Las Gallinas Valley Sanitary District
101 Lucas Valley Road, Suite 300
San Rafael, CA 94903
Tel.: 415-472-1734
Fax: 415-499-7715
www.LGVSD.org

ADDENDUM NO. 2

Date: May 29, 2024
Project: Battery Energy Storage System
Job No.: 24600-14

To: All Planholders and Prospective Bidders

The following changes and/or clarifications are hereby made to the Request for Proposals and shall become a part of the RFP dated April 5, 2024.

1. Proposal Deadline: Proposal deadline has been extended to **11:00 AM on June 6, 2024.**

Questions Received from Prospective Proposers:
The following questions were submitted before 5/28/2024. Questions that are received after the RFP question deadline may not be answered in an addendum. LGVSD responses to the questions are in bold.

Q1. Bidder interprets a seamless transition as being very near UPS speeds. Please specify a maximum transition time in milliseconds.
Response: The BESS shall be able to seamlessly transition from utility power to Battery Energy Storage System (BESS) power without shutdown under unplanned utility power outages. It is understood that the BESS cannot account for all utility outage conditions. UPS is not required.

Q2. To provide a seamless transition, we plan on using a contactor which needs 120V power. Can you please indicate what free breaker space and in which panelboard that we can use to install a 15A breaker for contactor power?
Response: A convenient location will be identified to the selected bidder.

Q3. Is the generator supposed to be able to parallel with the battery?
Response: Yes.

Q4. The RFP mentions the battery to be the grid-forming entity. If the generator is to operate in parallel during an outage, will the generator then become the grid-forming entity?
Response: The BESS will be the grid forming entity.

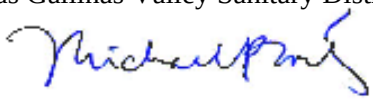
Q5. To achieve parallel operation of BESS & generator with the battery as the grid- forming entity, Bidder would suggest modifying the existing generator controls. Would LGVSD approve and support that approach?
Response: Yes. See attached specifications for existing generator installed on site.

Q6. Are there plans/hardware/controls that will be incorporated as part of the meter consolidation project that will make the generator and battery integration more seamless. i.e. Installing a relay in the ATS. Please provide details if that is the case.
Response: Assume that there is an existing 700G relay at the ATS.

Q7. Will the LGVSD accept Bidder's request for an extension to iron out the above details and to account for the holiday weekend? We recommend a minimum of 1 week and would prefer a 2 week extension.
Response: The proposal deadline has been extended by 1 week. See Item 1 above.

This addendum consists of 104 pages including this page, plus attachments. Acknowledge receipt of this addendum by signing in the space provided below. Submit an original copy of this addendum cover page along with the proposal.

Las Gallinas Valley Sanitary District: Proposer: _____



_____

Michael P. Cortez, PE, District Engineer (Authorized Signature) (Date)

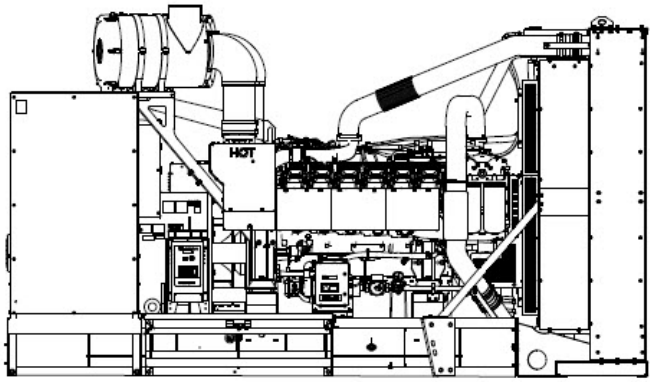
KOHLER®

Spec Sheets

KOHLER®

KD1000
Diesel

ISO 9001 KOHLER POWER SYSTEMS NATIONALLY REGISTERED



Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- 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 standard three-year or 1000-hour limited warranty for standby applications. Five-yare basic, five-year comprehensive, and ten-year extended limited warranties are also available.
- A standard two-year or 8700-hour limited warranty for prime power applications.
- Tier 2 EPA-certified for Stationary Emergency Applications
- Battery Rack and Cables
- Closed Crankcase Ventilation (CCV) Filters
- Customer Connection
- Integral Vibration Isolation

Alternator Features

- Local Emergency Stop Switch
- Oil Drain and Coolant Drain Extension
- Operation and Installation Literature
- The pilot-excited, permanent magnet (PM) alternator provides superior short-circuit capability.
- 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 downstream circuit breakers to trip without collapsing the alternator field.

Other Features

- Self-ventilated and dripproof construction.
- Superior voltage waveform from two-thirds pitch windings and skewed stator.Brushless alternator with brushless pilot exciter for excellent load response.
- Kohler designed controllers for one-source system integration and remote communication.
- The low coolant level shutdown prevents overheating (standard on radiator models only).

Generator Set Ratings

				Standby 130C Ratings	
Alternator	Voltage	Ph	Hz	kW/kVA	Amps
KH04070TO4D	277/480	3	60	1000 / 1250	1504

RATINGS: All three-phase units are rated at 0.8 power factor.
Standby Ratings: The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating.
Prime Power Ratings: At varying load, the number of generator set operating hours is unlimited.
A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory.
Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates.
The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Model: KD1000, continued

Alternator Specifications

Specifications	Alternator
Alternator manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet Pilot Exciter
Voltage regulator	Solid State, Volts/Hz
Insulation	NEMA MG1, UL 1446, Vacuum Pressure Impregnated (VPI)
Insulation: Material	Class H, Synthetic, Nonhygroscopic
Insulation: Temperature Rise	130°C, 150°C Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible disc
Amortisseur windings	Full
Rotor balancing (60Hz)	125%
Alternator winding type	Random Wound
Voltage regulation, no-load to full-load RMS	+/-0.25%
Unbalanced load capability	100% of Rated Standby Current

- The pilot-excited, permanent magnet (PM) alternator provides superior short-circuit capability.
- All models are brushless, rotating-field alternators.
- 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 downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Superior voltage waveform from two-thirds pitch windings and skewed stator.
- Brushless alternator with brushless pilot exciter for excellent load response.

Engine

Engine Specification

Engine Manufacturer	Kohler Diesel
Engine Model	KD27V12
Engine: type	4-Cycle, Turbocharged
Cylinder arrangement	12-V
Displacement, L (cu. in.)	27 (1648)
Bore and stroke, mm (in.)	135 x 157 (5.31 x 6.18)
Compression ratio	15.0:1
Piston speed, m/min. (ft./min.)	565 (1854)
Main bearings: quantity, type	7, Precision Half-Shell
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	1114 (1494)
Cylinder head material	Cast Iron
Crankshaft material	Steel
Valve (exhaust) material Exhaust	Steel
Governor: type, make/model	KODEC Electronic Control
Frequency regulation, no-load to-full load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Model: KD1000, continued

Exhaust

Exhaust System

Exhaust flow at rated kW,m3/min. (cfm)	201.6 (7119)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	530 (986)
Maximum allowable back pressure, kPa (in. Hg)	8.5 (2.5)
Exh. outlet size at eng. hookup, mm (in.)	See ADV Drawing

Fuel

Fuel System

Fuel type	Diesel
Fuel supply line, min. ID, mm (in.)	14 (0.55)
Fuel return line, min. ID, mm (in.)	14 (0.55)
Max. fuel flow, Lph (gph)	380 (100)
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)	-30/30 (-8.8/8.8)
Maximum diesel fule lift, m (ft.)	3.7 (12)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel Filter Primary	1
Fuel Filter Water Separator	1
Recommended fuel	#2 Diesel ULSD

Lubrication

Lubrication System

Type	Full Pressure
Oil pan capacity dipstick mark max., L (qt.)	79 (83.5)
Oil pan capacity, initial filling, L (qt.)	101 (106.7)
Oil filter: quantity, type	2, Cartridge
Oil cooler	Water-Cooled

Cooling

Radiator System

Ambient temperature, °C (°F)	40 (104) 50 (122)
Engine jacket water flow, Lpm (gpm)	1015 (268)
Engine jacket water capacity, L (gal.)	55 (14.4)
Radiator system capacity, including engine, L (gal.)	113.5 (30) 123 (32.4)
Charge cooler air inlet temperature, °C (°F)	219 (426)
Heat rejected to cooling water at rated kW, (Btu/min.)	404 (22996)
Heat rejected to charge air cooler at rated load, kW (Btu/min.)	260 (14799)
Water pump type	Vane Wheel
Fan diameter, including blades, mm (in.)	1350 (53.1)
Fan, kWm (HP)	48 (64.3)
Max. restriction of cooling air, intake and discharge side of radiator, kPA (in. H20)	0.125 (0.5)

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

Model: KD1000, continued

Remote Radiator System

Exhaust manifold type	Dry
Water inlet/outlet, mm (in.)	85 (3.35)
Charge air cooler inlet/outlet (pipe dia. of flange), mm (in.)	127 (5)
Static head allowable above engine, kPa (ft. H2O)	70 (23.5)
Note:	Contact your local distributor for cooling system options and specifications based on your specific requirements.

Operation Requirements

Air Requirements

Radiator-cooled cooling air, m3/min. (scfm) *	1212 (42801)
Cooling air required for generator set when equipped with city water cooling or remote radiator, based on 14°C (25°F) rise, m3/min. rise and ambient temp. of 29°C (85°F) m3/min. (cfm)	653.9 (23092)
Combustion air, m3/min. (cfm)	72.7 (2566)
Heat rejected to ambient air: Engine, kW (Btu/min.)	136 (7741)
Heat rejected to ambient air: Alternator, kW (Btu/min.)	48 (2732)

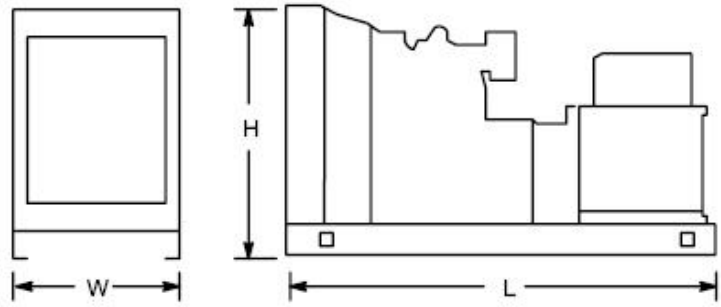
*Air density = 1.20 kg/m3 (0.075 lbm/ft3)

Fuel Consumption

Diesel, Lph (gph), at % load	Rating
Standby Fuel Consumption at 100% load	269 Lph (70.9 gph)
Standby Fuel Consumption at 75% load	209 Lph (55.3 gph)
Standby Fuel Consumption at 50% load	146 Lph (38.6 gph)
Standby Fuel Consumption at 25% load	84 Lph (22.2 gph)

Dimensions and Weights

Dim Weight Spec	Dim Weight Value
Fuel	Diesel
Engine Manufacturer	Kohler
Overall Size, L x W x H, mm (in.):	See Generator, Tank and Enclosure drawings for complete weights and dimensions. (Drawings located in the Dimensional Drawing Section)
Weight (radiator model), wet, kg (lb.):	



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

KOHLER. Power Systems

800-3250 kW Industrial Generator Set Engine Control Unit (ECU)

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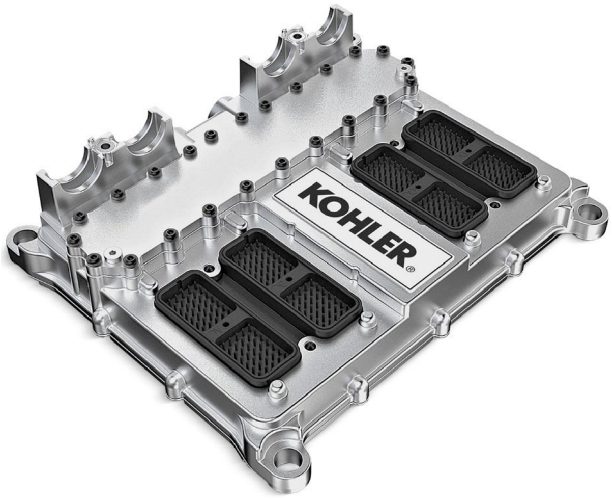

Applicable to the following:

KD800 to KD3250
KD800-YF to KD3250-YF

The ECU2-HD, rated I6K9K, can be used under harsh conditions with connected or disconnected cable harness. The control is suitable for diesel engines with up to 12 cylinders.

In a cascaded configuration, it controls up to 20 cylinders. The ECU is compatible with the common rail system found on the KD Series Kohler engine. The control unit also fulfills functional safety requirements of international safety standards. Due to the integrated diagnostics, the ECU can do self-checks, facilitating maintenance. Integrated fuel cooling ensures safe and reliable operation of the ECU.

Features

- Combined control of engine and exhaust gas treatment.
- Twelve power outputs for injector evaluation.
- Control of up to 20 cylinders in a cascaded configuration.
- Suitable for direct mounting on the engine.
- High performance, self-diagnostics for safe operation.
- Standardized communication interfaces J1939, UDS.
- Functional safety features according to EN ISO 13849.
- Temperature range from -40°C to 125°C (-40°F to 257°F).
- Reliable operation in harsh conditions.
- Platform for EU Stage IV/V, Euro V/VI, and EPA Tier 4f.

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

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

Specifications and Features

Specification/Feature	
Generator Set Availability	KD800-3250
Microcontroller	Freescale SPC56xx Family
Frequency	256 MHz
Housing	Diecast aluminum
Dimensions	334 X 296 X 85.9 mm (13.1 x 11.7 x 3.4 in.) without strain relief clamp
Weight	5.4 kg (11.9 lbs.)
Rated voltage	+24 VDC
Operating temperature	-40°C to +80°C (-40°F to 176°F) with air cooling, -40°C to max +125°C (-40°F to max. 257°F) with fuel cooling
Flammability	UL 94 V-0
IP rating	IP6K9K with and without connected cable harness
Memory	4 MB Flash, 256 kB RAM internal, 4 MB RAM external (optional), 128 kB EEPROM external
Digital inputs	10 x configurable logic levels
Analog inputs	2 x configurable 0-5 V/0-25 mA, 17 x 0-5 V, 14 x 0-33 V
Resistance inputs	19 x resistance 0-50 kOhms
Frequency inputs	2 x Hall speed sensor, 8 x universal frequency measurement range 0.5 Hz to 10 kHz
Constant voltage outputs	12 x 5 V, 2 x 12 V, 11 x UBATT
Pulse Width Modulation (PWM) outputs	10 x half-bridge configuration with current measurement
Digital outputs	12 x high-side, 8 x low-side
Controlled analog outputs	1
Communication interfaces	4 x CAN according to ISO 11898-2, thereof one galvanically isolated
Power outputs for injectors	12 x split into four stages
Plug	Deutsch DRC 280 Pins (4 x 70)

DISTRIBUTED BY:

Bay City Electric Works
322 Lindbergh Avenue
Livermore, CA 94551
866.938.8200
619.938.8216

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Applicable to the following:

Industrial
Marine
Mobile/Towable
Portable
Residential/Commercial

Lubrication Oil Features

- Kohler Co. provides the convenience of offering engine lubrication oil as part of the aftermarket parts sales.
- Full-synthetic oil engineered for superior protection.
- Available in four viscosity grades:
  - **5W-30** designed for longevity, durability, and excellent protection for gasoline and gaseous-fueled generator sets.
  - **5W-40** engineered to provide maximum protection and engine cleanliness in diesel-fueled generator sets.
  - **10W-40** engineered for longevity and durability in natural gas/propane engines with flat tappet lifters (gaseous-fueled generator sets).
  - **15W-40** engineered for longevity and durability in natural gas/propane engines with roller tappet lifters (gaseous-fueled generator sets).
- Available in five convenient container sizes:
  - 1-Quart (946 mL)
  - 1-Gallon (3.78 L)
  - 5-Gallon Pail (18.9 L)
  - 55-Gallon Drum (208.2 L)
  - 275-Gallon Tote (1041 L) (bulk container)

5W-30 Gasoline and Gaseous-Fueled Generator Sets*

- Keeps engine clean for peak efficiency and reduced maintenance.
- Provides all-season protection and excellent cold flow properties for easier starts.
- Withstands high heat for reduced oil consumption and deposit formation.
- Protects against wear and deposit formation to preserve engine power and lengthen equipment life.

5W-40 Diesel-Fueled Generator Sets*

- Resists oxidation and the thickening effects of soot and contamination.
- Maintains viscosity for maximum engine protection and efficiency.
- Offers a broad viscosity range for use in both hot operating engines and cold-weather starting extremes.

10W-40 Gaseous-Fueled Generator Sets*

- Higher-ash formulation for engines with flat tappet lifters.
- Boosted with zinc and phosphorus additives to provide exceptional wear control.
- Exceptional oxidation and nitration control, maintaining viscosity to deliver long term wear protection.
- Works over an even broader temperature range (lower temperature) than the 15W-40 oil formulation.

15W-40 Gaseous-Fueled Generator Sets*

- Resists deposit formation while protecting valves in engines with roller tappet lifters.
- Works over a broad temperature range reducing the need for seasonal oil changes.
- Naturally resists nitration to reduce oil thickening and increase engine efficiency.
- Offers low zinc and phosphorus levels to prolong the life of emissions catalyst system without sacrificing wear protection.

* Claims are compared with conventional base oils used in the same applications.

Container Size ->	1 Quart/946 mL	1 Gallon/3.78 L	5 Gallon/18.9 L	55 Gallon/208.2 L	275 Gallon/1041 L
Oil Type	**Kohler Genuine Oil Part Number**				
5W-30	GM103159	GM103160	GM103161	GM103162	GM103163
5W-40	GM103164	GM103165	GM103166	GM103167	GM103168
10W-40	GM105292	GM105293	GM105294	GM105295	GM105296
15W-40	GM103169	GM103170	GM103171	GM103172	GM103173

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

Typical Technical Properties†

	ASTM Standard	5W-30	5W-40	10W-40	15W-40
Viscosity 100°C, cSt	D445	10.4	14.4	14.5	14.6
Viscosity 40°C, cSt	D445	56.7	88.7	95.3	100.2
Viscosity Index	D2270	174	169	157	151
Cold Crank Simulator, cP	D5293	3877 (–30°C)	6260 (–30°C)	5106 (–25°C)	3960 (–20°C)
Flash Point, °C (°F)	D92	222 (432)	210 (410)	244 (471)	238 (460)
Fire Point, °C (°F)	D92	234 (453)	232 (450)	264 (507)	258 (496)
Pour Point, °C (°F)	D97	–41 (–42)	–41 (–42)	–38 (–36)	–39 (–38)
NOACK (% wt loss)	D5800	13.6%	12.0%	3.4%	6.4%
Four Ball Wear Test, mm; 75°C, 1200 rpm, 40 kg, 1 hr	D4172	0.40	0.45	0.40	0.40
Total Base Number (TBN)	D2896	8.4	11.0	5.7	5.7
High Temperature High Shear (HTHS) (cP)	D5481	3.1	3.9	4.1	4.2
Foam Tendency SEQ I (ml) SEQ II (ml) SEQ III (ml)	D892	 0/0 20/0 0/0			
Sulfated Ash Content (wt %)		0.99%	1.0%	0.60%	0.46%
Chemical Properties, Metals (weight %)					
Calcium (Ca)		0.2256	0.0820	0.1190	0.1197
Magnesium (Mg)				0.0014	0.0014
Molybdenum (Mo)		0.0047			
Phosphorus (P)		0.1314	0.1150	0.1000	0.0240
Zinc (Zn)		0.1437	0.1270	0.1104	0.0268
Applications					
Kohler Commercial Engine Specification		G-716	G-725	G-728	G-726
SAE	D2422	5W-30	5W-40	10W-40	15W-40
API		SN, SM, SL, SJ, SH...	CK-4, CJ-4, CI-4+, CF	CF	CF, <0.5% Ash Content
ACEA			E7, E9		
ISO		L–EMA2			

† The properties shown are typical values and are not intended to be used as quality assurance. Production will conform to Kohler's specifications, but variations may occur and specifications are subject to change without notice.

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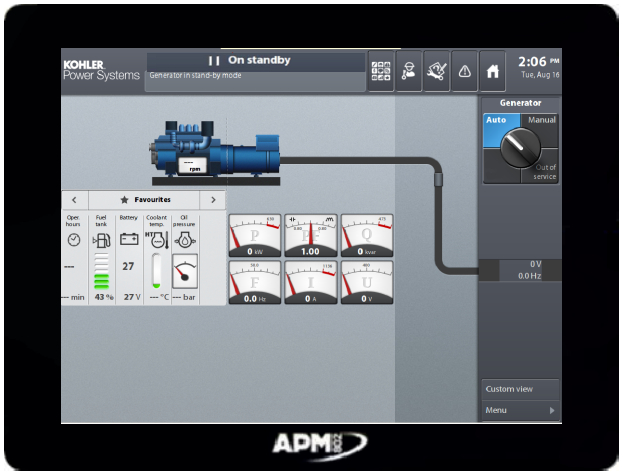


APM802 Controller

Kohler® APM802 Controller

General Description and Function

The generator set controller provides advanced control, system monitoring, and system diagnostics for optimum performance.

The controller meets NFPA 110, Level 1 when equipped with the necessary accessories and installed per NFPA standards.

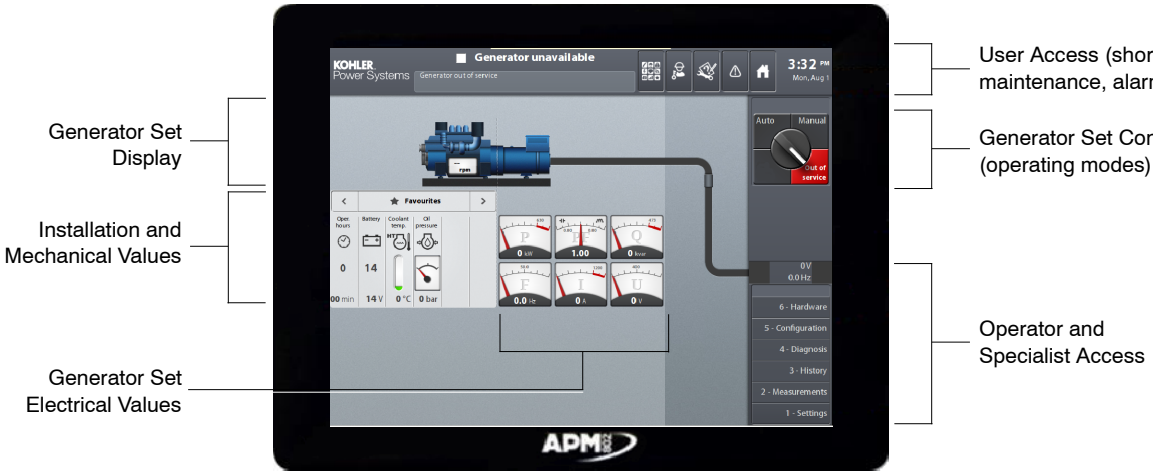
The controller uses software logic to manage alternator thermal overload protection features normally requiring additional hardware. Additional features include:

- 12-inch touchscreen with backlight and wide viewing angle provides easy local access to data.
- System settings are password-protected.
- Measurements selectable in metric or English units.
- User language is selectable:
  - English
  - French
  - Spanish
  - German
  - Portuguese
  - Dutch
  - Russian
  - Norwegian
- Graphic displays show generator set mechanical values including operating hours, fuel level*, battery voltage, coolant temperature, oil pressure, and oil temperature.
- Meter displays provide a visual representation of generator electrical values including power (kW), power factor, reactive power (kVAR), frequency, voltage, and current (amps).
- Two USB ports allow connection of a flash drive, mouse, or keypad.
- Electrical data, mechanical data, and system settings can be saved to a flash drive.
- Recording feature allows data collection of key values.
- Ethernet port allows connection to a PC type computer and/or Ethernet switch.
- Serial (RS-485) port.
- The controller supports Modbus® RTU and TCP protocols.
- Real time clock with battery back-up.
- See page 2 for input and output specifications.

Modbus® is a registered trademark of Schneider Electric.

* Where applicable

Operating Screen



Controller Specifications

- Power Supply Requirements:
  - Nominal voltage: 24 VDC, reverse polarity protected, and
  - 208–240 VAC/60Hz or 230VAC/50 Hz customer-supplied; factory wiring to basic electrical package available
- Operating Temperature: –40°C to 70°C (–40°F to 158°F)
- Storage Temperature: –40°C to 70°C (–40°F to 158°F)
- Humidity: 5% to 95% non-condensing
- Protection Index:
  - IP65 Front
  - IP20 Rear
- Standards
  - NFPA 99
  - NFPA 110, Level 1
  - CSA 282-09
  - UL 508
  - IEC/EN60068-2-52 (salt spray)
  - CE Directive

Display and Touchscreen

- Type: XGA TFT LED LCD
- Screen Size: 305 mm (12 inches)
- Viewing Angle: 140/140 (H/V°)

Inputs/Outputs and Communication

- Ethernet Port: (1) Category 5E for Modbus TCP, VNC, and configuration
- USB Ports: (2) Type A USB connector for flash drive, keyboard, or mouse
- Serial (RS-485) Port: (1) Shielded cable, Modbus RTU
- Digital Inputs: (7) Binary input, connections to ground or 24 VDC
- Resistive Input: (1) 0–500 Ohms
- Analog Input: (1) ±10 VDC/±20 mA, isolated
- Digital Outputs: (3) Form C, 240 VAC/8 A or 30 VDC/8 A or 48 VDC/0.5 A
- Digital Outputs: (3) Form A, 240 VAC/8 A or 30 VDC/8 A or 48 VDC/0.5 A
- Customer Connections: Remote emergency stop, battery power, AC power, and ground

Controller Diagnostics

The controller displays warning and shutdown messages on the HMI screen. See the table below.
Warnings (alarms) signal an impending problem.
Shutdowns (faults) stop the generator set.

Description	Warning	Shutdown
Alternator bearing temperature fault		X
Alternator bearing temperature warning	X	
Alternator winding temperature fault		X
Alternator winding temperature warning	X	
Analog sensor fault input AI #0	X	
Analog sensor fault input AI #1	X	
Analog sensor fault input AI #2	X	
APM internal battery warning	X	
APM802 watchdog		X
Battery charger fault	X	
Common warning	X	
Common fault		X
Emergency push button engaged fault		X
Engine CAN bus communication fault		X
Engine coolant temperature fault		X
Engine coolant temperature warning	X	
First starter warning	X	
Fuel daily tank very high level warning	X	
Fuel leak alarm	X	
Fuel level critically low		X
Genset output greater than 80% of rated	X	
GFCI tripped		X
High battery voltage	X	
High fuel level	X	
Idle mode cancelled before idle timeout	X	
Kohler thermal overload fault		X
Load shed 1 active	X	
Load shed 2 active	X	
Load shed 3 active	X	
Load shed 4 active	X	
Low battery voltage	X	
Low controller temperature	X	
Low coolant temperature warning	X	
Low cranking voltage	X	
Low engine coolant level fault		X
Low oil level warning	X	
Low fuel level	X	
Lube-oil pressure fault		X
Lube-oil pressure warning	X	
Lube-oil temperature fault		X
Lube-oil temperature warning	X	
Not in auto warning	X	
Overcrank		X
Over current fault (51)		X
Over frequency fault (81H)		X

Description	Warning	Shutdown
Over speed fault		X
Over voltage fault (59)		X
Overload active power warning (32PH)	X	
Overload reactive power warning (32QH)	X	
Power plant out of service fault		X
Regulation module 1 communication fault		X
Reverse active power fault (32RP)		X
Reverse reactive power fault (32RQ)		X
Speed detection fault		X
Speed detection first starter warning	X	
Speed detection second starter warning	X	
Under frequency fault (81I)		X
Under speed fault		X
Under voltage fault (27)		X

NFPA Requirements

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

NFPA 110 Common Alarm

- Engine functions:
  - Overcrank
  - Low coolant temperature warning
  - High coolant temperature warning
  - High coolant temperature shutdown
  - Low oil pressure shutdown
  - Low oil pressure warning
  - Overspeed
  - Low fuel (level or pressure) *
  - Low coolant level
  - EPS supplying load
  - High battery voltage
  - Low battery voltage
  - Low cranking voltage
- General functions:
  - Not in auto
  - Battery charger fault *
  - Contacts for common alarm and common fault
  - Audible alarm silence switch
  - Remote emergency stop

* Function requires optional input sensors or kits.

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

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

Inputs and Outputs

Factory settings for the main board inputs and outputs are shown below.

Inputs	Input Type
Aux Shutdown	Digital Inputs
Aux Warning	
Battery Charger Fault	
Breaker Open Status	
Emergency Stop	
Fuel Leak Alarm	
GFCI Tripped	
High Fuel Level Switch	
Idle Mode	
Key Switch Enable	
Load Shed Enable	
Low Fuel Level Switch	
Low Oil Level	
Overcrank Test	
Remote Reset	
Remote Speed Adjust Enable	
Remote Start	
Remote Speed Adjust (+/- 10 VDC)	Analog Input
Ambient Air Temperature	Resistive Input

Digital Outputs	Output Relay Configuration
BCA Excitation	Form A
ECU Fault Reset	
EPS supplying Load	
Generator Running	
High Coolant Temp	
Horn	
Low Coolant Level Fault	
Low Coolant Temp Warning	
Low Fuel Level	
Low Oil Pressure	
Not in Auto	
Shunt Trip	
Start Button Illuminate	
Watchdog	
Common Fault	Form C
Common Warning	
System Ready	

Available Options

- ❑ **AC Wiring.** Factory connection to the basic electrical package (BEP).
- ❑ **Analog Input/Output Module.** Provides:
  - 4 input connections -(0-20 mA/100 ohms) and
  - 2 output connections (0-20 mA/100-600 ohms).

  One analog I/O module can be connected.
- ☑ **Digital Input/Output Module.** Provides:
  - 8 input connections with connection to ground and
  - 4 output connections (Form C, 240 VAC/8 A or 30 VDC/8 A or 48 VDC/0.5 A).

  One digital I/O module can be connected.
- ❑ **Keyswitch with Manual Start/Stop Button**
  - Key switch allows selection of manual, auto, or off modes
  - Start/stop button for engine control in manual mode
- ❑ **Load Shed**
  - Provides 4 load shed outputs for non-critical loads
  - Load shed connections are form C dry contacts
- ❑ **Remote Monitoring Panel.** The Kohler® 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.
- ❑ **Shunt Trip Relay, 24 VDC.** Provides relay outputs to trip a shunt trip circuit breaker and to signal common fault shutdowns. Contacts are rated 8 Amps at 30 VDC.

DISTRIBUTED BY:

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322 Lindbergh Avenue
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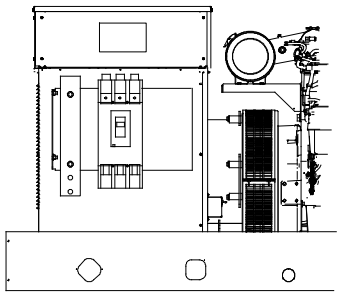
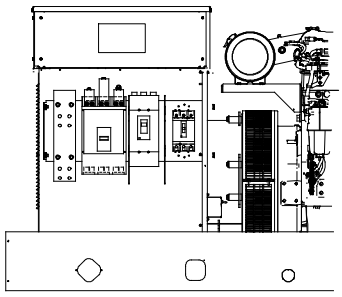
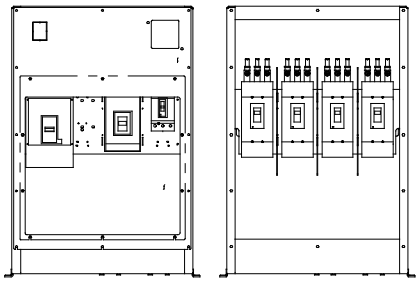


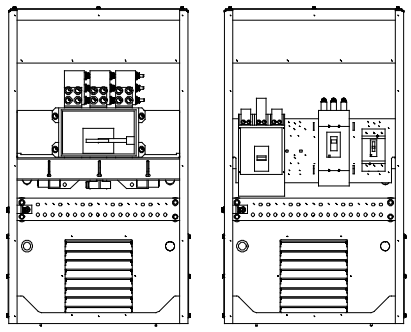
Single Circuit Breaker Kit with Neutral Bus Bar
15-300 kW Model Shown



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
800-2500 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.
- Kohler Co. 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

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.

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.

800-2500 kW KD Model Line Circuit Breaker Specifications

80% Rating Circuit Breaker

Alt. Model	Ampere Range	Trip Type	C. B. Frame Size
KH	15-150	Thermal Magnetic	HD
	60-150	Electronic LI	
		Electronic LSI	
		Electronic LSIG	
	60-150	Electronic LI	HG
		Electronic LSI	
		Electronic LSIG	
	30	9-325 A. Mag. Trip	HJ
	50	84-546 A. Mag. Trip	
	100	180-1040 A. Mag. Trip	
	150	348-1690 A. Mag. Trip	
	175-250	Thermal Magnetic	JD
	250	Electronic LI	
		Electronic LSI	
		Electronic LSIG	
	250	Electronic LI	JG
		Electronic LSI	
		Electronic LSIG	
	250	684-2500 A. Mag. Trip	JJ
	400	2000-4800 A Mag. Trip	LG
	600	3000-7200 A Mag. Trip	
	400-600	Electronic LI	
		Electronic LSI	
		Electronic LSIG	
	700-800	Thermal Magnetic	MG
	1000-1200	Thermal Magnetic	PG
	800-1200	Electronic LSI	
		Electronic LSIG	
	1200	Thermal Magnetic	PJ
		Electronic LSI	
		Electronic LSIG	
	1600-2500	Thermal Magnetic	RJ
		Electronic LSI	
		Electronic LSIG	

100% Rating Circuit Breaker

Alt. Model	Ampere Range	Trip Type	C. B. Frame Size
KH	15-150	Thermal Magnetic	HD
	60-150	Electronic LI	
		Electronic LSI	
		Electronic LSIG	
	60-150	Electronic LI	HG
		Electronic LSI	
		Electronic LSIG	
	175-250	Thermal Magnetic	JD
	250	Electronic LI	
		Electronic LSI	
		Electronic LSIG	
	250	Electronic LI	JG
		Electronic LSI	
		Electronic LSIG	
	400	Electronic LI	LG
		Electronic LSI	
		Electronic LSIG	
	600-1200	Electronic LSI	PG
		Electronic LSIG	
	1200	Electronic LSI	PJ
		Electronic LSIG	
	1600-2500	Electronic LSI	RJ
		Electronic LSIG	
	3000	Electronic LSI	NW
		Electronic LSIG	

Load Bus Rating

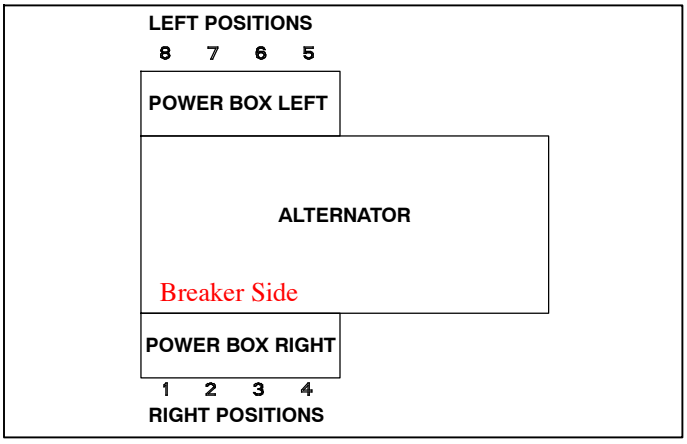
Gen. Set Model	Alt. Model	Rating, Amperes	Type
KD800-KD2500	KH	2000 3000 4000 4500	Load Bus

Interrupting Ratings

Circuit Breaker Frame Size	240 Volt, kA	480 Volt, kA	600 Volt, kA
HD	25	18	14
HG	65	35	18
HJ	100	65	25
JD	25	18	14
JG	65	35	18
JJ	100	65	25
LG	65	35	18
MG			
PG			
PJ	100	65	25
RJ			
NW	100	100	85

800-2500 kW KD Model Line Circuit Breaker Specifications

Breaker Positions



NOTE: Breaker and load bus phasing on right positions is A-B-C and on left positions is C-B-A.

NOTE: H, J, and LG-frames when selected with LSIG trip require two mounting spaces (one space for the breaker and one space for the LSIG neutral). These combinations are not reflected in the Multiple Circuit Breaker Combinations table on this page.

Circuit Breaker Lugs Per Phase (Al/Cu)

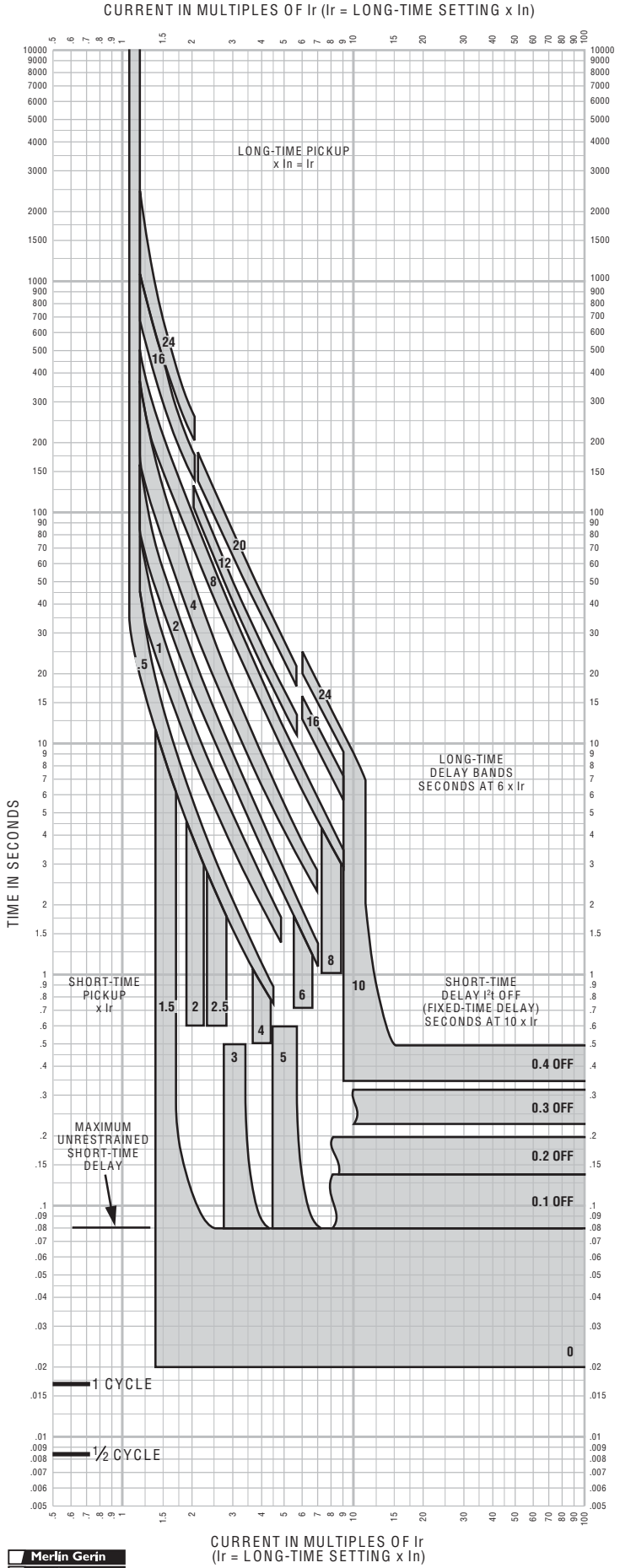
Frame Size	Ampere Range	Wire Range
H	15-150	One #14 to 3/0
J	175	One 1/0 to 4/0
	200-250	One 3/0 to 350 kcmil
LG	400-600	Two 2/0 to 500 kcmil
M	700-800	Three 3/0 to 500 kcmil
P	600-800	Three 3/0 to 500 kcmil
	1000-1200	Four 3/0 to 500 kcmil
R	1600-2500	Eight 1/0 to 750 kcmil or (16) 1/0 to 300 kcmil
NW	3000	(10) 1/0 to 750 kcmil or (20) 1/0 to 300 kcmil
Mechanical Load Lugs Included with H, J, and LG LSIG Neutrals		
H	60-150	One #14 to 3/0 AL/CU
J	250	One 3/0 to 350 kcmil AL/CU
LG	400-600	Two 4/0 to 500 kcmil AL/CU

Multiple Circuit Breaker Combinations

Alternator Model	Positions			
	1 or 5	2 or 6	3 or 7	4 or 8
KH	H/J			
	H/J	H/J		
	H/J	H/J	H/J	
	H/J	H/J	H/J	H/J
	LG			
	LG	H/J		
	LG	LG		
	LG	H/J	H/J	
	LG	LG	H/J	
	LG	LG	LG	
	LG	H/J	H/J	H/J
	LG	LG	H/J	H/J
	LG	LG	LG	H/J
	LG	LG	LG	LG
	M/P *			
	M/P *		H/J	
	M/P *		LG	
	M/P *		M/P *	
	M/P *		H/J	H/J
	M/P *		LG	H/J
	M/P *		LG	LG
	R §			
	NW §			
	LOAD BUS KIT §			

* M and P breakers occupy two positions each.

§ R breakers, NW breakers, and the load bus kit occupy all four positions on a side.



MICROLOGIC® 5.0/6.0 A/P/H TRIP UNIT CHARACTERISTIC TRIP CURVE NO. 613-4

Long-time Pickup and Delay
Short-time Pickup and I²t OFF Delay

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

Curves apply from -30°C to +60°C ambient temperature.

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. The end of the curve is determined by the interrupting rating of the circuit breaker.
3. With zone-selective interlocking on, short-time delay utilized and no restraining signal, the maximum unrestrained short-time delay time band applies regardless of the setting.
4. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
5. For a withstand circuit breaker, instantaneous can be turned OFF. See 613-7 for instantaneous trip curve. See 613-10 for instantaneous override values.
6. Overload indicator illuminates at 100%.

Merlin Gerin
Modicon
Square D
Telemecanique
Federal Pioneer
Federal Pacific

Schneider Electric

Curve No. 0613TC0004
December 2000
Drawing No. 48026-354-54

POWERPACT® P- and R-Frame Molded Case Circuit Breakers (Standard or 100% rated up to 2500 A)

The most compact and innovative molded case circuit breakers

P-Frame 1200 A

R-Frame

POWERPACT Molded Case Circuit Breakers lead the industry with proven, reliable protection and innovative design. Providing unparalleled performance and control, this generation of P- and R-frame circuit breakers features exclusive MICROLOGIC® Trip Units, which allow for a range of sophisticated applications for metering and monitoring. In addition, units can be interchanged to allow for maximum flexibility and are field-installable for easy upgrades as needed.

The compact P- and R-frame circuit breakers permit smaller footprint and higher density installations using I-LINE® Panelboards and Switchboards. These circuit breakers are available in 100% rated construction up to 2500 A to meet a broad range of commercial and industrial application needs.

Full-Featured Performance

- P-frame – 1200 A available in both standard and 100% ratings with sensor sizes 250–1200 A. Interrupting ratings (AIR) G-35kAIR, J-65kAIR and L-100kAIR at 480 VAC
- R-frame – 2500 A available in both standard and 100% ratings with sensor sizes 600–2500 A. Interrupting ratings (AIR) G-35kAIR, J-65kAIR and L-100kAIR at 480 VAC
- Compact breaker size allows for smaller footprint installations using I-LINE Panelboards and Switchboards. 9" width on P-frame designs and 15" width on R-frame designs provide increased density installations
- Most field-installable accessories are common to all frame sizes for easier stocking and installation
- Selection of four interchangeable MICROLOGIC Trip Units with POWERLOGIC® power metering and monitoring capabilities available in advanced trip units
- Compatible with POWERLOGIC® systems and high amperage power circuit breakers
- Built-in MODBUS® protocol provides an open communications platform and eliminates the need to purchase additional, proprietary network solutions
- Connection options include bus, cable or I-Line for installation flexibility
- Additional options are available for 5-cycle closing, stored energy mechanisms and draw-out mounting of 1200 A breakers

Onboard Intelligence

For “smarter breakers,” a range of MICROLOGIC® Trip Units provides advanced functionality, such as a communications interface, and power metering and monitoring capabilities. With the appropriate MICROLOGIC Trip Unit, you can communicate with breakers, gather power information, monitor events and remotely control breakers based on predetermined conditions, leading to substantial savings in electrical system operating costs.

These interchangeable, microprocessor-controlled, plug-in devices provide the next generation of protection, measurement and control functions, delivering not only greater electrical system safety but also improved system integration and coordination.

MICROLOGIC® Trip Units

Choose the Model that Meets Your Needs

MICROLOGIC 3.0 and 5.0

- Basic circuit protection including long-time, instantaneous and optional short-time adjustments

MICROLOGIC 3.0A, 5.0A and 6.0A

- Long-time, instantaneous and optional short-time adjustments
- Integrated ammeter and phase loading bar graph
- LED trip indicator
- Zone selective interlocking with downstream and upstream breakers
- Optional ground-fault protection
- Optional MODBUS® communications interface

MICROLOGIC 5.0P and 6.0P

- Long-time, instantaneous and optional short-time adjustments
- Advanced relay protection (current imbalance, under/over voltage, etc.)
- Inverse Definite Minimum Time Lag (IdmtL) long-time delay curve shaping for improved coordination
- Basic power metering and monitoring functions
- Standard MODBUS communications interface compatibility with POWERLOGIC® installations
- Standard GF alarm on 5.0P. 6.0P has equipment ground-fault tripping protection

MICROLOGIC 5.0H and 6.0H

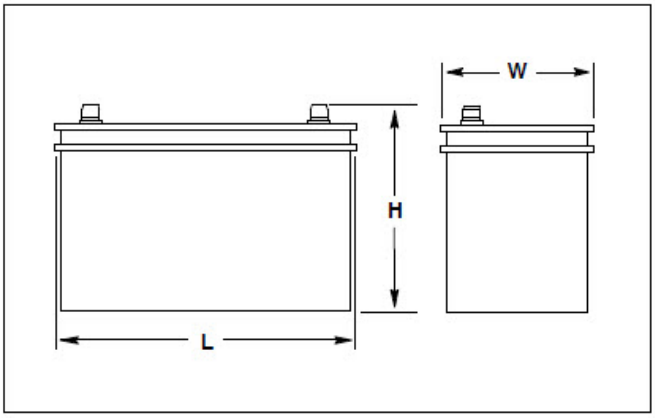
- All 5.0P and 6.0P functions
- Enhanced POWERLOGIC power metering and monitoring capabilities
- Basic power quality (harmonic) measurement
- Waveform capture

Contact your Square D sales representative for additional information. Or, visit www.SquareD.com.

KOHLER®

ISO 9001 KOHLER POWER SYSTEMS NATIONALLY REGISTERED

Typical Overall Dimensions

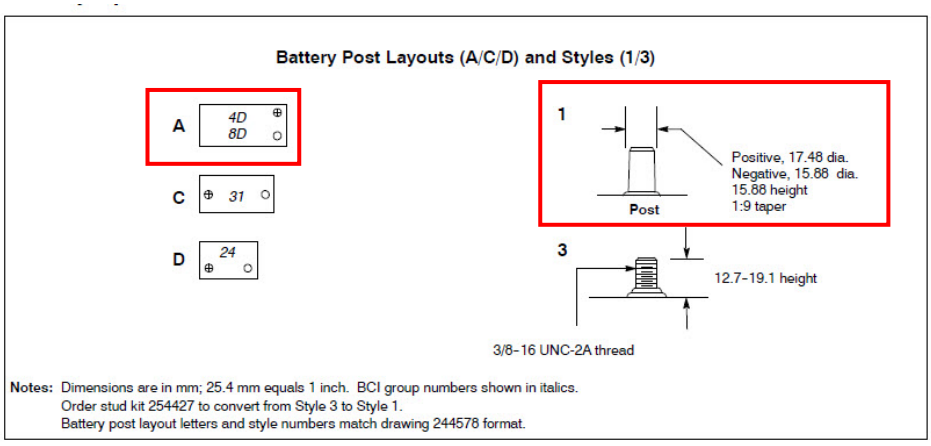


Standard Features

- Kohler Co. 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.
- Batteries are rated according to SAE standard J-537. All batteries are 12-volt and have lead-calcium or lead-antimony plates with sulfuric acid electrolyte.
- Most generator set battery kits offer dry-charged or wet-charged batteries.
- Tough polypropylene cases protect against life-shortening vibration and impact damage.
- 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			
AGM	10702001800	2	4D	527.1 (20.8)	216.0 (8.5)	258.0 (10.2)	1110	380	A/1

Battery Specifications



KOHLER Power Systems

24V, 20A Battery Charger

ISO 9001 KOHLER POWER SYSTEMS NATIONALLY REGISTERED

Applicable to the following:
KD Model Generator Sets

Standard Features

- Microprocessor Controlled High Frequency Charging Technology
- Single Phase AC Input 105-264VAC, 45-65Hz
- LCD Display
- Charger Failure Alarm with LED Indicator and Form "C" Dry Type Relay Contact
- Adjustable Float Voltage
- AC to DC Isolation
- Filtering Suitable for VRLA Batteries
- Internal Temperature Compensation with Disable Option
- Input and Output Fuses
- Adjustable Current Limiting
- Meets NFPA 110 and C62.41A
- UL/cUL 1236 Listed

The batttery charger uses High Frequency charging technology. The battery charger incorporates Power Factor Correction Circuitry to achieve high efficiency and a wide input range.

This filtered output unit is designed and built to charge VRLA (Gel-Cell, AGM), Flooded Lead Acid, and Nickel Cadmium batteries.

The battery charger is equipped with an LCD display showing DC Volts, DC Amps, and three status LEDs. Integrated Battery Charge Divider / Isolator provides connections for charging up to three independent batteries simultaneously.

