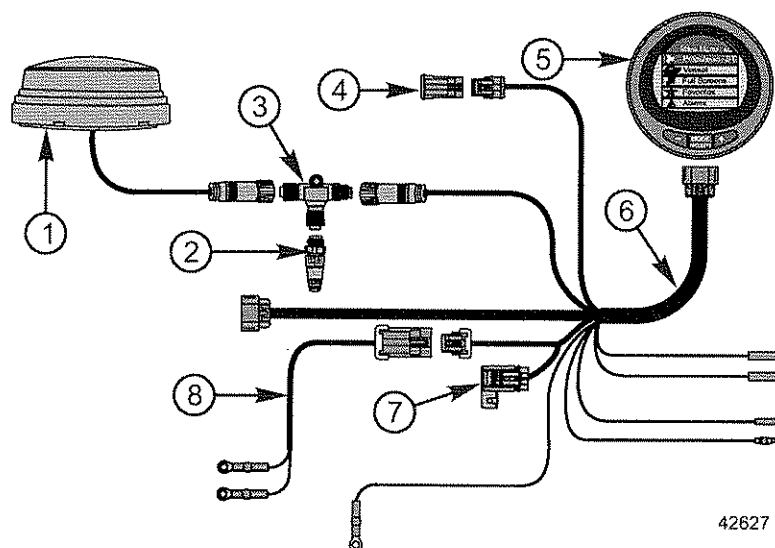


# MERCMONITOR INSTALLATION INSTRUCTIONS

**IMPORTANT:** This document guides our dealers, boatbuilders, and company service personnel in the proper installation or service of our products. If you have not been trained in the recommended servicing or installation procedures for these or similar Mercury Marine products, have the work performed by an authorized Mercury Marine dealer technician. Improper installation or servicing of the Mercury product could result in damage to the product or personal injury to those installing or operating the product.

**NOTE:** After completing installation, place these instructions with the product for the owner's future use.

## Components Contained in Kit



42627

Ref.	Qty.	Description
1	1	GPS Antenna (Smart Tow Pro only)
2	1	120 ohm terminating resistor
3	1	NMEA 2000 T-connector
4	1	Weather cap
5	1	MercMonitor
6	1	Harness
7	1	Fuse cover
	1	3 amp fuse (not shown)
8	1	Power harness adapter
	1	Monitor gasket (not shown)
	1	Nut (not shown)

## MercMonitor Gateway Models Description

There are four MercMonitor gateway models available; base model with nine gateway features, RPM Smart Tow model with 20 gateway features, Smart Tow Pro model with 25 gateway features (includes a GPS puck), and Gateway Premier model with 25 gateway features. Each model incorporates the use of NMEA 2000<sup>1</sup> and J1939 software interface that allows or controls access to other programs.

1. NMEA 2000 pending certification.

## MERCMONITOR INSTALLATION INSTRUCTIONS

Each engine must have its own gateway monitor when using the base or RPM Smart Tow models. Gateway Premier and Smart Tow Pro models can communicate and provide NMEA 2000/J1939 with four engines or less. Gateway Premier and Smart Tow Pro models screen will only display single engine data. Premier does not include Smart Tow Pro control capabilities.

Base Model (single engine, NMEA 2000 support selectable)	
NMEA 2000 and J1939 in/out supported	RPM
	Voltage
	Oil pressure
	Coolant temperature
	Fuel tank level percent
NMEA 2000 only in/out supported	Fluid level percent (Fuel 2, oil, water, waste)
	Trim position
	Water pressure
	Check engine alarm
	<b>IMPORTANT: NMEA 2000/J1939 alarm data is limited, refer to the MercMonitor display for descriptive fault text.</b>
RPM Smart Tow Model (single engine, NMEA 2000 support selectable)	
NMEA 2000 and J1939 in/out supported	RPM
	Voltage
	Oil pressure
	Coolant temperature
	Fuel tank level percent
	Fuel flow
	Engine hours
	Boost pressure
	Oil temperature
	Fluid level percent (Fuel 2, oil, water, waste)
NMEA 2000 only in/out supported	Trim position
	Water pressure
	Check engine alarm
	<b>IMPORTANT: NMEA 2000/J1939 alarm data is limited, refer to the MercMonitor display for descriptive fault text.</b>
	Tabs
	GPS speed/COG/latitude, longitude (in only)
	Depth
	Seawater temperature
	Paddle wheel speed
	Pitot speed

