

MODEL: CK600-1643GE

The TWD1643GE is a powerful, reliable and economical Generating Set Diesel Engine built on the dependable in-line six design.

Durability & low noise

Designed for easiest, fastest and most economical installation. Well-balanced to produce smooth and vibration-free operation with low noise level.

To maintain a controlled working temperature in cylinders and combustion chambers, the engine is equipped with piston cooling. The engine is also fitted with replaceable cylinder liners and valve seats/guides to ensure maximum durability and service life of the engine.

Low exhaust emission

The state of the art, high-tech injection and charging system with low internal losses contributes to excellent combustion and low fuel consumption.

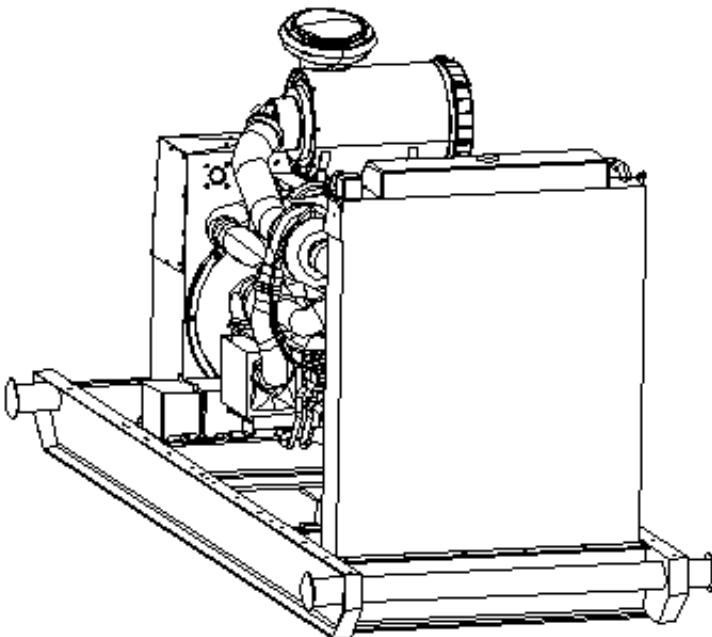
The TWD1643GE is certified for EPA Tier 2. An additional feature is that TWD1643GE fulfils EU Stage 2 exhaust emission levels.

Easy service & maintenance

Easily accessible service and maintenance points contribute to the ease of service of the engine.

Features

- Cooling system (55°C)
- Fully electronic with Volvo Penta EMS 2
- Dual frequency switch (between 1500 and 1800 rpm)
- High power density
- Emission compliant
- Low noise levels
- Low fuel consumption
- Gen Pac configuration
- Compact design for the power class



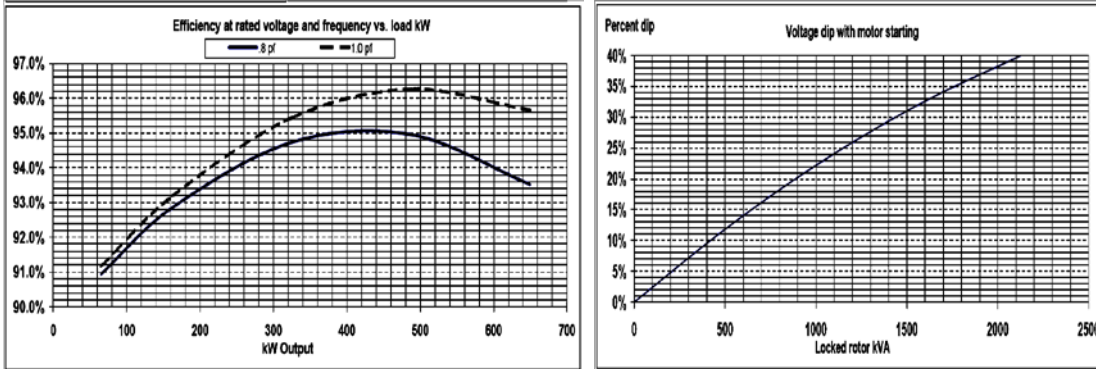
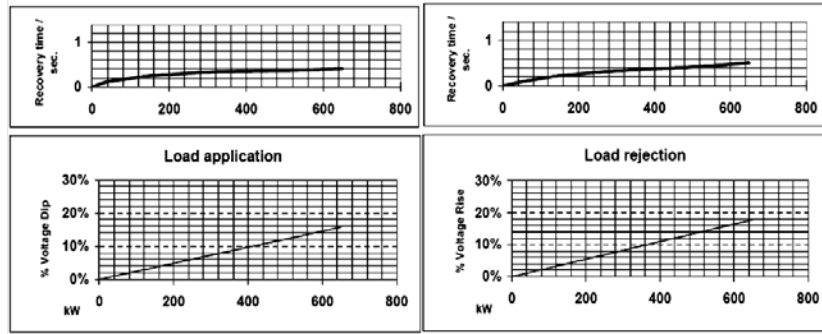
GENERATOR PERFORMANCE

