

I-COMMAND™

Installation and User's Guide



EVINRUDE®



SYSTEM OVERVIEW

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Evinrude® *E-TEC*™

I-Command™

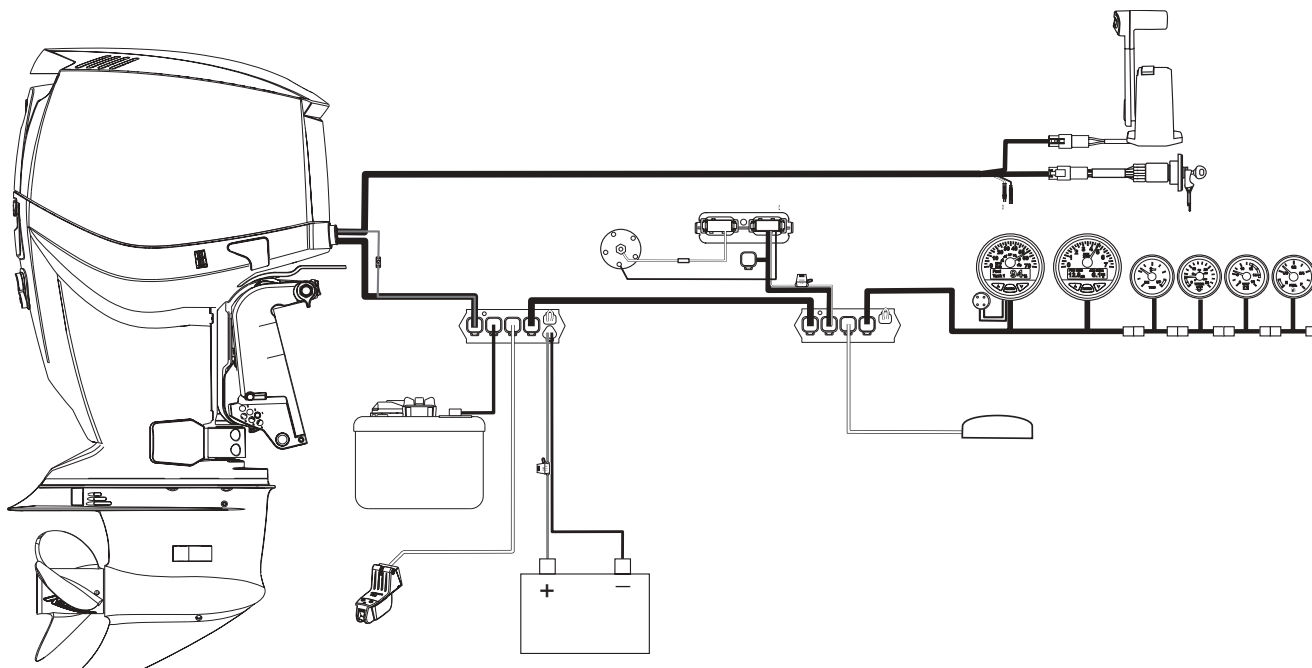
† NMEA 2000 is a registered trademark of the National Marine Electronics Association or its subsidiaries.

SYSTEM OVERVIEW

DESCRIPTION

DESCRIPTION

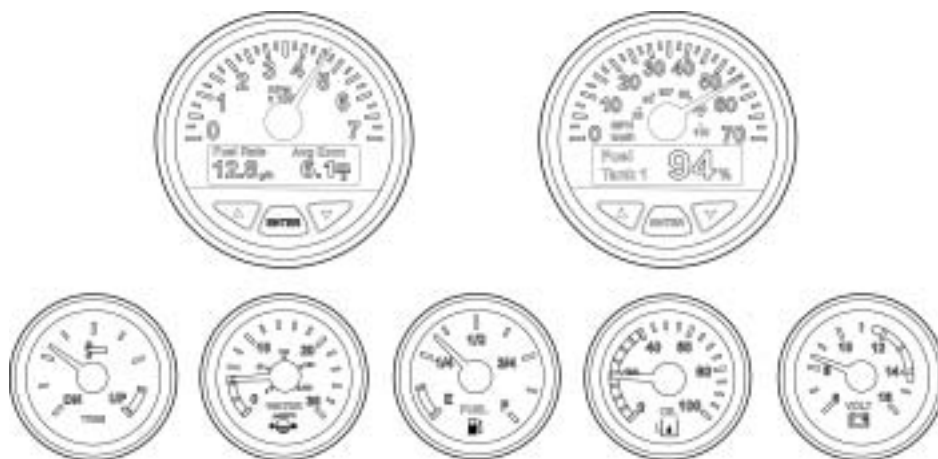
The *I-Command*™ Integrated Performance System uses “plug and play” networking technology based on NMEA 2000⁺ data communications standards. These standards provide communications through a serial data network utilizing a Controller Area Network (CAN) integrated circuit (IC). This network operates at 250 kbits/second and allows multiple electronic devices to be connected together on a common channel for easy information sharing.



I-Command “CANbus” Network Diagram



004840

The *I-Command* instruments are designed specifically for the NMEA (National Marine Electronics Association) 2000 certified *Evinrude*® *E-TEC*™ outboards. *I-Command* instruments provide enhanced display of engine and boat performance information. Multiple functions are integrated into the easy-to-use tachometer and speedometer. Additional individual instruments and accessories can be added with the “plug and play design.”



I-Command Instruments

DISPLAY FEATURES

<p style="text-align: center;"><i>I-Command</i> Multifunction Instruments</p>	<p style="text-align: center;">Tachometer</p> 	<p style="text-align: center;">Speedometer</p> 
<p style="text-align: center;">Basic Functions</p>	<p style="text-align: center;">Primary Instrument⁽¹⁾</p>	
Gauge Brightness	✓	✓
Engine Warning Displays	✓	
GPS Interface ⁽²⁾ to <i>I-Command</i> network	✓	✓
Transducer Interface to <i>I-Command</i> network	✓	✓
<i>I-Command</i> Accessory Instrument Connection	✓	
LCD Displays – Dual Data Display	✓	✓
System Setup	✓	✓
<p style="text-align: center;">Screen Displays</p>		
Digital Tachometer	✓	
Digital Speedometer ⁽³⁾		✓
Engine Hour Meter	✓	
Engine Trim Angle	✓	
Fuel Flow Rate	✓	
Engine Temperature	✓	
Water Pressure ⁽⁴⁾	✓	
Battery voltage	✓	
Fuel Tank Level		✓
Oil Tank Level ⁽⁵⁾	✓	
Water Temperature ⁽⁶⁾ (sea water)		✓
Barometric Pressure	✓	
Depth ⁽⁶⁾		✓
Rate of Fuel Consumption	✓	

(1) The *I-Command* tachometer is considered to be the “primary engine interface” instrument and is required for all installations.

(2) Requires NMEA 2000 GPS receiver/antenna connected to network.

(3) Requires NMEA 2000 transducer with speed input and/or NMEA 2000 GPS receiver/antenna. Use of GPS receiver provides “speed over ground” (SOG) and transducer with speed input provides “speed over water” (SOW). If both are present instrument needle displays SOW.

(4) Requires accessory water pressure transducer kit, P/N 5006214.

(5) Requires accessory oil tank sender kit.

(6) Requires NMEA 2000 transducer with speed and/or temperature input.

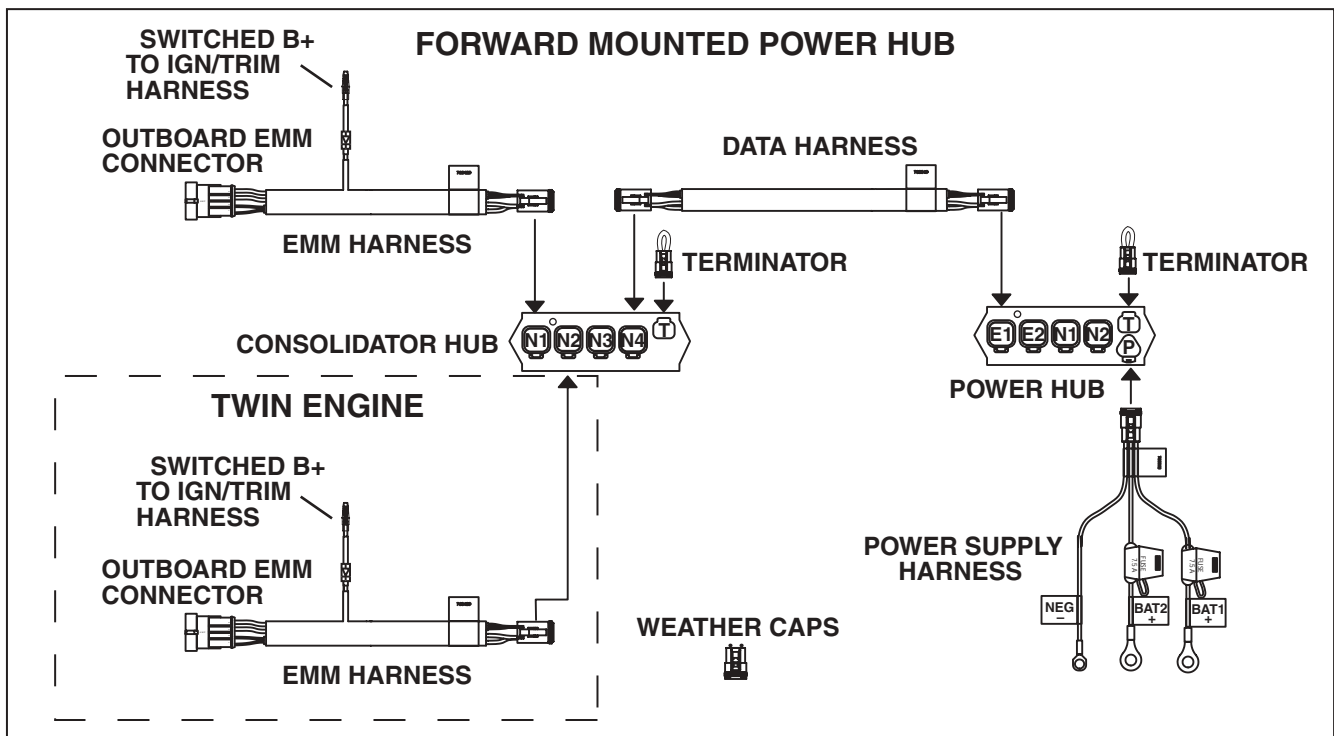
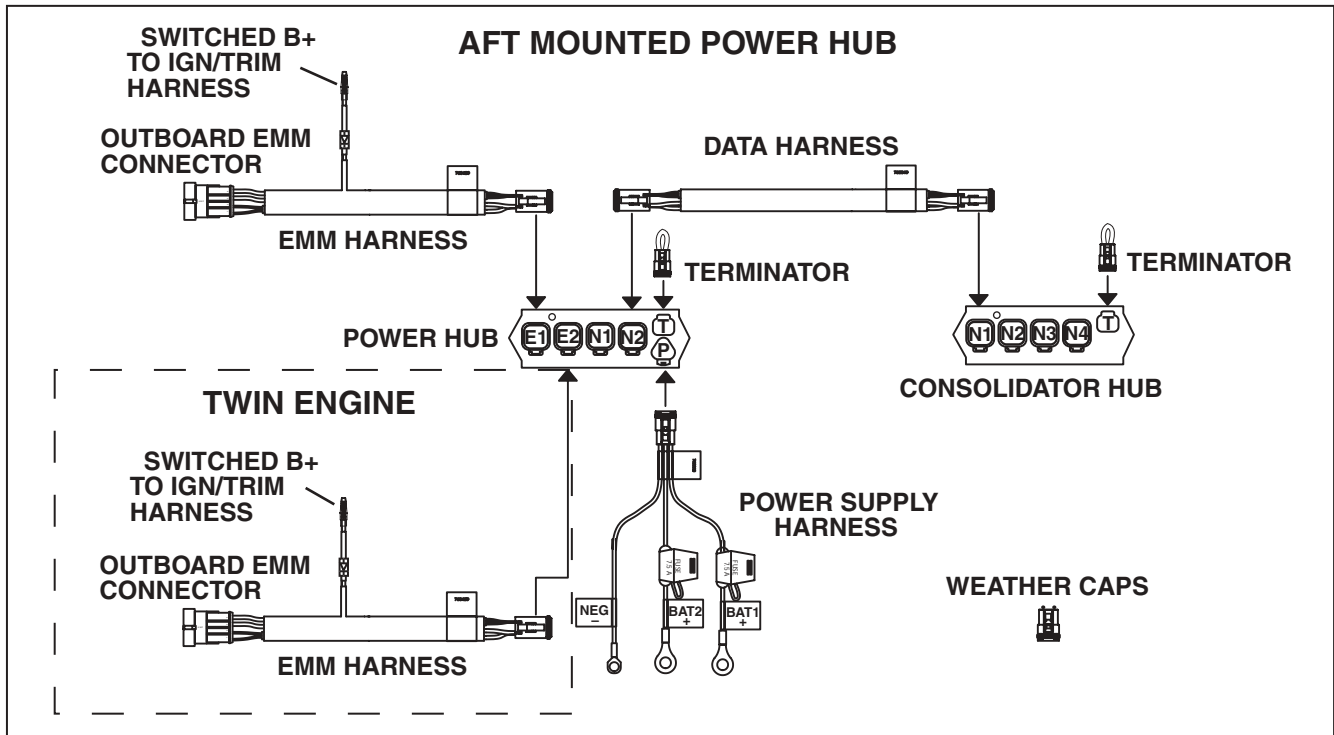
INSTRUMENTS AND COMPONENTS

I-Command Instruments



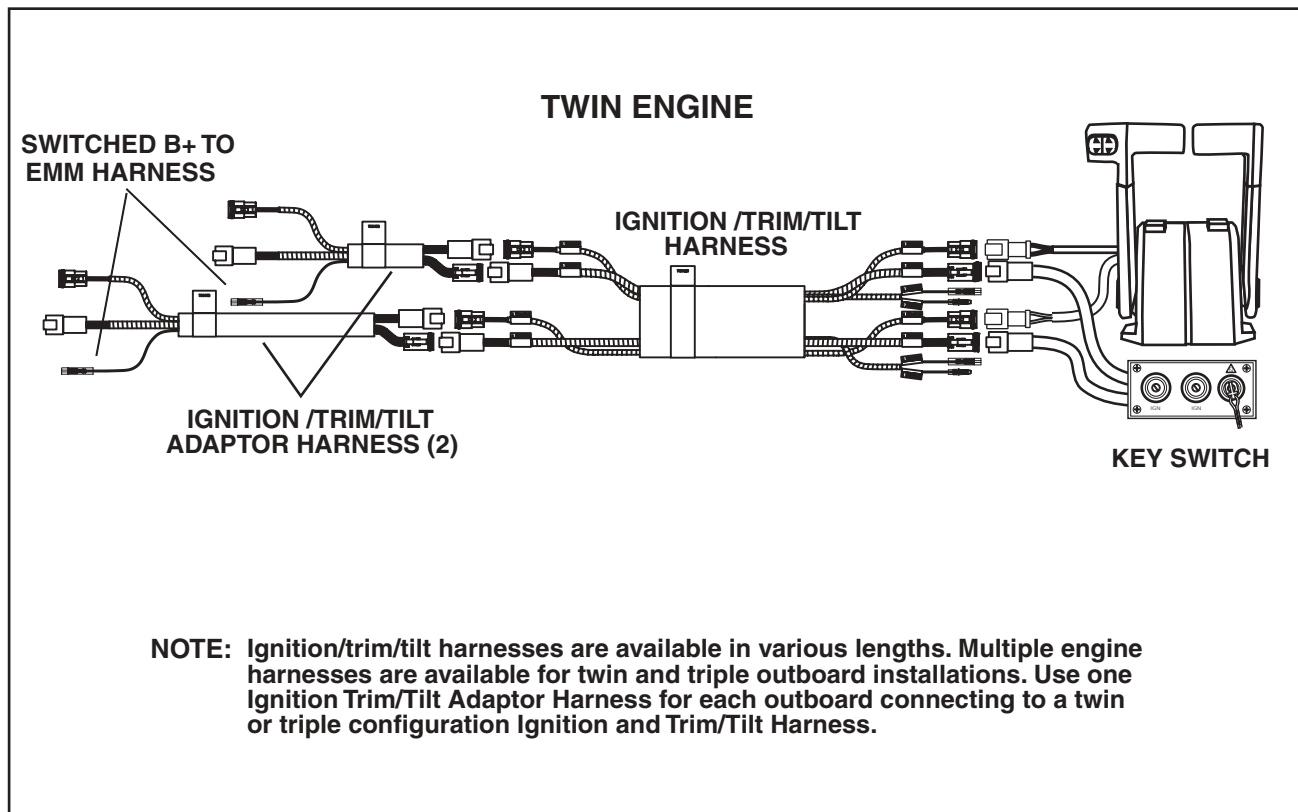
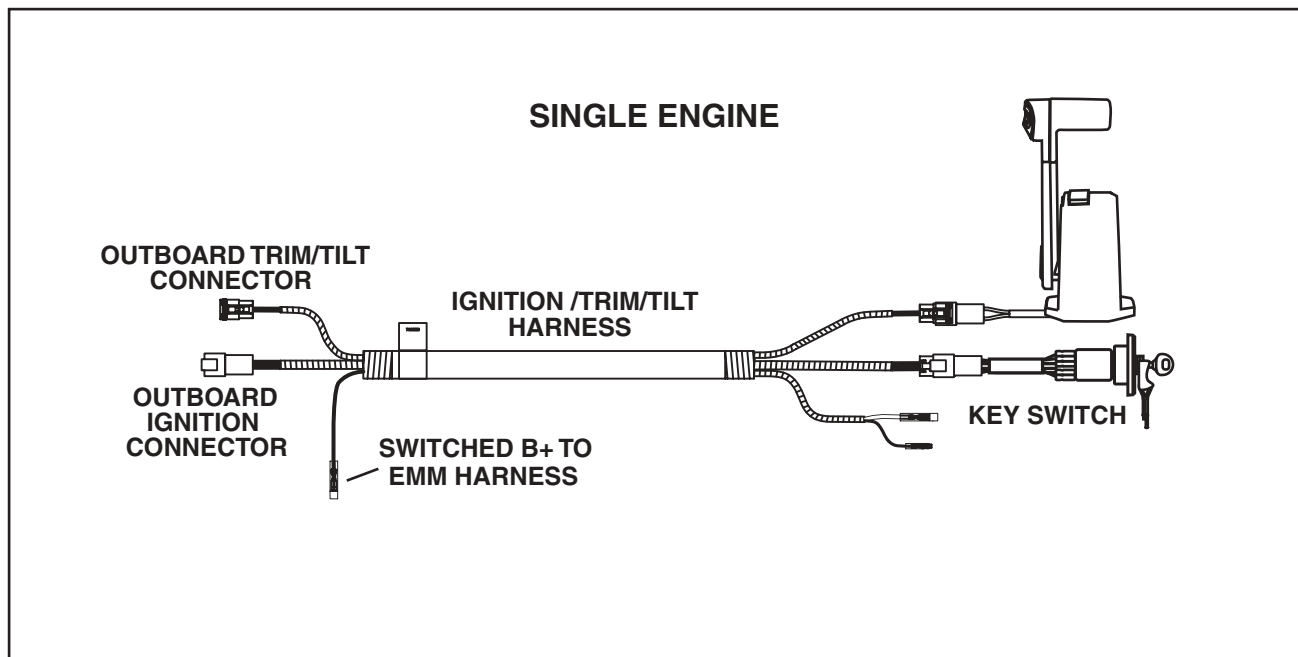
Description	Chrome Bezel White Dial	Black Chrome Bezel Light Grey Dial	Chrome Bezel Tan (Sand) Dial
3 1/2 in. Multifunction Instrument			
Tachometer 7000 RPM	763388*	763397*	763406*
Speedometer 50 MPH	763386	763395	763404
Speedometer 70 MPH	763385	763394	763403
Speedometer 80 MPH	763387	763396	763405
2 in. Instrument			
Fuel Tank Level	763380**	763389**	763398**
Battery Voltage	763381**	763390**	763399**
Water Pressure	763382**	763391**	763400**
Trim Angle	763383**	763392**	763401**
Oil Tank Level	763384**	763393**	763402**
3 1/2 in. Multifunction Instrument Kits			
Tachometer/Speedometer 50 MPH	763444*	763447*	763450*
Tachometer/Speedometer 70 MPH	763443*	763446*	763449*
Tachometer/Speedometer 80 MPH	763445*	763448*	763451*
* Includes Tachometer Harness, P/N 763358			
** Includes 2 In. Gauge Harness, P/N 763359			

