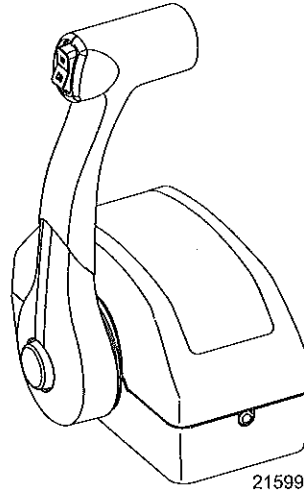

MCC 4501/4502 GEN II CONSOLE CONTROL INSTALLATION AND OPERATION

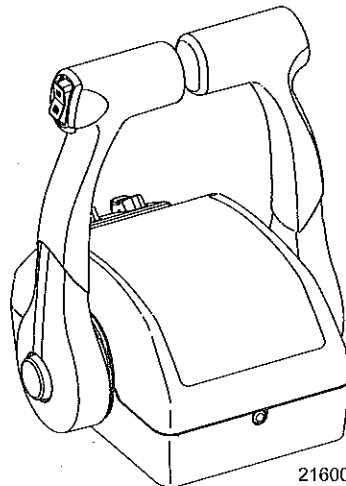
IMPORTANT: This document guides our dealers, boatbuilders, and company service personnel in the proper installation or service of our products. If you have not been trained in the recommended servicing or installation procedures for these or similar Mercury Marine products, have the work performed by 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.

4501/4502 Console Remote Control



4501 Series Console Control



4502 Series Console Control

Notice to Installer

Throughout this publication, Warnings and Cautions (accompanied by the International Hazard Symbol) are used to alert the installer to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully!

These "Safety Alerts," alone, cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the service, plus common sense operation, are major accident prevention measures.

⚠ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a situation which, if not avoided, could result in engine or major component failure.

IMPORTANT: Indicates information or instructions that are necessary for a particular step or action.

NOTE: Indicates information that helps in the understanding of a particular step or action.

This installation manual has been written and published by the service department of Mercury Marine to aid installers when installing the products described herein.

It is assumed that these personnel are familiar with the installation procedures of these products, or like or similar products manufactured and marketed by Mercury Marine. Also, that they have been trained in the recommended installation procedures of these products which includes the use of mechanics' common hand tools and the special Mercury Marine or recommended tools from other suppliers.

We could not possibly know of and advise the marine trade of all conceivable procedures by which an installation might be performed and of the possible hazards and/or results of each method. We have not undertaken any such wide evaluation. Therefore, anyone who uses an installation procedure and/or tool, which is not recommended by the manufacturer, first must completely satisfy himself that neither his nor the product's safety will be endangered by the installation procedure selected.

All information, illustrations, and specifications contained in this manual are based on the latest product information available at time of publication. As required, revisions to this manual will be sent to all OEM boat companies.

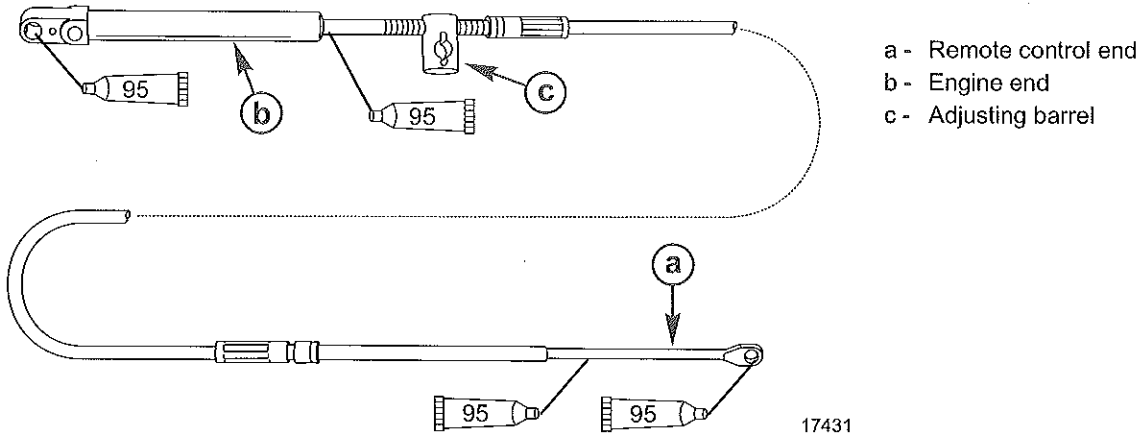
Selecting GEN II Remote Control Cables

Mercury - Mariner - Force - Mercury MerCruiser

Refer to the **Mercury Precision Parts Accessories Guide** for the available shift and throttle cables for your application. This control requires the use of Mercury/Quicksilver GEN II shift and throttle cables.

IMPORTANT: Remote control cables must be the correct length. Sharp bends on too-short of cables result in kinks. Too-long of cables require unnecessary bends and/or loops. Both conditions place extra stress on the cables.

IMPORTANT: Use 2-4-C with Teflon to lubricate the shift cable and throttle cable.



Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Shift cable/throttle cable lubrication points	92-802859A 1

NOTE: Allow for clearance of the cables directly behind the remote control. Cable radius at any one point must not be less than 305 mm (12 in.).

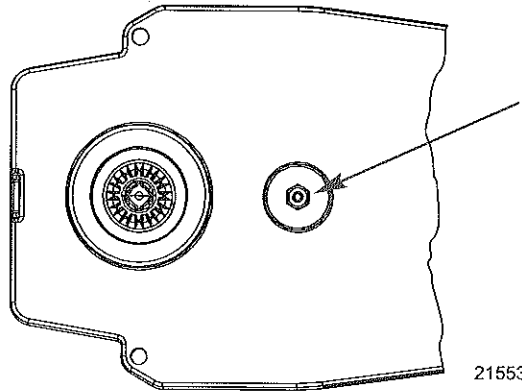
General Installation Information

IMPORTANT: The control handle friction adjustment must be made prior to installation.

Control Handle Friction Adjustment

The control handle friction is preset from the factory. However, it can be adjusted. Use an 11/32 in. nut driver or socket wrench to carefully adjust the control handle friction. To increase friction, turn the adjusting nut clockwise. To decrease friction, turn the adjusting nut counterclockwise.

IMPORTANT: Control handle friction is necessary for proper mechanical control operation. Insufficient friction may cause undesirable control arm operation.



Control Module Mounting

IMPORTANT: The control handle friction adjustment must be made prior to the installation of the remote control.

NOTE: The base assembly gasket and the base assembly, must be placed over the console control mount opening prior to installing the shift and throttle cables to the control module.

1. Select the mounting area for the remote control. Select the template for the type of application. Follow the template directions when cutting and drilling the mounting surface. The template is located at the end of this installation instruction.
2. Connect the control cables and install the rear cover to the remote control. Refer to the **Shift and Throttle Cable Installation** in this instruction sheet.
3. Install the remote control following the mounting instructions. Connect the neutral start safety switch and the trim switch to the appropriate harness connector. Refer to the appropriate wire diagram for the remote control model installed.
4. Install and adjust the shift and throttle cables to the power package. Refer to one of the following: installation manual, owner's manual, or service manual.

Final Checks and Adjustments

1. Check the tightness of the control handle retaining bolt. Tighten to the specified torque.

Description	Nm	lb-in.	lb-ft
Control handle retaining bolt	17	150	

2. Ensure the back cover screws are securely tightened.
3. Before the remote control is securely fastened, verify the control cables and the control wiring harness are routed correctly.

NOTICE

Failure to rotate the propeller shaft when shifting gears or forcing the shift mechanism while the engine is not operating can result in product damage. If you must shift gears with the engine off, manually rotate the propeller shaft in the appropriate direction.

4. Operate the control handle to forward wide-open throttle to reverse wide-open throttle several times. Refer to the previous **Notice** for information on shifting the power package without the engine running. Any binding or stiffness in the operation of the control handle is usually caused by the following:
 - a. Bends or tension on the control cables near the control
 - b. Excessive number of bends in the cables
 - c. Bends are too small in the cables
 - d. Tight engine linkage
 - e. Cable ties strapped too close to the control module
 - f. Control handle friction adjustment

- g. Improper adjustment at the engine
- 5. Check the operation of the neutral start safety switch. The engine must only crank when the remote control is in the neutral position.

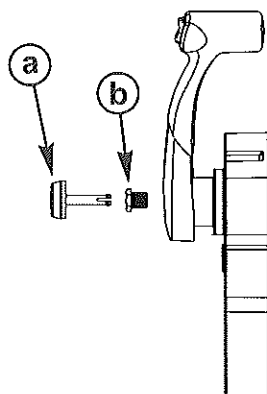
▲ WARNING

Performing tests with the engine running may cause the propeller to rotate and result in serious injury or death. Use caution when performing a test that requires the engine running, and remove the propeller to avoid injury.

