

T ECHNICAL INFORMATION



PRODUCT

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Models No. ▶ DC1803

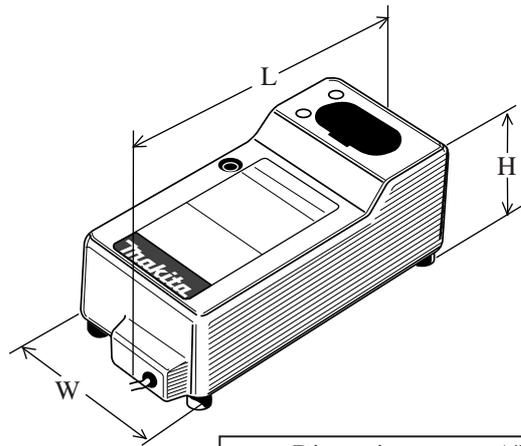
Description ▶ Charger

CONCEPT AND MAIN APPLICATIONS

Both of Ni.Cd and Ni.MH MAKITA batteries from 7.2V to 18V can be charged with this DC1803.

Its features and benefits are

- (1) Approx. 10 - 20 minutes shorter charging time in comparing with DC1801.
- (2) Maintenance (trickle) charging system keeps the full charged condition for 24 hours, even if the battery is left in this charger after finishing of charging process.



Dimensions : mm (")	
Length (L)	201 (7-15/16)
Height (H)	78 (3-1/16)
Width (W)	105 (4-1/8)

▶ Specification

Voltage (V)	Current (A)	Cycle (Hz)	Input
110	/	50 / 60	75W
120		50 / 60	75W
220		50 / 60	75W
230		50 / 60	75W
240		50 / 60	75W

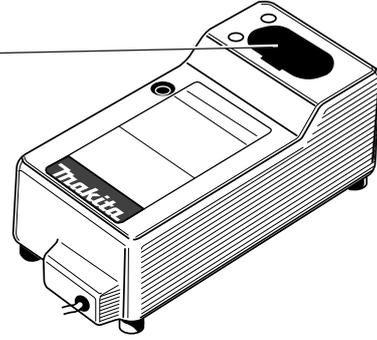
Output voltage ; V (DC)	7.2	9.6	12	14.4	18
Output current : A	2.6				
Charging time: min.	for 1.3 Ah Ni-Cd battery	Approx. 30			
	for 2.0 Ah Ni-Cd battery	Approx. 45			
	for 2.2 Ah Ni-MH battery	Approx. 50			
	for 2.6 Ah Ni-MH battery	Approx. 60			
	for 3.0 Ah Ni-MH battery	Approx. 70			

< Note > The above figures about charging time may differ from condition to condition on batteries' temperature or room temperature.

► Features and benefits

Both of Ni.Cd and Ni-MH MAKITA batteries from 7.2V to 18V can be charged. See the list below.

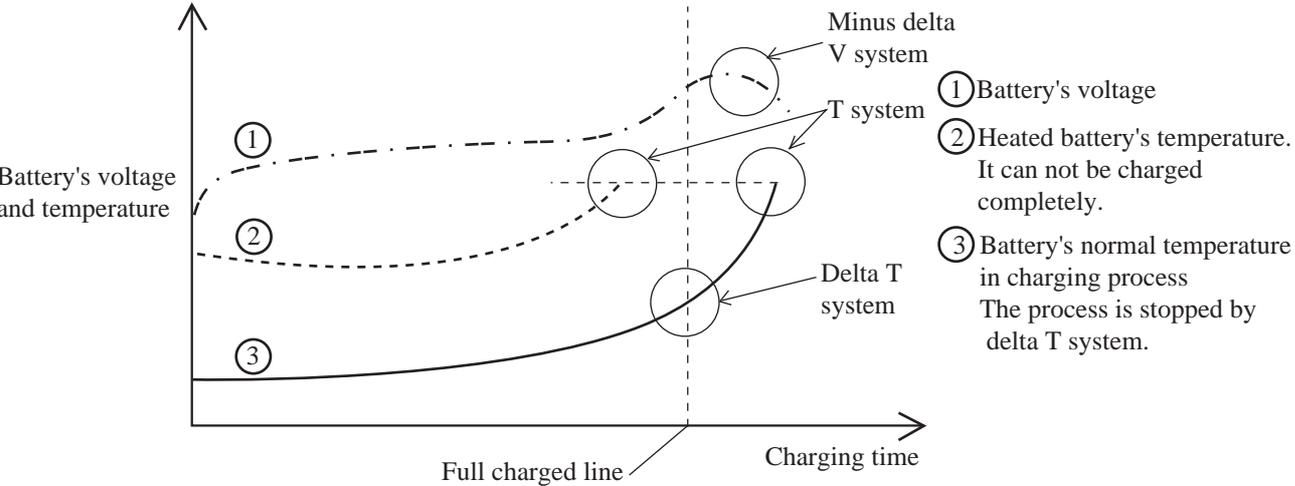
Approx. 10 - 20 minutes shorter charging time in comparing with DC1801.
See "Comparison of Product" at P.3



