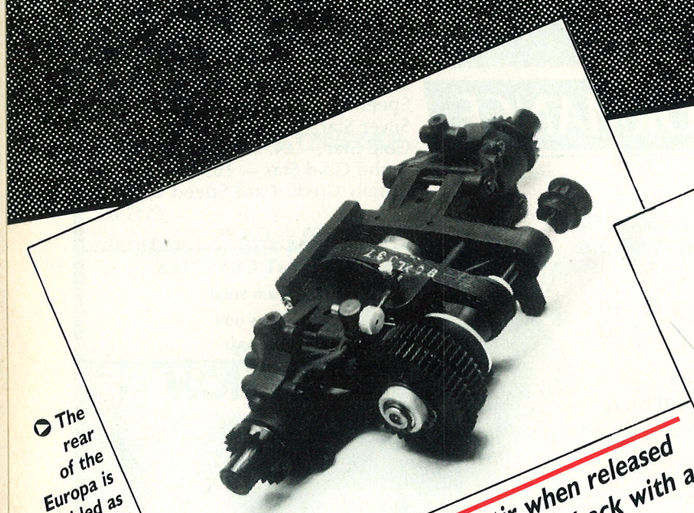
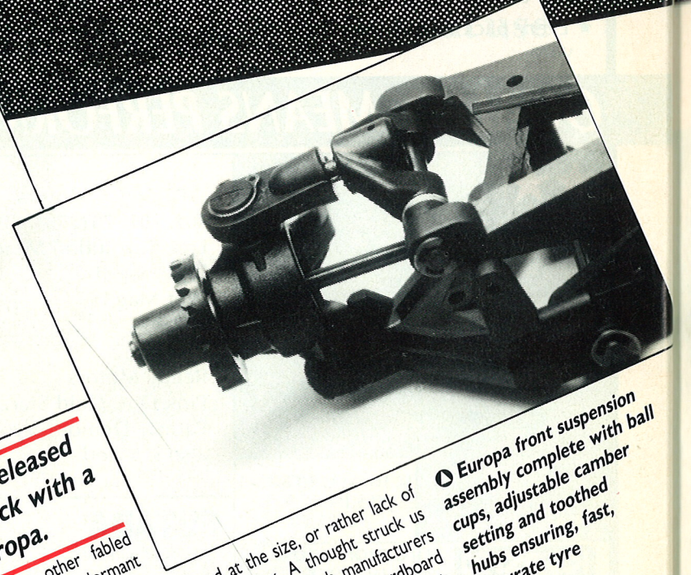
S.G. EUROPA



The rear of the Europa is assembled as a single unit incorporating two speed gear unit, primary drive, differential, drive shafts and hubs. This makes for fast trackside strip downs and easier regular maintenance.



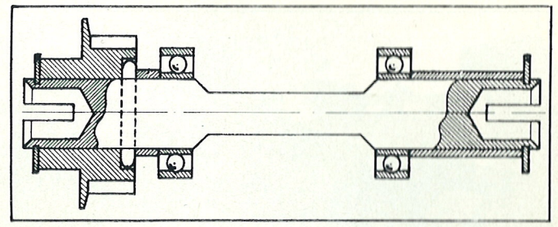
Europa front suspension assembly complete with ball cups, adjustable camber setting and toothed hubs ensuring, fast, accurate tyre changes.

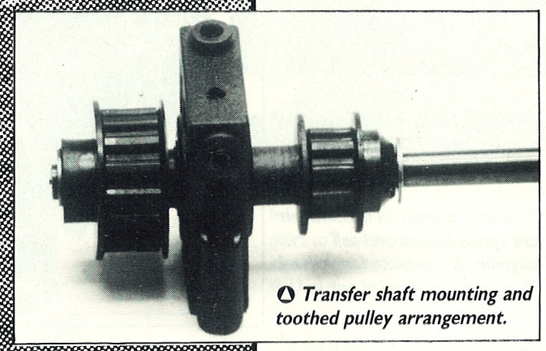
The S.G. Space created a stir when released nearly two years ago, now S.G. is back with a better, uprated car — the Europa.

