTED)
 - GREATER THAN 110V.
 - AC
 - DC
 - HEATING/LIGHTING CIRCUITS.
- ALL WIRING TO BE FLEXIBLE FLAME RETARDANT PVC RATED UP TO 105°C TYPE CK. 2.5mm INSULATION COLOUR CODED BLACK EXCEPT- EARTH CONNECTIONS - GREEN/YELLOW(GN). D.C. CABLES - GREY(CY). WIRES WITH PREFIX C TO BE 4mm BLACK. CABLES H101, H106 TO BE 6mm.
- TERMINAL GROUP MARKERS TO BE W/B/W TRAFFOLYTE EXCEPT ABOVE 110V, THEN R/W/R (THESE TERMINALS TO BE SHROUDED)
- ASSOCIATED DRAWINGS:-
 - 83CL00473 - G.A.
 - 80CL03094 - SCHEMATIC
 - 80CL03095 - SCHEMATIC
 - 80CL03096 - SCHEMATIC
 - 80CL03097 - SCHEMATIC
- TRUNKING TO HAVE 20% SPARE CAPACITY.
- WIRE LENGTH TO TERMINAL BLOCKS SHOULD BE SUFFICIENT TO ENABLE RE-CRIMPING AND TERMINATING ANYWHERE ON THE BLOCK
- EARTH CABLES SHOULD BE RUN AS SEPARATES OR IN A RING BACK TO MAIN EARTH BAR
- SELF ADHESIVE WIRE SUPPORTS ARE FORBIDDEN
- A RED UNLETTERED FERRULE TO BE INSERTED NEAREST CRIMP ON EACH WIRE PREFIXED BY 'K'
- CUBICLE DOOR TO BE EARTH BRAIDED C/W SHRINK ON EARTH SLEEVE

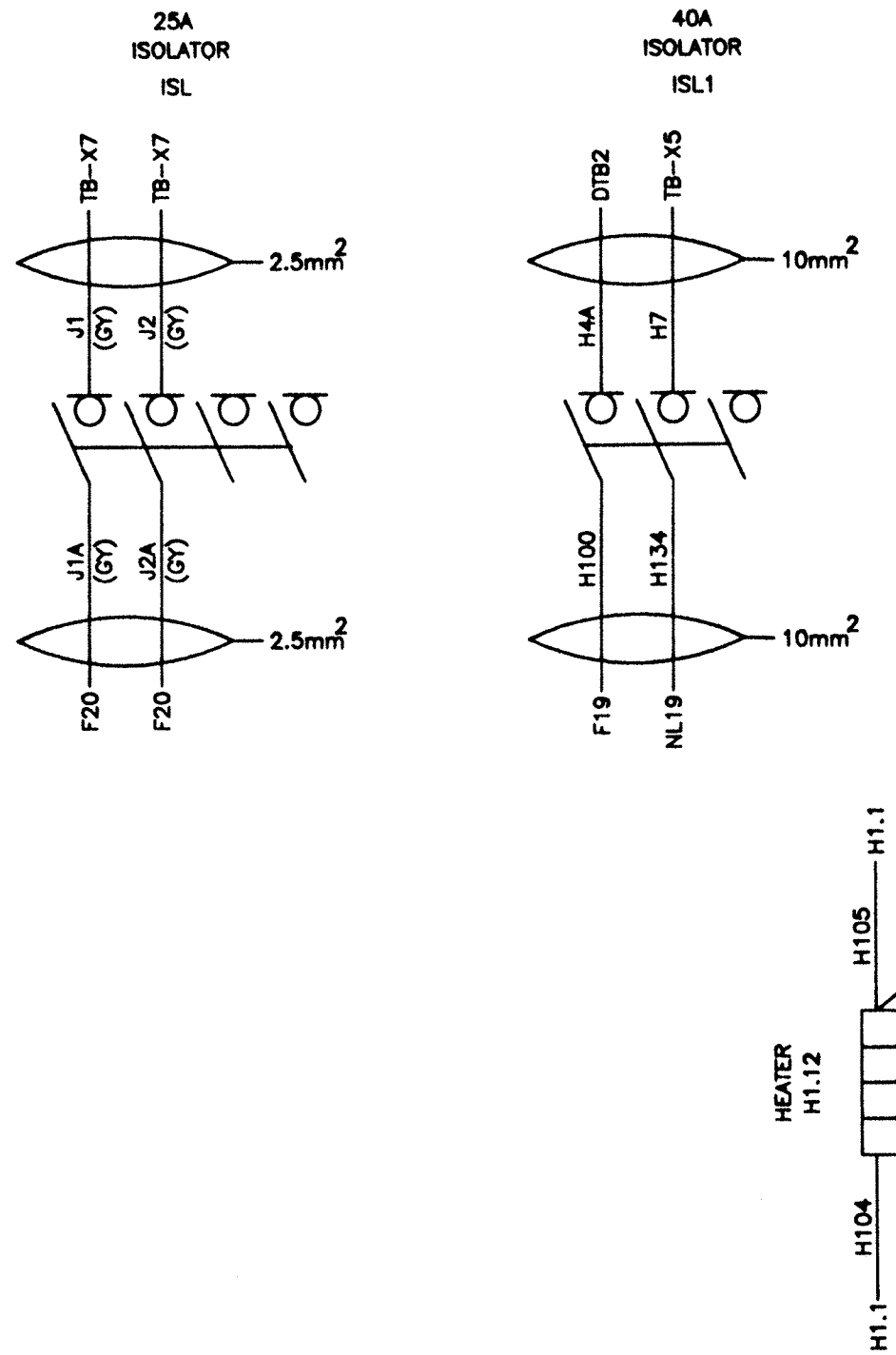
L.D.C. STAMP	SECTION	DATE	BY
391	VALID UNTIL	31ST OCT 1996	7TH JUL 1997
29 MAR 1998	15TH MAY 1996		
COULD BY INFORMATION DISTRIBUTION OFFICE			

REVISION RECORD	FILE REFERENCE	WIRING TO WTI MODIFIED	WIRING TO WTI MODIFIED
31ST OCT 1996	ADDED AS REQUESTED.	7TH JUL 1997	ADDED AS REQUESTED.

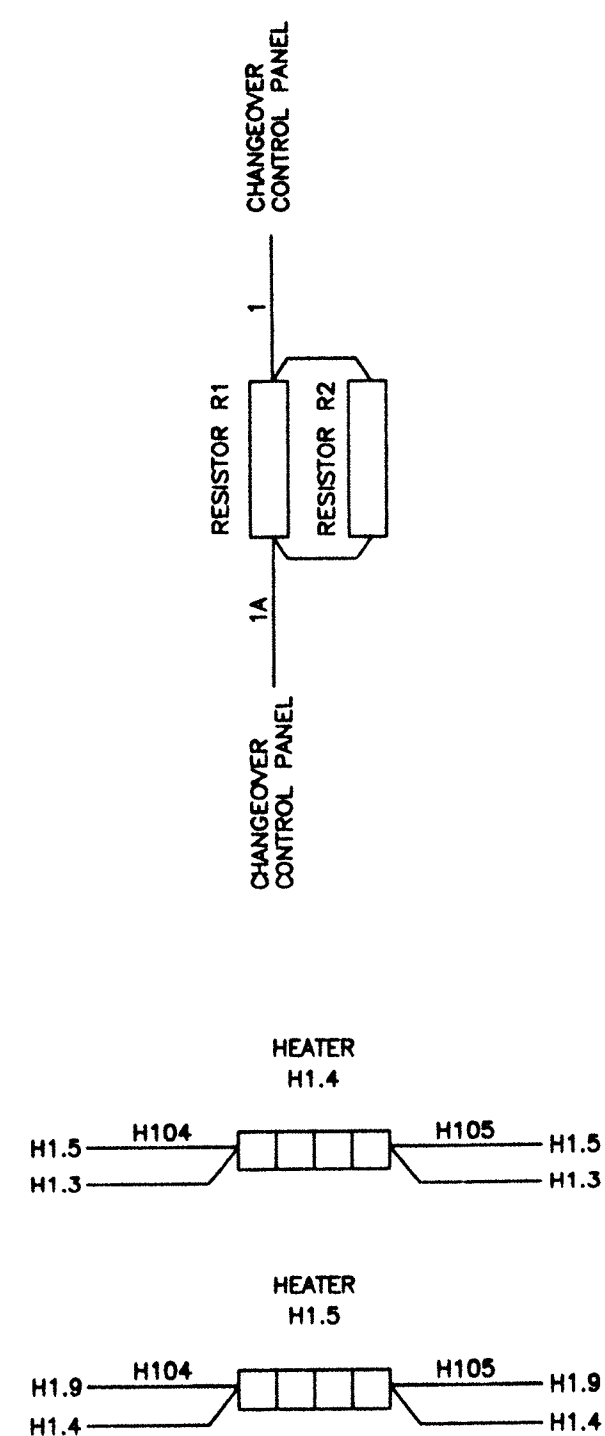
OTTC MODIFIED (K9 WAS WIRED TO TERMINAL I2).

FILE REFERENCE - 21A16		IF IN DOUBT - PLEASE ASK !		ALSTOM
DRAWN DE	CHECKED JO	FIRST CONTRACT NUMBER PTD1659/01-06	FIRST CUSTOMER VISAKHAPATNAM	
PASSED/APP'D JO	KEYWORD	SCALE DO NOT SCALE ONLY DIMENSIONS SHOWN CAN BE CONFIRMATORY.	DRAWING NUMBER 81CL02718	SHEET 1/1
CATEGORY(01.14) 7	FILE NAME	C&A WIRING	NTS	1998
THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER SET OUT HEREIN ARE CONFIDENTIAL AND THE COPYRIGHT OF ALSTOM AND MUST NOT BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURE, REPRODUCTION OR ANY OTHER PURPOSE WITHOUT THEIR WRITTEN PERMISSION.				
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.		LOCKING METHODS & FIXING TO 455F3097 10-SHEETS AND 455F30120 4-SHEETS	1.5.0 METRIC THREADS TO BS 3643 69 6H F11 605F0025	TOLERANCES TO DRG. 605F0025
WHEN QUOTING DRAWING NUMBER STATE LATEST LETTER OF ISSUE ORIGINAL SHEET SIZE: A1 (841mm x 594mm)				

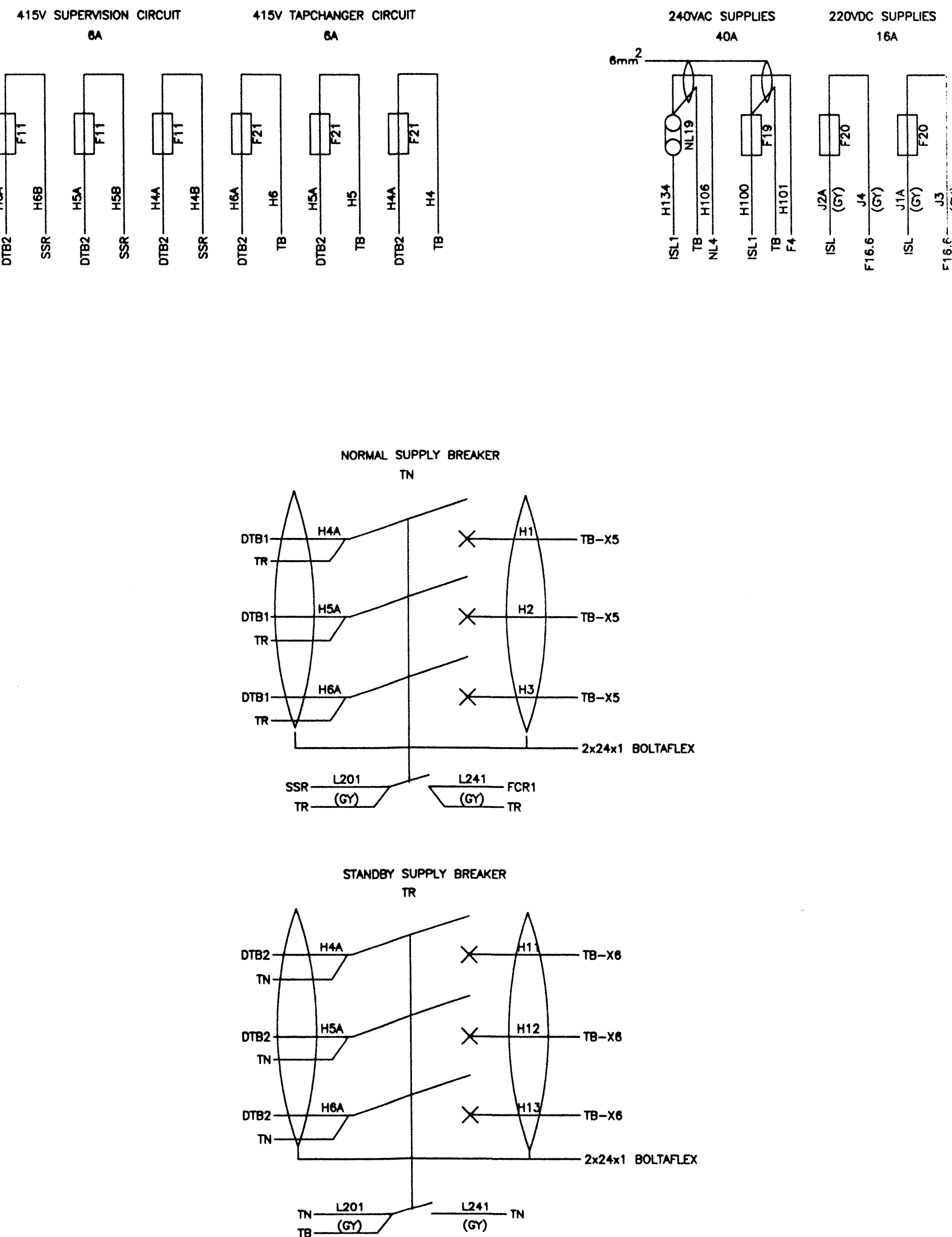
POWER SUPPLIES COMPARTMENT FRONT EQUIPMENT



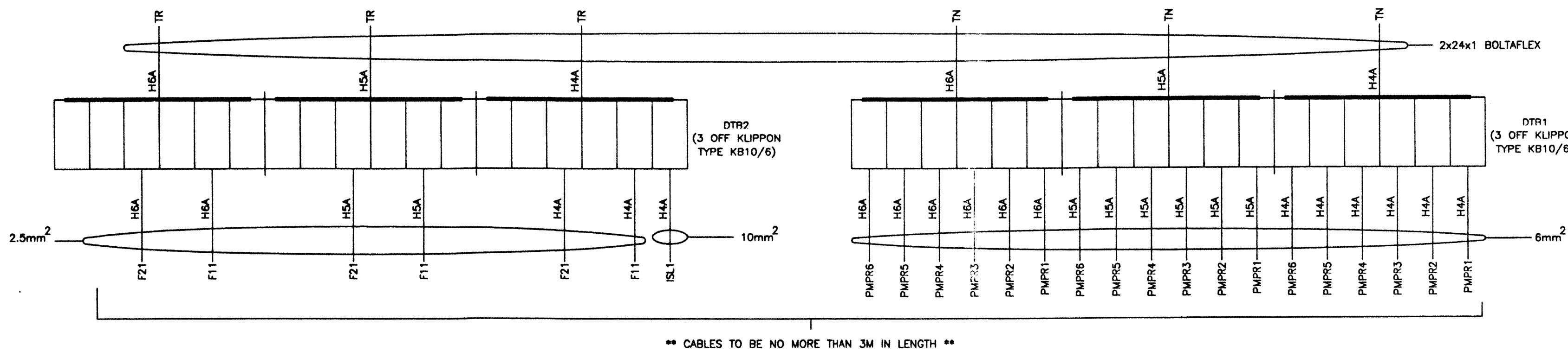
MOUNTED ON SIDEPLATE



POWER SUPPLIES COMPARTMENT REAR EQUIPMENT

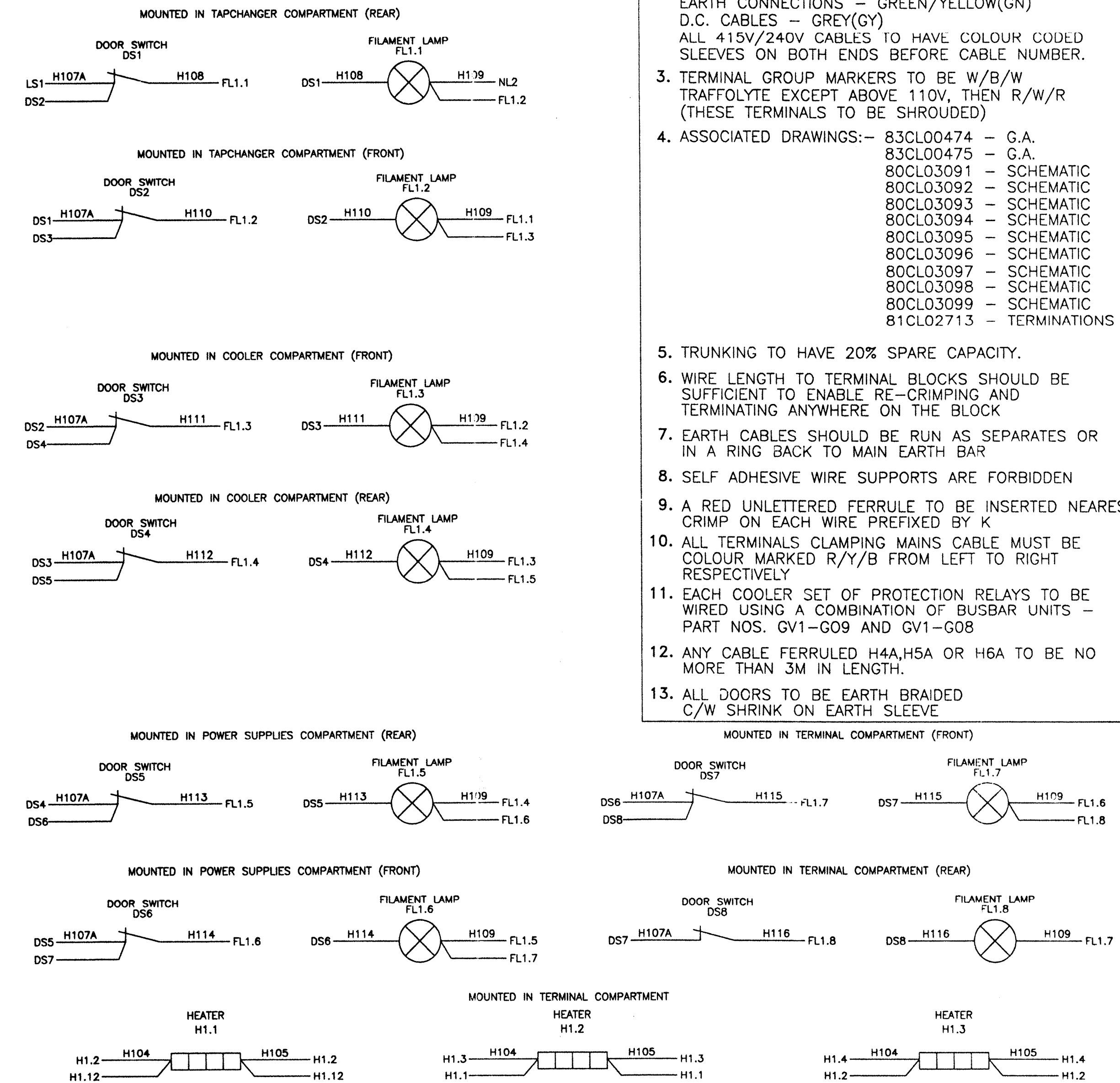


DISTRIBUTION BLOCKS MOUNTED ON COMPARTMENT (REAR) FLOOR



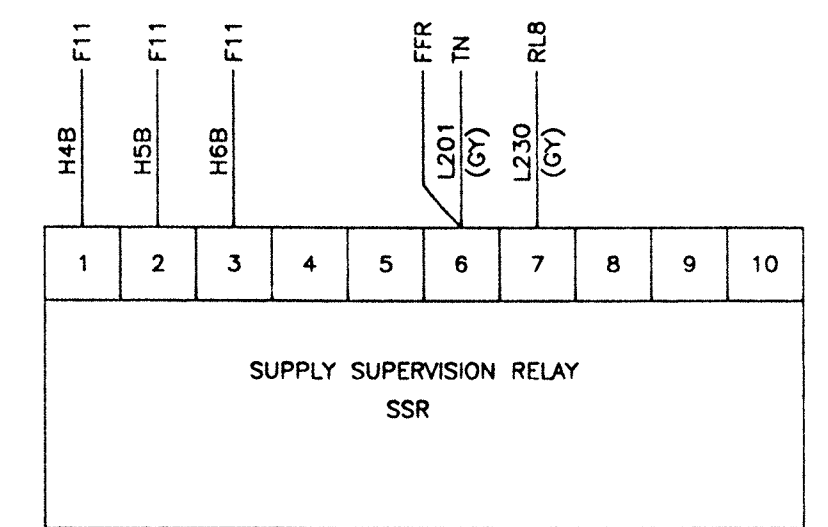
** CABLES TO BE NO MORE THAN 3M IN LENGTH **

MISCELLANEOUS KIOSK EQUIPMENT



- SEGREGATE ALL CABLES INTO FOLLOWING GROUPS :-
 A). AC
 B). DC
 C). HEATING/LIGHTING CIRCUITS.
- ALL WIRING TO BE FLEXIBLE FLAME RETARDENT PVC RATED UP TO 105°C. TYPE CK. 2.5mm INSULATION COLOUR CODED BLACK EXCEPT:- WHERE SHOWN AND EARTH CONNECTIONS - GREEN/YELLOW(GN) D.C. CABLES - GREY(GY)
 ALL 415V/240V CABLES TO HAVE COLOUR CODED SLEEVES ON BOTH ENDS BEFORE CABLE NUMBER.
- TERMINAL GROUP MARKERS TO BE W/B/W TRAFFOLYTE EXCEPT ABOVE 110V, THEN R/W/R (THESE TERMINALS TO BE SHROUDED)
- ASSOCIATED DRAWINGS:-
 83CLO0474 - G.A.
 83CLO0475 - G.A.
 80CLO3091 - SCHEMATIC
 80CLO3092 - SCHEMATIC
 80CLO3093 - SCHEMATIC
 80CLO3094 - SCHEMATIC
 80CLO3095 - SCHEMATIC
 80CLO3096 - SCHEMATIC
 80CLO3097 - SCHEMATIC
 80CLO3098 - SCHEMATIC
 80CLO3099 - SCHEMATIC
 81CLO2713 - TERMINATIONS
- TRUNKING TO HAVE 20% SPARE CAPACITY.
- WIRE LENGTH TO TERMINAL BLOCKS SHOULD BE SUFFICIENT TO ENABLE RE-CRIMPING AND TERMINATING ANYWHERE ON THE BLOCK
- EARTH CABLES SHOULD BE RUN AS SEPARATES OR IN A RING BACK TO MAIN EARTH BAR
- SELF ADHESIVE WIRE SUPPORTS ARE FORBIDDEN
- A RED UNLETTERED FERRULE TO BE INSERTED NEAREST CRIMP ON EACH WIRE PREFIXED BY K
- ALL TERMINALS CLAMPING MAINS CABLE MUST BE COLOUR MARKED R/Y/B FROM LEFT TO RIGHT RESPECTIVELY
- EACH COOLER SET OF PROTECTION RELAYS TO BE WIRED USING A COMBINATION OF BUSBAR UNITS - PART NOS. GV1-GO9 AND GV1-GO8
- ANY CABLE FERRULED H4A, H5A OR H6A TO BE NO MORE THAN 3M IN LENGTH.
- ALL DOORS TO BE EARTH BRAIDED C/W SHRINK ON EARTH SLEEVE

MOUNTED ON SIDEPLATE



FILE REFERENCE - 21A21

IF IN DOUBT - PLEASE ASK !

DRAWN	DE	FIRST CONTRACT NUMBER	PTD1659/01-06
CHECKED	JD	FIRST CUSTOMER	VISAKHAPATNAM



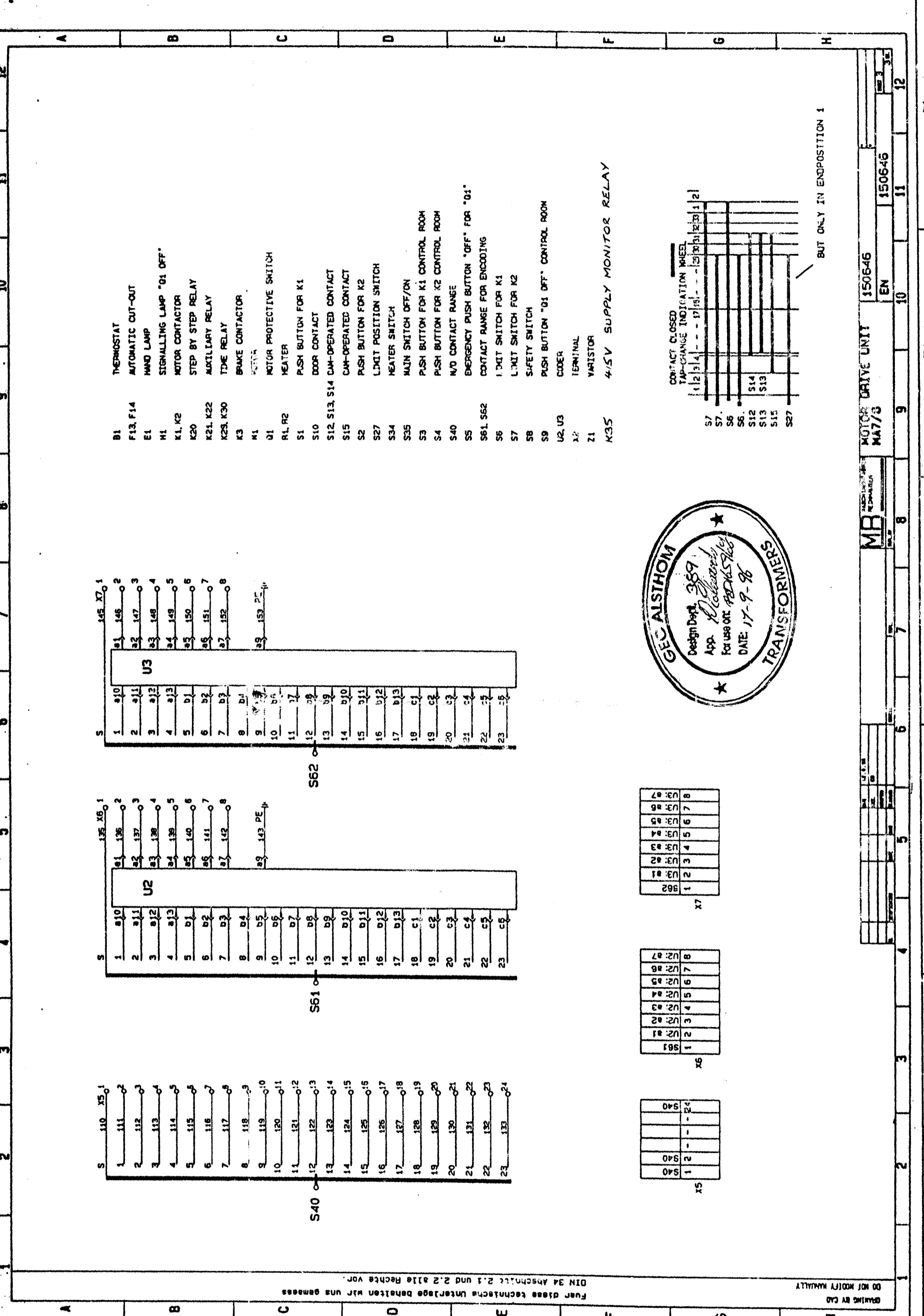
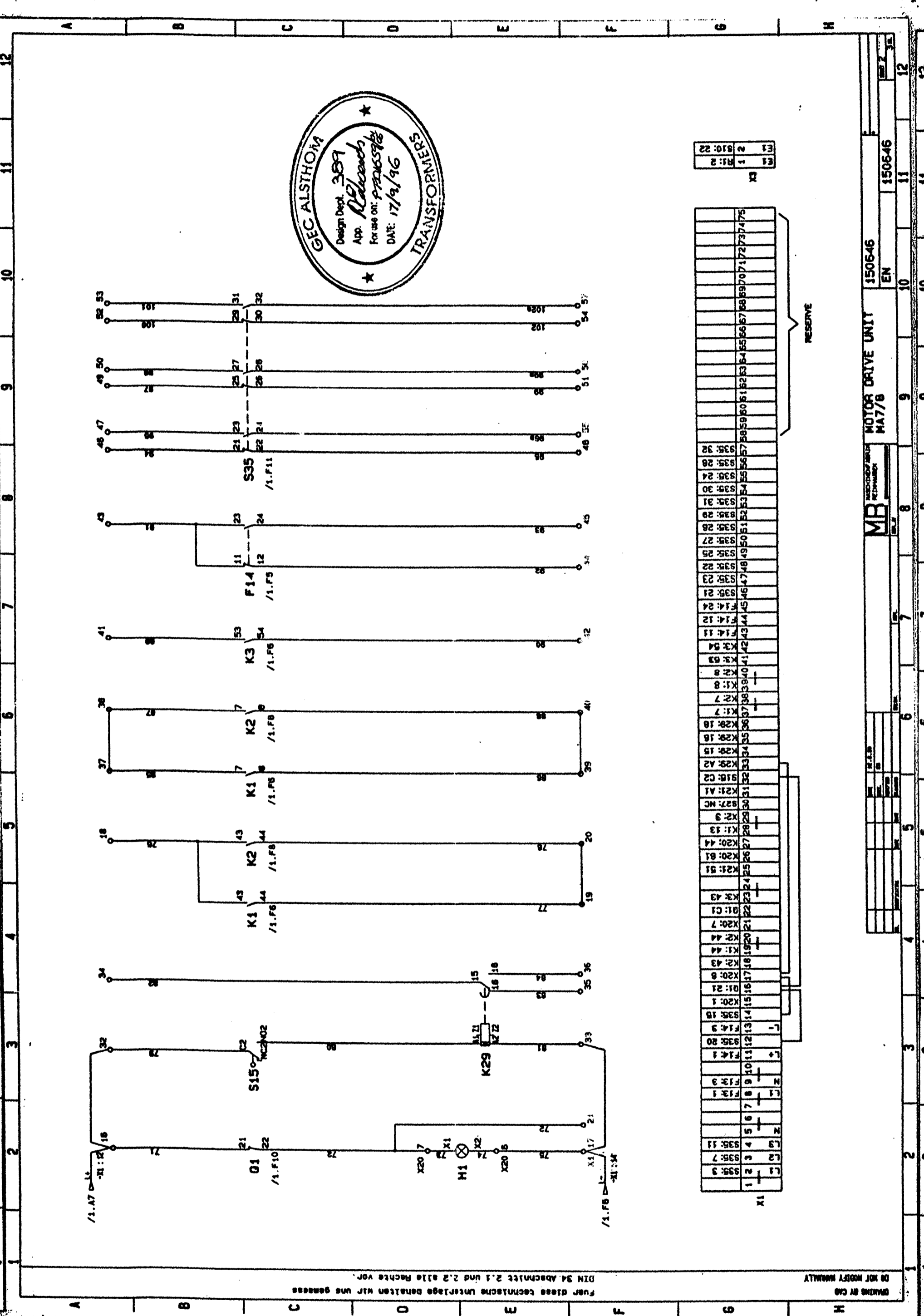
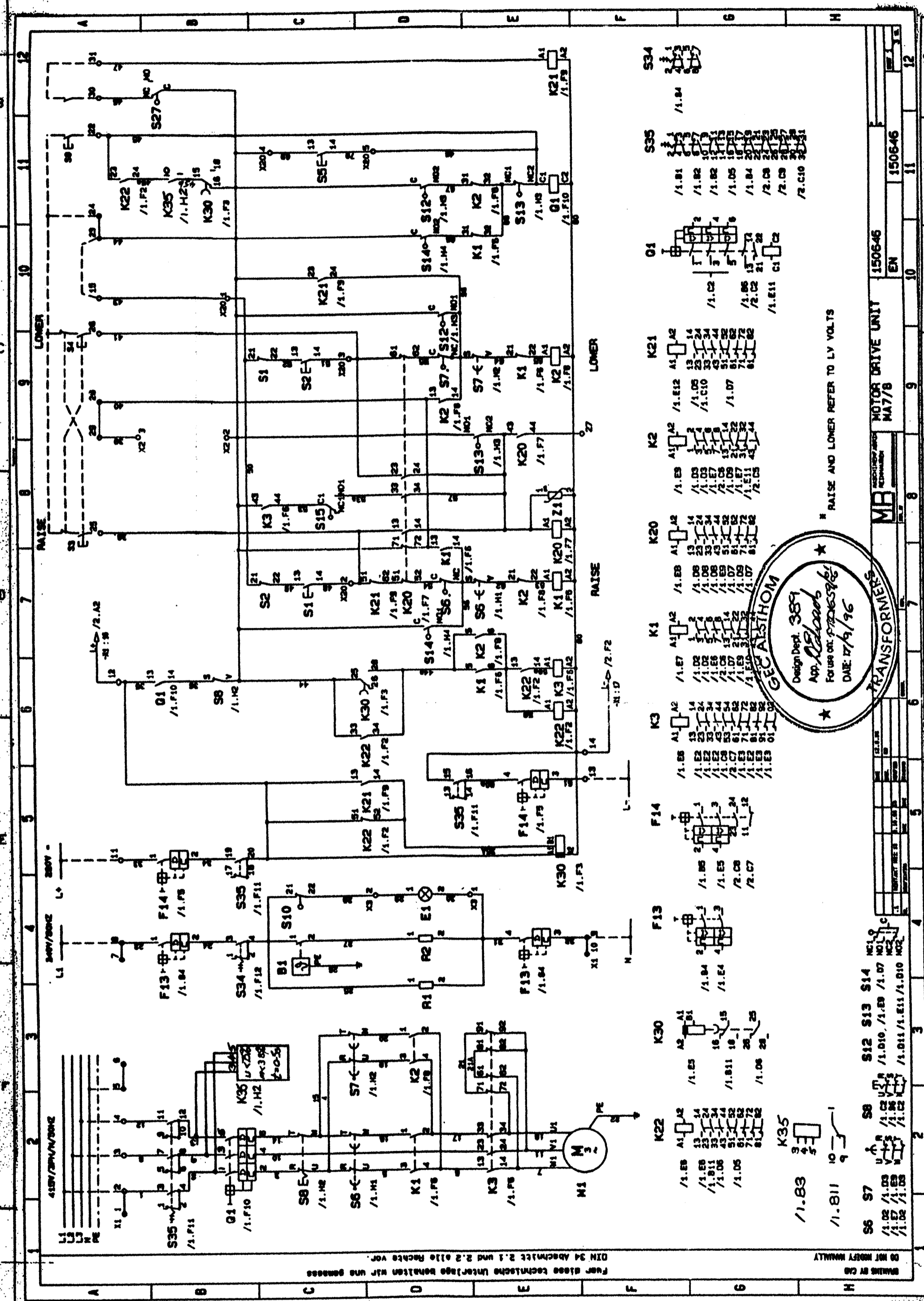
TITLE	HVDC CONVERTOR TRANSFORMER WIRING DIAGRAM OF MARSHALLING KIOSK (SHEET 5)		
CATEGORY(01.14)	KEYWORD	SCALE	DRAWING NUMBER
FILE NAME	C&A_WIRING	NTS	81CL02723

