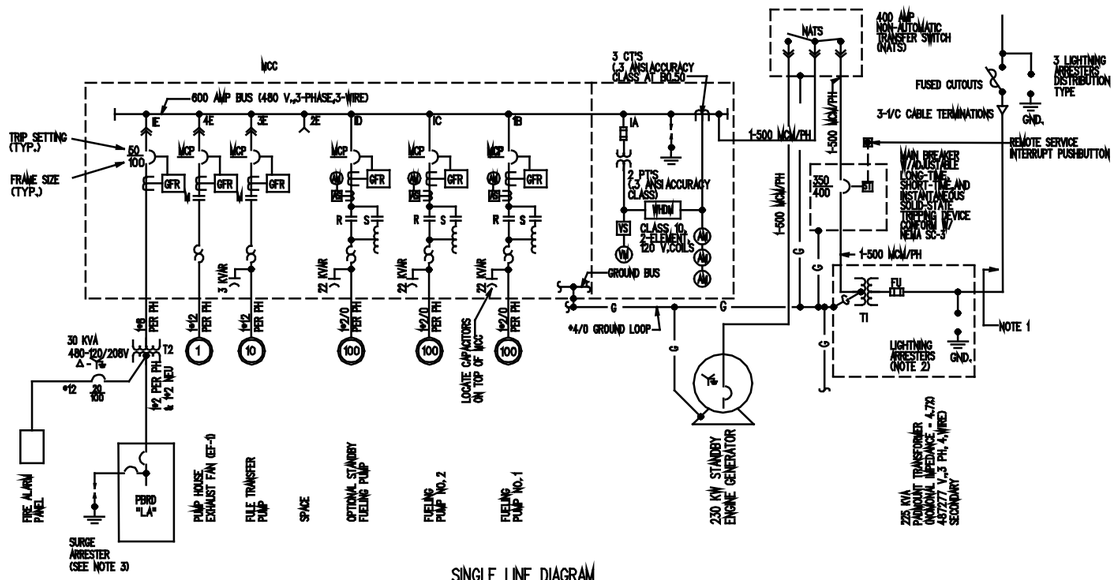
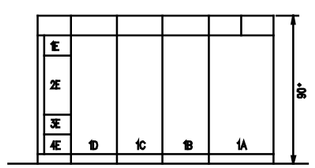


SINGLE LINE DIAGRAM
NO SCALE



MCC ELEVATION
NO SCALE

MCC (MOTOR CONTROL CENTER) SCHEDULE					
UNIT	MOTOR HP	NAMEPLATE	STARTER SIZE	STARTER COIL VOLT	DEVICES IN DOOR
1A	—	INCOMING SERVICE	—	—	WATTHOUR DEMAND METER, VOLTMETER, VOLTMETER SWITCH, 3 AMMETERS
1B	100	FUELING PUMP NO.1	4	—	H-O-A SELECTOR SWITCH, AMMETER, & AMMETER SWITCH
1C	↓	FUELING PUMP NO.2	↓	—	↓
1D	↓	OPTIONAL STANDBY FUELING PUMP	↓	—	↓
1E	—	TRANSFORMER PRIMARY BREAKER	—	—	—
2E	—	SPACE	—	—	—
3E	10	FUEL TRANSFER PUMP	1	120	H-O-A SELECTOR SWITCH, GREEN INDICATOR LIGHT
4E	1	PUMP HOUSE EXHAUST FAN (EF-0	↓	↓	↓

NOTES:

