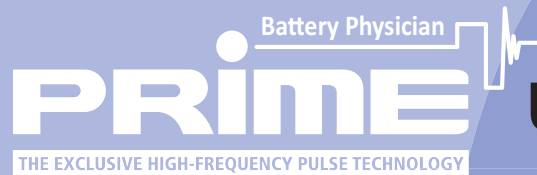


## PRIME BASIC Battery charger

( 7-in-1 Multifunctional Lead Battery Charger for DC 6V, 8V & 12V )

# RPT-T300 low cost version

Battery Saver : recharges batteries that no other charger manage to charge



## User's Manual



### Multifunctional 7-in-1

- Charge
  - Power Supply
  - Discharge
  - Regeneration
- 4 MODES
- Condition Test
  - IR Check
  - CCA Check
- 3 TESTERS

- Please read this manual carefully before using this equipment.
- Please keep the product warranty on the back of the manual well not to get lost.
- Please don't reprint or copy the image and the words because Repowertek Inc. in Korea reserve all the copyrights of the contents to be used in this manual.
- The exterior design and standard of the product and the contents of the manual are subject to change to improve the quality of the product without previous notice to the consumers.

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The Prime lead battery charger is a cutting-edge product applying intelligent smart control system with high frequency Pulse Technology to get the best possible charging of used batteries especially car batteries.

**This product is only for 6V, 8V and 12V batteries.**

\* This product is the simplest product of our product line and operated automatically the selected process . It is not needed to select the type of the battery being recharged and regenerated.  
 If you would like to charge and regenerate larger batteries, you should choose more sophisticated models from our product line.

**Caution : This equipment is for exclusive use for the lead-acid battery.  
 Please don't connect other battery or product except lead-acid batteries.**

**Warning**

In case of not keeping the below notices,  
the user can be killed and seriously injured.

- ⚠ Don't install in humid, oily, dusty places and direct-lighted, rainwater-reaching places and closed spaces.
  - ▶ It can cause an electric shock, and / or a fire.
- ⚠ Please use a grounded outlet for safety. Don't put to earth in a gas pipe, a plastic water pipe, a telephone wire only.
  - ▶ Otherwise, it can cause an electric shock, a fire, a trouble, an explosion, so please surely use the grounded outlet.
- ⚠ Please use the electric power source of an alternating current AC80~120V or 210~250V / 50~60Hz and solely the product of the rated over 15A outlet, and don't extend the original electric cord.
  - ▶ In case of the extended electric cord along with the multi-tap or other equipments being used, it can cause an electric shock, and / or a fire.
  - ▶ Only if any transformer or inverter is used, it can cause an electric shock, a re. When switch on the AC power of transformer or inverter, don't plug RPT-T300. Only after checking that you have a stable AC power source, then please plug RPT-T300.
  - ▶ Different voltage / frequency / rated current condition can cause an electric shock or a fire.
- ⚠ Please regularly wipe off well the power source plug terminal and the extraneous bodies(dust, water etc) at the contacting part with a dried cloth
  - ▶ Unplug the power and wipe off with a dried cloth. If the power plug gets wet, it can cause an electric shock, a fire.
- ⚠ Don't bend the electric cord(electric wire) by force. Don't pull it. Don't twist it. Don't tie it up. Also, Don't hang it on the metal part. Don't put it on the heavy object. Don't insert it among the objects. Don't push it into the back of the product.
  - ▶ It can cause an electric shock, a fire.
- ⚠ Surely connect the power plug to the end of the outlet, don't use the damaged power plug, the electric cord, the unstuck outlet.
  - ▶ It can cause an electric shock, a fire.
- ⚠ Connect the cord of the power plug down. Don't pull the electric cord(electric wire) when you unplug the power.
  - ▶ Otherwise, in case of connecting it, when the wire inside the cord is cut off, it causes an electric shock, a fire.
  - ▶ Hold and unplug the power plug because it can cause an electric shock, a fire.
- ⚠ Certainly exchange them not to be in danger before using the equipments when the power plug, the electric cord, the connecting cable are damaged.
- ⚠ Don't touch and operate the equipment with wet hands.
  - ▶ It can cause an electric shock and the breakdown of a product.
- ⚠ Immediately interrupt the electric power source and connect the service center only if a strange sound, a burning smell, a smoke occur.
  - ▶ It can cause an electric shock, and / or fire
- ⚠ Connect the service center after unplugging the power only if any water or the extraneous bodies go into the electric parts inside the product.
  - ▶ It can cause an electric shock, and / or fire.
- ⚠ Don't open the case of the product with the power on. And don't disassemble, repair, remodel them absolutely at random except for a serviceman.
  - ▶ Because of a high voltage flowing inside the product, in case of being exposed to the wave energy, there is some risk of an electric shock and a fire.
  - ▶ Please connect a service center and be advised to be helped from it, only if the repair of the product is needed.
- ⚠ Smoking and the operation of welding and grinding should be strictly prohibited near the battery, when the regeneration and the charge are being operated.
  - ▶ Due to the occurrence of the hydrogen gas(sulfurous acid gas) in the battery, take care of the risk of an explosion when smoking and sparking operations are being performed near around.
- ⚠ Put on glasses or goggles to protect the eyes and wear working clothes suitable for an operation, when the regeneration and the charge are being operated
  - ▶ Immediately wash with water in case that an electrolyte splash in the eyes, take notice of the sulfuric acid ingredients in the electrolyte which hurt the garments.

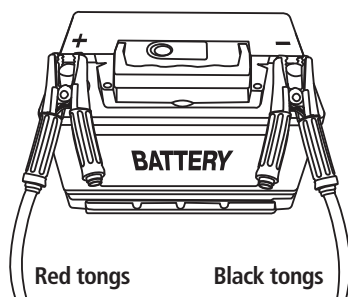


## Caution

Only if the user does not keep, the user may be injured or the property may be damaged.

