

# SUBMITTAL REVIEW

## LANDIS CONSTRUCTION CO., LLC

THIS IS TO CERTIFY THAT THIS SUBMISSION HAS BEEN CHECKED FOR ACCURACY, COMPLETENESS, AND COMPLIANCE WITH THE CONTRACT REQUIREMENTS. THIS CERTIFICATION DOES NOT RELIEVE THE SUBCONTRACTOR/VENDOR OF THE RESPONSIBILITY

FOR COMPLYING FULLY WITH THE CONTRACT DOCUMENTS

BY CHARLES FARLEY DATE 06/22/2022

JOB # 634 S/D# 4.0

# GOAT

☒ REVIEWED, NO CHANGES NOTED

☐ REVIEWED, CHANGES NOTED

☐ REJECTED

BY: Peter Spera III DATE: 2022.06.24

Reviewed for general compliance with the design concept and the information given in the contract documents. Any action shown in this submittal is subject to the requirements of the project drawings and specifications. Review of submittal in no way absolves contractor responsibility to comply with contract documents, code requirements, field conditions, product manufacturer recommendations, etc.

☐ RESUBMITTAL REQUIRED

☒ RESUBMITTAL NOT REQUIRED



☒ NO EXCEPTIONS TAKEN

☐ MAKE CORRECTIONS AS NOTED

☐ REVISE AND RESUBMIT

☐ REJECTED

SUBMITTAL WAS REVIEWED FOR GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ACCURACY IN ACCORDANCE WITH ALL CONTRACT DOCUMENTS.

REVIEWED BY: Cody J. LeBlanc

DATE: 24/Jun/2022



## **ENGINEERING SUBMITTAL For**

### **BELLWETHER HQ**

#### **Cummins 100 kW Natural Gas Generator Set Cummins 600A SE RATED Automatic Transfer Switch**

#### **ACHARY ELECTRIC**

For questions or comments regarding this submittal, please contact your Cummins Sales and Service Project Manager listed below.

***Please return all submittal correspondence to:***

Bryan Bealer – 504-465-3435  
[bryan.bealer@cummins.com](mailto:bryan.bealer@cummins.com)

Bryan Bealer  
Cummins Sales and Service  
110 East Airline Drive  
Kenner, LA 70062

Cummins Sales and Service certifies that these drawings, materials lists, specification and data sheets have been checked prior to submittal and they accurately depict the proposed equipment. Cummins Sales and Service certifies that to the best of our knowledge, the data described in these drawings, materials lists and data sheets is true and correct.

A handwritten signature in black ink that reads 'Bryan Bealer'.

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Authorized Signature

Cummins Sales and Service  
110 E. Airline Hwy.  
Kenner, LA 70062  
(504) 465-3435

June 17, 2022

## ENGINEERING SUMBITALL

### Bill of Material

Feature Code	Description	Qty
C100 N6	<b>C100N6, 100kW, 60Hz, Standby, Natural Gas/Propane Genset</b>	1
Install-US-Stat	U.S. EPA, Stationary Emergency Application	
C100 N6	C100N6, 100kW, 60Hz, Standby, Natural Gas/Propane Genset	
A331-2	Duty Rating-Standby Power (ESP)	
L155-2	Emissions Certification-SI, EPA, Emergency, Stationary, 40CFR60	
L090-2	Listing-UL 2200	
L193-2	NFPA 110 Type 10 Level 1 Capable	
H609-2	Control Mounting-Left Facing	
H700-2	PowerCommand1.1 Controller	
H012-2	Gauge-Oil Pressure	
H720-2	AmpSentryTM UL Listed Protective Relay	
K796-2	Stop Switch-Emergency	
H536-2	Control Display Language-English	
KV03-2	Load Connection-Single	
KV46-2	Circuit Breaker, Location A, 250A, 3P, 600 Volts AC, 80%, UL	
A366-2	Engine Governor-Electronic, Isochronous	
C284-2	Single Gas Fuel-NG or LP Vapor	
A422-2	Engine Starter-12 Volt DC Motor	
D041-2	Engine Air Cleaner-Normal Duty	
A333-2	Battery Charging Alternator	
BB89-2	Battery Charger-6 Amp, Regulated	
E125-2	Engine Cooling-Radiator, High Ambient Air Temperature, Ship Fitted	
H389-2	Shutdown-Low Coolant Level	
E089-2	Extension-Coolant Drain	
H669-2	Engine Coolant-50% Antifreeze, 50% Water Mixture	
B240-2	Exciter/Reg-Torque Match	
E153-2	Coolant Heater	
R098-2	Voltage-120/208, 3 Phase, Wye, 4 Wire	
H487-2	Engine Oil Heater-120 Volts AC, Single Phase	
H706-2	Engine Oil	
L028-2	Genset Warranty-2 Years Base	
BB93-2	Alternator-60Hz, 12L, 208/120V, 105C, 40C Ambient, Increased Motor Starting (IMS)	
L050-2	Literature-English	
A322-2	Packing-Skid, Poly Bag	
H268-2	Extension-Oil Drain	
A292-2	Alternator Heater, 120 Volt AC	
F216-2	Aluminum Weather Protective Enclosure, with Exhaust System	
P176-2	Enclosure Color-Green, Aluminum	
F252-2	Enclosure-Wind Load 180 MPH, ASCE7-10	
F065-2	Battery Rack	
F179-2	Skidbase-Housing Ready	
0300-5929-02	<b>Annunciator-Panel Mounted With Enclosure (RS485)</b>	1
OTECSEC	<b>OTECSEC, OTEC Service Entrance Transfer Switch-Electronic Control: 300A/400A/600A</b>	1
OTECSE600	OTECSE600, Service Entrance TransferSwitch, PowerCommand, 600 Amp	
M081-7	Interface-Communications Network, MODBUS RTU Module	
M032-7	Relay-Elevator Signal	
S043-7	Listing-UL 1008	
A035-7	Application-Utility to Genset	

G009-7	Transfer Switch Warranty-1 Year Comprehensive	
B002-7	Cabinet-Type 3R	
A028-7	Poles-3 (Solid Neutral)	
A044-7	Frequency-60 Hz	
A042-7	System-3 Phase, 3 or 4 Wire	
R021-7	Voltage-208 Volts AC	
M033-7	Genset Starting Battery-12V DC	
C110-7	PC40 Control	
L202-7	Aux Relay-Emergency Position-12 Volts DC	
L203-7	Aux Relay-Normal Position-12 Volts DC	
NSBOP21	<b>Service - start up &amp; testing</b>	1



# Spark-ignited generator set

45–100 kW Standby

EPA emissions



## Description

Cummins® generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby applications.

## Features

**Gas engine** - Rugged 4-cycle Cummins QSJ5.9G spark-ignited engine delivers reliable power. The electronic air/fuel ratio control provides optimum engine performance and fast response to load changes.

**Alternator** - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

**Control system** - The PowerCommand® 1.1 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance. The PowerCommand 2.3 control is also optional and is UL 508 Listed and provides AmpSentry™ protection.

**Cooling system** - Standard cooling package provides reliable running at up to 50 °C (122 °F) ambient temperature.

**Enclosures** - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminium material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been evaluated to withstand 180 MPH wind loads in accordance with ASCE7 -10. The design has hinged doors to provide easy access for service and maintenance.

**NFPA** - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

**Warranty and service** - Backed by a comprehensive warranty and worldwide distributor network.

	Natural gas		Propane		
	Standby		Standby		
Model	kW	kVA	kW	kVA	Data sheets
C45 N6	45	56	45	56	NAD-6093-EN
C50 N6	50	63	50	63	NAD-6094-EN
C60 N6	60	75	60	75	NAD-6095-EN
C70 N6	70	88	70	88	NAD-6096-EN
C80 N6	80	100	80	100	NAD-6097-EN
C100 N6	100	125	100	125	NAD-6098-EN

## Generator set specifications

Governor regulation class	ISO8528 Part 1 Class G3
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.25% @ 60 Hz
Radio frequency emissions compliance	Meets requirements of most industrial and commercial applications

## Engine specifications

Design	Naturally aspirated or turbocharged (varies by generator set model)
Bore	102.1 mm (4.02 in.)
Stroke	119.9 mm (4.72 in.)
Displacement	5.9 liters (359 in³)
Cylinder block	Cast iron, in-line 6 cylinder
Battery capacity	850 amps at ambient temperature of 0 °F to 32 °F (-18 °C to 0 °C)
Battery charging alternator	52 amps
Starting voltage	12 volt, negative ground
Lube oil filter type(s)	Spin-on with relief valve
Standard cooling system	50 °C (122 °F) ambient cooling system
Rated speed	1800 rpm

## Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120 °C (248 °F) Standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
AC waveform Total Harmonic Distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Telephone Influence Factor (TIF)	< 50 per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 3%

## Available voltages

1-phase	3-phase
• 120/240	• 120/208 • 120/240 • 277/480 • 347/600 • 127/220

## Generator set options

### Fuel system

- Single fuel - natural gas or propane vapor, field selectable
- Dual fuel – natural gas and propane vapor auto changeover
- Low fuel gas pressure warning

### Engine

- Engine air cleaner
- Shut down – low oil pressure
- Extension – oil drain
- Engine oil heater

### Alternator

- 120 °C temperature rise alternator
- 105 °C temperature rise alternator
- PMG
- Alternator heater, 120 V
- Reconnectable full 1 phase output alternator

### Control

- AC output analog meters
- Stop switch – emergency
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)

### Electrical

- One, two or three circuit breaker configurations
- 80% rated circuit breakers
- 100% rated LSI circuit breakers
- Battery charger

### Enclosure

- Sound Level 1 or Level 2 enclosure, sandstone or green color
- Weather protective enclosure with muffler installed, green color
- Winter protective enclosure, green color

### Cooling system

- Shutdown – low coolant level
- Warning – low coolant level
- Extension – coolant drain
- Coolant heater options:
  - <4 °C (40 °F) – cold weather
  - <17 °C (0 °F) – extreme cold

### Exhaust system

- Exhaust connector NPT
- Exhaust muffler mounted

### Generator set application

- Base barrier – elevated genset
- Battery rack, standard battery
- Battery rack, larger battery
- Radiator outlet duct adapter

### Warranty

- Base warranty – 2 year/1000 hours, Standby
- 3 year Standby warranty options
- 5 year Standby warranty options

## Generator set accessories

- Coolant heaters – 1000 W/1500 W
- Battery rack, standard/larger battery
- Battery heater kit
- Engine oil heater
- Remote control displays
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)
- Annunciator – RS485
- Remote monitoring device – PowerCommand 500/550
- Battery charger – stand-alone, 12 V
- Circuit breakers
- Enclosure Sound Level 1 to Sound Level 2 upgrade kit
- Base barrier – elevated generator set
- Mufflers – industrial, residential or critical
- Alternator PMG
- Alternator heater

## Control system PowerCommand 1.1



**PowerCommand control** is an integrated generator set control system providing voltage regulation, engine protection, operator interface and isochronous governing (optional). Major features include:

- Battery monitoring and testing features and smart starting control system.
- Standard PCCNet interface to devices such as remote annunciator for NFPA 110 applications.
- Control boards potted for environmental protection.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.

### Operator/display panel

- Manual off switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating generator set running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -40 °C to +70 °C
- Bargraph display (optional)

### AC protection

- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload

### Engine protection

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown

- Low coolant temperature warning
- High, low and weak battery voltage warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown

### Alternator data

- Line-to-Line and Line-to-neutral AC volts
- 3-phase AC current
- Frequency
- Total kVa

### Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Engine speed

### Other data

- Generator set model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)

### Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

### Digital voltage regulation

- Integrated digital electronic voltage regulator
- 2-phase Line-to-Line sensing
- Configurable torque matching

### Control functions

- Time delay start and cooldown
- Cycle cranking
- PCCNet interface
- (2) Configurable inputs
- (2) Configurable outputs
- Remote emergency stop
- Automatic Transfer Switch (ATS) control
- Generator set exercise, field adjustable



## Options

- Auxiliary output relays (2)
- Remote annunciator with (3) configurable inputs and (4) configurable outputs
- PMG alternator excitation
- PowerCommand 500/550 for remote monitoring and alarm notification (accessory)
- Auxiliary, configurable signal inputs (8) and configurable relay outputs (8)
- Digital governing
- AC output analog meters (bargraph)
  - Color-coded graphical display of:
    - 3-phase AC voltage
    - 3-phase current
    - Frequency
    - kVa
- Remote operator panel
- PowerCommand 2.3 control with AmpSentry protection

## Ratings definitions

### Emergency Standby Power (ESP):

Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

### Limited-Time Running Power (LTP):

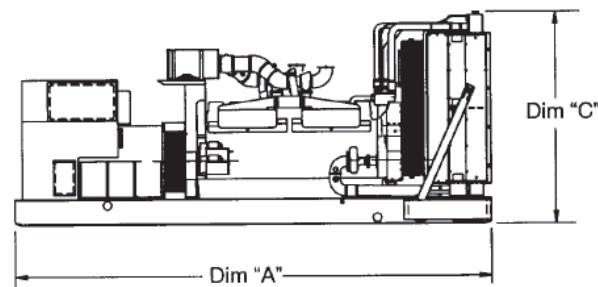
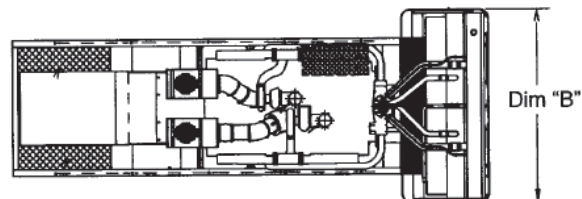
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

### Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

### Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.

