



**MERCURY**<sup>®</sup>

8M0120820 616 eng



**Operation and Installation  
Manual**

**Active Trim**

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## Welcome

You have selected one of the finest marine power accessories available. It incorporates numerous design features to ensure operating ease and durability.

This manual contains specific instructions for using and maintaining your product. We suggest that this manual remain with the product for ready reference whenever you are on the water.

Thank you for purchasing one of our products. We sincerely hope your boating will be pleasant!

Mercury Marine, Fond du Lac, Wisconsin, U.S.A.

## Read This Manual Thoroughly

**IMPORTANT: If you do not understand any portion of this manual, contact your dealer. Your dealer can also provide a demonstration of operating procedures.**

## Warranty Information

Mercury Precision parts and accessories have a standard limited warranty of one year.

Mercury gauges, controls, and rigging components—if installed on the boat at the same time as the engine—will have a standard limited warranty equal to that of the engine (if built after 5/1/2007). If purchased separately, Mercury gauges, controls, and rigging components will have a standard limited warranty of one year.

For details concerning the one year Mercury Precision, SmartCraft, and Quicksilver Part and Accessories Limited Warranty, refer to the **Mercury Precision Parts Accessories Guide** or contact your local authorized Mercury Marine dealer.

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## Important Information

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Electrical Safety Requirements.....	1
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## Operation

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Introduction to Active Trim.....	2
Active Trim Keypad.....	3
Active Trim Operation.....	4
Adjustable Profiles.....	5
Selecting the Correct Profile.....	6

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## Troubleshooting

---

Red Status Light Fault Codes.....	9
-----------------------------------	---

---

## Owner Service Assistance

---

Service Assistance.....	10
-------------------------	----

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## Installation

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Active Trim Kit Contents.....	12
Installation Notes.....	15
Keypad Installation.....	16
Vessel Control Module (VCM) Installation.....	17
Harness Connections.....	18
Trim Profiles Overview.....	32
Setup and Configuration.....	33
CDS G3 Setup.....	35
Templates.....	37



# IMPORTANT INFORMATION

## Electrical Safety Requirements

### ⚠ WARNING

This unit has not been assessed as a safety component and is not to be relied upon as a safety device.

### SPECIFICATIONS

**IMPORTANT:** Always refer to the Operation and Maintenance manual included with each engine for fuse holder location, fuse rating, and electrical system overload protection.

This equipment is only intended for connection to 9–16 VDC, low voltage, electrical systems of boats or similar marine vessels. Do not connect this equipment to any circuit rated in excess of 16 VAC (RMS), 22.6 VPK, or 35 VDC, and only connect to boat electrical systems powered by batteries or alternators or otherwise only to circuits separated from main voltages by at least double or reinforced insulation.

This product must not be installed in a manner inconsistent with the recommended procedures set forth in the installation instructions included herein. Improper removal or installation of the product can cause injury or damage to the vessel or engine components.

### BATTERY INSTALLATION

Always refer to the installation manual included with each engine for battery specifications and battery installation procedures.

Electrical rating	9–16 VDC	
Maximum fuse size	Mechanical: 15 A	DTS: 5 A
Maximum rate input current	300 mA	
IP rating	IP4X	

Environmental conditions	Altitude	< 3000 m (9842 ft)
	Operating temperature	–20–60 °C (–4–140 °F)
	Overvoltage	Category 1
	For use in pollution degree 4 (outdoor use)	
IP rating	IP4X	

# OPERATION

## Introduction to Active Trim

Active Trim is Mercury Marine's patented GPS-based automatic trim system. This intuitive, hands-free system continually adjusts engine or drive trim for changes in operating conditions to improve performance, fuel economy, and ease of operation. It responds to boat maneuvers with precision and delivers a better overall driving experience. No knowledge of trimming an engine or drive is needed to take advantage of Active Trim.

- As the boat accelerates, the engine or drive will trim out.
- As the boat decelerates, for example, while making a turn, the engine or drive will trim in.
- Active Trim can be overridden at anytime by using the regular, manual trim buttons.
- Active Trim allows the boat operator to compensate for changes in boat load, driver preferences, and weather conditions while maintaining full automatic control.

## HOW IT WORKS

The Active Trim system has four modes of operation:



### 1. Idle Speeds

Maintains the existing trim position.



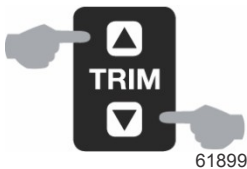
### 2. Acceleration (hole shot)

Tucks the engine or drive under to minimize bow rise and improve time-to-plane.



### 3. Planing Speeds

Progressively trims the engine or drive based on GPS speed to maintain the most efficient running attitude.



### 4. Override

When the boat operator uses manual trim, the Active Trim system is immediately overridden, returning full control to the operator.

At boat startup, Active Trim resumes the on/off state from the previous shut down. For example, if Active Trim was on at the previous shut down, it will be on at the next startup.



# OPERATION

## BUILT-IN GPS

This device includes a built-in GPS antenna used to determine vessel speed. The GPS has three start-up modes:

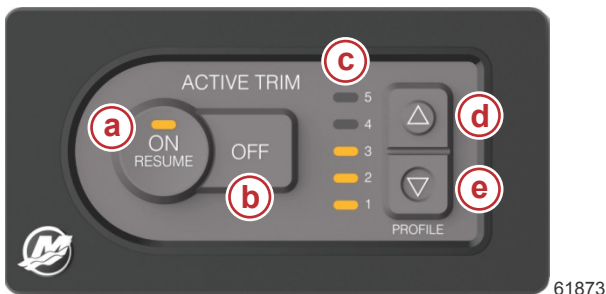
- Cold Start - If vessel battery power was turned off (using a battery switch), GPS will take 30–60 seconds to acquire a signal.
- Warm Start - If vessel battery power has been maintained since last shutdown, GPS will acquire a signal in approximately 30 seconds.
- Hot Start - If the vessel has been keyed off for less than eight hours, the GPS will acquire a signal in less than 10 seconds.

The Active Trim system will not automatically control trim until the GPS unit has acquired a signal. The system status light flashing red may indicate that no GPS signal has been acquired.

## Active Trim Keypad

***NOTE:** Refer to the engine's Operation and Maintenance manual for important information about the product's starting procedure and the standard power trim system before attempting to operate the Active Trim system.*

The relative angle of the boat bottom to the water when the vessel is on plane affects acceleration, top speed, fuel economy, handling, and operation in rough or choppy water.



- a** - **ON/RESUME** button and system status light
- b** - **OFF** button
- c** - Trim profile indicator: Indicates the adjustable profile currently engaged. If any of these lights are flashing, the system is in setup mode (refer to **Setup and Configuration**).
- d** - Trim profile adjust **Up Arrow**: Changes the adjustable trim profile to a more aggressive trim curve (more trim angle at a lower boat speed).
- e** - Trim profile adjust **Down Arrow**: Changes the adjustable trim profile to a less aggressive trim curve (less trim angle at a lower boat speed).

# OPERATION

## SYSTEM STATUS LIGHT



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- A constant amber light indicates that the system is working normally.
- A flashing amber light indicates that the Active Trim system is not controlling trim (user override). Press the ON/RESUME button to resume Active Trim control.
- A flashing red light indicates a problem with the system. Refer to **Troubleshooting**.

## Active Trim Operation

- Active Trim automatically controls trim to maintain the optimum engine or drive position based on engine RPM and boat speed.
- Active Trim progressively trims out the engine or drive to maintain an efficient running attitude.
- The operator can always override the Active Trim system with the panel mounted or control handle trim position switch. A flashing amber light on the **ON/RESUME** button indicates that an override has occurred. Press the **ON/RESUME** button to resume Active Trim operation.
- Active Trim will maintain the last known trim position when operating at speeds in excess of 80 km/h (50 mph).
- Operation above 80 km/h (50 mph) may require trim adjustments using the panel mounted or control handle trim position switch.
- Active Trim will gradually return the engine or drive to the down position during deceleration.
- Active Trim will only function when the engine or drive is in the normal trim range. Refer to **Trailer Position and Active Trim**.

**NOTE:** When paired with a SmartCraft gauge with an available ECO mode screen, the Active Trim system will override any ECO mode request.

## RESUME FUNCTIONALITY

If the boat operator overrides the Active Trim system at planing speeds using the trim button, or exceeds 80 km/h (50 mph), the system will stop controlling the trim. Active Trim will resume automatically under the following conditions:

- Override occurred above 80 km/h (50 mph) and the boat operator then decelerates to below 80 km/h (50 mph).
- Override occurred above 80% of the rated engine RPM and the boat operator then decelerates to below 80% of the rated engine RPM.
- Override occurred in the cruising speed range and then the boat operator decelerates to idle. Active Trim will become active on the next acceleration.

# OPERATION

## SHALLOW WATER OPERATION

Active Trim cannot detect water depth and will not trim up automatically in shallow water. The boat operator will need to override Active Trim by trimming the engine or drive manually or pressing the OFF button.

