

Attachment E-38

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1955 Dale Lane  
Owings, MD 20736

410-257-5225 fax 410-257-5280  
Toll Free 1-800-677-3815  
www.kge.com

## SUBMITTAL PACKAGE

OCT

Engineer: Jeff Shiplet  
Email: [jshiplet@kge.com](mailto:jshiplet@kge.com)

Sales Representative: Laura Kelly  
Email: [lkelly@kge.com](mailto:lkelly@kge.com)

Prepared By: Bonnie McKay  
Email: [bmckay@kge.com](mailto:bmckay@kge.com)

Contractor:  
John E. Kelly & Sons Electrical  
8431 Old Marlboro Pike  
Upper Marlboro, MD 20772

Attn: Dean Fleming  
Phone: 240-375-5511  
Email: [DFleming@kellycos.com](mailto:DFleming@kellycos.com)



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0184520SSD

0197220SBY

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0172110SBY

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0179090SSB

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0180230SBY

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0191900SBY

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0161970SBY

BATTERY INDEX

0189380SSD

EATON CB TABLE THERM/MAG 100%

0192390SSD

EATON CB LUG DATA

CND312T33WA12S03

CIRCUIT BREAKER INFO

0H8011

CRITICAL GR MUFFLER 6IN INLET & OUTLET

0J8005

EV INDUSTRIAL EXHAUST SYSTEM D18L G22

0J9181

USE 0J91810ST10

0166290SBY

STANDARD 2B WARRANTY

## AUTOMATIC TRANSFER SWITCH

0152550SBY

600-1000A 600VAC GTS

094700000S

ATS 100-400 AMP 600V

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0F1524

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0D8641

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0191120SSD

INTERCONNECT DIAG H PANEL CCI

## EMISSIONS DATA

0198560SSD

EMISSIONS SD600 D18.1 2013

0199190SSD

SOUND DATA SD600 18.1L LVL1

0197900SSD

PROTOTYPE TEST REPORT



8/4/2013

Bill of Materials for: OCT

**Quantity 1 - Generac industrial diesel engine driven generator, turbocharged/aftercooled 6 cylinder 18.1L engine, consisting of the following features and accessories:**

- SD0600KG22181D18HPSY2
- Stationary Emergency-Standby rated
- **600 kW Rating** , synchronous alternator, wired for 277/480 VAC 3 phase, 60 HZ
- **With upsized 832 kW Alternator (to meet 12% subtransient reactance)**
- Permanent magnet excitation
- H-100 Control Panel
  - Meets NFPA 99 and 110 requirements
  - Temp Range -40 to 70 degrees C
  - Digital microprocessor:
    - Two 4 line x 20 displays, full system status
    - 3 phase sensing, +/-0.25% digital voltage regulation
    - RS232, RS485 and Canbus remote ports
    - Waterproof connections
    - All engine sensors are 4-20 ma for minimal interference
    - Programmable I/O
    - Built-in PLC for special applications
  - Engine function monitoring and control:
    - Full range standby operation; Programmable auto crank, Emergency Stop, Auto-Off-Manual switch
    - Isochronous governor, +/-0.25% frequency regulation
    - Full system status on all AC output and engine function parameters
    - Service reminders, trending, fault history (alarm log)
    - I2T function for full generator protection
    - Selectable low-speed exercise
  - HTS transfer switch function monitoring and control
  - 2-wire start controls for any 2-wire transfer switch
- Electronic governor - isochronous Steady state regulation +/-0.25%
- **1200A UL CB, 100% Rated**
  - **Thermal/Mag w/ST & Contacts, LH**
- **Sound attenuated, Level 1 Acoustic enclosure**
  - **Industrial Grey enclosure, powder paint finish**
- 225AH, 1155 CCA, 8D battery
  - w/rack-installed
- 10AMP battery charger-installed
- Battery charging alternator
- Battery cables
- Battery trays
- Fuel shut-off solenoid valve
- Solenoid activated starter motor
- Fuel filter and water separator
- Air cleaner and oil filter with internal bypass
- Oil and antifreeze
- Oil and radiator drain extensions
- **Vibration isolators between engine/alternator and base frame**
- Standard flex **Critical exhaust**
- **36" 1004 Gal basetank (approx 24 hrs @ full load)**
  - includes fuel sender with gauge
  - UL approved
    - UL 142
- **Ground Fault Annunciation**
- Standard set of 3 manuals
- Listed to standard UL2200
- EPA Certified Engine
  - SCAQMD Certified
- Block Heater 1500W 120VAC
- **STD 2-year limited warranty (year 1= parts & labor/ year 2= parts only)**

**Quantity 1 - One automatic transfer switch consisting of the following typecode and components:**

- GTS010W-3K2LDNAY
- **Rated at 100 amps, 3 Pole** construction Operating at 60 HZ, 480 Volts 3 phase, with 2-wire start circuit
- Utility voltage sensing controls: \* Drop-out and pick-up \* Utility interrupt delay
- Adjustable logic controls \* Minimum standby voltage \* Minimum standby frequency \* Engine warmup \* Inphase monitor \* Time delay neutral \* Return to utility \* Engine cooldown \* Transfer on exercise
- **Single set of auxiliary contacts**
- **NEMA 1 Enclosure**

8/4/2013

- Standard set of 3 manuals
- UL 1008 listed
- CSA Certified
- **Standard 2 Year warranty**

**Quantity 1 - One automatic transfer switch consisting of the following typecode and components:**

- GTS080N-3K2LDNBY
- **Rated at 800 amps, 3 Pole** construction Operating at 60 HZ, 480 Volts 3 phase, with 2-wire start circuit
- Utility voltage sensing controls: \* Drop-out and pick-up \* Utility interrupt delay
- Adjustable logic controls \* Minimum standby voltage \* Minimum standby frequency \* Engine warmup \* Inphase monitor \* Time delay neutral \* Return to utility \* Engine cooldown \* Transfer on exercise
- **Single set of auxiliary contacts**
- **NEMA 12 Enclosure**
- Standard set of 3 manuals
- UL 1008 listed
- CSA Certified
- **Standard 2 Year warranty**

**Quantity 1 - One automatic transfer switch consisting of the following typecode and components:**

- GTS080N-3K2LDNBY
- **Rated at 800 amps, 3 Pole** construction Operating at 60 HZ, 480 Volts 3 phase, with 2-wire start circuit
- Utility voltage sensing controls: \* Drop-out and pick-up \* Utility interrupt delay
- Adjustable logic controls \* Minimum standby voltage \* Minimum standby frequency \* Engine warmup \* Inphase monitor \* Time delay neutral \* Return to utility \* Engine cooldown \* Transfer on exercise
- **Single set of auxiliary contacts**
- **NEMA 12 Enclosure**
- Standard set of 3 manuals
- UL 1008 listed
- CSA Certified
- **Standard 2 Year warranty**

**4** hour Load Bank Test during normal business hours

**8** hour Owner Training during normal business hours

KGE is to assume reasonable access within normal business hours to conduct Load Bank Testing, Owner Training, and start-up with Basic Training and Demo up to 1 hour at time of start-up unless otherwise indicated.

Start-up will be billed upon request for the service and will be due for payment before the work is performed.

**Freight:**

FOB from Generac to jobsite on flatbed tractor-trailer (Generator), common carrier (ATS), offloading and rigging by others.

\*QUOTE PREPARED WITH: Clarifications by Kelly Electric 7/15/13.

Current manufacture's lead time for 18 liter 600kw unit is 9 to 13 weeks ARO and Deposit. Current manufacture's lead time for ATS is 4 to 6 weeks ARO and Deposit.

**This lead time is subject to change at any time by the factory.**

## *Certification of Quality*

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Generac Power Systems certifies that the products we manufacture have been built and tested in accordance with strict internal and external standards for quality. Our quality management system has been registered with the internationally recognized ISO 9001:2008 standard and our products comply with external standards that include, but are not limited to CSA, NEMA, EGSA, ISO and UL.

The Generac Quality Management System (GQMS) ensures the highest standards of quality at every level of production, from raw materials to the finished product. This includes receiving inspection, in-process checks, product and process audits, testing, final inspections and shipping standards.

Tests of our products are performed in accordance with our internal procedures and controlled through the GQMS to ensure accuracy and effectiveness. The testing process and product designs comply with external standards which may include, but are not limited to: ISO 8528-5, ISO 3046, NFPA 99, NFPA 110, BS 5514, SAE J1349 and DIN 6271.

Generac Power Systems has over one million square feet of manufacturing space and over 2000 employees dedicated to designing and manufacturing power generation equipment in our multiple State of Wisconsin, USA factories. All of our installed and mobile generators are built with pride by our skilled American workforce to ensure our customers receive the quality that they expect from Generac.

We are committed to producing quality products for both our internal and external customers. We will continuously improve our processes and diligently measure all aspects of our business.

### **Daniel Waschow**

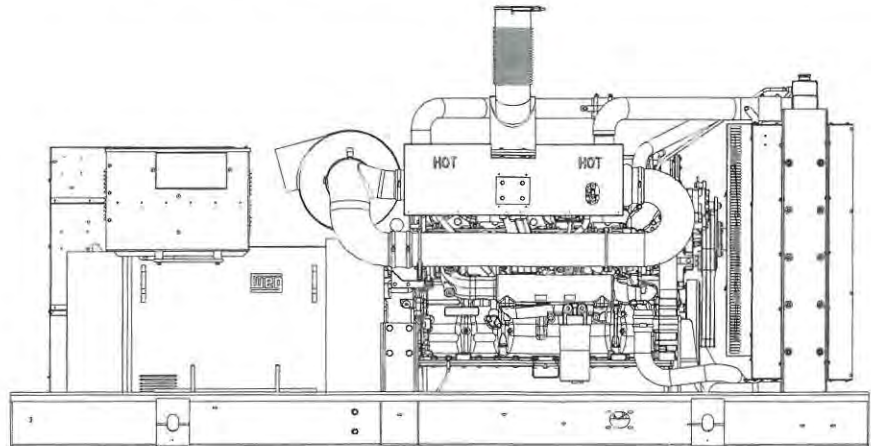
Vice President of Quality  
Generac Power Systems, Inc.  
Waukesha, Wisconsin USA

**→ SD600**

**Industrial Diesel Generator Set**

EPA Certified Stationary Emergency

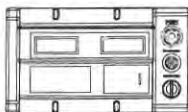
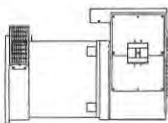
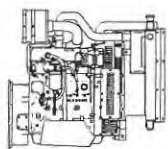
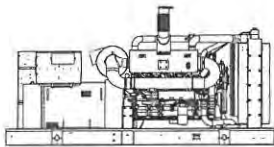
**→ Standby Power Rating**  
**750kVA 600kW 60Hz**



Generator image used for illustration purposes only

**features**

**benefits**



**Generator Set**

- PROTOTYPE & TORSIONALLY TESTED
- UL2200 TESTED
- RHINOCOAT PAINT SYSTEM
- WIDE RANGE OF ENCLOSURES AND TANKS

- ▶ PROVIDES A PROVEN UNIT
- ▶ ENSURES A QUALITY PRODUCT
- ▶ IMPROVES RESISTANCE TO ELEMENTS
- ▶ PROVIDES A SINGLE SOURCE SOLUTION

**Engine**

- EPA COMPLIANT
- INDUSTRIAL TESTED, GENERAC APPROVED
- POWER-MATCHED OUTPUT
- INDUSTRIAL GRADE

- ▶ MEETS EPA STANDARDS
- ▶ ENSURES INDUSTRIAL STANDARDS
- ▶ ENGINEERED FOR PERFORMANCE
- ▶ IMPROVES LONGEVITY AND RELIABILITY

**Alternator**

- TWO-THIRDS PITCH
- LAYER WOUND ROTOR & STATOR
- CLASS H MATERIALS
- DIGITAL 3-PHASE VOLTAGE CONTROL

- ▶ ELIMINATES HARMFUL 3RD HARMONIC
- ▶ IMPROVES COOLING
- ▶ HEAT TOLERANT DESIGN
- ▶ FAST AND ACCURATE RESPONSE

**Controls**

- ENCAPSULATED BOARD W/ SEALED HARNESS
- 4-20mA VOLTAGE-TO-CURRENT SENSORS
- SURFACE-MOUNT TECHNOLOGY
- ADVANCED DIAGNOSTICS & COMMUNICATIONS

- ▶ EASY, AFFORDABLE REPLACEMENT
- ▶ NOISE RESISTANT 24/7 MONITORING
- ▶ PROVIDES VIBRATION RESISTANCE
- ▶ HARDENED RELIABILITY

primary codes and standards





## SD600

## application and engineering data

### ENGINE SPECIFICATIONS

#### General

Make	Perkins
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	6
Type	In-Line
Displacement - L	18.13
Bore - mm (in.)	145(5.71)
Stroke - mm (in.)	183(7.20)
Compression Ratio	14.5:1
Intake Air Method	Turbocharged/Aftercooled
Cylinder Head Type	4 Valve
Piston Type	Aluminum
Connecting Rod Type	I-Beam Section

#### Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

#### Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-Flow Cartridge
Crankcase Capacity - L (Gal)	60 (15.8)

#### Cooling System

Cooling System Type	Closed Recovery
Water Pump	Centrifugal Type, Belt-Driven
Fan Type	Pusher
Fan Speed (rpm)	1439
Fan Diameter mm (in.)	965 (38)
Coolant Heater Standard Wattage	1500
Coolant Heater Standard Voltage	120VAC

#### Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	Primary 10 - Secondary 2
Fuel Injection	Electronic
Fuel Pump Type	Engine Driven Gear
Injector Type	MEUI
Engine Type	Pre-Combustion
Fuel Supply Line - mm (in.)	12.7 (½"NPT)
Fuel Return Line - mm (in.)	12.7 (½"NPT)

#### Engine Electrical System

System Voltage	24VDC
Battery Charging Alternator	70 Amps at 24V
Battery Size (at 0°C)	1155 CCA
Battery Group	8D
Battery Voltage	(2) - 12VDC
Ground Polarity	Negative

### ALTERNATOR SPECIFICATIONS

Standard Model	WEG
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	< 3%
Telephone Interference Factor (TIF)	< 50
Standard Excitation	Permanent Magnet
Bearings	Single Sealed Cartridge
Coupling	Direct, Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes

Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	± 1%

### CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99	BS5514
NFPA 110	SAE J1349
ISO 8528-5	DIN6271
ISO 1708A.5	IEEE C62.41 TESTING
ISO 3046	NEMA ICS 1
ETL certified to UL2200 Standards	

#### Rating Definitions:

Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)

Prime – Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every 12 hours.

**SD600**

**operating data (60Hz)**

**POWER RATINGS (kW)**

**STANDBY**

Three-Phase 120/208VAC @0.8pf	600 kW	Amps: 2081
Three-Phase 120/240VAC @0.8pf	600 kW	Amps: 1804
Three-Phase 277/480VAC @0.8pf	600 kW	Amps: 903
Three-Phase 346/600VAC @0.8pf	600 kW	Amps: 723

**STARTING CAPABILITIES (sKVA)**

**sKVA vs. Voltage Dip**

480VAC								208/240VAC							
Alternator	kW	10%	15%	20%	25%	30%	35%	Alternator	kW	10%	15%	20%	25%	30%	35%
Standard	600	743	1114	1486	1857	2229	2600	Standard	600	543	814	1086	1357	1629	1900
Upsize 1	832	757	1136	1514	1893	2271	2650	Upsize 1	723	571	857	1143	1429	1714	2000
Upsize 2	-	-	-	-	-	-	-	Upsize 2	-	-	-	-	-	-	-

**FUEL**

**Fuel Consumption Rates\***

**STANDBY**

Fuel Pump Lift - m (ft)
3.7 (12)

Percent Load	gph	lph
25%	18.4	69.7
50%	28.2	88.7
75%	35.6	134.8
100%	41.4	156.7

\* Refer to "Emissions Data Sheet" for maximum fuel flow for EPA and SCAQMD permitting purposes.

**COOLING**

**STANDBY**

Coolant Flow per Minute	gpm (lpm)	114.1 (432)
Heat Rejection to Coolant	BTU/hr	1,589,760
Inlet Air	cfm (m3/min)	30,088 (852)
Max. Operating Radiator Air Temp	F° (C°)	122 (50)
Max. Operating Ambient Temperature	F° (C°)	104 (40)
Coolant System Capacity	gal (L)	13 (49)
Maximum Radiator Backpressure	in H <sub>2</sub> O	0.5

**COMBUSTION AIR REQUIREMENTS**

**STANDBY**

Flow at Rated Power	cfm (m3/min)	1836 (52)
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**ENGINE**

**STANDBY**

Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	909
Piston Speed	ft/min	2161.4
BMEP	psi	361

\*\* Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

**EXHAUST**

**STANDBY**

Exhaust Flow (Rated Output)	cfm (m <sup>3</sup> /min)	4980 (141)
Max. Backpressure (Post Silencer)	inHg (Kpa)	2.03 (6.9)
Exhaust Temp (Rated Output)	°F (°C)	1029 (554)
Exhaust Outlet Size (Open Set)		8"

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

## SD600

## standard features and options

### GENERATOR SET

● Genset Vibration Isolation	Std
○ IBC/OSHPD Seismic Certified	Opt
○ Extended warranty	Opt
○ Gen-Link Communications Software	Opt
● Steel Enclosure	Opt
○ Aluminum Enclosure	Opt

### ENGINE SYSTEM

#### General

● Oil Drain Extension	Std
○ Oil Heater	Opt
● Air cleaner	Std
● Fan guard	Std
● Radiator duct adapter	Std
● Stainless steel flexible exhaust connection	Std
○ Critical Exhaust Silencer	Opt

#### Fuel System

● Secondary fuel filter	Std
○ Flexible fuel lines	Opt
● Primary fuel filter	Std
● UL 142 Fuel Tank	Opt

#### Cooling System

● 120VAC Coolant Heater	Std
● Closed Coolant Recovery System	Std
● UV/Ozone resistant hoses	Std
● Factory-Installed Radiator	Std
● Radiator Drain Extension	Std

#### Engine Electrical System

● Battery charging alternator	Std
● Battery cables	Std
○ Battery heater	Opt
● Solenoid activated starter motor	Std
● 10A UL float/equalize battery charger	Opt
● Rubber-booted engine electrical connections	Std

### ALTERNATOR SYSTEM

● GENprotect™ Alternator Protection Algorithm	Std
● Main Line Circuit Breaker	Opt
○ 2nd Circuit Breaker	Opt
○ 3rd Circuit Breaker	-
● Alternator Upsizing	Opt
○ Anti-Condensation Heater	Opt
○ Tropical coating	Opt
● Permanent Magnet Generator	Std

### CONTROL SYSTEM

#### Control Panel

● Digital H Control Panel - Dual 4x20 Display	Std
○ Digital G-200 Paralleling Control Panel - Touchscreen	na
● Programmable Crank Limiter	Std
○ 21-Light Remote Annunciator	Opt
○ Remote Relay Panel (8 or 16)	Opt
● 7-Day Programmable Exerciser	Std
● Special Applications Programmable PLC	Std
● RS-232	Std
● RS-485	Std
● All-Phase Sensing DVR	Std
● Full System Status	Std
● Utility Monitoring (Req. H-Transfer Switch)	Std
● 2-Wire Start Compatible	Std
● Power Output (kW)	Std
● Power Factor	Std
● Reactive Power	Std
● All phase AC Voltage	Std
● All phase Currents	Std
● Oil Pressure	Std
● Coolant Temperature	Std
● Coolant Level	Std
○ Oil Temperature	Opt
● Engine Speed	Std
● Battery Voltage	Std
● Frequency	Std
● Date/Time Fault History (Alarm & Event Log)	Std
○ Low-Speed Exercise	-
● Isochronous Governor Control	Std
● -40deg C - 70deg C Operation	Std
● Waterproof Plug-In Connectors	Std
● Audible Alarms and Shutdowns	Std
● Not in Auto (Flashing Light)	Std
● Auto/Off/Manual Switch	Std
● E-Stop (Red Mushroom-Type)	Std
○ Remote E-Stop (Break Glass-Type, Surface Mount)	Opt
○ Remote E-Stop (Red Mushroom-Type, Surface Mount)	Opt
○ Remote E-Stop (Red Mushroom-Type, Flush Mount)	Opt
● NFPA 110 Level I and II (Programmable)	Std
● Remote Communication - RS232	Std
○ Remote Communication - Modem	Opt
○ Remote Communication - Ethernet	Opt
○ 10A Run Relay	Opt

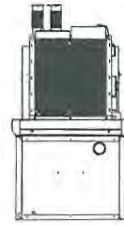
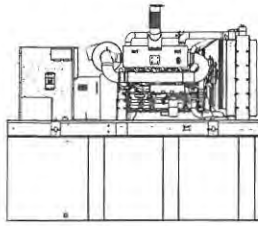
#### Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

○ Low Fuel	Opt
● Oil Pressure (Pre-programmed Low Pressure Shutdown)	Std
● Coolant Temperature (Pre-programmed High Temp Shutdown)	Std
● Coolant Level (Pre-programmed Low Level Shutdown)	Std
○ Oil Temperature	Opt
● Engine Speed (Pre-programmed Overspeed Shutdown)	Std
● Voltage (Pre-programmed Overvoltage Shutdown)	Std
● Battery Voltage	Std



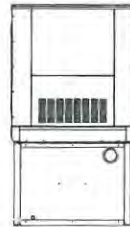
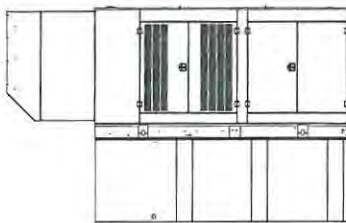
**SD600**

**enclosure and tank configurations**



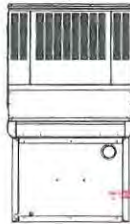
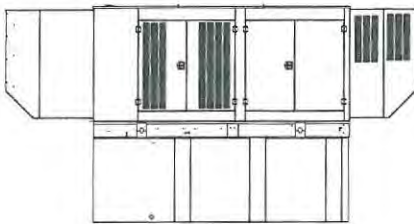
**OPEN SET**

RUN TIME HOURS	USABLE CAPACITY (GAL)
NO TANK	-
8	334
24	1001
24	1001
48	2002



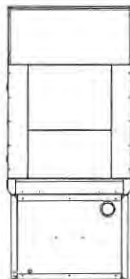
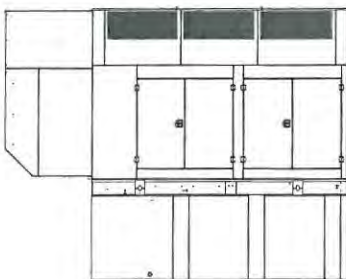
**STANDARD ENCLOSURE**

RUN TIME HOURS	USABLE CAPACITY (GAL)
NO TANK	-
8	334
24	1001
24	1001
48	2002



**LEVEL 1 SOUND ENCLOSURE**

RUN TIME HOURS	USABLE CAPACITY (GAL)
NO TANK	-
8	334
24	1001
24	1001
48	2002



**LEVEL 2 SOUND ENCLOSURE**

RUN TIME HOURS	USABLE CAPACITY (GAL)
NO TANK	-
8	334
24	1001
24	1001
48	2002



\*All measurements are approximate and for estimation purposes only. Weights and dBA are available on install drawings and sound data sheets, respectively.

Tank Options

<input type="radio"/> MDEQ	OPT
<input type="radio"/> Florida DERM/DEP	OPT
<input type="radio"/> Chicago Fire Code	OPT
<input type="radio"/> IFC Certification	CALL
<input type="radio"/> ULC	CALL

Other Custom Options Available from your Generac Industrial Power Dealer

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER	
	<p><b>1955 Dale Lane</b>  <b>Owings, MD 20736</b>  <b>(410) 257-5225</b>  <b>www.kge.com</b></p>

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.



## H-100 Control Panel

## Controls



## DESCRIPTION

- Digital controls for all safety shutdowns
- Isochronous governor control
- Digital 3 $\phi$  sensing voltage regulator
- Sealed Digital Circuit Board
- 2 Amp static battery charger
- Mates with HTS transfer switch and any 2-wire start ATS
- Alarm and event logging
- Built-in diagnostics
- Internal PLC
- Optional modem with dialout

## STANDARD FEATURES

The Quiet-Test™ H-100 Control Panel is a digital microprocessor electronic controller that integrates all engine and transfer switch functions into a single control system.

- Two 4 line x 20 displays
- Full system status
- 3 phase sensing digital voltage regulator
- Remote ports
  - RS232
  - RS485
  - Canbus
- Water proof connections
- All engine sensors are 4-20 ma for minimal interference
- Built in PLC

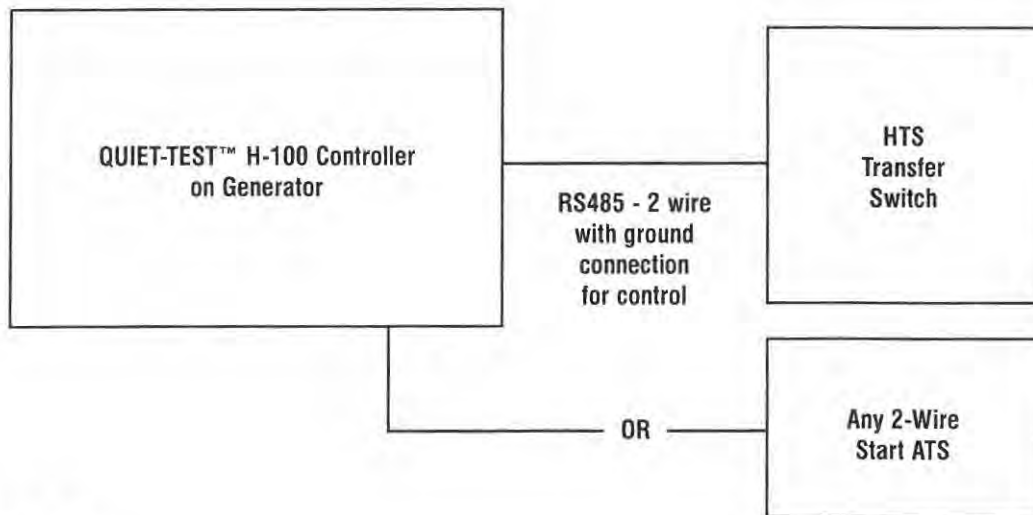
In addition, the generator set parameters can be manipulated and monitored without standing in front of the control panel with GenLink® software. The Generac H-100 control also monitors and controls transfer switch functions when used with the HTS Transfer Switch.

- Monitors utility voltage
- Monitors generator voltage
- Timer for line interrupt delay
- Timer for engine warmup
- Timer for minimum engine run time
- Timer for return to utility position
- Timer for engine cooldown
- Built in exerciser timer (7 day)
- Additional 2 wire start controls for any 2 wire transfer switch.

# H-100 Control Panel

- Full range stand-by operation
- Full system status
  - 3 phase AC volts
  - 3 phase amps
  - kW
  - Power factor
  - Reactive power
  - Oil pressure
  - Water temperature
  - Water level
  - Oil temperature (optional)
  - Fuel pressure
  - Engine speed
  - Battery voltage
  - Alternator frequency
  - Time
  - Date
  - Transfer switch status
  - Run hours
  - Service reminders
  - Trending
  - Fault history (alarm log)
  - I<sup>2</sup>t function for full generator protection
  - Built in PLC for special applications
- Shutdowns
  - Overvoltage
  - Overspeed
  - Low oil pressure
  - High coolant temperature
  - Low coolant level
- Remote communication
  - RS232
  - Optional modem
  - Canbus
- Configurable to NFPA 110, level 1 or 2
- Programmable auto crank
- Emergency Stop
- On Off Manual Switch
- Not in Auto flashing light
- Audible alarm for fault condition
- Transfer switch logic communicates with HTS transfer switch
- Weekly exerciser (programmable)
- Selectable Low speed exercise
- Digital voltage regulator with 3 phase sensing (3 phase units)
- Isochronous governor
- Waterproof electrical connectors
- Temperature Range -40° to 70° C

## TYPICAL CONTROL CONNECTION



# GENERAC

POWER SYSTEMS, INC.

