

Each year, vehicles seem to get more and more complicated. For example, the X404 can be fitted with as many as 23 control modules depending on the model. Although this high number of control modules will likely make you think that working with them will make your job harder, the fact is that they actually make it easier to service and diagnose the vehicle.

Some of the reasons for this increase in the number of control modules are:

- The need for sophisticated engine controls to meet emissions and fuel-economy standards
- Advanced diagnostics
- Simplification of the manufacture and design of cars
- Reduction of the amount of wiring in cars
- New safety features
- New comfort and convenience features

For example, one of the most important modules is the instrument cluster. The instrument cluster gathers and displays data from various parts of the vehicle. Other modules in the car already use most of this data. For instance, the ECM knows the coolant temperature and engine speed. The transmission controller knows the vehicle speed. The controller for the anti-lock braking system (ABS) knows if there is a problem with the ABS.

Over the last decade, safety systems such as ABS and airbags have become standard equipment across the whole Jaguar model range. Other safety features such as traction-control and stability-control systems are starting to become common as well. Each of these systems adds a new module to the car, and this module contains multiple microprocessors. In the future, there will be more and more of these modules all over the car as new electronically controlled systems need their own computer controlled device to operate accordingly.

As you will see in the following model-specific chapters, knowing all the specific modules used on each model line and also how to service and program them, will make your job much easier.