

SHIFT CABLE INSTALLATION and ADJUSTMENT

**For NEW MERCUISER 120-140-165-888 and 225-S STERN DRIVES
(Serial Nos. 3780850 and Up)**

(Attach Bulletin Reference Sticker to PP. 2B-12 and 2H-7 of Your Service Manual.)

IMPORTANT: Because of Differences in Shifting Mechanisms, DO NOT USE This New Shift Cable and Adjustment Procedure for Earlier MerCruiser 120-140-165 and 888 Stern Drive Units.

INSTALLATION DIMENSIONS

WARNING: On power package equipped with Quick-silver vacuum-operated Power Shift unit, engine must be running while adjusting shift cables. As a safety precaution, remove propeller if boat is NOT in water.

To obtain maximum adjustability on remote control shift cable, check the following dimensions on drive unit shift cable:

1. With cable end guide removed, shift unit in full forward gear. While shifting, turn propeller shaft counterclockwise until shaft stops, to assure full clutch engagement. Inner core wire of drive unit shift cable must extend exactly 1-3/8" (3.5cm) from end of cable guide insert. (Figure 1)

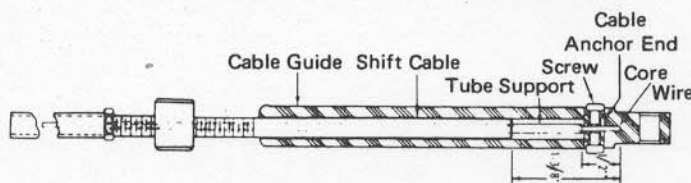


Figure 1. Support Tube and Core Wire Dimensions

Slide support tube over core wire so that 1/2" (12.7mm) of core wire is shown. (Figure 1) It is secured to core wire by crimping.

2. Slide cable end guide over end of cable thru cable anchor.
3. Snug one anchor screw and tighten the other to secure core wire. (Figure 1)
4. With cable end guide installed, shift unit in full forward gear. While shifting, turn propeller shaft counterclockwise until shaft stops, to assure full clutch engagement. Distance from centerline of brass barrel to centerline of cable end guide mounting hole must be exactly 6" (15cm). (Figure 2) Readjust brass barrel to achieve this dimension.

NOTE: Brass barrel of drive unit shift cable fits into recess of shift cutout switch lever and is secured with a cotter pin.

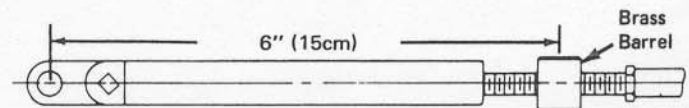


Figure 2. Centerline to Centerline 6" (15cm)

ATTACHING STERN DRIVE UNIT SHIFT CABLE

1. Coat recess of cutout switch lever and shift cable anchor points with Multipurpose Lubricant (C-92-49588 or C-92-63250). (Figure 3)

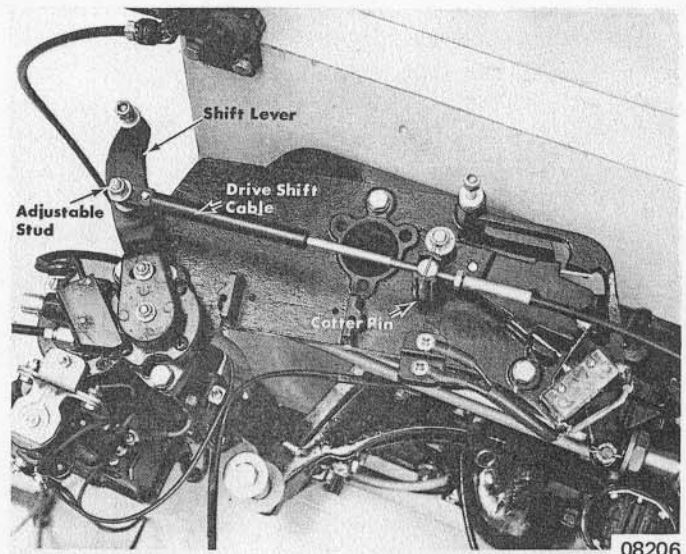


Figure 3. Installing Drive Unit Shift Cable

2. Route shift cable in cable clamp (located on engine flywheel housing cover) and bend clamp shut.
3. Remove cotter pin from shift cutout lever recess and remove elastic stop nut and flat washer from shift lever adjustable stud. Place brass barrel of drive unit shift cable into recess and place cable end guide on shift lever stud. (Figure 3)

IMPORTANT: Brass barrel on drive unit shift cable is preset at factory and should not be threaded either way.

