

Track Test

PB Racing



ALPHA

JUST TWELVE MONTHS from its inception, PB's 'Alpha' has been given a major suspension 'uplift' which, so its designers claim, puts the car even further ahead of its rivals and makes it even easier to drive for the benefit of 'club' drivers.

How far these expectations are met and how easy they are to achieve seemed worth investigating, so the *Model Cars* 'Alpha' was accordingly given the 'Alpha' '82 uplift.

What do you get?

The conversion kit should strictly speaking be called a suspension modification kit, for several features of the 'Alpha' '82 are not incorporated. If full '82 kit specification is felt desirable, additional packs of parts will be needed — chassis and alloy facing, moulded radio plate/roll-over bar support, new roll-over bar kit and '82 series radio plate (the original can be modified). We decided to 'go the whole hog' and accordingly set-to. It seems well worth describing the process as a 'step-by-step' for although there is a descriptive photo booklet in the conversion pack, this is really aimed at builders of virgin kits and although helpful, needs some amplification if time and frustration are to be avoided.

to run as a plain bearing on the diff casing! Shock absorbers all contained a fair quantity of oil even though they had received nil maintenance during the season — naughty, naughty!

Do not throw anything away, many suspended parts are re-used and anyway in desperation they might be handy as spare parts one day!

Proceed as follows:

(1) Strip down the car; remove the rear suspension assembly as a unit, the engine and layshaft and put to one side. Completely dismantle the front suspension.

(2) If fitting an '82 series chassis, identify the correct way up for the epoxy glass plate and lay the black anodised alloy doubler in position.

(3) With a soft pencil, mark the position of the front edge of the doubler on the glass epoxy chassis.

(4) Key the mating surfaces of the chassis and doubler with emery cloth then clean

Below left: the twin components of the 'Alpha' chassis epoxied together, the two pieces must be aligned perfectly through the curing process. Below right: the new front end assembly - the components may look the same, but make sure!

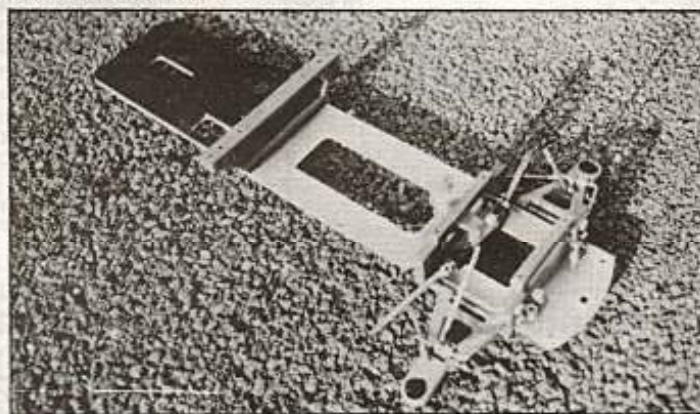
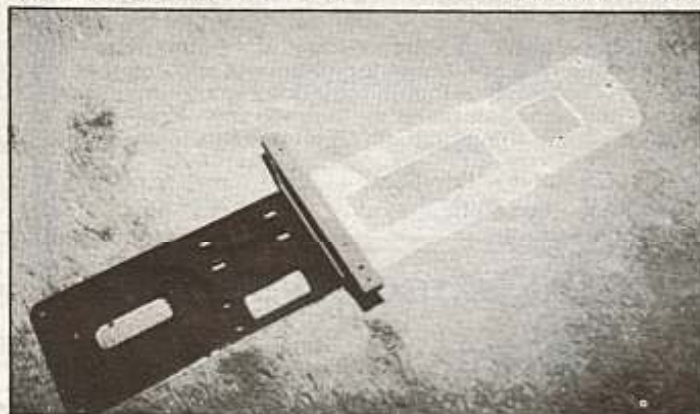
with methylated spirits.

(5) Mix up a suitable quantity of twin pack epoxy (*Araldite* 24 hour variety recommended) and apply sparingly to the chassis. Clamp the doublers in place. Use a couple of screws through the holes to ensure good alignment. *Araldite* can be fast-cured by baking in a slow oven (see instruction sheet enclosed in glue packet) use low heat (100°C).

