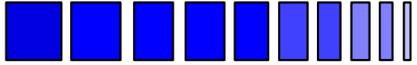




**PRODUCT SPECIFICATION**



Date: May 29, 2017

Spec. No. SGCO 3000  
EcoPower Rev L

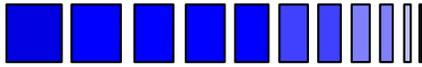
# **SGCO 3000 EcoPower™**

**CLIP-ON FUEL SAVING TWO SPEED GENERATOR SET**  
With SG+ Controller

## **TECHNICAL SPECIFICATION**

Approval:





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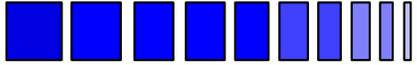
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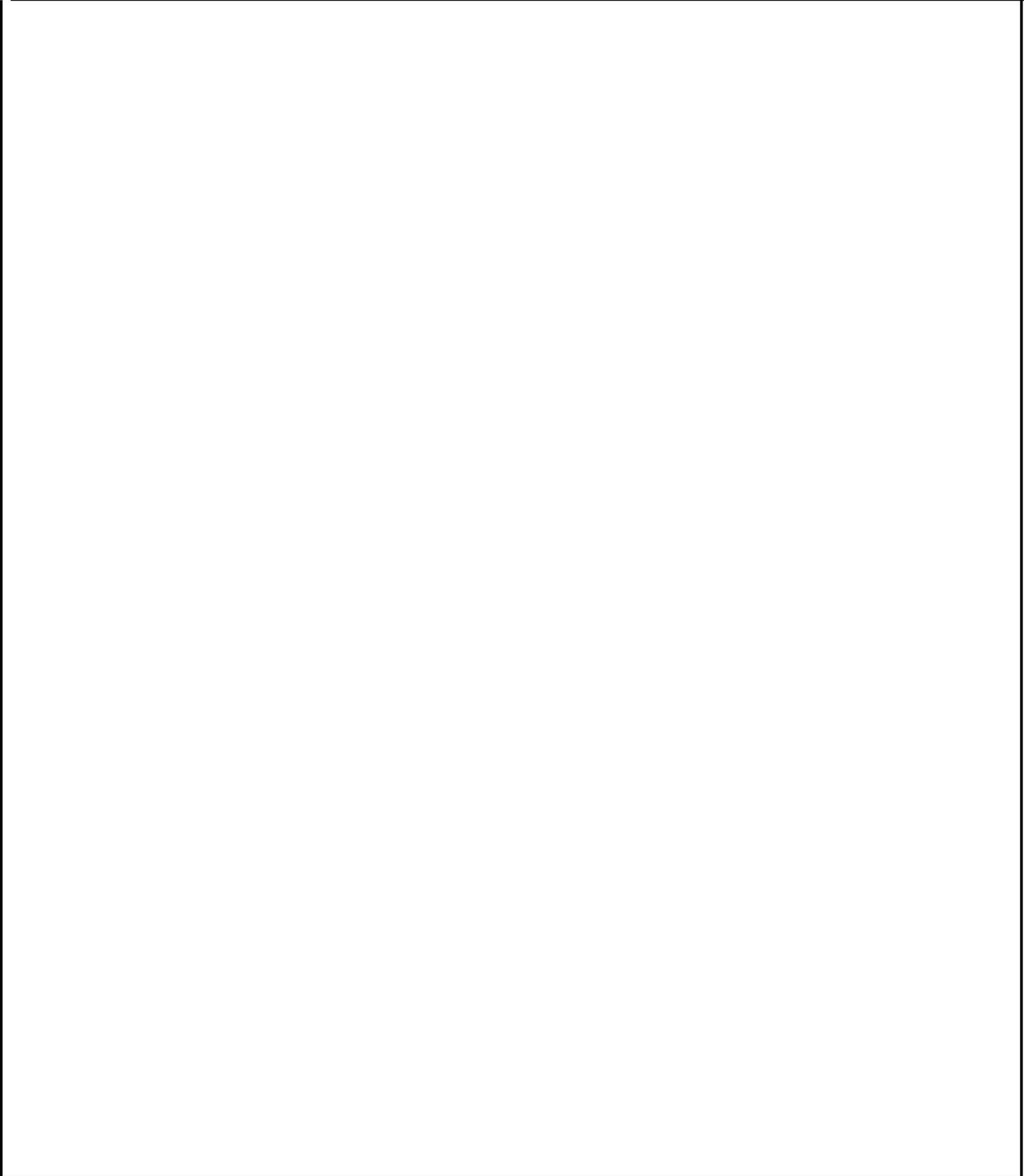


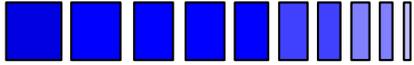
**PRODUCT SPECIFICATION**



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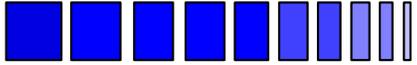