Commander 4500 Series Control Handle Removal and Installation

Commander 4500 Series Control Handle Removal

1. Place the control handle in the neutral position.
2. Push the throttle only button in and advance the throttle.
3. Pry the throttle only button out of the control handle with a flat blade screwdriver.
4. Return the control handle to the neutral position.
5. Remove the control handle retaining bolt securing the handle to the control module.
6. Remove the control handle.




- a - Throttle only button
- b - Control handle retaining bolt

24868

Commander 4500 Series Control Handle Installation

1. Install the control handle onto the control module and move the control handle to locate the neutral detent position.
2. Ensure the control handle is in the desired position for neutral.
3. Apply Loctite 271 Threadlocker to the threads of the control handle retaining bolt.

Tube Ref No.	Description	Where Used	Part No.
 7	Loctite 271 Threadlocker	Control handle retaining bolt threads	92-809819

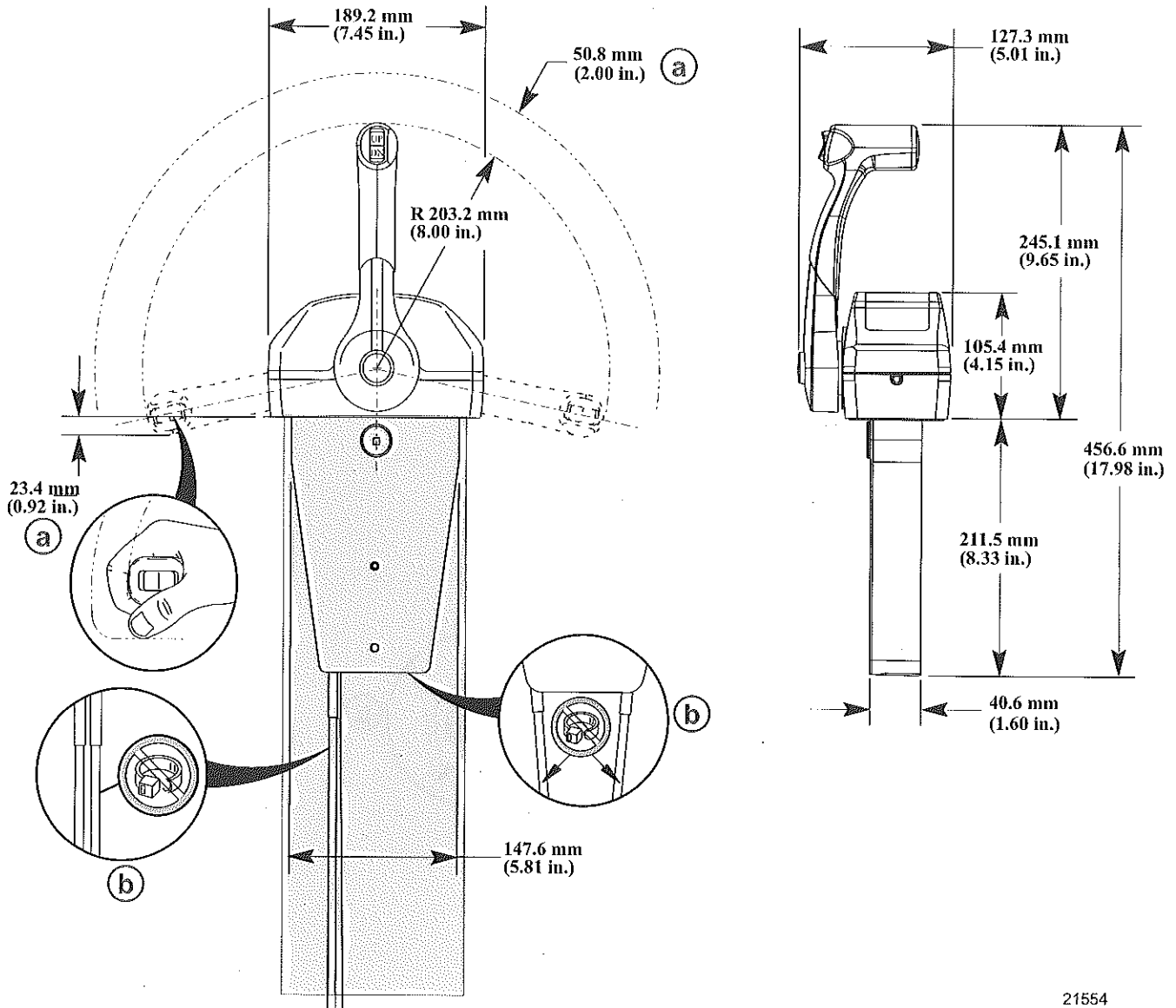
4. Secure the control handle with the retaining bolt. Tighten the bolt to the specified torque.

Description	Nm	lb-in.	lb-ft
Control handle retaining bolt	17	150	

5. Install and push the throttle only button in.

Required Mounting Clearance for MCC 4501 Series Console Control

IMPORTANT: Ensure the remote control has adequate clearance and does not contact other components. The cable path should be free of obstructions. See shaded area.



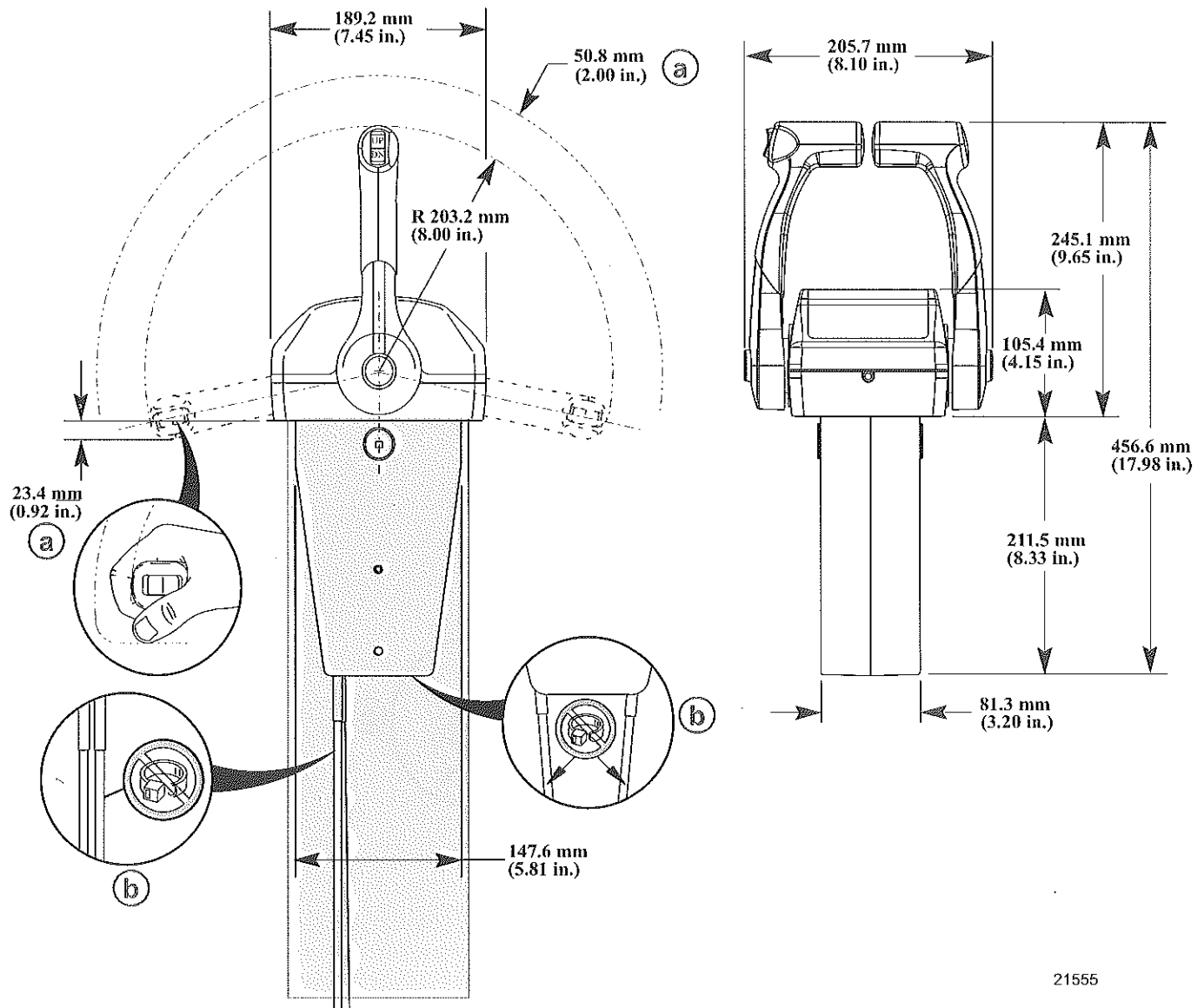
a - Hand clearance

b - Do not use cable ties to secure the control cables within 91.4 cm (36 in.) of the control housing - an increase in the shift and throttle load will be noticed

21554

Required Mounting Clearance for MCC 4502 Series Console Control

IMPORTANT: Ensure the remote control has adequate clearance and does not contact other components. The cable path should be free of obstructions. See shaded area.



