09

AS BUILT

REV.		ETABLI ESTABLISHED	VERIFIE CHECKED	APPROUVE APPROVED	MODIFICATIONS	STAT.
	N.					
	Date					
	N.					
	Date					
	N.					
	Date					
D	N.	DUR	HAR	DEG	AS BUILT	ASB
	Date	95/08/09	95/08/09	95/08/		
C	N.	XAL	HAR	DEG	UP DATED ACCORDING TO MANUFACTURING & GOOD FOR EXECUTION	GFE
	Date	94/01/26	94/01/26	94/01/26		
B	N.	XFN	HAR	DEG	UP DATED ACCORDING TO EM302 AND MANUFACTURER DATAS AFTER RECEIPT	GFE
	Date	93/02/26	93/02/26	93/02/26		
A	N.	XTO	HAR	DEG	ORIGINAL ISSUE	APP
	Date	92/12/3	92/12/3	92/12/3		

VINH-SON HYDRO-POWER STATION

2 x 40 MVA

CONTRACT N° 12-05/CEG-PC3-PET/01-91

SOCIALIST REPUBLIC OF VIET-NAM
MINISTRY OF ENERGY
PETECHIM-POWER COMPANY Nr 3
ENGINEER EDF

LEADER CEGELEC FRANCE

ALSTHOM - JEUMONT NEYRPIC
CEGELEC SDEM

ECHELLE
SCALE

POWER PLANT

125V LOW VOLTAGE DC SYSTEM

TYPICAL ELECTRICAL DIAGRAM

	DATE	NOM NAME	VISA
ETABLI ESTABLISHED	92/12/3	XTO	
VERIFIE CHECKED	92/12/3	HAR	
APPROUVE APPROVED	92/12/3	DEG	

CEGELEC

Division ERE P : 35, rue d'Alsace F – 92531 Levallois Perret Cedex

CGE VIN20SLAA-ST001 P2135A30084-D

FOLIO SHEET 01 F.FIN SH.END 19

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DESIGNATION	Fº	REVISION A	B	C	D
COVER SHEET	1	X	X	X	X
SUMMARY	2	X	X	X	X
SYMBOLS	3	X			
LEGEND	4	X			
POLARITY DISTRIBUTION	7	X	X		
INCOMING CHARGER MANUAL CIRCUIT BREAKER	8	X	X		
INCOMING BATTERRY MANUAL CIRCUIT BREAKER	9	X	X		
BUS BAR COUPLING MANUAL SWITCH	10	X			
OUTGOING MANUAL CIRCUIT BREAKER	11	X	X	X	
SWITCH POSITION AND FUSE BLOWN	14	X	X		
GROUPED FAULT	15	X	X		
METERING AND PROTECTIVE SYSTEM	18	X	X	X	
HEATERS AND LIGHTING CUBICLES	19	X	X		

DESIGNATION	Fº	REVISION A	B	C

SUMMARY

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FOLIO SHEET 02 | VOIR SEE 03

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ANSI	DESIGNATION	CEI	ANSI	DESIGNATION	CEI
12	OVERSPEED DEVICE	n >	50-76	OVERCURRENT RELAY	I >
13	SYNCHRONOUS-SPEED DEVICE	n	50N	OVERCURRENT RELAY.NEUTRAL	IN>
14	UNDERSPEED DEVICE	n <	51	TIME-LAG OVERCURRENT RELAY	I>
15	SPEED MATCHING DEVICE	n ≈	51	INVERSE TIME OVERCURRENT RELAY	I>
21	DISTANCE OR UNDERIMPEDANCE RELAY	Z <	51N	TIME-LAG OVERCURRENT RELAY.NEUTRAL	IN>
21	DISTANCE OR UNDERREACTANCE RELAY	X <	51V	TIME-LAG OVERCURRENT RELAY WITH VOLTAGE RESTRAINT	I>/U>
21	DISTANCE OR OVERADMITTANCE RELAY	Y >			
23	TEMPERATURE CONTROL DEVICE	θ	53	EXCITATION INCREASE RELAY	B >
25	VOLTAGE COMPARISON DEVICE	U ≈	55	POWER FACTOR RELAY	cos φ
25	PHASE-ANGLE COMPARISON DEVICE	φ ≈	56	EXCITATION RELAY	B
25	FREQUENCY COMPARISON DEVICE	f ≈	58	RECTIFICATION FAILURE RELAY.	⊳=0
25	COUPLING DEVICE	→	59	OVERVOLTAGE RELAY	U >
25	SYNCHRONIZING OR SYNCHRONISM-CHECK DEVICE	Uf ≈ →	59N	NEUTRAL OVERVOLTAGE RELAY	UN >
			59-81	OVERINDUCTION RELAY	U/f>
26	THERMOMETER DETECTOR	θ	60	VOLTAGE BALANCE RELAY	Ud
27	UNDERVOLTAGE RELAY	U <	60	CURRENT BALANCE	Id
27	NO-VOLTAGE RELAY	U=0	63	PRESSURE SWITCH	P
30	ANNUNCIATOR RELAY	⊗	64	FRAME LEAKAGE RELAY	
32	DIRECTIONAL ACTIVE POWER RELAY	P →	67	DIRECTIONAL OVERCURRENT RELAY	I →
32	DIRECTIONAL REACTIVE POWER RELAY	Q →	67N	DIRECTIONAL HOMOPOLAR OVERCURRENT RELAY	IN →
32	REVERSE ACTIVE POWER RELAY	P ←	71	LEVEL SWITCH	
32	REVERSE REACTIVE POWER RELAY	Q ←	74	ALARM RELAY	
37	UNDERCURRENT RELAY	I <	78	MEASURING RELAY AND PHASE-ANGLE PROTECTION	φ
37	UNDER POWER RELAY	P <			
39	MECHANICAL CONDITION MONITOR		79	RECLOSING RELAY	
40	EXCITATION FAULT RELAY	B <	81	FREQUENCY RELAY	f
40	NO-EXCITATION RELAY	B=0	87	DIFFERENTIAL PROTECTIVE RELAY	ΔI
46	PHASE-BALANCE OR REVERSE-PHASE CURRENT RELAY	I₂ >	87N	DIFFERENTIAL PROTECTIVE RELAY	ΔI
47	VOLTAGE RELAY	U	95	BUCHHOLZ RELAY	
49	THERMAL RELAY				
49	THERMOSTAT	θ			

