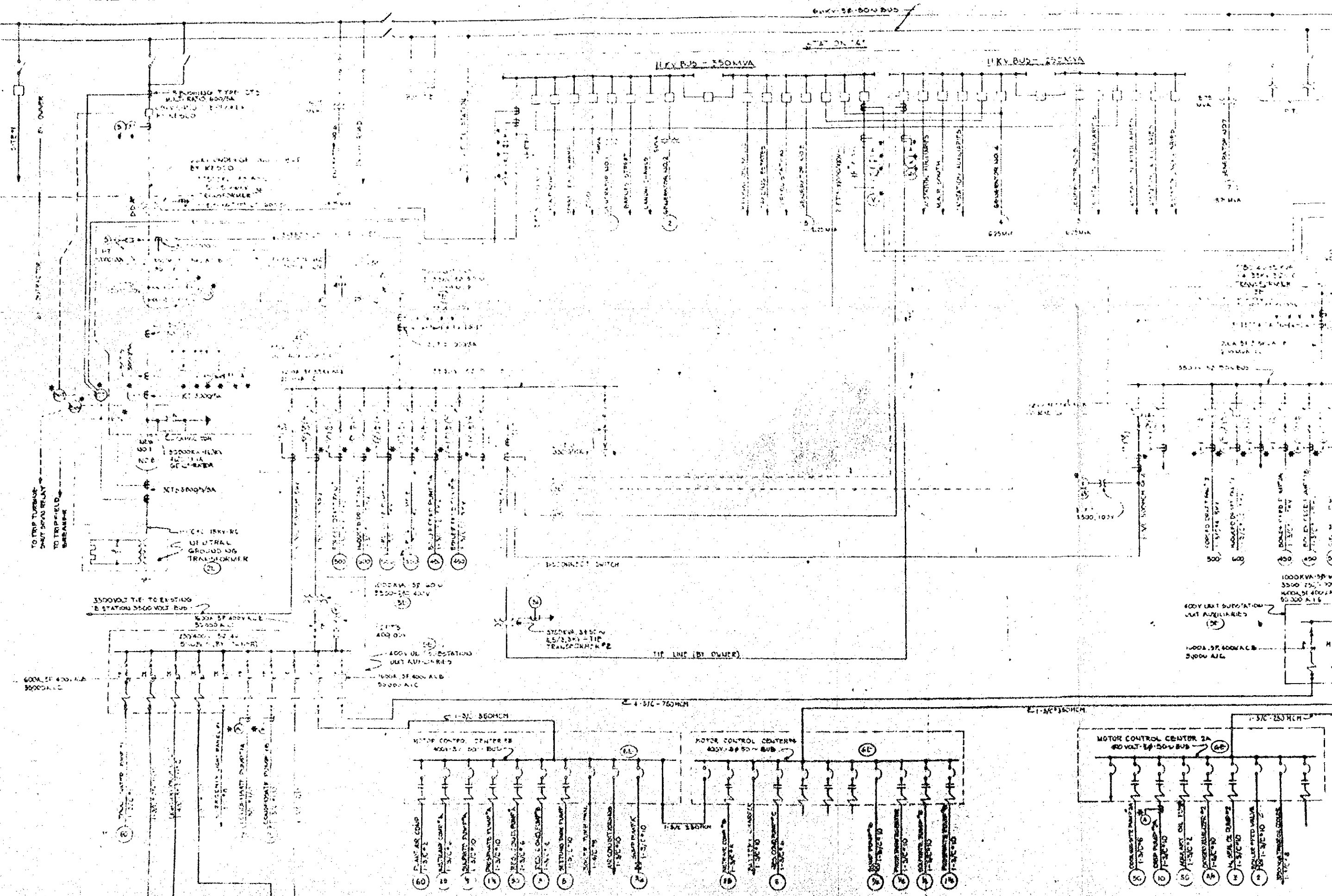
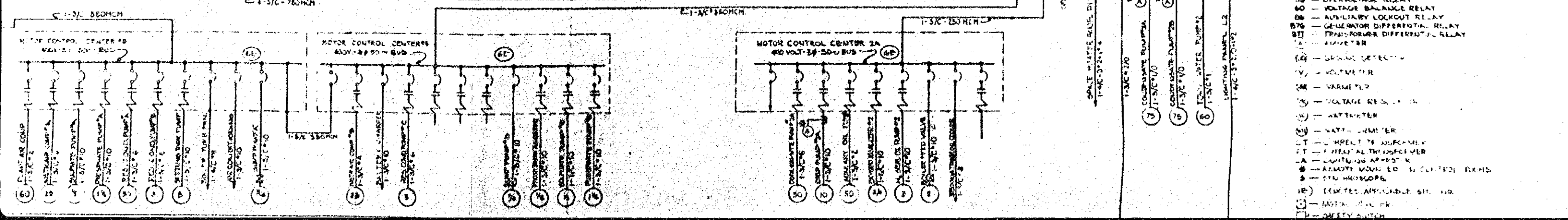
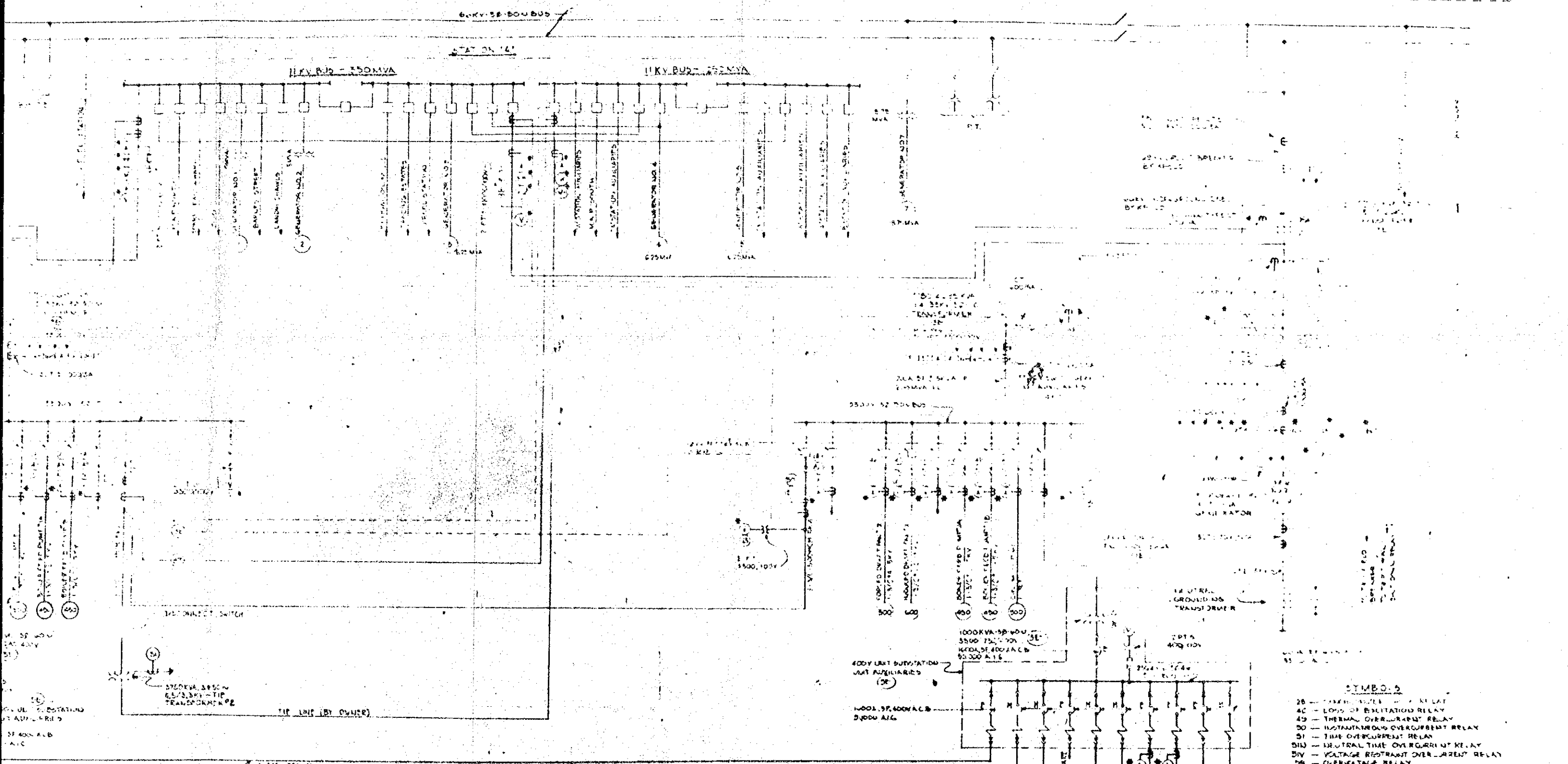


