ECO POWER
EQUIPMENT

Installation and User Instructions

CIPR-15Z NG/LP Generator

Mobile Gaseous Generator

March 2023
Version 2.0

DISCLAIMER

Eco Power Equipment Ltd. makes no representations or warranties with respect to this manual and, to the maximum extent permitted by law, expressly limits its liability for breach of any warranty that may be implied to the replacement of this manual with another. Furthermore, Eco Power Equipment Ltd. reserves the right to revise this publication at any time without incurring an obligation to notify any person of the revision.

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Eco Power Equipment Ltd. nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information that is contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

All pertinent state, regional, and local safety regulations must be observed when installing and using this product.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to observe this information can result in injury or equipment damage.

Copyright © 2023 by Eco Power Equipment Ltd.

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher. For permission requests, write to the publisher, addressed “Attention: Permissions Coordinator,” at the address below.

Eco Power Equipment Ltd.

8, 26004 TWP 544, Sturgeon County, AB, T8T 0B6, Phone: 1-888-483-4843

TRADEMARKS

Eco Power Equipment Ltd. has made every effort to supply trademark information about company names, products, and services mentioned in this manual. Trademarks shown below were derived from various sources. All trademarks are the property of their respective owners.

General Notice: Some product names used in this manual are used for identification purposes only and may be trademarks of their respective companies.

Product Modifications

Year	Type	Modifications
2019	1	CIPR-15Z V1.4 update
2023	2	2023 Manual Update

Document Revisions

Date	Version Number	Document Changes
14-07-2018	1.0	Initial Draft
15-02-2019	1.05	Version Two Draft
20-03-2023	2.0	2023 Draft Update

Table of Contents

1. PREFACE

1.1 Description of the User

This manual is intended to support end users of the Eco Power Equipment CIPR mobile power generator. Our products are designed and intended to provide site power solutions for temporary and prime rated power on a variety of applications including construction job site, oil, and gas job sites, pipelines, events, security, and government or military operations.

The user will deploy and set up the CIPR and should be qualified and follow all instructions contained in this operating manual and supporting major component manuals, including but not limited to engines, generator ends, controllers, and other items as appropriate.

1.2 Conventions Used in This Manual

The following style conventions are used in this document:

Bold
Names of product elements, commands, options, programs, processes, services, and utilities Names of interface elements (such windows, dialog boxes, buttons, fields, and menus)
Interface elements the user selects, clicks, presses, or types

Italic
Publication titles referenced in text
Emphasis (for example a new term)
Variables

`Courier`
System output, such as an error message or script
URLs, complete paths, filenames, prompts, and syntax

User input variables
< > Angle brackets surround user-supplied values
[ ] Square brackets surround optional items
| Vertical bar indicates alternate selections - the bar means “or”

1.3 Explanation of Safety Warnings

⚠DANGER

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury

⚠WARNING

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠CAUTION

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates information considered important, but not hazard-related.

1.4 Retaining Instructions

Read and understand this manual and its safety instructions before using this product. Failure to do so can result in serious injury or death.

Follow all the instructions. This will avoid fire, explosions, electric shocks or other hazards that may result in damage to property and/or severe or fatal injuries.

The product shall only be used by persons who have fully read and understand the contents of this user manual and understand the safe operation of the machine.

Ensure that each person who uses the product has read these warnings and instructions and follows them.

Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.

The manufacturer is not liable for cases of material damage or personal injury caused by incorrect handling or non-compliance with the safety instructions. In such cases, the warranty will be voided.

1.5 Obtaining Documentation and Information

1.5.1 Internet

The latest version of the documentation is available at the following address:
http://www.ecopowerequip.com

1.5.2 Ordering Documentation

Documentation, user instructions and technical information can be ordered by calling Eco Power Equipment Ltd. at 1-888-483-4843

1.5.3 Other languages

This is the English user manual. Manuals in other languages are available upon request. Not all languages are covered.

1.5.4 Documentation Feedback

If you are reading Eco Power Equipment Ltd. product documentation on the internet, any comments can be submitted on the support website. Comments can also be sent to support@ecopowerequip.com

We appreciate your comments.

1.5.5 Support and service

For information about special tools and materials please contact:

Eco Power Equipment Ltd.

Address: #8, 26004 TWP 544, Sturgeon County, AB, T8T 0B6

Phone: 1-888-483-4843

Web: www.ecopowerequip.com

2 Description of the product

2.1 Intended Use and Reasonably Foreseeable Misuse

The machine is a mobile, skid-mounted mobile generator. The Eco Power Equipment CIPR unit consists of a trailer or skid with a gaseous generator, a control panel, and a sheet metal enclosure. As the engine runs, the generator converts mechanical energy into electric power. Receptacles are present to power auxiliary loads. The operator uses the control panel to operate and monitor the machine, with the digital display showing all operating characteristics.

This machine is intended for prime rated power requirements and has been designed to operate 24/7. This machine is also intended for the purpose of supplying electrical power to connected loads. Refer to the product specifications for the output voltage and frequency of this unit, and for the maximum output power limit of the Generator.

This machine has been designed and built strictly for the intended use described above. Using the machine for any other purpose could permanently damage the machine or seriously injure the operator or other persons in the area. Machine damage caused by misuse is not covered under warranty.