## GENERAL DESCRIPTION

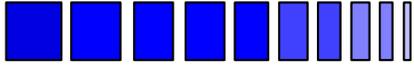
<b>Manufacturer</b>	<b>Thermo King Corporation</b>
<b>Construction</b>	<ol style="list-style-type: none"> <li>1. The generator set is designed for mounting to the upper front structure of an ISO container.</li> <li>2. The design incorporates a quick connection to the upper container corner castings or header pin mounting.</li> <li>3. Additional attaching points on the container vertical structural members provide a secure mounting arrangement.</li> <li>4. These lower mounting bolts are retained by a steel plate, stainless steel hinge, and positive ¼ turn latch.</li> <li>5. A bolt storage tube is welded to the frame to secure the bolt between trips.</li> <li>6. The rotor washer clip to prevent spinning off during normal use positively retains the lower mounting bolt/plate washer assembly. Provision tube for mounting bolt when not in use.</li> <li>7. The Genset envelope considered the need to access the refrigeration unit control box while mounted on all common refrigeration units from Thermo King, Carrier, Klinge, and Seacold for either 8’6” or 9’6” containers.</li> <li>8. Genset components (filters, hoses, wire harness, etc.) are installed and securely fastened to ensure dependable, long-term operation and ease of serviceability.</li> <li>9. All wires/hoses/tubes etc. are fastened properly to protect integrity and prevent wire chafing.</li> <li>10. Ring terminals are used on all high voltage connections</li> </ol>
<b>Structural Design</b>	<ol style="list-style-type: none"> <li>1. The Genset is designed to withstand &amp; operate satisfactorily in over-the-road trucking, railway operations, &amp; aboard ships.</li> <li>2. The Genset is rated to withstand shock levels of a minimum 3 g's acceleration force in the horizontal direction &amp; 6 g's acceleration force in the vertical direction.</li> <li>3. The Genset is designed to have no harmful resonance frequencies between 20 and 100 Hz and is rated for vibration levels of 2 g's in all directions.</li> </ol>
<b>Structural Frame</b>	<ol style="list-style-type: none"> <li>1. Steel/material: Fuel tank, ASTM-A-469 (METRIC 11320.10) 0,134” (3,5mm) Structural member, ASTM-A-635 (METRIC 11342.10 and 11416.10) 0,250” (6,0mm)</li> <li>2. Structural steel frame and integral fuel tank is chemically cleaned through an 2 stage pretreatment (sandblast) and a 6 stage chemical pretreatment with a multi-metal iron phosphate passivation, primed with a epoxy-polyester powder (1.5-2.0) mils and top coated with a black polyester TGIC (triglycidyl isocyanurate) powder (2.5-4.0) mils. for a final mil thickness of 3.5-5.0</li> </ol>
<b>Panels, Doors, and Bumpers</b>	<ol style="list-style-type: none"> <li>1. Panels and doors are chemically cleaned through a 6-stage pretreatment line with a multi-metal iron phosphate passivation and top coated with white polyester (2.5-4.0) mils TGIC (triglycidyl isocyanurate) powder.</li> <li>2. Door material: Aluminum, .063” (1.6mm) thick</li> <li>3. Panel material: Aluminum, .063” (1.6mm) minimum thickness</li> <li>4. Two solid rubber bumpers are installed to protect the Genset housing during handling (see installation diagram for actual dimensions). The upper bumper is 6.5” wide x 2” high x 1½” thick. The lower bumper is 7” wide x 6” high x ¾” thick.</li> </ol>
<b>Hardware</b>	<ol style="list-style-type: none"> <li>1. All hardware (screws, washers, nuts, &amp; clamps) are stainless steel for maximum protection from salt-water corrosion.</li> <li>2. Powerpack mounting bolts and lower unit mounting bolts are zinc dichromate steel for strength and corrosion resistance.</li> </ol>



**PRODUCT SPECIFICATION**



	3. This excludes hardware supplied by original equipment manufacturer suppliers.
<b>Nameplate Instructions</b>	English and Spanish language operating instructions
<b>CE Compliance</b>	Compliant with the Machinery Directive 89/392/EEC amending Directive 91/368/EEC, Electro Magnetic Compatibility Directive 89/336/EEC, and Low Voltage Directives 73/23/EEC and 93/68/EEC.
<b>Ambient Temperature Range</b>	Structure: -40°C to 52°C (-40°F to 125°F) Operation and Starting: -26°C to 52°C (-15°F to 125°F) Running: -40°C to 52°C (-40°F to 125°F)
<b>Output Power Rating</b>	15KW. Designed to supply operating power for container refrigeration units complying with ISO 1496-2.
<b>Sound Pressure Level</b>	74 dBA. 5 point average at 7m
<b>Dimensions</b>	Height: 1053 mm (41.45 in) Depth: 710 mm (27.97 in) Length: 2337 mm (92.0 in)
<b>Weight</b>	818 kg (1804 lbs) - Total Weight, including Gen Set, oil, coolant, dry fuel tank and battery. Genset to be provided with decal indicating gross weight inclusive of fuel.



## ENGINE

<b>Type</b>	TK 486VG direct injection	<b>Protection</b>	Low oil level and high coolant temperature
<b>Cylinder Arrangement</b>	No. 1 at flywheel end	<b>Serviceability</b>	Starter motor/injector pump mounted on front side of engine
<b>Bore</b>	86 mm (3.39 in) nominal	<b>Paint</b>	Light Gray Water Lacquer
<b>Displacement</b>	2.09 liter (128 in <sup>3</sup> )	<b>Timing System</b>	Gear drive for camshaft and injection pump
<b>Horsepower</b>	34.1	<b>Firing Order</b>	1-3-4-2
<b>Oil Pressure (hot)</b>	More than 127 kPa (18.5 psi) @ 1600 rpm	<b>Compression Pressure</b>	More than 2942 kPa (427 psi) @ 250 rpm
<b>Oil Base (Pan) Capacity</b>	12.3 liters (13 quarts)	<b>Nozzle Injection Pressure</b>	21600-22600 kPa (3100 – 3300 psi)
<b>Engine Rotation</b>	Clockwise (viewed from pulley end)	<b>Emission</b>	2010 manufactured engines are compliant with EPA and ARB regulations

## ENGINE LUBRICATION SYSTEM

<b>Oil Pump Type</b>	Trochoid	<b>Delivery Volume</b>	15.7 liters (4.15 gallons) / min @ 1000 pump rpm
<b>Oil Type</b>	API CI grade or better -- Use straight or multi-weight oils appropriate for the ambient temperature (delivered with 10W30 oil)	<b>Oil Filters Full Flow: Dual lube Full flow/bypass filter</b>	Thermo King Part # 11-9182
<b>Oil Change Interval</b>	Consult applicable service manual		

## ENGINE ELECTRICAL SYSTEM

<b>PreHeat Type</b>	Intake Air Heater	<b>Resistance</b>	0.2 Ohms
<b>Rated Voltage</b>	11 Volts	<b>Rated Current</b>	77 Amperes



