6/25/2026

Approved as Submitted

By: _____

Date: _____

Total Energy Systems

SUBMITTAL PACKAGE

26-1186 Central States Diesel - 300kW

CONTACT:

WORK EXPERIENCE:

RESPONSIBILITIES:

- Internal Project Setup
- Submittal Requests
- Release Equipment
- Vendor POC
- Track Shipping Schedules
- Coordinate Delivery
- Invoice Management
- Close Out Documents

Wisconsin

CONTACT:

WORK EXPERIENCE:

RESPONSIBILITIES

- Submittal Follow Up
- Submittal Approvals
- On-Site Walk Thru
- Engineering Diagrams
- Oversee Equip. Installation
- Pre-Startup Inspections
- Startup
- Planning/Scheduling
- Commissioning Assistance

Total Energy Systems, LLC

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Project Engineer

T

SUBMITTAL **Preparation**

Project Engineer

I

FOLLOW UP **on Submittal STATUS**

Project Manager

M

Once Submittal Approved RELEASE EQUIPMENT **for MANUFACTURING**

Factory

E

Build EQUIPMENT

Project Manager

L

COORDINATE **site DELIVERY**

Project Engineer

I

Equipment INSTALLATION

Project Engineer

N

STARTUP

Project Manager

E

JOB CLOSE**OUT**

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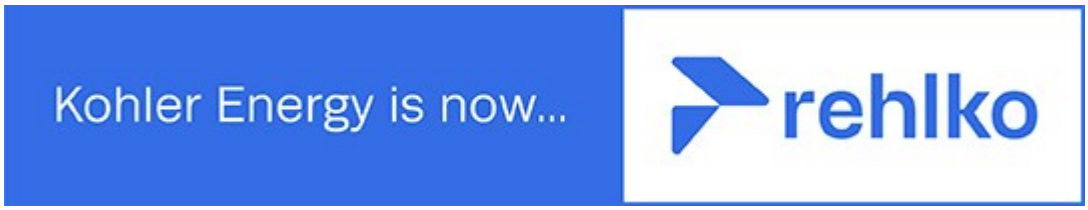


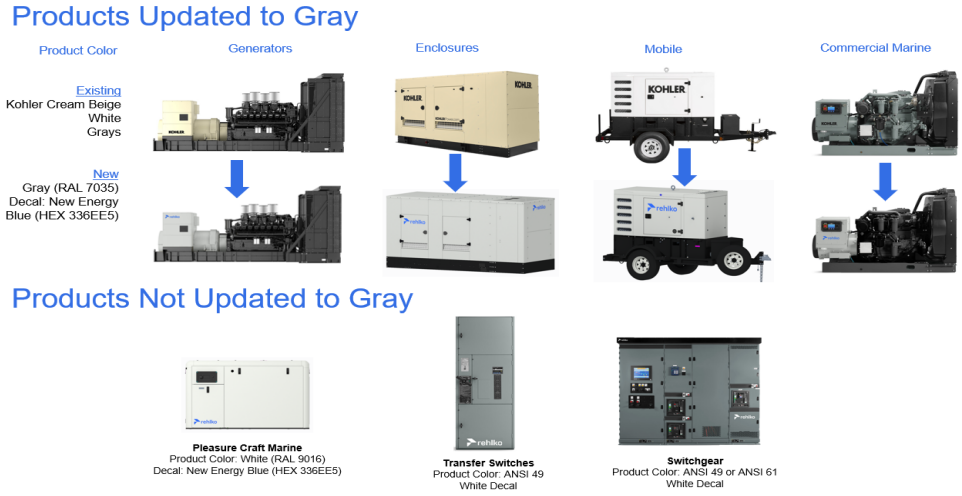
For more than 100 years Kohler Energy has delivered innovative, resilient energy solutions that provide independence, agility, and security to mission-critical infrastructure, facilities and residences. Now, with a new name and increased focus, Rehlko is giving customers more control over where energy is sourced and where it goes, from industrial applications to backyards. Rehlko is creating an energy resilient world for a better future.

As Rehlko undergoes this brand transition, some products may be delivered with updated color and brand labeling. While Rehlko is committed to minimizing any impact to customers, please be aware that there will be a period where documentation (ex: specification sheets, installation manuals, drawings, technical documentation, etc.) product color, and brand labeling may reflect a mix of both Rehlko and Kohler elements. Rest assured, the quality of the products will remain consistently high, regardless of the branding or color.

The color change will replace the traditional beige color with a new light gray color (RAL-7035). Any component that was painted beige will now be painted light gray. Any new orders entered on or after May 12th, 2025 will be shipped to the new gray color scheme and branded Rehlko. Orders currently in backlog that have a planned production start date on or after June 25th, 2025 will also be delivered to the new gray color scheme and Rehlko branded. Any order that must remain to the old color scheme that has a planned factory start date on or after June 25th, 2025 must request an ES change to keep the beige color. See the image below for examples of the update brand colors on different components and product families.

For any further questions, please contact your Rehlko representative.

For more information about Rehlko, please read the press release or visit Rehlko's website.



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"Bill of Materials"

Please note this project is subject to possible tariff surcharges. Please note section two (2) of our terms & conditions.

"Proven Provider of Critical Power Solutions"

From: Total Energy Systems LLC

GENERATOR

Kohler Model: 300REOZJ

This diesel generator set equipped with a 4UA13 alternator operating at 277/480 volts is rated for 300kW/375 kVA.

Output amperage: 451

Lead Time: 16-18 Weeks

Qty	Description	
1	300REOZJ Generator Set	
	Includes the following:	
	Literature Languages	English
	Approvals and Listings	UL2200 Listing
	Engine	300REOZJ, 24V, 60Hz
	Nameplate Rating	Standby 130C Rise
	Voltage	60Hz, 277/480V, Wye, 3Ph, 4W
	Alternator	4UA13
	Cooling System	Unit Mounted Radiator, 50C
	Skid and Mounting	Skid
	Air Intake	Standard Duty
	Controller	APM603
	Enclosure Type	Sound
	Enclosure Material	Steel
	Enclosure Silencer	Internal Silencer

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Fuel Tank Type	State
Fuel Runtime (Approx.)	24 Hours
Subbase Fuel Tank Capacity	555 Gallons
Fill Pipe/Spill Fill Options	5 GalSpillContain,6"FromBottom
High Fuel Switch	High Fuel Switch
Block Heater, Installed	2500W,90-120V,1Ph, w/Valves
Electrical Accy., Installed	Battery, 2/12V, Wet, Battery Charger, 10AMP, Run Relay, Generator Heater,15 Relay I/O Board
Rating, LCB 1	80% Rated
Amps, LCB 1	600
Trip Type, LCB 1	Electronic, LSI
Interrupt Rating LCB 1	35kA at 480V
Fuel Lines, Installed	Flexible Fuel Lines
Exceeds LTL Shipping Height	Add'l Shipping Charge Accepted
Miscellaneous Accy, Installed	Air Cleaner Restriction Ind., Coolant in Genset, Closed Crankcase Vent, Rodent Guards, Skid Extension & Caps
Warranty	5 Year Comprehensive
Testing, Additional	Power Factor Test,0.8,3Ph Only

1	NEC Remote, E-Stop
1	Lit Kit, Production, 300REOZJ
1	RSA III, Remote Annunciator Panel – 20 Light
1	Engine Start Integrity Module, Generator

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Spec Sheets

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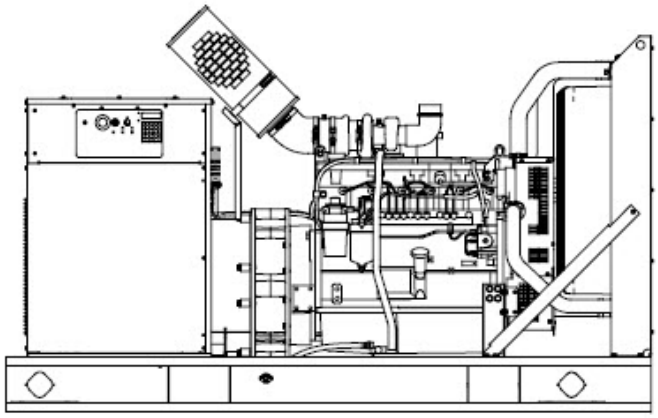
300REOZJ
Diesel



Standard Features

- Discovery Energy, LLC and its affiliates dba Rehlko provides one-source responsibility for the generating system and accessories.
- Approved for use with certified renewable Hydrotreated Vegetable Oil (HVO) / Renewable Diesel (RD) fuels compliant with EN15940/ASTM D975.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all systems and components. Two- and five-year extended warranties are also available.
- Tier 3 EPA-certified for Stationary Emergency Applications
- Alternator Protection
- Battery Rack and Cables
- Customer Connection (standard with Decision-Maker 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Alternator Features

- The unique Fast-Response II excitation system delivers excellent voltage response and short circuit capability using a permanent magnet (PM)-excited alternator.
- The brushless, rotating-field alternator has broad range reconnectability.

Other Features

- Rehlko designed controllers for one-source system integration and remote communication.
- The low coolant level shutdown prevents overheating (standard on radiator models only).Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
- An electronic, isochronous governor delivers precise frequency regulation.
- Mount up to three circuit breakers to allow circuit protection of selected priority loads.

Generator Set Rating

Standby 130C Rise Ratings

Alternator	Voltage	Ph	Hz	Peak kVA	kW/kVA	Amps
4UA13	277/480	3	60	980	300/375	451

RATINGS: All three-phase units are rated at 0.8 power factor.

Model: 300REOZJ, continued

Alternator Specifications

Specifications	Alternator
Alternator manufacturer	Rehlko
Type	4-Pole, Rotating-Field
Exciter type	Brushless,Permanent-Magnet
Leads, quantity	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation	NEMA MG1
Insulation: Material	Class H
Insulation: Temperature Rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load (with <0.5% drift due to temp. variation)	Controller Dependent
One-Step Load Acceptance	100% of rating
Unbalanced load capability	100% of Rated Standby Current

• NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
• Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
• Sustained short-circuit current enabling down stream circuit breakers to trip without collapsing the alternator field.
• Self-ventilated and dripproof construction.
• Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
• Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
• Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

Engine

Engine Specification

Engine Manufacturer	John Deere
Engine Model	6090HFG86
Engine: type	4-Cycle, Turbocharged, Charge Air Cooled
Cylinder arrangement	6, Inline
Displacement, L (cu. in.)	9.0 (548)
Bore and stroke, mm (in.)	118.4 x 136 (4.65 x 5.35)
Compression ratio	16.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	7, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	345 (463)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve (exhaust) material Intake	Chromium-Silicon Steel
Valve (exhaust) material	Stainless Steel
Governor: type, make/model	JDEC Electronic L14 Denso HP4
Frequency regulation, no-load to-full load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Model: 300REOZJ, continued

Exhaust

Exhaust System

Exhaust Manifold Type	Dry
Exhaust flow at rated kW, m3/min. (cfm)	63.6 (2246)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	497 (927)
Maximum allowable back pressure, kPa (in. Hg)	Min. 0 (0) Max. 7.5 (2.2)

Engine Electrical

Engine Electrical System

Battery charging alternator: Ground (negative/positive)	Negative
Battery charging alternator: Volts (DC)	24
Battery charging alternator: Ampere rating	45
Starter motor rated voltage (DC)	24
Battery, recommended cold cranking amps (CCA): Qty., CCA rating each	Two, 925
Battery voltage (DC)	12

Fuel

Fuel System

Fuel type	Diesel
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Electronic, 3 (10)
Max. fuel flow, Lph (gph)	240 (63.4)
Fuel prime pump	Electronic
Fuel Filter Secondary	2 Microns@ 98% Efficiency
Fuel Filter Primary	10 Microns
Fuel Filter Water Separator	Yes
Recommended fuel	#2 Diesel/HVO/RD

Lubrication

Lubrication System

Type	Full Pressure
Oil pan capacity, L (qt.)	32.5 (34.4)
Oil pan capacity with filter, L (qt.)	33.4 (35.3)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Water-Cooled

Model: 300REOZJ, continued

Cooling

Radiator System

Ambient temperature, °C (°F)	50 (122)
Engine jacket water capacity, L (gal.)	16 (4.25)
Radiator system capacity, including engine, L (gal.)	36 (9.5)
Engine jacket water flow, Lpm (gpm)	265 (70)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	114 (6489)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	99.1 (5641)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	863.6 (34.0)
Fan, kWm (HP)	9 (12.1)
Max. restriction of cooling air, intake and discharge side of radiator, kPA (in. H20)	0.125 (0.5)

* Enclosure with internal silencer reduces ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements

Radiator-cooled cooling air, m3/min. (scfm) *	396.4 (14000)
Combustion air, m3/min. (cfm)	26.5 (936)
Heat rejected to ambient air: Engine, kW (Btu/min.)	60.8 (3460)
Heat rejected to ambient air: Alternator, kW (Btu/min.)	23.9 (1360)

*Air density = 1.20 kg/m3 (0.075 lbm/ft3)

Fuel Consumption

Diesel, Lph (gph), at % load	Rating
Standby Fuel Consumption at 100% load	84.1 Lph (22.2 gph)
Standby Fuel Consumption at 75% load	67.7 Lph (17.9 gph)
Standby Fuel Consumption at 50% load	49.7 Lph (13.1 gph)
Standby Fuel Consumption at 25% load	26.3 Lph (7.0 gph)
Continuous Fuel Consumption at 0% load	** Volumetric Fuel consumption is up to 4% higher when using HVO/RD than #2 ULSD.

Industrial Generator Set Accessories

Generator Set Controller

The APM603 generator set controller provides advanced control, system monitoring, and system diagnostics for a single generator set or paralleling multiple generator sets. The APM603 interfaces the generator set to other power system equipment and network management systems using standard industry network communications. It uses a patented digital voltage regulator and unique software logic to manage alternator thermal overload protection as well as serves as an overcurrent protective relay, features normally requiring additional hardware. The APM603 controller meets NFPA 110, Level 1.

Display, Interface, and Accessibility

- A 7-inch color TFT touchscreen for easy local access to data.
  - Home screen can be customized to show critical data at a glance.
  - Create a custom favorites list for quick access to important data
- Measurements are selectable in metric or English units.
- Supports Modbus® protocol through serial bus and Ethernet networks, and supports SNMP and BACnet® through Ethernet networks.

Global Support

- Sales, installation, and service support from more than 800 Rehlko and SDMO service providers around the world.

On-board Diagnostics

- Immediate visibility of warnings and faults with text description and code display.
  - 15 seconds of critical data are captured around each warning and fault
  - Critical data can be viewed on the display and downloaded
- Store up to 10,000 events locally along with historical data logging of successful starts.
  - Accurate time stamp from real-time clock
  - Event log can be downloaded
- Data logging of customized parameter list for report generation and advanced troubleshooting.
  - Store to external USB drive for easy transfer to another device

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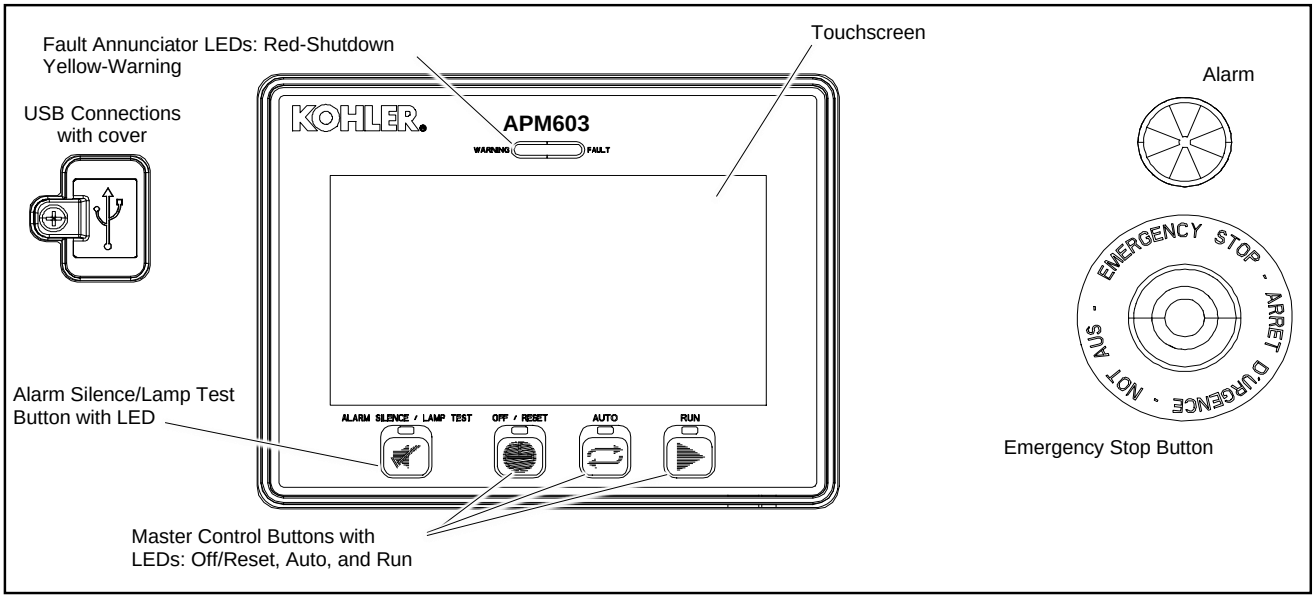
200 Twin Oaks Road, Kohler, WI 53044 USA
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444 - powersystems.rehlko.com



Controller Features

AC Output Voltage Regulator Adjustment	Maximum of ±10% of the system voltage
Alarm Horn	Indicates a generator set warning or shutdown condition
Alarm Silence	For NFPA-110 application or user convenience
Alternator Protection	Generator set overload and short circuit protection
Cyclic Cranking	Provides automatic restart after a failed start attempt with programmable on/off time and number of attempts
ECU Diagnostics	Displays engine ECU fault codes and descriptions for engine troubleshooting
Emergency Stop Button	Shuts down the generator set immediately, for emergency situations
Engine Start Aid	Control for an optional engine starting aid
Environmentally Sealed Membrane Keypad	Three master control buttons with LEDs: Off/Reset, Auto, and Run
Patented High-Speed RMS Digital Voltage Regulator	±0.25% no-load to full-load regulation with three-phase true RMS sensing
Lamp Test	Verifies functionality of the indicator LEDs
Real-time Clock	Includes battery back-up to retain date and time through controller power cycle
Remote Reset	Allows remote fault resets and restarting of the generator set
Remote Monitoring Panel	Compatible with the Remote Serial Annunciator
Run Time Hourmeter	Displays generator set run time
Run Relay	Indicates that the generator set is running
Time Delay Engine Cooldown (TDEC)	Time delay before the generator set shuts down
Time Delay Engine Start (TDES)	Time delay before the generator set starts

Controller Features

Emergency Battle Mode	• Allows critical emergency operation where uninterrupted power is essential. • Overrides most shutdowns and warnings except for E-Stop, Overspeed, Maintenance Mode, or shutdown faults from the ECU.
Maintenance mode	• Lowers the fault threshold which reduces fault setting times and activates a trip • Acts as a safety device like an E-Stop • Adjustable from 0-150% of rated current

Communication

USB Port	(1) Mini-USB port for PC connection (1) USB port for storage device
Serial (RS-485) Port	(1) Non-isolated for RSA III (1) Isolated for Modbus devices (1) Isolated for paralleling communication
Ethernet Port	(1) RJ45 for Modbus TCP, SNMP, and BACnet

Controller Specifications

Nominal voltage	12 or 24 VDC protected against reverse battery connection
Power	800 mAmps at 12 VDC 400 mAmps at 24 VDC
Operating Temperature	-40ºC to 70ºC (-40ºF to 158ºF)
Storage Temperature	-40ºC to 85ºC (-40ºF to 158ºF)
Humidity	5% to 95% non-condensing
Display Size, W x H	154 x 86 mm (6.0 x 3.4 inches)
Protection Index	IP65 Front

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Paralleling Features

- Isochronous control with real and reactive load sharing with other APM603 controller equipped generator sets
  - Supports paralleling up to 8 generators
- Random first-on logic to prevent two or more generator sets from closing to a dead bus and provides the fastest response for a single generator online
- Automatic synchronizer with dead bus closing
- Soft loading and unloading for generator management
- Protective relay functions:
  - Synch check (25C)
  - Over current (51)
  - Over frequency (81O)
  - Over power (32O)
  - Over voltage (59)
  - Reverse power (32R)
  - Reverse reactive power (32RQ)
  - Under frequency (81U)
  - Under voltage (27)
- Generator management to allow the start and stop of generators based on load demand or state of other generators
  - Fuel level
  - Run time
  - Manual order
  - Time of day
  - Efficiency
- Simplified paralleling system view from any generator controller in the system

Overcurrent Protective Device

- Provides protection against line-to-line and line-to-neutral faults
- Uses thermal and instantaneous current limit settings for alternator protection

Load Management Features

- Programmable outputs included to command the connect and disconnect of loads based on generator or paralleling system state
  - Loads connected based on available capacity
  - Loads disconnected at system startup
  - Loads disconnected based on a maximum kW setting or underfrequency setting
- Supports up to 16 prioritized load steps per system
  - Can be used on a single generator system
  - Can be combined in a paralleling system for a total system load control capability
- Simplified load management system view from any generator controller in the system
- Requires input/output module option

Advanced Programmable I/O

- Configurable inputs and outputs can be programmed for customer specific use
- PLC-like capability for applying logic to customize generator system behavior

Troubleshooting Features

- 15 seconds of key data automatically captured around each warning and shutdown
  - Data can be exported for detailed analysis
  - Data can be viewed on controller for convenient on-site troubleshooting support
- Configurable data logger will allow you to select parameters to monitor
  - Data stored to USB device for flexibility on amount of data stored and ability to export for detailed analysis
  - Data capture controlled by user to allow capturing specific data required

NFPA 110 Requirements

In order to meet NFPA 110, Level 1 requirements, the generator set controller monitors the engine/generator functions/faults shown below.

- Engine functions:
  - Overcrank
  - Low coolant temperature warning
  - High coolant temperature warning
  - High coolant temperature shutdown
  - Low oil pressure shutdown
  - Low oil pressure warning
  - High engine speed
  - Low fuel (level or pressure) *
  - Low coolant level
  - EPS supplying load
  - High battery voltage
  - Low battery voltage
- General functions:
  - Master switch not in auto
  - Battery charger fault *
  - Lamp test
  - Contacts for local and remote common alarm
  - Audible alarm silence button
  - Remote emergency stop *

* Function requires optional input sensors or kits and is engine dependent, see Engine Data.

Standards

The generator set controller has been tested and verified for compliance with the following standards.

- NFPA 99
- NFPA 110, Level 1
- CSA 282-09
- UL 6200
- ASTM B117 (salt spray test)

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Controller Functions

The controller displays warning, shutdown, and status messages. **All functions are available as relay outputs**.
Warning causes the yellow fault LED to show and sounds the alarm horn, signaling an impending problem.
Shutdown causes the red fault LED to show, sounds the alarm horn, and stops the generator set.

The controller communicates with the engine ECU and supports a large number of warning and shutdown events that are not listed here. This table highlights the items required for NFPA 110.

Event	Warning	Shutdown
Alternator Thermal Protection †		●
Battery Charger Fault *	▲	
CAN Option Board1 Comm Loss	▲	
Critically Low Fuel Level (diesel) *	▲	
ECU Diagnostic Event	▲	
ECU Mismatch Shutdown †		●
Fuel Leak Alarm (diesel) *	▲	
High Battery Voltage Warning	▲	
High Coolant Temperature Shutdown †		●
High Coolant Temperature Warning	▲	
High Fuel Level Warning (diesel) *	▲	
High Oil Temperature Shutdown †		●
High Oil Temperature Warning	▲	
Local Emergency Stop Shutdown †		●
Loss ECU Comms Shutdown †		●
Loss of Signal Low Coolant Level Voltage	▲	
Low Battery Voltage Warning	▲	
Low Coolant Level Shutdown †		●
Low Coolant Temperature Warning	▲	
Low Fuel Level Shutdown (diesel) * †		●
Low Fuel Level Warning (diesel) *	▲	
Low Fuel Pressure Warning (gas) *	▲	
Low Oil Pressure Shutdown †		●
Low Oil Pressure Warning	▲	
Low RTC (clock) Battery Voltage	▲	
Maintenance Reminder1	▲	
Maintenance Reminder2	▲	
Maintenance Reminder3	▲	
Maximum Power Shutdown †		●
Maximum Power Warning	▲	
Not In Auto Alarm	▲	
Over Crank Shutdown †		●
Over Current Shutdown (L1, L2, L3) †		●
Over Current Warning (L1, L2, L3)	▲	
Over Frequency Shutdown †		●
Over Frequency Warning	▲	
Over Power Shutdown †		●
Over Power Warning	▲	
Over Speed Shutdown †		●
Over Voltage Shutdown (L-L, L-N, each phase) †		●
Over Voltage Warning (L-L, L-N, each phase)	▲	
Remote Emergency Stop Shutdown †		●
Reverse Power Shutdown †		●
Reverse VAR Shutdown †		●
Under Frequency Shutdown †		●
Under Frequency Warning	▲	
Under Voltage Shutdown (L-L, L-N, each phase) †		●
Under Voltage Warning (L-L, L-N, each phase)	▲	
Weak Cranking Battery	▲	
Status Messages		
Auto Button Pressed		
EPS Supplying Load		
Generator Running		
Generator Started		
Generator Stopped		
GFCI Warning *		
Load Shed Overload		
Load Shed Under Frequency		
Off Button Pressed		
RSA Event Programmable Digital Inputs, 1-8		
Run Button Pressed		

* Function requires optional input sensors or kits
† Items included with common fault shutdown 10
‡ Shutdown overrides are designated by engine supplier and may vary between generator set models. An event, outside of Overspeed, E-stop, Maintenance Mode, and ECU-forced shutdown, may cause the generator to shutdown.

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John Deere Engine-Powered Models Inputs and Outputs

Standard Dedicated User Inputs	Input Type
Auxiliary Fault (Shutdown)	Digital Input
Auxiliary Warning	
Battery Charger Fault	
Breaker Closed *	
Breaker Open *	
Excitation Over Voltage (350 kW and up)	
Fuel Leak Alarm	
Low Fuel Level Switch	
Remote Emergency Stop	
Remote Engine Start	Two-wire input
Speed Bias	Analog Voltage Input, Scalable up to +/-10 VDC
Voltage Bias	

Standard Dedicated User Outputs	Output Type
Close Breaker *	Relay Driver Output
Common Failure	
Run	
Trip Breaker/Shunt Trip *	
* Only with remote-mounted electrically operated circuit breakers.	

Optional Configurable User Inputs and Outputs	
User Configurable Inputs	2 Analog, 0-5 VDC 4 Dry Contact Digital
User Configurable Relay Outputs	14 NO/NC Relays 1 Common Fault Relay
Note: Programmable I/O is configurable by authorized technician	

JD Engine Data

The following John Deere engine data is displayed on the APM603 controller.

Parameter
Engine Model Number
Engine Serial Number
ECU Serial Number
Coolant Temperature
Engine Speed
Fuel Pressure
Fuel Consumption Rate
Oil Pressure
Run Time Hours

KD Engine-Powered Models Inputs and Outputs

Standard Dedicated User Inputs	Input Type
Auxiliary Fault (Shutdown)	Digital Input
Auxiliary Warning	
Battery Charger Fault	
Breaker Closed *	
Breaker Tripped/Open *	
Fuel Leak Alarm	
Fuel Level	
Idle Switch	
Key Switch Enable	
Low Fuel Level Switch	
Low Oil Level	
Remote Emergency Stop	
Remote Reset	
Remote Engine Start	Two-wire input
Speed Bias	Analog Voltage Input, Scalable up to +/-10 VDC
Voltage Bias	

Standard Dedicated User Outputs	Output Type
Close Breaker *	Relay Driver Output
Common Failure	
Common Warning	
EPS Supplying Load	
Generator Running	
Horn	
Low Coolant Temperature	
Not in Auto	
System Ready	
Trip Breaker/Shunt Trip *	
* Only with remote-mounted electrically operated circuit breakers.	

Optional Configurable User Inputs and Outputs	
User Configurable Inputs	16 Dry Contact Digital
User Configurable Relay Outputs	8 NO/NC Relays
Note: Programmable I/O is configurable by authorized technician.	

KD Engine Data

The following Diesel engine data is displayed on the APM603 controller.

Parameter
Engine Model Number
Engine Serial Number
Ambient Temperature
Charge Air Pressure
Charge Air Temperature
Common Rail Fuel Pressure
Coolant Level
Coolant Temperature
Crankcase Pressure
Engine Speed
Fuel Consumption Rate
Fuel Pressure
Fuel Temperature
Intercooler Coolant Temperature (K175 engines only)
Oil Temperature
Oil Pressure
Run Time Hours

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APM603 Available Options

- ❑ **Common Failure Relay** provides a relay output to signal a generator set fault.
- ❑ **Battery Charger** available with 6 amp, 10 amp, and 20 amp output for 12 and 24V DC voltage output. (Availability is generator model dependent.) The 10 amp and 20 amp models provide NFPA 110 charging and alarming capability.
- ❑ **Electrically Operated Circuit Breakers**
  - For paralleling systems
  - Available generator-mounted or remote-mounted
  - 24VDC
- ❑ **Ground Fault Relay** provides a relay output to signal a ground fault is detected.
- ❑ **Input/Output Module** for Diesel (KD) and Mitsubishi models provides:
  - 16 digital input connections with connection to ground
  - 8 relay output connections (Form C, rated 8A, 240 VAC or rated 0.5 A, 48 VDC)
- ❑ **Input/Output Module** for models other than KD or Mitsubishi provides:
  - 2 analog inputs (0-5 VDC)
  - 4 digital input connections with connection to ground
  - 14 relay output connections (Form C, rated 10A, 120V)
  - 1 common fault relay output (NO, rated 2A, 24VDC)
- ❑ **Key Switch** to allow selection of RUN, OFF and AUTO modes. Lockable in the AUTO position by removing the key.
- ❑ **Remote Emergency Stop Switch** available as a wall mounted panel to remotely shut down the generator set.
- ❑ **Remote Monitoring Panel.** The Remote Serial Annunciator (RSA) enables the operator to monitor the status of the generator set from a remote location, which may be required for NFPA 99 and NFPA 110 installations, and up to four Automatic transfer switches.
- ❑ **Shunt Trip Wiring provides** relay outputs to trip a shunt trip circuit breaker and to signal the common fault shutdowns. Contacts rated at 10 amps at 28 VDC or 120 VAC.

