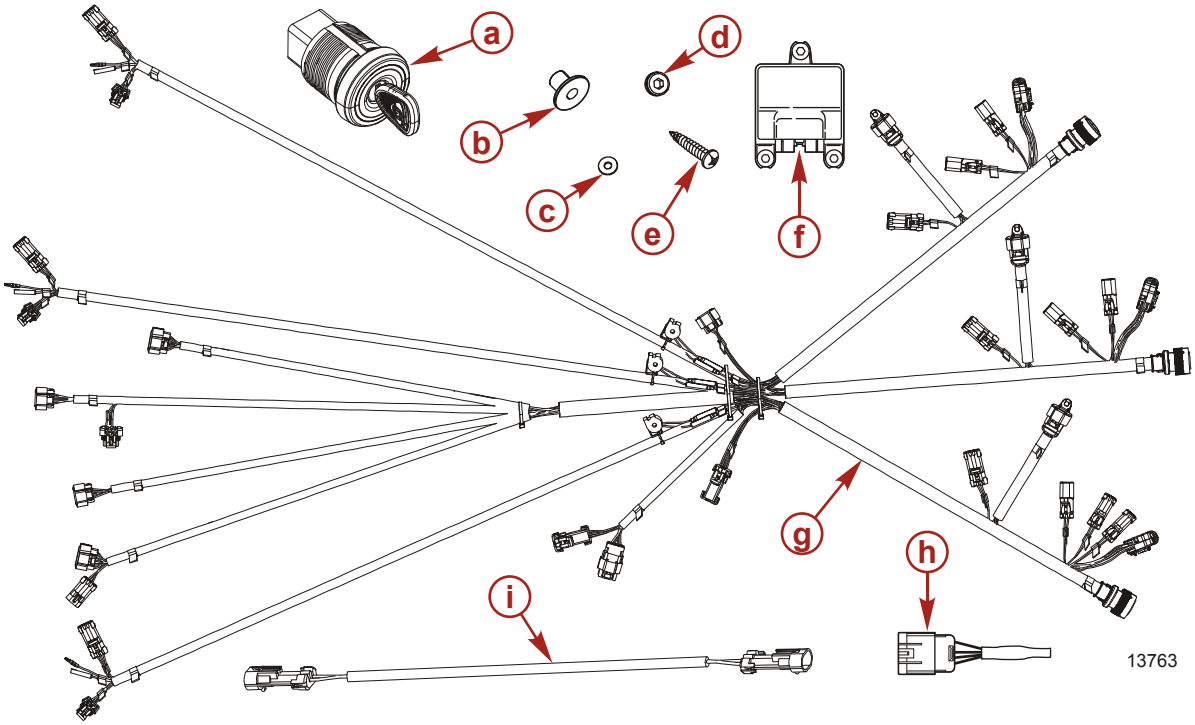
84-896377K01
DTS COMMAND MODULE KIT - TRIPLE ENGINE WITH SHADOW MODE

NOTICE
After completing installation, these instructions should be placed with the product for the owner's future use.

NOTICE
This document is written to aid our dealers, boatbuilders, and company service personnel in the proper installation or service of our products. Persons who are not familiar with these or similar products produced by Mercury Marine, and who have not been trained in the recommended servicing or installation procedures should 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 the installer or persons operating the product.

NOTICE
This Product Requires Electronic Calibration Before Use.
Installation of this product will require electronic calibration. This calibration must not be attempted by anyone other than the Original Equipment Manufacturer (OEM) or a Mercury technician trained in Digital Throttle and Shift systems (DTS) at an authorized Mercury dealership. Improper installation and calibration of the DTS product will result in a system which is inoperable or unsafe for use.

Components Contained in Kit



Ref.	Qty.	Description	Part Number
a	3	Key switch kit	893353A03
b	9	Bushing - Electrical plate	23-856954

Ref.	Qty.	Description	Part Number
c	9	Washer	12-40023 16
d	9	Grommet	25-834985
e	9	Screw	10-884543
f	3	Command module	891661T05
g	1	Command module harness assembly	84-896377A01
h	1	Resistor pack - #93	82-898091001
i	1	2 pin CAN link harness	84-893452A01

DTS Wiring Guidelines

⚠ WARNING

To avoid the possibility of serious injury or death from loss of boat control, do not splice or probe into any wire insulation of the DTS system. Splicing or probing will damage the wire insulation allowing water to enter the wiring. Water intrusion may lead to wiring failure and loss of throttle and shift control.

- Never attempt to connect, network, tie into, switch, and/or sink source voltage or current from the DTS wiring harnesses.
- Never attempt to connect any type of communication or navigation equipment into the DTS wiring harnessing other than at the designated connection point.
- Boat accessory equipment being installed must be connected to an appropriate power source such as a fuse panel or junction block.
- Never attempt to tap directly into any of the DTS electrical wiring harnesses for a source of power.

