MERCRUISER SERVICE BULLETIN

Section: II (Installation)
Number: 163-06
Date : 4/29/63

A. Transom Thickness Required for MerCruiser Installations
B. Installation of Throttle, Shift & Ride-Guide Steering Cables
C. Shift Cable Adjustments
D. Competitive Remote Controls
E. Engine-to-Drive Alignment
F. "Hot Start" Problem & Remedy
G. Automatic Choke Adjusting
H. Engine Box Clearance & Vent

Kiekhaefer Mercury
Beaver Dam, Wis. U.S.A.

A. TRANSOM THICKNESS REQUIRED FOR MERCRUISER INSTALLATIONS

It has been brought to our attention that, in some instances, MerCruiser Stern Drive Units are being installed in transoms which are too thin to support drive unit properly or allow drive to function properly.

Transom thicknesses must be as follows:

1. MerCruiser I Stern Drive Unit - 1-3/4" min. to 2-1/4" max.
2. MerCruiser II Stern Drive Unit - 1-7/8" min. to 2-1/8" max.

Ideal Thickness Is 2" (Figure 1)

If above transom thickness limits are not observed, the drive will not function properly. Transom must be of uniform thickness so that front and rear surfaces are parallel. Always check transom thickness before installing transom plates.

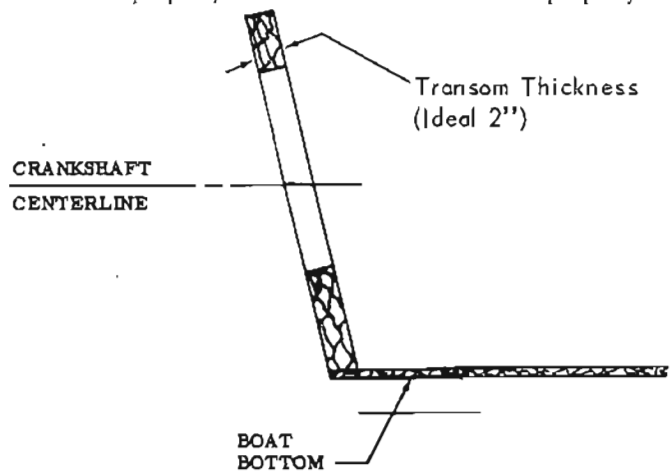


Figure 1. Ideal 2" Thickness

B. INSTALLATION OF THROTTLE, SHIFT & RIDE-GUIDE STEERING CABLES

When installing throttle, shift and Ride-Guide steering cables, it is important that cables are proper length and that sharp bends and kinks be avoided. Excessively long cables result in loops and dips which cause stiffness in remote controls and steering. Cables, which are too short, restrict movement of components.

Of primary importance: Be sure that cables are not kinked where they enter engine box. A large radius is recommended at this point.

Determine correct length of control and steering cables from following diagrams (Figures 2-3-4-5-6-7).

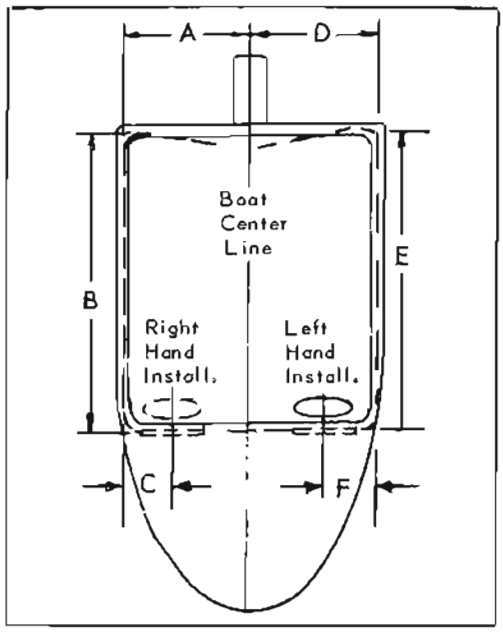


Figure 2. MerCruiser I Stern Drive Unit Ride-Guide Cable

Ride-Guide cable can be routed down right or left hand side of boat:

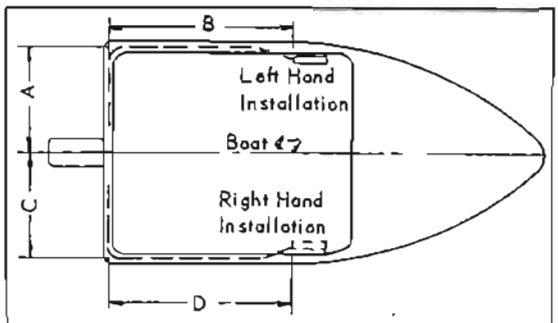
1. Add boat measurements A-B-C in inches for right hand installation.
2. Add boat measurements D-E-F in inches for left hand installation.
3. Subtract 30" (this allows for 12" radii at each cable bend).
4. Divide by 12".
5. This is cable length in feet.* (Order 34415A_ cable only.)

