

ALVIS SPEED TWENTY

AN ENTIRELY NEW SPORTS CAR
OF SUPERLATIVE PERFORMANCE

A GENUINE 100 M.P.H. CHASSIS

IF you have read "THE AUTOCAR" description of the new ALVIS "Speed Twenty" car in this issue you will have learned something of the most up-to-date development of Sports motoring. A car bristling with exclusive features and backed by many years of unique experience in making nothing but cars of renown, this new ALVIS "Speed Twenty" is the most fascinating and efficient Sports Car ever produced, while its price is less than half that of any other car approaching its performance. In addition, this new ALVIS is fundamentally better in every way than any other car you can buy.

This new ALVIS "Speed Twenty" is a car which will be very much talked about before the World is much older. If you would like further details before fixing a trial run through your local dealer, write immediately to ALVIS CAR & ENGINEERING CO. LTD., COVENTRY. London Showrooms: 18, Berkeley Street, W.1.

4-STR. SPORTS TOURER £695
SPORTS SALOON - - £750
CHASSIS PRICE - - - £600

THE CHIEF CHARACTERISTICS OF THE "SPEED TWENTY"

Superabundance of Power

Vivid Acceleration

*Brakes better than anything
previously known*

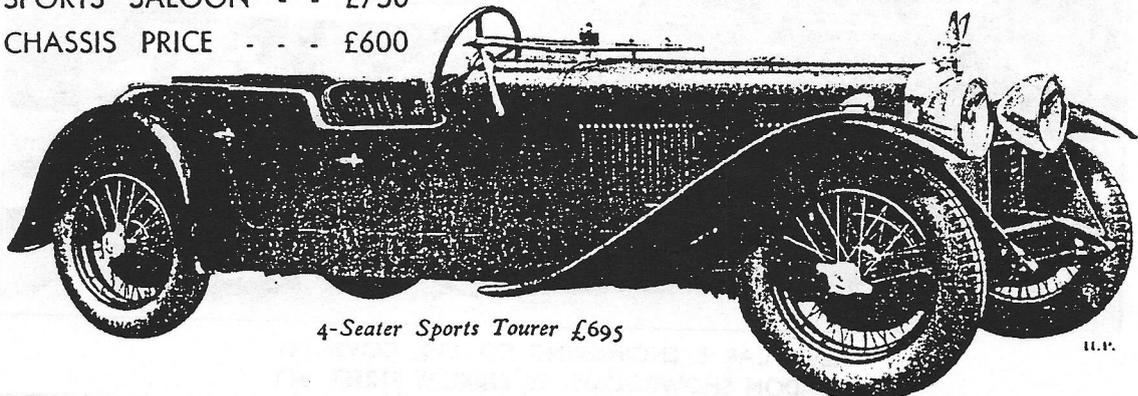
Utmost docility

Battleship strength throughout

*Coachwork of great beauty and
exceptional comfort*

Economy of upkeep costs

12/50 Models from £395
Silver Eagle Models (16 h.p. & 20 h.p.)
from £585



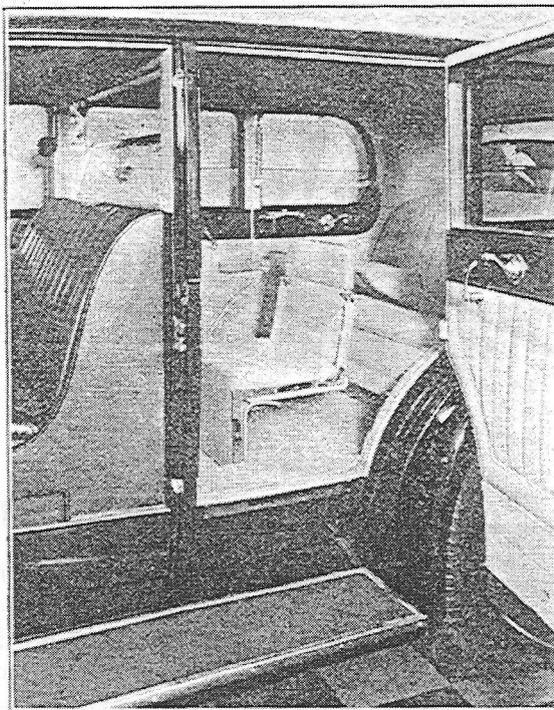
4-Seater Sports Tourer £695

H.P.

Luxury motoring at lower cost

...this beautiful
LIMOUSINE
 offers every quality
 of the £1,500 car
 for **£795**

NEVER before has such quality, accommodation and performance been available at so low a price. Here is a luxury car answering the call for economy, not only in first cost but also in running costs. Equally suitable for Town use or touring, it can be supplied as a chauffeur-driven 7-Seater Limousine, or without the partition for the owner-driver. Many motorists who have been accustomed to paying £1,500 for a car of this type will welcome this new ALVIS Limousine at £795. *It is in a class by itself.* May we send you a portfolio of photographs, and full particulars of specification?

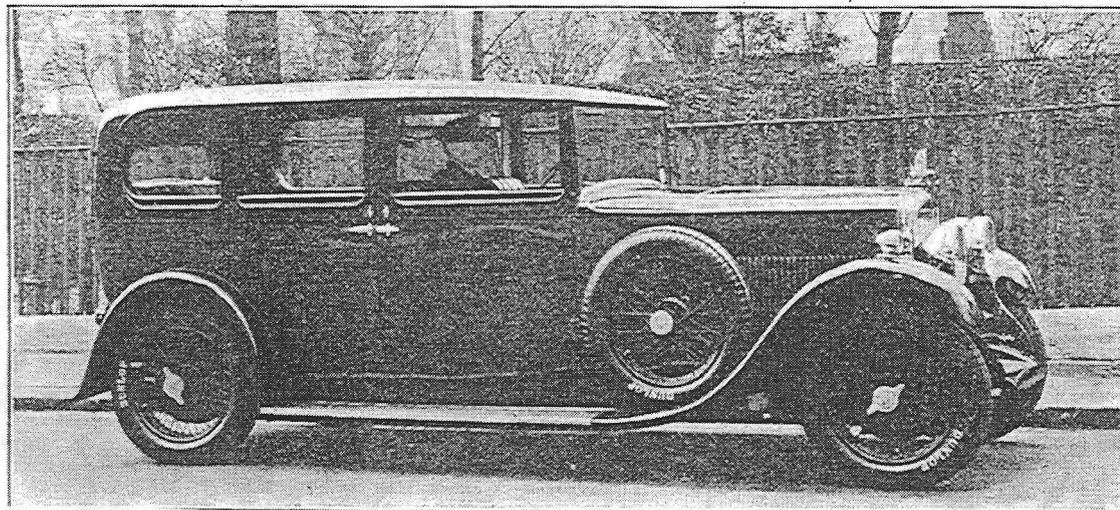


The interior equipment and finish is of the highest quality. No single item of comfort or luxury is omitted. Safety glass is fitted throughout, all bright parts are chromium plated and the upholstery can be either best quality hide or cloth, as desired.



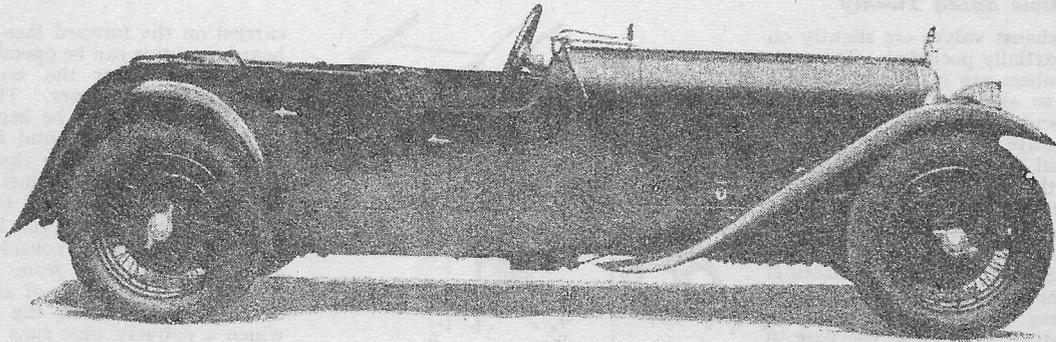
On the brilliant "Silver Eagle" 20 h.p. Chassis

MAYFAIR SIX-LIGHT LIMOUSINE



ALVIS CAR & ENGINEERING CO. LTD., COVENTRY
 LONDON SHOWROOMS: 18, BERKELEY STREET, W.1

H.P.



NEW ALVIS SPEED TWENTY

**A Fine Six-cylinder
2½-Litre Design Pro-
duced by a Famous
Firm**

MOTORING history will very likely be made by the latest Alvis design, the Speed Twenty, for many people will consider it to be the most attractive all-round car yet produced by the sound British engineers who are responsible for the activities of the company.

It is characteristic of the Alvis main line of development to build upon solid foundations, and thus the components of the car of one year are improved and refined in detail up to the point where a rearrangement can be made to give them wider scope wherein to exercise their virtues in the next year's model. Experience thereby is never wasted, and the makers gain a knowledge of the capabilities of each part of their product which is of inestimable value to them, and to the owners of their cars.

Thus it is that the Speed Twenty is definitely a new design, but at the same time has nothing in it which can be regarded as of an experimental nature. It is a refinement of up-to-date Alvis practice, laid out in the most attractive form, and having about it an atmosphere of the best sports car traditions. In a nutshell, it is a six-cylinder 20 h.p. design, with engine and gear box in unit instead of separate, and a low-built, exceptionally rigid frame. The whole design is solid, strong, and most comely. The engine develops well over 87 b.h.p. at 3,800 r.p.m., and the maximum speed of the complete car in full touring trim is 85 to 90 m.p.h. or more, according to axle ratio, tuning, and equipment carried. It is not intended as a mere speed vehicle, however, and possesses great refinement

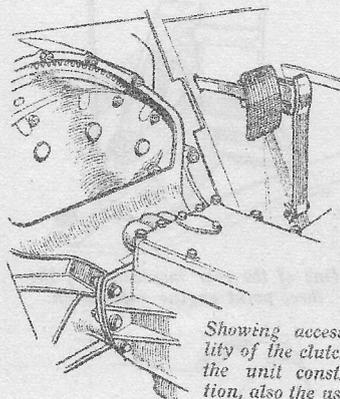
and sweetness of running at low speeds, as well as gentle controllability.

The coachwork can be arranged to suit individual requirements, and in its initial form as a sports four-seater the price complete is £695. This body is a smart and well-balanced four-door design, with a cut-away side for the driver's right arm. The front seats are separate and adjustable "buckets," the finish is of fine quality. There is a great deal more room than the compact appearance indicates.

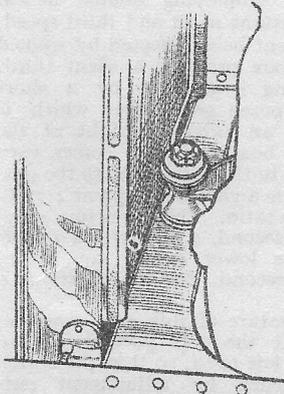
The six-cylinder engine has cylinders of 73x100 mm. (2.511 c.c.), which are cast in a single block and mounted upon a rigid and strong aluminium crank case. In this there are four bearings to carry a stout crankshaft, which is carefully designed and machined so as to be in correct dynamic as well as static balance. At the forward end of the crankshaft is a torsional vibration damper of special design, consisting broadly of a V-grooved driving member embraced by a split ring, which has its halves spread by compression springs in such a way as to hold friction linings in contact with the sides of the V-groove, with a pressure automatically maintained constant, irrespective of wear. The timing chain is at the back; it provides a triangular drive to the camshaft and to a subsidiary chain wheel, carried on double bearings, from which a splined driving spindle goes to the water pump. There is also an automatic tensioner for the twin roller chain.

The camshaft is in the side of the crankcase and the overhead valves are operated through push rods concealed in the cylinder casting, and then by rockers mounted on the top of the cylinder head. The bearings of these rockers are lubricated under pressure, and oil is also fed to the ball and sockets. As compared with the Alvis Silver Eagle engine, the Speed Twenty layout in this respect is similar in general design, but differs in detail. The valves are larger, and larger square-section valve ports are used, as well as a higher compression ratio.

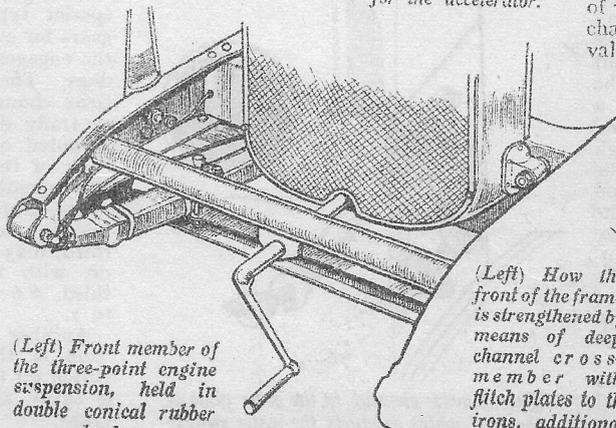
The valves lie in a line along the top of the cylinder head, and the combustion chambers are arranged so that each inlet valve is directly over the cylinder bore.



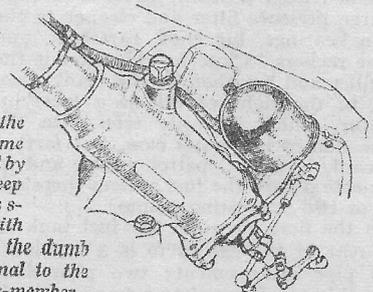
Showing accessibility of the clutch in the unit construction, also the use of a "piano pedal" for the accelerator.



(Left) Front member of the three-point engine suspension, held in double conical rubber bushes.



(Left) How the front of the frame is strengthened by means of deep channel cross-member with fitch plates to the dampers, additional to the tubular cross-member.



(Below) Electrical switch gear above the steering box.

The New Alvis Speed Twenty

whilst the exhaust valves are slightly off centre and partially pocketed. The combustion chambers are machined all over inside, and so also are the valve ports machined and polished. Compound valve springs are employed, and, following the usual Alvis practice, they are located on the valve stems by double conical collets so that any sharp shoulder in the end of the valve stem is avoided.

Another feature of the cylinder block is the care taken in the water jacketing. Water does not pass through holes in the gasket between the cylinder top and the cylinder head—it is fed into the base of the jacket in such a way as to travel the length of the cylinder bores, and then at the rear end passes through a large port with a detachable flange joint and upwards into the cylinder head, passing over to the valve seats and completely round the plug sockets until it reaches the front end, where it rises to the radiator. Care has been taken to ensure even thickness of metal and free water spacing round valve seats and plugs.

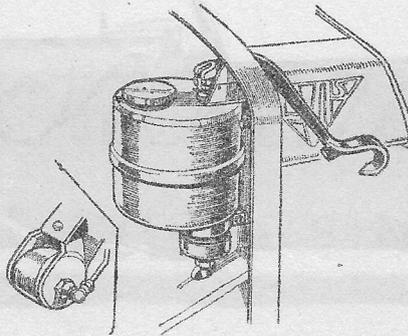
As regards the arrangement of the auxiliaries, the water pump, as already mentioned, is driven from a splined spindle entering the centre of a chain wheel, and the arrangement is such that the pump can be detached without in any way disturbing the timing chain; also the pump gland is unable to weep water into the crank case when the car is not in use. A line drive proceeds forward from the water pump to the dynamo and to the magneto, above which is a change-over switch permitting either magneto or coil ignition to be used.

Compact Wiring

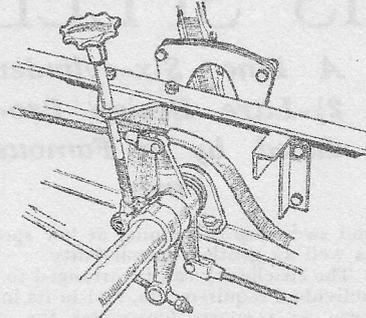
All these auxiliaries are on the off side of the engine, and the sparking plugs, which enter the combustion chambers diagonally, are on the same side, so that the wiring is kept as short and compact as possible. Incidentally, the change-over switch referred to is operated through a control rod from a switch handle mounted on the instrument board. On the rear side of the engine are the inlet and exhaust manifolds, the exhaust pipe being arranged to travel down the front of the engine, well away from the floorboards. A group of three S.U. carburettors supplies the mixture, and the gas distribution includes hot spots in the induction system.

Particular attention has been paid to the lubrication system. The pump is of an extra large size, and a big release valve is used, so that there is always surplus oil pressure. As a result the working pressure keeps very constant whether the engine is hot or cold. The pump draws its supply of oil through a suction filter contained in the sump and attached from beneath. It feeds through a large pressure filter and cleaner to the main bearings, big ends, camshaft, and valve rockers. Close by this filter is the oil filler and breather for the crank case, and to the right of this is a level indicator, which is easily seen. On the same side of the crank case, but farther forward, is an AC petrol pump, and in connection with the fuel system there are one or two interesting points.

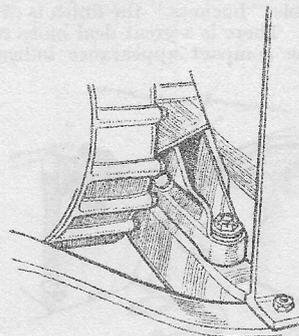
In the first place, in the fuel tank at the rear of the car there is a two-level feed pipe arrangement; two pipe lines on this run forward to a two-way cock



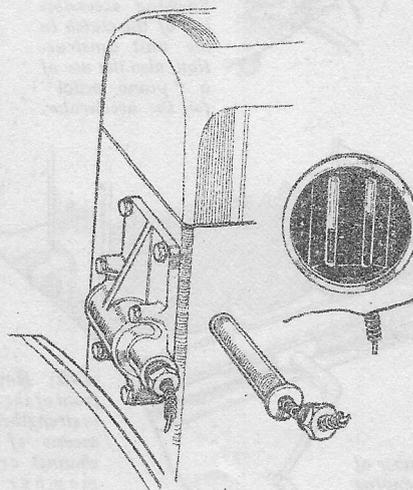
One-shot lubrication system operated from a lever under the scuttle.



Hand-wheel adjustments for the brakes, which emerges through the floorboards within easy reach of the driver.



One of the rear mountings of the three-point engine suspension.



Thermometer element in the cover plate of the port which conducts the water supply from the cylinder block to the head.

carried on the forward face of the dashboard, and this can be operated by means of a handle under the scuttle, within reach of the passenger. Thus a supply of petrol can always be kept in reserve. In addition to this sound feature, however, provision is made that there shall always be a supply of fuel available to fill the float chambers of the three carburettors, even if the car has been left standing for some considerable time. Thus the feed pipe from the two-way cock is connected first of all to a cylindrical service tank on the scuttle, from which a delivery pipe runs to the petrol pump and to the carburettors.

It is typical of the care given to detail work in this design that a proper positive drive from the camshaft is provided for a revolution counter, this drive running at half engine speed, whilst in the water port which connects the cylinder jackets to the head jacket is a socket for a temperature-recording element, coupled to a dial on the instrument board.

The engine and gear box unit is suspended in the frame at three points on double conical rubber buffers, there being a single point at the front and two points at the rear, the latter being provided by bearer arms integral with the clutch pit, the buffer mountings of which are attached to a very stout cross-member which joins the frame sides at a point just aft of the flywheel. In this Alvis design, therefore, the engine unit is not employed to stiffen the frame—there is a proper cross-member for the purpose, and the engine is mounted freely.

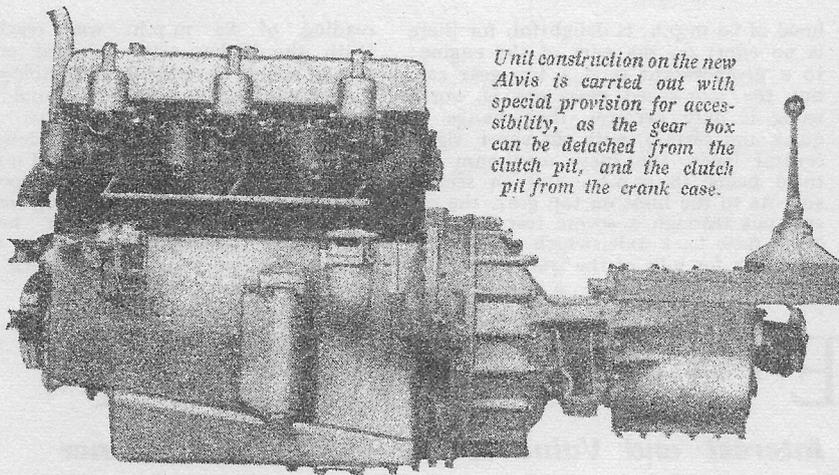
The Clutch

Behind the timing case is a bell housing in which is the flywheel, and within the flywheel is a special type of clutch. It is a single plate, slotted radially and also tangentially so as to allow a certain degree of spring to give an easy and sweet initial engagement. The clutch plate is of saw steel, and the linings are attached to the driving members, not to the spinning member. In this unit design the bell housing round the flywheel and the gear box are not fashioned in one piece, for the bell housing is bolted to the rear of the engine, whilst the gear box is bolted to the rear of the bell housing. In this way some of the advantages of separate construction are retained, for it is possible to drop the gear box or the clutch out of the car without having to move the engine unit.

As regards the gear box, this is of a special type employing double helical gears for constant mesh and third speed, the engagement being effected by splined dogs. The box provides a silent third. Gear changing is effected by a short centrally disposed gear lever which is mounted on an extension right at the back of the box, and thus comes very conveniently to the hand. As to the gear ratios, there is a choice of 4.55 or 4.77 for the axle ratio. This gives top, 4.55 for the axle ratio. This gives top, 4.55 third, 6.25; second, 9.6; first, 15.7 to 1 or, with the lower ratios, top, 4.77 third, 6.6; second, 10; and first, 16.6 to 1.

Another feature of this unit construction is that the top portion of the clutch pit is left open, so that the clutch is easily reached for adjustment purposes.

Before leaving this part of the design



Unit construction on the new Alvis is carried out with special provision for accessibility, as the gear box can be detached from the clutch pit, and the clutch pit from the crank case.

it may be mentioned that an outboard type of mounting for the starting motor is employed, and the motor itself is completely enclosed, but is so arranged that it is not a difficult matter to remove the starter as a whole, in fact it can be removed and replaced in less than twenty minutes. Incidentally, the electrical system includes a dynamo of extra large size.

From the rear of the gear box the drive to the rear axle is carried through a tubular propeller-shaft of truly massive diameter, with the Alvis special form of metallic universal joint at each end. This shaft is designed for a safe speed well over 6,000 revolutions per minute.

Although the rear axle follows on the normal Alvis interior design for a spiral bevel drive, in the general layout there is a change, for the aluminium casing, which is reinforced with steel tubes passing through its centre, is now prolonged almost to the hubs, and the spring saddles are close up to the hubs in order to obtain the widest possible spring base. The rear of the frame is also as wide as it can be made.

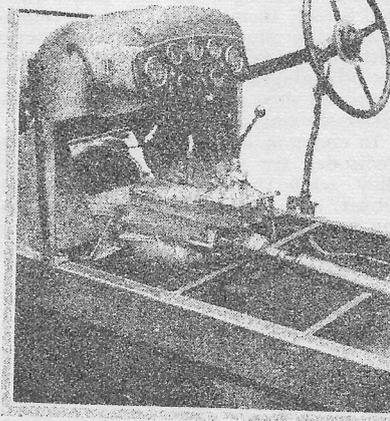
Powerful Brakes

The four wheel brakes are of special Alvis design operated through tie rods, and cables enclosed in armoured casings. The brake drums are some 14 in. in diameter and are heavily ribbed, whilst the brake shoes are of a self-energising pattern, in which the expanding linkages have a floating action, and thus the pair of shoes do an equal amount of work. These brakes are particularly powerful and more than ordinarily sweet in operation. All four are operated either by pedal or by a hand lever at the right-hand side, and protruding from the floorboards of the car is a spindle with a hand wheel at the top, by means of which the brakes can be adjusted whilst the car is being driven.

The next point of importance is the frame; this is a very interesting construction in which the side-members are swept downwards aft of the rear anchorages of the front springs, lie parallel and close to the ground to a point just beyond the front anchorages of the rear springs, and then arch upwards over the rear axle. Half-elliptic springs are used back and front, and the rear springs are underslung.

The frame is remarkable for its stiffness. There is a very deep cross-

member, cut away in the neutral flange for lightness, lying between the front



Unit construction of the engine and gear box; and the aluminium cast dashboard.

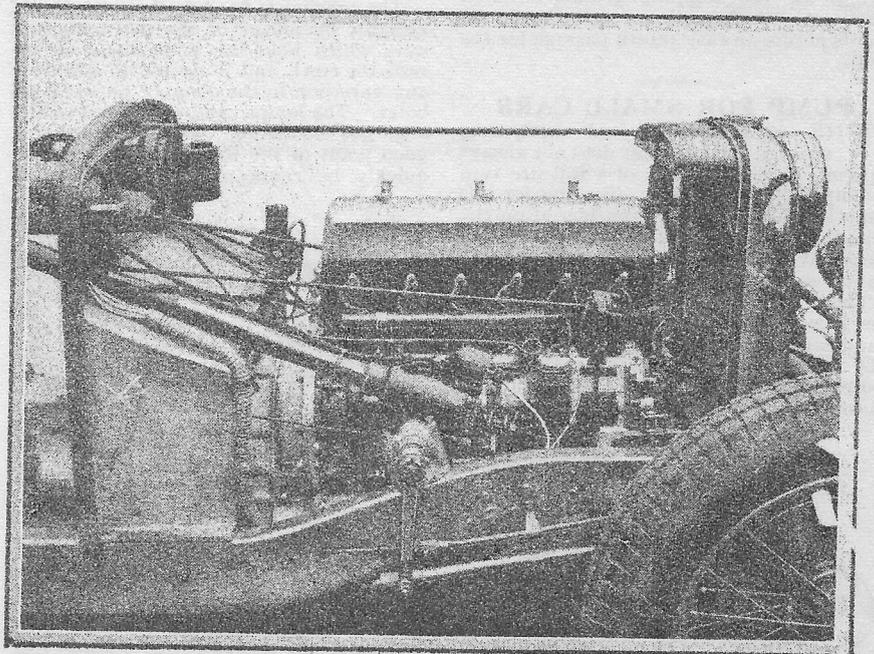
The New Alvis Speed Twenty
brackets of the rear springs; then in front of this a steel plate joins both the side-members together for a distance of two feet or more, where there is another cross member. A light cross-member braces the frame below the front end of the propeller-shaft, and, again, underneath the clutch pit, as already mentioned, there is a cross-member of great size. This frame rigidity is carried right through to the front. The central suspension point of the engine rests on a deep cross-member, in front of which is the radiator. Forward of that again is a big tubular member.

Besides these major points of design there are some interesting secondary details. For example, a cast aluminium ramp, dashboard, and instrument board support gives a solid foundation for the bonnet and scuttle, and neatens the design considerably. Alvis pedals are designed so that they pass through slots of minimum size in the toe boards, and these slots are properly sealed with rubber pads to exclude draught and smell. An accelerator pedal of the piano type has been adopted.

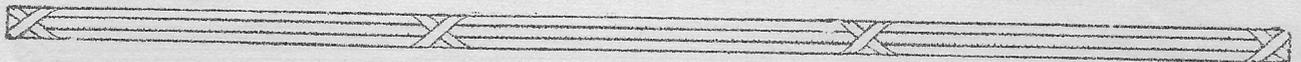
Accessibility

A steering gear of the Marles-Weller type is employed, with a big spring-spoked wheel, and having controls grouped in the centre. To give greater accessibility, the switch box is not mounted as a continuation of the steering gear box, but is specially placed above it. Another good point is that the duties of chassis lubrication are reduced to a minimum because a one-shot system operated from a lever under the scuttle supplies all the spring shackles and other important points.

Taken all the way round, the new Alvis Speed Twenty is a most interesting car, it is a "good-looker," and has that about it which invites the beholder to enquire further into the detail work. It is pre-eminently a product of people



The plugs are extremely accessible. There is a tandem drive for pump, dynamo, and magneto.



The New Alvis Speed Twenty

who know their job, and as such should have a very strong appeal to drivers who are correspondingly equipped.

Impressions on the road of the first of these machines to be produced are exceedingly promising. Above all, the car is very quiet indeed, for all its undoubted power, and feels remarkably solid and "in one piece," despite the fact that this early car had not the proper rigid-braced frame that is used in production.

A cruising speed in the neighbour-

hood of 60 m.p.h. is delightful, for there is no effort on the part of the engine; to a great extent it is a top gear car, but the four-speed gear box is worth using if only because the change is quick and certain, with the short, rigid, central lever, the easy maximum on third being 58 m.p.h., and on second 40. As to the limit on top gear, the car was put through a severe test with the lower ratio back axle, which gave power in plenty for hills of the trials type, and with the lower ratio a speedometer

reading of 82 m.p.h. was reached. With the higher ratio a speed of 90 m.p.h. should be quickly attainable, and the maxima on the indirects would, of course, be higher.

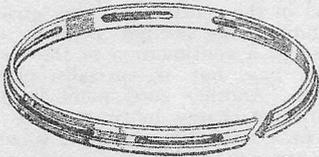
The car controls with proper delicacy and accuracy, is very steady, and not at all harshly sprung even at low speeds. The brakes are first-rate, being really decisive without calling for heavy pressure on the pedal, and the car does not swerve off course even when the brakes are used to full effect.

CAR EQUIPMENT

Some Accessories of Interest and Value to the Private Car Owner

FOR OILY ENGINES

A SPECIAL type of piston ring designed specifically to cure oily engines both as regards excessive oil consumption and the emission of "clouds of smoke" from the exhaust pipe—an offence, by the way—has been placed on the market by the Aero Piston Ring Co., Ltd., of St. Peter's Place, York Street, Leeds. The new ring is a combination of three types, for it is slotted, chamfered,

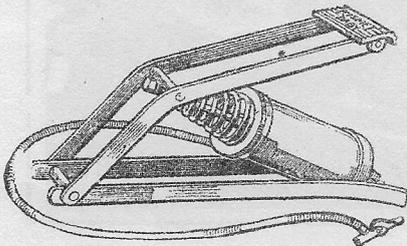


Aero piston ring.

and stepped. This arrangement naturally makes it a most effective scraper ring, for the stepping gives maximum contact with the cylinder walls, while the slots ensure an easy return passage for the oil.

PUMP FOR SMALL CARS

THE necessarily limited equipment space of the small car does not always permit of the inclusion of a full-size tyre pump amongst the tools. To cater for this the Kismet Baby has been placed on the market by Wm. Turner and Bros., Ltd., Eyre Works, Sheffield. This is a handy and very efficient foot pump with a particular appeal to the small car owner. It is provided with a universal connector and can be instantly attached to the valve of the air tube. The Kismet Baby is a sturdy and particularly well-finished instrument. It costs only 13s. 9d.



The Kismet Baby pump.

A NEW SPARKING PLUG

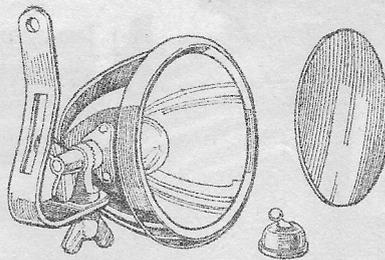
FOLLOWING tests over a period of more than twelve months, the A.C.-Sphinx Sparking Plug Co., Ltd., Bradford Street, Birmingham, have developed a sparking plug for use in conjunction with the model A Ford engine. Among the advantages claimed for this plug are improved slow running and acceleration, easier starting and increased power.

In common with other A.C. plugs the electrodes are made of special Isovolut alloy, while the insulator is particularly robust, and in the case of the new plug the terminal is designed for use in connection with the Ford all-metal terminal. The price is 5s.

FOR NIGHT-DRIVING

A ROAD and fog lamp provided with a special bracket for fitting it to the Austin Seven, and sponsored by J. Neale and Sons, Ltd., 68-69, Graham Street, Birmingham, should find considerable support amongst the owners of these small cars. Its price is 17s. 6d.

The bracket is fixed to the near side of radiator by means of the two bolts and nuts which hold the undershield to the radiator cowl, and is slotted to allow for any variation in the distance between the bolts. The lamps can be adjusted to any angle by loosening two wing nuts. A good point of the Raydyot is that it can quickly be connected up, so as to be

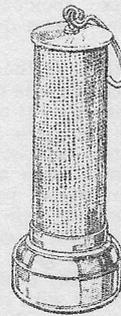


Raydyot road and fog lamp.

brought into operation when the head lights are dimmed for oncoming traffic, thus making it possible for the speed to be maintained with safety. A separate switch is, of course, provided, so that the lamp can be used independently when necessary. It is supplied with seven feet of armoured cable, bracket, switch, and fog disc, while a simple wiring diagram renders its installation an easy matter.

IN COLD WEATHER

AT 5s. 9d. the new Romac radiator lamp cannot be considered expensive. The manufacturers are Romac Motor Accessories, Ltd., the Hyde, Hendon, N.W.9. It can be left unattended for



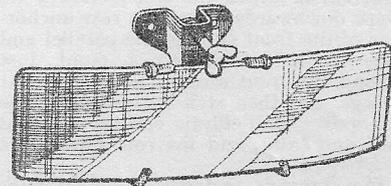
The new Romac radiator lamp.

forty hours on one filling of paraffin, and can be used in safety on account of the fuse wire mesh protecting the burner. It is strongly made in gun metal with oxidised finish.

DRIVING MIRRORS

REGULATIONS now call for a driving mirror as part of the equipment of every car, and one of excellent design is the Enots Trioscope mirror sponsored by Beuton and Stone, Ltd., 157, Bracebridge Street, Birmingham.

The fittings are rendered rustproof, and the mirror can be adjusted to any angle by means of a thumb screw, while for cleaning purposes the glass can be removed from its bracket and replaced without difficulty. It is convex in shape and reduces dazzle from the head lights of following vehicles to the minimum. The Enots Trioscope costs 7s. 6d., while replacement mirrors are available at 5s. each.



Enots Trioscope mirror.

Choose an

ALVIS for 1933!

"Firefly
Twelve"
from £455

"Silver
Eagle"
from £695

"Speed
Twenty"
from £695

Each car the
Leader of its
Class. See them
at

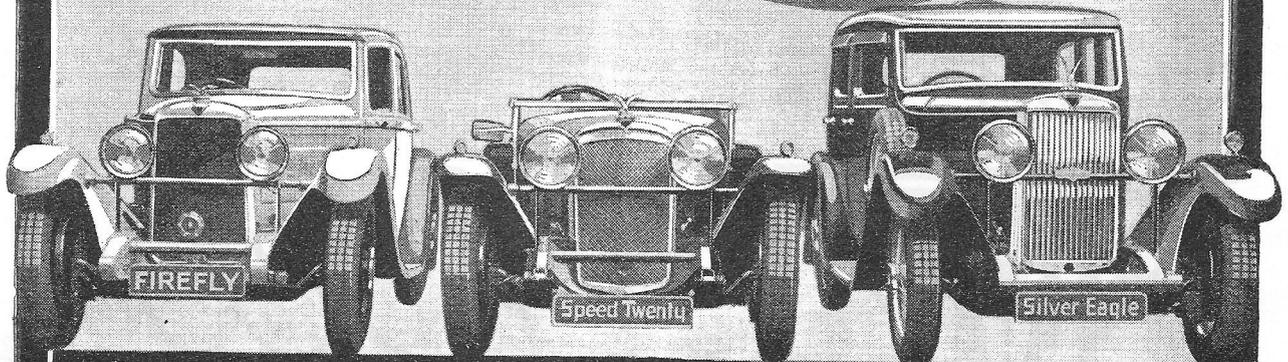
OLYMPIA
Stand 56 Main Hall

WHETHER you desire a speedy sports car or a luxurious limousine, four cylinders or six, your choice should be an ALVIS, leader of its class.

The genius of ALVIS design, the fine workmanship of skilled craftsmen, have carried the fame of ALVIS throughout the world. Discriminating motorists find in the ALVIS incomparable performance allied with long life and low running costs a grace of appearance and refinement of control possessed by no other car.

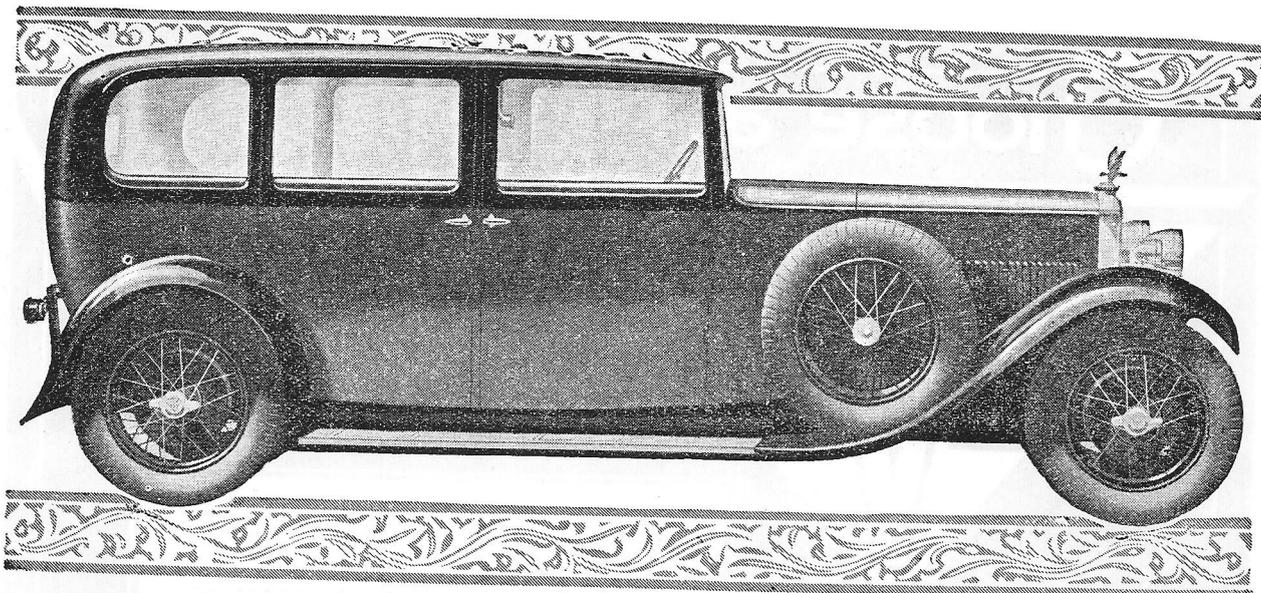
Yet each ALVIS model costs much less than you would expect to pay for such outstanding quality. Take the first step towards better motoring by writing for full particulars to

ALVIS CAR & ENGINEERING
COMPANY LTD.,
COVENTRY.



"MASTERS OF THE KING'S HIGHWAY"

OCTOBER 1932



ALVIS 20 h.p. "SILVER EAGLE" 7-SEATED LIMOUSINE £795

A LUXURY CAR of irreproachable manners and high performance, the ALVIS "SILVER EAGLE"

is definitely quite different from any other car you can buy. Consider these unique points:

The ALVIS "Silver Eagle" is built for speed, but also to be safe, silent, flexible, and superlatively comfortable under all conditions. It has beauty of appearance in harmony with its mechanical perfection.

The ALVIS "Silver Eagle" is designed to give years of unfailing service, and when replacements or repairs eventually are required, each wearing part can be renewed or adjusted individually at low cost.

SCOTTISH
MOTOR
SHOW

Stands
29
30
12

ALVIS "Silver Eagle" bodywork is by England's leading Coachbuilders . . . roomy, restful and beautiful of line.

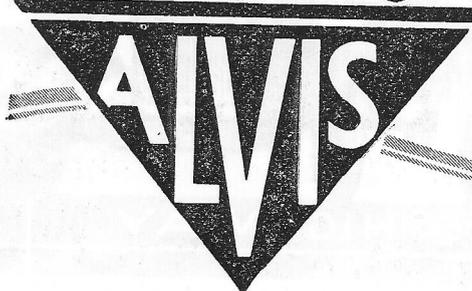
ALVIS leadership in automobile design has never yet been challenged. Own an ALVIS, and enjoy many years of perfect motoring.

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The Scotti

Tam o' Shanter.

Wallace.

Burns.

Mary Queen of Scots.

Bruce.

Guide to the Cars at the Thirty-first Annual Scottish Motor

TO-DAY the thirty-first annual Scottish Show opens at the Kelvin Hall, Glasgow, and buyers in the north will have an opportunity to see the new models displayed alongside each other on the stands of Scotland's leading agents. The Exhibition includes private cars, commercial vehicles, accessories, and garage equipment, and is open daily until Saturday of next week from 10 a.m. till 10 p.m. The prices of admission are 2s. 6d. until 6 p.m., and 1s. afterwards on all days except Saturdays, when the price is 1s. after 2 p.m.

There are a hundred and seventy-nine stands, including accessories and commercial vehicles. In connection with the Show the Scottish Motor Trade Association will hold their annual Show dinner at the Grosvenor Hotel on Monday next, the 14th, and the Scottish Centre of the Motor and Cycle Trades Benevolent Fund has a ball, carnival, and cabaret at the Plaza, Eglinton Toll, Glasgow, on the 16th. Tickets are 10s. 6d.

The guide contained in these pages enables the visitor to the Show who may have certain cars in mind to find them readily. Most exhibitors this year are agents and distributors. A few manufacturers of private cars, however, have taken this opportunity to present their new models direct by having stands of their own. Among these may be mentioned

The intending visitor to Kelvin Hall will find these and the following pages a make of car, the index letters indicate

Citroën, Humber, Lanchester, Talbot, and Daimler.

In the specialised coachwork section, Salmons, Park Ward, Hoopers, and Windovers directly represent the English coachbuilders. All the leading motor agents have comprehensive exhibits, including Pender, Christie, Park, Stobcross, Cameron Campbell, Gibson, Buchanan, W. Hamilton, Gladstone, Taggarts, Galt, Grant, Macharg, Rennie and Lindsay, Fraser, Armour and Melvin, Fenwick, Gibbon, Scott and Morris, Claud Hamilton, Prosser, Clyde, Macintyre, Richies, Wylie and Lochhead, Western, Robertson, and Carlaw, of Glasgow.

Edinburgh is represented by the following: Ross, James and Sons, Princes Street Motor Co., Hutchison, Sloan, Bass Rock, Inglis, Macandrew, Cleland, Croall, Moir and Baxter, Scottish Automobile Co., Rossleigh, Eastern Motor Co., Scottish Traction, Croall and Croall, Pioneer, Alexander Motors, Peebles and Westfield.

Other Scottish agents exhibiting are Mackay and Jardine (Wishaw), Princes Street Motor Co. (Kilmarnock), Scott, Brown (Paisley), Hamilton (Paisley), Johnston (Aberdeen), M'LAY (Kirkintil-



Edinburgh.

loch), Tweedie (Ayr), Taggarts (Motherwell), Goodall (Dunfermline), Young (Newport, Fife), Gillespie (Paisley), Dumfries Motor Co. (Dumfries), Andersons (Newton Mearns), and Croall, Bryson and Co. (Kelso).



Glasgow.

KEY TO ABBREVIATIONS.

S.S.=side-by-side valves.

O.H.V.=overhead valves.

O.I.=overhead inlet valve.

S.V.=sleeve valves.

Central, side, steering wheel, indicate positions of the gear lever.

ALVIS

ALVIS CAR AND ENGINEERING CO., LTD., Holyhead Road, Coventry.

"Firefly" 11.9 h.p. S.A. (tax £12). A.
4-cyl., 69×100 mm. (1,498 c.c.), O.H.V., 4 speeds (central). Wheelbase 9ft. 10½in., track 4ft. 4in.

Chassis £395

Two-seater £455

Sports four-seater £475

Drop-head coupé £475

Saloon £495

12.60 h.p. T.L. (tax £12). B.
4-cyl., 69×110 mm. (1,645 c.c.), O.H.V., 4 speeds (side). Wheelbase 9ft. 4½in., track 4ft. 2in.

Chassis £395

Sports saloon £495

16.35 h.p. T.C. (tax £17). C.
6-cyl., 67.5×110 mm. (2,148 c.c.), O.H.V., 4 speeds (side). Wheelbase 9ft. 10½in., track 4ft. 6in.

Chassis £500

Two-three-seater £585

Four-seater tourer £595

Atlantic saloon £695

Six-light coachbuilt saloon £695

16.95 h.p. T.D. (tax £17). D.
6-cyl., 67.5×100 mm. (2,148 c.c.), O.H.V., 4 speeds (side). Wheelbase 10ft. 3in., track 4ft. 8in.

Chassis £500

Open model £585

Closed model £695

19.82 h.p. T.B. and T.C. (tax £20). E.
6-cyl., 73×100 mm. (2,511 c.c.), O.H.V., 4 speeds (side). Wheelbase (short), 10ft. 3in. (long), 11ft., track 4ft. 8in.

Chassis (short) £550

Atlantic saloon £750

Six-light coachbuilt saloon £750

Mayfair four-light saloon £775

Mayfair six-light saloon £775

Chassis (long) £550

Limousine £795

5th Show



Stevenson. Carlyle. Scott. Rob Roy James Watt.

Exhibition Organised by the Scottish Motor Trade Association

convenient guide. If he, or she, be interested in any particular model of any upon which stands it may be found

"Speed Twenty" 13-32 h.p. (tax £20). F.
6-cyl., 73×100 mm. (2,511 c.c.), O.H.V., 4 speeds
(central). Wheelbase 10ft. 3in., track 4ft. 8in.
Chassis £600
Sports four-seater £695
Sports saloon £825

Stand
29. J. H. Galt, Ltd., 52, Woodlands Road, Charing Cross, Glasgow (A, C, E).
12. Scott Brown and Co., Glasgow Road, Paisley (A).
30. J. M. Inglis, 39a, Queensferry Street, Edinburgh (A, C, E, F).

ARMSTRONG SIDDELEY

ARMSTRONG SIDDELEY MOTORS, LTD., Coventry.
12 h.p. (tax £12). A.
6-cyl., 56.5×95.2 mm. (1,434 c.c.), S.S., 4 speeds
(steering wheel). Wheelbase 8ft. 9in., track 4ft. 2in.

Economy saloon £265
Economy sports saloon £275
Two-seater with dickey £295
Open tourer £295
Coachbuilt saloon £295
Sports saloon £315

15 h.p. (tax £15). B.
6-cyl., 63.5×101.6 mm. (1,930 c.c.), S.S., 4 speeds
(steering wheel). Wheelbase 9ft. 2in., track 4ft. 4in.

Two-seater with dickey £368
Open tourer £368
Coachbuilt saloon £368
Sports saloon £388

Long 15 h.p. (tax £15). C.
6-cyl., 63.5×101.6 mm. (1,930 c.c.), S.S., 4 speeds
(steering wheel). Wheelbase 9ft. 7in., track 4ft. 8in.

Open tourer £425
Coachbuilt saloon £425
Sports saloon £465

20 h.p. (tax £20). D.
6-cyl., 73×127 mm. (3,190 c.c.), O.H.V., 4 speeds
(steering wheel). Wheelbase 10ft. 2in., track 4ft. 8in.
Open tourer £525
Coachbuilt saloon £525
Sports saloon £565

Long 20 h.p. (tax £20). E.
6-cyl., 73×127 mm. (3,190 c.c.), O.H.V., 4 speeds
(steering wheel). Wheelbase 10ft. 11in., track 4ft. 8in.
Enclosed limousine or landaulet £725

30 h.p. (tax £30). F.
6-cyl., 88.9×133.4 mm. (4,960 c.c.), O.H.V., 4 speeds
(steering wheel). Wheelbase 11ft. 3in., track 4ft. 8in.
Enclosed limousine or landaulet .. £1,250

Special equipment comprising sliding roof, permanent jacks, and bumpers for 12 and 15 h.p. cars £12 extra, for Long 15 and 20 h.p. cars £15 extra.

- Stand
50. Andersons (Newton Mearns), Ltd., Kilmarnock Road, Newton Mearns (A).
23. Taggarts (Glasgow), Ltd., 3, Broomielaw, Glasgow (A, C, D, E).
25. J. Tweedie, Ltd., Holmston Road, Ayr (A, C).
33. Taggarts, North British Motor Traders, Ltd., Knowetop, Motherwell (A).
36. J. T. Young, Ltd., Newport, Fife (A, B).
58. Croall and Croall, York Lane, Edinburgh (A, B, C, F).
56. Croall, Bryson and Co., Ltd., Roxburghshire Works, Kelso (B, D).
12. Scott Brown and Co., Glasgow Road, Paisley (D).
24. Salmons and Sons, 13, New Burlington Street, London, W.1. (D).

AUSTIN

AUSTIN MOTOR CO., LTD., Longbridge Works, Northfield, Birmingham.

7.8 h.p. (tax £3). A.
4-cyl., 56×76 mm. (747 c.c.), S.S., 4 speeds
(central). Wheelbase 6ft. 3in., track 3ft. 4in.
Two-seater £105
Tourer £110
Saloon £115
Saloon de luxe £125



Inverness.

10 h.p. (tax £10). B.
4-cyl., 63.5×89 mm. (1,125 c.c.), S.S., 4 speeds
(central). Wheelbase 7ft. 9in., track 3ft. 9in.
Saloon de luxe £168
Saloon £155
Four-seater tourer £148
Two-seater £148

11.9 h.p. (tax £12). C.
4-cyl., 69.3×101.6 mm. (1,535 c.c.), S.S., 4 speeds
(central). Wheelbase 8ft. 10in., track 4ft. 2in.



Aberdeen

Saloon de luxe £198
Saloon £178
Four-seater tourer £168
Two-seater £168

12.3 h.p. (tax £13). D.
4-cyl., 72×114.5 mm. (1,861 c.c.), S.S., 4 speeds
(central). Wheelbase 9ft. 4in., track 4ft. 8in.
Windsor saloon £268
Burnham saloon de luxe £288
Five-seater tourer £255
Harrow two-seater £255

13.9 h.p. Twelve-Six (tax £14). E.
6-cyl., 61.25×84.63 mm. (1,496 c.c.), S.S., 4 speeds
(central). Wheelbase 8ft. 10in., track 4ft. 2in.
Harley saloon de luxe £218
Saloon £198
Four-seater tourer £195
Eton two-seater £195

15.9 h.p. (tax £16). F.
6-cyl., 65.5×111 mm. (2,249 c.c.), S.S., 4 speeds
(central). Wheelbase 9ft. 4in., track 4ft. 8in.
Westminster saloon £345
Berkeley saloon de luxe £318
Five-seater tourer £218
Harrow two-seater £288

23.5 h.p. (tax £24). G.
6-cyl., 79.5×114.5 mm. (3,400 c.c.), S.S., 4 speeds
(central). Wheelbase 10ft. (short), 11ft. 4in. (long), track 4ft. 8in.
Ranelagh limousine or landaulet .. £575
Whitehall saloon (short wheelbase) .. £498

- Stand
40. T. Laurie and Co., Ltd., West End, Falkirk (C).
51. Moir and Baxter, Ltd., 2-4, Castle Terrace, Edinburgh (A, C, F, G).
55. Eastern Motor Co., Ltd., 52, George Street, Edinburgh (C).
25. J. Tweedie, Ltd., Holmston Road, Ayr (F).
1. Pender and Co., 65-67, North Wallace Street, Glasgow (C).
33. Taggarts, North British Motor Traders, Ltd., Knowetop, Motherwell (B).
70. D. Carlaw and Sons, Ltd., 18, Bothwell Street, Glasgow (A, B, E, G).
16. Hamilton Bros., Marshall's Lane, Paisley (C, B).

BUICK

LENDRUM AND HARTMAN, LTD., 26b, G Albemarle Street, W.1.

27.6 h.p. (tax £28). A.
* 8-cyl., 74×107.9 mm. (3,772 c.c.), O.H.V., 3 speeds
(central). Wheelbase 9ft. 6in., track 4ft. 8in.
Chassis £350
Viceroy four-door saloon £485
Albemarle drop-head coupé £560

USED CARS on the ROAD

No. 88.—16 h.p. Standard Saloon:
Car No. 42/115542

PERFORMANCE DATA

Price, new	- - - £245	Fuel consumption	23 m.p.g.
Second-hand	- - - £125	Oil consumption	700 m.p.g. (approx.)
Acceleration	- 10-30 m.p.h.	Brake test figure from	30 m.p.h. - - - 52ft.
Second gear	- - 8½ sec.	First registered	July, 1931.
Top gear	- - 13½ sec.		

THERE were few apparent faults in the 16 h.p. Standard saloon tested at the invitation of Steele Griffiths, Ltd., Victoria Street, S.W.1. The engine started easily at all times, requiring a fair warming-up period before it would pull well, possessed a very good, even tick-over, and, when warm, pulled smoothly on top gear on the level down to a slow walking pace, accelerating therefrom without hesitation.

It was a car which seemed to suffer little by comparison with the same type of car in its new condition, for it was lively, and would run up to a speedometer reading of sixty on a level stretch of road without requiring a very great distance in which to reach that figure, and was extremely pleasant at a steady cruising speed anywhere between 40 and 50 m.p.h., being, further, a nice car in town, for it was pleasant to drive quite slowly on top gear if one chose.

