KOHLER

Model: 600REOZVB

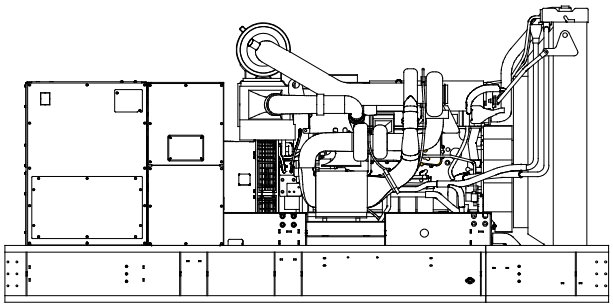
208- 600 V **Diesel**

ISO 9001 KOHLER NATIONALLY REGISTERED

Tier 2 EPA-Certified for Stationary Emergency Applications

Ratings Range

		60 Hz
Standby:	**kW**	485- 600
	kVA	606- 750
Prime:	**kW**	485- 555
	kVA	606- 694



Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- Approved for use with certified renewable Hydrotreated Vegetable Oil (HVO) / Renewable Diesel (RD) fuels compliant with EN15940 / ASTM D975.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A standard one-year limited warranty covers all generator set systems and components. Two-, five-, and ten-year extended limited warranties are also available.
- Alternator features:
  - The pilot-excited, permanent magnet (PM) alternator provides superior short-circuit capability.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
  - An electronic, isochronous governor delivers precise frequency regulation.
  - Multiple circuit breaker configurations.

Generator Set Ratings

				150°C Rise Standby Rating		130°C Rise Standby Rating		125°C Rise Prime Rating		105°C Rise Prime Rating	
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
	120/208	3	60	600/750	2082	565/706	1960	550/688	1910	525/656	1821
	127/220	3	60	600/750	1969	590/738	1937	550/688	1806	545/681	1788
5M4030	139/240	3	60	600/750	1805	600/750	1805	550/688	1656	550/688	1656
	240/416	3	60	600/750	1041	565/706	980	550/688	955	525/656	911
	277/480	3	60	600/750	903	600/750	903	550/688	828	550/688	828
	120/208	3	60	600/750	2082	600/750	2082	555/694	1927	555/694	1927
	127/220	3	60	600/750	1969	600/750	1969	555/694	1822	555/694	1822
5M4032	139/240	3	60	600/750	1805	600/750	1805	555/694	1670	555/694	1670
	240/416	3	60	600/750	1041	600/750	1041	555/694	964	555/694	964
	277/480	3	60	600/750	903	600/750	903	555/694	835	555/694	835
5M4164	220/380*	3*	60*	600/750*	1140*	600/750*	1140*	555/694*	1055*	555/694*	1055*
	220/380†	3†	60†	600/750†	1140†	600/750†	1140†	550/688†	1046†	550/688†	1046†
5M4272	347/600	3	60	600/750	722	600/750	722	550/688	663	550/688	663
5M4276	347/600	3	60	600/750	722	600/750	722	555/694	668	555/694	668

* For GM78621-GA1 generator set spec with TWD1643GE engine, IBC only.

† For GM114579-GA1 generator set spec with TWD1644GE engine.

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.

Alternator Specifications

Specifications		Alternator
Type		4-Pole, Rotating-Field
Exciter type		Brushless, Permanent-Magnet Pilot Exciter
Leads: quantity, type		10, Reconnectable
Voltage regulator		Solid State, Volts/Hz
Insulation:		NEMA MG1
Material		Class H, Synthetic, Nonhygroscopic
Temperature rise		130°C, 150°C Standby
Bearing: quantity, type		1, Sealed
Coupling		Flexible Disc
Amortisseur windings		Full
Rotor balancing		125%
Voltage regulation, no-load to full-load		Controller Dependent
One-step load acceptance		100% of Rating
Unbalanced load capability		100% of Rated Standby Current
Peak motor starting kVA:		(35% dip for voltages below)
480 V	5M4030 (10 lead)	1775
480 V	5M4032 (10 lead)	2200
380 V	5M4164 (4 lead)	2300
600 V	5M4272 (4 lead)	1750
600 V	5M4276 (4 lead)	2800

- 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.
- Digital solid-state, volts-per-hertz voltage regulator with ±0.25% no-load to full-load regulation.
- Brushless alternator with brushless pilot exciter for excellent load response.

