

AT FIRST GLANCE it looks like any other sleek Olds 442 straight from the Lansing assembly line. That gold paint glitters in the sun, but then you kind of expect gold paint on a machine driven by Dave Landrith of Hurst Performance Research. Then Dave steps on the gas, the tires light up and the car just explodes forward.

"Hey, wait a minute, Dave. You're supposed to light up the rear tires, not the front ones..." Front wheel drive? A Toronado in disguise? It's really all very simple. George Hurst, the king of the fast shifts, is seldom content with just another ordinary car. Look at his succession of wheelstanding Barracudas, four-wheel-drive Toronados or desert crossing Jeeps and you'll know exactly what we mean. This time Uncle George wanted his own toy, a fast sure-footed road car, and specified a 442 with a front wheel drive. By the merest coincidence the Toronado spots the 442 by fifty-five cubic inches, which enhances performance, and the boys plan to help along the Toronado engine still further by installing a Forced-Air package and doing a

FOUR

FIVE

FIVE

442

their extreme offset give away the show to a trained observer, but from a distance the wheels look like just another set of fancy wheel covers. Should you make with a tape measure, you would find that the wheel base has been stretched to 114.5 inches instead of the original 112. A little additional tape measure work would tell you that the front wheels have moved forward 2½ inches, while the rear wheels remain in the stock 442 location. It would take a sharp tech inspector to tell the change by looking at the sheet metal. Even rapping against the side of the wheel opening won't do it, for Hurst uses the services of a body man who doesn't work with Bondo.

Dave Landrith of Hurst Performance Research in Detroit, the man who masterminded this particular project, put the car up on the hoist to show us the details. The drive train is all Toronado, including the engine, transmission, chain drive and the torsion bar suspension. All of this is mounted on a standard Toronado frame that ends just ahead of the rear wheels. From there on the aft

Hurst's latest engineering achievement involves the problems of stuffing a 455 CID front-wheel-drive assembly into a 1968 Oldsmobile 4-4-2

end of a 442 frame takes over.

One frame problem was to clear the 442 floor pan and leave room for the driver's feet. It seems that the Toronado frame has an upsweep which would have called for notching in the front of the floor pan. Most ordinary people would have been content to do so, but not Dave Landrith. He recontoured it to clear the floor, then added sections to the underside of the frame to restore full strength. Small 442 frame extensions welded to the Toronado frame carry the bumper. As you can see, the basic undercarriage was fairly straightforward—but carrying out the details certainly wasn't. On the Toronado, with an extra foot of hood length to work with, the engineers had no trouble packaging the engine and air conditioning within the allotted space. (Every once in a while styling does do something nice for engineering.) Shoe horning the same pieces into the 442 engine compartment with minimum intrusion on the passenger compartment called for moving the front wheels forward, as we mentioned earlier. A little extra room for the chain

SUPER STOCK MAGAZINE



LEFT—Paul Phelps of Hurst Performance Research in Detroit shows off the Oldsmobile air cleaner, clearly labeled "Toronado." Even though the front-wheel-drive machine has plenty of power now, plans call for installation of the Olds Forced Air Induction kit, and a complete blueprint job on the 455 CID mill. ABOVE—Externally, there are very few clues to the wild nature of the beast. Frame joint behind front wheel is a single clue.



blueprint job.

The machine is built for street use and so in all fairness we have to compare it to both a street 442 and to a street Toronado. Shipping weight on a 442 is a good 1000 pounds lighter than on a Toronado. Now, 25 percent less weight, plus 55 extra cubic inches does help performance. The Four Four Toronado carries considerably more weight up front than does a 442, but at least now the weight is in the right place, over the driving wheels. As a result, traction under street and dirt road conditions is better. Compared to a Toronado, the weight distribution is not quite as extreme, thanks to a less massive front end and a shorter wheel base, so that handling should be, if anything, more pleasant than a Toronado. A Toronado with a softened suspension does tend to a little excess understeer, which this machine wouldn't have.

Among the little things that add to the driving pleasure is that the 442 is not as garishly styled as the Toronado. This one has also retained a very stock appearance. A set of Toronado wheels with

drive was gained by the firewall. We might add that the small loss is far overshadowed by gains, since the tunnel and transmission hump are completely gone, and we can only hope that the center console will leave too. The new flat floor pan sections are stiffened by thin-walled "inverted top hat" cross members to keep them from drumming.

