



THE ACCELERATION of any car is a close function of its pounds-per-horsepower ratio. The lower the weight, and the higher the bhp, the quicker it accelerates. That's elementary.

But for years Detroit played only one side of the street—the horsepower side. Factory engineers have done everything under the sun in the last few years to bleed more horses out of their Super/Stock engines. And they've done wonders. Pulling 500 reliable horses from only a little over 400 cu. in., using all factory production-line equipment, takes some doing. But when you put these engines in 3700-lb. cars they have to work hard: that's a lot of weight to lug up to 110-115 mph in 1320 ft.

Now, in just the last year or so, Detroit has started to recognize the weight problem. The first aluminum front end panels and bumpers were seen on the 1962 Pontiac 421-cu. in. drag package. Later in the year, Chevrolet came out with some aluminum panels for cars in the F/X division. Then Ford showed up with aluminum and fiberglass at Indianapolis last fall. Finally, Dodge and Plymouth announced body lightening programs last winter. As this is written you can buy special lightweight Super/Stocks from most of these companies—which are presumably legal in the stock

division on any NHRA or AHRA drag strip this summer.

There's a little more to the background that also should be thoroughly understood. After Pontiac started the weight-cutting trend a year or two ago, and Chevrolet and Ford jumped in with extra vigor last summer, NHRA officials started to get uneasy. They could see this new "weight race" becoming a very expensive headache for the factories, and a headache for NHRA tech men to police. For instance, Ford's experimental package last fall included not only a lot of aluminum and fiberglass, but the regular body panels were special thin-gauge steel. The car was 500 lb. lighter than a stock Ford. Obviously, producing such a car in quantity on the assembly line (to make it eligible for the stock classes) would be prohibitively expensive. And yet if one company went this far the rest would be forced to follow to stay competitive. They would go further and further and it would become more and more expensive and impractical. Soon

Drag Strip Diet

*Peeling Pounds off Super/Stocks
Perks up Quarter-Mile Performances.*

BY ALLEN HUNT

the small-budget companies like Dodge and Plymouth would be frozen out.

Furthermore, there was the consideration of safety. As the cars were lightened more and more, it was inevitable that the structure would be less rigid in a crash or roll-over. NASCAR officials banned the new lightweight bodies from track racing last winter. NHRA officials had to clamp down a little on this aspect, too (though straight-line drag racing isn't anywhere near as dangerous as racing at 150 mph on an oval track).

The solution proved to be quite simple: stipulate a minimum pounds-per-cubic-inch ratio for all competing stock cars. Since there was already a maximum cubic inch limit (427 cu. in.), and all the Super/Stocks were

LIGHTWEIGHT FRONT-end package for Dodges and Plymouths, including fenders, hood, stone shields, bumper and brackets, reduces weight by 150 lb. over steel parts.

right up against this limit, this would establish a fixed minimum weight and thus prevent any wild weight race. The NHRA officials agreed on a minimum shipping weight equivalent to 7.50 lb. per cubic inch. Thus, for the maximum 427-cu. in. engine size this would give a minimum weight of $7.50 \times 427 = 3200$ lb. This minimum would give the lightweight Dodges and Plymouths a chance to trim off 150 lb. or so; the Chevrolets could take off 300-400 lb., and the heavier Fords and Pontiacs could legally trim 500 to 600 lb. to get down near the 3200-lb. limit. It was felt that this arrangement would be most fair to all concerned. And the factories seemed to be satisfied.

Since the above weight rule was announced, another bombshell has hit the drag racing scene. Word filtered out (though not officially) that the GM front office was forcing the Chevrolet and Pontiac divisions to get out of racing. Fear of government anti-trust action and restrictive safety legislation moved the GM top brass to pull in their horns on any activity that might bring public criticism on the safety angle. Word was that Chevrolet and Pontiac had been ordered to quit producing their special racetrack and drag strip cars with the big dual-4-bbl. engines and hot camshafts. This, of course, would include the new lightweight bodies. The top performance options from then on were to use hydraulic cams and thus be suitable for everyday street driving. (Other performance options like 4-speed transmissions, heavy-duty suspension, aluminum brake drums, special gears, and limited-slip differential, would still be available.) Presumably the top Chevrolet engine would be the 409-cu. in., 340-bhp job with single 4-bbl.; the top Pontiac would be the 421-cu. in. block with Tri-Power and 370 bhp.

