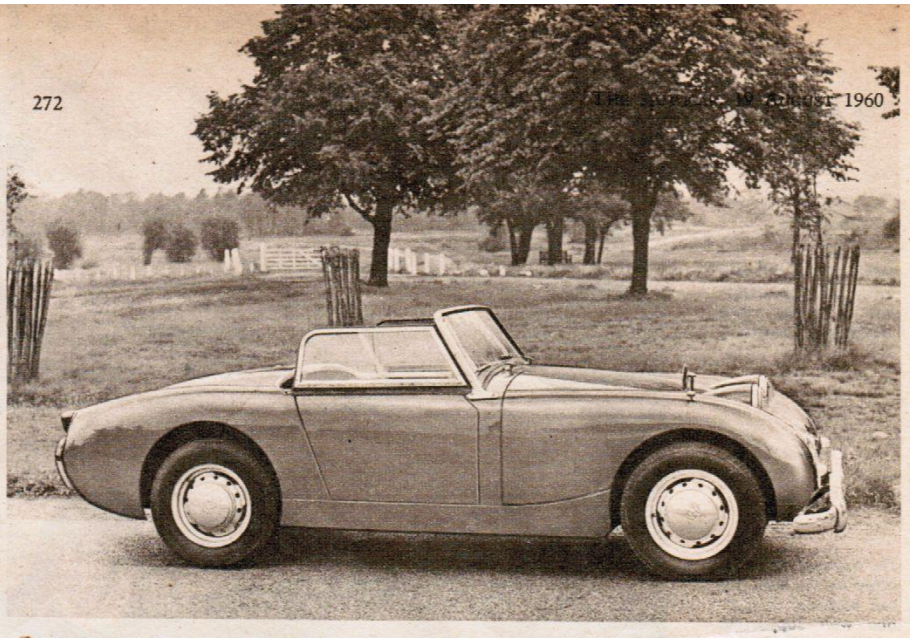
The Autocar
ROAD TESTS
1786

Austin-Healey Sprite

SUPERCHARGED



Sheep's clothing; there is no outward sign that the supercharged Sprite is not a completely standard car. The jack fits in the hole covered by the rubber stopper beneath the leading edge of the door

THIRTY years ago it was not unusual for sports car manufacturers to include at least one supercharged model in their range. Today, there is only one supercharged car among the many standard models in the price list of new cars at the back of *The Autocar*—the Austin-Healey Sprite; the installations are carried out by Donald Healey Ltd., of Warwick.

In popular imagination, a supercharger is associated with temperamental and unreliable high-performance machinery that will not run at low engine speeds. This traditional idea is refuted by the car tested, for the Austin-Healey was docile in traffic, would tick over without misfiring, and still had an invigorating road performance. A Shorrock unit working on the eccentric vane principle is the supercharger employed. Drive is by twin belts from the pulley mounted on the front end of the crankshaft, and the maximum boost is 7 p.s.i.

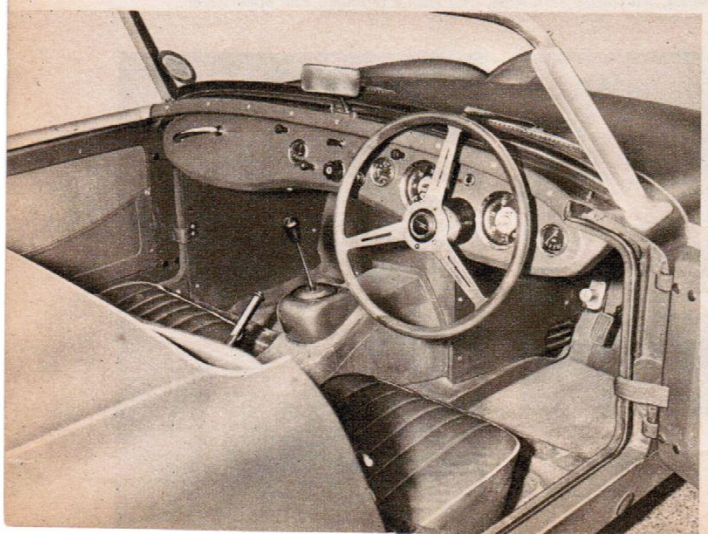
Twice since its introduction in 1958 the Austin-Healey Sprite has been road tested by *The Autocar*, and many readers would naturally like a comparison of this car with the unblown version. It costs £713, against £632 for the standard car. There is an increase in maximum b.h.p. from 43 at 5,000 r.p.m. to 68 at 5,700 r.p.m. and of torque from 53lb ft at 3,300 r.p.m. to 65lb ft at 3,000 r.p.m.

