

As Ken Miles has pointed out in these pages ("Build it Right," SCI, April, 1958), hanging things onto big frame tubes is difficult and adds bracket weight. More important, the size of the tube required to give the torsional rigidity obtained by the Echidna box rails would be considerable. And, as Miles points out in the same article, caution would indicate that the tubular crossmembers be of the same heftiness as the fore-and-aft pieces. The tubular ladder frame is far from simple and not nearly as light as it looks on paper. And it has to be made, invented, contrived, cut, and welded — in circles. Ninety per cent of the Echidna frame can be picked up for a song at your nearest "vintage" American car lot.

A space frame would beat it on weight, of course. But even the bravest special builder thinks twice about leaping into space frames. Torsional rigidity, with the cockpit and engine cutout problems, is difficult to obtain. Complexity can be appalling. Sound welds on thin tubing can bring strong men to tears. The tube is expensive. The Echidna approach works.

The frame alone has never been weighed. The 5.5 pound figure was obtained from a piece of sectioned siderail removed in the shortening process. But it is impossible to believe it can weigh in excess of 125 pounds complete with cross pieces and *all* brackets — engine, suspension, radiator, exhaust, battery, etc. Not bad from your local wrecking yard considering the kind of horsepower and torque it escorts from 4.5 to 5.5-liter engines.

#### FRONT SUSPENSION

The Echidna suspension is a derivative of the frame choice and shares its unconventionality for a racing machine. The familiar ball-jointed Chevrolet unequal-length A-arms and shortened coils hang in front. The bulky-looking, stamped A-arms appall the paddock aficionados. Grierson weighed them before embarking on the fabricated tubular A-arm route: The stock arms send the scale soaring to just 7.5 pounds each. The stock A-arms are used because of their weight, their light weight.

One of the more startling Echidna innovations is present in the front suspension. Once again it is the iconoclasm of Ed Grierson that is responsible. He reasoned that while it is very true that a sports car is a road machine, a racing/sports car is a road *racing* machine. It is unlikely to be used on public highways and it is certain that any Midwest racing circuit encountered will have a majority of right-hand curves. "So, I figured," Grierson says, "why not 'set it up' for right-hand turns?" Thus, the Echidna features a front left wheel with severe negative camber. It is quite apparent to the eye, a matter of several degrees, and obtained through the use of a handful of Chevrolet front suspension shims. Upsetting to the purist and to the traditionalist, but the Echidna approach works.

Furthermore, there is nothing freakish about left-hand cornering. Staver, a hard, fast driver who has driven the most Echidna miles, says, "Set up this way, I treat left-handers with no more and no less respect than with orthodox camber. On right-handers, I can take a flatter, faster line. If the negative camber gives us half a second or a second a lap and reduces some of the machinery strains, it's been a good experiment."

Don Skogmo, the Midwest's most successful D-Jaguar pilot with many years in Allards, shared Bill Larson's Echidna in last September's Road America 500. His comments on Echidna handling are interesting: "All the arm-chair experts including myself had questioned the handling quality of these cars. We had attributed much of their success to the owners who are all excellent drivers. When I got in this car I expected a rather ill-handling hot rod. Boy, was I wrong! One of the finest handling cars I have ever driven was a four-port Riley track roadster. The Echidna has many of the fine handling qualities of a good track