Actually, things aren't as black as they seemed. For one thing, both companies have already built enough of their special drag strip jobs—at least 100 units—to make the models legally "stock," and to carry the Chevrolet and Pontiac banners on the nation's drag strips this summer. They are being sold only to qualified drag men who have a good chance of being winners. However, it is not known whether either or both factories will try to sneak a few hot ones through the production lines now and then. There may be a small trickle of supply. The division managers were not consulted on this latest GM anti-racing move. Neither S. E. (Bunky) Knudsen nor Pete Estes (of Chevrolet and Pontiac respectively), it is understood, were in favor of the move. Getting out of

racing can be expected to hurt their performance "images," and thereby cut their sales in the lucrative "youth market." The Fords and the Chrysler products could pick up a lot of those sales. So Chevy and Pontiac couldn't be blamed if they didn't exactly cooperate wholeheartedly with the new ruling. And finally, of course, minds can change overnight. Who knows but what this whole deal will blow over by the time they have to tool for the 1964 models? This shortage of factory racing cars may be a very temporary thing.

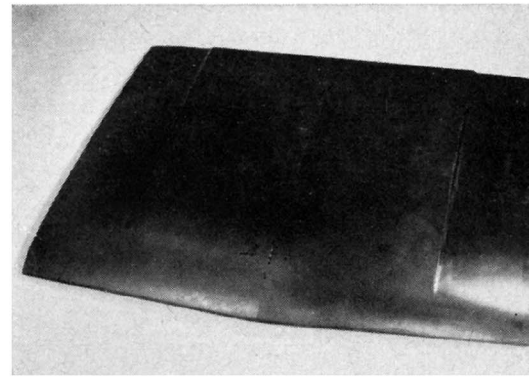
That is the background behind the current situation in the Super/Stock ranks. Now let's have a closer look at what each company has to offer for the '63 season:

Chevrolet

Chevrolet's new drag strip package is based on the Impala sports coupe body and is available only with this body. The aluminum components include the hood, front fender inner and outer panels, front and rear bumpers and brackets, grille splash panel, fan shroud, battery tray, grille mounting bracket, and the hood-lock latch.

The light components save about 140 lb. of weight as compared with the standard steel parts they replace. And, of course, most of this weight is right off the front wheels—where it will improve traction most. (Traction is helped by reducing the percentage of the total car weight on the front wheels; thus, removing weight from the front end is much more valuable than taking it off the rear.) We had a chance to weigh one of these new lightweight Chevrolets recently. It went 3520 lb. with water and five gallons of gas and spare tire (but with no radio or heater). This could easily get down to 3400 lb. without the spare tire, and with some of the insulation, sound deadener and sealer pulled out of the body, although the factory didn't go to the expense of doing this for the buyer.

It might also be mentioned that this package (designated No. RPO Z-11) comes standard with the new 427-cu. in. dual-quad racing engine, rated 430 bhp at 6000 rpm. It's strictly a factory racing car. The aluminum body parts cannot be obtained with any smaller engine. The latest 427 racing engine uses the Mk. VI cam and valve gear, new high-top pistons that give more breathing area around the intake valve and a compression ratio of 12.5:1, new cylinder heads with slightly smaller ports (for more ram velocity) and an improved high-riser intake manifold that gets the passages up off the



FORD'S NEW fiberglass hood (above) and front fenders (below) are among parts that shave 164 lb. from drag cars.



cam chamber so they run cooler (for a denser fuel-air charge). It's pretty easy to get this brute to over 500 bhp with a little fine tuning. A number of owners have hit 120 mph on the drag strip with the above Z-11 package. However, the very new wedge-type cylinder heads for the 427 block—first seen at Daytona in February—won't be available for drag strip cars this summer. (They put out even more than the current flat heads, as witness John Rutherford's Daytona lap speed of 166.1 mph without a draft.)