## TRAILER POSITION AND ACTIVE TRIM

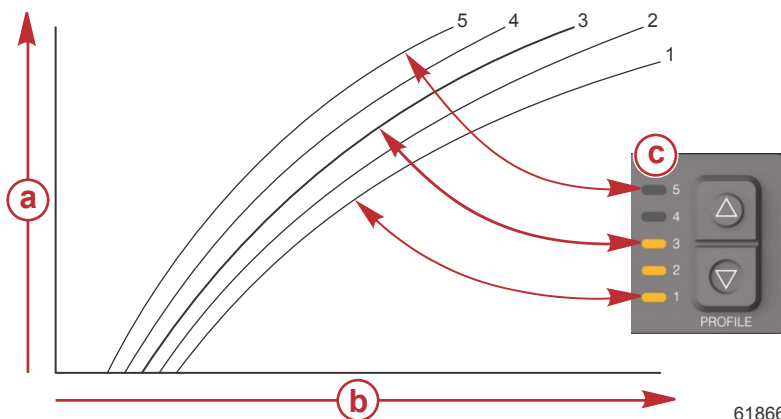
Placing the engine or drive in trailer position (over 50% of the adapted trim range) will prevent Active Trim from engaging. Any time the engine or drive is trimmed above its normal range—to navigate shallow water, launch the boat from a trailer, or load the boat onto a trailer, for example—you must manually trim down before Active Trim will function. This safety feature is meant to prevent the engine or drive from automatically trimming down and hitting something.

If the engine or drive is trimmed beyond its normal range and the vessel speed is over 8 km/h (5 mph), the **ON/RESUME** light will flash, indicating that Active Trim will not engage until the engine or drive is manually trimmed down. After the engine or drive has been trimmed back down, automatic control can be resumed by pressing the On/Resume button.

## Adjustable Profiles

### ADJUSTABLE PROFILE CURVES

There are five adjustable profiles available to the operator. The following graph illustrates how the five profiles vary the rate at which the Active Trim system increases the trim angle as the boat speed increases.



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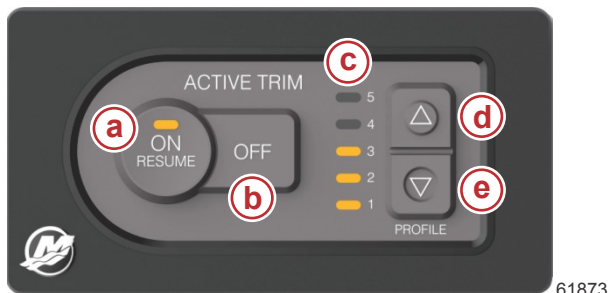
**Example trim profile levels; actual curves will vary**

- a** - Trim angle (percentage)
- b** - Boat speed
- c** - Trim profile indicator on Active Trim keypad

# OPERATION

## TRIM PROFILE ADJUSTMENT

Use the Active Trim keypad **Up Arrow** and **Down Arrow** buttons to adjust the selected profile to the most efficient running attitude to compensate for changes in boat loading (passenger or gear distribution, changes in ballast or fuel tank levels), weather, propping, and operator preference.



- a** - **ON/RESUME** button and system status light
- b** - **OFF** button
- c** - Trim profile indicator: Indicates the adjustable profile currently engaged.
- d** - Trim profile adjust **Up Arrow**: Changes the adjustable trim profile to a more aggressive trim curve (more trim angle at a lower boat speed).
- e** - Trim profile adjust **Down Arrow**: Changes the adjustable trim profile to a less aggressive trim curve (less trim angle at a lower boat speed).

When you press either the up or down arrow, you are selecting a different trim curve. This means that Active Trim will use different trim angles throughout the entire range of operation. This is not the same thing as manually adjusting the trim (override).

**NOTE:** *The boatbuilder or dealer should have configured the Active Trim system for optimal performance for your boat and power package combination. The five adjustable trim profiles should provide enough latitude to compensate for changes in environmental conditions or boat loading. If the five adjustable trim profiles are not adequate, Active Trim can be reconfigured to a different major trim profile. Changing the major trim profile will provide a different range of adjustable trim profiles. Refer to **Setup and Configuration**, in the **Installation** section of this manual.*

## Selecting the Correct Profile

With so many available trim profiles, it can be difficult to determine which profile is the correct one. In making this determination, it is important to understand what trim is, how it affects boat operation, and how boat loading can influence the required trim angle. Armed with a clear understanding of these concepts, selecting the correct trim profile becomes simple.

# OPERATION

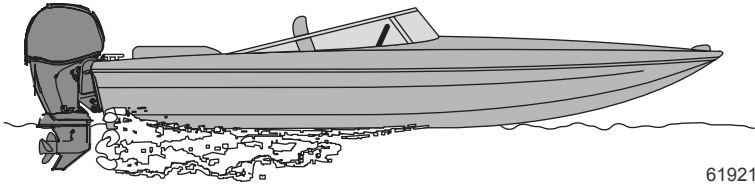
## WHAT TRIM IS

The trim angle of an outboard or sterndrive is the angle between the boat bottom and the propeller shaft formed by moving the engine or sterndrive closer to the boat transom. This movement is called trimming in or down. Moving the engine or sterndrive further away from the transom is called trimming out or up. When a boat is cruising on plane and the trim is adjusted so that the propeller shaft is parallel to the surface of the water, that is said to be running at zero trim.

The term "trim" is generally used when referring to adjusting the outboard or sterndrive within the first 20° range of travel. This is the range used while operating your boat on plane. The term "tilt" is generally used when referring to adjusting the outboard or sterndrive further up or out of the water.

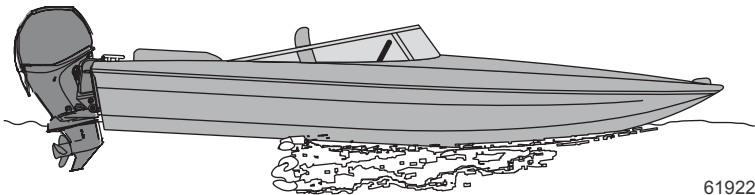
## HOW TRIM AFFECTS BOAT OPERATION

The trim angle of the outboard or sterndrive has a distinct effect on the planing angle of the boat, which in turn significantly alters the top speed and handling. The engine or drive should be trimmed in for best start-up acceleration and shortest time to plane. The engine or drive would then be trimmed out for peak performance. Active Trim automatically handles this transition for you.



**Engine or drive properly trimmed**

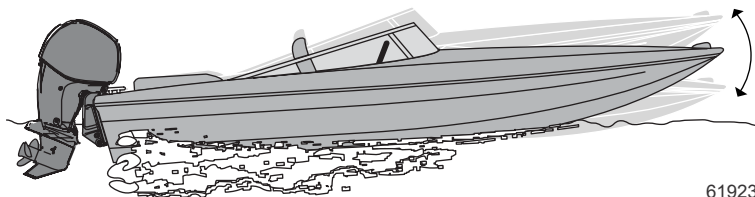
If the engine or drive is trimmed in too far, the bow drops and the boat runs too wet. In this condition, top speed drops, fuel economy decreases, the boat may oversteer in one direction or the other (bow steering), and steering torque will increase (to the right with a right-hand rotation propeller). Occasionally, extreme trim down can cause a boat to list to the left (with a right-hand propeller).



**Engine or drive trimmed in (bow too low)**

# OPERATION

If the engine or drive is trimmed out too far, the propeller may lose its hold on the water, fast V-bottom boats may start to walk from side to side (chine walking), steering torque will increase in the opposite direction to that when trimmed in, and getting on plane may be difficult or labored. Porpoising of the boat may also occur.



Engine or drive trimmed out (bow too high); porpoising

## BOAT LOADING AND TRIM

Under normal loading and operating conditions while on plane, the boat bottom is roughly parallel to the surface of the water. Changing the loading of the boat will not change the trim angle as previously defined, but it will change the running attitude of the boat with respect to the surface of the water. Adding weight toward the stern of the boat will cause the bow to rise. Similarly, adding weight toward the bow of the boat will cause the bow to lower.

Changing the trim angle can compensate for a change in the running attitude of the boat. Increasing the trim angle will raise the bow of the boat, compensating for bow heavy loading. Decreasing the trim angle will lower the bow of the boat, compensating for stern heavy loading.

## CHOOSING AN ACTIVE TRIM PROFILE

If Active Trim is configured properly, the normal setting for running on plane will be profile 2, 3, or 4. This allows the operator the flexibility to change the trim angle to compensate for variations in boat loading or other operating conditions. Selecting a higher number profile will raise the bow and selecting a lower number profile will lower the bow.

Use the preceding descriptions of trim in and trim out to help determine whether or not your boat is trimmed properly (refer to **How Trim Affects Boat Operation**). In general, this means you can increase the trim profile until the bow begins to porpoise (rise and fall), and then back off one level.

# TROUBLESHOOTING

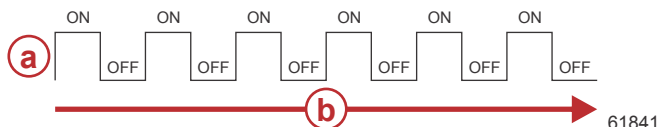
## Red Status Light Fault Codes



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A flashing red light can indicate different things, depending on if it is a single or a double flash sequence.