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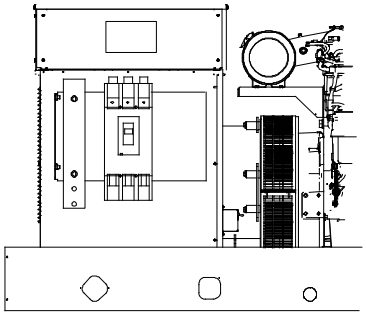
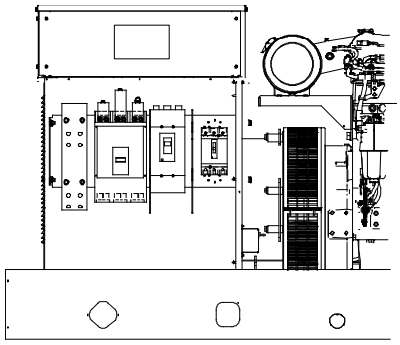
Industrial Generator Set Accessories

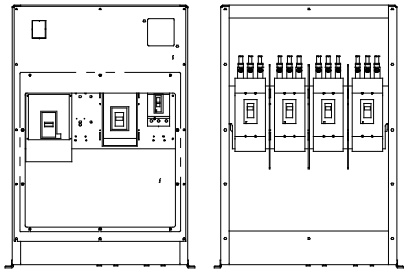
Line Circuit Breakers 15-3250 kW



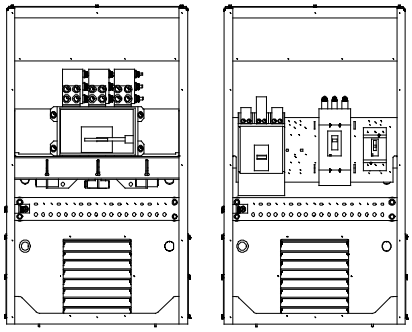
Single Circuit Breaker Kit with Neutral Bus Bar 15-300 kW Model Shown



Multiple Circuit Breaker Kit with Neutral Bus Bar 180-300 kW Model Shown



Multiple Circuit Breaker Kits with Neutral Bus Bar 350-2250 kW Model Shown (also applies to some 300 kW models)



Circuit Breaker Kits with Neutral Bus Bar 700-3250 kW KD Model Shown

Standard Features

- The line circuit breaker interrupts the generator set output during a short circuit and protects the wiring when an overload occurs. Use the circuit breaker to manually disconnect the generator set from the load during generator set service.
- Circuit breaker kits are mounted to the generator set and are provided with load-side lugs and neutral bus bar.
- Rehlko offers a wide selection of molded-case line circuit breaker kits including single, dual, and multiple configurations for each generator set.
- Four types of line circuit breakers are available: (see page 2 for definitions and pages 3 and 4 for application details)
  - Magnetic trip
  - Thermal magnetic trip
  - Electronic trip
  - Electronic with ground fault (LSIG) trip
- In addition, line circuit breakers are offered with 80% and 100% ratings.
- Single line circuit breaker kits allow circuit protection of the entire electrical system load.
- Dual line circuit breaker kits allow circuit protection of selected priority loads from the remaining electrical system load.
- Multiple line circuit breaker kits with field connection barrier allow circuit protection for special applications (350-2500 kW models and selected 80-300 kW models).
- Up to four line circuit breakers can be used on 350-2500 kW models.
- Line circuit breakers comply with the following codes and standards unless otherwise stated.
  - UL 489 Molded Case Circuit Breakers
  - UL 1077 Supplementary Protectors
  - UL 2200 Stationary Engine Generator Assemblies

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Line Circuit Breaker Types

Magnetic Trip

The magnetic trip features an electromagnet in series with the load contacts and a moveable armature to activate the trip mechanism. When a sudden and excessive current such as a short circuit occurs, the electromagnet attracts the armature resulting in an instantaneous trip.

Thermal Magnetic Trip

Thermal magnetic trip contains a thermal portion with a bimetallic strip that reacts to the heat produced from the load current. Excessive current causes it to bend sufficiently to trip the mechanism. The trip delay is dependent on the duration and excess of the overload current. Elements are factory-calibrated. A combination of both thermal and magnetic features allows a delayed trip on an overload and an instantaneous trip on a short circuit condition.

Electronic Trip

These line circuit breakers use electronic controls and miniature current transformers to monitor electrical currents and trip when preset limits are exceeded.

LI breakers are a combination of adjustable trip functions including long-time ampere rating, long-time delay, and instantaneous pickup. LSI breakers have all of the LI breaker features plus short-time pickup, short-time delay, and defeatable instantaneous pickup. LSIG breakers have all of the LSI breaker features plus ground-fault pickup and delay.

NOTE: MG-frame does not have a long-time delay when selected with LI breakers.

Electronic with Ground Fault Trip

The ground fault trip feature is referred to as LSIG in this document. Models with LSIG compare current flow in phase and neutral lines, and trip when current unbalance exists.

Ground fault trip units are an integral part of the circuit breaker and are not available as field-installable kits. The ground fault pickup switch sets the current level at which the circuit breaker will trip after the ground fault delay. Ground fault pickup values are based on circuit breaker sensor plug only and not on the rating plug multiplier. Changing the rating plug multiplier has no effect on the ground fault pickup values.

80% Rated Circuit Breaker

Most molded-case circuit breakers are 80% rated devices. An 80% rated circuit breaker can only be applied at 80% of its rating for continuous loads as defined by NFPA 70. Circuit conductors used with 80% rated circuit breakers are required to be rated for 100% of the circuit breaker's rating.

The 80% rated circuit breakers are typically at a lower cost than the 100% rated circuit breaker but load growth is limited.

100% Rated Circuit Breaker

Applications where all UL and NEC restrictions are met can use 100% rated circuit breakers where 100% rated circuits can carry 100% of the circuit breaker and conductor current rating.

The 100% rated circuit breakers are typically at a higher cost than the 80% rated circuit breaker but have load growth possibilities.

When applying 100% rated circuit breakers, comply with the various restrictions including UL Standard 489 and NEC Section 210. If any of the 100% rated circuit breaker restrictions are not met, the circuit breaker becomes an 80% rated circuit breaker.

Line Circuit Breaker Options

❑ **Alarm Switch**

The alarm switch indicates that the circuit breaker is in a tripped position caused by an overload, short circuit, ground fault, the operation of the shunt trip, an undervoltage trip, or the push-to-trip pushbutton. The alarm resets when the circuit breaker is reset.

❑ **Auxiliary Contacts**

These switches send a signal indicating whether the main circuit breaker contacts are in the open or closed position.

❑ **Breaker Separators (350-2500 kW)**

Provides adequate clearance between breaker circuits.

❑ **Bus Bars**

Bus bar kits offer a convenient way to connect load leads to the generator set when a circuit breaker is not present. **15-300 kW.** Bus bar kits are available on alternators with leads for connection to the generator set when circuit breakers are not ordered.

350-2500 kW. A bus bar kit is provided when no circuit breaker is ordered. Bus bars are also available in combination with circuit breakers or other bus bars on the opposite side of the junction box. On medium voltage (3.3 kV and above) units, a bus bar kit is standard (not applicable to KD models).

❑ **Field Connection Barrier**

Provides installer wiring isolation from factory connections.

❑ **Ground Fault Annunciation**

A relay contact for customer connection indicates a ground fault condition and is part of a ground fault alarm.

❑ **Lockout Device (padlock attachment)**

This field-installable handle padlock attachment is available for manually operated circuit breakers. The attachment can accommodate three padlocks and will lock the circuit breaker in the OFF position only.

❑ **Lugs**

Various lug sizes are available to accommodate multiple cable sizes for connection to the neutral or bus bar.

❑ **Overcurrent Trip Switch**

The overcurrent trip switch indicates that the circuit breaker has tripped due to overload, ground fault, or short circuit and returns to the deenergized state when the circuit breaker is reset.

❑ **Shunt Trip, 12 VDC or 24 VDC**

A shunt trip option provides a solenoid within the circuit breaker case that, when momentarily energized from a remote source, activates the trip mechanism. This feature allows the circuit breaker to be tripped by customer-selected faults such as alternator overload or overspeed. The circuit breaker must be reset locally after being tripped. Tripping has priority over manual or motor operator closing.

❑ **Shunt Trip Wiring**

Connects the shunt trip to the generator set controller. (standard on KD models with the APM802 controller)

❑ **Undervoltage Trip, 12 VDC or 24 VDC**

The undervoltage trips the circuit breaker when the control voltage drops below the preset threshold of 35%-70% of the rated voltage.

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15-300* kW Line Circuit Breaker Specifications

* Includes models 300REOZJ and 300REZXC. For other 300 kW models, see the 350-2250 kW section.

80% Rating Circuit Breaker

Alt. Model	Ampere Range	Trip Type	C. B. Frame Size
4D/4E	15-150	Thermal magnetic	HD
	60-150	Electronic LSI	
	60-150	Electronic LSI	HG
4P/4PX/ 4Q/4QX	15-150	Thermal magnetic	HD
	60-150	Electronic LSI	
	60-150	Electronic LSI	HG
	175-250	Thermal magnetic	JD
	250	Electronic LSI	
	250	Electronic LSI	JG
	300-400	Thermal magnetic	LA
	400	Electronic LSI	LG

Alt. Model	Ampere Range	Trip Type	C. B. Frame Size
4RX 4S/4SX 4TX/4V 4UA 4M6226	15-150	Thermal magnetic	HD
	60-150	Electronic LSI	
	60-150	Electronic LSI	HG
	175-250	Thermal magnetic	JD
	250	Electronic LSI	
	250	Electronic LSI	JG
	300-400	Thermal magnetic	LA
	400-600	Electronic LSI	LG
	800	Electronic LSI	PG
4UA 4M6226	1000-1200	Thermal magnetic	PG
		Electronic LSI	
	1200	Thermal Magnetic	PJ
		Electronic LSI	

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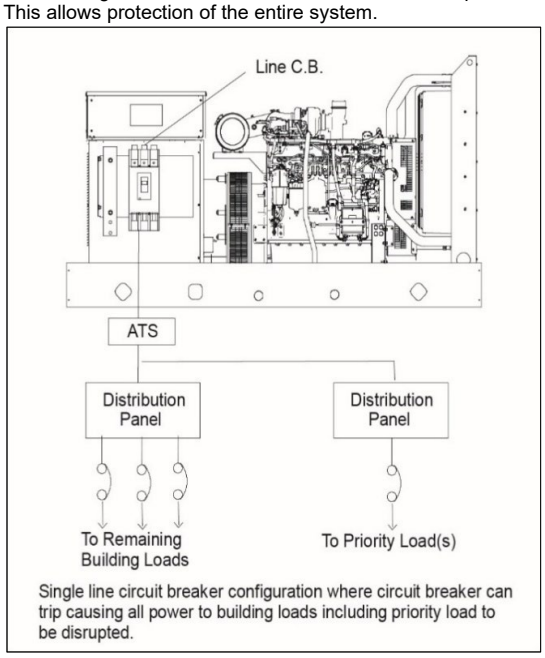
15-300* kW Line Circuit Breaker Applications

* Includes models 300REOZJ and 300REZXC. For other 300 kW models, see the 300-2250 kW section.

Single Circuit Breaker Installations

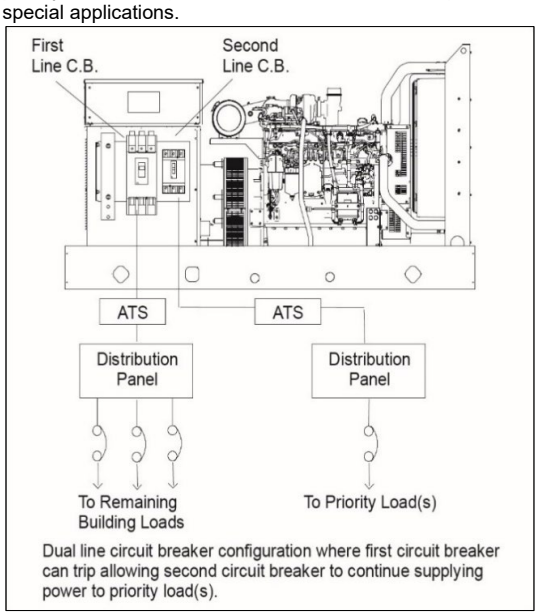
A generator set with a single circuit breaker installed typically feeds a single transfer switch and then a distribution panel. This allows protection of the entire system.



Single line circuit breaker configuration where circuit breaker can trip causing all power to building loads including priority load to be disrupted.

Multiple Circuit Breaker Installations

A generator set with dual circuit breakers installed is used to separate critical loads. Typically, one circuit breaker will feed a main transfer switch with noncritical loads and the other circuit breaker will feed a second transfer switch that feeds critical or priority loads. Multiple circuit breakers allow circuit protection for special applications.



Dual line circuit breaker configuration where first circuit breaker can trip allowing second circuit breaker to continue supplying power to priority load(s).

Circuit Breaker Combinations

Alternator	First C. B. Frame	Second C. B. Frame	Third C. B. Frame	Trip Type
ALL except 4D/4E	H	—	—	All
	J	—	—	
	LA	—	—	
	LG	—	—	
4D/4E	H	—	—	Standard or LSIG
	H	H	—	No LSIG
4P/4PX 4Q/4QX	H	H or J	—	No LSIG
	J		—	
	LA		—	
	LG	H, J or LG	—	
4RX 4S/4SX 4TX 4V	M	—	—	All
	P	—	—	All
	H or J	H or J	—	No LSIG
	LA	H, J, or LA	—	
	LG	H, J, LA, or LG	—	
	M			
	P			
	H or J	H or J	H or J	
4UA 4M6226	M or P	—	—	All
	H or J	H or J	—	
	LA	H, J, or LA	—	
	LG	H, J, LA, or LG	—	
	M or P	H, J, LA, or LG	—	
	P	P	—	No LSIG
	H or J	H or J	H or J	
	LA	H or J	H or J	
		LA	H, J, or LA	
	LG	H or J	H or J	
		LA	H, J, or LA	
		LG	H, J, LA, or LG	
	M or P	H or J	H or J	
		LA	H, J, or LA	
		LG	H, J, or LG	

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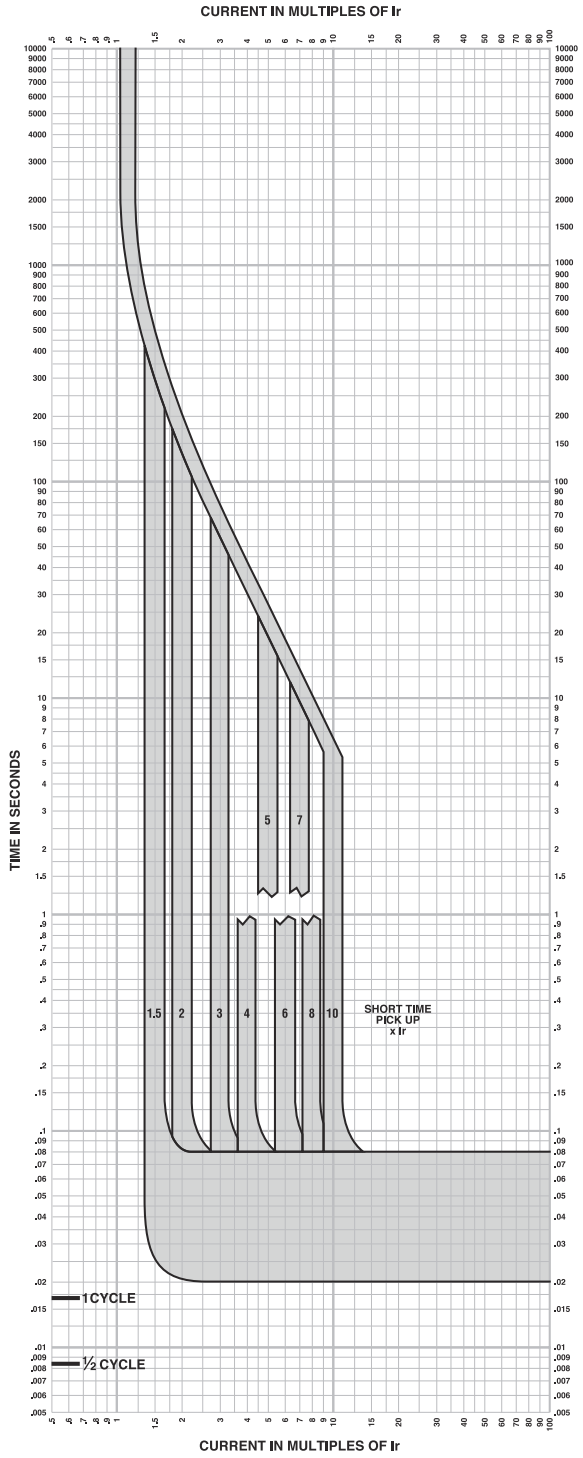
Figure 104: Micrologic 3.3S and 3.3S-W Electronic Trip Unit Long Time/Short Time Trip Curve



MICROLOGIC™ ELECTRONIC TRIP UNITS
Micrologic™ 3.3S and 3.3S-W
Long Time/Short Time Trip Curve
600A L-Frame

The time-current curve information is to be used for application and coordination purposes only.

Notes:

1. There is a thermal-imaging effect that can act to shorten the long-time delay. The thermal imaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately 20 minutes is required between overloads to completely reset thermal-imaging.
2. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.

Curves apply from -35°C to +70°C (-31°F to +158°F) ambient temperature.

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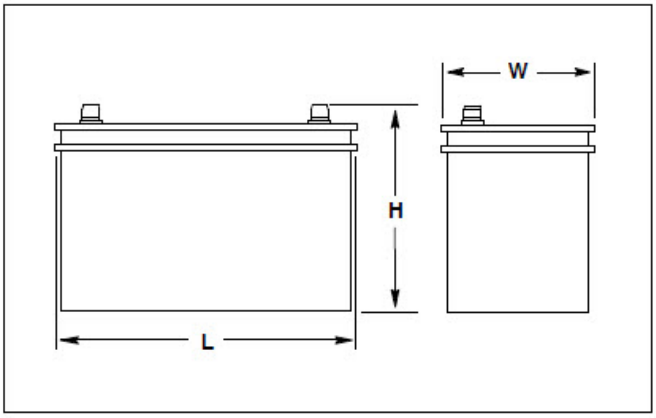
Typical Overall Dimensions

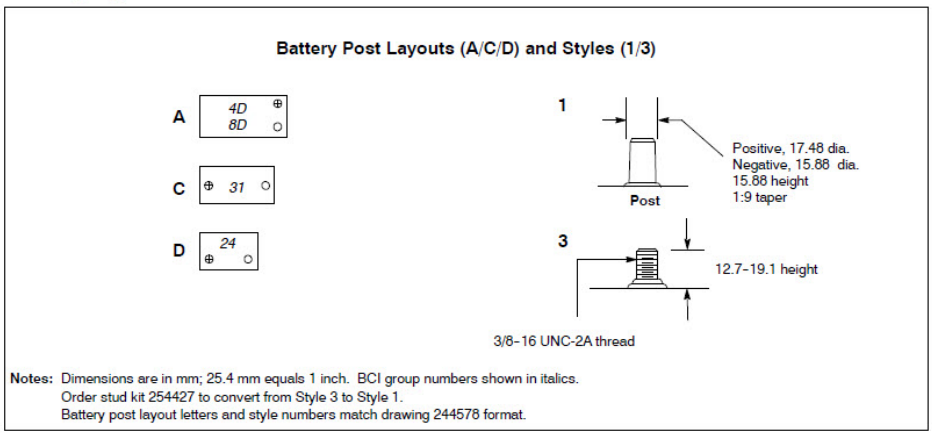


Standard Features

- Rehlko selects batteries to meet the engine manufacturer's specifications and to comply with NFPA requirements for engine-cranking cycles.
- Heavy-duty starting batteries are the most cost-effective means of engine cranking and provide excellent reliability in generator set applications.
- Tough polypropylene cases protect against life-shortening vibration and impact damage.
- Batteries are rated according to SAE standard J-537.
- All batteries are 12-volts. Kits that contain two or four batteries are availabe for 24-volt systems and/or systems with redundant starters.
- Wet- and dry-charged batteries have lead-calcium or lead-antimony plates and use sulferic acide electrolyte. Removable cell covers allow checking of electrolyte specific gravity.
- Absorbant glass mat (AGM) batteries are sealed and maintenance free.
- Batteries are for applications below and above 0°C (32°F).

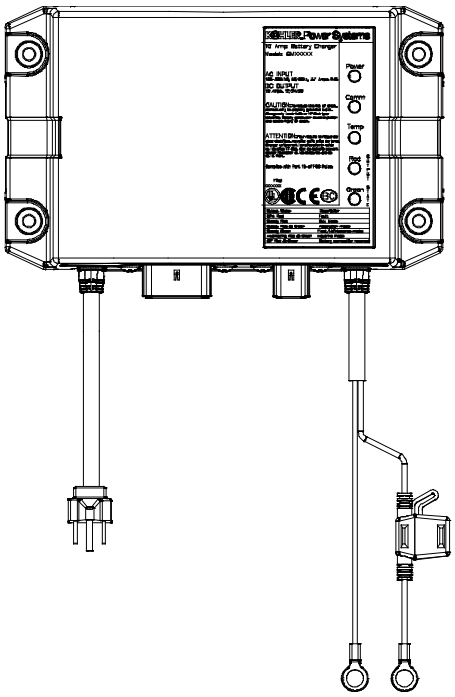
Charge Type*	Battery Part Number	Battery Qty. per Size	BCI Group Size	Battery SAE Dimension, mm (in.)			Cold Cranking Amps at 18ºC (0ºF) Min.	Reserve Capacity Minutes at 27º (80ºF) Min.	Battery Post Layout and Style
				L	W	H			
Wet	GM106375	2	31	330.2 (13.0)	171.0 (6.8)	239.8 (9.4)	925	180	C/3

Battery Specifications



Industrial Generator Set Accessories

12/24 Volt, 10 Amp
Automatic Multi-Stage Battery Charger



The battery charger is a fully-automatic, high efficiency battery charger that charges batteries rapidly and safely. The battery charger is designed for an industrial environment.

The battery charger is designed for operation with an engine cranking battery.

The battery charger is universal voltage input capable, comes with a standard 120 V/60 Hz AC plug, and charges 12 VDC or 24 VDC battery systems.

Five LED lights indicate power, communication status, temperature compensation status, charge curve, and charger status.

With the optional battery temperature sensor connected, the battery charger can adjust output voltages for optimal charging.

Standard Features

- 12 or 24 VDC output
  - Automatic voltage detection
- Automatic multi-stage charging modes
  - Recovery charge
  - Bulk charge
  - Absorption charge
  - Float charge
  - Equalize charge
- Charges the following type batteries:
  - Flooded lead acid (FLA)
  - AGM
  - Gel cell
  - High performance AGM
  - Nickel-cadmium (NiCad)
- 5 LED status indicators
- Durable potted assembly for waterproofing and vibration resistance
- Reverse-polarity protection
- Short-circuit protection
- Electronically limited output current
- Optional temperature compensation (FLA only)
- User adjustable parameters to support optimal manufacturer recommended charge curve.
- Code compliance:
  - UL 1236 Listed
  - NFPA 110, Level 1 compatible (when used with controller and connected to engine harness)
  - CSA-C22.2 No. 107.2-01
  - FCC-Title 47, Part 15 Class A
  - CE
  - IBC 2015
  - OSHPD

DC Output		AC Input		Overall Dimensions W x D x H	Shipping Weight	
Volts (Nominal)	Amps	Volts (Nominal)	Amps		kgs	lbs
12/24	10	100-260	3.7	253 mm x 152 mm x 74 mm (10.0 in x 6.0 in x 2.9 in)	3.6	7.9

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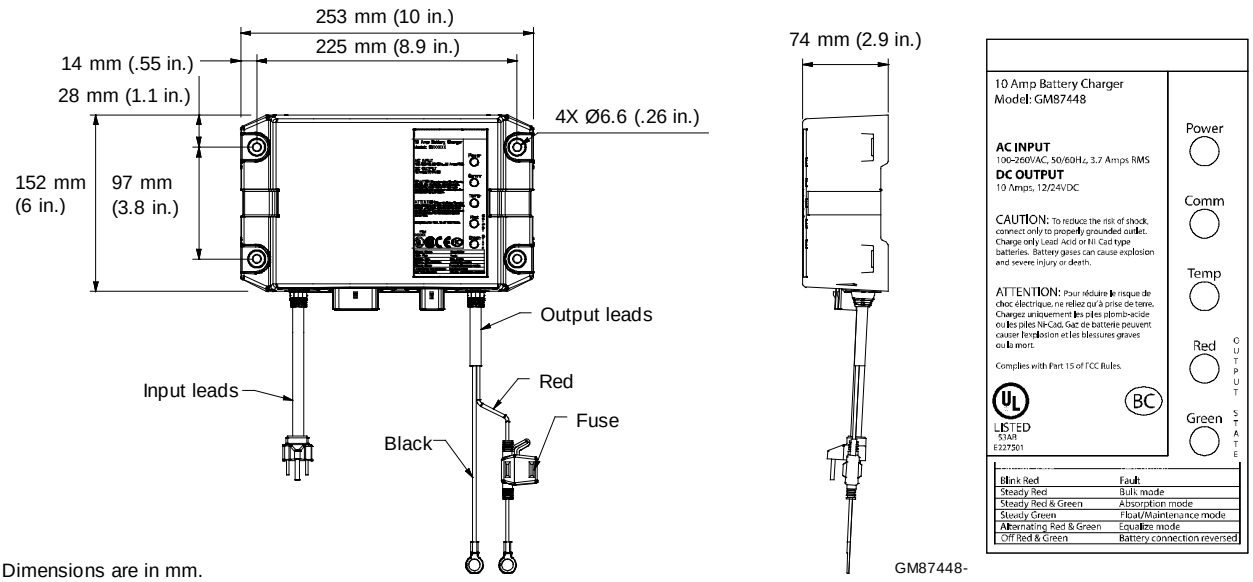
Industrial Generator Set Accessories

12/24 Volt, 10 Amp
Automatic Multi-Stage Battery Charger



Dimensions are in mm.

Specifications

AC Input	100-260 VAC
Frequency Input	50/60 Hz
DC Output	10 Amps @ 12 VDC or 10 Amps @ 24 VDC (On battery voltage regulation ±1%; current is electronically limited
Fuse Protection	15 amps ATC
Battery Types	Flooded Lead Acid (FLA) AGM Gel Cell High Performance AGM Nickel-Cadmium (NiCad)
Monitoring	
LED Indications	Power Communication Temperature compensation Output charger curve and charger status: ○ Red ○ Green
Environmental	
Operating	-20° to 70°C (-4° to 158° F)
Storage	-40° to 85°C (-40° to 185° F)
Relative Humidity	5 to 95% (non-condensing)
Salt Spray Testing	ASTM B117
Corrosion Resistant	From battery gases

Enclosure	
Environmental Resistant	From rain, snow, dust, and dripping water (IP-64)
Battery Connections	
Lead Length	1.8 m (6 ft.) red and black leads
Battery Connections	9.5 mm (3/8 in.) ring terminals
AC Power Connections	
Lead Length	1.8 m (6 ft.)
Storage	Standard US style 3-prong AC plug
Available Options	
Temperature compensation	

Availability is subject to change without notice. Discovery Energy, LLC reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Rehlko generator set distributor for availability.

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Sound Enclosure with No Tank Package

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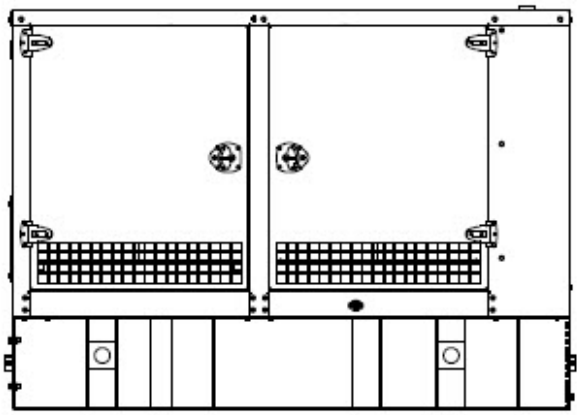
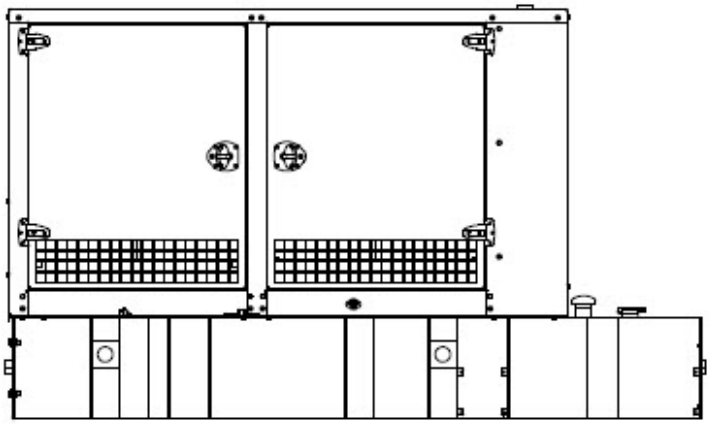


Enclosure with Standard Subbase Fuel Tank



Enclosure with State Code Subbase Fuel Tank

Sound Enclosure Standard Features

• Internal-mounted critical silencer and flexible exhaust connector.

• Lift base-mounted or tank mounted steel construction with hinged doors.

• Fade-, scratch-, and corrosion-resistant Kohler® Power Armor automotive-grade textured finish.

• Power Armor surpasses 3,000-hour salt spray corrosion tests per ASTM B- 1117

• Enclosure has four access doors which allow for easy maintenance.

• Lockable, flush-mounted door latches.

• Vertical air inlet and outlet discharge to redirect air and reduce noise.

• Acoustic insulation that meets UL 94 HF1 flammability classification and repels moisture adsorption.

• Sound-attenuated that uses up to 51 mm (2 in.) of acoustic insulation.

• Steel sound enclosure is designed to 150 mph (241 kph) wind load rating.

Subbase Fuel Tank Features

• The fuel tank has a Power Armor Plus textured epoxy-based rubberized coating.

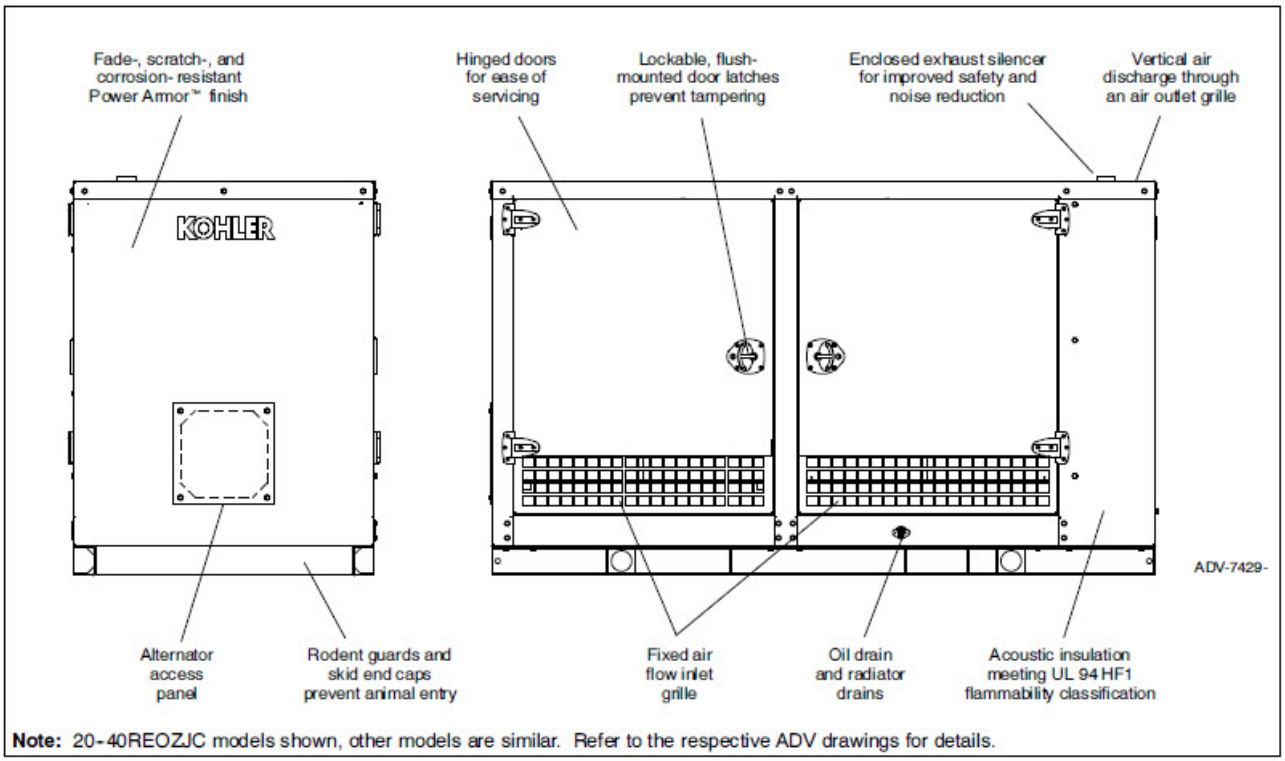
• The above-ground rectangular secondary containment tank mounts directly to the generator set, below the generator set skid (subbase).

• Both the inner and outer tanks have emergency relief vents.

• Flexible fuel lines are provided with subbase fuel tank selection.

• The secondary containment generator set base tank meets UL 142 tank requirements. The inner (primary) tank is sealed inside the outer (secondary) tank. The outer tank contains the fuel if the inner tank leaks or ruptures.

• State tanks with varying capacities are an available option. Florida Dept. of Environmental Protection (FDEP) File No. EQ-634 approved.



