HEAD'S UP!

Ralph Head, a former Dallas Cowboy, builds a 289 'Stang to tear up the C/Gas record book

By ALEX WALORDY

THERE'S NOTHING phantomlike about Ralph Head. He stands well over the six-foot-three mark, and is a former end for the Dallas Cowboys in pro football. He still walks with an athlete's easy gait, even now that he has settled down to managing insurance sales programs. Of course, a fellow needs a hobby and so Ralph bought himself a 289 Mustang high-performance drag machine. His reflexes are like greased lightning and it didn't take him long to learn the fast way out of the gate, but winning was something else. It didn't help any when Doug Nash, "the world's fastest 289 man," quipped: "You couldn't beat my 289, not even with a 375."

The only answer was to rise to the challenge. If a high-performance Mustang won't do it, go one better with a super Mustang. "One man alone doesn't build record breakers," says Ralph. "You have to find a collection of different people, each an expert in his field. In other words, it's like football—you need teamwork." Ralph ran into Gene McCrickard of Trend Setter Products, one of Detroit's sharpest drag racing machinists. Gene, like Ralph, is a prime mover in his own right, and besides the two of them seem to make a career of knowing all the "Can Do" people in town. The end result is a machine ready to make tracks in C/Gas.

The word is Ford, all the way from the tip of its streamlined Mustang nose to the rear bumper. It has enough advanced changes to qualify it as a "1980 experimental." All front openings have been filled, except for the standard grille location. Behind it, there's a small six-cylinder Ford radiator, chopped down to grille height. That set of rocket-thrust nozzles poking at the hood surface are the neatest injector stacks we've seen to date. Under the car, there is a clean aluminum pan, and a suspension that will make you do a double take. It was designed by one of the finest engineers in the business, Bob Negstad, and this is probably as good a point as any to start describing the *Phantom*.

Bob Negstad began with a clean sheet of paper on the drawing board. Objective: a suspension with an extended travel for good front end lift and ample weight transfer, and yet no changes in front end geometry; wheels that roll straight ahead and stay straight up regardless of how high the nose of the car rises.

In a stock machine, the rubber pucks in the front strut and the bushings at the pivots allow some cushioning. The suspension gives like a fighter rolling with a punch to cushion the ride. Here, there is no rubber, no cushioning, and also no unwanted motions that detract from driving precision.

Bob Negstad's drawings were translated into metal by Tom Smith of Wolverine Diesel. This involved, among other things, the making of special welding jigs to accurately locate all pivot points. Both Tom and Chuck Clayton—an experimental car builder at Chrysler—produced an all-new suspension. The only stock items that remain from the original Mustang are the spindles. The spring towers are gone, replaced by box sections welded between the upper and lower rails of a rectangular tubing frame. Monroe Indy-type coil and shock suspension units deliver a full nine inches of travel—three down and six up. Added to this is a set of upper control arms fabricated from ¾-inch 4130 rod, and lower control arms made in the shape of inverted top-hat sections. The struts for the lower control arms are quite long, and extend from the front of the chassis on back. Chromemoly rods with Heim ball joints are at either end. Study the pics and you'll see why the strut pivots are at right angles to each other. Steering linkage pivot points are such that the front wheels are not turned, or toed-in by suspension motions. Also, the track rod now passes through a tunnel in the pan. We saw the *Phantom* take off arrow-straight from Detroit Drag-

It's a 'Stang, but it's not like any other! Ralph Head is the owner-driver.

This is one modern bod that's found its way into the Gasser ranks. Sharp take-offs are common with camber and toe-in always under control.

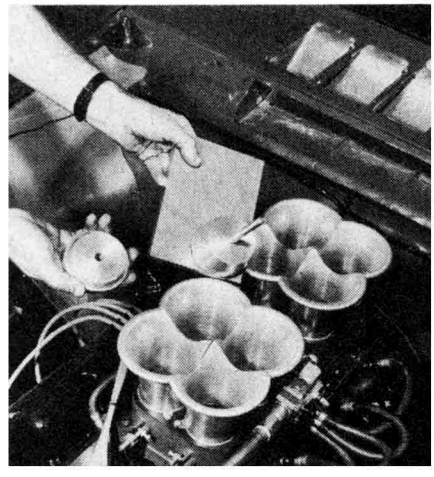
way's starting pad with the nose rising up in the air. There were no side motions at all during the shifts, just a straight down-the-wire run. "I just sit there and hold the wheel," says Ralph. "It drives itself."

