10-Pin Blue Data Cable Overview

10-pin blue data cable architecture for SmartCraft first came out in 2001 and can be commonly identified by the blue cable and yellow resistors. This architecture contains the CAN-P SmartCraft network and carries data from an engine ECM/PCM to the helm. These blue cables are designed to plug into the 10-pin connector on the engine. Several ways to connect and properly build this network will be outlined in this section.

62470

10-pin connector on the engine

In 2006, all SmartCraft mechanical engines switched to a 14-pin style key switch harness connector. This new harness incorporated all the wires of the 10-pin blue cable which eliminated the need to route a separate blue cable in the boat. All SmartCraft engines have a 10-pin SmartCraft connector on the engine so 10-pin blue cable architecture can still be used on 14-pin engines.

Connecting 10-Pin SmartCraft Components

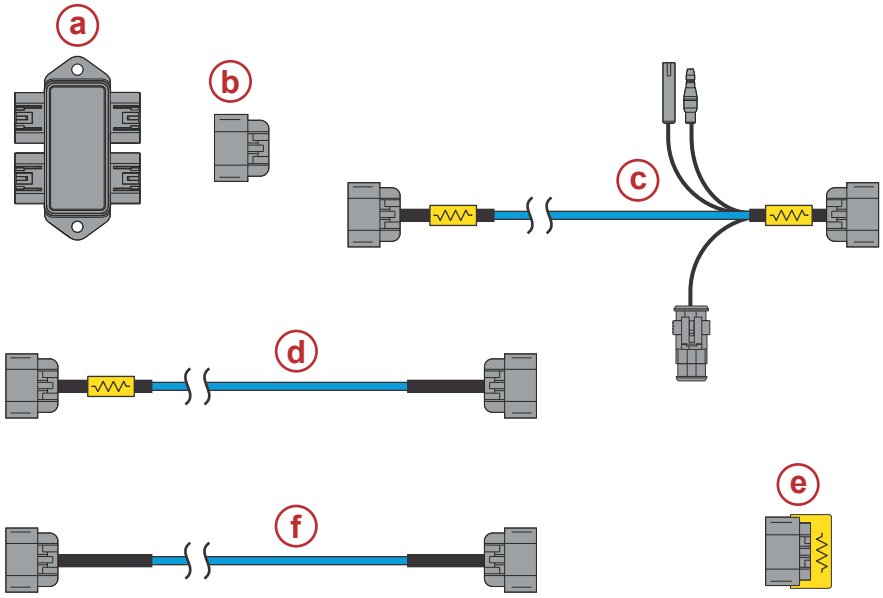
Install all SmartCraft equipment and accessories according to the instructions provided with each component.

Due to the variety of SmartCraft configurations, this manual cannot describe installation procedures for all configuration possibilities. Follow these general guidelines:

- Use two termination resistors in the system. Harnesses can be ordered with or without in-line resistors.
- If using a component harness with an in-line resistor, do not use a termination resistor at that end of the helm harness.
- If using junction boxes, place one box (4-, 6-, or 8-way as needed) at the helm for each engine.
- If making only one 10-pin SmartCraft connection at the helm use a 10-pin female-to-female adapter in place of a junction box.
- Locate the CAN-P (1) termination resistors at opposite ends of the CAN bus:
  - For single engine applications, use termination resistors at the engine and at the furthest helm.
  - For dual engine applications, use termination resistors at both engines.
  - For triple engine applications, use termination resistors at the STBD outer (1) engine and at the furthest helm.
  - For quad engine applications, use termination resistors at the STBD outer (1) engine and the PORT outer (2) engine.
- We recommend leaving at least one port free on each junction box for diagnostic work and future system modifications. Protect any unused junction box ports with weather caps.