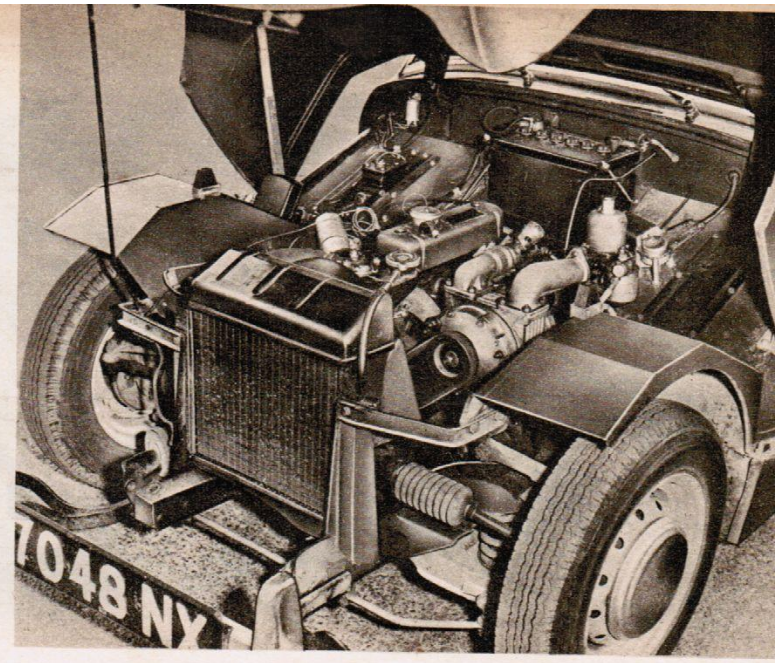
As a result, there is a marked improvement in all performance figures; the standing quarter-mile time is better by 2sec —19·7 instead of 21·7—and 80 m.p.h. (nearly the maximum speed of the standard car) can be reached from a standstill in 1sec less than the 0-70 m.p.h. figure of the unblown model. It is not possible to draw direct comparisons for acceleration times in the speed ranges we normally quote for the indirect gears, since the ratios are different from those of Sprites previously tested. This fact should be borne in mind also when comparing the tractive effort results. A mean maximum speed of 87·2 m.p.h. was achieved, but the engine would not quite reach 6,000 r.p.m. in top gear, even with a slightly favourable wind behind it.

As will be noted from the performance table, it was found possible to record the 10-30 m.p.h. acceleration time in top gear, which had proved impracticable with the unblown cars. This demonstrates one of the greatest advantages of supercharging—the increase in low-speed torque and improved flexibility—and to drop below 20 m.p.h. in top gear and pull away again was not an unreasonable action. It was even found possible to open the throttle fully below 10 m.p.h. in that gear without producing pinking or transmission snatch. This added tractability and docility gave the car a remarkable charm, and one always felt that there were many more c.c. under the bonnet than was actually the case. For leisurely driving, second gear proved quite adequate when moving away from rest.

Obviously there are some snags, for it is impossible to get something for nothing. There is an increase in petrol consumption, and there is the additional cost of 100-octane fuel instead of premium grade, on which the standard Sprite will run perfectly happily; overall fuel consumption for 1,415 miles of the test was 28·3 m.p.g., but a gentle drive through

Left: A wooden steering wheel adds to the pleasant appearance of the cockpit. The floor is covered with rubber matting. Right: When travelling at speed, the hood was inclined to flap against the supports. Visibility from inside the hood was fully satisfactory





There is not very much room beneath the bonnet for any more extra equipment once the supercharger had been installed. The anti-roll bar mounted on the front suspension can be seen here

100 miles of quiet countryside, not exceeding 3,500 r.p.m. in any gear, returned a figure of 35 m.p.g. With the increased consumption, the standard 6-gallon fuel tank considerably curtails the car's range between refills.

