



# IMPORTANT INFORMATION

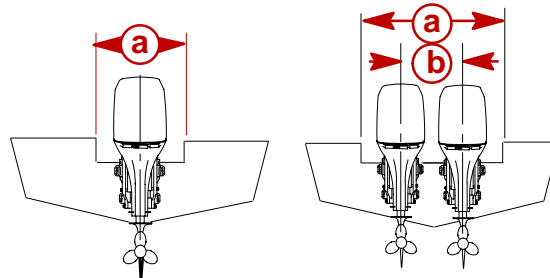
## Section 1D - Outboard Motor Installation

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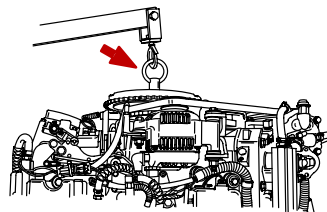
### Installation Specifications



<b>a – Transom Opening – Minimum</b> Single Engine – 33-3/8 in. (848 mm) Dual Engines – 59-3/4 in. (1518 mm)
<b>b – Engine Center Line For Dual Engine</b> 26 in. (660mm) Minimum

### Lifting Outboard

**Electric Start Models** – Remove plastic cap from flywheel hub. Thread lifting ring into flywheel a minimum of 5 turns. Replace plastic cap after installation.

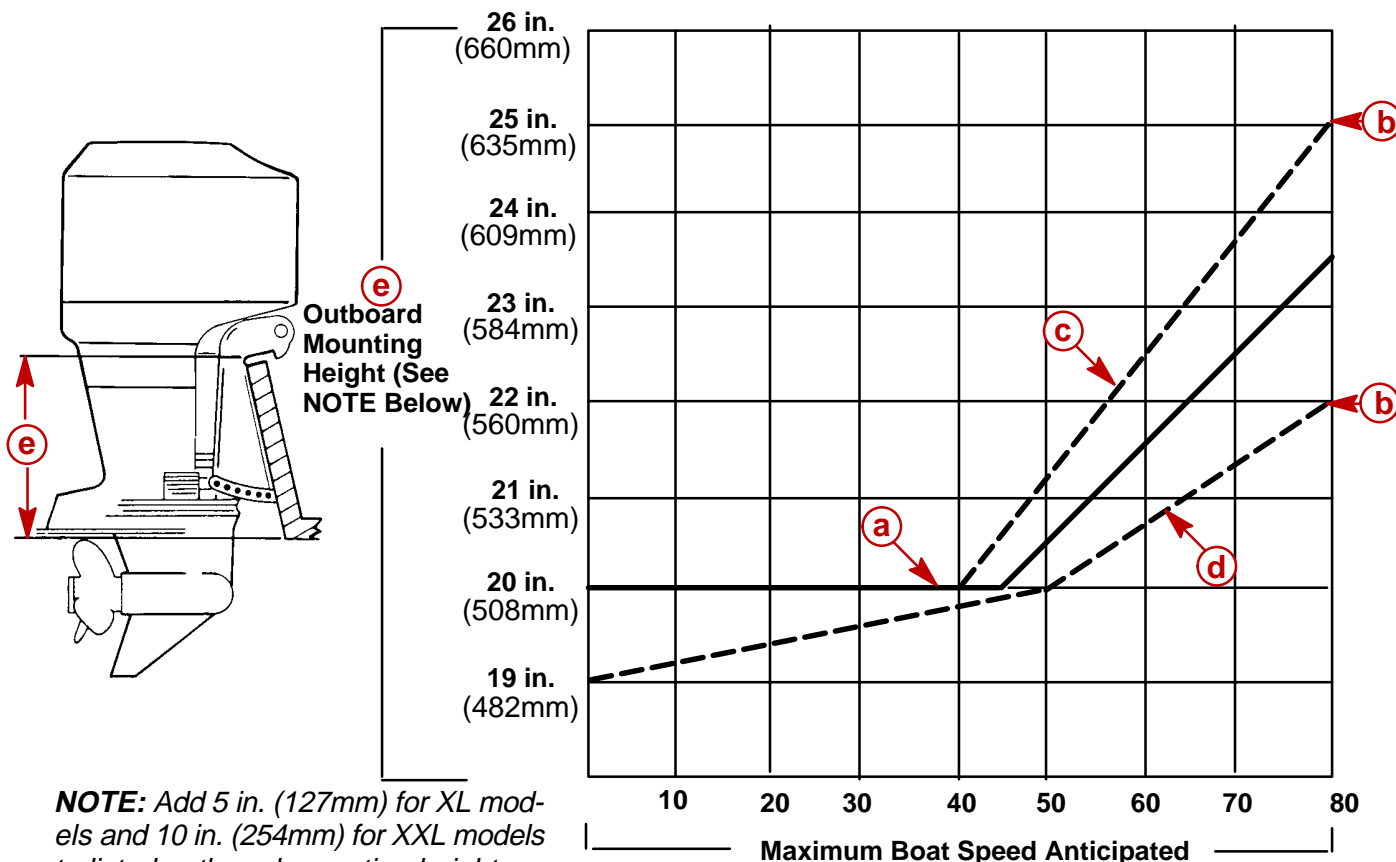


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# Installing Outboard to Boat Transom

## Determining Recommended Outboard Mounting Height



**NOTE:** Add 5 in. (127mm) for XL models and 10 in. (254mm) for XXL models to listed outboard mounting height.

### NOTICE TO INSTALLER:

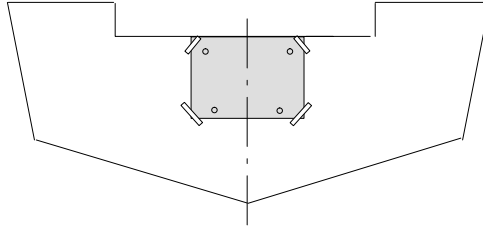
1. The outboard should be mounted high enough on the transom so that the exhaust relief hole will stay at least 1 in. (25.4 mm) above the water line when the engine is running at idle speed. This will prevent exhaust restriction.
2. The mounting height (e) of the outboard must not exceed 25 in. (635 mm) for L models, 30 in. (762 mm) for XL models and 35 in. (889 mm) for XXL models. Mounting the outboard higher may cause damage to the gear case components.
  - a. This solid line is recommended to determine the outboard mounting height. Increasing the height of outboard generally will provide the following: 1) Less steering torque, 2) more top speed, 3) greater boat stability, but, 4) will cause more prop "break loose" which may be particularly noticeable when planing off or with heavy load.
  - b. These broken lines represent the extremes of known successful outboard mounting height dimensions.
  - c. This line may be preferred to determine outboard mounting height dimension, if maximum speed is the only objective.
  - d. This line may be preferred to determine outboard mounting height dimension for dual outboard installation.
  - e. Outboard mounting height (height of outboard transom brackets from bottom of boat transom). For heights over 22 in. (560mm), a propeller, that is designed for surfacing operation is usually preferred.



