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Setting Standards for Safer Boating

INSTALLATION INSTRUCTIONS AND OWNERS MANUAL

Part # 212442, Rev 0, 08/2013

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SL-3
SIDE
MOUNT



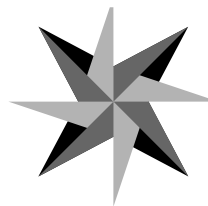
SL-3
TOP MOUNT
SINGLE
LEVER



SL-3
TOP MOUNT
DUAL LEVER



SIDE AND TOP MOUNT
ENGINE CONTROLS
MODEL SL-3



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SOLUTIONS®

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SIDE AND TOP MOUNT ENGINE CONTROLS

MODEL SL-3

NOTICE

Installer: these instructions contain important safety information and must be forwarded to the boat owner.

The SeaStar Solutions SL-3 series control provides both shift and throttle operation for outboard, inboard/outboard, or inboard boats with light shifting loads of 15 lbs. (6.81 kg) maximum. It can be used with most OEM control cables including Mercury's 600A and Gen II, Evinrude/Johnson/OMC 479 style cables, and 3300/33C type cables.

Standard control features:

- *Single lever operation.*
- *Neutral throttle warm-up.*
- *Neutral safety switch to prevent starting in gear.*
- *Friction damper to prevent throttle "creep".*

In addition to this control, the following components are required for a complete control system:

- *Two control cables (one for shift and one for throttle) including Mercury's 600A and Gen II, Evinrude/Johnson/OMC 479 style cables, or 3300/33C type cables (twin controls will require four control cables). SeaStar Solutions offers all of these cables in the Xtreme series.*
- *Throttle and Shift Connection Kits for engine. See SeaStar Solutions Catalog at your nearest Marine Distributor.*

Tools needed for installation:

<i>Adhesive tape</i>	<i>Sabre saw</i>
<i>Phillips and standard screwdrivers</i>	<i>Power drill</i>
<i>3/8" box end wrench</i>	<i>7/32" & 17/64" drill bits</i>

⚠ WARNING

Before starting installation read these instructions and engine makers instructions thoroughly. Failure to follow either of these instructions or incorrect assembly can result in loss of control and cause property damage, injury, or death.

⚠ WARNING

DO NOT substitute parts from other manufacturers, they may cause a safety hazard for which SeaStar Solutions cannot accept responsibility.

NOTICE

Cable installation and connections must be made in accordance with the motor manufacturer's instructions.

To insure best performance, free operation of all linkages and the remote control is essential. Follow the manufacturer's recommended procedures for adjustment and lubrication.

All specifications and features are subject to change without notice.

NOTICE

SeaStar Solutions highly recommends the installation and usage of an engine shut off switch as a important emergency safety feature for boats. This switch should be connected by a cord to the boat driver. Should the driver be thrown from the helm position, the engine will automatically shut off.

This shut off switch is not a standard part of this control. It can, however, be obtained from most marine dealers and distributors.

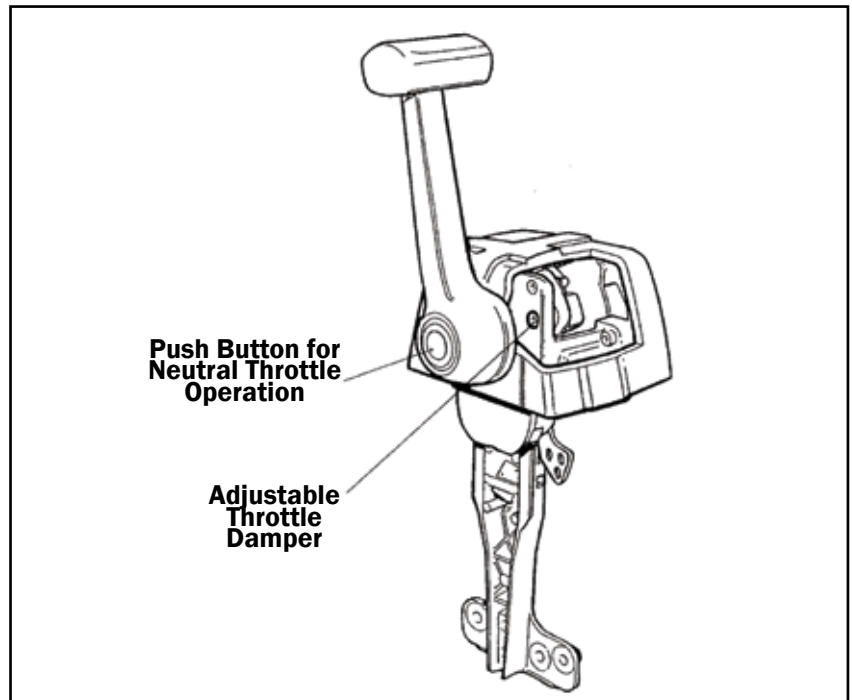
Control Features and Operation

1. PUSH BUTTON.

Used for starting or engine warm-up. When the hand lever is in the neutral detent position, depress the button in the center of the handle to enable operation of the throttle without engaging forward or reverse gear. When warm-up is completed, return the lever to the neutral position: the button will pop back out, making the control ready for normal operation.

2. THROTTLE DAMPER.

Adjustment of this screw enables the friction in the throttle operating mechanism to be increased and prevent unwanted handle movement. To adjust, place the hand lever in the forward or reverse throttle position (just beyond the shift position). Remove the cover and adjust the damper screw; turning the screw clockwise increases the friction. Care should be taken not to overtighten.



