



Upper Gear Sets

- 18-2201 (1.50:1) Replaces: Mercruiser 43-18411A2
- 18-2203 (1.65:1) Replaces: Mercruiser 43-45814A5
- 18-2204 (1.84:1) Replaces: Mercruiser 43-75325A3
- 18-2205 (1.98:1) Replaces: Mercruiser 43-55778A3

& Bearing Set

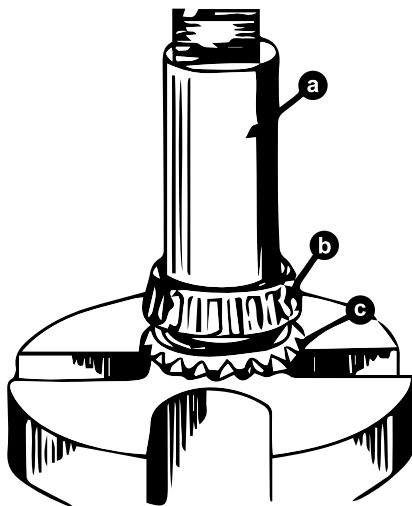
18-1160 Replaces: Mercruiser 31-35988A12

Installation Instructions

IMPORTANT: The latest Alpha One Stern Drive Units, serial number D492656 and above, no longer use the cone spacer between the bearings in the U-joint assembly to set the bearing preload. These instructions detail the new procedure for adjusting the preload. Also, the O.D. of the new drive gear hub has been increased by .0014 inch, which means that the bearing cones (used or new) now have a slight "interference fit" with the new gear. It is important to note that these gear sets and bearing sets will back-fit to drive units that fall below the above listed serial number and that the new bearing preload procedure must also be used for those units.

In cases where the 18-1160 (31-35988A12) Bearing Set is used in conjunction with the original (slip fit) gear, the cone spacer **MUST BE USED** and the old bearing preload procedure (listed in the Mercruiser I-Drive Service Manual #90-86137, Mercruiser Alpha Once Service Manual #90-12934-1 or Sierra/Seloc Manual #SE-62) must be used. The following instructions are only to be used in conjunction with the new "interference fit" gear sets.

1. Press the bearing cone (positioned as shown in the next figure) onto the pinion gear until it seats fully against the back side of the gear, using Mercruiser tool #91-90774 or equivalent.

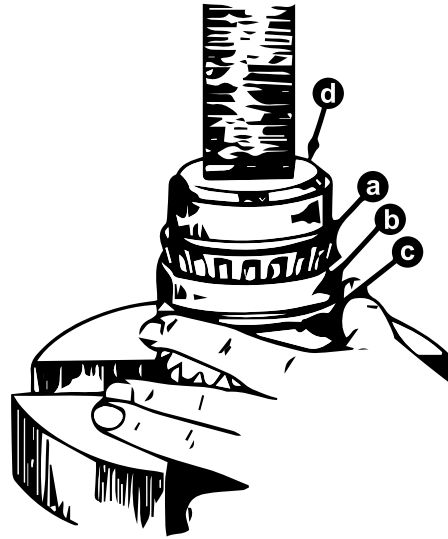


a. Tool #91-90774 or equivalent
b. Bearing Cone
c. Drive Gear

2. Place the bearing cup onto the bearing cone.
NOTE: Discard (Do not reuse) the small spacer from the used or new bearing set.
3. Place the large spacer onto the bearing cup.
4. Place the second bearing cup onto the spacer.

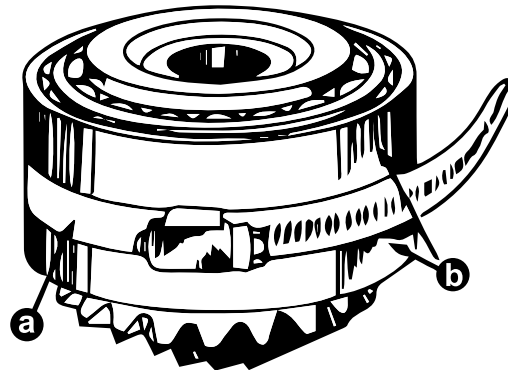
IMPORTANT: The spacer between the bearing cups must be free to move. Do not over-press the second bearing cone, as damage to one or both of the bearings could occur. If an over-pressed condition occurs (indicated by spacer not moving freely), completely disassemble the bearings from the gear and start again.

5. Press the bearing cone (positioned as shown in the next figure) onto the pinion gear until the bearing rollers make light contact with the bearing cup.



a. Bearing Cone
b. Bearing Cup
c. Spacer (Must Move Freely)
d. Suitable Mandrel - Must Push on Inner Bearing Race