Front Panel Display

Equipment requires External Electrical Power
Contractor to provide power source

DC Output		AC Input			Shipping Weight	
Volts (Nominal)	Amps	Volts (Nominal)	Amps	Overall Dimensions W x D x H	kgs	lbs
24	20	105/264	5.0/2.45	243 x 116.1 x 403 mm 9.6 x 4.6 x 15.9 in	5.1	11.3

G6-153-1/17

Equipment requires External Electrical Power
Contractor to provide power source

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

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

Specifications

AC Input	105-264 VAC, 45-65 HZ, Single Phase
Nominal DC Output	20A @ 24 V
Regulation - Power Stage Only	
Line:	± 10%
Load:	<± 0.5%
Protection	
Input:	Fuse with surge and transient protection
Output:	Fuse with surge protection
Thermal:	Shuts down when overheated
Short Circuit	
AC Over Voltage	
Output Current Limit	Factory set at 100% Adjustable from 50-105%
Metering	LCD DC Output Digital Voltmeter and Ammeter (1%)
Adjustable Voltage Range (Per Cell)	2.15-2.35 volts/cell (Lead) 1.39-1.49 volts/cell (NiCad)
Alarm Contacts	Charger Failure (Form "C" Contact for Charger Failure)
Monitoring	
LCD Display:	Volts Amps
LED Indications:	Current Limit (Red) AC On (Green) Charger Fail (Red)
Environmental	
Operating:	-40°C to 50°C (-40°F to 122°F) (Derated up to 70°F)
Storage:	-40°C to 85°C (-40°F to 185°F)
Relative Humidity:	0% to 95% non condensing
Enclosure	
Structural Design:	Wall Mounting / Powder coat finish
Cable Entry:	Bottom
Standards	USCG requirements ANSI C62-41 cUL NFPA 110

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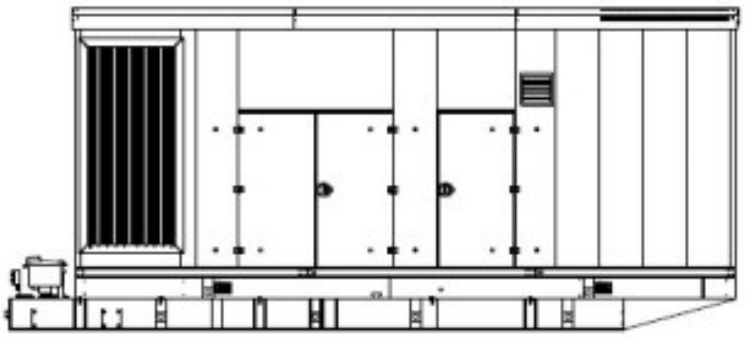
KOHLER®

Sound Enclosure Level 2 with Subbase Fuel Tank Package

ISO 9001 KOHLER POWER SYSTEMS NATIONALLY REGISTERED

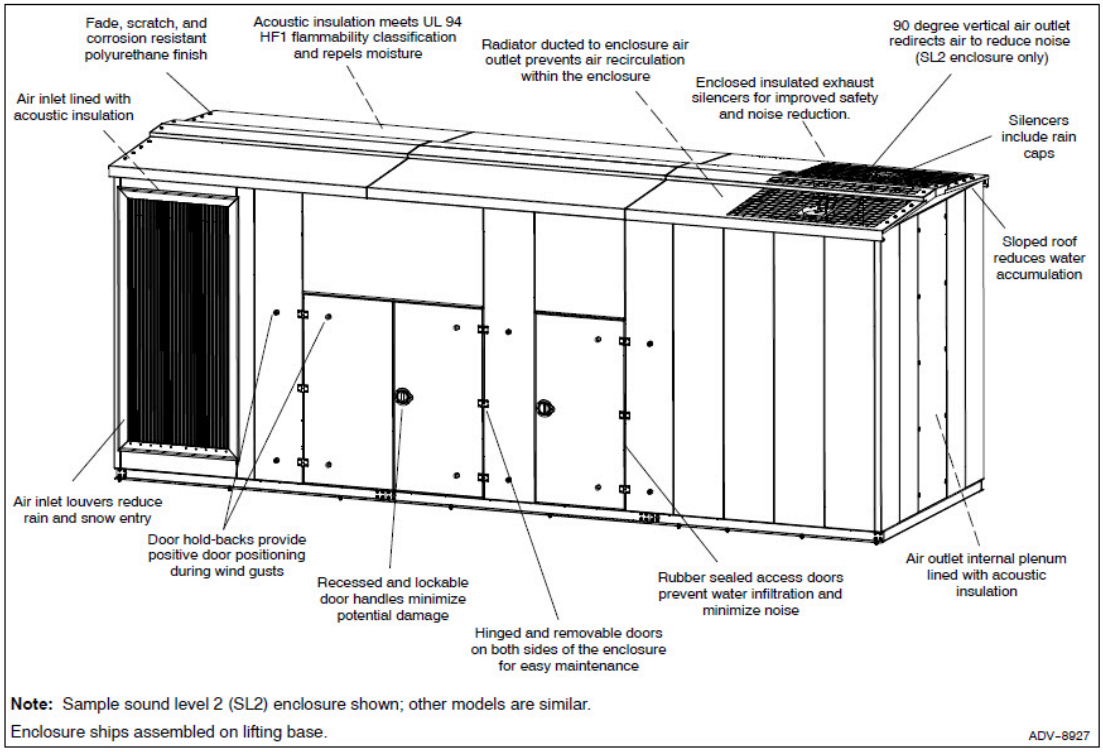


Sound Level 2 Enclosure Standard Features

- Internal silencers with flexible exhaust connectors, exhaust elbows, and rain caps.
- Mounts to lift base and subbase fuel tank.
- Aluminum construction with six large, hinged removable dorrs for easy maintenance.
- Fade-, scratch-, and corrosion-resistant Kohler® cream beige powder-baked finish.
- Lockable, flush-mounted door latches.
- Air inlet louvers reduce rain and snow entry.
- Slope roof to reduce the buildup of moisture and debris.
- Acoustic insulation that meets UL 94 HF1 flammability classification.
- 51 mm (2 in.) acoustic insulation material, intake sound baffles, secondary silencers, and vertical air discharge with rain caps.
- Sound level 2 enclosure uses internal silencers, acoustic insulation and acoustic-lined air inlet hoods.
- Vertical outlet hood with 90 degree angles to redirect air and reduce noise.
- Sound level 2 enclosure is certified to 186 mph (299 kph) wind load rating.

Subbase Fuel Tank Features

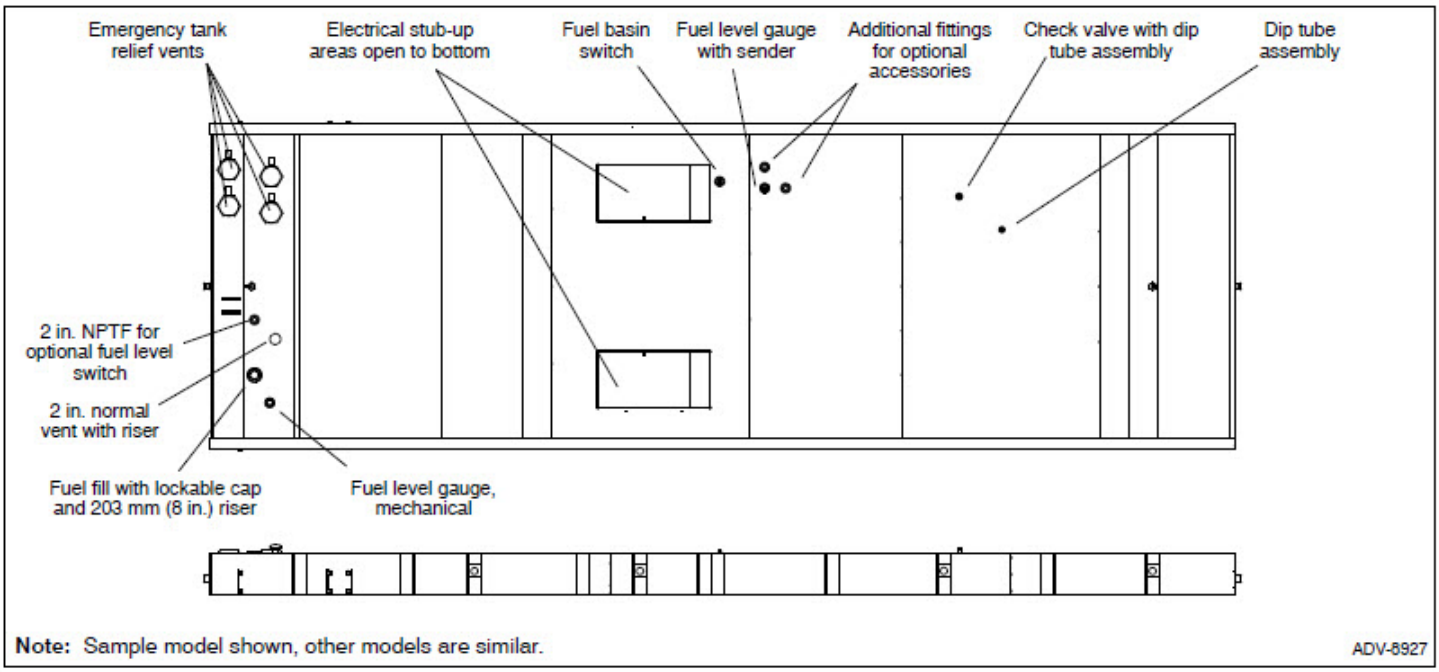
- The fuel tank has a Power Armor Plus textured epoxy-based rubberized coating.
- The above-ground rectangular secondary containment tank mounts directly to the generator set, below the generator set skid (subbase).
- Both the inner and outer UL-listed tanks have emergency relief vents.
- Flexible fuel lines are provided with subbase fuel tank selection.
- The containment tank's construction protects against fuel leaks or ruptures. The inner (primary) tank is sealed inside the outer (secondary) tank. The outer tank contains the fuel if the inner tank leaks or ruptures.
- The above ground secondary containment subbase fuel tank meets UL 142 requirements.



Sound Enclosure Features

- Heavy-duty formed panels, solid construction. Preassembled package offering corrosion resistant, dent resilient structure mounting directly to lift base or fuel tank.
- Polyurethane enamel paint. Superior finish, durability, and appearance.
- The enclosure has a sloped roof to reduce the buildup of moisture and debris.
- Internal exhaust silencer offering maximum component life and operator safety.
- Service access. Mulitple personnel doors for easy access to generator set control and servicing of the fuel fill, fuel gauge, oil fill, and battery.
- Interchangeable modular panel construction. Allows complete serviceability or replacement without compromising enclosure design.
- Bolted panels facilitate service, future modification upgrades, or field replacement.
- Cooling/combustion air intake. Fixed air intake louvers.
- Sound-attenuating design using additional secondary silencers and up to 2 inches of added acoustic insulation, UL 94 HF1 listed for flame resistance.

Subbase Fuel Tank



- Extended operation. State tanks with various capacities for multiple hour requirements.
- UL listed. Secondary containment generator set base tank meeting UL 142 requirements.
- NFPA compliant. Designed to comply with the installation standards of NFPA 30 and NFPA 37.
- Emergency pressure relief vents. Meets UL requirements; ensures adequate venting of inner and outer tank under extreme pressure and/or emergency conditions.
- Normal vent with cap. Vent is raised above lockable fuel fill.
- Fuel level gauge with sender.
- Mechancial fuel level gauge.
- Leak detection switch. Annunciates a contained primary tank fuel leak condition at generator set control.
- Electrical stub-up area open to bottom.
- Additional 2 in. NPT fittings for optional accessories.

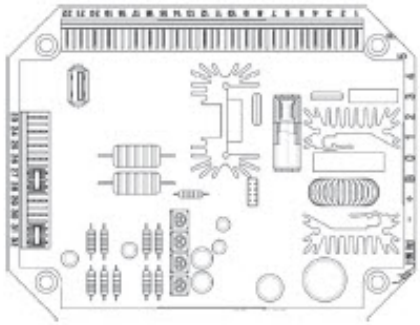
Fuel Tank Capacity, L (gal.)	Est. Fuel Supply Hours at 60 Hz with Full Load	Enclosure and Fuel Tank	Enclosure and Fuel Tank	Enclosure and Fuel Tank	Enclosure and Fuel Tank	Fuel Tank Height (H), mm	Sound Pressure Level, dB(A)
Lift base	0						76
6621 (1749)	24					3.0)	76

See Generator, Tank and Enclosure drawings for complete weights and dimensions.
(Drawings located in the Dimensional Drawing Section)

Note: Data in table is for reference only. Height includes enclosure, lift base, and tank (if equipped). Refer to your authorized Kohler distributor for enclosure and subbase fuel tank specification details.
Max. weight includes the generator set (wet), enclosure, silencer, lift base, and tank (no fuel).
Log average sound pressure level of 8 measured positions around perimeter of the unit at a distance of 7 m (23 ft). Refer to TIB-114 for details.

ISO 9001 KOHLER POWER SYSTEMS NATIONALLY REGISTERED

DER2 Voltage Regulator (KD800-1750 Generator Set Models only)



DER2 Voltage Regulator

The digital voltage regulator has ±1.0% no-load to full-load regulation using average voltage sensing.

The voltage regulator features single- or three-phase sensing with automatic recognition and is available for 12- or 24-volt engine electrical systems.

Voltage Regulators

The following information provides general features, specifications, and functions of available voltage regulators.

This information generally applies to a single generator set and multiple generator sets with paralleling applications. Refer to the respective generator set specification sheet and see your authorized distributor for information regarding specific voltage regulator applications and availability.

Specifications and Features

Specification/Feature	DER2
Generator Set Availability	KD800-1750
Type	Digital Controlled based on Digital Signal Processor (DSP)
Status and Shutdown Indicators	-
Operating Temperature	-25°C to 70°C (-13°F to 158°F)
Storage Temperature	-25°C to 70°C (-13°F to 158°F)
Circuit Protection	5 Amp Fuse (Fast Acting)
Sensing, Nominal	75-300 Volts (L-L), 12-72 Hz
Sensing Mode	RMS, Single- or 3-Phase (automatic recognition)
Input Power Requirements	40-270 VAC
Continuous Output	5 Amps
Maximum Forcing Output	12 Amps
Transition Frequency	-
No-Load to Full-Load Voltage Regulation	±1.0%
Response Time	Less than 300 mS
System Voltage Adjust Range	±10%
Voltage Adjustment	Programmable via Software
Remote Voltage Adjustment	Analog, ±10 VDC
Paralleling Capability	Optional
VAR/PF Control Input	-

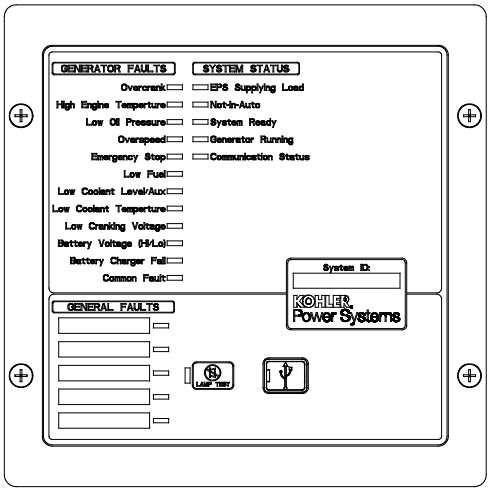
DER2 Voltage Regulator

- Digital controlled voltage regulator based on Digital Signal Processing (DSP) programming.
- Single-phase or three-phase average voltage sensing with automatic recognition.
- Voltage regulation of ±1.0% from no load to nominal load in static condition.
- Voltage regulation of ±0.5% in stabilized load and temperature conditions.
- Programmable soft start.
- USB communications port.

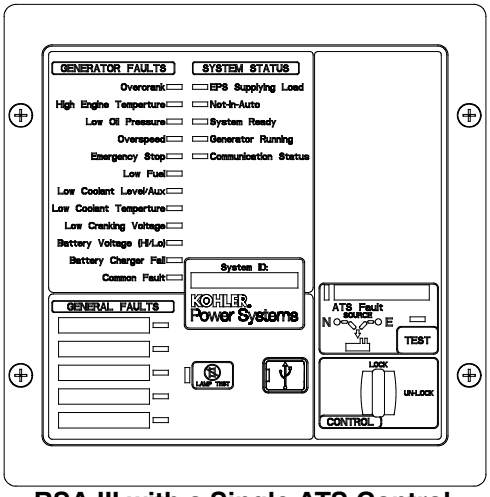
Adjustments

All parameters are programmable via software.

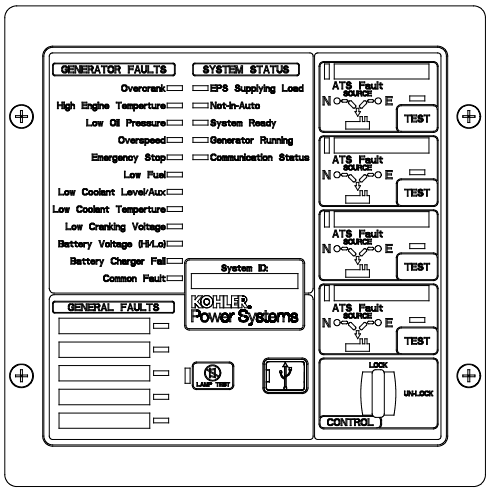
- Stability
- Voltage
- Amps
- 50 or 60 Hz



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

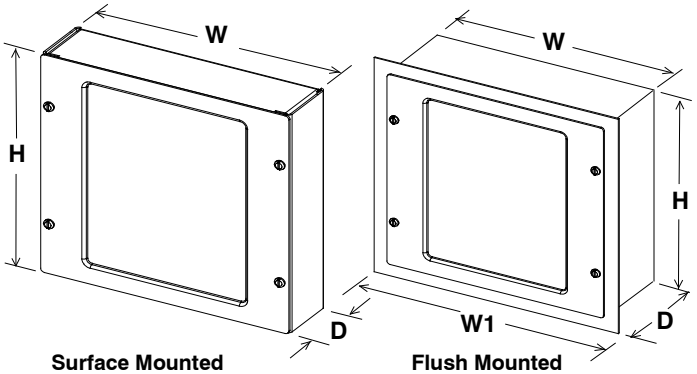
- Dimensions—W x H x D, mm (in.).

  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	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 LEDs slow flash when activated except steady on with EPS supplying load and high battery voltage.
Red 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.
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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.

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KOHLER®

Alternator Data

DATASHEET ALTERNATOR

Alternator ref. KH04070T
Alternator type KH04070TO4D

-GENERAL CHARACTERISTICS-

Tension denomination (V)	480/277	**Altitude (m)**	0-1000
Number of Phase	Three phase	**AVR Regulation**	Yes
Number of pole	4	**Indication of protection**	IP23

Capacity for maintaining short circuit at 3 In for 10 s Yes
Winding type Standard

Efficiency & Power

Frequency (Hz) 60 Hz **Nominal voltage (V)** 480

	Class H				Class F
	125°C/ 40°C continuous	130°C/ 25°C standby	150°C/ 40°C standby	163°C/ 27°C standby	105°C/ 40°C continuous
Nominal Rating(Kva)	1400	1428	1450	1525	1300
Nominal Rating(KW)	1120	1142	1160	1220	1040
Efficiency 100%	96	95,90	95,90	95,80	96,10

-ELECTRICAL CHARACTERISTICS-

Voltage regulation at established rating (+/- %)	0,50
Insulation class	H
T° class (H/125°), continuous 40°C	H / 125°K
T° class, standby 27°C	H / 163°K
Wave form : NEMA=TIF	<40
Unbalanced load acceptance ratio (%)	100
Winding type	12
Total Harmonic Distortion in no-load DHT (%)	2,1
Wave form : CEI=FHT	<2
Total Harmonic Distortion, on load DHT (%)	1,5
Technology	Without collar or brush
L-L Harmonic Maximum - Single (%)	<3
Deviation Factor (%)	6
Shaft Current	<80
Main Stator Capacitance to ground (mdf)	0,05

Reactances

Direct axis synchro reactance unsaturated (Xd) (%)	382,40
Direct axis transcient reactance saturated (X'd) (%)	17,90
Direct axis subtranscient reactance saturated (X''d) (%)	9,20
Quadra axis synchro reactance unsaturated (Xq) (%)	162,70
Quadra axis subtranscient reactance saturated (X"q) (%)	17,90
Zero sequence reactance unsaturated (Xo) (%)	3,89
Negative sequence reactance saturated (X2) (%)	13,50

DATASHEET ALTERNATOR

Alternator ref. KH04070T
Alternator type KH04070TO4D

KOHLER®

[redacted]

Short circuit ratio

Short circuit ratio (Kcc)	0,35
Subtranscient time constant (T"d) (ms)	18
Short circuit transcient time constant (T'd) (ms)	245
Open circuit time constant (T'do) (ms)	8100
Subtranscient time constant (T"q) (ms)	18
Leakage stator reactance (Xa)(%)	4,30
Stator Resistance (Ra)(%)	0,0950
Armature time constant (Ta) (ms)	24
No load excitation current (io) (A)	0,50
Full load excitation current (ic) (A)	3
Full load excitation voltage (uc) (V)	31,90
Heat rejection (W)	46667
No load losses (W)	17400
Stator resistance (for 20°C ambient) (Ω)	0,0078
Rotor resistance (for 20°C ambient) (Ω)	2,50
Exciter resistance - stator/inductor (for 20° ambient) (Ω)	10,63
Exciter resistance - rotor/armature (for 20° ambient) (Ω)	0,13
Recovery time (Delta U = 20% transcient) (ms)	200
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	4080
Transcient dip (4/4 load) - PF : 0,8 AR (%)	14,34

[redacted]

Additional electrical characteristics-

Winding X1, X2 auxiliary resistance (for 20° ambient) (Ω)	0,7130
Auxiliary winding X1, X2 excitation voltage at no load (V)	229
Auxiliary winding X1, X2 excitation voltage on load (V)	244

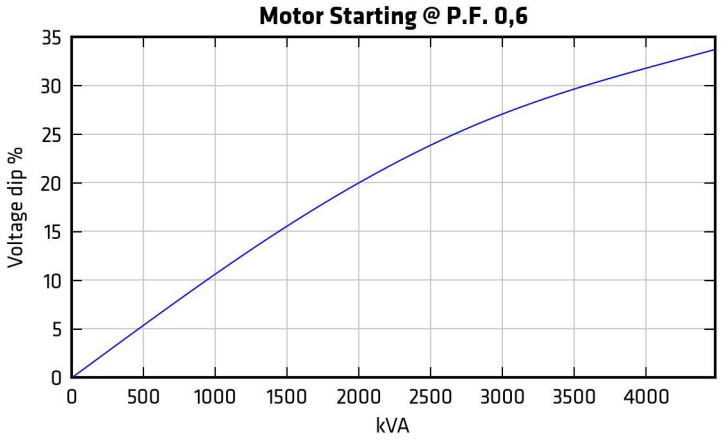
[redacted]

-MECHANICAL CHARACTERISTICS-

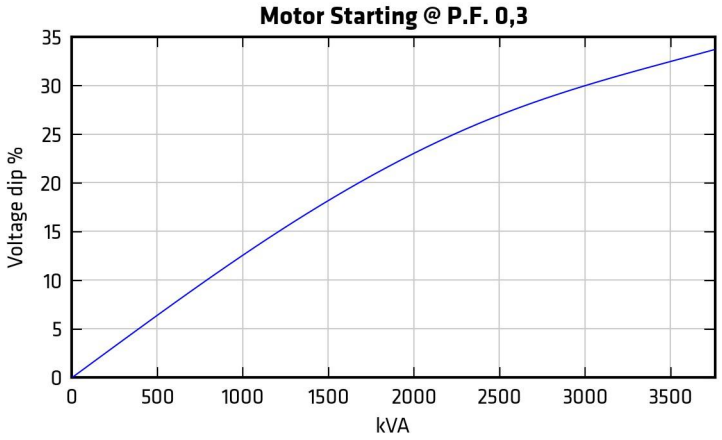
Number of bearing	1
Overspeed (rpm)	2250
Coupling	Direct

-TECHNICAL CURVES-

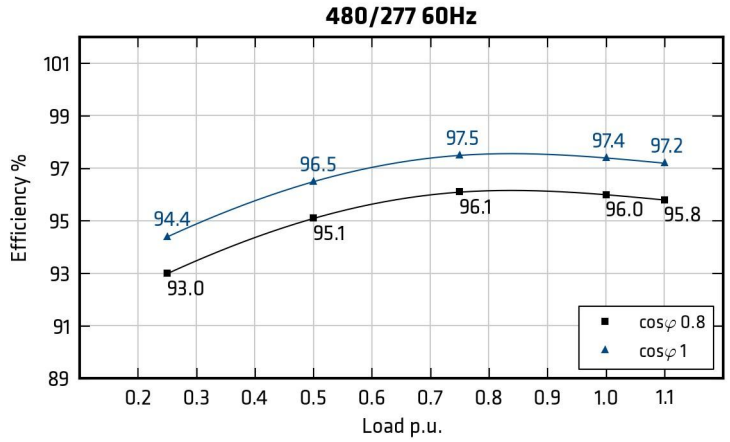
Motor starting curve locked rotor (0,6PF)



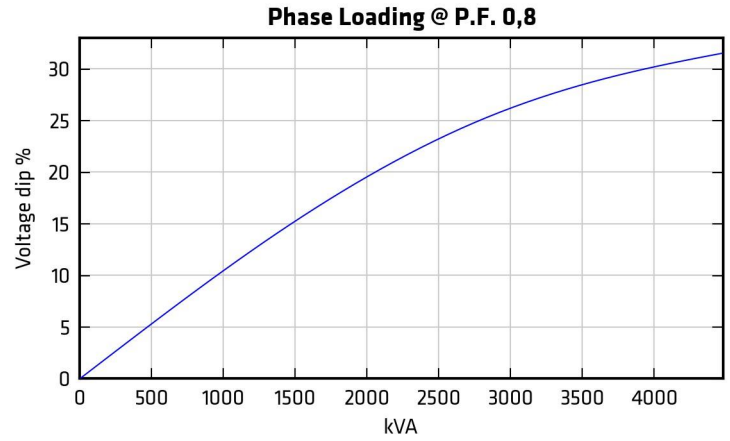
Motor starting curve locked rotor (0,3PF)



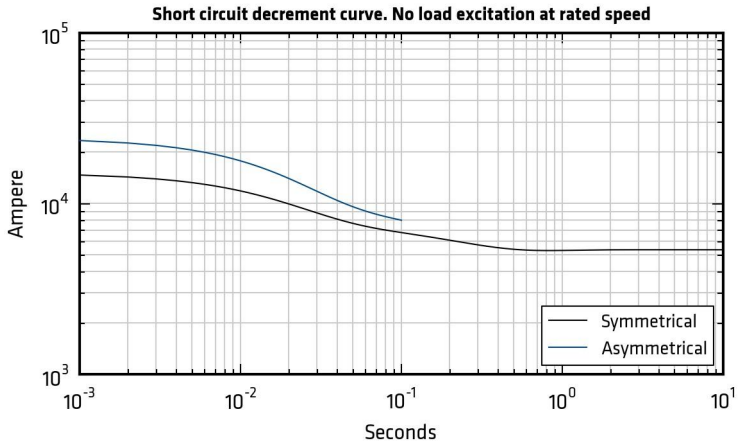
Efficiencies curve (by excitation system)



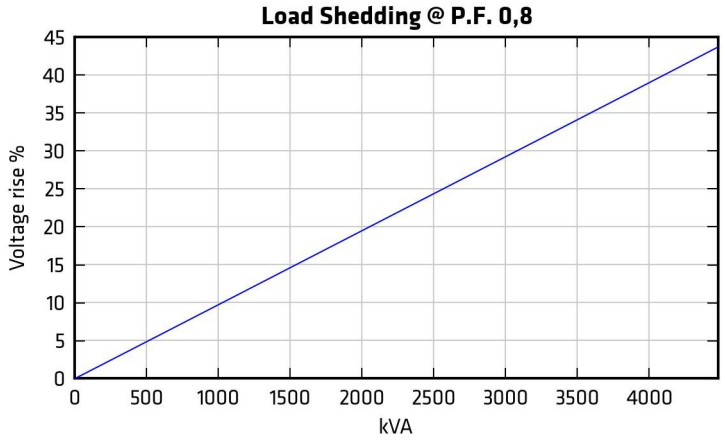
Loading curve (by excitation system)



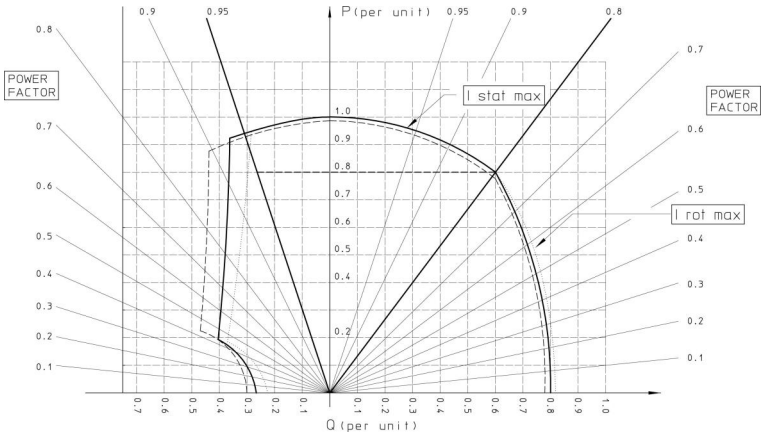
Short circuit curve at no load and rated speed



Rejection curve (by excitation system)

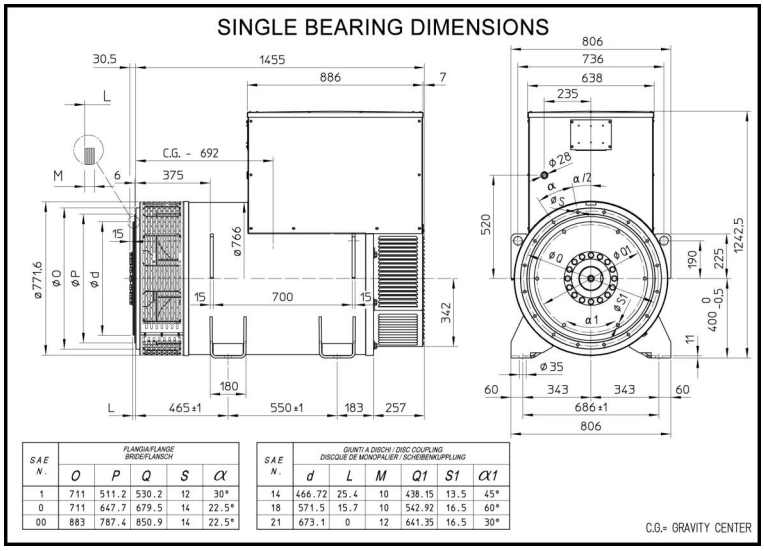


Capability curve (PQ diagram)



DIMENSIONS-

Overall dimension drawing (Single bearing)



SAE N.	FLANGIA/FLANGE BRIDE/FLANSCH				
	O	P	Q	S	α
1	711	511.2	530.2	12	30°
0	711	647.7	679.5	14	22.5°
00	883	787.4	850.9	14	22.5°

SAE N.	GIUNTI A DISCHI / DISC COUPLING DISQUE DE MONOPALIER / SCHEIBENKUPPLUNG					
	d	L	M	Q1	S1	α1
14	466.72	25.4	10	438.15	13.5	45°
18	571.5	15.7	10	542.92	16.5	60°
21	673.1	0	12	641.35	16.5	30°

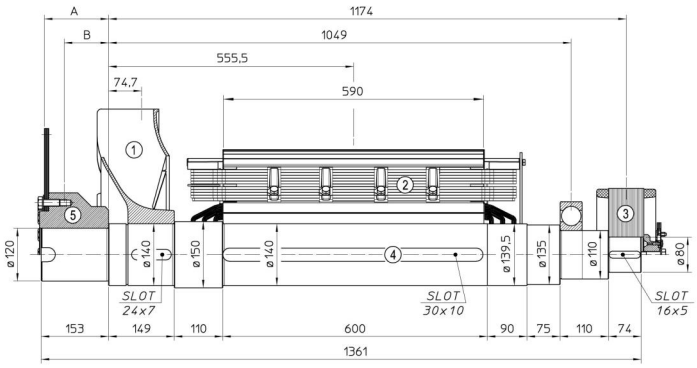
DATASHEET ALTERNATOR

Alternator ref. KH04070T
Alternator type KH04070TO4D

-TORSIONAL ANALYSIS DATA-

Rotation part drawing for torsional vibration calculation (Single bearing)

SINGLE BEARING MOMENTS OF INERTIA



POS.	COMPONENT	WEIGHT (kg)	J (kgm^2)
1	FAN	26.2	1.0289
2	MAIN ROTOR	631.1	18.1107
3	EX. ROTOR	40.1	0.4889
4	SHAFT	146.5	0.3397
TOTAL		843.9	19.9682

POS.	COMPONENT	SAE N°	A	B	WEIGHT (kg)	J (kgm^2)
5	SHAFTS COUPLING FLEX PLATE	14	155.7	99.5	56.5	0.8261
		18	145.7	100.7	60.9	1.2458
		21	130.0	98.5	69.0	2.2332

KOHLER®

Cooling Data

TECHNICAL INFORMATION BULLETIN

Generator Set Cooling System Data Sheet

	50°C Ambient Temperature Cooling System								
KD1000 60Hz (Standby Duty)	**Total external restriction on open unit**	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)	51.5 (125)	50 (122)	49 (120)	48 (118)	46 (115)	NA (NA)	45 (113)
	Cooling system airflow	m^3/min (ft^3/min)	1350 (47700)	1289 (45500)	1261 (44500)	1221 (43100)	1170 (41300)	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.). 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.
6. Performance is based on a 50/50 water and ethylene glycol mixture.

KOHLER®

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**	**Level 1 Sound Enclosure**	**Level 2 Sound Enclosure**
KD1000	60	100% Load	124.4	96.2	91.8	75.7
		No Load	111.3	92.8	88.6	72.1

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.

KD1000 | **60 Hz**

				Sound Pressure Levels, dB(A)								
Load	Distance, m (ft)	Enclosure	Measurement Clock Position	Octave Band Center Frequency (Hz)								Overall Level
				63	125	250	500	1000	2000	4000	8000	
			3:00	61.3	67.9	68.3	71.3	68.3	64.1	58.5	55.6	75.8
			1:30	58.4	60.3	70.9	70.2	67.8	64.0	58.7	52.7	75.3
			12:00 - Engine	57.4	64.4	70.5	70.4	68.9	63.9	57.1	49.2	75.6
			10:30	55.1	60.4	76.2	72.2	70.0	67.5	61.3	55.3	78.9
100% Load	7 (23)	Level 2 Sound	9:00	60.8	65.6	69.4	70.7	68.5	65.0	58.3	55.5	75.6
			7:30	61.7	67.2	68.5	69.2	66.5	63.1	56.2	55.9	74.7
			6:00 - Alternator	56.4	64.3	59.1	63.4	57.9	58.2	53.5	59.9	69.4
			4:30	62.9	69.7	71.6	67.0	62.0	62.9	57.1	57.1	75.4
			8-pos. log avg.	60.0	66.0	71.1	69.9	67.4	64.2	58.1	56.0	75.7

KD1000 | **60 Hz**

				Sound Pressure Levels, dB(A)								
Load	Distance, m (ft)	Enclosure	Measurement Clock Position	Octave Band Center Frequency (Hz)								Overall Level
				63	125	250	500	1000	2000	4000	8000	
			3:00	55.6	61.7	65.7	64.5	62.7	59.3	54.7	47.1	70.6
			1:30	53.4	60.8	68.5	64.4	63.3	56.9	50.4	44.1	71.5
			12:00 - Engine	54.4	60.7	67.9	63.7	65.7	57.5	50.9	45.6	71.6
			10:30	53.7	61.0	72.8	66.9	64.3	59.1	52.9	47.1	74.6
No Load	7 (23)	Level 2 Sound	9:00	53.7	61.4	65.8	66.8	63.3	56.5	51.7	45.0	71.1
			7:30	51.8	59.7	69.5	66.0	62.4	57.8	51.0	44.3	72.2
			6:00 - Alternator	52.7	57.6	67.9	62.7	59.2	54.1	49.1	42.9	70.0
			4:30	53.8	62.9	70.1	67.8	63.1	59.6	53.7	45.8	73.3
			8-pos. log avg.	53.8	60.9	69.1	65.7	63.3	57.9	52.1	45.5	72.1

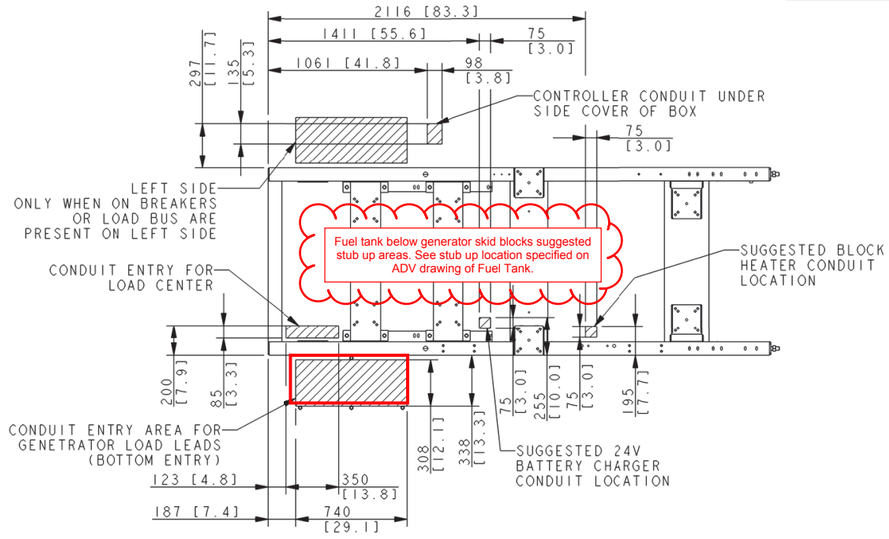
KOHLER®

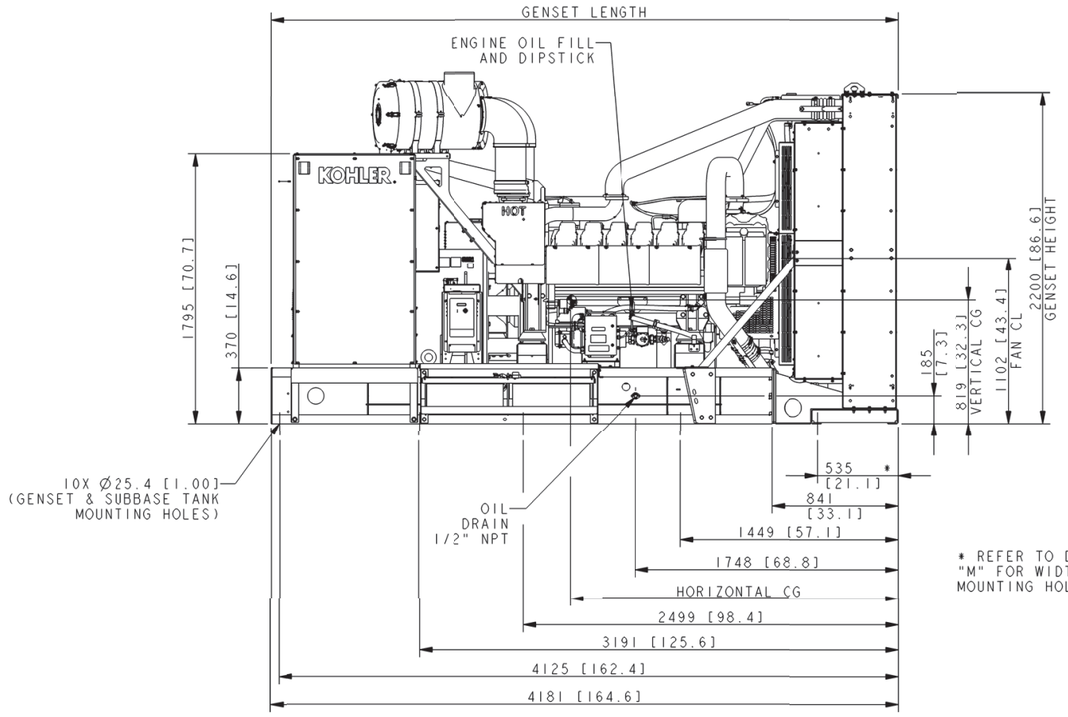
Dimensional Drawings

MODEL	ALT.	GENSET MAXIMUM WEIGHT (WET)	(HORIZONTAL CG) (WET)	GENSET LENGTH
KD800	KH02970TO4D	6916 Kg [15248 LBS]	2185 [86]	4181 [164.6]
KD800/900	KH03450TO4D	7155 Kg [15773 LBS]	2225 [87.6]	4181 [164.6]
KD800/900/1000	KH04070TO4D	7457 Kg [16440 LBS]	2277 [89.6]	4181 [164.6]
KD900/1000	KH04830TO4D	7770 Kg [17131 LBS]	2340 [92.1]	4181 [164.6]
KD1000	KH05520TO4D	8083 Kg [17821 LBS]	2391 [94.1]	4224 [166.3]*

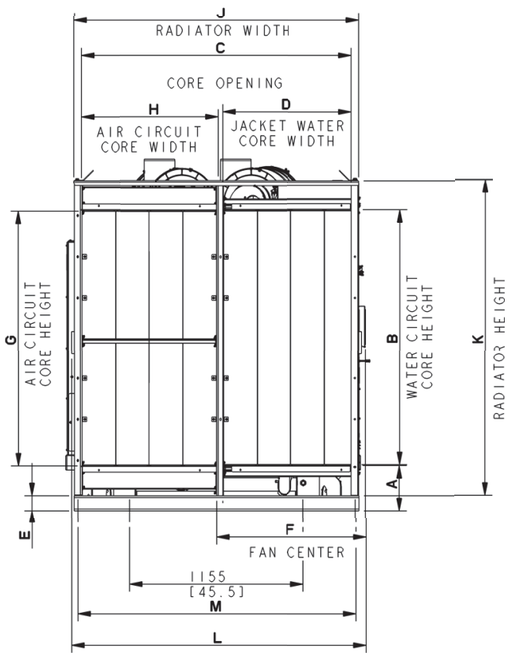
* KH05520TO4D ALTERNATOR EXTENDS PAST SKID

MODEL	A	B	C	D	E	F	G	H	J	K	L	M
KD800 50Hz FUEL OPT	400 [15.7]	1587 [62.5]	1394 [54.8]	674 [26.5]	194 [7.6]	747 [29.4]	1487 [58.5]	674 [26.5]	1494 [58.8]	2030 [79.9]	1924 [75.7]	1688 [66.4]
KD900/1000 50Hz FUEL OPT	305 [12.0]	1687 [66.4]	1618 [63.7]	899 [35.4]	100 [3.9]	859 [33.8]	1587 [62.5]	674 [26.5]	1718 [67.6]	2099 [82.6]	1941 [76.4]	1850 [72.8]
KD800 60 Hz	400 [15.7]	1587 [62.5]	1618 [63.7]	674 [26.5]	100 [3.9]	859 [33.8]	1487 [58.5]	899 [35.4]	1718 [67.6]	2125 [83.6]	1924 [75.7]	1850 [72.8]
KD900/1000 60 Hz	306 [12.0]	1687 [66.4]	1844 [72.6]	899 [35.4]	100 [3.9]	948 [37.3]	1687 [66.4]	899 [35.4]	1896 [74.6]	2100 [82.6]	1986 [78.2]	1850 [72.8]





* REFER TO DIMENSION "M" FOR WIDTH OF THIS MOUNTING HOLE



NOTES:
1) DIMENSIONS IN [] ARE ENGLISH EQUIVALENTS.

2) IF AN ENCLOSURE IS USED THE FUEL LINE MUST BE STUBBED UP FROM DIRECTLY UNDER THE UNIT. REFER TO ENCLOSURE ADV.

3) IF IBC OR OSHPD CERTIFICATION IS REQUIRED SEE SEISMIC ADV FOR INSTALLATION INSTRUCTIONS.

4) IF SUBBASE FUEL TANK AND/OR ENCLOSURE IS USED. REFER TO SUBBASE FUEL TANK/ENCLOSURE ADV TO DETERMINE MOUNTING LOCATION.