Installation

SECTION 1: LOCATION OF CONTROL.

STEP 1. Allow adequate clearance for hand lever swing (forward and reverse positions). See Figure 2 for Control dimensions.

STEP 2. Allow adequate clearance under the console for the cables. Refer to Figure 2.

STEP 3. After a suitable location for the control is determined, use the separate mounting template and cut and drill the mounting holes required.

NOTICE

On all models, the cover will have to be removed to expose the mounting holes.

NOTICE

See Figure 5 for additional side mount model installation information.

SECTION 2: CABLE MEASUREMENT

Measure from the control head position—along an unobstructed cable routing— to the shift and throttle connections.

Cable lengths are measured from end to end. When a measurement is in feet and inches, specify the next whole foot.

NOTICE

For outboard engines, add four (4) feet to the measurement to allow for a loop which provides unrestricted engine movement. Round UP to the next whole foot and order the required cable part number.

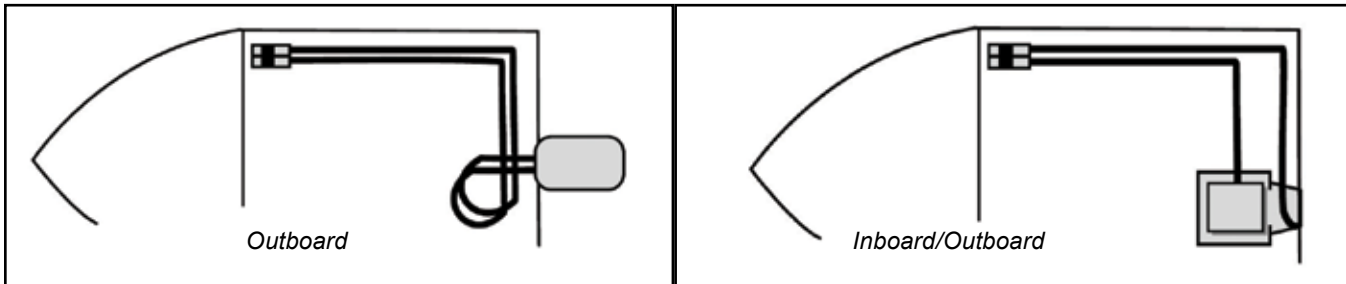


Figure 1. Typical control systems.

Installation of Cables

A. BEND RADIUS. When routing the control cables, select a path with the minimum number of bends, making the bends as large as possible. Sharp or frequent bends will result in difficult throttle or shift control, loss of motion, and premature cable wear. **DO NOT MAKE BENDS OF LESS THAN THE RECOMMENDED MINIMUM BEND RADIUS AS NOTED BELOW.**

Cable Type	Minimum Bend Radius
Standard	8"
Xtreme	4"

For best performance, SeaStar Solutions recommends using Xtreme cables with this control.

B. SUPPORTING THE CABLE. Do not tie or clamp the cable within 36 inches of the control. When supporting the cable beyond 36 inches of the control, cables should be loosely clamped or tied for support at regular intervals.

⚠ CAUTION

Cables must not be bundled together with electrical wiring.
Cables must not rest on sharp edges which can cause chafing.

C. CABLE ROUTING. Cables shall not be installed in areas of excess heat such as on, or close to, exhaust manifolds where temperatures may exceed 212 °F (100 °C).

