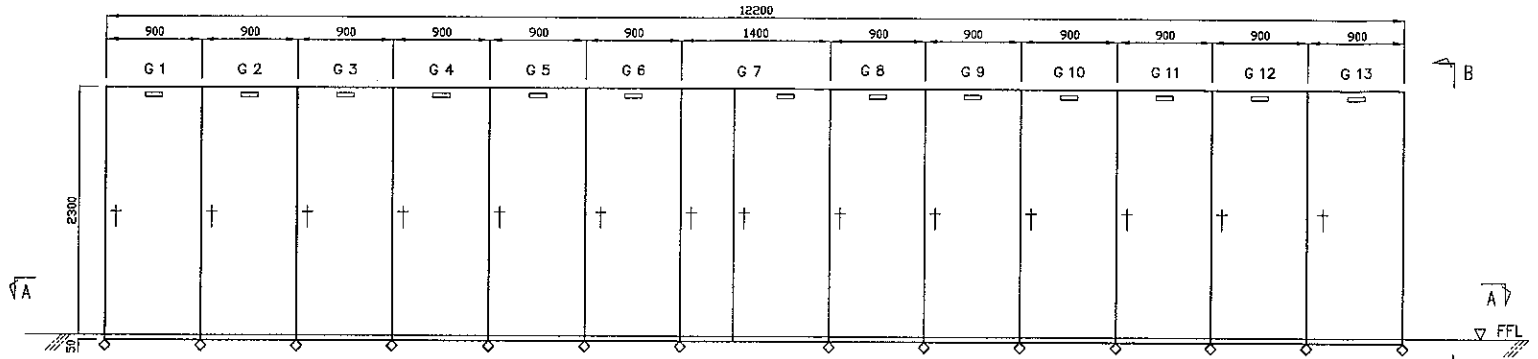
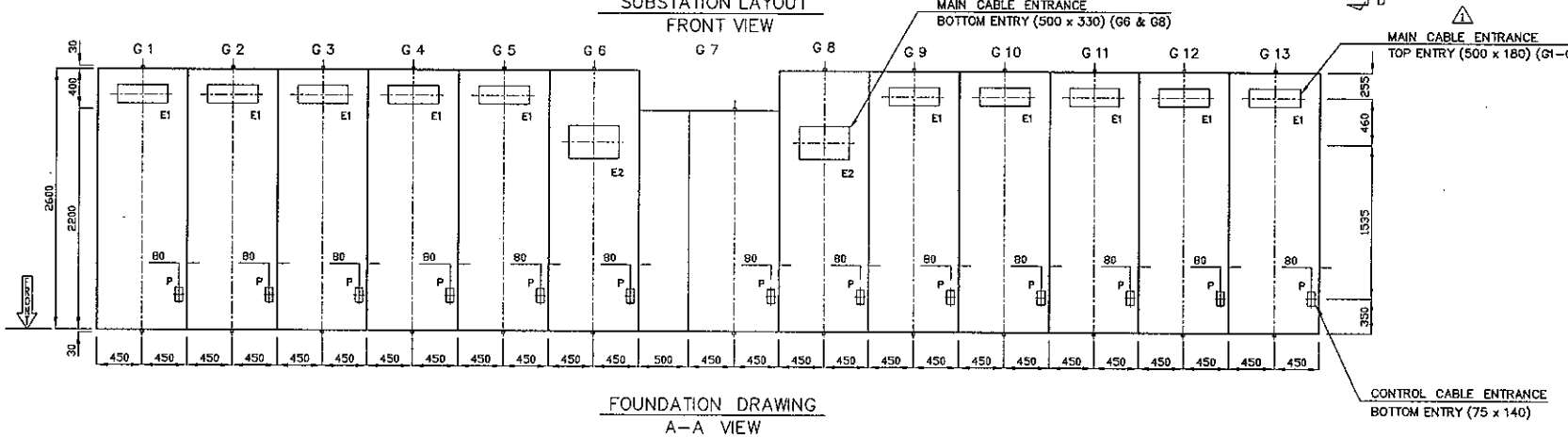
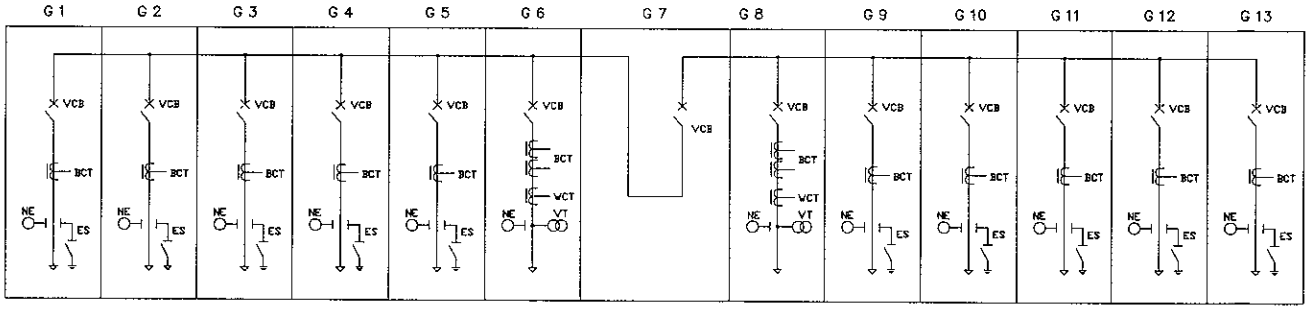
MEIDEN



SUBSTATION LAYOUT
FRONT VIEW



FOUNDATION DRAWING
A–A VIEW



SINGLE LINE DIAGRAM

FOR REFERENCE ONLY

MARK	DESCRIPTIONS	DRAWN	DATE
1	REVISED AS PER COMMENTS	B.H. TAN	29 MAR 05

REVISION

FINE POWDER COATING			
5Y7/1	E1	500 X 180	
	E2	500 X 330	P 75 X 140
TOTAL MASS 15250 Kg	NO.	W x D	NO. W x D
	MAIN CIRCUIT		CONTROL CIRCUIT
	SIZE OF CABLE ENTRANCE		