Dodge-Plymouth

A number of the current '63 Dodge and Plymouth models have official shipping weights in the 3300-3400 lb. range. They probably could stay competitive without bothering with light aluminum panels. But it is to the credit of these smaller divisions that they chose to go all the way—to give their buyers every ounce of performance they possibly could. This new Dodge-Plymouth lightweight package consists of an aluminum hood, front fenders, front stone and splash shields, and aluminum front bumper and brackets. The total weight saving is about 150 lb. The new light hood weighs only 22 lb., and both front fenders total only 19. The complete car with the aluminum front end (either Dodge or Plymouth) will weigh

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only a few pounds over the minimum 3200 lb.—with five gallons of gas and spare tire out. The result is the best possible weight/cu. in. ratio.

The new hood design has made possible another very important hop-up feature. They've put a huge air scoop in the aluminum hood, and then put risers on the tops of the carburetors that seal against the scoop chamber with thick, soft gaskets. Thus, the engine takes all its intake air from the scoop. This not only gets cool, dense air to the engine, but there's a slight ram pressure at higher speeds. (The carburetors had to be re-calibrated to allow for this.) The cool air alone should add 15 to 20 bhp to the net engine output on the drag strip.

They also put the heavy battery back in the trunk on the new package. This gets about 1.5% more of the car's total weight on the rear wheels for traction. It's a very complete package, and should be tough to beat in both the S/S and S/SA classes this summer. (The Warner T-10 4-speed is now available for the Stick class.) I also hear that Chrysler engineers are working on more new speed equipment

for the big 426-cu. in. engine—improved cylinder heads, cams and intake manifolds. The stuff will be released

as soon as the lightweights start getting beaten fairly consistently.

Ford

As mentioned earlier, Ford will not build replicas of those fantastic F/X cars that ran at the NHRA Nationals in Indianapolis last fall. Their weight of 3220 lb. would be legal under the latest rules, but the cost of the thin-gauge steel, etc., would be prohibitive. Instead, Ford will compromise with about half of that original experimental package. This includes fiberglass hood, outer front fender panels, front door panels and rear deck lid—plus aluminum front and rear bumpers and brackets. The total weight saving is said to be 164 lb. under equivalent steel parts. Fiberglass isn't quite as light, part for part, as aluminum, explaining the modest weight saving. The complete package, with the new 427-cu. in. dual-quad engine and 4-speed transmission, would run about 3550 lb. with light fuel load. Pulling the spare tire and some of the body insulation could easily drop this another 100 lb., maybe more. The new lightweight Fords will definitely be competitive on the weight angle. (And

there are other tricks that Ford engineers can pull in a hurry if the competition gets too rough.)

The big question now is whether the latest 427 engine can come up with the brute horsepower to do the job. NASCAR mechanics are certainly getting the power for the racetrack jobs (look at Lorenzen's lap speed of 165.9 mph at Daytona). But the S/S Fords didn't look good at the 1963 NHRA Winternationals at Pomona. Maybe the backyard mechanics can work this out with a little more time.

Pontiac

There's no question that Pontiac is offering the most complete and carefully-engineered drag strip package coming out of Detroit this year. Not only have they lightened the weight radically, but the whole suspension system is specifically tuned for traction, the weight distribution is much better, and a number of important engine improvements have been made. It's just a pity that not many will be able to own these cars, due to the limited availability under the new GM ruling.

Start with the weight problem: Last year's S/S Pontiacs, with aluminum hoods, front fenders, bumpers, radiator brackets, etc., still weighed a shade over 3600 lb. with five gallons of gas. That's a lot of car for the drag strip. But now they've made radical changes

for '63. The exhaust system is lightened by using the new cast aluminum split-flow exhaust headers as standard equipment on the drag package. These save 45 lb. over the original cast iron design, but they'll melt if you run them under sustained full throttle. Another 20 or 30 lb. is saved by using only one exhaust tailpipe and muffler assembly, with a crossover pipe from the left bank header to the right pipe. These cars are not designed to be run on the street, so there's no need for an efficient dual exhaust system. More weight is saved in the drive line by using an aluminum bell housing, transmission tailshaft housing and rear axle center section casting. (Most buyers specify the aluminum-case Warner 4-speed transmission anyway.)

