

SE 7 EN

Its the epitome of what makes a true sports car. Light, maneuverable, powerful, rear drive and open topped. No carpets, no radios, just three pedals and a steering wheel. Lotus has followed this formula for many years, and has much success with its visceral Elise, but the Seven was Colin Chapman's most successful design, as these seven variations show.





No doubt about it, the seven is the quintessential sports car. Designed by Lotus founder Colin Chapman, the seven was designed to be a sort of motorbike on four wheels. And so it had very minimal bodywork over its tube frame chassis. Nothing not related to driving and driving fast was included. The original tore up the race tracks of the 50s and 60s in its class.

Today, the seven is the basis for over 50 manufacturers who make some sort of replica or seven inspired sports car. They range from home built cars to full on factory efforts. Caterham purchased the rights to the seven from Lotus in the 70s, and has been producing some of the most advanced versions in the world, as well as some of the closest copies of the original.

We decided it would be best to take a look at a wide range of the possibilities from the home grown Fraser to much wilder overseas contributions. Following is our account of seven of the best we could get our hands and cameras on.

Westfield Megabusa

After fears of longevity of engines and usability on the road were proved wrong, people started to take notice. Sure there was the practically

stillborn Strathcarron, but apart from this misadventure things have been remarkably quiet. It was only when the more mainstream of the 'kit-car' companies such as Caterham and Westfield started offering 'official' bike engined cars that things have started to take off. And take off they almost do.

Thanks to Pistonheads reader Dan Carter, I was granted a thrilling blast with him around the roads of sleepy Somerset in his recently built and registered Westfield Megabusa. That is a Westfield SEi chassis with a Suzuki Hayabusa (175bhp in a bike) dropped into it.

To look at there's not much to give the game away. Sure its got no doors, but that's usual for a Lotus 7 style car. OK it also lacks a windscreen, which is partly for aerodynamics but mainly weight saving (because it also means you also don't need wipers and washers). On closer inspection it also doesn't have a heater, which points either to someone who doesn't feel the cold, or wants to save the weight of the heater matrix and associated plumbing. Other weight saving options that have been fitted but are not visible include a frelander diff casing (made of aluminium) with internals provided by Quaiife.

Its not until you get a look under the bonnet

that you realise that this is not your normal pinto engined kit-car. Where the engine bay should usually be reasonably full of engine and gearbox, in this case its pretty empty, with the engine offset to the passenger side and taking up about a third of the available space. There's also a large reservoir for oil, which is necessary for the dry sump that's been fitted (without it the sump would sit a couple of inches lower and be at considerable risk from sleeping policemen and bumps). And that is about it.

The engine barks into life and if you previously hadn't guessed at the origins of this car it is now obvious that this is no normal Westfield. With an SVA noise limit of 101db, this car squeaked through and is now allegedly around 107db. Remarkably its not too bad in the car, which is surprising given that the exhaust exits to the left ear of the passenger.

So then its time to pull away and see what happens when you stamp on the loud pedal. Well pulling away starts a cacophony of noises and vibrations and its quite clear that this car would not be happy crawling in traffic, let alone gentle town driving. Once moving with some speed the engine is a lot happier, and although buzzy, it can offer relatively relaxed cruising.

A SEVEN HISTORY

The first Seven was built in 1957 by Lotus, the brainchild of Colin Chapman, who was convinced of the advantages of small lightweight racing cars, giving huge power to weight benefits. He actually referred to the Seven as something he had dreamed of designing since he was a schoolboy - a 'four wheeled motorbike'.

The Lotus Seven began as an uprated version of the successful Lotus Mark 6. Steel tube frame with aluminum bodywork, later with glass-fiber nose and fenders.

The first sevens were priced at £587 and were powered by a 40bhp Ford engine coupled to a single dry plate clutch and a three speed Ford gearbox. The design proved to be an instant success, Graham Hill being the first driver to race the seven in 1958.

