



ECHO Power Systems, Inc.

Camp Hill, Pennsylvania
Charlotte, North Carolina

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Diesel Generator Owner's Manual

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Table of Contents

Introduction	1
Welcome	1
Safety	2
Maintenance Schedule.....	3
Diesel Engine.....	5
Diesel Engine Orientation.....	5
Diesel Engine Maintenance	6
Diesel Engine Troubleshooting	15
Diesel Engine Electronic Speed Governor	18
Governor Orientation.....	18
Setting and Adjusting the Governor.....	18
Governor Troubleshooting.....	19
Electrical Generator	21
Electrical Generator Orientation	21
Electrical Generator Maintenance	21
Electrical Generator Troubleshooting.....	23
Digital Voltage Regulator	26
Voltage Regulator Orientation.....	26
Adjusting the Voltage Regulator.....	26
Voltage Regulator Troubleshooting.....	27

Table of Figures

Figure 1 —Generator Access Doors, Right Side.....	5
Figure 2 —Generator Access Doors, Left Side.....	5
Figure 3 —Electronic Speed Governor.....	18
Figure 4 —Electrical Generator.....	21

Table of Tables

Table 1 —Engine and Generator Maintenance Schedule	3
Table 2 —Troubleshooting the Diesel Engine.....	15
Table 3 —Troubleshooting the Electronic Speed Governor.....	19
Table 4 —Troubleshooting the Electrical Generator.....	24
Table 5 —Troubleshooting the Digital Voltage Regulator.....	27

Introduction

Welcome

Congratulations! Your purchase or lease of an **ECHO Power Systems** diesel generator means that you have a reliable, easy-to-operate electrical power source for your industrial and commercial needs.

ECHO Power Systems is the portable power generation division of ECHO Industries, Inc., a diversified industrial manufacturing and services company. In addition to power generation, ECHO Industries has divisions dedicated to manufacturing of aggregate industry equipment, fabrication of heavy steel, remanufacturing of power trains, repairing and rebuilding of hydraulic components, and engine distribution. ECHO Industries is an affiliate of L.B. Smith, Inc. In business since 1918, L.B. Smith, together with ECHO Industries, is one of the largest construction equipment dealers in the United States.

This *Owner's Manual* is one of a series of documents included with your generator designed to give you all the information you need to operate it safely and efficiently, and to help you maintain it for long life and optimal performance. Included with each **ECHO** diesel generator are the following publications:

- **User's Manual.** This manual provides all the information field personnel need to transport, set up, and operate the generator. Always keep a copy of this manual with the generator.
- **Owner's Manual** (the manual you are reading). If you are the sole user of an **ECHO** generator—or if you own a generator and lease or rent it to others—this manual explains what you need to do to keep your generator in peak running condition. Following the instructions in the *Owner's Manual* is also necessary to keep your **ECHO** generator's warranty valid.
- **Component manuals.** Your generator also comes with a series of manuals provided by the manufacturers of the principal components, such as the diesel engine and the electrical generator. The *Owner's Manual* may refer you to these supplementary sources for detailed information about servicing, repairs, and troubleshooting.

ECHO wants you to get the best possible performance from your diesel generator. If you have questions about any aspect of generator operation, maintenance, or repair, please contact your authorized **ECHO** dealer for assistance.

Safety

Your safety is very important to **ECHO**. Always keep in mind that diesel power generators can be extremely hazardous if not operated properly. In addition to electrical hazards, they have high-speed rotating components, and the engine can be a fire hazard because of its high operating temperatures.

Follow all safety precautions and warnings in this manual! In addition, you must be familiar with and follow all applicable federal, state, and local regulations, including the National Electrical Code (NEC) and the regulations and guidelines of the Occupational Safety and Health Administration (OSHA). Make sure a qualified electrician performs all electrical connections and adjustments, including grounding.

If you are at all unclear about how to use the generator, contact your authorized **ECHO** dealer. **Always put workplace safety first!**

Maintenance Schedule

The recommended maintenance schedules for the two major components of your **ECHO** generator, the **diesel engine** and the **electrical generator**, appear in **Table 1**. This manual describes the procedures for these maintenance tasks.

Two other components, the engine's **electronic speed governor** and the generator's **digital voltage regulator**, also require occasional maintenance or adjustment, though there is no regularly scheduled maintenance. This manual describes those procedures as well.

In addition, each of these components has a separate manufacturer's manual included with your generator along with this *Owner's Manual*. Refer to these documents, listed below, for additional guidance and instructions:

- *Instruction Book: Generating Set and Industrial Engines*
(published by AB Volvo Penta)
- *Function—Installation: Electronic Speed Governor*
(published by AB Volvo Penta)
- *MagnaMAX Generator: Installation, Operation, and Maintenance Manual*
(published by Marathon Electric)
- *MagnaMAX Digital Voltage Regulator: Technical Manual*
(published by Marathon Electric)

Note that the engine and the generator may require more frequent maintenance under certain conditions, such as a dirty or dusty environment or use of high-sulfur diesel fuel. For more information about alternative maintenance schedules, see the manufacturers' engine manual and generator manual listed above. Your authorized **ECHO** dealer can also review your diesel generator's operating conditions and recommend alternative maintenance schedules.