Wiring Guidelines for Electrical Boat Accessories

⚠ WARNING

To avoid the possibility of serious injury or death from loss of boat control, do not wire any electrical accessory into the 12 volt ignition key switch circuits of the DTS system. A voltage drop caused by an electrical accessory connected to the ignition key switch circuit may lead to loss of throttle and shift control.

IMPORTANT: Do not connect boat accessories to 12 volt or ignition key switch DTS circuits. Use a separate switched 12 volt source for wiring boat accessories.

The DTS system requires a consistent 12 volt power source. Splicing or connecting accessories to the 12 volt or ignition key switch DTS circuits (purple, purple/white, or red wires) could blow a fuse or overload circuits, causing intermittent or complete loss of operation.

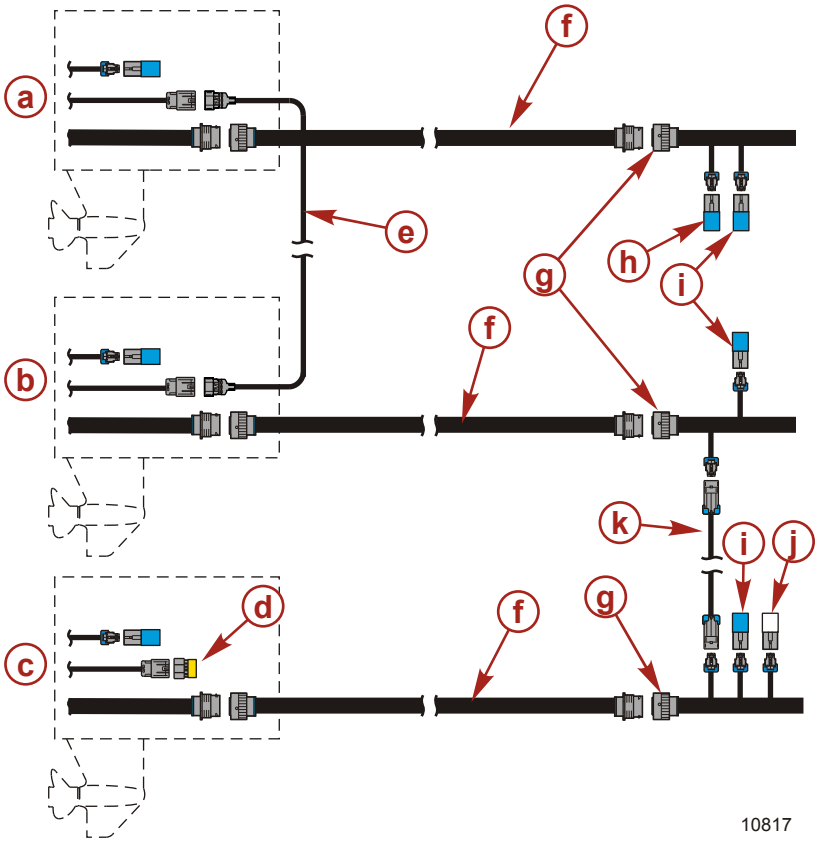
Harness Installation Guidelines

- Locate a routing path for the harness connections so they reach their installation points.
- Inspect the routing path to make sure surfaces are free of any sharp edges or burrs that could cut the harness.
- Fasten and support the harness with clamps or cable ties along the routing path. A clamp or cable tie must be used within 25.4 cm (10 in.) of any connection in a DTS system.
- Ensure all connections are tight and seal all unused connectors with weather caps.

Single Helm Installation Instructions

Single Helm Command Module Harness Installation

1. Connect the 14 pin Deutch connector marked "PORT" on the command module harness to the port engine 14 pin data harness.
2. Connect the 14 pin Deutch connector marked "CENTER" on the command module harness to the center engine 14 pin data harness.
3. Connect the 14 pin Deutch connector marked "STARBOARD" on the command module harness to the starboard engine 14 pin data harness.
4. Remove the CAN 1 terminator resistors from the port and center engines, and connect a 10 pin CAN link harness (84-896206T_) between the engines. Ensure the CAN 1 connector on the starboard engine has a terminator resistor installed.
5. Connect the 2 pin CAN link harness between the center and starboard command module harness CAN 1 connectors.
6. Ensure the port CAN 1 connector and all CAN 2 connectors have terminator resistors installed, and the CAN 3 connector is sealed with a weather cap.