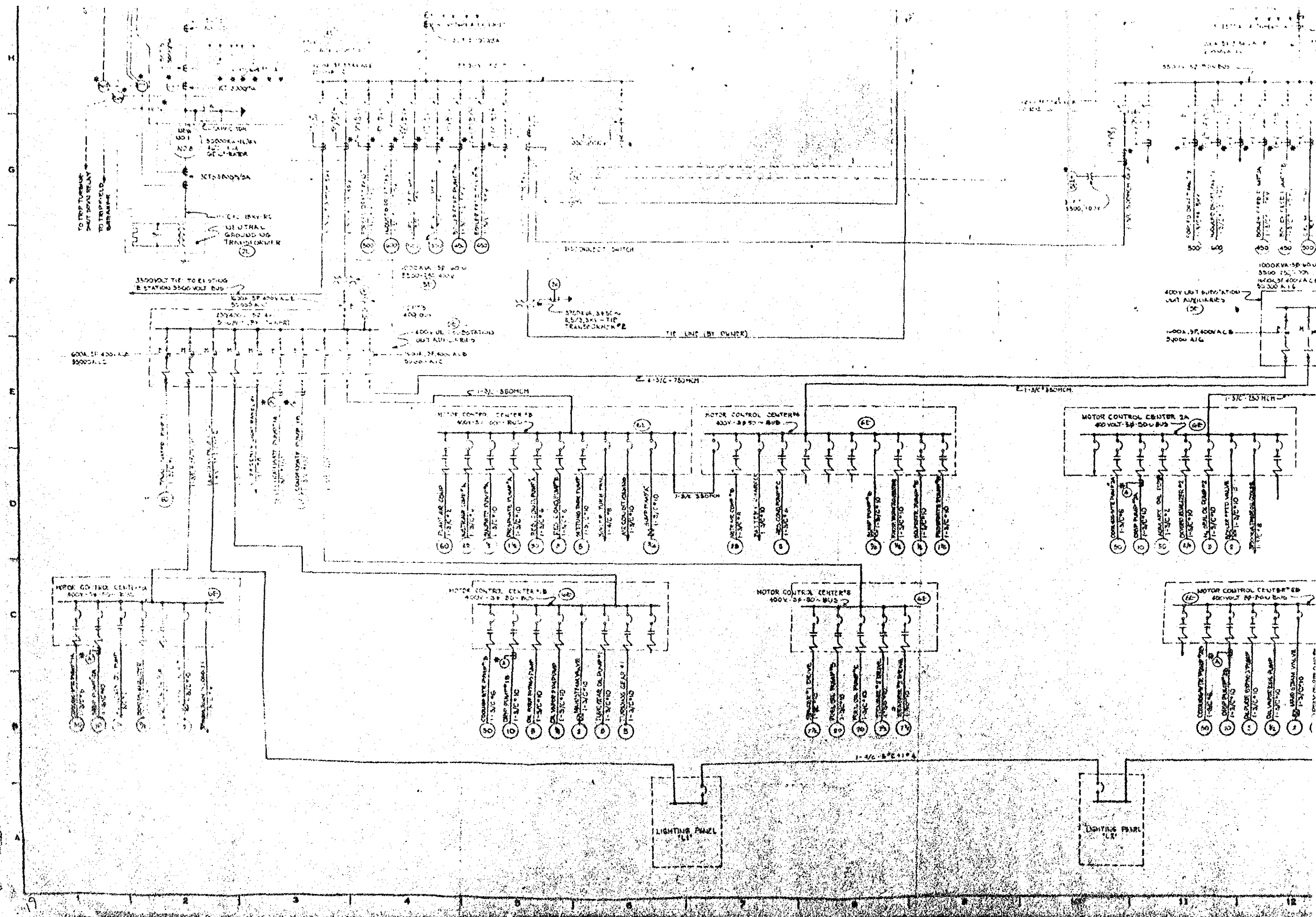
DATE: 1-13-60

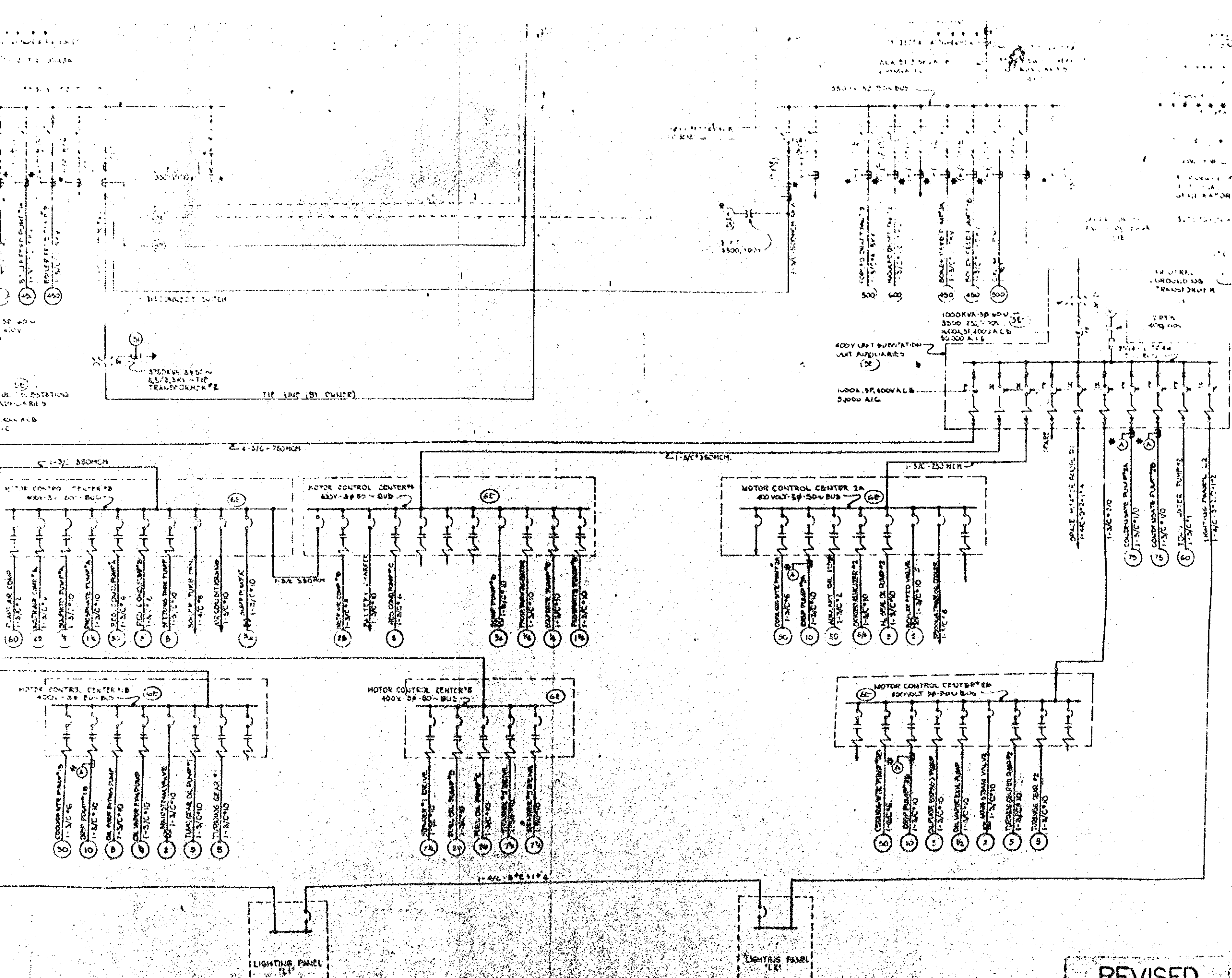


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- SYMBOLS**
- 26 - THERMAL OVERCURRENT RELAY
 - 4C - LOSS OF EXCITATION RELAY
 - 4S - THERMAL OVERCURRENT RELAY
 - 50 - INSTANTANEOUS OVERCURRENT RELAY
 - 51 - TIME OVERCURRENT RELAY
 - 51U - NEUTRAL TIME OVERCURRENT RELAY
 - 5V - VOLTAGE RESTRAINT OVERCURRENT RELAY
 - 56 - OVERVOLTAGE RELAY
 - 60 - VOLTAGE BALANCE RELAY
 - 66 - AUXILIARY LOCKOUT RELAY
 - 67S - GENERATOR DIFFERENTIAL RELAY
 - 811 - TRANSFORMER DIFFERENTIAL RELAY
 - 9 - AMMETER
 - 10 - SERVICE DETECTOR
 - 11 - VOLTMETER
 - 12 - VARIATOR
 - 13 - VOLTAGE RELAY
 - 14 - WATTMETER
 - 15 - WATT-HOUR METER
 - 16 - METAL THERMISTOR
 - 17 - METAL THERMISTOR
 - 18 - METAL THERMISTOR
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 - 100 - METAL THERMISTOR



