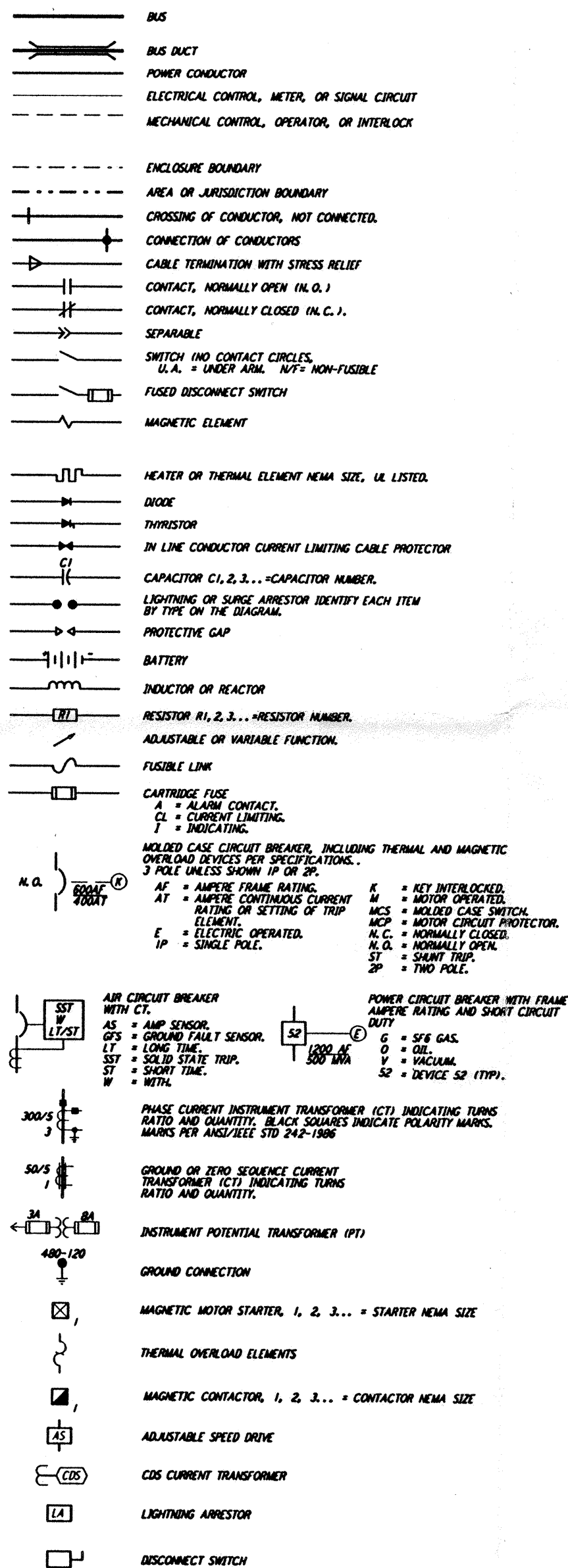
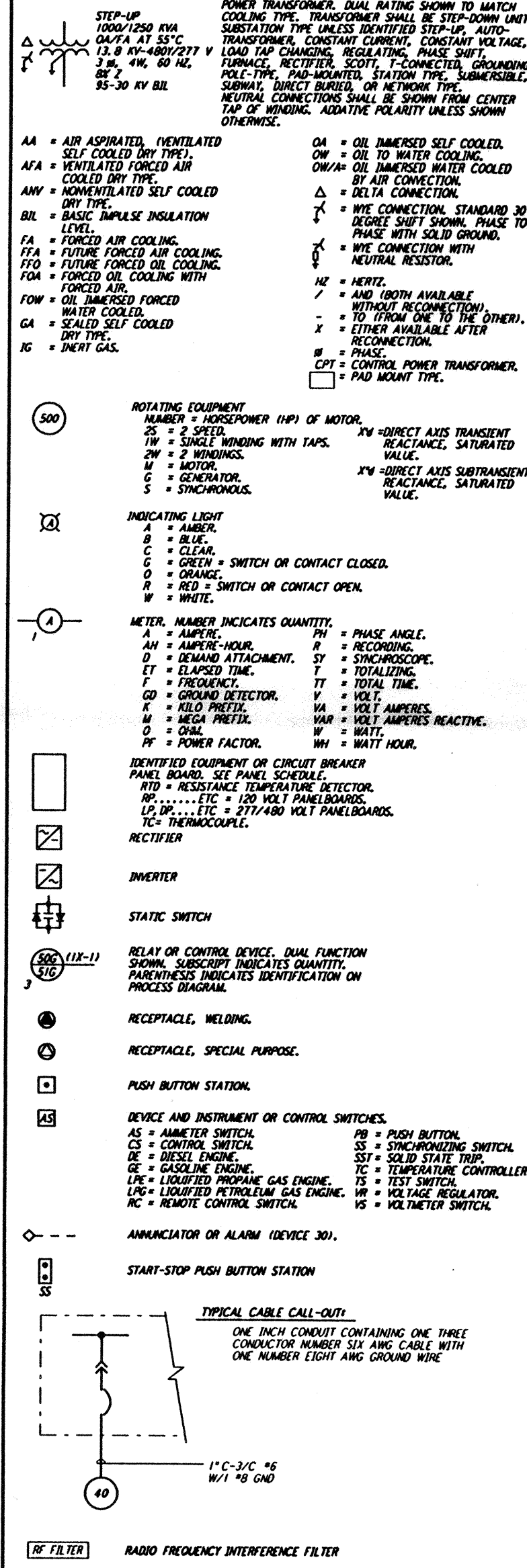