- ⚠ Install at the strong bottom and the horizontal place.
  - ▶ If the product is built on a slant, it can be slipped and destroyed. So it can cause a strange vibration, a noise and a breakdown.
- ⚠ Install at intervals with the walls and use at the few dusty place.
  - ▶ Keep at regular intervals with the walls for the smooth function of protection against heat of the product. If the product is overheated, it can cause the damaged product and a fire.
  - ▶ Only if the product is used in the dusty place, the dust flowing into the equipment can cause the breakdown of the equipment.
- ⚠ When the product is built, install it in the place where the electric cord is unplugged easily.
  - ▶ Because of the electric shock by the current leakage and the cause of a fire, install the electric outlet at the close place where the electric power source can be dismantled in the moment of danger.
- ⚠ In case that the product is not used for a long time and a thunder or lightning strikes, unplug the electric power source.
  - ▶ Please be advised to disconnect the electric power source unless the product is used because a stroke of lightning can cause the electric shock & a fire.
- ⚠ Don't put the objects (other instruments or tools) on the product.
  - ▶ It can cause an electric shock, a fire, a breakdown and an injury.
- ⚠ When the operation is set, set it up exactly to be suited for the specification of a battery.
  - ▶ Only if the specification of a battery and the set-up are different, the life-shortening and damage of a battery can be caused.
- ⚠ Don't put the metallic tool on the battery and never drop it down.
  - ▶ If the metallic tool touches the terminal of a battery, the spark will happen and the battery will short-circuit, and the explosion can be caused. Please take notice.
- ⚠ Please surely get rid of the metallic necklace and chain, a bracelet, other accessories on the body in case of the operation of regeneration and charge.
  - ▶ When the short-circuit of a battery happens, the electric shock and the injury can be caused with the big current flowing into the body.
- ⚠ The interval between the product and the battery should be kept more than 1 m at least, specially install the air-intake direction of the equipment reversely against the battery.
  - ▶ If the sulfurous acid gas of a battery flows into the inside of the product, the internal circuit board is corroded. So the product breakdown can be caused.
- ⚠ At the moment of the regeneration and charge of a battery, operate it at the place where there are flammable things and where is well ventilated.
  - ▶ At the moment of the regeneration of a battery, as the sulfurous acid gas happens, the body can be injurious being exposed to it for a long time. Please be advised to operate it at the place where is well ventilated.
- ⚠ Please check the external state of the battery surely before the regeneration or charge of it.
  - ▶ Please don't connect the +, - terminal of the damaged battery with the equipment at all, in case that the battery case is cracked and the corner of it is broken, and only if the electrolyte of the internal battery is leaked.

### Connection of PRIME Regenerator and Battery



1. Connect the red tongs with the anode and the black tongs with the cathode.
2. Only if the positive and negative is connected reversely and START is carried out, "Check Connection" message is indicated on the LCD display with a warning sound, then the equipment is not operated.

\* If the any positive and negative terminal is not connected exactly and tightly, the short-circuit can happen. Please take notice.

**■ Operate the product following reading the manual surely.**

The proper charging of a battery can be initiated only after carefully reading the manual.

When the equipment is operated without reading the manual outside the advised standard of operation, we take no responsibility for any consequent problems like a breakdown of the product and/or the damage of a battery.

**■ Look around the surroundings again before installing a product and operating an equipment.**

This equipment uses the high voltage and high current. Please be advised to look around the surroundings again and check the danger of a current leakage and an electric shock and fire. Also look around the surroundings not to get the closed work space.

**■ Don't use the product at the closed and humid place. Please use at the airy place.**

At the moment of the regeneration and charge of a battery, the sulfate attached on the lead of a battery is mixed with distilled water and is restored, and the hydrogen gas(sulfurous acid gas) happens. The health may be harmful in case of being exposed to this gas at the closed space for a long time.

Don't be used at the closed working area, please be advised to be ventilated.

**■ Please use the power outlet which is ground-functioned.**

Please surely use the power outlet which is ground-functioned. As the product is the equipment which uses the high voltage and high current, the danger of a current leakage and an electric shock may be caused. Please use it following installing the earthing device in case of using the outlet which is not ground-functioned. Also Don't use other electric products with ground wires.

**■ Connect carefully and properly the terminal of a battery.**

Please connect the connector tongs of the product with the terminal of a battery exactly and tightly. If the connection is loosen up and is not connected correctly, the operation of regeneration and charge will not be implemented properly. the current leakage and the electric shock may be caused.

**■ The interval between the product and the battery to be restored should be kept more than 1M at least.**

If the battery begins being regenerated and charged, the hydrogen gas(sulfuric acid) happens in the electrolyte of the internal battery. Only if the interval between the product and the battery is close, the component of sulfuric acid occurred in the battery can corrode the circuit board being owed into the internal product. To protect this state, the interval between the product and the battery should be kept more than 1M.

The air vents of the product is installed reversely against the battery, so the gas in ow of the product should be prohibited thoroughly.

**■ Input the same value as the specification of a battery at the moment of the set-up.**

Please check the specification of the battery on the exterior of a battery before carrying out the discrimination and regeneration, charge of a battery.

The proper operation can be implemented only if the same setting value as the specification on the exterior of a battery.

The damage and overcharge & undercharge of a battery may be caused in case of the wrong setting value.

**■ Make sure to wear protective gear for safety, and prepare washing utensils in advance.**

During working, make sure you should prepare an eye cleaning kit, water and soap close to you, in case your skin, clothes or eyes get in contact with acid or electrolyte. During touching battery, make sure to wear globe and glasses. Do not touch your eyes with your hands while working on batteries.

If your skin or clothes get in contact with electrolyte, make sure to clean immediately with clean water and soap. If electrolyte gets into your eyes, immediately rinse them with clean water for about 10 minutes and contact your closest hospital.

**■ Surely open the Cell Cap(supplementary lid for distilled water) and check whether the electrolyte is or is not there before carrying out the regeneration or charge of the repair-typed battery.**

Generally if all of the electrolyte of the internal Cell is evaporated, the regeneration and charge of the Cell is no longer possible. Only if the dried battery with all of the distilled water being evaporated is regenerated or charged, the explosion may be caused. So surely open the Cap the Battery Cell before operating the product and check whether the electrolyte is in or is not there.

**■ Please check the impurity concentration of the electrolyte before restoring and charging the repair-typed battery.**

Please surely check the impurity concentration of the electrolyte following extracting the electrolyte of the internal Cell separately. If the concentration of the electrolyte is not transparent, is almost gray or black, and if the lump of the black impurity is floating in the electrolyte, it means that the interior lead plate of the Cell is corroding and has already corroded. the regeneration and charge of a battery can not be carried out.

**■ Replenish the flood type battery with only distilled water after regenerating and charging.**

Only if the regeneration is completed, and the value of a specific gravity is not clear, or only if the distilled water is replenished too much, and the value of a specific gravity is not clear with the electrolyte overflowing, the sulfuric acid is replenished in the internal Cell, and never replenish the sulfuric acid other than it. Please be advised to have help from an expert at the moment of replenishing the sulfuric acid.

## ■ Product Specifications

Product Name	<b>PRIME BASIC Battery Charger &amp; Discharger</b>
Model No.	<b>RPT-T300</b>
Size / Weight	<b>W 345mm X D 370mm X H 170mm (Without Cable) / 10.5 kg</b>
Power consumption	<b>Stand-by Approx. 20W ~ Max. Approx. 200W</b>
Input Power	<b>AC 80 ~ 120V or 210 ~ 250V / 50~60Hz</b>
Battery Voltage	<b>Standard DC 6V, 8V, 12V Battery</b>
Battery Capacity	<b>All kinds Lead-Acid Battery 40Ah ~ 300Ah</b>
Max. Output	<b>150W (Max. 10A / hour)</b>
Regeneration Method	<b>Charge Current Inclusive High Frequency Pulse (Exclusive)</b>
Max. Discharge Current	<b>Max. 30A</b>
Discharge Capacity	<b>Approx. 420 Watts</b>

## ■ Product Features

### ▶ 7 in 1 (7 Functions are included in 1 product.)

It can do regeneration, charge or discharge work easily because 5 functions for battery regeneration are all included in RPT-T300.