It was the three-speed model, had a normal limit of 15 m.p.h. on first gear, and would reach thirty-seven on second, neither of the indirect gears being at all unduly noisy. The brakes could have had more power, but their feel suggested that the shoes were capable of adjustment and not that the limit of the adjustment had been reached. The hand brake was powerful for holding the car stationary. Steering was light, quite sufficiently accurate, and free from kick-back, the driving position being very good owing to the angle of the steering column, and there was a clear view through the screen.

Such rattles as existed did not seem to be of a major character and probably came from the doors and windows, though the doors shut well without having to be slammed hard, and the window winding mechanism was not stiff in operation. The sliding roof opened and closed without effort and did not admit rain during a quite heavy downpour when shut.

A curious superficial noise at the rear of the car was traced to a loose hub cap, the hub cap in question being of a type that is not intended to assist in any way in securing the wheel. With the engine ticking over and the car stationary, an irregular tapping noise was audible, but this disappeared with the car actually under way.

The dynamo charged well and provided a surplus of current even with all lights on; the head lamp beam was fair, and would have been better for simple adjustment of the lamps themselves, whilst the dip and switch mechanism was working properly. All the instruments, including the electric clock, the electric screen wiper, and the roof lamp also, were in working order.

The fabric body was particularly well preserved and still had a high finish; the wings were not bent or materially scratched, and four of the tyres had quite good treads. The internal condition, too, was commendable, the floor coverings in the back compartment being scarcely worn at all, while the leather upholstery was not torn or otherwise conspicuously damaged.

No. 89.—4½-litre Bentley Saloon:
Car No. AB 3354

PERFORMANCE DATA

Price, new	- - - £1,535	Fuel consumption	14 m.p.g. (approx.)
Second-hand	- - - £495	Oil consumption	700 m.p.g.
Acceleration	- 10-30 m.p.h.	Brake test figure from	30 m.p.h. - - - 30ft.
Second gear	- - 6 sec.	Speedometer registers	30,000 miles.
Third gear	- - 7 sec.	First registered	March, 1929.
Top gear	- - 10½ sec.		

AFTER nearly four years, and probably hard years at that, the "4½" Bentley which is the subject of this report had lost none of the *marque's* very real personality, and the power developed by the four-cylinder engine, combined with the general feeling of sturdiness, seemed to give the car complete and easy mastery over other machines met with in a run.

The majority of main road gradients could be taken on top at the same speed as maintained on the level, in a manner which was remarkable even to one accustomed to different types of cars, both large and small. After slowing for a cross-roads or sharp bend the pick-up on top was rapid and effortless, only a very short distance being covered before the speedometer needle was once again hovering in the 55's and 60's on a suitable road, although only by using the indirects, on which 25 m.p.h. was the limit on first, 50 on second, and 65 on third, did the driver sense the full capabilities of the machine.

A comfortable cruising speed of 60 m.p.h. up hill and down dale, combined with positive steering and road-holding second to none, made for high averages on a long run, at the end of which driver and car were as fresh as at the start.

The maximum of 78 m.p.h. obtained during the test should by no means represent the limit, even allowing for the weight of the saloon body, and under more favourable conditions a speed in the region of 85 m.p.h. should be possible.

A suggestion of drumming was apparent when travelling fairly fast, which was difficult to locate or to say definitely whether a period in the engine or the coachwork itself could be held responsible, although the former might be discountenanced, as it is understood that the engine has been overhauled by the Bentley service depot.

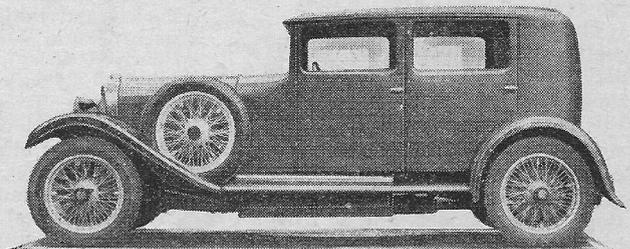
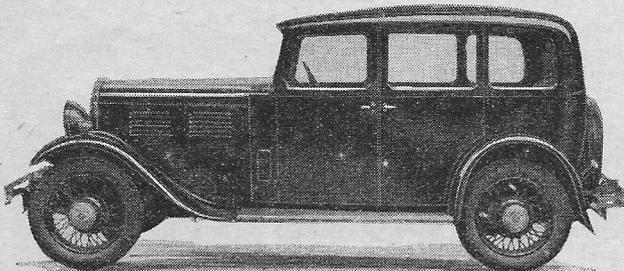
The clutch action was on the heavy side, though not unusually so, and the gear change presented no undue difficulties although the change was found to be easier at the higher speeds, which is often the case with this type of car.

Starting was instantaneous even first thing in the morning, the engine immediately turning over evenly whilst warming up. The braking power was excellent, yet delightfully smooth and progressive in effect, and the brake test figure given in the table above compares favourably with that of many new cars, whilst the long hand lever was nicely placed for use in slowing on the road or for holding the car on a steep gradient.

One or two rattles were noticeable in the coachwork, which, however, had been well cared for and was almost unmarked, as was the leather upholstery. All the instruments were working, and the head lamp beam was of the order necessary for high speeds at night; no dimming was provided.

The four tyres were in good order and the two spares were unused.

Mann Egerton and Co., Ltd., 156, New Bond Street, W.1, provided the car for test.



THE SCOTTISH SHOW
(continued)

35.12 h.p. (tax £36). B.
3-cyl., 84.14x127 mm. (5,644 c.c.), O.H.V., 3 speeds (central). Wheelbase 11ft. 2in., track 4ft. 8 3/4in.

Chassis .. £490
Grafton limousine .. £350
* Viceroys four-door saloon with leather upholstery, £495; bumpers fitted to both models at extra cost.

Stand
68. Western Motor Co., Ltd., 573-581, Sauchiehall Street, Glasgow (A).

B.S.A.

BIRMINGHAM SMALL ARMS CO., LTD., Birmingham.

9.8 h.p. (tax £10). A.
4-cyl., 63x95 mm. (1,185 c.c.), S.S., 4 speeds (steering column). Wheelbase 8ft. 0in., track 4ft. 0in.

Saloon .. £240
Open four-seater .. £230

9 h.p. (tax £10). B.
4-cyl., 60x95 mm. (1,075 c.c.), S.S., 3 speeds (central). Wheelbase 7ft. 9in., track 4ft. 0in.

Open four-seater .. £160

Stand
59. Edinburgh Pioneer Motors, Ltd., Semple Street, Edinburgh (A).
60. Alexander Motors, Semple Street, Edinburgh (A, B).

CHRYSLER

CHRYSLER MOTORS, LTD., Mortlake Road, Kew Gardens, Surrey.

15.6 h.p. Plymouth (tax £16). A.
4-cyl., 79.4x111.1 mm. (2,200 c.c.), S.S., 3 speeds (central). Wheelbase 9ft. 3in., track 4ft. 10in.

Saloon .. £345

19.8 h.p. Mortlake (tax £20). B.
6-cyl., 73.0x111 mm. (2,794 c.c.), S.S., 3 speeds (central). Wheelbase 9ft. 4 3/4in., track 4ft. 10in.

Chassis .. £299
Two-seater .. £410
Coupé .. £415
Convertible coupé .. £455
Saloon .. £379
Saloon .. £389
Convertible saloon .. £505

19.8 h.p. Richmond (tax £20). C.
6-cyl., 73.0x111.1 mm. (2,794 c.c.), S.S., 3 speeds (central). Wheelbase 9ft. 8 3/4in., track 4ft. 10in.

Chassis .. £460
Two-seater .. £485
Coupé .. £505
Convertible coupé .. £425
Saloon .. £435
Saloon .. £450
Convertible saloon .. £560

25.35 h.p. Kingston (tax £26). D.
6-cyl., 82.5x114.2 mm. (3,665.7 c.c.), S.S., 3 speeds (central). Wheelbase 9ft. 8 3/4in., track 4ft. 10in.

Chassis .. £365
Four-door saloon .. £475

33.8 h.p. Hurlingham (tax £34). E.
8-cyl., 82.5x108 mm. (4,624 c.c.), S.S., 4 speeds (central). Wheelbase 10ft. 5in., track 4ft. 4in.

Fixed-head coupé .. £795
Five-seater coupé .. £805
Four-door saloon .. £795
Convertible coupé .. £815
Convertible saloon .. £885

39.2 h.p. Imperial (tax £40). F.
8-cyl., 88.9x127.0 mm. (6,308 c.c.), S.S., 4 speeds (central). Wheelbase 11ft. 4in., track 5ft. 1in.

Prices on application.

Stand
69. Alec Robertson Motors, Ltd., 29-31, Oswald Street, Glasgow (B, C, D).

CITROEN

CITROEN CARS, LTD., Brook Green, W.6.

Ten 11.4 h.p. (tax £12). A.
4-cyl., 68x100 mm. (1,452 c.c.), S.S., 3 speeds (central). Wheelbase 8ft. 10 1/4in., track 4ft. 4 3/4in.

Chassis .. £145
Saloon de luxe .. £198
Coupé, fixed-head .. £205
Roadster cabriolet, fixed-head .. £195

Big Twelve 13.9 h.p. (tax £14). B.
4-cyl., 75x100 mm. (1,767 c.c.), S.S., 3 speeds (central). Wheelbase 9ft. 10in., track 4ft. 8in.

Chassis .. £165
Saloon de luxe .. £230
Folding head coupé .. £230

Twenty 21.3 h.p. (tax £21). C.
6-cyl., 75x100 mm. (2,650 c.c.), S.S., 3 speeds (central). Wheelbase 10ft. 4in., track 4ft. 8in.

Chassis .. £205
Saloon de luxe .. £295
Seven-seater saloon .. £320
Cabriolet, folding-head .. £375
Town car .. £450

Stand
31. G. C. Macandrew and Co., 86, Lothian Road, Edinburgh (A, B).

37. Macharg, Rennie and Lindsay, Ltd., 8-28, Berkeley Street, Charing Cross, Glasgow (A).
3. Citroën Cars, Ltd., Brook Green, London, W.6 (A, B, C).

CROSSLEY

CROSSLEY MOTORS, LTD., Gorton, Manchester.

9.8 h.p. (tax £10). A.
4-cyl., 63x90 mm. (1,122 c.c.), O.I., 4 speeds (central). Wheelbase 9ft. 0 1/2in., track 4ft. 0in.

Torquay saloon .. £325
Buxton saloon .. £298
*Family saloon .. £265
Family saloon de luxe .. £288
Semi-sports saloon de luxe .. £288
Tourer .. £295
Semi-sports coupé .. £310
*Sliding roof £7 10s. extra.

10 h.p. (tax £10). B.
4-cyl., 62.3x90 mm. (1,097 c.c.), O.I., 4 speeds (central). Wheelbase 8ft. 0in., track 4ft. 1in.

Super sports open two seater .. £350
Super sports saloon .. £385

15.7 h.p. (tax £16). C.
6-cyl., 65x100 mm. (1,991 c.c.), O.H.V., 4 speeds (central). Wheelbase 10ft. 3in., track 4ft. 8in.

Saloon de luxe .. £495
Sliding roof £10 extra.

20.9 h.p. (tax £21). D.
6-cyl., 75x120 mm. (3,198 c.c.), O.H.V., 4 speeds (central). Wheelbase 10ft. 3in., track 4ft. 8in.

Saloon de luxe .. £575
Sliding roof £10 extra.

20.9 h.p. (tax £21). E.
6-cyl., 75x120 mm. (3,198 c.c.), O.H.V., 4 speeds (side). Wheelbase 11ft. 5in., track 4ft. 8in.

Seven-seater enclosed limousine .. £875
Seven-seater enclosed landaulet .. £875

Stand
31. Gordon C. Macandrew and Co., 86, Lothian Road, Edinburgh (A).
32. C. S. Grant, Ltd., 39, West Campbell Street, Glasgow (A).
41. Dumfries Motor Co., Ltd., 85, English Street, Dumfries (A).
47. Claud Hamilton (Motors), Ltd., 71, Ottago Street, Hillhead, Glasgow (A).

DAIMLER

THE DAIMLER CO., LTD., Coventry.

15 h.p. (tax £15). A.
6-cyl., 63.5x95 mm. (1,895 c.c.), O.H.V., 4 speeds (self-changing gear). Wheelbase 9ft. 1 1/2in., track 4ft. 9in.

Chassis .. £350
Saloon .. £450

20 h.p. (tax £20). B.
6-cyl., 73.5x104 mm. (2,648 c.c.), S.V., 4 speeds (self-changing gear). Wheelbase 10ft. 1in., track 4ft. 9in.

Chassis .. £550
Saloon .. £695

25 h.p. (tax £25). C.
6-cyl., 81.5x114 mm. (3,568 c.c.), S.V., 4 speeds (self-changing gear). Wheelbase 11ft. 10in., track 4ft. 9in.

Chassis .. £700
Saloon .. £875

40 h.p. (tax £41). D.
12-cyl., 73.5x104 mm. (5,296 c.c.), S.V., 4 speeds (self-changing gear). Wheelbase 12ft. 3 1/2in., track 5ft.

Chassis .. £1,150
Saloon .. £1,550

60 h.p. (tax £50). E.
12-cyl., 81.5x104 mm. (6,511 c.c.), S.V., 4 speeds (self-changing gear). Wheelbase 12ft. 3 1/2in., track 5ft.

Chassis .. £1,250
Saloon .. £1,650

Stand
42. J. B. Fenwick, 21, Nithsdale Street, Glasgow (A, B).

49. The Daimler Co., Ltd., Daimler Works, Coventry (A, B, C, E).
27. The Bass Rock Motor Co., Ltd., 1, Shrub Place, Edinburgh (B).

66. The Fife Motor Co., Halbeath Road, Dunfermline (A).
13. Hooper and Co. (Coach-builders), Ltd., 54, St. James's Street, London, S.W.1 (B).

10. Stobross Motor Co., Ltd., 304, Sauchiehall Street, Glasgow (B).
54. Rossleigh, Ltd., 32, Shandwick Place, Edinburgh (C).

18. J. Buchanan and Co. (Coach-builders), Ltd., 123-145, North Street, Glasgow (C).



Stirling.



Lanark.

ESSEX

HUDSON ESSEX MOTORS, Great West Road, W.4

20.7 h.p. (tax £21). A.
6-cyl., 75x121 mm. (3,163 c.c.), S.S., 3 speeds (central). Wheelbase 9ft. 5in., track 4ft. 9in. (front), 4ft. 11in. (rear).

Business coupé .. £320
Four-five-seater tourer .. £330
Coach, two-door .. £325
Coupé .. £335
Town sedan .. £335
Standard sedan .. £345
Special coupé .. £350
Special sedan .. £370

16.9 h.p. Terraplane (tax £17). B.
6-cyl., 67.45x121 mm. (2,560 c.c.), S.S., 3 speeds (central). Wheelbase 8ft. 10in., track 4ft. 5 1/2in. (front), 4ft. 6 1/2in. (rear).

Two-seater coupé .. £275
Standard sedan .. £295
Convertible coupé .. £315
Four-seater sports saloon .. £299
Open sports four-seater .. £275

Stand
31. G. C. Macandrew and Co., 86, Lothian Road, Edinburgh (B).
11. Cameron and Campbell, 161-169, North Street, Glasgow (A, B).

FIAT

FIAT (ENGLAND), LTD., Lancelot Road, Wembley.

11.48 h.p. (tax £11). A.
4-cyl., 65x75 mm. (995 c.c.), S.S., 3 speeds (central). Wheelbase 7ft. 4 1/2in., track 3ft. 11in.

Two-door saloon .. £198
Open two-seater .. £180

10-30 h.p. (tax £12). B.
4-cyl., 67x102 mm. (1,438 c.c.), S.S., 4 speeds (central). Wheelbase 8ft. 4 1/2in., track 4ft. 4in.

Open two-seater .. £225
Open tourer .. £230
Fixed-head saloon .. £270
Sliding-head saloon .. £280
Wire wheels £5 extra.

20-60 h.p. (tax £20). C.
6-cyl., 72x103 mm. (2,516 c.c.), S.S., 4 speeds (central). Wheelbase 9ft. 1in., track 4ft. 9in.

*Sunshine saloon .. £398
Royal drop-head cabriolet .. £545
*Free wheel £20 extra.

20-60 h.p. Sports (tax £20). D.
6-cyl., 72x103 mm. (2,516 c.c.), S.S., 4 speeds (central). Wheelbase 9ft. 1 1/2in., track 4ft. 9in.

Open tourer .. £585
Saloon .. £645

20-60 h.p. (tax £20). E.
6-cyl., 72x103 mm. (2,516 c.c.), S.S., 4 speeds (central). Wheelbase 10ft. 1in., track 4ft. 9in.

Sliding-roof saloon .. £495
Drop-head coupé .. £545

20-60 h.p. (tax £20). F.
6-cyl., 72x103 mm. (2,516 c.c.), S.S., 4 speeds (central). Wheelbase 10ft. 7in., track 4ft. 9in.

Enclosed-drive limousine .. £575
Free wheel £20 extra.

Stand
63. Ritchies, Ltd., 36-44, Renfrew Street, Glasgow (A).

HILLMAN

THE HILLMAN MOTOR CAR CO., LTD., Pinley, Coventry.

9.8 h.p. Minx (tax £10). A.
4-cyl., 63x95 mm. (1,185 c.c.), S.S., 3 speeds (central). Wheelbase 7ft. 8in., track 4ft. 4in.

Tourer .. £120
Saloon .. £159
Saloon de luxe .. £179
Sports tourer .. £175
Four-light saloon .. £189
Club saloon .. £195

9.8 h.p. Aero-Minx (tax £10). B.
4-cyl., 63x95 mm. (1,185 c.c.), S.S., 3 speeds (central). Wheelbase 7ft. 4in., track 4ft. 4in.

Chassis .. £145
Saloon .. £245

15.7 h.p. Wizard 65 (tax £16). C.
6-cyl., 65x106 mm. (2,110 c.c.), S.S., 4 speeds (central). Wheelbase 9ft. 3in., track 4ft. 8in.

Chassis (long) .. £230
Chassis (short) .. £210

Tourer .. £280
Saloon .. £285
Saloon de luxe .. £315
Foursome coupé .. £385
Four-light saloon .. £298
Sports saloon .. £285
Limousine (long wheelbase) .. £375
Seven-seater saloon .. £350
Landaulet .. £410

20.9 h.p. Wizard 75 (tax £21). D.
6-cyl., 75x106 mm. (2,810 c.c.), S.S., 4 speeds (central). Wheelbase 9ft. 3in., track 4ft. 8in.

Chassis (long) .. £230
Chassis (short) .. £210

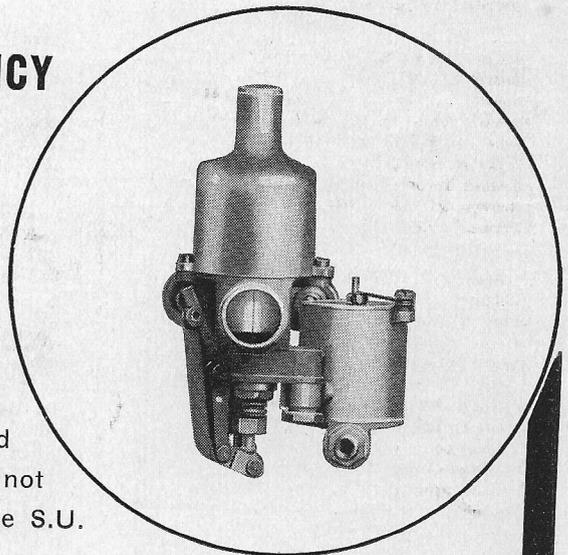
Tourer .. £290
Saloon .. £285
Saloon de luxe .. £315
Foursome coupé .. £385
Four-light saloon .. £298
Sports saloon .. £285

ALMOST UNIVERSALLY ADOPTED BY HIGH CLASS CAR MANUFACTURERS

If you want the most economical and vigorous performance from your car, have an S.U. Carburetter fitted. The S.U. is now standard equipment on ALVIS, ASTON-MARTIN, BENTLEY, CROSSLEY "10," DAIMLER "15," DERBY, FRAZER NASH, INVICTA, LAGONDA, LANCHESTER, M.G., MORRIS, RILEY, ROVER SPORTS PILOT, WOLSELEY. The manufacturers of these famous cars proved after exhaustive tests that the S.U. is the finest carburetter made—hence their adoption as standard equipment.

HERE IS EVIDENCE OF S.U. EFFICIENCY AND ECONOMY:—

In the Alpine Trial the FRAZER NASH car averaged over 35 M.P.G. In the Ulster T.T. the FRAZER NASH car averaged 29 M.P.G. for the race. In the recent One Hour M.C.C. High-Speed Trial the FRAZER NASH had a petrol consumption of 24 M.P.G. at an average speed of 85.43 M.P.H., this being the fastest time of any car running. It is an undisputed fact among racing enthusiasts that these results could not have been achieved with any other carburetter than the S.U.



THE



THE S.U.
COMPANY
ADDERLEY PARK
BIRMINGHAM

CARBURETTER

Sole Wholesale Distributor: W. H. M. Burgess, 26/30 Caxton Street,
Westminster, London, S.W.1.
Telephone: Victoria 1667-8

MENTION OF "THE AUTOCAR," WHEN WRITING TO ADVERTISERS, WILL ENSURE PROMPT ATTENTION.



REMEMBRANCE
DAY
NOV. 11
Give a little
more for your
poppy this year

A Guarantee of Quality

JOSEPH LUCAS LTD.,
BIRMINGHAM



FOR 1935 CHOOSE A CAR FITTED WITH



The World's Finest Carburetter

OVER 50% OF BRITISH CAR MAKERS PUT
THEIR TRUST IN S.U. CARBURETTERS AND
FIT THEM AS STANDARD TO THEIR CARS

**A.C. SPORTS ALTA ALVIS
ARMSTRONG-SIDDELEY SPECIAL
ASTON-MARTIN BENTLEY
DAIMLER DELAGE 8-cyl.
FRAZER-NASH INVICTA LAGONDA
LANCHESTER M.G. MORRIS
RILEY ROVER SINGER SPORTS
TRIUMPH WOLSELEY**

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IS FITTED TO THE FOLLOWING CARS

**A.C. ALVIS BENTLEY
BRITISH SALMON CROSSLEY
DELAGE FRAZER-NASH GUY
LAGONDA M.G. MORRIS RALEIGH
RILEY SINGER TRIUMPH
WOLSELEY**

**OLYMPIA
STAND 431**

THE S.U. COMPANY, BIRMINGHAM, Sole Wholesale Distributors. Carburettors
(Great Britain) Pumps (London and Home Counties) W. H. M. Burgess, 26/30, Caxton
Street, Westminster, London, S.W.1. Tel. Vic. 1667-8. Pumps (Midlands, Wales
and the North), Globe and Simpson Ltd., Cambridge Street, Sheffield. Pumps and
Carburettors (I.F.S.), E. J. Shannon & Co., Belgrove Road, Clontarf, Dublin.
Pumps (Northern Ireland), W. H. Alexander, 62/64, May Street, Belfast.

Specify an S.U. on your new car

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SHELSLEY WALSH

SEPT. 29th.

FASTEST TIME

OF THE DAY & HUNDRED GUINEAS. Raymond Mays (E.R.A.)

FASTEST CAR ENTERED

IN INT. CALENDAR EVENTS. Whitney Straight (Maserati)

BEST AGGREGATE TEAM

OF 3 CARS. Mr. Raymond Mays' Team (2 Litre E.R.A. 1½ Litre E.R.A. & Nash "Spook")

BEST AGGREGATE BY RACING CAR

Whitney Straight (Maserati)

PNEUGRIPPA

TECALEMIT

TYRE Safety SERVICE

ADERSOL SYSTEM

International Car Races

DONINGTON PARK TROPHY

Oct. 6th

1st. Whitney Straight (Maserati)

2nd. C. Penn Hughes (Alfa-Romeo)

3rd. Rt. Hon. The Earl Howe (Bugatti)

Famous Racing Motorists place their faith in 'Pneugrippa.' Every week hundreds of motorists follow their example by having their tyres treated by this new process, which not only prevents skidding but greatly improves braking efficiency. Have your tyres treated now, and be safe this winter!

POST COUPON TO-DAY

Please send me particulars of the "Pneugrippa Process," and name of nearest depot.

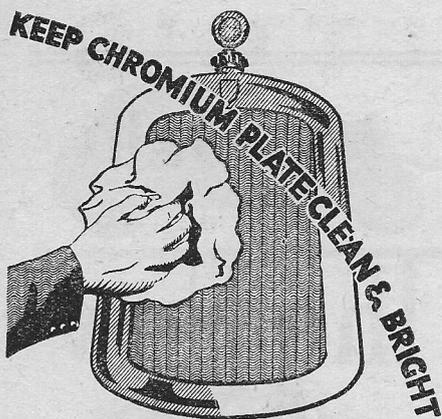
Name (BLOCK LETTERS)

Address (BLOCK LETTERS)

TECALEMIT LTD., GT. WEST RD., BRENTFORD, MIDDX.

PNEUGRIPPA CHARGES.

	Per Tyre
Up to 12 h.p.	- 3/-
12 h.p. and up to and including 16 h.p.	3/6
Over 16 h.p.	- 4/-



The "Town Talk" Impregnated Chromium Plate Cloth cleans Chromium Plating as well as its famous namesake cleans silver.

With a light easy rub it cleans and polishes at the same time, removing the murky film of tarnish and simultaneously restoring the original brilliance.

1/6 Sold by Garages, Jewellers, Ironmongers, Halford Cycle Co., Ltd. (all branches), Timothy Whites, Boots (Cash Chemists), each.

TOWN TALK
IMPREGNATED
CHROMIUM
PLATE CLOTH

Sole Makers: TOWN TALK POLISH Co., Manchester

FARNHAM
COACHWORK

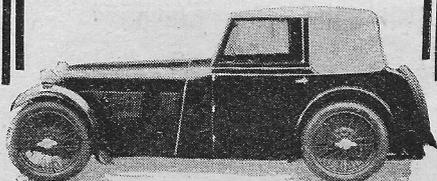
DROP HEAD COUPÉ
 on M.G. MAGNA CHASSIS

The FARNHAM

drop head coupé on M.G. Magna chassis **£325**

Wide doors giving easy access to interior, either straight seat or bucket type to choice, safety glass throughout, all fittings chromium plated, the head to fold flat and the whole depth of the windows to wind down into the doors. Exterior finished in cellulose, interior real leather.

Standard Colours: — Red with Red Leather, Blue with Blue Leather, Green with Green Leather, and Black with Green or Red Leather. Any other finish can be had at an extra cost of £3-10-0.



E. D. ABBOTT LTD.

WORKS & SHOWROOMS:
FARNHAM,
SURREY.

'Phone: Farnham 682-863.

to use any, a pint in 1,000 miles. I change this every 2,500 miles, but it is hardly necessary, as it comes out almost as clean and green as when put in new.

Gear speeds: I never race an engine on low gears. First speed I have never tried out for its maximum—I leave that to people who like to run engines quickly. On second 35 m.p.h. can be reached easily. Top speed is between 55 m.p.h. and 60 m.p.h., and the engine is sweet and smooth over the whole range. No transmission vibrations in forward drive or over-run are noticed, thanks to the cushioned power, and no body drumming is apparent. One can cruise along all day at 40 to 45 m.p.h., and the engine never tires.

The steering and road-holding qualities are excellent, and springing is all

that can be desired. Even after 9,000 miles the engine, when idling, can scarcely be heard. When driving all one hears is the swish of tyres on the road and a slight hiss from the carburettor air intake.

I have the Club sun saloon, the coachwork of which is excellent.

Lamps are splendid, of the Lucas-Graves dimming type, controlled from the wheel. I have had no involuntary stops while I have had this car. On the Welsh mountains, the peaks of Derbyshire, and the Devonshire moors the car takes the hills in fine style with a full load on board.

Finally, the Hillman Motor Car Co.'s service is splendid, being second to none, in my opinion, for civility and promptness.—SATISFIED OWNER.

FLASHES

In order to cope with rapidly increasing business, Meredith Coachcraft, Ltd., has found it necessary to remove to a new factory at Aerodrome Road, Castle Bromwich, Birmingham.

During the Scottish Motor Show full information and demonstrations of the Frazer Nash car can be obtained from Mr. J. B. Fenwick, Strathbungo Garage, 21, Nithsdale Street, Glasgow.

For many years closely associated with the Daimler sales organisation, Mr. W. E. Roxburgh has been appointed sales manager to the Daimler Co., Ltd., and the Lanchester Motor Co., Ltd.

Owing to an increase of business C. Haseler and Son, Ltd., have removed from Bridge Street West, Birmingham, to larger premises at 390-395, New John Street West, Birmingham, 19.

After a long connection with Crossley Motors, Ltd., of Manchester, Mr. F. H. Beer has resigned in order to take over the managing directorship of C. H. Mason and Co., Ltd., Gateshead, one of the largest garage and agency businesses in the Tyneside area.

For the convenience of their customers Parsons Motors, Ltd., 166, Richmond Road, Cardiff, have prepared a comprehensive list of work together with corresponding charges likely to be needed in the normal running of a car. An arrangement such as this enables the car owner to determine beforehand the cost of running repairs and so forth.

LOST AND FOUND

The following articles have been reported to the A.A. or *The Autocar* as having been lost or found:—

LOST.

A.A. badge No. 42134A, Cheltenham-Gloucester. Ref. No. 4,356.
 Black felt hat, Peterborough-Ely. Ref. No. 4,357.
 Starting handle, Wandsworth-Watford. Ref. No. 4,358.
 Spare wheel, Barton, Beds-Hendon. Ref. No. 4,359.
 Spare wire wheel with Dunlop tyre, London-Portsmouth. Ref. No. 4,360.
 Black disc wheel, Highbury-Tring. Ref. No. 4,361.
 Hatbox containing hats, London-Brighton. Ref. No. 4,362.
 Number plate KU 7878, Chatham-Sittingbourne. Ref. No. 4,363.
 Morris-Cowley wheel, Addington, Kent. Ref. No. 4,364.

A.A. badge No. 823422, Sheffield-Newbury. Ref. No. 4,365.
 Yellow wheel and cover, Winchester-Cirencester. Ref. No. 4,366.
 Wire wheel and Dunlop tyre, London-Portsmouth. Ref. No. 4,367.
 A.A. badge No. 61432A, London-Portsmouth. Ref. No. 4,368.
 Spare wheel from lorry, Storrington-Ewell. Ref. No. 4,369.
 Spare wheel with Dunlop tyre, Frimley-Camberley. Ref. No. 4,370.
 Starting handle, Whitley-Chiddingfold. Ref. No. 4,371.

FOUND.

Blanket and pair of shoes, Newingreen, Kent. Ref. No. 4,372.
 Starting handle, Ower, Hants. Ref. No. 4,373.
 Bunch of ten keys, including A.A. key No. 537692, Southampton. Ref. No. 4,374.
 Bunch of three keys, including A.A. key No. 334752, Southampton. Ref. No. 4,375.
 Starting handle and wheel brace, London Road, Staines. Ref. No. 4,376.

Miscellaneous Advertisements

NOTICES.

ADVERTISEMENTS for these columns are accepted up to **FIRST POST ON TUESDAY MORNING** at the Head Office: LONDON: Dorset House, Tudor Street, E.C.4, or one day earlier at the Branch Offices:

COVENTRY: 19, Hertford Street.
BIRMINGHAM: Guildhall Buildings, Navigation Street, 2.
MANCHESTER: 260, Deansgate.
GLASGOW: 26, Renfield Street, C.2.

TRADE ADVERTISERS may send instructions by telephone to London Offices (Phone: 2846, City) up to 9.30 o'clock on Tuesday morning. The insertion of any advt. in a particular issue is not necessarily guaranteed, and, as a general rule, instructions are dealt with in order of priority of receipt. Advertisements that arrive too late for a particular issue or that are crowded out will automatically be inserted in the following issue unless accompanied by instructions to the contrary. All advertisements must be strictly prepaid.

THE CHARGE for advertisements in these columns is:

12 words or less, 3/- and 3d. for every additional word, e.g. 18 words, 4/6; 24 words, 6/-.

EACH PARAGRAPH is charged separately. Paragraphs of under eight words are charged double the minimum rate, i.e., 6/-.

SERIES DISCOUNTS are allowed to Trade Advertisers as follows on orders for consecutive insertions, provided a contract is placed in advance, and in the absence of fresh instructions the entire "copy" is repeated from the previous issue:—13 consecutive insertions 5%; 26 consecutive 10%; 52 consecutive 15%.

THE PROPRIETORS retain the right to refuse or withdraw advertisements at their discretion.

POSTAL ORDERS and Cheques sent in payment for advertisements in these columns should be made payable to **ILIFFE & SONS LTD.**, and crossed **& Co.**

NOTES, being untraceable if lost in transit, should not be sent as remittances.

THE PROPRIETORS are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

ALL LETTERS relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post. This also applies to drivers seeking engagements. When sending remittances direct to an advertiser, stamp for return should also be included for use in the event of the application proving unsuccessful.

It would greatly facilitate business, both for buyers and sellers, if advertisers of Second-hand Cars would quote the chassis number in addition to the year of manufacture, and intending purchasers are recommended to verify the date given by enquiring of the Manufacturer or Concessionaires, who are always willing to confirm the year of manufacture if the chassis number is sent to them.

SPECIAL NOTICE.—In the case of motor cars offered for sale under a box number, as it is unusual for these to be sold without first being inspected by the intending purchaser, advertisers will facilitate business by embodying in their advertisements some mention of the district in which the car offered may be seen and tried.

NUMBERED ADDRESSES.

For the convenience of private advertisers, letters may be addressed to numbers at "THE AUTOCAR" Office. When this is desired, the sum of 6d., to defray the cost of registration and to cover postage on replies, must be added to the advertisement charge, which must include the words: Box No. 000, c/o "The Autocar." All replies should be addressed No. 000, c/o "THE AUTOCAR," Dorset House, Tudor Street, London, E.C.4.

Readers who reply to Box Number advertisements are warned against sending remittance through the post except in registered envelopes. In all such cases the use of the "Deposit System" is recommended, and the envelope should be clearly marked "Deposit Department."

DEPOSIT SYSTEM.

Readers who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "THE AUTOCAR," both parties are advised of its receipt. The time allowed for decision is three days, counting from receipt of goods, after which period, if buyer decides not to retain goods, they must be returned to sender. If a sale is effected, buyer instructs us to remit amount to seller, but if not seller instructs us to return amount to depositor. Carriage is paid by the buyer, but in the event of no sale, and subject to there being no different arrangement between buyer and seller, each pays carriage one way. The seller takes the risk of loss or damage in transit, for which we take no responsibility. For all transactions up to £10, a deposit fee of 1/- is charged; on transactions over £10 and under £50, the fee is 2/6; over £50 and under £75, 5/-; over £75 and under £100, 7/6; and on all transactions over £100, one-half per cent. All deposit matters are dealt with at Dorset House, Tudor Street, London, E.C.4, and cheques and money orders should be made payable to Iliffe & Sons Limited.

SECOND-HAND CARS FOR SALE AND WANTED

Twelve words 5/-, and 3d. for every additional word. Paragraphs of less than 8 words 6/-.

A.C.

1928 March A.C. 2-seater, blue, taxed end year, insured end February, one owner since new, really first class condition; what offers?—Phone: Putney 0684. [7746]

5 Guineas.—A.C. 1922 12h.p. 2-seater, dickey. List free. All week-days, including Saturdays, 9-9, Sundays: 9-1.—Rowland Smith, 73-81, High St., Hampstead. Minute Hampstead Tube. Hampstead [9031]

A NUMBER of Good Second-hand A.C. Cars Always Available; prices from £15 to £150, exchange your present A.C. for a different one with a guarantee of three or six months.—A.C. (Acedes), Cars, Ltd., Thames Ditton, Surrey. Phone: Emberbrook 2340. T.A.: Autocarrier, Thames Ditton. [8270]

SPECIAL Montlhery Speed Model 6-cyl. A.C. Sportsman's 4-door Saloon, soft hide upholstery, direction indicators, many extras, recently overhauled and fitted with servo brakes, new tyres, etc., repainted and all fittings chromium plated; bargain £95.—S. D. C. Taylor and Co. Ltd., 6, Kendrick Place, near South Kensington Station, Kensington 8965. [9061]

A.C. Cars Wanted.

TRUSCOTT Pays Full Value for A.C.—48, Fitzroy St., W.1. Museum 7915. [0534]

CASH Waiting for Late Model A.C. 6-cyl. Cars; distance no object.—Write, phone, call, H. F. Edwards, 175, Great Portland St., W.1. Welbeck 4161. [7442]

A.J.S.

1930 A.J.S. 9h.p. 4-door Coachbuilt Saloon De Luxe, sunshine roof, mileage 3,000, as new. £135.—Below.

NEW 1932 A.J.S. 9h.p. 2-seater, cream and black, dickey seat, wire wheels, etc.; listed at £225, our price £145.—Archie Simons and Co., 94, 95, Great Portland St., W.1. Langham 1343. [8526]

1931 (June) A.J.S. 9h.p. 4-door Saloon, one owner, 10,000 miles, absolutely equal to new; £85.—Dobsons, Ltd., Staines. Phone: 801. [6007]

A.J.S. Cars Wanted.

ROSE and YOUNG, Ltd., are London's best buyers for A.J.S. cars.—97, Streatam Hill, opposite Locarno. Phone: 9520-1. [0482]

CASH Waiting for A.J.S. Cars, distance no object; write, phone, call.—H. F. Edwards, 175, Great Portland St., W.1. Welbeck 4161. [7372]

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Alfa Romeo.

A T Stiles, Ltd.

THE Sole Concessionaires for Alfa Romeo Cars.

ALFA ROMEO 1930 17-75 2-litre 6-cyl. Overhead Camshaft Model Folding Head 4-seater Coupe, adjustable seats, colour black, P.80 head lamps, chassis being completely reconditioned; whole car will be offered in condition almost as new, cost £895, one owner, tax paid; a bargain, £450.

ALFA ROMEO 1930 17-75 6-cyl. Close Coupled Folding Head Foursome Coupe, reconditioned, whole chassis completely overhauled and offered practically as new car, colour black and blue; £440.

ALFA ROMEO 1930 17-75 Close Coupled Coupe, similar condition; £425.

ALFA ROMEO 1930 17-75 Folding Head Foursome Coupe, black and green, including trunk, 2 spare wheels, etc.; £465.

ALFA ROMEO 1931 2-litre 6-cyl. Supercharged 4-seater, August delivery, small mileage, latest series; £695.

ALFA ROMEO BRITISH SALES, Ltd., 3, Baker St., W.1. Tel.: Welbeck 2532-3. [7749]

BARTLETT for Guaranteed Sports Cars.

ALFA ROMEO Latest Type Supercharged 4-seater, as new; £625.

ALFA ROMEO, first registered 1930, 1½-litre twin o.h. camshaft 2-seater; £325.

ALFA ROMEO 1928 1½-litre 6-cyl. Sports Saloon, recently reconditioned by makers; £225.

EXCHANGES, deferred.—27a, Pembridge Villas, Notting Hill Gate. [8008]

SPORTS Tourer 1927 Alfa Romeo 22-90, perfect mechanical condition, most attractive coachwork; £75.—C.M. (Motors), 24, Stourcliffe St., Edgware Rd., fourth turning right from Marble Arch. Paddington 3553. [8740]

17-95 h.p. Alfa Romeo 2-litre 6-cyl. Supercharged 4-seater, late 1929, completely overhauled by Alfas 1931, 100 m.p.h. type, full equipment, 6in. dials, 2 owners, willing to demonstrate within radius 100 miles; £325.—Coleman, Sandwell Rd., West Bromwich. [8307]

1½-LITRE Supercharged Alfa Romeo 2-seater, twice second in international races, and winner 2 mountain races. Brooklands, this season; now in touring trim; has been maintained regardless of cost, and is in new condition; £525.—Featherstonhaugh, 5, Harrington Rd., S.W.7. Kensington 6740. [3024]

A. J. GUPPY, Ltd., offer 17-85 Alfa Romeo Four-seater drop head coupe, finished in furniture hide upholstery to match; this car is literally as new, having done only 3,500 miles, first registered about 2 months ago; current list price to-day £995, offered at the amazingly low figure for quick sale £725.—314-316, Euston Rd., N.W.1. Museum 7324-5. [8506]



SOME and QUERIES REPLIES

Readers seeking the experience of users of specified cars, parts, or accessories, are invited to insert their queries in these columns, and their fellow readers are invited to reply.

Querists are asked to enclose a stamped addressed envelope, so that replies may be made direct if the subject is not considered of sufficient general interest to publish.

Letters should be addressed to the Editor, *The Autocar*, Dorset House, Tudor Street, E.C.4, and replies to queries should bear the number of the query to which they refer.

Editorial advice is at all times willingly given to our readers.

Cylinder Capacity



Will you please inform me how to calculate the cylinder capacity of an engine with six cylinders, bore and stroke 65 x 100 mm.?

The capacity of a cylinder is the product of the area of one end multiplied by its length. The area of a circle is given by the expression πr^2 , π being the constant 3.1416 and r being the radius of the circle. As r equals half the diameter (d) of the circle, the area can be expressed as $\pi \left(\frac{d}{2}\right)^2$, or $\frac{\pi d^2}{4}$, or $\frac{3.1416}{4} d^2$, or $0.7854 d^2$, and multiplying this by l will give the required capacity.

Therefore, the capacity of one cylinder of your engine is $0.7854 \times (65)^2 \times 100$ cubic mm., and to bring this to cubic centimetres the result must be divided by 1,000. As the engine has six cylinders the figure obtained must be multiplied by 6, and the final answer is 1,991 c.c.

INFORMATION SOUGHT

Information and advice are sought by various readers regarding the following matters:—

No. 10665.—8 h.p. Ford

"F. A. M."—Information regarding the 8 h.p. Ford as to general reliability and performance.

No. 10666.—Six-cylinder Straker-Squire

"G. F. T."—Information and hints on maintaining and tuning a 24 h.p. six-cylinder Straker-Squire.

No. 10667.—Wolsley Hornet

"S. C. D. R."—Experiences with the Wolsley Hornet Special as to petrol and oil consumption, maximum speed, road-holding, and general reliability.

No. 10668.—Handbooks Required

"D. M."—1930 Standard Big Nine.
"N. M."—1926 12 h.p. Lea-Francis.
"C. W. B."—1926 M.G.
"C. D. B."—1927 2-litre Lagonda.

No. 10669.—Wolsley Hornet

"H. J. G."—Experiences with the Wolsley Hornet four-door saloon, including comfortable cruising speed, petrol and oil consumption, riding and driving comfort, frequency of decarbonisation and engine maintenance generally. Does the car seem over-bodied on hills?

READERS' EXPERIENCES

No. 10631.—Lubrosol Oil

I HAVE used Lubrosol oil exclusively in a 1928 Morris Six car, which has now run 57,700 miles since new. The engine

D 21

has never been decarbonised or had the cylinder head off, or any bearings or rings touched, and, as far as I can tell, still runs as sweetly and silently as when new. It uses perhaps 50 per cent. more oil than when new, which is natural, but I counteract that by changing the oil every 4,000 miles now instead of 2,000, as in the past years of the car's life.—
H. SOWERBY.

No. 10635.—Frazer Nash Car

I BOUGHT a 1927 Frazer Nash car second-hand about a year and a half ago, and, after replacing some worn parts, I have driven it really hard ever since. The general reliability of the car is good, and I even use it to tow a racing car to speed trials without any ill effect.

The gear ratios, of course, can be altered to one's individual requirements, but my particular car, which is a three-speed model, will attain 40 m.p.h. on first, 63 m.p.h. on second, and on top the timed maximum at Brooklands is about 74 m.p.h., though speeds up to 85 m.p.h. are obtainable under favourable road conditions.

A normal cruising speed of 60 m.p.h. suits the car very well, and can be very rapidly attained, but, due to the high top gear, it can apparently be driven indefinitely at its maximum speed without fuss or damage.

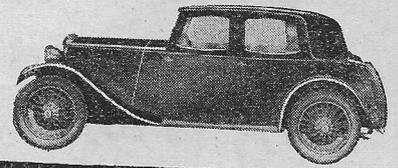
The petrol consumption is about 27 m.p.g. at 60 m.p.h., and oil consumption is quite normal unless the engine be "revved" a great deal on the lower ratios, when it is fairly heavy.

The bodywork is somewhat spartan compared with modern Frazer Nashes, but the car is a joy to drive, and the makers really do take a personal interest in one's car.—"J. V. B."

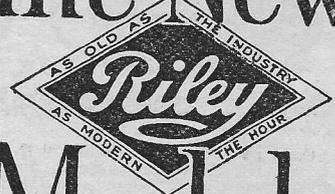
No. 10647.—Hillman Minx

A MOTORIST since 1909 I looked around for a light car on which maintenance at home was the first feature to consider. My decision was the Minx, for everything on the car is easily accessible: no radiator to remove or engine front to dismantle when desiring to remove the dynamo; no special works extracting tools required, sump off in five minutes, and two fine filters for the oil, which keeps it wonderfully clean, even after 2,000-odd miles; distributor and vital parts are high up out of the wet, against driving in floods; a propeller-shaft that is child's play to remove; the differential and side shafts also.

I average 600 miles per week, and some weeks as much as 1,000 miles, and my consumption works out at an easy 33 m.p.g. Oil? Well, I hardly seem



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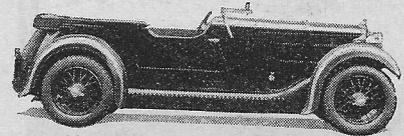
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About its amazing acceleration—its astounding vacuum-servo braking—its sheer docility finger-light controllability, and genuine 85 m.p.h.

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SECOND-HAND CARS FOR SALE AND WANTED

Alfa Romeo Cars Wanted.

BARTLETT for Sports Cars.—Positively best cash buyers of 1½-litre and 2-litre late type Alfa Romeos.—27a, Pembridge Villas, Notting Hill Gate, Bayswater 0523. [0845]

SPROSEN, Ltd. (NORMAN BLACK), wish to purchase several Alfa Romeos; 80 sports cars in stock, all fully guaranteed.—109, Great Portland St., London, Langham 1212. [1826]

PHILIP TURNER, Ltd., pay highest cash prices or make most generous allowances for super-charged or double camshaft Alfa Romeo.—7-9, St. James's St. (almost facing St. James's Palace), S.W.1. Whitehall 8993. [7983]

Alvis.

BOON and PORTER, Ltd.

1930 Alvis Silver Eagle Sports Coachbuilt Saloon, extremely fast, excellent order; £225.—159, Castelnau, S.W.13. Riverside 4444. [7383]

BARTLETT for Guaranteed Sports Cars.

ALVIS 1930 Silver Eagle 6-cyl. Sports 4-seater; £225.

ALVIS 1929 Silver Eagle Sportsman's Coupe; £145.

ALVI 1929 12-75 Saloon; £95.

ALVIS 1926-27 Sports 2- and 4-seaters; from £45.

OPEN Sunday Morning; exchanges, deferred.—27a, Pembridge Villas, Notting Hill Gate. [8006]

CHARLES FOLLETT, Ltd., Sole Alvis Distributors for London and Home Counties, OFFER:—

1932 100 m.p.h. Chassis Alvis Speed Twenty, fitted special Vanden Plas 4-seater, tonneau cover, mileage about 10,000, passed O.K. by makers; cost £725, offered at £595.

1931 16-95 Alvis Silver Eagle 6-cyl. 4-seater Touring Car, finished green and black, carrying balance of makers' 3 years' guarantee, a really delightful car, one owner since new; £345.

1931 12-50 Alvis 2-seater, finished red throughout, fitted with number of accessories, including foglamp, spotlight, etc.; £265.

1930 16-95 Alvis Silver Eagle 6-cyl. 6-light Coachbuilt Saloon, finished maroon and black, in exceptional condition throughout, ready to drive anywhere; £295.

1932 Model 20h.p. 4-light 4-door Saloon, finished 2 shades of green; £595.

1931 20h.p. Alvis Chassis, fitted with special Foursome drop head coupe body by Mayfair Carriage Co., exceptionally fine condition throughout, remainder of guarantee transferable; £445.

1932 12-60 2-seater Sports, finished green, exceptionally nice condition; £345.

1932 Series 12-60 Sports 2-seater, also exceptional condition; £315.

CALL and See at our Showrooms the Superb Examples of Modern Coachwork Fitted to the new 100 m.p.h. Speed Twenty Alvis Chassis by Messrs. Vanden Plas and Messrs. Thrupp and Maberly; exclusive designs.

CHARLES FOLLETT, Ltd.,

SOLE Alvis Distributors for Alvis in London and Home Counties, Berkeley St., W.1. Mayfair 6266. [8378]

PRACTICALLY New 12-60 Alvis Sports 2-seater; £285.—Day and Day, Long Acre, W.C.2. [8612]

1922 Alvis 2-seater, good order; £15.—Steele Griffiths, 42, Denmark Hill, S.E.5. Rodney 2201-4. [8102]

LE MANS Alvis, F.W.D., supercharged 2-seater, in magnificent condition.—Aspden, Shaw Hill, Chorley. [8879]

222—Alvis 1925 12-40h.p. touring, beautiful condition throughout.—Alley and Bernard, 344, King's Rd., Chelsea, Flaxman 4633. [8412]

SPROSEN, Ltd. (NORMAN BLACK)—1931 (August) Alvis super sports 2-seater, black and red, small mileage, first class condition, fully guaranteed; £265.

SPROSEN—1928 super sports 2-seater, black and red, exceptionally fast, fully guaranteed; £125.

SPROSEN—1927 (August) super sports 2-seater, ivory and green, very attractive, with marvellous performance; £95; also 4-seater super sports, £85.—109, Great Portland St., London, Langham 1212. [8898]

1931 12-50 Alvis 2-seater, in extremely sound condition; £235.—Taylor and Askew, Ltd., 9, Reeves Mews, South Audley St., W.1. Mayfair 4064-65. [8640]

1929 Supercharged F.W.D. Alvis 2-seater, fast car, in exceptional condition, many extras; £115.—The Winter Garden Garage, Macklin St., W.C.2. Holborn 4236. [0913]

£37/10—Alvis 12-50h.p. super sports 4-seater, late 1925, cellulosed brown and black, tonneau cover, many extras, amazing acceleration; any trial.—Below.

£39—Super sports Alvis 12-50h.p. 2-seater, polished aluminium and red, long tailed body, completely overhauled, large F.W.B., perfect condition throughout, including lighting and starting; any trial.—Below.

£32/10—Alvis super sports 12-50h.p. 4-seater, finished navy blue and black, F.W.B., new leather hood, wire wheels, special side screens, guaranteed over 70 m.p.h., has been recently rebored; a bargain.—Dudley, 18a, Putney Bridge Rd., S.W.18. Putney 2462. [7635]

Alvis.