21555

a - Hand clearance

b - Do not use cable ties to secure the control cables within 91.4 cm (36 in.) of the control housing - an increase in the shift and throttle load will be noticed

Drilling Mounting Area Location

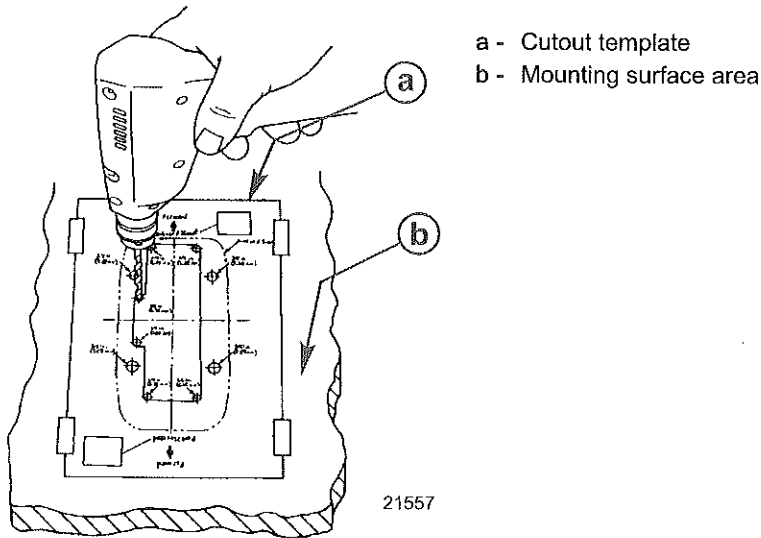
IMPORTANT: When selecting the mounting area for the remote control, the area directly behind the mounting location must have sufficient clearance for the control module, wiring harness, control cables, and control cable movement. Refer to the Required Mounting Clearances.

IMPORTANT: Allow sufficient clearance for the handle movement to avoid interference with boat components or other accessories. Ensure the control handle clears the dash, seats, steering wheel, and any other obstructions when rotating the control handle.

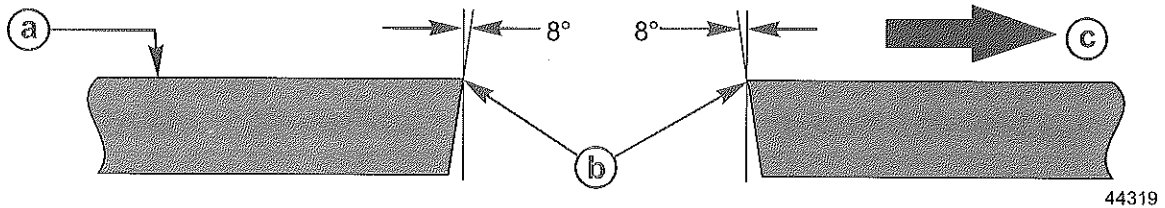
1. Remove the correct cutout template page located at the end of these installation instructions.
2. Ensure the area of the boat where the remote control will be mounted, is clear of obstructions and wiring, prior to drilling the mounting area.
3. Place the cutout template onto the control mounting surface. Secure the cutout template to the desired location with adhesive tape.

IMPORTANT: Before drilling the mounting holes to 9.5 mm (0.375 in.) to accommodate the use of well nuts, ensure the thickness of the mounting area does not exceed the gripping range of the well nuts used. The well nuts included with this kit have a working grip range of no more than 19 mm (0.75 in.). If the thickness is beyond the gripping range of the well nuts, drill the mounting holes to the correct diameter of a common wood fastening type screw.

4. Drill and cut the mounting area as directed on the cutout template.



5. The control module can be rotated 8° fore and aft from perpendicular relative to the remote control mounting surface. An 8° undercut must be made to the mounting location to allow for adequate clearance for the control module.



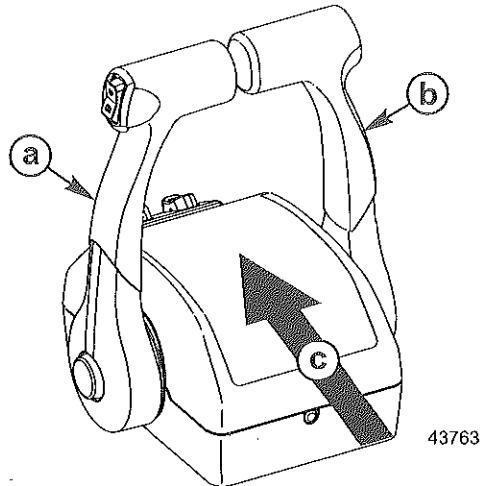
- a - Control mounting surface
- b - 8° undercut
- c - Bow of vessel

6. After cutting out the mounting area, remove all sharp edges with a suitable tool.

Shift and Throttle Cable Installation

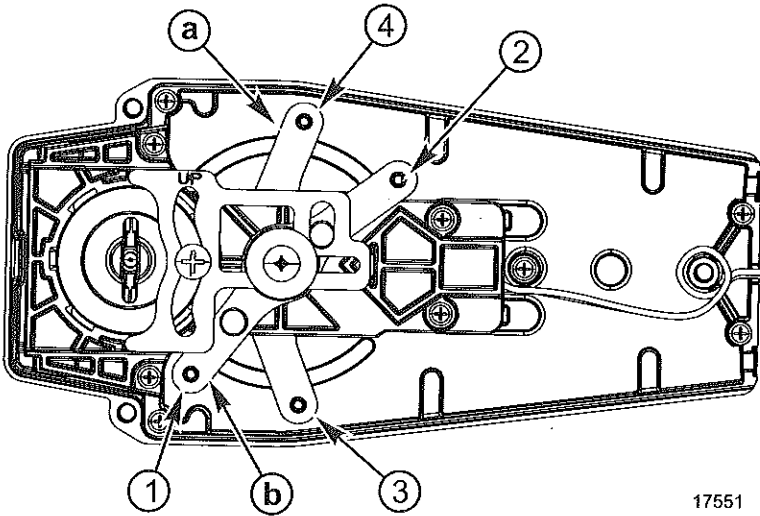
Control Cable Anchor Attaching Location

IMPORTANT: When installing control cables on the 4502 series console control, the control location is opposite of how it is visually. The control handle that controls the starboard engine, must have the cables installed as identified in the port mount control. Refer to the following chart. The control handle that controls the port engine, must have the cables installed as identified in the starboard mount control. Refer to the following chart. Failure to follow this information will result in the shift cable moving in the wrong direction.



- a - Port engine control; install cables as a starboard mount control
- b - Starboard engine control; install cables as a port mount control
- c - Direction of vessel bow

Outboard Models (U.S. and Belgium Models Only)	Starboard Mount Control		Port Mount Control	
	Anchor Attaching Location		Anchor Attaching Location	
	Shift Cable	Throttle Cable	Shift Cable	Throttle Cable
Force Outboards and L-Drive (except 9.9 HP and 15 HP)	4	2	3	2
Mariner and Mercury Outboards (standard rotation models) - All models through 225 HP (with pull throttle cable) includes 1994-1/2 20/25 HP	4	2	3	2
Mariner and Mercury Outboards - 18 HP, 20 HP, 25 HP (U.S. origin) (with push throttle cable)	4	1	3	1
Mariner and Mercury Outboards (counter rotation models) - All models through 225 HP	3	2	4	2
Mariner and Mercury Outboards (standard rotation models) - 250 HP/275 HP	3	2	4	2
Mariner and Mercury Outboards (counter rotation models) - 250 HP/275 HP	4	2	3	2
Mercury Outboards (standard rotation models) - 3.0 Liter EFI GEN II, OptiMax GEN II	4	2	3	2
Mercury Outboards (counter rotation models) - 3.0 Liter EFI GEN II, OptiMax GEN II	4	2	3	2

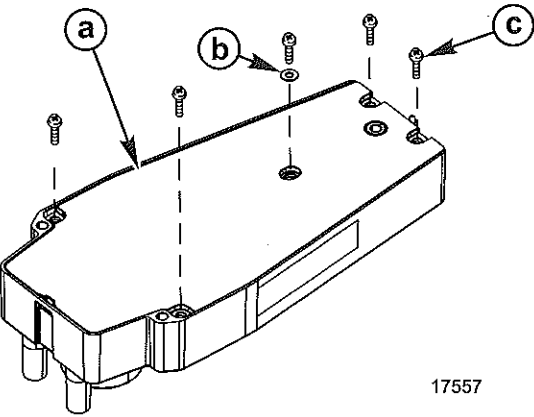


a - Shift arm
b - Throttle arm

17551

NOTE: The base assembly gasket and the base assembly, must be placed over the console control mount opening prior to installing the shift and throttle cables to the control module.

