

TAYLOR[®]

POWER SYSTEMS

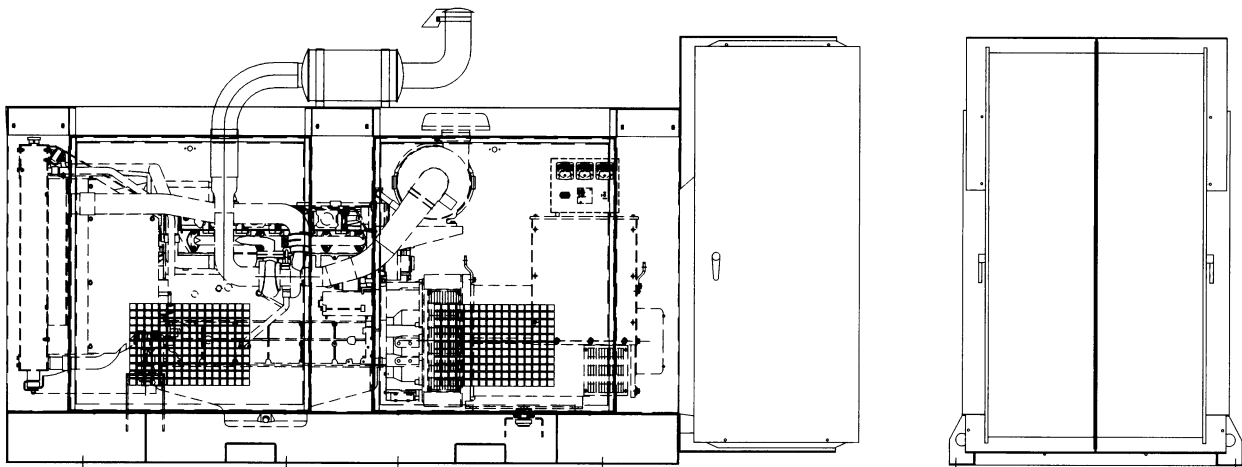
Model: **V150PM**

Unit Ratings:

Standby: kw/kva 60Hz
 150

Prime: kw/kva 135

Alternator Ratings at 1.0 Power Factor



Features

- Single source responsibility for the generator set and accessories.
- Prototype and production tested to insure one step load acceptance per NFPA 110.
- Two year limited warranty on generator sets and accessories.
- Unit conforms to CSA, NEMA, EGSA, ANSI and other standards.
- Automatic Transfer Switch/Switches mounted and wired
- Utility breaker pre-wired to automatic transfer switch
- Output breakers to houses pre-wired to automatic transfer switch
- Analog control system with an ECU-88 providing metering and monitoring.
- Heavy duty 4 cycle industrial engine for reliability and fuel efficiency.
- Brushless rotating field generator with class H insulation.
- Heavy duty steel base with integral vibration isolators.
- Pre-fab mounting pad (eliminates pouring concrete)
- Weather housing
- 12V battery and charger pre-wired
- Engine block heater pre-wired

APPLICATION & ENGINEERING DATA

ENGINE

Engine Specifications	60 Hz	50 Hz
Manufacturer	VOLVO	
Engine, model, type	TAD720GE 4 Cycle	
Cylinder arrangement	6 vertical, in-line	
Displacement, cu. in. (L)	436 (7.15)	
Bore and stroke, in. (mm)	4.25 (108) x 5.12 (130)	
Compression ratio	17.5:1	
Piston speed, ft./sec. (m/sec)	25.6 (7.8)	21.3 (6.5)
Rated rpm	1800	1500
Max. power at rated rpm, hp (kw)	221 (163)	208 (153)
Cylinder head material	Cast iron	
Crankshaft material	Forged steel	
Governor type	electronic	
Frequency regulation, no load to full load	.25%	
Frequency regulation, steady state	±0.01%	
Air cleaner type, all models	Dry paper element	
Combustion air, cfm (m ³ /min.)	488 (13.8)	348 (9.8)