Over the next decade there were three more series of the Seven developed, improving transmission,



suspension and increasing power to 84bhp. A variety of engines were used. Low, light, very quick, incredible handling and a winner of enumerable club races. Lotus discontinued production after the introduction of the Glass-Fiber steel backbone framed Series 4.

In 1967 Caterham Cars became the sole distributor, and have continually developed and improved the car since. Major developments over the years have included the introduction of double wishbone front and de Dion rear suspension, four wheel disc brakes, a six speed close ration gear box, a torsionally stiffer space frame chassis with honeycomb panels for side impact protection and lead free engines with catalytic converters. In 1976 the R.A.C. banned the seven from racing, as they said it was "too fast" - so special categories were developed.



'The Acceleration in third is simply time warping'

Drop it down to second with some clunking from the sequential box, the revs rise, press the pedal to the floor and the world blurs. In the blink of an eye you're bouncing off the rev limiter (10,000 rpm), snatch third, and you're off again. Then fourth, then fifth and finally sixth gear and you're still pulling like a train. Its somewhere around third or fourth gear that your vision starts to blur. Your ears start to hurt from the pressure in fifth and sixth gears; now I know why people wear helmets with these machines.

The quoted figures from Westfield offer 3.2 seconds to 60, and Dan reckons somewhere around 10 seconds for the 1/4 mile, which puts it quicker to 90 than an EVO VI; but its not until you're actually in one that you realise what this means. You don't really notice the lack of doors or a windscreen. You're so absorbed in the brutal acceleration and noise, let alone concentrating on the road that these things pass you by. This thing is supercar quick and could comfortably overtake pretty much anything on the road, including bikes. No small amount of irony there.

Road manners are surprisingly good, although this particular car is to benefit from a full geometry check from Westfield in the near future just to be sure everything is as it should be. Remarkably

it also offered no wheel spin on violent acceleration, although it would be a different matter in the wet with the road legal track tyres fitted. Also on the cards are some minor electronic tweaks to up the bhp to add another 50bhp/tonne, plus a shield around the intake to ensure only cold air is fed to the engine. Not that it really needs anymore power...

This car took Dan about 250 hours to complete, and having previously restored a VW beetle, he took the option of sourcing all the parts required direct from Westfield, which meant that if something was missing he just rang them up and they sent it to him. From a basic kit cost of £9,995, Dan added a limited slip diff, wheel set and a dry sump kit for a total of £11,995. He then bought a bike for £5,000 transplanted the engine, and is planning to sell the remains for about £3k, giving him an all-in cost of around £15,000. Not bad considering the supercar chasing performance he now has.

Any regrets? Well if he did it again then he'd probably go for the Westfield XTR2 for the full-on race feel, but that might be a bit too extreme for the road...



Caterham 7 Classic

The Classic is Caterham's entry-level car and, along with the R300, it's the first fruit of the new engine supply partnership with MG. Of the two cars, this one is arguably the more significant since it signals the end of the Morris Ital-derived live rear axle fitted to basic Sevens since 1981. From now on a live axle won't be available on any factory-built cars, although it continues to be used on the flyweight Caterham Fireblades built independently by James Whiting Sevens.

All factory Caterhams now have the more sophisticated de Dion rear end, which provide a better ride over bumpy roads, although that's not to say that this one doesn't fidget in the best tradition of Seven motoring. The intimacy and delicacy of these cars means that you can feel every small stone and road imperfection and that's part of the buzz. That said, this car's ride is softer than normal, mainly because of the balloon-like Avon CR322 tyres. The words 'fuel saving' aren't normally the kind of thing any self-respecting driving enthusiast would look for on a tyre sidewall, but that's what it says here. Unsurprisingly, grip levels aren't huge, but then low-weight, low-centre-of-gravity cars such as these are still nimble enough and when they do relinquish their grip on the tarmac it's very progressive. You're helped by steering that gives you as much information as you'd ever need and is instant in its response.