NOTE: C & F dimensions must not be less than 18".

* *Ride-Guide cables are available in 1 ft. lengths from 10 ft. thru 30 ft. (10 ft., 11 ft., etc) and in 2 ft. lengths from 30 thru 40 ft. (32 ft., 34 ft., etc):*

Longer Cables Available on Special Order.

1. Calculated 11 ft. 6 in. - order 11 ft. cable.
2. Calculated 11 ft. 7 in. - order 12 ft. cable.



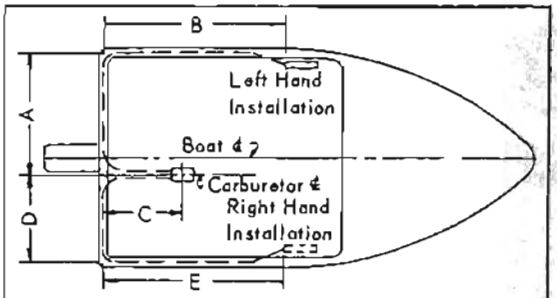
1. Add boat measurements "A-B" in inches.
2. Divide by 12".
3. This is shift cable length in feet.*

For right hand installation, "C" + "D" divided by 12" will be length in feet.*

* *Throttle and shift cables are available in lengths from 7 ft. thru 40 ft.; i. e. 7 ft., 8 ft., 9 ft., etc.*

Longer cables available on special order.

Figure 3. MerCruiser I Stern Drive Unit Shift Cable



1. For left hand installation, add measurements "A-B-C" in inches.
2. For right hand installation, add measurements "C-D-E" in inches.
3. Divide by 12".
4. This is throttle control cable length in feet.*

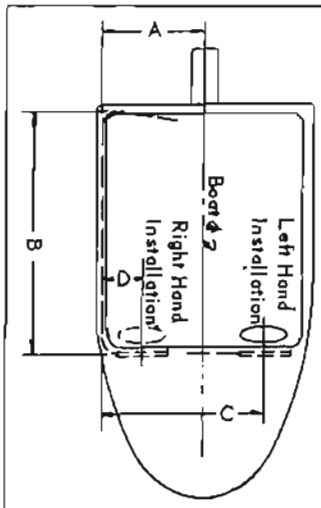
* *Throttle and shift cables are available in lengths from 7 ft. thru 40 ft.; i. e. 7 ft., 8 ft., 9 ft., etc.*

Longer cables available on special order.

Figure 4. MerCruiser "110" & "140" Marine Engine Throttle Cable

Figure 5.

MerCruiser II Stern Drive Unit Ride-Guide Cable



Ride-Guide cable must be routed down right hand side of boat.

1. Add boat measurements A-B-C in inches if steering wheel is located on left (port) side of boat

or

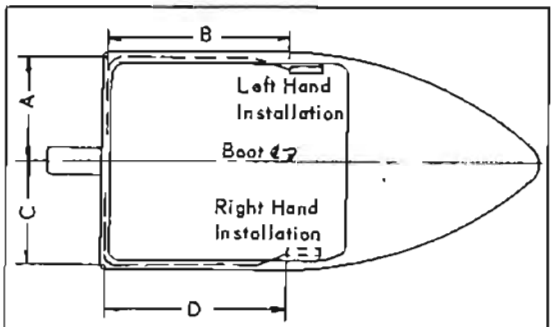
Add boat measurements A-B-D in inches if steering wheel is located on right (starboard) side of boat.
2. Subtract 38" (this allows for 12" radii at each cable bend).
3. Divide by 12".
4. This is cable length in feet for ordering.* (Order 34451A_ cable only.)

* *Ride-Guide cables are available in 1 ft. lengths from 10 ft. thru 30 ft. (10 ft., 11 ft., etc) and in 2 ft. lengths from 30 thru 40 ft. (32 ft., 34 ft., etc).*

Longer cables are available on special order.

After calculating lengths of cables required, order as follows:

1. *Calculated 14 ft. 6 in. - order 14 ft. cable.*
2. *Calculated 14 ft. 7 in. - order 15 ft. cable.*

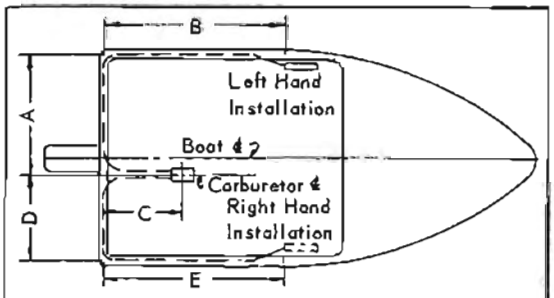


1. Add boat measurements A-B in inches, if control is located on left (port) side of boat, and add 12" to total of A & B.