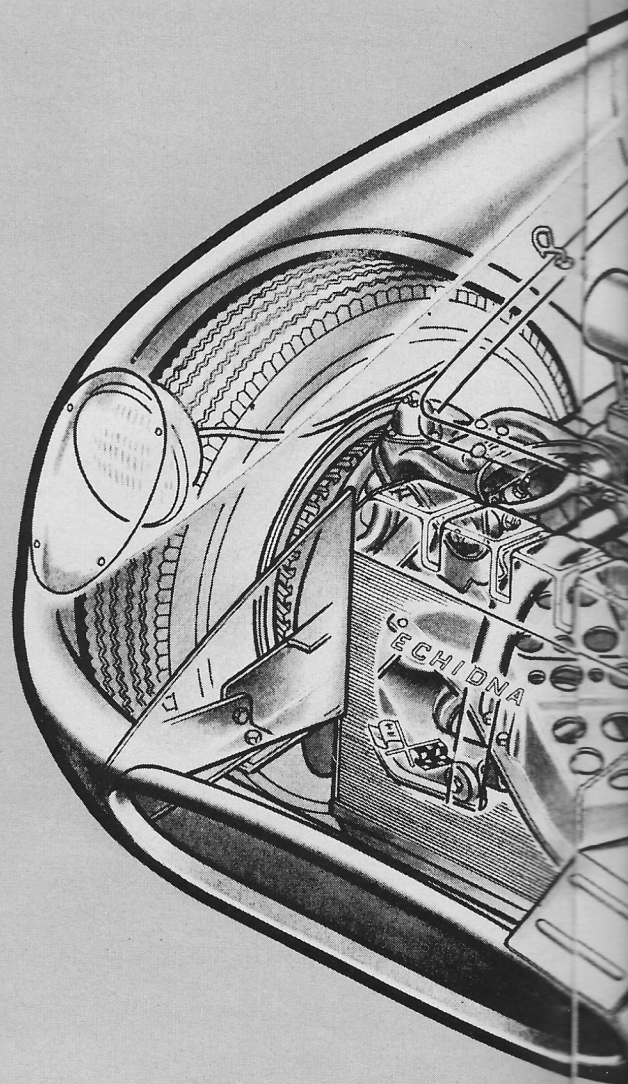
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## ECHIDNA SPECIFICATIONS

### ENGINE:

Displacement .....	339 cu in, 5550 cc
Dimensions .....	Eight cyl, 4.00 x 3.38 in
Compression Ratio .....	11.5 to one
Power (est.) .....	340 bhp @ 6500 rpm
Valve Operation .....	Pushrods, roller tappets
Idle Speed .....	900 rpm
Piston Speed $\pm \sqrt{s/b}$ .....	
@ rated power .....	3990 ft/min
Fuel Recommended .....	Super-premium
Mileage .....	8 mpg
Tank Capacity .....	36 gal
Range .....	290 miles
Induction .....	Rochester fuel injection
Exhaust .....	Each side: Four tubes, 1½ in dia, 32 in long joining into one tube, 3½ in dia, 43 in long

## SPORTS CARS





# CHASSIS:

Frame.....Modified 56 Chevrolet passenger car  
 Wheelbase .....93 in  
 Tread, F,R .....52, 50 in  
 Length .....158½ in  
 Height at cowl .....36 in  
 Ground Clearance .....6 in  
 Suspension: F, ind., 56 Chev. Coil and wish-  
 bones; R, rigid axle, coils, Watt link,  
 4 trailing arms.  
 Shock absorbers, F, Gabriel telescopic  
 R, Monroe coil-shocks  
 Turns to Full Lock .....1¼  
 Steering .....Morris Minor rack and pinion  
 Tire Size .....F, 6.50/6.70 x 15;  
 R, 8.00/8.20 x 15  
 Drum Brakes .....Corvette-Bendix  
 Cerametalix linings  
 Swept Braking Area, F,R .....172, 138 sq in  
 Weight (bone dry) .....1928 lbs  
 Percentage on Driving Wheels .....46%

# DRIVE TRAIN:

Gear	Syncho?	Ratio	Step	Overall	Mph per 1000 rpm
Rev	No	2.26	—	8.36	10.1
1st	Yes	2.20	32%	8.14	10.4
2nd	Yes	1.66	27%	6.14	13.8
3rd	Yes	1.31	31%	4.85	17.5
4th	Yes	1.00		3.70	22.9

Final Drive Ratio: 3.70 to one, with Posti-  
 traction.

Price

\$7500

Manufacturer:

Grierson Automotive  
 Specialties  
 Bunker Road  
 Hibbing, Minnesota

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