1. WHERE ELECTRIC UTILITY IS SUPPLIED UNDERGROUND, DELETE POLE RISER AND POLE MOUNTED FUSED CUTOUTS.
2. WHERE ELECTRIC UTILITY IS SUPPLIED OVERHEAD, DELETE LIGHTNING ARRESTERS AT TRANSFORMER AND PROVIDE POLE MOUNTED ARRESTERS.
3. A 130 V L-N (NOMINAL) 4-WIRE TRANSIENT SURGE SUPPRESSOR SHALL BE CONNECTED AT PANELBOARD "LA". CLAMPING VOLTAGE SHALL BE 350 VOLTS LINE-TO-NEUTRAL PEAK WITH POWER ABSORPTION CAPABILITY OF 2400 JOULES FOR AN 8 X 20 MICROSECOND WAVEFORM. SURGE SUPPRESSOR SHALL MEET THE REQUIREMENTS OF ANSI/STANDARD C62.41, CAT. B AND SHALL BE UL LISTED. SURGE SUPPRESSOR SHALL BE COMPLETE WITH INTEGRAL "READY" INDICATOR LIGHT TO SHOW OPERATING CONDITION OF THE SUPPRESSOR.
4. PADMOUNT TRANSFORMER, NON-AUTOMATIC TRANSFER SWITCH, MOTOR CONTROL CENTER, FUSES, AND CONDUCTORS SHALL HAVE RATINGS APPROPRIATE FOR ACTUAL LOADS AND, FOR THE CHARACTERISTICS OF THE PRIMARY SERVICE, MOTOR CONTROL CENTER, MAIN BREAKER, AND NON-AUTOMATIC TRANSFER SWITCH SHORT CIRCUIT RATINGS SHALL BE VERIFIED BASED UPON ACTUAL LOADS AND SERVICE EQUIPMENT CHARACTERISTICS.
5. VERIFY ENGINE-GENERATOR SIZE BASED UPON ACTUAL LOAD AND ABILITY TO START LARGEST LOAD WHILE ALL OTHER LOADS RUN WITH NO MORE THAN 15% VOLTAGE DIP.
6. SERVICE VOLTAGE AND FREQUENCY SHOWN ARE FOR CONTINENTAL UNITED STATES INSTALLATION. SERVICE VOLTAGE AND FREQUENCY SHALL BE COMPATIBLE WITH LOCAL SERVICE CHARACTERISTICS.
7. PADMOUNT TRANSFORMER SHALL CONFORM WITH ANSI C57.12.22 AND SHALL BE HIGH-FIRE-POINT LIQUID INSULATED. PROVIDE [FOUR(X)] 2 1/2% FULL CAPACITY TAPS,[ ] ETW(X) (ABOVE) AND [ ] ETW(X) (BELOW) RATED PRIMARY VOLTAGE.

LEGEND

SYMBOL	DESCRIPTION
	RACEWAY EXPOSED ON CEILING OR WALL
	RACEWAY CONCEALED IN OR UNDER FLOOR, OR UNDERGROUND
	SLASH MARKS INDICATE NUMBER OF #12 AWG CONDUCTORS IN RACEWAY
	RACEWAY TURNED TOWARD VIEWER
	RACEWAY TURNED AWAY FROM VIEWER
LA-4	RACEWAY HOMERUN TO PANELBOARD
G	GROUNDING ELECTRODE CONDUCTOR
	RACEWAY JUNCTION BY CONDULET OR BOX, AS REQUIRED
J	JUNCTION BOX
	FLEXIBLE RACEWAY
50	MOTOR, 3-PHASE, SQUIRREL CAGE INDUCTION TYPE, NUMERAL INDICATES HORSEPOWER
1/4	MOTOR, SINGLE PHASE, NUMERAL INDICATES HORSEPOWER
DM	DAMPER MOTOR
	MANUAL MOTOR CONTROLLER
20A	INDIVIDUAL CIRCUIT BREAKER IN NEMA 1 ENCLOSURE W/LOCKING DEVICE ON BREAKER OPERATOR
T	THERMOSTAT
FS	FLOW SWITCH
	LOCAL SELECTOR SWITCH
HT	MOTOR FRAME HIGH TEMPERATURE CUTOUT
S	SOLENOID OPERATOR
LS	LIMIT SWITCH
LI	LEVEL INDICATING TRANSMITTER
PIT	PRESSURE INDICATING TRANSMITTER (4-20mA)
DPT	DIFFERENTIAL PRESSURE TRANSMITTER (4-20mA)
DPS	DIFFERENTIAL PRESSURE SWITCH
	PUSHBUTTON STATION WITH RED MUSHROOM OPERATOR
	AERIAL LIGHTNING TERMINAL, 38 INCHES LONG.
G	GROUND ROD BOX WITH BONDING CONDUCTOR
F	FIRE ALARM MANUAL PULL STATION
I	IONIZATION TYPE SMOKE DETECTOR
H	RATE OF RISE HEAD DETECTOR
B	FIRE ALARM BELL, 10" DIAMETER, 90 dB AT 10 FEET
H	VIBRATING HOR, 100 dB AT 10 FEET
H	RESONATING HOR, 100 dB AT 10 FEET WITH SOUND DISTINT FROM VIBRATING HORN
	FIRE ALARM PANEL
	LOCAL DISCONNECT
MT	METER TRANSMITTER
	PUSHBUTTON STATION RUN LIGHT, START, STOP OPERATORS

