



# INSTALLATION MANUAL - 2.5L EFI/SS/OS

**Important:** These instructions should be placed with the product for the owner's future use.

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## Installation Information

### Notices to Installer and Owner

This manual as well as safety labels posted on the outboard use the following safety alerts to draw your attention to special safety instructions that should be followed.

#### **⚠ WARNING**

**WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.**

#### **⚠ CAUTION**

**CAUTION - Hazards or unsafe practices which could result in minor injury or product or property damage.**

## Boat Horsepower Capacity

| U.S. COAST GUARD CAPACITY        |     |
|----------------------------------|-----|
| MAXIMUM HORSEPOWER               | XXX |
| MAXIMUM PERSON CAPACITY (POUNDS) | XXX |
| MAXIMUM WEIGHT CAPACITY          | XXX |

Do not overpower. Most boats will carry a required capacity plate indicating the maximum acceptable power and load as determined by the manufacturer following certain federal guidelines. If in doubt, contact the boat manufacturer.

### Overpowering can cause:

- Loss of boat control.
- Excess weight at the transom altering the designed flotation characteristics of the boat.
- Boat to break apart, particularly around the transom area.

### **⚠ WARNING**

Using an outboard that exceeds the maximum horsepower limit of a boat can result in serious injury, death, or boat damage.

## Start In Gear Protection

The remote control connected to the outboard must be equipped with a start-in-gear protection device. This prevents the engine from starting in gear.

### **⚠ WARNING**

Avoid serious injury or death from a sudden unexpected acceleration when starting your engine. The design of this outboard requires that the remote control used with it must have a built in start-in-gear protection device.

## Selecting Accessories For The Outboard

### **⚠ WARNING**

The misuse of acceptable accessories or the use of unacceptable accessories can result in serious injury, death or product failure.

Some accessories not manufactured or sold by Mercury Marine are not designed to be safely used with these outboards or outboard operating system. Acquire and read the installation, operation and maintenance manuals for all selected accessories.

## Selecting Power Steering

Hydraulic steering systems are available thru "Mercury Marine Precision Parts" or aftermarket suppliers.

## Selecting Steering Cables and Remote Control Cables

Refer to "Mercury Marine Accessories Guide" to determine correct length of steering cables and remote control cables.

### **⚠ WARNING**

Avoid possible serious injury or death. Steering cables and 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.

### **⚠ CAUTION**

It is recommended that these engines be equipped with dual cable steering, adjusted so that there is a minimum of steering backlash. It is more difficult, particularly in a chine walk situation, to control a hi-performance boat with excessive steering backlash.

## Outboard Installation Specifications

### Special Tools/Lubricants

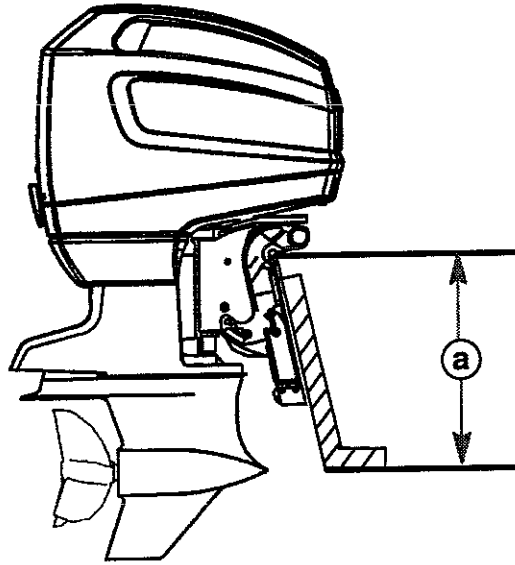
|   |             |
|---|-------------|
| Transom Drilling Fixture                          | 91-98234A2  |
| Engine Lifting Eye                                | 91-90455T   |
| Quicksilver Performance Blend Outboard Oil        | 92-813743A2 |
| Mercury Precision Hi Performance Gear Lube        | 92-802854A1 |
| Mercury Precision Anti-Corrosion Grease           | 92-802867A1 |
| Mercury Precision 2-4-C Marine Lubricant w/Teflon | 92-802859A1 |
| Liquid Neoprene                                   | 92-25711-1  |

### Torque Chart

| Description                               | Torque Value             |
|---|--------------------------|
| Tilt Tube Nut that Secures Steering Cable | 35 lb. ft. (41 N·m)      |
| Steering Link Special Bolt                | 20 lb. ft. (27 N·m)      |
| Steering Link Special Bolt Locking Nut    | 20 lb. ft. (27 N·m)      |
| Propeller Nut                             | 55 lb. ft. (75 N·m) min. |

## Determining Outboard Mounting Height

Measure outboard mounting height in a vertical line from the clamp bracket mounting surface to the bottom of the boat. See the following recommended mounting height. All installations require water pressure and flow to be maintained.



a - Measurement for Mounting Height (Measure Height Using Absolute Bottom of Boat)

| Outboard Mounting Height |                         |
|--------------------------|-------------------------|
| Shaft Length             | Transom Height          |
| 15" Center Section       | 22" (56 cm) or Higher   |
| 20" Center Section       | 27" (68.6 cm) or Higher |
| 25" Center Section       | 32" (81 cm) or Higher   |

**IMPORTANT:** To prevent exhaust restriction, which could result in poor idle performance, 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 and the boat is fully loaded.

Optimum mounting height can only be determined by individual boat testing. Increasing the transom height may produce:

- More top speed
- Less steering torque
- Prop "break loose" which may be noticeable during planing or with heavy loads

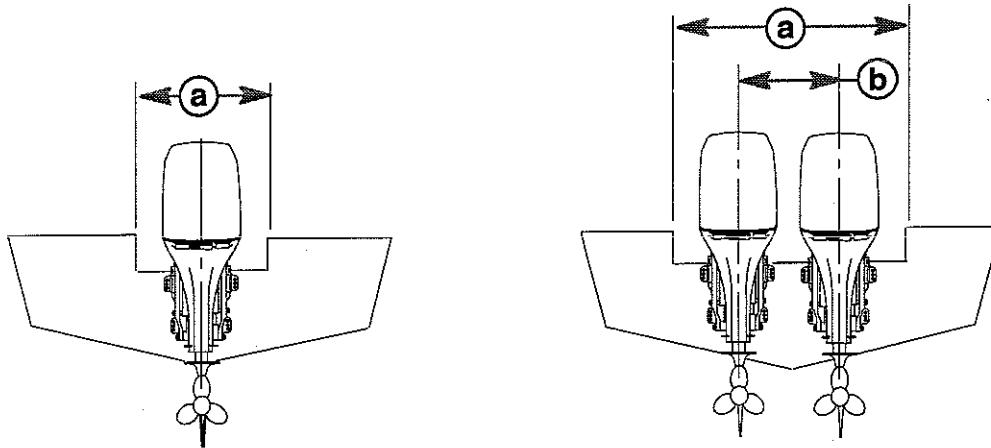
## Engine Water Pressure

### CAUTION

Prevent engine damage. If mounted too high, engine damage could occur due to a lack of water flow and pressure.

Minimum Water Pressure At WOT: 12 PSI. (Checked at lower rear exhaust cover fitting).

## Engine Space Requirements



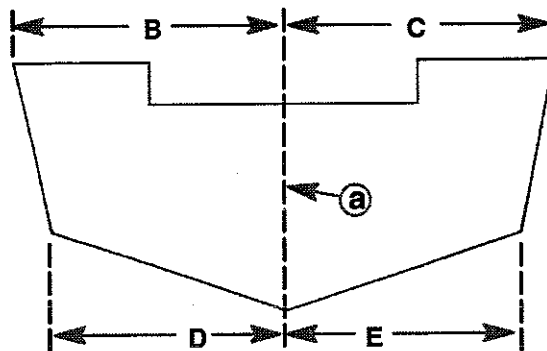
**a – Transom Opening – Minimum** Single Engine – 33-3/8 in. (848 mm)  
Dual Engines – 59-3/4 in. (1518 mm)

**b – Engine Centerline For Dual Engine** 26 in. (660mm) Minimum

**IMPORTANT:** When using external steering and/or aftermarket steering the minimum centerline dimension may not apply, and the centerline mounting dimension must be determined at the time of rigging and engine installation.

## Locating Centerline of Boat Transom

Locate and mark vertical centerline (a) of boat transom.



a - Centerline of Transom

**NOTE:** Dimensions "B" & "C" are equal length and "D" & "E" are equal length.

## Drilling Outboard Mounting Holes

**IMPORTANT:** Before drilling any mounting holes, carefully read "Determining Recommended Outboard Mounting Height," preceding. There is a 3/4 in. (19 mm) difference between outboard mounting holes in transom brackets.