## Alternator Data

**832 kW**

### Alternator Rating:

<b>kW</b>	<b>kVA</b>
832-----	1040
Part #.....	0G6305 (R)
Type .....	Brushless/PMG
Connections .....	Series Wye
Efficiency @ 1.0 Power Factor	
kW Load	Efficiency
150 kW .....	91.2
300 kW .....	92.4
600 kW .....	93.8
832 kW .....	94.2
832kW @ 0.8 pf .....	92.7

### Machine Parameters @ Max kW Rating:

Transient S C Time Constant.....	1.7 ms
Subtransient Reactance.....	0.124
Transient Reactance .....	0.174
Synchronous Reactance.....	2.404
Negative Sequence Reactance .....	.017
Zero Sequence Reactance .....	0.04
Short Circuit Ratio .....	0.35
Excitation Voltage .....	20-80V
Excitation Current @ Rated kW .....	3.2A -0.8pf
Lamination Type.....	WEG

Waveform Distortion.....	<5%
Telephone Influence Factor.....	<50
Synchronous Speed.....	1800 rpm
Maximum Overspeed .....	3300 rpm
Number of Bearings .....	1-Sealed Ball
Insulation System .....	Class H
Excitation System.....	Wound Field + Perm Mag

300% Current Limited

### Temperature Rise vs. kW Output ( 0.8 PF ):

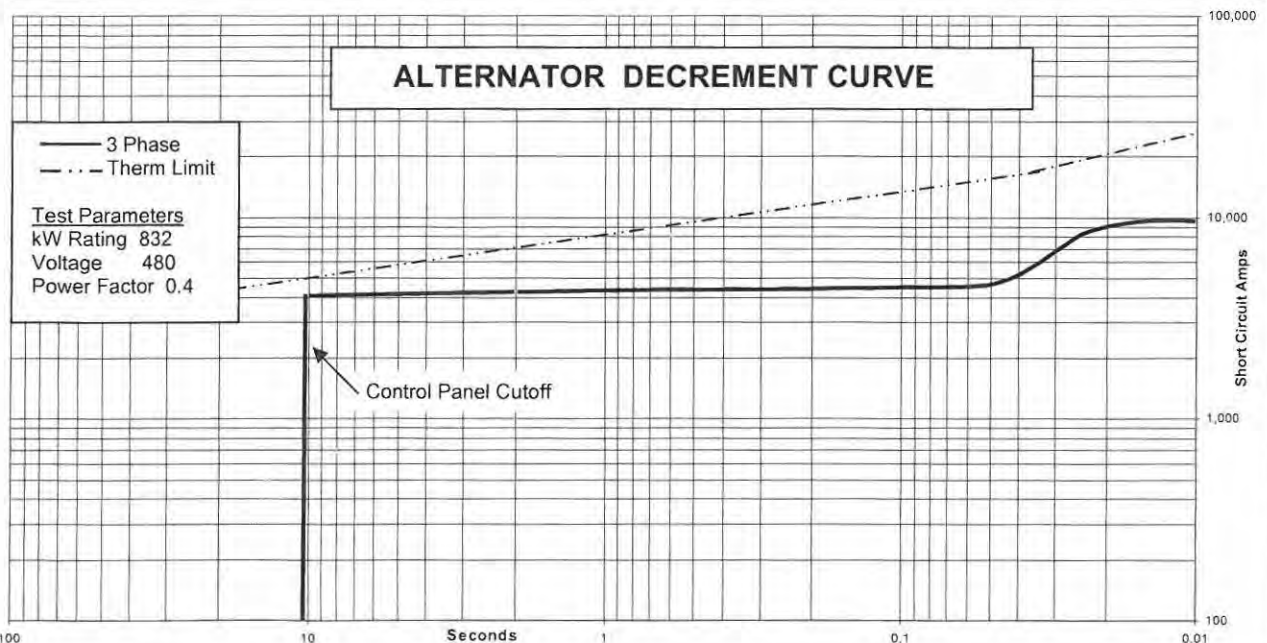
kW	Temperature Rise ° C
653	80
777	105
832	125

### Instantaneous Voltage Dip in kVA @ % Dip

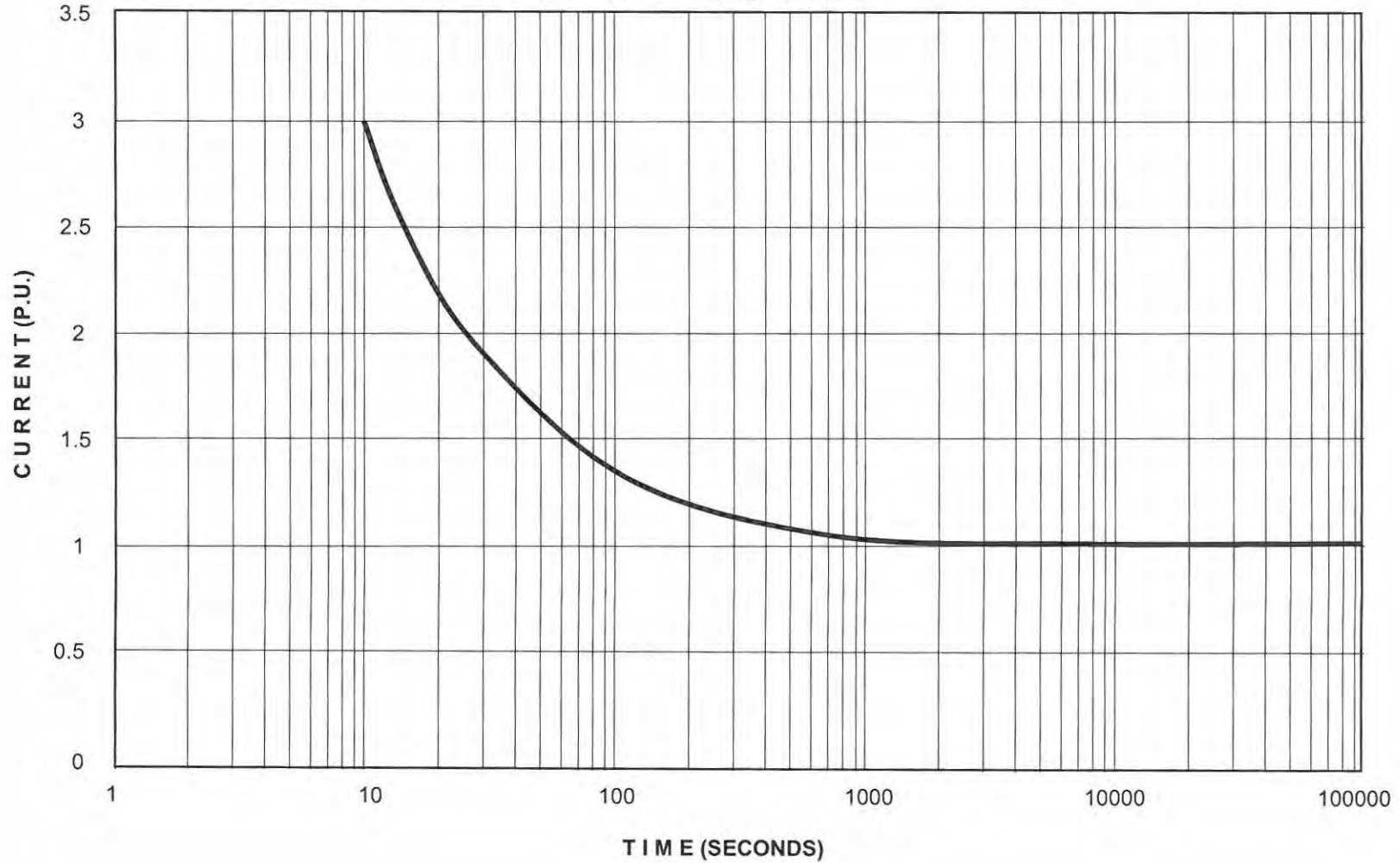
Voltage	10%	15%	20%	25%	30%	35%
480 Volt	757	1136	1514	1893	2271	2650

### Available Options:

Alternator Heater



**THERMAL DAMAGE CURVE**



# GENprotect™

Seamless protection for industrial power generators.

## GENprotect Operation

The design choice of an onsite power system using a Generac Industrial Power Generator assures your emergency power source is protected from unexpected power distribution faults. Typically, a generator will include some type of over-current device, such as a circuit breaker, or be protected by inherent design with the controller protecting the alternator through a protection algorithm. Generac's GENprotect generator protection system monitors the system current output and protects the alternator with extended security against fault scenarios that could occur within the site's downstream distribution system.

It is a common misconception that the alternator's main circuit breaker protects the alternator from a short circuit event. The main output breaker protects the cabling and provides a convenient disconnect. The characteristic trip curve for the industry standard thermal magnetic breaker (MCCB, molded case thermal magnetic or solid state) does not coordinate with the thermal damage limitation for an on-site generator. If circuit breakers are used for generator protection, a solid-state circuit breaker with full adjustments (Long Time, Short Time and Instantaneous, LSI) is required to coordinate the breaker protection curve within the generator thermal damage curve. Historically, this limitation was often accepted in system design since failures of the main generator feeder are extremely rare. Most short circuit events happen at a branch circuit, equipment level, where the fault is easily cleared by the smaller down stream breakers.

Given the mission critical nature of today's back-up power applications, it is more desirable to protect the system against even relatively rare failure modes. As generator controllers have become more powerful it is feasible for manufactures to supply coordinated short circuit protection integral to the generator control system, negating the need for a main-line circuit breaker.

Generac's GENprotect alternator protection algorithm monitors the generator output. If this monitoring senses short circuit current in excess of rated amps, GENprotect steps in to provide a controlled and safe approach to breaker coordination and alternator protection. GENprotect first limits the alternator short circuit current level to 300%. By limiting the available fault current, GENprotect extends the time the alternator can maintain fault current resulting in consistent breaker coordination. Without this functionality a line to neutral fault may be at 800% of rated current and need to be cleared within 1.4 seconds.

The second function GENprotect performs is I<sup>2</sup>T thermal protection for the alternator. Since a short circuit event can heat the alternator so rapidly, it is not possible to protect the alternator by monitoring temperature. Instead GENprotect calculates the heat energy of the fault current. When this energy reaches the limits of NEMA MG1, GENprotect trips the generator off-line. This configuration ensures the alternator is protected and the power system is ensured 10 seconds of 300% fault current for breaker coordination.

## DESCRIPTION

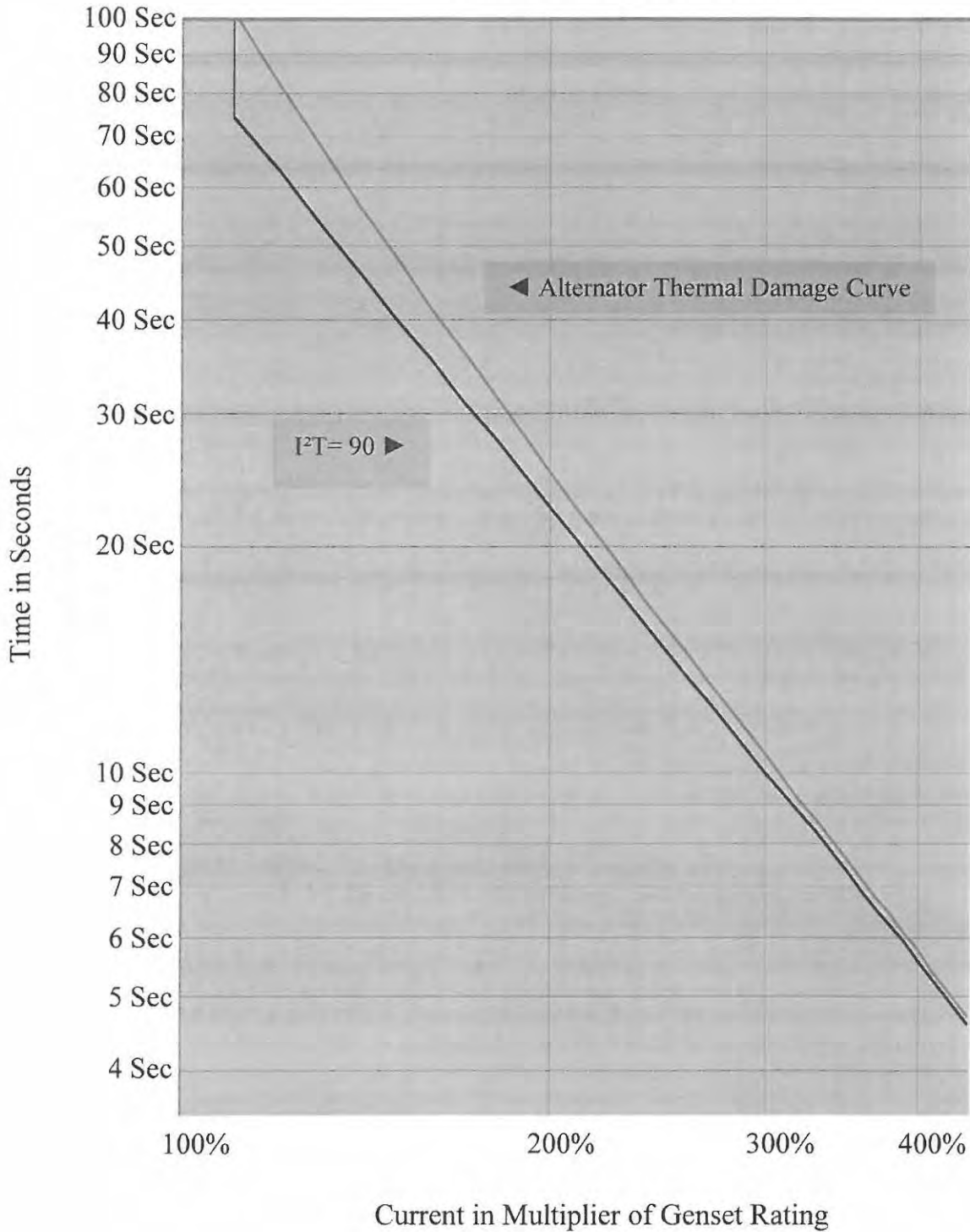
- GENprotect is an alternator protection algorithm approved by UL.
- Protects alternator from damage due to shorts and electrical faults.
- Provides breaker coordination and alternator protection.
- Allows for use of multiple circuit breaker choices, including "no" breaker.



**GENERAC** | INDUSTRIAL  
POWER



## Generac I<sup>2</sup>T Trip Curve

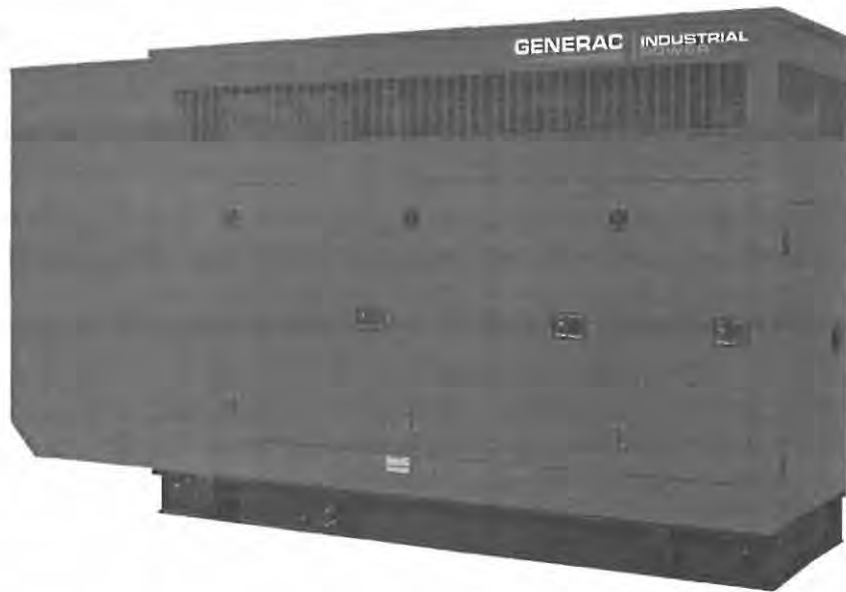


The above Figure shows the Generac GENprotect thermal protection curve for use in protection and coordination studies. The alternator Thermal Damage Curve is shown just to the right of the GENprotect protection curve. If the alternator load is greater than the thermal damage protection curve for the alternator, the generator set will trip off-line. For example, an overload current of 110% for 75 seconds causes an overload alarm and will trip the generator off-line, shutting down the engine. GENprotect will provide generator protection over a full range of time and current, from instantaneous faults to overloads lasting several minutes. An advantage of GENprotect over a MCCB is that GENprotect allows for downstream breakers to clear faults without tripping the generator off-line, providing selective coordination with the first level of downstream breakers.

**GENERAC** | INDUSTRIAL POWER

**Generator  
Enclosures**

**Accessories**



**DESCRIPTION**

**GENERAC POWER SYSTEMS'** generator enclosures provide year-round weather protection for your power equipment. Engineered with functionality and value in mind, the enclosure design benefits are unique in that the enclosures utilize dimensionally matched components for either a weather protective configuration or a sound attenuated/acoustic configuration. With common components used between designs, modifications and on-site upgrades can be accomplished with ease.

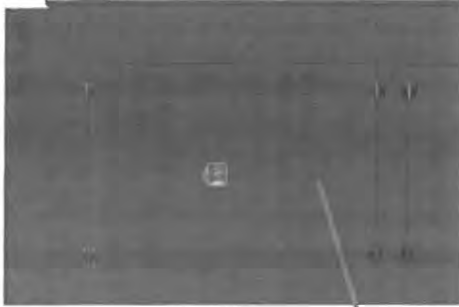
The enclosure design offers several benefits over the "standard enclosures" of other manufacturers. Generac's enclosures have been created with the goal of maximizing the customer's product performance satisfaction while maintaining the functionality of reducing exterior noise levels and discouraging product tampering.

Although others may require a "premium" for a self-enclosed exhaust system, rugged steel panel construction or protective polyethylene washers under all exterior panel fasteners, Generac includes these and several other features on every enclosure configuration. Be sure to compare. Generac Enclosures offer additional design enhancement extras that other "standard enclosures" do not.

# Generator Enclosures

## Post-free twin doors

Provides large, unobstructed service access



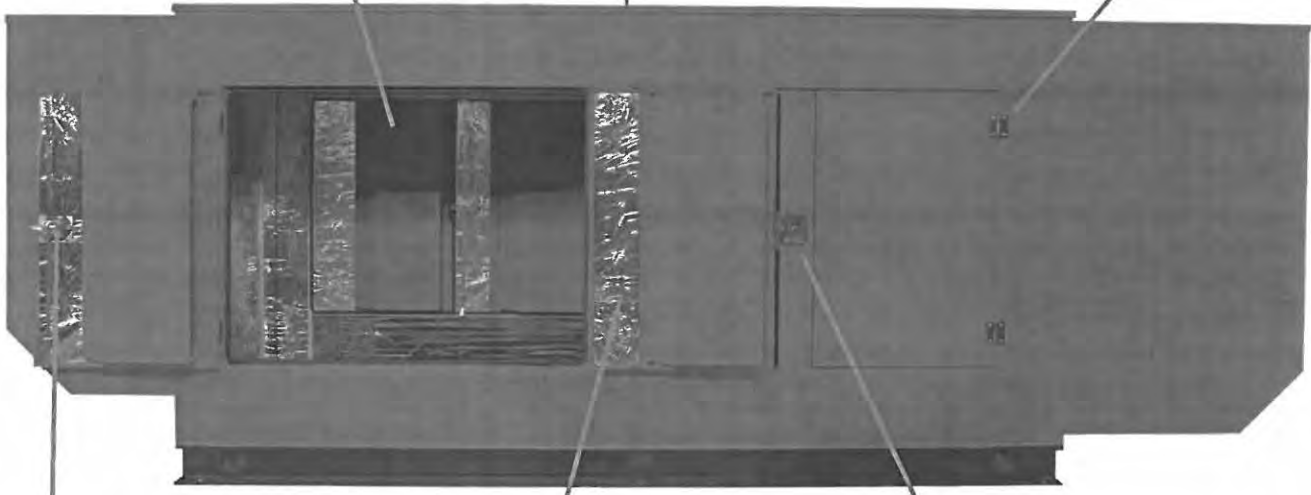
## Heavy-gauge, stainless steel, partial pin hinges with nylon spacers

Durable, corrosion-free, removable doors



## Gasket-free, interconnected roof panel joint

Drip-free, maintenance-free



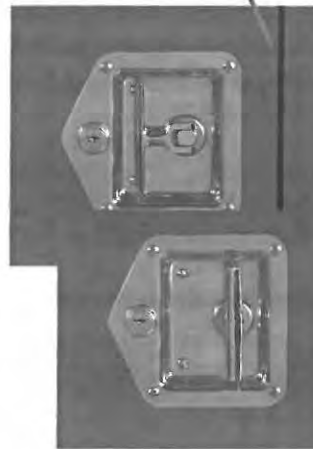
## Two-point door latch system

Ensures proper seal preventing water ingress and sound egress



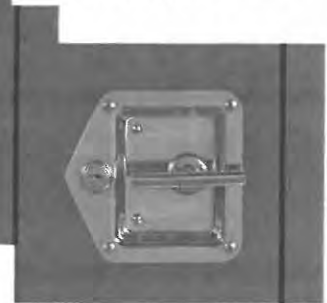
## Dense, closed-cell foam insulation with reflective silver Mylar layer

Improved sound attenuation without damaging effects from radiant heat exposure



## Lockable turn and tuck stainless steel latch handle

Corrosion-free, non-protruding and secure





## Generator Enclosures

<b>FEATURES:</b>	<b>BENEFITS:</b>
■ Dimensional Matching of acoustic and non-acoustic enclosure designs	■ Reduces variation in fuel tank pricing, inventory; removes need to change out fuel tank or retrofit
■ Standardized enclosure components *	■ Ease of retrofit or upgrade to acoustic system; reduced parts inventory, costs
■ Enclosure mounted directly to unit baseframe	■ Simplified delivery and installation with enclosure and unit in single component design
■ Electrostatically painted panels	■ Maximum protection from weather elements
■ 12 or 14 gauge steel based on kW rating	■ Maximum sound attenuation, protection and product life
■ Aluminum Enclosure optional	■ Prevents corrosion in coastal regions
■ Stainless steel door latch and hinge hardware	■ Provides extended component life; maximum protection against rusting
■ Stainless steel door latch strike plate	■ Maximum protection against enclosure paint damage from door latch pin
■ Door hinges utilize slip-pin design	■ Provides quick door removal for full-unit access
■ Polyethylene gasketing under door hinges	■ Additional protection for enclosure paint finish
■ Keyed door latches	■ Protection for equipment and personnel
■ Large removable access doors	■ Ease of maintenance
■ Relocation of access doors	■ Provides improved access to MLCB on all units
■ Redesigned door gasketing	■ Improved sealing quality from sound and weather elements
■ Weather resistant aluminum roof design with drip ledge	■ Provides optimum moisture/rain runoff from unit
■ Cabled and gasketed radiator access cover	■ Provides improved radiator access and additional protection from weather elements
■ Acoustic roof panels manufactured with mechanical retention pins	■ Increased acoustic foam retention within unit
■ Polyethylene washers under all panel fasteners	■ Additional paint finish protection from stainless steel fastener
■ Internally fastened enclosure panels (where possible)	■ Provides streamlined unit appearance
■ Additional roof panel stiffener	■ Added overall compartment rigidity and acoustic foam panel retention
■ Self-enclosed exhaust system	■ Provides safe unit operation; no enclosure hot spots; streamlined unit appearance
■ Discharge air duct has been designed with minimal fasteners	■ Ease of removal and access to exhaust system
■ Stainless steel exhaust band clamps	■ Provides extended component life; ensures proper exhaust seal
■ Drain holes within air ducts	■ Enables maximum water run-off
■ Rodent-proof, tamper proof enclosure design	■ Safety and security for personnel and equipment
■ Redesigned baseframe lifting lugs	■ Ease of unit relocation; prevents compartment damage from lifting straps
■ 150mph wind kit options	■ Meets locally enforced wind requirements

\* Consult Generac Power Systems, Inc. installation drawings for specific configurations and dimensions.



**RhinoCoat™**

**Spec Sheet**

# GENERAC®

## Generator Set Standard

PAINT

1 of 1



Generac's RhinoCoat™ finish system provides superior durability as a standard for all Generac industrial enclosures, tanks and frames.\*

### testing standard

Generac's RhinoCoat™ finished surfaces are subjected to numerous tests. These include:

- ASTM D - 1186 - 87..... 2.5+ MIL PAINT THICKNESS
- ASTM D - 3363 - 92a..... ADEQUATE MATERIAL HARDNESS
- ASTM D 522 - B..... RESISTANT TO CRACKING
- ASTM D 3359 - B..... EXCEPTIONAL ADHESION
- ASTM B117 D 1654..... RESISTANT TO SALT WATER CORROSION
- ASTM D1735 D 1654..... RESISTANT TO HUMIDITY
- ASTM 2794 93 (2004)..... EXCEPTIONAL IMPACT RESISTANCE
- SAE J1690 - UV SPECIFICATIONS..... UV PROTECTION

In addition to the testing standards above, Generac adds the following test requirements more specific to generator applications:

- RESISTANT TO TYPICAL OILS
- RESISTANT TO TYPICAL FUELS
- RESISTANT TO TYPICAL ANTIFREEZE
- RESISTANT TO DISTILLED WATER

### primary codes and standards



\*RhinoCoat powder coat paint is durable and corrosion resistant however it is not a rust preventative. Generac pretreats all powdercoated parts to assist with resistance to corrosion.

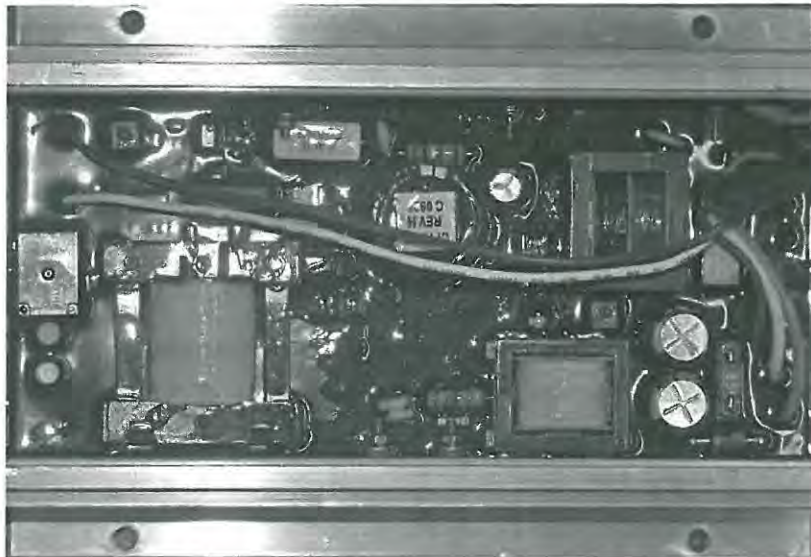
**GENERAC**

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**2.5A & 10A Battery Chargers H-Panel & PM-DCP Panels**

**Accessories**



Battery Charger shown from inside of Control Panel Enclosure. Connections are made via an attached harness.

The Generac 2.5A 12 volt and 10A 12/24 volt battery chargers are designed to work with the H and PM-DCP control panels to provide the ultimate in automatic battery voltage maintenance.

The 2.5 amp charger is self-regulating and produces instantaneous output current adjustments to keep the battery charged to an optimum level. Battery voltage is read on the control panel digital display.

The 10 amp charger has automatic float and equalize control. It precisely monitors the battery's voltage and automatically activates the correct charging mode. The charge rate is limited and controlled to efficiently and safely maintain ideal battery levels under varying conditions.

The equalize system uses a control circuit to limit charging current to 10 amps. When battery voltage drops below a preset level, charging current increases to 5 amps and then to the 10 amp charge rate if needed. When the battery reaches maximum charge, the charger switches to float mode to supply just enough current to maintain the battery at or above 13/26 volts. Battery voltage and charging current are read at the control panel digital display.

<b>Specifications</b>	<b>2.5 Amp</b>	<b>10 Amp</b>
Nominal Input	120 VAC	120 VAC
Operating AC Line Voltage Range	108 to 132 Volts AC	108 to 132 Volts AC
Input AC Line Frequency	50/60 Hz	50/60 Hz
Battery Fuse	N/A	15 Amps
Nominal Charge Rate	2.5 Amps	10 Amps
Equalize Voltage		13.8/27.6 Volts
Float Voltage	13.4	13.0/26.0
Current @ Equalize to Float Transition		5 Amps
Battery Under-voltage shutdown	N/A	11/22 Volts
LED Indicators		
AC Line Voltage	N/A	Green LED
Battery Connected and Charging	N/A	Yellow LED
Battery Current Drain	30 milliamp	30 milliamp
AC Line Connection	Connector Plug	Connector Plug
Battery Connection	Connector Plug	Connector Plug
Control Connection		AC Power Fail Relay Form C 2 Amp Rating
CUL Recognized	Yes	Yes
NFPA110 Compliant	No	Yes





## Battery Options

## Industrial Genset Battery Index

• Warranty by Exide Corp. • Exide e-mail: tbgna@exide.com • 800-782-7848 National Hotline • Dry Batteries Available\*\*

### Industrial Spark-Ignited Gensets - Available Batteries

Engine	System Voltage	Battery Quantity	Generac Part #				
			058208 (Group 24F)	077483 (Group 26)	058665 (Group 27F)	061119 (Group 31)	061104 (Group 8D)
G2.4	12	1		X			
G5.4	12	1	X		X or D	X or D	
G6.8	12	1			X or D	X or D	
G9.0	12	1			X or D	X or D	
G12.9	24	2					X or D
G13.3	24	2				X or D	X or D

X = Battery available with electrolyte and installed in genset.  
D = Battery available dry and installed in genset.

### Industrial Diesel Gensets - Available Batteries

Engine	System Voltage	Battery Quantity	Generac Part #			
			058208 (Group 24F)	058665 (Group 27F)	061119 (Group 31)	061104 (Group 8D)
D2.4 Generac	12	1		X or D	X or D	
D3.4 Generac	12	1		X or D	X or D	
D4.5 FPT	12	1			X or D	
D6.7 FPT 100 & 130kW	12	1 or 2†			X or D	
D6.7 FPT 150 & 175kW	12	2†			X or D	
D8.7 FPT	24	2			X or D	
D10.3 FPT	24	2			X or D	X or D
D12.9 FPT	24	2			X or D	X or D
D12.5 Perkins	24	2				X or D
D15.2 Perkins	24	2				X or D
D16.0 Volvo	24	2			X or D	X or D
D18.1 Perkins	24	2				X or D

X = Battery available with electrolyte and installed in genset.

D = Battery available dry and installed in genset.

† = Single or dual-paralleled battery options are available on 100 & 130kW. Single-battery option not available on 150 & 175kW.

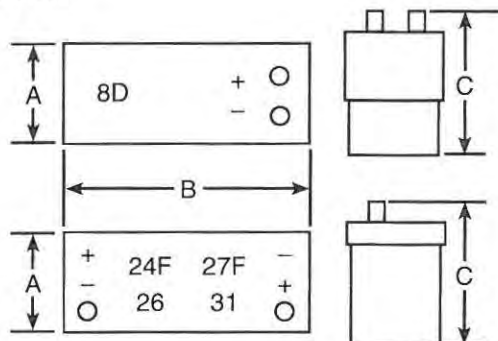
### Battery Specifications

Part Number	Group Number*	Nominal CCA @ 0° F	Dimensions (inches) Nominal		
			A	B	C
058208	24F	525	6.75	10.63	9.00
077483	26	525	6.75	8.25	7.75
058665	27F	700	6.75	12.50	9.00
061119	31	925	6.75	13.00	9.40
061104	8D	1155	11.12	20.75	9.88

All batteries are 12 volt, 6 cell construction, lead calcium type.  
For 24 volt systems, batteries are wired in series.

\* BCI Group Size reference.

\*\* Add an "A" suffix to the Generac part number for dry batteries, which are shipped without electrolyte.



CIRCUIT BREAKER  
DATA

EATON CIRCUIT BREAKERS  
100% RATED THERMAL-MAGNETIC

AMPS	VOLTS	ACCESSORIES	EATON #	SERIES	FRAME	GENERAC #
70	600	No Accessories	JGE3070FAGC	G	JG-FRAME	0H9302TH00
		Shunt Trip & Aux. Contacts	JGE3070FAGCA2( ) <sup>2</sup>			0H9302TH( ) <sup>3</sup>
80	600	No Accessories	JGE3080FAGC	G	JG-FRAME	0J0841TH00
		Shunt Trip & Aux. Contacts	JGE3080FAGCA2( ) <sup>2</sup>			0J0841TH( ) <sup>3</sup>
90	600	No Accessories	JGE3090FAGC	G	JG-FRAME	0J0837TH00
		Shunt Trip & Aux. Contacts	JGE3090FAGCA2( ) <sup>2</sup>			0J0837TH( ) <sup>3</sup>
100	600	No Accessories	JGE3100FAGC	G	JG-FRAME	0H9314TH00
		Shunt Trip & Aux. Contacts	JGE3100FAGCA2( ) <sup>2</sup>			0H9314TH( ) <sup>3</sup>
125	600	No Accessories	JGE3125FAGC	G	JG-FRAME	0J0231TH00
		Shunt Trip & Aux. Contacts	JGE3125FAGCA2( ) <sup>2</sup>			0J0231TH( ) <sup>3</sup>
150	600	No Accessories	JGE3150FAGC	G	JG-FRAME	0H9315TH00
		Shunt Trip & Aux. Contacts	JGE3150FAGCA2( ) <sup>2</sup>			0H9315TH( ) <sup>3</sup>
175	600	No Accessories	JGE3175FAGC	G	JG-FRAME	0H9316TH00
		Shunt Trip & Aux. Contacts	JGE3175FAGCA2( ) <sup>2</sup>			0H9316TH( ) <sup>3</sup>
200	600	No Accessories	JGE3200FAGC	G	JG-FRAME	0J0232TH00
		Shunt Trip & Aux. Contacts	JGE3200FAGCA2( ) <sup>2</sup>			0J0232TH( ) <sup>3</sup>
225	600	No Accessories	JGE3225FAGC	G	JG-FRAME	0H9317TH00
		Shunt Trip & Aux. Contacts	JGE3225FAGCA2( ) <sup>2</sup>			0H9317TH( ) <sup>3</sup>
250	600	No Accessories	JGE3250FAGC	G	JG-FRAME	0H9318TH00
		Shunt Trip & Aux. Contacts	JGE3250FAGCA2( ) <sup>2</sup>			0H9318TH( ) <sup>3</sup>
300	600	No Accessories	LGE3300FAGC	G	LG-FRAME	0H9319TH00
		Shunt Trip & Aux. Contacts	LGE3300FAGCA2( ) <sup>2</sup>			0H9319TH( ) <sup>3</sup>
350	600	No Accessories	LGE3350FAGC	G	LG-FRAME	0H9320TH00
		Shunt Trip & Aux. Contacts	LGE3350FAGCA2( ) <sup>2</sup>			0H9320TH( ) <sup>3</sup>
400	600	No Accessories	LGE3400FAGC	G	LG-FRAME	0H9321TH00
		Shunt Trip & Aux. Contacts	LGE3400FAGCA2( ) <sup>2</sup>			0H9321TH( ) <sup>3</sup>
500	600	No Accessories	LGE3500FAGC	G	LG-FRAME	0H9323TH00
		Shunt Trip & Aux. Contacts	LGE3500FAGCA2( ) <sup>2</sup>			0H9323TH( ) <sup>3</sup>
600	600	No Accessories	LGE3600FAGC	G	LG-FRAME	0H9324TH00
		Shunt Trip & Aux. Contacts	LGE3600FAGCA2( ) <sup>2</sup>			0H9324TH( ) <sup>3</sup>
700 <sup>1</sup>	600	No Accessories	CMDLB3800T33W	C	M-FRAME	0H9325TH00
		Shunt Trip & Aux. Contacts	CMDLB3800T33WA13S02			0H9325THB0
800 <sup>1</sup>	600	No Accessories	CMDLB3800T33W	C	M-FRAME	0H9326TH00
		Shunt Trip & Aux. Contacts	CMDLB3800T33WA13S02			0H9326THB0
900 <sup>1</sup>	600	No Accessories	CND312T33W	C	N-FRAME	0H9327TH00
		Shunt Trip & Aux. Contacts	CND312T33WA12S03			0H9327THB0
1000 <sup>1</sup>	600	No Accessories	CND312T33W	C	N-FRAME	0H9328TH00
		Shunt Trip & Aux. Contacts	CND312T33WA12S03			0H9328THB0
1200 <sup>1</sup>	600	No Accessories	CND312T33W	C	N-FRAME	0H9329TH00
		Shunt Trip & Aux. Contacts	CND312T33WA12S03			0H9329THB0
1400 <sup>1</sup>	600	No Accessories	CRD316T33W	C	R-FRAME	0H9360TH00
		Shunt Trip & Aux. Contacts	CRD316T33WA12S21			0H9360THB0
1600 <sup>1</sup>	600	No Accessories	CRD316T33W	C	R-FRAME	0H9361TH00
		Shunt Trip & Aux. Contacts	CRD316T33WA12S21			0H9361THB0
2000 <sup>1</sup>	600	No Accessories	CRD320T33W	C	R-FRAME	0H9367TH00
		Shunt Trip & Aux. Contacts	CRD320T33WA12S21			0H9367THB0

<sup>1</sup>LS-type electronic trip breaker

<sup>2</sup>S4 = 12VDC

<sup>3</sup>B0 = 12VDC

<sup>2</sup>S1 = 24VDC

<sup>3</sup>C0 = 24VDC



**100% Rated Type CND Electronic Circuit Breakers with Non-Interchangeable Trip Units**

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. Order as individual components: breaker frame, rating plug, terminals.