4. Insert cotter pin thru cutout switch lever and spread ends of pin.
5. Place flat washer on shift lever stud (stud located in slotted hole) and thread on elastic stop nut. DO NOT tighten nut securely, as end guide must pivot freely on stud. (Figure 3)

ADJUSTING REMOTE CONTROL SHIFT CABLE

IMPORTANT: Follow these instructions to ensure full clutch engagement. Before proceeding with the following instructions, install remote control and throttle and shift cables, as outlined in the instructions which accompany the remote control.

IMPORTANT: Remote control shift cable may be installed in two (2) different ways, depending upon location of remote control station. If remote control is mounted on right (starboard) side of boat, proceed with instructions, following. If remote control is mounted on left (port) side of boat, follow instructions in MerCruiser Service Manual.

REMOTE CONTROL MOUNTED on RIGHT SIDE of BOAT

IMPORTANT: Before beginning shift adjustment, adjustable stud (Figure 3 - anchor point for drive unit shift cable) MUST BE to bottom of slot in shift lever. (Bottom of slot is toward reverse lock valve.)

1. Remove 2 elastic stop nuts and 2 flat washers from remote control shift cable anchor studs. DO NOT remove 2 of the washers from the shift plate anchor stud and DO NOT remove spacer from anchor stud on shift lever.

NOTE: Lubricate cable attaching sleeves and studs with Multipurpose Lubricant (C-92-49588 or C-92-63250).

2. Shift drive unit into full forward by moving the shift lever to the right (when viewing lever from inside boat) as far as it will go. While shifting, turn propeller shaft counterclockwise until shaft stops, ensuring full clutch engagement.
3. Move remote control shift handle to full forward position.
4. Route remote control shift cable from right (starboard) side of engine.
5. Adjust and attach remote control shift cable as follows:
 - a. Lightly pull brass barrel away from remote control shift cable end guide (to eliminate slack in cable).
 - b. Adjust brass barrel on remote control shift cable to align brass barrel guide with anchor stud on shift lever and cable end guide with anchor stud on shift plate.
 - c. After remote control shift cable has been aligned with anchor studs, back brass barrel off 4 turns (away from cable end guide). (Figure 4)
 - d. Install shift cable on anchor studs and secure with flat washers and elastic stop nuts. (Figure 4)

IMPORTANT: DO NOT tighten elastic stop nuts against cable, as end guide and brass barrel must pivot freely on anchor studs.

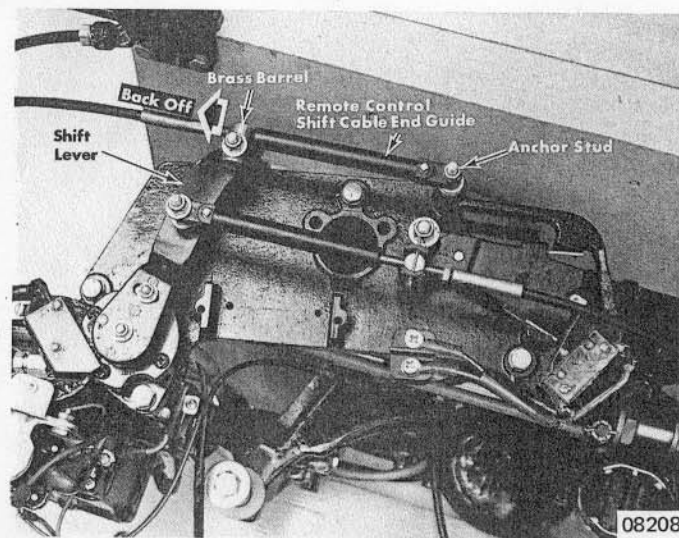


Figure 4. Installing and Adjusting Remote Control Shift Cable

6. Move remote control shift handle to full reverse position while turning propeller shaft clockwise until shaft stops, ensuring full clutch engagement.
7. Check shift cutout switch lever position. (Figure 5) If lever is deflected from its neutral position (center of slot), adjust remote control cable brass barrel one turn at a time (4 turns MAXIMUM) toward end guide until shift cutout switch lever is positioned in center of switch actuating arm slot.

IMPORTANT: If a standard MerControl (side mount) or extra long remote control cables are used, or if there are a large number of bends in remote control shift cable, an additional adjustment may be necessary.

