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EVERY RACER'S DREAM

Construction continues on the Cobra Electronics NASCAR Sportsman project car

By WILL HANDZEL

In our continuing story on the buildup of a NASCAR Sportsman series race car, we show the suspension, brakes, and steering systems being completed in this installment. Last month, the interior components were mounted up and the interior painted. As was outlined in the first installment, eight students at the Motor Sports Training Center (MSTC) in Mooresville, North Carolina, are the fabricators who are assembling this machine. They are taking part in a 20-day course held at MSTC that starts with a bare chassis and involves every facet of assembling a Winston Cup-quality race car. The Cobra Electronics Sportsman in this story is the result of the first advanced class at MSTC.



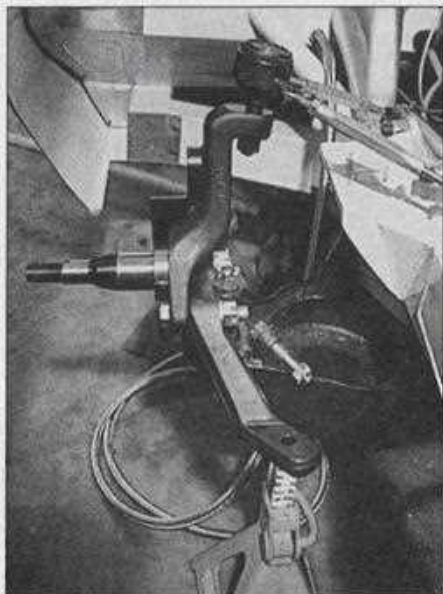
■ THE PARTS

Assembling the suspension on this car is relatively simple because the chassis is a Laughlin Winston Cup chassis. Builders of WC chassis usually equip them with many of the mounting points for suspension pieces, and this chassis is no exception. It comes with the lower A-arms mounted on the front and mounting points for the upper A-arms

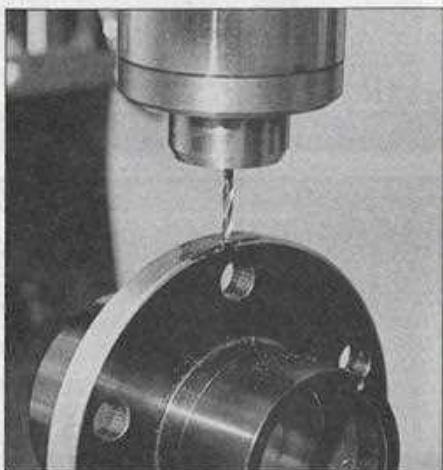
with jacking screws for the coil springs. On the rear, the chassis has mounts for the truck arms, the spring screw jacks, and the panhard bar. Making things even easier yet is the fact that almost all of the components needed to assemble one of these cars are available from manufacturers, minimizing the amount of fabrication required.

The store-bought items that were

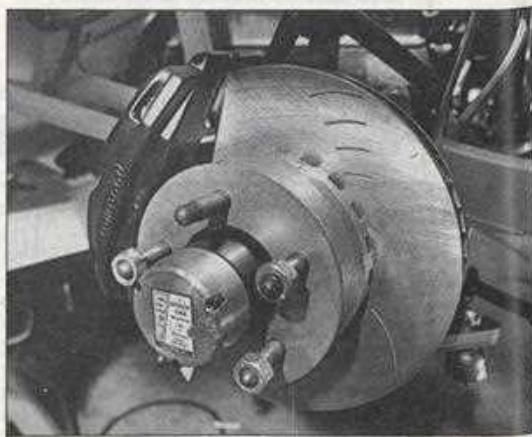
PHOTOGRAPHY: MIKE SLADE



A Stock Car Products (SCP) spindle is shown mounted to the lower A-arm and an adjustable upper A-arm fabricating tool. This tool is used to build the upper A-arms so that the geometry on the suspension is correct. The bump steer, camber change, and toe-in change for normal suspension motion is optimized by adjusting the A-arm length, then a duplicate final piece is constructed on a jig.



The SCP hub had holes drilled and tapped for Allen lock screws on the wheel lugs. This was done because the air guns on pit road have a high maximum torque and have been known to spin the lugs in the spindle.