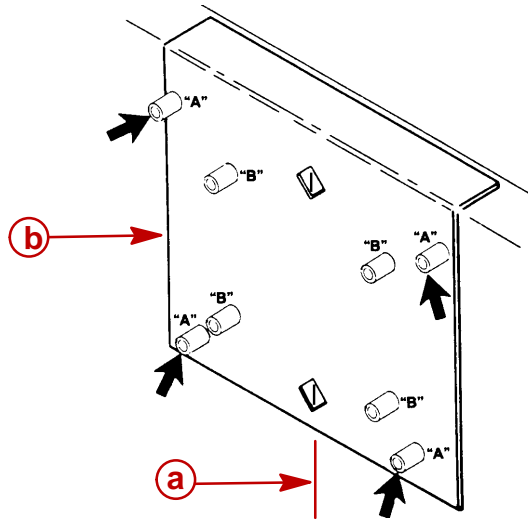
# Installing Outboard

## Drilling Outboard Mounting Holes

1. Attach (tape) engine mounting template (located with the installation manual) to boat transom.

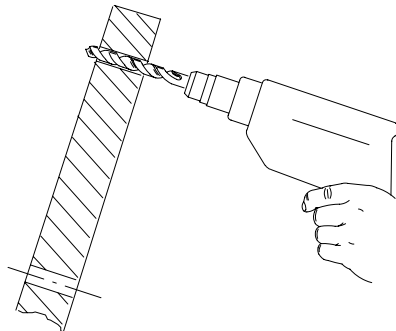


**IMPORTANT:** If using “Transom Drilling Fixture” (part number 91-98234A2), use drill guide holes marked “A” when drilling outboard mounting holes.



- a** - Centerline of Transom
- b** - Transom Drilling Fixture (91-98234A2)

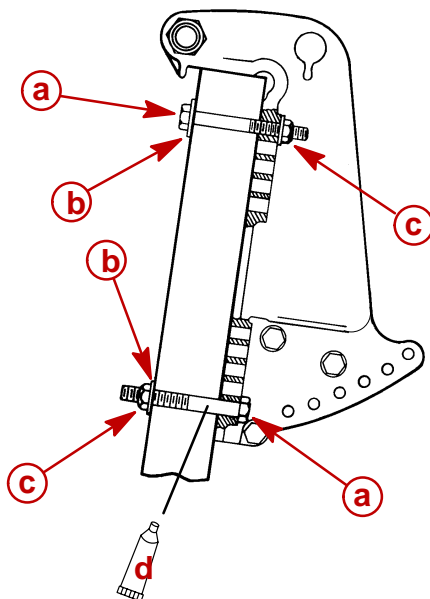
2. Mark and drill four  $17/32$  in. (13.5mm) mounting holes.





## Securing Outboard To Boat Transom

1. Refer to "Determining Recommended Outboard Motor Mounting Height", preceding and Install outboard to the nearest recommended mounting height.
2. Fasten outboard with provided mounting hardware shown.

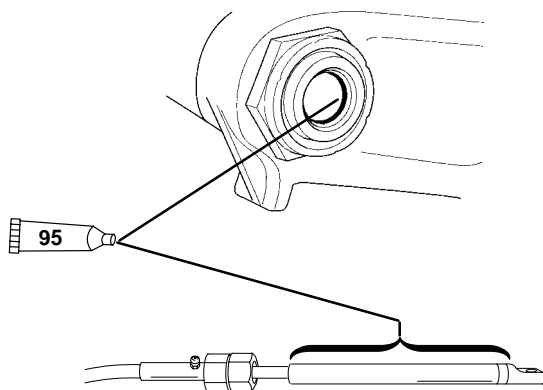


- a** - 1/2 In. Diameter Bolts (4)
- b** - Flat Washers (4)
- c** - Locknuts (4)
- d** - Marine Sealer - Apply to Shanks of Bolts, Not Threads

## Steering Cable

### STARBOARD SIDE ROUTED CABLE

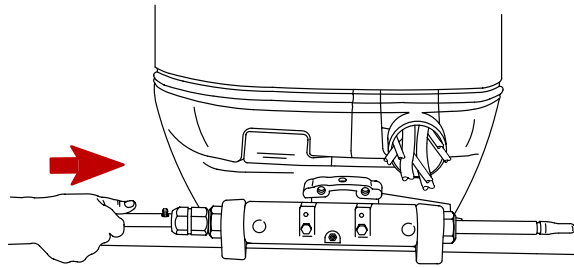
1. Lubricate O-ring seal and entire cable end.



 95 2-4-C With Teflon (92-825407A12)

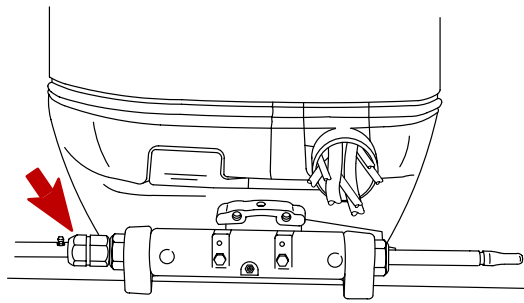


2. Insert steering cable into tilt tube.



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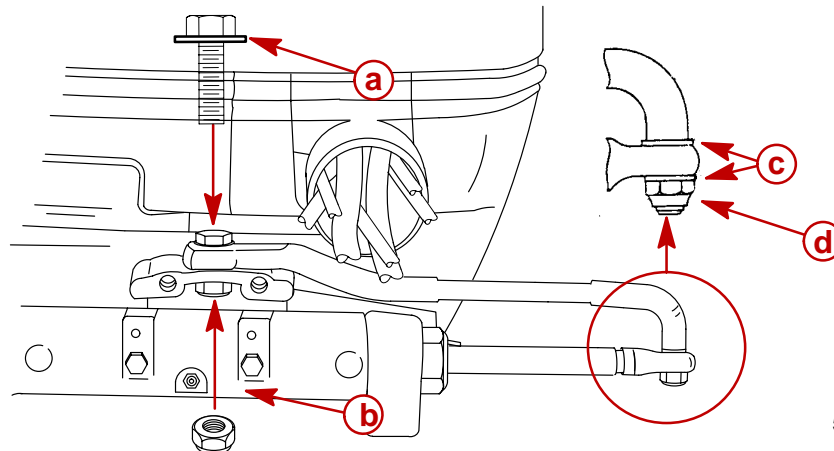
3. Torque nut to 35 lb. ft. (47.5 N-m).