1928 12-50 Alvis Sports 4-door Weymann Saloon, excellent condition throughout, taxed December; £98.—S. and B. Motors, 60, Warren St., Museum 7781. [8871]

1928 12-50 Alvis 2-door Coachbuilt Saloon, colour black and green, the whole car in excellent condition; £105.—F. & P. Motors, Ltd., 57, Eden St., Kingston. Tel.: 5808. [8302]

12-50 Alvis 2-door Sports Saloon, just recoloured, in especially good order; £95.—Taylor and Askew, Ltd., 9, Reeves Mews, South Audley St., W.1. Mayfair 4064-65. [8641]

ALVIS 12-50h.p. 1932 4-door Saloon, in 2 shades of maroon, like new, a special car; cost £525, 340 guineas.—Thorn's (Oxford Circus), 19-21, Great Portland St., W. Langham 3966. [7114]

1929 Alvis 12-50 F.W.D. Sports 2-seater, very excellent condition; £95.—C.M. (Motors), 24, Stourcliffe St., Edgware Rd., fourth turning right from Marble Arch. Paddington 3553. [8743]

1928 (late) Alvis 12-50 Super Sports 2-seater, outside exhaust; £95.—H. & A. Motors (Norwood), Ltd., 69, Church Rd., Upper Norwood, Livingstone 3393. Open Sundays 11-1. [5905]

£150 !!!—1929-30 Alvis 17-95 Silver Eagle saloon, Weymann body, in almost new condition, sun roof.—Denmans, 132-3, Long Acre, W.C. Open Sunday mornings. Temple Bar 8135-6-7. [8632]

A. RIX Offers 1930 Alvis Silver Eagle 3-carburettor Sports 2-seater, taxed, excellent order throughout; 155 guineas; exchanges and deferred terms.—153, Euston Rd., N.W.1. Museum 1618. [9075]

BROOKLANDS MOTOR COMPANY Offers 1930 Alvis Silver Eagle Sportsman's Saloon; £195; written guarantee; exchanges and private deferred terms.—410-416, Euston Rd., N.W.1. Museum 3143-4. [8271]

1928 Alvis 17h.p. 6-cyl. Sports Weymann Saloon, in exceptional condition, fully guaranteed; £90; part exchange and deferred terms.—British and Colonial Motors, Ltd., 8-9, Long Acre. Temple Bar 3605. [8434]

1931 12-60h.p. Super Sports Alvis De Luxe, one owner, small mileage, guaranteed perfect throughout, any trial, anywhere; £275.—Bessborough Motors, Ltd., 35, Bessborough Place, S.W.1. Victoria 6470-1. [1806]

ALVIS 1932 Series 12-60h.p. Special Sports 2-seater, in new condition throughout, new tyres; £350.—The Car Mart, Ltd., 46-50, Park Lane, W.1 (Phone: Grosvenor 3434); 297-299, Euston Rd., N.W.1 (Phone: Museum 2000). [8325]

ALVIS 1932 12-60 Sports 2-seater, twin carburettor, entirely as new, being actually only shop soiled; 345 guineas; extended payments, part exchanges.—Tror's (Oxford Circus), 19-21, Great Portland St., W.1. Langham 3966. [7118]

12-60 h.p. Alvis Super Sports 2-seater, colour crimson, mileage 5,000 only, genuine 80 m.p.h., absolutely as new, taxed, many extras; £335.—Temple Motors, Ltd., 90-92, Great Portland St., W.1. Phone: Museum 0618-9. [8180]

1930 16-95 Silver Eagle Coachbuilt Alvis Saloon, exceptional condition throughout, late property of titled gentleman, now deceased; £225; exchanges and deferred.—Larsson and Gadsden, 18-19, Warren St., W.1. Museum 5201-5202. [7955]

VERY Fast and Attractive Front Wheel Drive 4-seater Open Sports Alvis, 1929 model, fitted with supercharger, finished black and red, in very nice condition throughout; bargain, £115.—Cecil Kay, Ltd., 10-12, Bristol St., Birmingham, 5. [0052]

1930 16-90h.p. Alvis 3-carburettor Model Coachbuilt Sports Saloon, finished dark green, leather upholstery, excellent condition, taxed; £240.—Jack Oling and Co., Ltd., 8-10, North Audley St., W.1 (Phone: Mayfair 5242-4), and 19, Brick St., W.1 (Phone: Grosvenor 1791-2). [8251]

1932 Speed Twenty Alvis Open 4-seater, 4-door sports body, colour 2 shades standard green, green leather upholstery, total mileage 12,000, taxed December, guarantee transferable; cost new £695 without extras, price now £325.—Frazier Nash Cars, London Rd., Isleworth, Hounslow 3171-2. [8976]

£10 Deposit, 99 Guineas cash.—Alvis 1923 12-50 h.p. 4-door fabric saloon, excellent tyres, carefully used, very exceptional condition. List free. Exchanges. All week-days, including Saturdays, 9-9. Sundays 9-1.—Rowland Smith, 78-81, High St., Hampstead. Minute Hampstead Tube. Hampstead 6041-6. [9038]

1929 Alvis 16-95h.p. Silver Eagle Coachbuilt 4-seater Sports Coupe, blue, wire wheels, leather upholstery, specially tuned engine, 4 speeds, etc., very good condition throughout; £145; year's guarantee; exchanges, deferred.—Truscott for Saloons, 173a, Westbourne Grove, W.11, Bayswater 4274. [7996]

14-75 1928 Alvis Alvisista Full Sports Close Coupled Coachbuilt Saloon, finished in cream and black; the car is in magnificent condition in every respect, and most attractive in appearance, fullest equipment, including 2 spare wheels, doubled windscreen wiper, spotlight, single shot lubrication, illuminated direction indicator, luggage grid, etc., etc., has an unusually high performance on the road, and is mechanically beyond reproach; £97/10; photo sent; exchanges, deferred.—C. & C. Ltd., High St., Teddington, Middlesex. Kingston 9353 and 4. [8854]

Alvis.

1931 Alvis; bargain; 12-50h.p. coachbuilt saloon, black and cream, wire wheels, safety glass, leather, careful usage, unscratched; exchanges; distance no object.—Bambers, 117, The Headrow, Leeds. Phone: 20164.

1930 Alvis; bargain; sports touring 16-95h.p. 6-cyl. Silver Eagle, 3 carburettors, crimson lake, extras, small mileage, marvellous condition; exchanges; distance no object.—Bambers, 117, The Headrow, Leeds. Phone: 20164.

1928 Alvis Saloon; bargain; 14-75h.p. 6-cyl. coachbuilt, blue, cream wire wheels, De Luxe equipment, 1931 condition; exchanges; distance no object.—Bambers, near Birkdale Station, Southport. Phone: 66161.

1932 Model 20-100 m.p.h. Alvis; bargain; speed super 6-cyl., latest model sportsman's coupe, C.B. dual tone cherry and grey throughout, wire wheels, spare unused, every ffitment, specially fitted and finished for Edinburgh Rally, few hundred miles, equal new; exchanges; distance no object.—Bambers, near Birkdale Station, Southport. Phone: 66161.

1932 Alvis; bargain; speed 20-100 m.p.h. super 6-cyl. touner, C.B., 4 doors, rigid side screens, small mileage, absolutely as new; exchanges; distance no object.—Bambers, near Birkdale Station, Southport. Phone: 66161.

1930 Alvis; bargain; 16-95h.p. 6-cyl. saloon, Silver Eagle, coachbuilt, black and cream, wire wheels, extras, 4 doors, one owner, spare wheel unused, mileage negligible, 1932 condition; exchanges; distance no object.—Bambers, near Birkdale Station, Southport. Phone: 66161. [7717]

£25—12-40 Alvis 2-seater, double dickey, late 1924, one change, condition throughout truly exceptional, fully equipped, excellent tyres, splendid chassis, low built, attractive modern appearance; offered at above nominal figure solely on account of date; photo sent.—C. & C. Ltd., High St., Teddington, Middlesex. Kingston 5395-4. [8122]

400 Car List Post Free.—New and used cars in stock, including Alvis saloons, coupes, sports, landaulets, touring 2-seaters. Open till 8.30 p.m., week-ends included; distance no object.—(The Northern Olympia) better exchanges at Bambers, near Birkdale Station, Southport. Phone: 66161. (117, The Headrow, Leeds; 16, Cambridge St., Sheffield.) [0699]

Alvis Cars Wanted.

ROWLAND SMITH MOTORS, Ltd.,

WANT Alvis Cars for Spot Cash. Highest prices. All week-days, including Saturdays, 9-9. Sundays 9-1.—78-81, High St., Hampstead. Minute Hampstead Tube. Hampstead 6041-6. [9075]

TRUSCOTT Pays Full Value for Alvis.—48, Fitzroy St., W.1. Museum 7915. [0825]

ALVIS Cars, 12-50h.p., 12-60h.p., 16-95h.p. models, required urgently for cash or exchange.

HENLYS, England's Leading Agents and Used Alvis Car Specialists, give best prices.—Henly House, 385, Euston Rd., N.W.1. [0079]

BARTLETT for Sports Cars, including Alvis.—27a, Pembridge Villas, W.11. Bayswater 0523. [0187]

CASH You: Alvis Warwickshire Motors, topmost prices.—120, Great Portland St. Museum 8939. [1439]

URGENTLY Wanted, Alvis cars, all models, not earlier than 1930; cash waiting.—Kirby, Ltd., Southport. [0054]

B. ESCAR, Ltd., London's largest cash buyers, require Alvis; highest prices; exchanges.—157a, Great Portland St., Langham 3777. [0382]

CASH Waiting for Alvises; distance no object; write, phone, call.—H. F. Edwards, 175, Great Portland St., W.1. Welbeck 4161-3. [4381]

GATEHOUSE MOTORS, Highgate Village, N.6. urgently require Alvis and other makes of cars for spot cash.—Phone: Mountview 4444. [6731]

SPROSEN, Ltd. (NORMAN BLACK), wish to purchase several Alvis cars; 80 sports cars in stock, all fully guaranteed.—109, Great Portland St., London, Langham 1212. [1827]

CHARLES FOLLETT, Ltd., Sole London and District Distributors for Alvis, will pay highest cash prices for good second-hand models.—18, Berkeley St., W.1. Mayfair 6266. [8370]

12-50 Alvis Sports Tourer, large port engine, close ratio gear box, guaranteed sound; exchange 1925 Ceirano, S150, chassis 2560, sports touring, in daily use; cash adjustment.—Clay, Thornton-in-Craven, Skipton. [7950]

THORN'S, OXFORD CIRCUS, the Recognised Alvis Car Buyers of London, to get the real value for your car (or high part exchange value), first communicate with us and obtain our offer.—Thorn's, 19-21, Great Portland St., Oxford Circus, W.1. Langham 3966. [7096]

Amilcar.

1927 9h.p. Amilcar Grand Sports; £26.—Walbro' Cycle and Motor Co., Saffron Walden. Phone: 45. [7779]

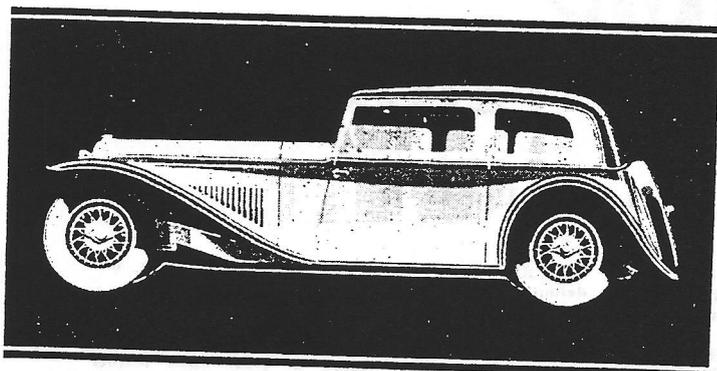
AMILCAR 75 m.p.h. Super Sports Streamline 2-seater, in black and green, long tailed body, F.W.B., outside exhaust, speedometer, rear counter, Eldridge cowl, cycle type wings; genuine bargain, £39.—Below.

AMILCAR 70 m.p.h. 2-seater Special Sports, spring steering wheel, rear counter, speedometer, finished in grey and red, marvellous condition throughout; any trial; exchanges; £32/10.—Dudley, 18a, Putney Bridge Rd., S.W.18. Putney 2462. [7634]

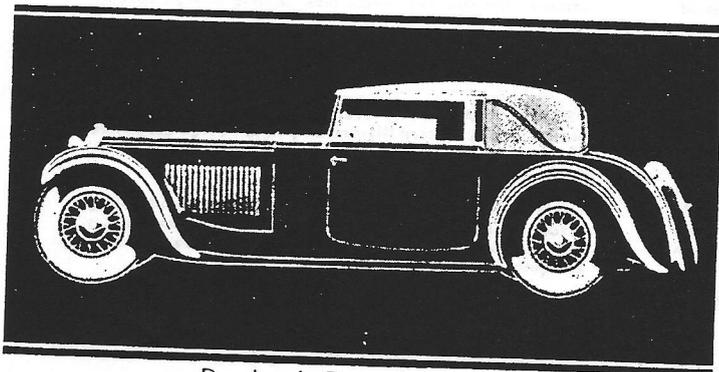
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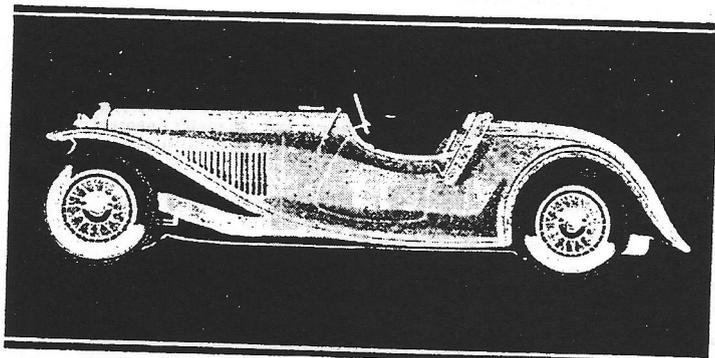
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Straight Back Saloon



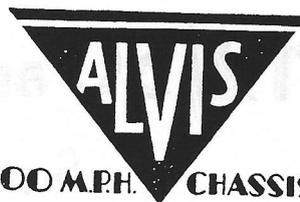
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12/50 and 12/60 h.p.
Specification

ENGINE. Four cylinders, monobloc casting, 69 m/m bore x 110 m/m stroke, 1645 c.c. capacity. Detachable head, ample water spaces carefully proportioned to avoid any possibility of distortion in cylinders or head. The gasket is not used to make the water joint, separate passages being provided between cylinder and head. Crankshaft of heat-treated steel, machined all over and balanced, with three bearings. A torsional vibration damper is fitted at the front end. Connecting rods of alloy steel, specially lightened, and with anti-friction bearings die-cast into position. The pistons are of special aluminium alloy. Valves, in head, of special alloy steel, actuated by push rod mechanism of exclusive Alvis design. Timing gears with accurately cut helical teeth. Lubrication is by rotary gear pump driven by spiral gear from camshaft, providing forced lubrication to crankshaft main and big end bearings.

COOLING. Cylinder barrels are completely separate from each other and all water spaces are most carefully disposed to eliminate distortion of cylinder and valve seats. Thermo-syphon circulation is used in conjunction with an exceptionally large and efficient radiator.

RADIATOR. Special honeycomb block, chromium-plated case.

CARBURATION. Efficient carburation system with special Alvis hot-spot induction pipe. 12/60 models have specially balanced twin-carburettor system, giving considerable increase in power combined with remarkable smoothness.

IGNITION. Coil ignition of special type is fitted as standard.

CLUTCH. Single-plate clutch of exclusive Alvis design, providing remarkable ease of control and easy gear change.

GEAR BOX. Four speeds forward and reverse. Right-hand change, direct drive on top speed. All shafts splined. Gears and shafts of alloy steel accurately ground after heat-treating. Gear drive for speedometer is incorporated. Gear ratios: 4.77-1, 7.32-1, 11.04-1, 18.54-1, Reverse 16.12-1. 12/60 models have gear box of special close ratio type for high speeds and rapid acceleration. Gear ratios: 4.77-1, 6.75-1, 10.16-1, 15.47-1, Reverse 12.30-1.

CARDAN SHAFT. Tubular shaft is of exceptionally large diameter. Hardy-Spicer all-metal universal joints at both ends. The safe speed of this shaft is well over six thousand revolutions per minute, thus a very high factor of safety is provided against "whirling" and consequent vibration.

REAR AXLE. Aluminium casing. Noiseless spiral bevel gears of nickel-chrome case-hardened steel.

FOUR-WHEEL BRAKES. Internal expanding in drums of exceptionally large diameter, ribbed for cooling. All four brakes operated by foot pedal or by hand lever.

FRONT AXLE. Is designed to take the stresses imposed by front wheel brakes and is a solid drop forging of high tensile steel.

STEERING. Of new pattern designed for easy, but definite, steering with low pressure tyres.

SPRINGS. Semi-elliptic front and rear, of special alloy steel and of exceptional length. Rear springs are under-slung. All springs enclosed in grease-filled leather gaiters, and shackle bolts arranged for grease-gun lubrication. 12/60 models have rear springs specially designed for safe and comfortable driving at high speeds.

FRAME. Is made of high grade steel, very deep and of special section to ensure adequate support for the coachwork.

PETROL TANK. At rear of chassis. Feed to carburettor is by electrically-driven pump. Large accessible filler. A petrol gauge is fitted on instrument board. Tank capacity: 10 gallons.

CONTROL. Foot accelerator, with throttle and timing levers on steering wheel. Hand brake and gear levers on right-hand side. Clutch, brake and accelerator pedals are quickly adjustable for convenience of driver.

SHOCK ABSORBERS. Fitted to both axles.

ELECTRICAL EQUIPMENT. 12-volt, 2-unit system. Dynamo positively driven from engine.

ELECTRIC HORN. Operated from button in centre of steering wheel.

LIGHTING CONTROL. By finger-tip switch in centre of steering wheel.

INSTRUMENT BOARD. Fitted with ignition switch and warning lamp, speedometer, clock, ammeter, oil pressure gauge, petrol gauge and strangler control. Instruments are illuminated from the rear with absence of glare.

WHEEL BASE, 9' 4½". TRACK, 4' 2".

GROUND CLEARANCE. Minimum of 8".

OVERALL DIMENSIONS. Length: 13' 2". Width: 4' 10". R.A.C. rating: 11.8.

CHASSIS. Includes lighting and starting set, electrical windscreen wiper, all instrument board fittings, bonnet, mascot of registered design, step irons, accumulator, speedometer, clock, licence holder, all tyres, including spare wheel and tyre, jack, foot pump, luggage grid and tool kit. Chassis with 69 m/m x 110 m/m engine. Wire wheels with 30" x 5" Dunlop Cord tyres.

PRICES

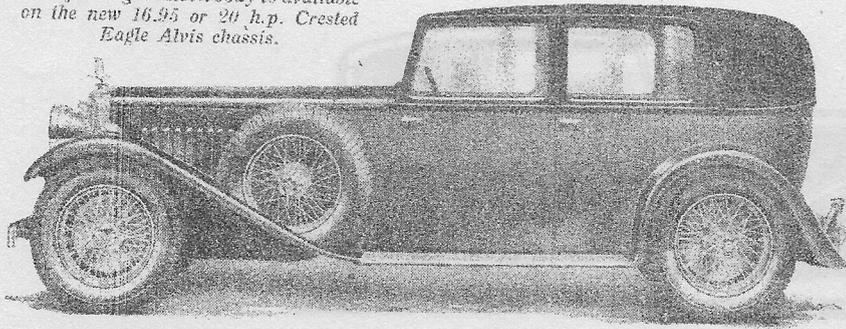
12/50 Chassis - £350

12/60 Chassis - £395

(ex Works)

ALVIS CAR & ENGINEERING CO. LTD., COVENTRY

This four-light saloon body is available on the new 16.95 or 20 h.p. Crested Eagle Alvis chassis.



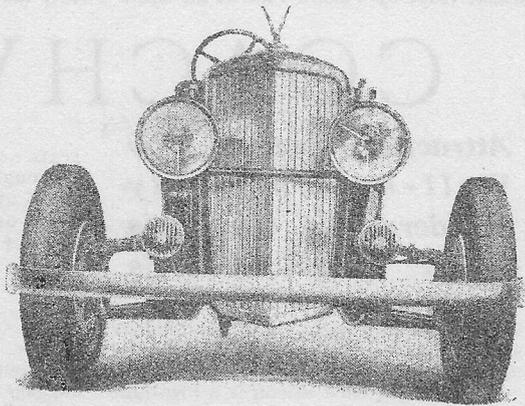
TWO

Independent Front

of the frame, is a single transverse spring. It is wide, with many stout leaves, and a master leaf with eyes machined solid in its ends. The master leaf is encircled by the leaves immediately above and below it, and one more top leaf extends over the eyes.

For the sake of simplicity, let us consider the system as applied to one wheel. The spring eye embraces a shackle bolt attached to the upper end of a vertically disposed strong steel forging, or yoke, which provides the fork for the swivel pin of the stub axle. In the lower end of this yoke is a second shackle pin, which forms the anchorage for the outer end of a radius member. This also is a forging, of triangular shape in plan view, and has at its inner end a long cylindrical boss, which forms the fulcrum point. Within the boss is a pair of circular metal pads forced apart by a fairly long and heavy coil spring. These pads are mounted on a splined spindle, the ends of which are locked into a bracket attached to the underside of the car frame. Between the pads and bracket ends are friction discs. Thus each radius member is not merely a radius rod, but a self-adjusting long-duty spring damper as well.

SOME valuable contribution to the science of car-making is usually to be expected when Alvis produce a new model. The Crested Eagle, which is to succeed the well-known Silver Eagle series of six-cylinder 16 and 20 h.p. models, is an illustration of that fact. Of this new car the prime factor is the development of a system of independent springing for the front wheels, with the object of improving riding comfort, enhancing stability, and of providing a better steering which is intrinsically free from vices such as wheel wobble, patter, or vagueness.

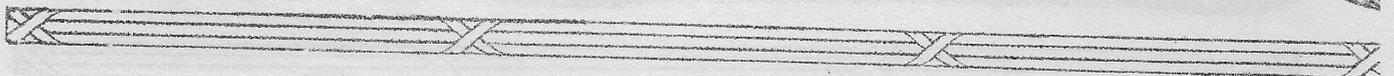
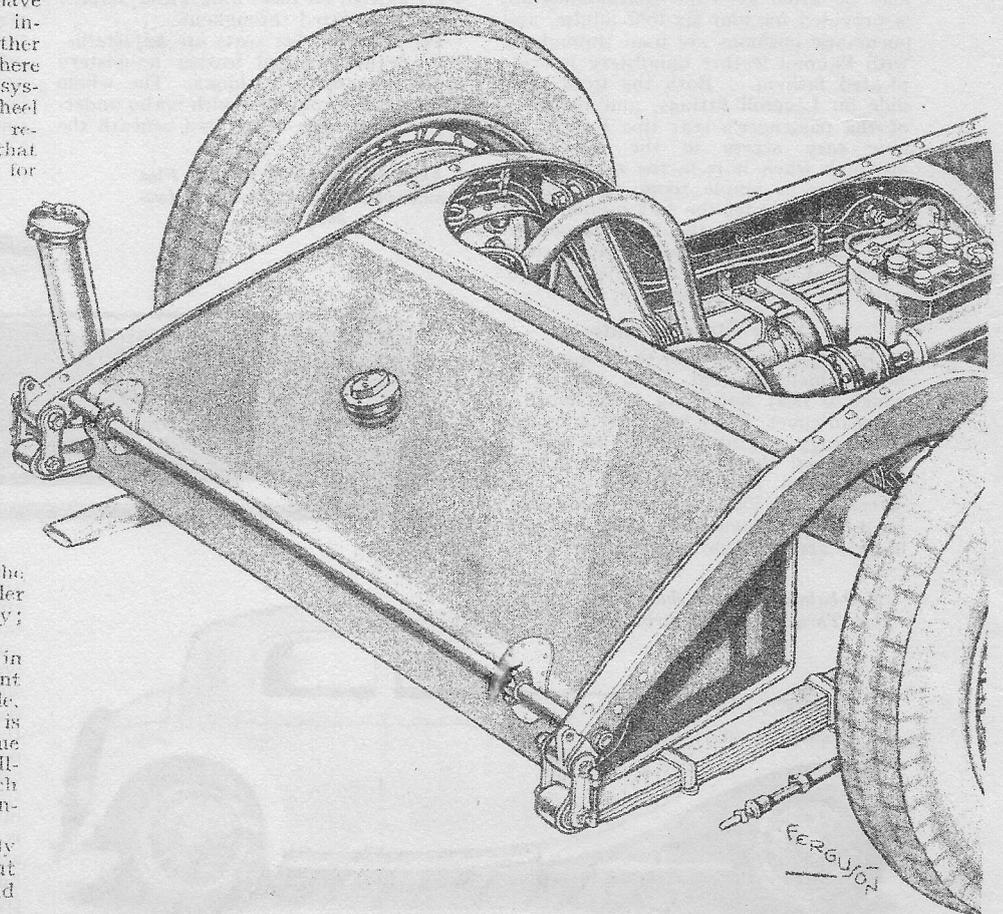


In this front view the special suspension system and the absence of an ordinary front axle are noticeable, also the new deep, graceful radiator.

During the past years the makers have had a great deal of experience with independent springs on racing and other cars with front wheel drive, so that there is nothing experimental about the system now standardised on a rear wheel drive car as a result of well-tested research work. It may be explained that the objects of independent springing for the front wheels are broadly as follows: To permit each wheel to rise or fall without causing that deflection of the fellow wheel which must follow if a normal front axle is used; to avoid the gyroscopic reactions which can occur when the rise and fall of a steering wheel causes an angular movement of the axis, these being a root evil of wheel wobble; to prevent the rise and fall of the wheels from affecting the steering in the manner incidental to a beam front axle attached by half-elliptic springs, which individually may vary their effective length when experiencing deflection; to apply the spring suspension at points as close up to the plane of the wheels as possible in order to obtain maximum lateral stability; lastly, to reduce the unsprung weight.

In a manner of speaking, the way in which the Alvis independent front springing is carried out is quite simple, but behind this apparent simplicity is the skilful designing which is the true genius of the cars bearing this well-known name. The explanation which follows is intended to render the principle and the details clear.

Clamped down at its centre, by widely spaced bolts, into a channel above stout twin cross-members at the forward end



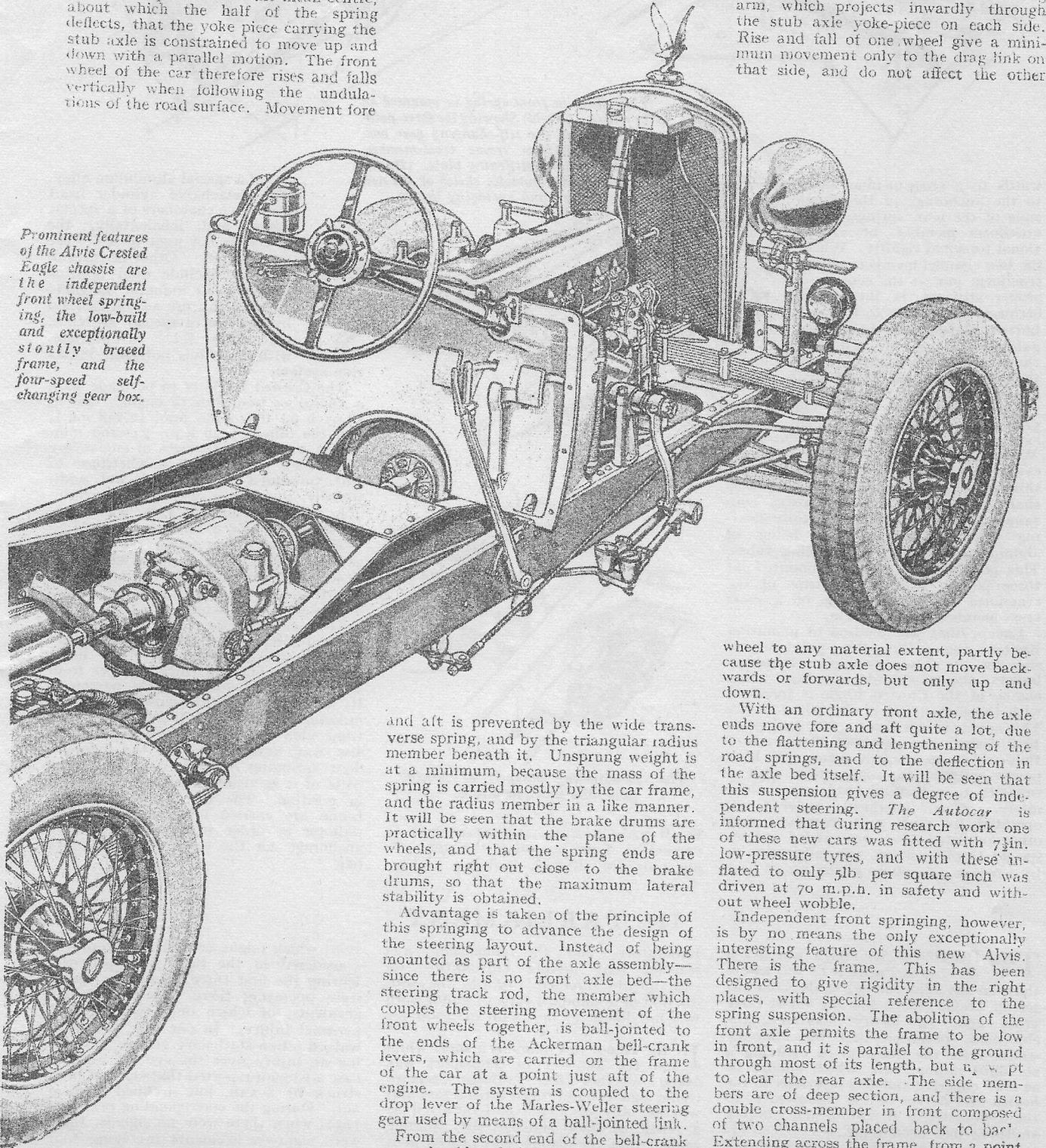
NEW ALVIS MODELS

ings and Self-changing Gear Box Incorporated in New Six-cylinder Chassis

The fulcrum point of the radius member is so disposed below the mean centre, about which the half of the spring deflects, that the yoke piece carrying the stub axle is constrained to move up and down with a parallel motion. The front wheel of the car therefore rises and falls vertically when following the undulations of the road surface. Movement fore

drag link runs forward to the steering arm, which projects inwardly through the stub axle yoke-piece on each side. Rise and fall of one wheel give a minimum movement only to the drag link on that side, and do not affect the other

Prominent features of the Alvis Crested Eagle chassis are the independent front wheel springing, the low-built and exceptionally stoutly braced frame, and the four-speed self-changing gear box.



and aft is prevented by the wide transverse spring, and by the triangular radius member beneath it. Unsprung weight is at a minimum, because the mass of the spring is carried mostly by the car frame, and the radius member in a like manner. It will be seen that the brake drums are practically within the plane of the wheels, and that the spring ends are brought right out close to the brake drums, so that the maximum lateral stability is obtained.

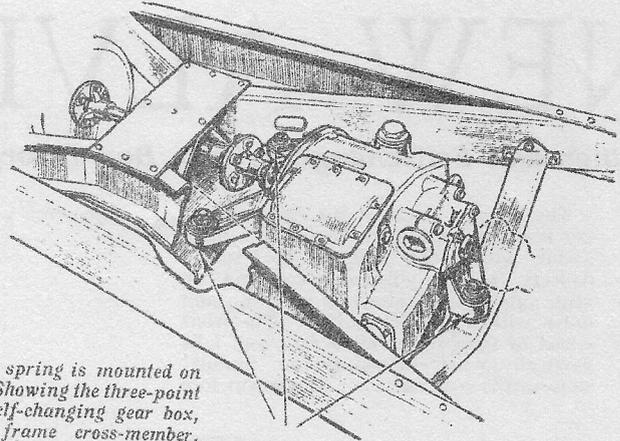
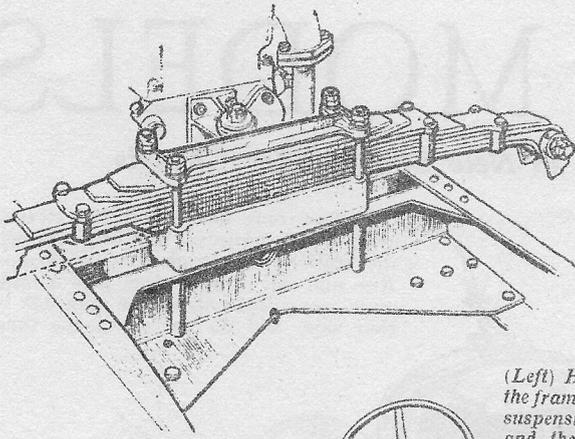
Advantage is taken of the principle of this springing to advance the design of the steering layout. Instead of being mounted as part of the axle assembly—since there is no front axle bed—the steering track rod, the member which couples the steering movement of the front wheels together, is ball-jointed to the ends of the Ackerman bell-crank levers, which are carried on the frame of the car at a point just aft of the engine. The system is coupled to the drop lever of the Marles-Weller steering gear used by means of a ball-jointed link.

From the second end of the bell-crank on each side of the car, a ball-jointed

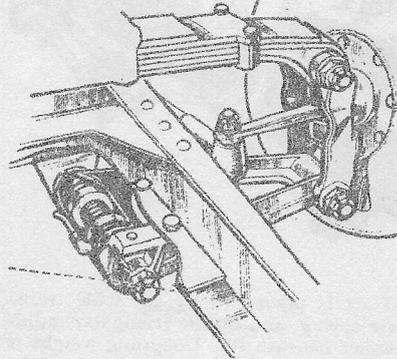
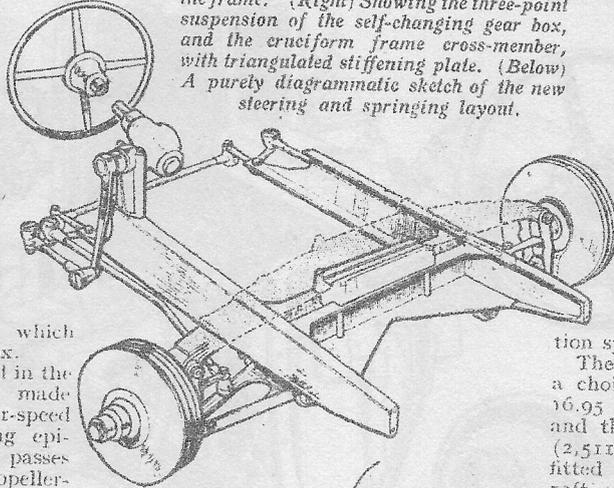
wheel to any material extent, partly because the stub axle does not move backwards or forwards, but only up and down.

With an ordinary front axle, the axle ends move fore and aft quite a lot, due to the flattening and lengthening of the road springs, and to the deflection in the axle bed itself. It will be seen that this suspension gives a degree of independent steering. *The Autocar* is informed that during research work one of these new cars was fitted with $7\frac{1}{2}$ in. low-pressure tyres, and with these inflated to only 5 lb. per square inch was driven at 70 m.p.h. in safety and without wheel wobble.

Independent front springing, however, is by no means the only exceptionally interesting feature of this new Alvis. There is the frame. This has been designed to give rigidity in the right places, with special reference to the spring suspension. The abolition of the front axle permits the frame to be low in front, and it is parallel to the ground through most of its length, but up a point to clear the rear axle. The side members are of deep section, and there is a double cross-member in front composed of two channels placed back to back. Extending across the frame, from a point about halfway along the engine, back-



(Left) How the front spring is mounted on the frame. (Right) Showing the three-point suspension of the self-changing gear box, and the cruciform frame cross-member, with triangulated stiffening plate. (Below) A purely diagrammatic sketch of the new steering and springing layout.



The self-adjusting damper, of special form, also stub axle details.

are of a special aluminium alloy. The detachable cylinder head has valve chambers of a special shape, and, incidentally, the gasket is not used to make the water joint. Other features of the car include dual ignition with a polar inductor magneto adapted to work as coil ignition by the use of special switches, and three S.U. carburettors, with the Alvis hot-spot induction system.

The Crested Eagle is to be made with a choice of two sizes of engine, one of 16.95 h.p., 67.5x100 mm. (2,148 c.c.), and the other of 20 h.p., 73x100 mm. (2,511 c.c.). Both sizes of engine are fitted to a chassis with a wheelbase of 11ft. 3in. and a 4ft. 8in. track, but, additionally, the 20 h.p. will also be obtainable with a chassis of 11ft. wheelbase, intended to carry a limousine body.

The prices are as follows: 16 h.p. or 20 h.p. chassis, long or short wheelbase, £550; four- or six-light saloon, short wheelbase, £750; 20 h.p. seven-seater limousine, long wheelbase, £850.

The new Alvis is easy to distinguish from previous models because of a fresh radiator which follows on Alvis lines, but is more graceful, much deeper from top to bottom, and slightly narrower. It is closed in with chromium-plated radiator shutters. Incidentally, the front view of the car does not look in any way unorthodox, for the independent springing is quite neat, and very little of it is visible when the wings are in position. The side members of the frame are carried forward beyond the radiator in order to provide a proper anchorage for the single broad bumper bar.

wards to a cross-member close to the anchorage of the front ends of the rear springs, is a cruciform member of exceptional torsional rigidity. Where the two channel members of this cruciform join at the centre, a proper stiffener is introduced because, in addition to top and bottom plates, there is a triangulated plate as well. Through the hollow of the triangle passes the double-jointed clutch-shaft, which conveys the drive to the gear box.

Another departure is to be found in the gear box, which is a specially made example of the now familiar four-speed Wilson pre-selective self-changing epicyclic gear. Drive from the box passes through a metal-jointed open propeller-shaft to a spiral-bevel final-drive contained in a rear axle of the fully floating type, the axle casing being of aluminium with steel reinforcing tubes. This gear box is flexibly mounted at three points, two on the arms of the cruciform member, and one on a short cross-member joining them.

Except that the method of mounting has been changed to a three-point suspension on the Alvis principle of rubber buffers, the six-cylinder overhead valve engine of the Crested Eagle is identical with the power unit of the Silver Eagle. This engine is of a clean, good, and practical design, and possesses all the essentials which go towards securing a high power output, in conjunction with a capacity to withstand hard wear indefinitely. The overhead valves are operated by push rods, camshaft and other auxiliary drives are carried out by special Duplex chains, the lubrication is by a rotary gear pump giving forced feed

to all main bearings, the crankshaft is carried in four bearings, the connecting rods are all-steel, and the pistons

IN PARLIAMENT

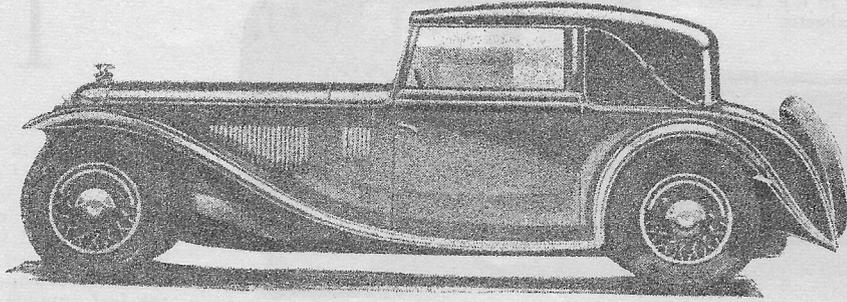
Laboratory, and the conclusion was reached that further expenditure on experiments directed towards the production of a standard type of motor horn was not likely to be useful in results.

IN the House of Commons a short while ago the Minister of Transport was asked whether the Trafalgar Square traffic signals had proved satisfactory and whether any accidents had occurred as a result of these signals. Mr. Stanley replied that the signals had proved generally satisfactory and that any altera-

THE HOME SECRETARY was asked by Mr. Lovat Fraser if he was aware that, on the adjournment of the Committee on Traffic Noises *sine die* about three years ago, Sir Henry Maybury, the chairman, promised that the Ministry would refer the question of evolving a standard motor horn, which should be at once effective and less injurious to the health and nerves of the community, to the Committee of Research, and whether anything had been done.

The reply was that enquiries were made from the National Physical

tions which might be desirable would be considered in the light of experience. During the first three weeks the signals were operating there were twenty-two accidents, of which only two involved personal injury. In one case a woman walked into a stationary vehicle, sustaining an injury over the eye; in another case a woman reported that she had been struck by a cab, but declined medical aid. During the corresponding period of 1932, when there were no signals, there were eighteen accidents involving four cases of personal injury.



An attractive foursome coupé by Vanden Plas on the Speed Twenty chassis.

SPECIAL COACHWORK

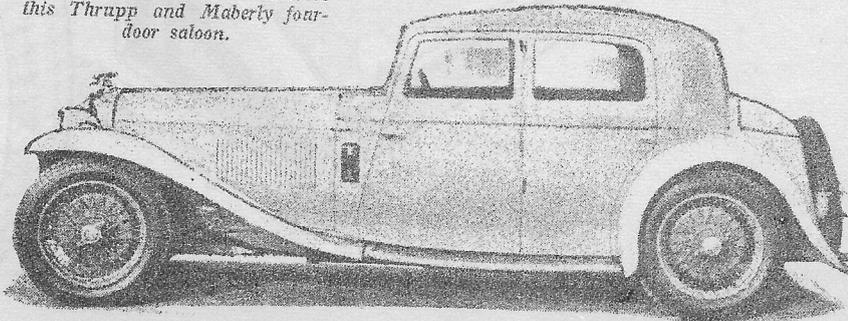
DURING the past year a number of very attractive special body designs on Alvis Speed Twenty chassis have been offered by Charles Follett, Ltd., 18, Berkeley Street, W. 1, and have met with much approval. For the coming season four very modern designs are being offered, these being a tourer, a straight-backed saloon, and a foursome coupé built by Vanden Plas (England), 1923, Ltd., and a four-door saloon built by Thrupp and Maberly.

As regards the tourer, the new model is an improvement on the original design, and it is arranged so that either cycle type wings or the long, flowing pattern may be fitted at will. Accommodation is provided for four six-foot adults, and pneumatic cushions are used throughout with Vaumol leather upholstery in wide pleated fashion. Both the front seats slide on Leveroll fittings, and the back of the passenger's seat tips forward to give easy access to the rear seat, although when it is in the normal position there is ample room through the wide door to enter the rear compartment without disturbing the front passenger. The front mat is of sponge rubber with a polished top, and foot wells are provided for the rear passengers.

Other Clever Points

Other good features of the design are a hood which lies flat when folded, for which a neat hood bag is included, a tonneau cover, and a very ingenious concealed luggage grid hidden in the tail and so designed that when it is in use the spare wheel is still accessible. The screen can be locked in the folded down position, the doors are hung on stout hinges, are cut right through, and fitted

Well-balanced lines characterise this Thrupp and Maberly four-door saloon.



Attractive Designs, by Well-known Body Builders, for the Alvis Speed Twenty Chassis

with Silentbloc locks, and any colour scheme may be chosen. The price of the complete car is £725.

The straight-back saloon is a low-built two-door four-light design, with ample room for four adult passengers. A single wide door on each side gives easy access to both front and rear seats, each door being carried on three hinges and Triplex glass being fitted throughout.

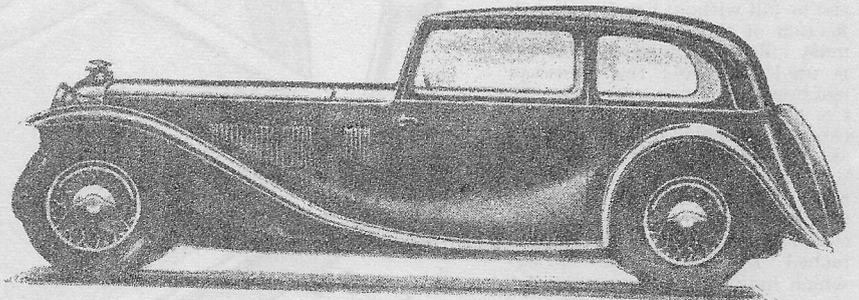
The front bucket seats are adjustable, and pleated Vaumol leather upholstery covers pneumatic cushions. The whole car is lined throughout with Sorbo underfelt, a layer even being used beneath the

seats. The long swept wings are thoroughly in keeping with the general lines, although cycle-type wings can be fitted and tone in well with the design. Interior appointments are very complete, and the price of £865 includes any colour scheme.

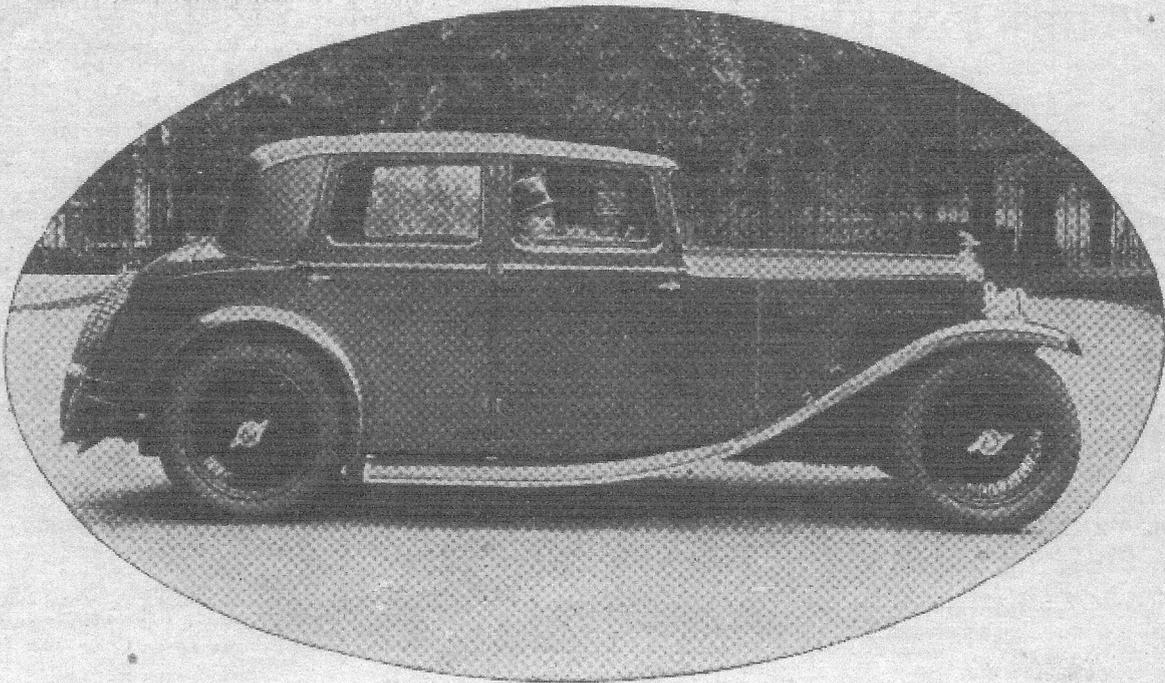
Sporting Appearance

Low, sporty looking lines distinguish the foursome coupé, which has ample luggage accommodation in the shapely tail and includes the special luggage grid. The hood folds down flat, or, if desired, can be folded half-way back, since the front rail can be lifted off the screen, rolled up in the hood material and secured by two straps, so that the rear passengers have the shelter of the hood while the front passengers are in the open. The general specification is similar to that of the straight-back saloon, and the price is the same, £865.

Another example of Vanden Plas coachwork—a straight-backed two-door saloon.



The four-door saloon built by Thrupp and Maberly is of the four-light close-coupled type, with a large luggage container at the rear, behind which is mounted the spare wheel. The well-domed front wings sweep back to the short running boards, which, also, are slightly swept at the front to conform to the lower line of the body. A single-pane opening screen, a peakless front, and a sliding roof are included in the specification, and, needless to say, the interior shows a high degree of finish and is very completely fitted with concealed ashtrays, pockets on all doors, interior lights, and rear blind with remote control. Finished in any colour the price of this handsome car is £895.



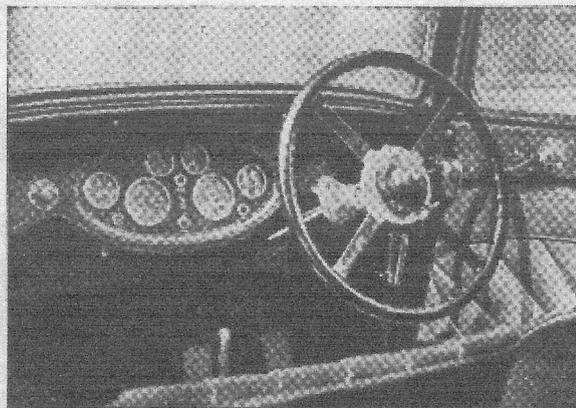
1,000 MILES OF "ALVIVACITY"

First Comprehensive Road Test Report of Alvis Firefly with Pre-selector Gear

THE Alvis Car and Engineering Co., Ltd., Coventry, coined the word "Alvivacity," and we make no apologies for borrowing it because it sums up so crisply the performances of the 1,496 c.c. Firefly. Readers will remember that we tested one of the gearbox models at the end of last year; recently we were able to take over one with a "pre-selector," and our summing up is the result not of a run round the houses, but of a fairly strenuous 1,000 miles which included a dash from London to North Wales and back and, of course, the return journey between the Metropolis and Coventry.

The Firefly is admittedly one of the more expensive light cars. In chassis form it costs £395; complete it sells for £495 (the pre-selector is £15 extra), which goes to show that £100 have been spent on the body and equipment and is indicative of the bold policy of the company in that a cheaper body might have helped to sell the car in greater quantities. The temptation, however, was put on one side and the result is a car which in performance, accommodation, appearance and comfort can justifiably claim to be amongst the aristocrats of the light car world.

Actions speak louder than mere commendation; here are a few facts to be going on with. The average



The roomy cockpit and a glimpse of the controls. Note the handy pre-selector lever beneath the wheel, on the left.

Flying Quarter Mile Covered at Just Under 70 m.p.h. Against the Stop Watch

speed of a run each way over a measured quarter of a mile with a flying start of roughly a third of a mile, timed with a stop watch, was 68 m.p.h., the fastest run being at 69 m.p.h. From a standing-start the "quarter" was covered in 25 secs.

On the open road the maximum speed registered by speedometer was 78 m.p.h., on third 60 m.p.h. was attained, second gave an easy "30" and first about "20." The comfortable cruising speed was about 65 m.p.h.—just under 4,000 r.p.m.—and this could be maintained on road surfaces well calculated to tempt one in the ordinary way to ease the pressure on the accelerator.

The ability of the Firefly to sail majestically at high speed over second-rate surfaces is one of its greatest charms and, needless to say, it helps materially to maintain excellent averages on long cross-country runs. The brakes are good, but one has to remember that, with a full load, there is something over a ton and a half to slow down, and due allowance must be made for this. The steering is delightful at anything over 20 m.p.h., but naturally inclined to be a little heavy when the car is moving slowly; in this connection it must be borne in mind that the dimensions of the Dunlop tyres are 30 ins. by 5 ins. Hartford shock absorbers assist

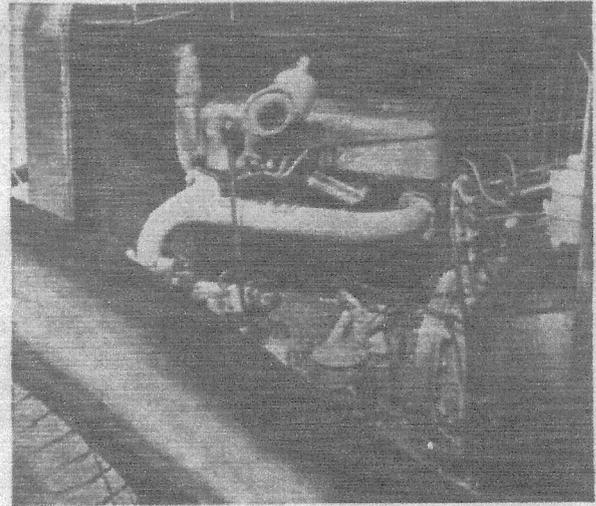
1,000 MILES OF "ALVIVACITY" . . . Contd.

the long semi-elliptic springs, but here low speeds appear to make no difference to comfort—a point which clearly demonstrates the fact that weight is sometimes useful.

Built under Wilson patents, the pre-selector box behaves in exemplary fashion. Pedal pressure is not unduly heavy, and in all gears the drive is taken up positively and without slip.

The controls are arranged admirably. The driving seat can be pulled up close to the wheel, so that the latter comes nicely "in the lap," and in this position of the seat the leg reach is just right for a driver of normal stature. The pre-selector lever is behind the wheel, but its length enables it to be moved from one notch to another with the tips of the fingers and without taking the hand from the rim. Ignition, throttle, lights and horn switch are grouped centrally above the steering wheel boss. Brake adjustment is carried out by a master turnscrew which projects through the floorboards.

The hand brake, by the way, is made to use. It is powerful and is in such a position on the right that instant access to it can be gained. On the fascia board



Where the "Alvivacity" originates—the sturdy o.h.v. four-cylinder engine.

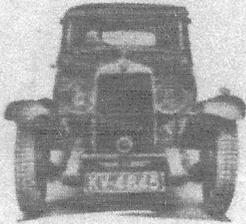
fort. The seats are wide and deep (but would be even more comfortable on long runs if pneumatic upholstery were employed), whilst, at the back, there is a folding armrest.

Luggage accommodation is generous, a very large rear container capable of holding several suitcases being provided.

Our journeyings, as we have said, took us into North Wales. Along the road to Weedon (where if you know the best route you turn off to join Watling Street) the Firefly soon demonstrated its paces and revealed the really delightful fashion in which it sweeps up main-road hills in the direct gear. Watling Street is narrowish, winding and in places hilly; the surface—judged by modern by-pass standards—is not good. On this stretch the Alvis showed off to advantage, the springing particularly meriting praise.

On corners the car proved to be very steady and free from rolling, the steering accurate to a degree. One of the several humpback bridges along Watling Street caught us unawares; we have a suspicion that the car took to the air on the other side but, at any rate, it landed four square and the crew registered only surprise at the unexpected.

Luxurious travel—and swift—for five really big people is provided by this monarch of the road. It costs a bit more than the average light car, but every penny has been well spent.



IN BRIEF.

ENGINE: Four-cylinder, 65 mm. x 100 mm. (1,496 c.c., Tax £12), overhead push-rod-operated valves, three-bearing crankshaft, S.U. semi-down draught carburetter, coil ignition.

TRANSMISSION: Pre-selector box (alternative to 4-speed sliding pinion box) ratios: 5.22, 7.21, 10.55 and 17.75 to 1. Open tubular propeller shaft, fully floating rear axle.

GENERAL: Length, 13 ft. 6 ins.; width, 5 ft. 3 ins.; wheel-base, 9 ft. 10 ins.; track, 4 ft. 4 ins.; weight (with 10 gallons of fuel), 26½ cwt. Tank holds 14 gallons.

PRICE: (As tested and including pre-selector box), £510.

ALVIS CAR AND ENGINEERING CO., Ltd.,
Holyhead Road, Coventry.

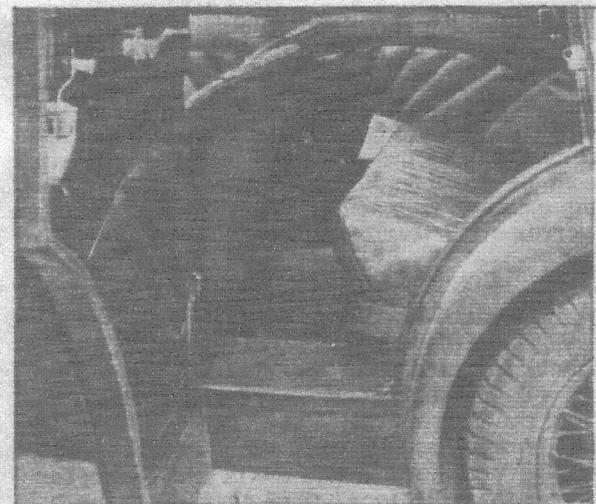
are grouped speedometer, rev. counter, clock, ammeter, oil gauge, petrol gauge and temperature gauge.