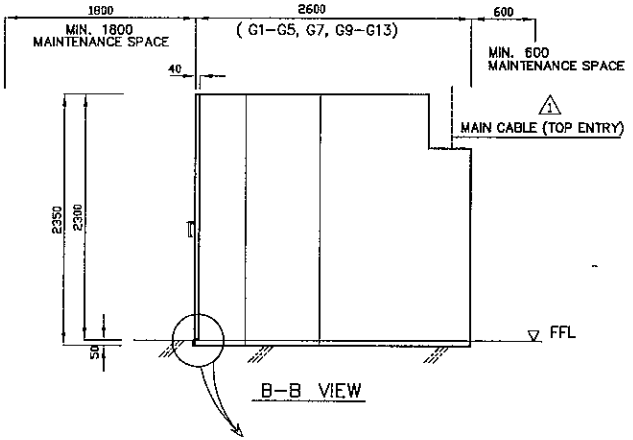
⊕ : FOUNDATION BOLT
◇ : PANEL DIVIDING

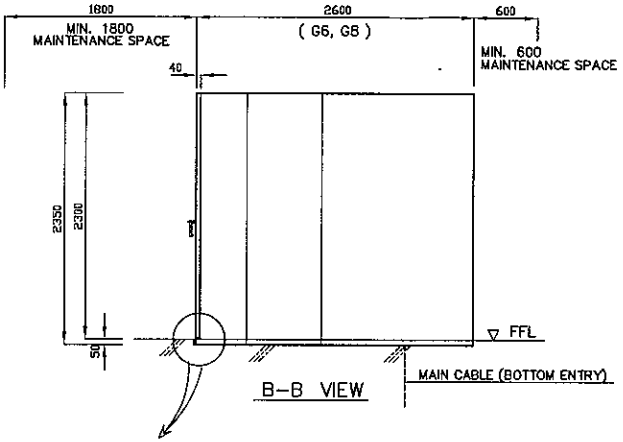
APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1:50

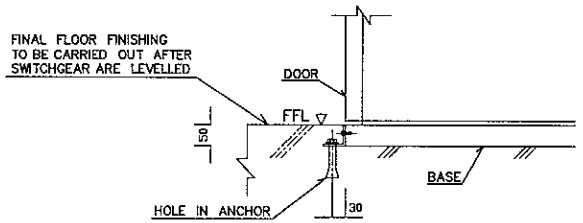
TITLE
< HICLAD–20J >
22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
S/S LAYOUT AND FOUNDATION DRAWING (1/2)

MEIDEN SINGAPORE PTE. LTD.

JOB NO.	DRAWING NO.	REMARK
SG1346	GA32605–1	1







DETAIL OF FOUNDATION
SCALE : N.T.S

SINGLE LINE DIAGRAM		GA32604	
FRONT DOOR COMPONENTS LAYOUT DRAWING		GA32609-1/2/3	
PANEL NO.	PANEL NAME	ASSEMBLY DRAWING	MASS (Kg)
G 1	TRANSFORMER NO.1	GA32608	1150
G 2	TRANSFORMER NO.2	GA32608	1150
G 3	TRANSFORMER NO.3	GA32608	1150
G 4	TRANSFORMER NO.4	GA32608	1150
G 5	TRANSFORMER NO.5	GA32608	1150
G 6	INCOMING NO.1	GA32606	1250
G 7	BUS COUPLER	GA32607	1250
G 8	INCOMING NO.2	GA32606	1250
G 9	TRANSFORMER NO.6	GA32608	1150
G 10	TRANSFORMER NO.7	GA32608	1150
G 11	TRANSFORMER NO.8	GA32608	1150
G 12	TRANSFORMER NO.9	GA32608	1150
G 13	TRANSFORMER NO.10	GA32608	1150

FOR REFERENCE ONLY

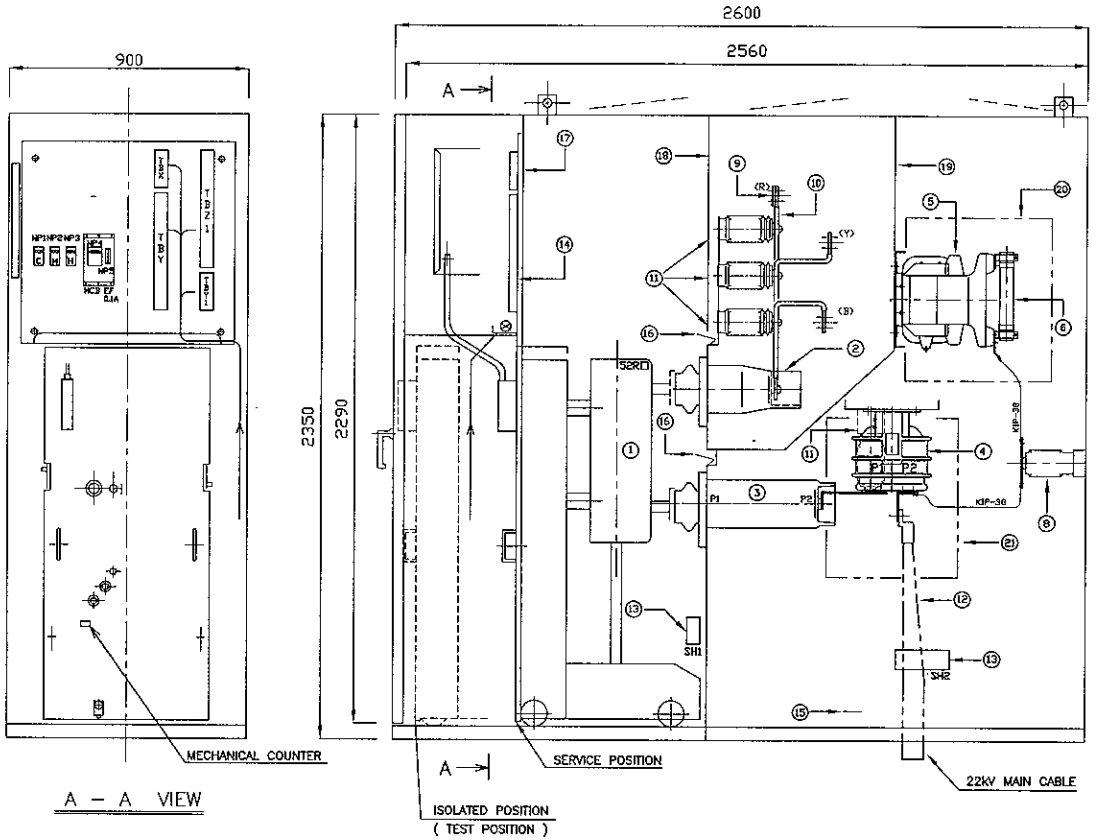
MARK	DESCRIPTIONS	DRAWN	DATE
1	REVISED AS PER COMMENTS	B.H. TAN	29 MAR 05