**100% Rated Type CND Electronic Circuit Breakers with Non-Interchangeable Trip Units**

Maximum Continuous Ampere Rating at 40°C	Digitrip RMS 310 Circuit Breaker Frame Only Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				Digitrip RMS 310 Rating Plug Only			Standard Terminals Only ①  See Page 252 for Optional Terminals
	Standard	Options			Adjustable Rating Plug			
	Adjustable Short Time Pickup with I <sup>2</sup> t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I <sup>2</sup> t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	
<b>Two-Pole ②</b>								
800	CND2800T33W	CND2800T32W	CND2800T35W	CND2800T36W	400	8NES400T	Adjustable settings are: 400, 500, 600, 800 A8NES800T1	TA700NB1
					450	8NES450T		TA700NB1
					500	8NES500T		TA700NB1
					600	8NES600T		TA700NB1
					700	8NES700T		TA700NB1
					800	8NES800T		TA1000NB1
1200	CND212T33W	CND212T32W	CND212T35W	CND212T36W	600	12NES600T	Adjustable settings are: 600, 800, 1000, 1200 A12NES1200T1	TA700NB1
					700	12NES700T		TA700NB1
					800	12NES800T		TA1000NB1
					900	12NES900T		TA1000NB1
					1000	12NES1000T		TA1000NB1
					1200	12NES1200T		TA1200NB1
<b>Three-Pole ③</b>								
800	CND3800T33W	CND3800T32W	CND3800T35W	CND3800T36W	400	8NES400T	Adjustable settings are: 400, 500, 600, 800 A8NES800T1	TA700NB1
					450	8NES450T		TA700NB
					500	8NES500T		TA700NB1
					600	8NES600T		TA700NB1
					700	8NES700T		TA700NB1
					800	8NES800T		TA1000NB1
1200	CND312T33W	CND312T32W	CND312T35W	CND312T36W	600	12NES600T	Adjustable settings are: 600, 800, 1000, 1200 A12NES1200T1	TA700NB1
					700	12NES700T		TA700NB1
					800	12NES800T		TA1000NB1
					900	12NES900T		TA1000NB1
					1000	12NES1000T		TA1000NB1
					1200	12NES1200T		TA1200NB1

**Notes**

- ① Two terminals are required per pole.
- ② For 1200A rating, includes conductor extension kit that increases breaker length 3.75 on each end. Terminal ordered separate.

**CIRCUIT BREAKER DATA**

**EATON CIRCUIT BREAKER LUG INFORMATION**

<b>Series C Circuit Breaker Lugs</b>				
Amps	Series	Frame	Standard Lug	
			Eaton Part #	Wire Size
15-70	C	G	-	#10-1/0
15-100	C	F	3T100FB	#14-1/0
125-225	C	F	3TA225FD	#4-4/0
250	C	J	TA250KB	(1) #4-350MCM
300	C	K	TA350K	(1) 250-500MCM
350	C	K	3TA400K	(2) 3/0-250MCM
400	C	K	3TA400K	(2) 3/0-250MCM
450	C	L	Generac Part # 0F9721	(3) 2/0-400MCM
500	C	L	Generac Part # 0F9721	(3) 2/0-400MCM
600	C	L	Generac Part # 0F9721	(3) 2/0-400MCM
700-800	C	M	TA800MA2	(3) 3/0-400MCM
1000	C	N	TA1000NB1	(3) 3/0-400MCM
1200	C	N	TA1201NB1	(3) 500-750MCM
1400	C	R	TA1600RD	(4) 500-1000MCM
1600	C	R	TA1600RD	(4) 500-1000MCM
2000	C	R	Lugs not included	



<b>Series G Circuit Breaker Lugs</b>				
Amps	Series	Frame	Standard Lug	
			Eaton Part #	Wire Size
70-250	G	JG	TA250FJ	(1) #4-350MCM
300-400	G	LG	3TA632LK	(2) 2/0-500MCM
500-600	G	LG	3TA632LK	(2) 2/0-500MCM

# 12.3

## Molded Case Circuit Breakers

Series C

Typical N-Frame Breaker



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### N-Frame (400–1200 Amperes)

#### Product Description

- All Eaton N-Frame circuit breakers are suitable for reverse feed use
- All N-Frame circuit breakers are HACR rated

### Contents

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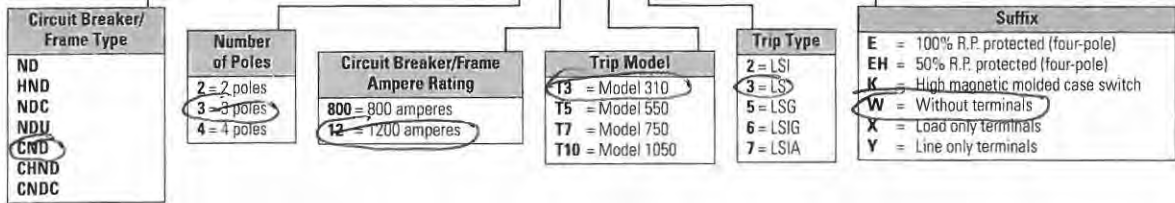


**Catalog Number Selection**

This information is presented only as an aid to understanding catalog numbers. It is not to be used to build catalog numbers for circuit breakers or trip units.

**Circuit Breaker/Frame**

CND 312 T33 WA12503  
 ND 3 12 T3 2 W



# 12.3

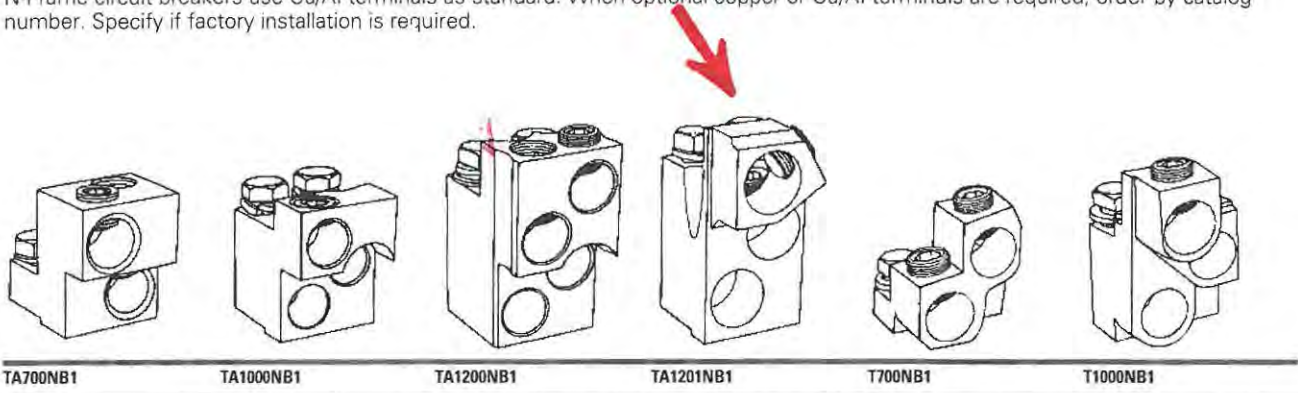
## Molded Case Circuit Breakers

Series C

### Accessories Selection Guide and Ordering Information

#### Line and Load Terminals—Ordering Information

N-Frame circuit breakers use Cu/Al terminals as standard. When optional copper or Cu/Al terminals are required, order by catalog number. Specify if factory installation is required.



#### Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range/ No. Conductors	Metric Wire Range mm <sup>2</sup>	Catalog Number
<b>Standard Cu/Al Pressure Terminals</b>					
700	Aluminum	Cu/Al	(2) 1–500 kcmil	50–240	TA700NB1
1000	Aluminum	Cu/Al	(3) 3/0–400 kcmil	95–185	TA1000NB1 <sup>(1)</sup>
1200	Aluminum	Cu/Al	(4) 4/0–500 kcmil	120–240	TA1200NB1 <sup>(1)</sup>
1200	Aluminum	Cu/Al	(3) 500–750 kcmil	300–400	TA1201NB1 <sup>(2)</sup>
<b>Optional Copper and Cu/Al Pressure Type Terminals</b>					
700	Copper	Cu	(2) 2/0–500 kcmil	70–240	T700NB1
1000	Copper	Cu	(3) 3/0–500 kcmil	95–240	T1000NB1
1200	Copper	Cu	(4) 3/0–400 kcmil	95–185	T1200NB3

#### Notes

<sup>(1)</sup> Terminal rating is AL9CU.

<sup>(2)</sup> Terminal rating is AL7CU.

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## Accessories

### Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

### ND Frame Accessories

Description	Reference Page	Three-Pole			Four-Pole			
		Left	Center	Right	Left	Center	Right	Neutral
<b>Internal Accessories (Only One Internal Accessory Per Pole) ①</b>								
Alarm lockout (Make/Break)	299	■		■	■		■	
Alarm lockout (2Make/2Break)	299	■		■	■		■	
Auxiliary switch (1A, 1B)	301	■		■	■		■	
Auxiliary switch (2A, 2B)	301	■		■	■		■	
Auxiliary switch (3A, 3B)	301	■		■	■		■	
Auxiliary switch (1A, 1B) and alarm switch combination	303	■		■	■		■	
Auxiliary switch (2A, 2B) and alarm switch combination	303	■		■	■		■	
Shunt trip—standard	307	■			■			
Shunt trip—low energy	308	■			■			
Undervoltage release mechanism	315	■			■			
Eaton PowerNet communications kit (OPTIM 550)	316			■				
<b>External Accessories</b>								
Base mounting hardware	334	●	●	●	●	●	●	●
Interphase barriers	336	●	●	●	●	●	●	●
Terminal shield	336	■	■	■				
Non-padlockable handle block	337		■			■		
Padlockable handle lock hasp	338	□		□	□		□	
Key interlock kit	339	□		□	□		□	
Sliding bar interlock—requires two breakers	340	●	●	●				
Walking beam interlock—requires two breakers	340	●	●	●	●	●	●	●
Electrical (motor) operator	342	●	●	●	●	●	●	●
Plug-in adapters	343	●	●	●	●	●	●	●
Rear connecting studs	344	●	●	●	●	●	●	●
Panelboard connecting straps	345	●	●	●	●	●	●	●
Handle mechanisms	347	●	●	●	●	●	●	●
Handle extension	351	●	●	●	●	●	●	●
Solid-state (electronic) portable test kit	353	●	●	●	●	●	●	●
<b>OPTIM System Components Three Poles</b>								
Ground fault alarm unit	352							
Potential transformer module	352							
Breaker interface module (BIM)	353							
Digitrip OPTIMizer	353							
Auxiliary power module	353							
<b>Modifications (Refer to Eaton)</b>								
Special calibration	—	●	●	●	●	●	●	●
Moisture fungus treatment	121	●	●	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●	●	●

#### Legend

- Applicable in indicated pole position
- May be mounted on left or right pole—not both
- Accessory available/modification available

#### Note

① OPTIM 550 and 1050 are factory sealed and do not have the right pole available for accessories.

# 12.3

## Molded Case Circuit Breakers

### Series C

#### Technical Data and Specifications

##### UL 489 Interrupting Capacity Ratings <sup>(1)</sup>

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes)			
		Volts AC (50/60 Hz)			
		240	277	480	600
ND	2, 3, 4	65	—	50	25
CND <sup>(2)</sup>	2, 3, 4	65	—	50	25
HND	2, 3, 4	100	—	65	35
CHND <sup>(3)</sup>	2, 3, 4	100	—	65	35
NDC	2, 3, 4	200	—	100	65
CNDC <sup>(2)</sup>	2, 3, 4	200	—	100	65
NDU <sup>(4)</sup>	3	300 <sup>(4)</sup>	—	150	75 <sup>(5)</sup>

##### IEC 947-2 Interrupting Capacity Ratings <sup>(1)</sup>

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes)		
		Volts AC (50/60 Hz)		
		240	415	690
<b>ND</b>				
$I_{cu}$	2, 3, 4	85	50	20
$I_{cs}$	2, 3, 4	85	50	10
<b>CND <sup>(3)</sup></b>				
$I_{cu}$	2, 3, 4	85	50	20
$I_{cs}$	2, 3, 4	85	50	10
<b>HND</b>				
$I_{cu}$	2, 3, 4	100	70	25
$I_{cs}$	2, 3, 4	100	50	13
<b>CHND <sup>(4)</sup></b>				
$I_{cu}$	2, 3, 4	100	70	25
$I_{cs}$	2, 3, 4	100	50	13
<b>NDC</b>				
$I_{cu}$	2, 3, 4	200	100	35
$I_{cs}$	2, 3, 4	100	50	18
<b>CNDC <sup>(2)</sup></b>				
$I_{cu}$	2, 3, 4	200	100	35
$I_{cs}$	2, 3, 4	100	50	18

#### Notes

- <sup>(1)</sup> Utilization Category A circuit breakers.
- <sup>(2)</sup> 100% rated breakers.
- <sup>(3)</sup> 800 amperes maximum rating.
- <sup>(4)</sup> Successfully tested at 300 kAIC, although UL recognizes maximum of 200 kAIC at 240 Vac.
- <sup>(5)</sup> Successfully tested at 75 kAIC, although UL recognizes maximum of 65 kAIC at 600 Vac.

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## N-Frame Digitrip

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
rms sensing	Yes	Yes	Yes	Yes
<b>Breaker Type</b>				
Frame	N	N	N	N
Ampere range	400A–1200A	400A–1200A	400A–1200A	400A–1200A
Interrupting rating at 480 volts	50, 65, 100 (kA)	50, 65, 100 (kA)	50, 65, 100 (kA)	50, 65, 100 (kA)
<b>Protection</b>				
Ordering options	LS, LSG	LSI, LSIG	LSI, LSIG, LSI(A)	LSI(A), LISG
Fixed rated plug ( $I_n$ )	Yes	Yes	Yes	Yes
Overtemperature trip	Yes	Yes	Yes	Yes
<b>Long Delay Protection (L)</b>				
Adjustable rating plug ( $I_n$ )	Yes	Yes	No	No
Long delay pickup	0.5–1.0 ( $I_n$ ) <sup>①</sup>	0.5–1.0 ( $I_n$ ) <sup>①</sup>	0.4–1.0 ( $I_n$ )	0.4–1.0 ( $I_n$ )
Long delay time $I^2t$	12 seconds	12 seconds	2–24 seconds	2–24 seconds
Long delay time $I^4t$	No	No	1–5 Seconds	1–5 Seconds
Long delay thermal memory	Yes	Yes	Yes	Yes
High load alarm	No	No	No	0.5–1.0 $\times I_r$
<b>Short Delay Protection (S)</b>				
Short delay pickup	200–800% $\times (I_n)$	200–800% $\times (I_n)$	150–800% $\times (I_r)$	150–800% $\times (I_r)$
Short delay time $I^2t$	100 ms	No	100–500 ms	100–500 ms
Short delay time flat	No	Inst–300 ms	100–500 ms	100–500 ms
Short delay time zone selective interlocking	No	No	Yes	Yes
<b>Instantaneous Protection (I)</b>				
Instantaneous pickup	No	200–800% $\times (I_n)$	200–800% $\times (I_n)$	200–800% $\times (I_n)$
Discriminator	No	No	Yes	Yes
Instantaneous override	Yes	Yes	Yes	Yes
<b>Ground Fault Protection (G)</b>				
Ground fault alarm	No	No	20–100% $\times (I_g)$	20–100% $\times (I_g)$
Ground fault pickup	Varies by frame <sup>②</sup>	Varies by frame <sup>②</sup>	20–100% $\times (I_g)$	20–100% $\times (I_g)$
Ground fault delay $I^2t$	No	No	100–500 ms	100–500 ms
Ground fault delay flat	Inst–500 ms	Inst–500 ms	100–500 ms	100–500 ms
Ground fault zone selective interlocking	No	No	Yes <sup>③</sup>	Yes
Ground fault thermal memory	Yes	Yes	Yes	Yes
<b>System Diagnostics</b>				
Status LEDs	Yes	Yes	Yes	Yes
Cause of trip LEDs	No	No	Yes	Yes
Magnitude of trip information	No	No	Yes	Yes
Remote signal contact—ground alarm	Yes <sup>④</sup>	Yes <sup>④</sup>	Yes <sup>③</sup>	Yes
Local auxiliary and bell alarm contact	Optional	Optional	Optional	Included

**Legend**

BIM = Breaker Interface Module

(A) = GF Alarm

 $I_g$  = Sensor Rating $I_n$  = Rating Plug $I_r$  = Long Delay Pickup Setting**Notes**

① Adjust by rating plug.

② By OPTIMizer/BIM.

③ Zone interlock kit.

④ With separate ground fault alarm unit (GFAU).

# 12.3

## Molded Case Circuit Breakers

### Series C

#### N-Frame Digitrip, continued

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
<b>System Monitoring</b>				
Digital display	No	No	Yes <sup>1)</sup>	Yes <sup>1)</sup>
Current	No	No	Yes	Yes
Power and energy	No	No	No	Yes
Power quality—harmonics	No	No	No	Yes
Power factor	No	No	No	Yes
<b>Communications</b>				
Eaton PowerNet	No	No	No <sup>2)</sup>	Yes
<b>Testing</b>				
Testing method	Test set	Test set	OPTIMizer, BIM, PowerNet	OPTIMizer, BIM, PowerNet

#### Legend

BIM = Breaker Interface Module  
 (A) = GF Alarm  
 $I_s$  = Sensor Rating  
 $I_n$  = Rating Plug  
 $I_r$  = Long Delay Pickup Setting

#### Notes

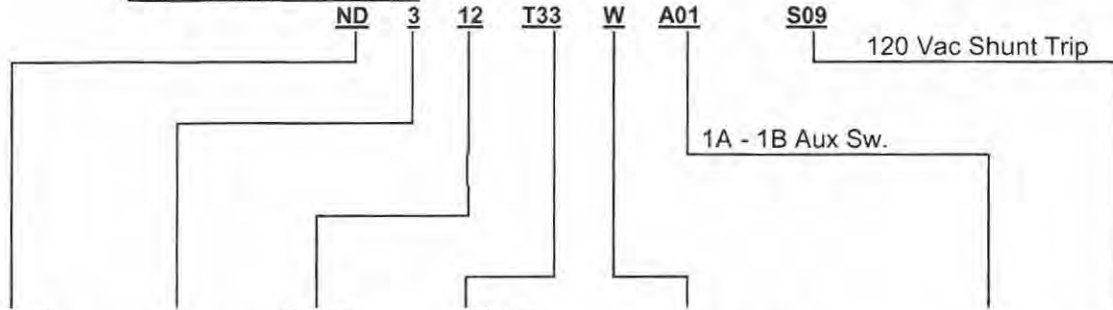
- <sup>1)</sup> By OPTIMizer/BIM.  
<sup>2)</sup> Eaton's PowerNet kit.



# CND312T33WA12S03

## CI RCUI T BREAKER SUPPORT CENTER "N" FRAME CATALOG NUMBERING SYSTEM

### "ND" Frame Example:



Type (Domestic)	Pole	Frame Amps	Trip Function	Suffix	Function Codes
ND	2: 2P	800 = 800A	(New Design)	AB: Special 100% Rated Allen Bradley w/o Cond. Extensions	A01-A20 Auxiliary Switch
CND	3: 3P	12 = 1200A	T33: LS	W: W/O Terms	B01-B14 Alarm Sig. Lockout Sw.
JDC	4: 4P		T32: LSI	K: Hi Mag Sw. (ND only)	C01-C13 Aux Sw/Alarm Comb.
CND			T35: LSG	E: All poles protection (4P)	E04-E17 Motor Operator
CND			T36: LSIG		H01-H14 Special Ratings
CND			(Old Design)		J01 Fungus Proof
World Class)			T: LS	EH: 50% Protected	L01-L05: Locks
JW			TA: LSI	4th pole (Domestic)	M01: Mounting Hdw
CNW			TG: LSG	60% protected 4th Pole (World Class)	N01-N03 Low Energy Sh Trip
JWC			TAG: LSIG		P01-P36 Rating Plugs
Generator)			(Optim 1050 Design)		S01-S99 Shunt Trip/Aux. Sw. Comb.
JG			T77: LSIA	U: W/O Terms	T01-T35 DC UVR
Global)			T76: LSIG	V3: Electronic Trip without Ambient Temperature marked on Trip unit.	U01-U53 AC UVR
JGS 50K			T107: LSIA	X: Load Only Term	W02-W03 Provision for Walking Beam Intl'k
JGH 65K			T106: LSIG	Y: Line Only Term	
JGC 100K			(Optim 550 Design)	C: Opt Cu. Terms	X01-X08 Load Term Only
Mini ng)			T52: LSI	CT: Center Tap Studs (NG BREAKER ONLY)	Y01-Y08 Line Term Only
E2N			T56: LSIG	CX Opt Cu. Terms Load only	Z01-Z14
E2NM			T57: LSIA	CY OPT Cu. Terms Line only	
E2NM Mini ng				ZG: Zone intl'k kit	*01-*12 Special Notes
styles)				ZGP: Zone intl'k & power kit	
488D44G01	E2NM3800T32WP19			PN: Power Net Kit	
488D44G02	E2NM3800T33WP19				
488D44G03	E2NM3800T36WP19				
488D44G04	E2NM3125T32WP09				
488D44G05	E2NM3125T33WP09				
488D44G06	E2NM3125T36WP09				

**SERIES "C" - N-FRAME  
INTERNAL ACCESSORIES**

**Auxiliary Switch**

**Field Installation  
Kits**

<u>Code</u>	<u>Cat #</u>	<u>Styl e #</u>	<u>Cont act</u>	<u>Mt g.</u>	<u>Conn</u>	<u>Lead</u> <u>Exi t</u>	<u>Locat i on</u>	<u>Cat #</u>	<u>Styl e #</u>
A01	A1X5LA	1494D44G05	1A-1B	Left	Pig	Same Side	A1X5PK	1494D44G10	
A02	A1X5LB	1494D44G05	1A-1B	Left	Pig	Rear (Std)	A1X5PK	1494D44G10	
A03	A1X5LC	1494D44G05	1A-1B	Left	Pig	Opp. Side	A1X5PK	1494D44G10	
A04	A1X5LT	1494D48G12	1A-1B	Left	Term	Same Side	A1X5LTK	1494D48G12	
A05	A1X5RA	1494D44G02	1A-1B	Right	Pig	Same Side	A1X5PK	1494D44G10	
A06	A1X5RB	1494D44G02	1A-1B	Right	Pig	Rear (Std)	A1X5PK	1494D44G10	
A07	A1X5RC	1494D44G02	1A-1B	Right	Pig	Opp. Side	A1X5PK	1494D44G10	
A08	A1X5RT	1494D48G02	1A-1B	Right	Term	Same Side	A1X5RTK	1494D48G02	
A09	A2X5LA	1494D44G06	2A-2B	Left	Pig	Same Side	A2X5PK	1494D44G11	
A10	A2X5LB	1494D44G06	2A-2B	Left	Pig	Rear (Std)	A2X5PK	1494D44G11	
A11	A2X5LT	1494D48G13	2A-2B	Left	Term	Same Side	A2X5LTK	1494D48G13	
A12	A2X5RA	1494D44G03	2A-2B	Right	Pig	Same Side	A2X5PK	1494D44G11	
A13	A2X5RB	1494D44G03	2A-2B	Right	Pig	Rear (Std)	A2X5PK	1494D44G11	
A14	A2X5RT	1494D48G03	2A-2B	Right	Term	Same Side	A2X5RTK	1494D48G03	
A15	A3X5LT	1494D48G14	3A-3B	Left	Term	Same Side	A3X5LTK	1494D48G14	
A16	A3X5RT	1494D48G04	3A-3B	Right	Term	Same Side	A3X5RTK	1494D48G04	
A17	A3X5RA	1494D44G04	3A-3B	Right	Pig	Same Side	A3X5RPK	1494D44G04	
A18	A3X5LA	1494D44G07	3A-3B	Left	Pig	Same Side	A3X5LPK	1494D44G07	
A19	E/A2X5R A	1494D44G13	2A-2B	Right	Pig	Same Side	E/A2X5RPK	1494D44G13	
			1gold						
A20	E/A2X5R B	1494D44G13	2A-2B	Right	Pig	Same Side	E/A2X5RPK	1494D44G13	
			1gold						

Standard mounting location - right. Pigtail leads exit rear of breaker. Note - Breakers with Ground Fault come standard with 1A-1B A/S. You cannot install the above switches in the RH pole.

**Auxiliary Signal Lockout Switch**

**Field Installation  
Kits**

<u>3</u> <u>Pole</u>	<u>Code</u>	<u>Cat #</u>	<u>Styl e #</u>	<u>Cont act s</u>	<u>Mt g.</u>	<u>Conn</u>	<u>Lead</u> <u>Exi t</u>	<u>Locat i on</u>	<u>Cat #</u>	<u>Styl e #</u>
	B01	A1L5LA	1494D42G04	1 Mk 1 Brk	Left	Pig	Same Side	A1L5LPK	1494D42G04	
	B02	A1L5LB	1494D42G04	1 Mk 1 Brk	Left	Pig	Rear	A1L5LPK	1494D42G04	
	B03	A1L5LC	1494D42G04	1 Mk 1 Brk	Left	Pig	Opp. Side	A1L5LPK	1494D42G04	
	B04	A1L5LT	1494D46G04	1 Mk 1 Brk	Left	Term	Same Side	A1L5LTK	1494D46G04	
	B05	A1L5RA	1494D42G02	1 Mk 1 Brk	Right	Pig	Same Side	A1L5RPK	1494D42G02	
	B06	A1L5RB	1494D42G02	1 Mk 1 Brk	Right	Pig	Rear	A1L5RPK	1494D42G02	
	B07	A1L5RC	1494D42G02	1 Mk 1 Brk	Right	Pig	Opp Side	A1L5RPK	1494D42G02	
	B08	A1L5RT	1494D46G02	1 Mk 1 Brk	Right	Term	Same Side	A1L5RTK	1494D46G02	
	B09	A2L5LA	1494D42G05	2 Mk 2 Brk	Left	Pig	Same Side	A2L5LPK	1494D42G05	
	B10	A2L5LB	1494D42G05	2 Mk 2 Brk	Left	Pig	Rear	A2L5LPK	1494D42G05	
	B11	A2L5LT	1494D46G05	2 Mk 2 Brk	Left	Term	Same Side	A2L5LTK	1494D46G05	
	B12	A2L5RA	1494D42G03	2 Mk 2 Brk	Right	Pig	Same Side	A2L5RPK	1494D42G03	
	B13	A2L5RB	1494D42G03	2 MK 2Brk	Right	Pig	Rear	A2L5RPK	1494D42G03	
	B14	A2L5RT	1494D46G03	2 Mk 2 Brk	Right	Term	Same Side	A2L5RTK	1494D46G03	



**Rating Plugs for 800A Breakers**

<u>Code</u>	<u>Cat #</u>	<u>Style #</u>	<u>Description</u>
P10	8NES800T	6644C74G08	800A
P11	8NES700T	6644C74G09	700A
P12	8NES630T	6644C74G10	630A
P13	8NES600T	6644C74G11	600A
P14	8NES550T	6644C74G12	550A
P15	8NES500T	6644C74G13	500A
P16	8NES450T	6644C74G14	450A
P17	8NES400T	6644C74G15	400A
P18	A8NES800T1	6644C74G22	800A/600A/500A/400A Adjustable
P19	A8NES800T2	6644C74G23	800A/630A/500A/400A Adjustable
P28	ORPN80A400	7829C95G30	400A
P29	ORPN80A450	7829C95G31	450A
P30	ORPN80A500	7829C95G32	500A
P31	ORPN80A550	7829C95G33	550A
P32	ORPN80A600	7829C95G34	600A
P33	ORPN80A700	7829C95G36	700A
P34	ORPN80A800	7829C95G37	800A
P35	A16NES1600T1	6644C74G47	1600, 1250, 1000, 800
P36	A16NES1250T1	6644C74G21	1250, 1000, 800, 630

**Field Installation Kits**

**Shunt Trip**

<u>Code</u>	<u>Cat #</u>	<u>Style #</u>	<u>Vol t age</u>	<u>M t g</u>	<u>Conn</u>	<u>Lead</u>		
			<u>Rat i ng*</u>	<u>Pol</u>	<u>Type</u>	<u>Locat i on</u>	<u>Cat #</u>	<u>Styl e #</u>
S01	SNT5LA03	1494D40G02	9-24 VAC/DC	Left	Pig	Same Side	SNT5LP03K	1494D40G02
S02	SNT5LB03	1494D40G02	9-24 VAC/DC	Left	Pig	Rear (Std)	SNT5LP03K	1494D40G02
S03	SNT5LC03	1494D40G02	9-24 VAC/DC	Left	Pig	Opp. Side	SNT5LP03K	1494D40G02
S04	SNT5LT03	1494D45G02	9-24 VAC/DC	Left	Term	Same Side	SNT5LT03K	1494D45G02
S05	SNT5LA05	1494D40G03	48-60 VAC	Left	Pig	Same Side	SNT5LP05K	1494D40G03
S06	SNT5LB05	1494D40G03	48-60 VAC	Left	Pig	Rear (Std)	SNT5LP05K	1494D40G03
S07	SNT5LC05	1494D40G03	48-60 VAC	Left	Pig	Opp. Side	SNT5LP05K	1494D40G03
S08	SNT5LT05	1494D45G03	48-60 VAC	Left	Term	Same Size	SNT5LP05K	1494D45G03
S09	SNT5LA11	1494D40G04	110-127 VAC GF 208-240 VAC	Left	Pig	Same Size	SNT5LP11K	1494D40G04
S10	SNT5LB11	1494D40G04	" " "	Left	Pig	Rear (Std)	SNT5LP11K	1494D40G04
S11	SNT5LC11	1494D40G04	" " "	Left	Pig	Opp. Side	SNT5LP11K	1494D40G04
S12	SNT5LT11	1494D45G04	" " "	Left	Term	Same Side	SNT5LT11K	1494D45G04
S13	SNT5LA14	1494D40G06	380-440 VAC or 220-250 VDC	Left	Pig	Same Side	SNT5LP14K	1494D40G06
S14	SNT5LB14	1494D40G06	" " "	Left	Pig	Rear (Std)	SNT5LP14K	1494D40G06
S15	SNT5LC14	1494D40G06	" " "	Left	Pig	Opp. Side	SNT5LP14K	1494D40G06
S16	SNT5LT14	1494D45G06	" " "	Left	Term	Same Side	SNT5LT14K	1494D45G06
S17	SNT5LA18	1494D40G07	480-600 VAC	Left	Pig	Same Side	SNT5LP18K	1494D40G07
S18	SNT5LB18	1494D40G07	480-600 VAC	Left	Pig	Rear (Std)	SNT5LP18K	1494D40G07
S19	SNT5LC18	1494D40G07	480-600 VAC	Left	Pig	Opp. Side	SNT5LP18K	1494D40G07
S20	SNT5LT18	1494D45G07	480-600 VAC	Left	Term	Same Side	SNT5LT18K	1494D45G07
S21	SNT5LA23	1494D40G08	48-60 VDC	Left	Pig	Same Side	SNT5LP23K	1494D40G08
S22	SNT5LB23	1494D40G08	48-60 VDC	Left	Pig	Rear (Std)	SNT5LP23K	1494D40G08
S23	SNT5LC23	1494D40G08	48-60 VDC	Left	Pig	Opp. Side	SNT5LP23K	1494D40G08
S24	SNT5LT23	1494D45G08	48-60 VDC	Left	Term	Same Side	SNT5LT23K	1494D45G08

^ Standard mounting location - left. Pigtail leads exit rear of breaker.