Control Measurements

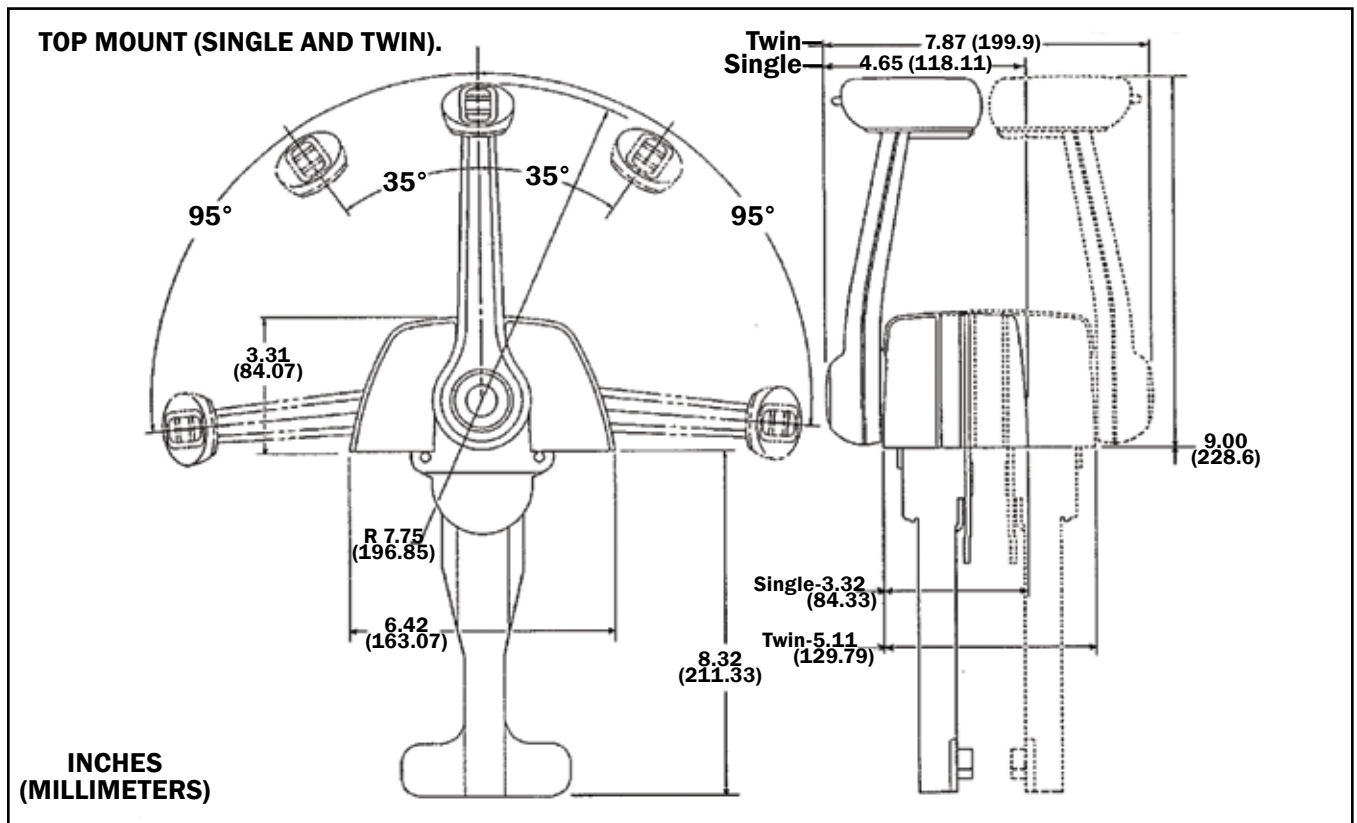
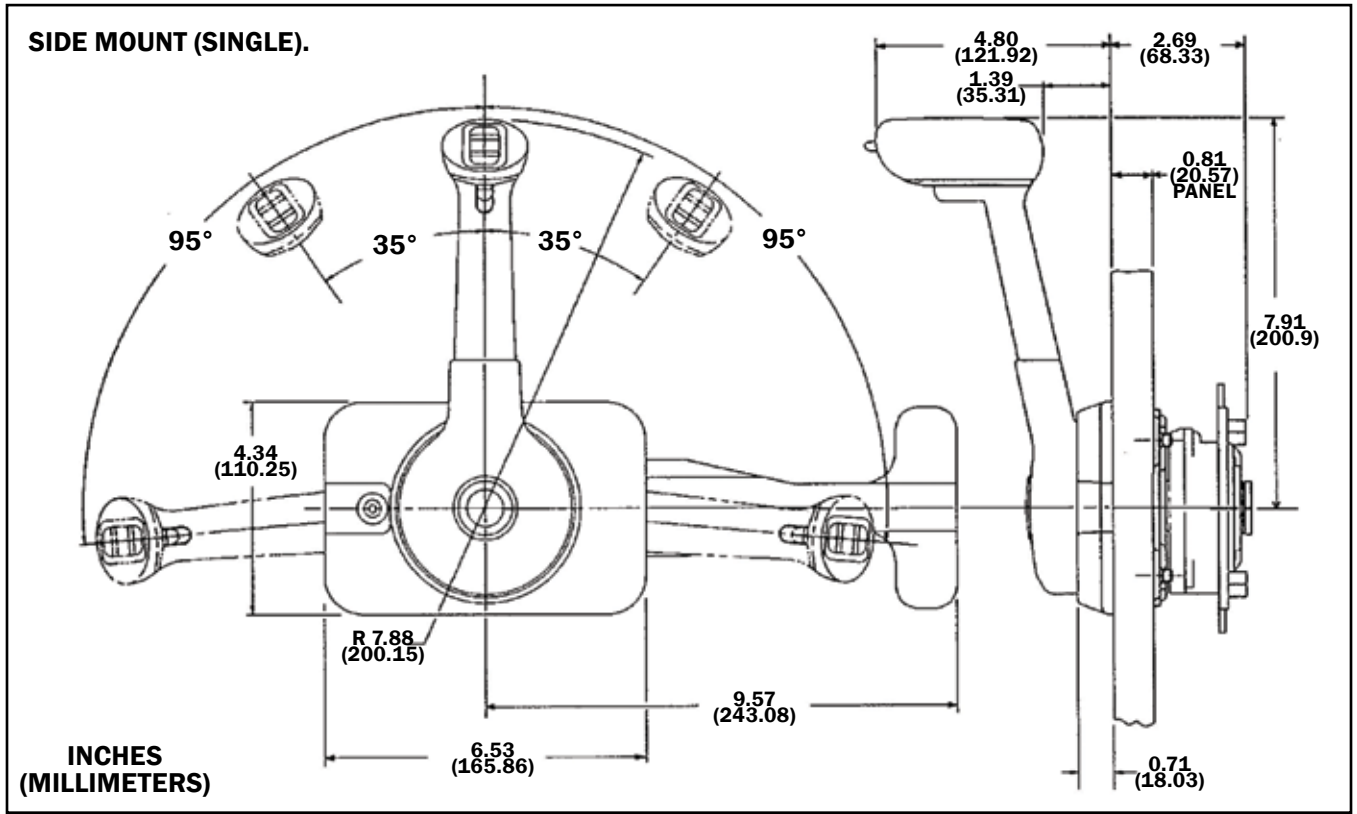


Figure 2.

SECTION 3: SHIFT & THROTTLE CONNECTION-CONTROL END.

NOTICE

“Push” and “Pull” refer to the direction of cable motion to shift into “forward” or to “open” the throttle.