REVISION

APPROVED BY	CHECKED BY	DESIGNED BY	TITLE
Y. NAMBA	R. LINGAM	B.H. TAN	< HICLAD–20J > 22kV SWITCHGEAR FOR KAKI BUKIT FACTORY PROJECT S/S LAYOUT AND FOUNDATION DRAWING (2/2)
	UNIT : mm	SCALE : 1:50	

MEIDEN SINGAPORE PTE. LTD.	JOB NO.	DRAWING NO.	REMARK
	SG1346	GA32605–2	1

MEIDEN



A – A VIEW

NO.	PARTS NAME	Q'TY	RATINGS & REMARKS
1	VACUUM CIRCUIT BREAKER	1	24kV, 1250A, RC25kA
2	ISOLATING CONTACT	3	1250A
3	BCT (RB–448)	3	500/5A 15VA, 5P20 500/5A CL. X
4	WCT (RC–450)	2	400/200/5A 15VA, CL.0.5
5	VOLTAGE TRANSFORMER (RPG–2013)	3	$\frac{22000/110V}{\sqrt{3}\ \ \sqrt{3}}$ 100VA, CL.1.0
6	POWER FUSE	3	24kV, T1A, RC40kA
7	–	–	–
8	VOLTAGE DETECTOR	3	–
9	MAIN BUSBAR	3PH	1250A (Cu 10 x 75), 50Hz
10	CONNECTING CONDUCTOR	3PH	1250A (Cu 10 x 75)
11	INSULATOR	4	–
12	CABLE END	3PH	–
13	SPACE HEATER	2	AC230V, 100W
14	TERMINAL BLOCK	1 SET	–
15	EARTH BUSBAR	1	CU 6 x 40
16	METAL SHUTTER	1 SET	–
17	PARTITION	1 SET	–
18	PARTITION	1 SET	–
19	PARTITION	1 SET	–
20	BARRIER	1 SET	–
21	BARRIER	1 SET	–

52R□	
G6	INCOMING NO.1
G8	INCOMING NO.2

FOR REFERENCE ONLY

NAME LABEL LIST

NPNo.	LETTERING	NPNo.	LETTERING
1	CONTROL		
2	MOTOR		
3	HEATER		
4	VT SECONDARY		
5	FUSE		

MARK	DESCRIPTIONS	DRAWN	DATE
△			
△			
△			
△			
△			

REVISION

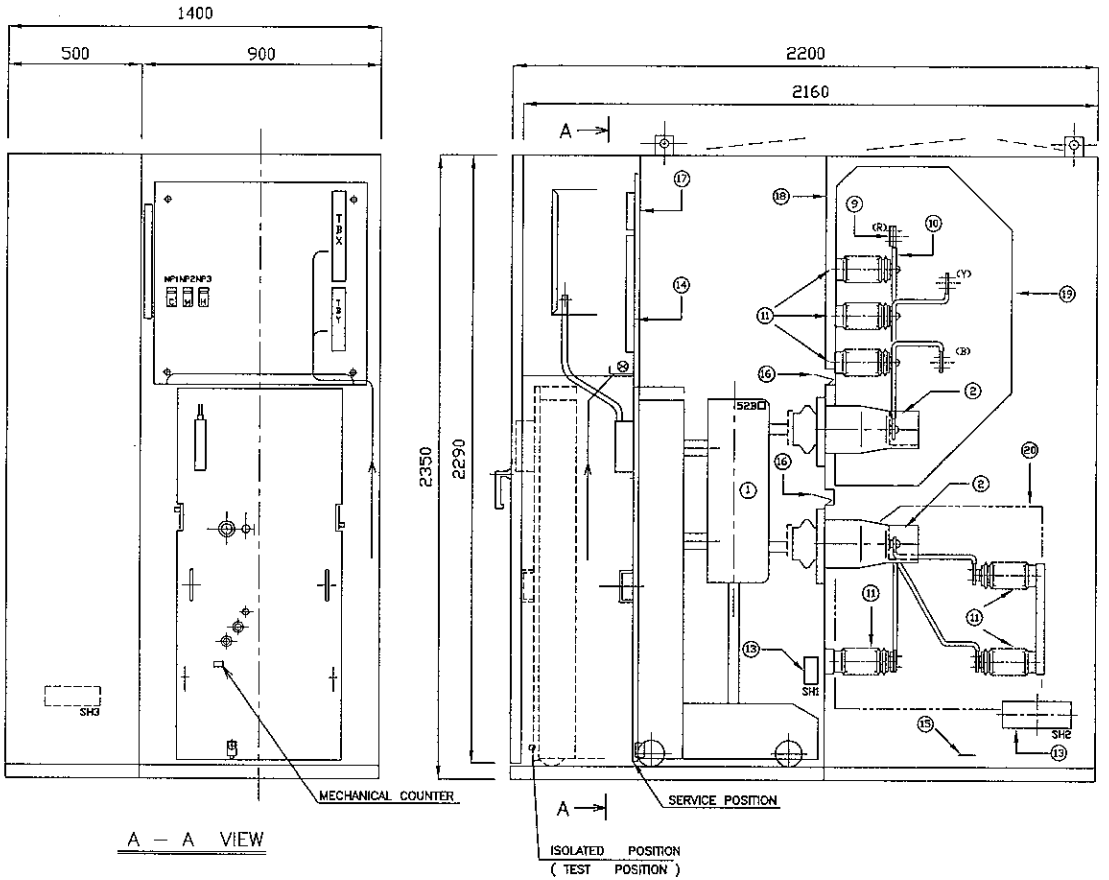
APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1:20

