

IMPCO Emission Certified Fuel System:

How to Determine Diagnostic Scan Tool Software and Hardware Needed to Diagnose your Engine

IMPCO Emission Certified Fuel Systems provide the ability to connect to the electronic control module (ECM), view live data from various engine sensors and fault codes to identify and troubleshoot engine problems.

Step 1 Identify Your Engine:

IMPCO has a variety of fuel systems which require different CAN bus adapters, cables and software needed to connect to the engine's ECM. Each emission certified system has a white emission label affixed to the valve cover, indentifying it as an IMPCO system and will indicate the engine model year.

Verify that the fuel system is an IMPCO system bearing the IMPCO logo.

Engine Size

The first digit of the Engine Family represents the engine model year. Here "9" represents 2009. In other applications, letters represent the year as follows: A=2010, B=2011, C=2012, etc.

 <p>Important Engine Emission Control Information</p> <p>IMPCO TECHNOLOGIES, INC.</p>	Engine Displacement	3.0 L	Exhaust Emission Control System:	ECM, HO2S, PCV, TWC, CARB
	Engine Family			9Z9XB03.0GPB
	Tune-up Specifications			
	Spark Plug Gap (in)			0.035"
	Timing			N/A
<p>THIS ENGINE IS CERTIFIED TO OPERATE ON LPG AND IS CERTIFIED TO EMISSIONS STANDARDS OF 2.7 g/kW-hr HC+NOx AND 4.4 g/kW-hr CO. THIS ENGINE COMPLIES WITH U.S. EPA AND CA AIR RESOURCES BOARD REGULATIONS APPLICABLE TO MODEL YEAR 2009 LARGE NONROAD SI ENGINES. USE IN VARIABLE-SPEED APPLICATIONS ONLY.</p>				

The engine model year is also specified in the text.

EMISSION CONTROL INFORMATION 

THIS VEHICLE IS EQUIPPED WITH AN ELECTRONIC ENGINE CONTROL SYSTEM. ENGINE IDLE SPEED, IDLE MIXTURE, AND IGNITION TIMING ARE NOT ADJUSTABLE.

THIS ENGINE CONFORMS TO 2012 U.S. EPA AND CALIFORNIA REGULATIONS FOR LARGE NON-ROAD SI ENGINES VARIABLE SPEED APPLICATIONS ONLY DELEGATED ASSEMBLY

THIS ENGINE IS CERTIFIED TO OPERATE ON LPG
 DISPLACEMENT: 2.4L MAXIMUM POWER: 50kW
 EXHAUST EMISSION CONTROL SYSTEM: SFI,HO2S,PCV,TWC, ECM
 ENGINE FAMILY: CZ9XB02.4GA8 SPARK PLUG GAP: 0.031-0.035in
 USEFUL LIFE: 5000 HOURS OR 7 YEARS
 EMISSION STANDARD: HC+NOx 0.8g/kW-hr
 CO 20.6g/kW-hr