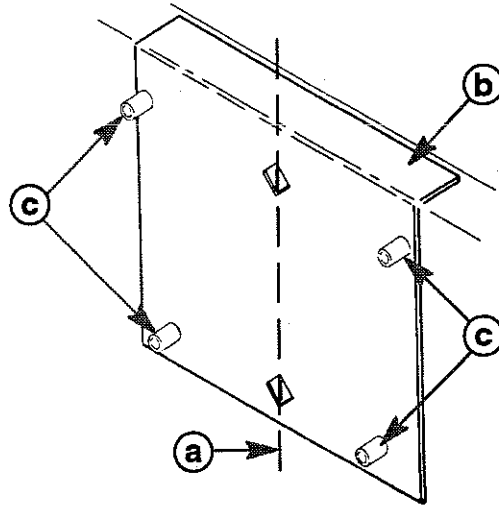
### ⚠ WARNING

Prevent possible serious injury or possible death. DO NOT, under any circumstances, allow upper outboard mounting bolts to be closer than 1 in. (25.4 mm) from top of boat transom. Upper mounting bolts must never be installed thru shims.

**NOTE:** When drilling into a fiberglass boat, place masking tape directly onto boat where mounting holes will be drilled to help prevent fiberglass from chipping.

Use a 17/32 inch (13.5mm) diameter drill bit and drill 4 mounting holes perpendicular to and thru the transom.

**NOTE:** If using "Transom Drilling Fixture" (part number 91-98234A2), use drill guide holes marked "C" when drilling outboard mounting holes.



- a - Centerline of Transom
- b - Transom Drilling Fixture (91-98234A2)
- c - Drill Guide Holes

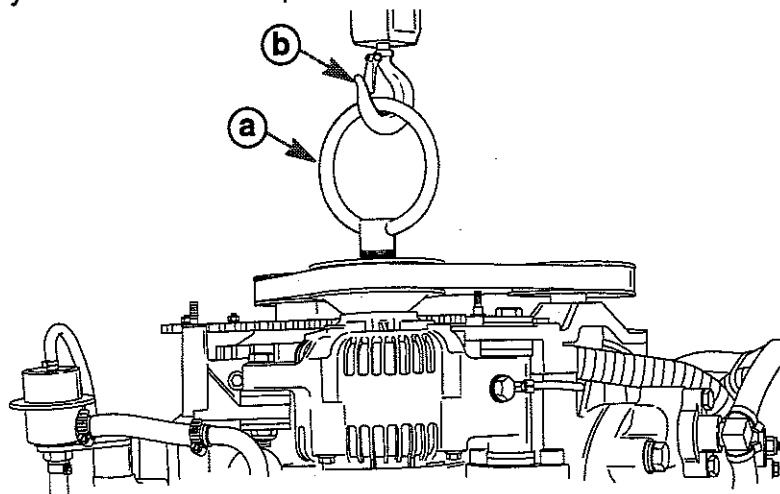
## Installing Outboard on Transom

### Lifting Outboard

#### **WARNING**

Prevent possible serious injury or possible death. Verify lifting ring is threaded into flywheel a minimum of 5 turns and that hoist has a maximum lift capacity over 500 lbs. (227 kg) BEFORE lifting outboard.

1. Remove cowling from outboard and cap from center of flywheel.
2. Thread lifting ring (a) into the flywheel hub a minimum of 5 turns. Connect hoist to lifting eye. Lift outboard and place on boat transom.



- a - Lifting Eye (91-90455)
- b - Hoist

## Securing Outboard to Boat Transom

**Installation Tip:** If boat is equipped with thru tilt tube steering, steering cable end must be installed into tilt tube of outboard before securing outboard to transom. Refer to "Steering Cable and Steering Link Rod Installation" following.

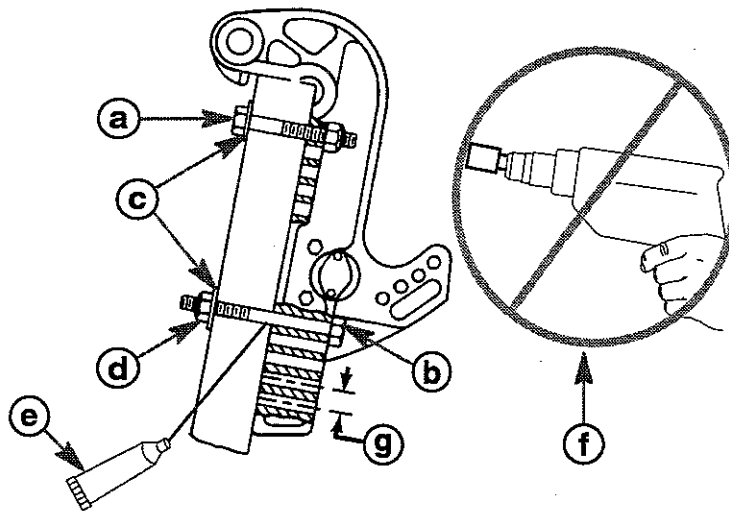
1. Refer to "Determining Recommended Outboard Motor Mounting Height", preceding and install outboard to the nearest recommended mounting height.

### **WARNING**

**Avoid injury or boat damage. Before operating, outboard MUST BE SECURED to boat transom with four 1/2 in. diameter bolts and lock-nuts, as follows: 2 bolts must be installed thru upper mounting holes and 2 bolts thru lower mounting holes. Installation must be water-tight, and outboard should be checked for tightness on the transom during operation.**

**IMPORTANT: DO NOT use an impact driver when tightening transom bolts.**

2. Fasten outboard with provided mounting hardware shown.



- a - Mounting Bolt - 1/2 in. X 4-1/2 in. (114mm) Long (2 reqd.)
- b - Mounting Bolt - 1/2 in. X 6-1/2 in. (165mm) Long (2 reqd.)
- c - Flat Washers (4 reqd.)
- d - Locknuts (4 reqd.)
- e - Marine Sealer - Apply to Shanks of Bolts, Not Threads & O.D. of Mounting Holes In Transom
- f - DO NOT Use Impact Driver to Tighten Transom Bolts
- g - 3/4 in. (19mm) Between Holes



## Steering Installation

Install steering mount and steering wheel in accordance with installation instructions that accompany each.

### Single and Dual Cable Steering

#### ⚠ CAUTION

It is recommended that boats capable of going over 50 MPH be equipped with **DUAL CABLE STEERING**, adjusted so that there is a minimum of steering backlash. The more steering backlash that exists, the more difficult it is to control a hi-performance boat particularly any chine walking tendency.

**NOTE:** Instructions for dual cable single engine applications are included with the applicable engine attaching kit. Refer to "Quicksilver Accessories Guide" to determine correct kit.

Installation instructions for dual and single cable single engine applications are included with the cables or dual cable kit.

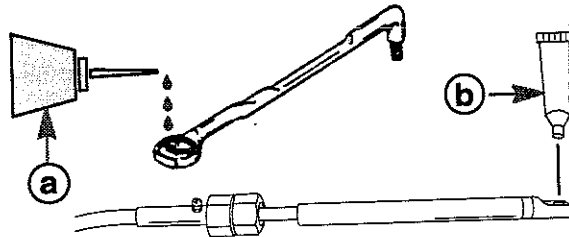
### Steering Link Rod Installation

**IMPORTANT:** The steering link rod that connects the steering cable to the engine must be fastened using special bolt & washer assembly ("a" - Part Number 10-849838) (Bolt head must have letters "ARP") and self locking nuts ("b" & "c" - Part Number 11-826709113). 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

Avoid possible serious injury or death. 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.

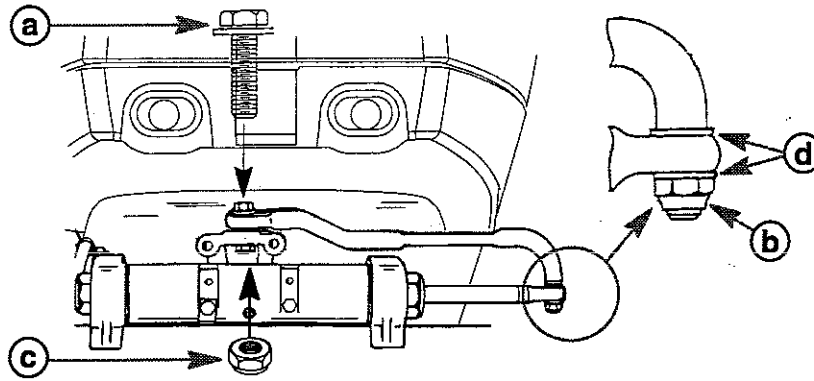
1. Lubricate steering link rod ball joint and hole in end of steering cable.



- a - 30W Motor Oil
- b - Mercury Precision 2-4-C w/Teflon (92-802859A1)

2. An access hole is provided thru the bottom cowl to ease installation of the link rod connecting bolt. Reinstall plug after completion.