	SWITCH		RESIDUAL CURRENT TRANSFORMER		CAPACITOR		MANUALLY OPERATED
	DISCONNECTOR		SHUNT		CAPACITOR VOLTAGE DIVIDER		ELECTROMAGNETIC ACTUATOR
	CIRCUIT BREAKER	V	INDICATING INSTRUMENT		INDUCTOR WINDING		PNEUMATIC OR HYDRAULIC CONTROL
	CONTACTOR	A	RECORDING INSTRUMENT		BATTERY		REVERSER
	CONTACTOR POLE (contact closed in the unoperated position)	Wh	ENERGY METER		CONVERTER OR MEASURING TRANSDUC.	A	KEY ALWAYS FREE
	SWITCH DISCONNECTOR POLE (on load isolating switch)		IMPULSE COUNTER		RECTIFIER		KEY FREE FOR THE POSITION IN THE DIAGRAM
	FUSE		MEASURING RELAY OR RELATED DEVICE		PLUG AND SOCKET		KEY IMPRISONED FOR THE POSITION IN THE DIAGRAM
	THERMAL EFFECT MAGNETIC EFFECT		SIGNAL LAMP	M	ELECTRICAL CONTROL		ISOLATED PHASE BUS DUCT
	THREE WAYS SWITCH		LIMITER		LINK		CABLE
M	ROTATING MACHINE		DOUBLE DISCONNECTOR		INVERTER		OVERHEAD LINE
	TRANSFORMER WITH 2 WINDINGS		SPARKGAP		EARTH MASS		CARRIER LINE TRAP
	TRANSFORMER WITH 3 WINDINGS		LIGHTNING ARRESTER		PULSE		PLUG (male)
	AUTO-TRANSFORMER		RESISTOR		MECHANICAL INTERLOCK		SOCKET (female)
	CURRENT TRANSFORMER		VARIABLE RESISTOR		KEY OPERATED	PLC CP	POWER LINE CARRIER COUPLING DEVICE

SYMBOLS

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P2135A30084-A

FOLIO SHEET 03 | VOIR SEE 04

XFNC2LE1

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LEGEND AND ELECTRICAL COMPONENTS

BP	PUSH BUTTON
	ON:GREEN STOP:RED RESET FAULT:YELLOW
	TEST LAMP:BLEU OTHER:WHITE
LA	LAMPS
	ON:RED STOP:GREEN FAULT:YELLOW OTHER:WHITE
FU	FUSES
XR	AUXILIAIRY RELAY
CD	FAULT AUXILIARY CONTACT
CA	POSITION AUXILIARY CONTACT
FCD	DISCONNECTED POSITION CONTACT
FCE	CONNECTED POSITION CONTACT
FC	LIMIT SWITCH
JD	CIRCUIT BREAKER
JC	CONTACTOR
JS	DISCONNECTING SWITCH
EA	TRIPPING COIL
YI	CURRENT MEASUREMENT RELAY
YU	VOLTAGE MEASUREMENT RELAY
YT	TEMPERATURE MEASUREMENT RELAY
YG	ISOLATION MEASUREMENT RELAY
MU	VOLTAGE TRANSDUCER
MI	CURRENT TRANSDUCER
MW	POWER TRANSDUCER
II	CURRENT INDICATOR
IU	VOLTAGE INDICATOR
BM	TEST BOX
TU	VOLTAGE TRANSFORMER
TI	CURRENT TRANSFORMER
CC	CONTROL SWITCH

