

== BatteryMate 150-9 ==



BatteryMate

Save these instructions: this manual contains important safety & operating instructions

WARNING:

Working in the vicinity of lead-acid batteries is dangerous. Batteries generate explosive gases during normal battery operation. It is therefore of the utmost importance that each time you are preparing to use the BatteryMate you first read & follow exactly the instructions provided. To reduce the risk of explosion, follow these instructions & those marked on the battery. Never smoke or allow an open spark or flame near the battery or the vehicle's engine. Charge only 12 Volt lead-acid batteries. Do not use to supply power to an extra low-voltage electrical system nor to charge dry-cell batteries. Charging dry-cell batteries may cause them to burst resulting in injury to persons & damage to property. Never charge a frozen battery.

PREPARING TO CHARGE

WARNING:

When charging watercraft batteries, always remove battery onto shore for charging. If it is necessary to remove battery from vehicle to charge, always remove GROUNDED terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc. Be sure area around battery is well ventilated while being charged. Forcefully blow away any fumes that have or may accumulate. Clean battery terminals. Study all battery manufacturers specific precautions such as removing or not removing cell caps while charging and recommended rates of charge. Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions. Determine the nominal voltage of the battery by referring to information printed on the battery, or by examining owner's manual of vehicle/equipment in which battery is or is to be installed.

WARNING: DO NOT attempt to charge a battery of which the nominal voltage differs from the battery voltage for which the charger is intended; see data on label attached to charger.

CHARGER LOCATION:

Position the battery charger on a sturdy, flat surface. DO NOT place charger directly above or below battery being charged. The gases from the battery are corrosive and will damage the charger. DO NOT allow battery acid to drip onto charger during filling or checking gravity. Acid contamination will destroy charger or cause it to operate incorrectly. DO NOT place battery or any object on top of charger. Place the battery as far away from the charger as the cord permits during charging. DO NOT place charger in a small, fully enclosed space. Ensure adequate ventilation. DO NOT expose charger to water, rain or snow.

CONNECTING TO BATTERY AND AC MAINS POWER:

Connect the battery charger to the battery before connecting to AC mains power socket. First connect to UNGROUNDED post of the battery, then GROUNDED post. The BLACK clip on the battery charger output lead must be connected to NEGATIVE (NEG, N, -) post and the RED clip to POSITIVE (POS, P, +) post of the battery. When connecting the final clip, position yourself as far away from the battery as practically possible - then connect to post while facing away from the battery.

NOTE: The battery charger has an automatic safety feature that will prevent it from operating if the battery has been inversely connected and will indicate the inverse connection by illuminating the "INVERSE POLARITY" LED (light emitting diode), situated on the lower left-hand side of the LED indicator information panel. If this LED is indicating, disconnect the battery clips in reverse order to the connecting instructions above, then reconnect correctly. When connections to the battery have been made, connect to AC mains power conforming the input voltage given on the label attached to the charger. Always disconnect following the reverse sequence of the connection procedure, breaking the first connection while facing away & at arm's length from the battery. **NOTE:** Do not allow battery clips to touch one another.

CAUTION:

When charging a battery which is installed in a vehicle; take special care in positioning AC and DC cords away from the hood, doors or moving engine parts that can pinch or damage the cords. Before connecting battery charger to battery, establish if the POSITIVE (POS, P, RED,+) terminal, normally the larger post on the battery, is grounded or if the NEGATIVE (NEG, N, -) terminal is grounded to the vehicle chassis. (in most vehicles the NEGATIVE terminal is grounded). It is advisable to remove the grounded terminal from battery before charging.

DO NOT connect battery charger clips to any part of the vehicle other than to the battery posts or terminals. NEVER connect a battery clip to a carburettor fuel line or sheet-metal body parts.

Make sure all accessories in the vehicle are off, so as not to cause an arc. **SPARKS NEAR BATTERY CREATE RISK OF EXPLOSION.** DO NOT operate vehicle whilst connecting or disconnecting battery charger or battery, or during charging.

BATTERYMATE 150-9

Instructions for use:

IMPORTANT: Read the whole of this text before using the BatteryMate.