KD800, KD900, KD1000
KD27V12

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	9-8-16	NEW DRAWING [CTI60432]	SSS
A	11-3-16	(C-4) RADIATOR DIMENSIONS TABLE UPDATED [CTI64327]	CEK
B	6-7-17	(B-8) 10X Ø25.4 [1.00] (GENSET & SUBBASE TANK MOUNTING HOLES) WAS 16X; SEE SHEET 2 [CTI75358]	RRT
C	10-10-17	(D-1) COLUMN M ADDED; (D-2) "RADIATOR DIMENSIONS" TITLE REMOVED; (A-4) NOTE FOR DIMENSION "M" ADDED [CTI80111]	RRT
D	10-8-18	IMPERIAL DIMENSIONS ADDED TO ALL DIMENSIONS; SEE SHEET 2, 3, 4 & 5 [CTI91046]	ADP

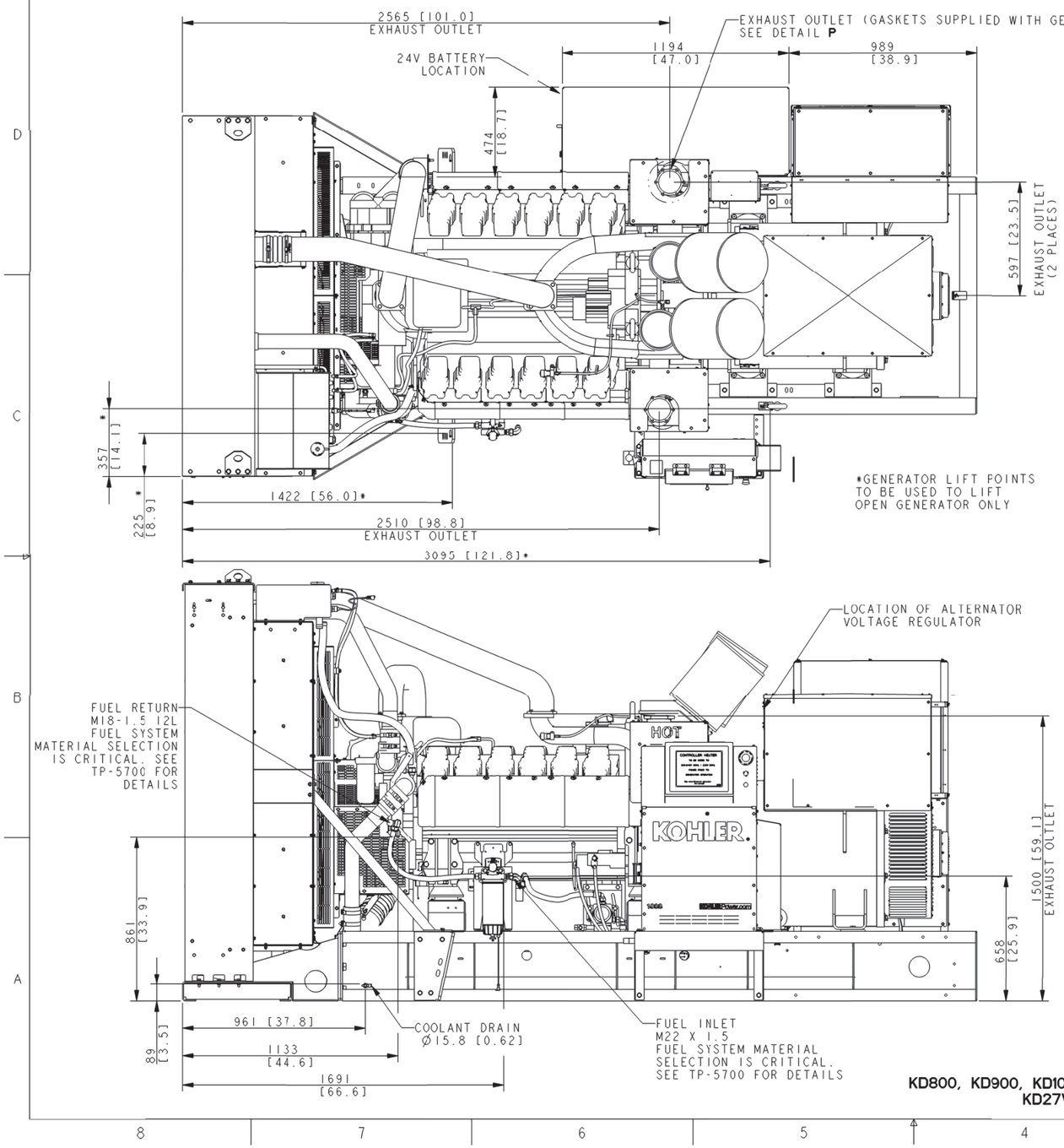
UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ±
X.X ±
X ±
ANGLES ±
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

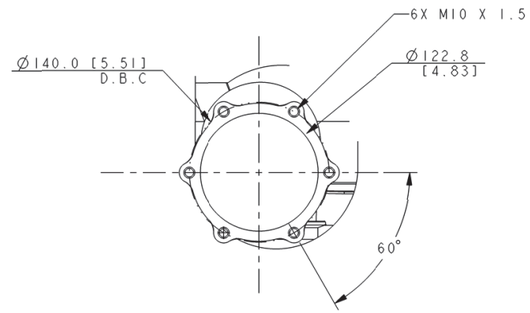
APPROVALS		DATE
DRAWN	SSS	9-8-16
CHECKED	DJV	9-8-16
APPROVED	BMK	9-8-16

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

TITLE
DIMENSION PRINT, KD800-1000

SCALE 0.06 | CAD NO. | SHEET 1 of 5
DWG NO. ADV-8868 | D





DETAIL P
SCALE 0.400

KD800, KD900, KD1000
KD27V12

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	9-8-16	NEW DRAWING [CT160432]	SSS
A	11-3-16	SEE SHEET 1 [CT164327]	CEK
B	6-7-17	(A-5), (B-8) FUEL SYSTEM NOTE UPDATED; SEE SHEET 1 [CT175358]	RRT
C	10-10-17	SEE SHEET 1 [CT180111]	RRT
D	10-8-18	IMPERIAL DIMENSIONS ADDED TO ALL DIMENSIONS; (D-5,6) 474 WAS 476, 989 WAS 995; (A-4,7) 658 WAS 644; (A-7) 1691 WAS 1730; SEE SHEET 1, 3, 4 & 5 [CT191046]	ADP

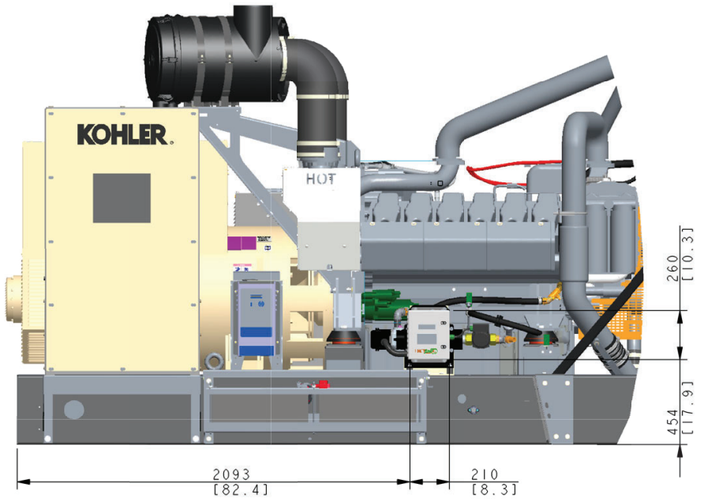
UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN MILLIMETERS
2) TOLERANCES ARE:
X.XX ±
X.X ±
X ±
ANGLES ±
SURFACE FINISH MAX.
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	SSS	9-8-16
CHECKED	DJV	9-8-16
APPROVED	BMK	9-8-16

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

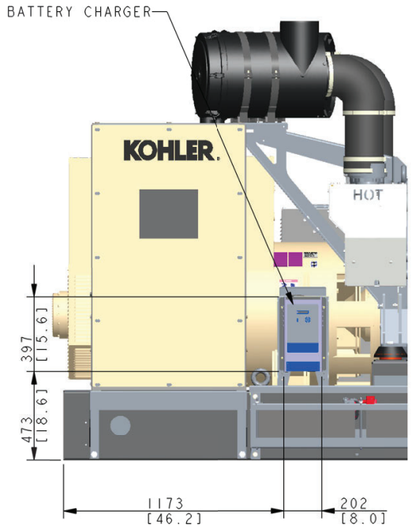
TITLE
DIMENSION PRINT, KD800-1000

SCALE 0.09 | CAD NO. | SHEET 2 of 5
DWG NO. **ADV-8868** | **D**

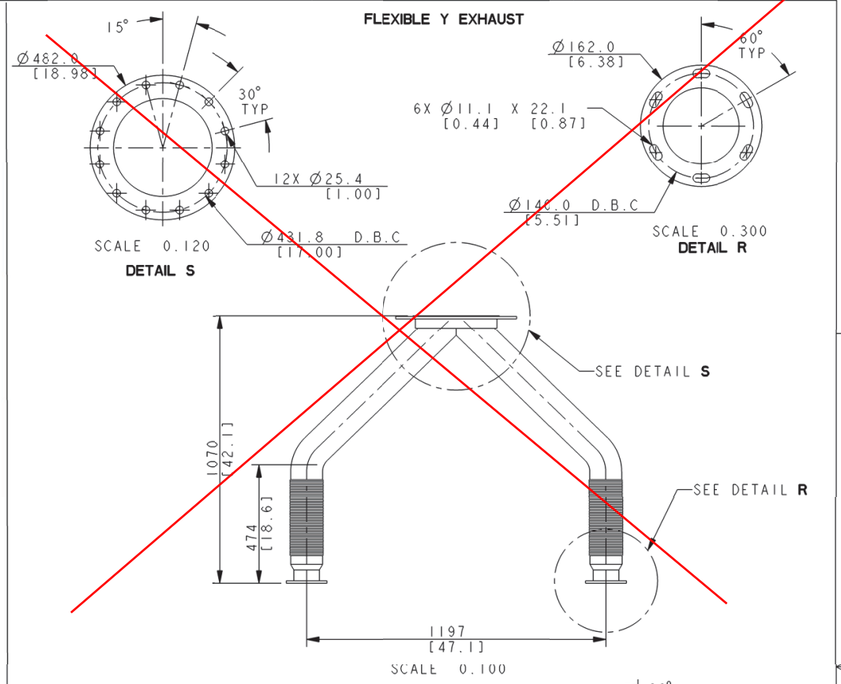


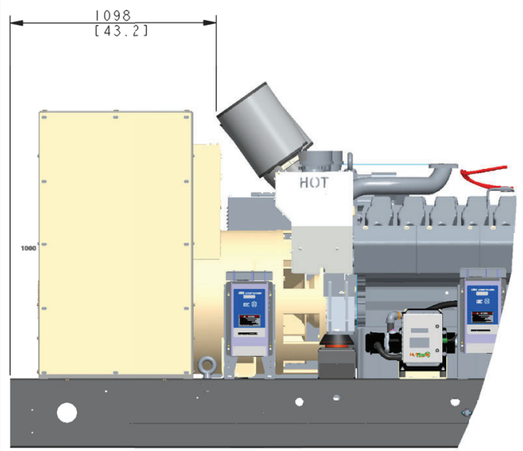
BLOCK HEATER LOCATION

BLOCK HEATER
(RIGHT SIDE GENSET)



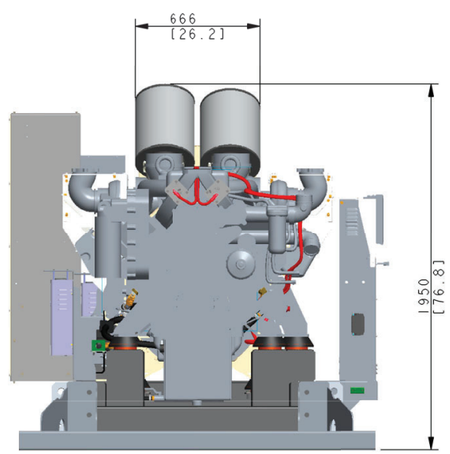
BATTERY CHARGER
(RIGHT SIDE GENSET)



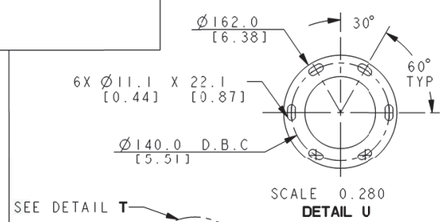


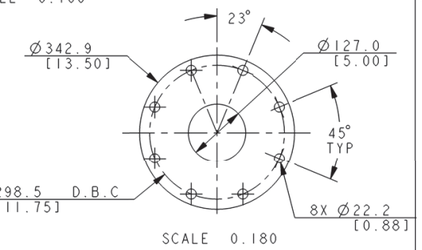
RIGHT SIDE

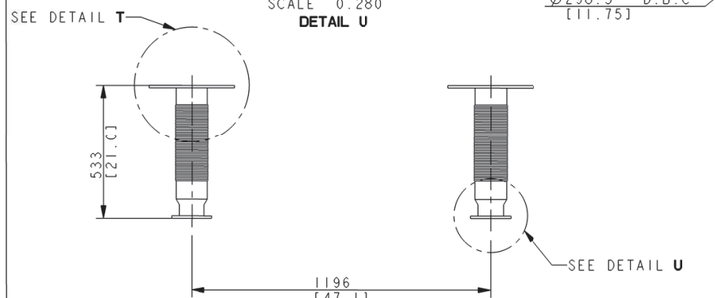
STANDARD DUTY AIR CLEANER
(RIGHT SIDE GENSET)



SCALE 0.075







NOTE:
FLEXIBLE EXHAUST TO BE FULLY SUPPORTED BY EXTERNAL STRUCTURE (ALLOWED BENDING MOMENT AT EXHAUST FLANGE INTERFACE LESS THAN 19 Nm)

KD800, KD900, KD1000
KD27V12

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	9-8-16	NEW DRAWING [CTI60432]	SSS
A	11-3-16	SEE SHEET 1 [CTI64327]	CEK
B	6-7-17	SEE SHEET 1 & 2 [CTI75358]	RRT
C	10-10-17	SEE SHEET 1 [CTI80111]	RRT
D	10-8-18	IMPERIAL DIMENSIONS ADDED TO ALL DIMENSIONS; SEE SHEET 1, 2, 4 & 5 [CTI91046]	ADP

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

APPROVALS	DATE
DRAWN SSS	9-8-16
CHECKED DJV	9-8-16
APPROVED BMK	9-8-16

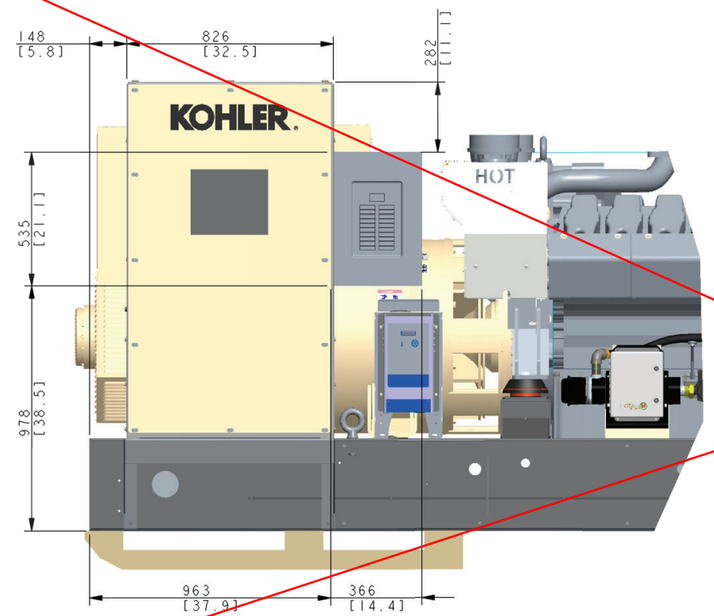
KOHLER CO. METRIC | PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: **DIMENSION PRINT, KD800-1000**

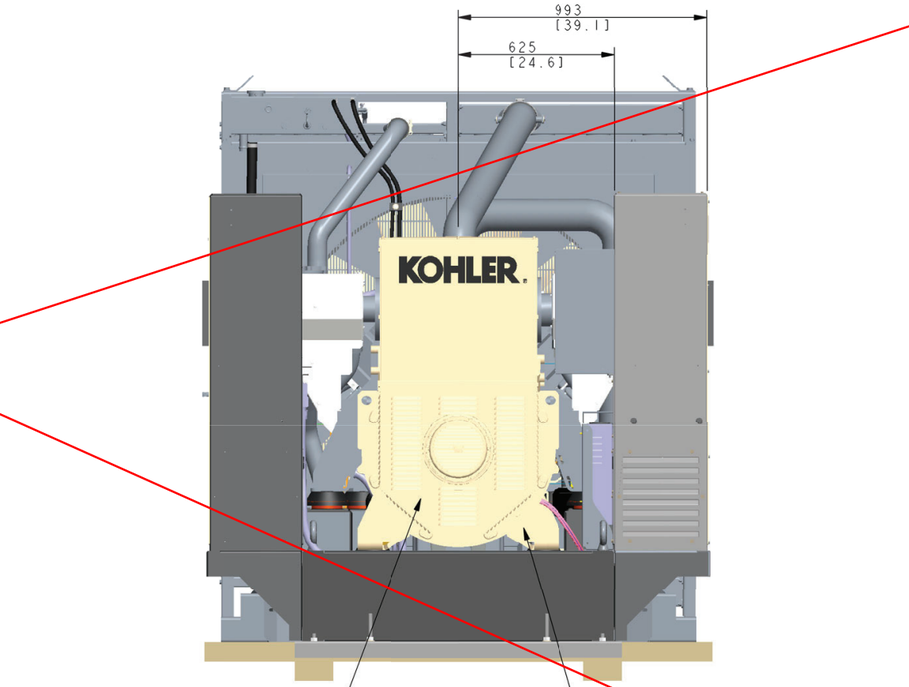
SCALE 0.15 | CAD NO. | SHEET 3 of 5

DWG NO. **ADV-8868** | **D**

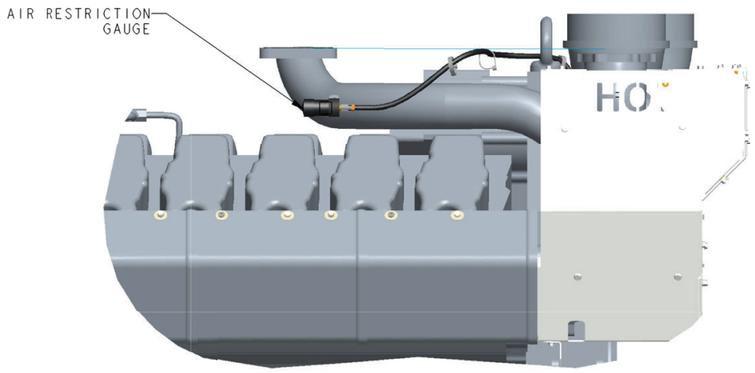
CIRCUIT BREAKER BOX
(RIGHT AND/OR LEFT SIDE OPTION)



BASIC ELECTRICAL PACKAGE (BEP) LOAD CENTER



ALTERNATOR AIR FILTER AND HEATER



AIR FILTER RESTRICTION INDICATOR
(RIGHT SIDE OF GENSET)

KD800, KD900, KD1000
KD27V12

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	9-8-16	NEW DRAWING [CT160432]	SSS
A	11-3-16	SEE SHEET 1 [CT164327]	CEK
B	6-7-17	SEE SHEET 1 & 2 [CT175358]	RRT
C	10-10-17	SEE SHEET 1 [CT180111]	RRT
D	10-8-18	IMPERIAL DIMENSIONS ADDED TO ALL DIMENSIONS;	
		SEE SHEET 1, 2, 3 & 4 [CT191046]	ADP

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

APPROVALS		DATE
DRAWN	SSS	9-8-16
CHECKED	DJV	9-8-16
APPROVED	BMK	9-8-16

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

TITLE
DIMENSION PRINT, KD800-1000

SCALE 0.06 | CAD NO. | SHEET 5 of 5
DWG NO. ADV-8868 | D

REV	DATE	REVISION	BY	N/F
B	06-18-18	(C-1) W1 AND W2 ADDED; (D-5) N1 WAS N2, P1 WAS P2;		
		(D-3) N3 WAS N2, P3 WAS P2; (D-2) N4 WAS N2, P4 WAS P2,		
		N5 WAS N2 & P5 WAS P2; (A-2) ADDED DUPLICATE TERMINALS		
		55 & 56 [CT187925]	SMH	

081A02 BASE MODULE (BM) I/O & POWER SUPPLIES

PICK-UP

CAN1 CAN2 CAN3 CAN4

ETHERNET 1 ETHERNET 2 ETHERNET 3 ETHERNET 4

YEL (W3) WHT (W5) GRN (W4)

LGT (PB-X1)

24V (TB10-55)

NOTE: OVERCRANK TEST CAN BE PERFORMED BY GROUNDING PIN 25 ON THE BASE MODULE THROUGH A SWITCH (NOT SUPPLIED) AS SHOWN. WITH CONTROLLER IN AUTO, CLOSE REMOTE START CONTACTS AND OVERCRANK TEST WILL RUN.

TEL (BM-100) GRN (BM-102) WHT (BM-101)

W3 W4 W5

TEL (P2-H) TEL (P4-H) TEL (P6-H) TEL (P8-H) TEL (P10-H)

GRN (P2-L) GRN (P4-L) GRN (P6-L) GRN (P8-L) GRN (P10-L)

WHT (P2-GND) WHT (P4-GND) WHT (P6-GND) WHT (P8-GND) WHT (P10-GND)

MANUAL KEY SWITCH AND/OR LOAD SHED

P1 POWER N1 (W1) P1 (W2)

P2 CAN H GND L — YEL (W3) WHT (W5) GRN (W4)

SPEED ON

CAN ADDRESS ON

DI1 AUT (KS)

DI2 MAN (KS)

DI3 OFF (KS)

DI4 ST (PB-3)

DI5 DI6 DI7 DI8

NOTE: THRESHOLD 9 FOUND IN THE SETTINGS MANUAL OF THE APM802 IS USED TO CONTROL THE LOAD SHED THRESHOLD. FACTORY SETTING IS 90% OF NAMEPLATE RATING. THIS THRESHOLD CAN BE CHANGED, PLEASE CONSULT THE FACTORY.

LOAD SHED 1

LOAD SHED 2

LOAD SHED 3

LOAD SHED 4

CUSTOMER WIRED

DIGITAL I/O MODULE

P3 POWER N2 (W1) P2 (W2)

P4 CAN H GND L — YEL (W3) WHT (W5) GRN (W4)

SPEED ON

CAN ADDRESS ON

DI1 DI2 DI3 DI4 DI5 DI6 DI7 DI8

ANALOG I/O MODULE

P5 POWER N3 (W1) P3 (W2)

P6 CAN H GND L — YEL (W3) WHT (W5) GRN (W4)

SPEED ON

CAN ADDRESS ON

ANO0 ANO1 ANO ANI1 ANI2 ANI3

THERMOCOUPLE MODULE 1

P7 POWER N4 (W1) P4 (W2)

P8 CAN H GND L — YEL (W3) WHT (W5) GRN (W4)

SPEED ON

CAN ADDRESS ON

JUMPER T0 T1 T2 — PT100

THERMOCOUPLE MODULE 2

P9 POWER N5 (W1) P5 (W2)

P10 CAN H GND L — YEL (W3) WHT (W5) GRN (W4)

SPEED ON

CAN ADDRESS ON

JUMPER T0 T1 T2 — PT100

P1 P2 P3 P4 P5 P6 P7 P8 N5 P9 P10 N4 P1 P2 P3 P4 P5 P6 P7 P8 P9 P10

W2 W1

P (TB10-55) N (TB10-56)

KS

AUT (DI1-1) OFF (DI1-5) MAN (DI2-3)

N1 (W6) N2 (W6) N3 (W6)

PB

ST (DI4-7) LGT (BM-67)

X1 X2

1 2 3 4

N1 (KS) N2 (KS) N3 (KS) N4 (PB-4) N5 (PB-X2)

W6

N6 (TB10-21) N (TB10-56)

TB10

JUMPER

REMOVE JUMPER FOR REMOTE E-STOP

(OPTIONAL) E-STOP

(OPTIONAL) REMOTE START

(OPTIONAL) IDLE SWITCH

RS485/MODBUS (+)

RS485/MODBUS (-)

(OPTIONAL) OVERSPEED TEST

ACTIVE WHEN GROUNDED — LOW FUEL LEVEL INPUT

ACTIVE WHEN GROUNDED — BREAKER OPEN INPUT

ACTIVE WHEN GROUNDED — REMOTE RESET INPUT

ACTIVE WHEN GROUNDED — AUXILARY SHUTDOWN INPUT

ACTIVE WHEN GROUNDED — HIGH FUEL LEVEL INPUT

ACTIVE WHEN GROUNDED — AUXILARY WARNING INPUT

ACTIVE WHEN GROUNDED — LOW OIL LEVEL INPUT

GFO TRIPPED INPUT

GROUND TO ENABLE — N6 (W6)

REMOTE SPEED BIAS ENABLE

KEY SWITCH ENABLE

NC NO COM — COMMON FAULT DRY CONTACT

NC NO COM — SYSTEM READY DRY CONTACT

NC NO COM — COMMON WARNING DRY CONTACT

NO COM — HORN OUTPUT

NO COM — LOW COOLANT TEMP DRY CONTACT

NO COM — SHUNT TRIP DRY CONTACT

NO COM — NOT IN AUTO DRY CONTACT

GENERATOR RUNNING/SWITCHED POWER (+)

GENERATOR RUNNING/SWITCHED POWER (-)

NO COM — EPS SUPPLYING LOAD DRY CONTACT

NO COM — LOW OIL PRESSURE DRY CONTACT

NO COM — HIGH COOLANT TEMP DRY CONTACT

NO COM — LOW COOLANT LEVEL DRY CONTACT

NO COM — LOW FUEL LEVEL DRY CONTACT

CUSTOMER SUPPLIED +/- 10VDC

SPEED BIAS (+)

SPEED BIAS (-)

RESISTIVE INPUT (+)

RESISTIVE INPUT (-)

24V (+)

24V (-)

24V (BM-56) P (W2) N (W6) N (W1)

LEGEND

KS – MANUAL KEY SWITCH
PB – MANUAL START/STOP PUSHBUTTON
TB10 – CUSTOMER CONNECTION TERMINAL BLOCK
W(#) – SONIC WIRE WELD
⏚ – ENGINE BLOCK GROUND

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

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

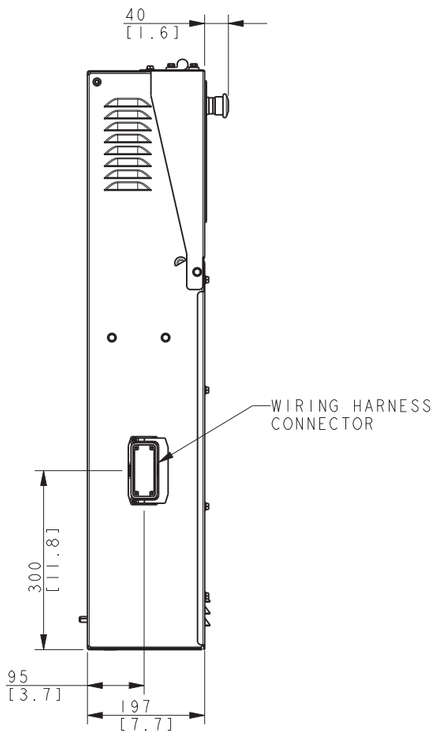
APPROVALS	DATE
DRAWN CRS	3-17-17
CHECKED WG	3-17-17
APPROVED CRS	3-17-17

TITLE: DIAGRAM, ACCESSORY APM802

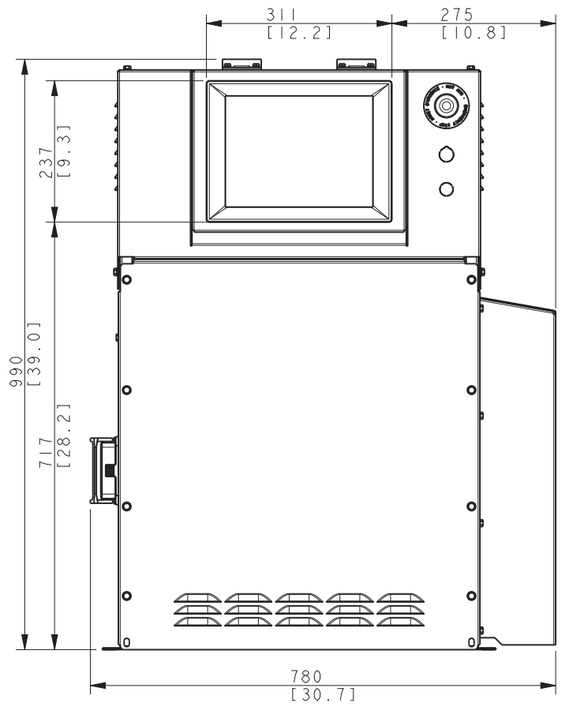
SCALE NONE — CAD NO. — SHEET 1-1

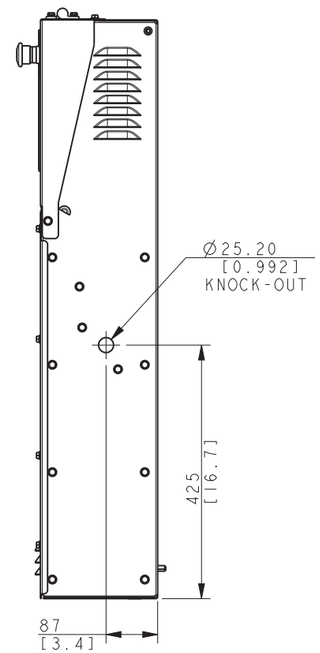
PLOTTED — DWG. NO. GM103061 — D

APM802

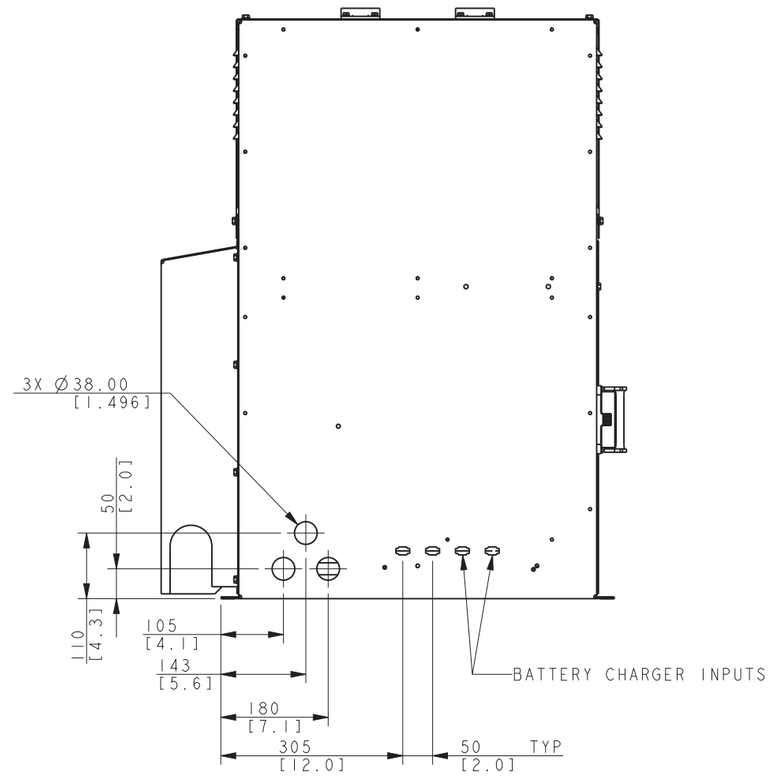


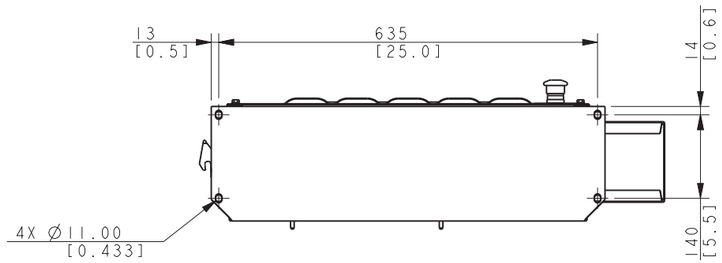
LEFT SIDE VIEW WITH
WIRING CHUTE REMOVED





RIGHT SIDE VIEW WITH
WIRING CHUTE REMOVED





CONTROLLER HEATER TO BE WIRED TO
240V 60Hz / 230V 50Hz POWER
PRIOR TO GENERATOR OPERATION
SEE WIRING SCHEMATIC OR
DIAGRAM FOR DETAILS.

NOTE: DIMENSIONS IN [ ] ARE ENGLISH EQUIVALENTS.

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL □ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	8-22-16	NEW DRAWING [CT156546]	CEK
A	4-1-19	SHEET 2 ADDED [CT194757]	YBY

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 (M-D-Y)
DRAWN CEK	8-22-16
CHECKED CEK	8-22-16
APPROVED TAS	8-22-16

KOHLER CO. SDMO
KOHLER POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
SDMO, CS 92848, 29228 BREST CEDEX 2, FRANCE

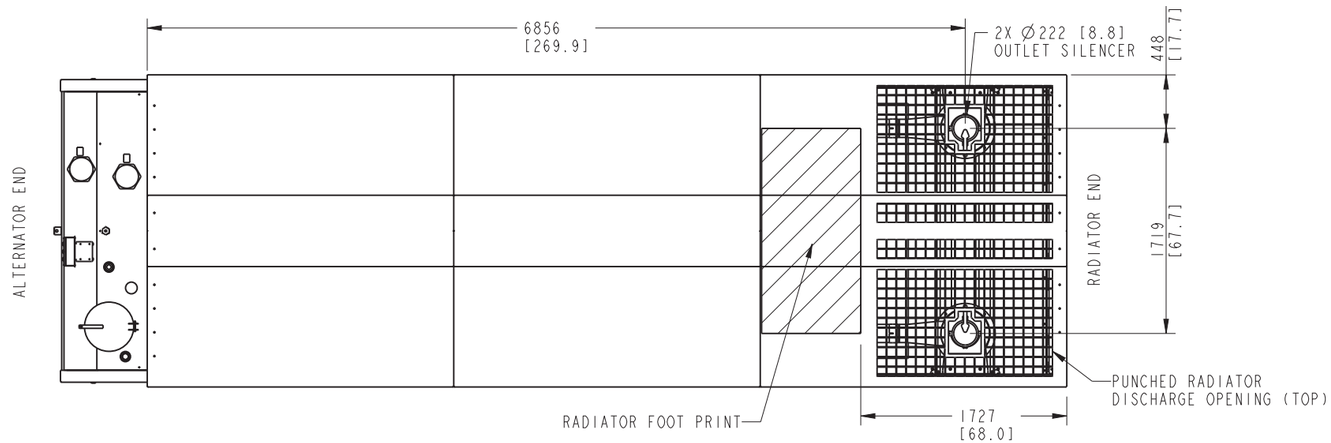
METRIC
PRO-E

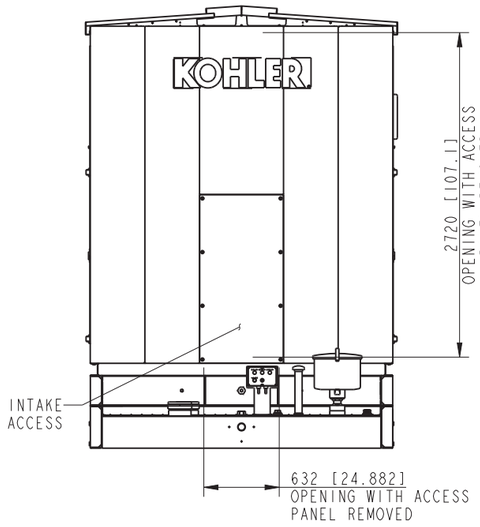
TITLE
DIMENSION PRINT, CONTROLLER

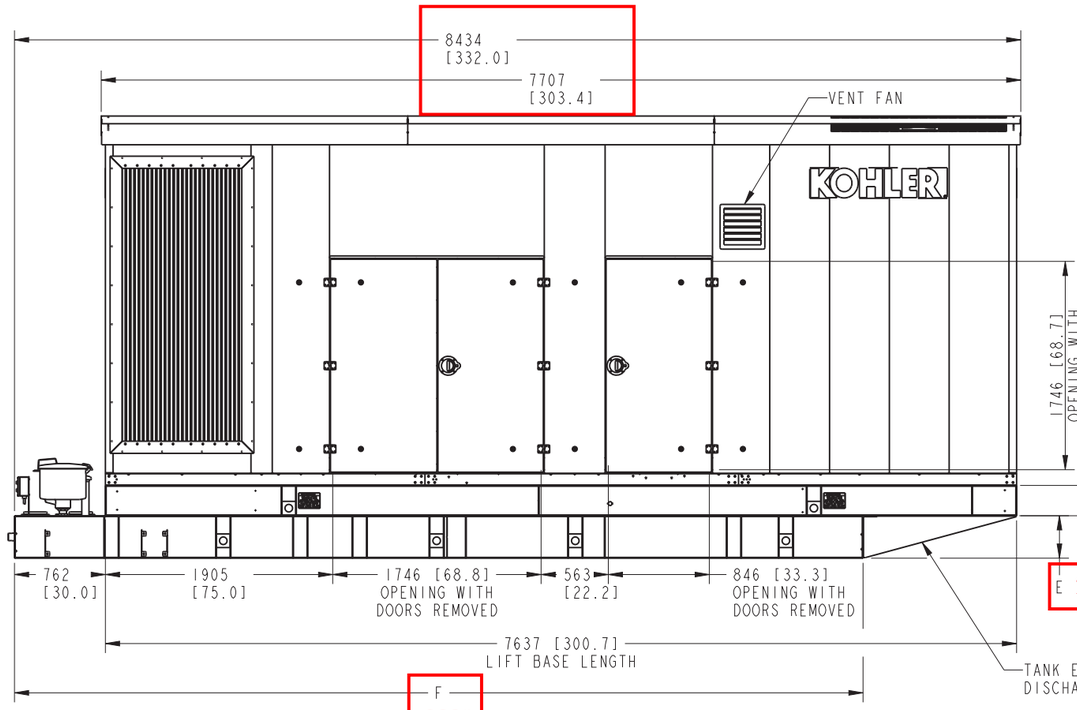
SCALE 0.20 | CAD NO. | SHEET 1 of 2
DWG NO. ADV-8869 | D

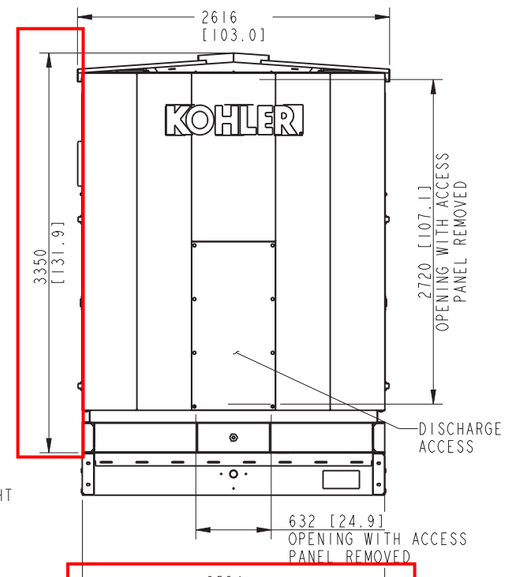
ADDENDUM 2

KDI 800-4000KW
BATTERY ENERGY STORAGE SYSTEM CONTROLLER









*WEIGHT INCLUDES ENCLOSURE & SILENCER.
NOTE: DIMENSIONS IN [ ] ARE ENGLISH EQUIVALENTS

ALUM SL2 ENCLOSURE & SILENCER WEIGHT KG [LBS]	2120 [4674 LB]

TANK & LIFT BASE INFORMATION				
LITERS [GALLONS] MIN HOURS	GENSETS	DIM E MM [INCH]	DIM F MM [INCH]	WEIGHT KG [LBS] (NO FUEL)
SL2 LIFT BASE	KD800-1000	SEE NOTE	SEE NOTE	1010 [2,226 LB]
3475 [918] 12 HOURS	KD800-1000	356 [14.0]	7112 [280.0]	3588 [7,910 LB]
6621 [1749] 24 HOURS	KD800-1000	584 [23.0]	7112 [280.0]	4068 [8,969 LB]
10573 [2793] 48 HOURS	KD800	914 [36.0]	7112 [280.0]	4647 [10,246 LB]
12969 [3426] 48 HOURS	KD900-1000	940 [37.0]	8400 [330.7]	5851 [12,900 LB]
15740 [4158] 72 HOURS	KD800	1016 [40.0]	9144 [360.0]	6058 [13,356 LB]
19381 [5120] 72 HOURS	KD900-1000	1016 [40.0]	11050 [435.0]	7030 [15,497 LB]

TANK WEIGHT + LIFT BASE WEIGHT + ENCLOSURE WEIGHT + GENERATOR SET WEIGHT (REFERENCE FROM GENERATOR SET ADV) = TOTAL WEIGHT

800-1000KW SL2 ENCLOSURE AND LIFTING BASE WITH SUB BASE TANK OPTION
BATTERY ENERGY STORAGE SYSTEM

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL □ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	7-28-16	NEW DRAWING [CTI60284]	RMJ
A	3-23-17	SEE SHEET 5,7 & 8 [CTI72499]	PAS
B	3-29-17	SEE SHEET 7,8 & 9 [CTI72948]	KMP
C	7-24-17	(D-3) 2X Ø222 DIMENSION ADDED; SEE SHEET 1 [CTI76858]	MVT
D	12-13-17	SEE SHEET 5 [CTI82350]	RVM
E	4-22-19	(A-3) TANK NOTE UPDATED; (A-2) TOLERANCES REMOVED [CTI94818]	SUD

UNLESS OTHERWISE SPECIFIED: ALL DIMENSSIONS IN MILLIMETERS GENERAL TOLERANCES: N/A

THIRD ANGLE PROJECTION

APPROVALS		DATE (M-D-Y)
DRAWN	RMJ	7-28-16
CHECKED	RMJ	7-28-16
APPROVED	BLM	7-28-16

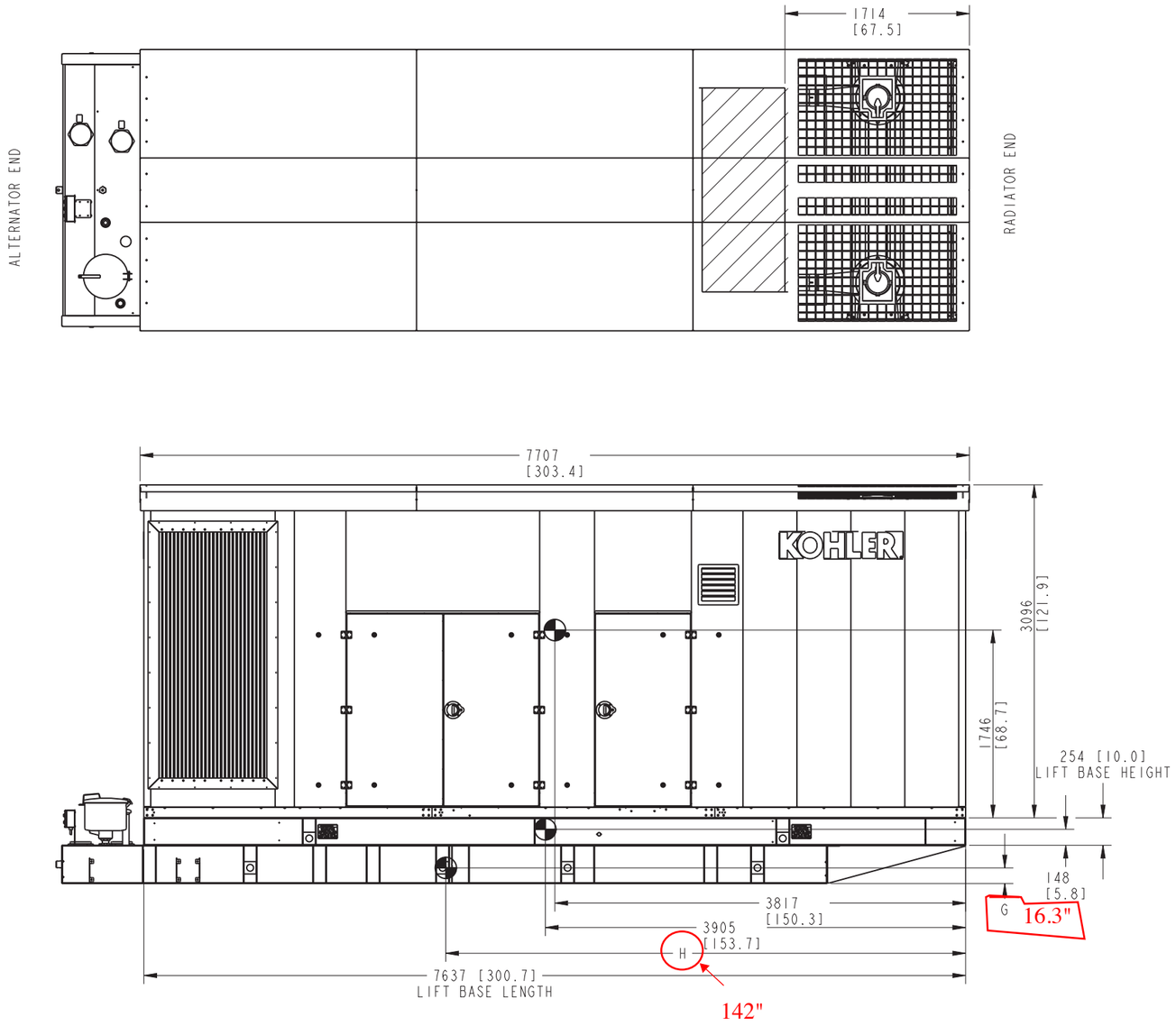
KOHLER CO. SDMO

KOHLER POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
SDMO, CS 92848, 29228 BREST CEDEX 2, FRANCE

METRIC
PRO-E

TITLE: DIMENSION PRINT KD800-1000 TANK & ENCLOSURE

SCALE 0.04 | CAD NO. | SHEET 3 of 10
DWG NO. ADV-8919 | D



SL2 CENTER OF GRAVITY POINTS FOR ENCLOSURE, LIFT BASAE AND TANK VARIATIONS

TANK CENTER OF GRAVITY INFORMATION			
LITERS [GALLONS] MIN HOURS	GENSETS	VERTICAL C.G. DIM G MM [INCH]	HORIZONTAL C.G. DIM H MM [INCH]
SL2 LIFT BASE	KD800-1000	127 [5.0]	3819 [150.3]
3475 [918] 12 HOURS	KD800-1000	415 [16.3]	3624 [142.7]
6621 [1749] 24 HOURS	KD800-1000	415 [16.3]	3624 [142.7]
10573 [2793] 48 HOURS	KD800	415 [16.3]	3624 [142.7]
12969 [3426] 48 HOURS	KD900-1000	419 [16.5]	4100 [161.4]
15740 [4158] 72 HOURS	KD800	419 [16.5]	4100 [161.4]
19381 [5120] 72 HOURS	KD900-1000	449 [17.7]	5337 [210.1]

BATTERY ENERGY STORAGE SYSTEM

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL □ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	7-28-16	NEW DRAWING [CTI60284]	RMJ
A	3-23-17	SEE SHEET 5,7 & 8 [CTI72499]	PAS
B	3-29-17	SEE SHEET 7,8 & 9 [CTI72948]	KMP
C	7-24-17	SEE SHEET 1 & 3 [CTI76858]	MVT
D	13-12-17	SEE SHEET 5 [CTI82350]	RVM
E	4-22-19	(A-2) TOLERANCES REMOVED [CTI94818]	SUD

UNLESS OTHERWISE SPECIFIED: ALL DIMENSSIONS IN MILLIMETERS GENERAL TOLERANCES: N/A

MAX.

THIRD ANGLE PROJECTION

APPROVALS		DATE (M-D-Y)
DRAWN	RMJ	7-28-16
CHECKED	RMJ	7-28-16
APPROVED	BLM	7-28-16

KOHLER CO. SDMO

KOHLER POWER SYSTEMS, KOHLER, WI 53044 U.S.A. SDMO, CS 92848, 29228 BREST CEDEX 2, FRANCE

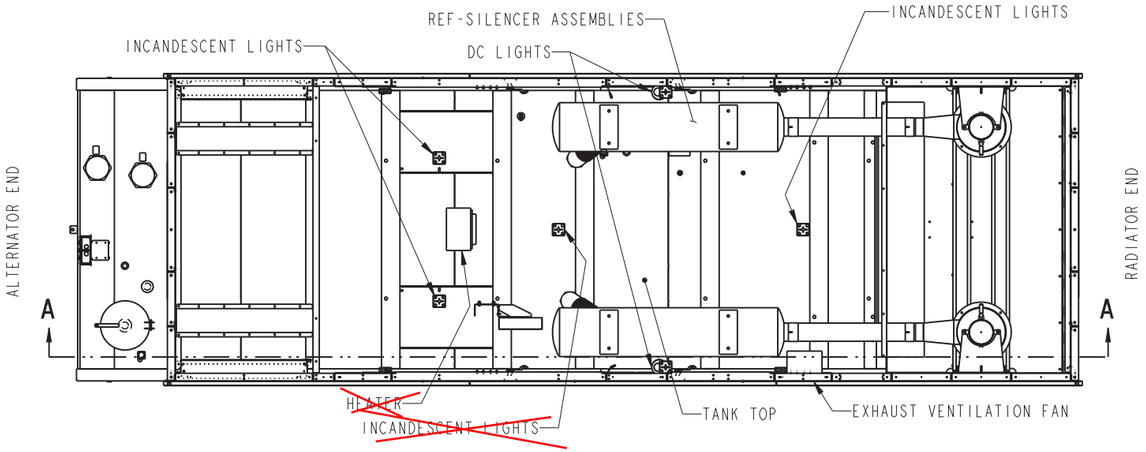
METRIC

PRO-E

TITLE: DIMENSION PRINT KD800-1000 TANK & ENCLOSURE

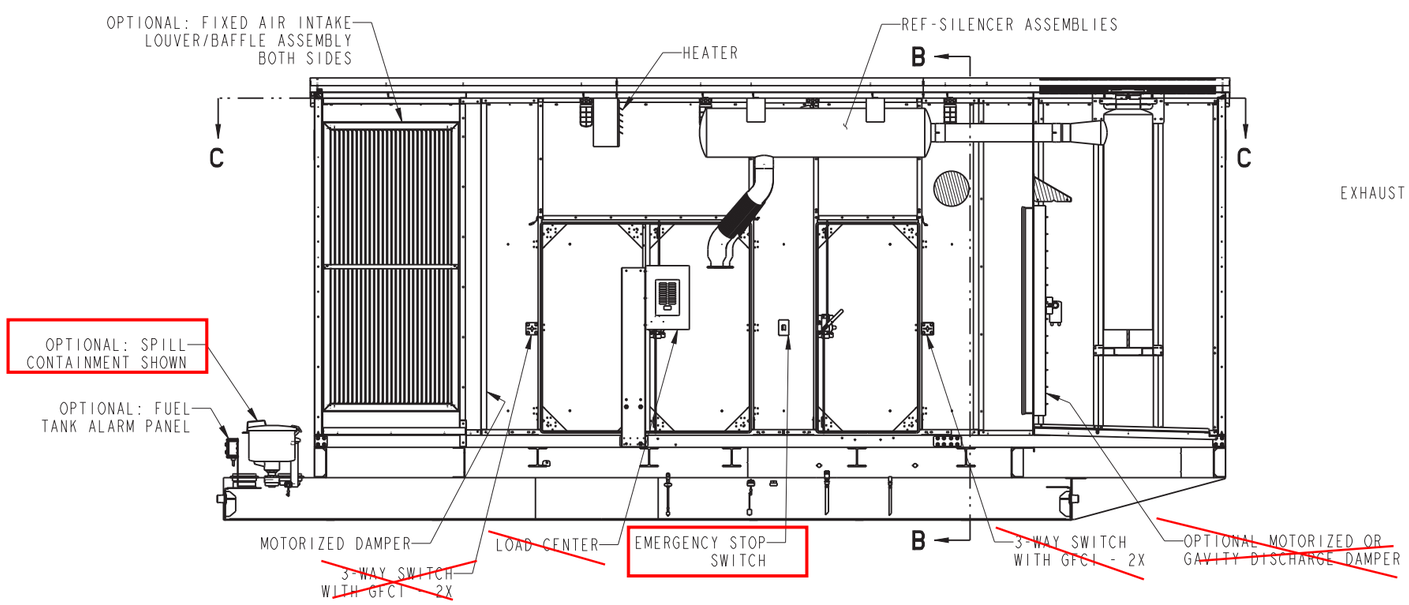
SCALE 0.04 | CAD NO. | SHEET 4 of 10

DWG NO. ADV-8919 | D



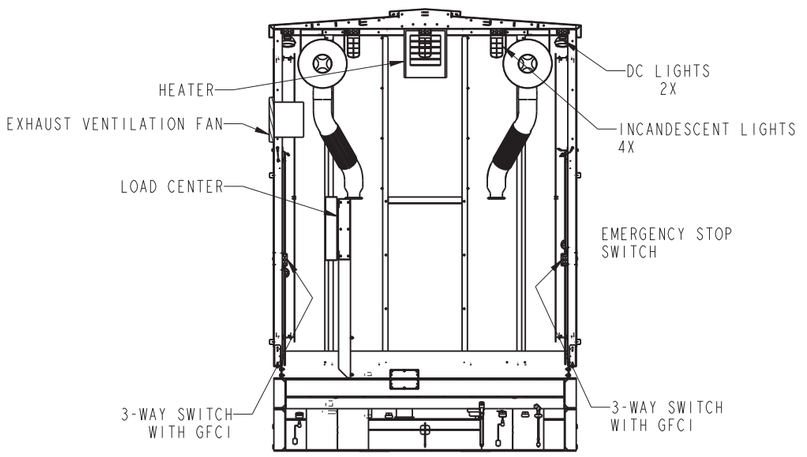
SECTION C-C

TOP VIEW OF SL2 ENCLOSURE SHOWN WITH ROOF REMOVED TO SHOW OPTION LOCATIONS



SECTION A-A

RIGHT SIDE OF SL2 ENCLOSURE SHOWN WITH SIDE PANELS REMOVED FOR CLARITY



SECTION B-B

OUTER PANELS TO INTAKE REMOVE TO CLARIFY POSITION OF LOAD CENTER PANEL, LIGHTS, HEATER, FAN & SWITCHES

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL □ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	7-28-16	NEW DRAWING [CTI60284]	RMJ
A	3-23-17	(B-1,2) DC LIGHTS QTY 2 WAS QTY 4; (D-6) DC	
		LIGHTS POSITION UPDATED & SEE SHEET 7 & 8	
		[CTI72499]	PAS
B	3-29-17	SEE SHEET 7,8 & 9 [CTI72948]	KMP
C	7-24-17	SEE SHEET 1 & 3 [CTI76858]	MVT
D	12-13-17	VIEWS UPDATED FOR HEATER BRACKET CHANGE [CTI82350]	RVM
E	4-22-19	(A-2) TOLERANCES REMOVED [CTI94818]	SUD

UNLESS OTHERWISE SPECIFIED: ALL DIMENSSIONS IN MILLIMETERS GENERAL TOLERANCES: N/A

MAT.