Driving a Caterham is an intense assault on your senses and although this one may not be the fastest ever, all the sensations are still there in abundance. Of course it's not earth-shatteringly quick in the way we've come to expect from modern Sevens, but in the real world it's

no slouch, despite just 105bhp from the 1.4-litre K-series engine. Well, the whole car does weigh just 540kg after all. Throttle response is sharp too, and there's a satisfyingly raspy sound-track from the side exit exhaust.

With large expanses of naked aluminium, big chrome headlights and 'Brooklands' aeroscreens it almost looks more vintage than classic, and the narrow track at the front is reminiscent of the S1 cars built by Lotus back in the 1950s. Those screens demand dedication to live with because they provide very little protection for the occupants - 60mph is pretty uncomfortable and much above that forces so much air into your nose and mouth that it literally takes your breath away and you struggle to breathe.

Sylva R10t

Fast-forward to the blustery and chilly former Halifax bomber base in north Yorkshire and my first sight of the R10t. At this point I have to say



that I haven't got my spelling wrong, as the R1 denotes the Yamaha bike the power unit is culled from, so instead of Riot it's 'R10t'. Geddit?

Immediate reaction at first sight of the car is that Phillips has done it again! It's clearly a Sylva, sharing several family traits and shares a lot of components with its big brother Mojo and he's good at pulling derivatives from existing models, such as the Phoenix from the Striker and there's definitely a touch of that car about the frontal area particularly the nose cone and the other thing that strikes me is the cuteness of the car, and its diminutive nature puts me in mind of an early sixties Formula Junior racer or a Speedex Mistral special from the same period. What is really astounding however is that the R10t weighs in at a mind boggling 410kg!

The R1 installed here has been dynoed at 150bhp and in a car weighing just 410kg equates to a substantial bhp per tonne figure of 365 meaning that this thing would have the measure of most so called supercars or particularly the type of missile you'll typically find at any track day, including the likes of the vaunted Porsche 911 GT3 (272bhp per tonne at a cost of 73 grand!) and it's in this environment where I think the R10t will cause a riot!

With each subsequent lap I push a little harder, but each time the feedback says "Come on you can go faster" and so I do, but there's never a feeling that the R10t is going to bite suddenly, like some mid-engined configurations can (Who mentioned Porsche 911!) and I think that this is a testimony to the ultimate skills of the designer. Again and again I attempt to unstick the car, to no avail and on one particular bend at

Elvington I am entering faster than I ever have before, which is actually quite scary. I then decide to try another tactic and decide to unsettle it mid-corner to see if that works by braking and guess what. Nothing. Nada. Zilch. In desperation almost I gather up every bit of courage I have and at the same bend, chance my arm and arrive at breakneck velocity and literally chuck the car into it in a moment of blind faith. At last this elicits a response of sorts although rather than a tail end snap all that happens is a four-wheel drift, which I control on the throttle.

So, road holding and agility are spot-on as is turn-in, but what about performance? Well, with 365bhp per tonne on tap it's pretty vivid as you'd imagine but nevertheless the little Yamaha unit is a real cracker that thus far hasn't seen much use in kitcars, as originally there was a scare about the longevity of the clutch basket, subsequently sorted on a product recall by the manufacturer and it revs to 14,000rpm (gulp!) and so pulls endlessly, limited only by the gearing reducing top end, although this doesn't spoil the fun, but is something that Jeremy will be addressing. Gear changes are despatched in lightning quick fashion and with minimal fuss. That's the thing about bike boxes. When you get a decent one you get a state of the art six-speed sequential unit, and once you mastered the lack of flywheel inertia on the clutch and minimal engine braking on down changes they're a pure joy to use.

I bring my little steed reluctantly back to the pits area and clamber out as Jeremy awaits my verdict. I suppose the broad grin gives the game away helped no doubt by the handshake I offer him and all I can splutter is 'fantastic' especially as it hadn't been driven by anyone prior to this test. Mainstream manufacturers do thousands of secret test miles before they let a hack near their new car.

