

**EVINRUDE.
Johnson.**
GENUINE PARTS



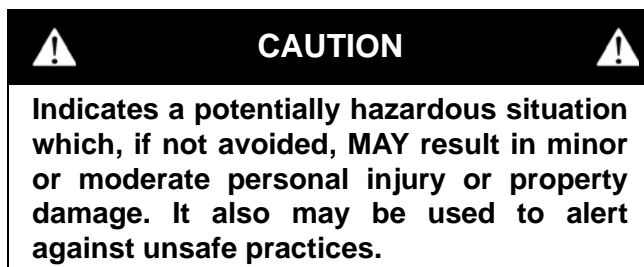
I-COMMANDTM

Installation Guide

SAFETY INFORMATION

This booklet is written for qualified, factory-trained technicians who are already familiar with the use of *Evinrude®/Johnson®* Special Tools. This booklet is not a substitute for work experience. It is an organized guide for installation of the *I-Command* system.

This booklet uses the following signal words identifying important safety messages.



IMPORTANT: Identifies information that will help prevent damage to machinery and appears next to information that controls correct assembly and operation of the product.

These safety alert signal words mean:
ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

Always follow common shop safety practices. If you have not had training related to common shop safety practices, you should do so to protect yourself, as well as the people around you.

It is understood that this booklet may be translated into other languages. In the event of any discrepancy, the English version shall prevail.

DO NOT perform any installation until you have read the instructions and checked the pictures relating to the installation procedures.

Be careful, and never rush or guess a service procedure. Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, unfamiliarity with the product, and drugs and alcohol use, to name a few. Damage to a boat and outboard can be fixed in a short period of time, but injury or death has a lasting effect.

When replacement parts are required, use *Evinrude/Johnson Genuine Parts* or parts with equivalent characteristics, including type, strength and material. Using substandard parts could result in injury or product malfunction.

Torque wrench tightening specifications must be strictly followed. Replace any locking fastener (locknut or patch screw) if its locking feature becomes weak. Definite resistance to turning must be felt when reusing a locking fastener. If replacement is specified or required because the locking fastener has become weak, use only authorized *Evinrude/Johnson Genuine Parts*.

If you use procedures or service tools that are not recommended in this instruction booklet, YOU ALONE must decide if your actions might injure people or damage the outboard.

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Evinrude® E-TEC®

I-Command™

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Before working on any part of the outboard, read the following SAFETY information.



DANGER



Contact with a rotating propeller is likely to result in serious injury or death. Assure the engine and prop area is clear of people and objects before starting engine or operating boat. Do not allow anyone near a propeller, even when the engine is off. Blades can be sharp and the propeller can continue to turn even after the engine is off. Remove propeller before servicing and when running the outboard on a flushing device.

DO NOT run the engine indoors or without adequate ventilation or permit exhaust fumes to accumulate in confined areas. Engine exhaust contains carbon monoxide which, if inhaled, can cause serious brain damage or death.



WARNING



Wear safety glasses to avoid personal injury, and set compressed air to less than 25 psi (172 kPa).

The motor cover and flywheel cover are machinery guards. Use caution when conducting tests on running outboards. **DO NOT** wear jewelry or loose clothing. Keep hair, hands, and clothing away from rotating parts.

During service, the outboard may drop unexpectedly. Avoid personal injury; always support the outboard's weight with a suitable hoist or the tilt support bracket during service.

To prevent accidental starting while servicing, disconnect the battery cables at the battery. Twist and remove all spark plug leads.

The electrical system presents a serious shock hazard. **DO NOT** handle primary or secondary ignition components while outboard is running or flywheel is turning.

Gasoline is extremely flammable and highly explosive under certain conditions. Use caution when working on any part of the fuel system.

Protect against hazardous fuel spray. Before starting any fuel system service, carefully relieve fuel system pressure.

Do not smoke, or allow open flames or sparks, or use electrical devices such as cellular phones in the vicinity of a fuel leak or while fueling.

Keep all electrical connections clean, tight, and insulated to prevent shorting or arcing and causing an explosion.

Always work in a well ventilated area.

Replace any locking fastener (locknut or patch screw) if its locking feature becomes weak. Definite resistance to tightening must be felt when reusing a locking fastener. If replacement is indicated, use only authorized replacement or equivalent.

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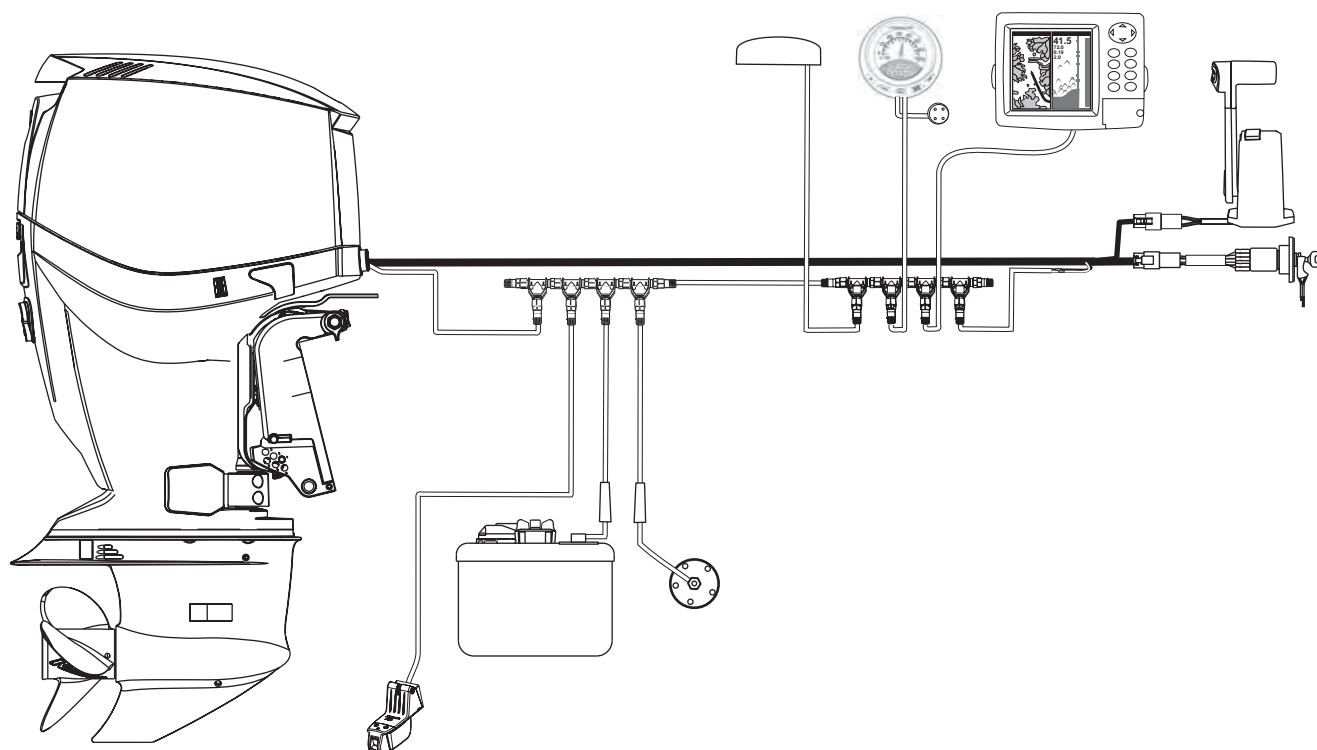
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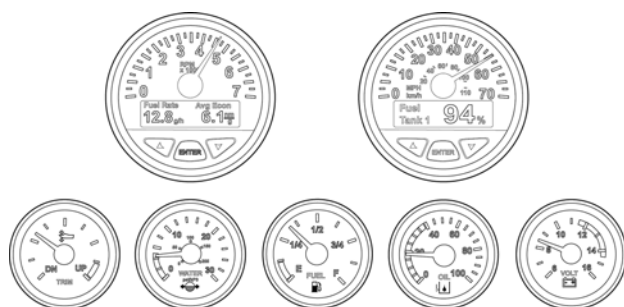
SYSTEM OVERVIEW

DESCRIPTION

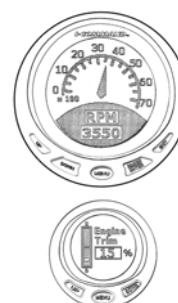
The *I-Command™* Digital Integrated Performance System uses “plug and play” networking technology based on NMEA 2000† data communications standards (National Marine Electronics Association). These standards provide communications through a serial data network utilizing a Controller Area Network (CAN) integrated circuit (IC). This network operates at 250 kb/second and allows multiple electronic devices to be connected together on a common channel for easy information sharing. Multiple instruments or digital displays can be used to monitor and broadcast equipment and engine data.



I-Command instruments and digital displays are designed specifically for NMEA 2000 certified *Evinrude® E-TEC™* outboards. These instruments and displays provide enhanced engine and boat performance information. Multiple functions are integrated into the easy-to-use instruments and displays. Additional individual instruments and accessories can be added with the plug and play design.



Classic Series





Digital Series

SYSTEM OVERVIEW

I-COMMAND “DIGITAL” SERIES FEATURES

I-COMMAND “DIGITAL” SERIES FEATURES

<i>I-Command</i> “Digital” Series Multifunction 3 ½ in. and 2 in. Displays	3 ½ in. Display 	2 in. Display 
Functions & Screen Displays		
System Setup	✓	✓
Adjustable Display Contrast and Audio	✓	✓
Engine Warning Displays	✓	✓
Single, Dual and Quad Page Displays	✓	✓
Displays in English or Metric Units	✓	✓
Multi Engine RPM synchronization (twin or triple engines)	✓	✓
Tachometer	✓	✓
Speedometer ^{(1)or(2)}	✓	✓
GPS Position Longitude and Latitude ⁽¹⁾	✓	✓
Engine Hour Meter	✓	✓
Engine Trim Position ⁽³⁾	✓	✓
Engine Temperature	✓	✓
Water Pressure ⁽⁴⁾	✓	✓
Alternator voltage (<i>Evinrude E-TEC</i> - 55 volt system)	✓	✓
Battery voltage	✓	✓
Engine Load – percent of throttle	✓	✓
Temperature ⁽⁵⁾ (sea water / livewell / air, up to three)	✓	✓
Barometric Pressure	✓	✓
Fuel Tank Level ^{(6)or(9)} (up to three tanks)	✓	✓
Oil Tank Level ⁽⁷⁾ (up to three tanks)	✓	✓
Depth ⁽⁸⁾	✓	✓
Fuel Flow Rate ⁽⁹⁾	✓	✓
Fuel Economy and Range ^{(1)and(10)}	✓	✓
Fuel Remaining and Fuel Used ^{(1)and(10)}	✓	✓
Low Fuel Warning – programmable	✓	✓
Trip Fuel ⁽¹⁰⁾ – Seasonal Fuel	✓	✓

(1) Requires NMEA 2000 GPS receiver/antenna connected to network. Provides speed over ground (SOG).

(2) Requires water speed input device - provides speed over water (SOW).

(3) Available on V4/V6 *Evinrude E-TEC* outboards.

(4) Requires accessory water pressure transducer kit (V4/V6 *Evinrude E-TEC*) or water pressure kit.

(5) Requires NMEA 2000 depth transducer/triducer with temperature output or temperature sensor kit(s).

(6) Requires accessory fuel tank level converter for each tank. See “Select Fuel Remaining Source” on page 48.

(7) Requires accessory oil tank sending unit kit for each oil tank.

(8) Requires NMEA 2000 depth transducer.

(9) Requires *EMM* interface or fuel flow transducer.

(10) Requires memory module.

IMPORTANT: Digital Series displays must be connected directly to the *I-Command* network and cannot connect to Classic series instrument harnesses.

I-Command “Digital” Displays



Digital Display	3 ½ in.	2 in.
RED connector (Black bezel)	764175 ⁽¹⁾	764177 ⁽¹⁾
BLUE connector (Black bezel)	763507 ⁽²⁾	763508 ⁽²⁾

(1) Includes RED T-connector (PN 764151)

(2) Includes BLUE T-connector (PN 763512)

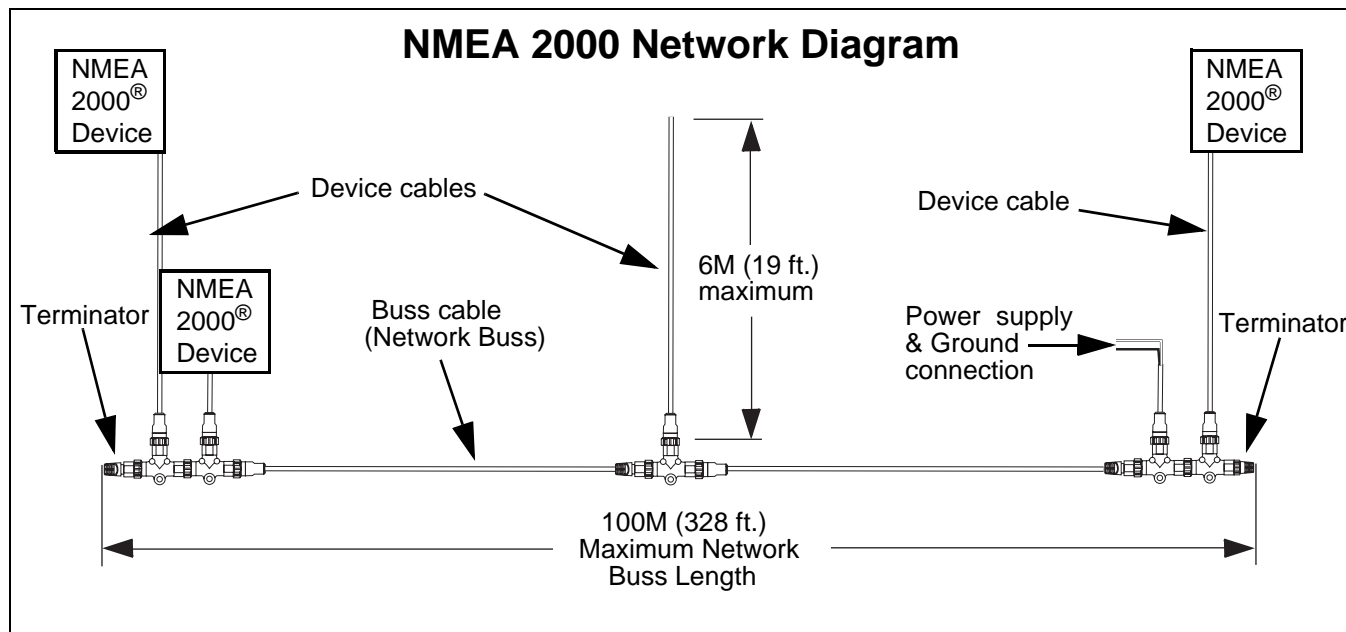


Accessory Bezels	3 ½ in.	2 in.
Gold	764011	764610
White	764013	764012
Chrome	764640	764641
Black	764595	764594



Trim Rings	3 ½ in.	2 in.
Blue	764257	764256
Red	764259	764258
Black	764261	764260
White	764263	764262
Gold	764265	764264
Chrome	764267	764266
Platinum	764269	764268

NETWORK SPECIFICATIONS



Cable Requirements

NMEA 2000 specifies wire requirements as follows:

NMEA 2000 Cable (Light / Micro Buss)	
Maximum Current	4 AMPS
Resistance - Power Wire(s)	5.40 Ω per 100 M
Power Wire Size	22 AWG
Data Wire Size	24 AWG

NMEA 2000 specifies wire colors as follows:

NMEA 2000 Wire Designation	Color
Power supply (+VDC)	Red
Ground (-VDC)	Black
Shield (Drain)	Bare
Data HI (Signal)	White
Data LOW (Signal)	Blue

Grounding

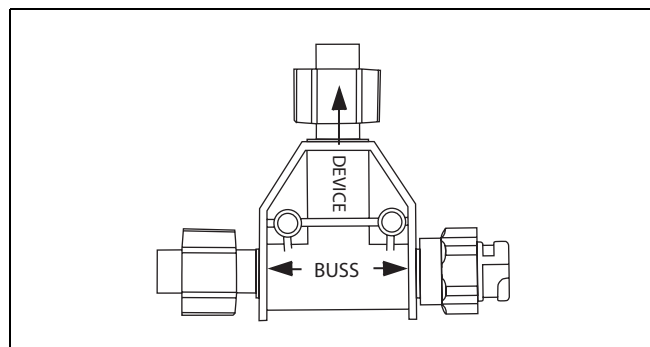
The network should be grounded at a SINGLE location. This is normally done at the power supply connection to the network and should be robustly connected to the boat's grounding sys-

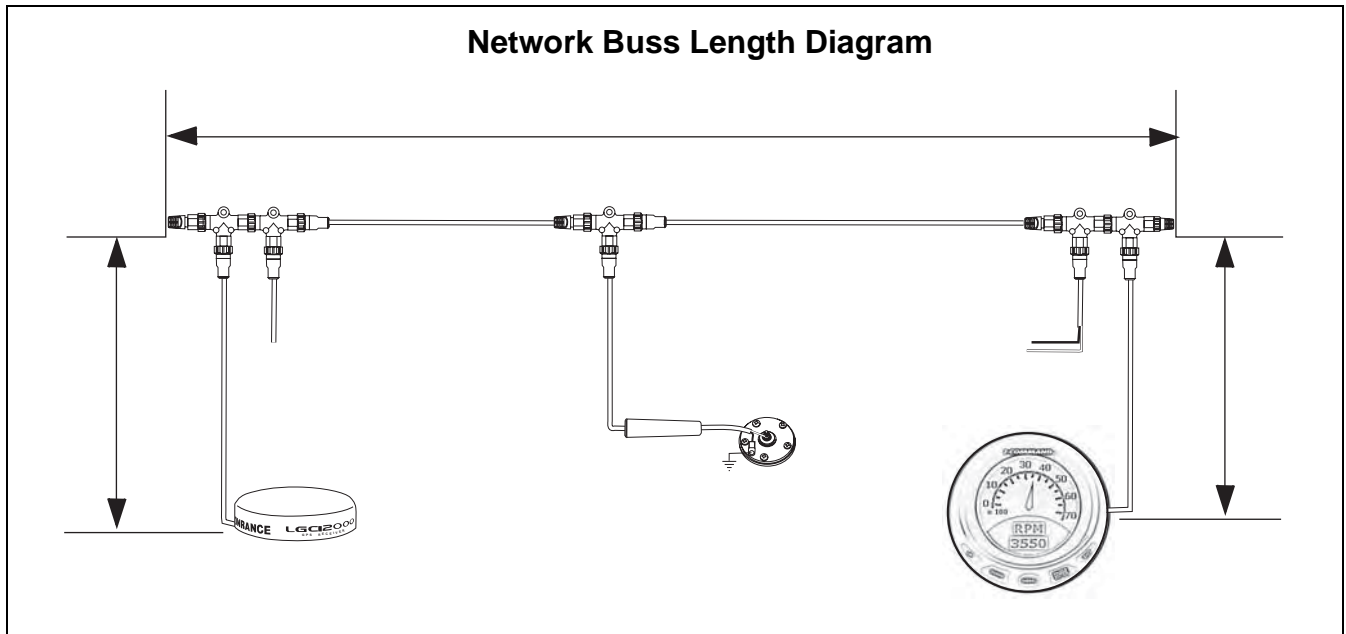
tem. There must be no other ground connections on the network to avoid ground loops, which can cause problems with network performance.

Linear Architecture

NMEA 2000 networks use a "linear" architecture. Linear describes the network buss as connected in a line. This design is easy to assemble and expand. The linear architecture must be maintained whenever an additional device is added to the network or the network is modified. This type of network also requires one terminator at each end of the network buss.

Connect buss cables, terminators, and T-connectors to the buss connectors (side connectors) of the T-connectors. Connect devices to the device connector (center point) of the T-connector.





Network Buss Length

The distance between any two points on the network must not exceed 100 meters (328 ft.).

Measure the distance from the T-connector to the last device at each end of the network.

Device cable lengths at the ends of the network must be included in the total network buss length calculation.

Device Cable Lengths

Network device cable lengths:

- Must not exceed 6 meters (19 ft.) for single device cable lengths
- Must not exceed 78 meters (256 ft.) for total device cable lengths

Maximum Number of Devices

A maximum of 50 devices can be attached to a network.

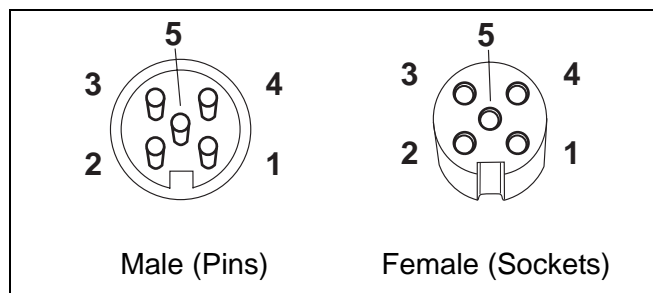
Open Network Device Connectors

There should be no “open” or unused network device connectors. Remove T-connectors to eliminate unused network device connectors.

QUICK CONNECT STYLE CONNECTORS

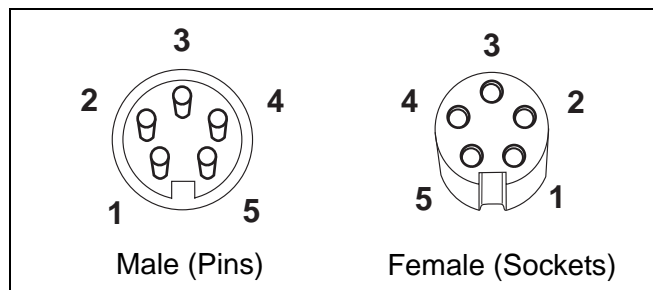
Connector Identification

Connectors have two configurations – Male (pins) and Female (sockets).



Red type (DeviceNet™ style)

1. Shield (Drain) - Bare wire
2. Power (+VDC) - Red wire
3. Ground (-VDC) - Black wire
4. Data HI (Signal) - White wire
5. Data LOW (Signal) - Blue wire



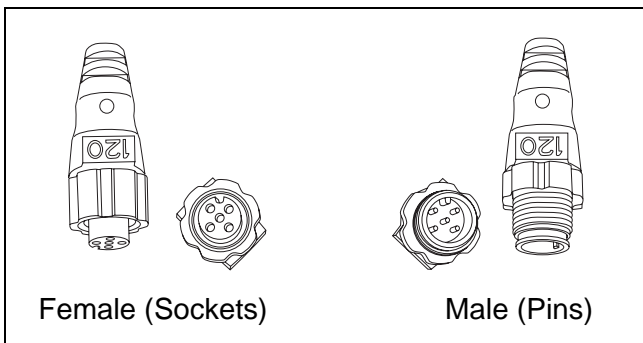
Blue type

1. Ground (-VDC) - Black wire
2. Power (+VDC) - Red wire
3. Data LOW (Signal) - Blue wire
4. Shield (Drain) - Bare wire
5. Data HI (Signal) - White wire

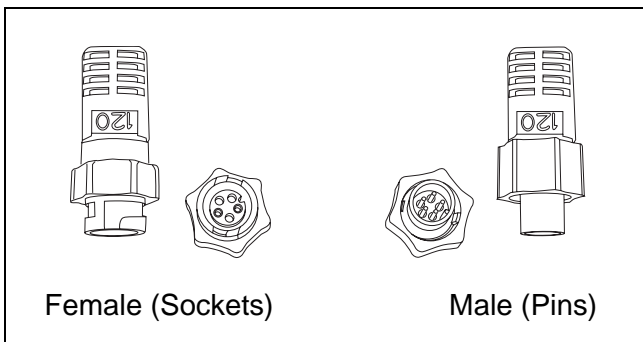
Terminating Resistors

Terminating resistors are required for accurate network transmissions. Networks must be assembled with terminators positioned at both ends of the trunk/backbone. Each terminator uses a 120 Ω , 1/4 watt resistor to remove signal reflections on the network.