3. Install steering link rod per illustration.



- a - Special Bolt (10-849838) - Tighten to 20 lb. ft. (27 N·m)
- b - Nylon Insert Locknut (11-826709113) - Tighten Until Nut Seats Then Back Off 1/4 Turn
- c - Nylon Insert Locknut - Tighten to 20 lb. ft. (27 N·m) after Torquing (a)
- d - Flat Washers

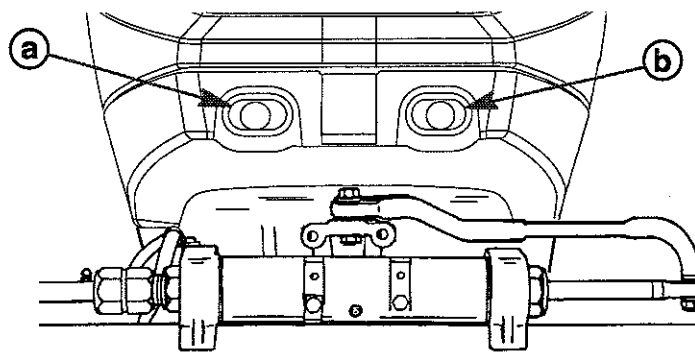
**⚠ WARNING**

**Avoid possible serious injury or death. After installation is complete (and before operating outboard), check that boat will turn right when steering wheel is turned right and that boat will turn left when steering wheel is turned left. Check steering thru full range (left and right) and at all tilt angles to assure interference-free movement.**

## Wiring Harness, Cables and Hose Routing Thru Bottom Cowl

**IMPORTANT:** Sufficient slack must exist in wiring harness, battery cables, and oil hoses routed between clamp and engine attachment point, to relieve stress and prevent hoses from being kinked or pinched. Check for slack in all hoses and cables in full left and right turns and full tilt position.

1. Route wiring harness, battery cables, oil hoses and control cables thru rubber boots in bottom cowl at locations shown.



| a - Starboard Boot                     | b - Port Boot                     |
|--|-----------------------------------|
| 1. Wiring Harness<br>2. Battery Cables | 1. Control Cables<br>2. Fuel Line |

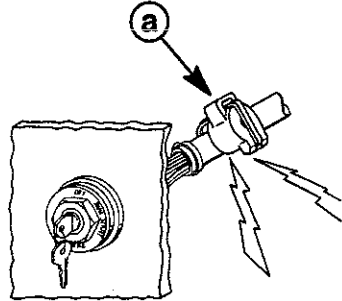
## Instrument Installation

To install instruments, refer to the instructions included with each gauge.

## Ignition Key Switch Assembly

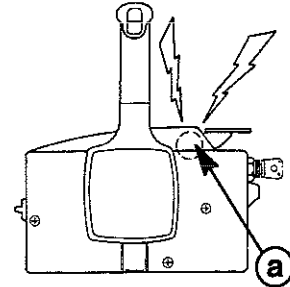
A Quicksilver Ignition Key/Choke Assembly equipped with a warning horn (as supplied) or a remote control with integral warning horn must be used with this engine. This warning horn is necessary for the engine warning system.

### Ignition Key/Choke Assembly (Supplied with Engine)



a - Warning Horn

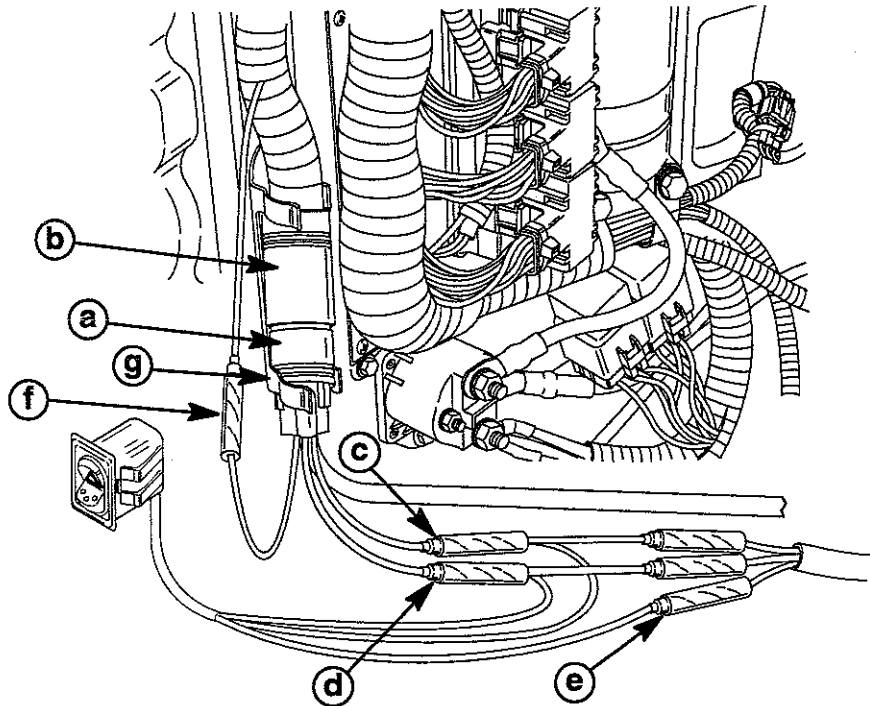
### Side Mount Remote Control



## Connecting Remote Engine Wire Harness

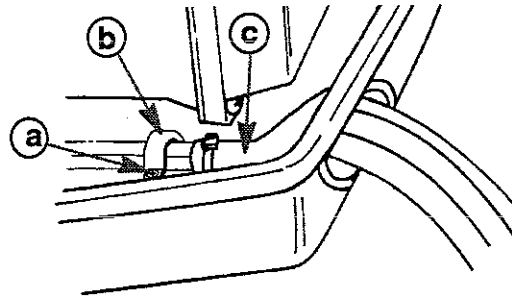
1. Connect the remote wiring harness from the remote control or key switch assembly into the engine wiring harness connector.
2. Place the harness connectors into the retaining assembly on the engine.

**IMPORTANT: Tape back and isolate any unused wiring harness leads.**



- a - Remote Control Harness
- b - Engine Harness
- c - Up Trim Lead (Blu/Wht)
- d - Down Trim Lead (Grn/Wht)
- e - (+) Lead (Red/Pur)
- f - Optional Engine Temperature Lead for Gauge (Tan)
- g - Harness Clamp

- Remove two screws for the harness clamp and reinstall clamp over harness and battery cables. Reinstall two retaining screws.



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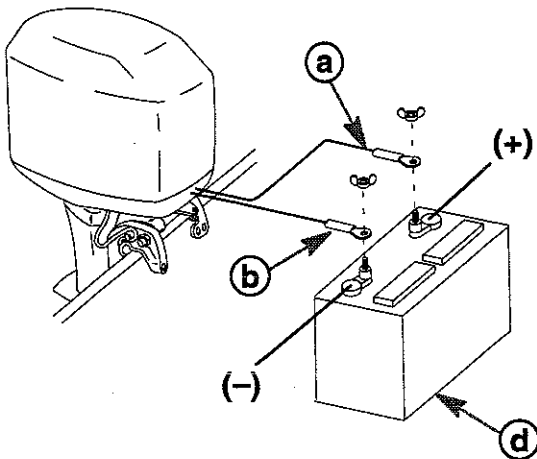
- a - Clamp retaining Screws
- b - Harness Clamp
- c - Engine Harness

## Battery Connections

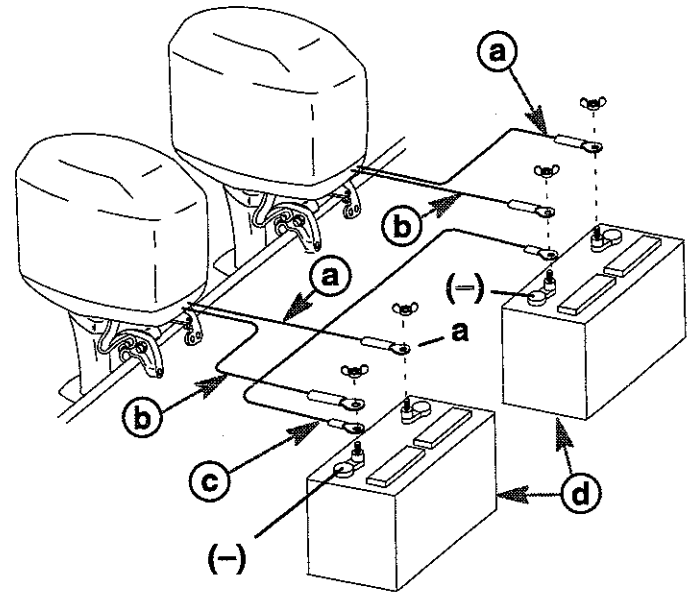
### ⚠ CAUTION

Failure to observe correct polarity when connecting battery cables to battery, will result in damage to the charging system.

#### Single Outboard



#### Dual Outboard



- a - Red Sleeve (Positive)
- b - Black Sleeve (Negative)
- c - Ground Cable [Same Wire Size As Engine Battery Cable – Connect Between Negative (-) Terminals]
- d - Starting Battery

### Dual Outboard

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

**Installation Tip:** Quicksilver battery isolator harness kits are available to charge two batteries from one engine.

# Fuel Connections

## Engine Fuel Mixture

|                                    |  |   |  |
|------------------------------------|--|---|--|
| Gas/Oil Mixing Ratio = 40:1 (2.5%) | 3.2 fl. oz. (95 ml) Oil To 1 Gallon Gas (3.8 Liters) | 9.6 fl. oz. (283 ml) Oil To 3 Gallons Gas (11.5 Liters) | 19.2 fl. oz. (566 ml) Oil To 6 Gallons Gas (23 Liters) |
|------------------------------------|--|---|--|

### PORTABLE FUEL TANK

Select a location in boat within engine fuel line length limitations and secure tank in place.