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## Steering Link Rod

1. Install steering link rod per illustration.



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- a** - Special Bolt (10-90041) Torque to 20 lb-ft (27 N-m)
- b** - Nylon Insert Locknut (11-34863) Torque to 20 lb-ft (27 N-m)
- c** - Flat Washer (2)
- d** - Nylon Insert Locknut (11-34863) Tighten Locknut Until it Seats, Then Back Nut Off 1/4 Turn

**IMPORTANT:** The steering link rod that connects the steering cable to the engine must be fastened using special washer head bolt (“a” – Part Number 10-14000) and self locking nuts (“b” & “c” – Part Number 11-34863). These locknuts must never be replaced with common nuts (non locking) as they will work loose and vibrate off freeing the link rod to disengage

### **WARNING**

Disengagement of a steering link rod can result in the boat taking a full, sudden, sharp turn. This potentially violent action can cause occupants to be thrown overboard exposing them to serious injury or death.

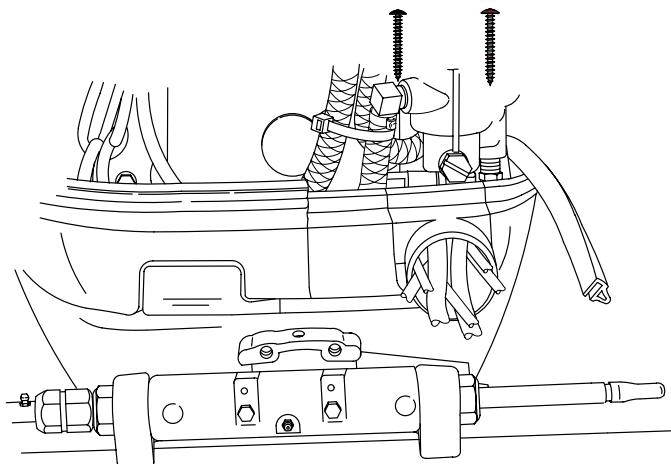


# Electrical, Hoses and Control Cables

**IMPORTANT: Warning Horn Requirement –** The remote control or key switch assembly must be wired with a warning horn. This warning horn is used with the engine warning system.

## Installation Note

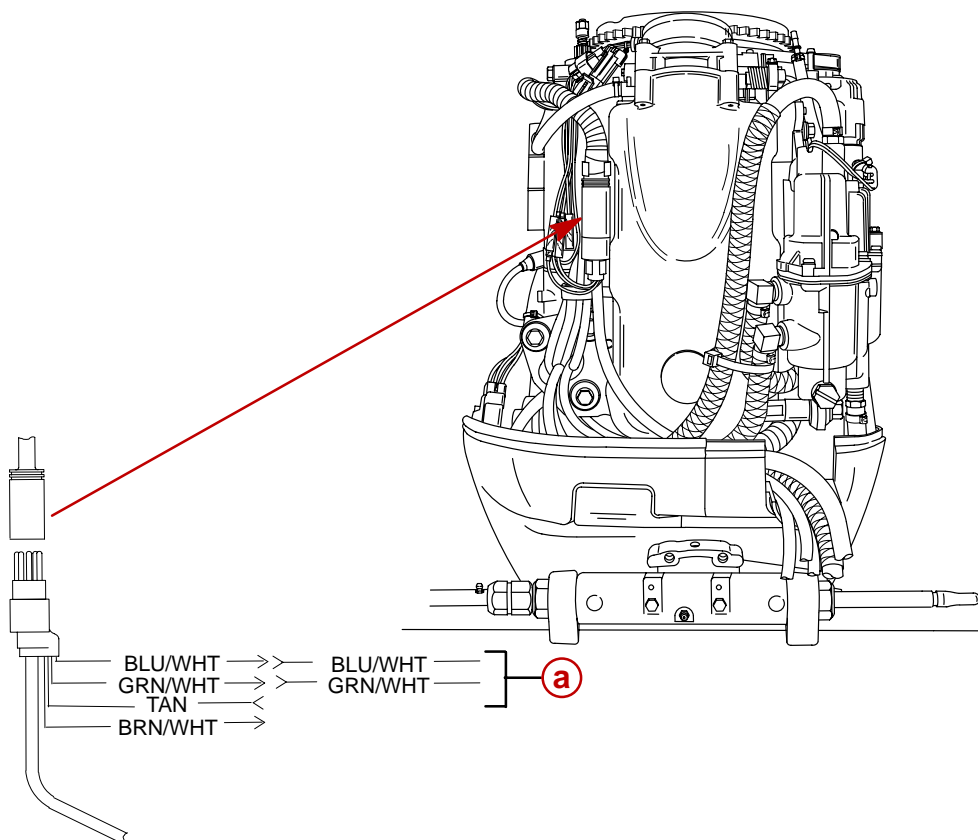
Open the front clamp assembly.