Note: 20-40REOZJC models shown, other models are similar. Refer to the respective ADV drawings for details.

Sound Enclosure Features

- Available in steel (14 gauge) formed panel, solid construction. Preassembled package offering corrosion resistant, dent resilient structure mounting directly to lift base or fuel tank.
- Power Armor automotive-grade finish resulting in advanced corrosion and abrasion protection as well as enhanced edge coverage and color retention.
- Internal exhaust silencer offering maximum component life and operator safety.
- Interchangeable modular panel construction. Allows complete serviceability or replacement without compromising enclosure design.
- Cooling/combustion air intake with a horizontal air inlet. Sized for maximum cooling airflow.
- Service access. Multi-personnel doors for easy access to generator set control and servicing of the fuel fill, fuel gauge, oil fill and battery.
- Cooling air discharge. Weather protective design featuring vertical air discharge. Redirects cooling air up and above the enclosure to reduce ambient noise.
- Attenuated design. Acoustic insulation UL 94 HF1 listed for flame resistance offering up to 51 mm (2 in.) mechanically restrained acoustic insulation.
- Cooling air discharge. The sound enclosures include acoustic insulation with urethane film.
- Note: Installing an additional length of exhaust tail pipe may increase backpressure levels. Please refer to the generator set spec sheet for the maximum backpressure value.

Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load	Enclosure and Fuel Tank Length, mm (in.)	Enclosure and Fuel Tank Width, mm (in.)	Enclosure and Fuel Tank Weight, kg (lb.)	Enclosure and Fuel Tank Height, mm (in.)	Fuel Tank Height (H), mm (in.)	Sound Pressure Level, dB(A)
2101 (555)	24/25	5009 (197.2)	1338 (52.7)	4076 (8987)	2894 (113.9)	635 (25)	75
Lift base	0	4121 (162.3)	1338 (52.7)	2835 (6250)	2153 (84.8)	260 (10)	75

Note: Data in table is for reference only, refer to the respective ADV drawings for details.
Note: Refer to TIB-114 for generator set sound data.
Max. weight includes the generator set (wet), enclosure, silencer, and tank (no fuel). The generator set weight represents using the largest alternator option. The enclosure weight is with acoustic insulation added.

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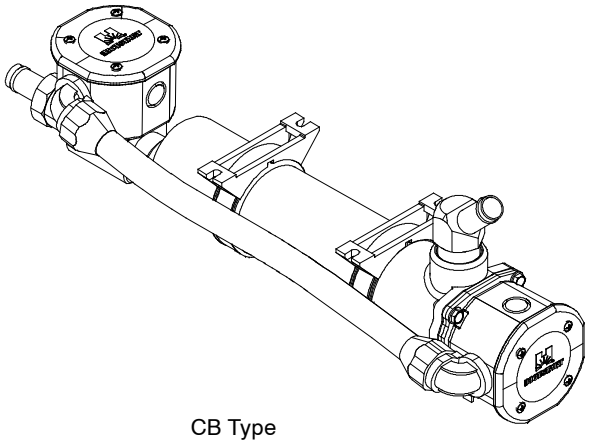
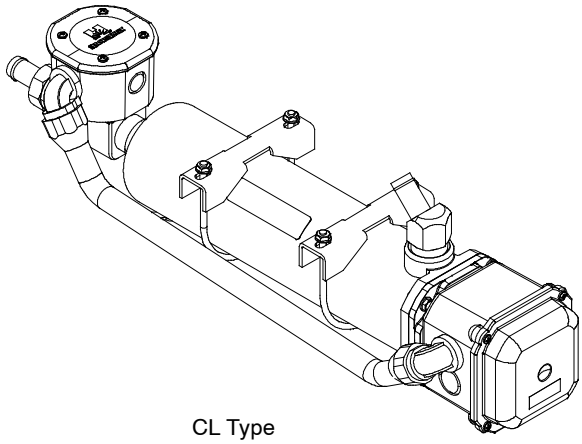
Industrial Generator Set Accessories

Engine Block Heater Kits



CB Type



CL Type

Block Heater Kit, Typical

Applicable Models

- 180- 200RZXB
- 180- 200REZXB
- 230- 275REOZJE
- 300- 500REOZJ
- 350- 500REOZJB
- 350- 500REOZJC
- 350- 400REOZJD
- 500REOZVC
- 550- 600REOZVB

Standard Features

- UL- C/US listed
- CE compliant
- Controls for automatic operation
- Compact design
- Easy to install

Description

The engine block heater kit heats the engine coolant in cold ambient, warming the cylinders, oil, and charge air circuit which all help to give a faster starting time. The engine block heater uses thermosiphon action to circulate warm coolant into the engine and supplies constant heating to the engine. The engine block heater helps to extend element life and gives a significant reduction in electrical consumption.

The engine block heater has a fixed setting thermostat that turns ON when the engine coolant temperature reaches 27°C (80°F) and turns OFF when the engine coolant temperature reaches 38°C (100°F).

The engine block heater kit is recommended for ambient temperatures below 10°C (50°F).

The engine block heater kits are available in 120 V, 208 V, 240 V, and 480 V versions.

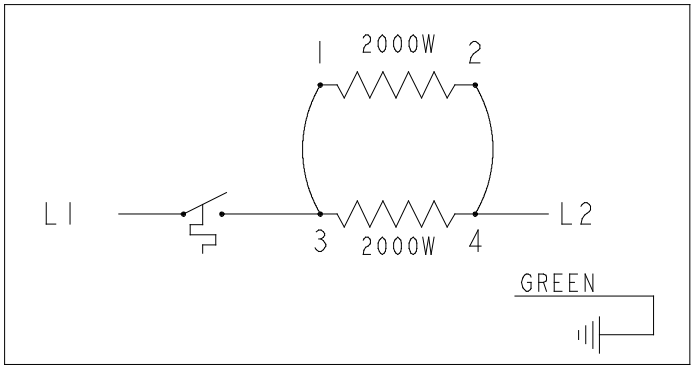
Block Heater Specifications

Heating Fluid	Water, Coolant Mix (50% Glycol/50% Water)
Thermostat Temperature Range	27°- 38°C (80°- 100°F)
Temperature High Limit	96°C (205°F)
Max. Pressure	125 psi (860 kPa)
Inlet/Outlet Plumbing	1 in. NPT
System Ingress	NEMA 4

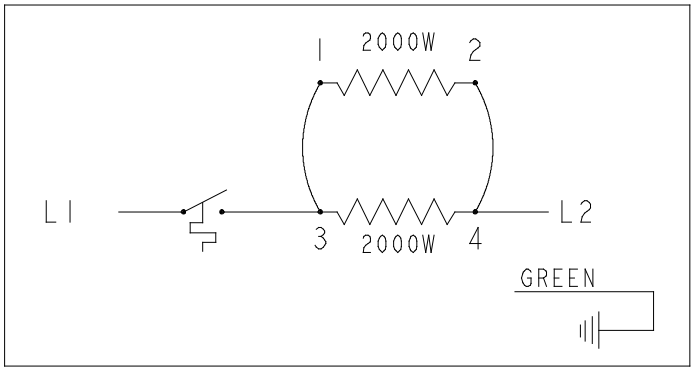
Specifications

Block Heater Kit Number	Component	Watts	Voltage	Phase
GM75809- KA1	GM76113	2500	90- 120	1
GM75809- KA2	GM76114	2500	190- 208	1
GM75809- KA3	GM76115	2500	210- 240	1
GM75809- KA4	GM76116	2500	380- 480	1
GM76120- KA1	GM76113	2500	90- 120	1
GM76120- KA2	GM76114	2500	190- 208	1
GM76120- KA3	GM76115	2500	210- 240	1
GM76120- KA4	GM76116	2500	380- 480	1
GM79186- KA1	GM79182	4000	190- 208	1
GM79186- KA2	GM79183	4000	210- 240	1
GM79186- KA3	GM79184	4000	380- 480	1
GM79186- KP1	GM79182	4000	190- 208	1
GM79186- KP2	GM79183	4000	210- 240	1
GM79186- KP3	GM79184	4000	380- 480	1
GM79187- KA1	GM79182	4000	190- 208	1
GM79187- KA2	GM79183	4000	210- 240	1
GM79187- KA3	GM79184	4000	380- 480	1
GM79187- KP1	GM79182	4000	190- 208	1
GM79187- KP2	GM79183	4000	210- 240	1
GM79187- KP3	GM79184	4000	380- 480	1
GM84820- KA1	GM76113	2500	90- 120	1
GM84820- KA2	GM76114	2500	190- 208	1
GM84820- KA3	GM76115	2500	210- 240	1
GM84820- KA4	GM76116	2500	380- 480	1

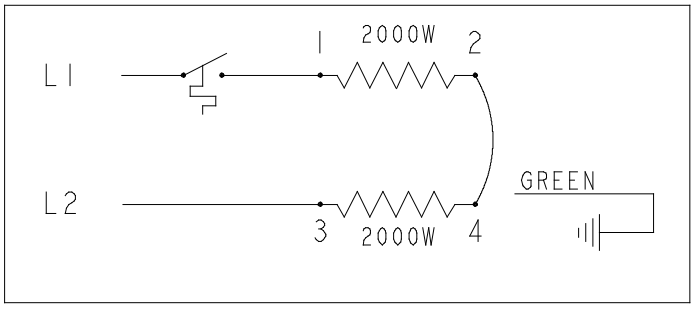
Wiring Diagram



208 VAC single phase- parallel



240 VAC single phase- parallel



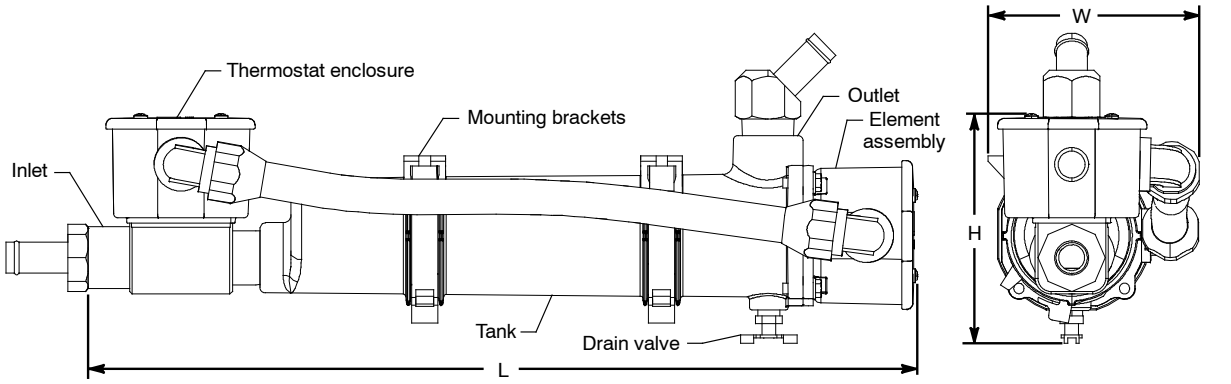
480 VAC single phase- parallel

GM79182

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

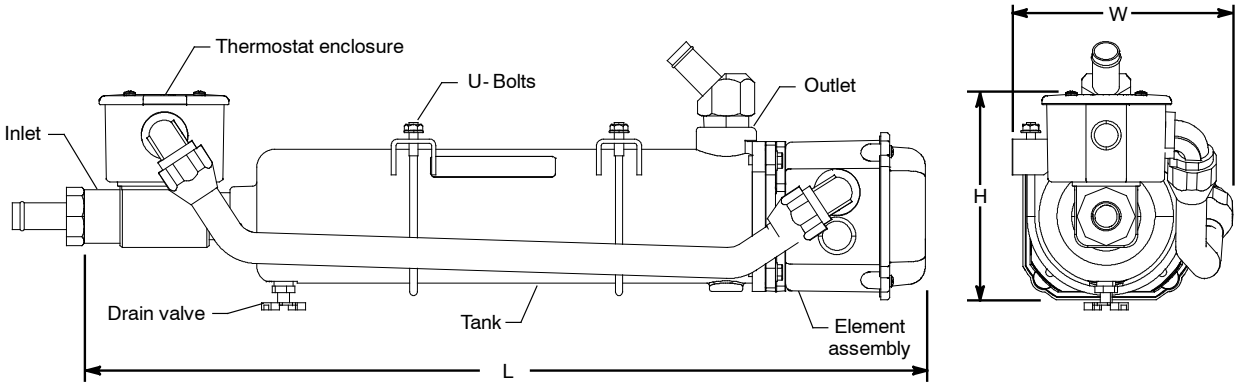
Dimensions and Weights

CB type block heater size, L x H x W, mm (in):	510 x 132 x 129 (20.1 x 5.2 x 5.1)
CL type block heater size, L x H x W, mm (in):	597 x 147 x 158 (23.5 x 5.8 x 6.2)
CB type block heater weight, kg (lb):	3 (6.9)
CL type block heater weight, kg (lb):	4.5 (10)



CB type

GM76113



CL type

GM79182

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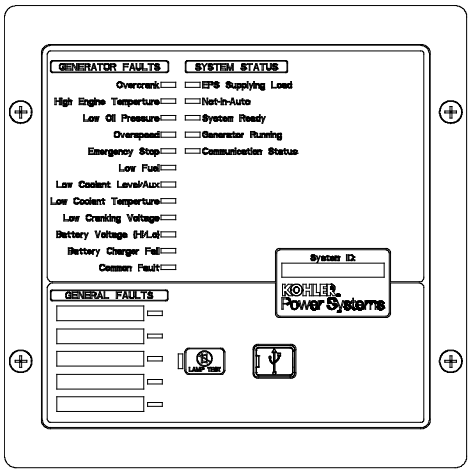
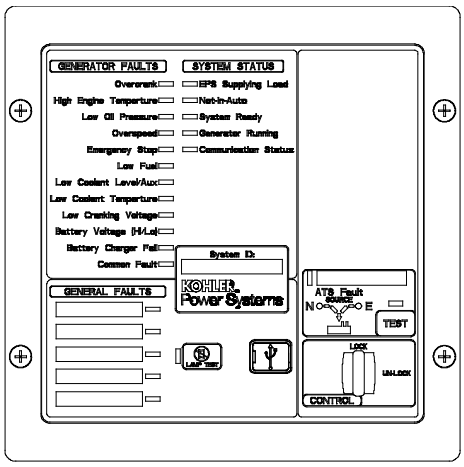
Remote Serial Annunciator III (RSA III)

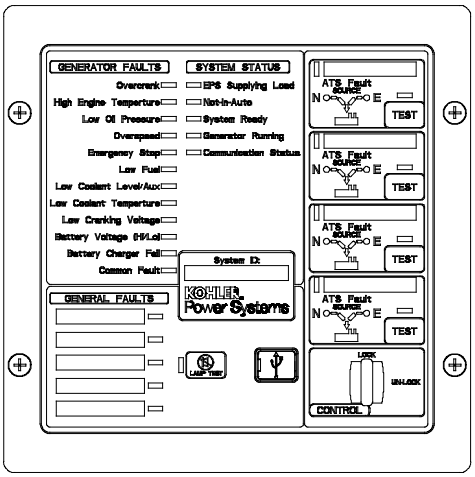
*



RSA III



RSA III with a Single ATS Control



RSA III with Four ATS Controls

Remote Serial Annunciator III (RSA III) for Kohler® Controllers

- Monitors the generator set equipped with one of the following controllers:
  APM402 — Decision-Maker® 3000
  APM603 — Decision-Maker® 3500
  APM802 — Decision-Maker® 6000
  Decision-Maker® 3+ — Decision-Maker® 8000
  Decision-Maker® 550 — KPC 1000
- Allows monitoring of the common alarm, remote testing of the automatic transfer switch, and monitoring of the normal/emergency source for up to four ATS with any of the following controllers:
  Decision-Maker® MPAC® 750, 1200, and 1500
  MPAC® 1000 and 1500
- Configuration via a personal computer (PC) software.
- Writable surfaces (white boxes in illustrations) for user-defined selections.
- Uses Modbus® RTU protocol.
- Controller connections:
  RS-485 for serial bus network
  USB port. Connect a personal computer and use Kohler® SiteTech™ software to view events and adjust settings. *
  12-/24-volt DC power supply
  120/208 VAC power supply (available accessory)
- Meets the National Fire Protection Association Standard NFPA 110, Level 1.

Dimensions

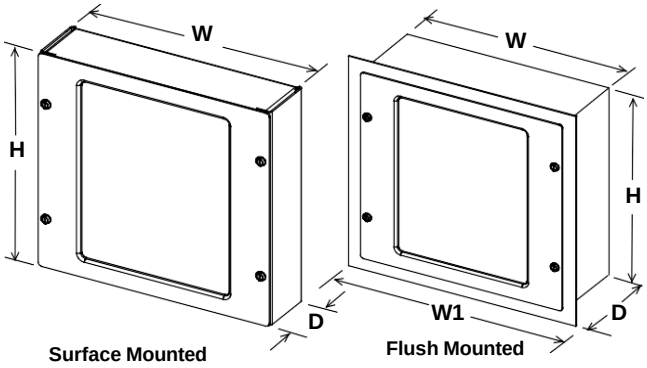
- Dimensions—W x H x D, mm (in.).

Surface Mounted:
203 x 203 x 83 (8.0 x 8.0 x 3.3)

Flush Mounted (Inside Wall):
203 x 203 x 76 (8.0 x 8.0 x 3.0)
Flush mounting plate W1: 254 (10.0)

* SiteTech™ software is available to Kohler authorized distributors and dealers.

Modbus® is a registered trademark of Schneider Electric.



Surface Mounted **Flush Mounted**

Fault and Status Conditions	Fault LEDs	Fault Horn	System Ready LED	Generator Running LED	Communication Status LED
Overcrank Shutdown	Red	On	Red	Off	Green
High Engine Temperature Warning *	Yellow	On	Red	Green	Green
High Engine Temperature Shutdown	Red	On	Red	Off	Green
Low Oil Pressure Warning *	Yellow	On	Red	Green	Green
Low Oil Pressure Shutdown	Red	On	Red	Off	Green
Overspeed Shutdown	Red	On	Red	Off	Green
Emergency Stop *	Red	On	Red	Off	Green
Low Coolant Level/Aux. Shutdown	Red	On	Red	Off	Green
Low Coolant Temperature *	Yellow	On	Red	Off	Green
Low Cranking Voltage	Yellow	On	Red	Off	Green
Low Fuel—Level or Pressure *	Yellow	On	Red	Green or Off	Green
Not-In-Auto	Red	On	Red	Green or Off	Green
Common Fault	Red/Yellow	On	Green	Green or Off	Green
Battery Charger Fault (1) *	Yellow	On	Red	Green or Off	Green
Battery Charger Fault (2) *	Yellow	On	Green	Green or Off	Green
High Battery Voltage *	Yellow	Off	Green	Green or Off	Green
Low Battery Voltage *	Yellow	Off	Green	Green or Off	Green
User Input #1 (Warning)	Yellow	Off	Green	Green or Off	Green
User Input #1 (Shutdown)	Red	On	Green	Off	Green
User Input #2 (Warning)	Yellow	Off	Green	Green or Off	Green
User Input #2 (Shutdown)	Red	On	Green	Off	Green
User Input #3 (Warning) (1) [	Yellow	Off	Green	Green or Off	Green
User Input #3 (Shutdown) (1) [	Red	On	Green	Off	Green
User Input #4 (Warning) (1)	Yellow	Off	Green	Green or Off	Green
User Input #4 (Shutdown) (1)	Red	On	Green	Off	Green
User Input #5 (Warning) (1)	Yellow	Off	Green	Green or Off	Green
User Input #5 (Shutdown) (1)	Red	On	Green	Off	Green
EPS Supplying Load	Yellow	Off	Green	Green	Green
Communications Status (Fault mode)	—	Off	Green or Red	Green or Off	Red
ATS Fault (RSA III with ATS Controls only)	Red	On	Red or Yellow	Green or Off	Green

Green LEDs appear as steady on when activated.
Yellow (common warning) LEDs slow flash when activated except steady on with EPS supplying load and high battery voltage.
Red (common fault) LEDs slow flash when activated except fast flash with loss of communication and not-in-auto.

Specifications

- LED indicating lights for status, warning, and/or shutdown.
- Power source with circuit protection: 12- or 24-volt DC
- Power source with120/208 VAC, 50/60 Hz adapter (option)
- Power draw: 200 mA
- Humidity range: 0% to 95% noncondensing
- Operating temperature range: -20°C to +70°C (-4°F to +158°F)
- Storage temperature range: -40°C to +85°C (-40°F to +185°F)
- Standards:
  - NFPA 110, level 1
  - UL 508 recognized
  - CE directive
  - NFPA 99
  - ENS 61000-4-4
  - EN6II-4-4 fast transient immunity
- RS-485 Modbus® isolated port @ 9.6/19.2/38.4/57.6 kbps (default is 19.2 kbps)
- USB device port
- NEMA 1 enclosure

(1) All generator set controllers except Decision-Maker® 3+ controller.
(2) Decision-Maker® 3+ controller only.
* May require optional kit or user-provided device to enable function and LED indication.
† Digital input #3 is factory-set for high battery voltage on the Decision-Maker® 3+ controller.

Modbus® is a registered trademark of Schneider Electric.

ATS Controls (RSA III with ATS controls only)

- ATS position LED (normal or emergency)
- Power source indicator LED (normal or emergency)
- ATS fault LED
- Key-operated lock/unlock switch for Test feature
- Test pushbutton

NFPA Requirements

- NFPA 110 compliant
- Engine functions:
  - High battery voltage warning *
  - High engine temperature shutdown
  - High engine temperature warning *
  - Low battery voltage warning *
  - Low coolant level/aux. shutdown
  - Low coolant temperature warning *
  - Low cranking voltage
  - Low fuel warning (level or pressure) *
  - Low oil pressure shutdown
  - Low oil pressure warning *
  - Overcrank shutdown
  - Overspeed shutdown
- General functions:
  - Audible alarm silence
  - Battery charger fault *
  - Lamp test
  - Master switch not-in-auto

Fault and Status LEDs and Lamp Test Switch

Alarm Horn. Horn sounds giving a minimum 90 dB at 0.1 m (0.3 ft.) audible alarm when a warning or shutdown fault condition exists except on high/low battery voltage or EPS supplying load.

Alarm Silenced. Red LED on lamp test switch lights when alarm horn is deactivated by alarm silence switch.

Alarm Silence Switch. Lamp test switch quiets the alarm during servicing. The horn will reactivate upon additional faults.

ATS Fault. Red LED lights when ATS fails to transfer.

Battery Charger Fail. LED lights if battery charger malfunctions. Requires battery charger with alarm contact.

Battery Voltage Hi/Lo. LED flashes if battery or charging voltage drops below preset level. LED lights steady if battery voltage exceeds preset level.

Common Fault. LED lights when a single or multiple common faults occur.

Communication Status. Green LED lights indicating annunciator communications functional. Red LED indicates communication fault.

EPS Supplying Load. LED lights when the Emergency Power System (EPS) generator set is supplying the load (APM402, APM603, APM802, and Decision-Maker® 550, 3000, 3500, 6000, and 8000 controllers) or when transfer switch is in the emergency position (Decision-Maker® 3+ controller).

Emergency Stop. LED lights and engine stops when emergency stop is made. May require a local emergency stop switch on some Decision-Maker® 3+ controllers.

Generator Running. LED lights when generator set is in operation.

High Engine Temperature. Red LED lights if engine has shut down because of high engine coolant temperature. Yellow LED lights if engine coolant temperature approaches shutdown range. Requires warning sender on some models.

Lamp Test (Switch). Switch tests all the annunciator indicator LEDs and horn.

Low Coolant Level/Aux. LED lights when engine coolant level is below acceptable range on radiator-mounted generator sets only. When used with a Decision-Maker® 3+ controller, the LED indicates low coolant level or an auxiliary fault shutdown. Requires user-supplied low coolant level switch on remote radiator models.

Low Coolant Temperature. LED lights if optional engine block heater malfunctions and/or engine coolant temperature is too low. Requires prealarm sender on some models.

Low Cranking Voltage. LED lights if battery voltage drops below preset level during engine cranking.

Low Fuel (Level or Pressure). LED lights if fuel level in tank approaches empty with diesel models or fuel pressure is low on gas models. Requires customer-supplied switch.

Low Oil Pressure. Red LED lights if generator set shuts down because of insufficient oil pressure. Yellow LED lights if engine oil pressure approaches shutdown range. Requires warning sender on some models.

Not In Auto. LED lights when the generator set controller is not set to automatic mode.

Overcrank. LED lights and cranking stops if engine does not start in either continuous cranking or cyclic cranking modes.

Overspeed. LED lights if generator set shuts down because of overspeed condition.

System Ready. Green LED lights when generator set master switch is in AUTO position and the system senses no faults. Red LED indicates system fault.

User-Defined Digital Inputs #1- #5. Monitors five digital auxiliary inputs (can be configured as warnings or shutdowns). User-defined digital inputs are selected via the RSA III master for local or remote (generator set or ATS). The user-defined digital input can be assigned via PC using SiteTech™ setup software.

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

Accessories

- ❑ Power source adapter kit 120/208 VAC, 50/60 Hz.
- ❑ Modbus®/Ethernet converter GM41143-KP2 for serial to Ethernet communication.
- ❑ Communication module GM32644-KA1 or GM32644-KP1 is required with Decision-Maker® 3+ controllers.

Modbus® is a registered trademark of Schneider Electric.

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Alternator Data

TECHNICAL INFORMATION BULLETIN

Alternator Data Sheet

Alternator Model: 4UA13
Frequency: 60 Hz
Speed: 1800 RPM
Leads: 12 (6 Lead, 600 Volt)

Voltage L-N/L-L	Phase	Power Factor	Connection	kW* (kVA)						
				Class B	Class F				Class H	
				80°C Continuous	90°C Lloyds	95°C ABS	105°C Continuous	130°C Standby	125°C Continuous	150°C Standby
139/240 277/480	3	0.8	Wye	275.0 (343.8)	285.0 (356.3)	290.0 (362.5)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)
127/220 254/440	3	0.8	Wye	272.0 (340.0)	283.0 (353.8)	288.5 (360.6)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)
120/208 240/416	3	0.8	Wye	272.0 (340.0)	283.0 (353.8)	288.5 (360.6)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)
110/190 220/380	3	0.8	Wye	245.0 (306.3)	259.0 (323.8)	266.0 (332.5)	280.0 (350.0)	280.0 (350.0)	280.0 (350.0)	280.0 (350.0)
120/240	3	0.8	Delta	264.0 (330.0)	278.0 (347.5)	285.5 (356.9)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)
120/240	1	1.0	Dogleg	190.0 (190.0)	198.0 (198.0)	202.0 (202.0)	210.0 (210.0)	230.0 (230.0)	226.0 (226.0)	230.0 (230.0)
120/240	1	0.8	Dogleg	140.0 (175.0)	146.0 (182.0)	150.0 (188.0)	156.0 (195.0)	185.0 (231.3)	169.0 (211.0)	185.0 (231.3)
347/600	3	0.8	Wye	275.0 (343.8)	285.0 (356.3)	290.0 (362.5)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)	300.0 (375.0)

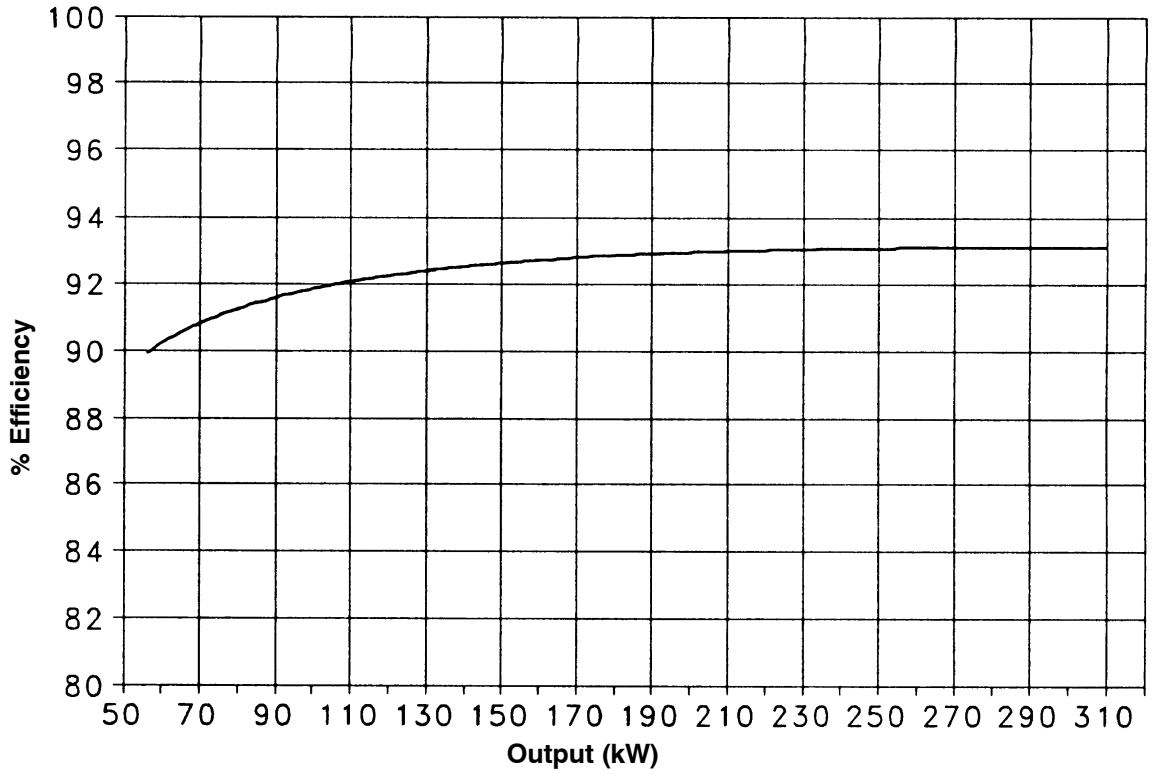
* All data tested in accordance with IEEE Standard 115. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Submittal Data: 139/240 Volts, 0.8 PF, 1800 RPM, 60 Hz, 3-Phase, 130°C Rise

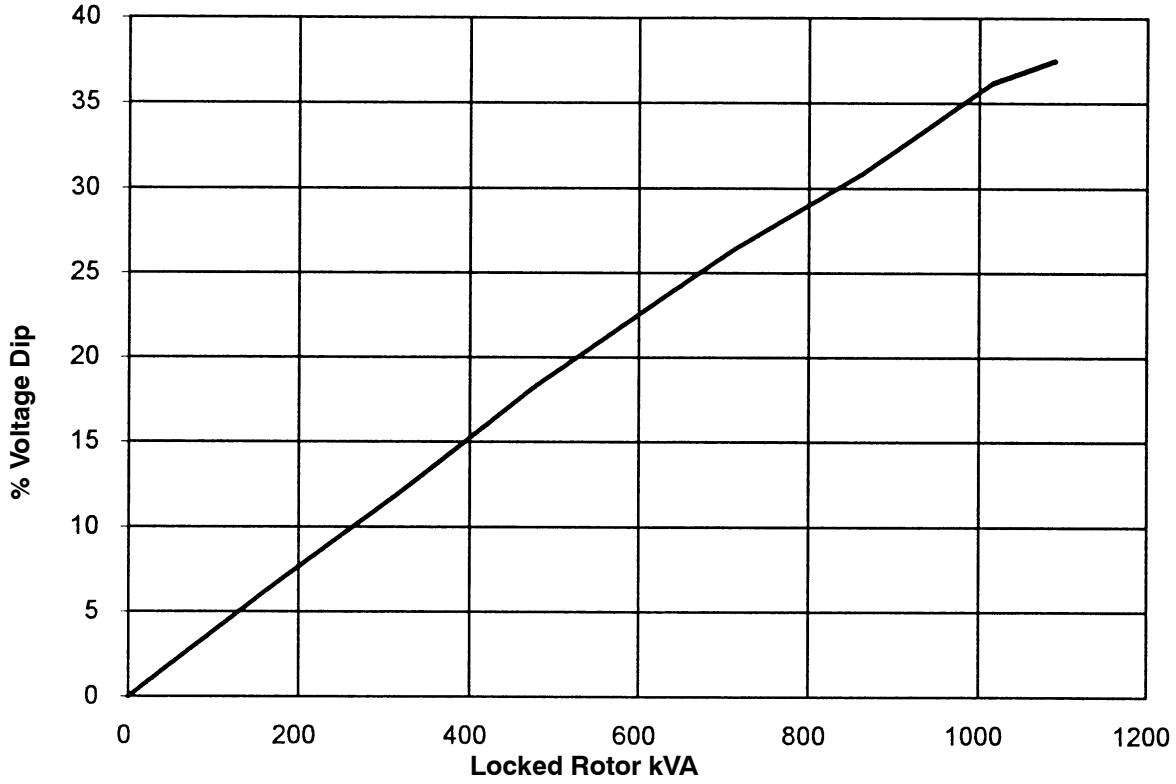
	Symbol	Per Unit	Ohms
Typical Resistances			
Phase Resistance		0.020	0.003
Rotor Resistance		13.854	2.128
Typical Reactances			
Synchronous			
Direct	X_d	3.417	0.525
Quadrature	X_q	1.178	0.273
Transient			
Unsaturated	X'_{du}	0.328	0.050
Saturated	X'_d	0.289	0.044
Subtransient			
Direct	X''_d	0.133	0.020
Quadrature	X''_q	0.139	0.021
Negative Sequence	X_2	0.136	0.021
Zero Sequence	X_0	0.011	0.002