The following are some examples of misuse:

Connecting a load that has voltage and frequency requirements that are incompatible with the machine output

Overloading the machine with a device that draws excessive power during either continuous running or start-up

Operating the machine in a manner that is inconsistent with all federal, provincial and local codes and regulations

Operating the machine outside of factory specifications

Operating the machine in a manner inconsistent with all warnings found on the machine and in the Operator’s Manual

This machine has been designed and built in accordance with the latest Canadian safety standards. It has been engineered to eliminate hazards as far as practicable and to increase operator safety through protective guards and labeling. However, some risks may remain even after protective measures have been taken. They are called residual risks. On this machine, they may include exposure to:

Heat, noise, exhaust, and carbon monoxide from the engine

Multiple heat sources: Engine, alternator end, etc

Fire hazards from improper refueling techniques

Electric shock and arc flash

Gaseous Fuel and its fumes

To protect yourself and others, make sure you thoroughly read and understand the safety information presented in this manual before operating the machine

Gasoline, natural gas and propane are combustible!

Gases, and can be explosive if leaked and contained in a confined area. Keep cigarettes and all other flame sources away from these areas.

If you can hear a fuel leak, shut off the fuel supply at the source immediately and fix the leak or have it serviced. Check the entire fuel supply line from the cylinder/tank to the engine for leaks with a soapy water bubble mixture anytime a cylinder/tank is changed or the fuel supply line is worked on. Fuel leaks should also be checked as part of the regular engine maintenance.

Depending on your engine and fuel system configuration, your engine is designed to run on natural gas and/or vapor LPG. The fuel requirements for each are discussed below. See the "SPECIFICATIONS" section for the required fuel supply pressures for each fuel.

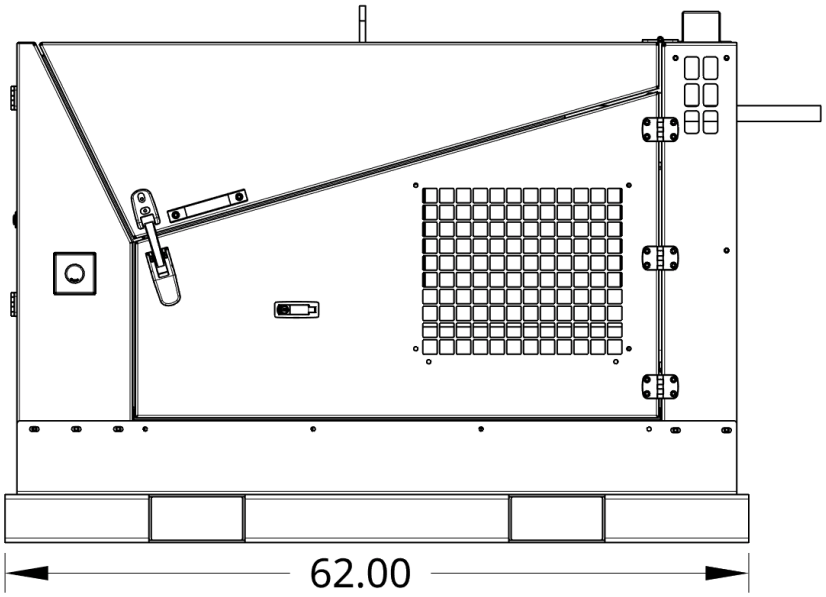
Natural Gas

Your engine is certified to run on "pipeline-quality natural gas". EPA defines pipeline-quality natural gas as being supplied by a pipeline and being composed of at least 70% methane by volume or having a heating value of 950-1100 BTUs per cubic foot. If your natural gas supply does not meet these specifications, your engine is considered to be being operated as a non-certified engine. See "U.S. EPA Legal Requirements" at the front of this manual.

LPG

In order to maintain emissions compliance and the engine warranty, use commercial-grade HD-5 or better LPG, the unit is designed to run on vapor, do not connect liquid source.

