

Boat Q&A Talk

Q: Dear Boat Talk: On a recent visit to the boat show I kept hearing the term “Fly-by-wire”. What were they taking about?
GG, Bellrose, NY.

A: Dear GG: You will be hearing much more about this new technology in the future. “Fly-by-wire” is also known as “digital throttle and shift” depending upon the boat manufacturer.

This new technology eliminates the mechanical control cables that allowed the engine to throttle up and provided the forward, neutral, and reverse function. By replacing the sloppy mechanical cables, more accurate control is possible. With Fly-by-wire, a local Control Area Network (CAN) which is a wired cable assembly, is connected from the engine’s Electronic Control Unit, or ECU, to the dashboard controllers and gauges. When the throttle handle is moved to increase the speed of the engine, an electronic signal is sent down the wires to the engine speed controller. The engine responds electrically, rather than mechanically. The same is also true with the shift function.

Once the CAN network is installed, the engine control unit will also send engine performance data to the gauges or even to a display unit on the dash. The CAN is capable of two-way communication. Either the throttle and shift information is sent to the engine ECU or the ECU will send data to the gauges. This engine data was impossible to view under the old system, since a laptop computer was required to be connected to the engine ECU

to review this data. Many gauges will now become multifunction gauges, that is programmable, and will be able to display whatever data the operator desires. Instead of displaying only tachometer information, the same gauge will be able to display many different readings such as cylinder head temperature, water temperature, or even fuel consumption.

Other dashboard displays are also capable of displaying engine performance data. For example, a GPS or radar display is able to interface with the CAN, and display all manner of system data. Over eighty different parameters are available in most systems.

Expanding the system is an easy process. Since all gauges and displays are plug and play, much like modern computer peripheral devices, additional gauges or displays are simply attached to the CAN with connectors. The CAN software will recognize the additional equipment and react accordingly.

While the initial cost of these new systems is high at this time, as more and more systems are produced, the cost will begin to approach that of the old hard wired and mechanical system it replaces.

Address your questions to:

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