	Symbol	Value
Typical Time Constants		
Armature Short Circuit	T_a	0.018 sec.
Transient Short Circuit	T'_d	0.185 sec.
Transient Open Circuit	T'_{do}	2.184 sec.
Typical Field Current		
Full Load	If_{FL}	29.57 amps
No Load	If_{NL}	8.3 amps
Typical Short Circuit Ratio		0.391
Harmonic Distortion		
RMS Total Harmonic Distortion		2.7%
Max. Single Harmonic		7^{th}
Deviation Factor (No Load, L-L)		4.3%
Telephone Influence Factor		<50
Insulation Material Class per NEMA MG1-1.66		H
Phase Rotation		ABC

4UA13, 60 Hz, 139/240, 277/480 Volts, Wye
TYPICAL ALTERNATOR EFFICIENCY*

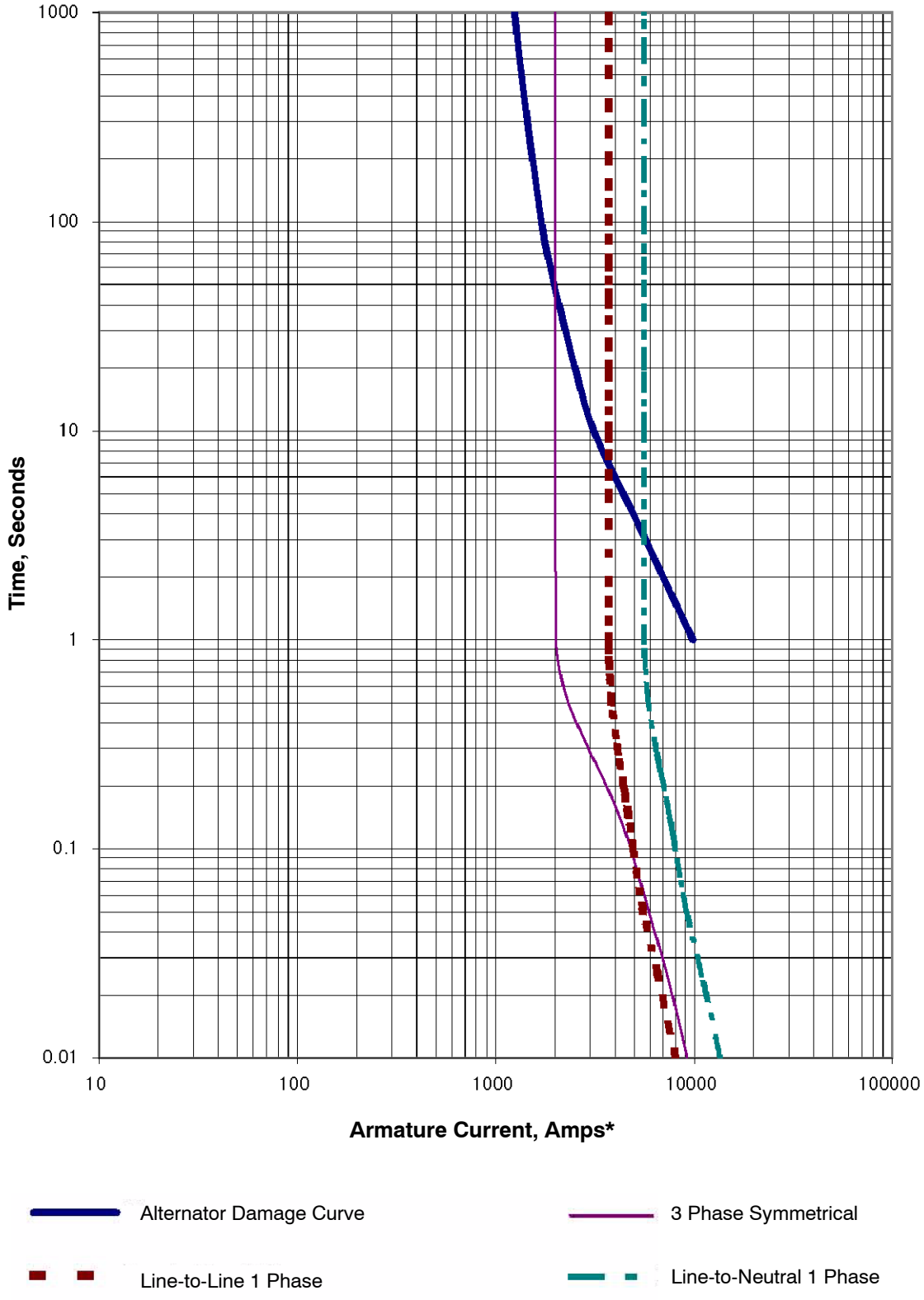


4UA13, 60 Hz, 139/240, 277/480 Volts, Wye
TYPICAL MOTOR STARTING CHARACTERISTICS*



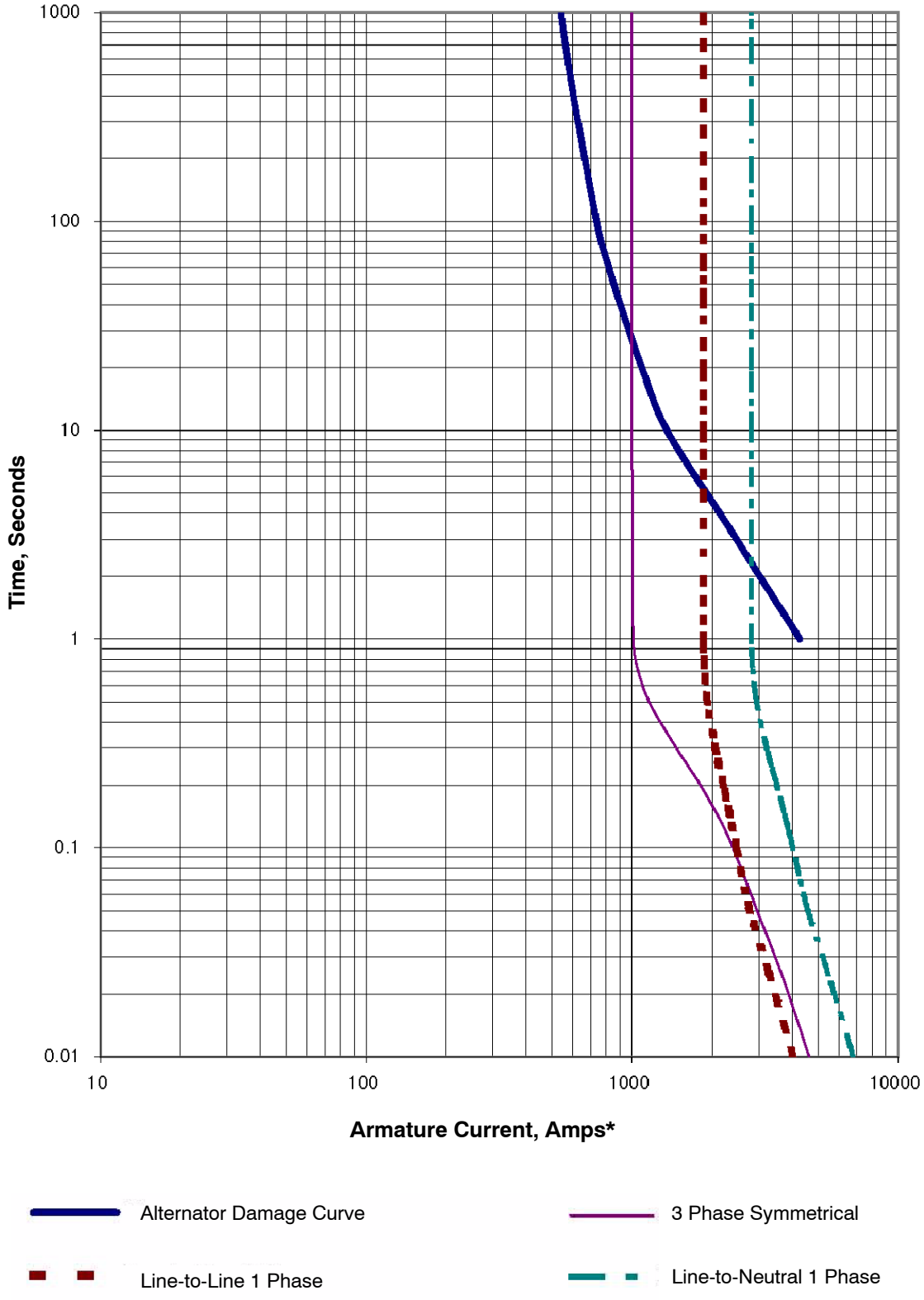
* All data tested in accordance with IEEE Standard 115. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

4UA13, 60 Hz, Low Wye or Delta Connection
SHORT CIRCUIT DECREMENT CURVE



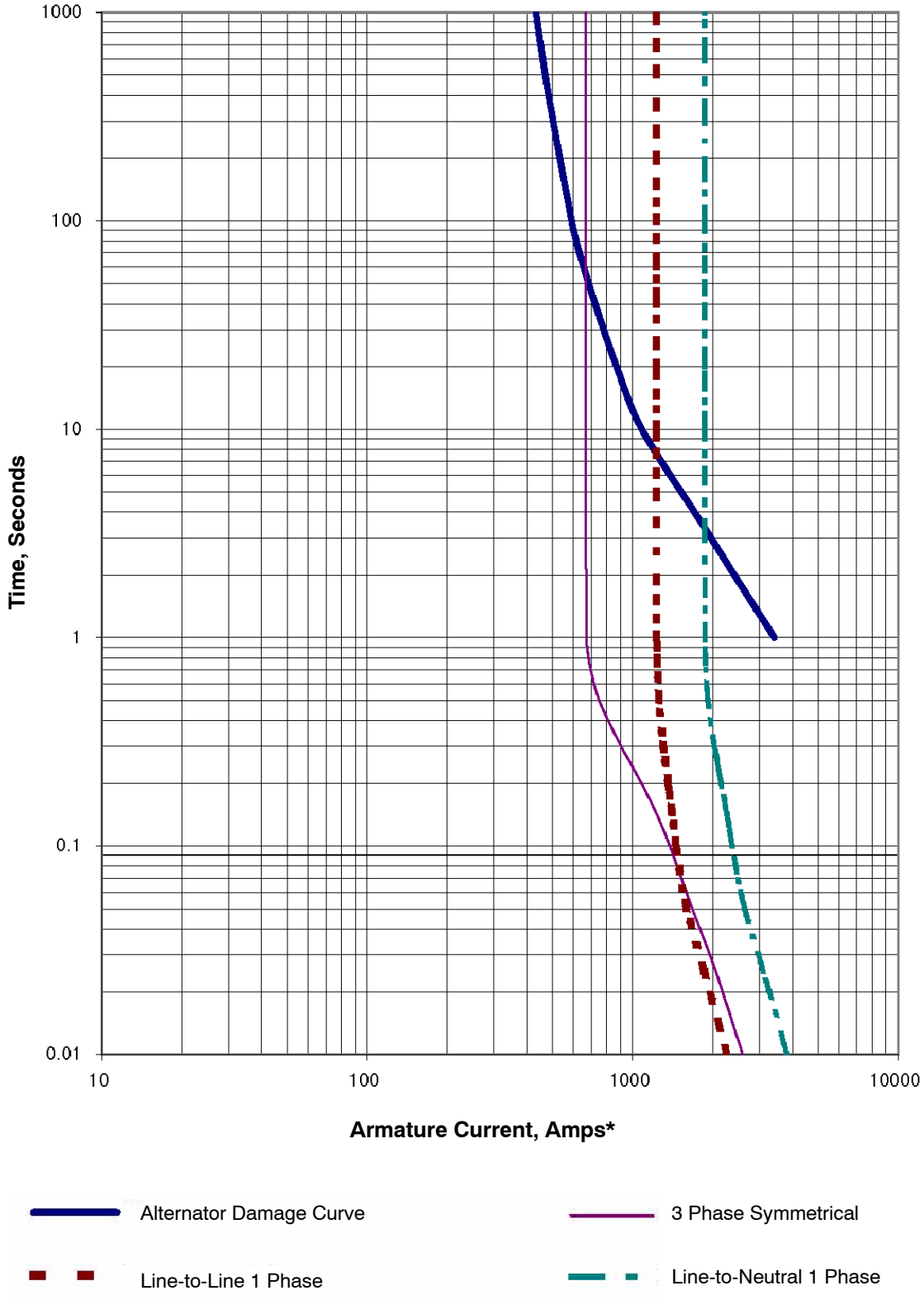
* Instantaneous current (t=0) is asymmetric. Divide by 1.732 for symmetric.

4UA13, 60 Hz, High Wye Connection
SHORT CIRCUIT DECREMENT CURVE



* Instantaneous current (t=0) is asymmetric. Divide by 1.732 for symmetric.

4UA13, 60 Hz, 600 V Connection
SHORT CIRCUIT DECREMENT CURVE



* Instantaneous current (t=0) is asymmetric. Divide by 1.732 for symmetric.

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Cooling Data

TECHNICAL INFORMATION BULLETIN

Generator Set Cooling System Data Sheet

300REOZJ 60Hz (Standby Duty)	**50°C Ambient Temperature Cooling System**								
	Total external restriction on open unit[7]	Pa *(in.H_2O)*	0 (0)	125 (0.5)	187 (0.75)	250 (1)	312 (1.25)	375 (1.5)	**Enclosed Units**
	Maximum allowable ambient temperature	°C *(°F)*	51 (124)	48 (118)	46 (115)	45 (113)	44 (111)	NA (NA)	45 (113)
	Cooling system airflow	m^3/min *(ft^3/min)*	396 (14000)	372 (13100)	360 (12700)	347 (12300)	335 (11800)	NA (NA)	NA (NA)

1. The data shown above is the anticipated cooling performance for a typical generator set when following proper installation techniques.
2. Cooling performance is based on operation at 100 m (328 ft.) above sea level. For elevations higher than 100 m (328 ft.), typical cooling performance derate is 1°C (1.8°F) per 250 m (820 ft.).
3. For high ambient conditions, check TIB-101 for the generator set power output derate schedule.
4. Incorrect installation, improper operation, fouling of the cooling system, and other variable conditions may reduce cooling performance.
5. Kohler manufactured sound enclosed models are rated in free air with no additional restriction. Consult factory for other variants or conditions such as additional ducting or hoods.
6. Performance is based on a 50/50 water and ethylene glycol mixture.
7. Total external restriction includes restriction upstream and downstream of the unit – any ducting supplying intake air to the unit and any ducting for the discharge.

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Sound Data

TECHNICAL INFORMATION BULLETIN

Generator Set Sound Data Sheet

			Sound Pressure Data in dB(A)			
Generator Set Model	**Hz**	**Load**	**Raw Exhaust**	**Open Unit, Isolated Exhaust**	**Weather Enclosure**	**Sound Enclosure**
300REOZJ	60	100% Load	119.1	91.4	89.5	75.8
		No Load	99.6	84.9	83.0	70.9

Note: Sound pressure data is the logarithmic average of eight perimeter measurement points at a distance of 7 m (23 ft.), except Raw Exhaust data which is a single measurement point at 1 m (3.3 ft.) from the mouth of a straight pipe exhaust.

300REOZJ **60 Hz**

				Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
Load	Distance, m (ft.)	Enclosure	Measurement Position	63	125	250	500	1000	2000	4000	8000	
100% Load	7 (23)	Sound	Right	55.6	64.3	71.0	69.4	65.6	68.5	65.0	65.8	76.4
			Front-Right	56.2	63.8	66.6	68.2	62.1	62.8	58.6	58.7	72.8
			Front	57.1	65.3	68.8	68.4	64.3	64.9	62.4	61.7	74.6
			Front-Left	59.5	67.4	72.9	69.7	66.6	67.3	64.4	65.0	77.2
			Left	60.0	68.5	68.1	68.1	66.2	67.4	63.2	63.1	75.5
			Back-Left	55.5	66.5	71.3	67.5	65.2	66.0	62.9	62.4	75.5
			Back	58.3	67.2	72.8	67.8	65.9	68.2	63.9	64.1	76.7
			Back-Right	58.7	68.2	68.4	69.3	67.1	69.9	64.1	65.9	76.6
			8-pos. log avg.	57.9	66.7	70.5	68.6	65.6	67.3	63.4	63.9	75.8

				Sound Pressure Levels dB(A)								
Load	Distance, m (ft.)	Enclosure	Measurement Position	Right	Front-Right	Front	Front-Left	Left	Back-Left	Back	Back-Right	8-pos. log avg.
100% Load	7 (23)	Weather	Overall Levels	89.2	87.9	87.3	91.4	92.5	89.7	83.4	89.4	89.5

				Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
Load	Distance, m (ft.)		Measurement Position	63	125	250	500	1000	2000	4000	8000	
100% Load	7 (23)	Open Unit, Isolated Exhaust	Right	59.6	67.6	74.1	76.0	84.1	84.9	81.2	87.2	91.1
			Front-Right	56.5	70.2	75.6	82.1	82.9	84.5	81.4	80.9	89.8
			Front	59.1	71.3	76.1	80.9	84.2	83.5	80.0	78.2	89.2
			Front-Left	68.2	75.4	78.3	84.1	87.1	87.5	83.5	86.7	93.3
			Left	69.0	74.1	78.7	81.3	89.6	89.5	83.7	86.3	94.4
			Back-Left	66.2	74.7	76.5	78.0	85.6	86.1	82.4	85.2	91.6
			Back	61.4	66.1	72.2	76.9	79.4	78.8	77.5	76.8	85.3
			Back-Right	61.2	70.5	75.4	76.4	82.9	84.6	80.7	88.1	91.3
			8-pos. log avg.	64.7	72.3	76.3	80.4	85.4	85.8	81.7	85.2	91.4

			Sound Pressure Levels dB(A)								
			Octave Band Center Frequency (Hz)								Overall Level
Load	Distance, m (ft.)	Exhaust	63	125	250	500	1000	2000	4000	8000	
100% Load	1 (3.3)	Raw Exhaust (No Silencer)	97.1	102.4	108.3	114.2	115.2	109.3	115.7	98.5	119.1

300REOZJ	60 Hz

Load	Distance, m (ft.)	Enclosure	Measurement Position	Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
				63	125	250	500	1000	2000	4000	8000	
No Load	7 (23)	Sound	Right	49.4	61.4	64.9	66.0	62.3	63.6	57.8	49.0	71.2
			Front-Right	45.8	56.6	61.9	64.2	59.4	57.2	48.8	40.9	67.9
			Front	49.7	59.5	63.6	62.7	60.7	57.8	52.1	43.2	68.5
			Front-Left	50.3	61.0	65.3	65.5	63.7	61.9	56.3	46.7	71.0
			Left	51.9	62.0	66.3	63.6	61.9	61.7	54.6	46.8	70.7
			Back-Left	52.4	65.5	69.1	63.3	62.4	59.8	54.9	44.9	72.3
			Back	52.1	62.9	66.5	64.8	63.7	62.4	55.7	46.0	71.5
			Back-Right	50.7	63.1	66.7	65.8	63.1	64.4	55.5	47.4	72.0
			8-pos. log avg.	50.7	62.1	66.0	64.6	62.4	61.7	55.1	46.2	70.9

Load	Distance, m (ft.)	Enclosure	Measurement Position	Sound Pressure Levels dB(A)								
				Right	Front-Right	Front	Front-Left	Left	Back-Left	Back	Back-Right	8-pos. log avg.
No Load	7 (23)	Weather	Overall Levels	82.8	84.5	81.1	85.2	83.0	83.3	78.6	82.5	83.0

Load	Distance, m (ft.)		Measurement Position	Sound Pressure Levels dB(A)								
				Octave Band Center Frequency (Hz)								Overall Level
				63	125	250	500	1000	2000	4000	8000	
No Load	7 (23)	Open Unit, Isolated Exhaust	Right	52.3	62.8	71.1	72.9	81.3	79.2	75.6	67.9	84.7
			Front-Right	49.1	63.9	73.1	79.7	81.3	80.9	77.0	69.4	86.4
			Front	50.6	64.4	72.7	73.4	78.9	77.6	72.3	64.6	83.0
			Front-Left	53.4	66.5	73.6	76.1	83.6	81.8	77.1	70.4	87.1
			Left	57.0	65.0	72.1	73.9	81.2	79.8	75.0	68.1	84.9
			Back-Left	56.6	67.7	70.9	72.0	81.9	79.8	75.4	67.7	85.2
			Back	53.7	65.1	68.2	71.2	77.2	72.1	72.9	59.7	80.5
			Back-Right	52.7	65.6	71.9	75.1	80.0	79.1	75.4	67.7	84.4
			8-pos. log avg.	53.9	65.4	72.0	75.1	81.0	79.5	75.4	67.8	84.9

Load	Distance, m (ft.)	Exhaust	Sound Pressure Levels dB(A)								
			Octave Band Center Frequency (Hz)								Overall Level
			63	125	250	500	1000	2000	4000	8000	
No Load	1 (3.3)	Raw Exhaust (No Silencer)	80.0	86.4	88.8	93.3	92.8	83.7	91.4	79.9	99.6

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Exhaust System Data

TECHNICAL INFORMATION BULLETIN

Enclosed Generator Set Exhaust System Data Sheet

Model	Enclosure Type	Consumed Back Pressure (in H20)	Consumed Back Pressure (in Hg)	Back Pressure Limit(s) (in H20)	Back Pressure Limit(s) (in Hg)	Flex Exhaust Tube(s)	Silencer	Drawing
300REOZJ	All Weather & Sound Enclosures	24.5	1.8	30.0	2.2	GM64283	GM75600	ADV-7644

1. Total system exhaust back pressure is applicable to generator sets equipped with Kohler standard enclosure packages.
2. For generator sets with multiple exhaust outlets, total system exhaust back pressure value represents each outlet.
3. The total system back pressure should not exceed the manufacturer's recommended limit.
4. The total back pressure only includes exhaust components installed inside the Kohler enclosure. Customers must calculate any additional back pressure caused by piping, extensions, or components added after the silencer outlet. Refer to the installation manual for additional details.

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Emissions Data

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300REOZJ

60 HZ. DIESEL INDUSTRIAL GENERATOR SET
EMISSION DATA SHEET

ENGINE INFORMATION

Model:	John Deere, 6090HFG86A	Bore:	118.4mm (4.66 in.)
Nameplate BHP @ 1800 RPM:	463	Stroke:	136mm (5.35 in.)
Type:	4-Cycle, 6 Cylinder, Inline	Displacement:	9.0 L (548 cu. in.)
Aspiration:	Turbocharged, Charge Air-Cooled		
Compression Ratio	16.0:1	EPA Family:	SJDXL09.0114
		EPA Certificate:	SJDXL09.0114-007

Table 1

PERFORMANCE DATA:	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine bkW @ Stated Load	86	173	259	345
Fuel Consumption (g/kWh)	247	240	215	205
Exhaust Gas Flow (m^3/min)				64
Exhaust Temperature (°C)				497

Table 2

EXHAUST EMISSION DATA:	EPA D2 Cycle 5-mode weighted
HC (Total Unburned Hydrocarbons)	0.05
NOx (Oxides of Nitrogen as NO2)	3.80
CO (Carbon Monoxide)	0.9
PM (Particulate Matter)	0.11

Values are in g/kWh unless otherwise noted

TEST METHODS AND CONDITIONS

The emission data listed is measured from a laboratory test engine according to the test procedures of 40 CFR 89 or 40 CFR 1039, as applicable. The test engine is intended to represent nominal production hardware, and there is no guarantee that every production engine will have identical test results. The family parent data represents multiple ratings and this data may have been collected at a different engine speed and load. Emission results may vary due to engine manufacturing tolerances, engine operating conditions, fuels used, alternate test methods, or other conditions.

Data and specifications subject to change without notice.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2025 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Deere & Company**
(U.S. Manufacturer or Importer)

Certificate Number: SJDXL09.0114-007

Effective Date: 06/17/2024

Expiration Date: 12/31/2025

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 06/17/2024

Revision Date: N/A

Model Year: 2025
Manufacturer Type: Original Engine Manufacturer
Engine Family: SJDXL09.0114

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 225<=kW<450
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Electronic Control, Smoke Puff Limiter, Engine Design Modification, Non-standard Non-After Treatment Device Installed

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.

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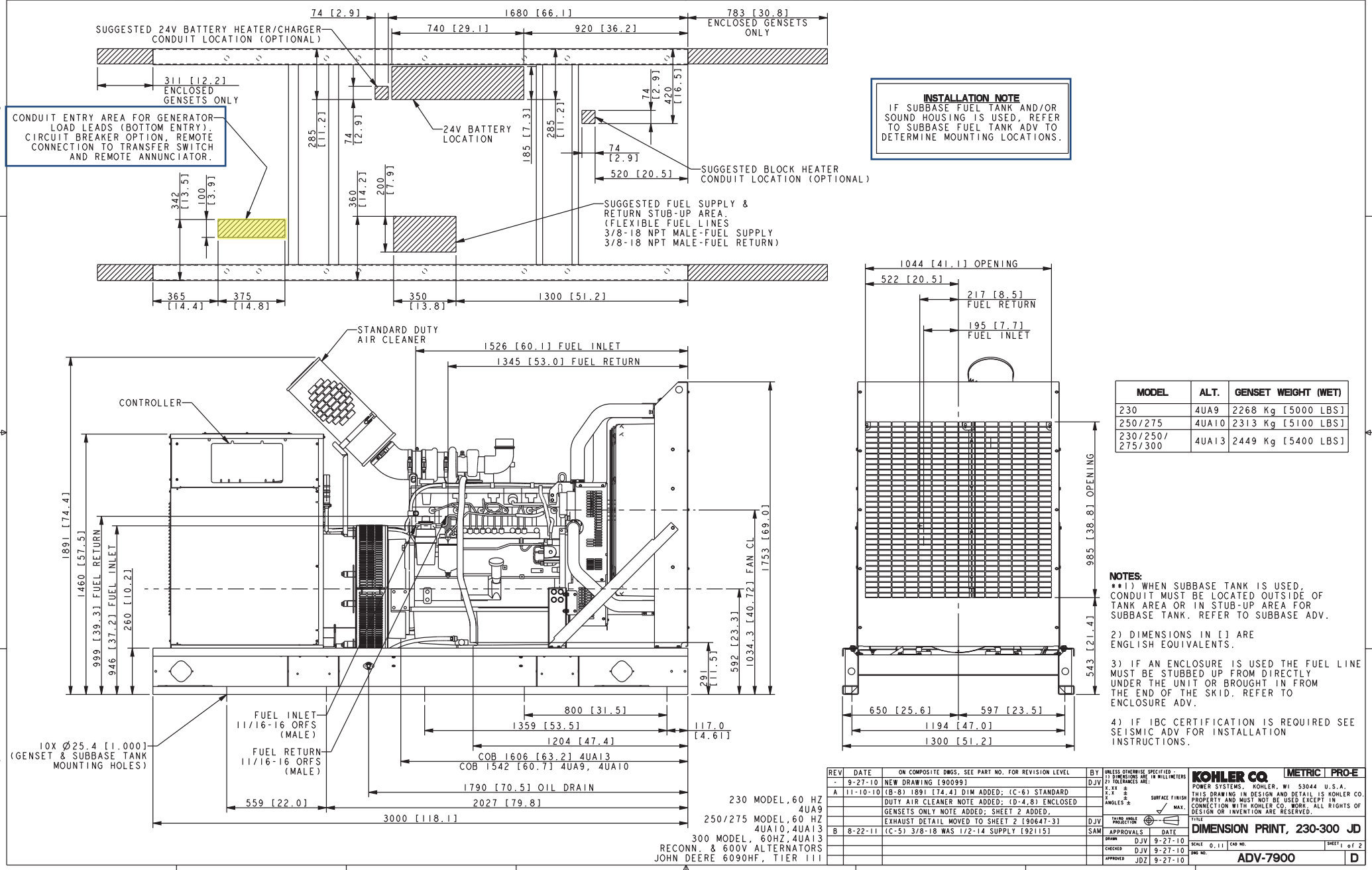
Dimensional Drawings



MODEL	ALT.	GENSET WEIGHT (WET)
230	4UA9	2268 Kg [5000 LBS]
250/275	4UAI0	2313 Kg [5100 LBS]
230/250/275/300	4UAI3	2449 Kg [5400 LBS]

NOTES:

**1) WHEN SUBBASE TANK IS USED, CONDUIT MUST BE LOCATED OUTSIDE OF TANK AREA OR IN STUB-UP AREA FOR SUBBASE TANK. REFER TO SUBBASE ADV.

2) DIMENSIONS IN [] ARE ENGLISH EQUIVALENTS.

3) IF AN ENCLOSURE IS USED THE FUEL LINE MUST BE STUBBED UP FROM DIRECTLY UNDER THE UNIT OR BROUGHT IN FROM THE END OF THE SKID. REFER TO ENCLOSURE ADV.

4) IF IBC CERTIFICATION IS REQUIRED SEE SEISMIC ADV FOR INSTALLATION INSTRUCTIONS.