### PERMANENT FUEL TANK

These should be installed in accordance with industry and federal safety standards which include recommendations applicable to grounding, anti-siphon protection, ventilation, etc.

### FUEL HOSE SPECIFICATION

**⚠ WARNING**

**Avoid serious injury or death from a gasoline fire or explosion. All fuel lines must meet US Coast Guard approval for class "A" fuel lines.**

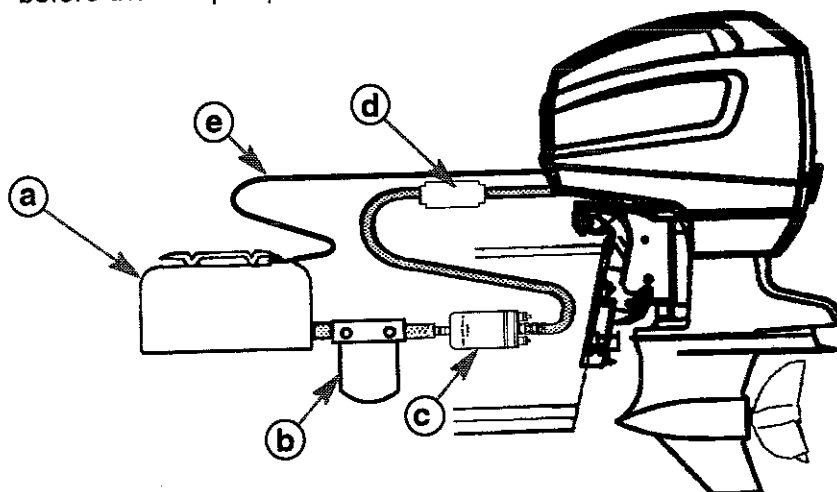
Minimum fuel line inside diameter (I.D.) is 3/8 in. (9.5mm).

### Fuel Pump Installation

**⚠ WARNING**

**Avoid injury, death, or property damage. Before installing the fuel pump, thoroughly read the installation instructions provided by the pump manufacturer.**

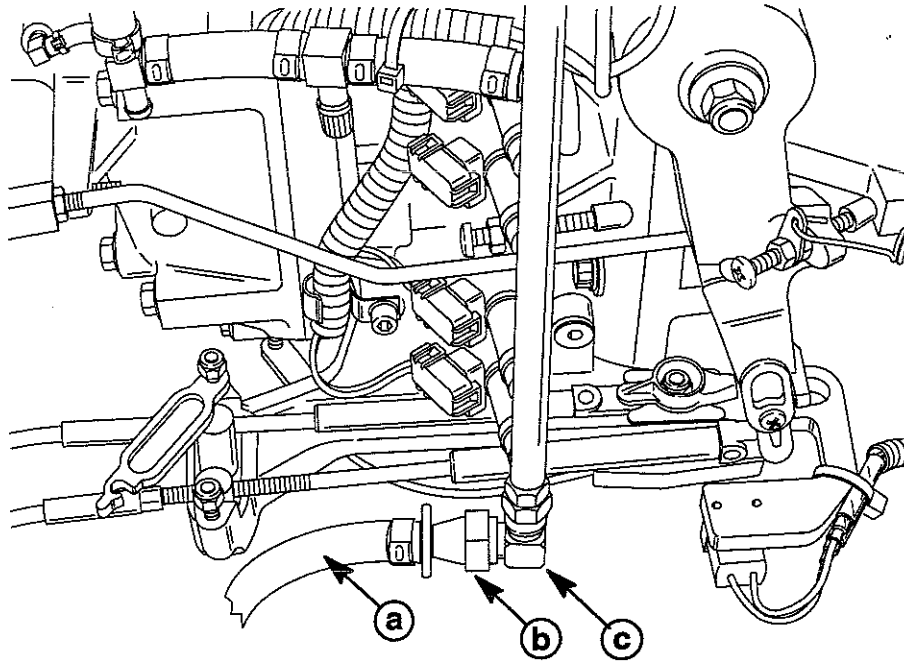
Install the fuel pump as close as possible to the fuel supply source. The pump should also be gravity fed. A water separating fuel filter is recommended to be installed in the fuel line before the fuel pump.



- a - Fuel Tank
- b - Water Separating Fuel Filter (Optional)
- c - Fuel Pump
- d - Final Fuel Filter
- e - Fuel Return Line (Connect to second fuel tank fitting)

## Connecting Fuel Hose to Engine

1. Connect input fuel line and secure threaded fitting as shown).



- a - Inlet Fuel Line
- b - Threaded Fitting (To Tighten Turn Clockwise)
- c - Fuel Rail

2. Install fuel return line to engine fitting, route to fuel tank and fasten securely.
3. Start engine and check for any fuel leaks.

## Remote Control Installation

Refer to "Quicksilver Accessories Guide" to determine correct length of remote control cables.

**IMPORTANT:** Install control cables to remote control and mount remote control **BEFORE** attaching control cables to engine. Refer to installation instructions included with remote control.

## Shift Cable

Install cables into the remote control following the instructions provided with the 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 (LEFT HAND) OUTBOARDS

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

Quicksilver Commander Series Dual Engine Console Mount Control, P/N 88688A22 or Zero Effort Controls are required to shift the counter rotation outboard. Instructions shipped with these controls explain the procedure required to connect this control to a counter rotation outboard.

## OUTBOARD SHIFTING DIRECTION

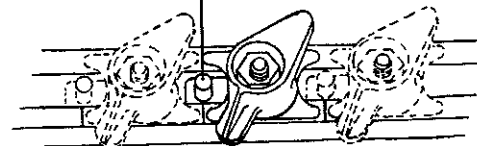
On counter rotation outboards, the shift linkage moves in the opposite direction as a standard rotation outboard.

### CAUTION

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.

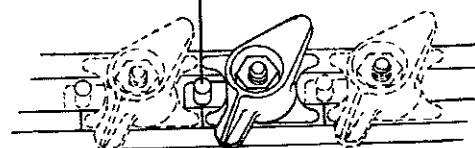
## STANDARD ROTATION GEAR OUTBOARDS

Forward Gear ← → Reverse Gear



## COUNTER ROTATION OUTBOARDS

Reverse Gear ← → Forward Gear

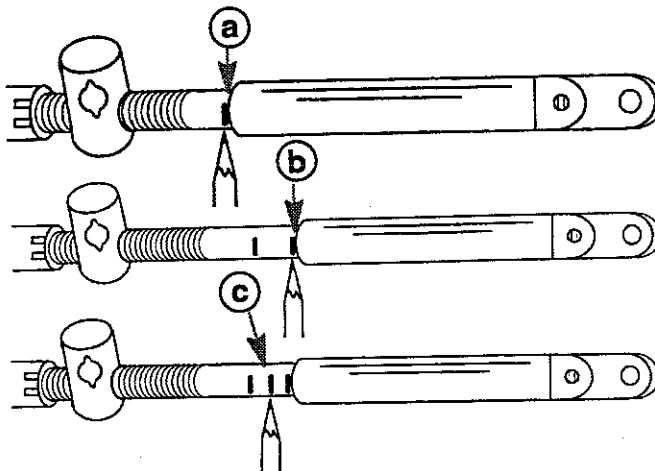


**INSTALLATION**

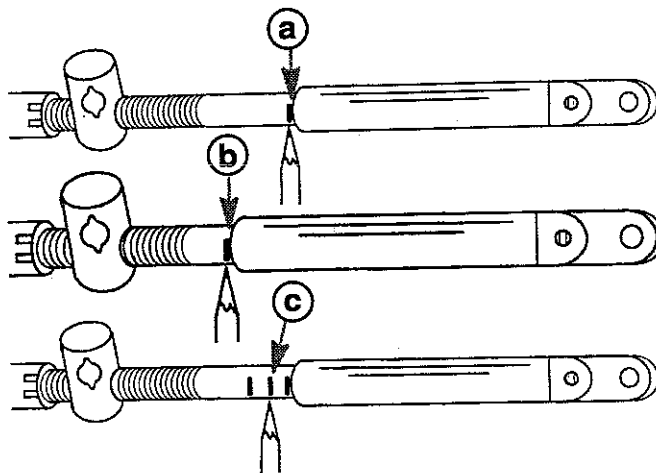
**IMPORTANT: Step 1 must be followed for proper adjustment of the shift cable.**

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 into forward and advance the handle to the full speed position. Slowly return the handle back to the neutral detent position. Place a mark on the shift cable against the cable end guide at location (a).
  - b. Move the remote control handle into reverse and advance the handle to the full speed position. Slowly return the handle back to the neutral detent position. Place a mark on the shift cable against the cable end guide at location (b).
  - c. Make a center mark (c) on the shift cable, midway between marks ("a" and "b"). Align the cable end guide against this center mark (c) when installing cable to the engine.