LEGEND

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FOLIO SHEET 04

VOIR SHEET 07

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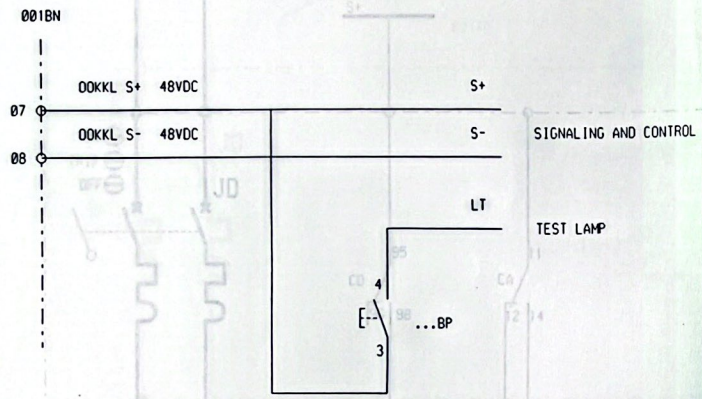

INCOMING CHARGER
POLARITY DISTRIBUTION
2 POLES

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FOLIO SHEET 07 | VOIR SEE 08

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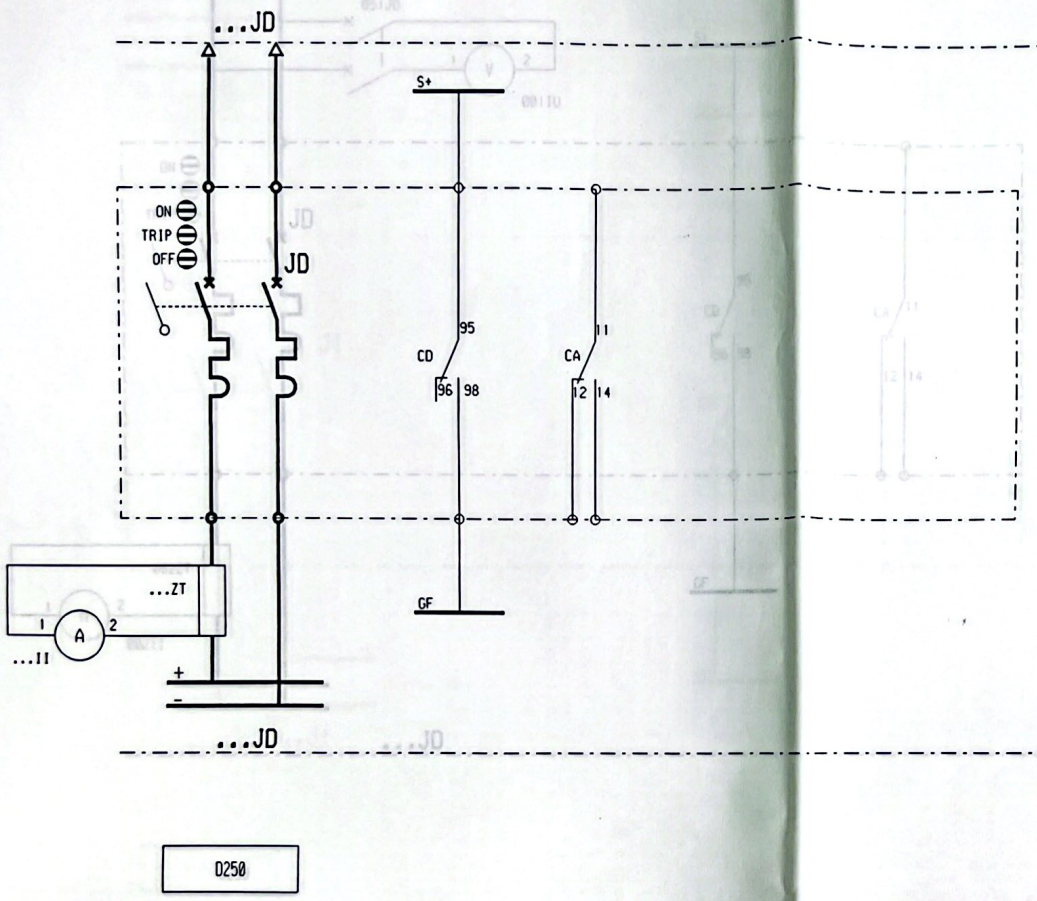

INCOMING CHARGER
MANUAL CIRCUIT BREAKER
2 POLES

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FOLIO SHEET 08 | VOIR SEE 09