\* AC Frequency = 50/60 Hz

**INTERNAL ACCESSORIES**

\* General Notes: See General Order for instructions.

- \* 01 - 36" leads on attachment
- \* 02 - SIS wire on attachment (black wire)
- \* 03 - Test, adjust, and mark Shunt Trip for 37.5 VDC (use 24 VDC Shunt Trip)
- \* 04 - Special lead wire supplied by customer
- \* 05 - 48" leads on attachment
- \* 06 - 9 point terminal block (Fayetteville)
- \* 07 - 6 point terminal block (Fayetteville)
- \* 09 - 6' leads on attachment
- \* 10 - XML - 125° C rated pigtail leads
- \* 12 - Test report -- three copies: file, packed with product and send to customer

**Termination Line & Load (NEC)**  
**(CU/AL Pressure Terminals are standard)**

<u>Metric</u>	<u>NEC</u>	<u>Terminal</u>	<u>AWG Wire</u>	<u>Wire</u>
<u>Cat #</u>	<u>Style #</u>	<u>Capacity</u>	<u>Style</u>	<u>Wire Type</u>
<u>Range mm<sup>2</sup></u>	<u>Capacity</u>	<u>Style</u>	<u>Wire Type</u>	<u>Range</u>
<b>CU/AL Pressure Terminals</b>				
TA700NB1	672B657G01	260-760(CU)	AL	AL/CU (2) #1-500 MCM
	200-620(AL)			
TA1000NB1	672B655G02	600-1140(CU)	AL	AL/CU (3) 3/0-400 MCM
	1140-1425(CU)			
→ TA1201NB1	180C045G01	930-1155(AL)	AL	AL/CU (3) 500-750 MCM
TA1200NB1	180C046G01	920-1520(CU)	AL	AL/CU (4) 4/0-500 MCM
	720-1240(AL)			

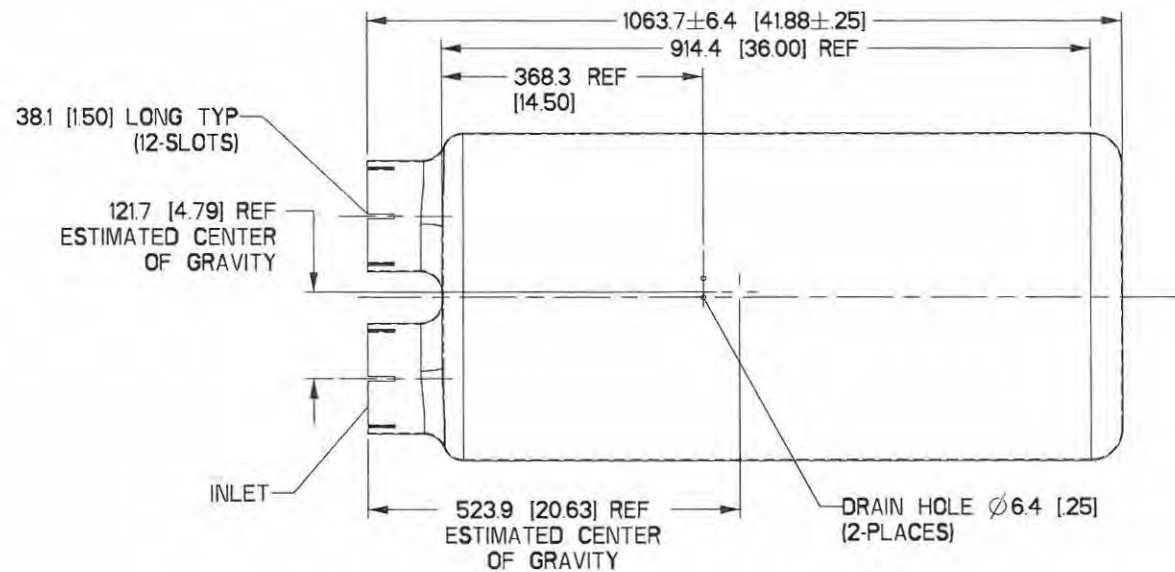
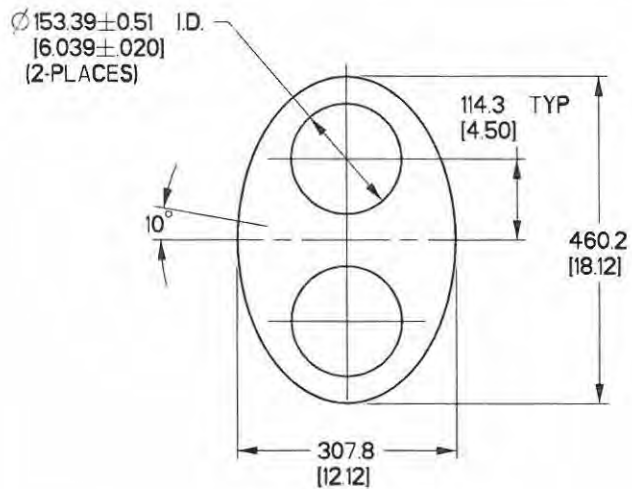
**Optional Copper Pressure-Type Terminals = C - Line & Load Terminals**

T700NB1	672B762G01	700	Copper	CU (2) 2/0-500 MCM
T1000NB1	672B654G01	1000	Copper	CU (3) 3/0-500 MCM
T1200NB3	6644C58G03	1200	Copper	CU (4) 3/0-400 MCM
T1200NB3M	6644C58G04	1200	Copper	CU (4) 3/0-400 MCM
T1200NB1CW		1200	Copper	CU

Standard Terminals are CU/AL and are supplied for both Line and Load to trip amps. No code required.

**Termination Line & Load (IEC)**  
 CU/AL pressure terminals are standard.)

<u>(MM<sup>2</sup>)</u>	<u>Cat #</u>	<u>Style #</u>	<u>IEC (2) (3)</u>	<u>Terminal</u>	<u>Wire</u>	<u>Metric (1)</u>
<u>(MM<sup>2</sup>)</u>	<u>Cat #</u>	<u>Style #</u>	<u>Capacity</u>	<u>Style</u>	<u>Type</u>	<u>Wire Size</u>
<b>CU/AL Pressure Terminals</b>						
	TA700NB1	672B657G01	260-800(CU)	AL	AL/CU	(2) 50-240
			200-400**(AL)			
	TA1000NB1	672B655G02	600-900(CU)	AL	AL/CU	(3) 95-185
			450-600**(AL)			
	TA1201NB1	180C045G01	1200**(CU)	AL	AL/CU	(3) 300*
			** (AL)			
	TA1200NB1	180C046G01	1000-1600(CU)	AL	AL/CU	(4) 120-240
			700-800**(AL)			
	T700NB1	672B762G01	350-800(CU)	CU	CU	(2) 70-240
	T1000NB1	672B654G01	600-1200(CU)	CU	CU	(3) 600-1200
	T1200NB3	6644C58G03	800-1200(CU)	CU	CU	(4) 95-185
	T1200NB3M	6644C58G04	800-1200(CU)	CU	CU	(4) 95-185
	T1200NB1CW			CU	CU	



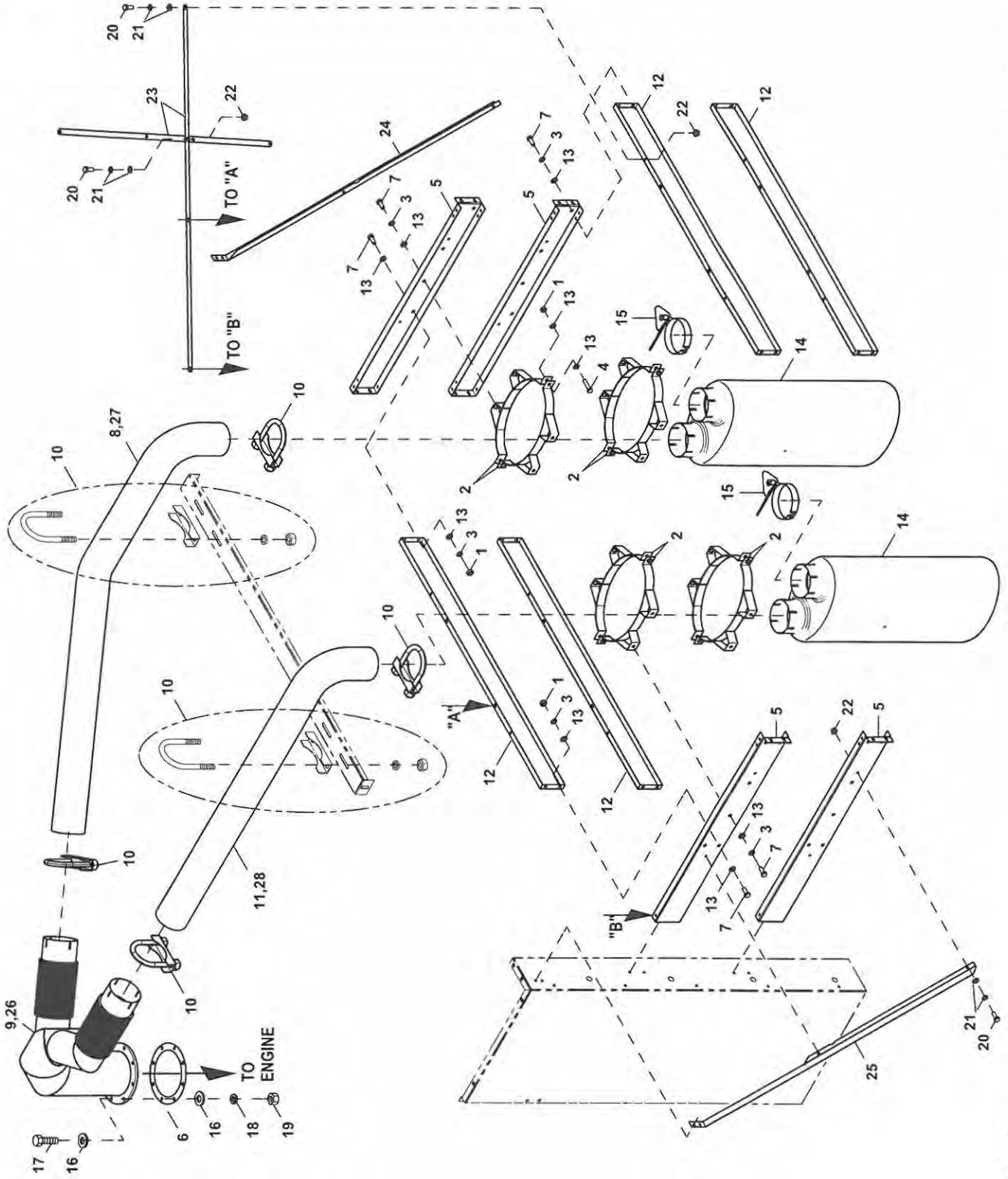
**NOTES:**

- 1) APPROXIMATE WEIGHT = 64 LBS.
- 2) INSERTION LOSS = 20-25 dBA
- 3) MATERIAL: ALUMINIZED STEEL

DIMENSIONS: mm [IN]



# GROUP F



**EXPLODED VIEW: EV EXHAUST SYSTEM D18L G22**

**DRAWING #: 0J8005**

**GROUP F**

ITEM	PART#	QTY.	DESCRIPTION
1	045772	32	NUT HEX M10-1.5 G8 YEL CHR
2	0H8036	8	BRACKET 6IN IN/OUT MUFFLER G12
3	046526	40	WASHER LOCK M10
4	064416	8	SCREW HHC M10-1.5 X 45 C8.8 FT
(1)5	0J80180ST0R	4	BRACKET, MUFFLER SIDES
6	0J9199	REF	GASKET 8" EXHAUST
7	049814	40	SCREW HHC M10-1.5 X 25 C8.8
8	0J8270	1	ELBOW 90DEG 6.0"OD G22
9	0J9181	1	EXHAUST WYE 18.1L G22
10	0H8039	6	BOLT U 3/8-16 X 6.0 W/SADDLE
11	0J8270A	1	ELBOW 90DEG 6.0"OD G22
(1)12	0J8018AST0R	4	SUPPORT MUFFLER CENTER
13	022131	80	WASHER FLAT 3/8-M10 ZINC
14	0H8011	2	MUFFLER 6IN INLET & OUTLET
15	0H6667	2	RAIN CAP 6"
16	088775	16	WASHER FLAT 3/8 SS
17	0D2611	8	SCREW HHC 3/8-16 X 1-3/4 SS
18	085917	8	WASHER LOCK 3/8 SS
19	085918	8	NUT HEX 3/8-16 SSTL
20	043107	22	SCREW HHC M8-1.25 X 25 C8.8
21	022145	44	WASHER FLAT 5/16-M8 ZINC
22	052858	22	NUT TOP LOCK FL M8-1.25
(1)23	0K12180ST0R	4	BRACE, SEISMIC
(1)24	0K18950ST0R	1	BRACE FRONT DUCT LH
(1)25	0K18960ST0R	1	BRACE FRONT DUCT RH
26	0K1425	1	EXHAUST BLANKET WYE PIPE 18.1L
27	0K1427	1	EXHAUST BLANKET LH 18.1L
28	0K1426	1	EXHAUST BLANKET RH 18.1L

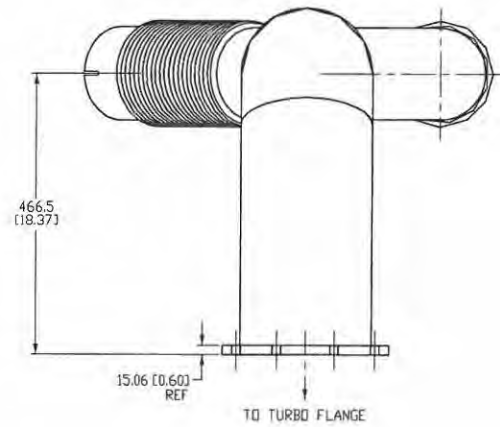
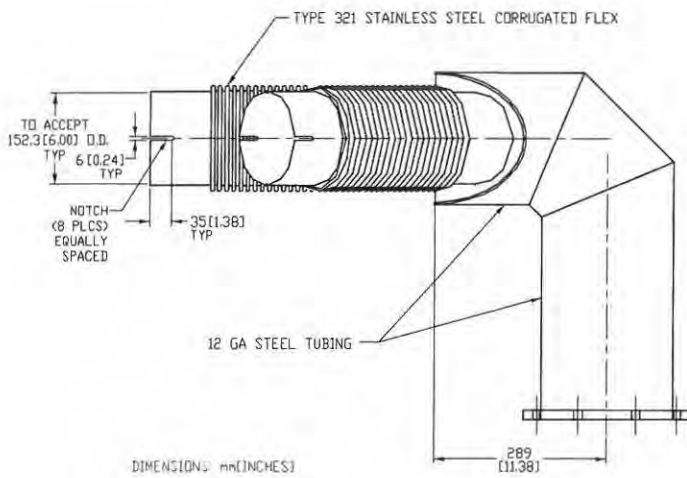
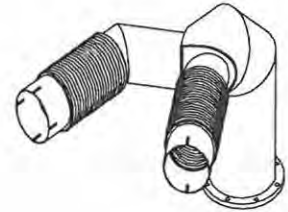
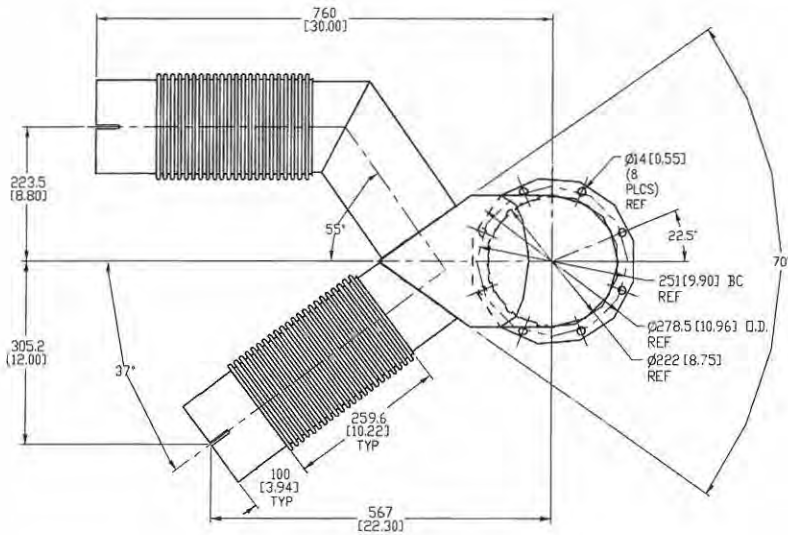
NOTES(UNLESS OTHERWISE SPECIFIED):

(1) SHEET METAL PARTS LISTED IN THE BOM TABLE ARE REPRESENTING GENERIC PARTS (NO COLOR)

- MANUFACTURING: FOR CORRECT MATERIAL AND COLOR REFER TO AS400 BOM.
- CUSTOMER: WHEN ORDERING REPLACEMENT PARTS ENTER BASE NUMBER (FIRST 6 DIGITS ONLY) IN THE SYSTEM FOR CORRECT MATERIAL AND COLOR (FOR REFERENCE SEE GUIDELINE 0H7169).

**EXHAUST OPTIONS**

**EXHAUST WYE FLEX, 18.1L ENCLOSED SET**



FINISH: HIGH TEMPERATURE FLAT BLACK





# Stationary Emergency Generator Warranty



## GENERAC POWER SYSTEMS STANDARD TWO-YEAR LIMITED WARRANTY FOR STATIONARY EMERGENCY POWER SYSTEMS

**NOTE: ALL UNITS MUST HAVE A START-UP INSPECTION PERFORMED BY AN AUTHORIZED GENERAC DEALER.**

For a period of two (2) years or two thousand (2,000) hours of operation from the date of start-up, which ever occurs first, Generac Power Systems, Inc. will, at its option, repair or replace any part(s) which, upon examination, inspection, and testing by Generac Power Systems or an Authorized/Certified Generac Power Systems Dealer, or branch thereof, is found to be defective under normal use and service, in accordance with the warranty schedule set forth below. Any equipment that the purchaser/owner claims to be defective must be examined by the nearest Authorized/Certified Generac Power Systems Dealer, or branch thereof. This warranty applies only to Generac Power Systems Generators used in "Stationary Emergency" applications, as Generac Power Systems, Inc. has defined Stationary Emergency, provided said generator has been initially installed and/or inspected on-site by an Authorized/Certified Generac Power Systems Dealer, or branch thereof. Scheduled maintenance, as outlined by the generator owner's manual, must be performed by an Authorized/Certified Generac Power Systems Dealer, or branch thereof. This will verify service has been performed on the unit throughout the warranty period. This warranty is limited to and available only on Liquid-cooled units.

### WARRANTY SCHEDULE

YEAR ONE — One hundred percent (100%) coverage on mileage, labor, and parts listed.

• ALL COMPONENTS — ENGINE, ALTERNATOR, AND TRANSFER SWITCH

YEAR TWO — One hundred percent (100%) coverage on parts listed.

• ALL COMPONENTS — ENGINE, ALTERNATOR, AND TRANSFER SWITCH PARTS ONLY

### Gearbox Equipped Units - Limited Gearbox Coverage

YEARS ONE THROUGH FIVE — Parts and labor coverage on gearbox and components.

YEARS SIX THROUGH TEN — Parts only coverage on gearbox and components.

### Guidelines:

- Warranty only applies to permanently wired and mounted units.
- Any and all warranty repairs and/or concerns, must be performed and/or addressed by an Authorized/Certified Generac Power Systems Dealer, or branch thereof.
- A Generac Power Systems, Inc. Transfer Switch is highly recommended to be used in conjunction with the generator set. If a Non-Generac Power Systems, Inc. Transfer Switch is substituted for use and directly causes damage to the generator set, no warranty coverage shall apply.
- All warranty expense allowances are subject to the conditions defined in Generac Power Systems Warranty, Policies, Procedures and Flat Rate Manual.
- Units that have been resold are not covered under the Generac Power Systems Warranty, as this Warranty is not transferable except with change of ownership of original structure.
- Unit enclosure is only covered during the first year of the warranty provision.
- Use of Non-Generac replacement part(s) will void the warranty in its entirety.
- Engine coolant heaters (block-heaters), heater controls and circulating pumps are only covered during the first year of the warranty provision.

### THIS WARRANTY SHALL NOT APPLY TO THE FOLLOWING:

1. Any unit built/manufactured prior to July 1, 2004.
2. Costs of normal maintenance (i.e. tune-ups, associated part(s), adjustments, loose/leaking clamps, installation and start-up).
3. Any failure caused by contaminated fuels, oils, coolants/antifreeze or lack of proper fuels, oils or coolants/antifreeze.
4. Units sold, rated or used for "Prime Power", "Trailer Mounted" or "Rental Unit" applications as Generac Power Systems has defined Prime Power, Trailer Mounted or Rental Unit. Contact a Generac Power Systems Distributor for Prime Power, Trailer Mounted or Rental Unit definition.
5. Failures caused by any act of God and other force majeure events beyond the manufactures control.
6. Products that are modified or altered in a manner not authorized by Generac Power Systems in writing.
7. Failures due, but not limited to, normal wear and tear, accident, misuse, abuse, negligence, or improper installation or sizing.
8. Any incidental, consequential or indirect damages caused by defects in materials or workmanship, or any delay in repair or replacement of the defective part(s).
9. Damage related to rodent and/or insect infestation.
10. Failure due to misapplication, misrepresentation, or bi-fuel conversion.
11. Telephone, facsimile, cellular phone, satellite, Internet, or any other communication expenses.
12. Rental equipment used while warranty repairs are being performed (i.e. rental generators, cranes, etc.).
13. Overtime, holiday, or emergency labor.
14. Modes of transportation deemed abnormal (refer to Generac Power Systems Warranty, Policies, Procedures and Flat Rate Manual).
15. Steel enclosures that are rusting due to improper installation, location in a harsh or saltwater environment or scratched where integrity of paint applied is compromised.
16. Any and all expenses incurred investigating performance complaints unless defective Generac materials and/or workmanship were the direct cause of the problem.
17. Starting batteries, fuses, light bulbs, engine fluids, and overnight freight cost for replacement part(s).

THIS WARRANTY IS IN PLACE OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, SPECIFICALLY, GENERAC POWER SYSTEMS MAKES NO OTHER WARRANTIES AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Any implied warranties which are allowed by law, shall be limited in duration to the terms of the express warranty provided herein. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to purchaser/owner.

GENERAC POWER SYSTEMS ONLY LIABILITY SHALL BE THE REPAIR OR REPLACEMENT OF PART(S) AS STATED ABOVE. IN NO EVENT SHALL GENERAC POWER SYSTEMS BE LIABLE FOR ANY INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF SUCH DAMAGES ARE A DIRECT RESULT OF GENERAC POWER SYSTEMS, INC. NEGLIGENCE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to purchaser/owner. Purchaser/owner agrees to make no claims against Generac Power Systems, Inc. based on negligence. This warranty gives purchaser/owner specific legal rights. Purchaser/owner also may have other rights that vary from state to state.

**Generac Power Systems, Inc. · P.O. Box 8 · Waukesha, WI 53187**

**Ph: [262] 544-4811 · Fax: [262] 544-4851**

**1-888-GENERAC [1-888-436-3722]**

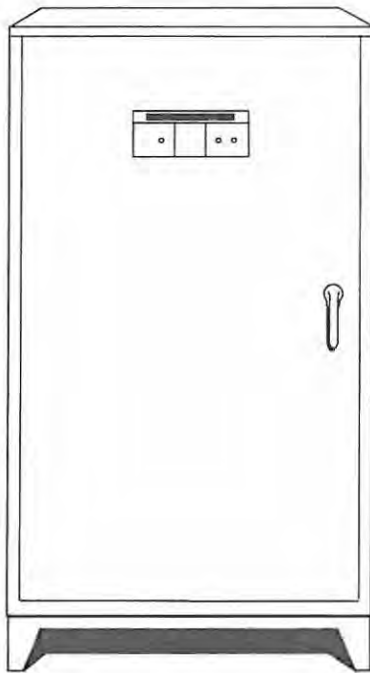
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Printed in U.S.A.

**600 - 1000 Amps,  
600 VAC**

## Automatic Transfer Switches

**Type WN Load Shed Capable**



- Standard time delay neutral will reduce switchover problems.
- Logic control with inphase monitor regulates switch functions and allows adjustable switch settings with LED indicators.
- Control switches located on the front of the door for ease of operation.
- All switches are UL 1008 listed and CSA certified.
- Electrically-operated, mechanically-held and interlocked main contacts with break before make design for fast, positive connections.
- Rated for all classes of load, 100% equipment rated, both inductive and resistive with no derations.
- 3 and 4 Pole 600 VAC contactors.
- 160 millisecond transfer time.

### **Standard Features**

- Electrically operated and mechanically held
- Weekly exerciser
- Main contacts are silver alloy to resist welding and sticking
- Conformal coating protects all printed circuit boards
- Indicating LED's for switch position—Normal, Emergency, and Standby Operating
- NEMA 12 enclosure with hinged door and key-locking handle
- Three-position switch—Fast Test, Auto, Normal Test
- Arc chutes on main contacts

### **Optional Accessories**

- NEMA 3R, 4 & 4X enclosure
- Exterior AC meter package
- 4-pole design for neutral isolation
- Remote automatic start-stop control circuit
- Signal before transfer contacts
- Return to normal timer bypass
- "Trip to Neutral" with mechanical latch for load shedding or sequencing applications
- "Permissive" switch for MPS applications to prevent transfer until adequate power capacity is obtained
- Single or double sets of auxiliary contacts
- Preferred source selector switch



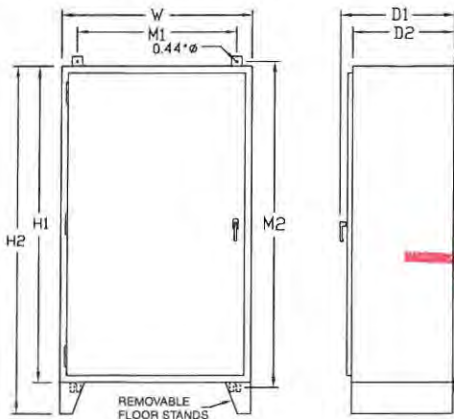
## GTS Control Systems

LOGIC CONTROL w / Inphase Monitor	
Utility Voltage	
Dropout .....	75-95% (Adj.)
Pickup .....	85-95% (Adj.)
Line Interrupt .....	0.1-10 Sec. (Adj.)
Engine Minimum Run .....	5-30 Min. (Adj.)
Engine Warmup .....	5 Sec.-3 Min. (Adj.)
Return to Utility .....	1-30 Min. (Adj.)
Engine Cooldown .....	1-30 Min. (Adj.)
Standby Voltage .....	85-95% (Adj.)
Standby Frequency .....	80-90% (Adj.)
Time Delay Neutral .....	0.1-10 Sec. (Adj.)
Transfer on Exercise .....	On/Off Switch
Warmup Timer Bypass .....	On/Off Switch
Time Delay Neutral Bypass .....	On/Off Switch
Inphase Monitor .....	On/Off Switch

### Withstand Current - 600 Volt GTS Series

GTS Rated Amps	600	800	1000
<b>FUSE PROTECTED</b>			
Maximum RMS Symmetrical Fault Current – Amps	200,000	200,000	200,000
Maximum Fuse Size – Amps	800	1200	1600
Fuse Class	L,T	L	L
<b>CIRCUIT BREAKER PROTECTED (See separate sheet for specific circuit breakers)</b>			
Maximum RMS Symmetrical Fault Current – Amps	42,000	65,000	65,000
Protective Device Continuous Rating (Max) – Amps	750	1250	1250

- Tested in accordance with the withstand and closing requirements of UL 1008 and CSA Standards
- Current ratings are listed @ 480 VAC



### Unit Dimensions

GTS Rated Amps	Enclosure Height		Enclosure Width	Wall Mount Bolt Pattern		Enclosure Depth		Weight (lbs.)
	H1	H2	W	M1	M2	D1	D2	
600	60	66	36	30	62	23.5	20	650
800	60	66	36	30	62	23.5	20	700
1000	60	66	36	30	62	23.5	20	700

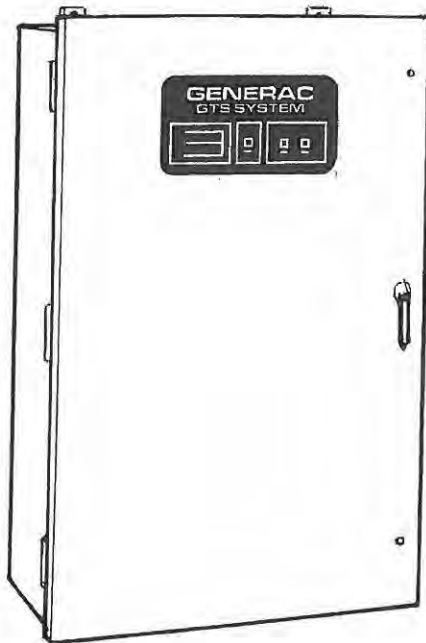
All dimensions in inches.