Rear suspension includes a Watts linkage, high-performance Mustang springs and shocks, plus traction bars that are carefully fitted between the front spring eye and the axle housing. These bars, which are currently out of production, will work best when they form a tight fit between the spring eye and the axle. Chuck Clayton takes a static dimension between the eye and the axle and cuts the traction bars an eighth of an inch longer. They are wedged in and clamped in this position to take the arch out of the spring and keep the car out of power hop. Carefully form fitting those bars at both ends is also important.

A finishing touch was provided by Bob Negstad in the form of carefully-selected suspension pivot locations. By changing the roll centers—the theoretical points about which the car leans front and rear during a turn—Negstad was able to achieve a fine blend between the way the car handles with all four wheels on the ground, and wheelie driving off the starting line. In other words, you get straight travel without going sideways when you come down.

The impeccable aluminum work on this machine includes a belly pan from the nose to the engine and front suspension. The sides of the engine compartment next to the spring towers are also aluminum. There are even aluminum runners at what is supposed to be an air outlet near the

C/Gasser weighs 2540 pounds of which 1340 is at rear and 1200 pounds at the front.



Chuck Clayton, chief wrench, made steel jig to hold stacks while their sides were ban-sawed.

Aluminum panel replaces steel section between trunk and body. Chute riser line mounts inboard.

Glass front is masked for minimum air entry. All steel, including spring towers, was removed.

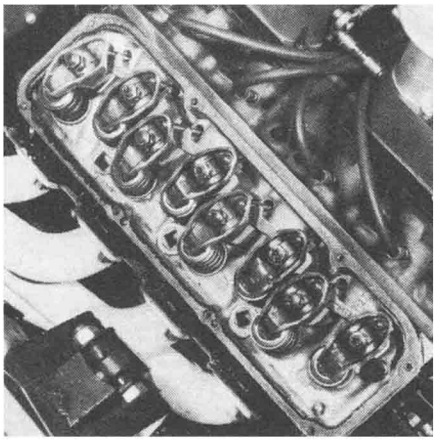
base of the windshield. Since that's normally considered the high pressure area, it's anybody's guess whether it's an outlet or really an inlet. You'll find still more aluminum at the trunk firewall and other strategic locations. Probably the neatest of all the aluminum pieces are the injector stacks. They are standard funnel shapes cut and matched to each other. This was no ordinary hack-saw job. To achieve the straight cuts in thin aluminum, Chuck made up an elaborate jig that supports the stack during the cutting and guides it past a bandsaw.

Lightest block in the Ford line-up is a 302 LeMans-type, and this is what the team picked since it saves a good 40 to 50 pounds over a 351. Before this engine got into Ralph Head's car, it propelled another machine into the high tens during the previous season, and has seen as much as 10,000 rpm.

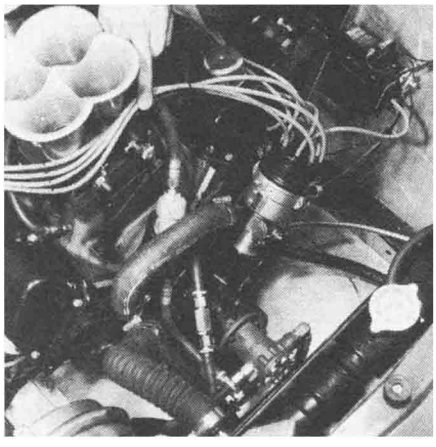
A Mickey Thompson ¾-inch billet crank, ground, indexed and Tuftrided by Bob Gillian of Moldex in Detroit, plus a .060-inch overbore, give a 377-cubic-inch displacement. The sized cylinders eliminated the need for grinding valve reliefs in the top of the block or the combustion chamber, but called for some trick work, such as 389 Pontiac moly rings. Adding to the stroke made it necessary to notch the bottom of the piston skirts to gain some clearance for the rod bolts on the opposite side. Longer-than-stock Mickey Thompson rods cut down on angularity but take up some of the room available at the top of the piston. Mehling high-capacity oil pump—a cast-iron replacement of the stock aluminum pump—is shimmed up, boosting the oil pressure to the 60-pound mark. Add to this a brand-new pan with a sump in the rear (reverse from stock) and a tunnel for the drag link just like on a Mopar Hemi, as we mentioned above.