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I. D. C. STAMP
AS BUILT
DRAWING

REVISION RECORD	A	FILE REFERENCE	B
DATE	15TH MAY 1996	DATE	24TH OCT 1996
REVISION	1	REVISION	1

415V TAPCHANGER CIRCUIT GA FUSES WERE 16A FUSES.



I.D.C STAMP AS BUILT DRAWING

REVISION RECORD

NO.	DATE	DESCRIPTION
1	29th JAN 2003	AS BUILT

FILE REF. ADDED AS REQUESTED.

415V SUPPLY MONITORING RELAY K35 COIL ON SHEET 1, REFERENCE B3, N/O CONTACT ON SHEET 1, REFERENCE B1.

FILE REFERENCE - 21A15

IF IN DOUBT - PLEASE ASK !

CATEGORY(Q1,14)	7	FIRST CONTRACT NUMBER	PTD1659/01-06
DRAWN	<i>[Signature]</i>	FIRST CUSTOMER	VISAKHAPATNAM
CHECKED	<i>[Signature]</i>	TITLE	HVDC CONVERTOR TRANSFORMER WIRING FOR TAPCHANGER

KEYWORD: C&A WIRING

SCALE: N.T.S. (DO NOT SCALE PRINT)

DRAWING NUMBER: 81CL02772 SHEET: 1/1

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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

DRAWING BY: GEC ALSTHOM LTD

GEC ALSTHOM T&D TRANSFORMERS LIMITED STAFFORD ENGLAND

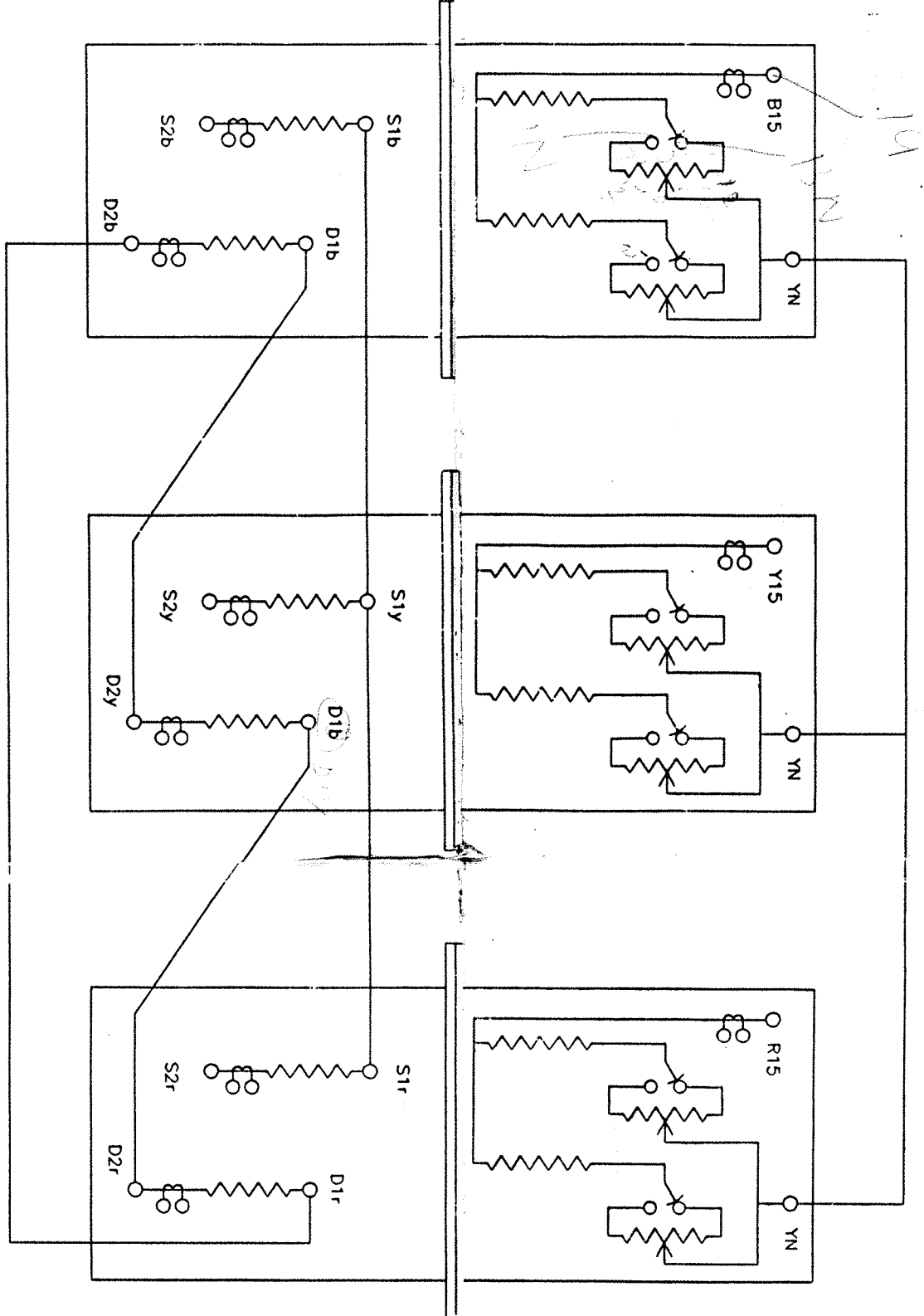
640 312 CENTRES 8

304 CENTRES

Note: This Table gives LINE VOLTAGES and CURRENTS for a 3 Phase Bank

Top Posn. No.	Switch Connects	High Voltage across H15 Terminals	Low Voltage across S2 Terminals	Low Voltage across D2 Terminals
		kV	kV	kV
		Amps	Amps	Amps
1	14-13N-2	508.00	797.8	
2	14-13N-3	502.00	807.4	
3	14-13N-4	496.00	817.1	
4	14-13N-5	490.00	827.1	
5	14-13N-6	484.00	837.4	
6	14-13N-7	478.00	847.9	
7	14-13N-8	472.00	858.7	
8	14-13N-9	466.00	869.7	
9	14-13N-10	460.00	884.1	
10	14-13N-11	454.00	892.7	
11	14-13N-12	448.00	904.7	
12	14-1N-1	442.00	917.0	
13	14-1N-2	436.00	929.6	
14	14-1N-3	430.00	942.6	
15	14-1N-4	424.00	955.9	
16	14-1N-5	418.00	969.6	
17	14-1N-6	412.00	983.7	
18	14-1N-7	406.00	998.3	
19	14-1N-8	400.00	1013.2	93.0
20	14-1N-9	394.00	1028.7	
21	14-1N-10	388.00	1044.6	
22	14-1N-11	382.00	1061.0	
23	14-1N-12	376.00	1077.9	

VIEW LOOKING ON LV TERMINALS OF 3 PHASE SYSTEM
For Full C.T. Details, Refer to Transformer Wiring Details



Manufacturer: GEC ALSTHOM T&D TRANSFORMERS LIMITED
Manufacturer's Serial No. PTD1659/
Year of Manufacture

- MVA: 702.00
- Vector symbols: VVynD11
- Frequency: 50 Hertz
- kV (no load): HV 400.00, LV 93.00
- Amperes: HV 1013.20, LV 2179.00
- Impedance % (at 0.1 p.u.): HV 10.00, LV 4.00
- Type of cooling: OFAF
- Insulation level (kVp): HV 1300, LV 750
- Oil Quantities per single phase unit:
 - Transformer: 62 000 litres
 - Cooling plant: 1 536 litres
 - Conservator (Max): 5 780 litres
 - Diverter switch: 170 litres
- Mass per single phase unit:
 - Core and windings: 129 tonnes
 - Complete transformer including oil: 233 tonnes
 - Cooling plant including oil: 12 tonnes
 - Transport excluding oil: 161 tonnes

Note: This plate indicates the Electrical Parameters as a Three Phase unit but Weights and Oil Quantities as a Single Phase unit.

GEC ALSTHOM

MATERIAL
1.2mm THK 'MARINE' STAINLESS STEEL
TO B.S. 1449:1991:GRADE 316S31.
ENGRAVED DEEPLY AND FILL WITH MATT
BLACK PAINT (COLOUR TO B.S.5252 REF.00E53).
BACKGROUND TO BE NATURAL SATIN FINISH.
6-HOLES 8mm DIA.
CORNERS 8mm RADIUS.

NOTE : CUSTOMER APPROVAL REQUIRED - NOT TO BE USED FOR MANUFACTURE

PRELIMINARY

GEC ALSTHOM T&D POWER ELECTRONIC SYSTEMS LTD	
APPROVED	22/9/95
APPROVED WITH COMMENTS	
NOT APPROVED	
SIGNED: <i>MP</i>	DATE:

15/1/95
Comp. J. J. C. C.

Comments: As per clause 3.5.3 in the Specification, the name plates should be given in Hindi also.

IF IN DOUBT - PLEASE ASK !	
CATEGORY: (3.14)	3
FIRST CONTRACT NUMBER	PTD1659/01-06
FIRST CUSTOMER	GECA T&D PESL VISAKHAPATNAM
DRAWN: DKB	
CHECKED: CM	
APP'D(E): GS	
APP'D(M): MW	
APP'D(S):	
KEYWORD	RATING AND DIAGRAM PLATE
PASSED/APP'D CM/PV LABEL	SCALE 1:1 (DO NOT SCALE PRINT)
DRAWING NUMBER	74CL01337
SHEET	1/1

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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

LOCKING METHODS & FINISH TO DRAWING 49F32097 5-SHEETS

15.0 METRIC THREADS TO BS 3643 6x 6H FIT

TOLERANCES TO DRG. 60SF00025

THIRD ANGLE PROJECTION

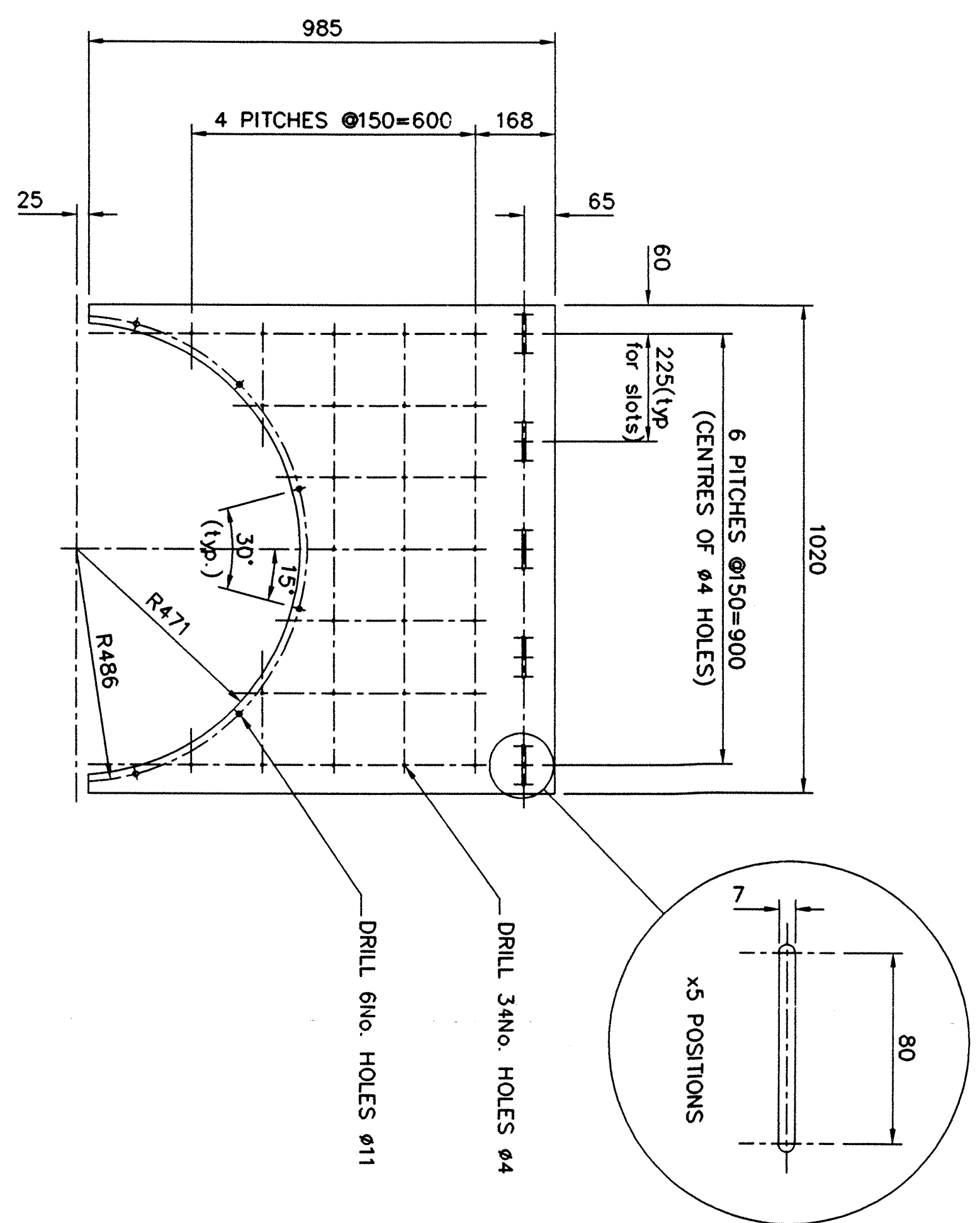
© 1995

ISSUED BY: *MP*

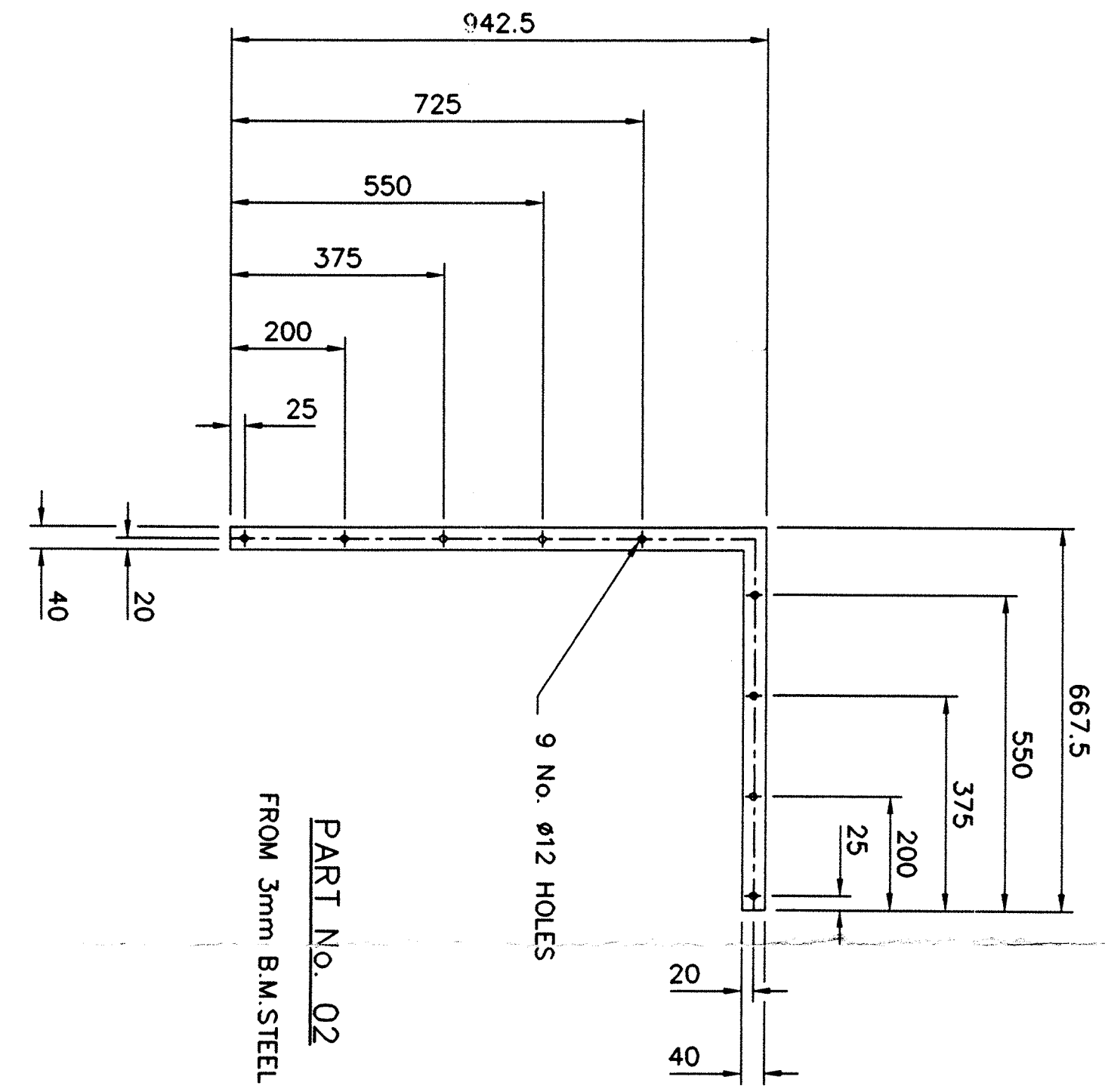
DATE: 17 JAN 1995

REVISION RECORD

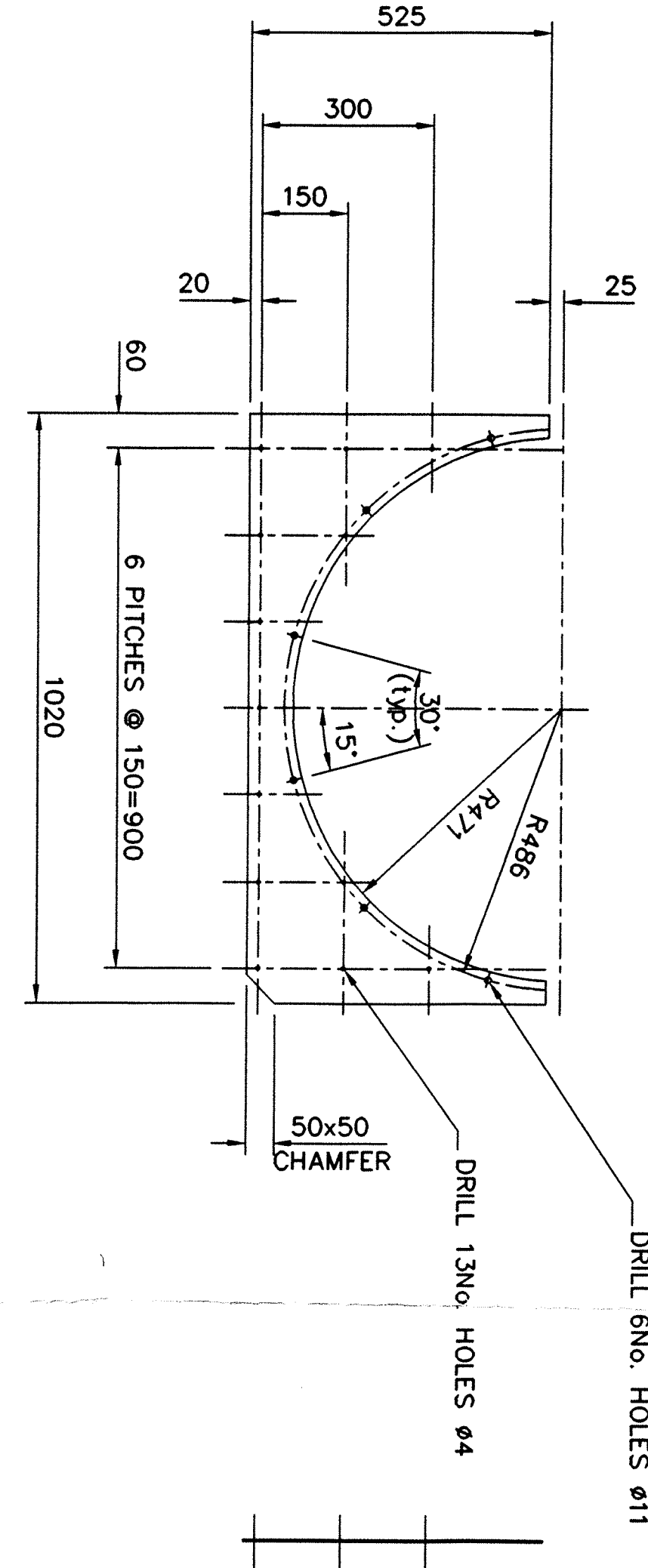
NO.	DATE	DESCRIPTION
1	17/1/95	TRANSFORMER WAS TO BE TO BS1717:1988 TABLE HEADINGS REALIGNED. T & D REMOVED FROM LOGO.