EXHAUST

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, cfm (m ³ /min.)	1105 (31.3)	943 (26.7)
Exhaust temperature at rated kW, dry exhaust, °F (°C)	811 (433)	889 (476)
Maximum allowable back pressure, in. Hg (kPa)	2" HG (7 KPA)	1.5" HG (5 KPA)
Exhaust outlet size at hookup, in. (mm)	3.8" (98)	

ENGINE ELECTRICAL

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive).....		Negative
Volts (DC).....		14
Ampere rating.....		55
Starter motor rated voltage (DC)		14
Recommended battery cold cranking amps (CCA) rating for 0°F (-18°C)		1300
Quantity of batteries		1
Battery voltage (DC)		12

FUEL

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, in. (mm)	1/2 (12.7)	
Fuel return line, min. ID, in. (mm)	3/8 (9.5)	
Max. lift, engine-driven fuel pump, ft. (m)	4.9 (1.5)	
Max. fuel flow, gph (Lph)	118.9 (450)	95.1 (360)
Fuel prime pump	manual	
Fuel filter	spin on	
Recommended fuel	#2 diesel	

FUEL CONSUMPTION

Fuel Consumption	60 Hz	50 Hz
Diesel, gph (Lph) at % of load		
100%	9 (34)	8.5 (32)
75%	6.9 (26)	6.3 (24)
50%	5 (19)	4.5 (17)

COOLING

Cooling System	60 Hz	50 Hz
Ambient temperature °F (°C)	113 (45)	
Radiator system capacity, including engine, gal. (L)	6.3 (23.8)	
Engine jacket water flow, gpm (Lpm)	7.7 (218)	6.1 (173)
Heat rejected to cooling water at rated kW, dry exhaust Btu/min.	4828	4424
Water pump type	centrifugal	
Fan diameter, including blades, in. (mm)	21.5 (546)	
Max. restriction of cooling air, intake and discharge side of rad., in. LBF in ² (kPa)	5.0 (35)	3.6 (25)
Radiator-cooled cooling air, cfm (m ³ /min.)	6568 (186)	5509 (156)

LUBRICATION

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity with filter, qts. (L)	21.1 (20)	
Oil filter, quantity, type	1 spin on	
Oil cooler	INTEGRATED FULL FLOW	

ANALOG CONTROL PANEL

- **Taylor Power Systems Analog Auto Start Control Panel.** The panel is equipped with AC Voltmeter, AC Frequency Meter, Percent of Load Meter, Running Time Meter, Control Toggle Switch with Off/Auto/Manual positions, and ECU-88 engine control with specific safety shutdown lights.
- **Separate Oil Pressure and Water Temperature Gauge Located on Generator Set.**
- **Taylor Power Systems also supplies a manual key override by-pass switch that allows you to start the generator manually in the event of control systems failure.**

ECU-88 FEATURES

- **Engine Started LED**
- **Overspeed Shutdown LED**
- **Overcrank Shutdown LED**
- **High Water Temperature Shutdown LED**
- **Low Oil Pressure Shutdown LED**

The ECU automatically cranks, starts, and monitors the engine for Overcrank, Overspeed, High Water Temperature, and Low Oil Pressure. A built in speed switch uses a magnetic pickup to monitor engine speed for crank disconnect and overspeed. The bypass timer/logic assures Low Oil Pressure and High Water Temperature override during the crank period and an additional adjustable period after crank disconnect. The ECU monitors the Magnetic Pickup signal for problems during both cranking and running. If a problem is detected the engine will shutdown and Overcrank and Overspeed LED's will both turn on.

GENERATOR SPECIFICATIONS

Taylor Power Systems uses Full Output Rated 4 Lead design Single Phase Generators, which provide superior motor starting, and generator efficiency.

STANDARDS

The generator meets all requirements of NEMA MG-1, Parts 16 and 22, in design, performance and factory test procedures. The generator and regulator are C.S.A. listed.

CONSTRUCTION & BEARINGS

Cast iron end brackets and fabricated steel frame. The unit is fully guarded per NEMA MG-1-1.25.4.

Bearings are pre-lubricated, double shielded, ball type with end brackets machined for an O-Ring to retard bearing outer race rotation. Minimum B-10 bearing life is 40,000 hours.