MOUNTING BRACKET

A mounting bracket is included for fixing against a vertical surface so as to allow the BatteryMate to be positioned off the workbench. Ensure that the bracket is firmly fixed so that the surface of the long arm projects horizontally and safely supports a downward force of 10 kg applied at the projecting end. Screws supplied with brackets should be used for securely attaching the charger to the bracket through the smaller of the holes in the longer bracket arm, when the charger is correctly located on the bracket. **NOTE:** **Mount the bracket in a position that allows batteries to be charged to be distanced as far as possible from the BatteryMate & NOT directly above or below it.**

CAUTION

This device is provided with an input voltage selector in the fuse drawer at the appliance power cord inlet receptacle. The voltage for which the selector is set is displayed in an aperture on the fuse drawer, which is located just above the power cord inlet receptacle. Rated mains input voltages of 230, 115 or 100 Volts can be selected. Normally the voltage for which the BatteryMate is set up should conform with the national standard mains voltage of the country of purchase.

IT IS ESSENTIAL TO VERIFY THAT THE VOLTAGE DISPLAYED IN THE FUSE DRAWER APERTURE CORRESPONDS WITH THE ACTUAL SUPPLY VOLTAGE. IF NOT, THEN PROCEED AS FOLLOWS:

Disconnect the power cord and remove from the device. With a miniature screwdriver or similar tool, prise open the fuse drawer. Then remove the pale coloured insert on which the voltage selections are printed, rotate and replace it so that the correct input voltage is visible through the aperture. Replace the fuse drawer. Make sure it is closed. If a fuse blows, replace only with the same fuse type and rating as the original fuse.

WARNING!

Batteries emit **EXPLOSIVE GASES** – *prevent flames or sparks near batteries.*

DO NOT PLACE BATTERIES UNDER CHARGE DIRECTLY ABOVE OR BELOW THE *BatteryMate*. Distance the battery from the *BatteryMate* as far as practicable. PROTECT THE *BatteryMate* FROM DAMP & HUMIDITY & FROM ACID CONTAMINATION BOTH DURING USE & DURING STORAGE.

NOTE : Disconnect AC power supply before making or breaking battery connections. Battery acid is highly corrosive. Wear protective clothing and avoid contact. In case of accidental contact wash immediately with soap and water. Check that the battery posts are not loose. If they are, have the battery professionally assessed. If the battery posts are corroded clean with a copper wire brush; if greasy or dirty, clean with a rag damped in detergent. Only use the *BatteryMate* if the input & output leads and clamps are in good, undamaged condition. **Failure to observe the above warnings voids all warranty.**

WHAT IS BATTERYMATE?

BatteryMate combines in one single tool a LOAD TESTER for 12 V lead-acid batteries to accurately assess their state of charge and their underlying condition; a precisely controlled, state-of-the-art constant current CHARGER for the quickest technically achievable recharging of all 12 V lead-acid batteries regardless of type or condition; and the automatic assessment & RECOVERY of deep-discharged & even of many sulphated batteries. This is achieved by dual-stage constant current, then constant voltage charging during which the voltage and current are precisely monitored. The precise voltage-sensing monitor averages repetitive voltage samplings to erase false peaks, so as to accurately control the termination of the rapid constant current charging phase as also the automatic recovery action for batteries reluctant to accept a charge.

PRINCIPLE OF APPLICATION OF THE BATTERYMATE

Always TEST the battery FIRST, before charging, unless the battery is already too severely discharged to sustain a load test (see below). It is a waste of time to charge a battery which is internally damaged and therefore unable to adequately deliver the required starting current for long enough to start. A battery may be fully charged and yet unable to start the vehicle. On the other hand, a battery which has been unused for some time or which has been subjected to a continuous discharge for too long may have become deep-discharged or even sulphated, although it's basic status prior to this was good. By load testing such batteries, once they have been sufficiently recharged to sustain a test, one can establish whether complete re-charging will result in a usable battery in practice. If the battery is too severely discharged to sustain the indicated load test, then some recharging will be required before testing.

Always TEST the battery AGAIN after charging it, to confirm that the battery will be capable of starting. A "fully charged" battery is not necessarily GOOD.

BatteryMate's two separate functions: the TESTER & the CHARGER are further explained below.

SAFETY FEATURES & THEIR LED INDICATIONS

BatteryMate is very well protected against errors of operation and it is nearly impossible to damage it by operator error. Similarly, the operator uses BatteryMate with the absolute minimum of risk. However, please observe the cautions and warnings contained in these instructions.

- 1) Incorrect AC mains input, for example an input of 230 V to a BatteryMate intended for 115 VAC input, will cause the fuse contained in the input power receptacle to blow, refer above.
- 2) In case of incorrect (inverse polarity) battery connections, the Tester & Charger are both disabled and an audible and visible warning LED will be activated. The warning LED is just below the range selector knob (red cap). Correct the connections & proceed.
- 3) In case of accidental short-circuiting of the clamps, the BatteryMate will be disabled, no fuses will blow, and sparks are automatically suppressed. Correct the short-circuit condition as soon as possible and proceed.

