



# Understanding and Diagnosing Hybrid / Electric Vehicles

## Understanding

- Advantages of Hybrid vehicles
- Different types of hybrids
- Major hybrid subsystems shared by all hybrid vehicles
- Electric assist and regeneration, autostop, Honda valve pause engine shutdown, Toyota synergy power split system, Ford systems
- Batteries, battery management, Inverters, DC to DC conversion, DC to 3 phase AC inverter, 3 phase synchronous drive motors, drive by wire, brake by wire, electric power steering, electric AC.
- Proper safety techniques for working on HV/High Power electronics. CAN and other serial networks in Hybrids, and much more. We dig into the hardware hands on, and explore all aspects of the Hybrid drive.

**Our hands on HEV class focuses on giving you a working knowledge of current and future Hybrid technology, and the proper techniques necessary to safely diagnose, repair and service Hybrid Vehicles.**

## Diagnosing

- Overview of sub systems, What sensors the BCM, MCM, Power inverter look at and how that information is used to control all aspects of the hybrid drive
- Scan tool shoot out to determine best tool for the money Enhanced and OEM.
- Cat III test equipment, Labscope, DVOM, hi and low current probes, and Megohmmeter, how to use them to speed your diagnosis.
- The value of current ramping and reference waveforms for quick localization of problems.
- Getting the information you need for proper troubleshooting of hybrid systems.

**Instructors will guide you through this 3 day, 30 plus hour no nonsense class. Each instructor has unique qualifications that make this class a one of a kind learning experience. All of our instructors have been involved with hands on hybrid training and curriculum development.**

**Instructor: "G" Jerry Truglia**



**Dates & Times: Friday April 29, 2022 7:30 AM to 8:30 PM**  
**Saturday April 30, 2022 7:30 AM to 8:30 PM**  
**Sunday May 1, 2022 7:30 AM to 4 PM**

**What's Included: Class, meals, training materials, 1000 volt High voltage gloves, DVD, online review and more.**

**Price: \$2600.00\* (per technician no hotel) with 3 day hotel stay \$3150.00**

**Technicians MUST Pre Register 2 Weeks Prior**

**Mail check or pay by Credit Card to:**

**A.T.T.S. Inc. 10 Lupi Plaza Mahopac, New York 10541**

**Phone: 845 628-1062 Fax: 845 628-9109**

**Location: A.T.T.S. 10 Lupi Plaza Mahopac, New York 10541**

**845 628-1062 [gt@attstraining.com](mailto:gt@attstraining.com) [www.attstraining.com](http://www.attstraining.com)**

***Our instructors take the fear and mystery out of working on hybrid / electric vehicles.***