I-Command Harness/Hub Diagram – Forward / Aft Mounted Power Hub



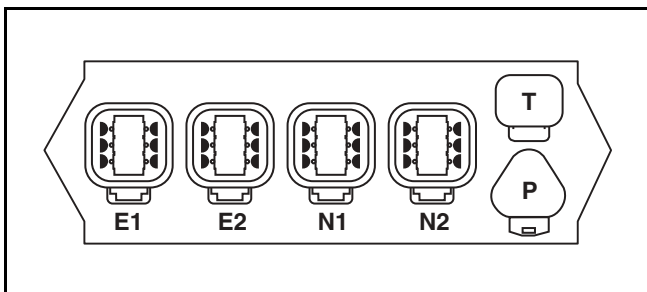
NOTE: THE "E1" AND "E2" CONNECTIONS ON THE POWER HUB CONTAIN THE "WAKE-UP" CIRCUIT FOR THE NETWORK. SWITCHED B+ MUST BE APPLIED TO PIN #6 OF ONE OR BOTH "E" CONNECTORS FOR THE POWER HUB TO TURN THE NETWORK ON.

Ignition/Trim/Tilt Harness Diagram



Power Hub

The *I-Command* Power Hub is the “main” network hub of the system. It requires a 12VDC power supply and provides engine interface connections (E1, E2) and network interface connections (N1, N2) for the *I-Command* system. Use one Power Supply Harness to connect directly to 12V battery(s). A red LED indicator on Power Hub is illuminated when network power is present. A vacant engine interface connection can be used as a network interface connection. See “Data Harness” on page 8.

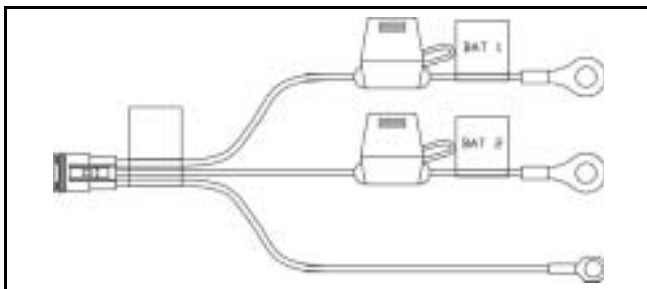


See “Power Supply Harness” on page 7 and “EMM Harness” on page 8.

IMPORTANT: Do not overload the network. Each network will support numerous NMEA 2000 approved devices. Do not exceed the 5 A power capacity of the network.

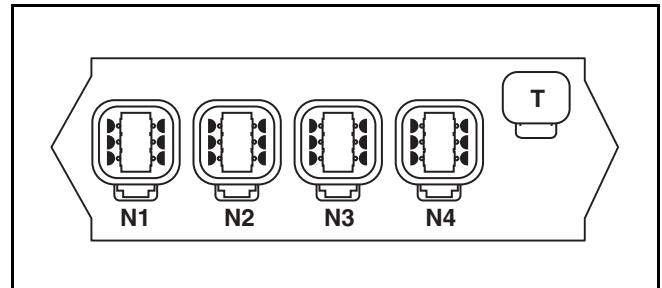
Power Supply Harness

The Power Supply Harness connects to the Power Hub and provides a protected (5 A) 12VDC power source directly from the battery(s). Two batteries can be connected to provide a redundant 12VDC power source. The Power Hub senses and selects the best battery input for powering the network. Each B+ lead of the Power Supply Harness is protected with an inline 5 A fuse.



Consolidator Hub

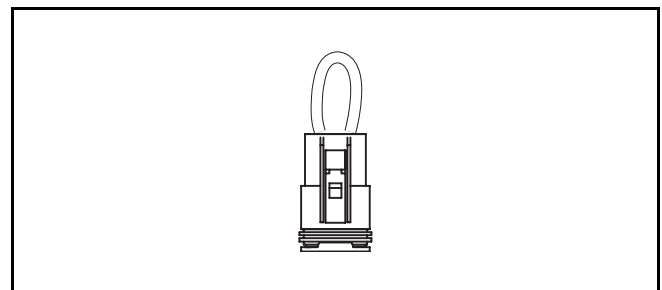
The consolidator hub provides multiple network interface connections (N1, N2, N3, N4) and connects to the Power Hub with a Data Harness. A red LED indicator on Consolidator Hub is illuminated when network power is present.



If multiple Consolidator Hubs are used in a single network, position the “second” terminator of the network in the last Consolidator Hub. Connect the last Consolidator Hub to the first Consolidator Hub using a Data Harness. See “EMM Harness” on page 8.

Terminator

Terminators provide reliable network data transmissions. Two terminators must be used for each *I-Command* Network. Typical applications use one terminator installed in Power Hub and one terminator installed in Consolidator Hub.

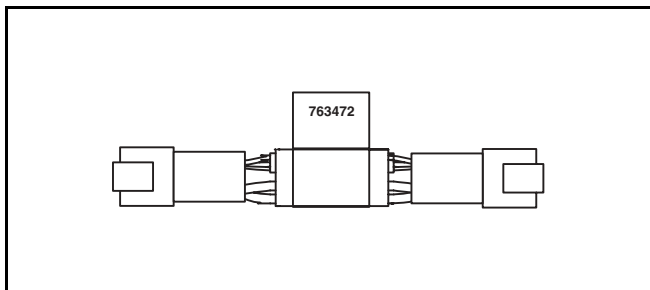


SYSTEM OVERVIEW

INSTRUMENTS AND COMPONENTS

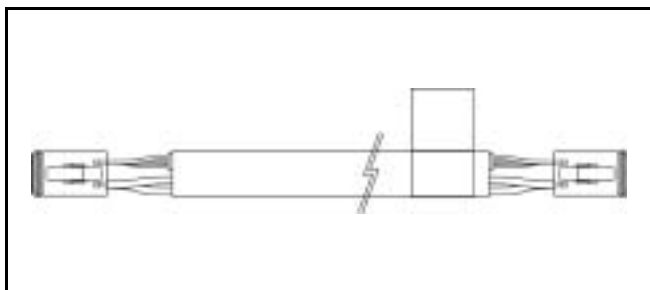
Terminator Harness

A Terminator Harness connects a Tachometer Harness to a Data Harness; or an *EMM* to Hub Harness to a Data Harness. This harness is used in place of a Consolidator Hub and provides the second terminator for the system. The first terminator must be installed in the Power Hub. See “NETWORK ASSEMBLY DIAGRAMS” on page 21. Use a Terminator Harness in single outboard installations only.



Data Harness

The Data Harness is the “backbone” of the network and is available in various lengths. This harness connects the Power Hub to a Consolidator Hub or to a Terminator Harness.

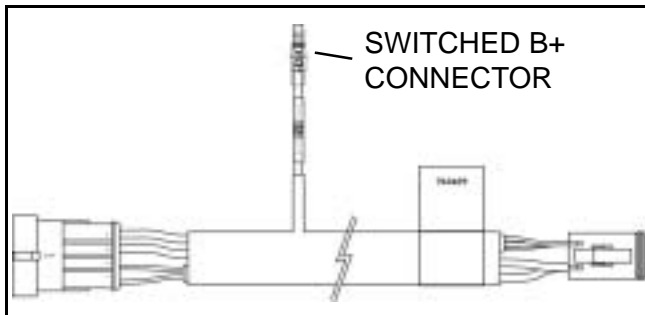


A Data Harness is also used to connect the first Consolidator Hub to a second Consolidator Hub in a network requiring more network interface connections (“N”). See “Consolidator Hub” on page 7.

EMM Harness

The *EMM* harness provides the network connection from each outboard to the network hub. It typically is plugged into the “E1” or “E2” connection of the Power Hub and provides the “wake up” signal to the network through the switched B+ circuit of the harness (pin 6). The switched B+ connection of the harness connects to the switched B+ lead

from the Ignition and Trim Harness of the outboard.

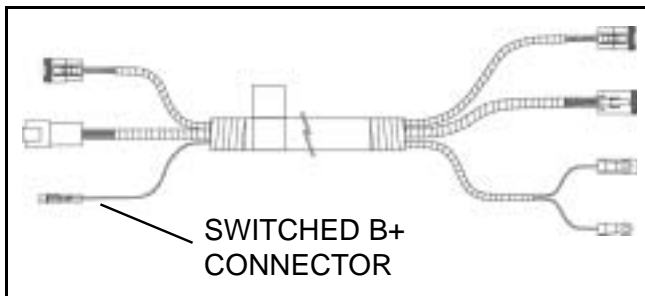


The *EMM* Harness can be connected to any network connection (“N” connection) on the network but the switched B+ of the Data Harness must ultimately connect to the “E1” or “E2” connector of the Power Hub to provide the “wake up” signal to the system. See “I-Command Harness/Hub Diagram – Forward / Aft Mounted Power Hub” on page 5 and “I-Command Harness/Hub Diagram – Forward / Aft Mounted Power Hub” on page 5.

IMPORTANT: Switched B+ is applied to pin 6 of the “E1” or “E2” connector of the Power Hub to turn the system ON.

Ignition and Trim/Tilt Harness

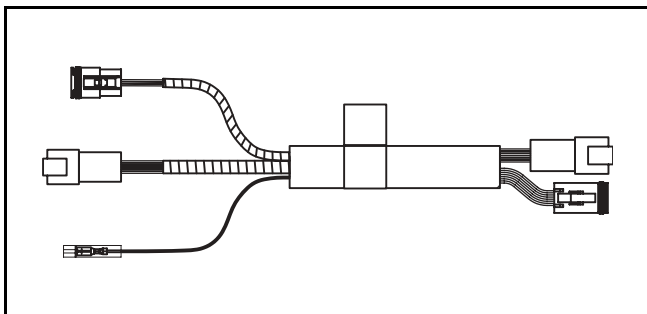
Outboards rigged with *I-Command* use a unique Ignition and Trim/Tilt Harness. This harness provides a switched B+ connection for the *EMM* Harness and a 47 ohm resistor for the trim sender circuit.



IMPORTANT: The Ignition and Trim/Tilt Harness is offered in various lengths and engine configurations. Single, twin and triple engine configurations are available. Twin and triple harnesses require the use of one Ignition and Trim/Tilt Adaptor Harness for each outboard. See “Ignition and Trim/Tilt Adaptor Harness” on page 9.

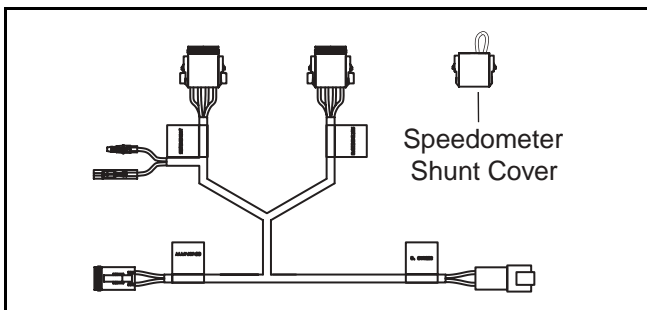
Ignition and Trim/Tilt Adaptor Harness

The Ignition and Trim/Tilt Adaptor Harness is used with twin and triple configuration Ignition Trim/Tilt Harnesses. Use one Ignition Trim/Tilt Adaptor Harness for each outboard (connecting to a twin or triple configuration Ignition and Trim/Tilt Harness.) This harness provides a switched B+ connection for the *EMM* Harness and a 47 ohm resistor for the trim sender circuit.



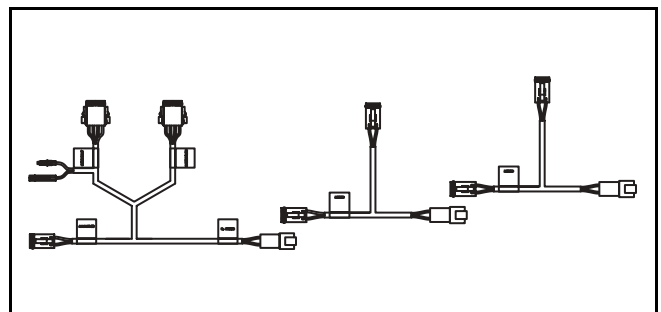
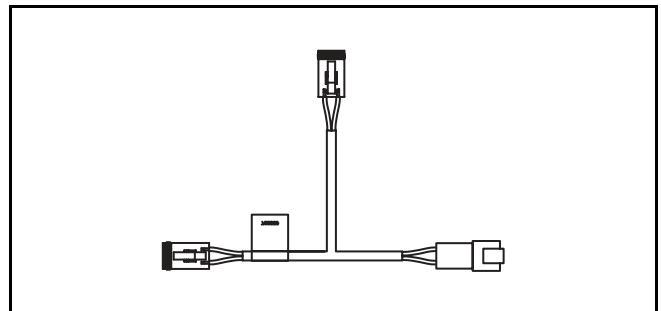
Tachometer Harness

The Tachometer Harness provides connections to the tachometer, the warning horn, the speedometer and the 2 in. gauge harness(s). This harness connects to a network connector of a Power Hub or a Consolidator Hub or to a Terminator Harness. The speedometer shunt cover completes the power circuit for 2 in. gauges and must be installed if speedometer is not connected. See “NETWORK ASSEMBLY DIAGRAMS” on page 21.