The valve train begins with an adjustable sprocket at the end of the crank. Six sets of keyways allow changes of two degrees at a time from 0 to 10. Two separate sprockets are used, one for advance and the other for retard in an effort to match the pin that drives the front crank counterweight. Chuck Clayton explained that these timing changes could be achieved with replacement bushings, but you then have to bore out the cam gear and also go to a smaller drive pin, and the assembly becomes frail. With the offset keyways on the timing gear, a full-sized and more reliable drive pin can be retained. Both Ford and Racer Brown flat-tappet cams have been used, with Racer Brown getting the nod on this machine. Up top, are a set of rockers developed originally for the Trans-Am circuit. They have just been released by Ford's Muscle Parts Section. These are bathtub rockers of an unusually wide design which are fitted with short needle bearings on each side. The outer race of these needle bearings is shaped like a small doughnut and rotates slowly but continuously within the bathtub, evening out the wear. Credit for the valve job goes to Dick Corrunker. Dick matched the heads, manifolds and headers, did a little cleaning up on the ports, added PC seals to the valves and cc'd the combustion chambers.

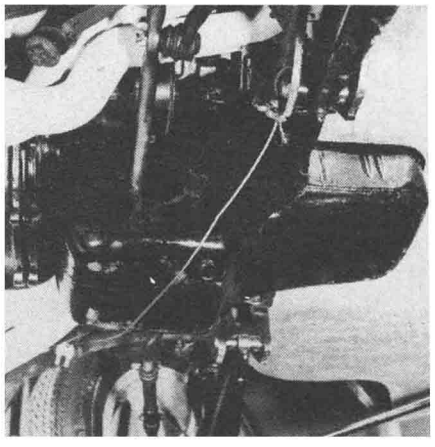
Manifolding and injection are unique. They began with a Ford manifold of a type designed to accept a pair of 4500 Holleys. Then Gene McCrickard made patterns and produced a set of castings to fit the manifold and accept big 2-7/16 throttles straight from a 58mm Weber. Passages in the casting blend with



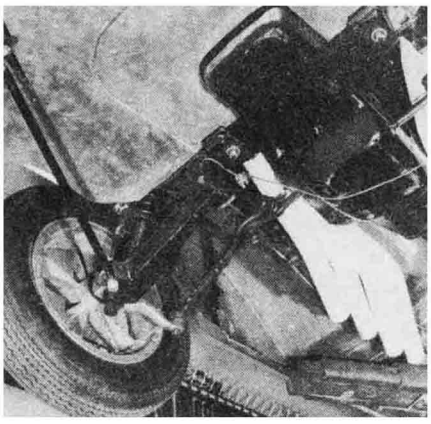
HP Boss rockers feature needle roller bearings and free-turning outer races for stabilization.



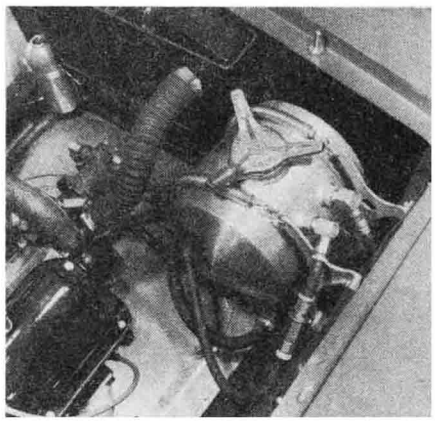
Unique and rare M/T adaptor enables distributor to be driven from front of mill.



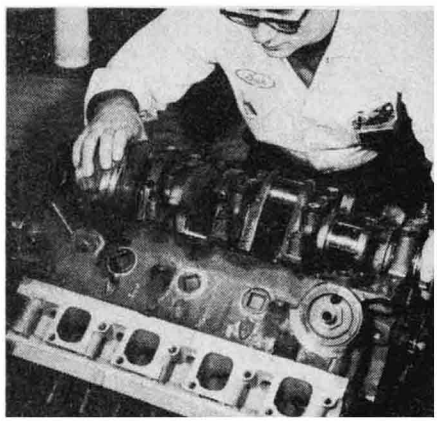
Tunneled oil pan makes room for drag link and keeps oil from the spinning crank.