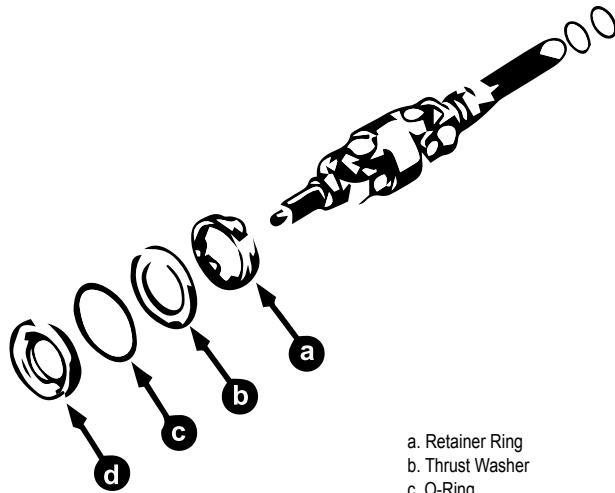
6. Temporarily install a hose clamp on the bearing assembly to keep the bearing cups and spacer aligned with each other while performing the next step.



a. Hose Clamp
b. Bearing Cups

7. Assembling the U-joint/gear assembly:

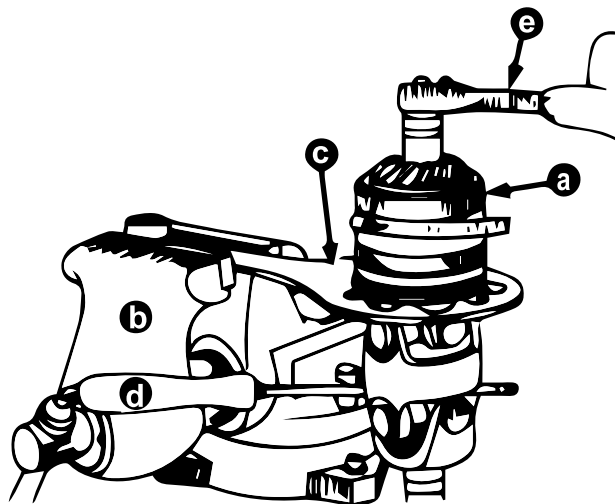
- a. Assemble the remaining components to the U-joint assembly, in the order shown in the next figure. Then assemble the gear/bearing assembly, the washer and the nut. Tightly Install the nut finger.



a. Retainer Ring
b. Thrust Washer
c. O-Ring
d. Oil Seal Carrier

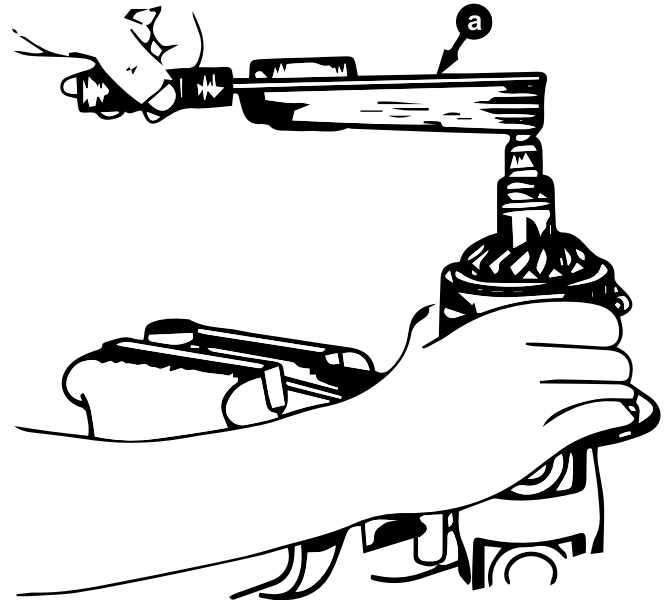
- b. Clamp the U-joint retainer tool in a vise and place the U-joint into it.

- c. Insert a suitable tool, such as a screwdriver, between the U-joint yokes as shown in the next figure, to prevent the U-joint from rotating when tightening the pinion nut. Tighten the pinion nut until the preload on the bearings begins to increase slightly.



a. U-Joint Assembly
b. Vice
c. Service Tool
d. Screwdriver
e. Socket and Ratchet Wrench

8. Set preload by tightening nut 1/16 of a turn at a time. Check for proper preload by turning gear using a torque wrench, until a 6-10 lb. in (0.7 - 1.1 N-m) torque is obtained. If nut is accidentally overtightened (causing excessive preload), it will be necessary to loosen the locknut, and lightly strike the gear and bearing assembly to loosen the preload. You should then repeat this entire procedure.



a. Torque Wrench (lb.in.)

IMPORTANT: If while performing this procedure the preload goes over the specified limit, which is 6-10 lb. in. (.7 - 1.1 N-m), the bearings must be totally separated from the gear and reassembled following the instructions on this sheet. Failure to follow these instructions will cause premature failure of the unit.

IMPORTANT BREAK-IN INSTRUCTIONS FOR GEAR SETS:

This gear set, as do all gear sets, **REQUIRES A BREAK-IN PERIOD.** We recommend that the separate copy of these instructions (Form N-1585) be attached to the final user's copy of your repair order.

INSTRUCTIONS FOR 10 HOUR BREAK-IN PERIOD

1. Avoid full throttle starts.
2. DO NOT operate at constant speeds for extended periods.
3. DO NOT exceed 75% of full throttle during the first 5 hours, full throttle operation is permissible for brief periods.
4. Shift into forward gear a minimum of 10 times during break-in, with moderate engine speed after each shift.

Sierra International

1 Sierra Place

Litchfield, IL 62056

(217) 324-9400

www.sierramarine.com