Maintenance work has been simplified so far as possible. The grease gun, for example, is readily get-at-able, being carried in a clip on the dashboard; the group system of arranging nipples is employed, and the level of the oil in the sump can be ascertained merely by consulting the reading given by a sliding rod in relation to marks made on the side of the crankcase. The rod, of course, terminates in a float which rides on top of the oil in the sump—and the latter, be it noted, holds two gallons. Adjacent to the sump level gauge is the oil filler—of generous proportions and with a good-sized filter. Oil consumption was at the rate of about 1,100-1,200 m.p.g., petrol consumption about 23 m.p.g.

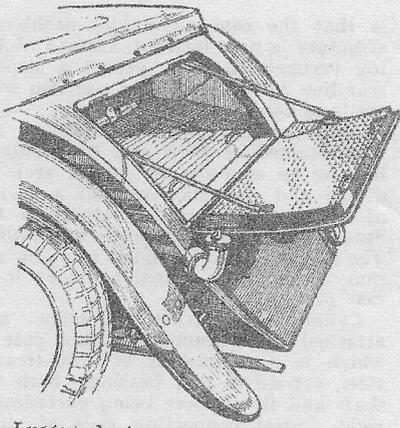
Ignition is by coil, and a point worth mentioning is that automatic advance, which works independently of the hand advance, is incorporated. In actual practice we found that, by making proper use of the gearbox, full advance could be given all the time and with distinctly beneficial results in the way of acceleration. Knocking is evident only if the car is brought practically to a standstill in top gear.

The general lines of the car are impressive, dignified and obviously the work of an artist. Note how the ramp of the front wing blends with the "flare" given to the rear wing, and how the angles of windscreen, rear quarter and back panel are made to harmonize.

Inside the car everything has been designed for com-



Elegant coachwork and furnishing are features of the Firefly. Here is a view of the rear seat accommodation.



Luggage boot on the latest Alvis Speed Twenty open four-seater.

If a definition of the Alvis Speed Twenty were needed, it might well be couched in the following terms: a fast car that is really fast, a fast car that can be driven fast with ease and in comfort, and a fast car that is able to continue to be fast for a prolonged period of time. As a matter of fact this Alvis holds the road in a remarkable way, and because of this factor a normal driver exercising normal consideration for others finds himself able to travel in perfect safety from place to place at average speeds which a few years ago would have been regarded as fantastic for anything except a racing car.

Good as the 1933 type of Speed Twenty was, its producers now aim to make the 1934 series even better, and so the design has changed in two important respects. Independent front wheel springing has been adopted, as well as a new four-speed gear box with synchromesh on all four speeds. Otherwise the chassis remains much as it was.

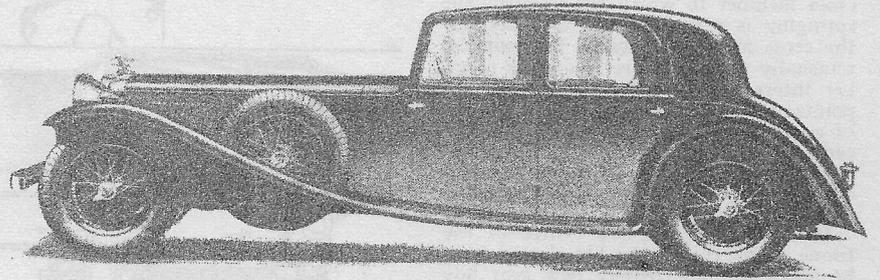
The Independent Springing

In its general conception this suspension is similar to that now in use on the new Crested Eagle Alvis, consisting of a broad-bladed laminated half-elliptic spring attached cross-wise above a very rigid cross-member construction at the front of the frame. The end of the spring on each side is attached by a shackle bolt to a steel bracket which forms the fulcrum point for the steering pivot. At the foot of this bracket a second shackle pin attaches it to a triangular-shaped radius member, the base of the triangle being attached to the frame by a long swivel in which is incorporated a shock absorber device.

The length and the point of attachment of the radius member are such as to make sure that deflection of the spring causes the steering pivot and stub-axle assembly to rise and fall in a vertical plane. The location of the steering pivot, since there is no axle bed, is secured partly by the broad spring, and largely by the triangular radius member. Just as the front wheel suspension is independent, so also is the steering to each front wheel, for from each steering pivot a drag link runs aft to a bell crank on the frame, the two bell cranks are coupled together by a track rod, also carried on the frame, and the track rod is coupled up to the normal steering gear, which is a Marles-Weller. The rise and

A NEW ALVIS SPEED TWENTY

Independent Front Suspension and Synchromesh on All Four Gears



The Charlesworth sports saloon on the Speed Twenty chassis. The price of this car is £825.

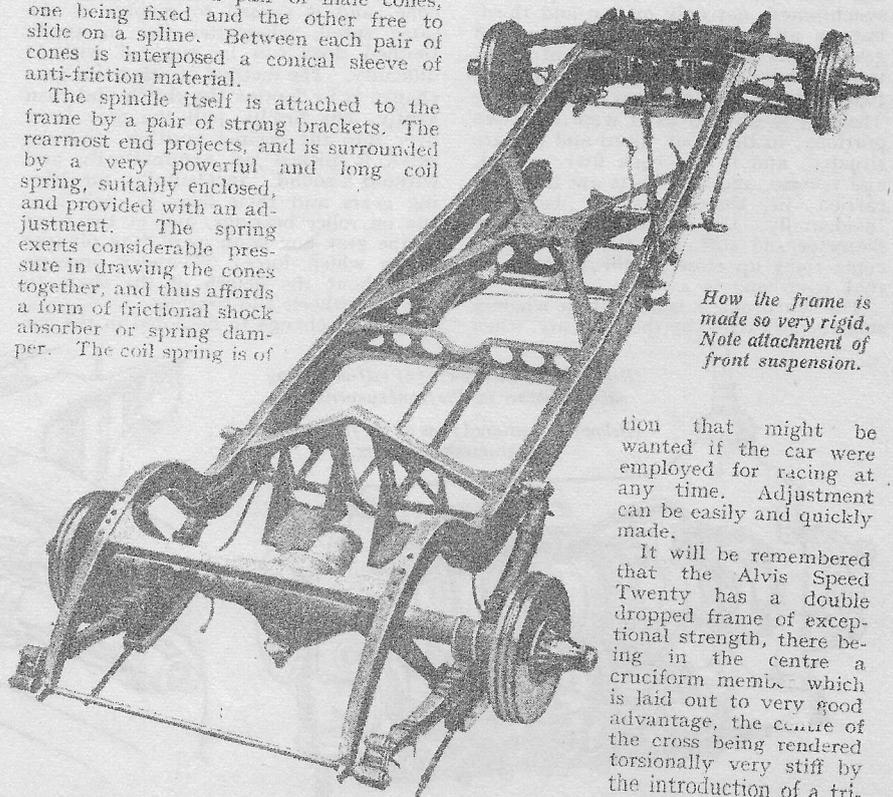
fall of one steering-wheel therefore has no effect upon the steering of the opposite wheel.

Between the Crested Eagle and the new Speed Twenty, there is one particular difference, a very special form of shock absorber is introduced into the triangular radius member. This member is a steel stamping, and in its fulcrum are machined opposing cones. Passing through the centre is a splined shaft, and this carries a pair of male cones, one being fixed and the other free to slide on a spline. Between each pair of cones is interposed a conical sleeve of anti-friction material.

The spindle itself is attached to the frame by a pair of strong brackets. The rearmost end projects, and is surrounded by a very powerful and long coil spring, suitably enclosed, and provided with an adjustment. The spring exerts considerable pressure in drawing the cones together, and thus affords a form of frictional shock absorber or spring damper. The coil spring is of

a size and length such as to make sure that when the adjustment is set it will remain the same for a long period of time, for it can be but little affected by wear on the cones, which wear is, of course, automatically compensated.

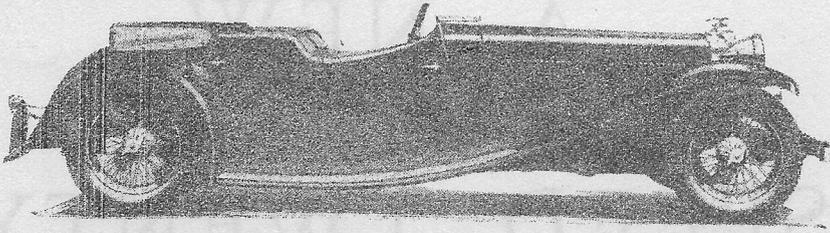
The shock absorber also has a wide range of adjustment, for it can be set up, if desired, very nearly solid, a condi-



How the frame is made so very rigid. Note attachment of front suspension.

tion that might be wanted if the car were employed for racing at any time. Adjustment can be easily and quickly made.

It will be remembered that the Alvis Speed Twenty has a double dropped frame of exceptional strength, there being in the centre a cruciform member which is laid out to very good advantage, the centre of the cross being rendered torsionally very stiff by the introduction of a triangular bracing piece. The frame of the car is



The sports open four-seater, built by Cross and Ellis, which costs £695.

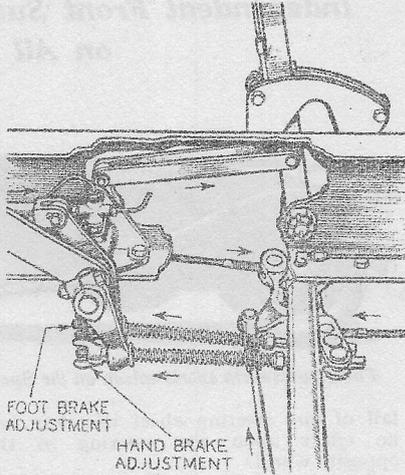
particularly interesting in many respects, not only because of the cruciform cross bracing, but for the stiffness of the front cross member to which the independent springing is attached, and also because the cross members towards the rear are unusually stout. There is a cross member interposed between the attachment points of the front end of the rear springs, of a triangular shape, very deep in the centre, where there is a slot through which the propeller-shaft passes, and this cross member is also provided with steel trays in which the batteries are carried.

It is, however, in the centre of the frame where the second big change is to be noted, for an entirely new gear box has been introduced. This box is not in unit with the engine, but is separate from it, and is coupled up to a very accessible single-plate clutch by means of a clutch shaft with twin fabric joints at each end. The new box is mounted flexibly on rubber cones attached to the frame at three points, two in the front and one at the base of the box towards the rear.

Synchromesh on All Four Gears

The particular point of interest about this new gear box is that it provides synchromesh not only on top and third, but on all four gears. Helical-toothed gear wheels are used for constant mesh, third and second, and ground straight-tooth wheels for low gear and reverse. The box is divided as it were into two portions; in the front, third and top are situated, and in the back first, second, and reverse, and the shafts are therefore carried in three sets of bearings. Incidentally, the shafts are of large diameter and stiff, and the gear wheels come right up close to the bearings so that over-hang is avoided.

The synchromesh is of the type wherein small cones carried by the gears are, when



The master adjustment for the brake system.

a gear change is made, first engaged by hollow cones on a sliding sleeve which is connected to the sliding portions of the dogs. Thus, when a gear change is attempted, the sliding sleeve engages the cone, and is caused to revolve at the same speed, whereafter the internally toothed dogs can be engaged without difficulty. The method of using this gear change is to depress the clutch and then gently, but firmly, pull the gear lever over into the desired position, and the drive is picked up automatically and without a sound. Incidentally, the driving gears and their dogs in each case run on roller bearings, and at the front of the gear box is an oscillating plunger pump which forces oil under pressure throughout the length of the shaft to the gear wheels and bearings.

Another change to be noted in the car

is that the cast aluminium dashboard structure is now inclined, instead of being vertical, so as to permit a sloping rear line to the bonnet to conform with needs of coachwork design.

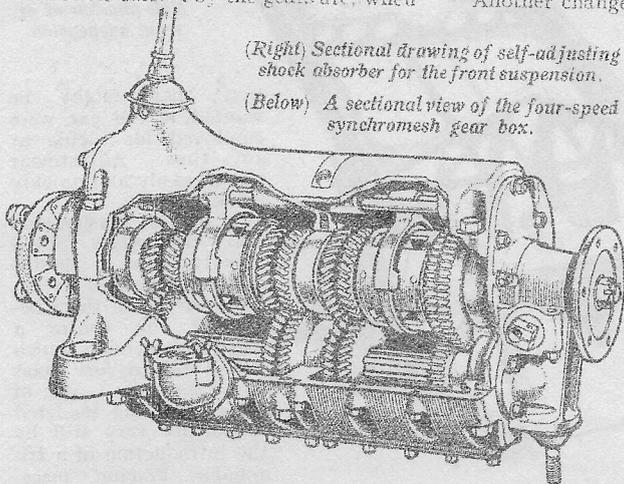
High performance and durability are not obtained in Alvis cars by accident, but by an exceedingly careful style of design and construction, and a review of some of the leading features of the Speed Twenty should prove interesting. The engine has six cylinders of 73 by 100 mm. (2,511 c.c.), rated at 19.82 h.p., tax £20.

Cylinders are cast monobloc and attached to an aluminium crank case in which is a crankshaft of heat-treated steel, carried in four bearings, both the shaft and its support being exceedingly rigid. Steel connecting rods of stout proportions but very carefully designed as regards weight saving, are employed, and the pistons are of a special aluminium alloy. In a detachable cylinder head, overhead valves are carried, and are operated through push-rods. The gasket between the cylinder head and the cylinder casting is not used for water jointing because separate passages at the front and rear end of the engine are employed for this purpose.

Carburettors and Auxiliaries

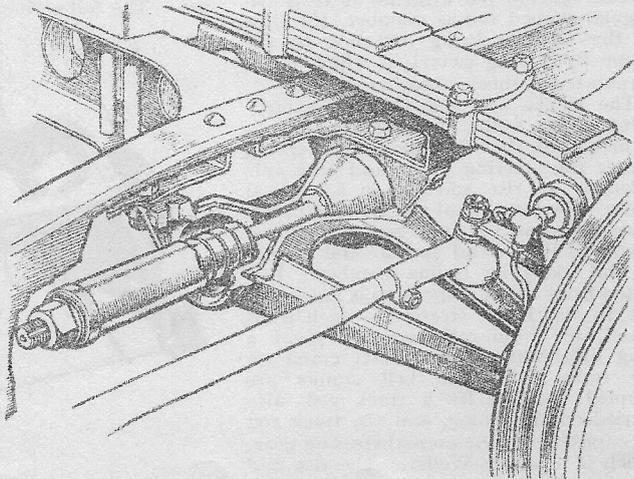
Mixture is fed to the cylinders by a gang of three S.U. carburettors fed from an AC petrol pump driven from the camshaft. A self-adjusting type of Duplex chain is employed to drive the camshaft and the auxiliaries, such as dynamo and water pump, and it is situated at the rear end of the engine so as to avoid the introduction of torsional whip in the crankshaft. Incidentally, at the front end of the crankshaft is a torsional vibration damper. Lubrication of the engine is effected under pressure by a gear pump driven by spiral gears from the camshaft.

The crankshaft main bearings and big ends, and the valve rockers and push-rod ends are fed under pressure, whilst the camshaft and cam followers are splash fed. Effective and easily cleaned oil filters are provided on both the suction and pressure side of the pump. One of the features of the engine is the care taken to avoid distortion in the cylinder block and cylinder head around the valve seats, by disposing the water spaces to the best possible effect. Pump water circulation is employed.

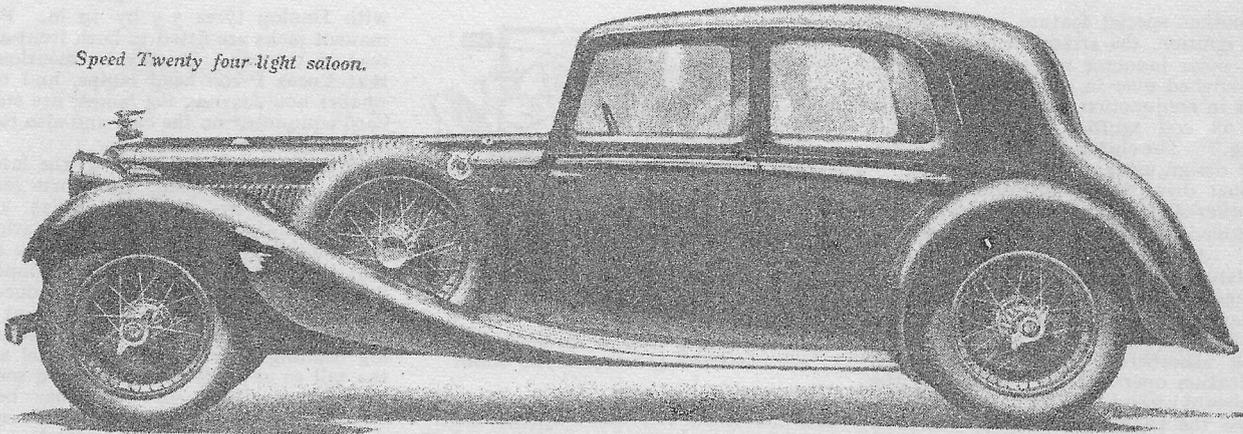


(Right) Sectional drawing of self-adjusting shock absorber for the front suspension.

(Below) A sectional view of the four-speed synchromesh gear box.



Speed Twenty four light saloon.



THE ALVIS PROGRAMME

BYOND question the Alvis reputation is based on solid merit. The cars can be depended upon to stand up to years of hard wear, and to show at their best when set to do prolonged Continental touring, where high speed is combined with stretches of very bad road surface.

The reason is the soundness of their design, not only in general, but in finer detail, too, for the purpose they have to serve. As every experienced motorist knows, there is a very wide difference between making a lightly built car go fast, and building a car which is certain in its stride at any speed over poor roads, which is sprung right for that purpose, which has brakes that can be applied at high speed, and which can be steered with an exact certainty at high speed. It is not suggested that the Alvis is suitable for high speed only—indeed, it is as tractable as any other quality car—but that the Alvis strikingly shows its superior mettle when the top range of road work is demanded.

For 1935 there are various changes in the range to mention. There will be four chassis sizes: the Speed Twenty,

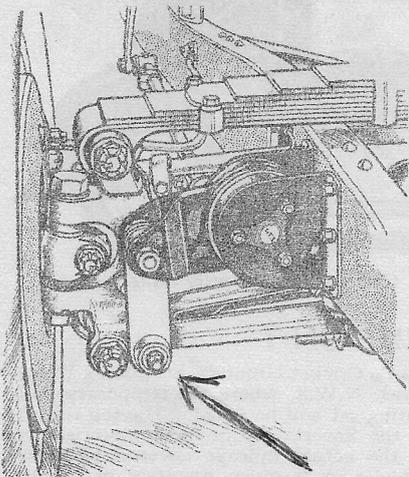
Four Chassis Types Include a Larger Four-cylinder, and Detail Improvements to the Speed Twenty. Improved Coachwork Appearance

unchanged in scheme, but improved in detail; a new series of the Silver Eagle; a new series four-cylinder Firebird, which takes the place of the Firefly, and which has, as its name suggests, a larger engine; and the Crested Eagle

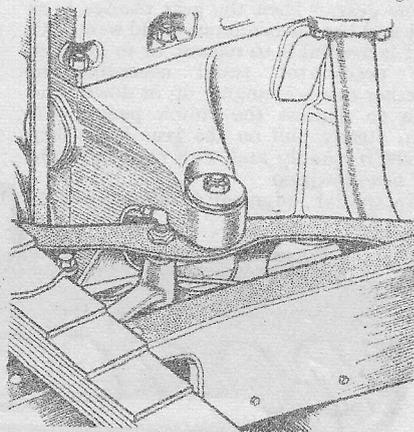
a bore and stroke of 73 by 110 mm. (1,842 c.c.). It has a balanced crankshaft carried in three bearings, push-rod-operated overhead valves, camshaft chain driven at the rear of the cylinders, forced lubrication with pressure and suction filters, coil ignition, S.U. down-draught carburetter with hot-spot induction manifold, and pump water circulation.

This engine is mounted separately from the gear box in a dropped frame of exceptional strength, and is carried on special insulating conical rubber buffers at the front, and a circular rubber mounting at the rear. A new feature is that the flywheel and clutch are contained in a housing extended from the crank case, whereby a tail bearing is provided to maintain clutch alignment undisturbed by chassis movement, and a suitable seat provided for the rear rubber mounting. The clutch is a single-plate, coupled to the separate gear box by a short universally jointed shaft.

During recent years the Alvis concern



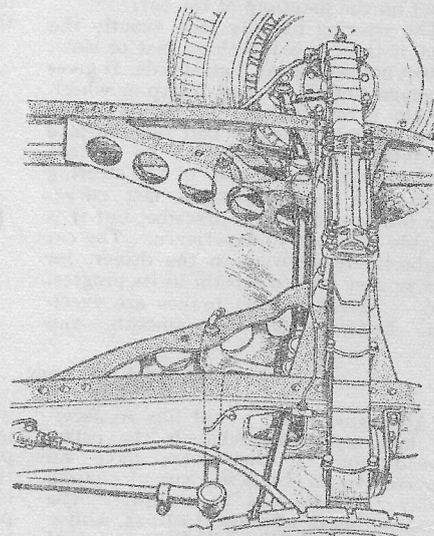
Mounting of the Speed Twenty front stub axle in a new type of bracket; the shock absorbers are now carried on the frame.



One of the Alvis Speed Twenty forward engine mountings, incorporating rubber cones.

models with Wilson-type pre-selective gear box, and available in two lengths of wheelbase. Throughout the cars the special features of Alvis detail practice are followed without deviation, whilst the Speed Twenty and the Crested Eagle have independent front suspension.

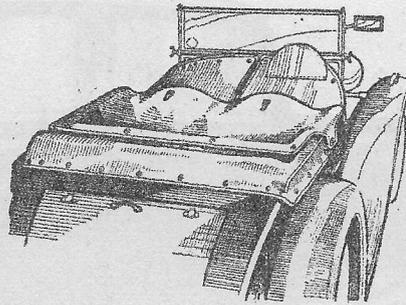
To explain the programme concisely it will be best to commence with the Firebird. This new type has a four-cylinder engine rated at 13.22 h.p., with



Steering and front suspension layout on the Speed Twenty; the centre track-rod and drag link pass through the frame.

Another special feature is the use of dual ignition, the arrangement consisting of a polar inductor magneto which can be switched over in a special manner to work in conjunction with a high tension coil as coil ignition, for a "second string." The clutch on the car is a single-plate design using a Don Flex centre.

Final drive is by means of an open propeller-shaft to a spiral bevel gear contained in a fully floating type of rear axle. A choice of two axle ratios is available, 4.5 to 1 or 4.7 to 1. The rear springs are half-elliptic, and underslung, and are encased in leather gaiters. They are damped by Hartford Telecontrol shock absorbers. "One-shot" chassis lubrication operated from a tank on the dashboard attends to all the chassis parts. Across the back of the frame is a tank holding sixteen gallons.



The zip-fastened cover for the whole seating accommodation of the sports four-seater.

The wheelbase of the car is 10ft. 3in. and the track 4ft. 8in. Special centre lock wire wheels are fitted, and are shod

A New Alvis Speed Twenty
with Dunlop tyres 5.5 by 19 in. Permanent jacks are fitted to both front and rear of the car. It may be mentioned that Lucas P 100 head lamps, and two smaller non-dazzling fog lamps, are standard equipment on the cars and also twin high frequency horns.

Finally, the chassis price of the latest Speed Twenty is £600, the sports four-seater costs £695, the coupé £825, and the saloon £825. The only modifications to record in the excellent coachwork are that the new dashboard allows a sloping line on the scuttle to be introduced, whilst on the saloon an improvement in appearance has been effected by abolishing beading between the rear panel and the tail so as to give an unbroken series of sweeps. The rear panel has been rounded off more flowingly and the rear door windows are shaped to match.

Road Impressions of New Models

The Alvis Speed Twenty

IF the Speed Twenty Alvis of this year was a remarkable car, the new edition, nevertheless, is still more so. It is so becomingly modest in its behaviour. The fresh driver takes over the wheel and thinks that he is pottering along the open road at 40 m.p.h. or so, just to begin with; he is astonished when a casual glance at the speedometer shows the needle at something over 60 m.p.h.

It is not often that an experienced driver is deceived about speed, he usually has a pretty accurate notion of his rate of travel. Why this Alvis is deceptive is easy to discover. The car is so extraordinarily steady, it feels so safe whatever may be the speed, and really high speed is available. Because of the independent springing the riding is level; the front of the car flows across the landscape like the stem of a boat on a smooth sea. But the independence of the springing is also backed up by the independence of the steering, which has a most marked effect on the handling of the car.

The steering literally feels exactly the same if the car is travelling fast or slow. It does not wander at high speeds. It gives no suggestion that wheel-tramp or wheel-wobble is lurking in the design ready for a suitable patch of bad road surface to start it going. There is no evident need to take a good grip of the steering preparatory to rounding a fast curve. The feel is not easy to describe, but it is notably pleasant to experience. The car is absolutely untiring to the driver, for it is so easy and so certain in its progression. Moreover, the brakes are excellent, being progressive, smooth, and

A Remarkable, Modest, Fast Car that Handles Beautifully

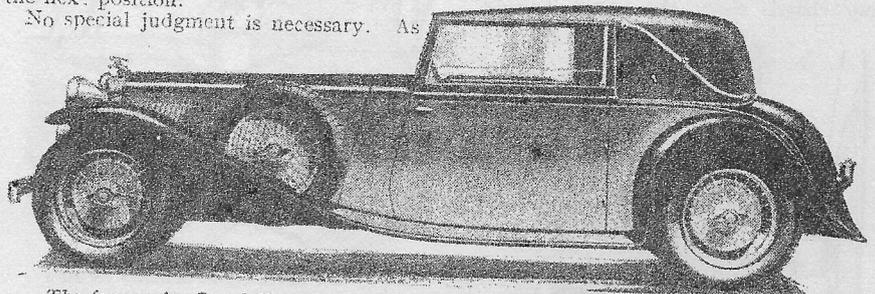
ready to pull the car up quickly from high speed without causing tyre scream or deviation from the course.

Naturally, the new synchromesh gear box is a great point of interest. It works finely. In the first place the gears are unusually quiet. Except for engine note there is little difference in transmission quietness between second, third, or top. Low gear must not be forgotten; having straight-toothed gear wheels it is not so noiseless as the others, but on the other hand it is exceptionally quiet for a low gear. Then the gear change is as easy and simple as anyone could wish. All that is needful is to release, or to depress, the accelerator pedal according to whether one is changing up or down, and then to depress the clutch pedal. A firm, steady pull on the gear lever then moves it quietly and with certainty into the next position.

No special judgment is necessary. As

soon as the clutch is out the gear lever can be moved. In a sense engine speed does not matter, the synchromesh will see that the new gear goes in. But, of course, the accelerator pedal should be suitably used, otherwise the re-engagement of the clutch may cause a sudden slowing down, or a sudden speeding up, of the engine, resulting in a clumsy thump to the whole car. An experienced driver will find no more difficulty with this gear change than will a novice, and a novice will have very little to learn before he can use it with ease. Gear changes up or down can be made quite quickly, there is no need to take time over them, provided that the lever movement is made a smooth one so as to give the synchromesh time to do its job.

These few comments are not intended to cover the whole range of characteristics of this remarkable British car, but they should serve to review the behaviour in practice of the two new features of it.



The four-seater Speed Twenty coupé built by Charlesworth, the price being £825.

WHAT IS YOUR PETROL CONSUMPTION ?

CAR owners who would like to ascertain accurately what is the petrol consumption of their cars have an opportunity of doing so, free of charge, to-day (Friday) and to-morrow. The Speedhire Service Garage, Ltd., 15, Abbey Road, St. John's Wood, N.W.8, have laid out a course in Regent's Park, London, starting from Hanover Gate and traversing the Outer Circle road in an anti-clock-

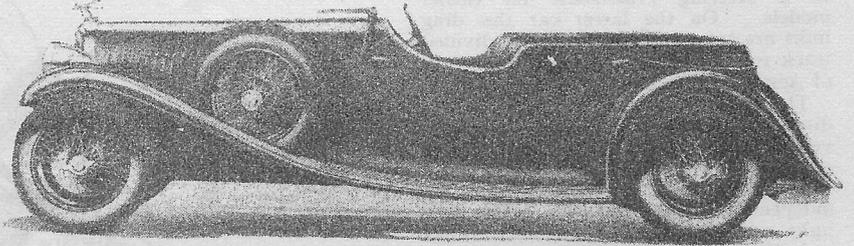
wise direction. Every tenth of a mile is marked, and each car begins its run with precisely one pint of petrol in a special testing rig. The object of the organisers of this test is to popularise their Speed petrol. There is, however, no obligation to carry out the test on this spirit.

Tests may be arranged between 3 p.m. and 7.30 p.m., and cars should be driven into the National Car Park (opposite

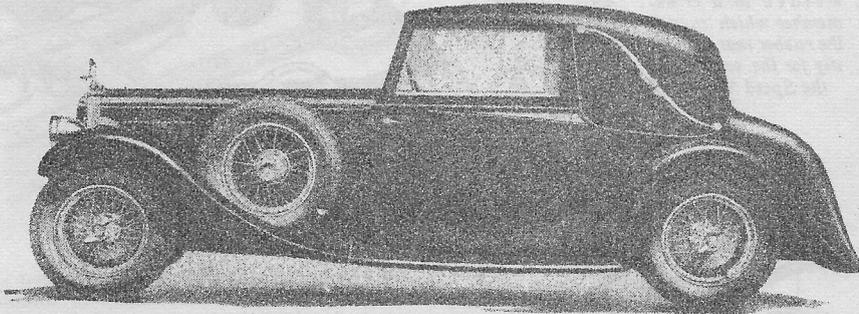
Lord's Cricket Ground), St. John's Wood Road, N.W.8, where the temporary fuel testing set will be fitted. Having regard to the uncertainty of most motorists as to the actual mileage covered by their vehicles on a given quantity of petrol, it is to be anticipated that there will be a considerable response to this invitation to obtain accurate figures without expense.

has developed a sound and sturdy four-speed gear box which gives synchromesh on all four forward speeds, and has a most reliable and easy gear change controlled by a short, stiff lever mounted on the end of a rearwardly projecting extension. This gear box is fitted to the Firebird, and, like the engine, is mounted on flexible rubber cones.

Final drive, as on all Alvis models, consists of an extra-stout tubular open propeller-shaft with metal universal joints running aft to a spiral-bevel final drive contained in an aluminium alloy



The new four-cylinder Firebird Fourteen open four-seater.



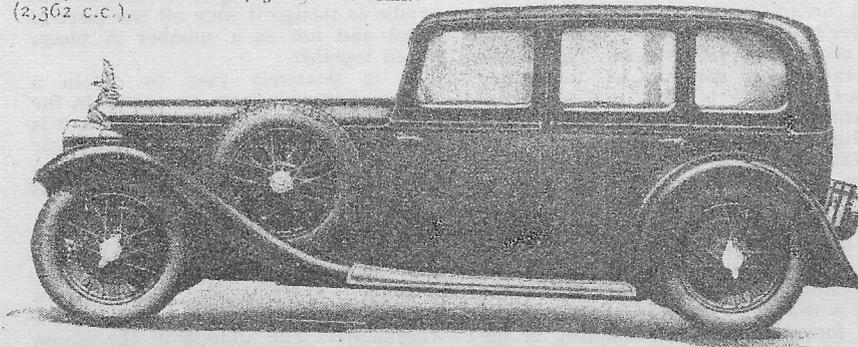
Silver Eagle four-seater drop-head coupé.

casing reinforced with steel, and having fully floating axle shafts. The Alvis brakes on all models are a special feature, with large ribbed drums, and operated by tie-rods and cables. Adjustments to both hand- and foot-operated brakes can be made whilst driving. At the rear of the chassis is a 14½-gallon fuel tank, which feeds the carburetter by an electric pump. The wheelbase is 9ft. 10½in. and the track 4ft. 4in., the tyres being 5 by 20in. Dunlops on centre-lock wire wheels.

For the Firebird Fourteen the range of coachwork is:—Four-light saloon, £510; four-seater drop-head coupé, £510; open four-seater sports, £490, and chassis £410.

For the new series Silver Eagle the arrangement of the chassis is the same as in the Firebird, and the range of coachwork also. But the Silver Eagle has a six-cylinder engine, and this differs from the earlier type in having a longer stroke of 120 mm. instead of 100 mm., and a larger and more rigid crankshaft, whereby an increase of power, especially at the lower engine speeds, is secured, and the smoothness of running enhanced throughout the speed range.

This engine has three S.U. carburetters. It is rated at 16.95 h.p., and its six cylinders are of 67.5 by 110 mm. (2,362 c.c.).



Silver Eagle six-light saloon.

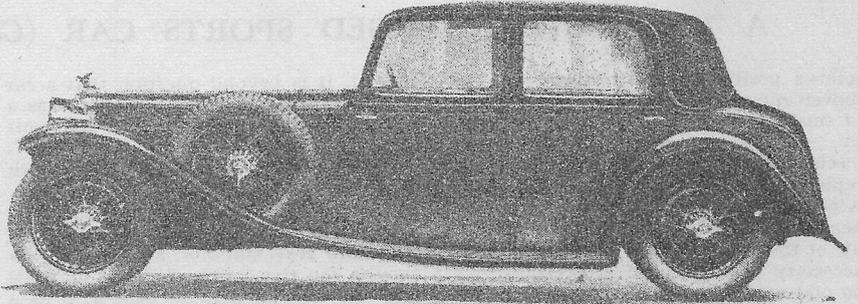
The prices of the Silver Eagle models are: four-light saloon, £598; six-light saloon, £598; four-seater drop-head coupé, £598; open four-seater sports, £585; chassis, £485.

As already intimated, no changes are made in the Crested Eagle chassis, and the range of coachwork and prices is as follows: four-light saloon, £750; six-light saloon, £750; special model six-light saloon, £775; limousine, £850; chassis, £550.

Now comes the most famous car of the Alvis range, the Speed Twenty. In this some considerable modifications have

been made, chiefly with the object of increasing ground clearance by means of raising various points in the steering and brake gear to a higher level and more out of the way. This entailed some change in the frame to permit the free passage of various link rods, so advantage was taken of the opportunity to lay out the frame to even better advantage, and to grade exactly as desired the degree of rigidity from end to end. The deep side-members are now arranged with loop arches surrounding the rear-axle extremities; that is to say, an arch of new shape is used, and the foot of each is closed up with a channel-section runner, made detachable so as to leave the accessibility of the axle unimpaired.

Forward of these arches is a stout triangular cross-member pierced in the middle for the passage of the propeller-shaft. From this point forward to a centre cross-member, which supports the back end of the four-speed synchromesh gear box, the frame is closed in by a stout steel tray which adds to the frame rigidity in the corner-to-corner sense, and also makes a strong flooring for foot wells. Diagonal members are next introduced to join up from the middle cross-member to the centre of another, and at the point of juncture is the circum-



Firebird Fourteen four-light saloon.

lar rubber mounting for the rear end of the six-cylinder engine which, as on the Firebird engine, has the flywheel and clutch enclosed in a housing. The forward end of the gear box rests on a rubber mounting attached towards the front of the diagonal members.

Then the front end of the frame is slightly different, for diagonal members run rearwards from the forward cross-member by the transverse spring anchorage, and join the main side-members. On these diagonals the front bearer arms of the engine are attached through conical rubber fittings. The steering layout has been redesigned so as to do away with the long and rather low-hung drag links which were coupled

The Alvis Programme

to a steering cross-shaft on earlier models. On the latest car the drag links are set transversely, like a divided track rod of the geometrically best type of Ackerman layout.

These drag links are of a length and disposition exactly to coincide with the vertical movements of the stub axles as constrained by the master transverse road spring and the radius rods of the independent front suspension. The drag links are coupled through bell cranks and tie-rods to the drop arm of the steering gear. The layout is such that the steering is unaffected by movements of the front wheels under spring flexion. The steering connections are neatly tucked away in the front and pass through the frame structure, but are not inaccessible.

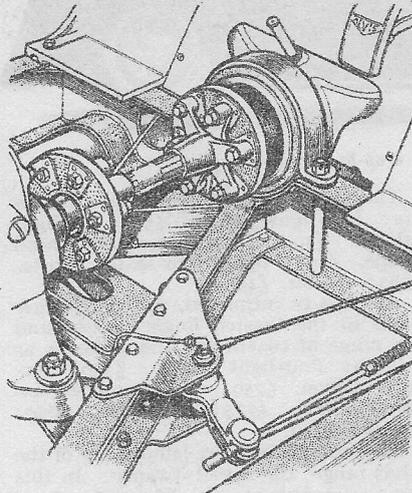
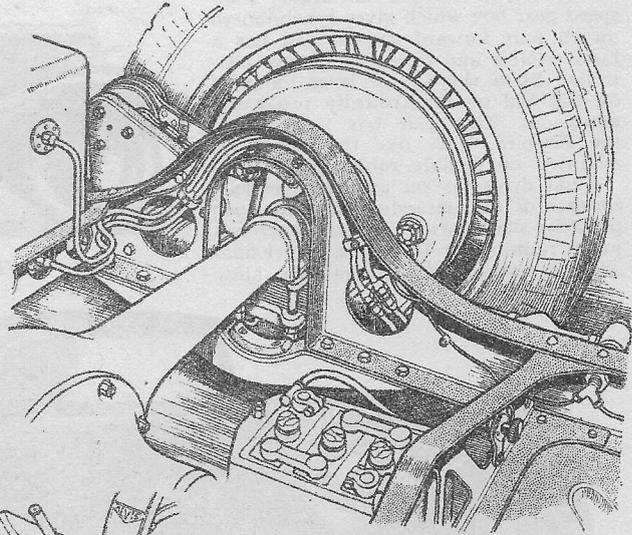
In the same way the brake linkage in the middle of the car has been raised in height, and passes through the centre of the apex of the diagonal frame-members beneath the front of the gear box.

To the front suspension a slight change has been made in detail so that Andre Telecontrol shock absorbers may be used. Instead of shock absorbers, or dampers, of fixed intensity being incorporated in the fulcrum points or the broad triangular radius members of the assembly, these are now roller bearings, and large Hartfords are mounted on the frame sides and coupled to the swivel forgings by links.

The engine of the Speed Twenty has been increased in stroke length, and a larger crankshaft fitted. It is rated at 19.82 h.p., with six cylinders of 73 by 110 mm. (2,762 c.c.). The dynamo is arranged with a tandem drive to a new packless gland type of water pump, and the special coil-cum-magneto ignition unit is mounted at the rear of the engine, out of the way of dirt or water.

The rear end of the Speed Twenty frame is now of loop formation, closed up with a channel-section member, and (beneath) by a stout steel tray.

Diagonal members welded to a cross-member which carries the rubber rear mounting for the engine, on the Speed Twenty.



A special two-bladed fan is arranged so that its belt drive may easily be disconnected when it is not needed. The engine has a breather pipe to the crank case arranged so that its outlet is well below floor level. A special point on the 1935 Alvis cars is that silencing systems have been revised, and much quieter running results.

Throughout the range a scheme of modernising the appearance of the smart coachwork has been applied, embracing a falling waistline beading, more flowing wings, peakless roofs, metal panelling throughout, and more shapely tails. The range of Speed Twenty models is: four-light saloon, £850; four-seater drop-head coupé, £850; open four-seater sports, £700; and chassis, £600.

A NEW SUPERCHARGED SPORTS CAR (Continued from page 459)

follows positively and instantly on the movement of the pedal, and the number of small moving parts is relatively small by comparison with the ordinary mechanical actuation. Further, since the replenishment of the liquid in the pipes is automatic, the brake pedal should be kept in its most efficient position for the life of the brake linings. It is, of course, necessary to make perfectly certain that no odd movement of the frame or body, even if a shock absorber bracket should break, would result in the fracture of one of the pipe lines, a thing relatively easy to do as far as the chassis is concerned.

On the dashboard is a cylinder containing oil, which is fed to all the minor bearings of the chassis, whenever the car is under way, by the natural oscillation of a weight acting as a pump plunger. C.M. and lever steering has been fitted, and its ratio slightly increased by a variation in the length of the drop arm, while the fore-and-aft steering rod is set so that the front wheels can be locked over to give a very small turning circle.

It is not always easy to arrange for a very small turning circle, and though the result of such a circle is that the Ackerman principle may be slightly de-

anged, it is beyond question that a car with an exceptional turning circle has a great advantage over many of its rivals in competition, competition, that is, of, say, the Alpine Trial type. Cars with small turning circles, as in this instance, usually have a wide track, and the wide track is one of the principal means of obtaining real stability at speed, even though for the "circus" type of trials test it is not so easy to deal with as a very narrow track.

The frame is of 12 gauge, light, stiff, and carried low, so that the seats for the driver and passenger can be well down in the cockpit in racing fashion. The whole appearance of the car has something about it which is more reminiscent of Continental practice than English.

Right at the back of the frame, slung so that it shall be free, like the radiator, from chassis distortion, is one of those large fuel tanks, holding fifteen gallons, which are so extraordinarily useful for the long runs the modern sports car often undertakes, a tank with a good clip filler and simple piping through which the fuel is drawn by an S.U. electric pump and forced to the float chamber of the carburetter. Care has been taken with the stiffening of the baffle plates within

the tank, so that they have large enough orifices to allow the fuel to flow quickly from one compartment to another.

The exhaust pipe and silencer have been arranged so that they are not too unsightly, the wire wheels have the racing type eared knock-off caps, and the shock absorbers are of the large Houdaille type, operating hydraulically.

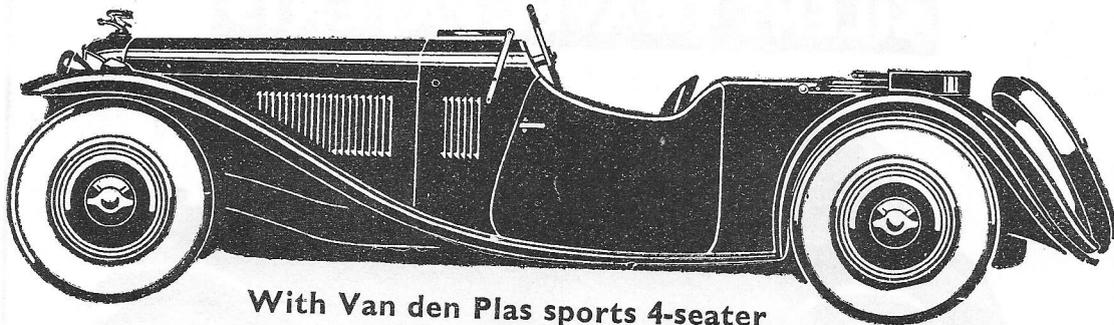
As far as can be seen from the chassis, the car should have that one great quality which distinguishes a sports car from its touring rival, and that is that it will handle as though it were all one piece of metal and not as a number of pieces joined together.

It is relatively easy to obtain a high performance from an engine in the present state of our knowledge, but it is very much more difficult to make a car in which this power can be used to the full. This entails mastery of that difficult subject, road holding.

It is proposed at the moment to put this interesting car into limited production, making each chassis, as it were, individual, and the price of the chassis will be £950 (short) and £975 (long wheelbase). The address of the Squire Car Manufacturing Co., Ltd., is Remenham Hill Works, Henley-on-Thames.

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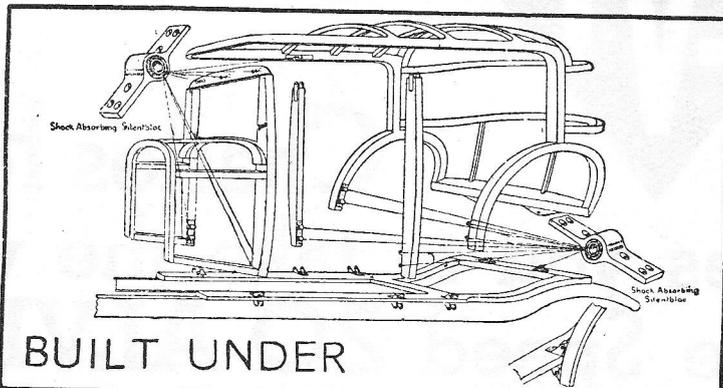
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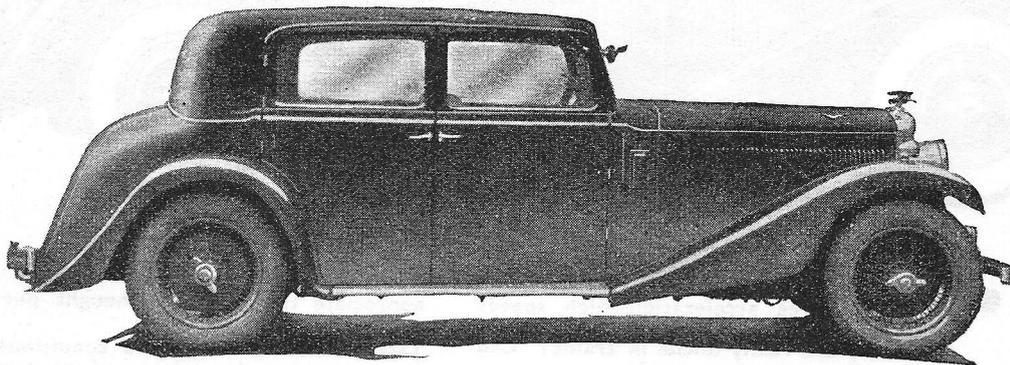
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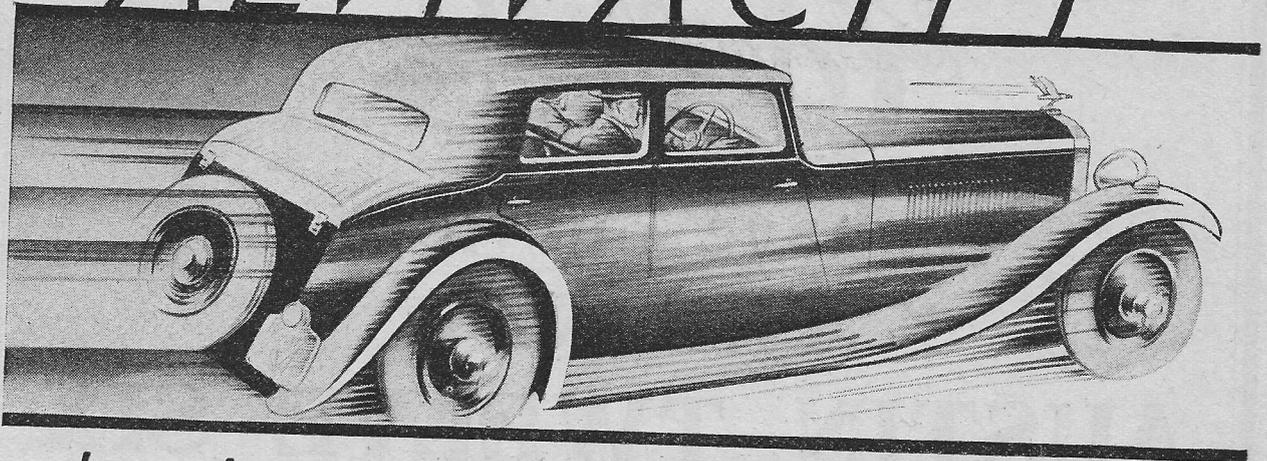
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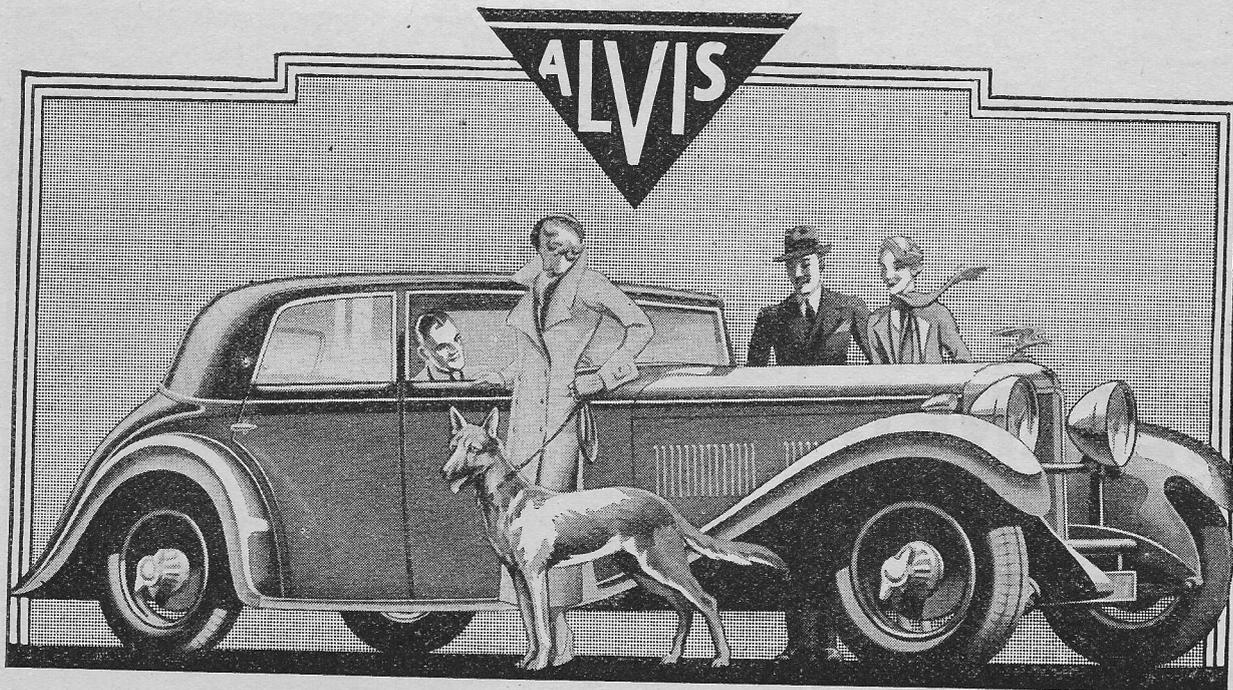
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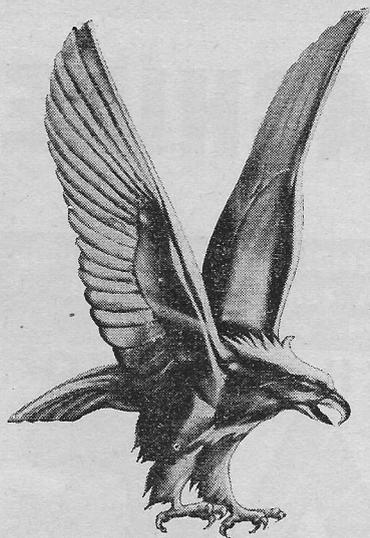
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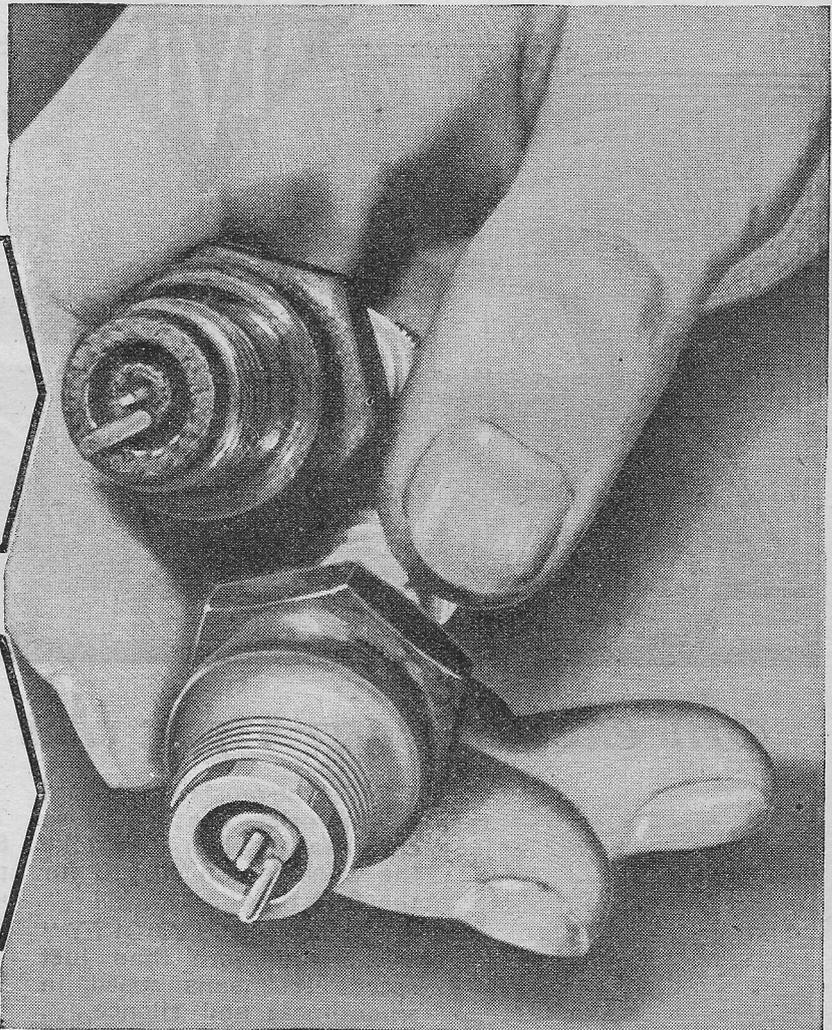
"SPEED TWENTY"

"MASTER OF THE KING'S HIGHWAY"

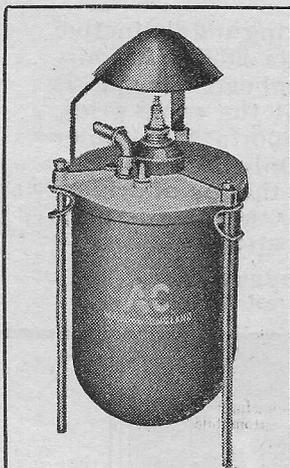
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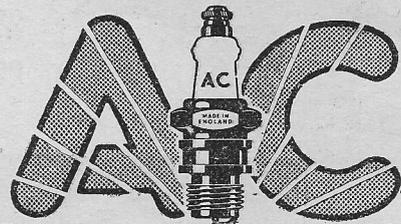
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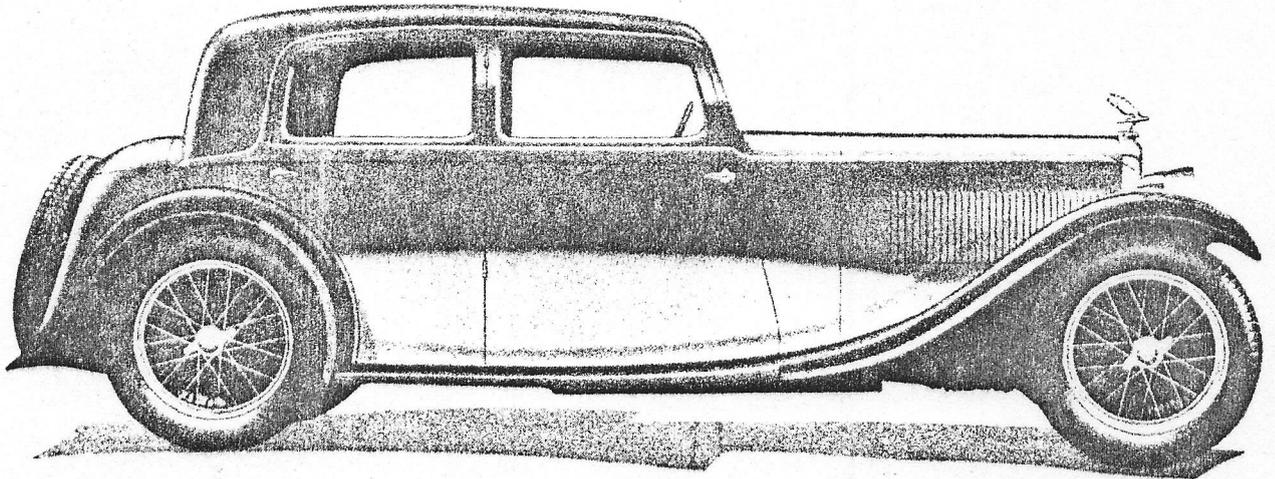
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A NEW 1,496 c.c. ALVIS "FOUR"

Exclusive Technical Description and Road Test of the Firefly Model which has a Particularly Fine All-round Performance. To Sell in Saloon Form at £495. Existing Range Continued Without Change



A side elevation of the new Firefly four-door coachbuilt saloon which has particularly pleasing lines.