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## Remote Wiring Harness

1. Connect wiring. Place harness into the holder.

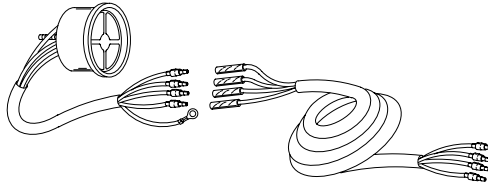


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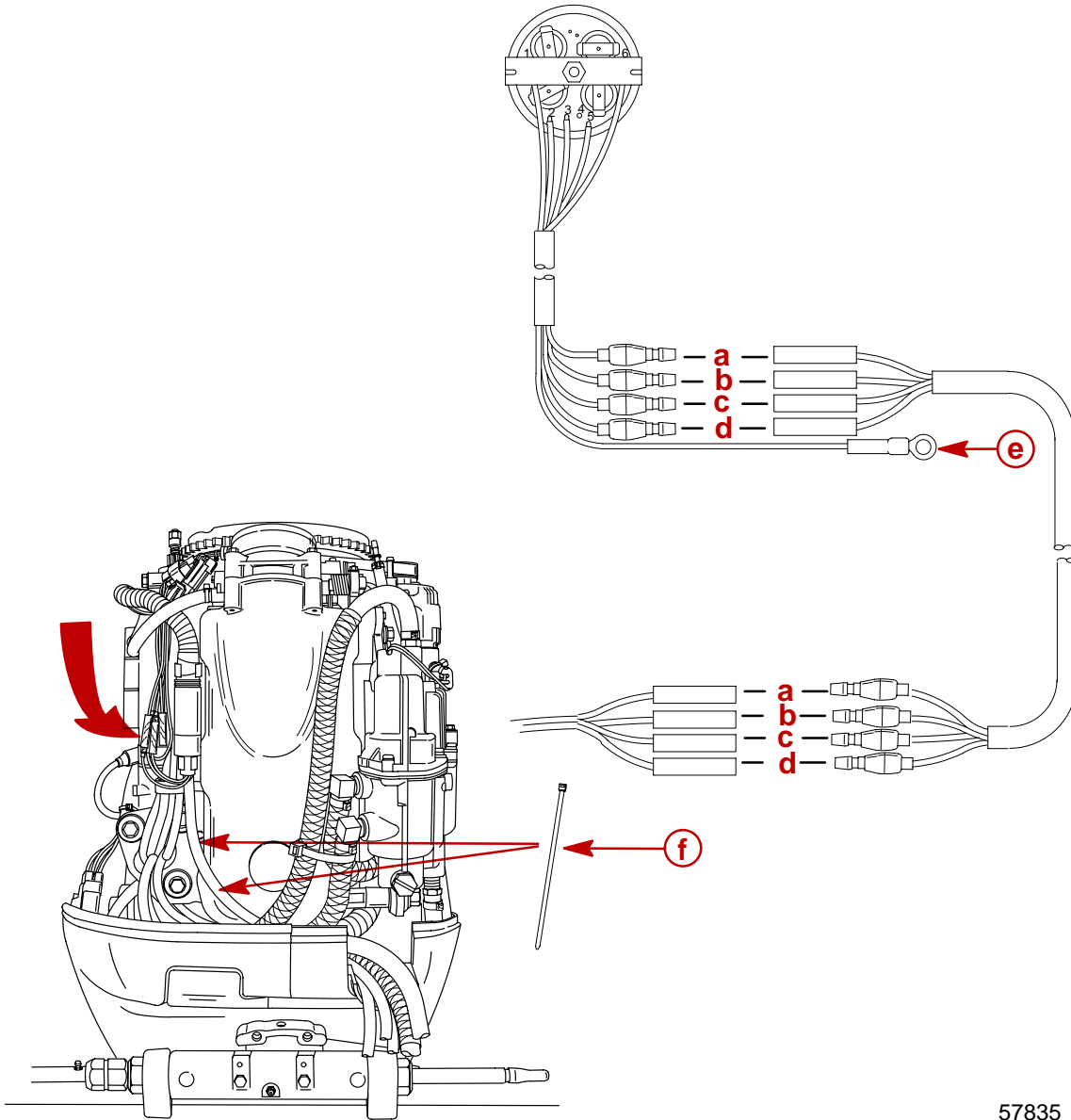
**a** - Power Trim Connections



# Four Function Warning Gauge Harness (Model Year 2000 Only)



Connect the harness extension to gauge and engine.



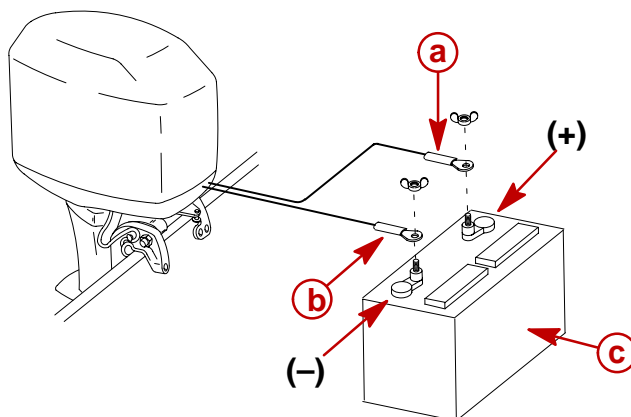
- a** - TAN/BLACK
- b** - TAN/WHITE
- c** - PINK/LT. BLUE to PINK/LT. BLUE
- d** - ORANGE
- e** - Connect PURPLE to 12 Volt Source or Adjacent Gauge
- f** - Sta-Straps – Fasten Wiring to Prevent Catching on Cowl

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## Battery Cables

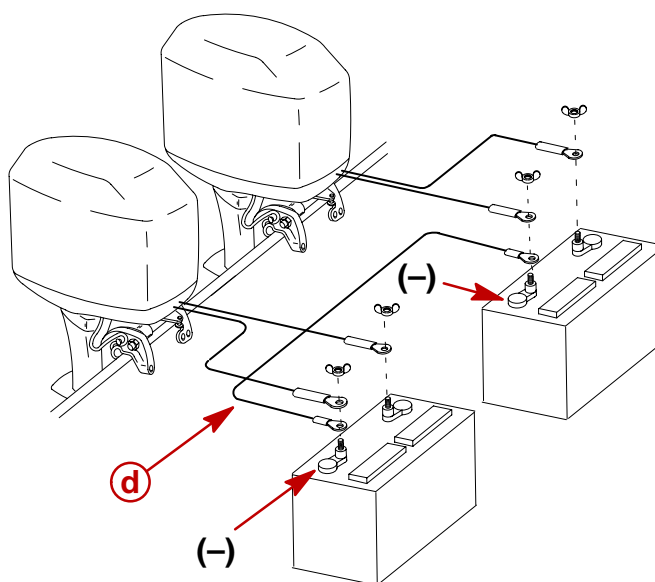
### SINGLE OUTBOARD



- a** - RED Sleeve (Positive)
- b** - BLACK Sleeve (Negative)
- c** - Starting Battery

### DUAL OUTBOARD

Connect a common ground cable (wire size same as engine battery cables) between NEGATIVE (-) terminals on starting batteries.