### Terminal Lug Wire Ranges

GTS Rated Amps	Contactor Terminals		Neutral Bar		Ground Lug (1 Provided)
	# Lugs per Pole	Lug Wire Range	# Lugs	Lug Wire Range	Lug Wire Range
600	2	500MCM – 1 AWG	8	750MCM – 1/0 AWG	350MCM – 6 AWG
800	4	500MCM – 4/0 AWG	12	750MCM – 1/0 AWG	350MCM – 6 AWG
1000	4	500MCM – 4/0 AWG	12	750MCM – 1/0 AWG	350MCM – 6 AWG

100 - 400 Amps,  
600 VAC

## Automatic Transfer Switches



- Standard time delay neutral will reduce switchover problems.
- Logic control with inphase monitor regulates switch functions and allows adjustable switch settings with LED indicators.
- Control switches located on the front of the door for ease of operation.
- All switches are UL 1008 listed and CSA certified.
- Electrically-operated, mechanically-held and interlocked main contacts with break before make design for fast, positive connections.
- Rated for all classes of load, 100% equipment rated, both inductive and resistive with no derations.
- 2, 3, and 4 Pole 600 VAC contactors.
- 160 millisecond transfer time.

### **Standard Features**

- Single coil design, electrically operated and mechanically held
- Programmable exerciser
- Main contacts are silver alloy to resist welding and sticking
- Conformal coating protects all printed circuit boards
- Indicating LED's for switch position—Normal, Emergency, and Standby Operating
- NEMA 1 enclosure with hinged door and key-locking handle
- Three-position switch—Fast Test, Auto, Normal Test
- Arc chutes on main contacts

### **Optional Accessories**

- NEMA 12 enclosure
- NEMA 3R enclosure
- NEMA 4 & 4X enclosure
- Exterior AC meter package
- Controls accessible through door in door design on NEMA type 3R and 4 enclosures – key lock provided on access door
- 4-pole design for neutral isolation
- Single or double sets of auxiliary contacts
- Preferred source selector switch
- Manual 3 position selector switch
- Remote automatic control circuit
- Signal before transfer contacts
- Return to normal timer bypass



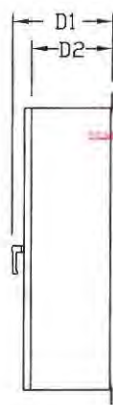
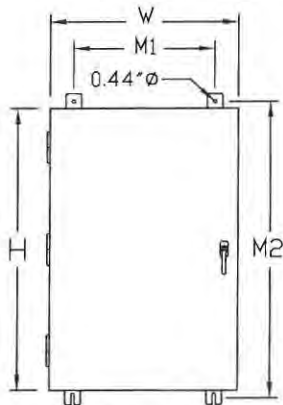
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LOGIC CONTROL w / Inphase Monitor	
Utility Voltage	
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Pickup .....	85-95% (Adj.)
Line Interrupt .....	0.1-10 Sec. (Adj.)
Engine Minimum Run .....	5-30 Min. (Adj.)
Engine Warmup .....	5 Sec.-3 Min. (Adj.)
Return to Utility .....	1-30 Min. (Adj.)
Engine Cooldown .....	1-30 Min. (Adj.)
Standby Voltage .....	85-95% (Adj.)
Standby Frequency .....	80-90% (Adj.)
Time Delay Neutral .....	0.1-10 Sec. (Adj.)
Transfer on Exercise .....	On/Off Switch
Warmup Timer Bypass .....	On/Off Switch
Time Delay Neutral Bypass .....	On/Off Switch
Inphase Monitor .....	On/Off Switch

## Withstand Current - 600 Volt GTS Series

GTS Rated Amps	100	150	200	300	400
<b>FUSE PROTECTED</b>					
Maximum RMS Symmetrical Fault Current – Amps	200,000	200,000	200,000	200,000	200,000
Maximum Fuse Size – Amps	200	400	400	600	600
Fuse Class	J,T	J,T	J,T	J,T	J,T
<b>CIRCUIT BREAKER PROTECTED (See separate sheet for specific circuit breakers)</b>					
Maximum RMS Symmetrical Fault Current – Amps	14,000	25,000	25,000	35,000	35,000
Protective Device Continuous Rating (Max) – Amps	150	300	300	600	600

- Tested in accordance with the withstand and closing requirements of UL 1008 and CSA Standards
- Current ratings are listed @ 480 VAC



## Unit Dimensions

GTS Rated Amps	Voltage	Enclosure Height	Enclosure Width	Wall Mount Bolt Pattern		Enclosure Depth		Weight (lbs.)
		H	W	M1	M2	D1	D2	
100	All	36	24	18	37.5	12.7	10	180
150-200	120/240	36	24	18	37.5	12.7	10	185
150-200	120/208	36	24	18	37.5	12.7	10	185
150-200	277/480	48*	30*	24	49.5	14.8	12	265
150-200	600	48*	30*	24	49.5	14.8	12	265
300-400	120/240	36	24	18	37.5	12.7	10	245
300-400	120/208	36	24	18	37.5	12.7	10	245
300-400	277/480	48*	30*	24	49.5	14.8	12	325
300-400	600	48*	30*	24	49.5	14.8	12	325

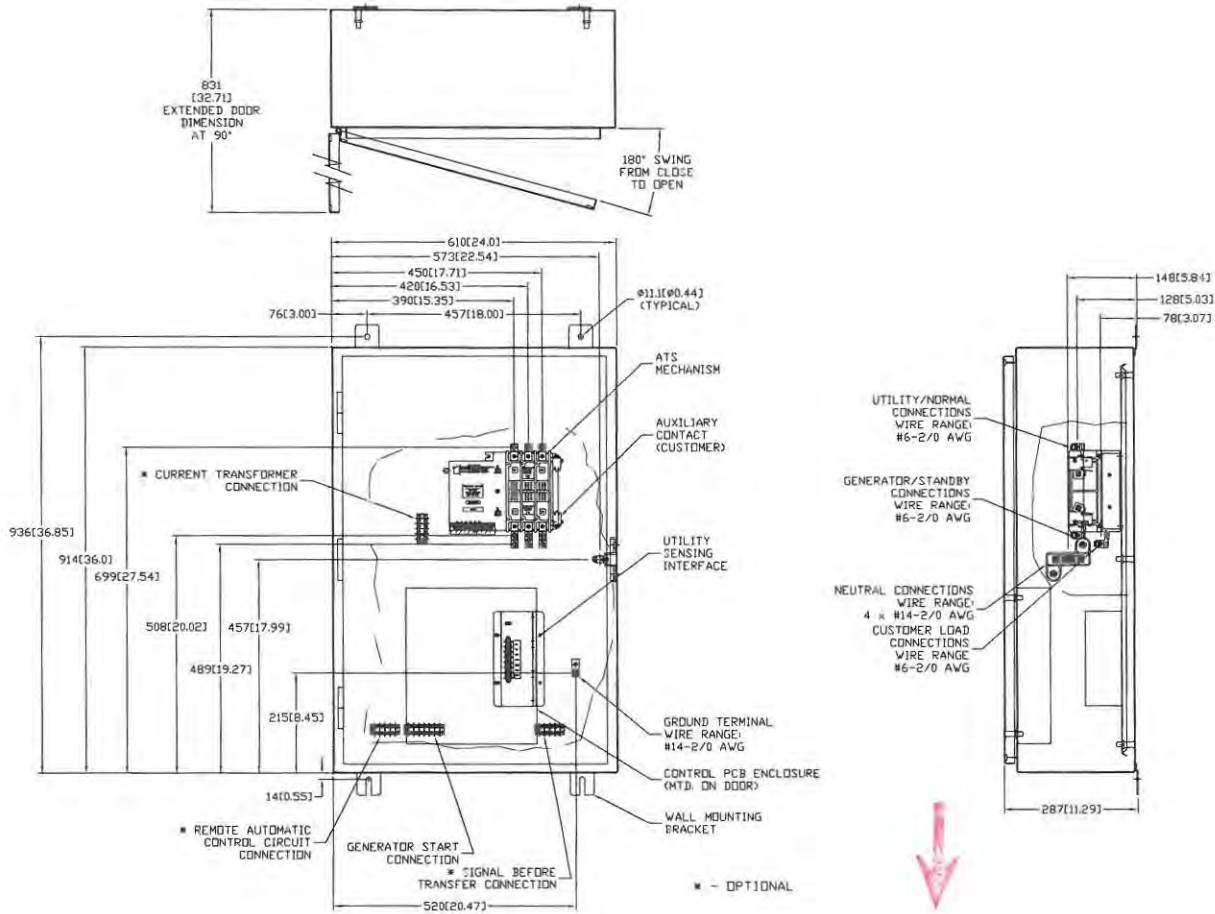
\* Note: On NEMA 1 enclosures only, door overlaps enclosure – door dimensions are 48.8 H X 30.8 W. All dimensions in inches.

## Terminal Lug Wire Ranges

GTS RATED AMPS	CONTACTOR TERMINALS (1 LUG PER POLE) LUG WIRE RANGE	NEUTRAL BAR*		GROUND LUG (1 PROVIDED) LUG WIRE RANGE
		# LUGS	LUG WIRE RANGE	
100	2/0 – 14 AWG	4	2/0 – 14 AWG	2/0 – 14 AWG
150	400MCM – 4 AWG	4	350MCM – 6 AWG	350MCM – 6 AWG
200	400MCM – 4 AWG	4	350MCM – 6 AWG	350MCM – 6 AWG
300	600MCM – 4 AWG or 2 – [250MCM – 1/0 AWG]	4	600MCM – 4 AWG [250MCM – 1/0 AWG]**	350MCM – 6 AWG 350MCM – 6 AWG
400	600MCM – 4 AWG or 2 – [250MCM – 1/0 AWG]	4	600MCM – 4 AWG [250MCM – 1/0 AWG]**	350MCM – 6 AWG

\* Not included in GTS with switched neutral. \*\* Allowable wire range in brackets is for 2 wires per lug.

0E6711



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GTS - 100 AMP  
COMPONENT LAYOUT

**GENERAC POWER SYSTEMS**  
Waukesha  
P.O. BOX 8  
WAUKESHA, WIS. 53187

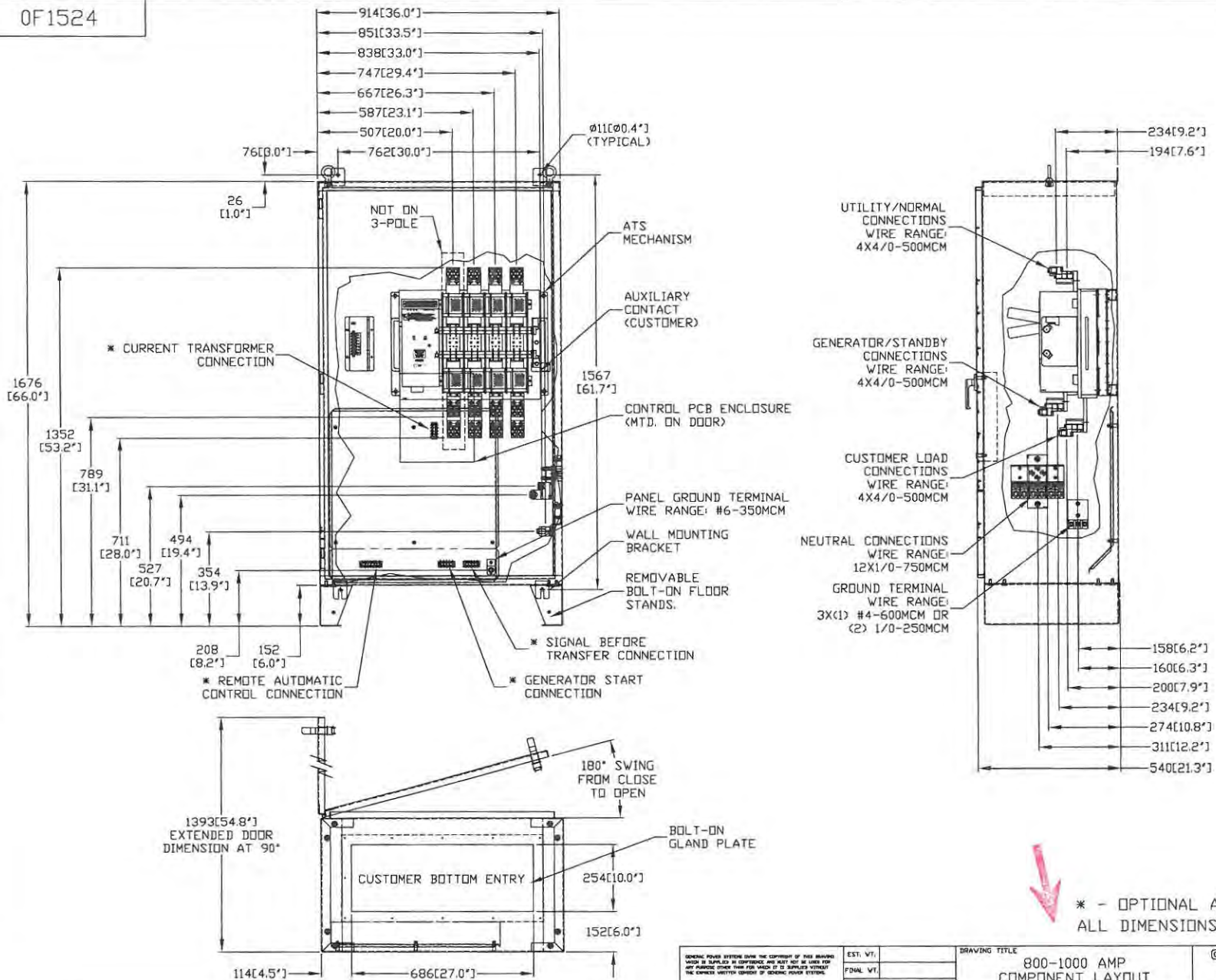
INSTALLATION DRAWING

ISSUE DATE: 1/15/04

FILE NAME	SIZE
SCALE NTS	FIRST USE
DWG NO. 0E6711	REV *



OF1524



\* - OPTIONAL ACCESSORIES  
ALL DIMENSIONS ARE ±3mm/±.125"

EST. VT.		DRAWING TITLE		GENRAC POWER SYSTEMS	
FDNL VT.		800-1000 AMP COMPONENT LAYOUT		Waukesha	
DO NOT SCALE		MATERIAL		P.O. BOX B WAUKESHA, WIS 53187	
ALL DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994		N/A		FILE NAME OF1524-A.DWG	
UNLESS OTHERWISE SPECIFIED:		DATE		SCALE 1 = 10	
ALL XX DIM -- 0.4 MM		DATE		FIRST USE GTS	
ALL XX DIM -- 0.4 MM		DATE		DWG NO.	
ALL XX DIM -- 0.4 MM		DATE		REV	
ALL ANGLES -- 15°		RELEASED FOR BY		DATE	
		PRODUCTION		4/28/04	
				OF1524	

1	1	2	1	3	1	4	1	5	1	6
---	---	---	---	---	---	---	---	---	---	---

- Notes:
- CONTROL PANEL, (OPTIONAL BATTERY CHARGER INSIDE).
  - 120V, 20A GFCI & 250V, 15A OUTLET (OPTIONAL).
  - CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN THE LOW VOLTAGE CONNECTION BOX (USE LOW VOLTAGE STUB-UP AREA).
  - BATTERY (24 VOLT NEGATIVE GROUND SYSTEM).
  - MAIN LINE CIRCUIT BREAKER (MLCB), AC LOAD LEADS.
  - CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.

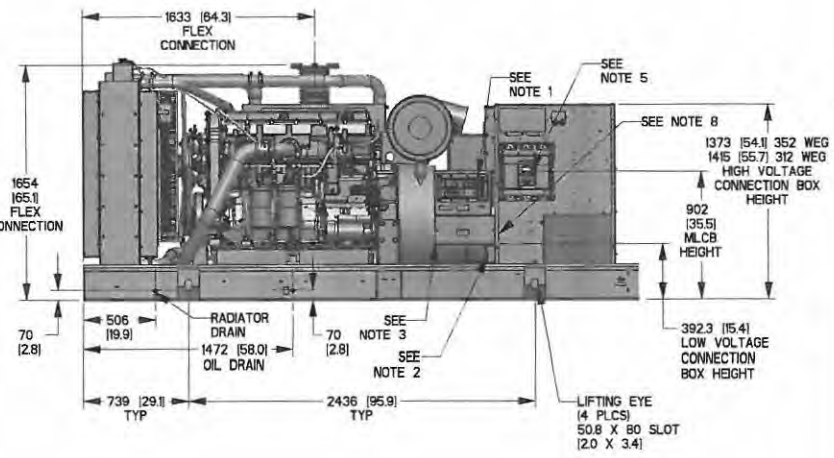
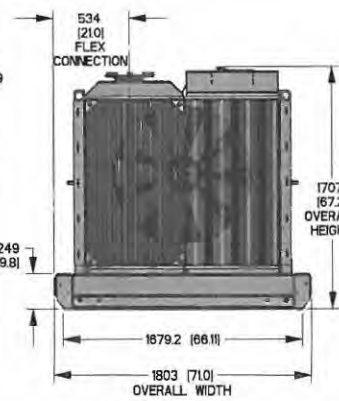
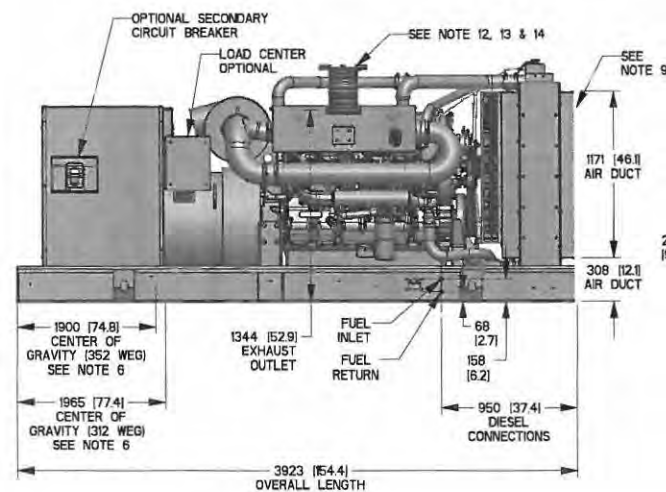
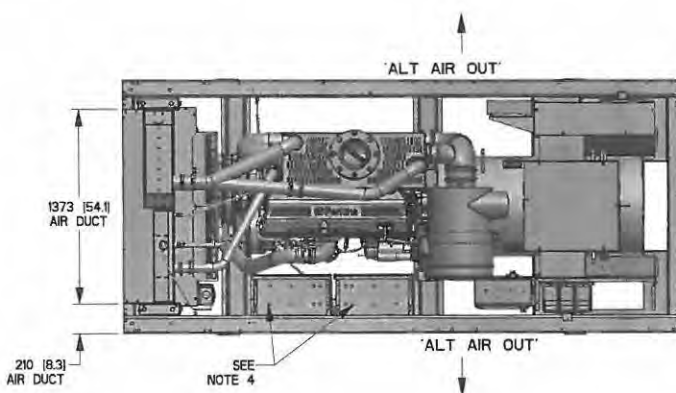
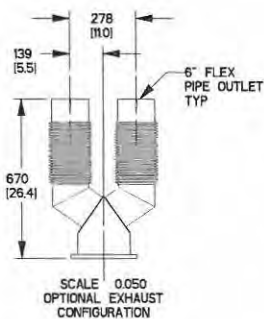
7. ENGINE SERVICE CONNECTIONS:
- INLET DIESEL = 1/2" FEMALE NPT COUPLING
  - RETURN DIESEL = 1/2" FEMALE NPT COUPLING
  - OIL DRAIN = 1/2" FEMALE NPT COUPLING
  - RADIATOR DRAIN = 1/2" FEMALE NPT COUPLING
  - FLEX PIPE OUTLET = 8" I.D. ANTI FLANGE
  - EXHAUST OUTLET = 8" I.D. SAE FLANGE
- \*\*\*\*\* SEE GENERATOR SIZING GUIDE FOR FUEL PIPE SIZING TO SUIT APPLICATION \*\*\*\*\*

- AUXILIARY AC CONNECTION FOR UNIT OPTIONS ARE LOCATED IN HIGH VOLTAGE CONNECTION BOX, UNLESS AN OPTIONAL LOAD CENTER IS INSTALLED.
- EXHAUST PIPES MAY BE ROTATED TO ALLOW MUFFLER TO POINT OUT TO THE RIGHT OR LEFT SIDE OF GENERATOR. (MAY NOT APPLY TO ALL UNITS).
- GENERATOR SET MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED.
- BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INFESTION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
- EXHAUST SYSTEM MAXIMUM BACK PRESSURE = 27.7 INCHES H2O.
- INSTALL EXHAUST BLANKETS ALONG THIS LINE.
- CONNECT THE OPEN SET EXHAUST PER NFPA 37.

ADDITIONAL NOTES: EXHAUST PIPING MUST BE SUPPORTED BEYOND FLEX CONNECTION.

WEIGHT DATA:

OPEN SET:  
 WEG 312 ALTERNATOR - 3585 KG (10152 LB)  
 WEG 352 ALTERNATOR - 5080 KG (11200 LB)  
 SEE NOTE 6.



DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

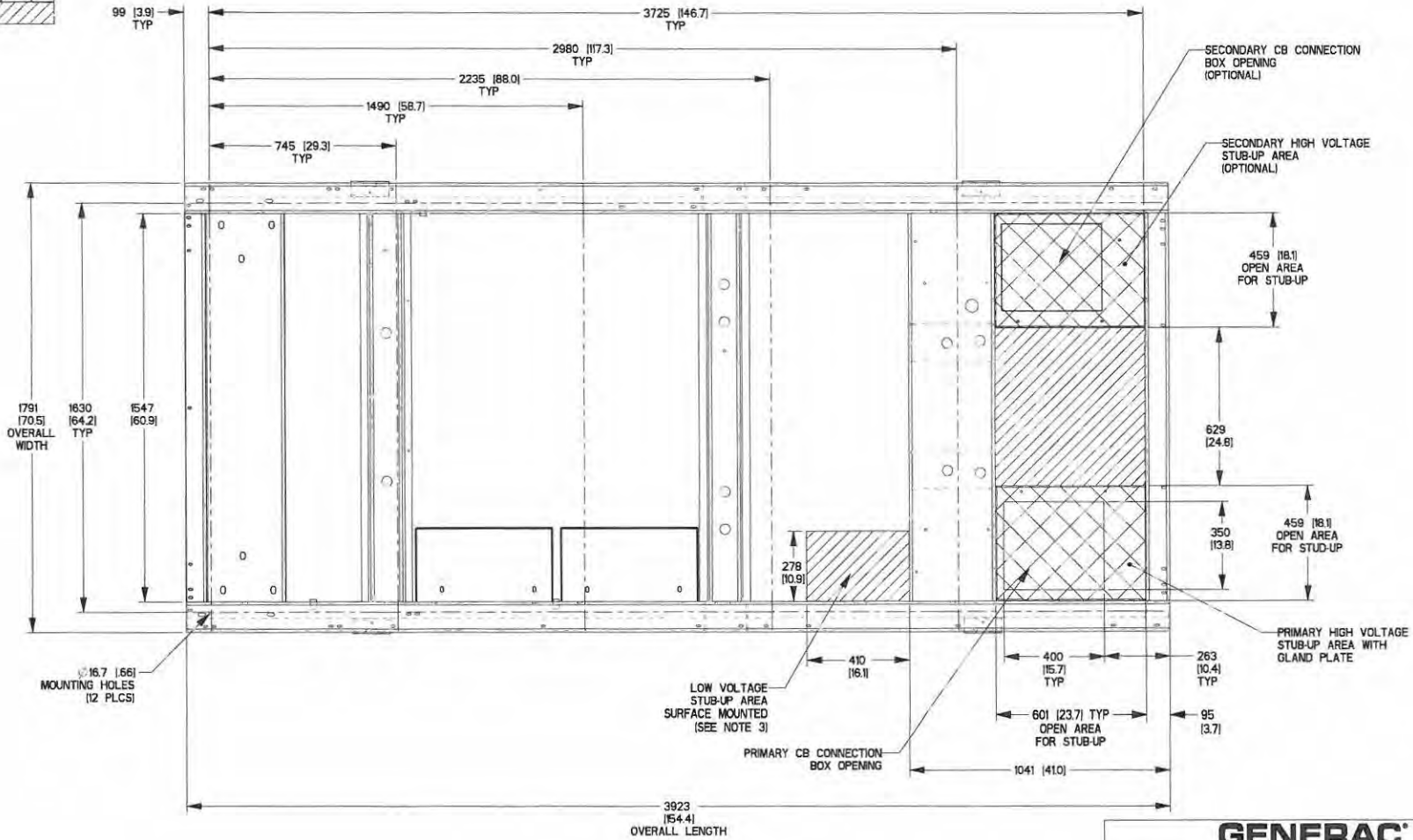
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ELECTRONICALLY APPROVED  
 INSIG WINDMILL

<b>GENERAC</b>			
TITLE OPEN SET DIESEL SD600			
ISSUE DATE: 09/17/12			
SIZE B	CAGE NO	DWG NO OK1501	REV D
SCALE 0.030	WT-YG	SHEET 1 of 2	

RECOMMENDED ELECTRICAL STUB-UP	
HIGH VOLTAGE STUB-UP	
AC LOAD LEAD CONDUIT FOR PERMANENT MAGNET EXCITATION CONNECTION BOX	
LOW VOLTAGE STUB-UP	



DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

# INSTALLATION DRAWING

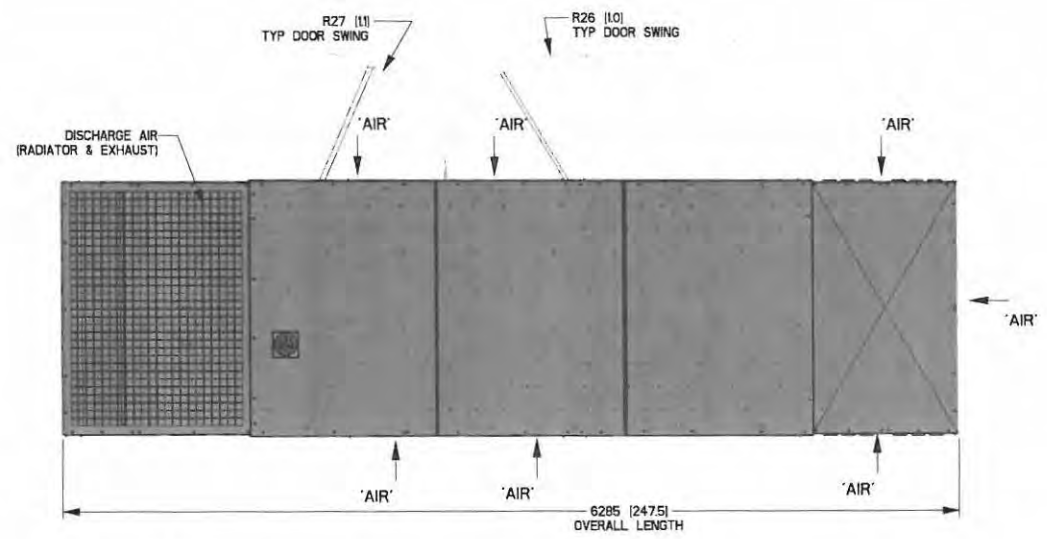
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ELECTRONICALLY APPROVED  
INSIDE WIN/CHILL

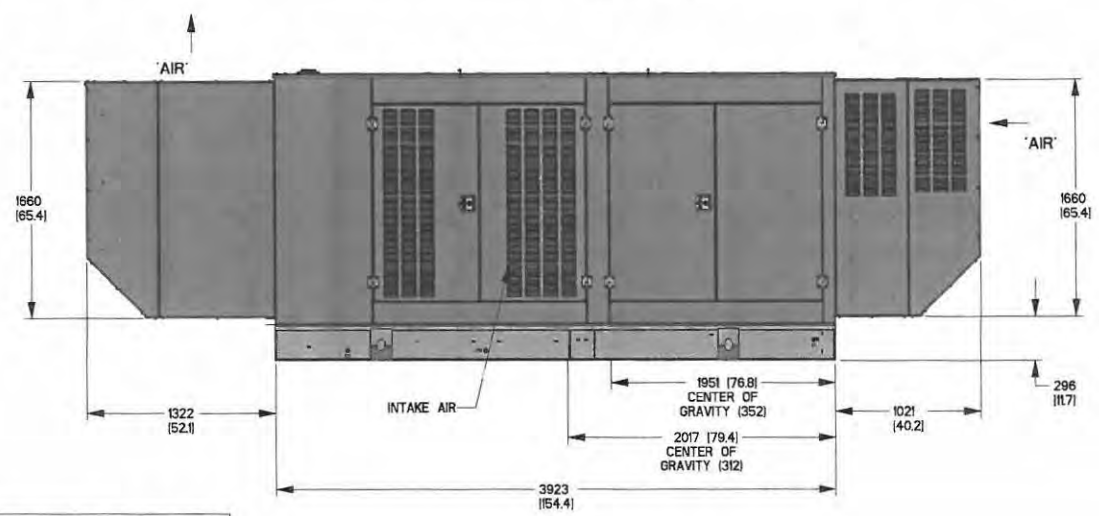
**GENERAC**

TITLE  
STUB-UP VIEW DIS. IL SD600

ISSUE DATE: 03/20/12			
SIZE B	CAGE NO	DWG NO 0K1501	REV D
SCALE 0.060	WT-KG	SHEET 2 of 2	



**WEIGHT DATA:**  
 ENCLOSURE AS SHOWN:  
 STEEL ENCLOSURE: 1262 KG (2782 LBS)  
 ALUMINUM ENCLOSURE: 586 KG (1291 LBS)  
 FOR OPENSET WEIGHT AND STUB-UP DETAILS SEE:  
 OK1501 SD600  
 OK1510 MD600  
 SHIPPING SKID HEIGHT: 170 MM (6.7)



<b>ENERAC</b>			
TITLE LIA ENC D18.1LSD/MD600			
ISSUE DATE: 09/18/12		REV A	
SIZE B	CAGE NO	DWG NO OK1501B	REV A
SCALE 0.030	WT-KG	SHEET 1 of 1	

