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# Technical Data

April 2008

Mitsubishi S4Q2-Y262D	Newage Stamford BCI 184	Generator Model:	<b>Triton 22-60SP T2</b>
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60 Hz	1-Phase	Power Factor Cos $\Phi = 1.0$	Emissions Certification EPA/CARB Tier 2
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RATINGS	PRIME POWER (PRP)		STANDBY POWER (LTP)		
	kVA	kWe	kVA	kWe	Amps
240/120	20	20	22	22	90
230/115	20	20	22	22	93
220/110	20	20	22	22	98

**Definition of Ratings & Reference Conditions**

Prime Power (PRP) is the nominal output continuously available, where the average load (variable) does not exceed 70% of the prime power rating. 10% overload is available for a maximum of 1 hour in 12 hours of operation.

Standby Power (LTP) is the maximum output available (at variable load), for up to 500 hours per year. No overload is available.

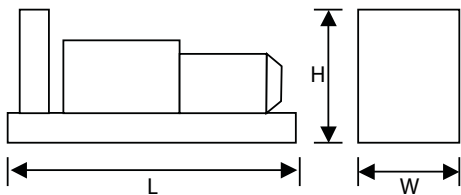
Standard Reference Conditions: air inlet temperature 25°C (77°F), 150m (500ft) above sea level and 60% relative humidity.

Note: The above ratings may be subject to derate at different operating conditions. Please see the Derate Guidelines on the Triton website.

All power ratings and reference conditions in accordance with ISO 8528-1 and ISO 3046-1.

**Key Features:**

- Efficient water cooled Diesel engine.
- Single bearing Newage Stamford alternator
- Radiator with pressure cap and drain point
- Fully guarded engine-driven fan
- Fabricated steel skid base with fork lift pockets
- Moulded polypropylene fuel tank with filler cap
- Heavy duty rubber anti-vibration mountings
- 12V starter battery and connecting cables
- Separate engine-driven battery charging alternator
- Spin on oil and fuel filters and dry type air filter element
- Industrial silencer (15dBA reduction) supplied loose
- BC 701E-M Key Start control system
- Main line circuit breaker
- Factory Test Certificate
- Operation & Maintenance Manual
- Wide range of optional extra features available



Overall Dimensions & Weights - Open Set	
Length (L) = 1660mm	[66in]
Width (W) = 660mm	[26in]
Height (H) = 1165mm	[46in]
Dry Weight (inc oil) = 650kg	[1435lb]
Operating Weight = 700kg	[1545lb]

Overall dBA	Typical Open Generator Sound Pressure Level at 1m, Free Field (dB)							
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
90	76	78	83	86	85	83	77	77

All designs and specifications subject to change without notice



**Triton 22-60SP T2**

**ENGINE & COOLING SYSTEM** **MITSUBISHI S4Q2-Y262SD**

		SI Units	[US Units]	PRIME	STANDBY
Performance	Engine Speed	r/min	[rpm]	1800	
	Gross Power	kWm	[bhp]	24.6 [33]	26.8 [36]
	Fan Power	kWm	[bhp]	1.2 [1.6]	1.2 [1.6]
	Net Power	kWm	[bhp]	23.4 [31]	25.6 [34]
	Emissions Certification	EPA Tier 2			
	Altitude Capability	m	[ft.]	1200 [4000]	1200 [4000]
General	Cylinders / Type	4 cyl / Inline / 4-stroke			
	Aspiration / Charge Cooling	Natural / None			
	Governing / Engine Management	Mechanical Governor			
	Bore / Stroke	mm	[in.]	88 / 103 [3.46 / 4.06 ]	
	Cubic Capacity	litres	[cu.in.]	2.505 [153]	
	BMEP	kPa	[psi]	654 [95]	713 [103]
	Fuel	Fuel Consumption at 100% Power	litres/h	[gal/h]	7.5 [2.0]
Fuel Consumption at 75% Power		litres/h	[gal/h]	6.5 [1.7]	7.2 [1.9]
Fuel Consumption at 50% Power		litres/h	[gal/h]	5.3 [1.4]	6.0 [1.6]
Total fuel flow		litres/h	[gal/h]	36 [10]	
Standard Fuel Tank Capacity		litres	[gal]	55 [15]	
Air	Engine Air Flow	m <sup>3</sup> /s	[cfm]	0.065 [138]	0.065 [138]
	Maximum Air Intake Restriction (used filter)	kPa	[inWG]	1.96 [7.9]	
Exhaust	Exhaust Gas Flow	m <sup>3</sup> /s	[cfm]	0.172 [364]	0.172 [364]
	Exhaust Gas Temperature	°C	[°F]	580 [1076]	600 [1112]
	Maximum Exhaust Back Pressure	kPa	[inWG]	6.7 [27]	
	Typical Exhaust Pipe Diameter	mm	[in.]	TBA [TBA ]	
Cooling	Radiator Cooling Air Flow	m <sup>3</sup> /s	[cfm]	1.0 [2119]	
	Max Restriction to Cooling Air Flow	Pa	[inWG]	100 [0.4]	
	Max Radiator Air-On Temperature	°C	[°F]	50 [122]	
	Maximum Coolant Temperature	°C	[°F]	111 [232]	
	Coolant Capacity - Engine Only	litres	[gal]	4 [1.1]	
	Total Coolant Capacity	litres	[gal]	8.1 [2.1]	
Oil	Total Oil Capacity incl Filters	litres	[gal]	6.5 [1.7]	
	Typical Oil Pressure at Rated Speed	kPa	[psi]	340 [49]	
	Typical Oil Consumption (>250hrs Operation)	litres/h	[pt/h]	0.02 [0.04]	
Thermal	Heat Rejection to Engine Cooling Water	kW	[btu/min]	24 [1366]	26 [1480]
	Heat Rejection to Charge Cooler	kW	[btu/min]	n/a	
	Heat Radiated From Engine (Typical)	kW	[btu/min]	3.1 [175]	3.4 [191]
Elec	Electrical System Voltage	V		12	
	Battery Type			1 X 069	
	Battery Capacity SAE CCA	A		520	