2.2 Product Specifications

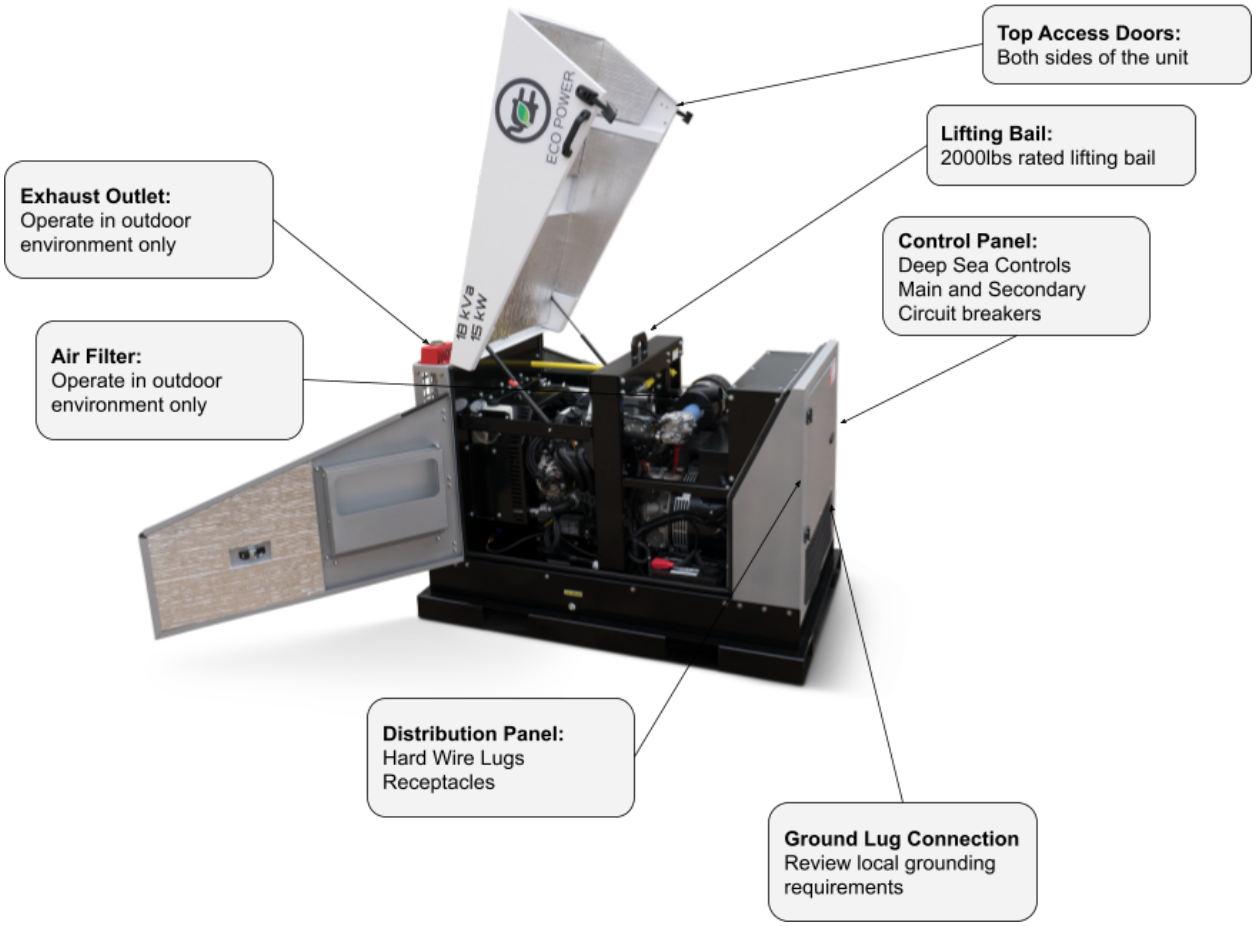


Enclosure	Unit
Gross Weight	583 KG / 1283 LBS
Lifting Bail	Yes, Engineered and Rated, See Decal
Enclosure	Powder Coated Carbon Steel
Doors	Swing out roof and doors for full access
Sound Attenuation	Aluminum Lined Foam, High-Temperature Rating
Control	DEIF SGC Controller

Generator End	Unit
Voltage	120/240V Single Phase Dedicated
Main Circuit Breaker	70 Amp
Efficiencies @ 60HZ	82.1% @ 480V, Full Load
AVR	DSE Digital Regulator
Pole	4
Overspeed (RPM)	2250
Protection Class	IP21
Altitude Rating	0-1000m
Winding Code	T0405S3
Standby H-163F/27C	15.2 kW / 19 kVa
Prime H-125/40	13.6 kW / 17 kVa

Engine	Unit
Engine Make/Model	Zenith 1.6L Gamma
Configuration	Inline, 4 Cylinder
Fuel	Natural Gas or LPG Vapour
Aluminum Radiator	Shroud, Pusher Fan, Guard
Governor	Electric
Temperature	40C Ambient Rating
Oil Capacity	3.7 Litres (without EST System)
Oil Type	10W-30 Engine Oil -10C or Higher, 5W-30 Colder See Oil Guideline page in manual.

2.3 Product elements



2.4 Understanding the user interface and control panel

The main user interface is within the main control panel door. The control panel consists of a series of toggle switches and a graphical user interface to provide control of all operating system - and provide the user with operating parameters.

Fuel Select Switch: Ensure proper position for fuel type

Deep Sea Controller: Monitoring and control of all aspects of engine and generator combination

Emergency Stop: Immediate shutdown including shunt trip of main circuit breaker

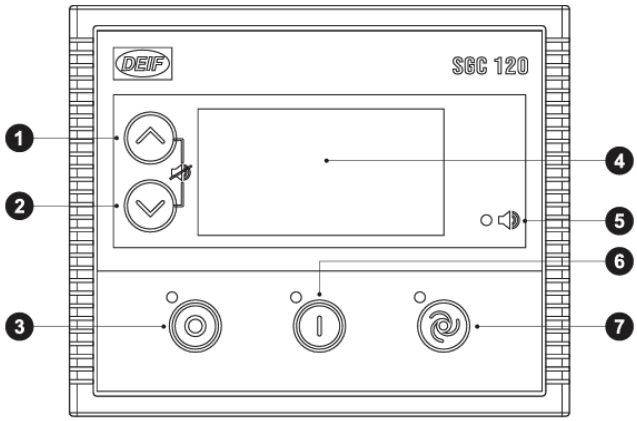
Hard Wire Lugs: Install all wiring as per local code requirements

Main Circuit Breaker: Power to all secondary breakers and the hard wire lugs

System ON/OFF: Toggle Switch

Secondary Breakers: Power to all receptacles

Over view of controller:



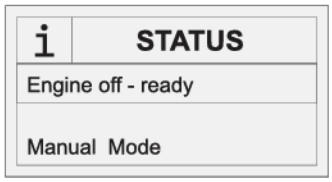
1. Menu navigation up button
2. Menu navigation down button
3. Stop/Config button
4. Display
5. Alarm LED
6. Start button
7. Mode selection button

Button functions

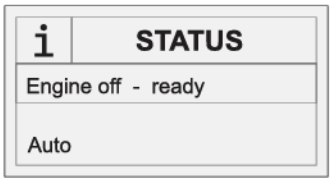
In Mode	Button input	Function
Manual	Start	Starts the engine
Manual	Auto	Enters Auto mode
	Stop	Stops the engine
	Stop (long press)	Enters Configuration mode
	Down + Stop (long press)	Enters Programming mode
Auto	Stop	Stops the engine and enters Manual mode
Manual Auto Configuration	Up Down	Scrolls through the views/parameters
Manual Auto	Up + Down (during Alarm view)	Acknowledges and clears the alarm
Configuration	Start	Selects/saves the parameter
Configuration	Up + Down (long press)	Enters the Event log page
Configuration	Stop (long press)	Back to Manual mode
Deep sleep	Any Key (for min. 1 s)	Back to Manual mode
Event log	Up + Down (long press)	Back to Configuration mode
Programming	Up + Down (long press)	Enters Manual mode

Monitoring mode

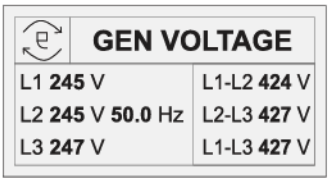
In Monitoring mode, the display views shift automatically after a pre-defined time. This delay time can be configured in the configuration menu. The views can also be changed manually with the Up and Down buttons.



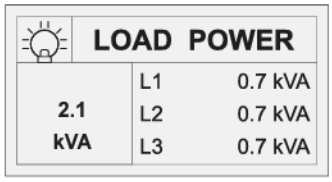
Manual mode



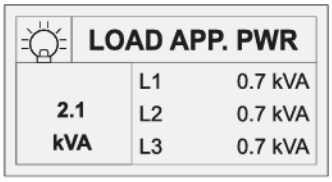
Auto mode



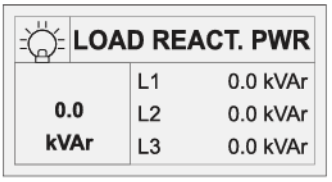
Generator voltage



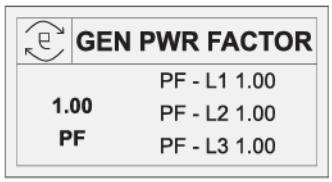
Load power[1]



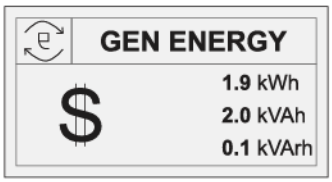
Load apparent power[1]



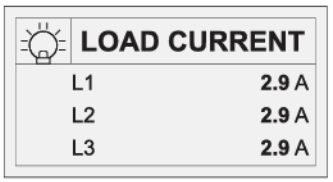
Load reactive power[1]



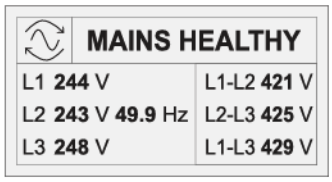
Generator power factor[1]



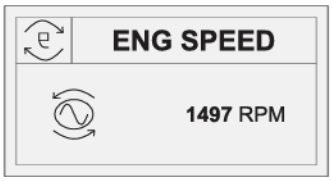
Generator energy



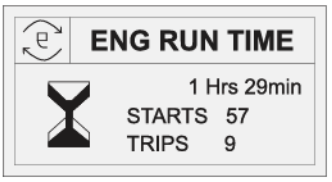
Load current[1]



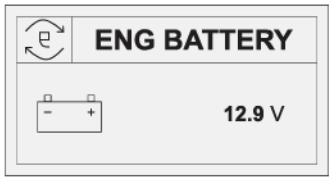
Mains status



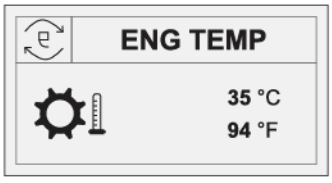
Engine speed



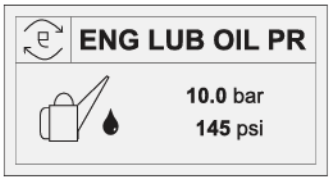
Engine run time



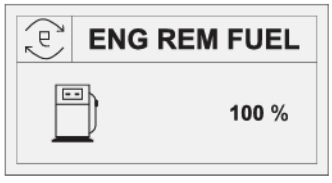
Engine battery voltage

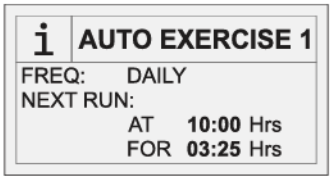


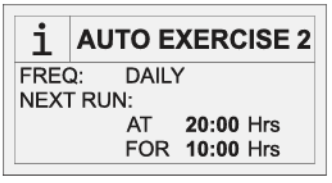
Engine temperature[2]



Engine lube oil pressure[2]







Alarms:

Alarm types

No.	Alarm actions	Description
1	Shutdown	Load is taken off from the genset and the genset is immediately stopped by skipping the Engine cooling time.
2	Electrical trip	Load is taken off from the genset, the Engine cooling timer begins, after which the genset is stopped.
3	Warning	Warning alarms draw the operator's attention to an undesirable condition without affecting the genset's operation. The genset cannot be started without acknowledging the Warning alarms
4	Notification	The controller shows the message on the display. The genset start/stop operation is not affected.