- 4) In case of overheating, for example through heavy repetitive use of the load tester, the tester will be disabled. The action will be restored automatically after the BatteryMate has had time to cool down again. During the period of disablement this is indicated by the red LED on the control panel above the "egg-timer" symbol. The LED may continue to indicate temporary disablement for up to 20 minutes in case of severe heating.
- 5) In the period immediately following every load test carried out, the tester is disabled for up to 60 seconds (see below) to allow tester and battery to cool. Again the "egg-timer" LED will indicate the disablement and any subsequent test can be conducted only when it extinguishes.
- 6) Should for any reason the red LED above the load resistor symbol light when a load test (of 3s or 15s as selected) is NOT actually in progress, disconnect the battery immediately and send the BatteryMate to the distributor for checking. This may be a sign that the contacts of one of the relays controlling the test current selection are sticking during operation.
- 7) If all else fails, the BatteryMate is further protected by internal fuses which should only be replaced by qualified personnel.

TESTER OPERATION

- 1) The battery to be tested must be removed from the vehicle and from all electrical connections. For batteries with filler caps check that these are correctly in place. Check that the battery posts are clean, free of oxidation build-up & not loose.
- 2) Establish the Ampère-hour capacity (normally the " 10 hour" or "20 hour" rating) of the battery and select the appropriate range according to the selection table on the decal above the control panel. If you do not know the Ah rating of the battery but do know the rated "Cold Cranking Ampère" rating (at 0°F or -18°C), select the range whereby the test current indicated for that range is roughly half the "CCA" current of the battery to be tested. If neither the Ah rating nor the "CCA" rating are known, consult the battery supplier or distributors. If all else fails, look for another starter battery of similar type or dimensions whose ratings are marked on the casing to obtain a rough idea of the rating of the battery to be tested. Select the range accordingly. The rotary range selector is the knob with the red cap on the left side of the control panel.
- 3) Connect the red battery clamp to the positive (+) or red battery post, the black clamp to the negative (-) or black post.
- 4) Connect the BatteryMate to an AC input of the correct rated voltage, switch ON the main switch next to the input connection cable.
- 5) The yellow LED marked "3s" (next to the range selector knob) should light.
- 6) Start the test by depressing and releasing the TEST push-button beneath the "3s" LED. The red LED above the load resistor symbol will light for 3s during the test. A load test of

15 second test duration may be initiated by depressing the TEST button for a good three seconds, until the yellow " 15s" LED lights, then releasing it. The red LED above the load resistor symbol should light for 15s during the 15s test.

- 7) Immediately the red LED above the load resistor symbol indicates a test has begun, look at the LEDs on the TEST Voltmeter LED panel to the right of the TEST start button to see how many have come on.
- 8) If all ten LEDS (or at least nine) light and remain on during the test, the battery is sufficiently charged and able to sustain starting load for at least the duration of the test. This indicates a GOOD battery.
- 9) If 7 to 10 LEDS indicate momentarily just as the test begins, but the LEDs then progressively and rapidly extinguish, the battery is significantly discharged.
- 10) During the test, the approximate charging time required to restore the battery to a starting condition can be read off the two time scales above (ambient temperatures exceeding 15°C/60°F) and below (colder ambients) the Test Voltmeter LEDS. The approximate required charging time is that indicated above (or below if colder than 15°C/60°F) the highest LED which lights (the furthest to the right).
- 11) If the battery is severely discharged, it is possible that it lacks sufficient power to register on the test scale. If after depressing & releasing the TEST button the red LED "Charge min 4h" lights, it is necessary to first charge the battery for at least 4 hours, at the charge current indicated for that battery on the range selection table on the decal above the control panel. (See step 2 above). A TEST should then be conducted.
- 12) Testing involves the withdrawal of significant energy from the battery which must then be dissipated in the form of heat. Following each test the tester will be disabled for a period to allow the tester and the battery to cool, thus avoiding potential damage to either by immediate and repetitive re-testing. The periods of disablement are 20 seconds following a 3s test and 60 seconds following a 15s test. Disabled periods are indicated by the red LED above the egg-timer symbol.
- 13) After charging a battery for the indicated charge time it is **ESSENTIAL** to **re-TEST** the battery to determine if it has achieved a starting capability. During this re-TEST:
 - a) if at least nine LEDs light at the beginning of the test and remain on until the end of the test, the battery should be capable of sustaining the starting load for at least the duration of the test, indicating a GOOD serviceable battery.
 - b) if the number of LEDs which light immediately the TEST begins decrease by more than two LEDs during a 3s test or by more than four LEDs during a 15s test, the battery may well have a degree of internal damage. Set the timer to at least the charging time indicated by the highest LED on at the end of the TEST, and charge the battery again. Then TEST again. If the TEST result is again similar to that described above, the battery is unserviceable.