10-Pin Blue Cable Architecture

Components

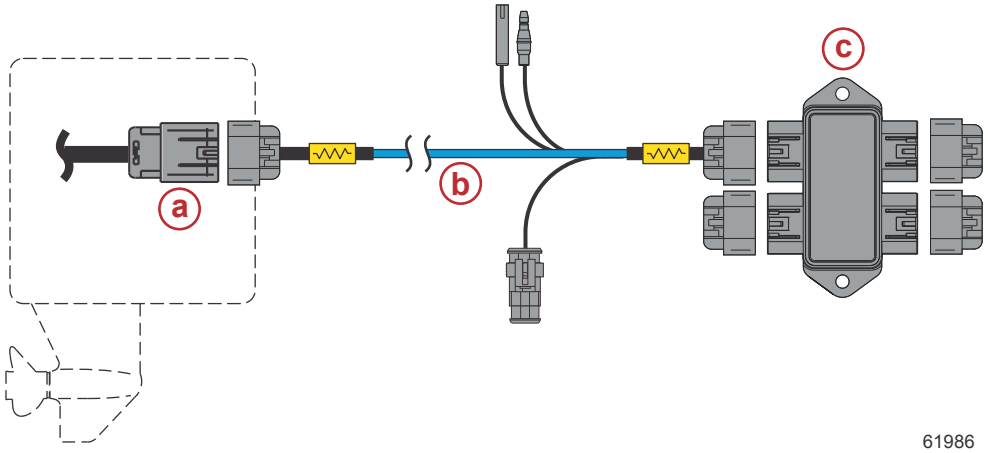


61988

- **a -** J-box, available in 4-, 6-, and 8-way configurations
- **b -** 10-pin J-box weather cap
- **c -** Blue CAN line with two resistors
- **d -** Blue CAN line with one resistor
- **e -** 120 ohm 10-pin yellow terminator
- **f -** Blue CAN line with no resistors

Single Engine

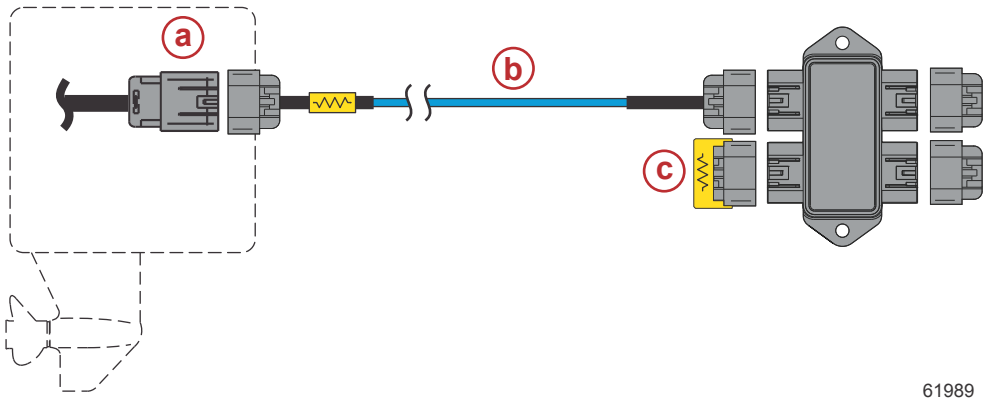
Single engine, 10-pin blue cable with CAN termination at the engine connection and at the J-box.



61986

- **a -** 10-pin connector on engine
- **b -** Blue CAN line with two resistors
- **c -** J-box

Single engine, 10-pin blue cable with CAN termination at the engine, and at the J-box with a 10-pin terminator.

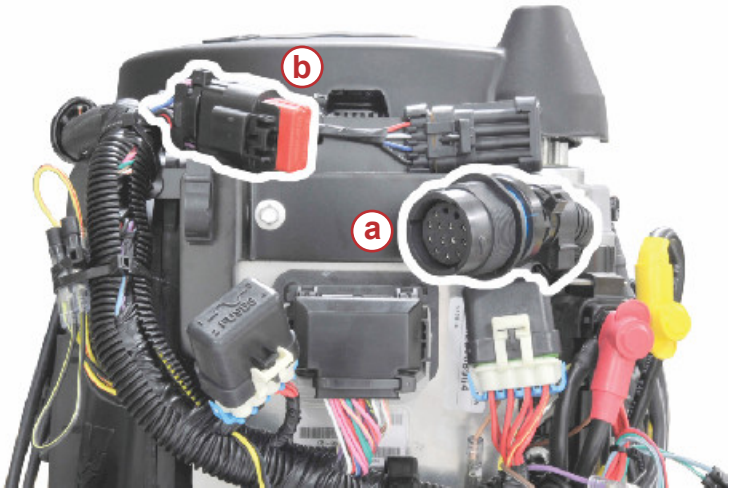


61989

- **a -** 10-pin connector on engine
- **b -** Blue CAN line with one resistor
- **c -** 120 ohm resistor at the J-box

14-Pin Helm Harness Overview

In 2006, all SmartCraft mechanical engines switched to a 14-pin style key switch harness connector. This new harness incorporated all the wires of the 10-pin blue cable which eliminated the need to route a separate blue cable in the boat. The 10-pin blue cable architecture can still be used on 14-pin engines but is typically not needed.



