Manufacturer's procedure for inspection & testing batteries

The following conditions constitute abusive applications and will void the warranty:

- Extreme vibration applications (i.e., vibrating compactors, concrete cutters)
- Dropping or hitting the battery
- Cutting, removing, or damaging terminals
- Overcharging battery via faulty regulator or dual battery setup not using approved management system
- Using Starter battery for deep cycle applications (Car Audio Systems, Trolling Motors, refrigerators)
- Opening case lid

1. Visual Inspection

Examples that will void Warranty

- Case and cover damage: cracks or holes in case / cover
- Missing label
- Bent cover
- Shaved or cut cover / case
- Warped or bubbled cover
- Terminal damage: Melted, bent or broken terminals
- Shaved or cut terminals
- Sunken or raised terminals

2. General Guideline for Testing Batteries

Initial voltage test

- **00.00V: to 00.90v:** Open circuit, remove from service. Warranty only applicable it the post has failed or an internal connect breakdown as a result of a manufacturing fault. Internal examination is required.
- **01.20V to 09.98V:** Over discharge or application fault. Remove from service. No warranty
- **10.00V to 10.98V:** Possible broken Inter-cell connector or straight short. Remove from service. Possible covered under warranty, unless evidence Indications of excessive use or Negative growth which not covered under warranty.
- **11.00V to 12.55V:** Flat need recharge and retesting. Flat batteries are not covered under warranty.
- **12.55V to 12.70V:** Fully charged, if fail under load remove from service, warranty applies if within specified warranty period.
- **12.70V to 13.00V:** low CCA at these voltages is normally an indicator of the Battery being sulphated & therefore not covered under warranty. Low CCA is not a manufacturing fault and is more than often an application or customer fault. Batteries are manufactured to an international specification standard from the factory. The Battery will maintain for the majority of its life a reasonably close figure to the rating specified but will reduce in capacity over its life. Many factors may vary the output of the Battery.

  Using an electronic battery tester is one method of quick testing and should only be used as an indicator as a load-test may be required. Sometimes internal examinations are the only way to determine the fault, but they are costly and time consuming and should only be performed by a Battery Specialist.
- **Magic Eye MF (Calcium Batteries Only):** The magic eye is only an indicator if the battery is charged or not. This test has a 30% variance and should only be used as a quick guide.

Procedure for testing batteries

- **Test voltage level.** Use any multimeter or battery tester to record voltage level.
- **Electronic test Battery.** Use an electronic style test, if within 15% of CCA capacity put back in service. If low refer to carbon pile test. For electronic testers, they are a guideline only for CCA ratings.
- **Charge the battery to 100% State-of-Charge if required.** Use specified charger to suit the correct battery. (WET, CALCIUM MF, AGM, GEL and LITHIUM) all require a different peak voltage.
- **Load test**

Testing a Battery's State Of Charge

- To help ensure a good connection, clean the battery terminals with a solution of baking soda and water, and wipe the battery terminals with a cloth to remove any dirt or grease.
- Connect the RED (+ positive) battery clamp to the positive terminal (+) on the battery.
- Connect the BLACK (- negative) battery clamp to the negative terminal (-) on the battery.
- Twist the clamps slightly on the post to ensure a good connection.
- With both the battery clamps connected, the carbon pile battery load tester's DC Volts display meter will show the battery's state of charge.
- Identify the battery's stage of charge by using the STATE OF CHARGE section in the centre of the DC Volts display meter.
- If the display needle indicates less than 12.5V DC (or in RED area), disconnect the battery and recharge before re-testing.

Inspect the battery's rating label to identify the battery CCA (Cold Cranking Amps) rating or Ah (Amp Hour) rating.

Note: Once the CCA or Ah rating is confirmed you will need to calculate the load current amount that can be applied to the battery during a load test.

General Cranking Batteries

Load current that can be applied to the battery is 1/2 of the battery's indicated CCA rating.

Marine or Deep Cycle Batteries

Load current that can be applied to the battery is 3 times the battery Ah rating.

Connect the RED (+ positive) battery clamp to the positive terminal (+) on the vehicle's battery.

Connect the BLACK (- negative) battery clamp to the negative terminal (-) on the vehicle's battery.

Twist the clamps slightly on the post to ensure a good connection.
Rotate the battery load tester dial clockwise until the required testing CCA or Ah rating is displayed/marked.

Note: Ensure you ONLY APPLY the calculated load to the battery.

After 15 seconds of the load being applied via the battery load tester please check the following:

If the needle in the DC Volts display meter was indicating equal or above 9.5 volt test scale then the battery is in good condition and has passed the battery load test.

If the needle drops below 9.5 volt of the DC Volts meter then the battery has failed the battery load test. Immediately remove the load applied to the battery by rotating the battery load test dial anti-clockwise until it cannot be rotated any further. Once the battery load has been removed you can review the CCA, Ah ratings indicated on the DC Amps meter for the current battery rating.

WARNING!

- Variable load carbon pile testers produce heat when in use. Take care to allow 2 minutes to cool down between tests to avoid injury due to heat build up of the tester body surface.
- Ensure the carbon pile battery tester cables & all loose clothing is kept clear of the vehicle's moving parts or hot surfaces.
- Never incorrectly connect the RED (+ positive) battery clamp or BLACK (- negative) battery clamp to the vehicle's battery terminals noted polarity. Doing so can cause damage to the battery tester or vehicle's components and this is not covered under warranty by Kincrome.
- Be sure the carbon pile battery load tester is OFF prior to use. Ensure the battery load tester dial is in the OFF position (rotated anti-clockwise as far as possible) before attaching or removing the RED (+ positive) battery clamp or BLACK (- negative) battery clamp to prevent arcing or potential explosion from battery gasses. Always use eye protection and keep any sparks away during testing.
- During initial use of the carbon pile battery tester it is possible a small amount of smoke or burning smell can be experienced. This can be a result of a small amount of debris being left on the carbon pile element during the assembly of the product and is not of concern to the user or product. If the smoke or burning smell does not cease after the first 2-3 uses have the unit checked by a qualified service provider or sales representative.
- Avoid carbon monoxide poisoning. This gas comes from the vehicle's exhaust and is colourless and odourless. It can cause serious injury or death if inhaled. Never run the vehicle's engine inside a garage or any other enclosed space.