

# TS CONTROL LEVER

Part Number: 308601 Single Lever (Throttle and Shift Control)  
308602 Twin Lever (Throttle and Shift Control)

## OWNER'S MANUAL Installation, Operation and Maintenance Instructions

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE  
INSTALLING OR OPERATING THIS CONTROL



**ALL SPECIFICATIONS AND FEATURES ARE SUBJECT TO CHANGE WITHOUT NOTICE**

## INTRODUCTION

The TS Control provides both shift and throttle operation for outboards, inboard/outboards, or inboards with hydraulic transmissions, or small, manual transmissions with light shifting loads of 15 lbs. (6.8 kg) maximum. It can be used with standard 33C and 43C cables. A clamp kit is available for a standard 43C cable, when said cable is used on TS Control Single. ***The standard 43C cable cannot be used on the TS Control Twin.***

## STANDARD FEATURES

- Dual function, single lever control
- Available with one or two levers
- Sturdy control provides one-handed positive engine control
- Pulling out the hand levers in the neutral position does start and warm-up. Neutral throttle warm-up. This disengages the clutch and allows throttle to be advanced in neutral. Returning to neutral detent reengages clutch.
- Neutral safety switch to help prevent starting in gear
- Built-in friction drag helps prevent slippage and throttle creep while underway
- Adjustable shift stroke to accommodate most transmission applications
- One set of Cable Clamp Kit is included

## INSTALLATION

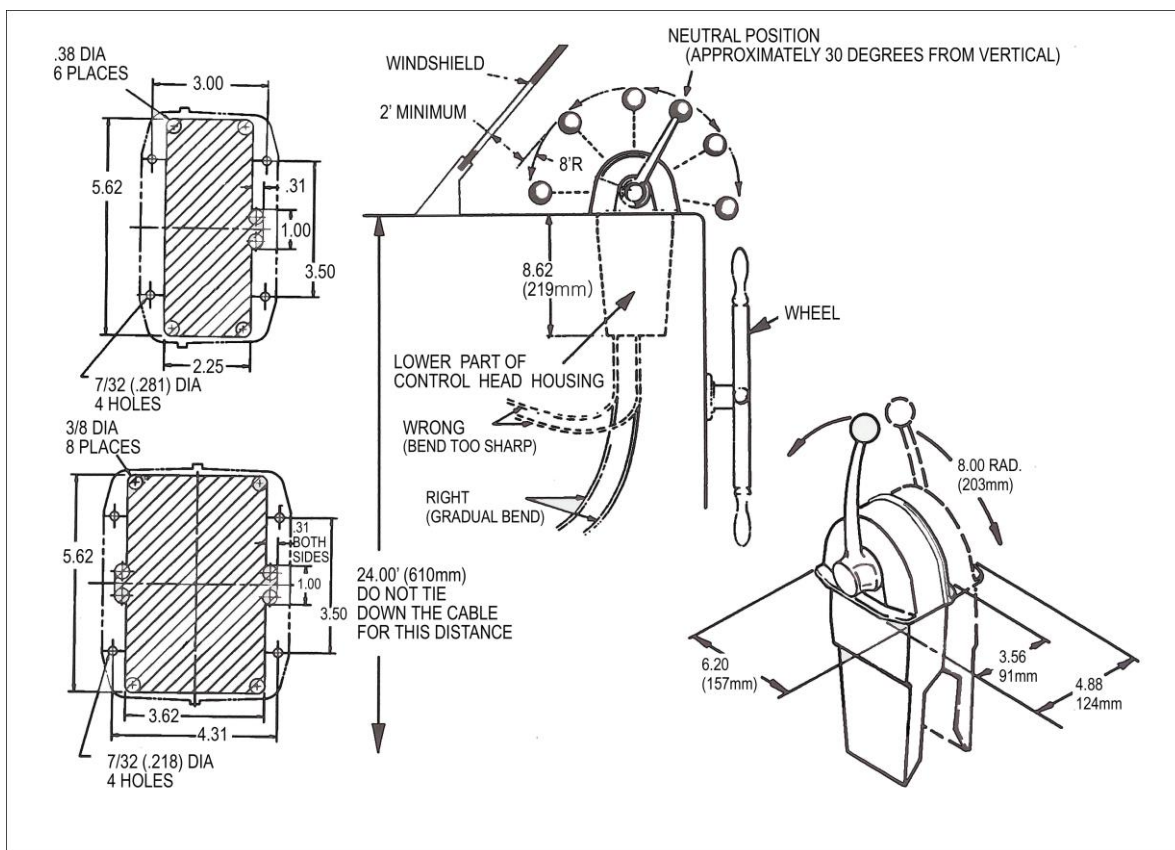
### A. Location of Control

- a. Allow adequate clearance for Hand Lever swing (forward and reverse position). Refer to Figure 1 for control dimensions and minimum required clearances.
- b. Allow adequate clearance under the console for the cables. Refer to Figure 1.
- c. After determining a suitable location for the Control, cut and drill the mounting holes by using the Mounting Template provided.

