service bulletin

STERN DRIVES/INBOARD ENGINES

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A. Shift Cable Operation on MerCruiser MIE 470 (Later Production) and All MIE 230/260/340 Engines
B. Shift Cable Adjustment on MerCruiser MIE 470 (Later Production) and All MIE 230/260/340 Engines
C. Throttle Cable Adjustment on MerCruiser MIE 230/260/340 Engines

CIRCULATE TO:
SERVICE MANAGER
PARTS MANAGER
MECHANICS

A. Shift Cable Operation on MerCruiser MIE 470 (Later Production) and All MIE 230/260/340 Engines

The SHIFT CABLE ANCHOR POINTS, on the MerCruiser model engines listed above, ARE DIFFERENT THAN PREVIOUS MERCRUISER MODELS. Because of this, the CABLE MOVEMENT (TO SHIFT TRANSMISSION INTO FORWARD AND REVERSE GEAR) IS DIFFERENT.

NOTE: MIE 470 ONLY. Because this will be a running change on our production line, no starting serial number is available. Refer to Figures 1 or 2 to determine which shift cable anchor point is used.

The Cable End Guide ("b" Figure 1) moves forward (inner core wire extends) to shift transmission into forward gear. The Cable Brass Barrel ("a", Figure 1) does not move because it's mounted solidly to the rear of the transmission.

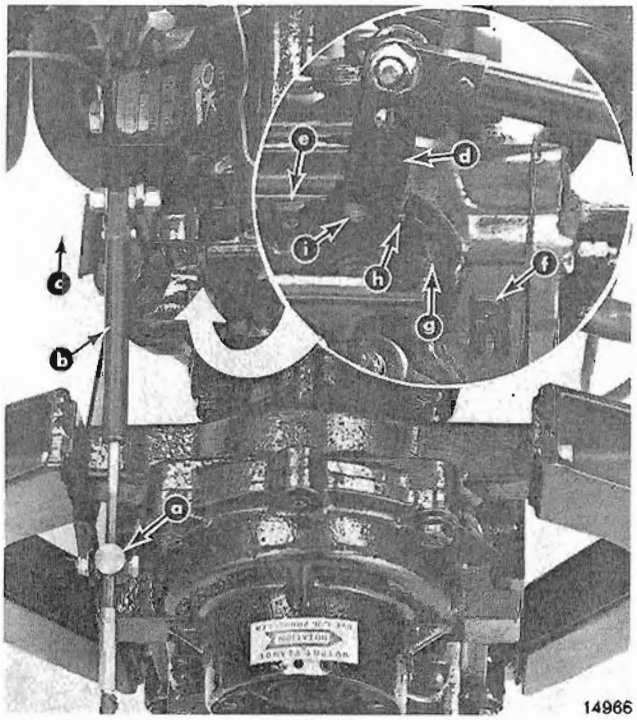
Previously, the Cable End Guide ("c", Figure 2) did not move because it was mounted solidly to the front of the transmission. The Cable Brass Barrel ("a", Figure 2) moved forward (inner core wire retracts) to shift transmission into forward gear.

Because of the difference in Inner Core Wire movement, the following Quicksilver Remote Controls CANNOT BE USED on these model MerCruiser Inboards.

Starboard Panel Control	Part No. C-37782A1
Port Panel Control	Part No. C-37782A2
Console Control (Single Engine)	Part No. C-68831A1
Console Control (Dual Engine)	Part No. C-37580A2
Two-Lever Console Control	Part No. C-68833A1

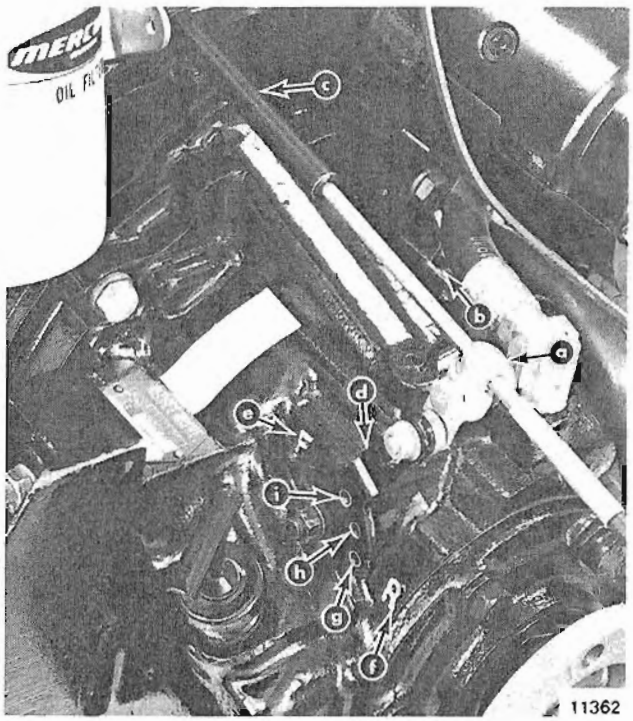
The new Quicksilver Commander Series Remove Controls listed below CAN BE USED on either shift cable anchor points as shown in Figure 1 or Figure 2.