62473

a - 14-pin engine connector
b - 10-pin SmartCraft connector

The 14-pin mechanical key switch harness is sometimes referred to as Non-DTS rigging. This harness is on most 14-pin engines that use a mechanical throttle and shift cable. This rigging supports both analog and digital (SmartCraft) gauges. Each installation contains a single continuous CAN-P (1) bus, regardless of the number of engines or helms.

Starting Serial Numbers for 14-Pin Mechanical Engines

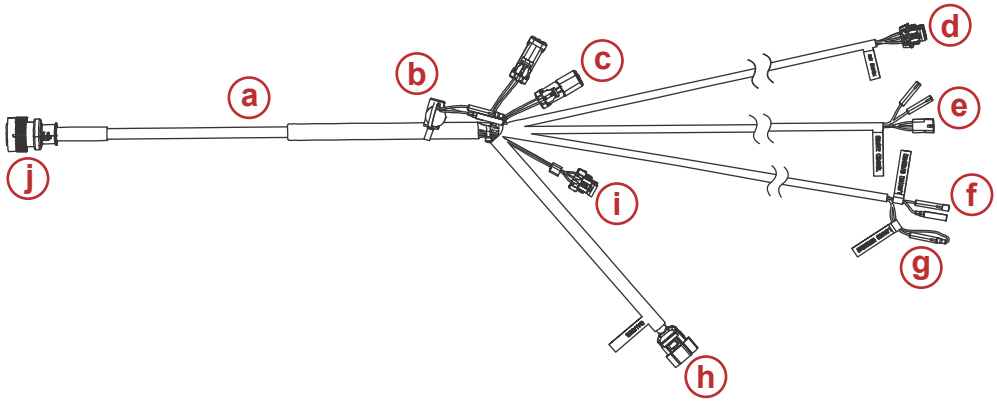
Product	Starting Serial Number
Outboard	1B228965
MerCruiser	0W600000

14-Pin Key Switch Harness

The 14-pin key switch harness connects helm station gauges and controls to the 14-pin data connector on the engine. The Control Area Network (CAN) component of the 14-pin key switch harness lets you configure and manage multiple engine and helm combinations. One key switch harness is used for each engine and helm pairing.

The CAN bus carries data and control information allowing it to be shared between all compatible devices connected to the network.

The CAN-P (1) circuit (blue & white wires) connect the engine to the helm stations and gauges. CAN-P (1) transmits engine data, such as temperatures, pressures, depth, speed, tank levels, and RPM to the gauges at the helm. Each installation contains a single continuous CAN-P (1) bus, regardless of the number of engines or helms.



62108

a - 14-pin helm harness
b - Audio warning attached buzzer
c - CAN-P termination resistor
d - Key switch connector
e - Remote control connections
- Neutral safety connectors
- Trim switch connector

f - Lanyard stop switch connectors—outboard
g - Lanyard stop switch connectors—MerCruiser
h - Gauge or junction box connector
i - Accessory power relay connector
j - 14-pin connector—to engine

14-pin Helm Harness

The 14-pin helm harness is available in various lengths to accommodate different running length requirements and the several possible engine and helm configurations. The harness connectors are labeled.

Audio Warning Attached Buzzer

The horn connector serves as a power package warning horn or buzzer. The PCM powers the circuit when certain power package fault codes are generated. The failure conditions that activate the warning horn can vary, depending on the MerCruiser, Mercury, or Cummins MerCruiser power package used.

CAN-P (1)

The CAN-P (1) connector provides access to the power package CAN bus, which carries engine and drive data to SmartCraft compatible instrument displays.

Key Switch Connector

The key switch connector attaches to either a three or four position key switches.

Remote Control Connections

This wiring provides electrical connections for the remote control's trim and neutral start circuits through the 14-pin data harness.

Lanyard Stop Switch Connectors

The lanyard stop switch bullet terminals accommodate both Mercury outboard and MerCruiser applications. For Mercury outboard applications the leads labeled "lanyard MerCruiser" are connected together and the leads labeled "lanyard outboard" are connected to the switch. For MerCruiser applications the leads labeled "lanyard outboard" are left disconnected and protected with weather caps and the leads labeled "lanyard MerCruiser" are connected to the switch.

Gauge or Junction Box Connection

This 10-pin connector connects SmartCraft compatible instruments and multiple-instrument and gauge wiring harnesses directly or through a SmartCraft junction box.

Each of the 14-pin harness component packages incorporate consistent wire color coding for each circuit.

