



BAT 55 Instruction Guide



BOSCH

Invented for life

Power Supply/Maintenance Chargers for 12-volt Batteries/Systems

Safety Guidelines

1. General Safety Precautions

Important safety instructions. **It is of utmost importance that before using your charger, you read this manual and follow the safety and operating instructions exactly.**

Save these instructions.

⚠ Warning—Required by California Prop. 65

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

⚠ Warning

Risk of explosive gases

Batteries generate explosive gases during normal operation, and when discharged or charged.

- 1.1 To reduce risk of battery explosion, follow these safety instructions and those published by the battery manufacturer and the manufacturer of any equipment you intend to use in the vicinity of a battery. Review cautionary marking on these products and on the engine, and on the vehicle or equipment containing the battery.

⚠ Warning

Charging a non-rechargeable battery may cause the battery to burst.

To reduce the risk of injury, only charge rechargeable flooded-type batteries including maintenance-free, low-maintenance, or deep-cycle batteries.

If you are uncertain as to the type of battery you are attempting to charge, or the correct procedure for checking the battery's state of charge, contact the seller or battery manufacturer.

- 1.2 Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
- 1.3 To reduce risk of damage to the electric plug and cord, pull by the plug rather than by the cord when disconnecting the charger.
- 1.4 Position the AC and DC leads to avoid tripping over them and to prevent damage by hood, doors, or moving engine parts; protect from heat, oil, and sharp edges.

- 1.5 Do not operate the charger if it has received a sharp blow, been dropped or otherwise damaged in any way; take it to a qualified service center.
- 1.6 Do not disassemble charger; take it to a qualified service center when repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- 1.7 To reduce risk of electric shock, unplug the charger from the AC outlet before attempting any maintenance or cleaning. Turning off the controls will not reduce this risk.

⚠ Warning

Remove marine "boat" batteries and charge them on shore.

Charging marine batteries on-board requires specially designed equipment for marine use.

- 1.8 Connect and disconnect the battery leads only when the AC supply cord is disconnected.
- 1.9 Do not overcharge the battery. (See sections 3)
- 1.10 Charge the battery in a dry, well-ventilated area.
- 1.11 Never place articles on or around the charger, or locate the charger in a way that will restrict the flow of cooling air through the cabinet.
- 1.12 An extension cord should not be used unless absolutely necessary. (See paragraph 4.3.)
- 1.13 Have a damaged cord or plug replaced immediately.
- 1.14 Do not expose the charger to rain or snow.

2. Personal Precautions

- 2.1 Always have someone within range of your voice, or close enough to come to your aid, when working around flooded batteries.
- 2.2 Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.
- 2.3 Wear complete eye protection, clothing protection, and wear rubber soled shoes. Place damp cloth over battery to protect against acid spray. When ground is very wet or covered with snow, wear rubber boots. Avoid touching eyes while working near battery.

- 2.4 If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters the eye, immediately flush with cold running water for at least 10 minutes, and seek medical attention.
- 2.5 **Never** smoke or allow a spark or flame in vicinity of a battery or engine.
- 2.6 Be extra cautious to reduce risk of dropping a metal tool onto the battery. It might spark or short circuit the battery or other electrical part that may cause an explosion.
- 2.7 Before working with a flooded battery, remove personal metal items such as rings, bracelets, necklaces, watches, etc. A flooded battery can produce a short circuit current high enough to weld such items causing a severe burn.

⚠ Warning

Non-rechargeable batteries may burst when charging causing personal injury and damage.

Only charge rechargeable flooded maintenance-free, low-maintenance or deep-cycle batteries.

The charger is not intended to supply power to a low-voltage electrical system other than applications using rechargeable, flooded type batteries. Do not use the battery charger for charging dry-cell batteries commonly used with home appliances. These batteries may burst and cause personal injury and property damage.

- 2.9 **Never** charge a frozen battery; thaw it out first.

3. Preparing To Charge The Battery

- 3.1 If it is necessary to remove the battery from vehicle to charge it, always remove the grounded terminal from the battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- 3.2 Be sure the area around the battery is well ventilated while the battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material as a fan.
- 3.3 Clean the battery terminals. Be careful to keep corrosion from coming into contact with your eyes.
- 3.4 Add distilled water in each cell until the battery acid reaches the level specified by the manufacturer. This

helps purge excessive gas from the cells. Do not overfill. For a battery without caps, carefully follow the manufacturer's recharging instructions

- 3.5 Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
- 3.6 Determine the voltage of the battery by referring to the car owner's manual and make sure that the output voltage selector switch is set at the correct voltage. If the charger has an adjustable charge rate, charge the battery initially at lowest rate. If the charger has only one voltage, verify that the battery voltage matches the voltage of charger.

4. Grounding And AC Power Cord Connection

- 4.1 The charger must be grounded to reduce risk of electric shock. The charger is equipped with an electric cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ Danger



Hazardous voltage.