THIRD ANGLE PROJECTION

APPROVALS		DATE (M-D-Y)
DRAWN	RMJ	7-28-16
CHECKED	RMJ	7-28-16
APPROVED	BLM	7-28-16

KOHLER CO. SDMO

KOHLER POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
SDMO, CS 92848, 29228 BREST CEDEX 2, FRANCE

METRIC
PRO-E

TITLE: DIMENSION PRINT KD800-1000 TANK & ENCLOSURE

SCALE 0.04 | CAD NO. | SHEET 5 of 10

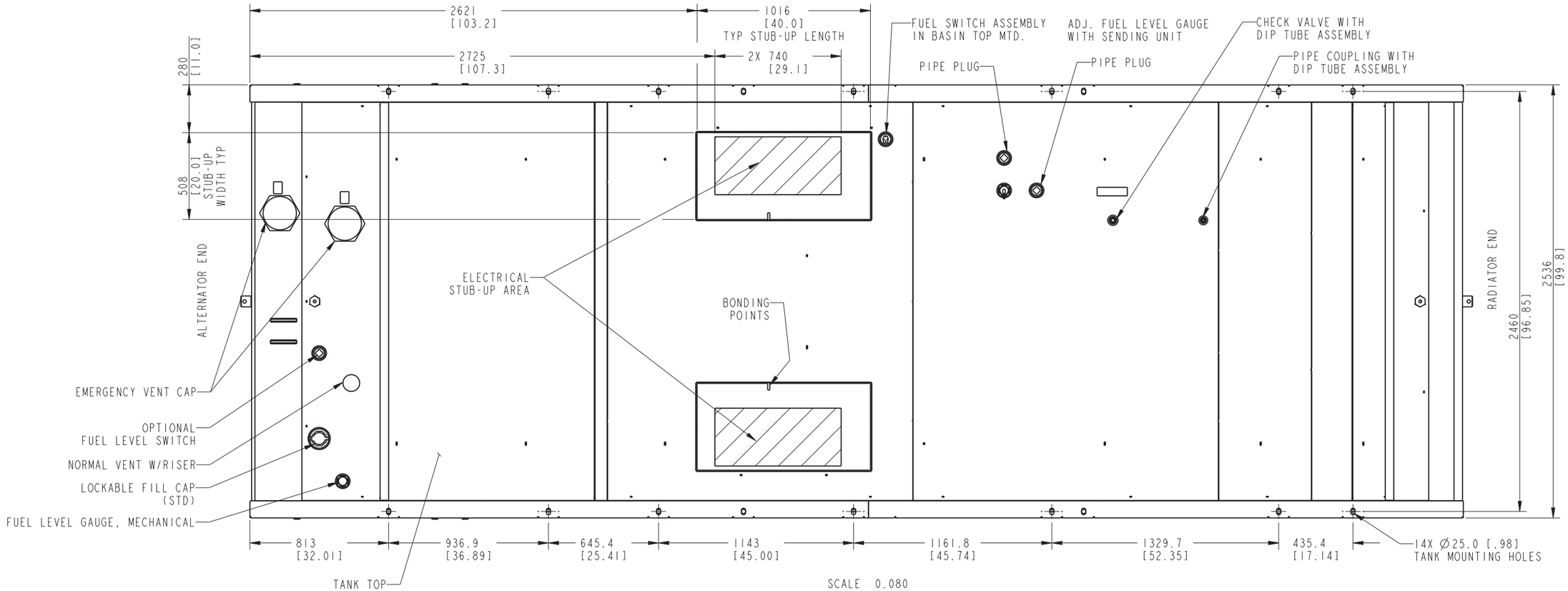
DWG NO. ADV-8919

D

ADDENDUM 2

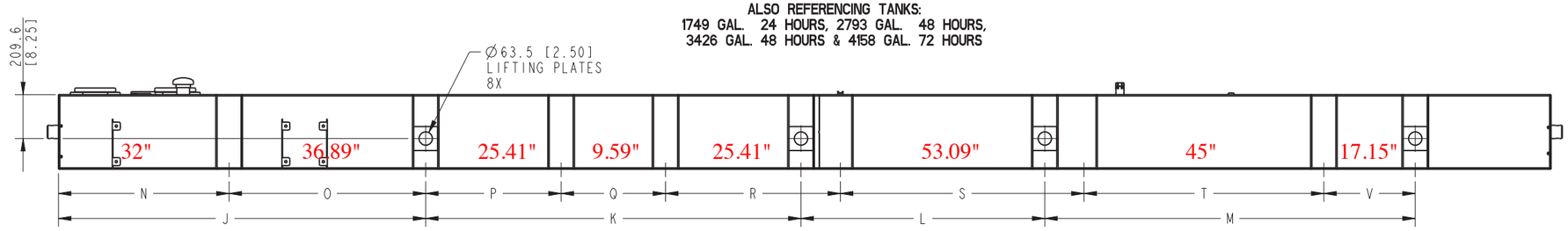
ELECTRICAL, ENCLOSURE & TANK ACCESSORY OPTIONS

BATTERY ENERGY STORAGE SYSTEM



SCALE 0.080

MOUNTING HOLE LOCATIONS
918 GAL. 12 HOUR TANK SHOWN
ALSO REFERENCING TANKS:
1749 GAL. 24 HOURS, 2793 GAL. 48 HOURS,
3426 GAL. 48 HOURS & 4158 GAL. 72 HOURS



TANK LIFTING HOLE LOCATIONS
918 GAL. 12 HOUR TANK SHOWN
ALSO REFERENCING TANKS:
1749 GAL. 24 HOURS, 2793 GAL. 48 HOURS

TANK MOUNTING INFORMATION								
LITERS [GALLONS] MIN HOURS	DIM "N"	DIM "O"	DIM "P"	DIM "Q"	DIM "R"	DIM "S"	DIM "T"	DIM "V"
3475 [918] 12 HOURS	813 [32.0]	936.9 [36.89]	645.4 [25.41]	497.6 [19.59]	833.2 [32.80]	1160.7 [45.70]	1143 [45.0]	435.5 [17.15]
6621 [1749] 24 HOURS	813 [32.0]	936.9 [36.89]	645.4 [25.41]	497.6 [19.59]	645.4 [25.41]	1348.4 [53.09]	1143 [45.0]	435.5 [17.15]
10573 [2793] 48 HOURS	813 [32.0]	936.9 [36.89]	645.4 [25.41]	497.6 [19.59]	645.4 [25.41]	1161.9 [45.74]	1329.6 [52.35]	435.5 [17.15]

TANK LIFT PLATE INFORMATION				
LITERS [GALLONS] MIN HOURS	DIMENSION "J"	DIMENSION "K"	DIMENSION "L"	DIMENSION "M"
3475 [918] 12 HOURS	1750 [68.9]	1788 [70.4]	1162 [45.7]	1765 [69.5]
6621 [1749] 24 HOURS	1750 [68.9]	1788 [70.4]	1162 [45.7]	1765 [69.5]
10573 [2793] 48 HOURS	1750 [68.9]	1788 [70.4]	1162 [45.7]	1765 [69.5]

ADDENDUM 2

BATTERY ENERGY STORAGE SYSTEM

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL □ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
A	3-23-17	(B-4,D-4) NOTE: SEIMIC (IBC) RATED TANK	
		REMOVED & SEE SHEET 5 & 8 [CT172499]	PAS
B	3-29-17	(A-2 THRU-7) DIM N THRU V ADDED; (A-8) TANK	
		MOUNTING INFORMATION TABLE ADDED; SEE SHEET	
		8 & 9 [CT172948]	KMP
C	7-24-17	SEE SHEET 1 & 3 [CT176858]	MVT
D	13-12-17	SEE SHEET 5 [CT182350]	RVM
E	4-22-19	(A-2) TOLERANCES REMOVED [CT194818]	SUD

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCES: N/A

THIRD ANGLE PROJECTION

APPROVALS		DATE (M-D-Y)
DRAWN	RMJ	7-28-16
CHECKED	RMJ	7-28-16
APPROVED	BLM	7-28-16

KOHLER CO. SDMO

KOHLER POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
SDMO, CS 92848, 29228 BREST CEDEX 2, FRANCE

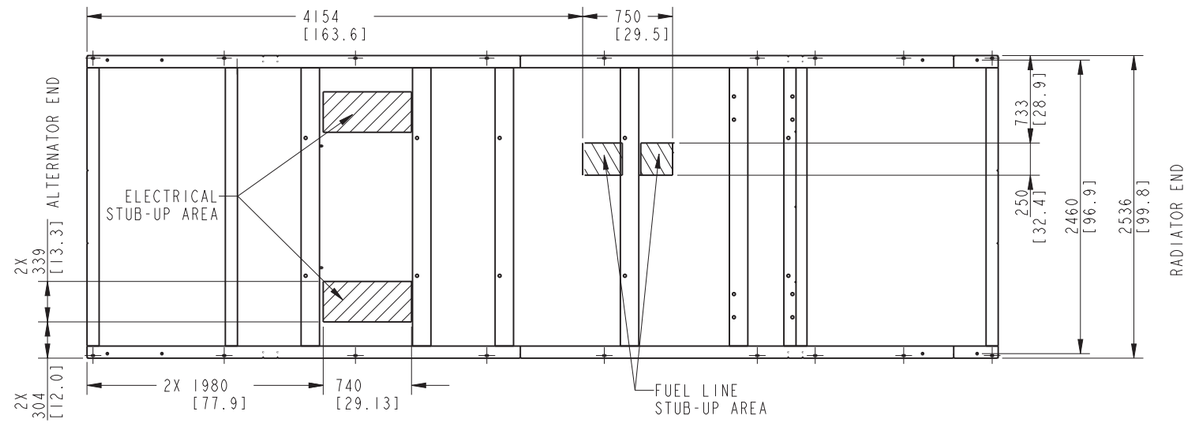
TITLE: **DIMENSION PRINT KD800-1000 TANK & ENCLOSURE**

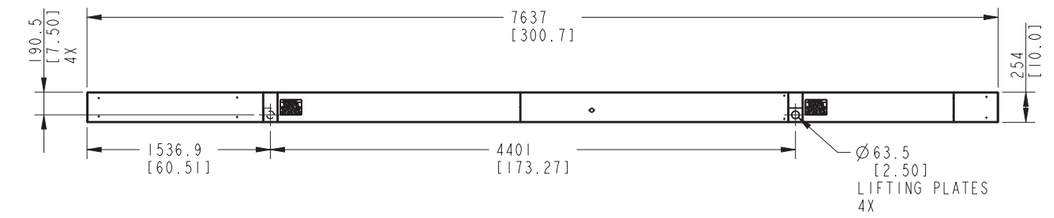
METRIC
PRO-E

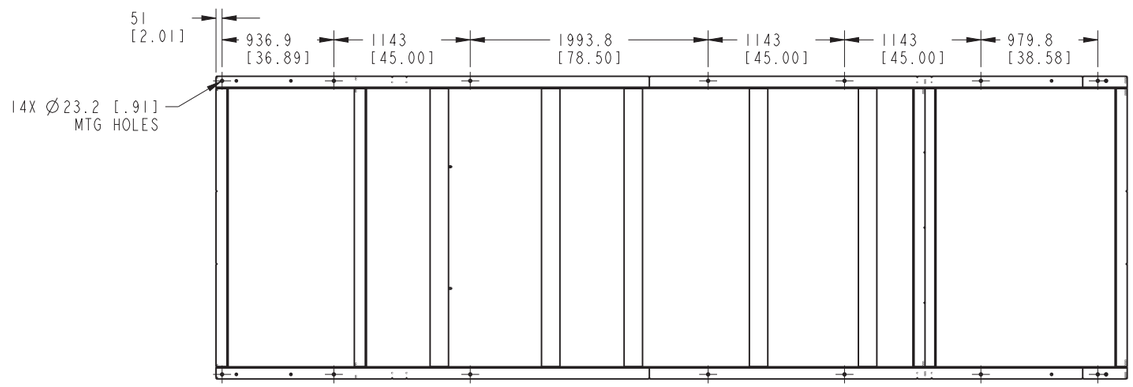
SCALE 0.04 | CAD NO. | SHEET 7 of 10

DWG NO. ADV-8919

D







LIFTING BASE FOR ENCLOSURE SL2
BOTTOM VIEW

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL □ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
-	7-28-16	NEW DRAWING [CTI60284]	RMJ
A	3-23-17	SEE SHEET 5,7 & 8 [CTI72499]	PAS
B	3-29-17	(D-1,5) DIM 2460 [96.9] ADDED;SEE SHEET 7 & 8	
		[CTI72948]	KMP
C	7-24-17	SEE SHEET 1 & 3 [CTI76858]	MVT
D	13-12-17	SEE SHEET 5 [CTI82350]	RVM
E	4-22-19	(A-2) TOLERANCES REMOVED [CTI94818]	SUD

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCES: N/A

MAX.

THIRD ANGLE PROJECTION

APPROVALS		DATE (M-D-Y)
DRAWN	RMJ	7-28-16
CHECKED	RMJ	7-28-16
APPROVED	BLM	7-28-16

KOHLER CO. SDMO

KOHLER POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
SDMO, CS 92848, 29228 BREST CEDEX 2, FRANCE

METRIC
PRO-E

TITLE: DIMENSION PRINT KD800-1000
TANK & ENCLOSURE

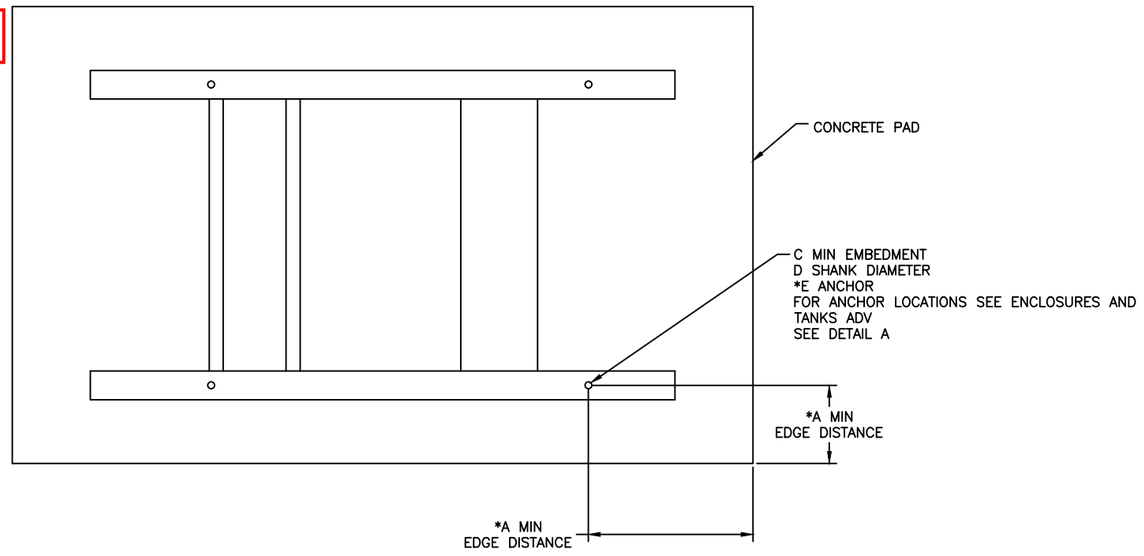
SCALE 0.04 | CAD NO. | SHEET 9 of 10

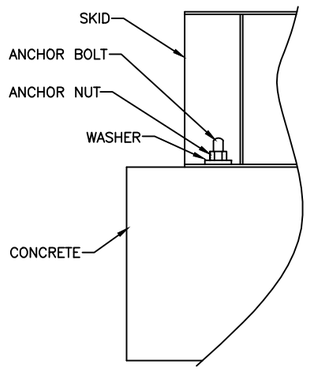
DWG NO. ADV-8919 | D

HORIZNATAL DESIGN ≤ 1.500g, (Sds≤2.0, z/h=0.0) (Sds≤.667g, z/h≤1.0) PER IBC 2015 CODE

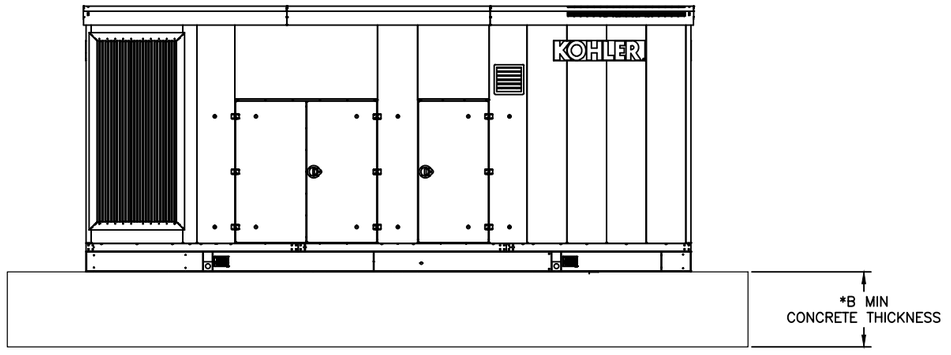
Model	Anchor Quantity	A Min	B Min	C Min	D	E Anchor
KD800	14	381 [15.0]	305 [12.0]	211 [8.3]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD900	14	381 [15.0]	305 [12.0]	211 [8.3]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1000	14	381 [15.0]	305 [12.0]	211 [8.3]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1250	16	406 [16.0]	330 [13.0]	221 [8.7]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1250–A	16	406 [16.0]	330 [13.0]	221 [8.7]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1350	16	406 [16.0]	330 [13.0]	221 [8.7]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1500	16	406 [16.0]	330 [13.0]	221 [8.7]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1600	16	406 [16.0]	330 [13.0]	221 [8.7]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1750	16	406 [16.0]	330 [13.0]	221 [8.7]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD2000	20	483 [19.0]	533 [21.0]	188 [7.4]	19.1 [.75]	HIT–HY200 + HAS – EB7
KD2250	20	483 [19.0]	533 [21.0]	188 [7.4]	19.1 [.75]	HIT–HY200 + HAS – EB7
KD2500	20	483 [19.0]	533 [21.0]	188 [7.4]	19.1 [.75]	HIT–HY200 + HAS – EB7

REV	DATE	REVISION	BY
–	6–1–17	NEW DRAWING [CT175196]	SSS
A	12–6–18	(D–6,7,8) TABLE UPDATED; SEE SHEET 1, 2, 3, 5 & 6	
		[CT192361]	SLR





DETAIL A



FOR KD800–KD2500 WITH SL2 ENCLOSURE, NO TANK
REFER TO ENCLOSURE & TANKS ADV FOR MOUNTING LOCATIONS

NOTE:
1) SPECIAL INSPECTION PER IBC SECTION 1704 IS REQUIRED ON ALL INSTALLATIONS. ALL ANCHORS MUST BE INSTALLED TO MEET COMPLIANCE

2) NO OTHER ANCHORS ARE ALLOWED WITHIN MINIMUM SPACING DISTANCE WITHOUT ADVANCED APPROVAL OF THE STRUCTURAL PROJECT ENGINEER OF RECORD.

3) REFER TO VMA–50771–01C FOR CERTIFICATION REPORT.

4) *SEE NOTES ON SHEET 6

METRIC CAD FILE

DIMENSIONS IN [ ] ARE INCH EQUIVALENT

KD SERIES SEISMIC INSTRUCTION

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 SSS	6–1–17
CHECKED JDZ	6–1–17
APPROVED TAS	6–1–17

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

TITLE: DIMENSION PRINT SEISMIC INSTRUCTION

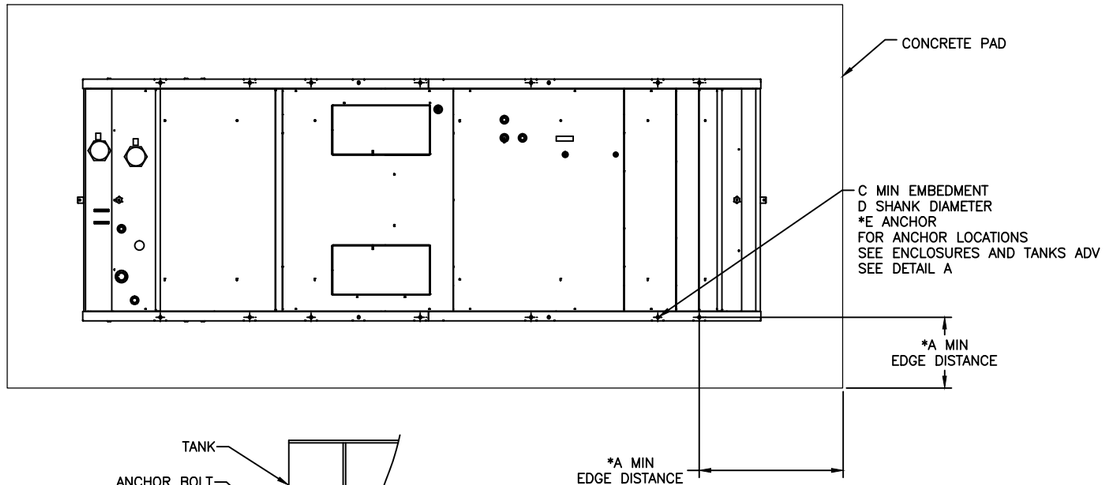
SCALE | CAD NO. | SHEET 4–6

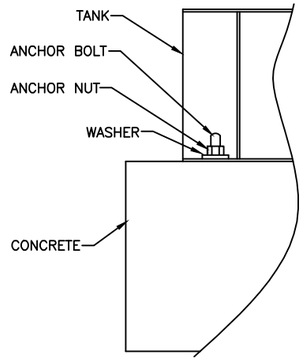
DWG. NO. ADV–8870 | D

PLOTTED DATE

HORIZNATAL DESIGN ≤ 1.500g, (Sds≤2.0, z/h=0.0) (Sds≤.667g, z/h≤1.0) PER IBC 2015 CODE								
Model	Fuel Tank Capacity [Liters]	Fuel Tank Capacity [Gallons]	Anchor Quantity	A Min	B Min	C Min	D	E Anchor
KD800	3475, 6620, 10572, 12969, 15740	918, 1749, 2793, 3426, 4158	20	406 [16.0]	330 [13.0]	112 [4.4]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD800	19381	5120	24	457 [18.0]	356 [14.0]	239 [9.4]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD900	3475, 6620, 10572, 12969, 15740	918, 1749, 2793, 3426, 4158	20	406 [16.0]	330 [13.0]	112 [4.4]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD900	19381	5120	24	457 [18.0]	356 [14.0]	239 [9.4]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1000	3475, 6620, 10572, 12969, 15740	918, 1749, 2793, 3426, 4158	20	406 [16.0]	330 [13.0]	112 [4.4]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1000	19381	5120	24	457 [18.0]	356 [14.0]	239 [9.4]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1250	5863, 9861, 11203	1549, 2605, 2960	18	356 [14.0]	254 [10.0]	173 [6.8]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1250	19215, 21986	5076, 5808	24	330 [13.0]	229 [9.0]	94 [3.7]	22.2 [.88]	HIT–HY200 + HAS – E
KD1250–A	5863, 9861, 11203	1549, 2605, 2960	18	356 [14.0]	254 [10.0]	173 [6.8]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1250–A	19215, 21986	5076, 5808	24	330 [13.0]	229 [9.0]	94 [3.7]	22.2 [.88]	HIT–HY200 + HAS – E
KD1350	5863, 9861, 11203	1549, 2605, 2960	18	356 [14.0]	254 [10.0]	173 [6.8]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1350	19215, 21986	5076, 5808	24	330 [13.0]	229 [9.0]	94 [3.7]	22.2 [.88]	HIT–HY200 + HAS – E
KD1500	5863, 9861, 11203	1549, 2605, 2960	18	356 [14.0]	254 [10.0]	173 [6.8]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1500	19215, 21986	5076, 5808	24	330 [13.0]	229 [9.0]	94 [3.7]	22.2 [.88]	HIT–HY200 + HAS – E
KD1600	5863, 9861, 11203	1549, 2605, 2960	18	356 [14.0]	254 [10.0]	173 [6.8]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1600	19215, 21986	5076, 5808	24	330 [13.0]	229 [9.0]	94 [3.7]	22.2 [.88]	HIT–HY200 + HAS – E
KD1750	5863, 9861, 11203	1549, 2605, 2960	18	356 [14.0]	254 [10.0]	173 [6.8]	22.2 [.88]	HIT–HY200 + HAS – EB7
KD1750	19215, 21986	5076, 5808	24	330 [13.0]	229 [9.0]	94 [3.7]	22.2 [.88]	HIT–HY200 + HAS – E
KD2000	8578, 14131, 16383	2266, 3733, 4328	24	610 [24.0]	533 [21.0]	432 [17]	22.2 [.88]	HIT–RE500V3 + HAS–EB7
KD2250	8578, 14131, 16383	2266, 3733, 4328	24	610 [24.0]	533 [21.0]	432 [17]	22.2 [.88]	HIT–RE500V3 + HAS–EB7
KD2500	8578, 14131, 16383	2266, 3733, 4328	24	610 [24.0]	533 [21.0]	432 [17]	22.2 [.88]	HIT–RE500V3 + HAS–EB7

REV	DATE	REVISION	BY
–	6–1–17	NEW DRAWING [CT175196]	SSS
A	12–6–18	(D–5,6,7,8) TABLE UPDATED; SEE SHEET 1, 2, 3, 4 & 6	
		[CT192361]	SLR





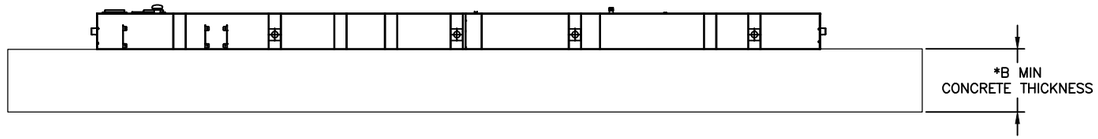
DETAIL A

NOTE:
1) SPECIAL INSPECTION PER IBC SECTION 1704 IS REQUIRED ON ALL INSTALLATIONS. ALL ANCHORS MUST BE INSTALLED TO MEET COMPLIANCE

2) NO OTHER ANCHORS ARE ALLOWED WITHIN MINIMUM SPACING DISTANCE WITHOUT ADVANCED APPROVAL OF THE STRUCTURAL PROJECT ENGINEER OF RECORD.

3) REFER TO VMA–50771–01C FOR CERTIFICATION REPORT.

4) *SEE NOTES ON SHEET 6



FOR KD800–KD2500 ON TANK, (TO BE USED FOR UNITS WITH NO ENCLOSURE, SL1 OR SL2 ENCLOSURE)
REFER TO ENCLOSURE & TANKS ADV FOR MOUNTING LOCATIONS

KD SERIES SEISMIC INSTRUCTION

METRIC CAD FILE

DIMENSIONS IN [ ] ARE INCH EQUIVALENT

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 SSS	6–1–17
CHECKED JDZ	6–1–17
APPROVED TAS	6–1–17

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

TITLE: DIMENSION PRINT SEISMIC INSTRUCTION

SCALE | CAD NO. | SHEET 5–6

DWG. NO. ADV–8870 | D

PLOTTED DATE

REV	DATE	REVISION	BY
–	6-1-17	NEW DRAWING [CT175196]	SSS
A	12-6-18	SEE SHEET 1, 2, 3, 4 & 5 [CT192361]	SLR

SEISMIC INSTALLATION REQUIREMENTS:

The following are requirements for seismic installation:

1. The design of post–installed anchors in concrete used for the component anchorage is pre–qualified for seismic applications in accordance with ADI 355.2 and documented in a report by a reputable testing agency. (ex. The Evaluation Service Report issued by the International code Council)
2. Anchors must be installed to an embedment depth as recommended in the pre–qualification test report as defined in Note 1.
3. Anchors must be installed in minimum 4000 psi compressive strength normal weight concrete. Concrete aggregate must comply with ASTM C33. Installation in structural lightweight concrete is not permitted unless otherwise approved by the structural engineer of record.
4. Anchors must be installed to the torque specification as recommended by the anchor manufacturer to obtain maximum loading
5. Anchors must be installed in the locations specified the Kohler ADV dimension print.
6. Anchor bolt design loads or specific anchors are specified on seismic Kohler ADV.
7. Concrete floor slab and concrete housekeeping pads must be designed and rebar reinforced for seismic applications in accordance with ACI 318.
8. All housekeeping pad thickness must be designed in accordance with pre–qualification test report as defined in Note 1 or a minimum of 1.5x the anchor embedment depth, whichever is smaller.
9. All housekeeping pads must be doweled or cast into the building structural floor slab and designed for seismic application per ACI 318 and as approved by the structural engineer of record
10. Wall mounted equipment must be installed to a rebar reinforced structural concrete wall that is seismically designed and approved by the engineer of record to resist the added seismic loads from the components being anchored to the wall.
11. Floor mounted equipment (with or without housekeeping pad) must be installed to a rebar reinforced structural concrete floor that is seismically designed and approved by the engineer of record to resist the added seismic loads from components being anchored to the floor.
12. When installing to a floor or wall, rebar interference must be considered.
13. Attaching seismic certified equipment to any floor or wall other than those constructed of structural concrete and designed to accept the seismic loads form said equipment is not permitted by this specification and beyond the scope of this certification.
14. Attaching seismic certified equipment to any concrete block walls or cinder block walls is not permitted by this specification and beyond the scope of this certification.
15. For installations upon rooftop, steel dunnage shall be coordinated with the Structural Engineer of Record.
16. Installation upon only rooftop curb shall be coordinated with the curb manufacturer and the Structural Engineer of Record. Any curb or concrete pad that supports the RTU unit is beyond the scope of this certification.
17. Anchor locations, size, type and load requirements are specified on the installation drawing. Mounting requirements details such as brand, type, embedment depth, edge spacing, anchor spacing, concrete strength, wall bracing, and special inspection must be outlined and approved by the project Structural Engineer of Record to withstand the seismic anchor loads as defined on the seismic installation drawing. The installing contractor is responsible for the proper installation of all anchors and mounting hardware, observing the mounting requirement details outlined by the Engineer of Record. Contact Kohler if a detail Seismic Installation Calculation Package is required.
18. Electrical wiring, piping, duct and other connections to the equipment is the responsibility of the installing contractor. It is necessary that these remain in tact, functional and do not inhibit the functionality of the generator set after a seismic event. Adequate slack shall be allowed cable and piping to allow for motions of set during a seismic event.

*19. Concrete pad dimensions are minimum values to satisfy only the anchor bolt requirements. The pad must be designed by the project structural engineer of record.

*20. Anchor bolt and concrete recommendations are for the maximum seismic design levels shown. If the specific application has a lower level, thinner concrete or alternate anchors may be acceptable. Consult Kohler.

METRIC CAD FILE

KD SERIES SEISMIC INSTRUCTION

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 SSS	6-1-17
CHECKED JDZ	6-1-17
APPROVED TAS	6-1-17

PLOTTED DATE

TITLE: DIMENSION PRINT
SEISMIC INSTRUCTION

SCALE | CAD NO. | SHEET 6-6

DWG. NO. ADV-8870 | D

KOHLER®

Wiring Schematics

No.	PART NUMBERS	DESCRIPTION	OPT	FLD
1	3-16-07-7437-01	MACHINE HARNESS	.	.
2	11372761	ENGINE HARNESS	.	.
3	–	BATTERY CABLES	.	.
4	–	REGULATION LINES, PARALLELING	X	.
5	GM100951	VOLTAGE SENSE LINES, <480V	.	.
6	–	BUS SENSE LINES, PARALLELING	X	.
7	–	FIELD WIRES	.	X
8	–	ETHERNET CABLE, PARALLELING	X	.
9	GM101345	BATTERY FAULT CABLES	X	.
10	GM101343	BATTERY CHARGE CABLES	.	.
11	GM100874	PEDESTAL HARNESS	.	.
12	GM100877	A/C VOLTAGE SENSE	.	.
13	GM100263	V12 RELAY HARNESS	.	.
14	GM100264	GRID HEATER LEADS	.	.
15	GM101775	FUEL TANK HARNESS	.	.
16	GM102742	GFI HARNESS	.	.

REV	DATE	REVISION	BY	APP'D
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	(A-6) REMOVED "N/A"; (C-6) REMOVED "5031" [CT190675]	PRH	

GENERATOR CONTROLLER

APM 802
PAGE 7&8

INTERNAL HARNESSES
GM100874
GM101347

GENERATING ALTERNATOR

VOLTAGE REGULATOR DER2 PAGE2 9 & 10

EXCITER

ALTERNATOR PAGE 9

BREAKER BOX

PAGE 9

BUS TO LOAD

ETHERNET TO GENSET X PAGE 8

BFG & BFS

MASTER ECU 700
ENGINE CONTROL UNIT 1

A PAGE 3

B PAGE 2

ECU 2HD

C PAGE 4

D PAGE 5

FUSEBOX

PAGE 2

30S1

STARTER 1

HEF109-MP24
PAGE 3

SS SM SS

50 31

CHARGER(S)

1 MSM-20-24V-U1
2 .
3 .
4 .
PAGE 6

130 131

ENGINE

KD27V12

LEGEND

BCA – BATTERY CHARGING ALTERNATOR
CT# – CURRENT TRANSFORMER #
ECU – ENGINE CONTROL UNIT
ESS – EMERGENCY STOP SWITCH
D# – DIODE #
GFR – GROUND FAULT RELAY
HMI – HUMAN MACHINE INTERFACE
K# – RELAY CONTACT #
R# – RESISTOR #
SM – STARTER MOTOR
SS – STARTER SOLENOID
TB# – TERMINAL BLOCK #
– ENGINE BLOCK GROUND
– EARTH GROUND

APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH 125 MAX.
.X ± .060
FRACTIONS ±

APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw

SCALE: NONE | CAD NO.: ADV-8968.DWG | SHEET: 1–10

PLOTTED | DWG. NO.: ADV-8968 | D

REV	DATE	REVISION	BY	W F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	(C-6) ADDED F21, F22, & F23 [CT190675]	PRH	

BREAKER BOX

TO GFI RELAY SEE PAGE 7 (AA)

BREAKER OPTIONAL

GROUND BUS

NEUTRAL BUS

BONDING JUMPER

NOTE:
WHEN ORDERING GFI OPTION (2) 4/0 CABLES WILL BE USED IN PLACE OF COPPER BUS BAR JUMPER (SEE PICK LIST)

TO LOAD

026A06 REGULATION MODULE

BUS CAN 1

CAN3 TO 081A02 SEE PAGE 8 (AB)

WHT G (CAN SHIELD)
GRN L (CAN LO (–))
YEL H (CAN HI (+))
TWISTED PAIR CABLE

REGULATION MODULE ON OFF 1 2 3 4

24V+ SUPPLY SEE PAGE 7 (U) 30A4

24V– SUPPLY SEE PAGE 7 (T) 31G

24VDC SUPPLY

GENERATOR VOLTAGE SENSE L1 L2 L3 N

GENERATOR CURRENT SENSE I4 I3 I2 I1

BUS VOLTAGE SENSE L1 L2 L3

VOLTAGE REG 1 + –

ALTERNATOR ASSEMBLY

L1A 6A F21 L1
L2A 6A F22 L2
L3A 6A F23 L3
N

S2 S31 S21 S11

CT3 • CT1 • CT2 •

STAT (12 LEAD)

MAIN FIELD ROTOR

ROTATING EXCITATION CIRCUITRY

EXCITER ARMATURE (ROTATING)

EXCITER FIELD (STATIONARY)

PMG

WHITE RED N/C BLK 60Hz

PHASE ROTATION

A	B	C
L1	L2	L3

PD400 CIRCUITRY

TB–ALT

GRN YEL RED GRN GRN BLK

JUMPER (GRN)

COIL

YEL RED GRN BLK WHT BLU BLK

WHT BLU BLK

JUMPER JUMPER1 JUMPER2 JUMPER JUMPER BLK BLK BLK GRN WHT BLU YEL

01506 VOLTAGE REGULATOR

CN3 CN1

23 24 (60 Hz) 25 26 27 28 29 (0EXT) 30 31 32 (+/–10V)

REMOTE VOLTAGE BIAS 100– 100+

NOTE:
REMOVE JUMPER 1 & JUMPER 2 FOR REMOTE VOLTAGE BIAS

APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL
480 VOLT

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

APPROVALS		DATE
DRAWN	PRH	2-16-17
CHECKED	TLK	2-17-17
APPROVED	JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw

SCALE: NONE | CAD NO.: ADV–8968.DWG | SHEET: 10–10

PLOTTED | DWG. NO.: ADV–8968 | D

REV	DATE	REVISION	BY	W F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	EDITED CAN SHIELD TO CONNECT ECU1B-32,PC-C10-MOT-38,		
		PC-C10-MOT-41, & C-DIAG-SHIELD [CT190675]	PRH	

P-CODE B
ECU1 CONTROLLER CONNECTOR B

01–CONTROLLER POWER	ECU1B–01
02–SPEED ADJUST	ECU1B–W3–35
03–.	.
04–.	.
05–LOW COOLANT LEVEL	ECU1B–05
06–START SWITCH 1	ECU1B–06
07–.	.
08–.	.
09–CAN 1	ECU1B–10
10–CAN 2	ECU1B–10
11–DIAGNOSIS CAN L	ECU1B–W1–11
12–.	.
13–BATTERY–	ECU1B–13
14–.	.
15–SUPPLY	ECU1B–15
16–SPEED ADJUST	ECU1B–W3–49
17–.	.
18–.	.
19–LOW COOLANT LEVEL	ECU1B–19
20–IDLE SWITCH	ECU1B–20
21–START SWITCH 2	ECU1B–21
22–.	.
23–CAN L	ECU1B–W2–23
24–DIAG CAN1	ECU1B–25
25–DIAG CAN2	ECU1B–25
26–DIAGNOSIS CAN H	ECU1B–W1–26
27–BATTERY+ ECU POWER	ECU1B–27
28–.	.
29–AIR HEATER	ECU1B–29
30–IGNITION	ECU1B–30B
31–SPEED ADJUST	ECU1B–W3–57
32–GND	.
33–LOW COOLANT LEVEL	ECU1B–33B
34–.	.
35–SHUTDOWN OVERRIDE	ECU1B–35
36–.	.
37–CAN H	ECU1B–W2–37
38–.	.
39–.	.
40–BATTERY–	ECU1B–40
41–BATTERY+ ECU POWER	ECU1B–41
42–.	.
43–AIR HEATER	ECU1B–43
44–ALARM FAULT	ECU1B–44
45–.	.
46–OVER SPEED SHUTDOWN	ECU1B–46
47–.	.
48–.	.
49–OVER SPEED TEST	ECU1B–49
50–ECU STATUS INDICATOR	ECU1B–50
51–.	.
52–.	.
53–.	.
54–.	.
55–BATTERY+ ECU POWER	ECU1B–55
56–.	.
57–DROOP ACTIVATION	ECU1B–57
58–ALARM FAULT	ECU1B–58
59–.	.
60–AIR HEATER	ECU1B–60X2
61–AIR HEATER	ECU1B–61X2
62–.	.
63–.	.
64–.	.
65–.	.
66–.	.
67–.	.
68–.	.
69–BATTERY–	ECU1B–69
70–.	.

FUSEBOX

ECU1B–01	5A F6		31C
ECU1B–55	15A F5		31CH–1
30A	15A F4		114
ECU1B–41	15A F3		ECU1B–69
30C	20A F2		ECU1B–40
ECU1B–27	15A F1		31A
			ECU1B–15
			ECU1B–13
			31D

30 31 30CH–1

DIAGNOSTIC CONNECTOR C–DIAG

31A	A (BATT–)
30A	B (BATT+)
ECU1B–W1–26	C (CAN H)
ECU1B–W1–11	D (CAN L)
	SHIELD

TWISTED PAIR CABLE

COOLANT LEVEL SENDER C3

ECU1B–05	A
ECU1B–33B	B
ECU1B–19	C

TWISTED TRIPLE CABLE

BATTERY SEE PAGE 6 (A) — 30 M700 — A700.X4:61<>STARTER.SS:50 (G) START SIGNAL SEE PAGE 5

30 SS 50 + SM SS – 31 31 56 STARTER

(B) GROUND SEE PAGE 6

BCA B+ B D+ 31B 61

FERRITE

P–C10–MOT
GENERATOR CONTROLLER CONNECTOR

30C	01–FUSED POWER
30CH–1	02–BATTERY+
.	03–.
31C	04–BATTERY–
31CH–1	05–BATTERY–
.	06–.
ECU1B30B	11–IGNITION
ECU1B–06	12–START SWITCH 1
ECU1B–21	13–START SWITCH 2
ECU1B–20	14–IDLE SWITCH
ECU1B–35	15–SHUTDOWN OVERRIDE
ECU1B–49	16–OVER SPEED TEST
ECU1B–57	17–DROOP ACTIVATION
61	18–BCA EXCITATION
.	19–A1
.	20–A2
.	21–.
.	22–.
.	23–.
.	24–.
.	25–.
.	26–.
.	27–.
.	28–.
ECU1B–44	29–ALARM FAULT
ECU1B–58	30–ALARM FAULT
ECU1B–46	31–OVER SPEED SHUTDOWN
178	32–FUEL LEVEL
115	33–TANK LEAK ALARM
.	34–.
ECU1B–W3–35	35–SPEED ADJUST
ECU1B–W3–49	36–SPEED ADJUST
ECU1B–W3–57	37–SPEED ADJUST
.	38–SHIELD
.	39–.
.	40–.
.	41–SHIELD
ECU1B–W2–23	42–CAN L
ECU1B–W2–37	43–CAN H
.	44–.
.	45–.
.	46–.

TWISTED TRIPLE CABLE

TWISTED PAIR CABLE

STATUS GRN 31D SILVER TERM

FUEL LEVEL SENSOR

TANK LEVEL SWITCH 178 115 GND

C6' C6 LOW FUEL CONTROL

1	178	178
2	115	115
3	GND	114

BATTERY POSITIVE SEE PAGE 6 (A) RED

AIR HEATER C4 C4'

ECU1B–43	1	1B43
ECU1B–60x2	2	1B60
ECU1B–29	3	1B29
ECU1B–61x2	4	1B61

K1 COM NO COIL–A5 K2 COM NO COIL–A5

A1 (K1) A2 K1N CONTACTS–A5

A1 (K2) A2 K2N CONTACTS–A5

AIR HEATER1 AIR HEATER2 CASE GROUNDED

BATTERY GROUND SEE PAGE 6 (B) BLK

APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

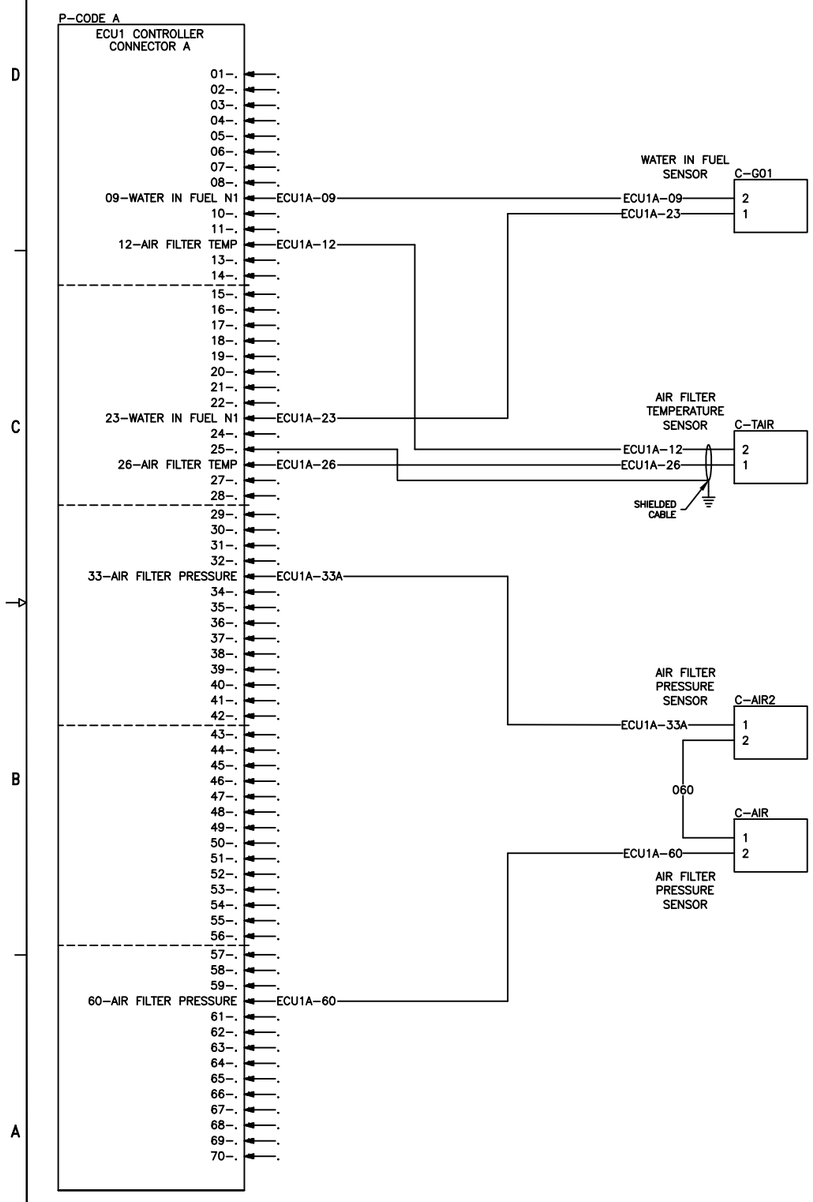
UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: XXX ± .010 XX ± .020 X ± .060 FRACTIONS ± ANGLES ± 1/2° SURFACE FINISH MAC.

APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw
SCALE: NONE CAD NO.: ADV–8968.DWG SHEET: 2–10
PLOTTED PRN NO.: ADV–8968 D

REV	DATE	REVISION	BY	W/F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	(C-8) 25-GND WAS 25-. [CT190675]	PRH	



APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH 125 MAX.
.X ± .060
FRACTIONS ±

APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

TITLE: DIAGRAM, SCHEMATIC
800-1000kw

SCALE NONE | CAD NO. ADV-8968.DWG | SHEET 3-10
PLOTTED | DWG. NO. ADV-8968 | D

REV	DATE	REVISION	BY	W F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	(A-5) 0.5-4.5bar/a WAS 0.0-4.5bar/a; (D-6) ADDED		
		"(50HZ ONLY)" [CT190675]	PRH	

P-CODE C
ECU1 CONTROLLER
CONNECTOR C

01-.	.
02-.	.
03-.	.
04-.	.
05-.	.
06-.	.
07-HP PUMP 1 VCV +	A700.X3:07<>Y703.X2
08-HP PUMP 1 PCV –	A700.X3:08<>Y707.X2
09-WASTE-GATE VALVE1 GND	A700.X3:09<>Y705.X2
10-WASTE-GATE VALVE1 PWM	A700.X3:10<>Y705.X1
11-.	.
12-.	.
13-.	.
14-.	.
15-.	.
16-.	.
17-OIL PRESSURE GROUND	A700.X3:17<>B701.X2
18-CHARGING AIR GROUND	A700.X3:18<>B715.X1
19-FUEL PRESSURE GROUND	A700.X3:19<>B702.X2
20-.	.
21-HP PUMP 1 VCV –	A700.X3:21<>Y703.X1
22-HP PUMP 1 PCV +	A700.X3:22<>Y707.X1
23-.	.
24-.	.
25-.	.
26-.	.
27-.	.
28-.	.
29-.	.
30-.	.
31-.	.
32-CHARGING AIR PRES INPUT	A700.X3:32<>B715.X4
33-FUEL PRESSURE INPUT	A700.X3:33<>B702.X3
34-RAIL PRESSURE1 GROUND	A700.X3:34<>B704.X2
35-RAIL PRESSURE2 GROUND	A700.X3:35<>B705.X2
36-.	.
37-.	.
38-COOLANT TEMP GROUND	A700.X3:38<>B708.X1
39-.	.
40-.	.
41-.	.
42-.	.
43-.	.
44-.	.
45-OIL PRESSURE INPUT	A700.X3:45<>B701.X3
46-CHARGING AIR POWER	A700.X3:46<>B715.X3
47-.	.
48-RAIL PRESSURE1 INPUT	A700.X3:48<>B704.X1
49-RAIL PRESSURE2 INPUT	A700.X3:49<>B705.X1
50-.	.
51-.	.
52-FUEL TEMP GROUND	A700.X3:52<>B709.X1
53-.	.
54-.	.
55-.	.
56-.	.
57-.	.
58-.	.
59-OIL PRESSURE POWER	A700.X3:59<>B701.X1
60-FUEL PRESSURE POWER	A700.X3:60<>B702.X1
61-.	.
62-RAIL PRESSURE1 POWER	A700.X3:62<>B704.X3
63-RAIL PRESSURE2 POWER	A700.X3:63<>B705.X3
64-.	.
65-CHARGING AIR TEMP INPUT	A700.X3:65<>B715.X2
66-FUEL TEMP INPUT	A700.X3:66<>B709.X2
67-COOLANT TEMP INPUT	A700.X3:67<>B708.X2
68-.	.
69-.	.
70-.	.