**Do not use for installation design**







Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set weight* kg (lbs.)
<b>Open set</b>				
C45 N6	2489 (98)	1016 (40)	1473 (58)	989 (2180)
C50 N6	2489 (98)	1016 (40)	1473 (58)	989 (2180)
C60 N6	2489 (98)	1016 (40)	1473 (58)	1103 (2431)
C70 N6	2489 (98)	1016 (40)	1473 (58)	1111 (2449)
C80 N6	2489 (98)	1016 (40)	1473 (58)	1173 (2587)
C100 N6	2489 (98)	1016 (40)	1473 (58)	1233 (2719)
<b>Weather protective enclosure</b>				
C45 N6	2489 (98)	1016 (40)	1473 (58)	1070 (2359)
C50 N6	2489 (98)	1016 (40)	1473 (58)	1070 (2359)
C60 N6	2489 (98)	1016 (40)	1473 (58)	1184 (2610)
C70 N6	2489 (98)	1016 (40)	1473 (58)	1192 (2628)
C80 N6	2489 (98)	1016 (40)	1473 (58)	1255 (2766)
C100 N6	2489 (98)	1016 (40)	1473 (58)	1315 (2898)
<b>Sound attenuated enclosure Level 1</b>				
C45 N6	3023 (119)	1016 (40)	1473 (58)	1114 (2455)
C50 N6	3023 (119)	1016 (40)	1473 (58)	1114 (2455)
C60 N6	3023 (119)	1016 (40)	1473 (58)	1227 (2706)
C70 N6	3023 (119)	1016 (40)	1473 (58)	1236 (2724)
C80 N6	3023 (119)	1016 (40)	1473 (58)	1298 (2862)
C100 N6	3023 (119)	1016 (40)	1473 (58)	1358 (2994)
<b>Sound attenuated enclosure Level 2</b>				
C45 N6	3454 (136)	1016 (40)	1473 (58)	1127 (2485)
C50 N6	3454 (136)	1016 (40)	1473 (58)	1127 (2485)
C60 N6	3454 (136)	1016 (40)	1473 (58)	1241 (2736)
C70 N6	3454 (136)	1016 (40)	1473 (58)	1249 (2754)
C80 N6	3454 (136)	1016 (40)	1473 (58)	1312 (2892)
C100 N6	3454 (136)	1016 (40)	1473 (58)	1372 (3024)
<b>Winter protective enclosure</b>				
C45 N6	3701 (146)	1016 (40)	1473 (58)	1152 (2535)
C50 N6	3701 (146)	1016 (40)	1473 (58)	1152 (2535)
C60 N6	3701 (146)	1016 (40)	1473 (58)	1266 (2786)
C70 N6	3701 (146)	1016 (40)	1473 (58)	1275 (2804)
C80 N6	3701 (146)	1016 (40)	1473 (58)	1337 (2942)
C100 N6	3701 (146)	1016 (40)	1473 (58)	1397 (3074)

\* Weights above are average. Actual weight varies with product configuration.

## Codes and standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.		The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies.
<b>International Building Code</b>	The generator set is certified to International Building Code (IBC) 2012.		All low voltage models are CSA certified to product class 4215-01.
	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	<b>U.S. EPA</b>	Engine certified to U.S. EPA SI Stationary Emission Regulation 40 CFR, Part 60.

**Warning:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit [power.cummins.com](http://power.cummins.com)

**Our energy working for you.™**



## Generator Set Data Sheet



**Model:** C100 N6  
**Frequency:** 60 Hz  
**Fuel Type:** Natural Gas/Propane  
**kW Rating:** 100 Natural Gas Standby  
 100 Propane Standby  
**Emissions Level:** EPA Emissions

	Natural gas Standby				Propane Standby			
<b>Fuel Consumption</b>	kW (kVA)				kW (kVA)			
<b>Ratings</b>	100 (125)				100 (125)			
<b>Load</b>	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
<b>scfh</b>	538	788	1028	1290	210.2	316.3	418.64	526.6
<b>m³/hr</b>	15.2	22.3	29.1	36.5	5.95	8.96	11.86	14.91

<b>Engine</b>	Natural gas Standby rating	Propane Standby rating
Engine model	QSJ5.9G-G3	
Configuration	Cast iron, in line, 6 cylinder	
Aspiration	Turbocharged and after-cooled	
Gross engine power output, kWm (bhp)	121.3 (162.7)	
Bore, mm (in.)	102.1 (4.02)	
Stroke, mm (in.)	119.9 (4.72)	
Rated speed, rpm	1800	
Compression ratio	8.5:1	
Lube oil capacity, L (qt.)	14.2 (15)	
Overspeed limit, rpm	2250	

### Fuel Supply Pressure

Minimum operating pressure, kPa (in H <sub>2</sub> O)	1.5 (6)
Maximum operating pressure, kPa (in H <sub>2</sub> O)	3.2 (13)

<b>Air</b>	Natural gas Standby rating	Propane Standby rating
Combustion air, m³/min (scfm)	8.4 (297.8)	8.5 (298.5)
Maximum normal duty air cleaner restriction, kPa (in H <sub>2</sub> O)	0.4 (1.5)	0.4 (1.5)
Maximum heavy duty air cleaner restriction, kPa (in H <sub>2</sub> O)	3.7 (15)	3.7 (15)

<b>Exhaust</b>	<b>Natural gas Standby rating</b>	<b>Propane Standby rating</b>
Exhaust flow at rated load, m <sup>3</sup> /min (cfm)	27.3 (965)	25.7 (908.7)
Exhaust temperature at set rated load, °C (°F)	635.2 (1175.4)	645.7 (1194.3)
Maximum back pressure, kPa (in H <sub>2</sub> O)	8.5 (34.1)	8.5 (34.1)

### Standard Set-Mounted Radiator Cooling

Ambient design, °C (°F)	50 (122)	50 (122)
Fan load, kW <sub>m</sub> (HP)	9.0 (12)	9.0 (12)
Coolant capacity (with radiator), L (US gal)	16 (4.2)	16 (4.2)
Cooling system air flow, m <sup>3</sup> /min (scfm)	218.0 (7700)	218.0 (7700)
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)	0.12 (0.5)	0.12 (0.5)

<b>Weights</b>	<b>Natural gas</b>	<b>Propane</b>
Unit dry weight kgs (lbs)	1276 (2812)	1276 (2812)
Unit wet weight kgs (lbs)	1315 (2898)	1315 (2898)

**Note:** Weights represent a set with standard features. See outline drawing for weights of other configurations.

### Derating Factors

#### Natural gas

Standby	Engine power available up to 488 m (1600 ft.) at ambient temperatures up to 25 °C (77 °F). Above these elevations derate at 4% per 305 m (1000 ft.) and 2% per 10 °C above 25 °C (77 °F).
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#### Propane

Standby	Engine power available up to 488 m (1600 ft.) at ambient temperatures up to 25 °C (77 °F). Above these elevations derate at 4% per 305 m (1000 ft.) and 2% per 10 °C above 25 °C (77 °F).
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### Ratings Definitions

<b>Emergency Standby Power (ESP):</b>	<b>Limited-Time Running Power (LTP):</b>	<b>Prime Power (PRP):</b>	<b>Base Load (Continuous) Power (COP):</b>
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

## Alternator Data

Standard alternators		Natural gas/propane single phase table	Natural gas/propane three phase table					Full single phase output, reconnectable
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		BB90-2	B986-2	B946-2	B943-2	B952-2	BB86-2	BB88-2
Alternator data sheet number		ADS-207	ADS-207	ADS-207	ADS-207	ADS-207	ADS-207	ADS-209
Voltage ranges		120/240	120/240	120/208	277/480	347/600	127/220	120 - 480
Voltage feature code		R104-2	R106-2	R098-2	R002-2	R114-2	R020-2	Varies by voltage
Surge kW		98.7	102.7	102.7	103.9	103.9	103.2	Varies by voltage
Motor starting kVA (at 90% sustained voltage)	Shunt	360	360	360	360	360	360	516
	PMG	423	423	423	423	423	423	607
Full load current amps at Standby rating		417	301	347	150	120	328	Varies by voltage

Optional alternators for improved starting capability		Natural gas/propane single phase table	Natural gas/propane three phase table					Full single phase output, reconnectable
Maximum temperature rise above 40 °C ambient		105 °C	105 °C	105 °C	105 °C	105 °C	105 °C	Not available
Feature code		BB91-2	BB94-2	BB93-2	BB95-2	BB92-2	BB85-2	
Alternator data sheet number		ADS-208	ADS-208	ADS-208	ADS-207	ADS-207	ADS-207	
Voltage ranges		120/240	120/240	120/208	277/480	347/600	127/220	
Voltage feature code		R104-2	R106-2	R098-2	R002-2	R114-2	R020-2	
Surge kW		100.1	104.5	104.5	103.9	103.9	103.2	
Motor starting kVA (at 90% sustained voltage)	Shunt	422	422	422	360	360	360	
	PMG	497	497	497	423	423	423	
Full load current amps at Standby rating		417	301	347	150	120	328	

**Warning:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit [power.cummins.com](http://power.cummins.com)

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## Alternator Data Sheet

### Frame Size: UC3E

Characteristics		1-bearing weight		2-bearing weight					
Weights:	Stator assembly:	397 lb	180 kg	397 lb	180 kg				
	Rotor assembly:	370 lb	168 kg	346 lb	157 kg				
	Complete assembly:	1085 lb	492 kg	1127 lb	511 kg				
Maximum speed:		2250 rpm							
Excitation current:	Full load:	3 Amps							
	No load:	0.5 Amps							
Insulation system:	Class H throughout								
3 ∅ Ratings (0.8 power factor)		50 Hz (winding no)		60 Hz (winding no)					
	(Based on specific temperature rise at 40° C ambient temperature)	190/380 220 (311)	208/415 240 (311)	190/380 (14)	208/416 (14)	346/600 (17)	208/416 240 (311)	240/480 (311)	
	150° C rise ratings	kW	116	116	136	136	150	136	150
		kVA	145	145	170	170	188	170	188
	125° C rise ratings	kW	112	112	128	128	143	128	143
		kVA	140	140	160	160	179	160	179
	105° C rise ratings	kW	100	100	112	112	128	112	128
		kVA	125	125	140	140	160	140	160
3 ∅ Reactances (per unit ± 10%) (Based on full load at 125° C rise rating)		190/380/220 (311)	208/415/240 (311)	190/380 (14)	208/416 (14)	346/600 (17)	208/416 /240 (311)	240/480 (311)	
	Synchronous	2.34	1.96	2.06	1.72	2.06	2.68	2.25	
	Transient	0.21	0.18	0.19	0.16	0.18	0.25	0.21	
	Subtransient	0.14	0.12	0.13	0.11	0.13	0.17	0.14	
	Negative sequence	0.16	0.13	0.14	0.12	0.14	0.19	0.16	
	Zero sequence	0.10	0.08	0.09	0.07	0.09	0.11	0.09	
3 ∅ Motor starting (90% sustained voltage)		190/380/220 (311)	208/415/240 (311)	190/380 (14)	208/416 (14)	346/600 (17)	208/416 /240 (311)	240/480 (311)	
	Maximum kVA (Shunt)	-	-	422	422	422	-	-	
	(PMG)	389	389	497	497	497	497	497	
Time constants (sec)		190/380/220 (311)	208/415/240 (311)	190/380 (14)	208/416 (14)	346/600 (17)	208/416 /240 (311)	240/480 (311)	
	Transient	0.032	0.032	0.032	0.032	0.032	0.032	0.032	
	Subtransient	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
	Open circuit	0.85	0.85	0.85	0.85	0.85	0.85	0.85	
	DC	0.007	0.007	0.007	0.007	0.007	0.007	0.007	
Windings (@22° C)		190/380/220 (311)	208/415/240 (311)	190/380 (14)	208/416 (14)	346/600 (17)	208/416 /240 (311)	240/480 (311)	
	Stator resistance (L-L Ohms)	0.0634	0.0634	0.0440	0.0440	0.10	0.0634	0.0634	
	Rotor resistance (Ohms)	1.34	1.34	1.34	1.34	1.34	1.34	1.34	
	Number of leads	12	12	12	12	12	12	12	



# 2022 EPA Exhaust Emission Compliance Statement

## C100 N6 Standby 60 Hz Spark Ignited Generator Set

### Compliance Information:

The engine used in this generator set complies with U.S. EPA emissions regulations under the provisions of 40 CFR Part 60, Stationary Emergency Spark-Ignited emissions limits when tested per ISO 8178 D1.

Engine Manufacturer: Cummins Inc.  
EPA Certificate Number: NCEXB05.9ALB-008  
Effective Date: 11/05/2021  
Date Issued: 11/05/2021  
EPA Engine Family (Cummins Emissions Family): NCEXB05.9ALB

### Engine Information:

Model:	QSJ5.9G-G3	Bore:	4.02 in. (102 mm)
Engine Nameplate HP:	162.7	Stroke:	4.72 in. (120 mm)
Type:	4 Cycle, In-Line, 6 Cylinder	Displacement:	359.0 cu. in. (6 liters)
Aspiration:	Turbocharged and Aftercooled	Compression Ratio:	8.5:1
Emission Control Device:	Electronic Air/Fuel Ratio Control and Closed-Loop Breather System	Exhaust Stack Diameter:	4.0 in (102 mm)

### U.S. Environmental Protection Agency Station Emergency SI Emission Limits

Natural Gas	Grams per BHP-hr			Grams per kWm-hr		
	NO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	VOC	CO
Test Results	1.5	0.3	1.0	2.0	0.4	1.3
EPA Emissions Limit	2.0	1.0	4.0	2.7	1.3	5.4

Propane (LP)	Grams per BHP-hr			Grams per kWm-hr		
	NO <sub>x</sub>	VOC	CO	NO <sub>x</sub>	VOC	CO
Test Results	1.7	0.5	1.6	2.3	0.7	2.1
EPA Emissions Limit	2.0	1.0	4.0	2.7	1.3	5.4

Tests conducted using alternate methods, instrumentation, fuel or reference conditions can yield different results.

Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.





## Prototype Test Support (PTS) 60 Hz test summary



### Generator set models

C70 N6      C100 N6  
C80 N6

### Representative prototype

Model: **C100 N6**  
Alternator: UC274D  
Engine: QSJ5.9G

The following summarizes prototype testing conducted on the designated representative prototype of the specified models. This testing is conducted to verify the complete generator set electrical and mechanical design integrity. Prototype testing is conducted only on generator sets not sold as new equipment.