**ONE AND THREE LINE DIAGRAM SYMBOLS**



**ONE AND THREE LINE DIAGRAM SYMBOLS**



**DEVICE FUNCTION NUMBERS**

- ADAPTED FROM ANSI C37. 2-1987, USAGE PER IEEE STD. 242-1986
- MASTER ELEMENT OR INITIATING DEVICE SUCH AS FLOAT SWITCH.
  - TIME DELAY STOPPING OR CLOSING RELAY.
  - CHECKING OR INTERLOCKING RELAY. (AND GATE).
  - MASTER CONTACTOR.
  - STOPPING DEVICE.
  - STARTING CIRCUIT BREAKER.
  - ARREST CIRCUIT BREAKER.
  - CONTROL POWER DISCONNECTING DEVICE.
  - REVERSING DEVICE.
  - UNIT SEQUENCE SWITCH.
  - THREE OR MORE FUNCTIONS PER LEGEND.
  - OVER SPEED DEVICE.
  - SYNCHRONOUS SPEED DEVICE.
  - UNDER SPEED DEVICE.
  - SPEED OR FREQUENCY MATCHING DEVICE.
  - RESERVED FOR FUTURE APPLICATION.
  - STARTING OR DISCHARGE SWITCH.
  - ACCELERATING OR DECELERATING DEVICE.
  - STARTING TO RUNNING TRANSITION DEVICE.
  - ELECTRICALLY OPERATED VALVE.
  - DISTANCE RELAY. (IMPEDANCE CHANGE DETECTOR).
  - STARTING CIRCUIT BREAKER.
  - TEMPERATURE CONTROL DEVICE. (SPACE HEATER THERMOSTAT).
  - VOLTS PER HERTZ RATIO RELAY.
  - SYNCHRONIZING OR SYNCHRONISM CHECK DEVICE.
  - APPARATUS THERMISTOR. (FIELD OR COOLANT OVERTEMPERATURE).
  - UNDERVOLTAGE RELAY.
  - FLAME DETECTOR.
  - ISOLATING CONTACTOR.
  - ANNUNCIATOR RELAY.
  - SEPARATE EXCITATION DEVICE.
  - DIRECTIONAL POWER RELAY. (ANTI MOTORING).
  - POSITION INDICATOR SWITCH. (CELL SWITCH).
  - MASTER SEQUENCE DEVICE.
  - BRUSH OPERATING OR SLIP RING SHORT CIRCUITING DEVICE.
  - POLARITY OR POLARIZING VOLTAGE DEVICE.
  - UNDERCURRENT OR UNDERPOWER DEVICE (GROUND CONTINUITY MONITOR).
  - BEARING PROTECTIVE DEVICE.
  - MECHANICAL CONDITION (VIBRATION ETC.) MONITOR.
  - FIELD RELAY. (EXCITATION LOSS).
  - FIELD CIRCUIT BREAKER.
  - RUNNING CIRCUIT BREAKER.
  - CONTROL CIRCUIT MANUAL TRANSFER OR SELECTOR DEVICE.
  - UNIT SEQUENCE STARTING RELAY.
  - ATMOSPHERIC CONDITION MONITOR.
  - REVERSE PHASE OR PHASE BALANCE CURRENT RELAY.
  - PHASE SEQUENCE VOLTAGE RELAY.
  - INCOMPLETE SEQUENCE RELAY.
  - MACHINE OR TRANSFORMER (ARMATURE OR LOAD WINDING) THERMAL RELAY.
  - INSTANTANEOUS OVERCURRENT RELAY.
  - AC TIME OVERCURRENT RELAY.
  - AC CIRCUIT BREAKER.
  - EXCITER OR DC GENERATOR RELAY.
  - TURNING GEAR ENGAGING DEVICE.
  - POWER FACTOR RELAY.
  - FIELD APPLICATION RELAY.
  - SHORT CIRCUITING OR GROUNDING DEVICE.
  - RECTIFIER FAILURE RELAY.
  - OVERVOLTAGE RELAY.
  - VOLTAGE BALANCE RELAY.
  - GAS DENSITY SWITCH.
  - TIME DELAY STOPPING OR OPENING RELAY.
  - LIQUID OR GAS SUDDEN PRESSURE RELAY, MANUAL RESET.
  - GROUND PROTECTION RELAY (UNDERVOLTAGE = INSULATION FAILURE).
  - OVERTRIP.
  - NOTCHING OR JOGGING DEVICE.
  - AC DIRECTIONAL OVERCURRENT RELAY.
  - BLOCKING RELAY.
  - PERMISSIVE CONTROL DEVICE.
  - ELECTRICALLY OPERATED RHEOSTAT.
  - LEVEL SWITCH.
  - DC CIRCUIT BREAKER.
  - LOAD RESISTOR CONTACTOR.
  - ALARM RELAY. (ALARMS OTHER THAN ANNUNCIATOR, DEVICE 30).
  - POSITION CHANGING MECHANISM.
  - DC OVERCURRENT RELAY.
  - TELEMETRING DEVICE.
  - PHASE ANGLE MEASURING OR OUT-OF-STEP RELAY.
  - AC RECLOSING RELAY.
  - FLOW SWITCH.
  - FREQUENCY RELAY.
  - DC RECLOSING RELAY.
  - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY.
  - OPERATING MECHANISM.
  - CARRIER OR PILOT WIRE RECEIVER RELAY.
  - LOCKOUT AUXILIARY RELAY, MANUAL RESET.
  - DIFFERENTIAL PROTECTIVE RELAY.
  - AUXILIARY MOTOR OR MOTOR GENERATOR.
  - LINE SWITCH.
  - REGULATING DEVICE.
  - VOLTAGE DIRECTIONAL RELAY.
  - VOLTAGE AND POWER DIRECTIONAL RELAY.
  - FIELD CHANGING CONTACTOR.
  - TRIPPING OR TRIP FREE RELAY.
  - OPEN FOR SPECIFIC APPLICATIONS.
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**DEVICE SUFFIX DESIGNATIONS:**