### B. Cable Measurement and Routing

- a. Measure from the Control Head position along an unobstructed path to the shift and throttle connections.
- b. Cable lengths are measured from end to end. When a measurement is in feet and inches, round-up to the next whole foot.

- c. For outboard engines, add 4 feet (1,200 mm) to the length of the cable for a loop to allow for engine swing.
- d. Avoid any sharp ends or obstacles and minimize the number of cable runs. Make no bends in Cables less than 8 inches (203 mm) radius.
- e. The cables should be supported by suitable Cable Hangers or Clamps or by running them through segments of conduit for long straight runs.
- f. The use of inappropriate cable hangers or clamps could be resulted in impairment of function of the cable.



[FIGURE 1. Control Measurements]

### C. Connecting the Shift Cables and Control End

Refer to the chart below for the proper cable action required by the specific engine. The Shift Arm is factory-set standard lever (center notch). Refer to Figure 2.

Regarding inboard engines with hydraulic clutches, in determining the correct control configuration, it is first necessary to determine whether the control cables must exert a "push" or "pull" action at the transmission lever to engage forward gear, and a "push" or "pull" action at the carburetor lever to open the throttle.

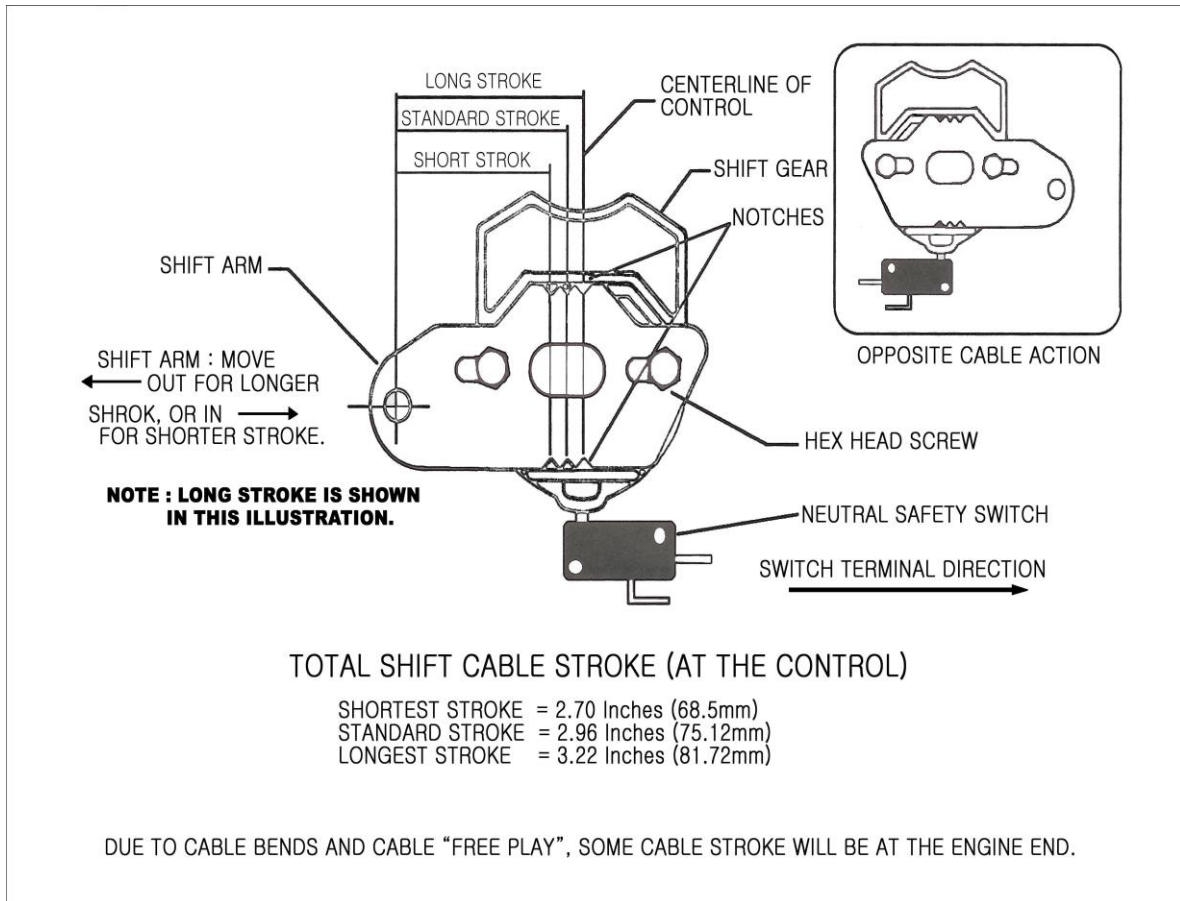
<b>ENGINE APPLICATION GUIDE</b>			
ENGINE MAKE	SHIFT CABLE	THROTTLE CABLE	SHIFT CABLE ATTACHEMENT HOLE
JOHNSON/EVINRUDE OMC I/O, MERCURY 18 & 25 H.P.	CABLE "PULLS" TO GO FORWARD	CABLE "PUSHES" TO OPEN THROTTLE	SHORT (EXCEPT OMC "KING COBRA" I/O USES LONG HOLE)