## FUEL SYSTEM

<b>Fuel Tank</b>	125 gallon steel fuel tank integral with frame. Two filler necks are located on opposite sides of the tank. Tank is fumigated internally to protect against corrosion	<b>Fuel Tank Mounting</b>	Integral to Genset
<b>Fuel Cap</b>	Held with 200 lb tension chain.	<b>Anti-Siphon</b>	Rated at 30GPM.
<b>Automatic Air Bleed System</b>	Thermo King furnishes a patented air removal system for purging air from the injector pump and fuel supply lines. The air bleed system works whether the generator set is operating or shutdown. In the case of long shutdown periods, the automatic air bleed system insures sufficient air free fuel available to the injectors to successfully start the engine without manually bleeding the lines and injector assembly.	<b>Fuel Tank Drainage</b>	Supplied with a drain plug in the bottom of the tank for purging contaminants.
		<b>Fuel Filters</b>	Thermo King's self-evacuating filter (SEF) is both a fuel filter and a water separator in one spin-on canister. Thermo King Part # 11-9342
<b>Transfer Pump Lobe Lift</b>	5.0 mm (0.197 in)	<b>Injection Pump Rotation</b>	Clockwise (viewed from gear end)
<b>Tightening Torque</b>	41 N-m (27.5 ft-lb)	<b>Injection Timed at</b>	See Maintenance Manual
<b>Nozzle Type</b>	YDM-PD	<b>Injection Lines, ID</b>	1.4 mm (0.055 in)
		<b>Injection Lines, OD</b>	6 mm (.236 in)

## ENGINE STARTER MOTOR

<b>Voltage</b>	12 V DC	<b>Clutch Type</b>	Over running clutch
<b>Rotation</b>	Clockwise (viewed from pinion end)	<b>Motor Power</b>	2.3 kW
<b>Pull-in Current of Solenoid</b>	52 Amps	<b>Hold-in Current of Solenoid</b>	19 Amps
<b>Method of Engagement</b>	Magnetically-engaged sliding pinion		

## SPEED SOLENOID

<b>Voltage</b>	12 V DC	<b>Resistance</b>	4.3 Ohms
<b>Rated Voltage</b>	12.5 Volts	<b>Rated Current</b>	2.9 Amperes
<b>Non –energized position</b>	Low speed		



## GENERATOR

<b>Type</b>	Synchronous type generator consisting of a 4 pole alternator wound field design with brushless exciter	<b>Insulation</b>	Class H per NEMA Standard MG-1-1.65
<b>Maximum Temperature Rise</b>	105 °C in accordance with NEMA Standard MG 1-22.40	<b>Method of Cooling</b>	Drive disc radial fan
<b>Varnish Treatment – Generator Stator &amp; Exciter Stator</b>	Double Vacuum Pressure Impregnated with polyester resin, top coated with EG43 grey varnish. Exposed windings brushed with black poly-butylene.	<b>Varnish Treatment - Rotor</b>	Double Vacuum Pressure Impregnated with polyester resin, top coated with EG43 varnish.
<b>Rear Bearing</b>	Single bearing, 6307. Double contact sealed, including a medium fill of Mobil 28 grease.	<b>Engine Flywheel Housing</b>	Cast steel housing. Cast surfaces are machined for the mounting bolts.
<b>Generator Rating (Nominal)</b>			
<b>Output Power</b>	15 KW	<b>Voltage</b>	460 / 230
<b>Kilovolt-Amperes</b>	18.75 kVA	<b>Phases</b>	3
<b>Power Factor</b>	0.8	<b>Frequency</b>	60 Hz
<b>RPM</b>	1800		

## ELECTRICAL POWER RECEPTACLE

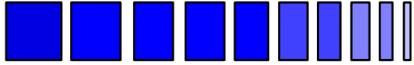
<b>Type</b>	ESL 1911-01	<b>Voltage</b>	460 V
<b>Current Limit</b>	32 Amps	<b>Protection</b>	Spring loaded water/dirt protection cover

## AIR FILTER

<b>Filter Type</b>	Heavy duty media filter with cyclonic action and pressure drop indicator
--------------------	--

## HOSES

<b>Intake Air Hose</b>	High temperature structural EPDM
<b>Coolant Hoses</b>	High temperature EPDM



## MUFFLER

<b>Stainless Steel Material</b>	Noise reducing baffle design
---------------------------------	------------------------------

## RADIATOR COIL

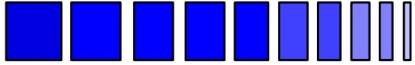
<b>Protection</b>	E-coat coating for corrosion resistance or equivalent.	<b>Tube Material</b>	Copper, internally cross-hatched.
<b>Fin Space</b>	2.54 mm (0.100 in)	<b>Fin Material</b>	Aluminum
<b>Pipe Material, Copper</b>	According to DIN 1787 wall thickness 0.762 mm (0.030 in)	<b>Configuration</b>	Vertical
<b>Surface Area</b>	9.6 m <sup>2</sup> (103 ft <sup>2</sup> )	<b>Coolant Fluid</b>	Caltex coolant – equivalent of Texaco ELC #16445 & rated to -40°C (-40°F) or equivalent

## RADIATOR FAN

<b>Type</b>	Propeller	<b>Diameter</b>	381 mm (15.0 in)
<b>Number of Fans / Blades</b>	1 / 6	<b>Speed</b>	1800 / 1500 rpm
<b>Blade Material</b>	Aluminum	<b>Drive</b>	Direct off engine water pump
<b>Hub Material</b>	Steel	<b>Pitch</b>	31°
<b>Air Flow</b>	1400 cfm		

## BATTERY

<b>Type</b>	Maintenance free 12 VDC	<b>Cold Cranking Amps</b>	925 Amps at -18°C (0°F)
<b>Recharging</b>	Solid-state battery charging, 26 Amps output integrated into SG+ controller.	<b>Terminal Posts</b>	Round post terminals and standard battery cable connections are provided
		<b>Dimensions</b>	330 x 173 x 238 mm (13 x 6.8 x 9.4 in)



## SG+ MICROPROCESSOR CONTROLLER

The SG+ Microprocessor Controller is a one-piece self contained microprocessor for diesel generator sets. This system automatically controls the generator set operation by providing:

- ◆ Ability to operate at variable speeds for enhanced fuel consumption
- ◆ Automatic unit preheat and engine start-up during initial start-up or unattended restart
- ◆ Variable air intake heater preheat time
- ◆ Automatic Pre-Trip capability
- ◆ Provides unit shutdown protection due to high engine coolant temperature, low engine oil pressure, low engine oil level, fuel relay feedback failure or 230/460V alternator overload
- ◆ Automatic unit restart attempt 20 minutes after:
  - High engine water temperature
  - Engine failure to start
  - Check fuel alarm
  - 230/460V alternator overload
  - Fuel relay feedback failure
  - Low engine oil pressure
- ◆ Exterior Deutsch downloading port with protective cap provided.
- ◆ Delayed alternator excitation for 15 seconds, or until engine coolant temperature increases to 32°C (90°F) (selectable)
- ◆ Internal self-checking /diagnostic capability
- ◆ Hour meter
- ◆ Multi language menu capability

## SG+ CONTROLLER INTERFACE

The SG+ controller interface contains the following features and components:

**A. LCD Digital Display**

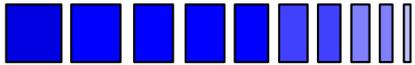
**B. Alarm LED**

**C. Power LED**

**D. Six keypad keys:**

1. "Escape" use escape a new setting or jump to the parent menu
2. "Up" use to scroll up through the menu display, or increase the value of a setting
3. "Down" use to scroll down through the menu display, or decrease the value of a setting
4. "Enter" use to enter or execute controller menu tasks or commands
5. "Alarm" use to go directly to the alarm list menu and view the alarm information in the display
6. "Language" use to change the display language. English and Spanish are currently available.

**E. Unit On/Off switch**

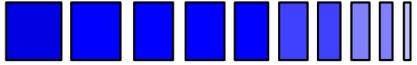


## SG+ CONTROLLER INPUTS/OUTPUTS/MENUS

Microprocessor Inputs:	Microprocessor Outputs:
<ul style="list-style-type: none"> <li>◆ Engine oil pressure</li> <li>◆ Alternator Voltage</li> <li>◆ Battery Voltage</li> <li>◆ Engine Coolant temperature</li> <li>◆ Air filter switch</li> <li>◆ Coolant level sensor</li> <li>◆ Engine oil pressure switch</li> <li>◆ Engine oil level sensor</li> <li>◆ Air heater (preheat) feedback</li> <li>◆ Fuel pull relay feedback</li> <li>◆ Fuel hold relay feedback</li> <li>◆ Excitation feedback</li> <li>◆ Flywheel sensor</li> </ul>	<ul style="list-style-type: none"> <li>◆ Start relay</li> <li>◆ Preheat relay</li> <li>◆ Fuel pull relay</li> <li>◆ Fuel hold relay</li> <li>◆ On light</li> <li>◆ Alarm light</li> </ul>
Display Menus:	
<ol style="list-style-type: none"> <li>1. Data Menu <ul style="list-style-type: none"> <li>◆ Analog inputs</li> <li>◆ Digital inputs</li> <li>◆ Digital outputs</li> <li>◆ Internal states</li> </ul> </li> <li>2. Alarm list Menu</li> <li>3. Message list Menu</li> <li>4. Commands Menu <ul style="list-style-type: none"> <li>◆ PTI</li> <li>◆ Manual function test</li> </ul> </li> <li>5. Misc. Functions Menu <ul style="list-style-type: none"> <li>◆ Date/time</li> <li>◆ °C/°F mode</li> <li>◆ Program version</li> <li>◆ Timers/counters</li> </ul> </li> <li>6. Configuration Menu</li> <li>7. Event log Menu</li> </ol>	

## SG+ ALARMS/MESSAGES/OPERATING INSTRUCTIONS

<b>Alarms/Messages/Operating instructions</b>
See Thermo King SGCO Maintenance Manual.



## OPTIONS

### CUSTOMER SPECIFIED COLOR

The frame assembly and panels can be painted per customer request but must be noted in advance.

### CUSTOMER UNIT SERIAL NUMBER DECALS

Customer decals can be included per customer request but must be noted in advance.

### MOUNTING: HEADER PIN / QUICK CLAMP

Mounting configuration based on customer's container box fleet requirements.

### FUEL MONITORING

Capable of logging any event which causes changes in fuel levels outside of the range of normal genset operations.