230 MODEL,60 HZ 4UA9
250/275 MODEL,60 HZ 4UAI0,4UAI3
300 MODEL, 60HZ,4UAI3 RECONN. & 600V ALTERNATORS JOHN DEERE 6090HF, TIER III

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	9-27-10	NEW DRAWING [90099]	DJV
A	11-10-10	(B-8) 1891 [74.4] DIM ADDED; (C-6) STANDARD DUTY AIR CLEANER NOTE ADDED; (D-4,8) ENCLOSED GENSETS ONLY NOTE ADDED; SHEET 2 ADDED, EXHAUST DETAIL MOVED TO SHEET 2 [90647-3]	DJV
B	8-22-11	(C-5) 3/8-18 WAS 1/2-14 SUPPLY [92115]	SAM

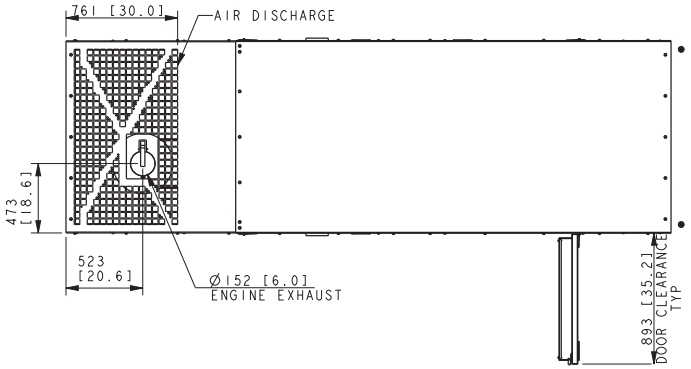
UNLESS OTHERWISE SPECIFIED: 1) DIMENSIONS ARE IN MILLIMETERS 2) TOLERANCES ARE: X ± X.X ± X.XX ± ANGLES ± SURFACE FINISH MAX. THIRD ANGLE PROJECTION

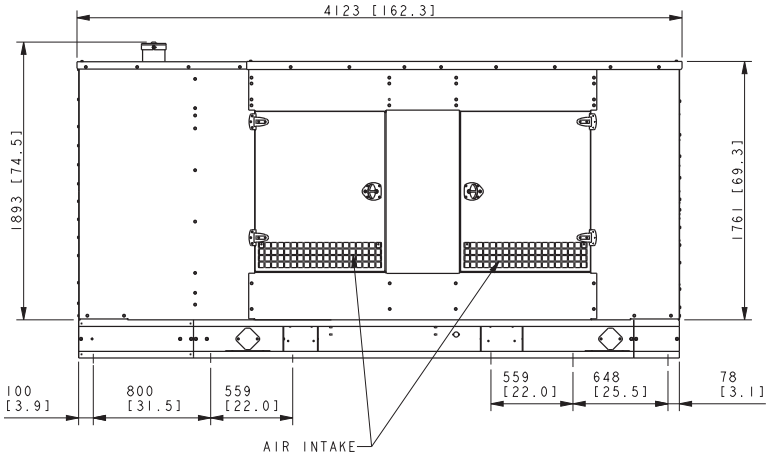
APPROVALS	DATE
DRAWN DJV	9-27-10
CHECKED DJV	9-27-10
APPROVED JDZ	9-27-10

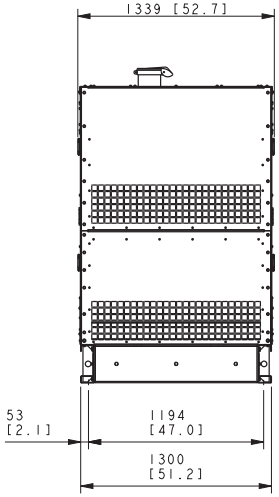
KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

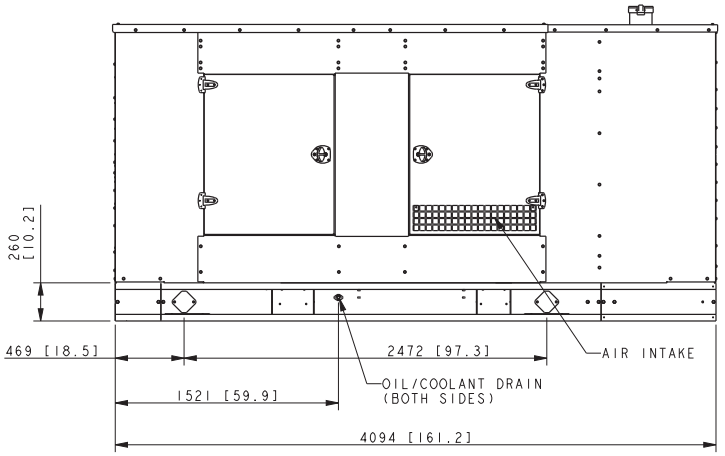
TITLE: DIMENSION PRINT, 230-300 JD
SCALE 0.11 | CAD NO. | SHEET 1 of 2
DWG NO. ADV-7900 | D

MODEL	ENCLOSURE WEIGHT KG [LBS]
STEEL WEATHER	363 [800]
STEEL SOUND	386 [850]
ALUMINIUM SOUND	238 [525]









NOTE:

1. IF STANDARD TANK IS ORDERED, ENCLOSURE MOUNTS DIRECTLY TO TANK
2. IF STATE TANK IS ORDERED, TANK MOUNTS BELOW SKID
3. TANK MAY EXTEND BEYOND ENCLOSURE (DISCHARGE END ONLY)
4. FOR STUB-UP ACCESS DURING INSTALLATION THE REAR ENCLOSURE PANEL SHOULD BE REMOVED.

230-300 MODEL
JOHN DEERE TIER III

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
E	10-31-12	SHEET 2 WAS SHEET1, ADDED SHEET 1 [CT28612]	CEK
F	2-5-13	(A-1) 1-4 WAS 1-2, SEE SHEET 3 AND 4 [CT32174]	SAM
G	8-4-17	(D-6) DIM. Ø152.4 (6.00) ADDED [CT177004]	SRM
H	11-22-18	VIEWS UPDATED, SEE SHEET 2,3 & 4 [CT191932]	YPW

UNLESS OTHERWISE SPECIFIED: (1) DIMENSIONS ARE IN MILLIMETERS (2) TOLERANCES ARE: X, XX ± 0.25, X.X ± 1.0, X ± 1.5, ANGLES ± 0° 30' MAX. SURFACE FINISH. THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	DJV	10-24-08
CHECKED	CWF	10-24-08
APPROVED	SLJ	10-24-08

KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

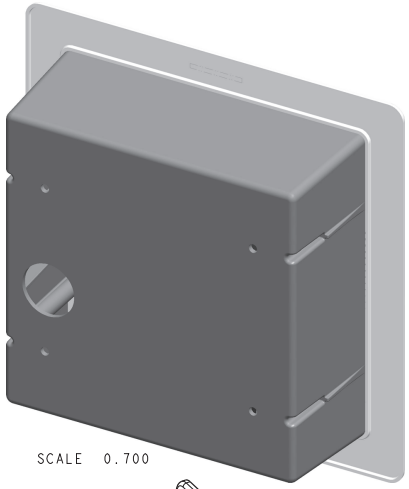
TITLE: DIMENSION PRINT 230-300KW JD

SCALE 0.06 | CAD NO. | SHEET 1 of 4

DWG NO. ADV-7644 | D

PART NO.	REV		ITEM 1	ITEM 2	ITEM 3	COMMENTS
GM85123-1	C		GM85127	GM85129	GM86126-1	MULTIPLE ATS
GM85123-2	C		GM85131	GM85129	GM86126-2	SINGLE ATS
GM85123-3	C		GM85132	-	GM86126-3	ANNUNCIATOR ONLY
GM85123-4	C		GM85133	-	GM86126-3	SDMO - ANNUNCIATOR ONLY

SCALE 0.700



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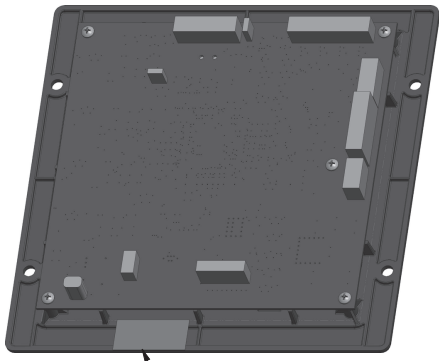
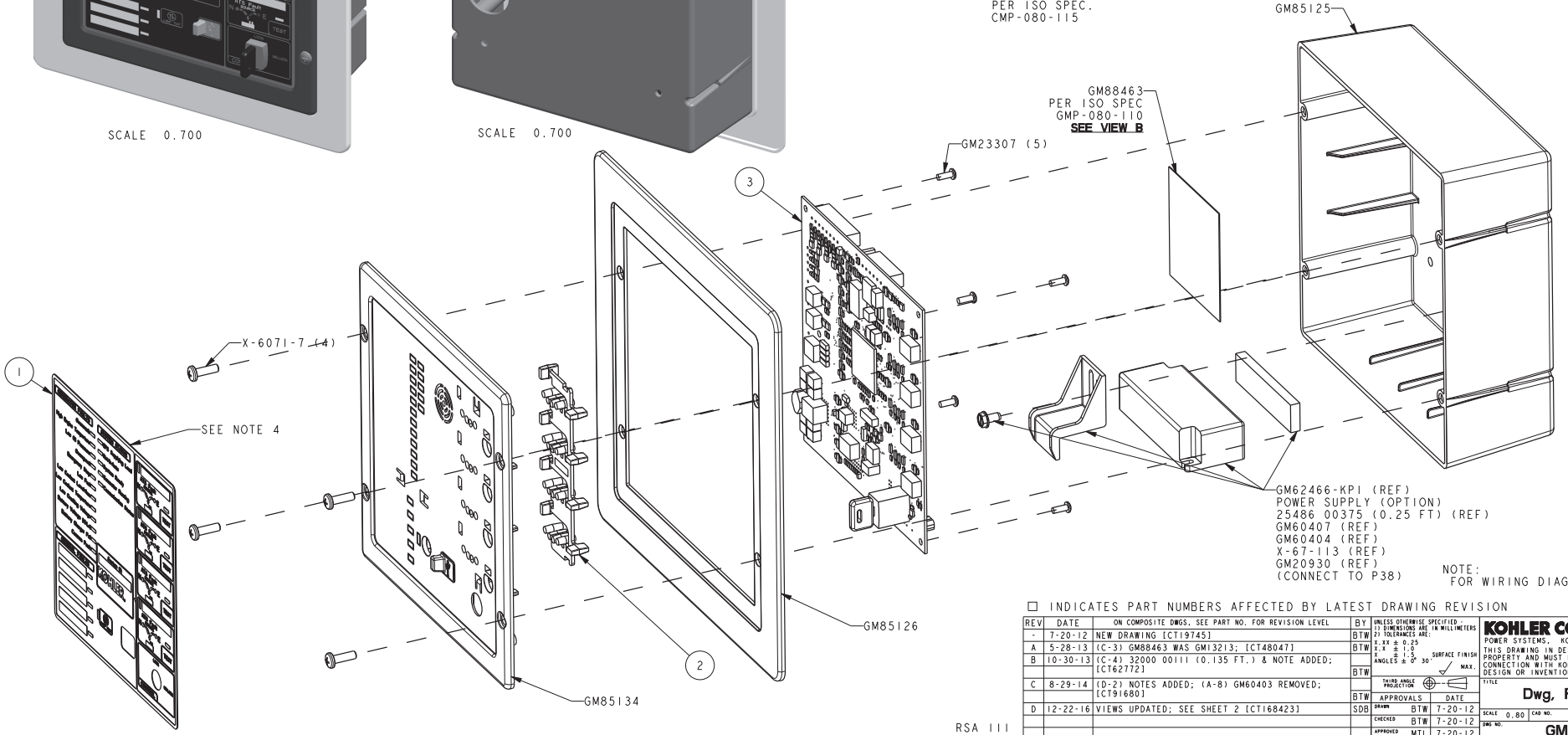


32000 00111 (0.135 FT.)
PER ISO SPEC.
CMP-080-115

NOTES:
1. FUNCTIONALLY TEST ACCORDING TO ISO DOCUMENT ETF-WI-001, PER SPECIFICATION ETF-TD-003.
2. ASSEMBLE PCBA TO BACK OF BEZEL USING FIXTURE JT-0001.
3. TORQUE ALL SCREWS TO 7-10 in lbs.
4. PEEL BACKING OFF FACE PLATE AND APPLY TO BEZEL. APPLY EVEN PRESSURE TO ENTIRE SURFACE TO ENSURE COMPLETE ADHESION.



NOTE:
FOR WIRING DIAGRAM, SEE GM62554.

☐ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	7-20-12	NEW DRAWING [CT19745]	BTW
A	5-28-13	(C-3) GM88463 WAS GM13213; [CT48047]	BTW
B	10-30-13	(C-4) 32000 00111 (0.135 FT.) & NOTE ADDED; [CT62772]	BTW
C	8-29-14	(D-2) NOTES ADDED; (A-8) GM60403 REMOVED; [CT91680]	BTW
D	12-22-16	VIEWS UPDATED; SEE SHEET 2 [CT168423]	SDB

UNLESS OTHERWISE SPECIFIED:
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X .XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH 125 MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	BTW	7-20-12
CHECKED	BTW	7-20-12
APPROVED	MTL	7-20-12

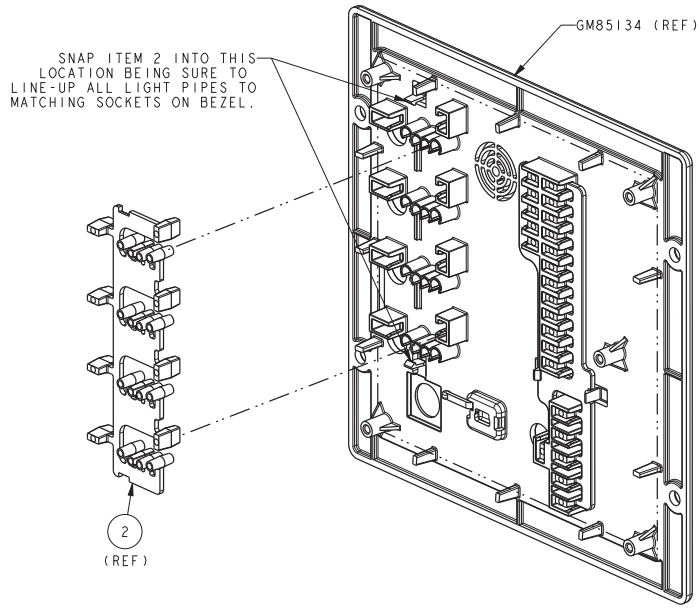
METRIC | PRO-E

TITLE: Dwg, RSA III Assy

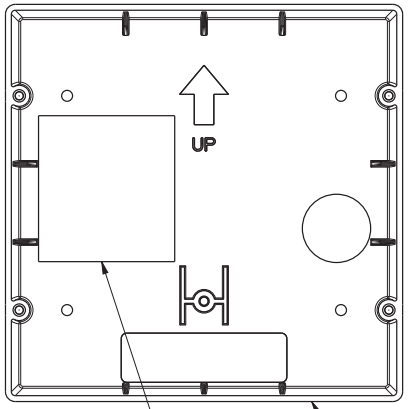
SCALE 0.80 | CAD NO. | SHEET 1 of 2

DWG NO. GM85123 | D

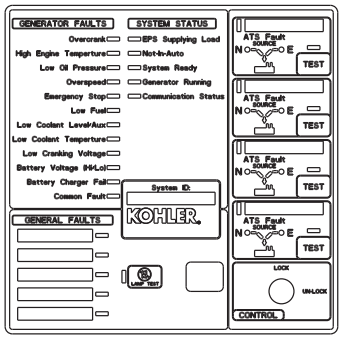
RSA III



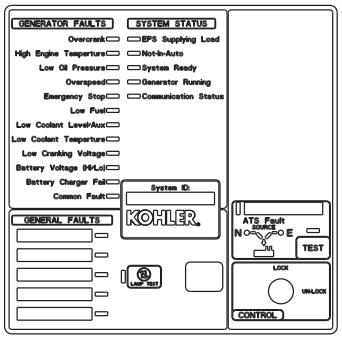
BACK VIEW OF BEZEL
SCALE 1.000



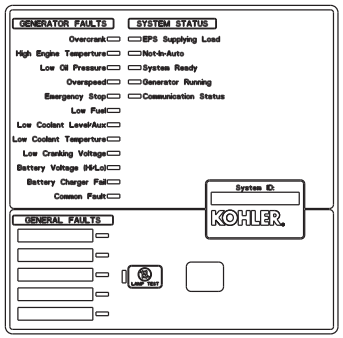
VIEW B
FRONT OF BOX



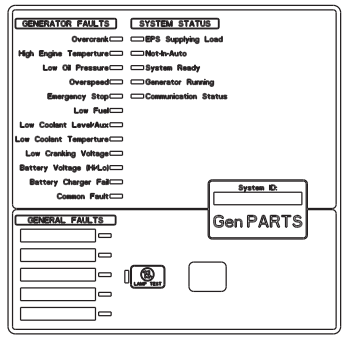
ITEM 1
(P/N: GM85127 REF)



ITEM 1
(P/N: GM85131 REF)



ITEM 1
(P/N: GM85132 REF)



ITEM 1
(P/N: GM85133 REF)

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	7-30-12	NEW DRAWING [CT19745]	BTW
A	5-28-13	(A-8) GM88463 (REF) WAS GM13213 (REF); [CT48047]	BTW
B	10-30-13	SEE SHEET 1 [CT62772]	BTW
C	8-29-14	VIEW A REMOVED; [CT91680]	BTW
D	12-22-16	VIEWS UPDATED; SEE SHEET 1 [CT168423]	SDB

UNLESS OTHERWISE SPECIFIED:
[1] DIMENSIONS ARE IN MILLIMETERS
[2] TOLERANCES ARE:
X .XX ± 0.25
X .X ± 1.0
X ANGLES ± 0° 30' SURFACE FINISH 125 MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	BTW	7-30-12
CHECKED	BTW	7-30-12
APPROVED	MTL	7-30-12

KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: **Dwg, RSA III Assy**

SCALE 0.80 | CAD NO. | SHEET 2 of 2

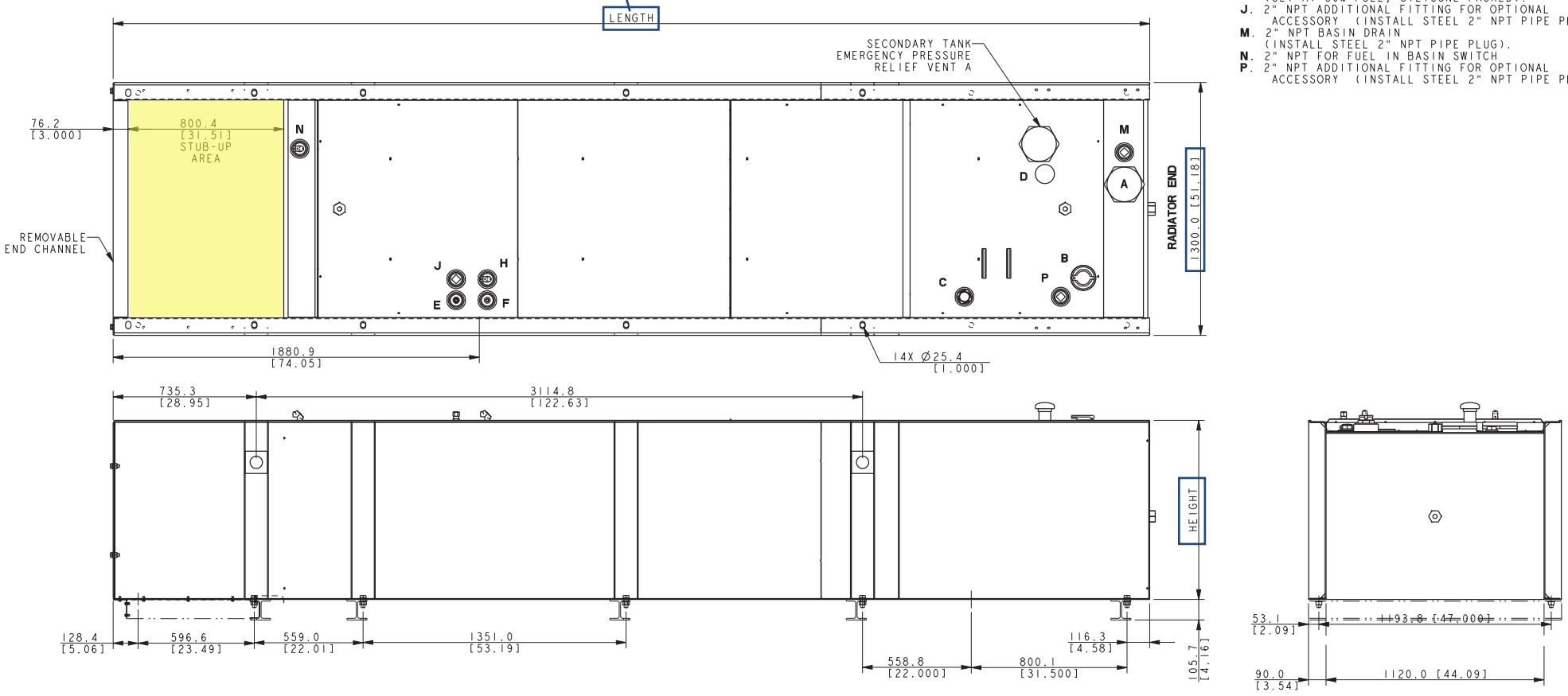
DWG NO. **GM85123** | **D**

MODEL	CAPACITY L [GAL]	WEIGHT KG [LBS]	HEIGHT MM [IN]	LENGTH MM [IN]	E - VENTS SIZE (QTY)
230-300kW	2102 L [555 GAL]	1242 KG [2738 LBS]	635 MM [25 IN]	5008 MM [197.2 IN]	5 (2)
230-275kW	3573 L [944 GAL]	1851 KG [4081 LBS]	914.4 MM [36 IN]	5325 MM [209.7 IN]	5 (2)

THIS IS AN AUTOMATED TABLE. ALL CHANGES TO THIS TABLE MUST BE MADE IN THE FAMILY TABLE OF THE GENERIC MODEL.

TANK FITTINGS:

A. EMERGENCY VENT FITTING PER NFPA 30 WITH VENT CAPS (QTY 2).
B. 2" NPT FUEL FILL FITTING WITH LOCKABLE CAP AND 2" RISER.
C. 2" NPT FUEL LEVEL GAUGE FITTING WITH DIRECT READING MECHANICAL GAUGE.
D. 2" NPT NORMAL VENT FITTING WITH MUSHROOM VENT CAP AND 5" RISER.
E. 2" NPT FITTING FOR REMOVABLE ENGINE SUPPLY DIP TUBE (3/8" NPT FEMALE WITH CHECK VALVE).
F. 2" NPT FITTING FOR REMOVABLE FUEL RETURN DIP TUBE (3/8" NPT FEMALE).
H. 2" NPT FOR LOW LEVEL SWITCH (SET AT 50% FULL, SILICONE PACKED).
J. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL STEEL 2" NPT PIPE PLUG).
M. 2" NPT BASIN DRAIN (INSTALL STEEL 2" NPT PIPE PLUG).
N. 2" NPT FOR FUEL IN BASIN SWITCH
P. 2" NPT ADDITIONAL FITTING FOR OPTIONAL ACCESSORY (INSTALL STEEL 2" NPT PIPE PLUG).



NOTE:

FOR FURTHER TANK DETAIL SEE INDIVIDUAL DRAWINGS.

230-300KW
JOHN DEERE TIER III
STATE CODE TANK

DIMENSIONS IN [ ] ARE ENGLISH EQUIVALENTS.

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
A	11-18-09	SEE SHEET 1 OF 2. (D-7) 800.4 ADDED.[88481]	GFR
B	10-7-10	(D-8) STATE TANK TABLE ADDED [90099-6]	RJS
C	12-2-11	VIEWS UPDATED [92417-5]	SDS
D	5-8-12	SEE SHEET 3, (D-8) 300 KW MOVED TO SHEET 3, (D-3) FITTING NOTES REVISED [CT13297]	JB2
E	10-21-15	SEE SHEET 3 OF 3. [CT128239]	GFR
F	11-17-17	SEE SHEET 1 [CT181456]	JB2
G	7-31-19	(D-5) EMERGENCY VENTS FOR 555 GAL: 5" WAS 4" [CT197533]	PAS

UNLESS OTHERWISE SPECIFIED: (1) DIMENSIONS ARE IN MILLIMETERS (2) TOLERANCES ARE: X .XX ± 0.25 X.X ± 1.0 X ± 1.5 ANGLES ± 0° 30' SURFACE FINISH 125 MAX. THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	JB2	10-27-08
CHECKED	DEF	10-27-08
APPROVED	DEF	10-27-08

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POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: **DIMENSION PRINT**

SCALE 0.10 | CAD NO. | SHEET 2 of 3

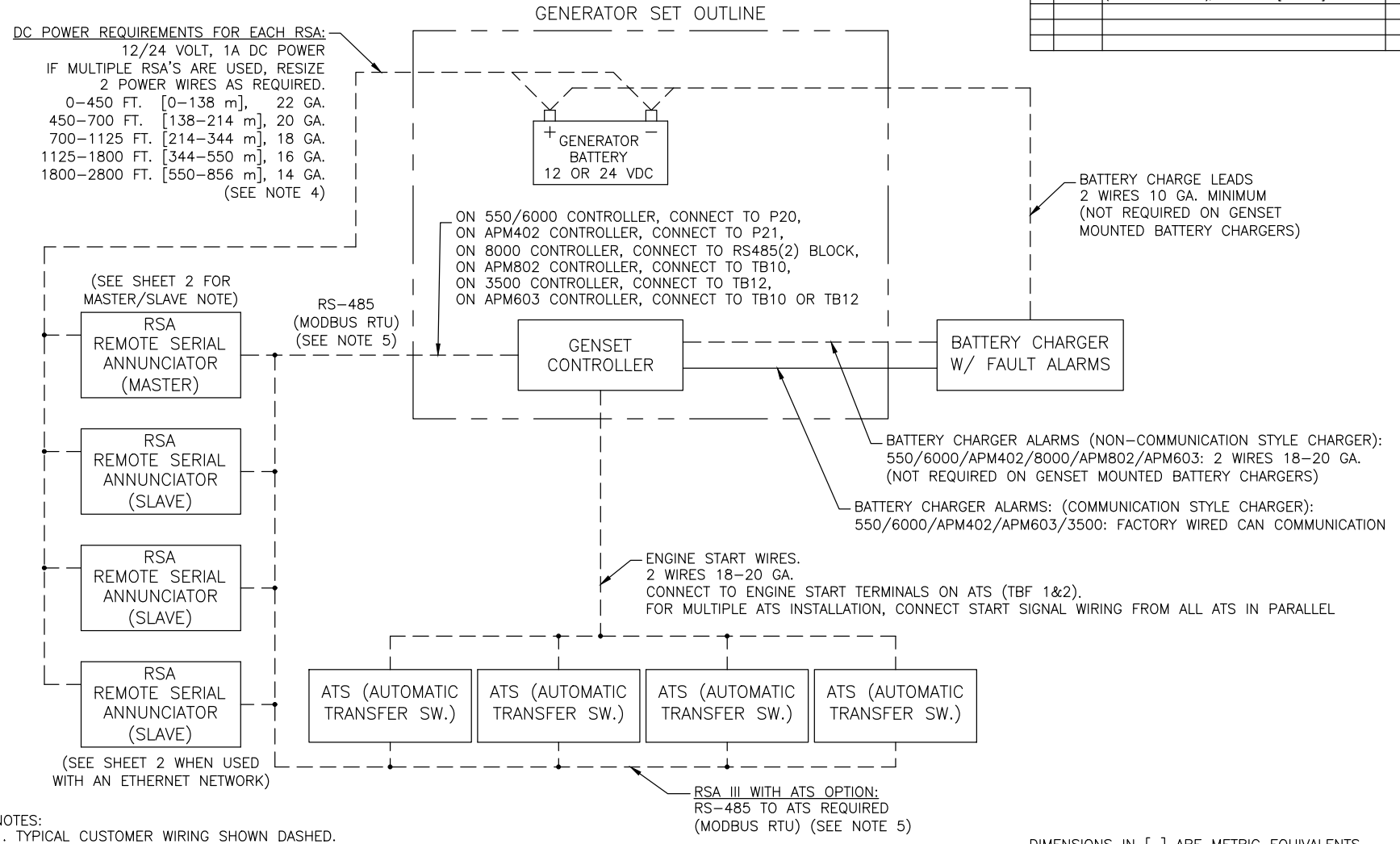
DWG NO. **ADV-7645** | **D**

rehlko

Wiring Schematics

RS–485 NETWORK CONNECTIONS

REV	DATE	REVISION	BY	M F
–	8–16–19	NEW DRAWING. REPLACES ADV–6990 [CT198499]	TLK	
A	5–27–22	(B–1–3) CONNECT TO ENGINE START TERMINALS ON ATS		
		(TBF 1&2) WAS CONNECT TO POSITION CONTACTS ON ATS		
		(CLOSED IN EMERGENCY); SEE SHEET 2 [CT220029]	BCC	



NOTES:
1. TYPICAL CUSTOMER WIRING SHOWN DASHED.
2. CUSTOMER RESPONSIBLE FOR ADDITIONAL WIRING SHOWN IF COMPONENTS ARE SHIPPED LOOSE (BATTERY CHARGER, DRY–CONTACT BOX, ETC.)
3. IF BATTERY CHARGER IS SHIPPED LOOSE ADDITIONAL WIRES MAY BE REQUIRED FOR PROPER VOLTAGE SENSING. REFERENCE DRAWING ADV–5971 FOR INTERCONNECT.
4. DC VOLTAGE FOR EACH RSA REMOTE ANNUNCIATOR MAY ALSO BE SUPPLIED BY A LOCALLY MOUNTED 12 OR 24 VDC, 200 mA MIN., AC ADAPTER KIT (GM62466–KP1).
5. USE BELDEN #9841 OR EQUIVALENT. MAXIMUM DISTANCE = 4000 FT. [1219 m]

REFER TO WIRING DIAGRAM GM62554 (NETWORK COMMUNICATIONS) FOR CONNECTION DETAIL.

INTERCONNECTION DIAGRAM CONTROLLER WITH RSA ANNUNCIATOR

DIMENSIONS IN [ ] ARE METRIC EQUIVALENTS.

UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX± .010 ANGLES± 1/2° .XX ± .030 SURFACE FINISH .x ± .060 √ MAX. FRACTIONS ±

APPROVALS	DATE
DRAWN TLK	8–16–19
CHECKED TLK	8–16–19
APPROVED MD	8–16–19

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TITLE: DIAGRAM, RSA INTERCONNECTION

SCALE: / / / SHEET 1–2

PLOTTED DWG. NO. ADV–9169 C

ETHERNET NETWORK CONNECTIONS

REV	DATE	REVISION	BY	M F
–	8–16–19	NEW DRAWING. REPLACES ADV–6990 [CT198499]	TLK	
A	5–27–22	SHEET SHEET 1 [CT220029]	BCC	

RSA III:
A MAXIMUM OF 5 SLAVES CAN BE CONNECTED TO A MASTER RSA III, INCLUDING SLAVES CONNECTED THROUGH THE ETHERNET NETWORK. IF ANY RSA II ANNUNCIATORS ARE ON THE SAME NETWORK AS AN RSA III ANNUNCIATOR, THE RSA II ANNUNCIATORS MUST BE CONFIGURED AS SLAVES. RSA1000 CAN'T BE ON THE SAME NETWORK AS RSAIII. UPGRADE TO RSAIII IF REQUIRED.

RSA III MASTER:
AN RSA SLAVE CONNECTED THROUGH THE ETHERNET NETWORK, REQUIRES AN RSA MASTER BE CONNECTED THROUGH THE ETHERNET NETWORK. THE MASTER REQUIRES A MODBUS/ETHERNET CONVERTER DEDICATED EXCLUSIVELY TO IT.

SEE SHEET 1 FOR REQUIRED DC POWER VOLTAGE TO EACH RSA.

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

RS–485 (MODBUS RTU) (SEE NOTE 5)

SEE SHEET 1 FOR CONTROLLER CONNECTION POINTS

GENSET CONTROLLER

(SEE SHEET 1 FOR BATTERY CHARGER CONNECTIONS)

MODBUS/ ETHERNET CONVERTER

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

ON APM802 OR APM603 CONTROLLER, CONNECT TO ETHERNET MODULE

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

ON MPAC750, MPAC1200, MPAC1500, CONNECT TO P13

RSA III SUPPORTED ATS'S:
MPAC750, MPAC1000, MPAC1200, OR MPAC1500. SUPPORTS ONE OR UP TO FOUR ATS'S.

RSA REMOTE SERIAL ANNUNCIATOR (MASTER)

RS–485 (MODBUS RTU) (SEE NOTE 5)

MODBUS/ ETHERNET CONVERTER

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

ETHERNET NETWORK (CUSTOMER SUPPLIED)

SEE SHEET 1 FOR REQUIRED DC POWER VOLTAGE TO EACH RSA.

RS–485 (MODBUS RTU) (SEE NOTE 5)

MODBUS/ ETHERNET CONVERTER

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

RS–485 (MODBUS RTU) (SEE NOTE 5)

ATS (AUTOMATIC TRANSFER SWITCH)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

SEE SHEET 1 FOR REQUIRED DC POWER VOLTAGE TO EACH RSA.

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

MODBUS/ ETHERNET CONVERTER

RS–485 (MODBUS RTU) (SEE NOTE 5)

ATS (AUTOMATIC TRANSFER SWITCH)

RS–485 (MODBUS RTU) (SEE NOTE 5)

ATS (AUTOMATIC TRANSFER SWITCH)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

RS–485 (MODBUS RTU) (SEE NOTE 5)

ATS (AUTOMATIC TRANSFER SWITCH)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

REQUIRED FOR RSA III WITH ATS OPTION ONLY

SEE SHEET 1 FOR REQUIRED DC POWER VOLTAGE TO EACH RSA.