Control Module	Part No. C-90220A1
Panel Control Kit	Part No. C-90221A1
Port Control Kit	Part No. C-90222A1
Console Control Kit (Single Engine)	Part No. C-90223A1
Console Control Kit (Dual Engine)	Part No. C-90223A2



a - Cable Brass Barrel (Does Not Move)
b - Cable End Guide (Does Move, Inner Core Wire Extends)
c - Cable End Guide MUST Move In This Direction When Remote Control Is Shifted Into Forward Gear Position
d - Transmission Shift Lever
e - "F" Cast Boss On Transmission Case (Transmission Shift Lever MUST BE Positioned Over This Cast Boss When Propelling the Boat Forward)
f - "R" Cast Boss On Transmission Case
g - Forward Detent Hole } Remote Control MUST Position
h - Neutral Detent Hole } Transmission Shift Lever So That
i - Reverse Detent Hole } Poppet Ball Is Centered In Detent Hole For Each Selector Position

Figure 1. New Shift Cable Anchor Points



a - Cable Brass Barrel (Does Move, Inner Core Wire Retracts)
b - Brass Barrel MUST Move In This Direction When Remote Control Is Shifted Into Forward Gear Position
c - Cable End Guide (Does Not Move)
d - Transmission Shift Lever
e - "F" Cast Boss On Transmission Case (Transmission Shift Lever MUST BE Positioned Over This Cast Boss When Propelling Boat Forward)
f - "R" Cast Boss on Transmission Case
g - Forward Detent Hole } Remote Control MUST Position
h - Neutral Detent Hole } Transmission Shift Lever So That
i - Reverse Detent Hole } Poppet Ball Is Centered In Detent Hole For Each Selector Position

Figure 2. Previous Shift Cable Anchor Points

B. Shift Cable Adjustments on MerCruiser MIE 470 (Later Production) and All MIE 230/260/340 Engines

CAUTION: If a universal type remote control is used, make sure that control is set up so that it moves the transmission shift lever over the letter "F" on transmission case when remote control is placed in the forward gear position. FAILURE WILL OCCUR if transmission shift lever is positioned over the letter "R" and the wrong rotation propeller is used to propel boat forward.

Attach shift cable to transmission, as follows (Figure 3 and 4):

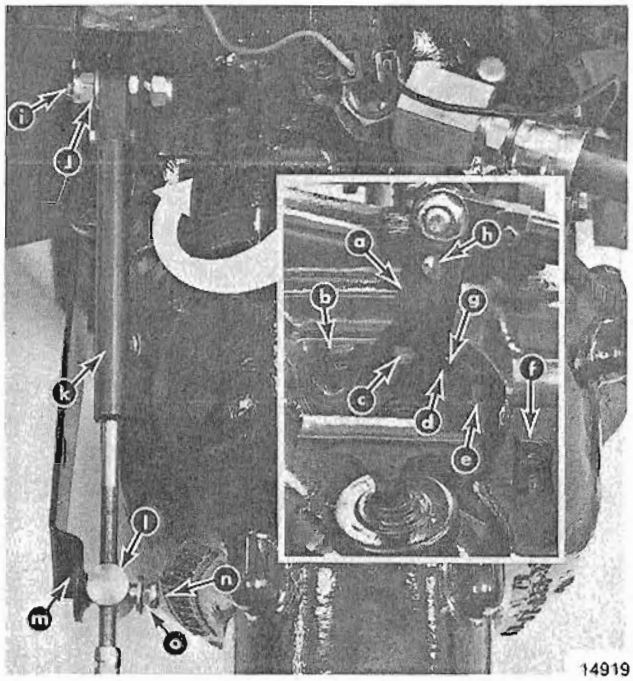
1. Place remote control lever (shift lever) in neutral position.
2. Remove elastic stop nut and flat washer from transmission shift lever stud.
3. On engines with in-line transmissions (Figure 3), remove elastic stop nut and flat washer from anchor stud on shift cable bracket.
4. On engines with V-drive transmissions (Figure 4), remove elastic stop nut, flat washers and anchor screw from shift cable bracket.
5. Lubricate unthreaded portion of shift lever stud and shift cable bracket stud or screw with Quicksilver 2-4-C Lubricant.
6. Place transmission shift lever in neutral position, indicated when poppet ball (located behind shift lever) is centered in center detent hole of shift lever ("d" in Figure 3 or 4).

