

**HAWTHORNE**



# HAWAII STATE HOSPITAL

---

## GENERATOR SET BOM

ONE (1) Caterpillar 3516C Standby Diesel Generator Sets

Model: **CAT 3516C-HD**  
Rating: **2500 kW (Standby Rated)**  
Voltage: **12.47/7.2 kV, 3-phase, 4-wire, 60 Hz.**  
Control Panel: **EMCP 4.2**

ONE (1) Avtron K711 Radiator Mounted Load Bank

Model: **K711**  
Rating: **750kW, Resistive Only**  
Voltage: **480VAC**

Generator standard equipment and options including:

### **MOUNTING SYSTEM**

Unit is suitable for indoor installation  
Linear Vibration Isolators between base and engine-generator  
Spring isolators (shipped loose)  
Approximate Weight and Dimensions:  
275" (L) x 101" (W) x 119" (H)  
40,000 lbs.

### **ENGINE**

Diesel Engine  
1800 RPM  
Electronic Governor

### **ENGINE COOLING SYSTEM**

Rated for 122 Degrees F.  
Unit Mounted Radiator  
Low Coolant Level Switch  
Jacket Water Heater  
50/50 Antifreeze/Water Mixture

### **STARTING SYSTEM**

Single Electric Starting Motor  
Heavy Duty Lead Acid Batteries  
24 VDC Battery Charging Alternator  
UL Listed Battery Charger  
120 VAC Input w/24V DC 20 Amp Output  
NFPA 110 Alarms with Contacts

### **CERTIFICATIONS:**

Engine is Tier 2 Certified and Meets Current EPA NSPS Emissions Requirements for Emergency Standby Stationary Generator Sets

## EXHAUST

Super Critical Type Silencer (shipped loose)  
Bellows, silencer, rain cap, and misc. hardware  
Installation, insulation, mounting hardware, and piping by others

## GENERATOR AND GENERATOR ATTACHMENTS

Brushless, Revolving Field Type Generator  
Voltage Regulator, 1.0% Accuracy  
Voltage Adjust Potentiometer  
Generator Space Heater (240 VAC, 208 VAC Acceptable)  
PMG Excitation  
One Avtron Neutral Grounding Resistor (technical specifics detailed in Avtron – Bill of Materials)

## CONTROL PANEL EMCP 4.2 Digital Control Panel

LCD Display with adjustable contrast and backlight with auto power off AC metering:  
Controls include: Run/Off/Auto Key and LED Indicator.

### Generator Monitoring

- Voltage (L-L, L-N)
- Current (Phase)
- Average Volt, Amp, Frequency
- kW, kVAr, kVA (Average, Phase, %)
- Power Factor (Average, Phase)
- kW-hr, kVAr-hr (total)
- Excitation voltage and current (with CDVR)
- Generator stator and bearing temp (with optional module)

### Generator Protection

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under frequency (81 O/U)
- Reverse Power (kW) (32)
- Reverse Reactive Power (kVAr) (32RV)
- Overcurrent (50/51)

### Engine Monitoring

- Coolant temperature
- Oil pressure
- Engine speed (RPM)
- Battery voltage
- Run hours
- Crank attempt and successful start counter
- Enhanced engine monitoring

### Engine Protection

- Control switch not in auto (alarm)
- High coolant temp (alarm and shutdown)
- Low coolant temp (alarm)

- Low coolant level (alarm)
- High engine oil temp (alarm and shutdown)
- Low, high, and weak battery voltage
- Overspeed
- Overcrank

### Controls

- Run / Auto / Stop control
- Speed and voltage adjust
- Local and remote emergency stop
- Remote start/stop
- Cycle crank
- E-Stop

### Inputs & Outputs

- Two dedicated digital inputs
- Six programmable digital inputs
- Six programmable form A dry contacts
- Two programmable form C dry contacts
- Two digital outputs

### Communications

- Primary and accessory CAN data links
- RS-485 annunciator data link
- Modbus RTU (RS-485 Half duplex)

### Environmental

- Control module operating temperature: -40°C to 70°C
- Display operating temperature: -20°C to 70°C
- Humidity: 100% condensing 30°C to 60°C
- Storage temperature: -40°C to 85°C
- Vibration: Random profile, 24-1000 Hz, 4.3G rms

Remote Annunciator w/ NEMA 1 Enclosure (Shipped Loose; Remote annunciator requires Belden 9841 or equal), Referencing Spec Section 16208, Paragraph 2.02D  
I/O Module

## ONSITE STARTUP, TESTING, & COMMISSIONING

Startup Services with Technician (Includes Lube Oil and Coolant)  
4-Hour resistive load bank test  
Customer Training on Operation and Maintenance