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HOW TO TECH TIPS FROM UNCLE MILT

TWELVE-VOLT BATTERY PERFORMANCE

Symptoms: Does your 12-volt collectible go uhn-unh- - - unnn? And it *kinda* sounds weak; plus it takes three – five seconds for a first cold start up on a 50° F day?

The 12-volt battery on my 1999 F150 Ford Truck was replaced just before I bought the truck in 2001 [now 2007], that's six years on a four-year battery! Pretty good! But each day upon start-up, the cranking sounded weaker. Here's how to test and predict this old battery may die.

The cranking voltage is marginal on the first cold crank; however, the cranking voltage stayed steady at 9.65. A good ignition and computer system needs a minimum of 10 volts during cranking to start quickly!

After startup and driving five miles, the battery performance was OK and cranking *strong* at 10.5 volts

Battery Replace: The ground and rest voltage were OK, but, the battery was old. Let's replace the battery to see if cranking and starting performance is improved.

Clean the cable connectors, engine ground, and the computer wiring grounds; if corrosion exists, clean in a solution of baking soda and water. In my case, all were clean. Smear grease on THE connectors and re-install case and battery.

Test Results [new battery]: With a new battery, the engine cranks like new!

Compare the performance of the new battery versus the old battery. **See Table 1.** The cranking voltages are considerably higher on the new battery. Plus the cranking system sounds more energetic [11.22 new; 9.65 old]. The next day, it cranked at 11.22 volts again on the first try! Compare this to the old battery; it cranked at a low 9.65 volts on the first try.

The engine started within two- seconds of beginning crank with a new battery.

Recommendations: Clean and test your battery at least twice a year. It will usually last longer than the warranty period.

Note: The Basics don't change!

References

The following references will show you how to measure battery system voltages.

Six-volt Battery Performance - Milt Webb www.milttheinstructor.com

Tuning Up Autos and Trucks, A Guidebook of Solutions for Testing, Evaluating, and Analyzing Computer Controlled Vehicles, Milton Webb, www.milttheinstructor.com

**Table 1: 12-Volt
Battery Performance**

	Before Replacement		After installing New Battery
	First startup	After 5 miles driving	
Rest voltage [before cranking]	12.38	12.55	12.52
Cranking voltage [ignition disabled]	9.65	10.50	11.22
Charge voltage [after start-up]	14.53	14.53	14.54
Charge voltage [Lights and A/C on]	14.53	16.53	14.53
Ground voltage, battery [-] to engine	0.22	0.22	0.15