7. Adjust brass barrel on shift cable, as required, to align shift cable attaching holes with shift lever stud and shift cable bracket stud or screw hole. CENTER CABLE END PLAY TRAVEL WHEN MAKING ADJUSTMENT.

SAFETY WARNING: Be sure to use thinner elastic stop nut to secure brass barrel, in next step. If thick elastic stop nut is used, nut may loosen during operation.

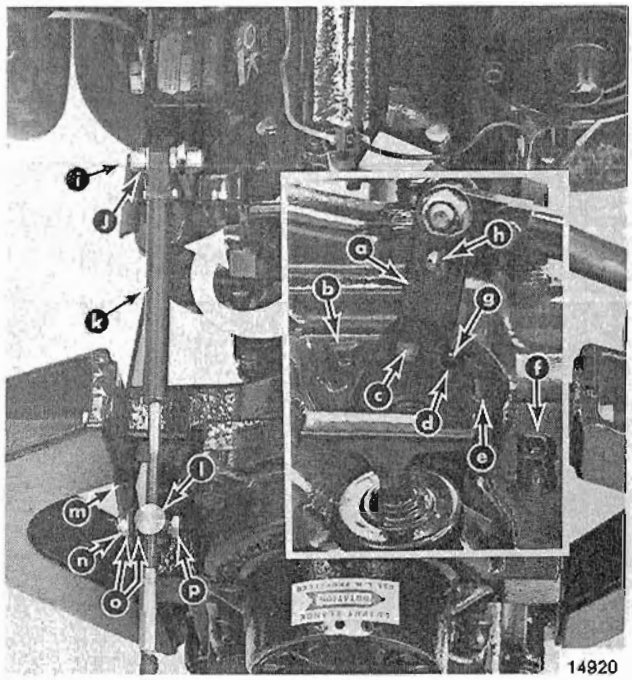
8. Install shift cable and secure as shown in Figure 3 or 4. Tighten nut that secures cable end guide until it bottoms out, then back off ½-turn. Tighten nut that secures brass barrel securely.

CAUTION: DO NOT overtighten elastic stop nut, that secures cable end guide, as end guide MUST pivot freely on stud for proper shift operation.



a - Transmission Shift Lever
b - Letter "F" Embossed On Transmission Case (Transmission Shift Lever Must Be Over This Letter When Propelling Boat Forward)
c - Reverse Detent Hole
d - Neutral Detent Hole
e - Forward Detent Hole
f - Letter "R" Embossed On Transmission Case (Transmission Shift Lever Must Be Positioned Over This Letter for Reverse Only)
g - Poppet Ball (Centered in Detent Hole)
h - Install Shift Lever Stud In This Hole, If Necessary, To Center Poppet Ball In Forward and Reverse Detent Holes
i - Shift Lever Stud
j - Elastic Stop Nut (Thick) and Flat Washer
k - Cable End Guide
l - Cable Brass Barrel
m - Shift Cable Bracket
n - Anchor Stud
o - Elastic Stop Nut (Thin) and Flat Washer (See "Safety Warning", Preceding)

Figure 3. Shift Cable Installed - Engine With In-Line Transmissions



a - Transmission Shift Lever
b - Letter "F" Embossed On Transmission Case (Transmission Shift Lever Must Be Over This Letter When Propelling Boat Forward)
c - Reverse Detent Hole
d - Neutral Detent Hole
e - Forward Detent Hole
f - Letter "R" Embossed On Transmission Case (Transmission Shift Lever Must Be Positioned Over This Letter For Reverse Only)
g - Poppet Ball (Centered in Detent Hole)
h - Install Shift Lever Stud In This Hole, If Necessary, To Center Poppet Ball In Forward and Reverse Detent Holes
i - Shift Lever Stud
j - Elastic Stop Nut (Thick) and Flat Washer
k - Cable End Guide
l - Cable Brass Barrel
m - Shift Cable Bracket
n - Elastic Stop Nut (Thin) (See "Safety Warning", Preceding)
o - Flat Washers
p - Anchor Screw