Oil consumption—2,200 m.p.g.—is heavier than that previously recorded, but the engine had completed nearly 14,000 miles of rapid test and demonstration driving. As well as this, the supercharger is lubricated also from the engine sump, and consumes a small quantity of oil. One beneficial aspect of this is that small amounts of oil are fed constantly into the combustion chambers, and when starting from cold the amount is at its largest, due to residue collecting in the supercharger unit. Starting a cold engine caused no difficulties; the choke had to be used, but as soon as the engine fired there was no further need for this control, and the engine continued to tick-over smoothly.

Our initial experience with the car was not too satisfactory; standard sparking plugs, Champion N5s, soon gave up under the strain of fast running and had to be replaced by the harder Champion N3s. We were warned that these might tend to oil up if the engine were run too slowly, or allowed to tick-over for too long, but there was never any sign of this happening. Secondly, the standard cylinder-head gasket—a copper-asbestos type—blew; the steel-asbestos one fitted in its place gave no trouble. After these adjustments it was found that the engine was unable to take prolonged use of full throttle without the water temperature reaching boiling point, and the oil pressure dropping severely. When running very hot the engine occasionally misfired. On inspection is was thought that the overheating problem could possibly be rectified partially by the addition of a small baffle at the top of the radiator grille to direct more air through the core. It was also obvious that a considerable high-pressure area built up under the bonnet, preventing a good flow of air through the radiator; a few small vents along the top of the bonnet might obviate this. An oil cooler would be another possibility.

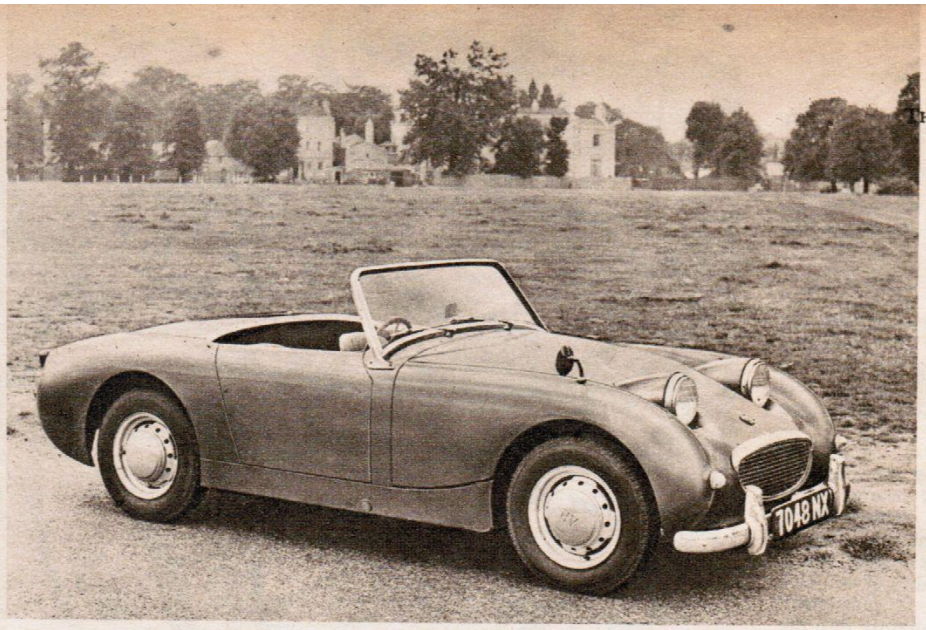
A slightly higher back-axle ratio—obtainable as an optional extra—might be advantageous, especially if the car is to be cruised constantly at high speed. Admittedly such a modification would result in a slight loss in acceleration, but it would mean that full performance could be used for longer periods without any undue worry about the engine. A B.M.C. close-ratio gearbox had been fitted. Overall ratios in first and third are slightly higher than those of the standard box, but second gear has been raised from 10·02 to 8·03 to 1 and gives a maximum speed—at 6,000 r.p.m.—of 46 m.p.h.—an extra 9 m.p.h. This particular gearbox was a delight to use, and one was not troubled by the rather weak synchromesh. Some difficulty was found in engaging first or second gear when the car was stationary.

The supercharger unit is installed very neatly on the near side of the engine, although the top of the S.U. carburettor dashpot is rather high and necessitates a slight bulge in the bonnet pressing. Access to most components needing regular attention is unaffected, and only the mechanical petrol pump, which supplies adequate fuel for the increased thirst of the engine, is difficult to reach. Weight distribution has been little affected by the addition of the unit. No extra engine noise is noticeable and the very slight whine from the supercharger is only occasionally detectable.