Alarms and their causes

No.	Alarms	Causes/Indication	Actions
1	Low Oil Pressure (Sensor)	Indicates that the oil pressure measured is below the preset threshold.	Shutdown Warning
	Low Oil Pressure (Switch)	Indicates that the oil pressure measured is low through switch.	Shutdown Warning Electrical Trip Notification
2	High Oil Pressure (Sensor)	Indicates that the oil pressure measured is above the preset threshold.	Warning
	High Oil Pressure (Switch)	Indicates that the oil pressure measured is high through switch.	Warning
3	High Eng Temp (sensor)	Indicates that the engine temperature is above the preset threshold. This condition is detected only when engine is on.	Shutdown Warning
	High Eng Temp (Switch)	Indicates that the engine temperature measured is high through switch.	Shutdown Warning Electrical Trip Notification

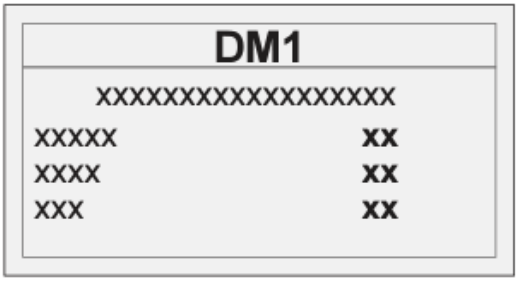
ECO POWER
EQUIPMENT

No.	Alarms	Causes/Indication	Actions
4	Low Fuel level (Sensor)	Indicates that the amount of fuel level is below the preset threshold. This condition is detected only when engine is on.	Shutdown Warning
	Low Fuel level (Switch)	Indicates that the amount of fuel level measured is low through switch.	Shutdown Warning Electrical Trip Notification
5	Low Water Level (Switch)	Indicates that radiator water level is below the preset threshold.	Shutdown Warning Electrical Trip Notification
6	Auxiliary input/User defined name	Configured auxiliary input has triggered longer than preset duration.	Shutdown Warning Electrical Trip Notification
7	Anlg LOP Ckt Open	The oil pressure sensor is not detected (circuit open).	Shutdown Warning Electrical Trip Notification
8	Engine Temp Ckt Open	The temperature sensor is not detected (circuit open).	Shutdown Warning Electrical Trip Notification
9	Fuel Level Ckt Open	The fuel level sensor is not detected (circuit open).	Shutdown Warning Electrical Trip Notification
10	Fuel Theft	The fuel consumption has exceeded the preset threshold.	Warning
11	Emergency Stop	Configured as digital input has triggered longer than preset or when an immediate shutdown is required.	Shutdown
12	Fail To Stop	It is detected that genset is still running after sending stop command.	Shutdown
13	Fail To Start	Indicates that genset has not started after the preset number of start attempts.	Shutdown
14	L1 Phase Over Voltage	Indicates that genset (L1) phase voltage has exceeded the preset over-voltage threshold.	Shutdown Warning
15	L2 Phase Over Voltage	Indicates that genset (L2) phase voltage has exceeded the preset over-voltage threshold.	Shutdown Warning
16	L3 Phase Over Voltage	Indicates that genset (L3) phase voltage has exceeded the preset over-voltage threshold.	Shutdown Warning
17	L1 Phase Under Voltage	Indicates that genset (L1) phase voltage has fallen below preset under-voltage threshold.	Shutdown Warning
18	L2 Phase Under Voltage	Indicates that genset (L2) phase voltage has fallen below preset under-voltage threshold.	Shutdown Warning
19	L3 Phase Under Voltage	Indicates that genset (L3) phase voltage has fallen below preset under-voltage threshold.	Shutdown Warning
20	DG Phase Reversal	Alternator phase sequence (L1-L2-L3) is not correct.	Shutdown Warning Electrical Trip Notification

