

## Rob Roy reviews the 1:10th on road lightweight Laserlite

**L**aserlite are a new name to UK racers, but have been established in America for a while now. The Shadow is Laserlites

entry into the 1/10 circuit scene and has achieved a lot of initial success in America. The Shadow is now available in England, imported by

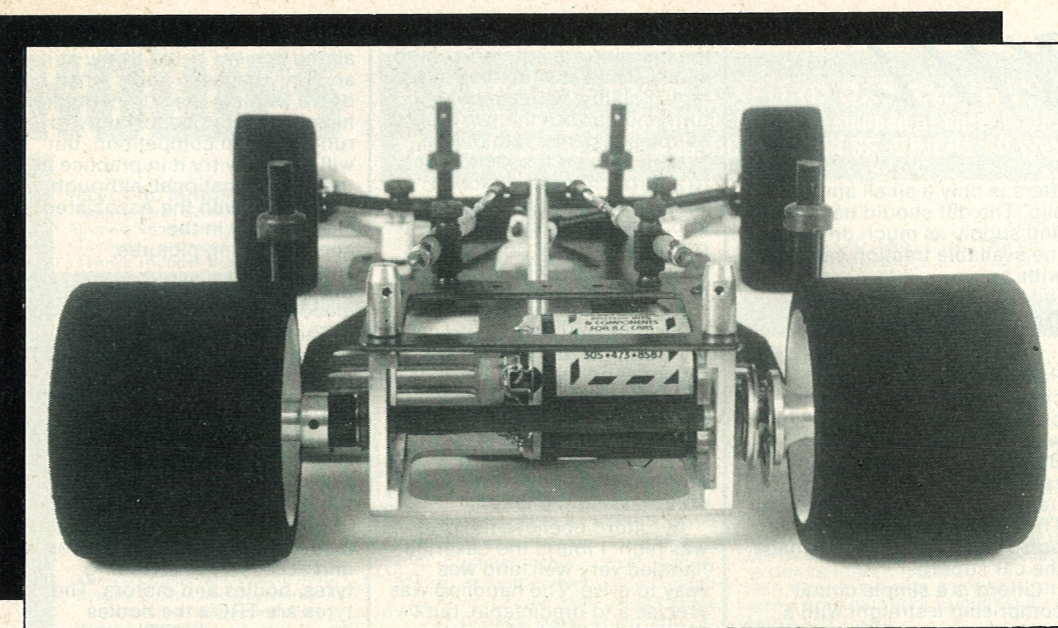
Powerwheels International. The Shadow is available in glass fibre and Graphite versions. The kit reviewed is a graphite version called the intermediate

standard. This is sold as a rolling chassis complete with wheels and tyres. The retail price of the kit reviewed is around £170. The base level glass chassis car has a market entry price of £110 for a rolling chassis with oilite bearings.

### Chassis concept

The principle feature of the car is light weight. The car is claimed to be the lightest available. The front suspension uses Associated RC12L components, arguably the best on the market. The chassis is very narrow with the saddle pack batteries closely spaced, giving a minimal polar moment of inertia (which is another way of saying the car will turn in quickly). The rear suspension is built around Laserlites own full floating T piece arrangement which is controlled by a twin damper arrangement. The dampers are based on silicone rubber tubing, like the original Parma Panther 1/12 car. The twin damper arrangement controls both roll, tweak, and squat under power.

The car is adjustable both for wheelbase and track. This allows the owner to experiment a lot with the handling and stability. The front suspension is provided with a range of springs, allowing adjustment of front end roll stiffness. The rear suspension roll stiffness can also be adjusted by shifting the damper location inboard or outboard.



Above: Neat alloy rear pods hold the rear axle - note alloy wing mounts.