AT 606

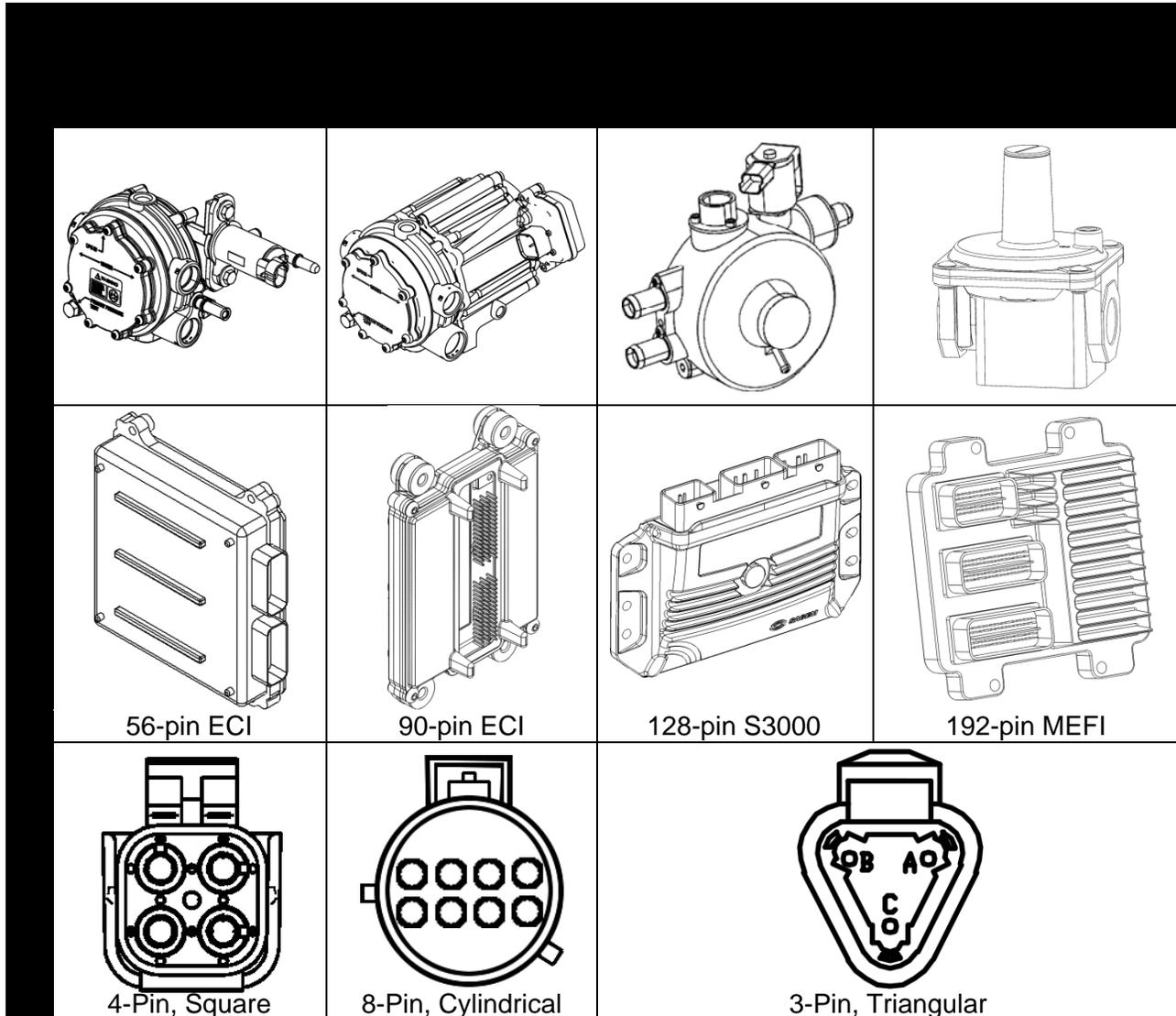
NOTE: The engine model year (the year the engine and its fuel system are certified) may be different from the model year of the truck, generator or the application using the engine.

Serial numbers on trucks, generators or other applications are not recorded by IMPCO, therefore, IMPCO cannot identify the fuel system by any of the OEM model or serial numbers. The information listed on the emission label is the easiest and most accurate way of determining the application's fuel system.

Step 2 Identify Your Fuel System:

Spectrum Series

IMPCO's certified fuel systems have been utilized on various engines and applications since 2004. There are three Spectrum systems, referred to as: Series II, Series III and Series IV. The **LPG** regulators, ECMs and DST connectors (found on the engine wire harness) utilized in each of these systems are pictured below:



**Note that only LPG and Natural Gas regulators are depicted; gasoline systems will differ*

Step 3 Identify and Obtain DST Software/Password/Instruction/Adapter/Driver & Cable:

Use the chart below to determine what is required to connect to the engine system, then use the links in the table to obtain the instructions (in a PDF document), password and the software necessary. All of the items listed below can be purchased from any IMPCO distributor. The CAN Bus Adapters (also known as "Dongles") may be purchased directly from the manufacturer.

Spectrum Series	Engine(s)	DST Software	DST Password	DST Instructions	CAN Bus Adapter	CAN Bus Software	Cable
							
II	2004-2006 GM 3.0L & 4.3L	Series II	Password	Series II DST Instructions	ECOM, P/N E2046002	32-bit 64-bit	P/N E1557400
III	2007-2009 GM 3.0L & 4.3L	Series III	Password	Series III DST Instructions	ECOM, P/N E2046002	32-bit	N/A
	2007- Mazda 2.0L & 2.2L					64-bit	
IV (Stationary)	2010- GM 3.0L, 5.0L & 5.7L	Series IV	Password	Series IV DST Instructions	iFak, P/N ISCAN-USB	iFak	P/N 1534008
IV (Mobile)	2010- GM 2.4L, 3.0L & 4.3L				Kvaser Lite	Kvaser	

Bart: Modify the above table as shown above—only the two right-most columns have changed. Note that in the CAN Bus Adapter column, the iFak and Kvaser driver links have appeared to some of our customers as the same link. Please separate them so they appear as two different links.