If you attended the 1988 one eighth Eurochamps you may remember that the event was dominated by one car, the S.G. Space, indeed at the time our erstwhile columnist Bob Errington expounded the delights of the car, at great length and on many occasions. So what happened to the Space? It seems that S.G. ceased to trade and the Space, alongside other fabled items from the S.G. stable lay dormant until another legendary name from the one eighth world, Mantua aquired S.G. sometime later! Now, and after a degree of extra development the Europa is born and if you thought the Space was good, you ain't seen nothing yet!

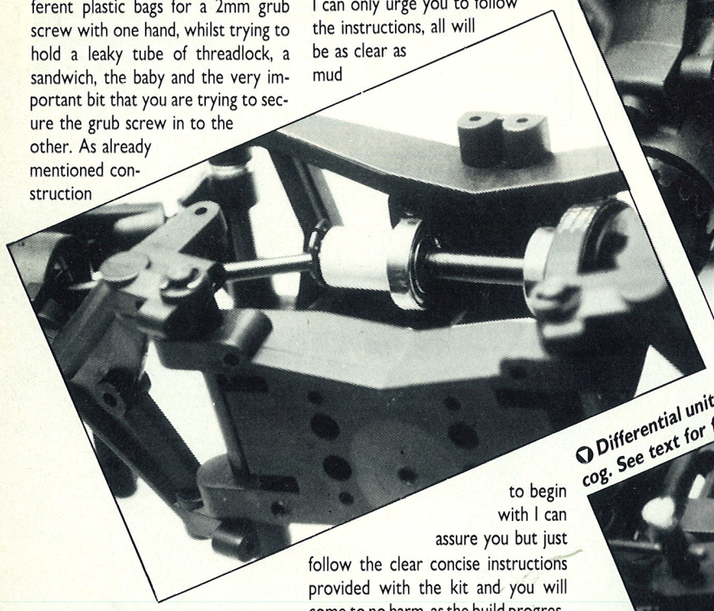
No space in this box!

Our sample arrived from Richard Stitson of Windsor Models. We were amazed at the size, or rather lack of it, of the box. A thought struck us that if the one tenth manufacturers cut down the amount of cardboard that they use in the make up of their boxes, they could probably knock £20 off the price of the kit! Inside the box was neatly packed and bagged a whole car, including wheels and tyres. It is worth mentioning here that all parts are bagged sensibly in a stage by stage method, for example the first item you construct is the rear differential, all parts including all the fasteners are in the same bag. This is really a great way of packing kits, it eliminates the need to rifle manically through 28 different plastic bags for a 2mm grub screw with one hand, whilst trying to hold a leaky tube of threadlock, a sandwich, the baby and the very important bit that you are trying to secure the grub screw in to the other. As already mentioned construction begins with the rear differential and drive pulley. Anyone who has constructed a ball diff before will have no problems here as everything is very straightforward and falls into place. If this is your first ball differential build I can only urge you to follow the instructions, all will be as clear as mud to begin with I can assure you but just follow the clear concise instructions provided with the kit and you will come to no harm, as the build progresses you will appreciate why things are as they are, remember as a car turns the wheels at the outside of the turn are travelling further than the wheels at the inside of the turn, if both sets of wheels are to be at the same parallel point on the track at the same time (accidents excepted) then there must be some form of device allowing one wheel to slow down whilst the other is speeding up, or vice versa, the differential is that device. Now that you are more confused than ever, courtesy of my explanation, it must also be said that the Europa has another, more cunning, excellent little device up its drivetrain, so to speak. Built into the differential unit is an adjustable pressure collar, this ingenious piece of engineering allows more or less pressure to be put directly onto the differential pressure plates (these are the plates that the balls run between oo,er). This ensures that on a slippery or dusty surface, by adjusting this pressure collar to suit, a degree of slippage is allowed for so that the car will be less inclined to spin out as the power is applied, great eh! The rear sideplates can no be assembled with the whole



