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CIRCULATE TO:
SERVICE MANAGER
PARTS MANAGER
MECHANICS

A. NEW POWER TRIM PUMP ON MERCUISER 330 TR and 330 TRS POWER PACKAGES

MCM 330 TR and 330 TRS Power Packages with new style transom plate assembly (Serial No. 6037486 and above) are equipped with an "Oildyne" Low Pressure Power Trim Pump. (Figure 1) This Power Trim pump has the reverse lock valve incorporated into the pump body, thereby, eliminating the need for a reverse lock valve on transmission, as was used in the past.

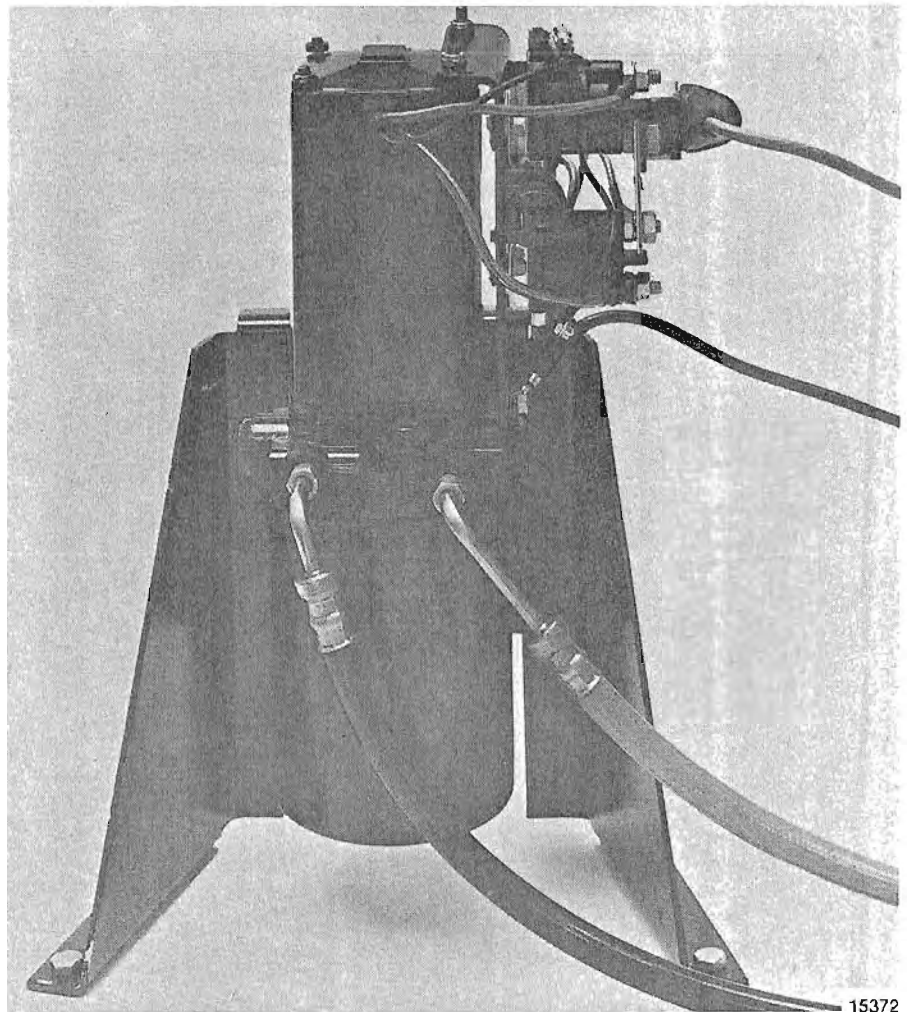
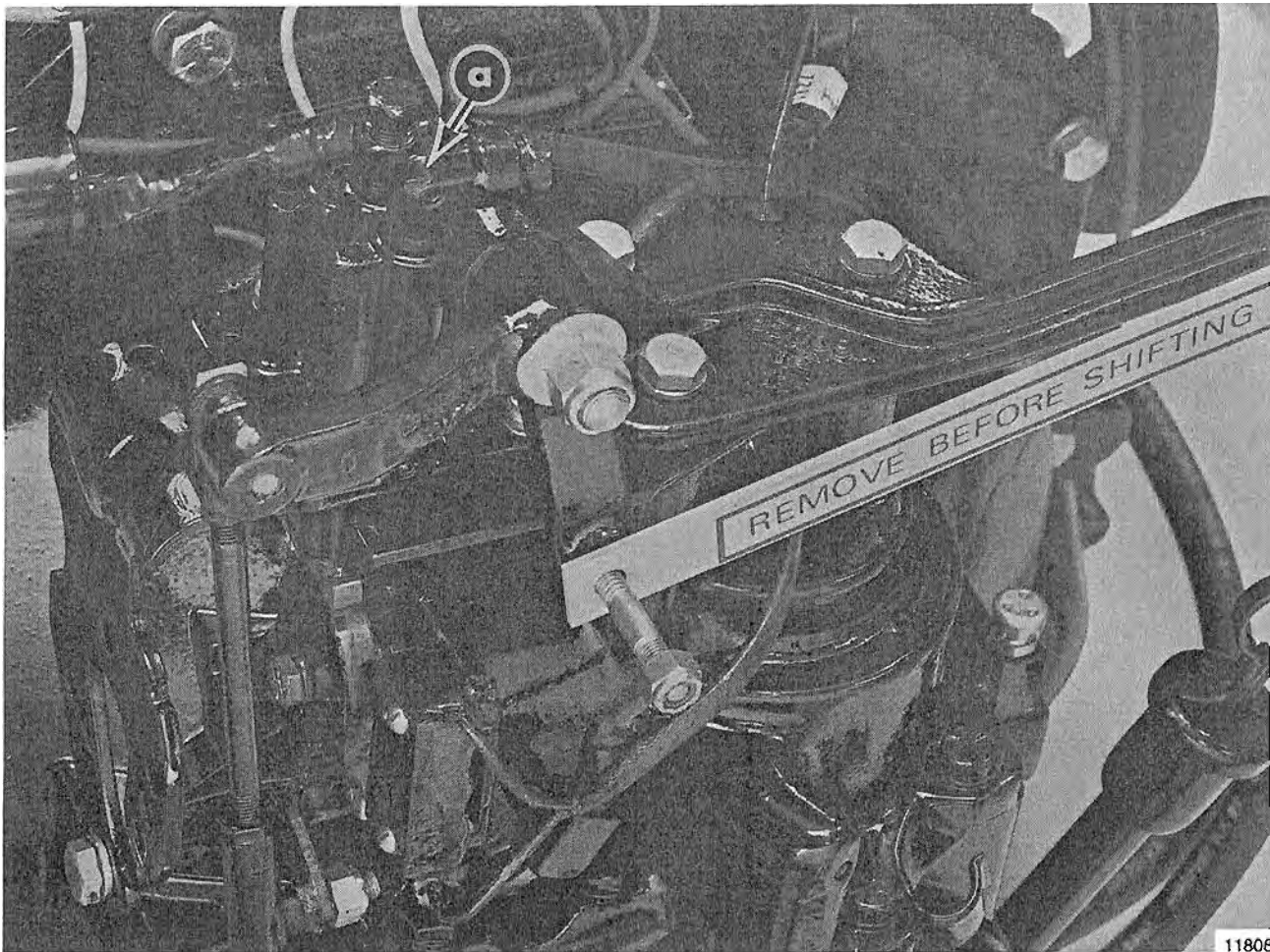


