LIMITED WARRANTY

Associated Equipment Corporation, 5043 Farlin Ave., St. Louis, MO 63115, USA, makes this limited warranty to the original purchaser at retail of the Battery Tester Model 6024.

The Company hereby warrants to the Purchaser that if the Product, or any part thereof, shall prove to be defective due to improper workmanship or materials at any time up to and including one (1) year from the date of Product's purchase at retail, then the Company shall repair or replace the Product, or any part thereof, as the case may be, at the Company's option, without charge to the Purchaser for parts and labor, provided that Purchaser follows the procedures set forth herein.

This limited warranty does not and shall not apply: (1) to any Product parts subject to normal wear and tear, including, but not limited to, clamps and cables, (2) if the Product, or any part thereof, is subject to accident, misuse, abuse, or operated contrary to the Company's instructions pertaining to the Product, or (3) to the Product, or any part thereof, damaged by alteration, or by improper repair or service not rendered by the Company.

To obtain warranty repairs, the Purchaser must take the following steps:

(1) Carefully and securely pack the Product for shipping. The Company is not and shall not be responsible nor liable for damage to the Product caused by or during shipping.

(2) ENCLOSE PROOF OF PURCHASE AT RETAIL BY PURCHASER.

(3) Send the Product, with all postage, transportation and delivery charges prepaid, to
Associated Equipment Corporation, 5110 Brown, St. Louis, Missouri 63115.

(4) Request "Warranty Service" in writing. If the Purchaser does not request "Warranty Service" in writing, the Product will be returned to the Purchaser at the Purchaser's sole cost and expense with the Purchaser being charged for repairs or replacement. The Company assumes no responsibility for cost or damages incurred by the Purchaser resulting from the Purchaser's improper request for Warranty Service.

(5) Include a brief description of the problem.

If the problem is within the coverage of this limited warranty, the replaced or repaired Product will be returned to the Purchaser at the Company's sole cost and expense. If the problem is not within the coverage of this limited warranty, the product will be returned to the Purchaser after receipt of his Bank Card information and a charge may be imposed for a repair cost estimate.

THIS IS THE ONLY EXPRESS LIMITED WARRANTY ASSOCIATED WITH THE PRODUCT AND THE COMPANY NEITHER ASSUMES NOR AUTHORIZES ANYONE TO ASSUME OR MAKE ANY OTHER EXPRESS WARRANTY WITH RESPECT TO THE PRODUCT OTHER THAN THIS EXPRESS LIMITED WARRANTY. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THIS PRODUCT IS LIMITED TO A PERIOD OF ONE (1) YEAR FROM THE DATE OF THE PRODUCT'S PURCHASE AT RETAIL BY THE PURCHASER. SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

ASSOCIATED EQUIPMENT CORPORATION
5043 Farlin Avenue, St. Louis, MO 63115
Tel. (314)385-5178 Fax. (314)385-3254

MODEL 6024 DUAL VOLTAGE BATTERY TESTER

OPERATOR'S MANUAL

SAFETY INFORMATION

Working in the vicinity of lead-acid battery is DANGEROUS due to EXPLOSIVE GASES generated by the battery which can be ignited by a spark, cigarette or flame and blow the battery apart, forcefully showering the area with battery pieces and acid.

To reduce the chance of exploding batteries follow instructions by manufacturers of batteries as well as these instructions.
IN CASE OF ACCIDENT RINSE EYES WITH CLEAN WATER AT LEAST 5 MINUTES AND SEE A DOCTOR IMMEDIATELY. NEVER USE EYE DROPS OR OTHER MEDICATION UNLESS DIRECTED BY A DOCTOR.
When around lead-acid batteries wear eye protection and avoid touching or rubbing the battery as well as clothing, skin and eyes. NEVER smoke, have an open flame or sparks near battery. Have plenty of ventilation and keep your face as far as possible from the battery. Undercharged lead-acid batteries will freeze during cold weather. Never test or charge a frozen battery. Do not allow tools to drop onto a battery. Do not lay tester on battery.

BATTERY LOAD TEST

This test evaluates the battery's ability to crank an engine. The tester draws current from the battery while measuring its voltage level. The voltage level of a good battery will remain relatively steady under load, but a defective battery will show a rapid loss in voltage. Battery size (CCA rating) and temperature will affect test results - follow instructions carefully.

