

CONTROLLER AREA NETWORK (CAN)

GENERAL

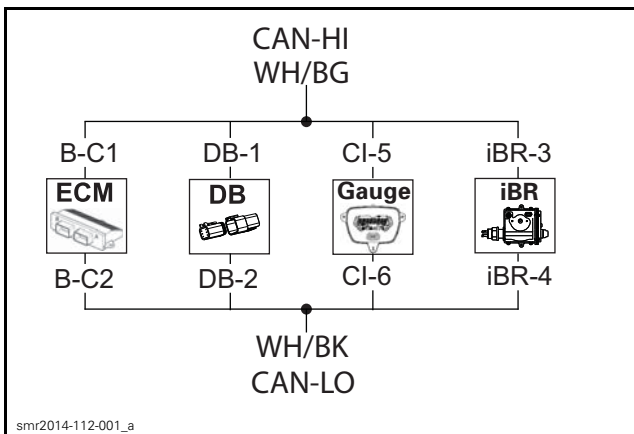
SYSTEM DESCRIPTION

The CAN (Controller Area Network) protocol is an ISO standard for serial data communication.

The CAN bus, which is composed of a pair of twisted wires (WHITE/BEIGE and WHITE/BLACK), is the nervous system of the iControl system and the engine management system (EMS). It links the electronic modules (ECUs) together, allowing them to communicate and interact with each other as required.

Using B.U.D.S., technicians may also communicate through the diagnostic connector (DB) with the ECM (Engine Control Module), iBR and the multifunction gauge for various reasons such as:

- extracting data
- reprogramming a module
- changing settings
- viewing fault codes
- and for various other functions.



CAN BUS DIAGRAM

TROUBLESHOOTING

DIAGNOSTIC TIPS

Check for fault codes using B.U.D.S. as a first troubleshooting step. Refer to *DIAGNOSTIC AND FAULT CODES* subsection.

Make sure the modules are powered before testing CAN.

CAN Communication Problems

The following chart provides some symptoms and behaviors relative to the CAN component in cause. The list is not exhaustive, only the most significant items are given to help in troubleshooting.

CAN FAULTY WIRES (no communication)	VEHICLE BEHAVIOR OR OBSERVATION IN INFORMATION CENTER	OBSERVATION IN B.U.D.S.
Diagnostic connector not secured in its holder (may hang down in bilge water)	CAN intermittent problems. Strange behavior of multifunction gauge. Inoperative electronic systems in watercraft.	Nothing
Water in holder of diagnostic connector (particularly with salt water)	CAN intermittent problems. Strange behavior of multifunction gauge. Inoperative electronic systems in watercraft.	Nothing
Short circuit in CAN wires	Engine is set to limp home mode. iBR gate will not move. "Locked" in neutral. iBR light is ON. Check engine light is ON.	B.U.D.S. will not be able to communicate with any electronic module. "No vehicle detected" message will be displayed in B.U.D.S.
Multifunction gauge	Check engine light is ON. iBR light is ON. Some functions not displayed such as: Engine hours and RPM.	2 modules instead of 3 will be active. "Cluster" tab and its data will not be available in B.U.D.S. ECM and iBR will report a cluster CAN problem.
ECM (Engine Control Module)	Engine is set to limp home mode. Check engine light is ON. Some functions not displayed such as: Engine hours and RPM.	2 modules instead of 3 will be active. ECM tab and its data will not be available in B.U.D.S.
iBR (intelligent Brake and Reverse)	Engine is set to limp home mode. iBR gate will not move. "Locked" in neutral. iBR light is ON. Check engine light is ON.	2 modules instead of 3 will be active. iBR tab and its data will not be available in B.U.D.S. ECM and iS will report an iBR CAN problem.
Depth sounder (If so equipped)	The menu Depth Sounder Indicator will not be visible. The Depth menu will not be available.	Nothing will be observable.
Diagnostic connector	Nothing will be observable.	B.U.D.S. will not be able to communicate with any electronic module. "No vehicle detected" message will be displayed in B.U.D.S.

NOTE: If the gauge cannot communicate with an optional module during the initial power up, the gauge will interpret this as if the vehicle is not equipped with it. No further test of the system occurs and no indication or fault message will be visible. If communication is interrupted after the gauge has already detected them, then the gauge will indicate that there is a communication fault.