2 In. Gauge Harness

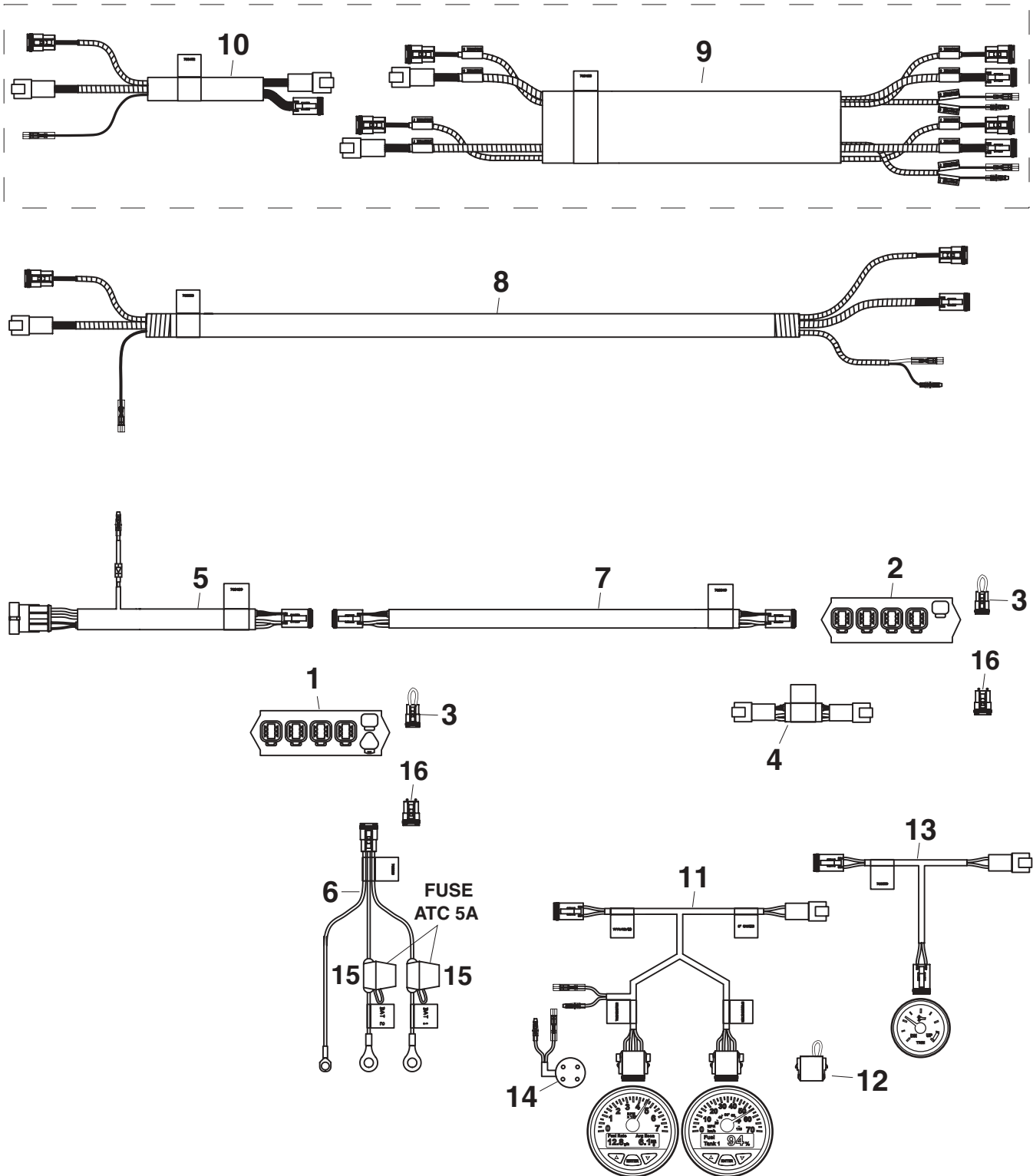
A 2 In. Gauge Harness provides the connection to each 2 in. gauge. The first harness connects to the Tachometer Harness. Additional 2 inch gauge harnesses connect to the first harness in series. See “NETWORK ASSEMBLY DIAGRAMS” on page 21.



NMEA 2000 Accessories

Various NMEA 2000 accessories are available to interface to the *I-Command* System. This is achieved by connecting to a “N” designated network interface connection of the system. See “NMEA 2000 CERTIFIED ELECTRONICS” on page 14.

COMPONENT CHART



**SYSTEM OVERVIEW
COMPONENT CHART**

1

No.	Description	Part Number						
1	Power Hub	763538						
2	Consolidator Hub	763539						
3	Terminator	763363						
4	Terminator Harness (8 in.)	763472						
Harness Lengths		5 ft.	10 ft.	12 ft.	15 ft.	20 ft.	25 ft.	28 ft.
5	<i>EMM</i> Harness		763540		763541			
6	Power Supply Harness	763360	763361		763362			
7	Data Harness	763554	763555		763556	763557		
8	Ign. and Trim/Tilt Harness - Single			763542	763543	763544	763545	763546
9	Ign. and Trim/Tilt Harness - Twin				763547	763548	763549	
	Ign. and Trim/Tilt Harness - Triple					763550	763551	
10	Ign. Trim/Tilt Adaptor Harness ⁽¹⁾	6 ft. - 763552 or 10 ft. - 763553						
11	Tach/Speedo Harness ⁽²⁾	763358						
12	Shunt Cover, speedometer connector ⁽³⁾	763491						
13	2 in. Gauge Harness ⁽²⁾	763359						
14	Buzzer/horn	763598						
15	Fuses	ATC 5 Amp: 763541 or ATC 1 Amp: 763640 (for SIM)						
16	Sealing connector (6 pin)	586076						

(1) Must be used with Twin or Triple Ign. Trim/Tilt Harness to adapt to outboards for proper connections. Use one adaptor harness for each outboard.

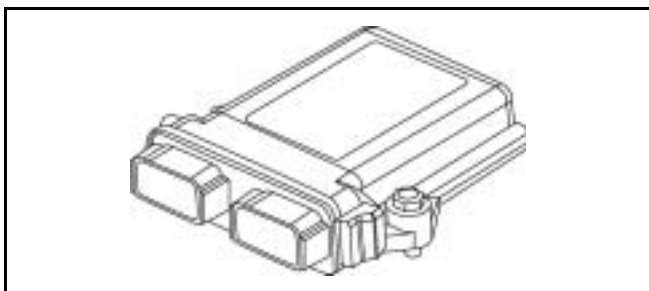
(2) Included with instrument. See "I-Command Instruments" on page 4.

(3) Included with Tachometer Harness. Must be in speedometer connector of Tachometer Harness if no speedometer is used. Provides power connection for 2 in. instruments and seals connector.

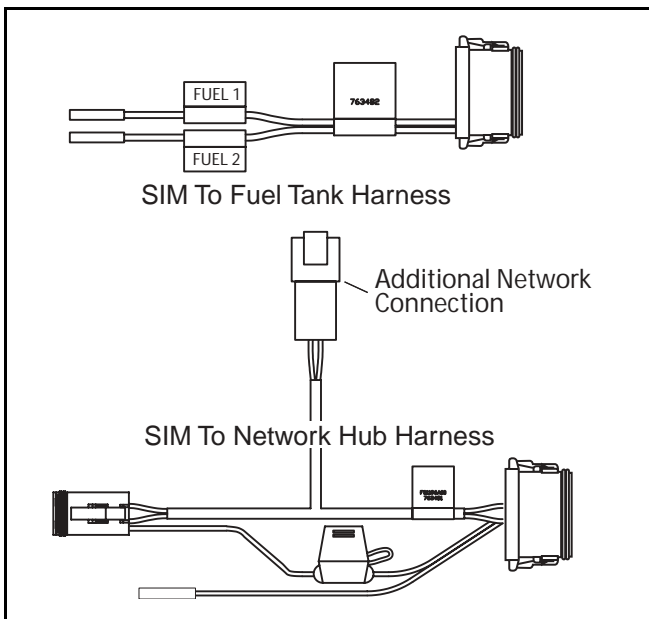
ACCESSORIES

Sensor Interface Module (SIM) Kit

The Sensor Interface Module Kit, P/N 763594, provides an interface for fuel tank level sending units (33 to 240 ohm) and enables fuel management by providing the *I-Command* network with fuel level calculations. The SIM interfaces with up to two (2) fuel tank senders.



The SIM to Network Harness is used for network interface and power supply (12V) connections, and the SIM to Fuel Tank Harness is used for fuel tank sending unit connections.



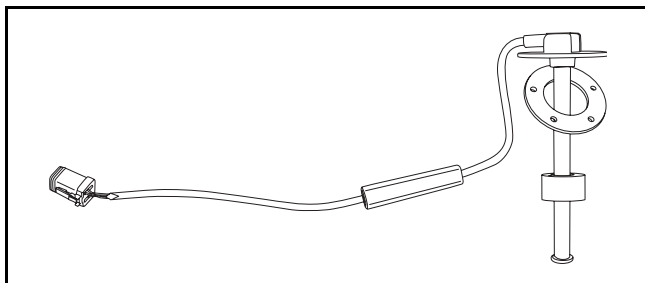
Oil Tank Sending Unit Kits

Oil Tank Sending Unit Kits provide oil tank level input to *I-Command* network. Select sending unit kits or NMEA 2000 converters as needed.

IMPORTANT: Oil tank level NMEA 2000 converters are specific to outboard position and must be installed to coincide with engine instance (position). Refer to User Information and Set-Up Information.

Description	1.8 g Tank P/N	3.0 g Tank P/N
Single engine kit ⁽¹⁾	763578 ⁽²⁾	763579 ⁽³⁾
Twin engine kit ⁽⁴⁾	763580 ⁽²⁾	763581 ⁽³⁾
Triple engine kit ⁽⁵⁾	—	763582 ⁽³⁾

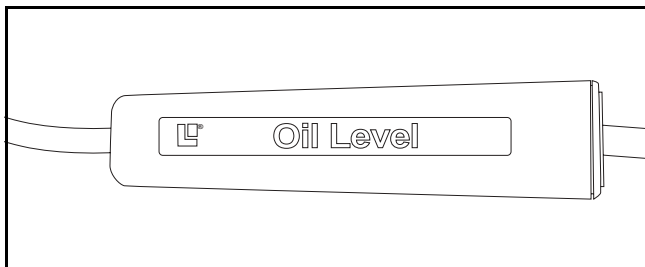
- (1) Contains 1 sending unit and instance 0 converter
- (2) Contains sending unit(s) P/N 763407 (6.5 in. height)
- (3) Contains sending unit(s) P/N 763408 (8.5 in. height)
- (4) Contains 2 sending units and instance 0 & 1 converters
- (5) Contains 3 sending units and instance 0, 1 & 2 converters



Oil Tank Level NMEA 2000 Converters

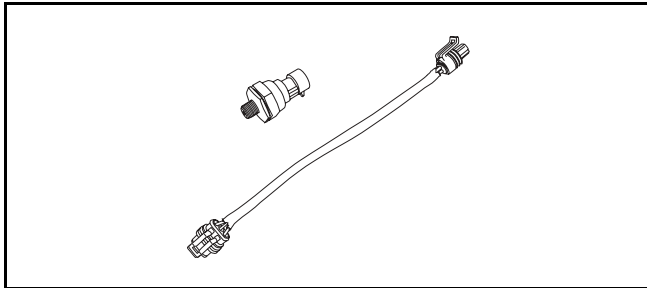
Outboard Instance	Port		Starboard
	0	1	2
P/N	763563 ⁽¹⁾	763564 ⁽¹⁾	763565 ⁽¹⁾

(1) Requires adaptor P/N 763533



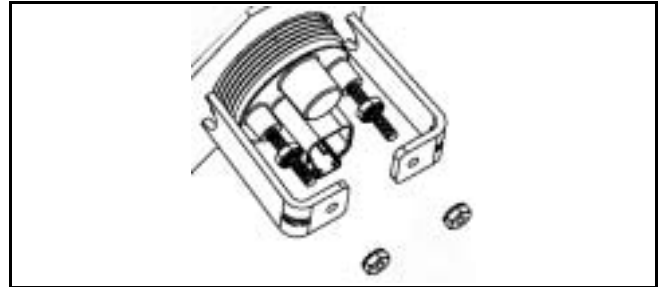
Water Pressure Transducer Kit

Water Pressure Transducer Kit, P/N 5006214, provides water pressure input to the outboard's wire harness and *EMM*. This input is processed by the outboard's *EMM* then broadcast to the *I-Command* network.



Stud and Bracket Mounting Kit

Stud and Bracket Mounting Kit, P/N 763479, provides alternate method for securing *I-Command* instruments to instrument panel.



Fuel Tank Level NMEA 2000 Converters

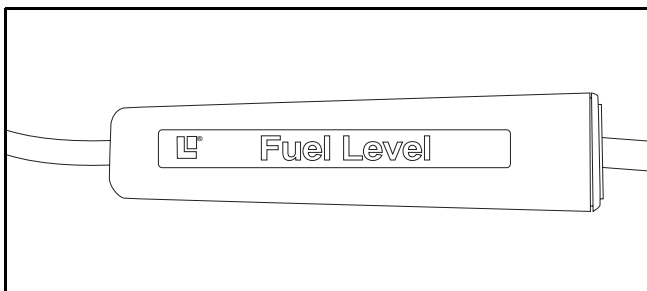
Provides fuel tank level input signal to *I-Command* network. Select fuel tank level NMEA 2000 converter(s) as needed.

IMPORTANT: Fuel tank level NMEA 2000 converters are specific to fuel tank instance (designation). Refer to User Information and Set-Up Information.

Fuel Tank Level NMEA 2000 Converters

Fuel Tank Instance	0 (Tank 1)	1 (Tank 2)
P/N	763672 ⁽¹⁾	763673 ⁽¹⁾

(1) Includes adaptor P/N 763533



Fuel tank level NMEA 2000 converters do not enable the fuel management functions on the *I-Command* System. See "Sensor Interface Module (SIM) Kit" on page 12.

NMEA 2000 CERTIFIED ELECTRONICS

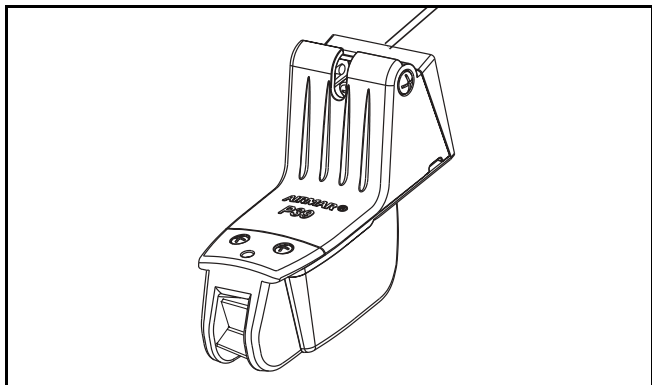
NMEA 2000 standards are intended to provide compatibility for assorted accessories offered by various manufacturers. Use NMEA 2000 certified accessories to provide optional functions.

Transducers and Triducers

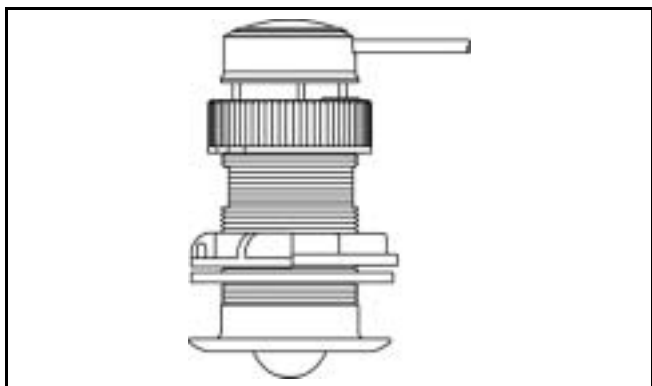
Transducers and triducers provide depth, temperature and “speed over water” (SOW) inputs to the *I-Command* network and multifunction *I-Command* speedometer.

P/N 763440, Transom Mount Triducer – Provides depth, temperature, and speed

P/N 763441, Transom Mount Transducer – Provides depth and temperature



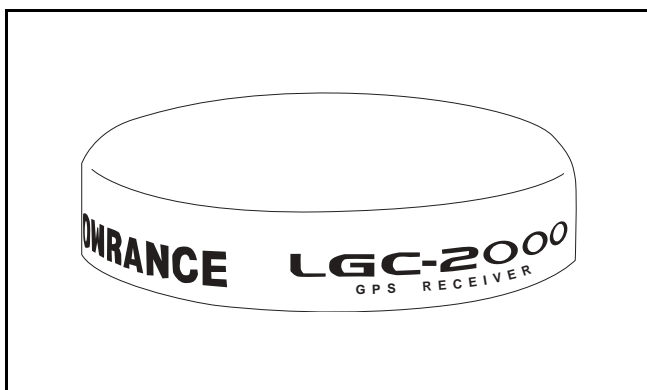
P/N 763442, Thru-Hull Triducer (plastic) – provides depth, temperature, and speed



GPS Receiver/Antenna

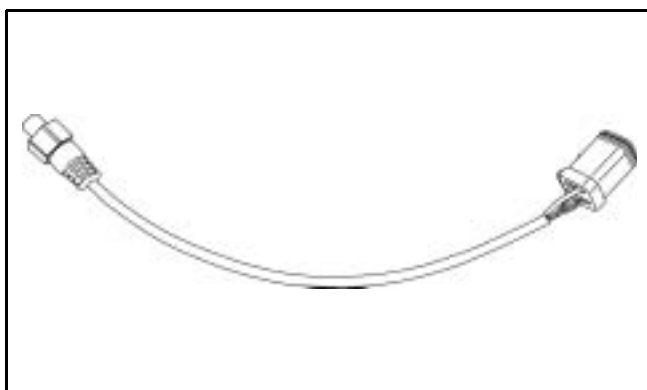
A GPS receiver/antenna provides “speed over ground” (SOG) input to the *I-Command* network and multifunction speedometer.

P/N 763527, NMEA 2000 GPS Receiver – 12-inch harness. Order extension harness as needed.