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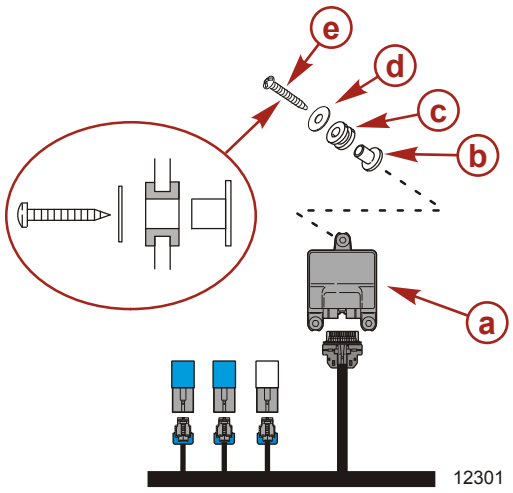
a - Port engine
b - Center engine
c - Starboard engine
d - Starboard engine CAN 1 connector - terminator resistor
e - 10 pin CAN link harness
f - 14 pin data harness
g - Command module harness
h - CAN 1 (blue and white) - terminator resistor
i - CAN 2 (brown and yellow) - terminator resistor
j - CAN 3 (orange and green) - weather cap
k - 2 pin CAN link harness

Command Module Installation

NOTE: *Ensure the sticker on the back of the command module states a software version of at least 070.*

1. Plug the command module connector into the command module.
2. To minimize vibration, mount the command module with the supplied rubber grommets/bushings according to the following guidelines:
   - Mount in an area that is accessible
   - Mount in an area where the wiring connections will not be stepped on or disturbed
   - Mount in an area that stays relatively dry
   - Fasten the command module harness to prevent flexing at the command module connection.

IMPORTANT: Avoid sharp bends in the cable. The minimum bend radius should be 7.6 cm (3 in.).

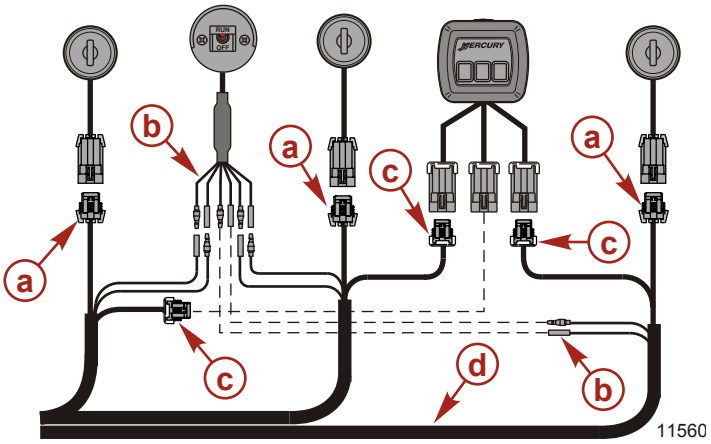


a - Command module
b - Bushing
c - Grommet
d - Washer
e - Screw

Key Switch Wiring Connections - Single Helm

1. Install the ignition key switches. Refer to the installation instructions which are provided with the key switch.

2. Connect the key switches to the harness as shown.



a - Ignition key switch connector
b - Lanyard stop switch connectors
c - Start/stop switch connector
d - Command module harness

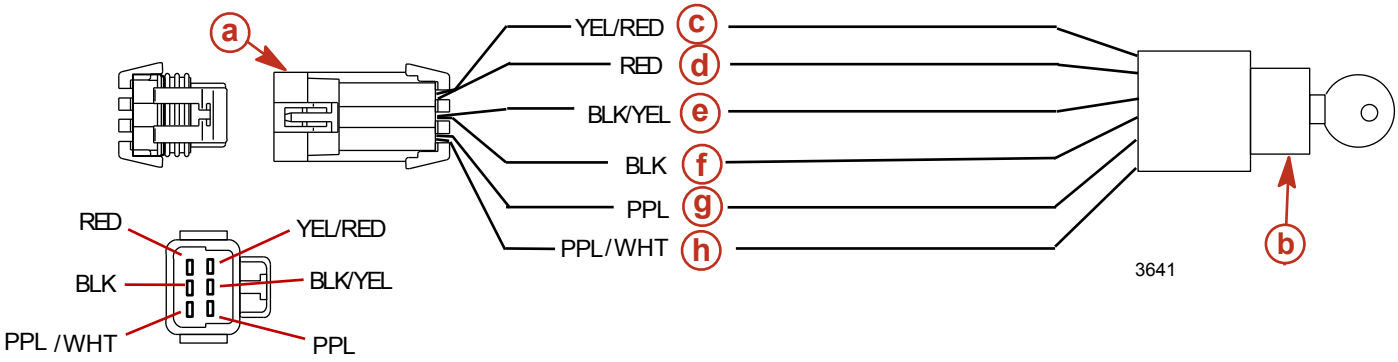
Wiring Instructions for Non-Mercury Marine Ignition Key Switch

NOTICE
Mercury Marine strongly recommends that boatbuilders and dealers use only Mercury Marine brand SmartCraft and DTS accessories. The throttle and shift functions on a boat are safety critical components. Mercury Marine validated the design and manufacture of the various SmartCraft and DTS accessories sold by Mercury Marine through an extensive product qualification testing protocol. Each of the Mercury Marine accessories for these systems has passed through that qualification process. It is not possible for Mercury Marine to test its systems with all of the accessories manufactured and sold by other entities. As a result, if a boatbuilder or dealer chooses to disregard the recommendation that only Mercury Marine accessories be used, the boatbuilder or dealer should adhere to specifications provided by Mercury Marine for all non-Mercury Marine components which interface with the Mercury Marine SmartCraft and/or DTS System. Documentation exhibiting compliance with these specifications should be submitted and approved by Mercury Marine prior to the finished product being released for sale. The Mercury Marine Limited Warranty does not provide coverage for damage caused by the use of accessories or parts not manufactured or sold by Mercury Marine.

