

Automatic Battery Charger




















MODEL:MB-2040

Operating Instructions

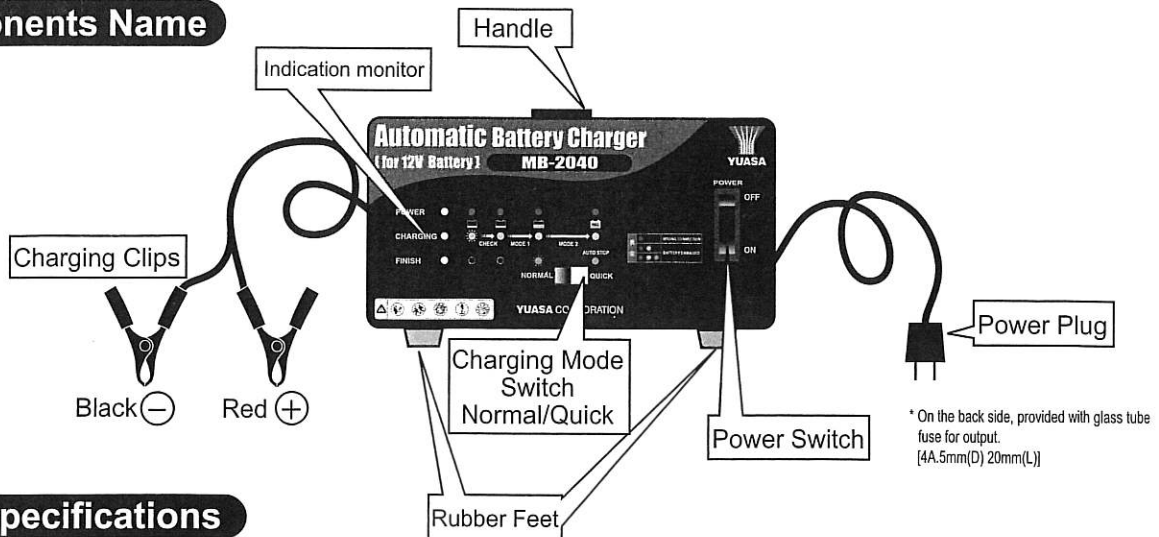
Charging a motorcycle battery has never been easier than with your YUASA's MB-2040. With a maximum output of 4A for a 12V battery, the MB-2040 tests the battery's health and automatically shuts off when the battery's fully charged. The diagnostic function tells you immediately if a battery won't take a charge, and also delivers a forced recovery charge if necessary.

The state-of-the-art MB-2040 charges both conventional (flooded) and sealed (VRLA) Lead-Acid motorcycle batteries. It is not intended for other applications. Please be sure to follow instructions and observe the safety precautions below. Failure to observe these precautions can damage the charger and lead to serious injury or death from electrical shock, chemical burns, fire or explosion.

■ Safety Precautions

⚠ Danger	■ Use charger for charging a Lead-Acid Battery only.	
	■ Use only with a grounded outlet.	
	■ Don't smoke in battery charging areas; avoid sparks and static electricity charges.	
	■ Make sure you're using proper power supply voltage.	
	■ Do not use charger in areas where gasoline, oil and other flammables are present.	
	■ When connecting or removing charger clips, turn charger OFF. Do not remove clips during charging.	
	■ Firmly connect clips. Check that red clip (+) is connected to + (Positive) terminal, and black clip (-) to - (Negative) terminal.	
	■ Keep charger away from infants, children and pets.	
⚠ Notice	■ Do not use charger in closed or poorly-ventilated spaces. Do not block charger vents.	
	■ Charger is designed to operate in temperatures of 14 degrees F to 104 degrees F (-10°C/40°C). Do not use in high temperatures, in direct sunlight or near heating elements.	
	■ Do not use or store charger in rain or snow, or in wet or moist areas.	
	■ Do not use or store the charger in high vibration or dusty areas. Keep charger away from salt and other corrosives. Do not use if charger clips are corroded.	
	■ Check electrolyte level of conventional batteries before charging. If necessary, add distilled water to midway between upper and lower fill lines.	
	■ Do not insert screwdrivers or other metallic items into charger vents.	
	■ Remove battery from vehicle before charging.	
	■ Avoid bending or otherwise damaging power supply cord. Check for cracks or exposed core wires before using charger. Only the manufacturer or a qualified electrician should replace the power supply cord.	
	■ Remove the power supply cord from the socket by the plug only, not by the cord.	
	■ Do not attempt to disassemble or perform service on charger.	
■ The electrolyte is diluted sulfuric acid. Avoid contact with eyes, skin and clothing. If electrolyte gets in eyes, immediately flush with clean running water and seek medical advice.		