NOTICE

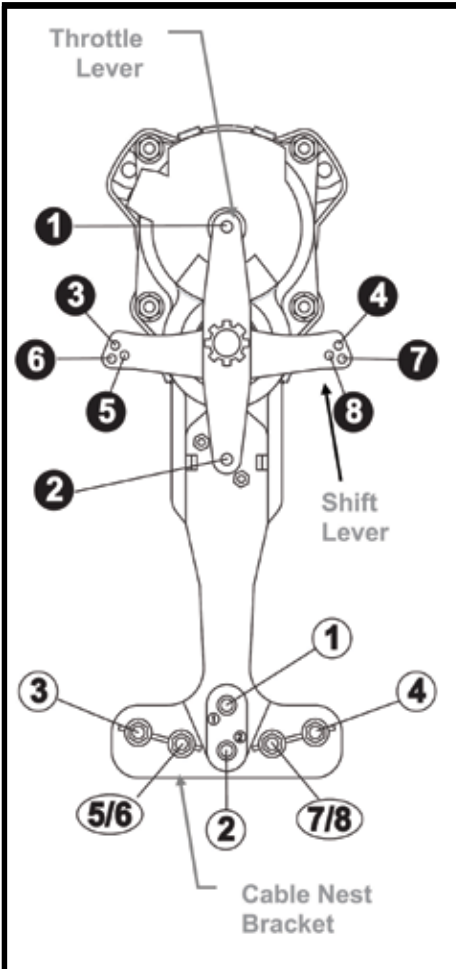
Refer to the appropriate manufacturer’s manual for shift and throttle direction and adjustments.

NOTICE

Hole numbers on mechanism chassis correspond to holes in shift and throttle levers, E.G., Connect cable mount to hole 4 on chassis and cable end fitting to hole 4 on lever.

NOTICE

Cables and wiring should be pre-installed on control before final mounting is made.



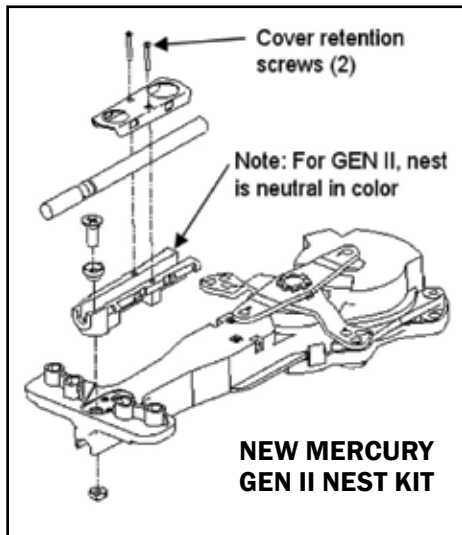
Cable Mounting Diagram

NOTE:

I/O = Inboard/Outboard or Sterndrive.
O/B = Outboard.

PUSH to OPEN THROTTLE				
	RIGHT (STARBOARD) MOUNT		LEFT (PORT) MOUNT	
MANUFACTURER	CABLE NEST KIT	THROTTLE LEVER	CABLE NEST KIT	THROTTLE LEVER
Mercury 18 & 25 HP	#1	#1	#1	#1
Johnson/Evinrude	#1	#1	#1	#1
BRP/OMC I/O	#1	#1	#1	#1
Yamaha 90HP & up	#1	#1	#1	#1
US Marine	#1	#1	#1	#1
Suzuki	#1	#1	#1	#1
PULL to OPEN THROTTLE				
	RIGHT (STARBOARD) MOUNT		LEFT (PORT) MOUNT	
MANUFACTURER	CABLE NEST KIT	THROTTLE LEVER	CABLE NEST KIT	THROTTLE LEVER
MerCruiser Mercury I/O & OB	#2	#2	#2	#2
Volvo	#2	#2	#2	#2
Yamaha 70HP & Under	#2	#2	#2	#2
Honda	#2	#2	#2	#2
Nissan/Tohatsu	#2	#2	#2	#2
PUSH for FORWARD SHIFT				
	RIGHT (STARBOARD) MOUNT		LEFT (PORT) MOUNT	
MANUFACTURER	CABLE NEST KIT	SHIFT LEVER	CABLE NEST KIT	SHIFT LEVER
Volvo I/O & Inboards	#3	#3	#4	#4
3300 Cables	#3	#3	#4	#4
Mercury 18 & 25 HP Inboards	#5/6	#6	#7/8	#7
Inboards	#3	#3	#4	#4
PULL for FORWARD SHIFT				
	RIGHT (STARBOARD) MOUNT		LEFT (PORT) MOUNT	
MANUFACTURER	CABLE NEST KIT	SHIFT LEVER	CABLE NEST KIT	SHIFT LEVER
3300 Cables	#4	#4	#3	#3
MerCruiser Mercury I/O & OB	#7/8	#7	#5/6	#6
BRP/OMC I/O Evinrude/Johnson	#7/8	#8	#5/6	#5
Honda/Nissan/Suzuki	#4	#4	#3	#3
Tohatsu/US Marine	#4	#4	#3	#3
Yamaha	#4	#4	#3	#3
Inboards	#4	#4	#3	#3

Figure 3. Control Cable Connecting Points.



Cable End Options

- 3300/33C (Universal)(note black nest color)
 - BRP/OMC/Johnson/Evinrude (note black nest color)
 - Mercury, Mercruiser (note black nest color)
 - Mercury Gen II cables(note neutral nest color)
- Each cable type connects differently.