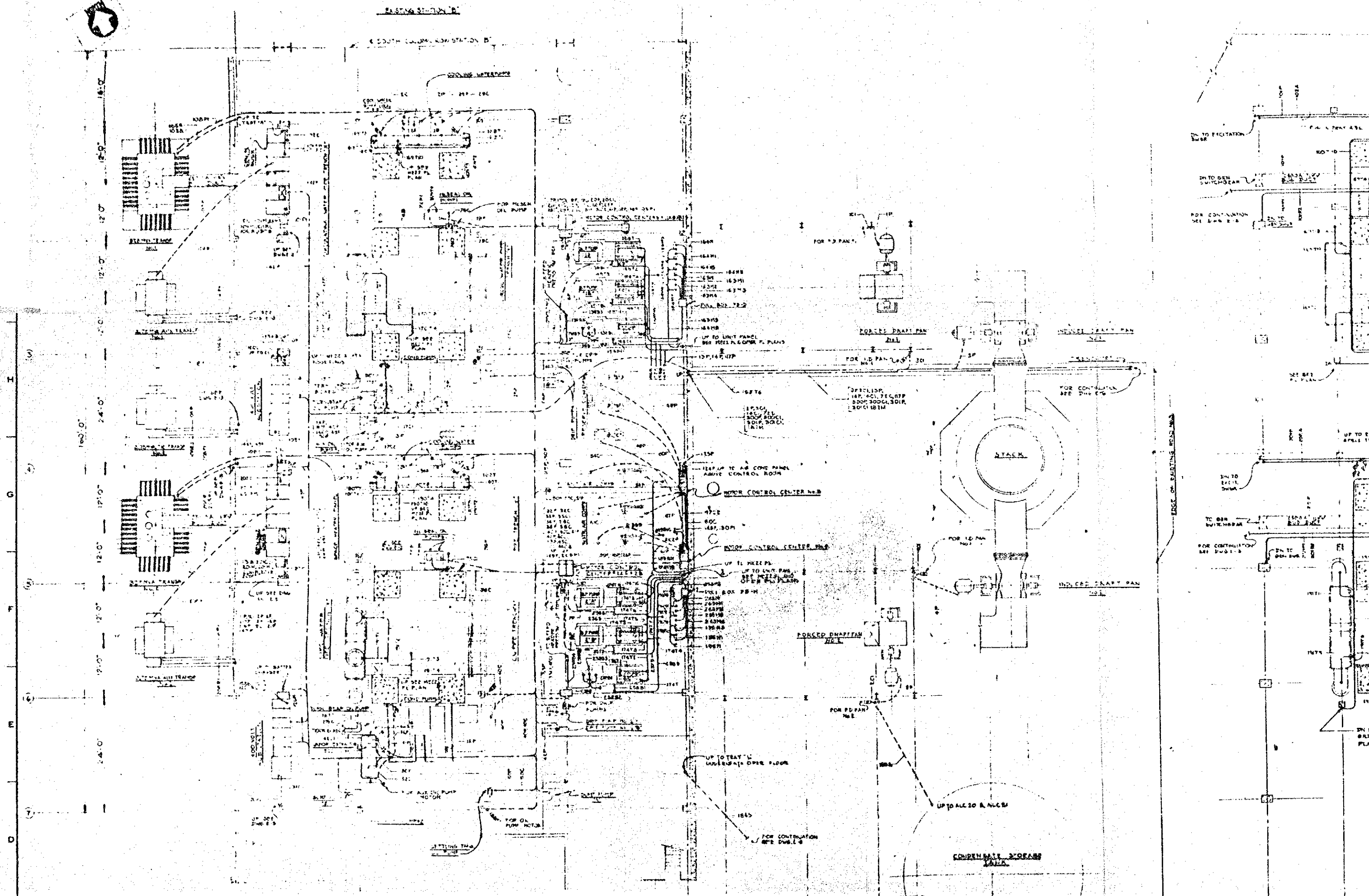


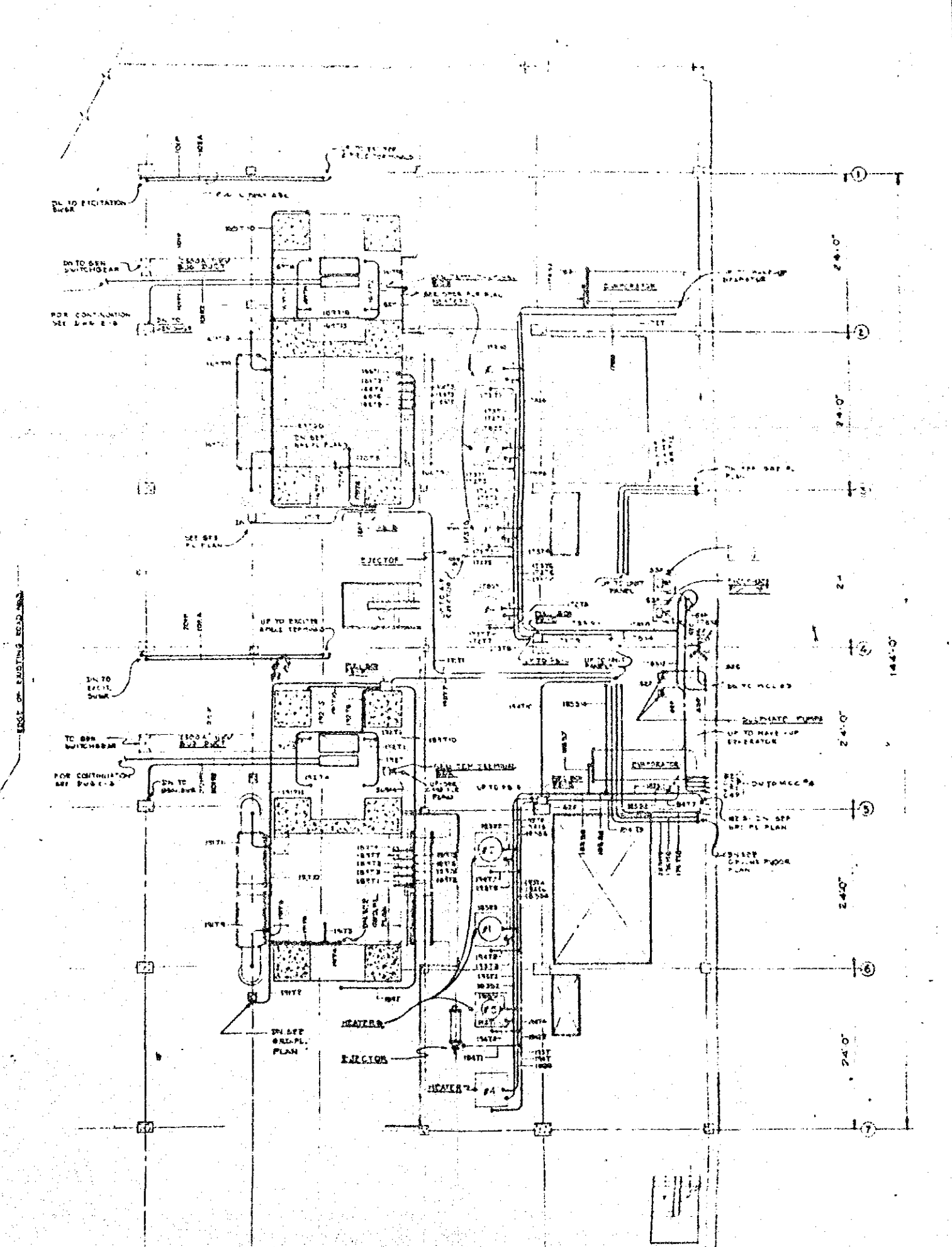
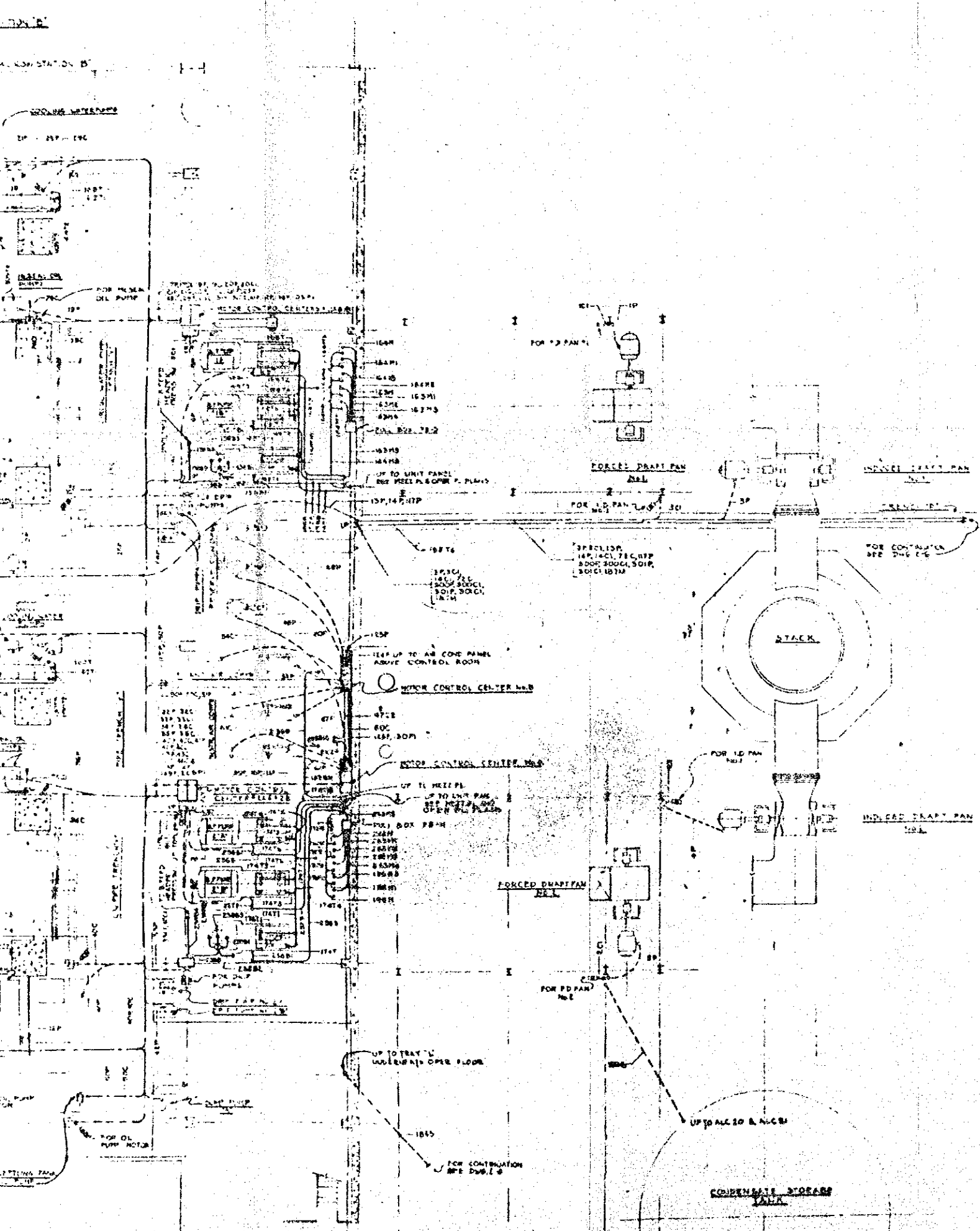
- SYMBOLS**
- 28 - FERRULE
 - 40 - LOSS OF EXCITATION RELAY
 - 45 - THERMAL OVERLOAD RELAY
 - 50 - INSTANTANEOUS OVERCURRENT RELAY
 - 51 - TIME OVERCURRENT RELAY
 - 51U - NEUTRAL TIME OVERCURRENT RELAY
 - 51V - VOLTAGE RESTRAINT OVERCURRENT RELAY
 - 59 - OVERVOLTAGE RELAY
 - 60 - VOLTAGE BALANCE RELAY
 - 69 - AUXILIARY LOCKOUT RELAY
 - 87S - GENERATOR DIFFERENTIAL RELAY
 - 87T - TRANSFORMER DIFFERENTIAL RELAY
 - 91 - AMMETER
 - 92 - GRAVITY DETECTOR
 - V - VOLTMETER
 - W - WATTMETER
 - VOL - VOLTAGE REGULATOR
 - WT - WATERMETER
 - NATL - NATURAL
 - IMP - IMPULSIVE
 - POT - POTENTIAL TRANSFORMER
 - CONT - CONTINUOUS
 - ARM - ARMATURE
 - TR - TRANSFORMER
 - ED - ELECTRICAL DRIVE
 - OFF - OFF
 - SW - SAFETY SWITCH
 - OPEN - ELECTRICALLY OPEN
 - MEM - MEMORY

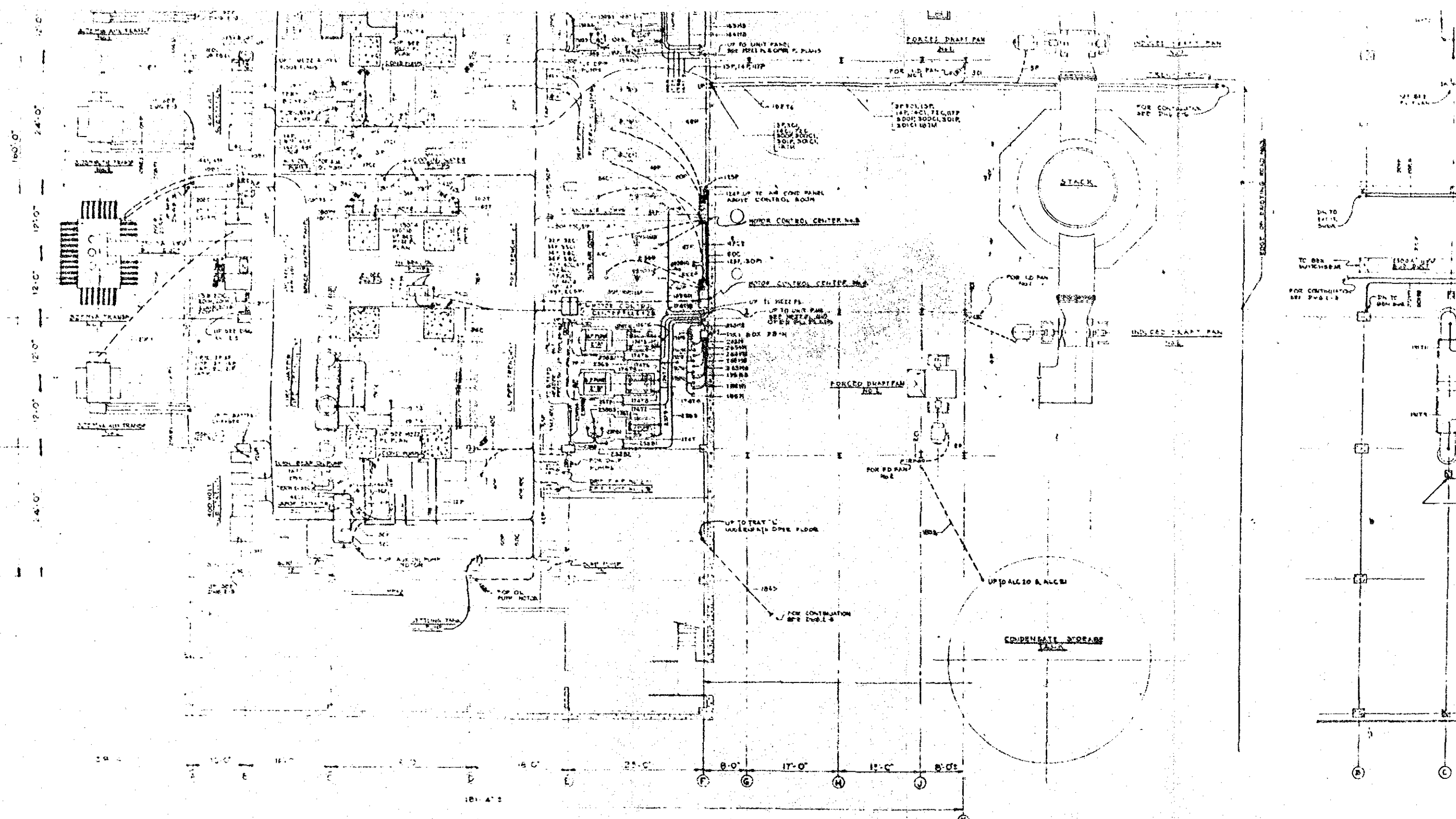
- NOTES**
- UNIT PLAN, UNIT AS CONTINUATION OF STATION PLAN AND AS SHOWN IN DATASHEET AND RESPECTIVELY.
 - INSTALLATION OF CIRCULATING WATER PUMPS A.C.B. MOTOR AND STATION DRIVE MOTOR WITH MATURE INSTEAD CONTACT LEADS SHALL BE MADE UNDER PHASE 'B'.