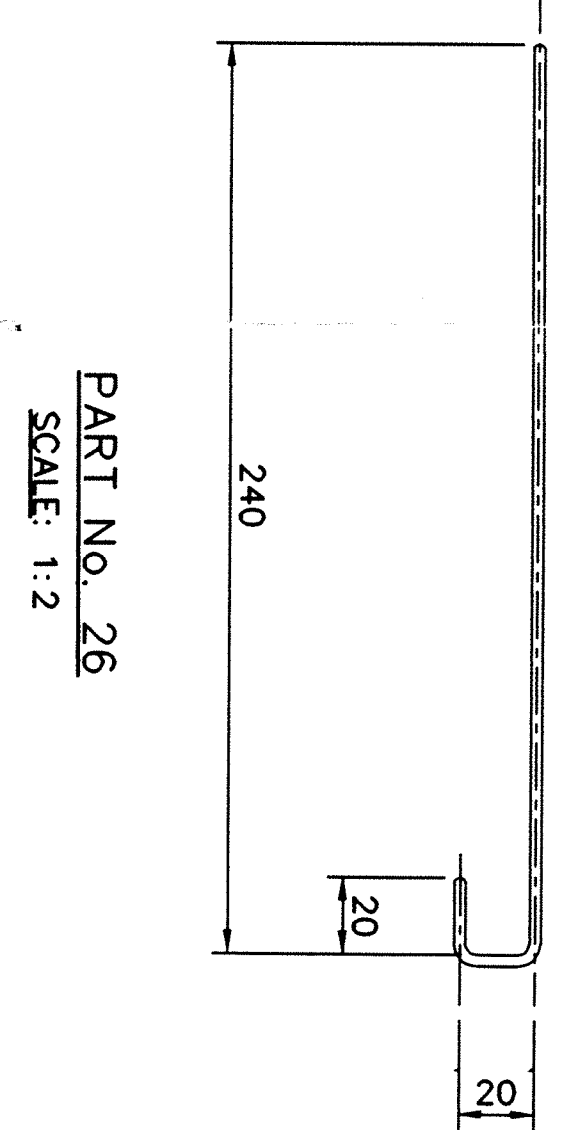
PART No. 01
SCALE: 1:5
FROM 3mm B.M. STEEL



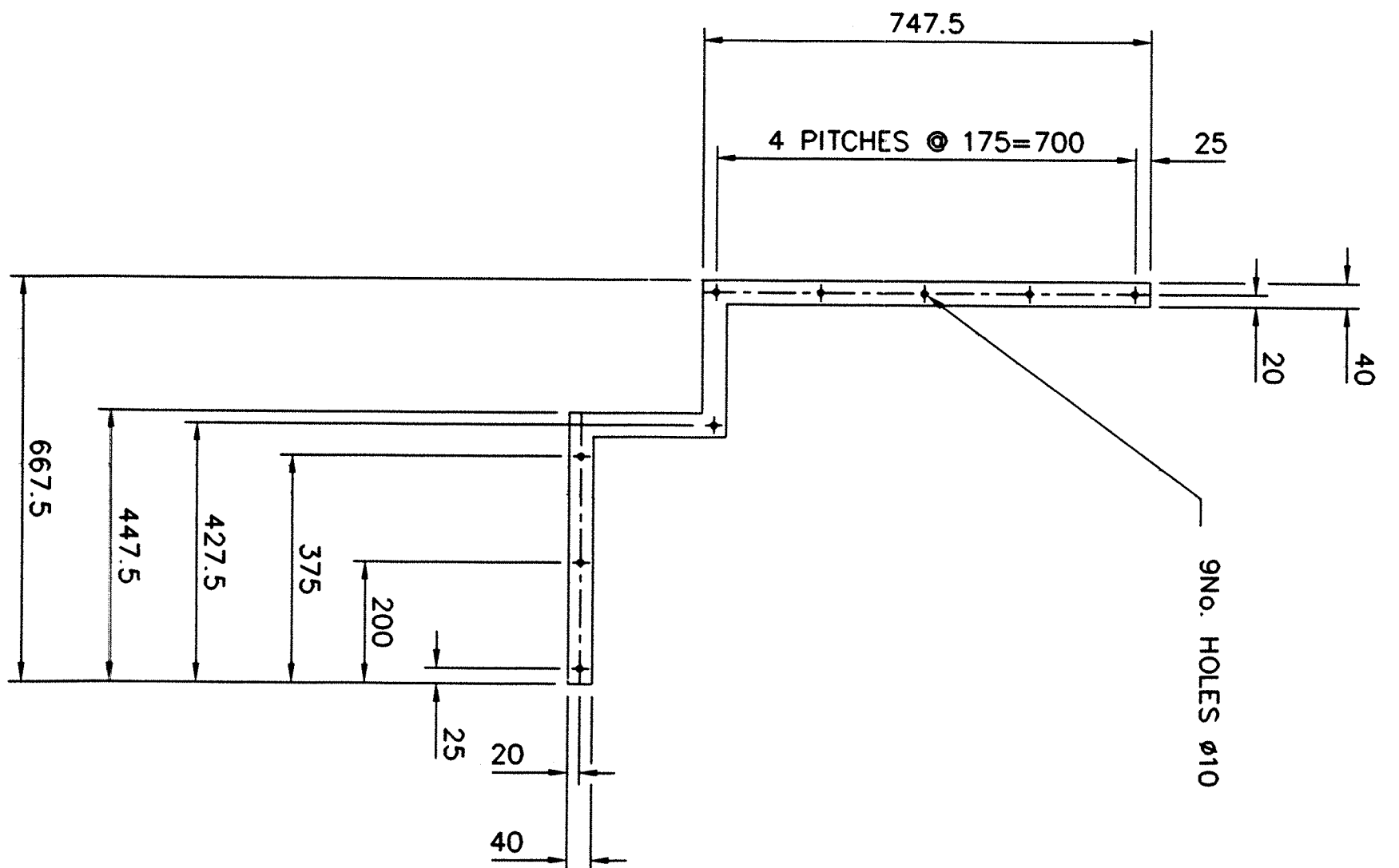
PART No. 02
SCALE: 1:5
FROM 3mm B.M. STEEL



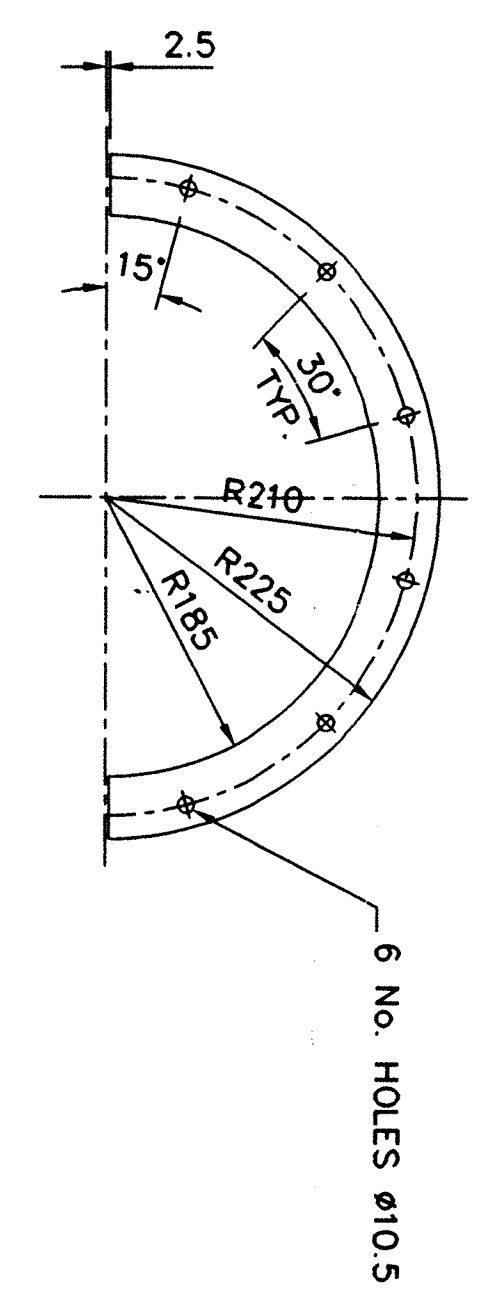
PART No. 03
SCALE: 1:5
FROM 3mm B.M. STEEL



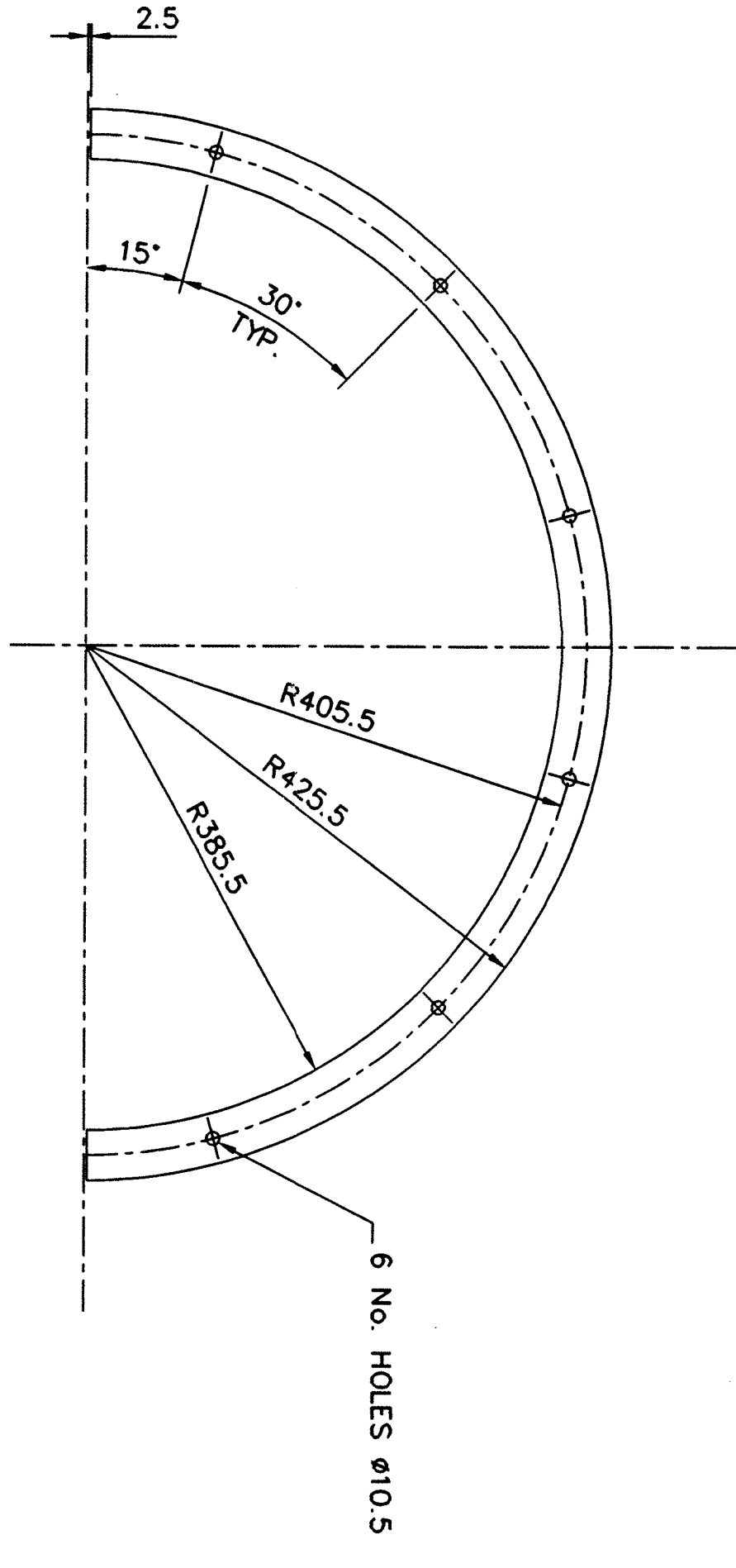
PART No. 04
SCALE: 1:2
FROM 3mm B.M. STEEL



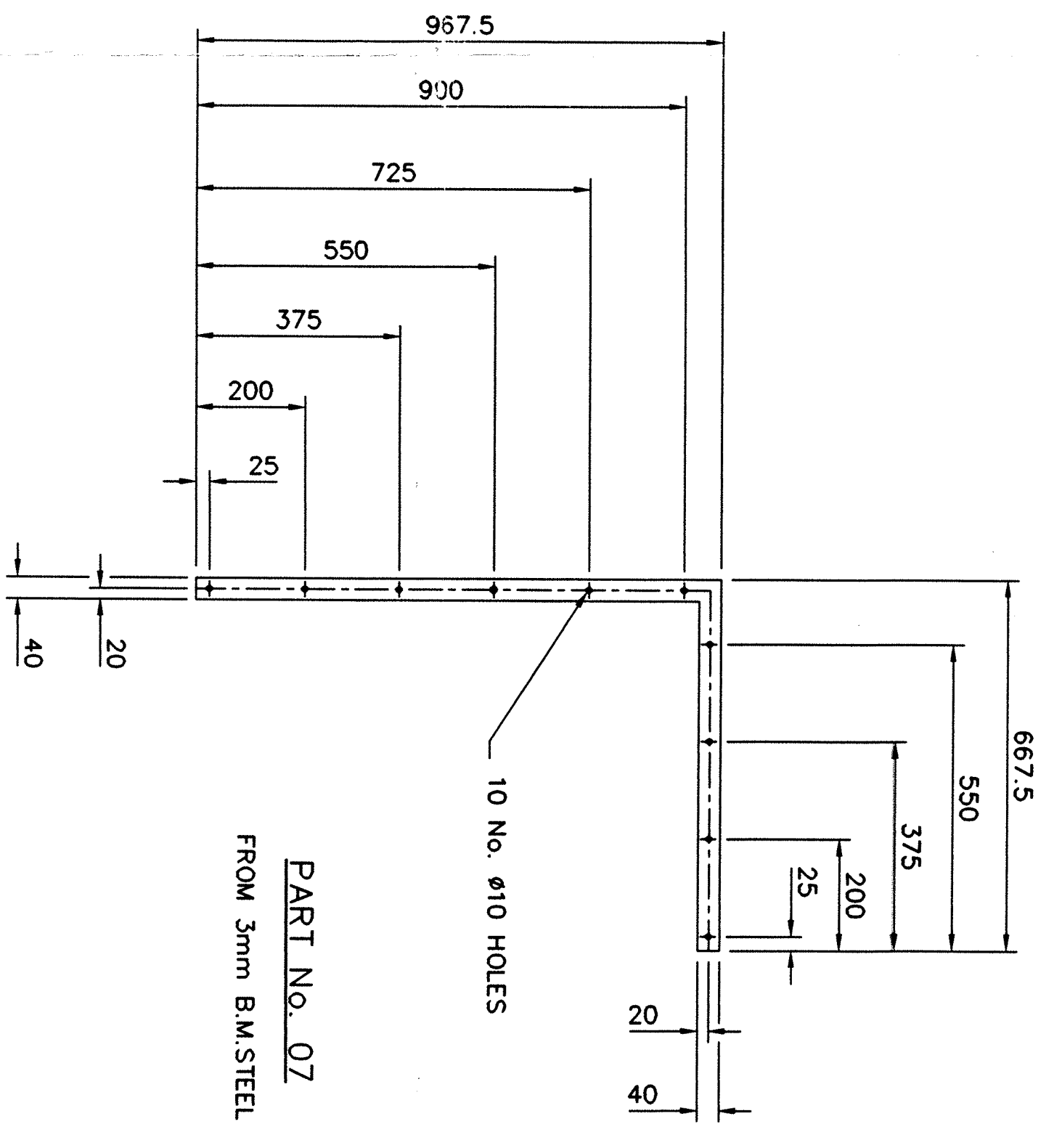
PART No. 05
SCALE: 1:5
FROM 3mm B.M. STEEL



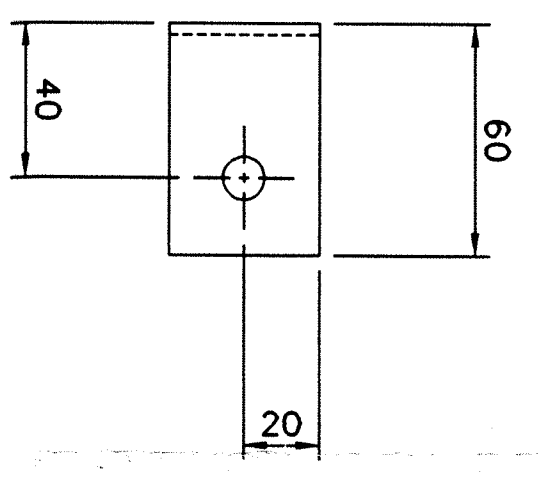
PART No. 06
SCALE: 1:5
FROM 3mm B.M. STEEL



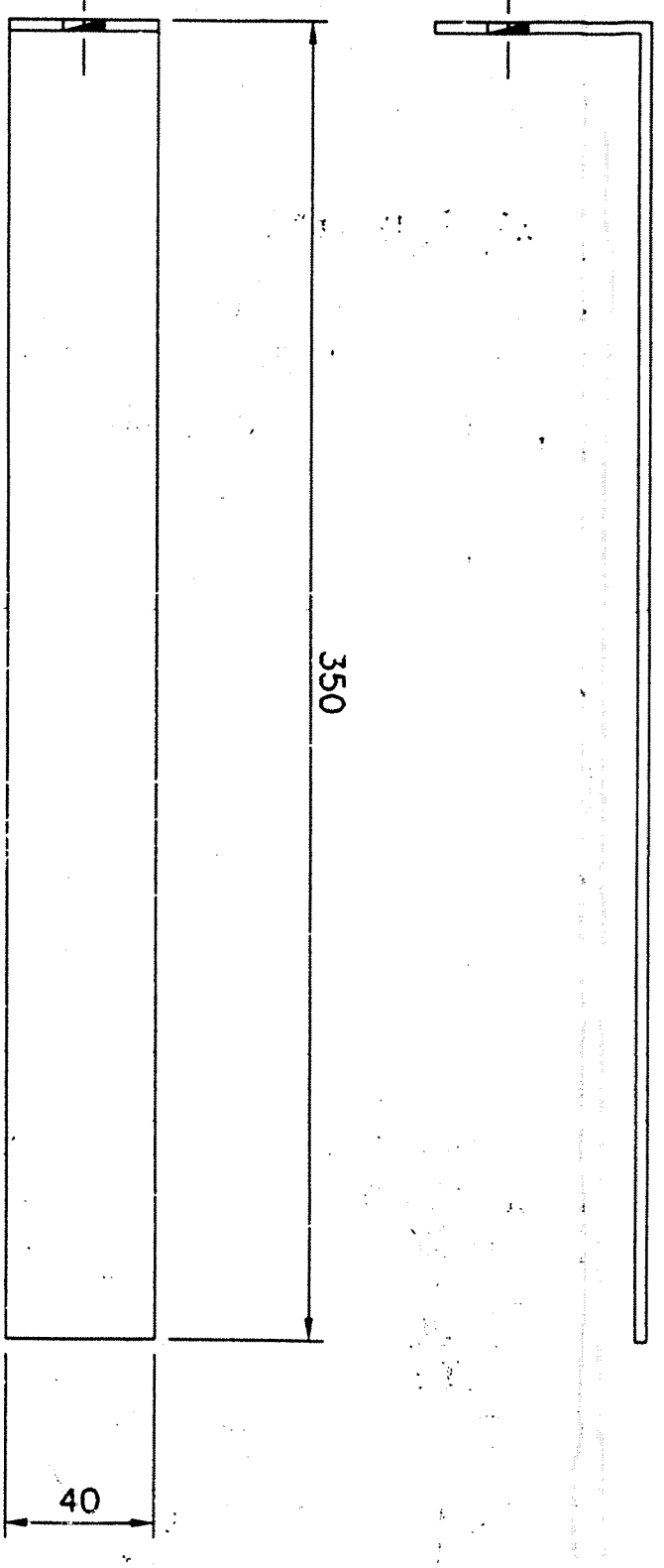
PART No. 07
SCALE: 1:5
FROM 3mm B.M. STEEL



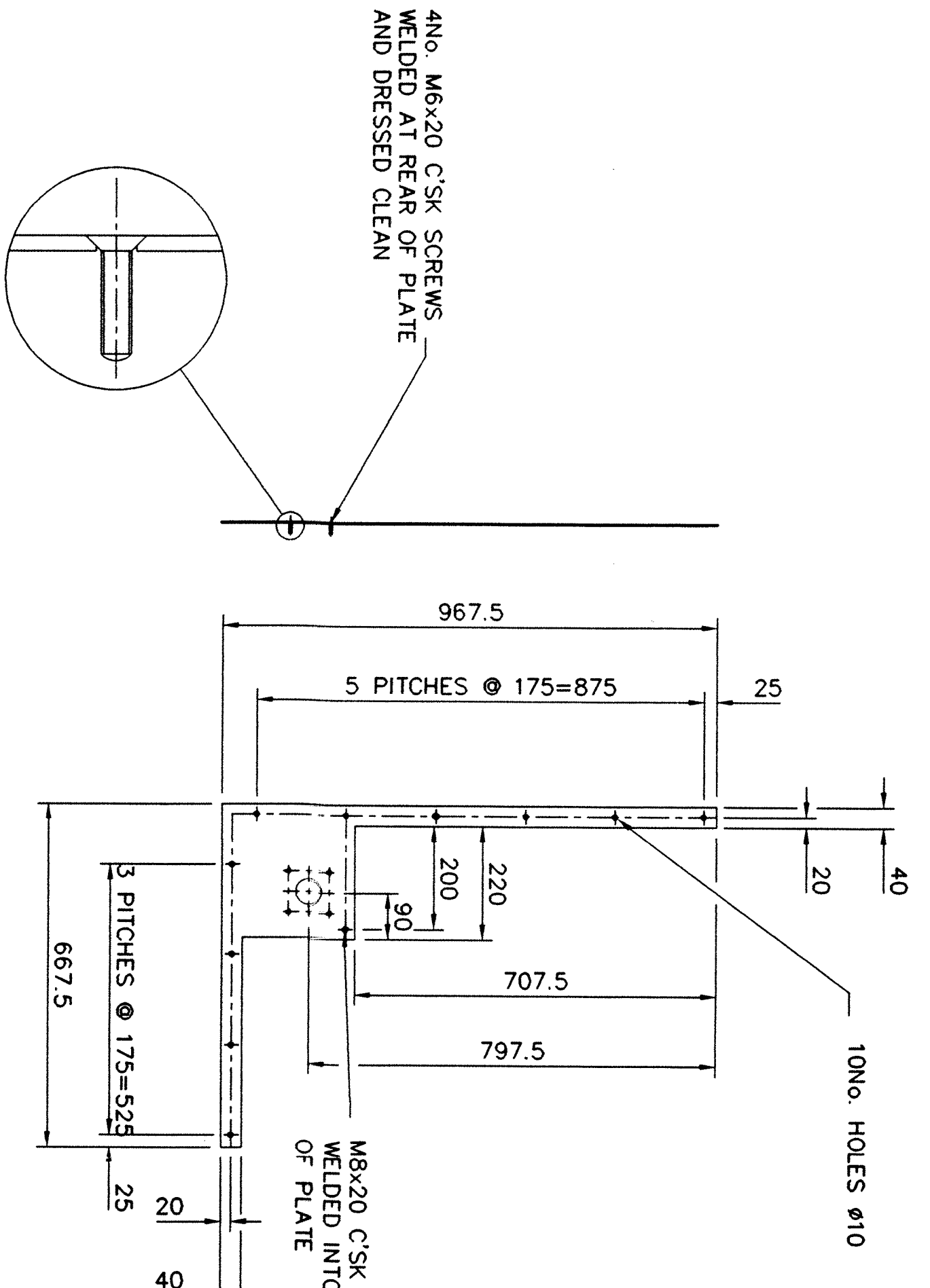
PART No. 08
SCALE: 1:5
FROM 3mm B.M. STEEL



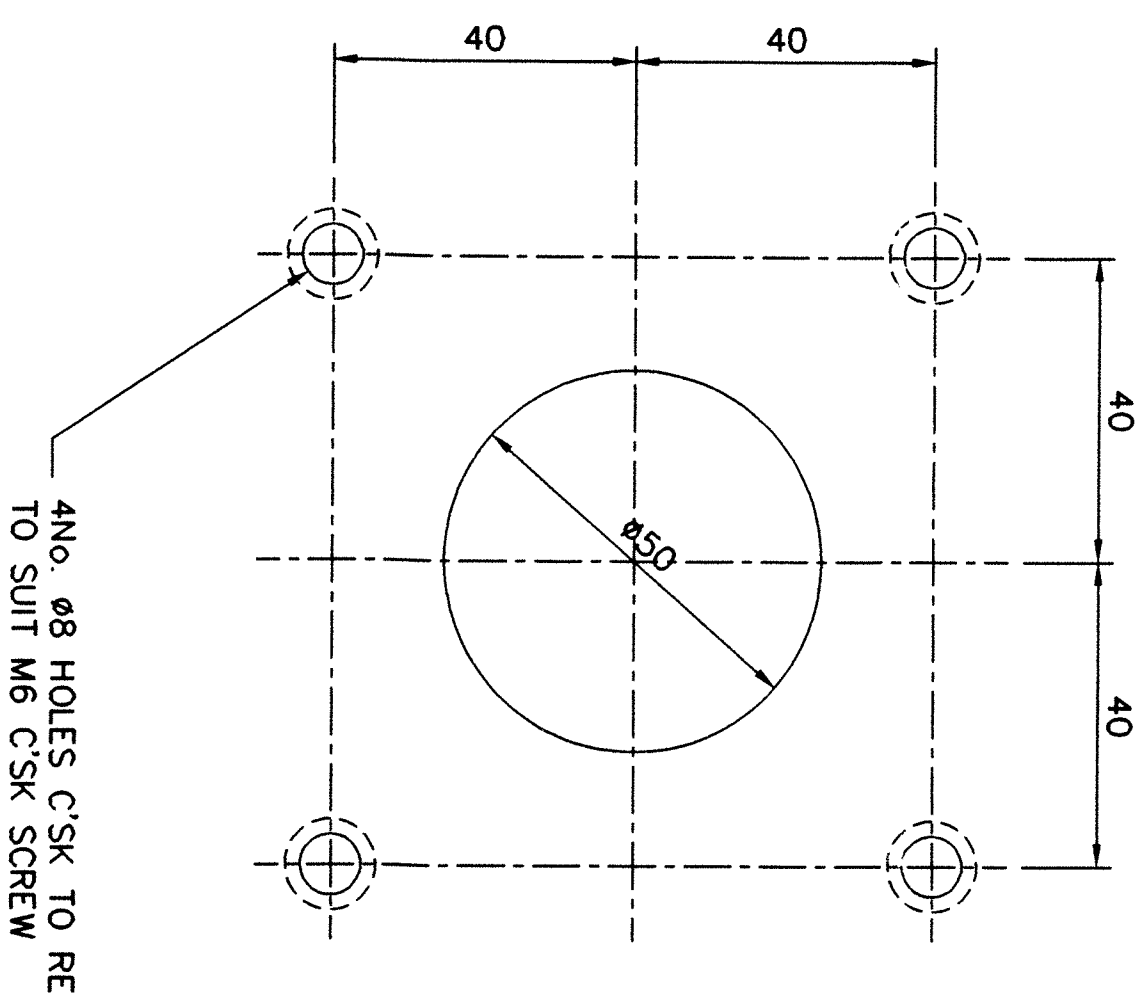
PART No. 09
SCALE: 1:2
FROM 3mm B.M. STEEL
(TO BE USED FOR PART Nos. 29a and 29b)



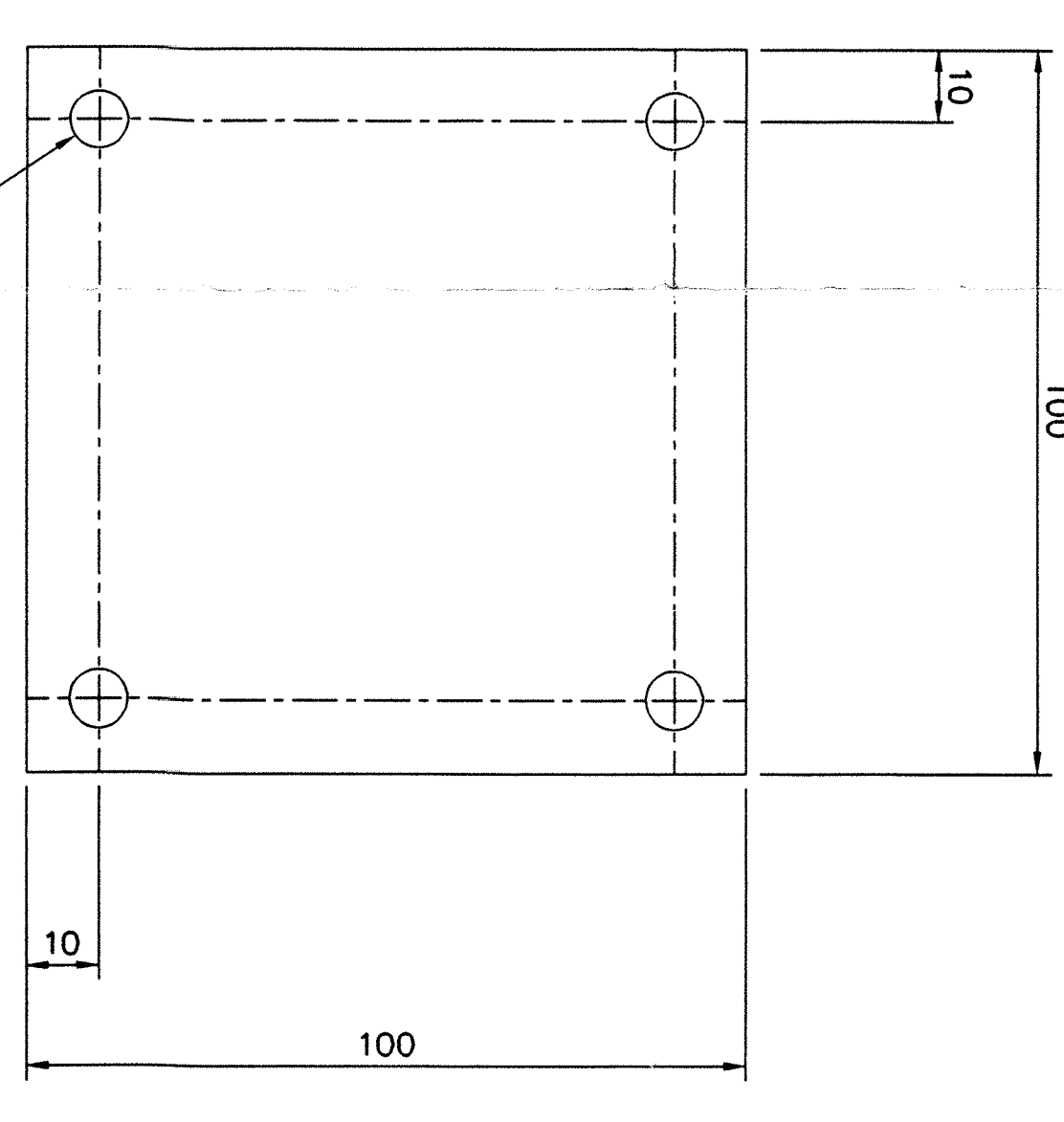
PART No. 10
SCALE: 1:2
FROM 3mm B.M. STEEL



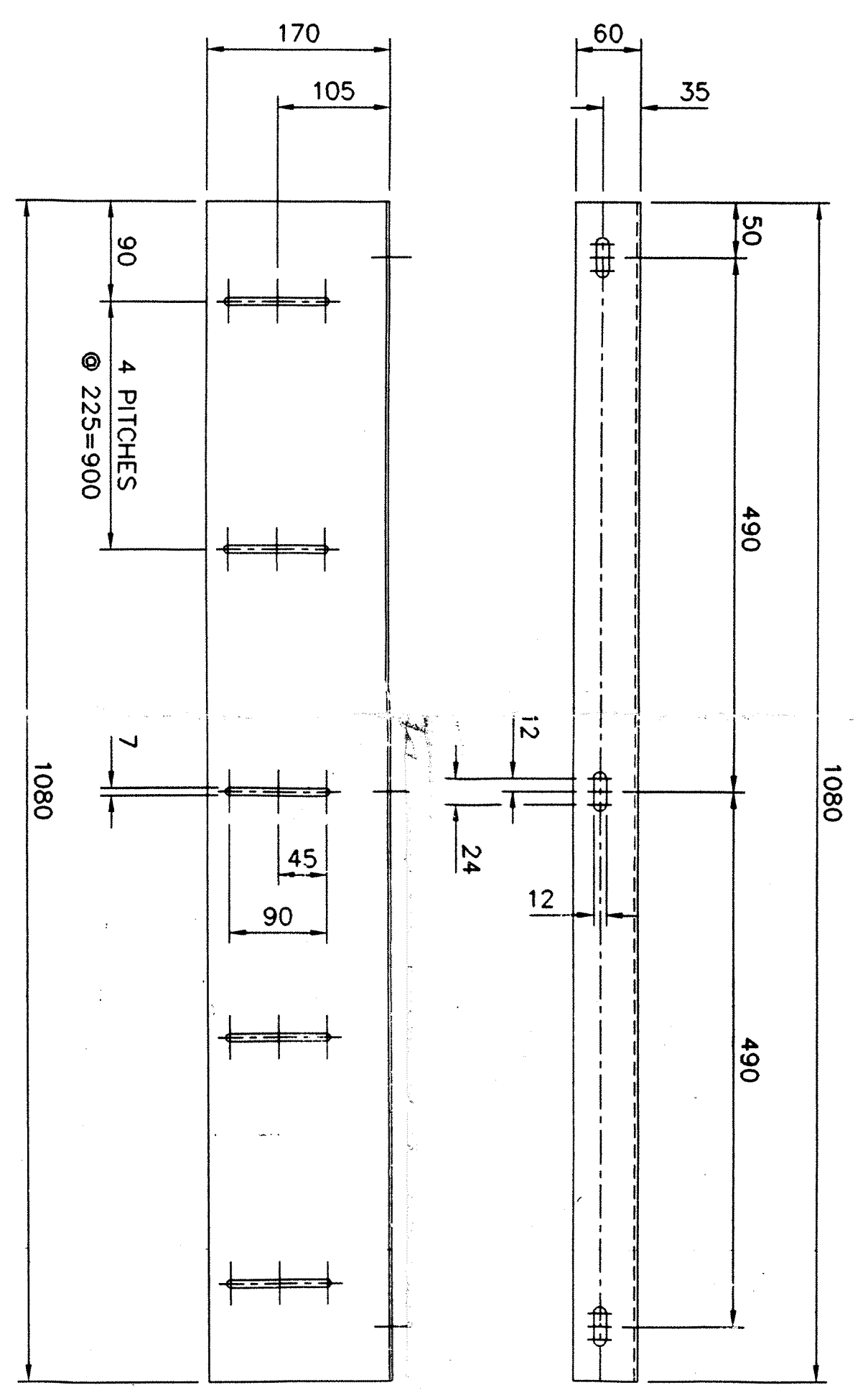
PART No. 11
SCALE: 1:5
FROM 3mm B.M. STEEL