TITLE < HICLAD–20J >
22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
ASSEMBLY DRAWING – INCOMING PANEL

MEIDEN SINGAPORE PTE. LTD.

JOB NO.	DRAWING NO.	REMARK
SG1346	GA32606	△

MEIDEN



A — A VIEW

NO.	PARTS NAME	Q'TY	RATINGS & REMARKS
1	VACUUM CIRCUIT BREAKER	1	24kV, 1250, RC25kA
2	ISOLATING CONTACT	6	1250A
3	–	–	–
4	–	–	–
5	–	–	–
6	–	–	–
7	–	–	–
8	–	–	–
9	MAIN BUSBAR	3PH	1250A (Cu 10 x 75), 50Hz
10	CONNECTING CONDUCTOR	3PH	1250A (Cu 10 x 75)
11	INSULATOR	12	–
12	–	–	–
13	SPACE HEATER	3	AC230V, 100W
14	TERMINAL BLOCK	1 SET	–
15	EARTH BUSBAR	1	CU 6 x 40
16	METAL SHUTTER	1 SET	–
17	PARTITION	1 SET	–
18	PARTITION	1 SET	–
19	PARTITION	1 SET	–
20	BARRIER	1 SET	–
21	–	–	–

52B□
G7 BUS COUPLER

FOR REFERENCE ONLY

NAME LABEL LIST

NPNo.	LETTERING	NPNo.	LETTERING
1	CONTROL		
2	MOTOR		
3	HEATER		

MARK	DESCRIPTIONS	DRAWN	DATE
	REVISION		

APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1 : 20

MEIDEN SINGAPORE PTE. LTD.

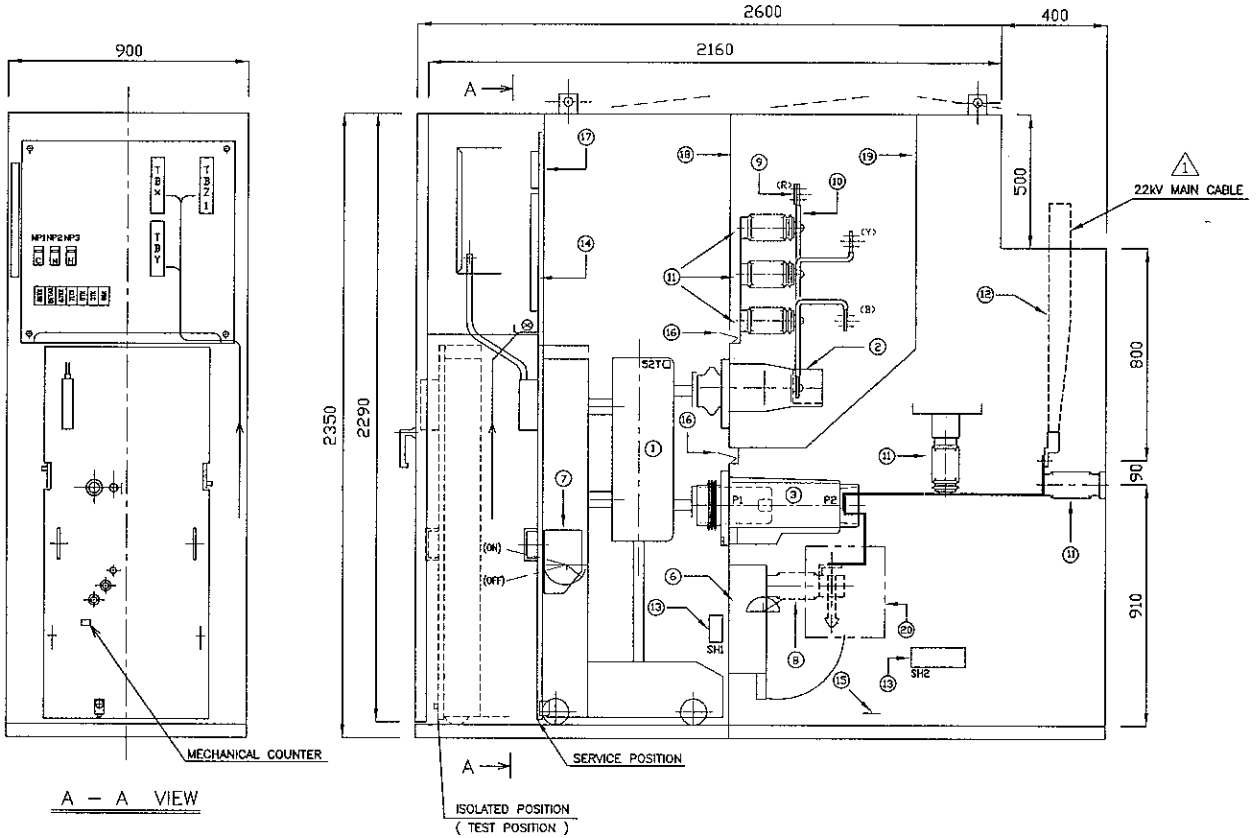
TITLE

< HICLAD–20J >

22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
ASSEMBLY DRAWING – BUS COUPLER PANEL