### Maximum surge power: 105.7 kW

The generator set was evaluated to determine the stated maximum surge power.

### Maximum motor starting: 130 kVA

The generator set was tested to simulate motor starting by applying the specified kVA load at low lagging power factor (0.4 or lower). With this load applied, the generator set recovered to a minimum of 90% rated voltage.

### Alternator temperature rise:

The highest rated temperature rise (120 °C) test results are reported as follows to verify that worst case temperature rises do not exceed allowable NEMA MG1 limits for class H insulation. Tests were conducted per IEEE 115, rise by resistance and embedded detector, with the rated voltages. Only the highest temperatures are reported.

Location	Maximum rise (°C)
Alternator stator	75
Alternator rotor	95
Exciter stator	N/A
Exciter rotor	N/A

### Torsional analysis and testing:

The generator set was tested to verify that the design is not subjected to harmful torsional stresses. A spectrum analysis of the transducer output was conducted over the speed range of 1650 to 1950 RPM.

**Cooling system:** 50 °C ambient  
0.5 in. H<sub>2</sub>O restriction

The cooling system was tested to determine ambient temperature and static restriction capabilities. The test was performed at full rated load in elevated ambient temperature under static restriction conditions.

### Durability:

The generator set was subjected to a minimum 100 hour endurance test operating at variable load up to the Standby rating based upon MIL-STD-705 to verify structural soundness and durability of the design.

### Electrical and mechanical strength:

The generator set was tested to several single phase and three phase faults to verify that the generator can safely withstand the forces associated with short circuit conditions. The generator set was capable of producing full rated output at the conclusion of the testing.

### Steady state performance:

The generator set was tested to verify if the steady state operating performance was within the specified maximum limits.

Voltage regulation:	± 1%
Random voltage variation:	± 1%
Frequency regulation:	± 0.25%
Random frequency variation:	± 0.25%

### Transient performance:

The generator set was tested to verify single step loading capability as required by NFPA 110 and verify acceptable voltage and frequency response on load addition or rejection. The following results were recorded at 0.8 power factor:

#### Full load acceptance:

Voltage dip:	35.3%
Recovery time:	5.2 seconds
Frequency dip:	19.5%
Recovery time:	8.4 seconds

#### Full load rejection:

Voltage rise:	24.7%
Recovery time:	3.3 seconds
Frequency rise:	13.4%
Recovery time:	6.4 seconds

### Harmonic analysis:

(per MIL-STD-705B, method 601.4)

Harmonic	Line to Line		Line to Neutral	
	No load	Full load	No load	Full load
3	0.04	0.15	0.15	0.15
5	0.2	0.2	0.2	0.2
7	0.6	0.6	0.6	0.6
9	0.02	0.04	0.04	0.04
11	0.52	0.52	0.52	0.52
13	0.26	0.26	0.26	0.26
15	0.0	0.0	0.0	0.0



# Battery Charger-6 Amp

A045D925 60Hz/50Hz



## Description

Cummins® fully automatic battery chargers are designed to both recharge your batteries, and extend your battery's life in applications where it is stored for long periods of time. This charger can handle poor power quality, exposure to extreme weather and rough handling.

To maximize battery life, a 3-stage charging cycle is implemented. The three charging stages are bulk stage, absorption stage and maintenance stage. During the bulk stage, the charger uses its full amp output to do the heaviest charging, quickly bringing your battery to about 75% of capacity. In the absorption stage, the current slows, adjusting for maximum charging efficiency while it gently tops off the battery to about 98% of capacity.

During the maintenance stage, a lower, closely-regulated, constant voltage is applied to maintain full charge and prevent discharge.

Unlike some "trickle chargers," the float charger won't apply more current than necessary to maintain full charge. Batteries can be connected indefinitely, without harm; in fact, the float charge extends battery life.

## Features

**Protection** – Surge protected to IEEE and EN standards. All models include single pole cartridge type fuses mounted on the printed circuit board to protect against input or output overcurrent.

**Lightweight and Silent** – Lighter than transformer types, completely silent but still provides full output when overloaded outlets drop AC voltage below the normal 115V.

**Monitoring** – Status LED indicators are provided to show the condition or charging status of the battery. When the red LED is on, it indicates that the battery is discharged and is recharging at the 'BULK' rate. When both the red and green LEDs are on, the battery is charging at the 'midrange' rate. When the green LED is on, the battery is 90% charged and ready for use.

**Construction** – Made using epoxy-potted cases making it the ultimate in durability, completely waterproof and able to withstand numerous caustic chemicals and gases, as well as being shockproof.

**Fault Indication** – The charger senses and indicates the following fault conditions: Defective or damaged cells, under-voltage at the battery, battery drawing more current than charger can replace, loss of power or extremely low AC voltage at the charger, other battery fault conditions and charger failure.

**Compatibility** – Works with Sealed Lead Acid (SLA), Absorbed Glass Mat (AGM) and Gel type batteries.

**Low Electromagnetic and Radio**

**Frequency Interference** – This product meets FCC class B for conducted and radiated emissions.

**Listed** – This product is UL listed according to the UL 1236 Standard.

**Warranty** – This product has a two-year warranty

## Specifications

### Performance and Physical Characteristics

<b>Output:</b>	Nominal voltage	12 VDC
	Float voltage – 12 V batteries	13.0-13.6 VDC at 0-2 amps
	Maximum output current	6 A @ 12 VDC nom
<b>Input:</b>	Voltage AC	115, 208, 240 ±10%, 90-135
	Frequency	60 Hz ±5%
<b>Battery:</b>	Maximum battery size	150 Amp Hours
	Maximum recharge time	20 hours
<b>Approximate net weight</b>		4 lbs. (1.81 Kg)
<b>Approximate dimensions: height x width x depth-in(mm)</b>		2.25 x 6.4 x 3.5 (57 x 162 x 89)
<b>Ambient temperature operation: At full rated output</b>		-40°F to 122 °F (-40 °C to 50 °C)



**Warning:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect generator sets to any building electrical system except through an approved device or after building main switch is open.

**Warning:** For professional use only. Must be installed by a qualified service technician. Improper installation presents hazards of electrical shock and improper operation, resulting in severe personal injury and/or property damage.

For more information contact your local Cummins distributor  
or visit [power.cummins.com](http://power.cummins.com)

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## Data Sheet

# Circuit Breakers

## Description

This Data sheet provides circuit breaker manufacturer part numbers and specifications. The Circuit breaker box description is the rating of that breaker box installation on a Cummins Generator. Please refer to the website of the circuit breaker manufacturer for breaker specific ratings and technical information.

## Applicable Models

Engine	Models					
Kubota	C10D6	C15D6	C20D6			
QSJ2.4	C20N6	C25N6	C30N6	C30N6H	C36N6	C36N6H
	C40N6	C40N6H	C50N6H	C60N6H		
B3.3	C25D6	C30D6	C35D6	C40D6	C50D6	C60D6
QSJ5.9G	C45N6	C50N6	C60N6	C70N6	C80N6	C100N6
QSJ8.9G	C125N6	C150N6				
QSB5	DSFAC	DSFAD	DSFAE	C50D6C	C60D6C	C80D6C
	C100D6C	C125D6C				
QSB7	DSGAA	DSGAB	DSGAC	DSGAD	DSGAE	
		C125D6D	C150D6D	C175D6D	C200D6D	
QSL9	DSHAD	DQDAA	DQDAB	DQDAC		
QSM11	DQHAB					
QSX15	DFEJ	DFEK				

## Instructions

1. Locate the circuit breaker feature code or part number and use the charts below to find the corresponding manufacturer circuit breaker catalog number.
2. Use the first letter of the circuit breaker catalog number to determine the "frame" of the breaker. If the first letter is an "N", use the second letter. Then follow the corresponding website link from the table below to find the breaker catalog number description.

Please refer to the catalog numbering systems page, which is given in the chart, to understand the nomenclature of the catalog number.

Frame	Catalog name*	Catalog number description page(s)
P	<a href="http://www.schneider-electric.us/en/download/document/0612CT0101/">0612CT0101</a> <a href="http://www.schneider-electric.us/en/download/document/0612CT0101/">http://www.schneider-electric.us/en/download/document/0612CT0101/</a>	16-17
H, J, and L	<a href="http://www.schneider-electric.us/en/download/document/0611CT1001/">0611CT1001</a> <a href="http://www.schneider-electric.us/en/download/document/0611CT1001/">http://www.schneider-electric.us/en/download/document/0611CT1001/</a>	8-9
Q	<a href="http://www.schneider-electric.us/en/download/document/0734CT0201/">0734CT0201</a> <a href="http://www.schneider-electric.us/en/download/document/0734CT0201/">http://www.schneider-electric.us/en/download/document/0734CT0201/</a>	4

\*The following link may also be used to search specifically by the breaker part number or for the catalog name listed above. <http://products.schneider-electric.us/technical-library/>

3. Search the catalog by using the first 3 letters of the breaker catalog number and the first 5 numbers to find information such as trip curves, accessories, and dimensional details regarding the circuit breaker.

\*If the catalog number starts with "N", skip the N and begin your search with the second letter.

\*If the first 3 letters are "PJP," the search will not work. You will need to start with just "PJ" and use the description pages to obtain the information you are looking for on the "PJP."

## Example

After finding your circuit breaker catalog number to be "PJL36120U33EACUKMOYB," navigate to the P-frame catalog by using the link provided.

Look at pages 16-17 of the pdf catalog to find the nomenclature of the breaker.

Search the P-frame spec sheet using the search "PJL36120."

P	J	L	3	6	120	U33	E	AC	UK	MO	YB
P-Frame	Interrupting Rating	Lug Connection	Poles	Voltage Rating	Ampere Rating	Trip System	Rating Plug	3 Auxiliary Switch	24 Vac/UVR	24 Vdc Spring charging motor	Pad lockable Push-button cover

Feature Code	Breaker Box Description	Cummins Part #	Manufacturer	Breaker Catalog Number	Trip Unit	Plug Type
KV35-2	CB,Loc A,50A,3P,600VAC,80%,UL	A043L461	Schneider Electric	HDL36050	Thermal Magnetic	N/A
KV36-2	CB,Loc A,60A,3P,600VAC,80%,UL	A043L459	Schneider Electric	HDL36060	Thermal Magnetic	N/A
KV37-2	CB,Loc A,70A,3P,600VAC,80%,UL	A043L451	Schneider Electric	HDL36070	Thermal Magnetic	N/A
KV38-2	CB,Loc A,80A,3P,600VAC,80%,UL	A043L012	Schneider Electric	HDL36080	Thermal Magnetic	N/A
KV39-2	CB,Loc A,90A,3P,600VAC,80%,UL	A043K997	Schneider Electric	HDL36090	Thermal Magnetic	N/A
KV40-2	CB,Loc A,100A,3P,600VAC,80%,UL	A043L024	Schneider Electric	HDL36100	Thermal Magnetic	N/A
KV41-2	CB,Loc A,125A,3P,600VAC,80%,UL	A043K994	Schneider Electric	HDL36125	Thermal Magnetic	N/A
KV42-2	CB,Loc A,150A,3P,600VAC,80%,UL	A043K991	Schneider Electric	HDL36150	Thermal Magnetic	N/A
KV43-2	CB,Loc A,175A,3P,600VAC,80%,UL	A043L619	Schneider Electric	JDL36175	Thermal Magnetic	N/A
KV44-2	CB,Loc A,200A,3P,600VAC,80%,UL	A043L520	Schneider Electric	JDL36200	Thermal Magnetic	N/A
KV45-2	CB,Loc A,225A,3P,600VAC,80%,UL	A043L517	Schneider Electric	JDL36225	Thermal Magnetic	N/A
KV46-2	CB,Loc A,250A,3P,600VAC,80%,UL	A043L510	Schneider Electric	JDL36250	Thermal Magnetic	N/A
KV47-2	CB,Loc A,250A,3P,600VAC,100%,UL	A044C640	Schneider Electric	JDL36250U31XLC	MicroLogic 3.2S	N/A
KV55-2	CB,Loc B,15A,2P,600VAC,80%,UL	A043E189	Schneider Electric	HDL26015	Thermal Magnetic	N/A
KV57-2	CB,Loc B,25A,2P,600VAC,80%,UL	A043E191	Schneider Electric	HDL26025	Thermal Magnetic	N/A
KV58-2	CB,Loc B,30A,2P,600VAC,80%,UL	A043E185	Schneider Electric	HDL26030	Thermal Magnetic	N/A
KV59-2	CB,Loc B,40A,2P,600VAC,80%,UL	A043E183	Schneider Electric	HDL26040	Thermal Magnetic	N/A



# PowerCommand<sup>®</sup> annunciator discrete input or PCCNet



## Description

The Universal Annunciator Module provides visual and audible indication of up to 20 separate alarm or status conditions, based on discrete (relay) inputs or network inputs. Each LED can be controlled by either a discrete wire input or by a signal on the PCCNet network sent from an external device, such as a PCC1301 or PCC2100 (version 2.4 or later) control.

In addition to the LEDs, the annunciator can control four custom relays based on signals received over the PCCNet. When one of the annunciator's discrete inputs is activated, the annunciator will broadcast that information over the network. By taking advantage of the network, discrete inputs and custom relays, the annunciator can be used as expanded I/O for a genset controller.

Easily installed in a location to give immediate notification of an alarm or warning status. Designed to give operating/monitoring personnel quick-glance status information. The module directly senses battery voltage to provide green/yellow/red alarm and status information for that parameter.

Genset controller complies with NFPA level two requirements when used with the display but without the annunciator panel. When used with the annunciator it meets NFPA level one requirements (Emergency and Standby power systems). The annunciator module can also be used for monitoring of transfer switch or other equipment status.