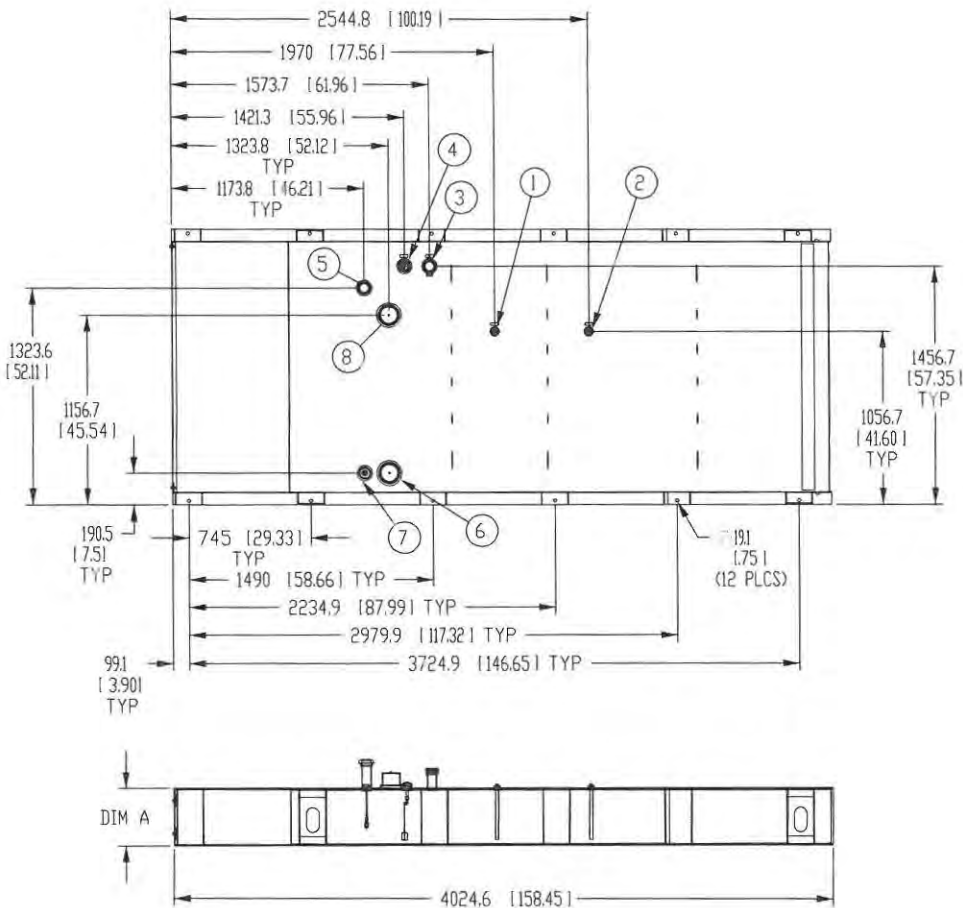
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INSIDE WINDCHILL

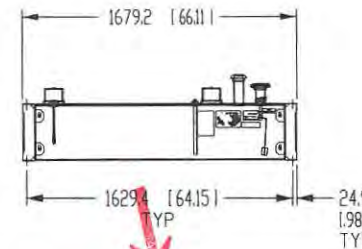




I/N	TANK FITTING	DESCRIPTION
1	1/2" NPT COUPLING	FUEL RETURN
2	1/2" NPT COUPLING	FUEL SUPPLY
3	2" NPT FEMALE	FUEL FILL
4		FUEL LEVEL
5	2" NPT FEMALE	VENT
6	4" NPT WELD FLANGE	EMERGENCY VENT (OUTER) 14" TANK
	5" NPT WELD FLANGE	EMERGENCY VENT (OUTER) 36" TANK
7		BASIN ALARM
8	4" NPT WELD FLANGE	EMERGENCY VENT (INNER) 14" TANK
	5" NPT WELD FLANGE	EMERGENCY VENT (INNER) 36" TANK

CAPACITY SHOWN: LITER (GALLONS)  
 WEIGHT SHOWN: KILOGRAMS (POUNDS)  
 LENGTH SHOWN: MM (INCH)

UL #142 LISTED



TANK P/N	0J8132	0K0184
DIM_A	356 [14]	914 [36]
TOTAL TANK CAPACITY	1357 [358]	3902 [1031]
USABLE TANK CAPACITY	1273 [336]	3816 [1006]
DRY WEIGHT (EST)	760 [1675]	1179 [2600]

**GENERAC**

TITLE  
 1107A H-GENIE BACKHAUL

# INSTALLATION DRAWING

SIZE	CAGE NO	DWG NO	REV
B	N/A	0K184	
0.035	WT-KG	0.000	SHEET 1 of 1

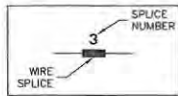


## GROUP G

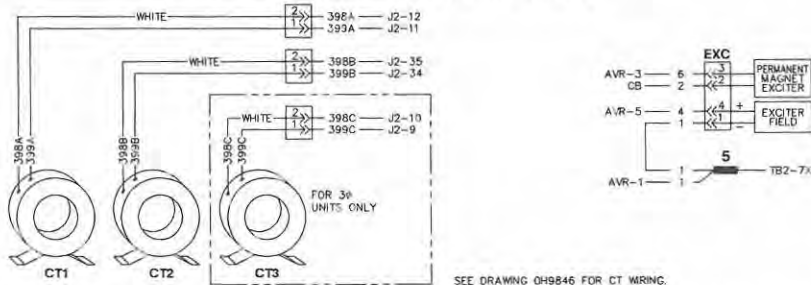
### LEGEND

AH1 - ALARM HORN	J_ - ENGINE CONTROL MODULE CONNECTORS
ALT - DC CHARGE ALTERNATOR	LD - LEAK DETECTOR
AVR - AUTO VOLTAGE REGULATOR	MLCB - MAIN LINE CIRCUIT BREAKER
BCC - BATTERY CHARGER CONNECTOR	MOD - MODEM CONNECTOR
BC4 - BATTERY CHARGER	NS - NEUTRAL BLOCK
CAN - CONTROLLER AREA NETWORK	OTC - OIL TEMPERATURE CONNECTOR
CB - CIRCUIT BREAKER DPE	OTL - OIL TEMPERATURE SENDER
CD - CROSSOVER CONNECTOR	PDL - PERKINS DATA LINK
COM - COMMUNICATION CONNECTOR	R1 - RESISTOR
CT_ - CURRENT TRANSFORMER	RB_ - RELAY BOARD
DB - DIODE BRIDGE	RB_A - RELAY BOARD CONNECTOR
ECU - ENGINE CONTROL UNIT	SC - STARTER CONTACTOR
ES1 - EMERGENCY STOP SWITCH	SM - STARTER MOTOR
EXC - EXCITER	SW1 - OFF/AUTO/MANUAL SWITCH
F_ - FUSE	SWC - SWITCH CONNECTOR
FLS_ - FUEL LEVEL SENDER	TB_ - TERMINAL BLOCKS
GFCI - GROUND FAULT CIRCUIT INTERRUPT	WL_ - COOLANT LEVEL SENDER
GND - GROUND BAR CONNECTION	Y_ - CAN BUS Y-CONNECTOR
IFT - INTERFACE TRANSFORMER	

NOTE: ALL WIRES 18 AWG  
300V UL LISTED UNLESS  
SHOWN OTHERWISE



### COMPONENTS LOCATED IN ALTERNATOR CONNECTION BOX



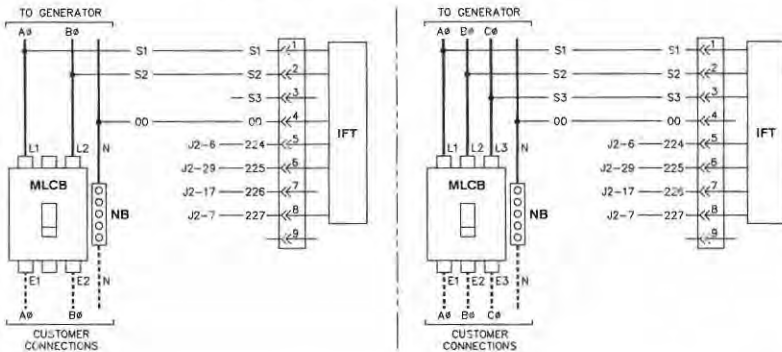
SEE DRAWING 0H9B46 FOR CT WIRING.

### COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE

#### CONNECTIONS FOR 1Ø UNIT

NOTE: ALL WIRES IN THIS SECTION ARE 600V RATED

#### CONNECTIONS FOR 3Ø UNIT



PAGE 1 OF 8

REVISION: J-3321-B  
DATE: 11/6/12

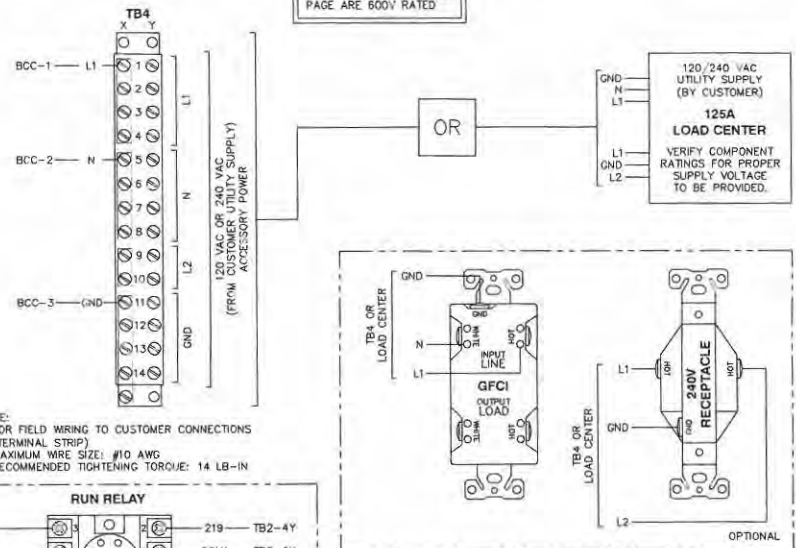
PAGE 1 OF 8

WIRING - DIAGRAM  
D12.5/15.2/18.1L G22 H-PANEL  
DRAWING #: 0J9607

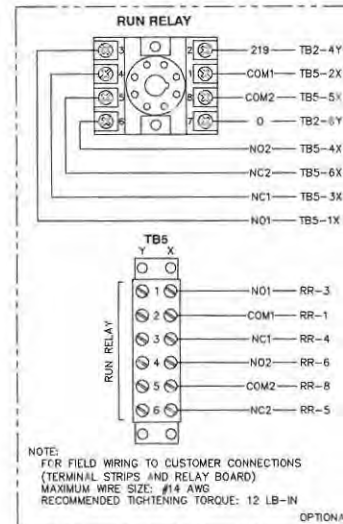
## GROUP G

### COMPONENTS LOCATED IN HIGH VOLTAGE CUSTOMER CONNECTION MODULE

NOTE: ALL WIRES ON THIS PAGE ARE 600V RATED



NOTE: FOR FIELD WIRING TO CUSTOMER CONNECTIONS (TERMINAL STRIP)  
MAXIMUM WIRE SIZE: #10 AWG  
RECOMMENDED TIGHTENING TORQUE: 14 LB-IN



NOTE: FOR FIELD WIRING TO CUSTOMER CONNECTIONS (TERMINAL STRIPS AND RELAY BOARD)  
MAXIMUM WIRE SIZE: #14 AWG  
RECOMMENDED TIGHTENING TORQUE: 12 LB-IN

OPTIONAL

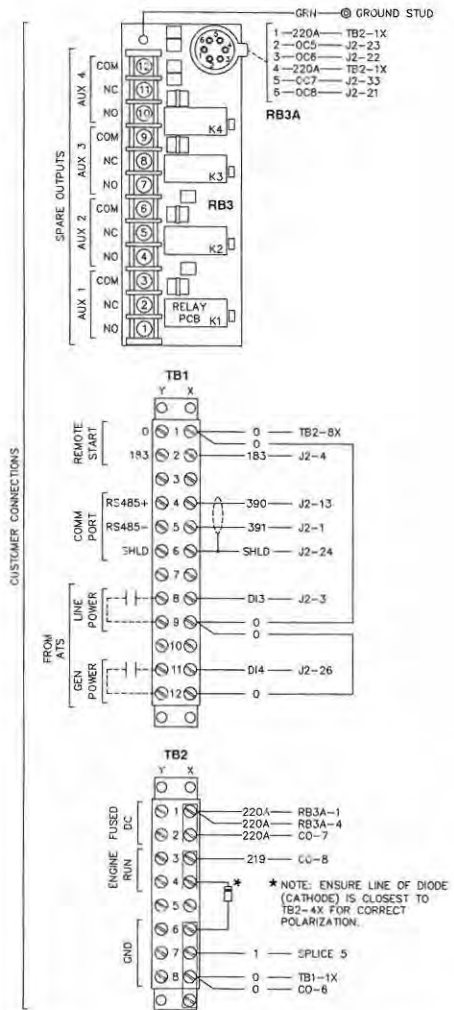
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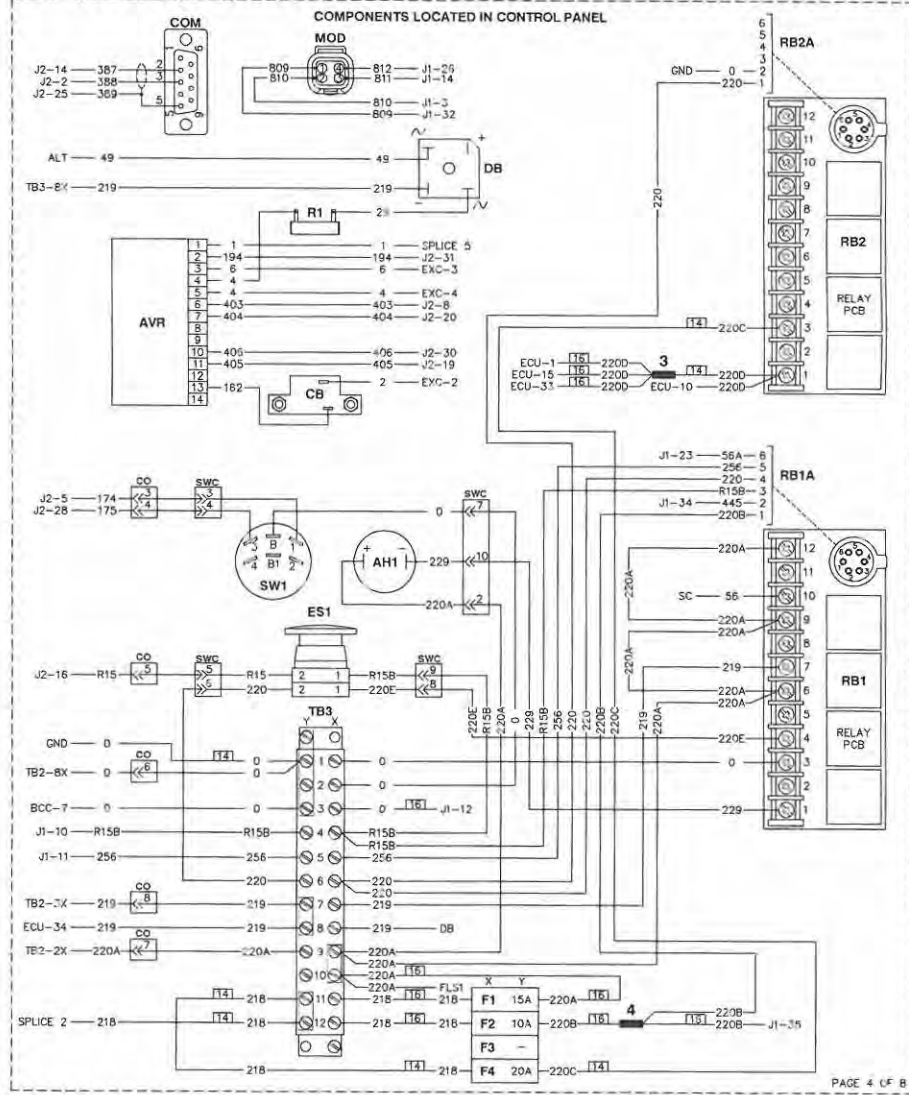
**GROUP G**

**COMPONENTS LOCATED ON LOW VOLTAGE CUSTOMER CONNECTION PANEL**



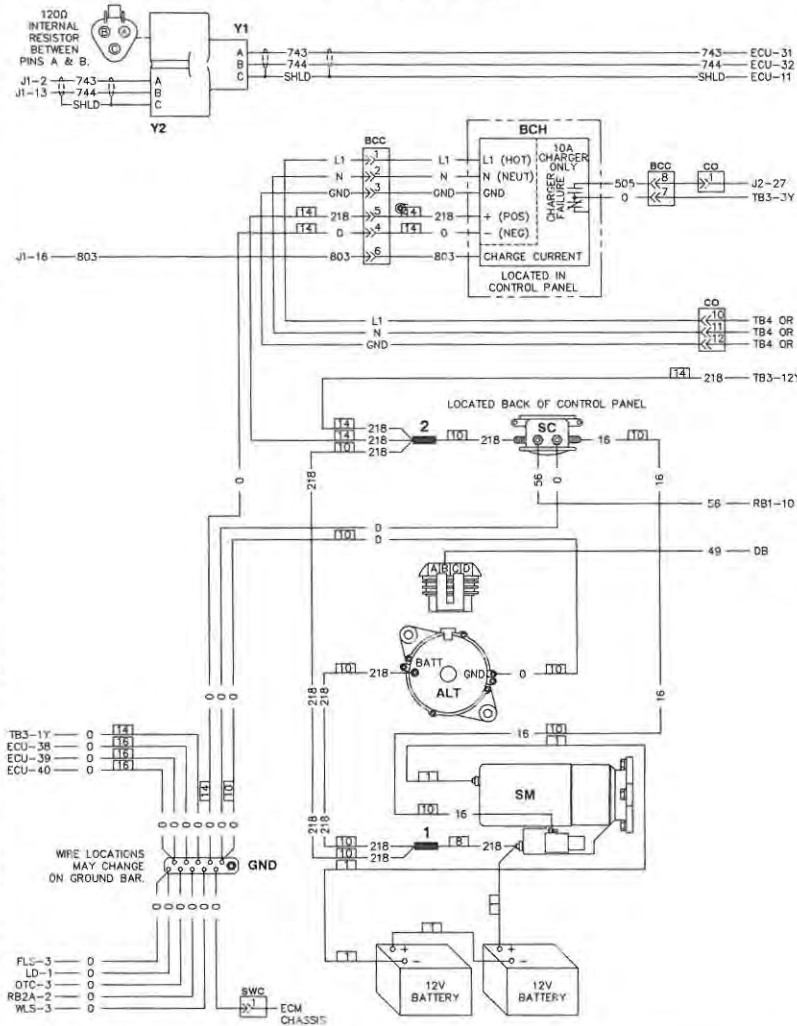
**GROUP G**

**COMPONENTS LOCATED IN CONTROL PANEL**



### GROUP G

#### COMPONENTS LOCATED ON ENGINE



PAGE 5 OF 8

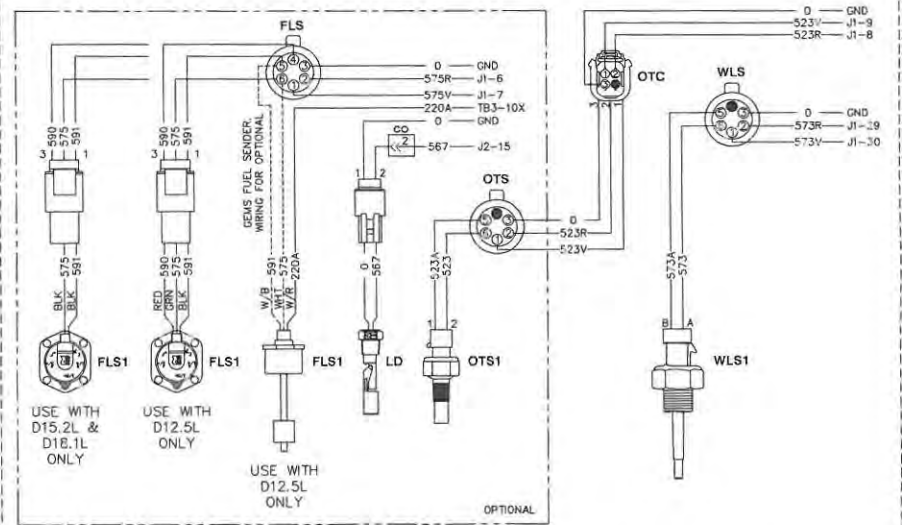
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PAGE 5 OF 8

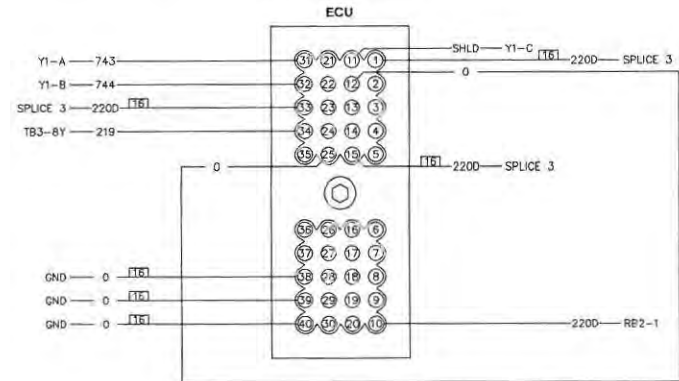
WIRING - DIAGRAM  
D12.5/15.2/18.1L G22 H-PANEL  
DRAWING #: 0J9607

### GROUP G

#### COMPONENTS LOCATED ON ENGINE



#### ENGINE CONTROL UNIT



PAGE 6 OF 8

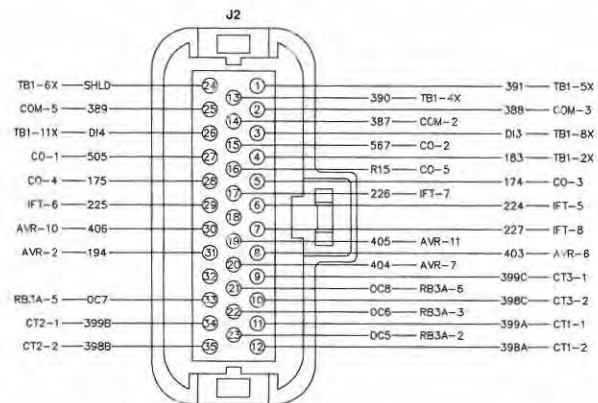
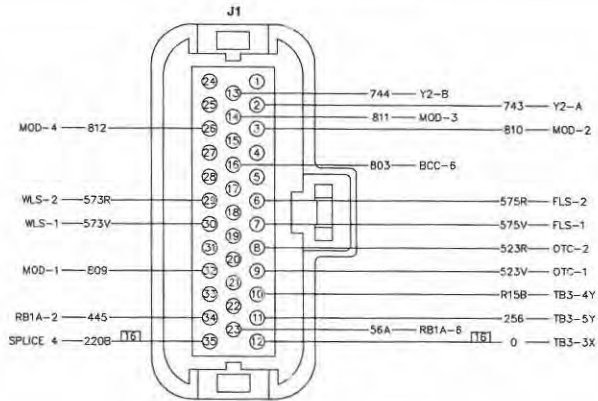
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DATE: 11/6/12

PAGE 6 OF 8

WIRING - DIAGRAM  
D12.5/15.2/18.1L G22 H-PANEL  
DRAWING #: 0J9607

GROUP G

ENGINE CONTROL MODULE CONNECTORS



COMMUNICATIONS CONNECTOR

BATTERY (+) — A  
BATTERY (-) — B  
CAN SCREEN — C  
PDL (+) — D  
PDL (-) — E  
CAN (+) — F  
CAN (-) — G  
(NOT CONNECTED) J1587 (-) — H  
(NOT CONNECTED) J1587 (+) — J

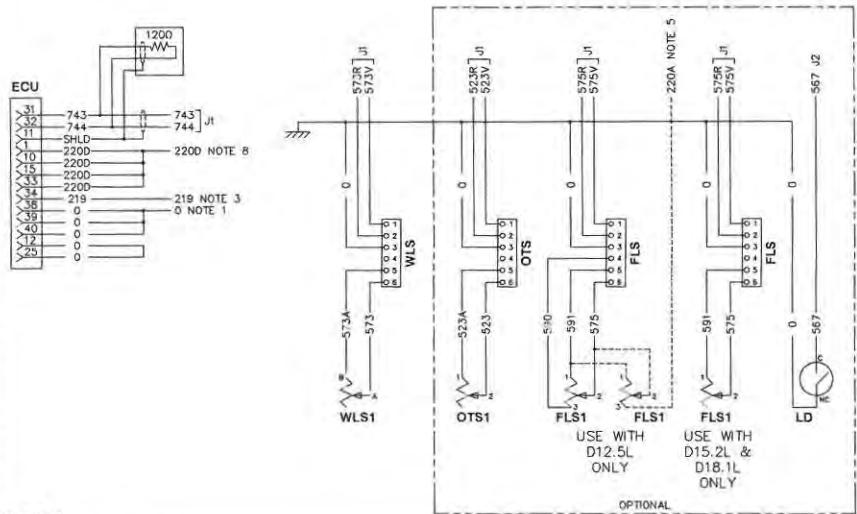
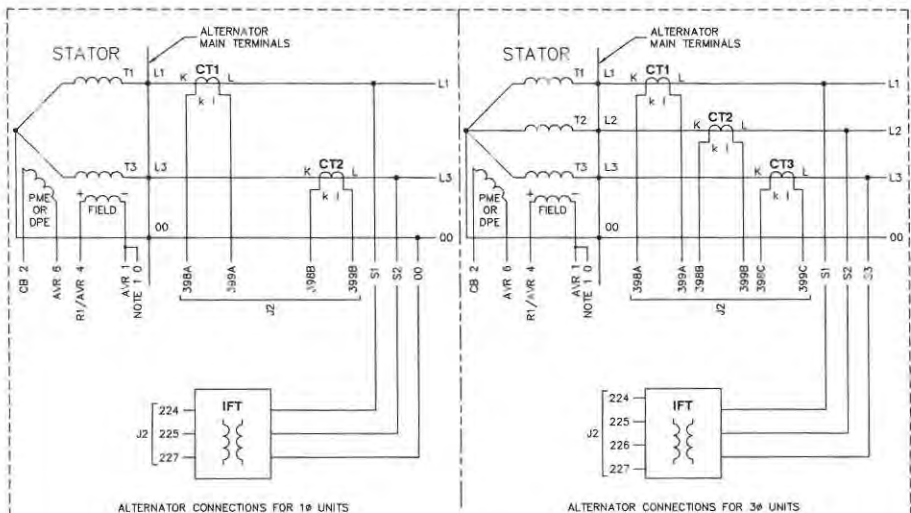


GROUP G

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GROUP G

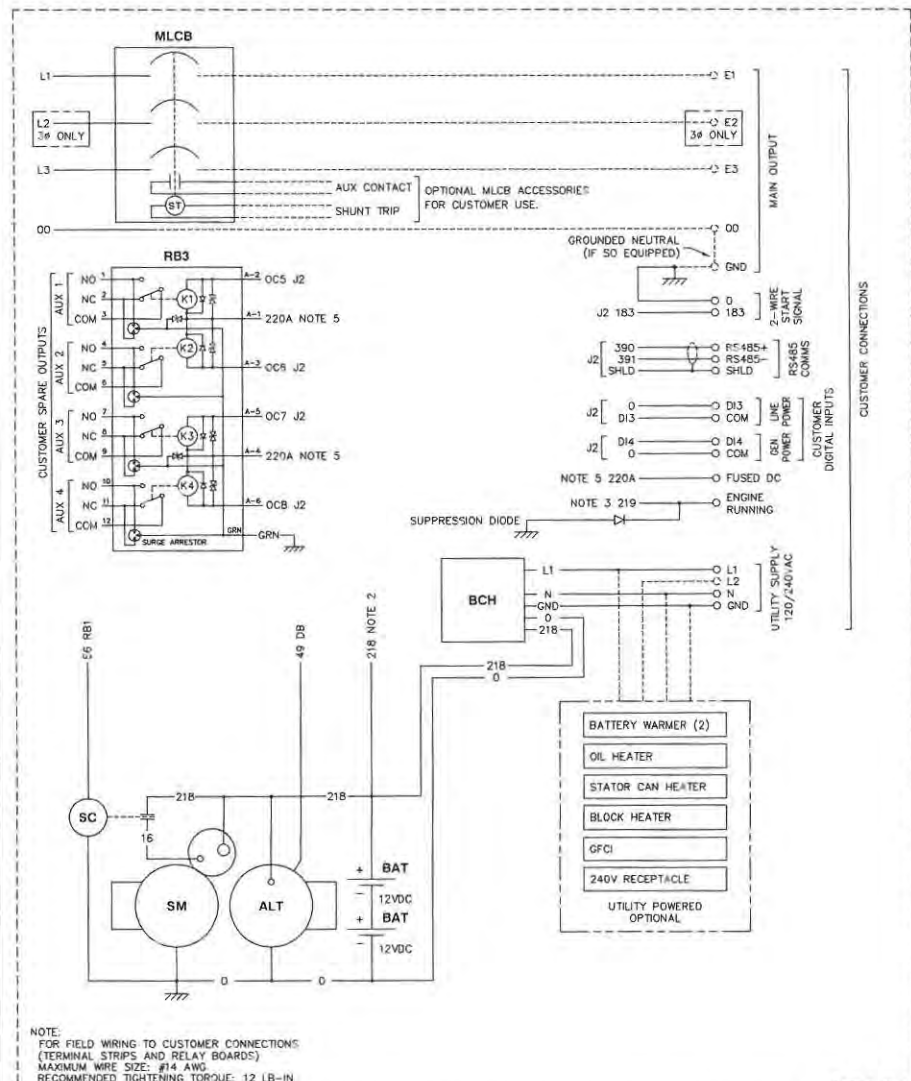


SCHEMATIC - DIAGRAM  
D12.5/15.2/18.1L G22 H-PANEL  
DRAWING #: 019608

REVISION: J-3321-B  
DATE: 11/6/12

PAGE 1 OF 4

GROUP G

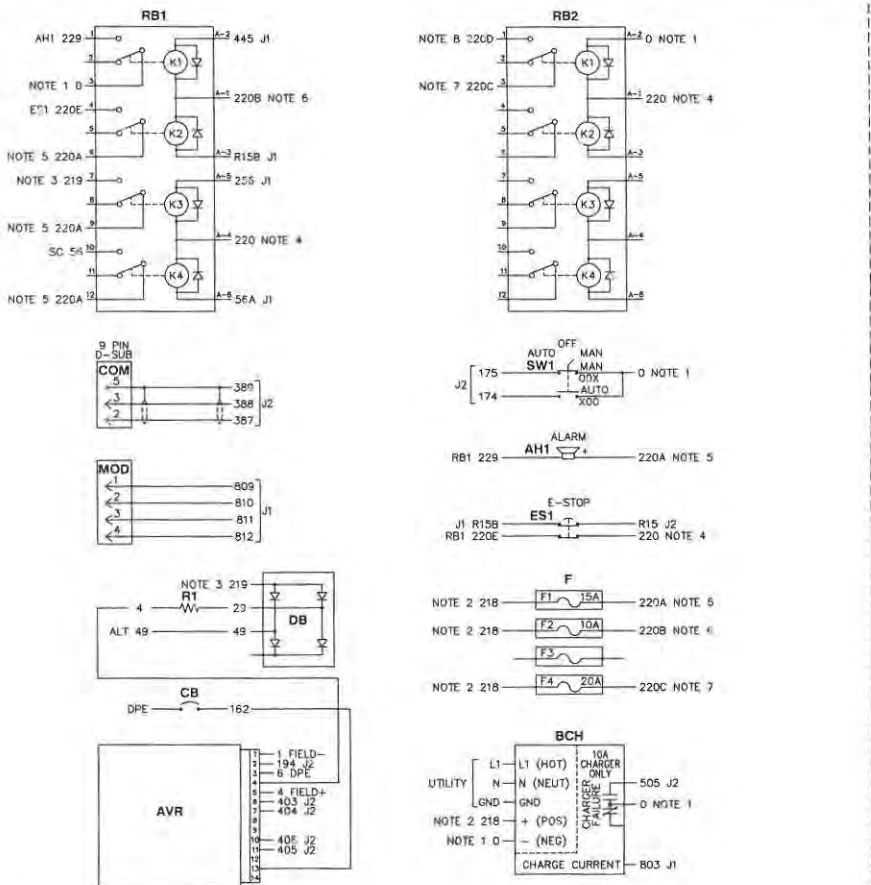


SCHEMATIC - DIAGRAM  
D12.5/15.2/18.1L G22 H-PANEL  
DRAWING #: 019608

REVISION: J-3321-B  
DATE: 11/6/12

PAGE 2 OF 4

## GROUP G



LEGEND			
DO - NEUTRAL	COM - COMMUNICATION CONNECTOR	GFCI - GROUND FAULT CIRCUIT INTERRUPT	PME - PERMANENT MAGNET EXCITER
AH1 - ALARM HORN	CT - CURRENT TRANSFORMER	IFT - INTERFACE TRANSFORMER	R1 - RESISTOR
ALT - DC CHARGE REGULATOR	DB - DIODE BRIDGE	J - ENGINE CONTROL MODULE CONN.	RB - RELAY BOARD
AVR - AUTO VOLTAGE REGULATOR	DPE - EXCITER	LD - LEAK DETECTOR	SC - STARTER CONTACTOR
BAT - BATTERY	ECU - ENGINE CONTROL UNIT	MLCB - MAIN LINE CIRCUIT BREAKER	SM - STARTER MOTOR
BCH - BATTERY CHARGER	ESI - EMERGENCY STOP SWITCH	MOD - MODEM CONNECTOR	SWI - OFF/AUTO/MANUAL SWITCH
CAN - CONTROLLER AREA NETWORK	F - FUSE	OTS - OIL TEMPERATURE SENDER	WLS - COOLANT LEVEL SENDER
CB - CIRCUIT BREAKER	FLS - FUEL LEVEL SENDER		