JOB NO.	DRAWING NO.	REMARK
SG1346	GA32607	△

MEIDEN



NO.	PARTS NAME	Q'TY	RATINGS & REMARKS
1	VACUUM CIRCUIT BREAKER	1	24kV, 630A, RC25kA
2	ISOLATING CONTACT	3	630A
3	BCT (RB–448)	3	75/1A CL.X
4	–	–	–
5	–	–	–
6	EARTHING SWITCH (ES)	1	–
7	OPERATOR FOR ES	1	–
8	VOLTAGE DETECTOR	3	–
9	MAIN BUSBAR	3 PH	1250A, 50Hz
10	CONNECTING CONDUCTOR	3 PH	630A
11	INSULATOR	9	–
12	CABLE END	3 PH	–
13	SPACE HEATER	2	AC230V, 100W
14	TERMINAL BLOCK	1 SET	–
15	EARTH BUSBAR	1	CU 6 x 40
16	METAL SHUTTER	1 SET	–
17	PARTITION	1 SET	–
18	PARTITION	1 SET	–
19	PARTITION	1 SET	–
20	BARRIER	1 SET	–
21	–	–	–

52T □			
G1	TRANSFORMER NO.1	G9	TRANSFORMER NO.6
G2	TRANSFORMER NO.2	G10	TRANSFORMER NO.7
G3	TRANSFORMER NO.3	G11	TRANSFORMER NO.8
G4	TRANSFORMER NO.4	G12	TRANSFORMER NO.9
G5	TRANSFORMER NO.5	G13	TRANSFORMER NO.10

FOR ASSEMBLY ONLY

NAME LABEL LIST

NPNo.	LETTERING	NPNo.	LETTERING
1	CONTROL		
2	MOTOR		
3	HEATER		

MARK	DESCRIPTIONS	DRAWN	DATE
1	REVISED AS PER COMMENTS	B.H. TAN	29 MAR 05

REVISION

APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1:20

TITLE

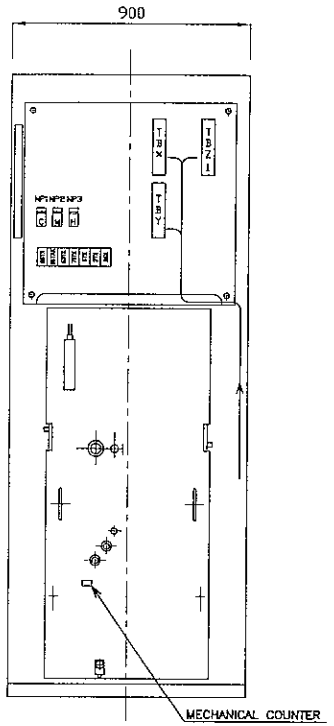
< HICLAD–20J >

22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
ASSEMBLY DRAWING – TRANSFORMER PANEL

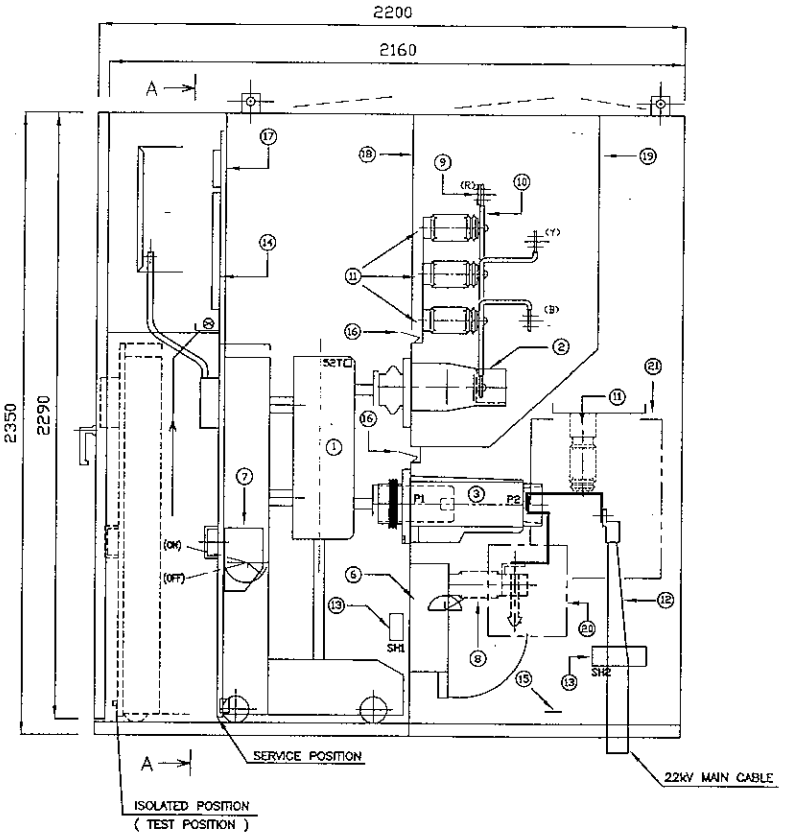
MEIDEN SINGAPORE PTE. LTD.

JOB NO.	DRAWING NO.	REMARK
SG1346	GA32608	1

MEIDEN



A – A VIEW



NO.	PARTS NAME	Q'TY	RATINGS & REMARKS
1	VACUUM CIRCUIT BREAKER	1	24kV, 630A, RC25kA
2	ISOLATING CONTACT	3	630A
3	BCT (RB-448)	3	75/1A CL.X
4	–	–	–
5	–	–	–
6	EARTHING SWITCH (ES)	1	–
7	OPERATOR FOR ES	1	–
8	VOLTAGE DETECTOR	3	–
9	MAIN BUSBAR	3 PH	1250A, 50Hz
10	CONNECTING CONDUCTOR	3 PH	630A
11	INSULATOR	6	–
12	CABLE END	3 PH	–
13	SPACE HEATER	2	AC230V, 100W
14	TERMINAL BLOCK	1 SET	–
15	EARTH BUSBAR	1	CU 6 x 40
16	METAL SHUTTER	1 SET	–
17	PARTITION	1 SET	–
18	PARTITION	1 SET	–
19	PARTITION	1 SET	–
20	BARRIER	1 SET	–
21	BARRIER	1 SET	–