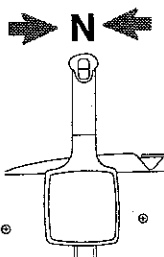
**STANDARD ROTATION OUTBOARDS**



**COUNTER ROTATION OUTBOARDS**

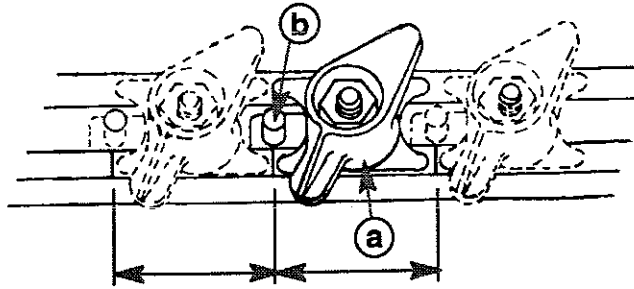


2. Position remote control and outboard into NEUTRAL position.



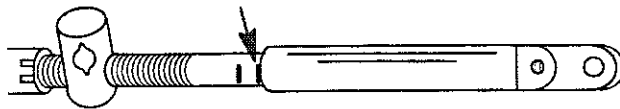


3. Slide the shift cable retainer (a) forward until resistance is felt, then slide cable anchor toward rear until resistance is felt. Center the anchor pin (b) between resistance points.

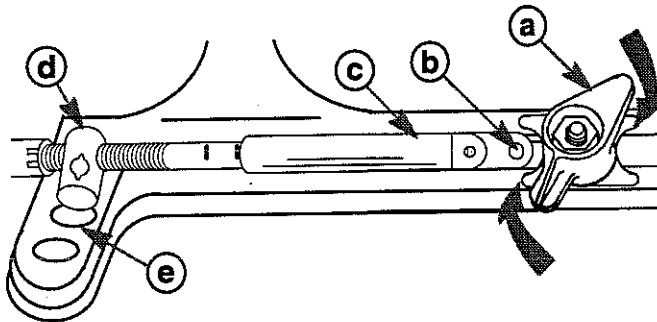


- a - Shift Cable Retainer
- b - Anchor Pin

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



5. Place shift cable end guide (c) on anchor pin (b) and adjust cable barrel (d) so that the barrel slips freely into the plastic barrel retainer (e). Secure shift cable with shift cable retainer (a).



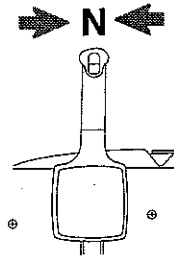
- a - Shift Cable Retainer
- b - Anchor Pin
- c - Shift Cable End Guide
- d - Cable Barrel
- e - Shift Cable Barrel Retainer

6. 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).

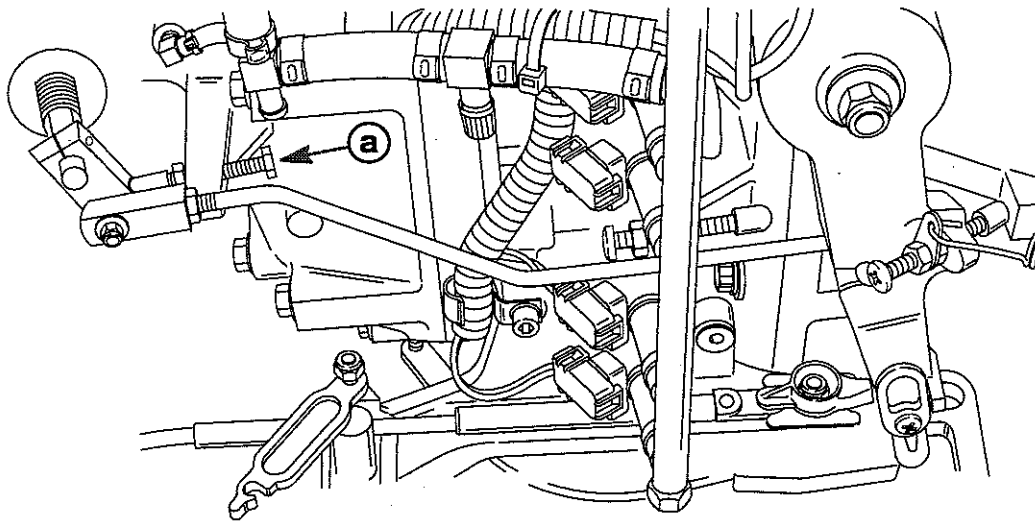
## Throttle Cable Installation

**NOTE:** Attach shift cable to engine prior to attaching throttle cable.

1. Shift remote control into NEUTRAL position.

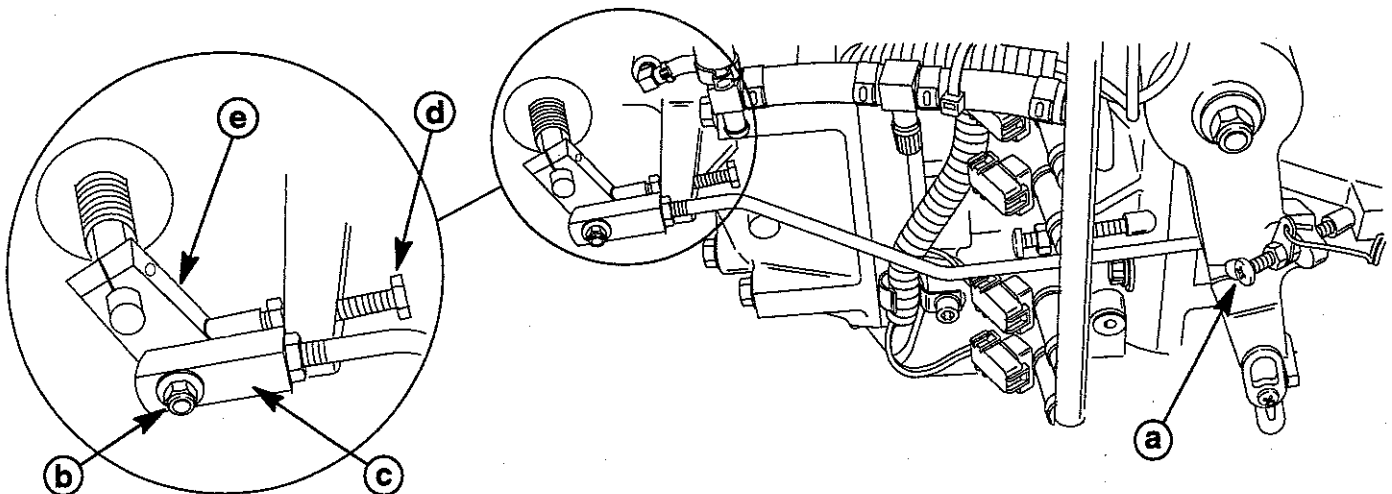


- a. With remote control in neutral, adjust the shutter stop screw (a) to obtain 900 RPM.



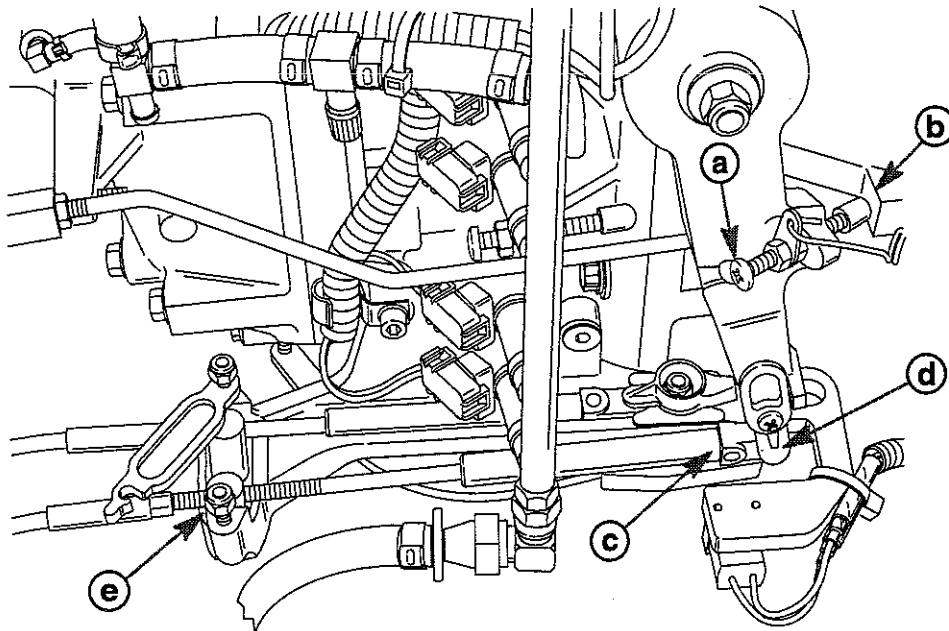
a - Shutter Stop Screw

- b. Adjust the idle stop screw (a) so the slider attaching stud (b) has free movement in the slider (c). Ensure that the throttle plate arm (e) and idle stop screw (a) remain against their stops.



- a - Idle Stop Screw
- b - Slider Attaching Stud
- c - Slider
- d - Shutter Stop Screw
- e - Throttle Plate Arm

2. Attach throttle cable end (c) to throttle lever anchor pin and secure with latch (d).
3. With end of throttle cable connected to throttle lever, hold idle adjustment screw (a) against the stop (b). Adjust throttle cable barrel to slip into barrel receptacle with a very light pre-load on the idle adjustment screw against the stop.
4. Lock cable barrels in place with cable barrel retainer (e).