NMEA 2000 GPS Receiver Extension Harnesses

Length	1 ft.	6 ft.	15 ft.	25 ft.
P/N	763528	763509	763510	763511



INSTALLATION

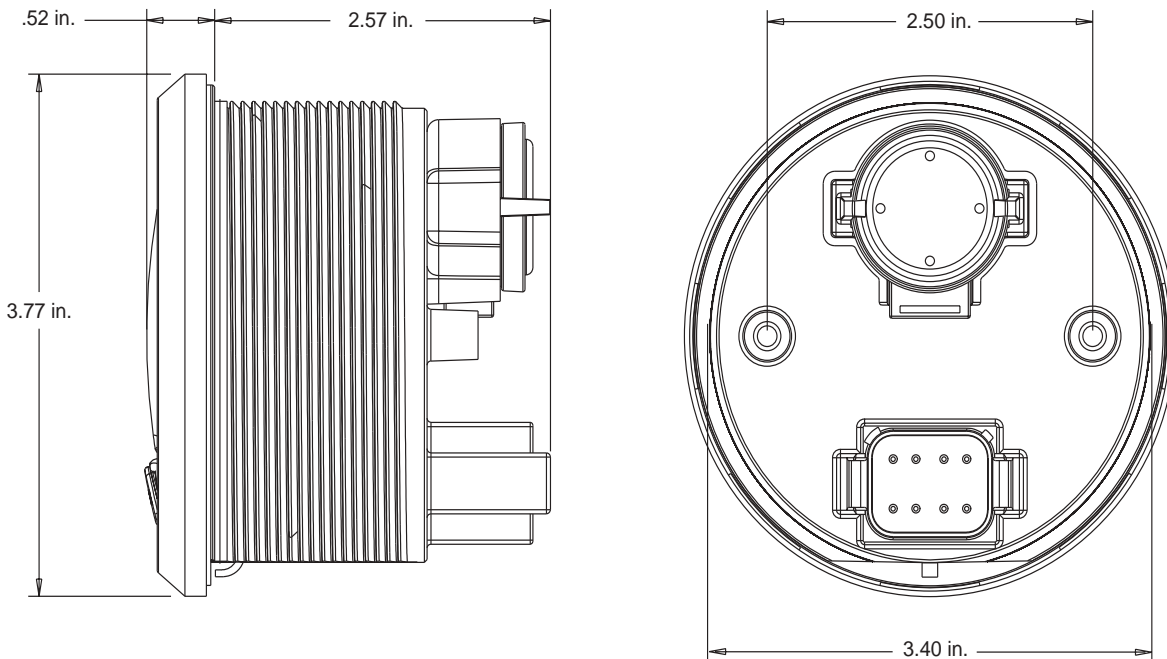
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INSTRUMENT DIMENSIONS

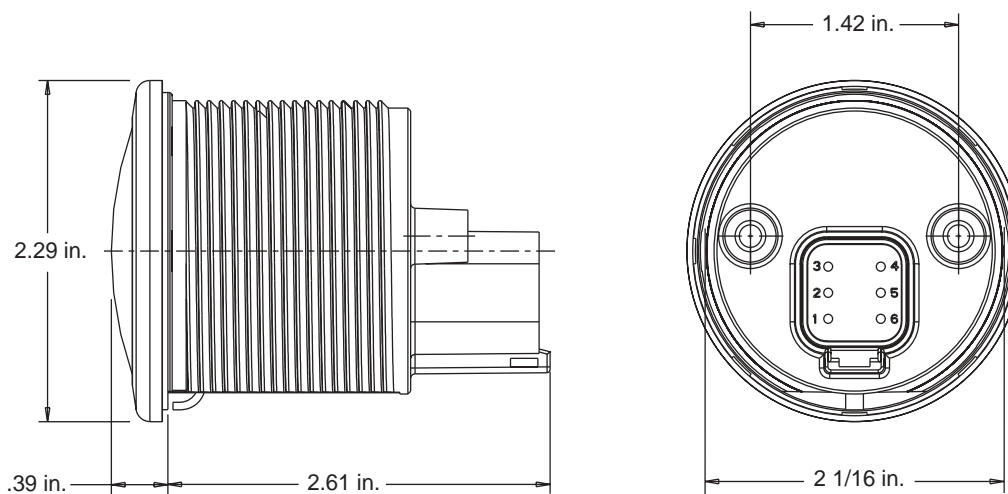
3 1/2 in. Multifunction Gauges

Tachometer / Speedometer



2 in. Gauges

Battery Voltage, Fuel Tank Level, Oil Tank Level, Engine Trim Angle, Engine Water Pressure



INSTRUMENT MOUNTING

Spacing of Instruments

The minimum distances between instruments on a panel should be as follows:

- 3 13/16 (112 mm) center to center for 3 1/2 in. instruments
- 3 1/4 in. (95.5 mm) center to center for 3 1/2 in. instruments to 2 in. instruments
- 2 5/8 in. (77 mm) center to center for 2 in. instruments

Panel Thickness

Two styles of mounting hardware can be used to mount instruments. Instruments can be mounted in panels up to 1 in. thick. Use spin nut for up to 1/2 in. panel thickness. Use studs and brackets for 1/16 in. to 1 in. panel thickness.

Hole Sizes

IMPORTANT: Check space behind panel to be sure adequate clearance for instruments exists before drilling panel.

3 1/2 in. Multifunction Gauge

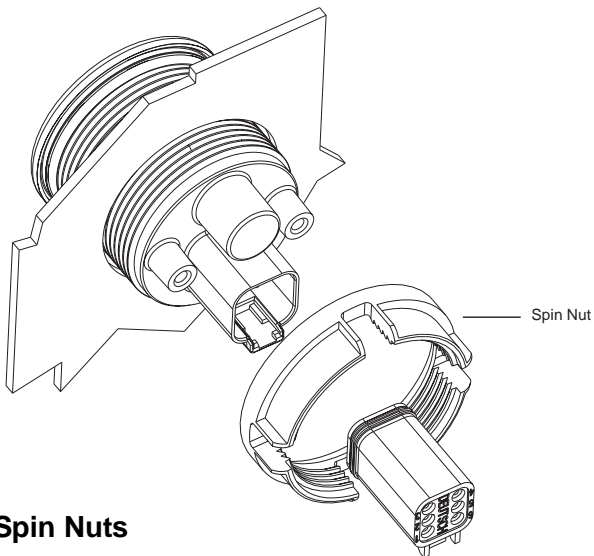
Cut 3 3/8 in. (99 mm) diameter hole in panel for 3 1/2 in. instruments. Secure instrument with spin nut or studs and brackets.

2 in. Gauge

Cut 2 1/16 in. (52 mm) diameter hole in panel for 2 in. instruments. Secure instrument with spin nut or studs and brackets.

Fastening to Panel

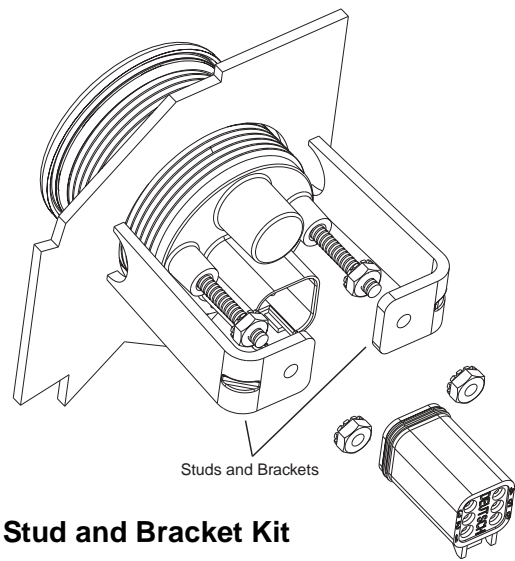
Insert instrument into panel hole. Thread spin nut onto threaded housing of instrument and tighten to back of panel. **DO NOT** exceed 10 in. lbs. (1.1 N·m) If stud and bracket kits are used, tighten nuts slightly.



Spin Nuts

2 in. P/N 763483

3 1/2 in. P/N 763484



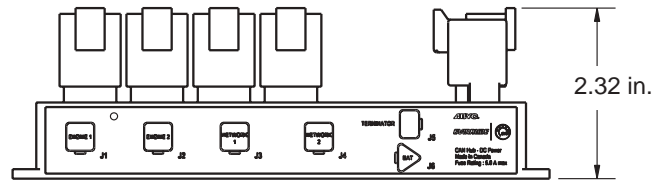
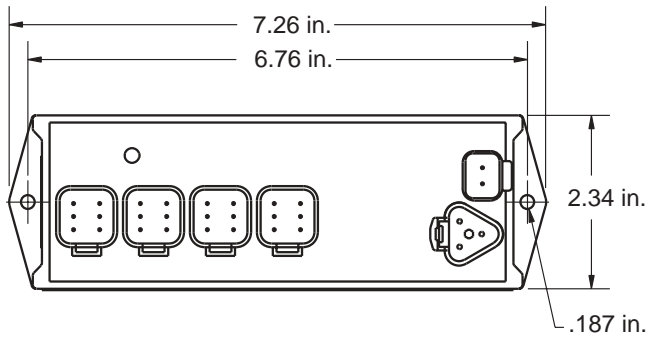
Stud and Bracket Kit

2 in. and 3 1/2 in. Instruments

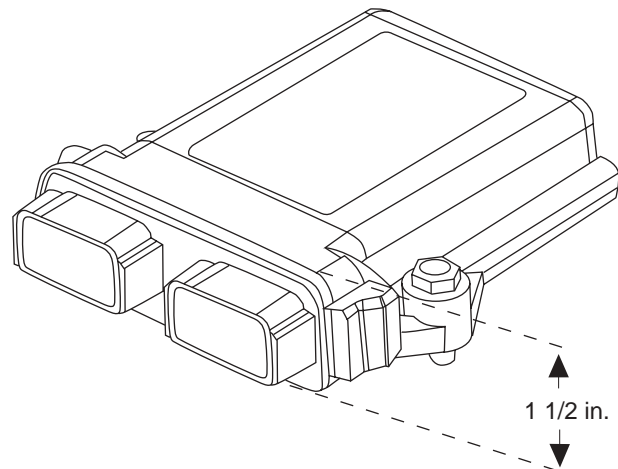
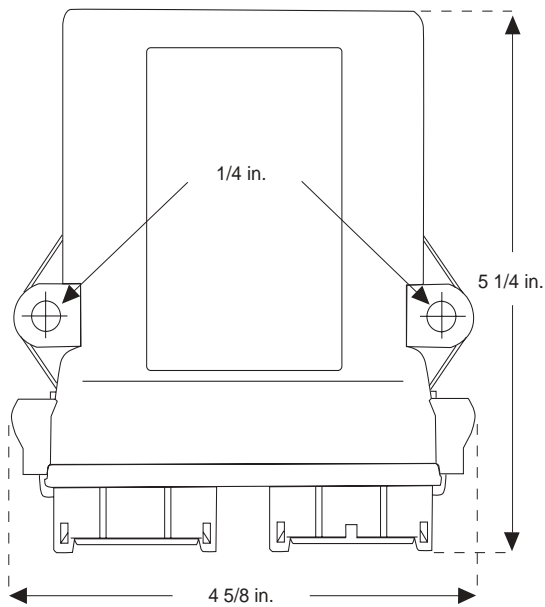
P/N 763479

NETWORK HUBS AND "SIM" DIMENSIONS

Power Hub / Consolidator Hub



Sensor Interface Module (SIM)



NETWORK HUBS AND "SIM"

Power Hub / Consolidator Hub

Organize the components required for the installation. Position components, identify harness routings, and determine locations for hubs.

Position all hubs in a dry, protected area where the ambient air temperature does not exceed 185° F (85° C).

Fasten securely.

IMPORTANT: DO NOT distort hub housing.

Anchor hub(s) to a flat, firm surface with #10 pan head screws. Do not allow housing of hub to be distorted by more than 0.040 in. (1 mm) when mounted. Torque screws to 70 in. lbs. (8 N·m).

Support all harnesses using clamps or tie straps within 12 in. of hub to prevent connector damage. See "NETWORK ASSEMBLY DIAGRAMS" on page 21.

Sensor Interface Module (SIM)

Position the SIM in a dry, protected area where the ambient air temperature does not exceed 167° F (75° C).

Fasten securely.

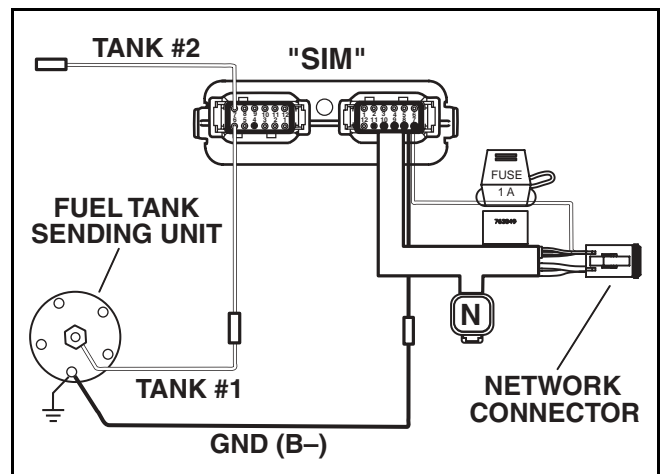
IMPORTANT: DO NOT distort hub housing.

Anchor SIM to a flat, firm surface with #10 pan head screws. Do not allow housing of hub to be distorted by more than 0.040 in. (1 mm) when mounted. Torque screws to 70 in. lbs. (8 N·m).

Connect SIM-to-Network Harness to SIM, and the network connector to the *I-Command* network.

Connect ground wire to battery negative (B-).

Connect SIM-to-Fuel-Tank Harness to SIM, and then connect fuel tank sending unit wiring to the appropriate fuel tank sending unit. See "ASSEMBLY DIAGRAMS" on page 25.



NETWORK ASSEMBLY

IMPORTANT: Lubricate all connector gaskets with *Electrical Grease* before assembly. See “NETWORK ASSEMBLY DIAGRAMS” on page 21.

Power Hub

Position Power Hub in a dry, protected area. See “NETWORK HUBS AND “SIM”” on page 19. Fasten to secure surface. Connect Power Supply Harness and route to battery(s). Install one Terminator in “T” connector of hub.

The Power Hub can be located at either “end” of the network. See “I-Command Harness/Hub Diagram – Forward / Aft Mounted Power Hub” on page 5.

Power Supply Harness

Route the Power Supply Harness from the Power Hub to the engine battery. Use the appropriate length harness. Connect BATT1+ and/or BATT2+ leads from harness to B+ of battery(s). Connect NEG– lead from harness to negative (NEG) terminal of battery(s). NEG terminals of multiple batteries installations should be connected to form a common grounding system in boat. Refer to service manual and installation procedures.

Data Harness

Route Data Harness from “N” connector of “Aft Mounted” Power Hub to “N” connector of Consolidator Hub; or from “N” connector of Power Hub to Terminator Harness connector. For “Forward Mounted” Power Hub, route Data Harness from “E1 and/or “E2” connectors to Consolidator Hub or to Terminator harness. Use a second Consolidator Hub if additional network connections are needed. Route a second Data Harness between multiple Consolidator Hubs.

Consolidator Hub

Position Consolidator Hub in a dry, protected area. See “NETWORK HUBS AND “SIM”” on page 19. Fasten to secure surface. Connect Data harness. Install one Terminator in “T” connector of hub. If multiple hubs are installed, see “Consolidator Hub” on page 7.

Terminator

Install one Terminator in “T” connector of Power Hub and one in “T” connector of Consolidator Hub. See “Consolidator Hub” on page 7.

Terminator Harness

A Terminator Harness takes the place of a Consolidator Hub and contains the second terminator for the network. Connect a Terminator Harness to a Data Cable connected to the Power Hub. Next, connect the Tachometer Harness to the Terminator Harness. See “NETWORK ASSEMBLY DIAGRAMS” on page 21. Use a Terminator Harness in single outboard installations only.

EMM Harness

Route the appropriate length *EMM* harness from the outboard’s “CANbus” connector to the hub (Power or Consolidator Hub) mounted closest to the outboard. See “EMM Harness” on page 8.

