

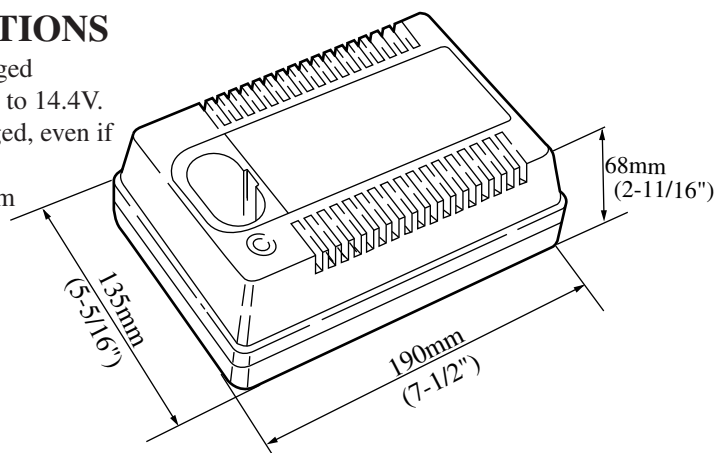
**Models No.** ▶ DC1439

**Description** ▶ Fast Charger

## CONCEPTION AND MAIN APPLICATIONS

Not only Ni-Cd. battery but also Ni-MH battery can be charged with this DC1439. The chargeable voltage area is from 7.2V to 14.4V. Trickle charging mode keep the battery fresh and fully charged, even if the battery is left in the charger.

Especially Ni-MH. battery can be charged under the optimum conditions.



## ► Specification

Voltage (V)	Output Current (A)	Cycle (Hz)	Continuous Rating (W)		Output Voltage (V)
			Input	Output	
120	D/C 7.5	50 - 60	180		D/C 7.2 - 14.4
220 - 240	D/C 9.0	50 - 60	220		D/C 7.2 - 14.4

Battery type	Battery capacity (Ah)	Charging time
Ni-Cd.	1.3	Approx. 10 minutes
Ni-Cd.	1.7	Approx. 14 minutes
Ni-Cd.	2.0	Approx. 16 minutes
Ni-MH.	2.2	* Approx. 20 minutes
Ni-MH.	2.6	* Approx. 25 minutes
Ni-MH.	3.0	* Approx. 30 minutes

\* The above charging time for Ni-MH. battery can be variable depending on its conditions. ( for instance, temperature on battery, the battery left for long time without using, the same just before ending of the life, etc.)

Every type of MAKITA batteries from 7.2V to 14.4V can be charged with DC1439.

MAKITA original new charging system for Ni-MH. battery

Battery voltage (V)			7.2V	9.6V	12V	14.4V
Kind of battery	Capacity (Ah)	Charging time : Approx. (min.)	Battery type No.			
Ni-CD.	1.3	10	7000	9000 9100 9120	1200 1210 1220	
	1.7	14	7001	9001 9101 9101A	1201 1201A	
	2.0	16	7002	9002 9122	1202 1202A 1222	1422
Ni-MH.	2.2	** 20 min.	7033	9133 9033	1233	1433
	2.6	** 25 min.		9134	1234	1434
	3.0	** 30 min.		9135	1235	1435

Equipped trickle charge (maintenance charge) mode

If the full charged battery would be left in charger, the charger will switch into its trickle charge (maintenance charge) mode to prevent spontaneous discharging. This mode functions for 24 hours.

Even if the heated battery (the battery from just operated machine) will be inserted in the charger, the charging process will be started automatically after battery's cooling down.

