SPECIAL ENGINE CONVERSION SECTION

BEAUTY and the BUICK

by Ian Malcolm

Photos by the author

Leading off RODDING AND RE-STYLING's brand-new series of engine-swap articles is one of the most unusual—and fastest—hot rods in the country. Here's the complete story of how it was built

ZERO to 60 in four and a half seconds flat, and a top speed of about 160 mph! Sounds like either a rocket or a *Grand Prix* Mercedes but this was accomplished with production units and with a reasonable cash outlay.

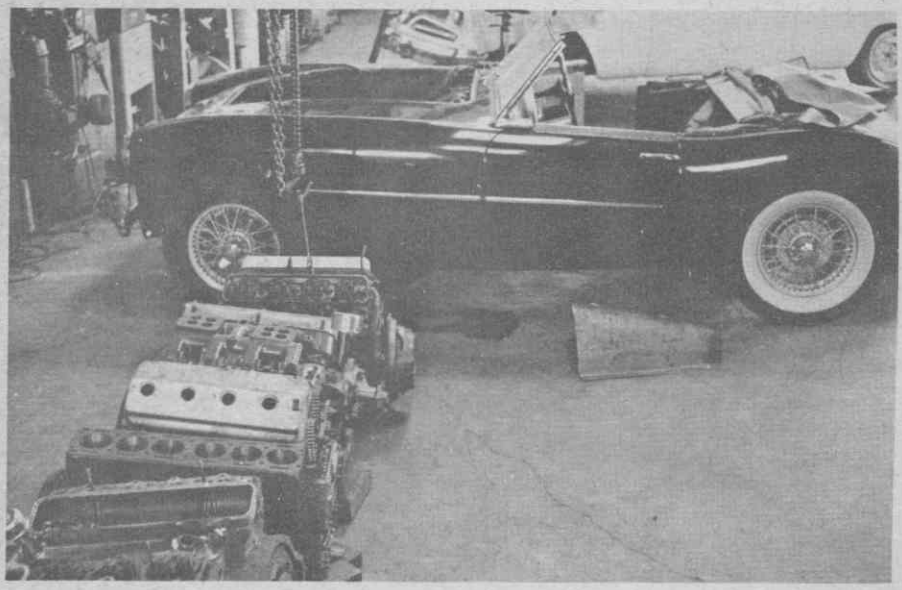
Max Balchowsky, Buick and Chrysler specialist in Hollywood, is a firm believer in the Buick V-8. Until recently, he ran a Buick powered '32 Ford roadster in the sports car races on the coast. This car was not the world's best-looking and had some handling defects so Max decided to build another that would handle with the best, outrun the best and have beauty to match. The Doretti-Buick fills the specifications perfectly.

The Doretti was chosen because it's one of the better looking sports cars available at a reasonable price; it's very light; and its frame, suspension and steering gear are particularly good.

Originally, Max used a Jaguar trans-

The Buick engine, clutch installed, ready to be bolted to the transmission and trial-fitted. The oil filter has been re-mounted in a horizontal position.

The Doretti, in an early stage of the work, next to a row of Buick engines. The new transmission shroud, partially completed, is next to the car.



mission with the Buick engine but, after some acceleration runs, he decided that the Buick torque curve was so flat that the four-speed box was unnecessary. Now, he uses the rodders' favorite: a '37-to-'42 Cadillac gearbox. Adapters to match the Caddie box to the Buick engine are available, as is; but to couple a Jag unit to the Buick engine, a handmade aluminum adapter is necessary. There is no difficulty with the transmission shaft splines; Jag, Cad and Buick all use the same diameter shaft with the same splines.

This leaves the choice of a clutch up to the individual. Balchowsky uses an Inland 10-inch cab clutch with a heavy-duty clutch disk. This is a diaphragm type clutch and can take almost an unlimited amount of power. Since the Doretti uses a hydraulic system to actuate the clutch, all that's necessary is to remove the slave cylinder from the Doretti transmission and fasten it to the new transmission.

The only other units affected by the conversion are the oil filter and the generator. The Doretti was used since it's smaller and weighs only half as much as the Buick. By taking the Doretti generator bracket and welding an extension on it, it can be bolted to the front plate of the engine, thus placing the generator in line with the other pulleys.