PART No. 12
SCALE: FULL SIZE
FOR PART NOS. 08 and 28



PART No. 13
SCALE: FULL SIZE
FROM 3mm B.M. STEEL



PART No. 14
SCALE: 1:5
FROM 3mm B.M. STEEL

POWER GRID CORPORATION OF INDIA LTD.
CHANDRAPUR HVDC BACK TO BACK PROJECT

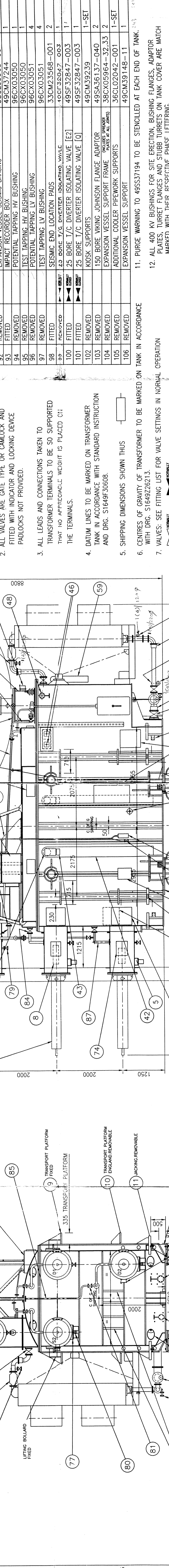
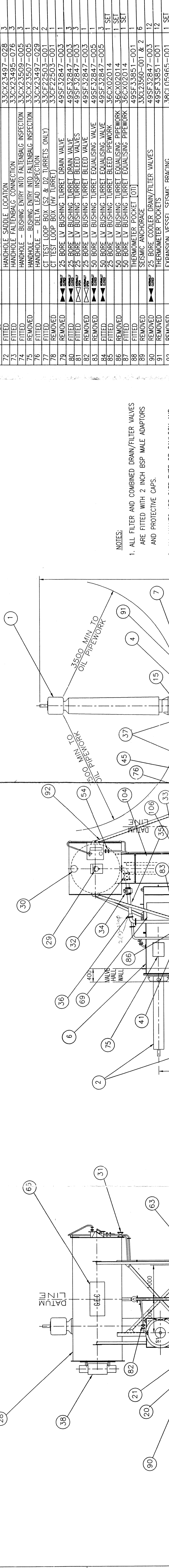
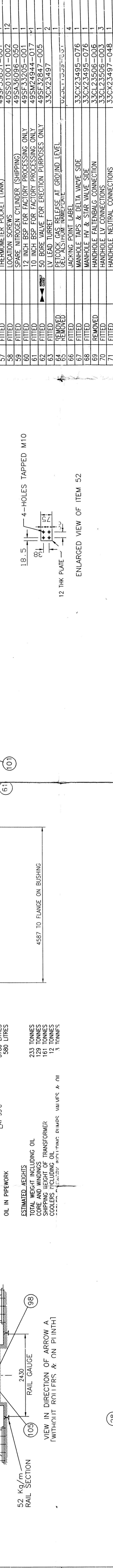
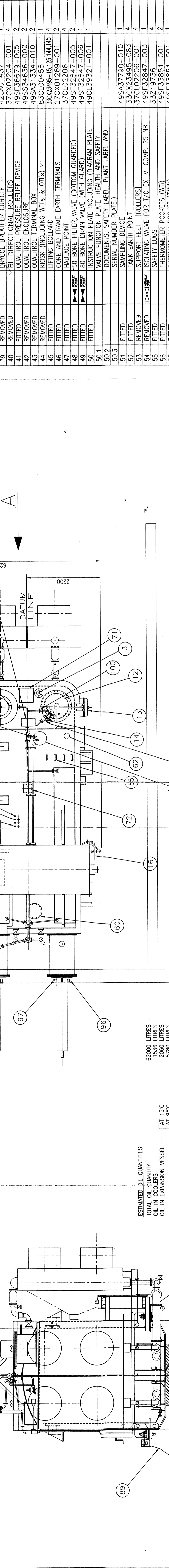
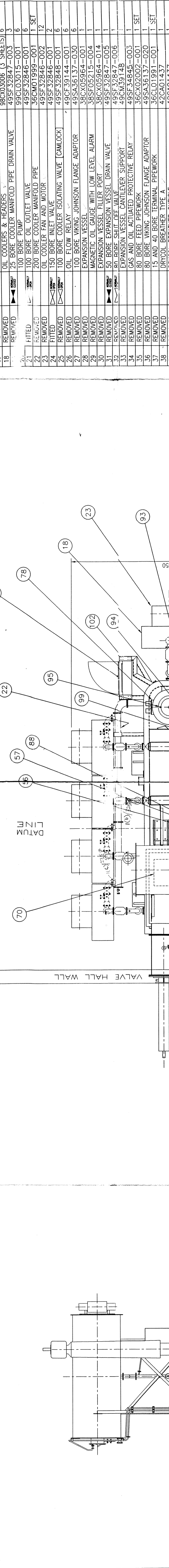
TO BE READ IN CONJUNCTION WITH DRAWING NO:
WC69/GA01 AND WC69/PARTS LIST

REV	DATE	DESCRIPTION	BY	DATE
1	22.11.95	AS PER ENCL. 5, 14, 8	R.W.	17.04.96
2	23.11.95	MODS AS PER ENCL. 5, 14, 8	R.W.	12.06.96

SCALE:	1:10
DO NOT SCALE	
ALL DIMS IN mm U.S.O.	

PROJECT:	CHANDRAPUR HVDC BACK TO BACK PROJECT
DRAWING NO:	WC69/GA01
DRAWING NUMBER:	WC69/DT02
REV:	B

ITEM	TRANSPORT VALVE	DESCRIPTION	QUANTITY
1	REMOVED	HV BUSHING	4
2	REMOVED	LV BUSHING	4
3	REMOVED	NEUTRAL BUSHING	1
4	REMOVED	HV BUSHING TURRET	1
5	REMOVED	LV BUSHING TURRET	1
6	REMOVED	NEUTRAL BUSHING TURRET	1
7	REMOVED	ON-LOAD TAPCHANGER	1
8	REMOVED	ON-LOAD TAPCHANGER DRIVE MECHANISM	1
9	REMOVED	TAPCHANGER SURGE RELAY	1
10	REMOVED	TAPCHANGER FEED PIPES	1
11	REMOVED	TAPCHANGER FEED PIPES VESSEL	1
12	REMOVED	ON-COOLERS & HEADERS	1
13	REMOVED	ON-COOLERS & HEADERS	1
14	REMOVED	ON-COOLERS & HEADERS	1
15	REMOVED	ON-COOLERS & HEADERS	1
16	REMOVED	ON-COOLERS & HEADERS	1
17	REMOVED	ON-COOLERS & HEADERS	1
18	REMOVED	ON-COOLERS & HEADERS	1
19	REMOVED	ON-COOLERS & HEADERS	1
20	REMOVED	ON-COOLERS & HEADERS	1
21	FITTED	100 BORE OIL OUTLET VALVE	1
22	REMOVED	200 BORE COOLER MANIFOLD PIPE	1
23	REMOVED	100 BORE COOLER MANIFOLD PIPE	1
24	FITTED	150 BORE INLET VALVE	1
25	REMOVED	100 BORE COOLER ISOLATING VALVE (CAMLOCK)	1
26	REMOVED	OIL FLOW RELAY	1
27	REMOVED	100 BORE VIRING JOHNSON FLANGE ADAPTOR	1
28	REMOVED	EXPANSION VESSEL	1
29	REMOVED	MAGNETIC OIL GAUGE WITH LOW LEVEL ALARM	1
30	REMOVED	EXPANSION VESSEL FEED PIPE	1
31	REMOVED	EXPANSION VESSEL FEED PIPE	1
32	REMOVED	ON-LOAD TAPCHANGER	1
33	REMOVED	EXPANSION VESSEL CANTILEVER SUPPORT	1
34	REMOVED	GAS AND OIL ACTUATED PROTECTIVE RELAY	1
35	REMOVED	80 BORE FEED PIPEWORK	1
36	REMOVED	80 BORE VIRING JOHNSON FLANGE ADAPTOR	1
37	REMOVED	15 AND 40 BORE TERMINAL PIPEWORK	1
38	REMOVED	DRY COOL BREATHING TYPE A	1
39	REMOVED	DRY COOL BREATHING TYPE B	1
40	REMOVED	BI-DIRECTIONAL ROLLERS	1
41	FITTED	ON-LOAD TAPCHANGER	1
42	REMOVED	ON-LOAD TAPCHANGER	1
43	REMOVED	ON-LOAD TAPCHANGER	1
44	REMOVED	ON-LOAD TAPCHANGER	1
45	FITTED	ON-LOAD TAPCHANGER	1
46	FITTED	ON-LOAD TAPCHANGER	1
47	FITTED	ON-LOAD TAPCHANGER	1
48	FITTED	ON-LOAD TAPCHANGER	1
49	FITTED	ON-LOAD TAPCHANGER	1
50	FITTED	ON-LOAD TAPCHANGER	1
50.1	FITTED	ON-LOAD TAPCHANGER	1
50.2	FITTED	ON-LOAD TAPCHANGER	1
50.3	FITTED	ON-LOAD TAPCHANGER	1
51	FITTED	ON-LOAD TAPCHANGER	1
52	REMOVED	ON-LOAD TAPCHANGER	1
53	REMOVED	ON-LOAD TAPCHANGER	1
54	REMOVED	ON-LOAD TAPCHANGER	1
55	FITTED	ON-LOAD TAPCHANGER	1
56	FITTED	ON-LOAD TAPCHANGER	1
57	FITTED	ON-LOAD TAPCHANGER	1
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103	REMOVED	ON-LOAD TAPCHANGER	1
104	REMOVED	ON-LOAD TAPCHANGER	1
105	REMOVED	ON-LOAD TAPCHANGER	1
106	REMOVED	ON-LOAD TAPCHANGER	1



ITEM	TRANSPORT VALVE	DESCRIPTION	QUANTITY
1	REMOVED	HV BUSHING	4
2	REMOVED	LV BUSHING	4
3	REMOVED	NEUTRAL BUSHING	1
4	REMOVED	HV BUSHING TURRET	1
5	REMOVED	LV BUSHING TURRET	1
6	REMOVED	NEUTRAL BUSHING TURRET	1
7	REMOVED	ON-LOAD TAPCHANGER	1
8	REMOVED	ON-LOAD TAPCHANGER DRIVE MECHANISM	1
9	REMOVED	TAPCHANGER SURGE RELAY	1
10	REMOVED	TAPCHANGER FEED PIPES	1
11	REMOVED	TAPCHANGER FEED PIPES VESSEL	1
12	REMOVED	ON-COOLERS & HEADERS	1
13	REMOVED	ON-COOLERS & HEADERS	1
14	REMOVED	ON-COOLERS & HEADERS	1
15	REMOVED	ON-COOLERS & HEADERS	1
16	REMOVED	ON-COOLERS & HEADERS	1
17	REMOVED	ON-COOLERS & HEADERS	1
18	REMOVED	ON-COOLERS & HEADERS	1
19	REMOVED	ON-COOLERS & HEADERS	1
20	REMOVED	ON-COOLERS & HEADERS	1
21	FITTED	100 BORE OIL OUTLET VALVE	1
22	REMOVED	200 BORE COOLER MANIFOLD PIPE	1
23	REMOVED	100 BORE COOLER MANIFOLD PIPE	1
24	FITTED	150 BORE INLET VALVE	1
25	REMOVED	100 BORE COOLER ISOLATING VALVE (CAMLOCK)	1
26	REMOVED	OIL FLOW RELAY	1
27	REMOVED	100 BORE VIRING JOHNSON FLANGE ADAPTOR	1
28	REMOVED	EXPANSION VESSEL	1
29	REMOVED	MAGNETIC OIL GAUGE WITH LOW LEVEL ALARM	1
30	REMOVED	EXPANSION VESSEL FEED PIPE	1
31	REMOVED	EXPANSION VESSEL FEED PIPE	1
32	REMOVED	ON-LOAD TAPCHANGER	1
33	REMOVED	EXPANSION VESSEL CANTILEVER SUPPORT	1
34	REMOVED	GAS AND OIL ACTUATED PROTECTIVE RELAY	1
35	REMOVED	80 BORE FEED PIPEWORK	1
36	REMOVED	80 BORE VIRING JOHNSON FLANGE ADAPTOR	1
37	REMOVED	15 AND 40 BORE TERMINAL PIPEWORK	1
38	REMOVED	DRY COOL BREATHING TYPE A	1
39	REMOVED	DRY COOL BREATHING TYPE B	1
40	REMOVED	BI-DIRECTIONAL ROLLERS	1
41	FITTED	ON-LOAD TAPCHANGER	1
42	REMOVED	ON-LOAD TAPCHANGER	1
43	REMOVED	ON-LOAD TAPCHANGER	1
44	REMOVED	ON-LOAD TAPCHANGER	1
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50.3	FITTED	ON-LOAD TAPCHANGER	1
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104	REMOVED	ON-LOAD TAPCHANGER	1
105	REMOVED	ON-LOAD TAPCHANGER	1
106	REMOVED	ON-LOAD TAPCHANGER	1

11. PURGE WARNING TO 49537194 TO BE STENCILED AT EACH END OF TANK.

12. ALL 400 KV BUSHINGS FOR SITE ERECTION, BUSHING FLANGES, ADAPTOR PLATES, TURRET FLANGES AND STUBB TURRETS ON TANK COVER ARE MATCH MARKED WITH THEIR RESPECTIVE PHASE LETTERING.

13. SHIPPING OUTLINE 53011591.

14. FOUNDATION DETAILS 520101333.

15. RECOGNISED SAFE PROCEDURES ARE TO BE ADOPTED WHEN HAULING AND TURNING THIS UNIT.

16. IF IN DOUBT - PLEASE ASK !

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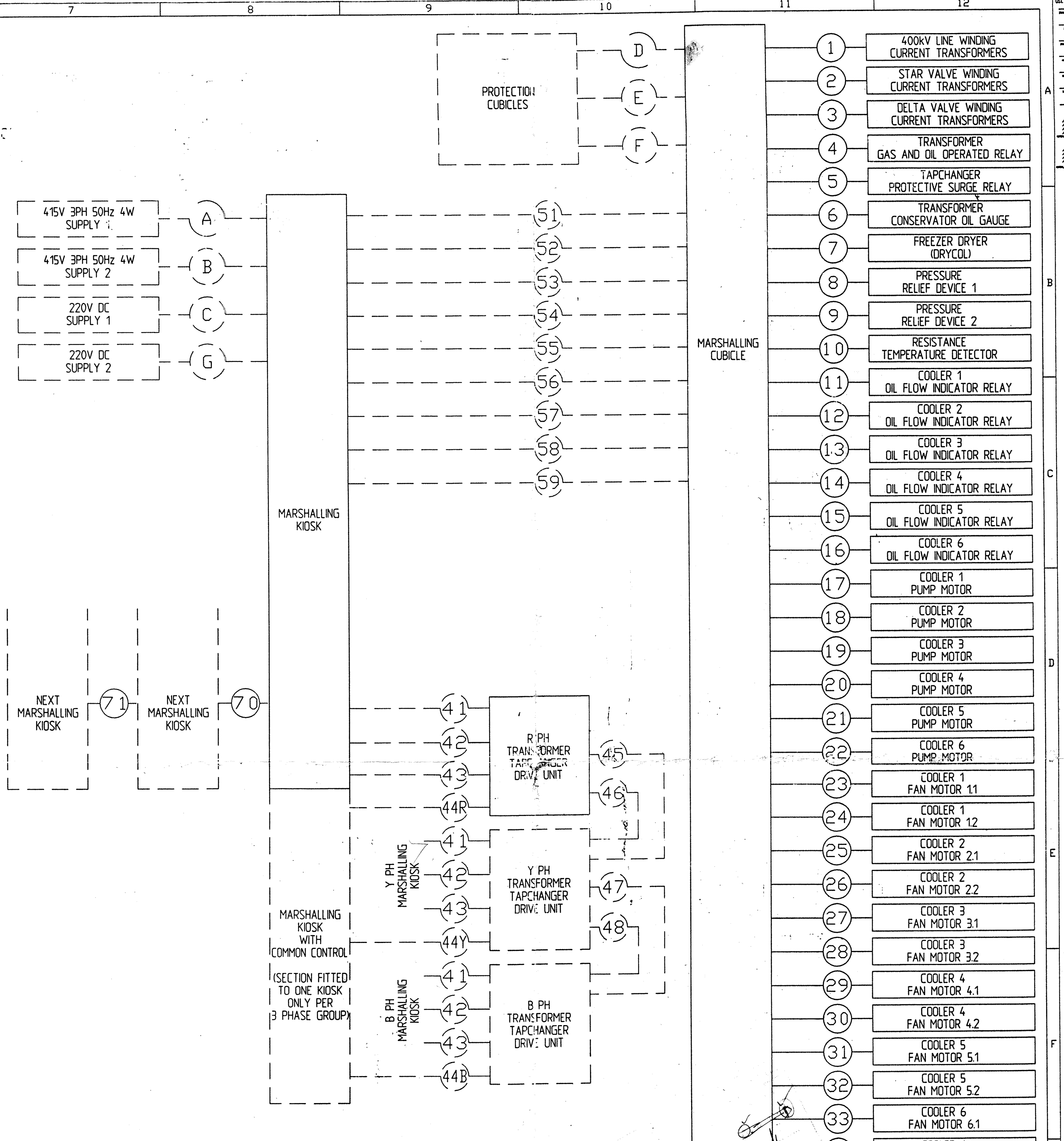
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DRAWING NUMBER 84CL03061		SHEET 1/1	REVISION C	GLANDS TO BS6121 TRANS END KIOSK END		Type	CORE IDENTITY
ITEM NOS	SIZE (IN MM)	CORE					
1	7/0.85	12	25E1We	25E1We	XLPEWALS	C1 C4 L2S1 L2S2 L2S3 L3S1 L3S2 L3S3 L4S1 L4S2 L5S1 L5S2	
2	7/0.85	12	25E1We	25E1We	XLPEWALS	S1S1 S1S2 S2S1 S2S2 S3S1 S3S2	
3	7/0.85	12	25E1We	25E1We	XLPEWALS	D1S1 D1S2 D2S1 D2S2 D3S1 D3S2	
4	7/0.67	4	20SE1We	20SE1We	XLPEWALS	K1 K2 L201 L223 (SEE NOTE)	
5	7/0.67	2	*20SE1We	20SE1We	XLPEWALS	K3 K4 (SEE NOTE)	
6	7/0.67	2	20SE1We	20SE1We	XLPEWALS	L201 L226	
7	7/0.67	4	20SE1We	20SE1We	XLPEWALS	L201 L227 H132 H133	
8	7/0.67	2	20SE1We	20SE1We	XLPEWALS	K5 K6 (SEE NOTE)	
9	7/0.67	2	20SE1We	20SE1We	XLPEWALS	K5 K6 (SEE NOTE)	
10	7/0.67	3	20SE1We	20SE1We	XLPEWALS	3 4 5	
11	7/0.67	2	20SE1We	20SE1We	XLPEWALS	L206 L207	
12	7/0.67	2	20SE1We	20SE1We	XLPEWALS	L209 L207	
13	7/0.67	2	20SE1We	20SE1We	XLPEWALS	L210 L207	
14	7/0.67	2	20SE1We	20SE1We	XLPEWALS	L211 L207	
15	7/0.67	2	20SE1We	20SE1We	XLPEWALS	L212 L207	
16	7/0.67	2	20SE1We	20SE1We	XLPEWALS	L213 L207	
17	7/0.67	3	20SE1We	20SE1We	XLPEWALS	M101 M102 M103	
18	7/0.67	3	20SE1We	20SE1We	XLPEWALS	M201 M202 M203	
19	7/0.67	3	20SE1We	20SE1We	XLPEWALS	M301 M302 M303	
20	7/0.67	3	20SE1We	20SE1We	XLPEWALS	M401 M402 M403	
21	7/0.67	3	20SE1We	20SE1We	XLPEWALS	M501 M502 M503	
22	7/0.67	3	20SE1We	20SE1We	XLPEWALS	M601 M602 M603	
23	7/0.67	7	20E1We	20E1We	XLPEWALS	M104 M105 M106 H105 H141	
24	7/0.67	7	20E1We	20E1We	XLPEWALS	M107 M108 M109 H105 H142	
25	7/0.67	7	20E1We	20E1We	XLPEWALS	M204 M205 M206 H105 H143	
26	7/0.67	7	20E1We	20E1We	XLPEWALS	M207 M208 M209 H105 H144	
27	7/0.67	7	20E1We	20E1We	XLPEWALS	M304 M305 M306 H105 H145	
28	7/0.67	7	20E1We	20E1We	XLPEWALS	M307 M308 M309 H105 H146	
29	7/0.67	7	20E1We	20E1We	XLPEWALS	M404 M405 M406 H105 H147	
30	7/0.67	7	20E1We	20E1We	XLPEWALS	M407 M408 M409 H105 H148	
31	7/0.67	7	20E1We	20E1We	XLPEWALS	M504 M505 M506 H105 H149	
32	7/0.67	7	20E1We	20E1We	XLPEWALS	M507 M508 M509 H105 H150	
33	7/0.67	7	20E1We	20E1We	XLPEWALS	M604 M605 M606 H105 H151	
34	7/0.67	7	20E1We	20E1We	XLPEWALS	M607 M608 M609 H105 H152	
35	7/0.67	2	20SE1We	20SE1We	XLPEWALS	H122 H124	
36	7/0.67	2	20SE1We	20SE1We	XLPEWALS	H122 H124	
41	7/0.67	19	25E1We	25E1We	XLPEWALS	N100 N101 N102 N103 N104 N105 N106 N107 N121 N122 N125 N126 N127 N128	
42	7/0.67	19	25E1We	25E1We	XLPEWALS	N100 N111 N112 N113 N114 N115 N116 N117 N123 N124 N129 N130 N131 N132	
43	7/0.67	12	25E1We	25E1We	XLPEWALS	H4 H5 H6 H101 H106 J3 J4	
44R	7/0.67	12	25E1We	25E1We	XLPEWALS	N26 N28 N37 N38 N40 N46 N47 N203 L201 L231	
44Y	7/0.67	12	25E1We	25E1We	XLPEWALS	N26 N28 N37 N38 N40 N46 N47 N210 L201 L231	
44B	7/0.67	12	25E1We	25E1We	XLPEWALS	N26 N28 N37 N38 N40 N46 N47 N213 L201 L231	
45	7/0.67	12	25E1We	25E1We	XLPEWALS	111 112 113 114 115 116 117 118 119 120 121 122	
46	7/0.67	12	25E1We	25E1We	XLPEWALS	123 124 125 126 127 128 129 130 131 132 133	
47	7/0.67	12	25E1We	25E1We	XLPEWALS	111 112 113 114 115 116 117 118 119 120 121 122	
48	7/0.67	12	25E1We	25E1We	XLPEWALS	123 124 125 126 127 128 129 130 131 132 133	
51	7/0.85	12	25E1We	25E1We	XLPEWALS	M101 M102 M103 M104 M105 M106 M107 M108 M109 H105 H141 H142	
52	7/0.85	12	25E1We	25E1We	XLPEWALS	M201 M202 M203 M204 M205 M206 M207 M208 M209 H105 H143 H144	
53	7/0.85	12	25E1We	25E1We	XLPEWALS	M301 M302 M303 M304 M305 M306 M307 M308 M309 H105 H145 H146	
54	7/0.85	12	25E1We	25E1We	XLPEWALS	M401 M402 M403 M404 M405 M406 M407 M408 M409 H105 H147 H148	
55	7/0.85	12	25E1We	25E1We	XLPEWALS	M501 M502 M503 M504 M505 M506 M507 M508 M509 H105 H149 H150	
56	7/0.85	12	25E1We	25E1We	XLPEWALS	M601 M602 M603 M604 M605 M606 M607 M608 M609 H105 H151 H152	
57	7/0.67	19	25E1We	25E1We	XLPEWALS	L201 L204 L205 L206 L207 L209 L210 L211 L212 L213 L223 L224 L225 L226 L227 L241 J3 J4	
58	7/0.67	19	25E1We	25E1We	XLPEWALS	K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 6 7 (SEE NOTE)	
59	7/0.67	4	20SE1We	20SE1We	XLPEWALS	H101 H101 H106 H106	
70	7/0.67	12	25E1We	25E1We	XLPEWALS	L203 L234 L236 L202Y L241Y L202B L241B M77R M77B	
71	7/0.67	12	25E1We	25E1We	XLPEWALS	L203 L235 L236 L202B L241B M77Y M77B	
A		4			XLPEWALS	H1 H2 H3 H7	
B		4			XLPEWALS	H11 H12 H13 H17	
C		2			XLPEWALS	J1 J2	
D	7/0.85	12	25E1We		XLPEWALS	A10 A11 C10 C11 X X X X	
E	7/0.85	12	25E1We		XLPEWALS	A520 A521 C110 C111 C210 C211	
F	7/0.85	12	25E1We		XLPEWALS	A510 A511 C120 C121 C220 C221	



NOTES:
 CABLES SHOWN DASHED NOT PROVIDED BY GEC ALSTHOM TRANSFORMERS LTD ON THIS CONTRACT.
 CABLE GLANDS TO BE CMP/KULTO SOLO TYPE, NICKEL PLATED AND BE PROVIDED WITH SOLO TYPE SHROUDS AND EARTH TAGS.
 WHILST CONNECTING CABLES AND GLANDS TO MARSHALLING KIOSKS AND CUBICLES A MINIMUM OF 50mm OF INNER SHEATH SHOULD REMAIN PROTRUDING ABOVE THE GLAND.
 VOLTAGE GRADE OF CABLES TO BE 600/1000V.
 CABLE TYPE: AEI HALEX LSF ARMoured AND TO COMPLY WITH THE REQUIREMENTS OF BS 6724.
 CORE IDENTITY - 2CORE RED BLACK
 - 3CORE RED YELLOW BLUE
 - 4CORE RED YELLOW BLUE BLACK
 - >4CORE WHITE WITH NUMBERS
 NOTE: THE FERRULE NOS SHOULD BE IDENTIFIED WITH THE COLOURED CORES SO THAT THE FIRST NUMBER IN THE LIST OF FERRULES IS ATTACHED TO THE FIRST COLOUR IN THE ABOVE LIST.
 CORES WITH A FERRULE PREFIXED 'K' TO BE FITTED WITH AN ADDITIONAL RED UNLETTERED FERRULE.
 * THE CABLE GLAND INTO THE TAPCHANGER PROTECTIVE RELAY IS TO HAVE A PG16 ENTRY THREAD

NOTES ON CABLES D, E AND F
 FERRULE NOS ARE AS SHOWN FOR RED PHASE.
 FOR YELLOW AND BLUE PHASES SEE CHANGE BELOW.