Negstad designed this unusual front end and Wolverine Chassis' Tom Smith built it.



Fuel tank is mounted higher than pump to provide gravity feed and fewer air leaks.



Dick Corrunker gets the credit for blueprinting this 375-cubic-inch small block Boss.

the sweeping curves of the manifold. To retain flow smoothness even at part throttle, the butterflies spill the air to the widest portion of the manifold ports. Since the runners are symmetrical, the throttles must open opposite to each other and this is achieved by a pair of sector gears. Four short throttle shafts are coupled to each other with linkage made by Jim Kinsler of Kinsler Fuel Injection of Roseville, Michigan.

The Kinsler unit is flow-tested on a bench to match the engine's requirements. Three separate pills control the fuel flow at different engine rpm—a far better way to tailor fuel delivery than a single pill. Jim also produced a remarkable barrel valve with a steel body and a steel barrel. The two are carefully fitted to eliminate leakage losses and to offer better fuel control. Fuel injection nozzles are targeted toward the center of the port in the direction of the air stream. Just to make life more interesting, the *Phantom* crew keeps a running log of pill changes for different altitudes and air density so that the engine can be zeroed-in quite rapidly.

To handle the tremendous torque of the ¾-inch stroker, two clutch plates are used instead of one, and at the same time the clutch diameter was cut from 10½ down to 10 inches. Chuck Clayton explained that the 10½-inch cover is relieved at the bolt area and not as strong as the ten-inch cover. Besides, cover stresses increase with the square of the diameter. Adding the extra floater and clutch disc—Schiefer, of course—made it necessary to space the bellhousing back by 5/16-inch.

You also can't push this much torque through a 289 transmission, and it, too, went through quite a change-over. Since the 428 and 289 guts are interchangeable within the same case, several trips to the parts counter were in order. The 428/427 input shaft accommodates the extra length at the clutch and is used in conjunction with a 427 throw-out bearing. Any good clutch man will tell you that a twin disc is no good for high-rpm shifts because it offers too much drag and chews up the synchros. The answer? Get rid of the synchros. It's a click-click shift where the teeth have

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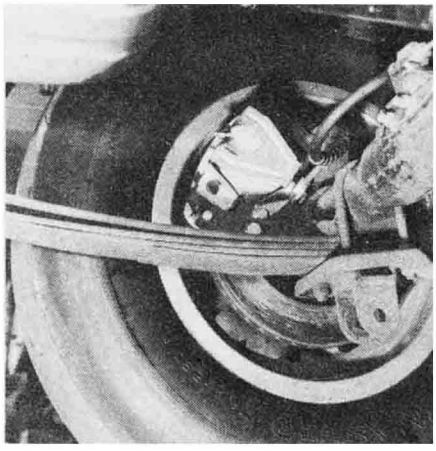
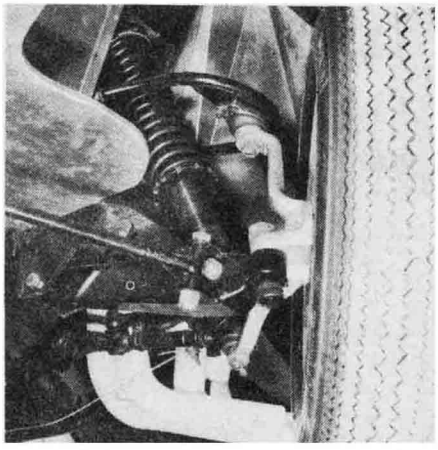
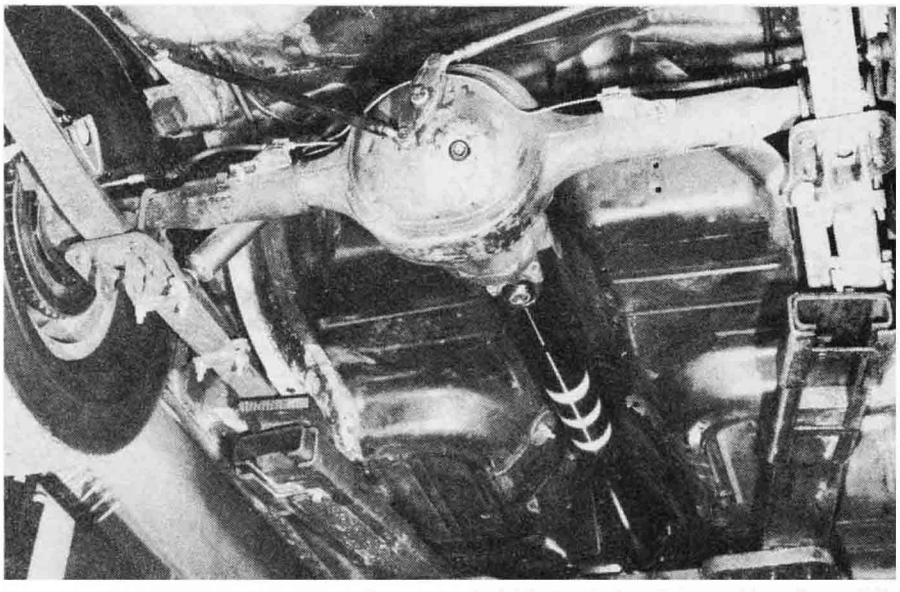