Engine(s)

Use the Spectrum Application Chart to determine the year in which the engine is certified (as shown on the emission label) and the engine make and size.

NOTE: The engine model year (the year the engine and its fuel system are certified) may be different from the model year of the truck, generator or the application using the engine.

DST Software

The Diagnostic Scan Tool (DST) is the IMPCO supplied software installed on the laptop that provides the end user with the means to read the Diagnostic Trouble Codes (DTCs), sensor outputs, monitor engine performance, etc. It can be downloaded by clicking the link in the table above. Refer to the OEM Service Manual for DTCs and diagnostics.

Supported laptop operating systems are:

Windows Operating System	Minimum RAM	Spectrum II	Spectrum III	Spectrum IV
Windows 8 (32/64 Bit)		.	.	.
Windows 7 (32/64 Bit)	1 GB	.	.	.
Windows Vista (32/64 Bit)	512 MB	.	.	.
Windows XP (32/64 Bit)	256 MB	.	.	.
Windows 2000	128 MB	.	.	.

DST Software Password

The password necessary to install the DST software. Click on the link in the table to download this password.

DST Instructions

A PDF file (read by Adobe Acrobat) provides step by step, detailed instructions on how to install the DST and CAN (Controller Area Network) bus Adapter software, connect to the application and retrieve codes and live information from the ECM. Click on the link in the table to download this password.

CAN Bus Adapter

The CAN bus Adapter, such as an ECOM, iFak or Kvaser converts the signals from the application's ECM CAN protocol into a format that can be read by the DST on the laptop. The CAN Bus adapter can be purchased from any IMPCO distributor or directly from the manufacturer.

CAN Bus Adapter Software/Driver

The laptop requires software or a driver to communicate with the CAN Bus adapter. Click on the link in the table to download this password.

NOTE: The ECOM CAN bus adapter requires either a 32-bit or 64-bit driver, depending on the operating system (OS). Older computers use a 32-bit system, while most new ones use a 64-bit. To determine the operating system of your Windows computer, go to Control Panel→System and note the OS listed next to "System Type." **NOTE:** Only the ECOM driver requires either the 32- or 64-bit driver, the iFak and Kvaser drivers work with either 32- or 64-bit systems.

Engine Connection Cable

The CAN bus adapter requires the correct cable to connect to the diagnostic port on the application's engine wire harness. The CAN Bus adapter can be purchased from any IMPCO distributor or directly from the manufacturer.

FAQs

The computer can't connect and the message "J1939 Can't Connect" or a similar error message appears.

- Following the step by step instructions, double check that the software was installed properly:
 - DST Software (verify it is set to the correct ECM and CAN bus adapter, if applicable). Refer to the DST Instructions.
 - CAN Bus adapter (ECOM, iFak or Kvaser) driver is not installed.
 - If necessary, reinstall the DST and CAN Bus adapter software.
- Verify that the installer has administrative privileges on the laptop and that no firewall, anti-virus programs or other software is interfering with the DST software and driver.
- Verify all electrical connections are good and the connectors are not damaged on either the CAN bus adapter or the application's electrical harness.
- Connect to another Spectrum System to verify the system is working properly.
- Use another laptop.

Can IMPCO determine my system by the truck's serial number, model or production year?

IMPCO does not record OEM serial numbers, model or production year information and a Spectrum Series type cannot be determined with this information. The emission label is the easiest way to determine the engine and its model year.

Where can I obtain the ECM software or calibration?

The software, calibration or firmware installed on the ECM is proprietary to the Original Equipment Manufacturer (OEM) and IMPCO cannot supply the calibration to anyone other than the OEM. If an ECM requires new software (reflashing), the software or calibration must be obtained through the OEM network.

Service Manuals

Application service manuals are provided by the OEM.

Can I connect to an older application or non-certified system?

Applications with IMPCO fuel systems produced 2003 and earlier and non-certified applications used in markets outside of the U.S. are not electronically controlled by an ECM and do not have the diagnostic capability of the emission certified applications.

Why is a Password Required?

The password determines the level of access to the application's ECM. Some passwords allow read-only access to **an** ECM while others allow reflashing and reprogramming.

I'm stuck and I need help!

Contact IMPCO Industrial Technical Support at indtech@impcotechnologies.com or (714) 656-1200 8AM to 5PM M-F PST.