

X-Motor Zebra™



by Zebra Instruments



An Easy-To-Use Interface That Allows You To:

- Accurately diagnose exactly which component or sub-component has failed in an X - Motor system that isn't working correctly.
- Visually monitor all speed call signals coming from the furnace/air handler control boards.
- Interrupt those signals - and send the speed calls you desire - to observe how it operates.
- Adapters are INCLUDED for X-Motor systems (**X-13** plus Other Motor Manufacturers.)
- Adapters are INCLUDED for the new **ECM 142** Motors (ECM Condenser Fan Motors.)
- Two DVD's INCLUDED: "Basic ECM Principles" and "How to Troubleshoot with the VZ-6."

More Features and Explanations on Back

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- Take This Quiz -

Q • What is the **Number One Problem** found in defective ECM and X-Motors?

- A • Shorted Windings
- B • Seized Shaft Bearings
- C • Open Windings
- D • “Blown” Electronics Module

A • Sadly, the answer is: *none of the above*. GENTEQ (**G.E.** - who makes a large portion of these type motors) reports that **over 41%** of all motors returned actually have **no problem found**. Somebody (your company - or your customer) bought a very expensive motor needlessly.

Q • What tools can I use to correctly diagnose problems in an ECM System?

- A • True RMS AC Voltmeter/Wattmeter
- B • Ohmmeter/Continuity Tester
- C • Dedicated ‘Motor Test Box’ from the manufacturer
- D • Sledge Hammer

A • Another disappointing answer. Most of the Techs who returned all those “no problem found” motors already owned the first three tools (maybe the fourth!) - and still missed the problem. With **as many as 10 wires** going to X-motors, (21 wires to ‘standard’ ECM’s) the days of Common-High-Medium-Low are starting to disappear. With **over 10 million** of these systems already in use, chances are that you will run into one with a problem *sooner* than *later*.

The best tool to diagnose what’s going on in an X - Motor System is an *in-line* diagnostic tool. The **X - Motor Zebra** is exactly that: a tool that connects *between* the air handler’s circuit boards and the motor. It operates *in-line* with the system, in *real time*, testing *both major sections* (motor and control boards) simultaneously. It monitors the signals going out of the circuit boards, displays them for you and then either (a) passes them along to the motor, or (b) allows you to interrupt the signals and to control the functions of the motor directly.

Three Red LED’s graphically display if the system control voltages are **OK**, **Questionable**, or **Low**.

If the problem is determined to actually be in the motor, a special “Winding Test” circuit analyzes the motor for shorts, opens, and frame shorts; advising you if the motor itself needs replacement, or if the electronics module is at fault (much less expensive, if one is separately available.)

The **X - Motor Zebra** is simple to operate; but don’t let the simplicity fool you. At its heart are circuits and displays that take the guesswork out of what is wrong when you are called to repair a malfunctioning X - Motor System. The **X - Motor Zebra** is housed in a rugged carry case to protect it and its harnesses. **Two DVD’s are included** - to teach ECM Theory and Troubleshooting the X - Motor. A printed Mini-Manual is also included. The **X - Motor Zebra** is covered by a manufacturer’s One-Year Limited Warranty.

Q • Zebra Instruments makes more than one diagnostic Motor tool. Which one do I need?

A • Use the chart below to determine the best choice for you:

Tool	Cost	X - Type Motors	16-Pin Signal Connector Motors
X - Motor Zebra (VZ-6)	\$	- Compatible - (Adapters for X-Motors and ECM 142 Motors Included)	- Not Compatible -
Variable Speed Zebra (VZ-7)	\$\$	- Compatible - (<i>but adapters optional for X-Motors (\$) and ECM 142 (\$) Motors</i>)	- Compatible - (<i>Except for Carrier Infinity-type Systems</i>)

Model: VZ-6 Made in the U.S.A.

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