Accessory Power Harness

The accessory power harness is optional and available separately. It provides an additional key-switch-controlled auxiliary power supply and carries up to a 40 amp load. The 10-pin connector provides a maximum of 15 amps of switched accessory power on its own.

IMPORTANT: If electrical loads exceed this limit, the 15 amp fuse will fail and the engine will not operate.

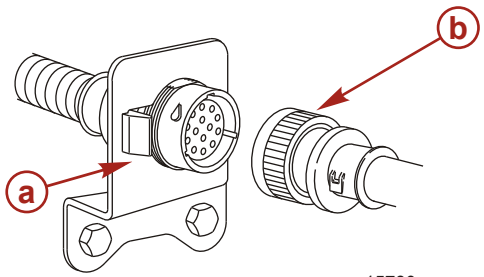
IMPORTANT: For MerCruiser installations, the lanyard stop switch is normally closed and opens the circuit to remove power from the PCM, stopping the engine. Therefore, the purple and purple/white wires must remain connected if a lanyard stop switch is not used or when installing an E-stop switch.

NOTE: *The E-stop switch is normally open and grounds the circuit to the PCM, stopping the engine. Therefore, the black and black/yellow wires must remain disconnected unless they are connected to an E-stop switch.*

14-Pin Data Harness Connection

Refer to **Mercury Precision Parts and Accessories Guide** or **OEM Rigging and Accessories Guide** for part number information.

1. Ensure that the 14-pin boat harness is the proper length for the application. Do not connect multiple 14-pin boat harness sections to adjust or increase harness length.
2. Properly route the 14-pin boat harness to the engine.
3. To connect the 14-pin boat harness to the 14-pin engine harness connector.
   a. Align the 14-pin connector keyways.
   b. Turn the boat harness connector collar clockwise until it locks.

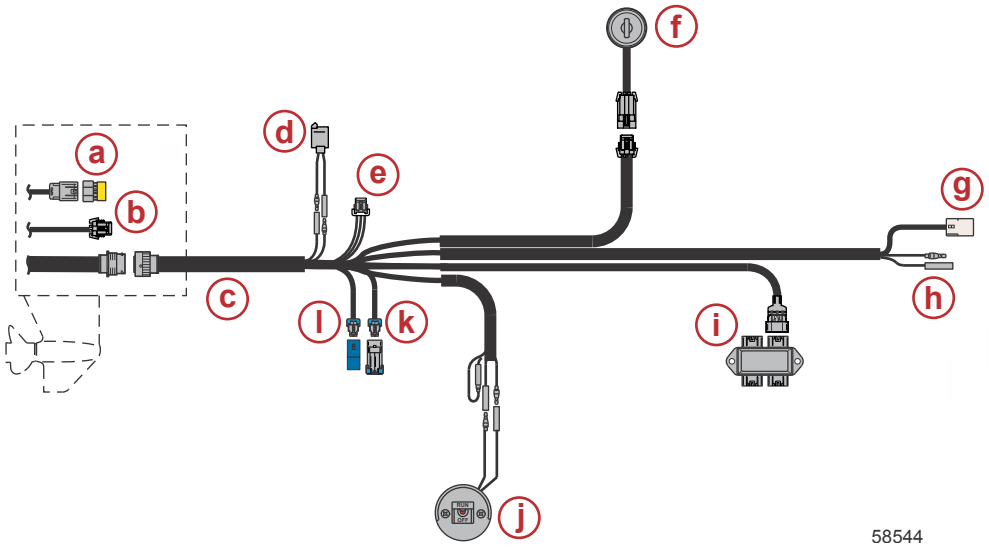


15780

a - Engine mounted 14-pin connector
b - 14-pin boat harness

14-Pin Mechanical Architecture

Single Engine with Single Helm The CAN bus is terminated by installing one termination resistor at the engine 10-pin CAN connector and one termination resistor at the helm harness 2-pin CAN-P (1) connector.



Single engine, single helm CAN termination

- **a -** 120 ohm resistor
- **b -** 6-pin SmartCraft boat harness connector
- **c -** 14-pin key switch harness
- **d -** Warning horn
- **e -** Accessory relay connection
- **f -** Key switch
- **g -** Trim connection
- **h -** Neutral safety switch connection
- **i -** 4-way junction box
- **j -** Lanyard stop switch
- **k -** CAN-V—not used
- **l -** CAN-P

Dual Engine with Single Helm The CAN bus is terminated by installing one termination resistor at each engine's 10-pin CAN connector. A CAN link harness will also be installed between the starboard and port helm harness's 2-pin CAN-P (1) connectors.