They've chopped weight out in big chunks on the frame and body. The standard "perimeter" frame has box-section side rails running along the body edge. The bottom side of the box is removed and the side panels are punched full of huge holes. The frame looks like so much Swiss cheese. The body shell does not use the thin-gauge steel, as rumored. But they have stripped every bit of the insulation, sealer and sound deadener padding out of the body. This saves nearly 100 lb. on a quality car like the Pontiac. Another 40 lb. or so can be cut with a dealer-installed kit to replace all the

glass with light plexiglass (Lucite) panels.

The Pontiac factory quotes a weight of 3308 lb. on this package without water and gas, and with the standard glass windows. We weighed one at 3363 lb. with water and four gallons of gas, which agrees very closely with the factory figure. With spare tire out and the plexiglass windows this car will weigh less than 3300 lb., ready to race on the strip, putting Pontiac below Chevrolet and Ford on weight.

And they haven't neglected the horsepower. The latest 421-cu. in. engines are bored 0.010 in. over, have slightly larger head ports, and new combustion chambers that give 12:1 compression ratio with flat-top pistons. (Or this would be over 12.5:1 with minimum tolerances on chamber volume and deck clearance.) Optional 13:1 domed pistons are available for dealer installation. The No. 10 McKellar cam is being continued, as they haven't found anything better for the drag strip. When everything is right these brutes can kick out over 500 bhp at 5500 rpm. Put that kind of power in a 3300-lb. car, and it has to go.

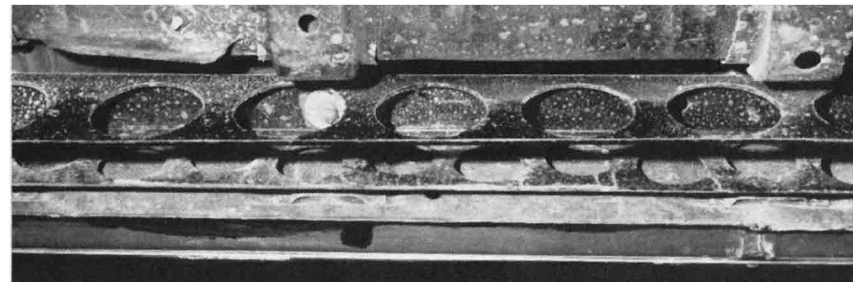
And that's not all: the suspension and weight distribution are tuned for the strip. The rear coil springs are actually softer than stock, and the rear shocks have no compression control (damping resistance on the down

stroke). This lets the body settle back with the least resistance when the car jumps off the line. Also, the front shocks have no rebound control—to let the nose of the car rise, and get the engine mass up there for more front-to-rear weight transfer. The car really lurches back when you gun it, but it bites. Moving the battery from the engine compartment to a position in the trunk, over the right wheel, puts 46.5% of the total car weight on the rear wheels with five gallons of gas (and spare tire in). In addition, special 7-in.-wide rims are supplied with the car to mount the big 9.00-14 cheater slicks they use in the S/S classes these days. It all helps that traction, and that's what wins drag races.

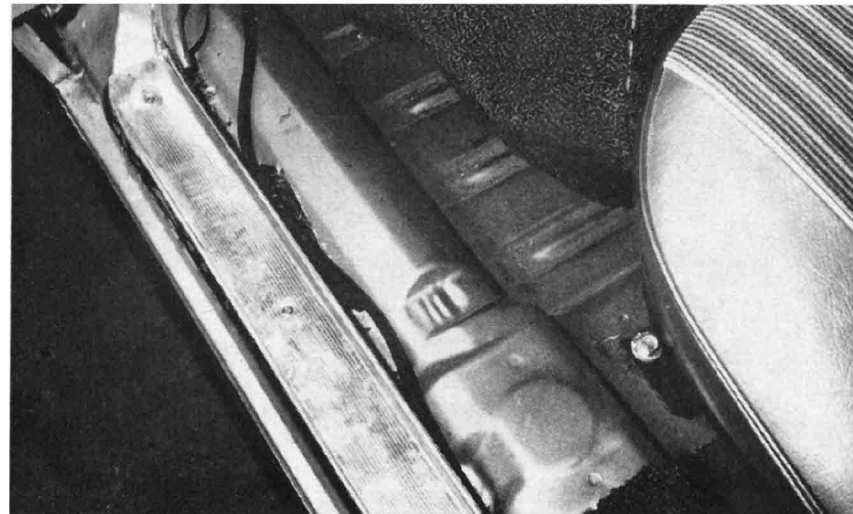
It's quite a package, and one that's bound to be right in the thick of the battle this summer. A lot of experts were predicting that Pontiac would be out of the picture this season because of excessive weight (even with last year's aluminum panels).