An improper connection can result in electric shock

To avoid electrical shock or burn, never alter the charger's original AC cord and plug. Disconnect plug from outlet when charger is idle.

If the plug does not fit the outlet, have a proper outlet installed by a qualified electrician.

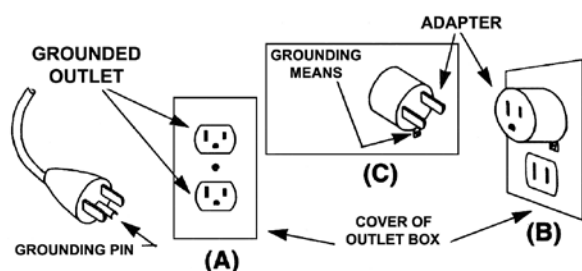
- 4.2 This battery charger is for use on a nominal 120-volt circuit and has a grounding plug that looks like the plug illustrated in *Figure A*, page 3. A temporary adapter, which looks like the adapter illustrated on page 3, in *Figures B* and *C*, may be used to connect this plug to a two-pole receptacle as shown in *Figure B*, page 3, if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician.

Danger

Hazardous voltage.
An improper connection can result in electric shock

Before using an adapter be certain the center screw of the outlet plate is grounded. The rigid ear or lug extending from the adapter must be connected to a properly grounded outlet. Make certain it is grounded. If necessary, replace the original screw that secures the adapter ear or lug to the cover plate and make the ground connection to the grounded outlet.

Use of an adapter is not allowed in Canada. If a grounding-type receptacle is not available, do not use this appliance until the proper outlet is installed by a qualified electrician.



4.3 An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:

- that the pins on plugs of the extension cord are the same number, size, and shape as those of the plug on the charger;
- that the extension cord is properly wired and in good electrical condition;
- that the wire size is large enough for the AC ampere rating of charger as specified in the following table.

Recommended minimum AWG* size for extension cords for battery chargers

AC input rating amperes		AWG* size of cord			
Equal or greater than:	But less than:	Length of cord, feet (m)			
		25 (7.6)	50 (15.2)	100 (30.5)	150 (45.6)
8	10	18	14	12	10
10	12	16	14	10	8
12	14	16	12	10	8
14	16	16	12	10	8
16	18	14	12	8	8

*American Wire Gauge

Overview

The Bosch BAT 55 power supply/ maintenance charger converts 120 volts nominal AC to 13.6 volts DC. As a power supply, the unit's controlled regulation enables you to operate a 12-volt nominal DC load up to the unit's rated output current. As a battery charger, the unit maintains the battery, delivering its full-rated current when the battery capacity falls sufficiently low. The voltage is set to deliver its maximum current for the time needed to minimize stress to the battery caused by heating of its cells. This helps to ensure the longest possible life of the battery. As the battery nears its full capacity, the BAT 55 float-charges the battery to prevent the cells from discharging.

BAT 55 Specifications

Input Volts (Vac):	108-132
Frequency (Hz):	40-70
Output Volts (Vdc):	13.4 at full load
Input Amps:	13
Output Amps:	55
Max. Watt Draw (VA):	1053 (1620)

BAT 55 Dimensions

Width:	16.38 cm (6.45 in)
Length:	17.78 cm (7 in)
Height:	8.69 cm (3.42 in)

Protection Features

The BAT 55 power supply/maintenance charger is designed with high quality components to help ensure years of continuous use. The BAT 55 is protected by multiple protection features for a long, trouble-free life:

- ▶ Reverse battery polarity protection. (Note: The green LED on the On/Off switch does not light when the Power Charge is connected in reverse polarity.)
- ▶ Brownout input protection.
- ▶ Over-current protection: cycle-by-cycle peak-limiting, as well as rated current-limiting, to maximize the life of the BAT 55.
- ▶ Over-temperature protection.

In addition, the BAT 55 is designed with a unique "proportional" fan-control circuit. Fan speed is directly proportional to the BAT 55's internal ambient temperature. This enables the fan to turn on and off very slowly, minimizing unwanted fan-starting noise.

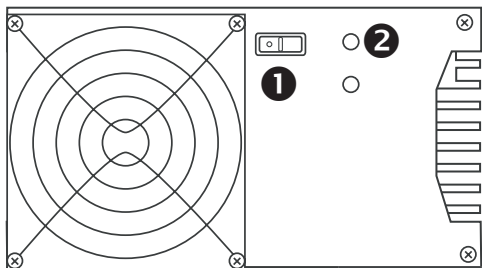
Installation

There are no components within the BAT 55 that, in their normal operation, produce arcs or sparks, all electronic devices have some potential for generating sparks in the event of failure. **Therefore, never install this device in the same compartment with flammable items such as gasoline or batteries.**

Charger Location

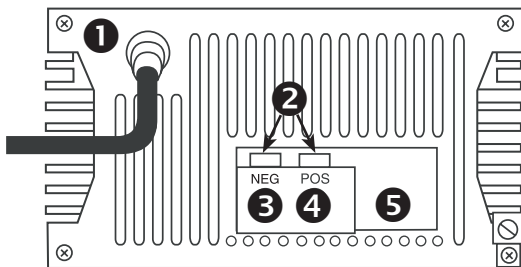
The BAT 55 must be located in an area with sufficient air space to allow unrestricted airflow in and around the charger.