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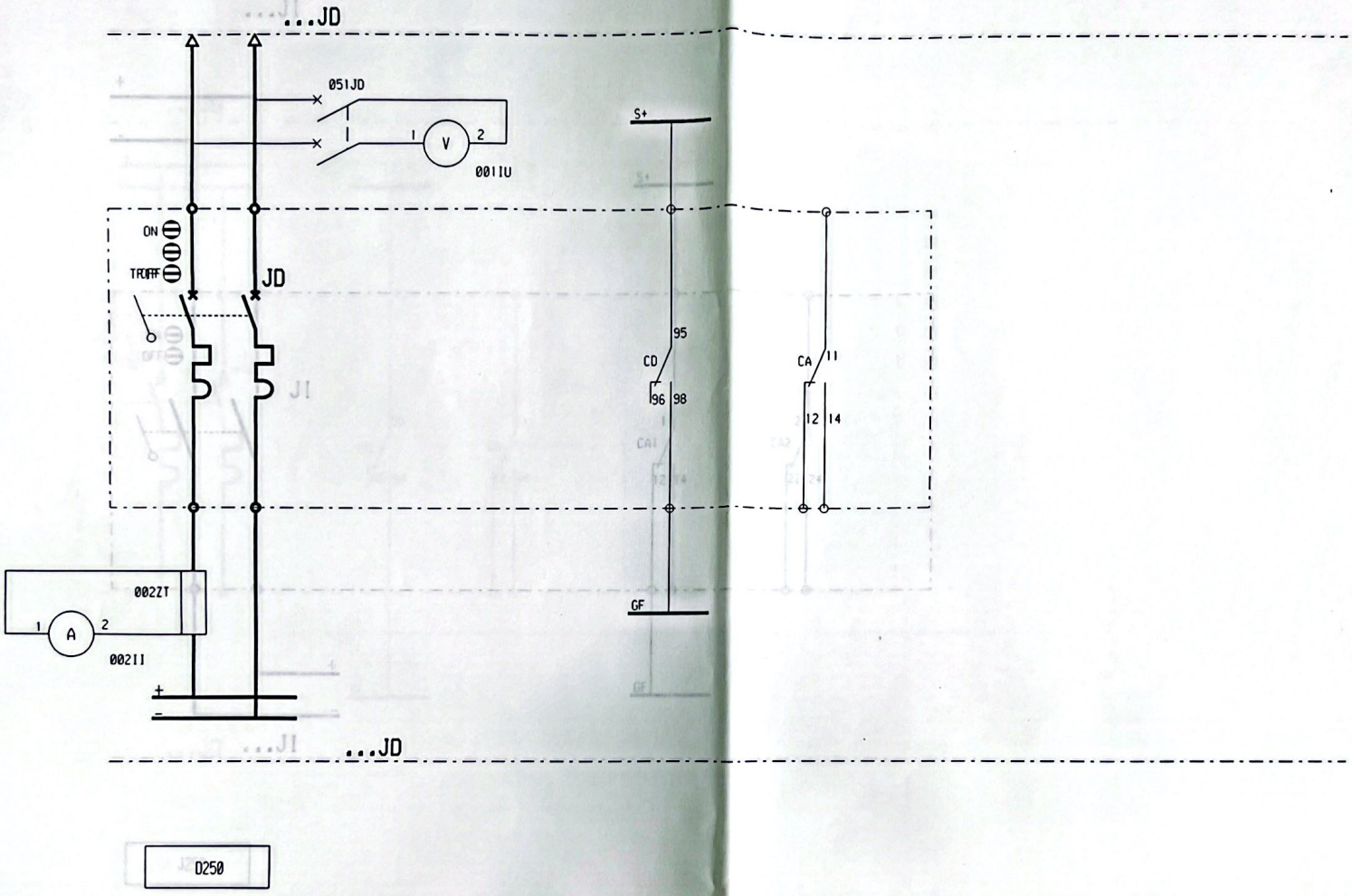

INCOMING BATTERY
MANUAL CIRCUIT BREAKER
2 POLES

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FOLIO SUIVI 09 | VOIR SUR 10