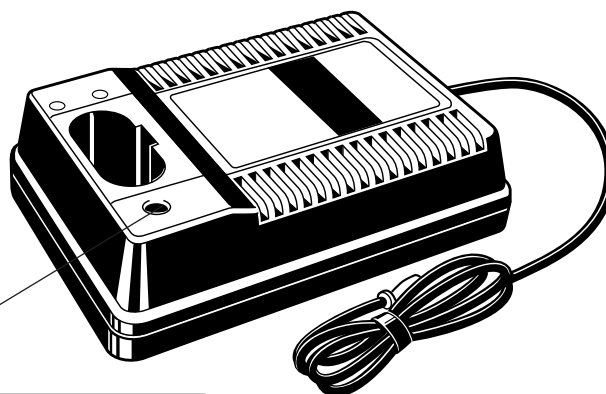
Equipped buzzer to inform of finish of charge and any trouble on battery or charger itself

\*\* The above charging time for Ni-MH. battery can be variable depending on its conditions. ( for instance, temperature on battery, the battery left for long time without using, the same just before ending of the life, etc.)

\* 2.2Ah battery ..... approx. from 18 min. to 30 min.

\* 2.6Ah battery ..... approx. from 23 min. to 37 min.

\* 3.0Ah battery ..... approx. from 28 min. to 45 min.



Charging light indicates as follows.

Flash in green color : stand-by

Flash in red color : The temperature on battery is too high to start charge. The charge will start automatically when the battery will cool.

Fast flash in red color : The temperature on battery exceeds 50°C (122°F). Pull out the battery from charger to cool in this case.

Red color : start of charge

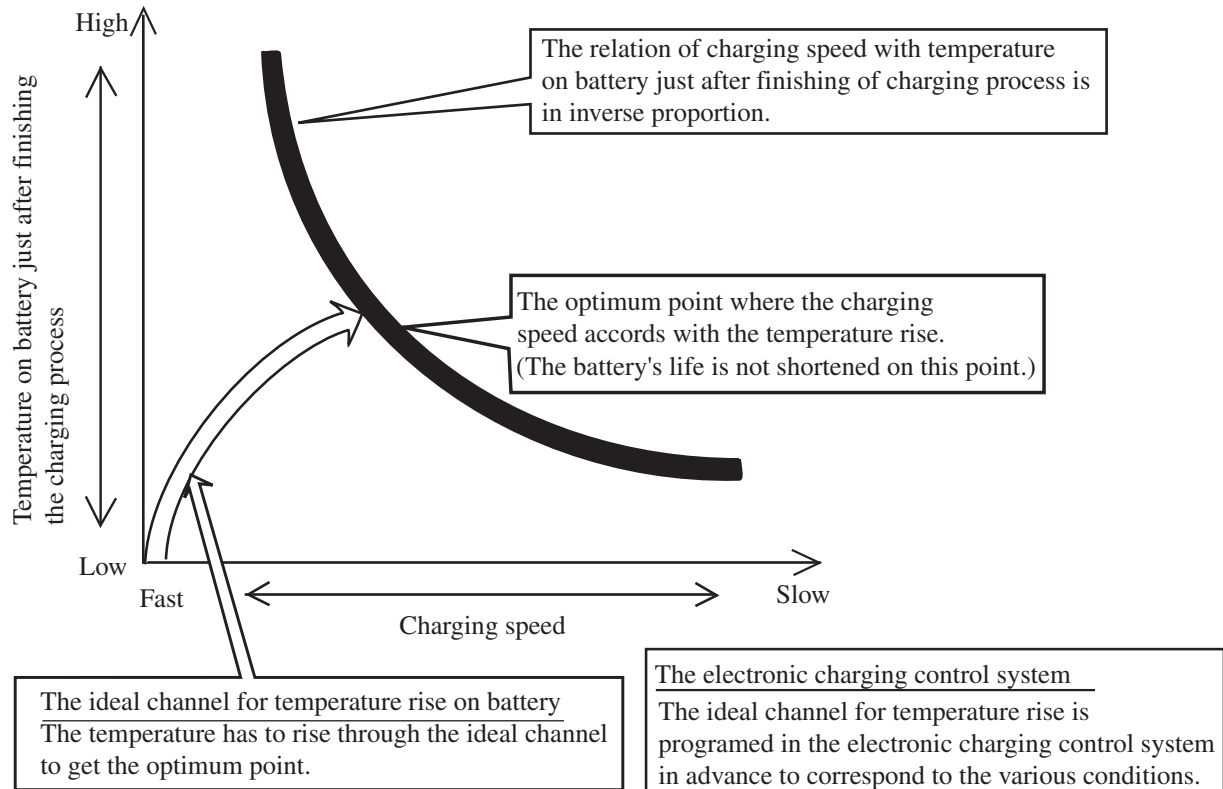
Green color : finish of charge

Flash alternately in green and red color : any trouble happens on battery or charger itself