1. Remove the screws securing the back plate to the control module.



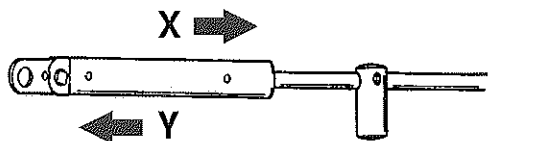
a - Back plate
b - Washer
c - Screw (5)

17557

IMPORTANT: Determine the type of drive unit rotation the cable is installed onto. The shift cable must be correctly installed at the remote control assembly for the appropriate drive unit rotation; standard or counter rotation.

NOTE: For Bravo Three, Blackhawk Drive, and for outboard models 3.0 Liter EFI GEN II, OptiMax GEN II units, refer to the instructions for standard rotation control cable installation.

2. **Mercury MerCruiser models standard rotation** - The control cable must be installed in the remote control so the cable end will move in the direction of "X" when the shift handle is placed in the forward position.
3. **Mercury MerCruiser models counter rotation** - The control cable must be installed in the remote control so the cable end will move in the direction of "Y" when the shift handle is placed in the forward position.



Direction of arrow (viewed at shift plate)

Mercury MerCruiser Models	Standard Rotation		Counter Rotation	
	Anchor Attaching Location		Anchor Attaching Location	
Starboard Mount Mechanical Control	Shift Cable	Throttle Cable	Shift Cable	Throttle Cable
Direction of arrow	X	X	Y	X
Lever number	4	2	3	2

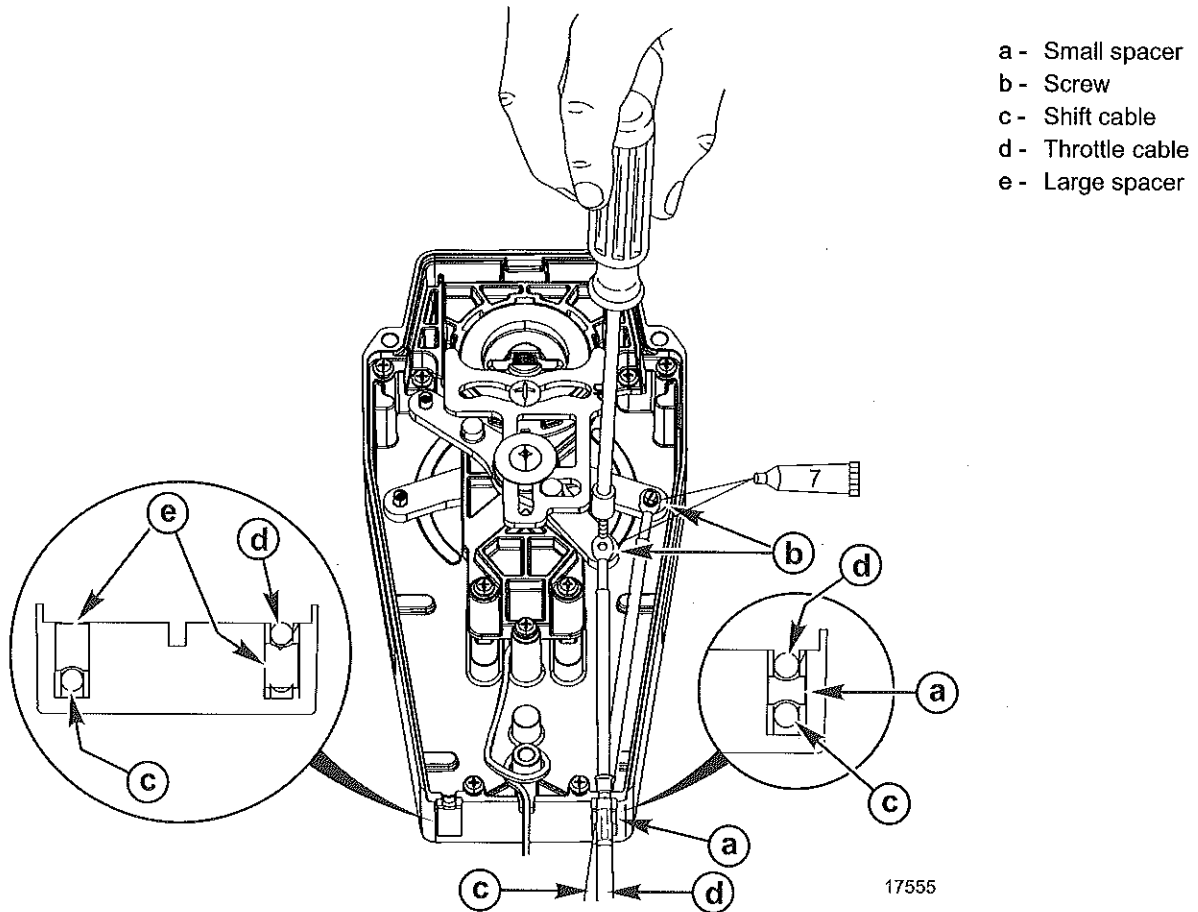
Typical Shift and Throttle Cable Installation, Outboard and Mercury MerCruiser

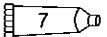
⚠ WARNING

Improper installation can result in sudden, unexpected loss of throttle and shift control, resulting in serious injury or death. Install all control components properly.

1. Apply Loctite 271 Threadlocker to the threads of the cable fastener screws.
2. Install the control cables in the appropriate arm in the remote control module.

3. Tighten the cable fastener screws to the specified torque.



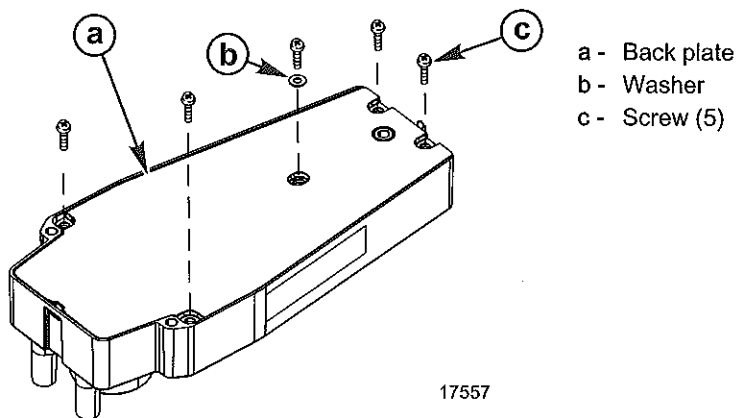
Tube Ref No.	Description	Where Used	Part No.
	Loctite 271 Threadlocker	Control cable fastener screws	92-809819

Description	Nm	lb-in.	lb-ft
Control cable fastener screws	2.8	25	

4. After installing the control cables, secure the back plate with five washers and screws. Tighten the screws to the specified torque.

⚠ WARNING

Improper installation can result in sudden, unexpected loss of throttle and shift control, resulting in serious injury or death. Install all control components properly.



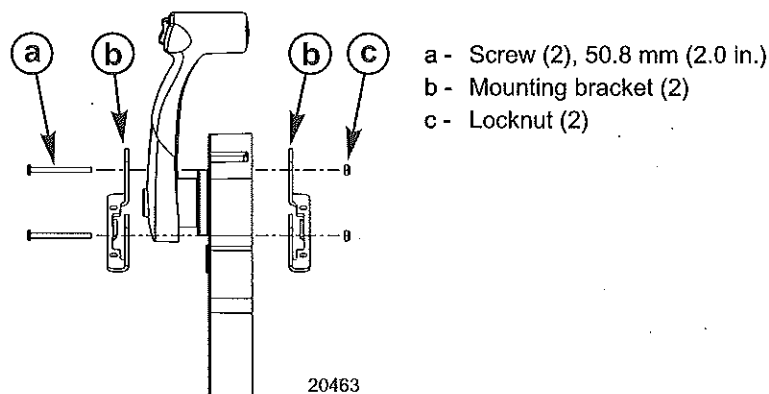
Description	Nm	lb-in.	lb-ft
Back plate screws (5)	1.1	10	

Commander 4500 Series Console Control Installation

Single Handle Console Control Mounting Bracket Installation

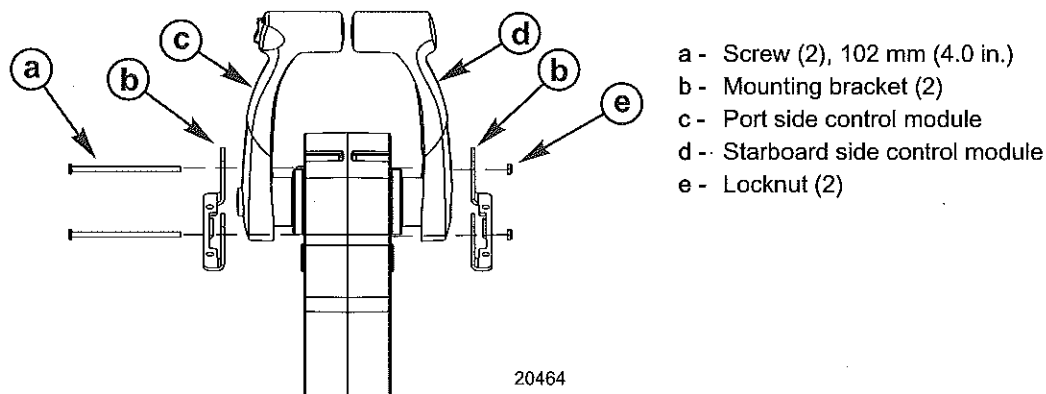
NOTE: The base assembly gasket and the base assembly, must be placed over the console control mount opening prior to installing the shift and throttle cables to the control module.

