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CLEAN POWER™ CPS Series Operator's Manual

Power Supply / Maintenance Charger for 12 Volt Systems

The CPS series of power supplies / maintenance chargers are the ultimate in supplying clean power for flash reprogramming, performing complex vehicle maintenance, showroom demonstrations, and maintaining battery charge.

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LIMITED WARRANTY



12 MONTHS FROM DATE OF PURCHASE

The manufacturer warrants to the consumer that this product will be free from defects in material or workmanship for a period of twelve (12) months from the date of original purchase.

Products that fail within this 12 month warranty period will be repaired or replaced at the manufacturer's option to the consumer, when determined by the manufacturer that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of parts and the necessary labor by the manufacturer to effect the repair or replacement of the product. In no event shall the manufacturer be responsible for special, incidental or consequential damages or costs incurred due to the failure of this product.

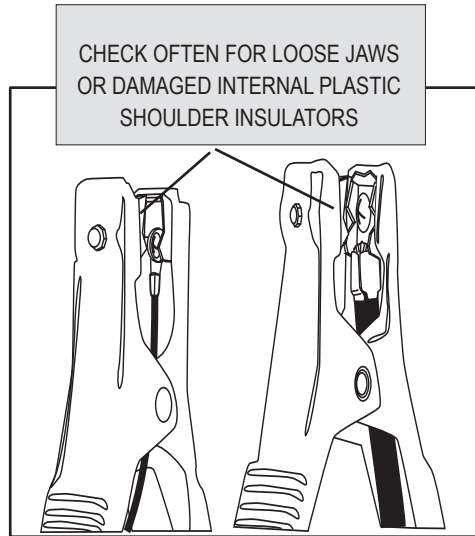
Improper use, accident, water damage, abuse, unauthorized repairs or alterations voids this warranty. The manufacturer disclaims any liability or consequential damages due to breach of any written or implied warranty on its test equipment.

WARRANTY AND SERVICE INFORMATION

Warranty claims to the manufacturer's service department must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser and is non-transferable. Shipper damage incurred during return shipments is not covered under this warranty. It is the responsibility of the shipper (the customer returning the Test Equipment) to package the tester properly to prevent any damage during return shipment. Repair costs for such damages will be charged back to shipper (customer returning the Test Equipment). Protect the product by shipping in original carton or add plenty of over-pack cushioning such as crumpled up newspaper.

CARE AND MAINTENANCE

- Both jaws of each clamp must firmly engage the battery terminal. The copper jaw contains the smaller gauge wire that reads the voltage and the silver jaw contains the larger conducting wire that draws the load in each test. Jaw insulation is necessary for accurate readings. Damaged clamps or loose wires will affect the readings. Keep clamps clean and in good repair.



CONGRATULATIONS!

You have purchased Auto Meter's Clean Power System designed to supply clean voltage regulated power for charging and maintaining battery state of charge during flash reprogramming, performing complex vehicle maintenance, and vehicle show room demonstrations. The system will deliver a regulated voltage up to its rated current output. The Clean Power System uses coaxial leads that has a separate conductor to measures and display the voltage that is at the battery terminals.



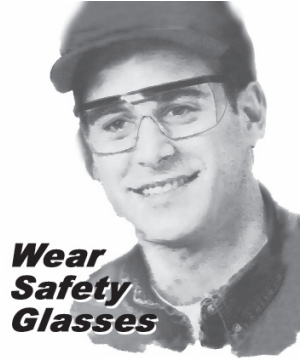
BATTERY LEAD & CLAMP REPLACEMENT PROCEDURE

- Unplug small voltmeter lead connector.
- Using a screwdriver, loosen the positive and the negative set screws in the terminal block.
- Remove leads.
- Install the new leads into the terminal block making sure the red clamp lead is in the terminal block marked (+), and the black clamp lead is in the terminal block marked (-).
- Orientate the leads in the terminal block so that the smaller voltmeter leads are on top.
- Firmly tighten the set screw in the terminal block.
- Plug in voltmeter connector.