Components Name



* On the back side, provided with glass tube fuse for output. [4A.5mm(D) 20mm(L)]

Main Specifications

AC Input (60Hz)		DC Output				Max. external dimension (mm)			Weight (approx. kgs.)	Applicable Batteries (V) / (Ah/10HR)
Voltage (V)	Current (A)	Mode 1 (30 min.)		Mode 2 (max. 11hrs.)		Width	OH	Length		
120	1.2	Voltage (V)	Current (A)	Voltage (V)	Current (A)	178	109	255	3.7	12 / 2.3 32
		max. 20	Quick 4 Normal 1	14.5	max. 4					

* Charges both VRLA and conventional (flooded) Lead-Acid motorcycle batteries.

* For the first 30 minutes, provides constant current charge of 4A or 1A with maximum voltage of 20V (Mode 1). Then, automatically switches to constant voltage charge of 14.5V and maximum current of 4A. (Mode 2).

* Stops automatically when battery is charged (current comes down to 0.3A or less) or after 12 hours.

* Fully charges to 8V or more. If voltage is 6V or less, forced recovery charging is automatically selected and is indicated on power and charging monitors.

《《Estimated Charging Time》》

Battery Capacity (Ah / 10HR)	Less than 5	8	12	18	32	
						*1 Charging Time (H)
	Normal Mode	2.0	3.0	4.0	5.0	7.0

*1. These are approximate times to charge a 50% discharged battery to a 90% charge.

*2. Use the Normal Mode for small batteries (less than 5Ah batteries).

3. For a new battery, add electrolyte and charge for 2 hours in Normal Mode. If the aluminum sealing tape has been removed and the battery is more than 2 years old, charge until charger stops automatically.

How To Use

1. Choosing the charger mode

Select Normal for initial battery activation and charging small batteries.

You can use quick charge to reduce charging time for 5Ah or larger motorcycle batteries.

Charging Mode	Type of Motorcycle Battery
Normal Charging	Less than 5 Ah batteries. Initial charge for all batteries after adding electrolyte. Overdischarged battery - 11V or less.
Quick Charging	5 Ah batteries or larger.

2. Charging the Battery

[Preparation]

- When activating a new battery, add the electrolyte and let it stand for 20 minutes.
For VRLA battery with rating of less than 18Ah, let it stand 20 - 60 minutes.
For battery greater than 18Ah, and / or having the high performance rating, allow the battery stand for 1 - 2 hours or as indicated by battery instructions.
- If the battery is in a vehicle, remove it, disconnecting the negative (-) terminal first (charging a battery in the vehicle can seriously damage the electrical system, and electrolyte leakage can damage parts and finish). Examine the battery to make sure there are no cracks or other obvious defects.
- Remove vent plugs from conventional vented batteries, add distilled water to bring electrolyte to proper level as necessary.
- Firmly connect the red charging clip to the positive (+) battery terminal and the black clip to the negative (-) battery terminal.
(NOTE: on some small batteries, such as the YT4B-BS, the terminals are close together; make sure the clips aren't touching or an electrical short can result.)
- With the charger switched OFF and the charger unplugged, select the charging mode.
- Plug in and turn ON the charger.

