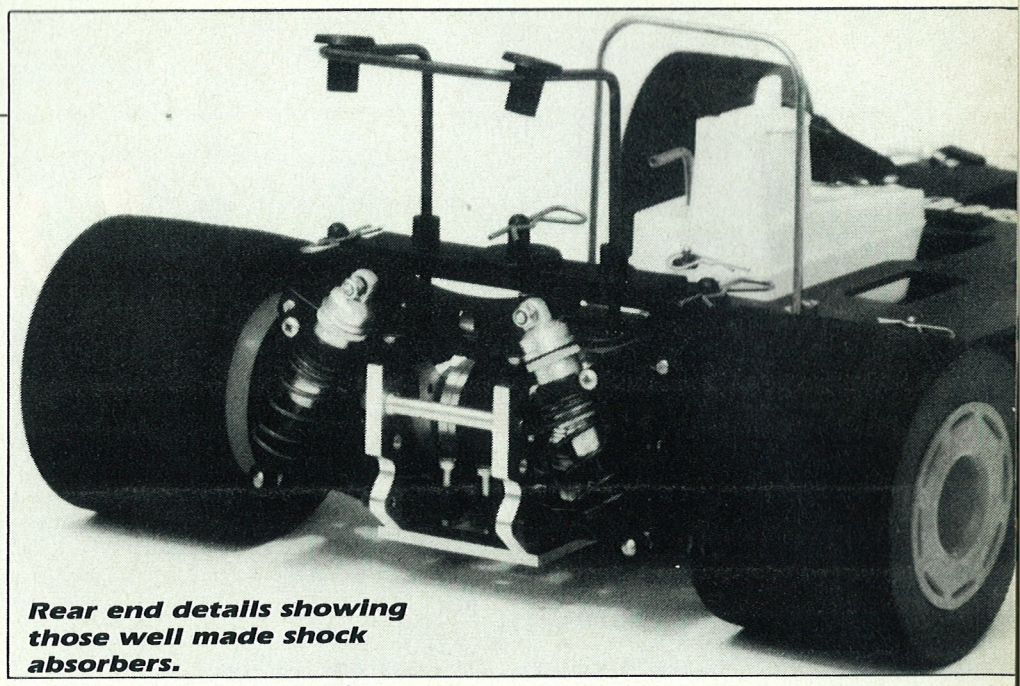
P.B. Phoenix '90



Rear end details showing those well made shock absorbers.

Chris Deakin Reviews P.B.'s latest 1/8 I.C. circuit car.

All progressive and successful manufacturers continually develop and refine their products to suit the market place. At present the 1/8 I.C. market is a particularly tough one because there is a growing amount of interest in this side of R/C car racing, as any national meeting will prove.

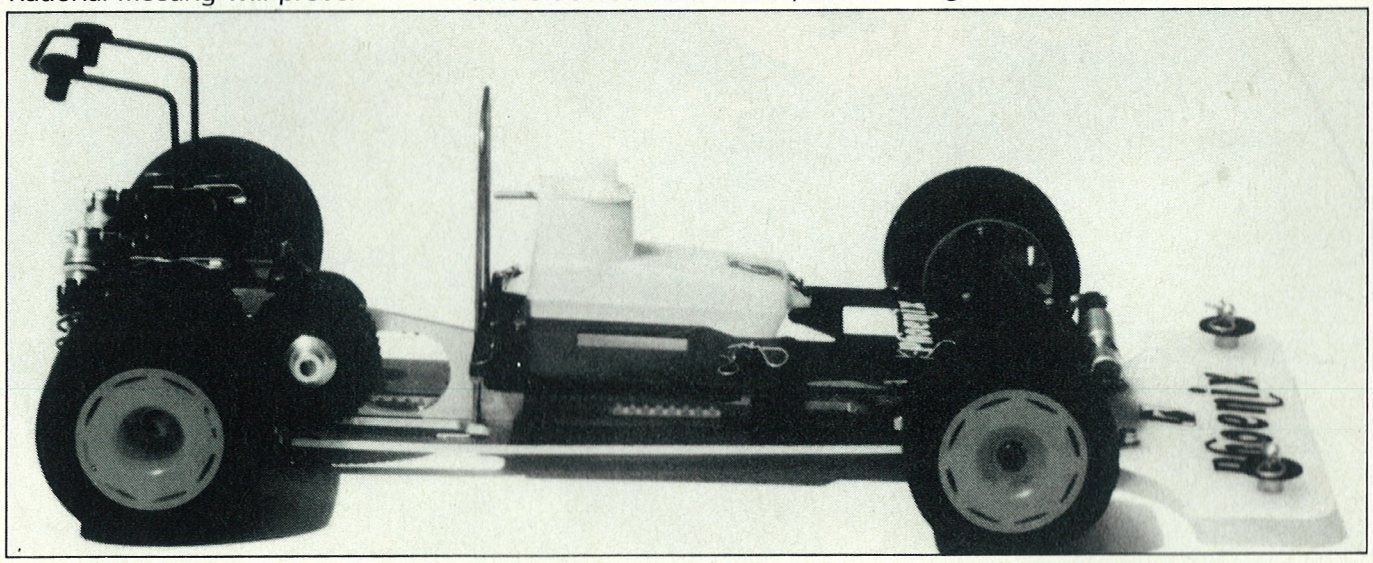
The 1990 Update....