⚠ CAUTION
Prevent unexpected engine start-up. Non-Mercury Marine ignition switches may allow sufficient current leakage to cause engine to start unexpectedly.

- The ignition key switch must comply with Mercury specifications for key switches and controller input switches (897741-5 or 897791-5). Switches that do not meet these specifications could leak current.

- Switches must contain an emergency stop circuit.



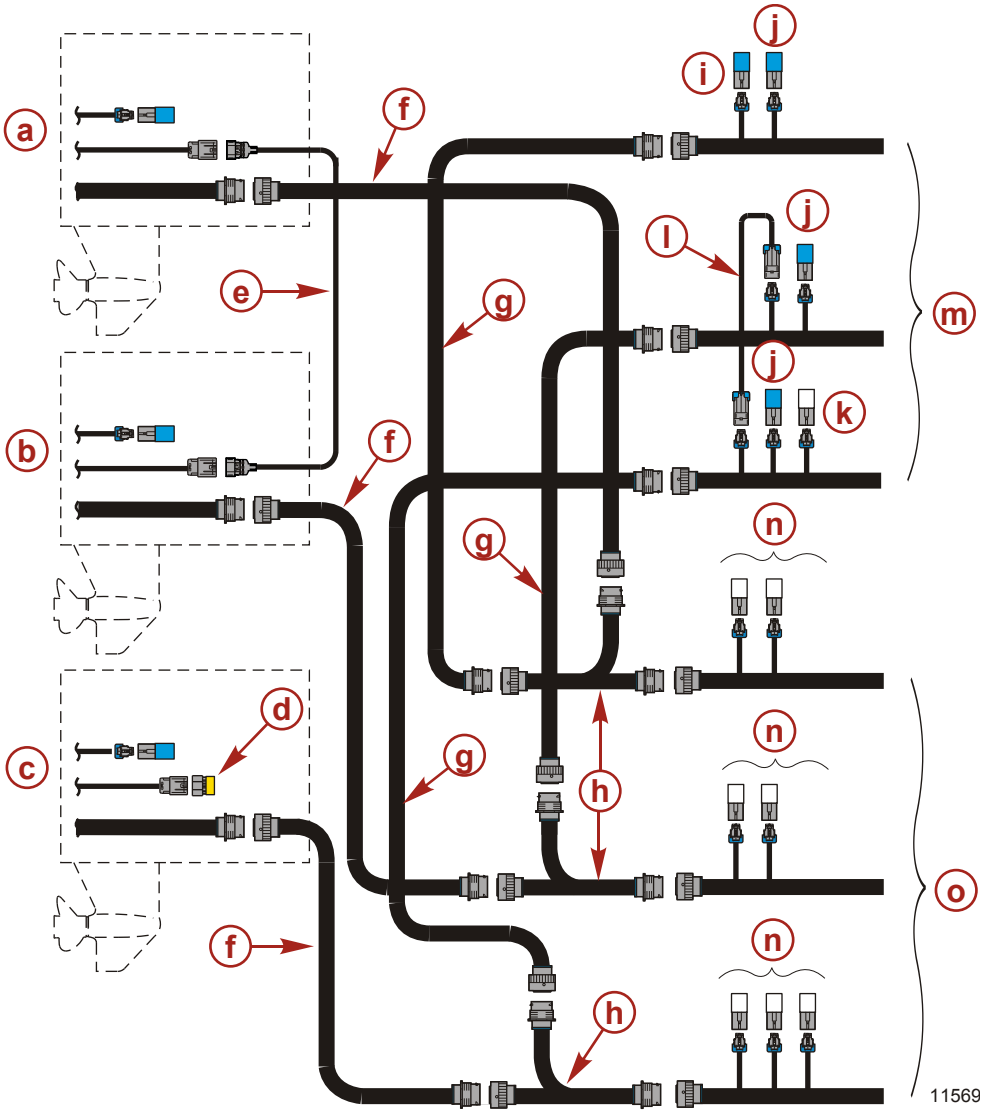
a - Connector - Packard Metripack 150 Series sealed (6 pin)
b - Ignition key switch
c - Crank
d - +12 volts
e - Lanyard stop
f - Ground
g - Run
h - Accessory