- a - Idle Adjustment Screw
- b - Idle Stop
- c - Throttle Cable End
- d - Cable End Retainer
- e - Cable Barrel Retainer (Hidden)

**IMPORTANT:** The idle stop screw must be touching the stop; however, excessive pre-load on the throttle cable will make shifting from forward to neutral difficult.

5. Check throttle cable adjustment as follows:
  - a. Shift outboard into and out of forward gear several times to activate throttle linkage.

# Power Trim Pump

## Installation

Refer to installation instructions included with trim pump assembly.

## Power Trim Operation

### **⚠ WARNING**

**Avoid possible serious injury or death. Your outboard is not equipped with any type of trim out limiting device or trim indicator and therefore extreme care must be used not to trim the engine beyond the safe operating limits during operation. Never trim up/out beyond the outboards side support flanges while the boat is underway or at engine speeds above 1200 RPM. Severe damage to the outboard or loss of control of the boat may result. Use extreme caution when operating with the motor raised.**

The trim system has no trim out limits. Exercise care that engine is not trimmed out beyond safe operation limits.

The outboard can be operated beyond the 20° trim limit if operating outboard in shallow water as long as the engine RPM is kept below 1200 RPM.

### **⚠ WARNING**

**Avoid possible serious injury or death. A tight grip on the steering wheel is always advisable when accelerating, decelerating, or when trimming the boat. On models with Power Trim, upon reaching cruising speed, the outboard should be trimmed to obtain a balanced steering condition. While trimming, steering loads will vary and will pull in one direction until a balanced steering condition is obtained. If the outboard is trimmed past the balanced steering condition, the steering wheel will have a tendency to pull in the opposite direction. Excessive trimming past the balanced steering position will result in increased steering loads which, if unexpected, could result in occupants being thrown within the boat or out of the boat from a sharp turn.**

## Trim "In" Pin

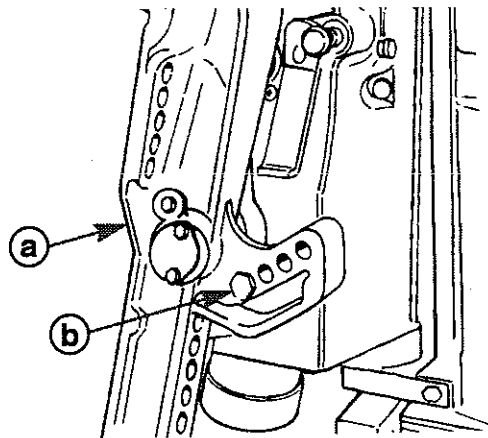
### **⚠ WARNING**

**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 on plane if outboard is trimmed extremely in or down and there is a pull on the steering wheel.**

Some 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 spent 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 some instances, setting a specific trim in (under) limit may be desirable. This can be accomplished by installing the trim adjustment bolt (provided) through the appropriate clamp bracket pin hole.



a - Clamp Bracket  
b - Trim Adjustment Bolt

## Propeller Selection/Installation

**NOTE:** Only propellers designed for surface type applications should be used with this engine.

For best all around performance select a propeller that allows the engine to operate in the upper half of the recommended full throttle RPM range with the boat normally loaded (refer to Specifications in the Owner's Manual). This RPM range allows for better acceleration while maintaining maximum boat speed.

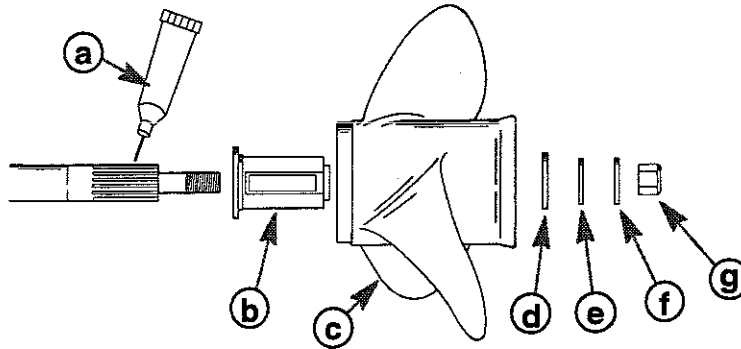
Check full-throttle RPM (after engine break-in period) using an accurate tachometer with the engine trimmed out to a balanced steering condition (steering effort equal in both directions) without causing the propeller to "break loose."

### **⚠ WARNING**

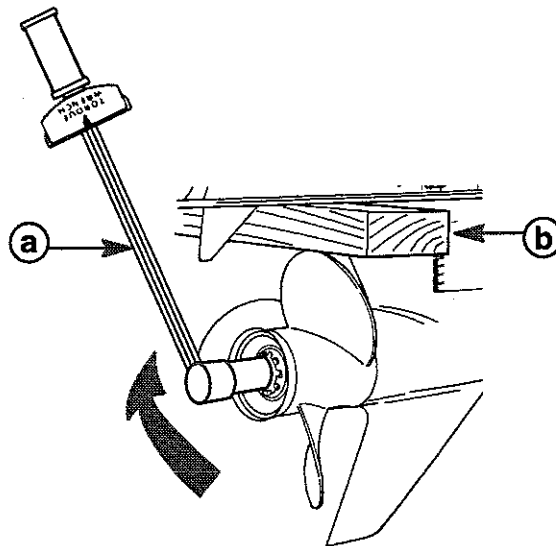
**Avoid possible serious injury. When the propeller shaft is rotated and the engine is in gear, there is the possibility for the engine to crank over and start. To prevent this type of accidental engine starting and possible serious injury caused from being struck by a rotating propeller, always set the remote control into neutral and remove spark plug leads when you are servicing the propeller.**

1. Set the remote control into neutral position.
2. Remove leads from spark plugs to prevent engine from starting.
3. Coat the propeller shaft with Mercury Precision Anti-Corrosion Grease (92-802867A1).

4. Heavy Duty Prop Shaft Hub Kit P/N 840389A2 (Included with engine) Coat propshaft with Mercury Precision Anti-Corrosion Grease (a) (92-802867A1). Install prop hub assembly (b), propeller (c), washer (d), belleville washer (e), washer (f), and propeller nut (g) onto the shaft.



5. Place a block of wood between gear case and propeller and torque propeller nut to 55 lb. ft. (75 N-m).



- a - Torque Wrench
- b - Wood

## Starting Check List

|                               |   |
|-------------------------------|---|
| <b>Transom Mounting Bolts</b> | Secure/Tight  |
| <b>Prop Nut</b>               | Secure/Tight  |
| <b>Installation</b>           | Water-Tight   |
| <b>Fuel Line</b>              | Check for Leaks   |
| <b>Fuel Tank</b>              | Full  |
| <b>Electrical Connections</b> | All Connections Secure                                  |
| <b>Steering System</b>        | Smooth Operation/No Binding                             |
| <b>Throttle Operation</b>     | Unusual Looseness/Sticking/Jamming/Fasteners are Secure |

Refer to the Operation Maintenance Manual operation section for the starting procedure and additional information on operating your boat.

## Boat Performance Test Instructions

### ⚠ CAUTION

Prior to or during performance testing, proper engine break-in must be followed. Refer to the Operations and Maintenance Manual included with the engine for the break-in procedure.

### ⚠ WARNING

Avoid possible serious injury or death. A tight grip on the steering wheel is always advisable when accelerating, decelerating, or when trimming the boat. Upon reaching cruising speed, the outboard should be trimmed to obtain a balanced steering condition. While trimming, steering loads will vary and will pull in one direction until a balanced steering condition is obtained. If the outboard is trimmed past the balanced steering condition, the steering wheel will have a tendency to pull in the opposite direction. Excessive trimming past the balanced steering position will result in increased steering loads, and, in most boat applications, a decrease in performance.

1. With boat in water, trim the outboard(s) (trim button in remote control handle) so that the outboard(s) are as vertical as possible. This typical setting should give reasonable acceleration and top speed.
2. Go for a familiarization ride at various throttle and trim settings BEFORE starting testing.

**NOTE:** Instruments should be viewed directly from front to eliminate any error while reading.

3. When making either top speed or acceleration runs, best accuracy will be obtained by running with or against any wind. Side winds require driving in a constant turn to keep the boat running straight-ahead. If winds are 10 MPH (16 km/hr) or greater, it is suggested that all acceleration runs be made down wind.
4. The top speed WOT (wide open throttle) test should be done with the boat normally loaded (to duplicate actual running conditions). Operate boat in gear at WOT and check RPM. Engine RPM must be within the recommended full throttle RPM range (listed in Operation and Maintenance Manual).

**NOTE:** When performing acceleration testing, it is recommended that a stop watch or wrist watch with a second hand be used to ensure testing accuracy.