- ① **REGENERATION MODE** (Regeneration function) : It can extend the battery capacity.
- ② **CHARGE MODE** (Charge function) : It can charge the battery.
- ③ **POWER SUPPLY MODE** (Expert function) : It can supply electricity by freely choosing voltage, current and time like a power supply.
- ④ **DISCHARGE MODE** (Discharge function) : It can know RC value(discharge value) by discharge of the battery.
- ⑤ **Battery Condition Test** (Identification function) : It can understand if a battery can still be of use. (DC 12V Only)
- ⑥ **IR Measuring** (Internal Resistance measuring function) : It can compare Before condition or After condition internal resistance in regeneration, charge or discharge work.
- ⑦ **CCA Measuring** (Cold Cranking Ampere) : It can compare Before condition or After condition CCA in regeneration, charge or discharge work.

### ▶ PRIME Smart Control System

- It can regenerate and charge to 300Ah battery by controlling a minute 0.1 unit current or voltage, and do exact discharge.
- It can be minimizing damage of electrodes and plates or maximizing sulphation sticking restraint by using the optimized high frequency pulse.

### ▶ Optimized Automatic Regeneration / Charge Algorithm

It can be used in all types of lead-acid battery by adjusting specialized automatic regeneration / charge algorithm. And it also can extend and maintain battery life more than twice by preventing electrical or physical damage of battery in their regeneration / charge.

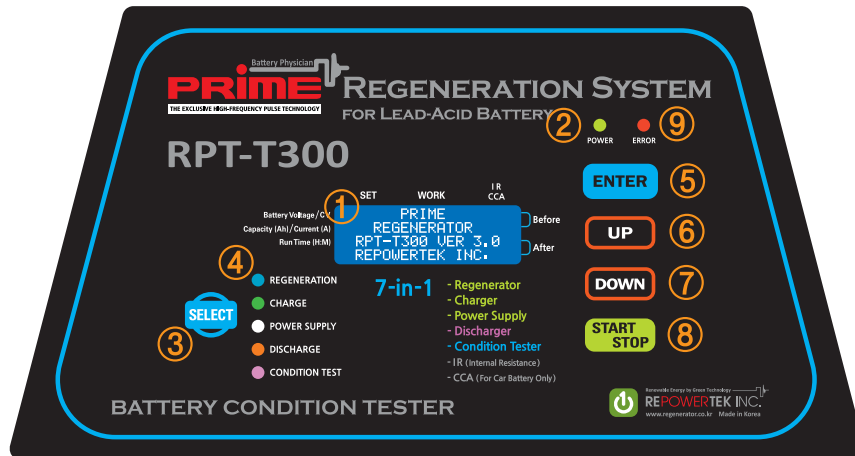
### ▶ Wide Compatibility

It can charge / regenerate various lead-acid battery from Car Start MF battery, industrial VRLA battery, to DC 6V, 8V Golf Cart battery. Also, it can charge/ regenerate AGM type Battery which has jelly like electrolyte and AGM type battery which has a Absorptive Glass Mat inner layer.

### ▶ Safety

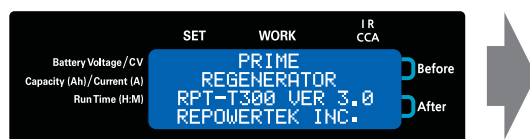
It can do more safety work with overvoltage preventing function, input current deviation controlling function and Surge protecting function.

\* If you need more information, please visit our website <http://www.regenerator.co.kr>



- ① **LCD Display Indication Information** You can input battery specification and see progress work condition in real time.
- ② **POWER LED** When you switch on the rear switch ① LCD display is turned on and the green light is turned on in ② POWER LED.
- ③ **SELECT Button** It is a function selecting button if you push this button ④ item LED is turned on and you can select the function. If you push this button again you can change the function.
- ④ **Function Indicating LED** If you push ③ item button, each function's LED are turned on and then you can check which function is selected.
- ⑤ **ENTER Button** You can use this button to go on next work after inputting regeneration(or charge) battery type into the machine.
- ⑥ **UP Button** You can use this button to increase set value in voltage, current or time set-up of the battery. It increases 1 unit in REGENERATION MODE or CHARGE MODE and it increases 0.1 unit in POWER SUPPLY MODE or DISCHARGE MODE. If you push this button continuously the set value increased automatically.
- ⑦ **DOWN Button** You can use this button to decrease set value in voltage, current or time set-up of the battery. It decreases 1 unit in REGENERATION MODE or CHARGE MODE and it decreases 0.1 unit in POWER SUPPLY MODE or DISCHARGE MODE. If you push this button continuously the set value decreased automatically.
- ⑧ **START / STOP Button** When you push START / STOP button the machine starts its work after inputting set value of battery voltage, current and time is finished. If you push START / STOP button in working the machine work is stopped.

### Displayed Contents of LCD Indicator



When you turn on the switch, each LED flicking one time and then above LCD indicator is changed into Setting Mode on the screen same as the right one.



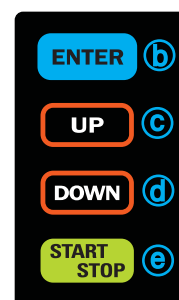
- ① **Battery Voltage / CV** When you input standard(official) battery voltage in SET part, the real time voltage of connected battery is displayed in WORK part. You can set-up a Cut-off Voltage (CV) at DISCHARGE Mode.
- ② **Capacity / Current** When you input battery capacity in SET part, the supplied current amounts in real time are displayed in WORK part.
- ③ **Run Time (H:M)** The progress time of by a selected mode is automatically displayed in SET part, and elapsed working time is displayed in WORK part.
- ④ **SET** Vertical line items under the SET, the battery set values(voltage, capacity, current and time) are displayed.
- ⑤ **WORK** If you push START button vertical line items under WORK are displayed in real time after inputting set values of vertical line items under the SET.
- ⑥ **IR, CCA** If you push the ENTER button more than 2 seconds (Or, if you push the START button), the internal resistance and CCA values of connected battery are automatically displayed in Before part. If regeneration, charge and discharge work is finished, the internal resistance and CCA value are displayed in After part automatically.



## Displayed contents explanation of LCD information representation indicator



	SET	WORK	IR CCA ④	
① Battery Voltage / CV	12.0	12.3	0.00	Before
② Capacity (Ah) / Current (A)	0.0	0.0	0	
③ Run Time (H:M)	15:00	0:00	0.00	After
⑤ REGENERATION			0	



**Function selection** You can select any work you want by pushing ② SELECT button, that function is displayed in ⑤ of the above screen. You can choose 5 functions : REGENERATION, CHARGE, POWER SUPPLY, DISCHARGE, CONDITION TEST.