- d** - Common Ground Cable





## Fuel Hose Connection

**Fuel Hose Size** – Minimum fuel line inside diameter (I.D.) is 5/16 in. (8mm), with separate fuel line/fuel tank pickup for each engine.

Fasten remote fuel hose to fitting with hose clamp.

## Oil Hose Connections

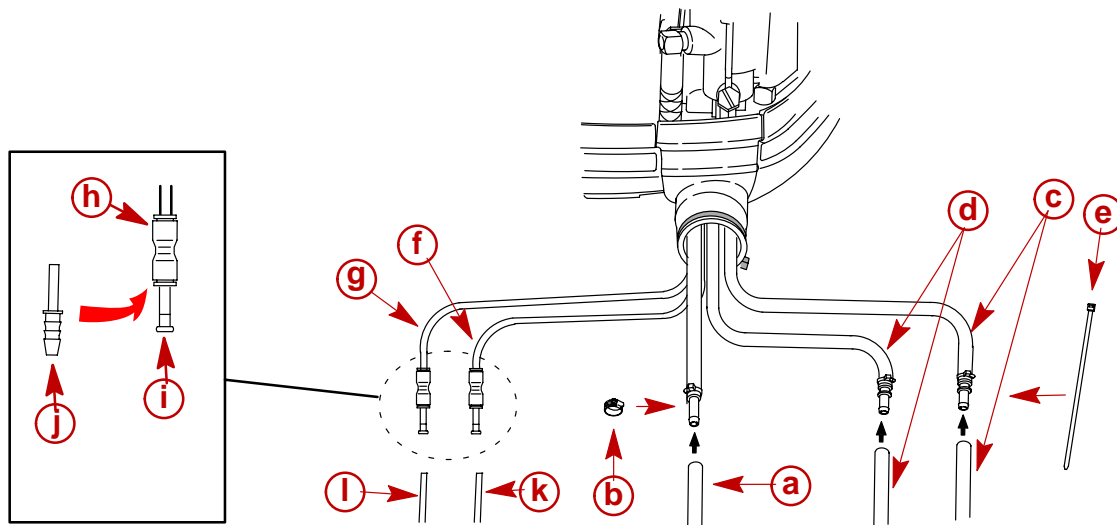
Connect the remote oil hoses to the engine hose connections as shown. Fasten hose connections with sta-straps.

## Speedometer Tubing Connection (Models without SmartCraft Gauges)

This outboard has a speedometer water pick-up located in the leading edge of the gear case. If you want to use this water pickup for the speedometer, connect the water tubing as shown.

## Water Pressure Tubing Connection (Models without SmartCraft Gauges)

If the boat is equipped with a water pressure gauge, make the water connection to this tubing as shown.



- a** - Remote Fuel Hose
- b** - Hose Clamp – Secure Remote Fuel Hose
- c** - Oil Hoses with Blue Stripe - Secure With Sta-Strap
- d** - Oil Hoses without Blue Stripe - Secure With Sta-Strap
- e** - Sta-Strap (2) - Secure Oil Hoses
- f** - \*Speedometer Water Pickup Tubing (Black Color)
- g** - Water Pressure Tubing (Gray Color)
- h** - Coupler – Push In on End of Coupler to Disconnect Plug or Tubing
- i** - Plug – Remove when Making Coupler Connection
- j** - Barb Hose Fitting (2) Provided with Outboard – Install this fitting into Coupler, if a Rubber Hose Connection is Required
- k** - Speedometer Hose – Insert the barb hose fitting (j) into Coupler and Connect Hose
- l** - Water Pressure Tube – Insert into Coupler, Pull on Tube to Verify That it is Locked

**NOTE:** Model 2001 outboards using conventional speedometers (non-Smart Craft) requires that the BLACK speedometer hose be disconnected from speedometer sensor on the back of the engine block. The hose is rerouted out through the bottom cowl with other hoses/cables.



## Shift Cable

Install cables into the remote control following the instructions provided with the remote control.

**NOTE:** Install the shift cable to the engine first. The shift cable is the first cable to move when the remote control handle is moved out of neutral.

### COUNTER ROTATION OUTBOARDS

Counter rotating (left hand) gear cases can be identified by a “L” stamped into the end of the propeller shaft.

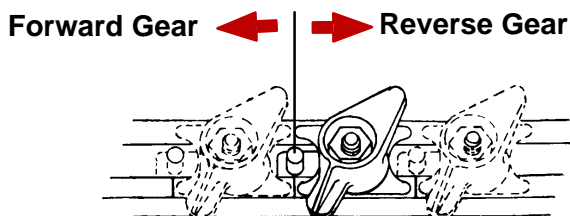
The Quicksilver Dual Engine Console Mount Control, P/N 88688A22 or 88688A52, is required to shift the counter rotation outboard. The installation instructions shipped with the control explain the procedure required to connect this control to a counter rotation outboard.

**IMPORTANT:** If the counter rotation outboard is rigged similar to a standard rotation outboard OR if a standard rotation outboard is rigged similar to a counter rotation outboard, the reverse gear and bearing in the gear case must function as forward gear. THE REVERSE GEAR/BEARING ARE NOT DESIGNED TO CARRY THE SUSTAINED LOADS THAT ARE GENERATED WHEN RUNNING UNDER CONSTANT HIGH RPM AND THRUST CONDITIONS.

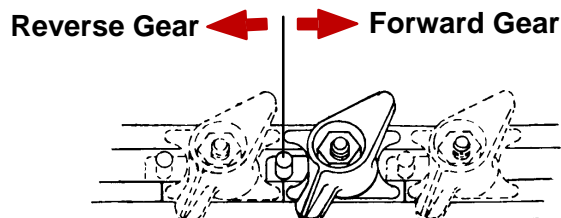
### OUTBOARD SHIFTING DIRECTION

On counter rotation outboards, the shift linkage moves in the opposite direction compared to a standard rotation outboard.

