

ECM 3.0 Motor Troubleshooting



GE ECM

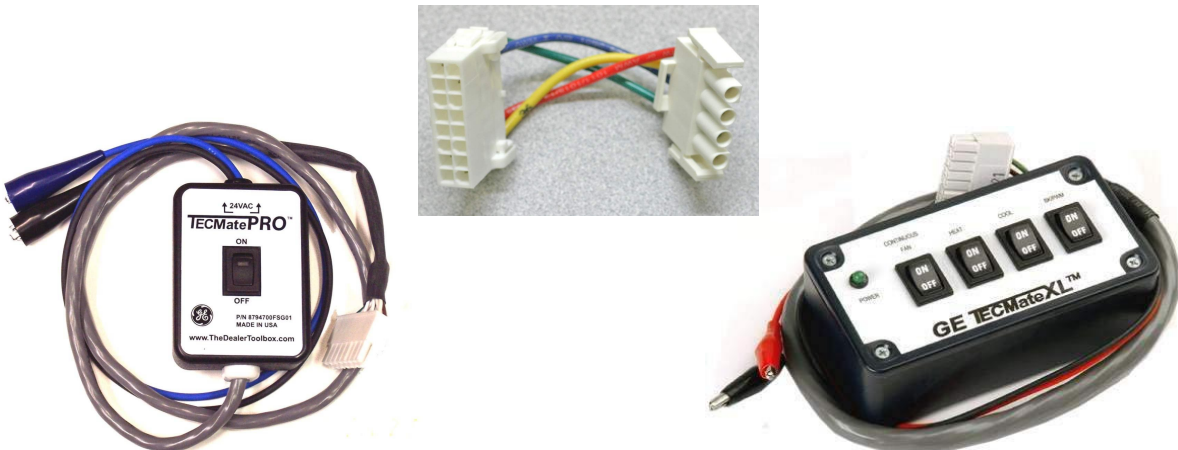
By REGAL-BELOIT

Christopher Mohalley — GE ECM Master Motor Trainer

The next generation variable speed motor model 3.0 is now in the field. This model has a few notable external changes from its predecessors. The 16-pin communication connector has been replaced with a 4-pin connector, the control has been reduced in size and changed in appearance. The change to the 4-pin connector is possible due to the Digital Serial Communication (DSI) used by this control. Often called simply a “communicating motor”, information is transferred between the system control board and the motor control in a manner equal to two computers or a computer connected to a peripheral such as a printer.



This will immediately raise the question, “How do I troubleshoot this motor”? The answer is, with your existing TECMate. We have programmed the model 3.0 to be compatible with the TECMate PRO model and the discontinued XL model. Either of these will troubleshoot a 3.0 motor with the simple use of a 16-pin to 4-pin adapter plug. This adapter can be ordered for free on our website www.theDealerToolbox.com in the “Service Tools “drawer. If you do not currently own a TECMate, the PRO model, available on the website, will come with the adapter.

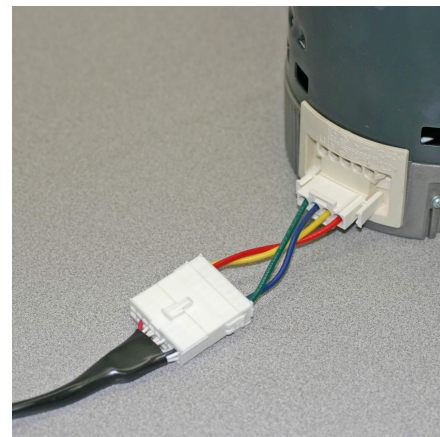


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Earlier this year (2007) we updated our motor troubleshooting information and released the ECM Service Guide to cover all of our ECM indoor blower motors. Until the next revision of the service guide, the following information will help you to troubleshoot the new model 3.0 (copies can be downloaded for free or ordered on the website www.theDealerToolbox.com in the “Service Tools” drawer). In the guide is a section for troubleshooting 2.0/2.3/2.5 motors. The model 3.0 will follow the same troubleshooting as the 2.0/2.3.



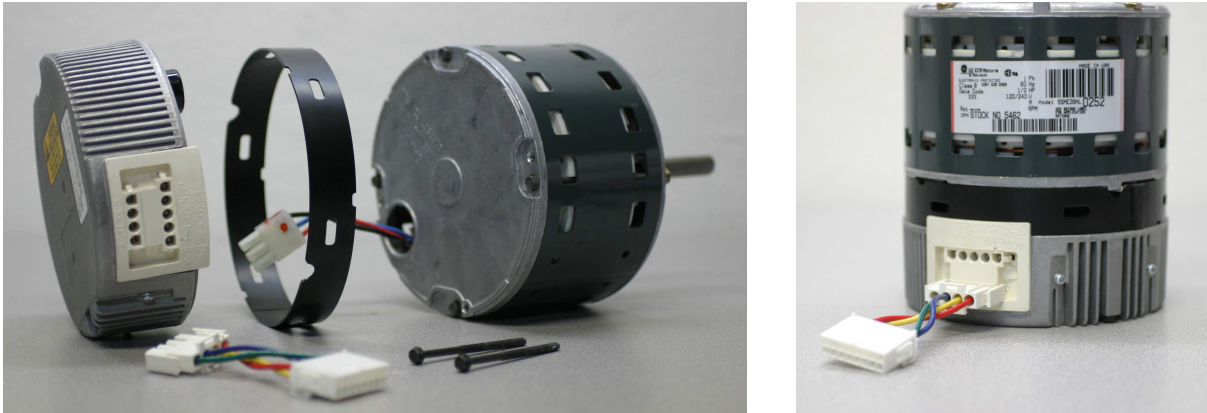
If the troubleshooting process takes you to using the TECMate and you have a PRO model, the only change will be the use of the 16-4 pin adapter. If you have an XL model, other than using the adapter, the only switch on the XL that is needed to test the model 3.0 motor is the last or far right switch typically labeled “BK/PWM”.



If the troubleshooting process takes you to the “Module Replacement” section of the guide, the model 3.0 motor module will ohm out the same as 2.0/2.3/2.5 models and is also available as a control only replacement.

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If a 3.0 control or motor needs to be replaced, like all ECM parts, they will have to come directly from the OEM (Original Equipment Manufacturer). The model 3.0 is also a direct replacement for the model 2.5 motor that will be discontinued early 2008 (used exclusively by Carrier Infinity and Bryant Evolution Systems). If a 2.5 control fails (depending on current stock levels) the replacement control will be the 3.0. Therefore, the model 3.0 control ordered from Carrier/Bryant will include a 16-4 pin adapter (the model 2.5 used the 16-pin plug) and an adapter ring with new bolts, to allow the 3.0 control to attach to the 2.5 motor. It sounds more difficult than it really is, as shown in the picture below.



The model 3.0 motor also provides many new internal features that increase reliability and simplify system set-up. To learn more about this new motor go to www.theDealerToolbox.com and click on the “Products” drawer.

As with all ECM driven systems proper set-up at the time of installation and troubleshooting will require the OEM manuals. It is also a good practice to attend classes provided by the OEM on these advanced HVAC systems.

Should you have any additional questions, please contact us at support@thedealertools.com.