### ① Battery Voltage / CV

**Regeneration Mode / Charge Mode / Power Supply Mode / Condition Test :**

Choose the working standard(official) battery voltage by using ③ UP button or ④ DOWN button under the SET located the arrow (▶). You can choose 6V, 8V and 12V and go on to the next work by pushing ⑥ ENTER button. **Condition Test** is 12V Only.

**Discharge Mode :** Input final discharge voltage (CV; Cut off Voltage) by using ③ UP button or ④ DOWN button under the SET located the arrow (▶). After set-up CV, go on to the next work by using ⑥ ENTER button.

### ② Capacity (Ah) / Current (A)

**Regeneration Mode / Charge Mode / Condition Test :** Set-up the Battery Capacity(Ah) by using ③ UP button or ④ DOWN button under the SET located the arrow (▶). After set-up the Capacity, go on to the next work by using ⑥ ENTER button.

**Power Supply Mode :** Designate working battery hourly supply current(A) by using ③ UP button or ④ DOWN button under the SET located the arrow (▶). Normally set-up 1/10 (10% of Capacity) carrying Current(A) of Battery Capacity(Ah).

**Discharge Mode :** Designate working battery discharge current(A) by using ③ UP button or ④ DOWN button under the SET located the arrow (▶). (The international standard discharge current of Car battery is 25A.) After set-up CV, go on to the next work by using ⑥ ENTER button.

### ③ Run Time (H:M)

**Regeneration Mode / Charge Mode :** In regeneration mode working time is displayed in SET part automatically, the elapsed time is displayed in WORK part.

**Power Supply Mode :** You can set up working battery progress time by using ③ UP button or ④ DOWN button. You have to set up working time according to the condition of the battery to be regenerated or charged.

**Discharge Mode :** You can set-up discharge time by using ③ UP button or ④ DOWN button under the SET located the arrow. (Car battery doesn't need to designate discharge time). After designation go on to the next work by using ⑥ ENTER button.

**④ I R / CCA** Regardless of function selection connect the machine and the battery, after pushing ⑥ ENTER button about 2 seconds, you can check the connected battery's IR(Internal Resistance) value and CCA (Cold Cranking Ampere). These are current battery conditions(Before). After finishing the work, IR value and CCA value are displayed automatically in After part. These are regenerated (or charged) battery conditions(After).

**⑤ Message** Work progress indication and warning message are displayed. Refer to the below items.

**REG FINISHED / CHG, PWS, DCG FINISHED** These messages are appeared finishing the work completely.

**SET TIMEOVER** This message is appeared when the regeneration/charge time is passed because the supplying current is less than set-up battery capacity or the battery cannot accept current due to the bad condition. If the battery doesn't make the heat (lower than 45°C), the battery specification can be enhanced if you regeneration/charge again.

**CELL SHORT (Bad Judgement)** That is a message displayed stopping the work when the battery voltage does not rise after a while from regeneration or charge started. This is a damaged battery to be a disposal.

**OVER CHARGE** That is a message when the supplied current is 130% over than the total capacity of the battery with over supplying.

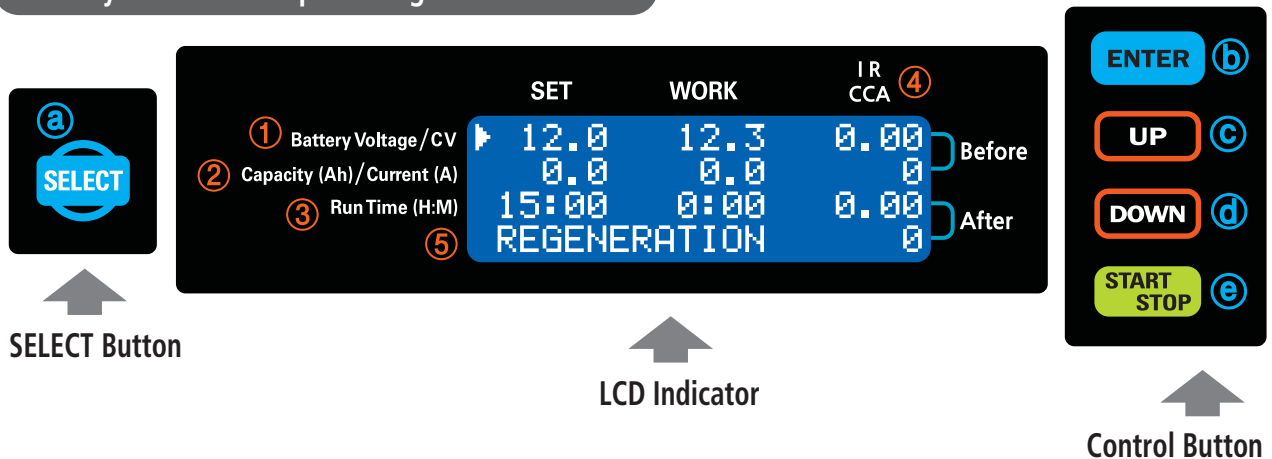
**CHECK VOLTAGE** That is a message when the displayed battery voltage is 30% less than the set-up standard(official) voltage.

**CHECK CONNECT** That is a message when there is no voltage, the wrong connection of +, - to the battery or one or both terminals are disconnected due to external shock in machine working.

**OVER TEMP (Machine Problem)** That is a message when the heat protection cannot be made because of the heat sink's temperature is risen during regeneration/charge/discharge work.



## The way of set value input in Regeneration Mode



### Ex) 12V / 100Ah Battery Regeneration Work

**1. Function(Mode) set-up** Set up part. ⑤ of the LCD indicator changed or designate to REGENERATION by pushing ① SELECT button in the front part of the machine.



**2. Standard(official) battery voltage set-up** Make the arrow(▶) located in the Battery Voltage / CV of part. ① by pushing ② ENTER. Designate the regenerated standard(official) battery voltage to the 12.0 by using ③ UP button and ④ DOWN button. After Set-up is completed by pushing ② ENTER button again you can go on to the next work. (In this mode, you can designate Battery Voltage of part. ① to 6V, 8V or 12V)

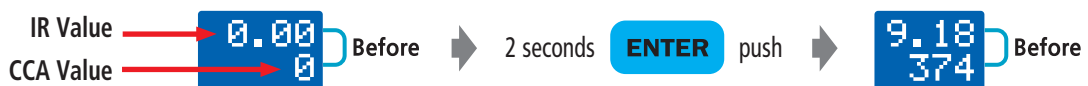


**3. Input battery capacity** Designate the showed exterior battery capacity to 100.0 by using ③ UP button and ④ DOWN button when the arrow(▶) located in the Capacity (Ah) / Current (A) of part. ②.



