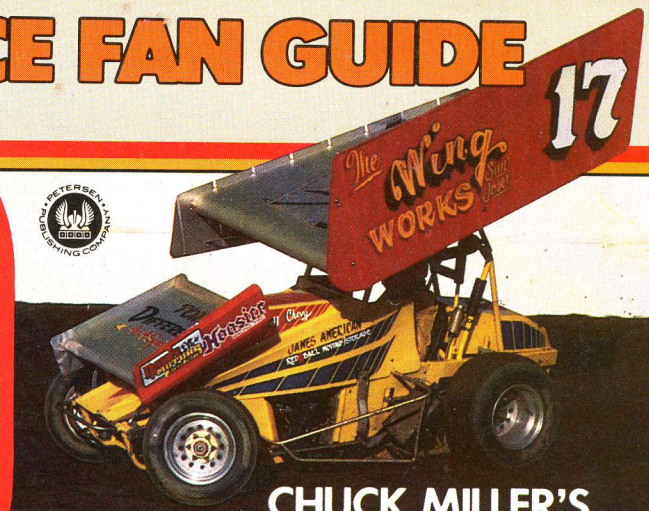
MICHIGAN INT'L RACE FAN GUIDE

PETERSEN'S $2.50 JUNE 1984

CIRCLE TRACK



CHUCK MILLER'S
SAN JOSE SUPER

DAYTONA ACTION!

CALE YARBOROUGH:
KING OF DAYTONA

SUPER TECH!

- TIRES—THE KEY TO SUCCESS
- BUILDING THE PONTIAC IRON DUKE
- SPRINT CAR ASSEMBLY CONCLUSION

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RIGHT FROM THE START

A NEW HELD CHASSIS WITH GEORGE KENT DRIVING PROVED TO BE A WINNING COMBINATION

TEXT & PHOTOGRAPHY: MICHAEL J. MARRER

We drew a lot of attention over there!" Tom Held, with a twinkle in his eye and a broad smile on his face, described what every car builder dreams of—a victory the first time out with a new car.

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With their Modified only partly completed, the Plaza Mobil crew had left Horseheads, New York, for the Thompson 300 on Sunday at 1 A.M. Arriving at a motel at 7, they completed the final assembly in the parking lot, making it to the race track just five minutes before the non-qualifiers' feature. Starting dead last, and with an engine that was missing badly due to electrical problems, George Kent took only 11 laps to drive past 22 cars and coast to an easy victory.

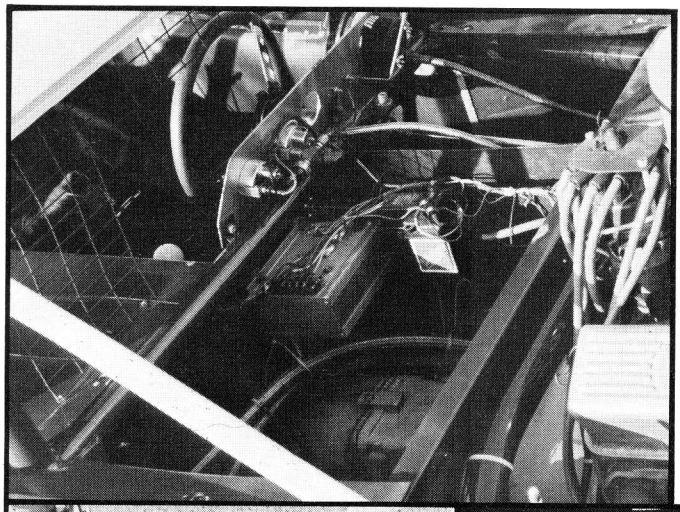
Although the electrical problems caught up with the team during the running of the 300, theirs was one of the cars to beat during the major fall shows, and is the basis for Kent's assault on the '84 NASCAR National Modified title.

The genesis of the chassis design came in the spring of '80. Held was in his second full season of driving, and had become disenchanted with the several chassis designs that were then found on the Modified circuit. Drawing upon his background in mechanical and metallurgical engineering, Held's initial design handled better in the corners. Being a low-buck operation kept him from running with the leaders, however, and in '82, he began providing assistance to the George Kent crew.

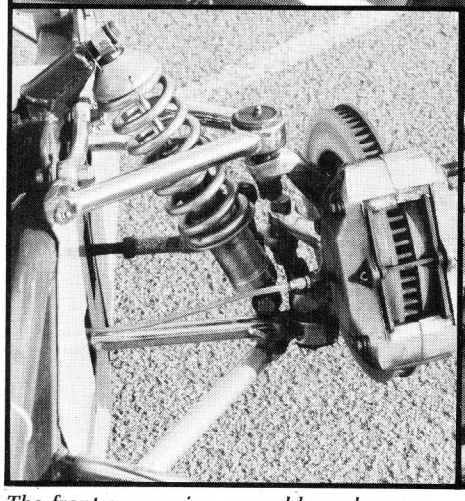
As the team planned its strategy for the '83 season, Held persuaded them to try his design. Making its debut in the Thompson 300, the car gained the attention of many NASCAR Modified racers, and attested to the potential of Held's design.