SYMBOL	DESCRIPTION
	SUSPENDED LIGHTING FIXTURE
	SUSPENDED LIGHTING FIXTURE WITH AUXILIARY QUARTZ LAMP
	WALL MOUNTED LIGHTING FIXTURE
	FLUORESCENT LIGHTING FIXTURE WITH OUTLET
B	BATTERY POWERED EMERGENCY LIGHTING UNIT WITH TWO INTEGRAL LAMP HEADS
B	BATTERY POWERED EMERGENCY LIGHTING UNIT WITHOUT INTEGRAL LAMP HEADS
ER	REMOTE LAMP HEAD FOR BATTERY POWERED EMERGENCY LIGHTING UNIT
	LIGHTING AND APPLIANCE PANEL BOARD
T 30 KVA	DRY TYPE TRANSFORMER, RATING AS INDICATED
	SURFACE MOUNTED DUPLEX RECEPTABLE, NEMA 5-20R
	SINGLE EXPLOSIONPROOF RECEPTACLE, 120 V., 20 A., 3W.
S	SURFACE MOUNTED TUMBLER SWITCH, SINGLE POLE, SINGLE THROW
WHDM	WATTHOUR DEMAND METER
VS	VOLTMETER SWITCH
VM	VOLTMETER 0-600 V.
AM	AMMETER 0-600 A.
CT	CURRENT TRANSFORMER
MCP	MOTOR CIRCUIT PROTECTOR
	AIR BREAKER OR MOTOR CIRCUIT CIRCUIT PROTECTOR AS INDICATED
	FVNR MOTOR STARTER WITH OVERLOAD PROTECTION IN EACH PHASE CONDUCTOR
R S	RVNR MOTOR STARTER CLOSED TRANSITION AUTOTRANSFORMER WITH OVERLOAD PROTECTION IN EACH PHASE CONDUCTOR
	TRANSFORMER SIZE & TYPE AS INDICATED
	FUSE - TYPE & SIZE AS INDICATED OR REQUIRED
GFR	GROUND FAULT RELAY
	STAB-ON TYPE CONNECTION OR POWER LOCKOUT DEVICE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
30 KVAR	CAPACITOR FOR POWER FACTOR CORRECTION (APPROXIMATE SIZE AS INDICATED)
	SURGE ARRESTER
	GROUND
20	NUMERAL INDICATED CONDUIT NUMBER- REFER TO ELECTRICAL CONDUIT AND FEEDER SCHEDULE
	TELEPHONE OUTLET

REVISION	DESCRIPTION	DATE	APPROVED

SUPERSEDES PREVIOUS EDITIONS OF THIS DRAWING

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DEPARTMENT OF THE AIR FORCE
MILITARY CONSTRUCTION PROGRAM
MAJOR COMMAND
DESIGN ENGINEER CHK.
DIV. CHIEF
SUPV. CHI. ENGR.
J. L. BERSLEY
SUBMITTED BY: DATE: 12-2-80
EIC.
BR.HD.
FPE.
APPROVED: DATE: 1/8/81
EFD FOR COMMANDER NAVFAC

ACCEPTED: DATE: 1-22-81
USAF FUEL FACILITIES ENGINEER
APPROVED FOR CHIEF OF STAFF, U.S. AIR FORCE
CHIEF, ENGINEERING DIVISION
DATE: 1-22-81

AIR FORCE STANDARDS
AIRCRAFT DIRECT FUELING SYSTEM
TYPE IV

SINGLE LINE DIAGRAM-
MCC SCHEDULE
UNVERIFIED DRAFT

SCALE: AS NOTED
SPEC. NO. 78-24-29-00-AF
SHEET 19
DRAWING NO. AF 78-24-29