**4. Internal resistance / CCA values measure** You can measure Internal Resistance(IR) and CCA value during the battery is connected regardless of the arrow(▶) location. Before regeneration work those values are displayed right part of LCD indicator after pushing ② ENTER button more than 2 seconds. The displayed value in upper line is IR one and the lower line is CCA one. This function cannot be worked during regeneration work after finishing regeneration work the IR and CCA values in that moment displayed automatically.

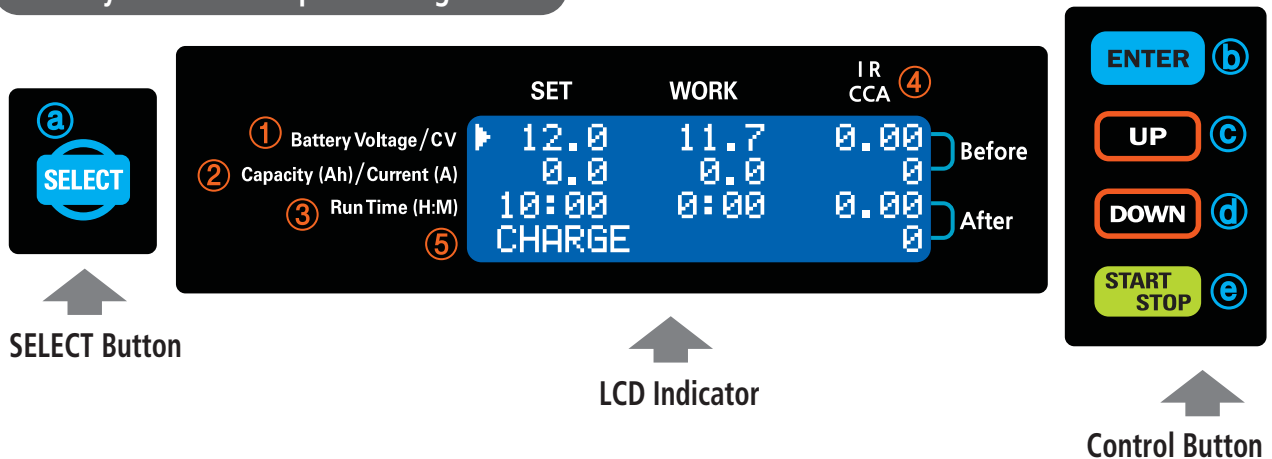
**DC 12V Battery Only**  
(Measure range : DC 11.0V ~ 14.0V)



**5. Start of pause of regeneration** You can start regeneration work by pushing ⑤ START / STOP button after input Capacity (Ah) / Current (A) in part. ② and check IR and CCA values of before regeneration. You can pause regeneration work by using ⑤ START / STOP button during the work.

**6. Progress condition display** After started regeneration supplied voltage is displayed in ① Battery Voltage / CV under the WORK part in real time and the hourly supplied current is displayed in ② Capacity (Ah) / Current (A). The SET part of ③ Run time(H:M) is automatically set-up time and the elapsed set-up work time is displayed under the WORK part.

## The way of set value input in Charge Mode



### Ex) 12V / 80Ah Battery Charge Work

- Function(Mode) set-up** Set up part. ⑤ of the LCD indicator changed or designate to CHARGE by pushing (a) SELECT button in the front part of the machine.



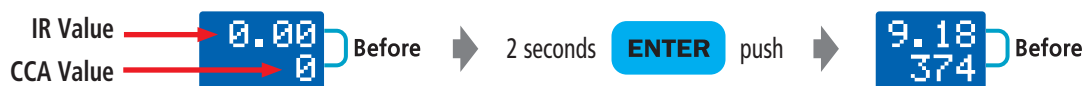
- Standard(official) battery voltage set-up** Make the arrow(▶) located in the Battery Voltage / CV of part. ① by pushing (b) ENTER. Designate the charged standard(official) battery voltage to the 12.0 by using (c) UP button and (d) DOWN button. After Set-up is completed by pushing (b) ENTER button again you can go on to the next work. (In this mode, you can designate Battery Voltage of part. ① to 6V, 8V or 12V)



- Input battery capacity** Designate the showed exterior battery capacity to 80.0 by using (c) UP button and (d) DOWN button when the arrow(▶) located in the Capacity (Ah) / Current (A) of part. ②.



- Internal resistance / CCA values measure** You can measure Internal Resistance(IR) and CCA value during the battery is connected regardless of the arrow(▶) location. Before charge work those values are displayed right part of LCD indicator after pushing (b) ENTER button more than 2 seconds. The displayed value in upper line is IR one and the lower line is CCA one. This function cannot be worked during charge work after finishing charge work the IR and CCA values in that moment displayed automatically.  
**DC 12V Battery Only**  
 (Measure range : DC 11.0V ~ 14.0V)



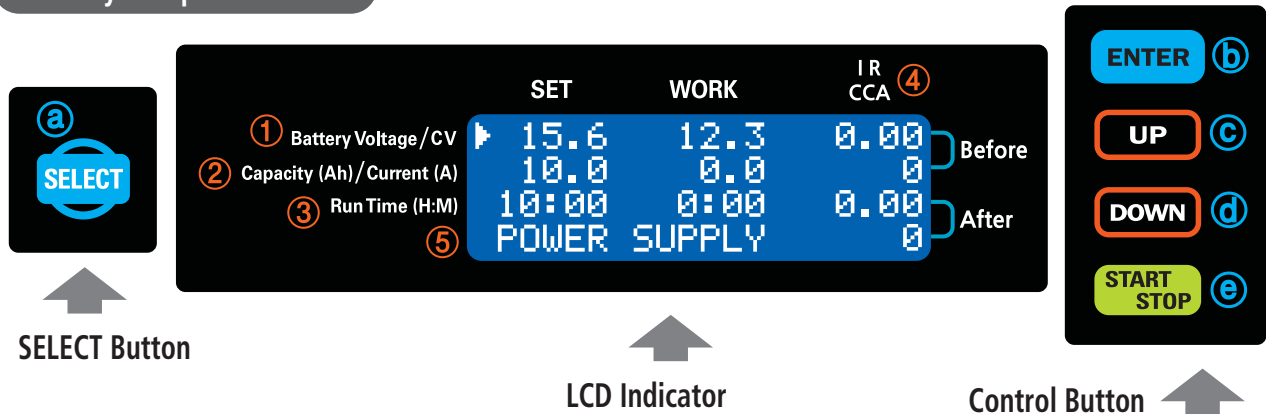
- Start of pause of charge** You can start charge work by pushing (e) START / STOP button after input Capacity (Ah) / Current (A) in part. ② and check IR and CCA values of before charge. You can pause charge work by using (e) START / STOP button during the work.

- Progress condition display** After started charge supplied voltage is displayed in ① Battery Voltage / CV under the WORK part in real time and the hourly supplied current is displayed in ② Capacity (Ah) / Current (A). The SET part of ③ Run time(H:M) is automatically set-up time and the elapsed set-up work time is displayed under the WORK part.

