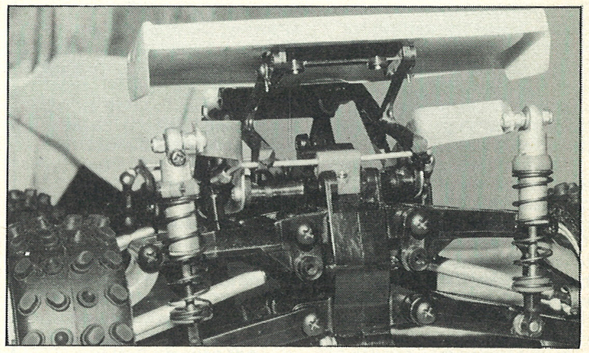
Hotting up the 'Hotshot'

DIY Modifications from Steve Newey and Charlie Formby

SINCE COMING OUT earlier on this year the *Tamiya* 'Hotshot' has proved to be very popular and competitive and after initial reservations has found favour with some of the country's top drivers. The car has been winning 'A' finals all over the UK the most noticeable in my book being Derek Bailie's win at Dumfries using an unbalanced car and Richie Insherwood's two wins on the trot (Weston-super-Mare) and Chesham) in the BRCA Modified Class against very good drivers.

I used the 'Model Cars' 'Hotshot' at a Northern League round up at Dumfries (not ballraced) and found the car very easy to drive using the same technique I use when driving a two-wheel drive car. For those who have never seen me drive, my driving style is quite simple and seems to have caught on in a big way: Drive the car flat out on the straights, crash into the boards on the apex of the corners, shout at the marshal (if he's there) to put me back on the track and proceed to the next corner at full tilt etc., etc.



Above: rear view of the 'Model Cars' 'Hotshot' showing the independent damping system which replaced the original mono-shock.

Anyway, to get back to the car, like any other it does have its faults, the biggest being the horrendous amount of bump steer. Although the bump steer doesn't affect the car's straight line stability it does rather cut down the steering lock, especially when the front suspension is compressed making it difficult to negotiate tight hairpin bends at high speed.

Another problem which all 'Hotshot' builders must have encountered when assembling the car is trying to fit all the radio gear in the tiny radio box, especially when an electronic speed controller is to be used. A weak point on the car looked to be the gearbox mounted front top wishbones, I reckon I could rip the mounting lugs off the gearbox during one of my many high speed shunts. This was easily remedied using a specialist part available from *'Tee Jay' Custom Parts* (Part No. YJH 15) price £2.99. Other tune-up parts like stronger drive shafts, front suspension ball connectors etc., are also available from *'Tee Jay'* and *Specialist Turned Parts Ltd.*, which are vastly superior to the kit items.

The latest problem to show itself concerns the drive shaft running between the front and rear gearboxes. Up to now, I've heard of four or five of these breaking at the brass joint, Mr. Fountain and Mr. Bannister, we need stronger prop shafts please.

I'd also strongly recommend that the gearbox bearings supporting the prop joints are epoxied into their respective housings to prevent them from dislodging which can ultimately destroy the gears — it happened to me at Dumfries.

All the major modifications to the chassis were carried out by clubmate Charlie Formby who carries on this article from this point describing the modifications and how they were made.

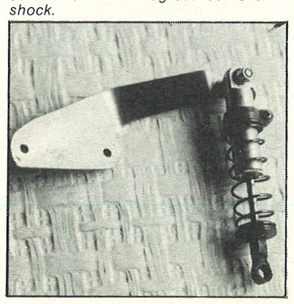
The original concept of two side frames and an undertray, was not our idea, but one seen by Steve, at the July BRCA meeting at Halifax. The side frames were manufactured from 2mm GRP sheet. Several designs were tried, the first of which, incorporated roll bar stabilisers front and rear. This proved to be a bit unwieldy so on later designs the original 'stabiliser brackets' were retained **(see fig. 1)**.

Bump steer was the next problem to deal with. After experimenting with the 'Hotshot's' own servo/saver I gave it the 'big elbow' in favour of an *Associated* item, the same as the ones used on the 'RC10'. This servo saver is of the bellcrank type, and has a much better spread, between the ball connectors to the track rods which was just what I was looking for. To cut down the bump steer the track rods should be of the same length as the lower wishbones and move through the same angles. It's the difference in radius between the track rods and the wishbone which cause the bump steer in the first place.