## Features

- Visual and audible warnings of up to 20 separate alarm or status conditions.
- LEDs can be controlled either via PCCNet or discrete input.
- Status of discrete inputs is broadcast on network.
- Four custom relays can be controlled over the PCCNet network.
- Configurable LED color (red, yellow or green) and selectable horn operation allows maximum flexibility.
- Standard NFPA 110 label, field configurable for other alarm status and conditions.
- Each audible alarm is annunciated, regardless of the number of existing alarm conditions displayed.
- Sealed membrane panel design provides environmental protection for internal components and is easy to clean.
- Configurable for negative (ground) input or positive input.
- Integral DC voltage sensing.
- Flush or surface mount provisions.
- UL Listed and labeled; CSA certified; CE and UKCA marked.



## Specifications

### Signal requirements

Positive - Input impedance is 1.82 kOhms to ground; maximum input voltage = 31 VDC.

Negative - Input impedance is 1.82 kOhms to Bat+: inputs are at Bat+ level when open.

Sink/source current threshold for detection - 150 Ua minimum, 3 mA maximum.

Typical conductor size: 16 ga for 304.8 m (1000 ft)

Max conductor size for terminal: 12 ga

### Relay outputs

0.2 A at 125 VAC and 1 A at 30 VDC

### Network connections

Use Belden 9729 two pair, stranded, shielded 24 AWG twisted pair cable for all PCCNet connections. Total network length cannot exceed 1219 m (4000 ft). Up to 20 nodes can be connected to the network.

Note: Any communications wire connected to the generator set should be stranded cable.

### Power

Maximum consumption: 15 watts

### Battery voltage

Functional range - Audible and visual conditions operational from 6.5 to 31 VDC.

Low voltage setting - 12.0 VDC for 12 Volt nominal systems; 24.0 for 24 Volt nominal systems.

High voltage setting - 16.0 Volt for 12 Volt nominal systems; 32.0 Volt for 24 Volt nominal systems.

### Alarm horn

Sound level: 90 dB at 30 cm

### Physical

Weight (with enclosure): 1.4 kg (3.0 lbs)

### Temperature

-20 °C to +70 °C (-4 °F to +158 °F)

### Humidity

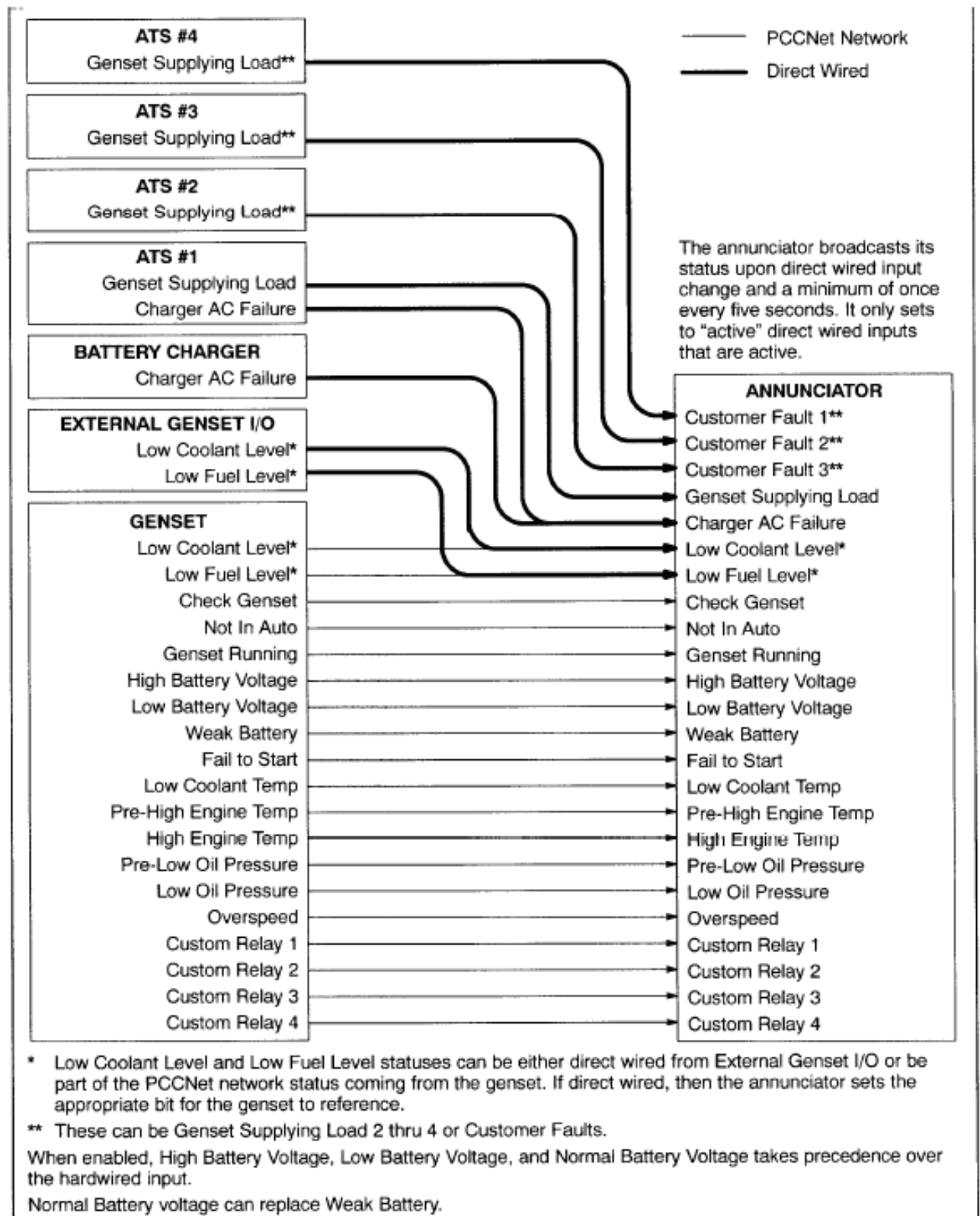
10% to 95% RH (non-condensing)

## Default lamp configurations

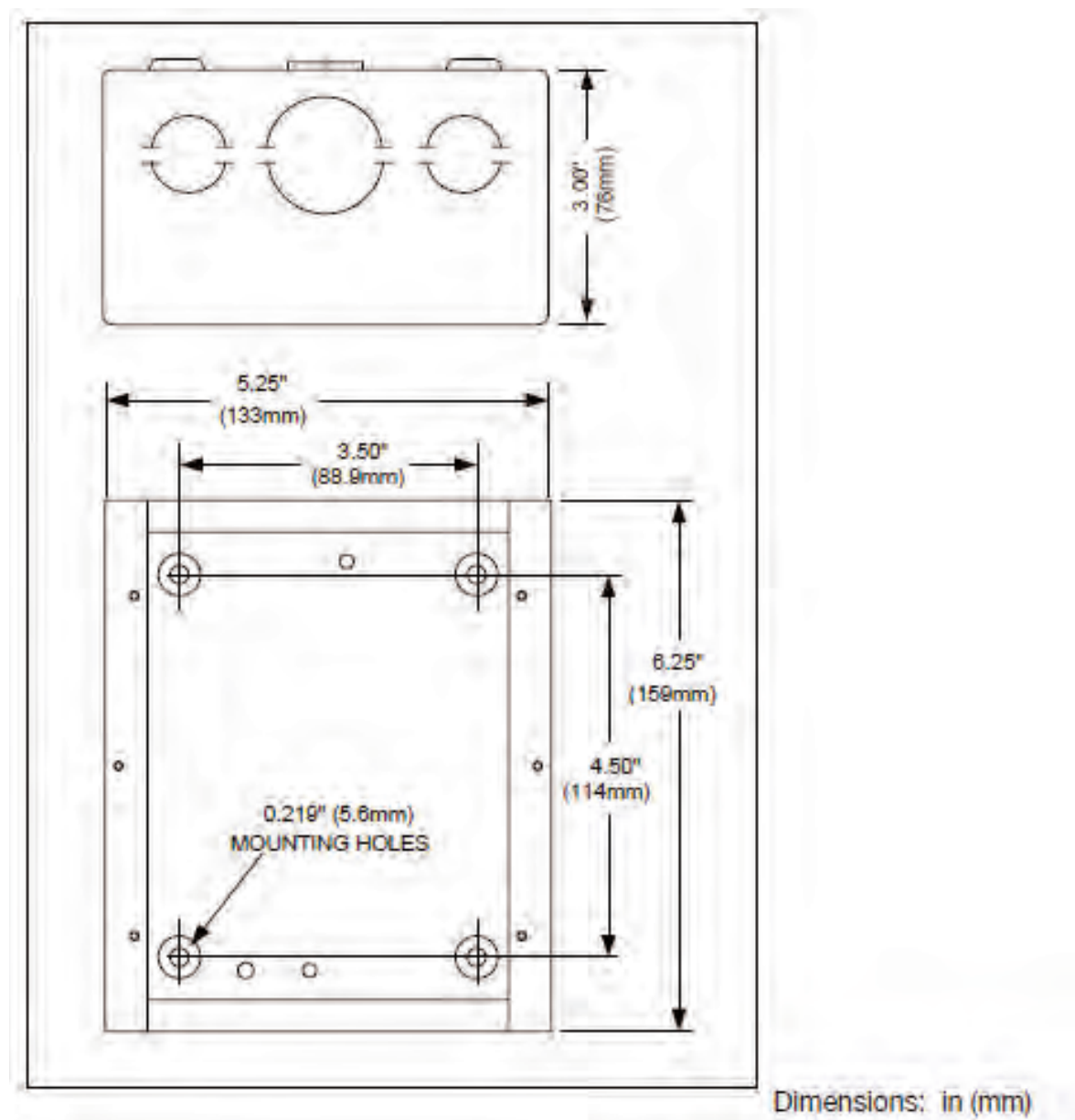
Can be configured for current NFPA 110 standard or as a replacement for Legacy (pre-2001) NFPA 110 annunciator (300-4510 or 300 4511)

Lamp	Description	NFPA 110		
		Color	Horn	Flash
DS1	Customer fault 1	Green	No	No
DS2	Customer fault 2	Amber	No	No
DS3	Customer fault 3	Red	No	No
DS4	Genset supplying load	Amber	No	No
DS5	Charger AC failure	Amber	Yes	No
DS6	Low coolant level	Amber	Yes	No
DS7	Low fuel level	Red	Yes	No
DS8	Check generator set	Amber	No	No
DS9	Not in auto	Red	Yes	Yes
DS10	Generator set running	Amber	No	No
DS11	High battery voltage	Amber	Yes	No
DS12	Low battery voltage	Red	Yes	No
DS13	Weak battery	Red	Yes	No
DS14	Fail to start	Red	Yes	No
DS15	Low coolant temp	Red	Yes	No
DS16	Pre-high engine temp	Amber	Yes	No
DS17	High engine temp	Red	Yes	No
DS18	Pre-low oil pressure	Red	Yes	No
DS19	Low oil pressure	Red	Yes	No
DS20	Overspeed	Red	Yes	No

## Typical installation



## Dimensions



## Ordering information

Part number	Description
0300-5929-01	Panel mount
0300-5929-02	Panel with enclosure

For more information contact your local Cummins distributor or visit [power.cummins.com](http://power.cummins.com)

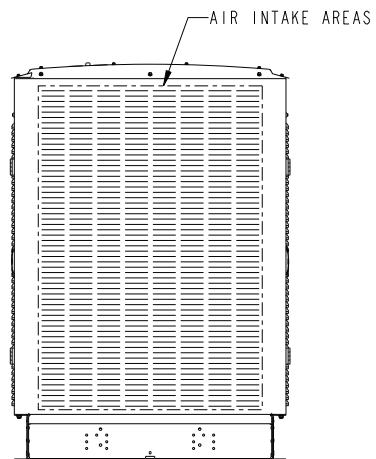
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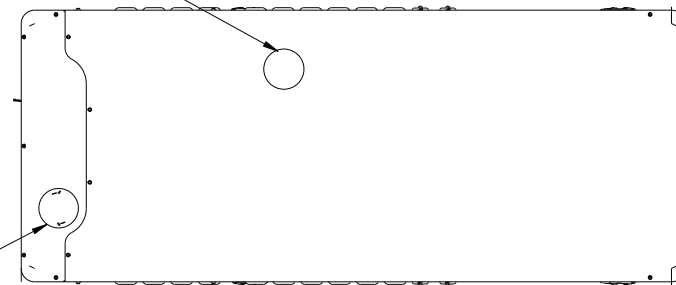
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## NOTES:

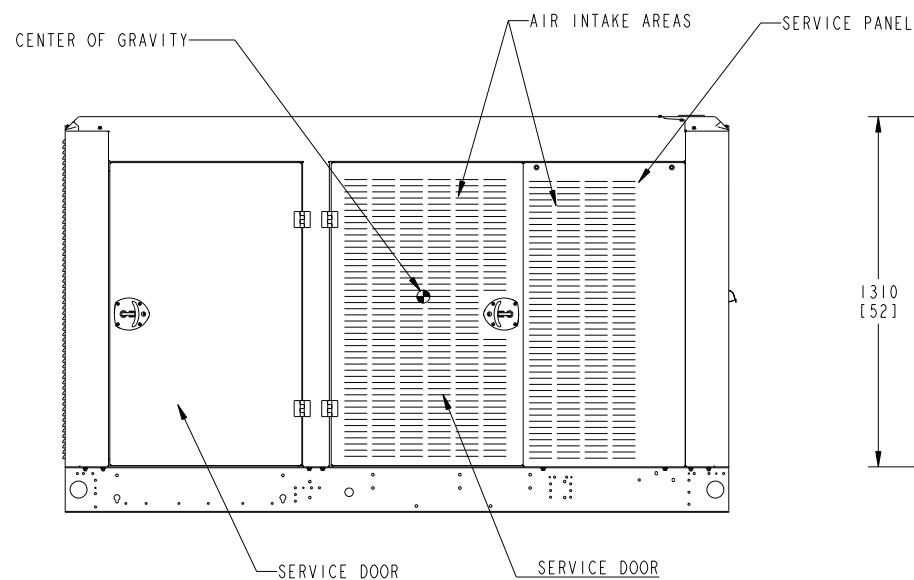
- DIM [ ] IN INCHES
- WHEN THE HOUSING INSTALLED ON AN OPEN GENERATOR SET, THE TOTAL WEIGHT WILL INCREASE BY 81 KG (179 LBS). THIS INCLUDES THE MUFFLER.
- THE CENTER OF GRAVITY (CG) OF THE GENERATOR SET WHEN EQUIPPED WITH THIS HOUSING SHIFTS APPROXIMATELY 19mm (0.75 INCH) TOWARDS THE AIR DISCHARGE END OF THE HOUSING AND 39mm (1.55 INCH) HIGHER FROM THE GROUND, COMPARED TO THE EQUIVALENT NON-HOUSED PRODUCT WITH THE F179 SKID. SEE HOUSING READY SKID BASE OUTLINE DRAWING FOR CG LOCATION OF NON HOUSED PRODUCT.