P.B. have spent a lot of time and effort on the transmission of their car, which is now both lighter and uses a new method to get the drive to the rear wheels. More of that later....

The Phoenix is quite different in many ways from other cars. To begin with it only uses two drive belts (most other cars tend to use three drive belts in their transmission systems). One runs from the front to the back of the car and the other from the layshaft to the rear differential assembly. Another way in which the Phoenix differs is that the front drive, for the 4WD, is mounted inboard of the wheels. Also, a mixture of torsion bars and coil springs are employed, and like full size racing cars, so is adjustable valving in the rear shock absorbers.

Another feature taken from full size cars are the new rear drive shafts. They are a "Constant Velocity" type of joint, which means that the drive is applied in a more even pressure (radially), than the usual "Dog Bone" type design. This should enable the car to accelerate more smoothly and corner with increased power.

Before building the car, I would recommend that the instructions



Overall view of the car.

Phoenix

Radio Race Car International

are read and understood, and that the relevant parts from the update manual are fitted in with the original Phoenix instructions. This should guarantee a trouble free assembly.

The Differential

No real problems were encountered with the assembly of the diff unit. You should remember to "De-Burr" all of the alloy components and clean them with some motor cleaner. Use a good quality grease on all of the thrust faces and ball bearings. It is also a good idea to polish the faces of the diff adjuster thrust washers and make sure that all of the 2mm balls are well greased. This should make for a smooth diff action. When adjusting the diff, it is important to ensure that the long 3mm screw in the drive cup carrier goes into the slot in the adjuster ring!

One minor gripe here though is that there is no differential adjuster spanner supplied in the kit.

Rear Suspension and Drive Line

Again, read the instructions carefully and remember to clean and "De-Burr" all of the alloy components. When fitting the drive cups to the diff I used shorter grub screws to allow the diff support bearings to slide off without dismantling the cups.

Make sure that the ball bearings in the drive shafts are seated correctly. The shafts are a little tight at first, but will become free when the car has had some use. Assemble the diff into the rear mounting plates and don't forget to install the two drive belts! Check that the "red" belt runs in the jockey pulley and is not being pinched.

The suspension adjusting screws were next to be installed into each end of the lower wishbones. I also loctited the 3mm pivot locking bolts for extra security.

Gearbox/Layshaft

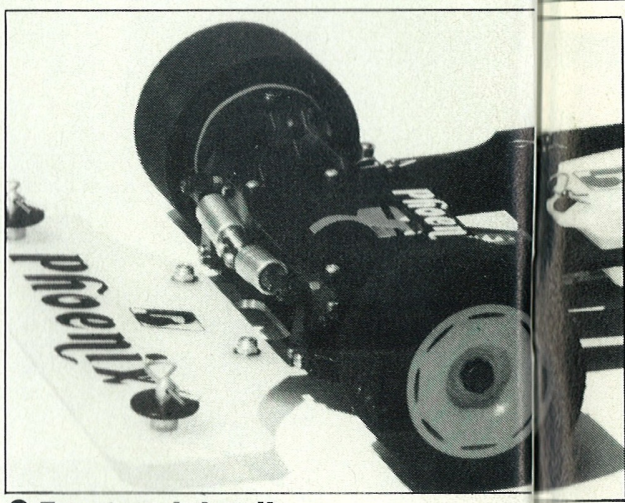
Separate gearbox instructions are supplied with the 1990 Phoenix. The easiest way to assemble the diff is to lay all the parts out, as per the diagram. Check that the grub screw on the centre cam is flush. If it isn't, carefully file the head down, and grease the centre adjusting balls where they sit on the cam.

When assembling the clutch shoes, set them like this; screw the small adjuster bolts and springs so that the spring is compressed one turn from its free length. Then, slide the clutch shoes over the centre cam, push in the 4mm balls and screw in the grub screws until the shoes are just clear of the cam and make one further turn on the 3mm adjuster screws.

Once you have built up the rest of the assembly fit it to the rear blocks as per the instructions. When assembled, check that it is a loose fit on the centre cam.

