

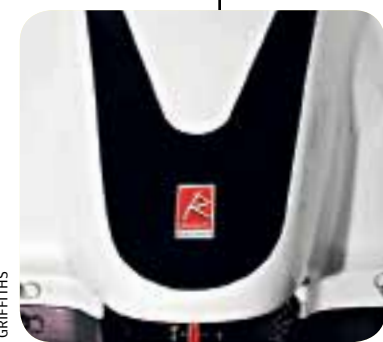
Radical SR3 SL

Street-legal SL is the first Radical to meet European type approval

MODEL TESTED SR3 SL

- Price £69,850 ● Power 245bhp ● Torque 265lb ft ● 0-60mph 3.4sec
- Fuel economy na ● CO₂ emissions 227g/km ● 70-0mph 52.2m ● Skidpan 1.29g

WE LIKE Terrific performance ● Raw driving experience ● Quality feel



1 SR3's nose hides an FIA-approved aluminium honeycomb crash box designed to deform in the event of a head-on collision. Passenger cell is FIA-approved, and includes standard rollover bar.

2 The ground clearance under that front splitter depends on the suspension settings you choose. Our test car had about 70mm of clearance, which is enough to negotiate speed bumps, for example.

3 Headlights include LED daytime running lights, at just the right height specified by the type approval regulations.

4 Mirrors are a legal requirement of EU type approval. The test says they have to be adjustable while your belts are done up, which explains why the SR3 SL's are automatic.

Had we been dropped a few quid every time a fledgling car manufacturer promised (and subsequently failed) to rejuvenate the sports car market, this edition of Autocar, and many before it, would be brought to you from the Bahamas.

But among the empty factories and unpaid bills sometimes arrives a gem of a company – one that establishes itself with a sound business plan and survives thanks to sound products. Companies like Radical.

Radical was founded in 1997 to take

advantage of the increased enthusiasm for track days. Its first cars – the motorbike-engined ones that could be persuaded to be road legal – were so well received that Radical decided to create a one-make series.

It's now 14 years since the firm's inception, and more than 1000 cars, of various types but all similar in ethos, have rolled through the factory's doors. One even rolled convincingly around the 24 Hours of Le Mans in 2009, finishing 20th overall.

Many have been road legal, but none has been as actively road biased as the SR3 SL you see on these pages.

DESIGN AND ENGINEERING

★★★★★

At first glance the SR3 SL still looks like a pitlane refugee, but closer inspection reveals there are areas where it departs from the Radical norm. The existing SR3 is Radical's most popular car – more than 600 have been sold – and while they can be made road legal, many are not and that is not their ethos.

The SR3 SL, though, is different. The 'SL' in the name stands for →

HISTORY

Radical was created in 1997 by Mick Hyde and Phil Abbott, who wanted to make a sweet-handling superbike-powered track and race car. The Clubsport was the first bike-powered track car to have a bespoke transmission, and quickly found fans in both track day and racing environments. It was followed by the Prosport, which came with wings, slicks and more power, and then in 2002 the SR3, of which this SL is a derivative.



Original Clubsport used a Kawasaki motorcycle engine

WE DON'T LIKE Type approval mods affect pure look ● Road tramlining ● Some turbo lag



5 Rear clamshell, like the rest of the bodywork, is made of glassfibre. Underneath lies the engine, gearbox and Quaife diff. To access them, you undo six clips, disconnect an electrical cable and lift the whole section clear.

6 Diffuser has been reduced in size from that of the SR3 Clubsport. It's still aerodynamically effective, however, and no mere styling flourish.

7 Exhausts issue plenty of noise, but all you can hear from the cockpit is the rustling of wind around your head, and the sucking and whooshing of the Ford engine's turbocharger.

8 Adjustable wing is narrower than a race-spec one, so its extremities fall within the car's overall width and it doesn't pose a hazard to pedestrians. It produces about 60 per cent of the downforce of a race-spec wing.