**New charging system for Ni-MH. battery**

- The electronic charging control system proceeds the charging process.
- (1) with controlling the temperature rise on battery.
  - (2) with corresponding to the battery's conditions (its temperature, remaining capacity, serving time, etc.) and outside temperature.
  - (3) without shortening the battery's life.

**The relation of charging speed with temperature on battery just after finishing of charging process**



**The charging time for Ni-MH. batteries**

The charging time for Ni-MH. batteries may differ depending on the conditions of batteries.

The out put current for charge is to be limited to low level to protect the batteries in case of the following conditions. Consequently the charging time may be longer than usual.

- \* Charge for the batteries with low temperature
- \* Charge for the batteries with high temperature
- \* Charge for the inactive batteries, which are new, however, not used for long period of time.

The charging time for such batteries is as follows.

2.2Ah batteries : approx. 30 min. under the outside temperature, 25°C.

3.0Ah batteries : approx. 45 min. under the outside temperature, 25°C.

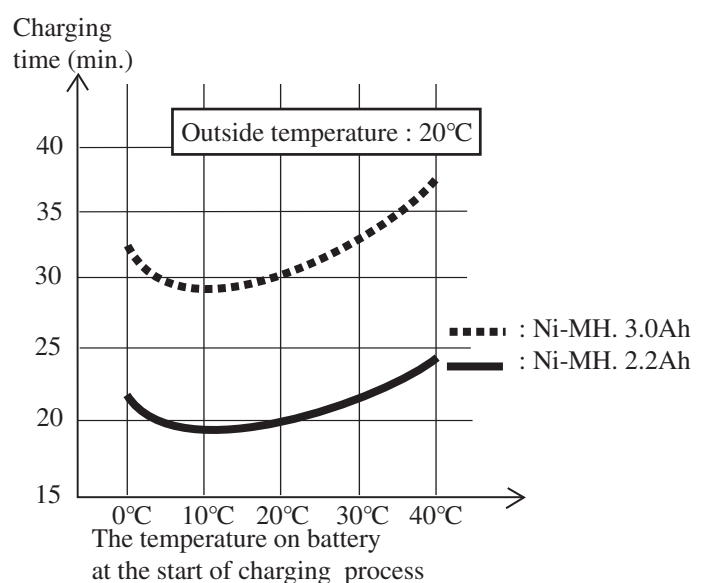
However, they can be charged within normal time from the next time.

- \* Charge for the batteries just before ending of the life

The charging time for such batteries is as follows.

2.2Ah batteries : approx. 30 min. under the outside temperature, 25°C.

3.0Ah batteries : approx. 45 min. under the outside temperature, 25°C.

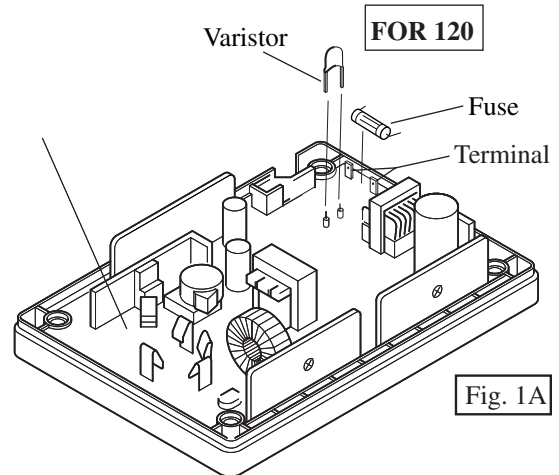
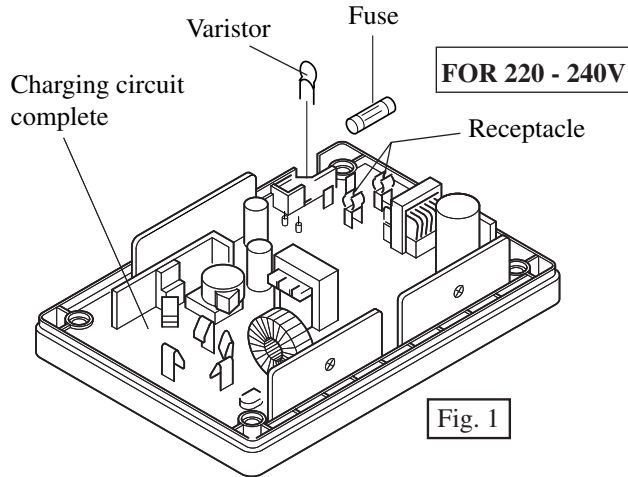