MERCURY & MARINER OUTBOARDS, MERCURISER I/O'S	CABLE "PULLS" TO GO FORWARD	CABLE "PULLS" TO OPEN THROTTLE	LONG
VOLVO I/O	CABLE "PUSHES" TO GO FORWARD	CABLE "PULLS" TO OPEN THROTTLE	STANDARD
YAMAHA 90 H.P. AND UP, US MARCHE (FORCE)	CABLE "PULLS" TO GO FORWARD	CABLE "PUSHES" TO OPEN THROTTLE	STANDARD
HONDA, SUZUKI, TOHATSU (ALL MODES), YAMAHA 70 H.P. UP AND UNDER	CABLE "PULLS" TO GO FORWARD	CABLE "PULLS" TO OPEN THROTTLE	STANDARD
INBOARDS (DIESEL OR GAS)	MOST INBOARD TRANSMISSIONS "PULL" TO GO FORWARD	MOST INBOARD THROTTLES OR GOVERNORS "PULL" TO OPEN	STANDARD
YAMAHA I/O'S, (ALL)	CABLE "PULLS" TO GO FORWARD	CABLE "PULLS" TO OPEN THROTTLE	STANDARD

#### a. Shift Stroke Adjustment

If it is necessary to change the position, please follow the instruction as below:

1. Loosen the two Hex Head Cap Screws fastening the Shift Arm to clear the notches.
2. Reposition the Shift Arm to the desired stroke. Be sure the notches are properly engaged before tightening the Screws. Refer to Figure 2.
3. Tighten the Hex Head Screws.

For opposite cable action, Shift Arm and Neutral Safety Switch should be a mirror image of that which is shown below.



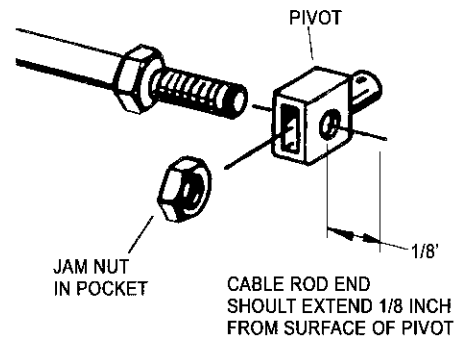
[FIGURE 2. Shift Stroke Adjustment]

Total Shift Cable Stroke at the Control
Shortest Stroke = 2.70 inches (68.5 mm)
Standard Stroke = 2.96 inches (75.12 mm)
Longest Stroke = 3.22 inches (81.72 mm)

#### b. Connecting Shift Cable

1. Insert the Jam Nut' in the pocket of the Pivot.
2. Insert the end of the Shift Cable into the Pivot. Cable Rod End should be extended 1/8 inch (3.18 mm) from the surface of the Pivot. Refer to Figure 3.