### STANDARD ROTATION GEAR OUTBOARDS



### COUNTER ROTATION OUTBOARDS



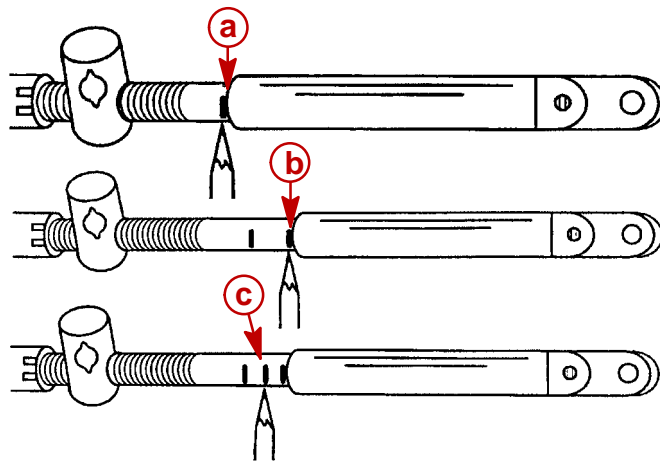


## Installation

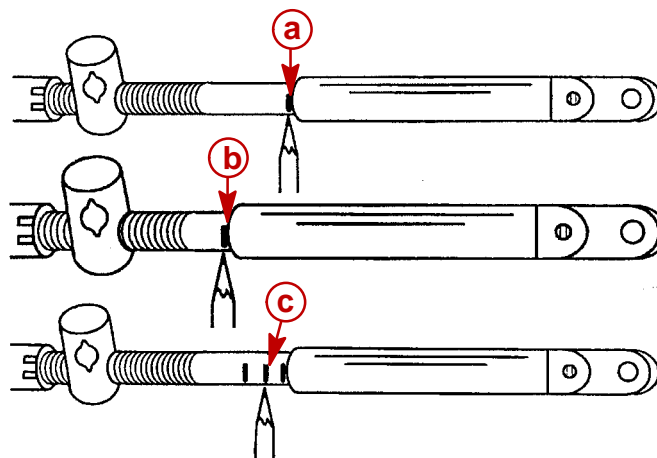
**IMPORTANT: Step 1 must be followed for proper adjustment of the shift cable.**

1. Locate the center point of the slack or lost motion that exists in the shift cable as follows:
  - a. Move the remote control handle from neutral into forward and advance the handle to full speed position. Slowly return the handle back to the neutral. Place a mark (a) on the cable against the cable end guide.
  - b. Move the remote control handle from neutral into reverse and advance the handle to full speed position. Slowly return the handle back to the neutral. Place a mark (b) on the cable against the cable end guide.
  - c. Make a center mark (c), midway between marks ("a" and "b"). Align the cable end guide against this center mark when installing cable to the engine.

### STANDARD ROTATION OUTBOARDS

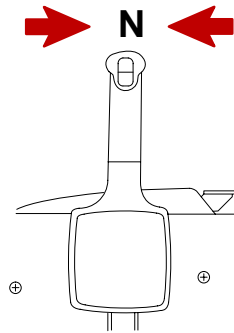


### COUNTER ROTATION OUTBOARDS

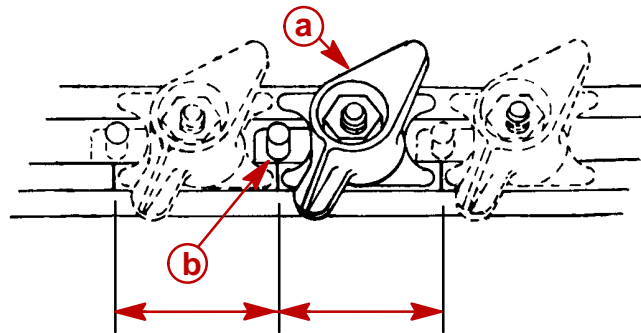




2. Position remote control and outboard into neutral.

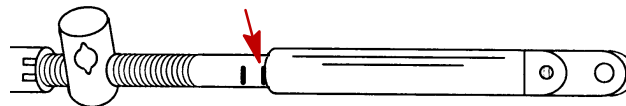


3. Slide the shift cable retainer forward until resistance is felt, then slide cable anchor toward rear until resistance is felt. Center the anchor pin between resistance points.

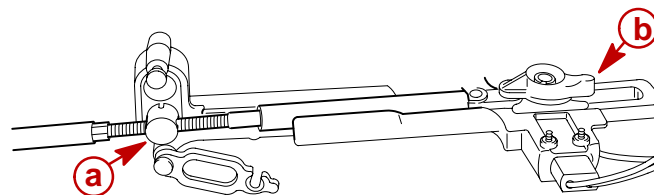


- a** - Shift Cable Retainer
- b** - Anchor Pin

4. Align the shift cable end guide with the center mark as instructed in Step 1.



5. Place shift cable on anchor pin. Adjust cable barrel so it slips freely into the barrel holder.
6. Secure shift cable with shift cable retainer.



- a** - Cable Barrel
- b** - Shift Cable Retainer

7. Check shift cable adjustments as follows:
  - a. With remote control in forward, the propshaft should lock solidly in gear. If it does not, adjust cable barrel closer to cable end guide.
  - b. Shift remote control into neutral. The propshaft should turn freely without drag. If not, adjust barrel away from cable end guide. Repeat steps a and b.
  - c. Shift remote control into reverse while turning propeller. The propshaft should lock solidly in gear. If not, adjust barrel away from cable end guide. Repeat steps a thru c.

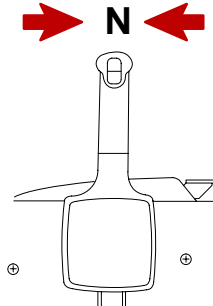


- d. Return remote control handle to neutral. The propeller should turn freely without drag. If not, adjust barrel closer to cable end guide. Repeat steps a thru d.