SINCE the inception of the Alvis Co., many years ago there has always been an atmosphere of a sporting nature about the products of the concern. The cars are not racing models purely and simply, but tourers with outstandingly good road performances, and, as such, appeal very strongly to the type of motorist who thoroughly enjoys every mile of his travels, no matter whether on business or pleasure bent.

Without exception all the models in the range are capable of excellent road performances, and yet a high degree of refinement is incorporated in the running qualities, whilst in the matter of body style and equipment little is left for complaint. The newcomer—a 1,496 c.c. four-cylinder sports model, to be known as the "Firefly"—is a typical example of a soundly con-

structed job, and the engine is smooth and unobtrusive despite its high power output.

Looking round the chassis one cannot help but be struck by the marked resemblance between the Firefly and the Speed Twenty, save for the fact that the former has a four-cylinder engine whilst the power unit of the latter is a six. As the Speed Twenty was one of the outstanding cars of the current year it follows that the Firefly, with its lower price (£495 in saloon form) should enjoy the same run of popularity as its larger confrère. The latest model is, however, an entirely new job from stem to stern, but, as might be expected, certain components, such as the brake gear, for example, have been used in the make-up of the new model without modification, for reasons which are obvious.

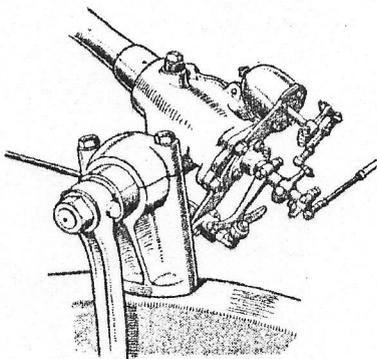
the same time allows the overall height of the car to be distinctly moderate, providing adequate head-room for both front and rear passengers.

A feature well worthy of note is the extremely robust cross-bracing at the rear of the frame, where a deep pressing is utilized to connect the portion of the frame around the front eyes of the rear springs. Such a cross-member is well able to resist torsional and weaving stresses, thereby giving a high degree of general stability when it is cornered fast. At the front similar precautions are taken to maintain adequate stiffness, and as the centre of gravity is extremely low the safety factor is increased in direct proportion.

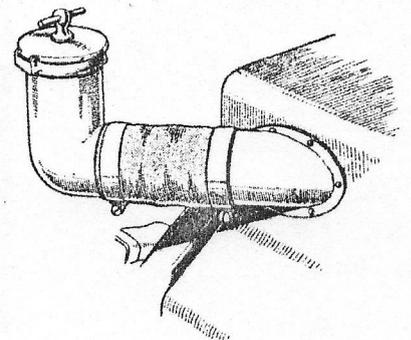
The four cylinders are cast monobloc, the bore and stroke dimensions of 69 mm. and 100 mm. producing

A Stiff Double-drop Frame

Although following the lines of the Speed Twenty, the chassis frame of the Firefly is quite new and of slightly different dimensions, the wheelbase being 9 ft. 10½ ins. and the track 4 ft. 4 ins., in order to bring the weight and size of the ensemble into line with the engine size of the four-cylindered edition. Actually, there is slightly more body space on the Firefly chassis than on the Speed Twenty, due to the fact that the engine is considerably shorter than the 20 h.p. unit of the Six. The frame side-members are upswept at both front and rear, a method of construction which gives a very low platform height to the body and at



The arrangement of the Marles Weller steering gearbox and the control levers at the base of the column.

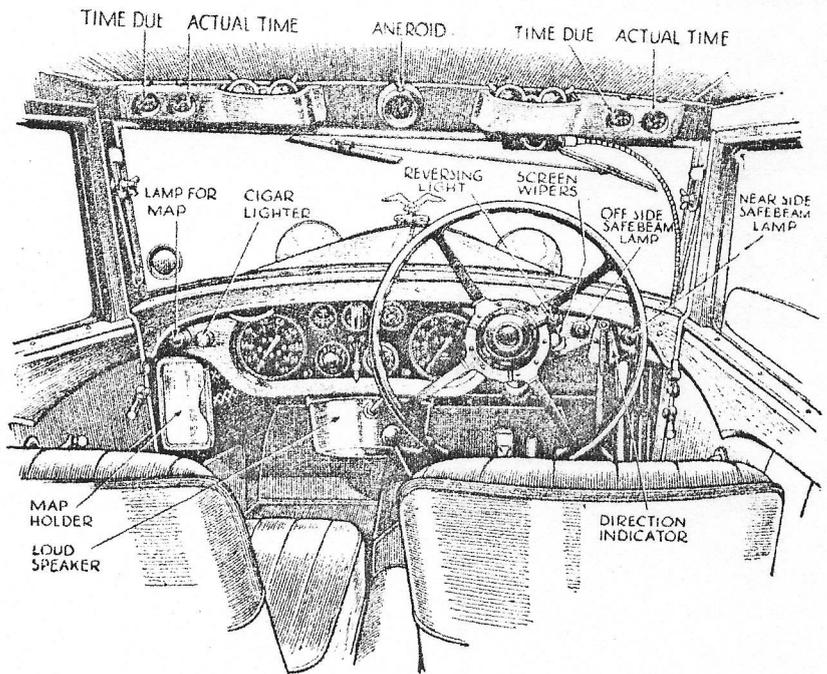


The fuel filler spout is divided by a piece of rubber hose to facilitate attachment of the extremity to the body panel.

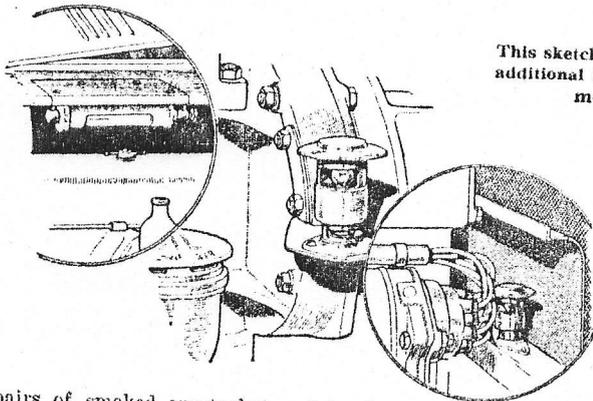
A RALLY ENTHUSIAST'S ALVIS SPORTS SALOON

THE accompanying sketches on this page depict the lavish equipment of a 20 h.p. Alvis Speed Twenty sports saloon, the property of Mr. Charles Follett, of Charles Follett, Ltd., 18, Berkeley Street, London, W.1, who are the sole London and district distributors of this make. It was equipped mainly with a view to participation in rallies and concours d'élégance.

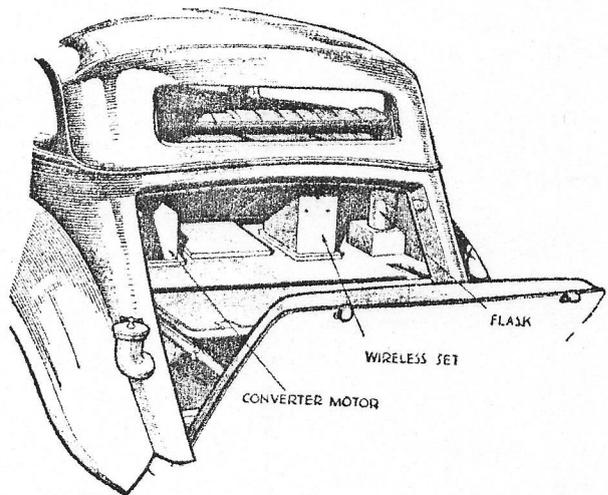
Dealing first with the interior. Above the windscreen on each side are two 5s. watches, set together to act as a time trip clock. Alongside them are



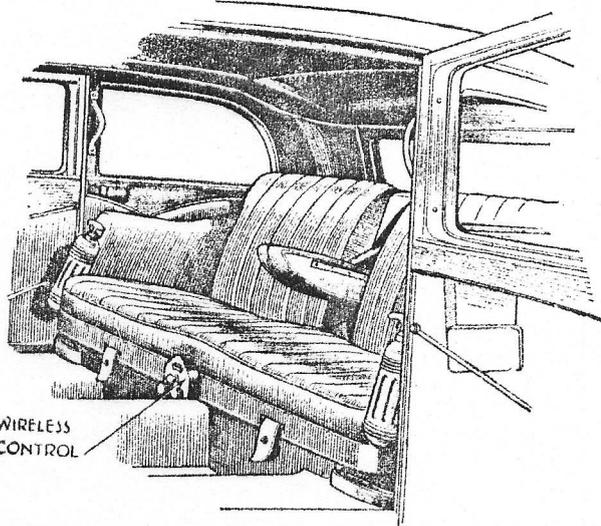
This sketch makes clear the enthusiasm of the owner, for there is a galaxy of additional fittings besides the instruments forming part of the standard equipment. There are dual watches for both driver and passenger.



(Above) Special lamps are fitted to facilitate night inspection of valves and plugs, oil replenishment and the magneto contacts.



(Above) The wireless set and converter motor are located in the boot.



(Left) The rear compartment, showing the control for the wireless set and the mounting of the Pyrene fire extinguishers on the forward ends of the armrests.

the right-hand side of the dash, a Pyrene fire extinguisher at the extremity of each rear arm-rest, a Philco wireless set—the loud-speaker is located underneath the scuttle—with the control dial situated amidships of the forward edge of the seat cushion. Behind the rear seat there is a first-aid set, while two sandwich cases and two thermos flasks are let, one on each side, into the boot.

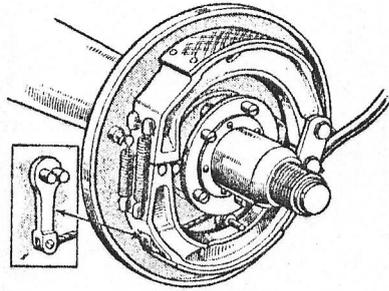
So as to facilitate any adjustments at night, there are four electric lights underneath the bonnet. One illuminates the magneto contacts, another one is fitted over the bonnet bar so as to make valve or carburetter adjustment an easy matter, another one is located alongside the oil filler, and the fourth lamp illuminates the interior of the toolbox.

Other items are D.W.S. four-wheel jacks, Safebeam headlamps fitted under the existing headlights and operated by special dashboard switches, and a set of spare sparking plugs.

A NEW 1,496 c.c. ALVIS "FOUR"—Contd.

a capacity of 1,496 c.c. and an R.A.C. rating of 11.9 h.p. That the unit is efficient may be judged from the fact that 54 b.h.p. is developed at 4,200 r.p.m., despite a moderate compression ratio of 5.8 to 1. Great care has been taken in designing the overhead-valve mechanism, in order to produce really compact combustion chambers with an easy run for the ingoing and outgoing gases; the valves are vertically disposed and are operated by push rods from a camshaft contained in the crankcase.

As will be seen from an accompanying drawing of the near side of the engine, the inlet manifold is of a rather unusual design, being of an obtuse-angled Vee formation with the apex pointing upwards, where the carburetter is mounted, also on an angle. This form of construction, according to the manufacturers, has been found to be very efficient, an



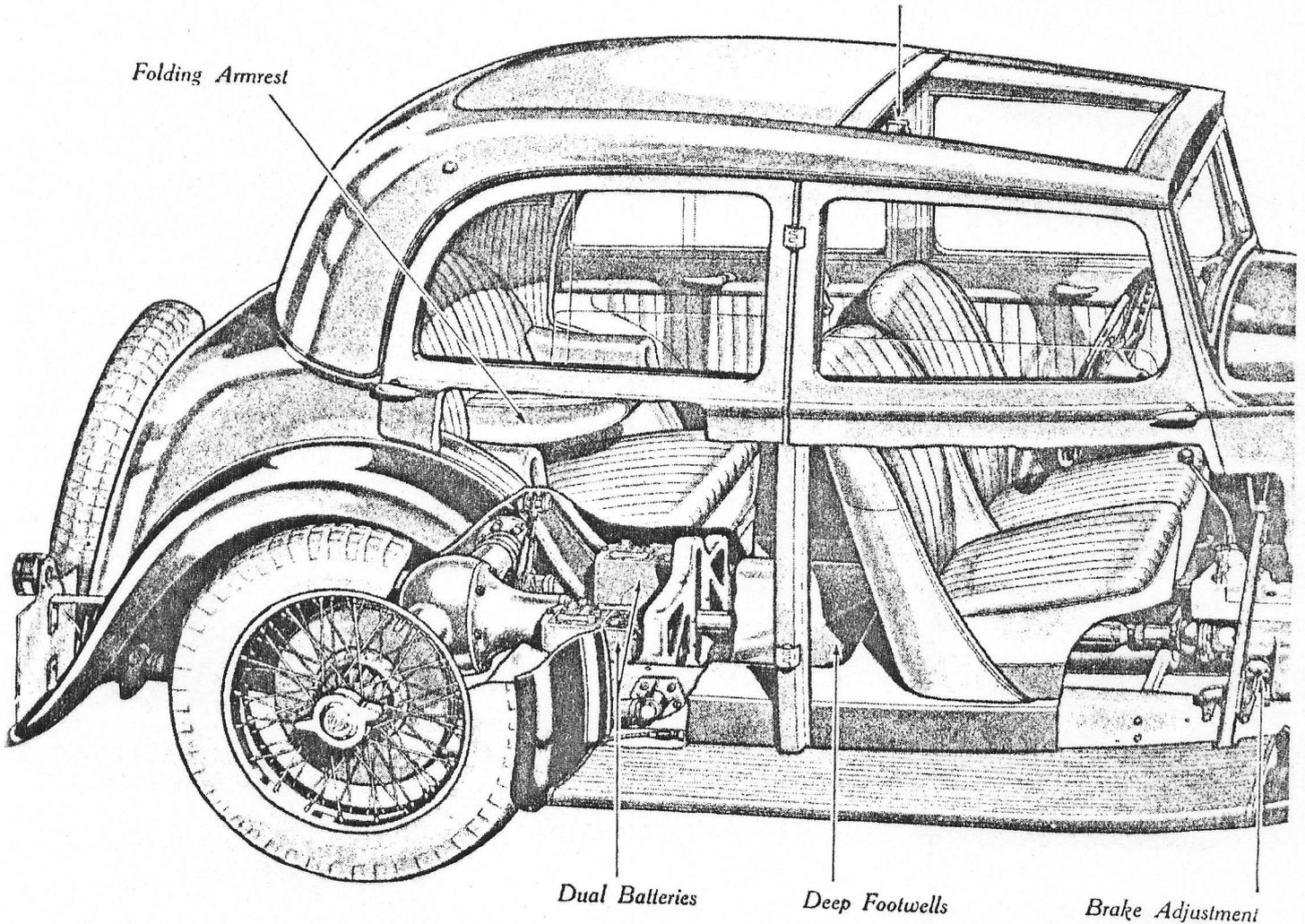
The brake shoe mechanism which is covered by Alvis patents. Expansion is effected by a floating lever which gives a self-energizing action.

incidental feature being that the S.U. carburetter does not require any springs for the return of the sliding weight which controls the variable jet needle. The exhaust mani-

fold is a perfectly straightforward job, and a hot-spot is formed in the centre of the inlet manifold at the junction of the carburetter and the inlet pipe by means of a raised flange on the exhaust manifold.

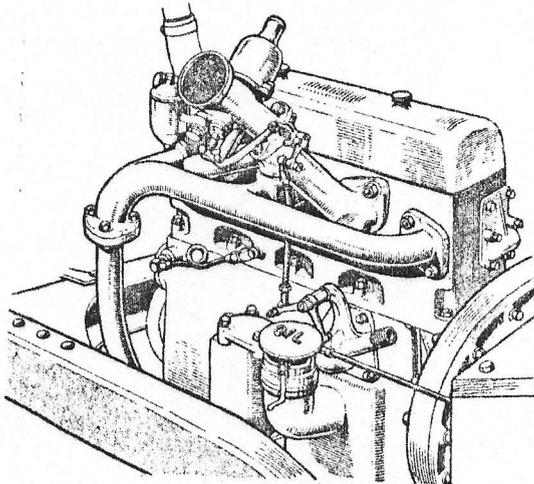
The crankcase is a separate casting from the cylinder block and forms the main body of the power unit, for the three engine feet are formed thereon, likewise the three main bearings for a really substantial balanced crankshaft are contained in webs running across the casting. When it is stated that these main journals are of no less a diameter than 50 mm. and the crankpins measure 45 mm. in diameter, it will be understood that from the point of view of sheer strength and robustness nothing has been left to chance. The camshaft drive is located at the rear of the unit, a

Winder Operating Sliding Roof



A part cutaway drawing of the new Alvis Firefly four-door sliding head saloon which is notable for excellent workmanship, and the 1,496 c.c. o.h.v. four-cylinder unit and the chassis is outstanding for good workmanship and robust

A NEW 1,496 c.c. ALVIS "FOUR"—Contd.



The carburettor side of the engine. Note the obtuse angled vee-shaped induction pipe and the S.U. carburettor mounted in the centre where there is a hot spot.

triangular layout for the chain incorporating a drive to the dynamo.

The lubrication system next claims attention. A gear-type oil pump is submerged in the sump and is driven

by helical gears from the camshaft, whilst in passing it might be mentioned that the drive for a revolution indicator is obtained from the helical gear on the pump spindle. Oil is drawn from the sump and delivered to a Tecalemit filter (housed in a special chamber built on to the crankcase), the flow thereafter being taken by a large diameter pipe to the main gallery, which runs longitudinally along the engine body. Drilled leads in the crankcase webs deliver the lubricant to the main bearings for the crankshaft and the camshaft, the connecting rods receiving their supply through channels drilled in the crankshaft itself.

Thermo-siphon cooling is employed, the connecting pipes having large areas in order to allow an unrestricted flow of water. There are no water transfer passages between the cylinder and cylinder-head casting, but at the rear a

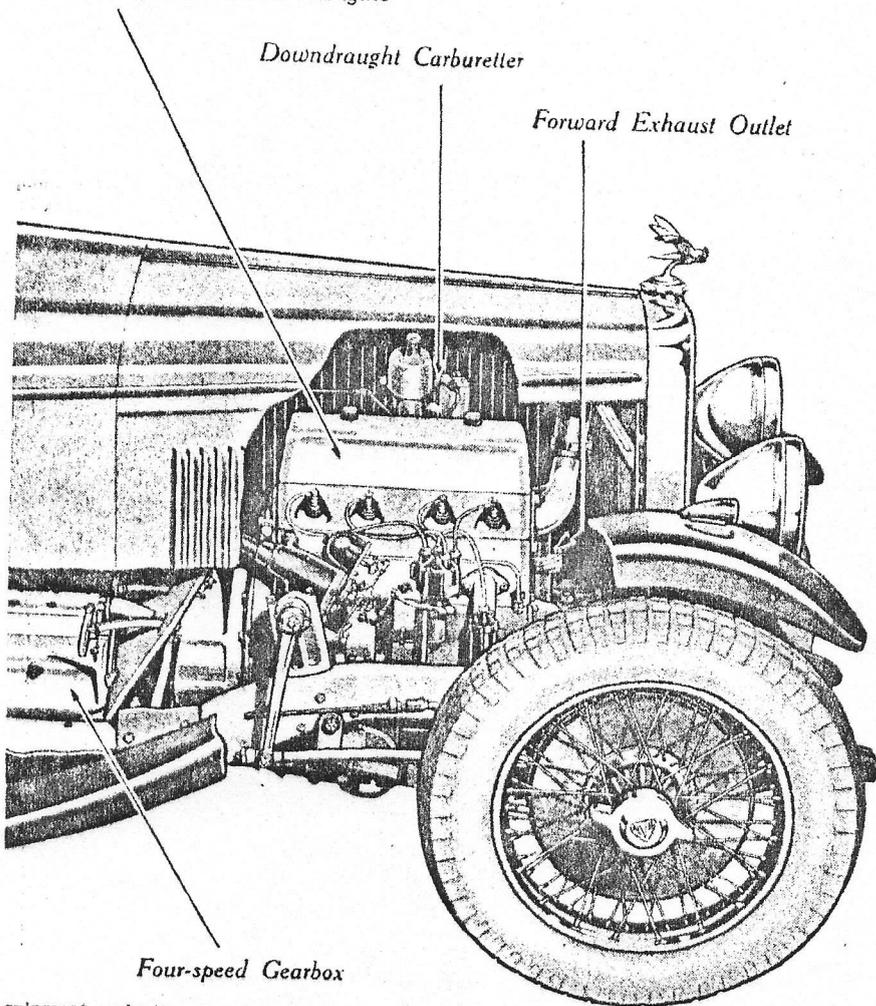
bolted-on aluminium casting connects an opening in each of the jackets of the components in question—an arrangement which makes the flow to all intents and purposes horizontal; the take-off to the radiator is at the front of the cylinder head.

Built unit-wise with the engine is a single-plate clutch and a four-forward-speed gearbox, the ratios provided being 5.2, 7.33, 10.6 and 16.38 to 1. The third-speed pinions are of the helical variety and the shafts are notably short and stiff in order to prevent whipping when the tooth pressures are high. An open propeller shaft conveys the drive to a spiral-bevel rear axle, which is suspended on long semi-elliptic springs. There are many features about this new Alvis which are well worthy of note, the mounting of the power unit in the frame being a case in point. The suspension is truly of the three-point variety, with rubber

Four-cylinder O.H.V. Engine

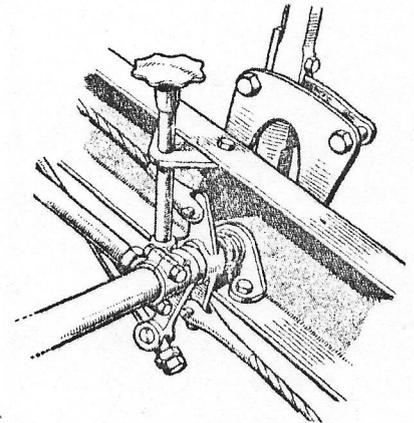
Downdraught Carburettor

Forward Exhaust Outlet



Four-speed Gearbox

equipment, and attractive lines. The engine is a construction. The price is £495.



A drawing showing the brake mechanism and the easily reached adjusting knob.

inserts to insulate the unit from the chassis so far as possible. Again, a cast-aluminium dash plate not only forms a strong bulkhead, but enables fumes and heat to be insulated from the interior of the body.

Another point worth mentioning concerns the grouping of the control levers at the base of the steering column. This construction forms the subject of a drawing which is self-explanatory. At the rear the road springs are outriggered from the frame, giving a wide spring-base, which in turn means that rolling when the car is cornered fast is reduced so far as possible. Another sound detail lies in the manner in which a piece of rubber hose is used to connect the stub end of the petrol-tank filler spout with the extremity, thereby insulating the outer part which is fixed to the body, from the inner part located on the chassis.

The complete car is very impressive when viewed from either the

A NEW 1,496 c.c. ALVIS "FOUR"—Contd.

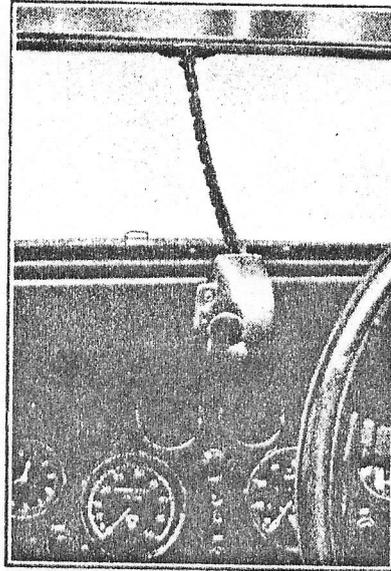
exterior or the interior; the lines are suggestive of speed, yet there is no undue cramping of leg, elbow or headroom in order to obtain a rakish appearance.

The bonnet and scuttle lines mould nicely into the dash and forefront of the body, and a slightly domed roof gives a very desirable impression to the ensemble, which is not spoiled by the boot built into the rear panel. This compartment, although roomy, is well shaped and conforms to the flowing lines which form the basis of the car as a whole. There is good all-round visibility and the controls come nicely to the hands and feet. To this end the steering box has been mounted on an aluminium bracket, which brings the wheel into an almost vertical position.

The car sits the road in an amazing manner, and it is possible to hurtle round corners with all four tyres screaming their protest without feeling any sense of insecurity. Again, when going all out down a steep hill with the speedometer needle well over the 70 m.p.h. mark the steering is perfectly steady, light and accurate, and even when the brakes are applied hard for an emergency stop the car pulls up "all square," with no tendency towards wandering or for the rear wheels to slew round. Bumpy road surfaces do not create the harsh sensation of riding which was once associated with sports cars, for, as previously stated, performance has not been the sole consideration in producing the Firefly, the general behaviour under all conditions of average usage having been considered just as much.

In traffic the engine behaves in a thoroughly docile manner, and is not

unduly sensitive to the ignition control. Naturally, in such a high-efficiency unit it is not possible to bang the accelerator hard down on to the foot ramp without some pro-



Showing the instrument board and the unusual type of screen mechanism, consisting of a self-tightening chain. It enables a wide opening to be obtained.

test, but—and this is important—by retarding the point of ignition to half the available travel on the quadrant pinking is entirely cut out, and the power output of the engine does not appear to be materially affected.

As the acceleration curves show, the maximum speed is attained quite quickly, and if the gearbox be used

properly the all-round performance is exceptionally good. Even without bothering to use the indirect ratios averages in the region of 40 m.p.h. over quite long distances can be made, while observing all the usual safety rules in towns, villages and at cross-roads. On the other hand, such an average can quite easily be exceeded if the car is driven really hard.

Fine Acceleration

The acceleration figures give a good indication of the hill-climbing powers possessed by the car; providing one can keep up a good speed at the foot of any incline, most main-road hills can be taken with very little slackening in speed. If, however, road or traffic conditions do not permit a hill to be taken in the stride, as it were, a rapid change down to third enables gradients which are just too steep for top to be taken at speed.

The model tested was an open four-seater which, with a full equipment, sells for £475. Like the saloon the general build of the car is low, but the accommodation is not cramped, although naturally the body is not so commodious as a normal four-seater car of the true touring variety. A disappearing hood and rigid-framed side screens are part of the standard equipment, and the interior is upholstered and carpeted in the same luxurious style as has been standardized on the other Alvis models. A coupé is available at £475.

Summed up, then, this latest Alvis is a car which should quickly make a name for itself. It is capable of maintaining high average speeds comfortably and quietly.

TABULATED DATA FOR THE DRIVER

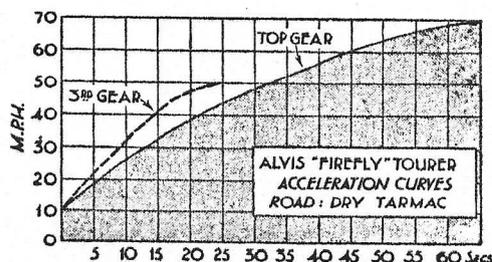
CHASSIS DETAILS

Alvis "Firefly": Four cylinders; 69 mm. by 100 mm. (1,496 c.c.). Tax, £12; overhead valves, coil ignition.

Gearbox: Four forward speeds, central control; "silent" third. Ratios 5.2, 7.33, 10.6 and 16.38 to 1.

PERFORMANCE

Speeds on Gears: Top, 72 m.p.h.; 3rd, 52 m.p.h.; 2nd, 36 m.p.h. Minimum speed on top gear, 5 m.p.h.



BRAKES

SPEED m.p.h.	STOP feet	SPEED m.p.h.	STOP feet
10	5	40	60
20	12	50	97
30	26	60	143

PERFORMANCE—Contd.

Petrol Consumption: 23 m.p.g. when driven hard.

Acceleration: From rest to 55 m.p.h. in 28 secs.

DIMENSIONS, Etc.

Wheelbase, 9 ft. 10½ ins.; track, 4 ft. 4 ins.; overall length, 13 ft. 6 ins.; width, 5 ft. 3 ins.

Turning Circles: Left and right, 43 ft.

Price: £475.

A NEW ALVIS SIXTEEN

WE are able to announce that the Alvis Co. is introducing a new model which will be exhibited at the Scottish Show next Friday; it presents all the well-known characteristics which have made Alvis cars famous the world over. Known as the "Firefly" Sixteen, it is fitted with a six-cylinder engine and is to sell in saloon form for £595.

As might be expected, the general layout of the new "Six" is somewhat similar to that of the four-cylinder 12 h.p. Firefly, the overall dimensions, wheelbase, track, etc., are also the same in each case. However, many components of the Sixteen are entirely new, including the frame, and the transmission follows the lines of the Speed Twenty "all-synchromesh" system.

An Interesting 2-litre
Car Rated at 16.9 h.p.
Four-speed Gearbox
with Synchromesh on
all Gears. Price, £595

without limiting the quantity of oil carried. Steel connecting rods of strong but light section are used in conjunction with aluminium alloy pistons. Push-rod-operated overhead valves are carried in a detachable cylinder head with an aluminium cover to enclose the rockers, etc. The layout of the inlet and exhaust

the big-end bearings of the connecting rods being fed directly from the pump. Also lubricated under pressure are the valve rockers and push-rod ends, whilst the cam gear is splash fed. It might be mentioned, whilst dealing with the oiling system, that on both the suction and pressure sides of the pump easily cleaned filters are installed.

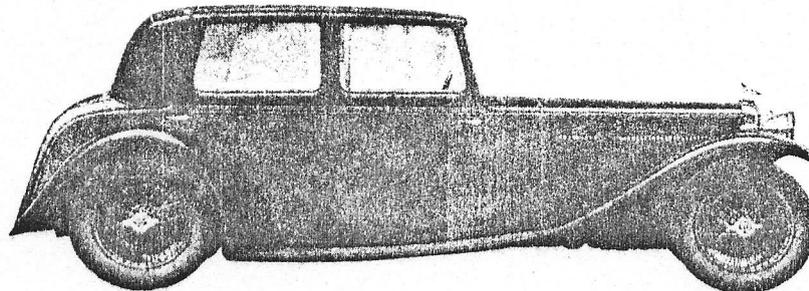
The Alvis Co. is one of the very few concerns which adhere to the principle of utilizing a separately mounted gearbox. In the new Firefly model a single-plate clutch is built into the engine fly-wheel, and a short cardan shaft transmits the drive to a constant-mesh gearbox, in which the synchromesh principle is applied to the engagement of all four forward speeds.

Split longitudinally, the gearbox is a masterpiece of ingenuity, for each shaft is carried in three bearings, and the synchronizing clutch mechanisms have been compacted until the complete box is but little larger than one of orthodox construction.

When a gear change is commenced by the driver, the clutch has to be depressed when the gear lever can be shifted to the desired gear, and in doing so causes a cone type of clutch to be engaged before the dogs. Thus, the two engaging elements are brought to synchronous speeds by friction clutches (when there can be no shock or undue noise) before mechanical engagement of the driving and driven components.

For the rest, the transmission, brakes, etc., follows standard Alvis practice, a Hardy-Spicer propeller shaft conveying the drive to a spiral bevel rear axle with fully floating half-shafts. Both the pedal and the lever apply internal expanding shoes with 14-in. diameter ribbed drums on all four wheels; actuation is effected by cables. The wheelbase is 9 ft. 10½ ins., the track 4 ft. 4 ins., and the overall length 13 ft. 6 ins.

Four-light and six-light saloon bodies have been designed for this chassis, with stylish lines and excellent equipment.



The Alvis Sixteen four-light saloon which sells at £595. A six-light saloon is also available at the same figure.

Turning to details, the frame, whilst retaining a similar form of construction to the 12 h.p. Firefly model at the rear, is quite different amidships, where a widely spread cruciform member is installed. The forward arms of the cruciform bracing run into the side-members of the frame, and are continued up to a cross-member situated just behind the radiator.

This form of construction makes an exceedingly rigid job, for the frame channels become box-sectioned members, and as these run right along the frame for the entire length of the engine there should be no cause for complaint so far as rigidity is concerned. Furthermore, the central part of the cruciform member is tied by an inverted Vee-sectional pressing.

Semi-elliptic springs are used fore and aft, enclosed in gaiters, whilst wire wheels, with single lock-nuts and Dunlop tyres and Andre shock absorbers are other items of equipment.

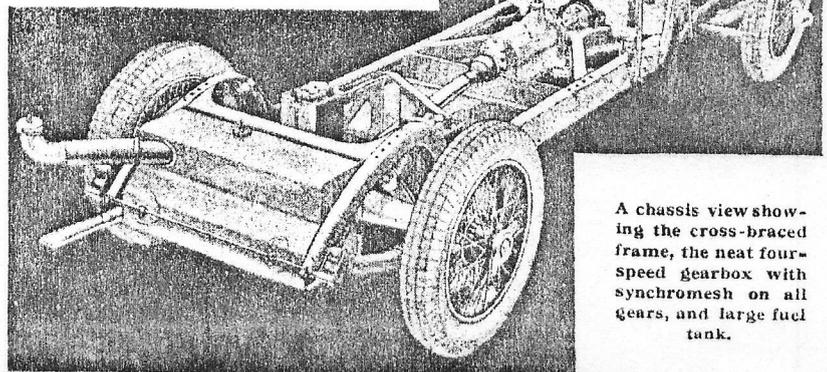
The power unit is built on lines which have been developed from the experience gained in the production of high efficiency engines during the past decade. From this it will be gathered that the 16.95 h.p. engine used for the new Firefly model is not dissimilar from the other models in the range. The six cylinders are bored to 67.5 mm., which, with a stroke of 100 mm., produces a swept volume of 2,148 c.c.

A well-ribbed aluminium casting forms the main body of the unit and carries the housings for the four bearings of the crankshaft. A wide and comparatively shallow sump is used in order to provide adequate road clearance

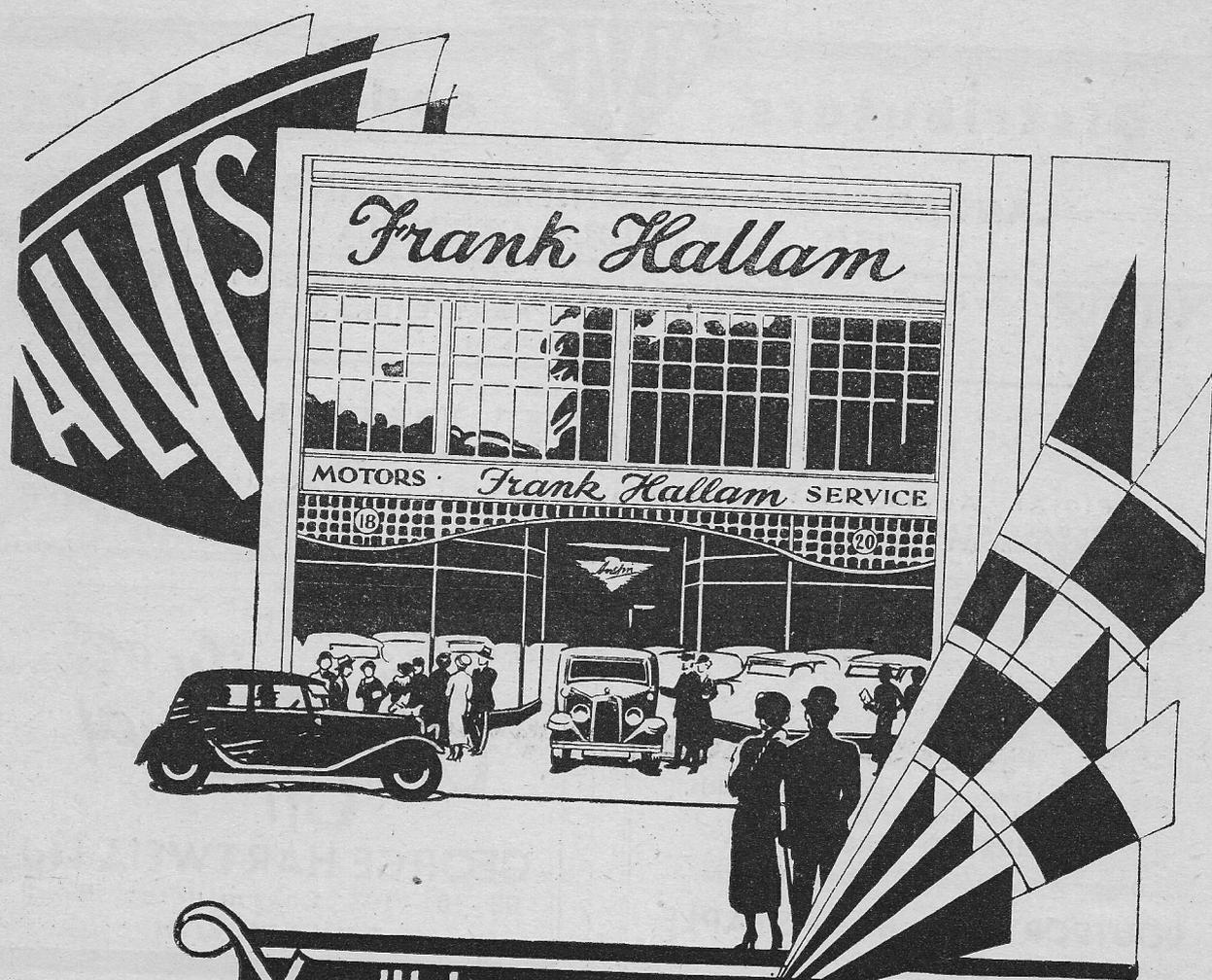
systems is simple and straightforward. A three-branch induction manifold provides a single vertical connection to a down-draught Solex carburettor, beneath which is a flange coupled to the exhaust manifold to give an effective hot spot. Following modern practice, the hot gasses are led away from the front. An A.C. fuel pump driven by a cam on the camshaft draws fuel from the rear tank and delivers it to the Solex instrument.

Mention should be made of the auxiliary drives. In the first place the camshaft is rotated by a Duplex chain housed at the rear of the engine. The dynamo and ignition distributor drive is also effected from the rear, and as thermo-syphon cooling is standardized the front of the engine is of extremely clean design.

Lubrication is of the full-pressure type, the crankshaft main journals and



A chassis view showing the cross-braced frame, the neat four-speed gearbox with synchromesh on all gears, and large fuel tank.



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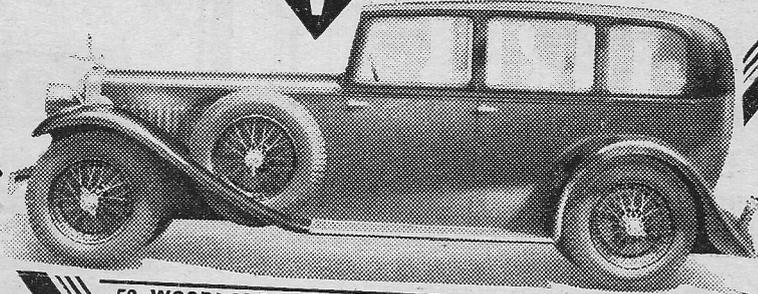
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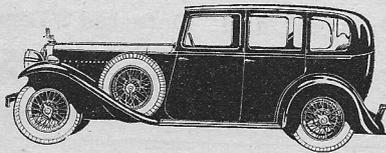
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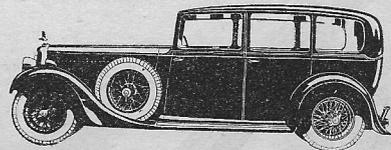
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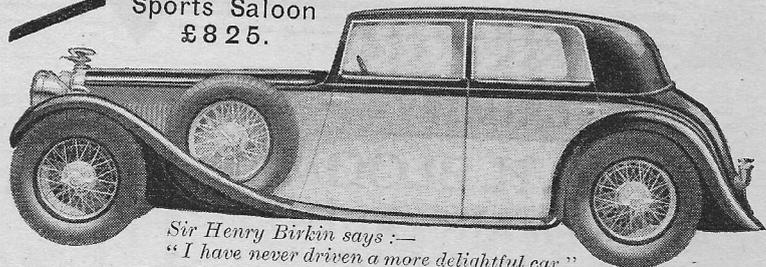
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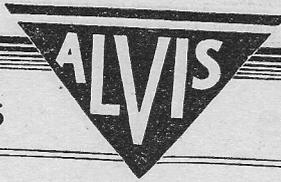
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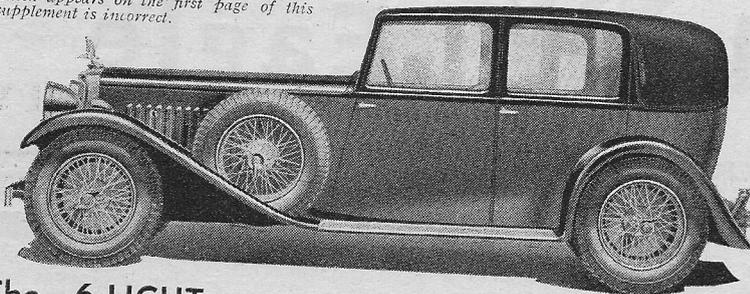
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ALVIS "CRESTED EAGLE"

The 4-LIGHT SALOON

*Note: The photograph shows the actual
 appearance of this model. The illustration
 which appears on the first page of this
 supplement is incorrect.*

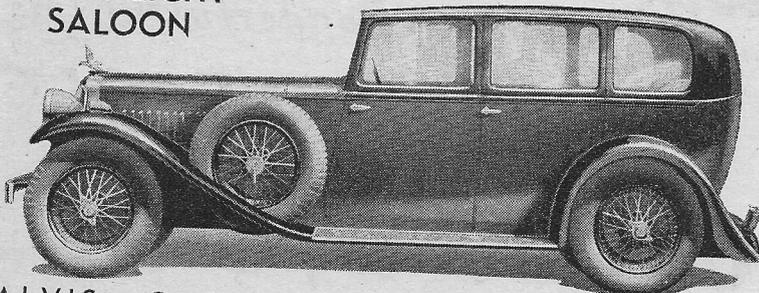


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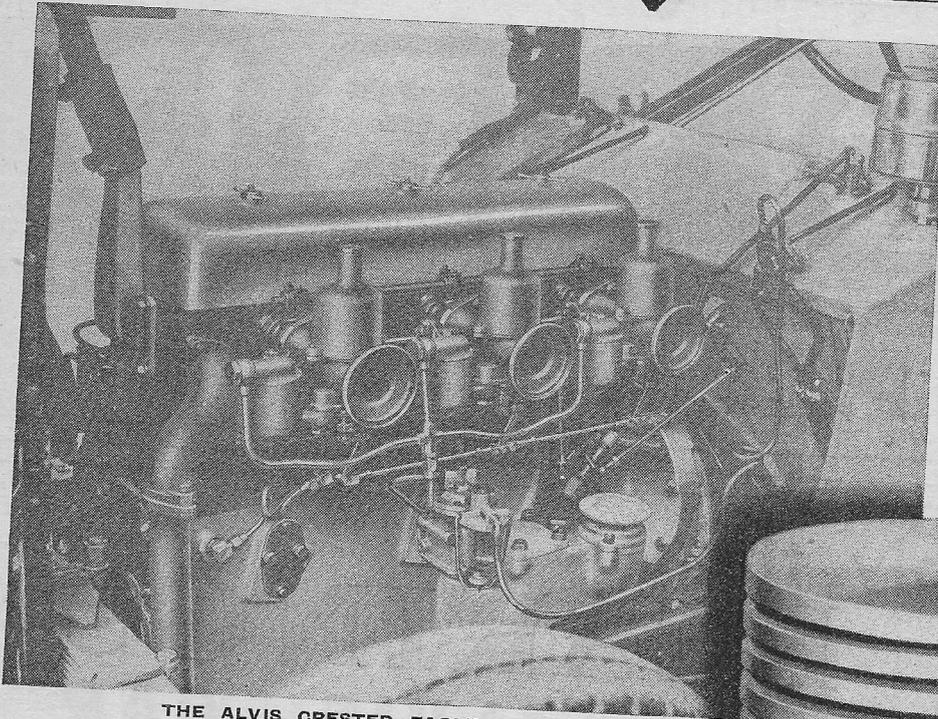
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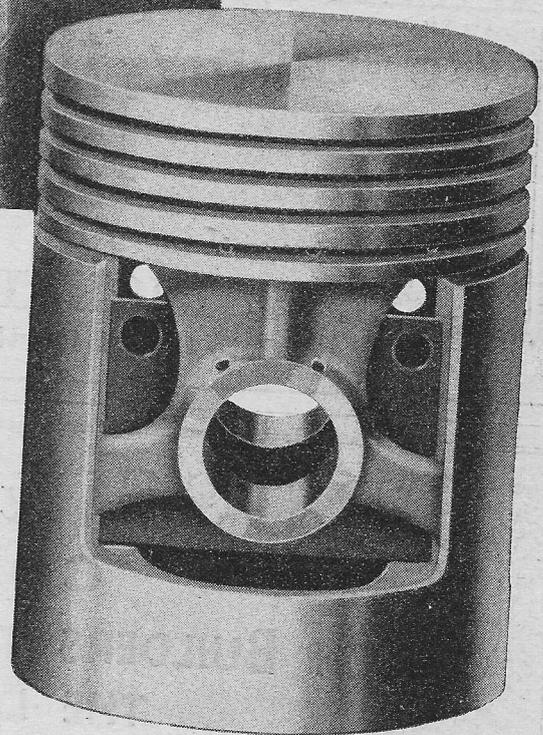
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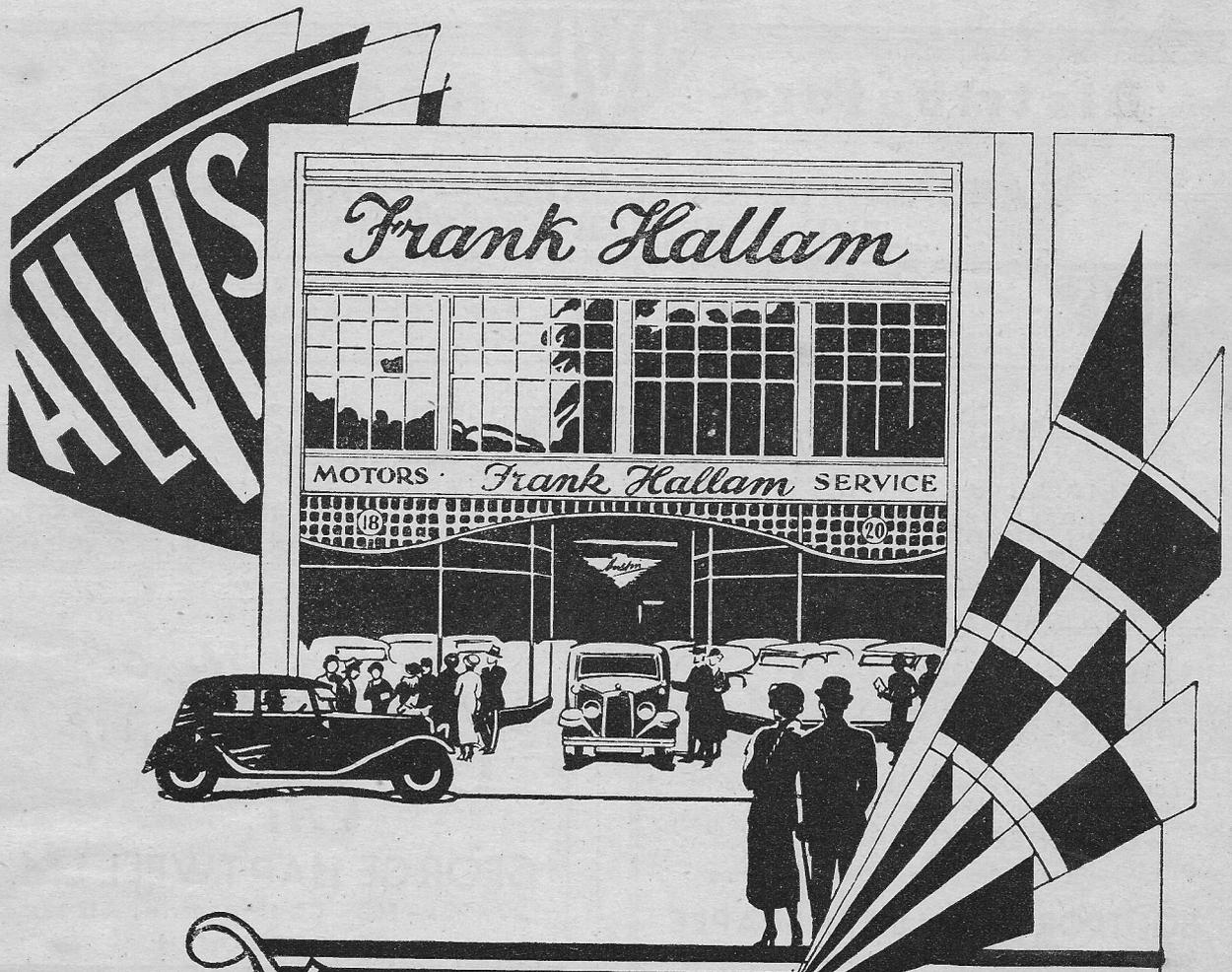
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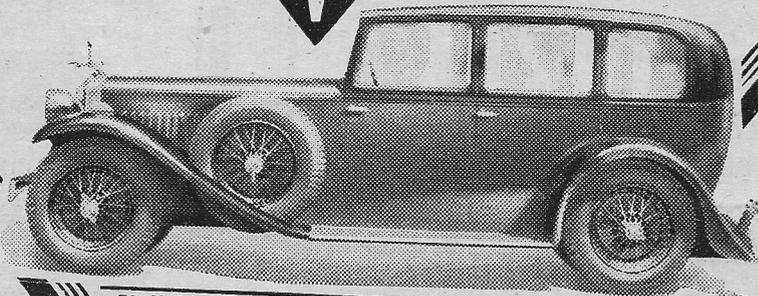
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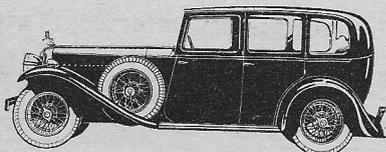
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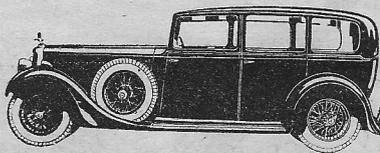
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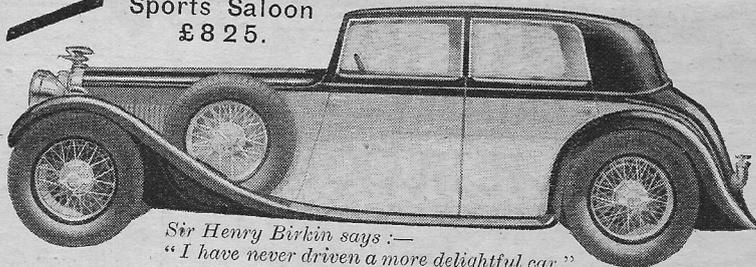
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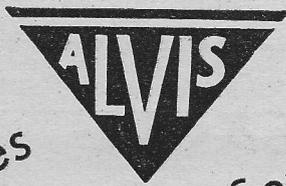
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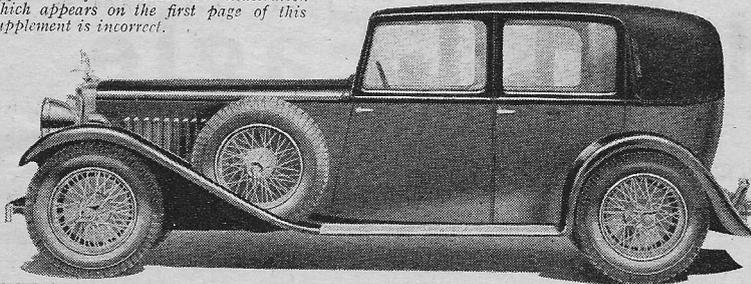
89 Palmerstone Road
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Head Office and Works:—WATERLOOVILLE

ALVIS "CRESTED EAGLE"

The 4-LIGHT SALOON

Note: The photograph shows the actual appearance of this model. The illustration which appears on the first page of this supplement is incorrect.