PHOTOGRAPHY MALCOLM GRIFFITHS

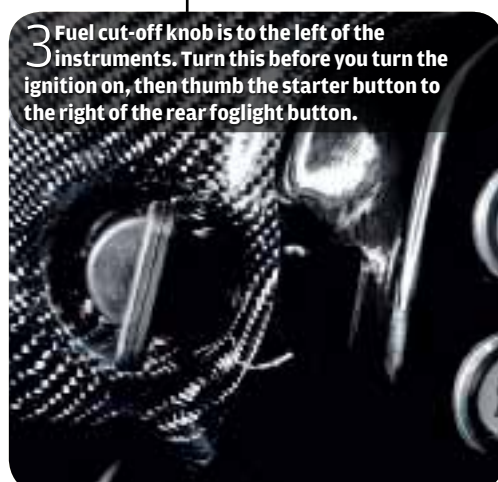
Inside out



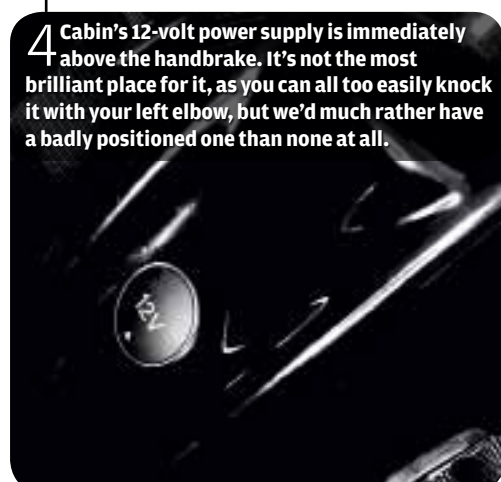
1 LCD instrument panel is, on the whole, quite clear. The revcounter is a little hard to read, but lights along its top edge help to time upshifts.



2 Alcantara steering wheel is detachable for easier entry and exit. It's quite big but, unassisted, makes for just the right control weight. It also includes indicator, headlight and horn buttons.



3 Fuel cut-off knob is to the left of the instruments. Turn this before you turn the ignition on, then thumb the starter button to the right of the rear foglight button.

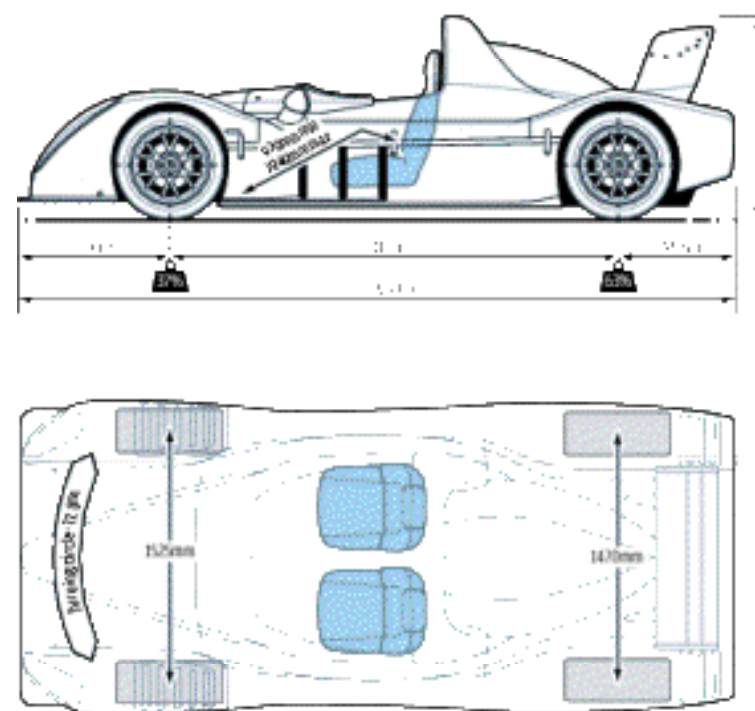


4 Cabin's 12-volt power supply is immediately above the handbrake. It's not the most brilliant place for it, as you can all too easily knock it with your left elbow, but we'd much rather have a badly positioned one than none at all.



5 Pedal box is quite wide, but those with big feet will still struggle slightly for room. There's some steering column intrusion down there, too.

HOW BIG IS IT?



← Street Legal; instead of the IVA single-vehicle type approval process that has previously been applied to the SR3 (limiting the number of cars that can be road registered to 300), the SL has been through the European type approval process. This allows Radical to make up to 2000 cars and sell them throughout the EU – and mainland Europe is where much of the demand has come from.