### Construction

With all circuit cars, and the laserlite is no exception. The first task which must be accomplished is cleaning up all the milled edges on the graphite and glass fibre components. This is best done with a file and some medium grade wet and dry paper. Laserlite advise running a bead of superglue along all the exposed edges of the graphite, to prevent delaminating on impact. This seems a good

and hard (28thou). The best start point is to fit either the mediums or a set of PB springs - about 18thou. The front suspension is braced by a tie bar across the front steering arm location screws.

Next assemble the rear suspension pod. First attach the aluminum blocks to the T piece, then add the graphite top brace. The rear blocks are machined to be very light, and I found benefitted from being deburred with 600 grit wet and dry paper. Next add the 1/2in. grub screws to the rear blocks, then screw the wing mounts over them. Ensure the wing mounts tightening holes are

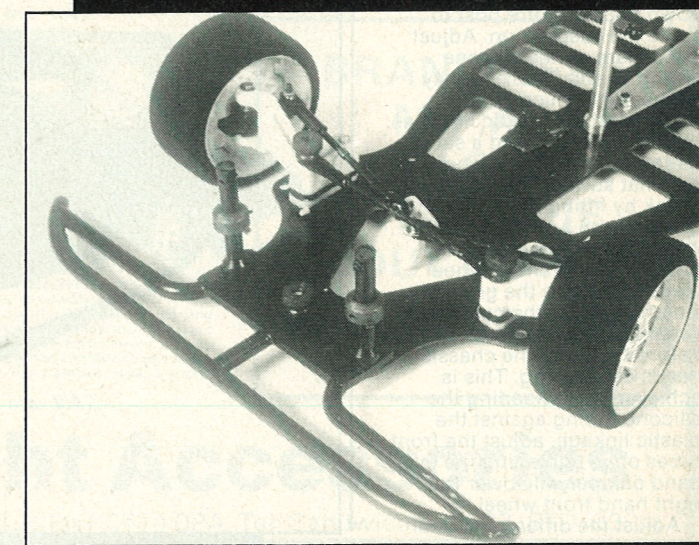
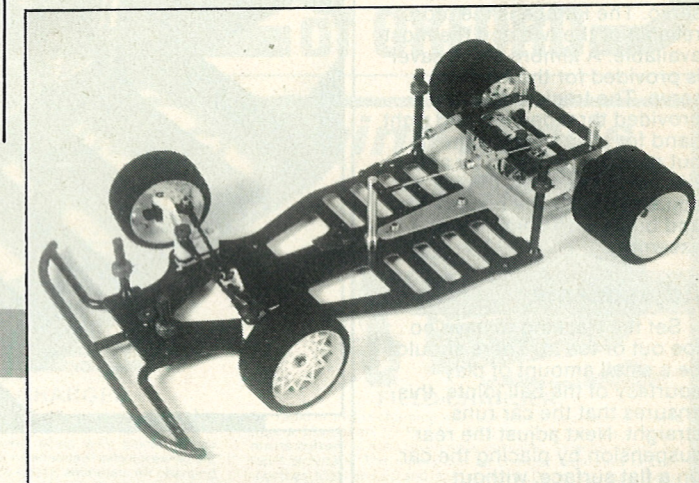
suspension post, then fit a ball joint pivot ball both sides, tightening securely and loctiting.

Finally assemble the twin dampers, first solder the threaded brass ball joint adaptor to the piano wire shafts. Fit the collets, ball joints silicone rubber and plastic linkages in the order shown. Snap the ball joints onto the damper post and check for free

movement, if the ball joints are too tight gently squeeze them with pliers until free movement is obtained.

Now assemble the differential. The standard diff has a graphite axle and a plain aluminium hub. Where the diff hub bears on the shaft the graphite has to be gently relieved with 600 grit wet and dry paper, until the diff hub rotates freely, but with no slop. Superglue the thrust washers to the axle hub and diff hub making sure that they are aligned accurately. Fit a diff gear and a set of balls (not provided). I find the 48dp tufnal gears from SRM most suitable, gears in the range of 80 to 90 teeth (48dp) are suitable for use with this car to allow the meshing of a wide range of pinions. Fit the thrust washers, thrust race and cone spring washer then do up the diff nut lightly. Do not grease the thrust washers of 1/2in. diff balls, but grease the shaft to allow free movement of the diff hub. Using grease in the diff itself attracts grit which creates a grinding paste and ultimately ruins the diff.