Experience with other Sprites that have been made to go faster than the manufacturer originally intended has already shown that the rest of the car is well able to cope with the increased performance. For all normal, non-racing purposes the drum brakes are adequate, and on this car, after hard use, there was only a very slight sign of fading and a little roughness. Disc brakes for the front are offered as very worth-while optional extras. With its lever mounted between the seats, the handbrake is very positive and held the car on a 1-in-3 test hill without the need to exert maximum pull. On this same incline the car moved away from standstill without any difficulty.

Only modification to the suspension has been the inclusion of an anti-roll bar on the front end, but on the already firm suspension the effect of this is hardly noticeable, except during very severe cornering. The increased tyre pressures, however, which are recommended to deal with the greater performance, exaggerate the rather harsh ride on all surfaces except the very smoothest. The suspension is not silent,

Most owners will probably wish to have the optionally extra tonneau cover. A lockable fuel filler cap is also on the list of available extras



Austin-Healey Sprite

SUPERCHARGED

Most useful mirror was that on the off-side wing, since the interior one gave a very limited field of view. There are no exterior door handles, and the body is remarkably free from projections

even at slow speed, but one should not count this as criticism on an expensive sports car.

Manœuvres on a steering pad confirm the opinion formed on the road that handling characteristics of the Sprite are neutral, although the driver may receive an impression of oversteer due to the form of suspension—quarter-elliptic leaf springs—used on the rear of the car and rather "quick" steering. On rough roads the firm suspension causes the rear of the car to hop outwards readily when cornering, but the light and precise steering allows the driver to retain perfect control without any difficulty. A slight "stickiness" in the steering cannot be described as a fault, since this is usual with cars using rack-and-pinion units when new—the chassis had not done as many miles as the engine—and is known to wear off with use.

Sidescreens with Perspex sliding panes are well made, but the mountings were slightly insecure and permitted the frames to rattle. Rain came in under the hood in a number of places and dripped down the inside of the windscreen. With the sidescreens removed the occupants were still well protected, but there is no special stowage space for these items. The hood, made from a strong p.v.c. material, can be erected or lowered very much faster than is often the case with open sports cars, and with it stowed away in the back much of the chassis noise disappears in the wind.

Except for the unusually long-legged or the very tight-skirted it is not difficult to enter or dismount, even when the hood is up, and it is quite surprising just how much room there is in the cockpit of the Sprite. One does not have to drive with one's arms knocking against the door and the passenger. Indeed, for all except those above average height, the driving position is very comfortable. The seat backs curve round to give lateral location, and the squab runs far enough forward to support the thigh almost to the knee. Only the position of the central driving mirror, which obscures the view of the nearside wing, prevents the all-round visibility being excellent even with the hood up.

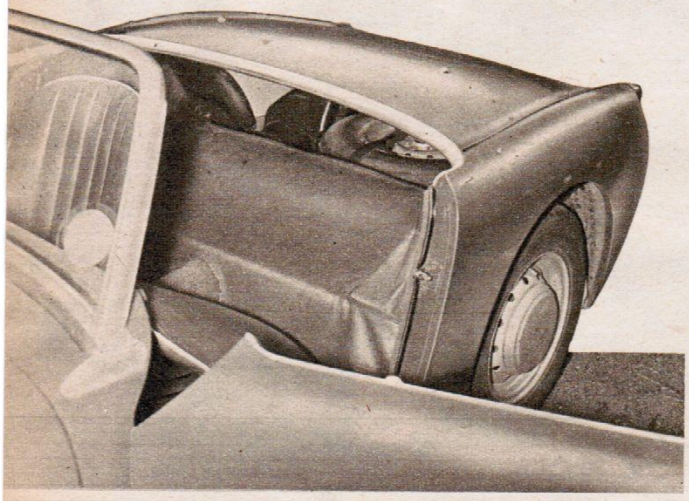
Those owners who intend to use the Sprite for touring are handicapped by the absence of room for luggage. Partly for the sake of economy, and partly to increase structural rigidity, access to the luggage compartment can be gained only by folding forward the seats, since no outside lid is provided.