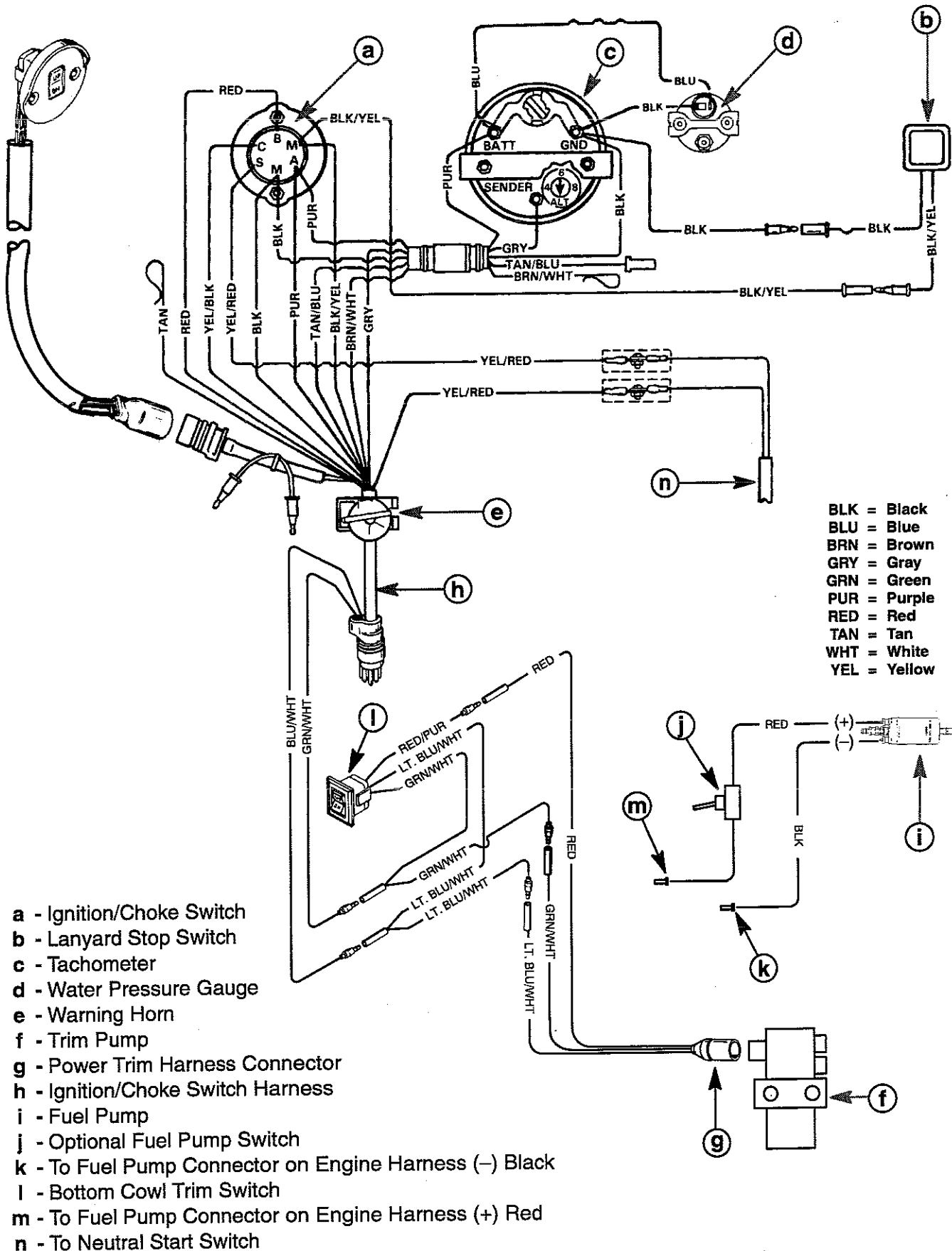
5. Start the test with boat motionless in the water and outboard in neutral. A stop watch should be started as the throttle is quickly pushed to WOT (wide open throttle). Stop the watch as the speedometer needle sweeps past 20 MPH (32 km/hr). Several runs should be made to assure a good average.
6. Prop "break loose" (sudden high RPM), if not excessive, in some cases can be beneficial during acceleration. If undesirable "break loose" occurs, it can be decreased by trimming the outboard further under. If it remains excessive with all similar propellers, the outboard must be lowered.
7. Record all applicable data on a chart and retained for future reference.
8. After several propellers of different pitch and/or design have been tried, select one that best services the general purpose of the boat. The selected propeller should enable the engine to operate within its recommended full throttle RPM range, without excessive propeller "break loose" during acceleration or turns. A second propeller, which would make both a suitable spare or a special purpose alternate, might also be desirable.

**NOTE:** A higher pitch often gives best top speed, but the next lower pitch gives adequate top speed with much better acceleration.



# Boat Wiring Diagram 2.5 EFI/Short Shaft

**IMPORTANT: Tape back any unused wiring leads**

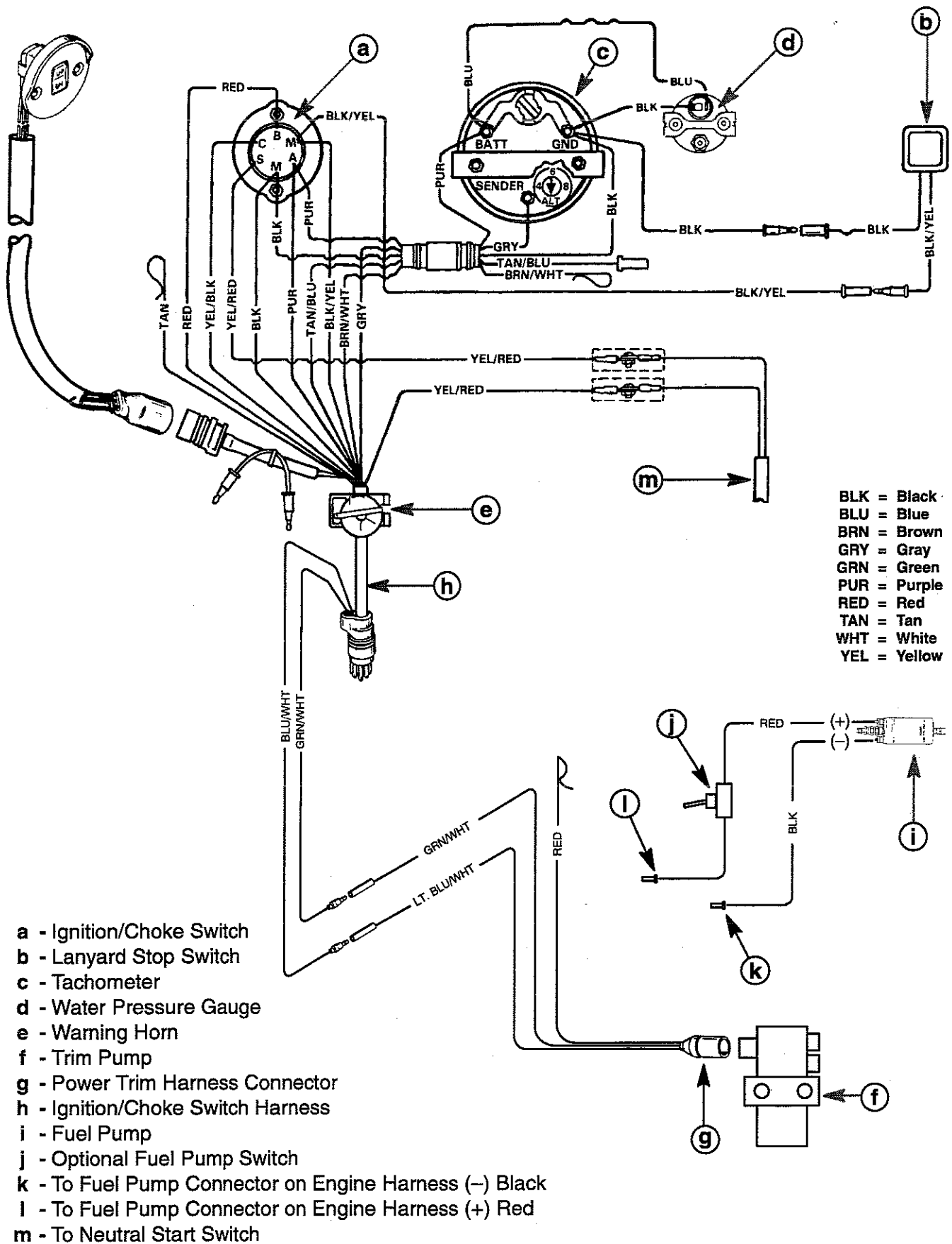


BLK = Black  
 BLU = Blue  
 BRN = Brown  
 GRY = Gray  
 GRN = Green  
 PUR = Purple  
 RED = Red  
 TAN = Tan  
 WHT = White  
 YEL = Yellow