With the engine backed into the firewall, there still wasn't enough room, until changes in the front inside sheet metal allowed the radiator to move forward. Even the stock air conditioning

core proved too big and had to be reshaped. The fan spacers are gone and so are the elaborate fan shrouds, since there is neither need nor room for them. A Toronado engine is offset an inch and a half toward the right from the center line of the car, which was a help in clearing the steering post. Still, the exhaust manifold on the left side had to be cut and rewelded. (It must be typical of Hurst workmanship, but the only way you could tell where the weld was made is by the fact that the casting is ground slightly smoother at the spot.) The other

ABOVE LEFT—Complete Toronado front end, including frame, torsion bars, chain drive to front wheels, and the big engine, was fitted in and under the 442, and once in place, the whole assembly looks like it belongs there. This alone is a tribute to the ingenuity of Dave Landrith, Jack Watson, Paul Phelps, and the rest of the Hurst crew in Detroit. ABOVE—One of the earliest steps in the project was the elimination of the entire floor pan tunnel from front to rear, substitution of flat steel sheet. Even more of the interior space of the 442 could have been saved by eliminating the floor console.

FOUR FIVE FIVE 442

exhaust manifold was modified to make room for the air conditioning compressor.

The rear suspension borrows from both the 442 and the Toronado. Gone, of course, are the ring and pinion and the cast iron of 442. Instead, all you'll find is a 3½ inch tube with Toronado spindles at each end. A Toronado has a dropped axle with a deep offset that gains some trunk space. However, the offset results in extra leverage which acts on the suspension, and so it was eliminated together with the Toronado single-leaf spring and its complex dual shock absorber control. Normally, one set of shock controls vertical motions, while a pair of horizontal shocks handle spring wind up. On the Hurst machine, the 442 control links and their frame brackets are retained, and some extra brackets connect the links to the tube axle.

Now when a car is completed, you just take it out on a short road test and hand the keys to the new owner . . . We wish it were so, but have you ever heard of a car as drastic as a Front-Wheel-Drive 442 which didn't have a few bugs to work out? Under a normal Detroit proceeding, they would send out a small fleet of test cars, each with its own crew of experts to do the job. At Hurst, the boys that design it just roll up their sleeve and go to work.

One of the problems is that a 442 has

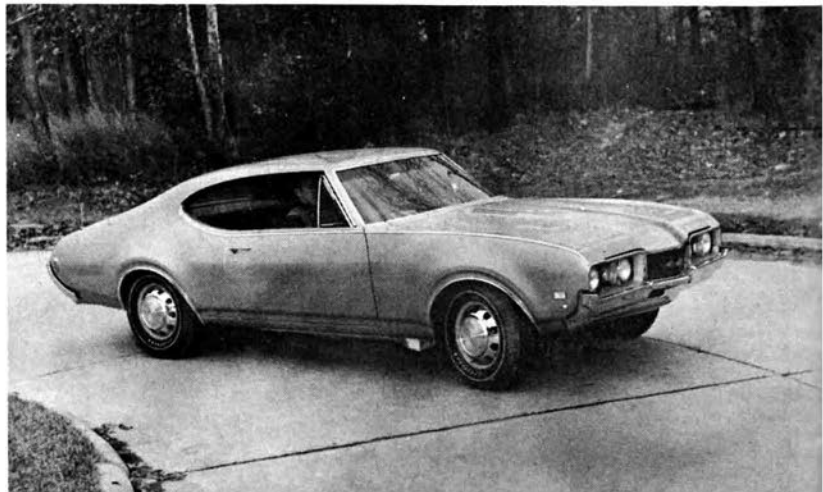
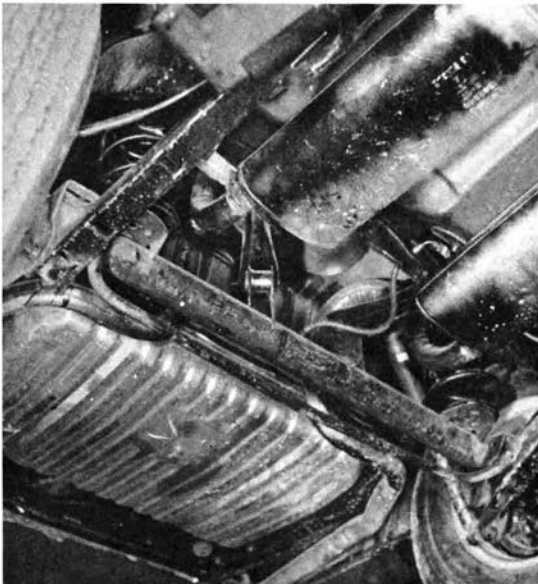
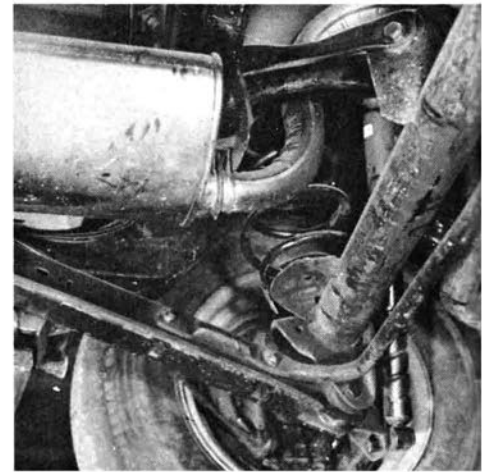
ample weight at the rear and so when the brakes are applied, there is still enough loading to maintain traction, and keep the rear wheels from locking up. With the transmission and differential weight transferred up front, the rear tends to pick up more readily, hence a better chance of locking up the rear wheels. This calls for a different brake balance between the front and rear (different wheel cylinder sizes) and a proportioning valve.

