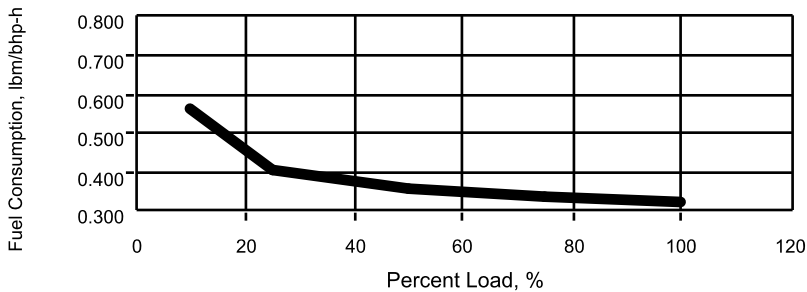
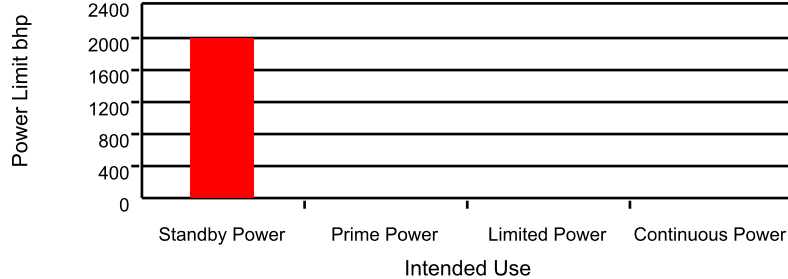
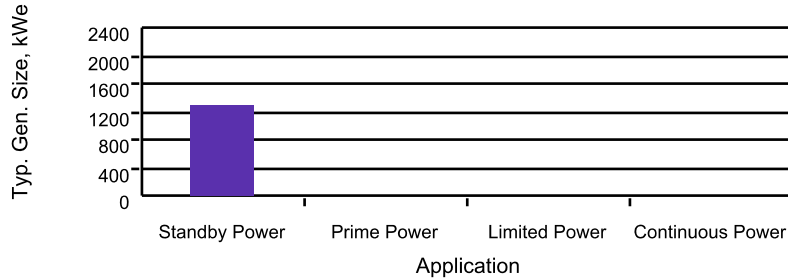




Gen Set 12V4000 - T1237M36

Performance Data
06N04M1528

1998 bhp @ 1800 r/min



Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.

Standby Power 60 Hz - 1330 kW _e		
Percent Load, %	Power, bhp	Fuel Consumption, lbm/bhp-h
10	200	0.561
25	500	0.406
50	999	0.357
75	1499	0.337
100	1998	0.327

Limited Power 60 Hz - 0		
Percent Load, %	Power, bhp	Fuel Consumption, lbm/bhp-h
10	-	-
25	-	-
50	-	-
75	-	-
100	-	-

Tolerance for power values shown is +5/-0% at the conditions listed.

Tolerance for fuel values shown is +5/-0% at the conditions listed.

Condition	ISO 3046
Air Inlet Temp.	77 °F
CAC Inlet Temp.	131 °F
Relative Humidity	30 %
Total Baro. Pressure	30 in. Hg
Fuel Inlet Temp.	77 °F
Spec. Fuel Gravity [ref. temp.]	0.8472 77 °F
Air Inlet Restriction	6 in. H ₂ O
Exhaust Back Pressure	12 in. H ₂ O
Raw Water Temp.	- °F
Min. Fuel Heat Content [ref. test spec]	20,500 Btu/lb _m -
Altitude, above sea level	328 ft
Air Density	0.1 lb/ft ³
Fuel Density	7.07 lb/gal (US)
Oil Density	7.50 lb/gal (US)