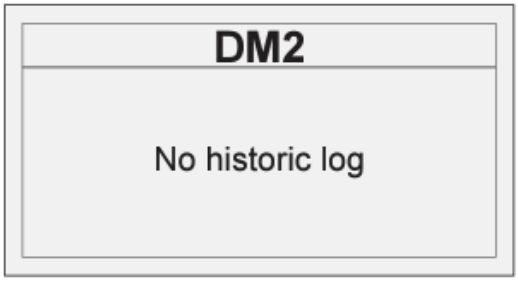
No.	Alarms	Causes/Indication	Actions
21	Over Frequency	Indicates that genset output frequency has exceeded the preset threshold.	Shutdown Warning
22	Under Frequency	Indicates that genset output frequency has fallen below the preset threshold.	Shutdown Warning
23	Over Current	Indicates that genset current has exceeded the preset threshold.	Shutdown Warning Electrical Trip Notification
24	Over Load	Indicates that the measured kW load rating has exceeded the preset threshold.	Shutdown Warning Electrical Trip Notification
25	Unbalanced Load	Load on any phase is greater or less than other phases by a threshold value.	Shutdown Warning Electrical Trip Notification
26	Over Speed	Indicates that genset speed has exceeded the preset overspeed threshold. The genset will shut down after Overspeed delay.	Shutdown
27	Gross Over Speed	Indicates that genset speed has exceeded the preset Gross overspeed threshold. The genset will shut down immediately without any delay.	Shutdown
28	Under Speed	The engine speed has fallen below the preset RPM.	Shutdown
29	Extended Over Load Trip	Indicates that there was 100 % load on the genset for one hour in the time interval of 12 hours.	Electrical trip
30	Charge Fail	The charge alternator voltage has dropped below the preset threshold.	Shutdown Warning Electrical Trip Notification
31	V-Belt Broken Switch	Indicates that there is a failure of the V-belt, which is driving the charging alternator.	Shutdown Warning Electrical Trip Notification
32	Battery Under Voltage	The battery voltage has fallen below the preset threshold.	Shutdown Warning Electrical Trip Notification
33	Battery Over Voltage	The battery voltage has exceeded the preset threshold.	Shutdown Warning Electrical Trip Notification
34	Filter maintenance	Indicates that engine running hours has exceeded the preset hours limit or maintenance due date has occurred and filter servicing is required.	Warning Notification
35	Mains Phase Reversal	Indicates the mains unhealthy condition.	Notification

Displaying Alarms:

The display can show J1939 diagnostic messages DM1 (active alarms) and DM2 (historic alarm log list). You can acknowledge these alarms from the display unit. For some engines, the display has a special alarm display (see the specific engine type). Press the Down button for 4 seconds to see the alarm log. By default, the alarm log shows the DM1 (active alarms). To see the historical alarm list, use Down button to select DM2.



Alarm log DM1 shows active alarms



Alarm log DM2 shows historic alarms

Controller Troubleshooting:

General troubleshooting

Fault	Action
The controller does not power ON.	• Check the battery voltage. • Check the fuse on the battery supply. • Check continuity between battery positive and controller terminal 2. • Check continuity between battery ground and controller terminal 1.
The controller display freezes or hangs up.	• Reset the controller power.
The controller fails to crank-start the engine.	• Check the battery voltage. • Enter the Configuration mode in the controller and verify the configuration for the Start output. Check that the Start output is working correctly by measuring its output voltage. • Enter the Configuration mode in the controller and verify the configuration of the Crank disconnect method. Verify the configuration of the LLOP Switch polarity. Ensure that the lube oil pressure switch and sensor are working OK. Check their wiring.
The Emergency Stop alarm is shown without the Emergency Stop is activated.	• Check if the Emergency stop switch is working OK, including the wiring. • Enter the Configuration mode in the controller and verify the configuration of the Emergency stop polarity.
The controller generates unnecessary Shutdown alarms or Warning alarms.	• Check the respective switch, sensor and wiring. • Enter the Configuration mode in the controller and verify the respective threshold configuration.
The controller shows Charge Fail alarm.	• To check if the controller's charging alternator terminal is working: ◦ Disconnect the charging alternator wiring to the controller's terminal 7. ◦ Short terminal 7 to the ground through a DC ammeter. ◦ Crank-start the engine. ◦ The DC ammeter should indicate the current in the range of 200 to 400 mA for ~30 seconds. ◦ If yes, the controller's charging alternator terminal is working OK. • Disconnect and re-connect the charging alternator ind connection to the controller's terminal 7. • Check if the charging alternator is working OK.
The controller shows Error C03.	Error C03 can occur if the controller is disconnected from the PC during a configuration. 1. Press and hold the *Stop/Config* button during a power cycle to reset the controller. 2. Re-send the configuration file.
The controller sends a Crank-start command immediately after power on.	• Ensure that the controller's output terminal is not directly connected to the starter relay. The controller's output should be given to an intermediate relay which should in-turn power the starter relay. The controller can get permanently damaged and will need to be replaced if this precaution is not taken. • Check start-relay connection with the suitable controller terminal. • Enter the Configuration mode in the controller and verify the configuration for Start mode and the Start relay output polarity.

Fault	Action
The engine runs, but the controller shows genset to be OFF.	• Check if the MPU signal (if used), and main alternator voltage signal (L1 phase) are received by the controller terminals. • Check if the LOP and LLOP are working OK. Check the wiring to the controller.
The controller shows incorrect PF value or kW or load current.	• Check wiring of the respective alternator phase voltage and the CT to the controller. • Check the CT ratio (if kW or current reading is faulty).
The controller shows incorrect mains voltage or incorrect main alternator voltage.	• Check the wiring of the respective phase to the controller. • If the problem is not resolved, replace the controller and try again.
The controller shows incorrect reading for any of LOP, fuel level or temperature sensors.	• Check the respective sensor and its wiring. • Enter the Configuration mode in the controller and verify the calibration for the respective sensor in the configuration.

Auto mode troubleshooting

Fault	Action
The controller does not start the engine when a Remote start command is sent from an external device.	• Check the wiring of the Remote start signal to the controller's respective digital input terminal. • Enter the Configuration mode in the controller and verify the configuration for the Remote start digital input terminal. • Check that the controller is in Auto mode. • Check for Mains monitoring disabled and Site mode disabled.
Controller does not stop engine even when a Remote stop command is sent from an external device.	• Check the wiring of the Remote stop signal to the controller's respective digital input terminal. • Enter the Configuration mode in the controller and verify the configuration for the Remote stop digital input terminal. • Check that the controller is in Auto mode.
While in Auto mode, the controller sends a Start command even if the Mains is present.	• Check the wiring of the mains L1, L2 and L3 phase to the controller's respective input terminal. • Enter the Configuration mode in the controller and verify the configuration for the Mains monitoring.