Dual Helm Installation Instructions

Dual Helm Command Module Harness Installation

1. Connect one dual helm Y adapter to each 14 pin data harness coming from the engine.
2. Remove the CAN 1 terminator resistors from the port and center engines, and connect a 10 pin CAN link harness (84-896206T_) between the engines. Ensure the CAN 1 connector on the starboard engine has a terminator resistor installed.
3. Connect the 14 pin Deutch connector marked "PORT" on the helm 1 command module harness to the port engine dual helm Y adapter.
4. Connect the 14 pin Deutch connector marked "CENTER" on the helm 1 command module harness to the center engine dual helm Y adapter.
5. Connect the 14 pin Deutch connector marked "STARBOARD" on the helm 1 command module harness to the starboard engine dual helm Y adapter.
6. Remove the CAN 1 and CAN 2 terminator resistors from the helm 1 command module harness. Seal the unused connectors with weather caps.
7. Connect the "ENGINE" end of a second data harness to each dual helm Y adapter, and route the data harnesses to the second helm.
8. Connect the 14 pin Deutch connector marked "PORT" on the helm 2 command module harness to the port engine data harness.
9. Connect the 14 pin Deutch connector marked "CENTER" on the helm 2 command module harness to the center engine data harness.
10. Connect the 14 pin Deutch connector marked "STARBOARD" on the helm 2 command module harness to the starboard engine data harness.
11. Connect the 2 pin CAN link harness between the center and starboard command module harness CAN 1 connectors at helm 2.

12. Ensure the port CAN 1 connector and all CAN 2 connectors at helm 2 have terminator resistors installed, and the CAN 3 connector is sealed with a weather cap.



a - Port engine
b - Center engine
c - Starboard engine
d - Starboard engine CAN 1 connector - terminator resistor
e - 10 pin CAN link harness
f - 14 pin data harness (from engine)
g - 14 pin data harness (routed to helm 2)
h - Dual helm Y adapter
i - CAN 1 (blue and white) - terminator resistor
j - CAN 2 (brown and yellow) - terminator resistor
k - CAN 3 (orange and green) - weather cap
l - 2 pin CAN link harness
m - Helm 2 command module harness
n - Helm 1 CAN connectors (weather caps)
o - Helm 1 command module harness

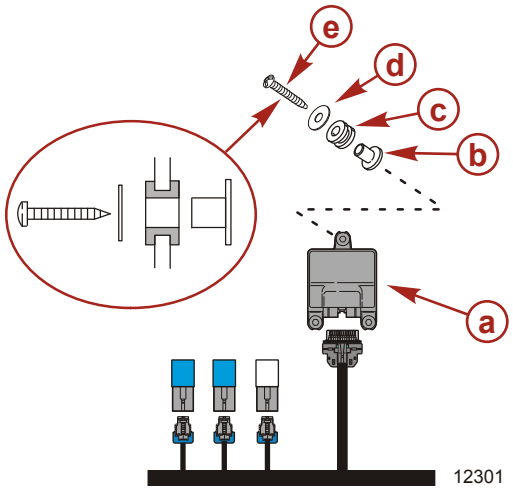
Command Module Installation

NOTE: *Ensure the sticker on the back of the command module states a software version of at least 070.*

1. Plug the command module connector into the command module.

2. To minimize vibration, mount the command module with the supplied rubber grommets/bushings according to the following guidelines:
   - Mount in an area that is accessible
   - Mount in an area where the wiring connections will not be stepped on or disturbed
   - Mount in an area that stays relatively dry
   - Fasten the command module harness to prevent flexing at the command module connection.

IMPORTANT: Avoid sharp bends in the cable. The minimum bend radius should be 7.6 cm (3 in.).

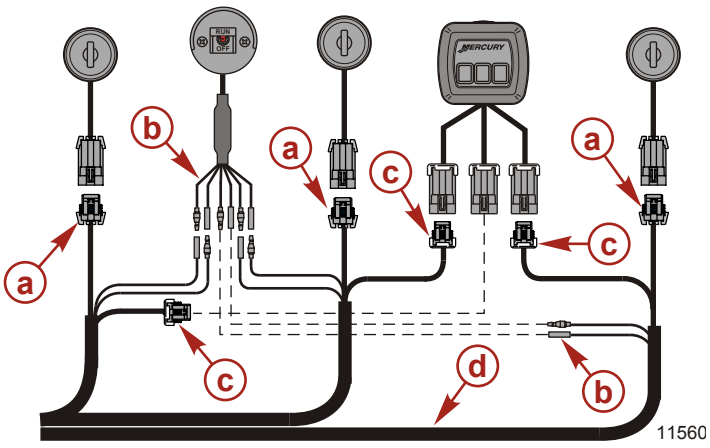


a - Command module
b - Bushing
c - Grommet
d - Washer
e - Screw

Key Switch Wiring Connections - Dual Helm

IMPORTANT: Ignition key switches are not used at helm 2. Install a start/stop switch at helm 2.