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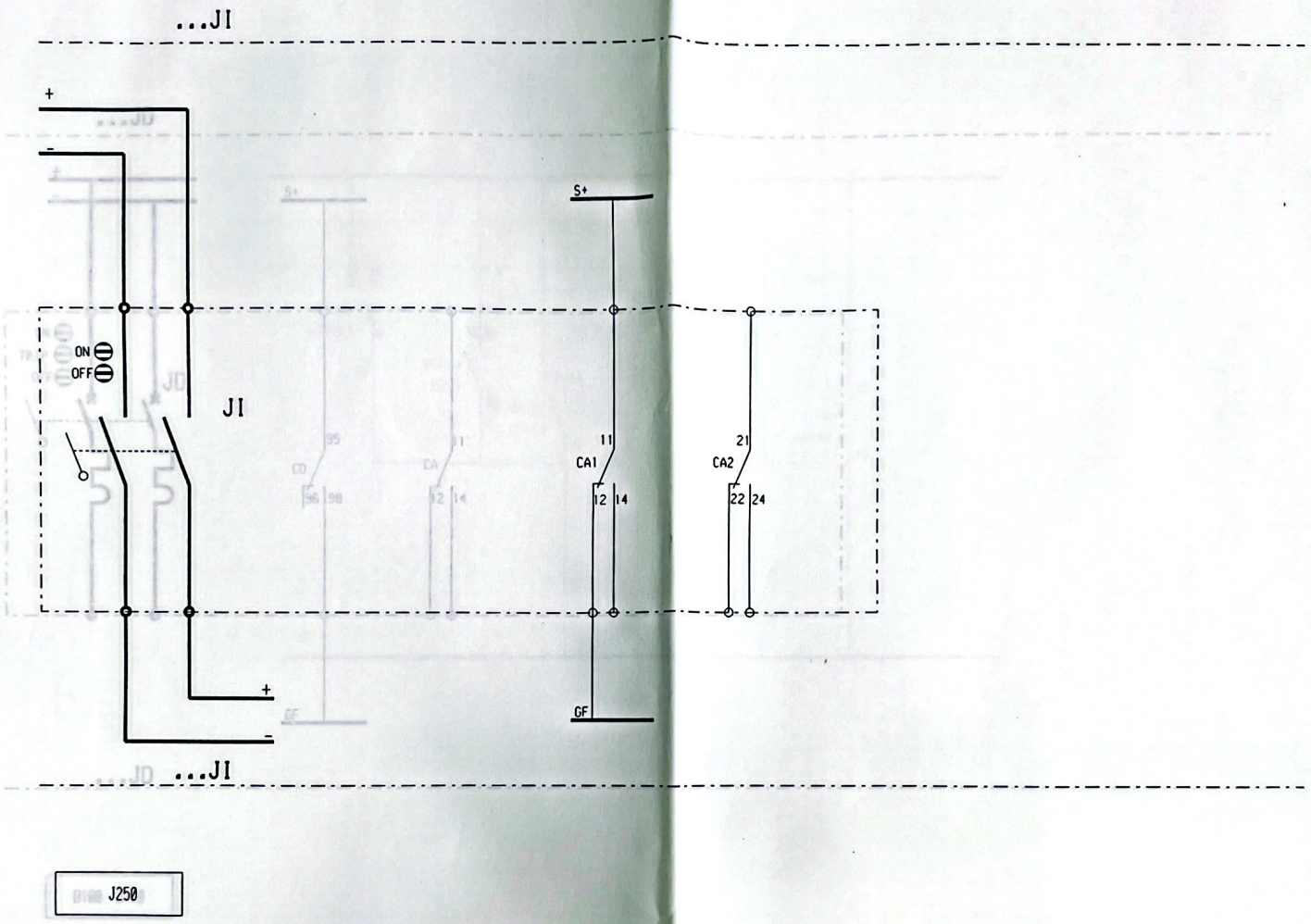