REVISED
Destroy all Previous Prints

NO.	BY	DATE	SCALE	DATE
1	A.B.	11/1/60		1960
SINGLE LINE DIAGRAM				
KARACHI ELECTRIC SUPPLY CORPORATION LTD. 2-30 N.W. 'B' STATION EXTENSION-WEST WHARF KARACHI PAKISTAN				
THE KULJIAN CORPORATION ENGINEERS & CONSTRUCTORS PHILADELPHIA, PA.				
COPIES	DATE	SCALE	NO.	
3-2			1	1960
BY		DATE	SCALE	
		11/1/60	1:5	E-1







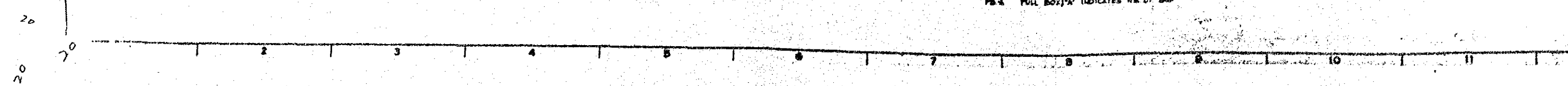
MECHANICAL FLOOR - ELEV. +12.02
Sheet 4-10

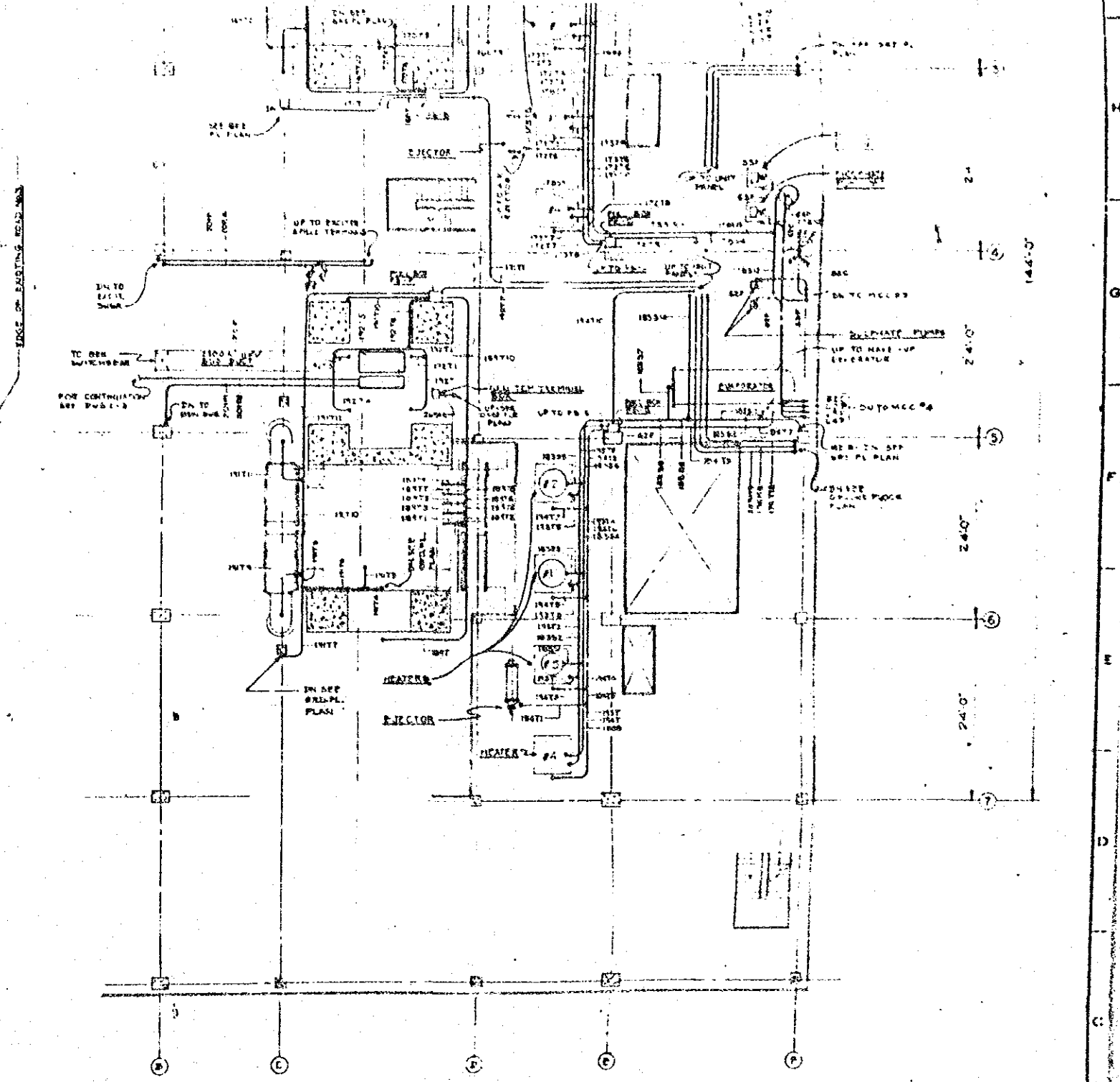
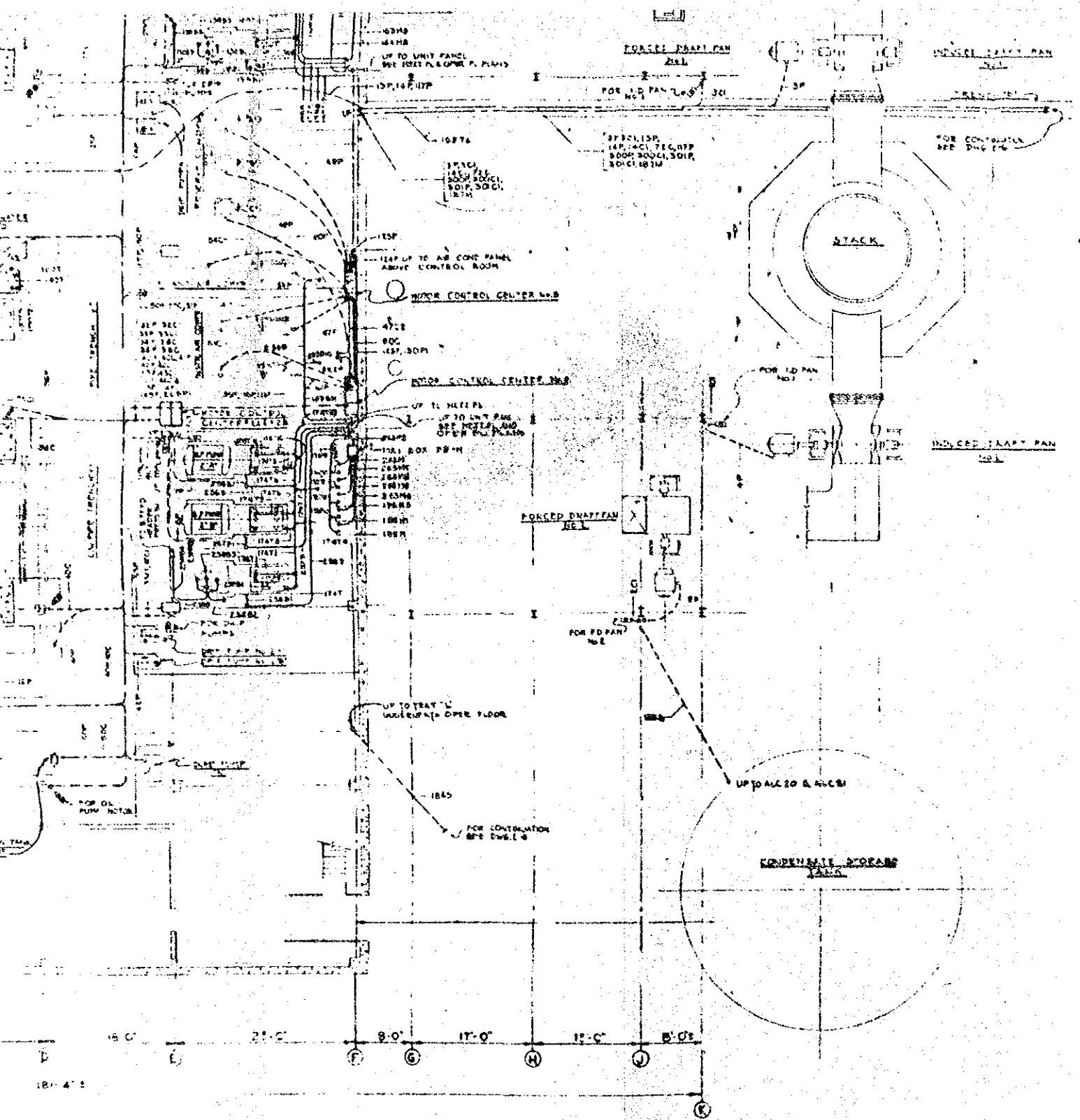
LEGEND

- ARMORED CABLES OR UNARMORED CABLES IN CONDUIT RUN EXPOSED UNDER CEILING OR ON WALL
- ARMORED CABLES OR UNARMORED CABLES IN CONDUIT RUN EXPOSED UNDER FLOOR OR IN TRUNCH
- ARMORED CABLES AND UNARMORED CABLES IN CONDUIT RUN UNDERGROUND OR IN B.S.W.
- CONDUIT OR CABLE TURNING UP, SEE UPPER FLOOR PLAN
- CONDUIT OR CABLE TURNING DOWN, SEE LOWER FLOOR PLAN
- T-CONDUIT OR JUNCTION BOX
- ⊕ JUNCTION BOX
- ⊙ MOTOR
- ⊕ SAFETY SWITCH
- ⊕ ROTOR STARTER
- ⊕ LOCAL STOP-HOLDAL OR LOCKOUT PUSH BUTTON
- ⊕ LOCAL START-STOP PUSH BUTTON
- PB-N FULL BOX/IN INDICATES NO. OF BOX

NOTES

1. WHERE SEVERAL CABLES INDICATED THAT ALL CABLES ARE SHOWN AS PER ALL CABLES SHOWN ARE RUNNERS IN TRAYS, BOTH ENDS OF THE CABLE WHERE SHOWN AS ABOVE.
2. ALL CABLES OR CONDUITS FROM AND TO THE EQUIP.
3. ALL CABLES RUNNING UNDER FLOOR.
4. CABLES FROM ROOM 300/301/302 UNDER PHASE'S





PLAN MEZZANINE FLOOR ELEV. 23.75
SCALE 1/8"=1'-0"