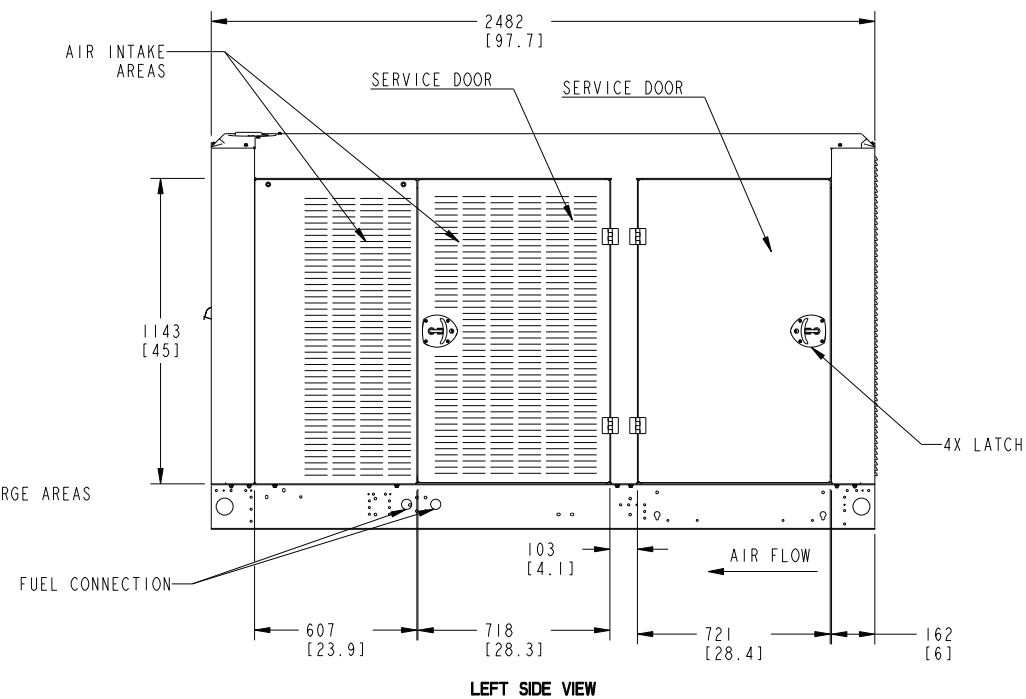
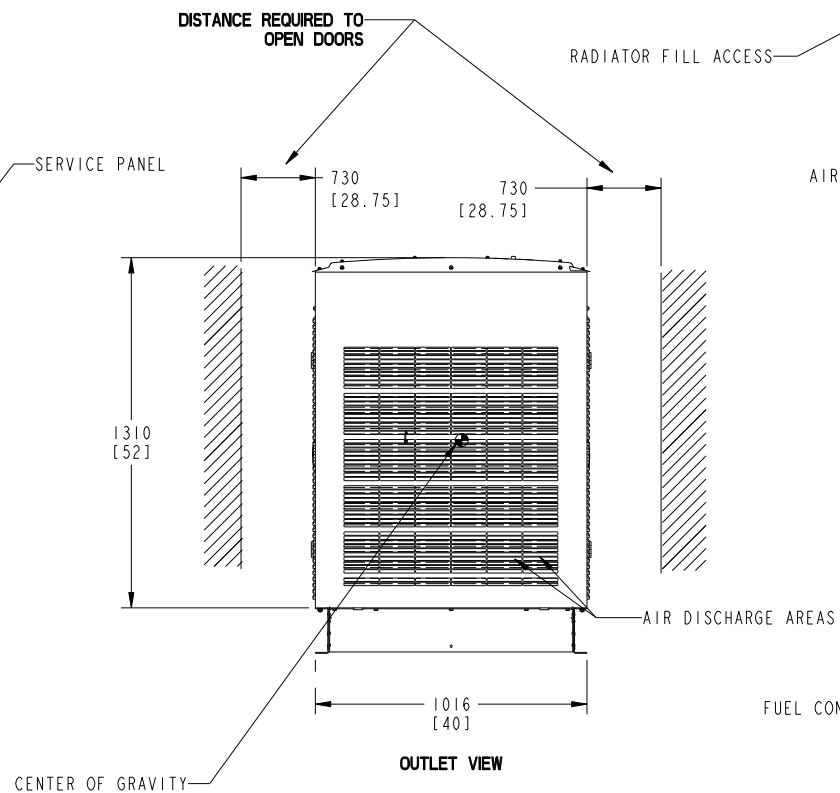
EXHAUST DISCHARGE AREA



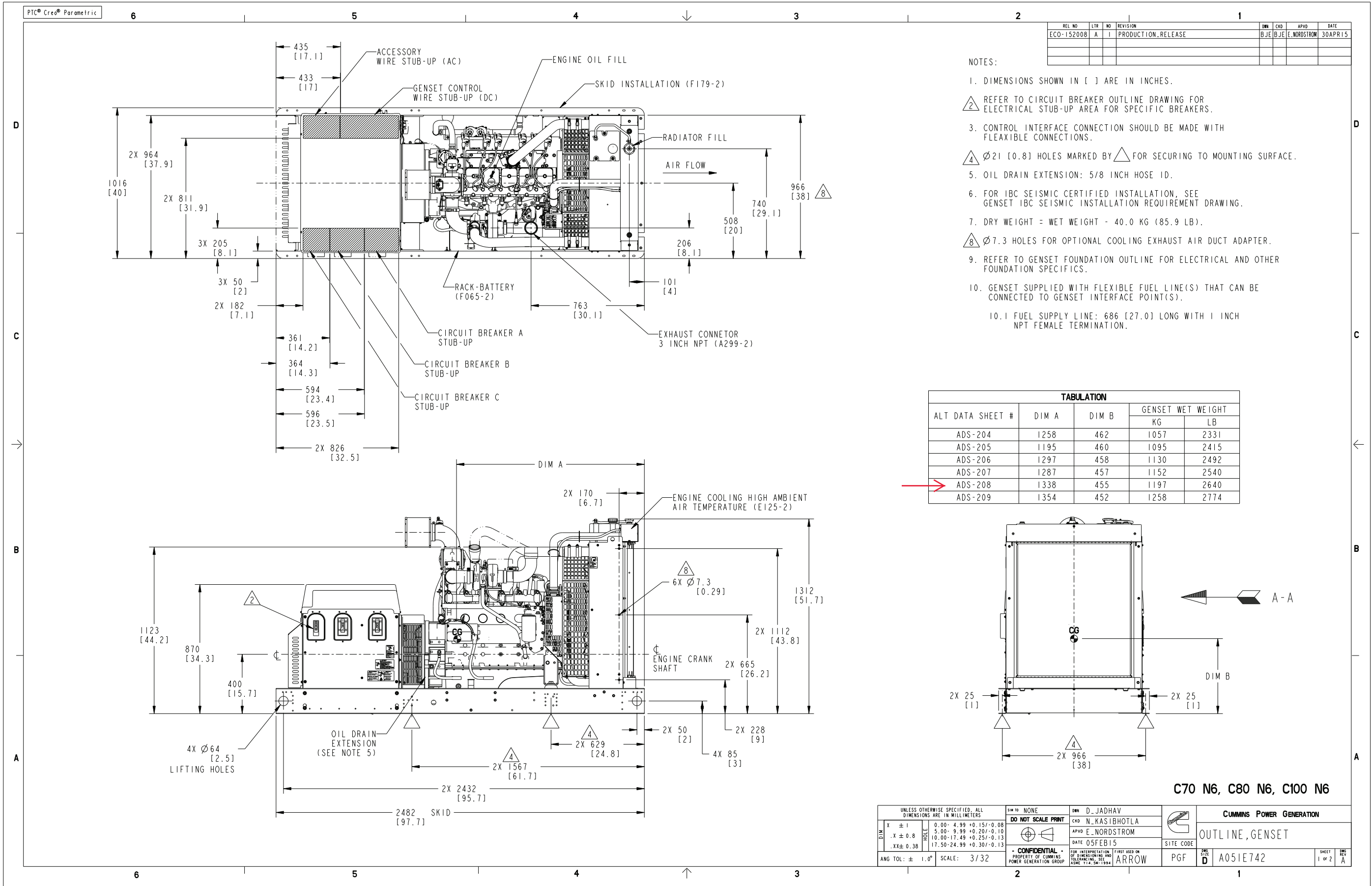
TOP VIEW



RIGHT SIDE VIEW



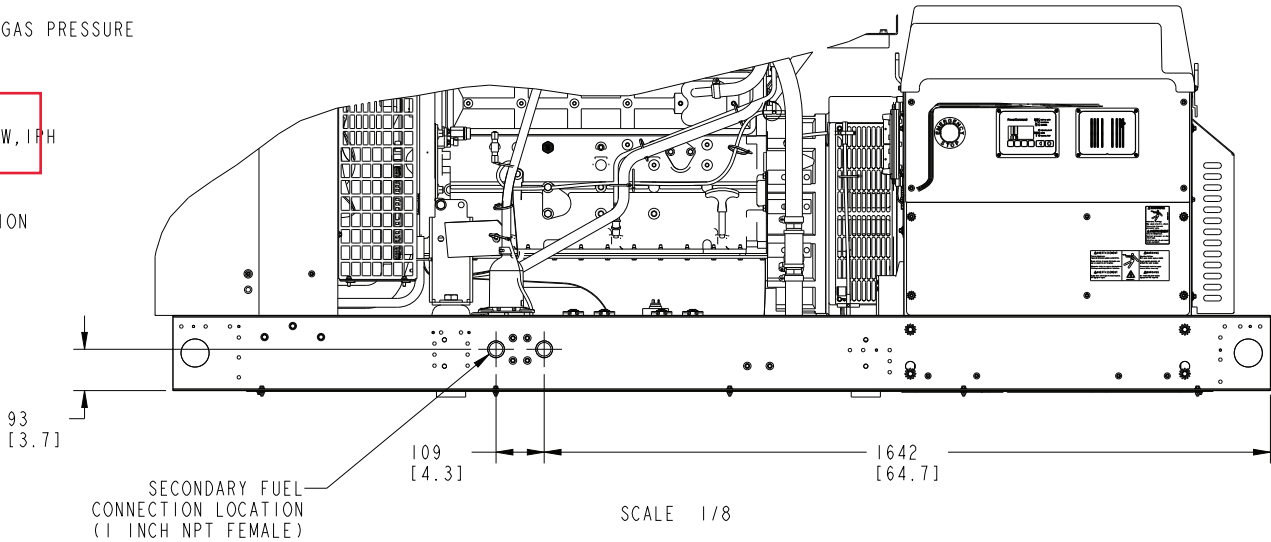
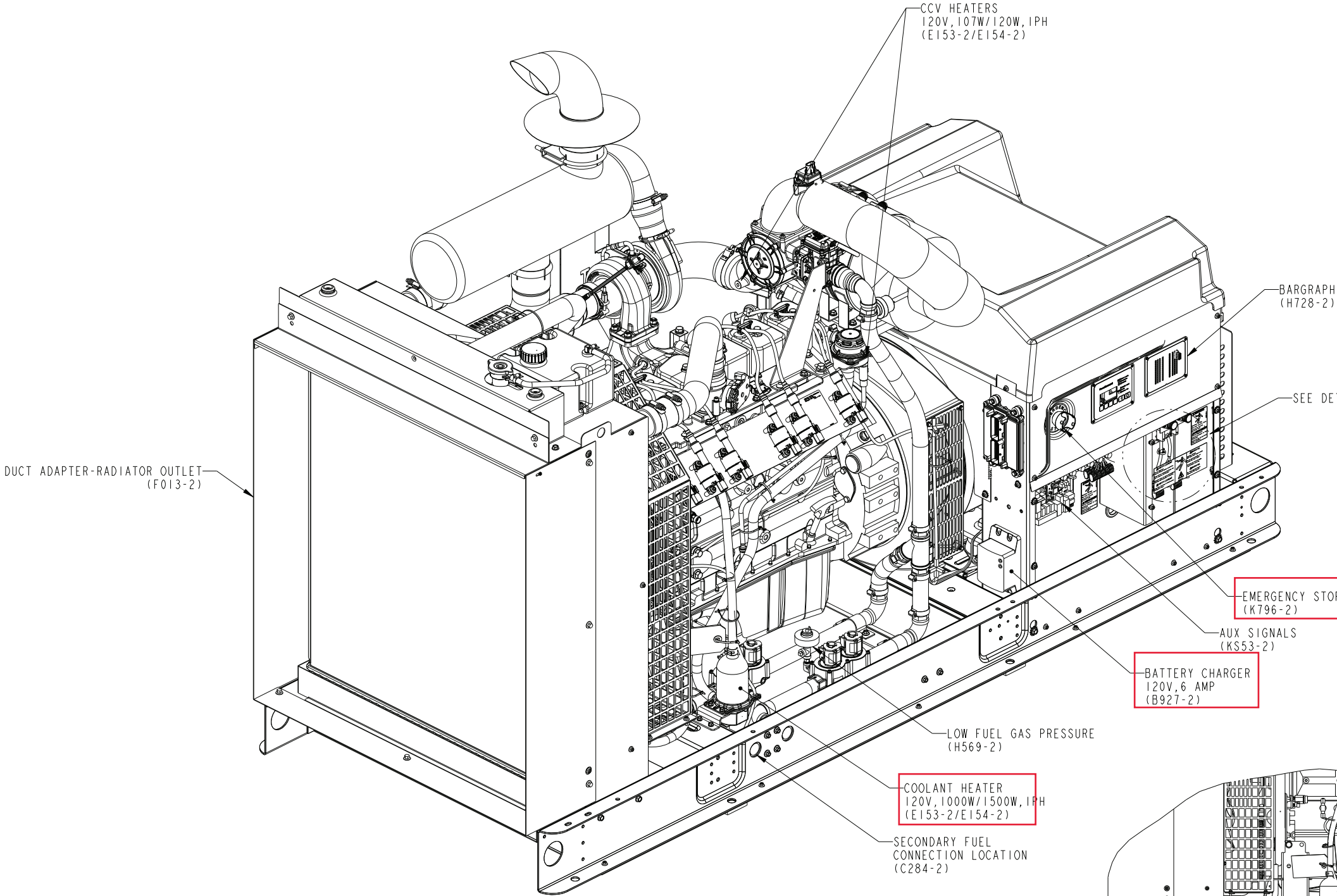
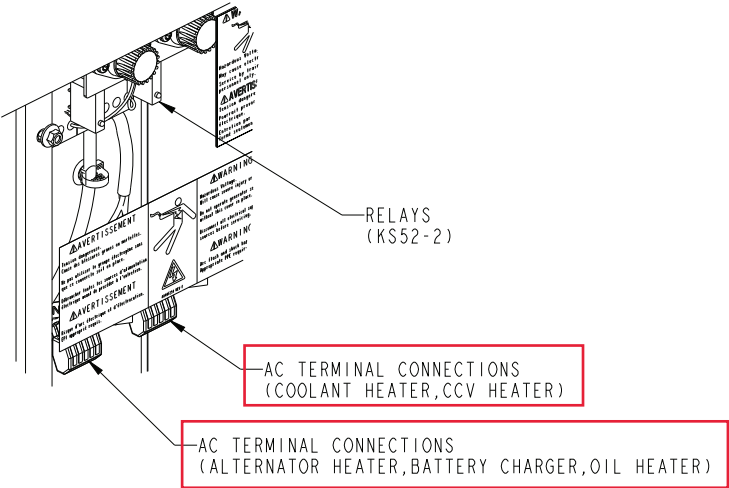
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIM TO	DWN	C. GADE		CUMMINS POWER GENERATION	
DO NOT SCALE PRINT					CHKD	N. KASIBHOTLA		OUTLINE, ENCLOSURE	
					APVD	M. WICKMANN			
					DATE	14MAY15			
ANG TOL: ± 1.0°				SCALE: ~3/32	FOR INTERPRETATION OF DIMENSIONS AND TOLERANCING, SEE ASME Y14.5M-1994		SITE CODE	PGF	SHEET 1 OF 1
					FIRST USED ON		REV D	A051P453	REV A





