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THE FREIGHT TRAIN

By Dave Scott

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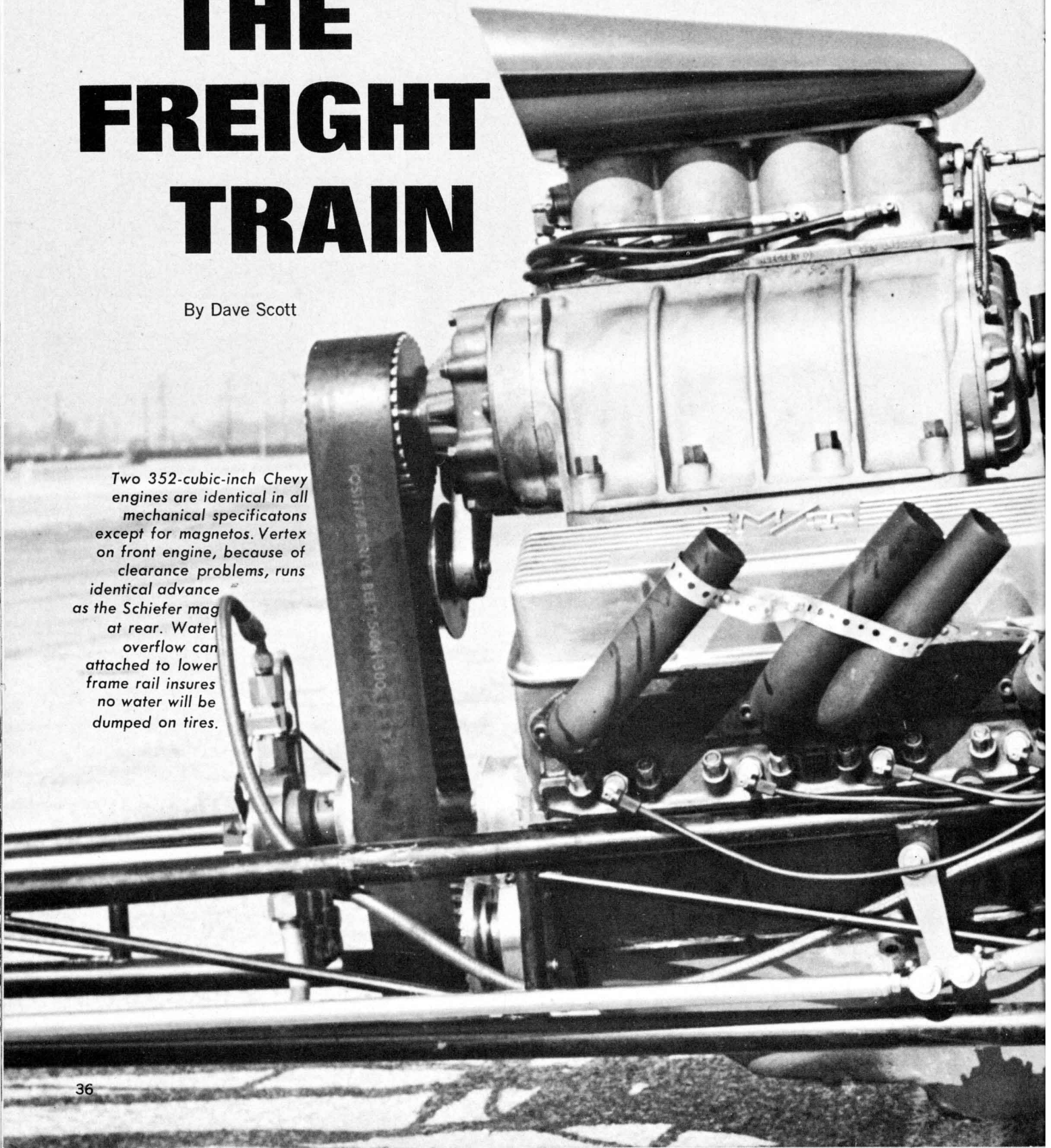