Time will tell how the season will go. Don't put too much stock in the results of the recent NHRA Winternationals. None of these new lightweight jobs was considered "stock" at Pomona, since not enough had been built and distributed to give everybody a fair shot at them. It will be early summer before we'll see what they really can do. ■

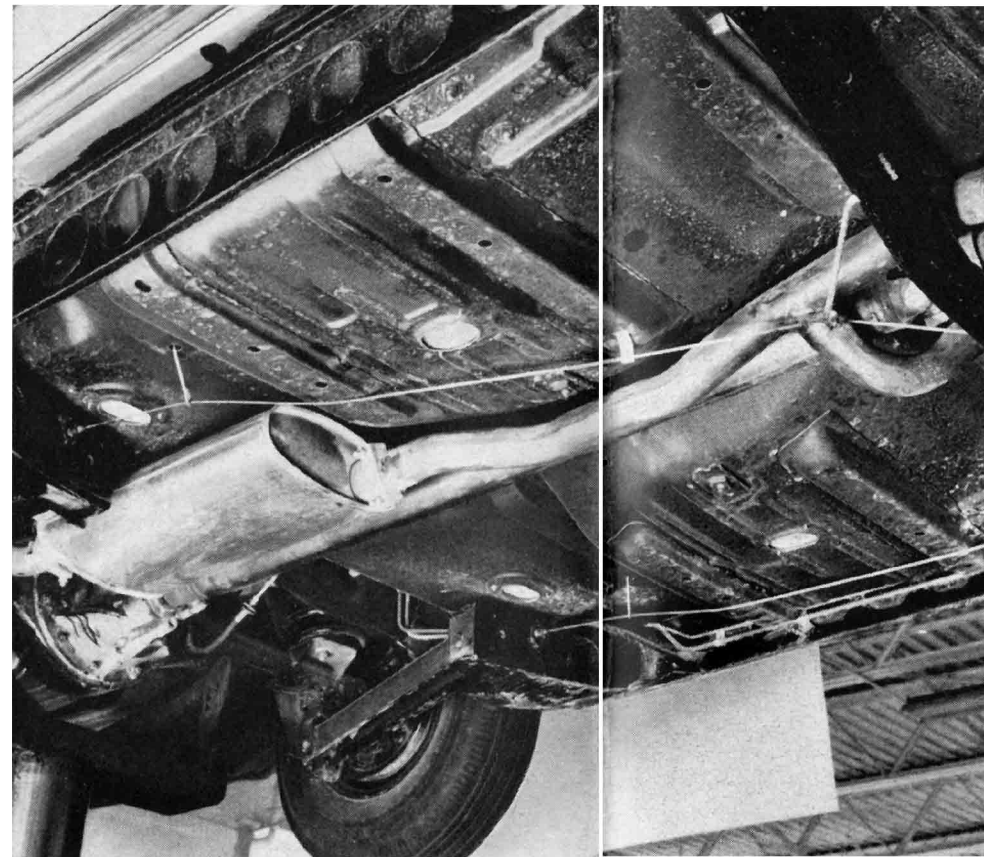
PONTIAC BOX frame side rails have bottom removed, sides punched with holes.



INSULATION AND sound deadener have been stripped from the Pontiac S/S body at the factory, thereby eliminating some 100 lb. from this somewhat weighty contender.



SIMPLE SINGLE exhaust cuts weight.



HEAVY BATTERY is moved over right rear wheel by Pontiac for better weight distribution.