Auto Meter Model Number	CPS- 55	CPS-75	CP-100
Max. Continuous Output Current	55 Amps	75 Amps	100 Amps
Maximum Continuous Power Output	780 Watts	1065 Watts	1420 Watts
Adjustable Voltage Range	13.0 to 14.8 V	13.0 to 14.8 V	13.0 to 14.8 V
Output Voltage (Full Load)	> 13.4 V	> 13.4 V	> 13.4 V
Auto Meter Digital Voltmeter	Yes	Yes	Yes
Field Replaceable Leads	Yes	Yes	Yes
Lead Cable Size	6 Gage, 6 Ft. Long	6 Gage, 6 Ft. Long	6 Gage, 6 Ft. Long
Fan Cooled	Yes	Yes	Yes
Reverse Polarity Protection	Yes, Fuse	Yes, Fuse	Yes, Fuse
Input Voltage	105 to 135 VAC	105 to 135 VAC	105 to 135 VAC
Input Voltage Frequency	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
Max. AC Current	7 Amps @ 108 VAC	12 Amps @ 108 VAC	15 Amps @ 108 VAC
AC Cord Length	16 AWG, 9 Ft.	16 AWG, 9 Ft.	16 AWG, 9 Ft.
Short Circuit Protection	Yes	Yes	Yes
Thermal Protection	Yes	Yes	Yes
Operating Temperature Range	32 to 113 F	32 to 113 F	32 to 113 F
Storage Temperature Range	-4 to 176 F	-4 to 176 F	-4 to 176 F
Size	10.5 X 8.25 X 7.5	10.5 X 8.25 X 7.5	12.5 X 8.25 X 7.5
Weight	11 LBS	11 LBS	13 LBS

SAFETY

- Carefully read all operating instructions before using the Clean Power System.
 - Wear eye protection when working around batteries.
 - The Clean Power System is equipped with a power cord. Never use an extension cord that is more than 50ft and it must not be smaller than 12 gauge. Make sure the extension cord and receptacle are properly grounded.
 - Be sure to switch the power off before removing the clamps to prevent arcing and potential explosion from battery gases. Never remove the clamps while the unit is on.
 - Keep sparks flames or cigarettes away from batteries.
 - Provide adequate ventilation to remove car exhaust.
 - In extremely cold temperatures, check for frozen electrolytic fluid before connecting the Clean Power System. Do not attempt to Charge a battery under 20°F. Allow the battery to warm to room temperature before connecting the Clean Power System.
 - Never connect the clamps to more than one 12 volt battery at a time. Connection to 24 volts will dangerously overload the circuitry.
 - Do not expose the Clean Power System to rain or snow.
- Warning!** Never attach the Clean Power System to a battery that is connected to any other tester or charging unit. Damage may result.



WARNING!

TESTING OF HYBRID VEHICLES

DO NOT test the starter, alternator and/or 12 volt starting battery while it is in the vehicle.

DO NOT remove, service or test the hybrid battery pack under any circumstances.

Remove the 12 volt starting battery, starter or alternator from the vehicle prior to testing.

CAUSE OF BATTERY FAILURE

- **Incorrect Application:** Wrong size battery may have inadequate cold cranking Amp rating for original vehicle specifications.
- **Incorrect Installation:** Loose battery hold-downs cause excessive vibration, which can result in damage to the plates.
- **Improper Maintenance:** Low electrolytic fluid and corrosion on battery connections, can greatly reduce battery life and affect battery performance.
- **Age of Battery:** If the date code on the battery indicates it is fairly old, the failure may be due to natural causes.
- **Overcharging:** Overcharging caused by a high voltage regulator setting or incorrect battery charging can cause excessive gassing, heat and water loss.
- **Undercharging:** Undercharging caused by a faulty charging system or low voltage regulator setting can cause lead sulfate to gradually build up and crystallize on the plates greatly reducing the battery's capacity and ability to be recharge.