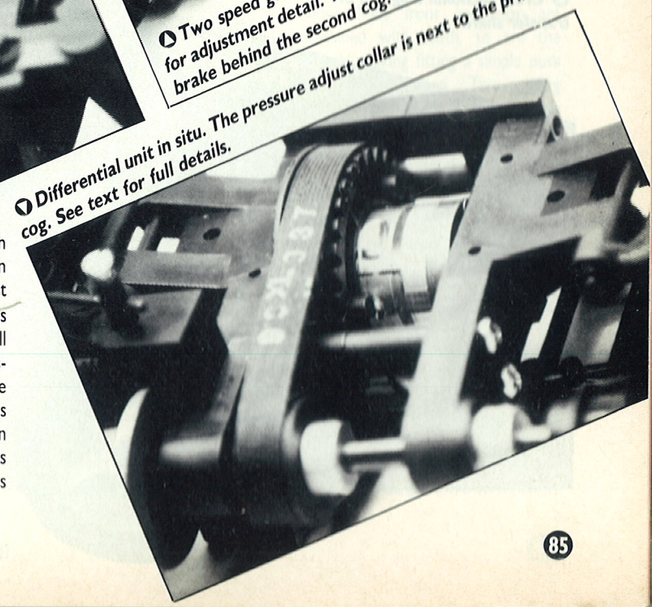


Transfer shaft mounting and toothed pulley arrangement.

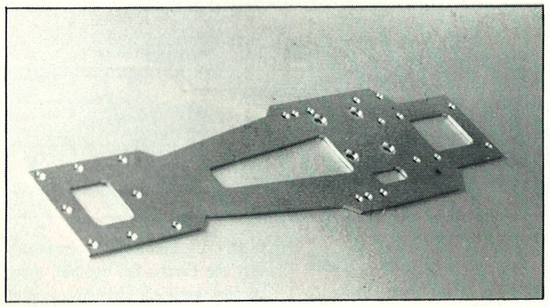


Front beam axle before being clamped firmly between the upper and lower halves of the suspension mouldings.

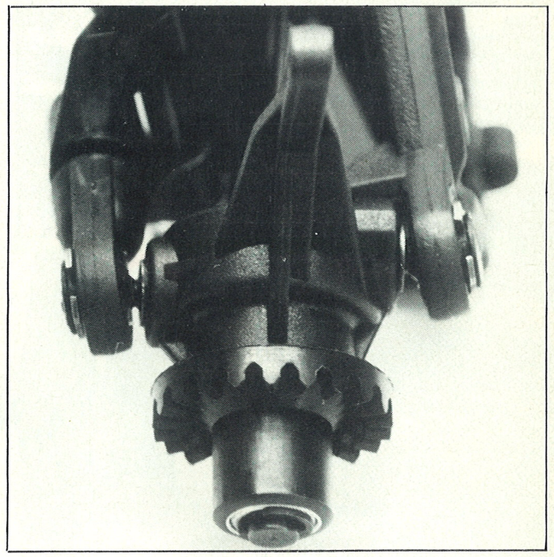
Two speed gearbox, see text for adjustment detail. You can just see the Europa's disc brake behind the second cog.



Differential unit in situ. The pressure adjust collar is next to the primary cog. See text for full details.



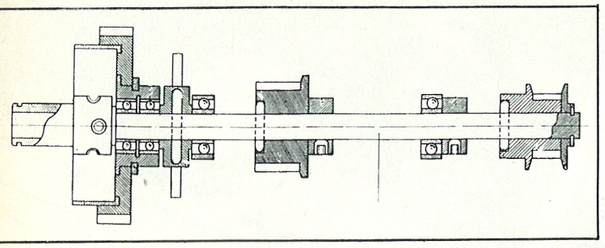
Alloy chassis is drilled and countersunk ready to go.



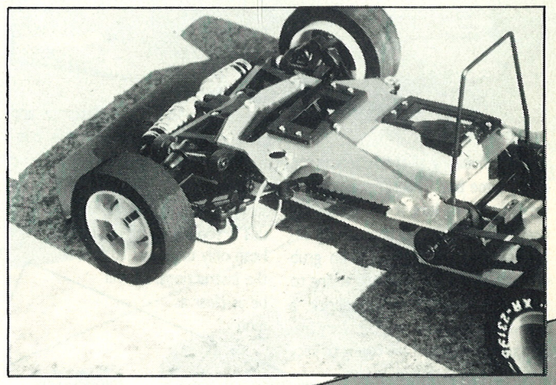
Close up detail of hub, wheels are spring loaded and self aligning. A complete four wheel change can be carried out in seconds.

diff unit sitting neatly between them, don't forget to slip the toothed drive belt around the whole assembly before you tighten everything up.