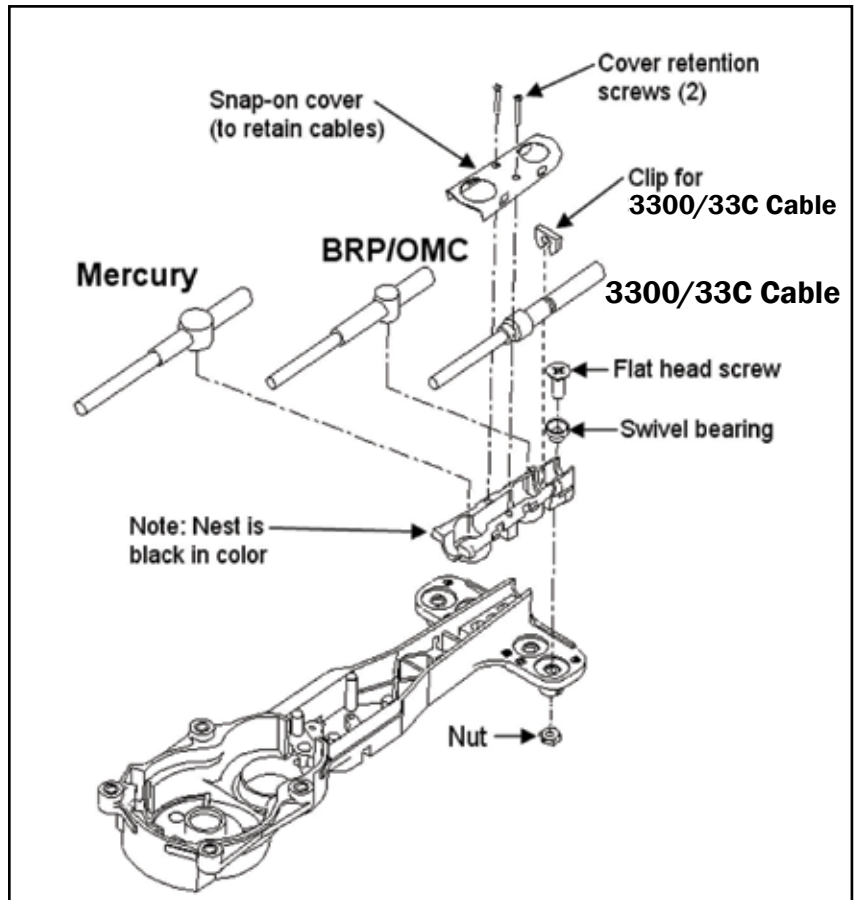


Figure 4. Cable Connections, Control End.

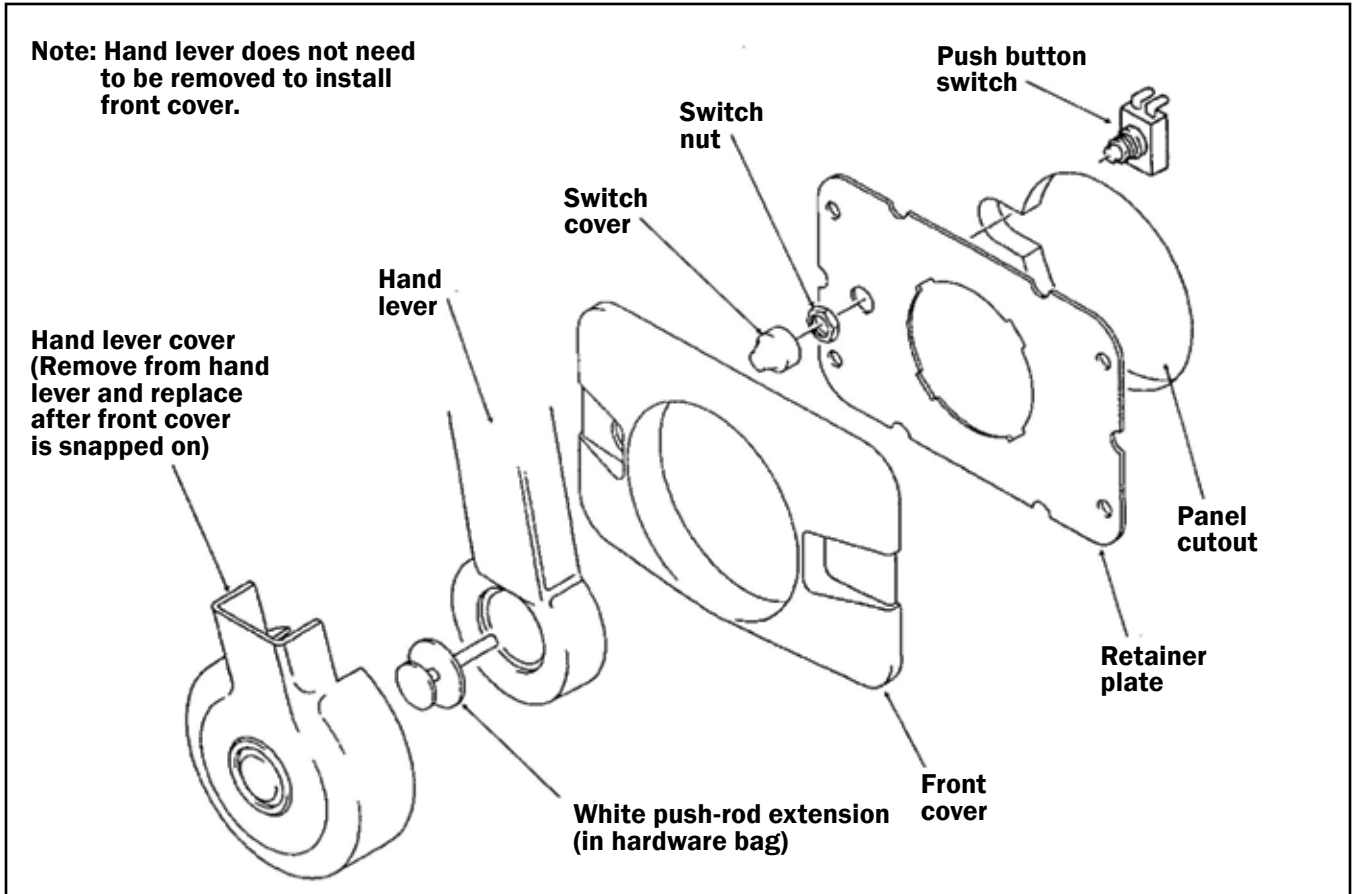


Figure 5. Side Mount, Installation.