or

Add boat measurements C-D in inches if control is located on right (starboard) side of boat.
2. Divide by 12".
3. This is shift cable length in feet for ordering.§

Figure 6. MerCruiser II Stern Drive Unit Shift Cable



1. For left hand control installation, add measurements A-B-C in inches.
2. For right hand control installation, add measurements C-D-E in inches.
3. Divide by 12".
4. This is throttle control cable length in feet for ordering.§

§ *Throttle & shift cables are available in lengths from 7 ft. thru 40 ft. (7 ft., 8 ft., 9 ft., etc). Longer cables are available on special order.*

Figure 7. MerCruiser "190" & "225" Marine Engine Throttle Cable

63-06

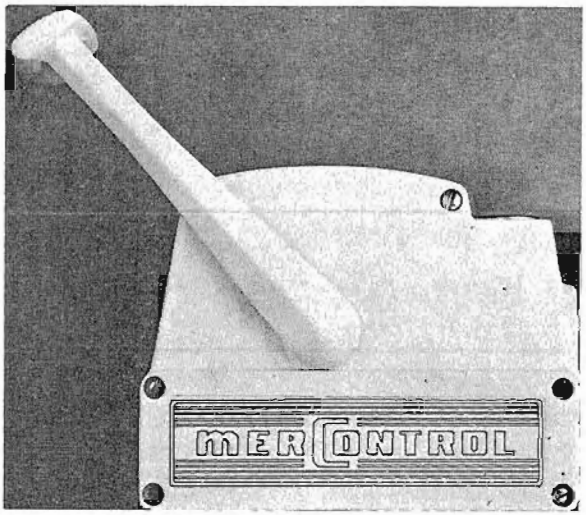
C. SHIFT CABLE ADJUSTMENTS

Improperly adjusted shift cables will cause hard shifting and/or damage to MerCruiser I and II Stern Drive Units. It is very important that shift cables are installed and adjusted as outlined in the "Installation Manual" which accompanies each Stern Drive Unit.

D. COMPETITIVE REMOTE CONTROLS

The use of remote controls, other than those manufactured or recommended by the Kiekhaefer Corporation, has resulted in complaints of hard shifting on MerCruiser Stern Drive Units. These inferior controls have less mechanical advantage or leverage than do Kiekhaefer "Quicksilver" controls, thus, the operator must exert more force on the control handle to shift the unit. Some makes do not have sufficient cable travel to provide full forward and reverse gear engagement with subsequent damage to clutch.

We recommend Quicksilver Remote Controls for All Installations . . . Designed Exclusively for MerCruiser Stern Drive Units and MerCruiser Marine Engines. (Figure 8)



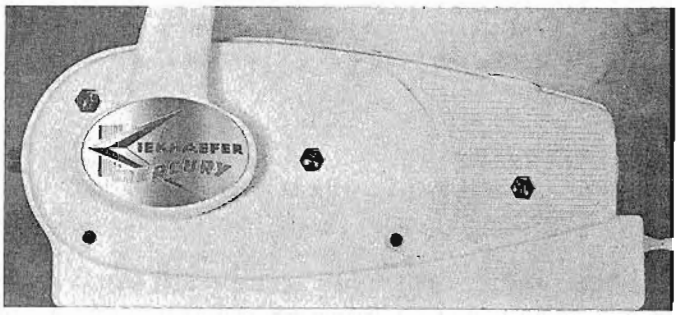


Figure 8. Quicksilver Remote Controls

E. ENGINE-TO-DRIVE ALIGNMENT

Proper alignment of the marine engine to the stern drive unit is very important when installing MerCruiser I or MerCruiser II Stern Drive Units. An alignment rod is included with each MerCruiser I Stern Drive Unit and alignment instructions are outlined in the "Installation Manual" which accompanies each unit.

It is necessary to use Alignment Tool 91-31620A1 when installing MerCruiser II Stern Drive Units. (Figure 9) This tool may be purchased direct from your parts distributor or the Kiekhaefer Corporation branch in your area.

Damage will occur to drive unit and engine coupling unless alignment instructions are followed.