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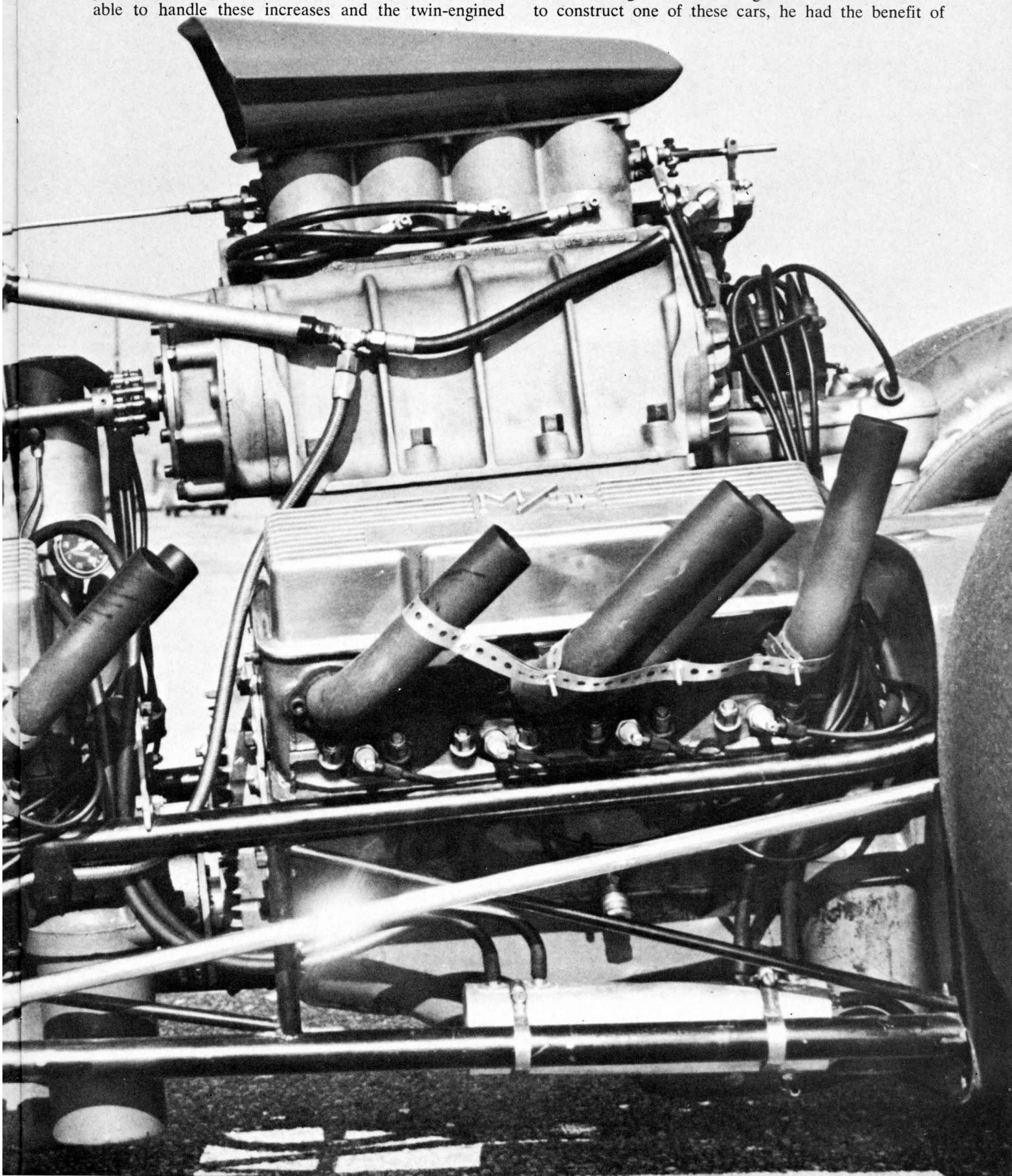
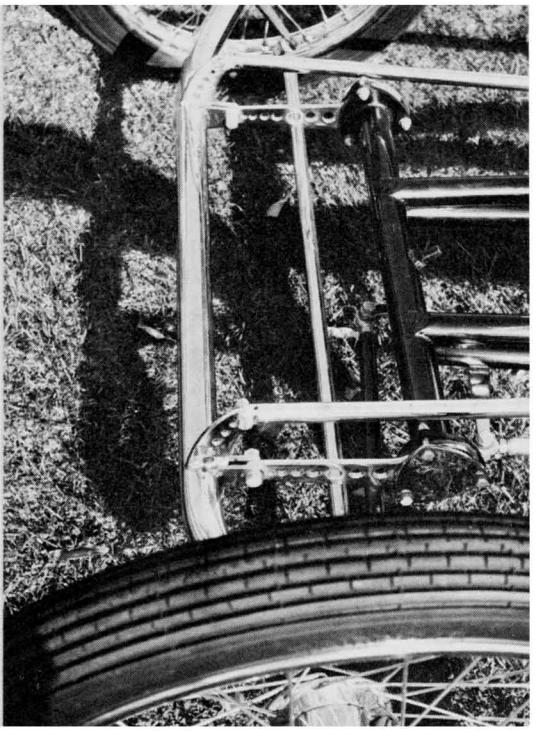
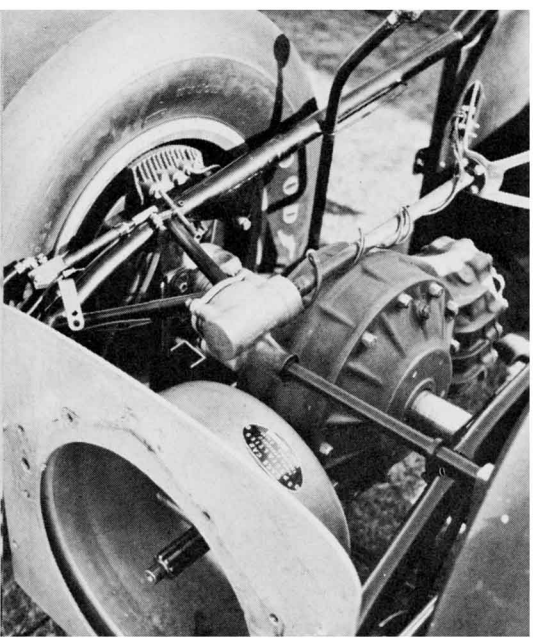
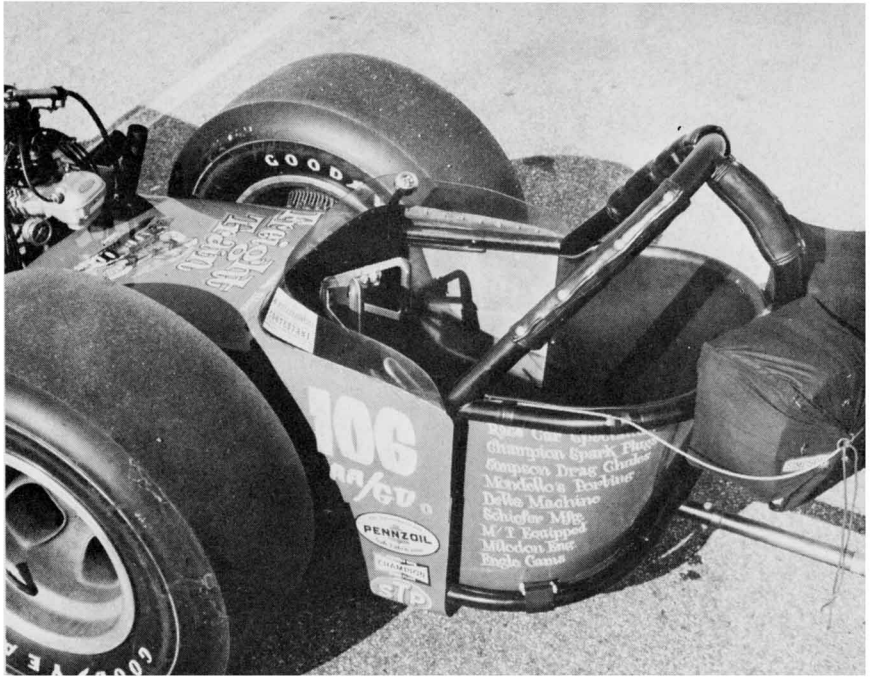