Smart Tow Pro Model with GPS puck (four engine or less, NMEA 2000 support selectable)	
NMEA 2000 and J1939 in/out supported	RPM
	Voltage
	Oil pressure
	Coolant temperature
	Fuel tank level percent
	Fuel flow
	Engine hours
	Boost pressure
	Oil temperature
NMEA 2000 in/out supported (only)	Fluid level percent (Fuel 2, oil, water, waste)
	Trim position
	Water pressure
	Check engine alarm
	<b>IMPORTANT: NMEA 2000/J1939 alarm data is limited, refer to the MercMonitor display for descriptive fault text.</b>
	Tabs
	GPS speed/COG/latitude, longitude (in only)
	Depth
	Seawater temperature
	Paddle wheel speed
	Pitot speed
	Rudder angle
	Gear pressure (CMD diesel)
	Gear temperature (CMD diesel)
	Fuel pressure
	Capacity (English or metric)

Gateway Premier (four engine or less, NMEA 2000 support selectable) (includes RPM Smart Tow)	
NMEA 2000 and J1939 in/out supported	RPM
	Voltage
	Oil pressure
	Coolant temperature
	Fuel tank level percent
	Fuel flow
	Engine hours
	Boost pressure
	Oil temperature
NMEA 2000 in/out supported (only)	Fluid level percent (Fuel 2, oil, water, waste)
	Trim position
	Water pressure
	Check engine alarm
	<b>IMPORTANT: NMEA 2000/J1939 alarm data is limited, refer to the MercMonitor display for descriptive fault text.</b>
	Tabs
	GPS speed/COG/latitude, longitude (in only)
	Depth
	Seawater temperature
	Paddle wheel speed
	Pitot speed
	Rudder angle
	Gear pressure (CMD diesel)
	Gear temperature (CMD diesel)
	Fuel pressure
	Capacity (English or metric)

## MecMonitor NMEA 2000/J1939 Gateway Check Engine Alarm

*NOTE: Gateway check engine alarm is enabled to transmit and receive.*

**IMPORTANT:** NMEA 2000/J1939 alarm data is limited and will only display "Check Engine" when an alarm is activated. Refer to the MercMonitor display for descriptive fault text.

## MercMonitor Gateway Protocol Acceptance Description

Gateway is a software interface that allows or controls access to other programs through a NMEA 2000 or J1939 protocol; a backbone for communication to share information. The software is capable of transmitting (TX) information to, and receiving (RX) information from various parameter group number (PGN) products.

Gateway Modes	
Transmit (TX)	Receive (RX)
Transmits engine data to NMEA 2000/J1939 compatible display devices.	Receives data from NMEA 2000/J1939 compatible engines.
Base and RPM Smart Tow models require one MercMonitor per engine.	Each engine requires its own MercMonitor regardless of the model (base, RPM Smart Tow, Smart Tow Pro, Gateway Premier)
Gateway Premier and Smart Tow Pro models require only one MercMonitor per vessel to transmit multiengine data to multifunction displays (MFD) through the NMEA 2000/J1939 protocol.	
The MercMonitor will display one engine only regardless of the model (base, RPM Smart Tow, Smart Tow Pro, Gateway Premier).	

Mercury Engine Data to NMEA 2000 Capable Products			
Signal	PGN Name	NMEA 2000 PGN	Mode
Rated RPM	Engine Parameter Static	127498/0x1F20A	RX/TX
Coolant Pressure	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Speed Over Water	Speed	128259/0x1F503	RX/TX
RPM	Engine Parameters Rapid Update	127488/0x1F200	RX/TX
Voltage	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Coolant Temperature	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Fuel Pressure	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Fuel Level	Fluid Level	127505/0x1F211	RX/TX
Fuel Tank Size	Fluid Level	127505/0x1F211	RX/TX
Fuel Flow	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Oil Pressure	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Oil Temperature	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Gear Temp	Transmission Dynamic	127493/0x1F205	RX/TX
Gear Pressure	Transmission Dynamic	127493/0x1F205	RX/TX
Boost Pressure	Engine Parameters Rapid Update	127488/0x1F200	RX/TX
Trim position	Engine Parameters Rapid Update	127488/0x1F200	RX/TX
Rudder Angle	Rudder	127245/0x1F10D	RX/TX
Depth	Depth	128267/0x1F50B	RX/TX
Depth Offset	Depth	128267/0x1F50B	RX/TX
Seawater Temp	Environmental Parameters	130310/0x1FD06	RX/TX
Engine hours	Engine Parameters Rapid Dynamic	127489/0x1F201	RX/TX
Manufacturer ID	Address Claim (0 x 90 = Mercury)	060928/0xEE00	RX/TX
Alarm data	Check Engine	127489/0x1F201	RX/TX
Tabs	Small Craft Status	130576/0x1FE10	RX/TX
Course over Ground	COG and SOG Rapid Update	129026/0x9F802	RX
Speed over Ground	COG and SOG Rapid Update	129026/0x9F802	RX
GPS Position	Position Rapid Update	129025/0x1F801	RX
Battery	Battery Status	127508/0x1F214	RX/TX