**ALTERNATOR** **NEWAGE STAMFORD BCI 184**

		SI Units	[US Units]	PRIME	STANDBY
General Data	Manufacturer	NEWAGE STAMFORD			
	Model (may vary with voltage)			BCI 184 E	BCI 184 E
	Operating Temperature	°C	[°F]	40 [104]	27 [81]
	Coupling / No. of Bearings	Direct / Single Bearing			
	Phase / Poles / Winding Type	1-Phase / 4-Pole / Winding 06			
	Power Factor	Cos Φ = 1.0			
	Excitation	Self Excited			
	Insulation System	Class H			
	AVR Type	SX 460			
	Voltage Regulation	± 1.5%			



# Triton 22-60SP T2

## STANDARD CONTROL SYSTEM

## BC 701E-M Key Start

The standard control system for the Midi Range is BC 701E-M (photo), based on the Deep Sea Electronics DSE701 Key Start controller.

This provides for the manual control of the generator via a two-position key switch and membrane push button for Start, together with Overspeed, Low Oil Pressure and High Coolant Temperature protection.

- LED indications for protection operation
- LED indication for charge alternator fail
- Membrane push button for engine preheat (where applicable)
- Analogue voltmeter with 4-position selector switch
- Analogue ammeter with 4-position selector switch
- Engine hours counter
- Emergency Stop button
- One auxillary input for optional features
- Optional - Generator Running volt-free output

The panel is constructed in 1.5mm steel, powder coated to RAL9001 for a high quality, durable finish with the hinge points of the cover located at the bottom edge for improved maintenance access.



## CONTROL SYSTEM OPTIONS

The optional BC 701-M control system (not illustrated) is similar to the standard unit but benefits from the addition of :

- Analogue frequency meter
- Analogue gauges for Oil Pressure, Coolant Temperature & Battery Charge Amps
- 7-Position voltmeter selector switch

The BC 704E-M Auto-Start control system (photo) features the DSE704 control module which provides for automatic remote start. Additional features include :

- Underspeed protection
- Fail to Start indication
- Automatic cool-down timer function
- Optional - Common Alarm & System In Auto volt-free contacts

The BC 704-M system (not illustrated) is again similar, but with the addition of analogue engine instruments and frequency meter.



As a digital alternative, there is the BC 5110-M Auto Start system, based on the DSE 5110 control module.

This provides all the functionality of the BC 704-M system but with digital displays for :

- Coolant Temperature, with integral high temperature protection
- Oil Pressure, with integral low pressure protection
- Volts, Amps and Frequency
- Engine operating hours

This system also has an increased digital input/output count for external options and, being cost effective in comparison with the analogue system, is now the preferred choice for most customers.

With a modest cost saving, the BC 5110E-M is similar to the BC 5110-M but comes without the digital indications for Oil Pressure and Coolant Temperature. The protection facilities are still provided however..

Finally, the BC 5310-M system (just the DSE 5310 module shown here) provides complete power monitoring and protection facilities.

Compared to BC 5110-M, addition features include :

- Pre-alarms for Low Oil Pressure and High Coolant Temperature
- Digital display of kW, kVA and Power Factor
- Under/Over Volts protection
- Over Current Protection
- Full RS485 Telemetry implementation





**Triton 22-60SP T2**

**OPTIONAL ACOUSTIC ENCLOSURE Midi Canopy M1**

The optional acoustic enclosure for this model is the **Midi 1 Canopy**, suitable for operation in harsh outdoor environments whilst providing excellent security and acoustic performance. All steel canopy components are pre-treated and polyester powder coated (to a typical thickness of 70-80µm) in RAL9001 white and the baseframe is finished in RAL9005 black.

Acoustically, the canopy is designed to meet the requirements of EU Legislation 2000/14/EC, achieved by extensive use of fire-retardant polyurethane foam together with efficient management of cooling air. Exhaust noise is minimised by internally mounted high performance exhaust silencers.

A compact fuel tank moulded in tough polypropylene, with visual level indication, is mounted within the baseframe.

Other key features include :

- Gull-wing doors with gas struts for good service access
- Panel viewing window in main door
- Heavy duty locks on all doors for total security
- Weather cap on exhaust discharge
- Emergency Stop button relocated to canopy exterior
- Lifting and holding down points
- Fork Lift pockets
- Single roof lifting point.



Dimensions mm [in]					Additional Weight kg [lbs] *	Typical Sound Pressure Level at Standby Power		Fuel Tank Capacity Litres [US gal]		Single Point Lift
L	x	W	x	H		dB(A) at 1m [3ft]	dB(A) at 7m [23ft]	Integral	Bunded	
1810 [71.3]	x	950 [37.4]	x	1190 [46.9]	125 [276]	74	64	55 [15]	-	Standard

\* Indicative weight of canopy additional to open set

Typical SPL is a mean level, measured in free field conditions, with no contributory background noise.

**KEY MECHANICAL OPTIONS (Open Set)**

Engine & Cooling :

- Electronic governor
- Oil and coolants drains extended to edge of baseframe
- Coolant heater

Fuel System :

- Low fuel level switch (single point)
- Fuel level switch (four point)

Alternator :

- Anti-condensation heater
- Quadrature droop kit
- Alternative AVR

Please refer to Triton Sales Department for full details of these and other options

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