

LIST OF APPARATUS

DEVICE NO.	TYPE	DESCRIPTION	OPER. BY
3	MC	MASTER RELAY	D.C.
4	32-CX-2	MASTER CONTACTOR	D.C.
6	42-CX-2	STARTING CONTACTOR	D.C.
8	NA	CONTROL POWER SWITCH	HAND
19	30CX	TRANSITION RELAY (START TO RUN)	D.C.
27	CV	A.C. UNDERVOLTAGE RELAY	A.C.
39X	31-CX-2	FIELD REDUCING CONTACTOR (RELAY)	D.C.
39Y	30CX	" " (GENERATOR)	D.C.
39Z	30CX	" " (REGULATOR CUT OUT)	D.C.
42	45FO	RUNNING BREAKER	D.C.
42X	30CX	" " AUX. RELAY	D.C.
43	W	TRANSFER SWITCH	HAND
48	TD	INCOMPLETE SEQUENCE RELAY	D.C.
49A	TA-2	A.C. THERMAL RELAY (STARTING MOTOR)	A.C.
49B	TA-2	" " (MAIN MOTOR)	A.C.
49X	MC	" " AUX. RELAY	D.C.
51	CO	A.C. OVERCURRENT RELAY	A.C.
51X	SC	" " AUX. RELAY	A.C.
52		A.C. LINE OIL CIRCUIT BREAKER	D.C.
52Y		" " " " TRIP COIL	D.C.
52X		" " " " CONTROL RELAY	D.C.
52Y		" " " " " "	D.C.
59	CV	A.C. OVERVOLTAGE RELAY	A.C.
59Y	CV	" " AUX. RELAY	A.C.
84	CV	GENERATOR RELAY	A.C.
84X	MC	" " AUX. RELAY	D.C.
86	MA	LOCKING OUT RELAY	D.C.
86X	SG	" " AUX. RELAY	D.C.
90	API2	VOLTAGE REGULATOR	A.C.

LIST OF APPARATUS - CONTINUED

151	CO	A.C. OVERCURRENT RELAY (GENERATOR)	A.C.
151X	SC	" " AUX. RELAY	A.C.
151Y	TEL	" " AUX. TIMING RELAY	D.C.
152	62C3	GENERATOR CONTACTOR	D.C.
152Y	30CX	" " AUX. RELAY	D.C.
152Z	MC	" " UNDERVOLTAGE RELAY	A.C.
186	TD	FEEDER LOCKOUT RELEASE TIMING RELAY	D.C.
186X	MC	" " " " AUX. RELAY	D.C.
208	NA	CONTROL POWER SWITCH	HAND
227	MC	A.C. UNDERVOLTAGE RELAY (FEEDER)	A.C.
227X	CV	" " AUX. RELAY (FEEDER)	A.C.
243	SP.TEL.	INST.-TIME DELAY TRANS. RELAY	D.C.
230	MX	FEEDER LOCKOUT RELAY	D.C.
251	HE	A.C. OVERCURRENT RELAY (FEEDER)	A.C.
252		FEEDER CIRCUIT BREAKER	D.C.
252X		" " " " CONTROL RELAY	D.C.
252Y		" " " " " "	D.C.
287	CO	TRANSFORMER DIFFERENTIAL RELAY	A.C.
351	SC	A.C. OVERCURRENT RELAY FEEDER	A.C.
352	32C2	FEEDER CONTACTOR	D.C.
352X	SG	" " AUX. RELAY	D.C.
330	MX	FEEDER LOCKOUT RELAY	D.C.
327	MC	" " UNDERVOLTAGE RELAY	A.C.
MR.	SP.TEL.	MASTER RELAY CIRCUIT INDICATOR	D.C.

RESISTOR TABLE

RES.	TYPE	LENGTH INCHES	OHMS	STYLE No.	REQ.
R3	S	10	435	204647-A	1
R27	CAGE		3000	NEWARK	1
R39	S	10	100	204562-A	1
R42	S	10	168	204627-A	1
R42X	S	10	250	225836-A	1
R39	CAGE		10,000	NEWARK	1
R39Y	CAGE		10,000	NEWARK	1
R84	CAGE		7000	NEWARK	1
R84X	S	10	435	204647-A	1
RVM	CAGE		14,160	NEWARK	1
RE	S	10	17	943767	2
RG	M	14	7.1	525180	2
RR	M	16	4.3	389079	1
R352X	S	10	250	225836-A	4
R243	F	5	1600	310499-A	1
RMR	F	5	1600	310499-A	1
RGM	CAGE			NEWARK	3
R287	S	10	17	943767	2
R227XA	CAGE		1200	NEWARK	1

6-13-38	3		FOR INSTRU. BOOK
5-9-38	2		REMOVED 251X
11-18-37	1		FOR CONSTRUCTION
DATE	ISSUE	APPROVAL	REMARKS

THE PENNSYLVANIA RAILROAD
EASTERN ELECTRIFICATION
HARRISBURG SUBSTATION
SIGNAL SCHEMATIC DIAGRAM
SHEET "E"

PHILADELPHIA, PENNA.

No. 5400E

W. H. Griffith
ASST. V.P. - CHIEF OF MOTIVE POWER
ELECTRICAL ENGINEER

① R.M.R. 11-18-37
② R.M.R. 5-5-38