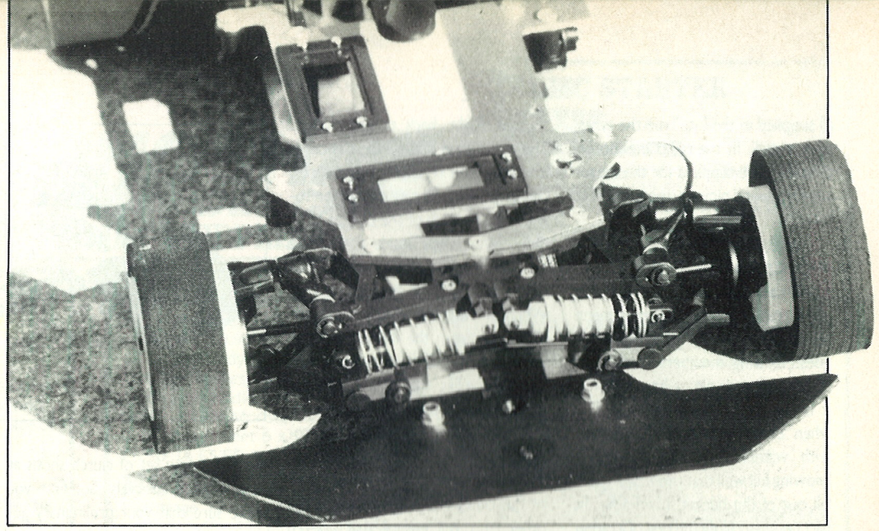
You should now be ready to assemble the transfer shaft, two speed gear unit and brake. Again follow the instructions and you won't go far wrong, the brake can be a little tricky to assemble if you have already fitted the rear of the Europa to the chassis so it is best done beforehand. The two speed gear unit is centrifugally operated and for the benefit of all first timers we will deal with how to set it up later in the article, again though if you remember that the whole box of tricks is a friction operated centrifugal device then you won't go far wrong (I'm going to get well and truly ticked off for this next remark but it follows much the same principles as your average Suffolk Punch lawnmower does) all right, all right, no offence intended but it does it really does. The friction shoes are moulded from Teflon and by the look of them should, once properly adjusted, give excellent service. Finally, do make sure to lock the set collars firmly into place on the shaft once you are satisfied that all is where it should be. The centre shaft is now assembled and firmly fixed to the chassis, there are no areas of special attention here and you should find no problems.



Cross sectional diagram of transfer shaft.

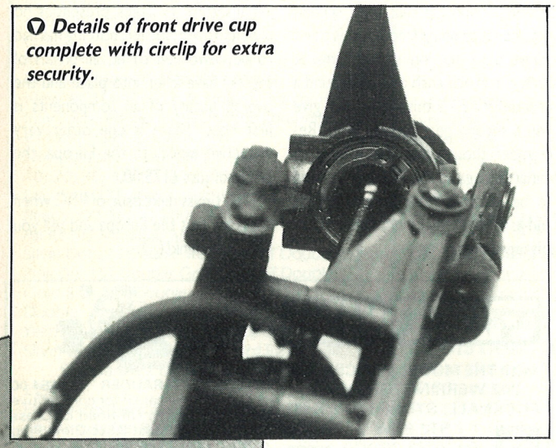


The front of the Europa is just as delightful to build as the rear, it must be said that when a car goes together as easily as this one does then the building time seems to disappear, time taken to this stage is well under two hours, in fact the complete drivetrain was assembled at a leisurely tea sodden pace in under an evenings work! The front of the car could not be easier to build, a simple shaft with drive cups machined in each end runs between two bearings, connected to this shaft is the front pulley that carries the belt, the bearings are firmly seated in two carriers recessed in the top and bottom half of the front end mouldings. Now I know what you are thinking, having spouted on so much about the why's and wherefores of the rear diff! Where's the one for the front, surely the same laws apply? Well, yes they do but don't forget, there is more than one way of skinning a cat. The front of the Europa uses one way roller bearings set in the wheel hubs to gain the differential action needed, the one way roller bearings coupled with the fact that the front end, due to the gear sizes, appears to be slightly overgeared. Taking the fact that the front wheels are smaller than the rears into account, this set up should give the type of natural handling charecteristics that are so often searched for, ie , a natural degree of soft understeer that makes any car so much easier to drive.