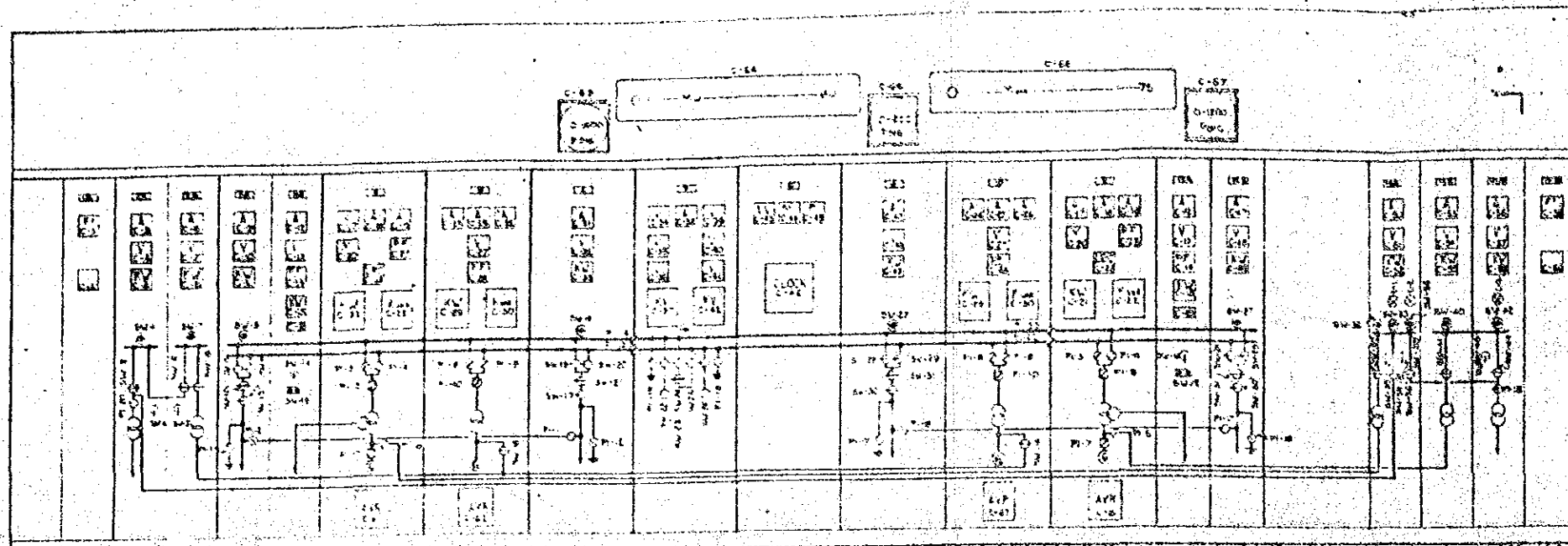
- LEGEND**
- ARMORED CABLES OR UNARMORED CABLES & CONDUIT RUN EXPOSED UNDER CEILING OR ON WALL
 - - - ARMORED CABLES OR UNARMORED CABLES IN CONDUIT RUN EXPOSED UNDER FLOOR OR IN TRENCH
 - ... ARMORED CABLES AND UNARMORED CABLES IN CONDUIT RUN UNDERGROUND ON W. S. L.
 - CONDUIT OR CABLE TURNING UP, SEE UPPER FLOOR PLAN
 - CONDUIT OR CABLE TURNING DOWN, SEE LOWER FLOOR PLAN
 - T— CONDUIT OR JUNCTION BOX
 - ⊕ JUNCTION BOX
 - ⊙ MOTOR
 - ⊞ SAFETY SWITCH
 - ⊞ ROTOR STARTER
 - ⊞ LOCAL STOP-NORMAL OR LOCKOUT PUSH BUTTON
 - ⊞ LOCAL START-STOP PUSH BUTTON
 - ⊞ FULL BOXES INDICATES NO. OF BOX

- NOTES**
1. WHERE SEVERAL CABLES ARE SHOWN WITH A SINGLE LINE - THIS INDICATES THAT ALL CABLES RUN IN THE SAME DIRECTION. ALL CABLES SHOWN AS SEEN HEADS, DIRECTED AND TRAYS (TRUNKS), ARE TERMINATED IN TRAYS (TRUNKS). BOTH ENDS OF THE CABLES LEAVE THE TRAYS (TRUNKS) WHERE SHOWN AS ARROW HEADS.
 2. ALL CABLES OR CONDUITS SHOWN WITH SEPARATE LINES OUTSIDE OF TRAYS FROM AND TO THE EQUIPMENT ARE SUPPORTED ON STRUCTURE.
 3. ALL CABLES RUNNING UNDERGROUND OR ON SLAB ARE IN CONDUIT.
 4. CABLES 800V, 300V, 50V, 250V, 150V, 100V, SHALL BE INSTALLED UNDER PHASES.

NO.	DATE	REVISION	BY	CHKD. BY
CONDUIT PLAN GR-10 AND MEZZANINE FLOORS				
KARACHI ELECTRIC SUPPLY CORPORATION LTD. 2-30 N.W. 8 th STATION EXTENSION - WEST WHARF KARACHI PAKISTAN				
THE KULJIAN CORPORATION ENGINEERS & CONSTRUCTORS PHILADELPHIA, PA.				
DESIGNED BY	D.B.	DATE	11/11/60	JOB NO. K-1960
CHECKED BY	R.D.	SCALE	1/8"=1'-0"	DWG. NO. E-2
APPROVED BY				

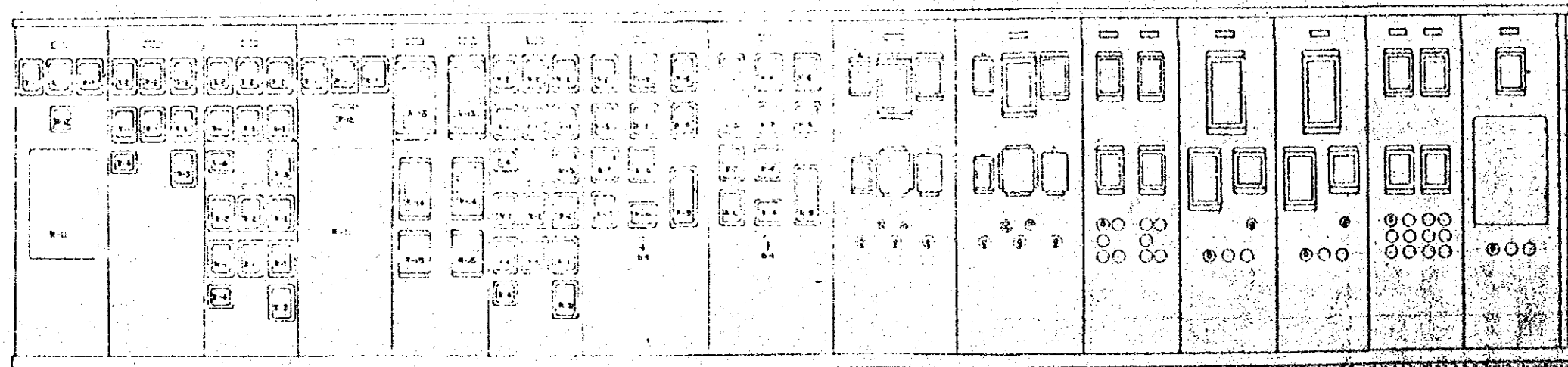
ELEV. +12.00

K-1980



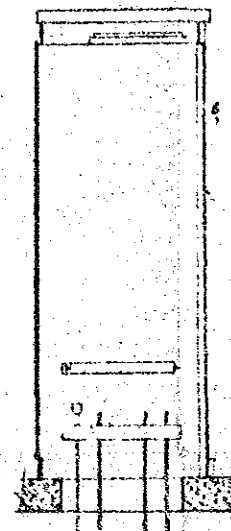
SECTION No.	1A	1B	2A	2B	3	4	5	6	7	8	9	10	11	12A	12B	13	14A	14B	15	15B
DESCRIPTION	SWITCH	TRANSFORMER	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	CONTROL UNIT	GENERATOR	GENERATOR	GENERATOR	GENERATOR	GENERATOR	GENERATOR	GENERATOR

MAIN CONTROL PANEL (FRONT VIEW)
SCALE 1/4" = 1'-0"

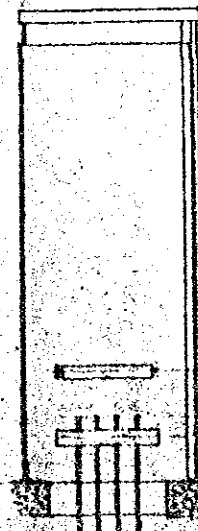


SECTION No.	1A	1B	2A	2B	3	4	5	6	7	8	9	10	11	12A	12B	13	14A	14B	15	15B
DESCRIPTION	UNIT 1A	UNIT 1B	UNIT 2A	UNIT 2B	UNIT 3	UNIT 4	UNIT 5	UNIT 6	UNIT 7	UNIT 8	UNIT 9	UNIT 10	UNIT 11	UNIT 12A	UNIT 12B	UNIT 13	UNIT 14A	UNIT 14B	UNIT 15	UNIT 15B

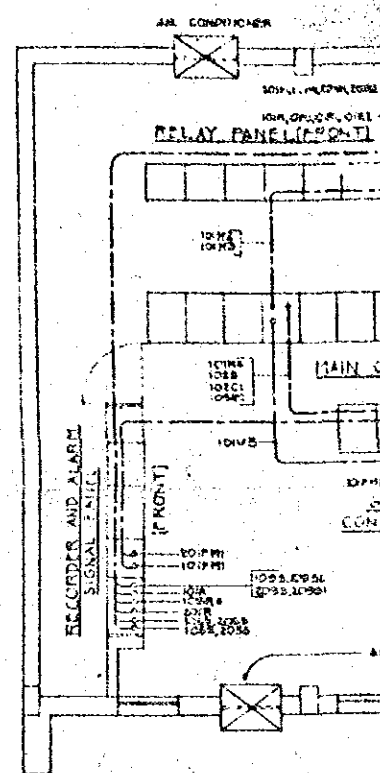
RELAY PANEL
SCALE 1/4" = 1'-0"



