service bulletin

STERN DRIVES/INBOARD ENGINES

NUMBER: 79-6A

(Remove and Destroy No. 79-6, Dated 1/22/79)

DATE: 2/23/79

DUAL MERCRUISER I GIMBAL RING FIX

CIRCULATE TO:
SERVICE MANAGER
PARTS MANAGER
MECHANICS

OFFICIAL NOTIFICATION
Under the U.S. Federal Boat Safety Act

All dual MerCruiser I Stern Drive units, which have the trim position sender and indicator switch (ear-muffs type) located on gimbal ring (see Figure 1), may experience wear of the gimbal ring splines that join the steering lever to the drive unit. Should the splines continue to wear, steering looseness will increase.

The enclosed letter (shown on Page 5) is being sent by Certified Mail to all known owners of dual MerCruiser I powered boats, requesting them to make an appointment to have their drive units inspected free of charge and repaired if required. New gimbal rings will be available in quantity after March 1, 1979. Identification was made to owners by an engine serial number which does not necessarily correspond to the transom plate assembly. Because of this, some owners may receive a letter which does not apply to their non-"ear-muff" type drive unit and, therefore, inspection is not required.

You also MUST CONTACT your customers, who own boats powered by dual MerCruiser I units of the type described above, advising them to return the boats to you for a free inspection.

Procedure for "Inspection for Worn Gimbal Ring Splines" and "Inspection for Loose Steering Lever", follows.

Periodic Inspection

The total steering system should be inspected periodically, including specifically the connection between the steering lever and gimbal ring, and all looseness should be tightened. The steering lever retaining screw nut can be readily tightened, or the gimbal ring can be replaced easiest by drilling holes in the gimbal housing according to instructions in the following kits.

Periodic inspection is critical -- at least once a season, but more often on heavy-duty, commercial, high-performance (over 50 MPH), dual or salt water applications.

B-10-32995A1	**Steering Lever Retaining Screw Kit**
B-88302A1	**Heavy-Duty Gimbal Ring Kit**

INSPECTION for WORN GIMBAL RING SPLINES

1. Insert magnet end of Wear Indicator Gauge (C-91-89095) between gimbal ring and bell housing on right side, then guide magnet to top of gimbal ring and attach it to bottom end of upper swivel shaft, as shown in Figure 1. Position indicator gauge so that pointer is 1½" (38mm) above trim position sender, as shown. Indicator gauge MUST NOT touch gimbal ring or bell housing.

NOTE: Request a Wear Indicator Gauge (C-91-89095) at no-charge from your factory branch or distributor.

2. Place a piece of masking tape on gimbal ring at location shown in Figure 1.
3. Grasp aft end of drive shaft housing, move drive unit back-and-forth and draw a small vertical line on tape at extremes of travel in both directions. (Figure 1) If 3/32" (2.4mm) or more movement is indicated, gimbal ring splines are worn, and gimbal ring must be replaced. If replacement is required of either gimbal ring, replace both rings. Install new Heavy-Duty Gimbal Ring Kits (B-88302A1) in accordance with instructions which accompany them.

   NOTE: Heavy-Duty Gimbal Ring Kit contains all the necessary parts for installation on stern drive units with exhaust tubes. If kit is to be installed on units with exhaust bellows, a new bellows (B-32734), 2 new clamps (B-54-32533) and 2 grounding clips (B-54-86049) also are required. Add these items to parts list when submitting warranty claim.

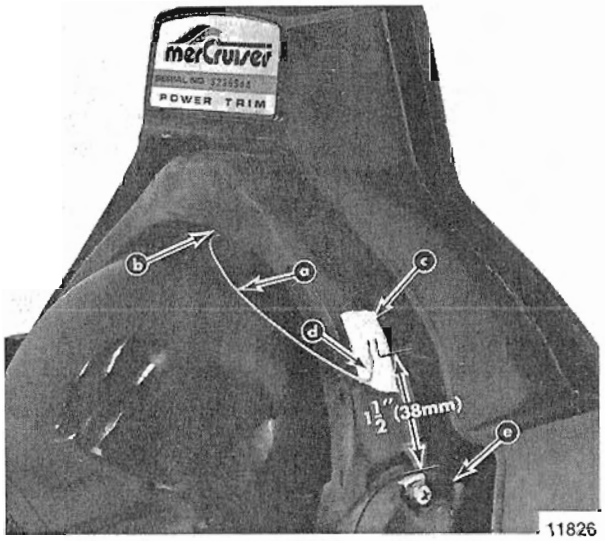
   NOTE: Installation of gimbal ring kit requires the use of a 1" NPT (National Pipe Taper) tap and a 1⅛" (28.6mm) hole saw. Tap and hole saw can be obtained from your local factory branch or distributor, if desired, by ordering Tap and Hole Saw Kit (C-91-86191A1).