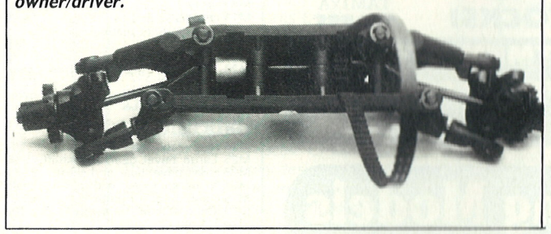


Front end before tyres are trued!

Details of front drive cup complete with circlip for extra security.



The front end is unitized, again to provide an easier life for the owner/driver.



The clever bit though is that the hole has been drilled ecentrically so that as you turn this sleeve, a slot is machined in to take a screwdriver, you adjust the camber setting of the rear wheels. Once you are satisfied that they are both correctly set at the same angle you simply lock them into place using a grub screw. Front suspension is by bottom wishbone and top link, again adjustment to camber settings could not be easier simply by inserting an allen driver in the end of the tie rod and turning it moves the tie rod end in and out, thereby adjusting the camber angle. Last but not least the front uprights swivel on ball and socket joints, the balls are screwed into the uprights, the socket is in two halves and is placed on the ball, the whole is then positioned through pre-machined holes in the top link and bottom wishbone and held firmly in place using circlips. Again this shows remarkable forethought, even if both sockets are low wear areas, which I doubt, this system allows the old cups to be taken out and changed at the first signs of wear, eliminating the need to replace the whole top link or bottom wishbone at an obviously greater expense. Drive is transmitted to the wheels both front and rear by very substantial driveshafts, all drive cups are firmly held together by circlips so that no flexing or complete parting of the sidewalls should occur during overstressed moments!

All wheels are held onto the car using a very simple yet extremely effective system. As the photographs show, hubs front and rear are machined with teeth, so are the wheels, making fitting a simple push together operation. Two spring loaded clips hold each wheel and hub together, simple, effective and very fast.

Dampers are identical units front and rear, except for the springs which are heavier at the rear as you would expect. These are dampers rather than shock absorbers employing a flap valve system that works in the upward as well as the downward stroke in an attempt to keep the car as flat as possible at all times. Spring tension is adjustable by means of a thread and collar, they are easily assembled and do not leak using the oil supplied.