1. Install the mounting brackets onto the control module.
2. Secure the mounting brackets to the control module with two 50.8 mm (2.0 in.) screws and locknuts. Do not tighten the screws and locknuts at this time.



Dual Handle Console Control Mounting Bracket Installation

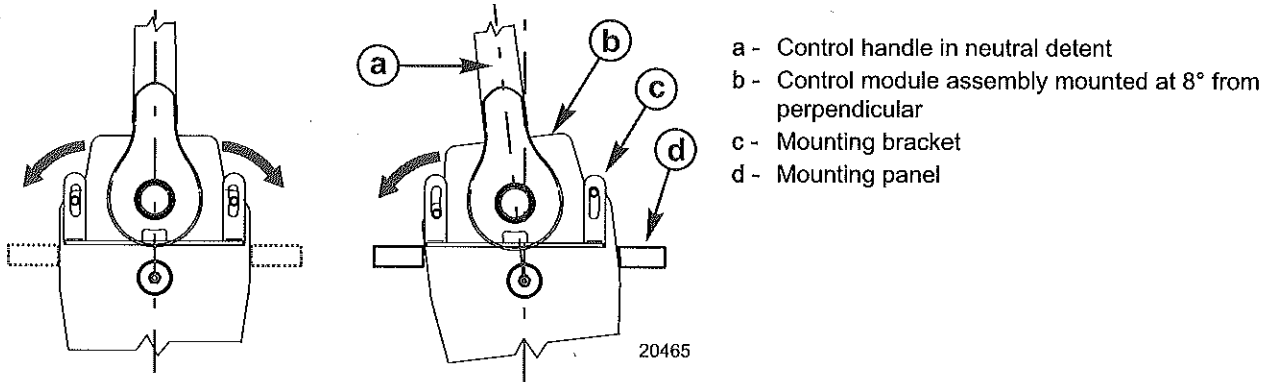
1. Place the control modules back to back.
2. Install the mounting brackets onto the control modules.
3. Secure the mounting brackets to the control modules with two 102 mm (4.0 in.) screws and locknuts. Do not tighten the screws and locknuts at this time.



Remote Control Module Angle Adjustment

1. Ensure the control handle is in the neutral detent position.
2. Move the control module assembly to the desired angle relative to the mounting surface. The maximum angle is 8° from perpendicular.

- Tighten the control module mounting bracket screws and locknuts to the specified torque.

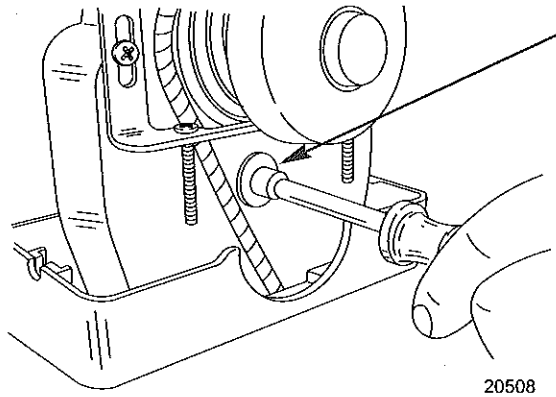


Description	Nm	lb-in.	lb-ft
Control module mounting bracket screws and locknuts	4	35	

Console Control Installation

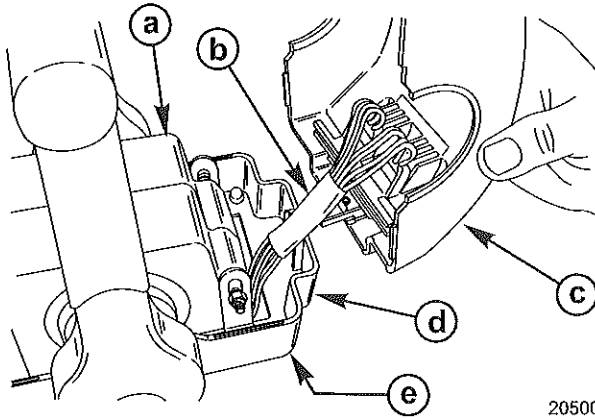
NOTE: The base assembly gasket and the base assembly, must be placed over the console control mount opening prior to installing the shift and throttle cables to the control module.

- Install the base gasket over the console opening.
- Install the base assembly over the console opening.
- Connect the remote control module assembly neutral start safety switch connectors to the engine remote control wire harness connectors. Refer to the wire diagrams.
- Adjust the control friction to the desired resistance.
 - Turn the control friction adjustment nut clockwise to increase the resistance.
 - Turn the control friction adjustment nut counterclockwise to decrease the resistance.



- Connect the trim switch harness connector to the engine wire harness connector. Ensure the trim switch harness wires on the control handle are at the rear of the remote control module assembly.

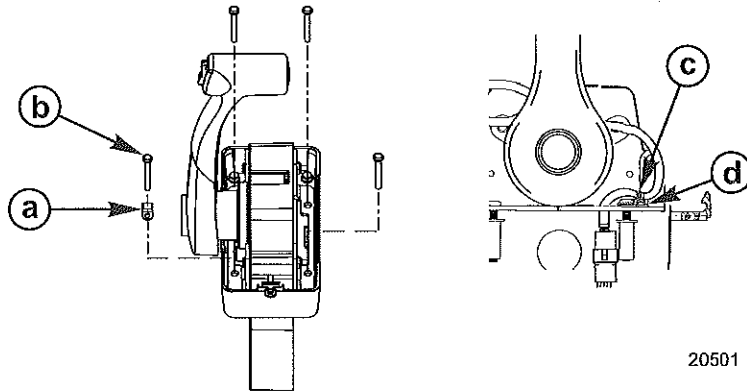
- Install the remote control module assembly into the base assembly. Ensure that the wires will not be pinched during the installation and securing of the remote control module assembly to the console.



- a - Remote control modules
- b - Trim switch harness leads
- c - Remote control cover
- d - Base assembly
- e - Base assembly gasket (hidden)

20500

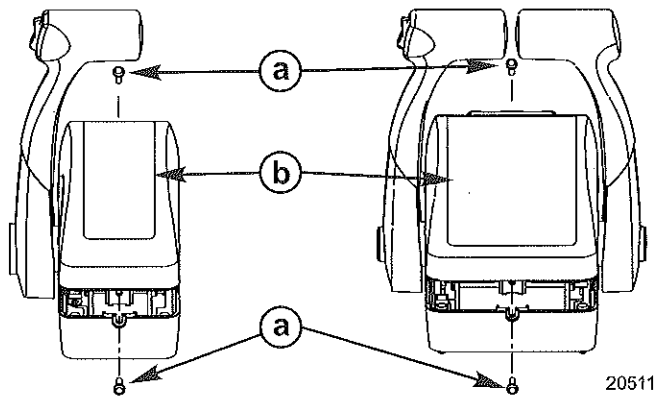
- Install a cable tie anchor onto the screw.
- Secure the remote control module assembly to the console with four 38 mm (1.5 in.) screws. Tighten the screws securely.
- Ensure the control handle trim switch wire harness has enough slack to move freely while operating the control handle to full forward and full reverse. Secure the control handle trim switch wire harness to the cable tie anchor with a cable tie.



- a - Cable tie anchor
- b - Screw (4)
- c - Cable tie
- d - Cable tie anchor

20501

- Secure the remote control cover with two screws. Tighten the screws to the specified torque.