SEE SHEET 1 FOR GENERAL NOTES.

INTERCONNECTION DIAGRAM CONTROLLER WITH RSA ANNUNCIATOR

UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010 ANGLES ± .XX ± .030 SURFACE FINISH .X ± .060 √ MAX. FRACTIONS ±

APPROVALS		DATE
DRAWN	TLK	8–16–19
CHECKED	TLK	8–16–19
APPROVED	MD	8–16–19

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TITLE: DIAGRAM, RSA INTERCONNECTION

SCALE: / / / SHEET 2–2

PLOTTED DWG. NO. ADV–9169 C

Drawing Sheet Reference	
Sheet	Description
1	Networked Devices, General Notes, This Sheet
2	Converters, Ethernet Network, PC, Data Interface System
3	16-Light (DEC3+), 550 (DEC550), KPC 1000 Legacy Genset Controllers
4	DEC3000 / APM402 Genset Controller
5	DEC6000 Genset Controller
6	APM603 Genset Controller for non-KD series, Standard PGEN Network
7	This Sheet Reserved for Future Features
8	APM603 Genset Controller for KD Series, Standard PGEN Network
9	This Sheet Reserved for Future Features
10	APM802 Genset Controller
11	DEC8000 Genset Controller
12	DEC3500 Genset Controller, Towable 10 Position Customer Terminal Block
13	Series 1000 (MPAC1000), 340 (M340/M340+), Power Monitor Legacy ATS (Automatic Transfer Switch Controllers)
14	MPAC1500, MPAC-DM 750/1200/1500 ATS (Automatic Transfer Switch Controllers)
15	Legacy RSAII (Remote Serial Annunciator)
16	RSAIII (Remote Serial Annunciator)

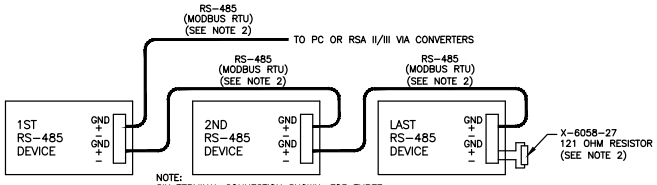
REV	DATE	REVISION	BY
N	5-30-19	THIS SHEET ADDED; COMPATIBILITY CHART, STANDARD NOTES,	
		AND NETWORKED DEVICES MOVED TO THIS SHEET; ISOLATED/	
		NON-ISOLATED RS-485 IDENTIFIED ON ALL SHEETS [CT197795]	TLK
P	6-24-20	(D-8) SHEET 6 NOTE: NON-KD SERIES WAS JOHN DEERE	
		80-500 KW, SHEET 12 NOTE: ADDED	
		TOWABLE 10 POSITION CUSTOMER TERMINAL BLOCK [CT204963]	TLK
R	28APR202	(A-8,7) "PEP-RML-001" NOTE ADDED; SEE SHEET 15 [CT212605]	CLN

Controller/Annunciator Compatibility Chart

	Monitor III	SiteTech	RSA2	RSA3
550 Genset	X	X	X	X
16-Light Genset	X		X	X
DEC 3000 / APM402 Genset	X	X	X	X
KPC 1000 Genset			X	X
6000 Genset	X	X	X	X
8000 Genset				4
APM802				X
APM603		X		X
DEC-3500 Genset		X		X
MPAC 1500	X		X	X
MPAC-DM 750, 1200, 1500		X	X	X
Series 1000 ATS	X		X	X
340 ATS	X			
340 Power Monitor	X			

"X" Designates supported devices. "4" Designates RS-485 Only.

DETAIL A (EXAMPLE OF)
NETWORKED RS-485 DEVICES



NOTE:
SIX TERMINAL CONNECTION SHOWN. FOR THREE TERMINAL CONNECTION, USE TWO WIRES PER TERMINAL STRIP SCREW.

NOTES:

1.) MAXIMUM CABLE LENGTH FOR RS-232 IS 50 FEET. USE RS-485 IF LONGER THAN 50 FEET IS REQ'D.

2.) CUSTOMER SUPPLIED WIRE. USE BELDEN #9841 OR EQUIVALENT CABLE. USE A MAXIMUM CABLE LENGTH OF 1219 METERS (4000 FT.) FROM THE RS-485 CONVERTER TO THE LAST RS-485 DEVICE IN THE NETWORK. THE "LAST DEVICE" IS THE DEVICE FURTHEST FROM THE CONTROLLER. CONNECT "+" TO "+", "-" TO "-". CONNECT THE CABLE SHIELD TO "GND" AT ONE END OF CABLE ONLY, LEAVE OTHER END DISCONNECTED. IF OPERATING OVER 19.2 K BAUD RATE AND WIRE LENGTH > 305 METERS (1000 FT.), CONNECT 121 OHM TERMINATING RESISTOR (X-6058-27) TO "+" AND "-" ON THE LAST DEVICE ON THE NETWORK. IF ONLY ONE DEVICE IS USED, IT IS THE LAST DEVICE. THE TERMINATING RESISTOR IS SELECTABLE INSIDE THE MODBUS/ETHERNET CONVERTER AND REMOTE SERIAL ANNUNCIATOR2 (RSA2) VIA P34. PLACE THE P34 JUMPER ON THE "IN" PINS IF THE MODBUS/ETHERNET CONVERTER, RSA2, OR RSA3 IS THE LAST DEVICE IN THE NETWORK. IF NOT THE LAST DEVICE, PLACE THE P34 JUMPER ON THE "OUT" PINS.

3.) THE 550 & 6000 CONTROLLER CAN BE USED AS A RS-232/RS-485 CONVERTER. CONNECT THE 9-PIN SERIAL PORT ON THE PC TO P18 ON THE 550 OR 6000 CONTROLLER AS SHOWN. THEN CONNECT P20 ON THE 550 OR 6000 CONTROLLER TO THE OTHER RS-485 DEVICES IN THE NETWORK.

4.) EACH MODBUS/ETHERNET CONVERTER CAN COMMUNICATE WITH UP TO 4 ETHERNET NETWORK DEVICES SIMULTANEOUSLY. IF A MODBUS/ETHERNET CONVERTER IS ATTACHED TO A SLAVE REMOTE SERIAL ANNUNCIATOR, A MODBUS/ETHERNET CONVERTER CONNECTED TO A MASTER REMOTE SERIAL ANNUNCIATOR IS REQUIRED. SEE NOTE 2 FOR P34 (TERMINATING RESISTOR) SETTING.

5.) ONLY ONE MASTER IS ALLOWED PER RS-485 NETWORK. ANY COMBINATION OF MASTERS IS ALLOWED IF COMMUNICATING VIA MODBUS/ETHERNET CONVERTERS.

6.) THIS ASSEMBLY OR PART MUST COMPLY WITH PEP-RML-001

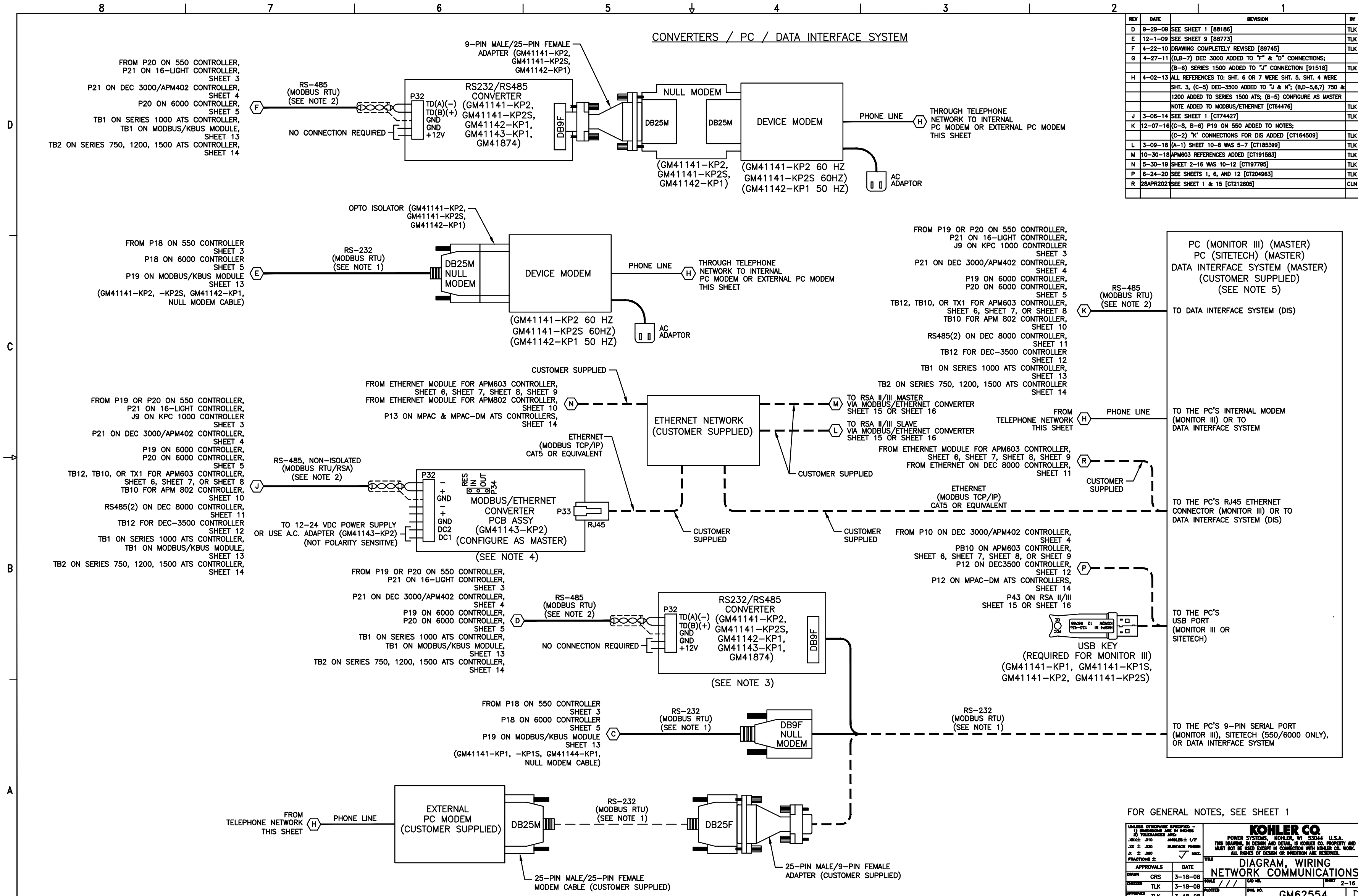
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. TOLERANCES ARE: .XXX ± .010, .XX ± .020, .X ± .040, FRACTIONS ± 1/64, ANGLES ± 1/2°, SURFACE FINISH 125 MAX.

APPROVALS	DATE
DRAWN TLK	5-30-19
CHECKED TLK	5-30-19
APPROVED MD	5-30-19

TITLE: DIAGRAM, WIRING
NETWORK COMMUNICATIONS

SCALE: / / / | DWG NO. GM62554 | SHEET 1-16 | REVISED | DWG. NO. D

CONVERTERS / PC / DATA INTERFACE SYSTEM



REV	DATE	REVISION	BY	MF
D	9-29-09	SEE SHEET 1 [88186]	TLK	
E	12-1-09	SEE SHEET 9 [88773]	TLK	
F	4-22-10	DRAWING COMPLETELY REVISED [89745]	TLK	
G	4-27-11	(D,B-7) DEC 3000 ADDED TO "F" & "D" CONNECTIONS;		
		(B-6) SERIES 1500 ADDED TO "J" CONNECTION [91518]	TLK	
H	4-02-13	ALL REFERENCES TO: SHT. 6 OR 7 WERE SHT. 5, SHT. 4 WERE		
		SHT. 3, (C-5) DEC-3500 ADDED TO "J & N"; (B,D-5,6,7) 750 &		
		1200 ADDED TO SERIES 1500 ATS; (B-5) CONFIGURE AS MASTER		
		NOTE ADDED TO MODBUS/ETHERNET [CT64476]	TLK	
J	3-06-14	SEE SHEET 1 [CT74427]	TLK	
K	12-07-16	(C-8, B-6) P19 ON 550 ADDED TO NOTES;		
		(C-2) "K" CONNECTIONS FOR DIS ADDED [CT164509]	TLK	
L	3-09-18	(A-1) SHEET 10-8 WAS 5-7 [CT185399]	TLK	
M	10-30-18	APM603 REFERENCES ADDED [CT191583]	TLK	
N	5-30-19	SHEET 2-16 WAS 10-12 [CT197795]	TLK	
P	6-24-20	SEE SHEETS 1, 6, AND 12 [CT204963]	TLK	
R	28APR2021	SEE SHEET 1 & 15 [CT212605]	CLN	

FOR GENERAL NOTES, SEE SHEET 1

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 MAX.
FRACTIONS ±

APPROVALS		DATE
DRAWN	CRS	3-18-08
CHECKED	TLK	3-18-08
APPROVED	TLK	3-18-08

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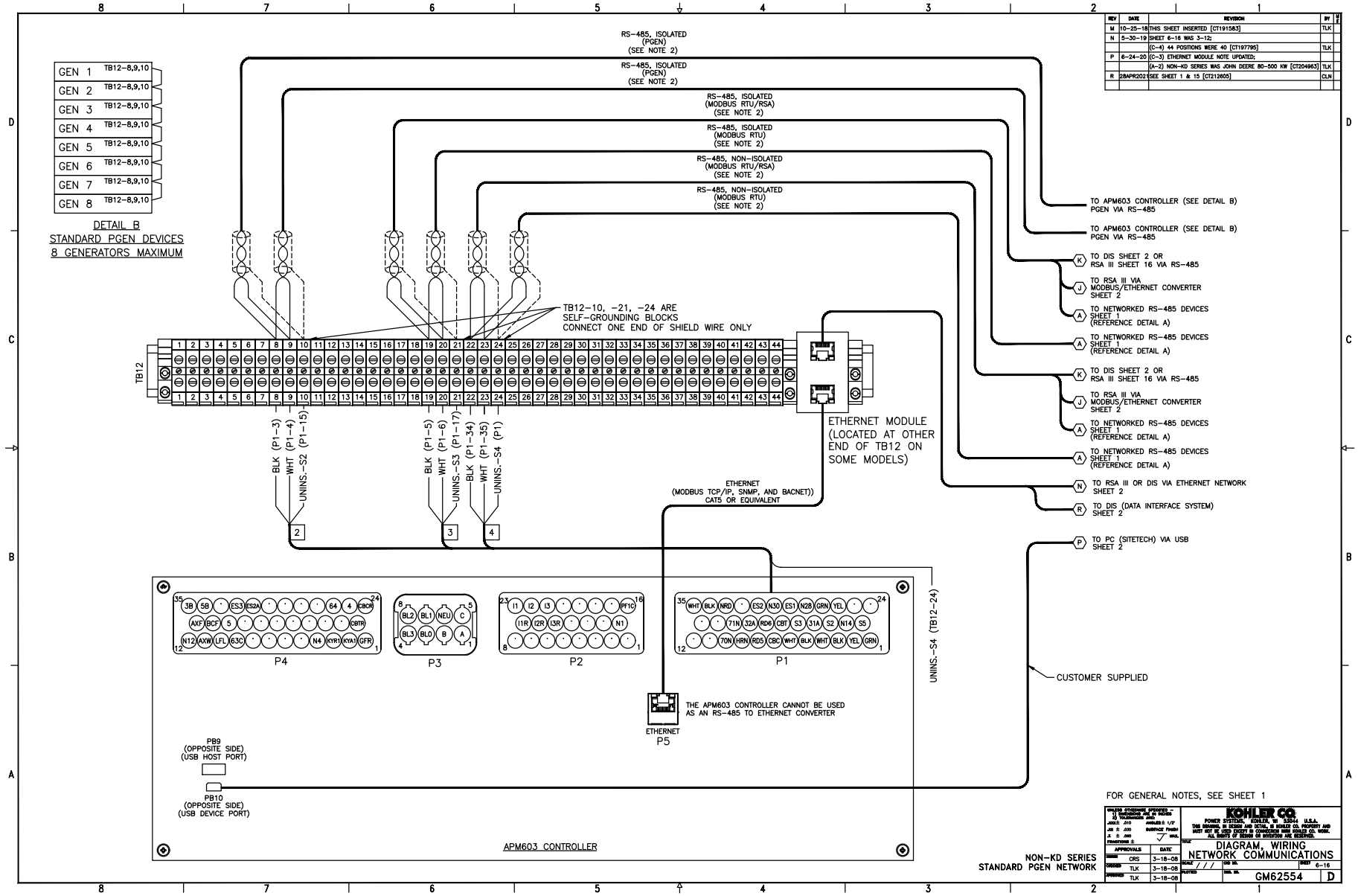
TITLE: DIAGRAM, WIRING NETWORK COMMUNICATIONS

SCALE: / / / | CAD NO. | SHEET: 2-16
PLOTTED | DWG. NO. GM62554 | D



REV	DATE	REVISION	BY	MFG
M	10-25-18	THIS SHEET INSERTED [CT191583]	TLK	
N	5-30-19	SHEET 6-16 WAS 3-12;		
		(C-4) 44 POSITIONS WERE 40 [CT197795]	TLK	
P	6-24-20	(C-3) ETHERNET MODULE NOTE UPDATED;		
		(A-2) NON-KD SERIES WAS JOHN DEERE 80-500 KW [CT204963]	TLK	
R	28APR2021	SEE SHEET 1 & 15 [CT212605]	CLN	

FOR GENERAL NOTES, SEE SHEET 1

APPROVALS	DATE
ORS	3-18-08
TLK	3-18-08
TLK	3-18-08

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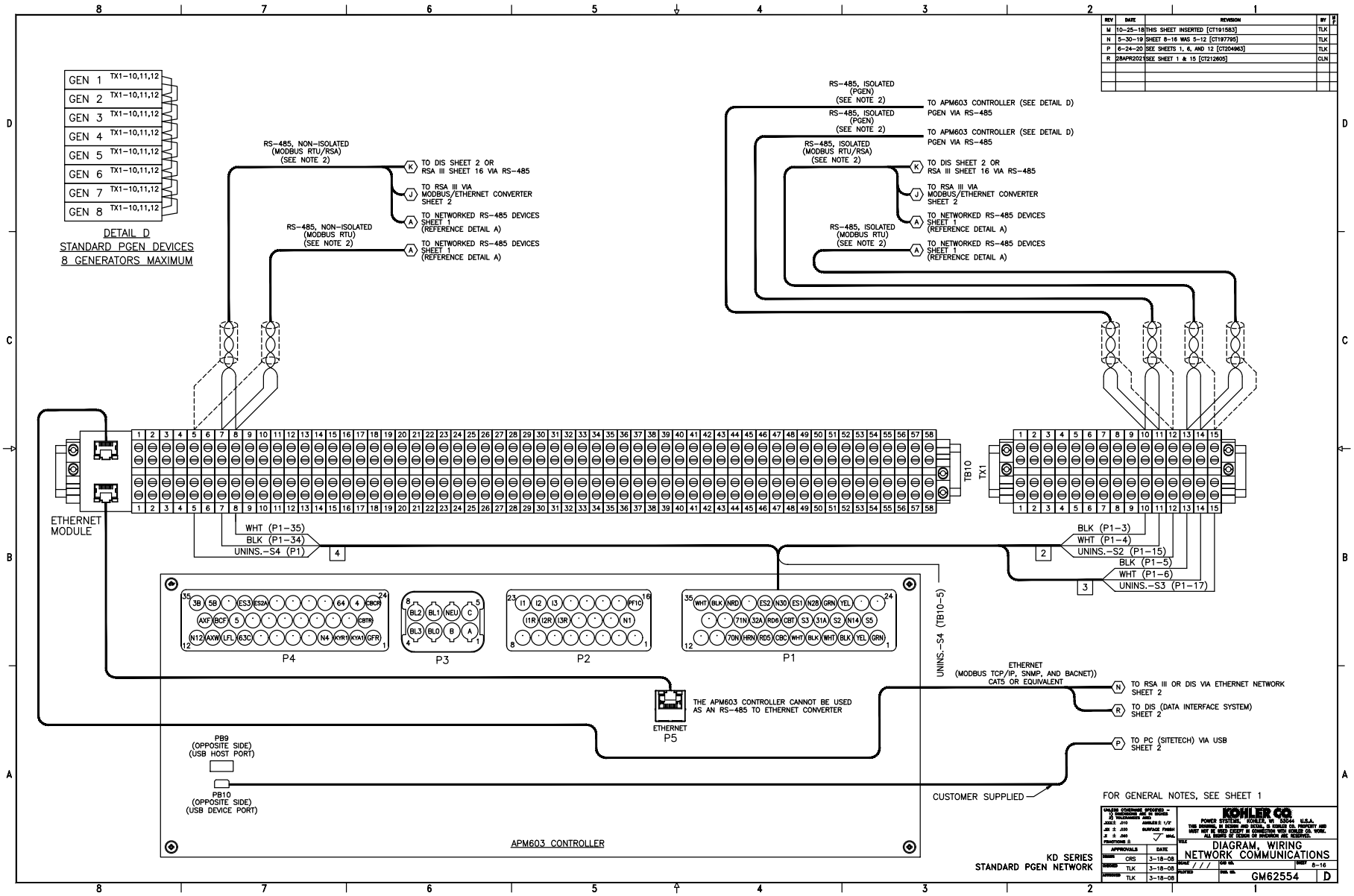
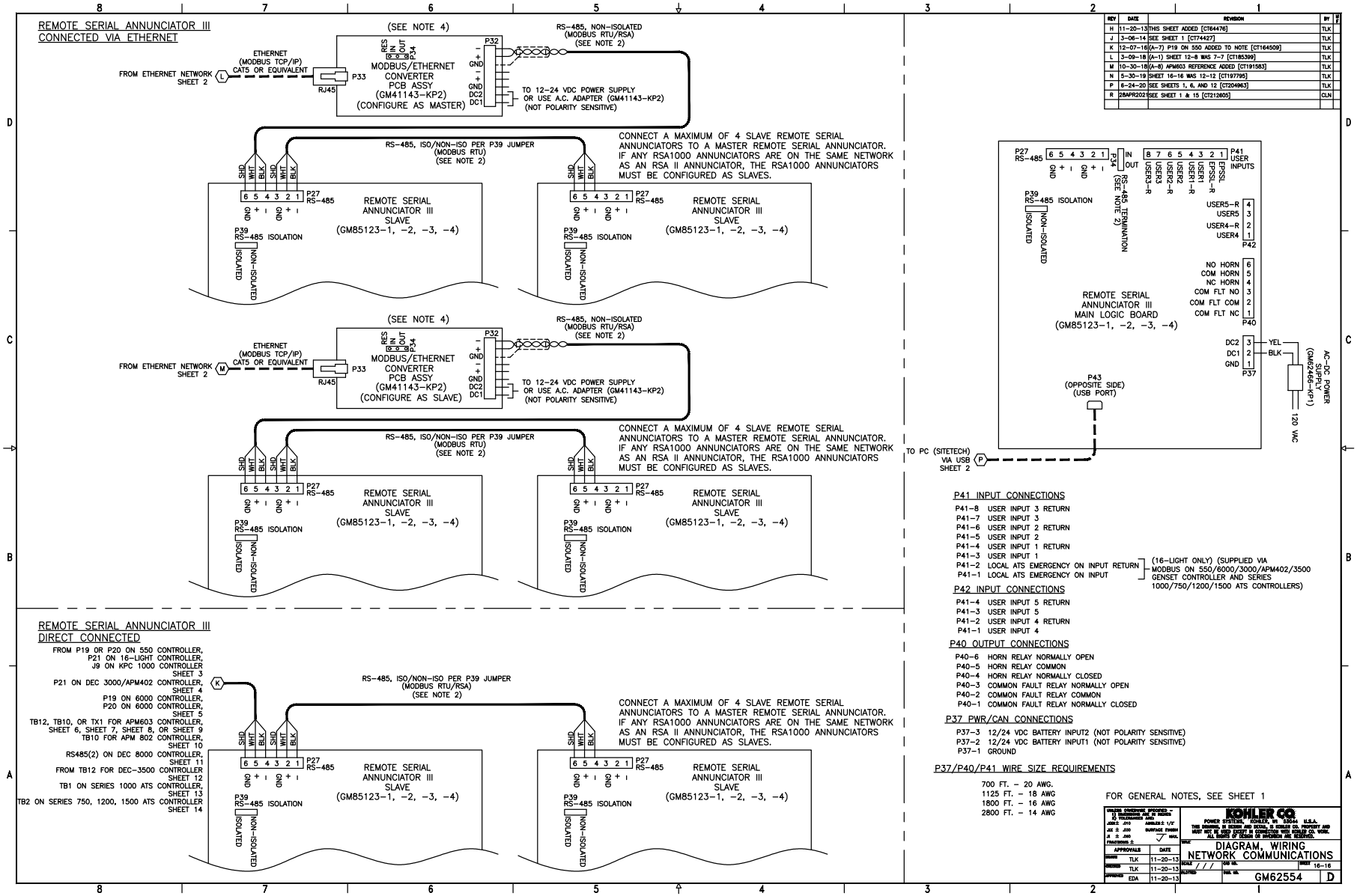
DIAGRAM, WIRING
NETWORK COMMUNICATIONS

NON-KD SERIES
STANDARD PGEN NETWORK

DRG NO. GM62554 SHEET 6-16 SIZE D


REV | DATE | REVISION | BY
M 10-25-18 THIS SHEET INSERTED [CT191583] TLK
N 5-30-19 SHEET 8-16 WAS 5-12 [CT197795] TLK
P 6-24-20 SEE SHEETS 1, 6, AND 12 [CT204963] TLK
R 28APR2021 SEE SHEET 1 & 15 [CT212605] CLN
GEN 1 TX1-10,11,12
GEN 2 TX1-10,11,12
GEN 3 TX1-10,11,12
GEN 4 TX1-10,11,12
GEN 5 TX1-10,11,12
GEN 6 TX1-10,11,12
GEN 7 TX1-10,11,12
GEN 8 TX1-10,11,12
DETAIL D
STANDARD PGEN DEVICES
8 GENERATORS MAXIMUM
RS-485, NON-ISOLATED (MODBUS RTU/RSA) (SEE NOTE 2)
K TO DIS SHEET 2 OR RSA III SHEET 16 VIA RS-485
J TO RSA III VIA MODBUS/ETHERNET CONVERTER SHEET 2
A TO NETWORKED RS-485 DEVICES SHEET 1 (REFERENCE DETAIL A)
RS-485, NON-ISOLATED (MODBUS RTU) (SEE NOTE 2)
A TO NETWORKED RS-485 DEVICES SHEET 1 (REFERENCE DETAIL A)
RS-485, ISOLATED (PGEN) (SEE NOTE 2)
TO APM603 CONTROLLER (SEE DETAIL D) PGEN VIA RS-485
RS-485, ISOLATED (PGEN) (SEE NOTE 2)
TO APM603 CONTROLLER (SEE DETAIL D) PGEN VIA RS-485
RS-485, ISOLATED (MODBUS RTU/RSA) (SEE NOTE 2)
K TO DIS SHEET 2 OR RSA III SHEET 16 VIA RS-485
J TO RSA III VIA MODBUS/ETHERNET CONVERTER SHEET 2
A TO NETWORKED RS-485 DEVICES SHEET 1 (REFERENCE DETAIL A)
RS-485, ISOLATED (MODBUS RTU) (SEE NOTE 2)
A TO NETWORKED RS-485 DEVICES SHEET 1 (REFERENCE DETAIL A)
ETHERNET MODULE
TB10
TX1
WHT (P1-35)
BLK (P1-34)
UNINS.-S4 (P1)
4
BLK (P1-3)
WHT (P1-4)
UNINS.-S2 (P1-15)
2
BLK (P1-5)
WHT (P1-6)
UNINS.-S3 (P1-17)
3
P4
P3
P2
P1
UNINS.-S4 (TB10-5)
ETHERNET
P5
THE APM603 CONTROLLER CANNOT BE USED AS AN RS-485 TO ETHERNET CONVERTER
ETHERNET (MODBUS TCP/IP, SNMP, AND BACNET)) CAT5 OR EQUIVALENT
N TO RSA III OR DIS VIA ETHERNET NETWORK SHEET 2
R TO DIS (DATA INTERFACE SYSTEM) SHEET 2
P TO PC (SITETECH) VIA USB SHEET 2
PB9 (OPPOSITE SIDE) (USB HOST PORT)
PB10 (OPPOSITE SIDE) (USB DEVICE PORT)
CUSTOMER SUPPLIED
APM603 CONTROLLER
FOR GENERAL NOTES, SEE SHEET 1
KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
APPROVALS DATE
DRAWN CRS 3-18-08
DESIGNED TLK 3-18-08
APPROVED TLK 3-18-08
TITLE DIAGRAM, WIRING NETWORK COMMUNICATIONS
SIZE D
DRAWING NO. GM62554
SHEET 8-16
KD SERIES
STANDARD PGEN NETWORK



REV	DATE	REVISION	BY
H	11-20-13	THIS SHEET ADDED [CT64476]	TLK
J	3-06-14	SEE SHEET 1 [CT74427]	TLK
K	12-07-16	(A-7) P19 ON 550 ADDED TO NOTE [CT164509]	TLK
L	3-09-18	(A-1) SHEET 12-8 WAS 7-7 [CT185399]	TLK
M	10-30-18	(A-8) APM603 REFERENCE ADDED [CT191583]	TLK
N	5-30-19	SHEET 16-16 WAS 12-12 [CT197795]	TLK
P	5-24-20	SEE SHEETS 1, 6, AND 12 [CT204963]	TLK
R	28APR202	SEE SHEET 1 & 15 [CT212605]	CLN

P41 INPUT CONNECTIONS

P41-8 USER INPUT 3 RETURN
P41-7 USER INPUT 3
P41-6 USER INPUT 2 RETURN
P41-5 USER INPUT 2
P41-4 USER INPUT 1 RETURN
P41-3 USER INPUT 1
P41-2 LOCAL ATS EMERGENCY ON INPUT RETURN
P41-1 LOCAL ATS EMERGENCY ON INPUT
(16-LIGHT ONLY) (SUPPLIED VIA MODBUS ON 550/6000/3000/APM402/3500 GENSET CONTROLLER AND SERIES 1000/750/1200/1500 ATS CONTROLLERS)

P42 INPUT CONNECTIONS

P41-4 USER INPUT 5 RETURN
P41-3 USER INPUT 5
P41-2 USER INPUT 4 RETURN
P41-1 USER INPUT 4

P40 OUTPUT CONNECTIONS

P40-6 HORN RELAY NORMALLY OPEN
P40-5 HORN RELAY COMMON
P40-4 HORN RELAY NORMALLY CLOSED
P40-3 COMMON FAULT RELAY NORMALLY OPEN
P40-2 COMMON FAULT RELAY COMMON
P40-1 COMMON FAULT RELAY NORMALLY CLOSED

P37 PWR/CAN CONNECTIONS

P37-3 12/24 VDC BATTERY INPUT2 (NOT POLARITY SENSITIVE)
P37-2 12/24 VDC BATTERY INPUT1 (NOT POLARITY SENSITIVE)
P37-1 GROUND

P37/P40/P41 WIRE SIZE REQUIREMENTS

700 FT. – 20 AWG.
1125 FT. – 18 AWG
1800 FT. – 16 AWG
2800 FT. – 14 AWG

FOR GENERAL NOTES, SEE SHEET 1

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. TOLERANCES ARE: .XXX ± .010, .XX ± .020, .X ± .060, FRACTIONS ± 1/32, ANGLES ± 1/2°, SURFACE FINISH 125 MAX.

APPROVALS	DATE
DRAWN TLK	11-20-13
CHECKED TLK	11-20-13
APPROVED EDA	11-20-13

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POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: DIAGRAM, WIRING
NETWORK COMMUNICATIONS

SCALE: /// DWG NO. GM62554 SHEET 16-16 REV. D

rehlko

Miscellaneous

OVERVIEW:
THE AUTOMATIC MULTI-LEVEL FLOAT/ EQUALIZE CHARGER SPECIFIED BELOW IS INTENDED TO CHARGE ENGINE STARTING BATTERIES EITHER INDEPENDENT OR IN CONJUNCTION WITH AN ENGINE DRIVEN CHARGING SYSTEM.