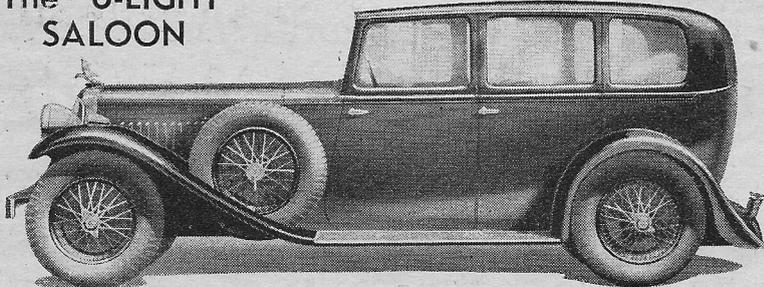


A handsome and finely proportioned car with luxurious and roomy accommodation for five persons. The head is of fabric with a sliding roof. The front seats are of the bucket type, deeply upholstered and adjustable for position, and the rear seat is fitted with a folding armrest. The upholstery is of hand-buffed furniture hide of the finest quality, the interior woodwork is burr walnut or similar wood, and all appointments are of the most luxurious type. Choice is offered of twelve body colours and six shades of furniture hide.

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THE smart yet dignified lines of this Saloon convey an air of unusual refinement. The body is panelled throughout, there is a sliding roof, and the seating, interior appointments, and finish are as in the Four-Light Saloon described above. Grace of appearance, roomy and restful seating, the luxurious comfort afforded by the new system of suspension and the amazingly smooth and powerful engine make this car ideal for use in town or country.

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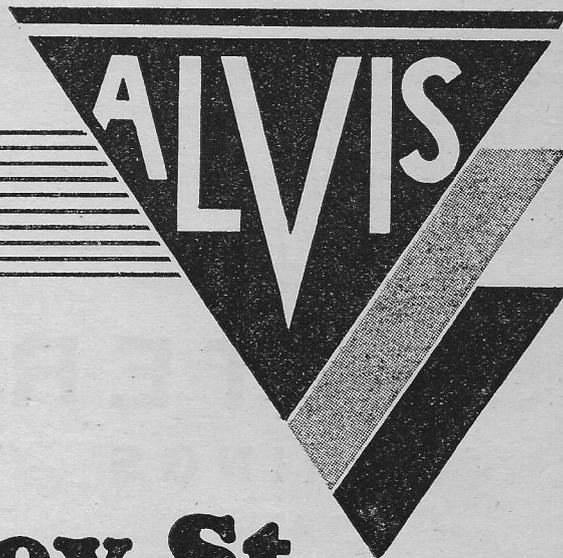
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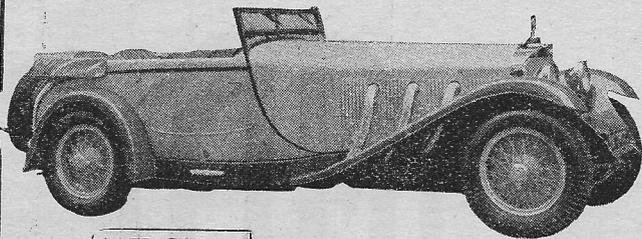
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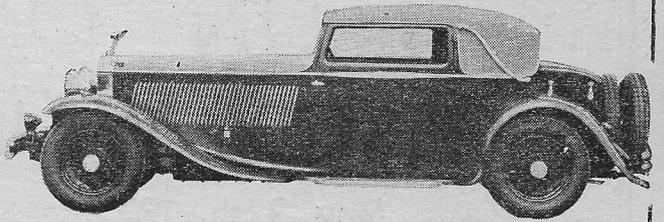
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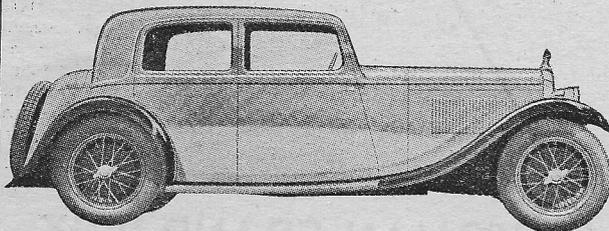
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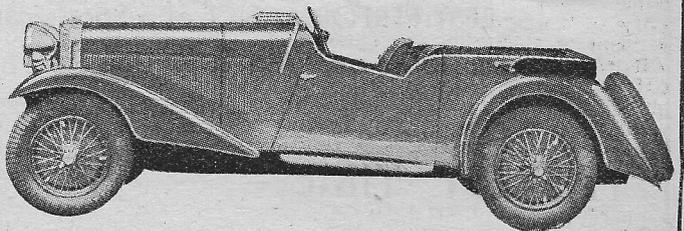
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FOR THE SECOND TIME IN
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Readers seeking the experience of users of specified cars, parts, or accessories, are invited to insert their queries in these columns, and their fellow readers are invited to reply. Querists are asked to enclose a stamped addressed envelope, so that replies may be made direct if the subject is not considered of sufficient general interest to publish. Letters should be addressed to the Editor, *The Autocar*, Dorset House, Stamford Street, London, S.E.1, and replies to queries should bear the number of the query to which they refer. Editorial advice is at all times willingly given to our readers.

Detachable Wheels



A few days ago I experienced the first trouble of any description I have had with my car, on which I have now driven 10,000-odd miles. This was a puncture, and having jacked up the wheel and got the spare wheel all ready to go in its place, I had very great difficulty in removing the wheel from the hub. When it was at last removed it was evident that rust was the cause of it sticking. Can this be obviated?—"Novice."

The way to prevent this happening again is to jack up and remove each wheel in turn, so that all dirt and rust may be removed from the hub of the wheel and from the hub proper. Then smear the hubs liberally with grease, so as to protect the metal surfaces from any moisture which may find its way into the wheel hub during wet weather. The grease will prevent the formation of rust, and will render it easy to pull the wheel off its hub when necessary. This treatment may be carried out with advantage three or four times during the course of the year, or oftener if it is found that rusting still occurs.

INFORMATION SOUGHT

Information and advice are sought by various readers regarding the following matters:—

No. 10884.—14.9 h.p. Ford

"W. S. L."—Information regarding the petrol consumption of the 14.9 h.p. Ford Tudor saloon.

No. 10885.—Andre-Telecontrol Shock Absorbers

"B. V. Z." (Holland).—Experiences with the Andre Hydro-Telecontrol shock absorbers regarding leaks and standing up to use.

No. 10886.—F.W.D. Alvis

"F. L. H."—Information regarding the supercharged and unsupercharged F.W.D. Alvis as to suitability for fast touring, upkeep, reliability and performance.

No. 10887.—Handbooks Required

"A. B."—1927 Panhard Levassor.
 "H. W. J."—1930 Singer Junior.
 "G. E. P."—1925 12 h.p. Bean.
 "W. S. P."—1928 Morris-Cowley.
 "J. W. W. W."—1926 7 h.p. Peugeot.
 "G. J. P."—1929 12 h.p. Singer.
 "H. M."—G.N. car.
 "F. H."—F.W.D. Alvis.
 "A. H. B."—1926 Brescia Bugatti.
 "W. L."—1928 12-24 h.p. Citroën.

E 7

No. 10888.—12 h.p. Armstrong Siddeley

"Vic."—Details of performance, fuel and oil consumption, reliability and general suitability for a woman driver of the 12 h.p. Armstrong Siddeley. Is the self-changing gear box reasonably quiet?

No. 10889.—Singer Nine Sports

"J. W. L."—Experiences over a five-figure mileage of the Singer Nine open sports. Does it maintain its "tune" well, what is its fuel consumption when driven fast, and what are the maximum speeds on gears? Also details as to suspension, braking, road-holding, and reliability.

READERS' EXPERIENCES

No. 10871.—Solex Carburetter

IN every test so far made the Solex has improved the performance of my 1933 "75" Talbot saloon. The engine starts from cold in about two seconds. The starting carburetter runs the engine at a reasonable warming-up speed, probably about 600 r.p.m., and after a minute or two one can switch over to the main carburetter. When warmed up the car will run at 5 m.p.h. on top gear and get away cleanly from that speed. There are no flat spots anywhere. The car is now 4 m.p.h. faster at the top of my test hill.

The improvement in petrol consumption is also considerable. Though I have not yet completed a 20-gallon consumption test to show the fair average, it is on gauge reading in excess of 20 m.p.g. A quart-tank test at 35 m.p.h. steady speed with a warm engine worked out at 25.6 m.p.g. It seems improbable that any of the maximum speed has been sacrificed, as the car is faster on hills, but I have never driven the car all out. Usual disclaimer.—"S. S. W. P."

No. 10866.—M.G. Magna

I PURCHASED a 1932 open four-seater M.G. Magna which had covered 6,000 miles, and it has now done a further 5,000 miles. The petrol consumption varies from 22-30 m.p.g., according to the use to which the car is put. On a long run at a cruising speed of 40-50 m.p.h., without changing gear much, the consumption averages 30 m.p.g., but for a cross-country blind, using the gears a lot, 22 m.p.g. is obtainable. Incidentally, it is the best gear box I have yet come across. Oil consumption is negligible.

The speeds on gears are Top 72-75 m.p.h., third 50 m.p.h., and second 38-40 m.p.h. I have no idea of first, but it is probably 20 m.p.h.

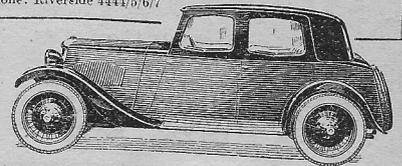
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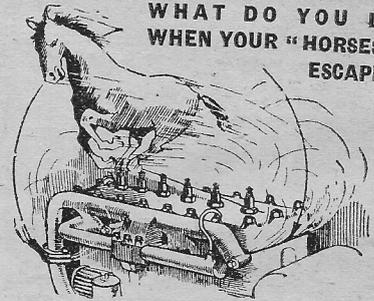
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"W. L."—1928 12-24 h.p. Citroën.

E 7

No. 10888.—12 h.p. Armstrong Siddeley

"Vic."—Details of performance, fuel and oil consumption, reliability and general suitability for a woman driver of the 12 h.p. Armstrong Siddeley. Is the self-changing gear box reasonably quiet?

No. 10889.—Singer Nine Sports

"J. W. L."—Experiences over a five-figure mileage of the Singer Nine open sports. Does it maintain its "tune" well, what is its fuel consumption when driven fast, and what are the maximum speeds on gears? Also details as to suspension, braking, road-holding, and reliability.

READERS' EXPERIENCES

No. 10871.—Solex Carburetter

IN every test so far made the Solex has improved the performance of my 1933 "75" Talbot saloon. The engine starts from cold in about two seconds. The starting carburetter runs the engine at a reasonable warming-up speed, probably about 600 r.p.m., and after a minute or two one can switch over to the main carburetter. When warmed up the car will run at 5 m.p.h. on top gear and get away cleanly from that speed. There are no flat spots anywhere. The car is now 4 m.p.h. faster at the top of my test hill.

The improvement in petrol consumption is also considerable. Though I have not yet completed a 20-gallon consumption test to show the fair average, it is on gauge reading in excess of 20 m.p.g. A quart-tank test at 35 m.p.h. steady speed with a warm engine worked out at 25.6 m.p.g. It seems improbable that any of the maximum speed has been sacrificed, as the car is faster on hills, but I have never driven the car all out. Usual disclaimer.—"S. S. W. P."

No. 10866.—M.G. Magna

I PURCHASED a 1932 open four-seater M.G. Magna which had covered 6,000 miles, and it has now done a further 5,000 miles. The petrol consumption varies from 22-30 m.p.g., according to the use to which the car is put. On a long run at a cruising speed of 40-50 m.p.h., without changing gear much, the consumption averages 30 m.p.g., but for a cross-country blind, using the gears a lot, 22 m.p.g. is obtainable. Incidentally, it is the best gear box I have yet come across. Oil consumption is negligible.

The speeds on gears are Top 72-75 m.p.h., third 50 m.p.h., and second 38-40 m.p.h. I have no idea of first, but it is probably 20 m.p.h.

THE RILEY

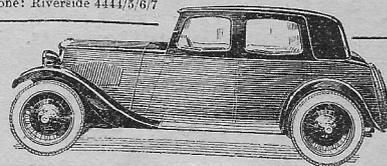
PEOPLE

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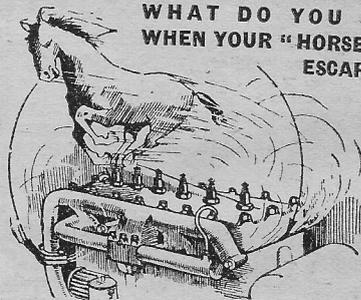
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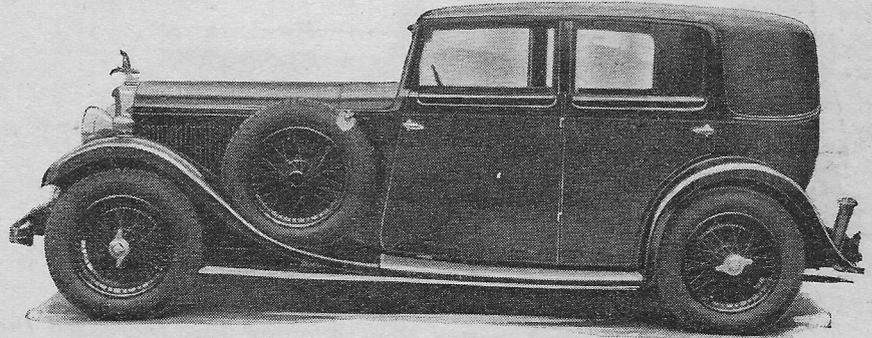
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THE AUTOCAR ROAD TESTS

20 h.p. ALVIS
CRESTED EAGLE
SALOON

No. 802 (Post-War Series)



NATURALLY, the road testing of a car such as the new Alvis Crested Eagle is undertaken with an extra measure of pleasant anticipation, because of the independent front springing. At the very outset it can be said that the results fully justify the design.

The steering and suspension of this new Alvis reach very close to the ideal. When the car is travelling at its maximum speed the steering wheel is absolutely steady in the driver's fingers, and, indeed, there is very little difference in the feel when travelling at 10 m.p.h. or at 75 m.p.h. There is no need to take an extra grip and look for elbow room when going fast, for the steering is entirely steady and unusually definite. The car can be placed on the road to a hair's-breadth. When passing over bad surfaces there is no noticeable movement of the steering wheel to show that the road is bad. Naturally, the suspension of the car as a whole is bound to react to bad surfaces, but the steering, on the other hand, remains to all intents and purposes unaffected.

It is possible to drive fast round a curve on a piece of road known to be sunk with treacherous pot-holes, and yet to steer over them as if they were not there. Another point is that the independent springing, combined with the special construction of the frame of this car, gives a remarkable steadiness to the front. There is not a sign of movement in the radiator, wings, and lamps. They just swim steadily between the hedge-rows.

So far as plain comfort is concerned the suspension of the car is exceptionally good, and quite at its best when travelling fast. The comfort of the rear seat suspension is a very distinct advance on the Silver Eagle model, which the Crested Eagle succeeds. Moreover, the comfort of the suspension as a whole is much improved, because the new independent front springing not only adds something of its own, but allows

Excellent Effect of Independent Front Springing

the rear springs to be laid out to better advantage.

Since it is already well known and well proved, the six-cylinder engine does not need more comment than to say that it produces any amount of power and delivers it with nonchalance, suggesting, as it were, that this is a job that it can hold down for as long as you like. The running is easy and smooth, and the response to movements of the piano-type accelerator pedal immediate. The car runs up to its maximum speed at any time without a falter, and the acceleration is even from end to end.

It must be mentioned that the car tested was absolutely new, and one of the first to come through in production. Therefore, it would be unfair to presume that the maximum speed obtained on this occasion is necessarily the highest that the model will eventually reach. The mean speed of runs in opposite directions worked out at 71.74 m.p.h., but at a rough guess, when the car is well run in and in good adjustment, it should be able to touch the 80 m.p.h. mark on the road

without much difficulty. The flexibility on top gear is sufficiently good to give a range from about 5 m.p.h. up to the maximum. Bearing in mind that the car is most sturdily built, as its weight shows, and is definitely intended to stand up to the hardest work the driver can impose upon it for years, rather than months, the acceleration figures are particularly good.

In place of the normal four-speed Alvis gear box this car is fitted with a four-speed Wilson type self-changing pre-selective gear, and this, like the engine, is carried on a three-point mounting, the arms of which are bedded on double conical rubber buffers. The pre-selector mechanism is mounted on the gear box in this case, because of the flexible mounting, and not on the steering column, where there is a simple lever—on the

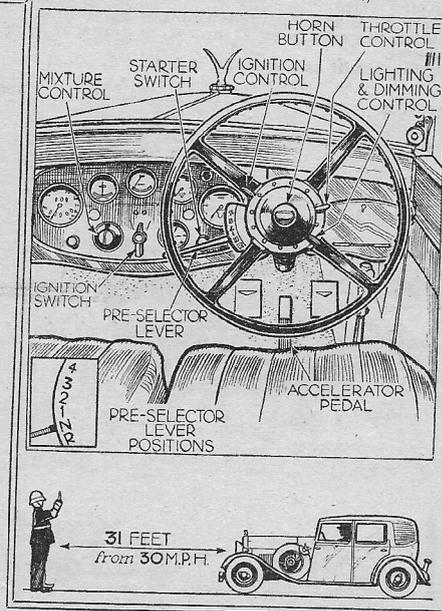
(Please turn to page 925.)

20 h.p. ALVIS CRESTED EAGLE SALOON
DATA FOR THE DRIVER

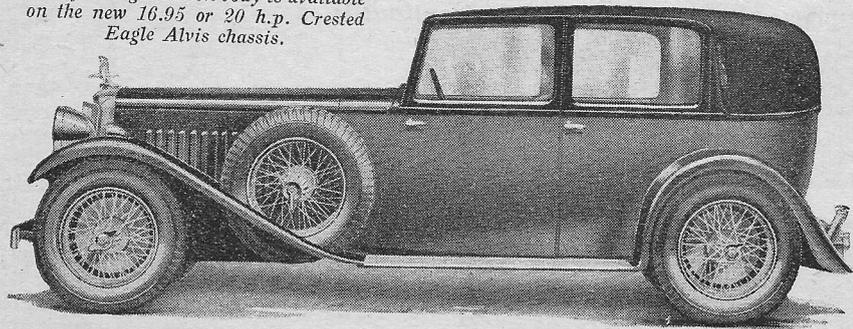
19.82 h.p., six cylinders, 73 x 100 mm. (2,511 c.c.). Tax £20.
Size of tyres: 6.00 x 19in. on detachable wire wheels.

Engine—rear axle gear ratios.	Acceleration from rest to steady speed.	Timed speed over 1/4 mile.	
	10 to 30 m.p.h.	20 to 40 m.p.h.	30 to 50 m.p.h.
17.28 to 1	9 sec.	—	—
10.17 to 1	6 sec.	7 1/2 sec.	—
7 to 1	8 1/2 sec.	7 1/2 sec.	10 1/2 sec.
5.22 to 1	12 1/2 sec.	11 1/2 sec.	11 1/2 sec.

Acceleration from rest to 50 m.p.h. (through the gears), 15 1/2 sec.
Turning circle, 40ft.
Tank capacity 20 gallons, fuel consumption 18-20 m.p.g.
12-volt lighting set cuts in at 15 m.p.h., 8 amps. at 30 m.p.h.
Weight: 34 cwt. 2 qr.
Price, with four-light saloon body, £750.
(Chassis described in this issue.)



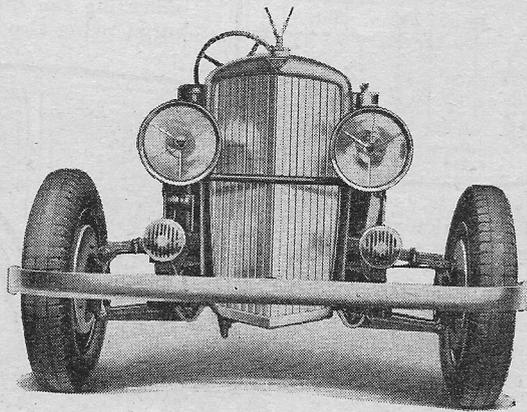
This four-light saloon body is available on the new 16.95 or 20 h.p. Crested Eagle Alvis chassis.



TWO

Independent Front

SOME valuable contribution to the science of car-making is usually to be expected when Alvis produce a new model. The Crested Eagle, which is to succeed the well-known Silver Eagle series of six-cylinder 16 and 20 h.p. models, is an illustration of that fact. Of this new car the prime factor is the development of a system of independent springing for the front wheels, with the object of improving riding comfort, enhancing stability, and of providing a better steering which is intrinsically free from vices such as wheel wobble, patter, or vagueness.



In this front view the special suspension system and the absence of an ordinary front axle are noticeable, also the new deep, graceful radiator.

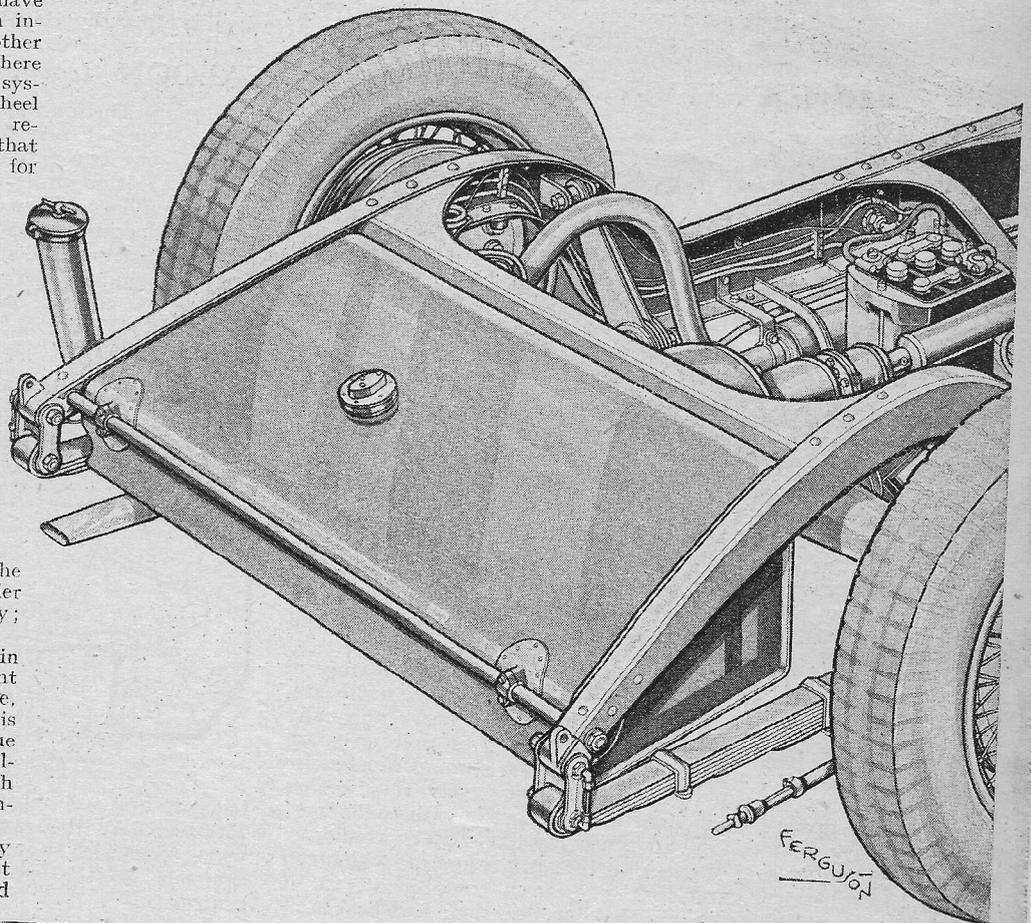
of the frame, is a single transverse spring. It is wide, with many stout leaves, and a master leaf with eyes machined solid in its ends. The master leaf is encircled by the leaves immediately above and below it, and one more top leaf extends over the eyes.

For the sake of simplicity, let us consider the system as applied to one wheel. The spring eye embraces a shackle bolt attached to the upper end of a vertically disposed strong steel forging, or yoke, which provides the fork for the swivel pin of the stub axle. In the lower end of this yoke is a second shackle pin, which forms the anchorage for the outer end of a radius member. This also is a forging, of triangular shape in plan view, and has at its inner end a long cylindrical boss, which forms the fulcrum point. Within the boss is a pair of circular metal pads forced apart by a fairly long and heavy coil spring. These pads are mounted on a splined spindle, the ends of which are locked into a bracket attached to the underside of the car frame. Between the pads and bracket ends are friction discs. Thus each radius member is not merely a radius rod, but a self-adjusting long-duty spring damper as well.

During the past years the makers have had a great deal of experience with independent springs on racing and other cars with front wheel drive, so that there is nothing experimental about the system now standardised on a rear wheel drive car as a result of well-tested research work. It may be explained that the objects of independent springing for the front wheels are broadly as follow: To permit each wheel to rise or fall without causing that deflection of the fellow wheel which must follow if a normal front axle is used; to avoid the gyroscopic reactions which can occur when the rise and fall of a steering wheel causes an angular movement of the axis, these being a root evil of wheel wobble; to prevent the rise and fall of the wheels from affecting the steering in the manner incidental to a beam front axle attached by half-elliptic springs, which individually may vary their effective length when experiencing deflection; to apply the spring suspension at points as close up to the plane of the wheels as possible in order to obtain maximum lateral stability; lastly, to reduce the unsprung weight.

In a manner of speaking, the way in which the Alvis independent front springing is carried out is quite simple, but behind this apparent simplicity is the skilful designing which is the true genius of the cars bearing this well-known name. The explanation which follows is intended to render the principle and the details clear.

Clamped down at its centre, by widely spaced bolts, into a channel above stout twin cross-members at the forward end



FERGUSON

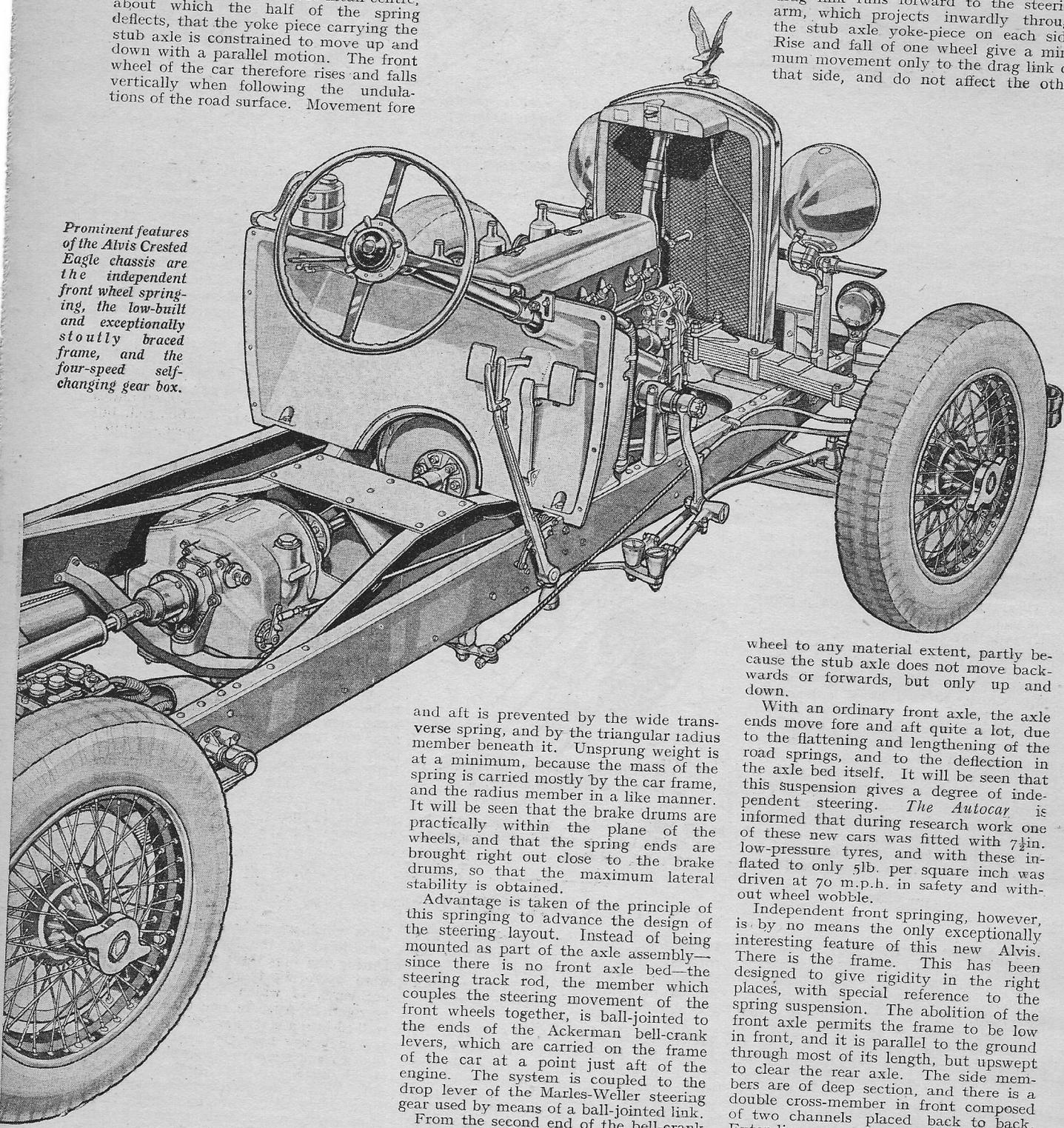
NEW ALVIS MODELS

Springs and Self-changing Gear Box Incorporated in New Six-cylinder Chassis

The fulcrum point of the radius member is so disposed below the mean centre, about which the half of the spring deflects, that the yoke piece carrying the stub axle is constrained to move up and down with a parallel motion. The front wheel of the car therefore rises and falls vertically when following the undulations of the road surface. Movement fore

drag link runs forward to the steering arm, which projects inwardly through the stub axle yoke-piece on each side. Rise and fall of one wheel give a minimum movement only to the drag link on that side, and do not affect the other

Prominent features of the Alvis Crested Eagle chassis are the independent front wheel springing, the low-built and exceptionally stoutly braced frame, and the four-speed self-changing gear box.



and aft is prevented by the wide transverse spring, and by the triangular radius member beneath it. Unsprung weight is at a minimum, because the mass of the spring is carried mostly by the car frame, and the radius member in a like manner. It will be seen that the brake drums are practically within the plane of the wheels, and that the spring ends are brought right out close to the brake drums, so that the maximum lateral stability is obtained.

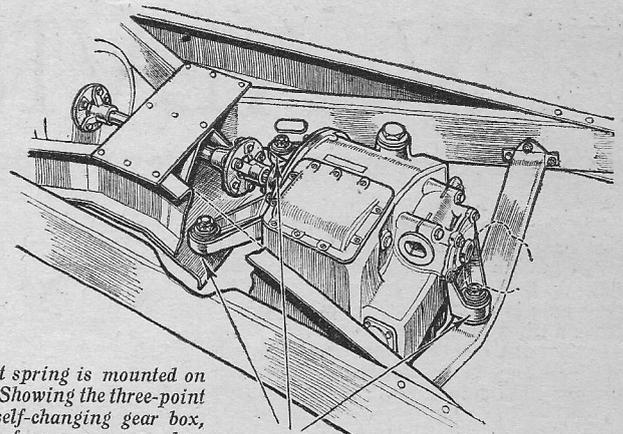
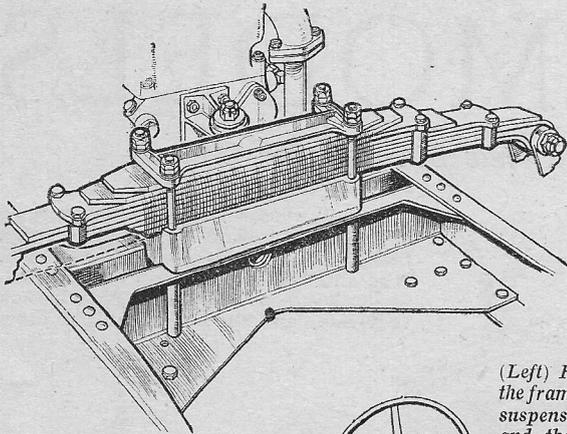
Advantage is taken of the principle of this springing to advance the design of the steering layout. Instead of being mounted as part of the axle assembly—since there is no front axle bed—the steering track rod, the member which couples the steering movement of the front wheels together, is ball-jointed to the ends of the Ackerman bell-crank levers, which are carried on the frame of the car at a point just aft of the engine. The system is coupled to the drop lever of the Marles-Weller steering gear used by means of a ball-jointed link.

From the second end of the bell-crank on each side of the car, a ball-jointed

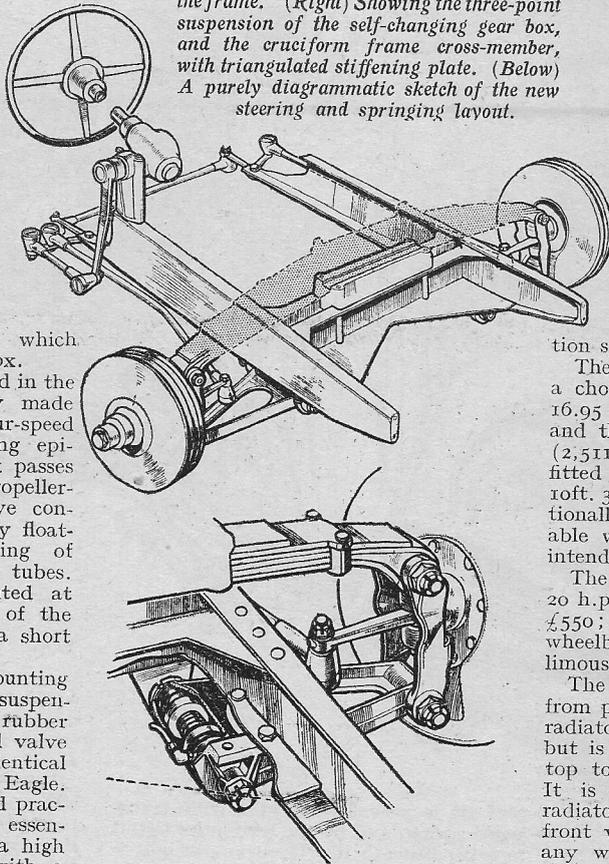
wheel to any material extent, partly because the stub axle does not move backwards or forwards, but only up and down.

With an ordinary front axle, the axle ends move fore and aft quite a lot, due to the flattening and lengthening of the road springs, and to the deflection in the axle bed itself. It will be seen that this suspension gives a degree of independent steering. *The Autocar* is informed that during research work one of these new cars was fitted with 7½ in. low-pressure tyres, and with these inflated to only 5 lb. per square inch was driven at 70 m.p.h. in safety and without wheel wobble.

Independent front springing, however, is by no means the only exceptionally interesting feature of this new Alvis. There is the frame. This has been designed to give rigidity in the right places, with special reference to the spring suspension. The abolition of the front axle permits the frame to be low in front, and it is parallel to the ground through most of its length, but upswept to clear the rear axle. The side members are of deep section, and there is a double cross-member in front composed of two channels placed back to back. Extending across the frame, from a point about halfway along the engine, back-



(Left) How the front spring is mounted on the frame. (Right) Showing the three-point suspension of the self-changing gear box, and the cruciform frame cross-member, with triangulated stiffening plate. (Below) A purely diagrammatic sketch of the new steering and springing layout.



The self-adjusting damper, of special form, also stub axle details.

wards to a cross-member close to the anchorage of the front ends of the rear springs, is a cruciform member of exceptional torsional rigidity. Where the two channel members of this cruciform join at the centre, a proper stiffener is introduced because, in addition to top and bottom plates, there is a triangulated plate as well. Through the hollow of the triangle passes the double-jointed clutch-shaft, which conveys the drive to the gear box.

Another departure is to be found in the gear box, which is a specially made example of the now familiar four-speed Wilson pre-selective self-changing epicyclic gear. Drive from the box passes through a metal-jointed open propeller-shaft to a spiral-bevel final-drive contained in a rear axle of the fully floating type, the axle casing being of aluminium with steel reinforcing tubes. This gear box is flexibly mounted at three points, two on the arms of the cruciform member, and one on a short cross-member joining them.

Except that the method of mounting has been changed to a three-point suspension on the Alvis principle of rubber buffers, the six-cylinder overhead valve engine of the Crested Eagle is identical with the power unit of the Silver Eagle. This engine is of a clean, good, and practical design, and possesses all the essentials which go towards securing a high power output, in conjunction with a capacity to withstand hard wear indefinitely. The overhead valves are operated by push rods, camshaft and other auxiliary drives are carried out by special Duplex chains, the lubrication is by a rotary gear pump giving forced feed

to all main bearings, the crankshaft is carried in four bearings, the connecting rods are all-steel, and the pistons

are of a special aluminium alloy. The detachable cylinder head has valve chambers of a special shape, and, incidentally, the gasket is not used to make the water joint. Other features of the car include dual ignition with a polar inductor magneto adapted to work as coil ignition by the use of special switches, and three S.U. carburettors, with the Alvis hot-spot induction system.

The Crested Eagle is to be made with a choice of two sizes of engine, one of 16.95 h.p., 67.5x100 mm. (2,148 c.c.), and the other of 20 h.p., 73x100 mm. (2,511 c.c.). Both sizes of engine are fitted to a chassis with a wheelbase of 10ft. 3in. and a 4ft. 8in. track, but, additionally, the 20 h.p. will also be obtainable with a chassis of 11ft. wheelbase, intended to carry a limousine body.

The prices are as follows: 16 h.p. or 20 h.p. chassis, long or short wheelbase, £550; four- or six-light saloon, short wheelbase, £750; 20 h.p. seven-seater limousine, long wheelbase, £850.

The new Alvis is easy to distinguish from previous models because of a fresh radiator which follows on Alvis lines, but is more graceful, much deeper from top to bottom, and slightly narrower. It is closed in with chromium-plated radiator shutters. Incidentally, the front view of the car does not look in any way unorthodox, for the independent springing is quite neat, and very little of it is visible when the wings are in position. The side members of the frame are carried forward beyond the radiator in order to provide a proper anchorage for the single broad bumper bar.

IN PARLIAMENT

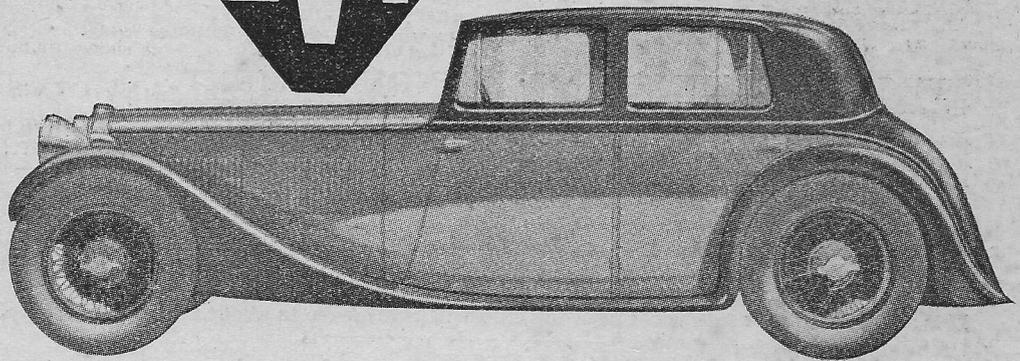
THE HOME SECRETARY was asked by Mr. Lovat Fraser if he was aware that, on the adjournment of the Committee on Traffic Noises *sine die* about three years ago, Sir Henry Maybury, the chairman, promised that the Ministry would refer the question of evolving a standard motor horn, which should be at once effective and less injurious to the health and nerves of the community, to the Committee of Research, and whether anything had been done.

The reply was that enquiries were made from the National Physical

Laboratory, and the conclusion was reached that further expenditure on experiments directed towards the production of a standard type of motor horn was not likely to be useful in results.

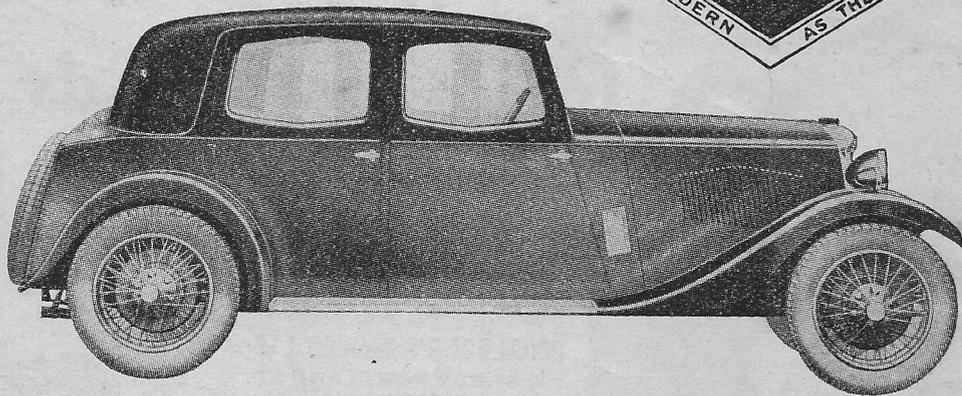
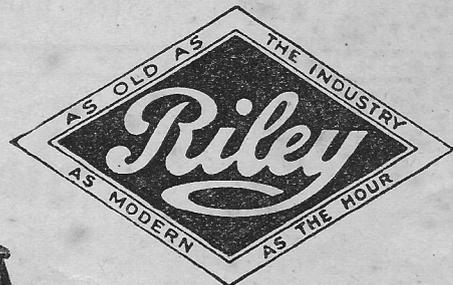
In the House of Commons a short while ago the Minister of Transport was asked whether the Trafalgar Square traffic signals had proved satisfactory and whether any accidents had occurred as a result of these signals. Mr. Stanley replied that the signals had proved generally satisfactory and that any altera-

tions which might be desirable would be considered in the light of experience. During the first three weeks the signals were operating there were twenty-two accidents, of which only two involved personal injury. In one case a woman walked into a stationary vehicle, sustaining an injury over the eye; in another case a woman reported that she had been struck by a cab, but declined medical aid. During the corresponding period of 1932, when there were no signals, there were eighteen accidents involving four cases of personal injury.



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D17 MENTION OF "THE AUTOCAR," WHEN WRITING TO ADVERTISERS, WILL ENSURE PROMPT ATTENTION.

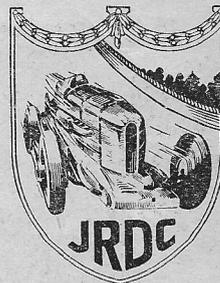
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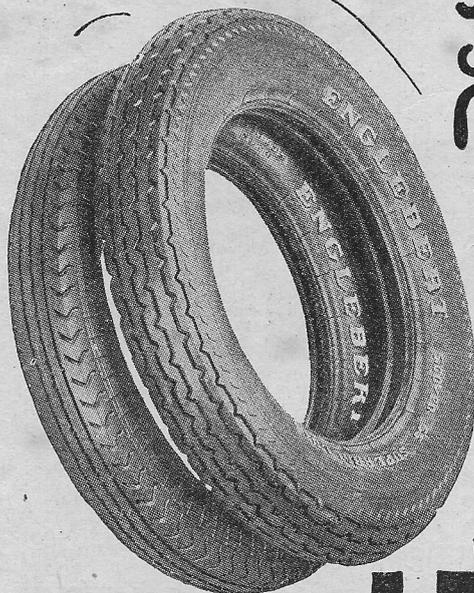
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It is anticipated that full working of the club will commence in about a fortnight's time.

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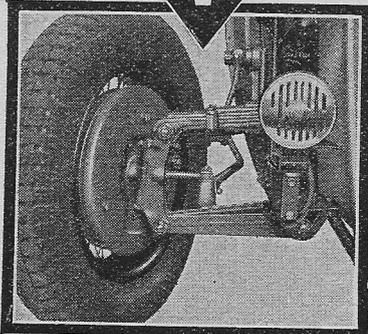
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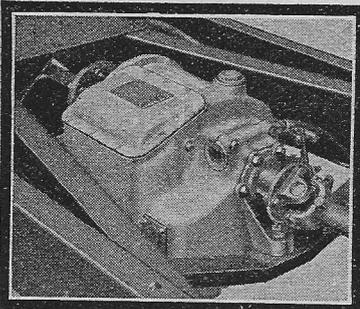
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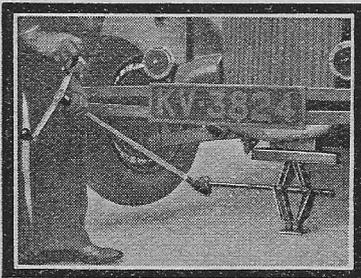
A host of advanced features
 "distinguish the
ALVIS
CRESTED
EAGLE"



● INDEPENDENT FRONT WHEEL SPRINGING AND STEERING.



● PRE - SELECTIVE SELF - CHANGING GEARBOX CRUGIFORM FRAME.



● PERMANENTLY ATTACHED JACKS.

THE advent of this new car marks an immense stride forward in automobile design. The superlative comfort afforded by its unique suspension, commodious and beautiful coachwork, and its brilliant performance, render the "CRESTED EAGLE" incomparable as a Town Carriage or for fast touring.

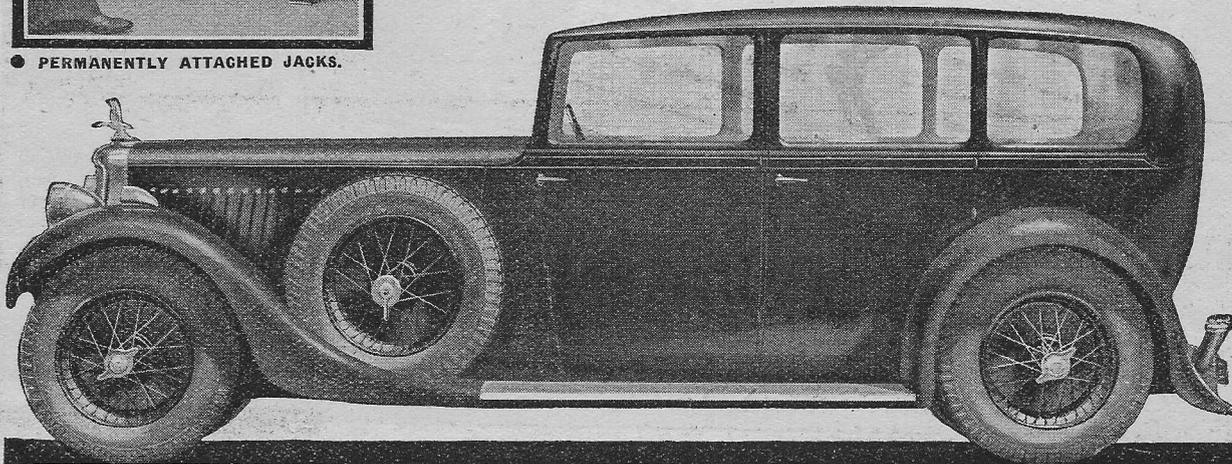
The "Crested Eagle" system of independent front wheel springing and steering, though so far in advance of ordinary design, is thoroughly tried and tested, having been developed from that used so successfully in ALVIS racing cars since 1925. In conjunction with the "Crested Eagle" single cruciform chassis frame and exceptionally long under-slung rear springs, it affords greater riding comfort and better road-holding than ever before achieved.

The six-cylinder engine, of 16.95 or 20 h.p. at option, has been developed from the famous "Silver Eagle," notable for the unique smoothness and flexibility with which it delivers its high power output.

The Wilson Pre-Selective Gearbox, specially designed for the "Crested Eagle," is another of the features which contribute to the exceptional ease and comfort of driving. And so throughout the specification, every item bears the stamp of ALVIS genius. Write to-day for full details of this remarkable car, and the name of your local Dealer, who will arrange a demonstration at your convenience.

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 On 16.95 h.p. or 20 h.p. Chassis £750
- "CRESTED EAGLE" LIMOUSINE
 As illustrated, on 20 h.p. Long Chassis £850
- As above, but without partition behind driver's
 seat, as 6-light Saloon £830

ALVIS CAR & ENGINEERING CO., LTD., COVENTRY.
 London Showrooms: 18, Berkeley St., W.1.





Road conditions to-day demand perfect braking efficiency at all times. The only way to ensure that is to visit regularly your nearest Bendix Service Station, fully equipped to service any make of brake and staffed by brake experts. The charges are negligible compared with the perfect peace of mind that constant brake efficiency gives you. Write to Bendix Limited, Tyseley, Birmingham, for the address of your nearest Bendix Service Station.

Drive into your nearest Bendix Service Station and obtain this certificate of brake efficiency

This is to Certify
That the Brakes have been Mechanically tested this day by the application and indications of the Date

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City.....
County.....

BENDIX
COLEY TESTER

On a..... Car. Registration No.....

Owned by.....

STOPPING DISTANCE
at 20 miles per hour on dry level concrete road after adjustment

MAXIMUM PEDAL PRESSURE

Left Front..... Right Front..... feet
Foot brake only..... feet

Left Rear..... Right Rear..... feet
Hand brake only..... feet

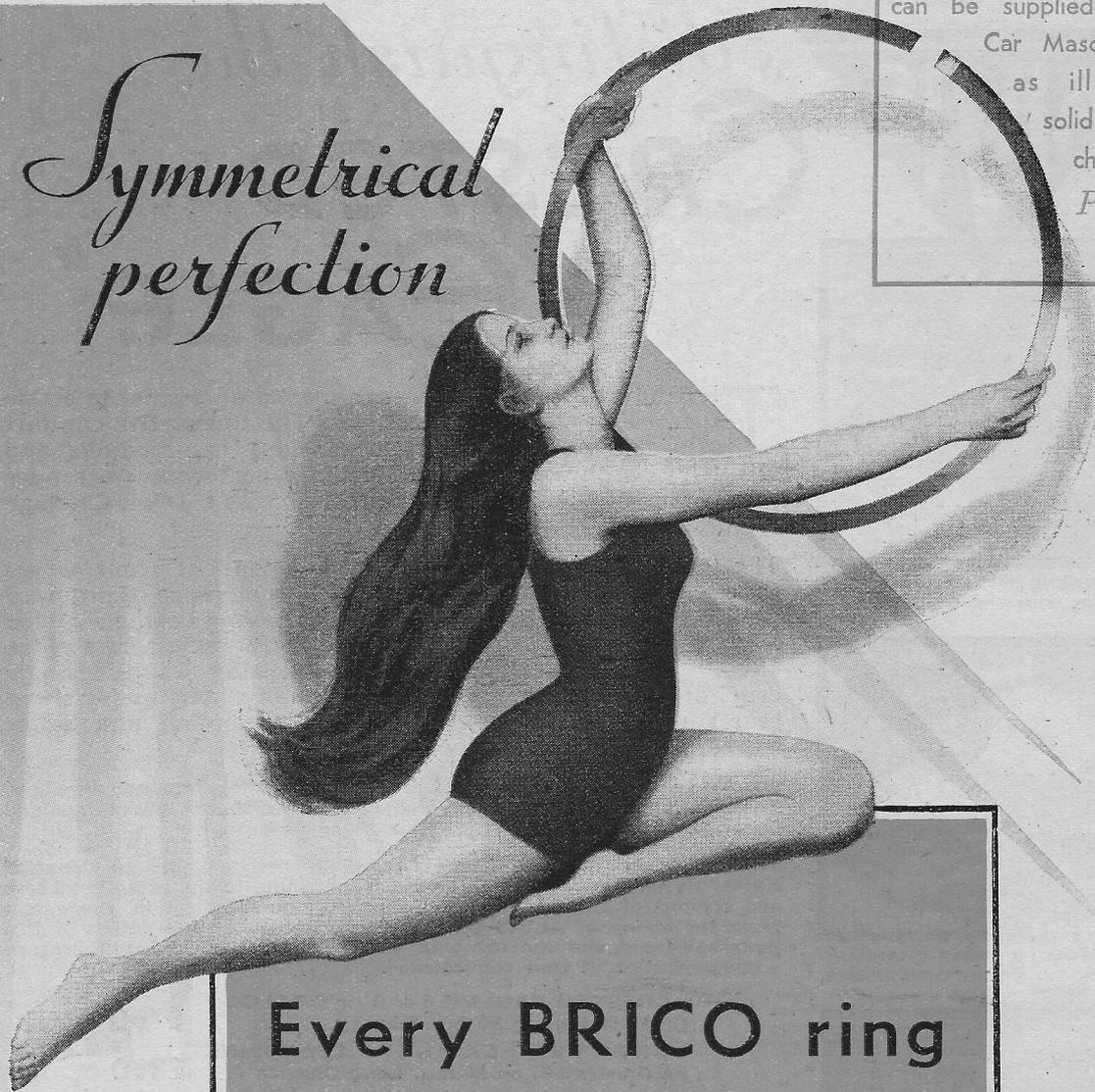
Total..... lbs. road pull.....
Speedometer reading..... miles

Pedal Pressure.....