### SINGLE FLASHING RED

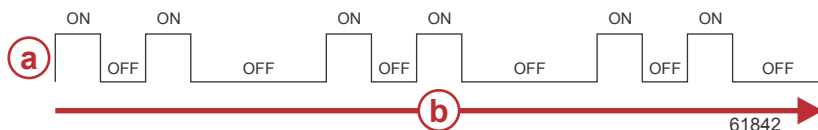


**a** - Light (on or off)

**b** - Interval

Fault Condition	Description	Notes
GPS signal intermittent	GPS signal has achieved fix, but is dropping out intermittently.	Indicates loss of GPS signal. Panel must have clear view. Check for obstructions.
GPS signal unavailable	GPS has not achieved fix since key on.	Indicates obstructed GPS antenna or weak signal. Panel must have clear view.

### DOUBLE FLASHING RED



**a** - Light (on or off)

**b** - Interval

Fault Condition	Description	Notes
GPS_x230 AgeCount	Indicates that the Active Trim panel is not on the CAN P bus.	Check keypad, J-box, and ECM helm harness connections.
Trim up or trim down not achieved	The engine did not achieve its trim setpoint while attempting to trim up or down.	Indicates a problem with hydraulic pump operation, fuse, connection, trim sensor, or trim down circuit. Refer to appropriate service manual.

# OWNER SERVICE ASSISTANCE

## Service Assistance

### LOCAL REPAIR SERVICE

If you need service for your Mercury accessory, take it to your authorized dealer.

### SERVICE AWAY FROM HOME

If you are away from your local dealer and the need arises for service, contact the nearest authorized dealer. If, for any reason, you cannot obtain service, contact the nearest Regional Service Center. Outside the United States and Canada, contact the nearest Marine Power International Service Center.

### PARTS AND ACCESSORIES INQUIRIES

Direct any inquiries concerning genuine Mercury Precision Parts® or Quicksilver Marine Parts and Accessories® to a local authorized dealer. Dealers have the proper systems to order parts and accessories, if they are not in stock. **Engine model** and **serial number** are required to order correct parts.

### CONTACT INFORMATION FOR MERCURY MARINE CUSTOMER SERVICE

For assistance, call, fax, or write to the geographic office in your area. Please include your daytime telephone number with mail and fax correspondence.

United States, Canada		
Telephone	English +1 920 929 5040 Français +1 905 636 4751	Mercury Marine W6250 Pioneer Road P.O. Box 1939 Fond du Lac, WI 54936-1939
Fax	English +1 920 929 5893 Français +1 905 636 1704	
Website	www.mercurymarine.com	

Australia, Pacific		
Telephone	+61 3 9791 5822	Brunswick Asia Pacific Group 41-71 Bessemer Drive Dandenong South, Victoria 3175 Australia
Fax	+61 3 9706 7228	

Europe, Middle East, Africa		
Telephone	+32 87 32 32 11	Brunswick Marine Europe Parc Industriel de Petit-Rechain B-4800 Verviers, Belgium
Fax	+32 87 31 19 65	



# OWNER SERVICE ASSISTANCE

<b>Mexico, Central America, South America, Caribbean</b>		
Telephone	+1 954 744 3500	Mercury Marine 11650 Interchange Circle North Miramar, FL 33025 U.S.A.
Fax	+1 954 744 3535	
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Telephone	+072 233 8888	Kisaka Co., Ltd. 4-130 Kannabecho, Sakai-ku Sakai-shi, Osaka 590-0984, Japan
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Telephone	+65 65466160	Brunswick Asia Pacific Group T/A Mercury Marine Singapore Pte Ltd 29 Loyang Drive Singapore, 508944
Fax	+65 65467789	

# INSTALLATION

## Active Trim Kit Contents

### ALL DTS APPLICATIONS

Qty.	Description
1	Basic kit
1	DTS Active Trim harness

### NON-DTS APPLICATIONS

**IMPORTANT:** The Active Trim harness for non-DTS applications is different between Outboard and MerCruiser applications, and between single and dual-engine applications. Confirm that you have the correct harness for your application prior to beginning the installation.

### 150 EFI FourStroke and OptiMax Engines

Qty.	Description
1	Basic kit
1	Active Trim harness

### 75/90/115 EFI FourStroke Engines

Qty.	Description
1	Basic kit
1	Active Trim harness
1 or 2	Digital to analog converter (includes installation instructions)
1 or 2	Digital trim sender kit
2	Screw
2	Lockwasher
2	Washer

# INSTALLATION

## 40/50/60 FourStroke Engines (Single-Engine Only)

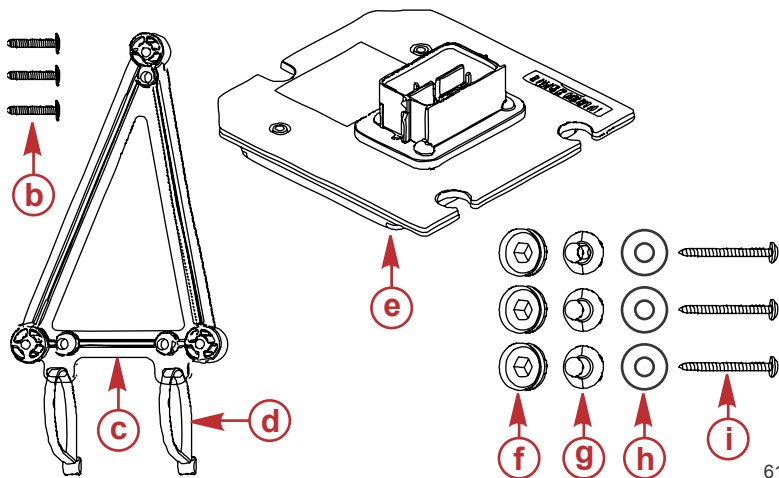
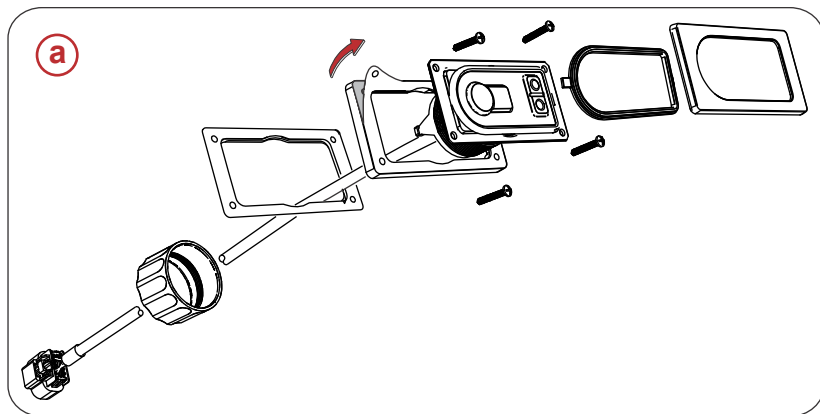
Active Trim can be installed on 40/50/60 FourStroke engines only with serial number 1C453840 or above.

Qty.	Description
1	Basic kit
1	Active Trim harness
1	Digital to analog converter (includes installation instructions)
1	Digital trim sender kit
2	Screw
2	Lockwasher
2	Washer
1	Anchor pin
1	Trilobe pin

## MerCruiser Engines (Digital Transom)

Qty.	Description
1	Basic kit
1	Active Trim harness

# INSTALLATION



61843

Basic kit contents

# INSTALLATION

Ref.	Qty.	Description
a	1	Keypad assembly
b	3	Screw
c	1	Bracket
d	2	Cable tie
e	1	Vessel control module (VCM)
f	3	Grommet
g	3	Bushing
h	3	Washer
i	3	Wood screw, #10-16 x 1.750

## Installation Notes

### ▲ 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.

### ▲ 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.

Active Trim uses an internal dedicated GPS sensor to monitor vessel speed and adjust the drive attitude within programmed parameters.

Check the area behind the panel for cables, wiring, electronic components, and obstructions before cutting or drilling. The selection of a suitable mounting location is important for the optimal performance of the Active Trim system. The mounting location and orientation of the keypad assembly should be:

- In the same area as the helm and within easy reach of the operator.
- In a location that provides a clear view of the sky without overhead obstructions.
- At least 61 cm (24 in.) from speakers, VHF, satellite, and radar antennas, or other equipment that produces radio frequency transmissions, or magnetic fields.

Follow these tips when cutting the panel:

- Fiberglass—Apply masking tape to the area to be cut to prevent the panel from cracking.