Gen Set 12V4000 - T1237M36

Technical Data
06N04M1528

1998 bhp @ 1800 r/min

	Standby Power 60 Hz - 1330 kW _e	Prime Power 60 Hz - 0	Limited Power 60 Hz - 0	Continuous Power 60 Hz - 0	
Calibration Details					
Control System	MDEC Electronics	-	-	-	-
Maximum Power	1998	-	-	-	bhp
Maximum Power Speed	1800	-	-	-	r/min
Rated Power Limit	1998	-	-	-	bhp
Rated Power Limit Speed	1800	-	-	-	r/min
Typical Low Idle Speed	600	-	-	-	r/min
Typical High Idle Speed	1890	-	-	-	r/min
Intended Use	Standby Power applications	-	-	-	-
Cooling System					
Coolant Capacity in Engine Circuit	169	-	-	-	qt (US)
Coolant Capacity in Charge Air Circuit	42	-	-	-	qt (US)
Total Coolant Capacity	211	-	-	-	qt (US)
Coolant Flow Rate in Engine Circuit	308	-	-	-	gal/min (US)
Coolant Flow Rate in Charge Air Circuit	114	-	-	-	gal/min (US)
Heat Rejection to Engine Coolant Circuit (Intercooler Inlet Temperature < 135 °F)	35,850	-	-	-	Btu/min
Heat Rejection to Engine Coolant Circuit (Intercooler Inlet Temperature > 135 °F)	-	-	-	-	Btu/min
Heat Rejection to Charge Air Coolant Circuit (Intercooler Inlet Temperature < 135 °F)	19,900	-	-	-	Btu/min
Heat Rejection to Charge Air Coolant Circuit (Intercooler Inlet Temperature > 135 °F)	-	-	-	-	Btu/min
Radiated Heat Rejection	4250	-	-	-	Btu/min
Exhaust System					
Exhaust Flow Rate (volumetric)	187.9	-	-	-	ft ³ /s
Exhaust Temperature	842	-	-	-	°F
Fuel System					
Injector Device	-	-	-	-	-
Injection System	Common Rail	-	-	-	-
Fuel Flow Rate (mass)	2054.4	-	-	-	lb _m /h
Fuel Flow Rate (volumetric)	290.6	-	-	-	gal/h (US)
Fuel Spill Rate (mass)	1400.5	-	-	-	lb _m /h
Fuel Spill Rate (volumetric)	198.1	-	-	-	gal/h (US)
Fuel Consumption (mass)	653.9	-	-	-	lb _m /h
Fuel Consumption (volumetric)	92.5	-	-	-	gal/h (US)
Heat Rejection to Fuel	800	-	-	-	Btu/min

Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.



Gen Set 12V4000 - T1237M36

Technical Data 06N04M1528

1998 bhp @ 1800 r/min

	Standby Power 60 Hz - 1330 kW _e	Prime Power 60 Hz - 0	Limited Power 60 Hz - 0	Continuous Power 60 Hz - 0	
Intake System					
Engine Air Flow Rate (volumetric)	77.7	-	-	-	ft ³ /s
Intake Manifold Pressure	62	-	-	-	in. Hg
Turbocharger Compressor Inlet Temp.	-	-	-	-	°F
Lubrication System					
Oil Flow Rate	-	-	-	-	gal/min (US)
Oil Pressure	73	-	-	-	lbf/in. ²
Oil Consumption (mass)	3.27	-	-	-	lb _m /h
Oil Consumption (volumetric)	1.74	-	-	-	qt/h (US)
Additional Information					
Altitude Capability	-	-	-	-	ft
Brake Mean Effective Pressure (BMEP)	296	-	-	-	lbf/in. ²
Compression Ratio	15.5	-	-	-	: 1
Friction Horsepower	-	-	-	-	fhp
Mean Piston Speed	2244	-	-	-	ft/min
Turbocharger	TURB BTV 85 1.23 A/R 60 Hz		-	-	-

Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.



