

TO: SERVICE MANAGER TECHNICIANS
PARTS MANAGER

No. 87-19

REVISED
12-1-87

Alternate Gear Ratio Stern Drive Units for High Elevations

CAUTION

Under no circumstances should a high elevation gear ratio be used on boats that will be operated at elevations below those specified on chart, as damage to drive unit may result. Damage resulting from the use of the improper gear ratio will not be covered by the MerCruiser Warranty.

1988 MerCruiser Alpha One (except 2.5L/3.0L/HP 320 EFI) power packages can be ordered from your boat manufacturer with alternate drive unit gear ratios for high elevation applications. There is no alternate gear ratios for 1988 MerCruiser HP 320 Alpha One or Bravo One power packages. The use of higher numeric gear ratios will help to compensate for the engine horsepower losses caused by the high elevations.

Any of your boats that will positively be operated in high elevation areas should be ordered with the appropriate alternate gear ratio stern drive unit. The alternate drive unit gear ratios will allow better use of the propeller line for high elevation operation.

MCM 2.5/3.0 Litre and 454 Magnum Alpha One models also have an alternate gear ratio for use at higher elevations. This gear ratio change cannot be ordered from the boat manufacturer. The dealer must make the ratio change.

Mercury Marine has an exchange program to convert standard units to the alternate elevation gear ratios at the dealership. This program can only be used on new units or units that are within the one year warranty period.

New, Unused 3.7L-350 Magnum Standard Units:

1. Unit must be in original, sealed shipping carton. New unit installed on boat or unit out of its original shipping carton must use "B".
2. Mark "Alternate Drive Unit Gear Ratio Exchange Program" on completely filled out Warranty Claim. No labor or freight allowance on this exchange.
3. Send unit and warranty claim to your Regional Service Center. Your account will be credited at dealer price for the returned unit.

New, Unused 2.5/3.0L/454 Magnum Alpha One Units and Unboxed New, Unused 3.7L-350 Magnum Standard Units:

1. Order appropriate gear set to change ratio to ratio shown in chart.
2. Install elevation gear set in unit.
3. Mark "Alternate Drive Unit Gear Ratio Exchange Program" on completely filled out Warranty Claim. Labor allowed for gear exchange is \$40.00. 2.5/3.0L only, add freight to claim (no freight allowance on any other models).
4. Send old gear set and warranty claim to your Regional Service Center. Your account will be credited at dealer price (no handling allowance) and \$40.00 labor. Freight charges are not allowed except on 2.5 and 3.0 Litre models.

Used 2.5L - 454 Magnum Models (Within the 1 Year Warranty Period):

1. Same as B-1, -2 and -3 except no freight allowance on 2.5/3.0 Litre models either.
2. Send completed warranty claim to your Regional Service Center. Your account will be credited for \$40.00 labor only. The cost of the gear set and freight are not allowed on exchange program.

When going to an alternate gear ratio for higher elevation CAUTION DECAL, SIS-853 (shown) MUST BE affixed to a visible location on dash. This decal alerts the owner that the boat is equipped with an alternate gear ratio drive unit and that the gear ratio must be changed if the boat is to be operated at lower elevations. Order SIS-853 Decal from:

Mercury Marine Publication Department
P.O. Box 1939
Fond du Lac, WI 54936-1939
Telephone: (414) 929-5779

CAUTION

The MerCruiser Stern Drive on this boat is equipped with a gear ratio and/or propeller selected to optimize performance at higher elevations [above 3500 ft. (1067m.)]. If boat is to be operated at lower elevations, the gear ratio and/or propeller MUST BE changed. Contact your MerCruiser Servicing Dealer for details.

Failure to change gear ratio and/or propeller could result in engine damage from overspeeding. Drive unit damage also may result if gear ratio is not changed. Mercury Marine warranty is void on parts damaged as a result of incorrect gear ratio or propeller selection.

SIS-853 1-283

Mercury Marine, Division of Brunswick Corp.
Fond du Lac, WI 54935 USA

The “Alternate Drive Unit Gear Ratio Exchange Program” applies only to gear ratio changes for higher elevation use.

2. 454 Magnum Alpha One – Gear ratio change is done in drive shaft housing (see Note 2 in chart).
3. 2.5/3.0L Models – Gear ratio change is done in lower gear case. Standard has 17/28 tooth gears, High Elevation Gear Kit has 14/28 (see Note 1 in chart).

Gear Set Ordering Information:

1. 3.7L - 350 Magnum – Gear ratio conversion can be accomplished by installing the appropriate set of drive shaft housing gears listed in parts catalog.

ALTERNATE ELEVATION GEAR RATIOS

	Elevation Boat Length	Alpha Models		6000 and Above (Feet)	
		3500 – 6000 (Feet)		Up to 19'	19' and Above
1987	1988	Alpha One Models			
		Up to 19'	19' and Above	Up to 19'	19' and Above
2.5 Litre	2.5 Litre ● w/1.98	2.4:1 (Note 1)	2.4:1 (Note 1)	2.4:1 (Note 1)	2.4:1 (Note 1)
3.0 Litre	3.0 Litre ● w/1.98	2.4:1 (Note 1)	2.4:1 (Note 1)	2.4:1 (Note 1)	2.4:1 (Note 1)
165	3.7 Litre ● w/1.84	No Change	No Change	1.98:1	1.98:1
180	3.7 Litre LX w/1.84	No Change	No Change	1.98:1	1.98:1
	Boat Length	Up to 21'	21' and Above	Up to 21'	21' and Above
175	4.3 Litre ● w/1.84	No Change	No Change	1.98:1	1.98:1
205	4.3 Litre LX w/1.84	No Change	No Change	1.98:1	1.98:1
200	5.0 Litre ● w/1.65	No Change	No Change	1.84:1	1.84:1
230	5.0 Litre LX w/1.50	No Change	1.65:1	1.84:1	1.84:1
260	5.7 Litre ● w/1.50	No Change	1.65:1	1.65:1	1.84:1
350 Magnum	350 Magnum w/1.50	No Change	1.65:1	1.65:1	1.84:1
454 Magnum w/1.32	—————	No Change	1.50:1 HD (Note 2)	1.50:1 HD (Note 2)	1.50:1 HD (Note 2)
320	HP 320 EFI w/1.50	No Change	No Change	No Change	No Change
Bravo Models					
	Elevation Boat Length	3500 – 6000 (Feet)		6000 and Above (Feet)	
		Up to 21'	21' and Above	Up to 21'	21' and Above
	HP 320 EFI w/1.50	No Change	No Change	No Change	No Change
	7.4L w/1.50	No Change	No Change	No Change	No Change
	454 Magnum w/1.50	No Change	No Change	No Change	No Change

NOTE 1: Order High Elevation Gear Kit P/N 43-13730A1. **Use gears (in kit) as a complete set. Drive unit damage will occur if gears are intermixed.** This kit changes the lower gear housing from a 1.65:1 to 2:1 ratio which in turn changes overall drive unit gear ratio from 1.98:1 to 2.4:1. Follow instructions in kit.

NOTE 2: Order 43-14010A1 H.D. 1.50:1 upper gear set. Order also 1 each of 31-35988A9 and 31-32573A1 bearing assemblies. Change gears as outlined in Service Manual 90-12934.