HP PUMP PUMP 1 VCV — Y703
A700.X3:21<>Y703.X1 — 1 GND
A700.X3:07<>Y703.X2 — 2 PWM
TWISTED PAIR CABLE

HP PUMP PUMP 1 PCV (50HZ ONLY) — Y707
A700.X3:22<>Y707.X1 — 1 GND
A700.X3:08<>Y707.X2 — 2 PWM
TWISTED PAIR CABLE

WASTE-GATE CONTROL VALVE — Y705
A700.X3:10<>Y705.X1 — 1 PWM
A700.X3:09<>Y705.X2 — 2 GND
TWISTED PAIR CABLE

OIL PRESSURE SENSOR — B701
0.0–12.0bar/g p
1 OUT — A700.X3:59<>B701.X1
2 GND — A700.X3:17<>B701.X2
3 +5V — A700.X3:45<>B701.X3
U 0.5–4.5
TWISTED TRIPLE CABLE

.
0.0bar/g=0.5V
3.0bar/g=1.5V
6.0bar/g=2.5V
9.0bar/g=3.5V
12.0bar/g=4.5V

FUEL PRESSURE SENSOR — B702
0.0–12.0bar/g p
1 OUT — A700.X3:60<>B702.X1
2 GND — A700.X3:19<>B702.X2
3 +5V — A700.X3:33<>B702.X3
U 0.5–4.5
TWISTED TRIPLE CABLE

.
0.0bar/g=0.5V
3.0bar/g=1.5V
6.0bar/g=2.5V
9.0bar/g=3.5V
12.0bar/g=4.5V

RAIL PRESSURE SENSOR 1 — B704
0–2850bar/g p
1 OUT — A700.X3:48<>B704.X1
2 GND — A700.X3:34<>B704.X2
3 +5V — A700.X3:62<>B704.X3
U 0.5–4.5
TWISTED TRIPLE CABLE

0.0bar/g=0.5V
200bar/g=0.78V
800bar/g=1.62V
1200bar/g=2.18V
1600bar/g=2.74V
1800bar/g=3.02V
2400bar/g=3.86V
2850bar/g=4.5V

RAIL PRESSURE SENSOR 2 — B705
0–2850bar/g p
1 OUT — A700.X3:49<>B705.X1
2 GND — A700.X3:35<>B705.X2
3 +5V — A700.X3:63<>B705.X3
U 0.5–4.5
TWISTED TRIPLE CABLE

0.0bar/g=0.5V
200bar/g=0.78V
800bar/g=1.62V
1200bar/g=2.18V
1600bar/g=2.74V
1800bar/g=3.02V
2400bar/g=3.86V
2850bar/g=4.5V

COOLANT TEMPERATURE SENSOR — B708
Tmax 150C T
1 GND — A700.X3:38<>B708.X1
2 SIG R — A700.X3:67<>B708.X2
TWISTED PAIR CABLE

–40C=75K762
–20C=21K855
0C=7K351
20C=2K812
40C=1K99
60C=0K560.2
100C=0K153.1
150C=0K41.72

FUEL TEMPERATURE SENSOR — B709
Tmax 150C T
1 GND — A700.X3:52<>B709.X1
2 SIG R — A700.X3:66<>B709.X2
TWISTED PAIR CABLE

CHARGING AIR TEMP/PRESS SENSOR — B715
1 GND — A700.X3:18<>B715.X1
2 SIG — A700.X3:65<>B715.X2
t
0.5–4.5bar/g p
3 +5V — A700.X3:46<>B715.X3
4 SIG — A700.X3:32<>B715.X4
U 0.7–4.5
DUAL TWISTED PAIR CABLE

.
.
.
.
.
.
.
.

–40C to 130C
.
25C=1990R
100C=180R
.
.

APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL
.
.

UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XX± .010 .XXX± .005 ANGLES± 1/2° FRACTIONS ± SURFACE FINISH 125 MAX.

APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

TITLE: DIAGRAM, SCHEMATIC 800–1000kw
SCALE: NONE | CAD NO.: ADV-8968.DWG | SHEET: 4–10
PLOTTED | DWG. NO.: ADV-8968 | D

REV	DATE	REVISION	BY	W F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	(D-6) ADDED X700.S; (B-5) CHANGED TABLES FOR B711 & B713 [CT190675]	PRH	

P-CODE D

ECU1 CONTROLLER CONNECTOR D

01–.	.
02–.	.
03–.	.
04–HP PUMP2 PCV PWM–	A700.X4:04<>Y708.X2
05–STARTER 2	A700.X4:05<>X700.S:1
06–.	.
07–HP PUMP2 PCV PWM+	A700.X4:07<>Y708.X1
08–.	.
09–INJECTOR CYL4 GROUND	A700.X4:09<>Y734.X2
10–INJECTOR CYL6 GROUND	A700.X4:10<>Y736.X2
11–INJECTOR CYL2 GROUND	A700.X4:11<>Y732.X2
12–INJECTOR CYL9 PWM+	A700.X4:12<>Y739.X1
13–INJECTOR CYL7 PWM+	A700.X4:13<>Y737.X1
14–INJECTOR CYL11 PWM+	A700.X4:14<>Y741.X1
15–.	.
16–.	.
17–.	.
18–.	.
19–.	.
20–.	.
21–.	.
22–.	.
23–INJECTOR CYL9 GROUND	A700.X4:23<>Y739.X2
24–INJECTOR CYL7 GROUND	A700.X4:24<>Y737.X2
25–INJECTOR CYL11 GROUND	A700.X4:25<>Y741.X2
26–INJECTOR CYL4 PWM+	A700.X4:26<>Y734.X1
27–INJECTOR CYL6 PWM+	A700.X4:27<>Y736.X1
28–INJECTOR CYL2 PWM+	A700.X4:28<>Y732.X1
29–OIL TEMPERATURE INPUT	A700.X4:29<>B751.X1
30–OIL TEMPERATURE GROUND	A700.X4:30<>B751.X2
31–.	.
32–.	.
33–.	.
34–SPEED GROUND	A700.X4:34<>B711.X1
35–SPEED POWER	A700.X4:35<>B711.X3
36–.	.
37–.	.
38–.	.
39–.	.
40–.	.
41–.	.
42–.	.
43–.	.
44–.	.
45–.	.
46–.	.
47–PHASE GROUND	A700.X4:47<>B713.X1
48–HP PUMP2 VCV PWM+	A700.X4:48<>Y704.X2
49–HP PUMP2 VCV PWM–	A700.X4:49<>Y704.X1
50–.	.
51–INJECTOR CYL5 GROUND	A700.X4:51<>Y735.X2
52–INJECTOR CYL3 GROUND	A700.X4:52<>Y733.X2
53–INJECTOR CYL1 GROUND	A700.X4:53<>Y731.X2
54–INJECTOR CYL8 PWM+	A700.X4:54<>Y738.X1
55–INJECTOR CYL10 PWM+	A700.X4:55<>Y740.X1
56–INJECTOR CYL12 PWM+	A700.X4:56<>Y742.X1
57–PHASE INPUT	A700.X4:57<>B713.X2
58–.	.
59–SPEED INPUT	A700.X4:59<>Y711.X2
60–.	.
61–STARTER 1	A700.X4:61<>STARTER.SS:50
62–PHASE POWER	A700.X4:62<>B713.X3
63–.	.
64–.	.
65–INJECTOR CYL8 GROUND	A700.X4:65<>Y738.X2
66–INJECTOR CYL10 GROUND	A700.X4:66<>Y740.X2
67–INJECTOR CYL12 GROUND	A700.X4:67<>Y742.X2
68–INJECTOR CYL5 PWM+	A700.X4:68<>Y735.X1
69–INJECTOR CYL3 PWM+	A700.X4:69<>Y733.X1
70–INJECTOR CYL1 PWM+	A700.X4:70<>Y731.X1

OPTIONAL START SIGNAL X700.S

A700.X4:05<>X700.S:1 — 1 — 2

HP PUMP PUMP 2 PCV Y708

A700.X4:07<>Y708.X1 — 1 PWM+
A700.X4:04<>Y708.X2 — 2 PWM–
TWISTED PAIR CABLE

OIL TEMPERATURE SENSOR B751

Tmax 150C T

A700.X4:29<>B751.X1 — 1 SIG
A700.X4:30<>B751.X2 — 2 GND R
TWISTED PAIR CABLE

–40C=75K762
–20C=21K855
0C=7K351
20C=2K812
40C=1K99
60C=0K560.2
100C=0K153.1
150C=0K41.72

SPEED SENSOR B711

n

A700.X4:34<>B711.X1 — 1 GND
A700.X4:59<>B711.X2 — 2 0–5V
A700.X4:35<>B711.X3 — 3 +12V
TWISTED TRIPLE CABLE

V MAX: 20V
HIGH-MIN: 5M1V
LOW-MAX: 111.2V
10HZ – 10KHZ

HP PUMP PUMP 2 VCV Y704

A700.X4:49<>Y704.X1 — 1 PWM–
A700.X4:48<>Y704.X2 — 2 PWM+
TWISTED PAIR CABLE

PHASE SENSOR B713

n

A700.X4:47<>B713.X1 — 1 GND
A700.X4:57<>B713.X2 — 2 0–5V
A700.X4:62<>B713.X3 — 3 +12V
TWISTED TRIPLE CABLE

V MAX: 20V
HIGH-MIN: 5M1V
LOW-MAX: 111.2V
10HZ – 10KHZ

A700.X4:61<>STARTER.SS:50 — G — START SIGNAL SEE PAGE 2

INJECTOR CLY1 Y731
A700.X4:70<>Y731.X1 — X1 PWM+
A700.X4:53<>Y731.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY2 Y732
A700.X4:28<>Y732.X1 — X1 PWM+
A700.X4:11<>Y732.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY3 Y733
A700.X4:69<>Y733.X1 — X1 PWM+
A700.X4:52<>Y733.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY4 Y734
A700.X4:26<>Y734.X1 — X1 PWM+
A700.X4:09<>Y734.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY5 Y735
A700.X4:68<>Y735.X1 — X1 PWM+
A700.X4:51<>Y735.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY6 Y736
A700.X4:27<>Y736.X1 — X1 PWM+
A700.X4:10<>Y736.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY7 Y737
A700.X4:13<>Y737.X1 — X1 PWM+
A700.X4:24<>Y737.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY8 Y738
A700.X4:54<>Y738.X1 — X1 PWM+
A700.X4:65<>Y738.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY9 Y739
A700.X4:12<>Y739.X1 — X1 PWM+
A700.X4:23<>Y739.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY10 Y740
A700.X4:55<>Y740.X1 — X1 PWM+
A700.X4:66<>Y740.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY11 Y741
A700.X4:14<>Y741.X1 — X1 PWM+
A700.X4:25<>Y741.X2 — X2 GND
TWISTED PAIR CABLE

INJECTOR CLY12 Y742
A700.X4:56<>Y742.X1 — X1 PWM+
A700.X4:67<>Y742.X2 — X2 GND
TWISTED PAIR CABLE

APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

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

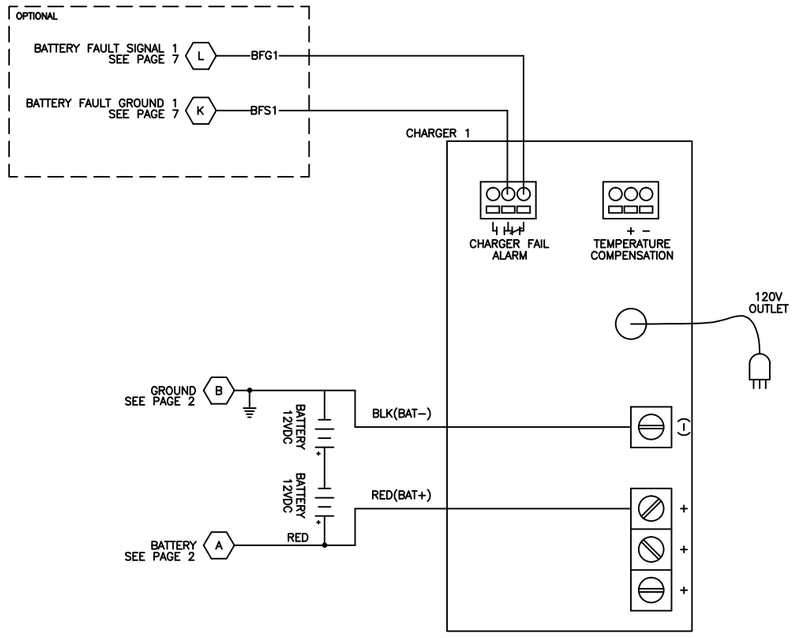
APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw

SCALE NONE | CAD WK. ADV-8968.DWG | SHEET 5-10 | PLOTTED | DWG. NO. ADV-8968 | D

REV	DATE	REVISION	BY	W F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	REVISED PAGE [CT190675]	PRH	



APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

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

APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw

SCALE NONE | CAD NO. ADV-8968.DWG | SHEET 6-10
PLOTTED | DRG. NO. ADV-8968 | D

REV	DATE	REVISION	BY	W F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	(B-3,-4) ANALOG INPUTS DETAILS ADDED [CT192258]	SMH	
B	10-13-18	(D-4, -5) ADDED F11 & F12 LABELS [CT190675]	PRH	

J-C10-MOT
GENERATOR CONTROLLER CONNECTOR

01–FUSED POWER
02–BATTERY+
3–.
04–BATTERY–
05–BATTERY–
6–.
7–.
8–.
9–.
10–.
11–IGNITION KEY
12–START SWITCH 1
13–START SWITCH 2
14–IDLE SWITCH
15–SHUTDOWN OVERRIDE
16–OVER SPEED TEST
17–DROOP ACTIVATION
18–BCA EXCITATION
19–CHARGER FAULT
20–CHARGER FAULT
21–.
22–.
23–.
24–.
25–.
26–.
27–.
28–.
29–ALARM FAULT
30–ALARM FAULT
31–OVER SPEED SHUTDOWN
32–FUEL LEVEL
33–TANK LEAK ALARM
34–.
35–SPEED ADJUST
36–SPEED ADJUST
37–SPEED ADJUST
38–SHIELD
39–.
40–.
41–SHIELD
42–CAN L
43–CAN H
44–.
45–.
46–.

30A11 — 30A — 30A1 — 6A F12 — 30A10 — 30A2 — COIL–B6 K10 03 04 — 30B10 — 31R — 31G — T — GROUND FOR REGULATION MODULE SEE PAGE 9

31A — 30A5

COIL–B6 K10 14 13 — 30B — 30B7

49 — 49

61 — D1 — 61B — R1 200 OHM 3W — 61A

F11 6A

178 — 115

JUMPER JMP1

TB10

CONTACTS– A5, D5, & D7 — A1 K10 A2 — 31H

REMOTE START (OPTIONAL) — 3
IDLE SWITCH (OPTIONAL) — 31N
TO RS485 PORT AC SEE PAGE 8 — BLU / GRN
OVERSPEED TEST (OPTIONAL) — 30B3
(LOW FUEL LEVEL) — 49
(BREAKER OPEN) — 11
(REMOTE RESET) — 12
(AUX SHUTDOWN) — 13
(HIGH FUEL) — 14
(AUX WARNING) — 15
(LOW OIL LEVEL) — 16
17
15
(REM SPD ADJ ENABLE) — 21
(KEY SWITCH ENABLE) — 22
(COMMON FAULT NC) — 23
(COMMON FAULT NO) — 31
(COMMON FAULT COM) — 30
(SYSTEM READY NC) — 35
(SYSTEM READY NO) — 34
(SYSTEM READY COM) — 33
(COMMON WARNING NC) — 38
(COMMON WARNING NO) — 37
(COMMON WARNING COM) — 36
(HORN OUTPUT) — 43 — HP
30A11 — 42
(LOW COOLANT TEMP WARNING) NO — 45
COM — 44
30A12 — 47
ST — 46
(NOT IN AUTO NO) — 49
(NOT IN AUTO COM) — 48
(GEN RUNNING UBAT+) — 52
GEN RUNNING GND — 31M
(EPS SUPPLY LOAD NO) — 55
(EPS SUPPLY LOAD COM) — 54
(LOW OIL PRESSURE) NO — 59
COM — 58
(HIGH COOL TEMP) NO — 61C
COM — 60
(LOW COOLANT LEVEL) NO — 63
COM — 62
(LOW FUEL LEVEL) NO — 65
COM — 64
+/–10VDC SPEED BIAS– — 87
SPEED BIAS+ — 86
(AMBIENT AIR–) — 81
(AMBIENT AIR+) — 80
P — 30B9
STN — 31K
N — TERMINALS 57, 58 & 59 SHOWN ON PAGE 8

TWISTED PAIR CABLE
CAN2 SEE PAGE 8 — X
41–SHIELD — WHT
42–CAN L — GRN
43–CAN H — YEL

OPTIONAL GFR RELAY
P4A: 1 N/C, 2 N/C, 3 14, 4 GFN, 5 15, 6 N/C
P4B: 1 1, 2 N/C, 3 14, 4 GFN, 5 15, 6 N/C
8 6 12 11 JUMPER 8 6

TO BREAKER BOX GND & NEUT BUS SEE SHEET 9 — AA

OPTIONAL SHUNT TRIP — ST — STN

24V SUPPLY SEE SHEET 9 — Y P — Z N

BATTERY FAULT SIGNALS SEE PAGE 6

K P10–1 BFS → 2806A
L P10–2 BFG → 31L1
M P11–1 BFS → 2806B
N P11–2 BFG → 31L2
O P12–1 BFS → 2806C
P P12–2 BFG → 31L3
R P13–1 BFS → 2806D
S P13–2 BFG → 31L4

31L

081A02 BASE MODULE (GENSET 1) I/O & POWER SUPPLIES (SEE PAGE 8 FOR COMMUNICATIONS)

1 — 24V– SUPPLY
2 — 24V+ SUPPLY
3 — GROUND
SUPPLY VOLTAGE IN 6–40VDC <90W

SUPPLY OUT 24VDC <48W
(GROUND) — 4
(24V+ OUT) — 5 — 8101
(24V– OUT) — 6 — 8102

ANALOG OUTPUTS
A00– — 73
A00+ — 72
A01– — 71
A01+ — 70

88 — IB1+
89 — IB1–
90 — IB0+
91 — IB0–
IB INPUTS

WATCHDOG
DO17 (WATCHDOG) — 68 — 30A3
(DIGITAL OUTPUT) — 69 — 30A7

92 — PICK UP+
93 — PICK UP–
ENGINE SPEED PICK UP

87 — AI0– (SPEED BIAS –)
86 — AI0+ (SPEED BIAS +)
85 — AI1–
84 — AI1+
83 — AI2–
82 — AI2+
SET DIP SW TO VOLT
ANALOG INPUTS

81 — RES0– (AMBIENT AIR–)
80 — RES0+ (AMBIENT AIR+)
79 — RES1–
78 — RES1+
77 — RES2– (FUEL LEVEL–) — 31F
76 — RES2+ (FUEL LEVEL+) — 178
75 — RES3–
74 — RES3+
RESISTIVE INPUTS

10 — DI0 (REMOTE START)
11 — DI1 (LOW FUEL LEVEL)
12 — DI2 (BREAKER OPEN)
13 — DI3 (REMOTE RESET)
14 — DI4 (AUX SHUTDOWN)
15 — DI5 (HIGH FUEL)
16 — DI6 (AUX WARNING)
17 — DI7 (LOW OIL LEVEL)
18 — DI8 (BATTERY CHARGER FAULT) — 2806
19 — DI9 (FUEL LEAK ALARM) — 115
20 — DI10 (IDLE MODE) — 115
21 — DI11 (GFCI TRIPPED)
22 — DI12 (REM SPD ADJ ENABLE)
23 — DI13 (KEY SWITCH ENABLE)
24 — DI14 (LOAD SHED ENABLE)
25 — DI15 (OVER CRANK TEST)
26 — DI16
27 — DI17 (EMERGENCY STOP) — 31J
28 — GND — 31C
29 — GND — 31D
DIGITAL INPUTS

COIL–B6 K10 43 44 — 31B

DIGITAL OUTPUTS
8A – 240VAC
8A – 30VDC
0.5A – 48VDC

(START BTN ILLUM) DO16 — 66 — 67
(LOW FUEL LEVEL) DO15 — 84 — 64 — 65
(LOW COOL LEVEL) DO14 — 62 — 63
(HIGH COOL TEMP) DO13 — 60 — 61C
(LOW OIL PRESSURE) DO12 — 58 — 59
(FAULT RESET) DO11 — 56 — 30B6 — 57 — 30B7
(EPS SUPPLY LOAD) DO10 — 54 — 55
(GENERATOR RUNNING) DO9 — 52 — 53 — 30B4
(BCA EXCITATION) DO8 — 50 — 30B5 — 51 — 61A
(NOT IN AUTO) DO7 — 48 — 49
(SHUNT TRIP) DO6 — 46 — 47
(LOW COOLANT TEMP WARNING) DO5 — 44 — 45
(HORN) DO4 — 42 — 43
DO3 — 39 — 40 — 41
(COMMON WARNING) DO2 — 36 — 37 — 38
(SYSTEM READY) — 33 — 34 — 35
(COMMON FAULT) DO0 — 30 — 31 — 32

POWER FOR REGULATION MODULE SEE PAGE 9 — 30A4 — U
V — 24V+ SUPPLY SEE PAGE 8
W — 24V– SUPPLY SEE PAGE 8

ESS — 30A8 — 31R — HP — HORN

KD27V12 W/ ECU2 HD DIESEL
APM 802 COTROLLER W/ ENHANCED I/O HARNESS

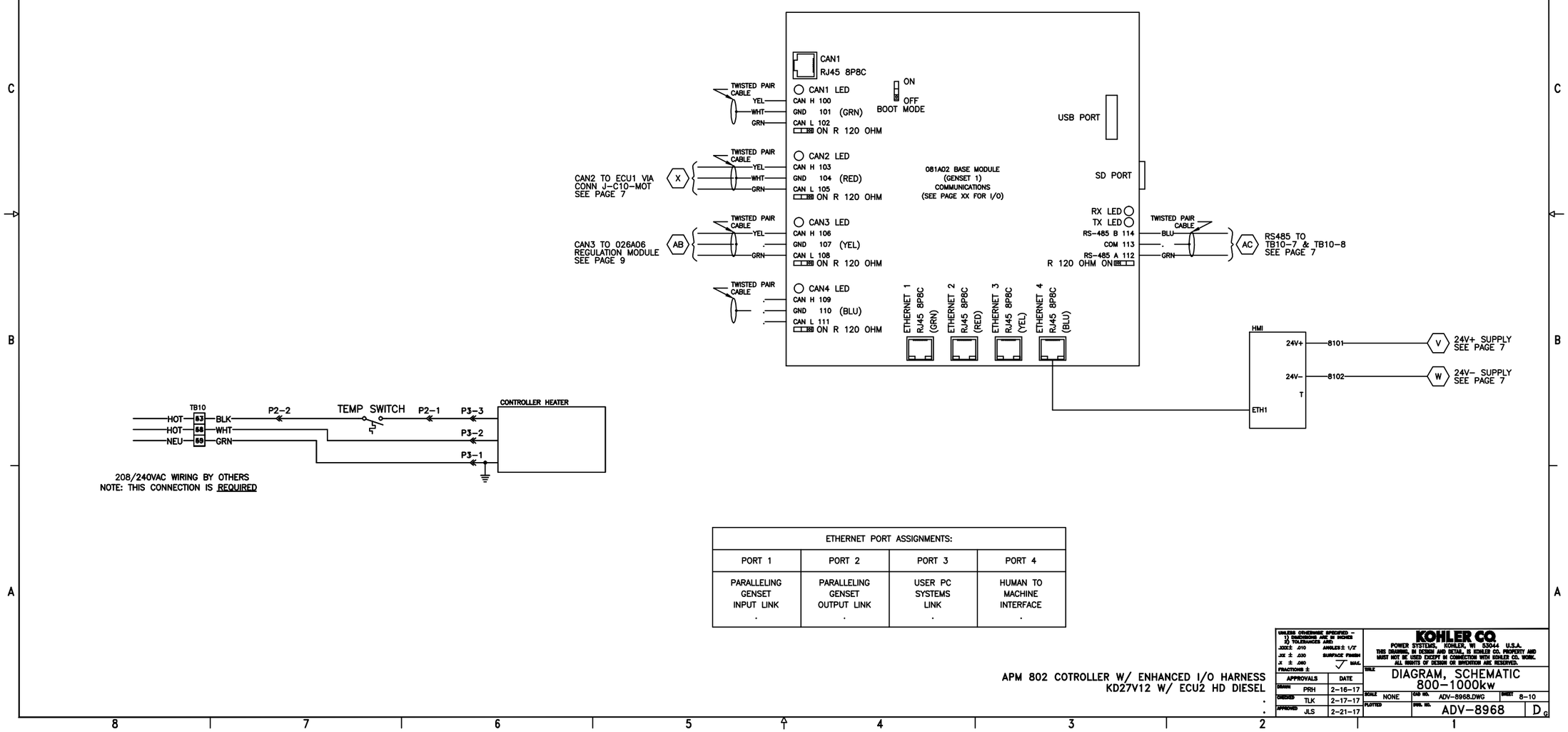
UNLESS OTHERWISE SPECIFIED: 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010, .XX ± .020, .X ± .040, FRACTIONS ± , ANGLES ± 1/2°, SURFACE FINISH MAX.

APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw
SCALE: NONE
CAD NO.: ADV–8968.DWG
SHEET: 7–10
PLOTTED
DWG. NO.: ADV–8968
D

REV	DATE	REVISION	BY	W/F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	(B-6) P3-1, P3-2, & P3-3 WERE P1-1, P1-2, & P1-3		
		RESPECTIVELY [CT190675]	PRH	



ETHERNET PORT ASSIGNMENTS:			
PORT 1	PORT 2	PORT 3	PORT 4
PARALLELING GENSET INPUT LINK	PARALLELING GENSET OUTPUT LINK	USER PC SYSTEMS LINK	HUMAN TO MACHINE INTERFACE

APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

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

APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw
SCALE: NONE
CAD WG.: ADV-8968.DWG
SHEET: 8–10
PLOTTED
DWG. NO.: ADV-8968
D

REV	DATE	REVISION	BY	W F
–	2-16-17	NEW DRAWING [CT170668]	PRH	
A	07-09-18	SEE SHEET 7 [CT192258]	SMH	
B	10-13-18	(C-6) ADDED F21, F22, & F23 [CT190675]	PRH	

BREAKER BOX

TO GFI RELAY SEE PAGE 7 (AA)

GROUND BUS

NEUTRAL BUS

BONDING JUMPER

NOTE:
WHEN ORDERING GFI OPTION
(2) 4/0 CABLES WILL BE USED
IN PLACE OF COPPER BUS BAR
JUMPER (SEE PICK LIST)

BREAKER OPTIONAL

N1, L11, L21, L11 TO LOAD

026A06 REGULATION MODULE
BUS CAN 1

CAN3 TO 081A02 SEE PAGE 8 (AB)
WHT, GRN, YEL
TWISTED PAIR CABLE

G (CAN SHIELD)
L (CAN LO (–))
H (CAN HI (+))

REGULATION MODULE ON OFF 1 2 3 4

24V+ SUPPLY SEE PAGE 7 (U) 30A4
24V– SUPPLY SEE PAGE 7 (T) 31G
24V+
24V–
24VDC SUPPLY

GENERATOR VOLTAGE SENSE: L1 L2 L3 N
L1A 6A F21 L1
L2A 6A F22 L2
L3A 6A F23 L3
N

GENERATOR CURRENT SENSE: IN I3 I2 I1
S2 S31 S21 S11

BUS VOLTAGE SENSE: L1 L2 L3

VOLTAGE REG 1: + –

ALTERNATOR ASSEMBLY

CT3 • CT1 • CT2 •

STAT (12 LEAD)
L3 9 10 11 12 L3
L1 8 7 6 5 L2

MAIN FIELD ROTOR

ROTATING EXCITATION CIRCUITRY

EXCITER ARMATURE (ROTATING)

EXCITER FIELD (STATIONARY)

WHITE, RED, 60Hz, N/C, BLK
PMG

L3, L2, L0, L1
1 11 9 12 10 5 6 7 8
4 2 3 1

PHASE ROTATION
A B C
L1 L2 L3

PD400 CIRCUITRY
TB–ALT
GRN 1
YEL 2
RED 3
GRN 3
GRN 3
BLK 4
WHT 5
BLU 6
BLK 7
8
JUMPER (GRN)

COIL
YEL, RED, GRN, BLK, WHT, BLU, BLK

JUMPER
JUMPER
JUMPER
JUMPER
JUMPER
BLK
BLK
BLK
GRN
WHT
YEL
BLU

01506 VOLTAGE REGULATOR
CN3
23 24 (60 Hz) 25 26 27 28 29 (0EXT) 30 31 32 (+/–10V)
CN1
22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

JUMPER
JUMPER1
REMOTE VOLTAGE BIAS 100– 100+
JUMPER2

NOTE:
REMOVE JUMPER 1 & JUMPER 2
FOR REMOTE VOLTAGE BIAS

APM 802 COTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL
<480 VOLT

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

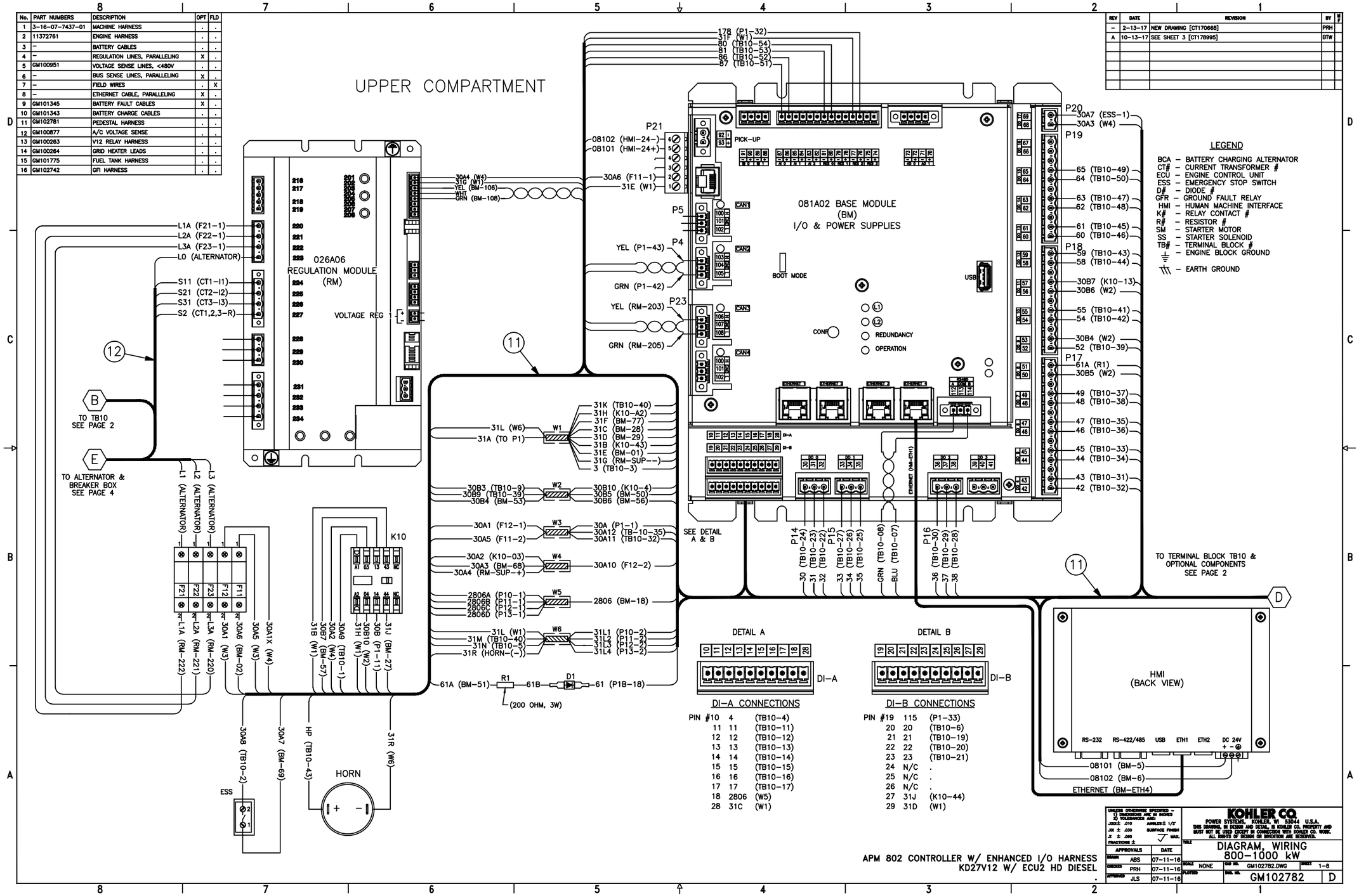
APPROVALS	DATE
DRAWN PRH	2-16-17
CHECKED TLK	2-17-17
APPROVED JLS	2-21-17

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

TITLE: DIAGRAM, SCHEMATIC 800–1000kw
SCALE: NONE
CAD NO.: ADV-8968.DWG
SHEET: 9–10
DWG. NO.: ADV-8968
D

No.	PART NUMBERS	DESCRIPTION	OPT	FLD
1	3-16-07-7437-01	MACHINE HARNESS	.	.
2	11372761	ENGINE HARNESS	.	.
3	–	BATTERY CABLES	.	.
4	–	REGULATION LINES, PARALLELING	X	.
5	GM100951	VOLTAGE SENSE LINES, <480V	.	.
6	–	BUS SENSE LINES, PARALLELING	X	.
7	–	FIELD WIRES	.	X
8	–	ETHERNET CABLE, PARALLELING	X	.
9	GM101345	BATTERY FAULT CABLES	X	.
10	GM101343	BATTERY CHARGE CABLES	.	.
11	GM102781	PEDESTAL HARNESS	.	.
12	GM100877	A/C VOLTAGE SENSE	.	.
13	GM100263	V12 RELAY HARNESS	.	.
14	GM100264	GRID HEATER LEADS	.	.
15	GM101775	FUEL TANK HARNESS	.	.
16	GM102742	GFI HARNESS	.	.

REV	DATE	REVISION	BY	MFG
–	2-13-17	NEW DRAWING [CT170668]	PRH	
A	10-13-17	SEE SHEET 3 [CT178995]	BTW	



REV	DATE	REVISION	BY	MFG
–	2-13-17	NEW DRAWING [CT170668]	PRH	
A	10-13-17	SEE SHEET 3 [CT178995]	BTW	

LOWER COMPARTMENT

TEMPERATURE SWITCH

P3 CONNECTIONS
PIN #1 BLK (P2-3)
2 BLK (TB10-43)

CONTROLLER HEATER

P2 CONNECTIONS
PIN #1 GRN (TB10-45)
2 WHT (TB10-44)
3 BLK (P3-1)

BLK (P3-1)
WHT (TB10-58)
GRN (TB10-59)
BLK (TB10-57)

TO CONTROLLER (BM) & REGULATION MODULE (RM) SEE PAGE 1

TO REGULATOR MODULE SEE PAGE 1

HORN OUTPUT

+/- 10VDC

TB10 terminals: 1 (30A9 (K10-41)), 2 (JUMPER), 3 (30A8 (ESS-2)), 4 (31N (W6)), 5 (REMOTE START) (OPTIONAL), 6 (IDLE SWITCH) (OPTIONAL), 7 (RS485+) (BM-20), 8 (RS485-) (BM-112), 9 (OVERSPEED TEST) (OPTIONAL), 10 (30B3 (W2)), 11 (LOW FUEL LEVEL) (BM-114), 12 (BM-11) (LOW OIL LEVEL) (BREAKER OPEN), 13 (BM-12) (REMOTE RESET), 14 (BM-13) (AUX SHUTDOWN), 15 (BM-14) (HIGH FUEL), 16 (BM-15) (AUX WARNING), 17 (BM-16), 18 (BM-17), 19 (15 (P44-5)), 20 (BM-21) (REM SPD ADJ ENABLE), 21 (BM-22) (KEY SWITCH ENABLE), 22 (BM-23), 23 (BM-32) (COMMON FAULT NC), 24 (BM-30) (COMMON FAULT NO), 25 (BM-31), 26 (BM-35) (COMMON FAULT COM), 27 (BM-34) (SYSTEM READY NC), 28 (BM-33) (SYSTEM READY NO), 29 (BM-38) (SYSTEM READY COM), 30 (BM-37) (COMMON WARNING NC), 31 (BM-36) (COMMON WARNING NO), 32 (BM-43) (COMMON WARNING COM), 33 (BM-42) HP (HORN-(+)), 34 (BM-45) 30A11 (W3), 35 (BM-44) (LOW COOLANT TEMP WARNING NO), 36 (BM-47) (LOW COOLANT TEMP WARNING COM), 37 (BM-46) 30A12 (W3), 38 (BM-49) ST (SHUNT TRIP), 39 (BM-48) (NOT IN AUTO NO), 40 (BM-52) (NOT IN AUTO COM), 41 (BM-55) GEN RUNNING GND, 42 (BM-54) GEN RUNNING UBAT+, 43 (BM-59) (EPS SUPPLY LOAD NO), 44 (BM-58) (EPS SUPPLY LOAD COM), 45 (BM-61) (LOW OIL PRESSURE NO), 46 (BM-60) (LOW OIL PRESSURE COM), 47 (BM-63) (HIGH COOLANT TEMP NO), 48 (BM-62) (HIGH COOLANT TEMP COM), 49 (BM-65) (LOW COOLANT LEVEL NO), 50 (BM-64) (LOW COOLANT LEVEL COM), 51 (BM-67) (LOW FUEL LEVEL NO), 52 (BM-66) (LOW FUEL LEVEL COM), 53 (BM-81) SPEED BIAS- , 54 (BM-80) SPEED BIAS+ , 55 (BM-83) (AMBIENT AIR-), 56 (BM-82) (AMBIENT AIR+), 57 (1 (P44-1)), 58 (14N (W7)), 59 (31K (W1)), 60 (30B9 (W2))

BLK (P3-2)
WHT (P2-2)
GRN (P2-1)
HOT
HOT
NEU
TERMINAL COVER
208/240VAC WIRING BY OTHERS NOTE: THIS CONNECTION IS REQUIRED

P1

P1 CONNECTIONS

PIN #1	30A	(W3)
2	N/C	.
3	N/C	.
4	31A	(W1)
5	N/C	.
6	N/C	.
11	30B	(K10-14)
12	N/C	.
13	N/C	.
14	N/C	.
15	N/C	.
16	49	(TB10-10)
17	N/C	.
18	61	(D1-CATHODE)
19	N/C	.
20	N/C	.
21	N/C	.
22	N/C	.
23	N/C	.
29	N/C	.
30	N/C	.
31	N/C	.
32	178	(BM-76)
33	115	(BM-19)
34	N/C	.
35	N/C	.
36	N/C	.
37	N/C	.
38	N/C	.
39	N/C	.
40	N/C	.
41	WHT	(BM-104)
42	GRN	(BM-105)
43	YEL	(BM-103)
44	N/C	.
45	N/C	.
46	N/C	.

OPTIONAL

P10
P10 CONNECTIONS
PIN #1 2806A (W5)
2 31L1 (W6)

P11
P11 CONNECTIONS
PIN #1 2806B (W5)
2 31L2 (W6)

P12
P12 CONNECTIONS
PIN #1 2806C (W5)
2 31L3 (W6)

P13
P13 CONNECTIONS
PIN #1 2806D (W5)
2 31L4 (W6)

P10A
P10A CONNECTIONS
PIN #1 BFS1 (BATTERY CHARGER 1 NO)
2 BFG1 (BATTERY CHARGER 1 COM)

TO BATTERY CHARGER SEE PAGE 3

OPTIONAL – SIDE OF ENGINE NEXT TO STARTER1

RED (BAT1+)
RED (BAT1+)
1B60 (C4A-2)
1B61 (C4A-4)
K1 (TOP)
K2 (TOP)
K2N (SS1-31)
K1N (SS1-31)
1B43 (C4A-1)
1B29 (C4A-3)
AIR HEATER1
AIR HEATER2

TO BATTERY CHARGER SEE PAGE 3

TO ENGINE HARNESS SEE PAGE 5

APM 802 CONTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

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 ABS	07-11-16
CHECKED PRH	07-11-16
APPROVED JLS	07-11-16

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

TITLE: DIAGRAM, WIRING 800–1000 kW
SCALE: NONE
DGN NO.: GM102782.DWG
SHEET: 2–8
PLOTTED
DWG. NO.: GM102782
D

REV	DATE	REVISION	BY	MFG
–	2-13-17	NEW DRAWING [CT170668]	PRH	
A	10-16-17	(B-5)M701 STARTER WIRING UPDATED; (D,C-4-5)ENGINE WIRING VIEW UPDATED; [CT178995]	BTW	

ENGINE

31 (SS1-31)

31CH-1 [NOTE: ROUTES THRU FERRITE BEAD]

FUS1
FUSEBOX

GND GND

114 (C6-3)
ECU1B-69 (ECU1B-69)
ECU1B-40 (ECU1B-40)
ECU1B-15 (ECU1B-15)
ECU1B-13 (ECU1B-13)

31C [NOTE: ROUTES THRU FERRITE BEAD]
31A (C-DIAG-A)
31D (STATUS-CATHODE)

F1 10A 1 | F2 20A 2
F3 10A 3 | F4 15A 4
F5 10A 5 | F6 5A 6
7 | F8
8
9 | F10
10
11
12

ECU1B-27 (ECU1B-27)
ECU1B-41 (ECU1B-41)
ECU1B-55 (ECU1B-55)

ECU1B-30C [NOTE: ROUTES THRU FERRITE BEAD]
ECU1B-30A (C-DIAG-B)
ECU1B-01 (ECU1B-01)

1

TO C10-MOT, ECU1B & C-DIAG
SEE PAGE 5 H

TO ECU2B
SEE PAGE 8 L

TO AIR HEATER
SEE PAGE 2 R

14

FERRITE BEAD

31CH
31C
ECU1B-30C
30CH-1

31CH-1 (C10-MOT-P1A-5)
31C (C10-MOT-P1A-4)
ECU1B-30C (C10-MOT-P1A-1)
30CH-1 (C10-MOT-P1A-2)

30CH-1 [NOTE: ROUTES THRU FERRITE BEAD]

30 (SS1-30)

30 (FUS1+)

56 (SS1-30)

61 (C10-MOT-P1A-18)
31 (FUS1-(-))

B+ D+ B

EBG

K1N (K1-COIL-(-))
K2N (K2-COIL-(-))

RED (K1-CONTACT) [N.O.]
RED (K2-CONTACT) [N.O.]

RED (SS1-30)
RED (BAT+)

56 (BCA-B+)

OPTIONAL

9

F

BFG(P10A-1)
BFS(P10A-2)

CHARGER FAIL ALARM

CHARGER 1

COMMON – BATT+ 1 BATT+ 2 BATT+ 3

OUTLET 120V

RED(BAT+)
BLK(BAT–)

10

BLK(CHG–)
RED(CHG+)

BAT2

M701
STARTER

SS1
SM1

30
50 31

50

A700D.X4:61<>M701.50

J
START SIGNAL 1
SEE PAGE 6

EBG

BLK (BAT–)

BLK(SS1-31)

APM 802 CONTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

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 ABS	07-11-16
CHECKED PRH	07-11-16
APPROVED JLS	07-11-16

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

TITLE: DIAGRAM, WIRING
800–1000 kW

SCALE: NONE | CAD WG. GM102782.DWG | SHEET 3–8
PLOTTED | DWG. NO. GM102782 | D

REV	DATE	REVISION	BY	SHT
–	2-13-17	NEW DRAWING [CT170668]	PRH	
A	10-13-17	SEE SHEET 3 [CT178995]	BTW	

BREAKER BOX

P4A CONNECTIONS

PIN #1	1	(TB10-55)
	2	N/C .
	3	14 (W7)
	4	GFN (W7)
	5	15 (TB10-19)
	6	N/C .

P4B CONNECTIONS

PIN #1	1	(TO GFR-1)
	2	N/C .
	3	14 (TO GFR-14)
	4	GFN (TO GFR-2)
	5	15 (TO GFR-15)
	6	N/C .

P4A P4B

OPTIONAL SHUNT TRIP

ST (TB10-36)
STN (W7)

OPTIONAL GFR RELAY

14 (P4B-3)
15 (P4B-5)
JUMPER
GFN (P4B-4)
1 (P4B-1)
8 (NEUTRAL BUS)
6 (GROUND BUS)

6 (GFR-6)
8 (GFR-8)

GROUND BUS (SIDE PANEL)
NEUTRAL BUS (BACK PANEL)
BONDING JUMPER

NOTE:
WHEN ORDERING GFI OPTION (2) 4/0 CABLES WILL BE USED IN PLACE OF COPPER BUS BAR JUMPER (SEE PICK LIST)

BREAKER OPTIONAL
N
A
B
C
TO LOAD

BLK (ALT. BUS A)
BLK (ALT. BUS B)
BLK (ALT. BUS C)

ALTERNATOR BOX

GFN (P4A-4)
STN (P4A-3)
W7
14N (TB10-56)

P1A CONNECTIONS

PIN #1	L1	(TO FUS23-2)
	2	N/C .
	3	L3 (TO FUS21-2)
	4	L2 (TO FUS22-2)
	5	N/C .
	6	L0 (TO RM-223)

P1B CONNECTIONS

PIN #1	L1	(TO PT1-X1)
	2	N/C .
	3	L3 (TO PT3-X1)
	4	L2 (TO PT2-X1)
	5	N/C .
	6	L0 (TO PT1,2,3-X0)

P1A P1B

FROM PAGE 1 FOR AC HARNESS CONNECTION

N

CT3 S1-X1 S2-X2
CT1 S1-X1 S2-X2
CT2 S1-X1 S2-X2

S31 (RM-226)
S2 (RM-227)
S11 (RM-224)
S21 (RM-225)

L2 (P1B-4)
L0 (P1B-6)
L3 (P1B-3)
L1 (P1B-1)
GRN
BLK

BLK (BRK-B)
BLK (N)
BLK (BRK-C)
BLK (BRK-A)

STATOR
(12 LEAD – SEE PICK LIST FOR BREAKER & NEUTRAL LEAD KITS)

PMG
EXCITER

JUMPER
BLK
GRN
WHT
BLU
YEL

01506 VOLTAGE REGULATOR

JUMPER
JUMPER1
JUMPER2
REMOTE VOLTAGE BIAS
100-
100+

23
24 (60 Hz)
25
26
27
28
29 (0EXT)
30
31
32 (+/-10V)
CN3
CN1

NOTE:
REMOVE JUMPER 1 & JUMPER 2 FOR REMOTE VOLTAGE BIAS

APM 802 CONTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL
480V

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

APPROVALS	DATE
DRAWN ABS	07-11-16
CHECKED PRH	07-11-16
APPROVED JLS	07-11-16

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

TITLE: DIAGRAM, WIRING
800–1000 kW

SCALE: NONE | CAD DWG: GM102782.DWG | SHEET: 5–8
PLOTTED | DWG. NO.: GM102782 | D

REV	DATE	REVISION	BY	M E
–	2-13-17	NEW DRAWING [CT170668]	PRH	
A	10-13-17	SEE SHEET 3 [CT178995]	BTW	

ECU1A CONNECTIONS

PIN #																			
1	N/C	.	15	N/C	.	29	N/C	.	43	N/C	.	57	N/C	.					
2	N/C	.	16	N/C	.	30	N/C	.	44	N/C	.	58	N/C	.					
3	N/C	.	17	N/C	.	31	N/C	.	45	N/C	.	59	N/C	.					
4	N/C	.	18	N/C	.	32	N/C	.	46	N/C	.	60	ECU1A–60	(C–AIR–2)					
5	N/C	.	19	N/C	.	33	ECU1A–33A	(C–AIR–2–1)	47	N/C	.	61	N/C	.					
6	N/C	.	20	N/C	.	34	N/C	.	48	N/C	.	62	N/C	.					
7	N/C	.	21	N/C	.	35	N/C	.	49	N/C	.	63	N/C	.					
8	N/C	.	22	N/C	.	36	N/C	.	50	N/C	.	64	N/C	.					
9	ECU1A–09	(C–G01–2)	23	ECU1A–23	(C–G01–1)	37	N/C	.	51	N/C	.	65	N/C	.					
10	N/C	.	24	N/C	.	38	N/C	.	52	N/C	.	66	N/C	.					
11	N/C	.	25	N/C	.	39	N/C	.	53	N/C	.	67	N/C	.					
12	ECU1A–12	(C–TAIR–A–2)	26	ECU1A–26	(C–TAIR–A–1)	40	N/C	.	54	N/C	.	68	N/C	.					
13	N/C	.	27	N/C	.	41	N/C	.	55	N/C	.	69	N/C	.					
14	N/C	.	28	N/C	.	42	N/C	.	56	N/C	.	70	N/C	.					

C–G01 CONNECTIONS

PIN #			
1	ECU1A–23	(ECU1A–23)	
2	ECU1A–09	(ECU1A–09)	

C–G01

WATER IN FUEL SENSOR

C–TAIR CONNECTIONS

PIN #		
1	ECU1A–26	(ECU1A–26)
2	ECU1A–12	(ECU1A–12)

C–TAIR AIR FILTER TEMPERATURE SENSOR

C–DIAG DIAGNOSTIC CONNECTOR

C–DIAG CONNECTIONS

PIN #			
A	31A		(FUS1–GND)
B	30A		(FUS1–4)
C	ECU1B–W1–26	(ECU1B–26)	
D	ECU1B–W1–11	(ECU1B–11)	
E	N/C	.	
F	N/C	.	
G	SH		(SHIELD)
H	N/C	.	
J	N/C	.	

MASTER ECU (ECU1) CONNECTOR A (CODE A, ECU1A)

ECU1A

C–AIR2

C–AIR2 CONNECTIONS

PIN #			
1	ECU1A–33A	(ECU1A–33)	
2	060	(C–AIR–1)	

C–AIR

C–AIR CONNECTIONS

PIN #			
1	060	(C–AIR2–2)	
2	ECU1A–60	(ECU1A–60)	

P2 CONNECTIONS

PIN #		
1	N/C	.
2	GND2 (W8)	
3	115	(C6'–2)
4	N/C	.

TO FUSE BOX (FUS1) SEE PAGE 3

P1A C10–MOT

P1A CONNECTIONS

PIN #		
1	30C	(FUS1–2)
2	30CH	(FUS1+)
3	N/C	.
4	31C	(FUS1–GND)
5	31CH	(FUS1–)
6	N/C	.
11	ECU1B–30B	(ECU1B–30)
12	ECU1B–06	(ECU1B–06)
13	ECU1B–21	(ECU1B–21)
14	ECU1B–20	(ECU1B–20)
15	ECU1B–35	(ECU1B–35)
16	ECU1B–49	(ECU1B–49)
17	ECU1B–57	(ECU1B–57)
18	61	(BCA–D+)
19	A1	.
20	A2	.
21	N/C	.
22	N/C	.
23	N/C	.
29	ECU1B–44	(ECU1B–44)
30	ECU1B–58	(ECU1B–58)
31	ECU1B–46	(ECU1B–46)
32	178	(C6–1)
33	115	(C6–2)
34	N/C	.
35	ECU1B–W3–35	(ECU1B–02)
36	ECU1B–W3–49	(ECU1B–16)
37	ECU1B–W3–57	(ECU1B–31)
38	SHIELD	.
39	N/C	.
40	N/C	.
41	SHIELD	.
42	ECU1B–W2–23	(ECU1B–23)
43	ECU1B–W2–37	(ECU1B–37)
44	N/C	.
45	N/C	.
46	N/C	.

