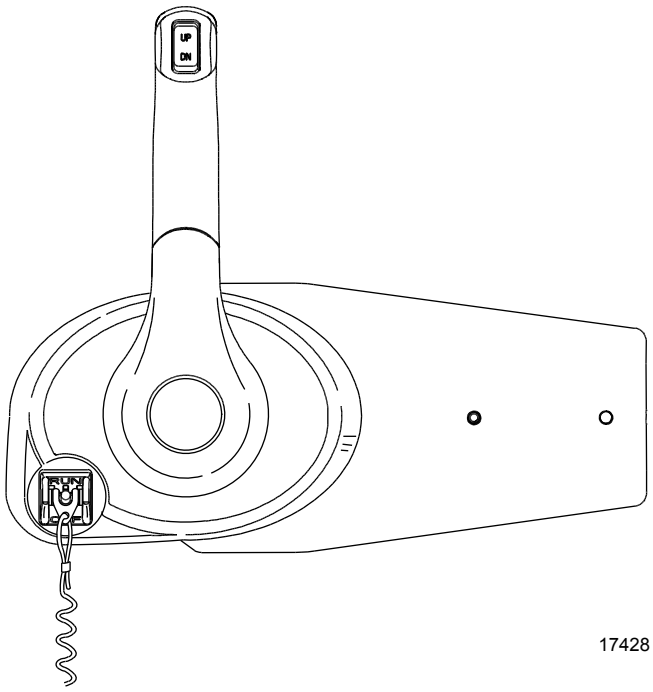
MPC 4000 GEN II SERIES LOCK BAR MECHANICAL PANEL CONTROL INSTALLATION AND OPERATION

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.

Lock Bar Remote Control



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Notice to Installer/Owner

Safety Alerts and Notices

Throughout this publication, "Warnings" and "Cautions," accompanied by the international HAZARD symbol ⚠ , are used to alert the technician to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. Observe these safety alerts carefully.

These safety alerts alone cannot eliminate the hazards they signal. Strict compliance to these special instructions when performing the service, and common sense operation are major accident prevention measures.

⚠ WARNING

WARNING - indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION - indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury or property damage. It may also be used to alert against unsafe practices.

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.*

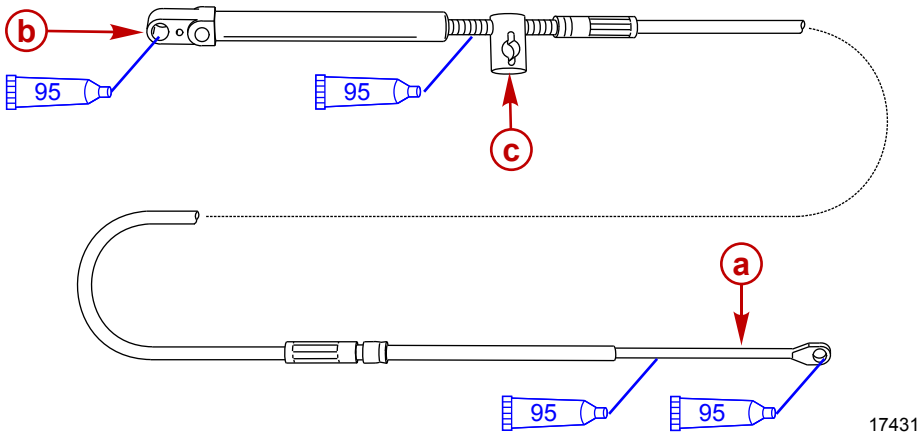
Selecting Remote Control Cables

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 cables result in kinks; too-long cables require unnecessary bends and/or loops. Both conditions place extra stress on the cables.

IMPORTANT: Shift cable/throttle cable lubrication points use 2-4-C With Teflon.



a - Remote control end
b - Engine end
c - Adjusting barrel

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Shift cable/throttle cable lubrication points	92-802859A1

NOTE: *Allow for clearance of cables directly behind panel mount remote control. The 4000 GEN II Series Panel Mount Remote Control mounting surface must not exceed 25.4 mm (1 in.) thickness. Cable radius at any one point must not be less than 305 mm (12 in.).*

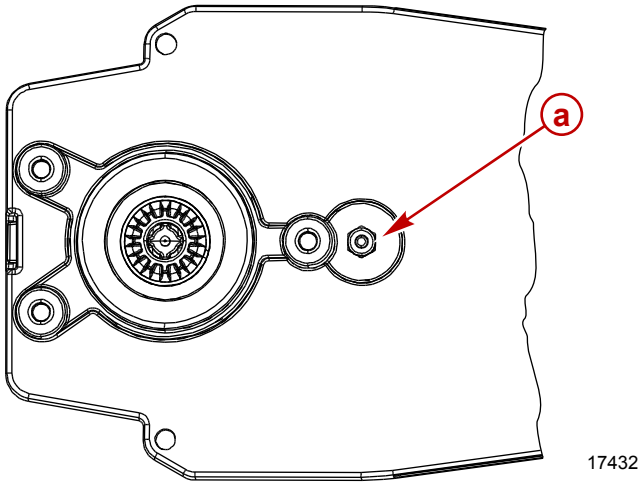
General Installation Information

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

Control Handle Friction Adjustment

1. Control handle friction is preset from the factory, however, it can be adjusted.
   a. 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.



a - Control handle friction adjusting nut

Reinstallation of Control Handle

⚠ WARNING

Avoid serious injury or death from sudden unexpected loss of throttle/shift control. The control handle retaining bolt must be properly torqued and retained with Loctite Threadlocker to prevent the control handle retaining bolt from loosening, thus resulting in disengagement of the control handle.

1. If the control handle is removed and reinstalled for any reason, apply Loctite 271 Threadlocker on the threads of the control handle retaining bolt.
2. Tighten the control handle retaining bolt to specified torque.
3. Refer to **Remote Control Module Installation** for instructions.

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

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

Control Module Mounting

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

1. Select mounting area for panel mount remote control. Select template for type of application. Follow template directions when cutting and drilling mounting surface.

2. Connect control cables and rear cover to remote control. Refer to **Shift and Throttle Cable Installation** in this instruction sheet.
3. Mount the remote control following the mounting instructions for this panel control. Make necessary wiring connections by selecting the correct wiring diagram for the remote control model being installed.
4. Install and adjust the shift and throttle cables to the power package as outlined in the instructions which accompany the power package or refer to the **Product Service Manual.**

Final Checks and Adjustments

1. Re-check tightness of control handle retaining bolt. Tighten to specified torque.

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

2. Before installing the back cover, re-check the throttle cable and shift cable retaining screws to ensure they are secure.
3. Check that the back cover screws are securely tightened.
4. Before the remote control is securely fastened, verify that the parts are in place. Verify that the control cables and control wiring harness are routed correctly.

⚠ CAUTION

To shift the remote control into reverse gear when the engine is not running, the propeller or propshaft must be rotated in the proper direction. Forcing the shift mechanism into reverse may damage the control system.

5. Operate the control handle several times (see **Caution** preceding). Any binding or stiffness in the operation of the control handle is usually caused by the following:
   a. Bends or tension on control cables near the control.
   b. Excessive number of bends in cables.
   c. Bends are too small in 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.