BUS BAR
COUPLING SWITCH
2 POLES

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FOLIO SHEET 10

VOIR SEE 11

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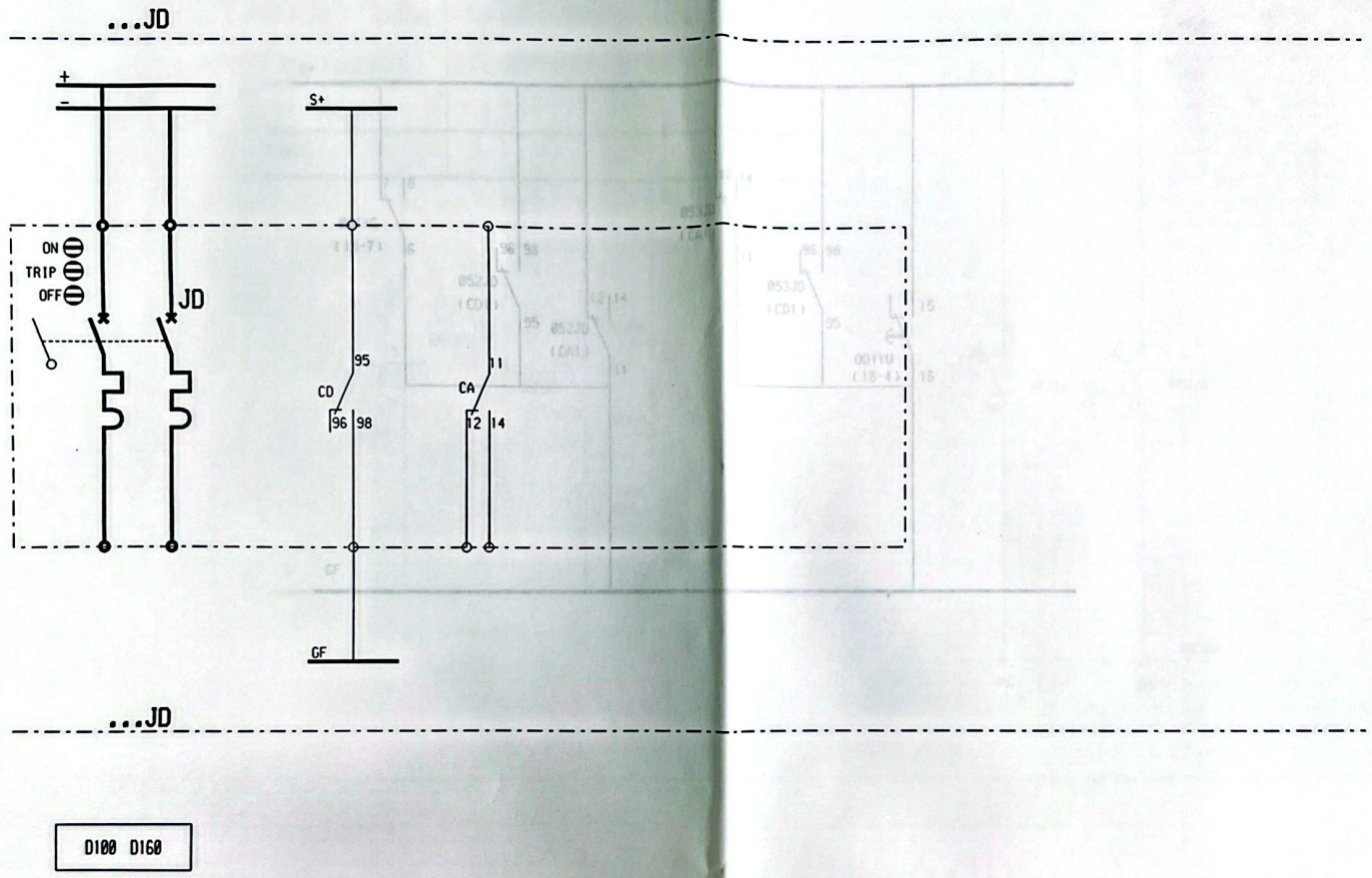

OUTGOING
MANUAL CIRCUIT BREAKER
2 POLES

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FOLIO SHEET 11

VOIR SEE 14

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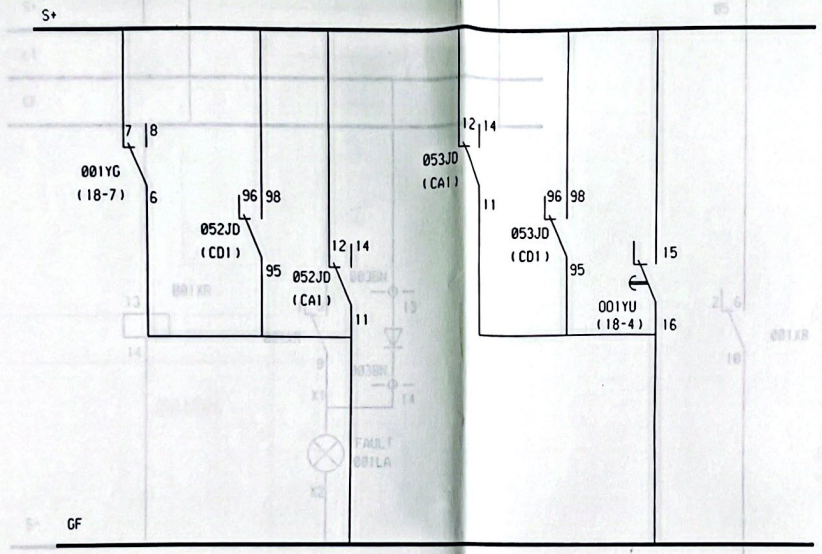
PERMANENT INSULATED CONTROLLER | UNDERVOLTAGE RELAY



SWITCH POSITION
FUSE BLOWN - UNDERVOLTAGE
INSULATED CONTROLLER

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FOLIO SHEET 14 | VOIR SEE 15