Tachometer Harness

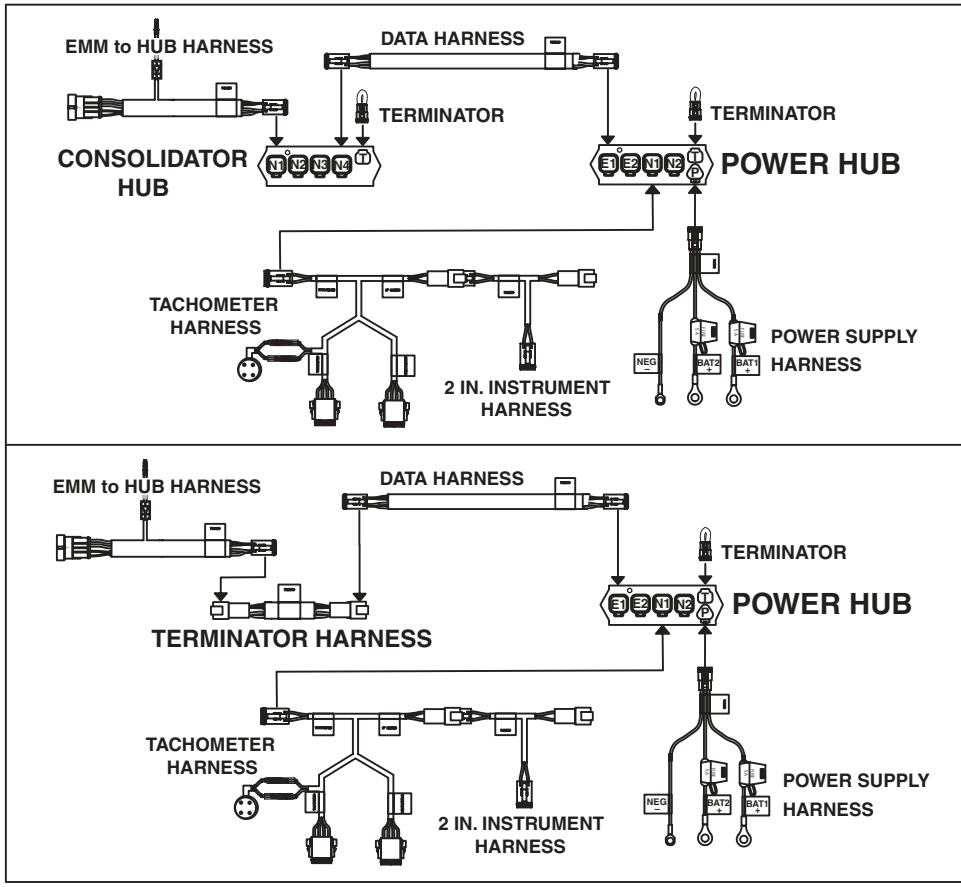
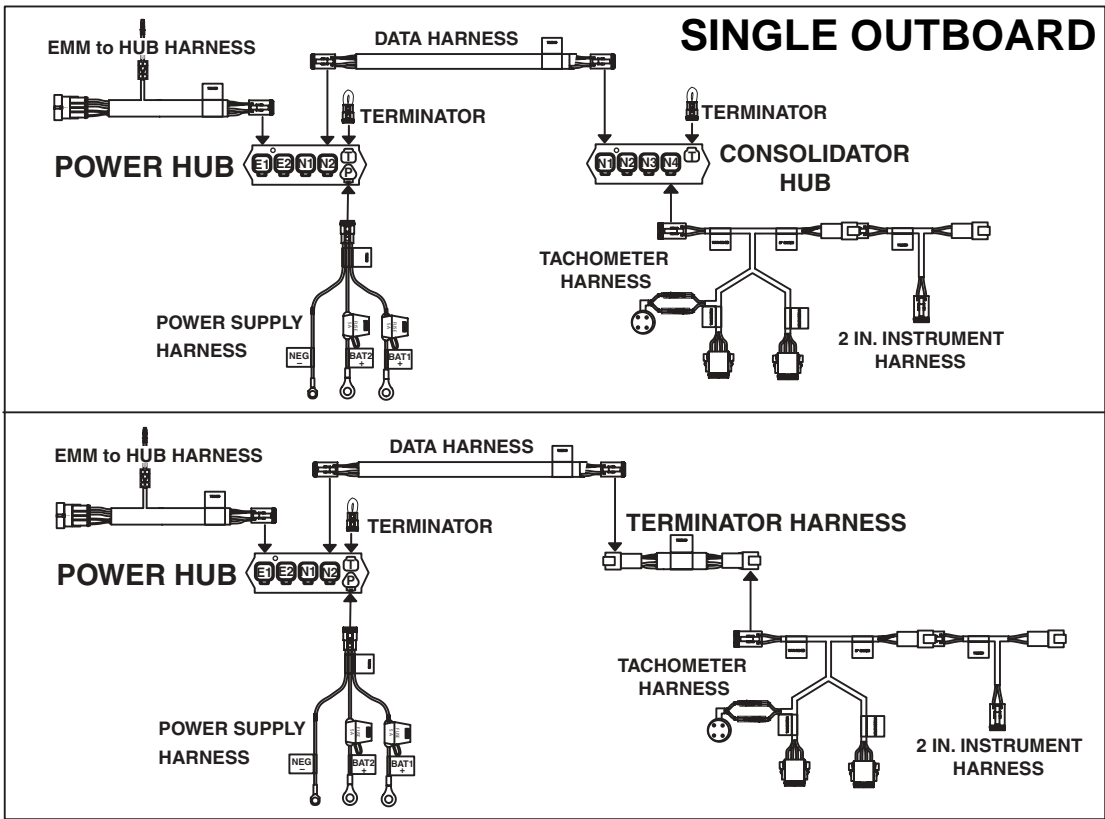
The Tachometer Harness connects a Power or Consolidator Hub or a Terminator Harness to a tachometer and speedometer. The harness provides an interface for 2 in. Instrument Harness. Speedometer shunt connector/cover must be installed if speedometer is not connected to harness. See “Tachometer Harness” on page 9.

2 in. Gauge Harness

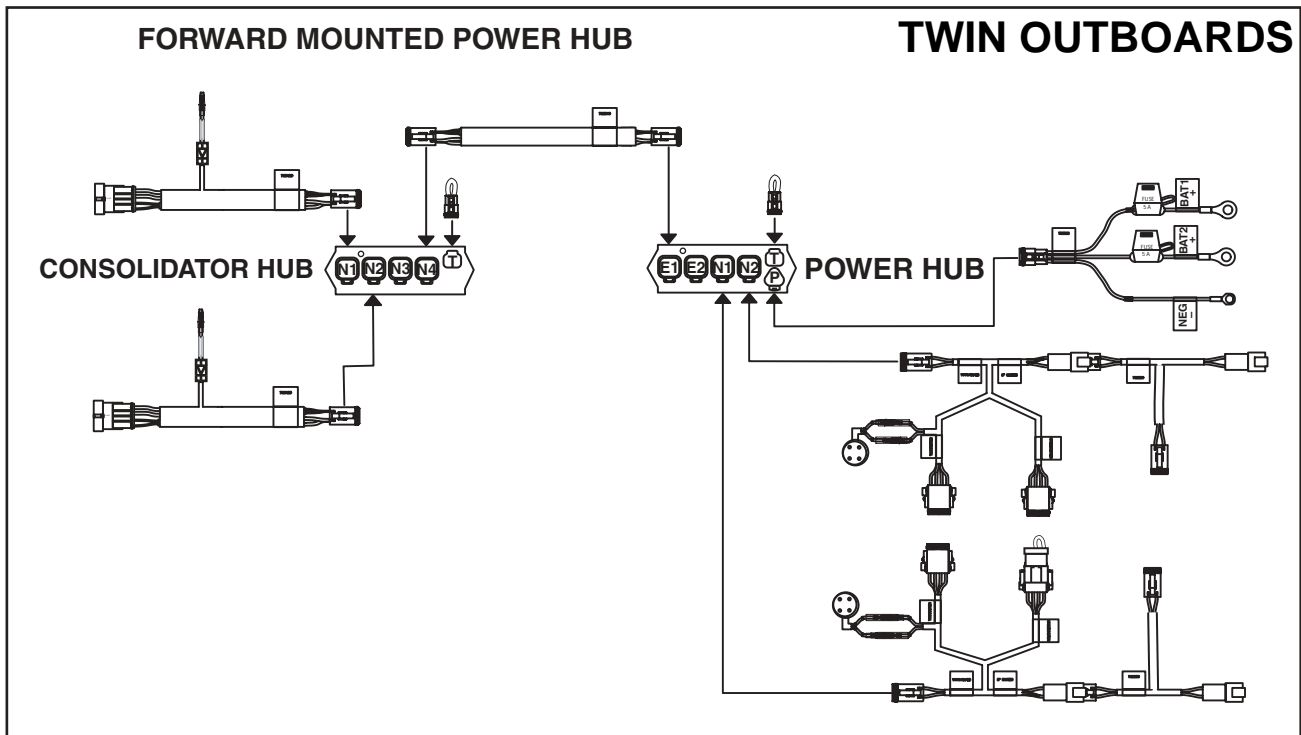
Connect 2 in. Instrument Harness to Tachometer Harness and to 2 in. instrument. See “2 In. Gauge Harness” on page 9.

Sensor Interface Module (SIM)

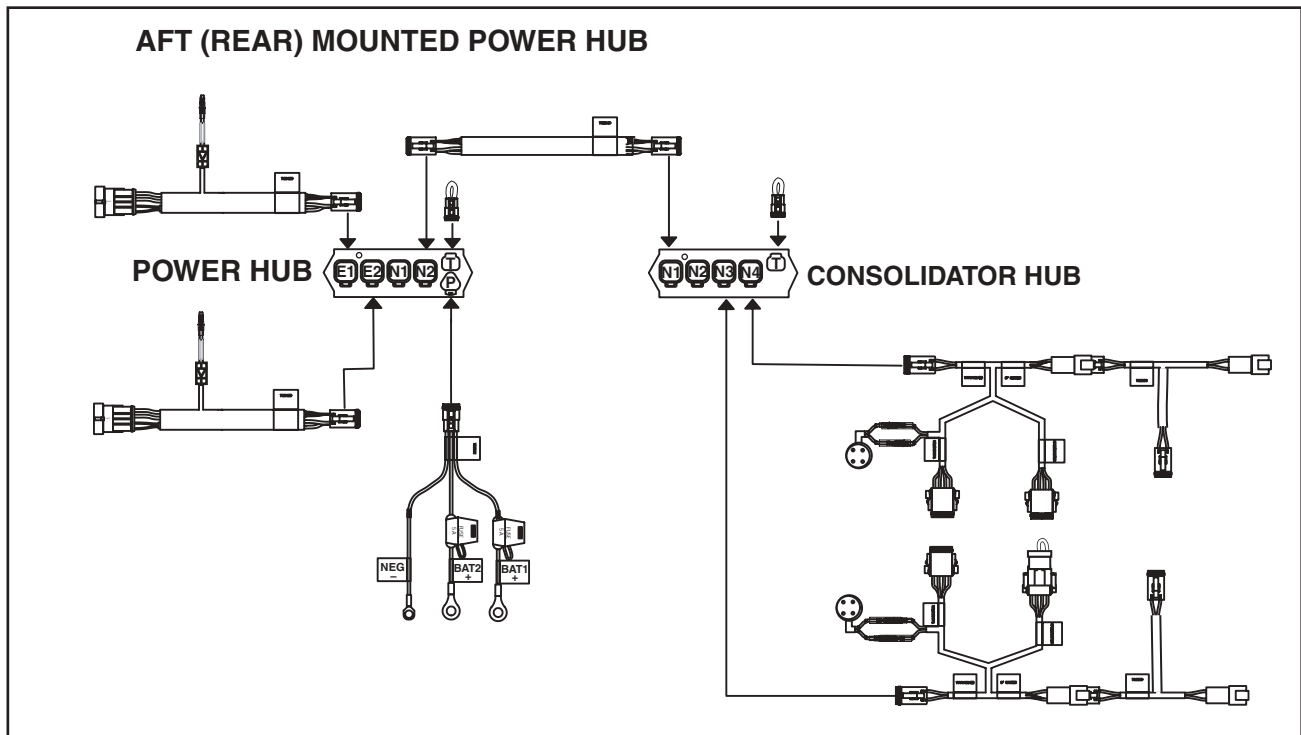
See “NETWORK HUBS AND “SIM”” on page 19. Connect SIM-to-Hub Harness and SIM-to-Fuel-Tank Harness to the SIM connectors. Connect SIM-to-Hub Harness to Power Hub or Consolidator Hub. Connect ground wire to battery negative (–). Route Sim-to-Fuel-Tank Harness wiring to fuel tank sender wire(s) and make waterproof connection(s). See “NETWORK ASSEMBLY DIAGRAMS” on page 21.

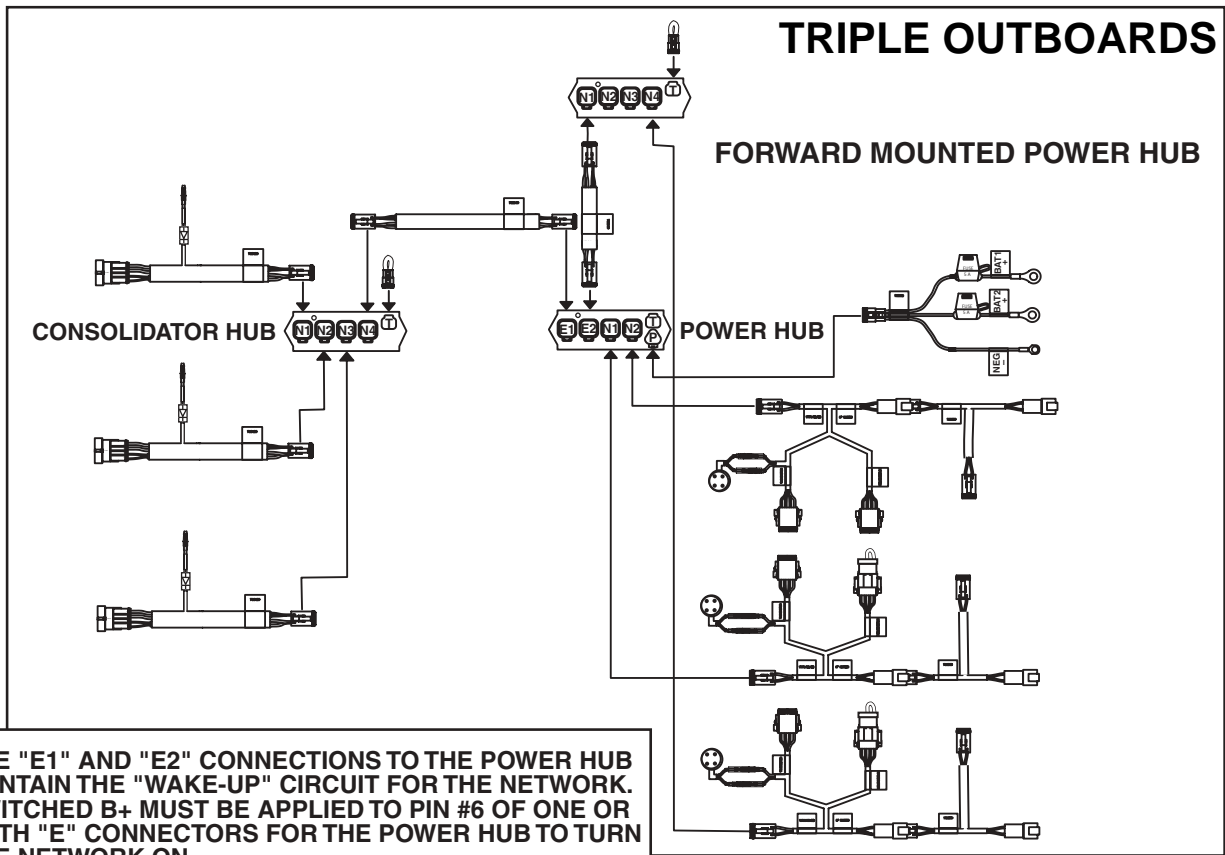


INSTALLATION
NETWORK ASSEMBLY DIAGRAMS

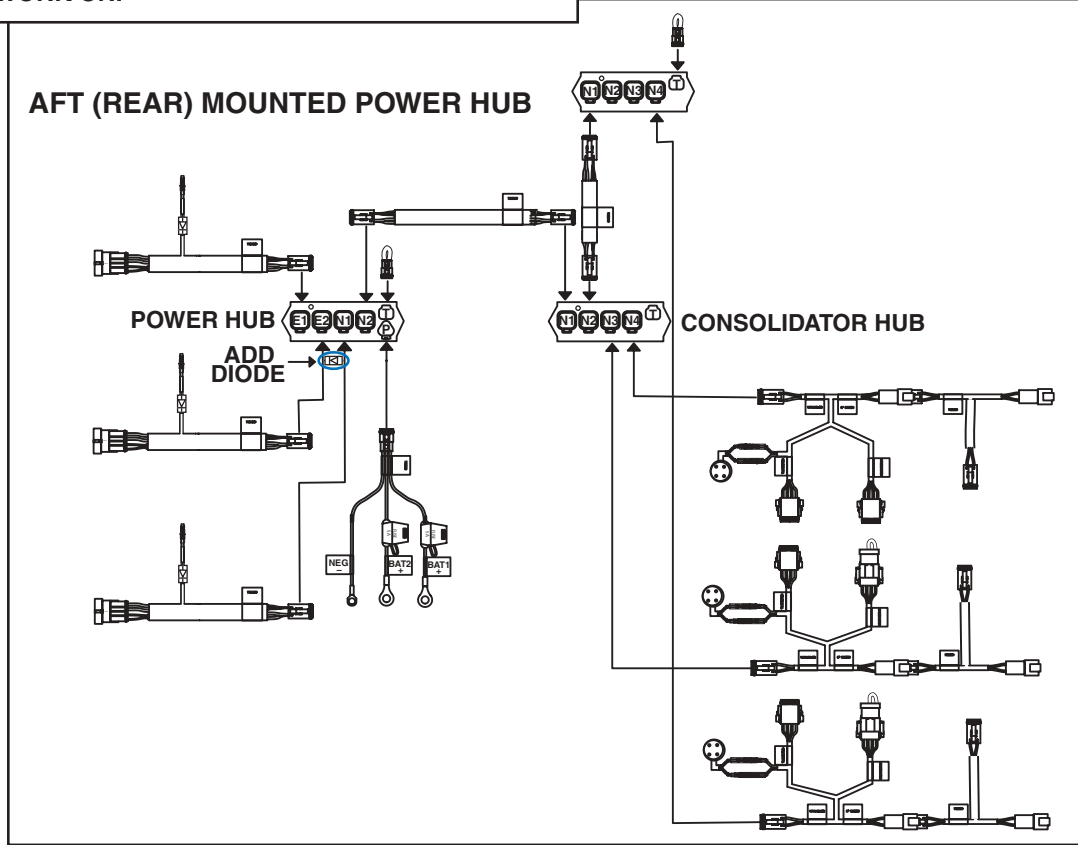


THE "E1" AND "E2" CONNECTIONS TO THE POWER HUB CONTAIN THE "WAKE-UP" CIRCUIT FOR THE NETWORK. SWITCHED B+ MUST BE APPLIED TO PIN #6 OF ONE OR BOTH "E" CONNECTORS FOR THE POWER HUB TO TURN THE NETWORK ON.