Figure 1. "Oildyne" Low Pressure Power Trim Pump

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MCM 330 TR and 330 TRS engines (with Mercury Marine transmission) are still equipped with a reverse lock valve on transmission. (Figure 2) This was done to allow engine to be used with either an old or new style transom plate assembly. Reverse lock valve can be removed when using new style transom plate assembly. Boat builders are instructed to remove reverse lock valve (if not required) at the factory to prevent further confusion in the field.



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**Figure 2. Reverse Lock Valve on Transmission -
MCM 330 TR and 330 TRS With Mercury Marine
Transmission**

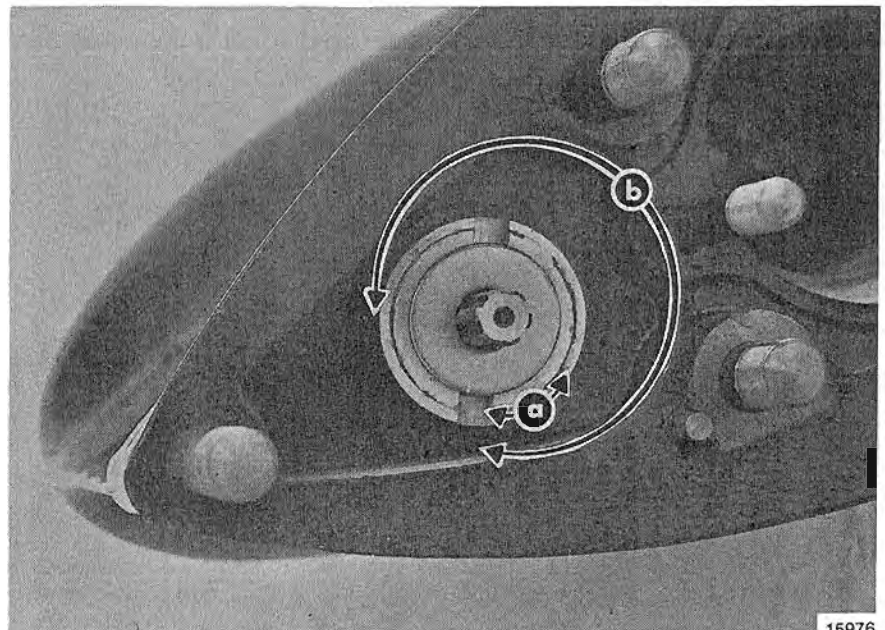
B. MERCUISER I STERN DRIVE UNIT GEAR HOUSING BACKLASH SPECIFICATIONS

It seems that some confusion exists as to the proper gear housing gear backlash on MerCruiser I Stern Drive Units. This has resulted from the superseding of gear housing parts. The following chart should help to eliminate this confusion. Chart is set up by gear teeth number (pinion/ driven) which should provide an easy means of determining backlash specifications.

**MC I STERN DRIVE UNIT GEAR HOUSING BACKLASH
SPECIFICATIONS**

	Gear Teeth No. (Pinion/Driven)			
	14/28	19/32	20/33	17/28
Part No. of Gears With This Teeth Ratio	43-31419 43-31886 43-31887	43-35922 43-35930 43-35916	43-61027 43-61025 43-61026	43-92319 43-96084 43-92320
(Pinion/ Forward/ Reverse)	43-33134 43-33135 43-33136	43-35922 43-35930 43-37964		
Model Using These Gears	MerCruiser I	MerCruiser 1A, 1B, 1C (Non EZ and EZ), 120, 140, 160, 165	120, 140, 165, 470, 485, 888, 898, 225-S, 228, 233, 250, 260	120, 140, 165, 470, 485, 888, 898, 225-S, 228, 233, 250, 260
Forward Gear Backlash	.006" - .008" (.15mm - .20mm)	.006" - .008" (.15mm - .20mm)	.010" - .012" (.25mm - .30mm)	.020" - .023" (.51mm - .58mm)
Reverse Gear Backlash	.015" - .020" (.38mm - .51mm)	.015" - .020" (.38mm - .51mm)	.040" - .060" (1.02mm - 1.52mm) (SEE NOTE BELOW)	.040" - .060" (1.02mm - 1.52mm) (SEE NOTE BELOW)

NOTE: On 120-140-165 drive units (Serial No. 3780849 and below) and 888 drive units (Serial No. 3784374 and below) with 17/28 or 20/33 gears, REVERSE BEAR BACKLASH MUST BE SET AT .025" - .030" (.64mm - .76mm). These units have a short clutch travel and will not tolerate the higher reverse gear backlash. To determine if drive unit has short clutch travel (if Serial No. is absent), remove propeller shaft and check shift shaft rotation, as shown in Figure 3.