The new method of removal of the gimbal ring eliminates the requirement to remove the engine. This will be the standard repair procedure for gimbal ring replacement in the future.

B-88302A1 Heavy-Duty Gimbal Ring Kit

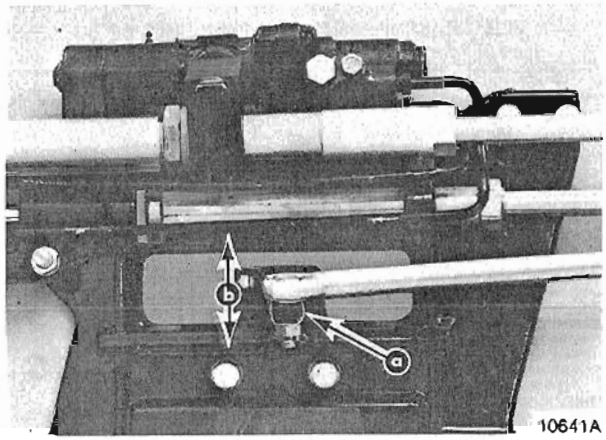
Labor Allowance 1.5 Hours per Drive Unit

NOTE: The following check ("Inspection for Loose Steering Lever") is not required, if Heavy-Duty Gimbal Ring Kit (B-88302A1) is to be installed.



a - Wear Indicator Gauge
b - Magnet Attached to Upper Swivel Shaft
c - Masking Tape
d - Move Drive Unit Back-and-Forth and Mark Extremes of Movement on Tape
e - Trim Position Switch

Figure 1. Checking for Worn Splines with Wear Indicator Gauge



a - Steering Lever b - Try to Move Lever Up-and-Down

Figure 2. Checking For Loose Steering Lever

INSPECTION for LOOSE STEERING LEVER

Grasp steering lever (Figure 2) and try to move it up and down (vertically). If any movement is felt, steering lever is loose and MUST BE tightened, using Steering Lever Retaining Screw Kit (B-10-32995A1). Install kit in accordance with instructions which accompany it.

NOTE: Installation of retaining screw kit, requires the use of a 1" NPT (National Pipe Taper) tap and a 1⅛" (28.6mm) hole saw. Tap and hole saw can be obtained from your local factory branch or distributor, if desired, by ordering Tap and Hole Saw Kit (C-91-86191A1).

B-10-32995A1 Steering Lever Retaining Screw Kit

Steering Lever Retaining Screw Kit (B-10-32995A1) Installation Instructions

This kit contains all the necessary parts for tightening the steering lever and consists of the following:

1 - Retaining Screw (C-10-32995)
1 - Nut (C-11-79857)
2 - Plugs (C-22-88847)

Installation of kit requires the use of a 1" NPT (National Pipe Taper) tap and a 1⅛" (28.6mm) hole saw. Tap and hole saw can be obtained from your local factory branch or distributor, if desired, by ordering Tap and Hole Saw Kit (C-91-86191A1).

IMPORTANT: If using your own 1⅛" hole saw, hole saw MUST BE fitted with a pilot rod in place of drill bit to prevent hole saw from wandering when cutting holes. Pilot rod MUST BE installed so that it protrudes a MAXIMUM of ¼" (6.35mm) from cutting teeth on hole saw, as shown in Figure 3.