EXCITATION SYSTEM

The rotating exciter has a full wave rectifier assembly with hermetically sealed silicon diodes protected against abnormal transient conditions by a multi-plated selenium surge protector. The diodes are designed for safety factors of 5 times voltage and 3 times current.

The generator may be optionally equipped with a 300/250 Hz permanent magnet generator excitation system. Both the PMG and the rotating brushless exciter are mounted outboard of the bearing. The system will supply a minimum short circuit support current of 250% of the rating (210% for 50 hertz operation) for 10 seconds.

INSULATION SYSTEM

The insulation system of both the rotor and stator is NEMA Class H materials and is synthetic and non-hygroscopic. The stator winding is given multiple dips and bakes of varnish. The rotor is layer wound with thermo-setting 100% solids epoxy between each layer.

MAIN ROTOR

The main rotating field is of Unirotor[®] construction, consisting of one piece, four pole laminations. In addition the amortisseur winding and field pole coil supports are integrally die cast with the rotor laminations to form a unitized rotor core. The rotor core is shrunk fit and keyed to the shaft.

The rotating assembly is dynamically balanced to less than 2 mils - peak to peak - displacement, and is designed to have an overspeed withstand of 125% of rated speed for 15 minutes when operating at stable rated operating temperature.

STATOR WINDING

The stator winding is a 2/3 pitch design to eliminate the third harmonic and incorporate a one slot skew to minimize slot harmonics. Windings are random wound and lashed at the endturns to provide superior mechanical strength.

TEMPERATURE RISE

The temperature rise of both the rotor and stator have been measured by the resistance method and are in accordance with the applicable sections of NEMA MG-1, Parts 16 and 22, BS-5000, or C.S.A. C22.2, for the type of service intended.

VOLTAGE REGULATOR

The voltage regulator has solid state voltage build-up. The unit is encapsulated for humidity and abrasion protection. The regulator provides 1% regulation, volts per hertz operation, overexcitation shutdown, stability adjust, and built in voltage adjustment.

PERFORMANCE

The voltage regulation is 1% from no load to full load and 5% frequency variation. Regulator drift is less than 1% per 72° F (40° C) ambient temperature change. The voltage regulator is a static-type using non-aging silicon controlled rectifiers, with electromagnetic interference suppression to commercial standards.

Voltage dip does not exceed 30% upon application of full continuous rated load with recovery to steady state band conditions within 1 second as measured on a light beam recorder.

The waveform harmonic distortion does not exceed 5% total RMS measured line to line at full rated load. The TIF factor does not exceed 50.

VENTILATION

The generator is self-ventilated and has a one piece, cast aluminum alloy, unidirectional internal fan for high volume, low noise air delivery.

STANDARD FEATURES AND ACCESSORIES

Standard Features

- Heavy duty steel base
- Vibration isolators
- Battery
- Battery rack
- Battery cables
- Battery Charger
- Water jacket heater
- Owners manual
- Spark arresting muffler
- Flex Fuel Lines
- Weather Housing
- Automatic Transfer Switch
- Output Breakers to Load
- PMG Exciter
- Electronic isochronous governor

Accessories

- Generator strip heater
- Line circuit breaker
- Pre-fab mounting pad
(eliminates pouring concrete)

Accessories

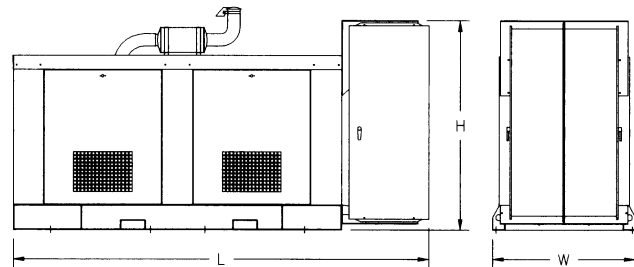
- Sub-base fuel tank
- Above ground fuel tank
- Oil pan heater
- Battery heater

WEIGHTS AND DIMENSIONS

V150PM

Overall Size, L x W x H, in.: (134" x 46" x 67.5")

Weight (wet): 3800 Lbs.



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

Availability is subject to change without notice. Taylor Power Systems reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Availability can be determined by contacting Taylor Power Systems.

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