One terminator must be installed at each end of the *I-Command* network.



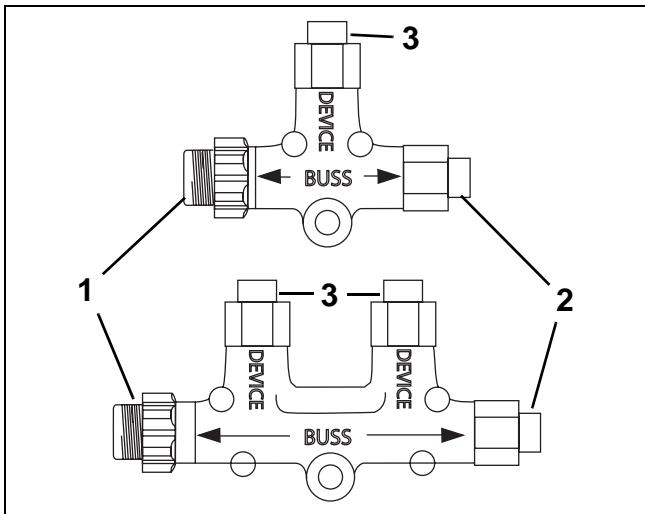
Red type (DeviceNet™ style) terminators



Blue type terminators

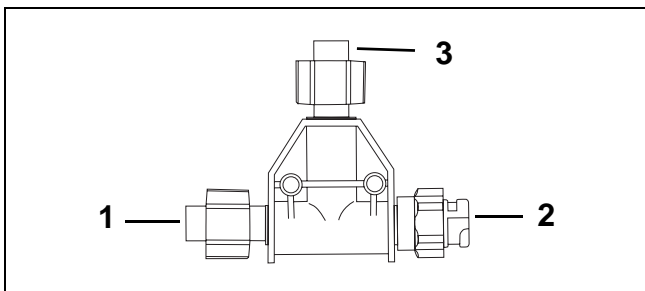
T-Connectors and Buss Cables

T-connectors provide device access to the network. Single T-connectors have two buss connectors and one device connectors. Double T-connectors have two buss connectors and two device connectors. Network devices must be connected to the device connector of the T-connector.



Red type (DeviceNet™ style)

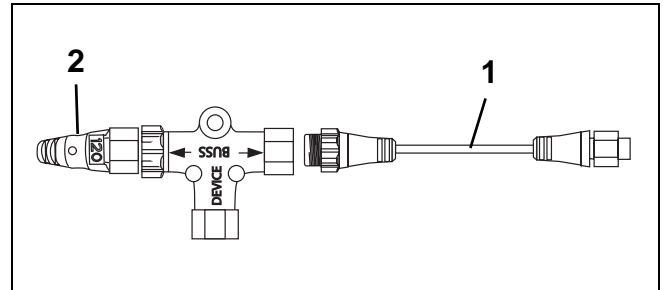
1. Male buss connector
2. Female buss connector
3. Female device connector



Blue type

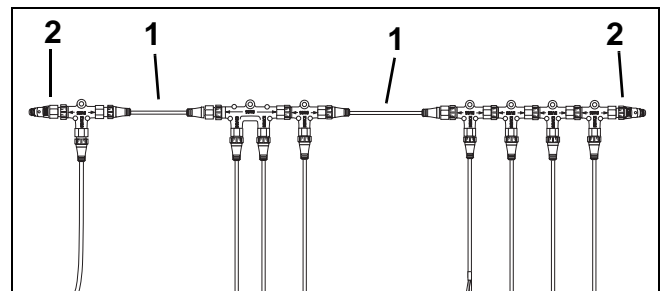
1. Male buss connector
2. Female buss connector
3. Male device connector

T-Connectors can be installed at the end of a network. Connect a network buss cable to one side and a terminator into the other.



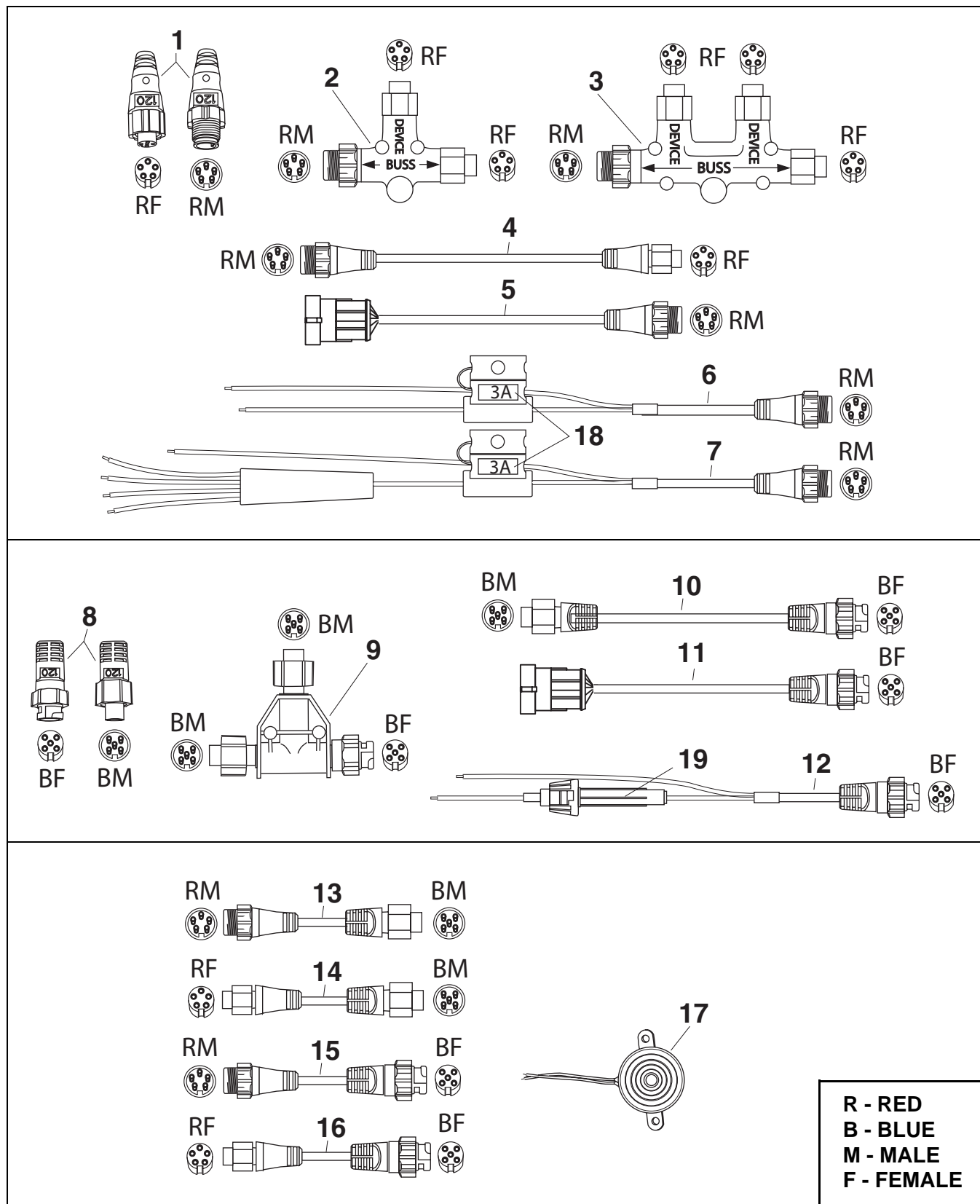
1. Buss cable
2. Terminator

Multiple T-connectors can be installed in the middle or the end of a network. Use network buss cables to connect T-connectors or multiple T-connectors.



1. Buss cable
2. Terminator

QUICK CONNECT COMPONENTS



SYSTEM OVERVIEW

QUICK CONNECT COMPONENTS

No.	Description	Part Number
RED Connector		
1	Terminator Kit (contains 1 male and 1 female)	764155
2	T-Connector, single (1 device connection)	764151
3	T-Connector, dual, (2 device connections)	764152
4	Network Buss Cable - 1 ft.	764160
4	Network Buss Cable - 6 ft.	764161
4	Network Buss Cable - 15 ft.	764162
4	Network Buss Cable - 25 ft.	764163
5	Engine Interface Cable Kit (15 ft.) ⁽¹⁾	764164
6	Power Supply Kit - Single Engine ⁽¹⁾	764157
7	Power Supply Kit - Multiple Engines ⁽¹⁾	764159
BLUE Connector		
8	Terminator Kit (contains 1 male and 1 female)	763679
9	T-Connector - single (1 device connection)	763512
10	Network Buss Cable - 1 ft.	763528
10	Network Buss Cable - 6 ft.	763509
10	Network Buss Cable - 15 ft.	763510
10	Network Buss Cable - 25 ft.	763511
11	Engine interface cable (15 ft.)	763517
12	Power Supply Kit - Single Engines (3 ft.) ⁽²⁾	763678
*	Power Supply Kit - Multiple Engines (3 ft.) ⁽²⁾	764014
RED Connector to BLUE Connector Adaptors		
13	Adaptor - RED Male to BLUE Male	764184
14	Adaptor - RED Female to BLUE Male	764185
15	Adaptor - RED Male to BLUE Female	764186
16	Adaptor - RED Female to BLUE Female	764187
Miscellaneous		
17	Buzzer/horn ⁽³⁾	764539
18	Fuse	ATO/ATC 3 Amp: 764538
19	Fuse	AGC 3 Amp

(1) Includes T-Connector, P/N 764151

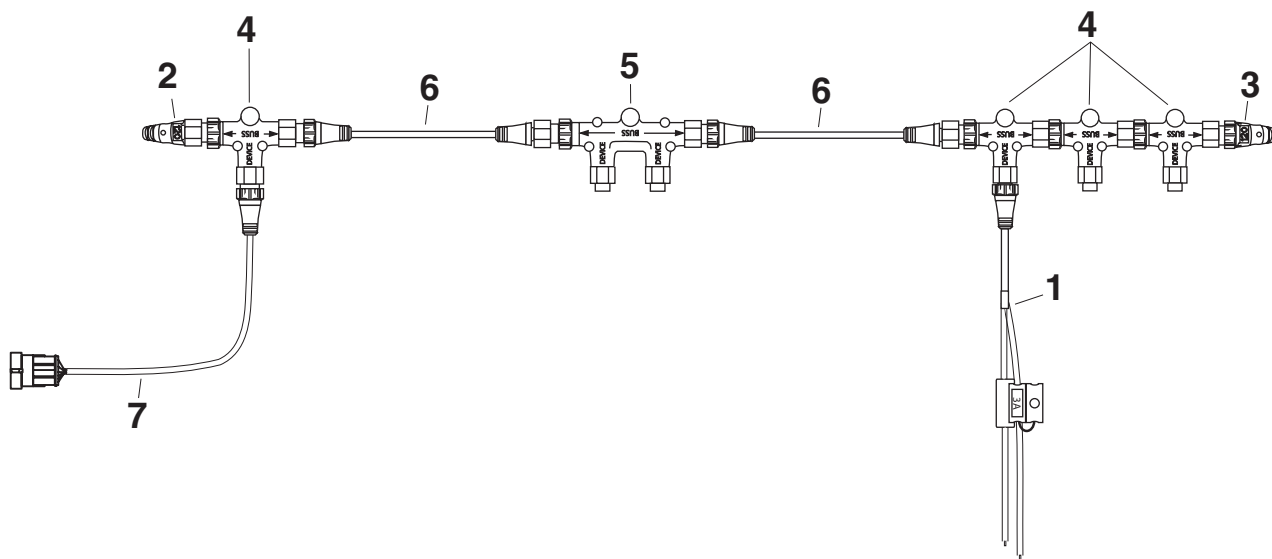
(2) Includes T-Connector, P/N 763512

(3) Included with 3.5 in and 2 in. *I-Command* "Digital" instruments. Use one for each instrument.

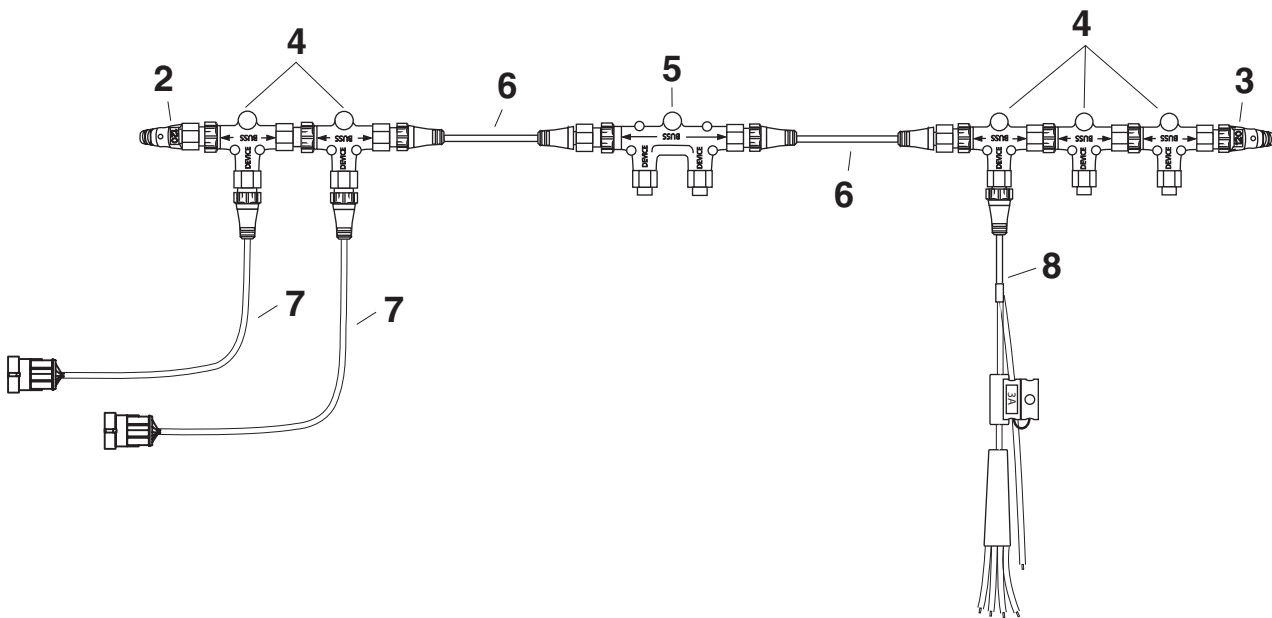
* Not shown

QUICK CONNECT NETWORK DIAGRAMS

SINGLE OUTBOARD




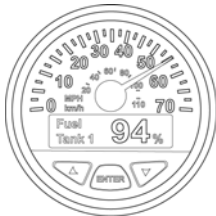
TWIN OUTBOARD



- 1. Power harness, single engine
- 2. Terminator (Male)
- 3. Terminator (Female)
- 4. T-Connector - single

- 5. T-connector - double
- 6. Buss cable
- 7. EMM cable (network to engine)
- 8. Power harness, multi-engine

I-Command “CLASSIC” SERIES FEATURES

I-Command “Classic” Series Multifunction 3 ½ in. Instruments	Tachometer	Speedometer
		
Basic Functions	Primary Instrument ⁽¹⁾	
Analog Tachometer Display	✓	
Analog Speedometer Display		✓
Adjustable Brightness	✓	✓
Engine Warning Displays	✓	✓
GPS Input ⁽²⁾ to I-Command network (Speed over Ground)	✓	✓
Transducer Input to I-Command network (Depth/Speed over Water)	✓	✓
I-Command “Classic” Accessory Instrument Connection	✓	
LCD Displays – Dual Data Display	✓	✓
System Setup	✓	✓
Screen Displays		
Digital Tachometer	✓	
Digital Speedometer ⁽³⁾		✓
Engine Hour Meter	✓	
Engine Trim Angle	✓	
Engine Temperature	✓	
Water Pressure ⁽⁴⁾	✓	
Battery voltage	✓	
Fuel Tank Level ⁽⁵⁾		✓
Oil Tank ⁽⁶⁾	✓	
Water Temperature ⁽⁷⁾ (sea water)		✓
Barometric Pressure	✓	
Depth ⁽⁷⁾		✓
Fuel Flow Rate (GPH)		✓
Fuel Economy		✓
Estimated Fuel Remaining		✓
Fuel Used		✓

(1) The I-Command “Classic” tachometer is considered to be the “primary engine interface” instrument and is required for all I-Command “Classic” 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 SIM kit. Refer to “Sensor Interface Module (SIM) Kit” on page 28.

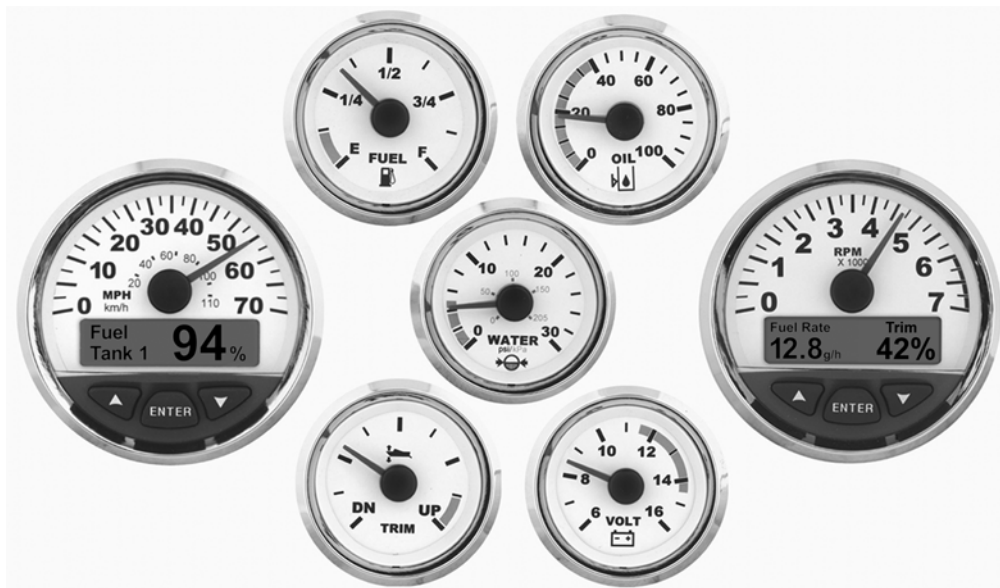
(6) Requires accessory oil tank sending unit kit.

(7) Requires NMEA 2000 transducer with depth and/or temperature input.

SYSTEM OVERVIEW

I-COMMAND “CLASSIC” INSTRUMENTS

I-Command “Classic” Instruments



Description	Chrome Bezel White Dial	Black Chrome Bezel Light Grey Dial	Chrome Bezel Tan (Sand) Dial
3 ½ in. Multifunction Instrument			
Tachometer ⁽¹⁾ 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 - Tank 1	763380**	763389**	763398**
Fuel Tank Level - Tank 2	763668**	763669**	763670**
Battery Voltage	763381**	763390**	763399**
Water Pressure	763382**	763391**	763400**
Trim Angle	763709**	763711**	763713**
Oil Tank Level	763384**	763393**	763402**
3 ½ 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 763593 and Horn, P/N 763598 ** Includes 2 In. Gauge Harness, P/N 763359			

(1) The *I-Command* “Classic” tachometer is considered to be the “primary engine interface” instrument and is required for all *I-Command* “Classic” Series 2 inch instrument installations. *I-Command* “Classic” series speedometer or 2 inch instruments must connect with *I-Command* “Classic” series tachometer.

I-Command "CLASSIC" SERIES 2 IN. INSTRUMENTS

I-Command "Classic" Series 2 in. Instruments				
				
Fuel Level	Oil Tank Level	Water Pressure	Trim Angle	Battery Voltage

I-Command 2 in. instruments must connect with an I-Command Classic series tachometer and harness using a 2 in. gauge harness, 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 level converters. Oil level 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 SIM. See "Sensor Interface Module (SIM) Kit" on page 28.
- Trim Angle – Displays engine trim angle, divided in graduated increments (1/8) beginning at DN (down) and ending at UP.

Instrument Trim Rings

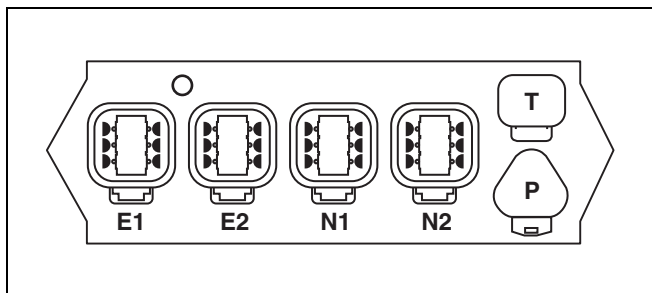


Trim Rings	3 ½ in.	2 in.
Blue	764257	764256
Red	764259	764258
Black	764261	764260
White	764263	764262
Gold	764265	764264
Chrome	764267	764266
Platinum	764269	764268

DEUTSCH STYLE CONNECTORS AND HUBS

Power Hub

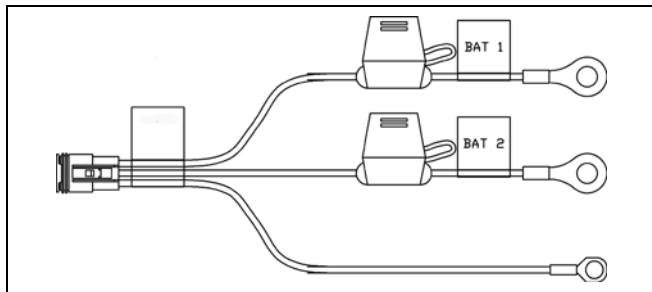
The *I-Command* Power Hub is the “main” network hub of the system. It requires a 12VDC power supply and provides engine interface connections (E1, E2) and network interface connections (N1, N2) for the *I-Command* system. Use one Power Supply Harness to connect directly to 12V battery(s). A red LED indicator on Power Hub is illuminated when network power is present. See “Data Harness” on page 19.



See “Power Supply Harness” on page 18 and “EMM Harness” on page 19.

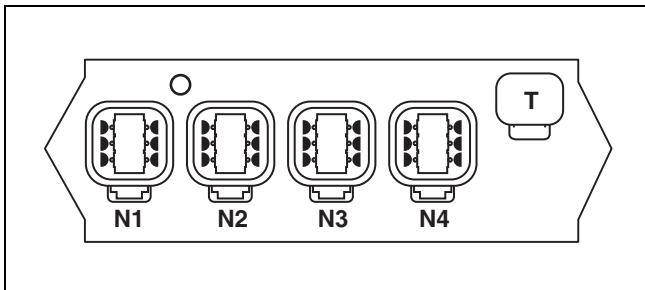
Power Supply Harness

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

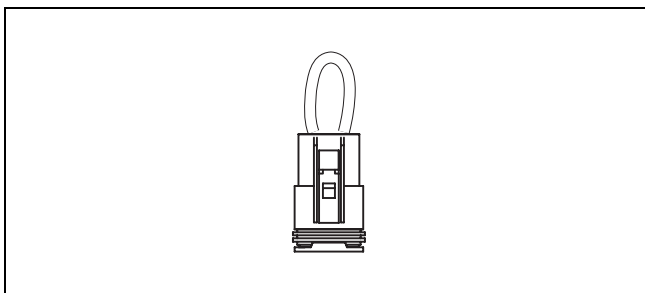
The consolidator hub provides multiple network interface connections (N1, N2, N3, N4) and connects to the Power Hub with a Data Harness. A red LED indicator on Consolidator Hub is illuminated when network power is present.