Mercury Engine Data to J1939 Capable Products			
Signal	PGN Name	J1939 PGN	Mode
RPM	Electronic Engine Controller #1	61444/0xF004	TX
Voltage	Vehicle Electrical Power	65271/0xFE7F	TX
Coolant Temperature	Engine Temperature #1	65262/0xFEEE	TX
Fuel Level	Dash Display	65276/0xFEFC	TX
Fuel Consumption	Fuel Economy (Liquid)	65266/0xFE7F	TX
Fuel Flow	Fuel Economy (Liquid)	65266/0xFE7F	TX
Oil Pressure	Engine Fluid Level/Press #1	65263/0xFEEF	TX
Boost Pressure	Inlet/Exhaust Conditions	65270/0xFE7F	TX
Engine hours	Total Engine Hours	65253/0xFEE5	TX
Manufacturer ID	Address Claim (0 x 90 = Mercury)	61182/0xEEFE	TX
Alarm data (Diagnostic message supported)	Check Engine	65226/0xFECA	TX
Line-Line AC RMS Volt	Generator Set Average	65030/0xFE06	RX/TX
AC RMS Frequency	Generator Set Average	65030/0xFE06	RX/TX

## Installation Information

Before cutting any holes, check area behind dashboard for obstructions (braces, cables, wiring, etc.).

When cutting the dashboard for gauge installation, follow these cutting tips:

- Fiberglass – Apply masking tape to area to be cut to prevent dashboard from cracking.
- Vinyl covered – Remove vinyl from area to be cut with razor blade to keep vinyl from tearing.

## Gauge Installation

1. Disconnect both battery cables from the battery.

### WARNING

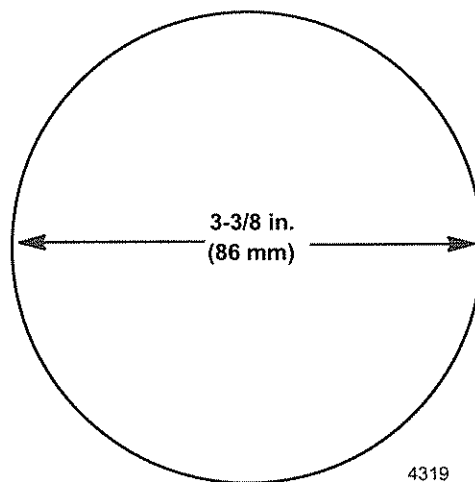
Performing service or maintenance without first disconnecting the battery can cause product damage, personal injury, or death due to fire, explosion, electrical shock, or unexpected engine starting. Always disconnect the battery cables from the battery before maintaining, servicing, installing, or removing engine or drive components.

2. Select a location for the monitor gauge that has unobstructed visibility.

### CAUTION

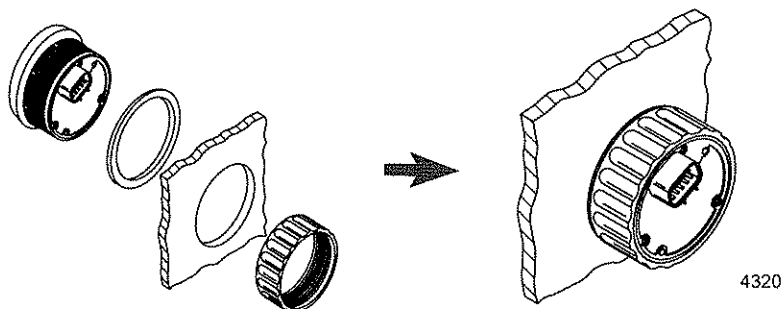
Avoid injury or product damage. Obstructions, such as braces and wiring, may be unseen when looking at the front of the dashboard. Before drilling or cutting any holes in the dashboard, check the area behind the dashboard for obstructions. Do not drill or cut when obstructions are present.

