Torque Versus Horsepower

Engine Building and Power Techniques

BY SCOTT SEAR

Absolutely. The Most Motor For Your Money!

On nearly a daily basis we have people come into the shop asking about building a high horsepower engine for their vehicle. Don't misunderstand us here, horsepower is not the only answer in the performance market. Having 500 horsepower at 6,000 rpm is of no real use if the tach never goes above 4,500 and most driving is done in the 2,000 to 2,500 rpm range. For that reason one of the most important questions that we can get answered is, 'How is the vehicle going to be used'. Another equally important question is the type of vehicle we are talking about. A 4,500 lb. pick up used to pull a trailer is in far greater need of low and mid-range torque than it is big horsepower numbers. By the same token a street rod is better served by low-end and mid range torque than horsepower. On the other end of the spectrum, a 'race car' is usually better served by horsepower available in the upper rpm range. It all comes down to building the engine for the intended use. A throughbred horse doesn't do well pulling a wagon and a clydsdale isn't going to win many races.

Horsepower = (RPM x torque)/5.252

Torque is the measure of rotational force and is used to calculate horsepower. Imagine a lever attached to the center of the wheel on the drive axle of your vehicle. Torque is the force applied to the end of that lever thus turning the wheel and moving your vehicle forward. More force means more torque and faster rotation and acceleration. Torque is what pushes you back in your seat, puts a smile on your face when taking off from a stop sign or light and leaves your competition wondering how you got that huge hole shot on them.

Horsepower is the measure of the ability to do work. Move 330 pounds one foot in one minute and you have one horsepower. Horsepower is usually only useful at upper end of the rpm range. Horsepower is what propels a car through the timing lights at the end of the strip. Most engines in a racing application from high-speed ovals to road courses rely more heavily on horsepower and high rpm than torque.

As stated in the opening, horsepower is not 'the answer' but it can be an answer. Usually the best answer is some sort of compromise. We go "The Extra Mile" and take the time to help you decide what is going to be most useful and beneficial in your particular application so you get the most smiles possible out of your engine.

Speed	Torque	Power	C_TO	CPower
rpm	lbft	HP	lbft	C_HP
4500	716.1	613.5	892.6	764.8
4600	750.8	657.5	935.6	819.5
*4700	768.5	687.7	957.3	856.7
*4800	782.1	714.7	974.7	890.8
*4900	797.4	743.9	993.5	926.9
*5000	812.3	773.3	1012	963.7
*5100	826.5	802.5	1030	999.8
5200	839.9	831.5	1047	1036
5300	852.3	860	1062	1072
5400	864.2	888.5	1077	1108
5600	874.1	932	1090	1163
5700	813 4	961.7	102	1196
5800	888.7	98 4	1109	1225
6000	893.2	1020	1115	1274
6200	891.4	11920	1114	1315
6300	880.3	1056	1100	1319
6500_	856.9	1061	1072	1327
6600	881 8	1032	1970	1294
6700	91 50	06	285 2	251
6900	737.1	968.3	926.4	1217



Let us help you get the "**EXTRA MILE**" out of your next build.