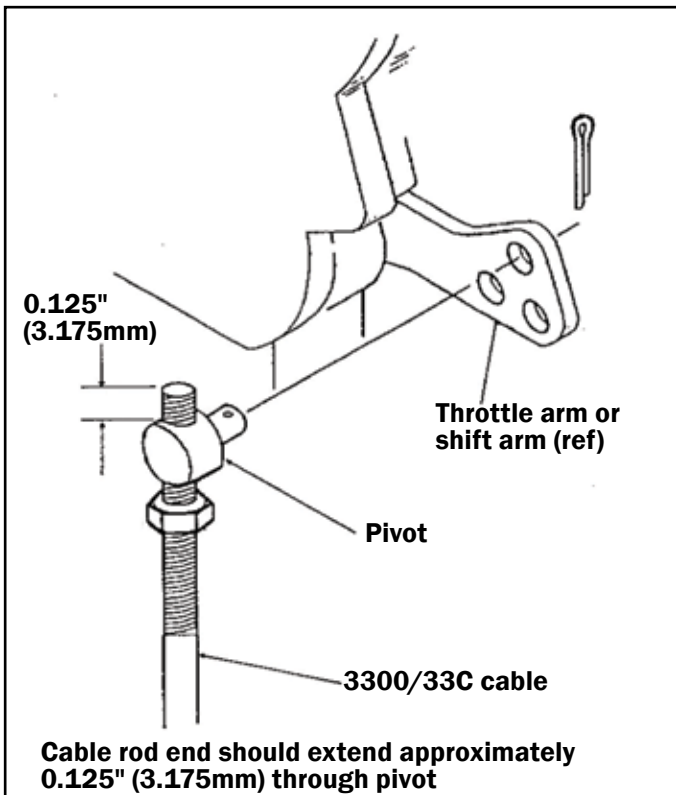


Figure 6. Shift Arm Cable Terminal Connection for 3300/33C Cable.

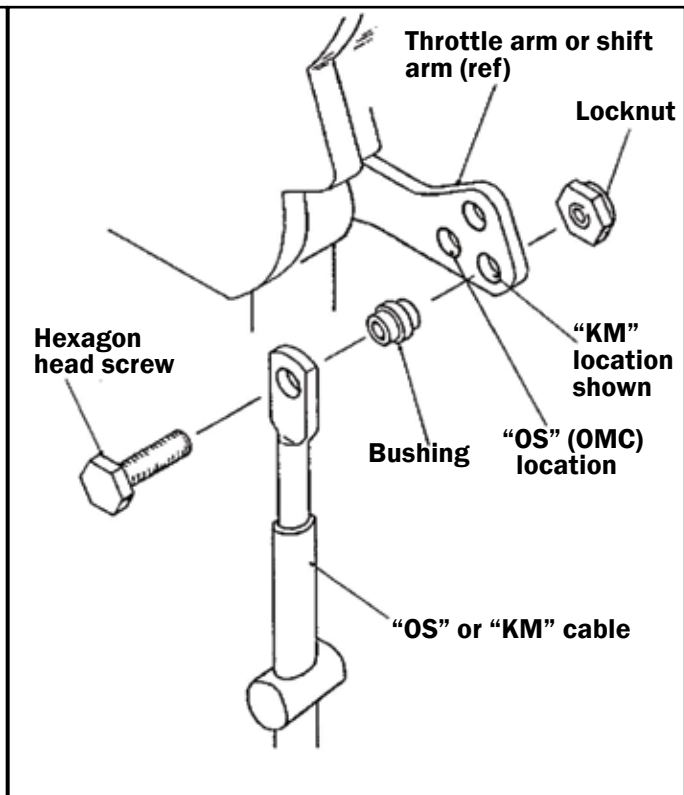


Figure 7. Shift Arm Cable Terminal Connection for "OS" is BRP/OMC Johnson and Evinrude. "KM" is Mercury MerCruiser.

SECTION 4: SHIFT & THROTTLE CABLE CONNECTION-ENGINE END.

CAUTION

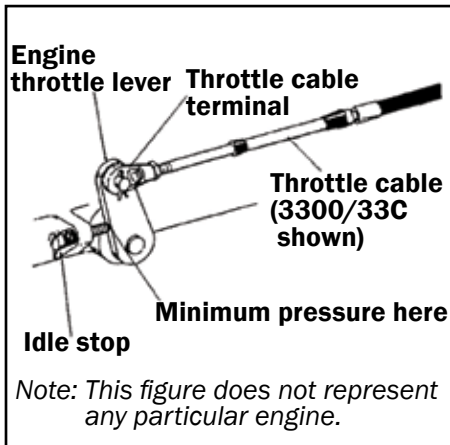


Figure 8. Throttle Connection.