It's not a simple process, and it isn't cheap (Radical has invested in the region of £750,000 doing it). Visually, there are some obvious changes, such as broader radii around the front splitter and the cockpit edge. The rear wing is narrower so that it doesn't reach the body's edges, and the wheels sit further inboard than usual. They all lend the SL a slightly odd look that's less pure than other Radicals. It looks less *fast*.

However, the significant changes are beneath the car's glassfibre bodywork. Radicals traditionally come equipped with a superbike engine of 1300-1500cc (usually a Suzuki Hayabusa-derived unit), but the SL has a Ford Ecoboost 2.0-litre turbo motor, developing 245bhp.

Why the Ford unit? It meets Euro 5 emissions regulations and is new, so it should lead a prolonged life (it will eventually get through Euro 6, too). It also requires nothing more strenuous than a new air intake, exhaust and tweaked ECU to make its 245bhp, so it's cheaper than, say, the Cosworth-tuned 2.3-litre unit used by Caterham and BAC. A potential downside is some whooshy turbo lag, which can be no great fun in a car this light; the SL tipped our scales at 765kg.

The engine is bolted to a six-speed sequential transaxle, which encompasses a limited-slip differential and is supplied by Quaife to a unique Radical specification, while shifts are by Radical's own pneumatic actuator. The whole shebang is fitted to an FIA-approved steel spaceframe, with aluminium front crash structure and double wishbones at either end (see Under the skin, p61).

INTERIOR

★★★★☆

It is no secret that Radical wants to build a coupé, and that has played a major part in the decision to put the SL through European type approval now; it got in before the November deadline, after which cars obtaining type approval will have to be fitted with the electronic driving aids that the SL does without.

Some things, though, it can't ignore. The SL's interior is bedecked with more fripperies than we've come to expect in cars like this. Not loads of them, but the seats are a sliding moulded bench, with integral headrests rather than pads on the roll bars as in other Radicals. The steering wheel is padded, too, and even the horn buttons are required by legislation to face right from the wheel. And you can adjust the electric mirrors from the driver's seat.

There is even a light and – again, a legislative requirement – a heater. It doesn't have to work very well, mind you (and indeed, the SL's doesn't), but it does have to be there. These, however, will all count as valuable →



SL's type approved seats get padded headrests – luxurious by Radical standards



Tuned 2.0-litre Ford engine makes 245bhp; six-speed 'box and diff are by Quaife

Under the skin

WHEN YOU WISH UPON A CAR

Double wishbones are effectively standard equipment on all track cars like the Radical, but the SR3 departs from the norm in a couple of respects.

While it doesn't have pushrods and inboard dampers, it does have a cantilevered rocker system that compresses the spring and damper unit from both ends rather than just from the bottom. So instead of the weight of the unit moving upwards, which affects the mass and roll centre, the SR3's centre of mass

stays in precisely the same place. Radical says this makes it easier to set up the chassis because there is one less variable to consider. It also means the anti-roll bar can be fitted to these rocker units, so it bends rather than twists to provide the torsional stiffness. Again, Radical says this gives greater consistency to the roll stiffness; the anti-roll bar never reaches its elastic limit (at which point it would stiffen), as a twisted bar can.



Cantilevered rockers compress the spring and damper units from both ends

SR3 SL tramlines badly on the road, despite test car's conservative set-up



the Radical's unit is smooth and linear, with a soundtrack that's exceptionally quiet from the outside (which will be a bonus on track days) and full of boosty whistles from the cabin.

If you're asking a lot of the engine then you can forget the clutch and revel in upshifts that are pulled through seemingly as quickly as any twin-clutch transmission. Clutchless downshifts are on the cards if you're completely off the throttle, although they are accompanied by a slight jolt as the revs don't always quite match your road speed.

On a cold, barely dry track, the SR3 hit 60mph from rest in 3.4sec and 100mph in 8.4 – quick enough to make us wonder if it really was making 'just' 245bhp, as its maker assured us. Most likely it was; a slippery shape, superb traction and a broad power curve transmit oomph to asphalt with ease.