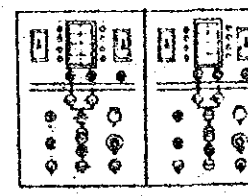
SECTION A-A



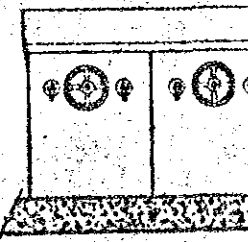
SECTION B-B



EXISTING PLECI

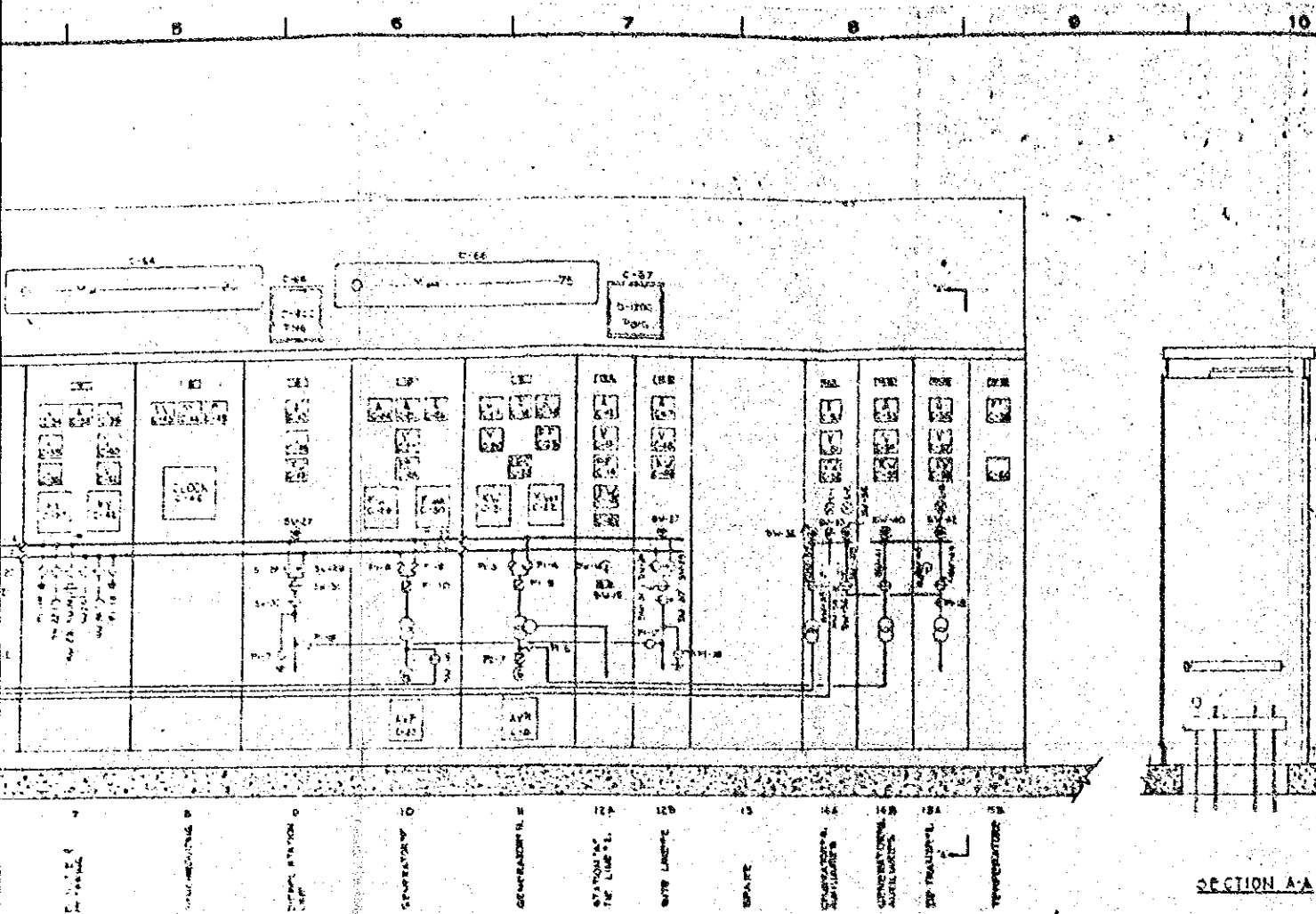


GENERATOR

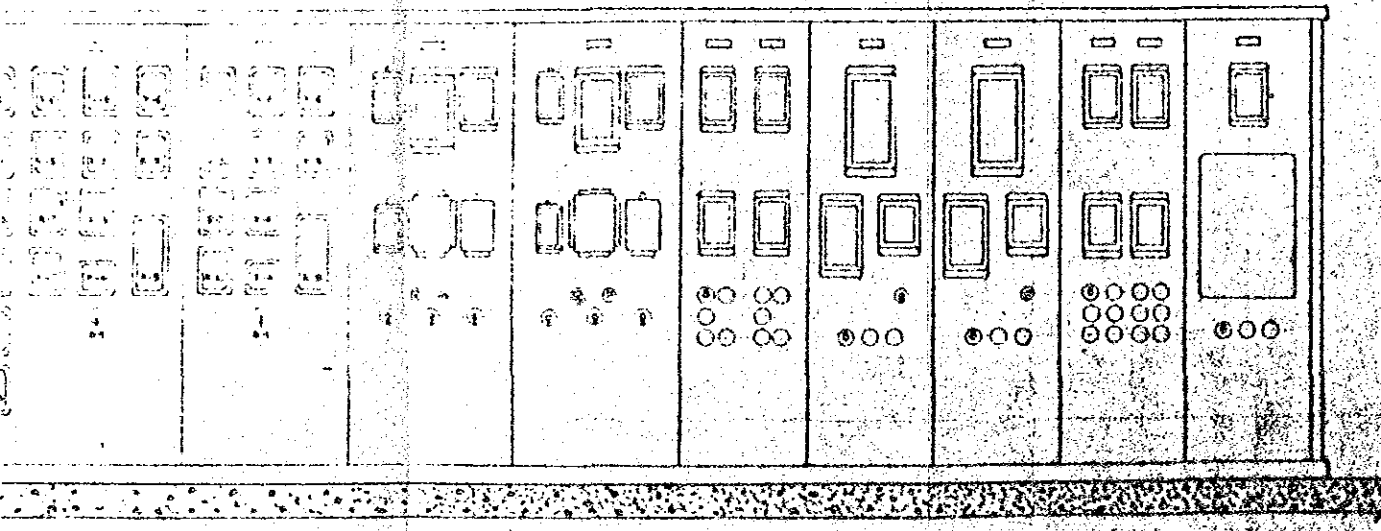


GENERATOR

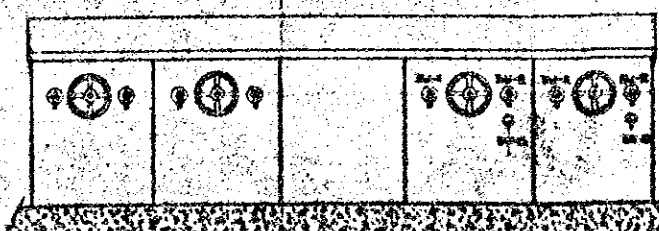
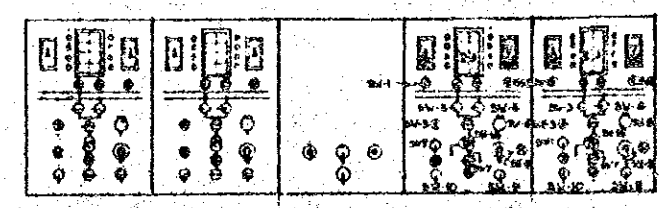
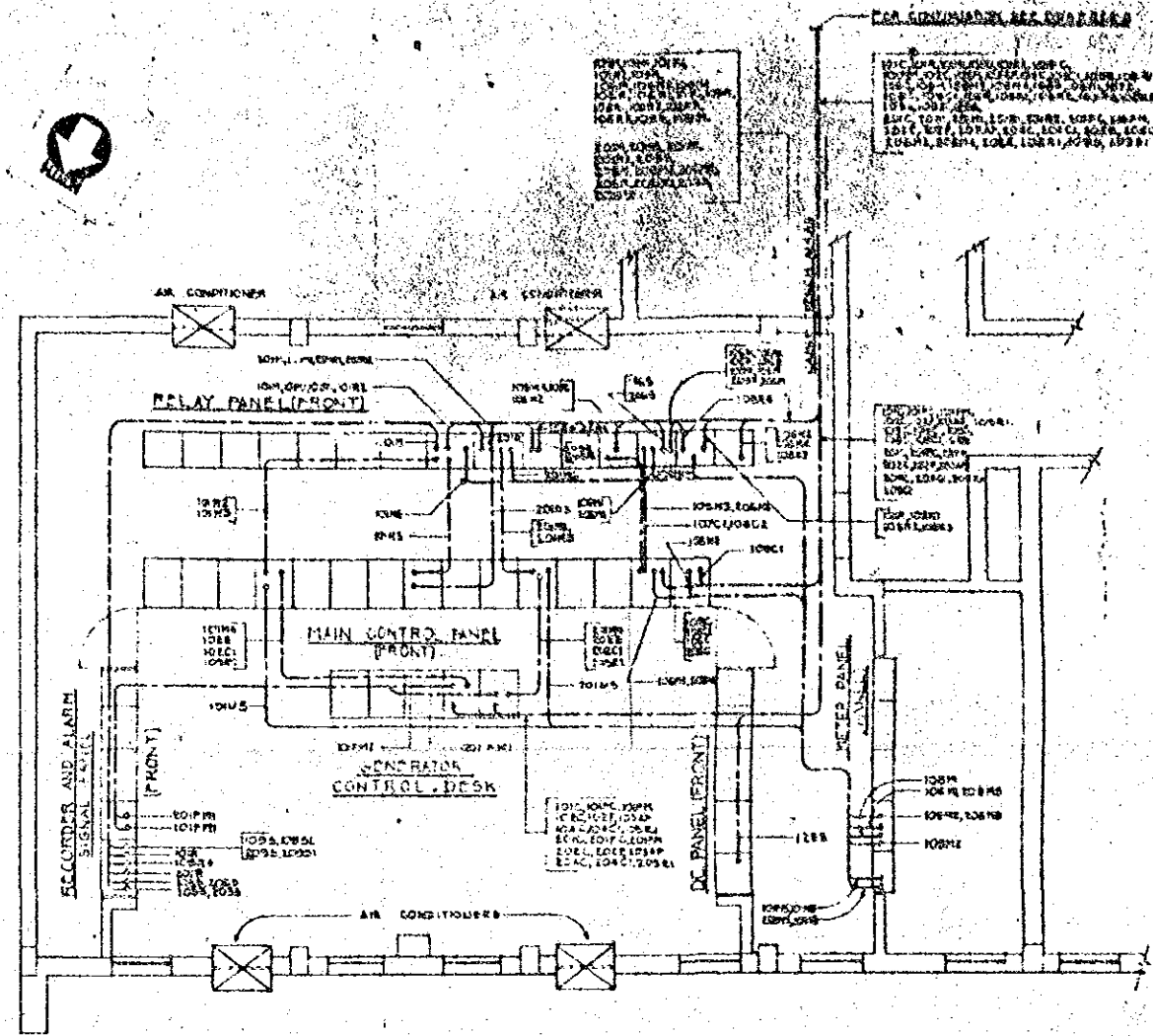
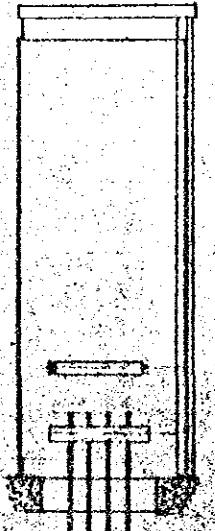
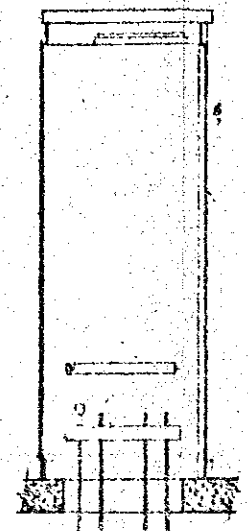




MAIN CONTROL PANEL FRONT VIEW
SCALE 1/4" = 1'-0"



RELAY PANEL
SCALE 1/4" = 1'-0"