3. Feed the Cable end to the rear side of the Shift Arm and insert the Pivot into the hole. Secure the Pivot in place with the Cotter Pin provided.
4. Attach the Cable Hub to the lower part of the Housing at the tapped hole location for the standard 33C type cables. Make sure the Cable Clamp positively engages the groove in the Cable Hub.



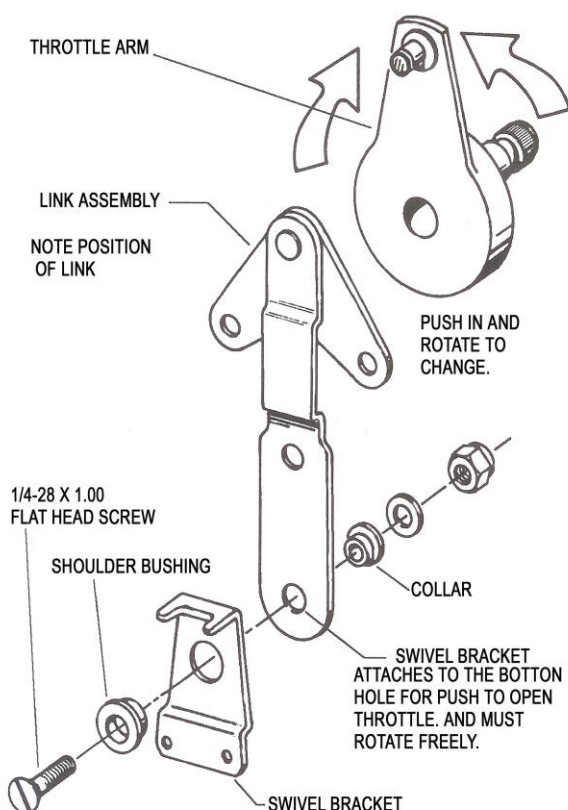
[FIGURE 3. Cable Terminal Connection]

#### D. Connecting Throttle Cable - Control End & Engine End

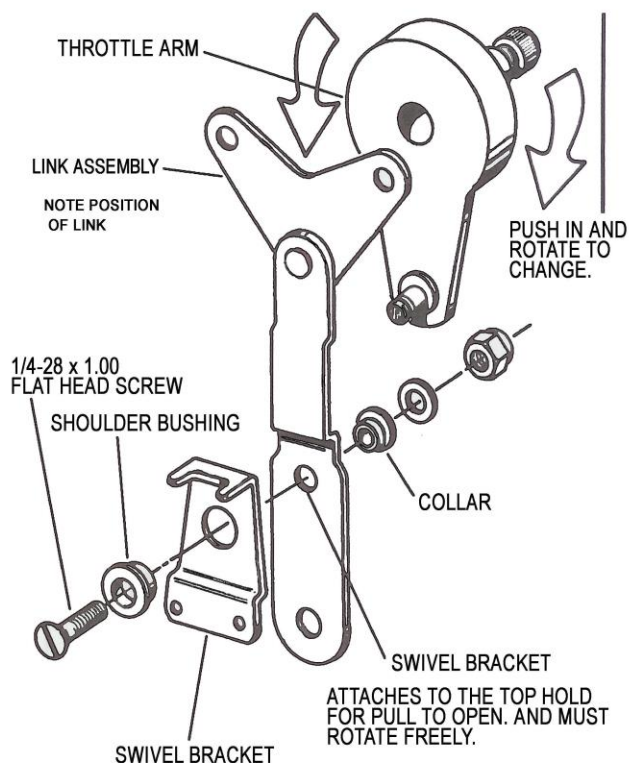
Please refer to Engine Application Guide for the proper Cable action to suit the specific engine. If it is necessary to change the position, please follow the instruction as below:

##### a. Control Box End

1. Remove the Hand Lever.
2. Remove the Swivel Bracket from the Link Assembly.
3. Remove two Hex Head Screws at the Link Assembly, and remove the Link Assembly from the Shift Arm. Make sure the Shift Arm does not change notch positions.
4. Push in on the Throttle Arm toward the Housing and rotate it 180 degrees until it snaps back into place.
5. Attach Link Assembly in the appropriate position and tighten Hex Head Screws.
6. Attach the Swivel Bracket in the proper hole on the Link Assembly. Refer to Figure 4 and 5 for proper location. Make sure the Swivel Bracket rotates freely.
7. Install Cable and Hand Lever.