Not for permanent installation: We do not recommend modifying this charger for permanent installation in a vehicle or installing this charger in a vehicle for permanent use.



- | | |
|----------|----------------------------------|
| 1 | On/Off switch with LED |
| 2 | Red LED: 120 Vac power indicator |

Figure 1: On/Off Switch and LEDs



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|----------|---|
| 1 | AC power cord |
| 2 | Screws for cable connections. Tighten to fit snugly. Do not overtighten. |
| 3 | Connection for negative (black) charger cable |
| 4 | Connection for positive (red) charger cable |
| 5 | Two 30A fuses. Replace with 30A maximum rated fuse. Loosen screw to remove fuses. |

Figure 2: Power Input and Output

Connecting To A Battery

When connecting the BAT 55 to a battery in a vehicle, follow these steps:

1. Identify the polarity of the battery terminals. Negative is marked NEG, N, or -. Positive is marked POS, P, or +.
2. With the BAT 55 unplugged, connect the positive clamp (red) to the positive battery terminal.
3. Connect the negative clamp (black) to the vehicle chassis. **Do not connect to carburetor, fuel line or body sheet metal.**
4. Plug the power cord into a grounded 120 Vac outlet. (For the maximum current draw and required input voltages, see the **Specifications** table.) The red LED pulses to indicate the BAT 55 is receiving current from the outlet.
5. Press the On/Off switch to the ON position. The LED on the On/Off switch lights to indicate that the cables are conducting current.

Disconnecting From A Battery

1. Press the On/Off switch to the OFF position. (The LED on the On/Off switch turns off.)
2. Unplug the BAT 55 from the 120 Vac outlet. (The red LED turns off.)
3. Disconnect the positive (red) clamp from the positive battery terminal.
4. Disconnect the negative clamp (black) from the vehicle chassis.

Frequently Asked Questions

Q: Why isn't the BAT 55 providing 55 amps?	A: The BAT 55 is voltage limited at 13.4V. The BAT 55 will provide enough current, up to 55 amps, to keep the voltage at 13.4V. The BAT 55 will not charge at the full 55 amps if the battery will not accept that much current.
Q: Why is the voltage lower than 13.4V?	A: The maximum current is 55 amps. If the load and battery charge current requirement exceeds 55 amps it may depress the voltage.
Q: What can reduce the power output of the BAT 55?	A: Using an extension cord that is not commercial grade (12 gage). The circuit that you are plugged into has large parallel loads.
Q: The BAT 55 will not start charging.	A: If the battery you are connected to is below 8 volts, the BAT 55 will not recognize it and it will not start charging. Before attempting to reflash a vehicle, ensure the battery is completely charged. This will need to be performed by using a charger capable of powering batteries that have fallen below 8 volts.
Q: Why won't the fan on the BAT 55 run?	A: The fan is temperature controlled and variable speed based on the temperature. The fan also has what is called a "soft start" which is part of the variable speed control.

Limited Warranty

Robert Bosch LLC (“Bosch”) warrants the BAT 55 battery charger / power converter (“Product”) to be free from defects in material or workmanship in accordance with the following:

This limited warranty shall be for a period of 12 months from the date of initial purchase. Bosch shall, at its option, repair or replace, at no charge, any Product which, under normal conditions of use and service, proves to be defective in material or workmanship and which is within the warranty period. Specifically excluded from this limited warranty are failures caused by misuse, negligence, modification, abuse, improper application or operation, failures caused by unauthorized service or failures caused by use of unauthorized parts. Bosch reserves the right to make changes in design or improvements on its products without creating or assuming any obligation to install or implement the same on products previously sold.

TO THE EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. BOSCH SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL OR EXEMPLARY DAMAGES OF ANY KIND. ALSO TO THE EXTENT PERMITTED BY LAW, THIS WARRANTY SETS OUT YOUR EXCLUSIVE REMEDIES WITH RESPECT TO THE BAT 55 BATTERY CHARGER / POWER CONVERTER. NO ATTEMPT TO ALTER, MODIFY OR AMEND THIS WARRANTY SHALL BE EFFECTIVE UNLESS AUTHORIZED IN WRITING BY AN OFFICER OF BOSCH.

Some states do not allow limitations on how long implied warranties last, or the exclusion or limitation of consequential or incidental damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

For technical assistance or to obtain performance under this limited warranty, please call 1-800-321-4889. A dated proof of purchase, repair order or other written proof that the Product is within the warranty period will be required in order to honor your claim.

Notes

Notes

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