REL NO	LTR	NO	REVISION	DWN	CKD	APVD	DATE
ECO-168340	B	1	ADD NOTE 1	AGJ	AGJ	E_NORDSTROM	28FEB17
		2	ADD SHEET 3	AGJ	AGJ	E_NORDSTROM	28FEB17

NOTES:  
1. DIMENSIONS SHOWN IN [ ] ARE IN INCHES.



C45 N6, C50 N6,  
C60 N6, C70 N6,  
C80 N6, C100 N6

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS				SIM TO: NONE	DWN: R_HALVERSON		CUMMINS POWER GENERATION						
DIM	X ± 1 .X ± 0.8 .XX ± 0.38	HOLE	0.00- 4.99 +0.15/-0.08 5.00- 9.99 +0.20/-0.10 10.00-17.49 +0.25/-0.13 17.50-24.99 +0.30/-0.13	DO NOT SCALE PRINT	CKD: E_NORDSTROM		SITE CODE	OUTLINE, GENSET OPTIONS					
					APVD: E_NORDSTROM								
ANG TOL: ± 1.0°				SCALE: 3/16	DATE: 23APR15	PGF	DWG SIZE: A	A051E744	SHEET 1 OF 3	DWG REV A			
					FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5M-1994								
						FIRST USED ON: ARROW							

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# POWERCOMMAND® OTEC TRANSFER SWITCH

**POWERCOMMAND® 40-01 CONTROL | OPEN TRANSITION | 40 A-1000 A  
AUTOMATIC TRANSFER SWITCH | SERVICE ENTRANCE RATED**

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## DESCRIPTION

The OTEC series transfer switch provides the basic features typically required for primary source and generator set monitoring, generator set starting and load transfer functions for emergency standby power applications. They are suitable for use in emergency, legally required, and optional standby circuits in commercial and light industrial applications. The OTEC transfer switch features the new PowerCommand® 40 control with a comprehensive feature list to suit a wide variety of ATS applications.

## FEATURES

**PowerCommand® 40-01 control** – A fully featured microprocessor-based control with LCD digital display and tactile-feel soft-switches for easy operation and screen navigation. Control highlights include Modbus communication, front panel PC software configuration. Advanced features include, three phase sensing on both sources, manual restore to S1, synch check, and event logging capability. Please see the S-6560 PowerCommand® 40-01 control specification sheet for the full description, benefits and features.

**Overcurrent disconnect device** – Square D UL Listed 489 molded case circuit breaker.

**Programmed transition** – Open transition timing can be adjusted to completely disconnect the load from both sources for a programmed time period, as recommended by NEMA MG-1 for transfer of inductive loads.

**Advanced transfer switch mechanism** – Unique bi-directional linear actuator provides virtually frictionless constant force, straight-line transfer switch action during automatic operation.



**Positive interlocking** – Mechanical and electrical interlocking prevent source-to-source connection through the power or control wiring.

**Main contacts** – Heavy-duty silver alloy contacts used with multi-leaf arc chutes are rated for motor loads or total system load transfer. They require no routine contact maintenance. Continuous load current not to exceed 80% of switch rating and tungsten loads not to exceed 30% of switch rating.

**Ease of service and access** – Single-plug harness connection and compatible terminal markings simplify servicing. Access space is ample. Door-mounted controls are field-programmable; no special tools are required.

**Complete product line** – Cummins is a single source supplier with a wide range of equipment, accessories and services to suit virtually any backup power application.

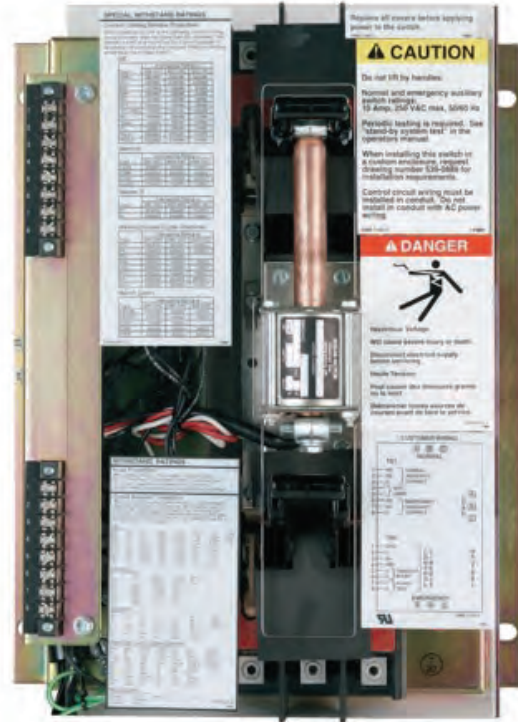
**Warranty and service** – Products are backed by a comprehensive warranty and a worldwide network of distributors with factory-trained service technicians.





## TRANSFER SWITCH MECHANISM

- A bi-directional linear motor actuator powers the transfer switch. This design provides virtually friction-free, constant force, straight-line transfer switch action with no complex gears or linkages.
- Independent break-before-make action is used for both 3-pole and 4-pole/switched neutral switches. On 4-pole/switched neutral switches, this action prevents objectionable ground currents and nuisance ground fault tripping that can result from overlapping designs.
- A mechanical interlock prevents simultaneous closing of normal and emergency contacts.
- Electrical interlocks prevent simultaneous closing signals to normal and emergency contacts and interconnection of normal and emergency sources through the control wiring.
- High pressure silver alloy contacts resist burning and pitting. Separate arcing surfaces further protect the main contacts. Contacts are mechanically held in both normal and emergency positions for reliable, quiet operation.
- Contact wear is reduced by multiple leaf arc chutes that cool and quench the arcs. Barriers separate the phases to prevent interphase flashover. A transparent protective cover allows visual inspection while inhibiting inadvertent contact with energized components.
- Switch mechanism, including contact assemblies, is UL 1008 certified to verify suitability for applications requiring high endurance switching capability for the life of the transfer switch. Withstand and closing ratings are validated using the same set of contacts, further demonstrating the robust nature of the design.



## SPECIFICATIONS

<b>Voltage rating</b>	Up to 480 V AC, 50 or 60 Hz.
<b>Arc interruption</b>	Multiple leaf arc chutes provide dependable arc interruption.
<b>Neutral bar</b>	A full current-rated neutral bar with lugs is standard on enclosed 3-pole transfer switches.
<b>Auxiliary contacts</b>	Two isolated contacts (one for each source) indicating switch position are provided for customer use. Contacts are normally open, and close to indicate connection to the source. Wired to terminal block for easy access. Rated at 10 A Continuous and 250 V AC maximum.
<b>Operating temperature</b>	-13 °F (-25 °C) to 140 °F (60 °C)
<b>Storage temperature</b>	-40 °F (-40 °C) to 140 °F (60 °C)
<b>Humidity</b>	Up to 95 % relative, non-condensing
<b>Altitude</b>	Up to 10,000 ft (3,000 m) without derating
<b>Surge withstand ratings</b>	Control tested to withstand voltage surges per EN60947-6-1.
<b>Total transfer time (source-to-source)</b>	Will not exceed 6 cycles at 60 Hz with normal voltage applied to the actuator and without programmed transition enabled.
<b>Manual operation*</b>	Transfer switch mechanisms are equipped with means to manually transfer. All sources must be de-energized before manual operation is attempted.
<b>Overcurrent disconnect device</b>	Service entrance switches have a Square D UL 489 listed molded case circuit breaker. 1000 Amp switches also have a current transformer and integral residual ground fault protection

\*See Operator Manual for further details.

## TRANSITION MODES

**Open delayed transition** – In this transition mode the time required for the transfer switch to transfer between sources is adjustable so that the load-generated voltages decay to a safe level before connecting to an energized source. Recommended by NEMA MG-1 to prevent nuisance tripping breakers and load damage. Adjustable 0.5 secs - 10 minutes, and default 0.5 seconds.

**Open in-phase translation** – Initiates open transition transfer when in-phase monitor senses both sources are in phase (voltage, phase and frequency). Operates in a break-before-make sequence. Includes ability to enable programmed transition as a backup. The module waits indefinitely for synchronization unless the 'Return to programmed transition' function is active in which case after 2 minutes it performs a programmed delayed transfer

## UL 1008 WITHSTAND AND CLOSING RATINGS (WCR)

Withstand and Closing Ratings (WCR) are stated in symmetrical RMS amperes.

Frame	Amperage	With specific MCCB (kA at 480V)	Square-D breaker part number	Cummins part number	Trip unit
A (3-pole only)	40	35	HGM36040	0320-2346-75	Standard Thermal Magnetic
	70		HGM36070	0320-2346-74	
	100		HGM36100	A035E003	
	125		HGM36125	0320-2346-73	
B	150, 200, 225, 250	65	LJM36250CU31X	A046F867	Micrologic 3.3 (LI)
C	300, 400, 600	65	PJM36060U31C	0320-2410-02	Micrologic 3.0 (LI)
D	800	65	RJF36080U31A	A058R115	Micrologic 3.0A (LI)
	1000	65	RJF36100U44A	0320-2563-01	Micrologic 6.0A (LSIG)

## TRANSFER SWITCH LUG CAPACITIES

Frame	Amperage rating (A)	Emergency and load power cables		Emergency and load neutral cables		Service power cables		Service neutral	
		Cables per phase	Cable size	Number of Cables	Cable size	Cables per phase	Cable size	Number of Cables	Cable size
A	40, 70, 100, 125	1	#12 AWG-2/0 CU/AL Emerg #14 AWG-2/0 CU/AL Load	2	#14 AWG-2/0 CU/AL	1	#14 AWG-3/0 CU/AL	1	#14 AWG-2/0 CU/AL
B	150, 200, 225, 250	1	#6 AWG-400 MCM CU/AL	2	#6 AWG-400 MCM CU/AL	1	#2 OWG-600 MCM CU or #2 AWG-500 MCM AL	1	#6 AWG-400 MCM CU/AL
C	300, 400, 600	2	250-500 MCM CU/AL	4	250-500 MCM CU/AL	3	3/0-500 MCM CU/AL	2	250-500 MCM CU/AL
D	800, 1000	4	250-500 MCM CU/AL	8	250-500 MCM CU/AL	4	#2 AWG-600 MCM CU/AL	4	250-500 MCM CU/AL

\*All lugs 90°C rated and accept copper or aluminum wire unless indicated otherwise.

Refer to the latest NFPA 70 Article 310 - Conductors for general wiring for the ampacity calculations.

## ENCLOSURE

The transfer switch and control are wall-mounted in a key-locking enclosure. Wire bend space complies with 2017 NEC.