Laserlite also supply, as an extra, a fully ballraced, lightweight 'pro diff.' The diff gear runs on a ball race, and the diff hub is supported on two ball races. One flanged, and two non flanged ballraces



rearwards facing, if they are not, place a thin nylon washer under the wing mount, then retighten until the correct alignment is achieved.

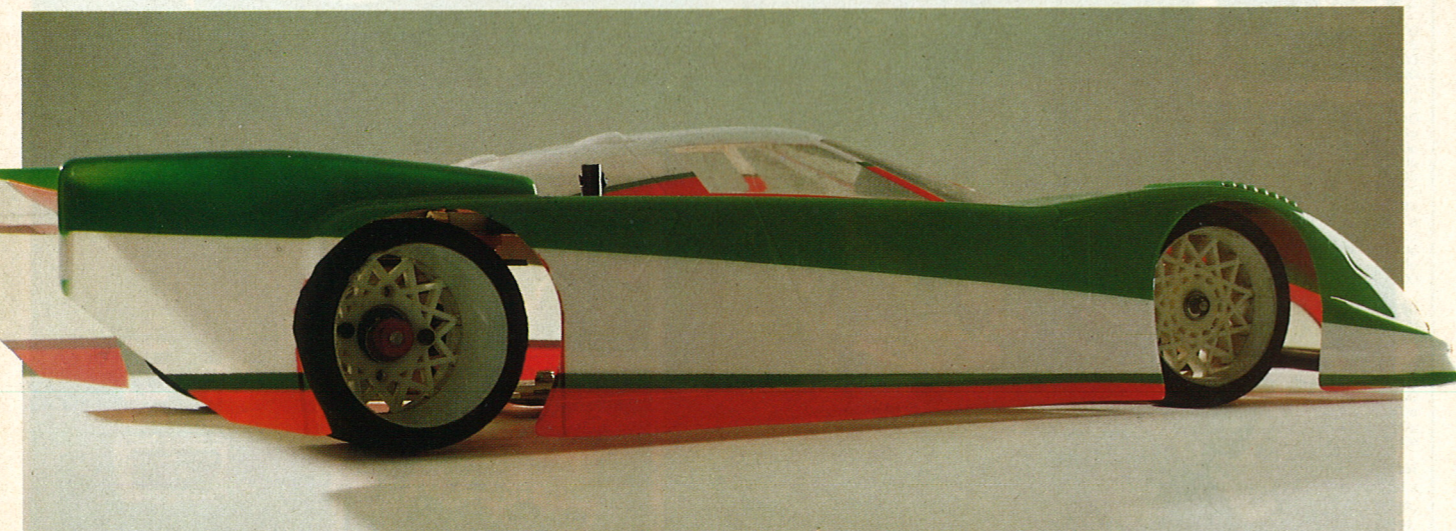
The rear pod is now ready to attach to the chassis. As indicated in the instructions use the rear of each of the two pairs of holes. I found that two washers under the front location, and a washer and an 'O' ring under the rear location gave a nice feel to the rear suspension. Place the O ring above the washer. Next fit the suspension post to the chassis, taking care to align the hole at right angles to the chassis centre line. Fit the 1/2in. long grub screw through the

Top: Neat clean chassis with simple damper arrangement. Right: Associated axle blocks and BBS look wheels.

idea, especially if running on tarmac.