All that's left then is to asemble the fuel tank, radio plate and servo saver,

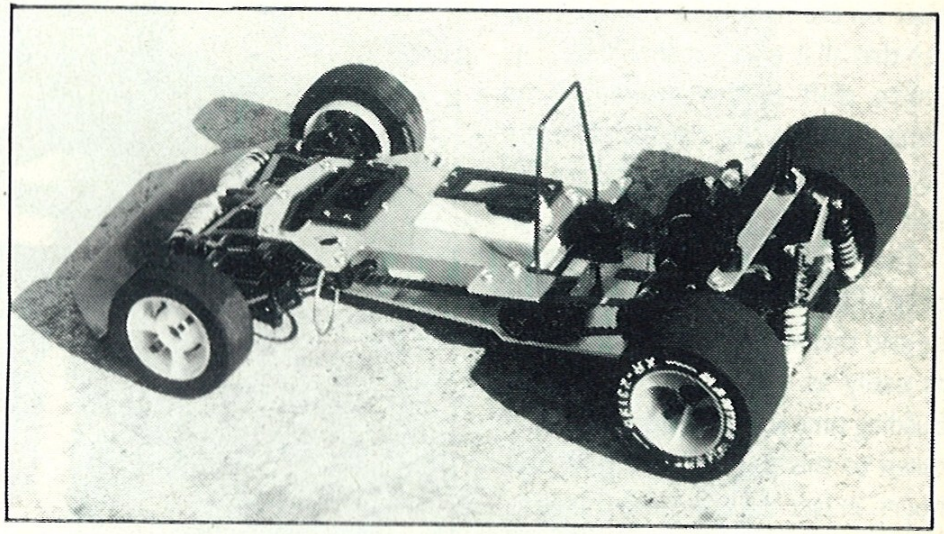
Suspension

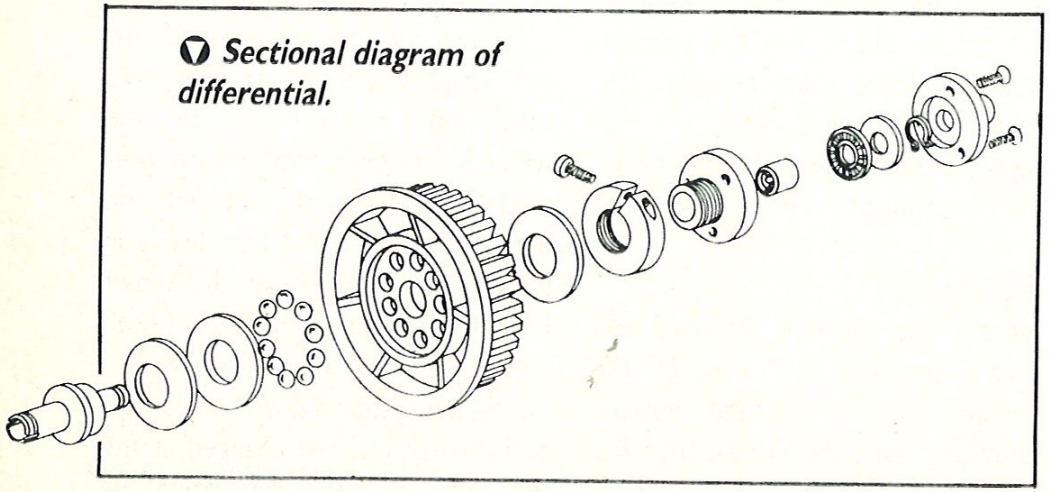
Next to be added is the front and rear suspension, the rear of the Europa uses a top and bottom wishbone assembly, all held together with substantial hinge pins and E clips. Again there is a very clever and unique, to me at least, mechanism built into the top link of both rear uprights, inasmuch as the top hole is sleeved with an aluminium cylinder, through this sleeve the correct size hole has been drilled to take the top link pin.

all supplied in the kit. True the tyres, paint a shell, fit the radio and motor, all fittings are supplied for the motor and two speed pinion so no extra cost there!

Adjustments

Remember we said that we were going to run through the adjustment/ set up of the second gear, right here goes! Existing members of the one eighth fraternity please bear with me. It is fair to say that nearly all of us, when children, have filled a bucket with water and swung it around, knowing full well that the water won't fall out of the bucket. I had a handle part company from the rest of a rather full bucket once, the water laden projectile arced gracefully through a closed downstairs window so be warned. Right, back to the bucket. The water stays in the bucket because it is subjected to a centrifugal force, that is you are forcing the water toward the bottom of the bucket at all times, even when upside down. The same principle applies to the clutch that is built into the second gear cog. When at rest, the clutch shoes are held away from the friction walls of the clutch drum by tensioned springs, you must make sure that both sides of the clutch are adjusted equidistant from the shaft on which the cog rotates, exact distances are quoted in the instructions, otherwise one side of the clutch will engage before the other, this will ensure that uneven wear of the clutch shoes coupled with a total lack of top speed will occur. It will also mean that you will be forking out for a new set of clutch shoes at very regular intervals. So, first you make sure that your preliminary adjustments are correct, then you assemble the rest of the two speed unit. You will now see that the clutch drum has a hole drilled in it, this allows you access to the spring tension allen screws. Supposing that your second gear cog is spinning freely at this point adjust both tension screws until it isn't, then back each one off around a quarter of a turn, this should then give you a second gear to play with. Remember though that this is only an initial setting and it will obviously need to be adjusted for different circuits and as wear in the clutch shoes naturally develops.





Sectional diagram of differential.

So far so good

So far our car is built and ready to go, next month we will be track testing the Europa and bringing you the results. However, if an initial summing up is needed we need only say this, we have found the Europa to be excellent in all aspects of the building and initial setting up stages, presenting no problems whatsoever, nothing has had to be reworked to fit, all pieces of the car have fallen into place and the overall quality of all components is first class. There is one other very attractive aspect to the Europa, the price, of just £175.00.

Don't miss next issue of RRC when we track test the Europa and tell you what we think!