Despite the conditions, traction is good, and although there are no driving aids per se, turbo boost and torque are limited in first and second gear (by all accounts the SL did a fairly striking impression of a turbo-era F1 car without it). There's no ABS, either, but retardation and pedal feel are good

in the dry. In the wet it's a different story; retardation is okay, but it's hard to tell when a wheel is locking.

RIDE AND HANDLING

★★★★☆

Let's deal with the roadgoing side of things first. If you're looking for a road car in which you can occasionally pop along to a race track, shop elsewhere.

Radical has modified the SR3's chassis to make the SL friendlier for the road – it runs less negative camber than regular SR3s, for example – but there's only so much you can do to a pseudo-racing car.

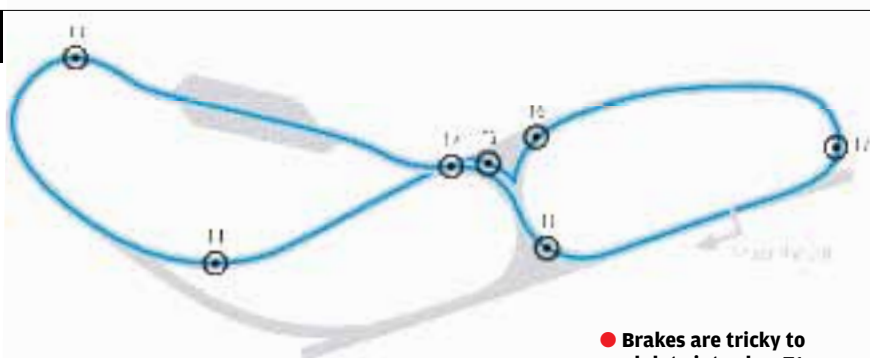
The SL remains a tiring roadgoing companion, chasing after cambers and tramlining like a cat pawing at a ball of wool. It doesn't glide across surfaces impervious to imperfections in the way a Lotus 2-Eleven does; nor is it as composed as an Ariel Atom or Caterham Seven.

There's still amusement to be had, however. Overtakes are easy thanks to the deep swell of torque and fine visibility, while the sheer view out, across those front wings, is far too →

Track notes

DRY CIRCUIT
Radical SR3 SL
 1min 8.4sec
Lotus 2-Eleven
 1min 12.7sec

It's rare for a road car to generate the Radical's level of aerodynamic grip. It can easily hold more than 1.2g and peaks at well over 1.3g. As a result, prodigious high-speed cornering is the key to its lap time – the quickest we've recorded.

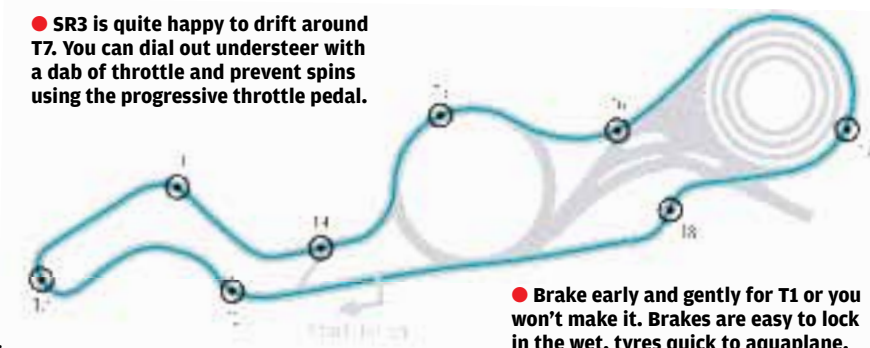


● Aerodynamics make the SR3 unbelievably quick though T4 and awesome on the brakes into T5.

● Brakes are tricky to modulate into slow T1, where the lack of downforce makes them easy to lock.

WET CIRCUIT
Radical SR3 SL
 1min 22.6sec
Lotus 2-Eleven
 1min 11.5sec

Quite a low ambient temperature did the SR3 no favours. It's well balanced and its tyres aren't the worst wet-weather track rubber we've tried, but poor brake pedal feel, with no ABS, is the biggest limitation.



● SR3 is quite happy to drift around T7. You can dial out understeer with a dab of throttle and prevent spins using the progressive throttle pedal.

● Brake early and gently for T1 or you won't make it. Brakes are easy to lock in the wet, tyres quick to aquaplane.