### FUEL HEATER

150 W electric fuel heater.

### FUEL PRE-FILTER

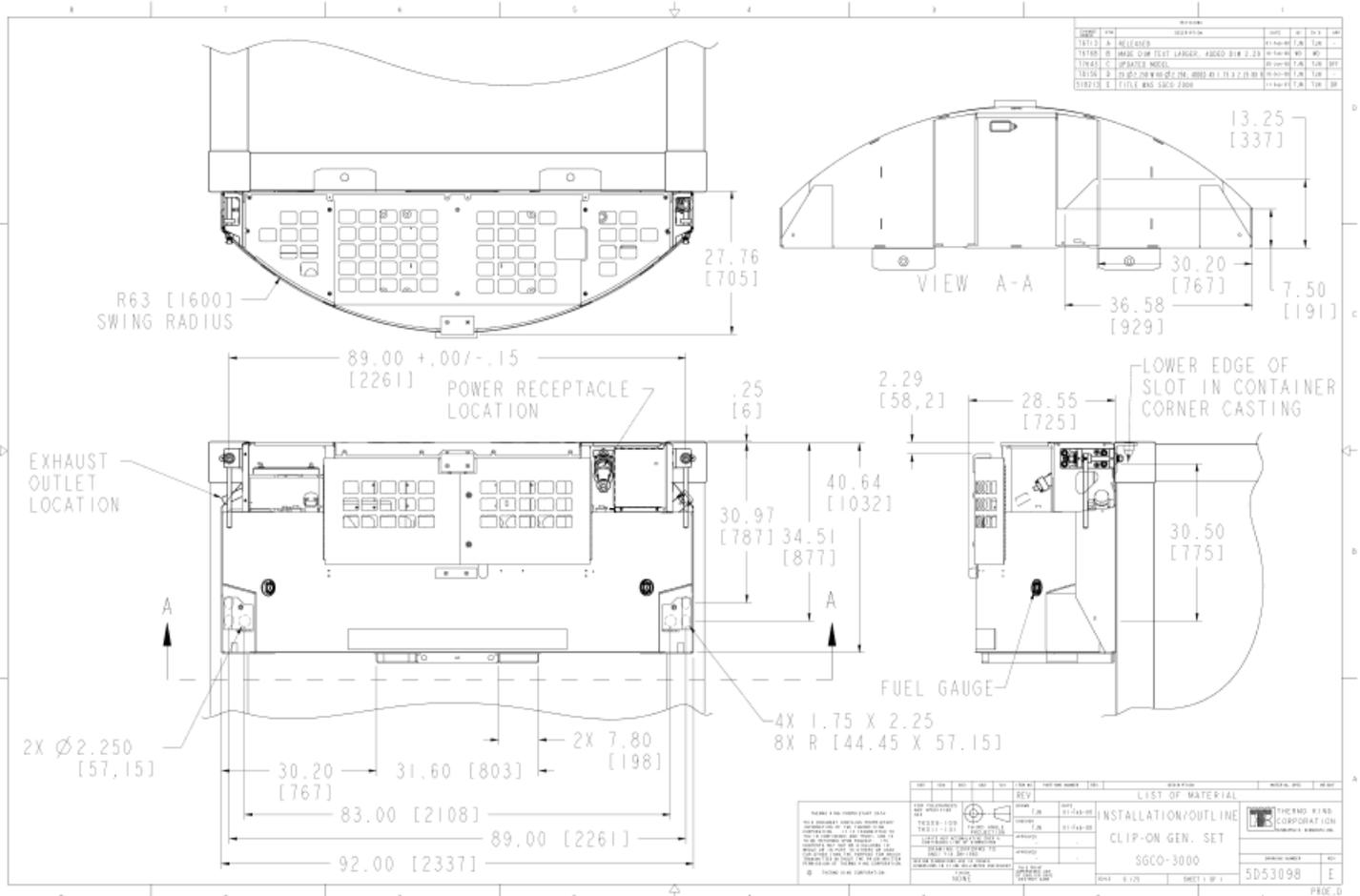
Cleanable fuel strainer placed in the supply line between fuel tank and transfer pump on the engine. Prevents clogging of the fuel pump inlet screen and also to facilitate visual inspection during pre trip inspection.

### BATTERY

Threaded stud post battery terminals..



# INSTALLATION DIAGRAM





# PRODUCT SPECIFICATION

Specification No. **SGCO 3000**  
EcoPower Rev L

Page No. **11**

## DECAL DRAWING

**530417 V** ADDED SHEET 14 AND ITEMS #16 & #17 27-FEB-00 TUN JN SR

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
78411	A	RELEASED	10-14-90	TUN	JN SR
77653	D	MOVED ITEM #11, ADDED ITEMS #20 & #29	10-14-90	TUN	JN SR
77811	C	DEL. ITEM #3; ITEM #17 & #412C12002; ADDED ITEMS #30 & #33	10-14-90	TUN	JN SR
78268	D	ITEM 33 WAS 2C12027001, MOVED ITEM 20	10-14-90	TUN	JN SR
78269	D	COLLECTED ITEM 19	10-14-90	TUN	JN SR
78271	F	ITEM 20 IS 19310001	10-14-90	TUN	JN SR
78135	D	DELETED NAMEPLATE AS SHOWN IN RIGHT VIEW	10-14-90	TUN	JN SR
502134	M	ITEM #11 W/ 2C12020001; ITEM #17 W/ 2C19340001 & ITEM #20 W/ 2C19340001	10-14-90	TUN	JN SR
505193	I	ITEM #12 WAS 4501B14001	10-14-90	TUN	JN SR
508803	J	ADDED ITEM 34	10-14-90	TUN	JN SR
507886	K	DELETED ITEM 21, ADDED ITEMS 35-36	10-14-90	TUN	JN SR
508333	L	ADDED ITEM 37 AND NOTE 1, DELETED ITEM 1	10-14-90	TUN	JN SR
509269	M	ADDED SHEETS 2-5; ITEM #17 W/ 2C45400001	10-14-90	TUN	JN SR
511416	N	ITEM #11 W/ 2C12020001; ITEM #17 W/ 2C44470001	10-14-90	TUN	JN SR
514376	O	ADDED SHEETS 6-8; ITEM #19; ITEM #31-35	10-14-90	TUN	JN SR
514770	P	ADDED SHEET 9 & ITEM #11; ITEM #40 WAS 1E31050001	10-14-90	TUN	JN SR
515370	Q	ADDED SHEET 9, 10 & ITEM #50-63; ITEM #32 WAS 1E32000001	10-14-90	TUN	JN SR
516522	R	ADDED SHEET 11 & 12 & ITEMS #64-#67; ITEM #10 WAS 1E41050001; DELETED ITEM #40	10-14-90	TUN	JN SR
517803	S	ADDED SHEET 13 & ITEMS #68 & #69; ITEM #41 WAS 1E31050001; ITEM #11 WAS 2C12020001; DELETED ITEMS #10, #31 & #32; ITEM #11 WAS 1E31050001; ITEM #17 WAS 1E31050001	10-14-90	TUN	JN SR
521163	T	ADDED NAMEPLATE #510001; ITEM #10001; ITEM #10002; ITEM #10003; ITEM #10004; ITEM #10005; ITEM #10006; ITEM #10007; ITEM #10008; ITEM #10009; ITEM #10010; ITEM #10011; ITEM #10012; ITEM #10013; ITEM #10014; ITEM #10015; ITEM #10016; ITEM #10017; ITEM #10018; ITEM #10019; ITEM #10020; ITEM #10021; ITEM #10022; ITEM #10023; ITEM #10024; ITEM #10025; ITEM #10026; ITEM #10027; ITEM #10028; ITEM #10029; ITEM #10030; ITEM #10031; ITEM #10032; ITEM #10033; ITEM #10034; ITEM #10035; ITEM #10036; ITEM #10037; ITEM #10038; ITEM #10039; ITEM #10040; ITEM #10041; ITEM #10042; ITEM #10043; ITEM #10044; ITEM #10045; ITEM #10046; ITEM #10047; ITEM #10048; ITEM #10049; ITEM #10050; ITEM #10051; ITEM #10052; ITEM #10053; ITEM #10054; ITEM #10055; ITEM #10056; ITEM #10057; ITEM #10058; ITEM #10059; ITEM #10060; ITEM #10061; ITEM #10062; ITEM #10063; ITEM #10064; ITEM #10065; ITEM #10066; ITEM #10067; ITEM #10068; ITEM #10069; ITEM #10070; ITEM #10071; ITEM #10072; ITEM #10073; ITEM #10074; ITEM #10075; ITEM #10076; ITEM #10077; ITEM #10078; ITEM #10079; ITEM #10080; ITEM #10081; ITEM #10082; ITEM #10083; ITEM #10084; ITEM #10085; ITEM #10086; ITEM #10087; ITEM #10088; ITEM #10089; ITEM #10090; ITEM #10091; ITEM #10092; ITEM #10093; ITEM #10094; ITEM #10095; ITEM #10096; ITEM #10097; ITEM #10098; ITEM #10099; ITEM #10100	10-14-90	TUN	JN SR
526189	U	UPDATED SITE LOCATION & CITY OF ITEM # 39, UPDATED LOCATION ITEM #10	10-14-90	TUN	JN SR