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 19.

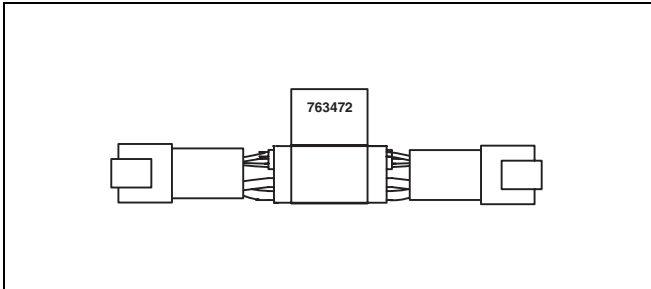
Terminator

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



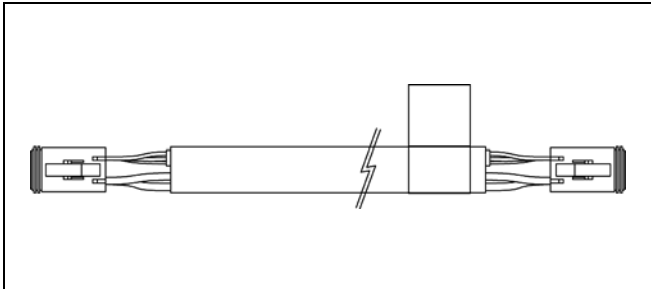
Terminator Harness

A Terminator 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. Use a Terminator Harness in single outboard installations only.



Data Harness

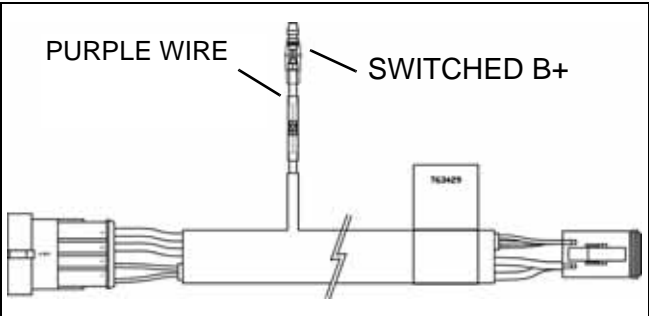
The Data Harness is the “backbone” of the network and is available in various lengths. This harness connects the Power Hub to a Consolidator Hub or to a Terminator Harness.



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 18.

EMM Harness

The *EMM* harness provides the network connection from the outboard to the network hub. The switched B+ connection of the harness connects to the switched B+ lead from the Ignition and Trim/Tilt Harness of the outboard.



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

Adaptor Harness

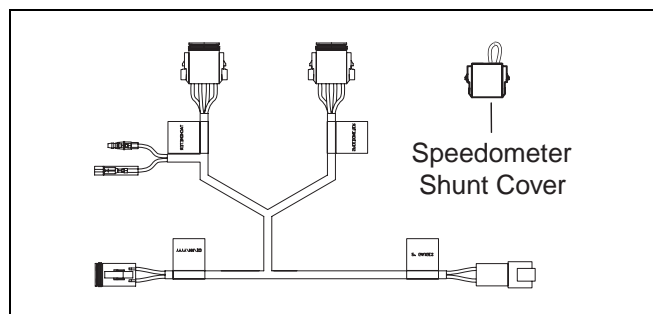
Use Adaptor Harnesses to connect BLUE Quick Connect connectors to *Deutsch* style connectors and hubs.

Part Number	Connector Type	
	BLUE Quick Connect	<i>Deutsch</i>
763532	Male	Male
763533	Female	Male
763534	Female	Female
763684	Male	Female

INSTRUMENT HARNESSES - CLASSIC SERIES

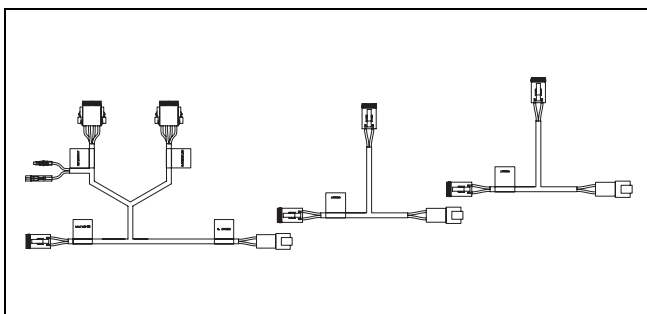
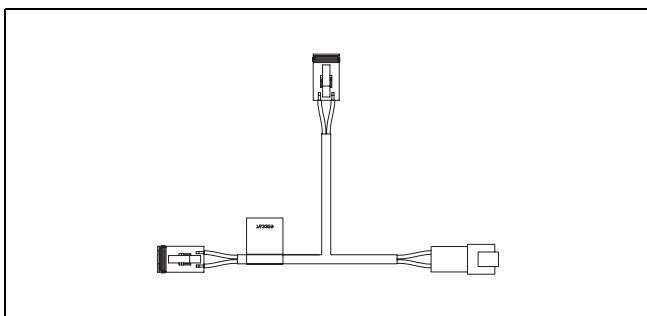
Tachometer Harness

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. If a Terminator Harness is used in place of a Consolidator Hub the Tachometer Harness connects to the Terminator Harness. The speedometer shunt cover completes the power circuit for 2 in. gauges and must be installed if speedometer is not connected. See "DEUTSCH STYLE NETWORK DIAGRAMS" on page 54.

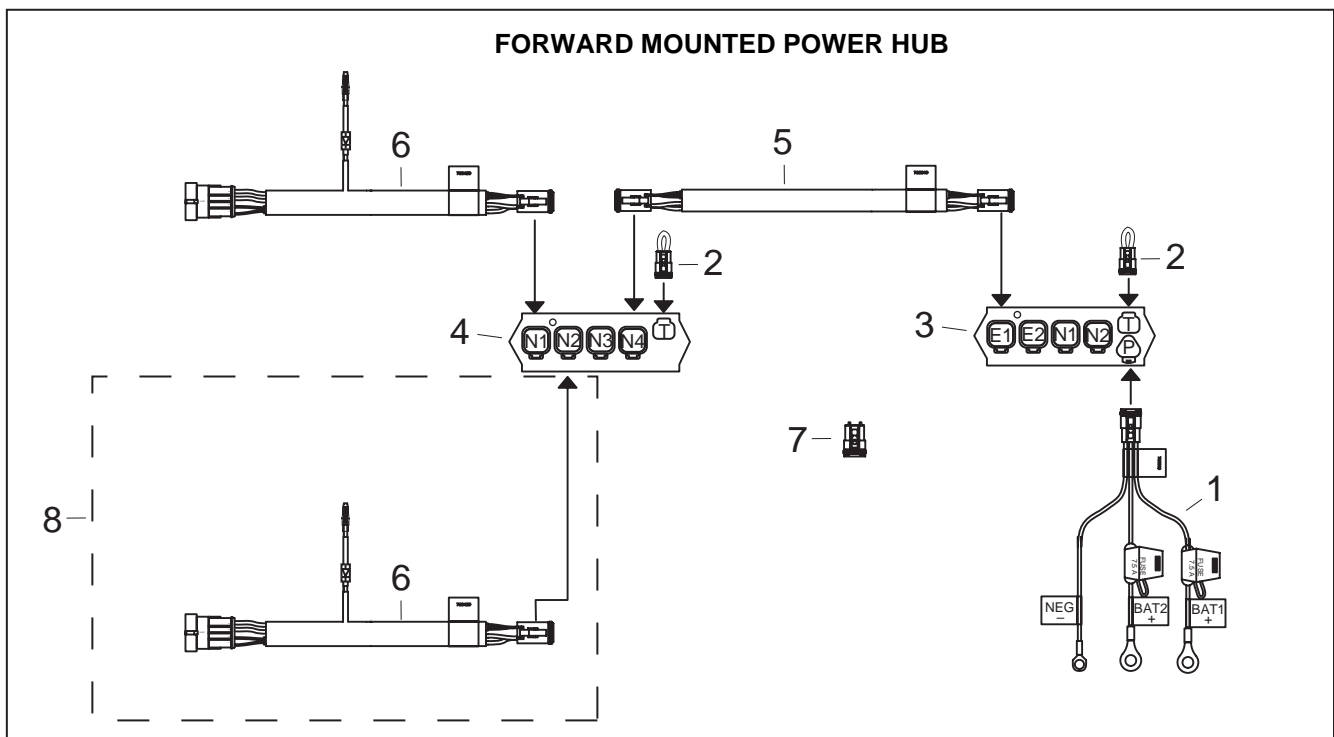
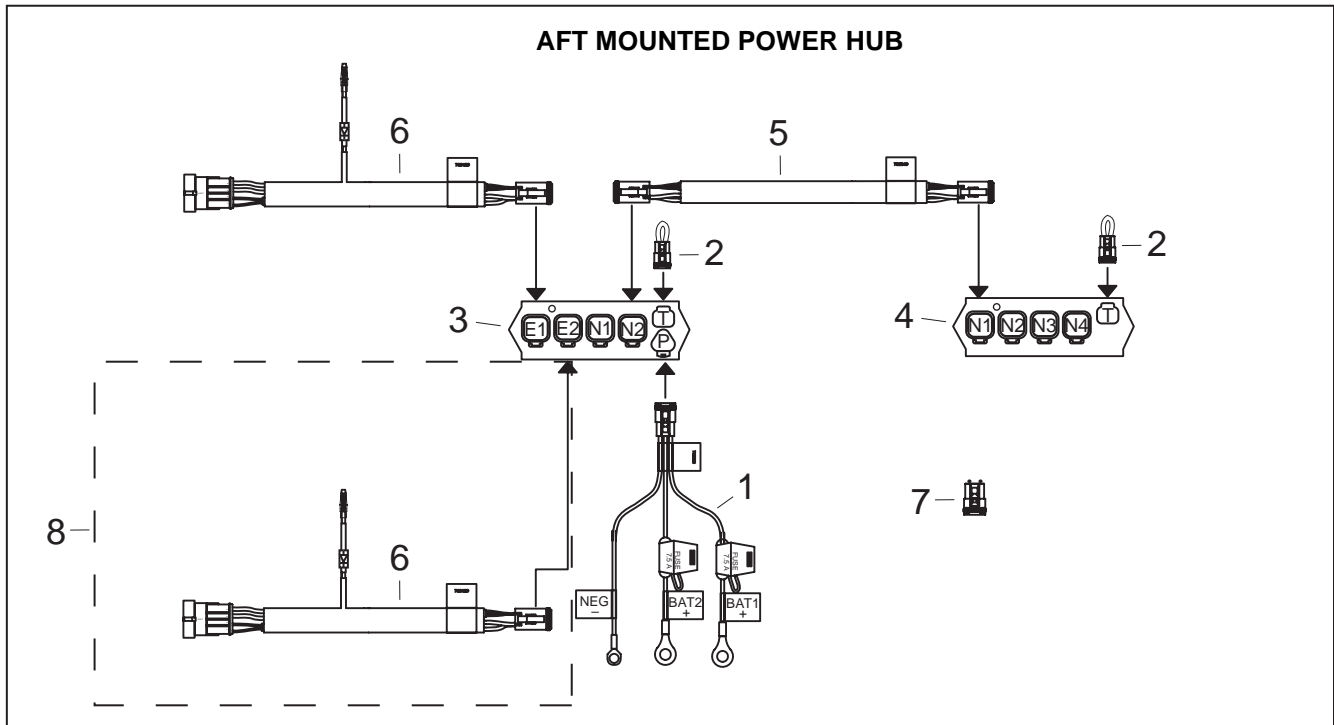


2 In. Gauge Harness

A 2 In. Gauge Harness connects to each 2 in. gauge. The first harness connects to the Tachometer Harness. Additional 2 inch gauge harnesses connect in series.



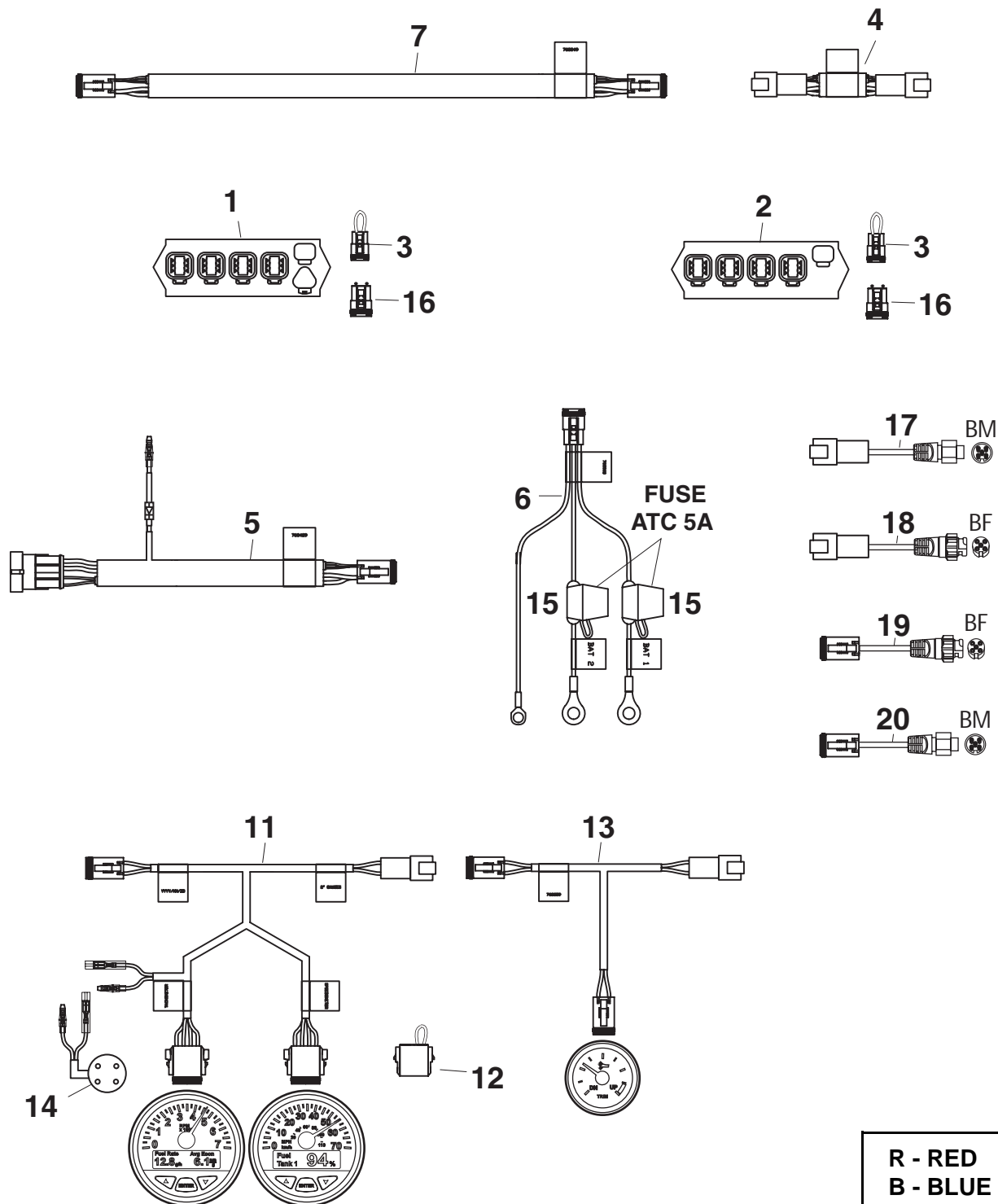
DEUTSCH STYLE NETWORK DIAGRAMS



1. Power harness
2. Terminator
3. Power Hub
4. Consolidator Hub

5. Data cable (Buss)
6. EMM cable (network to engine)
7. Weather Cap (used to seal unused connection on hub)
8. Add additional harness(s) for multi-engine applications

DEUTSCH STYLE COMPONENTS



R - RED
B - BLUE
M - MALE
F - FEMALE

No.	Description	Part Number				
1	Power Hub	763593				
2	Consolidator Hub	763539				
3	Terminator Kit	763363				
4	Terminator Harness (8 in.)	763472				
Harness Lengths		5 ft.	10 ft.	15 ft.	20 ft.	
5	<i>EMM</i> Harness		763540	763541		
6	Power Supply Harness	763360	763361	763362		
7	Data Harness (Buss)	763554	763555	763556	763557	
11	Tach/Speedo Harness ⁽¹⁾	763593				
12	Shunt Cover, speedometer connector ⁽²⁾	763491				
13	2 in. Gauge Harness ⁽³⁾	763359				
14	Buzzer/horn	763598				
15	Fuses	ATO/ATC 5 Amp: PN 763641 (ATO/ATC 1 Amp: PN 763640 for SIM)				
16	Sealing connector (6 pin)	586076				
Adaptor Harnesses - BLUE Quick Connect to <i>Deutsch</i>						
17	BLUE Male to <i>Deutsch</i> Male	763532				
18	BLUE Female to <i>Deutsch</i> Male	763533				
19	BLUE Female to <i>Deutsch</i> Female	763534				
20	BLUE Male to <i>Deutsch</i> Female	763684				

(1) Included with *I-Command* Classic Tachometer. See "I-Command "Classic" Instruments" on page 16.

(2) 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.

(3) Included with 2 in. instruments. See "I-Command "Classic" Instruments" on page 16.

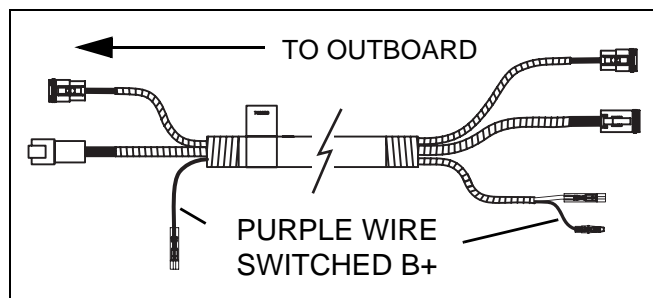
SYSTEM OVERVIEW

IGNITION AND TRIM/TILT HARNESSSES

IGNITION AND TRIM/TILT HARNESSSES

Ignition and Trim/Tilt Harness

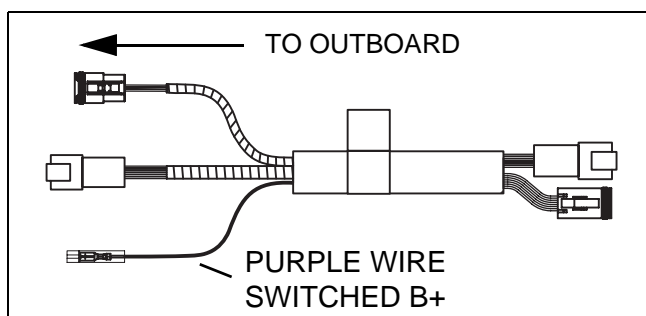
Outboards rigged with *I-Command* use a unique Ignition and Trim/Tilt Harness. This harness provides a switched B+ connection for the *EMM* Harness and a 47 ohm resistor for the trim sender circuit.



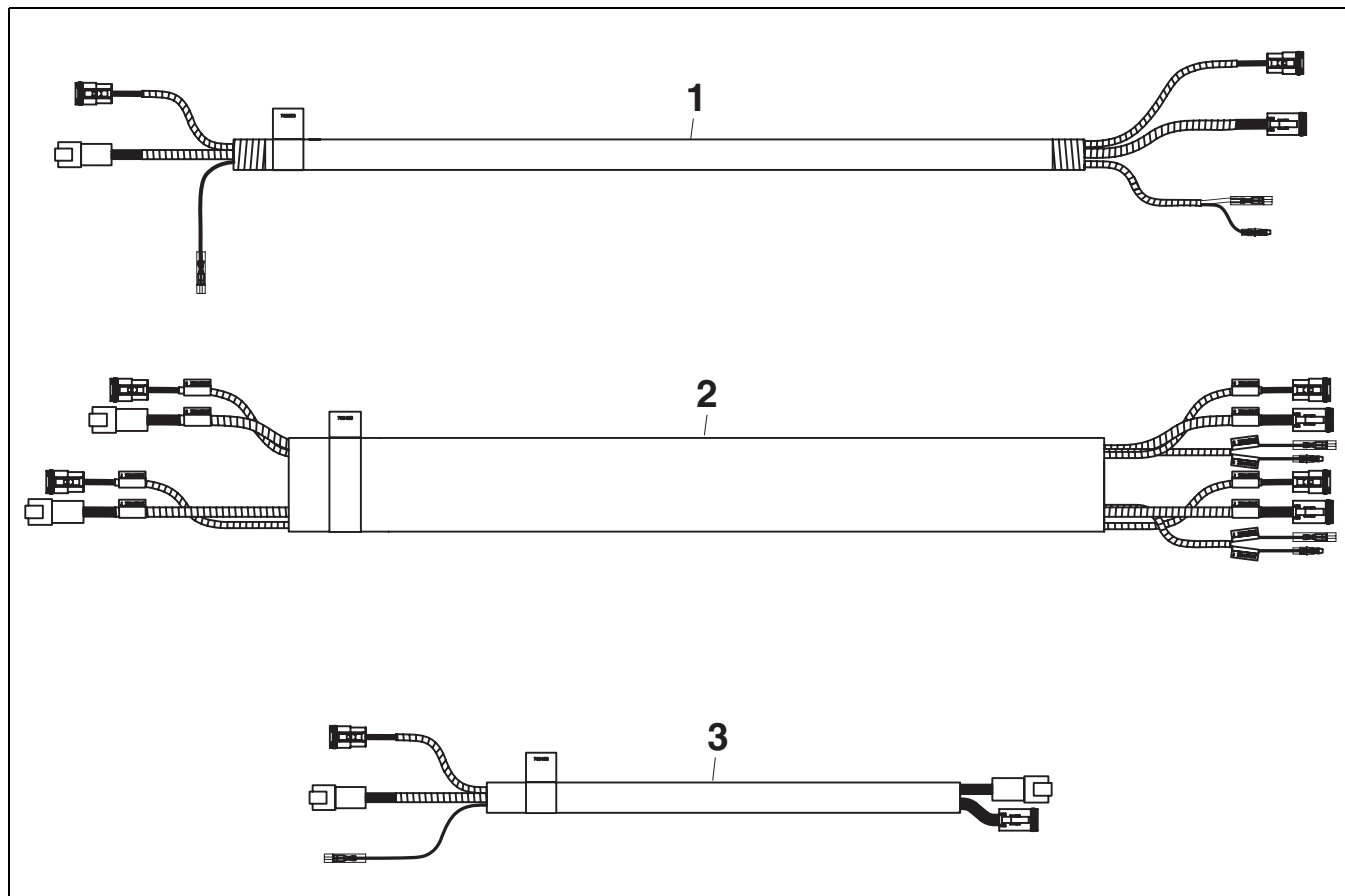
IMPORTANT: The Ignition and Trim/Tilt Harness is offered in various lengths and engine configurations. Single, twin and triple engine configurations are available. Twin and triple harnesses require the use of one Ignition and Trim/Tilt Adaptor Harness for each outboard.

Ignition and Trim/Tilt Adaptor Harness

The Ignition and Trim/Tilt Adaptor Harness is used for twin and triple engine installations and connects to the outboard and a twin or triple Ignition and Trim/Tilt Harness. This purple wire on the harness connects to the purple wire on an *EMM* harness to provide switched B+ for the system. This harness includes the 47 ohm resistor for the trim sender circuit.