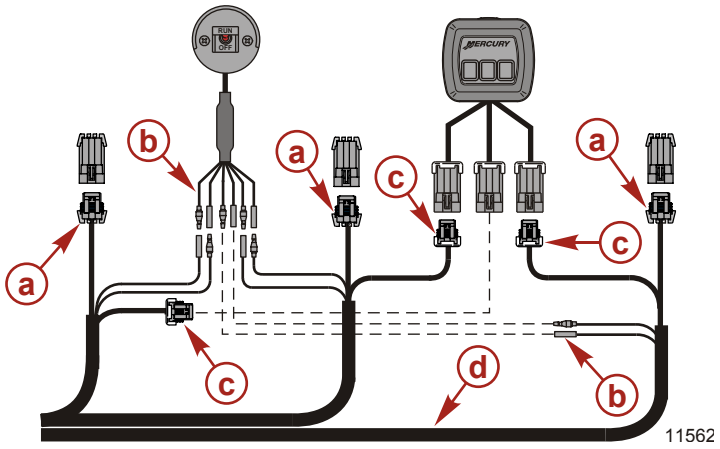
1. Install the ignition key switches at helm 1. Refer to the installation instructions which are provided with the key switch.
2. Connect the key switches to the harness as shown.



Helm 1

a - Ignition key switch connector
b - Lanyard stop switch connectors
c - Start/stop switch connector
d - Command module harness

3. Seal key switch connectors at helm 2 with weather caps.
4. Install a start/stop switch at helm 2. Refer to installation instructions which are provided with the start/stop switch.



Helm 2

a - Ignition key switch connection - not used
b - Lanyard stop switch connectors
c - Start/stop switch connector
d - Command module harness

Wiring Instructions for Non-Mercury Marine Ignition Key Switch

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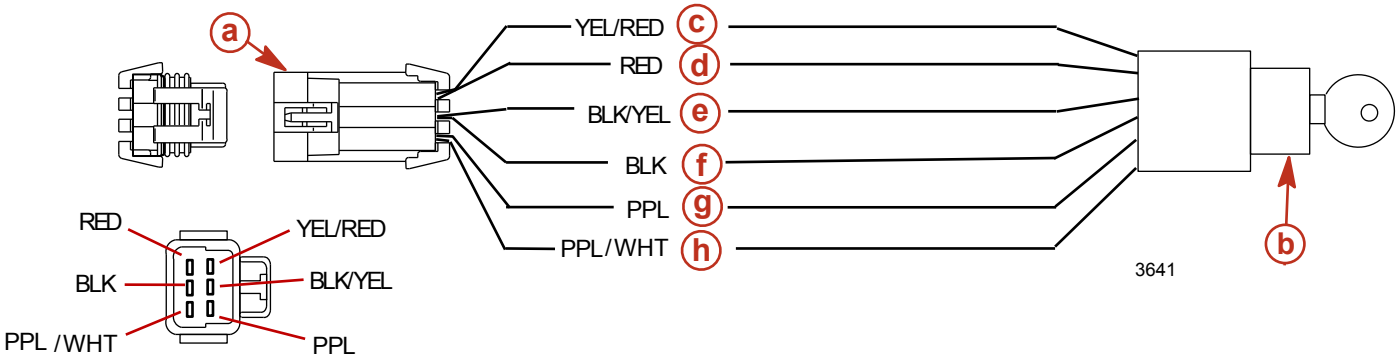
⚠ CAUTION
Prevent unexpected engine start-up. Non-Mercury Marine ignition switches may allow sufficient current leakage to cause engine to start unexpectedly.

- The ignition key switch must comply with Mercury specifications for key switches and controller input switches (897741-5 or 897791-5). Switches that do not meet these specifications could leak current.

- Switches must contain an emergency stop circuit.