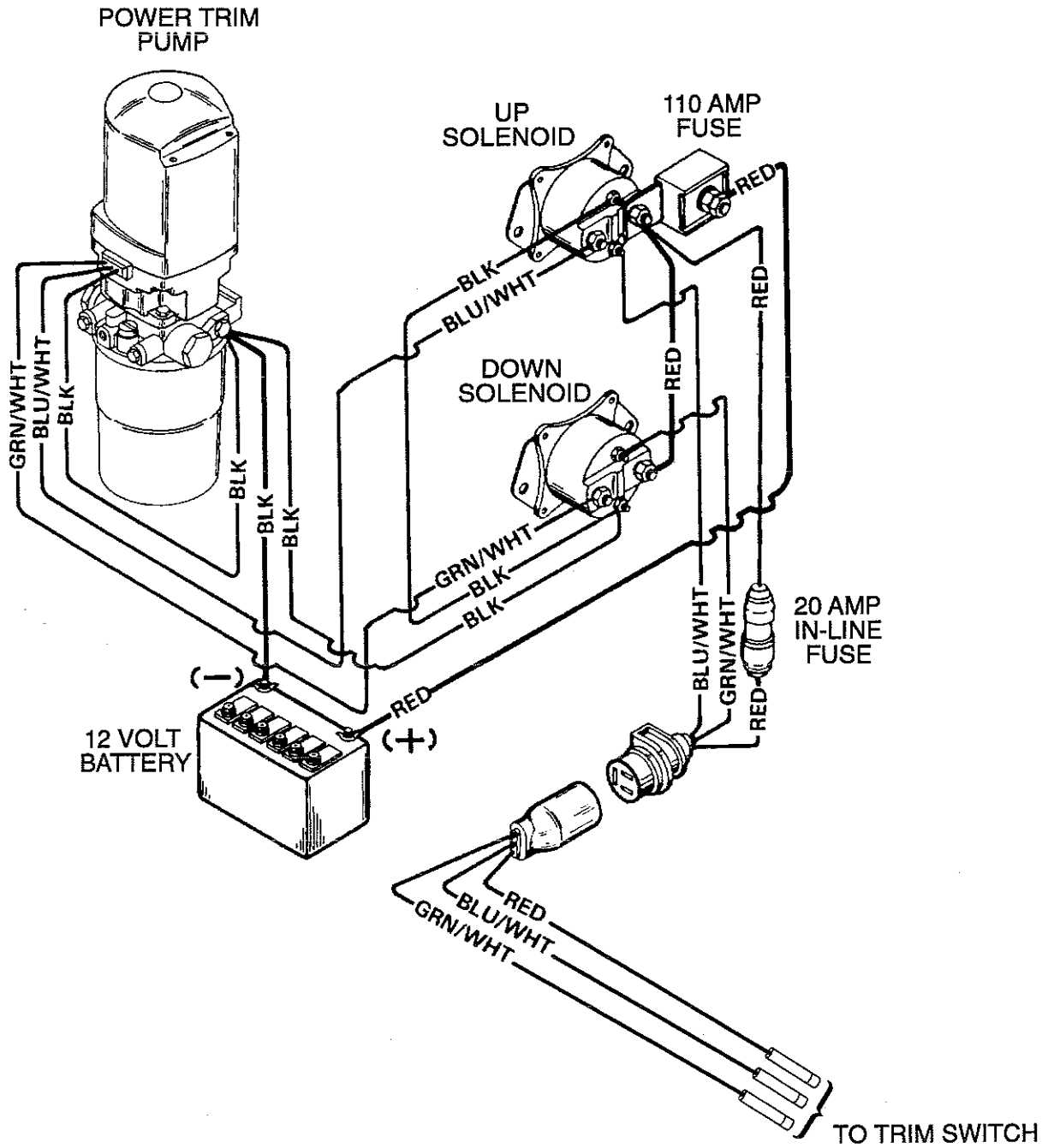
- a - Ignition/Choke Switch
- b - Lanyard Stop Switch
- c - Tachometer
- d - Water Pressure Gauge
- e - Warning Horn
- f - Trim Pump
- g - Power Trim Harness Connector
- h - Ignition/Choke Switch Harness
- i - Fuel Pump
- j - Optional Fuel Pump Switch
- k - To Fuel Pump Connector on Engine Harness (-) Black
- l - Bottom Cowl Trim Switch
- m - To Fuel Pump Connector on Engine Harness (+) Red
- n - To Neutral Start Switch

# Boat Wiring Diagram 2.5L EFI Offshore

**IMPORTANT:** Tape back any unused wiring leads

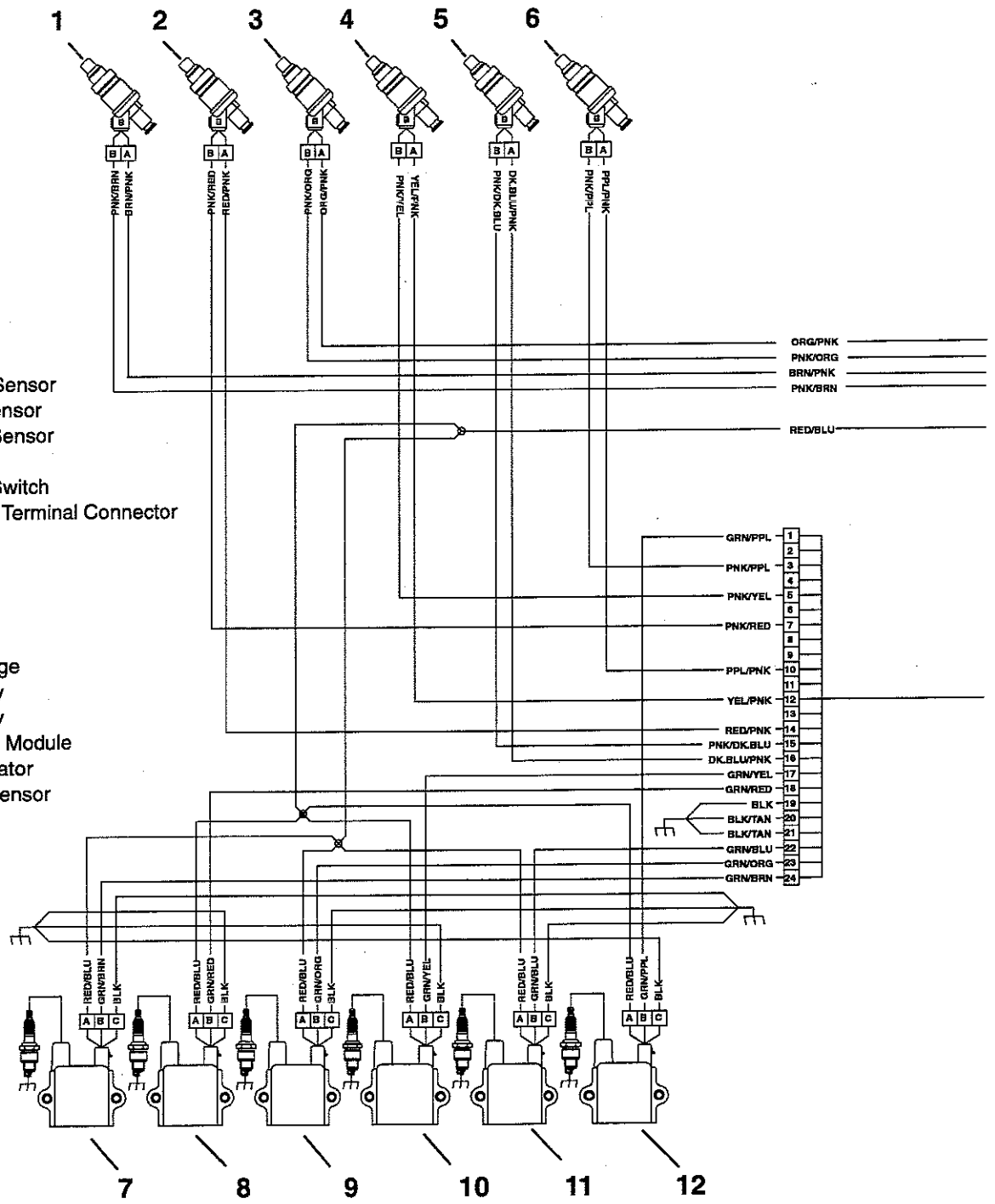


# Power Trim Wiring Diagram



# Engine Wiring Diagram

- 1 - Fuel Injector #1
- 2 - Fuel Injector #2
- 3 - Fuel Injector #3
- 4 - Fuel Injector #4
- 5 - Fuel Injector #5
- 6 - Fuel Injector #6
- 7 - Ignition Coil #1
- 8 - Ignition Coil #2
- 9 - Ignition Coil #3
- 10 - Ignition Coil #4
- 11 - Ignition Coil #5
- 12 - Ignition Coil #6
- 13 - MAP Sensor
- 14 - Throttle Position Sensor
- 15 - Crank Position Sensor
- 16 - Air Temperature Sensor
- 17 - Shift Switch
- 18 - Cyl. Head Temp Switch
- 19 - Digital Diagnostic Terminal Connector
- 20 - Starter
- 21 - Fuel Pump
- 22 - 12 Volt Battery
- 23 - Starter Solenoid
- 24 - Remote Control
- 25 - Temperature Gauge
- 26 - Main Power Relay
- 27 - Main Power Relay
- 28 - Electronic Control Module
- 29 - 60 Ampere Alternator
- 30 - Water Pressure Sensor



- BLK = Black
- BLU = Blue
- BRN = Brown
- GRY = Gray
- GRN = Green
- ORN = Orange
- PNK = Pink
- PUR = Purple
- RED = Red
- TAN = Tan
- WHT = White
- YEL = Yellow
- LT. = Light
- DK. = Dark

# Engine Wiring Diagram