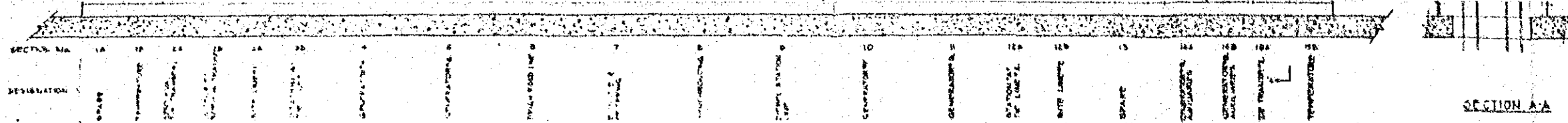


SYMBOLS

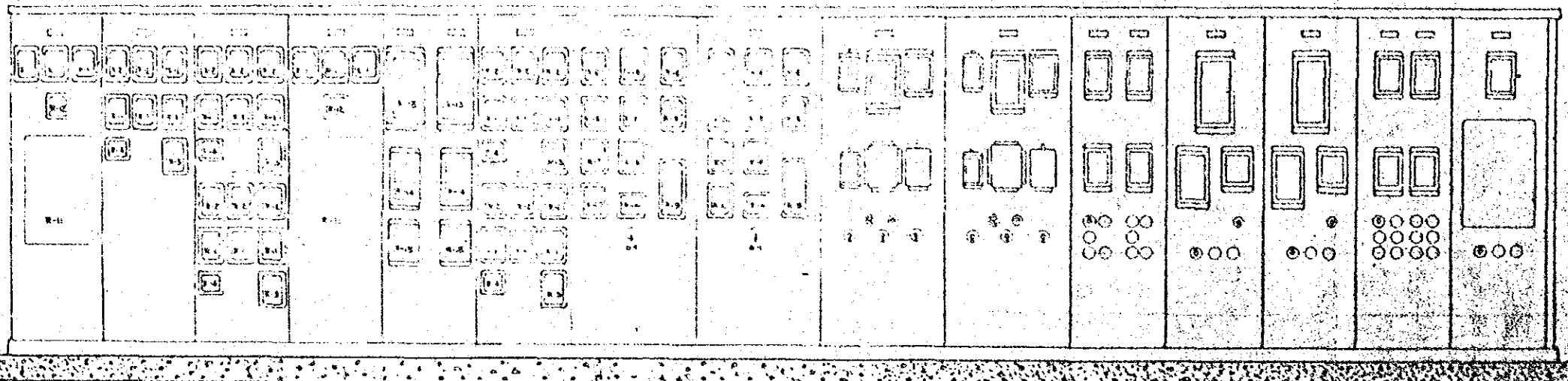
- R-1 OVERCURRENT RELAY, INVERSE TIME WITH INSTANTANEOUS ATTACHMENT
- R-2 TRANSFORMER DIFFERENTIAL RELAY
- R-3 NEUTRAL OVERCURRENT RELAY
- R-4 AUXILIARY LOCKOUT RELAY
- R-5 VOLTAGE RESTRAINT OVERCURRENT RELAY
- R-6 GENERATOR DIFFERENTIAL RELAY
- R-7 LOSS OF EXCITATION RELAY
- R-8 OVERVOLTAGE RELAY
- R-9 VOLTAGE BALANCE RELAY
- R-10 FIELD GROUND RELAY
- R-11 AUTOMATIC SOURCE SELECTION EQUIPMENT
- R-12 SYNCHRONIZING CHECK RELAY
- R-13 IMPEDANCE RELAY
- R-14 AUXILIARY RELAY AND TRIP RELAY AS INDICATED FOR RELAY R-1
- R-15 TRIP RESET SWITCH FOR USE WITH R-15
- L-1 SYSTEM TEMPERATURE THERMAL MODES LOAD RATIO CONTROL INDICATOR
- SW-1 275 MVA TWO POSITION LOAD RATIO CONTROL SWITCH
- SW-14 275 MVA TRANSFORMER 600V BREAKER CONTROL SWITCH

NOTES:

ALL NEW EQUIPMENT TO BE SHOWN

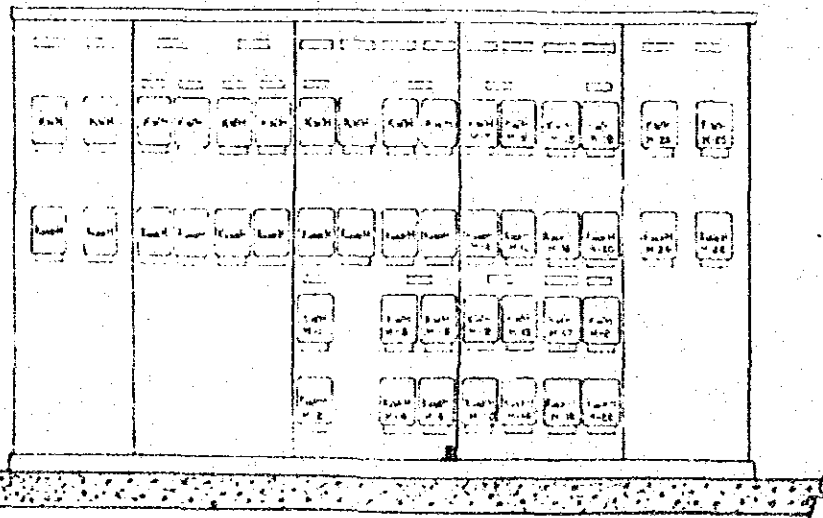


MAIN CONTROL PANEL FRONT VIEW
 REWIND ARRANGEMENT
 SCALE 3/16" = 1"

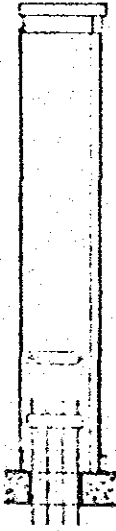


SECTION No. 13 14 15 12 11 10 9 8
 DENOMINATION UNIT 18 OPERATOR TRANSDUCER UNIT 18 A/D TEMP UNIT 17 STEAM/TEMP OPERATOR TRANSDUCER OPERATOR TRANSDUCER OPERATOR TRANSDUCER OPERATOR TRANSDUCER

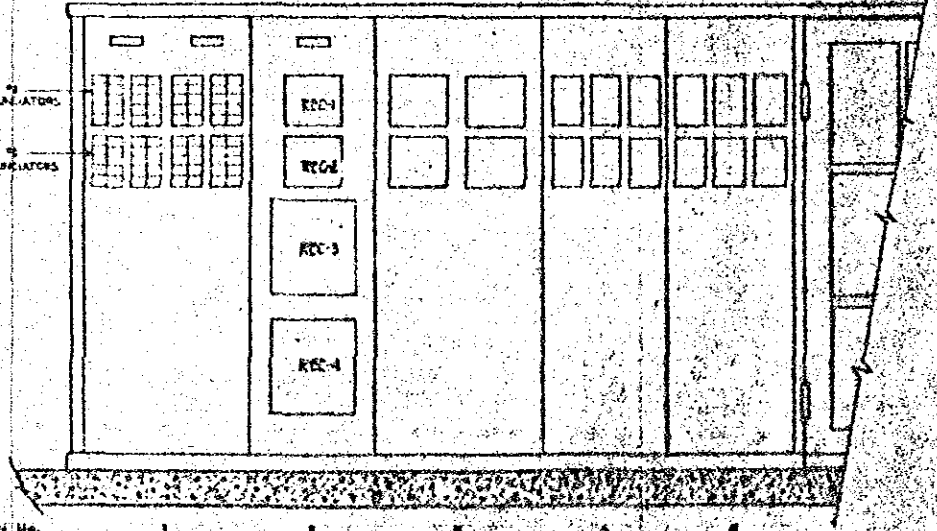
RELAY PANEL
 SCALE 3/16" = 1"



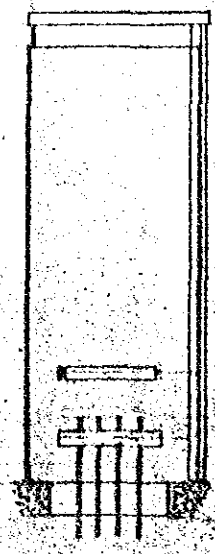
METER PANEL
 SCALE 3/16" = 1"



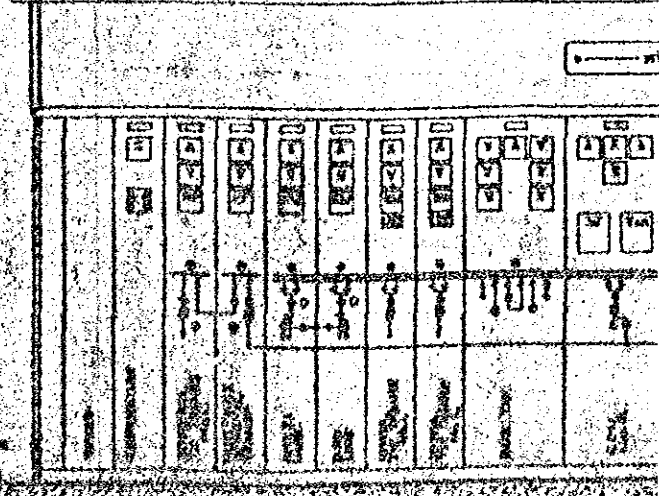
SECTION C-C



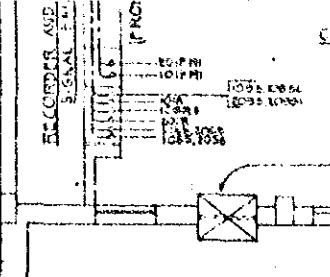
RECORDER AND ALARM SIGNAL PANEL
 SCALE 3/16" = 1"



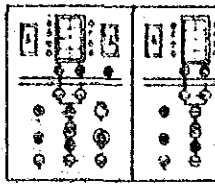
SECTION B-B



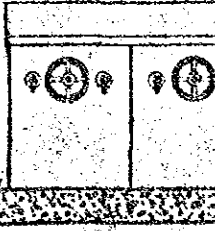
MAIN CONTROL PANEL FRONT VIEW
 REWIND ARRANGEMENT



EXISTING PL...



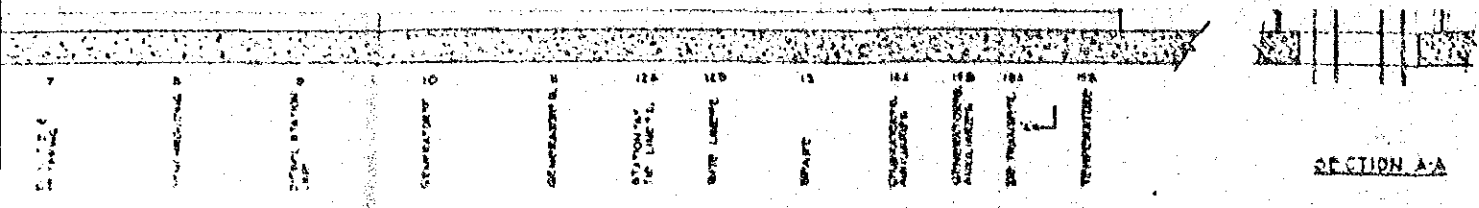
GENERAT...