IGNITION AND TRIM/TILT HARNESS COMPONENTS



No.	Description	Part Number				
		12 ft.	15 ft.	20 ft.	25 ft.	28 ft.
1	Singe Outboard Ignition and Trim/Tilt Harness	763542	763543	763544	763545	763546
2	Twin Outboard Ignition and Trim/Tilt Harness		763547	763548	763549	
	Triple Outboard Ignition and Trim/Tilt Harness ⁽¹⁾			763550	763551	
3	Ignition and Trim/Tilt Adaptor Harness ⁽²⁾	6 ft. - 763552 or 10 ft. - 763553				

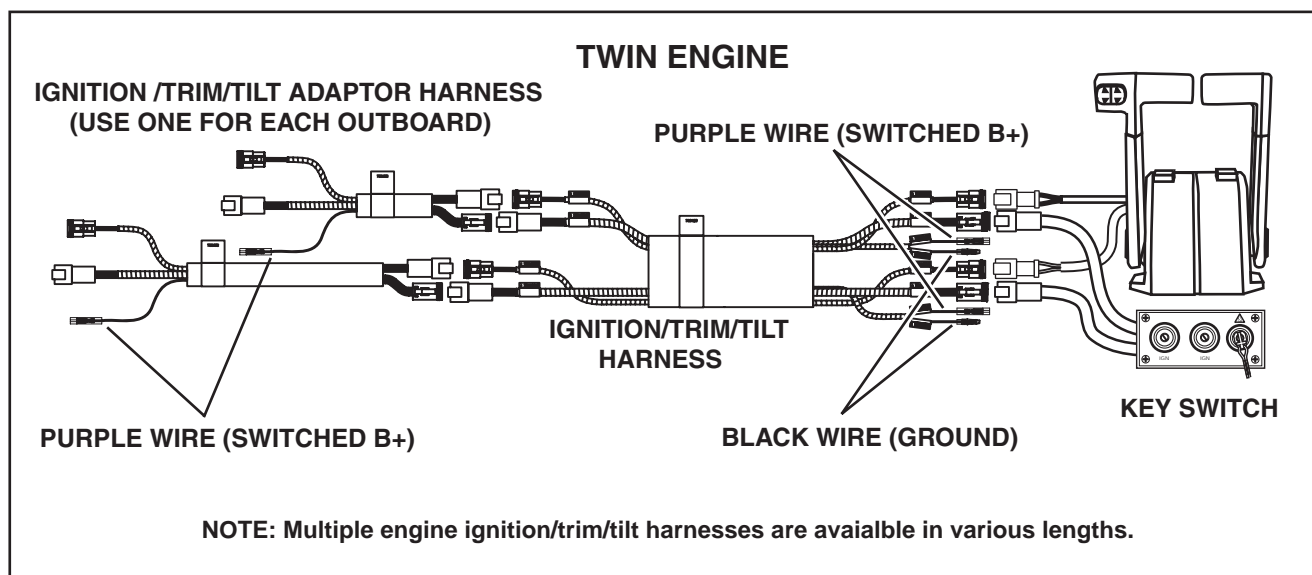
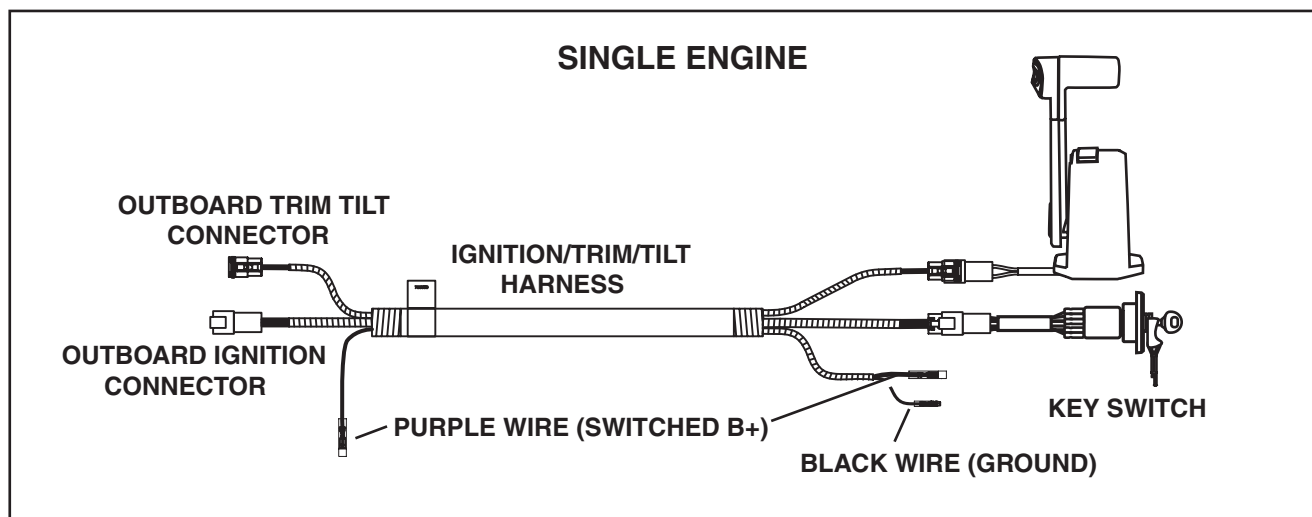
(1) Not shown

(2) Must be used with Twin Outboard Ignition and Trim/Tilt Harness and Triple Outboard Ignition and Trim/Tilt Harness to connect to outboards. Use one Ignition and Trim/Tilt Adaptor Harnesses for each outboard.

SYSTEM OVERVIEW

IGNITION AND TRIM/TILT WIRING DIAGRAMS

IGNITION AND TRIM/TILT WIRING DIAGRAMS



ACCESSORIES

Various NMEA 2000 accessories are available to interface to the *I-Command* System. This is achieved by adding an additional tee connector or connecting to a “N” designated network interface connection of the hub.

Description of Kit	RED Male Connector	BLUE Female Connector	Deutsch Male Connector
Triducer, transom mount, Speed/Depth/Temp	764334 ⁽¹⁾		763440
Triducer, Thru-hull, Plastic, Speed/Depth/Temp	764336 ⁽¹⁾		763442
Transducer, transom mount, Depth/Temp	764335 ⁽¹⁾		763441
GPS Receiver/antenna	764179 ⁽¹⁾	763527 ⁽²⁾	763527 ⁽²⁾
SOW Paddle Wheel Kit	764193 ⁽¹⁾		
Water Speed /Pressure Sensor Kit	764195 ⁽¹⁾		
Memory Module Kit (Fuel Manager)	764181 ⁽¹⁾	763704 ⁽³⁾	
Fluid Level Converter (un-programmed)	764166 ⁽¹⁾⁽⁴⁾	763676 ⁽³⁾⁽⁴⁾	
Fuel Level Converter I0 (Tank 1)	764168 ⁽¹⁾	763672 ⁽²⁾	763672 ⁽²⁾
Fuel Level Converter I1 (Tank 2)	764170 ⁽¹⁾	763673 ⁽²⁾	763673 ⁽²⁾
Oil Level Kit, 1.8 Gallon Single Engine	764271 ⁽¹⁾	763578 ⁽²⁾	763578 ⁽²⁾
Oil Level Kit, 3.0 Gallon Single Engine	764272 ⁽¹⁾	763579 ⁽²⁾	763579 ⁽²⁾
Oil Level Kit, 1.8 Gallon Twin Engine	764273 ⁽¹⁾	763580 ⁽²⁾	763580 ⁽²⁾
Oil Level Kit, 3.0 Gallon Twin Engine	764274 ⁽¹⁾	763581 ⁽²⁾	763581 ⁽²⁾
Oil Level Kit, 3.0 Gallon Triple Engine	764275 ⁽¹⁾	763582 ⁽²⁾	763582 ⁽²⁾
Temperature Sensor (sea water or livewell)	764183 ⁽¹⁾	763677 ⁽³⁾	
Sensor Interface Module (SIM)			763594
Fuel Flow Transducer	764191 ⁽¹⁾	763531	

- (1) Includes RED T-connector(s), P/N 764151
 (2) Includes adaptor, P/N 763684, *Deutsch* male to BLUE female
 (3) Includes BLUE T-connector(s), P/N 763512
 (4) Program with *I-Command* Digital gauge

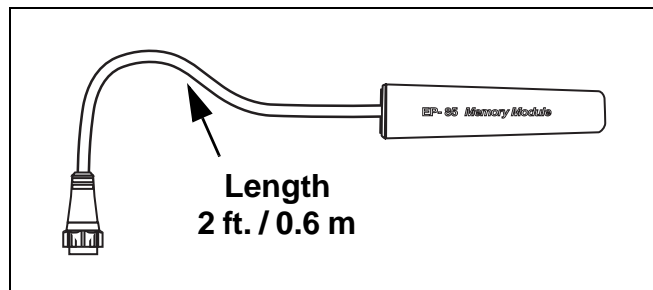
SYSTEM OVERVIEW

ACCESSORIES

Memory Module Kit

The Memory Module Kits provide fuel level and fuel management data for the *I-Command* network. Use with *I-Command* Digital Displays ONLY.

Memory Module Kit	Red Connector	Blue Connector
	764181	763704



Fuel Tank Level Converters

Fuel tank level converters provide fuel tank sender input to the *I-Command* network. Select fuel tank level converter(s) as needed. Fuel tank level converters are specific to fuel tank instance (designation). Use with *I-Command* Digital Displays ONLY. Do not use with SIM.

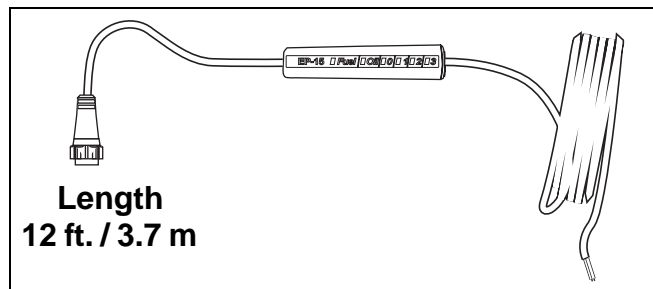
Fuel Tank Instance	Converter P/N	
	Red Connector	Blue Connector
0 (Tank 1)	764168 ⁽¹⁾	763672 ⁽²⁾
1 (Tank 2)	764170 ⁽¹⁾	763673 ⁽²⁾
Un-programmed	764166 ⁽¹⁾⁽³⁾	763676 ⁽³⁾⁽⁴⁾

(1) Includes RED T-connector, P/N 764151

(2) Includes adaptor, P/N 763684

(3) Program with *I-Command* Digital gauge

(4) Includes BLUE T-connector, P/N 763512

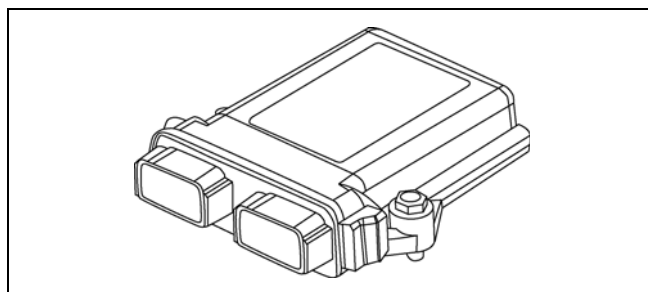


IMPORTANT: Fuel tank level converters do not enable the fuel management functions on the *I-Command* System.

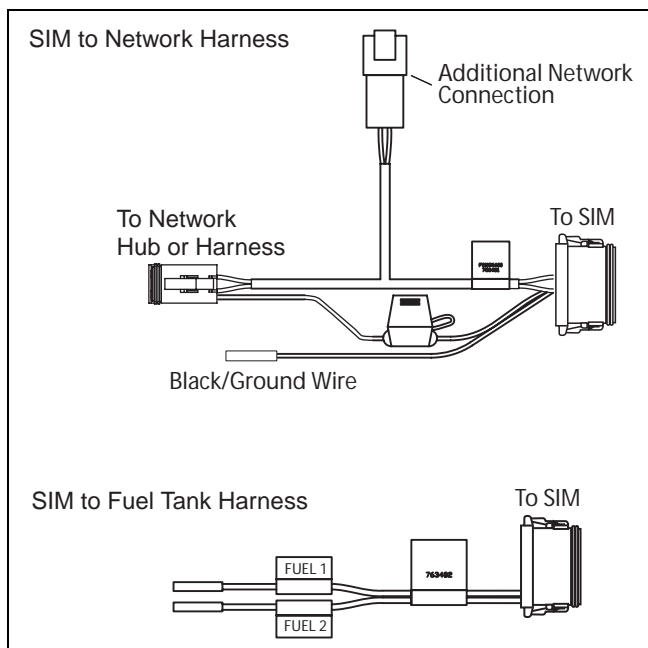
Sensor Interface Module (SIM) Kit

IMPORTANT: Use with *I-Command* Classic System ONLY. Communicates with *I-Command* Classic tachometer.

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



The SIM to Network Harness connects the SIM to network. It includes power supply (12V) connections for the SIM. The SIM to Fuel Tank Harness connects the SIM to the fuel tank sending unit(s).



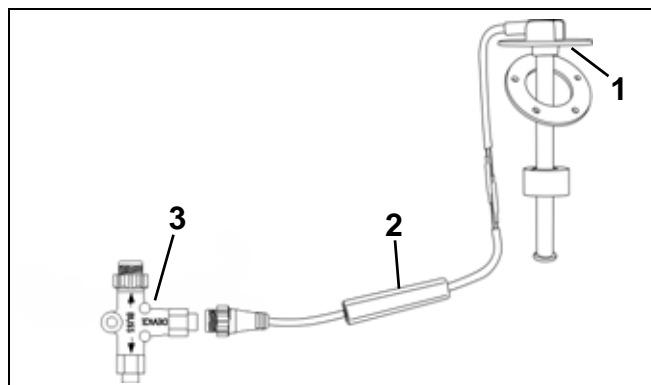
Oil Tank Sending Unit Kits

Oil Tank Sending Unit Kits provide oil tank level input to *I-Command* network.

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 Setup Information.

1.8 Gallon Oil Tank Sending Unit Kits		
	Red Connector	Blue Connector
Single engine	764271	763578
Twin engine	764273	763580

3.0 Gallon Oil Tank Sending Unit Kits		
	Red Connector	Blue Connector
Single engine	764272	763580
Twin engine	764274	763581
Triple engine	764275	763582



1. Sending unit
2. Converter
3. T-connector

Oil Tank Level Converters (NMEA 2000)

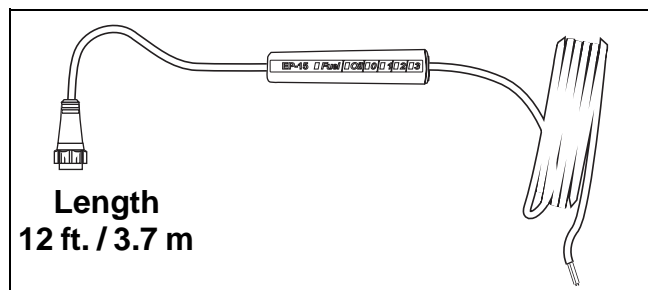
Outboard Instance	Converter P/N	
	Red Connector	Blue Connector
0 (Port)	764171 ⁽¹⁾	763563 ⁽²⁾
1 (Center)	764172 ⁽¹⁾	763564 ⁽²⁾
2 (Starboard)	762173 ⁽¹⁾	763565 ⁽²⁾
Un-programmed	764166 ⁽¹⁾⁽³⁾	763676 ⁽³⁾⁽⁴⁾

(1) Includes RED T-connector, P/N 764151

(2) Includes adaptor, P/N 763684

(3) Program with *I-Command* Digital gauge

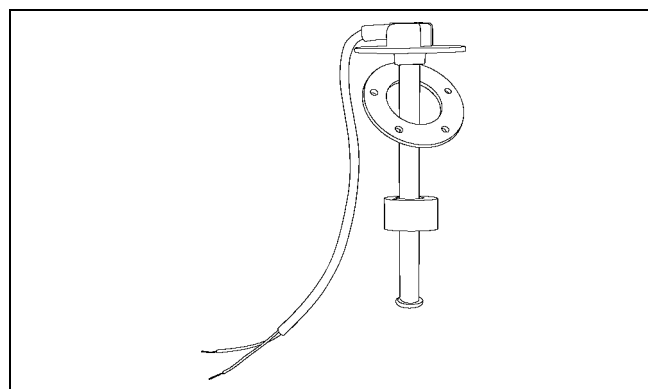
(4) Includes BLUE T-connector, P/N 763512



IMPORTANT: Adaptor may be required for network connection.

Oil Tank Sending Units

Sending Unit Height	P/N
6.5 in. (1.8 gallon tank)	763407
8.5 in. (3.0 gallon tank)	763408



IMPORTANT: Oil tank level converter required for network connection.

SYSTEM OVERVIEW

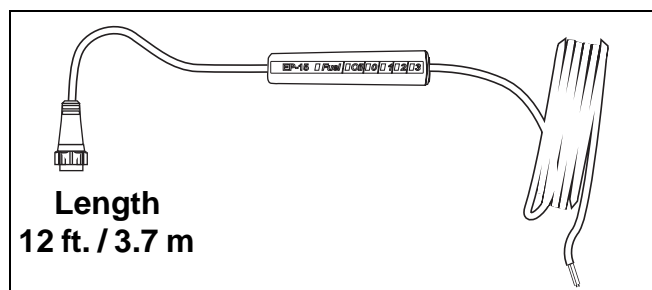
ACCESSORIES

Fluid Level Converters (NMEA 2000)

Fluid level converters provide fluid level sender input to the *I-Command* network. Select fluid level converter(s) as needed. Fluid level converters must be configured through the “Set Up” are specific to tank instance (designation). Use with *I-Command* Digital Displays ONLY.

Fluid Level Converter	Red Connector	Blue Connector
Un-programmed	764166 ⁽¹⁾	763676 ⁽¹⁾

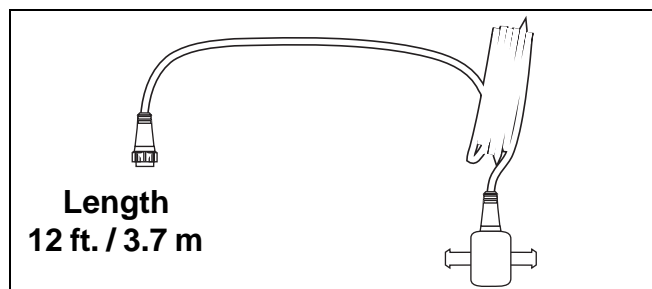
(1) Program with *I-Command* Digital gauge



Fuel Flow Transducer Kit

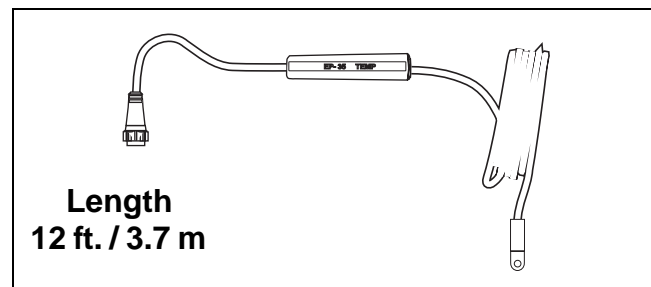
Fuel flow transducer kits provide fuel flow data to the network. Not required for installations using *EMM* interface cables on *Evinrude E-TEC* outboards.

Fuel Flow Transducer Kit	Red Connector	Blue Connector
	764191	763531



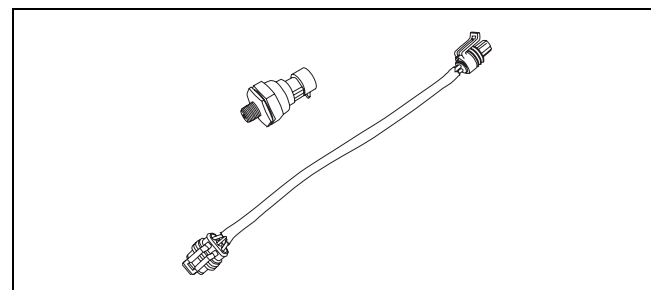
Temperature Sensor Kit

Temperature Sensor Kit, P/N 764183, provides air or seawater temperature. The sensor range is 4° to 176°F (-20° to 80°C).



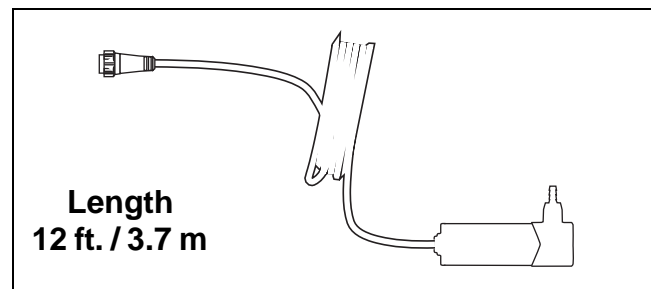
Water Pressure Transducer Kit

Water Pressure Transducer Kit, P/N 5006214, provides water pressure input to the outboard's *EMM*. This input is processed by the *EMM* of the outboard then broadcast to the *I-Command* network. Used on 115 HP and larger *Evinrude E-TEC* outboards.



Water Speed/Pressure Sensor Kit

Pressure Sensor Kit, P/N 764195, can be used to provide data for engine water pressure, pitot speed (speed over water SOW), atmospheric pressure, fuel pressure, engine boost pressure, engine oil pressure, or transmission oil pressure.

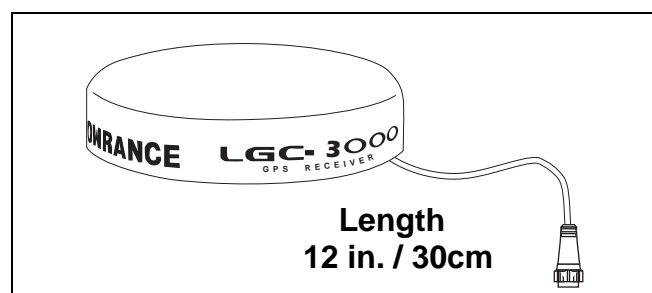


GPS Receiver/Antenna

These NMEA 2000 GPS receivers provide “location” and “speed over ground” (SOG) input to the *I-Command* network.

Network buss harnesses can be used to extend and make connections.

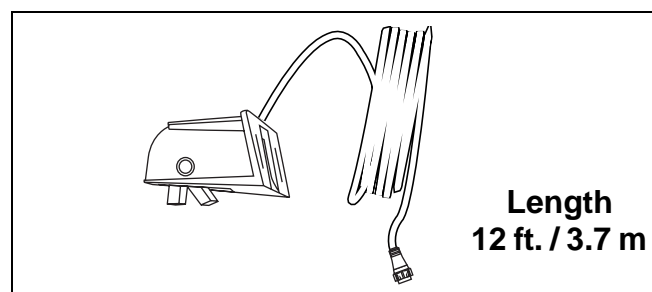
GPS Receiver/Antenna	Red Connector	Blue Connector
	764179	763527



IMPORTANT: Installations using *I-Command* Classic instruments require a Multifunction *I-Command* Classic Speedometer.

Speed Transducer - Paddle Wheel

P/N 764193, Transom mount paddle wheel – provides speed over water (SOW) input to the *I-Command* network.