### OTEC SERVICE ENTRANCE DIMENSIONS – TRANSFER SWITCH IN UL TYPE 1 ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight	
		in	mm	in	mm	in	mm	lb	kg
A	40, 70, 100, 125, 3-pole	45.8	1164	32	814	16.3	413	300	136
B	150, 200, 225, 250	73.6	1869	32.3	820	19.7	499	500	227
C	300, 400, 600	74.5	1892	34.4	873	20.1	510.4	520	236
D	800, 1000	90	2286	39	991	26.3	667	920	417

### OTEC NON-SERVICE ENTRANCE DIMENSIONS – TRANSFER SWITCH IN UL TYPE 3R, OR 12 ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight	
		in	mm	in	mm	in	mm	lb	kg
A	40, 70, 100, 125, 3-pole	45.8	1164	32	814	16.3	413	340	154
B	150, 200, 225, 250	73.6	1869	32.3	820	19.7	499	580	263
C	300, 400, 600	74.5	1892	34.4	873	20.1	510.4	600	272
D	800, 1000	90	2286	39	991	26.3	667	920	417

## ENCLOSURE ACCESS FOR CABLE INSTALLATION AND MAINTENANCE

All frames allow for top, side, and bottom cable entry. NEC Requires Minimum 36" Front Access. Additional front clearance is needed to remove the mechanism. Refer to the outline drawing.

### OTEC DRAWING PART NUMBERS

Frame	Amperage rating (A)	Outline Drawing
		Type 1, 3R, or 12
A	40, 70, 100, 125 (3-pole)	A065S433
B	150, 200, 225, 250	A065S434
C	300, 400, 600	A065S435
D	800, 1000	A065S436

### WIRING DIAGRAM PART NUMBERS

		Wiring Diagram	
Frame	Amperage rating (A)	Utility to Genset (120 – 480 V)	Interconnection
A	40, 70, 100, 125 (3-pole)	A065K034	A065H780
B	150, 200, 225, 250	A065H781	
C	300, 400, 600		
D	800, 1000		

## SUBMITTAL DETAIL

The Product codes below have been shortened for brevity. In long form, each four-letter product code will be preceded with a OTECSEX, where X = A, B, C, D or E. For example, OTECSEB\_A045-7

### Model

- 40, 70, 100, 125 A, (3-pole)
- 150, 200, 225, 250 A
- 300, 400, 600 A
- 800, 1000 A

### Poles

- A028 Poles – 3 (solid neutral)
- A029 Poles – 4 (switched neutral)  
(not available for 40-125 A)

### Application

- A035 Utility-to-genset

### Frequency

- A044 60 Hz
- A045 50 Hz

### Phase

- A041 single phase, 2-wire or 3-wire
- A042 three phase, 3-wire or 4-wire

### Voltage ratings

- R020 120V
- R038 190V
- R021 208V
- R022 220V
- R023 240V
- R024 380V
- R025 416V
- R035 440 V
- R026 480 V

### Enclosure

- B001 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30)
- B002 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)
- B010 Type 12: Indoor use, some protection from dust (similar to IEC type IP61).

### Standards

- S043 Listing-UL 1008 certification
- A080 IBC seismic certification

### Control voltage

- M033 12V, Genset starting voltage
- M034 24V, Genset starting voltage

### Control options

- M032 Elevator signal relay
- M081 MODBUS RS485 Communication module

### Auxiliary relays

Relays are UL Listed, and factory installed. All relays provide (2) normally closed isolated contacts rated 10A @ 600 VAC. Relay terminals accept (1) 18 gauge to (2) 12-gauge wires per terminal.

- L101 24 VDC coil - installed, not wired (for customer use).
- L102 24 VDC coil - emergency position – relay energized when switch is in source 2 (emergency) position.
- L103 24 VDC coil - normal position - relay energized when switch is in source 1 (normal) position
- L201 12 VDC coil installed, not wired (for customer use)
- L202 12 VDC coil - emergency position – relay energized when switch is in source 2 (emergency) position
- L203 12 VDC coil - normal position - relay energized when switch is in source 1 (normal) position

### Warranty

- G004 2-years, comprehensive
- G007 5-years, comprehensive
- G014 3-years, comprehensive
- G015 10-years, comprehensive

### Shipping

- A051 Packing - export box (800 – 1000 A)





### Request for quotation (RFQ)

- Z555 Nonconfigurable spec [ETO]

### Accessories

Refer to AC-170 Accessories specification sheet for more details.

- 0332-3302\* Terminal block - 30 points (not wired).
- A065L320 Control panel cover guard, factory installed
- A065L321 Control panel cover guard, field installed

CODES AND STANDARDS			
	All switches are UL 1008 Listed with UL 50E Type Rated cabinets and UL Listed CU-AL terminals.	<b>ISO®</b>	All switches are designed and manufactured in facilities certified to ISO 9001.
	All switches comply with NEMA ICS 10.	<b>IBC®</b>	All switches are certified to IBC 2018.
	All switches comply with NFPA 70, 99 and 110 (Level 1).	<b>EMC</b>	Display controllers meet the following Electromagnetic Compatibility (EMC) standards: <ul style="list-style-type: none"> <li>▪ EN 61000-6-2 Generic Immunity Standard for the Industrial Environment.</li> <li>▪ EN 61000-6-4 Generic Emission Standard for the Industrial Environment.</li> </ul>
	All switches comply with IEEE 446 Recommended Practice for Emergency and Standby Power Systems.		
<b>NEC®</b>	Suitable for use in emergency, legally required and Standby and Critical Operations Power Systems (COPS) applications per NEC 700, 701, 702 and 708.		

For more information, please contact your local Cummins distributor or visit [cummins.com](http://cummins.com)

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# POWERCOMMAND® 40-01 TRANSFER SWITCH CONTROL

## OTEC TRANSFER SWITCHES

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### DESCRIPTION

The PowerCommand® 40-01 Transfer Switch Control is a sophisticated microprocessor-based control with the basic features you need for primary source and generator set monitoring, generator set starting and load transfer functions for emergency standby power applications.

The control human machine interface (HMI) includes a LCD display with tactile-feel soft-switches for easy operation and screen navigation. All data on the control can be viewed by scrolling through screens with a display scroll button. The control displays the current active fault, fault occurrences and time-ordered history of the 10 previous faults with respect to Real Time Clock Stamp and Engine Running Time.

### FEATURES

**Digital display** – The PowerCommand® 40-01 offers a clear back-lit LCD 4-line text display, showing system status, contextual icons and warnings. The display is also equipped with 9 red and green LEDs indicating operational status.

**Modbus network communication** – Modbus network communications capable. Optional Modbus RTU RS485 connection (1 serial port).



**Diagnostics and reporting** – Detailed event logging with enhanced fault codes, alert lists, power event history, and diagnostic capability during service events and provides the ability to meet any reporting requirements.

**PC & Front Panel Configurations** – The modules can be easily configured using the PC software. Selected front panel editing is also available.

**Ease of service and access** – Built-in plug-and-play control with minimized point-to-point connections and compatible terminal markings simplify servicing.



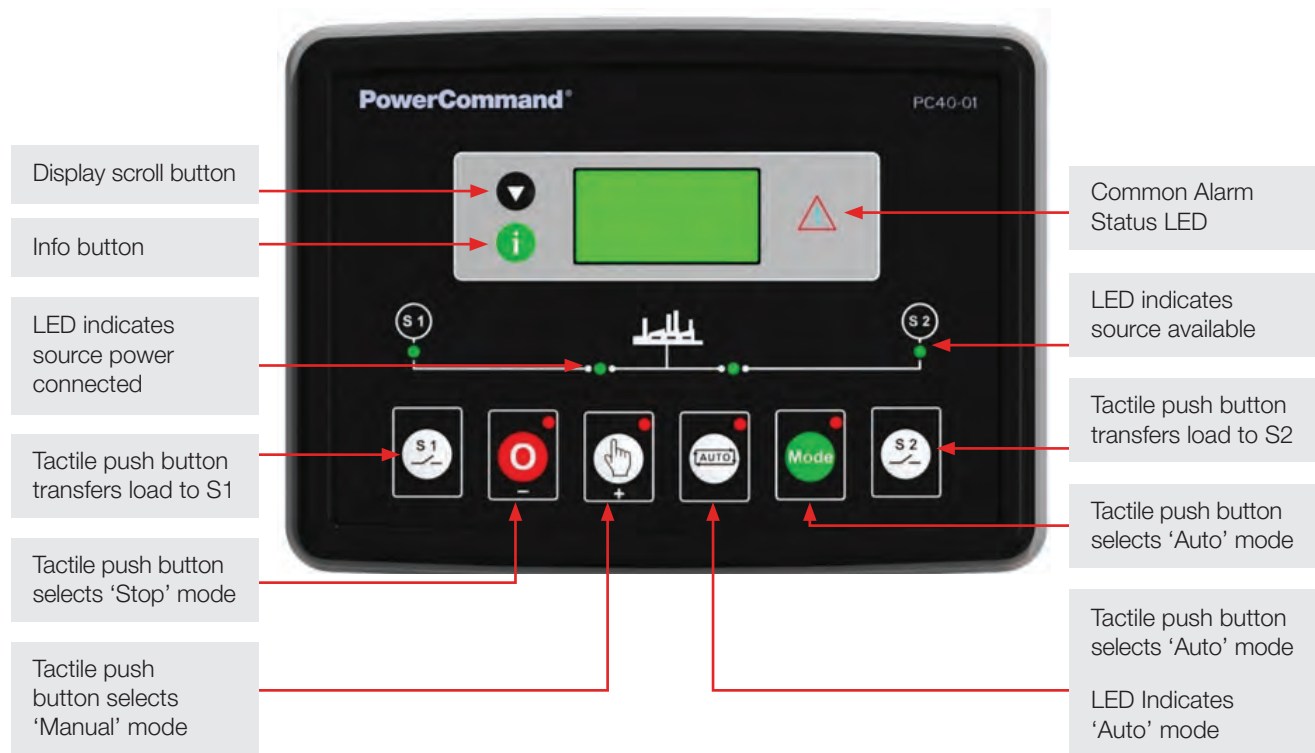
**Complete product line** – Cummins is a single source supplier with full scope of power system solutions, integration and service capability, from paralleling to system level controls, switchgear and remote connectivity.

**Warranty and service** – Products are backed by a comprehensive warranty and a worldwide network of distributors with factory-trained service technicians.



Isometric (ISO) projection:  
front views

## HUMAN MACHINE INTERFACE (HMI) CAPABILITIES





## **CONTROL FUNCTIONS**

### **TRANSFER INHIBIT**

When transfer inhibit external input is active, the control does not automatically transfer the transfer switch to a standby source even when the preferred source fails.

### **RETRANSFER INHIBIT**

When retransfer inhibit external input is active, the control does not automatically retransfer the transfer switch to a preferred source even when the preferred source returns.

### **REAL TIME CLOCK**

This feature is used by the control for fault and event time stamping and as a reference for exerciser schedules and exception schedules.

### **TEST – REMOTE**

Test feature allows the user to automatically test the standby source and the transfer switch. The test command can be issued from the remote source.

The test has following types available:

- Remote Start On Load
- Remote Start Off Load

### **PREFERRED SOURCE SELECTION**

Using this feature the user can swap the priority of the sources which are preferred and standby.

### **ELEVATOR SIGNAL**

This optional feature allows an elevator connected to the system to come to a complete stop before the switch transfers.

### **EXERCISER SCHEDULER**

The Scheduler allows the user to configure pre-set automatic starting and stopping of the Generator as well as stopping the ATS carrying out a transfer (when in Auto mode).

### **BANK 1 / BANK 2**

Each Bank of the Exercise Scheduler is used to give up to 8 scheduled runs per bank, 16 in total. This run schedule is configurable to repeat every 7 days (weekly) or every 28 days (monthly). Do Not Transfer, Off Load and On Load. Each scheduler bank configured differently either to weekly or monthly based exercises.

### **SOURCE AVAILABILITY**

This feature monitors the frequency and voltage sensors on the preferred and standby sources to determine and declare the availability status of the two sources, irrespective of which source is connected to the load. It declares the states as event codes. Preferred/Standby Available - active inactive.

### **VOLTAGE SENSING**

3-phase sensing on Source 1 and Source 2 (up to 600 Vac with no need for additional PTs). Plant battery voltage monitoring.

### **ALPHANUMERIC DISPLAY**

- S2 Voltage L1-N
- S2 Voltage L-L
- S2 Frequency
- S1 Voltage L1-N
- S1 Voltage L-L
- S1 Frequency
- Battery voltage
- Current alarms with icons
- Event log
- Scheduler
- About

**TIME DELAYS**

The following adjustable time delays are built into the transfer switch control. External modules to accomplish these delays are not required.

- **Start Delay** (Also known as Time Delay Engine Start, TDES adjustable from 0 to 10 hours)
- **Warming** (Also known as Time Delay Normal to Emergency, TDNE adjustable from 0 to 1 hour)
- **Elevator Delay** (Also known as Time Delay Elevator, TDEL adjustable from 0 to 5 minutes)
- **Non-sync Transfer Time** (Also known as Time Delay Programmed Transition, TDPT adjustable from 0.5 s to 10 minutes)
- **Return Delay** (Also known as Time Delay Emergency to Normal, TDEN adjustable from 0 to 5 hours)
- **Cooling** (Also known as Time Delay Engine Cool-down, TDEC adjustable from 0 to 1 hour)

**LED INDICATOR LIGHTS**

- Auto mode (RED)
- Auto with manual return to utility mode (RED)
- Test without load (RED)
- Test with load (RED)
- Source 1 available (GREEN)
- Source 2 available (GREEN)
- Source 1 connected to load (GREEN)
- Source 2 connected to load (GREEN)

**EVENT LOG**

The control displays information on up to 10 events displayed in chronological order, beginning with the most recent event, about either source. The event information shall include the following:

- Failure modes
- Warning
- Tests and exercises
- User-driven inputs (e.g., override, transfer inhibit)

**SUPPORTED APPLICATIONS****APPLICATION TYPES**

- Utility - Generator Set

**COMMUNICATIONS**

The PowerCommand® 40-01 Transfer Switch Control features an optional network communication module.

Features include:

- Optional Modbus® RTU RS485 communication module (1 isolated serial port)
- USB port for service tool interface

**PROTECTION****PHASE ROTATION SENSING**

- Source 1 and Source 2

**UNDER-VOLTAGE SENSING**

- 3-phase normal, 3-phase emergency
- Accuracy:  $\pm 2$  % of full-scale phase to phase
- Phase to neutral voltage range 50Vac to 414Vac.
- Phase to phase voltage range 86Vac to 717Vac.

