



**Training Center**  
*Lunch & Learn Series*  
**Presents:**  
*"Low Current Clamp*  
*Component Testing"*

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**Aftermarket Innovators**

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## ***Your Instructor For This Webcast***

### **"G" Jerry Truglia**

- National Trainer, ASE World Class, Master Auto, Truck, School Bus, L1, L3, CNG and...
- **ATTP Master Instructor, New York State, CT and New Jersey**
- STS (Service Technician Society) 2003 President
- **TST (Technicians Service Training) Founder and President**
- Author / Co Author/ Technical adviser on 25 plus books including OBD II and Mode 6, and Understanding and Diagnosing Hybrid Vehicles
- **Published articles for multiple newsletters, and magazines**
- Picked as one of the Top Instructors in the country by EPA & SAE
- **Numerous Radio, TV, Internet, and SAE Video appearances**
- PTEN, MotorAge and TST Webcast Instructor
- **Motor Magazine Top 20 award winner**
- Provider of OBD II Training for 14 states, Ontario Canada and the US EPA
- **Guest speaker at SAE Congress, IM Solutions and Clean Air Conference**

## **What Will Be Covered:**

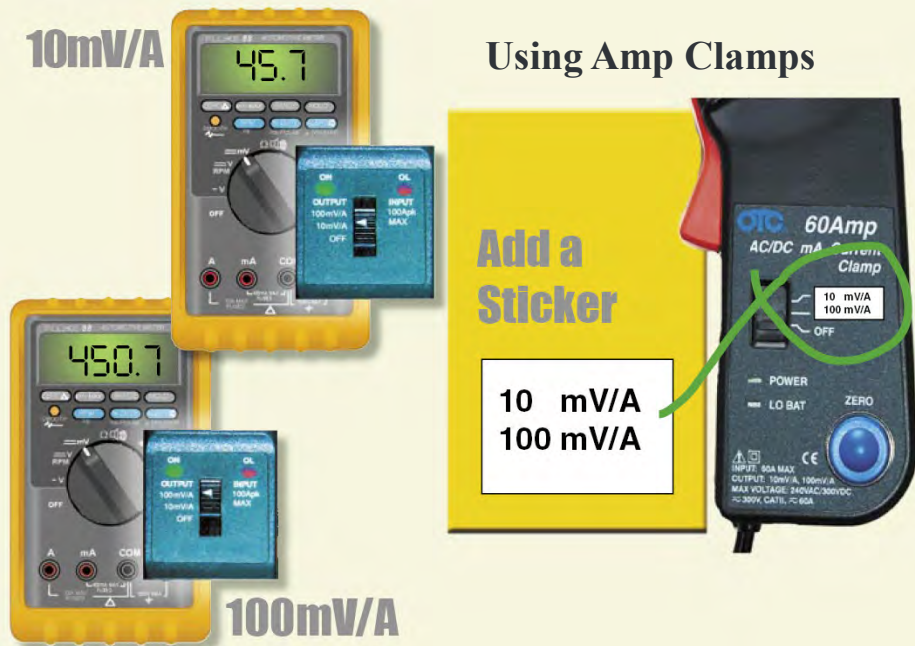
- **How To Test Actuators Using A Current/Amp Clamp.**
- **Using The Clamp On The Meter**
- **Using The Clamp On The Labscope**

## Amp Clamps



10mV/A

## Using Amp Clamps





## Using The Meter And Amp clamp To Check for Draw



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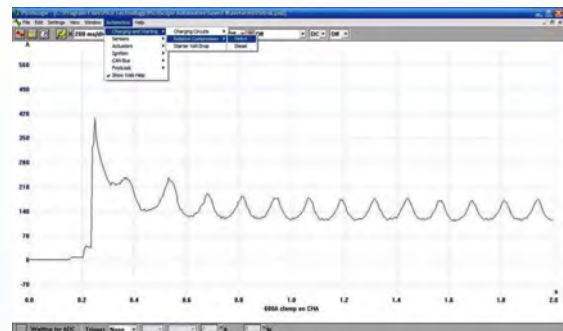
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## Current Probes



The high initial current (labeled **Peak Current**) is normal. **After the initial surge, the current in the starter circuit falls to a lower, steady level.** In this example, initial current falls from a brief **initial peak of 400 + amps**, to a **steady cranking current of approximately 165 amps.**



**Our photo shows the current probe (sometimes referred to as an amp clamp). The probe is connected to the scope input channel, which is adjusted to a low millivolt scale, commonly 50 - 100 mV/Div. Then the probe is clamped around a main battery cable while the engine is cranked, or around the main alternator B + wire to measure charging current with the engine running.**

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## Current Probes



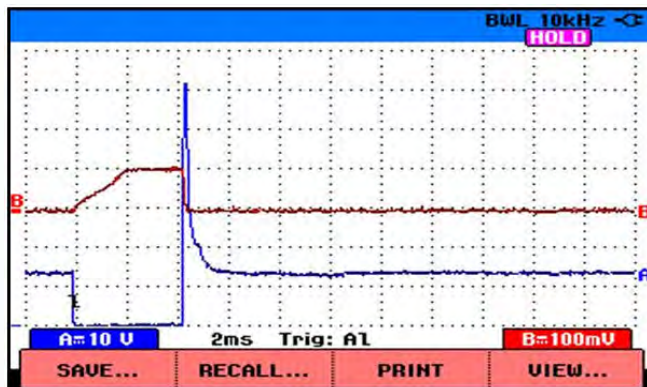
Low Amp Probe



The yellow amp clamp to the left is the Fluke i30s that is the BEST amp clamp to use because the size of the jaw that fit around the battery cables. The specification on the DC range is 30 mA to 30 A & usable current range of 5 mA to 30 A DC with dead on accuracy. There is no problem using this on any vehicle for parasitic / key - off battery drains.

This Fluke 80i -10 low amp probe above left has an ON/OFF switch setting and two input levels for low and high resolution measurements. Like the high amp probe, each 10 millivolt or 100 millivolt change in the low amp probe represents one ampere. The low amp probe is accurate to very low current measurements, including milliamperage readings associated with key - off battery drains.

## Combining Voltage Probes And Current Probes



If we connect one scope channel to a fuel injector using a conventional voltage probe, and then connect the other channel to the same injector with a low amp probe, the scope will display voltage and current at the same time. The dual trace display lets us compare injector circuit voltage and current.

# Let's Do It Live

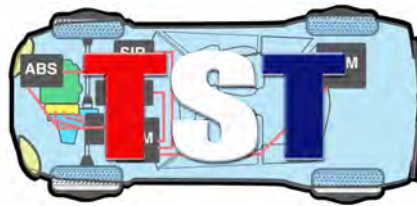


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**TST Webinar Wednesday - November 16<sup>th</sup> 6:45 pm EST**

***"Diagnosing Using A Labscope"***

***Instructor Jeff Zide***

***Upcoming Instructors from Oct to June... Bernie Thompson - John Thornton - Scot Manna - Bill Fulton - Scott Brown - Brand Steckler - Ken Zanders - Keith Perkins - Gary Smith***

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We offer greater freedom to fix cars and trucks  
by engineering exclusive, labor-saving  
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***Thank You !***

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