

## A Brief Explanation Of Crank Testing Technology

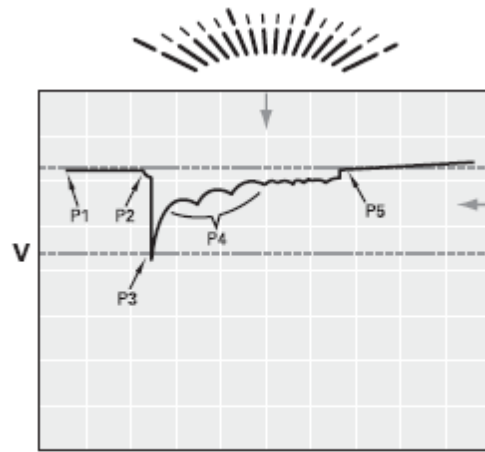
Today's conventional battery testing technologies, such as load testers and conductance testers, fail to answer the single most important question about a starting battery: "How well is this battery performing the specific job of starting this engine?" Conventional conductance methods produce an absolute value that does not indicate how effective the battery is at doing its job or when it will stop doing its job. These limitations led to the development of our Crank-Check™ technology, which uses the actual starting sequence to evaluate battery performance.

Crank-Check captures the voltage profile of the battery during the starting sequence. Figure 1 shows a typical voltage profile of a normal, healthy battery during the engine starting sequence. P1 indicates the floating voltage of the battery; P2 shows the point of solenoid engagement; P3 indicates the point of starter motor engagement; P4 shows the engine being cranked by the starter motor followed by the engine start; and P5 refers to the point after the starter motor is disengaged and the battery is starting to be charged by the alternator.

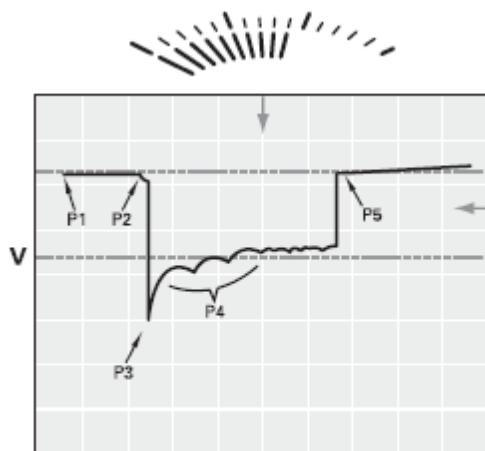
By comparing various points on this profile, Crank-Check determines the strength of the battery in performing its cranking job. Of particular importance to starting performance is the difference between P2 and P3. Figure 2 shows the profile of a weaker battery with respect to its starting load. Figure 3 shows a very weak battery. This profile indicates an imminent cranking failure situation.

An important thing to realize about using a voltage profile analysis of a starting battery is that you do not need to know the battery specification, rating, or size. Nor do you need to know anything about the motor. The voltage profile indicates the relative performance of that battery starting that engine at that time. This means that a voltage profile analysis can be used on any size battery or engine. Gone are the days of conversions or looking up reference values.

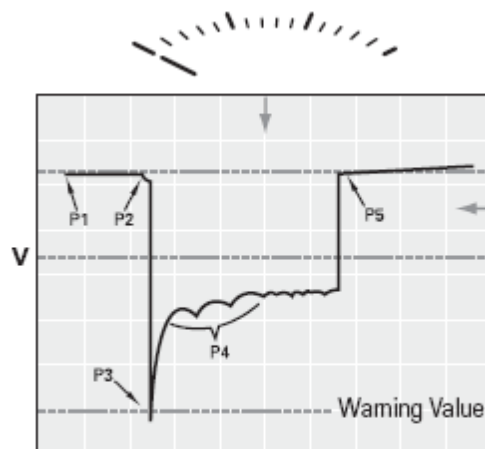
The voltage profile analysis provides a highly accurate and relevant snapshot of battery performance. The result immediately and directly answers the question posed above: "How well is this battery performing the specific job of starting this engine?" All of the Argus hand held AA series analyzers include Crank-Check as the primary automotive battery diagnostic tool.



**FIG 1**  
Good cranking power.



**FIG 2**  
Useable, but not at optimal condition.



**FIG 3**  
Weak: cranking failure is likely.