The throttle cable must be disconnected from the motor before making motor idle adjustments. Adjustment of the motor idle while the throttle cable is connected to the motor may cause jamming action against the idle stop. As a result, the control may not function properly and damage to the control, the cable and/or the motor may occur.

STEP 1. Make sure the Control is in *NEUTRAL DETENT*.

STEP 2. The Engine Throttle Lever should rest lightly against the "Idle Stop" on the carburetor.

STEP 3. Connect the Throttle Cable to the Engine Throttle Lever.

STEP 4. Before connecting the shift lever to transmission lever, put both the control lever and the transmission lever into forward gear position. Adjust the cable end to the position where it easily slides onto transmission lever.

STEP 5. If using 3300/33C cables, tighten all jamb nuts against adaptors.

NOTICE

Throttle Cable must be free of load (NO LOAD) when throttle lever is in the idle position to prevent hard shifting.

SECTION 5: ELECTRICAL CONNECTIONS.

NEUTRAL SAFETY SWITCH.

The SL3 Control is provided with a Neutral Safety Switch. This Switch is used to prevent the engine from starting in gear.

NOTICE

Use a battery-powered text light or test meter to check continuity.

STEP 1. With the Control in Neutral, connect one wire of the tester to the common terminal, and one wire to the “NO” (Normally Open) Terminal. The test light MUST light.

STEP 2. Connect the Neutral Safety Switch between the ignition switch (start lead) and the starter solenoid (see diagram).

CAUTION

Check to make sure that there is electrical continuity only when the control is in neutral. When the control is in gear, there must not be any electrical continuity.

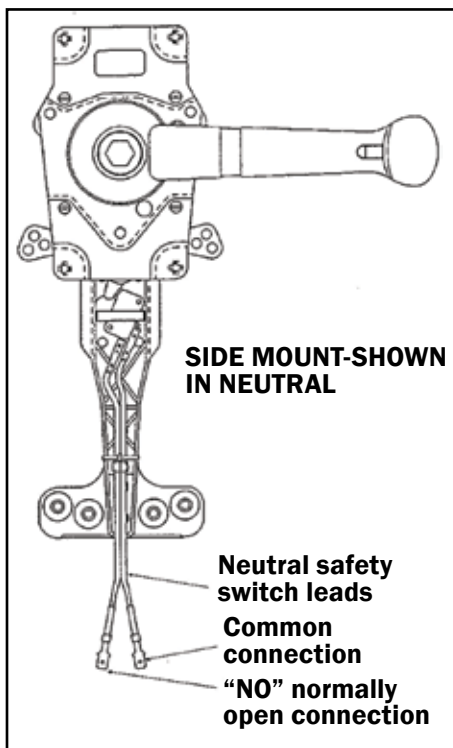
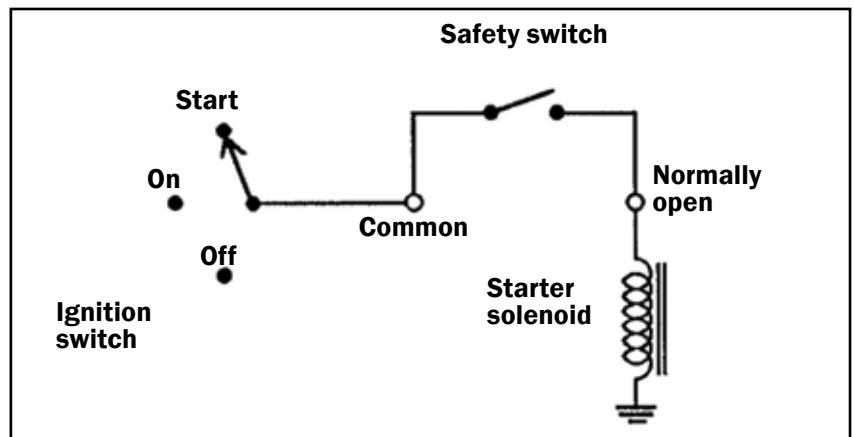


Figure 9. Neutral Safety Switch Connections.



TRIM AND TILT SWITCHES

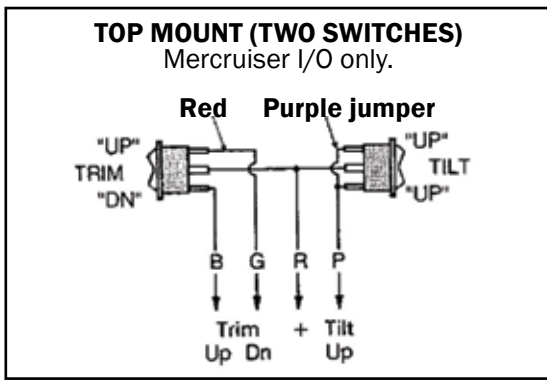
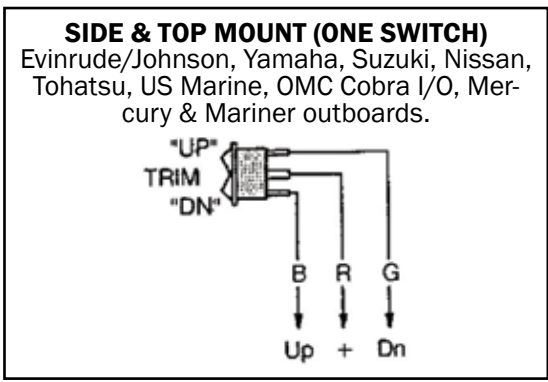
Refer to the wiring diagrams (Figure 10) for the correct “Trim” and “Tilt” switch connections and wire accordingly.