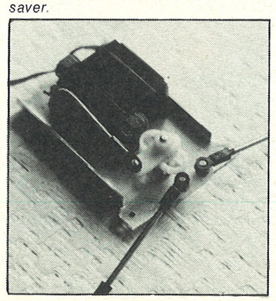
Track rods are made from ⅛in. silver steel tapped with an M3 thread to take the 'Hotshot' track rod ends. The servo saver is mounted on a 10mm spacer.

The tray upon which all this stands is a straight forward affair, made from 1.5mm dural sheet. This is

Below: damper mount from 1.5mm dural fitted with 'Progress' coil over shock.



Below: the new steering servo mount fitted with Associated 'RC10' servo saver.



Below: underside of the completed chassis showing the lower brace between rear gearbox and undertray.

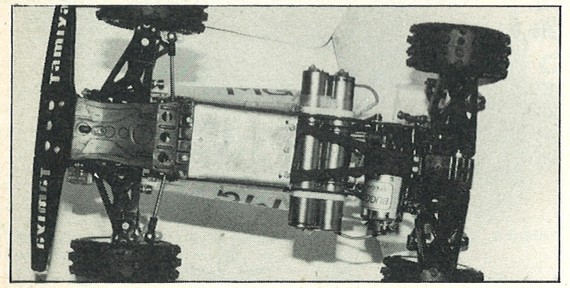
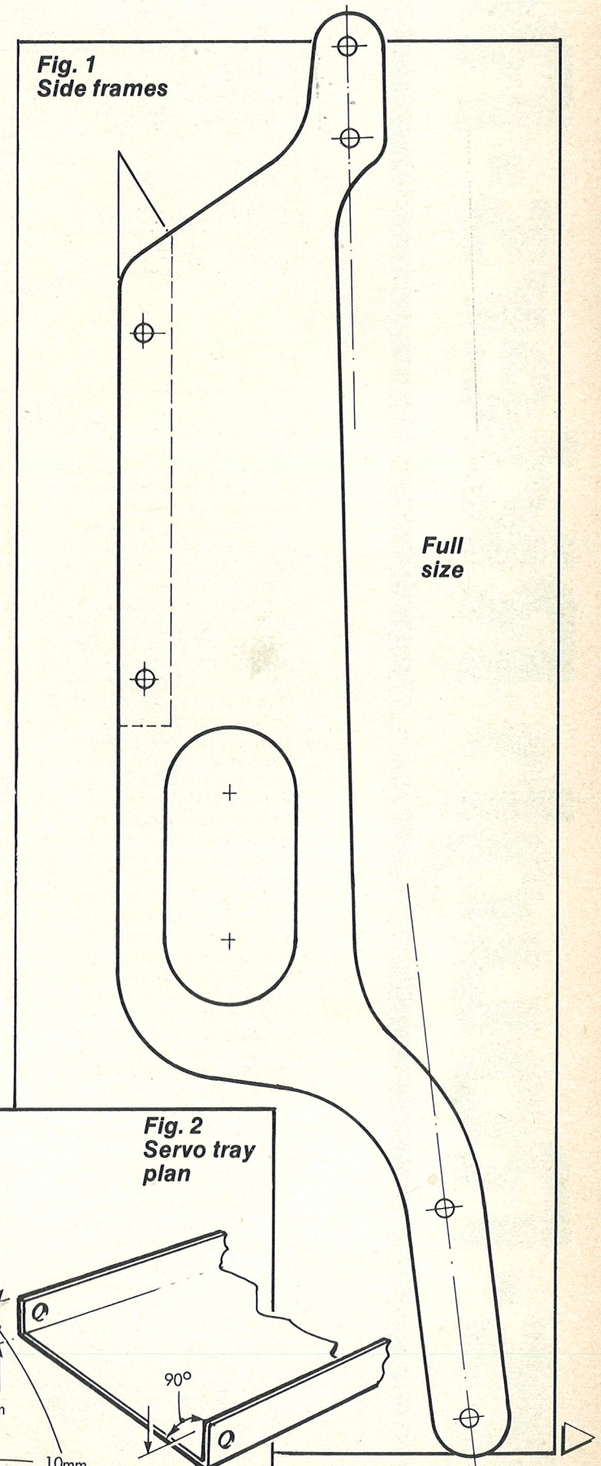
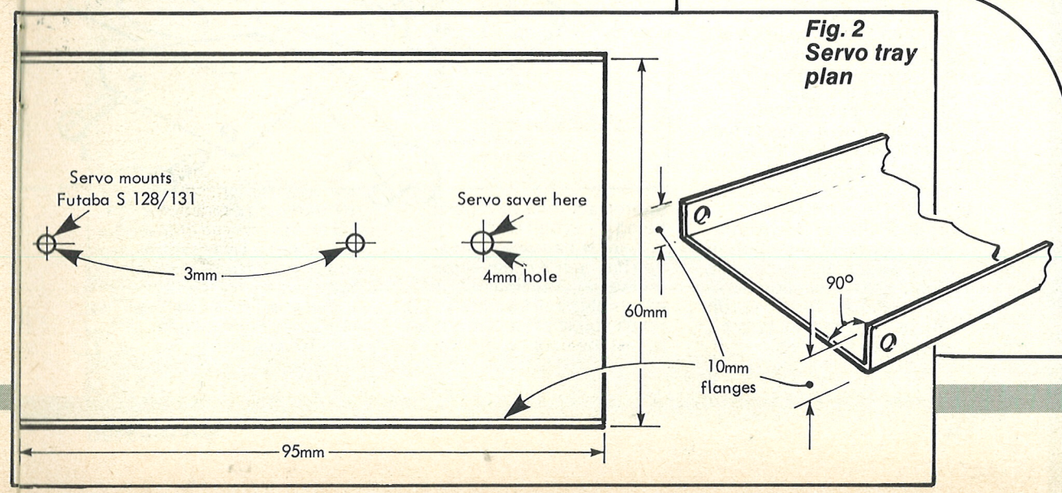