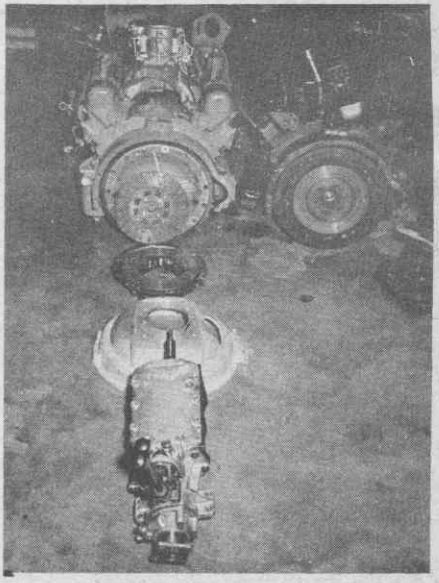
The stock Buick oil filter is mounted vertically and would hit the frame in that position so it must be fitted with a new top and mounted horizontally. Some of the G.M. industrial model filter tops can be used, with a little rework.

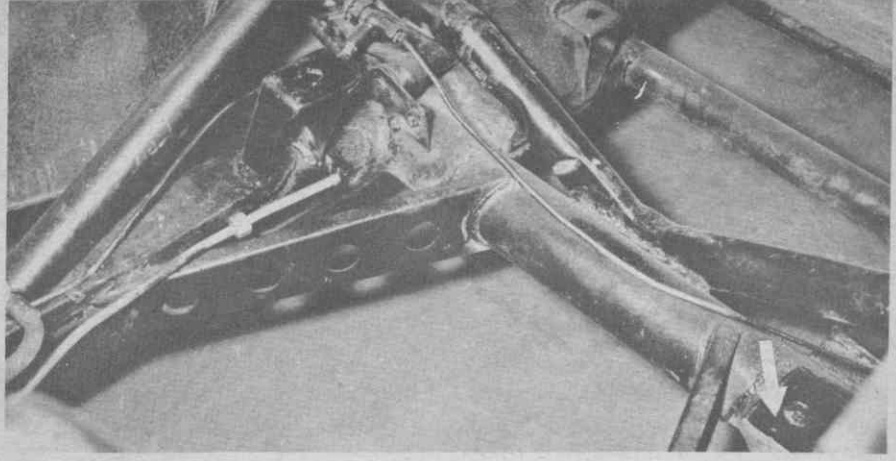
The engine conversion itself is one of the neatest and easiest possible. After the original engine is out, the radiator, transmission, transmission shroud and battery are removed. The steering gearbox bracket is unbolted, moved over one inch, new holes drilled and the bracket bolted down again. This is necessary to make clearance between the steering column and the exhaust header.

Next, a section of the firewall has to be cut, bent back and rewelded. This section should be as wide as the opening in the firewall (see illustration), and bent back flat and even with the front of the battery box. Then, cut the tube cross-member that braces the front axle. This tube should be cut on each side, even with the inside edge of the frame rails, so that a section from the middle is removed. This section will later be cut in half and welded back in place in a shallow V to clear the crank pulley (see illustration).

The Buick engine-transmission, minus generator and headers, should now be lowered into place. A little trimming of the forward edge of the floorboards

From front to back, the Jaguar gearbox, adapter, clutch, clutch disk and Buick engine.

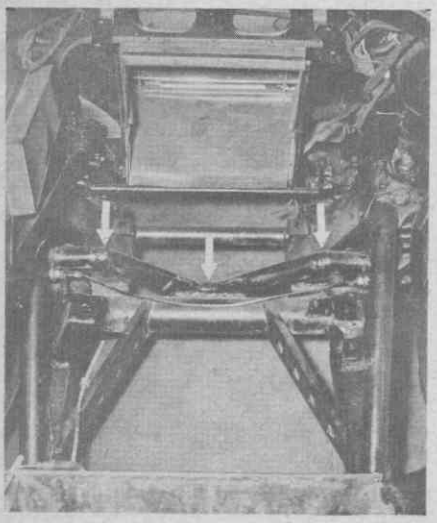




New front motor mounts (arrows) and altered cross-member.

will be necessary to clear the bell housing; then a block can be used to support the transmission while the work continues. The tube cross-member that was cut should now be cut in half,

Looking forward in the engine compartment. The three points where the front cross-member tube was cut are indicated by the arrows.



ground off and fitted to clear the pulley. The two pieces can be clamped or tack-welded in place and welded solidly after the engine is removed. Hold the generator in line with the mounting bracket and mark, with chalk, the area on the inside of the fender that must be moved to give clearance. After the engine is taken out, a medium sized hammer will easily provide the clearance.

