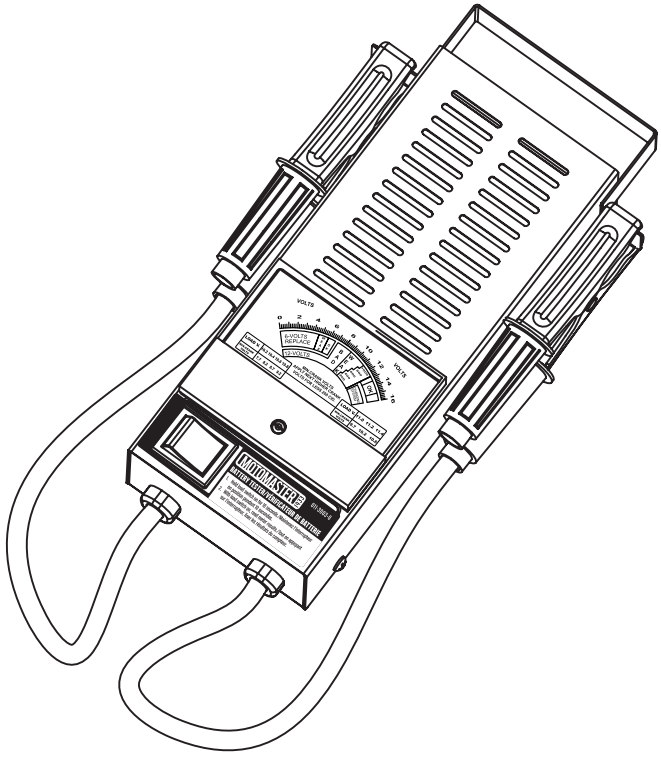
model no. 011-3003-0

PROVEN QUALITY
MOTOMASTER 1933
QUALITÉ ÉPROUVÉE
TM/MC

BATTERY TESTER



IMPORTANT:
Please read this manual carefully before running this battery tester and save it for reference.

INSTRUCTION MANUAL

IF ANY PARTS ARE MISSING OR DAMAGED, OR IF YOU HAVE ANY QUESTIONS, PLEASE CALL OUR TOLL-FREE HELPLINE AT 1-888-942-6686

Read and understand this instruction manual thoroughly before using the product. It contains important information for your safety as well as operating and maintenance advice.

Keep this instruction manual for future use. Should this product be passed on to a third party, this instruction manual must be included.

This MotoMaster® product carries a one (1) year warranty against defects in workmanship and materials. At its discretion, MotoMaster® Canada agrees to have any defective part(s) repaired or replaced free of charge, within the stated warranty period, when returned by the original purchaser with proof of purchase. This product is not guaranteed against wear or breakage due to misuse and/or abuse.

TABLE OF CONTENTS

INTRODUCTION

This manual contains information that relates to PROTECTING PERSONAL SAFETY and PREVENTING EQUIPMENT PROBLEMS. Carefully read and follow the guidelines in this manual and give special attention to the CAUTION and WARNING statements.

IMPORTANT

Before using your MotoMaster® 100 A Battery Tester, be sure to read and save these safety instructions.