Gen Set 12V4000

Installation Data T1237M36

1998 bhp @ 1800 r/min

Cooling System

Min. Coolant Flow Rate in CAC Circuit	108.8 gal/min (US)
Min. Coolant Flow Rate in Engine Circuit	292.8 gal/min (US)
Max. Coolant Out Temp. in Engine Circuit	203 °F
Max. CAC Water Pump Discharge Pressure (Exclusive of Pressure Cap)	- lbf/in. ²
Max. Engine Water Pump Discharge Pressure (Exclusive of Pressure Cap)	- lbf/in. ²
Min. Water Pump Inlet Pressure (Rapid Warm-up Rad.)	5.8 lbf/in. ²
Max. Water Pump Static Pressure Head	21.6 lbf/in. ²
Max. External Restriction in CAC Circuit	- lbf/in. ²
Max. External Restriction in Engine Circuit	- lbf/in. ²
Max. Intercooler Coolant Outlet Temp.	140 °F
Max. Ambient-to-Intercooler Coolant Inlet Temp. Rise	- °F
Min. Engine Coolant Fill Rate	5.0 gal/min (US)
Min. Drawdown	10 %
Max. Dearthation Time	30 min
Min. Pressure Cap	14.5 lbf/in. ²
Max. System Pressure (Exclusive of Pressure Cap)	36.3 lbf/in. ²
Min. Top Tank Coolant Temp.	- °F

Crankshaft System

Max. Radial Load- Crankshaft	- lbf
Max. Continuous Load- Thrust Bearing	1595 lbf
Max. Intermittent Load- Thrust Bearing	3980 lbf
Max. Shock Load- Thrust Bearing	- lbf
Max. Vertical Load at Rear Face of Flywheel (†)	2248 lbf
Max. Static Bending Moment at Rear Face of Block	1000 ft-lbf

(†) The weight of the flywheel must be included with the OEM components.

Electrical System

Max. Resistance of Starting Circuit - 24 V System	- Ω
Rec. Battery Capacity - 24 V System	- CCA

Exhaust System

Max. Exhaust System Back Pressure	1.5 in. Hg
Rec. Dry Exhaust Pipe Dia. - Single	14.0 in.
Rec. Dry Exhaust Pipe Dia. - Dual	10.0 in.

Fuel System

Max. Fuel Inlet Temp.	131 °F
Max. Fuel Pump Suction for Clean System	3.0 in. Hg
Max. Fuel Pump Suction for Dirty System	- in. Hg
Max. Fuel Return Pressure	7.3 lbf/in. ²
Rec. Primary Fuel Filter Size	- micron
Max. Secondary Fuel Filter Size	5 micron

Intake System

Max. Ambient to Turbo Compressor Inlet Temp. Rise	31 °F
Max. Crankcase Pressure	- in. H ₂ O
Max. Intake Restriction for a Clean Air Cleaner	12 in. H ₂ O
Max. Intake Restriction for a Dirty Air Cleaner	20 in. H ₂ O
Rec. Intake Pipe Dia. - Single	8.0 in.
Rec. Intake Pipe Dia. - Dual	8.0 in.

Lubrication System

Max. Change in Oil Pressure from Engine Out to Oil Cooler Inlet for Remote-mounted Filters	- in. H ₂ O
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Gen Set 12V4000 - T1237M36

Emission Data
06N04M1528

1998 bhp @ 1800 r/min

Certification Summary

Certification Code (CWC)	5307
US Nonroad (Tier 1)	Certified.
US Nonroad (Tier 2)	Not certified.
US Nonroad (Tier 3)	Not certified.
US Nonroad (Tier 4)	Not certified.
EURO Nonroad (Stage I)	Not certified.
EURO Nonroad (Stage II)	Not certified.
EURO Nonroad (Stage III)	Not certified.
EURO Nonroad (Stage IV)	Not certified.
South Coast Air Quality Management District (SCAQMD)	Approval has expired.

Compliance Summary

Japanese Nonroad	No.
TA-Luft Power Plant	No.
SCAQMD Permit Information	
- Application Number	416967
- Status	Approval has expired.
- Issue Date	01 AUG 2003
- Expiration Date	01 AUG 2004

Available power is shown. Data does not include parasitic losses from fans, accessories, etc. Parasitic losses will vary depending on the final product configuration and reduce the available power accordingly.