In this compartment lives also the spare wheel, a very small tool kit, and the hood when it is not in use. This does not leave a great deal of room for suitcases, and contortions are called for if a small item finds its way to the rear of this compartment, and has to be retrieved. In each door is a deep pocket which will hold almost everything one could want to carry in the way of maps and other odds and ends, even a lady's moderately sized handbag.

A wooden-rim steering wheel—a Donald Healey accessory—was fitted to the road test car. It is one of the better examples of steering wheel, but as fitted to the Sprite its three spokes masked more of the instrument panel than one would like. Instruments are as on the standard car—petrol gauge, speedometer, rev counter, ammeter and combined oil pressure and water temperature gauge. On the passenger's side there is a grab handle and mounted centrally on the facia is the trafficator switch, which is not self-cancelling. Since the warning light for the turn indicator was obscured by a spoke of the steering wheel in the straight-ahead position and there was little, if any, warning noise, there is a tendency to leave the indicators flashing.

Automatic parking windscreen wipers gave a clean sweep but could cover a larger area with advantage; a more powerful horn should be fitted. A great deal has been said about the frontal appearance of the Sprite, but the reason for the slightly goggle-eyed head lamps is compliance with minimum height regulations for these units in the United States, where many of these cars have been sold. Increased performance of the supercharged car has outpaced the illumination provided by the head lamps.

With a catch under the front, the bonnet hinges back as a complete unit and is held by two automatic stays; an additional support can be brought into use for extra safety. Access to the engine is not easy, and as it is mounted so

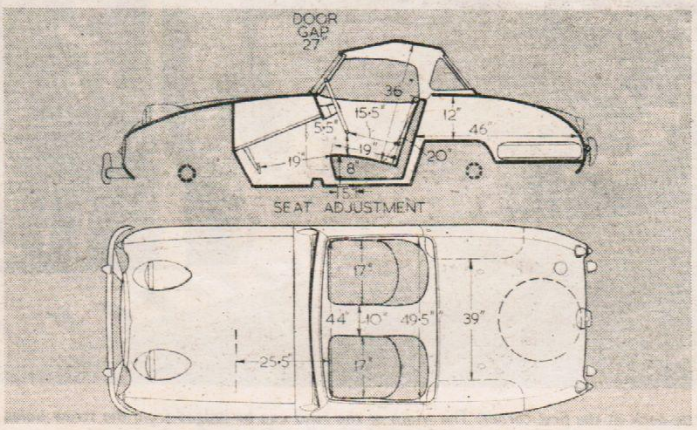


Seats fold forward to provide better access to the interior of the crevice-like boot. Nearly everything stowed in the compartment must be taken out to remove the spare wheel which is held down by a strap

low one must assume a rather unnatural stooping posture to work on it. For comfort in working it might be better to remove the bonnet completely. The bodywork was remarkably rattle- and shake-free. Servicing requirements include attention to eight lubrication points every 1,000 miles.

Quite sensibly, the basic Sprite model is marketed without any additional refinements, allowing those with a minimum to spend to afford one. For those with more money available there is a long list of optional extras. It has been said in the past that the Sprite is an entertaining, safe and very roadworthy small motorcar; the addition of the supercharger has in no way detracted from that appraisal. In fact, it has made it a more flexible and potent little vehicle with a peculiar charm very much of its own. The particular test car was supplied by Healey Speed Equipment Ltd., of Grosvenor Street, London, W.1. That this concern has the fullest confidence in the blown Sprite is borne out by the fact that they continue to honour the terms of the usual British Motor Corporation warranty.

AUSTIN HEALEY SPRITE (Supercharged)



Scale ½ in. to 1ft. Driving seat in central position. Cushion uncompressed.

PERFORMANCE

ACCELERATION TIMES (mean):

Speed range, Gear Ratios and Time in Sec.

m.p.h.	4·22 to 1	5·74 to 1	8·03 to 1	13·5 to 1
10—30	12·4	8·6	5.6	—
20—40	11·3	8.0	5·5	—
30—50	10·8	7·4	—	—
40—60	12·2	8·6	—	—
50—70	14·3	—	—	—
60—80	18·8	—	—	—

From rest through gears to:

30 m.p.h.	..	4·7 sec
40 ,,	..	7·3 ,,
50 ,,	..	10·4 ,,
60 ,,	..	15·3 ,,
70 ,,	..	21·8 ,,
80 ,,	..	34·6 ,,

Standing quarter mile 19·7 sec.