REF	REV	DESCRIPTION	DATE	BY	DESCRIPTION
A/R	39	1E50152001			NAMEPLATE-FUEL MONITORING SYSTEM
A/R	38	1E50352001			NAMEPLATE-SG 3000
A/R	37	1E48969001			NAMEPLATE - BATTERY 925 CCA
A/R	36	1E15617001			NAMEPLATE-WARNING TETHER USE
A/R	35	1E23926001			NAMEPLATE-CAUTION
A/R	34	1E25884001			TAG - WARNING, REMOVE BANDWRAPS
A/R	33	1E23111001			NAMEPLATE - IR
A/R	32	1E23100001			NAMEPLATE - SPANISH
A/R	31	1E23100001			PLACARD - SPANISH
A/R	30	2C33190001			NAMEPLATE - ID
A/R	29	2C39090001			NAMEPLATE -
A/R	28	2C39353001			NAMEPLATE - 1245 MAX. WEIGHT, KG
A/R	27	10S5A040001			NAMEPLATE-CAUTION 480 VOLT
A/R	26	2C23084001			NAMEPLATE-CE
A/R	25	5949C90002			NAMEPLATE
A/R	24	5949C90001			NAMEPLATE
A/R	23	1324C81001			NAMEPLATE-FAN
A/R	22	2941B30002			NAMEPLATE-ARROW
A/R	21	2C39090001			NAMEPLATE-#0000000001-#0000000002
A/R	20	1019331001			NAMEPLATE-1E4800-C, C
A/R	19	5220A09001			NAMEPLATE-HOLDER DOCUMENT
A/R	18	11S3A70004			NAMEPLATE-RADIATOR FILL
A/R	17	1E33314001			NAMEPLATE-MAINTENANCE
A/R	16	1019332001			NAMEPLATE-DIESEL FUEL
A/R	15	2C33591004			NAMEPLATE-TK
A/R	14	1018620001			LABEL EXHAUST
A/R	13	2C18848003			DECAL 2-#8A
A/R	12	1E10300001			DECAL-FILTER - SCREEN
A/R	11	1E40334002			NAMEPLATE-ENG/ISH/SPAN/SH OPER INSTR
A/R	10	1E23100002			NAMEPLATE-OPERATING INSTRUCTIONS
A/R	9	4520807001			NAMEPLATE 480V
A/R	8	9138C81001			NAMEPLATE-CLAMP INSTRUCTION
A/R	7	1009A01001			HEAD-SEAL
A/R	6	9135C82002			NAMEPLATE-TK
A/R	5	9135C90001			NAMEPLATE-CAUTION LEFT
A/R	4	9135C81001			NAMEPLATE-CAUTION RIGHT
A/R	3	2C26670002			NAMEPLATE-IR
A/R	2	1E40334001			PLACARD-SCHEMATIC/WIRING
A/R	1	9138C81004			NAMEPLATE-BAR CODE

REF	REV	DESCRIPTION	DATE	BY	DESCRIPTION
A/R	39	1E50152001			NAMEPLATE-FUEL MONITORING SYSTEM
A/R	38	1E50352001			NAMEPLATE-SG 3000
A/R	37	1E48969001			NAMEPLATE - BATTERY 925 CCA
A/R	36	1E15617001			NAMEPLATE-WARNING TETHER USE
A/R	35	1E23926001			NAMEPLATE-CAUTION
A/R	34	1E25884001			TAG - WARNING, REMOVE BANDWRAPS
A/R	33	1E23111001			NAMEPLATE - IR
A/R	32	1E23100001			NAMEPLATE - SPANISH
A/R	31	1E23100001			PLACARD - SPANISH
A/R	30	2C33190001			NAMEPLATE - ID
A/R	29	2C39090001			NAMEPLATE -
A/R	28	2C39353001			NAMEPLATE - 1245 MAX. WEIGHT, KG
A/R	27	10S5A040001			NAMEPLATE-CAUTION 480 VOLT
A/R	26	2C23084001			NAMEPLATE-CE
A/R	25	5949C90002			NAMEPLATE
A/R	24	5949C90001			NAMEPLATE
A/R	23	1324C81001			NAMEPLATE-FAN
A/R	22	2941B30002			NAMEPLATE-ARROW
A/R	21	2C39090001			NAMEPLATE-#0000000001-#0000000002
A/R	20	1019331001			NAMEPLATE-1E4800-C, C
A/R	19	5220A09001			NAMEPLATE-HOLDER DOCUMENT
A/R	18	11S3A70004			NAMEPLATE-RADIATOR FILL
A/R	17	1E33314001			NAMEPLATE-MAINTENANCE
A/R	16	1019332001			NAMEPLATE-DIESEL FUEL
A/R	15	2C33591004			NAMEPLATE-TK
A/R	14	1018620001			LABEL EXHAUST
A/R	13	2C18848003			DECAL 2-#8A
A/R	12	1E10300001			DECAL-FILTER - SCREEN
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A/R	5	9135C90001			NAMEPLATE-CAUTION LEFT
A/R	4	9135C81001			NAMEPLATE-CAUTION RIGHT
A/R	3	2C26670002			NAMEPLATE-IR
A/R	2	1E40334001			PLACARD-SCHEMATIC/WIRING
A/R	1	9138C81004			NAMEPLATE-BAR CODE

