eAir REPAIR

August 2010 edition

Moraine Valley Community College Joins Outreach Team

From: the Illinois EPA Repair Industry Outreach Team

Moraine Valley Community College
Changing Lives for a Changing World

The success of the Vehicle Emissions Testing Program has always depended on the ability of the automotive repair industry to correctly repair emissions problems. It is one of Agency's goals to provide the most up-to-date and most cost-effective training for the repair industry to properly repair emissions problems. With this in mind, we are proud to welcome Moraine Valley Community College to the Outreach team.

What does this mean to those attending seminars:

- The high standards of training will remain unchanged.
- Outreach seminars will now qualify for college credits from the Illinois Community College Board, however, you will not be required to register with Moraine Valley for college credit in order to attend our seminars.
- For every eight hours of training (two seminars) attended, a 1/2 vocational skills credit can be earned.
- Moraine Valley Community College will manage this process for those technicians who wish to earn vocational skills credit. A permanent record of all training and credits will be available through the registrar's office of the college.
- A simple registration form is all that is needed.
- There is no cost to you. Free!

Please join us in welcoming Moraine Valley Community College. We look forward to partnering with them in our repair industry outreach efforts.

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Chicago Automotive Networking (C.A.N.) Conference

From: Automotive Service Association (ASA) of Illinois

ASA is hosting the Chicago Area Networking (C.A.N.) Conference on September 24th - 26th in Rosemont, Illinois.

A variety of topics will be covered for both technicians and shop managers.

For details and registration information, **www.asacanconference.com**.

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Got a Case History

- » Share your case history and tips.

# How to Check a CAN Vehicle that will not Communicate (2004-2010)

By: Outreach Seminar Instructor Ken Zanders

The first items you will need to verify are power and ground circuits for the DLC. You must first disable the vehicle so that it cranks but does not start. You will then perform a voltage drop check on the system ground. The use of a DLC breakout box (as shown below) is preferred for testing.


Attach one meter lead to Pin# 4 of the DLC and the other lead to battery negative with the engine cranking. Perform the same test on Pin# 5 of the DLC to battery negative as well. This is a good dynamic test that should show a voltage drop of .2 volts or less. The next test on the DLC will be to check Pin# 16 for battery voltage. You must always refer to service information to verify that you are testing the proper pins.
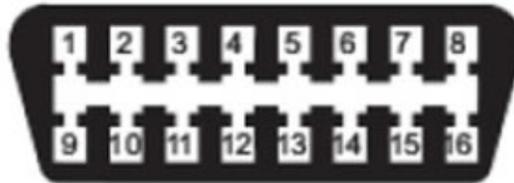

The next step is to check communication circuits. There are terminating resistors that are used to reduce electrical noise on these communication circuits. A review of the schematics that refer to vehicle communication for the vehicle you are working on is a valuable asset to properly diagnosing a communication issue. It is strongly recommended that a DLC breakout box be used for testing. The first test procedure is to check between Pins# 6 and 14 of the DLC with an ohmmeter. This resistance check should yield a resistance value of approximately 60 ohms. An example system diagram is shown below for review.