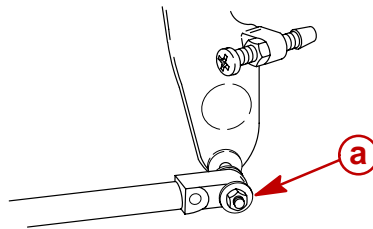
## Throttle Cable

### INSTALLATION

1. Position remote control into neutral.

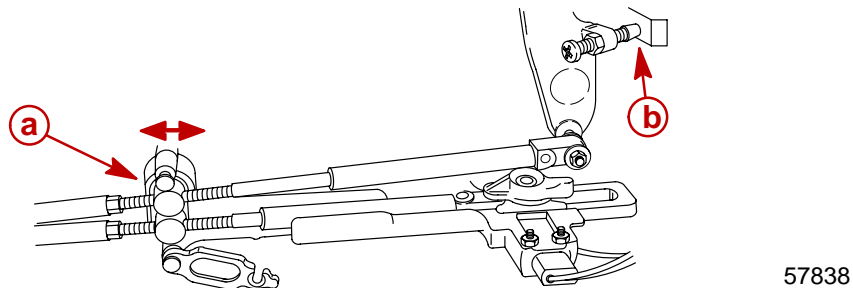


2. Attach throttle cable to the throttle lever. Secure with washer and locknut.



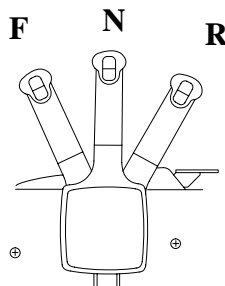
- a** - Washer and Locknut – Tighten locknut and back off 1/4 turn

3. Adjust the cable barrel so that the installed throttle cable will hold the idle stop screw against the stop.



- a** - Cable Barrel – Adjust To Hold Idle Stop Screw Against Stop  
**b** - Idle Stop Screw

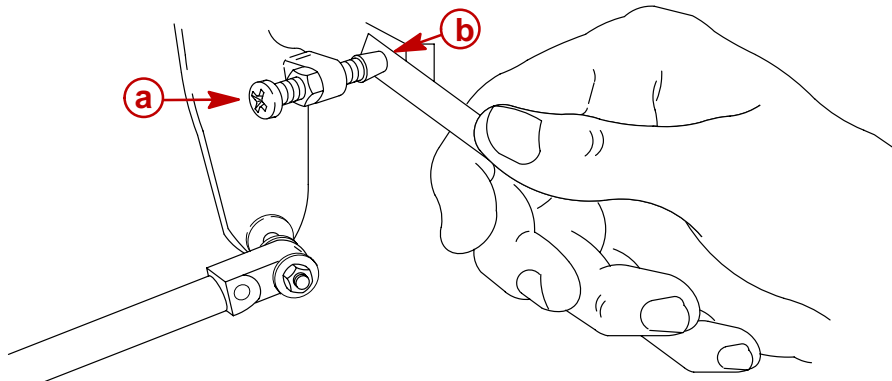
4. Check throttle cable adjustment as follows:
  - a. Shift outboard into gear a few times to activate the throttle linkage. Make sure to rotate the propeller shaft while shifting into reverse.





- b. Return remote control to neutral. Place a thin piece of paper between idle adjustment screw and idle stop. Adjustment is correct when the paper can be removed without tearing, but has some drag on it. Readjust cable barrel if necessary.

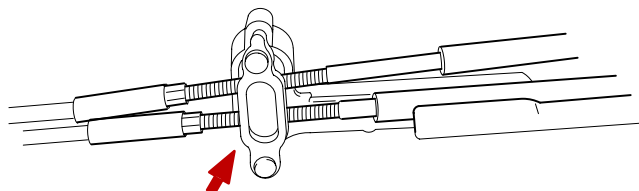
**IMPORTANT: The idle stop screw must be touching the stop.**



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- a - Idle Stop Screw
- b - Idle Stop

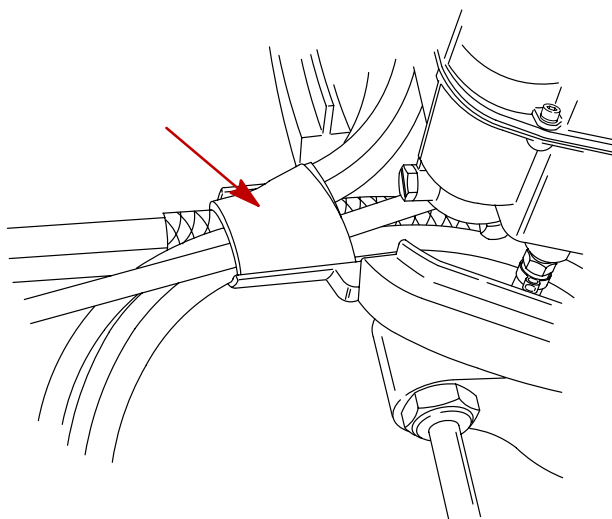
5. Lock the barrel holder in place with the cable latch.



## Front Clamp Reassembly

**IMPORTANT: Sufficient slack must exist in engine wiring harness, battery cables, fuel hose, and oil hoses routed between clamp and engine attachment point, to relieve stress and prevent hoses from being kinked or pinched.**

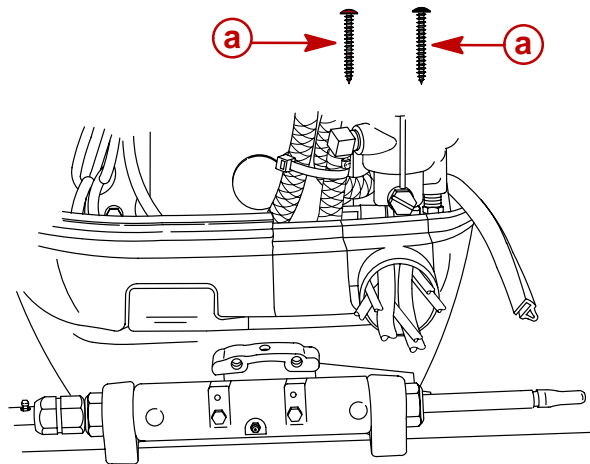
1. Place the neoprene wrap over the wiring, hoses, and control cables as shown.



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2. Fasten clamp together with two screws.