- ⑦ The red power LED will blink, indicating that the charger is automatically checking battery condition. The charger will automatically "Try Recovery Charging" (0.5A) for 30 minutes maximum. If the battery cannot recover, the LED will blink.
- ⑧ If no problem is detected, the charger will automatically go into the constant current charging mode (Mode 1 - 4A or 1A, maximum 20V).
- ⑨ It will next switch to constant voltage charging mode (Mode 2 - 14.5V, maximum 4V).
(NOTE: If gassing is evident when charging a conventional vented battery, use the Normal charging mode.)
- ⑩ Charging stops automatically when current reaches 3A or less, or at 12 hours.
- ⑪ Switch power OFF and remove cord plug from socket.
- ⑫ Remove the charging clips, replace caps (conventional battery) and install in vehicle, attaching the positive (+) terminal first.

[Start Charging]

●Charging progress/Abnormal indication by monitoring

○ : ON ☀ : Flash — : Off

	Monitor	Power LED (Red)	Charging LED (Yellow)	Finish LED (Green)	Action
Charging Status	Battery check / Try to recovery charging	○	☀	—	—
	On charging Mode 1	○	○	—	—
	On charging Mode 2	○	○	☀	—
	Completion of charging (Stop)	○	○	○	—
Trouble indication	Reverse connection, short circuit, clip removing	☀	—	—	Connect correctly.
	Battery voltage less than 6V, Impossible to recover	☀	☀	—	Change to the new battery.
	Sulfation, Impossible to recover	☀	☀	☀	Change to the new battery.
	Fuse blown	—	—	—	Change the fuse.
	Charger overheats causing charger to shut sown	—	—	—	Thermal protector worked. Charger will start automatically when it cools down.

Charger Protective features

1. Input fuse, output fuse and electronic circuit protect against high current.
2. Charging automatically stops if connections are reversed or a discharged battery registers less than 6V.
3. Sparks are suppressed when clips are attached and power is switched on.
4. Thermal protector guards against transformer overheating.
5. Timer automatically shuts off the charger after 12 hours maximum.

Troubleshooting

Problem	Monitor			Cause	Action
	Red	Yellow	Green		
Charger won't start	—	—	—	Back glass tube fuse blown	Replace fuse
Stops during charging	—	—	—	Transformer thermostat temporarily stops operation	Allow temperature to decrease (30 minutes)
Charging is finished but battery isn't fully charged	○	○	○	The battery is large or at end of life	Recharge, replace battery
Incomplete charge	○	○	☀	Battery has not charged for 12 hours, or charging was interrupted.	Allow full charge time
Monitor indicates trouble	?	?	?	Dropping, electrical surge or other electrical problem	Consult dealer

- Always check for battery damage or bad connection between charger clips and battery terminals and use proper charging method as detailed in Section 2, "Charging the Battery"
- Charger Guarantee/Warranty does not cover damages arising from repair or adjustments you make. Equipment should be checked or repaired only by the manufacturer or a service shop designated by the manufacturer.
- If the power supply is cut during charging, the entire charging cycle repeats.
- To ensure proper charging, follow operation procedures outlined in this manual.

ONE YEAR LIMITED WARRANTY

TYPE: MB-2040

Yuasa offers this limited warranty to the original purchaser. This warranty is NOT TRANSFERABLE.

Yuasa warrants exclusively to the original purchaser that this charger will be replaced or repaired, at Yuasa's option, if it fails during the one year after date of purchase due to defect in material or workmanship. It is the responsibility of the purchaser to contact Yuasa Customer Service for warranty consideration.

Handling fee must accompany the battery charger after 90 days from date of purchase. A copy of the original bill of sale is required for the limited warranty to be honored. If a copy of the original bill of sale is lost, an extra handling fee must accompany the battery charger for the limited warranty to be honored.

This warranty does not cover failures arising out of improper use, maintenance or operation of the product. Repair or replacement as provided under this warranty is the exclusive remedy of the consumer. Yuasa shall not be liable for any incidental or consequential damages for breach of any expressed or implied warranty on this product. Except to the extent provided by applicable law, any implied warranty of merchantability or fitness for a particular purpose on this product is limited to the duration of this warranty.

Date of sold	
Customer Name	
Customer Address	
Customer Phone Number	
Distributor (Stamp and Signature is required):	