ACCELERATION Clear, 4deg C

RADICAL SR3 SL

Standing quarter mile 12.3sec at 115.8mph, standing km 22.7sec at 138mph, 30-70mph 2.7sec, 30-70mph in fourth 5.5sec



LOTUS 2-ELEVEN

Standing quarter mile 12.9sec at 111.7mph, standing km 23.9sec at 131.0mph, 30-70mph 3.7sec, 30-70mph in fourth 6.6sec



BRAKING 60-0mph: 2.67sec



← experience for the coupé.

Beyond the legislative nonsense, though, you'll find that the SL's is a cockpit built for driving as much as any other Radical's. The driving position is good (though two occupants will want for shoulder room), with the harnesses securing you in your seat where the modest bolstering will not. The view out is terrific, too, and those diddy front wings help to place the car with ease. Given a few minutes to build familiarity, you'll find the switchgear and instruments are as straightforward as any rival's.

Don't expect much practicality, though. A Caterham offers a boot; even an Atom has a small cubby. The SR3 SL's shape dictates that it doesn't. There is a 12v power socket, though.

PERFORMANCE

★★★★★

As you'd hope for an engine whose internals are unchanged since Ford fitted them, the SR3 SL's motor starts easily on the button and settles to a notably restrained idle. For those used to other Radicals, the lack of chatter and zing will come as a surprise, but it is by no means an unpleasant one. Especially if you're going to use the SL on the road, as you ought to.

Engaging a gear still emits a clonk, but the clutch is easy, and once you're rolling you can forget it – though we found ourselves using it on a light throttle to maintain smoothness. The SL could roll around like this all day.

What the rest of the car wants to do, however, is go a bit quicker, and that's something at which the motor is happy to oblige. Throttle response for a turbocharged engine is good; inevitably it's less sharp than an normally aspirated engine, but if you had 2.0 litres and 245bhp without forced induction you'd be paying a bigger price at low revs. By contrast,

On the limit



Getting the most out of the SR3 SL on a dry track is more likely to be a question of overcoming your own limits rather than approaching the car's. With tangible downforce from anywhere above 60mph,



it's staggering how hard you can lean on its outside tyres through medium and fast bends. You have to reprogram your brain and realise that the faster you're prepared to go, the harder the SR3 hangs on.



At lower speeds, before the front splitter and rear aerofoil come on song, the chassis' plentiful mechanical grip and body control make for amazingly flat cornering that's as engaging as it is quick.



Positive, informative steering and a stable, neutral handling balance make the car keen to carry speed into a corner, and equally keen to hold its line under power. What's more, greater negative camber on



those wheels (which is quite possible to introduce with the car's adjustable suspension) would give the SR3 an even more fervent hold on an apex. With grip and traction so prodigious, braking

is likely to be your biggest challenge on a circuit. From three-figure speeds you needn't worry about applying too much pressure on the middle pedal. Again, that's the downforce at work.

Crunching numbers



ENGINE		
Installation Type	Mid, longitudinal	
Made of	4 cyls in line, 1999cc, turbocharged, petrol	
Bore/stroke	87.5mm/83.1mm	
Compression ratio	10.0:1	
Valve gear	4 per cyl	
Power	245bhp at 6000rpm	
Torque	265lb ft at 4500rpm	
Red line	6800rpm	
Power to weight	331bhp per tonne	
Torque to weight	366lb ft per litre	
Specific output	120bhp per litre	



CHASSIS & BODY		
Construction	Steel spaceframe	
Weight/as tested	725/765kg	
Drag coefficient	na	
Wheels	7.0Jx15in (f), 8.5Jx16in (r), alloy	
Tyres	205/50 R15 86W (f), 245/45 R16 94W (r), Kumho Ecsta V700	
Spare	na	

TRANSMISSION		
Type	Rear-wheel drive	
Gearbox	6-speed manual sequential	
Ratios/1000rpm	1st 2.87/7.6mph 2nd 2.05/10.6mph 3rd 1.46/14.9mph 4th 1.31/16.6mph 5th 1.07/20.3mph 6th 0.88/24.9mph	
Final drive ratio	3.375	