- 14) If during a TEST following recharging the LEDs which light initially then extinguish rapidly, the battery is clearly unserviceable.

If for any reason you observe overheating and perhaps even smoke coming out of the top having initiated a load test, switch off the power & disconnect the battery immediately, as this is symptomatic of a mechanically stuck relay. Send the BatteryMate in for checking.

THE ROTARY CHARGE TIME SELECTOR AND THE CHARGING STATUS LED PANEL.

- 1) The charge time selector is the knob with the yellow cap. Around it are marked the possible charge time selections, from 30 minutes (new battery) by half-hour to three hours, then by hour to 6 hours.
- 2) Select the charging time indicated during the test if you only wish to restore the battery to a state of charge normally sufficient to start the engine.
- 3) If you wish to charge the battery more thoroughly, and have sufficient time, set the timer to 6 hours.
- 4) Should the battery come to full charge before the selected time has elapsed, the voltage sensing circuitry will limit the charging voltage so as to just maintain the battery at full charge until the timer switches off the charger. There is absolutely no danger of overcharging the battery.
- 5) The elapsed charging time will be indicated progressively on the elapsed time (yellow) LED panel to the right of the time selection knob. When the timer switches off the charger, the duration of charging will continue to be displayed on this LED panel until the battery is disconnected or re-tested or re-charged, or until the AC electrical input is disconnected. Either of these actions will re-set the time elapsed LED panel to "zero".
- 6) The 4 LEDs just above the time elapsed LED panel indicate the status of the battery under charge. See clause 6 of "Charger Operation" below. These status indicator LEDs also continue to display the state of charge achieved until the battery is disconnected or re-tested, or until the AC input is disconnected.
- 7) **Important!** The 4-LED panel is only a convenient indication of **charging** progress status. It should not be relied on as a diagnosis of battery condition, for which a final load test is essential. Batteries with certain types of defects may cause misleading indications on this 4-LED panel. In doubtful or confusing cases, do one or more 15 second load tests on the battery to check for "suspect" condition. If necessary, charge again & re-test.
- 8) Do not alter the timer setting during charging, as the charger will automatically be disabled. In such cases, re-test the battery and re-commence charging accordingly.