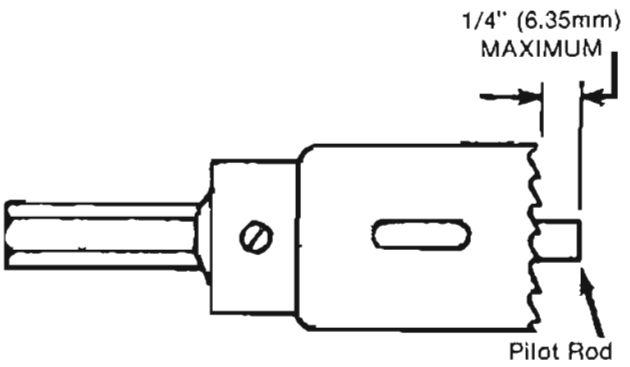


Figure 3. Pilot Rod Installed in Hole Saw

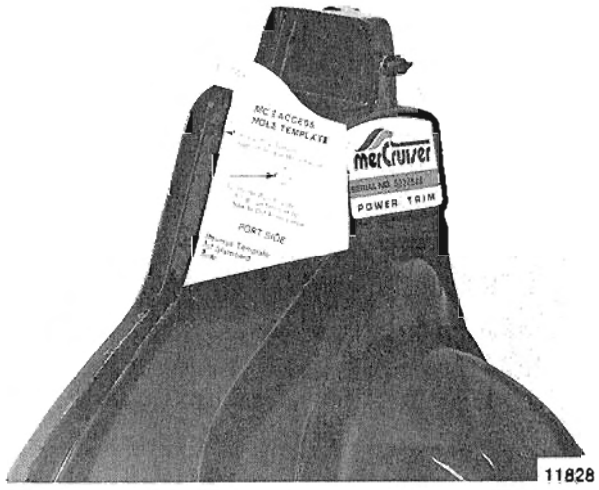


Figure 4. Template in Position on Gimbal Housing (Left Side)

Install steering lever retaining screw kit, as follows:

1. Cut out template from last page of this bulletin.

CAUTION: Be sure to position template accurately when marking access hole locations in the following step. If holes are not located properly, it will not be possible to tighten steering lever.

2. Place template on left side of gimbal housing (as shown in Figure 4) and mark gimbal housing with a center punch at location indicated. Repeat same procedure on right side of gimbal housing, using opposite side of template. Remove template.

CAUTION: Be sure to drill and cut holes perpendicular to gimbal housing surfaces in the following steps.

3. Position drive unit so that it is straight ahead, then drill same size holes as pilot rod (in hole saw being used) thru gimbal housing at locations marked with punch. If using hole saw from Tap and Hole Saw Kit (C-91-86191A1), drill ¼" (6.35mm) holes.

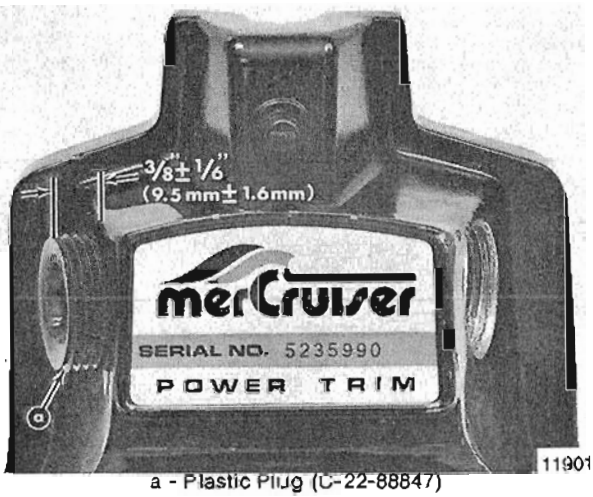
4. Using 1⅛" hole saw, cut holes thru gimbal housing at pilot hole locations. DO NOT use excessive force. Remove metal chips with compressed air or a cloth.
5. Turn steering wheel, as required, so that head on steering lever retaining screw is accessible thru one of the access holes. While holding nut on other end of retaining screw with a box end wrench, loosen retaining screw with a socket and remove screw and nut thru access holes. (Discard nut.)

   IMPORTANT: Inspect center portion of steering lever retaining screw. If screw is grooved (from rubbing on upper swivel shaft), steering lever MUST BE replaced and new Heavy-Duty Gimbal Ring Kit (B-88302A1) must be installed. Install kit in accordance with instructions which accompany it. (Discard screw after inspection.)

6. Install new retaining screw (C-10-32995) in steering lever and thread on NEW locknut (C-11-79857). Torque retaining screw to 60 ft. lbs. (8.3mkg) while holding nut with a box end wrench.
7. Grease upper swivel shaft with Universal Joint Lubricant [from U-Joint Grease Kit (C-91-74057A1)] thru fitting on top of gimbal housing until lubricant appears under steering lever. Swivel shaft MUST BE greased at this time to prevent metal chips from getting into swivel shaft needle bearings in next step.

SAFETY WARNING: Use extreme care when tapping holes and installing plugs (in the following steps) to ensure that it is done correctly. If holes are threaded incorrectly, or if plastic plugs are not installed properly, water leakage into boat may result.