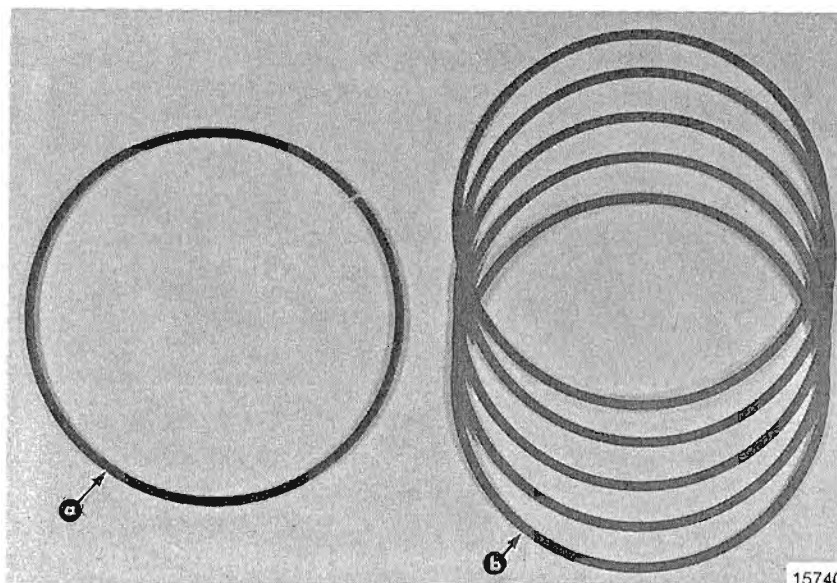
- a - Drive Unit Has Short Clutch Travel If Shift Shaft Turns Only This Far
- b - Drive Unit Has Long Clutch Travel If Shift Shaft Turns This Far

Figure 3. Checking Shift Shaft Rotation

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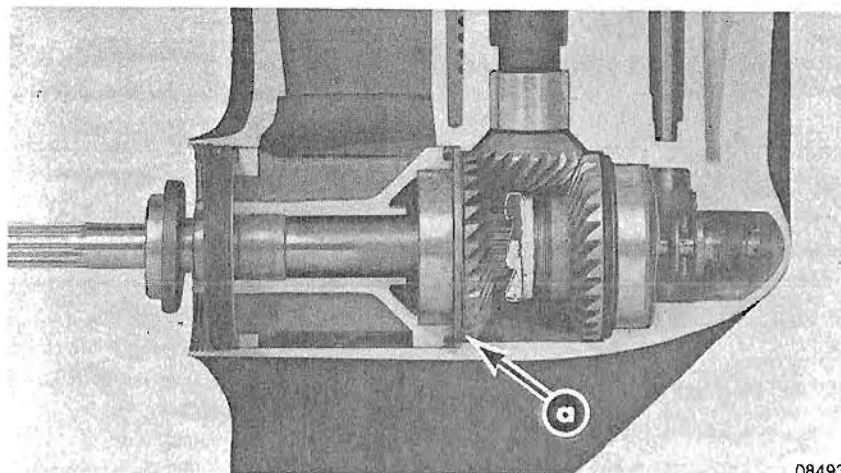
C. NEW SHIM FOR MERCUISER I STERN DRIVE UNIT GEAR HOUSINGS

A new shim (15-97166) has been released for use in MerCruiser I Stern Drive unit gear housings which have a reverse gear backlash of .040" - .060" (see chart, preceding). This .053" (1.35mm) thick shim will be used for production as well as service replacement. Shim replaces shim assembly (15-31535A1) (Figure 4) and is used to shim bearing carrier thrust ring to gear housing. (Figure 5) Reverse gear backlash should still be checked when using this shim, to ensure backlash falls within specified range. If necessary, shim assembly (15-31535A1) can be used to obtain proper backlash.



a - Shim (15-97166)
b - Shim Assembly (15-31535A1)

Figure 4. Shim (15-97166)
and Shim Assembly
(15-31535A1)



a - Shim

Figure 5. Bearing Carrier
Thrust Ring to Gear
Housing Shim

D. MERCUISER I STERN DRIVE UNIT PINION BEARING (31-92366)

New style gear housing pinion bearing (31-92366) should be used as the replacement bearing on all MerCruiser I Stern Drive units with Serial No. 1684188 and above. This bearing replaces earlier style pinion bearing (31-35934) and is specially designed to provide additional drive shaft support. New style pinion bearing **MUST BE** used when using 17/28 gear housing gears, as these gears require the additional drive shaft support. Stern drive units with Serial No. 5722518 and above have been equipped with new style bearing at the factory.

CAUTION: New style pinion bearing is stamped with "AG55242" for identification. BE SURE TO INSTALL BEARING WITH THIS SIDE TOWARD TOP OF GEAR HOUSING (AWAY FROM PINION GEAR). IMPROPER INSTALLATION OF BEARING COULD CAUSE DRIVE SHAFT AND GEARS TO FAIL.