Table 1—Engine and Generator Maintenance Schedule

Frequency	MAINTENANCE TASKS	
	Diesel Engine	Electrical Generator
Daily —or— Once a shift, if the generator is operating continuously	<ul style="list-style-type: none"> ◆ Check fuel level. ◆ Check engine oil level. ◆ Check coolant level. ◆ Check air filter indicator. 	

Frequency	MAINTENANCE TASKS	
	Diesel Engine	Electrical Generator
Weekly	<ul style="list-style-type: none"> ◆ Check for water in fuel pre-filter; drain as needed. ◆ Check battery electrolyte level. 	
250 operating hours —or— Annually	<ul style="list-style-type: none"> ◆ Change engine oil and replace the oil filters. ◆ Replace the fuel filters and the fuel pre-filter. ◆ Replace the air filters. ◆ Check the alternator and fan belts. ◆ Adjust the valve clearance (first time). 	<ul style="list-style-type: none"> ◆ Clean the air intake and exhaust. ◆ Inspect the electrical connections and windings.
1,200 operating hours	<ul style="list-style-type: none"> ◆ Adjust the valve clearance. 	
2,400 operating hours	<ul style="list-style-type: none"> ◆ Perform a general engine inspection, including fuel injectors and turbocharger. 	
6 Months	<ul style="list-style-type: none"> ◆ Replace the coolant filter. 	
Every 3,000–6,500 operating hours, depending on generator model —or— Annually	<ul style="list-style-type: none"> ◆ Drain any sludge buildup from the fuel tank. 	<ul style="list-style-type: none"> ◆ Lubricate the bearings.
Every 5,000 operating hours —or— Every two years	<ul style="list-style-type: none"> ◆ Replace the coolant. 	

Diesel Engine

Diesel Engine Orientation

Figure 1 and **Figure 2** illustrate a typical diesel engine used in **ECHO** power generators. Callouts on the figures identify the key components referred to in this manual. **ECHO** has labeled many of the components to make them easier to identify. Placement of components may vary, depending on the size of the engine used in your generator. Refer to the engine manufacturer's manual included with this *Owner's Manual* for more detailed engine orientation photographs (see *Instruction Book: Generating Set and Industrial Engines*).

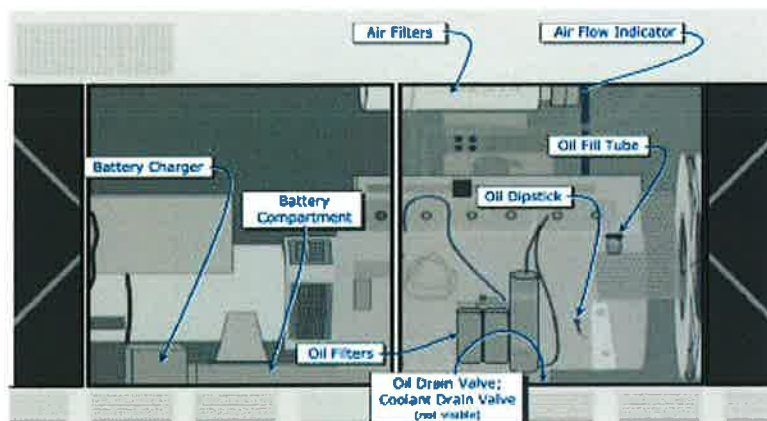


Figure 1—Generator Access Doors, Right Side

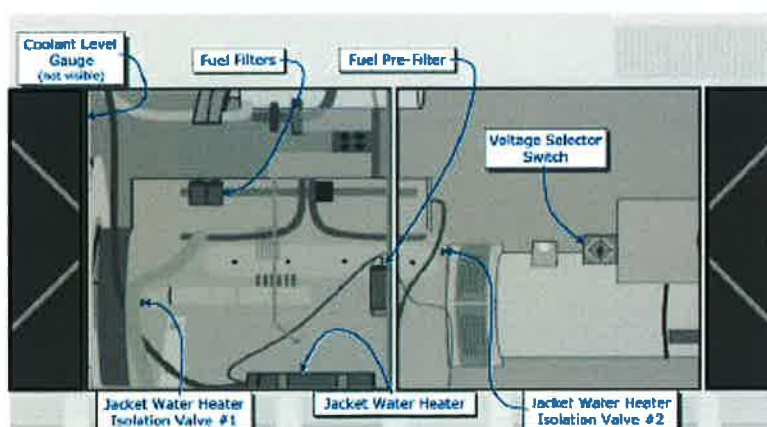


Figure 2—Generator Access Doors, Left Side