8. Place drive unit in a FULL RIGHT TURN. Coat cutting portion of 1" NPT tap with grease and thread RIGHT access hole in gimbal housing, using ONLY first ½" ± 1/16" (12.7mm ± 1.6mm) of tap. (Mark tap with a piece of tape to indicate depth.) Be sure to tap hole perpendicular to housing. Place drive unit in a FULL LEFT TURN and thread LEFT access hole in same manner. Remove metal chips with compressed air or a cloth.



a - Plastic Plug (C-22-88847)

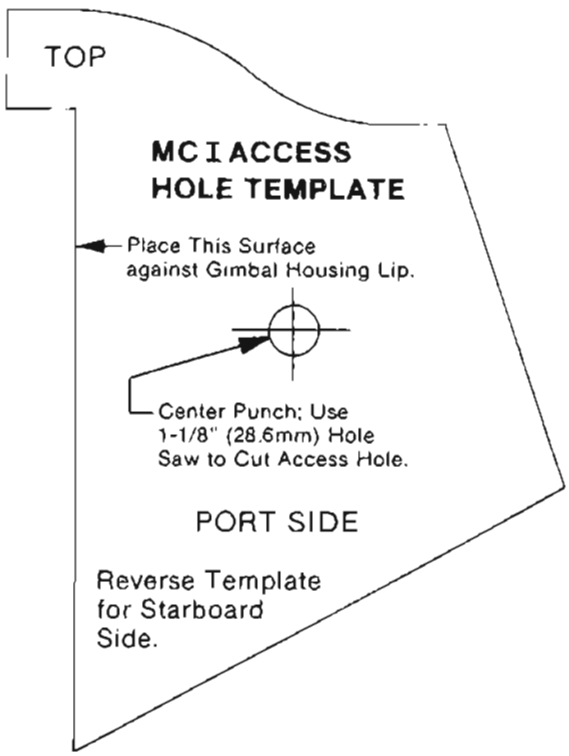
Figure 5. Installing Plastic Plugs

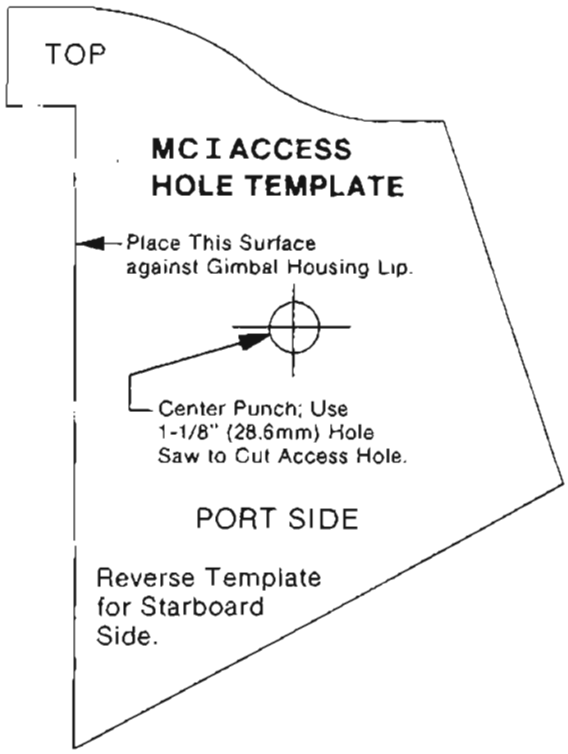
9. Clean grease from threads in gimbal housing with solvent, then coat threads of 2 plastic plugs (C-22-88847) with Perfect Seal (C-92-34227) and install in access holes (using a ⅝" allen wrench) until ⅜" ± 1/16" (9.5mm ± 1.6mm) is exposed. (Figure 5) Use care to prevent cross-threading plugs.

   NOTE: If a ⅝" allen wrench is not available, plugs can be installed with a bolt that has a ⅝" hex head. Thread 2 nuts onto bolt and tighten one against the other to allow bolt to be turned with a wrench or a socket.

10. Touch up any scratches on gimbal housing, using a Q-Tip saturated with Phantom Black Spray Paint (C-92-78373).

SAFETY WARNING: With boat in the water and engine running, turn steering wheel thru entire steering range and check for binding. Also, check gimbal housing for water leakage in area where plastic plugs were installed.





Dear MerCruiser Owner:

January 25, 1979

Re: Owners of boats equipped with dual MerCruiser I Stern Drives

It has come to our attention that premature wear of the gimbal ring splines, which join the steering lever to the drive unit, could occur in some boats which are powered by dual MerCruiser I Stern Drive units. Should the splines continue to wear, steering looseness will increase.

Mercury Marine requests that you contact your authorized MerCruiser dealer for an appointment for a free inspection. If repair is required, that cost also will be paid by Mercury Marine.

WARNING: Until the units are inspected, we recommend that operation of your boat be limited to cruising speeds only and that severe steering maneuvers be avoided.

The total steering system should be inspected and serviced by an authorized MerCruiser dealer at least once a season. This inspection should specifically include checking for any loose connection and should be performed more often if your boat is used in heavy-duty, commercial, high performance (over 50 MPH) or salt water application.

We are sorry to cause you this inconvenience, however, we have taken this action in the interest of your personal boating safety and continued satisfaction with our product.

Mercury Marine
Service Department