Emission Data

Steady-state Emission Summary

NO _x	- g/h
CO	- g/h
HC	- g/h
SO ₂ - with .5% sulfur content fuel	1485 g/h
SO ₂ - with .05% sulfur content fuel	148 g/h
Particulates	- g/h

C1 Cycle Emission Summary

NO _x	- g/bhp·h
CO	- g/bhp·h
HC	- g/bhp·h
Particulates	- g/bhp·h

D2 - Cycle Emissions

Engine Load	10%	25%	50%	75%	100%	Cycle Value
			g/h			g/bhp·h
CO	674	628	754	713	903	0.75
HC	339	368	456	551	598	0.48
SO ₂ - with 0.5% sulfur content fuel	254	460	808	1145	1485	-
SO ₂ - with 0.05% sulfur content fuel	25.4	46.0	80.8	115	148	-
Particulates	62.0	95.0	151	120	129	0.12
NO _x	2020	2745	5305	8920	15,930	5.98

Opacity Mode

Acceleration	- %
Lug	- %
Peak	- %
Smoke	
Bosch No.	-

Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found at 40 CFR Part 89 (Control of Emissions From New and In-Use Nonroad Compression-Ignition Engines). The weighted cycle value from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions.



Gen Set
12V4000 - T1237M36

Noise Summary
06N04M1528

1998 bhp @ 1800 r/min

Frequency, Hz	Surface, dB(A)	Exhaust, dB(A)	Structureborne Longitudinal, dB(A)	Structureborne Transverse, dB(A)	Structureborne Vertical, dB(A)
32	-	57.0	-	-	-
40	-	62.4	-	-	-
50	56.4	68.8	-	-	-
63	45.0	66.3	-	-	-
80	56.5	88.1	-	-	-
100	63.5	93.0	-	-	-
125	69.3	94.9	-	-	-
160	74.2	96.8	-	-	-
200	76.2	95.6	-	-	-
250	77.9	108.9	-	-	-
315	86.7	102.4	-	-	-
400	86.3	101.6	-	-	-
500	85.6	104.8	-	-	-
630	88.0	105.5	-	-	-
800	89.1	102.7	-	-	-
1000	89.0	104.1	-	-	-
1250	95.1	101.5	-	-	-
1600	95.1	101.5	-	-	-
2000	91.8	103.6	-	-	-
2500	95.5	99.8	-	-	-
3150	93.2	95.8	-	-	-
4000	90.0	89.8	-	-	-
5000	89.2	84.3	-	-	-
6300	88.4	76.5	-	-	-
8000	104.8	69.4	-	-	-
10,000	108.1	60.5	-	-	-
12,500	-	-	-	-	-
16,000	-	-	-	-	-
20,000	-	-	-	-	-
Total	109.5	114.8	-	-	-

Conditions and Tolerances

Data Tolerance	Tolerance for values shown has not been specified.	Tolerance for values shown has not been specified.	Tolerance for values shown has not been specified.	Tolerance for values shown has not been specified.	Tolerance for values shown has not been specified.
Test Standard	DIN 45-635 Part 11 & ISO 6798	DIN 45-635 Part 11 & ISO 6798	not specified	not specified	not specified
Comments	Includes dry internal exhaust duct.	Includes dry internal exhaust duct with LOG-manifold.	not specified	not specified	not specified



Gen Set 12V4000

Mechanical Data T1237M36

Camshaft

UPC Group Number	-
Type	Gear-driven, one-piece
Location	In the cylinder block, center vee
Material	Steel alloy
Surface Finish - Journal	Ground finish
Surface Finish - Lobe	Ground finish

Camshaft Bearing

Type	One-piece design
Material	Steel back - Shrink fitted
Mean Effective Length [MEL]	1.053 in.
Mean Journal Diameter [MJD]	3.624 in.
Projected Area [per bearing]	3.82 in. ²

Connecting Rod

Type	Forged, rectangular cross-section, forged
Material	Forged, steel alloy

Connecting Rod Cap

Type	Angled split-cap, serrated design
Material	Forged, steel alloy

Connecting Rod Crank Pin Bearing

Type	Split-shell design
Quantity [per journal]	2
Material - Lower Bearing	Trimetal (steel-backed with copper, lead, and tin overlay)
Material - Upper Bearing	Sputtered aluminum and tin overlay
Mean Effective Length [MEL]	1.646 in.
Mean Journal Diameter [MJD]	4.610 in.
Projected Area [per bearing]	7.59 in. ²