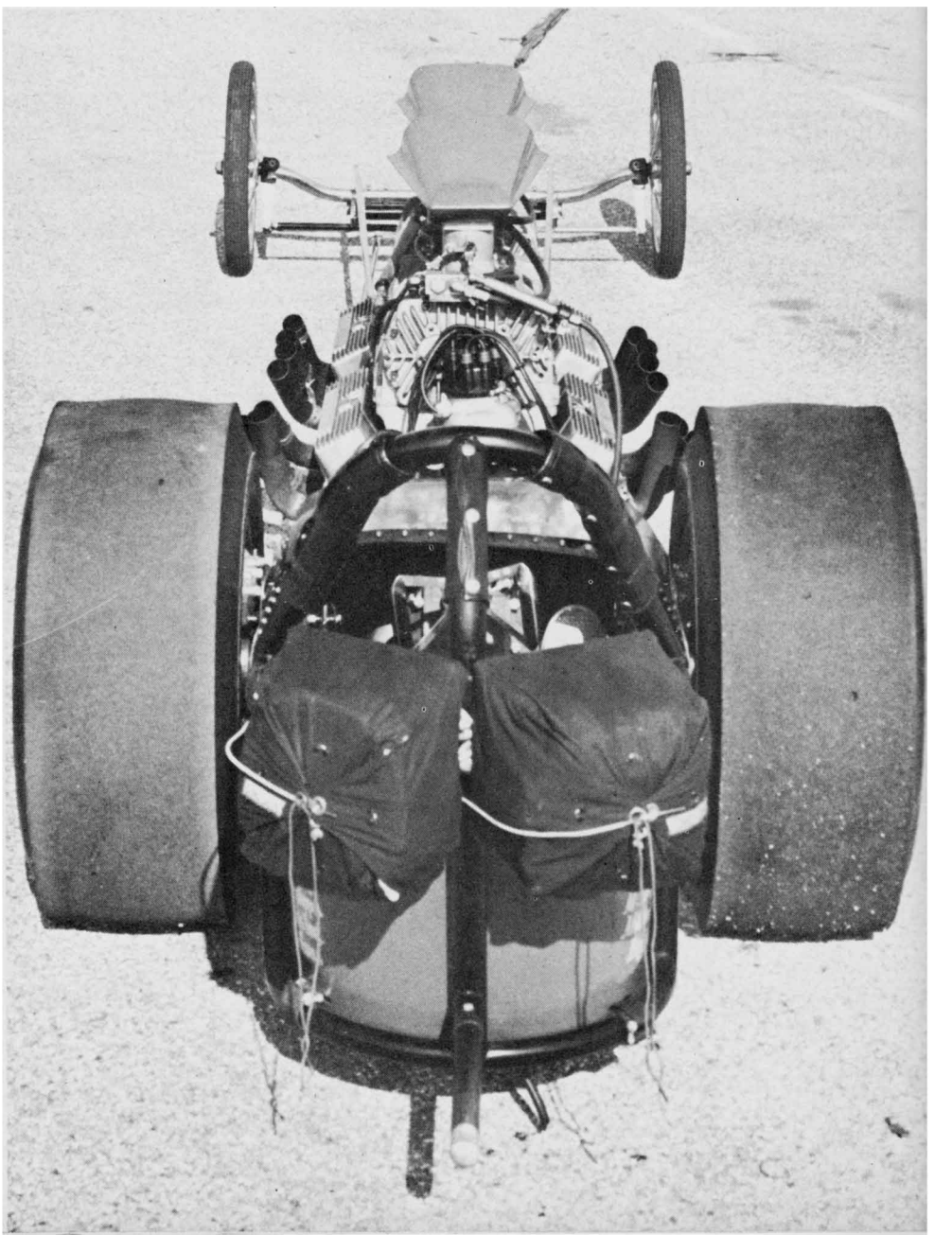
Axle, made of 4130 1 ½ x .150 tubing, carries wheels built by owner from own hubs, Triumph TT spokes and rims. Tire pressure is at an extra low 15-20 lbs. to give a larger tire contact area necessary for directional control of a locked rear-end car without differential action.



Halibrand quick-change center section and side plates are utilized. Gears are not changed. Quick-change was used to get 3.96 ratio for strength and engine location. Solid one-piece axle was made by Race Car Specialties and Milodon from 3/16-inch wall 4340 tubing.



Owner made lightweight body himself from .040 3003H half-hard aluminum (above). Dual chutes are eight-foot Simpsons (below).



understanding the problems and shortcomings of the earlier cars. There had been many types: in-line tandems, side by side, four-wheel drive, cases of different engines used, one being a now famous crew from Bakersfield that had a tandem car with a blown Chevy and a blown Chrysler. For his first decision, John chose to keep his power output within reason by running two Chevys with a single front-mounted 6-71 blower feeding both of them. The car was an instant success. It took over at a time when most builders had thrown up their hands in despair and faded away.