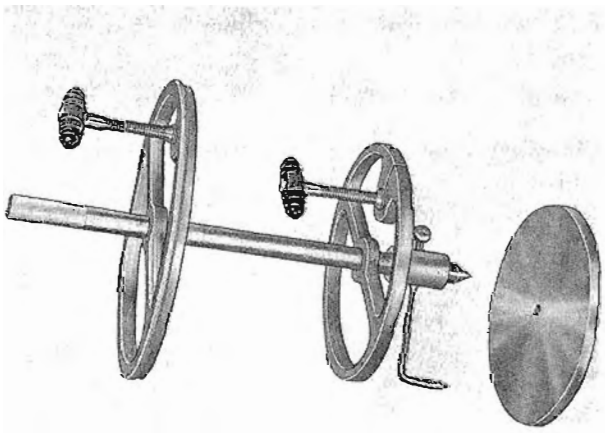
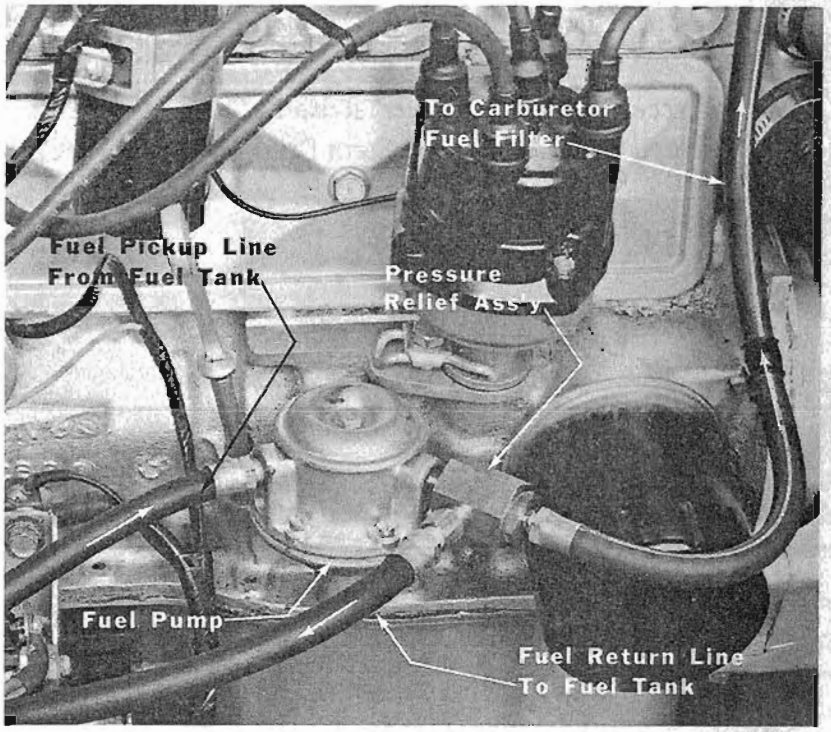


Figure 9. Engine Aligning Tool

F. "HOT START" PROBLEM & REMEDY

In cases where engine boxes are tightly sealed or inadequately ventilated, temperature rises very high after use on a hot day. Consequently, the fuel in the fuel system, between the fuel pump inlet and carburetor, expands and forces its way into the carburetor where it overflows into the engine, flooding it and making starting difficult. To correct this condition. . .

1. Properly ventilate engine box. (Refer to Paragraph "H", following.)
2. If "hot start" condition persists, install bleed fitting and fuel line, as shown in Figure 10. Main fuel flow goes to carburetor in a straight path. A small amount of fuel passes thru the screen, then thru the small hole or restriction (which limits the flow) to a fuel line which returns to the top of the fuel tank. Do not return into fuel pickup or fuel pickup line. When the engine is stopped, and the temperature rises in the engine box, the fuel expands, with the excess volume merely passing back to the fuel tank via the restriction and line. This system is similar to that used in air-conditioned cars where temperature under the hood becomes excessive in hot weather. This return system is being installed as a standard part on current production.



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Fuel Return Line Assembly

Figure 10. Fuel Return Line Assembly Installed (MerCruiser "110" and "140" Shown)

G. AUTOMATIC CHOKE ADJUSTING

There have been instances in which the automatic choke has been adjusted in an attempt to rectify the "Hot Start" problem mentioned in Paragraph "F", above. The automatic choke, however, has nothing to do with this problem, since it invariably is wide open when the temperature is high enough to present the "Hot Start" problem. If the choke is maladjusted because of "Hot Start", the customer will have a new "cold start" problem, unless he forsees the new question and primes the cold engine by actuating the neutral lever up-and-down several times.

H. ENGINE BOX VENTILATION AND CLEARANCE

Clearance must be provided between the inside of the engine box and the engine so that the engine is free to rock on its mounts. Inadequate clearance causes damage to both engine and box.

Be sure that fuel lines and wires are not rubbing on the engine box so that they will not chafe thru and cause open lines or short circuits. Inadequate ventilation of the engine box reduces engine power and will cause hard starting after an initial run. This is due to the temperature of the air inside the box which increases to an excessive degree. As the temperature increases, the density of air decreases. To operate efficiently, the engine must be supplied with enough air under all temperature conditions. The engine box should be adequately ventilated by intake and exhaust ports and, where necessary, by forced circulation.

A 6 to 8 horsepower loss and 100-200 RPM loss can be attributed to inadequate engine compartment ventilation.