3. Use a 86 mm (3.375 in.) diameter hole saw to cut out the opening for the monitor gauge.



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4. Install the seal onto the monitor gauge.
5. Install the monitor gauge with the seal into the dashboard opening and secure with the retainer nut. Tighten the nut securely.



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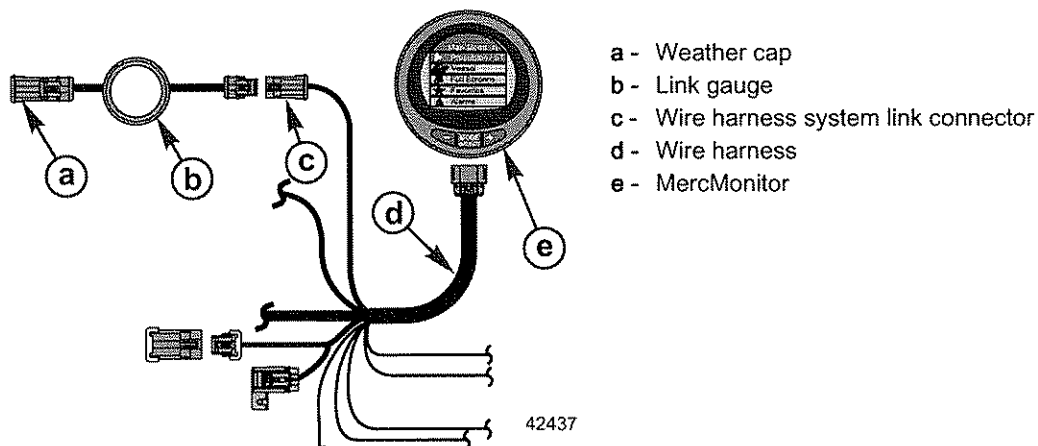
## MercMonitor Wire Harness Connections

The MercMonitor can be installed on vessels integrating SmartCraft technology with other manufacturer products that use a NMEA 2000/J1939 backbone network. It can also be installed and integrated into a vessel that is not SmartCraft compatible using the NMEA 2000/J1939 backbone. Each scenario requires specific harness connections for the integration of power for the monitor and the NMEA 2000/J1939 backbone network.

### MercMonitor Wire Harness Connections SmartCraft Network

**IMPORTANT:** Do not allow electrical connections to flex. Fasten all electrical harnesses within 25 cm (10 in.) of the connection. Ensure all unused harness connectors are protected with weather caps.

1. Connect the wire harness to the MercMonitor.
2. Connect the link gauges to the wire harness system link connector if applicable.



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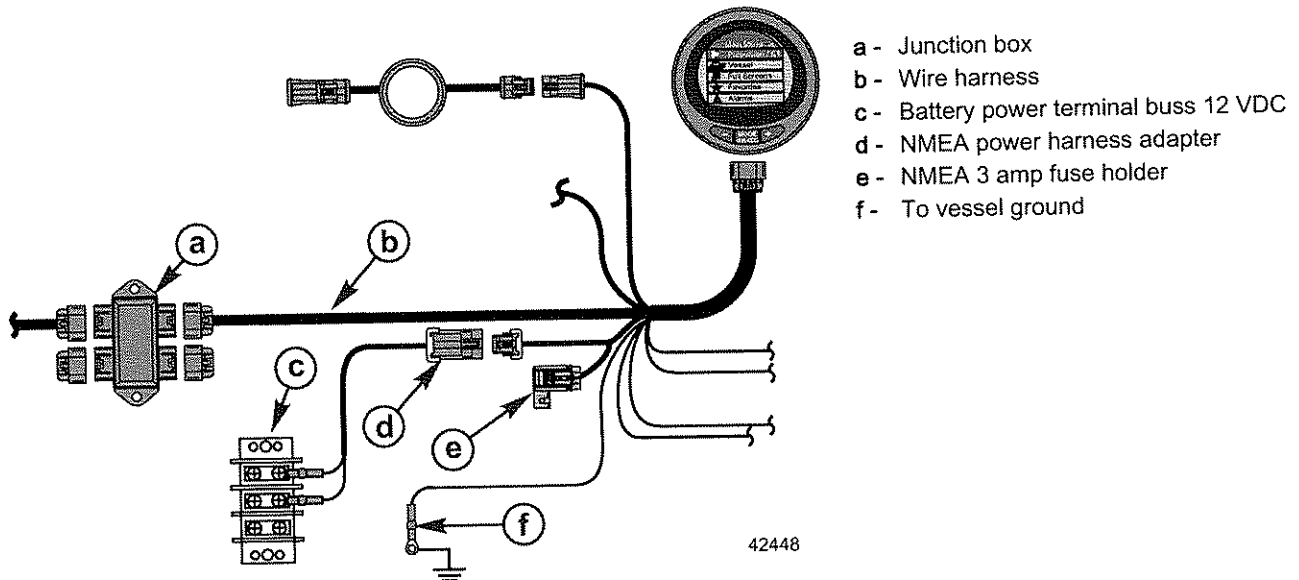
3. Connect the NMEA power harness adapter to the wire harness connector.
4. Connect the NMEA power harness red and black wires to a battery power terminal buss.