The Wilwood brake system—the hats, rotors, and calipers—fits onto the SCP spindle with a minimum of problems.

practically just unboxed and bolted to the car include the swaybar, spindles, hubs, truck arms, the entire brake system, and steering linkage. The upper A-arms and panhard bar were fabricated from raw tubing to fit the car. Other important items to complete the suspension are the shock absorbers and springs.

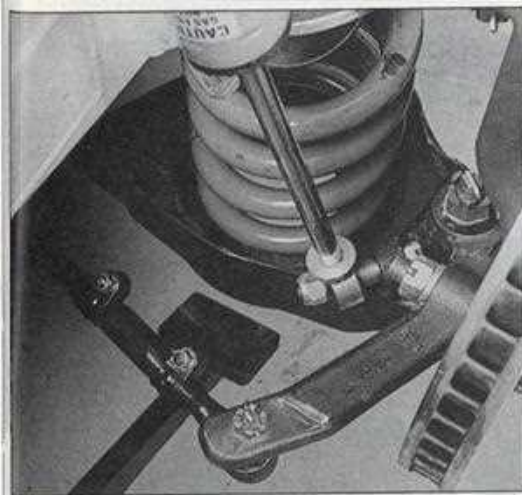
While all of the components were top-quality pieces, anybody who has built this kind of a race car knows that *nothing*, no matter what it is, bolts right on without some work. Because of this,



these little modifications are covered here with the assembly.

■ SUSPENSION AND BRAKES

This chassis is set up for a double A-arm, coil spring, and swaybar design that resembles the front end on an older Chevrolet sedan. The rear suspension is based on two long arms that reach from the midsection of the car to

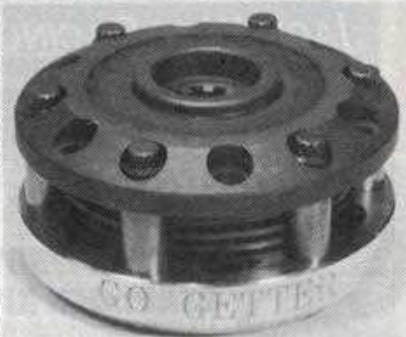


The Dana Corporation provided the linkage for the steering system. Everything from spindle to spindle was ordered through the catalog and delivered to MSTC's door.

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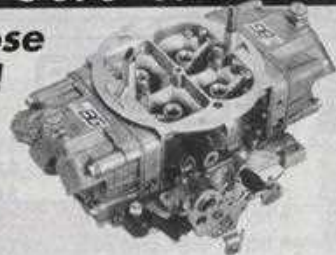


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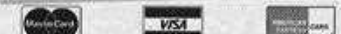
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EVERY RACER'S DREAM

the ends of the rearend. This suspension was originally found on trucks, thus the "truck arm" name.

The spindles are from Stock Car Products in Richmond, Virginia, and are set up for a front steer linkage configuration. They had to have the brake caliper bracket pad milled off 1/2 inch to fit onto the Wilwood GT brake rotor and hat, but otherwise they were just bolted on to the screw-in ball joints in the A-arms. The entire Wilwood brake system bolted right onto the car with no problems.

The hubs are SCP units and were drilled for Allen lock screws on each lug to keep the lugs from spinning when a 180 PSI lugwrench on pit road is used to change a tire.

Once the upper A-arms were fabricated on their own small jig and mounted on the chassis, the Landrum springs and Koni shocks were installed. The students installed a 1900 lb./in. Landrum spring on the right front and a 1600 lb./in. spring on the left front. Koni 30 series shocks, the 1404s, were installed in the front.

To complete the front suspension, Speedway Engineering was contacted for its "soft link" swaybar and arm setup. A 0.125-inch wall bar (which acts like a 1-inch solid bar but much lighter) with the arm on the left not solidly attached to the lower A-arm, but just resting under it, and the right-arm heim joint mounted to the lower A-arm makes up the soft link system. Many feel this system makes the car more stable over rough surfaces by not allowing the left-front tire to affect the right-front tire through the swaybar.