P2' P2

FUEL TANK

FUEL LEAK SWITCH

FUEL LEVEL SENDER

178 GND1

FUEL LEVEL & LEAK

C6' C6

GND2 (P2–2)

GND1

W8

114 (C6'–3)

ECU1B–50 (ECU1B–50)

GRN

31D (FUS1–GND)

SILVER TERM

C6' CONNECTIONS

PIN #		
1	178	
2	115	
3	GND	

C6 CONNECTIONS

PIN #		
1	178	(P1A–32)
2	115	(P1A–33)
3	114	(FUS1–GND)

C3 CONNECTIONS

PIN #		
A	ECU1B–05	(ECU1B–05)
B	ECU1B–33B	(ECU1B–33)
C	ECU1B–19	(ECU1B–19)

C3

COOLANT LEVEL SENDER

AIR HEATER

C4

AIR HEATER

C4A

TO K1 & K2 SEE PAGE 2

C4 CONNECTIONS

PIN #		
1	ECU1B–43	(ECU1B–43)
2	ECU1B–60X2	(ECU1B–60)
3	ECU1B–29	(ECU1B–29)
4	ECU1B–61X2	(ECU1B–61)

C4A CONNECTIONS

PIN #		
1	1B43	(K1–NO)
2	1B60	(K1–COIL+)
3	1B29	(K2–NO)
4	1B61	(K2–COIL+)

MASTER ECU (ECU1) CONNECTOR B (CODE B, ECU1B)

ECU1B

ECU1B CONNECTIONS

PIN #																			
1	ECU1B–01	(FUS1–6)	15	ECU1B–15	(FUS1–GND)	29	ECU1B–29	(C4–3)	43	ECU1B–43	(C4–1)	57	ECU1B–57	(P1A–17)					
2	ECU1B–W3–35	(P1A–35)	16	ECU1B–W3–49	(P1A–36)	30	ECU1B–30B	(P1A–11)	44	ECU1B–44	(P1A–29)	58	ECU1B–58	(P1A–30)					
3	N/C	.	17	N/C	.	31	ECU1B–W3–57	(P1A–37)	45	N/C	.	59	N/C	.					
4	N/C	.	18	N/C	.	32	N/C	.	46	ECU1B–46	(P1A–31)	60	ECU1B–60X2	(C4–2)					
5	ECU1B–05	(C3–A)	19	ECU1B–19	(C3–C)	33	ECU1B–33B	(C3–B)	47	N/C	.	61	ECU1B–61X2	(C4–4)					
6	ECU1B–06	(P1A–12)	20	ECU1B–20	(P1A–14)	34	N/C	.	48	N/C	.	62	N/C	.					
7	N/C	.	21	ECU1B–21	(P1A–13)	35	ECU1B–35	(P1A–15)	49	ECU1B–49	(P1A–16)	63	N/C	.					
8	N/C	.	22	N/C	.	36	N/C	.	50	ECU1B–50	(STATUS–ANODE)	64	N/C	.					
9	ECU1B–10	(ECU1B–10)	23	ECU1B–W2–23	(P1A–42)	37	ECU1B–37	(P1A–43)	51	N/C	.	65	N/C	.					
10	ECU1B–10	(ECU1B–09)	24	ECU1B–25	(ECU1B–26)	38	N/C	.	52	N/C	.	66	N/C	.					
11	ECU1B–W1–11	(C–DIAG–D)	25	ECU1B–25	(ECU1B–25)	39	N/C	.	53	N/C	.	67	N/C	.					
12	N/C	.	26	ECU1B–W1–26	(C–DIAG–C)	40	ECU1B–40	(FUS1–GND)	54	N/C	.	68	N/C	.					
13	ECU1B–13	(FUS1–GND)	27	ECU1B–27	(FUS1–1)	41	ECU1B–41	(FUS1–3)	55	ECU1B–55	(FUS1–5)	69	ECU1B–69	(FUS1–GND)					
14	N/C	.	28	N/C	.	42	N/C	.	56	N/C	.	70	N/C	.					

APM 802 CONTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

UNLESS OTHERWISE SPECIFIED – 72 DIMENSIONS ARE IN INCHES – 72 TOLERANCES ARE: .XX± .010, .XXX± .030, X ± .060, FRACTIONS ± 1/64, ANGLES± 1/2°, SURFACE FINISH MAX.

APPROVALS	DATE
DRAWN ABS	07–11–16
CHECKED PRH	07–11–16
APPROVED JLS	07–11–16

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

TITLE: DIAGRAM, WIRING 800–1000 kW

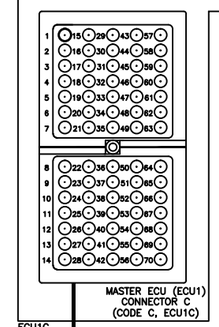
SCALE: NONE | DWG NO. GM102782.DWG | SHEET 6–8

PLOTTED | DRG. NO. GM102782 | D

REV	DATE	REVISION	BY	MFG
–	2-13-17	NEW DRAWING [CT170668]	PRH	
A	10-13-17	SEE SHEET 3 [CT178995]	BTW	

PIN			PIN			PIN			PIN			PIN		
#1	N/C	.	15	N/C	.	29	N/C	.	43	N/C	.	57	N/C	.
2	N/C	.	16	N/C	.	30	N/C	.	44	N/C	.	58	N/C	.
3	N/C	.	17	A700C.X3:17<>B701.X2		31	N/C	.	45	A700C.X3:45<>B701.X3		59	A700C.X3:59<>B701.X1	
4	N/C	.	18	A700C.X3:18<>B715.X1		32	A700C.X3:32<>B715.X4		46	A700C.X3:46<>B715.X3		60	A700C.X3:60<>B702.X1	
5	N/C	.	19	A700C.X3:19<>B702.X2		33	A700C.X3:33<>B702.X3		47	N/C	.	61	N/C	.
6	N/C	.	20	N/C	.	34	A700C.X3:34<>B704.X2		48	A700C.X3:48<>B704.X1		62	A700C.X3:62<>B704.X3	
7	A700C.X3:07<>Y703.X2		21	A700C.X3:21<>Y703.X1		35	A700C.X3:35<>B705.X2		49	A700C.X3:49<>B705.X1		63	A700C.X3:63<>B705.X3	
8	A700C.X3:08<>Y707.X2		22	A700C.X3:22<>Y707.X1		36	N/C	.	50	N/C	.	64	N/C	.
9	A700C.X3:09<>Y705.X2		23	N/C	.	37	N/C	.	51	N/C	.	65	A700C.X3:65<>B715.X2	
10	A700C.X3:10<>Y705.X1		24	N/C	.	38	A700C.X3:38<>B708.X1		52	A700C.X3:52<>B709.X1		66	A700C.X3:66<>B709.X2	
11	N/C	.	25	N/C	.	39	N/C	.	53	N/C	.	67	A700C.X3:67<>B708.X2	
12	N/C	.	26	N/C	.	40	N/C	.	54	N/C	.	68	N/C	.
13	N/C	.	27	N/C	.	41	N/C	.	55	N/C	.	69	N/C	.
14	N/C	.	28	N/C	.	42	N/C	.	56	N/C	.	70	N/C	.

ECU1C CONNECTIONS



ECU1C
A700.X3

B705.X CONNECTIONS
PIN#1 A700C.X3:49<>B705.X1 (ECU1C–49)
2 A700C.X3:35<>B705.X2 (ECU1C–35)
3 A700C.X3:63<>B705.X3 (ECU1C–63)

B705.X
RAIL PRESSURE SENSOR 2

B701.X CONNECTIONS
PIN#1 A700C.X3:59<>B701.X1 (ECU1C–59)
2 A700C.X3:17<>B701.X2 (ECU1C–17)
3 A700C.X3:45<>B701.X3 (ECU1C–45)

B701.X
OIL PRESSURE SENSOR

B704.X CONNECTIONS
PIN#1 A700C.X3:48<>B704.X1 (ECU1C–48)
2 A700C.X3:34<>B704.X2 (ECU1C–34)
3 A700C.X3:62<>B704.X3 (ECU1C–62)

B704.X
RAIL PRESSURE SENSOR 1

B715.X CONNECTIONS
PIN#1 A700C.X3:18<>B715.X1 (ECU1C–18)
2 A700C.X3:65<>B715.X2 (ECU1C–65)
3 A700C.X3:46<>B715.X3 (ECU1C–46)
4 A700C.X3:32<>B715.X4 (ECU1C–32)

B715.X
CHARGING AIR TEMP/PRESS SENSOR

Y703.X

Y703.X CONNECTIONS
PIN #1 A700C.X3:21<>Y703.X1 (ECU1C–21)
2 A700C.X3:07<>Y703.X2 (ECU1C–07)

HP PUMP PUMP 1 VCV

Y707.X

Y707.X CONNECTIONS
PIN #1 A700C.X3:22<>Y707.X1 (ECU1C–22)
2 A700C.X3:08<>Y707.X2 (ECU1C–08)

HP PUMP PUMP 1 PCV

Y705.X

Y705.X CONNECTIONS
PIN #1 A700C.X3:10<>Y705.X1 (ECU1C–10)
2 A700C.X3:09<>Y705.X2 (ECU1C–09)

WASTE–GATE CONTROL VALVE

B702.X CONNECTIONS
PIN #1 A700C.X3:60<>B702.X1 (ECU1C–60)
2 A700C.X3:19<>B702.X2 (ECU1C–19)
3 A700C.X3:33<>B702.X3 (ECU1C–33)

B702.X
FUEL PRESSURE SENSOR

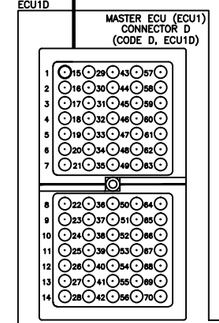
B708.X CONNECTIONS
PIN #1 A700C.X3:38<>B708.X1 (ECU1C–38)
2 A700C.X3:67<>B708.X2 (ECU1C–67)

B708.X
COOLANT TEMPERATURE SENSOR

B709.X CONNECTIONS
PIN #1 A700C.X3:52<>B709.X1 (ECU1C–52)
2 A700C.X3:66<>B709.X2 (ECU1C–66)

B709.X
FUEL TEMPERATURE SENSOR

A700.X4
ECU1D



Y704.X

Y704.X CONNECTIONS
PIN #1 A700D.X3:49<>Y704.X1 (ECU1D–49)
2 A700D.X3:48<>Y704.X2 (ECU1D–48)

HP PUMP PUMP 2 VCV

B711.X

B711.X CONNECTIONS
PIN #1 A700D.X4:34<>B711.X1 (ECU1D–34)
2 A700D.X4:59<>Y711.X2 (ECU1D–59)
3 A700D.X4:35<>B711.X3 (ECU1D–35)

Y708.X

Y708.X CONNECTIONS
PIN #1 A700D.X3:07<>Y708.X1 (ECU1D–07)
2 A700D.X3:04<>Y708.X2 (ECU1D–04)

HP PUMP PUMP 2 PCV

B751.X

B751.X CONNECTIONS
PIN #1 A700D.X4:29<>B751.X1 (ECU1D–29)
2 A700D.X4:30<>B751.X2 (ECU1D–30)

OIL TEMPERATURE SENSOR

2 → N → TO CYLINDER INJECTORS SEE PAGE 7

A700D.X4:61<>M701.50 (ECU1D–61) → J → START SIGNAL 1 SEE PAGE 3

ECU1D CONNECTIONS

PIN			PIN			PIN			PIN			PIN		
#1	N/C	.	15	N/C	.	29	A700D.X4:29<>B751.X1		43	N/C	.	57	A700D.X4:57<>B713.X2	
2	N/C	.	16	N/C	.	30	A700D.X4:30<>B751.X2		44	N/C	.	58	N/C	.
3	N/C	.	17	N/C	.	31	N/C	.	45	N/C	.	59	A700D.X4:59<>B711.X2	
4	A700D.X4:04<>Y708.X2		18	N/C	.	32	N/C	.	46	N/C	.	60	N/C	.
5	N/C	.	19	N/C	.	33	N/C	.	47	A700D.X4:47<>B713.X1		61	A700D.X4:61<>STARTER.SS.50	
6	N/C	.	20	N/C	.	34	A700D.X4:34<>B711.X1		48	A700D.X4:48<>Y704.X2		62	A700D.X4:62<>B713.X3	
7	A700D.X4:07<>Y708.X1		21	N/C	.	35	A700D.X4:35<>B711.X3		49	A700D.X4:47<>Y704.X1		63	N/C	.
8	N/C	.	22	N/C	.	36	N/C	.	50	N/C	.	64	N/C	.
9	A700D.X4:09<>Y734.X2		23	A700D.X4:23<>Y739.X2		37	N/C	.	51	A700D.X4:51<>Y735.X2		65	A700D.X4:65<>Y738.X2	
10	A700D.X4:10<>Y736.X2		24	A700D.X4:26<>Y737.X1		38	N/C	.	52	A700D.X4:52<>Y733.X2		66	A700D.X4:66<>Y740.X2	
11	A700D.X4:11<>Y732.X2		25	A700D.X4:25<>Y741.X2		39	N/C	.	53	A700D.X4:53<>Y731.X2		67	A700D.X4:67<>Y742.X2	
12	A700D.X4:12<>Y739.X1		26	A700D.X4:26<>Y734.X1		40	N/C	.	54	A700D.X4:54<>Y738.X1		68	A700D.X4:68<>Y735.X1	
13	A700D.X4:13<>Y737.X1		27	A700D.X4:27<>Y736.X1		41	N/C	.	55	A700D.X4:55<>Y740.X1		69	A700D.X4:69<>Y733.X1	
14	A700D.X4:14<>Y741.X1		28	A700D.X4:28<>Y732.X1		42	N/C	.	56	A700D.X4:56<>Y742.X1		70	A700D.X4:70<>Y731.X1	

APM 802 CONTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

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

APPROVALS	DATE
DRAWN ABS	07–11–16
CHECKED PRH	07–11–16
APPROVED JLS	07–11–16

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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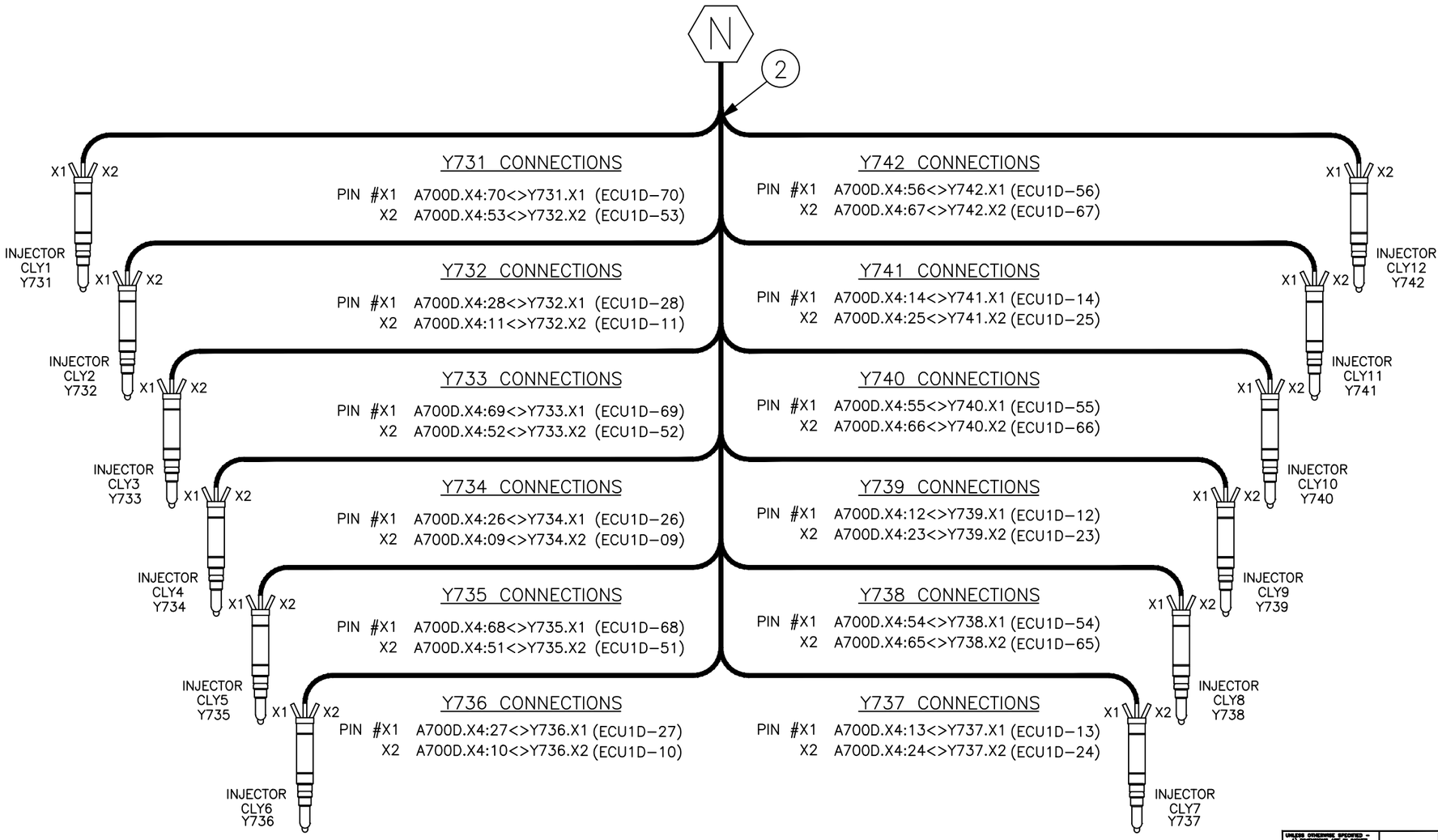
TITLE: DIAGRAM, WIRING 800–1000 kW

SCALE NONE | CAD NO. GM102782.DWG | SHEET 7–8
PLOTTED | DWG. NO. GM102782 | D

REV	DATE	REVISION	BY	M E
–	2-13-17	NEW DRAWING [CT170668]	PRH	
A	10-13-17	SEE SHEET 3 [CT178995]	BTW	

FROM ECU1D, CONNECTOR D
SEE PAGE 6



APM 802 CONTROLLER W/ ENHANCED I/O HARNESS
KD27V12 W/ ECU2 HD DIESEL

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

APPROVALS	DATE
DRAWN ABS	07-11-16
CHECKED PRH	07-11-16
APPROVED JLS	07-11-16

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

TITLE: DIAGRAM, WIRING
800–1000 kW

SCALE: NONE | CAD NO. GM102782.DWG | SHEET 8–8
PLOTTED | DWG. NO. GM102782 | D

REV	DATE	REVISION	BY	M F
E	9–29–09	SEE SHEET 2 [88437]	TLK	
F	12–1–09	(C–3) 3000 CONTROLLER ADDED TO NOTE [88773]	TLK	
G	7–06–12	(C–2,A–3) 550/3000 WAS 550; (B–3) RED OR BLUE WAS		
		RED; [CT17616]	TLK	
H	2–12–14	DRAWING COMPLETELY REVISED TO ADD RSA III, 3500, MPAC750,&		
		MPAC 1200 [CT72294]	PRH	
J	3–13–18	(C–2,3,B–1) APM402, 8000 AND APM802 ADDED [CT185399]	TLK	

DC POWER REQUIREMENTS FOR EACH RSA:
RSA1000: 12/24 VOLT, 200mA DC POWER
RSA II & RSA III: 12/24 VOLT, 1A DC POWER

IF MULTIPLE RSA'S ARE USED, RESIZE 2 POWER WIRES AS REQUIRED.

0–450 FT. [0–138 m], 22 GA.
450–700 FT. [138–214 m], 20 GA.
700–1125 FT. [214–344 m], 18 GA.
1125–1800 FT. [344–550 m], 16 GA.
1800–2800 FT. [550–856 m], 14 GA.
(SEE NOTE 4)

GENERATOR SET OUTLINE

DC VOLTAGE FROM GENERATOR BATTERY

P BATTERY POSITIVE CONNECTION

N BATTERY NEGATIVE CONNECTION

2 WIRES 10 GA. MINIMUM

ON 16 LIGHT CONTROLLER, CONNECT TO P21,
ON 550 CONTROLLER, CONNECT TO P20,
ON 3000/APM402 CONTROLLER, CONNECT TO P21,
ON 8000 CONTROLLER, CONNECT TO RS485(2) BLOCK, RSA III ONLY,
ON APM802 CONTROLLER, CONNECT TO TB10, RSA III ONLY,
ON 3500 CONTROLLER, CONNECT TO TB12, RSA III ONLY

RS–485 (MODBUS RTU) (SEE NOTE 5)

RSA REMOTE SERIAL ANNUNCIATOR (MASTER)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

(SEE SHEET 2 WHEN USED WITH AN ETHERNET NETWORK)

GENSET CONTROLLER

16–LIGHT COMM MODULE (GM32644–KA1 OR –KP1)

16–LIGHT ONLY (REQUIRES RED OR BLUE MAIN LOGIC BOARD)

2 WIRES 18–20 GA. ENGINE START WIRES RUN TO POSITION CONTACTS ON ATS (CLOSED IN EMERGENCY) WIRE OR'D FOR MULTIPLE ATS INSTALLATION

BATTERY CHARGER (10A) W/FAULT ALARMS

BATTERY CHARGER ALARMS:
(NOT REQUIRED ON GENSET MOUNTED BATTERY CHARGERS)
16–LIGHT: 4 WIRES 18–20 GA.
550/3000/APM402/8000/APM802: 2 WIRES 18–20 GA.

ATS (AUTOMATIC TRANSFER SW.) RSA1000, RSAII, OR RSAIII

ATS (AUTOMATIC TRANSFER SW.) RSA III ONLY

ATS (AUTOMATIC TRANSFER SW.) RSA III ONLY

ATS (AUTOMATIC TRANSFER SW.) RSA III ONLY

EPS SUPPLYING LOAD INDICATION:

16–LIGHT ONLY: (SEE SECTION 4.6 OF TT–1485)
CONNECT VIA TWO 14–20 GA. WIRES TO 16–LIGHT COMM. MODULE BOARD TO COMMUNICATE EPS SUPPLYING LOAD INDICATION VIA RS–485 NETWORK.

550/3000/APM402/8000/APM802/3500 ONLY:
THIS CONNECTION IS NOT USED. EPS SUPPLYING LOAD INDICATION VIA RS–485 FROM GENSET CONTROLLER.

NOTE: THESE WIRES ARE WIRE OR'D FOR MULTIPLE ATS INSTALLATION.

RSA II & RSA III WITH ATS OPTION:
RS–485 TO ATS REQUIRED
(MODBUS RTU) (SEE NOTE 5)

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 FOR RSA1000 OR AC ADAPTER KIT (GM62466–KP1) FOR RSA II & RSA III.
5. USE BELDEN #9841 OR EQUIVALENT. MAXIMUM DISTANCE = 4000 FT. [1219 m]

REFER TO WIRING DIAGRAM GM41145 (RSA1000) OR GM62554 (RSA II & RSA III) 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 63 MAX. .X ± .060 FRACTIONS ±

APPROVALS		DATE
DRAWN	JS	7–28–04
CHECKED	JL	7–29–04
APPROVED	JS	7–29–04

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TITLE: DIAGRAM, RSA INTERCONNECTION
SCALE: / / / | CAD NO. ADV6990A.DWG | SHEET 1–2
PLOTTED | DWG. NO. ADV–6990 | C G

ETHERNET NETWORK CONNECTIONS

REV	DATE	REVISION	BY	MF
E	9-29-09	RSA SLAVES REVISED; (D-4) MASTER NOTE REVISED;		
		(C-4) MAXIMUM OF 5 SLAVES WAS 4 [88437]	TLK	
F	12-1-09	(D-1) 3000 CONTROLLER ADDED TO NOTE [88773]	TLK	
G	7-06-12	SEE SHEET 1 [CT17616]	TLK	
H	2-12-14	DRAWING COMPLETELY REVISED TO ADD RSA III, 3500, MPAC750,&		
		MPAC1200 [CT72294]	PRH	
J	3-13-18	(D-1) APM402, 8000 AND APM802 ADDED [CT185399]	TLK	

RSA1000/RSA II/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.

RSA1000:
A MAXIMUM OF 3 SLAVES CAN BE CONNECTED TO A MASTER RSA1000, INCLUDING SLAVES CONNECTED THROUGH THE ETHERNET NETWORK.

RSA II:
A MAXIMUM OF 5 SLAVES CAN BE CONNECTED TO A MASTER RSA II, INCLUDING SLAVES CONNECTED THROUGH THE ETHERNET NETWORK. IF ANY RSA1000 ANNUNCIATORS ARE ON THE SAME NETWORK AS AN RSA II ANNUNCIATOR, THE RSA1000 ANNUNCIATORS MUST BE CONFIGURED AS SLAVES.

RSA III:
A MAXIMUM OF 5 SLAVES CAN BE CONNECTED TO A MASTER RSA III, INCLUDING SLAVES CONNECTED THROUGH THE ETHERNET NETWORK. IF ANY RSA1000 & RSA II ANNUNCIATORS ARE ON THE SAME NETWORK AS AN RSA III ANNUNCIATOR, THE RSA1000 & RSA II ANNUNCIATORS MUST BE CONFIGURED AS SLAVES.

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)

MODBUS/ ETHERNET CONVERTER

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

ON 16 LIGHT CONTROLLER, CONNECT TO P21,
ON 550 CONTROLLER, CONNECT TO P20,
ON 3000/APM402 CONTROLLER, CONNECT TO P21,
ON ~~8000 CONTROLLER, CONNECT TO RS485(2) BLOCK~~,
ON APM802 CONTROLLER, CONNECT TO TB10,
ON 3500 CONTROLLER, CONNECT TO TB12.

CONTROL PANEL
(SEE SHEET 1 FOR BATTERY CHARGER & REMOTE E-STOP CONNECTIONS)

ONLY THE RSA III SUPPORTS THE 3500, 8000, OR APM802 CONTROLLER.

16-LIGHT COMM. MODULE (GM32644-KA1 OR -KP1)

SEE SHEET 1 FOR AUTOMATIC TRANSFER SWITCH CONNECTION.

16-LIGHT ONLY (REQUIRES RED OR BLUE MAIN LOGIC BOARD)

GENERATOR SET OUTLINE

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

ETHERNET NETWORK (CUSTOMER SUPPLIED)

RSA REMOTE SERIAL ANNUNCIATOR (MASTER)

RS-485 (MODBUS RTU) (SEE NOTE 5)

MODBUS/ ETHERNET CONVERTER

ETHERNET (MODBUS TCP/IP) CATEGORY 5 OR EQUIVALENT

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

RS-485 (MODBUS RTU) (SEE NOTE 5)

MODBUS/ ETHERNET CONVERTER

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

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

RSA REMOTE SERIAL ANNUNCIATOR (SLAVE)

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

RS-485 (MODBUS RTU) (SEE NOTE 5)

ATS (AUTOMATIC TRANSFER SWITCH) RSA II OR RSA III

ATS (AUTOMATIC TRANSFER SWITCH) RSA III ONLY

ATS (AUTOMATIC TRANSFER SWITCH) RSA III ONLY

ATS (AUTOMATIC TRANSFER SWITCH) RSA III ONLY

RSA II SUPPORTED ATS'S:
MPAC1000 OR MPAC1500 ARE SUPPORTED. SUPPORTS ONLY ONE ATS.

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

REQUIRED FOR RSA II & RSA III WITH ATS OPTION ONLY

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± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 √ MAX.
FRACTIONS ±

APPROVALS		DATE
DRAWN	TLK	10-07-05
CHECKED	TLK	10-14-05
APPROVED	EDA	10-10-05

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TITLE: DIAGRAM, RSA INTERCONNECTION

SCALE / / / | CAD NO. ADV6990B.DWG | SHEET 2-2
PLOTTED | DWG. NO. ADV-6990 | C G

REV	DATE	REVISION	BY	APP'D
M	10-25-18	THIS SHEET INSERTED [CT191583]	TLK	

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 (MODBUS RTU) (SEE NOTE 2)
K TO DIS SHEET 10 OR RSA III SHEET 12 VIA RS-485
J TO RSA III VIA MODBUS/ETHERNET CONVERTER SHEET 10
A TO NETWORKED RS-485 DEVICES SHEET 9 (REFERENCE DETAIL A)

RS-485 (MODBUS RTU) (SEE NOTE 2)
A TO NETWORKED RS-485 DEVICES SHEET 9 (REFERENCE DETAIL A)

RS-485 (PGEN) (SEE NOTE 2)
TO APM603 CONTROLLER (SEE DETAIL D) PGEN VIA RS-485

RS-485 (PGEN) (SEE NOTE 2)
TO APM603 CONTROLLER (SEE DETAIL D) PGEN VIA RS-485

RS-485 (MODBUS RTU) (SEE NOTE 2)
K TO DIS SHEET 10 OR RSA III SHEET 12 VIA RS-485
J TO RSA III VIA MODBUS/ETHERNET CONVERTER SHEET 10
A TO NETWORKED RS-485 DEVICES SHEET 9 (REFERENCE DETAIL A)

RS-485 (MODBUS RTU) (SEE NOTE 2)
A TO NETWORKED RS-485 DEVICES SHEET 9 (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

UNINS.-S4 (TB10-5)

P4: 35 3B 5B · ES3 ES2A · · · · 64 4 EBCR 24 / AXF BCF 5 · · · · · · CBTR / N12 AXW LFL 63C · · · · N4 KYR1 KYA1 GFR 1 / 12
P3: 8 BL2 BL1 NEU C 5 / 4 BL3 BL0 B A 1
P2: 23 I1 I2 I3 · · · · PFIC 16 / I1R I2R I3R · · · · N1 / 8 · · · · · · · 1
P1: 35 WHT BLK NRD · ES2 N30 ES1 N28 GRN YEL · · 24 / · · 71N 32A RD6 CBT S3 31A S2 N14 S5 / 12 · · 70N HRN RD5 CBC WHT BLK WHT BLK YEL GRN 1

THE APM603 CONTROLLER CANNOT BE USED AS AN RS-485 TO ETHERNET CONVERTER
ETHERNET P5

PB9 (OPPOSITE SIDE) (USB HOST PORT)
PB10 (OPPOSITE SIDE) (USB DEVICE PORT)

APM603 CONTROLLER

N TO RSA III OR DIS VIA ETHERNET NETWORK SHEET 10
R TO DIS (DATA INTERFACE SYSTEM) SHEET 10
P TO PC (SITETECH) VIA USB SHEET 10

CUSTOMER SUPPLIED

KD SERIES
STANDARD PGEN NETWORK
FOR GENERAL NOTES, SEE SHEET 1

UNLESS OTHERWISE SPECIFIED -
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .020 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: /// GRD NO. SHEET 5-12
PLOTTED SIZE NO. GM62554 D

REV	DATE	REVISION	BY	APP'D
L	3-9-18	THIS SHEET INSERTED [CT185399]	TLK	
M	10-30-18	(A-B) ETHERNET MODULE ADDED [CT191583]	TLK	

GENSET CONTROLLERS

APM802 GENSET CONTROLLER
081A02 BASE MODULE
(BM)
I/O & POWER SUPPLIES

P21 P5 P4 P23 P20 P19 P18 P17 P14 P15 P16

PICK-UP
CAN1 CAN2 CAN3 CAN4
BOOT MODE
USB
CONF
L1 L2 REDUNDANCY OPERATION
ETHERNET 1 ETHERNET 2 ETHERNET 3 ETHERNET 4
RS485

GRN (TB10-06)
BLU (TB10-07)
GRN (BM-112)
BLU (BM-114)

ETHERNET MODULE

TB10

RS-485 (MODBUS RTU) (SEE NOTE 2)
- K TO DIS SHEET 10 OR RSA III SHEET 12 VIA RS-485
- J TO RSA III VIA MODBUS/ETHERNET CONVERTER SHEET 10
- A TO NETWORKED RS-485 DEVICES SHEET 9 (REFERENCE DETAIL A)
- N TO RSA III OR DIS VIA ETHERNET NETWORK SHEET 10
- R TO DIS (DATA INTERFACE SYSTEM) SHEET 10

DEC 8000 GENSET CONTROLLER
CONTROLLER BASE BOX

GENERATOR VOLTAGE
MAINS/BUS VOLTAGE
BINARY INPUTS
DISPLAY CAN1 CAN2
BINARY INPUTS
ANALOG INPUTS
MAGNETIC PICK-UP
SPEED GOVERNOR
CONFIG. ANALOG OUTPUTS
RS232 USB ETHERNET
BLUE GREEN
RS485(2)
BINARY OUTPUTS
GENERATOR CURRENT
AVR BINARY OUTPUTS POWER
GREEN BLUE

RS-485 (MODBUS RTU) (SEE NOTE 2)
- K TO DIS SHEET 10 OR RSA III SHEET 12 VIA RS-485
- J TO RSA III VIA MODBUS/ETHERNET CONVERTER SHEET 10
- A TO NETWORKED RS-485 DEVICES SHEET 9 (REFERENCE DETAIL A)

ETHERNET (MODBUS TCP/IP) CAT5 OR EQUIVALENT
- R TO DATA INTERFACE SYSTEM SHEET 10

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 125 MAX. .X ± .060 FRACTIONS ±

APPROVALS	DATE
DRAWN TLK	3-9-18
CHECKED TLK	3-9-18
APPROVED DWD	3-9-18

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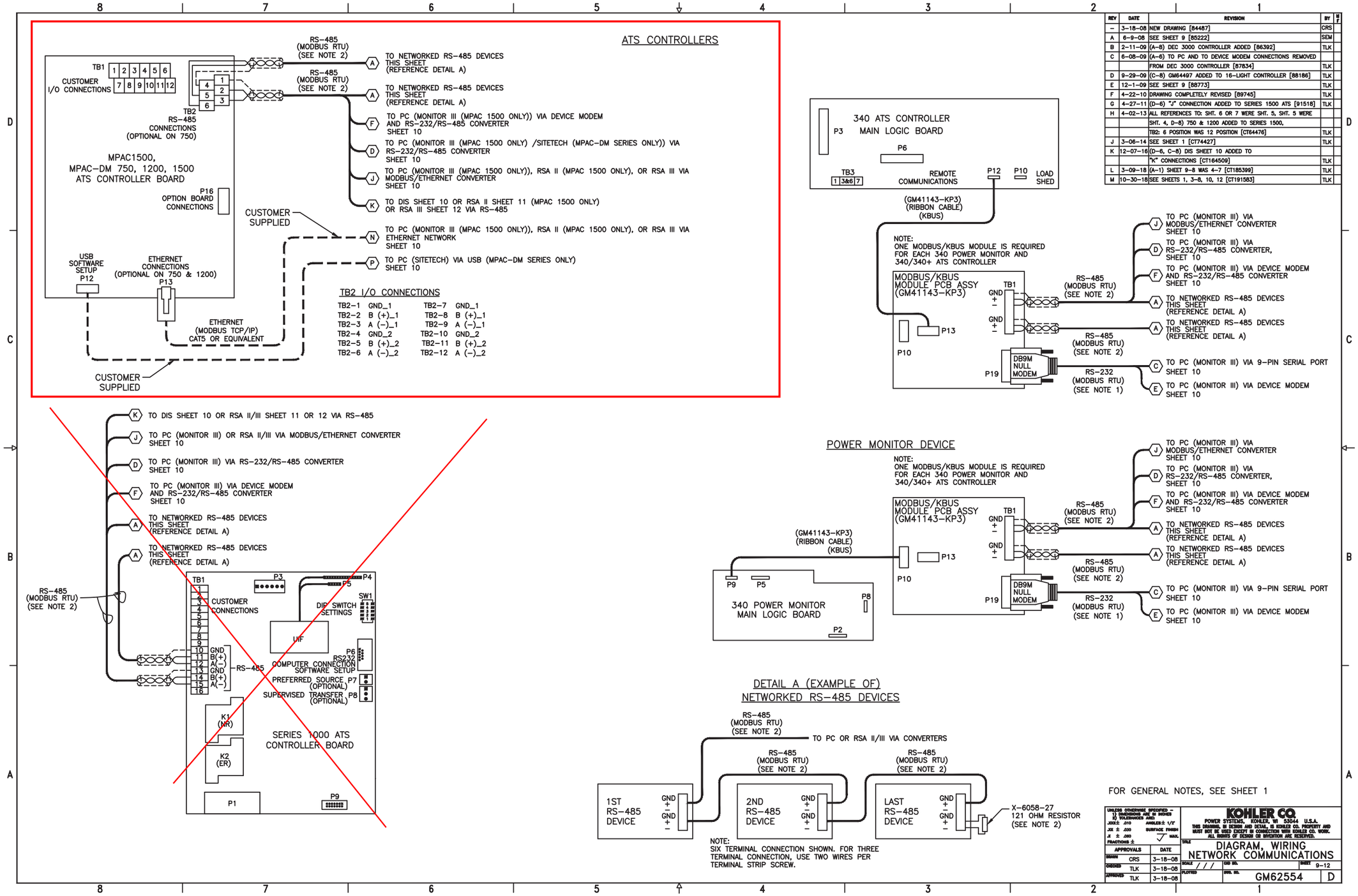
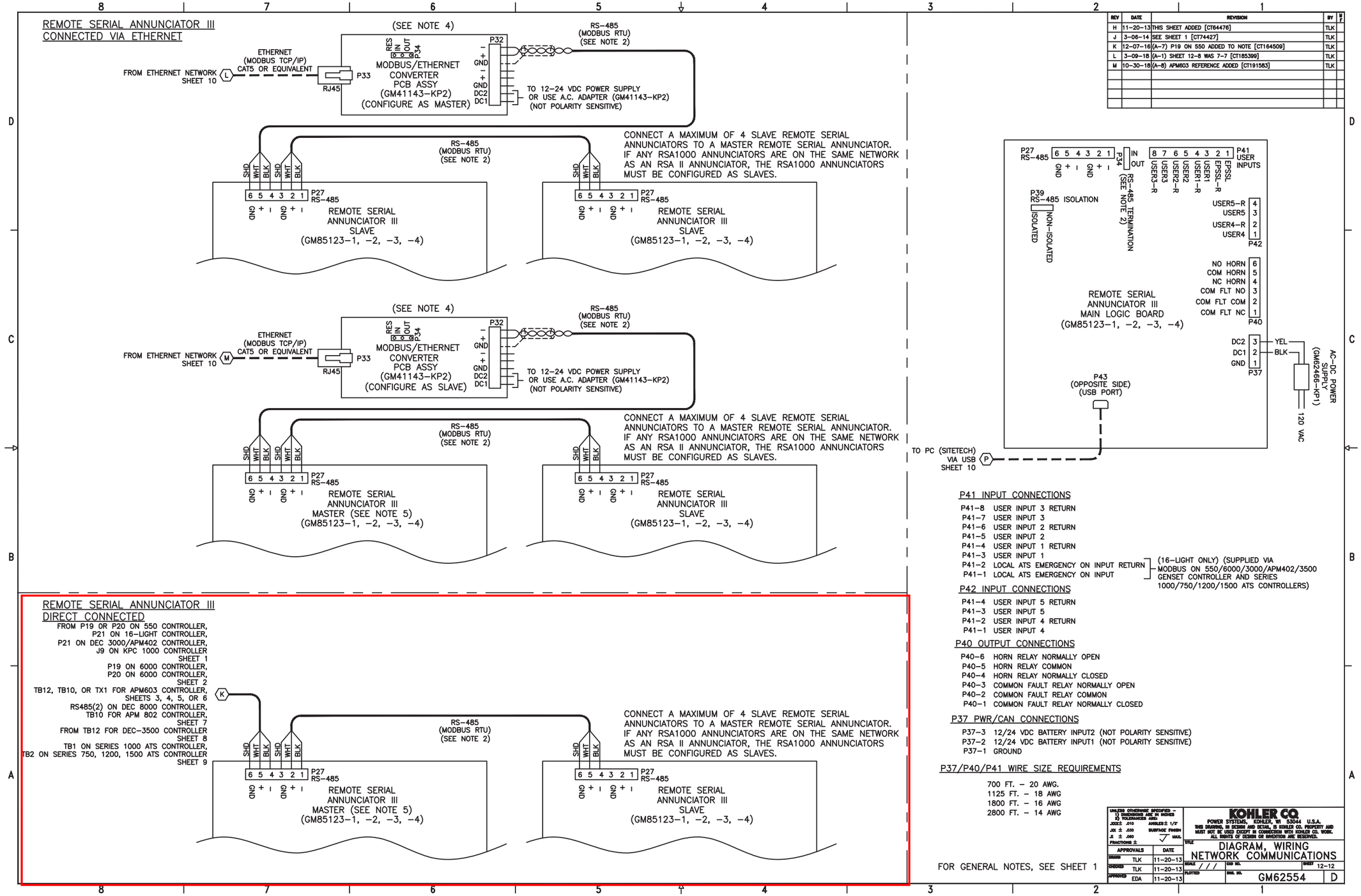
TITLE: DIAGRAM, WIRING NETWORK COMMUNICATIONS

SCALE /// | SHEET 7-12 | GM62554 | D



REV	DATE	REVISION	BY	APP
–	3-18-08	NEW DRAWING [84487]	CRS	
A	6-9-08	SEE SHEET 9 [85222]	SEM	
B	2-11-09	(A-8) DEC 3000 CONTROLLER ADDED [86392]	TLK	
C	6-08-09	(A-6) TO PC AND TO DEVICE MODEM CONNECTIONS REMOVED		
		FROM DEC 3000 CONTROLLER [87834]	TLK	
D	9-29-09	(C-8) GM64497 ADDED TO 16-LIGHT CONTROLLER [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-6) "J" CONNECTION ADDED TO SERIES 1500 ATS [91518]	TLK	
H	4-02-13	ALL REFERENCES TO: SHT. 6 OR 7 WERE SHT. 5, SHT. 5 WERE		
		SHT. 4, D-8) 750 & 1200 ADDED TO SERIES 1500,		
		TB2: 6 POSITION WAS 12 POSITION [CT64476]	TLK	
J	3-06-14	SEE SHEET 1 [CT74427]	TLK	
K	12-07-16	(D-6, C-8) DIS SHEET 10 ADDED TO		
		"K" CONNECTIONS [CT164509]	TLK	
L	3-09-18	(A-1) SHEET 9-8 WAS 4-7 [CT185399]	TLK	
M	10-30-18	SEE SHEETS 1, 3-8, 10, 12 [CT191583]	TLK	


REMOTE SERIAL ANNUNCIATOR III
CONNECTED VIA ETHERNET
(SEE NOTE 4)
ETHERNET
(MODBUS TCP/IP)
CAT5 OR EQUIVALENT
FROM ETHERNET NETWORK
SHEET 10
RJ45
P33
MODBUS/ETHERNET
CONVERTER
PCB ASSY
(GM41143-KP2)
(CONFIGURE AS MASTER)
RES
IN
OUT
P34
P32
GND
DC2
DC1
RS-485
(MODBUS RTU)
(SEE NOTE 2)
TO 12-24 VDC POWER SUPPLY
OR USE A.C. ADAPTER (GM41143-KP2)
(NOT POLARITY SENSITIVE)
SHD
WHT
BLK
P27
RS-485
REMOTE SERIAL
ANNUNCIATOR III
SLAVE
(GM85123-1, -2, -3, -4)
CONNECT A MAXIMUM OF 4 SLAVE REMOTE SERIAL ANNUNCIATORS TO A MASTER REMOTE SERIAL ANNUNCIATOR. IF ANY RSA1000 ANNUNCIATORS ARE ON THE SAME NETWORK AS AN RSA II ANNUNCIATOR, THE RSA1000 ANNUNCIATORS MUST BE CONFIGURED AS SLAVES.
(SEE NOTE 4)
(CONFIGURE AS SLAVE)
REMOTE SERIAL
ANNUNCIATOR III
MASTER (SEE NOTE 5)
(GM85123-1, -2, -3, -4)
REMOTE SERIAL ANNUNCIATOR III
DIRECT CONNECTED
FROM P19 OR P20 ON 550 CONTROLLER,
P21 ON 16-LIGHT CONTROLLER,
P21 ON DEC 3000/APM402 CONTROLLER,
J9 ON KPC 1000 CONTROLLER
SHEET 1
P19 ON 6000 CONTROLLER,
P20 ON 6000 CONTROLLER,
SHEET 2
TB12, TB10, OR TX1 FOR APM603 CONTROLLER,
SHEETS 3, 4, 5, OR 6
RS485(2) ON DEC 8000 CONTROLLER,
TB10 FOR APM 802 CONTROLLER,
SHEET 7
FROM TB12 FOR DEC-3500 CONTROLLER
SHEET 8
TB1 ON SERIES 1000 ATS CONTROLLER,
TB2 ON SERIES 750, 1200, 1500 ATS CONTROLLER
SHEET 9
REV
DATE
REVISION
BY
CHK
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
P27
RS-485
P34
P41
USER
INPUTS
P39
RS-485 ISOLATION
ISOLATED
NON-ISOLATED
RS-485 TERMINATION
(SEE NOTE 2)
USER5-R
USER5
USER4-R
USER4
P42
NO HORN
COM HORN
NC HORN
COM FLT NO
COM FLT COM
COM FLT NC
P40
REMOTE SERIAL
ANNUNCIATOR III
MAIN LOGIC BOARD
(GM85123-1, -2, -3, -4)
DC2
DC1
GND
P37
YEL
BLK
120 VAC
AC-DC POWER
SUPPLY
(GM82466-KP1)
P43
(OPPOSITE SIDE)
(USB PORT)
TO PC (SITETECH)
VIA USB
SHEET 10
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
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POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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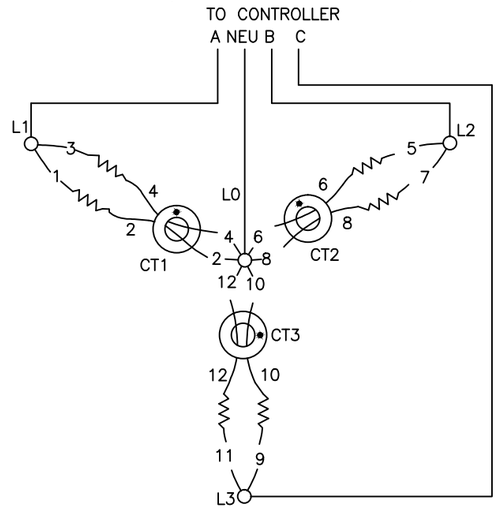
APPROVALS DATE
DRAWN TLK 11-20-13
CHECKED TLK 11-20-13
APPROVED EDA 11-20-13
TITLE
DIAGRAM, WIRING
NETWORK COMMUNICATIONS
SCALE
DWG NO.
SHEET 12-12
PLOTTED
DWG NO. GM62554 D

REV	DATE	REVISION	BY	CK
Y	2-13-19	DEC3500 MECC ALTE CONNECTION VIEWS ADDED [CT193706]	RVM	
AA	6-3-19	(C-7) LOW WYE, PARALLEL STAR WAS LOW WYE;		
		(C-4) HI WYE, SERIES STAR WAS HI WYE;		
		(A-3) NOTE ADDED [CT196205]	KK	

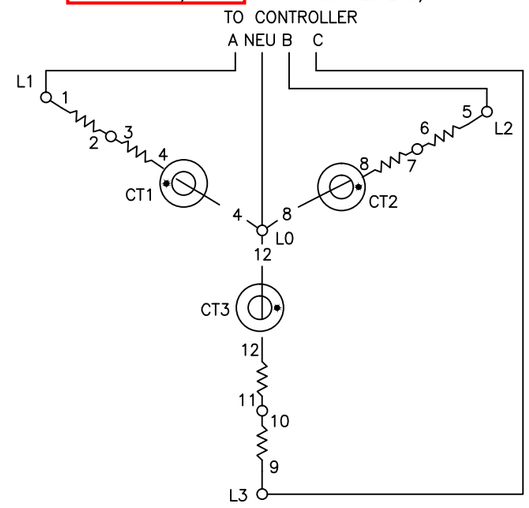
12 LEAD ALTERNATOR, 4 WIRE, LOW WYE, PARALLEL STAR

60 HZ: 120/208V
60 HZ: 127/220V
60 HZ: 139/240V
50 HZ: 110/190V
50 HZ: 115/200V
50 HZ: 120/208V



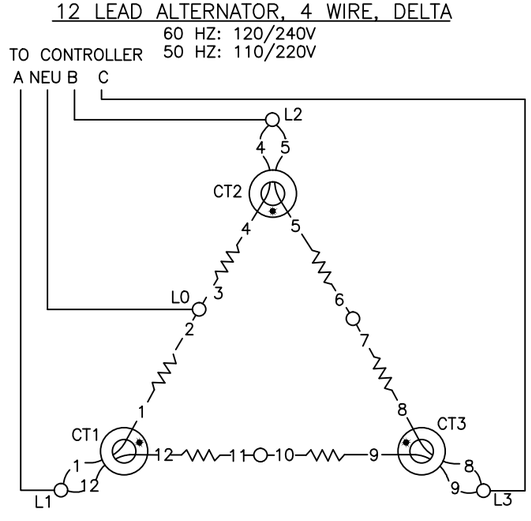
12 LEAD ALTERNATOR, 4 WIRE, HI WYE, SERIES STAR

60 HZ: 220/380V
60 HZ: 240/416V
60 HZ: 277/480V
50 HZ: 220/380V
50 HZ: 230/400V
50 HZ: 240/416V



12 LEAD ALTERNATOR, 4 WIRE, DELTA

60 HZ: 120/240V
50 HZ: 110/220V



PHASE ROTATION

A	B	C
L1	L2	L3

NOTES:
CURRENT TRANSFORMER DOT OR "H1" TOWARD GENERATOR.
CURRENT TRANSFORMERS NOT USED ON ALL SETS.
SOME STATORS HAVE DUAL LEADS. ALWAYS CONNECT LEADS OF THE SAME LABEL TOGETHER.

APM802 CONTROLLER
DEC3500 CONTROLLER
MECC ALTE ALTERNATOR

UNLESS OTHERWISE SPECIFIED: 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX± .010 .XX ± .030 .X ± .060 FRACTIONS ± ANGLES± 1/2° SURFACE FINISH 125 MAX.