THE "E1" AND "E2" CONNECTIONS TO THE POWER HUB CONTAIN THE "WAKE-UP" CIRCUIT FOR THE NETWORK. SWITCHED B+ MUST BE APPLIED TO PIN #6 OF ONE OR BOTH "E" CONNECTORS FOR THE POWER HUB TO TURN THE NETWORK ON.



INSTRUMENT CONNECTIONS

IMPORTANT: Lubricate all connector gaskets with *Electrical Grease* before assembly.

Tachometer

Connect the *I-Command* tachometer to Tach Harness 8 pin connector labeled “tachometer.” Make sure warning horn is connected to rear of tachometer, and wiring is connected to tachometer harness.

IMPORTANT: The *I-Command* tachometer is the primary engine interface instrument and is required for all installations.

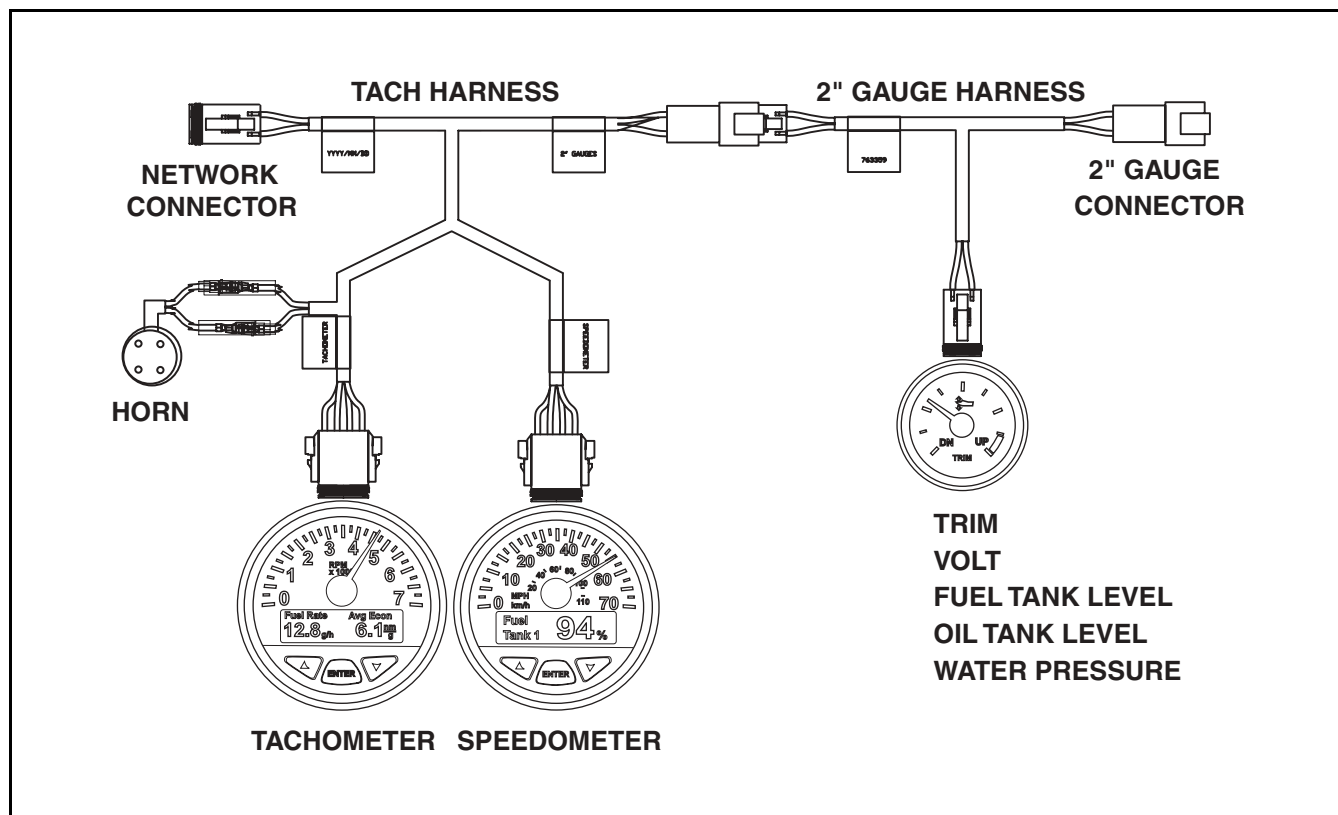
Speedometer

Connect the *I-Command* speedometer to Tach Harness 8 pin connector labeled “speedometer.” If

speedometer is not connected to harness, speedometer connector shunt cover must be installed in speedometer connector of Tach Harness. Shunt cover provides power connection for 2 in. instruments and seals connector when speedometer is not installed.

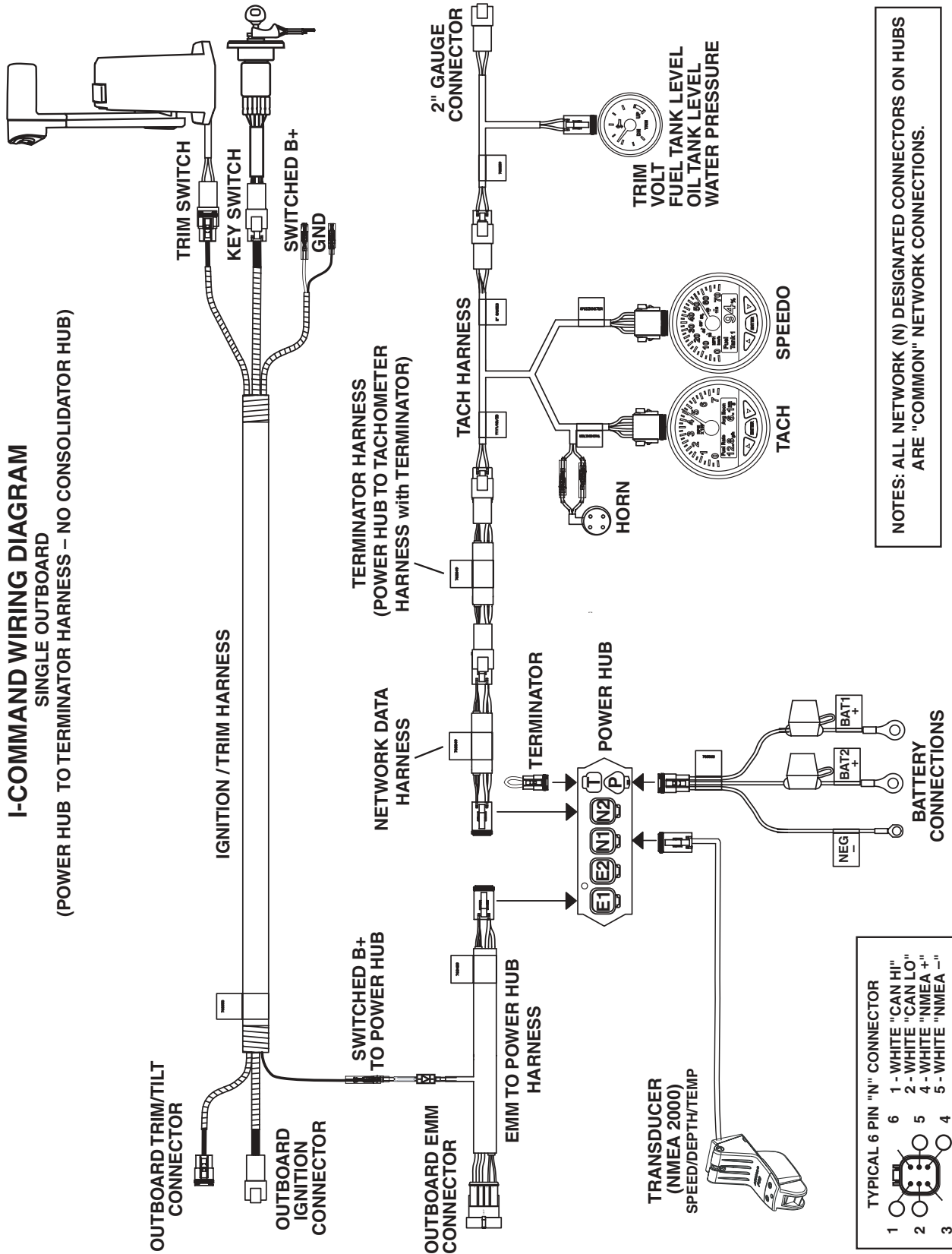
2 in. Instruments

Connect 2 in. instruments to 2 in. Gauge Harness connector. Multiple 2 in. instrument installations require multiple 2 in. Gauge Harnesses connected in series.

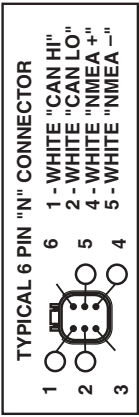


I-COMMAND WIRING DIAGRAM

SINGLE OUTBOARD
(POWER HUB TO TERMINATOR HARNESS – NO CONSOLIDATOR HUB)



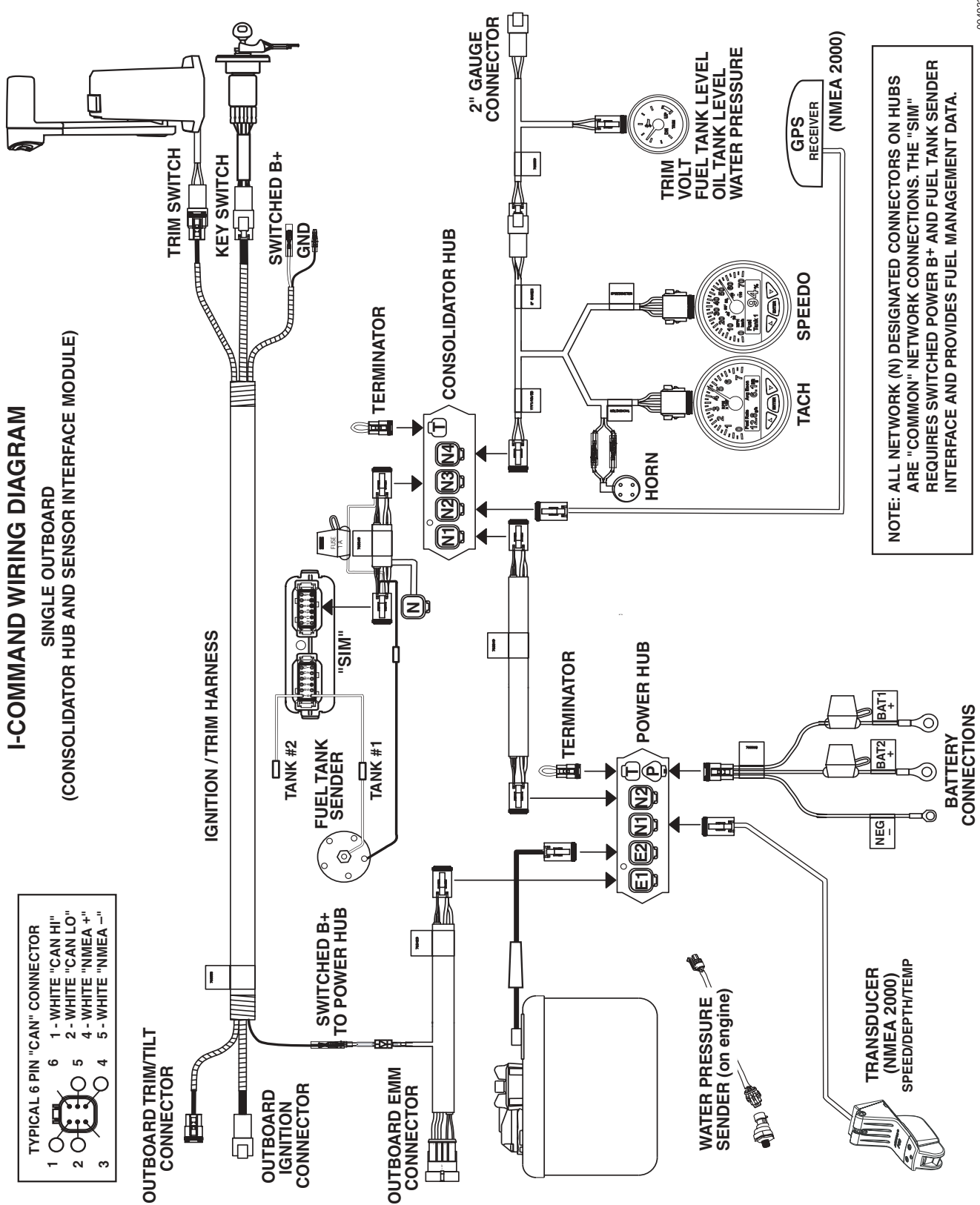
NOTES: ALL NETWORK (N) DESIGNATED CONNECTORS ON HUBS ARE "COMMON" NETWORK CONNECTIONS.



004692

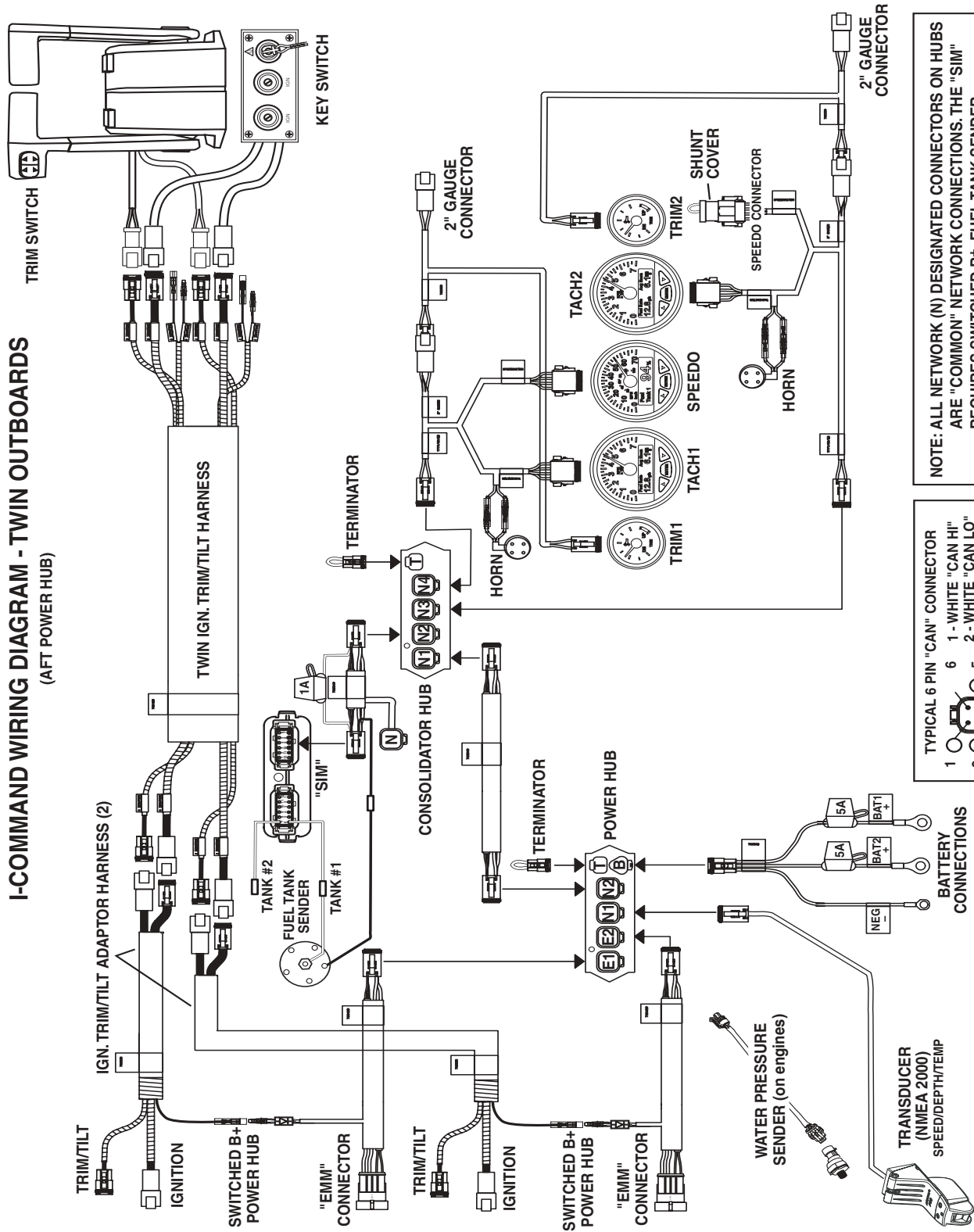
INSTALLATION

ASSEMBLY DIAGRAMS



004932

I-COMMAND WIRING DIAGRAM - TWIN OUTBOARDS
(AFT POWER HUB)



NOTE: ALL NETWORK (N) DESIGNATED CONNECTORS ON HUBS ARE "COMMON" NETWORK CONNECTIONS. THE "SIM" REQUIRES SWITCHED B+, FUEL TANK SENDER INTERFACE AND PROVIDES FUEL MANAGEMENT DATA.