⚠ WARNING

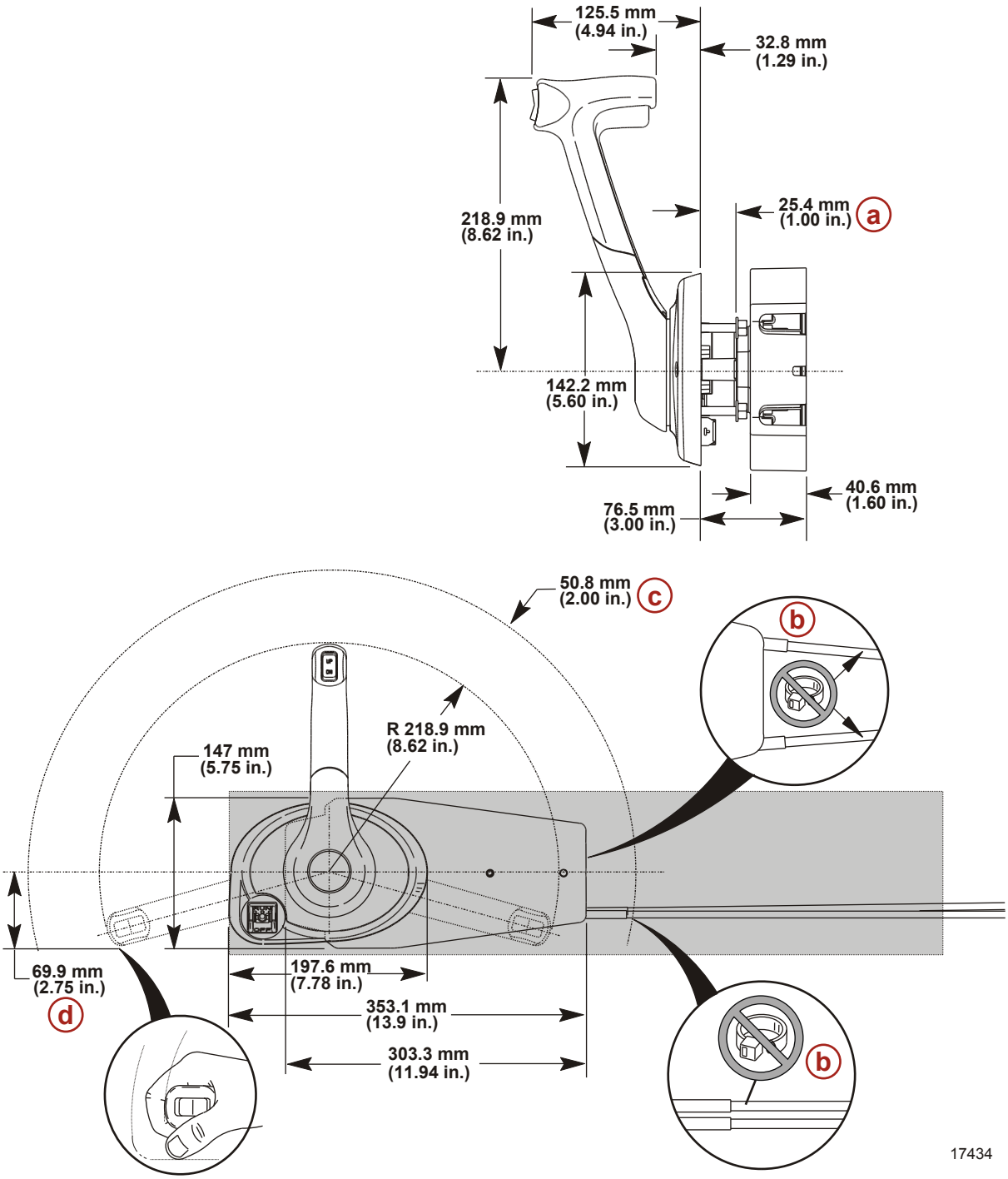
Avoid serious injury caused by being struck by a rotating propeller. Stay clear of the area around the propeller when checking the operation of the neutral start switch.

   h. Check operation of the neutral start switch. The engine must only crank when the remote control is in the **neutral** position.

Required Mounting Clearances for MPC 4000 GEN II Series

IMPORTANT: The minimum bend radius of the remote control cable is 305 mm (12 in.). For optimum performance, plan a cable route that does not require bends smaller than the minimum. A bend radius less than the minimum creates cable friction and may reduce cable life.

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



a - Maximum mounting panel thickness

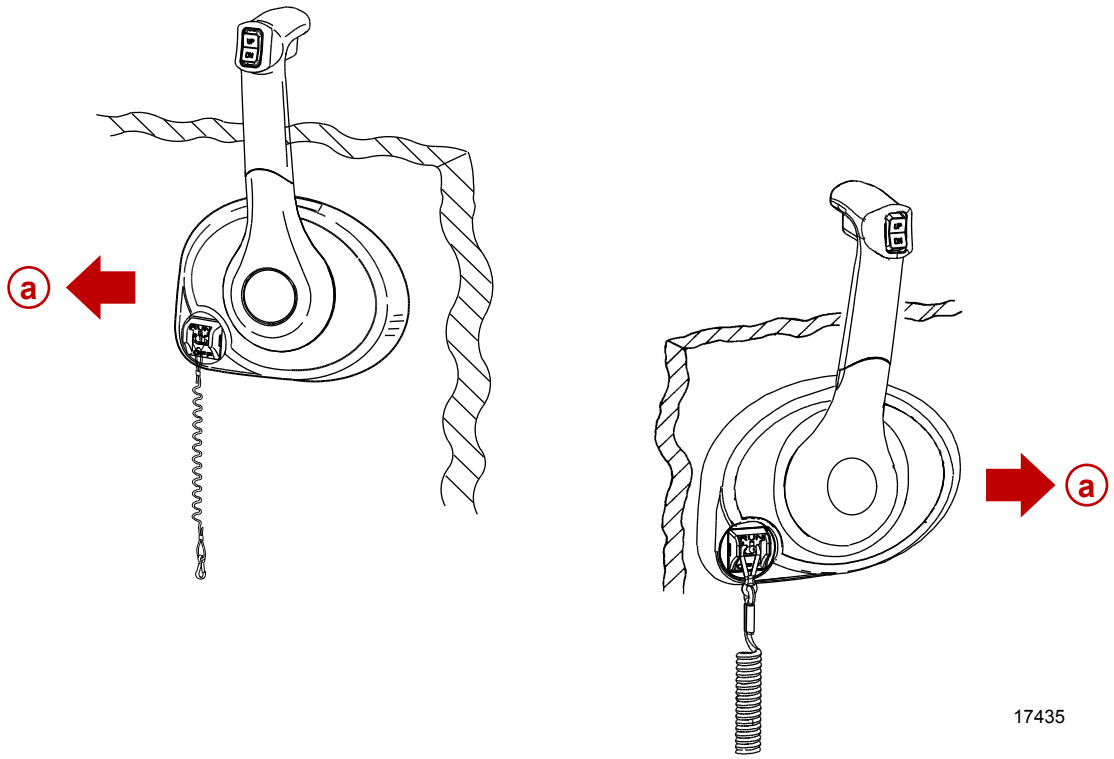
b - If shift and throttle cables are not mounted in the same housing slot position, do not use clamping straps - an increase in shift and throttle load will be noticed.

c - Hand clearance

d - Plus hand clearance

MPC 4000 GEN II Series Mechanical Panel Control Installation

NOTE: *This remote control can be Starboard or Port mounted.*



Starboard side mounting **Port side mounting**

a - Bow of boat

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

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

NOTE: *When mounting the panel control on the port side, decal 37-891905002 must be ordered and attached to the bezel.*

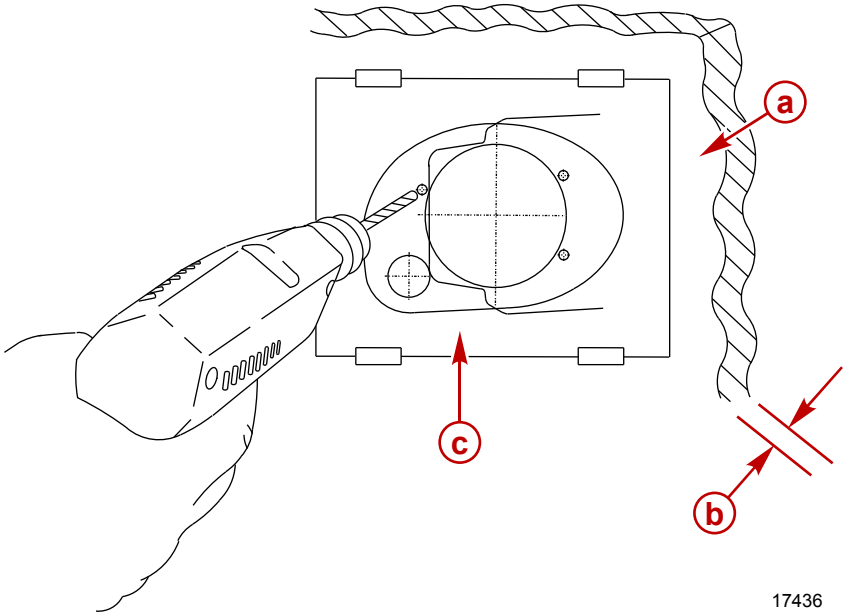
Bezel Location and Drilling Mounting Area

IMPORTANT: Mounting panel thickness must not exceed 25.4 mm (1 in.).

NOTE: *The remote control template supplied with this instruction sheet will allow the installer to rotate and mount the remote control in 30° increments. Allow for proper clearance behind the mounting area when selecting the mounting area for control.*

1. Locate area of boat where the panel mount remote control is to be mounted. Allow sufficient clearance for handle movement and clearance for remote control module and control cables behind the mounting area.
2. Use the template (supplied) for mounting application.
3. Place template over mounting surface; cut and drill as instructed on template.