TROUBLE SHOOTING



Problem	Possible Cause	Reason/Solution
The unit is on, and the voltage display reads 0.0 Volts	The clamps are not making a good connection at the battery.	Check for poor connections at the battery. Clean connection. Rock the clamp back and forth so that the teeth on the clamp jaw cuts through any surface corrosion.
	The connections are reversed.	Unplug the unit and reverse the connections. Check fuse.
	The battery is dead or defective.	Check the battery using a battery tester.
The unit will not start charging.	The battery voltage is below 8 Volts causing the unit not to recognize the battery.	Fully charge the battery using a battery charger.
The unit is not providing the maximum rated current.	The battery and/or electrical system is not demanding the maximum rated current.	The unit is voltage limited at the set voltage displayed in the digital voltmeter. The unit will provide up to the maximum rated current to keep the voltage at the set point.
The cooling fan is making noise.	The fan has build up of dirt causing it produce noise.	Blow dirt off of the fan blade using compressed air.

VOLTAGE SETTINGS



Recommend Clean Power System Voltage Settings:

Flash Reprogramming: Follow the vehicle manufacture's recommendation. Typically range from 13.4 to 14.4 V.

Maintaining Battery State of Charge: Follow the battery manufacture's recommendation. Typical long term float voltages range from 13.2 to 13.6 V at 68 F.

Vehicle Showroom Display / Demonstration: 13.2 V at 68 F.

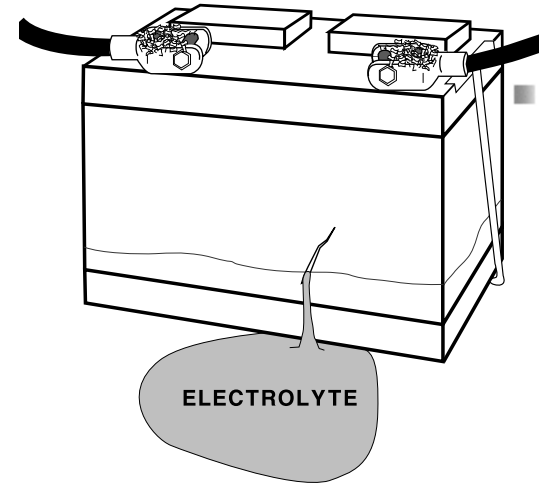
Note: If the battery temperature reaches 125°F the charging rate must be reduced or temporarily halted. This is done to avoid damaging the battery.

INSPECTION



VISUAL CHECK

Carefully perform the following before attempting any electrical diagnosis.



■ **Inspect Battery** for terminal corrosion, loose or broken posts, cracks in the case, loose hold-downs, low electrolyte level, moisture, and dirt around the terminals.

■ **Important Note:** A damaged battery must be replaced before proceeding.