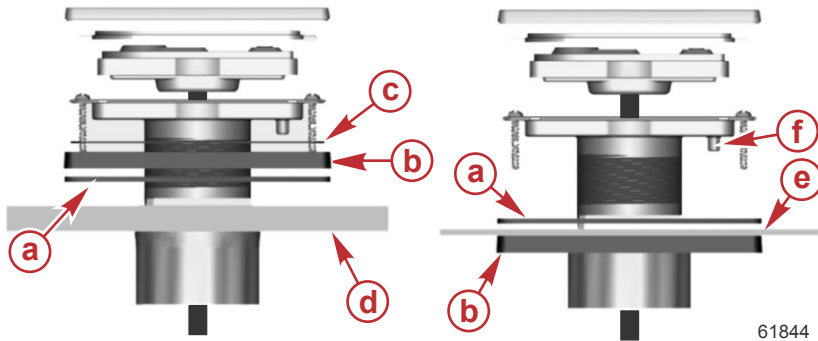
# INSTALLATION

- Vinyl covered—Remove vinyl from the area to be cut with a razor blade to keep vinyl from tearing.

## Keypad Installation

### FLUSH MOUNTING ON A THIN PANEL

The keypad assembly can be surface mounted or flush mounted. Remove, or install the optional spacer behind the dash panel when flush mounting on a thin panel.



#### Thick panel

- a** - Gasket
- b** - Spacer (optional for thin panel installations)
- c** - Adhesive gasket
- d** - Thick panel
- e** - Thin panel
- f** - Antirotation pin hole

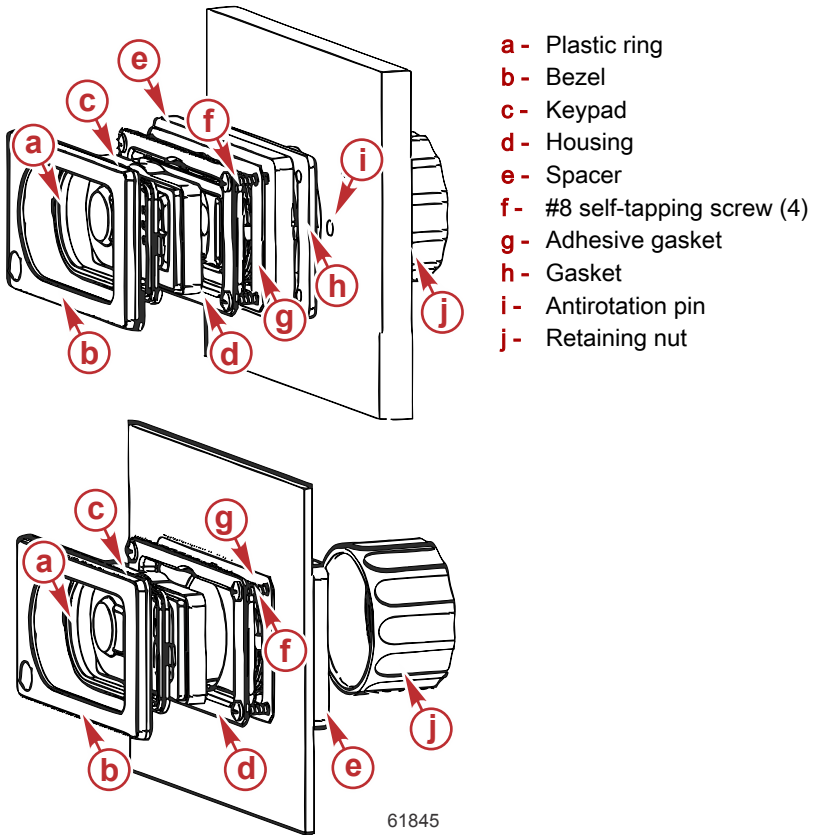
#### Thin panel

## INSTALLATION PROCEDURE

1. Disconnect both battery cables from the battery.
2. Select an unobstructed location that provides good visibility.
3. Drill a mounting hole using a 54 mm (2.125 in.) hole saw.
4. Use a 6.35 mm (0.25 in.) drill bit to route a hole for the keypad housing antirotation pin (not necessary when flush mounting with screws).

# INSTALLATION

5. Place the keypad assembly, gasket, and spacer into the panel and secure with the retaining nut or four #8 self-tapping screws.



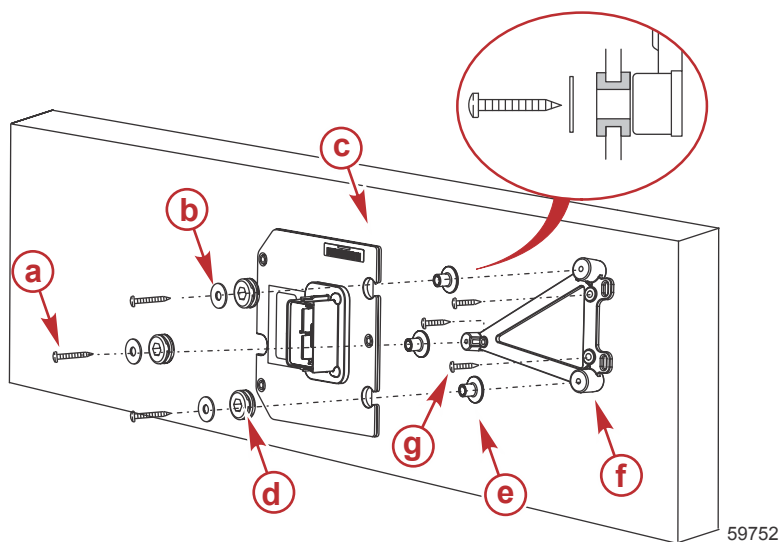
**NOTE:** The spacer can be removed or placed on the back side of the panel when flush mounting on a thin panel.

## Vessel Control Module (VCM) Installation

1. Insert a rubber grommet into the three spaces provided on the VCM.
2. Insert a bushing into each rubber grommet.
3. Mount the VCM bracket in a dry and accessible location using three screws.
4. Use wood screws to mount the VCM to the bracket at the selected location. (At the helm, near the junction box is recommended.)

# INSTALLATION

5. Predrilling pilot holes for the screws is recommended.

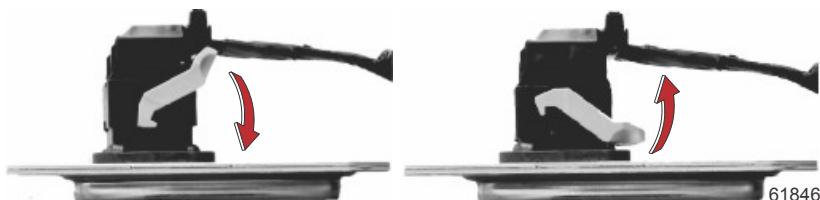


- a** - Wood screw (3)
- b** - Washer (3)
- c** - VCM
- d** - Grommet (3)
- e** - Bushing (3)
- f** - Bracket
- g** - Screw (3)

## Harness Connections

### VCM CONNECTION (ALL MODELS)

Exercise care when connecting the vessel control module (VCM) to the Active Trim harness. Carefully insert the harness connector into the module socket, and push down on the connector lock to fully engage the connector.