**Caution :** This Mode is a manual control mode for expert user who has a wealth of information about battery regeneration, and he can regenerate and charge battery as he wanted. The accident damaged to human, battery or machine cannot be protected from service or compensation if the none-expert user uses the machine without enough knowledge about manual.

This mode can control set-up voltage, hourly input current, and progress time manually for special battery which is not included in battery type, sleeping battery which has lowered voltage due to non-use for a long time and some battery only need a little regenerate/charge. It is a special power supply function for lead-acid batteries.

## The way of input Set Values



**1. Function(Mode) set-up** Set up part. ⑤ of the LCD indicator changed or designate to POWER SUPPLY by pushing ① SELECT button in the front part of the machine.



**2. Target voltage set-up** Make the arrow(▶) located in the Battery Voltage / CV of part. ① by pushing ② ENTER button. You can go on to the next work by pushing ② ENTER button again after set-up the maximum battery target charge voltage to 15.6V by using ③ UP button and ④ DOWN button.(12V battery is set-up to 6 cells and the maximum target charge voltage 2.6V per 1 cell)



**3. Hourly supply current set-up** You can go on to the next work by pushing ② ENTER button again after set-up the exterior showed regenerated battery capacity to the 1/10 value by using ③ UP and ④ DOWN button when the arrow is located to the Capacity (Ah) / Current (A) of part. ②. (Warning : That is not the capacity input.)



**4. Time Set-up** Set-up total working time by using ③ UP and ④ DOWN button when the arrow is located in Run Time (H:M) of part. ③.

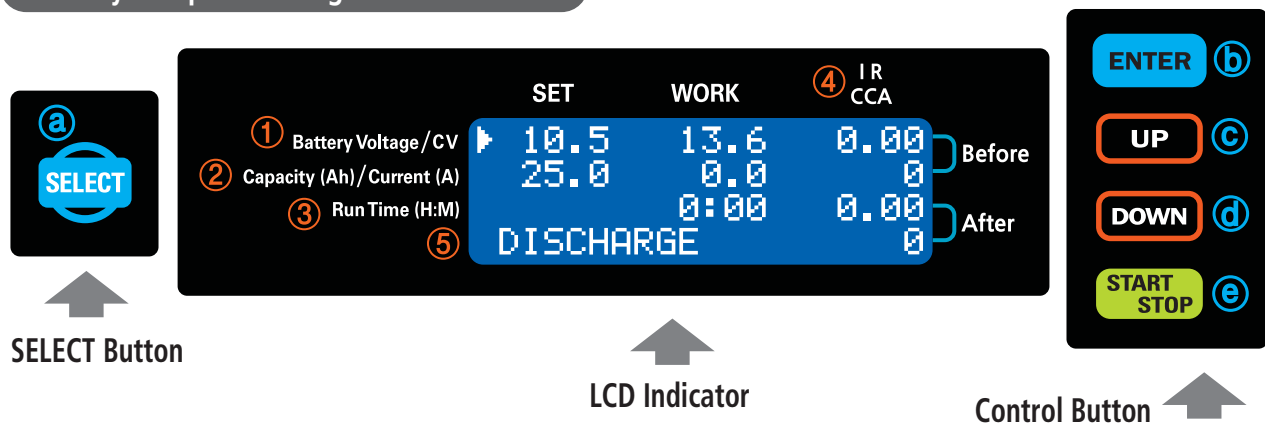


**5. Internal Resistance / CCA value measure** Refer to "4. Internal Resistance / CCA value measure" in "Regeneration Mode" of previous page.

**6. Start and Pause** You can start the work by pushing ⑤ START / STOP button in front part of the machine after input 1~4 topic is completed and check the Internal Resistance and CCA measure of before regeneration. You can pause the work by using ⑤ START / STOP button during the work.

**7. Progress condition display** The supplied voltage is displayed in ① Battery Voltage / CV under the WORK part, the hourly current amount in ② Capacity(Ah) / Current(A) and the elapsed time of previous set-up time is displayed in ③ Run Time(H:M) in real time.

## The way of input Discharge Mode set values



### Ex) 12V / 100Ah Battery Discharge Work

- Function(Mode) set-up** Set up part. ⑤ of the LCD indicator changed or designate to DISCHARGE by pushing (a) SELECT button in the front part of the machine.



- Cut-off discharge voltage set-up** Make the arrow (▶) located in the Battery Voltage / CV of part. ① by pushing (b) ENTER button. Designate the discharge cut off voltage (CV) for 12V battery to 10.5 (normal 12V battery is set-up 6 cells and normally designate the final discharge voltage to 1.75V per 1 cell) by using (c) UP button and (d) DOWN button. You can go on to the next work by pushing (b) ENTER button again after set-up (1.75V X 6 cells = 10.5V).



- Set-up discharge current** You can go on to the next work by pushing (b) ENTER button after designate the discharge current to 25A (International standard discharge current for car start battery) by using (c) UP button and (d) DOWN button when the arrow (▶) is located in the Capacity (Ah) / Current (A) of part. (Warning : Basically the discharge current for all car start batteries are '25A' according to the international standard. But in case of industrial batteries, the discharges current are differently adjusted according to the battery capacity, specification and time of the discharged battery.)



- Internal Resistance / CCA value measure** Refer to "4. Internal Resistance / CCA value measure" in "Regeneration Mode" of previous page.

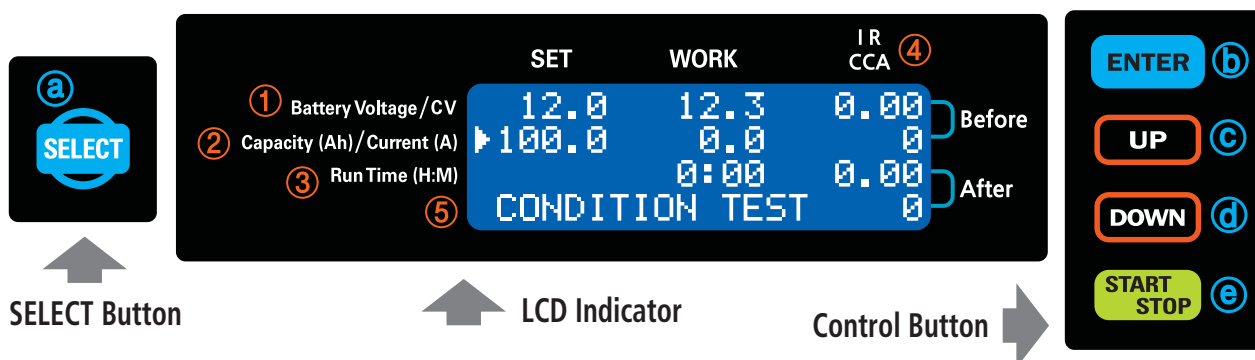
- Start and Pause** You can start the discharge work by pushing (e) START / STOP button in the controller after input 1~3 values are completed and check the Internal Resistance and CCA measure of before discharge. You can pause the discharge work by using (e) START / STOP button during the discharge work.

