



MULTIPLEXING, CAN & BCMs DOMESTIC & IMPORT

How electronic devices communicate and what to do when they don't!

Technicians are faced a variety of vehicle communication problems. The SAE, ISO & EPA standards were left to each manufacturer's design and no two are alike. The manufactures of domestic have ignored rules and designs to fit their needs, while imports have followed the ISO standard. One thing to keep in mind about the CAN standard is that CAN as well as other protocols such as SAE J1939, GMLAN, OBD II, SAE J1587 and LIN have more to do with the way information is formatted, transmitted and received than how fast it is sent. This means the automotive engineers who design the onboard electronics for CAN-compliant vehicles are free to choose any operating speed they want (up to one megabits per second) as well as the type of bus conductor (one wire, twisted paired wires or a fiber optic cable). With over 20 years of communications, protocols, theory rules, known good values and wave forms, this course covers each protocol's rules and more

As of 2008 all new vehicles sold in the U.S will be required to have a CAN-compliant onboard diagnostic system. **Most of the CAN applications are already out of warranty and are coming into your shop now.**

This course explains how to diagnose module communications problems, how Serial Data Buses work & how BCMs interact with other electronic systems on the vehicles. All communication standards will be covered in detail. We will guide you through the diagnostics of failure patterns for each system. We'll use real world case studies to bring these complex systems down to earth for a practical understanding. Everyone has tried to use the flow carts for communications, now it's time to work with system knowledge that will make you more productive

- Testing communication circuits of the PCM, BCM & other modules like the instrument panel cluster.
- Analyze individual communication networks and diagnostic procedures
- How to use your DVOM & DSO to successfully analyze problems
- How to diagnose CAN, SCP, CCP, PCI & SCI circuits to find the root of the problem.
- BCM interactions with HVAC, SIR, Security Systems, IPCs & PCMs.
- BCM's role on the data bus as power mode master and gateway.

DATE:
Monday July 18th
&
Tuesday July 19th
TIME: 6:00 PM – 9:30 PM

LOCATION:
Coconino High School
2801 N Izabel St., Room 219
Flagstaff, AZ 86004
928-773-8200

COST: \$199.00
Sign up now on Flex Pay!

INCLUDES:
Seat, Reference Manual
& Certificate of Completion

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INSTRUCTOR BIO : DR. NORM NALL

Dr. Norman L. (DOC) Nall: Doc is truly a "been there done that" automotive instructor. As a technician, shop owner, manufacture engineer, and trainer. He has been a leader in diagnostic procedure development and training classes for over four decades. He has authored hundreds of training classes, manuals, and videos for OE manufactures, colleges, independent training and equipment companies. His high energy delivery makes your learning experience enjoyable. His simple description of highly complex subjects allows technicians to quickly and accurately understand even the most difficult information. Doc created the Carquest Technical Institute program. His classes are set apart from the industry by being able to take information and fix cars immediately.

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