Commence construction by fitting the Associated suspension arms to the chassis inner holes. It is necessary to fit both the 2° caster wedge and the ride height spacer. In fact I would advise purchasing and fitting two sets of extra spacers to allow the chassis to run parallel to the ground. Assemble the axles into the steering blocks and fit the inner E clip. Laserlite do not use 12L kingpins but instead fit on Associated front axle, securing with an E clip above and below the suspension arm. The steering blocks must slide easily on the kingpin, else no front suspension will be available. Three grades of front spring are available; soft (16thou); medium (22thou);

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are provided. I found that the best diff action was obtained by using a non-flanged bearing for the diff gear and the inner bearing on the diff hub, and fitting the flanged bearing into the outer side of the diff hub, use both thrust washers and the thrust race along with the cone washer and nylon locknut.

The Associated ride height spacers needed gently relieving to fit into the rear blocks without binding the bearings. Do not overdo this or else you will build in slop, a sliding push fit is what you are looking for. I found 400 grit wet and dry paper ideal for this task.

Laserlite use Associated thrust washers and races, a plastic spacer is used on the fixed wheel side. I found that careful measurement showed that an extra spacer is required on the diff side. I used an extra thrust race and washer. When tightening the fixed wheel hub onto the axle, allow a small amount of end float to keep the bearings free.

Mount the wheels and your radio gear, the servo mounting holes are drilled for either a Futaba 132 or a Novak NES1A servo. The Futaba is the more reliable of the two and the most available. A kimbros servo saver is provided for the Futaba servo. The track rods are provided threaded left and right hand for ease of adjustment but need to be cut down by about 3/4in. to 1in. to allow the correct adjustment. Fit the body posts and bumper to complete assembly.

## Adjustments

Set the tracking to have no toe out or toe in. There should be a small amount of play courtesy of the ball joints, this ensures that the car runs straight. Next adjust the rear suspension by placing the car on a flat surface, without batteries and pushing up and down on the centre post to settle the suspension. Adjust the collars on the silicone tubing to eliminate any play between the silicone, the collets and the plastic linkages. Mount the motor and a set of batteries, settle the suspension on a flat surface then check for tweak by lifting the front of the chassis with a screwdriver, under the centre hole in the bumper. If both front wheel leave and touch the ground simultaneously the car has no tweak. If one wheel touches before the other the chassis needs detweaking. This is achieved by preloading the silicone tubing against the plastic linkage, adjust the front tubes only, tightening the left hand damper will lower the right hand front wheel.

Adjust the differential until

there is only a small amount of slip. The diff should be free, and supply as much drive as the available traction can cope with.

## On the track

I tried the Laserlite at Lilford Park, which is my nearest circuit. On the TRC greens provided the car behaved very well. The body used was a Bolink TOJ. Initially I found the car smooth but short on traction in one or two places. The addition of a wing borrowed from my RC10 made the car superb.

Lilford is a simple circuit comprising a straight with a banked sweeper followed by four hairpins then a square

sweeper onto the straight. All the hairpins are entered at high speed. The Laserlite displayed high stability, with adequate turn in on all but the two fastest hairpins, a gentle dab on the brakes seemed the fastest way to approach these. Traction, with the wing was excellent although tailsides could be provoked by over aggressive throttle with a 15 turn motor and SCR batteries. I tried both the medium and soft springs, but found very little difference, although I would generally recommend the softs.

The car's ability to turn in can also be adjusted by tightening the T piece rear location screw and thereby increasing the roll stiffness by compressing the O ring.

At Lilford I believe the grip was high. I found the Laserlite handled very well, and was easy to drive. The handling was precise and predictable, but I would have liked more turn in at high speed, as I do not like

to use brakes. The car handled all the power I could throw at it, and only behaved badly when I drove with my brain in neutral. I haven't had the opportunity to run the car in competition, but will probably try it in practice at the Mendip national, although this will be with the Associated Nissan body in the accompanying pictures.

## Conclusion

The Laserlite is a nice car, well packaged and well thought out with its light weight and narrow track the car has good handling, and is easily adjusted.

The car is competitively priced, but at the upper end of the market. Powerwheels import the car which they are distributing, along with spares and accessories, including tyres, bodies and motors. The tyres are TRC's the bodies Associated and MRP and the motors Laserlite.