The rear suspension truck arms came from Laughlin with a 3/4-inch

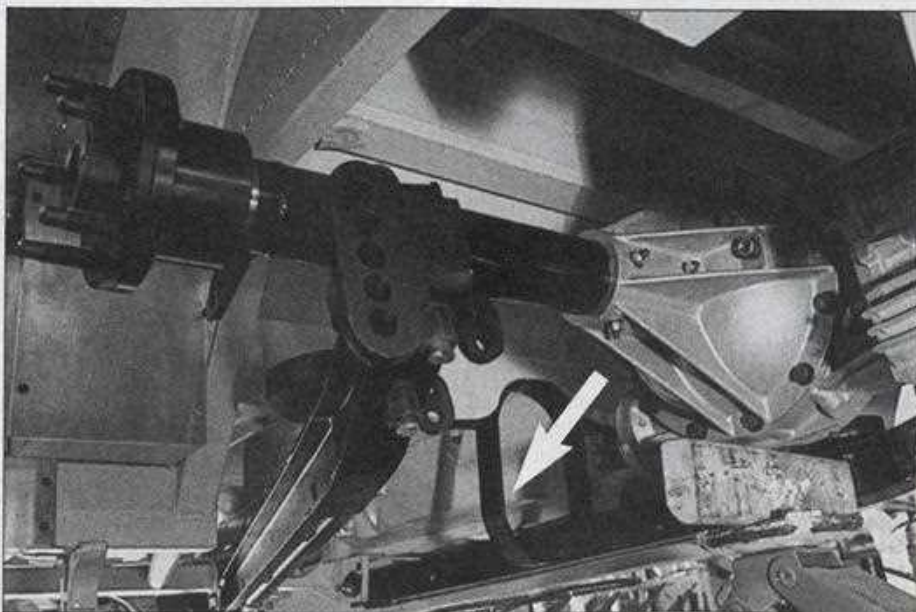
monoball (similar to a rod end) already fitted to the front of the arm. This monoball mounts to the chassis through a double shear mount and a bolt. The right-side bolt is a custom-fabbed piece that is eccentric so the right-side wheelbase can be changed. The shock and panhard bar mounts are already on the truck arms from Laughlin

A "wishbone" panhard bar was constructed from raw tubing. To clear the quick-change rearend and still mount to the stock Laughlin mounts, this type of panhard bar must be used.

Landrum 375 lb./in. springs were installed in the rear. Some may think these are too soft but the panhard bar was run at about 12.5 inches (off the ground), which reduces the roll rate upon entry to the corner and fit our driver's style well. Koni 30 series shocks, the 1403s, were installed on the Speedway Engineering rearend. Chains were attached to the rearend to keep the entire suspension from overextending itself in the event of a wreck or part failure, hopefully saving some of the pieces.

Wilwood rotors and calipers were bolted up to the Speedway quick-change, the lines attached and bled, and the rear suspension and brakes were completed.

The rear suspension is shown being mocked into place here. The Speedway Engineering quick-change is attached to the truck arms, and the Landrum springs and Koni shocks are ready to be trial fitted. A loop for the driveshaft (see arrow), designed to clear the driveshaft in full bump and rebound, was installed just before this photo was taken.



■ STEERING

A CJR steering box was installed on the chassis after CJR had thoroughly prepped it. Connecting the steering box to the spindles was a complete Dana Corporation steering linkage. The entire steering linkage was ordered directly out of a Dana catalog.

■ IN THIRTY DAYS

The drivetrain is the next item on the agenda to be conquered by the MSTC students. Stay tuned. ○

SOURCES

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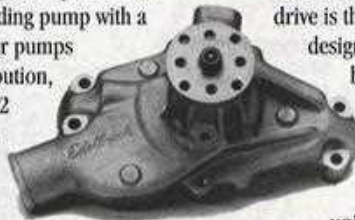
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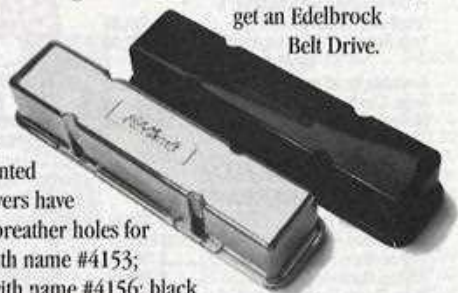
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