As mentioned earlier the R10t looks positively tiny in the flesh but looks are a little deceiving as the wheelbase and track are both a couple of inches bigger than the Striker for example, but the weight distribution and low polar moment of inertia really does make the look and feel small and agile. Styling is pleasing, particularly from the front with the rear having a slightly boxy appearance, and as I said earlier it really is sort of hybrid Mojo cum Striker. No bad thing in my view.



Tiger Z100: Twin Engined

The Tiger Z100WR as seen on TV 5th Gear with Tiff Needell breaking the world 0-60mph record in a staggering 2.9 seconds in full road-legal trim.

The Tiger Z100 rear wheel drive Mk1 (with 510 bhp per tonne) as seen on TV Top Gear with Vicky Butler Henderson driving, this carburetor version's 0 to 60mph time is a staggering 3.1 seconds in full road-legal trim.

Tiger is confident that the 0-100mph and 0-100-0 times on the new Mk II Z100 will be staggering, even though never tested, so far we have not been invited to any of the tests organised by the magazines, maybe they know the outcome of having the Z100 in attendance!

The new MKII Tiger Z100 is fitted with twin Suzuki GSXR-1000

engines, which now give the Z100 600bhp per tonne and a lower finished weight that its predecessor, so it is expected to be quite a bit quicker.

The Tiger Z100 uses a modified R6 chassis; extra strength was needed in the chassis to take the phenomenal loadings due to the power and traction of the Z100.

Finish of the chassis and suspension is in powder coat, body work is as the R6 specification with main body in two pack paint spray finish to you colour choice, all wings are in carbon finish showing black weave, central tunnel and dash also are carbon finish.

The Suzuki GSXR-1000 bike gearboxes are used in the Tiger Z100, both driving into a bespoke transfer box. Sequential gear change is ob-

tained through a split alloy gear lever mounted central tunnel; reverse is incorporated into the transfer box with a small alloy lever on right hand side of carbon tunnel.

The Tiger Z100 Mk II is only available as a factory built car and is priced at £33,000 excluding VAT, SVA and registration fees.



All of the parts laid bare, ready for a devoted enthusiast to build a classic with years of motoring pleasure in the future

JUST THE NUMBERS

	cost	0-100km/h	weight	engine	kw (rpm)	nm (rpm)	notes
 Lotus 7 Series One	orig. \$7500	12.5s	479kg	1172cc. FORD 100E I4	28 (4000)	60 (3200)	The original series one Seven was available with a wide range of engines and other options, Ford's 1200cc was available with 28 to 40hp from 1957-60. In 1959 the Coventry Climax 1100cc FWA had 75hp, while the BMC A series (think Mini) could be had with up to 43hp
 Westfield Megabusa		3.48s	440kg	1299cc Suzuki I4	120 (9800)	138 (7000)	Westfield makes various Sevens from the sport 1800 to the V8 Seight, as well as the more dedicated track car XTR2 and XTR4 which are essentially full bodied mini prototypes powered by Hayabusa and 1.8T engines
 Donkevoort D8 150		6.0s (est)	400kg	1781cc, Turbo I4, Audi	110 (5700)	210 (2000)	The Donkevoort is available in varying states of tune from the 110kw 150 to the 154kw 210. The 210 drops the 0-100 acceleration to approximately four seconds.
 Caterham Roadsport 1.8	£18,495	4.9s	550kg	1800cc I4, K-Series	124 (7000)	184 (5000)	The Roadsport with the 124kw 1.8L represents the middle of the Caterham range which goes from the Classic with a 1.4L all the way up to the recently announced CSR260 with a 2.3L Cosworth.
 Locost R1		4.5s (est)	500kg (est)	998cc, I4, Yamaha	135 (12500)	105 (10000)	The R1 Locost represents only one of infinite options. Engines can range from old Escort push rods to V8s to superbike engines. Likewise chasis are completely custom, with many people building their own.
 Elfin MS8 Clubman		3.5s	875kg	5700cc V8, 16v, Holden	245 (10000)	120 (9500)	The clubman is the more track oriented Elfin, and the closest related to the original Seven, although it is the most far removed from the others mentioned here. With a much heavier weight, and a much bigger, more powerful engine. Its drivetrain is pulled straight from a Commodore. See pg. 62 for a review of the Elfin Streamliner.