Crankshaft

Type	One-piece
Material	Drop forged, steel alloy
Surface Finish - Journal	Induction hardened with ground finish
Type of Balance	Dynamic with machined bolt on counter-weight

Crankshaft Main Bearing

Type	Split-shell design
Quantity [per journal]	2
Material - Lower Bearing	Trimetal (steel-backed with copper, lead, and tin overlay)
Material - Upper Bearing	Trimetal (steel-backed with copper, lead, and tin matrix)
Mean Effective Length [MEL]	1.791 in.
Mean Journal Diameter [MJD]	6.304 in.
Projected Area [per bearing]	11.29 in. ²

Crankshaft Thrust Bearing

Type	Two-piece design
Quantity	1
Mean Effective Length [MEL]	2.402 in.
Mean Journal Diameter [MJD]	6.304 in.
Projected Area [per bearing]	15.14 in. ²

Cylinder Block

UPC Group Number	06A01 2075
Type	90-degree vee cylinder block
Material	Gray cast iron

Cylinder Head

UPC Group Number	06A02 0721
Type	1 cylinder head per cylinder
Material	Gray cast iron
Air Management	Cross-flow

Cylinder Liner

UPC Group Number	06A01 2075
Type	Wet, replaceable liner
Material	Centrifugally cast, high alloy cast iron



Gen Set 12V4000

Mechanical Data T1237M36

Exhaust Valve

Type	Poppet valve
Material - Head	Heat resistant steel alloy
Material - Stem	Heat resistant steel alloy
Operating Mechanism	Push rod with rocker arm
Type of Lifter	Roller follower, swing armed
Quantity [valves per cylinder]	2
Quantity [springs per valve]	2

Exhaust Valve Insert

Type	Integral to cylinder head
Material	Gray cast iron

Intake Valve

Type	Poppet valve
Material - Head	Heat resistant steel alloy
Material - Stem	Heat resistant steel alloy
Operating Mechanism	Push rod with rocker arm
Type of Lifter	Roller follower, swing armed
Quantity [valves per cylinder]	2
Quantity [springs per valve]	2

Intake Valve Insert

Type	Integral to cylinder head
Material	Gray cast iron

Piston

Type	One-piece design
Material - Crown	Aluminum
Material - Skirt	Aluminum
Cooling	Oil- spray with piston jet

Piston Pin

Type	Full floating pin design
Material	Steel alloy
Wrist Pin Keepers	Snap ring design

Piston Pin Bearing

Type	-
Material	-

Piston Ring, Compression

Top Ring	-
Second Ring	-
Quantity [per piston]	2

Piston Ring, Oil

Type	Two-piece, spring-loaded
Quantity [per piston]	1
Location	Below compression ring



Gen Set 12V4000 - T1237M36

Engine Configuration Data Summary

Description

Model Number	T1237M36
Number of Cylinders	12
Bore	6.50 in.
Stroke	7.48 in.
Displacement - per cylinder	248 in. ³
Displacement - total	2975 in. ³
Aftertreatment	No Aftertreatment Device
Aspiration	Turbocharged
Combustion System	Direct Injection
Charge Air Cooling System	Separate Circuit Charge Cooling (SCCC)
Electronic System	MDEC Electronics
Engine Type	90-degree Vee Engine
Ventilation	Closed Engine Crankcase
Status	Available
Availability Date	30 MAY 2002
Discontinued Date	-

This model is approved for commercial gen set applications (60 Hz only).

Size

Overall Length	94.84 in.
Overall Width	65.47 in.
Overall Height	94.57 in.

Weight

Approximate Dry Weight	12,456 lb _m
Approximate Wet Weight	13,426 lb _m

Center of Gravity for a Dry Engine

Distance from Rear Face of Block: x-axis	32.72 in.
Distance above Crankshaft: y-axis	8.35 in.
Distance to the Right of the Crankshaft: z-axis	0.00 in.