Chargeable batteries								
Type and capacity	Charging time: min.	7.2V battery	9.6V battery	12V battery	14.4V battery	18V battery		
Ni-Cd	1.3Ah	Approx. 30	7000	9000 9100 9120	1200 1200A 1210 1220	1420	—	
	2.0Ah	Approx. 45	7002	9002 9102 9122	1202 1202A 1222	1422	1822	
Ni-MH	2.2Ah	Approx. 50	7033	9033 9133	1233	1433	1833	
	2.6Ah	Approx. 60	—	9134	1234	1434	1834	
	2.2Ah	Approx. 70	—	9135 9135A	1235 1235A	1435	1835	

Ideal charging system in this class with the following installations

- 1 Controlling by micro computer : The installed micro computer perceives the full charged condition, and control the optimum way to stop the charging process, from the followings.
- A) Minus delta V system : Stop the charging process with perceiving the battery's voltage drop.
 - B) Delta T system : Stop the charging process with perceiving the change of battery's temperature. (This system is applied to only the charger of 4 terminal-type.)
 - C) T system (Timer) : Stop the charging process with perceiving the battery's temperature which is input in the micro computer in advance. For instance the charging process is to be stopped at 45°C for 1.3Ah battery, at 60°C for 1.7 - 2.0Ah battery and 65°C for 2.2 - 3.0Ah battery.
 - D) Timer system : Stop the charging process in 150 minutes after starting the charge, if the full charged condition would not be perceiving with any of the above 3 systems.



- 2 Current transforming system : The built-in "High-Frequency Tranceformer" supplys the charging current as follows.
1. Convert alternative current into direct current.
 2. Re-convert the above direct current into alternative current, however, high frequency of approx. 150 - 160 kHz in this stage.
 3. Reduce the voltage to the battery's voltage.
- The feature of "High-Frequency Tranceformer" is light and compact comparing with the existing trance.

► Features and benefits

3 Constant output current (charging current)

: By keeping the output current (Ampere) in the constant level, it is possible to stop the charging process with perceiving the battery's voltage drop exactly. Namely it is possible to perceive the full charged condition by the above "Minus delta V system".

4 Trickle charging mode : Continue to produce very small charging current (approx. 40mA) for full charged battery left in charger.

► Comparison of products

Model No.		MAKITA	
Specifications		DC1803	DC1801
Output voltage ; V		7.2 - 18	7.2 - 18
Charging time : min.	for 1.3 Ah battery	Approx. 30	Approx. 40
	for 2.0 Ah battery	Approx. 45	Approx. 50
	for 2.2 Ah battery	Approx. 50	Approx. 65
	for 2.6 Ah battery	Approx. 60	Approx. 75
	for 3.0 Ah battery	Approx. 70	Approx. 90
Dimensions : mm (")	Length	201 (7-15/16)	201 (7-15/16)
	Width	78 (3-1/16)	78 (3-1/16)
	Height	105 (4-1/8)	105 (4-1/8)

< Note > The above figures about charging time may differ from condition to condition on batteries' temperature or room temperature.

► Repair

<1> The circuit board can not be repaired, because the circuit itself are molded on the board .