As per the NASCAR rule book, the centerline of the driveline is within 6 inches side to side, and the rear end is 2 inches shorter on the left side than on the right. With a width of 42 inches at the rear, the car is the narrowest possible under current rules. Following NASCAR limits regarding placement of all major components has allowed the team to achieve better than the maximum 56% left-side weight. They're in the unusual position of having to add weight to the *right* side of the car in order to pass inspection.

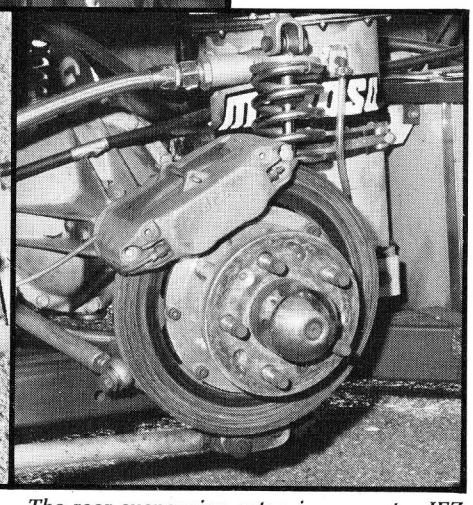
In keeping with the belief that all ma-



Removing the special cover allows access to the Mallory electrical system and transmission.



The front suspension assembly makes use of JFZ brakes and Carrera shocks. The control arms and hookup placement are the keys to the chassis' success.



The rear suspension setup incorporates JFZ brakes and a Moroso dry-sump system. Note the panhard rod extending from the frame to the axle.

jor components should be kept as far left as possible, the fuel cell was mounted on the left side. While many builders have done this, many still erroneously believe that as the fuel level lowers, weight loss will make the car lose wedge. Held has found that the rear end jacks up in this situation, however, thus maintaining wedge across the car.

Held's first design also had a longer rear length (from the axle back) than most. Weight in the rear typically runs about 56%. The key to the chassis' success, however, can be traced to the hookups in the front end.

Current construction theory, according to Held, is to build a car with a slight amount of push in the front end, as this is easier to control than oversteer. This causes the tires to slide and break contact with the racing surface, however, thus tearing. To reduce the problem on this car, the front end was designed to redistribute the weight when negotiating the corners. Using lower control arms of different lengths and moving the hookups to the left achieved this goal.

Held believes that many builders are wrong to think that a wider chassis is necessary for a stable car. As the car itself has no concept of how wide it is, placement of components should reflect track width, not chassis width. He believes that more can be accomplished by proper placement of the hookups.

Innovations didn't stop in the front of the vehicle. The panhard rod, which controls the roll center in the rear, is placed on the left side of the chassis, rather than on the right. With this setup, the roll center doesn't vary drastically with the weight shift that occurs during cornering. The panhard rod is mounted in rubber, and slides over the entire adjustment range on both sides (frame and axle).

After getting the front end properly adjusted, the rear roll center is varied to the point where, when cornering, the rear center rolls around the front roll center, and produces a slight amount of rear steering. At the same time, Held tries to maximize the side bite on the tires, thereby increasing their life span.

Radical offset was avoided. Most builders use offset to increase the left-side weight, and employ large amounts of stagger to assist turning. The same mechanical principles found in the front end were adapted to the rear suspension components. Using only the standard, 3-inch offset rims and less stagger results in tire wear that is even across the tire.

Numerous combinations of springs, tire compounds, and jacking the frame height have had little effect on the car's performance. In fact, while Kent was running and winning his qualifying event at the Pocono Race of Champions, the left rear tire began going flat, yet didn't affect George's driving. Measurements in the pits later showed an incredible 4 inches of stagger!

Kent believes this new chassis design will be the key to his future success. With the 390 carburetor rule in place, some 75 to 100 horsepower has been lost. With the torque gone, racers must now make up for it with increased cornering speed. Kent is now able to go into corners deeper than he ever has in the past, often using the previously "forbidden" outside groove.

The car's features include a removable cover in front of the driver's compartment, which allows easy access to the electrical system and transmission from both above and below. The engine is attached to the frame using a slider affair, which, if hit, reduces the chances of the block being broken. While many other Modifieds are fitted with a plate to support the engine, that acts as a dam, restricting airflow through the radiator. With the unobstructed airflow, engine temperatures have never exceeded 190°.

The body is an Olds Firenza hung at a 1° pitch, with the interior sheetmetal at an additional 3°. The entire body acts as a wing, and Kent says the car is the most stable he's ever driven. All pedals have been mounted on the floor, increasing driver sensitivity. Steering is controlled with an offset Pinto rack-and-pinion power steering unit. Jim Headrick of Race Engine Design in Rossville, Georgia, built the engines, which are maintained by Bob Stapleton of Tom's Of Elmira, New York.

Construction of the car was a real family effort. Held's sons, Tommy and Shaun, aged 16 and 14, did 90% of the the cage and chassis work, and all of the bracket work. Kent assembled and welded the components, and his brother Ron provided the mechanical items.

This car has piqued the interest of many observers in the tough Northeast Modified circuit, and with many drivers already expressing an interest in the chassis, the odds are great that more chassis of this design will compete in the future. O