DAX Rush V8

A V8 powered Dax Rush is a serious car, and the build of this example has been approached equally seriously. Which Kit? took a closer look at one of the best.

It says a lot about Craig Wilkinson that, when we asked him for some performance figures for his V8-powered Dax Rush, he quoted separate 0-60mph times for road and race tarmac. This is a guy who's totally hooked on his hobby, passionate about his pastime.

When you learn what Craig does between the hours of nine and five, you'll understand why. After leaving school, he trained as a race engine builder and then went into F1 and world rallying. For 16 years, he's worked in motorsport and automotive development, so it comes as no surprise that he approached the build of his own Dax Rush professionally. In fact, it's the fourth Rush to be crafted by the Wilkinson hand, Craig having previously built one for himself and two for other people. In his time, he's also knocked out numerous race and rally cars, so we can safely assume he knows a thing or two about creating fast, effective cars.

Craig didn't carry out much research before he opted to buy a Rush kit. From his previous

builds, he already knew the high levels of quality DJ Sportscars achieves, while he also felt that the Lotus-Seven-on-steroids looks suited the character the V8 engine. The Rush offered all the plus points he was after, so he placed an order...

We often hear heroic tales of people building kit cars on their driveways in the rain, but that wasn't for Craig. With a professional background, he was lucky enough to have a well-equipped workshop at home: "I have a fully-equipped, painted-out, race-style workshop with Snap On tools to hand, an airline system and so on," Craig explains. "Without a doubt, this is the best way to achieve a good result."

And it doesn't end there. This builder's specialist skills allowed him to carry out tasks that most simply couldn't contemplate. For instance, he made his own centre bearing arrangement on the steering column, one-off CNC machined stainless steel exhaust manifold surrounds, bespoke CAD-designed mounting brackets for the front brakes and much more that's too extensive to list, including the aforementioned interior trim. It's clear that this is a very special car indeed. In context, the £16,000 build cost sounds reasonable, even if it was £1000 over budget.

"The reason I built a second Rush is that my first car was done on a tight budget and there

were many things I wasn't happy about. These were all put right on car number two and this one is perfect to me in every way." Which makes it all the more surprising that A119 AVV may be sold soon.

But before we talk about that, you're probably still wondering about those performance figures. Craig claims a 0-60mph dash in 4.3 seconds on the road or 3.8 on decent race tarmac and an indicated 145mph flat out. So, for somebody so enthusiastic about his car, why should he offer it for sale? After 16 years of playing with cars, he's going to take up building and flying model planes and helicopters. The Dax's performance figures suggest he's already used to flying

Conclusion

As you can see there are many high quality options out there. A superb starting point for building your own is a book entitled *Build Your Own Sports Car for as Little as £250*. It outlines everything you need and details of the chassis so you can weld one up yourself.

As was mentioned, there are over 50 manufacturers in the world that make some sort of Seven, and those are just the ones we could track down. We compiled a list of their location and web sites for your surfing pleasure. 📧

AROUND THE WORLD: 56 MANUFACTURERS

The original Lotus seven has spawned so many variations on the basic concept that we had to put together a comprehensive directory of the various manufacturers.



