“My little deuce coupe” by the Beach Boys

Little deuce Coupe
You don`t know what I got
Little deuce Coupe
You don`t know what I got

Well I`m not braggin` babe so don`t put me down□
But I`ve got the fastest set of wheels in town
When something comes up to me he don`t even try
Cause if I had a set of wings man I know she could fly
She`s my little deuce coupe
You don`t know what I got
(My little deuce coupe)
(You don`t know what I got)

Just a little deuce coupe with a flat head mill
But she`ll walk a Thunderbird like (she`s) it`s standin` still
She`s ported and relieved and she`s stroked and bored.
She`ll do a hundred and forty with the top end floored
She`s my little deuce coupe
You don`t know what I got
(My little deuce coupe)
(You don`t know what I got)

She`s got a competition clutch with the four on the floor
And she purrs like a kitten till the lake pipes roar
And if that aint enough to make you flip your lid
There`s one more thing, I got the pink slip daddy

And comin` off the line when the light turns green
Well she blows `em outta the water like you never seen
I get pushed out of shape and it`s hard to steer
When I get rubber in all four gears

She`s my little deuce coupe
You don`t know what I got

She`s ported and relieved and she`s stroked and bored.

Hot Rod Improvements -- These are all methods for increasing the efficiency and power of a FLAT HEAD ENGINE …..

Ported – means increase the size of the intake and exhaust ports – this allows more fuel and air to enter the cylinder at higher RPMs, and it allows the engine to breathe more easily – the result is a more powerful and efficient engine

Relieved – means opening up the channel between the valve seat and the cylinder. Thus when the valve opens, air and fuel can flow more easily in and out of the cylinder. Relieving is a method that applies to flat-head engines where the valves are a short distance away from the cylinder.

Stroked – means that the stroke length has been increased – this adds to the engine displacement (equal to the cylinder area multiplied by the stroke length) which gives more energy per detonation and it also allows for the hot gases to expand more to reach a lower temperature – this improves efficiency which is limited by thermodynamics – thermodynamic efficiency is $(T_H-T_C)/ T_H$. Temperatures are in degrees Kelvin. T_H is the higher temperature of the combustion gases right after detonation. T_C is the lower temperature of the gases after expansion. A lower T_C gives a higher efficiency. 100% thermodynamic efficiency is possible only with infinite expansion.

Bored – increase the size of the bore which adds to the engine displacement – this means more energy per explosion.

With reference to the Ford Flathead V8 Engine:

http://www.hotrod.com/techarticles/engine/hdrp_0511_ford_flathead_engine/camshaft.html

COMBUSTION CHAMBER

Normally we'd title this section "Cylinder Heads," but on a flathead, the heads-having neither ports nor valves-only form the combustion-chamber roof. The mixture must follow a tortuous U-turn path out the block-mounted intake valve, over to the main part of the chamber above the piston, and then back out the exhaust valve. This lateral flow severely restricts flathead breathing capability, although it does promote what today's high-tech engineers term swirl and tumble, which enhances fuel mixing and combustion.

Making power with a flathead is a fine balancing act, juggling the higher thermodynamic potential of raising compression against improving airflow through the combustion chamber. Traditional flathead airflow management practices call for relieving the block-removing metal between the valve-seat sides closest to the cylinder bore. This improves airflow, but the resultant effective combustion-chamber-volume increase lowers the compression ratio, in turn decreasing horsepower and fuel economy. Trying to gain back compression ratio by using popup pistons may improve airflow provided proper attention is paid to the transfer area and overall piston-to-combustion chamber interface. The best balance has been the subject of debate for over 60 years.

Currently the most popular approach is running a big popup piston, but with a scallop on the side adjacent to the valves to keep the transfer area clear between the valves and the cylinder bore. Recommended bottom-line street-gas-friendly compression ratios are between 7.5-8:1 on naturally aspirated engines and 6.5-7.0:1 with a blower. As for cylinder heads, Baron, Edelbrock, Navarro, Offenhauser, and Sharp (now sold by Wilcap) all have their adherents.

Reliefs between the valves and bores are much less pronounced than the old days, only about 0.080-inch deep instead of the old-school 31/416 inch. Research has shown there's relatively little air movement over the base of the block. Instead, air wants to go over the front of the valve and hit the chamber roof. Most hot rod engines use oversize valves. Small-block Chevy valves remain popular, but with reduced-base-circle cams they may be too short to permit proper lash adjustment. Correct-length flathead 1.800 intake/1.600 exhaust valves are available from flathead specialists like Baron Racing.