**IMPORTANT:** The NMEA power harness adapter should be utilized when integrating the MercMonitor with a NMEA 2000/J1939 communication that does not have an existing NMEA 2000 backbone installed.

5. Secure the NMEA 3 amp fuse holder with a screw or retainer. Ensure the fuse holder is accessible.

**IMPORTANT:** The NMEA 3 amp fuse must be utilized when integrating the MercMonitor with a NMEA 2000/J1939 communication that does not have an existing NMEA 2000 backbone installed.

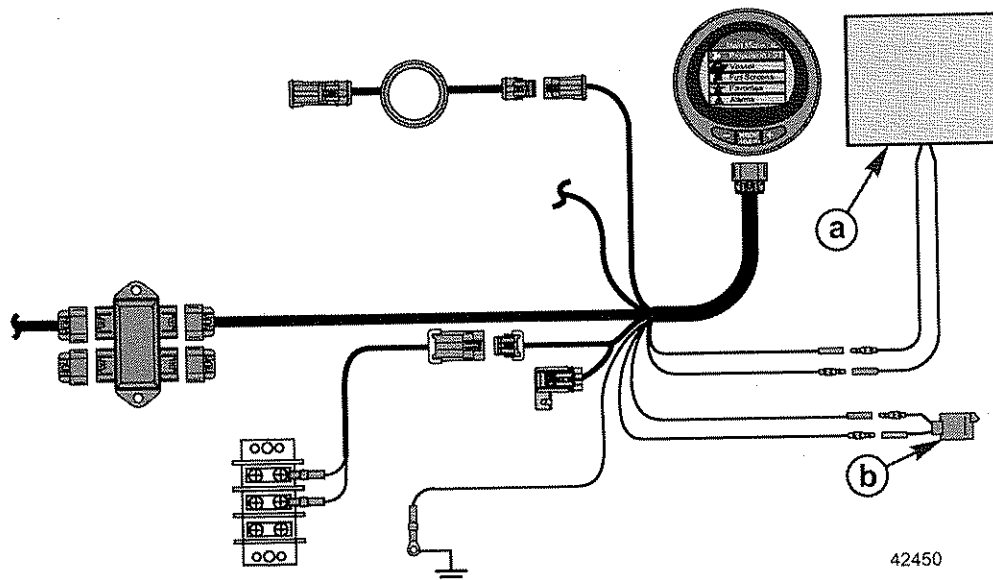
6. Connect the wire harness black wire to a vessel ground.



7. Connect the NMEA 0183 device (if applicable) to the wire harness blue/white and white/blue wires. Ensure the connection is watertight.