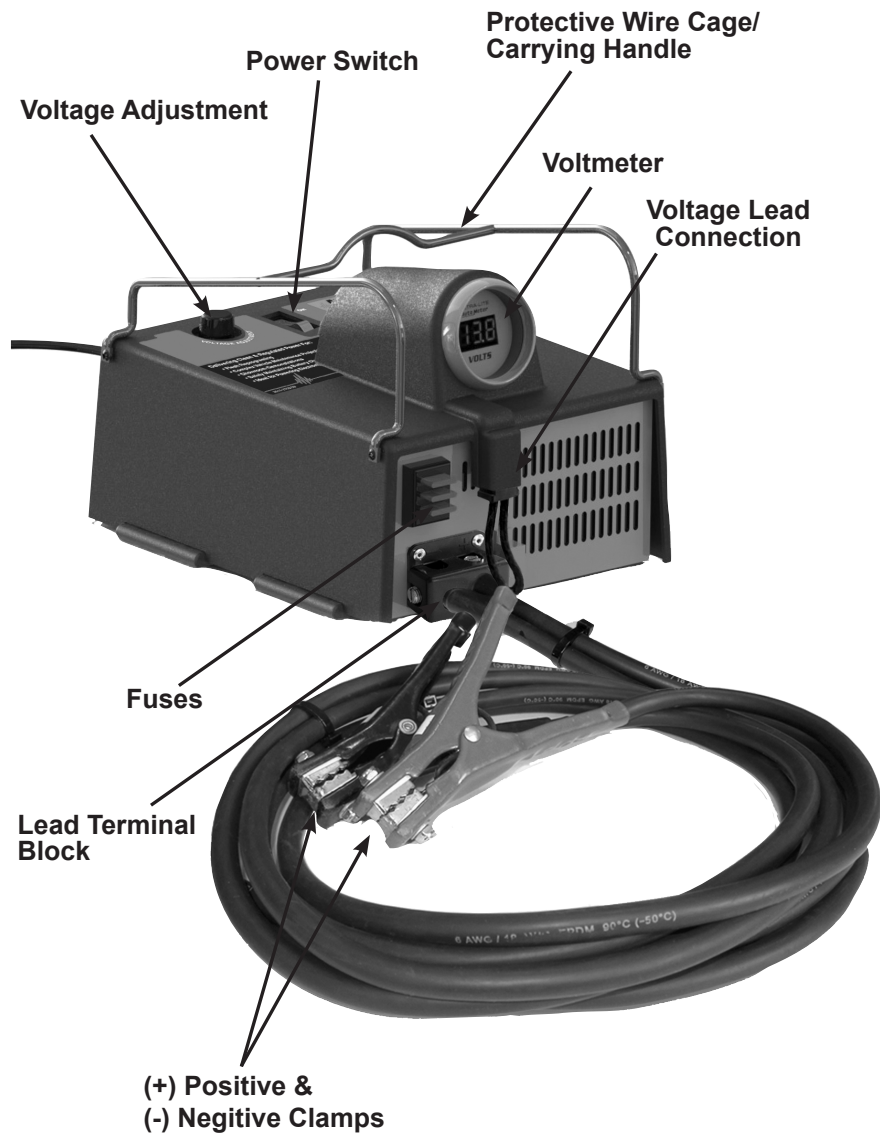
WHAT TO EXPECT

Auto Meter Clean Power System converts standard 120 VAC to a clean regulated voltage DC power. The DC output voltage is adjustable from 13.0 to 14.8 V so that it can be set to most any manufacture's specification for flash reprogramming or battery charging. The voltage that is displayed on the digital voltmeter is the voltage at the clamps / battery terminals. The Clean Power System allows you to operate 12 VDC loads up to the unit's rated current output while maintaining at least 13.4 V. Please note that the voltage displayed on the digital voltmeter will be lower than the power supplies output voltage due to a small voltage drop in the leads.

The Clean Power Supply has the following protection features:

- Reverse battery polarity protection via replaceable fuses.
- Brownout input protection.
- Over current protection: cycle by cycle limiting as well as rated current limiting.
- Over temperature protection.

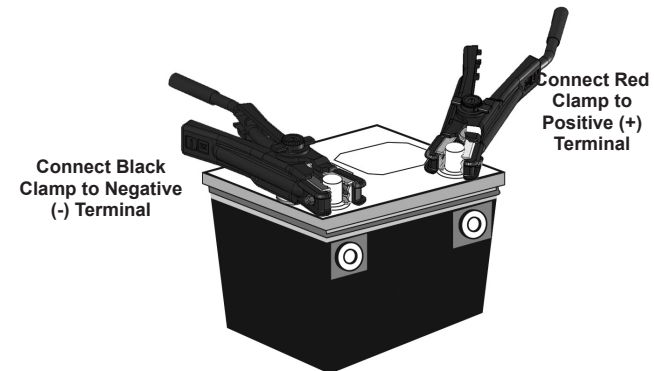
CONTROLS AND FUNCTIONS



HOOK UP TO A BATTERY



1. Place the Clean Power System so that the cooling fan air flow is not obstructed.
2. Turn the power switch to the off position.
3. Connect the leads to the battery. Connect the red clamp to the positive (+) terminal and the black clamp to the negative (-) terminal.
4. Plug the power cord into a properly grounded 120 VAC outlet.
5. Turn on power switch.
6. Adjust output voltage to manufacture's specification by turning the voltage adjustment knob. The voltage at the battery terminals is displayed on the digital voltmeter.



DISCONNECTING FROM A BATTERY

1. Turn off the power switch.
2. Unplug the power cord from the 120 VAC outlet.
3. Disconnect the positive and negative clamps from the battery terminals.