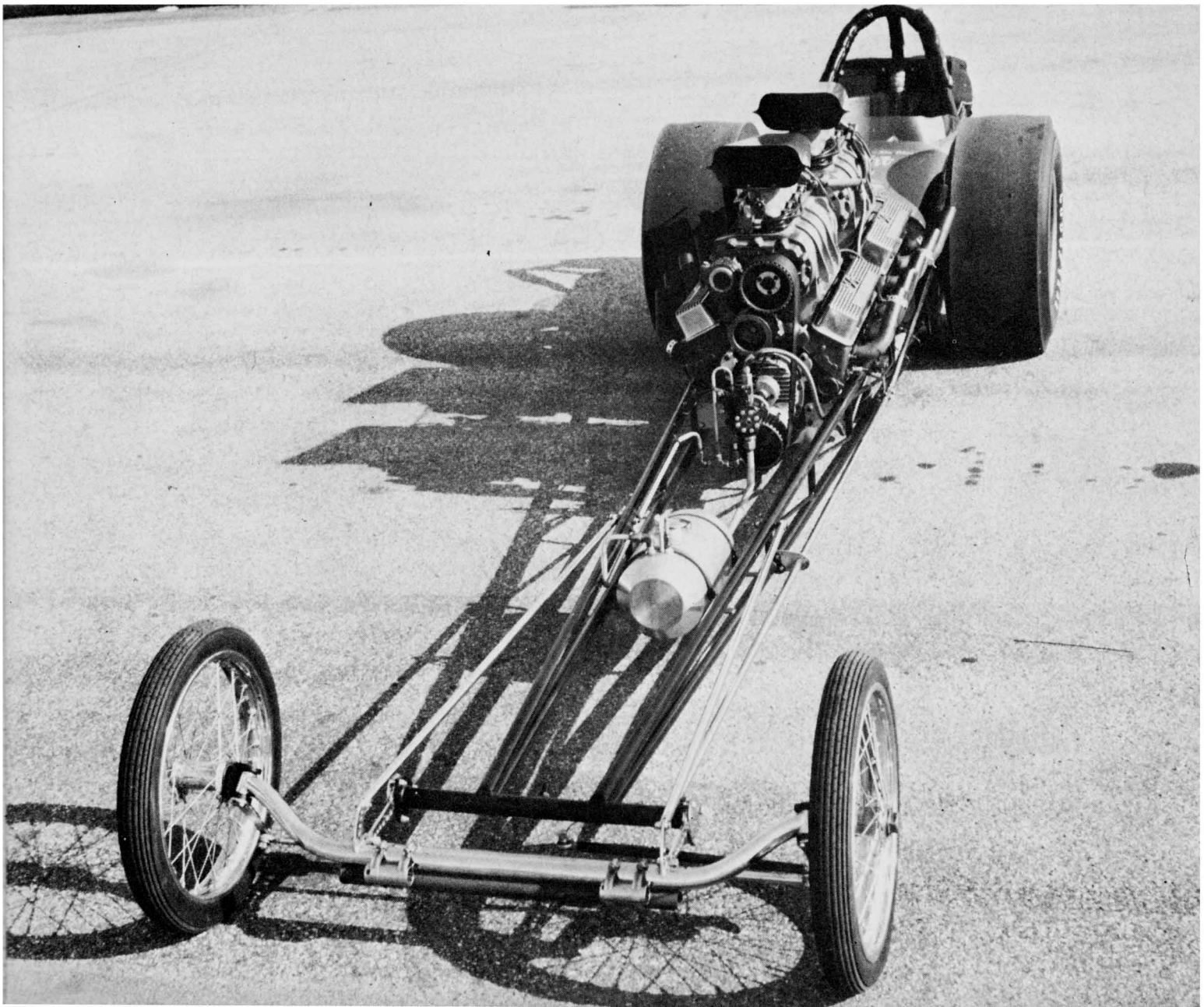
In the next two years, the car's engines were given their own top-mounted blowers, and brought down to 331 inches. The chassis was fitted with a sophisticated coil spring front suspension to increase weight transfer, a feature that the other twins had never had. As the tires began to improve, the suspension was limited until it was tied down altogether. During the years that the "Train" had been improving, a significant change overtook the single engine gas cars.

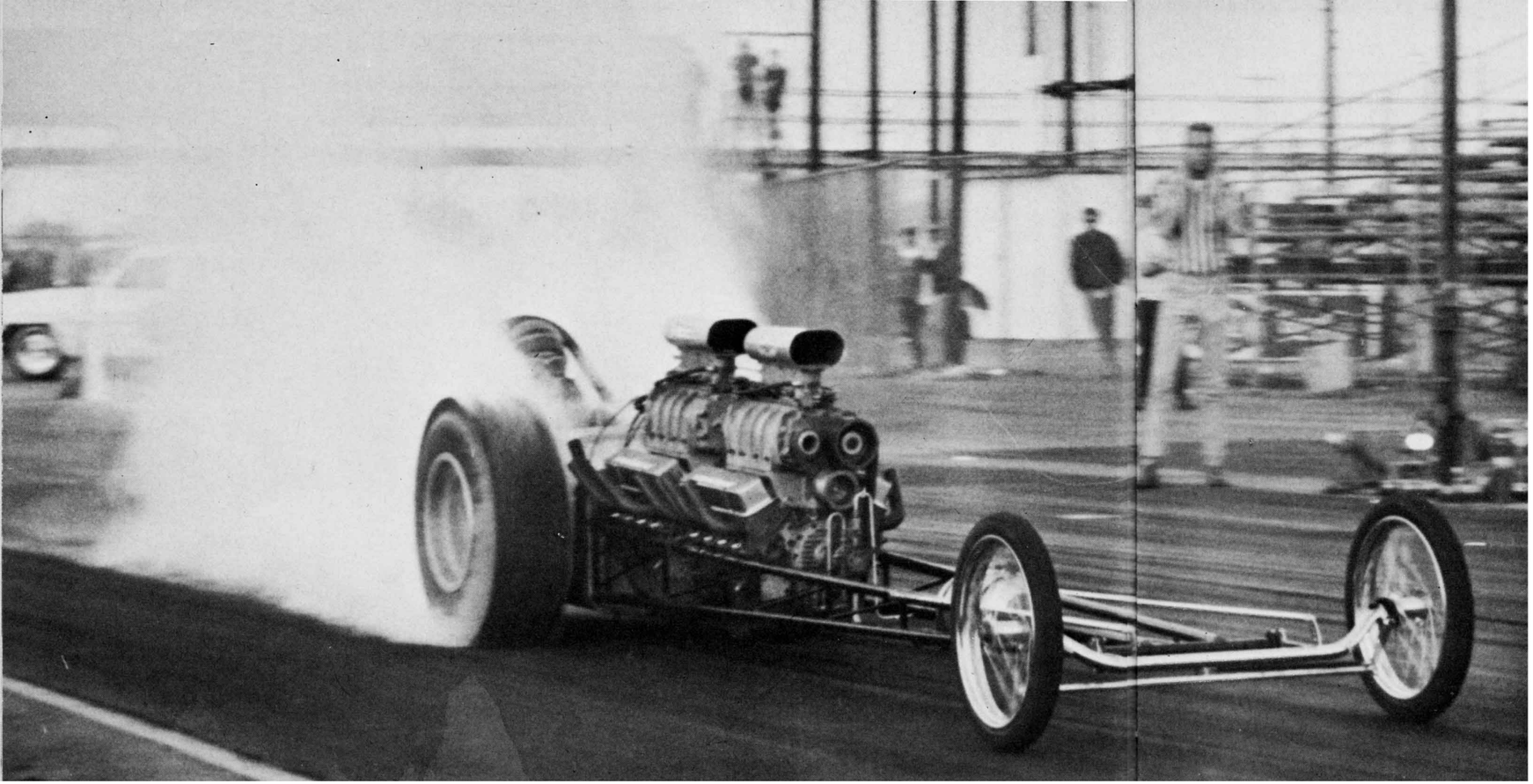
Prior to 1961, both the Chevy and Oldsmobile powerplant had been popular among the West Coast racers. The method of driving them was to ride the clutch until the car was well under way. In the summer of '61, both Connie Kalitta and Gordon Collet made trips to the coast and astounded the natives with their gas Chryslers and their unusual driving techniques of smoking the tires. All previous theories were forgotten as the West Coast racers began to switch to this type of operation. It took several years for the single engine cars to fall back, regroup and begin to compete on any kind of equal basis with twin engine cars.