ASIA PACIFIC

- ALMAC - almac.co.nz
- MCGREGOR - mcgregormotorsport.co.nz
- FRASER - fraser.co.nz
- CHEVRON - chevron.co.nz
- BARNARD - barnardsportscars.com.au
- BOMAC - bomac.com.au
- CLASSIC REVIVAL - classicrovival.com.au
- ELFIN - elfin.com.au
- NOTA - notasportscars.com
- PRB - prbaustralia.com.au
- PREDATOR - members.westnet.com.au/web/gsm/predator
- WEST COAST ROADSTERS - home.iprimus.com.au/ponton



UNITED STATES

- STALKER V6 - stalkerv6.com
- CHAMPION - championmotorcars.com
- SUPERFORMANCE - superformance.com
- WCM ULTRALITE - wcmultralite.com
- COLD - canadianlocost.com
- DEMAN - deman-motorsport.com
- TRV - trvmotorsport.com

UNITED KINGDOM

- CATERHAM - caterham.co.uk
- WESTFIELD - westfield-sportscars.co.uk
- TIGER - tigerracing.co.uk
- DAX - daxcars.com
- ROBIN HOOD - robinhoodengineering.co.uk
- DEANFIELD - deanfieldmotorsport.com
- MAC#1 - mac1motorsports.co.uk
- MADGWICK - madgwickcars.co.uk
- MK SPORTSCARS - mksportscars.co.uk
- MNRACING - mnrtd.co.uk
- PROCOMP - procomp.co.uk
- QUANTUM - quantumcars.co.uk
- RAW ENGINEERING - rawengineering.co.uk
- RJH SPORTSCARS - rjhsportscars.co.uk
- RSC MOTORSPORT - rscmotorsport.com
- SHAW SPEED - shawspeed.com
- STUART TAYLOR - stuart-taylor.co.uk
- SYLVA - sylva.co.uk
- TORNADO - tornadosportscars.com
- VINDICATOR - vindicator.co.uk
- YKC - ykcsportscars.co.uk
- GST TUNING - gtstuning.co.uk
- LUEGO - luegosportscars.com

GERMANY

- RUSH - rush-sportwagen.de
- IRMSCHER - irmscher.de
- PEGASUS - pegasusautomobile.de
- VM-77 - vm-77.de
- HKT 7 - hkt-7.de
- RCB - rcb7.de
- RUDOLPH - rudolph-roadster.de

REST OF THE WORLD

- MITSUOKA - mitsuoka-motor.com
- KAIPAN - kaipan.cz
- ESTFIELD - racetech.ee
- DONKERVOORT - donkervoort.nl





motorsport OPTIONS

Graham Hill led the way racing a Lotus 7 in 1958 and since then, Caterham has become synonymous with track and road use. The Seven is a part of motoring history and I hope to be able to welcome you to the world-wide camaraderie of this unique British Sports Car.

The Caterham Seven is a racer for the road, honed during years of development in the toughest automotive environment there is: motorsport. That's why the Seven is the car of choice for the racing driver, and why Caterham Motorsport is such a spectacular success...

Racing has always been at the heart of Seven ownership. Through the '60s and '70s, Sevens raced in many sports car and mod-sports championships, and their dominance was such that they were eventually deemed "too fast to race" and banned from open competition.

As a result, a one-make, multi-class championship for Caterhams was formed in 1986. In the years since, Caterham Motorsport has become one of the most successful forms of club racing the world over. Indeed there are now 17 Caterham championships in nine countries.

Caterham Motorsport offers racing to suit all budgets. The ideal starting point is the evo Caterham Academy, where complete beginners can get an inexpensive (yet priceless) grounding in the sport. From there they can progress via the Caterham Roadsport Challenge to the pinnacle of UK-based Caterham competition, the Powertrain Caterham Challenge for R400s and Roadsport A machines, and also compete internationally in the Caterham Eurocup or the new Cosworth Caterham Masters.

With more than 600 Caterham drivers registered for the track and an estimated further 250 Sevens competing at different levels of club motorsport, on any given weekend there are more Caterhams racing in the world than any other car.



source: NZ AutoCar



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STEPHEN GLASSEY
Dispatch/Production Manager
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