52T □			
G1	TRANSFORMER NO.1	G9	TRANSFORMER NO.6
G2	TRANSFORMER NO.2	G10	TRANSFORMER NO.7
G3	TRANSFORMER NO.3	G11	TRANSFORMER NO.8
G4	TRANSFORMER NO.4	G12	TRANSFORMER NO.9
G5	TRANSFORMER NO.5	G13	TRANSFORMER NO.10

FOR REFERENCE ONLY

NAME LABEL LIST

NPNo.	LETTERING	NPNo.	LETTERING
1	CONTROL		
2	MOTOR		
3	HEATER		

MARK	DESCRIPTIONS	DRAWN	DATE
△			
△			
△			
△			
△			

REVISION

APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1:20

MEIDEN SINGAPORE PTE. LTD.

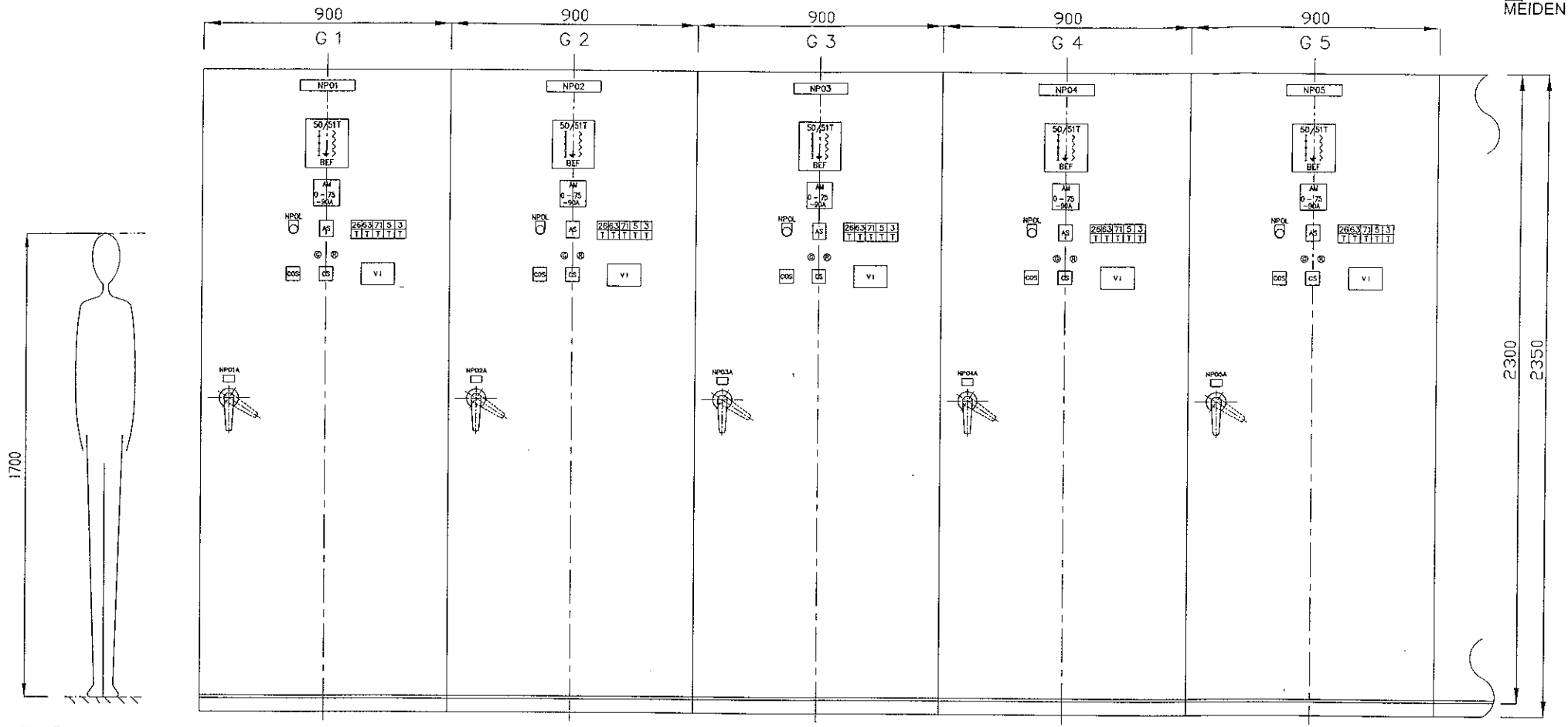
TITLE

< HICLAD-20J >

22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
ASSEMBLY DRAWING – TRANSFORMER PANEL

JOB NO.	DRAWING NO.	REMARK
SG1346	GA32608	△

MEIDEN



NAME PLATE DIMENSION

NP NO.	01 TO 05	01A–05A	OL
DIMENSION	200 / 191, 40, 31, 40, SCALE 1:5	40, 25, SCALE 1:5	35, 49, SCALE 1:5
TEXT HEIGHT	TEXT, SCALE N.T.S	TEXT, SCALE N.T.S	TEXT, SCALE N.T.S

LEGEND		SWITCHING SEQUENCES
CS	CIRCUIT BREAKER	OFF– • –ON
COS	CONTROL	LOCAL – REMOTE
VI	VOLTAGE INDICATOR	–
AM	AMMETER	–
AS	AMMETER SWITCH	OFF–R–Y–B

FAULT INDICATOR (CH LETTERING)

	26T	63T	71T	5T	3T
ORANGE TARGET	OIL TEMP. TRIP	GAS PRESS. TRIP	LOW OIL LEVEL TRIP	EMERGENCY TRIP	REF TRIP

FOR REFERENCE ONLY

NAME PLATE LIST

NPNo.	NAME	NPNo.	PANEL NAME
01	TRANSFORMER NO.1	01A	G 1
02	TRANSFORMER NO.2	02A	G 2
03	TRANSFORMER NO.3	03A	G 3
04	TRANSFORMER NO.4	04A	G 4
05	TRANSFORMER NO.5	05A	G 5
OL	LOCK OUT PRESS TO RESET		

