

GEAR RATIOS OF THE TH-700R4			
FIRST GEAR	SECOND GEAR	THIRD GEAR	FOURTH GEAR
3.06:1	1.63:1	1:1	0.70:1

  

GEAR RATIOS OF THE TH-350			
FIRST GEAR	SECOND GEAR	THIRD GEAR	FOURTH GEAR
2.52:1	1.52:1	1:1	N/A

  

GEAR RATIOS OF THE TH-400			
FIRST GEAR	SECOND GEAR	THIRD GEAR	FOURTH GEAR
2.48:1	1.48:1	1:1	N/A

The first gear ratio of a TH-700R4 is 3.06 to 1. This is 21% lower than the first gear ratio in a TH-350 ( 2.52 to 1). First gear ratio of the Th-700R4 is 23% lower than a TH-400 ( 2.48 to 1 ). Maybe the following example will help you make sense of this. These examples don't take into account any torque multiplication may be occurring through the torque converter, they are just to illustrate the numerical gear multiplication. The subject vehicle is a 1960s classic car with a 3.08:1 rear end. With a TH-350 you multiply the 2.52 first gear times the rear end ratio of 3.08 and you come up with a torque multiplication number of 7.76 to 1. If you are accelerating and your motor was developing 100 lbs. of torque at that moment, your rear tires have 776 lbs. of torque applied to it. (7.76 x 100 lbs = 776 lbs). With a TH-400 you multiply the 2.48 first gear ratio times the rear end ratio of 3.08 and you come up with a torque multiplication number of 7.64. If your motor were developing 100 lbs. of torque, your rear tire could have 764 lbs. of torque applied to it at that moment. (7.64 x 100 lbs = 764 lbs) With a TH-700R4 you multiply the 3.06 first gear ratio times the rear end ratio of 3.08 and you come up with a torque multiplication number of 9.42. If your motor were developing 100 lbs. of torque, your rear tire could have 942 lbs. of torque applied to it at that moment. (9.42 X 100 lbs = 9.42 lbs).

**Conclusion**\_This car would feel 166 pounds more torque with the Th-700R4 transmission than a TH-350 in first gear and 178 pounds more torque than the TH-400 in first gear. To have the same torque multiplication with the TH-350 or TH-400 we would have to run a 3.73:1 rear end ratio. Now with the TH-350 first gear of  $2.52 \times 3.73 = 9.40$  x 100 lbs of torque produced by the motor = 940 lbs felt at the tire. Also the TH-400 first gear of  $2.48 \times 3.73 = 9.25$  x 100 lbs of torque produced by the motor = 925 lbs felt at the tire. If you have any Hot Rod blood running through your veins, this has to sound like fun running around town on Friday night. If you were looking to lower cruise RPM we just went the wrong way with this example. Running a 3.73 to 1 rear end gear ratio sure won't help gas mileage or lower your cruise RPM down the highway. With a 26" diameter tire and 3.73:1 rear end with the transmission in 1 to 1 third gear like the TH-350 or TH-400 in high gear, your engine would be turning approximately 2889 RPM at 60 MPH. This is not a pretty picture!

**Solution**\_Install a TH-700R4 with these existing 3.08 rear end gears. This car will launch like a TH-350 or TH-400 with 3.73:1 rear end ears, so you can now have your stop light fun. When the Th-700R4 goes into fourth gear, your final drive ratio will be 2.16:1. (3.08:1 rear end ratio x .70:1 4th gear ratio in the Th-700R4 = 2.16:1 overall final drive ratio) With a 26" diameter tire, a 3.08:1 rear end ratio and the Th-700R4 in .70:1 fourth gear, your engine would be turning only 1670 RPM at 60 MPH. This is a pretty picture!

(<http://www.700r4.com/faq/ratiocmp.shtml>)