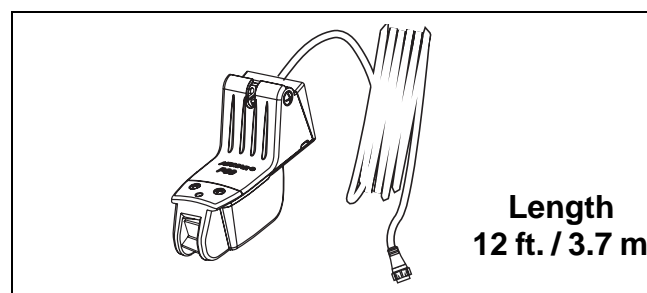


Transducers and Triducers

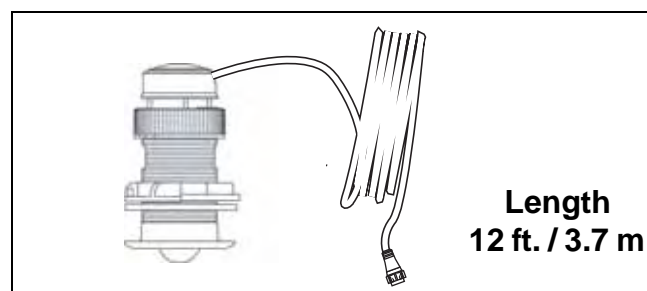
Transducers provide depth and temperature inputs to the *I-Command* network.

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

Transducers	Red Connector	Blue Connector
Transom Mount Triducer	764334	763440
Transom Mount Transducer	764335	763441
Thru-Hull Triducer	764336	763442



Transom Mount Transducer



Thru-Hull Triducer (plastic)

IMPORTANT: Installations using *I-Command* Classic instruments require a Multifunction *I-Command* Classic Speedometer.



INSTALLATION

INSTRUMENTS

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

Instruments can be mounted in panels up to 1 in. thick.

Two styles of mounting hardware can be used to mount instruments Classic series instruments. 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.

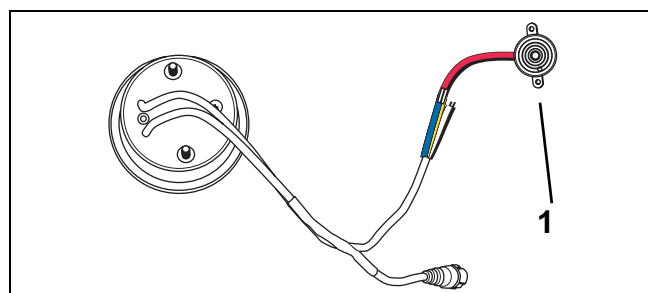
Fastening to Panel

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 finger tight.

Warning Horn

I-Command “Digital” Instruments

Connect the yellow wire from the instrument to the black wire of the warning horn. Connect the blue wire from the instrument to the red wire of the warning horn.



1. Warning horn

I-Command “Classic” Tachometer

Install warning horn on rear of tachometer and connect wiring to tachometer harness. Refer to “Tachometer Harness” on page 37.

Navigation Lights

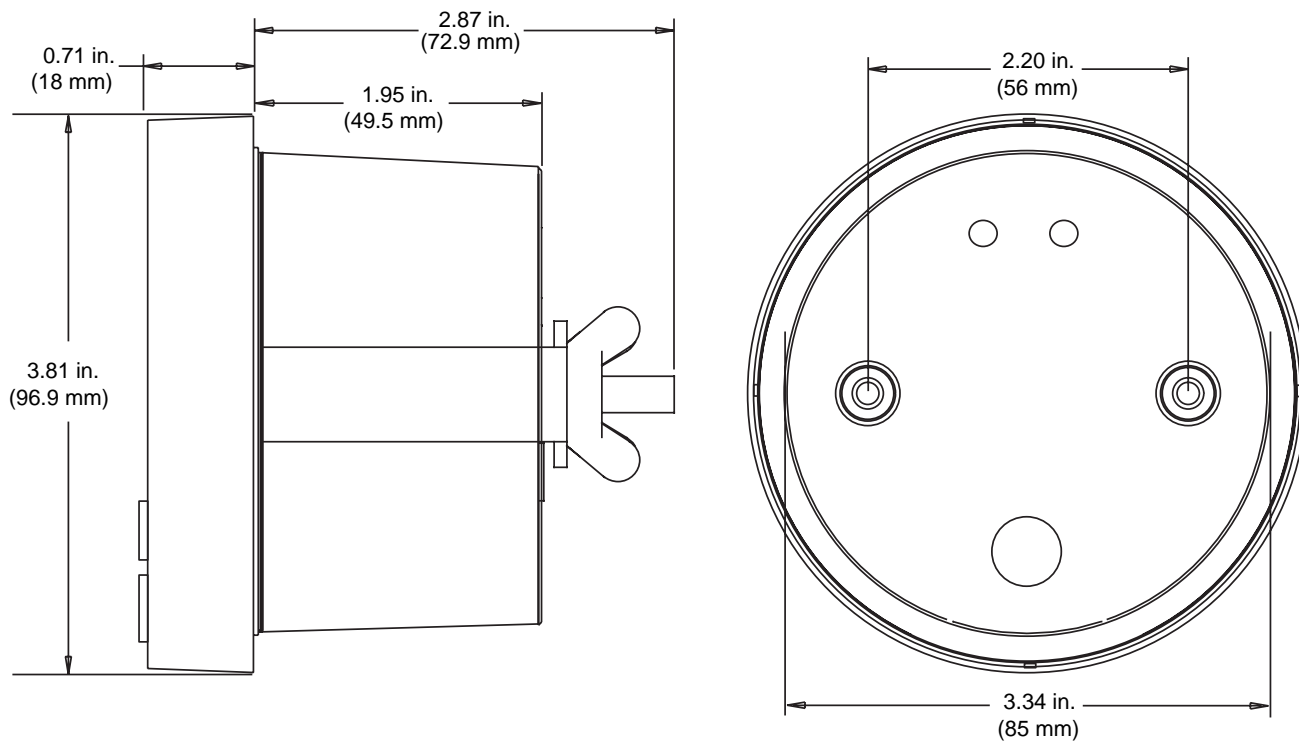
I-Command “Digital” Instruments

Connecting the light wiring for the *I-Command* instrument to the boat's navigation lights will provide instrument lighting if the instrument backlight setting is set to lowest setting and the boat's navigation lights are turned ON.

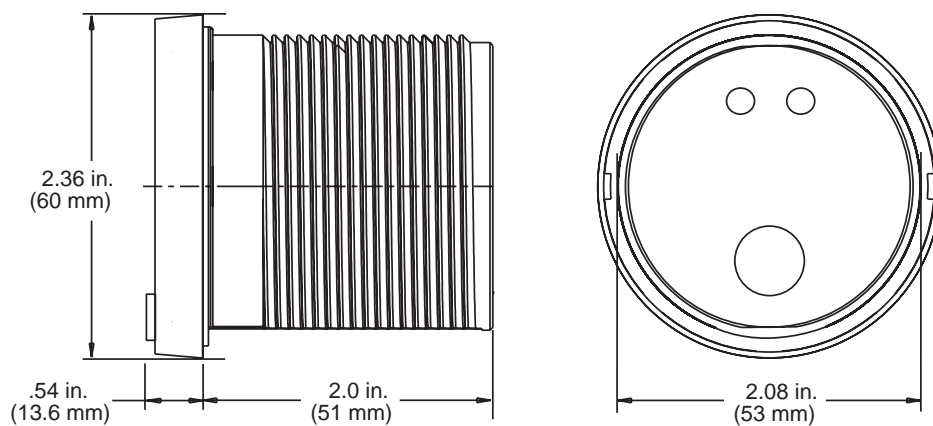
Connect the white wire from the instrument to the switched positive (B+) of the boat's navigation lights and the black wire from the instrument to ground (GND).

Instrument Dimensions

3 1/2 in. Digital Series Multifunction Display

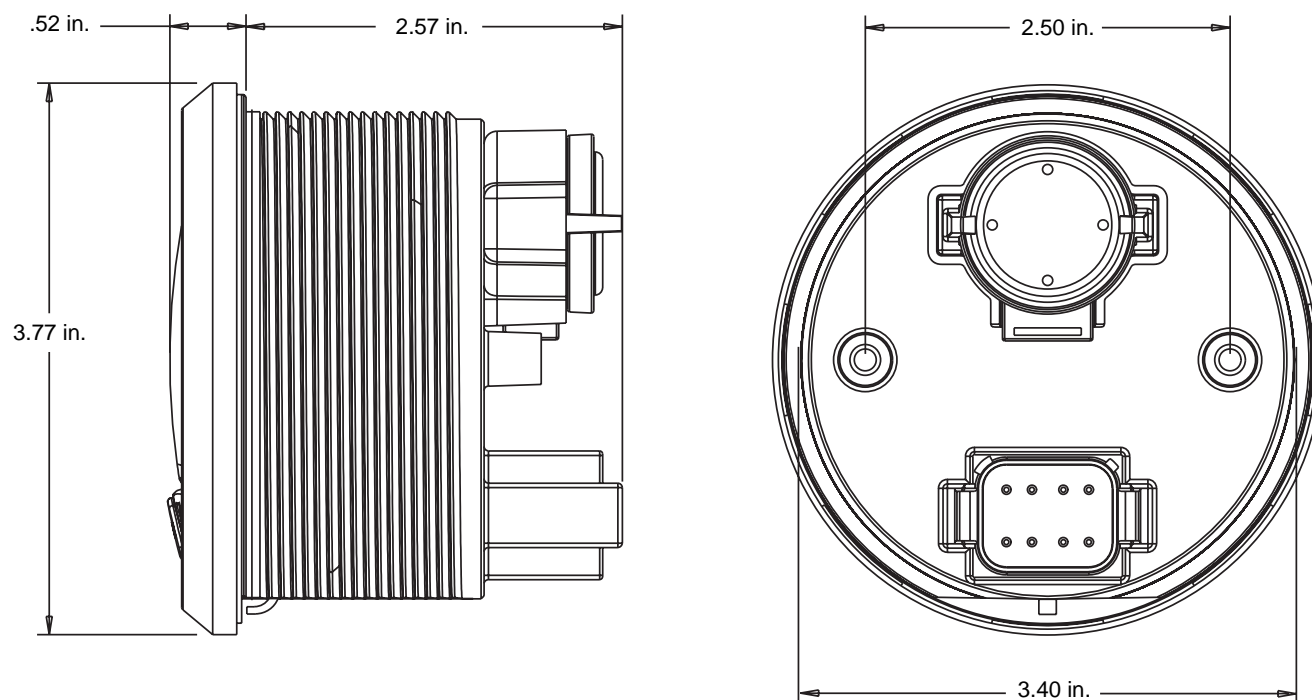


2 in. Digital Series Multifunction Display



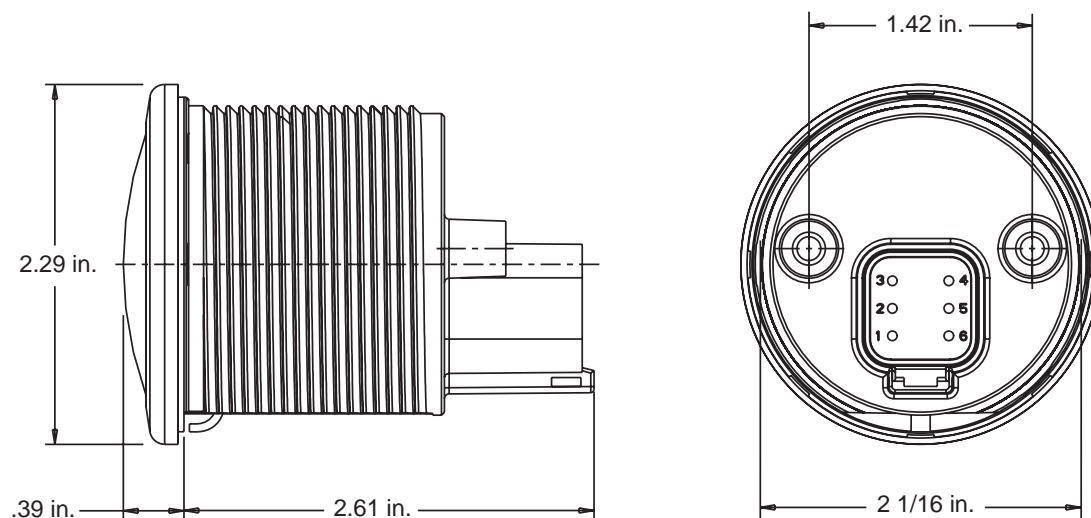
3 1/2 in. Classic Series Multifunction Gauges

Tachometer / Speedometer



2 in. Classics Series Gauges

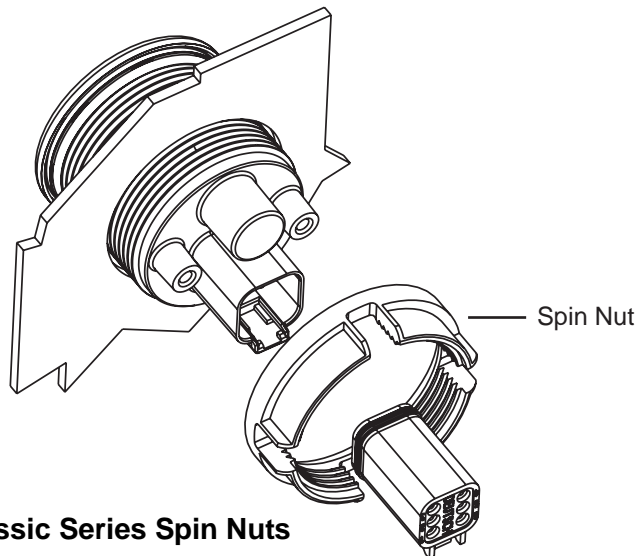
Battery Voltage, Fuel Tank Level, Oil Tank Level, Engine Trim Angle, Engine Water Pressure



INSTALLATION

INSTRUMENTS

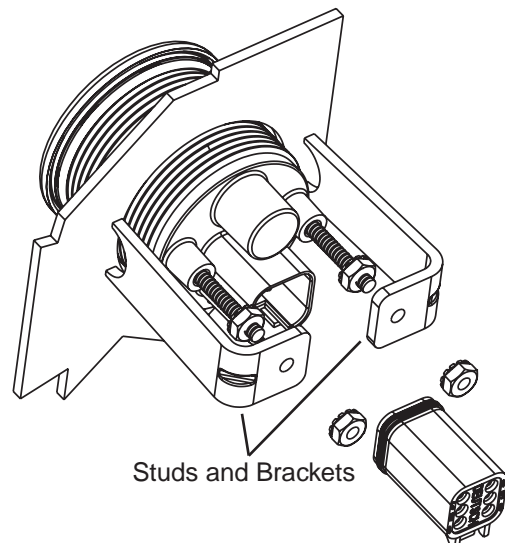
Classic Series Gauge Hardware



Classic Series Spin Nuts

2 in. P/N 763483

3 1/2 in. P/N 763484



Classic Series Stud and Bracket Kit

2 in. and 3 1/2 in. Instruments, P/N 763475

CLASSIC SERIES INSTRUMENT HARNESSSES

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

Tachometer Harness

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

Install warning horn to rear of tachometer and connect wiring to tachometer harness.

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

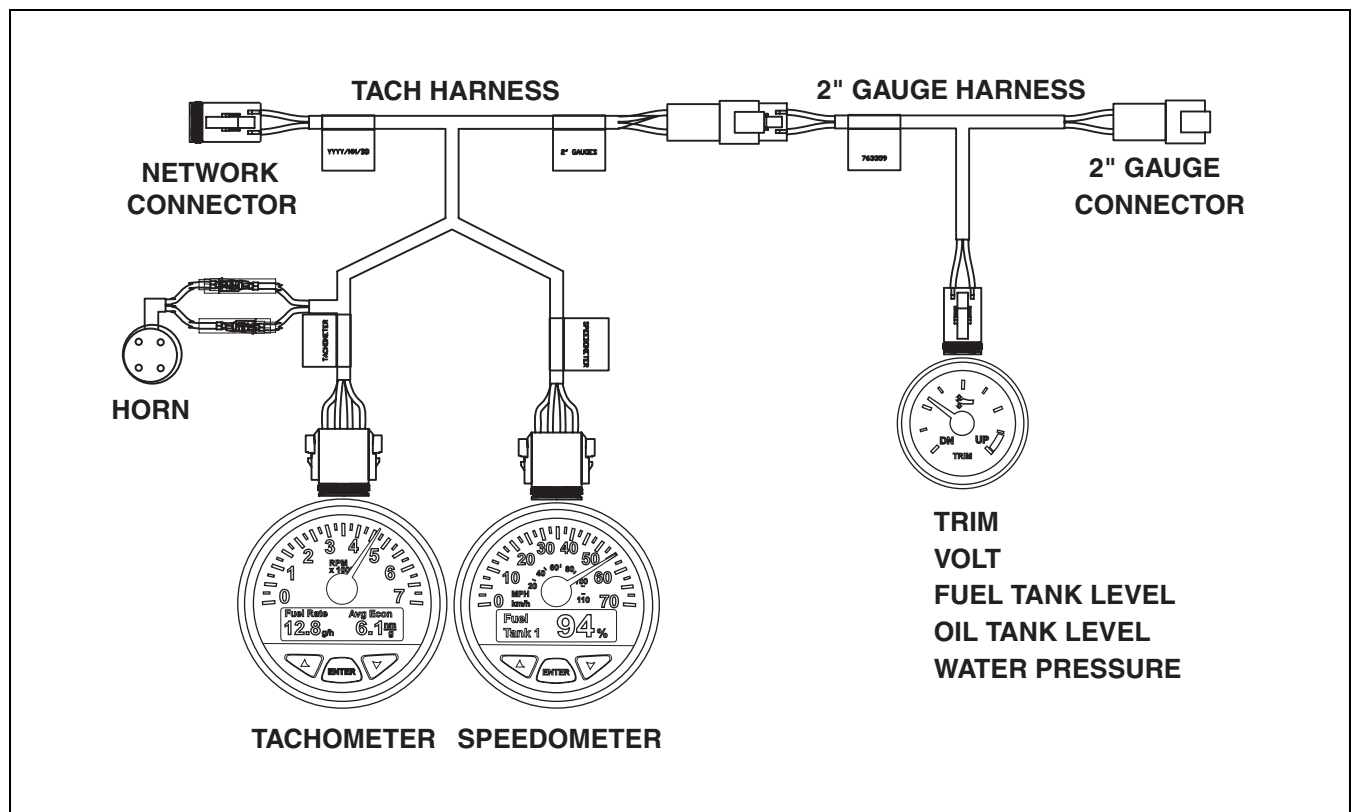
See “Tachometer Harness” on page 20.

Connect the *I-Command* speedometer to the Tachometer Harness 8 pin connector labeled “speedometer.” If speedometer is not connected to harness, speedometer connector shunt cover must be installed in speedometer connector of Tachometer Harness. Shunt cover provides power connection for 2 in. instruments and seals connector when speedometer is not installed.

2 in. Gauge Harness

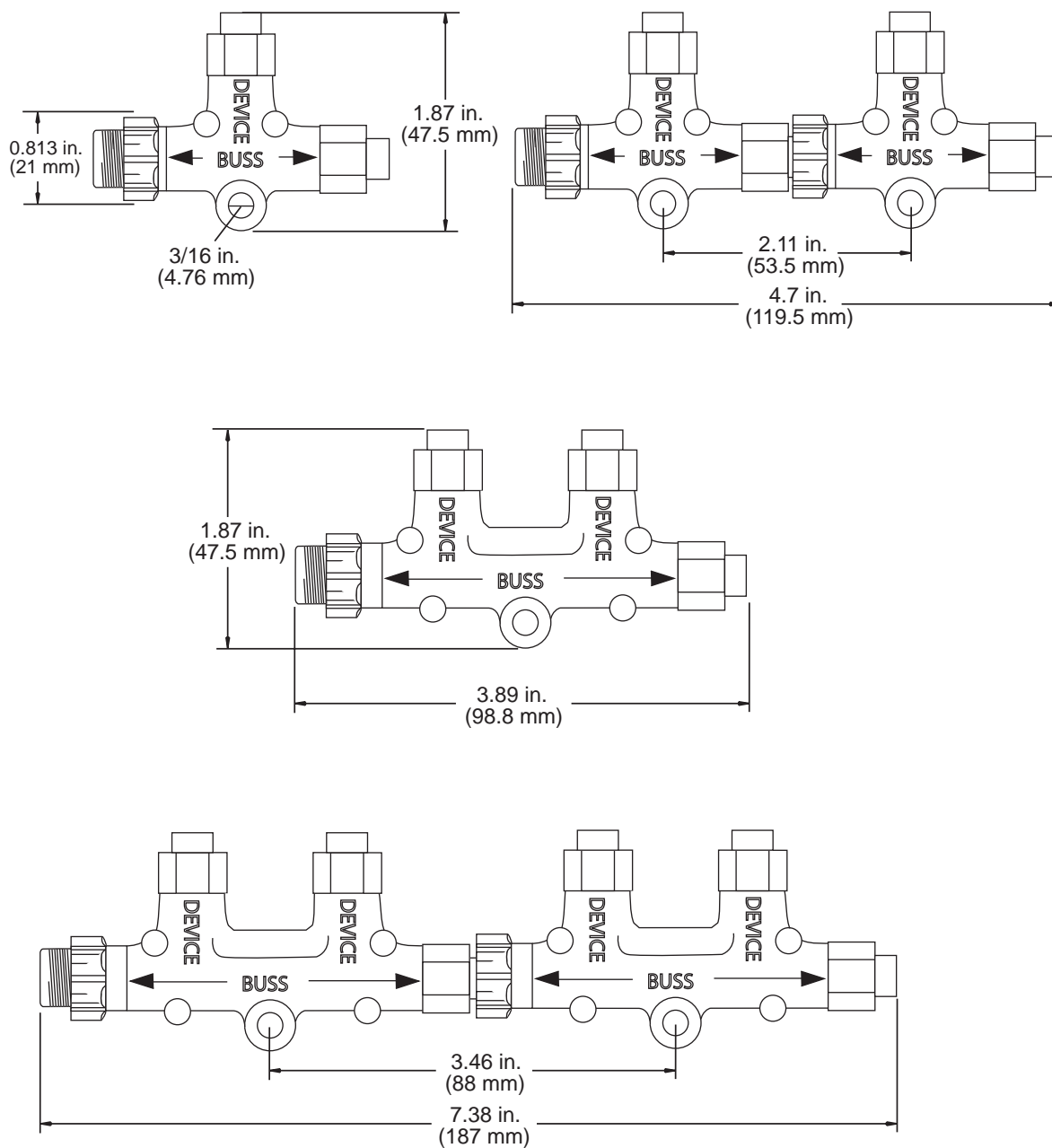
Connect 2 in. Instrument Harness to Tachometer Harness and to 2 in. instrument(s).

Multiple 2 in. instrument installations require multiple 2 in. Gauge Harnesses connected in series.