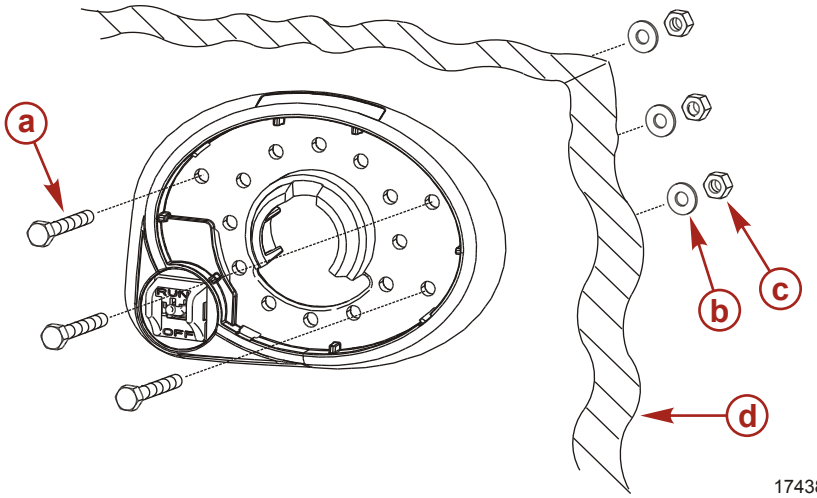
IMPORTANT: After cutting mounting area, use a suitable tool to remove all sharp edges (inner and outer) from material being cut and drilled to prevent chaffing of harnesses.



a - Mounting surface
b - Maximum mounting panel thickness 25.4 mm (1 in.)
c - Template

Installing Bezel

1. Install bezel to mounting surface as shown. Tighten bezel mounting screws to specified torque.



a - Screw 0.250-20 x 1.750 in. (3)
b - Washers (3)
c - Nuts 0.250-20 (3)
d - Mounting surface

Description	Nm	lb. in.	lb. ft.
Bezel mounting screw	5.6	50	

NOTE: *On some boat installations, it may be helpful to first make the cutout for remote control (using supplied template) and route the control cables through the boat before installing cables to control module.*

⚠ WARNING

Avoid serious injury or death from sudden unexpected loss of throttle/shift control. Control cable fastener screws must be properly torqued and retained with Loctite Threadlocker to prevent control cable fastener screws from loosening, thus allowing the cable ends to disconnect.

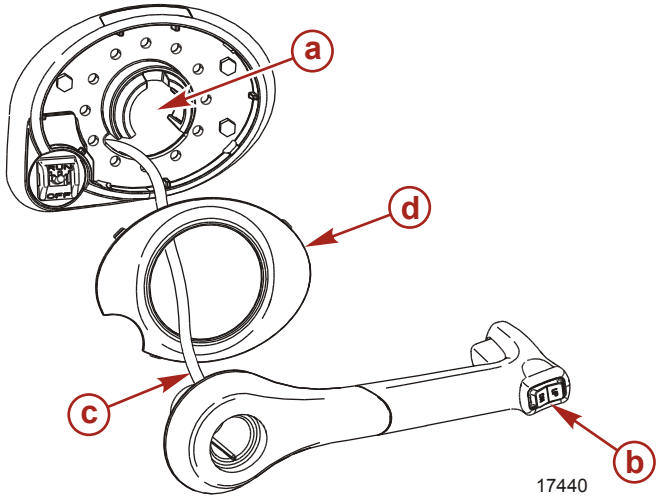
2. Following shift and throttle cable installation instructions, connect shift and throttle cables to remote control module. Tighten cable fastener screws to specified torque. Refer to **Shift and Throttle Cable Installation** in this instruction sheet.

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

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

Remote Control Module Installation

1. Route the trim switch leads from the handle assembly through the bezel cover and bezel opening as shown.
2. Allow sufficient slack in leads to permit free movement of trim leads through the full range of shift handle motion.



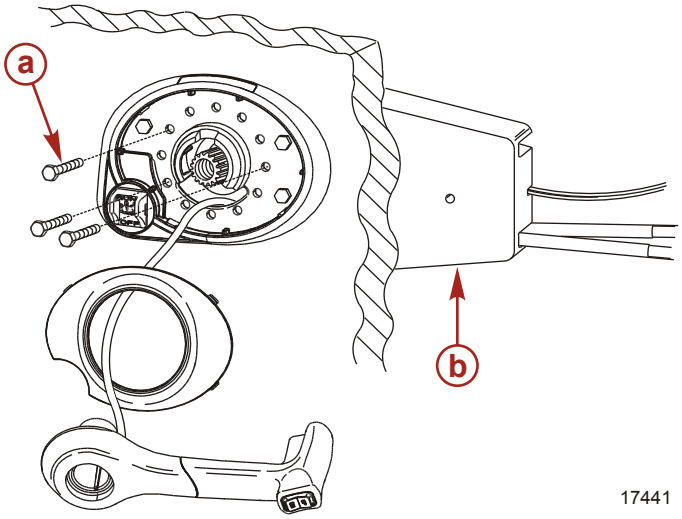
a - Bezel opening
b - Trim switch
c - Trim leads
d - Bezel cover

IMPORTANT: Verify trim/trailer wires are not pinched when mounting remote control module to panel of boat. Trim wires must be free to move with the remote control handle.

3. Install the remote control cables. Refer to **Shift and Throttle Cable Installation** in this instruction sheet.
4. Secure back plate to control module with washers and screws. Refer to **Shift and Throttle Cable Installation** in this instruction sheet.
5. Make wiring connections for neutral start safety switch, lanyard stop switch (if equipped), and trim switch (if equipped). Attach power trim harness connector (if equipped). Refer to **Instrument/Lanyard Stop Switch Wiring Diagrams.**

NOTE: *Control handle friction adjustments must be made prior to installation. Refer to* ***General Installation Information*** *for instructions.*

6. With remote control cables connected to the control module and the remote control in neutral, install the control module. Secure with three screws. Tighten the screws to specified torque.

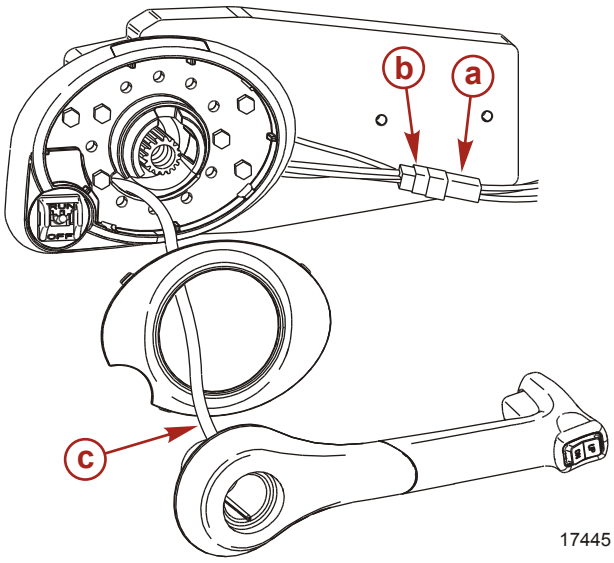


a - Control module mounting screw (3)

b - Control module

Description	Nm	lb. in.	lb. ft.
Control module mounting screw	5.6	50	

7. Connect the trim switch wires to appropriate wiring harness.

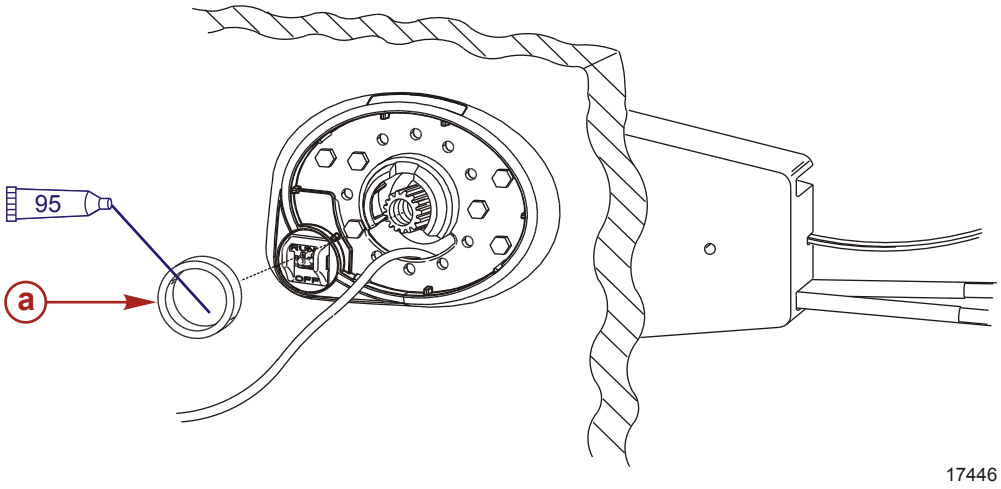


a - Trim lead connector

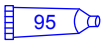
b - Trim pump lead

c - Trim switch wires

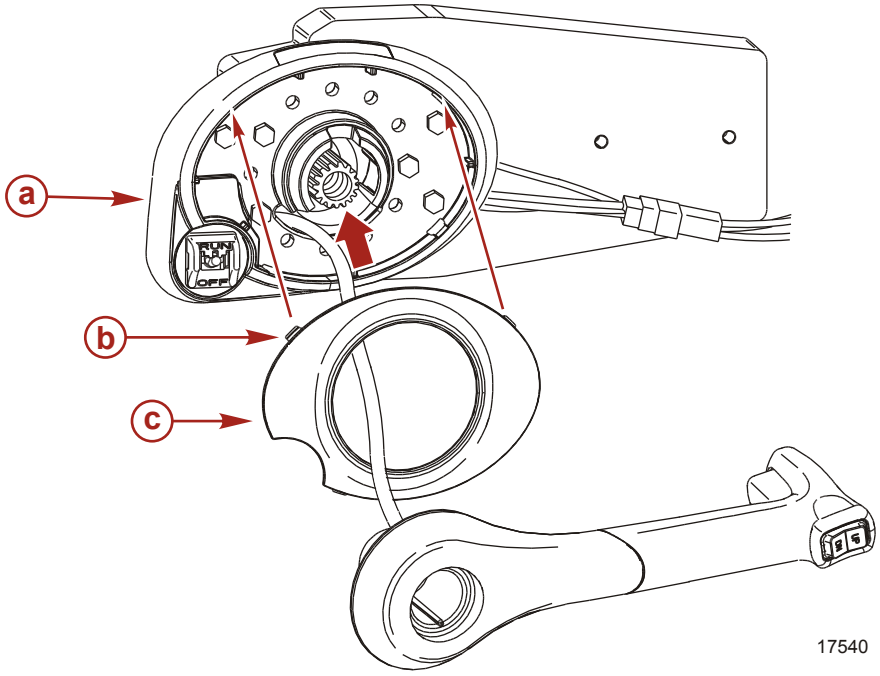
8. Install the bushing into the 4000 GEN II Module Assembly. Apply a small amount of 2-4-C with Teflon to inside of bushing.