Front Suspension

Don't tighten the grub screws on the universal driveshafts until the suspension has been fully constructed. Only then should you

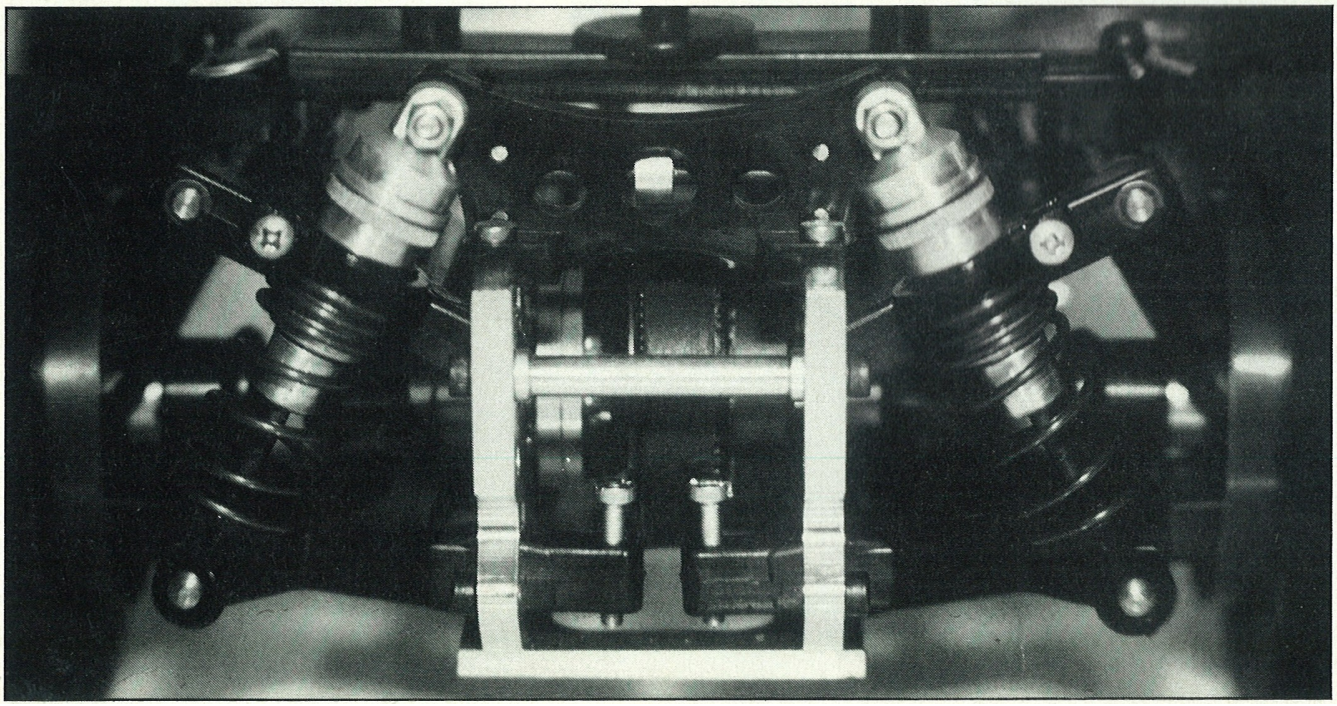


Front end details.

adjust them to give maximum wheel movement, without the shaft "popping out". Make sure also that the top and bottom screws that hold the king pin balls on are not too long, as they could catch on the universal joints.

The medium range shim was used to give the car a few degrees of camber and the top wishbone spacers were set to give maximum castor. This will make the car as stable as possible, which is necessary when it is being run for the first time as it gives a clear starting point for any adjustments.

Make sure that you have the 2.5mm grub screws in the rear lower wishbones, as they act as a down stop to adjust the ride height. To make fitting the front anti roll bar easier, file a small chamfer on the wishbone end and also a small chamfer on the wishbone.