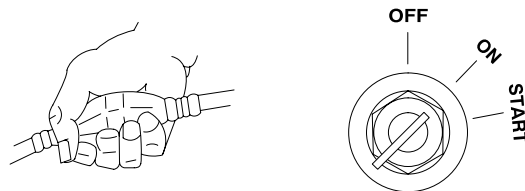


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**a** - Screws

## Filling Fuel System

**NOTE:** For initial start of a new engine or for an engine that ran out of fuel, or was drained of fuel, the fuel system should be filled as follows:

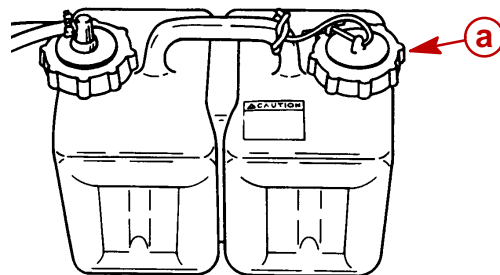


- Squeeze the fuel line primer bulb until it feels firm.
- Turn the ignition key switch to the ON position for three seconds. This operates the electric fuel pump.
- Turn the ignition key switch back to the OFF position, and squeeze the primer bulb again until it feels firm. Turn the ignition key switch to the "ON" position again for three seconds. Continue this procedure until the fuel line primer bulb stays firm.

## Oil Injection Set-Up

### Filling

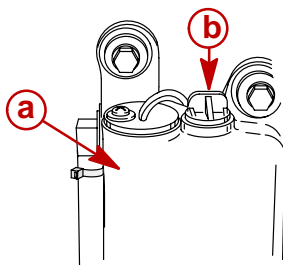
1. Fill remote oil tank with the recommended oil listed in the Operation and Maintenance Manual. Tighten fill cap.



**a** - Fill Cap



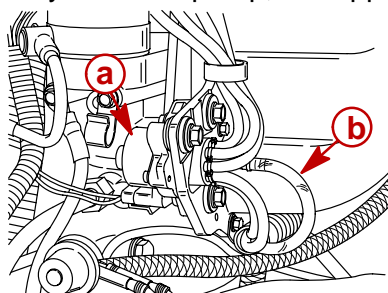
- Remove cap and fill engine oil tank with oil. Reinstall the fill cap.



- a** - Engine Oil Tank
- b** - Fill Cap

### Priming the Oil Injection Pump

**Before starting engine for the first time**, prime the oil injection pump. Priming will remove any air that may be in the pump, oil supply hose, or internal passages.



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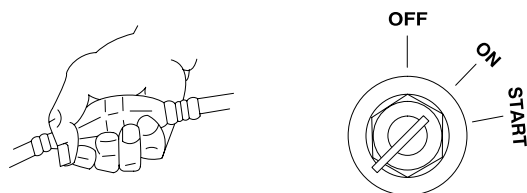
- a** - Oil Injection Pump
- b** - Oil Supply Hose

**⚠ CAUTION**

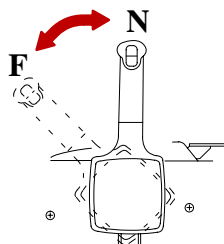
**To prevent damage to the fuel pumps, fill the engine fuel system with fuel. Otherwise the fuel pumps will run without fuel during the priming process.**

Prime the oil injection pump as follows:

- Fill the engine fuel system with fuel. Connect fuel hose and squeeze primer bulb until it feels firm.
- Turn the ignition key switch to the "ON" position.



- Within the first 10 seconds after the key switch has been turned on, move the remote control handle from neutral into forward gear 3 to 5 times. This will automatically start the priming process.



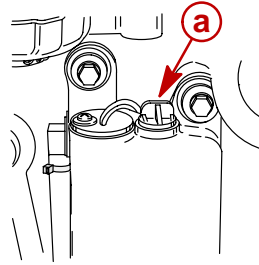
**NOTE:** It may take a few minutes for the pump to complete the priming process.





## Purging Air From the Engine Oil Tank

1. Loosen the fill cap on the engine oil tank.
2. Start the engine. Run the engine until the all the air has been vented out of the tank and oil starts to flow out of the tank. Re-tighten fill cap.



a - Fill Cap

## Trim “In” Angle Adjustment

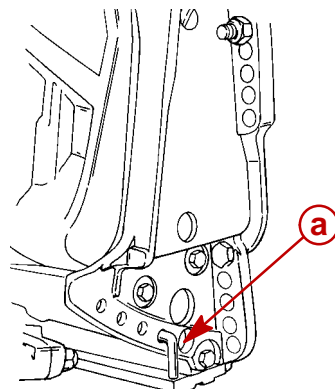
Some outboard boats, particularly some bass boats, are built with a greater than normal transom angle which will allow the outboard to be trimmed further “in” or “under”. This greater trim “under” capability is desirable to improve acceleration, reduce the angle and time spend in a bow high boat attitude during planing off, and in some cases, may be necessary to plane off a boat with aft live wells, given the variety of available propellers and height range of engine installations.

However, once on plane, the engine should be trimmed to a more intermediate position to avoid a bow-down planing condition called “plowing”. Plowing can cause “bow steering” or “over steering” and inefficiently consumes horsepower. In this condition, if attempting a turn or encountering a diagonal, moderate wake, a more abrupt turn than intended may result.

In rare circumstances, the owner may decide to limit the trim under. This can be accomplished by purchasing a stainless steel tilt pin (P/N 17-49930A1) and inserting it through whatever pin hole is desired. The non-stainless steel shipping bolt should not be used in this application other than on a temporary basis.

### **⚠ WARNING**

**Avoid possible serious injury or death. Adjust outboard to an intermediate trim position as soon as boat is on plane to avoid possible ejection due to boat spin-out. Do not attempt to turn boat when engine is trimmed extremely under or in.**



a - Tilt Pin



## Trim Tab Adjustment

Propeller steering torque may cause your boat to pull in one direction. This steering torque results from your outboard not being trimmed so the propeller shaft is parallel to the water surface. The trim tab can help compensate for this steering torque and can be adjusted within limits to reduce any unequal steering effort.

### Models Without Power Steering

Operate your boat at normal cruising speed, trimmed to desired position. Turn your boat left and right and note the direction the boat turns more easily.

If adjustment is necessary, loosen trim tab bolt until trim tab moves freely (does not rub against locking ridges). DO NOT strike tab to make adjustments. Make small adjustments at a time. If the boat turns more easily to the left, move the trailing edge of trim tab to the left. If the boat turns more easily to the right move the trailing edge of trim tab to the right. Position trim tab in one of the locating grooves BEFORE tightening bolt to prevent damage to holding mechanism. Torque bolt to 40 lb-ft (54 Nm) and retest.

### Models With Power Steering

Trim tab adjustment is not required. The trailing edge of the trim tab should be set straight back.