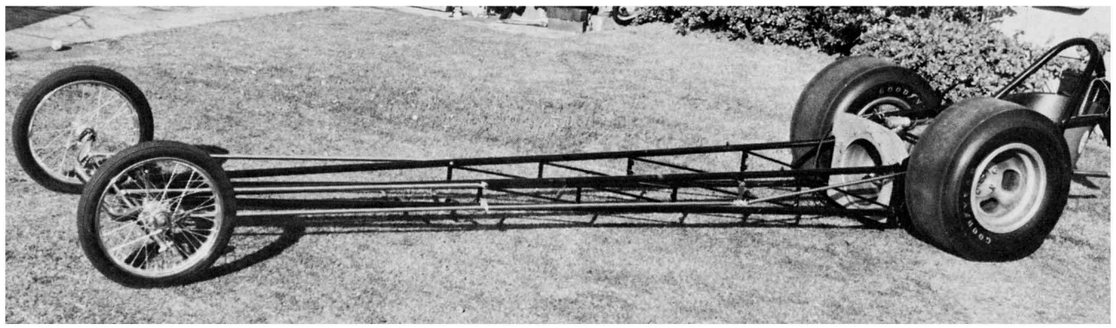
By late 1964 both age, chassis weight and modern technology began to indicate that it was time to put the old war horse out to pasture. John and driver Goob Tuller began to make plans for a newer and lighter car. To keep their hand in, they built themselves a small 950-lb. single-engine blown Chevy car to run. It promptly acquired the title of "The Hand Car." This car would enable them to keep up with the tire and equipment changes until the bigger car could be finished, also providing a mobile dyno for the twin's engines.

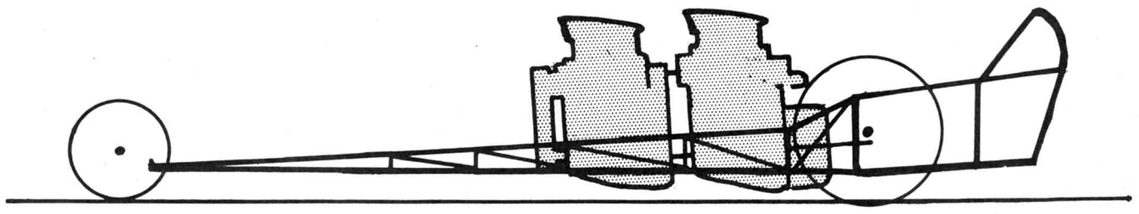
John had already decided on and proven the value of small engine principle in the earlier car, but he felt that the tire improvements and a lighter chassis would put him far beyond the reach of the fastest gas Chryslers. At the current time most Chrysler cars employ 460-480-inch engines and short 3.60 or 3.90 gears but can only pull 8.20 tires. John

Because of compact chassis, most people are surprised when the big "train" comes into view. It's no larger than the blown Chrysler cars. Big twins are quite rare now.



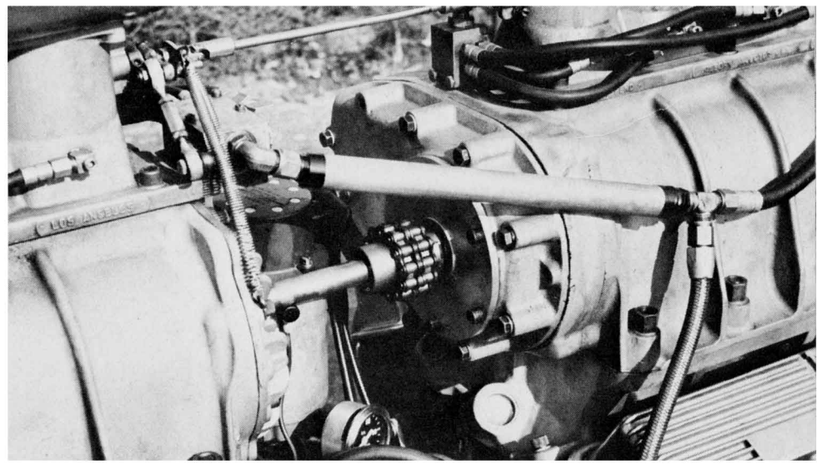






Owner John Peters did assembly of frame himself. Tubing, all 4130 chrome moly, was supplied by Race Car Specialties.

Concentration of weight of the two engines keeps back of car on the ground, eliminating one wheel drive problem.



View of the engine and blower coupling drives. Top unit employs No. 40 double roller chain; bottom is identical except sprockets are a larger diameter.

knew he would have the advantage with his two small 352-inch Chevys, which in conjunction with short gear, would allow him to pull a huge 11.00 tire. He could detune his engines for a slippery strip but the gear would keep the engines far enough up the power scale to do the job. Estimating that he would have 1200 horsepower available, John knew the big tires could get it to the ground efficiently. Only two other gas cars are currently featuring these big tires in their combinations — Jim Minnock's 497-inch (426 Hemi) from Virginia and Gordon Collet's 470-inch (392 Hemi) from Ohio, both Chryslers.