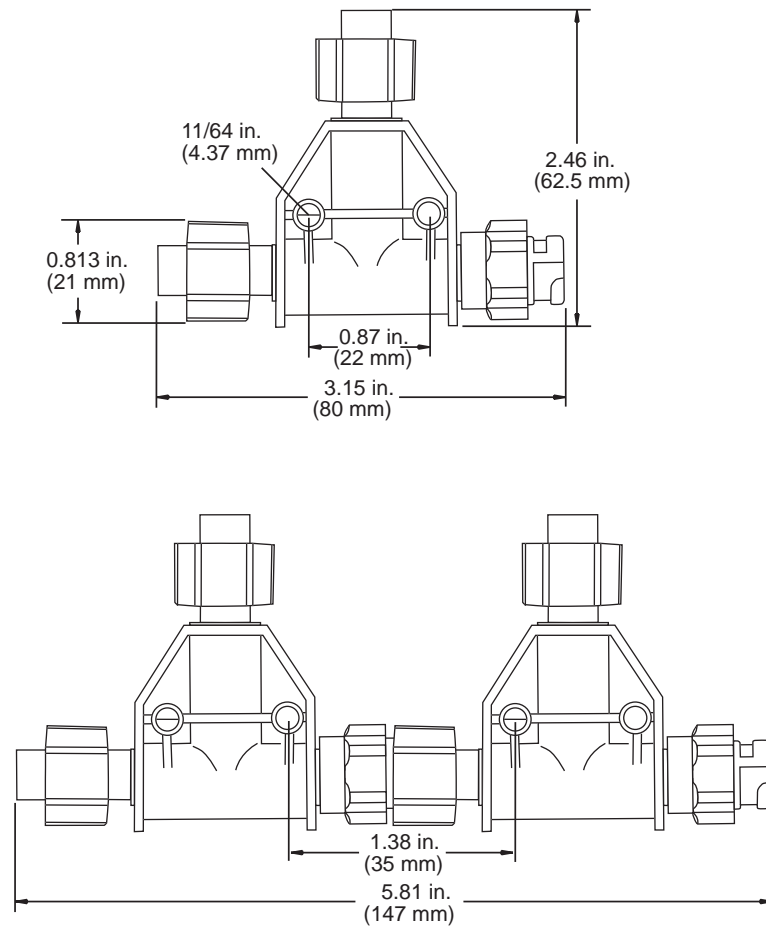


QUICK CONNECT NETWORK COMPONENTS

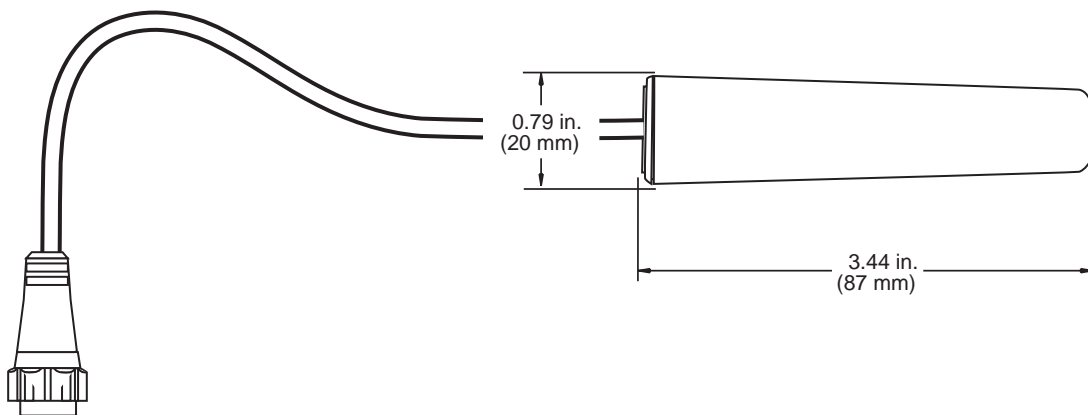
Red T-Connector Dimensions



Blue T-Connector Dimensions



Converter/Memory Device Dimensions



QUICK CONNECT NETWORK

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

Refer to “QUICK CONNECT NETWORK DIAGRAMS” on page 42.

1) Install ignition and trim/tilt wire harness.

Ignition and trim/tilt harnesses are available in various lengths. Refer to “IGNITION AND TRIM/TILT HARNESS COMPONENTS” on page 25 for part numbers.

Ignition and trim/tilt harnesses are available in various lengths for twin or triple engine installations. Use one ignition trim/tilt adaptor harness for each outboard connecting to a twin or triple configuration ignition and trim/tilt harness.

2) Organize the components required for the installation.

Position components, identify harness routings, and determine locations for T connectors. All network devices are installed by adding T-connectors.

3) Install power supply and T-connector.

The *I-Command* network must be connected to a switched power source.

Single Engine Power Supply Harness: Connect the red wire of the power supply harness to the purple switched B+ accessory wire of the ignition and trim/tilt wire harness. Connect the black wire of the power harness to the black ground wire of the ignition and trim/tilt harness.

Multiple Engine Power Supply Harness: Connect the purple wire(s) of the power supply harness to the purple switched B+ accessory wire of the ignition and trim/tilt wire harness(s). Connect the black wire of the power harness to a black ground wire of the ignition and trim/tilt harness. (Optional: connect the red wire of the power harness to a switched B+ power supply of the boat.)

Connect the network connector of the power supply harness to the device connector of the T-connector. Connect data cables, additional

T-Connectors or a terminator to the buss connectors of the T-connector.

4) Connect *I-Command* instrument(s).

Add T-connectors to network as needed. Use one T-connector for each instrument. Connect the quick connect connector(s) from instrument(s) to the device connector of the T-connector.

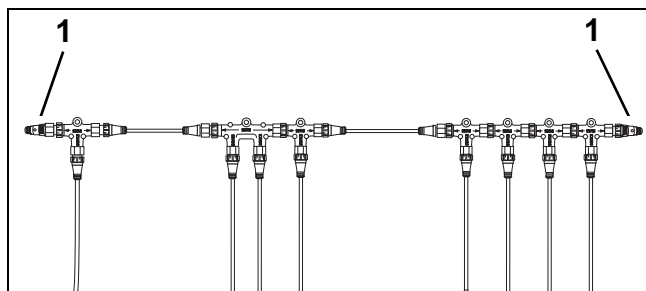
5) Install the Engine Interface cable and T-connector.

The outboard connects to the *I-Command* network as a device. Connect the 4-pin CANBus connector of the engine interface cable to the outboard. Route the 15 ft. (4.6 m) cable with the ignition and trim harness into the boat.

Install the T-connector for the engine interface on the network. Connect the quick connect connector from engine interface cable to the device connector of the T-connector.

For multiple outboards, install an additional T-connector and engine interface cable for each outboard.

Remember to install a terminator to the open end of the T-connector if it is the last buss connector on the network.



1. Terminators

6) Connect buss cable(s).

Use buss cables to extend the network's length and to connect T-connectors. Buss cables have a male connector on one end and a female connector on the other.

Use the appropriate length buss cable to connect the T-connector group at the helm or console with

T-connectors positioned along the length of the hull.

Use buss cables to extend the cable lengths between a device and a T-connector on the network. Limit total “drop” length to 19 ft. (6 m). Refer to “NETWORK SPECIFICATIONS” on page 8

7) Adding a network device.

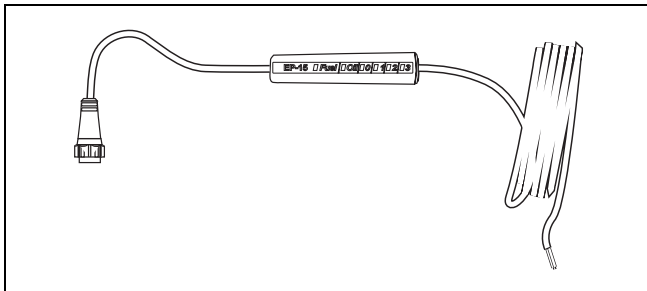
Other devices, such as another *I-Command* Digital gauge, an auxiliary fuel tank level sensor, or a GPS sensor can be added anywhere along the network buss.

Add a T-connector at the end of the network (between a T-connector and a terminator), between two T-connectors, or between a T-connector and a data cable.

Add a new device by connecting device cable connector to the device (center) connector of the T-connector.

8) Install fluid level converters.

I-Command fluid level converters convert the standard analog electrical signal of sending units to the NMEA 2000 signal.

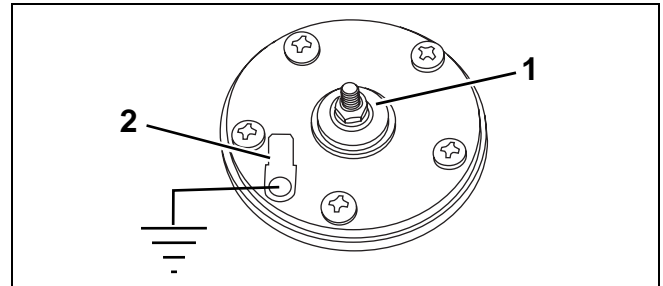


Remove excess cable length when connecting converters to sending units.

IMPORTANT: If multiple fluid level converters are installed, refer to “NETWORK SETUP (I-COMMAND DIGITAL GAUGE)” on page 47. Connect one fluid level converter to the network and configure converter. Once first converter is configured, connect second converter and configure. Continue connecting and configuring converters one at a time.

Fuel Tank Level Converter

Connect the red wire of the converter to the fuel tank sending unit’s positive terminal (pink wire). Connect the black wire (ground) of the converter to the sending unit’s ground (–) terminal.



- 1. Positive terminal
- 2. Ground terminal

Connect the fuel level converter connector to the device (center) connector of the T-connector.

9) Install terminators.

Connect the appropriate terminator to the open buss connector of the T-connector at both ends of the network.

10) Set outboard identity.

For the outboard, run the latest version of *Evinrude* Diagnostics program and assign the outboard an identity for the network. Refer to *Evinrude* Diagnostics for complete procedure.

11) Check operation.

Complete programming of the *I-Command* Network using an *I-Command* Multifunction Instrument. Refer to “QUICK CONNECT NETWORK TROUBLESHOOTING CHART” on page 49 and the *I-Command* User’s Guide for setup procedures.

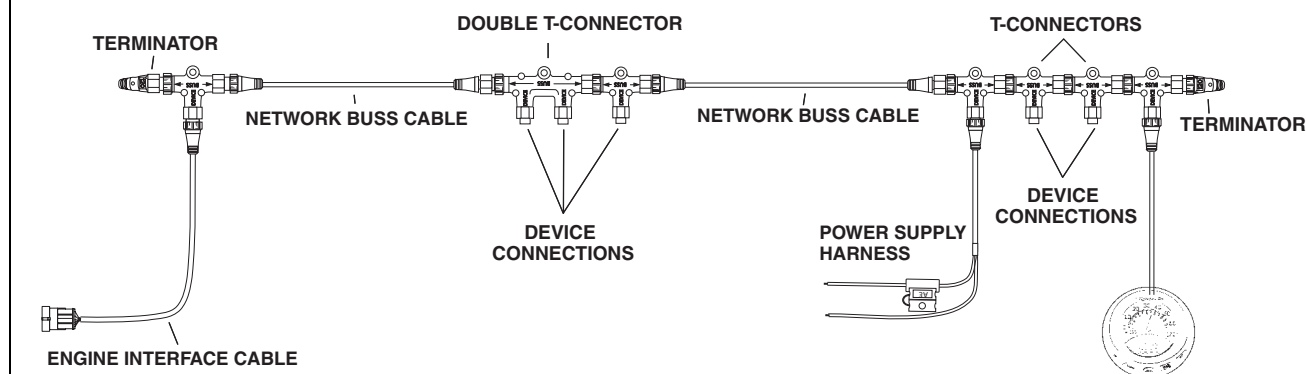
12) Carefully route and secure all harnesses, converters, adaptors, and T-connectors.

Once network is assembled and functional, position all harnesses and components carefully to prevent abrasion or contact with moving objects. T-connectors can be fastened with screws. Harnesses, converters, memory devices, and adaptors should be fastened using tie straps.

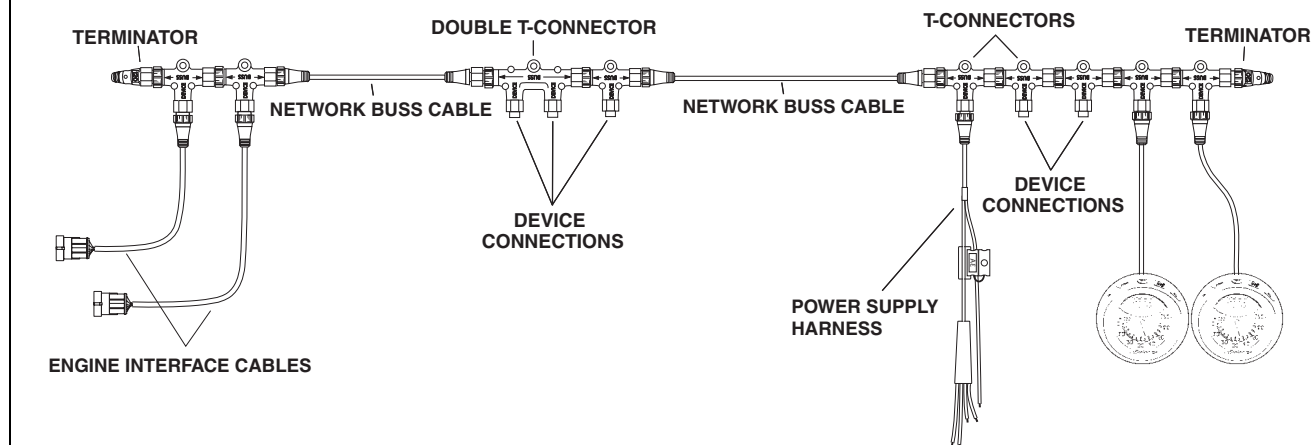
INSTALLATION

QUICK CONNECT NETWORK DIAGRAMS

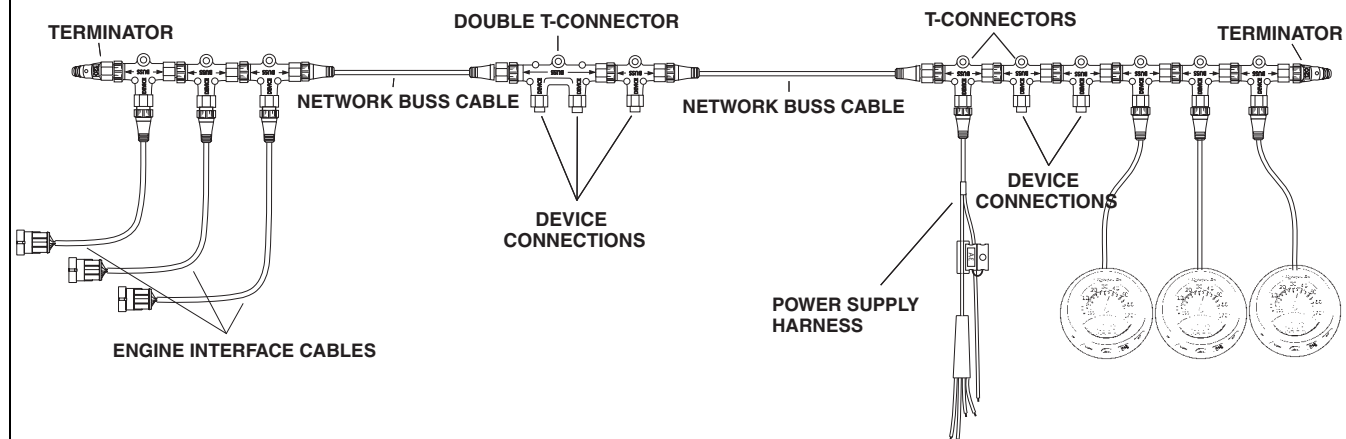
SINGLE OUTBOARD



TWIN OUTBOARDS



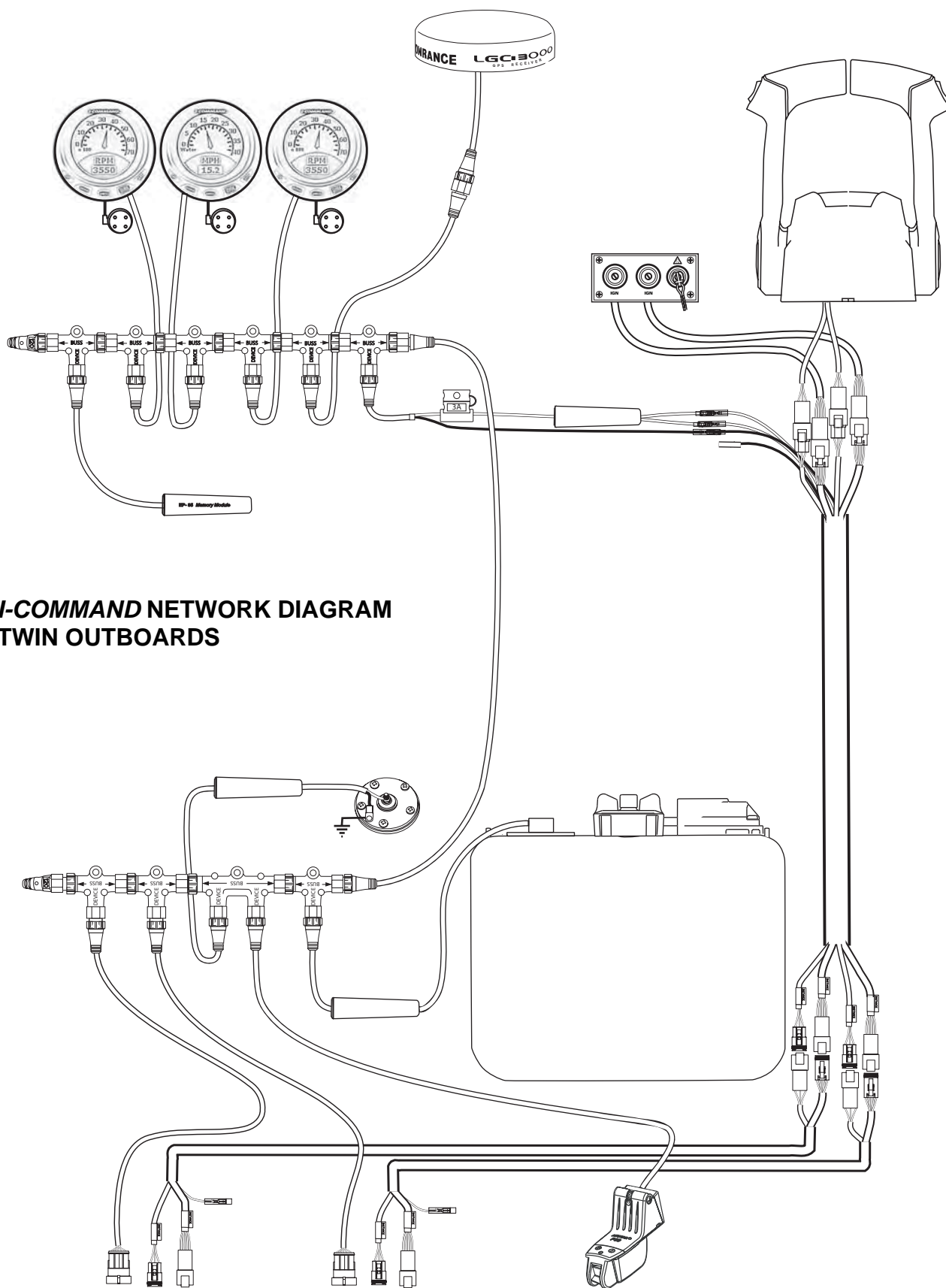
TRIPLE OUTBOARDS



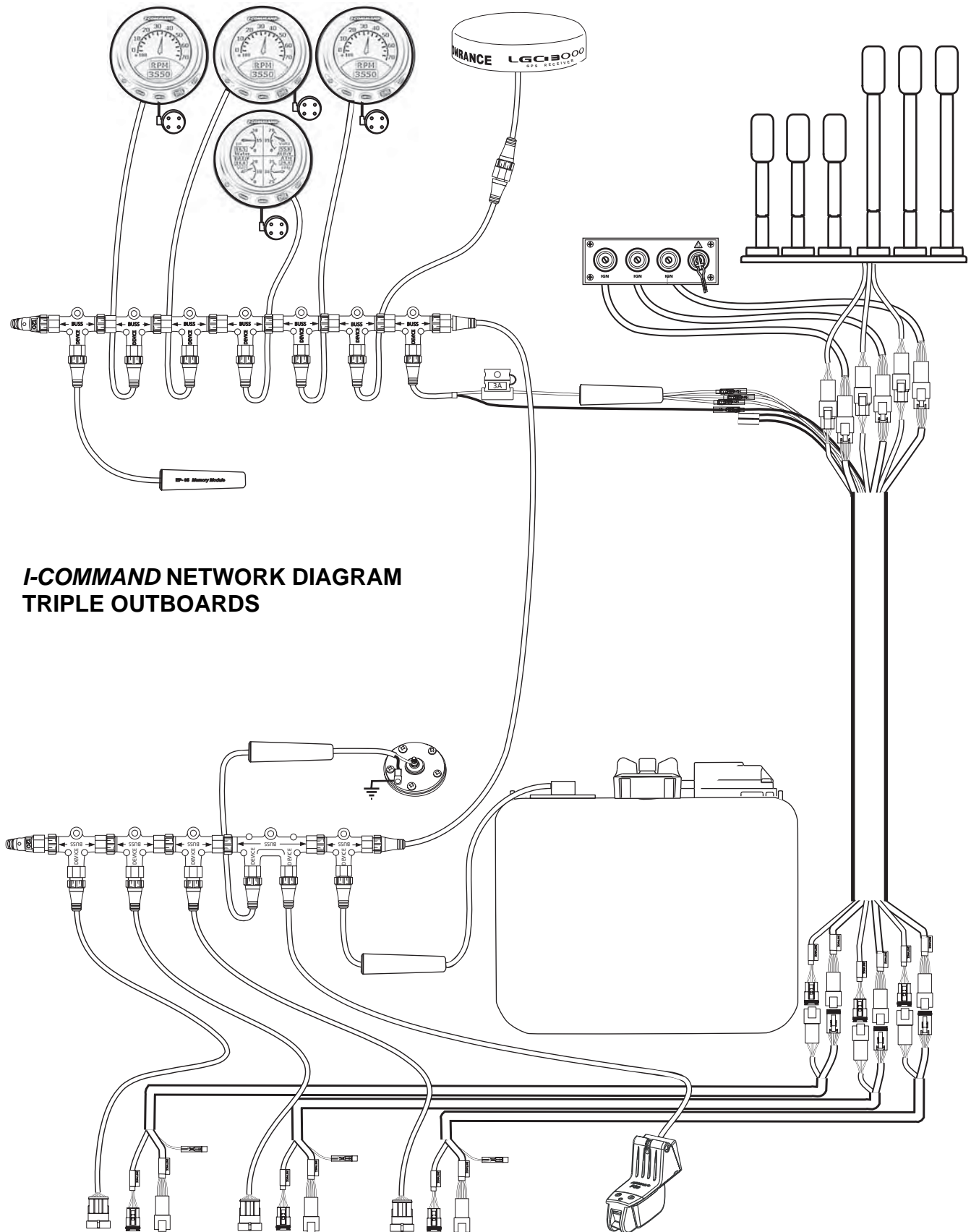


INSTALLATION

QUICK CONNECT NETWORK DIAGRAMS



***I-COMMAND* NETWORK DIAGRAM
TWIN OUTBOARDS**



***I-COMMAND* NETWORK DIAGRAM**
TRIPLE OUTBOARDS



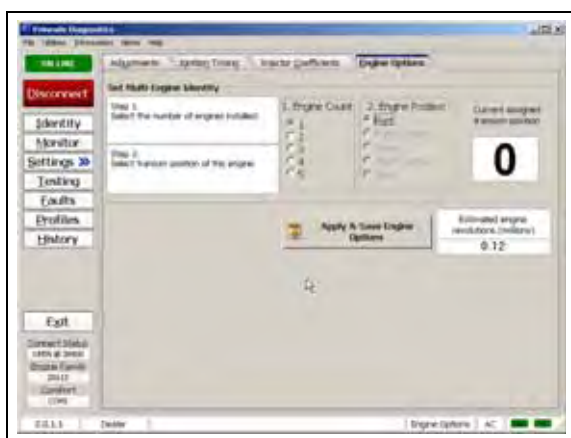
NETWORK SETUP (*I-COMMAND* DIGITAL GAUGE)

IMPORTANT: Set “ENGINE OPTIONS” on *Evinrude E-TEC* outboards before power is applied to the *I-Command* Network.