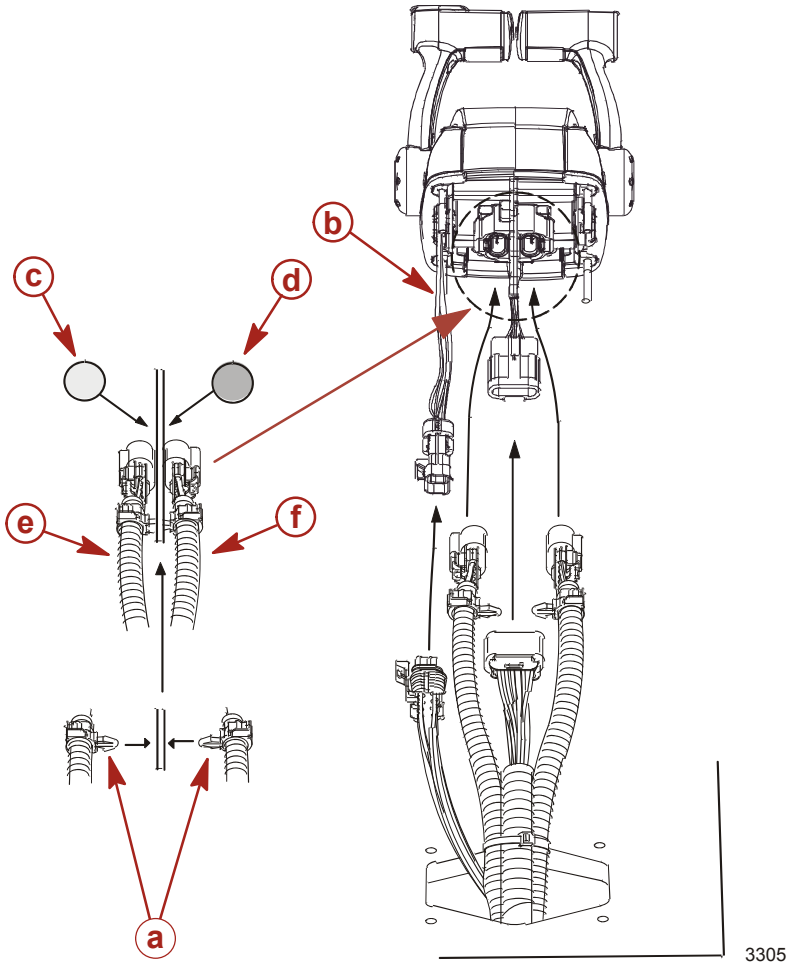
a - Connector - Packard Metripack 150 Series sealed (6 pin)
b - Ignition key switch
c - Crank
d - +12 volts
e - Lanyard stop
f - Ground
g - Run
h - Accessory

Shadow Mode Control Wiring Connections

NOTE: *The trim switch on the shadow mode control is used to trim all engines at once. To trim engines individually, a dash mounted trim switch must be used.*

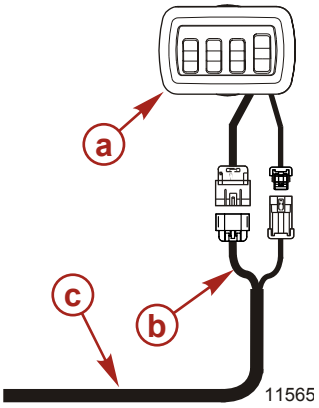
1. Connect the trackpad harness.
2. Connect lever 1 harness to the remote control starboard engine potentiometer. The starboard engine potentiometer should be identified with a blue dot.
3. Connect lever 2 harness to the remote control port engine potentiometer. The port engine potentiometer should be identified with a yellow dot.
4. Connect the handle trim harness.

IMPORTANT: Allow slack in the handle trim harness. Harness will flex and move during control handle movement.



a - Bayonet ends
b - Handle trim harness
c - Yellow dot
d - Blue dot
e - Lever 2 harness
f - Lever 1 harness

5. Connect the dash mount trim harness.



a - Dash mounted trim switch
b - Trim connectors
c - Command module harness

Shadow Mode Resistor Pack Configuration

Each command module has it's own location within the DTS System. These command module locations have a unique ID number for each helm; also known as a city ID. In a shadow mode application, only the starboard outer and port outer engines have a physical helm location. Adding a resistor pack imitates a helm location for the center engines. A resistor pack is required for each additional helm location when configuring a shadow mode control.

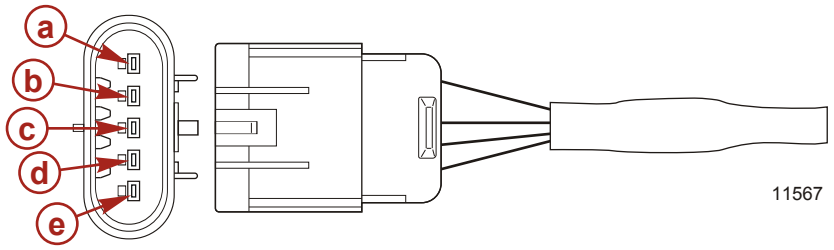
The shadow mode command module harness has a resistor pack pre-installed on the harness. The number of the resistor pack needed will change depending on the engine/ helm configuration. Ensure each command module harness has the the correct resistor pack installed at each helm location.

NOTE: *The resistor pack included with the command module harness is for a typical triple engine/single helm application (#93). In a multiple helm or quad engine application, the resistor must be removed and the correct value installed.*

NOTE: *The following chart shows the city ID's for each command module location. The resistor number needed will match the engine/helm city ID.*

DTS Command Module City ID's				
	Port Outer	Port Inner	Starboard Inner	Starboard Outer
Helm 1	92	94	93	91
Helm 2	96	98	97	95