MARK	DESCRIPTIONS	DRAWN	DATE

REVISION

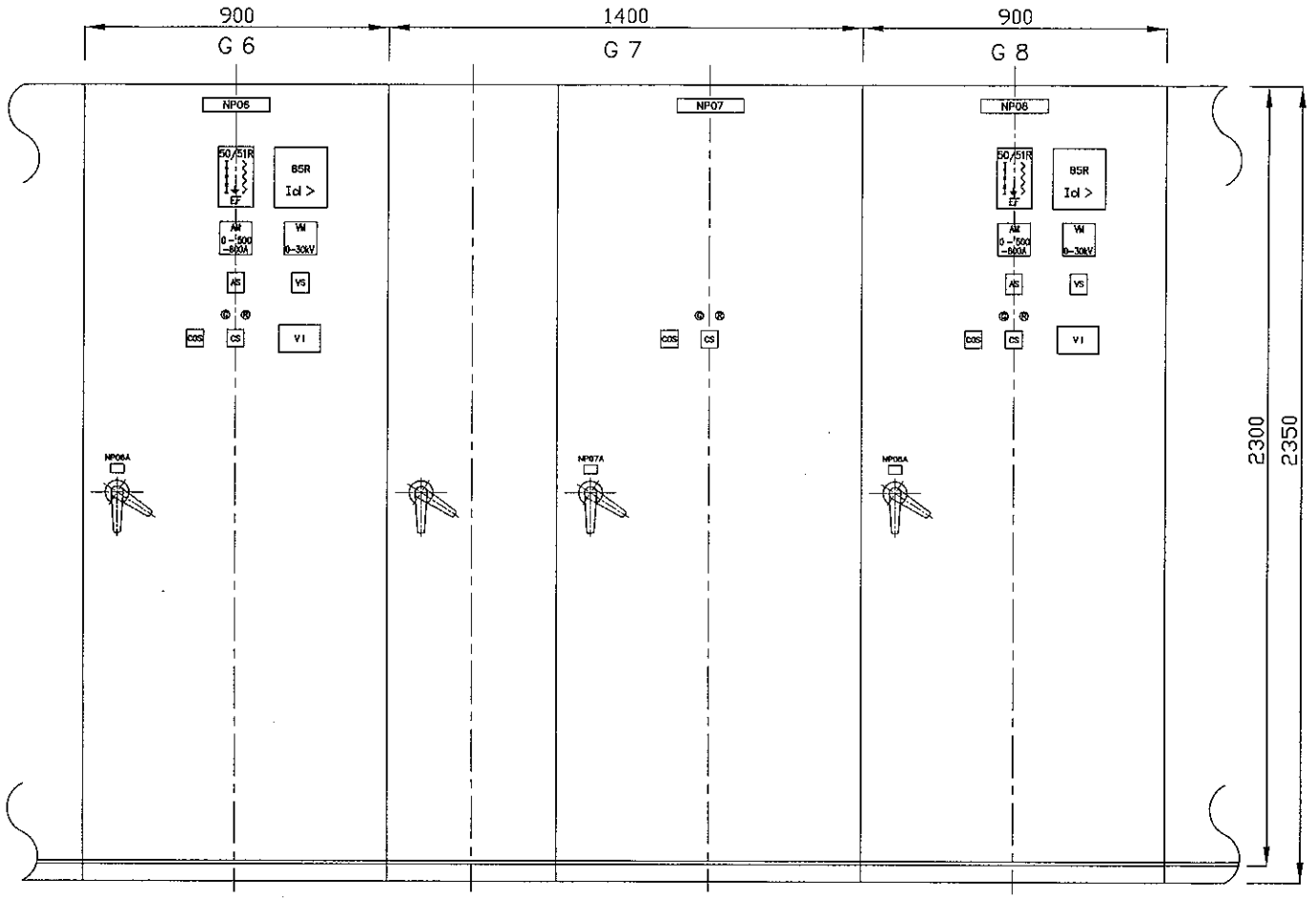
APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1:15

MEIDEN SINGAPORE PTE. LTD.

TITLE: < HICLAD–20J >
22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
FRONT DOOR COMPONENTS LAYOUT DRAWING (1/3)

JOB NO.	DRAWING NO.	REMARK
SG1346	GA32609–1	

MEIDEN



NAME PLATE DIMENSION

NP NO.	06 TO 08	06A–08A	OL
D (t=2.0 ZINC PLATE)	200 / 191, 4ø, 30, 40, SCALE 1:5	40, 25, SCALE 1:5	35, 40, SCALE 1:5
TEXT HEIGHT	14 TEXT SCALE N.T.S	10 TEXT SCALE N.T.S	10 TEXT SCALE N.T.S

LEGEND		SWITCHING SEQUENCES
CS	CIRCUIT BREAKER	OFF– • –ON
COS	CONTROL	LOCAL – REMOTE
VI	VOLTAGE INDICATOR	–
AM	AMMETER	–
AS	AMMETER SWITCH	OFF–R–Y–B
VM	VOLTMETER	–
VS	VOLTMETER SWITCH	OFF–RY–YB–BR