ABOUT SEALED “MF” (Maintenance - Free) MOTORCYCLE / PWC BATTERIES

- 1) Maintenance-free "MF" motor-cycle batteries, also referred to as “AGM” (Absorbent Glass Mat) batteries) or as “GRT” (Gas Recombination Technology) batteries, are valve-regulated and are constructed with glass-mat separators (to effectively absorb and retain the acid electrolyte). They have important differences from "flooded" (with filler caps) & other types of lead-acid batteries. These differences significantly affect the correct method of charging "MF" motorcycle batteries. Automobile starter batteries marketed as "Maintenance-Free" are not usually constructed with glass-mat separators, & should not be charged on the BatteryMate’s “MF” charging selection.
- 2) The internal glass fibre separators leave less space for the battery acid than in "conventional" batteries without these separators. The electrochemical nature of "MF" batteries, is rather different from "other" lead-acid batteries as a result of these factors, and they are not only more powerful than other batteries of similar dimensions, but also retain starting power at very low temperatures far better than other batteries.
- 3) The dilute sulphuric acid electrolyte in motorcycle “MF” batteries is often more concentrated (denser) than the battery acid sold at auto chains & service shops. For this reason the acid for dry-charged “MF” batteries is delivered in a separate special pack with the battery. “Wet” “MF” batteries are filled with special acid and charged at the factory.
- 4) To prepare dry-charged “MF” batteries, the acid must be allowed to trickle into the battery at its own speed and the battery must then be allowed to stand for at least 20 minutes to allow acid absorption & reaction before being sealed with the sealing cap strip provided. Before being sealed any trapped air bubbles must be released by tapping the battery a few times. The battery has now achieved about 70% of it’s full electrical capacity. Before a new battery in this state is installed in the vehicle it should be brought to full charge on the BatteryMate using the 'new' battery setting (30 minutes). Such batteries have a kind of memory effect in that if subjected to the full charge current from the vehicles’ charging system before being given this pre-charge, the batteries tend to get “blocked” at about 75% of potential capacity thereafter. These “dry-charged” MF motorcycle batteries are generally type-designated “YTX” or “YTL” or “YTH” if from Yuasa, with the “Y” replaced by another letter if from another manufacturer.
- 5) “WET” valve-regulated MF motorcycle batteries are filled with acid and pre-charged by the battery manufacturer. This has the advantage that the battery vendor or retailer does not have to perform this task so the customer does not have to wait as is the case when dry-charged batteries have to be prepared. Wet “MF” batteries have the disadvantage that the self-discharge period is always greatly extended due to the transport distribution & warehousing before the retailer gets to sell the battery to the user. It is therefore essential for the vendor or retailer to re-charge these batteries before delivery to the user. In spite of great recent improvement in the ability of batteries to retain their charge over time, due to the prolonged interval between factory-commissioning of the battery & it’s sale to the user, it is possible that the battery has already self-discharged significantly.
- 6) Fully charged “Dry-charged” MF batteries such as the YTX types should measure 13,15 V across the terminals at 25°C. “WET” types of MF batteries typically have charged terminal voltages around 12,85 V & flooded batteries around 12,65 V. Logically, the charging voltage of dry-charged MF batteries therefore needs to be higher. The appropriate voltage is not achievable with "conventional" vehicle battery chargers.

- 7) Properly commissioned "MF" batteries retain their charge during storage better than conventional batteries. This is especially the case with most of the recent new "WET" MF batteries. However, if left for excessive time without being re-charged, they tend to go into deep-discharge from which they are often very difficult to recover unless subjected to relatively high voltages. This level of applied voltage is only achievable by chargers such as BatteryMate which use the principle of "constant current". This means that the voltage is controlled and varied according to the reluctance or otherwise of the battery to accept a charge, so in "difficult" cases, the charger simply increases, (up to a specific & safe limit) the applied voltage until the reluctance of the battery is eventually overcome and the charge can be made to enter the battery, thus recovering it.
- 8) The "MF" push-button selector beside the symbol of the black battery inscribed "MF", increases the voltage level at which the constant current charging stage is terminated from 14,5 V for most other batteries to 16,9 V for dry-charged MF batteries, see table below.
- 9) Push the "MF" button after pushing the charge button only when charging dry-charged MF motorcycle batteries (those delivered with separate special acid packs, typically type-labelled "YTX-", "YTL-", "YTH-" for Yuasa, or with the Y substituted by "C" or "G" for example, for some other manufacturers. For WET "MF" batteries & all other batteries, or if in doubt, do NOT push the MF button.

When & when NOT to push BatteryMate's 'MF' button when charging :-

!! If you are not sure, do not push the MF button !!

Battery Type	Push 'MF' button?
YTR-4-series	YES
YTH-series	YES
YTX-series (except for YTX20-BS)	YES
YIZ30 & YIZ50 (Yuasa Inc USA)	Not tested yet = NO provisionally
YTX20-BS (after-market, DRY)	NO
YTZ-series (new Yuasa-Honda WET)	NO
FTZ-series (new Furukawa-Honda WET)	NO
Harley- YTX20-BS (1998/99 models, WET)	NO
Harley #65989-97A (Y2K models, WET)	NO
Harley #65991-90B (Y2K models, WET)	NO
Harley #66010-97A (Y2K models, WET)	NO
Hawker Genesis G13EP/G16ET/G26EP (WET)	NO
YT7B-4 (Yuasa, WET)	NO
GT12B-4 & GT14B-4 (GS Battery Co-Yamaha WET)	NO

CHARGER OPERATION

- 1) Before starting, it is important to establish whether or not the battery you are about to charge is an "MF" battery of the type described above, or another type of 12 V lead-acid battery. Do not attempt to charge any battery other than a 12 V lead-acid battery. Refer to the previous section. If in doubt, do NOT push the MF button.
- 2) Make sure the range selector setting (knob with the red cap on the left of the control panel) is correct for the battery to be charged, according to the selection table. Sealed deep cycle or trolling type batteries, often called "SLA", require a lower charge current than those indicated on the range selection table for the relevant Amp-hour battery

capacity. The selections given on the range selection table are appropriate for starter type batteries. A charge current of about half the charge current indicated for that Amp-hour capacity should be OK for sealed deep cycle or trolling batteries.