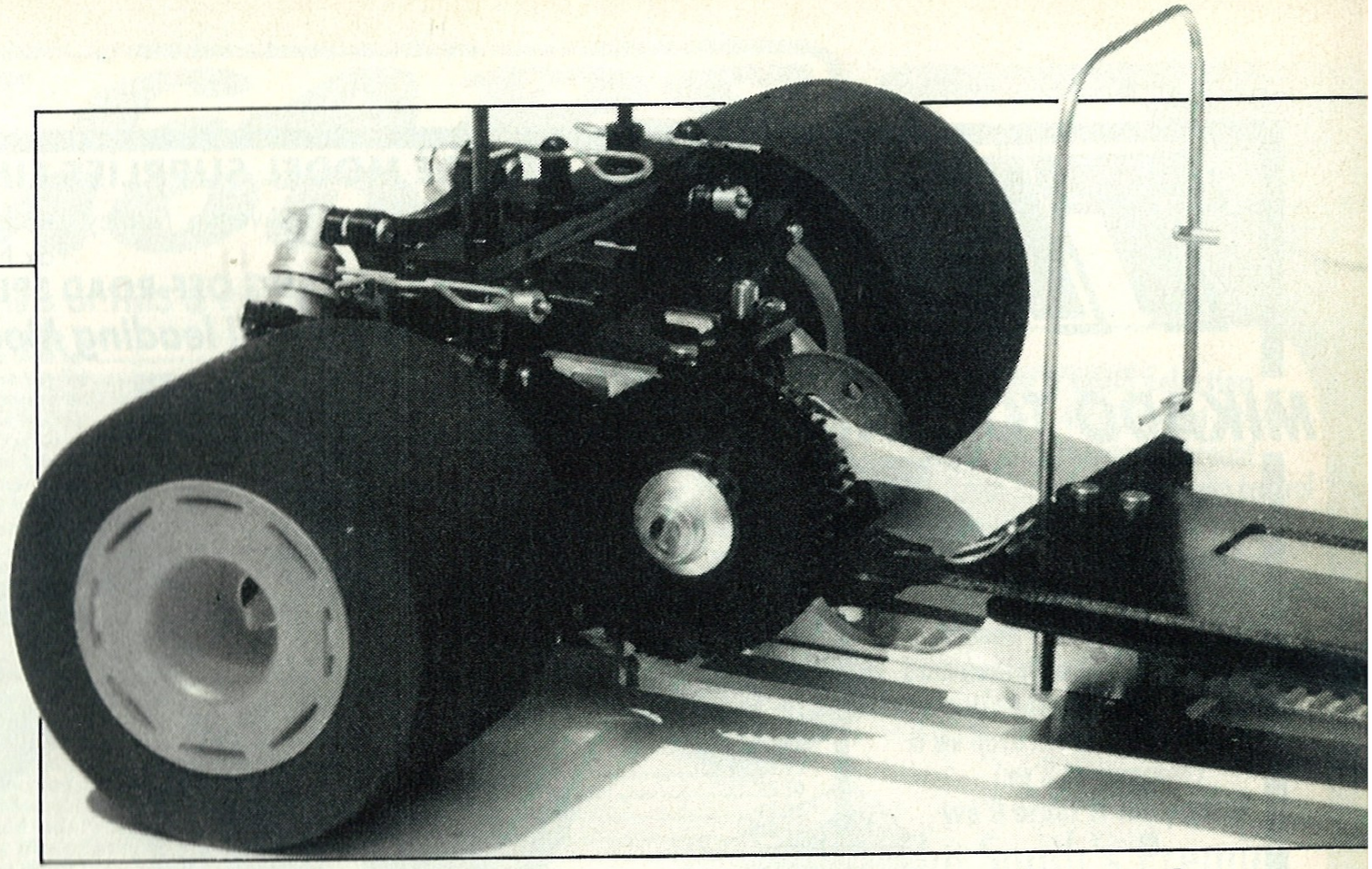
Shock Absorbers

When it comes to the shock absorbers, I didn't find it necessary to polish the piston rods, as they were a smooth fit in the 'O' rings. On the rear shocks, make sure that you use a good quality locktite type glue on the fixed parts of the adjuster valve. The best results were obtained when the shocks were filled with oil and then left to stand for a couple of hours, to let all of the air escape.

A couple of important points to notice when assembling the shock absorbers are: Don't adjust them too tight, as it is possible for the 'O' rings to squeeze out. On the front shocks, check that the end cap is seated correctly before fitting the circlip in the shock body. Finally, when fitting the front shocks, make certain that you fit the brace between the inboard mounting points at the front.

Rear Body Mount/ Anti Roll Bar

Again, if you read and follow the instructions carefully, you should have no problems. Adjust the roll bar to its softest possible setting. Next, check that the body mount is free and install the pre bent wing wire. It is a good idea to fit a collet on the wing wire to stop it being pushed too far through the moulding.



Two speed gearbox and rear anti roll bar can be seen here.

Next Month

The fitting of the radio plate and fuel system will be covered next month, when we fit the radio and engine, and set up the linkages.

So far the construction has been fairly easy. Some of the fittings have had to be worked on to obtain a smooth operation, especially on the suspension.

Already this year, in its present form, the car has performed very well in the hands of Chris White. The new design of drive shaft may prove to be slightly over complicated but only time and track testing will tell.

Next month....All those "fiddly" bits!