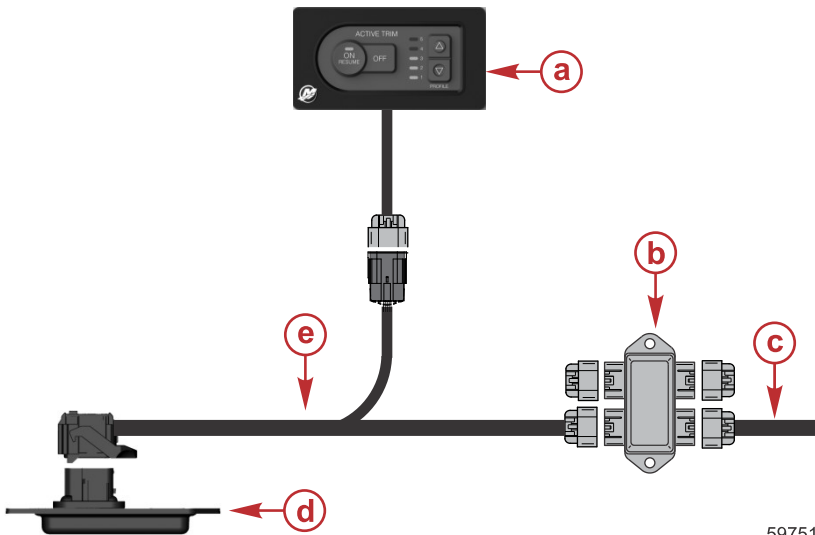


**VCM connector; press down to lock, pull up to unlock**



# INSTALLATION

## ALL DTS APPLICATIONS (EXCEPT TABS)



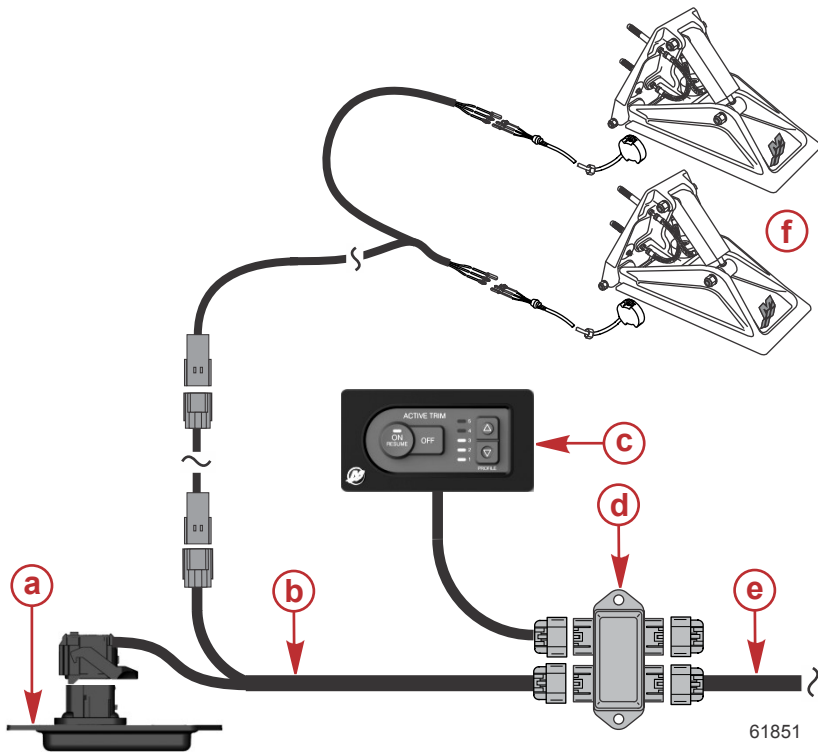
59751

- a - Keypad assembly
- b - J-box (4-way shown, actual configuration may vary)
- c - Helm harness
- d - VCM
- e - DTS Active Trim harness

1. Verify the CCM software is compatible with the Active Trim system.
  - a. For DTS, the CCM software must be version 80 or higher.
  - b. For joystick piloting systems, the CCM software must be CCM13 or newer.
2. Ensure that the keypad assembly and VCM have been installed as previously outlined.
3. Connect the DTS Active Trim harness to the VCM. Refer to **VCM Connection (All Models)**.
4. Connect the keypad assembly to the DTS Active Trim harness.
5. Remove the weather cap from an unused connector on the helm harness J-box, and connect the DTS Active Trim harness 10-pin connector.

# INSTALLATION

## ACTIVE TRIM WITH TRIM TAB INTERFACE KIT



- a** - VCM
- b** - Trim tab interface harness (standard DTS Active Trim harness not used)
- c** - Keypad assembly
- d** - J-box (4-way shown, actual configuration may vary)
- e** - Helm harness
- f** - Trim tabs

**IMPORTANT:** The Active Trim system will not control the trim tabs. The VCM reads the tab sensor position and transmits it on CAN P for use with SmartCraft gauges.

1. Ensure that the keypad assembly and VCM have been installed as previously outlined.
2. Connect the trim tab interface harness to the VCM.
3. Ensure that the trim tab interface harness is connected to the J-box.
4. Remove the weather cap from an unused connector on the helm harness J-box, and connect the keypad assembly 10-pin connector.

# INSTALLATION

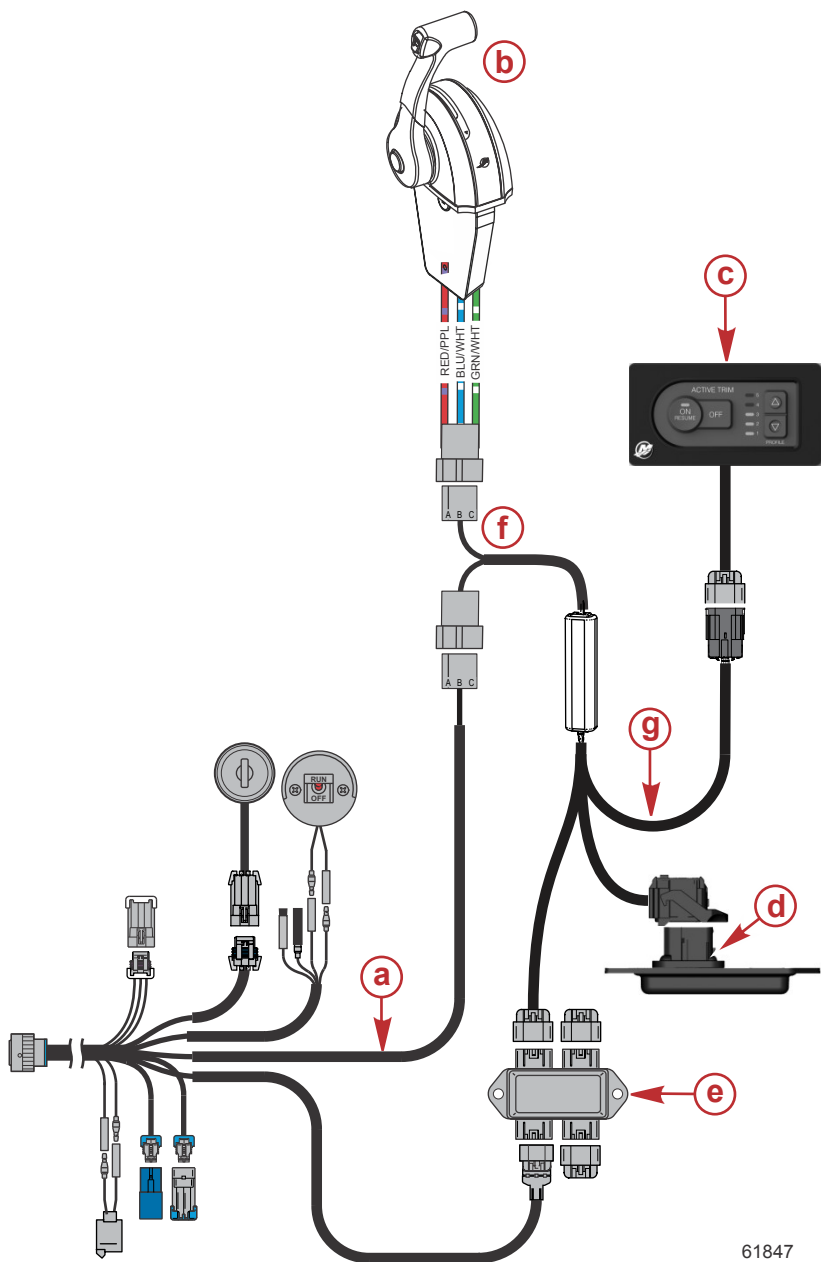
## WIRE COLOR CODE ABBREVIATIONS

Wire Color Abbreviations				
BLK	Black		BLU	Blue
BRN	Brown		GRY or GRA	Gray
GRN	Green		ORN or ORG	Orange
PNK	Pink		PPL or PUR	Purple
RED	Red		TAN	Tan
WHT	White		YEL	Yellow
LT or LIT	Light		DK or DRK	Dark

# INSTALLATION

## OUTBOARD NON-DTS APPLICATIONS

Outboard Single Engine Non-DTS Applications, Panel or Console Control



61847

# INSTALLATION

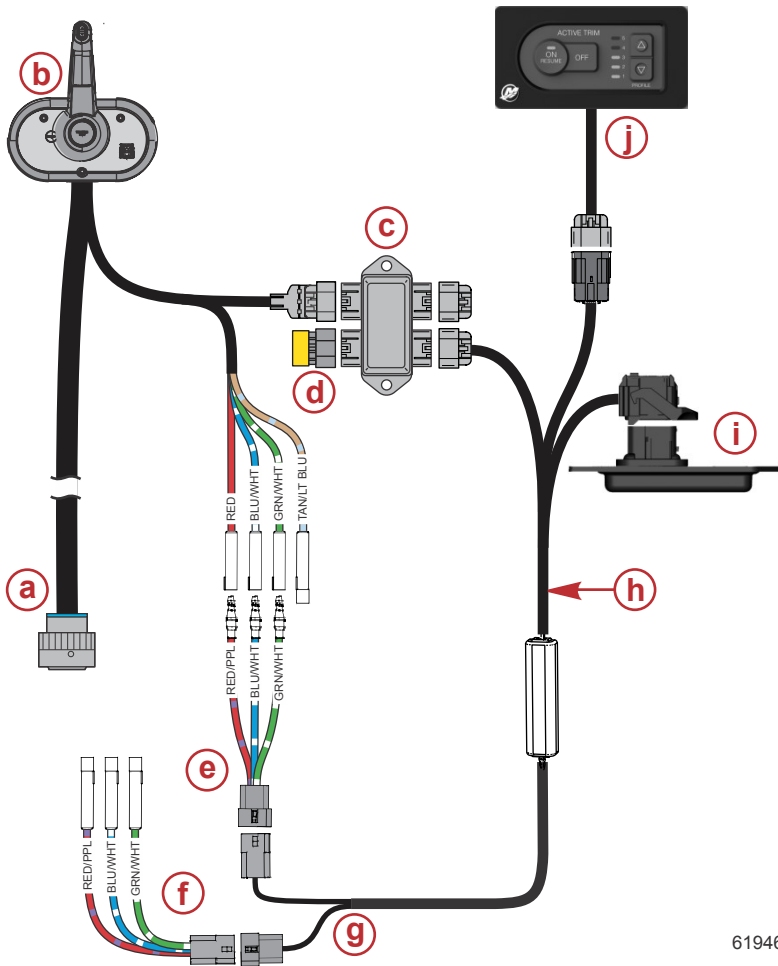
- a - Helm harness
- b - Panel mount or console mount remote control (console mount shown, panel mount similar)
- c - Keypad assembly
- d - VCM
- e - J-box (4-way shown, actual configuration may vary)
- f - Active Trim harness 3-pin connectors
- g - Active Trim harness