RED PH	YELLOW PH	BLUE PH	RED PH	YELLOW PH	BLUE PH
A10	A30	A50	A530	A550	
A11	A31	A51	A511	A531	A551
C10	C30	C50	A520	A540	A560
C11	C31	C51	A521	A541	A561
			C110	C130	C150
			C111	C131	C151
			C120	C140	C160
			C121	C141	C161
			C210	C230	C250
			C211	C231	C251
			C220	C240	C260
			C221	C241	C261

ASSOCIATED DIAGRAMS
 CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 CD FOR COOLER MOTORS 80CL03092
 CD FOR COOLER CONTROL 80CL03093
 CD FOR HEATERS/LIGHTING 80CL03094
 CD FOR INDICATIONS 80CL03095
 CD FOR LOCAL ALARMS 80CL03096
 CD FOR ALARMS/TRIPS OUTPUT 80CL03097
 CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 CD FOR COMBINED TAPCHANGERS 80CL03099
 TERMINATIONS FOR T/CH & CUBICLE 81CL02712
 TERMINATIONS FOR MARSHALLING KIOSK 81CL02713
 WIRING FOR TRANSFORMER 84CL03060
 CABLE SCHEDULE 84CL03061

FILE REFERENCE - 21A12
 IF IN DOUBT - PLEASE ASK !
 CATEGORY (Q1.14) 2
 FIRST CONTRACT NUMBER PTD1659/01-06
 DRAWN DE
 CHECKED JD
 APP'D GS
 TITLE HVDC CONVERTOR TRANSFORMER CABLE SCHEDULE
 KEYWORD C&A SCHEDL
 SCALE N.T.S.
 DRAWING NUMBER 84CL03061
 SHEET 1/1
 GEC ALSTHOM
 GEC ALSTHOM LTD TRANSFORMERS LIMITED STAFFORD ENGLAND

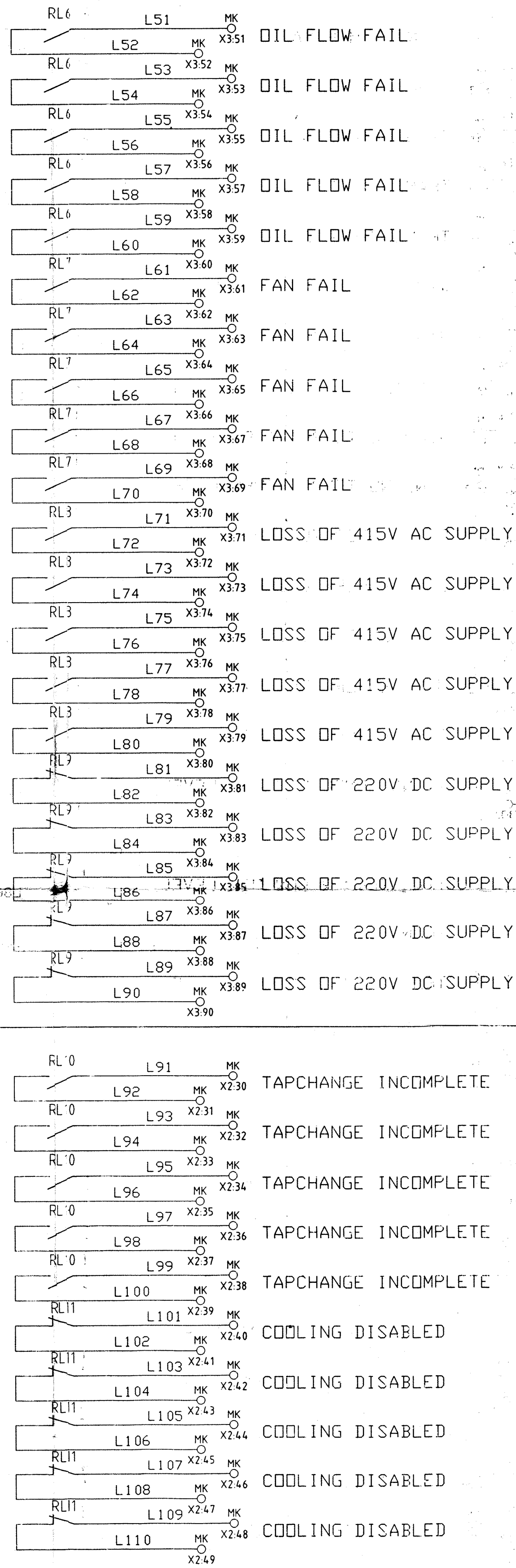
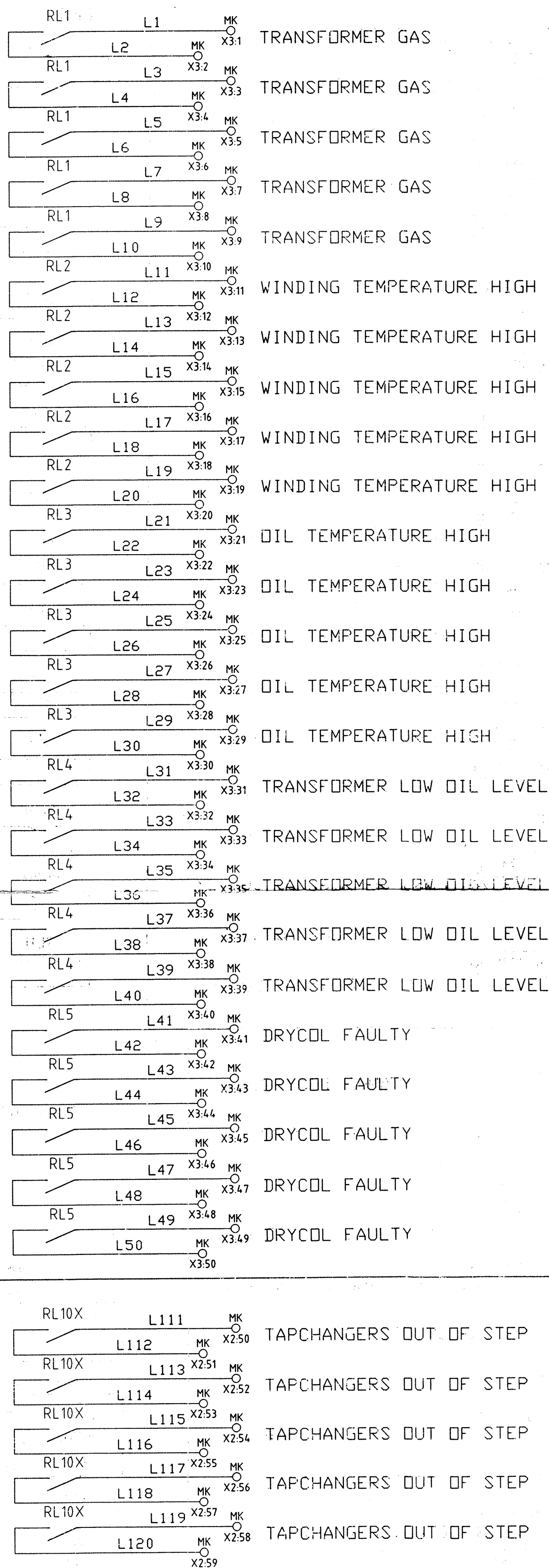
I.D.C STAMP	REVISION RECORD	FILE REFERENCE	NOTES ADDED
DATE 15TH MAY 1996	19TH JUL 1996	ADDED AS REQUESTED	NOTES ADDED RELATING TO GLANDS BEING NICKEL PLATED & INNER SHEATH OF CABLE TO BE PROTRUDING FROM TOP OF GLAND.

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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED. LOCKING METHODS & FIXINGS TO DRAWING 495F32097 5-SHEETS. I.S.O METRIC THREADS TO BS 3643 6g 6H F11. TOLERANCES TO DRG. 603F 0320. THIRD ANGLE PROJECTION.

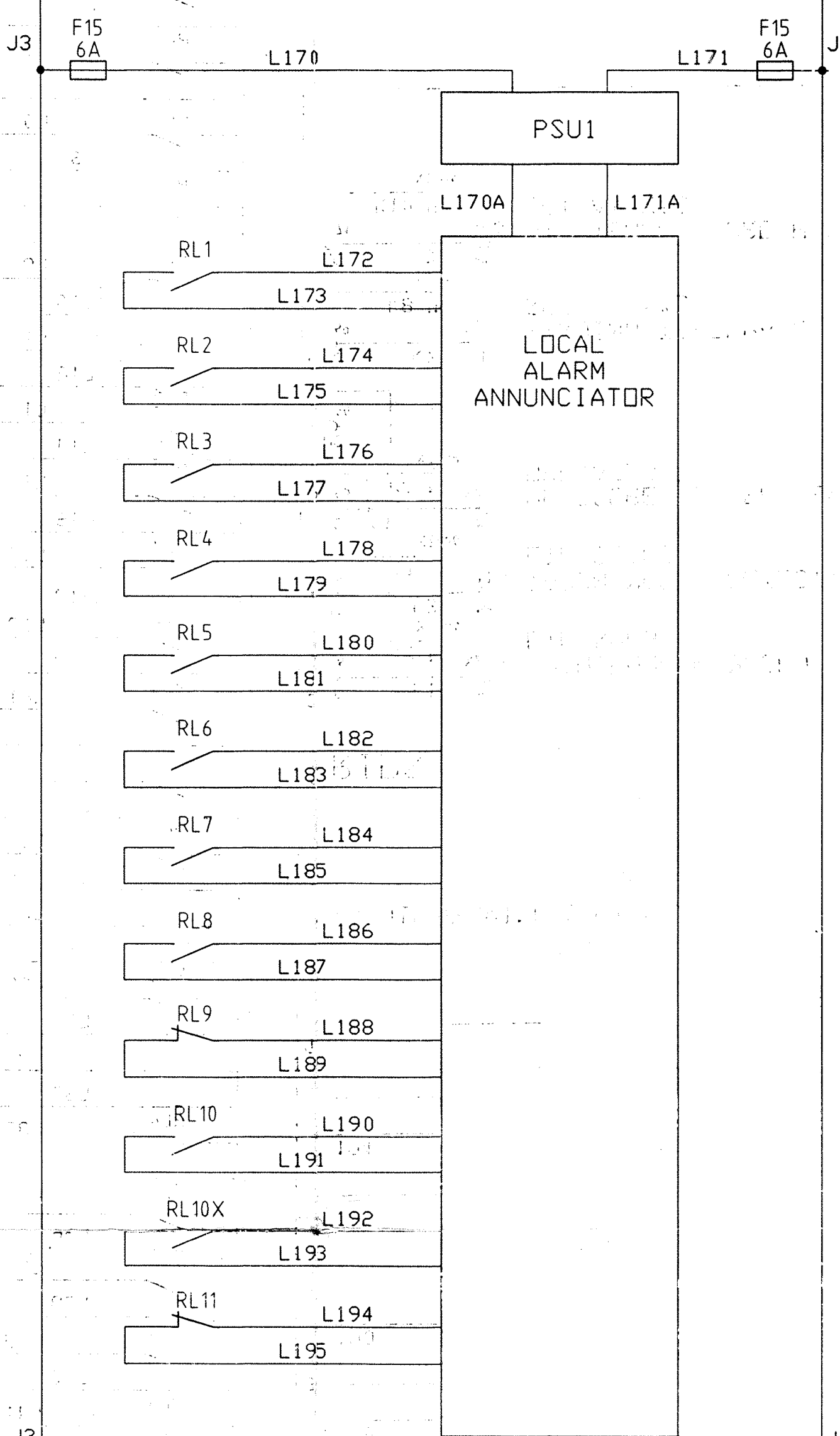
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ALARMS



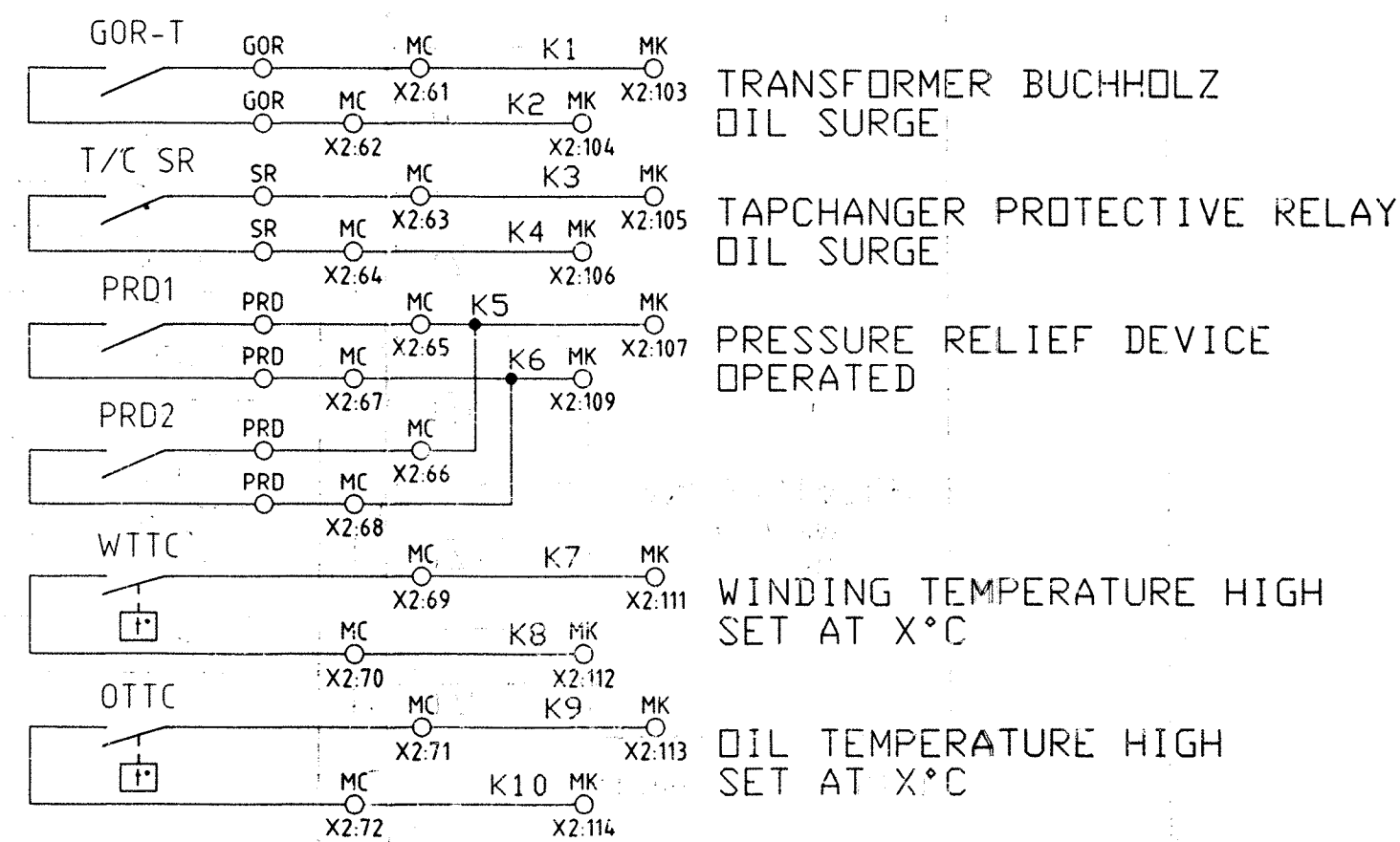
THESE CIRCUITS ARE SHOWN FOR ONE THREE PHASE SET OF TRANSFORMERS. ALL THE OTHER CIRCUITS ON THIS DRAWING ARE PER TRANSFORMER ONLY.

220V DC SUPPLY FROM DRAWING 80CL03096



220V DC SUPPLY TO DRAWING 80CL03095

TRIPS



REFERENCE

- F15 FUSES 6AMP
- GOR-T GAS AND OIL OPERATED RELAY (BUCHHOLZ)-TRIP CONTACT
- OTTC OIL TEMPERATURE INDICATOR-TRIP CONTACT
- PRD1 PRESSURE RELIEF DEVICE 1-TRIP CONTACT
- PRD2 PRESSURE RELIEF DEVICE 2-TRIP CONTACT
- PSU1 POWER SUPPLY UNIT FOR ALARM ANNUNCIATOR
- RL1 ALARM RELAY-GAS AND OIL OPERATED RELAY (BUCHHOLZ)
- RL2 ALARM RELAY-WINDING TEMPERATURE HIGH
- RL3 ALARM RELAY-OIL TEMPERATURE HIGH
- RL4 ALARM RELAY-LOW OIL LEVEL IN TRANSFORMER CONSERVATOR
- RL5 ALARM RELAY-DRYCOL FAULTY
- RL6 ALARM RELAY-OIL FLOW FAIL (PUMP FAIL)
- RL7 ALARM RELAY-FAN FAIL
- RL8 ALARM RELAY-LOSS OF 415V AC SUPPLY
- RL9 ALARM RELAY-LOSS OF 220V DC SUPPLY
- RL10 ALARM RELAY-TAPCHANGE INCOMPLETE
- RL10X ALARM RELAY-TAPCHANGERS OUT OF STEP
- RL11 ALARM RELAY-COOLING DISABLED (BY FIRE PROTECTION LOCKOUT)
- T/C SR TAPCHANGER PROTECTIVE SURGE RELAY-TRIP CONTACT
- WTTT WINDING TEMPERATURE INDICATOR-TRIP CONTACT

DESCRIPTION

- F15 FUSES 6AMP
- GOR-T GAS AND OIL OPERATED RELAY (BUCHHOLZ)-TRIP CONTACT
- OTTC OIL TEMPERATURE INDICATOR-TRIP CONTACT
- PRD1 PRESSURE RELIEF DEVICE 1-TRIP CONTACT
- PRD2 PRESSURE RELIEF DEVICE 2-TRIP CONTACT
- PSU1 POWER SUPPLY UNIT FOR ALARM ANNUNCIATOR
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- T/C SR TAPCHANGER PROTECTIVE SURGE RELAY-TRIP CONTACT
- WTTT WINDING TEMPERATURE INDICATOR-TRIP CONTACT

NOTES

- ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
- MK DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
 - MC DENOTES TERMINAL IN TRANSFORMER MARSHALLING CUBICLE
 - DM DENOTES TERMINAL IN TAPCHANGER DRIVE MECHANISM HOUSING
 - GOR DENOTES TERMINAL IN GAS AND OIL OPERATED RELAY
 - PRD DENOTES TERMINAL IN PRESSURE RELIEF DEVICE
 - SR DENOTES TERMINAL IN TAPCHANGER PROTECTIVE RELAY

ASSOCIATED DIAGRAMS

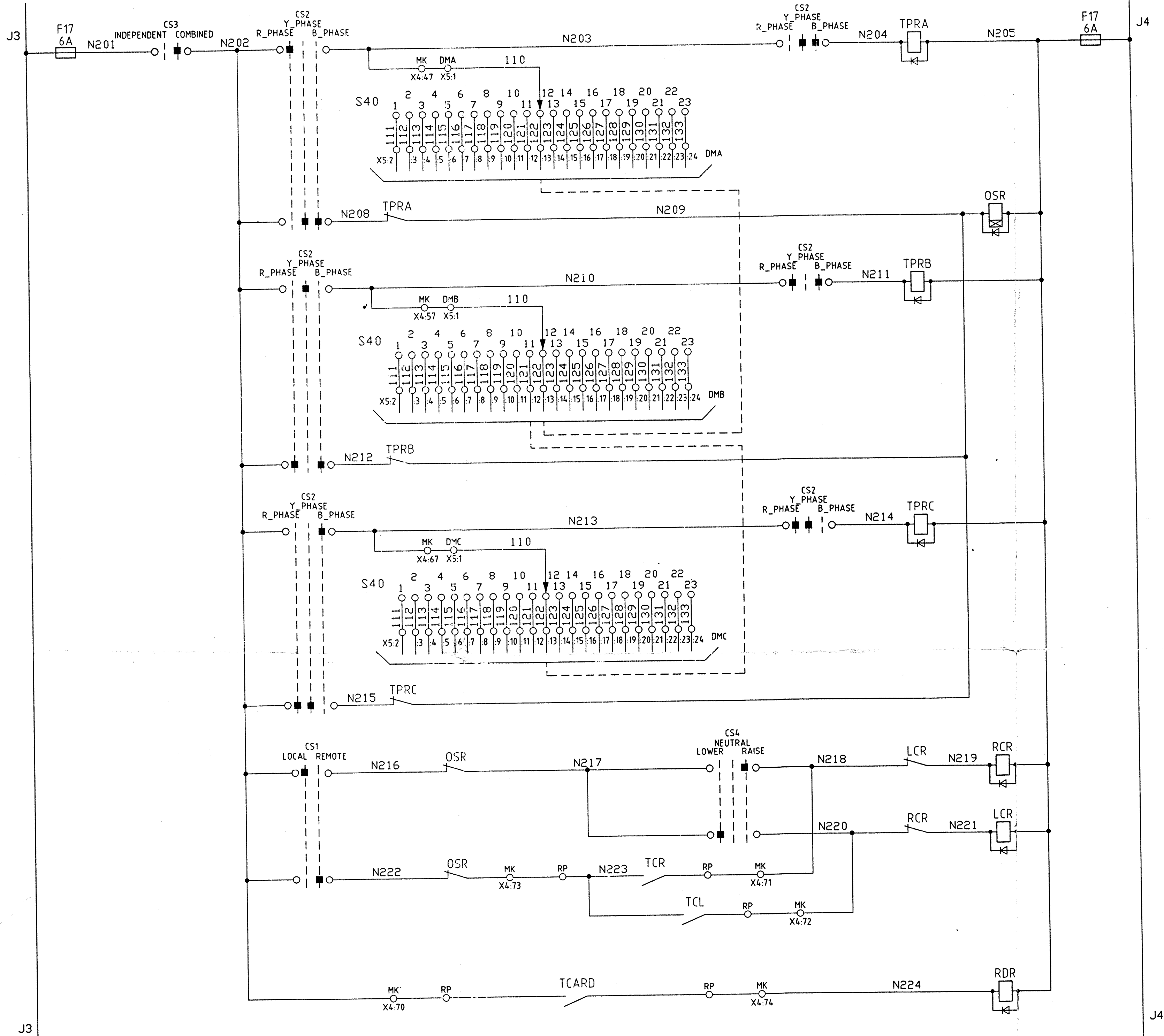
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
- CD FOR COOLER MOTORS 80CL03092
- CD FOR COOLER CONTROL 80CL03093
- CD FOR HEATERS/LIGHTING 80CL03094
- CD FOR INDICATIONS 80CL03095
- CD FOR LOCAL ALARMS 80CL03096
- CD FOR ALARMS/TRIPS OUTPUT 80CL03097
- CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
- CD FOR COMBINED TAPCHANGER 80CL03099

FILE REFERENCE - 21A08

IF IN DOUBT - PLEASE ASK !		GEC ALSTHOM	
CATEGORY (01-14)	FIRST CONTRACT NUMBER	TAD	
2	PTD1659/01-06	GEC ALSTHOM LTD TRANSFORMERS LIMITED STAFFORD ENGLAND	
DRAWN	FIRST CUSTOMER		
DE	VISAKHAPATNAM		
CHECKED	TITLE	H VDC CONVERTOR TRANSFORMER CD FOR ALARM AND TRIP OUTPUTS	
JO			
APP'D (E)	KEYWORD	SCALE	DRAWING NUMBER SHEET
GS	C&A SCHEME	N.T.S.	80CL03097 1/1
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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.		LOCKING METHODS	TOLERANCES TO DRG.
FIXINGS TO DRAWING 49SF2097 5-SHEETS		1.5.0 METRIC THREADS TO BS 3643 6.0 6H F11	6.0SF0005
		THIRD ANGLE PROJECTION	

I.D.C. STAMP	A	B
351	FILE REFERENCE ADDED AS REQUESTED.	
15TH MAY 1996		

220V DC SUPPLY FROM DRAWING 80CL03096



220V DC SUPPLY TO DRAWING 80CL03098

THESE CIRCUITS ARE SHOWN FOR ONE THREE PHASE SET OF TRANSFORMERS.

REFERENCE	DESCRIPTION
CS1	TAPCHANGER CONTROL SELECTOR SWITCH LOCAL - REMOTE
CS2	TAPCHANGER MASTER SELECTOR SWITCH R PHASE - Y PHASE - B PHASE
CS3	CONTROL SELECTOR SWITCH INDEPENDENT - COMBINED
CS4	CONTROL SWITCH LOWER VOLTS - NEUTRAL - RAISE VOLTS
F17	FUSES 6AMP
LCR	LOWER VOLTS COMBINED CONTROL RELAY
OSR	OUT OF STEP RELAY
RCR	RAISE VOLTS COMBINED CONTROL RELAY
RDR	RUNDOWN RELAY
S40	TAPCHANGER POSITION MONITORING SWITCH
TCARD	TAPCHANGER AUTOMATIC RUNDOWN RELAY
TCL	TAPCHANGER LOWER VOLTS REMOTE CONTROL RELAY
TCR	TAPCHANGER RAISE VOLTS REMOTE CONTROL RELAY
TPR	TAPCHANGER POSITION MONITORING RELAY

NOTES

- ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION.
- MKA DENOTES TERMINAL IN TRANSFORMER MARSHALLING (RED PHASE)
 - DMA DENOTES TERMINAL IN TRANSFORMER TAPCHANGER DRIVE MECHANISM HOUSING (RED PHASE)
 - DMB DENOTES TERMINAL IN TRANSFORMER TAPCHANGER DRIVE MECHANISM HOUSING (YELLOW PHASE)
 - DMC DENOTES TERMINAL IN TRANSFORMER TAPCHANGER DRIVE MECHANISM HOUSING (BLUE PHASE)
 - RP DENOTES TERMINAL AT REMOTE CONTROL POINT
- OPERATION IN RAISE DIRECTION WILL INCREASE LV VOLTS.
OPERATION IN LOWER DIRECTION WILL DECREASE LV VOLTS.

GEC ALSTHOM T&D POWER ELECTRONIC SYSTEMS LTD	
APPROVED	<input checked="" type="checkbox"/>
APPROVED WITH COMMENTS	
NOT APPROVED	
SIGNED: HWM	DATE: 11/2/96

- ASSOCIATED DIAGRAMS
- CD FOR SUPPLY AUTOCHANGEOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
 - CD FOR COOLER CONTROL 80CL03093
 - CD FOR HEATERS/LIGHTING 80CL03094
 - CD FOR INDICATIONS 80CL03095
 - CD FOR LOCAL ALARMS 80CL03096
 - CD FOR ALARMS/TRIPS OUTPUT 80CL03097
 - CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 - CD FOR COMBINED TAPCHANGER 80CL03099

FILE REFERENCE - 21A10

IF IN DOUBT - PLEASE ASK!

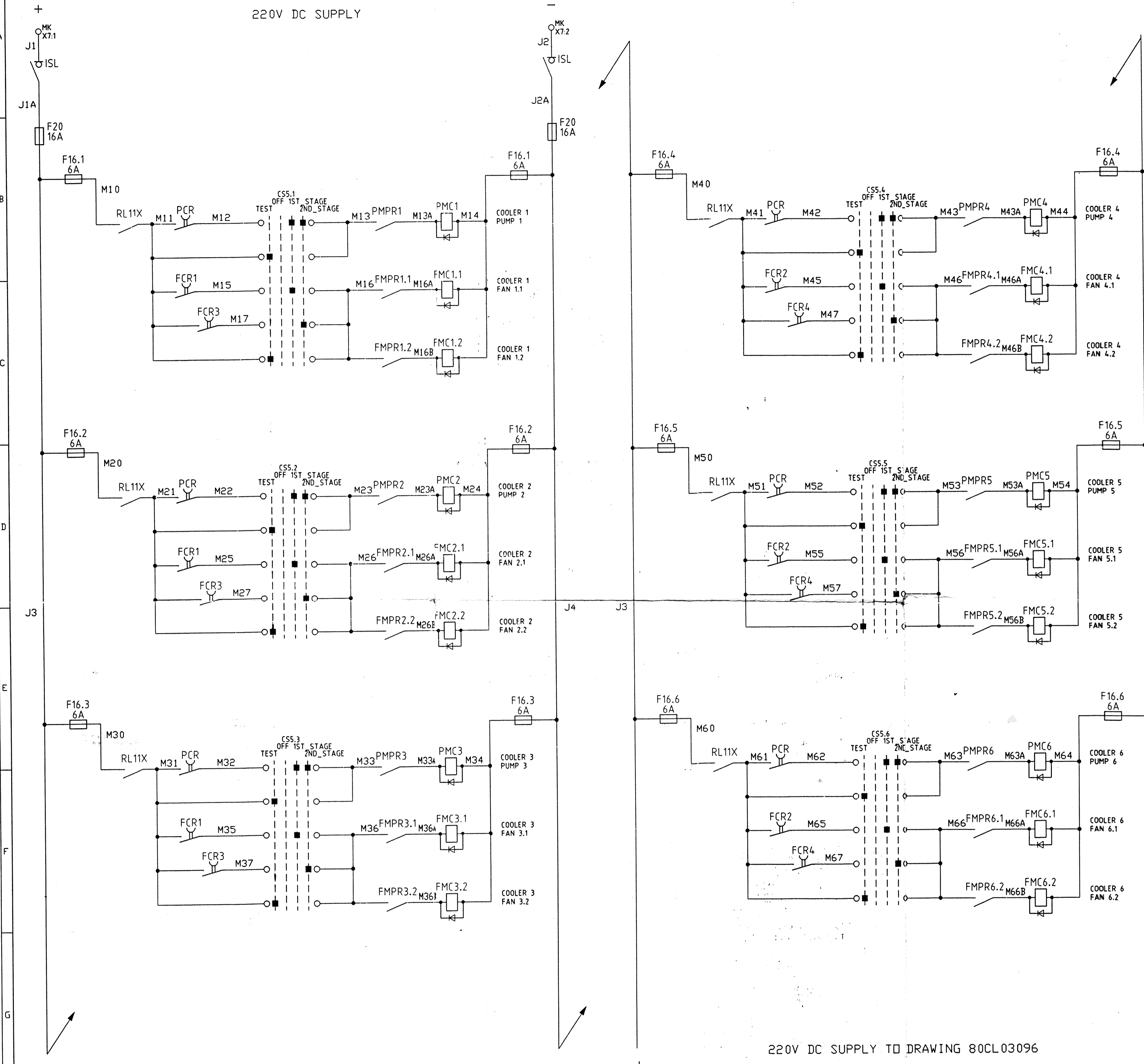
CATEGORY (GT. 14)	FIRST CONTRACT NUMBER	GEC ALSTHOM T&D GEC ALSTHOM T&D TRANSFORMERS LIMITED STAFFORD ENGLAND
2	PTD1659/01-06	
DRAWN DE	FIRST CUSTOMER	TITLE HVDC CONVERTOR TRANSFORMER CD FOR COMBINED TAPCHANGER CONTROL
CHECKED JD	VISAKHAPATNAM	
APP'D (E) GS	KEYWORD	SCALE N.T.S.
PASSED/APP'D PV	C&A SCHEME	DRAWING NUMBER 80CL03099 SHEET 1/1

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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED. LOCKING METHODS & FIXINGS TO DRAWING 4952097 5-SHEETS. I.S.O METRIC THREADS TO BS 3643 60 6H FIT. TOLERANCES TO DRG. 60370005 THIRD ANGLE PROJECTION.

I.D.C. STAMP	A	B
REVISION RECORD	DATE 15TH MAY 1996	FILE REFERENCE ADDED AS REQUESTED.

220V DC SUPPLY



220V DC SUPPLY TO DRAWING 80CL03096

REFERENCE	DESCRIPTION
CS5.1	COOLER 1 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE
CS5.2	COOLER 2 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE
CS5.3	COOLER 3 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE
CS5.4	COOLER 4 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE
CS5.5	COOLER 5 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE
CS5.6	COOLER 6 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE
F16.1	COOLER 1 CONTROL CIRCUIT FUSES 6AMP
F16.2	COOLER 2 CONTROL CIRCUIT FUSES 6AMP
F16.3	COOLER 3 CONTROL CIRCUIT FUSES 6AMP
F16.4	COOLER 4 CONTROL CIRCUIT FUSES 6AMP
F16.5	COOLER 5 CONTROL CIRCUIT FUSES 6AMP
F16.6	COOLER 6 CONTROL CIRCUIT FUSES 6AMP
F20	DC SUPPLY FUSES 16AMP
FCR1	FAN CONTROL RELAY 1ST STAGE COOLING
FCR2	FAN CONTROL RELAY 1ST STAGE COOLING
FCR3	FAN CONTROL RELAY 2ND STAGE COOLING
FCR4	FAN CONTROL RELAY 2ND STAGE COOLING
FMC1.1 FMC1.2	COOLER 1 FAN MOTOR CONTACTORS
FMC2.1 FMC2.2	COOLER 2 FAN MOTOR CONTACTORS
FMC3.1 FMC3.2	COOLER 3 FAN MOTOR CONTACTORS
FMC4.1 FMC4.2	COOLER 4 FAN MOTOR CONTACTORS
FMC5.1 FMC5.2	COOLER 5 FAN MOTOR CONTACTORS
FMC6.1 FMC6.2	COOLER 6 FAN MOTOR CONTACTORS
FMPR1.1 FMPR1.2	COOLER 1 FAN MOTOR PROTECTION RELAYS
FMPR2.1 FMPR2.2	COOLER 2 FAN MOTOR PROTECTION RELAYS
FMPR3.1 FMPR3.2	COOLER 3 FAN MOTOR PROTECTION RELAYS
FMPR4.1 FMPR4.2	COOLER 4 FAN MOTOR PROTECTION RELAYS
FMPR5.1 FMPR5.2	COOLER 5 FAN MOTOR PROTECTION RELAYS
FMPR6.1 FMPR6.2	COOLER 6 FAN MOTOR PROTECTION RELAYS
ISL	ISOLATOR
PCR	PUMP CONTROL RELAY
PMC1	COOLER 1 PUMP MOTOR CONTACTOR
PMC2	COOLER 2 PUMP MOTOR CONTACTOR
PMC3	COOLER 3 PUMP MOTOR CONTACTOR
PMC4	COOLER 4 PUMP MOTOR CONTACTOR
PMC5	COOLER 5 PUMP MOTOR CONTACTOR
PMC6	COOLER 6 PUMP MOTOR CONTACTOR
PMPR1	COOLER 1 PUMP MOTOR PROTECTION RELAY
PMPR2	COOLER 2 PUMP MOTOR PROTECTION RELAY
PMPR3	COOLER 3 PUMP MOTOR PROTECTION RELAY
PMPR4	COOLER 4 PUMP MOTOR PROTECTION RELAY
PMPR5	COOLER 5 PUMP MOTOR PROTECTION RELAY
PMPR6	COOLER 6 PUMP MOTOR PROTECTION RELAY
RL11X	COOLING DISABLED AUXILIARY RELAY

- NOTES**
- ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
 - MK DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
 - FOR THE TIME DELAY SETTINGS OF RELAYS PCR AND FCR SEE THE MAINTENANCE AND COMMISSIONING INSTRUCTIONS.