INSTALLATION
NOTES

NOTES

INSTRUMENT USER INFORMATION

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OPERATION

ON / OFF Power Sequence

When the ignition switch is turned ON, and the battery voltage reaches the minimum operating voltage, the *I-Command* network will supply power to the instruments. The tachometer and speedometer will briefly display a welcome screen.



The welcome screen also displays the program version number. Once powered up, the *I-Command* system self-checks by cycling all instrument pointers to their limits, and then back to zero.

When the ignition switch is turned OFF, engine data is no longer transmitted on the network. The tachometer, speedometer, and all *I-Command* instruments will return to zero, and alarms will become disabled. Power to the network is terminated after a brief delay.

Instrument Buttons

ENTER Button

Information on LCD screens can be accessed using the ENTER button.

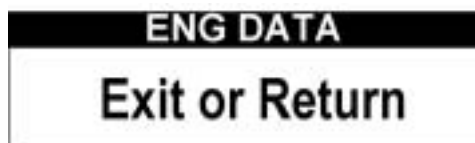
To view LCD screen data, press and release ENTER.



Pressing ENTER allows users to access sub-menus, enter data, and acknowledge alarms.

Exit Function

Certain sub-menus include an exit screen. From an exit screen, press ENTER to exit and return to the previous menu.



To exit a sub-menu, press ENTER and hold for three seconds.

UP / DOWN Arrow Buttons

Use the UP / DOWN arrow buttons to scroll displays within the menus.

Use the UP / DOWN arrow buttons to scroll settings in the screens that allow user settings.



Pressing an arrow button scrolls the display at a rate of one line per second.

If an arrow button is pressed longer than five seconds, the scroll rate increases.

Instrument Backlighting

Each instrument has red backlighting for increased low-light visibility. Backlighting can be turned ON or OFF. Backlighting brightness is also adjustable.

To turn ON / OFF — Press the UP and DOWN arrow buttons at the same time.



To adjust — With backlighting ON, press the UP or DOWN arrow buttons to adjust brightness.

Once desired brightness is selected, press the UP and DOWN arrow buttons at the same time to turn the backlighting OFF.

NOTE: Setting the tachometer backlighting will adjust all other gauges on the *I-Command* system. If multiple tachometers are present, each is adjusted independently.

Alarms

Alarms alert the user of an operating condition that requires action. If an alarm occurs, the LCD screen will display the active alarm screen immediately.



3

IMPORTANT: An alarm takes priority and overrides other LCD screen data displays.

Once active, the alarm screen will toggle between standard and reverse screen color. Additionally, the two warning LEDs in the tachometer (one on each side of the LCD screen) will illuminate red, and the alarm buzzer will sound.

Acknowledge the alarm by pressing ENTER on the tachometer. After one alarm is acknowledged, if there is a second alarm, it will also display. Acknowledge the second alarm (if necessary) by pressing ENTER.

Once all alarms have been acknowledged, the alarm buzzer will cease, and the LCD screen will clear. The warning LEDs will remain illuminated until the operating condition causing the alarm is corrected.

If there is a loss of instrument communications, all affected gauges will return the pointers to zero. The LCD screens will show a blank or zero value for data. Monitoring data will not function until instrument communication is corrected.

TACHOMETER

The *I-Command* tachometer is the primary instrument of the *I-Command* System. It receives data from the engine(s) and accessories connected to the network. Once the tachometer has processed this data, it provides data to the analog meter, the LCD display of the tachometer, the speedometer, and the 2 in. gauges.



IMPORTANT: If the tachometer is disconnected from the network, no instruments will operate.

The tachometer displays engine RPMs on the instrument's analog meter. Additional system information is displayed on the LCD screen.

Tachometer LCD Menu

The LCD screen displays a menu and can be navigated using the UP and DOWN arrow buttons.

Available Menu Options are:

- System Setup
- Engine Data (Selectable Display)
- Trim (Engine Trim Angle)
- Engine Status - Alarms
- Battery Voltage
- Split Screen (Two LCD Data Displays)

Sub-menus are accessed by pressing the ENTER button.

To exit sub-menus and return to main menu:

- Press and hold ENTER for three seconds;
- Press ENTER; or
- Select Exit or Return screen and press ENTER.

Tachometer System Setup

System Setup allows users to set screen display options and configure the system to display engine information based on user preference.

Use System Setup to set the following:

- LCD Contrast
- Engine Position (Instance 0, 1, 2)
- English or Metric Units
- Fuel Tanks
- Trip Log (Fuel Used)
- Engine Data (ON-OFF)

Press the UP or DOWN button to scroll through the main menu options. The "System Setup" screen appears. Press ENTER.

System Setup

Next, press the UP or DOWN button to scroll through the setup options. Activate a menu option by pressing ENTER.

LCD Contrast

LCD Contrast allows the operator to adjust the contrast of LCD screen.

Press the UP or DOWN button to scroll through System Setup options. The "Contrast" screen appears.

SETUP
Contrast 5

Press ENTER, and SET enters the display. Use the UP and DOWN buttons to select the contrast number.



Press ENTER again, and LCD screen contrast is set.

The contrast range is from value 1 to 10. However, only values 3 to 7 will be stored into memory and programmed for subsequent power ups.

Press ENTER for 3 seconds to return to the main menu, or use the UP and DOWN buttons to scroll through the setup options.

Engine Position

IMPORTANT: Outboard *EMMs* must be programmed for each outboard's position on the boat transom by using *Evinrude Diagnostics* software. *EMM* default setting is Instance "0" or PORT.

In multiple engine installations, there is data on the *I-Command* network for each engine. Each tachometer needs to be set to correspond to the appropriate engine.

Press the UP or DOWN button to scroll through System Setup options. The "Eng Position" screen appears.



Tachometer programming allows for 3 outboard positions:

- **Single outboard** – Set outboard and tachometer to "Instance 0."
- **Twin outboards** – Set the PORT outboard and tachometer to "Instance 0" and the STARBOARD outboard/tachometer to "Instance 1."
- **Triple outboards** – Set the PORT outboard and tachometer to "Instance 0", the CENTER outboard/tachometer to "Instance 1" and the STARBOARD outboard/tachometer to "Instance 2."

Press ENTER, and SET enters the display. Use the UP and DOWN buttons to set engine instance to 0, 1, or 2.



Press ENTER, and engine position is set.

Press and hold ENTER for three seconds to return to the main menu, or use the UP and DOWN buttons to scroll through the setup options.

Units – English / Metric

Set each tachometer to the appropriate units of measure. Choices are English (PSI, in. Hg, gallons, degrees Fahrenheit) and Metric (kPa, liters, degrees Celsius).

Press the UP and DOWN buttons to scroll through System Setup options. The "Units" screen appears.



Press ENTER, and SET enters the display. Use the UP and DOWN buttons to select units.



Press ENTER again, and display units are set.

Press and hold ENTER for three seconds to return to the main menu, or use the UP and DOWN buttons to scroll through the setup options.

INSTRUMENT USER INFORMATION

TACHOMETER

Fuel Tanks

IMPORTANT: Fuel tank sending unit interface requires use of Sensor Interface Module (SIM) or Fuel Tank Level NMEA 2000 Converter. See “ACCESSORIES” on page 12.

Use the following process for SIM-equipped installations. Set fuel tank capacity and calibrate fuel tank sending units using the “Instance 0” tachometer of the *I-Command* system. See “Engine Position” on page 33.

WARNING

Fuel level readings can be inaccurate in this type of system and may cause the boater to overestimate the distance that can be traveled with the fuel remaining. Relying on this data may cause the boater to become stranded with no fuel.

Press the UP or DOWN button to scroll through System Setup options. The “Fuel Tanks” screen appears. Press ENTER to select Setup Fuel Tanks.

SETUP

Fuel Tanks

Press the UP and DOWN buttons to scroll through Fuel Tanks setup menu.

Available menu options are:

- Tank 1 Capacity
- Tank 2 Capacity
- Tank 1 Calibrate
- Tank 2 Calibrate

Press ENTER on appropriate display to enter fuel tank capacity. “SET” enters the display.

Press the UP or DOWN button to increase or reduce capacity number displayed. Press ENTER again and capacity is set

SETUP

Tank 1 Capacity **100** SET Gal

IMPORTANT: Entering a reduced fuel tank capacity provides a safety reserve for fuel level reporting. Typical capacity reduction for reserve is 10%. Remember to fill tank with reserve fuel prior to calibrating sending unit.

Press the UP and DOWN buttons to scroll through fuel tank setup options menu.

Press ENTER on appropriate display to calibrate fuel tank sending unit(s). Perform tasks as prompted by display.

SETUP

Tank 1

Enter to Calibrate

If Tank 1 is Empty


Press Enter

Fill Tank 1 **50%**

Then Press Enter

Fill Tank 1 **100%**

Then Press Enter



This optional process provides improved accuracy for fuel level reporting. Using this process associates fuel volumes to specific voltages which result from the changes in fuel tank sending unit resistance.

IMPORTANT: To reset or clear calibration, use the Utilities menu.

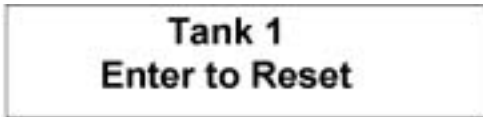
To enter Utilities menu, turn system OFF. Press and hold all three buttons on tachometer while turning system ON.

Utilities

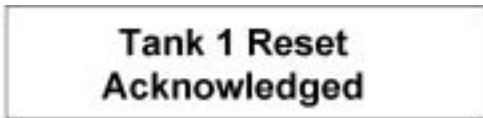
Press the UP and DOWN buttons to scroll through Utilities options.

Available menu options are:

- Tank 1 Reset Calibration
- Tank 2 Reset Calibration



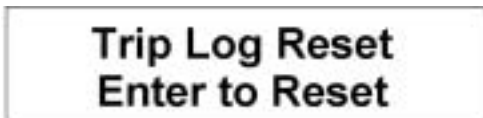
Press ENTER on appropriate display to reset or clear calibration.



Press and hold ENTER for three seconds to return to the main menu, or use the UP or DOWN button to scroll through Utilities options.

Trip Log Reset

Press the UP or DOWN button to scroll through System Setup options.



Press ENTER to reset fuel used display.

Engine Data

The Engine Data screen allows the user to turn specific LCD displays ON or OFF. Display categories not receiving data can be turned OFF. When a category is turned OFF, it will not appear on the menu.

Press the UP or DOWN button to scroll through System Setup options. The Setup "Engine Data" screen appears.



Press ENTER and data category will display. Use the UP and DOWN buttons to select a category.



Press ENTER to set. Use the UP and DOWN buttons to select ON or OFF. Press ENTER again and the data category is set.



Press and hold ENTER for three seconds to return to the main menu, or use the UP or DOWN buttons to scroll through the setup options.

Engine Data

Press the UP or DOWN button on the *I-Command* tachometer to scroll through the main menu options. The Engine Data screen displays one of seven (7) categories.



Press ENTER to access Engine Data categories. The Engine Data display text is highlighted.



Press the UP or DOWN button to scroll through categories.

Engine Data categories:

- RPM
- Engine Temperature
- Water Pressure
- Engine Hours
- Fuel Consumption Rate
- Oil Tank Level
- Barometric Pressure

INSTRUMENT USER INFORMATION

TACHOMETER

Press and HOLD ENTER for three seconds to set category as new ENG DATA display and to return to main menu.

RPM



Engine Temperature



Engine temperature is displayed in degrees Fahrenheit or Celsius.

Water Pressure



Water pressure is displayed in PSI (pounds per square inch) or kPa (kilopascals).

IMPORTANT: Water pressure display requires installation of optional sensor kit and *EMM* switch activation using *Evinrude Diagnostics* software. Turn water pressure screen OFF if sensor is not installed.

Engine Hours



Total engine hours are displayed in hours and tenths of hours.

Fuel Consumption Rate



Fuel consumption in gallons per hour (g/h) or liters per hour (l/h) is indicated.

Oil Tank Level



The level of oil contained in the oil reservoir is displayed in percentage.

IMPORTANT: Oil tank level display requires installation of optional NMEA 2000 Oil Tank Sending Unit Kit.

Barometric Pressure



Barometric pressure is displayed in in. Hg (inches of mercury) for English units or kPa (kilopascals) for Metric units.

Engine Trim

Press the UP or DOWN button on the *I-Command* tachometer to scroll through the main menu options. The "Engine Trim" screen appears. The screen will display percent (%) of engine trim. The range is 0 to 100% with a resolution of 1%. Engine tilt is not displayed.



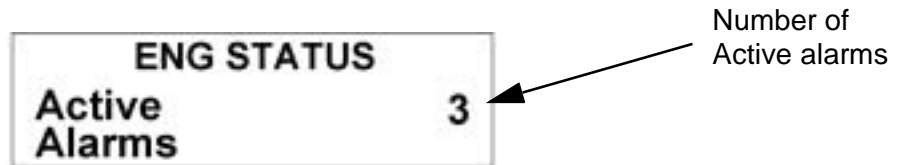
Engine Status – Engine Alarms

Press the UP or DOWN button on the *I-Command* tachometer to scroll through the main menu options. The “Engine Status” screen appears. Press ENTER.

When an engine or operating condition exists which exceeds set specifications, an alarm will be activated.

The alarm buzzer will sound and there will also be an immediate alarm screen displayed to indicate the fault. More than one alarm message can be indicated at the same time. The number displayed on this screen indicates how many alarms are active. Press the UP or DOWN button to scroll through alarms.

3



Eng Fault – Overheat RPM Reduction See Owners Manual	Eng Fault – Overheat Eng Shutdown See Owners Manual
Eng Fault – No Oil RPM Reduction See Owners Manual	Eng Fault – No Oil Eng Shutdown See Owners Manual
Eng Fault – Sensor Service Soon - See Dealer	Eng Fault – Injector Service Soon - See Dealer
Eng Fault – water in fuel Service Soon - See Dealer	Eng Fault – RPM Reduction Service Soon - See Dealer
Eng Fault – Low Battery See Owners Manual	Eng Status Winterization mode active
Low Oil – Ck Oil Supply See Owners Manual	Eng Fault - Ignition See Dealer

INSTRUMENT USER INFORMATION

TACHOMETER

See “Alarms” on page 31. Press and hold ENTER for three seconds to return to the Main Menu.

Battery Voltage

Press the UP or DOWN button on the *I-Command* tachometer to scroll through the main menu options. The “Battery Voltage” screen appears. The display range is 0 to 18 volts with 0.1 volt resolution. In multiple outboard applications, each tachometer will display the voltage detected on the 12V system for that outboard.



Split Screen

Press the UP or DOWN button on the *I-Command* tachometer to scroll through the main menu options. The Split Screen appears. This screen allows the operator to view two data displays at the same time. This is a convenient screen to have displayed on the tachometer at all times. The data can be customized to allow the operator to change the current displays.

To change split screen data combinations, press ENTER. The data banner at the top of the split screen will appear in reverse color.

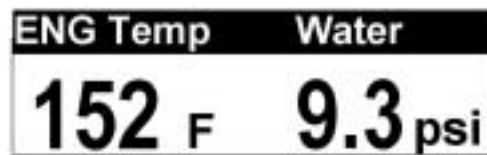
Using the UP and DOWN buttons, select the desired displays.



The UP button will scroll the the left side of the screen and the DOWN button will scroll the right side of the screen.