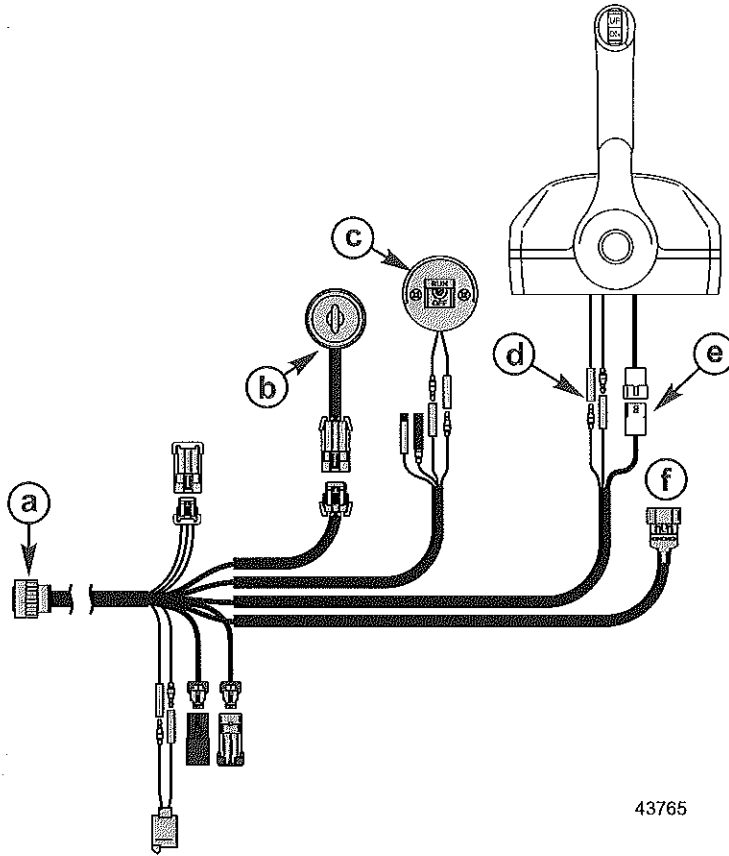
- a - Screw (2)
- b - Cover

20511

Description	Nm	lb-in.	lb-ft
Remote control cover screw (2)	1.1	10	

Lanyard Switch and Trim Switch Wire Diagrams

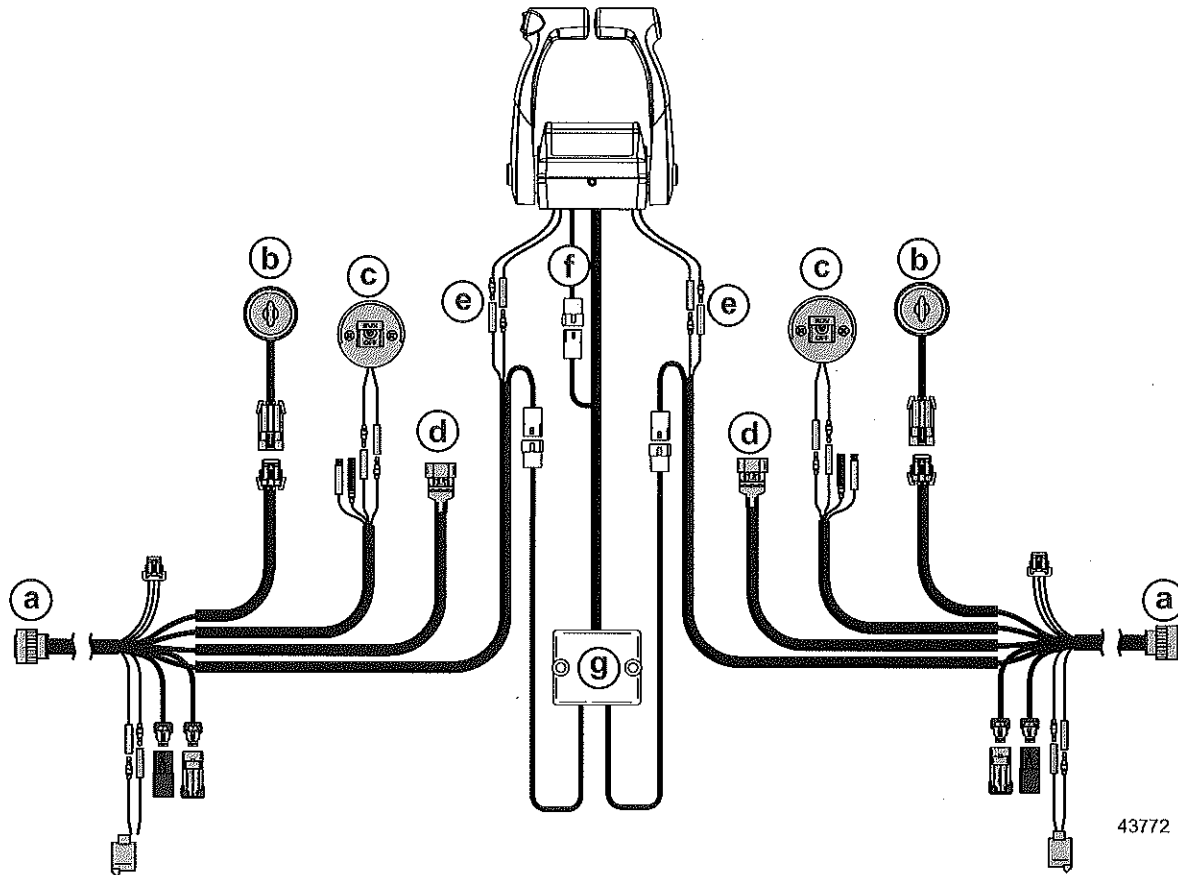
Single Engine Outboard



- a - 14 pin engine harness connector
- b - Ignition key switch
- c - Lanyard switch
- d - Neutral start safety switch leads
- e - Power trim harness connectors
- f - 10 pin connector