It definitely appears that the next big step in gas car construction will be the twin engine; the single engine Chryslers are being pushed to phenomenal rpm's and piston speeds, reaching the extreme limits of their reliability. By comparison, the first weekend that the car was run, it ran an 8.07 ET at Tulsa, far quicker than any single engine car had ever run before. If this car is pushed to the degree that the Chryslers have been, it would cut some sensational times well into the sevens and over 200 miles per hour. I predict that it will eventually run 7.80, 208-210 MPH.

There have been minor problems with the car, as with any, but by comparison to the rule concerning twin engine cars that are supposed to have four times the troubles, the car has been extremely problem-free. Since the advent of the new tire compounds the twin may not only regain popularity in the gas classes but also in the fuel categories. The Chryslers in this class are certainly being pushed over their limits here, too. It is getting to be the rule rather than the exception that reliability is winning more races than performance. Kent Fuller brought up a point concerning twin engine construction: because of the new tires, it is no longer necessary or desirable to build a twin car with the expensive side by side engine set up; the tandem or in-line type do the job. In this sense, John's car can be considered the first of the "second generation" twin cars.

Now let's take a look at the combination that makes the car perform:

(1) A car weight of 1575 pounds
(2) 352-inch engines
    7-to-1 compression
    1-to-1 blower drive
(3) 3.96 gear, 11.00 x 16 tires, at 16 lbs. pressure

1. For the power produced by the 352-inch engines, 1100-1200, the overall car weight, 1575 lbs., is extremely light for a twin car. Over 500 lbs. was pared off the car's weight with the new chassis with the new frame and rear end. This is definitely the lightest blown twin car ever built.

2. The 352 engines are not only smaller than average, they also don't run as much compression or blower boost as the single engined cars. Since we are dealing with two engines let's consider the performance of each one by comparing it with the weight of the chassis cut in half, equalling a single engine car combination. Starting with a weight of 787 lbs., half of the original car (we should add an extra 25 lbs. to compensate for extra parts) we still come up with an 812-lb. creation; we don't have to elaborate further what a 352-inch Chevy producing 600 HP will do with a car weight this light.

3. The 3.96 gear is far shorter than most people would expect with a car with this power-to-weight ratio. Since John wanted especially to run the large tires, this gear cuts down any possibility of strain on the engines. As it stands now, the engines can be tuned up if the need arises, but the gear does not have to be changed because of the high rpm characteristics of the small engines; well over 9000 RPM is available. The 11.00 x 16 tires are at an average tire pressure of 16 lbs. Rather than get stuck with a way out 10 or 12-lb. figure that reacts violently to different strip conditions and is usable only on slippery strips, John chose the middle of the road approach that gives him leeway in either direction, without greatly disturbing the original combination.

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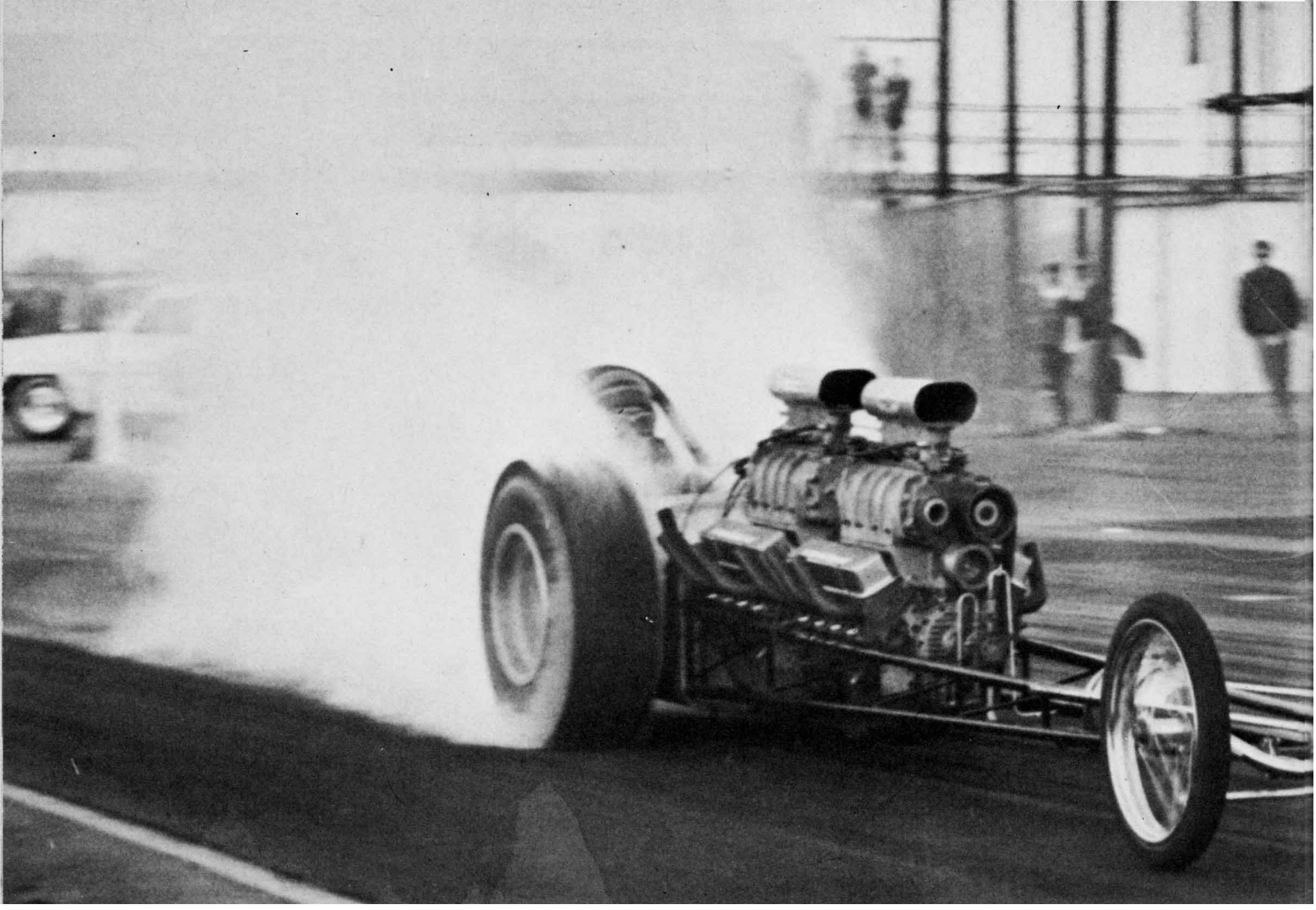