8. Perform following check to determine if further shift adjustment is required. If adjustment is necessary, adjust as follows:
 - a. **Out of water, engine stopped - check and adjustment:**
Move remote control shift handle into reverse position

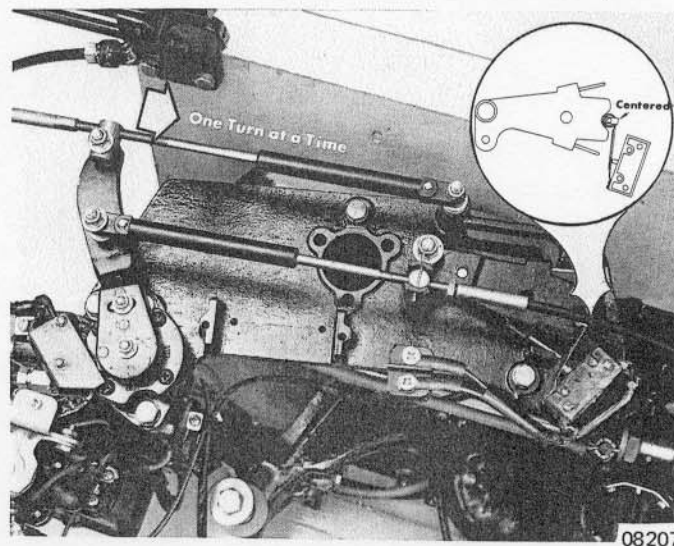
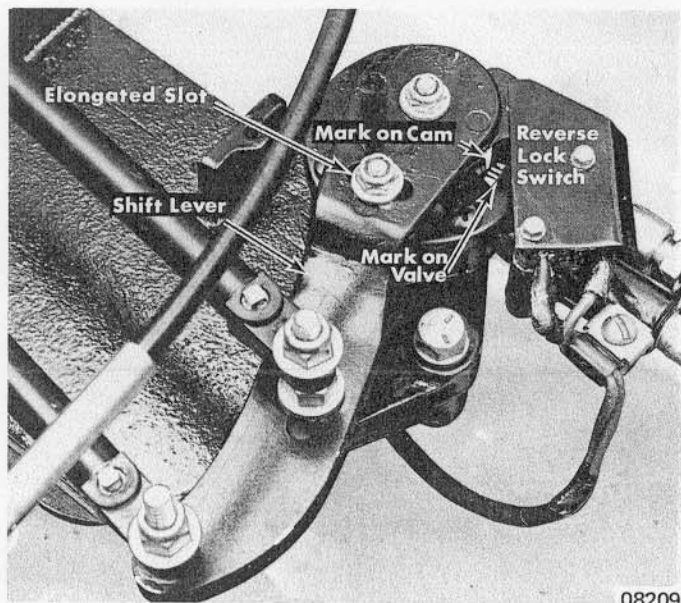


Figure 5. Checking and Adjusting Shift Cutout Switch Lever Location

until throttle BEGINS to open. Turn propeller shaft clockwise. Clutch should engage and cause propeller to lock. If clutch does not engage, loosen adjustable stud, which anchors drive unit shift cable to shift lever, and move it forward in shift lever slot until firm clutch engagement is obtained. Recheck shift cutout switch lever. (Figure 5) Lever must be in neutral position



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Figure 6. Adjusting Reverse Lock Valve

(center of slot in switch actuating arm). Tighten adjustable anchor stud at necessary location of shift lever slot.

- b. **In the water, engine running - check and adjustment:** With engine running, move remote control shift handle into reverse position. Reverse clutch should engage BEFORE throttle BEGINS to open. If throttle opens before reverse clutch engages, refer to "Out of water, engine stopped - check and adjustment", preceding, and adjust shift cable.
9. Adjust reverse lock valve as follows:
 - a. Move remote control shift handle to full reverse position while turning propeller shaft clockwise until shaft stops, ensuring full clutch engagement.
 - b. Loosen 2 shift lever to reverse lock valve attaching nuts and move forward nut in direction required to line up raised triangular mark on cam with SECOND raised mark on reverse lock valve cover. (Figure 6) Tighten 2 shift lever attaching nuts.

CAUTION: Drive unit may be locked in neutral if reverse lock valve is over-adjusted.

- c. With boat in water and engine running, operate drive unit in reverse gear. If drive unit trails out (will not hold in down position), over-adjust reverse lock valve one mark at a time until drive unit holds.