a - Bushing

Tube Ref No.	Description	Where Used	Part No.
	2-4-C with Teflon	Inside of the 4000 GEN II Module Assembly bushing	92-802859A1

9. Align the tabs on the bezel cover with slots on the bezel. Snap the bezel cover in place.



a - Bezel
b - Tabs (4)
c - Bezel cover

⚠ WARNING

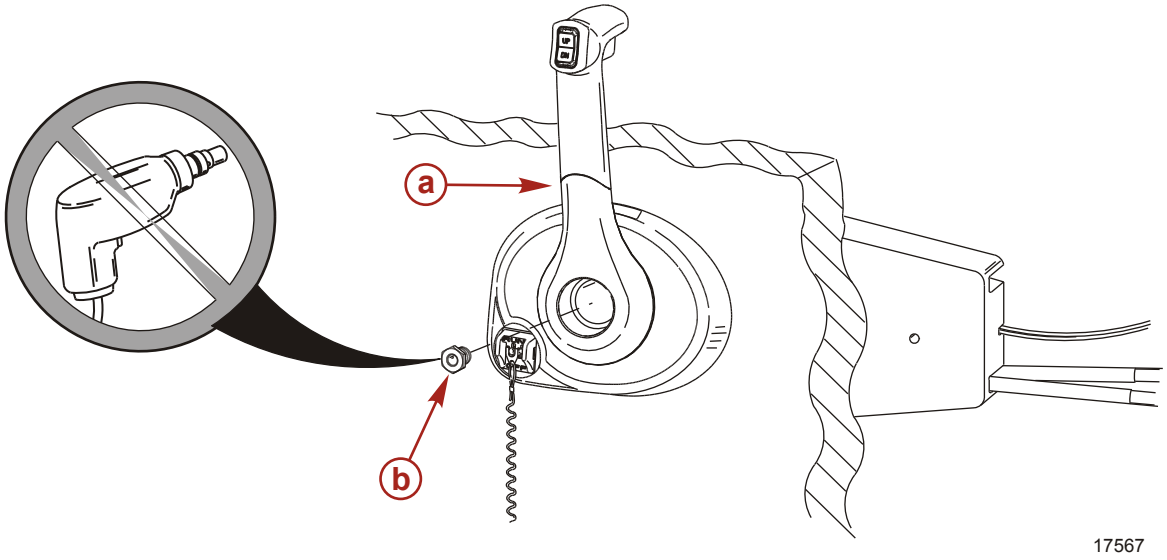
Avoid serious injury or death from sudden unexpected loss of throttle/shift control. The control handle retaining bolt must be properly torqued and retained with Loctite Threadlocker to prevent the control handle retaining bolt from loosening, thus resulting in disengagement of the control handle.

10. If the control handle is removed and reinstalled for any reason, apply Loctite 271 Threadlocker on the threads of the control handle retaining bolt.

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

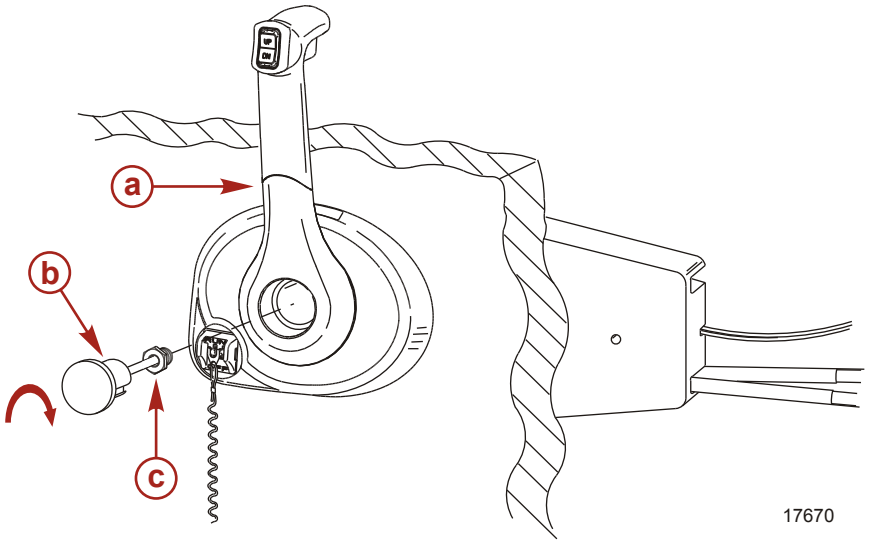
11. Place the handle assembly onto the remote control module and secure with the control handle retaining bolt using a 17 mm (11/16 in.) hex socket. Tighten bolt to specified torque.

IMPORTANT: Do not use air driver tools to install control handle retaining bolt.



a - Handle assembly **b -** Control handle retaining bolt

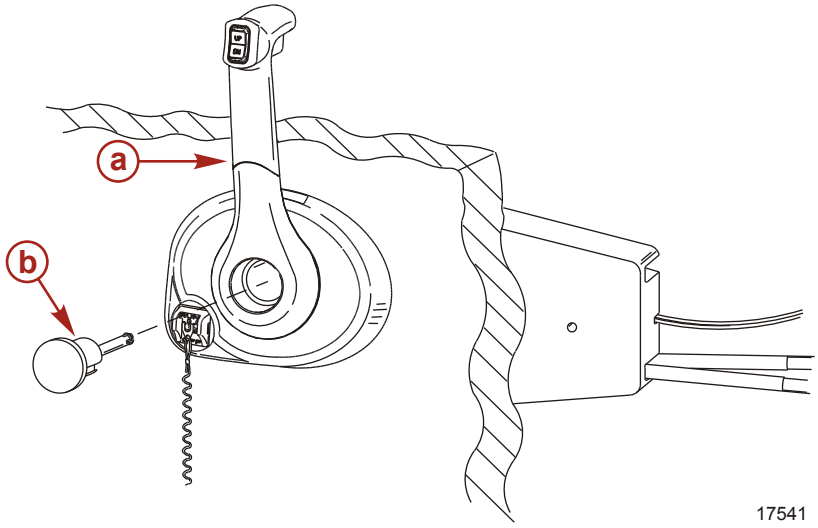
NOTE: As an aid for installing the control handle retaining bolt, use the throttle only button as a tool to start the threads into the control. Once the bolt threads are started, remove the throttle only button and complete the installation. Tighten the bolt to specified torque.



a - Handle assembly
b - Throttle only button
c - Control handle retaining bolt

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

12. Install the throttle only button.



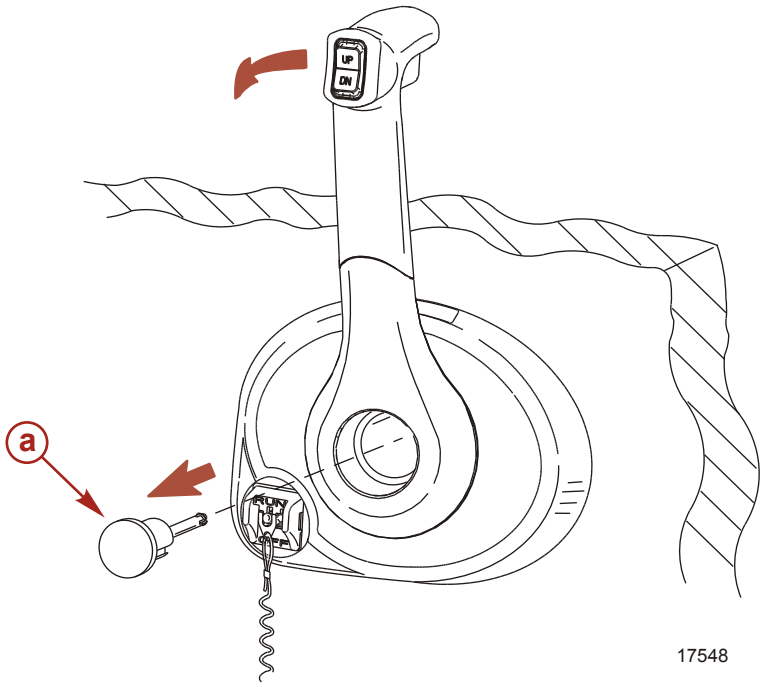
a - Handle assembly
b - Throttle only button

IMPORTANT: Leave the trim harness loose behind the panel. Do not use cable ties near the control module, harness must have free movement when rotating handle.