- SPECIFIC USAGE SHALL BE IDENTIFIED IN A LEGEND ON THE DIAGRAM.
- A = AIR
  - B = BUS
  - C = CURRENT
  - CS = CONTROL SWITCH
  - E = ELECTRIC
  - F = FREQUENCY
  - GS = GROUND CONNECTION ON NEUTRAL OF WYE POWER TRANSFORMER.
  - GS = GROUND SENSOR, ZERO SEQUENCE WINDOW TYPE CT ENCLOSING ALL PHASE CONDUCTORS AND NO GROUND PATH.
  - HR = HAND RESET.
  - J = DIFFERENTIAL
  - L = LIQUID, LEVEL, OR LINE.
  - M = MANUAL
  - N = RESIDUAL CURRENT CONNECTION ON WYE OF THREE 1# CTS.
  - P = POWER
  - PR = PRESSURE RELIEF.
  - Q = OIL
  - S = SYNCHRONIZING
  - T = TEMPERATURE OR TRANSFORMER
  - V = VOLTAGE
  - X = AUXILIARY (ENERGIZING) RELAY.
  - Y = AUXILIARY (ANTI-PUMPING) RELAY.
  - Z = AUXILIARY RELAY.

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REFERENCES	DESCRIPTION
LA-E-001	ABBREVIATIONS & ACRONYMS
LA-E-002	STANDARD PLAN SYMBOLS
LA-E-003	SCHEMATIC & WIRING SYMBOLS

REVOLUTIONS	NO.	DATE	BY	CHKD	ENGR	PROJ	DESCRIPTION
	C	7-24-96	MM	JCL	JDM		ISSUED FOR BID
	B	6-14-96	MM	JCL	JDM		FINAL DESIGN REVIEW
	A	10-31-95	MM	JCL	JDM		PRELIMINARY DESIGN REVIEW

DRAWN	M.M.
CHECKED	
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TITLE	ELECTRICAL STANDARD ONE & THREE LINE DIAGRAM SYMBOLS	SHEET NUMBER	NONE	PP150969	DRAWING NUMBER	8094
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