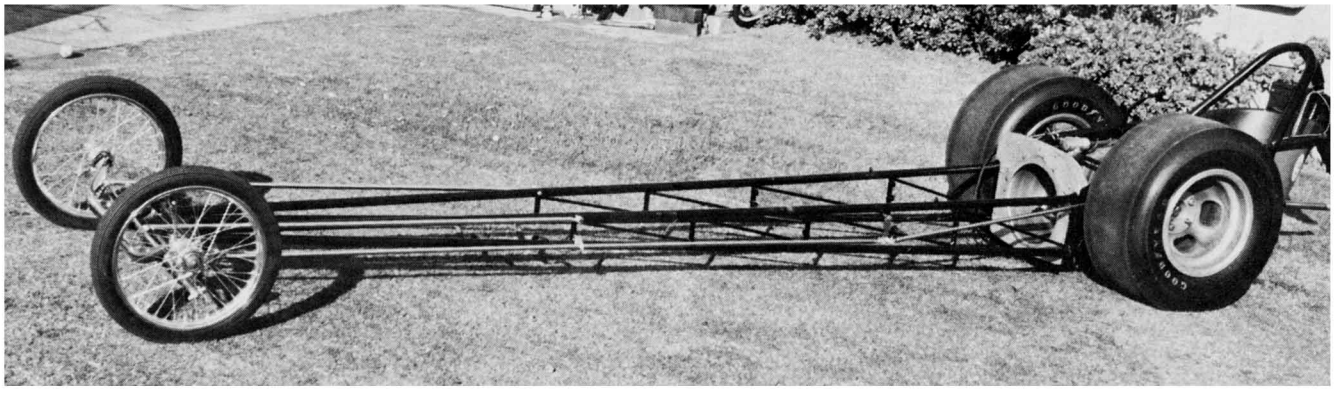

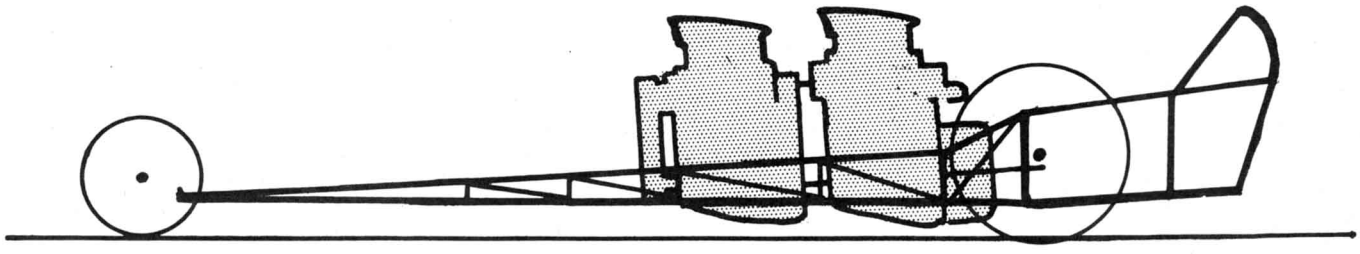

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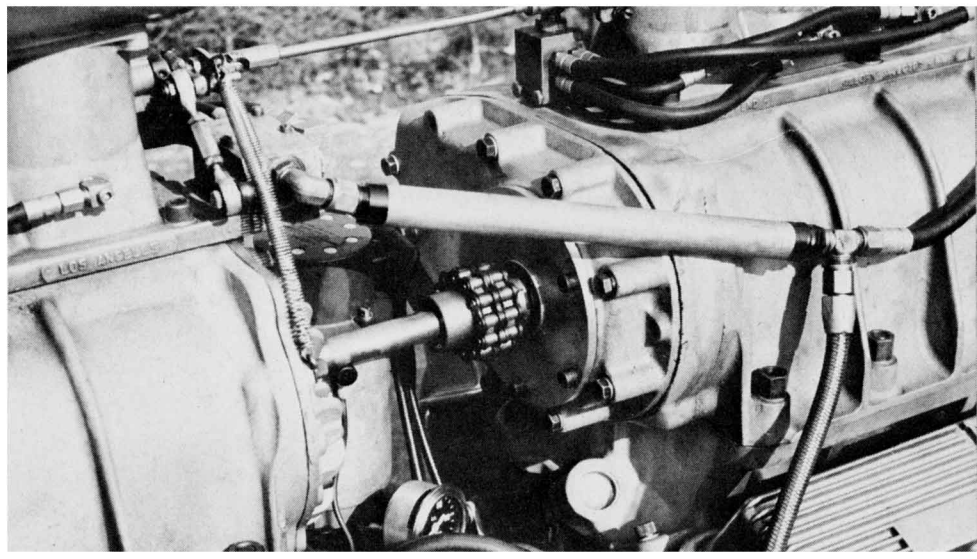

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THE FREIGHT TRAIN

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Let's get down to the technical details on the car. It was finished in October, 1965, just before the NHRA Tulsa meet at a cost of nearly $10,000. It has a wheelbase of 161 inches and a front and rear tread of 47 and 39 inches, respectively.

The frame was built by John from tubing supplied by Frank Huszar of Race Car Specialties. The tubing specs are: 1⅜-inch x .049 and 1⅝-inch x .090, heliarc welding throughout. Its weight is 67 lbs., which is extremely light for this type of car. It is a rigid type design with no sliding joints. John pointed out that no twin engine car would work with a flexible type frame. He is enough of an authority on these cars to know what he is talking about.