- 3) Depress and release the "CHARGE" push-button.
- 4) If, and only if, charging an "MF" battery of one of the appropriate types described above, depress and release the push-button next to the "MF" black battery symbol below the "CHARGE" button. When the charger stops for whatever reason, the "MF" mode selection will automatically re-set to "Non-MF" mode. This is for safety reasons. Thus it is necessary to re-select the "MF" charge mode each time one starts to charge an "MF" battery.
- 5) The charging current entering the battery can be read off the charging current LED panel to the right of the "Charge" button, one Ampère per illuminated LED.
- 6) The 4 charging status LEDs below the charge current LED panel indicate how well charged the battery is at any moment. This is not simply a question of the battery voltage. The first "low battery" symbol indicates a battery with excessive resistance, possibly deep-discharged or even sulphated, with the automatic high-voltage recovery action engaged. The second symbol indicates a battery under constant current "rapid" charge. The third symbol indicates that the voltage of the battery under charge has risen to the control point appropriate for that type of battery ("MF" or other) according to the selection of the "MF" charge button or not. At this point, the battery is about 75 % saturated & should normally be able to start the engine. However this MUST be confirmed by conducting a load test. If you have time and wish to charge the battery more thoroughly, the battery may be left connected for the remainder of the unelapsed time. The charging mode will from now on be at a voltage limit of 13,8 Volts. Should the current fall of it's own accord to 10 % or less of the selected charge current during the remaining charge time, this is an indication that the battery is more than 90 % saturated, and the fourth LED above the 'MF' battery" symbol will light.
- 7) ALWAYS RE-TEST THE BATTERY AFTER CHARGING TO CONFIRM IT IS IN GOOD SHAPE. Remember that a "fully charged" battery is not necessarily able to start the vehicle if internally damaged.
- 8) The LEDs indicating charge time elapsed and charge status achieved and "MF" charge mode will continue to indicate until the battery or the AC input are disconnected or until the battery is re-tested or re-charged so as to allow the operator to observe these parameters even though absent at the time the charging terminated.
- 9) Switch off the AC mains switch before disconnecting the battery clamps.

RECOVERY OF DEEP-DISCHARGED OR SULPHATED BATTERIES

If the indicated actual charge current is less than the charge current selected according to the range selection table, this is because the battery under charge has excessive resistance to accepting the charge, probably due to deep-discharge or possible sulphation. In such cases the BatteryMate will itself detect this and react automatically by increasing the applied voltage as required to enter at least some current into the battery initially. The maximum voltage is limited to 24 V. After a while the LED-ammeter should gradually start to indicate an increasing current as the resistance is overcome, until the indicated current and selected charge current correspond. Should the selected

time elapse before this occurs, re-commence charging with the timer set on maximum, 6 hours.

NOTE : The special desulphating action described cannot engage for safety reasons, UNLESS you have FIRST TESTED the battery.

If after this the selected charge current is still not entering the battery, the latter can be scrapped. Never dispose of scrapped batteries into the environment or rubbish. The contents are poisonous and dangerous. Scrapped batteries should be sent to a specialised recycler without delay.

LIMITED WARRANTY

TecMate (International) SA, Sint-Truidensesteenweg 252, B-3300 Tienen, Belgium, makes this limited warranty to the original purchaser at retail of this product. This limited warranty is not transferable.

TecMate (International) warrants this battery charger for one year from date of purchase at retail against defective material or workmanship. If such should occur the unit will be repaired or replaced at the option of the manufacturer. It is the obligation of the purchaser to forward the unit together with proof of purchase, transportation or mailing costs prepaid, to the manufacturer or its authorised representative. This limited warranty is void if the product is misused, subjected to careless handling, or repaired by anyone other than the manufacturers or their authorised representative. The manufacturer makes no warranty other than this limited warranty and expressly excludes any implied warranty including any warranty for consequential damages.

THIS IS THE ONLY EXPRESS LIMITED WARRANTY AND THE MANUFACTURER NEITHER ASSUMES NOR AUTHORISES ANYONE TO ASSUME OR MAKE ANY OTHER OBLIGATION TOWARDS THE PRODUCT OTHER THAN THIS EXPRESS LIMITED WARRANTY.

FAILURE TO OBSERVE ALL WARNINGS & CAUTIONS IN THE INSTRUCTIONS VOIDS ALL WARRANTY.



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