- Progress condition display** After started discharge work the current battery voltage is displayed in ① Battery Voltage / CV under the WORK the present discharging current amount in real time is displayed in ② Capacity(Ah) / Current (A).

- RC(Reserve Capacity) value display** The elapsed discharge time is displayed in ③ Run Time (H:M) in WORK part, after started discharge. The elapsed discharge time means RC(Reserve Capacity) value that is the most important standard (Capacity Checking) of the battery.



## Input way of Condition Test (Identification) set value



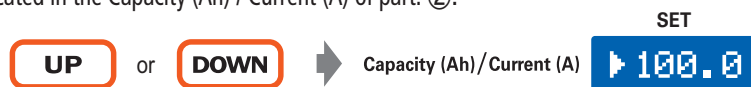
### Ex) 12V / 100Ah Battery Regeneration Work

- Function(Mode) set-up** Set up part. ⑤ of the LCD indicator changed or designate to **CONDITION TEST** by pushing ① SELECT button in the front part of the machine.



- Nominal battery voltage set-up** This mode is a 12V battery only. Thus it is fixed to 12V.

- Input battery capacity** Designate the showed exterior battery capacity to 100.0 by using ② UP button and ③ DOWN button when the arrow (▶) located in the Capacity (Ah) / Current (A) of part. ②.



- Internal resistance / CCA values measure** Refer to "4. Internal Resistance / CCA value measure" in "Regeneration Mode" of previous page.

- Start of pause of regeneration** You can start condition test work by pushing ④ START / STOP button after input Capacity (Ah) / Current (A) in part. ② and check IR and CCA values of before condition test. You can pause condition test work by using ④ START / STOP button during the work.

- Progress condition display** After started condition test supplied voltage is displayed in ① Battery Voltage / CV under the WORK part in real time and the hourly supplied current is displayed in ② Capacity (Ah) / Current (A). ③ Run time(H:M) is elapsed work time is displayed under the WORK part.

### 7. Message Type Contents Explanation

**OK TEST FINISH** This is a message that the battery is possibly identified as to be regenerated or charged battery by finishing Identification ordinarily.

**CELL CORROSION** This is a Damage Identification Message there is cell corrosion more than 1cell in battery. **(Bad Battery)**

**CELL SHORT** This is a Damage Identification Message that there is cell short more than 1cell in battery. **(Shorted Circuit Battery)**

**CELL CUT** This is a Damage Identification Message that there is cell cut more than 1cell in battery. **(Bad Battery)**

**LOW VOLTAGE** This message appears when the battery voltage is less than DC 8V. Please retest after charge. **(Check Battery)**

**CHECK VOLTAGE** This message appears when the battery voltage is more than DC 16V. This mode 12V battery only.

**CHECK CONNECT** This message is displayed when there is no battery voltage, the +, - terminals are connected to the battery differently, and one or both clips are disconnected due to external shock in machine working.

\* Prior to the '**CONDITION TEST**', all 12V batteries should be charged to **over 9V** at least. Please use a conventional charger for this recharge. (If a low voltage battery is not charged well, use a 'Power Supply' mode of PRIME)  
 - Most batteries lower than 11V will be cell corrosion states. – Limited capacity

## Summary of Identification & Regenerating Process for 12V / 95Ah SLI MF Battery (Car)

### Battery Checking



Physical inspection for any damaged in surface of battery.

### Checking Report



Load Test by Battery Checker

- SoC (State of Charge)
- Voltage
- CCA (Cold Cranking Ampere)
- Internal resistance

### Condition Test (Identification)



OK Test Finish

Battery Cell Cut  
Battery Cell Short  
Battery Cell Corrosion

Identified as **BAD** batteries to be recycled to the lead (Disposal)

### Regenerating



CASE 1

KEEP to Regenerate

PRIME charging voltage is going to 13V within about 40 minutes.

CASE 2

GIVE UP (Battery is Cell Cut)

PRIME charging voltage is rapidly going to 15V within 1 minute.

CASE 3

GIVE UP → KEEP to Regenerate

PRIME charging voltage is not going to 13V from 12V within around 1 hour.

CASE 4

GIVE UP (Battery is Cell Short)

PRIME charging voltage is not going to 12V within about 10 minutes.

Less 70% of designed RC  
Regenerating Again

### Discharging for RC check



Over 70% of designed RC

### Final Regeneration



### Checking Report



Battery Checker

- SoC - Voltage
- CCA - Internal resistance

Judging as success of regenerating in case over 70% of designed RC on battery specification.



### Industrial Lead storage Battery (Inner lead plate is thick but the surface is not wide.)

Industrial Lead Storage Battery is divided into cheap low-priced MF battery and high priced VRLA battery.

(VRLA : Valve Regulated Lead Acid battery ; sealed type maintenance free battery)

- Industrial lead storage battery(=industrial battery) is using 12V standard(official) voltage battery (series connection among 6 cells of 2V batteries inside) or using bank(bundle) type series connection among many high storage 2V cells.
- This battery is divided into two types one is GEL type which has jelly like electrolyte inside the other is AGM type which has AGM (Absorptive Glass Mat) membranes.
- Industrial battery used in the place where need lots of discharge because it has thick lead plate. However it is inappropriate where using lots of electricity in a short time because of narrow lead plate surface. It can cause current instability because the lead plate melting to sulfuric acid solution time is later than current demand quantity.
- Though it has a little capacity but it can be used for a long time, high-priced battery is used for UPS(emergency electric) or standby power and low-priced one is used for electric handcart or camping car.
- Industrial lead-acid battery can be judged in order of RC(reserve Capacity) value, Internal Resistance and Voltage.

### Deep Cycle Battery (Inner plate is thick and the lead plate is also thick)

This battery is mostly used in electric forklift, golf cart and so on which is moving by battery power and most of them are high-priced maintenance battery.

- It used most of its charged energy in that day and then charge again, that is it used by Deep Cycle. Because its thick and wide lead plate, it can deep discharge so it can do discharge 80% or more of its storage and charge it more than hundreds of time and called deep cycle battery.
- Because of its thick and wide lead plate and available for deep discharge it has long life span and it is used in variously.
- Deep cycle battery is used 6V standard(official) voltage battery (series connection among 3 cells of 2V), 8V battery (series connection among 4 cells of 2V) or bank(bundle) type series connection among high storage many 2V cells.
- Deep cycle battery is used in electric forklift, golf cart, tower wagon and so on which using lots of electricity.
- In these days industrial UPS battery is using Deep cycle method to supplement low-priced industrial lead storage battery's weakness.
- Deep cycle battery can be judged in order of RC(Reserve Capacity) value, Transparency of electrolyte, Gravity and Voltage.

### SLI (Car-Start) Battery (Internal lead plate is thin and wide)

Usually Car-start battery (= Car Battery) called MF battery (Maintenance Free battery) means maintenance free.