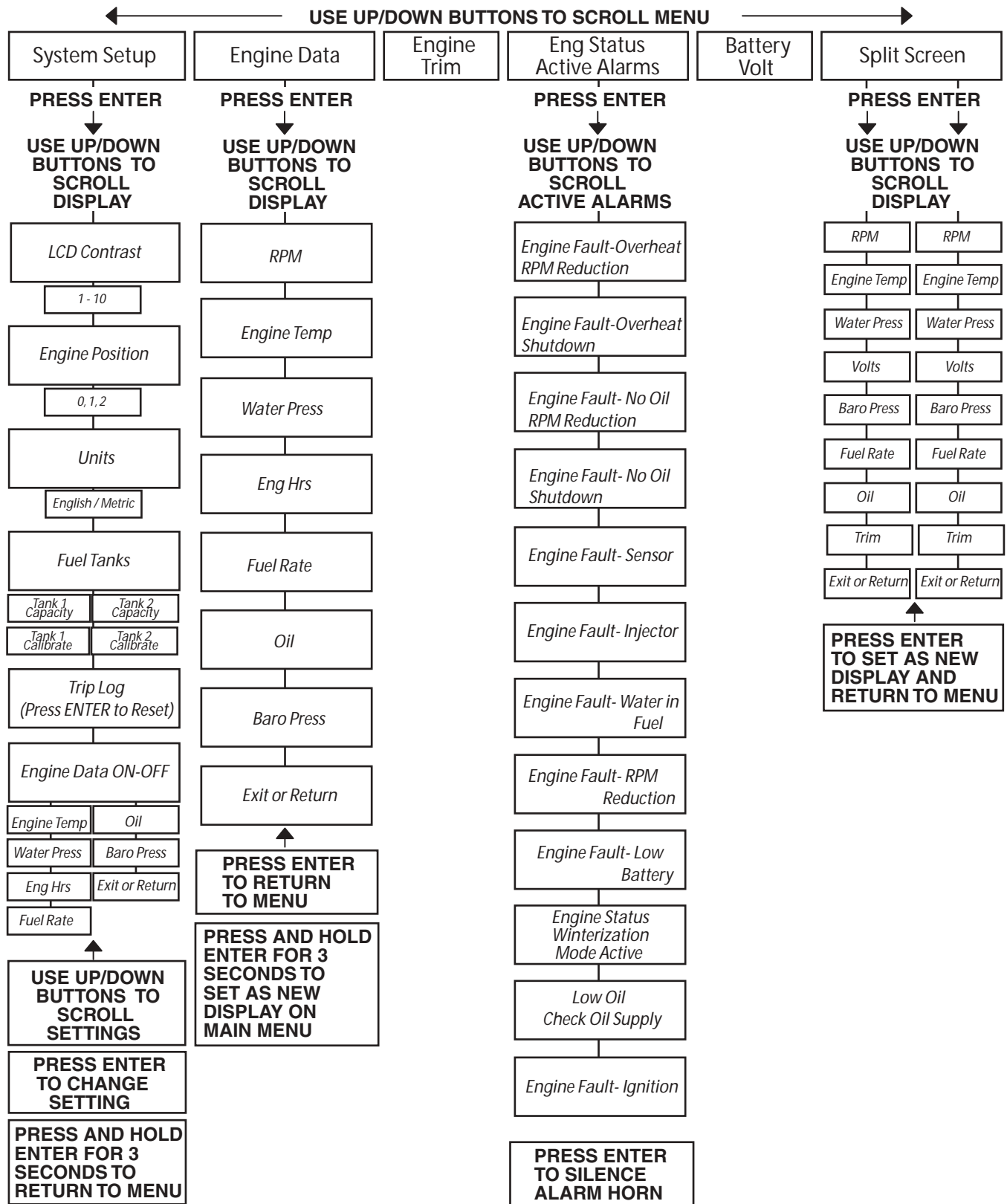
Press ENTER again to set the display.

The split screen will display a new data combination.



All data displays available on the tachometer system are available for viewing in the split screen mode except the Engine Hours display.

I-Command Tachometer LCD Menu



3

SPEEDOMETER

The *I-Command* speedometer provides boat speed and information related to optional accessories connected to the network.

The speedometer displays the boat's speed over the water (SOW) or speed over ground (SOG) through the instrument's analog meter (SOG is available only if GPS receiver is connected). Additional system information is displayed on the LCD screen in digital form.



Speedometer LCD Menu

The LCD screen displays a menu and can be navigated with the UP and DOWN arrow buttons.

Available Menu Options are:

- System Setup
- Speed
- Fuel Level
- Fuel Management
- Water Depth
- Sea Water Temperature
- Split Screen / Dual LCD display

Sub-menus are accessed by pressing the ENTER button.

To exit sub-menus and return to main menu:

- Press and hold ENTER for three seconds;
- Press ENTER; or
- Select Exit or Return screen and press ENTER.

Speedometer System Setup

System Setup allows users to set screen display options and configure the system to display engine information based on user preference.

Use System Setup to set the following:

- LCD Contrast
- Water Depth Units
- Speed Units
- Sea Water Temperature Units

Press the UP or DOWN buttons on the speedometer to scroll through menu options. The "System Setup" screen appears. Press ENTER.



Next, press the UP or DOWN button to scroll through the setup options. Activate a menu option by pressing ENTER.

IMPORTANT: Speed, Water Depth and Fuel Level display require installation of optional transducer and fuel level sender kits.

LCD Contrast

LCD Contrast allows the operator to adjust the contrast of LCD screen.

Press the UP or DOWN button to scroll through System Setup options. The "Contrast" Setup screen appears.



Press ENTER, and SET enters the display. Use the UP and DOWN buttons to select the contrast number.



Press ENTER again and LCD screen contrast is set. The contrast range is from value 1 to 10. However, only values 3 to 7 will be stored into memory and programmed for subsequent power ups.

Press and hold ENTER for three seconds to return to the main menu or use the UP or DOWN button to scroll through the setup options.

Speed

Press the UP or DOWN button to scroll through System Setup options. The “Speed” Setup screen appears.



Press ENTER, and “SET” enters the display. Use the UP and DOWN buttons to select units.



Speed display options are: mph (miles per hour), kph (kilometers per hour) or kn (knots). The screen default is kn (knots). Press ENTER again and speed units is set.

Press and hold ENTER for three seconds to return to main menu.

Units – English / Metric

Press the UP or DOWN button to scroll through System Setup options. The “Units” Setup screen appears.



Press ENTER, and SET enters the display. Use the UP and DOWN buttons to select units.



Press ENTER again, and display units are set.

Press and hold ENTER for three seconds to return to the main menu, or use the UP and DOWN buttons to scroll through the setup options.

Speed

Speed display requires NMEA 2000 transducer with speed input and/or NMEA 2000 GPS receiver/antenna. Use of GPS receiver provides speed over ground (SOG) and transducer with speed input provides speed over water (SOW). If both are present, instrument needle displays SOW.

Press the UP or DOWN button on the *I-Command* speedometer to scroll through the main menu options. The “Speed” screen appears.



Press ENTER. The Speed subscreen appears.



Press the UP or DOWN button to scroll through Speed display options.



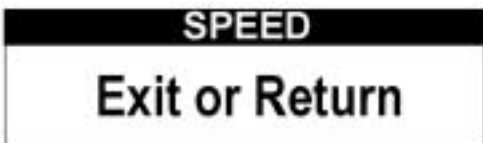
Press and hold ENTER for three seconds to set as new Speed display and to return to main menu.

3

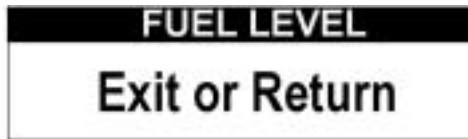
INSTRUMENT USER INFORMATION

SPEEDOMETER

Press ENTER with Exit screen screen displayed to return to the main menu.



Press ENTER with Exit screen screen displayed to return to the main menu.



Fuel Tank Level

IMPORTANT: Requires use of Sensor Interface Module (SIM) or NMEA 2000 Fuel Level Converter.

Press the UP or DOWN button on the *I-Command* speedometer to scroll through the main menu options. The "Fuel Level" screen appears.



Press the UP and DOWN buttons to scroll through Fuel display options.

Available options are:

- Tank 1
- Tank 2

Press ENTER and the Fuel Level subscreen appears.



Press the UP or DOWN button to scroll through Speed display options.



Press and hold ENTER for three seconds to set as new Fuel Level display and return to main menu.

IMPORTANT: Sensor Interface Module (SIM) provides a Low Fuel Warning. A tachometer alarm activates when fuel level is below 10%.

Fuel Management

Press the UP or DOWN button on the *I-Command* speedometer to scroll through the main menu options. The "Fuel Mgmt" screen appears.



Press ENTER, and the Fuel Management subscreen displays.



Press the UP and DOWN buttons to scroll through Fuel Management display options.

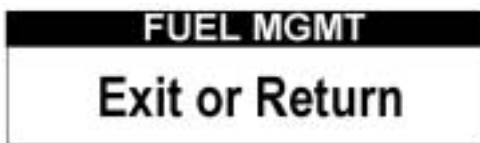
Available options are:

- Fuel Rate (total fuel consumption, combines for multiple outboard installations);
- Fuel Economy (distance traveled per volume of fuel, requires NMEA 2000 GPS receiver);
- Estimated Fuel Left (requires SIM); and
- Fuel Used (requires SIM).



Press and hold ENTER for three seconds to set as new display and return to main menu.

Press ENTER with Exit screen screen displayed to return to the main menu.



Water Depth

Press the UP or DOWN button to scroll through System Setup options. The "Depth" screen appears.



There are no subscreens for the Depth screen.

WARNING

Do not use the Depth feature as a navigational aid to prevent collision, grounding, boat damage, or personal injury. When the boat is moving, water depth may change too quickly to allow time for the operator to react. Always operate the boat at very slow speeds if shallow water or submerged objects are suspected.

Sea Water Temperature

Press the UP or DOWN button to scroll through System Setup options. The "Water Temperature" screen appears.



There are no subscreens for the Water Temperature screen.

Split Screen

Press the DOWN button again to display the Split Screen. This screen allows the operator to view two data displays at the same time.



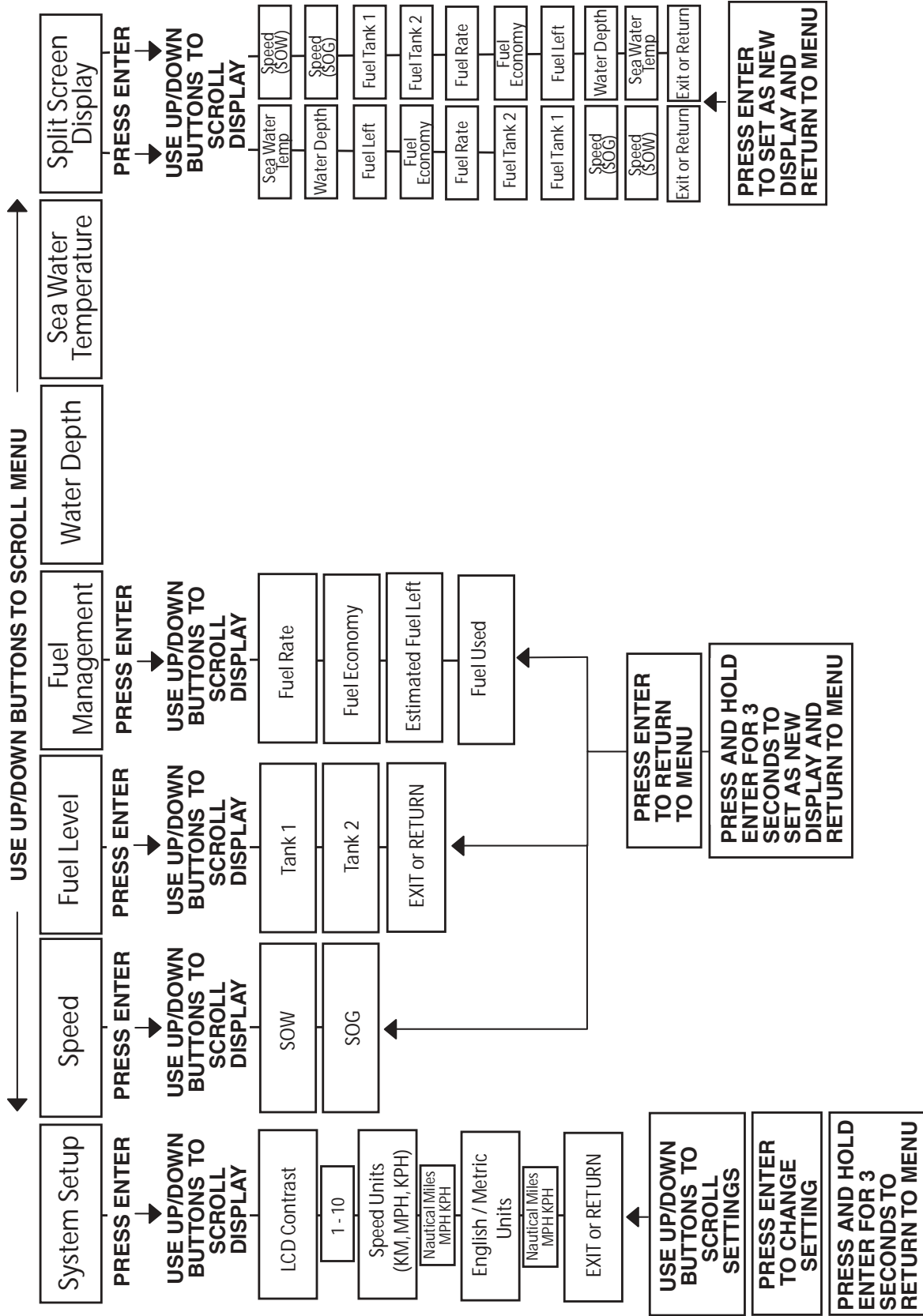
Press the ENTER button while in the split screen mode to change the current displays. Use the UP button to scroll the the left side of the screen and the DOWN button to scroll the right side of the screen.

A new screen could look like this next screen.



Press ENTER to save return to main menu.

I-Command Speedometer LCD Menu



2 IN. INSTRUMENTS

Optional 2 in. instruments provide full time analog displays for:

- Battery voltage
- Trim angle
- Engine water pressure
- Fuel tank level
- Oil tank level

These *I-Command* instruments connect with tachometer harness using the 2 in. gauge harness(s), P/N 763369.

Instrument descriptions:

- Volt – Displays battery voltage, 6 to 16 volts in 2 volt increments.

- Oil – Displays oil level in oil tank, 0% to 100% of oil level in the tank. Requires installation of optional oil tank sender kit. Multiple oil tanks require the use of specific oil tank level NMEA 2000 converters. Oil tank level NMEA 2000 converters are specific to outboard position and must be installed to coincide with outboard instance (positions).
- Water Pressure – Displays 0 to 30 PSI and also 0 to 205 kPa. Requires installation of optional water pressure sender kit and *EMM* software activation.
- Fuel Level – Displays fuel level in fuel tank, divided in graduated increments (1/8) beginning at E (empty) and ending at F (full). Requires installation of optional fuel tank sensor kit.
- Trim Angle – Displays engine trim angle, divided in graduated increments (1/8) beginning at DN (down) and ending at UP.



INSTRUMENT USER INFORMATION
TROUBLESHOOTING CHART

TROUBLESHOOTING CHART

DESCRIPTION	POSSIBLE CAUSE / PROCEDURE
<i>I-Command</i> System does not work	Each network requires the use of one power hub and two terminators. Check Power Supply Harness, fuses and switched B+ “wake-up” from ignition harness. Check power indicator LEDs on power and consolidator hubs. Check all connections. See “ASSEMBLY DIAGRAMS” on page 25.
<i>I-Command</i> instruments do not work	Tachometer must be installed (primary instrument). Check Power Supply Harness, fuses, and switched B+ “wake-up” from ignition harness. Check power indicator LED’s on power and consolidator hubs. Check all connections. See “ASSEMBLY DIAGRAMS” on page 25. Check engine position setting. See “Engine Position” on page 33.
Power Supply Harness has blown fuse(s)	Network current draw is exceeding 5A. Check accessories on network. Typically, each <i>I-Command</i> instrument set draws 1A, and each NMEA 2000 accessory draws 1A.
<i>I-Command</i> instrument display is erratic	Check for installation of two terminators in system. Check data harness connections. Check power indicator LEDs on power and consolidator hubs are constant ON.
Speedometer does not display speed	Requires input from NMEA 2000 speed transducer and/or GPS receiver.
2 in. instruments do not work	Check speedometer connection. Speedometer shunt connector must be installed if speedometer is not installed. Check for installation of appropriate senders or sensor for specific instrument operation. See below.
Speed-Over-Ground (SOG) does not display	Requires input from NMEA 2000 GPS receiver.
Speed-Over-Water (SOW) does not display	Requires input from NMEA 2000 speed transducer.
Water depth does not display	Requires input from NMEA 2000 depth transducer.
Sea water temperature does not display	Requires input from NMEA 2000 temperature transducer.
Fuel tank level does not display	Requires input from fuel tank sensor (A/D converter) or SIM.
No fuel management features	Requires input from SIM and fuel capacity programming using <i>I-Command</i> tachometer.
SIM is installed, fuel management does not work	Check fuse (1A). and all connections. Program with <i>I-Command</i> tachometer.
Oil tank level does not display	Requires input from oil tank sender with A/D converter. Each oil tank uses an outboard position specific converter.
Engine water pressure does not display	Requires input from water pressure transducer and <i>EMM</i> switch activation using <i>Evinrude Diagnostics</i> Software.
No “Fuel Economy” display for Fuel Management	Requires input from NMEA 2000 GPS receiver.
Water pressure related fault codes observed after initial setup	Check for incorrect water pressure transducer connections at engine.
How is the <i>I-Command</i> System speed/depth/sea temperature transducer connection wired?	See “ASSEMBLY DIAGRAMS” on page 25. Refer to manufacturer’s wiring information.

INSTRUMENT USER INFORMATION
TROUBLESHOOTING CHART

DESCRIPTION	POSSIBLE CAUSE / PROCEDURE
How is the <i>I-Command</i> System GPS receiver connection wired?	See "ASSEMBLY DIAGRAMS" on page 25. Refer to manufacturer's wiring information.
"Communication Error" displayed on LCD	Check engine position setting on tachometer and outboard position setting in <i>EMM</i> . See "Engine Position" on page 33.
Blown 5 A fuse for power supply	Check all connection and wiring. Disconnect accessory connections to network. Isolate possible overloads or shorted accessory or instrument Instruments: 3 in - 350 - 400 mA, 2 in - 100-120 mA Outboard <i>EMM</i> : 200 mA Typical twin outboard system - 2.05 to 2.7 mA all possible instruments installed (13) Typical triple outboard system - 3.5 to 4.8 mA all possible instruments installed (18) Typical A/D converters (NMEA 2000 converters): 50 mA

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