ECONOMY		
TEST	Average	na
	Touring	na
	Track	14.2mpg
CLAIMED	Urban	19.3mpg
	Extra-urban	37.7mpg
	Combined	28.0mpg
	Tank size	50 litres
	Test range	na

SUSPENSION		
Front	Double wishbones, coil springs, adjustable dampers, anti-roll bar	
Rear	Double wishbones, coil springs, adjustable dampers, anti-roll bar	
STEERING		
Type	Unassisted rack and pinion	
Turns lock to lock	1.6	
Turning circle	11.8m	

BRAKES		
Front	280mm ventilated discs	
Rear	280mm ventilated discs	
Anti-lock	Not available	

CABIN NOISE		
Not tested		

SAFETY		
FIA-approved integral safety cell, aluminium honeycomb front crash box		
EuroNCAP crash rating not tested		

EMISSIONS & TAX		
CO2 emissions 227g/km		
Tax at 20/40% pcm na		

ACCELERATION		
MPH	TIME (sec)	
0-30	1.7	
0-40	2.2	
0-50	2.8	
0-60	3.4	
0-70	4.4	
0-80	5.5	
0-90	6.8	
0-100	8.4	
0-110	10.6	
0-120	13.3	
0-130	17.5	
0-140	24.5	
0-150	-	
0-160	-	

ACCELERATION IN GEAR					
MPH	2nd	3rd	4th	5th	6th
20-40	1.8	2.8	3.9	5.8	-
30-50	1.6	2.2	2.9	4.2	6.4
40-60	1.6	2.1	2.7	3.6	5.1
50-70	-	2.1	2.6	3.6	4.8
60-80	-	2.3	2.6	3.5	4.9
70-90	-	-	2.8	3.5	4.9
80-100	-	-	3.2	3.7	4.9
90-110	-	-	-	4.2	5.3
100-120	-	-	-	5.0	6.2
110-130	-	-	-	-	7.7
120-140	-	-	-	-	-
130-150	-	-	-	-	-
140-160	-	-	-	-	-

MAX SPEEDS IN GEAR		
1st	2nd	3rd
52mph	113mph	138mph
4th	5th	6th
127mph	153mph	161mph
RPM in 6th @ 70/80mph = 2816/3218		



WHAT IT COSTS

RADICAL SR3 SL	
On-the-road price	£69,850
Price as tested	£73,850
Value after 3yrs/36k miles	na
Contract hire pcm	na
Cost per mile	na
Insurance/typical quote	na

EQUIPMENT CHECK LIST	
Qualife ATB limited-slip differential	■
Multifunction steering wheel with integral indicators, horn and headlight controls	■
Cockpit heater	■
Courtesy footwell light	■
Electrically adjustable heated door mirrors	■
Remote engine immobiliser	■
12v auxiliary cabin power socket	■
Race pack inc engine mapping switch, FIA fuel cell, air jacks, fire extinguisher	£4000

Options in **bold** fitted to test car
 ■ = Standard na = not available

RANGE AT A GLANCE		
ENGINES	POWER	FROM
2.0 Turbo	245bhp	£69,850

TRANSMISSIONS		
6-spd manual sequential		Std



← reminiscent of a prototype sports car to be anything other than a hilarious and fascinating blast. But those sports prototype looks tell you where the SL really belongs, which is in the same place as all other Radicals: on smooth, one-way roads with no speed limits and a marshal at each corner.

On a circuit, the SL is superb. Its bigger-capacity turbocharged engine makes it a less frenzied experience than most other Radicals or, say, Ariel's Atom V8. But unless you've slapped numbers on the side and are running against pure racing variants of the SR3, there's all the pace and focus you could hope for.

Any grip deficiencies offered by the road-friendly Kumho tyres is more than offset by the aerodynamic grip, while the overall balance of the SL's chassis is sound, with a forgiving limit that it urges you to find. And while it would be easier to play with its line without the boost and lag, traction and grip are so good that it really isn't a major issue. That the SL is easy on its consumables, as befits a 765kg car, means that pounding around your favourite circuit, lap after lap, is an adorable and addictive experience.

BUYING AND OWNING

★★★★☆

If you're after a car like this, it's fair to say you'll know what you're getting into. The purchase price is high and, while running costs don't necessarily have to be, it's usually better for the soul to work them out by the year rather than by the mile. And it's perhaps better not to work out the ancillary costs at all – track day costs, the price of a trailer, that sort of thing.