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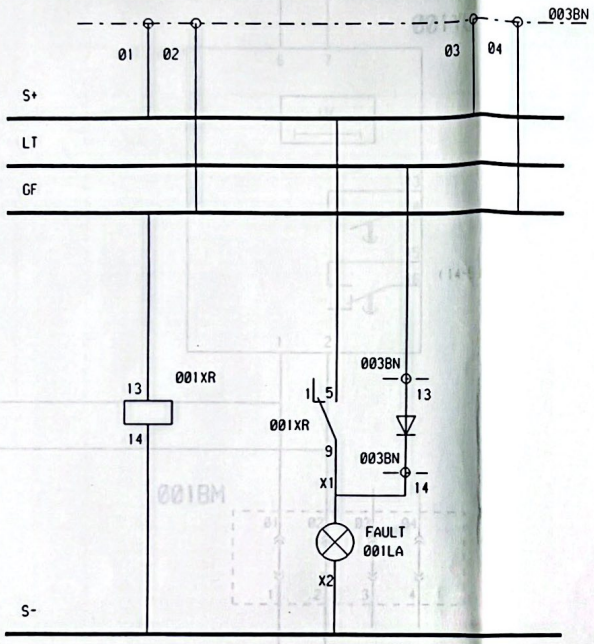
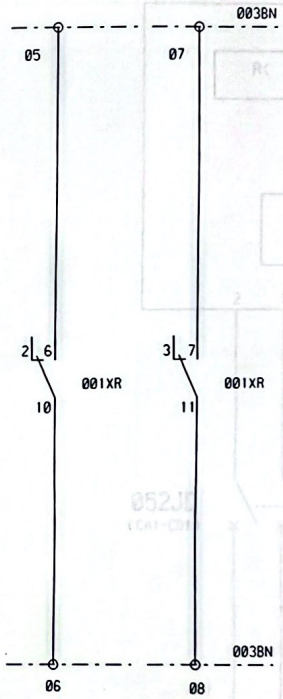
REMOTE FAULT BATTERY CHARGER 1 AND 2



TO RELAYING



GROUPED FAULT

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FOLIO SHEET 15

VOIR SEE 18

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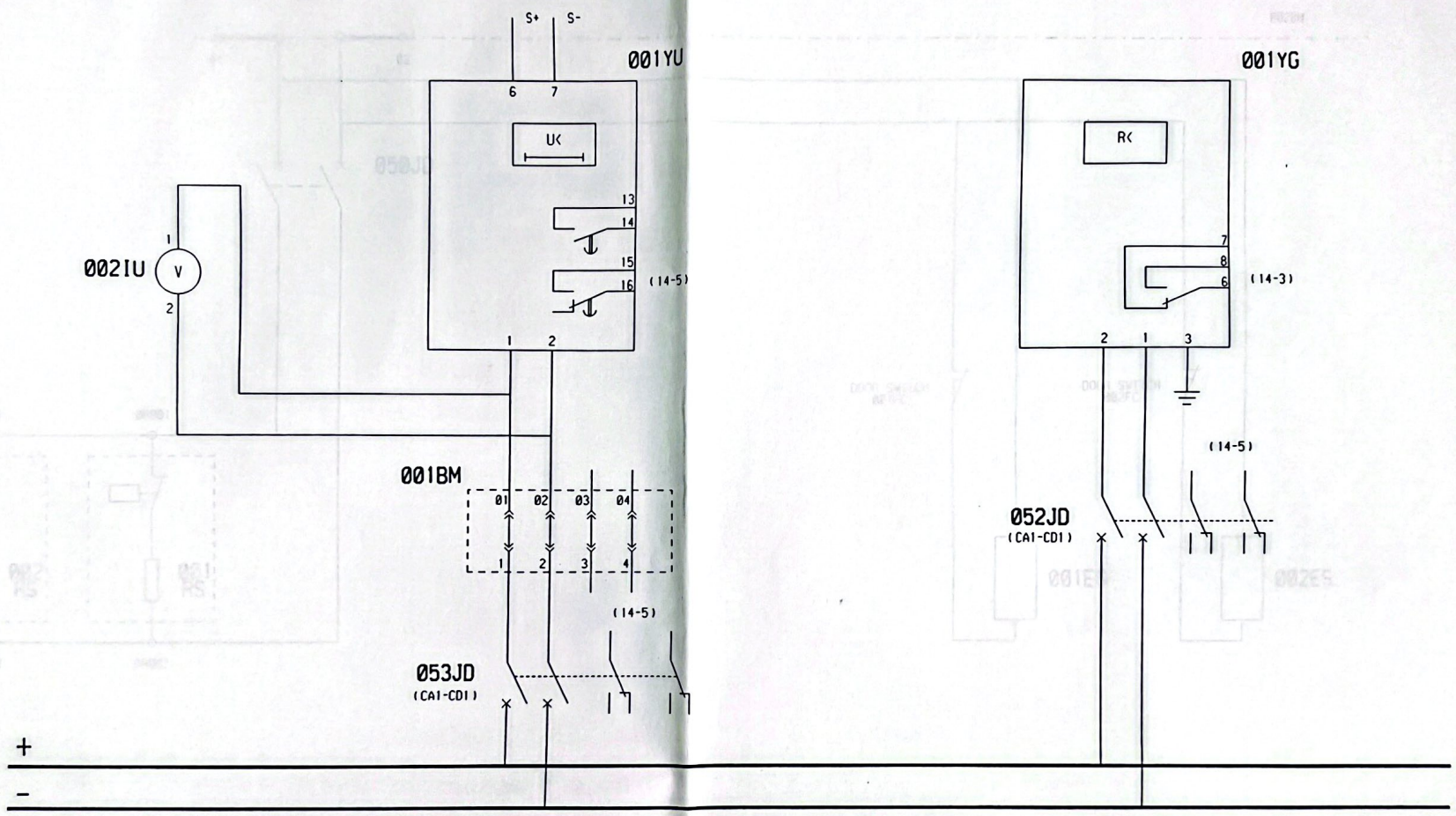