DESIGNED	✓
CHECKED	✓
APPROVED	✓
SIGNED: HNM	DATE: 17/3/96

- ASSOCIATED DIAGRAMS**
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
 - CD FOR COOLER CONTROL 80CL03093
 - CD FOR HEATERS/LIGHTING 80CL03094
 - CD FOR INDICATIONS 80CL03095
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 - CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 - CD FOR COMBINED TAPCHANGER 80CL03099

ISSUE	1
DATE	15TH MAY 1996
REVISION	AS REQUESTED

FILE REFERENCE - 21A07

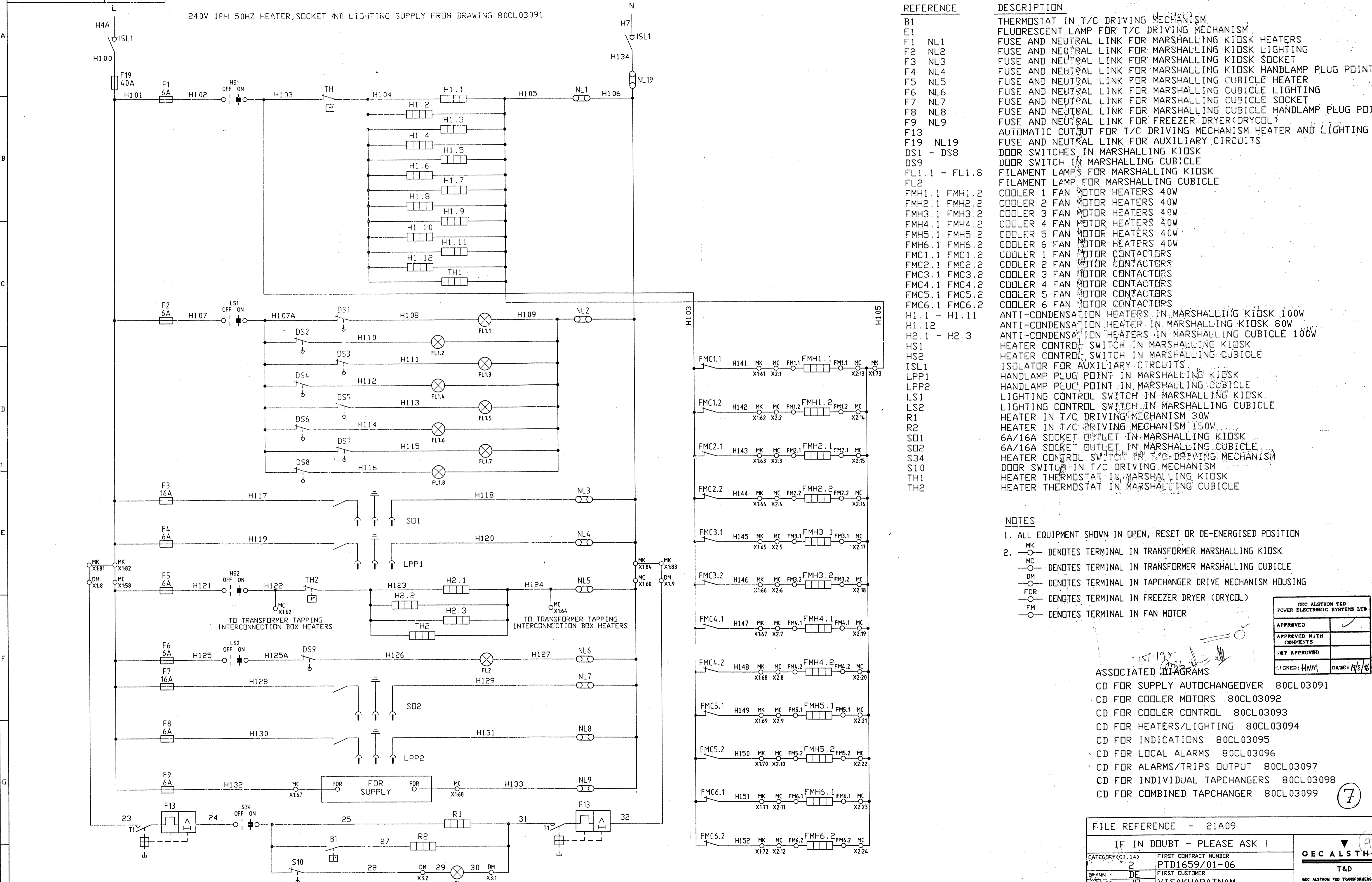
IF IN DOUBT - PLEASE ASK !

EXTENDRY (01-14)	FIRST CONTRACT NUMBER	GEC ALSTHOM T&D
2	PTD1659/01-06	
REGION DE	FIRST CUSTOMER	GEC ALSTHOM T&D TRANSFORMERS LIMITED STAFFORD ENGLAND
CHECKED JU	VISAKHAPATNAM	
APPROVED GS	TITLE HVDC CONVERTOR TRANSFORMER CD FOR COOLER CONTROL	
PASSED/APP'D PV	KEYWORD C&A SCHEME	DRAWING NUMBER 80CL03093
	SCALE N.T.S. (DO NOT SCALE PRINT)	SHEET 1/1

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ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED. LOCKING METHODS & FIXINGS TO DRAWING 49572097 5-SHEETS. I.S.O METRIC THREADS TO BS 3643 6g 6H FIT. TOLERANCES TO IRO: 60SF00/25. THIRD ANGLE PROJECTION.

240V 1PH 50HZ HEATER, SOCKET AND LIGHTING SUPPLY FROM DRAWING 80CL03091



REFERENCE	DESCRIPTION
B1	THERMOSTAT IN T/C DRIVING MECHANISM
E1	FLUORESCENT LAMP FOR T/C DRIVING MECHANISM
F1 NL1	FUSE AND NEUTRAL LINK FOR MARSHALLING KIOSK HEATERS
F2 NL2	FUSE AND NEUTRAL LINK FOR MARSHALLING KIOSK LIGHTING
F3 NL3	FUSE AND NEUTRAL LINK FOR MARSHALLING KIOSK SOCKET
F4 NL4	FUSE AND NEUTRAL LINK FOR MARSHALLING KIOSK HANDLAMP PLUG POINT
F5 NL5	FUSE AND NEUTRAL LINK FOR MARSHALLING CUBICLE HEATER
F6 NL6	FUSE AND NEUTRAL LINK FOR MARSHALLING CUBICLE LIGHTING
F7 NL7	FUSE AND NEUTRAL LINK FOR MARSHALLING CUBICLE SOCKET
F8 NL8	FUSE AND NEUTRAL LINK FOR MARSHALLING CUBICLE HANDLAMP PLUG POINT
F9 NL9	FUSE AND NEUTRAL LINK FOR FREEZER DRYER (DRYCOL)
F13	AUTOMATIC CUTOUT FOR T/C DRIVING MECHANISM HEATER AND LIGHTING
F19 NL19	FUSE AND NEUTRAL LINK FOR AUXILIARY CIRCUITS
DS1 - DS8	DOOR SWITCHES IN MARSHALLING KIOSK
DS9	DOOR SWITCH IN MARSHALLING CUBICLE
FL1.1 - FL1.8	FILAMENT LAMPS FOR MARSHALLING KIOSK
FL2	FILAMENT LAMP FOR MARSHALLING CUBICLE
FMH1.1 FMH1.2	COOLER 1 FAN MOTOR HEATERS 40W
FMH2.1 FMH2.2	COOLER 2 FAN MOTOR HEATERS 40W
FMH3.1 FMH3.2	COOLER 3 FAN MOTOR HEATERS 40W
FMH4.1 FMH4.2	COOLER 4 FAN MOTOR HEATERS 40W
FMH5.1 FMH5.2	COOLER 5 FAN MOTOR HEATERS 40W
FMH6.1 FMH6.2	COOLER 6 FAN MOTOR HEATERS 40W
FMC1.1 FMC1.2	COOLER 1 FAN MOTOR CONTACTORS
FMC2.1 FMC2.2	COOLER 2 FAN MOTOR CONTACTORS
FMC3.1 FMC3.2	COOLER 3 FAN MOTOR CONTACTORS
FMC4.1 FMC4.2	COOLER 4 FAN MOTOR CONTACTORS
FMC5.1 FMC5.2	COOLER 5 FAN MOTOR CONTACTORS
FMC6.1 FMC6.2	COOLER 6 FAN MOTOR CONTACTORS
H1.1 - H1.11	ANTI-CONDENSATION HEATERS IN MARSHALLING KIOSK 100W
H1.12	ANTI-CONDENSATION HEATER IN MARSHALLING KIOSK 80W
H2.1 - H2.3	ANTI-CONDENSATION HEATERS IN MARSHALLING CUBICLE 100W
HS1	HEATER CONTROL SWITCH IN MARSHALLING KIOSK
HS2	HEATER CONTROL SWITCH IN MARSHALLING CUBICLE
ISL1	ISOLATOR FOR AUXILIARY CIRCUITS
LPP1	HANDLAMP PLUG POINT IN MARSHALLING KIOSK
LPP2	HANDLAMP PLUG POINT IN MARSHALLING CUBICLE
LS1	LIGHTING CONTROL SWITCH IN MARSHALLING KIOSK
LS2	LIGHTING CONTROL SWITCH IN MARSHALLING CUBICLE
R1	HEATER IN T/C DRIVING MECHANISM 30W
R2	HEATER IN T/C DRIVING MECHANISM 150W
SD1	6A/16A SOCKET OUTLET IN MARSHALLING KIOSK
SD2	6A/16A SOCKET OUTLET IN MARSHALLING CUBICLE
S34	HEATER CONTROL SWITCH IN T/C DRIVING MECHANISM
S10	DOOR SWITCH IN T/C DRIVING MECHANISM
TH1	HEATER THERMOSTAT IN MARSHALLING KIOSK
TH2	HEATER THERMOSTAT IN MARSHALLING CUBICLE

- NOTES**
- ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
 - MK - DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
 - MC - DENOTES TERMINAL IN TRANSFORMER MARSHALLING CUBICLE
 - DM - DENOTES TERMINAL IN TAPCHANGER DRIVE MECHANISM HOUSING
 - FDR - DENOTES TERMINAL IN FREEZER DRYER (DRYCOL)
 - FM - DENOTES TERMINAL IN FAN MOTOR

- ASSOCIATED DIAGRAMS**
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
 - CD FOR COOLER CONTROL 80CL03093
 - CD FOR HEATERS/LIGHTING 80CL03094
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 - CD FOR COMBINED TAPCHANGER 80CL03099

GEC ALSTHOM T&D POWER ELECTRONIC SYSTEMS LTD	
APPROVED	<input checked="" type="checkbox"/>
APPROVED WITH COMMENTS	<input type="checkbox"/>
NOT APPROVED	<input type="checkbox"/>
DESIGNED: HNM	DATE: 11/8/96

FILE REFERENCE - 21A09

IF IN DOUBT - PLEASE ASK !

CATEGORY: 14	FIRST CONTRACT NUMBER: PTD1659/01-06
DRAWN: DE	FIRST CUSTOMER: VISAKHAPATNAM
CHECKED: JU	TITLE: HVDC CONVERTOR TRANSFORMER CD FOR HEATERS, SOCKETS AND LIGHTING
APPROVED: GS	KEYWORD: C&A SCHEME
SCALE: N.T.S.	DRAWING NUMBER: 80CL03094
SHEET: 1/1	

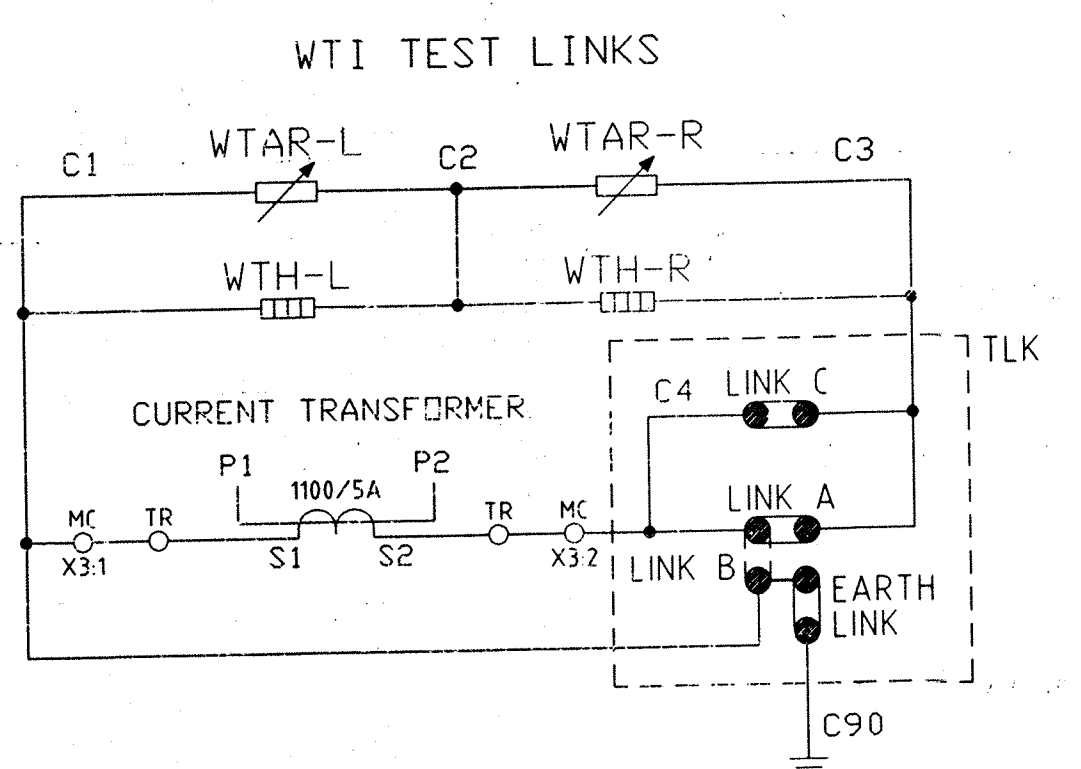
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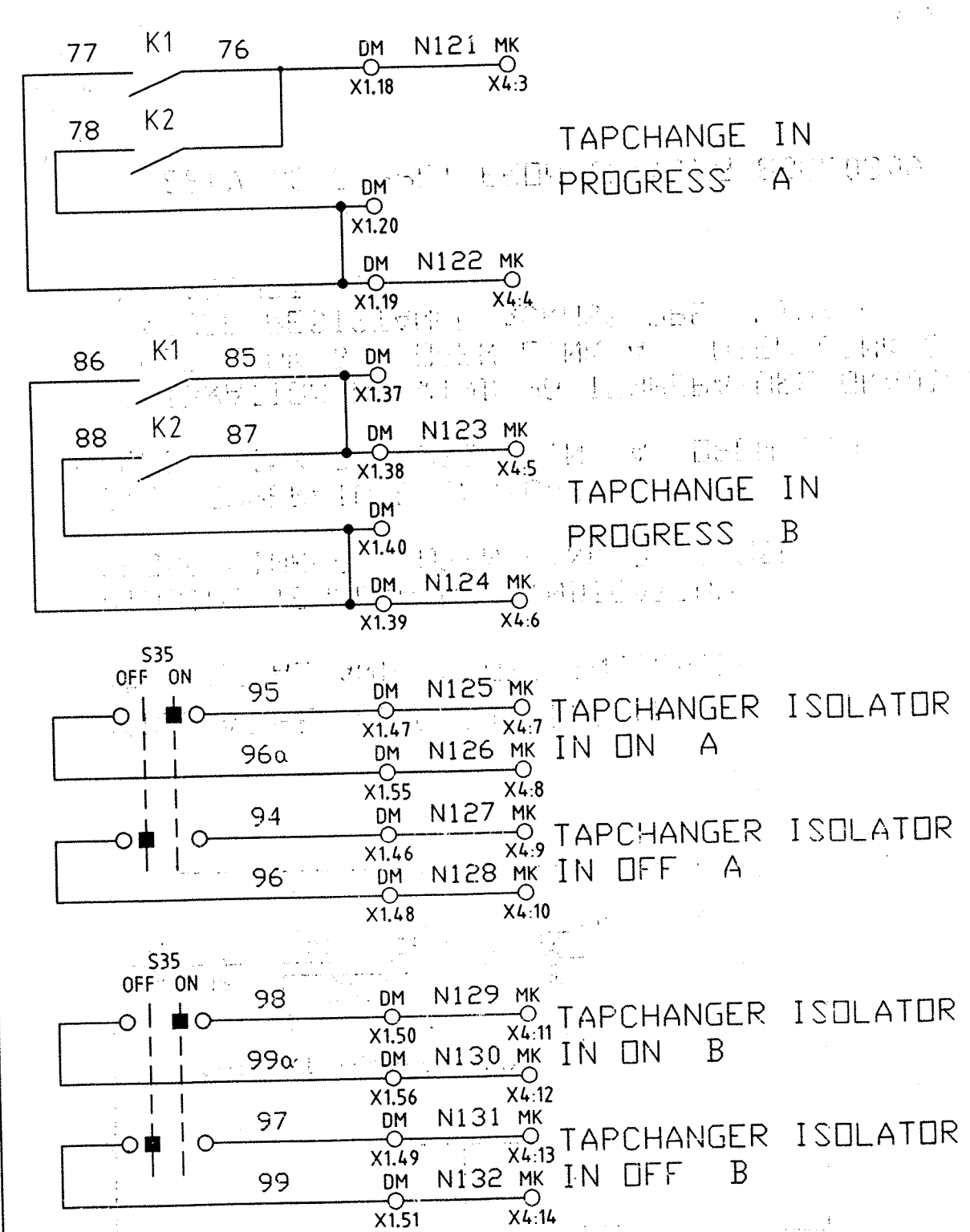
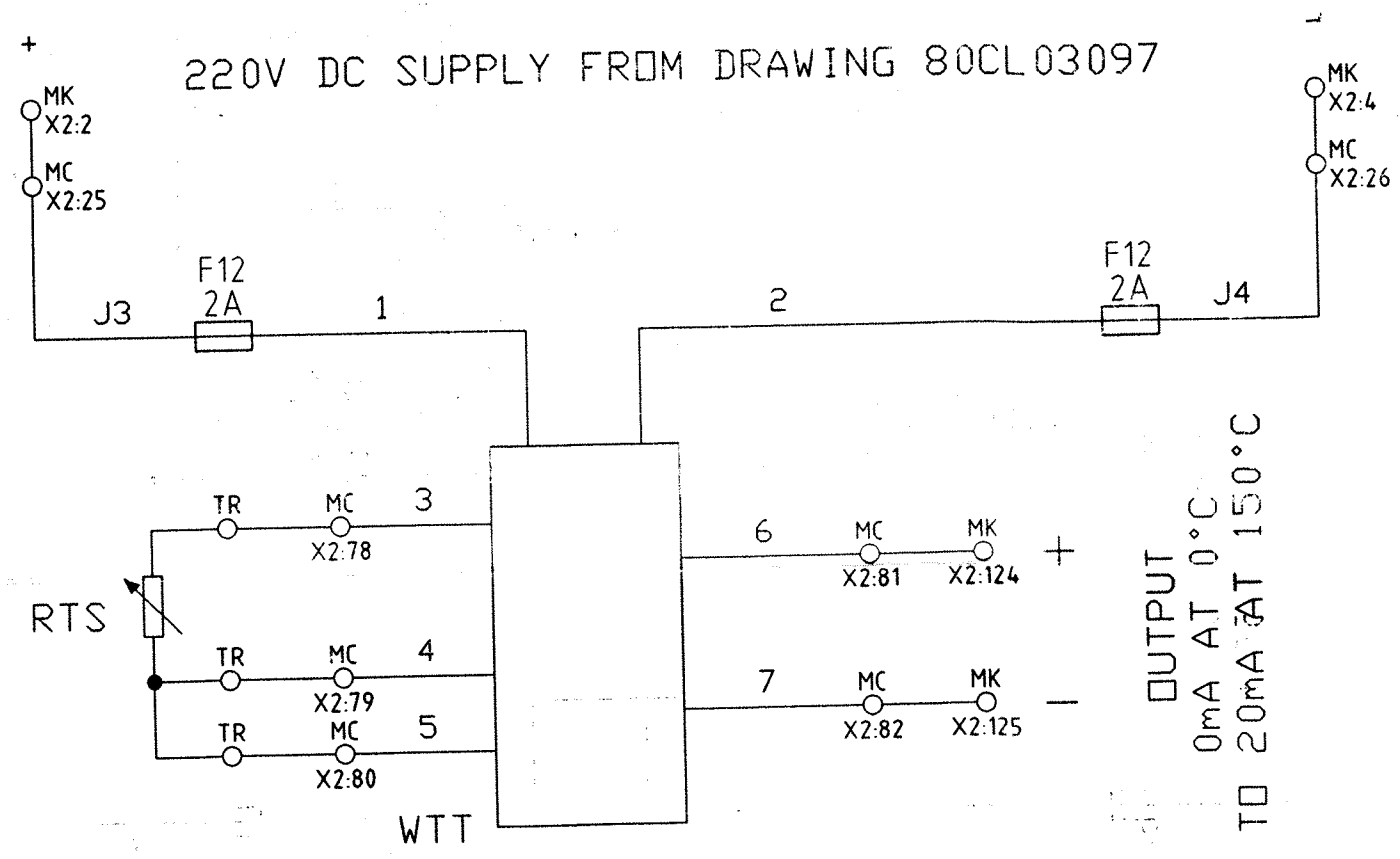
I.D.C. STAMP

DATE: 15TH MAY 1996
REVISION RECORD
FILE REFERENCE ADDED AS REQUESTED

220V DC SUPPLY FROM DRAWING 80CL03097



TEMPERATURE INDICATOR TEST LINKS (FOR LOCAL AND REMOTE INDICATORS)
 WINDING TEMPERATURE INDICATION CLOSE LINK C OPEN LINK B CLOSE LINK A
 OIL TEMPERATURE INDICATION CLOSE LINK B OPEN LINK A OPEN LINK C
 CALIBRATION OF WINDING TEMPERATURE GRADIENT CLOSE LINK B OPEN LINK A OPEN LINK C MEASURE RESISTANCE ACROSS OPEN LINK C AND ADJUST WTAR

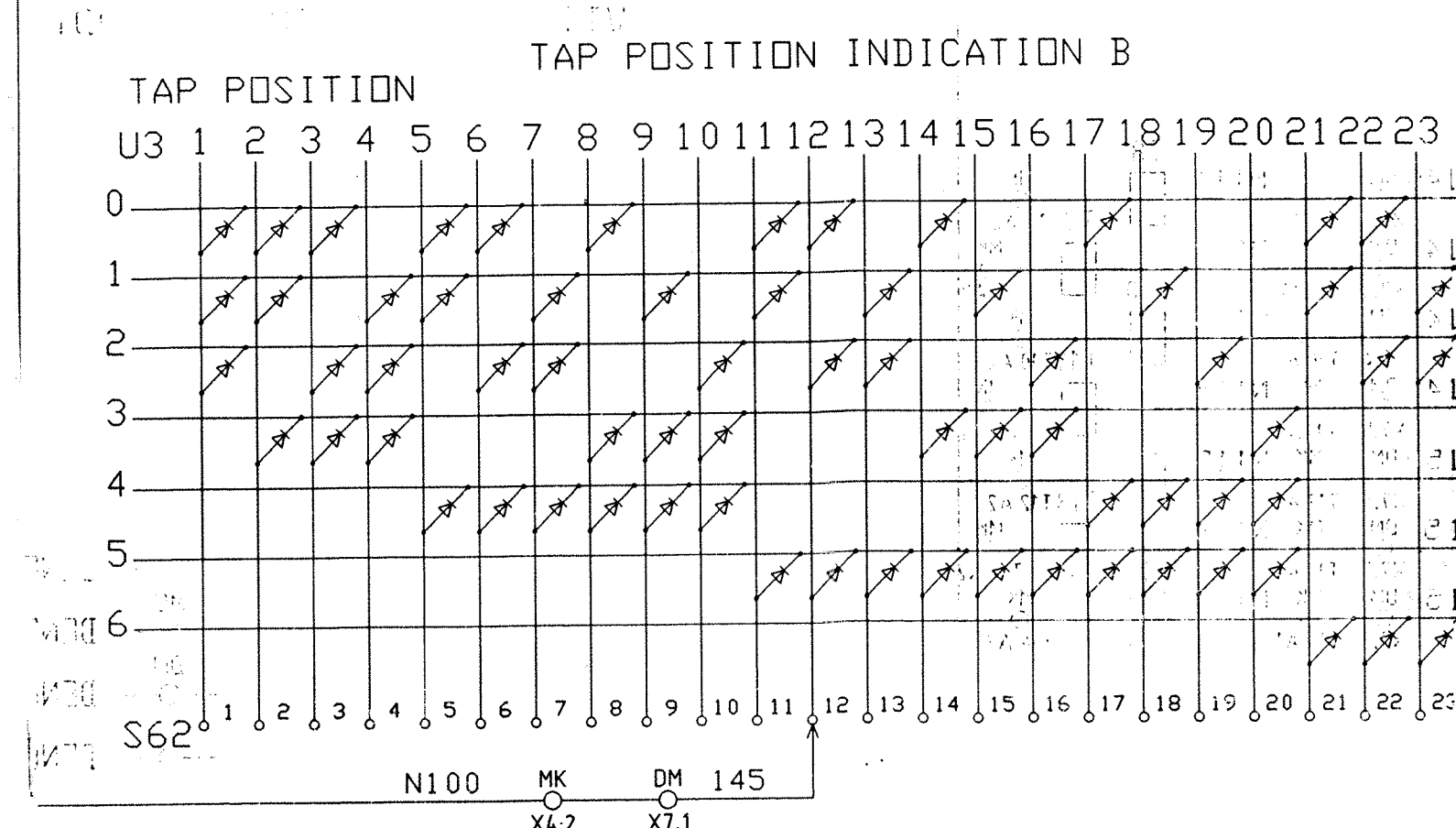
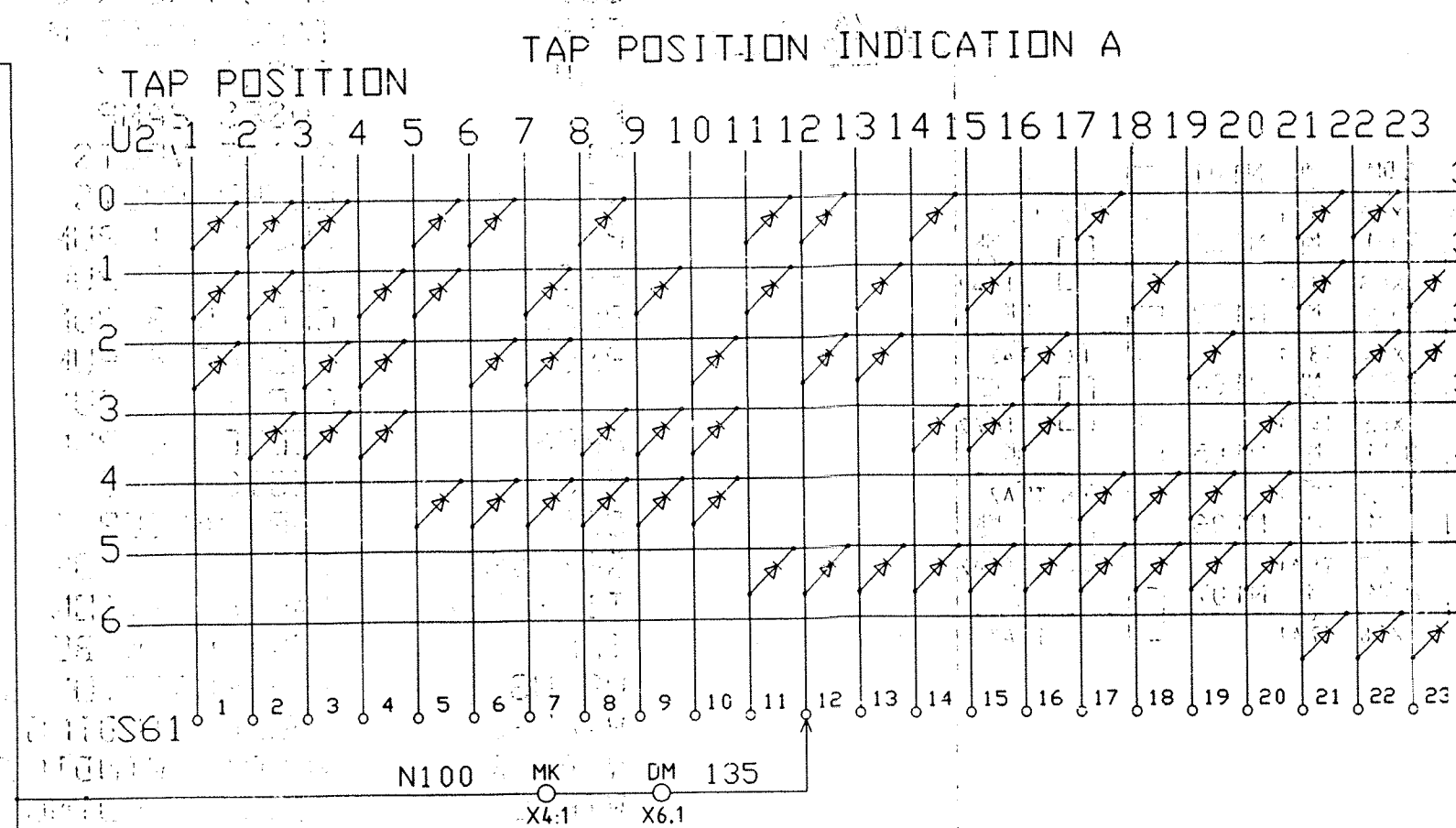