Throttle Only Button Removal

1. Place the control handle in the neutral position.
2. Place the control handle in the throttle only position by pushing the throttle only button in and the control handle forward.

3. Use a flat blade screwdriver to gently pry the throttle only button out of the control handle.

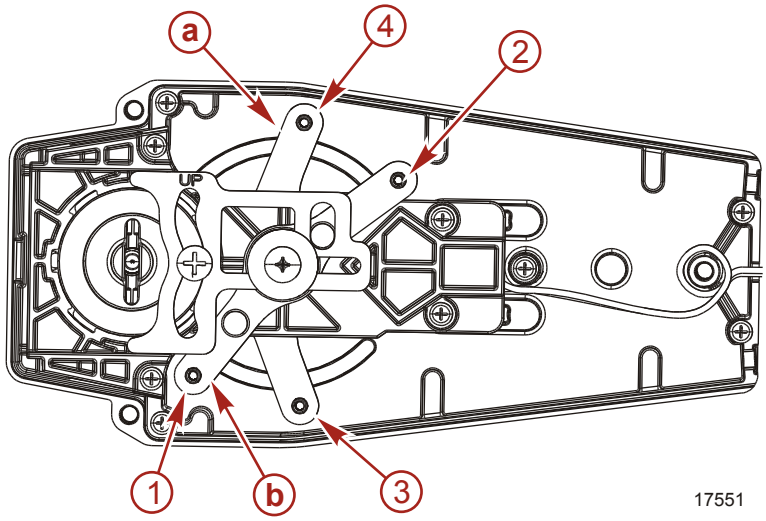


a - Throttle only button

Shift and Throttle Cable Installation

Outboard Models

Outboard Models (U.S. and Belgium Models Only)	Starboard Mount Mechanical Control		Port Mount Mechanical Control	
	Anchor Attachment Points		Anchor Attachment Points	
	Shift Cable	Throttle Cable	Shift Cable	Throttle Cable
Force Outboards and L-Drive (except 9.9 and 15)	4	2	3	2
Mariner and Mercury Outboards (Standard Rotation Models) All Models through 225 HP (With Pull Throttle) includes 1994-1/2 20/25	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 Gearcase) All Models through 225 HP	3	2	4	2
Mariner and Mercury Outboards (Standard Rotation Gearcase) 250HP/275 HP	3	2	4	2
Mariner and Mercury Outboards (Counter Rotation Gearcase) 250 HP/275 HP	4	2	3	2



a - Shift arm **b -** Throttle arm

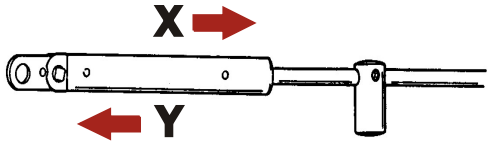
Mercury MerCruiser Models

IMPORTANT: Shift cable must be connected at the remote control for the appropriate drive unit rotation (standard or counter rotation), as explained following:

NOTE: *Bravo Three and Blackhawk Drive Units refer to instructions for Standard Rotation (following).*

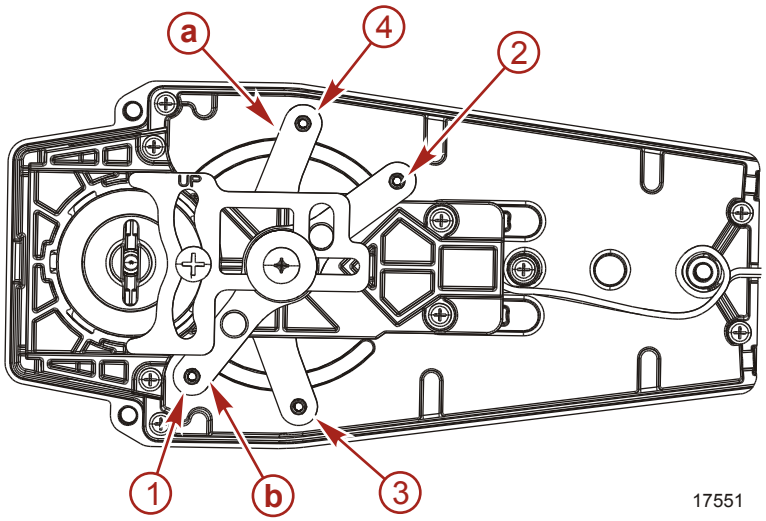
STANDARD ROTATION - Control cable will have to be installed in remote control so that cable end will move in direction X when shift handle is placed in the forward position.

COUNTER ROTATION - Control cable will have to be installed in remote control so that cable end will move in direction Y when shift handle is placed in the forward position.



Direction of arrow (Viewed at shift plate)

Mercury MerCruiser Models	Standard Rotation		Counter Rotation	
Starboard Mount Mechanical Control	Anchor Attachment Points		Anchor Attachment Points	
	Shift Cable	Throttle Cable	Shift Cable	Throttle Cable
Direction of Arrow	X	X	Y	X
Lever Stud Number	4	2	3	2
Port Mount Mechanical Control	Anchor Attachment Points		Anchor Attachment Points	
	Shift Cable	Throttle Cable	Shift Cable	Throttle Cable
Direction of Arrow	X	X	Y	X
Lever Stud Number	3	2	4	2



a - Shift arm **b -** Throttle arm

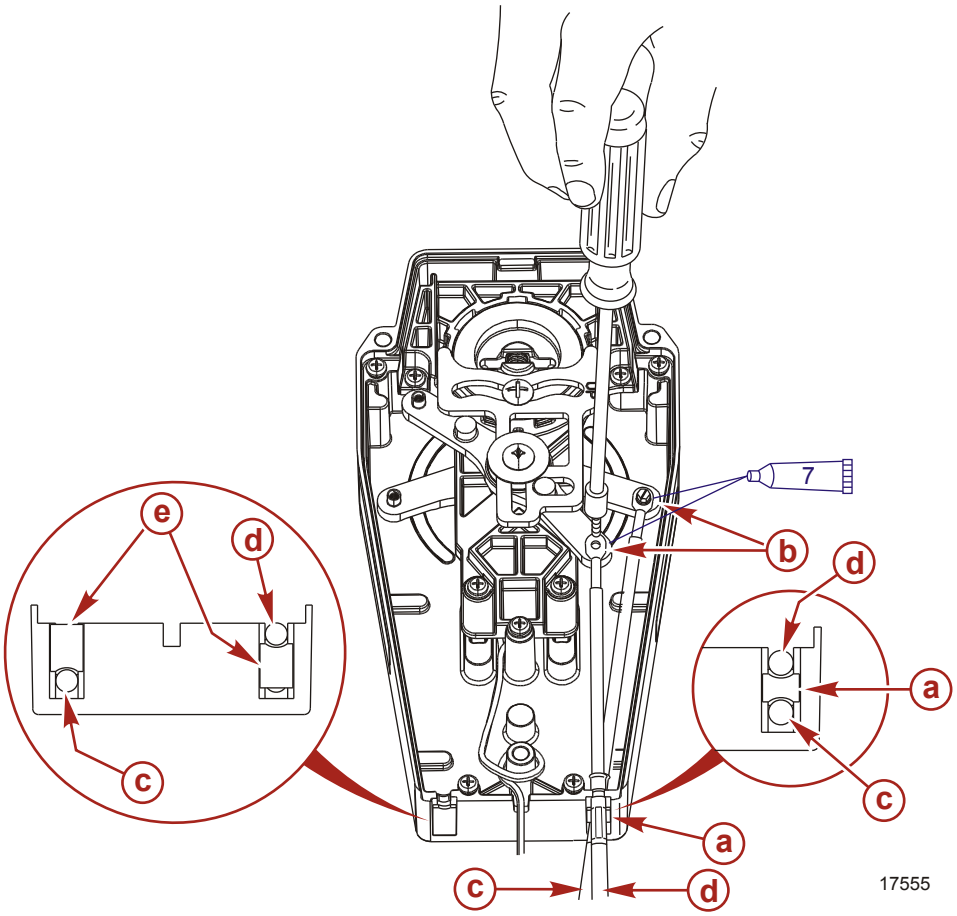
Typical Shift and Throttle Cable Installation, Outboard and Mercury MerCruiser

⚠ WARNING

Avoid serious injury or death from sudden unexpected loss of throttle/shift control. Control cable fastener screws must be properly torqued and retained with Loctite Threadlocker to prevent control cable fastener screws from loosening, thus allowing the cable ends to disconnect.