PROTECTIVE AND METERING SYSTEM

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FOLIO SHEET 18 | VOIR SEE 19

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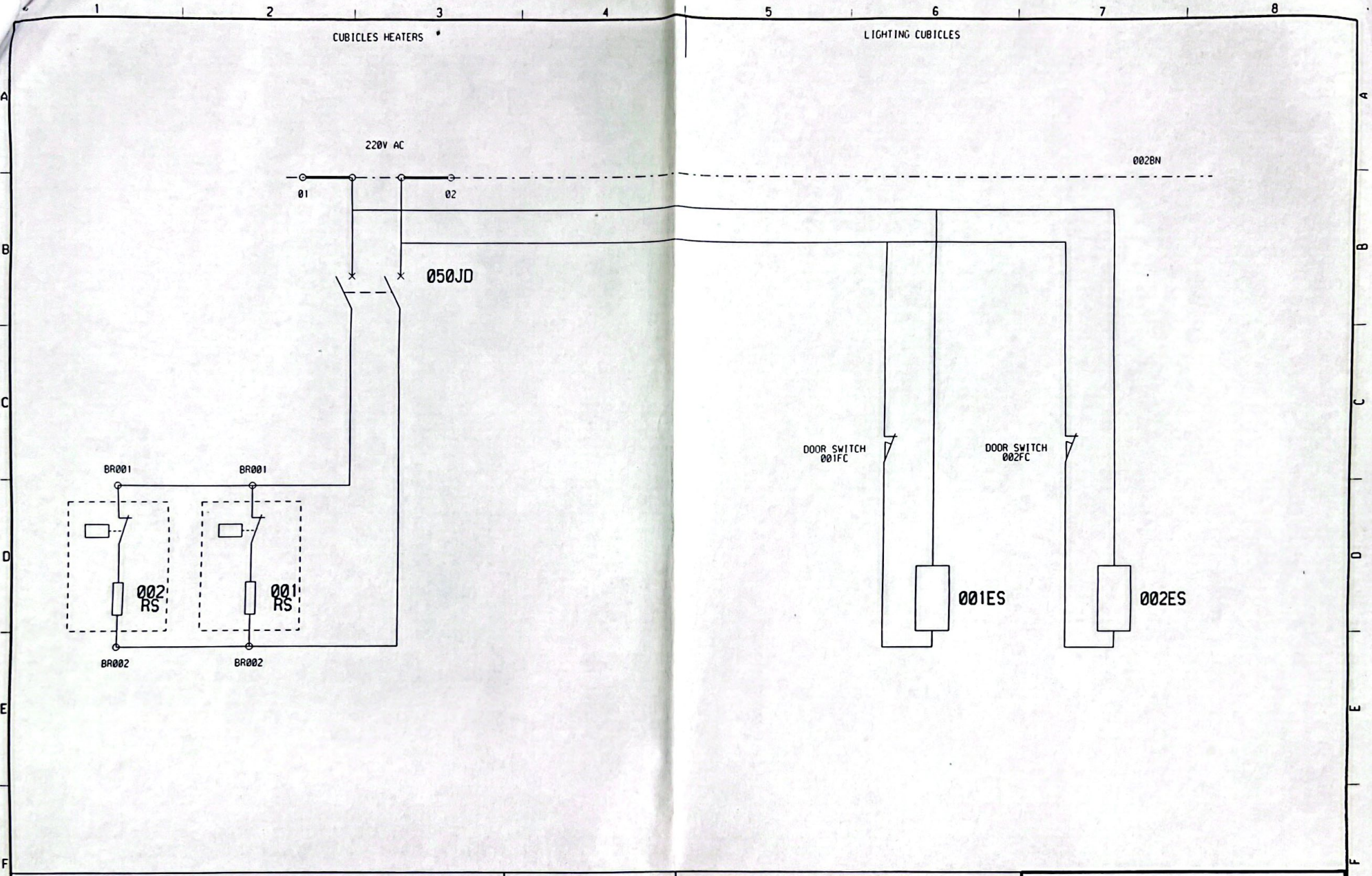

HEATERS AND LIGHTING CUBICLES

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FOLIO SHEET 19

VOIR SEE -

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