Fig. 1
Side frames

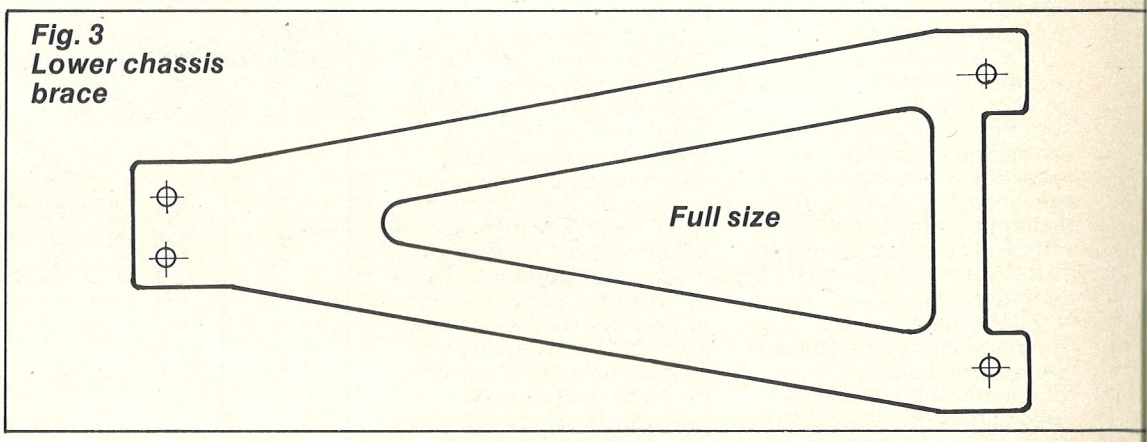


Full size

Fig. 2
Servo tray plan



The Rough Stuff



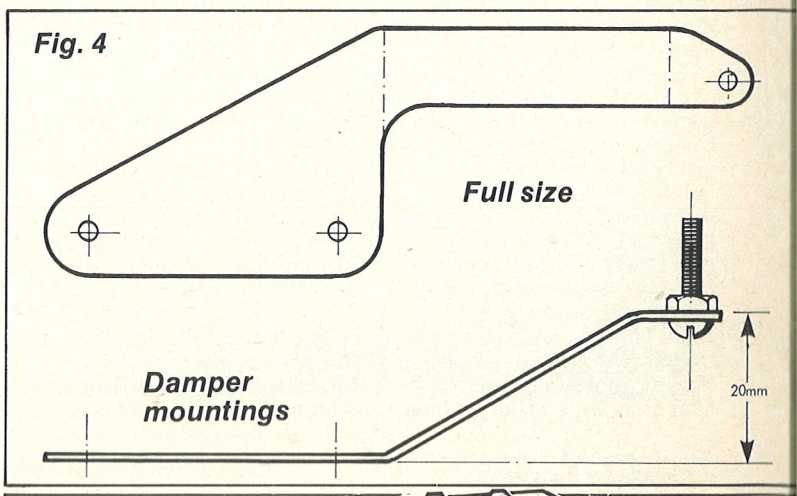
bolted between the side frames and forms a very sturdy yet light base, upon which to mount the steering servo etc. **(fig. 2)**.

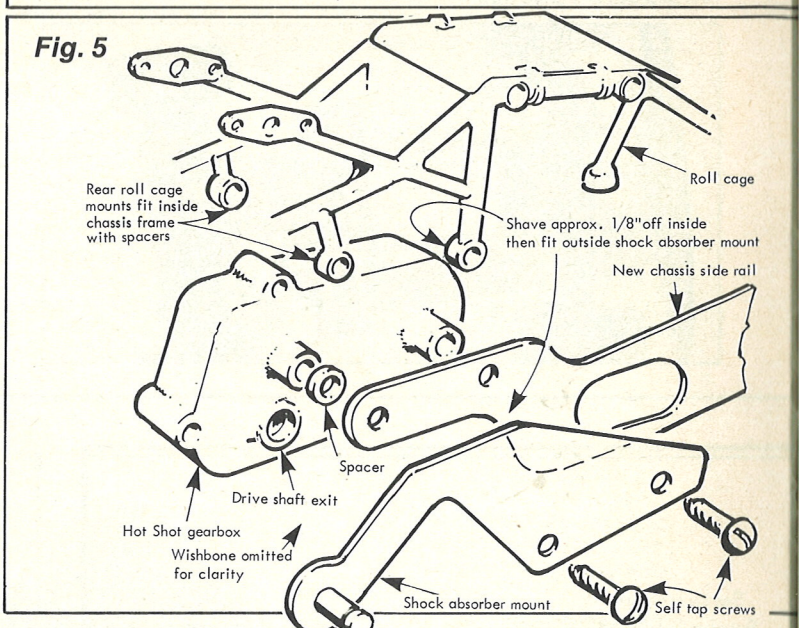
The rear mono-shock assembly was disposed of in favour of independent 'Progress' coil-over suspension units, the mountings for which were fashioned from 1.5mm dural **(fig. 3)**. A 3mm hole is drilled in the rear lower wishbone, 40mm from the inner end. A 5mm 'Hotshot' ball connector is epoxied into this to mate with the ball joint mounted on the 'Progress' damper.

To maintain that distinctive 'Hotshot' look the bodyshell, wing and roll cage were retained. The roll cage was cut down to save weight and inside of the front screw mounts was shaved down to allow the new chassis frames to be fitted. A 3mm shim was required to pack out the rear cage mount and provide a firm base for the rearmost chassis mount **(fig. 4)**.

After assembly of the car I decided that a brace was required to firm up the rear gearbox (this would help Steve when he's shunting cars about the track and also to deflect the odd torpedo or two). This I made from 1.5mm GRP **(fig. 5)**.

To smarten up the appearance I decided to dye the GRP parts black so I stripped the car down and boiled them all in a solution of *Dylon* for 20 minutes. Two things! Wear some rubber gloves and an apron and use an old pan. Wives and mothers do not appreciate their best pans being dyed half black.





A set of ballraces and a *Tee Jay* anti-roll bar were included in the final assembly. Unfortunately time's too short to allow me to test the car properly under racing conditions, but the first prototype cornered very sharply and that was a good deal heavier than this one.

I'll leave it to Steve to tell you how it went, in next month's column.