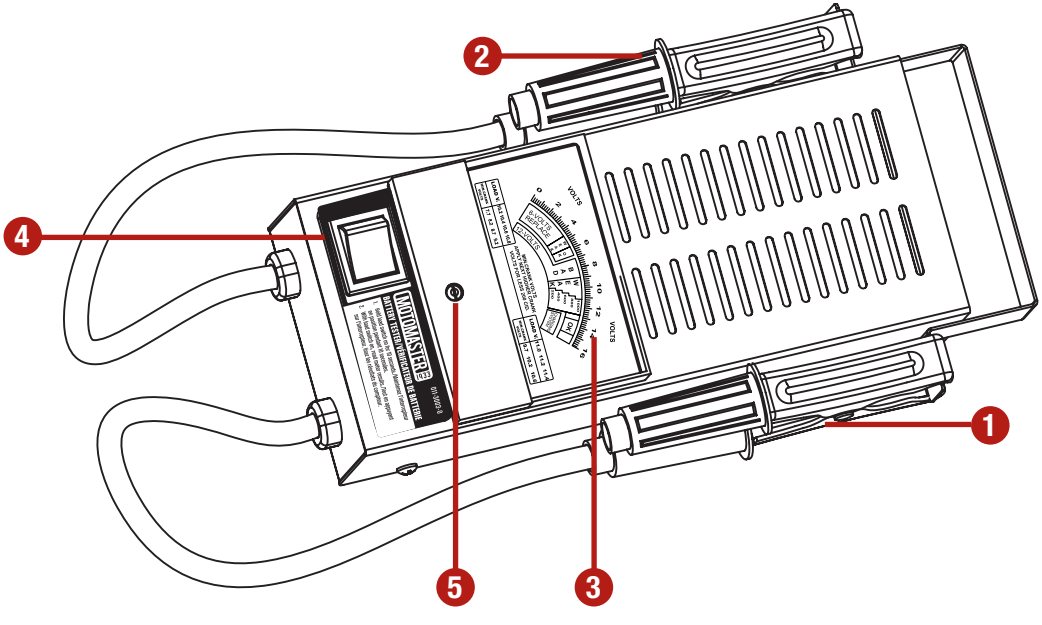
WARNING!
FIRE AND EXPLOSION HAZARD

- Make sure the area around the battery tester is free from spark or flame when testing automotive batteries. Doing so may cause serious damage to vehicle's electronic circuitry, thereby resulting in fire or explosion.
- Never smoke when working near a battery or engine.
- Do not drop a metal tool on the battery, as doing so can create a spark or short circuit in the battery or other electrical parts, resulting in battery explosion.
- Never reverse the connection between the positive/negative clamps of the battery tester and battery terminals.
- Do not connect the positive/negative clamps to battery terminals when the spring-loaded switch is in the ON position.
- Always operate the battery tester in a well-ventilated area.

WARNING!
Read all instructions and follow them with use of this product. Questions?
Call Customer Service Hotline: 1-888-942-6686.

BATTERY TESTER

1. Red (Positive) Cable Clamp
2. Black (Negative) Cable Clamp
3. Meter Display
4. Spring-loaded Switch
5. Adjustment Screw



The MotoMaster® 100 A Battery Tester is designed to test the voltage level and condition of all types of 6 V and 12 V automotive lead-acid batteries and to measure motor starting current. The tester is provided with colour-coded easy-to-read meter scale, heavy-duty, insulated clamps, and is made of steel.

Battery tester features

ADJUSTMENT SCREW – The screw is used to set the dial pointer to zero on the battery / charging system scale.

METER SCALE – The scale represents the "state of charge" of the battery. Use the 6-volts or 12-volts on the scale to check the voltage level and condition of 6 V and 12 V batteries during the battery load test. Use the charging system section on the scale to check the voltage level and condition of the battery during the charging system test.

POSITIVE AND NEGATIVE CLAMPS

– These clamps are connected to the positive and negative terminals of the battery respectively.

SPRING-LOADED SWITCH

– This switch must be held ON for 10 seconds while testing the 6 V or 12 V batteries.

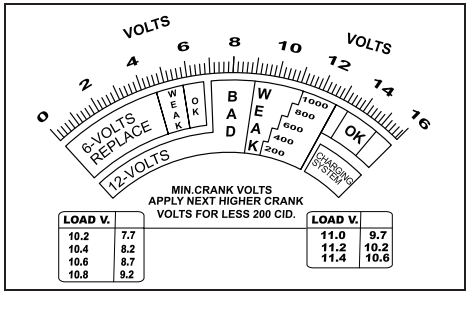
Temperature compensation

This battery tester's accuracy will be affected by cold temperatures. For every 20°F (11°C) drop in battery temperature, the battery tester will indicate the battery nominal rating of 200 cranking amperes less than the actual rating of the battery.

