



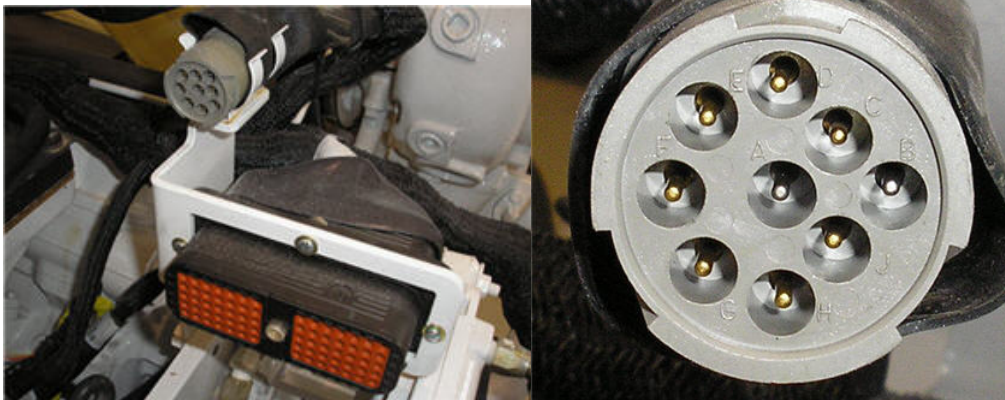
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Interfacing with Caterpillar Engines

CAT engines transmit and industry standard data protocol known as J1939. The J1939 protocol is an industrial protocol that was originally developed for the engine manufactures but has now worked it's way into other industries. CAT transmits this data onto a two-wire circuit known as a CAN bus (Controlled Area Network) CAN buses are used in almost all industries known today. The two wires in the circuit are designated as Can-high or Can-H and Can-Low or Can-L. CAN-H & CAN-L are not to be interpreted as data and ground it is what is known as a differential signal. The wire color designation is (rule of thumb) yellow for CAN-H and green for CAN-L, most manufactures follow this rule. For more detail info about J1939 go to: <http://www.kvaser.com/index.htm>

Embedded in the J1939 data string is all the relative engine parameters ex: oil pressure, oil temp, coolant temp and so on however along with the normal data CAT does also transmit encrypted proprietary data which is used by CAT service personnel. This proprietary data is not decoded by FT NavVision only the normal data is.

For reading CAT J1939 data there is two places you can read this data from, the first is near the CAT customer connector you will find a round 9 pin connector referred to by CAT as a diagnostic connector (see photo) the pins you need to be concerned about are labeled "A", "B", "F" and "G". The pins are as follows:



A is +24 VDC (switched)
B is Ground.
F is CAN-L
G is CAN-H



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The second place and most practical is from the connector that mates up with the CAT MPD displays at the helm (see photo). The pins you need to be concerned about are pins 1,3,4 and 5. The pins are as follows:

Pin 7 CAN H (Yellow)

Pin 8 CAN L (Green)

Pin 11 Power

Pin 12 Ground



To read the CAT J1939 data you will need a CAN to Serial converter to plug into the serial communication port on the PC. The one that you must use is manufactured by B & B Electronics

<http://www.vehicleinterface.com/product.asp?sku=HDV100A1> no other converter will work with FT NavVision software. If you have a twin engine application FT NavVision will see J1939 data coming in on two ports. FT NavVision is configured to read the lower com port as the port engine and the higher com port as the stbd engine. If FT NavVision recognizes the data the needles in the instruments will be light gray in color if it fails to see the data the needles will be dark gray in color.

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The following schematic shows you how to pick of the data and power from the wire side of the CAT MPD connector. If you do not wish to cut and crimp on to the wires, we have pre-made hookup adapter kits available.