Engine Options

Use *Evinrude Diagnostics* software to set “ENGINE OPTIONS”. Settings include:

- Calibrate trim sensor
- Set multi engine identity (engine count and engine position)
- Water pressure transducer (if equipped)



System Setup

Refer to User’s Guide provided with *I-Command* Digital gauge.

Turn key switch to ON position. Display(s) should turn ON. (The default for new gauges is to display BOAT SETUP.)

Boat Setup

Use BOAT SETUP to select the appropriate number of engines and fuel tanks, and to enter fuel tank capacities.

Press ENTER. Use UP / DOWN buttons to select the correct engine and tank configuration. Press ENTER.

Use UP / DOWN buttons to enter the correct fuel tank capacity for each tank. Press EXIT to return to menu.

BOAT SETUP can be re configured after initial setup. Enter MENU and select SYSTEM SETUP. Press ENTER. Select ENG/TANK CFG (engine and tank configuration) and press ENTER.

Engine Data

Use ENG DATA (engine data) to assign a gauge to an engine. ENG DATA is only used in multiple engine installations.

Enter MENU. Use UP / DOWN buttons to select SYSTEM SETUP. Press ENTER.

Use UP / DOWN buttons to select ENG DATA. Press ENTER.

Using UP / DOWN buttons select engine to be monitored. Press ENTER. Repeat for each *I-Command* gauge.

Bus Devices

Use BUS DEVICES (network buss devices) to view network devices.

IMPORTANT: Unconfigured devices such as temperature sensors and fluid level converters must be connected to network one at a time for proper identification and setup.

Enter MENU. Use UP / DOWN buttons to select SYSTEM SETUP. Press ENTER.

Use UP / DOWN buttons to select BUS DEVICES. Press ENTER.

Using UP / DOWN buttons to select unconfigured device. Press ENTER.

Continue ON-SCREEN PROCESS to configure.

Fuel Tank Calibration

Enter MENU. Use UP / DOWN buttons to select SYSTEM SETUP. Press ENTER.

Use UP / DOWN buttons to select BUS DEVICES. Press ENTER.

Use UP / DOWN buttons to select the fluid source to be calibrated. Press ENTER.

INSTALLATION

NETWORK SETUP (I-COMMAND DIGITAL GAUGE)

Select CALIBRATE. Press ENTER.

Select TWO, THREE, or FIVE POINT CALIBRATION. Press ENTER.

Continue ON-SCREEN PROCESS to calibrate.

Select Fuel Remaining Source

IMPORTANT: Perform the following procedure on each gauge. Default setting is FLUID LEV SNSR.

Enter MENU. Use UP / DOWN buttons to select SYSTEM SETUP. Press ENTER.

Use UP / DOWN buttons to select FUEL SETUP. Press ENTER.

Use UP / DOWN buttons to select FUEL REM SRC (Fuel Remaining Source). Press ENTER.

Select ENG/FFLOW or FLUID LEV SNSR

ENG/FFLOW (Engine Fuel Flow) - Requires installation of memory module kit. Uses Out-board's *EMM* software to calculate fuel consumption. Total fuel use is calculated based on *EMM* fuel tables and subtracted from fuel tank capacity entered during setup.

IMPORTANT: Fuel flow data from *EMM* or fuel flow transducer is required. User must enter amount of fuel added at each fill up or perform the "partial fill" procedure in "FUEL MANAGER". A GPS antenna must be installed for MPG and distance to travel features to be functional.

FLUID LEV SNSR (Fluid Level Sensor) - Requires installation of a fuel tank level converter. Use's fuel tank sending unit to calculate remaining fuel. Remaining fuel is calculated based on sending unit accuracy, capacity entered during setup, and fuel consumed from tank. Use the "FIVE POINT CALIBRATION" in "TANK CALIBRATION" to achieve best performance of this option.

IMPORTANT: A GPS antenna and memory module kit must be installed to track seasonal fuel, trip fuel, fuel range, and economy.

Change Units

Enter MENU. Use UP / DOWN buttons to select SYSTEM SETUP. Press ENTER.

Use UP / DOWN buttons to select CHANGE UNITS. Press ENTER.

Using UP / DOWN buttons to select option.

Display Category	Unit of Measure Options
Speed/Dist	Statute - Nautical - SI (metric)
Temperature	Fahrenheit - Celsius
Pressure	Imperial/US - SI (metric)
Depth	Feet - Fathoms - Meters
GPS Coordinates	Deg/Min Deg/Min/Sec
Volume	US Gallons - Liters

Speed Range

Required for gauges set to analog display.

Enter MENU. Use UP / DOWN buttons to select SYSTEM SETUP. Press ENTER.

Use UP / DOWN buttons to select SPEED RANGE. Press ENTER.

Using UP / DOWN buttons to select option.

Pages - Add

IMPORTANT: Perform the following procedure on each gauge.

Add analog or digital display pages to display additional data from added devices such as fluid level sensors, water pressure transducers, water pressure sensors and temperature sensors.

Enter MENU. Use UP / DOWN buttons to select PAGES. Press ENTER.

Use UP / DOWN buttons to select ADD PAGE. Press ENTER.

Page Display Options (I-Command Digital Gauges)	
Analog Single	Digital Single
Analog Dual	Digital Dual
Analog Quad	Digital Quad

QUICK CONNECT NETWORK TROUBLESHOOTING CHART

DESCRIPTION	POSSIBLE CAUSE / PROCEDURE
<i>I-Command</i> System does not work	Check Power Supply Harness, fuses and switched B+ from ignition harness. Check all connections ⁽¹⁾ .
<i>I-Command</i> "Classic" instruments do not work	Tachometer must be installed (primary instrument). Check all connections. Check engine position setting.
Power Supply Harness has blown fuse	Network current draw is exceeding 3A. Check accessories on network.
<i>I-Command</i> instrument display is erratic	Check for installation of two terminators in system. Check network buss cable and device connections.
No speed display	Requires input from NMEA 2000 speed transducer and/or GPS receiver.
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 fuel level sensor.
No "Fuel Manager"	Requires memory module and setup of the <i>I-Command</i> display.
Oil tank level does not display	Requires input from oil tank sender. 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.
"----" displayed on LCD	Check engine position setting for both the display and outboard. Use <i>Evinrude Diagnostic</i> software for outboard setting (multi-engine applications). Check <i>EMM</i> cable connections to network and outboard.
Blown 3 A fuse for power supply	Check all connections and wiring. Disconnect accessory connections to network. Isolate possible overloads or shorted accessory or display.

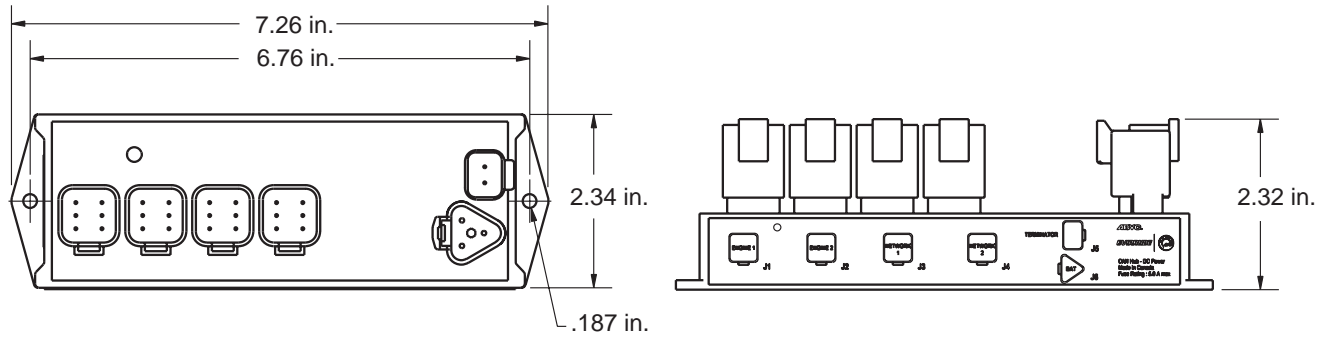
(1) *I-Command* device must be connected to device connector (center) of T-connector. Check condition of all T-connector(s). Inspect pins and sockets of T-connectors and device connectors carefully. Damaged or shorted connectors can damage 5 amp fuse.



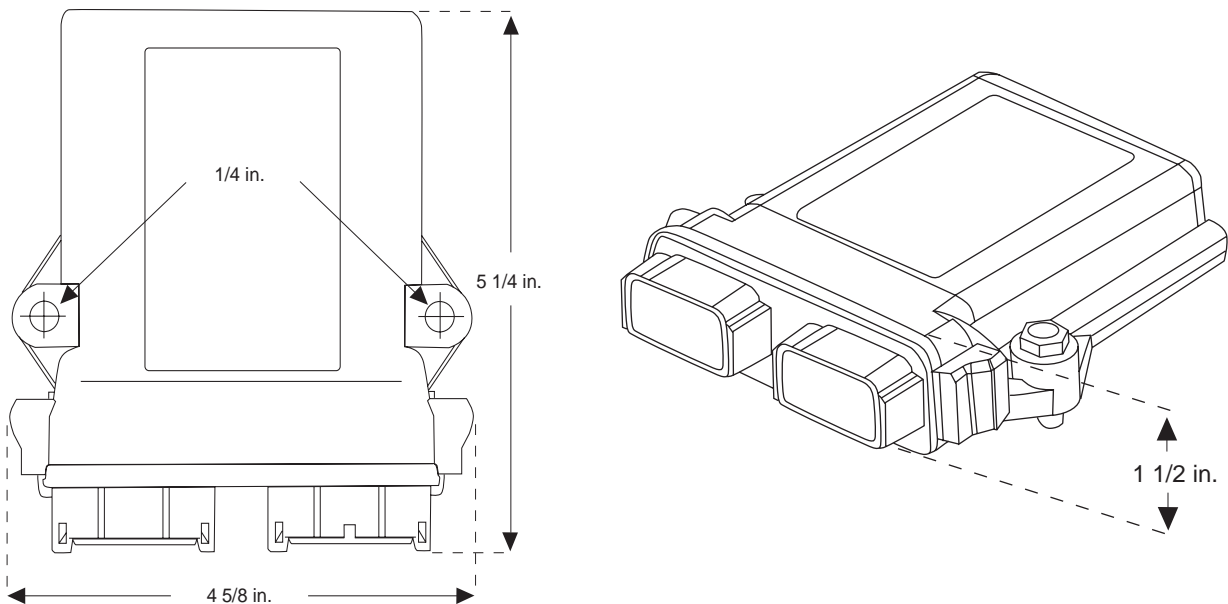
DEUTSCH STYLE NETWORK COMPONENTS

Deutsch Style Network Hubs and “SIM” Dimensions

Power Hub / Consolidator Hub



Sensor Interface Module (SIM)



DEUTSCH STYLE NETWORK

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

Install ignition and trim system wire harness.

Ignition and trim/tilt harnesses are available in various lengths. Refer to "IGNITION AND TRIM/TILT HARNESS COMPONENTS" on page 25 for part numbers.

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 "DEUTSCH STYLE NETWORK DIAGRAMS" on page 54.

Power Hub

Position Power Hub in a dry, protected area. See "Deutsch Style Network Hubs and "SIM" Dimensions" on page 51. Fasten to secure surface. Connect Power Supply Harness and route to battery(s).

The Power Hub can be located at either "end" of the network. See "DEUTSCH STYLE NETWORK DIAGRAMS" on page 54.

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) termi-

nal 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 "Deutsch Style Network Hubs and "SIM" Dimensions" on page 51. Fasten to secure surface. Connect Data harness. Install one Terminator in "T" connector of hub. If multiple hubs are installed, see "DEUTSCH STYLE CONNECTORS AND HUBS" on page 18.

Terminator

Install one Terminator in "T" connector of Power Hub and one in "T" connector of Consolidator Hub. See "DEUTSCH STYLE CONNECTORS AND HUBS" on page 18.

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 "DEUTSCH STYLE NETWORK DIAGRAMS" on page 54. 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 19.

Sensor Interface Module (SIM)

Position the SIM in a dry, protected area where the ambient air temperature does not exceed 167° F (75° C). See "DEUTSCH STYLE NETWORK COMPONENTS" on page 51.

Fasten securely.

IMPORTANT: DO NOT distort hub housing.

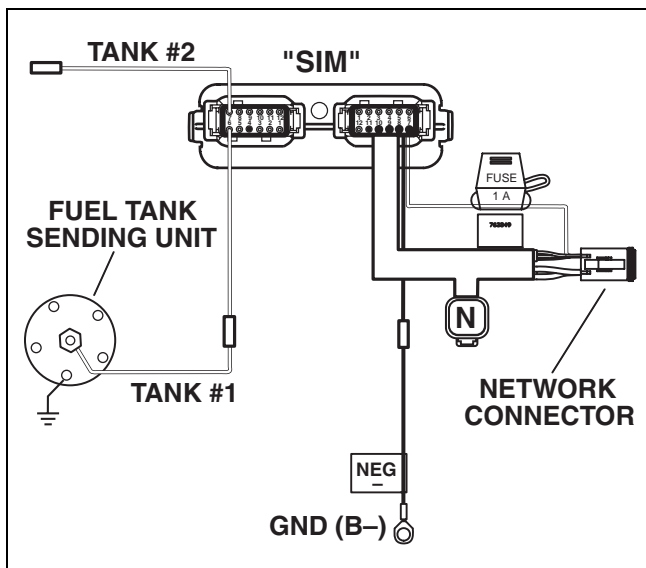
Anchor SIM to a flat, firm surface with #10 pan head screws. Do not allow housing of hub to be distorted by more than 0.040 in. (1 mm) when mounted. Torque screws to 70 in. lbs. (8 N·m).

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

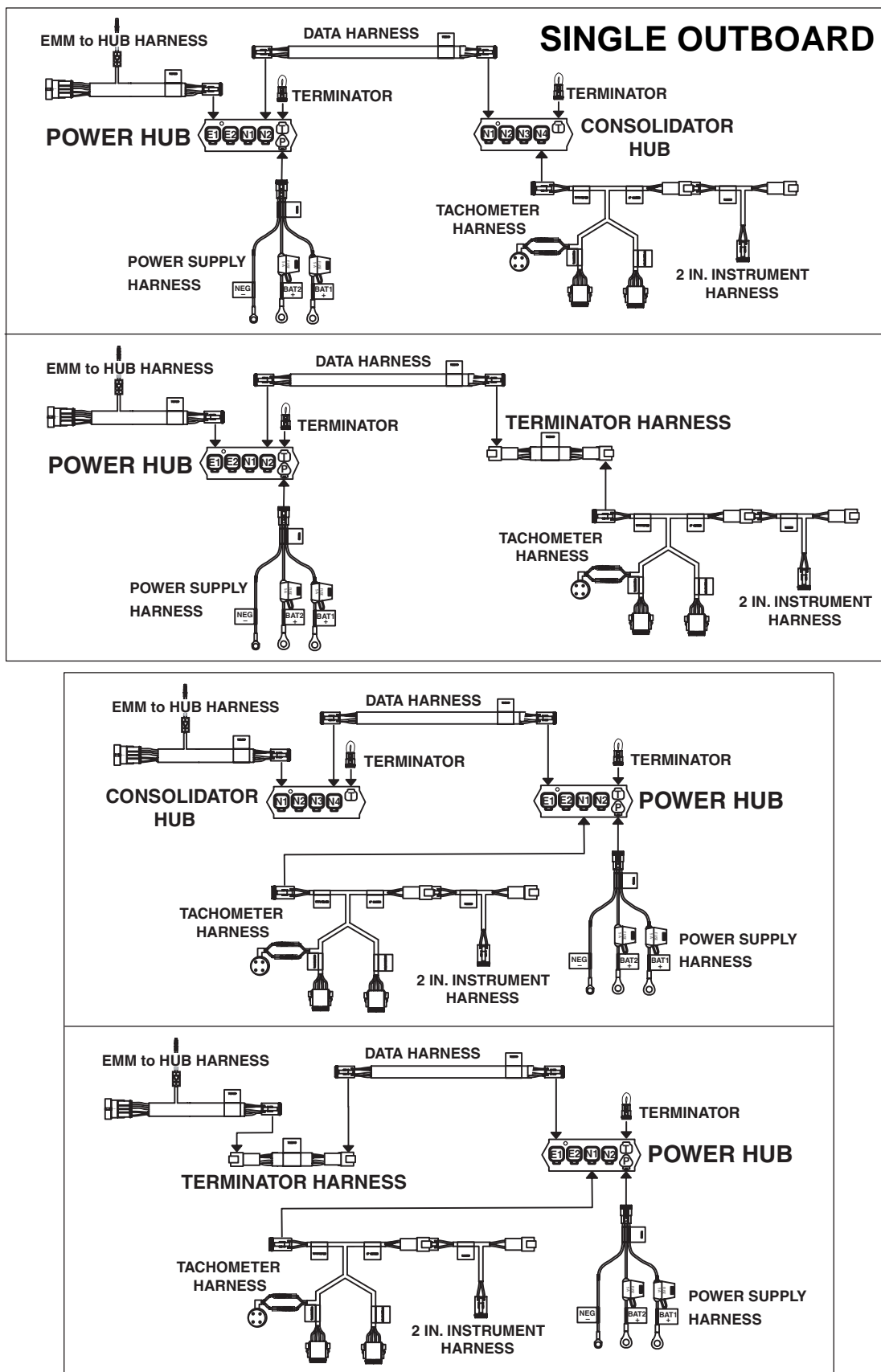
Connect ground wire to battery negative (B-).

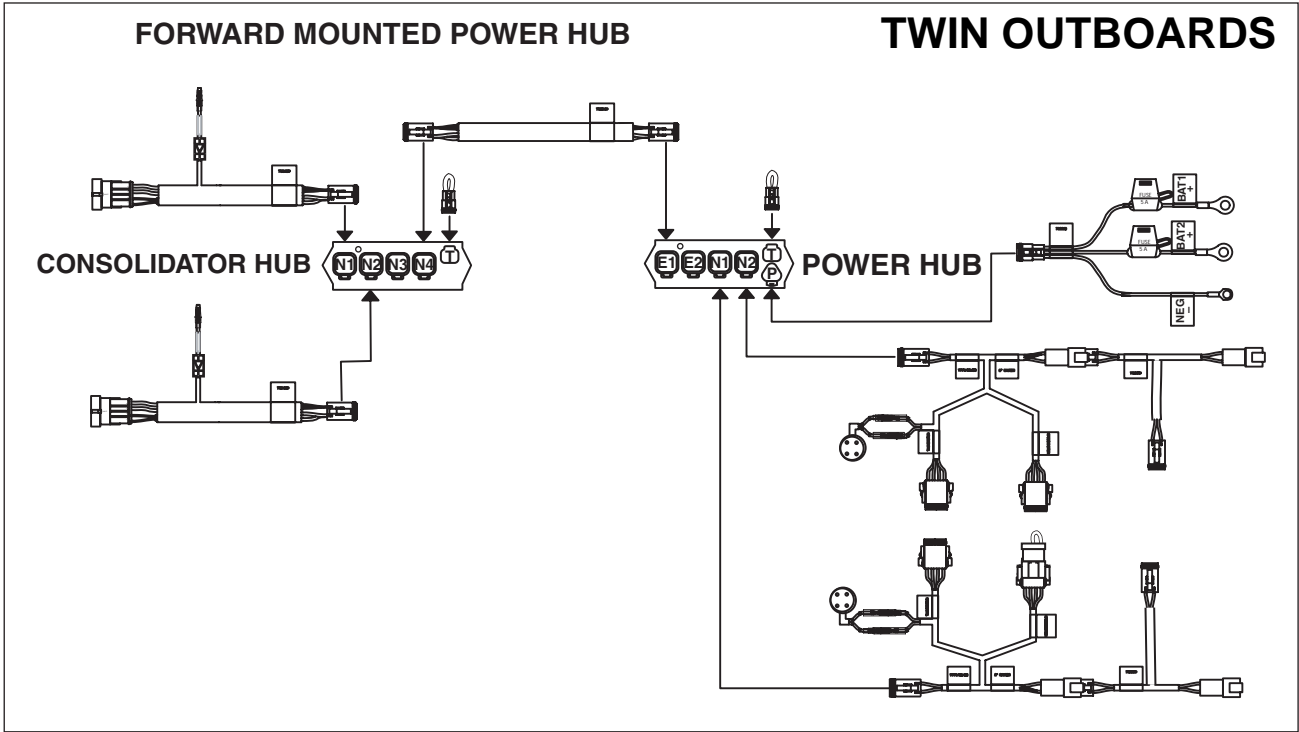
Connect SIM-to-Fuel-Tank Harness to SIM.

Connect fuel tank sending unit wiring to the appropriate fuel tank sending unit. See "DEUTSCH STYLE NETWORK DIAGRAMS" on page 54.