## GROUP G

AVR CONNECTOR			
PIN	WIRE	TO	FUNCTION
1	1	FIELD	- FIELD
2	134	J2-31	+24VDC
3	6	DPE	DPE OUTPUT
4	4	R1/FIELD	+ FIELD
5	4	R1/FIELD	+ FIELD
6	403	J2-8	GATE TRIGGER B
7	404	J2-20	GATE TRIGGER A
10	406	J2-30	ZERO CROSSING I/P
11	405	J2-19	GROUND (SD)
13	162	CB	DPE OUTPUT (AFTER CB)

COMMUNICATIONS CONNECTOR (SUPPLIED WITH ECU HARNESS)			
PIN	WIRE	TO	FUNCTION
A	-	-	BATTERY +
B	-	-	BATTERY -
C	-	-	CAN SCREEN
D	-	-	PDL +
E	-	-	PDL -
F	-	-	CAN -
G	-	-	CAN +
H	-	-	J1587 - (NOT CONNECTED)
J	-	-	J1587 + (NOT CONNECTED)

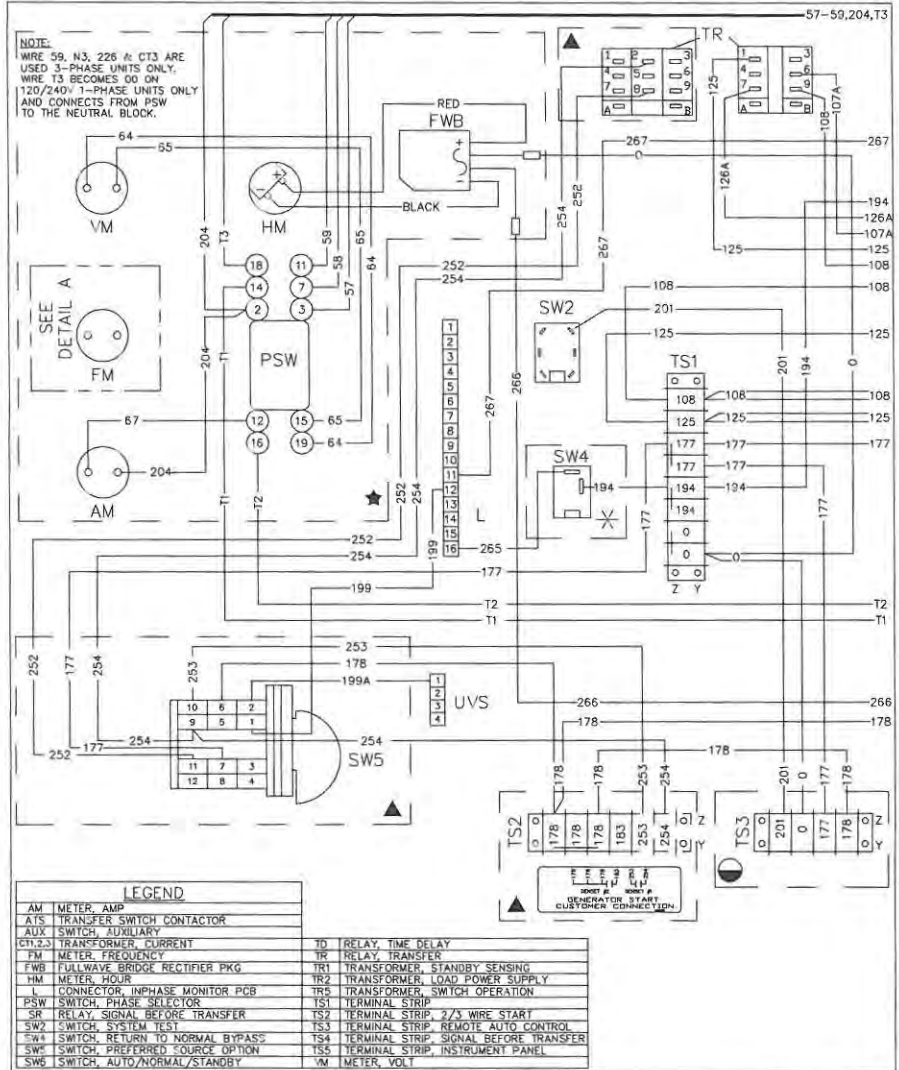
ECU CONNECTOR			
PIN	WIRE	TO	FUNCTION
1	220D	RB2-1	NOTE 8
10	220D	RB2-1	NOTE 8
11	341D	CU1	CAN DRAIN
12	0	ECU-25	ECU SPEED SELECT
15	220D	RB2-1	NOTE 8
25	0	ECU-12	ECU SPEED SELECT
31	743	J1-2	CAN HIGH
32	744	J1-13	CAN LOW
33	220D	RB2-1	NOTE 8
34	219	IB3-BY	FUEL INJECTOR ENABLE
36	0	GND	NOTE 1
39	0	GND	NOTE 1
40	0	GND	NOTE 1

### ENGINE CONTROL MODULE CONNECTIONS

J1				J2			
PIN	WIRE	TO	FUNCTION	PIN	WIRE	TO	FUNCTION
2	743	ECU-31	CAN HIGH	1	391	CUST CON	RS485+ (XFER SW)
3	B10	MOD-2	MODEM SIGNAL RETURN	2	388	COM-3	RS232 TX (GENLINK)
6	575R	FLS-2	FUEL LEVEL RTN	3	D13	CUST CON	SP4FE IN 5/LINE PWR
7	575V	FLS-1	FUEL LEVEL +	4	163	CUST CON	REMOTE START
8	573R	OTC-2	OIL TEMPERATURE RTN	5	174	SWT	AUTO START
9	523V	OTC-1	OIL TEMPERATURE +	6	224	IFT	V SENSE GEN A PH
10	R15B	ESI	OVERSPEED/WATCHDOG	7	227	IFT	V SENSE RTN
11	256	RB1A-5	FUEL RELAY	8	403	AVR-6	AVR GATE TRIGGER B
12	0	GND	NOTE 1	9	396C	CT13	GEN B PH CURRENT -
13	744	ECU-32	CAN LOW	10	396C	CT13	GEN C PH CURRENT -
14	B11	MOD-3	MODEM DATA CARRIER DETECT	11	398A	CT11	GEN A PH CURRENT +
16	803	BCH	BAT CHARGER CURRENT	12	398A	CT11	GEN A PH CURRENT +
23	56A	RB1A-6	STARTER RELAY	13	390	CUST CON	RS485+ (XFER SW)
26	B12	MOD-4	MODEM ENABLE	14	387	COM-2	RS232 RX (GENLINK)
29	573R	WLS-2	COOLANT LVL RTN	15	567	LD	LEAK DETECTOR
30	573V	WLS-1	COOLANT LVL +	16	R15	ESI	EMERGENCY STOP
32	809	MOD-1	MODEM 12V POWER	17	226	IFT	V SENSE GEN C PH
34	445	RB1A-2	ALARM RELAY	19	405	AVR-11	AVR GROUND
35	220B	F2	NOTE 6	20	404	AVR-7	AVR GATE TRIGGER A

- NOTES:**
- WIRE# 0 IS CHASSIS GROUND (BATTERY -) UNLESS NOTED OTHERWISE.
  - WIRE# 218 IS UNFUSED +24VDC (BATTERY +).
  - WIRE# 219 IS FUSED +24VDC WHEN GENERATOR IS CRANKING OR RUNNING.
  - WIRE# 220 IS FUSED +24VDC WHEN E-STOP IS NOT ACTIVATED.
  - WIRE# 220A IS FUSED +24VDC FOR GENERAL USE.
  - WIRE# 220B IS FUSED +24VDC FOR THE GENERATOR CONTROL MODULE.
  - WIRE# 220C IS FUSED +24VDC TO SOURCE SWITCHED POWER FOR ENGINE CONTROL UNIT.
  - WIRE# 220D IS FUSED +24VDC FOR ENGINE CONTROL UNIT WHEN E-STOP IS NOT ACTIVATED.
  - WIRE# 220E IS FUSED +24VDC CONTROLLED BY GENERATOR CONTROL MODULE PRIOR TO E-STOP.

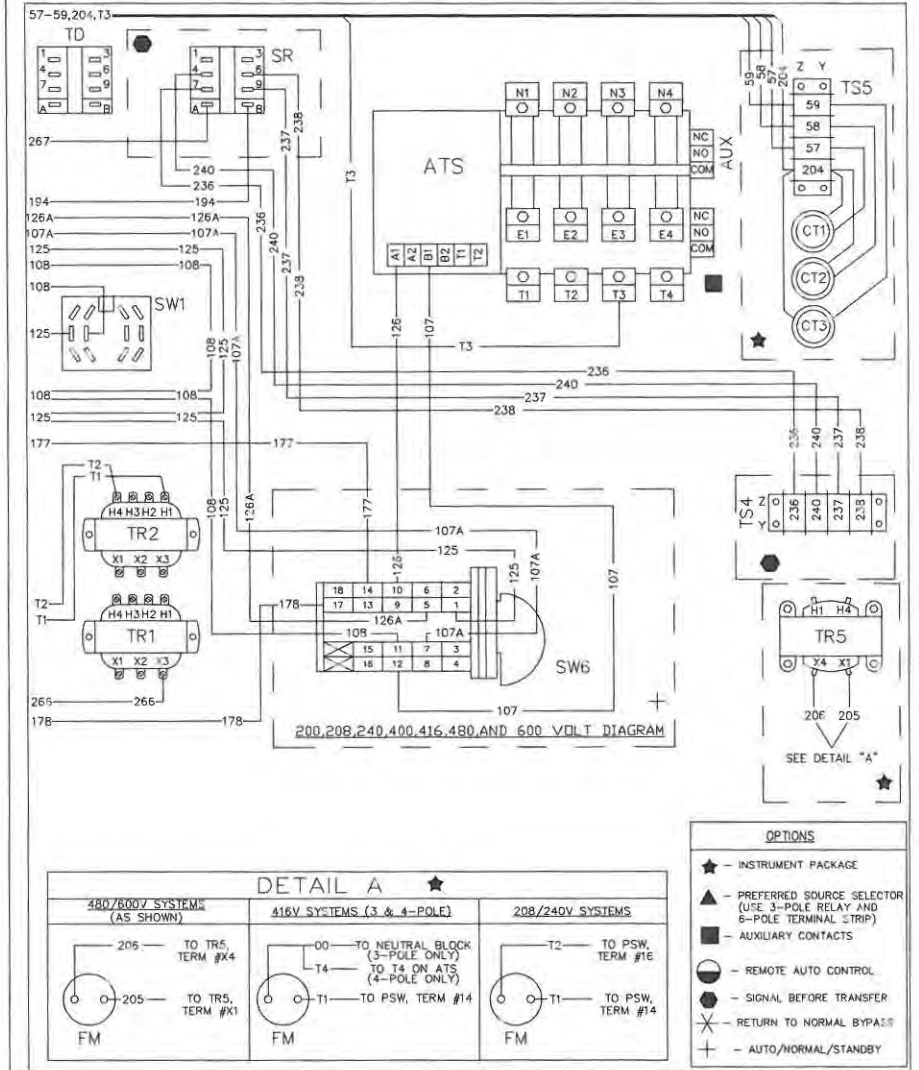
### GROUP G



WIRING - DIAGRAM  
GTS OPTIONS  
DRAWING #: 0D8035

REVISION: F-9647-B  
DATE: 4-2-03

### GROUP G

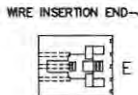
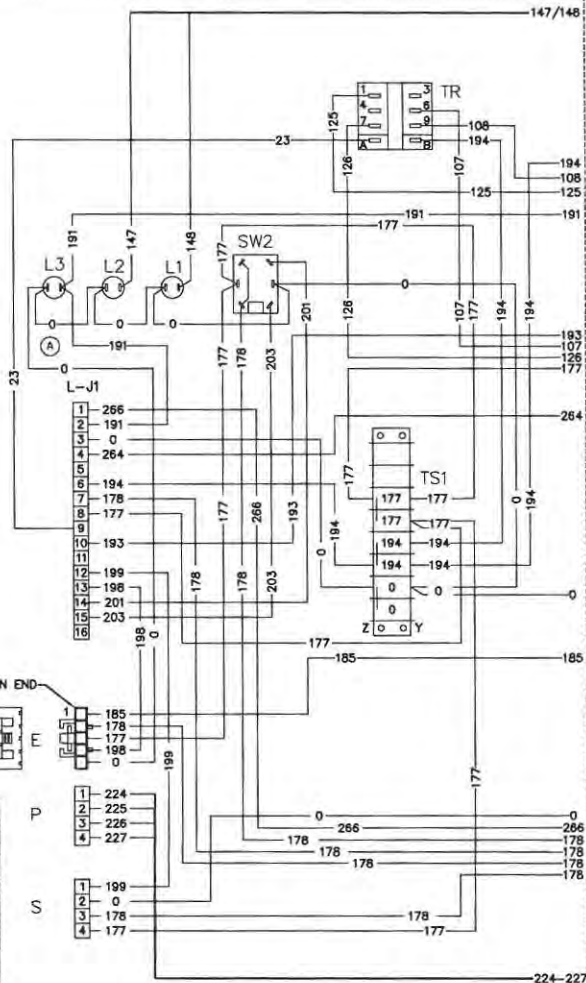


WIRING - DIAGRAM  
GTS OPTIONS  
DRAWING #: 0D8035

REVISION: F-9647-B  
DATE: 4-2-03

0DB113

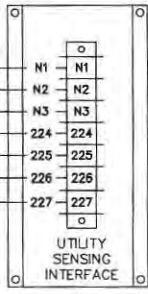
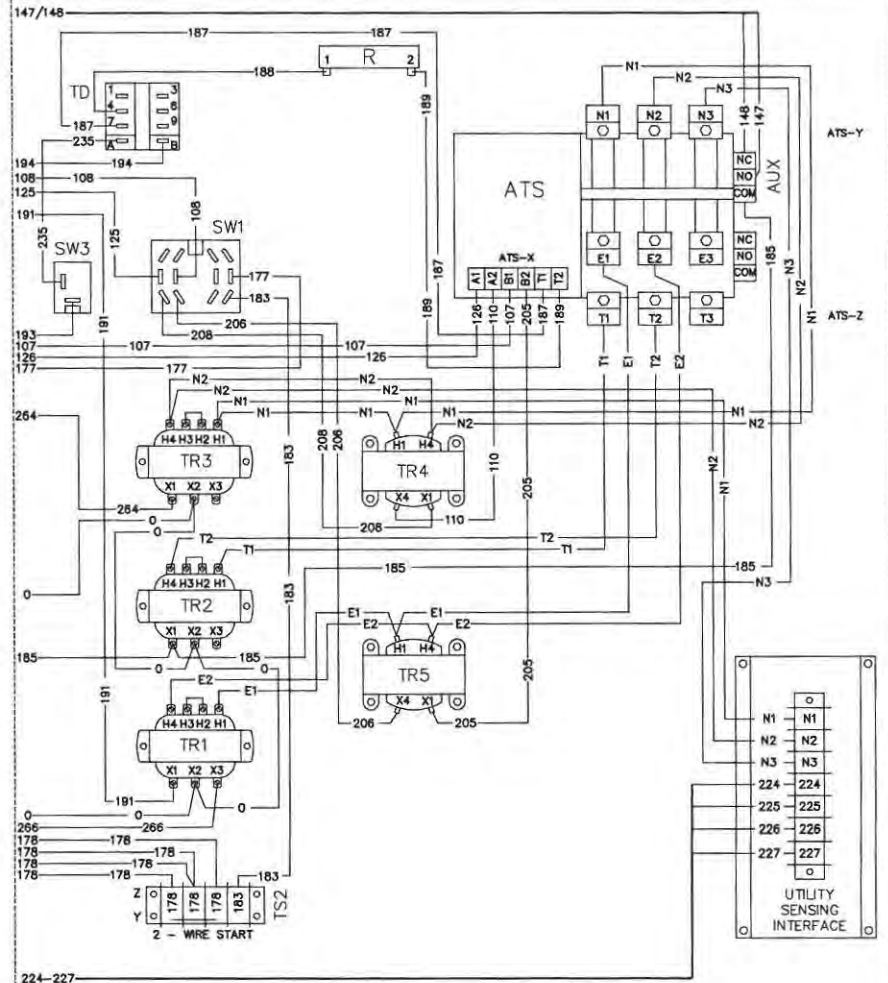
WIRING - DIAGRAM



**LEGEND**

- ATS TRANSFER SWITCH CONTACTOR
- AUX SWITCH, AUXILIARY
- E CONNECTOR, 7 DAY EXERCISER PCB
- L1 GREEN LIGHT, SWITCH POSITION UTILITY
- L2 RED LIGHT, SWITCH POSITION EMERGENCY
- L3 YELLOW LIGHT, STANDBY OPERATING
- L-J1 CONNECTOR, INPHASE MONITOR PCB
- P CONNECTOR, UTILITY VOL. SENSING PCB
- R RESISTOR, TIME DELAY NEUTRAL (TDN)
- S CONNECTOR, UTILITY VOL. SENSING PCB
- SW1 SWITCH, MAINTENANCE DISCONNECT
- SW2 SWITCH, SYSTEM TEST
- SW3 SWITCH, TDN ON/OFF
- TD RELAY, TIME DELAY
- TR RELAY, TRANSFER
- TR1 TRANSFORMER, STANDBY SENSING
- TR2 TRANSFORMER, LOAD POWER SUPPLY
- TR3 TRANSFORMER, UTILITY SENSING
- TS1 TERMINAL STRIP
- TS2 TERMINAL STRIP, 2 WIRE START

WIRING - DIAGRAM



9296 F-9647-A (SEE EDD FOR CHANGES)

REV. NO.	DATE	BY	CHKD.	APP. BY	DATE	BY	CHKD.	APP. BY	DATE

**WIRING DIAGRAM - 480/600V W/INPHASE MONITOR**

SCALE: 1 = 1"

DATE: 02/18/92

BY: JJJ

CHKD: FXV

APP. BY: FXV

DATE: 02/18/92

PROJECT: 0DB113-A.DWG

SCALE: 1 = 1"

DATE: 02/18/92

BY: JJJ

CHKD: FXV

APP. BY: FXV

DATE: 02/18/92

PROJECT: 0DB113

SCALE: 1 = 1"

DATE: 02/18/92

BY: JJJ

CHKD: FXV

APP. BY: FXV

DATE: 02/18/92



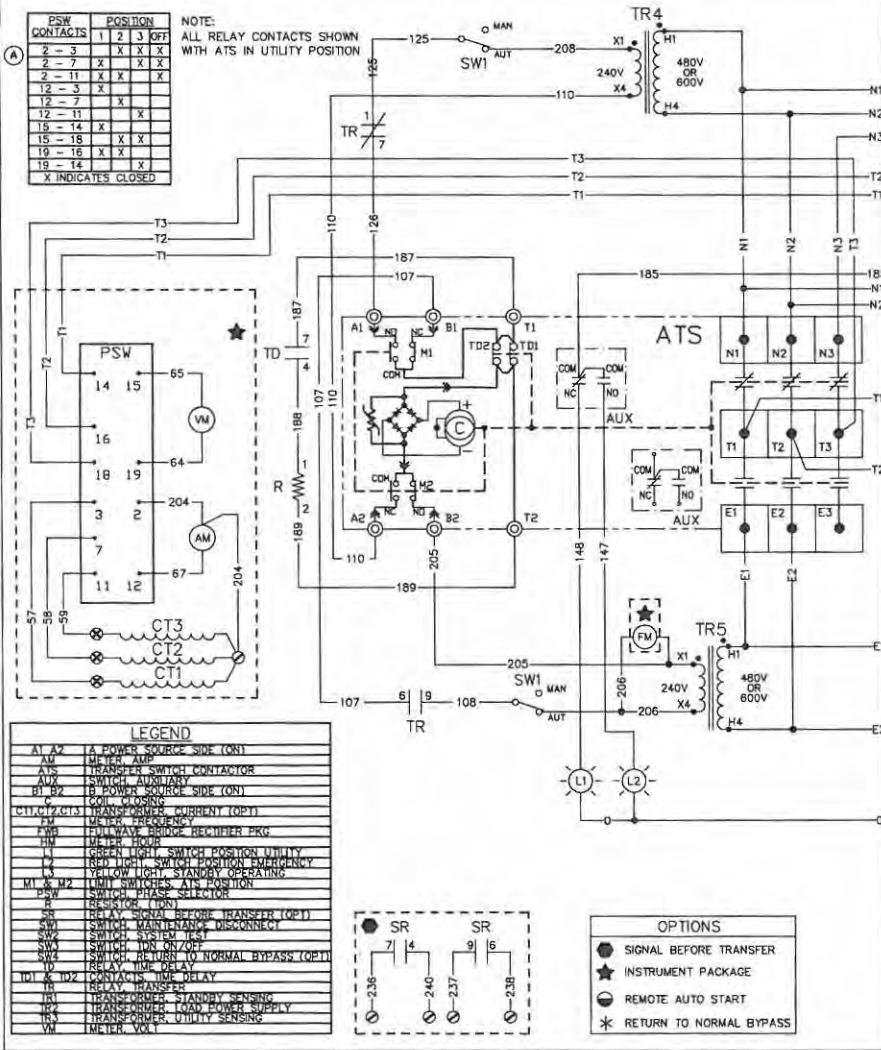
0D8117

**SCHEMATIC - DIAGRAM**

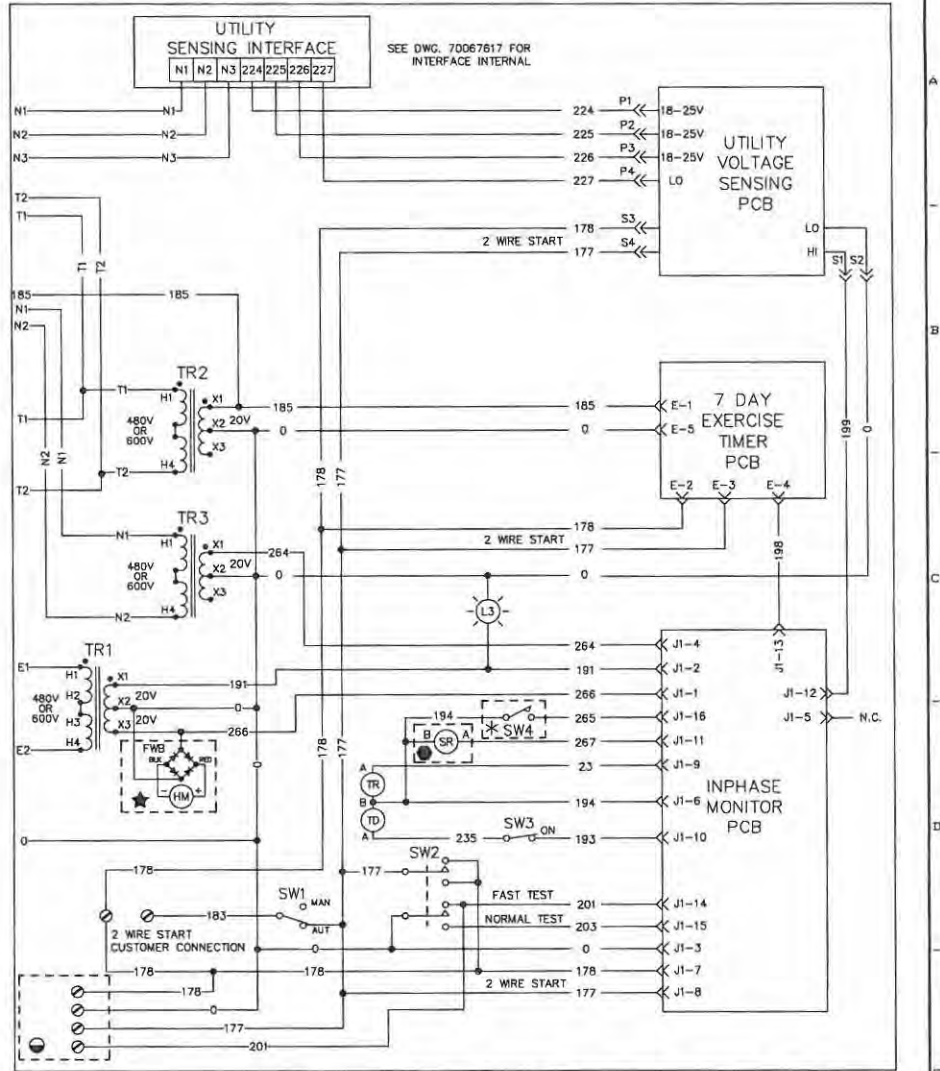
PSW CONTACTS	1	2	3	OFF
2 - 3	X	X	X	X
2 - 7	X	X	X	X
2 - 11	X	X	X	X
12 - 3	X			
12 - 7	X			
12 - 11	X			
15 - 14	X			
15 - 18	X	X	X	
19 - 18	X	X	X	
19 - 14	X			

X INDICATES CLOSED

NOTE:  
ALL RELAY CONTACTS SHOWN  
WITH ATS IN UTILITY POSITION



**SCHEMATIC - DIAGRAM**



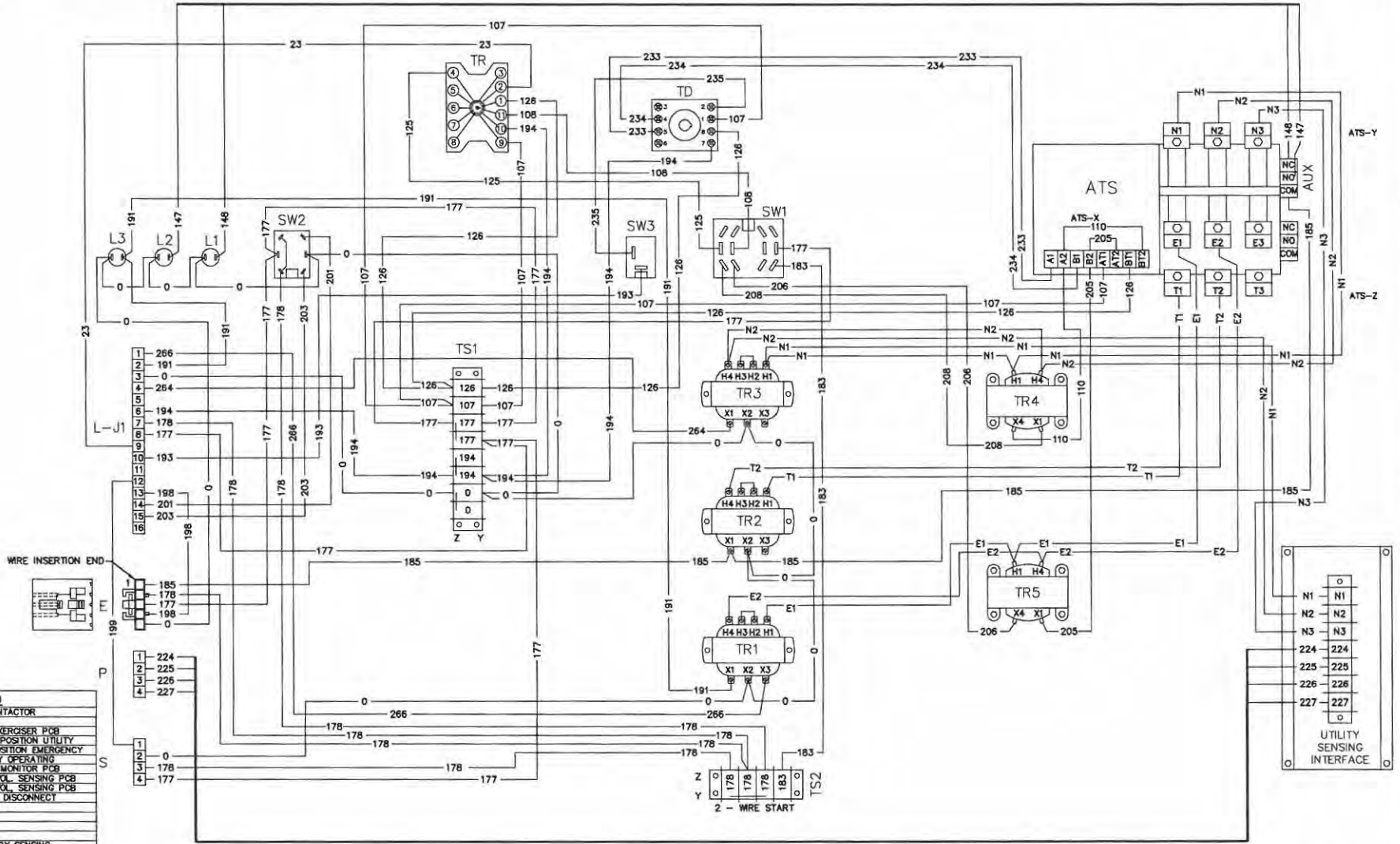
02/18/02 F-6722-A CHANGED PSW SWITCH  
02/18/02 F-9647-B CHANGE TO NEW LAYOUT

REV. NO.	DATE	BY	CHKD.	APP'D.	DESCRIPTION
1	02/18/02	JJJ	FXV		INITIAL
2	02/18/02	JJJ	FXV		REVISION
3	02/18/02	JJJ	FXV		REVISION
4	02/18/02	JJJ	FXV		REVISION
5	02/18/02	JJJ	FXV		REVISION
6	02/18/02	JJJ	FXV		REVISION
7	02/18/02	JJJ	FXV		REVISION

