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GEAR-CHANGING

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Suitable engine speeds when changing gear.

When accelerating, certain drivers make a habit of running up to very high engine speeds before changing to higher gear since they believe that this is the quickest way to accelerate up to high speeds.

Fig. 1 shows, however, that the engine torque is highest at relatively medium engine speeds and so the above-mentioned driving technique is incorrect. If the engine reaches excessively high speeds, its component parts are liable to become damaged so we strongly advise that this type of driving is avoided.

If the traction curves are followed in fig. 2 (M 4 gearbox and B16B engine), it will be seen that gear-changing from 1st to 2nd speed should be carried out just below 35 km.p.h. (20 m.p.h.), from 2nd to 3rd just below 55 km.p.h. (35 m.p.h.) and from 3rd to top just below 95 km.p.h. (60 m.p.h.).

With the three-speed gearbox and the B16B or B14A engine, gear-changing from 1st to 2nd should be carried out just below 45 km.p.h. (25 m.p.h.) and from 2nd to top just below 85 km.p.h. (50 m.p.h.). With the other engines, the speed at which gear-changing should be carried out is lower depending on the engine speed for the best traction.

The rear axle ratio used in the example quoted is 4.56 : 1. If this ratio is greater, the gear-changing speed is displaced downwards by a corresponding amount. On the PV 445 with a rear axle ratio of 5.63 : 1 for example, the points mentioned are displaced downwards about 20% on the speed scale. Avoid running up the engine to excessively high revs. before changing gear. This does not help acceleration and can damage the engine.

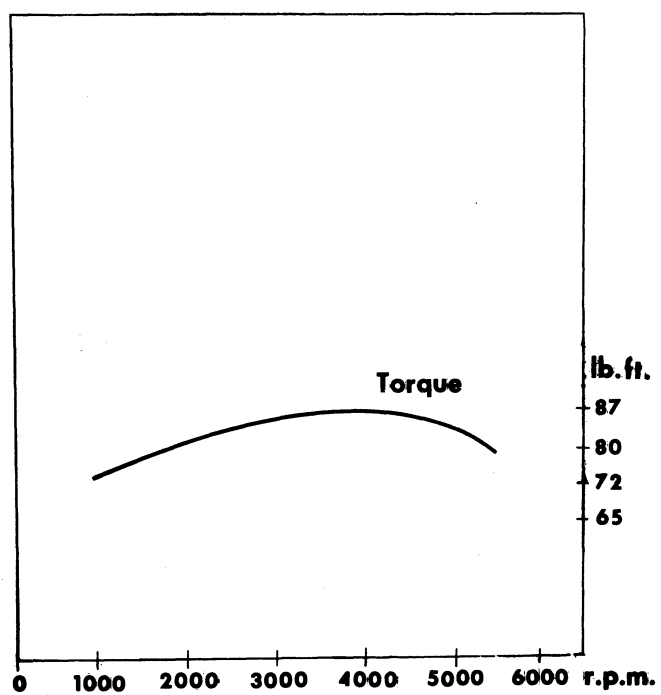


Fig. 1. Torque in relation to engine speed.

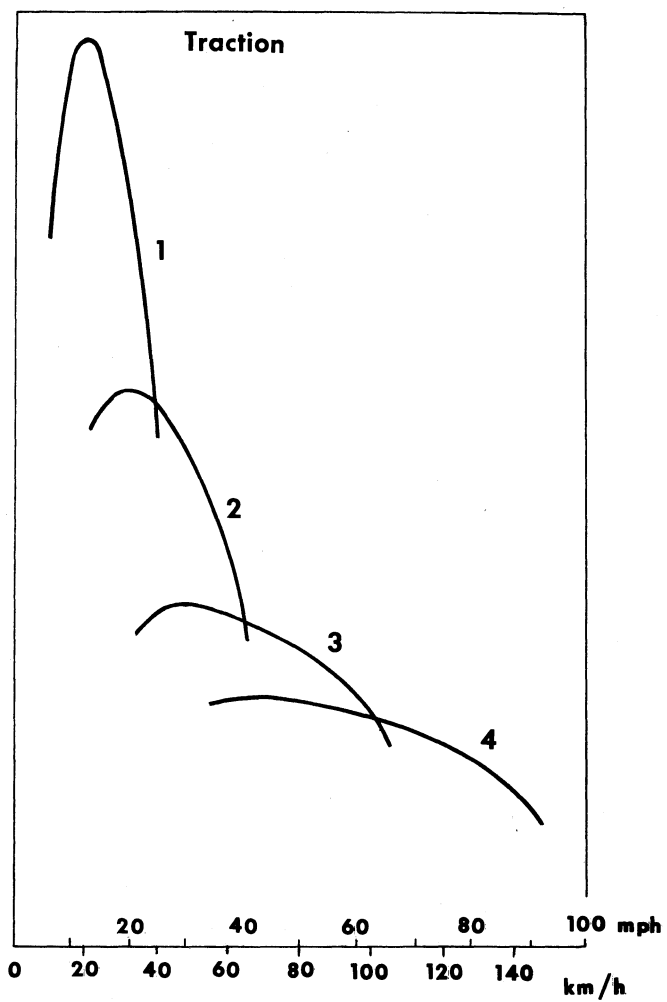


Fig. 2. Traction in relation to car speed and gears.