Application Data

Engine

Engine Specifications	TWD1643GE IBC Only	TWD1644GE without IBC
Manufacturer	Volvo	
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled	
Cylinder arrangement	6 Inline	
Displacement, L (cu. in.)	16.12 (984)	
Bore and stroke, mm (in.)	144 x 165 (5.67 x 6.50)	
Compression ratio	16.5:1	16.8:1
Piston speed, m/min. (ft./min.)	594 (1949)	
Main bearings: quantity, type	7, Precision Half-Shell	
Rated rpm	1800	
Max. power at rated rpm, kWm (BHP)	674 (903)	
Cylinder head material	Cast Iron	
Piston: type, material	Steel	
Crankshaft material	Forged Steel	
Valve material	Nimonic	
Governor type	EMS 2.0	EMS 2.3
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.25%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	TWD1643GE IBC Only	TWD1644GE without IBC
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m^3/min. (cfm)	130 (4594)	114.5 (4044)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	461 (862)	495 (923)
Maximum allowable back pressure, kPa (in. Hg)	10 (2.95)	
Exhaust outlet size at engine hookup, mm (in.)	See ADV drawing	

Engine Electrical

Engine Electrical System	TWD1643GE IBC Only	TWD1644GE without IBC
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	24	
Ampere rating	80	
Starter motor rated voltage (DC)	24V, 7kW	
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating each	Two, 925	
Battery voltage (DC)	12	

Fuel

Fuel System	TWD1643GE IBC Only	TWD1644GE without IBC
Fuel supply line, min. ID, mm (in.)	10 (0.38)	
Fuel return line, min. ID, mm (in.)	6 (0.25)	
Max. fuel flow, Lph (gph)	210 (55.5)	185 (48.9)
Max. fuel pump restriction, kPa (in. Hg)	10 (3.0)	
Max. return line restriction, kPA (in. Hg)	20 (5.9)	
Fuel filter: quantity,	2	2
Primary type	10 Micron	30 Micron
Secondary type, w/water separator	5 Micron	5 Microns
Recommended fuel	#2 Diesel / HVO / RD	

Lubrication

Lubricating System	TWD1643GE IBC Only	TWD1644GE without IBC
Type	Full Pressure	
Oil pan capacity, L (qt.) §	42.0 (44.4)	
Oil pan capacity with filter, L (qt.) §	48.1 (50.8)	
Oil filter: quantity, type §	3, Cartridge	
Oil cooler	Water-Cooled	

§ Kohler recommends the use of Kohler Genuine oil and filters.

Application Data

Cooling

Radiator System	TWD1643GE IBC Only	TWD1644GE without IBC
Ambient temperature, °C (°F) *	50 (122)	
Engine jacket water capacity, L (gal.)	33 (8.7)	25 (6.6)
Radiator system capacity, including engine, L (gal.)	166 (43.9)	151.1 (39.9)
Engine jacket water flow, Lpm (gpm)	360 (95.4)	
Charge cooler water flow, Lpm (gpm)	150 (39.6)	126 (33)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	245 (13933)	246 (13990)
Heat rejected to charge cooler water at rated kW, dry exhaust, kW (Btu/min.)	216 (12284)	147 (8360)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	965 (38.0)	
Fan, kWm (HP)	30 (41)	34 (46)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)	

* Weather and sound enclosures with internal silencer and weather housing with external silencer reduce ambient temperature capability by 5°C (9°F).

Operation Requirements

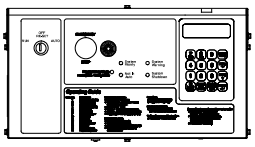
Air Requirements	TWD1643GE IBC Only	TWD1644GE without IBC
Radiator-cooled cooling air, m^3/min. (scfm)†	790 (27900)	798 (28200)
Combustion air, m^3/min. (cfm)	55 (1937)	48 (1649)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	29 (1649)	24 (1342)
Alternator, kW (Btu/min.)	45 (2560)	

† Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption**	TWD1643GE IBC Only		TWD1644GE without IBC	
Diesel, Lph (gph) at % load	**Standby Rating**			
100%	161.8	(42.7)	157.0	(41.5)
75%	117.8	(31.1)	118.4	(31.3)
50%	79.3	(21.0)	80.1	(21.2)
25%	43.6	(11.5)	45.0	(11.9)
Diesel, Lph (gph) at % load	**Prime Rating**			
100%	146.1	(38.6)	144.2	(38.1)
75%	106.9	(28.2)	108.2	(28.6)
50%	72.7	(19.2)	73.9	(19.5)
25%	40.5	(10.7)	42.6	(11.3)

** Fuel consumption is up to 4% higher when using HVO/RD than #2 ULSD.

Controllers



Available option for generator set spec GM78621-GA1 with engine TWD1643GE, IBC only

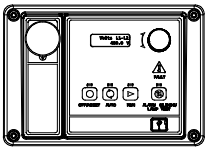
Decision-Maker® 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-46 for additional controller features and accessories.

Controllers (Continued)

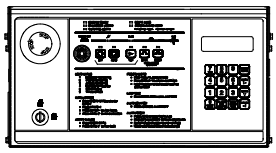


APM402 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

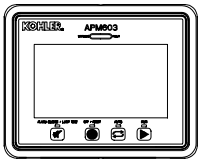


Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other Decision-Maker® 6000 controllers only
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.