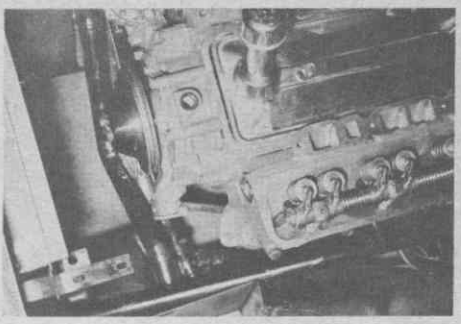
The front motor mounts can be measured now. A section of heavy channel with a plate welded on top will make a sturdy mount. The channels should be from six to eight inches high, depending on whether you want to rework the hood to clear the carburetors or not, and placed as far to the rear as possible. As with the tube cross-member, the mounts can be tacked in place till the engine is removed. The rear mounts can be made by welding a small plate across the old mount plate. Position it while the engine is in place, allowing room for the rubber vibration grommets between the mount and the transmission.

Before removing the engine assembly, make a new transmission shroud using 16 or 18 gauge steel. The only

difficult part of this is making sure that the edges of the new shroud match the existing bolt line of the firewall and floorboards. This isn't too hard as the new shroud can be almost square at the corners. When the shroud is shaped, and in place, mark the hole for the shift lever.

If you plan on using an intake manifold setup that is rather tall, better set it in place and check the hood clearance. Since the Doretti has a hood bump, it's not too hard to make the bump higher or to cut open the front of the bump making a function air-scoop.

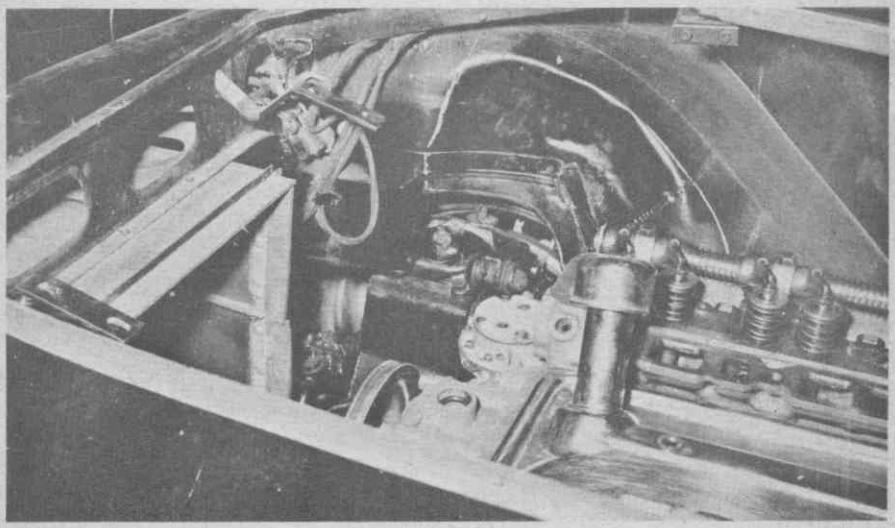
After the various units are fitted, the engine should be removed and the units welded. At this time Balchowsky also had a 12 by 24 inch hole cut in the side of each fender and then welded in a small, egg-crate type grill. This improves the looks of the car and also gets rid of the heat that the big Buick throws off.

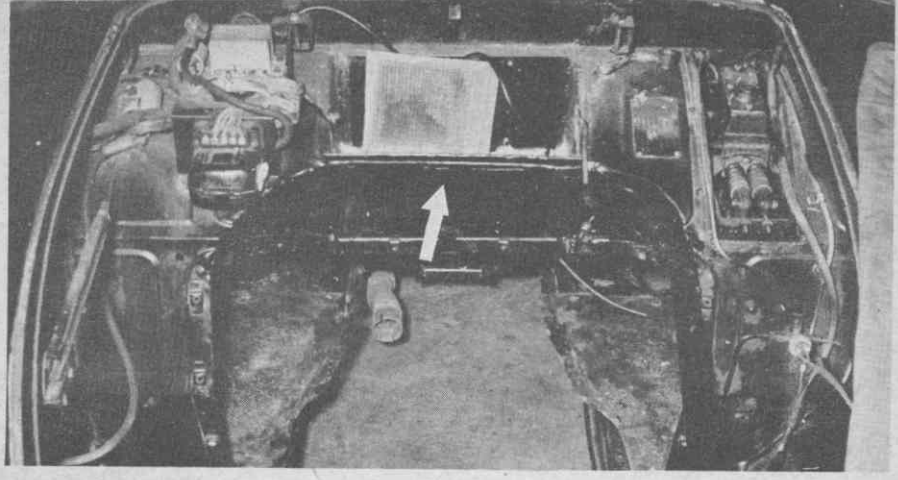


The tube cross-member had to be cut and refitted to clear the lower pulley.