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 specified torque.



a - Small spacer
b - Screw
c - Shift cable
d - Throttle cable
e - Large spacer

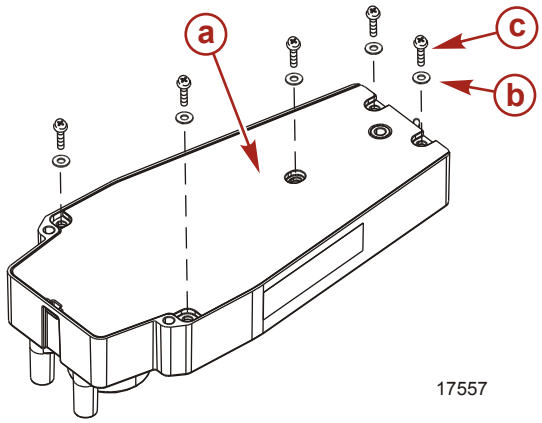
Tube Ref No.	Description	Where Used	Part No.
7	Loctite 271 Threadlocker	Control cable fastener screws	92-809819

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

4. After control cable installation, secure back plate with five washers and screws as shown.

⚠ WARNING

Avoid serious injury or death from sudden unexpected loss of throttle/shift control. The back plate must be fastened to the control with five (5) screws to prevent the back cover from loosening, thus resulting in the control cables slipping out of the mounting slots at the rear of the control.



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

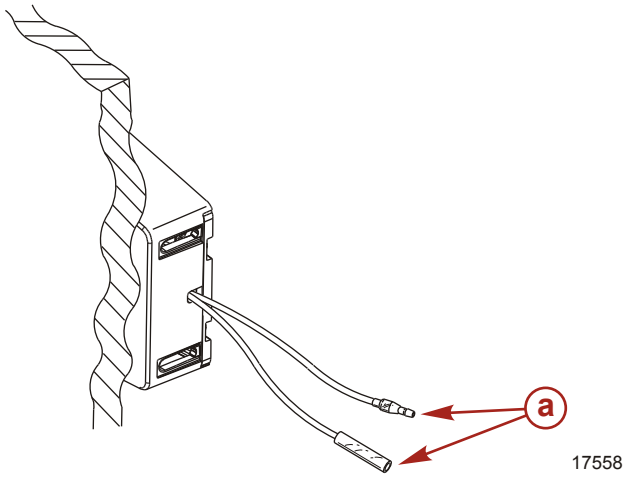
Description	Nm	lb. in.	lb. ft.
Back plate screws (5)	Drive tight		

Electrical Connections - Neutral Start Safety Switch

1. Connect wires from neutral start safety switch leads as shown in the **Instrument/ Lanyard Stop Switch Wiring Diagrams**.

⚠ WARNING

Avoid serious injury or death from a sudden unexpected acceleration when starting the engine. The neutral start safety switch must be correctly connected to prevent engine startup when in gear. Refer to wiring diagrams for correct wiring connections.



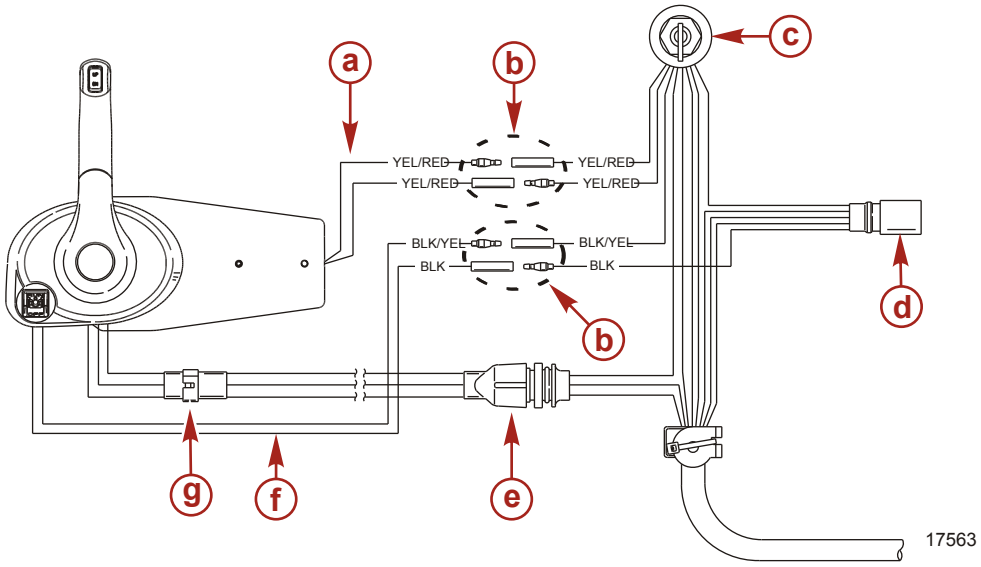
a - Neutral start safety switch leads (2)

Wire Color Code Abbreviations

Wire Color Abbreviations				
BLK	Black		BLU	Blue
BRN	Brown		GRY	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

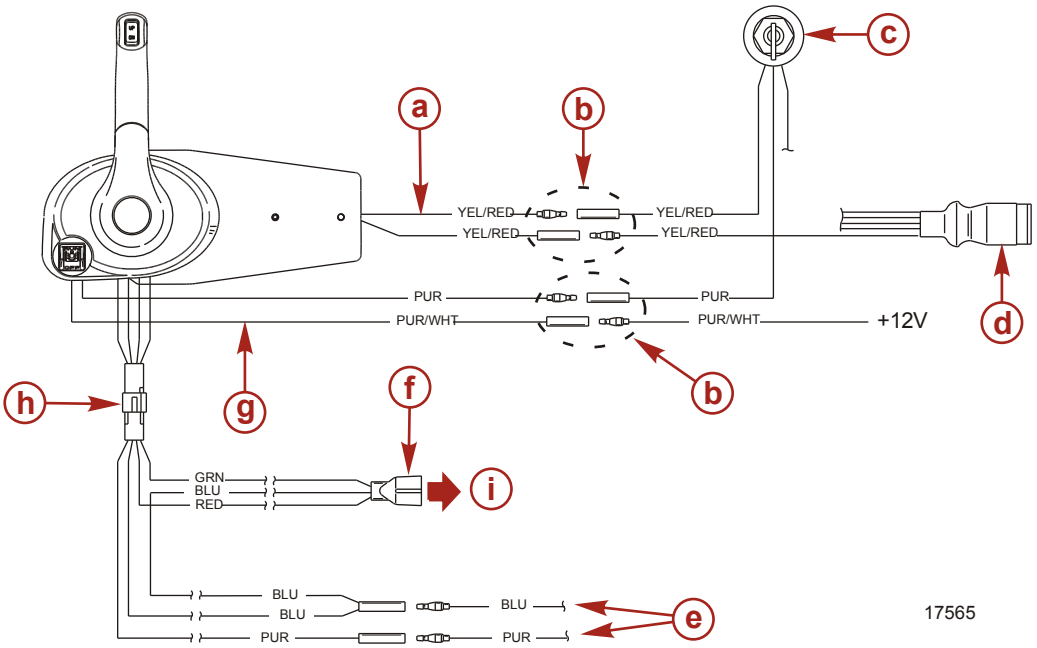
Lanyard Stop Switch Wiring Diagrams

Mercury/Mariner Outboards 40 HP through 225 (3.0 Liter), Force (1993 and Newer)