BATTERY TYPES TO BE CHARGED:
- LEAD ACID
  - AGM
  - GEL CELL
  - HIGH PERFORMANCE AGM
  - FLOODED
- NICKEL CADMIUM (NiCd)

INPUT AC:
- INPUT VOLTAGE: 90-265V SINGLE PHASE
- INPUT FREQUENCY: 47-63 Hz

INPUT LEAD:
APPROXIMATELY 1.8M (72") (REF) TYPE SJTOW -40°C TO 105°C UL RATED WIRE AND INSULATION. TERMINATED IN PRE-MOLDED UL RATED 3 PRONG NEMA 5-15 MALE AC PLUG.

DC OUTPUT:
10A @ 12V
10A @ 24V
VOLTAGE REGULATION: +/-1% (VOLTAGE AT EACH STAGE IS TOPOLOGY DEPENDENT)

OUTPUT LEAD:
APPROX. 1.8M (72") (REF) TYPE SJTOOW -40°C TO 105°C UL RATED WIRE WITH RED AND BLACK WIRE INSULATION. TERMINATED IN 9.5 mm (REF) RING STYLE TERMINALS.

FUSES:
THE FUSE MUST BE LOCATED APPROXIMATELY 6" FROM RING TERMINAL ON RED OUTPUT LEAD.
20A ATC

ENVIRONMENTAL:
- STORAGE TEMPERATURE RANGE: -40 TO +85°C (-40 TO +185°F)
- OPERATING TEMPERATURE RANGE: -20 TO +70°C (-4 TO +158°F)
- HUMIDITY: 5 TO 95% (NON-CONDENSING)
- SALT SPRAY TESTING - ASTM B117
- CORROSIN RESISTANT FROM GASSING OF BATTERIES

REVERSE POLARITY PROTECTION:
THE CHARGER SHALL SUSTAIN NO DAMAGE WHEN INCORRECTLY CONNECTED TO THE BATTERY IN REVERSE ORIENTATION.

MOUNTING:
4 NON-THREADED THROUGH HOLES FOR M6 FASTENERS TO PASS THOUGH

ENCLOSURE:
SHALL PROTECT THE CHARGER COMPONENTS FROM RAIN, SNOW, DUST AND DRIPPING WATER AND UNINTENTIONAL INPACTS. ALL INTERNAL COMPONENTS PROTECTED FROM WATER DROPLETS.

INDICATORS:
- POWER: INDICATES THE ACCEPTABILITY OF AC INPUT TO THE CHARGER
- COMMUNICATION: INDICATES THE STATE OF THE COMMUNICATION SYSTEM
- TEMPERATURE COMPENSATION: INDICATES THE STATE OF THE TEMPERATUARE COMPENSATION SUBSYSTEM WHEN INSTALLED
- VOLTAGE OUTPUT: INDICATES THE STATE OF THE BATTERY AND CERTAIN FAULT CONDITIONS.

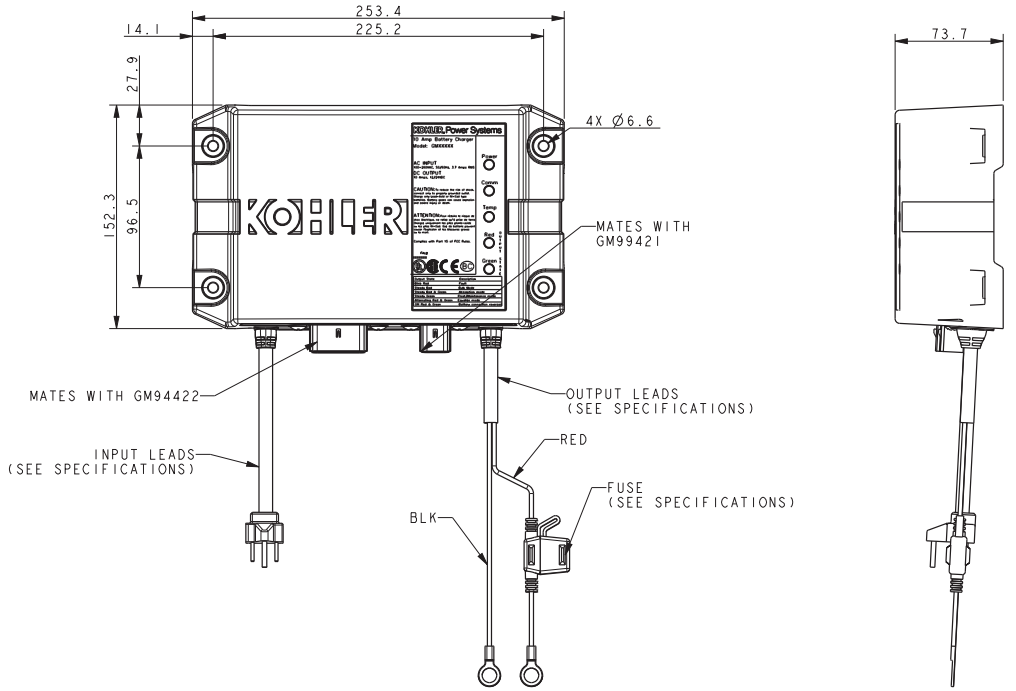
DOCUMENTATION:
THERE SHALL BE AN INSTALLATION / OPERATIONAL MANUAL SUPPLIED WITH EACH CHARGER. PER KOHLER SUPPLIED ARTWORK.

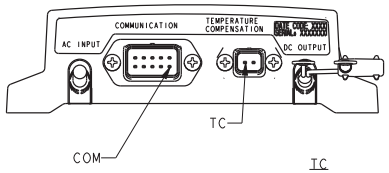
CERTIFICATIONS (US AND CANADA):
- UL1236
- CSA - C22.2 NO 107.2-01
- FCC- TITLE 47, PART 15 CLASS A
- CE
- EN 61000-6-2
- CEC AND DOE
- NFPA-110 LEVEL1 (WHEN SUPPORTED WITH APPLICABLE KOHLER CONTROLLER)
- IBC

PRODUCT LABELING:
THE LABEL ATTACHED TO THE CHARGER SHALL HAVE THE FOLLOWING INFORMATION:
- UL LISTING
- KOHLER PART NUMBER
- DESCRIPTION OF ALL INDICATOR
- OUTPUT CURRENT AND VOLTAGE
- INPUT VOLTAGE AND FREQUENCY

PACKAGING LABEL:
THE PACKAGING LABEL SHALL CONTAIN THE FOLLOWING INFORMATION:
- KOHLER P/N
- DESCRIPTION - BATTERY CHARGER
- MFG. MODEL NO.
- MFG. PART NUMBER
- DATE CODE

WARRANTY:
2 YEAR FROM DATE OF PURCHASE FROM MANUFACTURE.





COM
PIN 1 N/C
2 ID SEL 1
3 ID SEL 2
4 N/C
5 CAN-H
6 N/C
7 ID SEL 1 RTN
8 ID SEL 2 RTN
9 CAN-GND
10 CAN-L

TC
PIN 1 TC SENSOR W1
2 TC SENSOR W2

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	9-22-14	NEW DRAWING [CT91634]	SAM
A	5-9-17	(C-4,2) MATING NOTE ADDED (A-2, 4) PIN CONNECTIONS ADDED [CT174256]	SAM

UNLESS OTHERWISE SPECIFIED:
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH 125 MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	SAM	9-22-14
CHECKED	SAM	9-22-14
APPROVED	AGT	9-22-14

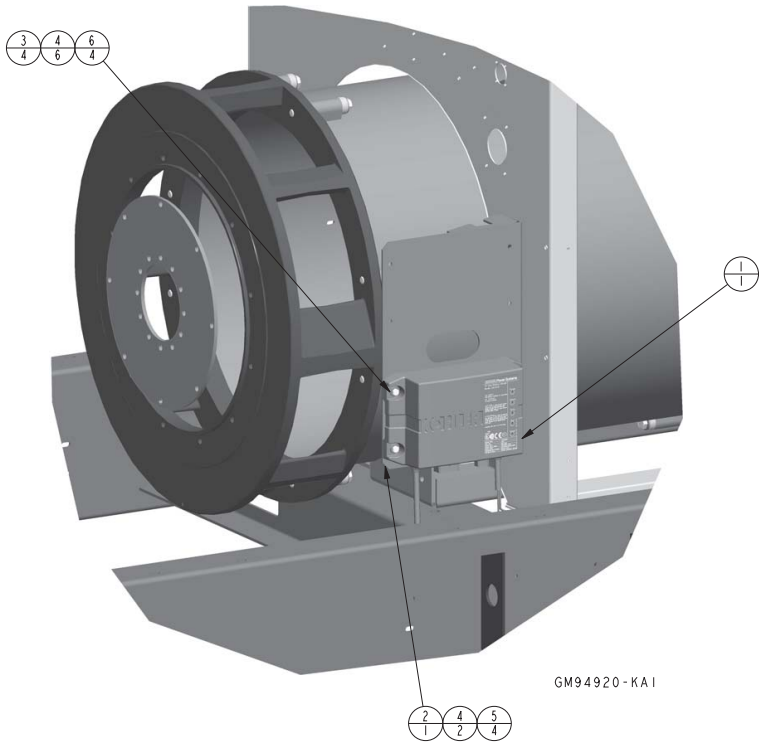
KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE
CHARGER, BATTERY 10 AMP

SCALE 0.50 | CAD NO. | SHEET 1 of 1
DWG NO. GM87448 | D

KIT NO.	ITEM	PART NO	QTY	DESCRIPTION
GM94920-KAI				ASSY BATTERY CHARGER 12/24V-10A
	1	GM87448	1	CHARGER, BATTERY
	2	GM94448	1	BRKT, 10 AMP BATTERY CHARGER
	3	M125A-06-80	4	WASHER, PLAIN 6.4 ID X 12.0 OD
	4	M6923-06-80	8	NUT, HEX 6MM
	5	M933-06016-60	4	SCREW, HEX CAP
	6	M933-06030-60	4	SCREW, HEX CAP
~~GM94920-KA2~~				~~ASSY BATTERY CHARGER 12/24V-10A~~
	1	GM87448	2	CHARGER, BATTERY
	2	GM94448	2	BRACKET, 10 AMP BATTERY CHARGER
	3	M125A-06-80	8	WASHER, PLAIN 6.4 ID X 12.0 OD
	4	M6923-06-80	12	NUT, HEX 6MM
	5	M933-06016-60	4	SCREW, HEX CAP
	6	M933-06030-60	8	SCREW, HEX CAP
	7	GM95017	1	HARNESS, Y

THIS IS AN AUTOMATED TABLE. ALL UPDATES MUST BE MADE IN THE ASSEMBLY.



GM94920-KAI

NOTE: FOR PROPER ASSEMBLY METHOD OF HARDWARE, USE G-585 AS A GUIDELINE.

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	10-2-14	NEW DRAWING [CT95303]	SAM
A	11-28-16	(D-8) M6923-06-80: 8 WAS 6, M933-06016-60:4 WAS 2, GM94920-KA2 VOIDED, VIEW REMOVED [CT166633]	SAM

UNLESS OTHERWISE SPECIFIED:
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X .XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

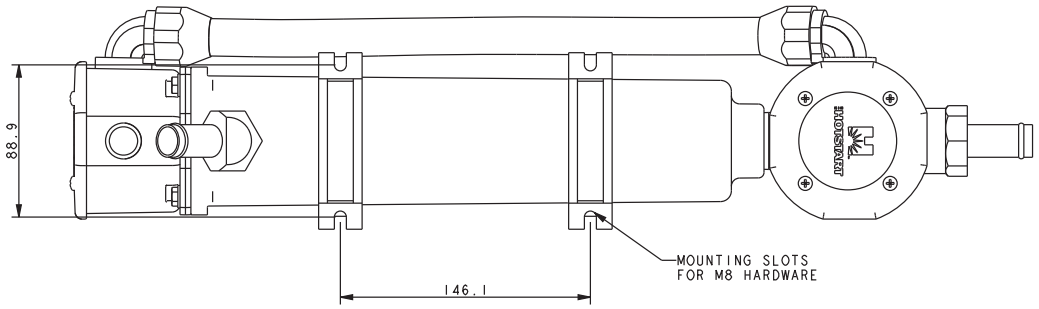
APPROVALS		DATE
DRAWN	SAM	10-2-14
CHECKED	SAM	10-2-14
APPROVED	AGT	10-2-14

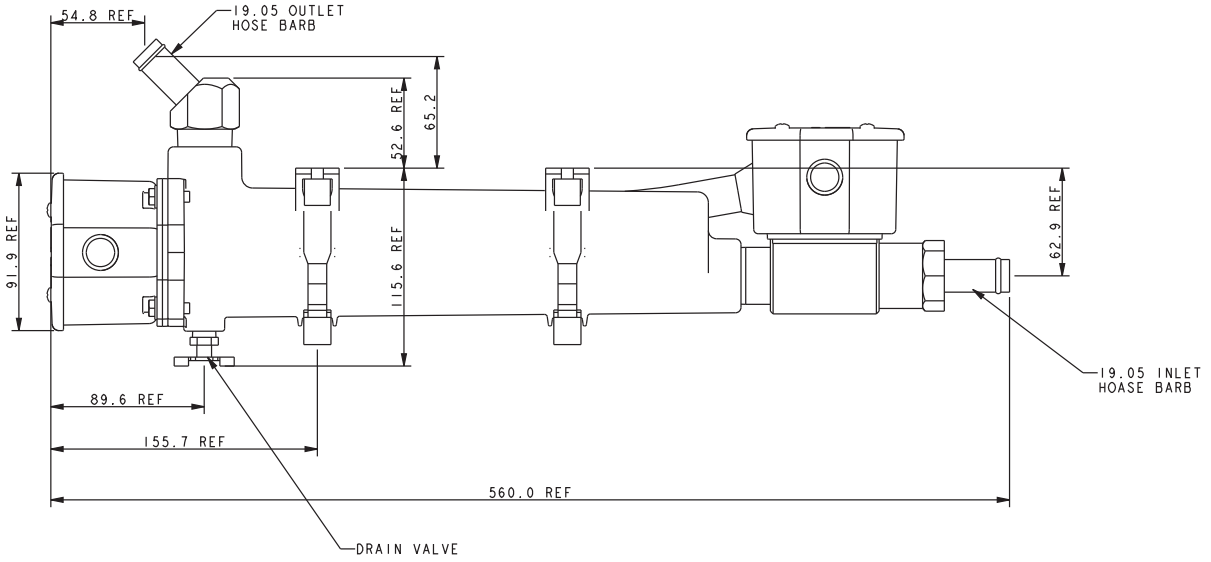
KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE
DWG, ASSY BATTERY CHARGER

SCALE 0.25 | CAD NO. | SHEET 1 of 1
DWG NO. GM94920 | D

PART NO	REV	WATTS	VOLTS	AMPS	TEMP RANGE	REPLACEMENT ELEMENT
GM76113	A	2500	90/120	15.6/20.8	27/38° C [80/100° F]	GM29477
GM76114	A		190/208	11.0/12.0		GM29478
GM76115	A		210/240	9.1/10.4		GM29474
GM76116	A		380/480	4.1/5.2		GM29479
ES-75616	A		240/227	7.8/9.0		ES-75542





200/350 KW JD

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	6-9-10	NEW DRAWING [89933-1]	SAM
A	12-9-10	(D-8) ES-75616 ADDED, GM76113: 15.6/20.8 WAS 27.8/20.8, GM76114: 11.0/12.0 WAS 13.2/12.0, GM76115: 9.1/10.4 WAS 11.9/10.4, GM76116: 4.1/5.2 WAS 6.6/5.2 [90699]	SAM

UNLESS OTHERWISE SPECIFIED:
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH 125 MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	SAM	6-9-10
CHECKED	JMS	6-9-10
APPROVED	WRD	6-9-10

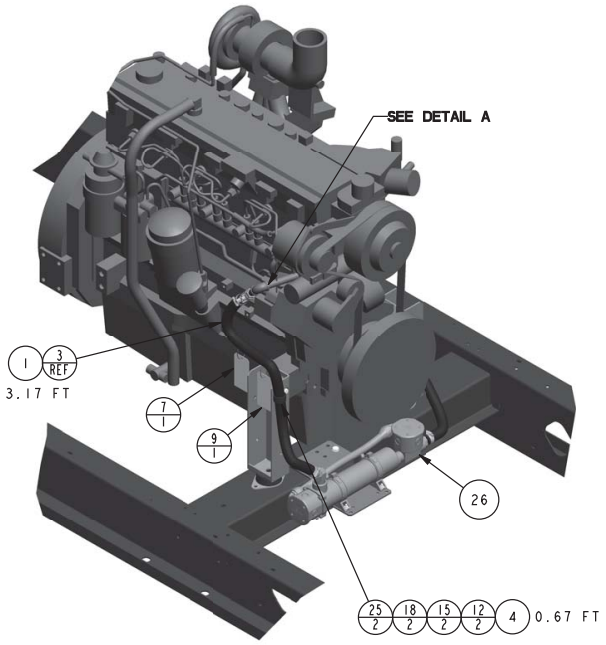
KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

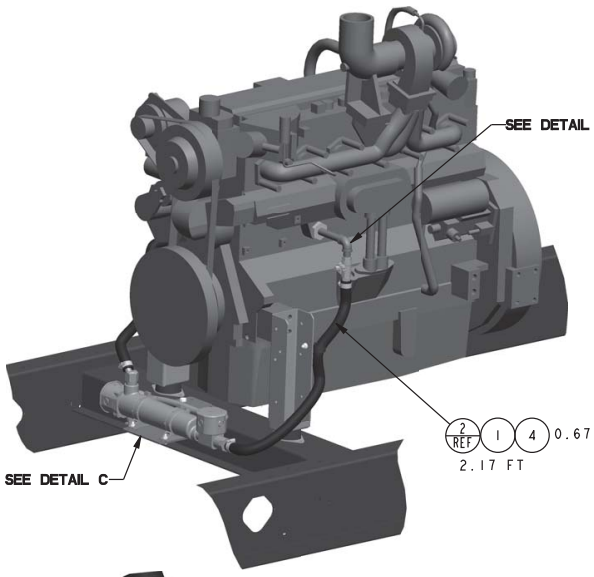
TITLE
HEATER, BLOCK

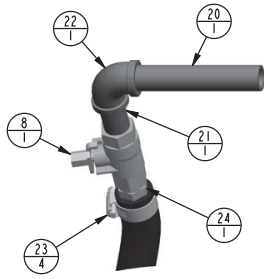
SCALE 0.70 | CAD NO. | SHEET 1 of 1
DWG NO. GM76113 | D

KIT NO.	ITEM	PART NO	QTY	DESCRIPTION
GM76120-KB				BASE GRP, BLOCK HEATER
	1	25452-00075	5.34FT	HOSE, COOLANT
	2	X-6367-6 (REF)	1	HOSE, COOLANT
	3	X-6367-14 (REF)	1	HOSE, COOLANT 29"
	4	29808-00750	1.33FT	SLEEVE, SPLIT WRAP BRAIDED, 3/4" DIA
	5	273692	1	ADAPTER, BUSHING
	6	273693	1	O-RING (1.475" ID)
	7	279047	1	TAG, INSTRUCTION
	8	GM19670	2	VALVE, SHUTOFF (1/2-14NPT)
	9	GM39752	1	TAG, HANG
	10	GM51263	1	BRACKET, BLOCK HEATER
	11	M125A-06-80	4	WASHER, PLAIN
	12	M125A-08-80	2	WASHER, PLAIN 8.4 ID X 16.0 OD
	13	M125A-10-80	2	WASHER, PLAIN 10.5 ID X 20.0 OD
	14	M6923-06-80	4	NUT, HEX 6MM
	15	M6923-08-80	2	NUT, HEX 8MM
	16	M6923-10-80	2	NUT, HEX 10MM
	17	M933-06025-60	4	SCREW, HEX CAP
	18	M933-08025-60	2	SCREW, HEX CAP
	19	M933-10025-60	2	SCREW, HEX CAP,FULLY THRD M10 X 25MM
	20	X-209-21	2	PIPE (1/2"NPT X 4.50")
	21	X-209-5	2	PIPE (1/2"NPT X 1.50")
	22	X-215-1	2	ELBOW, PIPE (90 DEG X 1/2"NPT)
	23	X-426-12	4	CLAMP, HOSE, .69/1.25 IN.
	24	X-582-7	2	CONNECTOR, HOSE + VIBRA SEAL
	25	X-672-20	2	CLAMP, INSULATED, 1.25 IN.
GM76120-KA1				BLOCK HEATER, 2500W, 90/120V 1PH
	26	GM76113	1	BLOCK HEATER
GM76120-KA2				BLOCK HEATER, 2500W,190/208V 1PH
	26	GM76114	1	BLOCK, HEATER
GM76120-KA3				BLOCK HEATER, 2500W,210/240V 1PH
	26	GM76115	1	BLOCK, HEATER
GM76120-KA4				BLOCK HEATER, 2500W,380/480V 1PH
	26	GM76116	1	BLOCK, HEATER

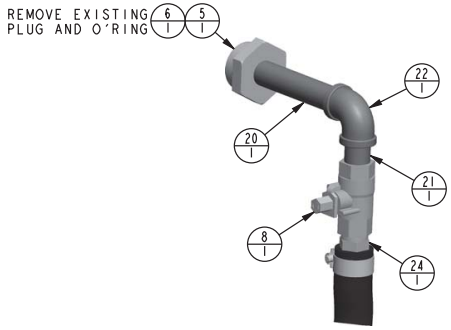
THIS IS AN AUTOMATED TABLE. ALL UPDATES MUST BE MADE IN THE ASSEMBLY. ITEMS 1-3 & 25 ARE FIXED. ITEM 1 IS A MANUAL BALLOONS.



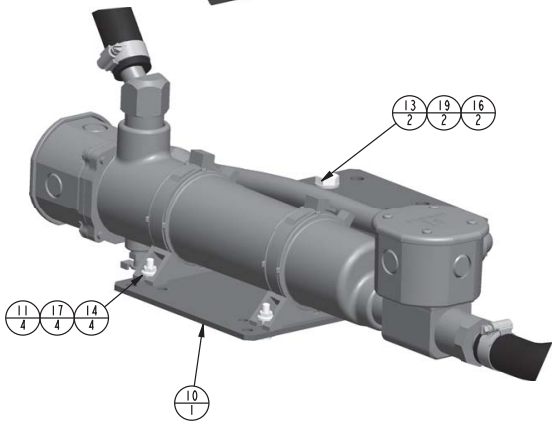




DETAIL A
SCALE 0.50



DETAIL B
SCALE 0.50



DETAIL C
SCALE 0.50

NOTE: FOR PROPER ASSEMBLY METHOD OF HARDWARE, USE G-585 AS A GUIDELINE.

BLOCK HEATER KITS
230-300 MODELS
JOHN DEERE

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	6-14-10	NEW DRAWING [89933-2]	SAM
A	9-28-10	(C-5) X-6367-14 WAS X-6367-12; (C-1)	
		X-6367-6 WAS X-6367-11; (C-8) X-209-21 (2)	
		WAS X-209-11 & X-209-18; X-6003-121 REMOVED;	
		VIEWS UPDATED [90099-3]	DJV
B	3-31-11	(C-8) X-672-20 WAS X-672-4 [90379-16]	SAM
C	10-24-11	(C-4) BLOCK HEATER MOVED & ROTATED 180° [92388]	SAM
D	10-18-12	(D-8) 29808-00750 ADDED [CT2707I]	SVP

UNLESS OTHERWISE SPECIFIED: (1) DIMENSIONS ARE IN MILLIMETERS (2) TOLERANCES ARE: X.XX ± 0.25, X.X ± 1.0, X ± 1.5, ANGLES ± 0° 30' MAX. SURFACE FINISH. THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	SAM	6-14-10
CHECKED	JMS	6-15-10
APPROVED	WRD	6-16-10

KOHLER CO. METRIC | PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: **DWG, ASSY BLOCK HEATER**

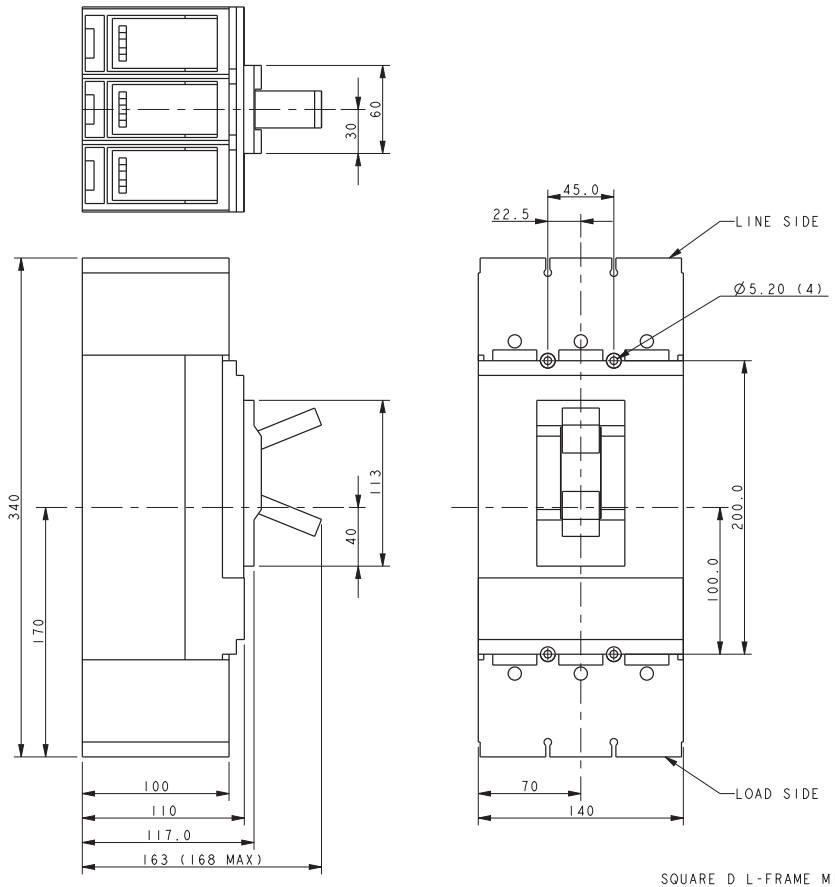
SCALE 0.14 | CAD NO. | SHEET 1 of 1

DWG NO. **GM76120** | **D**

PART NO.	PART REV	DESCRIPTION	AMPS	INTERRUPT kA @480 VAC	CONNECTION TYPE		POLES	VOLTS	RATING	TRIP TYPE	SQUARE D PART NO.
					LINE	LOAD					
GM85432-1	-	BREAKER, CIRCUIT 400A LGP	400	35	BUS	AL600LS52K3 LUGS	3	600	80%	MICROLOGIC 3.3 LI	LGP36400U31X
GM85432-2	-	BREAKER, CIRCUIT 400A LGP							80%	MICROLOGIC 3.3S LSI	LGP36400U33X
GM85432-3	-	BREAKER, CIRCUIT 400A LGP							80%	MICROLOGIC 6.3A LSIG	LGP36400U44X
GM85432-4	-	BREAKER, CIRCUIT 400A LGP							100%	MICROLOGIC 3.3 LI	LGP36400CU31X
GM85432-5	-	BREAKER, CIRCUIT 400A LGP							100%	MICROLOGIC 3.3S LSI	LGP36400CU33X
GM85432-6	-	BREAKER, CIRCUIT 400A LGP							100%	MICROLOGIC 6.3A LSIG	LGP36400CU44X
GM85432-7	-	BREAKER, CIRCUIT 600A LGP	600	35	BUS	AL600LS52K3 LUGS	3	600	80%	MICROLOGIC 3.3 LI	LGP36600U31X
GM85432-8	-	BREAKER, CIRCUIT 600A LGP							80%	MICROLOGIC 3.3S LSI	LGP36600U33X
GM85432-9	-	BREAKER, CIRCUIT 600A LGP							80%	MICROLOGIC 6.3A LSIG	LGP36600U44X

CONNECTION CHART		
CONNECTION TYPE	CONNECTIONS (PER PHASE)	TORQUE
BUS	(1) M10	50 Nm [442 IN-LB]
AL600LS52K3 LUGS	(2) 2/0-500 KCMIL AL/CU	50 Nm [442 IN-LB]

NOTE:
(4) M5 X 85 MOUNTING SCREWS, WASHERS AND NUTS INCLUDED.
(3) M10 X 25 BUS CONNECTION SCREWS AND SPRING WASHERS INCLUDED.



SQUARE D L-FRAME MICROLOGIC BREAKERS

▲ DENOTES A CRITICAL CHARACTERISTIC THAT MUST BE ADDRESSED IN THE PRODUCTION CONTROL PLAN.
TOTAL QUANTITY OF CRITICAL CHARACTERISTICS ON THIS DRAWING = 0

◇ DENOTES A MAJOR CHARACTERISTIC THAT MUST BE ADDRESSED IN THE PRODUCTION CONTROL PLAN.
TOTAL QUANTITY OF MAJOR CHARACTERISTICS ON THIS DRAWING = 0

KOHLER PART NUMBER TO BE CLEARLY VISIBLE ON CIRCUIT BREAKER AND ON INDIVIDUAL PACKAGING.

☐ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	4-3-12	NEW DRAWING [CT145I6]	WSD

UNLESS OTHERWISE SPECIFIED:
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH 32 MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	WSD	4-3-12
CHECKED	WSD	4-3-12
APPROVED	AJH	4-3-12

KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE
DWG, CIRCUIT BREAKER

SCALE 0.60 | CAD NO. | SHEET 1 of 1
DWG NO. GM85432-CMP | D

STANDARD BREAKER COMBINATIONS			
BREAKER 1	BREAKER 2	BREAKER 3	TRIP TYPE
H OR J	-	-	ALL
LA	-	-	ALL
LG	-	-	ALL
M	-	-	ALL
P	-	-	ALL
H OR J	H OR J	-	ALL
LA	H, J OR LA	-	ALL
LG	H, J, LA OR LG	-	ALL
M OR P	H, J, LA OR LG	-	ALL
P	P	-	NO LSIG
H OR J	H OR J	H OR J	NO LSIG
LA	H OR J	H OR J	NO LSIG
LA	LA	H, J OR LA	NO LSIG
LG	H OR J	H OR J	NO LSIG
LG	LA	LA, H, J	NO LSIG
LG	LG	H, J, LA OR LG	NO LSIG
M OR P	H OR J	H OR J	NO LSIG
M OR P	LA	H, J OR LA	NO LSIG
M OR P	LG	H, J, OR LG	NO LSIG

AL/CU MECHANICAL LOAD LUGS PER PHASE			
BREAKER FRAME	AMPS	WIRE RANGE	A WIRE BENDING SPACE
H	15-150	(1) #14 TO 3/0	530 [20.8]
J	175	(1) 1/0 TO 4/0	516 [20.3]
	200-250	(1) 3/0 TO 350 KCMIL	
LA	300-400	(1) #1 TO 600 KCMIL OR (2) #1 TO 250 KCMIL	472 [18.6]
LG	400-600	(2) 2/0 TO 500 KCMIL AL/CU	480 [18.9]
M	800	(3) 3/0 TO 500 KCMIL	454 [17.9]
P	250-800		
P	1000-1200	(4) 3/0 TO 500 KCMIL	412 [16.2]
MECHANICAL LOAD LUGS INCLUDED WITH H, J & LG LSIG NEUTRALS			
H	60-150	(1) #14 TO 3/0 AWG AL/CU	
J	250	(1) 3/0 TO 350 KCMIL AL/CU	
LG	400-600	(2) 4/0 TO 500 KCMIL AL/CU	

NOTES:

1) SEE UNIT DIMENSION PRINT (ADV-XXXX) FOR ADDITIONAL DIMENSIONS, JUNCTION BOX AND STUB-UP LOCATION.

2) ADD SKID DEPTH TO WIRE BENDING HEIGHTS ON THIS PRINT TO ARRIVE AT FULL WIRE-BENDING SPACE.