FOR REFERENCE ONLY

NAME PLATE LIST

NPNo.	NAME	NPNo.	PANEL NAME
06	INCOMING NO.1	06A	G 6
07	BUS COUPLER	07A	G 7
08	INCOMING NO.2	08A	G 8

MARK	DESCRIPTIONS	DRAWN	DATE

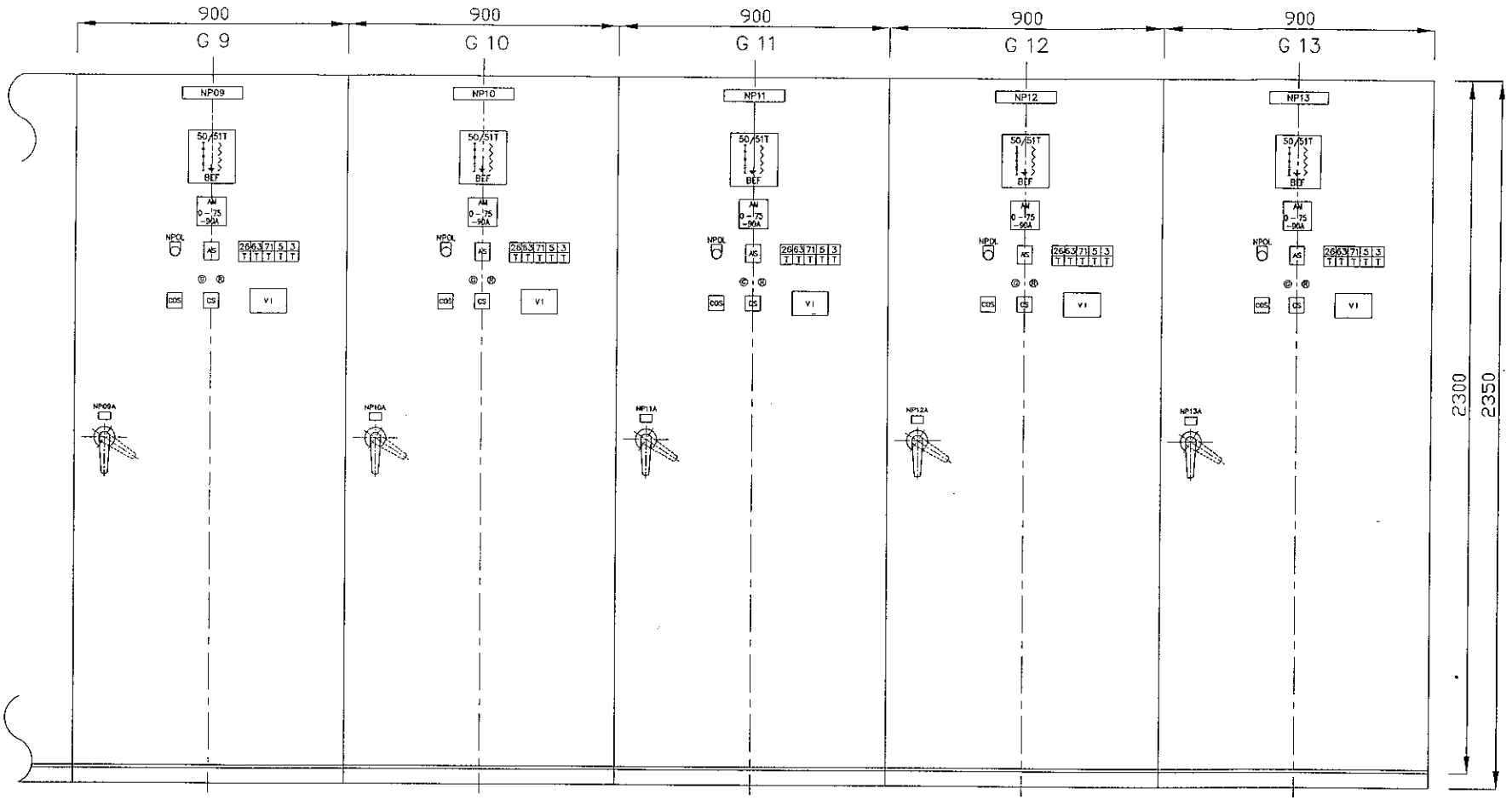
REVISION

APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1:15

TITLE: < HICLAD–20J >
22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
FRONT DOOR COMPONENTS LAYOUT DRAWING (2/3)

MEIDEN SINGAPORE PTE. LTD.

JOB NO.	DRAWING NO.	REMARK
SG1346	GA32609–2	



NAME PLATE DIMENSION

NP NO.	09 TO 13	09A–13A	OL
DIMENSION	200 / 191, 40, 46, SCALE 1:5	40, 25, SCALE 1:5	35, 69, SCALE 1:5
TEXT HEIGHT	L/F TEXT, SCALE N.T.S	L/F TEXT, SCALE N.T.S	L/F TEXT, SCALE N.T.S

LEGEND		SWITCHING SEQUENCES
CS	CIRCUIT BREAKER	OFF– • –ON
COS	CONTROL	LOCAL – REMOTE
VI	VOLTAGE INDICATOR	–
AM	AMMETER	–
AS	AMMETER SWITCH	OFF–R–Y–B

FAULT INDICATOR (CH LETTERING)

	26T	63T	71T	5T	3T
ORANGE TARGET	OIL TEMP. TRIP	GAS PRESS. TRIP	LOW OIL LEVEL TRIP	EMERGENCY TRIP	REF TRIP

FOR REFERENCE ONLY

NAME PLATE LIST

NPNo.	NAME	NPNo.	PANEL NAME
09	TRANSFORMER NO.6	09A	G 9
10	TRANSFORMER NO.7	10A	G 10
11	TRANSFORMER NO.8	11A	G 11
12	TRANSFORMER NO.9	12A	G 12
13	TRANSFORMER NO.10	13A	G 13
OL	LOCK OUT PRESS TO RESET		

MARK	DESCRIPTIONS	DRAWN	DATE

REVISION

APPROVED BY	CHECKED BY	DESIGNED BY
Y. NAMBA	R. LINGAM	B.H. TAN
	UNIT : mm	SCALE : 1:15

MEIDEN SINGAPORE PTE. LTD.

TITLE: < HICLAD–20J >
22kV SWITCHGEAR FOR
KAKI BUKIT FACTORY PROJECT
FRONT DOOR COMPONENTS LAYOUT DRAWING (3/3)

JOB NO. SG1346

DRAWING NO. GA32609–3

REMARK