However, lightweight cars like the SR3 SL shrug off repeated track use without a continual demand for new brakes and tyres, while they generally hold their value strongly, too. Many pre-owned Radicals get sold through the factory, and they sell at a high retained value.

AUTOCAR ROAD TEST

No 5040

Radical SR3 SL

AUTOCAR VERDICT ★★★★★☆

A terrifically enjoyable track car that has some road appeal



Delivering a verdict on a car with such a singularity of mind as the SR3 SL isn't easy. Would it not be more affordable to buy an old racing car and a trailer? Yes, it would.

However, that is to miss the point of this car; there are those who want a track-focused car that can, however irregularly, be used on the road. They want it new and exciting, and that is the purpose for which we must judge the SR3 SL's fitness.

It's not without faults, but those it does have are typically of a minor nature. It could be a better-mannered road car, it could have sharper throttle response and its brakes ought to be more easily modulated in the wet.

But those are small quibbles. Overall, the SR3 SL is one of the most intoxicating and appealing track cars we've ever driven. For us, its shortcomings as a road car wouldn't break the deal.

TESTERS' NOTES



MATT SAUNDERS

Yes the seat slides, but it's not easy to do it once you're sitting in it. It's stiff on its runners.



MATT PRIOR

See the padding on the steering wheel? Mandatory. As if it's going to make any difference to anything.



NIC CACKETT

Don't believe what you might see in any pictures or brochures: if you're going to drive the SL, you'll want a full-face helmet.

JOBS FOR THE FACELIFT

- Improve brake feel in wet conditions.
- Reduce tramlining on the road.
- Sharpen throttle response.

AUTOCAR ROADTEST TOP FIVE

	1st	2nd	3rd	4th	5th
MAKE	ARIEL	CATERHAM	RADICAL	BAC	KTM
Model	Atom 300	Superlight R500	SR3 SL	Mono	X-Bow R
Price	£34,319	£41,995	£69,850	£79,950	£64,850
Power	300bhp at 8200rpm	263bhp at 8500rpm	245bhp at 6000rpm	280bhp at 7700rpm	295bhp at 5500rpm
Torque	191lb ft at 7600rpm	177lb ft at 7200rpm	265lb ft at 4500rpm	206lb ft at 6000rpm	295lb ft at 3300rpm
0-60mph	2.8sec (claimed)	2.8sec (claimed)	3.4sec	2.8sec (claimed)	3.9sec (claimed, to 62mph)
Top speed (claimed)	155mph	150mph	161mph	170mph	144mph
Fuel economy (combined)	na	na	28.0mpg	na	34.0mpg
Kerb weight (claimed)	550kg	506kg	725kg	540kg	790kg
CO2/tax band	na	na	227g/km, 35 per cent	na	189g/km, 27 per cent

Verdict on every new car page 80

Terrific fun on track, if not so easy to race. Great on the road, too. ★★★★★☆

Very happy on the road, good on track. Weather gear makes it practical. ★★★★★☆

Grin-inducing downforce is a hoot on track; hard work on the road. ★★★★★☆

Could go higher than this; we've yet to try it on the road. Only seats one. ★★★★★☆

Exquisitely made but lacks agility. 'R' model is the one to go for. ★★★★★☆

THE SMALL PRINT Power-to-weight and torque-to-weight figures are calculated using manufacturer's claimed kerb weight. © Autocar 2011. Test results may not be reproduced without editor's written permission. For information on the SR3 SL, contact Radical Sports Cars UK, 24 Watt Way Business Park, Westwood, Peterborough PE3 7PG (01733 331616, www.radicalsportscars.com). Cost-per-mile figures calculated over three years/36,000 miles, including depreciation and maintenance but not insurance; Lex Autolease (0800 389 3690). Insurance quote covers 35-year-old professional male with clean licence and full no-claims bonus living in Swindon. Quote from Liverpool Victoria (0800 066 5161, www.lv.com). Contract hire figure based on a three-year lease/36,000-mile contract including maintenance; Wessex Fleet Solutions (01722 322888).

AUTOCAR ROAD TEST Read all of our road tests autocar.co.uk