(6) Dismantle the front shock absorbers, clean, refill and reassemble. If they do not feel evenly resistant to movement, do not worry, this is quite normal and will not affect their performance. Do beware of any 'gritty' feel which will indicate they are not clean.

(7) Assemble the new bushed servo saver fitting the captive ball joints from the discarded unit. Fit the spring retaining 'star' washer by squeezing carefully in a vice (see Fig. 1).

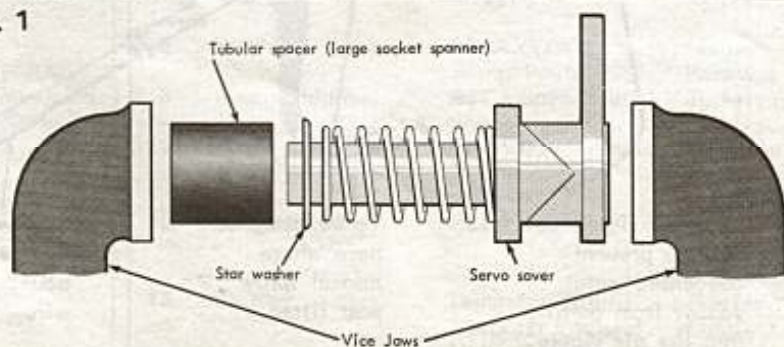
(8) Fit track rods to servo saver and adjust to length (49mm).



What do you do?

Firstly be prepared to strip down virtually the whole car, not a bad thing, you will probably find, as I did, various items that needed attention. Interestingly, the only items in my car that really needed maintenance were the rear differential bearings. 'Alpha' kit builders will remember that plastic dust seals had to be welded into place over these using a hot soldering iron. In spite of cleaning the rear end regularly, a build-up of dirt inside the dust shields had all but seized one bearing solid. It looked as though it was just starting

Fig. 1



DATE·UPDATE·UPDATE·UP '82 TE·UPDATE·UPDATE UPDATE BY BILL BURKINSHAW

(9) Fit balls on to ends of replacement track rod, use thread lock compound on grub screws and cyanoacrylate on track rod.

(10) Check front torsion bars for shape and adjust as necessary.

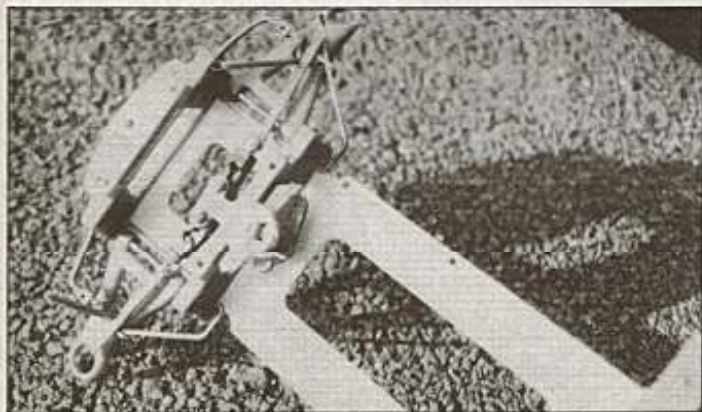
(11) Refit one of the original front bulkheads in the rear position, trapping the torsion bars and assemble the new lower front wishbones using old pivot pin and spacer.

(12) Fit new front bulkhead.

(13) Fit ride height adjuster rods and anti-roll bar sockets on to the lower retaining pin and trap the end of the torsion bar. Retain with brass collet. Use thread lock compound.

(14) Assemble the top wishbone unit. Discard original mounting bolts in favour of new longer bolts and fit top shock absorber mountings retaining with old nuts and washers. N.B. Top wishbone is no longer adjustable for front wheel camber alteration.

Below: it is worth doubling up the steering track rods at this stage of the assembly by soldering extra material to the existing track rods.



(15) Fit new wishbones using spacers as indicated on new pivot pins. File grooves for the collet grub screws.