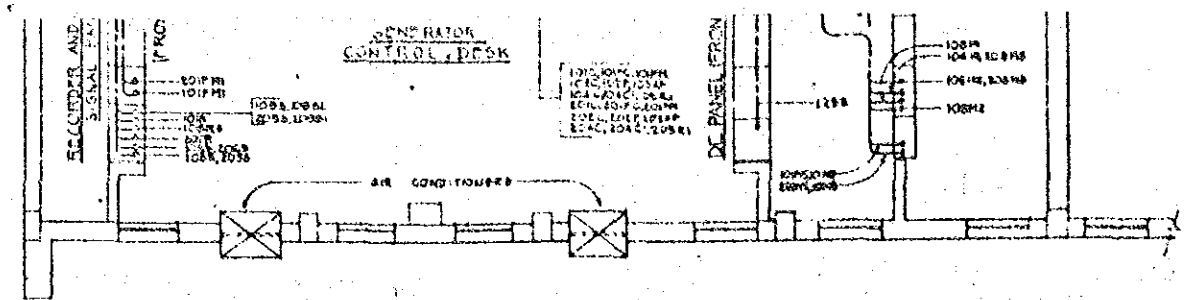
GENERAT...

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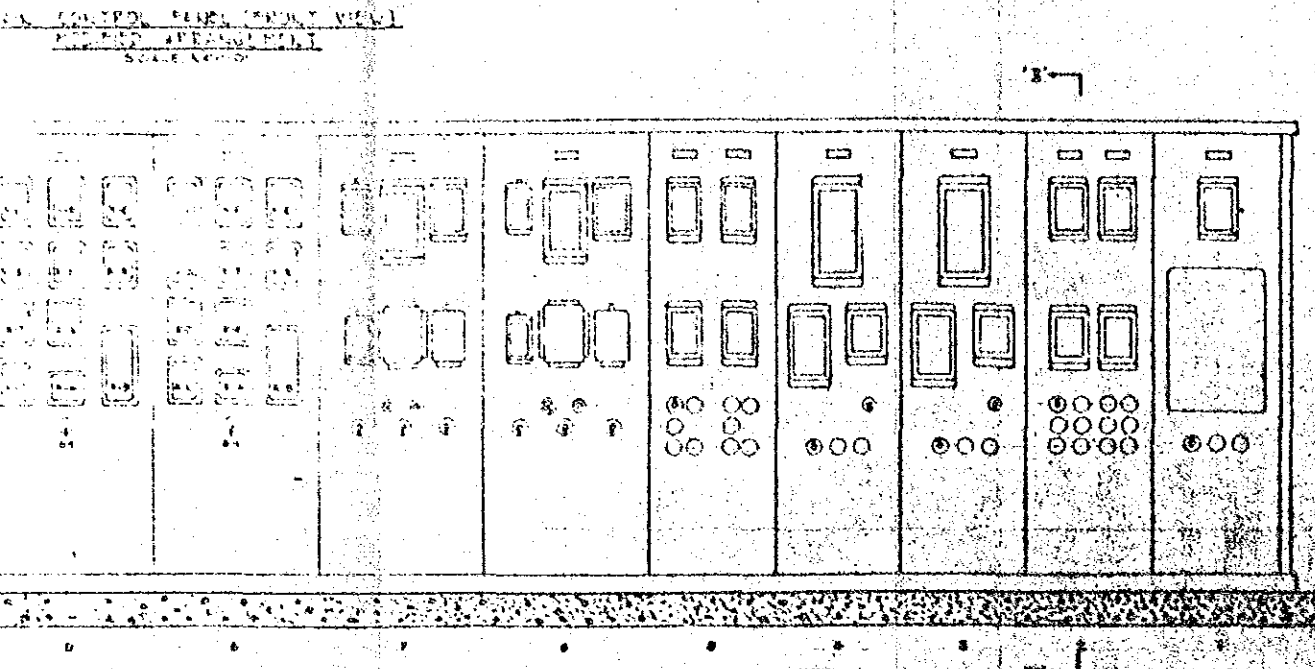
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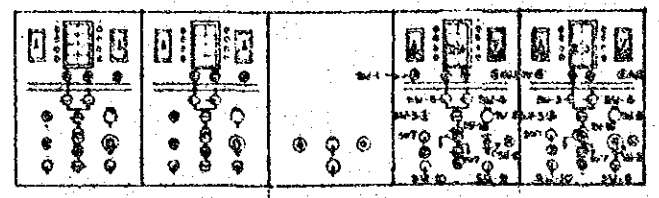
SECTION A-A



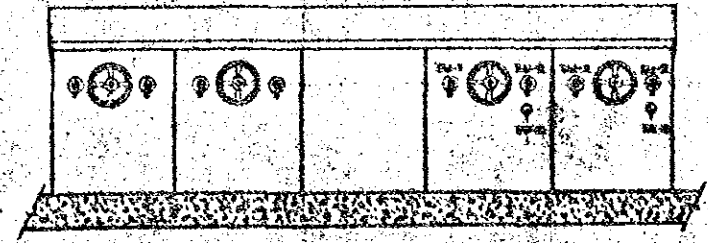
EXISTING ELECTRICAL CONTROL ROOM
SCALE 1/4" = 1'-0"



RECORDING AND ALARM SIGNAL PANEL
SCALE 3/4" = 1'-0"



GENERATOR CONTROL DESK PLAN
SCALE 1/4" = 1'-0"



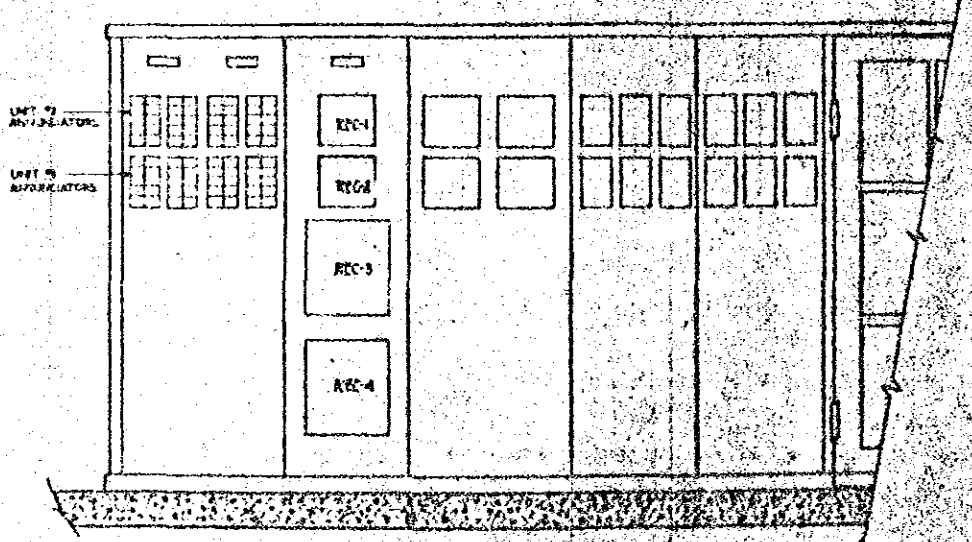
GENERATOR CONTROL DESK FRONT VIEW
SCALE 1/4" = 1'-0"

SYMBOLS

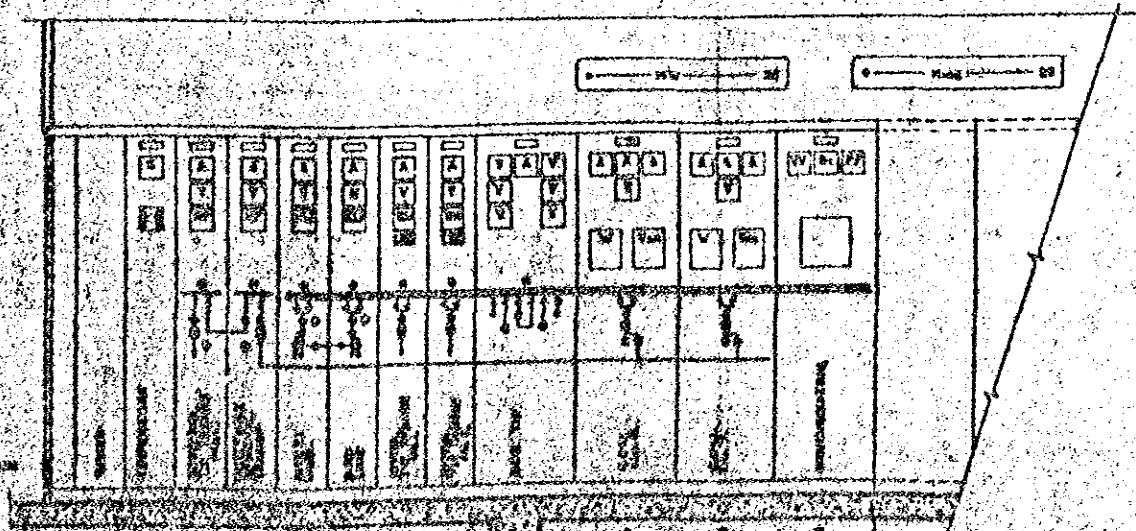
- R-1 OVERCURRENT RELAY, INVERSE TIME WITH INSTANTANEOUS ATTACHMENT
- R-2 TRANSFORMER DIFFERENTIAL RELAY
- R-3 NEUTRAL OVERCURRENT RELAY
- R-4 AUXILIARY LOCKOUT RELAY
- R-5 VOLTAGE RESTRAINT OVERCURRENT RELAY
- R-6 GENERATOR DIFFERENTIAL RELAY
- R-7 LOSS OF EXCITATION RELAY
- R-8 OVERVOLTAGE RELAY
- R-9 VOLTAGE BALANCE RELAY
- R-10 FELD GROUND RELAY
- R-11 AUTOMATIC SOURCE SELECTION EQUIPMENT
- R-12 SYNCHRONIZING CHECK RELAY
- R-13 IMPEDANCE RELAY
- R-14 AUXILIARY RELAY AND TIME RELAY AS REQUIRED FOR RELAY R-13
- R-15 TIME TRIP DEVICE FOR R-13 WITH R-13
- REC-1 SYSTEM TRANSFORMER TERTIARY WINDING LOAD RATE COIL INDICATOR
- SW-1 250 MVA TRANSFORMER LOAD RATE CONTROL SWITCH
- SW-2 250 MVA TRANSFORMER 600V BREAKER COIL INDICATOR

NOTES

1. ALL NEW EQUIPMENT IS SHADED
2. ALL EXISTING EQUIPMENT IS NOT SHADED
3. FOR INTERCONNECTION BETWEEN PANELS SEE ENG R-9 (CONNECT AND CABLE SCHEDULE)



RECORDING AND ALARM SIGNAL PANEL
SCALE 3/4" = 1'-0"



MAIN CONTROL PANEL FRONT VIEW
SCALE 3/4" = 1'-0"

ELECTRICAL CONTROL BOARD			
KARACHI ELECTRIC SUPPLY CORPORATION LTD. 2-30 M W B STATION EXTENSION - WEST WHARF KARACHI PAKISTAN			
THE KULJIAN CORPORATION ENGINEERS & CONSTRUCTORS PHILADELPHIA, PA.			
DATE	BY	SCALE	NO. OF SHEETS
10/15/60	K. J.	1/4" = 1'-0"	1 OF 1
PROJECT NO.	DATE	APP'D BY	NO. OF SHEETS
10/15/60	10/15/60	K. J.	1 OF 1