**IMPORTANT: The Active Trim harness for non-DTS applications is different between Outboard and MerCruiser applications, and between single and dual-engine applications. Confirm that you have the correct harness for single-engine outboard applications prior to beginning the installation.**

1. For 40/50/60 or 75/90/115 engines, install the digital to analog (D/A) converter and digital trim sender kit. Instructions are supplied with the D/A converter.
2. Ensure that the keypad assembly and VCM have been installed as previously outlined.
3. Connect the Active Trim harness to the VCM. Refer to **VCM Connection (All Models)**.
4. Connect the keypad assembly to the Active Trim harness.
5. Remove the weather cap from an unused connector on the helm harness J-box, and connect the Active Trim harness 10-pin connector.
6. For existing installations, disconnect the helm harness trim connector or connectors from the remote control.
7. Connect the Active Trim harness to the 3-pin trim connector on the helm harness.
8. Connect the Active Trim harness to the remote control 3-pin trim harness connector.

# INSTALLATION

## Outboard Single Engine Non-DTS Applications, Side Mount Control



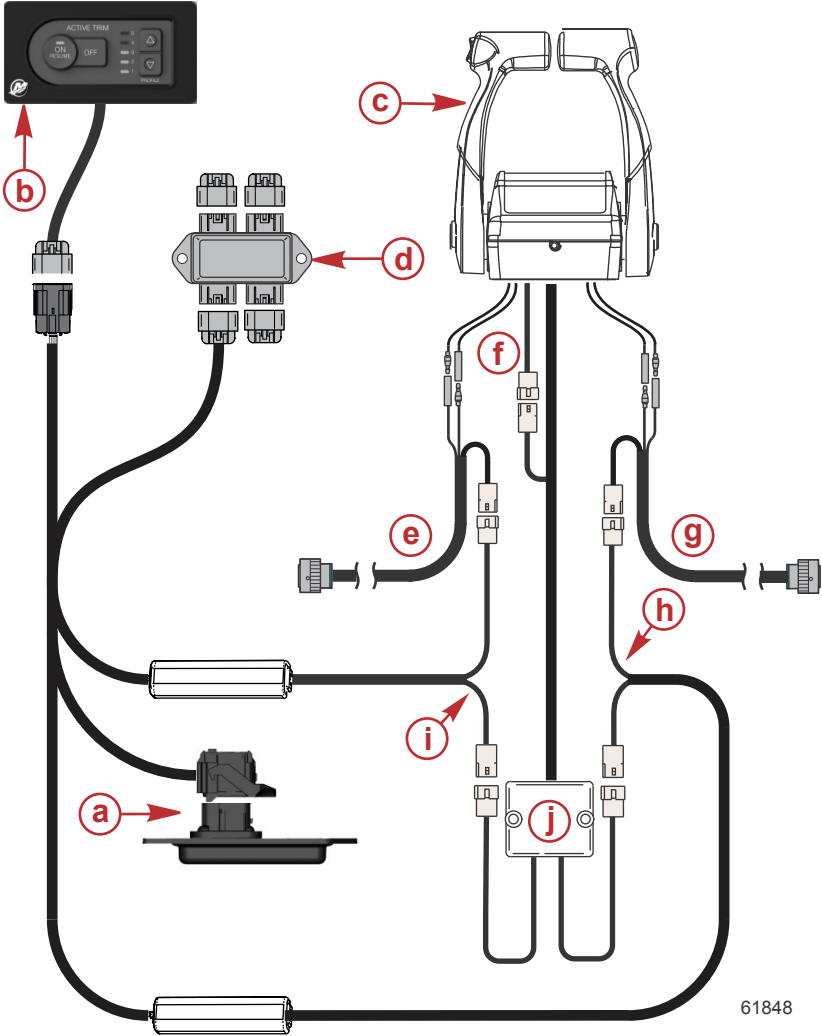
61946

# INSTALLATION

- |   |   |
|---|---|
| <b>a</b> - 14-pin connector (to engine)                       | <b>f</b> - Female trim adapter harness (used with optional trim switch) |
| <b>b</b> - Side mount remote control                          | <b>g</b> - Active Trim harness 3-pin connectors                         |
| <b>c</b> - J-box (4-way shown, actual configuration may vary) | <b>h</b> - Active Trim harness  |
| <b>d</b> - 10-pin CAN terminator resistor (yellow)            | <b>i</b> - VCM  |
| <b>e</b> - Male trim adapter harness                          | <b>j</b> - Keypad assembly  |
1. For 40/50/60 or 75/90/115 engines, install the digital to analog (D/A) converter and digital trim sender kit. Instructions are supplied with the D/A converter.
  2. Ensure that the keypad assembly and VCM have been installed as previously outlined.
  3. Connect the Active Trim harness to the VCM. Refer to **VCM Connection (All Models)**.
  4. Connect the keypad assembly to the Active Trim harness.
  5. Remove the weather cap from an unused connector on the helm harness J-box, and connect the Active Trim harness 10-pin connector.
  6. Connect the Active Trim harness 3-pin connectors to the two trim adapter harnesses, purchased separately.
  7. Connect the male trim adapter harness to the remote control harness. Red connects to red/purple, blue/white to blue/white, and green/white to green/white.
  8. Ensure that the four unused bullet connectors have weather plugs. This includes the bullet connector for the tan/light blue wire on the remote control harness.

# INSTALLATION

## Outboard Dual Engine Non-DTS Applications





# INSTALLATION

- |   |   |
|---|---|
| <b>a</b> - VCM  | <b>f</b> - Power trim harness connector       |
| <b>b</b> - Keypad assembly                                    | <b>g</b> - Starboard helm harness             |
| <b>c</b> - Remote control                                     | <b>h</b> - Starboard harness 3-pin connectors |
| <b>d</b> - J-box (4-way shown, actual configuration may vary) | <b>i</b> - Port harness 3-pin connectors      |
| <b>e</b> - Port helm harness                                  | <b>j</b> - Dual engine power trim adapter     |

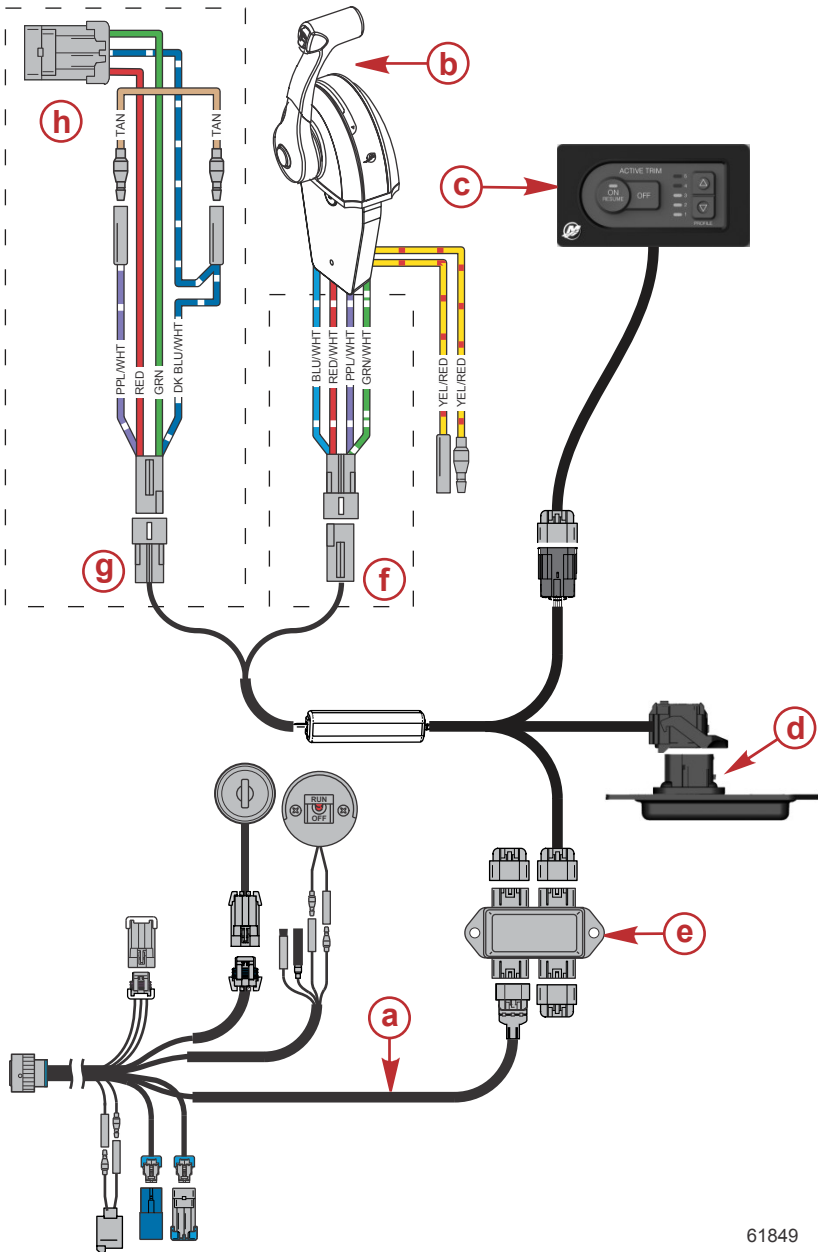
**IMPORTANT: The Active Trim harness for non-DTS applications is different between Outboard and MerCruiser applications, and between single and dual-engine applications. Confirm that you have the correct harness for dual-engine outboard applications prior to beginning the installation.**