| Kilowatt ratings at 1800 RPM 60 Hertz 10 LEADS Standard 3 phase | | | | | | | | | | |
|---|--------------------|----------------|-------------|---------------------------|---------------------|------------------|-----------------------------|---------------------|------------------|--|
| kW (kVA) | 3 Phase | | | 0.8 Power Factor | | | Dripproof or Open Enclosure | | | |
| | Class B | | Class F | | | | | Class H | | |
| | 80° C Ø Continuous | 90° C Ø Lloyds | 95° C Ø ABS | 105° C Ø British Standard | 105° C Ø Continuous | 130° C Ø Standby | 125° C Ø British Standard | 125° C Ø Continuous | 150° C Ø Standby | |
| 480/240 | 485 (606) | 530 (663) | 545 (681) | 575 (719) | 575 (719) | 600 (750) | 590 (738) | 600 (750) | 645 (806) | |
| 460/230 | 495 (619) | 530 (663) | 505 (631) | 570 (713) | 570 (713) | 610 (763) | 595 (744) | 605 (756) | 650 (813) | |
| 440/220 | 480 (600) | 510 (638) | 495 (619) | 545 (681) | 545 (681) | 590 (738) | 580 (725) | 580 (725) | 625 (781) | |
| 416/208 | 460 (575) | 490 (613) | 470 (588) | 525 (656) | 525 (656) | 565 (706) | 555 (694) | 555 (694) | 600 (750) | |
| 380/190 | 425 (531) | 450 (563) | 440 (550) | 485 (606) | 485 (606) | 485 (606) | 485 (606) | 485 (606) | 485 (606) | |

© Rise by resistance method, Mil-Std-705, Method 680.1b.

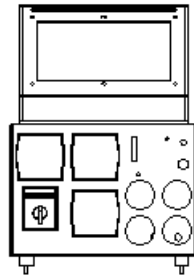
© British Standard Rating per BS 5000

GENERATOR SPECIFICATIONS



Engine / Generator Controller

Control panel provides manual engine and generator control. The control panel features instrumentation for monitoring generator voltage, generator amperage and frequency. Engine parameters such as oil pressure, coolant temperature, battery voltage and engine hours can be monitored with the gauges. SAE J1939 CAN engine faults and shut downs* are also displayed on the Volvo DCU.



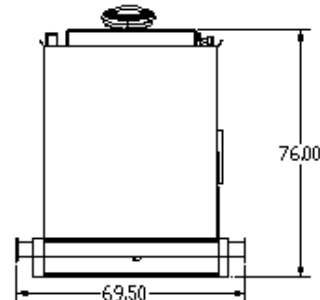
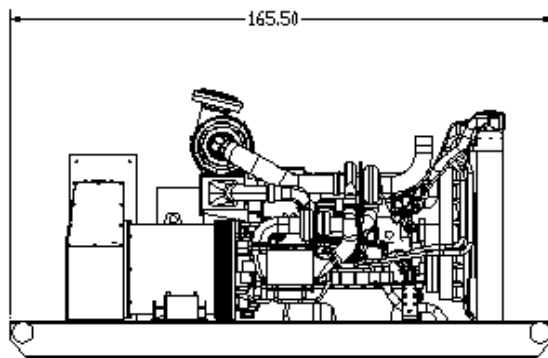
STANDARD ENGINE/GENERATOR CONTROLLER

Standard Equipment Includes:

- Engine Start Push Button
- On / Off Toggle Switch
- Generator AC Voltmeter
- Generator AC Ammeter
- Generator Frequency Meter
- AC Phase Selector Switch
- Volvo DCU
- NEMA 1 Drip Proof Enclosure
- Vibration Isolators

*Over speed shut down is standard on Volvo DCU

DIMENSIONS



TOTAL COMBUSTION AND COOLING AIR VOLUME.....

ENGINE SPECIFICATIONS

Technical Data

| | | |
|---|---------------|--|
| General | | |
| Engine designation..... | TWD1643GE | |
| No. of cylinders and configuration..... | in-line 6 | |
| Method of operation..... | 4-stroke | |
| Bore, mm (in.)..... | 144 (5.67) | |
| Stroke, mm (in.)..... | 165 (6.50) | |
| Displacement, l (in ³)..... | 16.12 (983.7) | |
| Compression ratio..... | 16.5:1 | |
| Dry weight, kg (lb)..... | 1700 (3748) | |
| Dry weight with Gen Pac, kg (lb)..... | 2200 (4850) | |
| Wet weight, kg (lb)..... | 1770 (3902) | |
| Wet weight with Gen Pac, kg (lb)..... | 2370 (5225) | |

| | | |
|-----------------------|-----------------|-----------------|
| Performance | 1500 rpm | 1800 rpm |
| with fan, kW (hp) at: | | |
| Prime Power | 536 (729) | 585 (796) |
| Max Standby Power | 596 (811) | 644 (876) |

| | | |
|--|-----------------|-----------------|
| Lubrication system | 1500 rpm | 1800 rpm |
| Oil consumption, liter/h (US gal/h) at: | | |
| Prime Power | 0.10 (0.026) | 0.10 (0.026) |
| Max Standby Power | 0.11 (0.029) | 0.11 (0.039) |
| Oil system capacity incl filters, liter..... | 48 | |