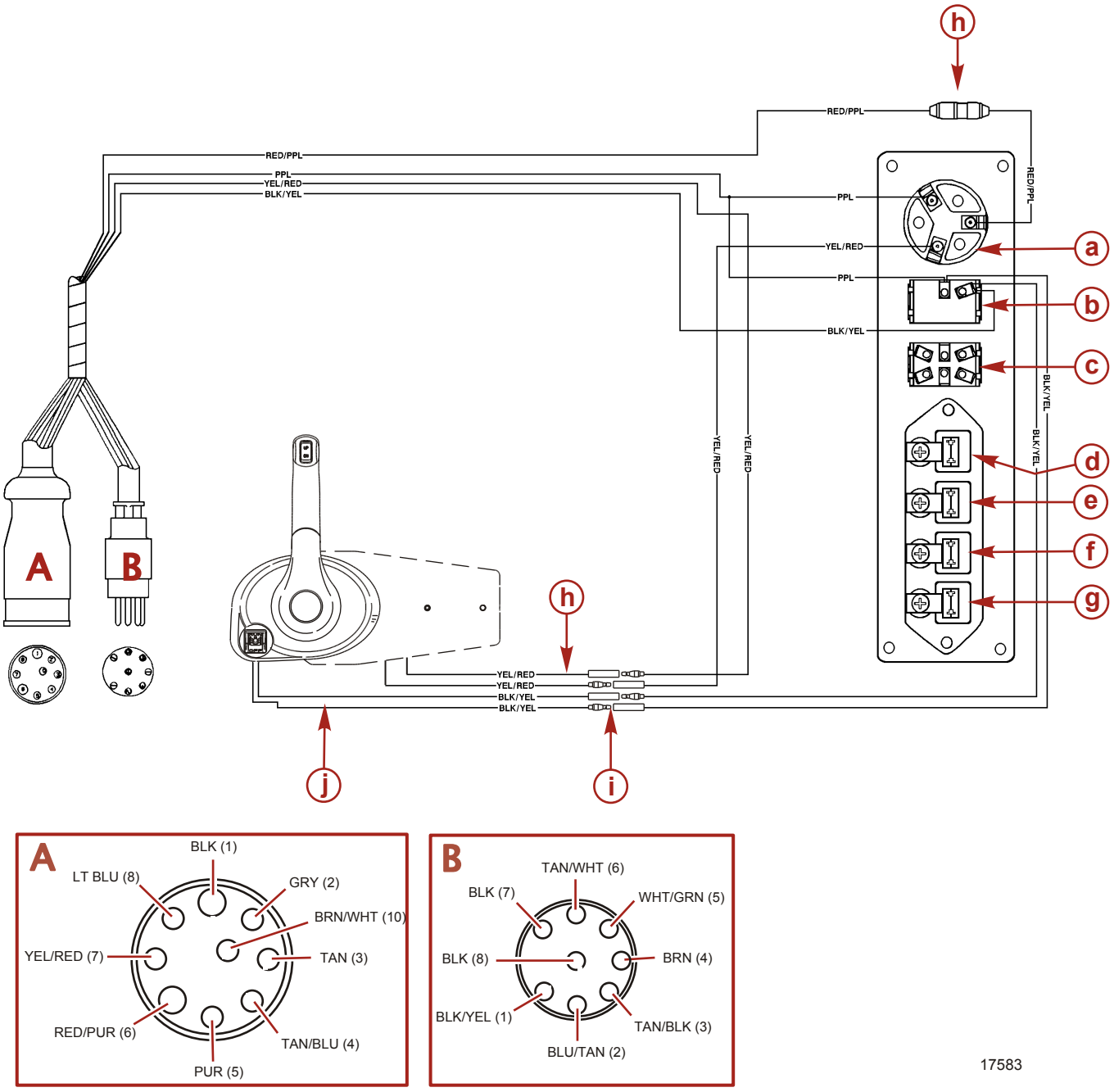
a - Neutral start safety leads
b - Bullet or eyelet connectors
c - Ignition key switch
d - Engine harness connector
e - Power trim connector
f - Lanyard stop leads
g - 3 pin plastic connector

Mercury MerCruiser All Single Engine Gasoline Models



a - Neutral start safety leads
b - Bullet or eyelet connectors
c - Ignition key switch
d - Engine harness connector
e - To power trim cowl switch
f - Power trim connector
g - Lanyard stop leads
h - 4 pin plastic connector
i - To power trim pump

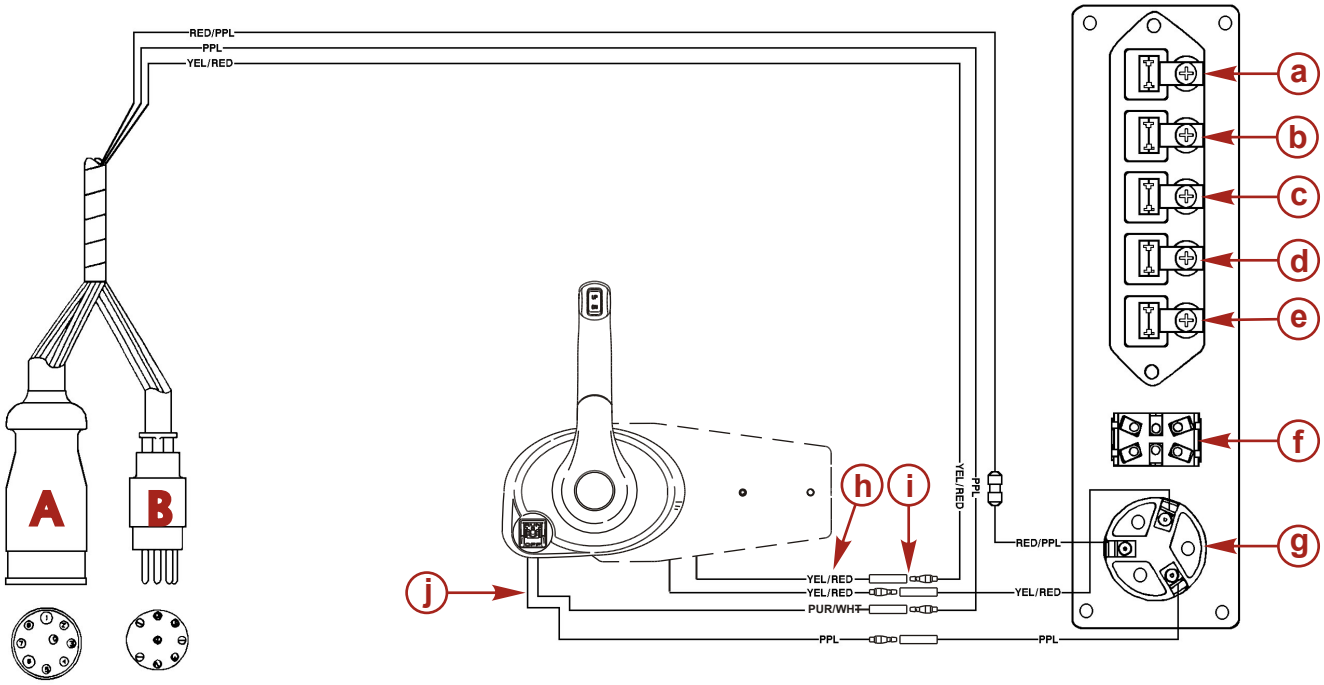
Mercury MerCruiser D1.7L/103, D3.0L/150, D3.6L/180 and D4.2L/220 Diesels

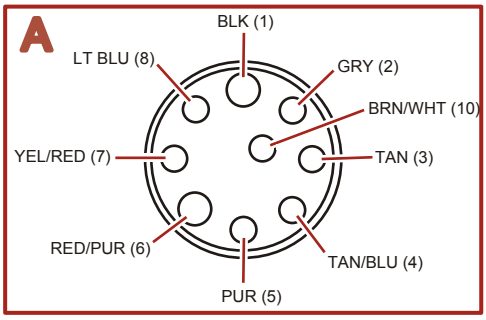


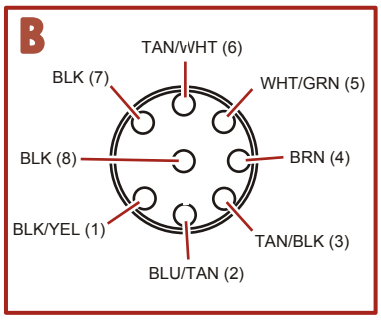
17583

a - Ignition key switch
b - Stop switch
c - Light switch and audio test
d - Pre-heat
e - Alternator
f - Oil pressure
g - Coolant temperature
h - Neutral start switch leads
i - Bullet or eyelet connectors
j - Lanyard stop switch

Mercury MerCruiser D7.3L/270 Diesel



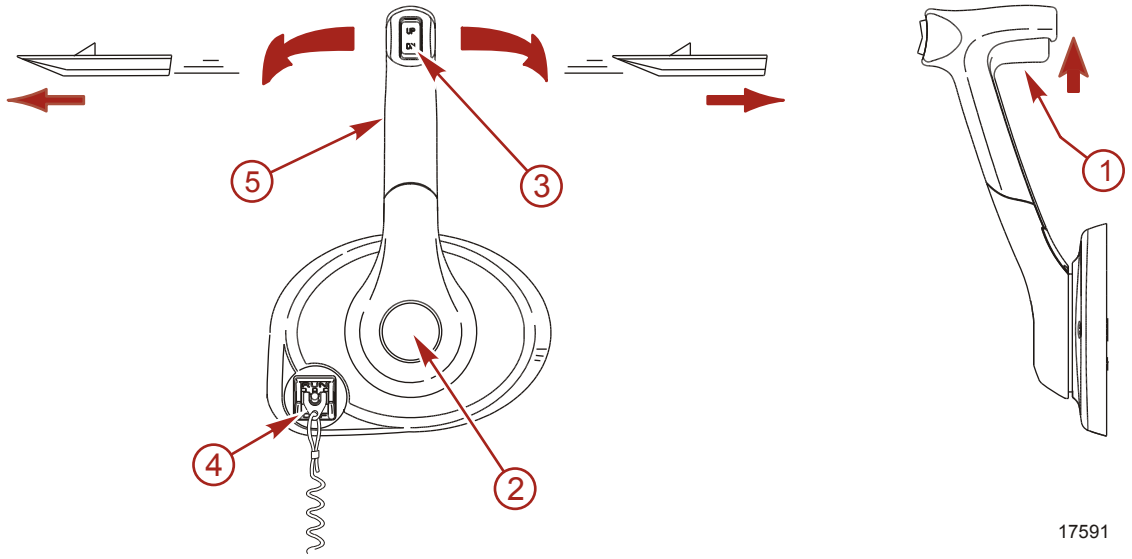




17589

a - Water in fuel indicator
b - Coolant temperature
c - Oil pressure
d - Alternator
e - Pre-heat
f - Light switch and audio test
g - Ignition key switch
h - Neutral start switch leads
i - Bullet or eyelet connectors
j - Lanyard stop leads

