TECHNICAL

Special Problem

I am in the position at this time to obtain at a reasonable price components that should make a very roadable car. These components are: 1. Chassis from a Volkswagen and 2. Singer engine or a "134" Ford Industrial. My main problem is—Can the VW rear end be switched to take an engine mounted in front of it? If so, how should it be rotated? Can the rear end withstand the power developed by the 1.5 Singer and/or the 2.2 litre Ford?

East Orange, N.J. Roger L. Cox

Rotating the VW rear end assembly 180° (viewed from the side) has been done. You must have new oil level and drain holes machined and provide a steady-bearing at the forward end of the input shaft.

The "Pooper" special uses a VW box with a Porsche Super engine but I think the Ford "134" engines puts out too much torque for the small gears to withstand. Anyway, how can even a modified 2.2 litre Ford compete with a 2.6 Austin-Healey or a Mercedes 300SL (class D production), let alone the modified cars in that class?

Ft. Per Min.

I want to ask about the safe piston speed for cruising in my 2½ litre Riley. At 2500 fpm the speed is only 62.3 mph, yet this car goes up to 80-90 mph easily. This worries me.

New York, N.Y. C. K. Chang

It would worry me too. I get 63.1 mph at 2500 fpm, 75.7 mph at 3000 fpm, using 735 tire revolutions per mile. Since the Riley bottom-end is very rugged I suggest you can use the higher figure, providing the engine is in top condition. I would, as a precaution, install an oil temperature gage and use it as "governor."

Influence of Weight

If 500 lbs of weight were put in a car, neglecting tire friction, etc., would its top speed be reduced appreciably?

A.P.O., N.Y.C. William P. Dietz

Technically, the answer to your specific question is: there would be absolutely no change. However I assume you mean, neglecting rolling resistance, and you can't do that. A typical car weighing 3700 lbs., loaded, will have a "tire" rolling resistance of about 70 lbs. This is equivalent to 11.2 bhp at 60 mph, 18.7 bhp at 100 mph (bhp=drag force x mph÷375). If we add 500 lbs to this car the wheel and tire drag increases to 79.5 lbs. or 21.2 bhp at 100 mph. The loss of 2.5 hp on a 100 mph car would reduce the top speed by about 1.35 mph. Of course the added weight would lengthen the time required to reach terminal velocity.

Porsche Weights

I have some questions concerning curb weights of Porsche coupes and speedsters, given in R&T.

1. Sept. 1954: Super coupe.....1860 lbs.
2. Jan. 1956: Cont. coupe.....1920 lbs.
3. May 1955: Super speed.....1790 lbs.
4. Jan. 1956: Cont. speed.....1750 lbs.

How come the difference in weights between coupes is so much?

Venice, California Charles E. Green

We weigh all cars on State certified public scales which should be accurate. However we do find discrepancies of as much as 50 lbs, on different scales. The January cars were weighed at the same time on the same scales and are comparable. I understand that the later type Porsche engines, with the 3-piece crankcase, weigh about 50 lbs more than the earlier types.

CORRESPONDENCE

Jaguar Butch

The data you gave (in the January, 1956 issue) on piston height for a de-stroked Jaguar is not correct.

From several readers

This proves that our readers are not only sharp, but smooth with the "slip-stick". The dimensions given not only were wrong—they also would wreck the engine! Increasing piston compression distance by one-half the stroke decrease puts the top of the piston at the original T.D.C. position but compression ratio will be lower due to the smaller cylinder volume.

Furthermore (and more important) the only way to increase compression ratio on a dohc Jaguar is to use special "domed" pistons which will allow clearance for the partially open valves at the end of the exhaust stroke (T.D.C.). I goofed!

Otto Cycle

It seems incredible that present day automobiles use engines identical to the original Otto cycle engine, concieved in the 1800's. Such is the fact. Only improvements are metallurgical.

In 1947, announcement was made of a hot air engine equal in thermal efficiency with the Diesel cycle. What ever happened to that?

Pomona, California William F. Wichart

The machine age was made possible by the screw thread fastener and no one has improved them much, either.

The Philips hot-air engine, like a hundred other revolutionary ideas cannot do as good a job for the money. Newest brainstorm is the Bradshaw "frictionless" engine (in England). We will have to wait and see, on that one.

Suspension Design

Would you please give me your ideas on the theoretical perfect path of travel of a given tire, front and rear, through bounce and rebound?

Brady, Montana David H. Hastings

This is an impossible question to answer, without having very complete chassis details—and even then we can find considerable difference of opinion.

If I have to answer, I would say that generally the front roll center of a conventional car should be from 5" to 10" above the ground while at the rear the R.C. should be very close to the ground. Since R.C. is determined by the arc-path of wheel contact with the ground, the front wheels will have some camber change, but the rears will move on a nearly true vertical line.

Keep Cool

Some of the readers have probably had trouble with the Jaguar Mk 7 overheating in traffic. I have cured one and thought I would pass it on to you for what it is worth. If the car runs cool on the road and heats in traffic the trouble is the silly little fan with the great big hub. I fitted a 1952 18" Ford Six truck five blade aluminum fan to mine and it idles through traffic at 70°C. on the hottest days. The following is necessary to fit this fan, the job taking about five hours at most.

1. Cut remote water drain rod off to 3" high
2. Trim ⅜" off blade ends
3. Cut center hole out to fit Jag fan hub and redrill
4. Grind crank nut lugs off, leave nut ½" thick
5. Heat the steel hub at blade ends and bend each out ¼" to clear crank nut.

Macon, Georgia George Yetter