1. For 75/90/115 engines, install the digital to analog (D/A) converters and digital trim sender kits. Instructions are supplied with the D/A converters.
2. Ensure that the keypad assembly and VCM have been installed as previously outlined.
3. Connect the Active Trim harness to the VCM. Refer to **VCM Connection (All Models)**.
4. Connect the keypad assembly to the Active Trim harness.
5. Remove the weather cap from an unused connector on the helm harness J-box, and connect the Active Trim harness 10-pin connector.
6. For existing installations, disconnect the dual engine power trim adapter from the port and starboard helm harnesses.
7. Connect one Active Trim harness port connector to the port helm harness 3-pin connector.
8. Connect the other Active Trim harness port connector to the dual engine power trim adapter 3-pin port connector.
9. Connect one Active Trim harness starboard connector to the starboard helm harness 3-pin connector.
10. Connect the other Active Trim harness starboard connector to the dual engine power trim adapter 3-pin starboard connector.

# INSTALLATION

## MERCUISER NON-DTS APPLICATIONS

### MerCruiser Single Engine Non-DTS Applications



61849

# INSTALLATION

- a - 14-pin engine harness connector
- b - Remote control
- c - Keypad assembly
- d - VCM
- e - J-box (4-way shown, actual configuration may vary)
- f - Remote control 4-pin trim harness connector
- g - 4-pin trim extension harness
- h - Transom harness connector

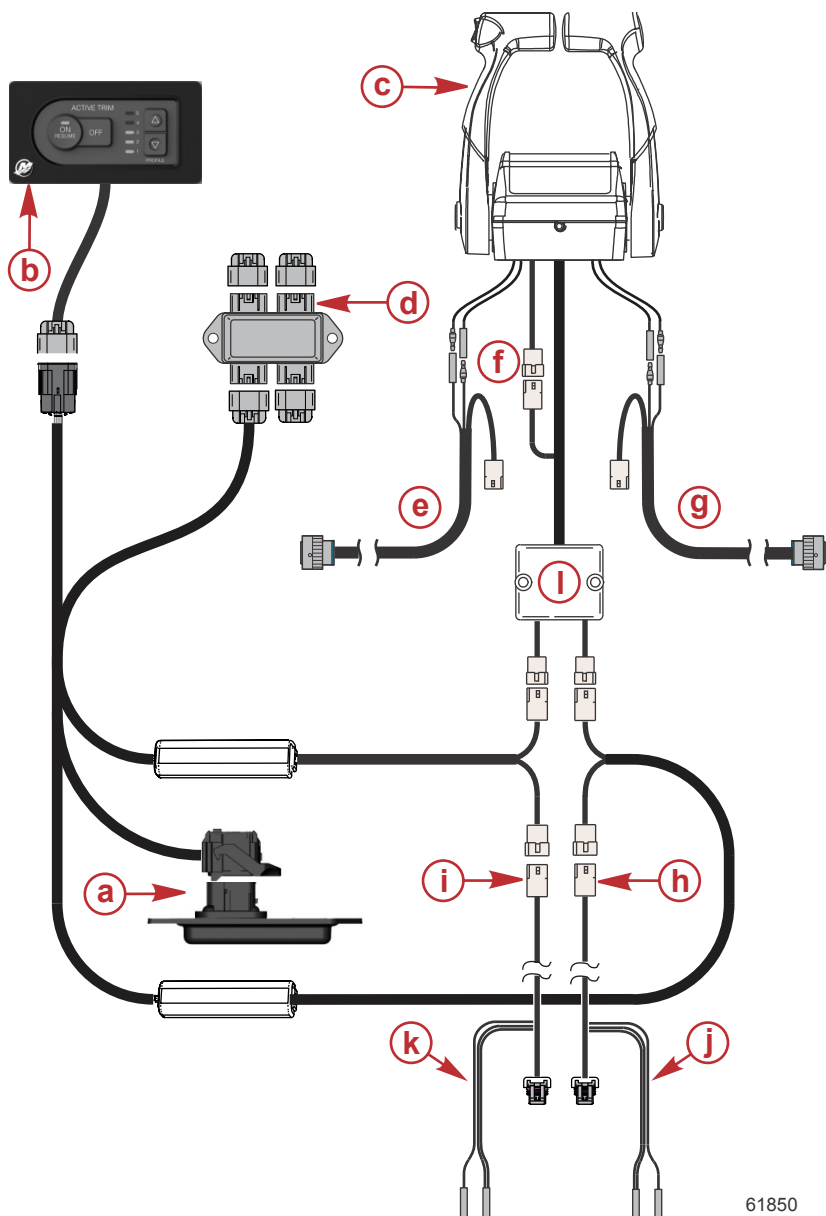
**NOTE:** Refer to **Outboard Single Engine Non-DTS Applications** for MerCruiser applications equipped with outboard remote controls.

**IMPORTANT:** The Active Trim harness for non-DTS applications is different between Outboard and MerCruiser applications, and between single and dual-engine applications. Confirm that you have the correct harness for single-engine MerCruiser applications prior to beginning the installation.

1. Ensure that the keypad assembly and VCM have been installed as previously outlined.
2. Connect the Active Trim harness to the VCM. Refer to **VCM Connection (All Models)**.
3. Connect the keypad assembly to the Active Trim harness.
4. Remove the weather cap from an unused connector on the helm harness J-box, and connect the Active Trim harness 10-pin connector.
5. For existing installations, disconnect the 4-pin trim extension harness from the remote control 4-pin trim harness connector.
6. Connect the Active Trim harness to the remote control 4-pin trim harness connector.
7. Connect the Active Trim harness to the 4-pin trim extension harness.

# INSTALLATION

## MerCruiser Dual Engine Non-DTS Applications



61850

# INSTALLATION

- a** - VCM
- b** - Keypad assembly
- c** - Remote control
- d** - J-box (4-way shown, actual configuration may vary)
- e** - Port helm harness
- f** - Power trim harness connector
- g** - Starboard helm harness
- h** - Starboard power trim harness 4-pin connector
- i** - Port trim power harness 4-pin connector
- j** - Starboard power trim extension harness
- k** - Port power trim extension harness
- l** - MerCruiser dual engine power trim adapter

**IMPORTANT: The Active Trim harness for non-DTS applications is different between Outboard and MerCruiser applications, and between single and dual-engine applications. Confirm that you have the correct harness for dual-engine MerCruiser applications prior to beginning the installation.**

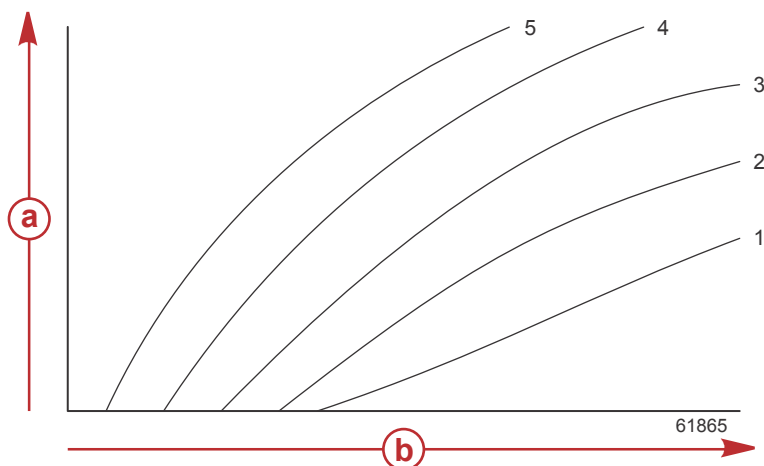
1. Ensure that the keypad assembly and VCM have been installed as previously outlined.
2. Connect the Active Trim harness to the VCM. Refer to **VCM Connection (All Models)**.
3. Connect the keypad assembly to the Active Trim harness.
4. Remove the weather cap from an unused connector on the helm harness J-box, and connect the Active Trim harness 10-pin connector.
5. For existing installations, disconnect the dual engine power trim adapter from the port and starboard power trim extension harnesses.
6. Connect the Active Trim harness port connector to the dual engine power trim adapter 4-pin port connector.
7. Connect the Active Trim harness port connector to the port power trim extension harness 4-pin connector.
8. Connect the Active Trim harness starboard connector to the dual engine power trim adapter 4-pin starboard connector.
9. Connect the Active Trim harness starboard connector to the starboard power trim extension harness 4-pin connector.