APPROVALS	DATE
DRAWN PRH	5-27-04
CHECKED IF	5-27-04
APPROVED IF	5-27-04

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

TITLE: DIAGRAM, ALTERNATOR CONNECTIONS
SCALE: NONE
SHEET: 8-8
PLOTTED
DWG NO. ADV-5875
REV. D

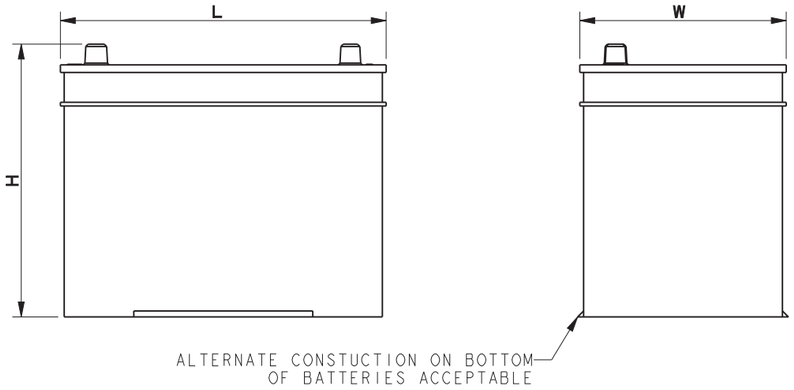
KOHLER®

Miscellaneous

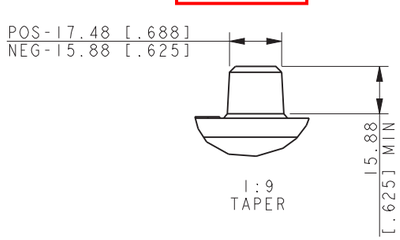
PART NO.	REV	SAE DIMENSION L	SAE DIMENSION W	SAE DIMENSION H	VOLTAGE	COLD CRANKING AMPS AT 0°F MINIMUM	RESERVE CAP MINUTES AT 80°F MINIMUM	POST LAYOUT /STYLE	CHARGE TYPE	BATTERY CONSTRUCTION	BCI GROUP
~~244578~~	~~BF~~	~~333.5 [13.13]~~	~~181.1 [7.13]~~	~~238.5 [9.39]~~	~~6~~	~~700~~	~~275~~	~~B/1~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
~~244750~~	~~BD~~	~~342.9 [13.50]~~	~~173.2 [6.82]~~	~~238.3 [9.38]~~	~~12~~	~~600~~	~~165~~	~~D/1~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
~~239102~~	~~BK~~	~~198.1 [7.80]~~	~~133.4 [5.25]~~	~~187.5 [7.38]~~	~~12~~	~~200~~	~~32~~	~~D/2~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
~~289515~~	~~BC~~	~~539.8 [21.25]~~	~~282.7 [11.13]~~	~~276.4 [10.88]~~	~~12~~	~~1150~~	~~450~~	~~A/1~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
~~291918~~	~~BC~~	~~333.2 [13.12]~~	~~173.0 [6.81]~~	~~239.8 [9.44]~~	~~12~~	~~700~~	~~150~~	~~C/3~~	~~WET~~	~~SEE NOTE 1~~	~~—~~
~~299981~~	~~BD~~	~~333.2 [13.12]~~	~~173.0 [6.81]~~	~~239.8 [9.44]~~	~~12~~	~~700~~	~~150~~	~~C/3~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
~~254425~~	~~BD~~	~~333.2 [13.12]~~	~~173.0 [6.81]~~	~~239.8 [9.44]~~	~~12~~	~~1000~~	~~200~~	~~C/3~~	~~WET~~	~~SEE NOTE 1~~	~~—~~
~~299982~~	~~BC~~	~~333.2 [13.12]~~	~~173.0 [6.81]~~	~~239.8 [9.44]~~	~~12~~	~~950~~	~~200~~	~~C/3~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
~~324367~~	~~BM~~	~~208.0 [8.19]~~	~~179.4 [7.06]~~	~~196.9 [7.75]~~	~~12~~	~~675~~	~~90~~	~~C/1~~	~~WET~~	~~SEE NOTE 1~~	~~—~~
~~324368~~	~~BC~~	~~206.5 [8.13]~~	~~166.9 [6.57]~~	~~205.2 [8.08]~~	~~12~~	~~675~~	~~90~~	~~C/1~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
324586	BT	330.2 [13.00]	173.0 [6.81]	239.8 [9.44]	12	950	185	C/3	WET	SEE NOTE 2	31
324587	BT	330.2 [13.00]	173.0 [6.81]	239.8 [9.44]	12	950	200	C/3	DRY	SEE NOTE 2	31
256984	BR	273.0 [10.75]	173.0 [6.81]	228.6 [9.00]	12	650	120	D/1	WET	SEE NOTE 1	24
225289	BR	273.0 [10.75]	173.0 [6.81]	228.6 [9.00]	12	650	130	D/1	DRY	SEE NOTE 1	24
~~345197~~	~~BS~~	~~273.0 [10.75]~~	~~173.0 [6.81]~~	~~228.6 [9.00]~~	~~12~~	~~510~~	~~80~~	~~E/1~~	~~WET~~	~~SEE NOTE 2~~	~~24T~~
354147	BT	330.2 [13.00]	173.0 [6.81]	239.8 [9.44]	12	700	170	C/3	WET	SEE NOTE 2	31
~~354148~~ □	~~BU~~	~~330.2 [13.00]~~	~~173.0 [6.81]~~	~~239.8 [9.44]~~	~~12~~	~~700~~	~~150~~	~~C/3~~	~~DRY~~	~~SEE NOTE 2~~	~~31~~
345309	BR	219.2 [8.63]	153.9 [6.06]	212.9 [8.38]	12	525	-	E/1	WET	SEE NOTE 1	55
~~GM22348~~	~~BC~~	~~525.3 [20.68]~~	~~220.5 [8.68]~~	~~251.0 [9.88]~~	~~12~~	~~1000~~	~~320~~	~~A/1~~	~~DRY~~	~~SEE NOTE 1~~	~~—~~
GM22349	BR	527.1 [20.75]	282.4 [11.12]	276.4 [10.88]	12	1150	400	A/1	DRY	SEE NOTE 1	8D
GM34399	BS	527.1 [20.75]	282.4 [11.12]	276.4 [10.88]	12	1400	430	A/1	WET	SEE NOTE 1	8D
GM48784	BR	208.0 [8.19]	173.0 [6.81]	196.9 [7.75]	12	525	70	D/1	WET	-	26
GM75512	BS	238.0 [9.38]	129.0 [5.06]	223.0 [8.81]	12	500	85	D/1	WET	-	51
10702000701	A	527.1 [20.75]	216.0 [8.50]	258.0 [10.16]	12	1050	290	A/1	WET	-	4D
10702001800	A	527.1 [20.75]	216.0 [8.50]	254.0 [10.0]	12	1110	380	A/1	AGM	SEE NOTE 3	4D

NOTE: DIMENSIONS IN [ ] ARE ENGLISH EQUIVALENTS.

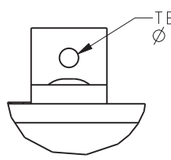
□ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION



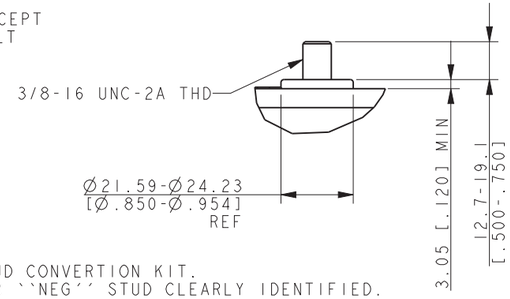
STYLE 1



STYLE 2



STYLE 3



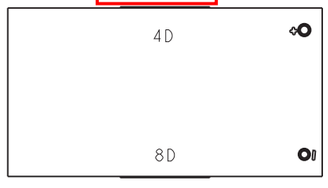
NOTES:
1) STYLE 3 CAN BE CONVERTED TO STYLE 1 BY INSTALLATION OF 254427 STUD CONVERTION KIT.
2) BATTERIES USING ``STYLE 3'' STUDS MUST HAVE EITHER THE ``POS'' OR ``NEG'' STUD CLEARLY IDENTIFIED.
3) STYLE 3 TERMINAL TORQUE 10 Nm [15 FT LBS].
4) "POS" & "NEG" IDENTIFICATION MUST BE MARKED AS SHOWN ON THE PART LAYOUT AND WITHIN 5mm OF THE STUD.

NOTES: (APPLIES TO ALL BATTERIES)
SAE J537 DIMENSIONS ARE MAX ALLOWABLE DIMENSIONS.
COLD CRANKING AMPS ARE MINIMUM ACCEPTABLE VALUES.
HOLD DOWN DESIGN IN COMPLIANCE WITH SAE STANDARDS.
BATTERY WARNING LABEL TO BE LOCATED ON TAP OF BATTERY. (BETWEEN TERMINALS ON LAYOUT D)
MANUFACTURER MUST PROVIDE A CERTIFICATE CONTAINING MFGRS. NAME, MFGRS. PART NUMBER,
AND KOHLER PART NUMBER CERTIFYING THAT THE BATTERY WAS BUIT TO INDUSTRY STANDARDS.
SEE N.F.P.A.-110 FOR SPECIFIC DETAILS. CERTIFICATE REQUIRED ONLY ONCE PER BATTERY PART NUMBER.
MAY NOT BE CALCIUM-CALCIUTYPE.

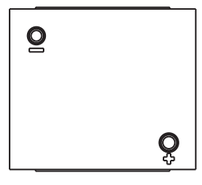
NOTES: (CHARGE TYPE)
ALL DRY CHARGED BATTERIES MUST BE SUPPLIED WITH ACTIVATION INSTRUCTIONS ADHERED TO BATTERY
AND LOOSE. BATTERY MUST ALSO BE IDENTIFED ON TOP AS: ``DRY CHARGED, MUST ADD BATTERY GRADE
ELECTROLYTE, SEE ACTIVATION INSTRUCTIONS''.
BATTERIES SHOULD BE RECEIVED APPROPRIATELY MARKED AS DRYCHARGED OR WET STORAGE.
ONE OF THE BATTERY POSTS MUST BE SHIELDED WHEN BATTERIES ARE WET CHARGED.
BATTERIES WHEN SHIPPED DRY - DO NOT REQUIRE POST PROTECTORS.

NOTES: (BATTERY CONSTRUCTION)
1) MUST BE LEAD-CALCIUM HYBRID OR LEAD-ANTIMONY TYPE.
2) LEAD-CALCIUM GRID.
3) ABSORBED GLASS MAT. (AGM)

LAYOUT A

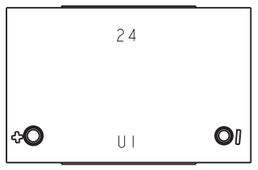


LAYOUT B



LAYOUT C

LAYOUT D



LAYOUT E

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
BT	3-14-12	(B-8) ADD NOTE 4, (B-3)CHANGE POSITIION OF + &	
		- SYMBOLS IN LAYOUT C, CHANGE DRAWING TITLE TO	
		DWG, BATTERY, DRY CHARGED, CHANGE DRAWING	
		NUMBER TO 244578_CMP. [CT07762]	CEK
BU	12-15-14	(C-6) COLD CRANKING AMPS (CCA) 1400 WAS 1150 [CT101765]	SAK
BV	6-23-15	(C-8) 10702000701 ADDED [CT116554]	DJV
BW	12-17-15	(C-8) 354148 VOIDED, 10702001800 ADDED [CT138744]	CEK
BY	5-6-16	(C-6) 10702001800: COLD CRANKING AMPS 1110 WAS 1100. [CT146053]	BGW

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

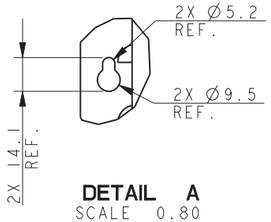
APPROVALS		DATE
DRAWN	SLR	2-4-80
CHECKED	EB	9-13-83
APPROVED	RAD	9-20-83

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

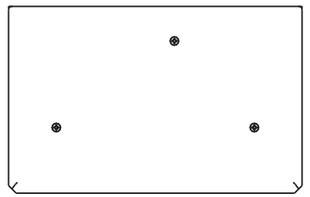
TITLE: DWG, BATTERY, DRY CHARGED

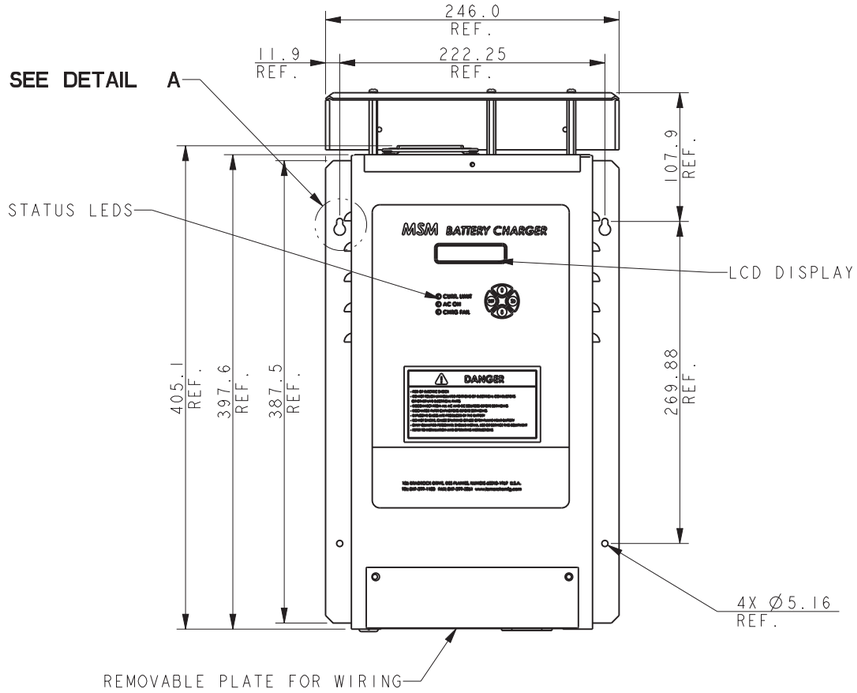
SCALE 0.40 | CAD NO. | SHEET 1 of 1
DWG NO. 244578-CMP | D

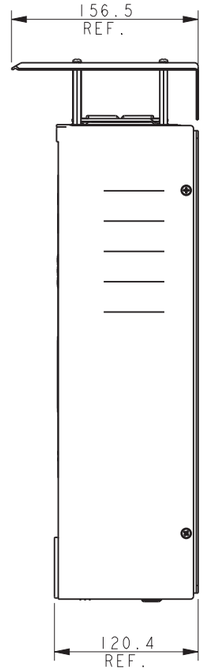
PART NO.	REV.
10702002600	B □



DETAIL A
SCALE 0.80







▲ DENOTES A CRITICAL CHARACTERISTIC THAT MUST BE ADDRESSED IN THE PRODUCTION CONTROL PLAN.
TOTAL QUANTITY OF MAJOR 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

Equipment requires External Electrical Power
Contractor to provide power source

NOTES:
LAMARCHE P/N: MSM-20-24V-UI
SEE SPECIFICATION SHEET FOR PURCHASED / INSTALLATION DATA

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL □ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION	BY
A	4-29-16	NEW DRAWING [CT145512]	BGW
B	4-20-17	(B-5) 269.88 REF WAS 286.56 REF [CT173600]	BGW

KD27V12
KD45V20
KD36V16
KD62V12
KD83V16
KD103V20

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 (M-D-Y)
DRAWN	BGW	4-29-16
CHECKED	DJV	4-29-16
APPROVED	JDZ	4-29-16

KOHLER CO. SDMO
KOHLER POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
SDMO, CS 92848, 29228 BREST CEDEX 2, FRANCE

METRIC
PRO-E

TITLE
DWG, BATTERY CHARGER 24V

SCALE 0.40 | CAD NO. | SHEET 1 of 1
DWG NO. 107020026XX | D

BLOCK HEATER	PART REV		VOLTS/PHASE	REPLACEMENT ELEMENT (SERVICE)	WATTS	TYPE	OPERATING TEMPERATURE
GM62498	D		480V / 3Ø	GM62638	9000	1	120-140
GM62499	D		240V / 1Ø	GM62639	9000	2	120-140
GM62500	D		480V / 1Ø	GM62640	9000	3	120-140
GM62501	D		240V / 3Ø	GM62641	9000	1	120-140
GM62502	D		380V / 3Ø	GM62642	9000	1	120-140
GM62509	D		208V / 1Ø	GM62649	9000	2	120-140
GM62504*	D		240V / 1Ø	GM62644	12000	3	120-140
GM62505	D		480V / 1Ø	GM62645	12000	3	120-140
GM62506	D		240V / 3Ø	GM62646	12000	1	120-140
GM62507	D		380V / 3Ø	GM62647	12000	1	120-140
GM62503	D		480V / 3Ø	GM62643	12000	1	120-140
GM62508	D		208V / 1Ø	GM62648	10500	3	120-140
GM62510	E		480V / 3Ø	GM74181	6000	1	120-140
GM62511	E		240V / 1Ø	GM74182	6000	2	120-140
GM62512	E		480V / 1Ø	GM74183	6000	3	120-140
GM62513	E		240V / 3Ø	GM74184	6000	1	120-140
GM62514	E		380V / 3Ø	GM74185	6000	1	120-140
GM77835	H		208V / 1Ø	GM77836	6000	2	120-140
ES-75396	G		208V / 3Ø	ES-75397	9000	1	120-140
ES-79356	J		208V / 3Ø	ES-79357	6000	1	120-140
ES-80588	A		208V / 3Ø	ES-80589	12000	1	120-140
ES-82106	A		400V / 3Ø	ES-82107	12000	1	120-140

BLOCK HEATER	PART REV		VOLTS/PHASE	REPLACEMENT ELEMENT (SERVICE)	WATTS	TYPE	OPERATING TEMPERATURE
10305000200	B		480V / 3Ø	10305000800	6000	4	120-140
10305000300	B		240V / 1Ø	10305000900	6000	4	120-140
10305000400	B		480V / 1Ø	10305001000	6000	4	120-140
10305000500	B		240V / 3Ø	10305001100	6000	4	120-140
10305000600	B		380V / 3Ø	10305001200	6000	4	120-140
10305000700	B		208V / 1Ø	10305001300	6000	4	120-140
10305003100	-	☐	208V / 3Ø	10305003200	6000	4	120-140
10305001500	A		480V / 3Ø	10305002100	9000	4	120-140
10305001600	A		240V / 1Ø	10305002200	9000	4	120-140
10305001700	A		480V / 1Ø	10305002300	9000	4	120-140
10305001800	A		240V / 3Ø	10305002400	9000	4	120-140
10305001900	A		380V / 3Ø	10305002500	9000	4	120-140
10305002000	A		208V / 1Ø	10305002600	9000	4	120-140
10305003300	-	☐	208V / 3Ø	10305003400	9000	4	120-140
GM97609	A		208V / 1Ø	GM98493	6000	4	100-120
GM97610	A		240V / 1Ø	GM98494	6000	4	100-120
GM97611	A		480V / 1Ø	GM98495	6000	4	100-120
GM97612	A		240V / 3Ø	GM98496	6000	4	100-120
GM97613	A		380V / 3Ø	GM98497	6000	4	100-120
GM97614	A		480V / 3Ø	GM98498	6000	4	100-120
GM97615	A		208V / 1Ø	GM98499	9000	4	100-120
GM97616	A		240V / 1Ø	GM98500	9000	4	100-120
GM97617	A		480V / 1Ø	GM98501	9000	4	100-120
GM97618	A		240V / 3Ø	GM98502	9000	4	100-120
GM97619	A		380V / 3Ø	GM98503	9000	4	100-120
GM97510	A		480V / 3Ø	GM98504	9000	4	100-120
10305003801	-	☐	208V / 1Ø	-	10500	4	120-140
10305003802	-	☐	208V / 3Ø	-	12000	4	120-140
10305003803	-	☐	240V / 1Ø	-	12000	4	120-140
10305003804	-	☐	240V / 3Ø	-	12000	4	120-140
10305003805	-	☐	380V / 3Ø		12000	4	120-140
10305003806	-	☐	480V / 1Ø	-	12000	4	120-140
10305003807	-	☐	480V / 3Ø	-	12000	4	120-140

NOTES:

LABEL ON FRONT CONTROL BOX DOOR MUST INCLUDE KOHLER PART NO.

THE HEATING SYSTEM MUST BE MOUNTED IN THE HORIZONTAL POSITION.

DO NOT EXCEED A CONCENTRATION OF MORE THAN 60% ANTIFREEZE AS ELEMENT FAILURE CAN RESULT.

T-STAT SETTING: SEE CHART

MOUNTING BRACKETS SHIPPED ATTACHED.

*GM62504: REFERENCE TYPE 2 WIRING DIAGRAM

☐ INDICATES PART NUMBERS AFFECTED BY LATEST DRAWING REVISION

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
M	8-14-15	(C-8) ES-82106 ADDED. [CTI22952]	JMR
N	10-12-15	(D-8) GM62511 AND GM77835: TYPE 2 WAS TYPE 3 (C-6) GM97619: 380V WAS 280 (D-3,2) VIEWS OF BOX AND ELEMENT REVISED, SEE SHEETS 2, 3 AND 4 [CTI23009]	SAM
P	11-2-15	(D-1) ELEMENT REMOVED (B-4) 1 PHASE REMOVED FROM DIAGRAM, SEE SHEET 4 [CTI23009]	SAM
R	3-7-16	(D-6) 10305003100 & 10305003300 ADDED [CTI27089]	CEK
T	4-10-17	10305003801 THROUGH *07 ADDED, TYPE 1 VIEW MOVED TO SHEET 2 OF 5 [CTI73173]	BGW

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

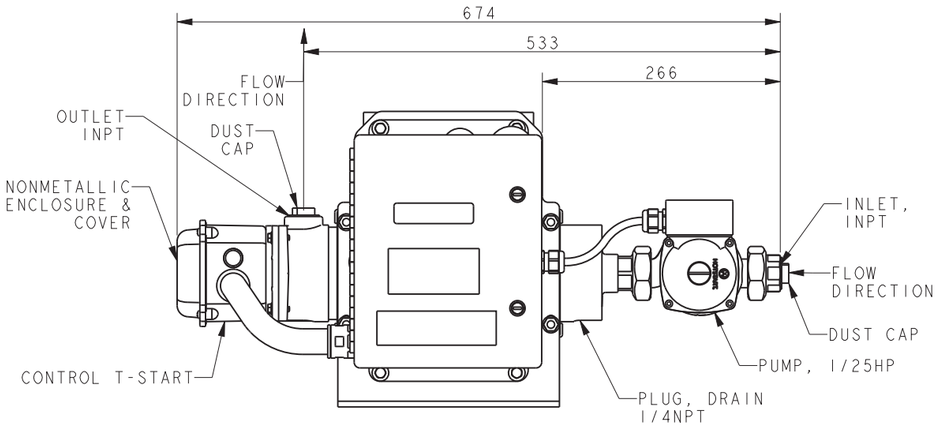
APPROVALS		DATE
DRAWN	DCF	3-14-08
CHECKED	JMS	3-14-08
APPROVED	JDZ	3-14-08

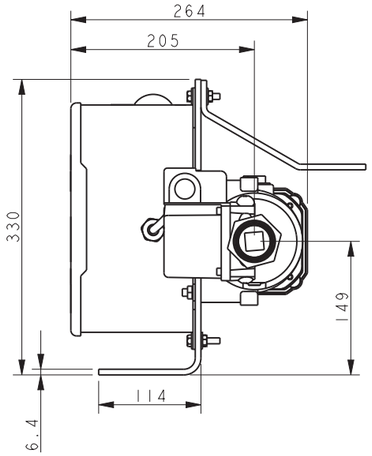
KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

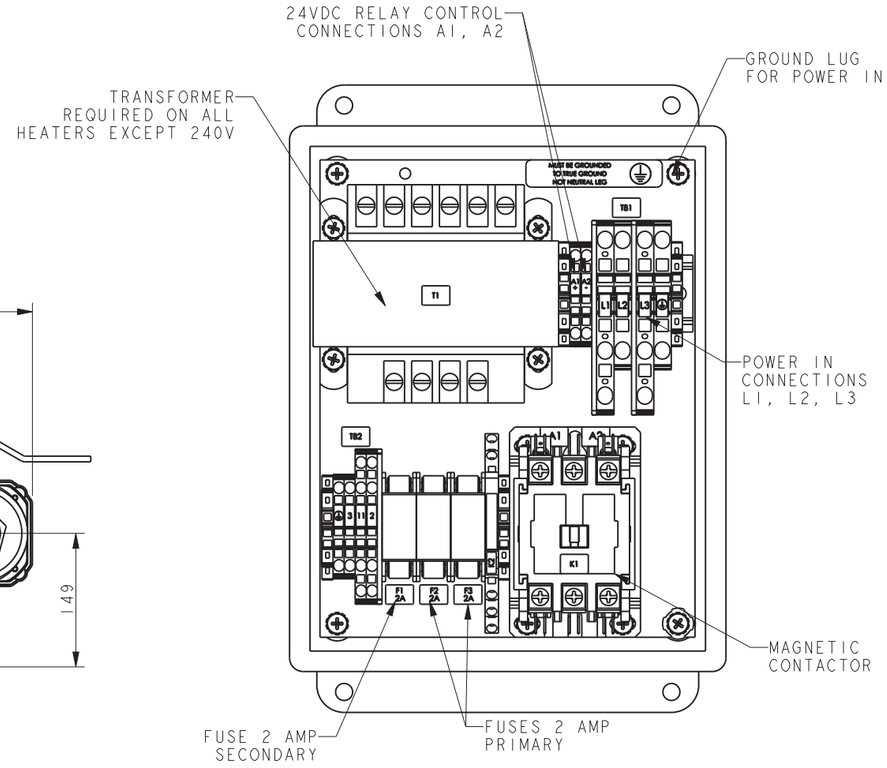
TITLE: DWG, HEATER, BLOCK

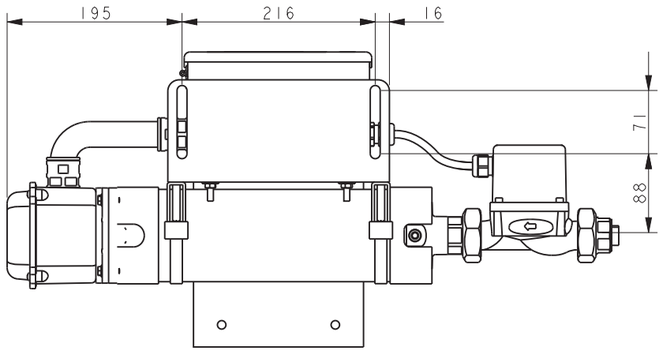
SCALE 0.25 | CAD NO. | SHEET 1 of 5
DWG NO. GM62498-CMP | D

Equipment requires External Electrical Power
Contractor to provide power source

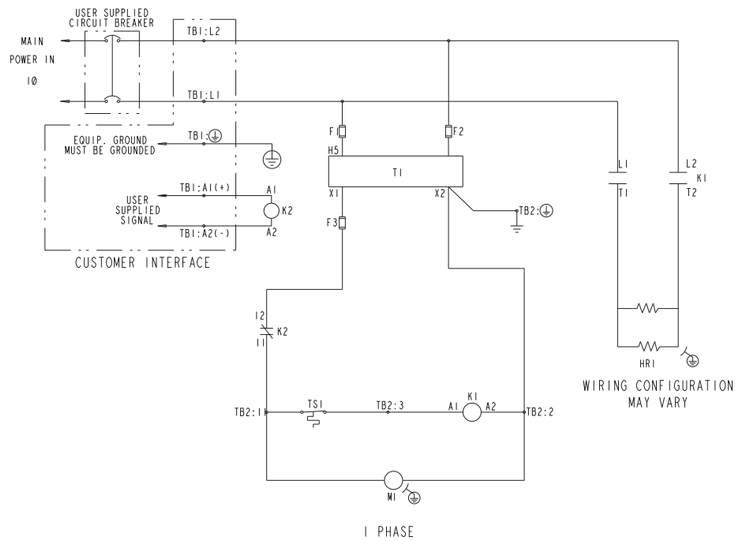


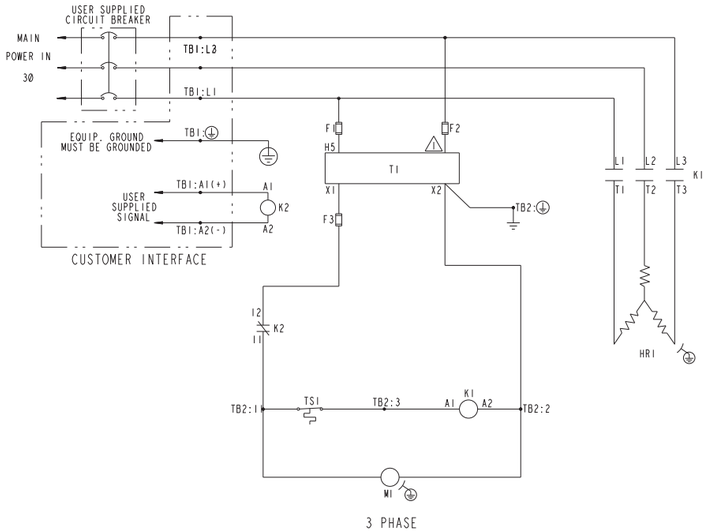






TYPE 4





Equipment requires External Electrical Power
Contractor to provide power source

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
L	6-23-15	SEE SHEET 1 [CT112581]	ARG
M	8-14-15	SEE SHEET 1 [CT122952]	JMR
N	10-12-15	(B-4) WIRING DIAGRAM UPDATED (D-3,2) VIEWS OF BOX AND ELEMENT REVISED, SEE SHEETS 1, 2 AND 3 [CT123009]	SAM
P	11-2-15	(D-1) ELEMENT REMOVED (B-4) 1 PHASE WIRING DIAGRAM ADDED [CT123009]	SAM
R	3-7-16	SEE SHEET 1 [CT127089]	CEK
T	4-10-17	SEE SHEET 1 OF 5 [CT173173]	BGW

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	SVP	4-15-15
CHECKED	JMS	4-15-15
APPROVED	JDZ	4-15-15

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

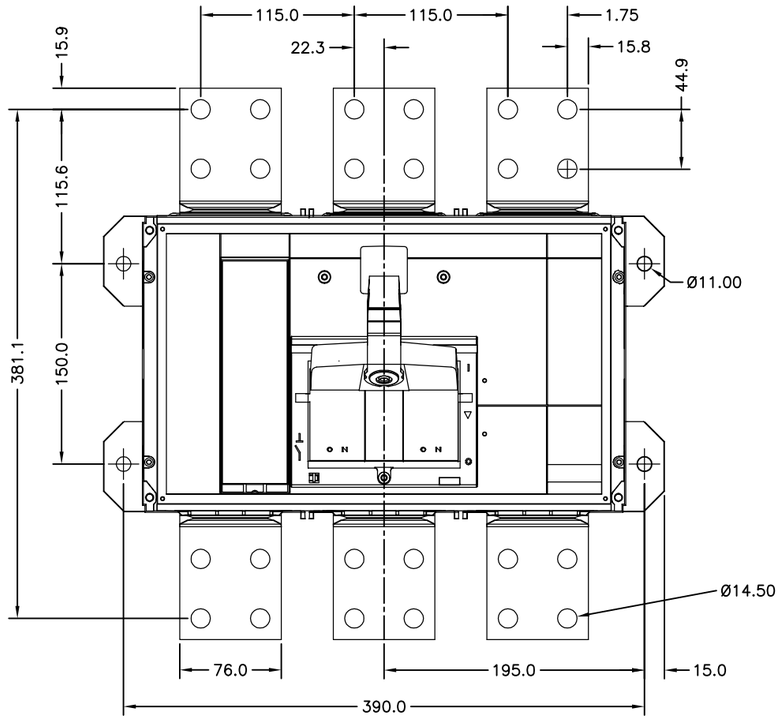
TITLE: DWG, HEATER BLOCK

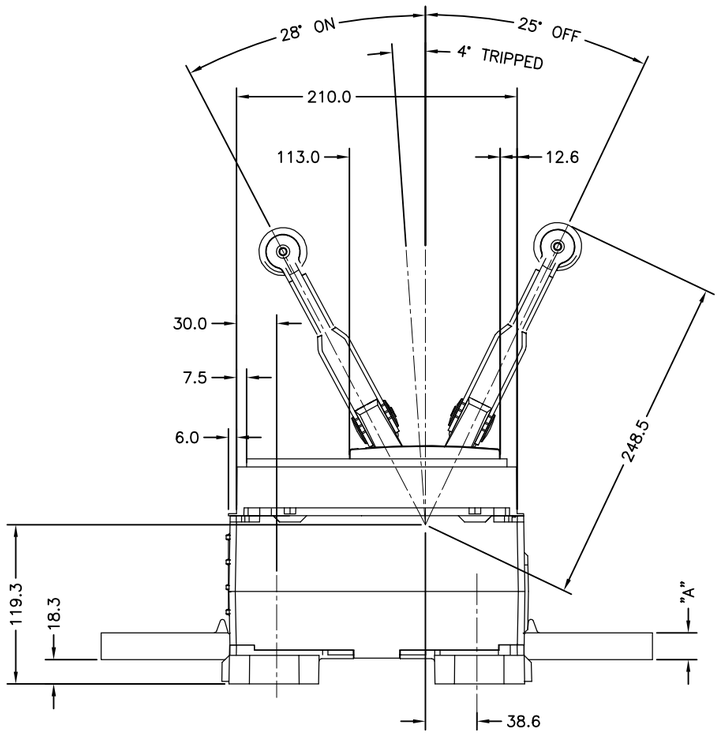
SCALE 0.30 | CAD NO. | SHEET 5 of 5
DWG NO. GM62498-CMP | D

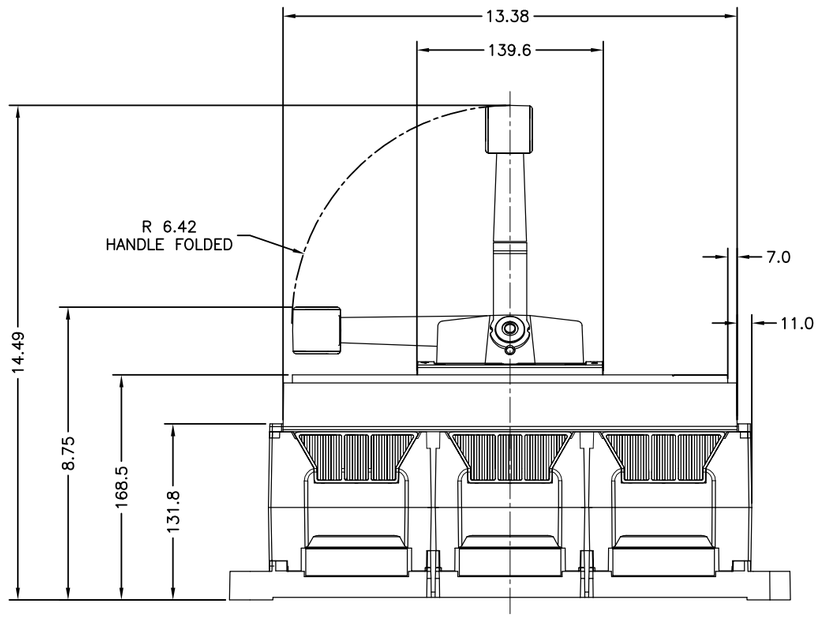
MICROLOGIC CIRCUIT BREAKERS						
PART NO.	REV	DIM "A"	AMPS	% RATING	GFI	VENDOR NO.
GM48156-1	A	12.7	1600	80	NO	RJF36160U33A
GM48156-2	A				YES	RJF36160U44A
GM48156-3	A			100	NO	RJF36160CU33A
GM48156-4	A				YES	RJF36160CU44A
GM48156-5	A	16.0	2000	80	NO	RJF36200U33A
GM48156-6	A				YES	RJF36200U44A
GM48156-7	A			100	NO	RJF36200CU33A
GM48156-8	A				YES	RJF36200CU44A
GM48156-9	A	20.0	2500	80	NO	RJF36250U33A
GM48156-10	A				YES	RJF36250U44A
GM48156-11	A			100	NO	RJF36250CU33A
GM48156-12	A				YES	RJF36250CU44A
GM48156-13	A	12.7	1200	80	YES	RJF36120U44A
GM48156-14	B				NO	RJF36120U33A
GM48156-15	B			100	NO	RJF36120CU33A
GM48156-16	B				YES	RJF36120CU44A

REV	DATE	REVISION	BY
–	1-31-06	NEW DRAWING [77272]	RAC
A	2-23-07	(A-1) NOTE ADDED [78285]	GFR
B	8-1-07	(D-8) GM48156-14, -15 & -16 ADDED; [79677]	BTW

REVISION BLOCK INDICATES REVISION LEVEL OF DRAWING NOT PART REVISION. SEE PART REVISION LEVEL BEHIND PART NUMBER FOR CURRENT PART REVISION LEVEL.







NOTE:
KOHLER PART # TO BE CLEARLY VISIBLE ON CIRCUIT BREAKER AND ON INDIVIDUAL PACKAGING.

METRIC CAD FILE

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 RAC	1-31-06
CHECKED WSD	2-1-06
APPROVED AJH	2-1-06
PLOTTED DATE	

TITLE: DWG, CIRCUIT BREAKER

SCALE	.5	CAD NO.	GM48156.DWG	SHEET	1-1
DWG. NO.	GM48156				D6

ADDENDUM 2

BATTERY ENERGY STORAGE SYSTEM

SQUARE D R-FRAME CIRCUIT BREAKER
3 POLE ELECTRONIC TRIP

STANDARD BREAKERS				
RATING	AMPS	TRIP TYPE	FRAME	MAG TRIP
80% OR 100%	15	THERMAL MAGNETIC	HD	NA
	20			
	25			
	30			
	35			
	40			
	45			
	50			
	60			
	70			
	80			
	90			
	100			
	110			
	125			
	150			
	175		JD	
	200			
	225			
	250			
80%	60	ELECTRONIC LI OR LSI	HD/HG	
	100			
	150			
	250		JD/JG	
	60	ELECTRONIC LSIG	HD/HG	
	100			
	150			
	250		JD/JG	
100%	60	ELECTRONIC LI OR LSI	HD/HG	
	100			
	150			
	250		JD/HG	
	60	ELECTRONIC LSIG	HD/HG	
	100			
	150			
	250		JD/JG	
80%	30	MAGNETIC ONLY	HJ	9-325
	50			84-546
	100			180-1040
	150			348-1690
	250		JJ	684-2500
	400		LG	2000-4800
	600			3000-7200

STANDARD BREAKERS CONTINUED			
RATING	AMPS	TRIP TYPE	FRAME
80%	400	ELECTRONIC LI OR LSI	LG
		ELECTRONIC LSIG	
	600	ELECTRONIC LI OR LSI	
		ELECTRONIC LSIG	
	700	ELECTRONIC/THERMAL MAGNETIC	MG
	800		
	1000	ELECTRONIC/THERMAL MAGNETIC	PG
	1200		
	800	ELECTRONIC LSI	
	1000		
	1200		
	800	ELECTRONIC LSIG	
	1000		
	1200		
	1200	EL/THERMAL MAG	PJ
		ELECTRONIC LSI	
		ELECTRONIC LSIG	
100%	400	ELECTRONIC LI OR LSI	LG
		ELECTRONIC LSIG	
	600	ELECTRONIC LSI	PG
	800		
	1000		
	1200		
	600	ELECTRONIC LSIG	
	800		
	1000		
	1200		
	1200	ELECTRONIC LSI	PJ
		ELECTRONIC LSIG	
80%	1600	ELECTRONIC/THERMAL MAGNETIC	RJ
	2000		
	2500		
80% OR 100%	1600	ELECTRONIC LSI	
	2000	ELECTRONIC LSIG	
	2500		
100%	1600	ELECTRONIC LSI OR LSIG	NW
	2000		
	2500		
	3000		
-	2000	LOAD BUS	
	3000		
	4000		
	4500		

AL/CU MECHANICAL LOAD LUGS PER PHASE		
BREAKER FRAME	AMPS	WIRE RANGE
H	15-150	(1) #14 TO 3/0
J	175	(1) 1/0 TO 4/0
	200-250	(1) 3/0 TO 350 KCMIL
LG	400-600	(2) 2/0 TO 500 KCMIL AL/CU
M	700-800	(3) 3/0 TO 500 KCMIL
P	600-800	
P	1000-1200	(4) 3/0 TO 500 KCMIL
R	1600-2500	(8) 1/0-750 KCMIL OR (16) 1/0-300 KCMIL
NW	3000	(10) 1/0-750 KCMIL OR (20) 1/0-300 KCMIL
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

STANDARD BREAKER COMBINATIONS			
POSITIONS (SEE DIAGRAM)			
1 OR 5	2 OR 6	3 OR 7	4 OR 8
H/J			
H/J	H/J		
H/J	H/J	H/J	
H/J	H/J	H/J	H/J
LG			
LG	H/J		
LG	LG		
LG	H/J	H/J	
LG	LG	H/J	
LG	LG	LG	
LG	H/J	H/J	H/J
LG	LG	H/J	H/J
LG	LG	LG	H/J
LG	LG	LG	LG
M/P			
M/P		H/J	
M/P		LG	
M/P	M/P		
M/P		H/J	H/J
M/P		LG	H/J
M/P		LG	LG
R			
NW			
LOAD BUS			

NOTE:
H, J AND LG-FRAMES WITH LSIG TRIP REQUIRE (2) SPACES. (ONE FOR BREAKER, ONE FOR LSIG NEUTRAL). THESE COMBINATIONS ARE NOT REFLECTED IN THE CHART ABOVE.

8 7 6 5
LEFT POSITIONS
POWER BOX

J-BOX & ALTERNATOR

Breaker Side

POWER BOX
RIGHT POSITIONS
1 2 3 4

UL INTERRUPT RATINGS			
BREAKER	kA @ 240V	kA @ 480V	kA @ 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
LG	65	35	18
MG	65	35	18
PG	65	35	18
PJ	100	65	25
PL	125	100	25
RJ	100	65	25
NW	100	100	85

NOTES:

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

2) MECHANICAL LUGS ARE AVAILABLE FOR NEUTRALS AND LOAD BUS KIT. SEE ADV-7376.

3) UNITS ARE SHIPPED WITH NEUTRAL BUS ASSEMBLIES THAT ARE BONDED TO GROUND. CONSULT NEC AND/OR LOCAL ELECTRICAL CODES FOR THE PROPER INSTALLATION REQUIREMENTS.

4) CIRCUIT BREAKER FRAMES REFER TO STANDARD SCHNEIDER PRODUCT.

5) STANDARD NEUTRALS PROVIDED ARE SIZED FOR MAXIMUM AMPS IN EACH POWER BOX. GFI / LSIG NEUTRALS ARE MATCHED TO THEIR CIRCUIT BREAKER AMPS.

6) DIMENSIONS IN [ ] ARE INCHES.

7) BREAKER AND LOAD BUS PHASING ON RIGHT IS A-B-C, ON LEFT IS C-B-A.

8) BREAKER AND LOAD BUS KITS ARE OPTIONAL ON EITHER SIDE OR BOTH, FOR APPLICATIONS 600V AND BELOW. IF NO BREAKERS ARE SELECTED, LOAD BUS IS PROVIDED ON EITHER SIDE. CUSTOMER IS RESPONSIBLE FOR BREAKER OR LOAD BUS SELECTION.