MPC 4000 GEN II Series Features and Operation



1. **Neutral Lock Bar** - Neutral lock bar must be pulled up to move the control handle out of neutral.
2. **Throttle Only Button** - Allows 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.
3. **Power Trim (and Trailer MCM Only) Switch (if equipped)** - Used to trim or raise drive unit for trailering, launching, beaching or shallow water operation. See **Operation and Maintenance Manual** for detailed power trim/tilt operating procedures.
4. **Lanyard Stop Switch (if equipped)** - The purpose of a lanyard stop switch is to turn off the engine when the operator moves far enough away from the operator's position (as in accidental ejection from the operator's position) to activate the switch. Tiller handle outboards and some remote control units are equipped with a lanyard stop switch. A lanyard stop switch can be installed as an accessory - generally on the dashboard or side adjacent to the operator's position.
    - The lanyard is a cord usually between 122 and 152 cm (4 and 5 feet) in length when stretched out, with an element on one end made to be inserted into the switch and a snap on the other end for attaching to the operator. The lanyard is coiled to make its at-rest condition as short as possible to minimize the likelihood of lanyard entanglement with nearby objects. Its stretched-out length is made to minimize the likelihood of accidental activation should the operator choose to move around in an area close to the normal operator's position. If it is desired to have a shorter lanyard, wrap the lanyard around the operator's wrist or leg, or tie a knot in the lanyard.

- **Important Safety Information:** The purpose of a lanyard stop switch is to stop the engine when the operator moves far enough away from the operator's position to activate the switch. This would occur if the operator accidentally falls overboard or moves within the boat a sufficient distance from the operator's position. Falling overboard and accidental ejections are more likely to occur in certain types of boats such as low sided inflatables, bass boats, high performance boats, and light, sensitive handling fishing boats operated by a hand tiller. Falling overboard and accidental ejections are also likely to occur as a result of poor operating practices such as sitting on the back of the seat or gunwale at planing speeds, standing at planing speeds, sitting on elevated fishing boat decks, operating at planing speeds in shallow or obstacle infested waters, releasing your grip on a steering wheel or tiller handle that is pulling in one direction, drinking alcohol or consuming drugs, or daring high speed boat maneuvers.
- While activation of the lanyard stop switch will stop the engine immediately, a boat will continue to coast for some distance depending upon the velocity and degree of any turn at shut down. However, the boat will not complete a full circle. While the boat is coasting, it can cause injury to anyone in the boat's path as seriously as the boat would when under power.
- We strongly recommend that other occupants be instructed on proper starting and operating procedures should they be required to operate the engine in an emergency (e.g. if the operator is accidentally ejected).

⚠ WARNING

Should the operator fall out of the boat, the possibility of serious injury or death from being run over by the boat can be greatly reduced by stopping the engine immediately. Always properly connect both ends of the stop switch lanyard to the stop switch and the operator.

⚠ WARNING

Avoid serious injury or death from deceleration forces resulting from accidental or unintended stop switch activation. The boat operator should never leave the operator's station without first disconnecting the stop switch lanyard from the operator.

Accidental or unintended activation of the switch during normal operation is also a possibility. This could cause any, or all, of the following potentially hazardous situations:

- Occupants could be thrown forward due to unexpected loss of forward motion - a particular concern for passengers in the front of the boat who could be ejected over the bow and possibly struck by the gearcase or propeller.
- Loss of power and directional control in heavy seas, strong current or high winds.
- Loss of control when docking.

5. **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.

⚠ CAUTION

To shift the remote control into reverse gear when the engine is not running, the propeller or propshaft must be rotated in the proper direction. Forcing the shift mechanism into reverse may damage the control system.

6. **Control Handle Friction Adjustment Nut** - This nut can be adjusted to increase or decrease the tension on the control handle. This will help prevent creep of the remote control handle. Turn screw clockwise to increase tension and counterclockwise to decrease tension. Adjust to tension desired.

NOTE: *Control handle friction adjustments must be made prior to installation. See* ***General Installation Information*** *for instructions.*

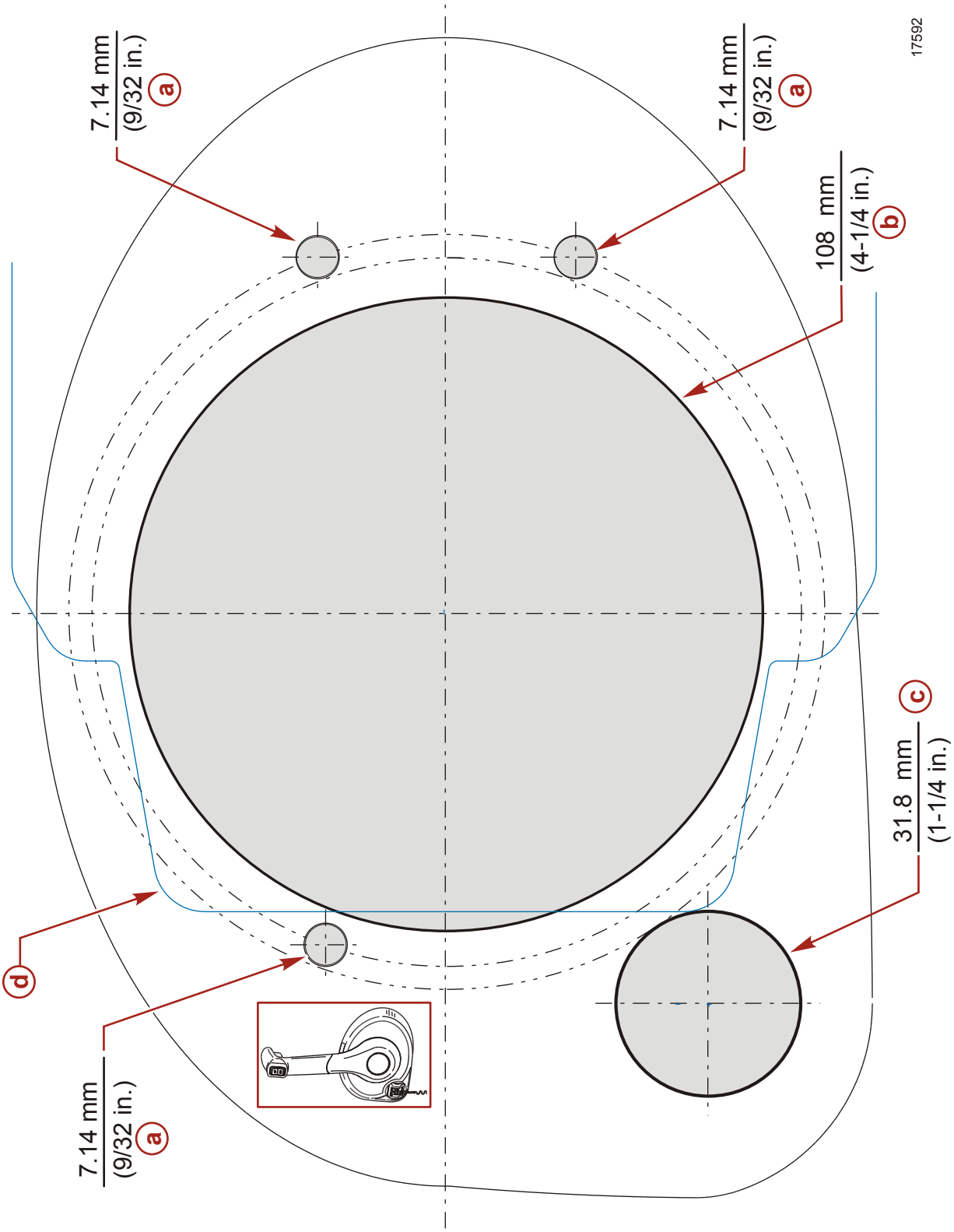
IMPORTANT: Control handle friction is necessary for proper mechanical control operation. Insufficient friction may cause undesirable throttle arm operation.

MPC 4000 Gen II Series Bezel Template

IMPORTANT: Due to printing variables, the image may have changed from the actual size. Check this template with the bezel before cutting the mounting holes or use the bezel as a guide to mark the mounting surface.

NOTE: *This remote control can be mounted 30° up or down by using the same bezel mounting location holes. Rotate only the control module to the desired angle. It may be necessary to secure the bezel with additional wood screws or lag screws.*

1. Drill and cut out the shaded area as indicated.
2. When using wood screws or lag bolt, drill correct hole diameter for the fastener used. Refer to **Item a**.
3. The control module shown on the template is mounted horizontally. Refer to **Item d**.



a - Machine screw drill size
b - Remove sharp edges
c - Only if equipped with a lanyard stop switch
d - Outline of starboard mounted panel control module

Products of Mercury Marine
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