SYSTEM DIAGRAM
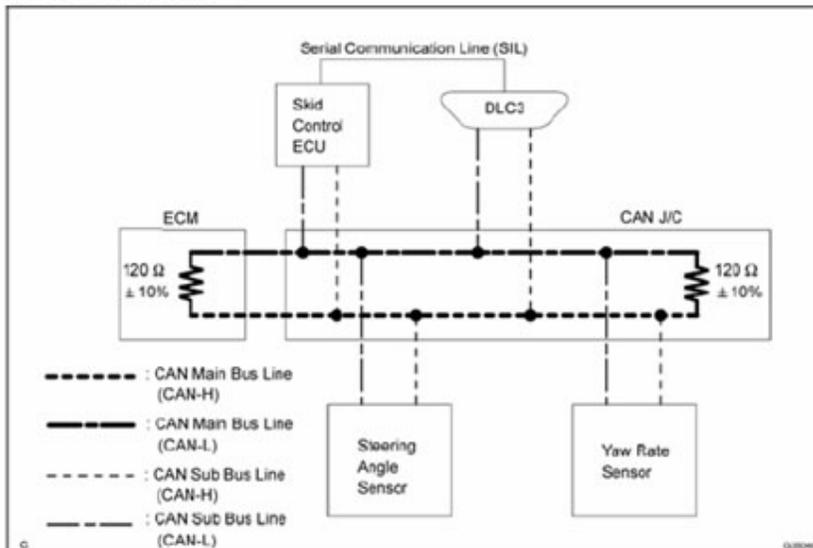
The next test is to check voltage information on DLC pin# 6 and 14. Pin# 6 is normally denoted as CAN-H and Pin# 14 is normally denoted as CAN-L. The voltage information can be checked with a voltmeter or lab scope. If a voltmeter is used, it is important to note that a peak min-max function should be used with a time testing window of 1ms or less. The voltmeter cannot tell you the quality of the signal being produced. A lab scope gives a visual picture of the electrical quality of the signal that is present. A sample pattern is shown for reference.
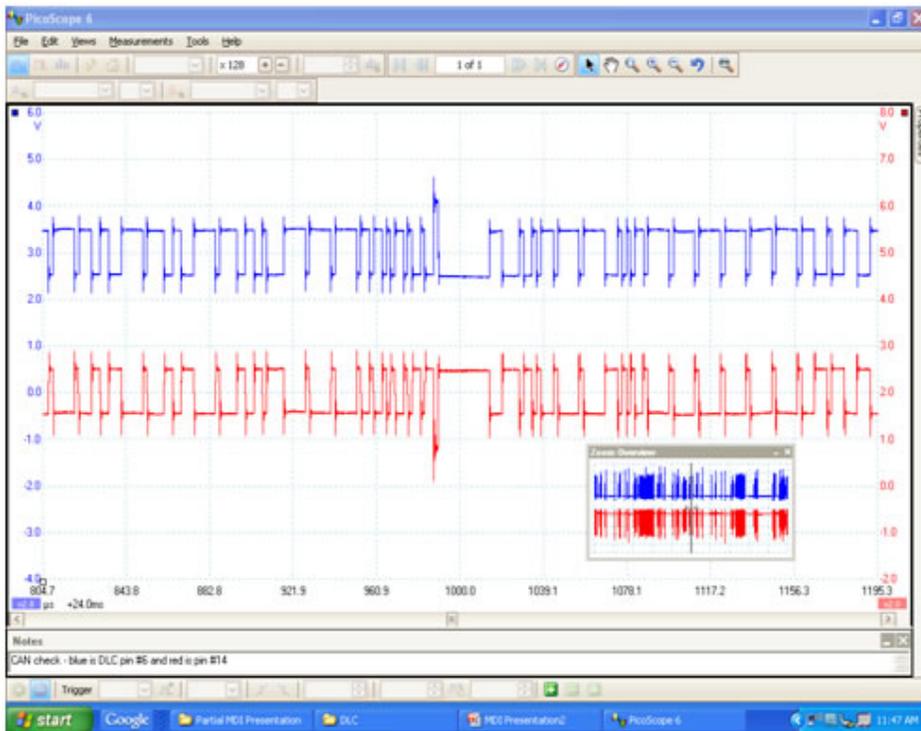
CAN H will have a voltage range of 2.5 to 3.5 volts, where as CAN L will have a range of 2.5 to 1.5 volts. The wiring on the vehicle must be checked for shorts to ground, voltage, or opens. If wires are next to each other, it is also possible for wires to be shorted to each other. In many cases, frayed wiring has contributed to lack of communication on many of the vehicles tested. It is also important to be able to attempt communication with the vehicle on the generic as well as the enhanced side. It is possible for it to communicate one way and not the other. When a vehicle is at the test facility, the communication attempt is made on the generic side. In closing, the breakout box provides a way to view the communication activity under dynamic conditions. You must always check all feeds, all grounds, and serial data to a module before any replacement is considered.

Attend Ken Zander's Advanced Communication Protocol Testing for OBD Failures

seminar for more in-depth training.

Ken Zander helping technicians with their questions at the Technology Center of DuPage.

Technicians learning Ken's diagnostic techniques.

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2010 Seminar Schedule

All seminars are from 6 pm – 10 pm on dates below.
They are sponsored by the Illinois EPA for the repair industry, and they are free!

2010 Complete Seminar Schedule Registration

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Location

NORTH	SOUTH	EAST	WEST	METRO EAST

OBD Code Repair Using Labscopes

This seminar is devoted to helping technicians develop a plan for successfully repairing OBD emission failures using labscope testing strategies. OBD testing will be reviewed and actual failure case studies will be looked at to help understand the test capabilities of scopes and probes. Using computerized information systems and code charts will be discussed to make diagnosing OBD code problems easier.

Presented by: Scot Manna

ID	Date	Location
M704	August 25, Wednesday	Truman College

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OBD Repairs Using Scan Tools

This seminar will show repair technicians the capabilities and enhanced functions of a variety of aftermarket and factory scan tools for system testing and OBD vehicle repair. Emphasis will be placed on bi-directional controls for testing and diagnosis found in many of the scan tools available today. Graphing, scan data analysis, and testing strategies will be discussed. The goal is to get the most from these tools and shorten diagnostic times. Actual vehicle case studies will be shown to illustrate these points.