| | | |
|-----------------------------------|-----------------|-----------------|
| Fuel system | 1500 rpm | 1800 rpm |
| Specific fuel consumption at: | | |
| Prime Power, g/kWh (lb/hph) | | |
| 25 % | 215 (0.349) | 224 (0.363) |
| 50 % | 196 (0.318) | 201 (0.326) |
| 75 % | 196 (0.318) | 197 (0.319) |
| 100 % | 199 (0.323) | 202 (0.327) |
| Max Standby Power, g/kWh (lb/hph) | | |
| 25 % | 210 (0.340) | 220 (0.357) |
| 50 % | 195 (0.316) | 200 (0.324) |
| 75 % | 196 (0.318) | 198 (0.321) |
| 100 % | 200 (0.324) | 204 (0.331) |

| | | |
|---|-----------------|-----------------|
| Intake and exhaust system | 1500 rpm | 1800 rpm |
| Air consumption, m ³ /min (cfm) at: | | |
| Prime Power | 44 (1541) | 53 (1874) |
| Max Standby Power | 47 (1658) | 55 (1937) |
| Max allowable air intake restriction, kPa (PSI) | 5 (0.7) | 5 (0.7) |
| Heat rejection to exhaust, kW (BTU/min) at: | | |
| Prime Power | 415 (23601) | 472 (26842) |
| Max Standby Power | 463 (26330) | 530 (30141) |
| Exhaust gas temperature after low pressure turbine, °C (°F) at: | | |
| Prime Power | 450 (842) | 422 (792) |
| Max Standby Power | 463 (865) | 461 (862) |
| Max allowable back-pressure in exhaust line, kPa (PSI) | 10 (1.5) | 10 (1.5) |
| Exhaust gas flow, m ³ /min (cfm) at: | | |
| Prime power | 101.6 (3586) | 119 (4201) |
| Max Standby Power | 111.8 (3949) | 130.1 (4593) |

| | | |
|--|--------------|----------------|
| Charge Air Cooling System | Prime | Standby |
| Heat rejection to charge air coolers | | |
| BTU/min (kW) 1500 rpm..... | 7190 (125) | 8075 (142) |
| BTU/min (kW) 1800 rpm..... | 8075 (142) | 10236 (180) |
| Charge Air Mass Flow kg/s 1500 rpm..... | .85 | .93 |
| 1800 rpm..... | 10.5 | 10.9 |
| Charge Air Temperature | | |
| Inlet Manifold, max. allowed | | |
| (At air inlet temp. 25 degrees °C)(°F) 1500 rpm..... | 50 (122) | |
| 1800 rpm..... | 50 (122) | |
| Charge Air Pressure | | |
| (After Charge Air Coolers)--kPa (psi) 1500 rpm..... | 462 (67.01) | |
| 1800 rpm..... | 462 (67.01) | |

| | | |
|---|---------------|------------|
| Cooling System | | |
| Engine Heat Reject.--BTU/min (kW) 1500 rpm.. | 1308 (23) | 1877 (33) |
| 1800 rpm.. | 1479 (26) | 1877 (33) |
| Coolant Flow--L/s (US gal/s)..... | 4.8 (1.27) | 6.0 (1.59) |
| 1800 rpm..... | 6.0 (1.59) | |
| Thermostat Start to Open--°F (°C)..... | 1500 rpm..... | 180 (82) |
| Thermostat Fully Open-- °F (°C)..... | 1500 rpm..... | 198 (92) |
| Engine Coolant Capacity--L (US gal)..... | 33 (8.72) | |
| Maximum Top Tank Temp-- °F (°C)..... | 217 (103) | |
| Maximum Static Pressure Head | | |
| (expansion tank height + pressure cap setting) kPa(psi).... | 100 (14.5) | |
| Minimum Static Pressure Head | | |
| (expansion tank height + pressure cap setting) kPa (psi)..... | 70 (10.2) | |
| Standard Pressure Setting-- kPa (psi)..... | 75 (10.9) | |

| | |
|--|---------------------------|
| Electrical System | |
| Voltage and Type..... | 24V/ insulated from Earth |
| Alternator: | |
| Make/Output..... | Amp Bosch / 80 |
| Tacho Output..... | Hz / alt. Rev 6 |
| Drive Ratio | 3.9: 1 |
| Starter Motor: | |
| Make | Melco |
| Type | 105P70 |
| kW | 7.0 |
| Starter Motor Solenoid: | |
| Pull Current..... | Amp --- |
| Hold Current..... | Amp 2.3 |
| Max. wiring resistance main circuit..... | mΩ --- |
| Inrush current @ +20 °C..... | Amp 750 |
| Cranking current @ + 20 °C..... | Amp 300 |
| Crank engine speed at 20 °C..... | rpm 155 |
| Starter motor battery capacity..... | max.....Ah/A 2x225 |
| min. at +5 °C..... | Ah/A --- |
| Inlet manifold heater (at 20 V)..... | kW 4.0 |
| Power Relay for the manifold heater..... | Amp 1 |