3) CONSULT FACTORY FOR BREAKER COMBINATIONS NOT SHOWN ON THIS PRINT.

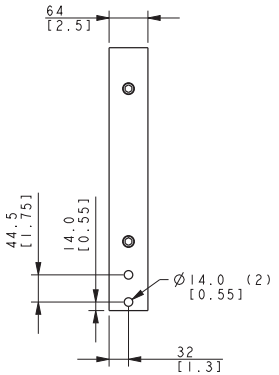
4) MECHANICAL LUGS ARE AVAILABLE FOR NON-LSIG NEUTRAL. SEE ADV-7376. H, J & LG LSIG NEUTRALS INCLUDE LUGS (SEE CHART).

5) NEUTRALS ARE BONDED TO GROUND AS STANDARD. CONSULT LOCAL CODES OR SYSTEM REQUIREMENTS.

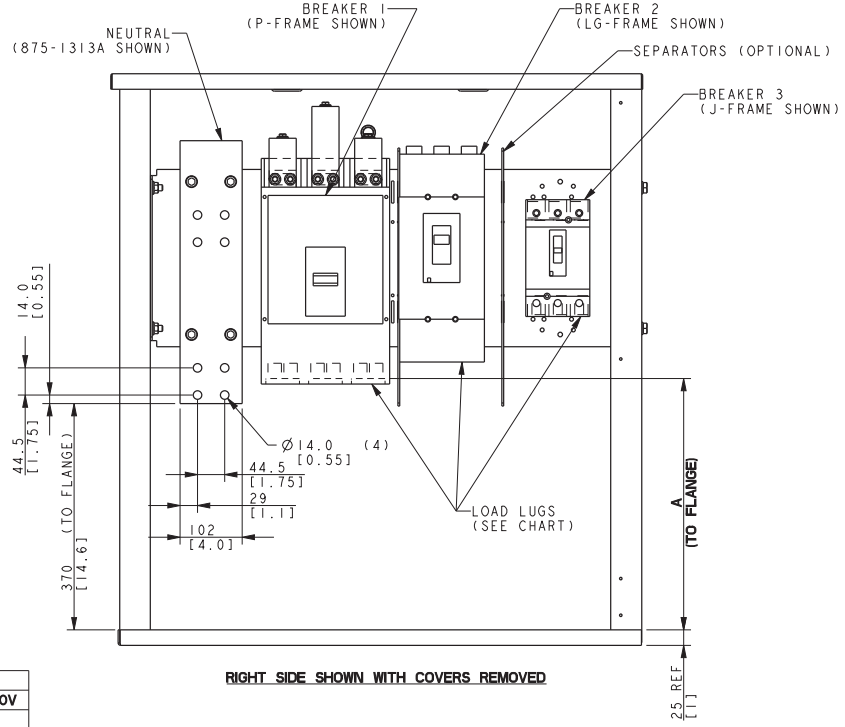
6) CIRCUIT BREAKER FRAMES REFER TO STANDARD SQUARE-D PRODUCT.

7) STANDARD NEUTRALS PROVIDED ARE SIZED FOR MAXIMUM UNIT AMPS. LSIG NEUTRALS ARE MATCHED TO THEIR CIRCUIT BREAKER AMPS.

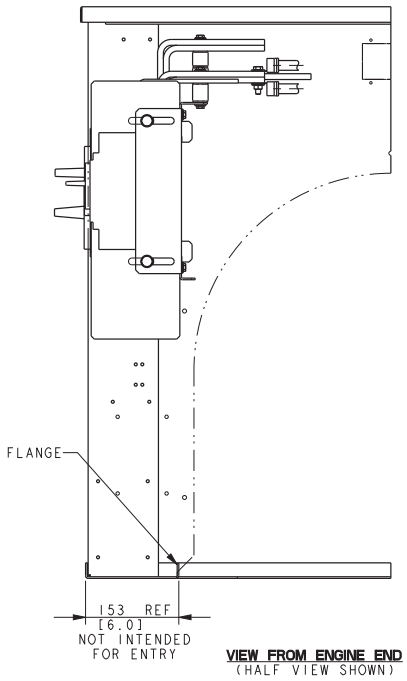
8) DIMENSIONS ARE MM, DIMENSIONS IN [ ] ARE INCHES.



625A NEUTRAL



RIGHT SIDE SHOWN WITH COVERS REMOVED



VIEW FROM ENGINE END
(HALF VIEW SHOWN)

ELECTRONIC TRIP UNITS		
FRAME	TRIP UNIT	
H	LI	MICROLOGIC 3.2
	LSI	MICROLOGIC 3.2S
	LSIG	MICROLOGIC 6.2A
J	LI	MICROLOGIC 3.2
	LSI	MICROLOGIC 3.2S
	LSIG	MICROLOGIC 6.2A
LG	LI	MICROLOGIC 3.3
	LSI	MICROLOGIC 3.3S
	LSIG	MICROLOGIC 6.3A
M	LI	ET 1.0
P	I	ET 1.01
	LI	MICROLOGIC 3.0
	LSI	MICROLOGIC 5.0
	LSIG	MICROLOGIC 6.0A

UL INTERRUPT kA RATINGS			
BREAKER	• 240V	• 480V	• 600V
HD	25	18	14
HG	65	35	18
HJ	100	65	25
JD	25	18	14
JG	65	35	18
JJ	100	65	25
LA	42	30	22
LG	65	35	18
MG	65	35	18
PG	65	35	18
PJ	100	65	25
PL	125	100	25

ELECTRICALLY OPERATED BREAKERS FOR DEC6000 DPS OR APM603 PARALLELING ONLY NO 2ND BREAKERS ARE ALLOWED			
RATING	AMPS	TRIP TYPE	FRAME
100%	250	ELECTRONIC LI OR LSI	PJ OR PL
	400		
	600		
	800		
	1000		
	1200		

LCB KITS
4UA, 4M6226
ALTERNATOR FRAMES

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	7-10-07	NEW DRAWING [79677]	WSD
A	5-26-15	(B-8) 625A WAS 500A, VIEW UPDATED [83690]	WSD
B	4-22-08	(D-8) 15-150 WAS 40-150 [84767]	WSD
C	10-19-12	UPDATED D TO LG, 100% H/J ADDED, LSIG NEUTRAL LUG CHART ADDED [CT26372]	WSD
D	11-2-16	(D-6) REMOVED SEPARATE LINES FOR H & J 100% LUGS; (D-8) UPDATED TABLE AND ADDED 3RD LCBS [CT114236]	WSD
E	3-26-19	(A-6) EOB TABLE ADDED [CT194577]	WSD
F	6-23-21	(D-6) M 800A WAS 700 & 800,LI WAS I [CT212837]	WSD

DO NOT SCALE, REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

THIRD-ANGLE PROJECTION

APPROVALS		DATE
DRAWN	WSD	7-10-07
CHECKED	WSD	7-10-07
APPROVED	AJH	7-10-07

KOHLER
KOHLER, WISCONSIN 53044

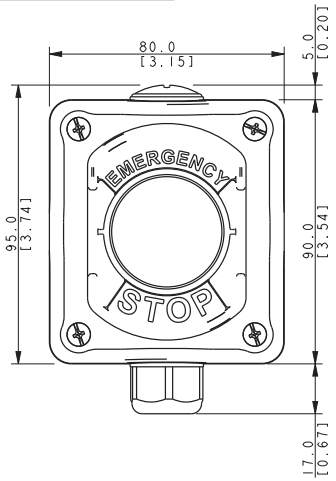
TITLE: DIMENSION PRINT

SCALE 0.25 | CAD NO. | SHEET 1 of 1

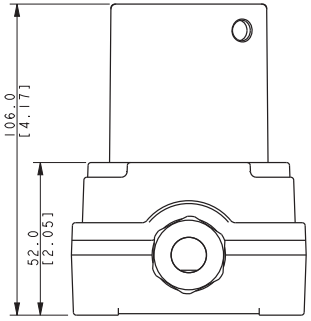
DWG NO. ADV-7372 | D

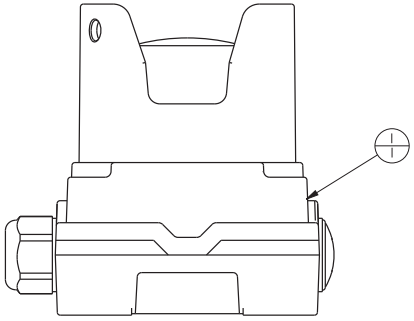
KIT NO.	ITEM	PART NO	QTY	DESCRIPTION
GM103743				E-STOP, NEC REMOTE
	1	GM103743-1	1	E-STOP W/ YELLOW SHROUD, LOTO
	2	GM103743-2	4	#10 X 1.25□ Sheetmetal Screw
	3	GM103743-3	1	TERMINAL, FAST-ON, MALE, 18-22 AWG
	4	GM103743-4	1	TERMINAL, FAST-ON, FEMALE, 18-22 AWG
	5	GM103743-5	2	TERMINAL, SPADE, 22-16 AWG
	6	GM103743-6	1	LITERATURE, TT-1736

THIS IS AN AUTOMATED TABLE. ALL UPDATES MUST BE MADE IN THE ASSEMBLY.



SCALE 1.50





NOTE:

DIMENSIONS IN [ ] ARE IN INCH EQUIVALENTS.

SCREWS AND TERMINALS ARE TO BE BAGGED AND PLACED IN THE BOX

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	2-12-18	NEW DRAWING [CT176728]	CCL

UNLESS OTHERWISE SPECIFIED:
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0° 30'
SURFACE FINISH 63 MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	CCL	2-12-18
CHECKED	KJB	2-12-18
APPROVED	KJB	2-12-18

KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: E-STOP, NEC REMOTE

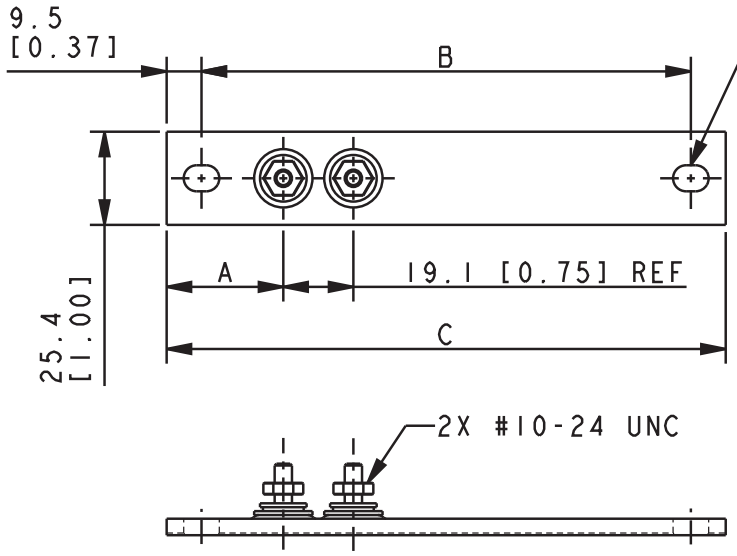
SCALE 1.50 | CAD NO. | SHEET 1 of 1

DWG NO. GM103743 | D

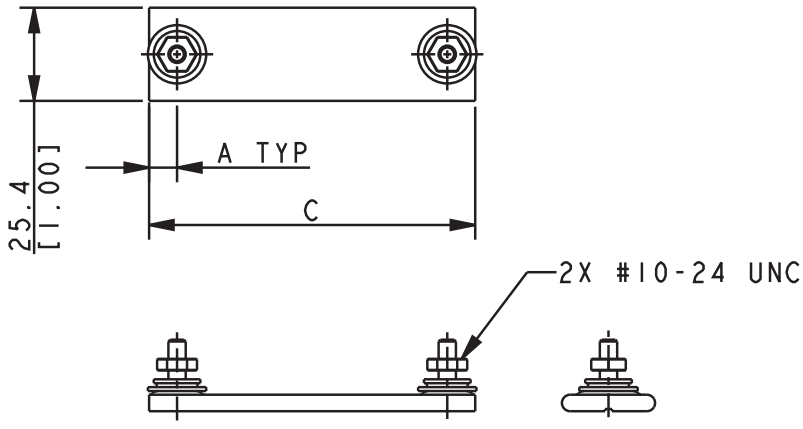
PART NO.	REV	A	A INCH	B	B INCH	C	C INCH	VOLTS	WATTS	TYPE
291269	J	31.8	1.25	133.4	5.25	152.4	6.00	120	100	A
256890	J	7.6	0.30	-		88.9	3.50	120	50	B

THIS IS AN AUTOMATED TABLE. ALL CHANGES TO THIS TABLE MUST BE MADE IN THE FAMILY TABLE OF THE GENERIC MODEL.

NOTE:
DIMENSIONS IN [ ] ARE INCH EQUIVALENTS



TYPE A



TYPE B

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
H	12-23-03	.28 X .38 WAS .25 X .38 [71119]	SAM
J	1-4-11	REDRAWN IN PROE & DUAL DIMENSIONED [90603-7]	DFH

NOTE:
SIMILAR TO GM79574

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ± 1.0
X.X ± 1.5
X ± 3.0
ANGLES ± 0° 30'
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	RH	3-22-78
CHECKED	EB	3-27-78
APPROVED	RJS	3-27-78

KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

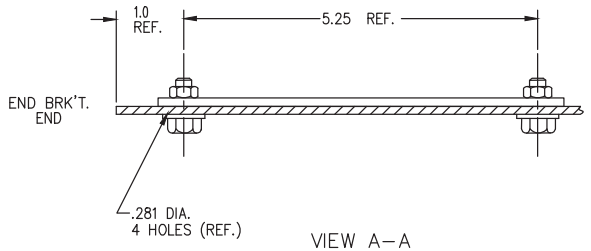
TITLE
HEATER, STRIP

SCALE 0.75 | CAD NO. | SHEET 1 of 1

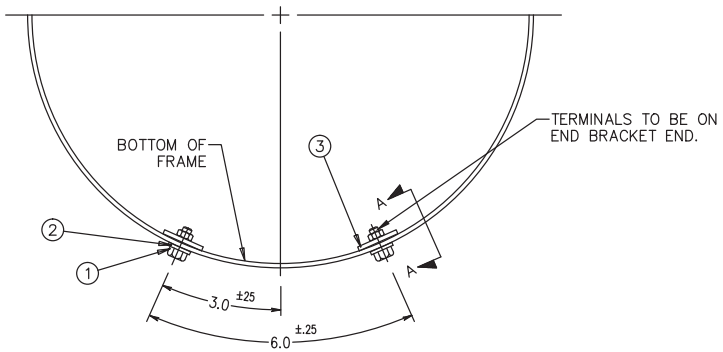
DWG NO. 291269 B

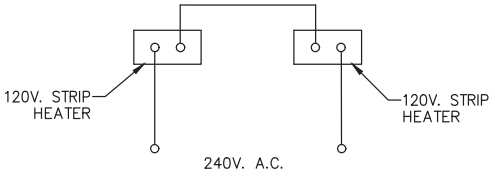
NO.	KOHLER PART NO.	DESCRIPTION	QTY.	KIT NO. 253213				
				STRIP HEATER 120V./240V.				
1	M933-05014-60	SCREW, HEX CAP	4	X				
2	M125A-05-80	WASHER, PLAIN	4	X				
3	GM79574	HEATER, STRIP	2	X				
4								
5								

REV	DATE	REVISION	BY	M F
E	2-6-95	(D-3, D-4) KIT NO. EA9901 & CUMMINS NO'S. REMOVED,		
		ITEM #2: X-6210-2 WAS X-81-1 [40557]	RSH	
F	7-29-02	(D-4) X-465-8 WAS X-465-7 [67906]	JMS	
G	9-20-12	(D-4) GM79574 WAS 291269, M933-05014-60 WAS X-465-8,		
		M125A-05-80 WAS X-25-40, X-101-8 AND X-6210-2		
		REMOVED (C-3) ASSY NOTE REMOVED [CT24087]	SAM	

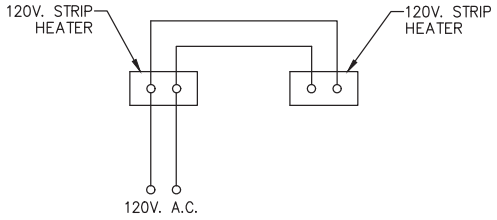


VIEW A-A





240V. CONNECTION
DIAGRAM



120V. CONNECTION
DIAGRAM

STRIP HEATER
200 WATT 120V. OR 240V.
B & C SERIES

UNLESS OTHERWISE SPECIFIED —
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX± .010 ANGLES± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 √ MAX.
FRACTIONS ±

APPROVALS	DATE
DRAWN RLD	3-9-83
CHECKED RDH	3-9-83
APPROVED LW	3-30-83

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: DRAWING, ASSEMBLY

SCALE /// | CAD NO. | SHEET 1-1

PLOTTED | DWG. NO. Y-253000 | C

rehlko

Warranty

Stationary Standby and Prime Power Industrial Generator Set One-Year or Two Thousand (2000)-Hour Limited Warranty

Your product has been manufactured and inspected with care by experienced craftsmen. If you are the original end user, Discovery Energy, LLC and its affiliates dba Rehlko -hereafter referred to as "the manufacturer"- warrants, for the period indicated below, each product to be free from defects in materials and workmanship. In the event of a defect in materials or workmanship, the manufacturer will repair, replace, or make appropriate adjustment at the manufacturer's option if the product, upon the manufacturer's inspection, is found to be properly installed, maintained, and operated in accordance with the manufacturer's instruction manuals. A distributor, dealer, or authorized service representative must perform startup.

Product	**Warranty Coverage**
Stationary Standby Generator Set & Accessories	One (1) year from registered startup or two thousand (2000) hours (whichever occurs first). In any event, the warranty period will expire not later than thirty (30) months from the date of shipment from the manufacturer's factory.
Stationary Prime Power Generator Set & Accessories	One (1) year from registered startup or two thousand (2000) hours (whichever occurs first). In any event, the warranty period will expire not later than thirty (30) months from the date of shipment from the manufacturer's factory.

Standby rated generators may only be used in Stationary "emergency" applications, where the generator set is the secondary power source, and a dependable utility is the primary power source. Use of a standby rated generator in a stationary "non-emergency" application, or any non-stationary application, is not allowed and voids all factory warranties.

The following will **not** be covered by the warranty:

1. Normal wear, routine tuneups, tuneup parts, adjustments, and periodic service.
2. Damage, including but not limited to damage caused by accidents, improper installation or handling, faulty repairs not performed by an authorized service representative, improper storage, or acts of God.
3. Damage caused by operation at speeds, or with fuel, loads, conditions, modifications or installation contrary to published specifications.
4. Damage caused by negligent maintenance such as:
   a. Failure to provide the specified type and sufficient quantity of lubricating oil.
   b. Failure to keep the air intake and cooling fin areas clean.
   c. Failure to service the air cleaner.
   d. Failure to provide sufficient coolant and/or cooling air.
   e. Failure to perform scheduled maintenance as prescribed in supplied manuals.
   f. Failure to regularly exercise the generator set under load (stationary applications only).
5. Original installation charges and startup costs.
6. Starting batteries and the following related expenses:
   a. Labor charges related to battery service.
   b. Travel expenses related to battery service.
7. Engine coolant heaters, heater controls, and circulating pumps after the first year of the warranty period.
8. Additional expenses for repairs performed after normal business hours, i.e. overtime or holiday labor rates.
9. Rental of equipment during the performance of warranty repairs.
10. Removal and replacement of non-Rehlko-supplied options and equipment.
11. Non-Rehlko replacement parts. Replacement of a failed part with a non-Rehlko part voids the warranty on that part.
12. Radiators replaced rather than repaired.
13. Fuel injection pumps not repaired by an authorized service representative.
14. Non-authorized repair shop labor without prior approval from the manufacturer Warranty Department.
15. Engine fluids such as fuel, oil, or coolant/antifreeze.
16. Shop supplies such as adhesives, cleaning solvents, and rags.
17. Expenses incurred investigating performance complaints unless the problem is caused by defective materials or workmanship.
18. Maintenance items such as fuses, lamps, filters, spark plugs, loose or leaking clamps, and adjustments.
19. Travel time and mileage exceeding 300 miles round trip.

To obtain warranty service, call 1-800-544-2444 for your nearest authorized service representative or write the manufacturer Service Department, MS072, Kohler, WI 53044 USA.

THE MANUFACTURER SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, AND/OR CONSEQUENTIAL DAMAGES OF ANY KIND including, but not limited to, incidental and/or consequential labor costs, installation charges, telephone charges, or transportation charges in connection with the replacement or repair of defective parts.

This is our exclusive written warranty. We make no other express warranty nor is anyone authorized to make any on our behalf.

ANY IMPLIED OR STATUTORY WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental and/or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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Discovery Energy, LLC
200 Twin Oaks Road, Kohler, WI 53044 USA
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
powersystems.rehlko.com

TP-5374 12/24h

Stationary Standby Industrial Generator Set Extended Five-Year or Three Thousand (3000)-Hour Comprehensive Limited Warranty

Your product has been manufactured and inspected with care by experienced craftsmen. If you are the original end user, Discovery Energy, LLC and its affiliates dba Rehlko -hereafter referred to as "the manufacturer"- warrants, for the period indicated below, each product to be free from defects in materials and workmanship. In the event of a defect in materials or workmanship, the manufacturer will repair, replace, or make appropriate adjustment at the manufacturer's option if the product, upon the manufacturer's inspection, is found to be properly installed, maintained, and operated in accordance with the manufacturer's instruction manuals. A distributor, dealer, or authorized service representative must perform startup.

Product	**Warranty Coverage**
Stationary Standby Generator Set & Accessories	Five (5) years from registered startup or three thousand (3000) hours (whichever occurs first).

Extended warranty purchase must take place prior to expiration of standard warranty. Extended warranty is effective upon submission of purchase order in the online warranty system.

The following will **not** be covered by the warranty:

1. Normal wear, routine tuneups, tuneup parts, adjustments, and periodic service.
2. Damage, including but not limited to damage caused by accidents, improper installation or handling, faulty repairs not performed by an authorized service representative, improper storage, or acts of God.
3. Damage caused by operation at speeds, or with fuel, loads, conditions, modifications or installation contrary to published specifications.
4. Damage caused by negligent maintenance such as:
   a. Failure to provide the specified type and sufficient quantity of lubricating oil.
   b. Failure to keep the air intake and cooling fin areas clean.
   c. Failure to service the air cleaner.
   d. Failure to provide sufficient coolant and/or cooling air.
   e. Failure to perform scheduled maintenance as prescribed in supplied manuals.
   f. Failure to regularly exercise the generator set under load (stationary applications only).
5. Damage to exterior or interior components resulting from extreme environmental conditions, including but not limited to heat, cold, humidity, flooding, salt, and high winds.
6. Damage caused by operation when emergency battle mode is enabled.
7. Original installation charges and startup costs.
8. Starting batteries and the following related expenses:
   a. Labor charges related to battery service.
   b. Travel expenses related to battery service.
9. Engine coolant heaters, heater controls, and circulating pumps after the first year of the warranty period.
10. Additional expenses for repairs performed after normal business hours, i.e. overtime or holiday labor rates.
11. Rental of equipment during the performance of warranty repairs.
12. Removal and replacement of non-Rehlko-supplied options and equipment.
13. Non-Rehlko replacement parts. Replacement of a failed part with a non-Rehlko part voids the warranty on that part.
14. Radiators replaced rather than repaired.
15. Fuel injection pumps not repaired by an authorized service representative.
16. Non-Rehlko-authorized repair shop labor without prior approval from the manufacturer Warranty Department.
17. Engine fluids such as fuel, oil, or coolant/antifreeze.
18. Shop supplies such as adhesives, cleaning solvents, and rags.
19. Expenses incurred investigating performance complaints unless the problem is caused by defective materials or workmanship.
20. Maintenance items such as fuses, lamps, filters, spark plugs, loose or leaking clamps, and adjustments.
21. Travel time and mileage exceeding 300 miles round trip.

To obtain warranty service, call 1-800-544-2444 for your nearest authorized service representative or write the manufacturer Service Department, MS072, Kohler, WI 53044 USA.

THE MANUFACTURER SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, AND/OR CONSEQUENTIAL DAMAGES OF ANY KIND including, but not limited to, incidental and/or consequential labor costs, installation charges, telephone charges, or transportation charges in connection with the replacement or repair of defective parts.

This is our exclusive written warranty. We make no other express warranty nor is anyone authorized to make any on our behalf.

ANY IMPLIED OR STATUTORY WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental and/or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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Discovery Energy, LLC
200 Twin Oaks Road, Kohler, WI 53044 USA
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
powersystems.rehlko.com

TP-5561 6/25i

rehlko

Certification

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:

Kohler Power Systems
N7650 Lakeshore Road
Sheboygan
Wisconsin
53083
USA

Holds Certificate No: **FM 727336**

and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

Design, manufacture, and distributor support for electrical generators, alternators, fuel tanks, automatic transfer switches and switchgear, including the manufacture of leads and harness, skids, and fabricated components with distribution of generator sets supported by warehouse operations.

For and on behalf of BSI:

Jessica Patel, Senior Vice President, Assurance Americas

Original Registration Date: 1995-02-28
Effective Date: 2024-11-07
Latest Revision Date: 2024-11-05
Expiry Date: 2027-11-06

...making excellence a habit.™

Certificate No: **FM 727336**

Location	Registered Activities
Kohler Power Systems - GK 900 Highland Drive Bldg 604 Kohler Wisconsin 53004 USA	Manufacture of leads and harness, automatic transfer switches and switchgear. Distribution of generator sets.
Kohler Power Systems N7650 Lakeshore Road Sheboygan Wisconsin 53083 USA	Design, manufacture, and distributor support for electrical generators, automatic transfer switches and switchgear.
Kohler Power Systems 300 N Dekora Woods Blvd Saukville Wisconsin 53080 USA	Manufacture of fuel tanks, skids, fabricated components and generators.
Kohler Power Systems Muth Warehouse 2821 Muth Court Sheboygan Wisconsin 53083 USA	The distribution of generator sets.
Kohler Power Systems KWIP Warehouse 4327 County EE Sheboygan Wisconsin 53081 USA	Receiving, sequencing and warehousing of generator components.

Original Registration Date: 1995-02-28

Effective Date: 2024-11-07

Latest Revision Date: 2024-11-05

Expiry Date: 2027-11-06

PROTOTYPE TEST REPORT

KOHLER

Models Covered: **300REOZJ**
Model Tested: **300REOZJ**
Cooling System Tested: **50C**

Alternator Tested: **4UA13**
Engine Tested: **6090HFG86**
Voltage Tested: **208V**

GENSET

Maximum power test to assure that the prime mover and alternator have sufficient capacity to operate within specifications.

Meets Rated Load

Steady-state load test to ensure voltage stability meets or exceeds ISO8528-5 requirements and to verify compliance with steady state speed control specifications.

± 0.25 % Frequency Band

± 0.50 % Voltage Deviation

Transient load tests per NEMA MG1-32.18, and ISO 8528 to verify specifications of transient voltage regulation, voltage dip, voltage overshoot, recovery voltage, and recovery time. Values shown for model tested above. Please contact factory for additional details.

Full Load Acceptance	Full Load Rejection
35.7 % Voltage Dip	**12.5** % Voltage Overshoot
2.30 Seconds of Recovery Time	**0.60** Seconds of Recovery Time
15.6 % Frequency Dip	**4.40** % Frequency Overshoot
6.20 Seconds of Recovery Time	**0.70** Seconds of Recovery Time

G3 ISO8528-5 Class (G1, G2, G3)

NFPA 110 one step testing to determine the amount of time required for the generator set to reach 90% voltage and frequency to allow the ATS to transfer.

Complies with NFPA 110 Type 10

Vibrational analysis to verify that generator vibrations are within acceptable limits per ISO 8528-9.

Complies

Torsional analysis data to verify torsional effects are not detrimental and that the generator set will provide dependable service as specified.

Complies

Generator set cooling and air flow tests to verify maximum operating ambient temperature. (Cooling system test results are available on TIB-118)

Acoustical noise intensity and sound attenuation effects tests (Acoustical noise results are available on TIB-114 &115)

Exhaust Back Pressure test completed to demonstrate within engine limitation
(Exhaust back pressure test results are available on TIB-119)

PROTOTYPE TEST REPORT

KOHLER

Models Covered: **300REOZJ**
Model Tested: **300REOZJ**
Cooling System Tested: **50C**

Alternator Tested: **4UA13**
Engine Tested: **6090HFG86**
Voltage Tested: **208V**

ALTERNATOR

Alternator temperature rise test per NEMA MG1-32.6. Standby and prime ratings of the alternator are established during this test.

Alternator overload test per NEMA MG1-32.8. Motor starting tests per NEMA MG1-32.18.5 to evaluate capabilities of generator, exciter, and regulator system.

Three-phase symmetrical short-circuit test per NEMA MG1-32.13 to demonstrate short circuit performance, mechanical integrity, ability to sustain short-circuit current.

Harmonic analysis, voltage waveform deviation per NEMA MG1-32.10 to confirm that the generator set is producing clean voltage within acceptable limits.

(Alternator detailed test results are available on TIB-102)

Kohler Standby/Prime Generator Set Test Program

Testing is an integral part of quality assurance. In keeping with our uncompromising commitment to quality, safety, and reliability, every Kohler Standby/Prime power generator set undergoes an extensive series of prototype and production testing.

Prototype Testing

Prototype testing includes the potentially destructive tests necessary to verify design, proper function of protective devices and safety features, and reliability expectations. Kohler's prototype testing includes the following:

- Alternator temperature rise test per NEMA MG1-32.6. Standby and prime ratings of the alternator are established during this test.
- Maximum power test to assure that the prime mover and alternator have sufficient capacity to operate within specifications.
- Alternator overload test per NEMA MG1-32.8.
- Steady-state load test to ensure voltage regulation meets or exceeds ANSI C84.1, NEMA MG1-32.17 requirements and to verify compliance with steady-state speed control specifications.
- Transient test to verify speed controls meets or exceeds specifications.
- Transient load tests per NEMA MG1-32.18, and ISO 8528 to verify specifications of transient voltage regulation, voltage dip, voltage overshoot, recovery voltage, and recovery time.
- Motor starting tests per NEMA MG1-32.18.5 to evaluate capabilities of generator, exciter, and regulator system.
- Three-phase symmetrical short-circuit test per NEMA MG1-32.13 to demonstrate short circuit performance, mechanical integrity, ability to sustain short-circuit current.
- Harmonic analysis, voltage waveform deviation per NEMA MG1-32.10 to confirm that the generator set is producing clean voltage within acceptable limits.
- Generator set cooling and air flow tests to verify maximum operating ambient temperature.
- Reliability tests to demonstrate product durability, followed by root cause analysis of discovered failures and defects. Corrective action is taken to improve the design, workmanship, or components.
- Acoustical noise intensity and sound attenuation effects tests.

Production Testing

In production, Kohler Standby/Prime generator sets are built to the stringent standards established by the prototype program. Every Kohler generator set is fully tested prior to leaving the factory. Production testing includes the following:

- Stator and exciter winding high-potential test on all generators. Surge transient tests on stators for generators 180 kW or larger. Continuity and balance tests on all rotors.
- One-step, full-load pickup tests to verify that the performance of each generator set, regulator, and governor meets published specifications.
- Regulation and stability of voltage and frequency are tested and verified at no load, 1/4 load, 1/2 load, 3/4 load, and full-rated load.
- Voltage, amperage, frequency and power output ratings verified by full-load test.
- The proper operation of controller logic circuitry, prealarm warnings, and shutdown functions is tested and verified.
- Any defect or variation from specification discovered during testing is corrected and retested prior to approval for shipment to the customer.

Torsional analysis data, to verify torsional effects are not detrimental and that the generator set will provide dependable service as specified, is available upon request.

Kohler offers other testing at the customer's request at an additional charge. These optional tests include power factor testing, customized load testing for specific application, witness testing, and a broad range of MIL-STD-705c testing. A certified test report is also available at an additional charge.

KOHLER®

KOHLER CO. Kohler, Wisconsin 53044
Phone 920-565-3381, Fax 920-459-1646
For the nearest sales/service outlet in the US and Canada, phone 1-800-544-2444
KohlerPowerSystemscom

G18-56 12/05b