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A/R	35	1E23926001			NAMEPLATE-CAUTION
A/R	34	1E25884001			TAG - WARNING, REMOVE BANDWRAPS
A/R	33	1E23111001			NAMEPLATE - IR
A/R	32	1E23100001			NAMEPLATE - SPANISH
A/R	31	1E23100001			PLACARD - SPANISH
A/R	30	2C33190001			NAMEPLATE - ID
A/R	29	2C39090001			NAMEPLATE -
A/R	28	2C39353001			NAMEPLATE - 1245 MAX. WEIGHT, KG
A/R	27	10S5A040001			NAMEPLATE-CAUTION 480 VOLT
A/R	26	2C23084001			NAMEPLATE-CE
A/R	25	5949C90002			NAMEPLATE
A/R	24	5949C90001			NAMEPLATE
A/R	23	1324C81001			NAMEPLATE-FAN
A/R	22	2941B30002			NAMEPLATE-ARROW
A/R	21	2C39090001			NAMEPLATE-#0000000001-#0000000002
A/R	20	1019331001			NAMEPLATE-1E4800-C, C
A/R	19	5220A09001			NAMEPLATE-HOLDER DOCUMENT
A/R	18	11S3A70004			NAMEPLATE-RADIATOR FILL
A/R	17	1E33314001			NAMEPLATE-MAINTENANCE
A/R	16	1019332001			NAMEPLATE-DIESEL FUEL
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A/R	7	1009A01001			HEAD-SEAL
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A/R	5	9135C90001			NAMEPLATE-CAUTION LEFT
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A/R	28	2C39353001			NAMEPLATE - 1245 MAX. WEIGHT, KG
A/R	27	10S5A040001			NAMEPLATE-CAUTION 480 VOLT
A/R	26	2C23084001			NAMEPLATE-CE
A/R	25	5949C90002			NAMEPLATE
A/R	24	5949C90001			NAMEPLATE
A/R	23	1324C81001			NAMEPLATE-FAN
A/R	22	2941B30002			NAMEPLATE-ARROW
A/R	21	2C39090001			NAMEPLATE-#0000000001-#0000000002
A/R	20	1019331001			NAMEPLATE-1E4800-C, C
A/R	19	5220A09001			NAMEPLATE-HOLDER DOCUMENT
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A/R	28	2C39353001			NAMEPLATE - 1245 MAX. WEIGHT, KG
A/R	27	10S5A040001			NAMEPLATE-CAUTION 480 VOLT
A/R	26	2C23084001			NAMEPLATE-CE
A/R	25	5949C90002			



## FUEL FILTER DRAWING

DESCRIPTION	VALUE	METHOD	
<b>PHYSICAL CHARACTERISTICS</b>			
AREA, FILTER MEDIUM (SQ. IN.)	339.6		
WEIGHT, FINISHED ASSEMBLY (kg)	789		
RATED FLOW (GPM)	100		
PRESSURE DROP @ RATED FLOW (PSI)	0.20	SAC J905a	
WATER SHMP VOLUME (ml)	789		
<b>STRUCTURAL CHARACTERISTICS</b>			
RATED WORKING PRESSURE, MAXIMUM (PSI)	65	SAC J905a	
ASSEMBLY PROOF PRESSURE (PSI)	210	SAC J905a	
ELEMENT COLLAPSE PRESSURE (PSI)	195	SAC J905a	
HYDROSTATIC 23/15/25 PSI (NO CYCLES)	>50K		
VIBRATION, 5g's @ RESONANCE, END CYCLES	789		
<b>FILTRATION CHARACTERISTICS</b>			
CONTAMINANT CAPACITY (g, PFI F18)	19.5	SAC J905a	
CONTAMINANT REMOVAL EFFICIENCY (G WEIGHTED)	84.5	SAC J905a	
SINGLE PASS MICRON RATING (90% SE1)	789	SAC J905a	
WATER REMOVAL EFFICIENCY, COARSE (G)	96.5	SAC J183g	
WAX REMOVAL EFFICIENCY, EMULSIFIED (G)	93.5	SAC J1480	

M22 X 1.5 - 6H - SPL  
 MAJOR: 22.016 mm MINIMUM  
 PITCH: 21.102 / 21.292 mm  
 MINOR: 20.452 / 20.752 mm

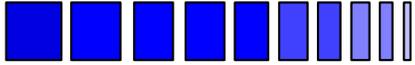
**NOTES:**

- IDENTIFICATION / LABELING  
 - ALL TEXT AND GRAPHICS ARE GOLD (PMSB33).  
 - LABEL TO BE ORIENTED AS ILLUSTRATED, 3 TIMES, EQUALLY SPACED.
- EXTERIOR FINISH  
 - COMPLETED ASSEMBLY TO BE PAINTED BLACK.
- PERFORMANCE CHARACTERISTICS.  
 - SEE TABLE
- VENDOR PART NUMBER IS 11-9342.