Presented by: Scot Manna

ID	Date	Location
M804	August 26, Thursday	Truman College

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Communication Protocol Testing for OBD Failures

This seminar will review proper testing techniques for communication issues with the PCM and various modules as it relates to OBD failures. The communication topology that will be discussed will focus on GM, Ford, and Chrysler systems. This is a "must attend seminar" for serious OBD repair technicians.

Presented by: Ken Zanders

ID	Date	Location
Z504	September 8, Wednesday	Prairie State College

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Using Mode $06 Data for OBD Diagnosis and Repair (NEW)

Monitors are the key to OBD emissions testing success. Mode $06 displays the monitor's results beyond a simple pass or fail. Using Mode $06 data can expedite some emissions repairs and can even make diagnosis of some readiness rejects possible. This class starts with a brief overview of Mode $06 data and how to decipher its meanings. Time will be spent on the do's and don'ts including the grey areas of invalid data. Many actual vehicle case studies will be used to illustrate the practical applications of using Mode $06 data for successful OBD diagnosis and repair. Different scan tools and information resources will also be discussed.

Presented by: Scott Shotton

ID	Date	Location
S905	August 3, Tuesday	State of Illinois Complex, Collinsville
S906	August 10, Tuesday	Morton College
S907	September 14, Tuesday	Technology Center of DuPage
S908	October 19, Tuesday	Joliet Junior College

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Mass Airflow and Fuel Trim Diagnostics (NEW)

This seminar will help the driveability and emission technician make accurate decisions regarding diagnosing Mass Airflow sensor problems and fuel trim issues. A three-step procedure for testing Mass Airflow sensors will be illustrated. Fuel trim operation and strategies will be discussed as well as using fuel trim values to help diagnose driveability problems. Vehicle repair case studies will be used to enhance understanding.

Presented by: Scot Manna

ID	Date	Location
M605	September 16, Thursday	Joliet Junior College
M606	September 21, Tuesday	Morton College
M607	September 23, Thursday	Moraine Valley Community College
M608	October 13, Wednesday	Lake County High School Tech Campus
M609	November 15, Monday	Technology Center of DuPage
M610	December 13, Monday	Prairie State College

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Advanced Communication Protocol Testing for OBD Failures (NEW)

This seminar will take a more in-depth look into communication issues. Case studies will be reviewed with a strong emphasis on labscope and advanced techniques leading to repair. This class was designed for the serious emission and driveability specialists.

Presented by: Ken Zanders

ID	Date	Location
Z102	August 9, Monday	Oakton Community College
Z103	August 12, Thursday	Prairie State College
Z104	September 9, Thursday	Lake County High School Tech Campus
Z105	October 4, Monday	Kennedy-King College
Z106	November 8, Monday	Truman College
Z107	November 9, Tuesday	Morton College
Z108	December 6, Monday	Moraine Valley Community College
Z109	December 8, Wednesday	Technology Center of DuPage
Z110	December 9, Thursday	Joliet Junior College

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Four Wire Air:Fuel Sensor Diagnostics (NEW)

Over the last ten years, four wire air:fuel sensors have slowly started to replace oxygen sensors. While these sensors look similar to a conventional oxygen sensor, operation and testing techniques are significantly different. This class will discuss operation and testing of air:fuel sensors used by Toyota, Nissan, Honda, and Subaru. The class will discuss in detail air:fuel sensor operation and air:fuel sensor testing. Testing techniques will include the use of a labscope, scan tool (fuel trims and rear oxygen sensor), and a gas analyzer.

Presented by: John Thornton

ID	Date	Location
T102	September 2, Thursday	McHenry County College
T103	October 7, Thursday	Morton College
T104	November 4, Thursday	Moraine Valley Community College
T105	December 2, Thursday	Oakton Community College

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Dashboard Tip of the Month
From: the Illinois EPA Repair Industry Outreach Team
Online Seminar Registration

Please assist us by registering online so we can provide adequate room size and seating as well as training materials for all that attend.

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Articles Needed for eAir Repair
From: the Illinois EPA Repair Industry Outreach Team
We are always looking for short articles of interest for eAir Repair. Many of you have gathered information for successful emissions repairs. It is time to share those tips with your fellow technicians. Please help us out by writing a brief story (a couple of paragraphs) about your success or fix.

Those tips can be e-mailed to epa.repair.outreach@illinois.gov.

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