The front axle is 4130 .150 x 1½-inch tubing with P&S spindles and wheels that John built himself from Triumph TT hubs, spokes and 2.25 x 17 steel rims. The tires are Pirelli, run at 15-20 lbs. pressure; this low figure is necessary to limit the steering effect of the locked rear end. It increases tire contact area to accomplish the job. The radius rods are 4130 ¾-inch x .049 with 3/8-inch Heim joints on the ends, which were drilled to accept grease fittings. The torsion bar suspension was built by RCS with an eight-strap bar and neoprene buffers in the shock arms. The front end geometry reads: 45 degrees caster, one degree positive camber, and 3/16-inch toe-in.

The drag link, 4130 ¾-inch x .049, connects to a RCS steering box mounted on braces in he cockpit independent of the direct drive housing. Occasionally, 10 lbs. of ballast is run on the front end, if strip bite is exceptionally good.

The rear end is a locked open tube unit that is the product of three shops. Goob Tuller, the driver, comments that the car has never given him any problems in the handling department, despite all of the talk about the supposed bad handling characteristics of locked rear ends. Halibrand built the center section, with the 3.96 ring and pinion run at a tight lash of .002. RCS made the one piece tube axle from 3/16-inch wall 4340 stock. Milodon made the bearing blocks that support the axle in the frame. The brakes are Airheart double spots operated by two Airheart master cylinders, backed up by two Simpson 200-plus chutes, 14-ft.-9-inches in diameter. These chutes are individually built for each car. The rear wheels are Halibrand mounting 11.00 x 16 Goodyear slicks run at 16 lbs. pressure and which are replaced at between 15 and 20 runs.

The driveline consists of a 1⅜-inch 10-spline shaft that runs from the nose of the carrier directly into the clutch, bringing the engines as close as possible to the rear end. A RCS hydro-formed direct-drive housing encloses a Schiefer 11-inch clutch and flywheel assembly with sintered iron discs.

John built the body from 3003 H half hard aluminum and painted it caboose red himself. The lettering was done by Feinberg, the black naugahyde upholstery by Bill Dunn.

As the engines are identical, we'll describe them as one unit.

The blocks are '59 and later 283 types with an increased bore of 3 15/16-inch and a stroke of 3⅝-inch giving a total of 352 cubic inches. The stroker crank by Delta has hard chrome journals and wide radius fillets. The rods, M/T aluminum, attach to M/T 7-1 compression pistons, M/T heavy duty pins, tru-arc locks and Grant rings, which are changed every 30 runs. The bearings are heavy duty Vandervells and now have over 150 runs on them. Donovan straps and studs provide support for the bottom end and all of the balancing is by Edelbrock.

The clearances read: .0025-.003 mains, .0025 rods, .018-.025 total end and .009 piston to wall.

The cam is an Engle L 163 with .540 lift and 320 degrees duration. Engle supplies the following: rollers, pushrods, springs (changed once a year), retainers, keepers, and ultra rev kit on the pushrods.

The oil system consists of 40 W Pennzoil, racing, run at 60 lbs. pressure, changed every two weeks (depending on grit conditions and dilution). The filter is a Lee with metal mesh construction that John prefers over any other on the market. A Milodon pickup is attached to a standard Chevy pump (has been run on the car since '61); it draws from a stock five-quart pan with a Corvette baffle in it.

The heads are '61-'62 fuel injection types reworked by Joe Mondello in the combustion chamber and ports. Mondello combines the modification of these two, not only for better breathing but better turbulence patterns in the chamber. The valves are also by Mondello, with hard chromed stems, knurled guides and Perfect Circle seals. The dimensions are 1 15/16-inch and 1⅝-inch with a seat angle of 45 degrees and a width of 1/16-inch.

The rockers are Mondello with the roller bearing tips that reduce valve stem and guide wear considerably. The clearances are .012 and .014, respectively. The exhaust pipes were built by Jim Hill of Exhaust Specialties, measuring 1-5/8-inch i.d. and ten inches in length.

The head gaskets are Fitzgeralds asbestos and steel waffle type used with M/T sealer and are replaced each time. There are no "O" rings in either the heads or block.

The torsion specs read: 70 — heads, 65 — mains, 70 — rods, 20 — blower,

50 — flywheel, and 35 — pressure plate.

The 6-71 blower was modified by John to almost stock specifications; these are the clearances: .012-.015 top intake, .012 ends, .010-.012 middle, and .004-.005 bottom exhaust.

Milodon steel ringed end plates combine with a Delta front plate and a GT rear. The manifold is an Edelbrock with a Delta drive at 1-1 ratio producing an estimated 15-16 lbs. boost.

Connecting the two engines is a chain coupler built by John using a double No. 40 chain and two sprockets. This coupling allows the chassis to flex over severe bumps without damaging the crank or main bearings. The blowers are connected with a 4130 ¾-inch o.d. shaft and No. 40 chain coupler.

The injectors, Hilborn four holers, have been on John's engines since the first "Train" was built. There are eight No. 12 nozzles, four on each side of the casting on each engine supplied by a PG 150 pump on a Delta drive and Weiand front cover, all on the front engine. No fuel filter is run but John filters the gas himself before putting it into the tank. A Kal Nelson shutoff valve controls the flow between the three-gallon Eelco tank and the pump. Shell premium gas is used exclusively.

There are two types of mags run on the engines. The front one, because of clearance problems, is a Vertex; a Schiefer is run in the rear engine. Both mags are run at 42 degrees lead, firing through Packard 530 wires and Rajah clips to Champion J79 plugs that are run three or four weeks before being replaced. Water is carried in both the block and heads, with the overflow dumped into a small can on the lower left side of the rear engine.

The best runs to date on the car are a 7.99, 194.80, at Long Beach with numerous backups of ET's in the 8.0 bracket.

Competitors who stated that the twin-engine car was an obsolescent dinosaur when the first "Train" was retired in 1964 are eating their words now. It is clearly evident that the big twins are far from dead. John has proven beyond a doubt that one could be built that would be light and efficient. He has also proven that twins can overwhelm the single engine cars to a degree that even the fuel competitors are having second thoughts toward replacing their overstressed Chryslers with this type of power.

The tires that were needed to keep up with the power output of the twins in '60-'61 are available now. The increasing amount of engine failures among the single engine cars definitely point the way to the need that the twin engine cars can fulfill.

With these improved tires and its inherent engine reliability, the twin may be the next major step in drag racing technology.