THERMO KING PROPERTY DATA THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF THE THERMO KING CORPORATION. IT IS HEREBY GRANTED TO YOU IN CONFIDENCE AND TRUST AND IS NOT TO BE RELEASED OR DISCLOSED TO ANY OTHER PARTY WITHOUT THE WRITTEN PERMISSION OF THERMO KING CORPORATION.		FOR REPLICATED AND REPRODUCED T8509-100 T8511-11.1	CHECKED BY: [Signature] DATE: 11/29/00	THERMO KING CORPORATION 5000 W. 11TH AVENUE DENVER, CO 80202
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THERMO KING CORPORATION 5000 W. 11TH AVENUE DENVER, CO 80202	<b>LIST OF MATERIAL</b> FILTER FUEL/WATER SEPARATOR EMI 3000	THERMO KING CORPORATION 5000 W. 11TH AVENUE DENVER, CO 80202
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THERMO KING CORPORATION 5000 W. 11TH AVENUE DENVER, CO 80202	FILTER - FUEL / WATER LIST OF MATERIAL EMI 3000 SEPARATOR	THERMO KING CORPORATION 5000 W. 11TH AVENUE DENVER, CO 80202
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## EMI BULLETIN

### EMI 3000 Package

**The EMI package includes:**

- New 5 Years or 12,000 Hours Extended Life Coolant (ELC)
- New EMI 3000 Water Pump, P/N 11-9442 (includes HNBR elastomer seals and EPDM O-rings)
- New EMI 3000 Dual Element Oil Filter, P/N 11-9182 (identified by black and gold colors)
- New EMI 3000 Dual Element Oil Filter Head, P/N 11-9354
- New EMI 3000 API Rating CG-4 Mineral Oil
- New EMI 3000 Fuel Filter, P/N 11-9342 (identified by black and gold colors)

The EMI 3000 package allows standard genset maintenance intervals to be extended to 3000 hours. However, please note that units equipped with the EMI 3000 package do require regular inspection in accordance with Thermo King pretrip inspection and maintenance recommendations.

**CAUTION: With both EMI 3000 and standard (non-EMI 3000) units operating in the field, there are several important rules to remember:**

- **Extended Life Coolant (ELC) is RED in color while conventional coolant is GREEN or BLUE-GREEN.**
- **Do NOT add “RED” coolant to cooling systems using “GREEN” or “BLUE-GREEN” coolant.**
- **Do NOT add “GREEN” or “BLUE-GREEN” coolant to cooling systems using “RED” coolant.**
- **The EMI 3000 oil filter is NOT interchangeable with previous oil filters.**

**EMI 3000 Components:****Extended Life Coolant and EMI 3000 Water Pump**

A decal tag on the coolant expansion tank will identify units with extended life coolant (ELC). ELC extends the coolant change interval up to 12,000 hours or 5 years. ELC requires a water pump with HNBR elastomer seal bellows and EPDM elastomer O-rings. Therefore ELC should not be used on older units with standard water pumps. All Yanmar (TK 486) engines with serial number L16553 and after include a new EMI 3000 water pump for use with extended life coolant.

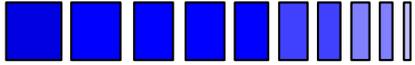
**ELC Compatible Water Pump 11-9442****ELC Nameplate 91-9269**

Thermo King ships all water-cooled engines from the factory with a 50% antifreeze concentrate and 50% water mixture in the cooling system. ELC coolants are available in 100% full strength concentrate or (pre-mixed) 50/50 mixture. Thermo King recommends the use of 50/50 pre-mixed ELC coolant to assure that de-ionized water is used. ELC 100% concentrate must be mixed (50/50) with de-ionized or distilled water (NOT tap water) to ensure cooling system integrity.

The following Extended Life Coolants are approved by Thermo King for use in ELC units for five years or 12,000 hours:

- Texaco ELC #16445 (100% concentrate)
- Texaco ELC #16447 (premixed 50/50% mixture)
- Havoline Dex-Cool #7994 (100% concentrate)
- Havoline Dex-Cool #7995 (premixed 50/50% mixture)
- Shell Dexcool #94040
- Shell Rotella #94041
- Havoline XLC #30379 (100% concentrate, Europe)
- Havoline XLC #33013 (premixed 50/50% mixture, Europe)
- Saturn/General Motors Dex-Cool
- Caterpillar ELC
- Detroit Diesel POWERCOOL Plus.

**NOTE: Use a glycol refractometer to accurately determine the freeze point and concentration of engine coolant (Anti-Freeze) solution. A refractometer works with both extended life and conventional coolants.**



**EMI 3000 Dual Element Oil Filter and Oil Filter Head**

All Yanmar (TK 486) engines with serial number L32024 and after include an EMI 3000 oil filter head (P/N 11-9354) and gasket (P/N 33-2931), EMI 3000 dual element oil filter (P/N 11-9182) and API rated CG-4 mineral oil. These components are required to extend the maintenance interval to 3000 hours.

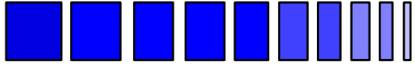
The EMI 3000 oil filter (identified by black and gold colors) is NOT interchangeable with the previous oil filters. The EMI 3000 oil filter head, gasket and oil filter can be retrofitted on previous Yanmar (TK 486) engines.

API service category CG-4 describes oils for use in high-speed four-stroke-cycle diesel engines used in both heavy-duty on-highway (0.05% wt sulfur fuel) and off-highway (less than 0.5% wt sulfur fuel) applications. CG-4 oils provide effective control over high-temperature piston deposits, wear, corrosion, foaming, oxidation stability, and soot accumulation. CG-4 (or better) mineral oil can be used in older units. However, an EMI 3000 oil filter (and oil filter head) is required to extend recommended maintenance intervals to 3,000 hours.

**NOTE: The new oil filter head is equipped with a threaded port to accept an ESOC (Environmentally Safe Oil Change) fitting for quick oil changes.**

**EMI 3000 Fuel Filter**

The new EMI 3000 fuel filter is required to extend the maintenance interval to 3000 hours. It can be interchanged with fuel filters used on previous Thermo King gensets.



## Revisions

- |   |                  |  |
|---|------------------|--|
| A | March 6, 2007    | Original release   |
| B | March 29, 2007   | Update engine emission, official approval request being submitted.   |
| C | June 21, 2007    | Update engine emissions for 2008 engines, unit weight, panels doors and bumpers Section, added exterior downloading port to SG+ description.   |
| D | August 24, 2007  | Moved fuel heater from fuel system to option section, added option section updated battery section.  |
| E | January 17, 2008 | General updates  |
| F | October 28, 2010 | Added header pin mount to construction section, changed structural frame pre-treatment method, update emission year, specify high temperature EPDM for hoses, change coolant fluid brand, change battery from thread post to round post, add options for quick clamp, fuel heater, fuel pre-filter, and battery. |
| L | May 29, 2017     | Generator section update   |