SGC 121 only troubleshooting

Fault	Action
The governor actuator chatters even after the engine stops. The controller shows genset ON while genset is at rest. Fail to stop alarm when genset is at rest.	• Enter Configuration mode in the controller and verify the configuration for the LLOP and LOP. Also check the wiring. • Ensure that Mains voltage wiring is not connected by mistake to the controller's genset voltage terminals.
The controller does not maintain the target RPM. The engine RPM is not stable or engine hunts. The controller cranks the engine but does not start the engine.	• Check that the mechanical linkage assembly is OK. • Enter Configuration mode in the controller and verify the configuration for GOVERNOR. • Check the PID control gains. • Check that the actuator moves to full throttle position when the engine is cranked.

2.5 Setup Process

The setup and deployment process involved for the CIPR generator involves locating the machine on a level, suitable terrain, connecting earth ground and fuel source, and connecting electrical distribution.

Before using the unit, be sure to read and understand all of the instructions. This equipment was designed for specific applications; DO NOT modify or use this equipment for any application other than which it was designed for. Equipment operated improperly or by untrained personnel can be dangerous.

Before starting visually inspect the unit for leaks or damage. A complete visual inspection of all engine, generator, and power distribution connections

Quick Setup Guide:

1. Inspect the engine, intake, exhaust, cooling system, to verify that the engine is fully assembled and not in the process of being serviced.
2. Ensure the engine is free to turn without obstruction.
3. Check that all safety guards are in their correct position and secure.
4. Check that the coolant level in the radiator overflow bottle is between "Add" and "Full".
5. Check that the oil level on the dipstick is between "Add" and "Full".
6. Check that the fuel supply is connected, shut-off valves are open, and there are no leaks.
7. If an LPG fuel system is being used, verify that there is fuel in the cylinder/tank.
8. If a natural gas fuel system is being used, verify that the correct fuel supply pressure is being supplied to the engine.
9. Read and understand ALL safety sections at the beginning of this manual.
10. Ensure all maintenance procedures are up to date.
11. Ensure unit is set up on firm and level ground, with the area around the generator clean
12. Ground unit in accordance with local grounding requirements through ground lug connection on the distribution panel, the unit ground is marked with the IEC 60417, No 5019 ground symbol
13. Warn personnel on site of pending startup
14. Connect the fuel source in accordance with local guidelines and safety requirements, note, we recommend that the fuel pressure is checked during each initial startup and new site commisioning, it is essential that primary, secondary or vaporizer regulators are tuned and set for this equipment (7-11” WC inlet pressure, even under load)
15. Ensure main and secondary circuit breakers are in the OFF or Green position
16. Check engine oil and coolant levels, visually inspect the engine for leaks, inspect belts, electrical connections and wiring out the generator enclosure
17. Inspect all electrical connections; repair or replace any that are cut, worn, or bare. This includes inspecting cords external to the generator connected to the load-use safe electrical practices in accordance with local guidelines and best practices
18. Ensure battery connections are secure

19. Check the engine fan belt tension and condition. (See engine manual for tension requirements)
20. Check the engine fan belt guard.
21. Check the engine exhaust system for loose or rusted components.
22. Turn ON the DeepSea control power switch
23. To initiate the cranking/run sequence press the manual button, then the green “Start” button once the DSE module has loaded
24. Verify voltage and frequency are correct before turning on the main circuit breaker, this machine is designed to operate at 120/240v Single Phase, 60 Hertz.
25. Turn on the secondary circuit breakers as required, note if you are not utilizing the secondary distribution it is recommended to leave these breakers in the off position during normal operation

WARNING:

It is the operator’s responsibility to ensure that the generator is properly and safely positioned at the location.

DANGER:

Entering the electrical compartment while equipment is in operation can result in death or serious injury.

Safety Instructions

⚠WARNING

Read and understand this manual and its safety instructions before using this product. Failure to do so can result in serious injury or death.

2.6 How to Use the Product Safely

2.6.1 Safety information

- The engine is rotating machinery and should be respected at all times
- High voltage is present in the system while on, never attempt to service the electrical system while the engine is on, or the system is on - qualified technicians should only setup this equipment
- Do not operate the generator if there are signs of wear or damage
- Never permit anyone to operate the machine without proper training
- Never modify equipment without the written consent of Eco Power Equipment
- Never transport or move the generator while running
- Explosion Hazard: Flammable gaseous fuel and combustible gases can be present in the generator
- Never charge a frozen 12V battery

2.6.2 Technical life span

- Gaseous Engine: 10,000+ hours
- Electric Fan System: 5000+ hours
- Eco Power recommends that our customers implement an inspection process regularly on equipment to ensure
- This product is designed to run on pipeline quality natural gas, or propane gas (HD5 or better)

2.6.3 Personal Protective Equipment

- Always wear personal protective equipment, including appropriate head protection, clothing, gloves, steel-toed boots, eye and hearing protection as required by the task at hand when operating the generator
- Always follow recommended guidelines found in CSA Z462:21 Workplace Electrical Safety