43765

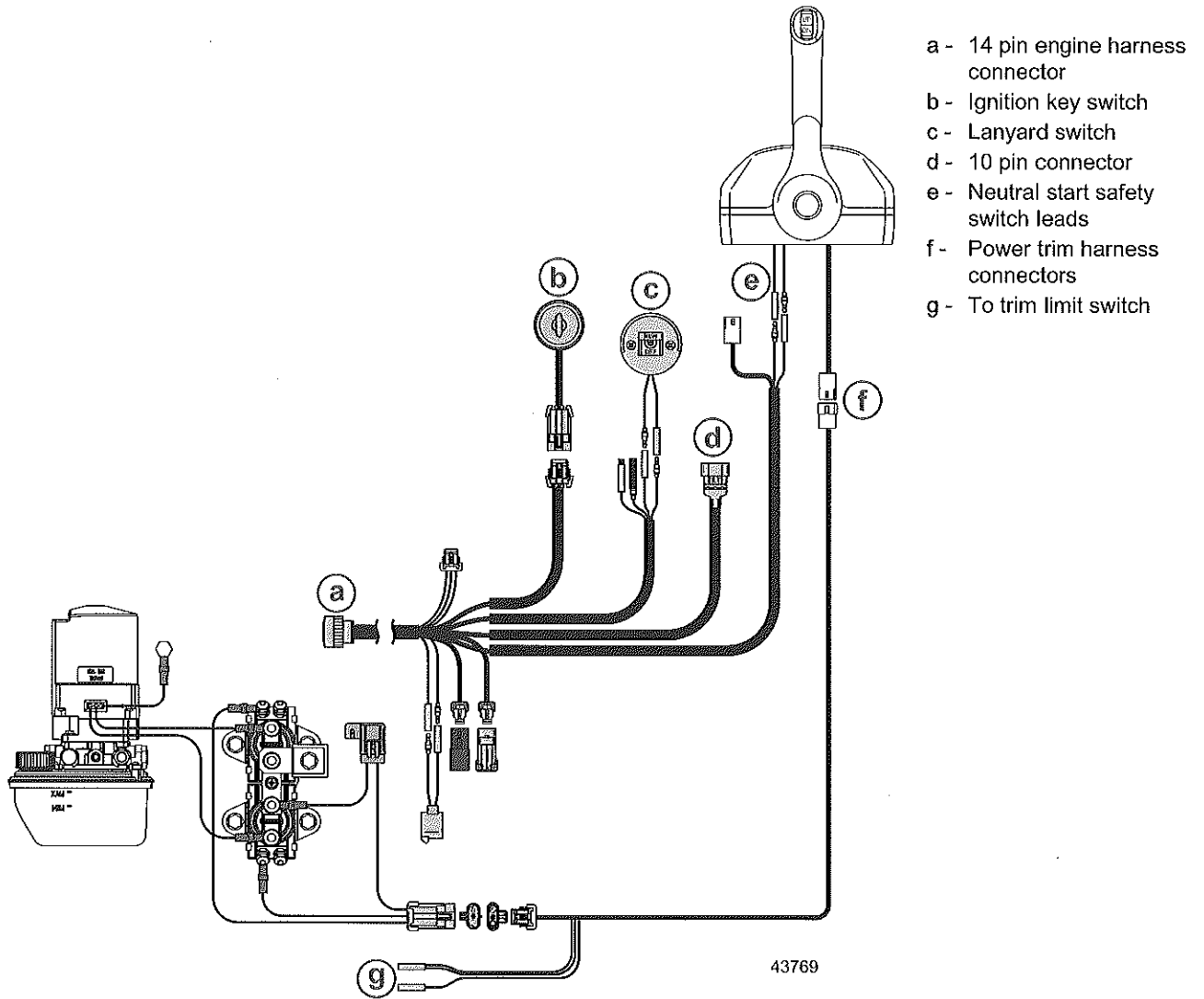
Dual Engine Outboard



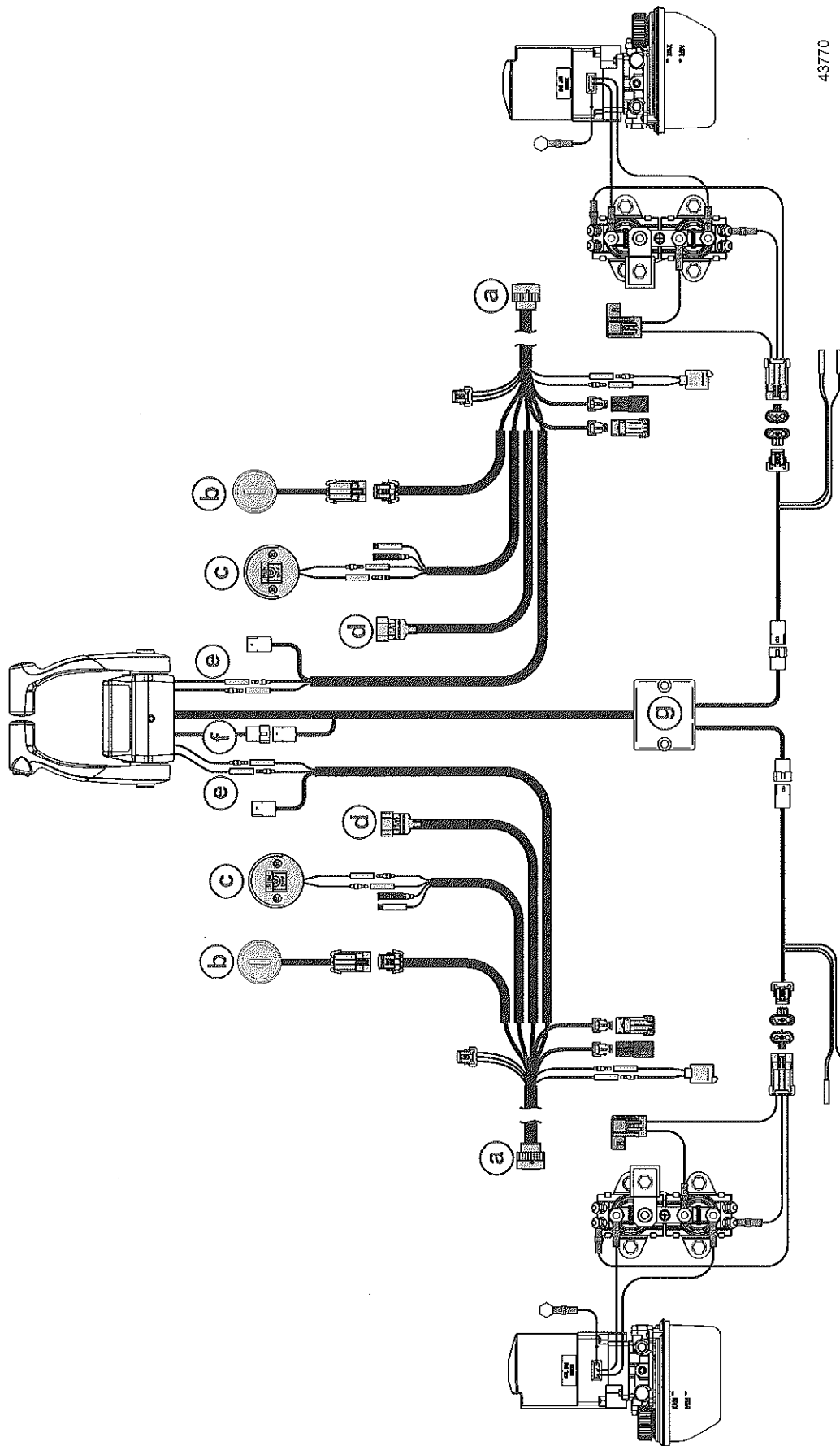
- a - 14 pin engine harness connector
- b - Ignition key switch
- c - Lanyard switch
- d - 10 pin connector
- e - Neutral start safety switch leads
- f - Control handle power trim harness connector
- g - Dual engine power trim adapter

43772

Single Engine Mercury MerCruiser

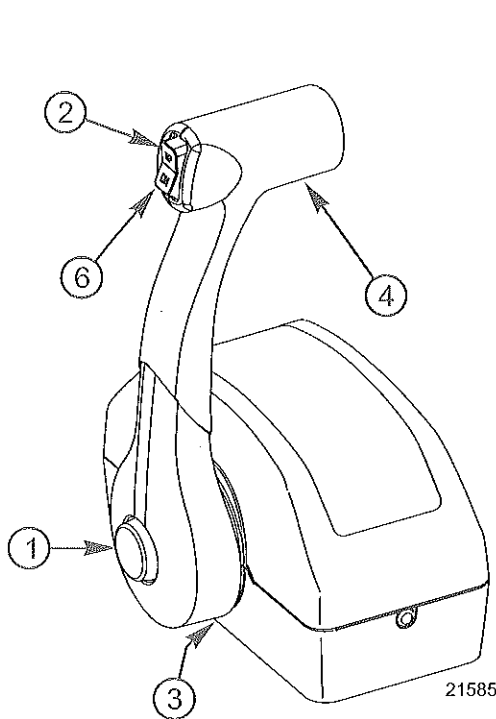


Dual Engine Mercury MerCruiser

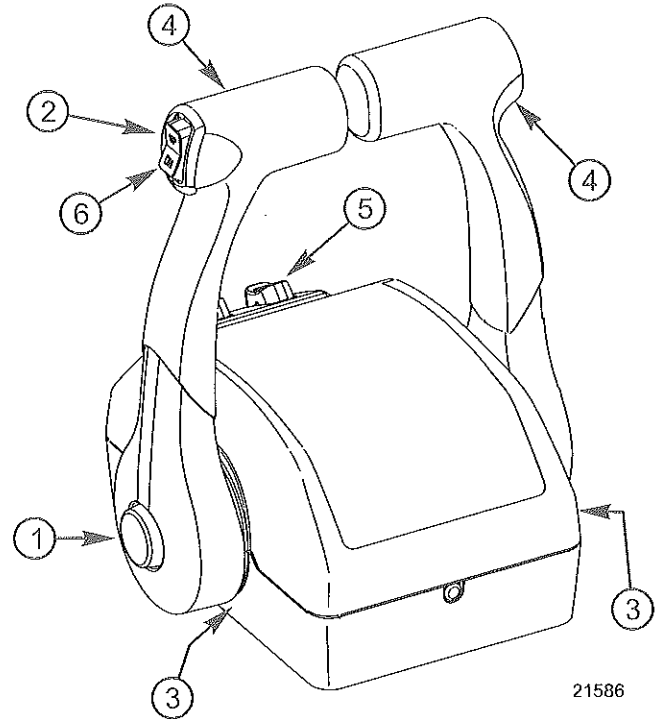


- a - 14 pin engine harness connector
- b - Ignition key switch
- c - Lanyard switch
- d - 10 pin connector
- e - Neutral start safety switch leads
- f - Control handle power trim harness connector
- g - Dual engine power trim adapter

MCC 4501/4502 GEN II Series Features and Operation



MCC 4501 series



MCC 4502 series

1. **Throttle only button** - Allows the engine throttle advancement without shifting the engine. This is done by disengaging the shift mechanism from the control handle. The throttle only button can be depressed only when the remote control handle is in the neutral position, and should only be used to assist in starting the engine. Refer to the **Operation and Maintenance Manual** for correct throttle setting for starting the engine.
2. **Power trim switch (if equipped)** - Used to trim or raise drive unit for trailering, launching, beaching or shallow water operation. Refer to the **Operation and Maintenance Manual** for detailed power trim/tilt operating procedures.
3. **Control handle throttle friction adjustment nut** - This nut can be adjusted to increase or decrease the friction on the control handle. This will help prevent creep of the remote control handle. Turn the nut clockwise to increase friction and counterclockwise to decrease friction. Adjust to the desired friction.

*NOTE: The adjustment of the throttle friction nut must be made prior to the installation of the remote control. Refer to the **General Installation Information** included with these installation instructions.*

IMPORTANT: Throttle friction is necessary for proper mechanical control operation. Insufficient friction may cause undesirable throttle arm operation.