Signed.....
C. C. P. LTD. 3241-C

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*Symmetrical
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THIS BEAUTIFUL MODEL

can be supplied as a Motor
Car Mascot same size
as illustration in
solid white brass
chromium plated
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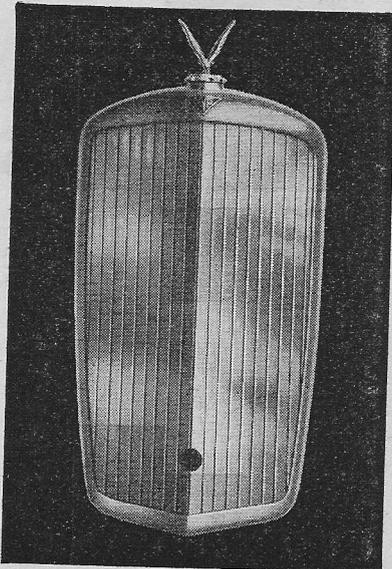
THE BRITISH PISTON RING CO., LTD., COVENTRY.

BRICO PISTON RINGS

H.P.



Only the ALVIS
"CRESTED EAGLE"
 has all these
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THIS new car has aroused the enthusiasm of the motoring world. Never before has a luxury car of such advanced design, brilliant performance, and high quality been offered, and withal at so moderate a price.

The system of independent front wheel springing and steering, though so far in advance of contemporary design, has been developed from that used in ALVIS racing cars since 1925. It gives smoothness of suspension, directional stability, and road holding qualities unattainable by any other method. And so throughout the specification every item bears the stamp of ALVIS genius.

4 or 6-light SALOON
 16.95 or 20 h.p., at option - **£750**
 LIMOUSINE, 7 seats
 on 20 h.p. Long chassis only - **£850**

The "Crested Eagle" is a car you will be proud to own. Write to-day for full details of this and other ALVIS Models from £475.
 ALVIS CAR & ENG. CO. LTD., COVENTRY.
 London Showrooms: 18, Berkeley St., W.1.

**INDEPENDENT FRONT
 WHEEL SPRINGING
 AND STEERING**

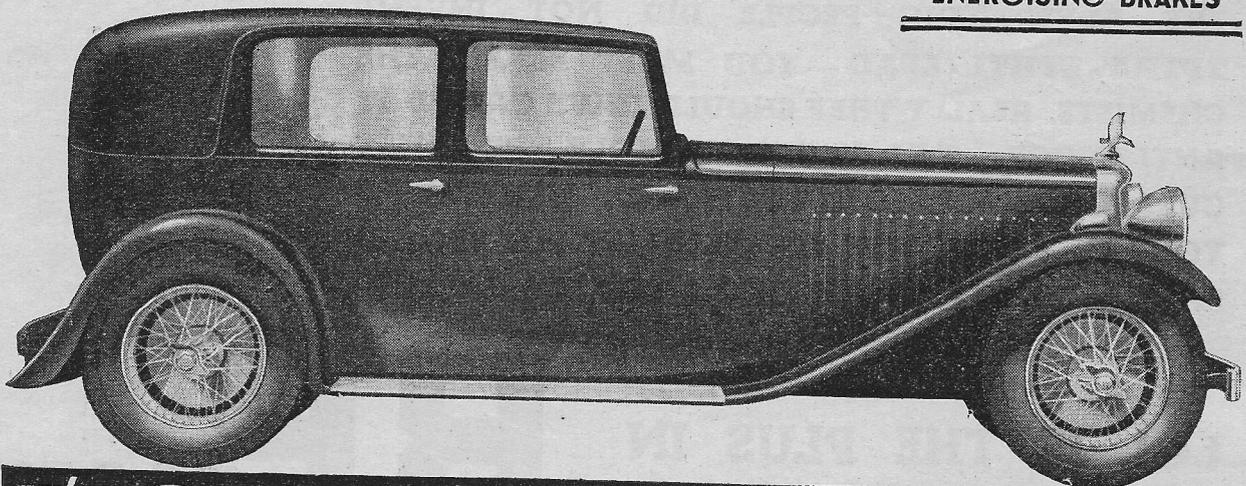
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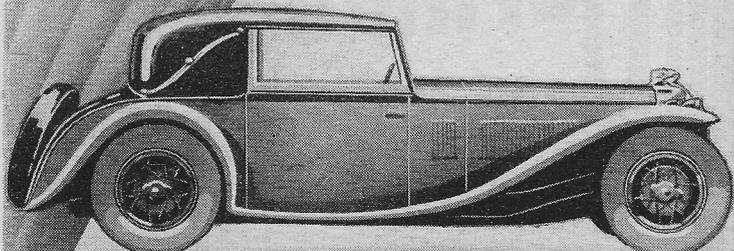
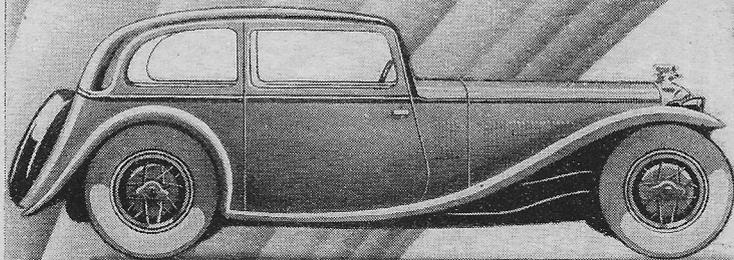
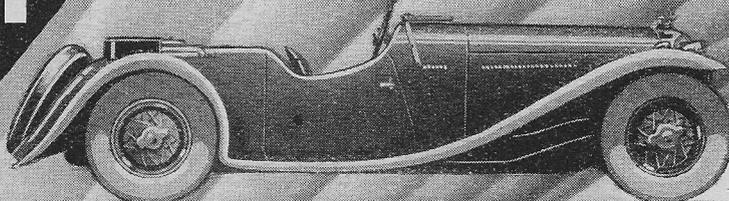
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The CRESTED EAGLE
 16.95 and 20 h.p. Models

INCOMPARABLE!

ALVIS



These are the cars that have set the whole world of motoring talking about their beauty.

Above is the much admired Speed Twenty with coachwork specially designed for Charles Follett by Vanden Plas. Price £725.

On the left is a graceful sporting saloon, specially designed by Vanden Plas. Price £865.

And below is the smartest drop-head coupé of to-day. Its striking coachwork is one of the most beautiful examples ever created by Vanden Plas. Price £865.

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MOTOR
SPIRIT



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ATION FOR TELEGRAM BUT

FOR TETRA-ETHYL-LEAD

THE ADVERTISING PEOPLE DID NOT INVENT TETRA-ETHYL-LEAD — YOU MUST BLAME THE CHEMISTS. REALLY THEY SHOULD HAVE CALLED IT ANTI-KNOCK. T.E.L. IS UNDOUBTEDLY THE FINEST CURE FOR KNOCKING IN THE WORLD. WITH ITS HELP YOUR CAR WILL GIVE ITS GREATEST POWER AND SPEED WITHOUT SACRIFICING MILES PER GALLON.

t.e.l. IS THE PLUS IN

“BP” PLUS

BUY IT FOR ANTI-KNOCK

SOME QUERIES and REPLIES

Readers seeking the experience of users of specified cars, parts, or accessories, are invited to insert their queries in these columns, and their fellow readers are invited to reply. Querists are asked to enclose a stamped addressed envelope, so that replies may be made direct if the subject is not considered of sufficient general interest to publish. Letters should be addressed to the Editor, *The Autocar*, Dorset House, Stamford Street, London, S.E.1, and replies to queries should bear the number of the query to which they refer. Editorial advice is at all times willingly given to our readers.

Tyre Pressures

The recommended tyre pressures for my car, a saloon, are 26 lb. per sq. in. for the front and 28 lb. per sq. in. for the rear, but I find that comfort is considerably increased by running at about 22 lb. in front and 24 lb. at the rear. Are there any objections to these lower pressures?—"A. W. R." Under-inflation is one of the most frequent causes of tyre failure, and the recommendations of the tyre manufacturers should be adhered to if the maximum life of the tyres is to be attained. With under-inflated tyres there is much more flexing of the walls of the tyres, with the consequence that internal friction and heat are set up. The steady riding qualities of the car are also likely to be adversely affected, for the steering will probably be rendered heavier, and there will be a greater tendency to roll on corners. Therefore, although comfort may be increased by the lower pressures, it is wiser to adhere to the correct pressures. Possibly comfort can be improved by adjustment of the shock absorbers, which may be acting too vigorously and thereby rendering the springing harsh.

INFORMATION SOUGHT

Information and advice are sought by various readers regarding the following matters:—

No. 10976.—10 h.p. Wolseley

"J. C."—General experiences with the 1921 or 1922 10 h.p. Wolseley.

No. 10977.—12 h.p. Star

"R. C."—Experiences with the 1928 12 h.p. Star as to petrol and oil consumption, hill-climbing, speeds on gears, reliability and maintenance.

No. 10978.—12 h.p. or 14 h.p. Vauxhall

"S. H. W."—Impressions of the 12 h.p. or 14 h.p. Vauxhall, particularly as to engine noise. Is the silent third gear comparatively silent, and is the no-draught ventilation system successful?

No. 10979.—2-L.T.S. Ballot

"F. K."—Information and advice regarding the purchase of a 1928-29 2-L.T.S. Ballot as to general reliability, performance, and fuel consumption also, is there any difficulty in getting spare parts?

No. 10980.—20 h.p. Lanchester

"R. A. C."—Information regarding the 1925, 1926, or 1927 20 h.p. Lanchester as to petrol and oil consumption, maximum speeds on gears, and its weak points.

No. 10981.—Handbooks Required

"E. H."—1924 10-23 h.p. Talbot.

"H. A. P."—1927 12-24 h.p. Citroën.

"W. L. M."—1931 Wolseley Hornet.

No. 10982.—Three-litre Bentley

"C. W. L."—Information regarding petrol and oil consumption, speeds on gears, and general reliability of the three-litre Bentley.

No. 10983.—M.G. Magna

"A. D. F."—Experiences with a new L-type M.G. Magna with regard to maximum speed and performance on all gears, general reliability and maintenance, petrol and oil consumption, and any other matters of interest to the average owner.

No. 10984.—Alvis Firefly

"L. B. S."—Experiences over a five-figure mileage regarding the Alvis Firefly sports saloon as to cruising speeds on gears, petrol and oil consumption, retention of tune, carbonisation periods, ease of lubrication, tyre wear, suspension, visibility from driving seat, seating comfort and luggage capacity, and general reliability. What weak points in the chassis or bodywork should be looked for?

READERS' EXPERIENCES

No. 10961.—12 h.p. Humber

I TOOK delivery of a 12 h.p. Humber saloon in June last. The speedometer now reads 4,170 miles, and up to the moment I have used 164 gallons of petrol, equivalent to 25.4 m.p.g.

The car was run-in very carefully for 1,500 miles, using a colloidal graphite oil and also a special colloidal graphite upper-cylinder lubricant. The engine is the sweetest-running "four" I have ever had, and I can definitely say that it is smoother than many "sixes." The engine capacity is 1,669 c.c., which is large for a "twelve," but the car weighs 23½ cwt. unladen.

The Autocar Road Test gave the acceleration as 11½ sec. in top (10-30 m.p.h.), and I have tested mine against the stop watch to do the same, or even better. Again, the Road Test showed the speed to be just over 65 m.p.h., reference being made to the fact that at this speed the speedometer read about 70 m.p.h. However, my car will push up to over 70 m.p.h. quickly and easily and I should say that under favourable road conditions one could get a 72 or 73 m.p.h. speedometer reading.

Actually, I have now used 5½ gallons of oil, not including a fresh 1½ gallons

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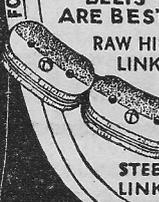


FORWARD TYPE B

Here is our exceptional Free Offer:—To every readersending an order for Forward Standard Type C Plugs at 4/- each, WE WILL GIVE ABSOLUTELY FREE a similar number. It's too good to miss. Forward, the British-made Plugs, give more power, more speed, better service. Post that order to-day.

FORWARD PLUG Co. Ltd.,
Summer Row, Birmingham.
Send for Free List to-day.

Forward ENDLESS V RUBBER BELT WITH MASTER LINK FASTENER



FORWARD ENDLESS V RUBBER BELT

Rapidly made up and adjusted to suit any engine. Please agents because it does away with the need to stock dozens of different sized endless belts. Please Motorists because it saves time when buying a renewal. No gap, no jerks.



FORWARD ENDLESS V RUBBER BELT

FORWARD KING LINK BELT.
Fit and forget. Illustration below shows why the combination links make it the strongest belt you can buy.

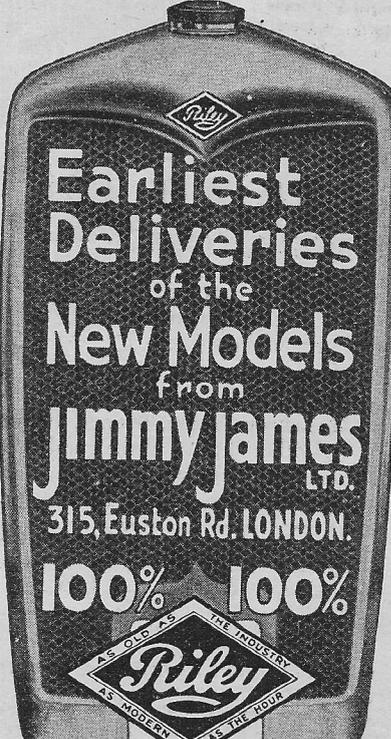
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MOTOR CARAVANS AND TRAILERS, MOTOR BOATS, ETC.

New Motor Caravans and Trailers.

CHELTENHAM CARAVAN Co.—See latest streamline, 14ft. 6in., two rooms, all steel chassis, weight 11½ cwt., £132/10; also three-berth streamline for 9h.p. cars, weight 8½ cwt., £105; several used models for sale.—Maidavale Works, Naunton Lane, Cheltenham. [0465]

SCOTLAND.—Tour the Highlands with lightweight caravans; models to suit Austin 7 and larger cars, fully equipped, £130/0; for 2, 4, and 6 persons; large up to date fleet for hire, moderate charges; write now for booklet.—Thomson Caravans, Ltd., Carron, Falkirk. Phone: Larbert 108. [4350]

LUGGAGE Trailers at Sensible Prices, angle steel, smart appearance, light weight, suit "Baby" car, carry 3 cwt., complete rear lamp, number plate; £7; larger sizes proportionately cheap; hire rates £1 per week for any size.—Welfords, Warminglid, Sussex. Phone: 30. See also Hire column. [0035]

Second-hand Motor Caravans and Trailers.

Twelve word 3/-, and 3d. for every additional word. Paragraphs of less than 8 words 6/-.

BERTRAM HUTCHINGS CARAVANS, Ltd., Winchester.—Write for list of slightly used bargains. [0436]

TRAILER Caravan, bay window, roof lockers, wardrobe, pantry, electric light and double doors; £30. [0436]

STREAMLINE Cruiser Caravan, sleep 4 in comfort, electric lights; £35; free delivery.—80, Oxford St., Barrow-in-Furness. [1438]

WESTWAYS CARAVAN Co., Sigwells, Sherborne, Dorset.—Used Car Cruisers at greatly reduced prices. [0813]

TRAILER Caravan, 4-berth, almost new, fitted every convenience; £40.—61, Lister Gardens, N.18. [1634]

NOMAD CARAVAN COMPANY, Kingston By-Pass, New Malden (Malden 1424), have several used caravan bargains. [0586]

LONDON CARAVAN Co., Ltd., for used caravans at bargain prices.—Barnet By-Pass Rd., Boreham Wood (Phone: Elstree 165). [0335]

CARAVAN, 10ft. 6in. x 5ft. 9in., pantry, wardrobe-lockers, door windows front and back; cheap; £33.—Apply Chas. Dimock, Soham, Cambs. [1410]

BIRMINGHAM.—Bristol Street Motors, Ltd., have several used Eccles motor caravans for sale at reduced prices; 8ft., 9ft. 6in., and 10ft. plain and De Luxe models, also 12ft. and 14ft. special light 2-roomed models, repainted and in excellent condition; terms arranged.—164-172, Bristol St., Birmingham. [0332]

Motor Caravans and Trailers for Hire.

Twelve words 3/-, and 3d. for every additional word. Paragraphs of less than 8 words 6/-.

ACE OF SPADES.—Caravans from £2/10 per week.—Great West Rd., Hounslow 4444. [0617]

WELFORDS CARAVANS, fully booked for August, plenty of vacancies for September, all models. [0466]

WELFORDS CARAVANS Have Good Value in Luggage Trailers, all angle steel; from £7 upwards. [0466]

WELFORDS CARAVANS.—Hire smart luggage trailers, any size, at £1 per week. [0466]

WELFORDS CARAVANS, Warminglid, Sussex. Phone: 30. Our depot is on the main London-Brighton Rd., just south of Handcross. [0601]

CHELTENHAM CARAVAN Co.—Caravans to suit all cars; from 35/-.—Naunton Lane, Cheltenham. [0465]

NOMAD CARAVAN COMPANY, Kingston By-Pass Rd., New Malden (Malden 1424). Luxurious hire fleet. [0587]

ECCLES 4-berth Lean-to, vacant September, fully equipped.—Owen, Barclays Bank, Haslemere, Surrey. [9033]

TRAILER Caravans, hire and sale, fully equipped; from 30/-.—Axtell, Bracadale Kennels, Woodham, Byfleet. Byfleet 463. [2626]

MIDLAND CRUISER CARAVANS, Birmingham.—Luxurious hire fleet Car Cruiser and Rice folding caravans; terms on application. [0854]

DEVON Tourists.—Hire your caravan in Devon and save the long tow; modern hire fleet, from 50/- weekly.—Martins Caravan Hire Service, Countess Weir, Exeter. [7101]

BRISTOL.—The hiring centre for the West; large fleet of modern caravans, reduced rates, excellent service; send for list.—Woolley Bros., Deanery Rd., Bristol. [0355]

PATHFINDER CARAVAN Co., Caravan Distributors, Devon and Cornwall; agents Car Cruisers and Eccles; some second-hand bargains.—Tedburn St. Mary, Exeter. [8314]

BYWAYS.—Caravans for hire; three- and four-berth car cruisers; smaller caravans of other makers at popular prices; can be seen Angley Park, Cranbrook, Kent. [7371]

LONDON CARAVAN Co., Ltd., have the largest hire fleet in the country, consisting of the latest 1933 models.—Write for hire tariff to 21, Dering St., New Bond St., W.1. (Phone: Mayfair 2915). [0614]

Motor Caravans and Trailers for Hire.

ESSBY CARAVANS.—Fully equipped 2-berth, from £2/10 weekly; 4-berth, £3/2/6; 6-berth, £4/7/6; apply for catalogue; second-hand caravans for sale from £25.—684, High Rd., Tottenham Works at rear. Phone: 2303. [7810]

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IDEAL Accommodation, caravans 2/- per week.—Keartons, Caravan Depot, Alston, Cumberland. [1172]

STORAGE Accommodation for Caravans; cheap rates; service, repairs, etc.—Martin's Caravan Hire Service, Countess Weir, Exeter. [1994]

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"THE Yachting World and Motor Boat Journal" Covers Every Aspect of Motor Boating and Yachting and deal with all types of power craft, including cruisers, speed boats, and outboard motors, well produced and profusely illustrated. From all newsagents and bookstalls, every Friday, 6d. Subscription Home and Canada, £1/10/4; other countries abroad, £1/12/6 per annum post free.—Hiffe and Sons Ltd., Dorset House, Stamford St., London, S.E.1. [0062]

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IMMEDIATE Delivery 5-door Multiple Combination and Saloon Hearses (including child's bier); also all glass 3-door hearses; our guaranteed stock of quality and value is unapproachable; 15 vehicles actually available; modern Austins, Daimler, Rolls-Royce, Buick, Sunbeam, Minerva, complete from £150; no rubbish offered. [9696]

NEW Coachwork Enquiries Given Immediate Attention, finest quality throughout, innumerable unsolicited testimonials available; prices £100-£500; please get our quotation and exclusive designs, detailed catalogues despatched; enquiries solicited by **ALPE and SAUNDERS** (145 Landaulets-Limousines), Providence Court, North Audley St. (opposite Selfridges). [9696]

1928 29 Minerva Dual Capacity Hearse, as new inside and out, in chromium; £325.—Glassbrook, 237, Kensal Rd., W.10. [1782]

S. D. C. TAYLOR and Co., Ltd., build ultra-modern motor hearses, glass, Pullman saloon, multiple purpose cars and ambulances, several hearses always in stock and ready for immediate service; from £85.—S. D. C. Taylor and Co., Ltd., 6, Kendrick Place, South Kensington. Near Sth. Ken. Und. Stn. Kensington 8965. [1671]

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1930 (April) 24hp. 6-cyl. Austin Chassis, fitted with a brand new 4-door saloon hearse body, mahogany panelled, 4-6-bearer seats, child's bier, etc.; £345. [7511]

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1932 Austin 7hp. Van, exceptional value, very little used; £75.—L. F. Dove, Ltd., 115, Addiscombe Rd., East Croydon. Add. 3066. [1969]

A. RIX Offers 1929 Austin 15 cwt. Van, ball change, definitely as new throughout; £57/10; exchanges and deferred terms.—353, Euston Rd., N.W.1. Museum 5739. [1882]

STRONG Coachbuilt Van on Austin 20 Chassis, thoroughly well maintained and in excellent running order, electric light and starter, suit any tradesman seeking smart outfit at low cost; £25.—Macdonald and Martin, Ltd., Dorset House, Stamford St., London, S.E.1. [0588]

"MOTOR Transport," published every Saturday, price 2d., circulates amongst those actively interested in industrial motor vehicles; it provides the finest means for the purchase and sale of new and second-hand business motors; copy for miscellaneous advertisements is received up to first post on Wednesday morning rate 1d. per word, minimum 1s.; write for specimen copy free.—Publishers, Hiffe and Sons Ltd., Dorset House, Stamford St., London, S.E.1. [0971]

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TURN to Our Small Advertisements under Classified. Week-days, Saturdays, 9-9. Sundays 9-1.—High St., Hampstead (Hampstead Tube). Hampstead 6041-6. [9739]

WANTED, 1933 Rover Pilot coupe, in exchange for 1932 Triumph Scorpion Saloon De Luxe, mileage 5,000, and cash.—Box 7951, c/o The Autocar. [2150]

1933 Singer 14-6 De Luxe Sunshine Saloon, perfect, taxed year; exchange for coupe of same model.—Dr. Moore, "Cotham," Cassio Rd., Watford. Phone: 2888. [2645]

LIGHT Cars of Recent Make Purchased or Taken in Part Exchange; any make; balance by deferred payment if desired.—Service Co., 273-4, High Holborn, W.C.1. [0493]

EXCHANGE, July, 1930 6 cyl. Riley Stielvo saloon, exceptional condition, taxed December, for 1930 Austin 12 coachbuilt saloon; cash adjustment.—Orchard, High St., Aylesbury. [1418]

NEWHAMS Allow Best Possible Prices for Used Cars in Exchange for New or Other Used Models; distance no object; 200 cars always in stock; deferred arranged if desired.—237, Hammersmith Rd., London, Riverside 4646. [7185]

PRIDE and CLARKE, Ltd.—£20 for any car, any year, any make, or proportionately high allowance for late models; example; £40 to £45 for 1929 Morris-Cowleys or car of similar make, in exchange for the new 1933 598 c.c. Model 100 P and M. Panther; any car taken as deposit, balance over 18 months; write now for full details, guaranteed part exchange quotations, illustrated catalogue.—158, Stockwell Rd., Brixton, S.W.9 Brixton 6414. [3010]

NORMAND GARAGE, Ltd Exchange Specialists, offer highest possible price for your present car or motor cycle, on receipt of full particulars, in exchange for any make of new or guaranteed second-hand car; balance cash, or exceptionally easy payments, arranged in 48 hours; delivery and collection in England, Scotland, and Wales, free service; immediate deliveries of Austin, Morris, Trojan, Triumph, Standard, M.G., Manchester, or Ford—Call, write, or phone, 459, Oxford St., W.1 (Mayfair 301-2); or 11 Hammersmith Rd., W.14 (opposite Olympia). [0979]

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A.C. and A.C. March Special Distributors.
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A.C. (ACEDES) CARS, Ltd., Thames Ditton, Surrey. Send for 1933 A.C. Car Catalogue. [9266]

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ALFA ROMEO BRITISH SALES, Ltd., Sole Concessionaires. Showrooms: 3, Baker St. W.1. (Service), Hanover Gate Garage, Park Rd., Regent's Park, N.W.2. Overhauls, general repairs and service work carried out expeditiously by experienced Alfa Romeo mechanics. Tel.: Welbeck 2582. [1382]

Alvis.

BIRMINGHAM.
PATRICK MOTORS, Ltd., 237 and 238, Broad St., official Alvis agents, delivery from stock. [0492]

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SOLE Alvis Distributors for Alvis Cars in London and Home Counties, offer for immediate delivery
SPEED Twenty 4-door Saloon, by Thrupp and Maberly, black and brown; £895.
SPEED Twenty 4-seater Drop Head Coupe, by Vanden Plas, grey and red; £865.
SPEED Twenty 4-seater, by Vanden Plas, Tuscan red; £725.
SPEED Twenty 4-seater, by Vanden Plas, blue; £725.
SPEED Twenty 2-seater with dickey, by Vanden Plas, black and red; £795.
FIREFLY Saloon, with preselector gear, black and red; £510.
FIREFLY 4-seater, with preselector gear, black and red; £490.
FIREFLY Coupe, with preselector gear, black and red; £510.
FIREFLY Special 2-6, by John Charles, preselector gear, finished black; £510.
CRESTED EAGLE 20hp 4-door 4-light Saloon, by Charlesworth, black and brown; £750.

AT 18, Berkeley St., W.1. Mayfair 6266.

HENLYS, Alvis Distributors. [2030]

HENLYS, Alvis Specialists since 1922, 1, 3, and 5, Devonshire House, Piccadilly, W.1.; Honly House, Euston Rd. N.W. Tel.: Museum 7734. [0715]

GORDON WATNEY and Co., Ltd.,

SPECIAL Alvis Agents; part exchanges and deferred terms; earliest delivery of all models.—31, Brook St., Bond St. W.1. Mayfair 0267-8-9. [0900]

BIRMINGHAM.—Frank Hallam, Bristol St., Midlands Alvis Distributor; enquiries receive personal attention. [0222]

ARCHIE SIMONS and Co., Authorised Alvis Agents; early delivery.—94, 95, Great Portland St., W.1. Langham 1343. [2042]

WEYBRIDGE AUTOMOBILES, Ltd., Sole Alvis Distributors and Specialists, Berkshire.—Caversham Rd., Reading. Phone: 3140. [0198]

RAWLENCAR CARS, Ltd., authorised Alvis agents; generous allowances for used cars; convenient deferred terms; keen personal attention and service.—39, Sackville St., Piccadilly, W.1. Regent 1100 and 4107. [0488]

1933 Model 12hp Alvis Firefly Chassis, with Sywell Grose 4-door sports saloon; photo deliveries; price £570, complete.—Grose, Ltd., Northampton. Phone: 2111. [0203]

1933 Model Alvis Speed Twenty Chassis, with Harlestone Grose 2-door 4-seater coupe; photographs and specifications upon request; immediate deliveries; price £825, complete.—Grose, Ltd., Northampton. Phone: 2111. [0205]

Armstrong Siddeley.

WARWICK WRIGHT, Ltd.,

LONDON Distributors.—Full range of latest Armstrong Siddeley models at 150, New Bond St., W.1. [4702]

MAIN Armstrong Siddeley.—Dealers for Great Portland St. and Euston Rd., etc.—Mack and Wallwork, Ltd., 143-145, Great Portland St., W.1. Phone: Langham 4256-7. [0941]

Aston Martin.

WINTER GARDEN GARAGES,

SOLE London Distributors for Aston Martins; earliest deliveries; fully equipped repair depot for A.M. owners.

WINTER GARDEN GARAGES, 179, Tottenham Court Rd., W.1. Museum 6428. [0199]

ASTON MARTIN Distributors for Lancashire and Cheshire.—Grosvenor Garage, Burnage Lane, Levenshulme, Manchester. [0032]

"Motor Driving Made Easy." By M. W. Bowdon. Fourth Edition. By Post, 2/9.

Auburn-Cord.

SALES, Service, and Spares.—Sole importing concessionaire for Auburn and Cord cars.—Sinclair Motor Concessions, Ltd., Oxford Rd., Chiswick, W.4. Tel.: Chiswick 6011. Grams: Sinklarcon, Chisk, London. [0833]

Austin.

AT 489,
OXFORD St. (between Marble Arch and Selfridges).

NORMAND GARAGE, Ltd., authorised Austin agents; part exchanges; extended payments arranged in 48 hours; no deposit; after sales service; cars supplied on repurchase basis on low deferred terms; ask for particulars.—Phone: Mayfair 6801-2. Open till 7 p.m. week-days. 6 p.m. Saturdays. [0473]

GORDON WATNEY and Co., Ltd.,

AUTHORISED Agents.—Immediate delivery of all Austin models, we specialise in part exchanges and deferred terms.—31, Brook St., W.1. Mayfair 0267-9. [0211]

ARCHIE SIMONS and Co., Authorised Austin Agents; early delivery.—94, 95, Great Portland St., W.1. Langham 1343. [2035]

WEYBRIDGE AUTOMOBILES, Ltd., Austin distributors since 1913; unique sales and service facilities.—Weybridge. Phone: 235-6-7. [0616]

ROWLAND SMITH, Austin Stockists. Week-days, Saturdays, 9-9. Sundays 9-1.—High St., Hampstead (Hampstead Tube). Hampstead 6041-6 [6160]

DENMANS, agents for 1933 Austin; quick delivery; best deferred terms and exchanges.—Denmans, 132-3, Long Acre, W.C. Open Sunday mornings. [1063]

BRUTON GARAGES, Ltd., Austin agents.—Early delivery all models; exchanges and terms.—4, Blenheim St., New Bond St., W.1. Mayfair 4737. [3360]

SHEPHERD'S, authorised Austin agents.—Immediate delivery of new light Twelve-Four, Ten-Four, and other models from stock.—Enfield Highway, Enfield. [0579]

AUSTIN Cars, all models; immediate delivery from stock; exchange and terms to suit customers.—Vincent's of Reading, Main Agents and Distributors. Phone: 1047. [0645]

LEVERETT KEARTON, Authorised Austin Agents.—Demonstration cars; exchanges, time payments.—79-85, Davies St., Oxford St., W.1. (Bond St. Tube Station). Mayfair 4126-7. [0955]

LOOKERS, Ltd., Manchester, are one of the largest stockists of new and used Austins in the United Kingdom; exchanges effected and deferred terms arranged; inspection invited. [0498]

SOUTHPORT.—Hattons, Ltd., main Austin agents and specialists; new 1933 models actually in stock; earliest deliveries, exchanges and deferred terms.—665-667, Lord St., Southport. Tel.: 4437. [0486]

PLACE Your Order Now for One of the New Austin Models and be Sure of Early Delivery; exchanges and deferred terms; trial runs arranged.—Herbert and Mills, Ltd., 75, Great Portland St., W.1. Langham 3506-7. [1293]

NEWHAMS Offer Immediate Delivery from Stock of latest Austin models. Self financed terms and generous exchange allowances.—237, Hammersmith Golders Green and Fulham. Branches: Streatham. [8678]

THE CAR MART, Ltd., Austin distributors for hand cars always on view; part exchange, deferred terms.—48-50, Park Lane, W.1 (Phone: Grosvenor 3434); 297-299, Euston Rd., N.W.1 (Phone: Museum 42000). [0341]

AUSTIN House, London's largest sole Austin retail depot, for immediate delivery of all the latest models; 50 Austin cars in stock; part exchanges, deferred terms; Austin repairs by Austin experts; complete service of spares and accessories.—The Great Northern Motor Company, Austin House, High Rd., North Finchley, N.12. Phone: Hillside 0024-5-6-7. [0798]

Bentley.

J. B., LTD.

JACK BARCLAY, Ltd., 12a, George St., Hanover St., W.1.

BENTLEY Retailers.

SEE Cars Advertised in Second-hand Columns.—Please get in touch with us with regard to the "New Bentley."

JACK BARCLAY, Ltd., Mayfair 4152. Day and Night, and Mayfair 6142. [0116]

THE NEW BENTLEY.

BEST Deliveries from the Bentley Specialist, Jack Olding and Co., Ltd., 8-9-10, North Audley St., W.1. Phone: Mayfair 5242-4. [0248]

Bentley.

H. M. BENTLEY and PARTNERS, 3, Hanover Court, Hanover St., W.1. Mayfair 3422-3. [789]

B.S.A.

B. S. A.—Jack Olding and Co., Ltd. Mayfair 5242-4.

WE are Main London Distributors of this Wonderful B.S.A. Product Fitted with Fluid Flywheel and Daimler Transmission. Complete range in stock. Wholesale and retail enquiries invited.

JACK OLDING and Co., Ltd. Mayfair 5242-4. [0704]

BETTER SERVICE AT

LEVERETT KEARTON'S, main London distributors for the unique B.S.A. with fluid flywheel and pre-selector gear; demonstration cars, exchanges, time payments.—79-85, Davies St. (Bond St. Tube Station). Mayfair 4126-7. [0007]

ROSSLEIGH, Ltd., B.S.A. distributors for Scotland, 16, Shandwick Place, Edinburgh; 107, St. Vincent St., Glasgow. [1416]

STRATSTONE, the leading B.S.A. distributors; all types in stock; demonstrations anywhere; part exchanges, deferred terms; trade supplied.

STRATSTONE, 27, Pall Mall, and 26, Store St. [8854]

ROWLAND SMITH, B.S.A. Distributors. Week-days, Saturdays, 9-9. Sundays 9-1.—High St., Hampstead (Hampstead Tube). Hampstead 6041-6. [1091]

PALMER, REVILLE and Co., main B.S.A. agents; all models actually in stock; immediate delivery. Wimbledon. S.W.19. Liberty 4986. [6704]

GODFREY'S, Croydon, B.S.A. Main Distributors.—Models actually in stock, immediate delivery; demonstrations; we are B.S.A. specialists.—Godfrey's, Ltd., 228-234, London Rd., Croydon. Croydon 3641-2. [0884]

GODFREY'S, Ltd., B.S.A. car distributors and models in stock; trade supplied; all models in stock; exchanges and deferred terms.—366, Euston Rd., London, N.W.1. Phone: Museum 1402-3 and 5596. [0323]

HARRY NASH.—Bargains!! Bargains!! Brand new 1933 B.S.A. 3-wheelers, must be cleared; great price reductions; sports model twin, listed £115, clearing £99/10; 4-cyl. sports, listed £125, clearing £108/10; choice of colours; several others available, including Standard De Luxe and Family models, correspondingly low prices; small delivery secures, balance over 18 months if required; special high allowance in exchange.—348, King St., Hammersmith. [1389]

Bugatti.

BUGATTI AUTOMOBILES, a direct branch of the French factory, 1-3, Brixton Rd., London, S.W. [0151]

Buick.

BUICK. BRITISH Empire Built.

BUICK.—The C.A. series incorporates all the most advanced improvements in motor car construction, including improvements in motor car construction.

NO-DRAUGHT Ventilation by Fisher on the Standard Models, the perfect ventilation, individually controlled by each passenger.

LENDRUM and HARTMAN, Ltd., Sole Concessionaires for Great Britain and Ireland, Buick Regent 2771 (5 lines). [0388]

BUICK Service.—Lendrum and Hartman, Ltd. Old Oak Lane, Willesden, N.W.10. Specialised Buick service at reduced charges. Tel.: Willesden 4100. [0388]

BUICK "Empire" Saloon, new and unlicensed bargain.—Holloways, Shoreham-by-Sea. [0201]

Chrysler.

CHRYSLER LONDON Distributors.

BAILEY'S MOTORS, Ltd.—All latest and experimental models on view; keen personal attention and service.—10, Albemarle St., W.1. Regent 2166-7. [0936]

AUTO SALES Co., Ltd.,

CHRYSLER Sole London Distributors.

ALL Models in Stock; part exchange allowances, deferred payments arranged; service after purchase.—Showrooms, 212, Great Portland St., W.1. Tel.: Museum 6036-7; Museum 8212-3.

SERVICE Stations.—Park Rd., N.W.8 (Tel.: Primrose 0141); Swains Lane, N.6 (Mountview 5387). [0176]

WEYBRIDGE AUTOMOBILES, Ltd., Chrysler Sole distributors major parts Surrey, Sussex, Hants, Berkshire.—Weybridge. Phone: 235-6-7. Reading Depot: Caversham Rd. Phone: 3140. [0707]

Citroen.

THE LONDON CAR EXCHANGE, Ltd., London's Citroen Experts.—Trade supplied; latest models on view at Citroen Showrooms, 62, Conduit St., Regent St., W.1. Regent 5131. [8333]

SALE

DON'T MISS THIS!

COLOSSAL BARGAINS IN USED CARS

During September we are offering our already low priced cars at still further reductions, so now is your chance to buy at a saving.

We also offer the easiest terms over 12 or 18 months, most generous exchanges, and a 3-MONTHS WRITING TEN GUARANTEE with every bargain! Come and have a free trial run in any car you like!

A SELECTION FROM 100 BARGAINS

1928 AMILCAR, grand sports 2-seater	£48
1932 AUSTIN, Coach, Long Sal, Sun roof	£79
1929 AUSTIN, Mulliner Sal, maroon	£23
1929 AUSTIN, Swallow Sal, Duo blue	£65
1925 AUSTIN, Tourer, very smart	£14
1929 CROSSLLEY, Sal, very good chassis	£49
1930 HUMBER, Coach, Sal, txd., Dec.	£105
1931 JOWETT, Long chassis, saloon	£78
1930 M.G. Coupe, Txd, year, small mileage	£82
1932 MORRIS MINOR, 2-seater, Black and green	£69
1932 ROVER, Special Sports 2-seater, very attractive	£105
1931 SINGER, Coach, Sal, Sun roof, black and red	£75
1930 STANDARD, Sportsman's Coupe, Sun roof	£69
1933 STANDARD, Tiptonmouth Sal, Sun roof	£88
1929 SWIFT, Sports 2-seater, green, de Luxe	£130
1930 SWIFT, Fabric Sal, Sun roof	£48
1931 TRIUMPH, Super 7, 2-seater, Duo grey	£78
1932 TRIUMPH, Pillarless Sal, Sun roof, Blue	£75
1933 WOLSELEY, Hornet Special Swallow 4-seater	£108
Complete Bargain List sent Post Free.	£229

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LTD
25, EAST HILL,
CLAPHAM JUNCTION, LONDON, S.W.11.
Daily 9-8. Sun. 10-1. Phone: Battersea 5272 (7 lines)

Damaged Wings
Scratched Panels
Scraped Wheel
Rims



Repair them with
BRIPAL
BRUSHING LACQUER

Specially prepared for brush use and supplied in the exact colours to match the original Bripal finishes on Austin, Morris, Rover and other cars. Make good that damaged wing or panel. You can do so without the slightest difficulty.

GET A TIN TO-DAY!

No. 1 size. No. 2 size. No. 0 size (black only).
2/- 3/9 1/3

A generous supply of polishing compound is provided in special insert container at base of No. 1 and 2 size tins.

Brochure and List of Colours, post free.

Brown Brothers Limited

THOMSON AND BROWN BROTHERS LTD
BROWN BROTHERS (IRELAND) LTD

61, Eastern Street, London, E.C.2.

put in the sump at 4,022 miles, so I really cannot say what the oil consumption is, but in any case I never have to add to the sump.

To sum up this very excellent car I would say that the road-holding is good, the steering is excellent, and the brakes are perfect.

The front bucket seats were tiring to the back, but I have had the padding

increased in the seat, and also an arm rest fitted. There are one or two minor squeaks and rattles. The general springing is excellent for a small car. It cruises at an easy 45 m.p.h. The petrol consumption, now that the engine is "run-in," is usually 27-28 m.p.g. I always run on "Regent" petrol. It is excellent petrol, and British as well.—G. B. P.

FLASHES

J. McDowell, of Salford, maker of non-squeak brake mufflers, has now moved to new premises at 542, Liverpool Street, Weaste, Manchester.

A booklet entitled "Lamp Quality" has been produced by the British Thomson-Houston Company, Ltd., Crown House, Aldwych, W.C.2. This is an interesting production explaining the many superior qualities of Mazda lamps.

Another success was achieved by Scintilla Vertex magnetos in the Alpine Trials, when the six-cylinder Rileys equipped with these magnetos won the Alpine Cup for the 1,500 c.c. class. Fagioli, who won the Coppa Acerbo in Italy, used Champion sparking plugs in his Alfa-Romeo.

A competition for decorated cars is being held at Wood Green on Wednesday, September 20th. There will be special prizes for the oldest and best decorated car, and also for the best car driven by a lady. Further details can be obtained from the Clerk of the Council, Town Hall, Wood Green, N.22.

A standard Hillman Minx saloon has recently been successful in South Africa in breaking the existing record from Durban to Lourenço Marques. The driver was Mr. Streeter, the motoring Editor of the *Natal Mercury*, and the petrol consumption of his Hillman worked out at 30.9 m.p.g.

Dunlop tyres were fitted to the Bugatti, driven by Williams, which recently won the Grand Prix de la Baule. Dunlop tyres were also fitted to the 750 c.c. Austin which recently broke three Class H records at Brooklands.

The new Rover Twelve, of which the first description appeared in *The Autocar* last week, is fitted with an R. and W. clutch with a Don-Flex disc. These clutches are made by Roper and Wreaks, Ltd., Oval Works, Sheffield, 1.

The original showrooms of Jack Smith, Ltd., 110, Great Portland Street, W.1, have just been reconstructed and decorated. Jack Smith will, of course, be pleased to welcome any of his friends and customers who care to call to see them.

The Birmingham branch of Lancage Safety Glass, Ltd., is now in full operation at 125, Bristol Street, Birmingham. Supplies of Lancage non-discolourable glass, which is guaranteed for two years, can be obtained from this address in any size or shape which may be required.

On Friday, August 25th, Henlys, Ltd., on behalf of the Singer Company, invited the Manchester district traders and the Press to lunch in order to see the new range of Singers. Mr. Frank Hough, of Henlys, introduced Mr. John E. Price, and the whole affair, which took place at Henlys' Manchester service station, was most pleasant and informal.

LOST AND FOUND

The following articles have been reported to the A.A. or *The Autocar* as having been lost or found:—

LOST.

- Petrol tank cap from Wolsley, Watford By-Pass. Ref. No. 5639.
- Petrol tank cap, Biggleswade. Ref. No. 5640.
- Petrol tank cap, St. Austell-Lostwithiel. Ref. No. 5641.
- A.A. badge No. 47806A. Clacton-Colchester. Ref. No. 5642.
- A.A. badge No. 419744 or 419745, near Buckden. Ref. No. 5643.
- Blue morocco handbag, two miles N. of Stamford. Ref. No. 5644.
- Brown leather case, with two straps attached, at Bolderwood, Hants. Ref. No. 5645.
- Hood cover from sidecar, Fleet-London. Ref. No. 5646.
- Hood cover, Reading-London. Ref. No. 5647.
- Cardboard box, packed "2 dozen raspberries," Baldoek Doncaster. Ref. No. 5648.
- Collapsible pushchair, London-Dovercourt. Ref. No. 5649.
- Trade number plate 044XK, London-Hastings. Ref. No. 5650.
- Dark green rug, Oxford-Horsham. Ref. No. 5651.
- Spare wheel with Goodyear tyre from lorry, Leicester-Stoekton. Ref. No. 5652.
- Red spare wheel and bracket with Dunlop tyre, London-Coventry. Ref. No. 5653.
- Spare wheel, London-Doncaster. Ref. No. 5654.
- Spare wheel from Wolsley Hornet, East Wittering-Sunninghill. Ref. No. 5655.
- Thornycroft spare wheel with Dunlop tyre, Ashford, Biddenden, Ticehurst, Battle, Tenterden-Ashford. Ref. No. 5656.
- Brown leather wallet containing A.A. key and membership card, Cheam-Ferring. Ref. No. 5657.
- Number plate PO 5974, Haslemere-Bognor. Ref. No. 5658.
- Trade plate 158BP, Hayling Island-South Bersted. Ref. No. 5659.

- Spare wheel, Brighton-Ditching. Ref. No. 5660.
- Folding canvas chair, Tunbridge Wells-Hove. Ref. No. 5661.
- Road Fund licence O.A.5639, Tunbridge Wells-Lewes. Ref. No. 5662.
- Number plate YY 8230, Southsea-Lewes. Ref. No. 5663.
- Hub cap, Chichester-Haslemere. Ref. No. 5664.
- Chauffeur's cap, ma-fed "Gamages," Poundhill-Haley. Ref. No. 5665.
- Rubber wader, Witney-Oxford. Ref. No. 5666.
- Lady's brown straw hat "Webflex," Bracknell-Bristol. Ref. No. 5667.
- Lady's mackintosh and bathing wrap, Canterbury-Purley. Ref. No. 5668.
- Blue spare wheel from M.G., 4.40x19in., Gosport-Caterham. Ref. No. 5669.
- Fox terrier at Nutfield. Ref. No. 5670.
- Panhard spare wheel and tyre, Southampton-Iythe. Ref. No. 5671.
- Badge No. 12161E, Bishops Waltham-Eastleigh. Ref. No. 5672.
- Bunch of keys, including A.A. keys Nos. 278716 and 567200, near Southampton. Ref. No. 5673.
- Black leather hood cover, Holmsley-Hinton. Ref. No. 5674.
- Riley toolbag, containing jack, pump and tools, Kingswood-Shaftesbury. Ref. No. 5675.
- Spare wheel and Dunlop tyre, Petersfield-Guildford. Ref. No. 5676.
- Spare grey wheel and Dunlop tyre, 4.00x19in., Christchurch-Farnham. Ref. No. 5677.
- Grey tonneau cover, Edith Mead-Minhead. Ref. No. 5678.

FOUND.

- Suitcase, at Arundel. Ref. No. 5679.
- Lady's handbag, at Limpsfield Common. Ref. No. 5680.
- Boy's tweed jacket, lady's tweed coat, and two mackintosh sheets, near Sittingbourne. Ref. No. 5681.
- Nickel-plated front from headlamp, Fulmer-Lewes. Ref. No. 5682.



THE famous ninety-mile-an-hour ALVIS "Speed Twenty" has in less than two years won an unassailable position in the front rank of the world's finest cars. Its charm does not lie in speed alone, amazing though this is, for allied with its outstanding performance is a greater degree of safety, comfort, and ease of control than ever before achieved in a car so fast. And now in this 1934 model ALVIS genius has even enhanced these characteristics! The "Speed Twenty" is as fast as ever, but is even safer, more comfortable, more silent, and yet easier to drive.

Independent Front Wheel Springing and Steering

This system of suspension, introduced in the ALVIS "Crested Eagle" earlier this year, now appears in the 1934 "Speed Twenty." Developed from that fitted to ALVIS racing cars as long ago as 1925, and which contributed so much to the remarkable record of ALVIS success in international events, it has been thoroughly proved under the most arduous conditions. Directional stability, road-holding, and comfort are enhanced to a degree unattainable in conventional designs.

Road stability is further improved by a new immensely rigid cruciform-braced chassis frame and Hartford Tele-control shock absorbers adjustable from the dash. The 1934 ALVIS "Speed Twenty" masters every road!

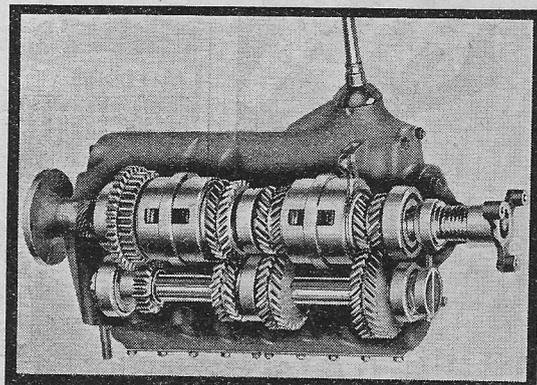
ALL Synchronesh ALL Silent Four Speed Gearbox

This new gearbox has emerged with signal success from the most severe tests, and is the first and only one of its type. It enables the novice to change gear quietly and with certainty under any conditions, whilst the expert will be delighted with the rapidity with which changes are effected, so enabling the most to be made of the phenomenal response of the powerful "Speed Twenty" engine. The synchronesh clutches are applied to all forward speeds, and not only to the two higher ratios as in designs other than the ALVIS, and the pinions of all four forward speeds are helically cut and in constant mesh so ensuring noiseless operation on every ratio. A further advantage of this gearbox is that there is nothing new to learn; the technique of gear-changing is normal, the single plate clutch is sweet, certain, and long-lived, and the short stiff gear lever is in just the right position for ease of operation.

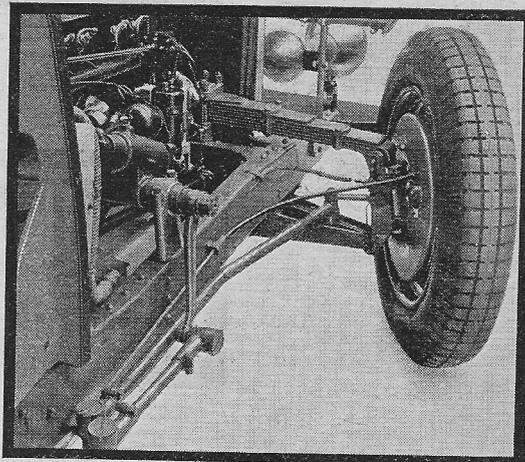
FIELD TWENTY

.. now with unique ALVIS

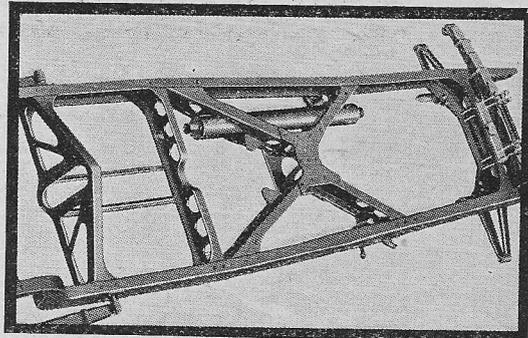
- **ALL** SYNCHROMESH
SILENT FOUR
SPEED GEARBOX



- INDEPENDENT
FRONT WHEEL
SPRINGING AND
STEERING



- RIGID CRUCIFORM
BRACED CHASSIS
FRAME



... also permanent jacks, a new system of operation for the famous ALVIS self-servo brakes, one-shot lubrication system, Lucas P. 100 headlights, and pilot lights. Prices from £695. For full details read the editorial description in this paper.

Write for catalogue and the name of the local ALVIS Agent who will arrange an appointment for you to drive this incomparable car. Make a point of seeing it at Stand No. 110, Olympia.

ALVIS CAR & ENGINEERING CO., LTD., COVENTRY

London Showrooms : 18 Berkeley Street, W.1.



You'll be interested to know
that *Frank Hallam*

is the nearest Distributor to the Alvis Works—and is an enthusiastic Alvis Owner himself—apart from just selling 'em.

Personal attention is given to all enquiries, and demonstrations are definitely a pleasure to all concerned.

Generous exchange allowance for your present car—Appointments made in any part of the country.

Telephone : Midland 2456
(Private Branch Exchange).