8. Connect the warning horn to the tan/light blue and purple wire bullet connectors.

**NOTE:** The warning horn is not supplied with the kit.



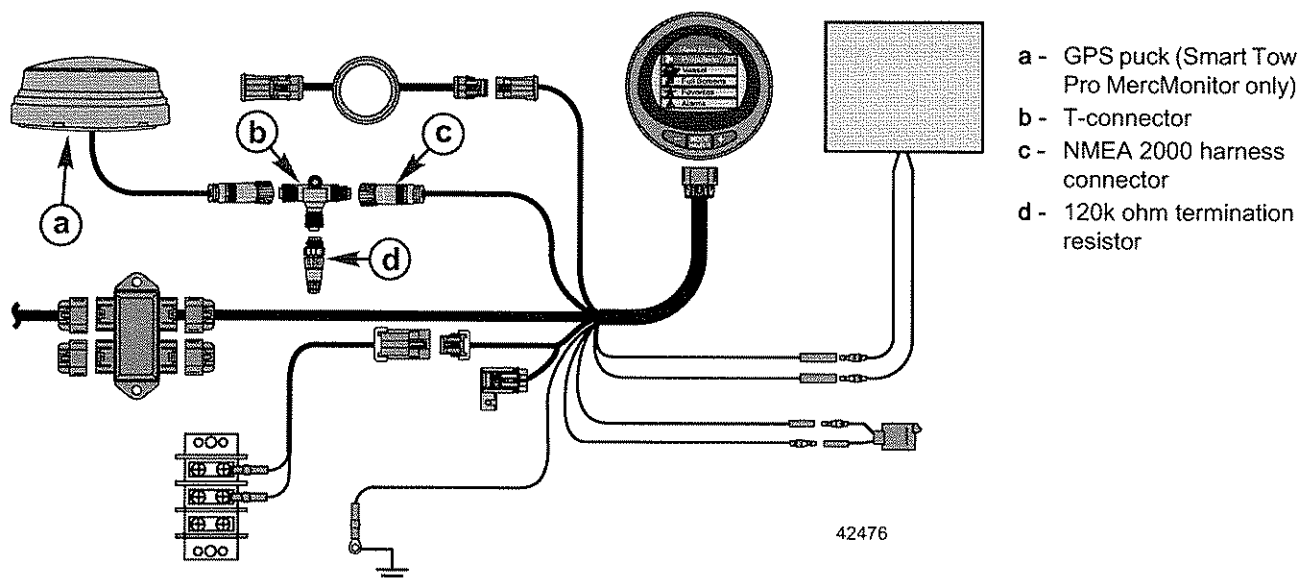
a - NMEA 0183 device

b - Warning horn

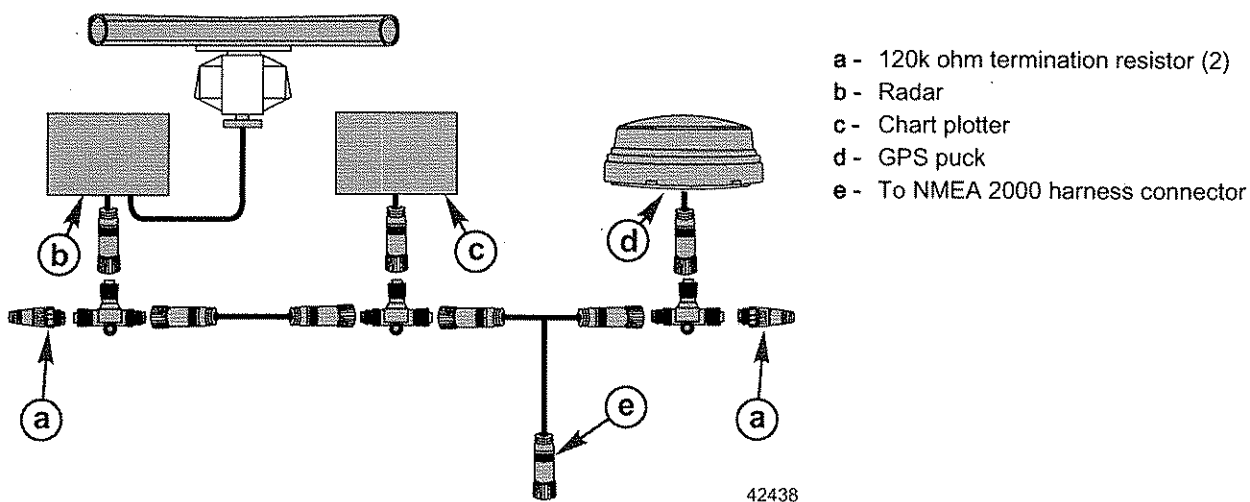
9. Connect the NMEA 2000 T-connector to the wire harness NMEA 2000 harness connector.
10. Install the 120k ohm termination resistor onto the T-connector.
11. For Smart Tow Pro MercMonitor, connect the GPS puck to the T-connector.



*NOTE: Any NMEA 2000 device (chart plotter, radar, GPS) can be connected to the T-connector.*



**IMPORTANT:** When more than one NMEA 2000 device is interfaced with a NMEA 2000 backbone, a 120k ohm termination resistor must be installed at each end of the NMEA backbone. The second 120k ohm termination resistor is not supplied with the kit. Obtain locally.



## MercMonitor Wire Harness Connections Non-SmartCraft Network

The use of the MercMonitor on a non-SmartCraft network application requires the MercMonitor gateway set to "Receive." Failure to set the gateway to "Receive" will cause numerous faults to appear that cannot be resolved. Changing the gateway to "Receive" will clear the faults. The menu path to set the gateway to "Receive" is: "Main Menu," > "Settings," > "Gateway," > "Gateway."