DO NOT SCALE  
UNLESS INDICATED  
ON THIS DRAWING

PROJECT: 0D8117-B.DWG  
SHEET: 1 OF 1  
DATE: 02/18/02  
GTS

0D8117 B



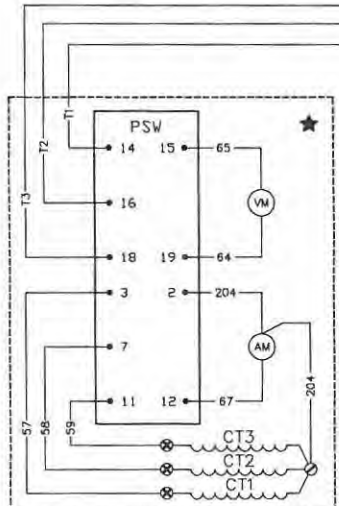
**LEGEND**

ATS	TRANSFER SWITCH CONTACTOR
AUX	SWITCH, AUXILIARY
E	CONNECTOR, 7 DAY EXERCISER PCB
L1	GREEN LIGHT, SWITCH POSITION UTILITY
L2	RED LIGHT, SWITCH POSITION EMERGENCY
L3	YELLOW LIGHT, STANDBY OPERATING
L-J1	CONNECTOR, INPHASE MONITOR PCB
P	CONNECTOR, UTILITY VOL. SENSING PCB
S	CONNECTOR, UTILITY VOL. SENSING PCB
SW1	SWITCH, MAINTENANCE DISCONNECT
SW2	SWITCH, SYSTEM TEST
SW3	SWITCH, TDN ON/OFF
TD	RELAY, TIME DELAY
TR	RELAY, TRANSFER
TR1	TRANSFORMER, STANDBY SENSING
TR2	TRANSFORMER, LOAD POWER SUPPLY
TR3	TRANSFORMER, UTILITY SENSING
TS1	TERMINAL STRIP
TS2	TERMINAL STRIP, 2 WIRE START

DO NOT SCALE		DATE: 03/13/02		BY: N/A		CHECKED: N/A		DATE: 03/11/02		BY: F.WEDEL	
DRAWN: N/A		DATE: 03/13/02		BY: N/A		CHECKED: N/A		DATE: 03/11/02		BY: F.WEDEL	
PROJECT: 0D8637.DWG		SCALE: 1 = 1		GTS		DATE: 03/11/02		BY: F.WEDEL		DRAWN: 0D8637	

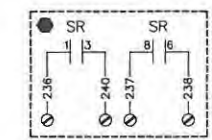
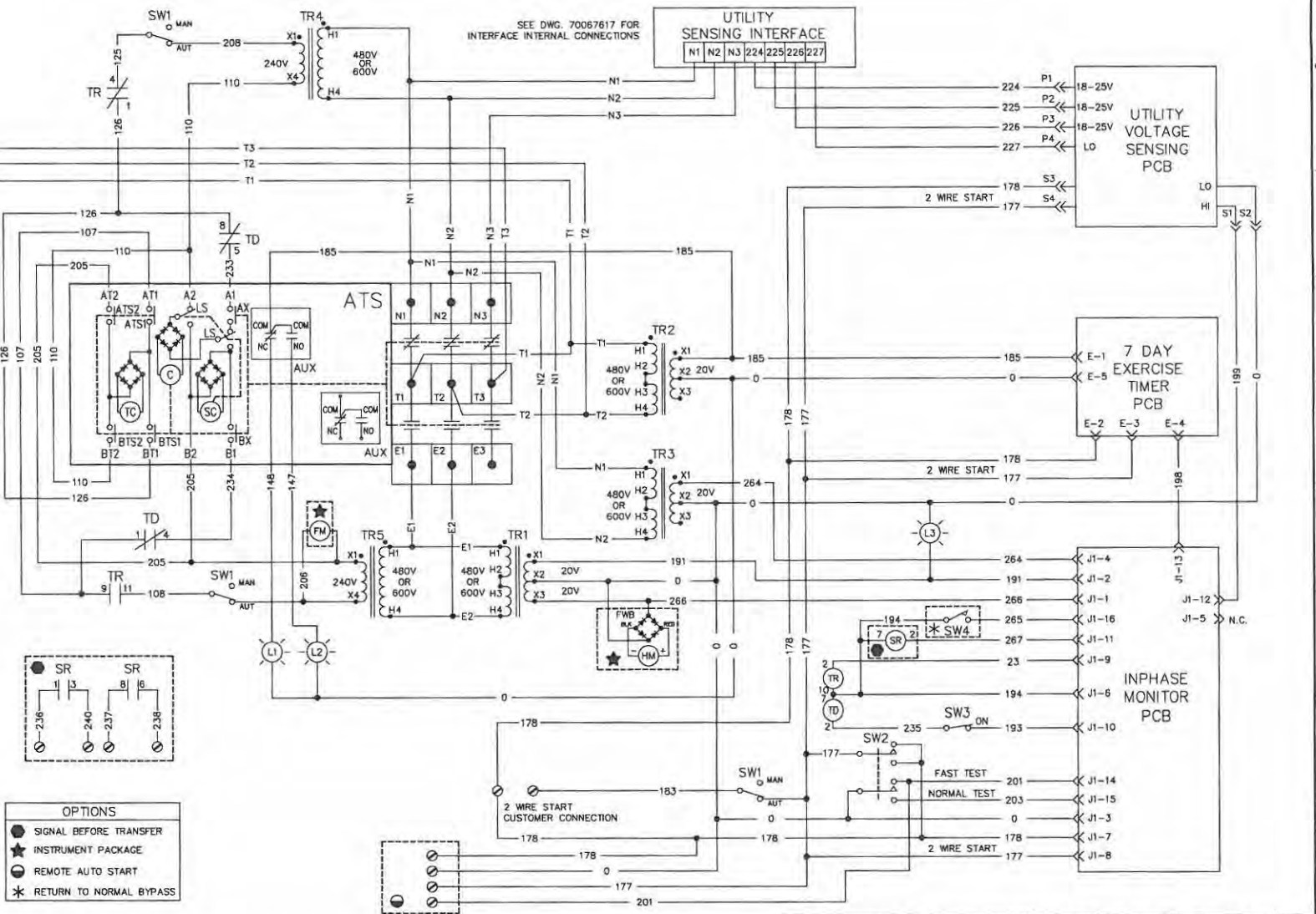
0D8641

PSW CONTACTS	1	2	3	OPT
2-3	X	X	X	
2-7	X	X	X	
2-11	X	X	X	
12-3	X			
12-7	X			
12-11	X			
15-14	X			
15-18	X	X	X	
19-16	X	X	X	
19-14	X			
X INDICATES CLOSED				



**LEGEND**

AT A2	A POWER SOURCE SIDE (ON)
AM	METER, AMP
AT1 AT2	A POWER SOURCE SIDE (TRIP)
ATS1 ATS2	SWITCH, TRIP CONTROL
BTS1 BTS2	TRANSFER SWITCH CONTACTOR
ATS	SWITCH, AUXILIARY
AUX	SWITCH, CONTROL
Ax Bx	SWITCH, CONTROL
B1 B2	B POWER SOURCE SIDE (ON)
BT1 BT2	B POWER SOURCE SIDE (TRIP)
C	COIL CLOSING
CT1, CT2, CT3	TRANSFORMER, CURRENT (OPT)
FM	METER, FREQUENCY
FWB	FULLWAVE BRIDGE RECTIFIER PKG
HM	METER, HOUR
L1	GREEN LIGHT, SWITCH POSITION UTILITY
L2	RED LIGHT, SWITCH POSITION EMERGENCY
L3	YELLOW LIGHT, STANDBY OPERATING
LS	SWITCH, SELECTIVE
PSW	SWITCH, PHASE SELECTOR
SC	COIL, SELECTIVE
SR	RELAY, SIGNAL BEFORE TRANSFER (OPT)
SW1	SWITCH, MAINTENANCE DISCONNECT
SW2	SWITCH, SYSTEM TEST
SW3	SWITCH, TDN ON/OFF
SW4	SWITCH, RETURN TO NORMAL BYPASS (OPT)
TC	COIL, TRIP
TR	RELAY, TIME DELAY
TR1	RELAY, TRANSFER
TR2	TRANSFORMER, LOAD POWER SUPPLY
TR3	TRANSFORMER, UTILITY SENSING
VM	METER, VOLT



**OPTIONS**

- SIGNAL BEFORE TRANSFER
- ★ INSTRUMENT PACKAGE
- REMOVE AUTO START
- \* RETURN TO NORMAL BYPASS

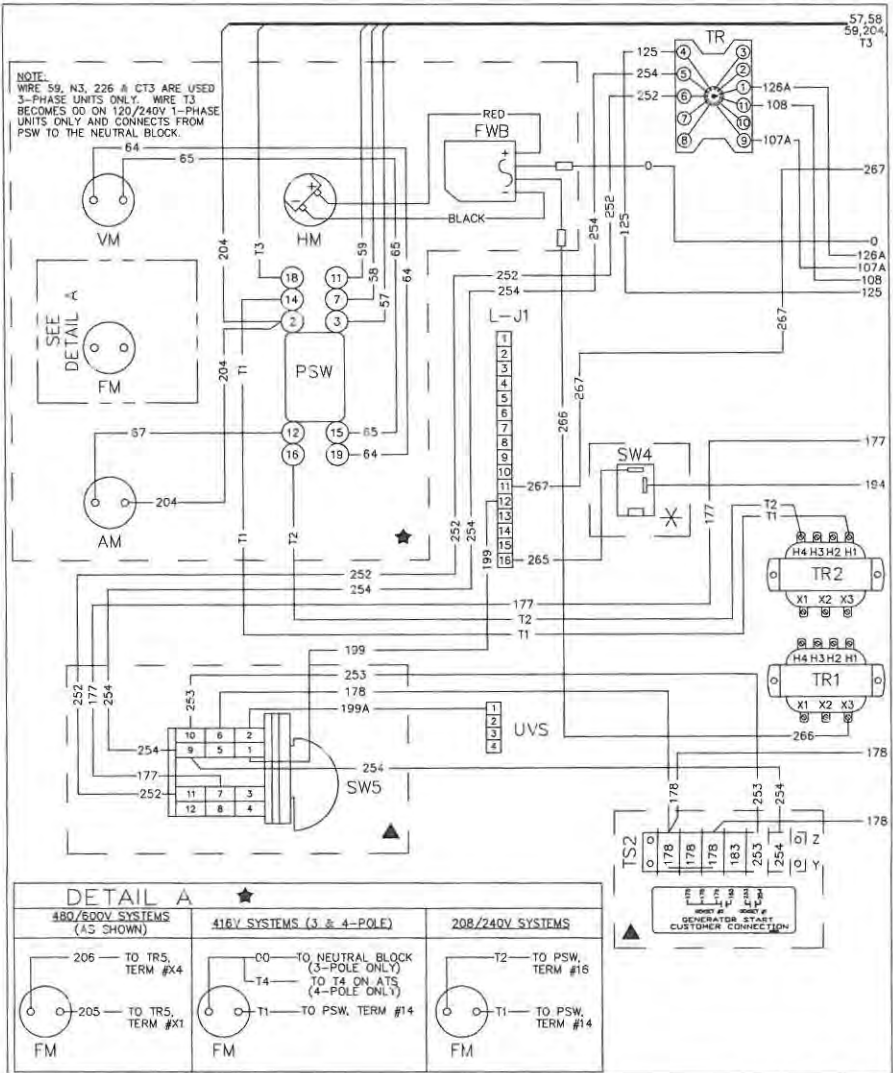
REV. NO.	REV. DATE	REV. BY	REV. REASON
1			

DO NOT SCALE	DATE: 05/13/02	SCALE: N/A
DESIGNED BY: MJB	CHECKED BY: JJJ	DATE: 9/11/02
DRAWN BY: F.WEDEL	DATE: 9/11/02	

PROJECT NO.	0D8641.DWG
SCALE	1 = 1
DATE	9/11/02
BY	GTS
NO.	0D8641

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GROUP G

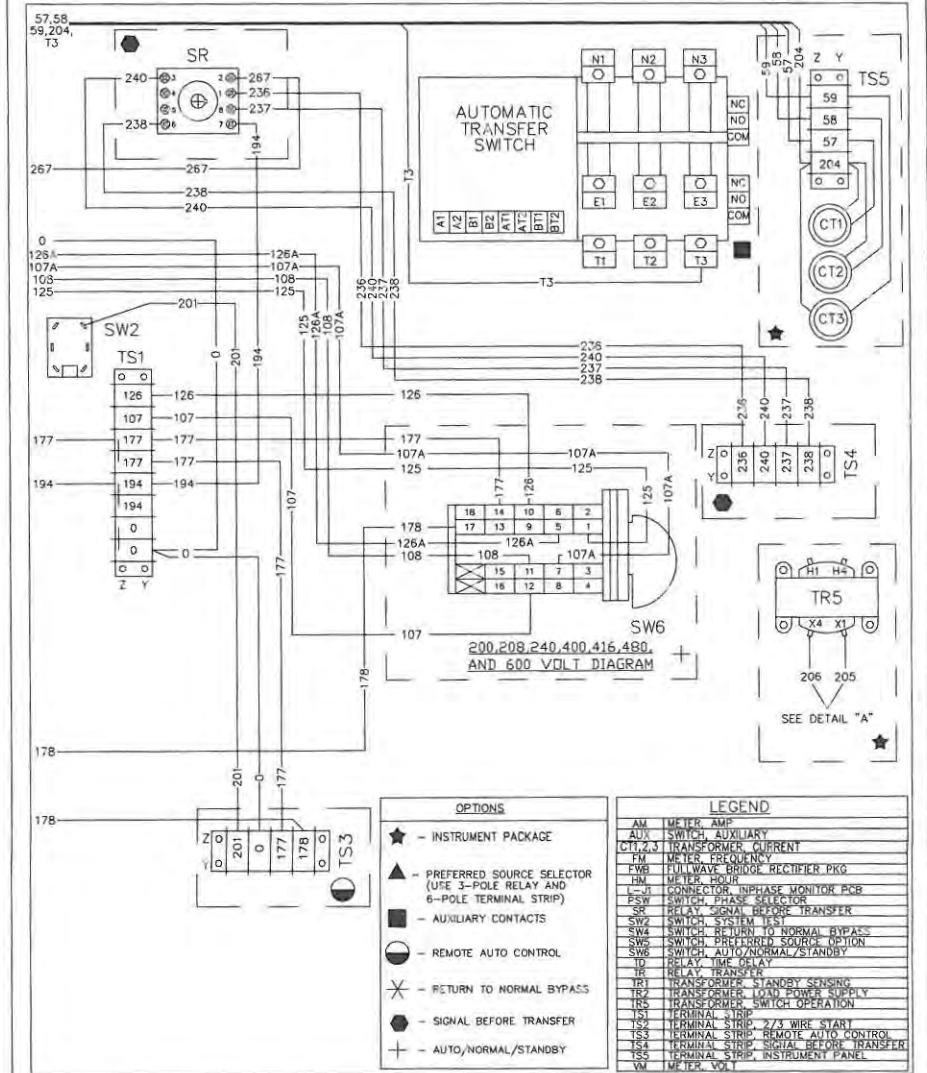


WIRING - DIAGRAM  
GTS W/N TYPE OPTIONS  
DRAWING #: 0D8644

REVISION: G-0735-A  
DATE: 9/5/03

PAGE 1 OF 2

GROUP G



REVISION: G-0735-A  
DATE: 9/5/02

PAGE 2 OF 2

WIRING - DIAGRAM  
GTS W/N TYPE OPTIONS  
DRAWING #: 0D8644

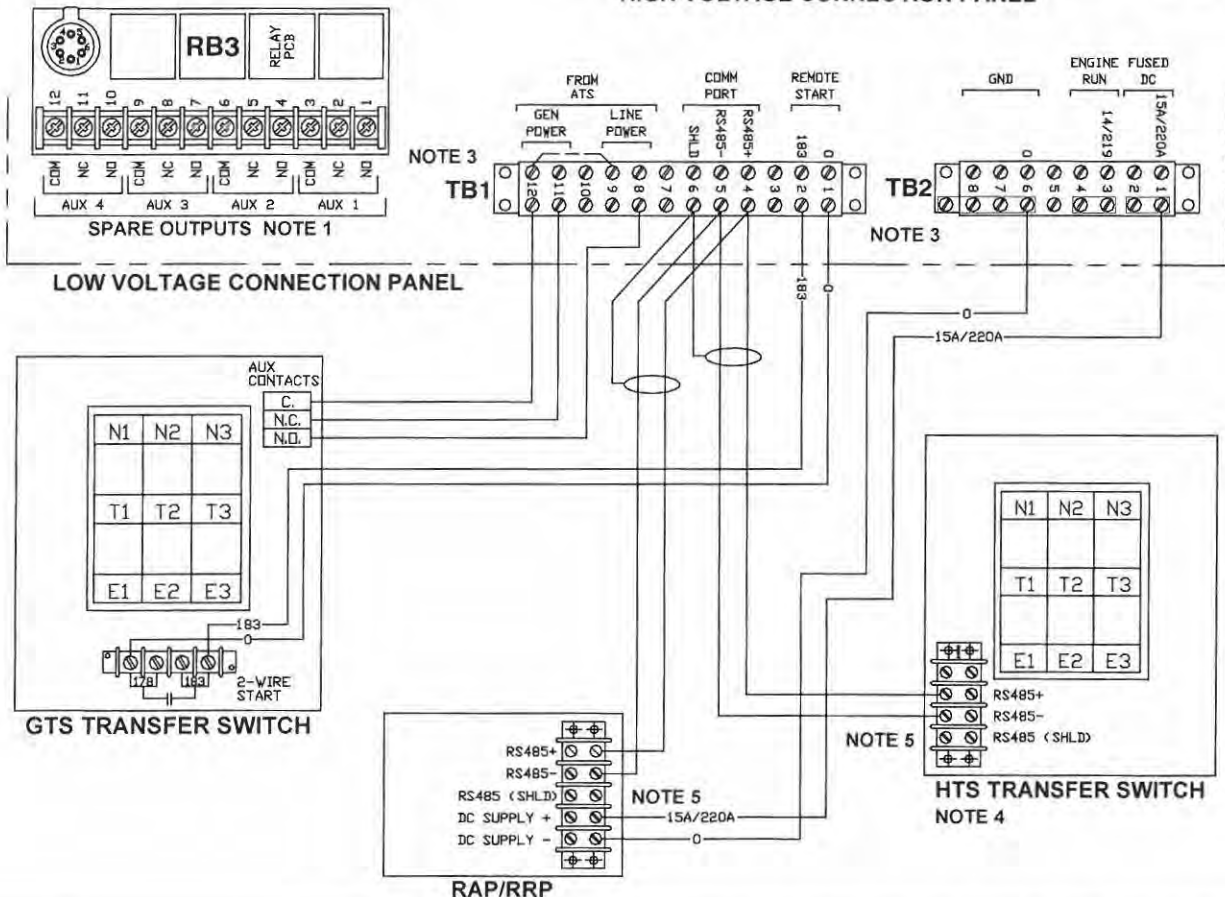
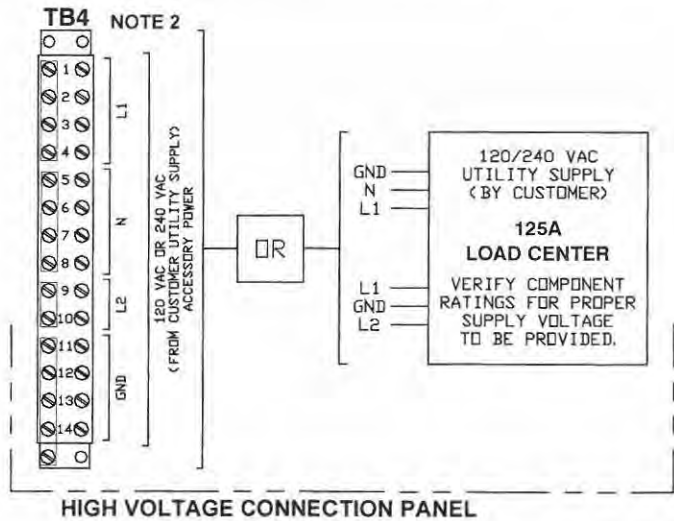


## SYSTEM INTERCONNECTION

## CONTROL INTERCONNECTIONS H-PANEL

**NOTES:**

- 1) SPARE OUTPUTS ARE STANDARD ON INDUSTRIAL PRODUCT ONLY. GENLINK™ REQUIRED FOR PROGRAMMING.
- 2) TB4 MAX WIRE SIZE: #10 AWG, RECOMMENDED TIGHTENING TORQUE: 14 LB-IN
- 3) TB1, TB2 & RB3 MAX WIRE SIZE: #14 AWG RECOMMENDED TIGHTENING TORQUE: 12 LB-IN
- 4) REFER TO H-PANEL MANUAL FOR INSTRUCTIONS ON ENABLING HTS TRANSFER SWITCH. REFER TO HTS TRANSFER SWITCH MANUAL FOR DIP SWITCH SETTINGS FOR MULTIPLE HTS APPLICATIONS.
- 5) CONNECT THE RS485 OVERALL SHIELD AT GENSET CONNECTION TERMINAL ONLY.



**EXHAUST EMISSIONS DATA**

**STATEMENT OF EXHAUST EMISSIONS  
2013 PERKINS DIESEL FUELED GENERATOR**

The measured emissions values provided here are proprietary to Generac and its authorized dealers. This information may only be disseminated upon request, to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc. The data provided shall not be meant to include information made public by Generac.

Generator Model:	<b>SD/MD600</b>	EPA Certificate Number:	<b>DPKXL18.1TAG-003</b>
kW <sub>e</sub> Rating:	<b>600</b>	CARB Certificate Number:	<b>Not Applicable</b>
Engine Family:	<b>DPKXL18.1TAG</b>	SCAQMD CEP Number:	<b>545379</b>
Engine Model:	<b>2806C-E18TAG3</b>	Emission Standard Category:	<b>Tier 2</b>
Rated Engine Power (BHP)*:	<b>909</b>	Certification Type:	<b>Stationary Emergency CI (40 CFR Part 60 Subpart IIII)</b>
Fuel Consumption (gal/hr)*:	<b>41.4</b>		
Aspiration:	<b>Turbo/Aftercooled</b>		
Rated RPM:	<b>1800</b>		

\*Engine Power and Fuel Consumption are declared by the Engine Manufacturer of Record and the U.S. EPA.

<b>Emissions based on engine power of specific Engine Model.</b>			
<b>(These values are actual composite weighted exhaust emissions results over the EPA 5-mode test cycle.)</b>			
<b>CO</b>	<b>NOx + NMHC</b>	<b>PM</b>	
<b>0.39</b>	<b>5.79</b>	<b>0.038</b>	Grams/kW-hr
<b>0.29</b>	<b>4.30</b>	<b>0.028</b>	Grams/bhp-hr

- The stated values are actual exhaust emission test measurements obtained from an engine representative of the type described above.
- Values based on 5-mode testing are official data of record as submitted to regulatory agencies for certification purposes. Testing was conducted in accordance with prevailing EPA protocol, which is typically accepted by SCAQMD and other regional authorities.
- No emissions values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems, Inc. reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emission performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and local agencies must be consulted by the permit application/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems cannot be construed as a guarantee of installability of the generating set.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
2013 MODEL YEAR  
CERTIFICATE OF CONFORMITY  
WITH THE CLEAN AIR ACT OF 1990

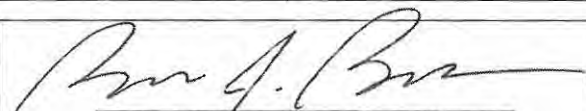
OFFICE OF TRANSPORTATION  
AND AIR QUALITY  
ANN ARBOR, MICHIGAN 48105

**Certificate Issued To:** Perkins Engines Co Ltd  
(U.S. Manufacturer or Importer)

**Certificate Number:** DPKXL18.1TAG-003

**Effective Date:**  
10/11/2012

**Expiration Date:**  
12/31/2013

  
Byron J. Bunker, Acting Division Director  
Compliance Division

**Issue Date:**  
10/11/2012

**Revision Date:**  
N/A

**Model Year:** 2013

**Manufacturer Type:** Original Engine Manufacturer

**Engine Family:** DPKXL18.1TAG

**Mobile/Stationary Indicator:** Stationary

**Emissions Power Category:** 560<kW<=2237

**Fuel Type:** Non-Standard Fuel, Diesel

**After Treatment Devices:** No After Treatment Devices Installed

**Non-after Treatment Devices:** Smoke Puff Limiter, Electronic Control

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

The actual engine power may lie outside the limits of the Emissions Power Category shown above. See the certificate application for details.

## SOUND EMISSIONS DATA

## SD/MD600 18.1L LEVEL 1 ACOUSTIC ENCLOSURE

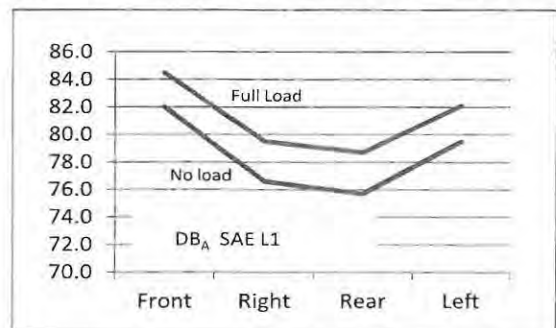
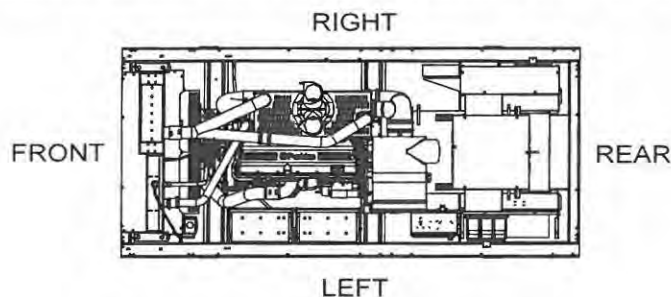
**AVERAGE SOUND LEVEL AT FULL LOAD, 7 METERS: 81.2 dB<sub>A</sub>**

### Octave Band Sound Data SD600/MD600

<b>Test Date</b>	10/14/2012	<b>Engine Firing Frequency</b>	90
<b>Test Request #</b>	A-2-3774D-B56	<b>Alt Fan Frequency</b>	240
<b>Generator Model</b>	SD600-MD600	<b>Cooling Fan Frequency</b>	233
<b>Enclosure</b>	SAE L1 Enclosure	<b>Test Conditions</b>	Cloudy
<b>Engine</b>	18.1 Liter Perkins	<b>Temp ° F</b>	52
<b>Alternator</b>	600 kW 4P WEG	<b>Barometric Pres</b>	30.56
<b>Engine Speed</b>	1800 - 60 HZ.	<b>Wind Speed mph</b>	6-8
<b>Test Location</b>	Waukesha	<b>Muffler</b>	Std Muffler
<b>Instrument</b>	TES1358	<b>Fuel</b>	#2 Diesel

Test Load: <b>0 kW</b>		480 Volt		Distance 7 Meters						
MICROPHONE LOCATION	<b>OCTAVE BAND CENTER FREQUENCY</b>									
	31.5	63	125	250	500	1000	2000	4000	8000	dB <sub>A</sub>
FRONT	44.0	50.0	65.2	70.4	69.6	71.2	67.0	61.0	49.9	82.0
RIGHT	41.4	51.2	59.4	66.4	68.3	64.7	62.2	57.6	45.8	76.6
REAR	37.9	53.4	60.3	62.0	67.3	66.7	61.8	56.1	43.6	75.7
LEFT	41.0	53.1	61.6	68.2	68.6	71.5	66.7	61.8	51.2	79.5
<b>Average</b>	<b>41.1</b>	<b>51.9</b>	<b>61.6</b>	<b>66.7</b>	<b>68.5</b>	<b>68.5</b>	<b>64.4</b>	<b>59.1</b>	<b>47.6</b>	<b>78.5</b>

Test Load: <b>600 kW</b>		480 Volt		Distance 7 Meters						
MICROPHONE LOCATION	<b>OCTAVE BAND CENTER FREQUENCY</b>									
	31.5	63	125	250	500	1000	2000	4000	8000	dB <sub>A</sub>
FRONT	46.3	58.1	67.5	71.6	73.1	73.7	70.7	67.1	55.9	84.5
RIGHT	41.6	58.9	63.8	66.3	68.6	65.2	66.1	63.4	53.1	79.5
REAR	36.8	61.4	61.5	66.7	70.8	65.7	65.5	62.5	49.7	78.7
LEFT	43.5	64.1	62.2	71.5	70.2	73.5	72.1	69.4	57.6	82.1
<b>Average</b>	<b>42.0</b>	<b>60.6</b>	<b>63.7</b>	<b>69.0</b>	<b>70.7</b>	<b>69.5</b>	<b>68.6</b>	<b>65.6</b>	<b>54.1</b>	<b>81.2</b>



1. All positions at 23 feet (7 meters) from side faces of generator set.
2. Test conducted on a 100 foot diameter asphalt surface.
3. Data subject to change without notice



## PROTOTYPE TEST REPORT SUMMARY

## GENERATOR MODEL TESTED: SD600 INCLUDES MD600

ENGINE..... 18.1 Liter Perkins  
 ALTERNATOR..... 600 KW, WEG  
 VOLTAGE..... 277/480 3-Ø  
 TEST POWER FACTOR..... 0.8

**Maximum Power Level**..... 615kW  
 Unit is operated at maximum fuel for 5 minutes. The engine is loaded until the alternator speed starts to droop from 60 hertz. Power is determined by the kW output of the engine at unity power factor.

### Maximum Motor Starting

Available kVA @ 20%..... 1486  
 Available kVA @ 25%..... 1857  
 Available kVA @ 30%..... 2229  
 Available kVA @ 35%..... 2600  
 Motor starting curves are developed with an inductive load bank at 0.3 power factor. The individual loads are applied, voltage and frequency are determined from a high speed strip chart recorder. The instantaneous peak voltage dip is measured with each successive application of load.

### Structural Soundness

A three phase symmetrical short is applied across the generator terminals. This causes the rotor field to collapse until the short is removed. Note: With PMG options installed, the generator will support 300% current for 10 seconds at which point the controller will open the circuit. The forcing function for the PMG is limited to 300% of the main stator output.

### Torsional Analysis

The following data is calculated:

- Moment of inertia for the flywheel and generator rotor
- Torsional rigidity - engine coupling
- Shaft stiffness
- Shaft twist
- Highest stress in the crankshaft
- Resonant stress - engine and generator
- A spectrum analysis with a torsional transducer is performed during dynamic loading to verify the calculated data.
- Maximum torsional stress is less than 4735 psi

### Transient Response

Maximum Voltage Dip..... 20.0%  
 Recovery Time..... 3.8 sec  
 Application of full load at unity power factor with voltage and frequency recorded with a high speed recorder.

### Generator Temperature Rise °C

Stator..... 120  
 Rotor..... 120  
 Exciter..... 100  
 Exciter Field..... 100  
 End temperatures determined by resistance method per IEEE 115-1983. Ambient test temperature is 110° F (43.3° C). UL2200 maximum temperature rise is 120° C.

### Engine Cooling Requirements

Radiator Air Flow (cfm)..... 30,100  
 Top Tank Temperature °F..... 212  
 Delta T - Coolant °F..... 20  
 Coolant Flow Rate gal/min..... 114  
 This test is performed at full rated load and 110° F ambient.

### Harmonic Analysis (per IEEE-115 ANSI-100)

Telephone Influence Factor..... <50  
 Largest Harmonic Distortion..... <3.5%  
 Largest Single Harmonic..... 7<sup>th</sup>

### Voltage Regulation

Response Time..... 16 ms  
 Regulation..... ¼ %  
 Temperature Tracking..... 0.41%  
 Maximum Output to Field..... 100 Amp @ 1 cycle  
 Regulator Shutdown..... Loss of sensing

### Endurance Testing..... 500 Hours

Unit must operate at full rated kW load for a minimum of 500 hours without a mechanical or electrical failure. Because of the thousands of hours of run time for the Perkins engine, the endurance was limited to 500 hours with no issues in that time period.

### Additional Testing

Insulation resistance, High Potential Test for Rotor and Stator at 1500 volts for 5 minutes, resistance measurement, Shaft Current, Overspeed test at 150% of synchronous speed, Underspeed test, Saturation Curves and Losses, Efficiency Determination, Subtransient, Transient,