3 [MAINTENANCE]

3.1.1 [Planned maintenance of CIPR]

Maintenance tasks shall be done according to the following plan:

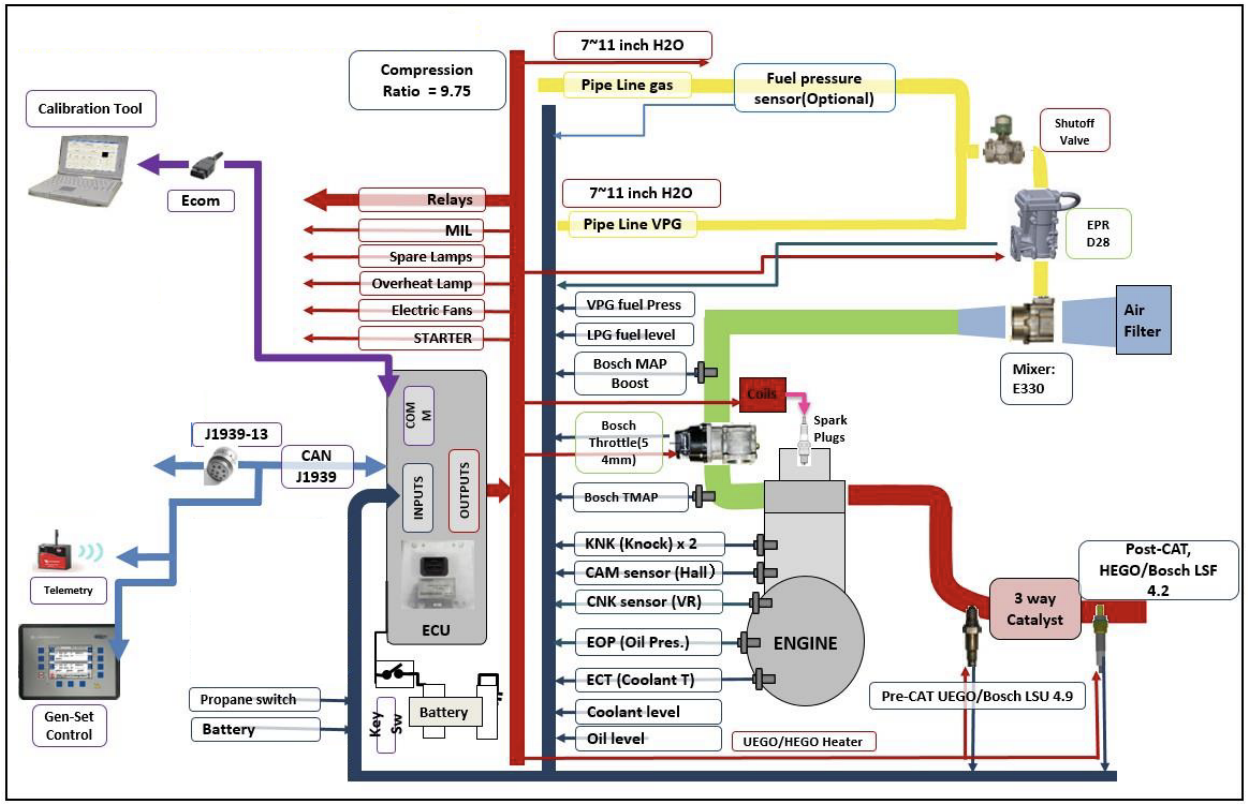
Task	Frequency
Change Oil	Every 500 hours
Change Oil Filters	Every 500 hours
Inspect Air Cleaner	Every 200 hours, 100 in a dusty environment
Change Air Cleaner	Every 400 hours, 200 hours in a dusty environment
Replace Spark Plugs	Every 2500 hours
Replace Spark Plug Wires	Every 2500 hours
Inspec fuel lock-off valve for leaks	Every 2000 hours
Leak check all fuel lines	Every 2000 hours, and every initial install
Inspect/clean debris from the radiator core	Every 1200 hours
Check air induction system for leaks	Every 2000 hours
PCV valve, breather system inspection	Every 1000 hours
Inspect exhaust manifold and system for leaks	Every 2000 hours
Change Timing Belt	Every 3000 hours
Be Awesome	Daily

To achieve the proper engine performance and durability, it is important that you use only engine lubricating oils of the correct quality in your engine. Proper quality oils also provide maximum efficiency for crankcase ventilation systems, which reduces pollution.

It is recommended to use high-grade engine oil that is API Service grade certified to SG or above. To achieve proper engine performance and durability, it is important that you only use engine lubricating oils displaying the Ameri-can Petroleum Institute (API) “Starburst” Certification Mark ‘FOR GASOLINE ENGINES’ on the container.

3.2 Fuel System Design

3.3 [NG & LPG FUEL SYSTEM]



3.4 Inspection Tasks

3.4.1 Daily inspection tasks

Task	Action
Visual inspection of the engine	Visual check for leaks
Check engine oil level	Check coolant level
Inspect generator end and power wiring	Monitor oil pressure, voltage

3.4.2 Regular Inspection tasks

Task	Action
Inspect generator bearing	Remove end plate and inspect, check L dims
Load Test	Load Test Gaseous Engine (more in light load conditions)
Insulation Resistance Test	Every 2500 hours perform insulation strength test to ground on all lines of the generator