Now install the exhaust headers and generator and drop the engine back into place. Standard exhaust tubing can be used to connect the headers to the existing tail pipe or, better yet, a new, twin-pipe setup installed. The rest of

The engine in place. The section which was re-worked to clear the generator is shown by chalk marks.





The re-worked firewall is shown by the arrows.

the installation is merely connecting the ignition, oil pressure, water temperature, etc. The original tach can be used by installing a mechanical takeoff (usually on the crank pulley) on the engine, or an electric tach can be substituted.

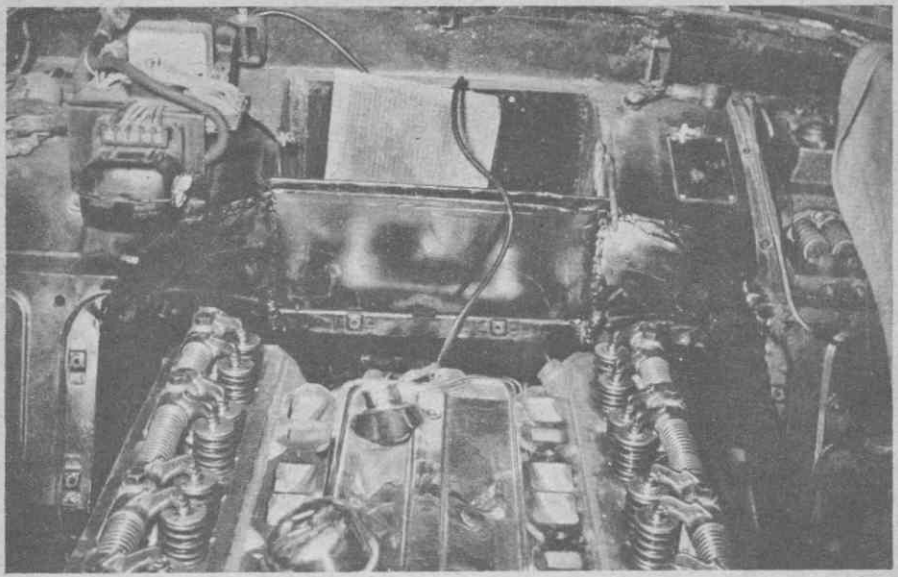
The radiator should be rebuilt to increase its capacity but, unless you plan on a lot of very slow driving, no fan is needed; a plain pulley can be used.

Since the car has a much greater top speed, the original brakes were removed and 12-inch Jaguar drums and assemblies were substituted. They can be installed without any reworking. The original rear axle was also a little light for the power so a '51-to-'53 Mercury unit fitted with the "Hi-Tork" limited slip differential was installed. With these modifications, the car weighs in at about 2300 pounds with 55% of this on the front. The tread, wheelbase and suspension are left untouched since they are suitable and can take the beating given by the Buick. And the Buick does give them a beating!

The engine has been bored to 4⅛ and stroked to 3⅜, bringing it to 322 cubic inches and about 350 h.p. at 5500 r.p.m. The heads are Buick with a porting and polishing job and fitted with lightened Buick valves and stock springs. The rocker arms are also stock units lightened, while the push rods and lifters are special light units. The valve train for each valve is a total of 100 grams lighter than a stock valve assembly which weighs about 360 grams.

The same attention to detail has been shown to the rest of the engine. Running a Winfield cam, dual coil ignition and 9 to 1 compression pistons, the engine turns a maximum of 6800 r.p.m. Two intake manifold setups have been tried; the first using three Ford 97 carburetors, and the present one, four 97's mounted on a reworked aluminum manifold.

The best top speed run with the car was 147 m.p.h., but this was with the 3.54 rear axle that's used on the street (and, incidentally, the same axle was used in the 0-60 and 0-100 acceleration runs). With a faster axle, Balchowsky calculates the top speed would be about 160. With 350 h.p. and a power to weight ratio of 6.4 to 1, that claim is believable! The Doretti-Buick proves that, if there *is* a substitute for cubic inches, it must be cubic inches plus handling. ●



The installation is an extremely neat one. Only minor body changes were required to make the engine fit.

This is the earlier carburetor setups, using three Ford 97 pots.