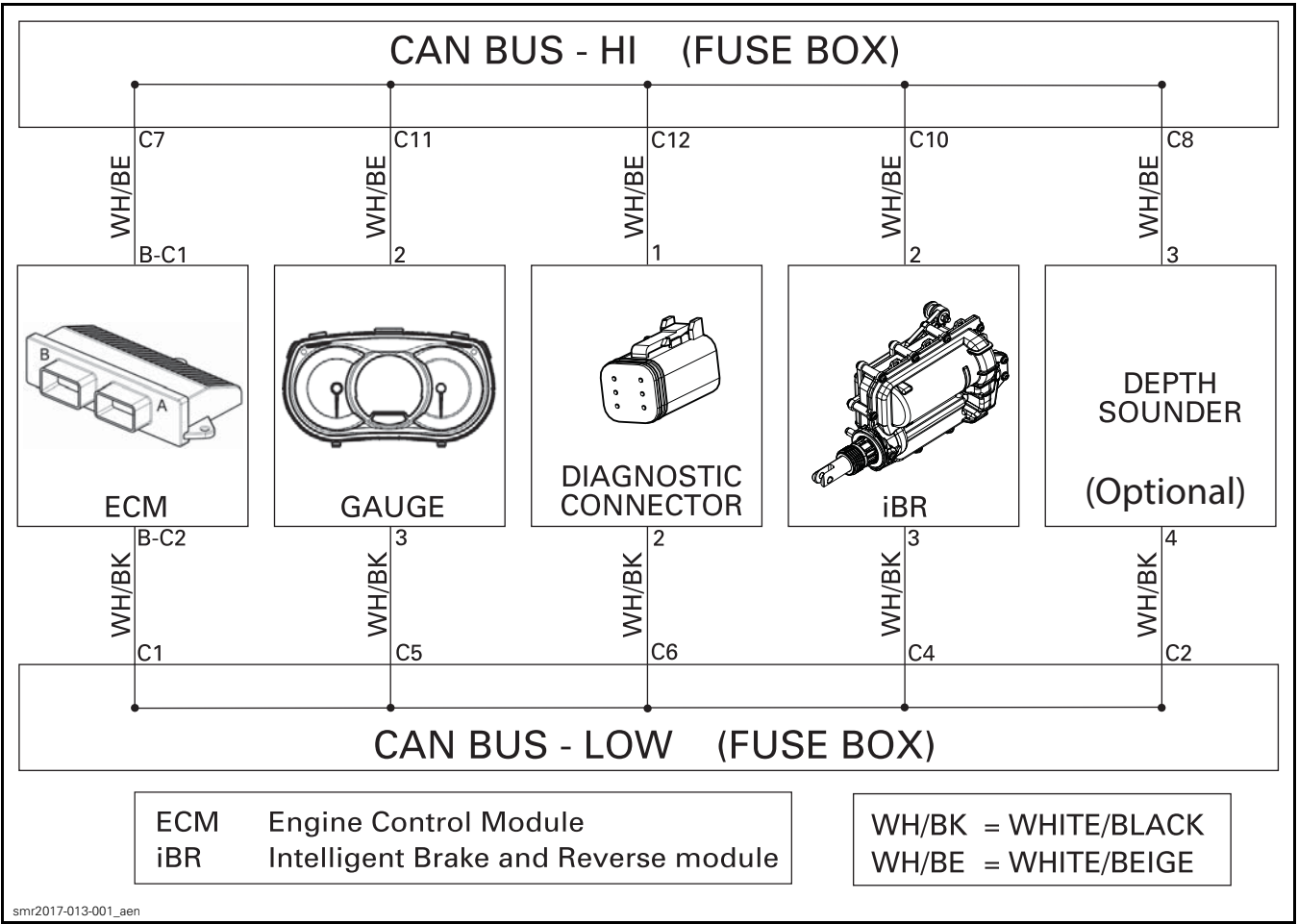


CONTROLLER AREA NETWORK (CAN)

GENERAL

SYSTEM DESCRIPTION

The CAN (Controller Area Network) protocol is an ISO standard for serial data communication. The CAN bus is the nervous system of the iControl system and the engine management system (EMS). It links the electronic modules (ECMs) together so that they communicate to interact as required. Two wires connect each component and they are in constant communication with each other at a rate of about every 10 or 100 milliseconds depending on the component. CAN lines consist of a pair of twisted wires (WHITE/BLACK and WHITE/BEIGE).



CAN BUS DIAGRAM

TROUBLESHOOTING

DIAGNOSTIC TIPS

Check the fault codes using BUDS2 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 gives 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 BUDS2
Diagnostic connector not secured in its holder (holder contains a 120Ω resistor)	CAN intermittent problems. NOTE: Occurs more frequently on watercraft equipped with 2 electronic modules.	Nothing
Water in holder of diagnostic connector (particularly with salt water)	Communication problems and strange behavior of information center. 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.	BUDS2 will not be able to communicate with any electronic module. "No vehicle detected" message will be displayed in BUDS2.
Information center (gauge)	Check engine light is ON. iBR light is ON. Some functions not displayed such as: Engine hours, VTS and RPM.	2 modules instead of 3 will be active. "Cluster" tab and its data will not be available in BUDS2 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. iBR light is ON. iBR gate "locked" in neutral. 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 BUDS2 iBR will report an ECM CAN problem.
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. Some functions not displayed such as: Lake water temperature, no VTS, no F, N and R indication.	2 modules instead of 3 will be active. iBR tab and its data will not be available in BUDS2 ECM will report an iBR CAN problem.
Depth sounder	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.	BUDS2 will not be able to communicate with any electronic module. "No vehicle detected" message will be displayed in BUDS2.

If the gauge cannot communicate with an optional accessory (e.g.: depth sounder) 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.