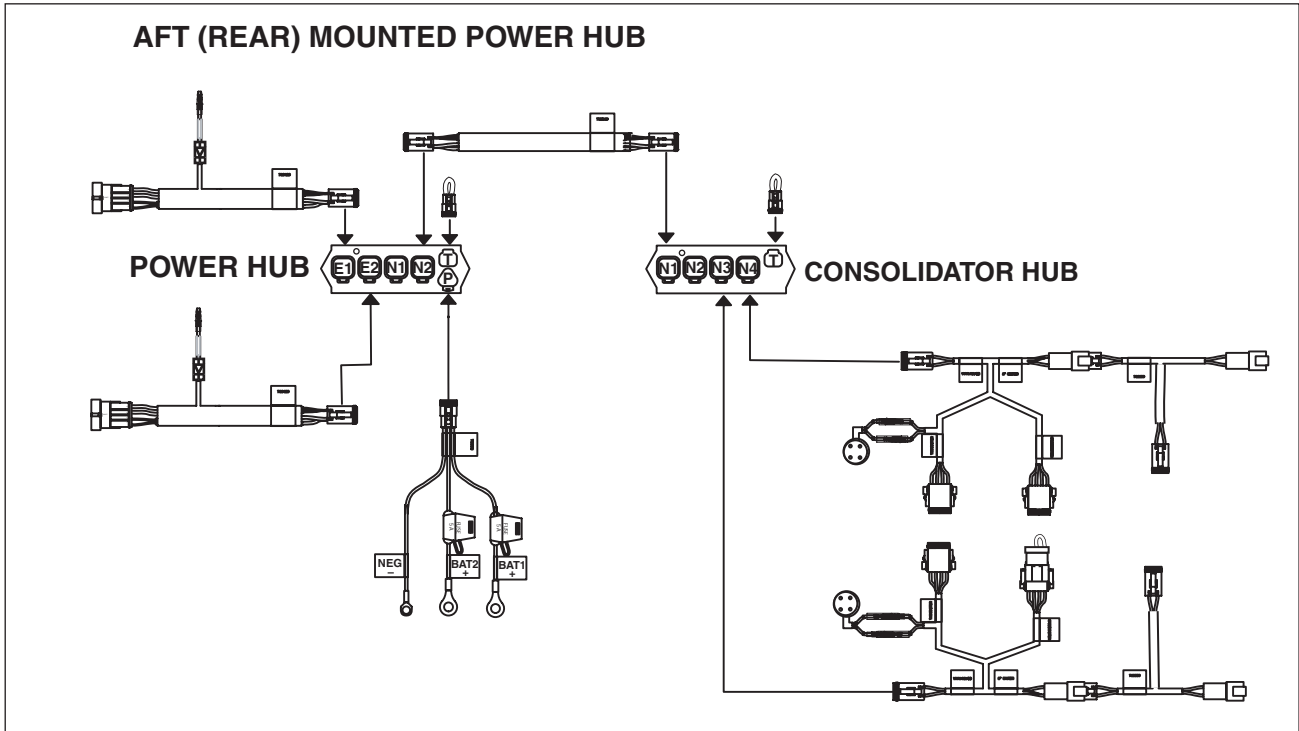


INSTALLATION **DEUTSCH STYLE NETWORK DIAGRAMS**

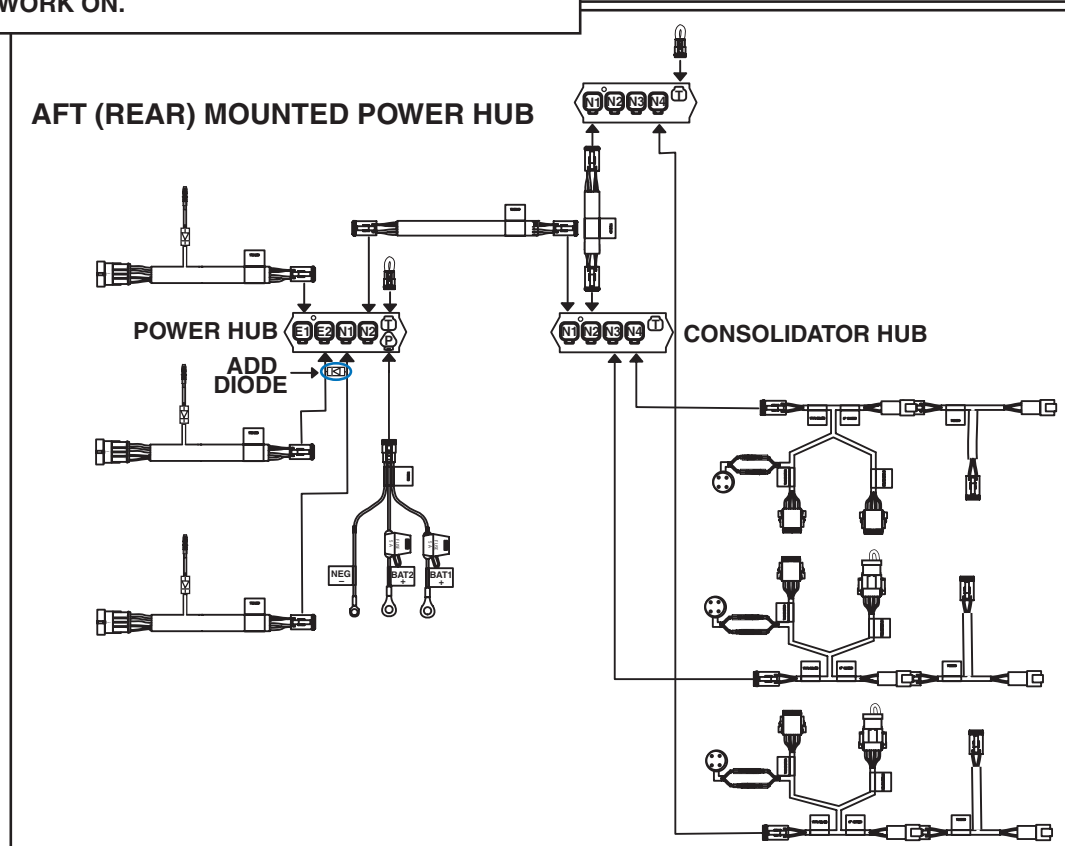
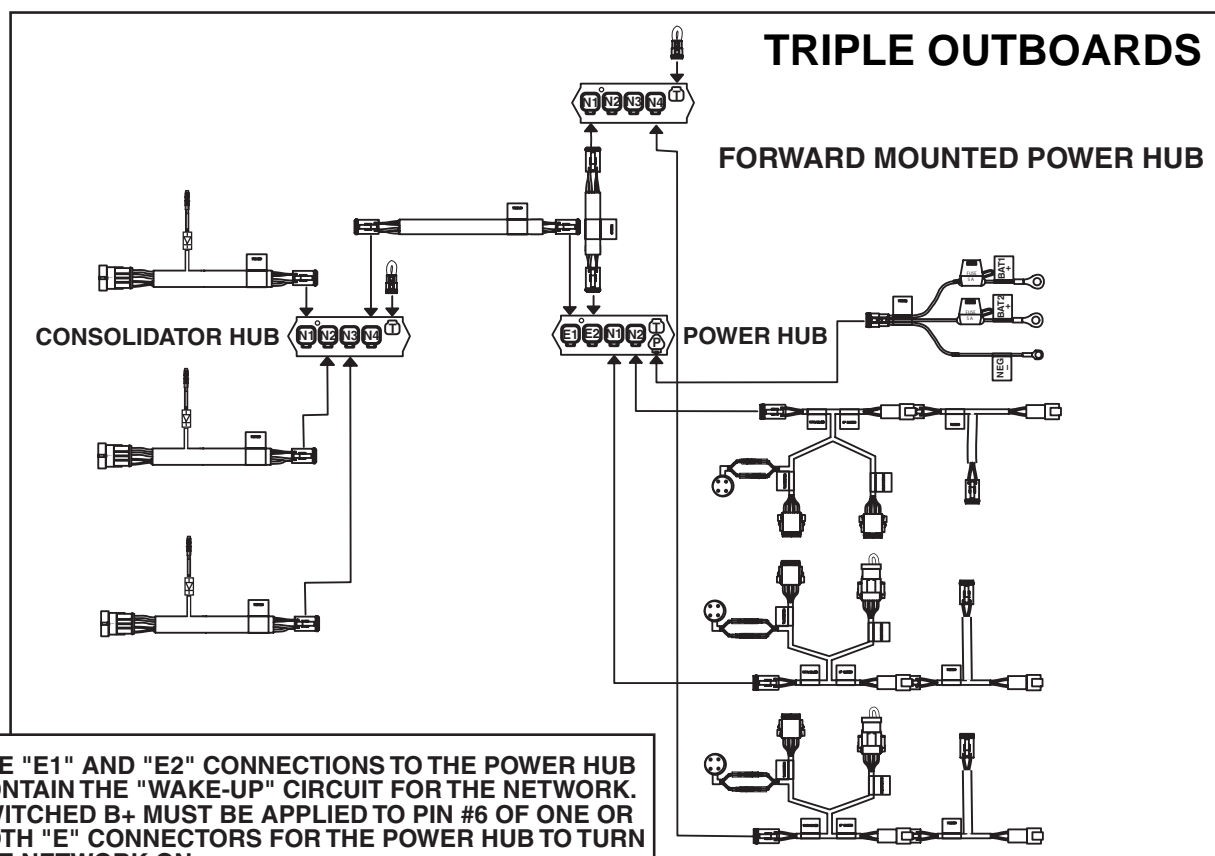




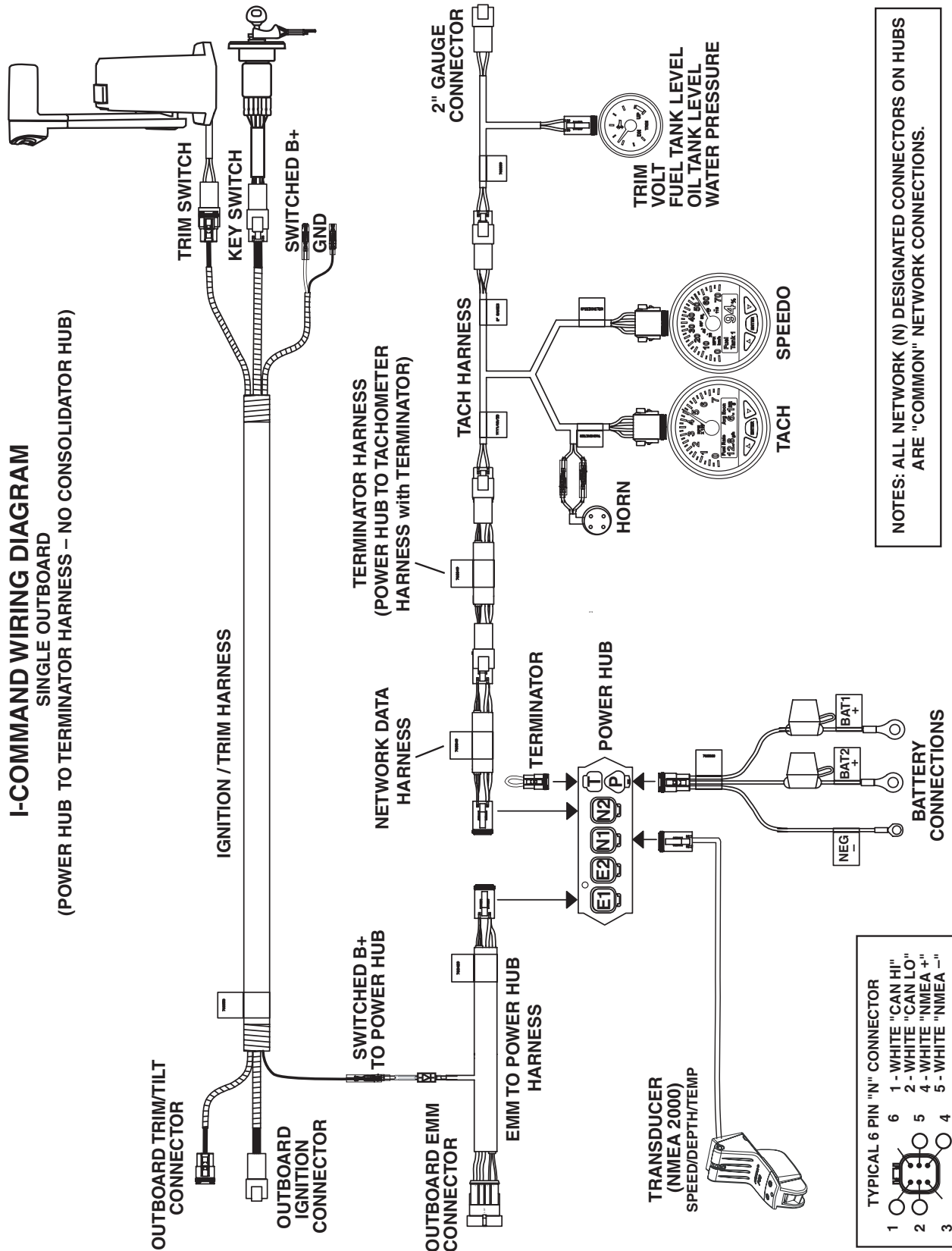
THE "E1" AND "E2" CONNECTIONS TO THE POWER HUB CONTAIN THE "WAKE-UP" CIRCUIT FOR THE NETWORK. SWITCHED B+ MUST BE APPLIED TO PIN #6 OF ONE OR BOTH "E" CONNECTORS FOR THE POWER HUB TO TURN THE NETWORK ON.



INSTALLATION **DEUTSCH STYLE NETWORK DIAGRAMS**

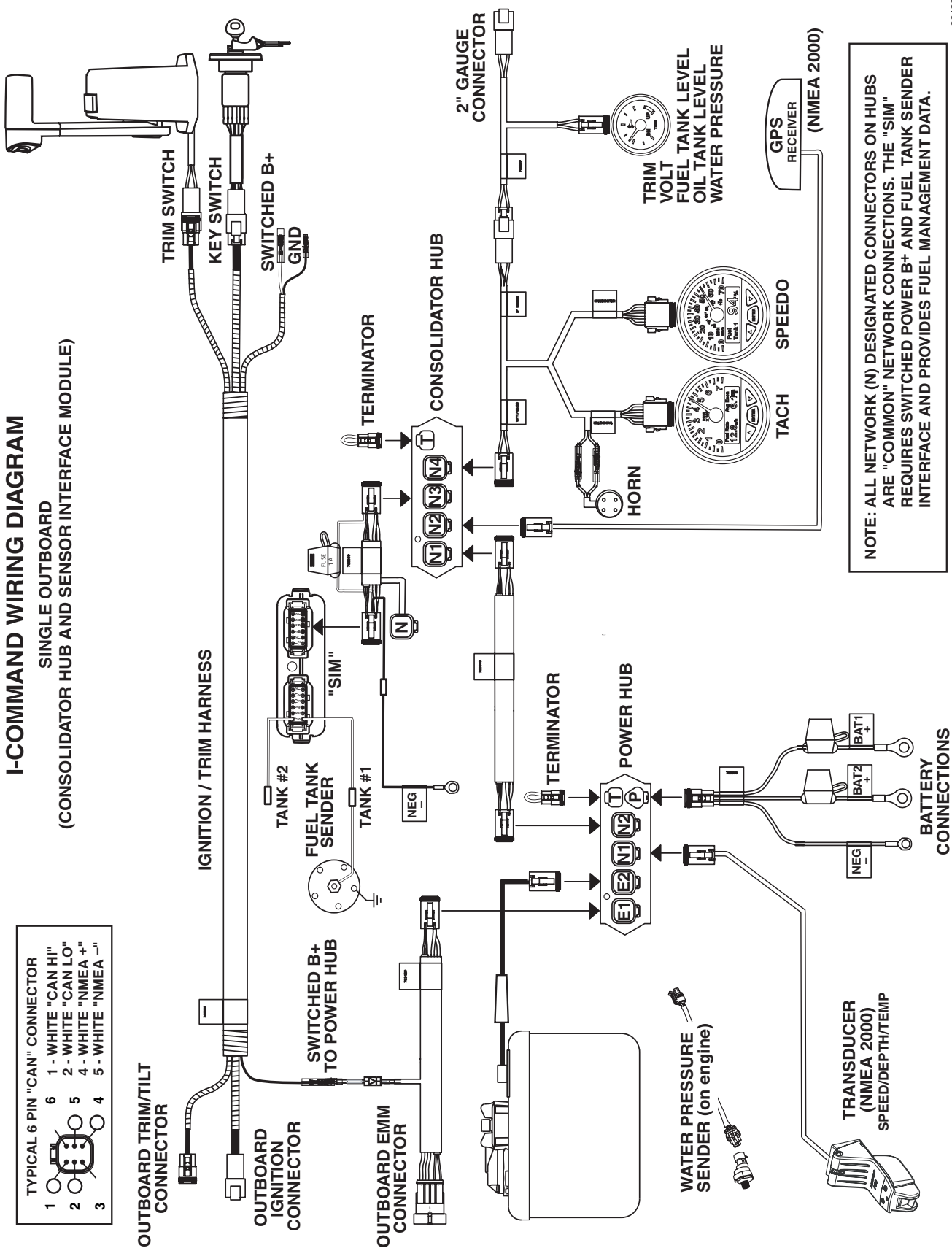


(Power Hub to Terminator Harness – No Consolidator Hub)

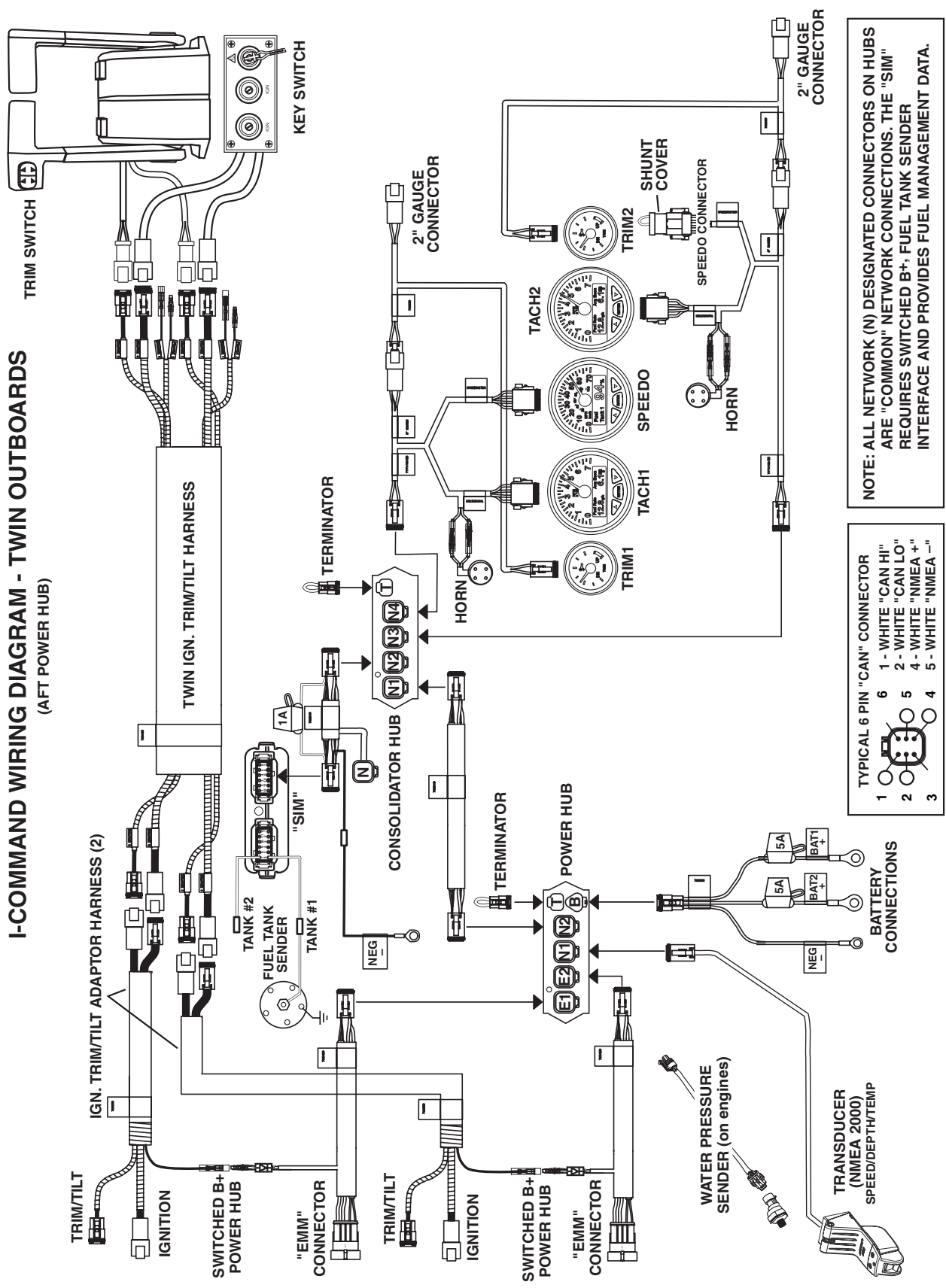


I-COMMAND WIRING DIAGRAM

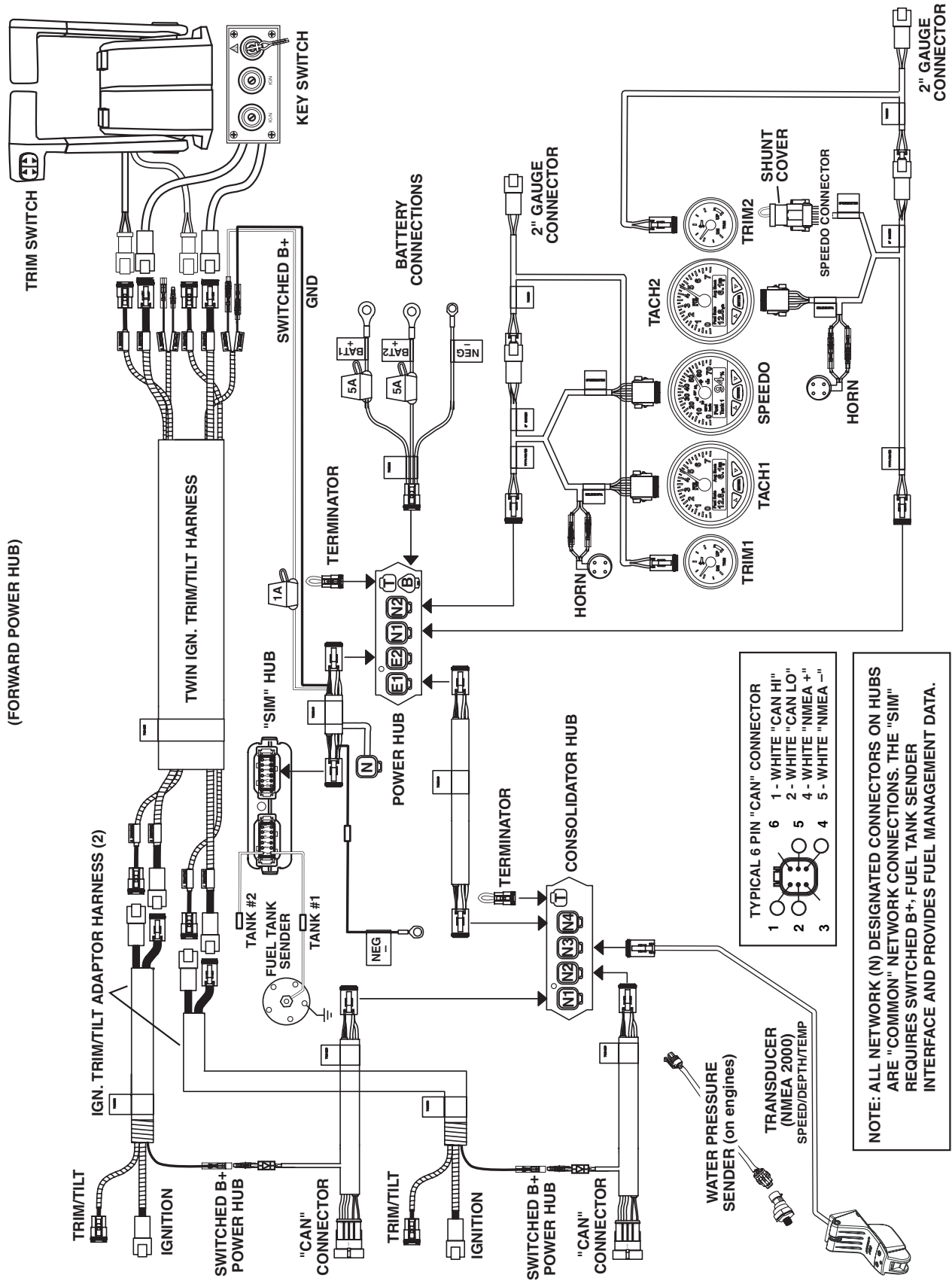
SINGLE OUTBOARD
(CONSOLIDATOR HUB AND SENSOR INTERFACE MODULE)



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



I-COMMAND™ WIRING DIAGRAM - TWIN OUTBOARDS
(FORWARD POWER HUB)





INSTALLATION

DEUTSCH STYLE NETWORK TROUBLESHOOTING CHART

DEUTSCH STYLE NETWORK 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.
<i>I-Command</i> "Classic" 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. Check engine position setting.
Power Supply Harness has blown fuse(s)	Network current draw is exceeding 5A. Check accessories on network.
<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 constantly 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 SIM.
No fuel management features	Requires input from SIM and GPS; 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.

INSTALLATION

DEUTSCH STYLE NETWORK TROUBLESHOOTING CHART

DESCRIPTION	POSSIBLE CAUSE / PROCEDURE
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?	Refer to manufacturer's wiring information.
How is the <i>I-Command</i> System GPS receiver connection wired?	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> .
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