BATTERY TEMPERATURE	DECREASE IN BATTERY RATING
-6.7°C (20°F)	1 step
-17.8°C (0°F)	2 step
-28.9°C (-20°F)	3 step

*1 step=200 cranking amps

Consider the case if the battery tester tests a battery with nominal rating of 1000 CCA.



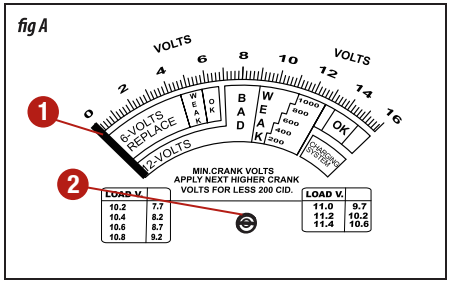
Refer to the table below for the position of the dial pointer in the meter scale with respect to drop in temperature:

BATTERY TEMPERATURE	BAND	METER SCALE
40°F (4.5°C)	Green band	Dial pointer to right of 1000
20°F (-6.7°C)	Green band	Dial pointer to right of 800
0°F (-17.8°C)	Green band	Dial pointer to right of 600
-20°F (-28.9°C)	Green band	Dial pointer to right of 400

Battery load test

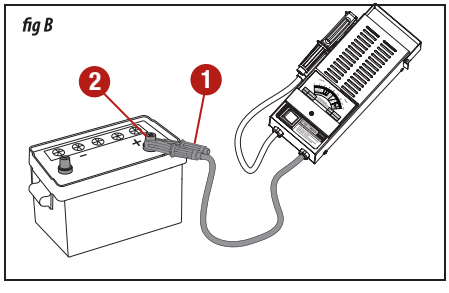
- Ensure the dial pointer (1) on the meter scale is pointing at zero. If not, set the dial pointer using the adjustment screw (2) (fig A).

fig A



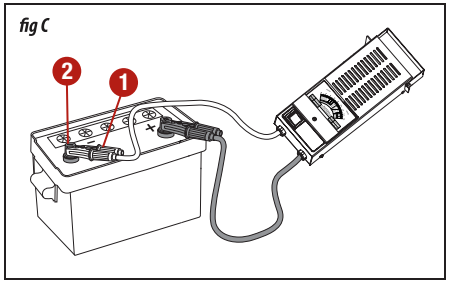
- Connect the positive (Red) clamp (1) of the battery tester to positive terminal (2) of the battery (fig B).

fig B



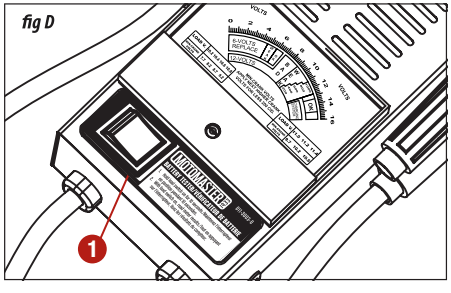
- Connect the negative (Black) clamp (1) of the battery tester to negative terminal (2) of the battery (fig C).

fig C



- Push the spring-loaded switch (1) to ON position and hold the switch for at least 10 seconds (fig D).

fig D



WARNING!

- Before testing the battery, make sure the battery contacts are clean and firm.
- Make sure the engine and all electrical accessories are turned off when testing the battery.
- Make sure the positive and negative clamps of the battery tester do not touch each other.

- Holding the spring-loaded switch in the ON position, check the 6-volts or 12-volts section (1) of the meter scale to identify the voltage level and condition of the battery (fig E).