# INSTALLATION

## Trim Profiles Overview

### MAJOR TRIM PROFILE CURVES

The Active Trim system can be configured to any of five unique major trim profiles. The following illustration shows how the trim angle versus boat speed curves will differ for each of the five major profiles.



**Example major trim profile curves; actual curves will vary**

- a** - Trim angle
- b** - Boat speed

Configure the Active Trim system with the major trim profile that is most appropriate for an individual boat and power package combination under normal operating conditions.

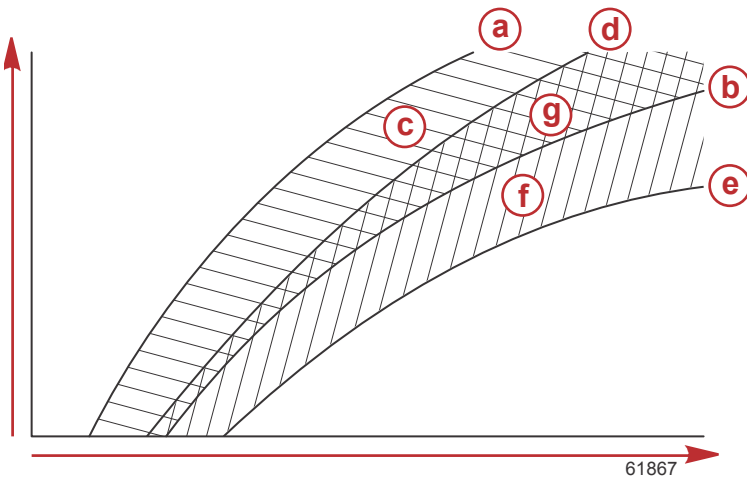
Each major profile curve shown in the preceding example represents the default, middle setting (adjustable trim profile 3) of a broader range of adjustable trim profiles. Each major trim profile has a range of five user adjustable trim profiles, to allow the operator to fine tune the trim curve during boat operation, to compensate for differences in environmental conditions or boat loading.

The upper limit of a selected major trim profile equates to user adjustable trim profile 5. The lower limit equates to user adjustable trim profile 1. Refer to **Adjustable Profiles** for additional detail.

# INSTALLATION

## MAJOR TRIM PROFILE CURVE OVERLAP

The ranges of the five major trim profiles overlap one another. Placing the trim curve ranges for major profiles 4 and 3 (from the first graph) onto a single graph shows a substantial overlap. The upper limit for major profile 3 is higher than the lower limit for major profile 4, yielding a portion of the trim curve ranges that are shared by both profiles. In practice, this means that slight variations in the conditions at which the system is configured will not translate to large variations in system performance.



### Example major trim profile overlap; actual overlap will vary

- a** - Upper limit of major profile 4
- b** - Lower limit of major profile 4
- c** - This area (c) plus g equals the full range of major profile 4
- d** - Upper limit of major profile 3
- e** - Lower limit of major profile 3
- f** - This area (f) plus g equals the full range of major profile 3
- g** - Range overlap of major profiles 4 and 3

## Setup and Configuration

### CONFIGURATION NOTES

**IMPORTANT:** A Mercury service tool is required to set up Active Trim for dual station applications or to enable the internal GPS receiver for use with SmartCraft gauges. Refer to CDS G3 Setup.

# INSTALLATION

**IMPORTANT:** Always configure Active Trim with a major profile that will allow the operator to select an adjustable profile with additional trim in. That is, avoid selecting a major profile that results in normal operation in adjustable trim profile 1. This will ensure that the operator can always bring the bow down to correct porpoising without having to manually trim the engine or drive.

## CONFIGURATION PROCEDURE

1. Turn the ignition key switch to the on position.
2. Use the remote control handle trim switch to establish the full trim and tilt range in the Active Trim module:
  - a. Trim the engine or sterndrive to the full down position and hold the switch for five seconds after the engine or sterndrive reaches the full down position.
  - b. Trim the engine or sterndrive to the full up (trailer) position and continue to hold the trim up switch for five seconds after the engine or sterndrive reaches the full up (trailer) position.
3. Return the engine or sterndrive to the down position before starting the engine.

### *NOTICE*

**Avoid damaging the engine and drive from overheating. Never start or run the power package without water circulating through the cooling system.**

4. Start the engine and observe the keypad. Flashing amber lights on the vertical LED trim display indicate that the Active Trim system is in the setup mode and ready for activation.



# INSTALLATION

**NOTE:** The system can be returned to the setup mode if necessary by simultaneously pressing and holding the **ON/RESUME + Up Arrow** buttons for five seconds.



- a** - **ON/RESUME** button
- b** - **OFF** button
- c** - Trim profile indicator
- d** - Trim profile adjust **Up Arrow**
- e** - Trim profile adjust **Down Arrow**

5. Operate the vessel in open, navigable water.
6. Accelerate until the vessel is on plane and cruising at the approximate desired speed. A comfortable cruising speed for most applications is typically achieved between 48 and 64 km/h (30 and 40 mph).

**IMPORTANT:** RPM will increase as the sterndrive or engine is trimmed out.

7. Momentarily press the keypad **Up Arrow** or **Down Arrow** to adjust the trim profile to the most efficient running attitude.
  - The number of flashing lights will increase or decrease, accordingly.

**NOTE:** The topmost flashing light indicates the major profile currently selected.

- As a general rule, increase the major profile level until the boat begins to porpoise. Then decrease one level.
8. Simultaneously press and release the **Up Arrow + Down Arrow** to capture the most efficient running attitude and retain the optimum trim profile in the Active Trim system's memory. The amber lights on the vertical LED trim display will stop flashing, and the display will move to the center profile position (level 3). The Active Trim is now ready to use.

## CDS G3 Setup

**NOTE:** CDS G3 setup is required only for dual station applications and for enabling the GPS receiver for use with SmartCraft gauges.

- For multiple stations, assign the Active Trim keypad locations by performing a Trackpad Configuration in CDS G3. Next select the Active Trim GPS tab and follow directions to select which Active Trim keypad GPS helm source you would like to use.

# INSTALLATION

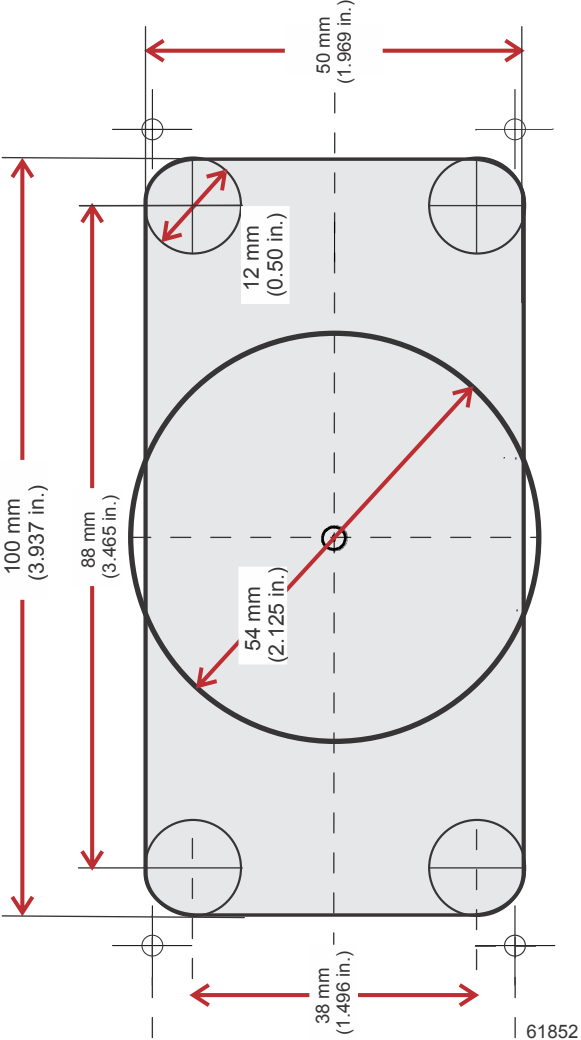
- For enabling the GPS for SmartCraft gauges, select the Active Trim GPS tab found in the Trackpad Configuration screen. Follow the on-screen instructions to enable the GPS for use with SmartCraft gauges. Only use the Active Trim GPS to provide speed information for SmartCraft gauges when there are no other GPS units in the system.

# INSTALLATION

## Templates

### FLUSH MOUNT

**IMPORTANT:** Due to printing variables, the image size may have changed from the actual size. Check the graphic for accuracy prior to using the template.



# INSTALLATION

## SURFACE MOUNT

**IMPORTANT:** Due to printing variables, the image size may have changed from the actual size. Check the graphic for accuracy prior to using the template.