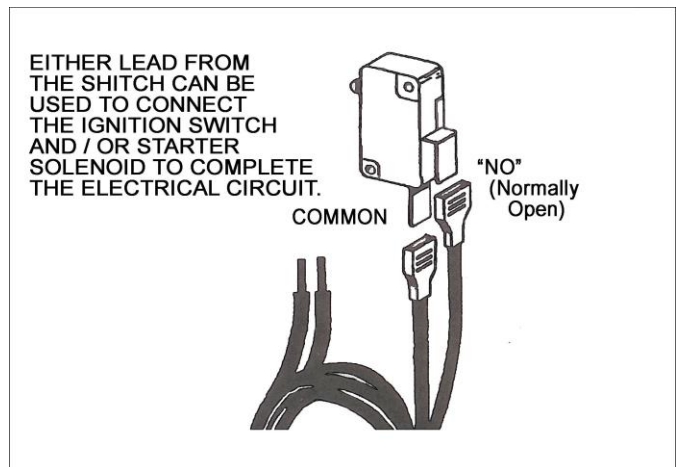
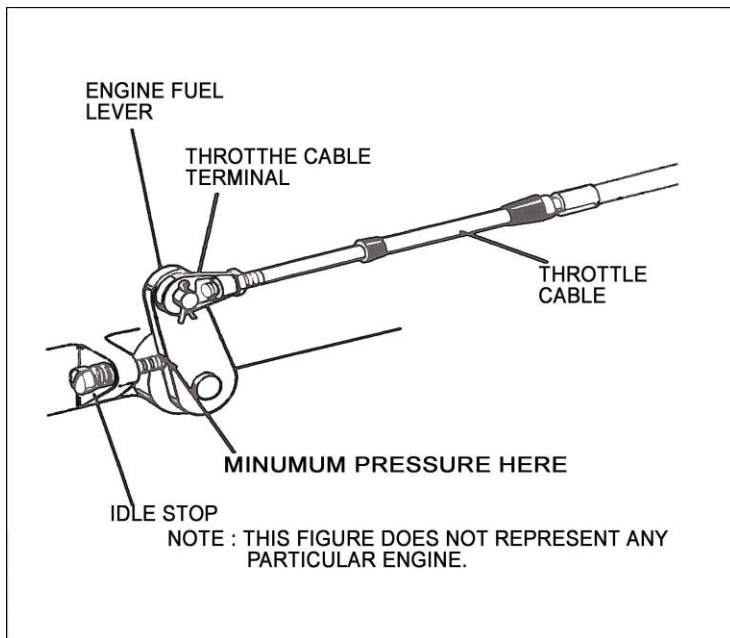
[FIGURE 4. Push-to-Open Configuration]



[FIGURE 5. Pull-to-Open Configuration]

## b. Engine End

1. Disconnect the Throttle Cable from the motor before making motor idle adjustments. Fail to disconnect the Throttle Cable to motor prior to idle stop may result in damages to the control, cable and/or motor.
2. Make sure the Control is in Neutral Position
3. The Engine Fuel Lever should rest lightly against the Idle Stop on the carburetor.
4. Connect the Throttle Cable to the Engine Fuel Lever.
5. At Neutral Detent, pull out the Hand Lever Hub and move the Lever past the forward range. Return to Neutral and the Hand Lever should snap back into place.
6. Make sure to place "Forward-Reverse" Decal on the Housing, opposite the Neutral position of the Hand Lever.



[FIGURE 6. Neutral Safety Switch]

[FIGURE 7. Throttle Connection]

## E. Neutral Safety Switch

A Neutral Safety Switch is included in TS Control to prevent the engine from starting in gear. To check continuity, use a battery powered test light.

1. Make sure the Control is in Neutral Position
2. Connect one wire to the tester to the common terminal, and one wire to the "NO" (Normally Open) Terminal. The test light must light.
3. Connect one terminal of the Neutral Safety Switch to the ignition switch (start lead) and the other one to the starter solenoid. Use the Terminals and Insulators provided with the Control to avoid an electrical short circuit.
4. Check to make sure that there is electrical continuity when the Control is in Neutral. Absolutely no electrical continuity is allowed when the Control is in gear.

## F. Maintenance and Corrosion Protection

For maximum protection, especially in a salt water environment, the Control Head and Had Lever should be washed with fresh water and waxed periodically.

Perform periodic check-up on the Control Head Mechanism for loose fasteners and signs of wear and corrosion on moving parts, cables, and engine connections. The moving parts should be well lubricated with a moisture-displacing lubricant. Replace as necessary on any parts.