It has to be replaced as a set with new one.

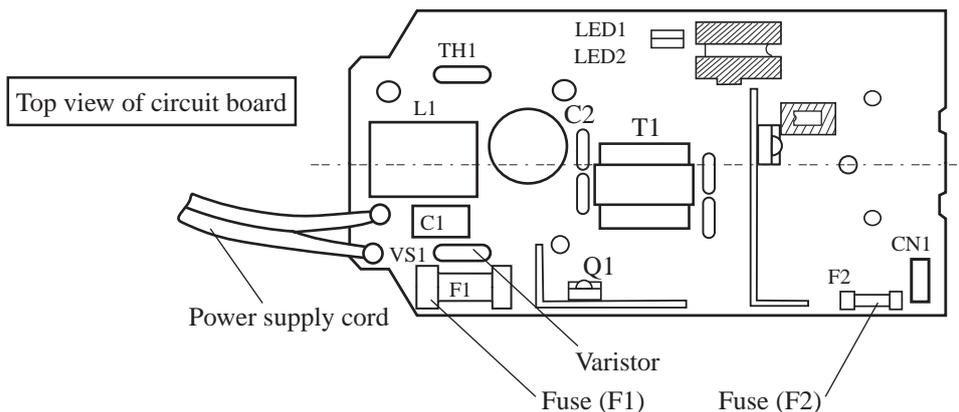
<2> In case of damaged varistor or fuse, they can be repaired according to the following procedure without replacing the circuit board.

(1) How to find broken varistor

- In case that the surface of varistor has broken or has become black, and fuse (F1) has been disconnected, the varistor has been damaged.
- Varistor can be damaged easily, if the charger is plugged in a double voltage of the rating one.
- In case of no damaged varistor but disconnected fuse (F1), the charger can be broken for other reason. The circuit board has to be replaced in this case.

(2) How to find broken fuse (F2)

- If the charging light flashes alternately red and green, when the battery has been inserted into the charger connected with power source, fuse (F2) may be broken.
- If the easily conductive material other than battery would be connected with charger's terminals by mistake, fuse (F2) can be easily broken by short circuit in the charger.
- In case of no damaged fuse (F2) but charging light flashing alternately red and green, the charger can be broken for other reason. The circuit board has to be replaced in this case.



(3) Replacing damaged varistor

- a. Varistor is assembled on circuit board with solder. Remove it from circuit board with soldering iron.

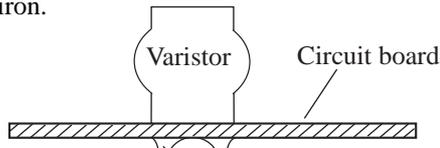


Fig.2

When removing varistor, melt this part with soldering iron and remove varistor.

- b. Assemble new varistor to the circuit board by soldering.
- c. Cut the surplus of varistor's wire with nipper.

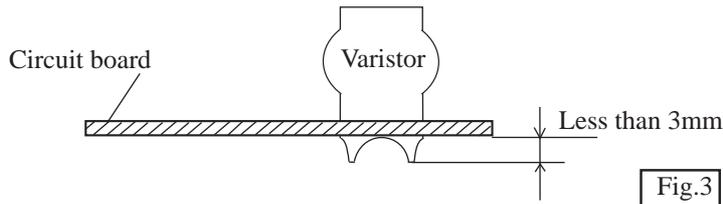


Fig.3

(4) Replacing damaged fuse

- a. Fuse is assembled on circuit board with solder. Remove it from circuit board with soldering iron.
- b. Assemble new fuse to the circuit board by soldering.
- c. Cut the surplus of fuse's wire with nipper.

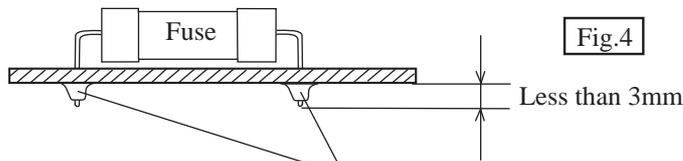


Fig.4

When removing fuse, melt this part with soldering iron and remove fuse.