**IMPORTANT:** Do not allow electrical connections to flex. Fasten all electrical harnesses within 25 cm (10 in.) of the connection. Ensure all unused harness connectors are protected with weather caps.

1. Connect the wire harness to the MercMonitor.
2. Connect the NMEA power harness adapter to the wire harness connector.

**IMPORTANT:** The NMEA power harness adapter should be utilized when integrating the MercMonitor with a NMEA 2000/J1939 communication that does not have an existing NMEA 2000 backbone installed.

3. Connect the SmartCraft power harness adapter to the wire harness junction box connector.

**IMPORTANT:** The SmartCraft power harness adapter must be used to provide battery voltage and a key switch operated power to turn the MercMonitor on.

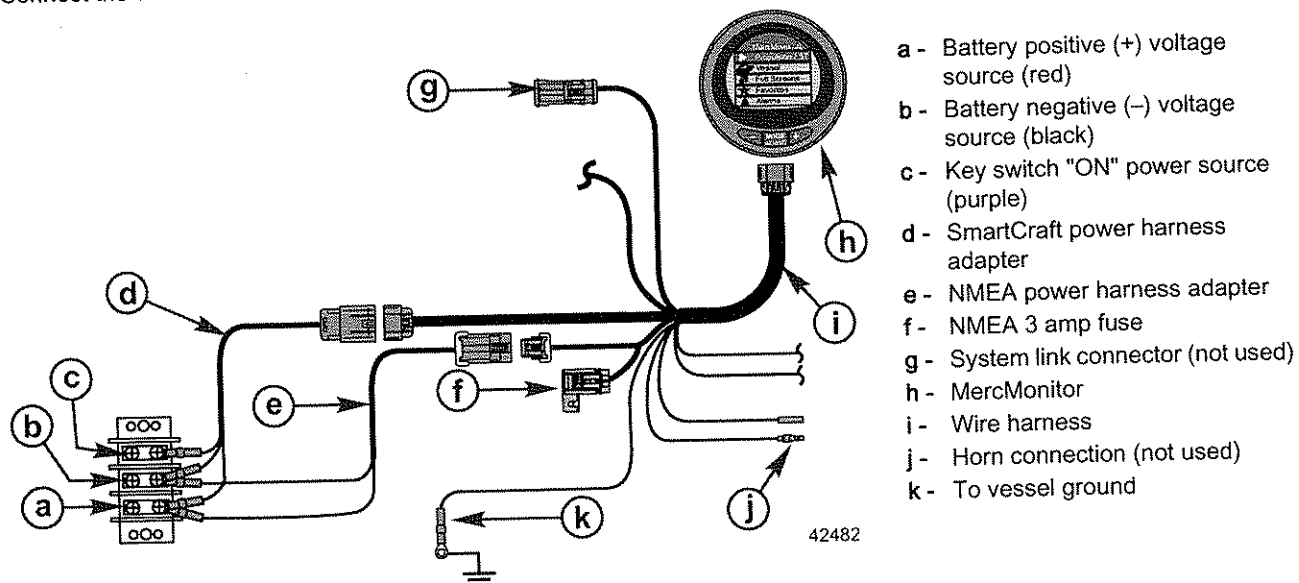
4. Secure the NMEA 3 amp fuse holder with a screw or retainer. Ensure the fuse holder is accessible.

**IMPORTANT:** The NMEA 3 amp fuse must be utilized when integrating the MercMonitor with a NMEA 2000/J1939 communication that does not have an existing NMEA 2000 backbone installed.