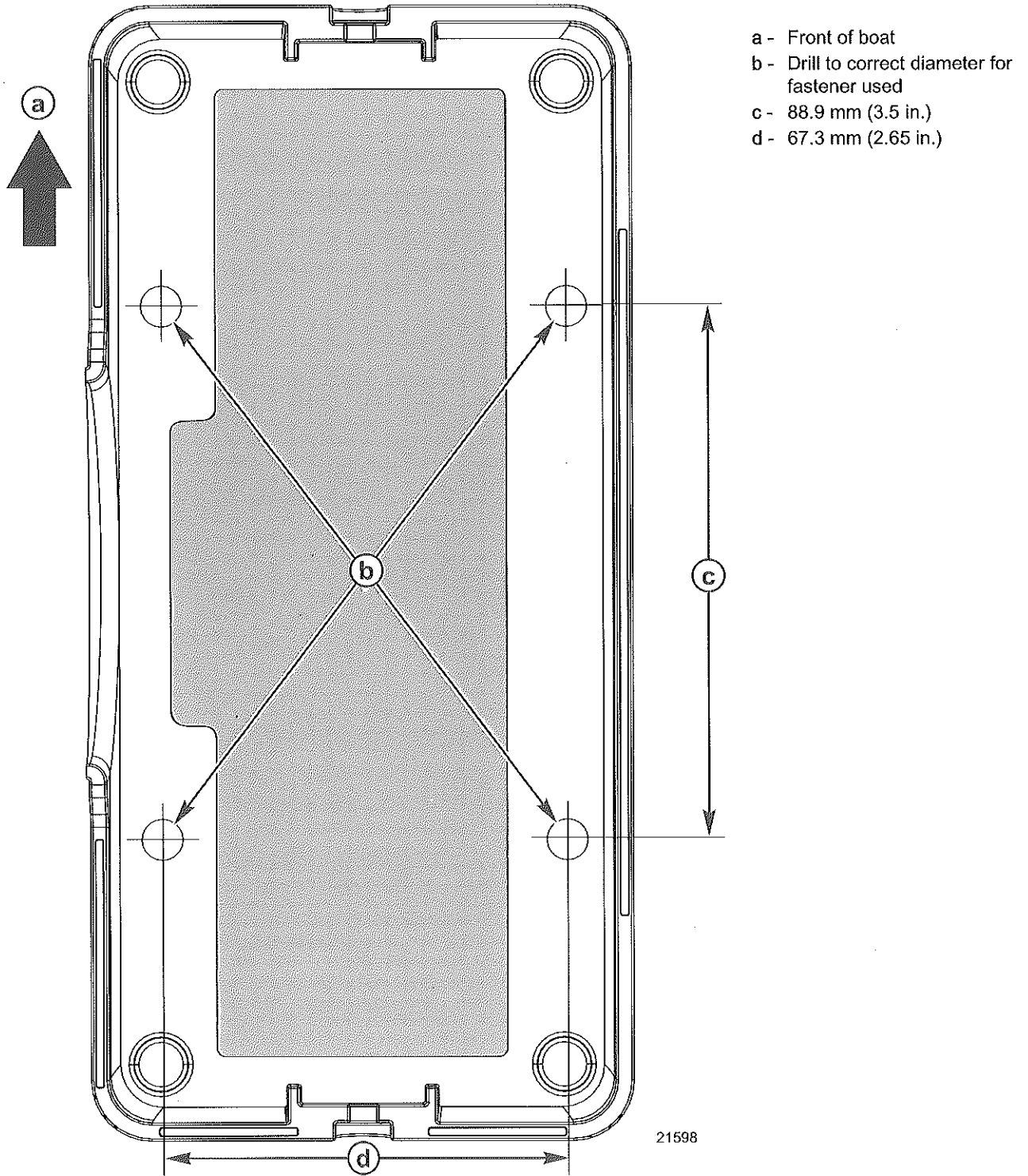
4. **Control handle** - Operation of the shift and throttle are controlled by the movement of the control handle. Push the control handle forward from neutral with a quick firm motion to the first detent for forward gear. Continue pushing forward to increase speed. Pull the control handle back from neutral with a quick firm motion to the first detent for reverse gear. Continue pushing back to increase speed.

NOTICE

Failure to rotate the propeller shaft when shifting gears or forcing the shift mechanism while the engine is not operating can result in product damage. If you must shift gears with the engine off, manually rotate the propeller shaft in the appropriate direction.

5. **Power trim adjustment switches (used on three button trim control only)** - The single integral trim button in the handle will control two engines simultaneously. These two switches control the fine tune adjustment of each engine independently. Using these fine tune switches will set each engine independently to the desired trim angle.
6. **Trailer switch (if equipped)** - Used to raise the drive unit beyond the maximum trim position. Refer to the **Operation and Maintenance Manual** for detailed trailer switch operation.

MCC 4501 Series Console Mount Template

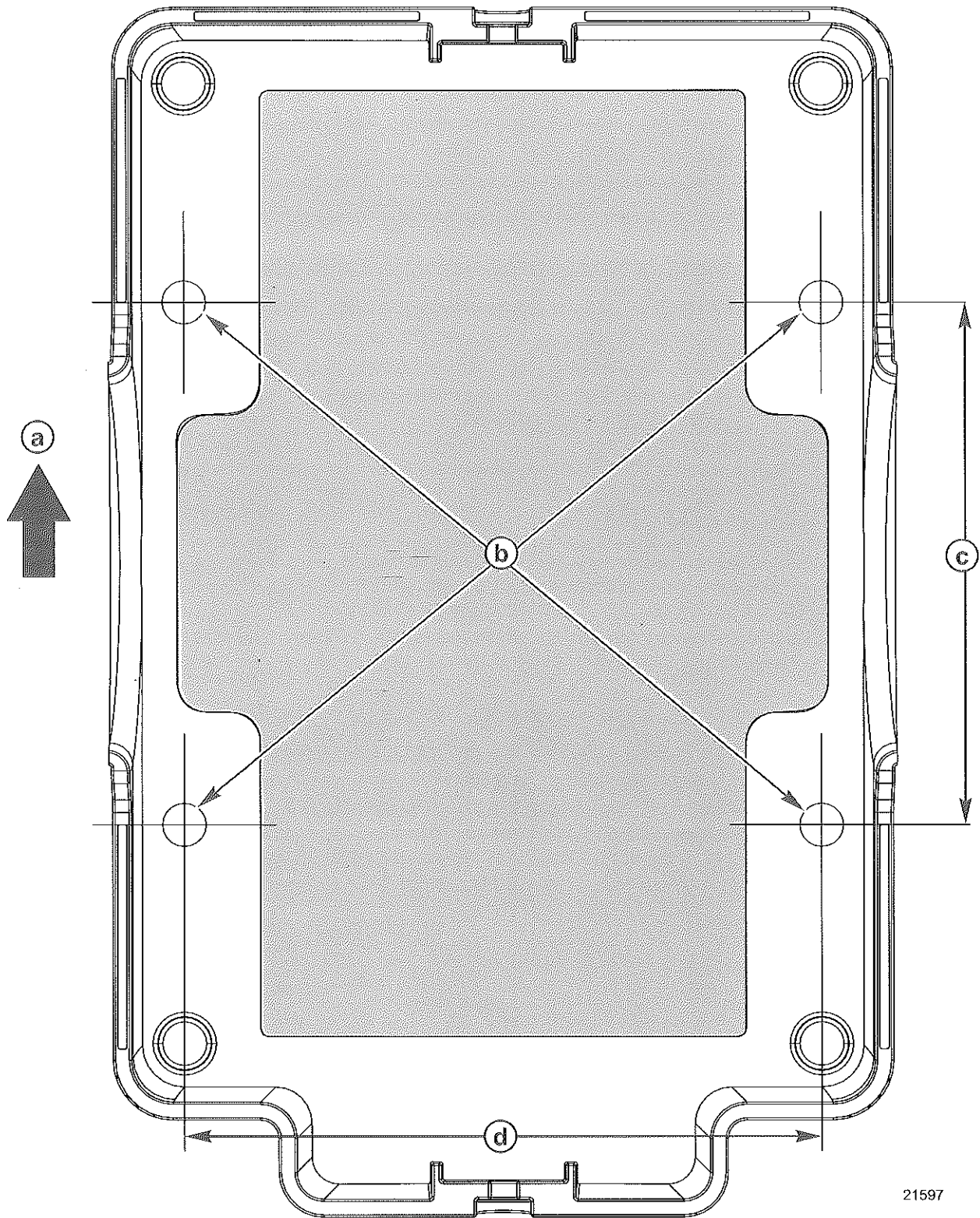


NOTE: Port side mounting of the control will require a new decal to be ordered and installed.

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

Notes:

MCC 4502 Series Console Mount Template



21597

- a - Front of boat
- b - Drill to correct diameter for fastener used
- c - 88.9 mm (3.5 in.)
- d - 108.0 mm (4.25 in.)

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

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W6250 Pioneer Road
Fond du Lac, WI 54936-1939

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