Figure 4. Shift Cable Installed - Engines With V-Drive Transmissions

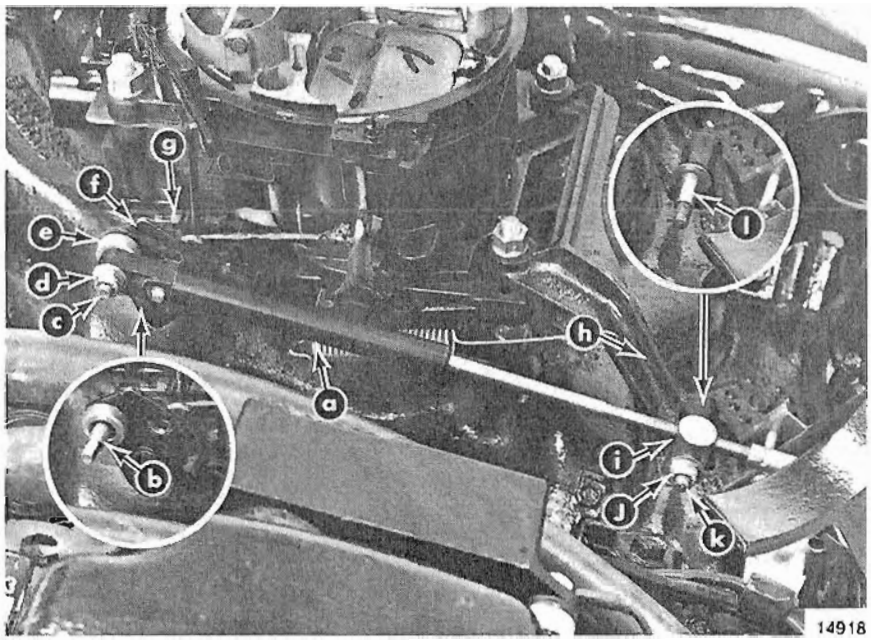
9. Place remote control lever (shift lever) in full forward gear position. Check position of transmission shift lever. Transmission shift lever MUST BE positioned so that the poppet ball is centered in rear detent hole ("e" in Figure 3 or 4) of shift lever.
10. Place remote control lever in full reverse gear position and again check shift lever position. Lever MUST BE positioned so that poppet ball is centered in forward detent hole ("c" in Figure 3 or 4) of shift lever.
11. If transmission shift lever is positioned correctly in one gear, but not in the other, recheck shift cable adjustment. If transmission shift lever is not positioned properly in both gears, move shift lever stud from top hole in shift lever to bottom hole ("h" in Figure 3 or 4) and recheck for proper positioning. If proper positioning is still not obtained, remote control does not provide sufficient shift cable travel and MUST BE replaced.

CAUTION: Remote control and shift cable MUST position transmission shift lever so that it is fully in the forward and reverse detent positions and over the letter "F" on transmission case when propelling boat forward. TRANSMISSION SHIFT LEVER MUST BE POSITIONED PROPERLY (WITHOUT ANY MODIFICATION TO TRANSMISSION) OR TRANSMISSION FAILURE MAY OCCUR.

C. Throttle Cable Adjustment on MerCruiser MIE 230/260/340 Engines

Attach throttle cable to carburetor, as follows: (Figure 5)

1. Place remote control lever(s) in neutral, idle position(s).
2. Remove elastic stop nuts and flat washers from throttle lever screw and from anchor stud on carburetor throttle bracket. Leave spacer and bushing in place on throttle lever screw and spacer in place on anchor stud. (See insets in Figure 5.)
3. Lubricate spacers on throttle lever screw and throttle cable anchor stud with Quicksilver 2-4-C Lubricant.



a - Cable End Guide
b - Spacer
c - Throttle Lever Screw
d - Elastic Stop Nut and Flat Washer (Small)
e - Bushing
f - Throttle Lever
g - Idle Speed Adjustment Screw
h - Throttle Bracket
i - Brass Barrel
j - Flat Washer and Elastic Stop Nut (Large)
k - Throttle Cable Anchor Stud
l - Spacer

NOTE: Air silencer has been removed from carburetor for visual clarity.

Figure 5. Throttle Cable Installed

4. Install throttle cable end guide on throttle lever screw. Grasp cable behind brass barrel and push LIGHTLY toward throttle lever, then adjust brass barrel to align hole with throttle cable anchor stud (and spacer) and slide barrel onto stud.
5. Secure brass barrel and cable end guide with flat washers and elastic stop nuts (removed in Step 2). Tighten cable attaching nuts securely, but DO NOT OVER-TIGHTEN, because anchor points must be free to pivot.
6. Place remote control lever (throttle lever) in the full throttle position and check that carburetor throttle plates open fully (throttle lever contacts stop). If they do not, check throttle cable and linkages for binding. Return remote control to neutral, idle position and check that carburetor throttle lever returns all-the-way to idle position (contacts idle speed adjustment screw) and throttle plates are fully closed.