Shadow Mode Resistor Pack Test

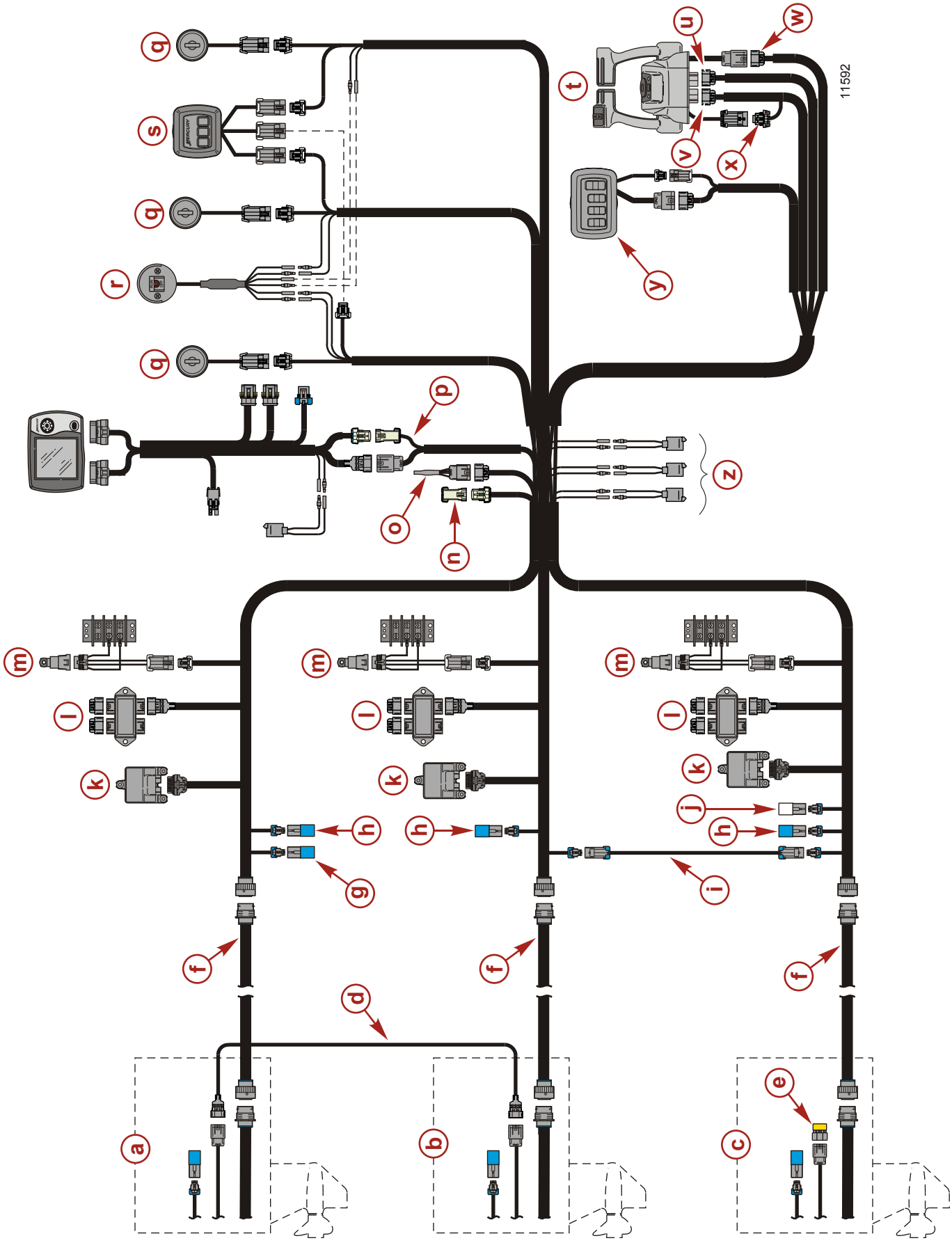


a - Purple/yellow - 5 volt transducer power
b - Not used
c - Pink/orange - Incrementing input
d - Green/blue - Decrementing input
e - Black/orange - Transducer ground

Resistor Number	Helm Location	Resistance Value (Ω)		Part Number
		Pins "a" to "c"	Pins "d" to "e"	
93	Helm 1 - Starboard Inner	22K	1K	82-898091001
94	Helm 1 - Port Inner	22K	2K	82-898091002
97	Helm 2 - Starboard Inner	22K	3.3K	82-898091003
98	Helm 2 - Port Inner	18K	4020	82-898091004

Notes:

DTS Triple Engine Shadow Mode Control Wiring - Single Helm



a - Port engine
b - Starboard inner engine
c - Starboard outer engine
d - 10 pin CAN link harness
e - CAN 1 connector - terminator
f - 14 pin data harness
g - CAN 1 (blue and white) - terminator resistor
h - CAN 2 (brown and yellow) - terminator resistor
i - 2 pin CAN link harness
j - CAN 3 (orange and green) - weather cap
k - Command module
l - Junction box
m - Accessory power relay
n - For future use
o - Resistor pack (#93)
p - Gauge connectors
q - Ignition key switch
r - Lanyard stop switch
s - Start/stop switch
t - Shadow mode control
u - Lever 1 connector
v - Lever 2 connector
w - Trackpad connector
x - Handle trim connector
y - Dash mounted trim switch
z - Warning horns

Products of Mercury Marine
W6250 Pioneer Road
Fond du Lac, WI 54936-1939