MAXIMUM SPEEDS ON GEARS:

Gear		m.p.h.	k.p.h.
Top ..	(mean)	87·2	140·4
	(best)	90	144·8
3rd		65	105
2nd		46	74
1st		27	44

TRACTIVE EFFORT (by Tapley meter):

	Pull (lb per ton)	Equivalent gradient
Top	235	1 in 9·5
Third	320	1 in 6·9
Second	430	1 in 5·1

BRAKES (at 30 m.p.h. in neutral):

Pedal load in lb	Retardation	Equiv. stopping distance in ft.
25	0·20g	151
50	0·35g	86
75	0·67g	45
100	0·90g	33·5

FUEL CONSUMPTION (at steady speeds):

	Top Gear
30 m.p.h.	42·6 m.p.g.
40 ,,	38·4 ,,
50 ,,	32·2 ,,
60 ,,	29·6 ,,
70 ,,	27·2 ,,
80 ,,	23·1 ,,

Overall fuel consumption for 1,415 miles, 28·3 m.p.g. (10·0 litres per 100 km.).

Approximate normal range 26–35 m.p.g. (10·9–8·1 litres per 100 km.).

Fuel: Super premium.

TEST CONDITIONS: Weather: Dry, 0–5 m.p.h. breeze.

Air temperature, 58 deg F.

SPEEDOMETER CORRECTION, m.p.h.:

Car speedometer ..	10	20	30	40	50	60	70	80	90
True speed	11	21	30	39	48	57	66	75	85

DATA

PRICE (basic), with open two-seater body, **£527.**
British purchase tax, **£186 10s.**
Total (in Great Britain), **£713 10s 6d.**
Extras:
Radio **£25 10s.** Heater **£19 13s 2d.**: Anti-roll bar **£7 17s 6d.** Special steering wheel **£10 10s.** Rev. counter **£4 5s.** Front bumper with overriders **£5 13s 4d.** Hardtop **£49 11s 8d.** Tonneau cover **£5 13s 4d.** (Prices include U.K. purchase tax.)

ENGINE: Capacity, 948 c.c. (57·82 cu. in.).
Number of cylinders, 4.
Bore and stroke, 62·93 × 76·2 mm (2.478 × 3·0in).
Valve gear, overhead, pushrods and rockers.
Compression ratio, 8·3 to 1.
B.h.p. (net) 68 at 5,700 r.p.m. (B.h.p. per ton laden 83·3).
Torque, 65 lb ft at 3,000 r.p.m.
M.p.h. per 1,000 r.p.m. in top gear, 15·4.

WEIGHT (with 5 gal fuel): 13·3 cwt (1,491 lb).
Weight distribution (per cent): F, 54; R, 46.
Laden as tested, 16·3 cwt (1,827 lb).
Lb per c.c. (laden), 1·98.

BRAKES: Type, Lockheed drum.
Method of operation, hydraulic.
Drum dimensions: F and R, 7in. diameter; 1·25in. wide.
Total swept area: 110 sq. in. (135 sq. in. per ton laden).

TYRES: 5·20—13in. Dunlop Gold Seal.
Pressures (p.s.i.): F, 18; R, 20 (normal) F, 22; R, 24 (fast driving).

TANK CAPACITY: 6 Imperial gallons.
Oil sump, 6 pints.
Cooling system, 10 pints.

STEERING: Turning circle:
Between kerbs, L, 31ft 4in. R, 30ft 10in.
Between walls, L, 32ft 7in. R, 32ft 1in.
Turns of steering wheel from lock to lock, 2·3.

DIMENSIONS: Wheelbase, 6ft 8in.
Track: F, 3ft 9·75in; R, 3ft 8·75in.
Length (overall), 11ft 5·25in.
Width, 4ft 5in.
Height, 4ft 1·75in.
Ground clearance, 5in.
Frontal area, 13·3 sq ft (approximately).

ELECTRICAL SYSTEM: 12-volt; 38 ampère-hour battery.
Head lamps, Double dip; 42–36 watt bulbs.

SUSPENSION: Front, independent coil springs and wishbones, anti-roll bar.
Rear, live axle, quarter-elliptic leaf spring with longitudinal radius arms.