NOTICE

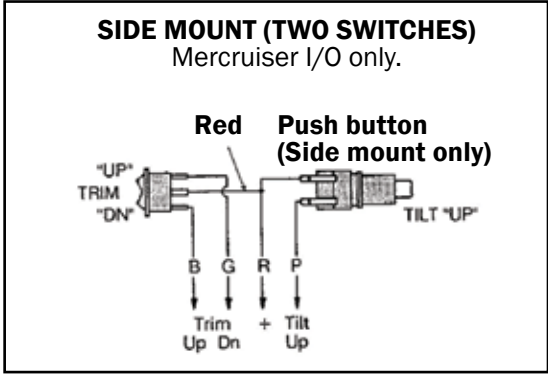
On 3 wire systems, reverse the blue and green connections for opposite “trim” operation.

On 5 wire systems, reverse the blue and green connections for opposite “trim” operation.

Do not change the red connection.



COLOR KEY
B=BLUE
G=GREEN
P=PURPLE
R=RED
W=WHITE



ABBREVIATION
Dn=DOWN

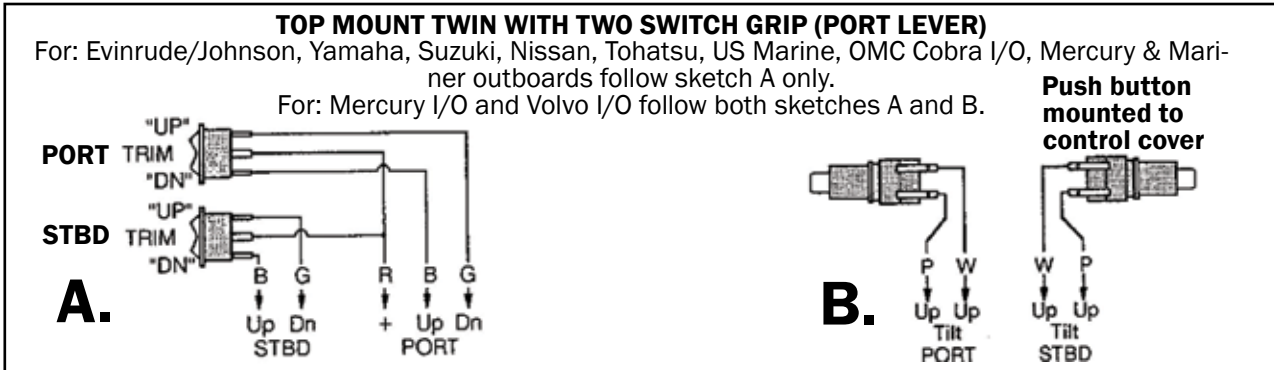
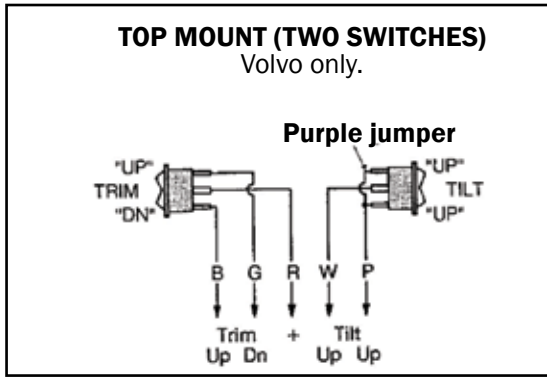
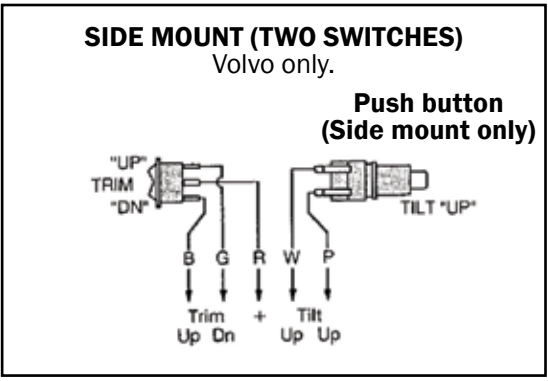


Figure 10. "Trim" and "Tilt" Switch Connections

SECTION 6: LIST OF REPLACEABLE PARTS.

DESCRIPTION	PART NUMBER
Side mount replacement parts kit*	317002
Top mount (single) replacement parts kit*	316941
Top mount (twin) replacement parts kit*	316942
Trim switch (inside hand grip)	315590
Side mount tilt switch with wire harness	309509
Top mount tilt switch with wire harness	309514
Neutral safety switch	051801-033
Cable nest kit (hardware kit for all cables)	212151-003
Side mount hub cover kit	309598
Top mount neutral warm up button	309172
Top mount neutral warm up push rod	309184

* Replacement parts kits: Include bezel/cover, hand grips, neutral warm up button and push rod, neutral safety switch.

SECTION 7: MAINTENANCE NOTES.

1. After a few hours of operation and at frequent intervals thereafter, check all fasteners and the complete control system for security and integrity.



Loosening or loss of one or more fasteners may cause failure of the control system and could cause property damage, injury, or death.

2. Keep all moving parts free from build-up of salt and other foreign material. This will affect their operation and create control problems.

3. Periodically inspect for corrosion. Any parts affected by corrosion must be replaced. Any replacement hardware must be as originally supplied (i.e. similar material and locking features).

4. Periodically inspect control cables for cracks and other damage. If any is found the cable must be replaced.

5. If cable is stiff in operation, it is unsafe to use and must be replaced immediately.



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