(16) If fitting old type radio plate assembly to an '82 type chassis, drill four additional holes for rear mounting self tapping screws in the plastic moulded support.

(17) With a Swiss file or drill, enlarge the holes in the radio plate, so that the ride height adjuster rods can pass through.

(18) Fit the radio plate and tighten all mounting self-tap screws with the chassis pressed firmly down on a flat surface.

(19) Check the shape of the front anti-roll bar then fit.

(20) Loosely assemble ride height adjuster springs and nuts.

(21) Clean front king pin assemblies and ball-cups and reassemble between wishbones. Although circlip pliers are helpful, the circlips could be persuaded into place with a little persistence without.

(22) Completely dismantle the rear end suspension/drive unit, remove the diff bearings, clean and relubricate.

(23) Reassemble the brake unit, top shock absorber, bracket, bearings and dust shields on to the new drive pod side pieces.

(24) Check the torsion bars for shape, then fit the new front drive pod bulkhead, making sure that the drive chain is through the slot and the torsion bars are in place. N.B. The four countersunk holes on the faces of the bulkheads face outwards away from the diff.

(25) Fit the diff and drive shaft into the pod sides and using four self-tap screws mount on to the front bulkhead.

(26) Fit the lower wishbone pivot pins

into their sockets and slide the rear hub/lower wishbone assembly on to the pin.

(27) Trap the pin and torsion bar in place with the 2nd bulkhead. Fit all the remaining screws.

(28) Swing the hub/drive shaft assembly up into place engaging the drive shaft in the diff after having lightly greased the hexagon ball coupling.

(29) Slide the rear top wishbone pivot pin into place, replace the collets after filing flats on the pivot pin. Use thread lock.

(30) Fit shock absorbers and rear anti-roll bar links, trap the rear torsion bar and

retain the lower pin with a brass collet.

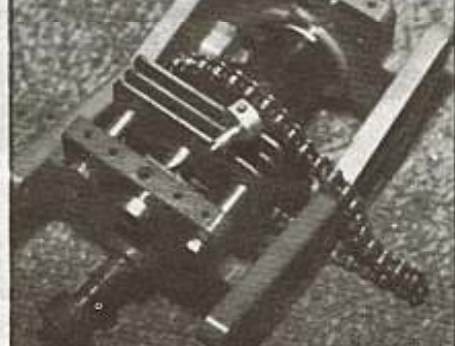
(31) Check the rear anti-roll bar for shape and fit into position.

(32) Reassemble the lay-shaft engine etc., couple up the brake linkage and your car is now ready to set up.

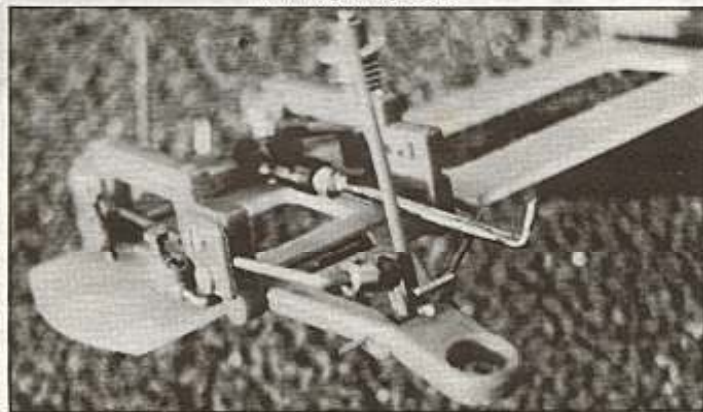
retain the lower pin with a brass collet.

(31) Check the rear anti-roll bar for shape and fit into position.

(32) Reassemble the lay-shaft engine etc., couple up the brake linkage and your car is now ready to set up.



Above: the rear end chain drive mechanism and differential test-assembled before fitting to the chassis permanently. Below: close up of one of the front lower wishbones, torsion bars and ride height adjusters.