1. Turn off engine, accessories and battery test equipment.

2. Connect negative (black) clamp to the negative (NEG, N,-) battery post. Connect positive (red) clamp to positive (POS, P, +) battery post. "Rock" clamps back and forth to insure a good electrical connection. For batteries with side terminals, use the adapters in clamps.

3. With clamps connected, tester's meter will indicate battery's STATE OF CHARGE. If state of charge is less then 12.4 (24.8) volts ("V" symbol on meter), the battery should be recharged before load testing. If recharging does not bring voltage to 12.4 (24.8), battery is defective. If meter needle is off scale to the left, check for loose or reversed clamps; otherwise battery is defective.

4. Note battery's rating in Cold Cranking Amps (CCA). If the rating is not printed on the battery, use the following guidelines to estimate battery size. Small (4 cyl) - 300 CCA; Medium (6 cyl) -400 CCA; Large (8 cyl) -500 CCA.

5. Depress load switch for 10 seconds. Left **RED** switch for 12V batteries. Right **WHITE** switch for 24V batteries.

6. Read meter at the end of 10 seconds - with switch depressed. Refer to LOAD TEST ANALYSIS chart.

COMPENSATING FOR LOW TEMPERATURES

Low temperature has a degrading effect on batteries and will affect test results.

This can be compensated by reading a different scale.

If battery is 50°, read scale 100 CCA less then battery rating.

If battery is 30°, read scale 200 CCA less than battery rating.

If battery is 10°, read scale 300 CCA less than battery rating.

LOAD TEST ANALYSIS

METER ACTION AT END OF 10 SECONDS	BATTERY CONDITION INDICATED
NEEDLE IN TEMPERATURE CORRECTED GREEN SCALE	BATTERY IS GOOD
LITTLE IF ANY MOVEMENT. NEEDLE IN TEMPERATURE CORRECTED YELLOW SCALE	BATTERY QUESTIONABLE. RECHARGE AND RETEST.
NOTICEABLE METER MOVEMENT AND/OR NEEDLE IN TEMPERATURE CORRECTED RED SCALE.	BATTERY IS DEFECTIVE. REPLACE

NOTE: TOP AND REAR OF TESTER WILL HEAT UP DUE TO LOAD CURRENT. ALLOW TESTER TO COOL ONE MINUTE BETWEEN LOAD TESTS - MAXIMUM OF 3 LOAD TESTS IN 15 MINUTE PERIOD. EXCEEDING DUTY CYCLE MAY CAUSE INCORRECT READING, PROTECTION CIRCUIT TO DISENGAGE BATTERY, AND DAMAGE TO THE UNIT.

CHARGING VOLTAGE TEST

This test measures the output voltage of the alternator/regulator. Check for under or overcharging - which leads to poor battery performance and short life.

ENGINE SHOULD BE AT NORMAL OPERATING TEMPERATURE

1. Connect tester clamps to battery as described in Steps 1-2 under Battery Load Test.

2. Turn off all lights and accessories. Operate engine at fast idle (approximately 1500 RPM).

3. Do not operate tester's load switch.

4. Read meter voltage. Meter needle should be in Green (OK) area of Charging System scale. (Note; 12V on left side scale - 24V right side scale).

5. Turn on high beam lights and blower on high. Meter needle should remain in Green (OK) area.

6. If meter needle goes to the Red (LO or HI) areas, the charging system is not operating correctly.

Trouble Shooting Hints

LO Voltage - may be caused by loose belt, defective voltage regulator or defective alternator.

HI Voltage - may be caused by loose or corroded connections or defective voltage regulator.

STARTER MOTOR TEST

This test identifies excessive starter current draw, which makes starting difficult and shortens battery life. Perform Battery Load Test - proceed if battery is "Good".

ENGINE MUST BE AT NORMAL OPERATING TEMPERATURE

1. Connect tester clamps to battery as described in Steps 1-2 under Battery Load Test.

2. Disable the ignition so the car will not start.

3. Crank the engine and note the voltage reading during cranking.

4. A meter reading of 9 volts or less for 12V systems or 18 volts or less for 24V systems indicates excessive current draw. This may be due to bad connections or a failing starter motor; or the battery is too small for the vehicle's requirements.