I.D.C. STAMP

ISSUED	DATE
15TH	MAY 1996

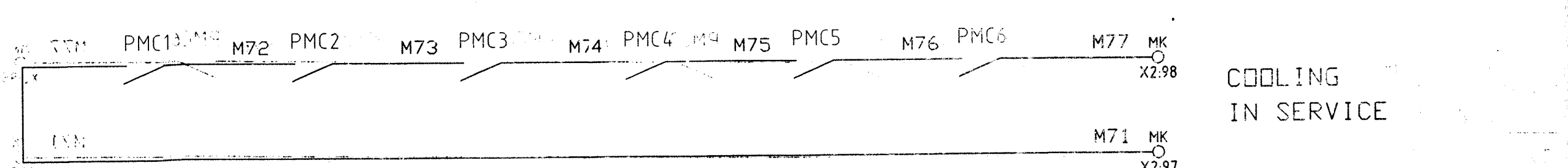
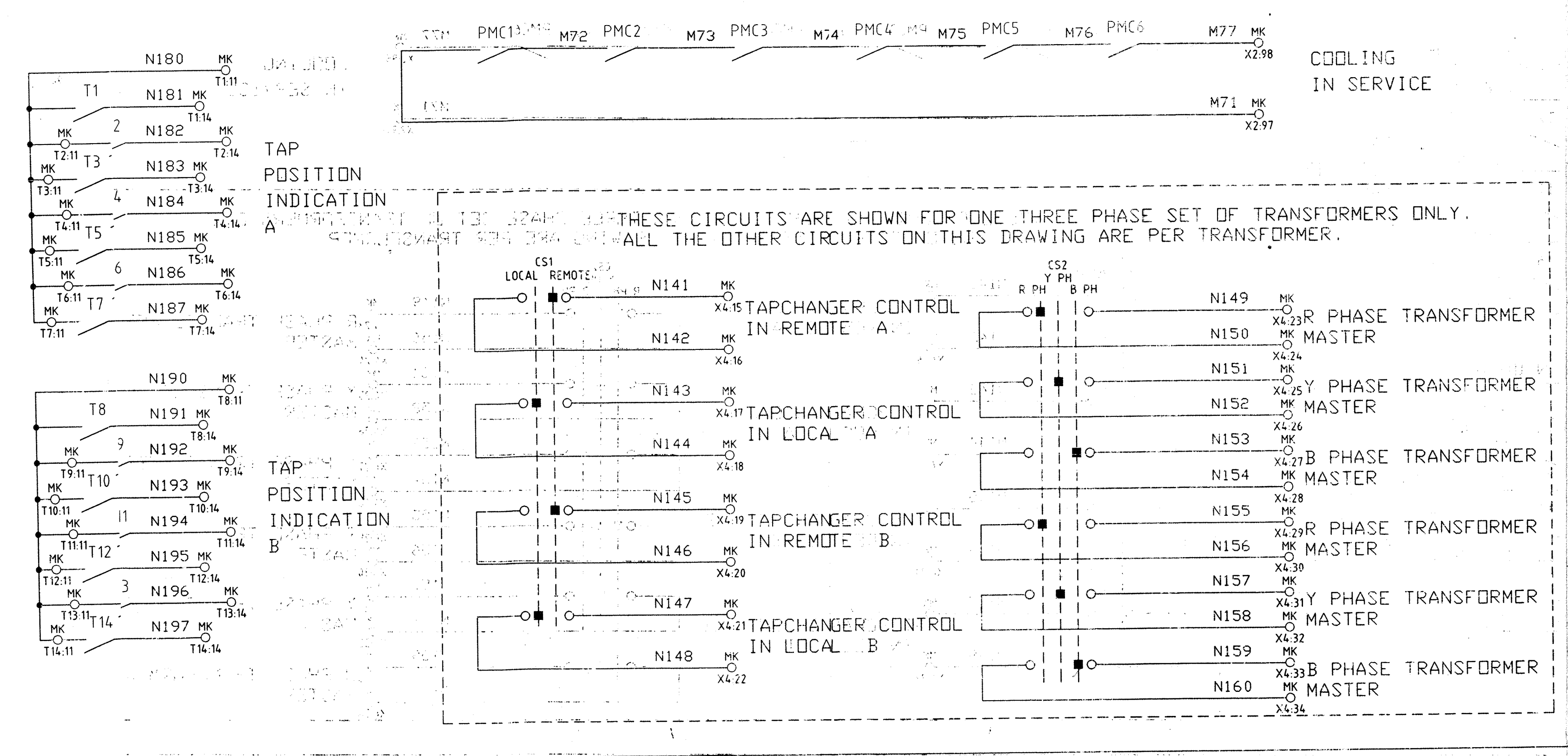
REVISION RECORD

NO.	DESCRIPTION
1	FILE REFERENCE ADDED AS REQUESTED.



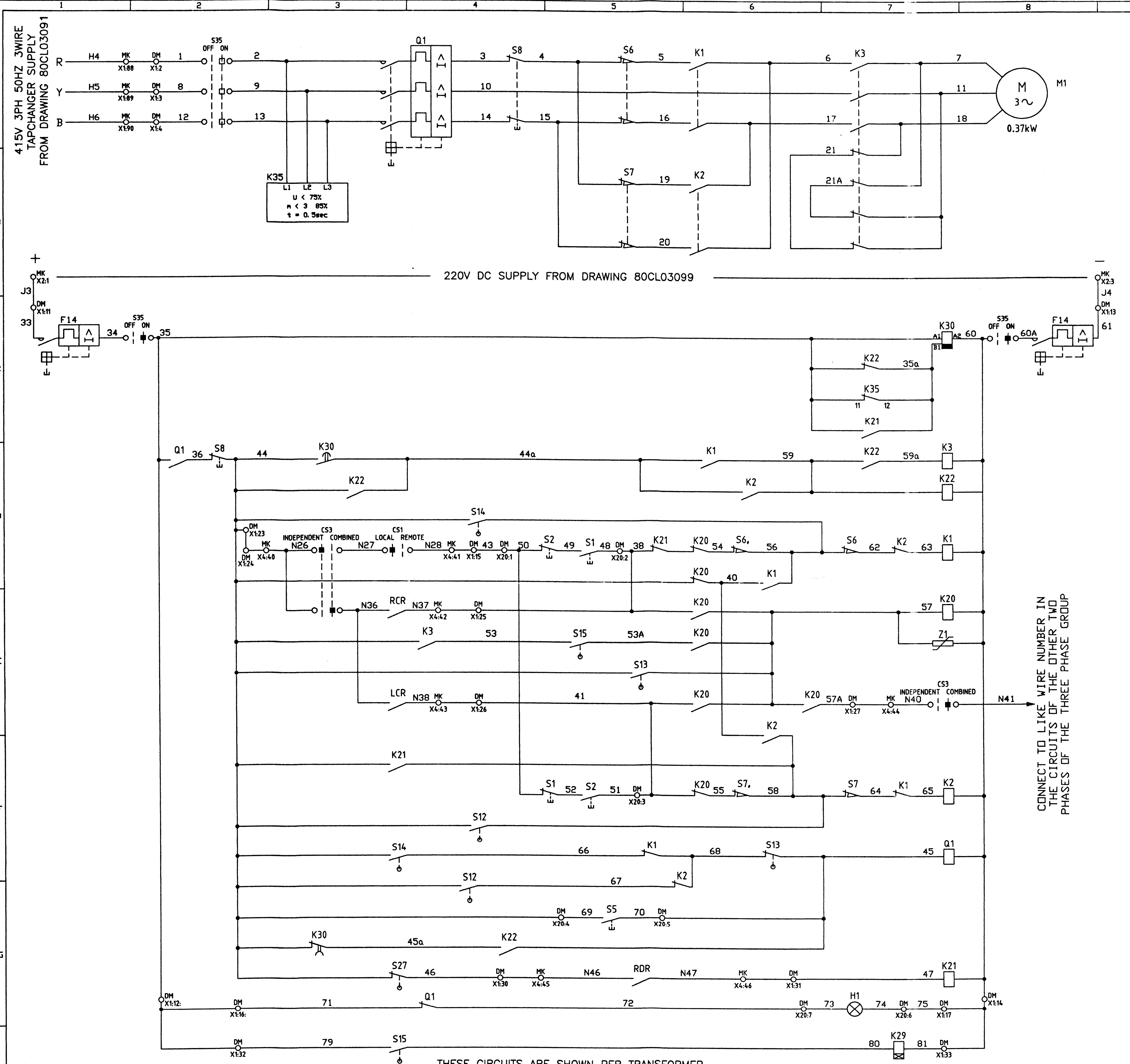
REFERENCE	DESCRIPTION
CS1	TAPCHANGER CONTROL SELECTOR SWITCH LOCAL - REMOTE
CS2	TAPCHANGER MASTER SELECTOR SWITCH R PHASE - Y PHASE - B PHASE
F10	FUSES 2AMP
F12	FUSES 2AMP
K1	RAISE VOLTS MOTOR CONTACTOR
K2	LOWER VOLTS MOTOR CONTACTOR
PMC1	COOLER 1 PUMP MOTOR CONTACTOR
PMC2	COOLER 2 PUMP MOTOR CONTACTOR
PMC3	COOLER 3 PUMP MOTOR CONTACTOR
PMC4	COOLER 4 PUMP MOTOR CONTACTOR
PMCS	COOLER 5 PUMP MOTOR CONTACTOR
PMC6	COOLER 6 PUMP MOTOR CONTACTOR
RTS	RESISTANCE TEMPERATURE SENSOR
S35	TAPCHANGER ISOLATOR
S61 S62	TAP POSITION INDICATOR SWITCH
T1 - T14	TAP POSITION INDICATOR RELAYS
TLK	TEST LINK BOARD FOR WINDING TEMPERATURE INDICATORS
U2 U3	TAP POSITION INDICATOR COOLER
WTAR-L	LOCAL WINDING TEMPERATURE INDICATOR (ADJUSTING RESISTOR)
WTAR-R	REMOTE WINDING TEMPERATURE INDICATOR (ADJUSTING RESISTOR)
WTH-L	LOCAL WINDING TEMPERATURE INDICATOR (HEATER)
WTH-R	REMOTE WINDING TEMPERATURE INDICATOR (HEATER)
WTT	REMOTE WINDING TEMPERATURE INDICATOR TRANSDUCER

MK DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
 MC DENOTES TERMINAL IN TRANSFORMER MARSHALLING CUBICLE
 DM DENOTES TERMINAL IN TAPCHANGER DRIVE MECHANISM HOUSING
 TR DENOTES TERMINAL IN TRANSFORMER AUXILIARY FITTINGS



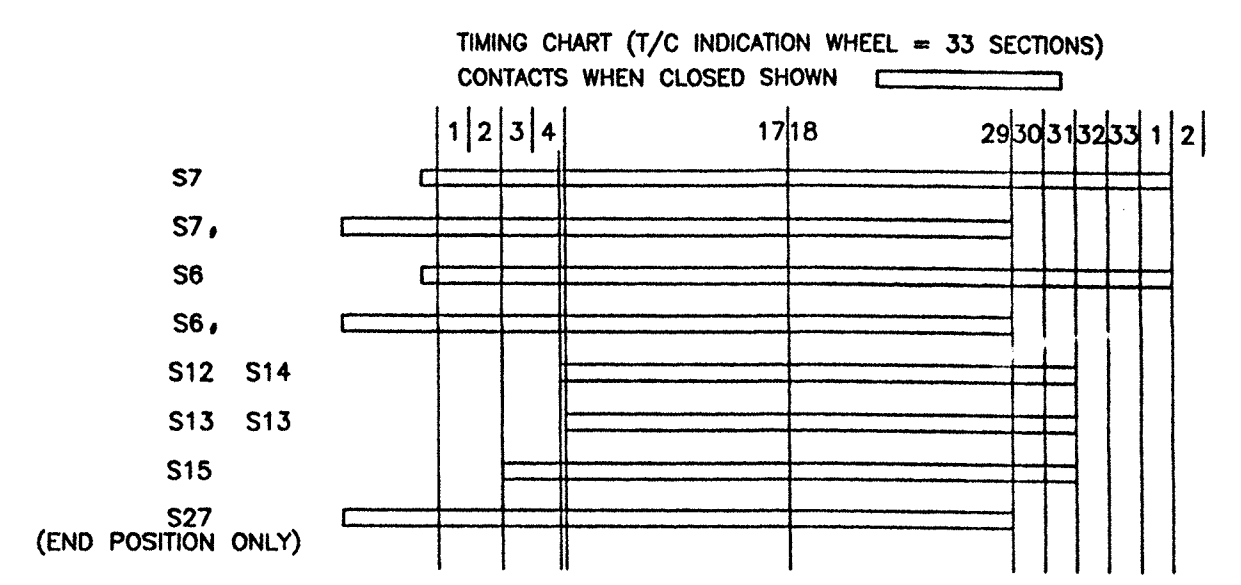
- ASSOCIATED DIAGRAMS
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
 - CD FOR COOLER CONTROL 80CL03093
 - CD FOR HEATERS/LIGHTING 80CL03094
 - CD FOR INDICATIONS 80CL03095
 - CD FOR LOCAL ALARMS 80CL03096
 - CD FOR ALARMS/TRIPS OUTPUT 80CL03097
 - CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 - CD FOR COMBINED TAPCHANGER 80CL03099

FILE REFERENCE - 21A03		IF IN DOUBT - PLEASE ASK !	
CATEGORY (G1.14)	FIRST CONTRACT NUMBER	GEC ALSTHOM	
2	PTD1659/01-06	T&D	
DRAWN DE	FIRST CUSTOMER	GEC ALSTHOM T&D TRANSFORMERS LIMITED	
CHECKED JO	VISAKHAPATNAM	STAFFORD ENGLAND	
APP'D (E) GS	TITLE HVDC CONVERTOR TRANSFORMER CD FOR INDICATIONS	DRAWING NUMBER 80CL03095 SHEET 1/1	
PASSED/APP'D PV	KEYWORD C&A SCHEME	SCALE N.T.S. (DO NOT SCALE PRINT)	1994
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED		LOCKING METHODS & FIXINGS TO DRAWING 495F30997-5-SHEETS	TOLERANCES TO DRG. 60SF00025
I.S.O. METRIC THREADS TO BS 3643 60 6H FIT		THIRD ANGLE PROJECTION	



REFERENCE	DESCRIPTION
CS1	TAPCHANGER CONTROL SELECTOR SWITCH LOCAL - REMOTE
CS3	CONTROL SELECTOR SWITCH INDEPENDENT - COMBINED
F14	CONTROL CIRCUIT PROTECTIVE CUTOFF
H1	LAMP-MOTOR CIRCUIT BREAKER OFF
K1	RAISE VOLTS MOTOR CONTACTOR
K2	LOWER VOLTS MOTOR CONTACTOR
K3	BRAKE CONTACTOR
K20	STEP BY STEP RELAY
K21	AUTOMATIC RUNDOWN TO MINIMUM VOLTS AUXILIARY RELAY
K22	AUXILIARY RELAY
K29	TAPCHANGE INCOMPLETE RELAY
K30	TIMING RELAY
K35	415V SUPPLY MONITOR RELAY
LCR	LOWER VOLTS REMOTE CONTROL RELAY
M1	MOTOR
Q1	MOTOR PROTECTIVE SWITCH
RDR	RAISE VOLTS REMOTE CONTROL RELAY
RDR	AUTOMATIC RUNDOWN RELAY
S1	RAISE VOLTS PUSHBUTTON
S2	LOWER VOLTS PUSHBUTTON
S5	EMERGENCY OFF PUSHBUTTON
S6, S7	LIMIT SWITCHES FOR K1
S7, S7	LIMIT SWITCHES FOR K2
S8	HANDLE INTERLOCK SAFETY SWITCH
S12	LOWER VOLTS CAM OPERATED SWITCH
S13	RAISE AND LOWER VOLTS CAM OPERATED SWITCH
S14	RAISE VOLTS CAM OPERATED SWITCH
S15	RAISE AND LOWER VOLTS CAM OPERATED SWITCH
S27	LOWER VOLTS TO MINIMUM CAM OPERATED SWITCH
S35	TAPCHANGER ISOLATOR
Z1	VARISTOR

- NOTES**
- ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
 - MK DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
 - DM DENOTES TERMINAL IN TAPCHANGER DRIVE MECHANISM HOUSING
 - OPERATION IN RAISE DIRECTION WILL INCREASE LV VOLTS.
OPERATION IN LOWER DIRECTION WILL DECREASE LV VOLTS.
 - TERMINAL NO.S IN COMMON SECTION OF MARSHALLING KIOSK ARE AS SHOWN FOR RED PHASE ONLY IE IN X4:40 SERIES. FOR YELLOW PHASE USE X4:50 SERIES. FOR BLUE PHASE USE X4:60 SERIES.
 - WIRE NO.S IN COMMON SECTION OF MARSHALLING KIOSK ARE TO BE SUFFIXED WITH THE TRANSFORMER PHASE COLOUR IE 'R' 'Y' 'B' AS APPROPRIATE.



- ASSOCIATED DIAGRAMS**
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
 - CD FOR COOLER CONTROL 80CL03093
 - CD FOR HEATERS/LIGHTING 80CL03094
 - CD FOR INDICATIONS 80CL03095
 - CD FOR LOCAL ALARMS 80CL03096
 - CD FOR ALARMS/TRIPS OUTPUT 80CL03097
 - CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 - CD FOR COMBINED TAPCHANGER 80CL03099

FILE REFERENCE - 21A05		IF IN DOUBT - PLEASE ASK !	
DRAWN DE	FIRST CONTRACT NUMBER PTD1659/01-06	ALSTOM T & D Ltd. Transformers	
CHECKED JO	FIRST CUSTOMER VISAKHAPATNAM		
APP'D G.S.	TITLE HVDC CONVERTOR TRANSFORMER CD FOR INDIVIDUAL TAPCHANGER CONTROL	SCALE DO NOT SCALE - ONLY DIMENSIONS DEFINED CAN BE CONFIRMATORY.	DRAWING NUMBER 80CL03098
PASSED/APP'D PV	KEYWORD C&A SCHEME	SHEET 1/1	
CATEGORY/CD 14 2	FILE NAME	THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER SET OUT HEREIN ARE CONFIDENTIAL AND THE COPYRIGHT OF ALSTOM T & D Ltd. TRANSFORMERS, STAFFORD, ENGLAND AND MUST NOT BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING, ENGINEERING OR ANY OTHER PURPOSE WITHOUT THEIR WRITTEN PERMISSION.	
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.		LOCKING METHODS & FIXING: 2. G.D. METRIC THREADS: TORQUES TO BE USED: 7.5 4957 32097 10-SHEETS AND 49573120 4-SHEETS	

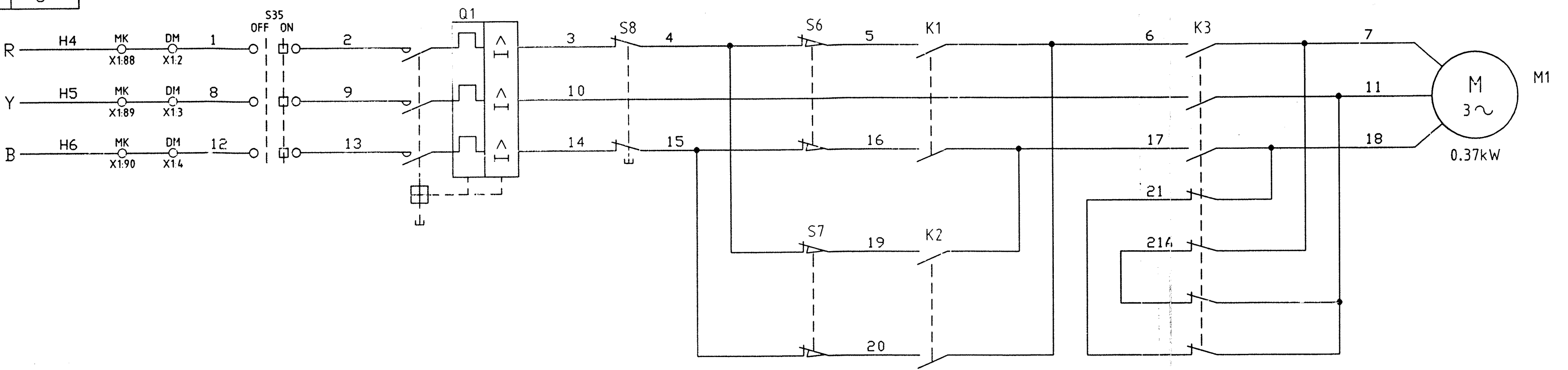
REVISION	DATE	BY	DESCRIPTION
1	15TH MAY 1996	AS BUILT	DRAWING
2	11TH JUL 1996		
3	17TH SEP 1996		
4	15TH MAY 1996		
5	11TH JUL 1996		
6	17TH SEP 1996		
7	15TH MAY 1996		
8	11TH JUL 1996		
9	17TH SEP 1996		
10	15TH MAY 1996		
11	11TH JUL 1996		
12	17TH SEP 1996		
13	15TH MAY 1996		
14	11TH JUL 1996		
15	17TH SEP 1996		
16	15TH MAY 1996		
17	11TH JUL 1996		
18	17TH SEP 1996		
19	15TH MAY 1996		
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22	15TH MAY 1996		
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24	17TH SEP 1996		
25	15TH MAY 1996		
26	11TH JUL 1996		
27	17TH SEP 1996		
28	15TH MAY 1996		
29	11TH JUL 1996		
30	17TH SEP 1996		
31	15TH MAY 1996		
32	11TH JUL 1996		
33	17TH SEP 1996		

THESE CIRCUITS ARE SHOWN PER TRANSFORMER.

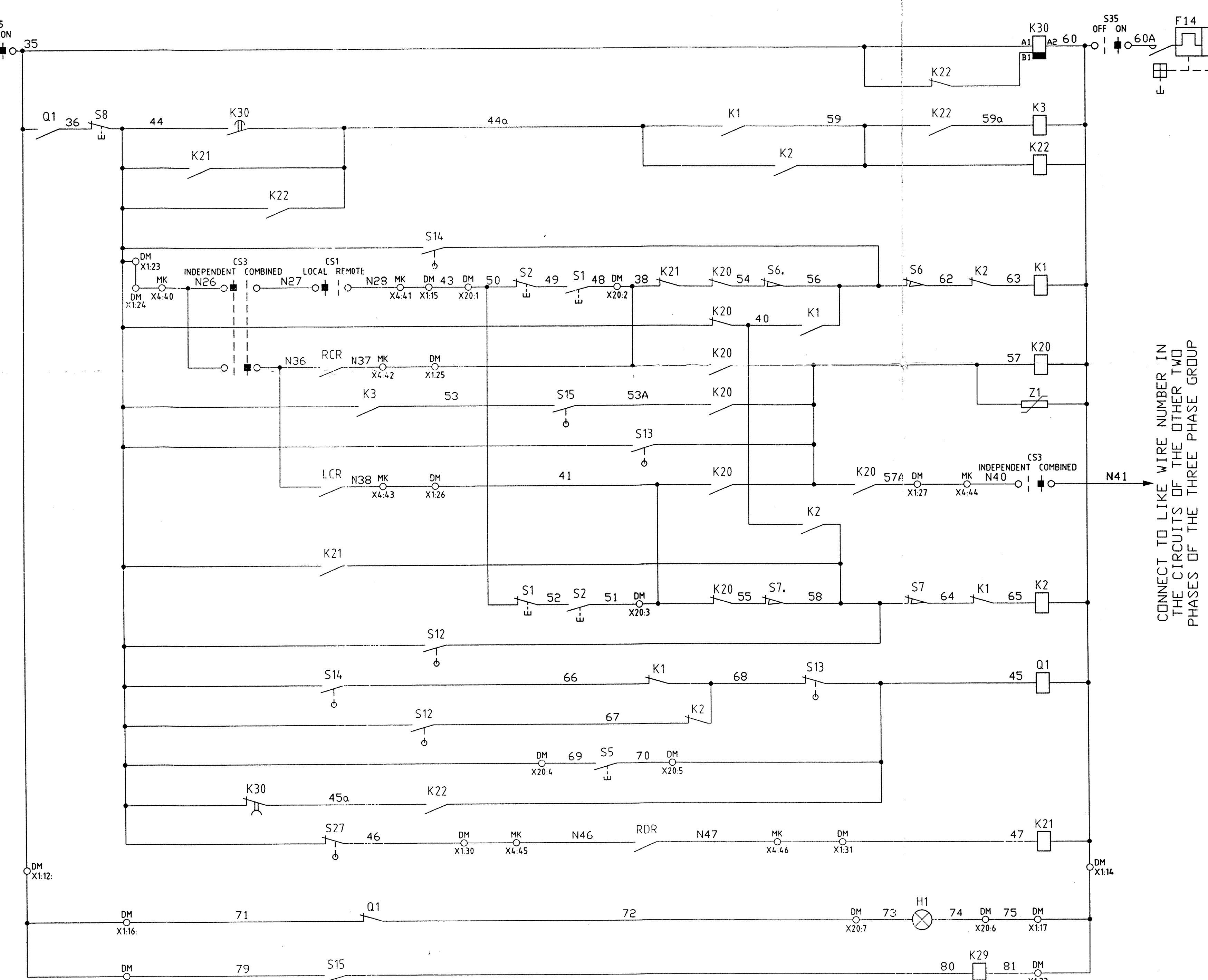
CONNECT TO LIKE WIRE NUMBER IN THE CIRCUITS OF THE OTHER TWO PHASES OF THE THREE PHASE GROUP

415V SUPPLY MONITORING RELAY K35 ADDED. RELAY K35 N/O CONTACT REMOVED FROM GRID REFERENCE B3. N/O CONTACT AT GRID REFERENCE G4. RELAY K35 N/C CONTACT ADDED AT GRID REFERENCE C7. RELAY K35 TERMINAL NUMBERS MODIFIED.

415V 3PH 50HZ 3WIRE TAPCHANGER SUPPLY FROM DRAWING 80CL03091



220V DC SUPPLY FROM DRAWING 80CL03099



CONNECT TO LIKE WIRE NUMBER IN THE CIRCUITS OF THE OTHER TWO PHASES OF THE THREE PHASE GROUP

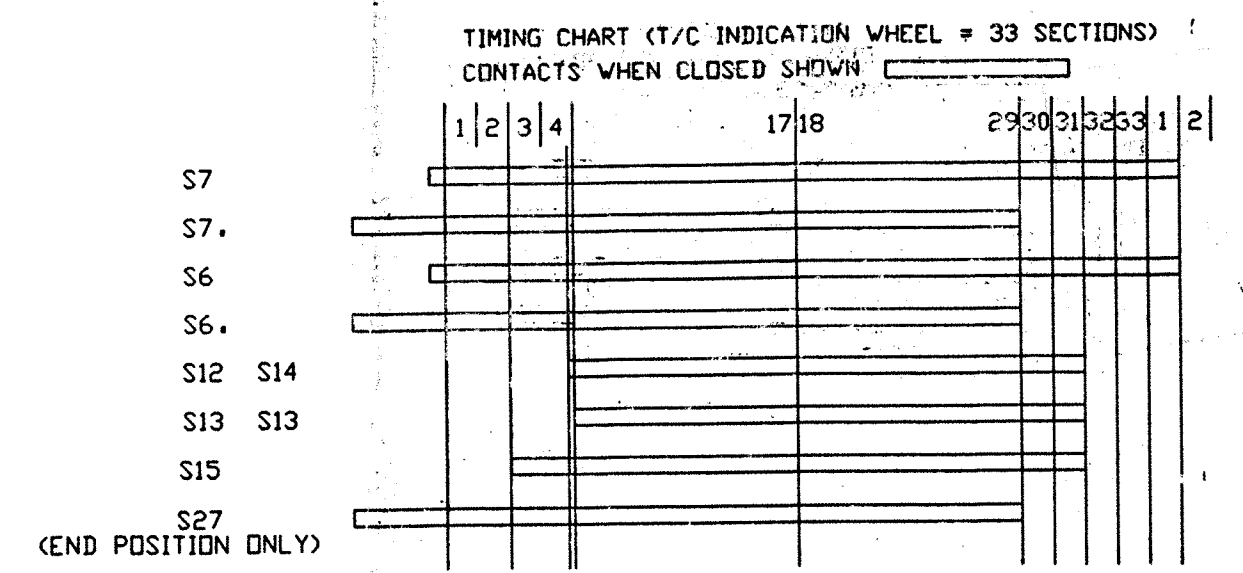
THESE CIRCUITS ARE SHOWN PER TRANSFORMER.