The charging time for battery 1233 (2.2Ah) is approx. 20 minutes when the temperature on battery is 25°C under the outside temperature, 20°C. However, please note that the above figure can differ from conditions to conditions.

- <1> The charging circuit complete can not be repaired, because the circuit itself are molded on the board with the urethane resin. It has to be replaced as a charging circuit complete.
- <2> In case of damaged varistor or fuse, they can be repaired according to the following procedure without replacing the circuit board.

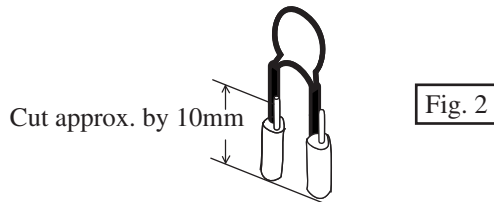
## (1) How to find broken varistor

- In case that the surface of varistor (ref. to the following illustration) has broken or has become black, and fuse has been cut, the varistor has been damaged.
- Varistor can be damaged easily, if the charger is plugged in a double voltage of the rating one.
- It is considered that the varistor has been broken for other reasons, if the fuse is broken while the surface of varistor is not damaged. In this case charging circuit complete has to be replaced.

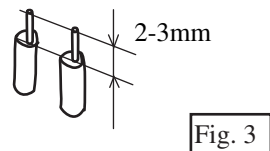


## (2) Removing broken varistor

- A. Cut the lead wire of varistor at the height of about 10mm from the surface of urethane resin.

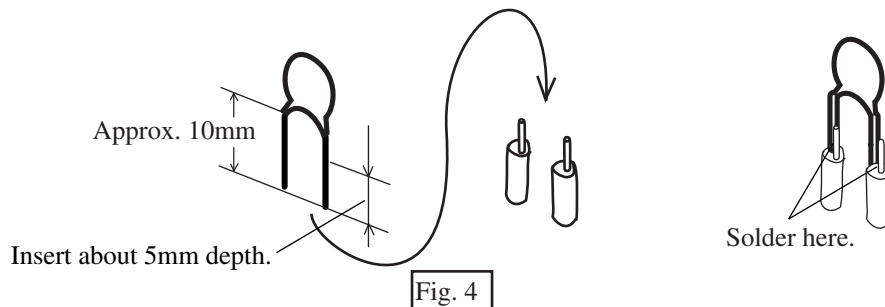


- B. Take off lead wire's sheath by 2-3mm with nipper to expose the core.



## (3) Assembling new Varistor (See Fig. 3)

- Cut new varistor's lead wires to 10 mm, and insert them about 5mm depth between the sheath and the core.
- Solder both lead wires, being so careful that they may not contact with each other.



(4) Replacing fuse for 220 - 240V (See Fig. 1.)

1. Remove damaged fuse from the receptacle, and replace the damaged one with new fuse.

(4A) Replacing fuse for 120 (See Fig. 1A.)

1. Remove damaged fuse from terminal by melting the wire with soldering iron.
2. Connect the wire of fuse to the terminal and solder the wire with the terminal.  
< Note > Be careful not to overheat the fuse with soldering iron. Otherwise the wire may be cut with the heat of soldering iron.
3. Cut the surplus of wires with nipper.