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	TM/I	ET 1.0
P	TM/I	ET 1.01
	LSI	MICROLOGIC 5.0
	LSIG	MICROLOGIC 6.0A
R	TM/I	ET 1.01
	LSI	MICROLOGIC 5.0
	LSIG	MICROLOGIC 6.0A
NW	LSI	MICROLOGIC 5.0
	LSIG	MICROLOGIC 6.0A

ELECTRICALLY OPERATED BREAKERS
FOR APM603 PARALLELING ONLY
NO ADDITIONAL BREAKERS ARE ALLOWED

RATING	AMPS	TRIP TYPE	FRAME
100%	250	ELECTRONIC LI OR LSI	PJ OR PL
	400		
	600		
	800		
	1000		
	1200		
	1600	ELECTRONIC LSI OR LSIG	NW
	2000		
	2500		
	3000		

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	8-23-16	NEW DRAWING [CTI61592]	WSD
A	4-26-18	(B-6) LOAD BUS ADDED TO CHART; SEE SHEET 3 [CTI86966]	WSD
B	5-24-19	(A-7) EOB CHART ADDED; (B-6) 1600-2500A NW ADDED; (C-3) PL INTERRUPT ADDED [CTI96051]	WSD

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

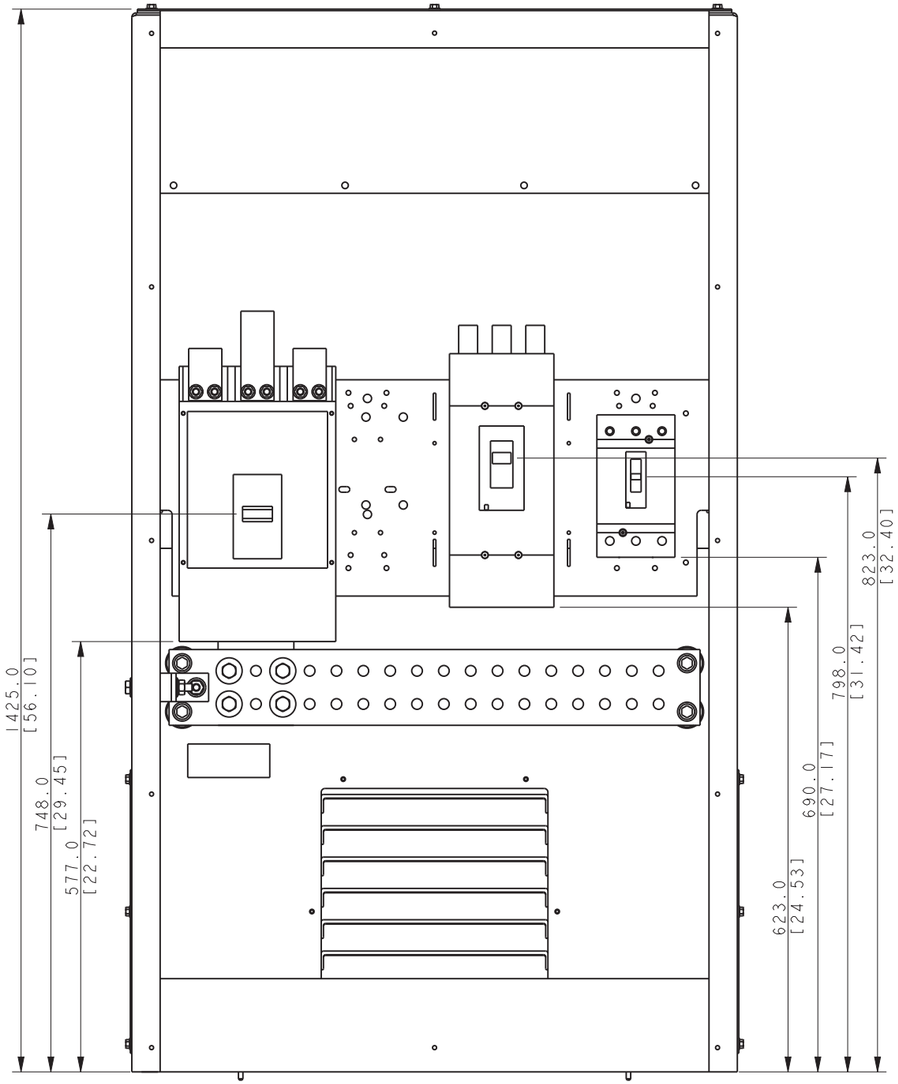
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	WSD	8-23-16
CHECKED	WSD	8-23-16
APPROVED	JDZ	8-23-16

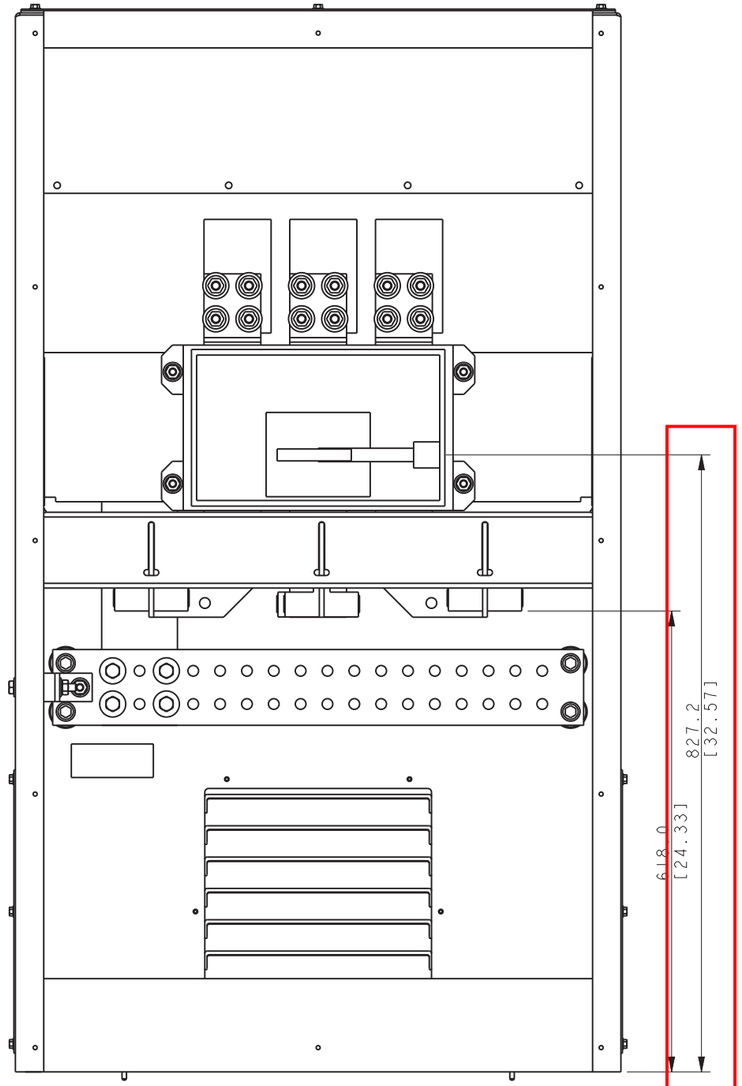
KOHLER.
KOHLER, WISCONSIN 53044

TITLE
DIMENSION PRINT

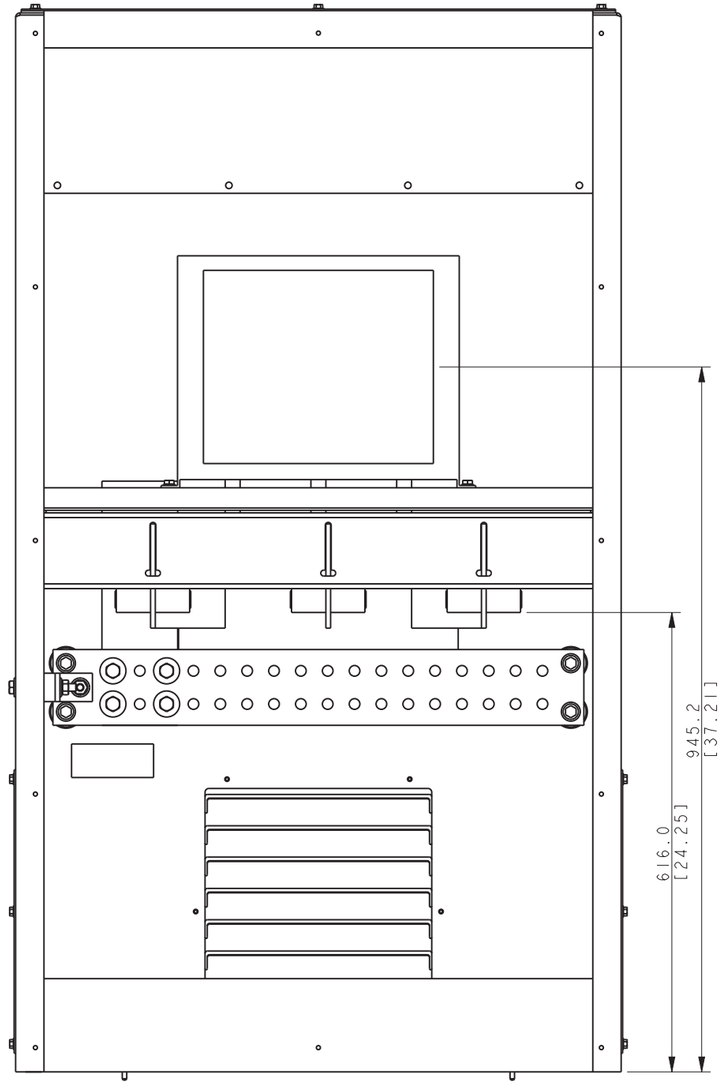
SCALE | CAD NO. | SHEET 1 of 4
DWG NO. ADV-8877 | D



M/P, L, AND H/J BREAKER
(RIGHT TO LEFT)



R BREAKER



NW BREAKER

DIMENSIONS ARE MM, DIMENSIONS IN [ ] ARE INCHES

BREAKER AND LOAD BUS PHASING		
RIGHT		
A	B	C
LEFT		
C	B	A

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	8-23-16	NEW DRAWING [CTI61592]	WSD
A	4-26-18	SEE SHEETS 1 & 3 [CTI86966]	WSD
B	5-24-19	SEE SHEET 1 [CTI96051]	WSD

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

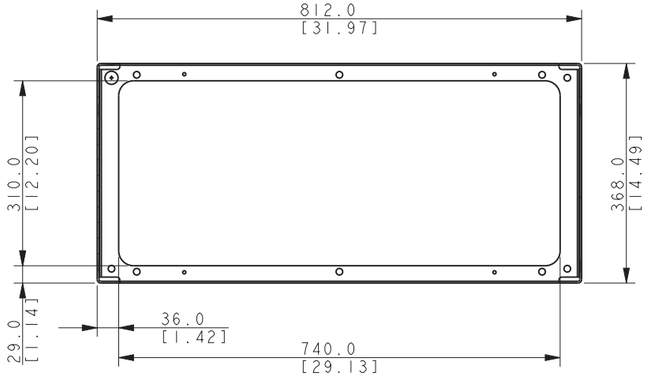
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	WSD	8-23-16
CHECKED	WSD	8-23-16
APPROVED	JDZ	8-23-16

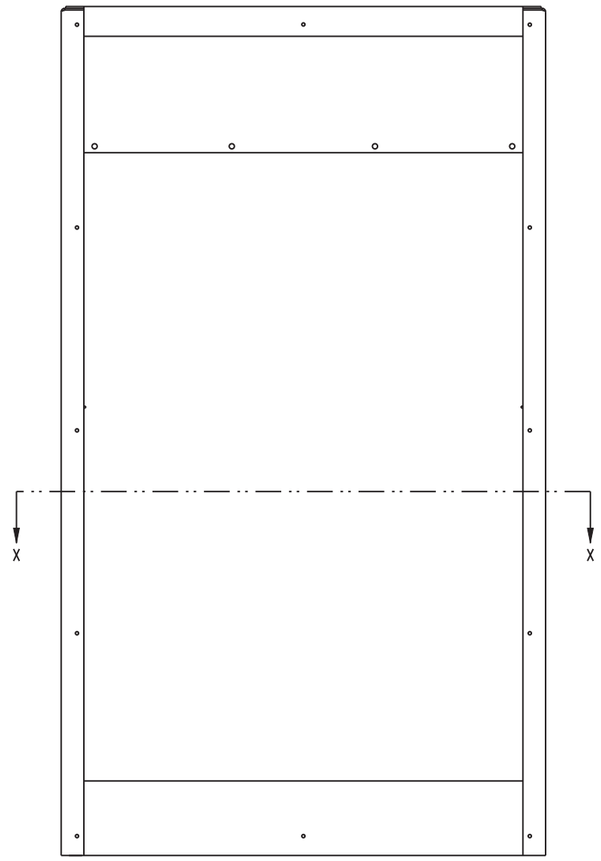
TITLE
DIMENSION PRINT

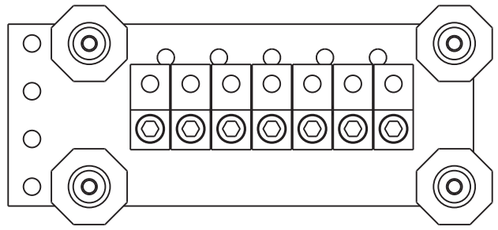
SCALE | CAD NO. | SHEET 2 of 4
DWG NO. ADV-8877 | D

KD POWER BOX
BREAKERS, BUS, AND NEUTRAL KITS
FOR LOW VOLTAGE (600V AND BELOW)

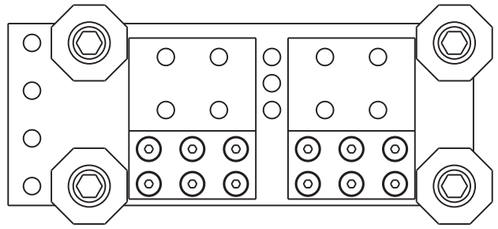


SECTION X-X
BOTTOM ENTRANCE AREA
(SHOWN WITHOUT REMOVEABLE ENTRANCE PANEL)

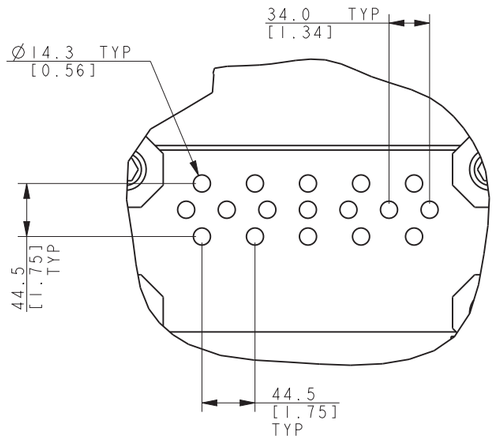




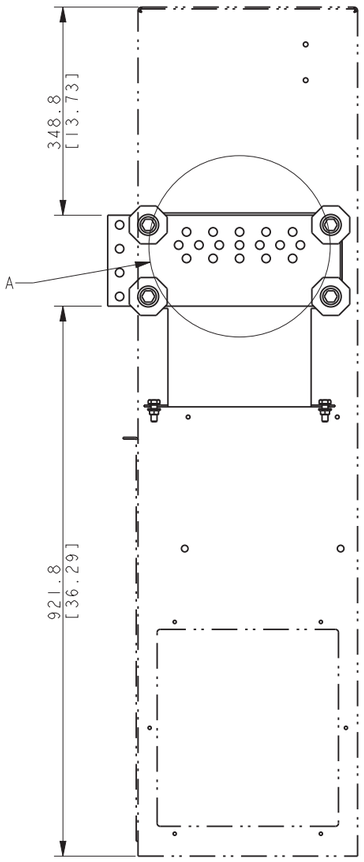
LOAD BUS SHOWN WITH (14) 1/0-750 KCMIL LUG KITS
PER PHASE (7 EACH SIDE OF BUS, SEE ADV-7376)

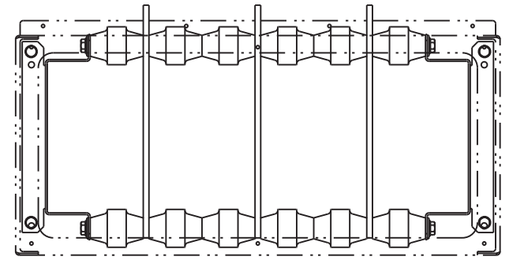


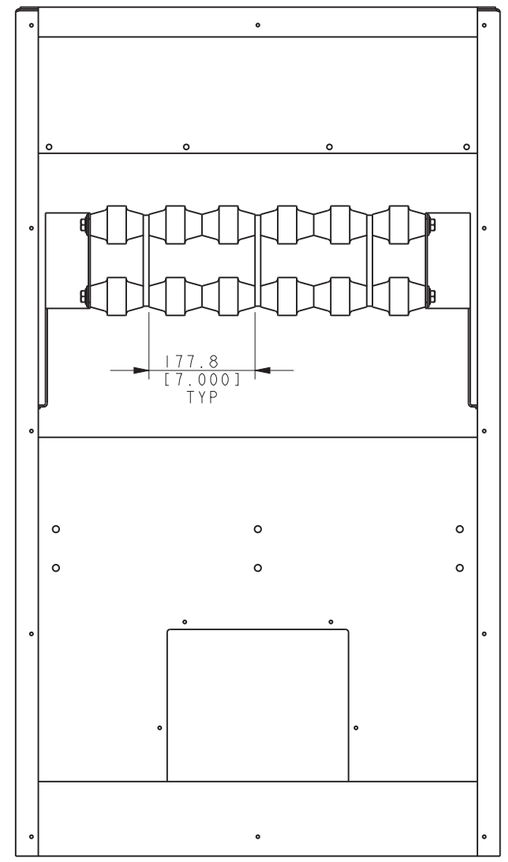
LOAD BUS SHOWN WITH (4) #2-600 KCMIL LUG KITS
PER PHASE (2 EACH SIDE OF BUS, SEE ADV-7376)



DETAIL A
SCALE 0.400







STANDARD LOAD BUS KIT
OPTIONAL EITHER SIDE (OR AUTOMATICALLY PROVIDED IF NO BREAKERS ARE SELECTED)

BREAKER AND LOAD BUS PHASING		
RIGHT		
A	B	C
LEFT		
C	B	A

DIMENSIONS ARE MM, DIMENSIONS IN [ ] ARE INCHES

KD POWER BOX
BREAKERS, BUS, AND NEUTRAL KITS
FOR LOW VOLTAGE (600V AND BELOW)

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	8-23-16	NEW DRAWING [CTI61592]	WSD
A	4-26-18	(B,C,D-5)LOAD BUS VIEWS ADDED & BUS DETAIL UPDATED; SEE SHEET 1 [CTI86966]	WSD
B	5-24-19	SEE SHEET 1 [CTI96051]	WSD

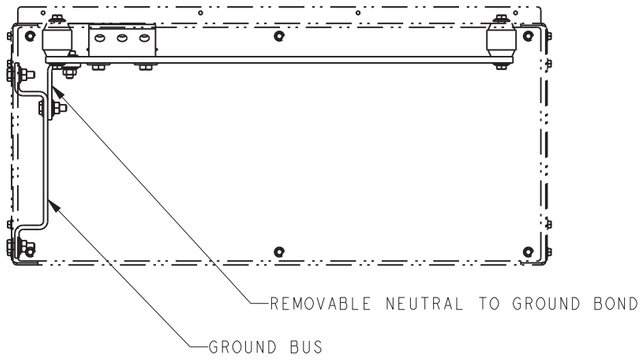
DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

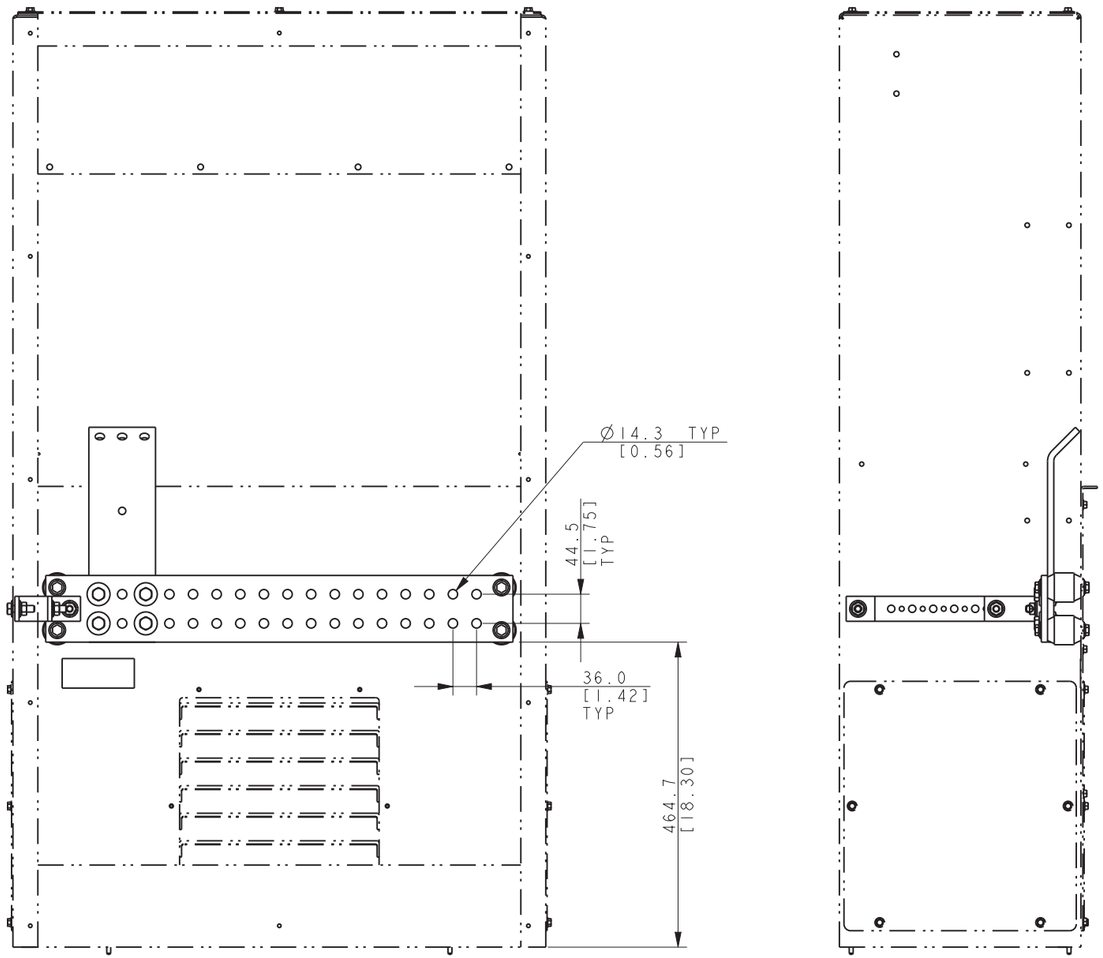
THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	WSD	8-23-16
CHECKED	WSD	8-23-16
APPROVED	JDZ	8-23-16

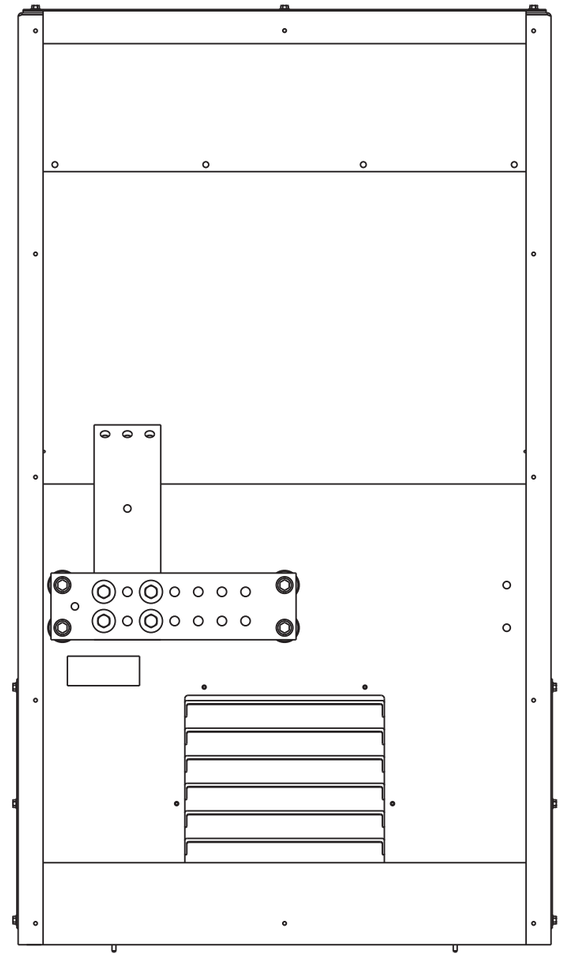
TITLE
DIMENSION PRINT

SCALE | CAD NO. | SHEET 3 of 4
DWG NO. ADV-8877 | D





NEUTRAL FOR ABOVE 1200A TOTAL BREAKERS OR LOAD BUS
GROUND BUS ALSO SHOWN



NEUTRAL KIT FOR 1200A TOTAL BREAKERS AND BELOW

KD POWER BOX
BREAKERS, BUS AND NEUTRAL KITS
(FOR LOW VOLTAGE 1200V AND BELOW)

DIMENSIONS ARE MM, DIMENSIONS IN [ ] ARE INCHES

BREAKER AND LOAD BUS PHASING		
RIGHT		
A	B	C
LEFT		
C	B	A

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	8-23-16	NEW DRAWING [CTI61592]	WSD
A	4-26-18	SEE SHEETS 1 & 3 [CTI86966]	WSD
B	5-24-19	SEE SHEET 1 [CTI96051]	WSD

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	WSD	8-23-16
CHECKED	WSD	8-23-16
APPROVED	JDZ	8-23-16

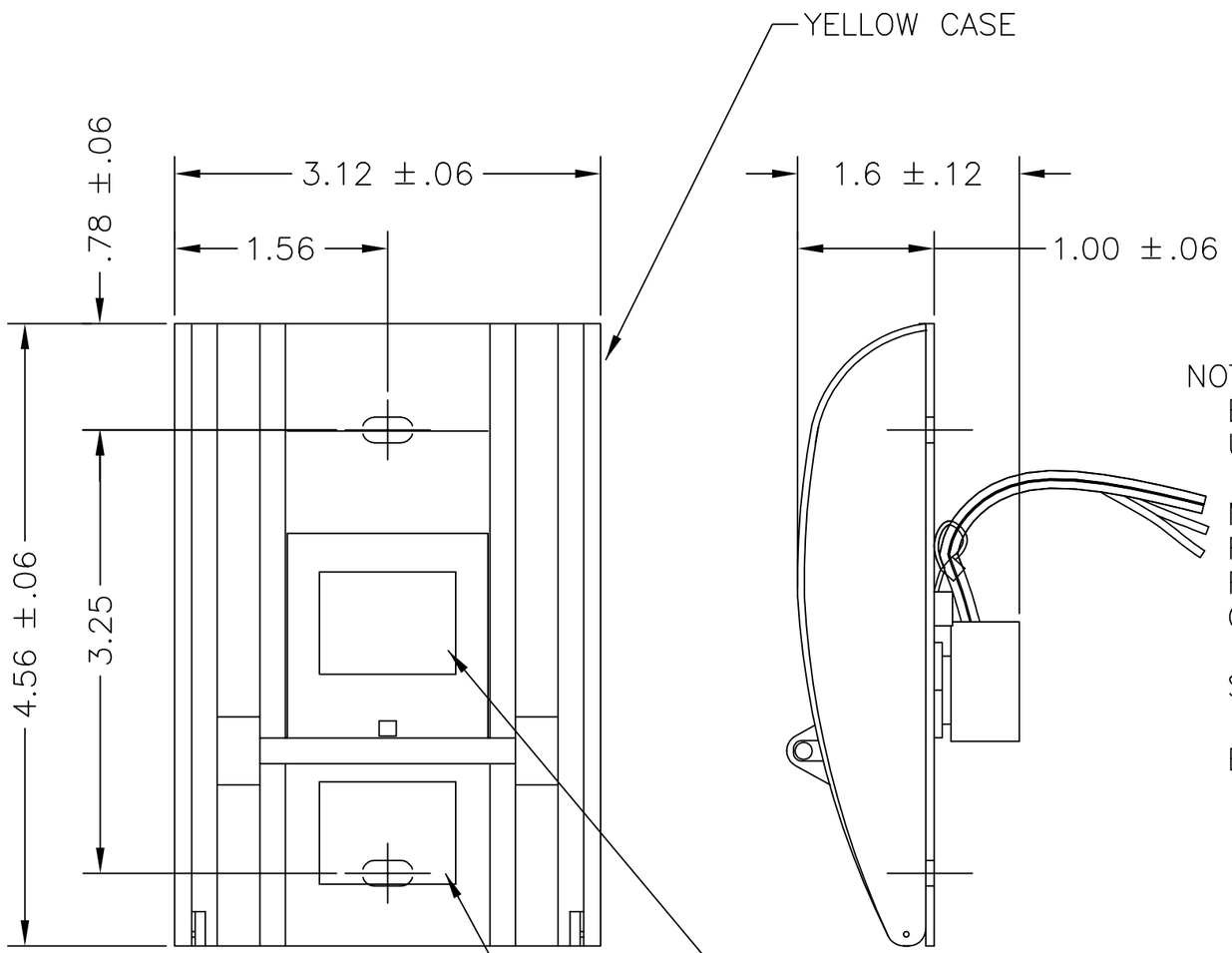
TITLE
DIMENSION PRINT

SCALE | CAD NO. | SHEET 4 of 4
DWG NO. **ADV-8877** | **D**

ADDENDUM 2

PART NO.	DESCRIPTION
222655	REPLACEMENT GLASS ROD

REV	DATE	REVISION	BY	M F
A	9-1-93	(B-2) SWITCHING NORMALLY CLOSED WAS SWITCHING		
		NORMALLY OPEN (CAN BE CONVERTED TO N.C.)	SJV	X
B	3-7-94	GENERIC TITLEBLOCK ADDED	PWH	



NOTE:
BREAKGLASS TYPE FOR CLOSED CIRCUIT OPERATION UP TO 48 VOLTS.

MOUNTING INSTRUCTIONS:
FOR WALL MOUNTING USE #6 ROUND HEAD WOOD SCREWS. FOR MOUNTING ON GEM BOX OR SINGLE GANG PLASTER COVER, USE MACHINE SCREWS IN ENVELOPE.

SWITCHING NORMALLY CLOSED.

EXTRA PIECE OF GLASS TO BE SUPPLIED WITH SWITCH.

MATERIAL: METAL (STEEL)

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

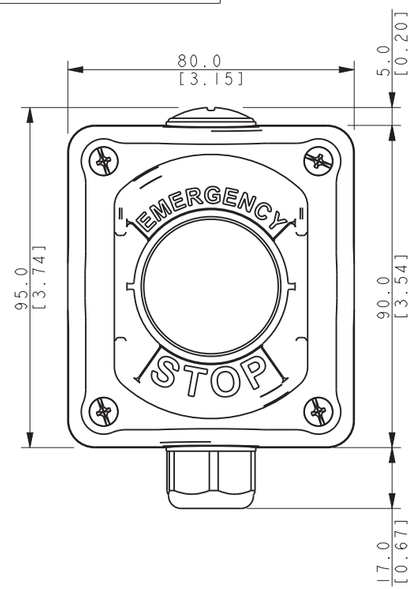
APPROVALS	DATE
DRAWN KDW	8-12-92
CHECKED EB	9-9-92
APPROVED RLD	9-9-92

TITLE: SWITCH, EMERGENCY STOP

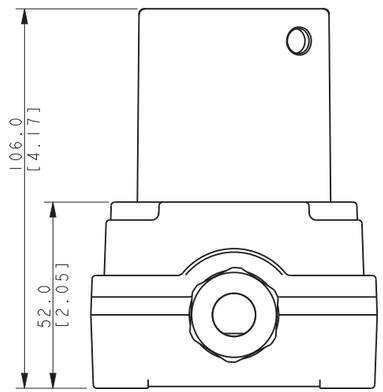
SCALE	CAD NO.	SHEET
FULL	A222654.dwg	1-1
PLOTTED	DWG. NO. A-222654	B G

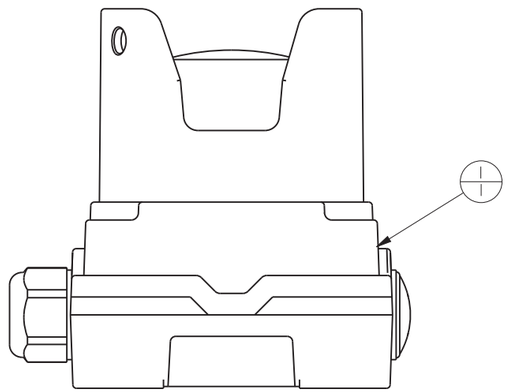
KIT NO.	ITEM	PART NO	QTY	DESCRIPTION
GM103743				E-STOP, NEC REMOTE
	1	GM103743-1	1	E-STOP W/ YELLOW SHROUD, LOTO
	2	GM103743-2	4	#10 X 1.25□ Sheetmetal Screw
	3	GM103743-3	1	TERMINAL, FAST-ON, MALE, 18-22 AWG
	4	GM103743-4	1	TERMINAL, FAST-ON, FEMALE, 18-22 AWG
	5	GM103743-5	2	TERMINAL, SPADE, 22-16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

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

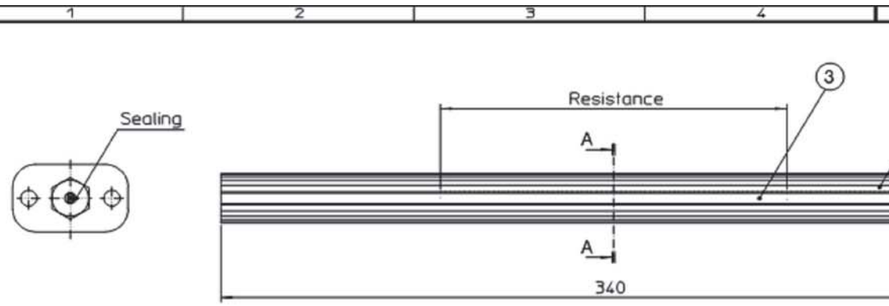
KOHLER CO. METRIC PRO-E
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: E-STOP, NEC REMOTE

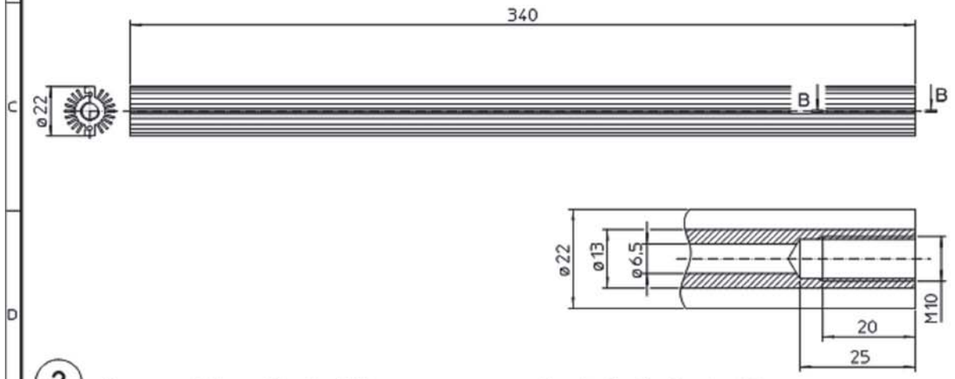
SCALE 1.50 | CAD NO. | SHEET 1 of 1

DWG NO. GM103743 | D

PART NO.	REV.
10210000301	A

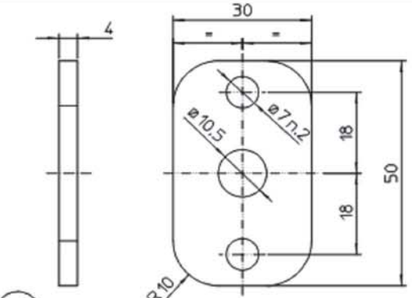


AMBIENT TEMPERATURE 25°C		
VOLTAGE [V]	POWER [W]	TEMPERATURE SPACE HEATER [°C]
208	72	154
230	80	175
255	107	200
277	126	220

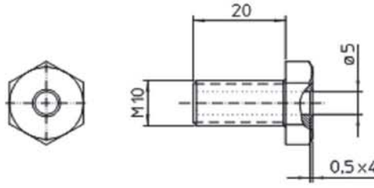


② Commercial profile L=340mm

Sect. B-B Scale 1:1

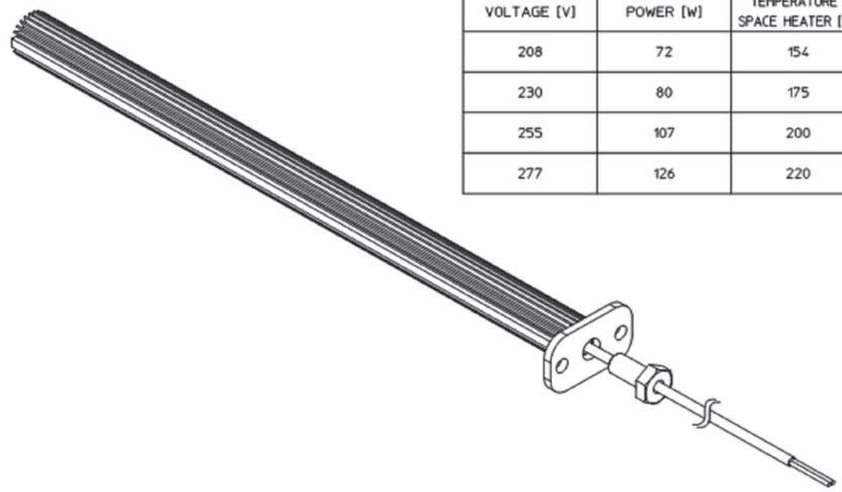


① Fixing plate Scale 1:1



Scale 1:1

④ Hexagon screw M10x20 zinc plated with hole



Rev.	Data - Date	Modifica - Reviews	DISEGNATO - DESIGNED BY

POS. POS.	MATERIALE GREZZO - COMPONENTI RAW MATERIAL - COMPONENTS	SPESSORE THICKNESS (mm)	MASSA TOTAL MASS (Kg)	Q.tà Q.ty	STATO MATERIALE STATE OF MATERIAL	TRATTAMENTO TERMICO E/O SUPERFICIALE THERMAL AND/OR SUPERFICIAL TREATMENT
4	HEXAGON SCREW M10x20 EN ISO 4017	-	-	1		
3	RESISTENCE	-	-	1		
2	COMMERCIAL PROFILE - ALUMINUM	-	0.17	1		
1	FIXING PLATE - FE360 EN 10025	4	0.04	1		

Rif.doc.- Ref.doc.	RAGGI NON QUOTATI RADIUS NOT MENTIONED	SMUSSI NON QUOTATI CHAMFER NOT MENTIONED	RUGOSITA' R_a in µm SURFACE FINISH IN µm	QUOTE SENZA INDICAZ. DI TOLL. REFERS WITHOUT TOLERANCE	DISEGNATO - DESIGNED BY
MCH-2016-009		0,5x45°	∜ (∜)	UNI EN 22768/1-2 m-H	19/12/2016 M. BORTOLASO

SCALA-SCALE	mm	ALTERNATORE-ALTERNATOR	N. POLI - POLE N°	TIPO - TYPE	COD. DISEGNO - DESIGN COD.	REV.	CODIFICATO - ENCODED BY
1:2					B0148	00	21/12/2016 M.TREVISAN

meccalte
Via Roma 20
36051 Creazzo(VI) ITALY
www.meccalte.com

DESCRIZIONE - DESCRIPTION
SCALDIGLIA
EC040B-EC043A-EC046A
HEATER
EC040B-EC043A-EC046A

COD. GESTIONALE-MANAGEMENT COD. 9910342120
RICAVATO DA CODICE DIS. PROCESSED FROM DESIGN CODE
RICAVATO DA CODICE GEST. PROCESSED FROM MANAGEMENT CODE

CONTROLLATO - CHECKED BY 21/12/2016 S. SAORIN
APPROVATO - APPROVED BY 21/12/2016 R. MANFRIN

NOTES:

MECCALTE PART NUMBER: TBD

OPERATING VOLTAGE: 208 - 277V

HEATER HAS A CONSTANT RESISTANCE OF 661.25Ω

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

Equipment requires External Electrical Power
Contractor to provide power source

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	11-22-16	NEW DRAWING [CTI66455]	BGP
A	5-31-17	NEW VENDER DRAWING REV 00 REPLACES OLD VENDER DRAFT [CTI75076]	BGP
B	11-1-17	(A-6) 208-277V WAS 208-253V [CTI80943]	RRT

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS GENERAL TOLERANCES X.XX ± 0.25 X.X ± 0.5 X ± 1.5 ANGLES ± 0°30' SURFACE FINISH 125 MAX.

THIRD ANGLE PROJECTION

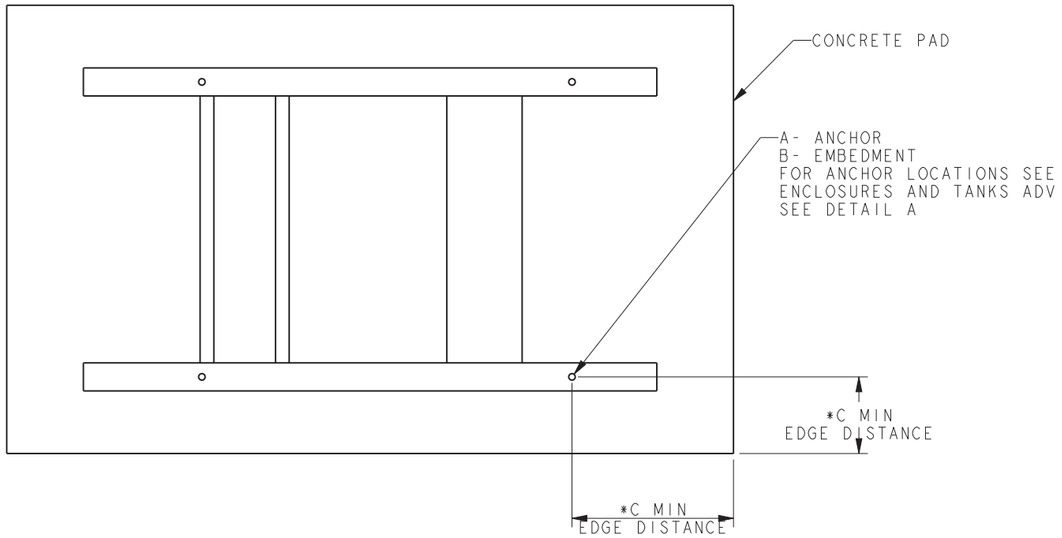
APPROVALS	DATE
DRAWN BGP	11-22-16
CHECKED CEK	11-22-16
APPROVED BMK	11-22-16

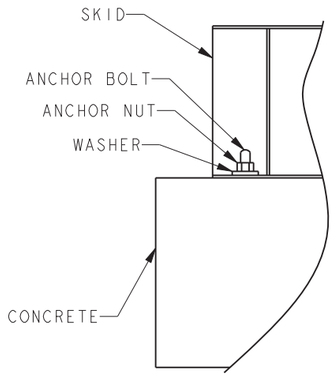
KOHLER.
KOHLER, WISCONSIN 53044

TITLE
DWG, HEATER, GENERATOR

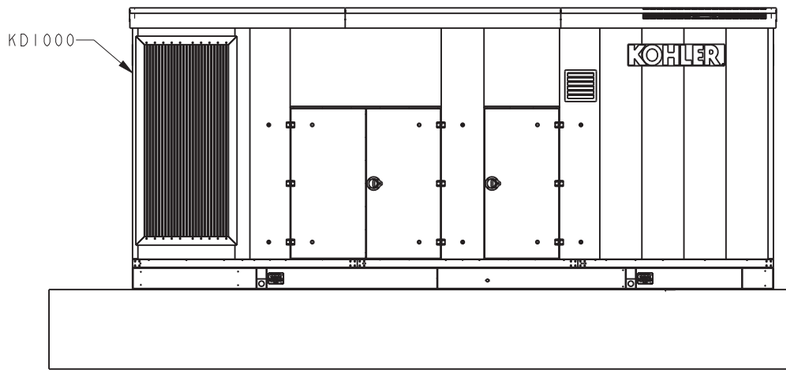
SCALE 0.40 | CAD NO. | SHEET 1 of 1

DWG NO. 102100003XX | D





DETAIL A



SEE TABLE FOR UNIT SPECIFIC MOUNT INFORMATION.
UNIT SHOWN FOR REFERENCE ONLY.
REFER TO ENCLOSURE & TANKS ADV'S FOR MOUNTING LOCATIONS.

NOTE:

1) NO OTHER ANCHORS ARE ALLOWED WITHIN MINIMUM SPACING DISTANCE WITHOUT ADVANCED APPROVAL OF THE STRUCTURAL PROJECT ENGINEER OF RECORD.

2) SEE NOTES IN "WINDLOAD INSTALLATION REQUIREMENTS" SECTION.

DIMENSIONS IN [ ] ARE INCH EQUIVALENT

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	12-20-18	NEW DRAWING [CT192592]	TKK
A	5-30-19	SEE SHEET 2 & 3 [CT195436]	MVT

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCES:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0°30'
SURFACE FINISH MAX.

THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	TKK	12-20-18
CHECKED	KJB	12-20-18
APPROVED	AJW	12-20-18

KOHLER.
KOHLER, WISCONSIN 53044

TITLE: DIMENSION PRINT, WINDLOAD INSTRUCTION

SCALE | CAD NO. | SHEET 1 of 4

DWG NO. ADV-9107 | D

GENSET MODELS	ENCLOSURE		FUEL TANK			ANCHORING SYSTEM PER EENGINEERING EXPRESS						
						A - ANCHOR			B - MIN IN. (EMBEDMENT)	C - MIN IN. (EDGE DISTANCE)	D - MIN IN. (CONCRETE THICKNESS)	NUMBER OF ANCHORS
		ADV	LITERS	GAL	ADV	ANCHOR BRAND	MODEL	DIAMETER				
40-60REOZK	SOUND ALUMINUM	ADV-8740	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.625	4	6	6	4
			505	133	ADV-8753			0.625	4	6	6	6
			868	229								
			1043	275								
			1527	403								
			541	142								
			898	237								
			1057	279								
			1520	401								
			2028	535					4	6	6	8
KG40-KG60	SOUND ALUMINUM	ADV-9039	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.625	4	6	6	4
KG80-125	SOUND ALUMINUM	ADV-9083	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.625	4	6	6	6
80REZGD 100REZGD		ADV-7892										
125-150REZGC		ADV-8459										
80-100REOZJF	SOUND ALUMINUM	ADV-7647	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	3.75	6	8	6
			791	209	ADV-8519							8
			815	215	ADV-8522							16
			1317	348	ADV-8519							8
			1570	415	ADV-8522							16
			1696	448	ADV-8519							8
			3089	816	ADV-8522							6
125REOZJG 150REOZJF	SOUND ALUMINUM	ADV-7825	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	6	8	6
			1128	298	ADV-7881							10
			1198	316								10
			2207	583								10
			2255	595								10
			4402	1163								8
180REOZJG 200REOZJF	SOUND ALUMINUM	ADV-7854	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	6	8	10
			1514	400	ADV-7859							12
			2869	758								12
			5742	1517								12
			1576	416								14
			2896	765								14
180-200REZXB	SOUND ALUMINUM	ADV-7669	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.625	4.75	6	8	8
230REOZJE 250REOZJE 275REOZJE	SOUND ALUMINUM	ADV-7644	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	12	14	12
			1787	472	ADV-7645							14
			2102	555								14
			3573	944								14
300REOZJ	SOUND ALUMINUM	ADV-7644	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	12	14	12
			2067	546	ADV-7645							14
			2102	555								14
			4066	1074								14
250REZXB 300REZXC	SOUND ALUMINUM	ADV-7718	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	10	12	8
300-350REZXB	SOUND ALUMINUM	ADV-8162	NO TANK			HILTI	KWIK BOLT 3 (CARBON STEEL)	0.75	5	12	12	8
400-450REZXB		ADV-8163										

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	12-20-18	NEW DRAWING [CTI92592]	TKK
A	5-30-19	(A,B,C,D-5) MODEL DESCRIPTION UPDATED FOR	
		A-ANCHOR; (C-8) KG80-125 WAS KG80; (A-8)	
		400-450REZXB WAS 400REZXB; SEE SHEET 3	
		[CTI95436]	MVT

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCES:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0°30'
SURFACE FINISH 63 MAX.

THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	TKK	12-20-18
CHECKED	KJB	12-20-18
APPROVED	AJW	12-20-18

TITLE: DIMENSION PRINT, WINDLOAD INSTRUCTION

SCALE | CAD NO. | SHEET 2 of 4

DWG NO. ADV-9107 | D

GENSET MODELS	ENCLOSURE		FUEL TANK			ANCHORING SYSTEM PER ENGINEERING EXPRESS						
						A - ANCHOR			B - MIN IN. (EMBEDMENT)	C - MIN IN. (EDGE DISTANCE)	D - MIN IN. (CONCRETE THICKNESS)	NUMBER OF ANCHORS
		ADV	LITERS	GAL	ADV	ANCHOR BRAND	MODEL	DIAMETER				
350REOZJB 400REOZJB 500REOZJB	SOUND LEVEL 2 ALUMINUM	ADV-8515	NO TANK			HILTI	KWIK HUZ-EZ (CARBON STEEL) ESR-3027	0.75	4	6	8	14
			1529-4394	404-1161	ADV-8528							18
			5046	1333								20
			5765	1523								22
			6674	1763								24
			10008	2664								24
350REOZJ 400REOZJ 500REOZJ	SOUND LEVEL 2 ALUMINUM	ADV-7990	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	6	8	12
			1507	398	ADV-8045			0.75	4.75	6	8	14
			1529	404								16
			1733	458								14
			1772	468								16
			2903	767								14
			2930	774								16
			3346	884								14
			3384	894								16
			4296	1135								14
			4395	1161								16
			4974	1314								14
			5046	1333				0.75	4.75	6	8	18
			5765	1523								18
			6674	1763								18
			10084	2664								14
500REOZVC 550REOZVB 600REOZVB	SOUND ALUMINUM	ADV-8417	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	6	8	7
			2048	541	ADV-8417			0.75	4.75	6	8	20
			2037	538								20
			3910	1033								20
			3923	1038								20
			5727	1513								20
			5754	1520								20
			7643	2019								20
			7658	2023								20
			11553	3052				0.75	4.75	6	8	20
KD800-1000	SOUND LEVEL 2 ALUMINUM	ADV-8919	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	8	8	14
			3475	918	ADV-8919			0.75	4.75	8	8	20
			6621	1749								
			10573	2793				0.75	4.75	8	8	20
			12969	3426								
			15740	4158				0.75	4.75	8	8	22
			19381	5120								
KD1250A-1750	SOUND LEVEL 2 ALUMINUM	ADV-8927	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	12	12	16
			5863	1549	ADV-8927		HAD-P STEEL Gr.8.8 (ESR-1546) Table 17.3.1.1	M16	7.5	8	12	18
			9860	2605				M16	7.5	8	12	18
			11204	2960				M16	7.5	8	12	18
			19214	5076				M16	7.5	8	12	20
			21985	5808				M16	7.5	8	12	20
KD2000-2500	SOUND LEVEL 2 ALUMINUM	ADV-9075	NO TANK			HILTI	KWIK BOLT TZ (CARBON STEEL) ESR-1917	0.75	4.75	12	12	20
			8577	2266	ADV-9075		HAD-P STEEL GR.8.8 (ESR-1546) TABLE 17.3.1.1	M16	7.5	8	12	24
			14130	3733				M16	7.5	8	12	24
			16451	4346				M16	7.5	8	12	24

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	12-20-18	NEW DRAWING [CT192592]	TKK
A	5-30-19	(A,B,C,D-5) MODEL DESCRIPTION UPDATED FOR	
		A-ANCHOR; (A-8) KD2000-2500 ADDED; SEE	
		SHEET 2 [CT195436]	MVT

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCES:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0°30'
SURFACE FINISH √ MAX.

THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	TKK	12-20-18
CHECKED	KJB	12-20-18
APPROVED	AJW	12-20-18

KOHLER.
KOHLER, WISCONSIN 53044

TITLE: DIMENSION PRINT, WINDLOAD INSTRUCTION

SCALE | CAD NO. | SHEET 3 of 4

DWG NO. ADV-9107 | D

ADDENDUM 2

BATTERY ENERGY STORAGE SYSTEM
WINDLOAD ANCHORAGE INSTRUCTION

WIND INSTALLATION REQUIREMENTS:

The following are requirements for wind-rated installation:

1. The design of post-installed anchors in concrete used for the component anchorage has been evaluated by this engineer for wind applications in accordance with ASCE 7 as reference herein
2. Anchors must be installed in minimum 4000 psi compressive strength normal weight concrete. Concrete aggregate must comply with ASTM C33. Installation in structural lightweight concrete is not permitted unless otherwise approved by the structural engineer of record.
3. Anchors must be installed to the torque specification as recommended by the anchor manufacturer to obtain maximum loading.
4. Anchors must be installed in the locations specified in the Kohler ADV dimension print in correlation with signed and sealed engineering herein.The more stringent requirement from either document shall apply in cases of uncertainty.
5. Anchor plates from Kohler must be installed at each anchor location between anchor head and equipment for tension load distribution.
6. Concrete floor slab and concrete housekeeping pads must be designed and rebar reinforced for wind applications in accordance with ACI 318 and ASCE 7 as referenced herein
7. All housekeeping pad thicknesses must be designed in accordance with pre-qualification test report or a minimum of 1.5x the anchor embedment depth,whichever is largest.
8. All housekeeping pads must be doweled or cast into the building structural floor slab and designed for wind application per appropriate code requirements for the subject jurisdiction and as approved by the structural engineer of record.
9. Wall mounted equipment must be installed to a rebar reinforced structural concrete wall that is designed for wind applications and approved by the engineer of record to resist the added wind loads from the components being anchored to the wall.
10. Floor mounted equipment (with or without housekeeping pad) must be installed to a rebar reinforced structural concrete floor that is designed for wind applications and approved by the engineer of record to resist the added wind loads from components being anchored to the floor.
11. When installing to a floor, rebar interference must be considered.
12. Attaching equipment to any floor other than those constructed of structural concrete and designed to accept the wind loads from said equipment is not permitted by this specification and beyond the scope of this certification.
13. Attaching equipment to any concrete block walls or cinder block walls is not permitted by this specification and beyond the scope of this certification.
14. For installations upon rooftop are not permitted by this specification and beyond the scope of this certification.
15. Installation upon only rooftop curb shall be coordinated with the curb manufacturer and the Structural Engineer of Record. Any curb or concrete pad that supports the RTU unit is beyond the scope of this certification.
16. Anchor locations, size, type and load requirements shall be as specified on the certified installation specification. Mounting requirements details such as brand, type, embedment depth, edge spacing, anchor spacing, concrete strength, wall bracing, and special inspection must be outlined and approved by the project Structural Engineer of Record to withstand the wind anchor loads as defined on the certified installation specification.The installing contractor is responsible for the proper installation of all anchors and mounting hardware, observing the mounting requirement details outlined by the Engineer of Record. Contact Kohler if a detailed Wind Installation Calculation Package is required.
17. Electrical wiring, piping, duct and other connections to the equipment is the responsibility of the installing contractor. It is necessary that these remain intact, functional and do not inhibit the functionality of the generator set after a wind event.
18. *Concrete pad dimensions are minimum values to satisfy only the anchor bolt requirements. The pad must be designed by the project structural engineer of record.
19. *Anchor bolt and concrete recommendations are for the maximum wind design levels shown. If the specific application has a lower level, thinner concrete or alternate anchors may be acceptable. Consult Kohler.

REV	DATE	ON COMPOSITE DWGS, SEE PART NO. FOR REVISION LEVEL	BY
-	12-20-18	NEW DRAWING [CTI92592]	TKK
A	5-30-19	SEE SHEET 2 & 3 [CTI95436]	MVT

DO NOT SCALE. REFERENCE THE MODEL FOR ALL UNSPECIFIED DIMENSIONS

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCES:
X.XX ± 0.25
X.X ± 1.0
X ± 1.5
ANGLES ± 0°30'
SURFACE FINISH √ MAX.

THIRD ANGLE PROJECTION

APPROVALS		DATE
DRAWN	TKK	12-20-18
CHECKED	KJB	12-20-18
APPROVED	AJW	12-20-18

KOHLER.
KOHLER, WISCONSIN 53044

TITLE: DIMENSION PRINT, WINDLOAD INSTRUCTION

SCALE | CAD NO. | SHEET 4 of 4

DWG NO. ADV-9107 | D