Setting up and Driving

Assuming that tyres are prepared to the diameters recommended by PB (82mm rear, 75mm front) and the torsion bars and anti-roll bars are accurately shaped and the suspension is generally free-moving, setting-up of the 'Alpha' '82 is simple. In other words, a properly built car will pay dividends in performance. Find a flat solid surface, push the car down until the chassis is firmly contacting the surface then screw up the nuts on the ride height adjusters until they just touch the springs. Release; the wheels should now be exactly upright. Fine adjustment can be made by

propping the rear of the car just clear of the work surface on a parallel block then lifting the front clear. Spin the front wheels and lower the car gently. If one wheel stops before the other, screw up the ride height adjust nut a small amount until both wheels stop at the same time.

Take out the prop under the rear of the car and repeat the drop test. If the rear springs are correctly adjusted, both front wheels will once again be stopped simultaneously. If not, adjust rear torsion bars until they are. It really is very simple. In low traction situations, an improvement in handling can be made by disconnecting the rear anti-roll bar, but apart from that, leave everything alone, you are unlikely to be able

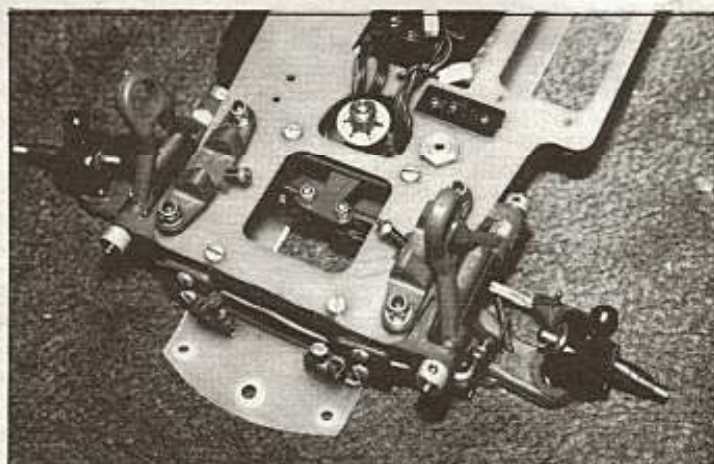
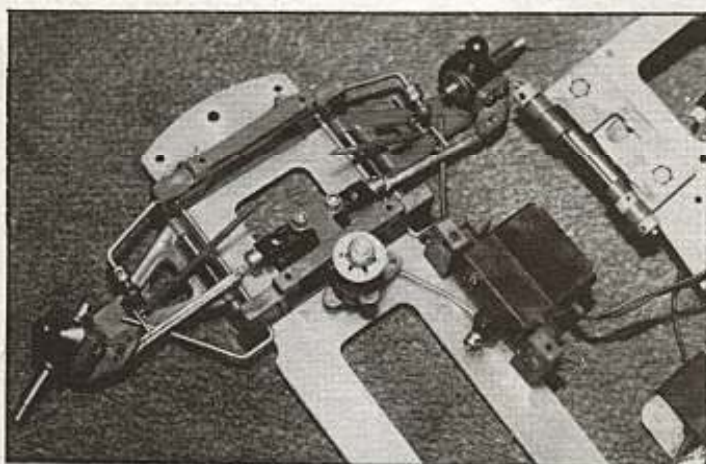
to achieve a significant improvement in handling.

As for tyres, well PB's popular 215's are good on the rear whilst firm PB 202's on the front will suit most conditions for the average club driver. The stiffer front end does provide more grip and consequently diminishes the need for very soft front tyres.

The new car is lighter, handles better, and is more economic on front tyre consumption, with the added bonus that the reshaped chassis is less likely to break

under heavy impacts than the earlier type. However, the whole principle of independent suspension does rely on having a rigid chassis, a requirement which does not lie easily with the requirement that the chassis should be resilient enough to absorb shocks. Really the cornering ability of the car and its excellent brakes should mean that drivers are less likely to hit solid objects than ever before. Just take advantage of 'Alpha' '82's precise handling to avoid the moving objects which can nudge your car onto the solid ones!

Below left: revitalised 'Alpha' front end awaiting the bolting down of the radio plate and upper wishbones. Below right: the final job of connecting together the upper and lower wishbones, care must be taken not to overstretch the retaining circlips.



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