As mentioned above, the Toronado has leaf springs and its pairs of dual shocks which help eliminate spring wind up and brake hop. The 442 suspension was originally tailored for hard take-offs. In its new use it promptly ran into brake hop, meaning that the rear wheels would start bouncing and chattering during hard braking. This was cured by reworking the rear suspension linkage and relocating some of the control arm pivot points. The brake problems were worked out in a few weeks, but we mention it by way of telling you that a project like this isn't easy, not even for Hurst.

The new Four Four Toronado is superior to either a Toronado or to a 442. More performance, more traction, improved cornering, better handling, added maneuverability, everything. Yet there's a question that remains. Could it have been done better? Or at least differently?



LEFT—Front overhang on 442 is almost two inches less than overhang of big Toronado. BELOW LEFT—The 3½-inch Toronado tube axle was retained, but suspension had to be altered to provide better braking action. Oddball shock setup from Toronado was changed. RIGHT—Rear coil springs are the lightest-duty units available, but they work well with altered suspension pivot points. BELOW—Cornering, acceleration, and turning were improved vastly.



Surprisingly enough, the answer is yes, and what's more, the Hurst boys had already done so on a previous occasion, possibly without even realizing it. You see, the Toronado package, compact as it is, lends itself just as well to a rear engine design as to a front engine and drive. When Hurst built the Hairy Olds with two engines and four wheel drive they had already done a very creditable job of installing the engine in the back and we're almost sorry to see that they didn't produce this car again, in a single-engine form.

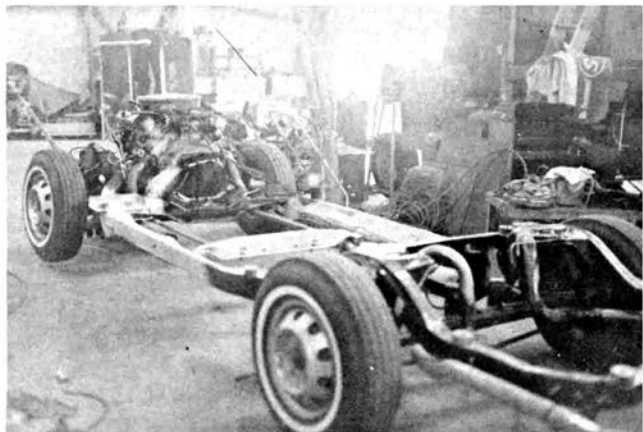
You see, a rear-engine, rear-wheel-

drive using a Toronado package would have some striking advantages. First, considerable traction. More so than anything on the strip today. Secondly, a chance for a very low front end with good visibility—after all, there would be no engine to control the hood height. Then, too, during braking the weight distribution tends to straighten itself out much better than with a front wheel drive, for weight is transferred to the front.

Space between the rear wheels of any car is pretty dead, simply because it's inconveniently located for storing bag-

gage and made shallow by the rear axle motions. Here, this space would be effectively used by filling it with the rear engine. Up front you would have nothing but storage space with a long silent hood. The radiator and air conditioning unit could remain up front and the extra expense for connecting coolant hoses would be minimal.

After all, look at the variety of cars Hurst has built to date: front wheel drive, two engine and four wheel drive, one engine and four wheel drive, mid-ship engine and rear wheel drive. Now for a rear engine and rear drive. ■



ABOVE LEFT—The project started with a Toronado chassis, which was modified front and rear to mate with the 442 body, but retained drive system layout. ABOVE—Conversion altered front of Toronado frame enough to get 442 body and bumpers to fit, and the end result was an increase in wheelbase of 2.5 inches to 114.5 inches. LEFT—Dave Landrith, Hurst Detroit engineer, is the guy who thought up the project. Here he shows the spot where Toronado frame (front) joins 442 frame. BELOW—At the extreme front of the engine room, some of the sheet metal had to be trimmed away to make the radiator fit in right.