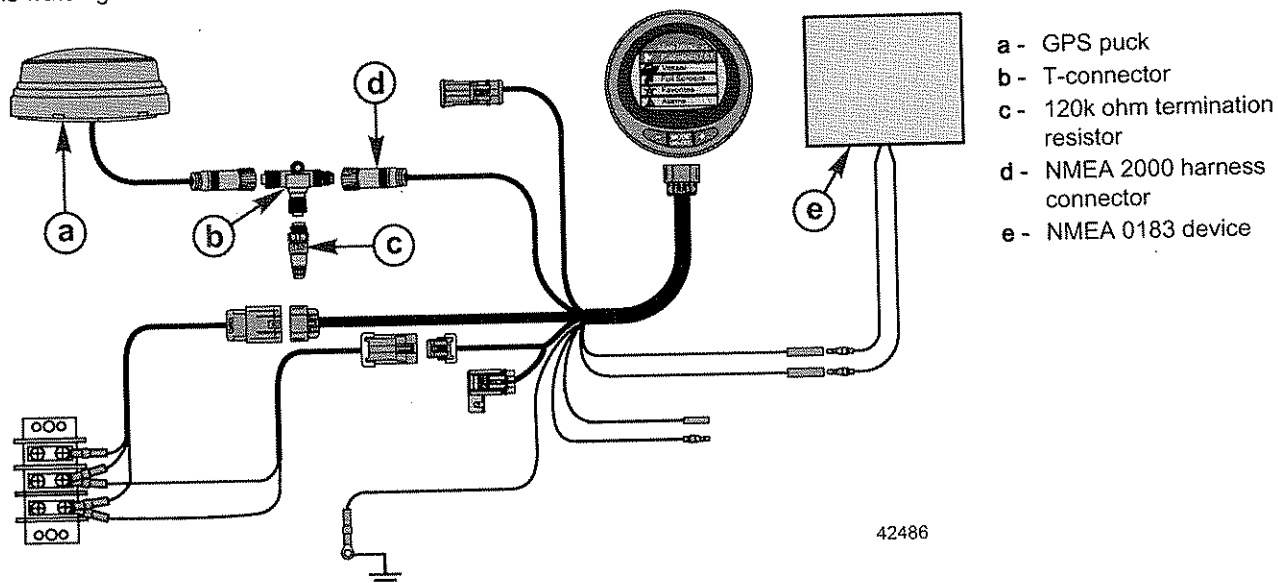
5. Connect the SmartCraft power harness adapter purple wire to a key switch "ON" power source.

# MERCMONITOR INSTALLATION INSTRUCTIONS

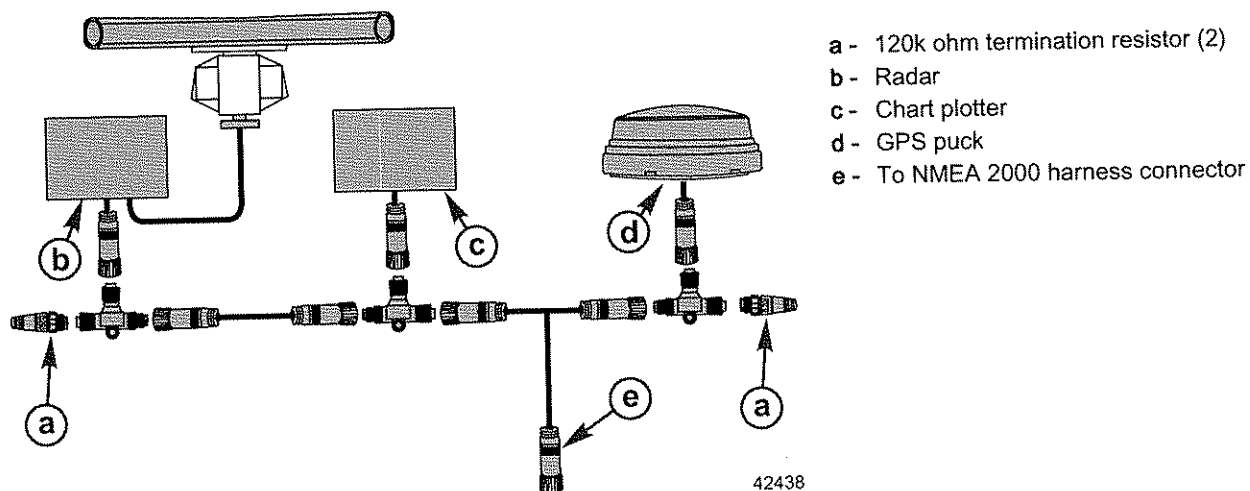
6. Connect the SmartCraft power harness adapter red and black wire, and the NMEA power harness adapter red and black wire to a battery voltage source.
7. Connect the wire harness black wire to a vessel ground.



8. Connect the NMEA 2000 T-connector to the wire harness NMEA 2000 harness connector.
9. Install the 120k ohm termination resistor onto the T-connector.
10. Connect a NMEA 2000 transceiver (chart plotter, radar, GPS) to the T-connector.
11. Connect the NMEA 0183 device (if applicable) to the wire harness blue/white and white/blue wires. Ensure the connection is watertight.



**IMPORTANT:** When more than one NMEA 2000 device is interfaced with a NMEA 2000 backbone, a 120k ohm termination resistor must be installed at each end of the NMEA backbone. The second 120k ohm termination resistor is not supplied with the kit. Obtain locally.



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W6250 Pioneer Road  
Fond du Lac, WI 54936-1939

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