REFERENCE

CS1	TAPCHANGER CONTROL SELECTOR SWITCH LOCAL - REMOTE
CS3	CONTROL SELECTOR SWITCH INDEPENDENT - COMBINED
F14	CONTROL CIRCUIT PROTECTIVE CUTOFF LAMP-MOTOR CIRCUIT BREAKER
H1	RAISE VOLTS MOTOR CONTACTOR
K1	LOWER VOLTS MOTOR CONTACTOR
K2	RAISE CONTACTOR
K3	STEP BY STEP RELAY
K20	AUTOMATIC RUNDOWN TO MINIMUM VOLTS AUXILIARY RELAY
K21	AUXILIARY RELAY
K22	TAPCHANGE INCOMPLETE RELAY
K29	TIMING RELAY
K30	LOWER VOLTS REMOTE CONTROL RELAY
LCR	MOTOR
M1	MOTOR
Q1	MOTOR PROTECTIVE SWITCH
RCR	RAISE VOLTS REMOTE CONTROL RELAY
RDR	AUTOMATIC RUNDOWN RELAY
S1	RAISE VOLTS PUSHBUTTON
S2	LOWER VOLTS PUSHBUTTON
S5	EMERGENCY OFF PUSHBUTTON
S6	S6.
S7	S7.
S8	HANDLE INTERLOCK SAFETY SWITCH
S12	LOWER VOLTS CAM OPERATED SWITCH
S13	RAISE AND LOWER VOLTS CAM OPERATED SWITCH
S14	RAISE VOLTS CAM OPERATED SWITCH
S15	RAISE AND LOWER VOLTS CAM OPERATED SWITCH
S27	LOWER VOLTS TO MINIMUM CAM OPERATED SWITCH
S35	TAPCHANGER ISOLATOR
Z1	VARISTOR

NOTES

- ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
- MK DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
 - DM DENOTES TERMINAL IN TAPCHANGER DRIVE MECHANISM HOUSING
- OPERATION IN RAISE DIRECTION WILL INCREASE LV VOLTS. OPERATION IN LOWER DIRECTION WILL DECREASE LV VOLTS.
- TERMINAL NOS. IN COMMON SECTION OF MARSHALLING KIOSK ARE AS SHOWN FOR RED PHASE ONLY IE IN X4:40 SERIES. FOR YELLOW PHASE USE X4:50 SERIES. FOR BLUE PHASE USE X4:60 SERIES.
- WIRE NOS. IN COMMON SECTION OF MARSHALLING KIOSK ARE TO BE SUFFIXED WITH THE TRANSFORMER PHASE COLOUR IE 'R' 'Y' 'B' AS APPROPRIATE.



GEC ALSTHOM LTD. POWER ELECTRONICS DIVISIONS LTD.	
APPROVED	<input checked="" type="checkbox"/>
APPROVED BY	
COMMENTS	
NOT APPROVED	
DATE	15/10/96
SIGNATURE	HNM

- ASSOCIATED DIAGRAMS
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
 - CD FOR COOLER CONTROL 80CL03093
 - CD FOR HEATERS/LIGHTING 80CL03094
 - CD FOR INDICATIONS 80CL03095
 - CD FOR LOCAL ALARMS 80CL03096
 - CD FOR ALARMS/TRIPS OUTPUT 80CL03097
 - CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 - CD FOR COMBINED TAPCHANGER 80CL03099

FILE REFERENCE - 21A05

IF IN DOUBT - PLEASE ASK !

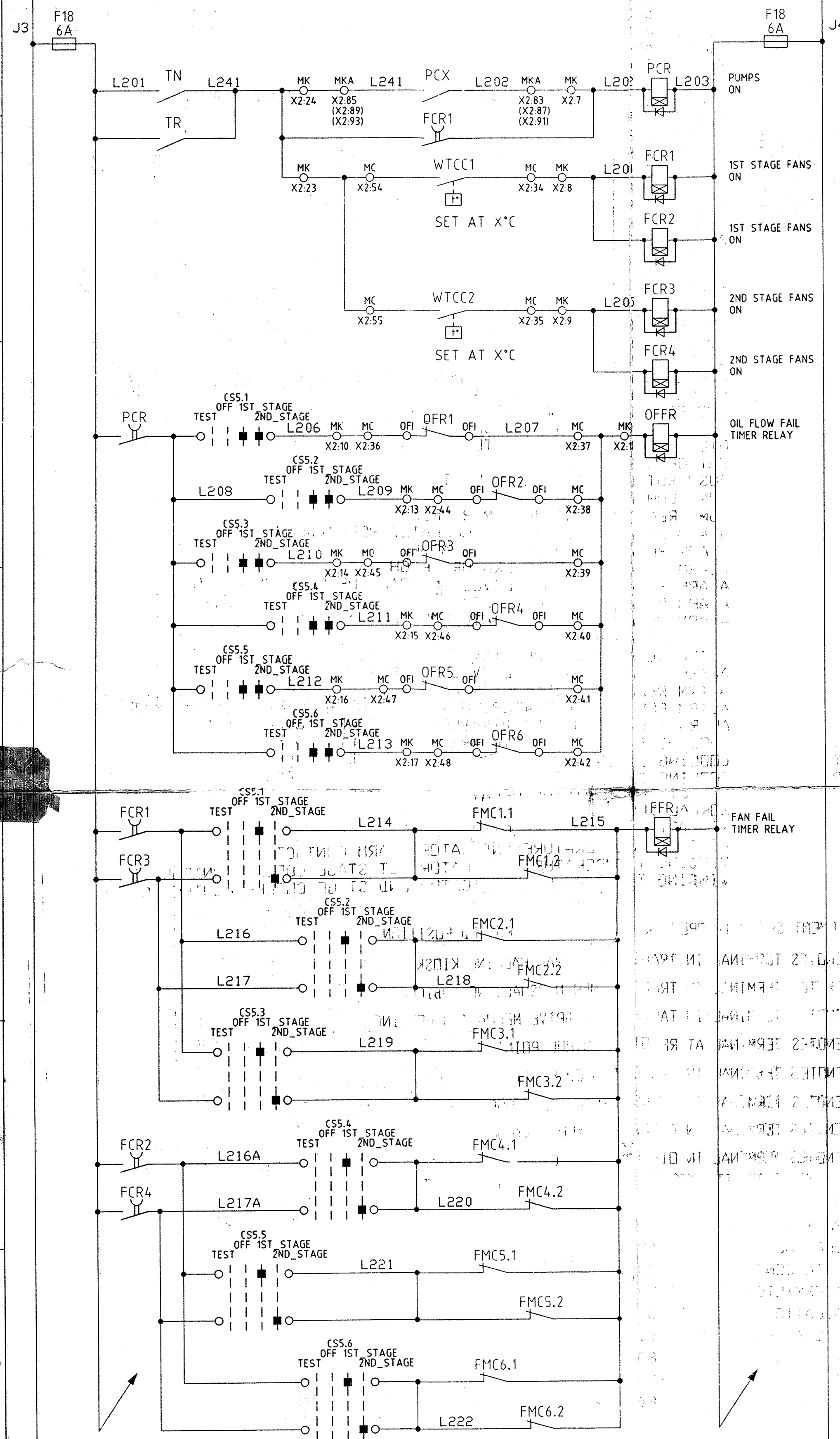
CATEGORY (01, 14)	FIRST CONTRACT NUMBER	GEC ALSTHOM T&D
2	PTD1659/01-06	
DRAWN DE	FIRST CUSTOMER	GEC ALSTHOM T&D TRANSFORMERS LIMITED STAFFORD ENGLAND
CHECKED JO	VISAKHAPATNAM	
APP'D GS	TITLE HVDC CONVERTOR TRANSFORMER CD FOR INDIVIDUAL TAPCHANGER CONTROL	DRAWING NUMBER 80CL03098
KEYWORD	SCALE N.T.S. (DO NOT SCALE PRINT)	SHEET 1/1
REVISED PV	C&A SCHEME	

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED. LOCKING METHODS & FIXINGS TO DRAWING 4057 3007 3-SHEETS. I.S.O. METRIC THREADS TO BS 3643 60 6H FIT. TOLERANCES TO DRG. 60SF00025. THIRD ANGLE PROJECTION.

I.D.C. STAMP

A	ISSUE	11TH JUL 1996
B	REVISION	17th MAY 1996
C	FILE REFERENCE	AS PER 'MR' AS PER 'MR' AS PER 'MR'
D	SCHEME MODIFIED	SCHEME MODIFIED
E	ADDED AS REQUESTED	ADDED AS REQUESTED
F	PROTECTED AGAINST CONTINUOUS RUNNING	PROTECTED AGAINST CONTINUOUS RUNNING

220V DC SUPPLY FROM DRAWING 80CL03093



220V DC SUPPLY TO DRAWING 80CL03099 AND 80CL03097

THESE CIRCUITS ARE SHOWN FOR ONE OF THE THREE PHASES SET OF TRANSFORMERS ONLY. ALL THE OTHER CIRCUITS IN THIS DRAWING ARE PER TRANSFORMER.

REFERENCE	DESCRIPTION	
CS5.1	COOLER 1 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE	
CS5.2	COOLER 2 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE	
CS5.3	COOLER 3 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE	
CS5.4	COOLER 4 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE	
CS5.5	COOLER 5 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE	
CS5.6	COOLER 6 SELECTOR SWITCH TEST - OFF - 1ST STAGE - 2ND STAGE	
F18	FUSES 6AMP	
FCR1	FAN CONTROL RELAY 1ST STAGE COOLING	
FCR3	FAN CONTROL RELAY 2ND STAGE COOLING	
FDR	ALARM CONTACT IN FREEZER DRYER (DRYCOL)	
FFR	FAN FAIL RELAY	
FMC1.1	FMC1.2	COOLER 1 FAN MOTOR CONTACTORS
FMC2.1	FMC2.2	COOLER 2 FAN MOTOR CONTACTORS
FMC3.1	FMC3.2	COOLER 3 FAN MOTOR CONTACTORS
FMC4.1	FMC4.2	COOLER 4 FAN MOTOR CONTACTORS
FMC5.1	FMC5.2	COOLER 5 FAN MOTOR CONTACTORS
FMC6.1	FMC6.2	COOLER 6 FAN MOTOR CONTACTORS
GOR-A	ALARM CONTACT IN GAS AND OIL OPERATED RELAY	
K29A	TAPCHANGE INCOMPLETE RELAY IN RED PHASE T/C DRIVING MECHANISM	
K29B	TAPCHANGE INCOMPLETE RELAY IN YELLOW PHASE T/C DRIVING MECHANISM	
K29C	TAPCHANGE INCOMPLETE RELAY IN BLUE PHASE T/C DRIVING MECHANISM	
LOL	LOW LEVEL ALARM CONTACT IN TRANSFORMER OIL GAUGE	
OFFR	OIL FLOW FAIL RELAY	
OFR1	COOLER 1 OIL FLOW INDICATOR RELAY	
OFR2	COOLER 2 OIL FLOW INDICATOR RELAY	
OFR3	COOLER 3 OIL FLOW INDICATOR RELAY	
OFR4	COOLER 4 OIL FLOW INDICATOR RELAY	
OFR5	COOLER 5 OIL FLOW INDICATOR RELAY	
OFR6	COOLER 6 OIL FLOW INDICATOR RELAY	
OTAC	OIL TEMPERATURE INDICATOR ALARM CONTACT	
OSR	OUT OF STEP RELAY	
PB1	PUSH BUTTON FOR RESET COOLING	
PCR	PUMP CONTROL RELAY	
PCX	PUMP REMOTE CONTROL MEMORY RELAY	
RL1	ALARM RELAY-GAS AND OIL OPERATED RELAY (BUCHHOLZ)	
RL2	ALARM RELAY-WINDING TEMPERATURE HIGH	
RL3	ALARM RELAY-OIL TEMPERATURE HIGH	
RL4	ALARM RELAY-LOW OIL LEVEL IN TRANSFORMER CONSERVATOR	
RL5	ALARM RELAY-DRYCOL FAULTY	
RL6	ALARM RELAY-OIL FLOW FAIL (PUMP FAIL)	
RL7	ALARM RELAY-FAN FAIL	
RL8	ALARM RELAY-LOSS OF 415V AC SUPPLY	
RL9	ALARM RELAY-LOSS OF 220V DC SUPPLY	
RL10	ALARM RELAY-TAPCHANGE INCOMPLETE	
RL10X	ALARM RELAY-TAPCHANGERS OUT OF STEP	
RL11	ALARM RELAY-COOLING DISABLED (BY FIRE PROTECTION LOCKOUT)	
RL11XR	COOLING DISABLED AUXILIARY RELAY (RED PHASE)	
RL11XY	COOLING DISABLED AUXILIARY RELAY (YELLOW PHASE)	
RL11XB	COOLING DISABLED AUXILIARY RELAY (BLUE PHASE)	
SSR	SUPPLY SURVIVISION RELAY	
TN	NORMAL SUPPLY BREAKER	
TR	STANDBY SUPPLY BREAKER	
WTAC	WINDING TEMPERATURE INDICATOR-ALARM CONTACT	
WTCC1	WINDING TEMPERATURE INDICATOR 1ST STAGE COOLER CONTROL CONTACT	
WTCC2	WINDING TEMPERATURE INDICATOR 2ND STAGE COOLER CONTROL CONTACT	

NOTES

- 1. ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
 - 2. MK - DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
MC - DENOTES TERMINAL IN TRANSFORMER MARSHALLING CUBICLE
DM - DENOTES TERMINAL IN TAPCHANGER DRIVE MECHANISM HOUSING
RP - DENOTES TERMINAL AT REMOTE CONTROL POINT
GOR - DENOTES TERMINAL IN GAS OPERATED RELAY
LOL - DENOTES TERMINAL IN TRANSFORMER OIL GAUGE
FDR - DENOTES TERMINAL IN FREEZER DRYER (DRYCOL)
OFI - DENOTES TERMINAL IN OIL FLOW INDICATOR
 - 3. FOR THE TIME DELAY SETTINGS OF RELAYS PCR AND FCR SEE THE MAINTENANCE/ COMMISSIONING INSTRUCTIONS.
- ASSOCIATED DIAGRAMS
 CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 CD FOR COOLER MOTORS 80CL03092
 CD FOR COOLER CONTROL 80CL03093
 CD FOR HEATERS/LIGHTING 80CL03094
 CD FOR INDICATIONS 80CL03095
 CD FOR LOCAL ALARMS 80CL03096
 CD FOR ALARMS/TRIPS OUTPUT 80CL03097
 CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 CD FOR COMBINED TAPCHANGER 80CL03099

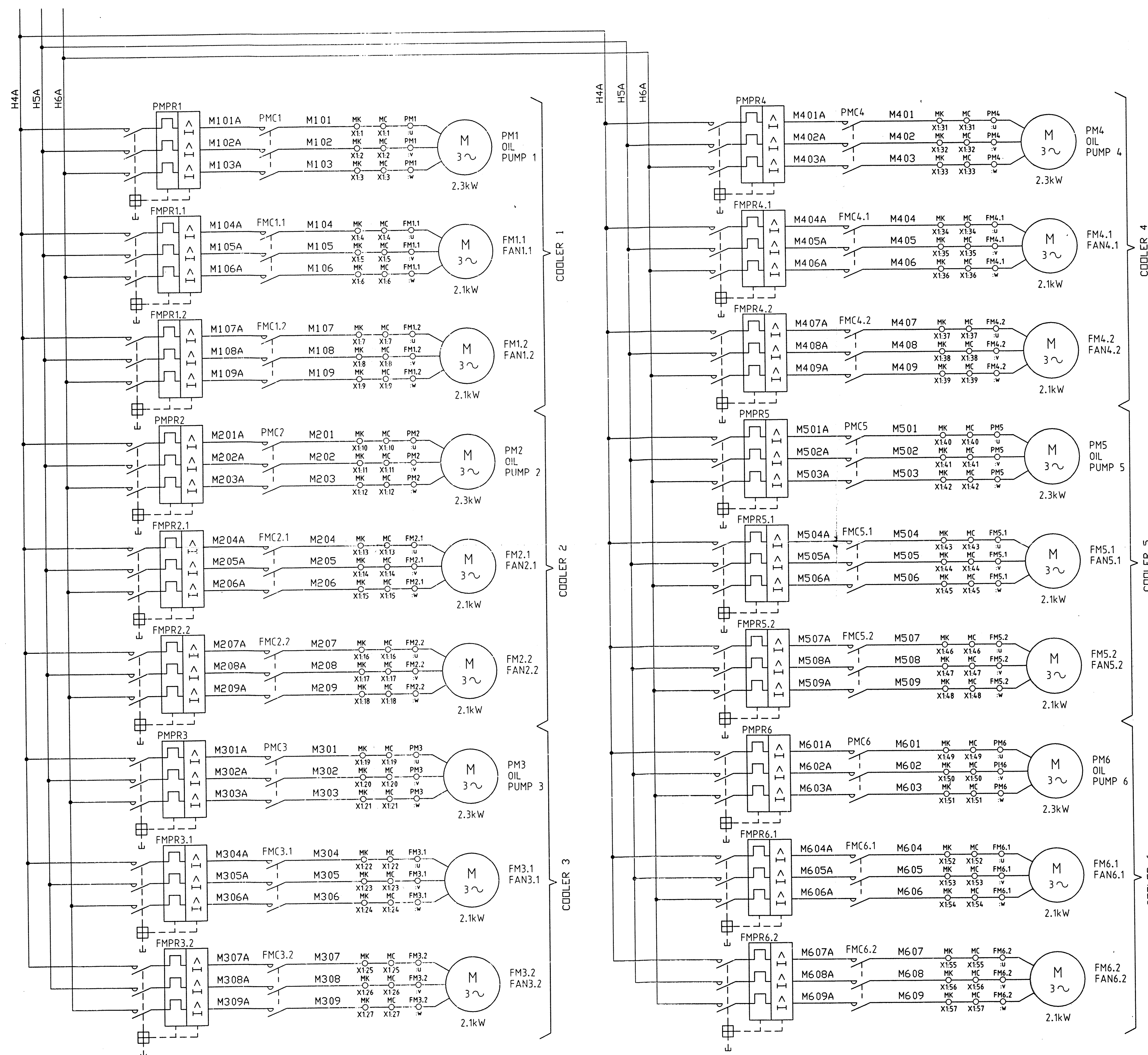
FILE REFERENCE - 21A04

IF IN DOUBT - PLEASE ASK !		GEC ALSTHOM	
CATEGORY (01.14)	FIRST CONTRACT NUMBER	T&D	
2	PTD1659/01-06	GEC ALSTHOM T&D TRANSFORMERS LIMITED STAFFORD ENGLAND	
DRAWN	FIRST CUSTOMER		
JO	VISAKHAPATNAM		
CHECKED	TITLE	HVDc CONVERTOR TRANSFORMER CD FOR LOCAL ALARM INDICATION	
GS	KEYWORD	80CL03096	
APP'D (E)	SCALE	DRAWING NUMBER	
	N.T.S. (DO NOT SCALE PRINT)	80CL03096	
PASSED/APP'D PV	KEYWORD	SHEET	
	C&A SCHEME	1/1	
THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER SET OUT HEREON ARE CONFIDENTIAL AND THE COPYRIGHT OF GEC ALSTHOM LTD OF ENGLAND AND MUST NOT BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING OR ANY OTHER PURPOSE WITHOUT THEIR WRITTEN PERMISSION. © 1994			
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.		LOCKING METHODS & FIXINGS TO DRAWING 495F38097 5-SHEETS	
1:5.0 METRIC THREADS TO BS 3645 6g 6H FIT		TOLERANCES TO DRG. 60SF0005	
THIRD ANGLE PROJECTION			

I.D.C. STAMP	A	B
FIRST ISSUE DATE	15TH MAY 1996	FILE REFERENCE
REVISION RECORD		ADDED AS REQUESTED

98
9

415V 3PH 50HZ 3W FROM DRAWING 80CL03091



REFERENCE	DESCRIPTION
FM1.1 FM1.2	COOLER 1 FAN MOTORS
FM2.1 FM2.2	COOLER 2 FAN MOTORS
FM3.1 FM3.2	COOLER 3 FAN MOTORS
FM4.1 FM4.2	COOLER 4 FAN MOTORS
FM5.1 FM5.2	COOLER 5 FAN MOTORS
FM6.1 FM6.2	COOLER 6 FAN MOTORS
FMC1.1 FMC1.2	COOLER 1 FAN MOTOR CONTACTORS
FMC2.1 FMC2.2	COOLER 2 FAN MOTOR CONTACTORS
FMC3.1 FMC3.2	COOLER 3 FAN MOTOR CONTACTORS
FMC4.1 FMC4.2	COOLER 4 FAN MOTOR CONTACTORS
FMC5.1 FMC5.2	COOLER 5 FAN MOTOR CONTACTORS
FMC6.1 FMC6.2	COOLER 6 FAN MOTOR CONTACTORS
FMPR1.1 FMPR1.2	COOLER 1 FAN MOTOR PROTECTION RELAYS
FMPR2.1 FMPR2.2	COOLER 2 FAN MOTOR PROTECTION RELAYS
FMPR3.1 FMPR3.2	COOLER 3 FAN MOTOR PROTECTION RELAYS
FMPR4.1 FMPR4.2	COOLER 4 FAN MOTOR PROTECTION RELAYS
FMPR5.1 FMPR5.2	COOLER 5 FAN MOTOR PROTECTION RELAYS
FMPR6.1 FMPR6.2	COOLER 6 FAN MOTOR PROTECTION RELAYS
PM1	COOLER 1 PUMP MOTOR
PM2	COOLER 2 PUMP MOTOR
PM3	COOLER 3 PUMP MOTOR
PM4	COOLER 4 PUMP MOTOR
PM5	COOLER 5 PUMP MOTOR
PM6	COOLER 6 PUMP MOTOR
PMC1	COOLER 1 PUMP MOTOR CONTACTOR
PMC2	COOLER 2 PUMP MOTOR CONTACTOR
PMC3	COOLER 3 PUMP MOTOR CONTACTOR
PMC4	COOLER 4 PUMP MOTOR CONTACTOR
PMC5	COOLER 5 PUMP MOTOR CONTACTOR
PMC6	COOLER 6 PUMP MOTOR CONTACTOR
PMPR1	COOLER 1 PUMP MOTOR PROTECTION RELAY
PMPR2	COOLER 2 PUMP MOTOR PROTECTION RELAY
PMPR3	COOLER 3 PUMP MOTOR PROTECTION RELAY
PMPR4	COOLER 4 PUMP MOTOR PROTECTION RELAY
PMPR5	COOLER 5 PUMP MOTOR PROTECTION RELAY
PMPR6	COOLER 6 PUMP MOTOR PROTECTION RELAY

NOTES

- ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
- MK DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK
 - MC DENOTES TERMINAL IN TRANSFORMER MARSHALLING CUBICLE
 - FM DENOTES TERMINAL IN FAN MOTOR
 - PM DENOTES TERMINAL IN PUMP MOTOR

GEC ALSTHOM T&D POWER ELECTRONIC SYSTEMS LTD	
APPROVED	<input checked="" type="checkbox"/>
APPROVED WITH COMMENTS	<input type="checkbox"/>
NOT APPROVED	<input type="checkbox"/>
SIGNED: <i>HMM</i>	DATE: <i>19/6/96</i>

- ASSOCIATED DIAGRAMS
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
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 - CD FOR COMBINED TAPCHANGER 80CL03099

FILE REFERENCE - 21A06	
IF IN DOUBT - PLEASE ASK !	
CATEGORY (01.14)	FIRST CONTRACT NUMBER
2	PTD1659/01-06
DRAWN DE	FIRST CUSTOMER
CHECKED J	VISAKHAPATNAM
APP'D GS	TITLE
	HVDC CONVERTOR TRANSFORMER CD FOR MOTORS
PAS CD/APP'D PV	C&A SCHEME
SCALE	N.T.S.
DRAWING NUMBER	80CL03092
SHEET	1/1
THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER SET OUT HEREON ARE CONFIDENTIAL AND THE COPYRIGHT OF GEC ALSTHOM LTD OF ENGLAND AND MUST NOT BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING, TENDERING OR ANY OTHER PURPOSE WITHOUT THEIR WRITTEN PERMISSION © 1994	
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.	
LOCKING METHOD: 1. S.D. METRIC THREADS TO BS 3643 OR 91 P11 2. 5/16" UNF 3. 5/16" UNF	
FIXINGS TO DRAWING TO BS 3643 OR 91 P11	
TOLERANCES TO 3P: 1. 1.5.0 METRIC THREADS TO BS 3643 OR 91 P11 2. 5/16" UNF	
WHEN QUOTING DRAWING NUMBER STATE LATEST LETTER OF ISSUE	
ORIGINAL SHEET SIZE A1 (841mm x 594mm)	

I.D.C. STAMP	A
REVISION RECORD	B
DATE	15TH MAY 1996
FILE REFERENCE	ADDED AS REQUESTED.

415V 3PH 50HZ 4W SUPPLY 1

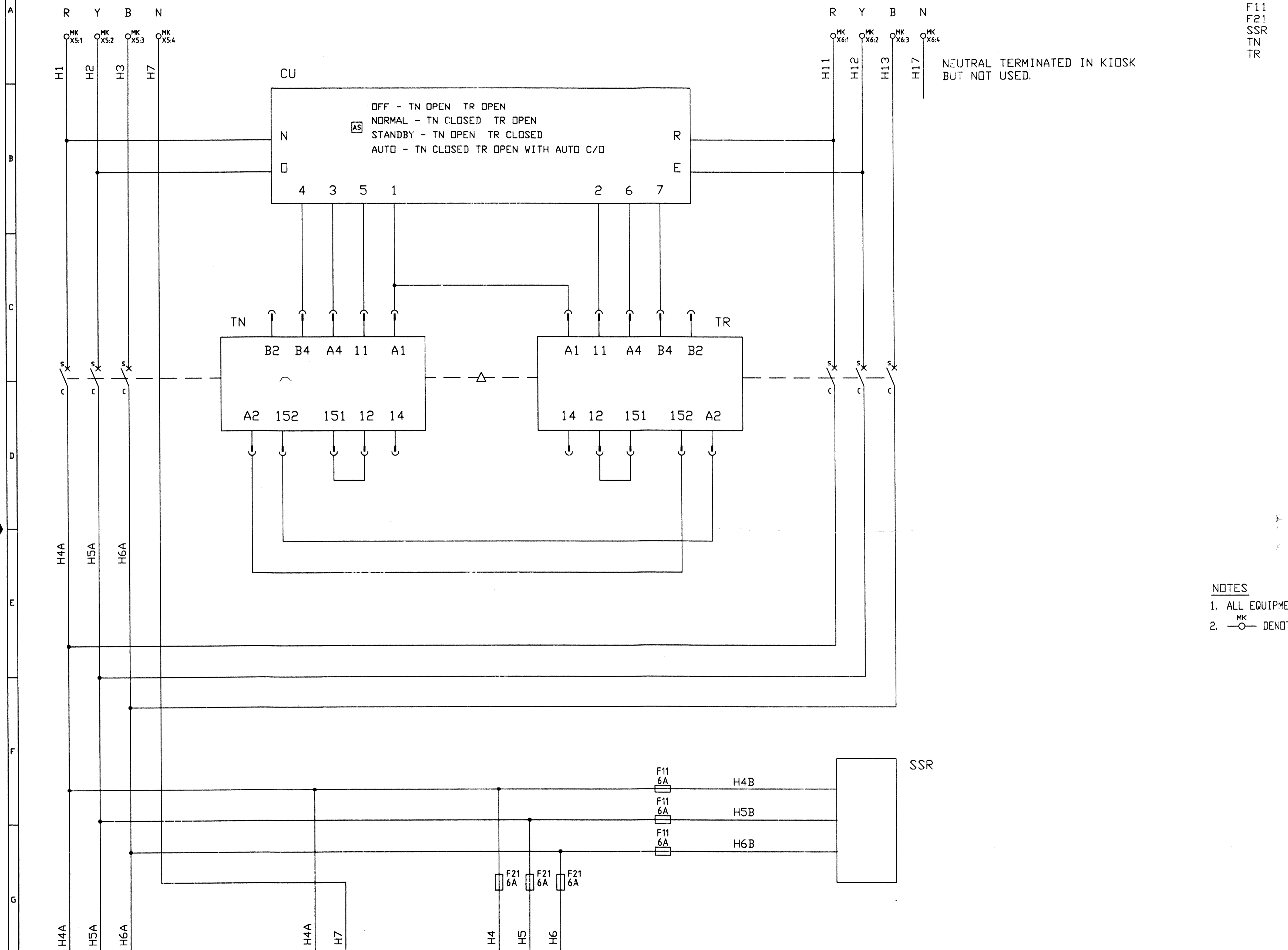
415V 3PH 50HZ 4W SUPPLY 2

REFERENCE

DESCRIPTION

CU	AUTO CHANGEDOVER CONTROL UNIT
F11	FUSES 6AMP
F21	FUSES 6AMP
SSR	SUPPLY SUPERVISION RELAY
TN	NORMAL SUPPLY BREAKER
TR	STANDBY SUPPLY BREAKER

NEUTRAL TERMINATED IN KIOSK BUT NOT USED.



NOTES

1. ALL EQUIPMENT SHOWN IN OPEN, RESET OR DE-ENERGISED POSITION
2. DENOTES TERMINAL IN TRANSFORMER MARSHALLING KIOSK

- ASSOCIATED DIAGRAMS
- CD FOR SUPPLY AUTOCHANGEDOVER 80CL03091
 - CD FOR COOLER MOTORS 80CL03092
 - CD FOR COOLER CONTROL 80CL03093
 - CD FOR HEATERS/LIGHTING 80CL03094
 - CD FOR INDICATIONS 80CL03095
 - CD FOR LOCAL ALARMS 80CL03096
 - CD FOR ALARMS/TRIPS OUTPUT 80CL03097
 - CD FOR INDIVIDUAL TAPCHANGERS 80CL03098
 - CD FOR COMBINED TAPCHANGER 80CL03099

415V 3PH 50HZ 3W SUPPLY TO DRAWING 80CL03092

240V 1PH 50HZ SUPPLY TO DRAWING 80CL03094

415V 3PH 50HZ 3W SUPPLY TO DRAWING 80CL03098

FILE REFERENCE - 21A11

IF IN DOUBT - PLEASE ASK !	
DRAWN DE	FIRST CONTRACT NUMBER
CHECKED JD	PTD1659/01-06
APP'D/CKD GS	FIRST CUSTOMER
APP'D/CKD PV	VISAKHAPATNAM



I. D. C STAMP
AS BUILT
DRAWING

REVISION RECORD	FILE REFERENCE
DATE	ADDED AS REQUESTED
15TH MAY 1996	
10TH JUL 1996	

6A FUSES REFERENCED AS F21 WERE 16A FUSES.

TITLE	HVDC CONVERTOR TRANSFORMER CD FOR SUPPLY AUTOCHANGEDOVER	
CATEGORY(01.14)	KEYWORD	SCALE (DO NOT SCALE, ONLY DIMENSIONS DEFINED CAN BE CONFIRMATORY)
FILE NAME	C&A_SCHEM	DRAWING NUMBER 80CL03091
SHEET 1/1		

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