**OVERVOLTAGE SENSING**

- 3-phase normal, 3-phase emergency
- Accuracy:  $\pm 2$  % of full-scale phase to phase
- Phase to neutral voltage range 52Vac to 416Vac.
- Phase to phase voltage range 90Vac to 720Vac.

**OVER/UNDER FREQUENCY SENSING**

- Normal and emergency
- Accuracy:  $\pm 0.2$  Hz
- Frequency range 3.5 – 75 Hz






**SYNC CHECK**

- For in-phase transfer

**ENVIRONMENT**

<b>Operating Temperature Range</b>	Control operates over an ambient temperature range: -30 °C to 70 °C.
<b>Storage Temperature Range</b>	The control operates after being exposed to Storage Temperatures in the range of -40 °C to 85°C.
<b>Ingress Protection</b>	The front panel is to be IP65.

**CODES AND STANDARDS**

	The PC40-01 control is a UL Recognized Component Marked for United States and Canada.		Capable of being used on systems compliant with NFPA 70, 99 and 110 (Level 1).
	The control is IEEE C37.90.2 certified. Capable of being used on IEEE 446 compliant systems; Recommended Practice for Emergency and Standby Power Systems.		Control and display as installed in a transfer switch enclosure comply with NEMA 4X and IP65 at the transfer switch level - if the transfer switch enclosure is also NEMA 4X & IP65 compliant.
<b>RoHS</b>	The control is RoHS compliant.	<b>NEC®</b>	Capable of being used on systems suitable for use in emergency, legally required and Standby and Critical Operations Power Systems (COPS) applications per NEC 700, 701, 702 and 708.
	Fulfills the requirements of relevant European product directives.	<b>LVD</b>	The unit is designed to comply with European directive 72/23/EEC by complying with harmonized European safety standard BS EN 60950.
<b>EMC</b>	The control is tested to meet the following CE Electromagnetic Compatibility (EMC) standards for EN 61000 series (electromagnetic compatibility): EN 61000-6-2 Generic Immunity Standard EN 61000-6-4 Generic Emissions		

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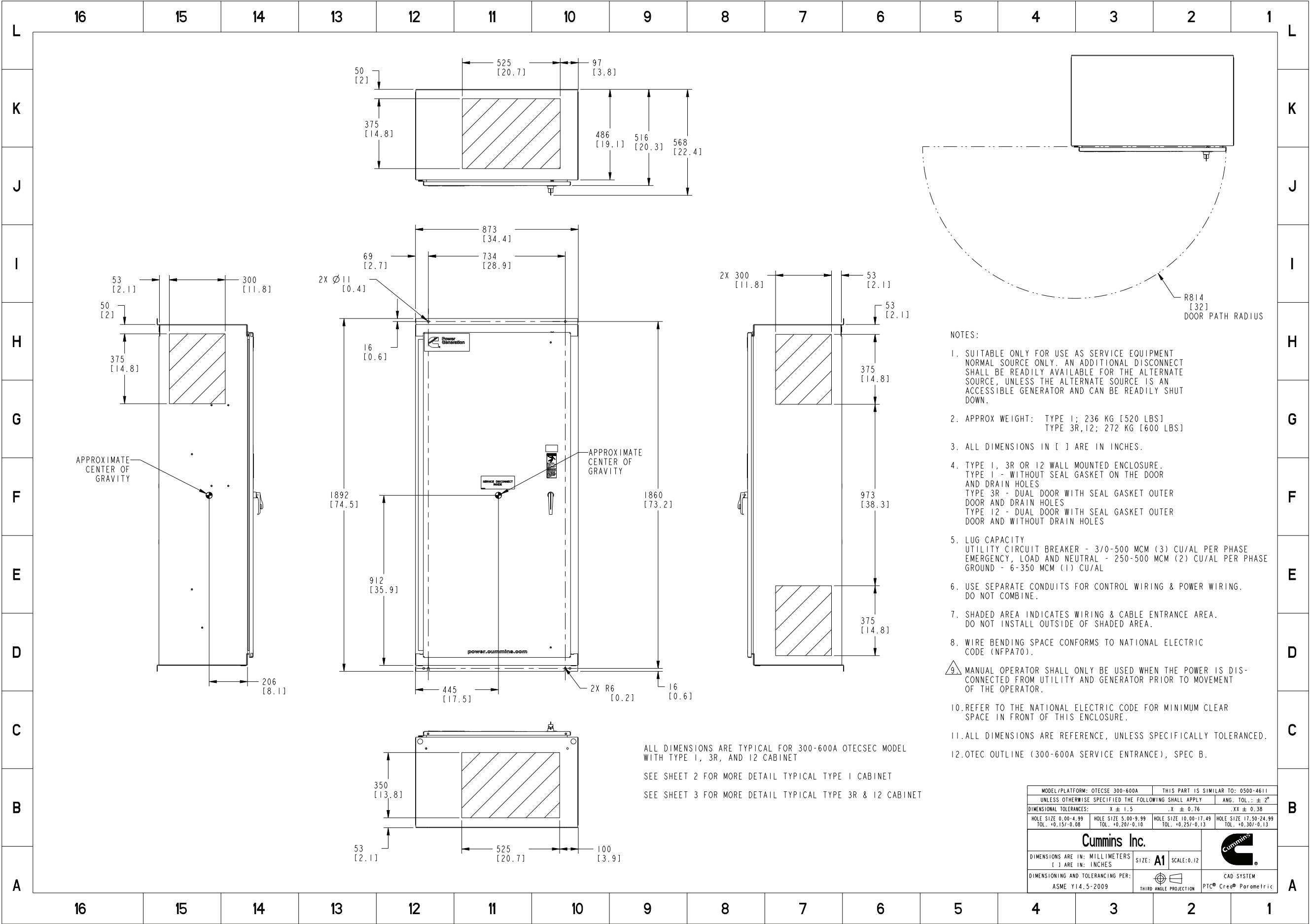
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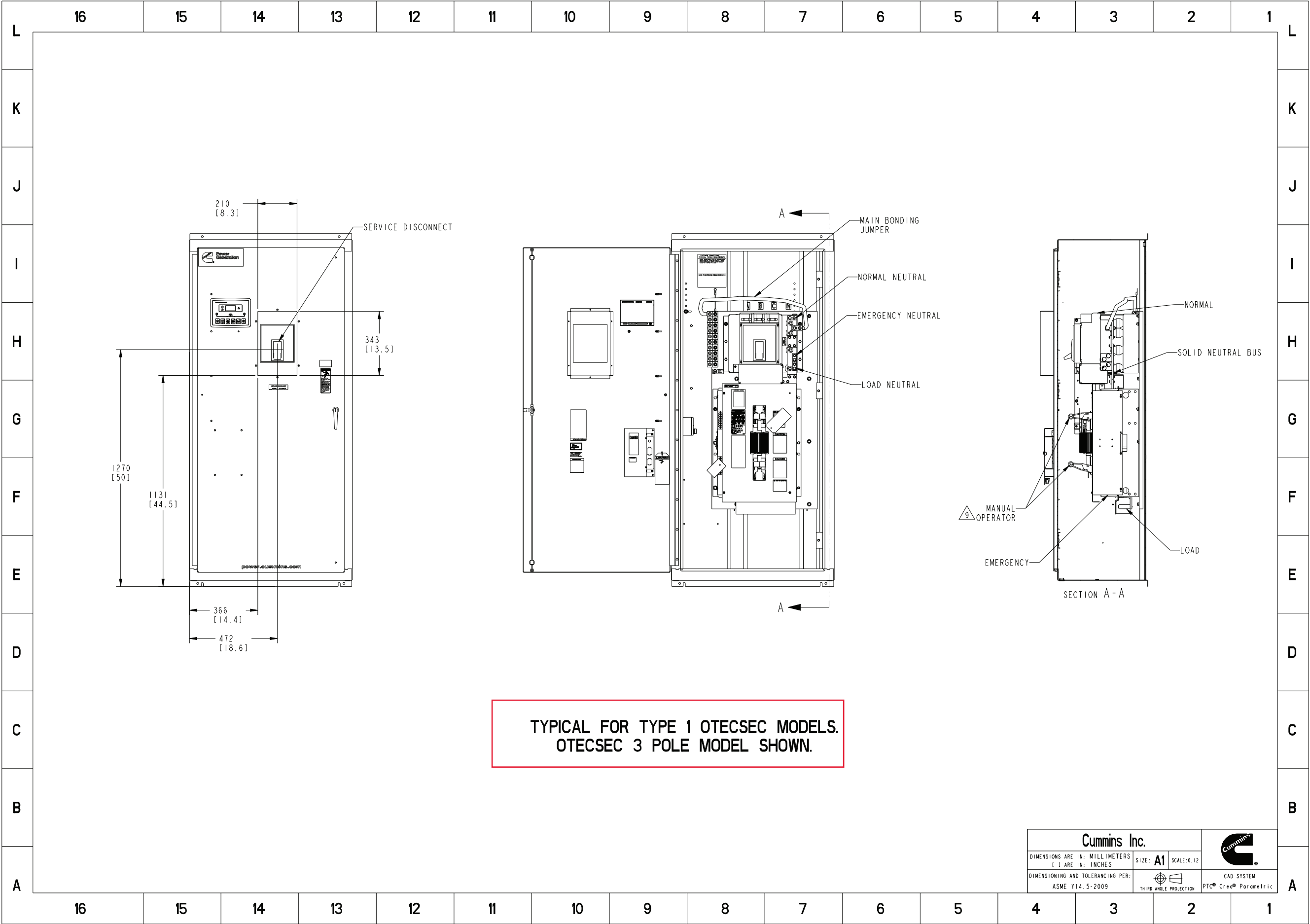
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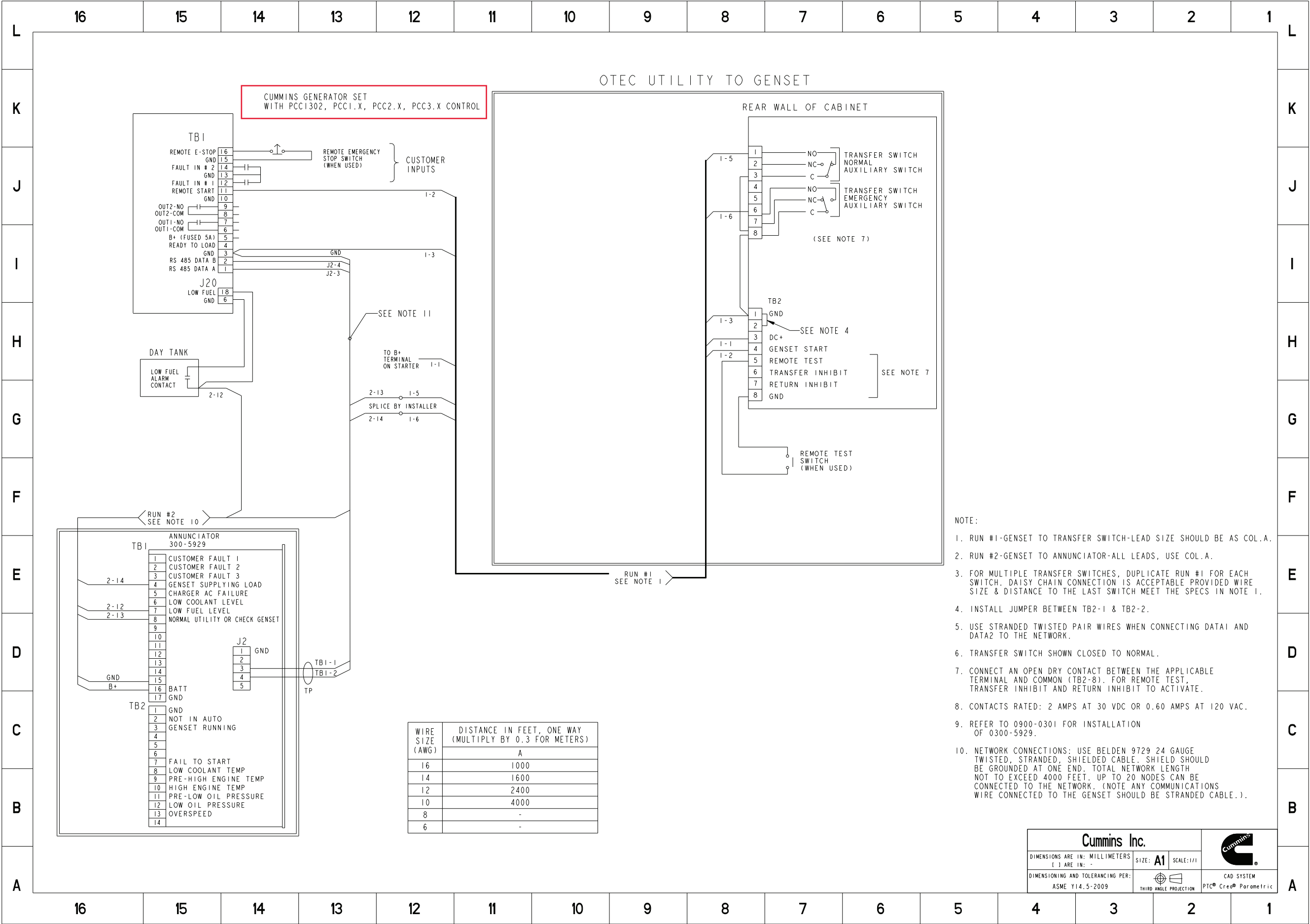
Part Number: **A065S435** Part Revision: **A**  
Part Name: **OUTLINE,TRANSFER SWITCH**  
Drawing Category: **Detail** State: **Released** Sheet **1** of **4**



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Part Number: **A065S435** Part Revision: **A**  
Part Name: **OUTLINE, TRANSFER SWITCH**  
Drawing Category: **Detail** State: **Released** Sheet 2 of 4



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Part Number: **A065H780** Part Revision: **A**  
Part Name: **DIAGRAM,SCHEMATIC**  
Drawing Category: **Detail** State: **Released** Sheet **10** of **13**