T-Bird disc brake calipers float on special support brackets because of clearance problems.



The wheels always remain straight, even during wild front-end lift-offs.



Traction bars clamp-on above the spring and form a tight fit between axle and front spring eye.

could be the best thing that's happened to American drag racing in a long time.

We hear the Perfection Gear people (Zoom gears) will soon be marketing 6.43 gearsets for the big Ford and Chrysler rear axles, where the highest ratio available in the past has been around 6.20.

This is silent evidence of how tight the guys are winding their modified engines on the drag strips and circle tracks. These boys have been demanding these 6.43 gears for more than a year. They will permit engines to peak in the range of 8500 to 10,000 rpm in the traps on some of the lower-class Gas and MP machines. With the usual 5.87 and 6.17 gears these peak speeds might be limited to 7500-8500 rpm. This is still above the peak of the power curve; but the racers are learning that best ets are achieved with a very stiff overall gear ratio coming off the line and by winding well *over* the peak of the power at the finish line. This gives the quickest jump out of the hole with the latest super-traction tires.

Will the day come when we'll need 7-to-1 axle ratios for some of our drag cars??

PHANTOM
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been machined from the blocker ring and all you hear is a little blip as the engine buzzes up.

The driveshaft is four inches in diameter in the front, and necks down to three inches at the rear to couple up with the standard high-performance rear. From there the power is relayed through 5.43 gears and a Detroit Locker to a set of American Mag wheels.

Stopping power is supplied by a pair of T-Bird disc brakes and calipers at the rear wheels. The T-Bird calipers were picked because they are bigger than those of a Mustang and have to be supported by full-floating brackets. This is essential since the axles always have some end play and the caliper must float with them. To locate the brackets while welding them to the rear axle, Chuck Clayton applied air pressure, automatically centering the caliper on the disc to hold it in place. Because of wheel clearance problems, the disc and its hub are fastened to the inside of the axle flange, while the wheels bolt onto the outside. Supplementing all this brake work is a Simpson chute.

The *Phantom* is a trick machine which will earn more than its share of races. It is also bound to earn the supreme compliment of any race car: lots of imitations.

HANGING OUT
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like to hear about is really very old—quality control. Detroit is so busy creating new things to keep the public interested in their cars that they devote little of their efforts and money into building a really good car that doesn't begin to fall apart as soon as it's driven out of the dealer's showroom. They'd rather design a new bird emblem than work on the problem of wheels falling off.

When the car execs are confronted with the quality-control problem, they'll usually tell you that no other manufacturer—both domestic and foreign—produces a more bug-free car in a given price range than they do. They'll tell you that their level of quality-control is at least on a par with all the others. In other words, they're telling you that they are average, and that average is good enough.

At one preview, I was told about an amazing new breakaway rear-view