Available option for generator set spec GM114579-GA1 with engine TWD1644GE

APM603 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
  Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.

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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

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection (standard with Decision-Maker® 6000 controller)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Circuit Breakers

Type

- ❑ Magnetic Trip
- ❑ Thermal Magnetic Trip
- ❑ Electronic Trip (LI)
- ❑ Electronic Trip with Short Time (LSI)
- ❑ Electronic Trip with Ground Fault (LSIG)

Rating

- ❑ 80%
- ❑ 100%

Operation

- ❑ Manual
- ❑ Electrically Operated (for paralleling)

Circuit Breaker Mounting

- ❑ Generator Mounted
- ❑ Remote Mounted
- ❑ Bus Bar (for remote mounted breakers)

Approvals and Listings

- ❑ CSA Certified
- ❑ IBC Seismic Certification
- ❑ UL 2200 Listing
- ❑ Hurricane Rated Enclosure

Enclosed Unit

- ❑ Sound Enclosure/Tank Package
- ❑ Weather Enclosure/Tank Package

Open Unit

- ❑ Exhaust Silencer, Hospital (kit: PA-354907)
- ❑ Exhaust Silencer, Critical (kit: PA-354894)
- ❑ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ❑ Flexible Fuel Lines, Rubber
- ❑ Flexible Fuel Lines, Stainless Steel
- ❑ Fuel Pressure Gauge

Controller

- ❑ Common Failure Relay (Decision-Maker® 550, 6000 and APM603 controllers only)
- ❑ Communications Products and PC Software
- ❑ Customer Connection (Decision-Maker® 550 controller only)
- ❑ Decision-Maker® Paralleling System (DPS) (Decision-Maker® 6000 controller only)
- ❑ Dry Contact (isolated alarm) (Decision-Maker® 550 and 6000 controllers only)
- ❑ Two Input/Five Output Module (APM402 controller only)
- ❑ Four Input/Fifteen Output Module (APM603 controller only)
- ❑ Remote Audiovisual Alarm Panel (Decision-Maker® 550 and 6000 controllers only)
- ❑ Remote Emergency Stop
- ❑ Remote Mounting Cable
- ❑ Remote Serial Annunciator Panel
- ❑ Run Relay (standard with APM603, optional with others)
- ❑ Manual Key Switch (APM603 controller only)
- ❑ Manual Speed Adjust (Decision-Maker® 550 and APM402 controllers only)

Cooling System

- ❑ Block Heater, 4000 W, 190/208 V, 1 Ph
- ❑ Block Heater, 4000 W, 210/240 V, 1 Ph
- ❑ Block Heater, 4000 W, 380/480 V, 1 Ph Required for ambient temperatures below 0°C (32°F)
- ❑ Radiator Duct Flange

Electrical System

- ❑ Generator Heater
- ❑ Battery
- ❑ Battery Charger, Equalize/Float Type
- ❑ Battery Heater
- ❑ Bus Bar
- ❑ Line Circuit Breaker (NEMA type 1 enclosure)
- ❑ Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

Paralleling System

- ❑ Voltage Sensing (Decision-Maker® 6000 controller only)

Miscellaneous

- ❑ Air Cleaner, Heavy Duty
- ❑ Air Cleaner Restriction Indicator
- ❑ Engine Fluids (oil and coolant) Added
- ❑ Rated Power Factor Testing

Literature

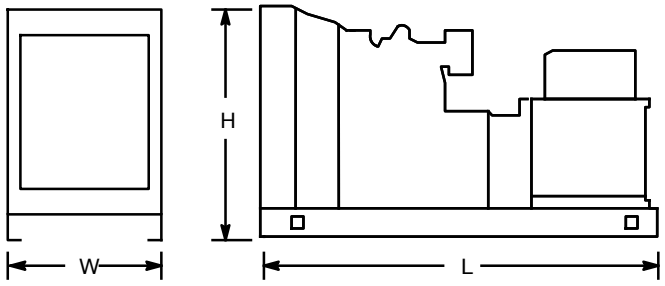
- ❑ General Maintenance
- ❑ NFPA 110
- ❑ Overhaul
- ❑ Production

Warranty

- ❑ 2-Year Basic Limited Warranty
- ❑ 2-Year Prime Limited Warranty
- ❑ 5-Year Basic Limited Warranty
- ❑ 5-Year Comprehensive Limited Warranty
- ❑ 10-Year Major Components Limited Warranty

Dimensions and Weights

Overall Size, L x W x H, max., mm (in.):	4229 x 1829 x 1985 (166.5 x 72.0 x 78.1)
Weight (radiator model), wet, max., kg (lb.):	4885 (10770)



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

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