- Car Battery is normally used 12V standard(official) voltage battery. (series connection among 6 cells of 2V batteries inside).
- Lead-acid battery for normal car is SLI battery normally used for Start, Lighting and Ignition.
- Car battery is made for quick discharge and quick charge because most cars using heavy electricity when their start and charge is done right after start.
- SLI battery is consist of structure for using heavy electricity in a short time so it is made by wider surface of the lead plate sunken in sulfuric acid solution for that. However the lead plate is so thin in this feature so it can be harmed easily by external shock when it discharged or charged for a long time.
- Car battery can be judged in order of RC(Reserve Capacity) value, CCA(Cold Cracking Ampere) and Voltage.

#### The way of maintaining maintenance battery

- After regenerate/charge of battery, you should check the electrolyte and supply more distilled water if it is not enough. (Do not put sulfuric acid)
- Supplement of distilled water always has to be done after regeneration/charge. If you supply distilled water to discharged battery inner electrolyte can be overflown.
- If the battery temperature is over than 46.1°C you should stop the work and do the work again after cooling the heat.
- You should avoid flame or metal from the battery socket, do not smoke near the battery when regeneration/charge of it.
- When you discharge the battery you should do to the final discharge voltage. If the battery voltage is fallen under the final discharge voltage it can have a problem.
- If you store it in winter or long period, you should do it after charge.

Before you have A/S you should check those things  
 If you have A/S in these things sum of money would be asked.

In these symptoms	Take measures like this
There is no power supplied in the machine.	<ul style="list-style-type: none"> <li>▶ Check the other machines to check black out</li> <li>▶ Check the power plug connection</li> <li>▶ Check the power switch on</li> <li>▶ Check the disconnection of the fuse in the fuse box rear part of the product. If the fuse is disconnected you should replace it.</li> <li>▶ Open the external case to check connection of 2 cables from the monitor.</li> </ul>
Buttons are not working	<ul style="list-style-type: none"> <li>▶ Open the external case to check connection of display board attached from monitor and switch board.</li> <li>▶ If the switch is not working that can be inner switch problem so contact to our customer service for A/S. (2 year warranty)</li> </ul>
Letters in the monitor has a problem.	<ul style="list-style-type: none"> <li>▶ Open the external case and reconnect grey Flat Cable connected to display board.</li> </ul>
There is a message of Over Temperature.	<ul style="list-style-type: none"> <li>▶ Open the external case to check connection of Fan Connector.</li> <li>▶ Open the external case to remove foreign materials in fan wings.</li> <li>▶ If the Fan does not work after those measures, please change the fan. Fan is an expendable.</li> <li>▶ Check the shade temperature if the temperature is high cooling it and try again.</li> </ul>
There is a connection error message.	<ul style="list-style-type: none"> <li>▶ Work after connect the battery and the machine.</li> <li>▶ Check the battery voltage. Battery is not working below 30% of standard voltage.</li> <li>▶ Reconnect after clean the sockets.</li> <li>▶ Check the connection of polarity.</li> </ul>

If the problem is not solved after those measures, contact our customer service to get the solution.

**Warranty :**

Two years limited & conditioned warranty would be supported. If you have any trouble with PRIME products, we will send instruction manuals with pictures for disassemble & assemble guide case by case.

**After Service Commitment :**

If you have any defective matter with PRIME products, you should inform us of its symptom with pictures or video earlier to return. If we determine that it should be repaired or replaced, then you should disassemble a board to be dispatched via an express mail service. Or, we will send some parts via DHL for replacement by your technician. The free warranty will be covered for all defective matters without any defects by misuse. Of course, we will pay for all return international freight cost for replacement or repair during one year limited free warranty period. After One Year ~ Two years – we will supply for the consuming of troubled consuming parts with a collect DHL freight cost.



## Product Warranty

### About service

Repowertek Inc. provides warranty of product like below under according to the consumer injury compensation rule of Fair Trade Commission notified criteria. If you ask A/S, Repowertek Inc. provides services. Service possibility or content reports are within 14 days and the service provided within 30 days.

Period	Repair	Round-trip shipping
~ 1 Year	Free	Manufacturer charge
1 Year ~ 2 Years	Free	User charge (Pay)
2 Years ~	Pay	User charge (Pay)

Product Name	<b>RPT-T300</b>		
Purchase Date		Serial No.	
Supplier		Seller	

### Free repair service

When performance and functional trouble occurred in retention period under the normal using

Customer damage types	Within warranty period	Round-trip shipping
Asking for an important repair within 1 month of purchase	Product exchange or Free repair	Manufacturer charge
Trouble need important repair to the exchanged product within 1 month		
Until 2nd trouble with same problem		
Trouble due to the customer fault & <b>natural disaster</b> *	Chargeable A/S	User charge (Pay)

During free warranty period, however, if any part on the circuit board was corroded by sulfuric gas from the battery - It will be a chargeable A/S.

\* Natural disaster : Fires, floods, lightning etc.

### Payable service (1 year later)

Product State	After warranty period	Round-trip shipping
Not repairable trouble	Product exchange after paying repair cost	All cost : user charge
Repairable Trouble	Chargeable A/S	
In case of running out of expendables		

### The below is the exceptional cases (chargeable A/S) from free warranty. (During free warranty period)

Clean, adjust, using explanation and setup except machine trouble	Trouble due to the customer fault
<ul style="list-style-type: none"> <li>- Using explanation or simple adjust without machine disassemble</li> <li>- Trouble due to the external circumstances like internet, computer and so on</li> <li>- Initial installation or reinstallation due to the poor installation from the store</li> <li>- Change installation due to moving product</li> <li>- Product in/outside dust cleaning or foreign material removing</li> <li>- Trouble due to other product (include software)</li> </ul>	Trouble due to the ; <ul style="list-style-type: none"> <li>- misusing, wrong repair or convert</li> <li>- using in wrong electric capacity</li> <li>- dropping and so on in moving after installation</li> <li>- using of not allowed expendables or options</li> <li>- repair of others without Repowertek Inc. technicians</li> </ul>

\* Please read the instructions carefully because you have to be paid when you asked for the service in case of non-trouble. (Following other standards in case of impossible repair)



Renewable Energy by Green Technology

REPOWERTEK INC.

2F, Tosung Plaza, 55-10, Gilju-ro 77beon-Gil,  
Wonmi-Gu, Bucheon-Si, Gyeonggi-Do, 14543, Korea  
T : +82 32 322 9673 F : +82 32 326 8959

**PRIME**  
THE EXCLUSIVE HIGH-FREQUENCY PULSE TECHNOLOGY

Made in Korea



## RPT-T300

**PRIME**

Call Center : +82 32 322 9673

Website : <http://www.regenerator.co.kr>  
<http://www.repowertek.com>

E-mail : [prime@repowertek.com](mailto:prime@repowertek.com)

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