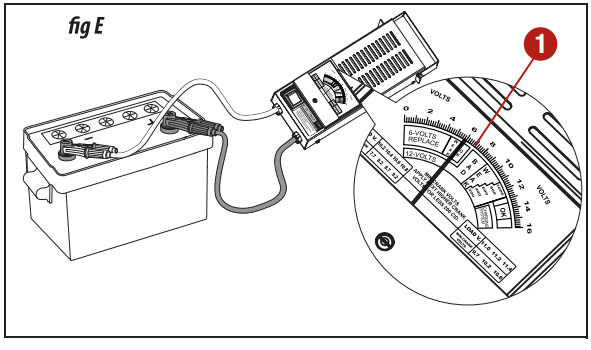


fig E

Battery analysis chart

LOAD TEST	BATTERY CONDITION
OK (GREEN BAND)	Battery capacity is good. Unit may or may not be fully charged. Check state of charge (Specific Gravity) with a hydrometer. If SG is less than a full charge level, check for possible system trouble. Recharge battery to full.
WEAK OR BAD (NEEDLE STEADY)	Battery capacity is insufficient. Battery may be defective or partially charged. To determine which, check SG. If SG is over 1.225, the battery is defective. If SG is below 1.225, recharge battery and retest. If difference in cell-to-cell SG is greater than 0.025 (2 points), cell trouble may exist. If charge does not bring SG to full charge level, battery is either sulfated or has lost active material.
WEAK OR BAD (NEEDLE FAILING)	Battery may be defective (possibly a bad cell). For a quick check, release load switch and note voltmeter reaction. If voltage recovers to its full potential after a few seconds the battery is probably defective. If voltage recovers slowly, battery may only be very run down. For more accurate results, check SG using above procedure.

Charging system test

- Turn off all the vehicle lights and electrical accessories.
- Connect the positive (Red) clamp (1) of the battery tester to the positive terminal (2) of the engine battery and connect the negative (Black) clamp (3) to the negative terminal (4) of the engine battery (fig F).
- Run the vehicle engine at a fast idle speed.

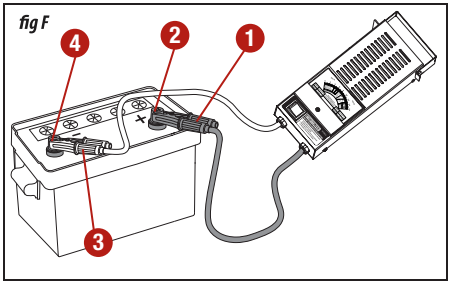


fig F

Battery Analysis

METER SCALE (CHARGING SYSTEM SECTION)	BATTERY CONDITION
Dial pointer indicates green (OK) band.	The battery capacity is good.
Dial pointer indicates red band.	The battery capacity is insufficient. Check the operating condition of the charging system.

Starter motor test

- Connect the positive and negative clamps to the battery terminals. Note the exact voltage in the meter scale.

Note: This test cannot be performed if the voltage continues to drop after 10 seconds.

- Disable the ignition system of the vehicle so that the spark plugs will not fire.
- Crank the engine and check the voltage on the meter scale.

Note: If the reading is lower than the minimum cranking voltage, there is excessive current draw in the starting system. Check for poor connection, corrosion, defective cables, or a defective starter motor or solenoid.

WARNING!

- Do not operate the spring-loaded switch while testing the charging system of vehicle.

Refer to this table for identifying minimum cranking voltage

LOAD VOLTAGE (FROM BATTERY LOAD TEST)	MINIMUM CRANKING VOLTAGE
10.2	7.7
10.4	8.2
10.6	8.7
10.8	9.2
11.0	9.7
11.2	10.2
11.4	10.6

Note: This table is also provided below the meter scale of the battery tester.

Maintenance

- After use, disconnect the positive and negative clamps of the battery tester from the battery terminals.
- The positive and negative clamps of the battery tester are liable to come into contact with battery electrolyte. Clean and dry the exterior surface of the battery tester after use, to prevent accumulation of dust and dirt.
- Apply a thin film of silicon grease to the tester to prevent corrosion.

SPECIFICATIONS

- Battery load test 6 or 12 V
- Charging system test 12 V
- Starting system test 12 V
- Meter scale range 0-16 V DC
- Meter scale graduation 0.2 V