**Frank Hallam,
Bristol Street,
Birmingham.**

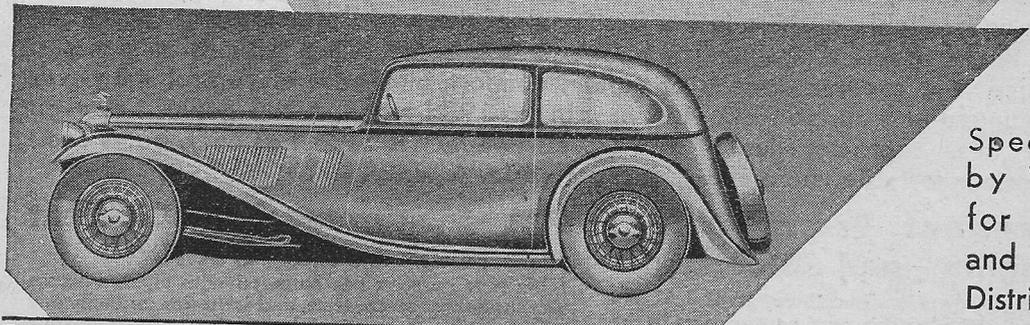
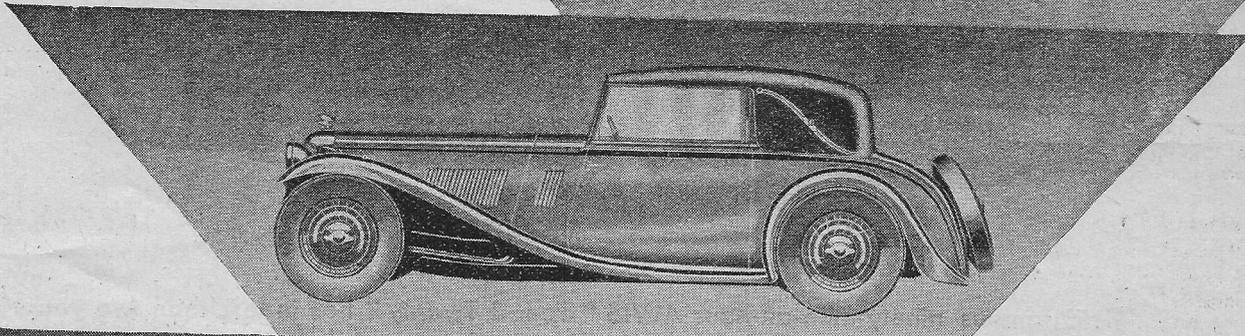
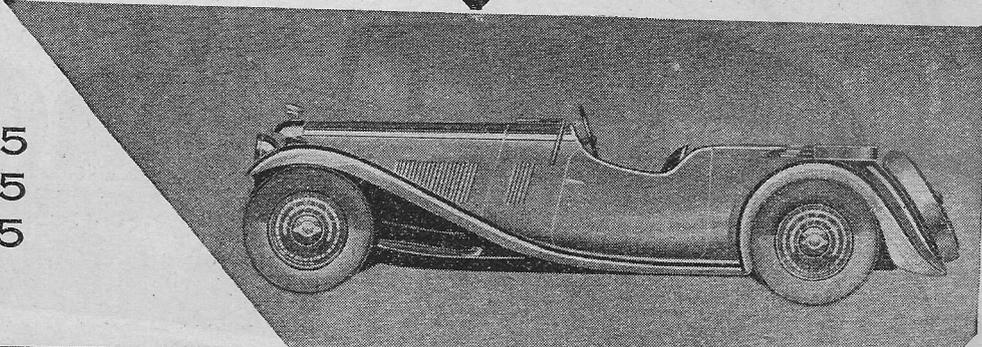
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on the
SPEED 20



With 4-Speed Synchro-mesh Gear-Box
and Independent Front Springing

TOURER £735
COUPE £865
SALOON £865

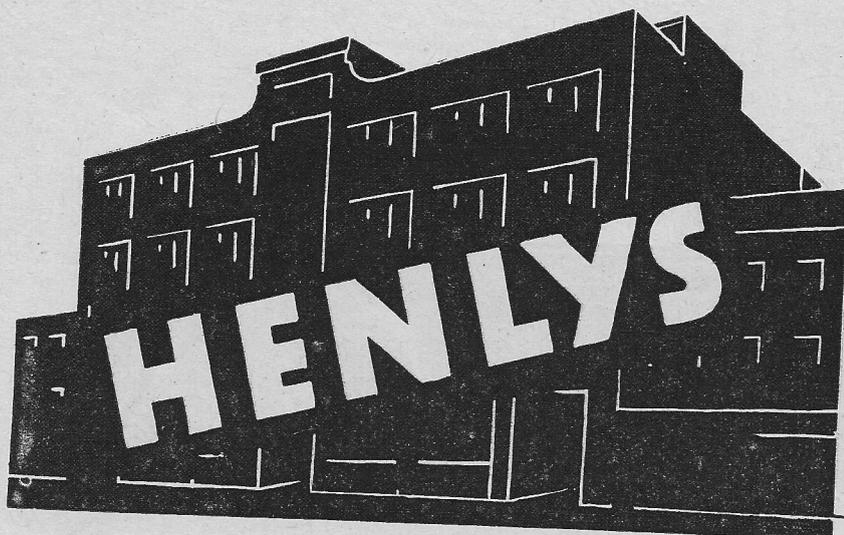


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In Manchester and district, it must be Henlys for Alvis. Being the Main Alvis distributors, and a nation-wide organisation, they can offer you a very generous allowance for your car in exchange, easy payment facilities, the fullest range of models to choose from. Arrange a trial run—without the slightest obligation. But to ensure the best delivery you should act immediately.

SOUTHAMPTON

See the ALVIS "SPEED TWENTY" at the Distributors and Specialists—

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SCOTT MOTORS
 6, SALISBURY ST.
 SOUTHAMPTON

JACK OLDING SPECIALISTS IN 'ALVIS'

Complete range of models in stock. Attractive allowances for any car in part payment.

8-9-10, NORTH AUDLEY ST., LONDON W.1
 'PHONE: MAYFAIR 5 2 4 2 - 4

BOURNEMOUTH

First see the new ALVIS at the Distributors

Service — Exchanges
 Terms arranged

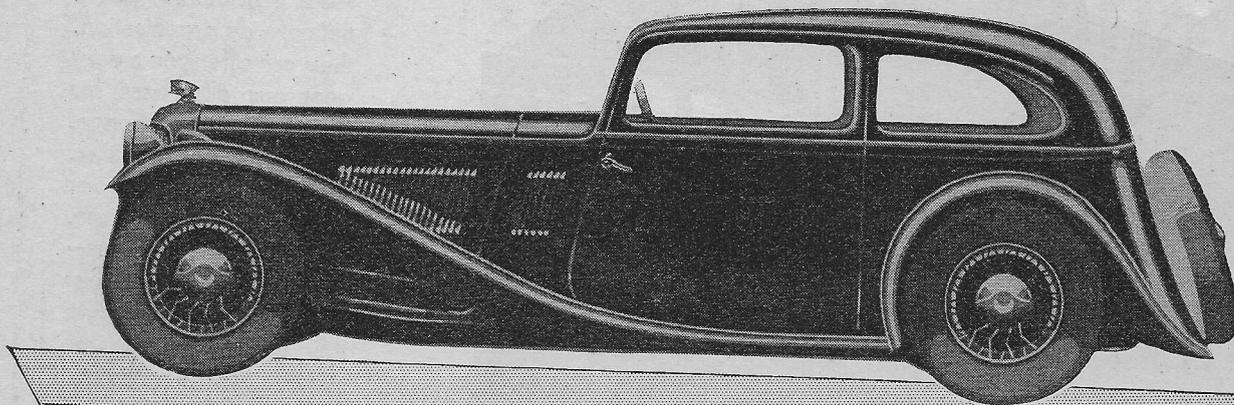
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NEWCASTLE-STAFFS

for immediate delivery and every convenience in purchasing your

ALVIS, consult
HENRY FARR & SON, LTD.
 NEWCASTLE, STAFFS

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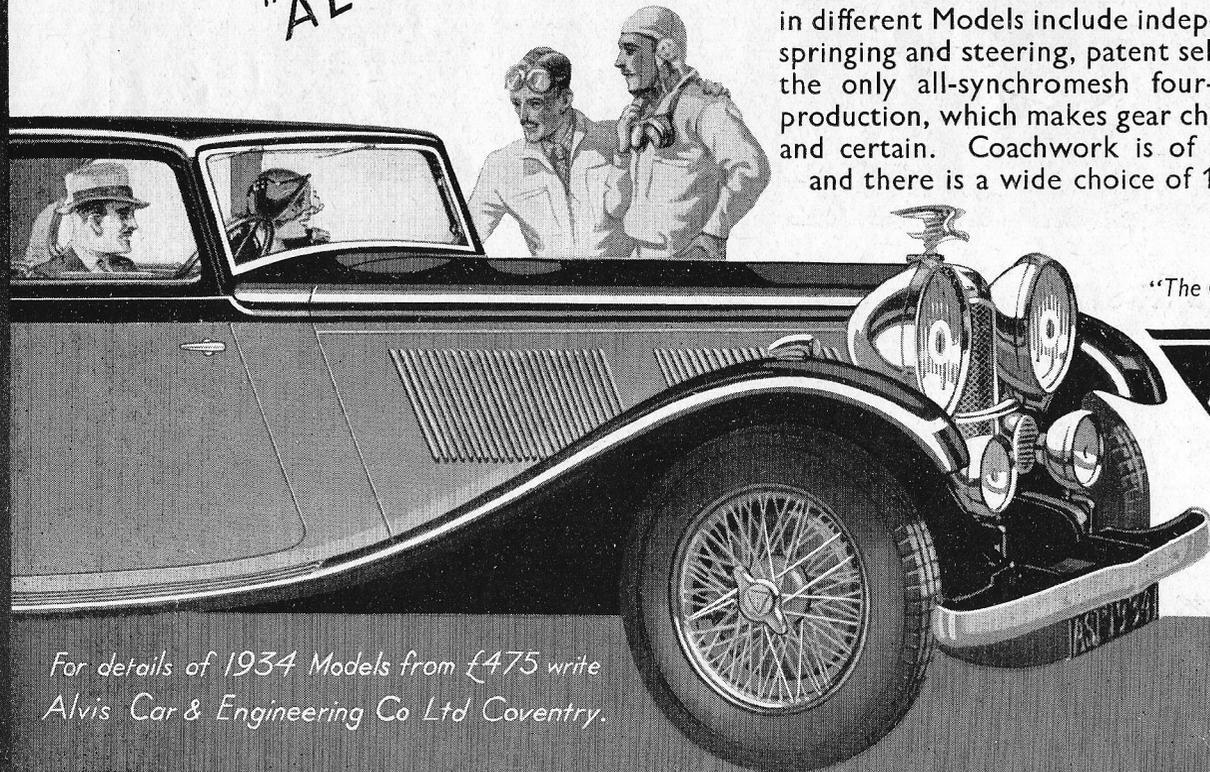


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 THE HYDE · HENDON · N.W.9
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"ALVIVACITY"?

EVERYONE is talking about "ALVIVACITY," those exclusive qualities of the all-British ALVIS which are the result of many years of leadership in automobile design. No other car gives such a joyous response to every mood, or possesses such features which make for better motoring. Every ALVIS owner is an enthusiast, he cannot possibly be otherwise. Exclusive ALVIS features incorporated in different Models include independent front wheel springing and steering, patent self-servo brakes, and the only all-synchromesh four-speed gearbox in production, which makes gear changing swift, silent, and certain. Coachwork is of the highest order, and there is a wide choice of 1934 Models.



"The Car for the Connoisseur"

ALVIS

*For details of 1934 Models from £475 write
Alvis Car & Engineering Co Ltd Coventry.*

USED CARS ON THE ROAD

No. 17 : 1938 540K Mercedes-Benz Drophead Coupé

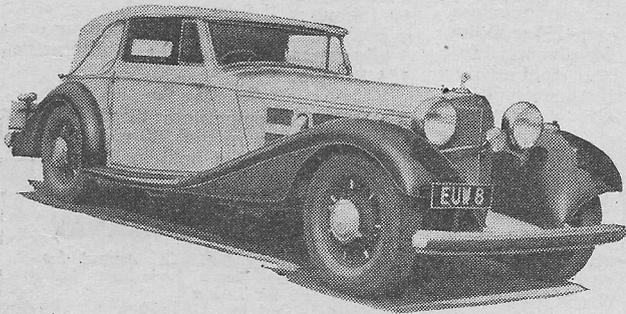
Price, new : £1,895 Secondhand : £1,675	Acceleration from rest through gears to 30 m.p.h., 3.5 sec. To 50 m.p.h., 10.0 sec. 20-40 m.p.h. (top gear), 5.7 sec.	Fuel consumption range : 9-14 m.p.g. Oil consumption : negligible.	Speedometer reading : 47,598. Car first registered : March, 1938.
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WITH such an unusual car as the 1938 540K Mercedes-Benz the uninitiated might expect it to do almost anything—and indeed it does! The car tested, which was supplied for the purpose by the Swanmore Garage, Boscombe, Bournemouth, had an English-built body strictly along the well-known Mercedes lines, but built by Offord's. Naturally enough, in view of its petrol consumption, it had not been used during petrol rationing periods (which were a large slice of the period since 1938), and its general appearance, inside and out, was very good.

The car had recently passed through the hands of the Mercedes-Benz firm in England, and it was apparent during the test that the mechanical condition was sound; the only unpleasant sign from the engine compartment was a certain amount of smell.

The 540K, it will be remembered, was fitted with a supercharger brought into use at the will of the driver. During normal operation of the throttle pedal the supercharger is not working, but pressing the pedal right down operates a clutch, and the ensuing scream, and push in the back, make it quite clear that the supercharger has been brought into action! Its uses for overtaking on busy roads, or for that extra urge whenever required, are quickly appreciated.

The car is a real "heavy" so that its performance at low speeds on the 115 b.h.p. available *without* the supercharger was not so forcibly noticeable as it was when the car was really under way.



Here again, however, the blower could be used with effect. This choice of when to use the extra power had its inevitable effect on petrol consumption, and it was found that with normal driving about 12-14 m.p.g. could be obtained. Extensive use of the blower reduced this figure to 9-11 m.p.g.

The speedometer was about average in its optimism, reading 55 at a true 50 m.p.h. The maximum speedometer reading obtained during the test was a little over the 100; a figure reached on a quite short stretch of open road. Traffic conditions then required deceleration, but the car was certainly not at its maximum. The gear box gave direct drive on third gear, on which it could be accelerated from very low speeds. Once on the open road an overdrive fourth gear could be engaged for higher speeds without any fuss from the big engine.

The steering, heavy at low speeds, was thoroughly accurate, giving all the control required for a car with such potential performance. Similarly, the brakes were really powerful and adjusted to a nicety. The suspension was firm, with no undesirable features. All five tyres were virtually new.

A choice of horns to suit the occasion was provided, with a selection switch connecting either to the horn ring on the massive steering wheel. The comprehensive range of instruments included a rev counter. A good range of hand tools, as well as the jack and wheelbrace, was installed in the luggage locker.

No. 18 : 1933 Alvis Speed Twenty Four-seater Tourer

Price, new : £825 Secondhand : £385	Acceleration from rest through gears to 30 m.p.h., 6.9 sec. To 50 m.p.h., 17.5 sec. 20-40 m.p.h. (top gear), 11.1 sec.	Fuel consumption range : 16-18 m.p.g. Oil consumption 1,800 m.p.g. approx.	Speedometer reading : 16,553. Car first registered : March, 1933.
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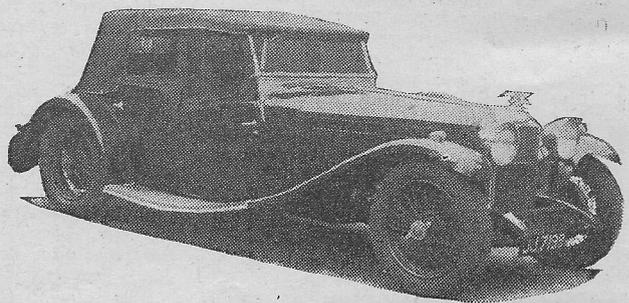
THERE must be very few enthusiasts who do not take a special interest in the best vintage-type cars, of which the Alvis Speed Twenty is certainly one of the best known. This is the type of car which demands to be properly preserved, and the 1933 model supplied for test by the Alton Garage, 17, Brook Mews North, Paddington, London, W.2, showed that it had been so treated. The body exterior was particularly praiseworthy, having been completely recellulosed a typically Alvis dark green and fitted with a well-finished new hood and side screens. The green seats and carpets showed wear, although the leather had retained a good, clean appearance. With such a car an external examination automatically includes a good look under the bonnet, taking in the three S.U. carburetors, the well-polished fuel piping, the visual float-actuated oil level indicator, and noting the clean layout and commendable accessibility of all the components.

This model had a dual ignition system, the ignition switch being turned to coil ignition for starting and then to the magneto for normal running. The traditional ignition advance and retard control was fitted at the centre of the steering wheel and it was particularly necessary to put this to retard for starting, for, apart from the risk of damage, the starter otherwise had little hope of turning the engine at a useful speed. Partly owing to the good induction provided by the three carburetors, the mixture control could be returned to normal as soon as the engine was running, which meant the moment that the starter button was pressed.

To those used only to modern cars it may be surprising to realize that the Alvis Speed Twenty was a car of 2½-litre engine size which was good for speeds of up to 90 m.p.h. in prime condition, with a very lively acceleration, 18 m.p.g. with normal driving, and a controllability which many a modern car could emulate.

The overall mechanical condition of the car tested was surprisingly good, the easily operated "crash" gear box, despite a longish wait for the engine revs to come down when changing up, provided the means of a vivid rise to speeds which were high by any standard. The speedometer showed optimism to the extent of indicating 56 at a true 50 m.p.h., but there was no doubt that the car was still capable of real speed. At a little over and indicated 70 m.p.h. a slight front-end shake was noticed, which disappeared before the 80 was reached. At this speed the car was entirely happy. The clutch always gave a smooth take up, but it had the tendency to slip when the throttle was opened wide in the lower speed range of any gear.

The brake pedal required much more pressure than a modern counterpart, but quite powerful and viceless deceleration was there. The suspension was certainly hard by modern standards, in a way which added to the taut feeling of the whole car. Perhaps the highlight of the many virtues of this vintage classic, however, was the steering, which slipped the car round a corner almost before the driver had decided to go that way!





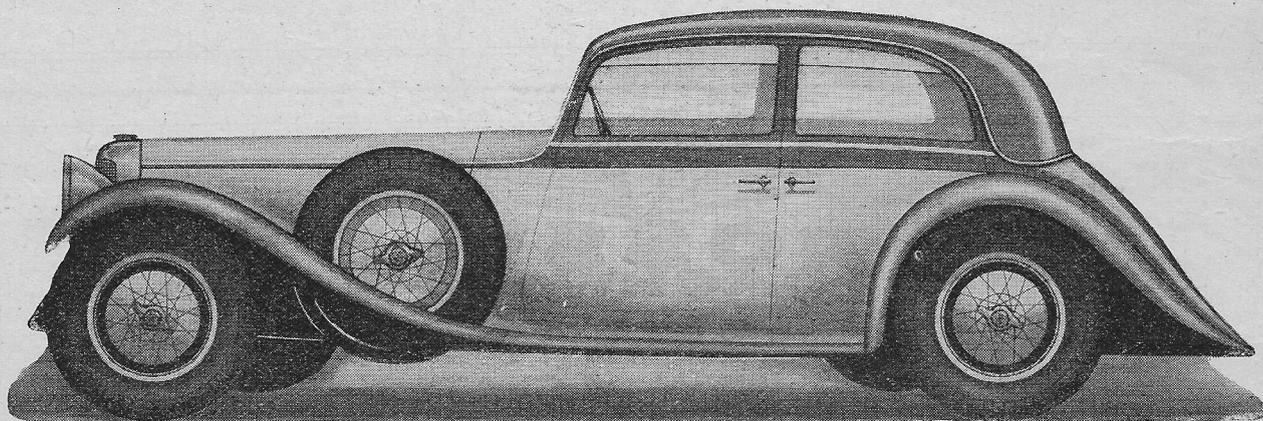
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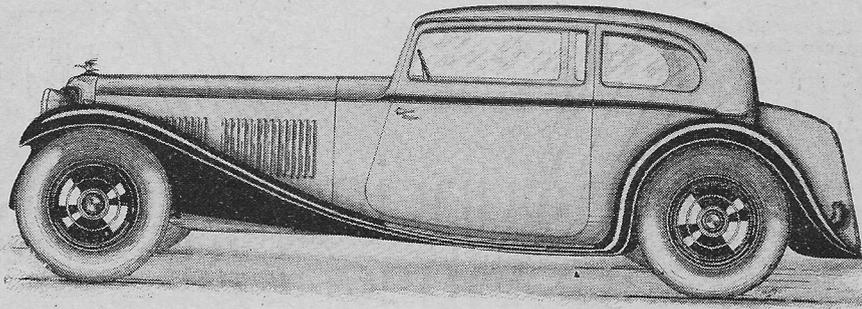
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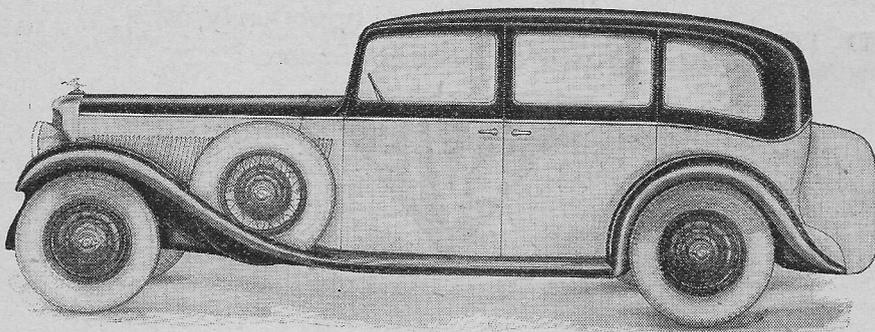
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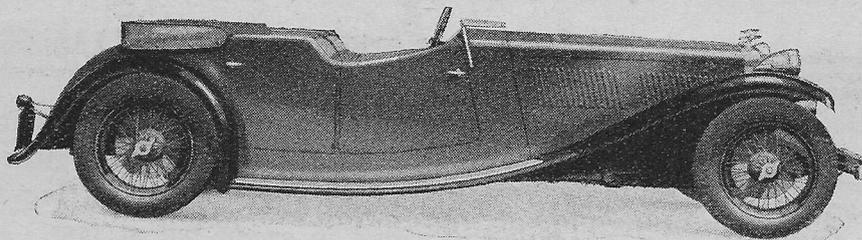
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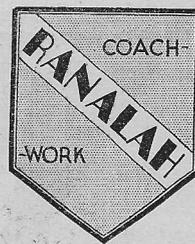
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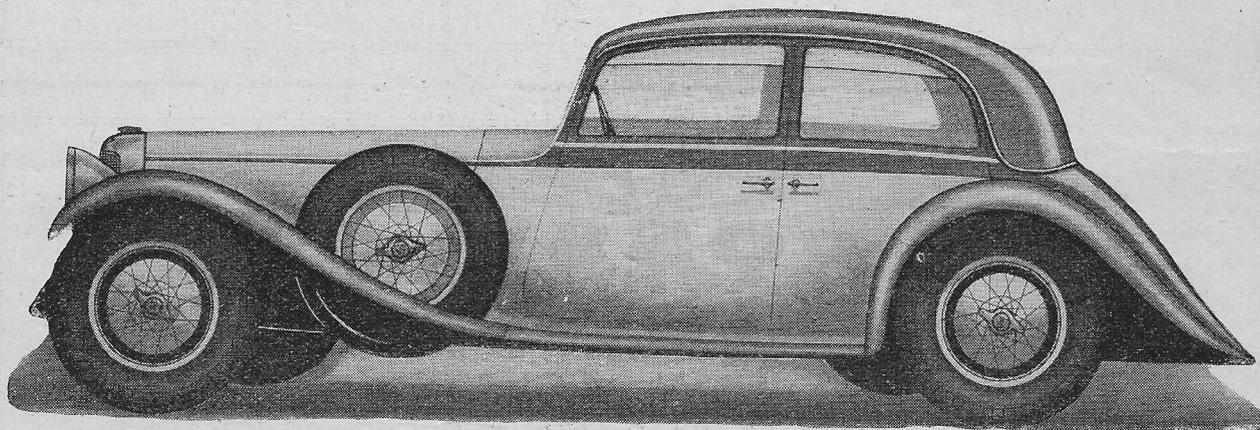
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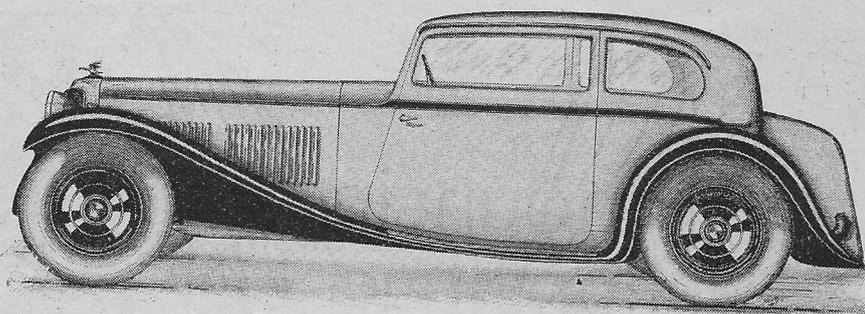
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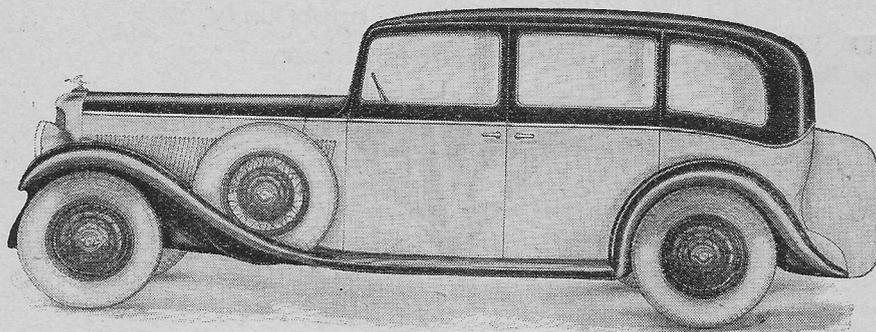
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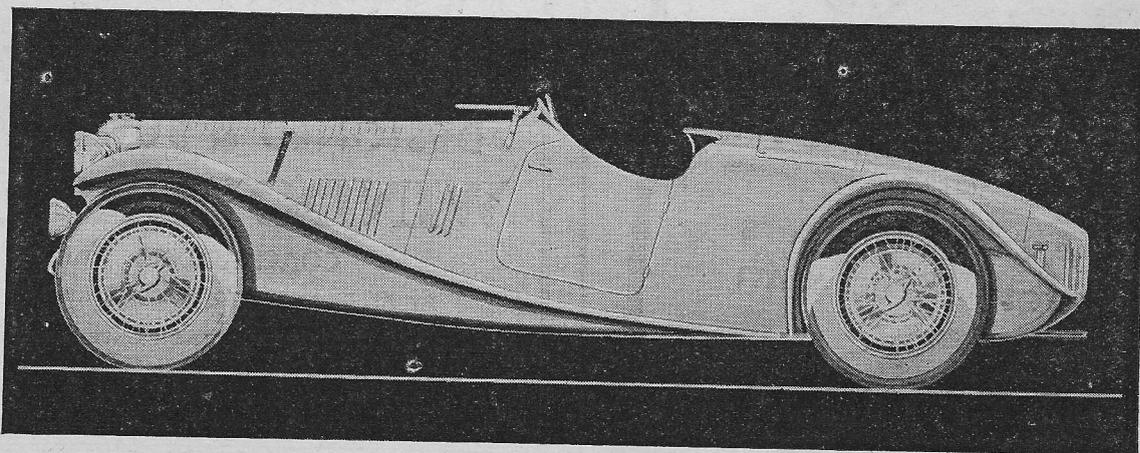
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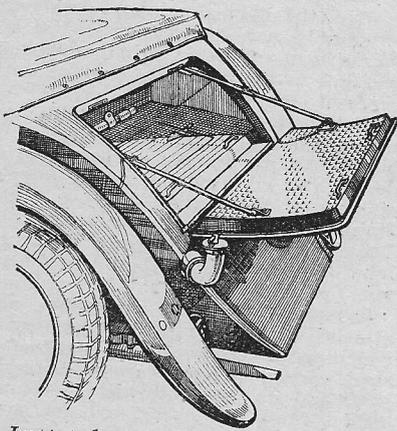
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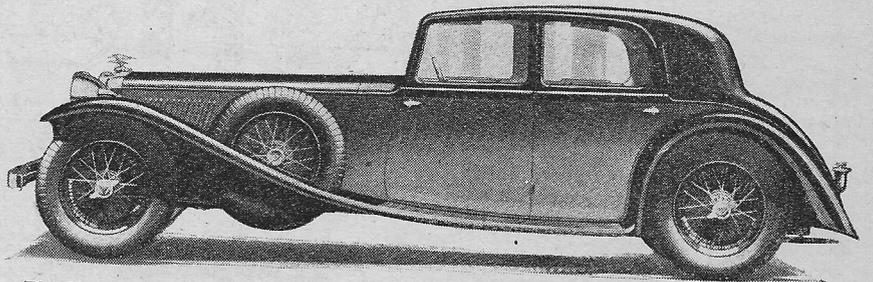
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Luggage boot on the latest Alvis Speed Twenty open four-seater.

A NEW ALVIS SPEED TWENTY

Independent Front Suspension and Synchronesh on All Four Gears



The Charlesworth sports saloon on the Speed Twenty chassis. The price of this car is £825.

IF a definition of the Alvis Speed Twenty were needed, it might well be couched in the following terms: a fast car that is really fast, a fast car that can be driven fast with ease and in comfort, and a fast car that is able to continue to be fast for a prolonged period of time. As a matter of fact this Alvis holds the road in a remarkable way, and because of this factor a normal driver exercising normal consideration for others finds himself able to travel in perfect safety from place to place at average speeds which a few years ago would have been regarded as fantastic for anything except a racing car.

Good as the 1933 type of Speed Twenty was, its producers now aim to make the 1934 series even better, and so the design has changed in two important respects, independent front wheel springing has been adopted, as well as a new four-speed gear box with synchronesh on all four speeds. Otherwise the chassis remains much as it was.

The Independent Springing

In its general conception this suspension is similar to that now in use on the new Crested Eagle Alvis, consisting of a broad-bladed laminated half-elliptic spring attached cross-wise above a very rigid cross-member construction at the front of the frame. The end of the spring on each side is attached by a shackle bolt to a steel bracket which forms the fulcrum point for the steering pivot. At the foot of this bracket a second shackle pin attaches it to a triangular-shaped radius member, the base of the triangle being attached to the frame by a long swivel in which is incorporated a shock absorber device.

The length and the point of attachment of the radius member are such as to make sure that deflection of the spring causes the steering pivot and stub-axle assembly to rise and fall in a vertical plane. The location of the steering pivot, since there is no axle bed, is secured partly by the broad spring, and largely by the triangular radius member. Just as the front wheel suspension is independent, so also is the steering to each front wheel, for from each steering pivot a drag link runs aft to a bell crank on the frame, the two bell cranks are coupled together by a track rod, also carried on the frame, and the track rod is coupled up to the normal steering gear, which is a Marles-Weller. The rise and

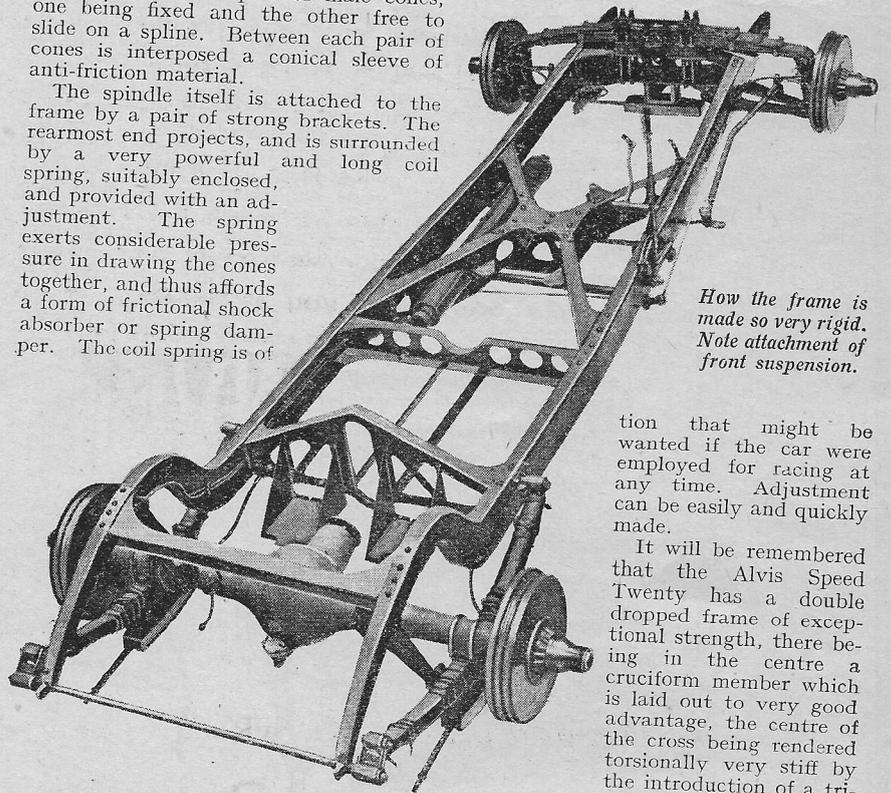
fall of one steering-wheel therefore has no effect upon the steering of the opposite wheel.

Between the Crested Eagle and the new Speed Twenty, there is one particular difference, a very special form of shock absorber is introduced into the triangular radius member. This member is a steel stamping, and in its fulcrum are machined opposing cones. Passing through the centre is a splined shaft, and this carries a pair of male cones, one being fixed and the other free to slide on a spline. Between each pair of cones is interposed a conical sleeve of anti-friction material.

The spindle itself is attached to the frame by a pair of strong brackets. The rearmost end projects, and is surrounded by a very powerful and long coil spring, suitably enclosed, and provided with an adjustment. The spring exerts considerable pressure in drawing the cones together, and thus affords a form of frictional shock absorber or spring damper. The coil spring is of

a size and length such as to make sure that when the adjustment is set it will remain the same for a long period of time, for it can be but little affected by wear on the cones, which wear is, of course, automatically compensated.

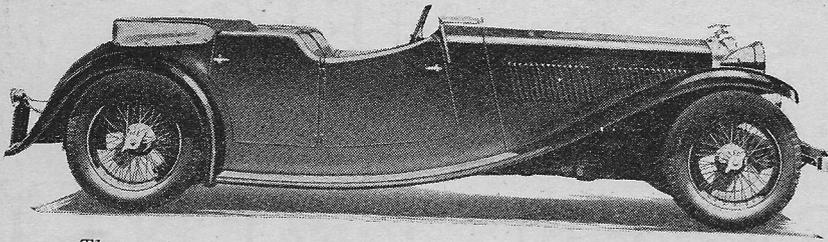
The shock absorber also has a wide range of adjustment, for it can be set up, if desired, very nearly solid, a condi-



How the frame is made so very rigid. Note attachment of front suspension.

tion that might be wanted if the car were employed for racing at any time. Adjustment can be easily and quickly made.

It will be remembered that the Alvis Speed Twenty has a double dropped frame of exceptional strength, there being in the centre a cruciform member which is laid out to very good advantage, the centre of the cross being rendered torsionally very stiff by the introduction of a triangular bracing piece. The frame of the car is



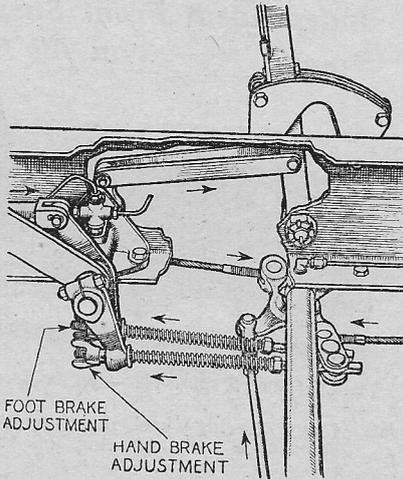
The sports open four-seater, built by Cross and Ellis, which costs £695.

particularly interesting in many respects, not only because of the cruciform cross bracing, but for the stiffness of the front cross member to which the independent springing is attached, and also because the cross members towards the rear are unusually stout. There is a cross member interposed between the attachment points of the front end of the rear springs, of a triangular shape, very deep in the centre, where there is a slot through which the propeller-shaft passes, and this cross member is also provided with steel trays in which the batteries are carried. It is, however, in the centre of the frame where the second big change is to be noted, for an entirely new gear box has been introduced. This box is not in unit with the engine, but is separate from it, and is coupled up to a very accessible single-plate clutch by means of a clutch shaft with twin fabric joints at each end. The new box is mounted flexibly on rubber cones attached to the frame at three points, two in the front and one at the base of the box towards the rear.

Synchromesh on All Four Gears

The particular point of interest about this new gear box is that it provides synchromesh not only on top and third, but on all four gears. Helical-toothed gear wheels are used for constant mesh, third and second, and ground straight-tooth wheels for low gear and reverse. The box is divided as it were into two portions; in the front, third and top are situated, and in the back first, second, and reverse, and the shafts are therefore carried in three sets of bearings. Incidentally, the shafts are of large diameter and stiff, and the gear wheels come right up close to the bearings so that over-hang is avoided.

The synchromesh is of the type wherein small cones carried by the gears are, when



The master adjustment for the brake system.

a gear change is made, first engaged by hollow cones on a sliding sleeve which is connected to the sliding portions of the dogs. Thus, when a gear change is attempted, the sliding sleeve engages the cone, and is caused to revolve at the same speed, whereafter the internally toothed dogs can be engaged without difficulty. The method of using this gear change is to depress the clutch and then gently, but firmly, pull the gear lever over into the desired position, and the drive is picked up automatically and without a sound. Incidentally, the driving gears and their dogs in each case run on roller bearings, and at the front of the gear box is an oscillating plunger pump which forces oil under pressure throughout the length of the shaft to the gear wheels and bearings.

Another change to be noted in the car

is that the cast aluminium dashboard structure is now inclined, instead of being vertical, so as to permit a sloping rear line to the bonnet to conform with needs of coachwork design.

High performance and durability are not obtained in Alvis cars by accident, but by an exceedingly careful style of design and construction, and a review of some of the leading features of the Speed Twenty should prove interesting. The engine has six cylinders of 73 by 100 mm. (2,511 c.c.), rated at 19.82 h.p., tax £20.

Cylinders are cast monobloc and attached to an aluminium crank case in which is a crankshaft of heat-treated steel, carried in four bearings, both the shaft and its support being exceedingly rigid. Steel connecting rods of stout proportions but very carefully designed as regards weight saving, are employed, and the pistons are of a special aluminium alloy. In a detachable cylinder head, overhead valves are carried, and are operated through push-rods. The gasket between the cylinder head and the cylinder casting is not used for water jointing because separate passages at the front and rear end of the engine are employed for this purpose.

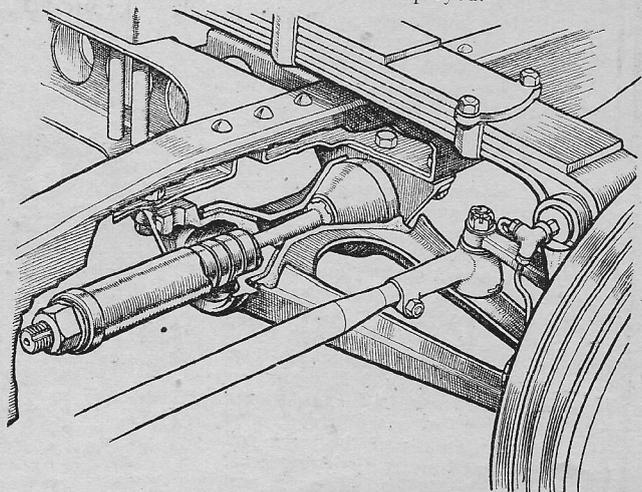
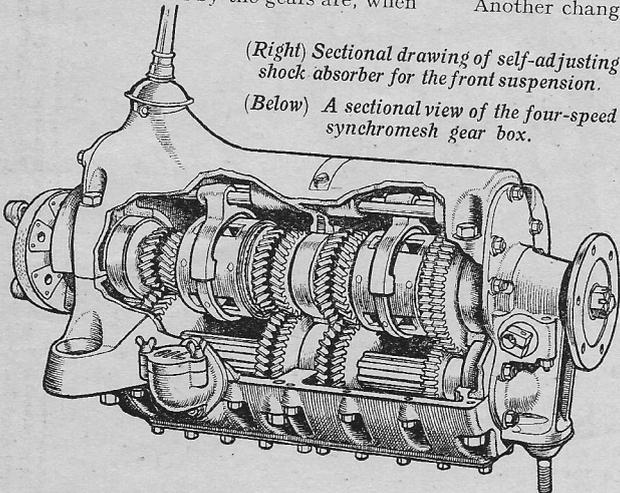
Carburettors and Auxiliaries

Mixture is fed to the cylinders by a gang of three S.U. carburettors fed from an AC petrol pump driven from the camshaft. A self-adjusting type of Duplex chain is employed to drive the camshaft and the auxiliaries, such as dynamo and water pump, and it is situated at the rear end of the engine so as to avoid the introduction of torsional whip in the crankshaft. Incidentally, at the front end of the crankshaft is a torsional vibration damper. Lubrication of the engine is effected under pressure by a gear pump driven by spiral gears from the camshaft.

The crankshaft main bearings and big ends, and the valve rockers and push-rod ends are fed under pressure, whilst the camshaft and cam followers are splash fed. Effective and easily cleaned oil filters are provided on both the suction and pressure side of the pump. One of the features of the engine is the care taken to avoid distortion in the cylinder block and cylinder head around the valve seats, by disposing the water spaces to the best possible effect. Pump water circulation is employed.

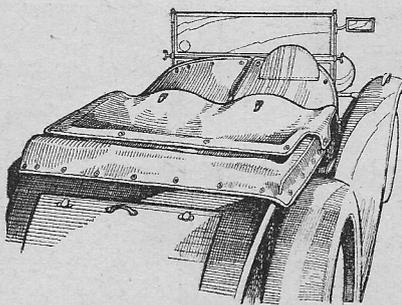
(Right) Sectional drawing of self-adjusting shock absorber for the front suspension.

(Below) A sectional view of the four-speed synchromesh gear box.



Another special feature is the use of dual ignition, the arrangement consisting of a polar inductor magneto which can be switched over in a special manner to work in conjunction with a high tension coil as coil ignition, for a "second string." The clutch on the car is a single-plate design using a Don Flex centre.

Final drive is by means of an open propeller-shaft to a spiral bevel gear contained in a fully floating type of rear axle. A choice of two axle ratios is available, 4.5 to 1 or 4.7 to 1. The rear springs are half-elliptic, and underslung, and are encased in leather gaiters. They are damped by Hartford Telecontrol shock absorbers. "One-shot" chassis lubrication operated from a tank on the dashboard attends to all the chassis parts. Across the back of the frame is a tank holding sixteen gallons.



The zip-fastened cover for the whole seating accommodation of the sports four-seater.

The wheelbase of the car is 10ft. 3in. and the track 4ft. 8in. Special centre lock wire wheels are fitted, and are shod

A New Alvis Speed Twenty with Dunlop tyres 5.5 by 19 in. Permanent jacks are fitted to both front and rear of the car. It may be mentioned that Lucas P 100 head lamps, and two smaller non-dazzling fog lamps, are standard equipment on the cars and also twin high frequency horns.

Finally, the chassis price of the latest Speed Twenty is £600, the sports four-seater costs £695, the coupé £825, and the saloon £825. The only modifications to record in the excellent coachwork are that the new dashboard allows a sloping line on the scuttle to be introduced, whilst on the saloon an improvement in appearance has been effected by abolishing beading between the rear panel and the tail so as to give an unbroken series of sweeps. The rear panel has been rounded off more flowingly and the rear door windows are shaped to match.

Road Impressions of New Models

The Alvis Speed Twenty

IF the Speed Twenty Alvis of this year was a remarkable car, the new edition, nevertheless, is still more so. It is so becomingly modest in its behaviour. The fresh driver takes over the wheel and thinks that he is pottering along the open road at 40 m.p.h. or so, just to begin with; he is astonished when a casual glance at the speedometer shows the needle at something over 60 m.p.h.

It is not often that an experienced driver is deceived about speed, he usually has a pretty accurate notion of his rate of travel. Why this Alvis is deceptive is easy to discover. The car is so extraordinarily steady, it feels so safe whatever may be the speed, and really high speed is available. Because of the independent springing the riding is level; the front of the car flows across the landscape like the stem of a boat on a smooth sea. But the independence of the springing is also backed up by the independence of the steering, which has a most marked effect on the handling of the car.

The steering literally feels exactly the same if the car is travelling fast or slow. It does not wander at high speeds. It gives no suggestion that wheel-tramp or wheel-wobble is lurking in the design ready for a suitable patch of bad road surface to start it going. There is no evident need to take a good grip of the steering preparatory to rounding a fast curve. The feel is not easy to describe, but it is notably pleasant to experience. The car is absolutely untiring to the driver, for it is so easy and so certain in its progression. Moreover, the brakes are excellent, being progressive, smooth, and

A Remarkable, Modest, Fast Car that Handles Beautifully

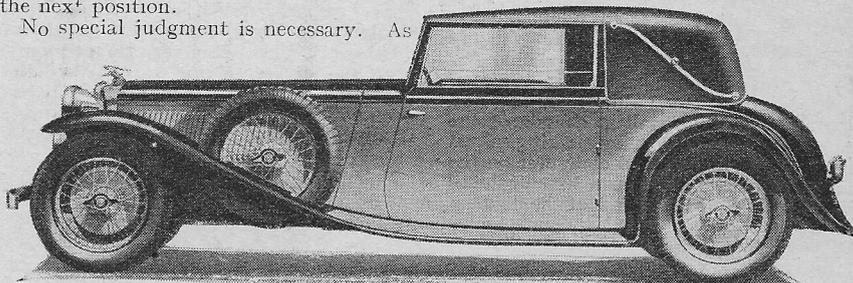
ready to pull the car up quickly from high speed without causing tyre scream or deviation from the course.

Naturally, the new synchromesh gear box is a great point of interest. It works finely. In the first place the gears are unusually quiet. Except for engine note there is little difference in transmission quietness between second, third, or top. Low gear must not be forgotten; having straight-toothed gear wheels it is not so noiseless as the others, but on the other hand it is exceptionally quiet for a low gear. Then the gear change is as easy and simple as anyone could wish. All that is needful is to release, or to depress, the accelerator pedal according to whether one is changing up or down, and then to depress the clutch pedal. A firm, steady pull on the gear lever then moves it quietly and with certainty into the next position.

No special judgment is necessary. As

soon as the clutch is out the gear lever can be moved. In a sense engine speed does not matter, the synchromesh will see that the new gear goes in. But, of course, the accelerator pedal should be suitably used, otherwise the re-engagement of the clutch may cause a sudden slowing down, or a sudden speeding up, of the engine, resulting in a clumsy thump to the whole car. An experienced driver will find no more difficulty with this gear change than will a novice, and a novice will have very little to learn before he can use it with ease. Gear changes up or down can be made quite quickly, there is no need to take time over them, provided that the lever movement is made a smooth one so as to give the synchromesh time to do its job.

These few comments are not intended to cover the whole range of characteristics of this remarkable British car, but they should serve to review the behaviour in practice of the two new features of it.



The four-seater Speed Twenty coupé built by Charlesworth, the price being £825.

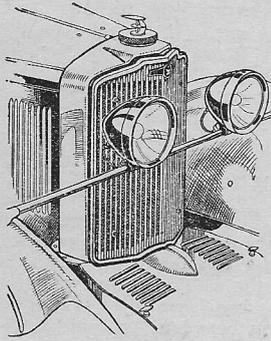
WHAT IS YOUR PETROL CONSUMPTION ?

CAR owners who would like to ascertain accurately what is the petrol consumption of their cars have an opportunity of doing so, free of charge, to-day (Friday) and to-morrow. The Speedhire Service Garage, Ltd., 15, Abbey Road, St. John's Wood, N.W.8, have laid out a course in Regent's Park, London, starting from Hanover Gate and traversing the Outer Circle road in an anti-clock-

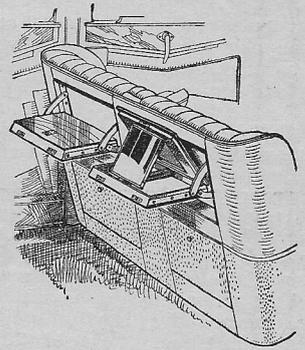
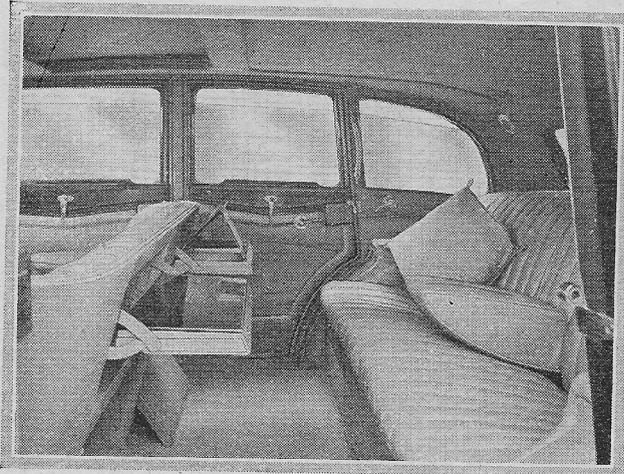
wise direction. Every tenth of a mile is marked, and each car begins its run with precisely one pint of petrol in a special testing rig. The object of the organisers of this test is to popularise their Speed petrol. There is, however, no obligation to carry out the test on this spirit.

Tests may be arranged between 3 p.m. and 7.30 p.m., and cars should be driven into the National Car Park (opposite

Lord's Cricket Ground), St. John's Wood Road, N.W.8, where the temporary fuel testing set will be fitted. Having regard to the uncertainty of most motorists as to the actual mileage covered by their vehicles on a given quantity of petrol, it is to be anticipated that there will be a considerable response to this invitation to obtain accurate figures without expense.



The radiator of the 65 model now carries a stoneguard.



(Above) Folding footrests, and tables with mirrors, in the new 95 saloon.

(Left) Interior of the 95 model saloon.

TALBOT POSITION CONSOLIDATED

AN excellent example is provided by the Talbot plans for the coming year of the wisdom of a manufacturer who has developed a sound series of cars in continuing his designs without drastic alterations, refining and embellishing here and there as found desirable in the light of experience, but carefully avoiding any major alterations on the mechanical side. So satisfied are the makers of these cars with the vehicles they have been producing during the past twelve months that there is no fundamental breakaway from previous practice in any of the chassis, the four main types being as hitherto, the 65, 75, 95 and 105 models, rated at 13.8, 17.9, and at 20.9 h.p. for the two bigger cars.

Actually, quite a number of things have undergone modification in the ordinary course of events since this time last year; these are not of the kind immediately obvious, though they have their undoubted effect in rendering the cars still more pleasing. As regards coachwork, however, there is visible evidence of new ideas, additional types of bodies are made available, including two new ones on the smallest chassis of the range, the 65 model, and a striking saloon of sporting but practical character on the 3-litre 95 chassis, besides a host of detail refinements in the interiors of the cars.

Prices for 1934

Prices remain practically as they were for 1933, the figures being as follows: Model 65: Chassis, £295; standard saloon, £395 (sliding roof £7 ios. extra); special six-light saloon, £425; special four-light saloon, £425. Model 75: Sports chassis, £395; sports saloon, £495 (sliding roof £7 ios. extra).

Then there is a new long wheelbase 75 chassis available now with the self-changing gear box, the chassis price being £425. On this a five-seater coach-built saloon costs £545. Model 95: Chassis, £475; coachbuilt saloon, £645. Model 105: Speed model chassis, £525; sports four-door saloon, £795.

Four Main Existing Models Retained for 1934: New Coachwork on the 65, Long Wheelbase 75, and 95 Chassis: No Big Price Changes

It is now twelve months since the Talbot cars were first offered with a self-change preselective type of gear box, and this, of course, continues to be offered, though purchasers may still have the ordinary right-hand change four-speed gear box with silent third and ordinary clutch, if they so prefer. There is a most important improvement in the design direction, for it has been possible to render the running of the self-change gear box very much more silent, particularly as regards the elimination of "whine" when the car is stationary with the engine ticking over. Also, the operation of the gear changing pedal has been considerably lightened, so that now, if anything, the pressure required on it

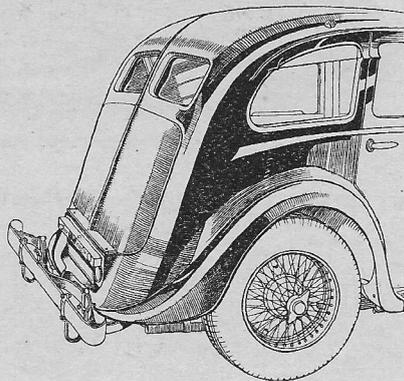
for all gears is lighter than for an ordinary clutch. A short trial on one of the latest 95 saloons demonstrated this point. The self-change box is built in the Talbot works, under Wilson patents.

Then, generally, the springs have been made rather more flexible to increase the comfort of riding without impairing the stability for which these cars are justly noted. As to the electrical equipment, bigger batteries are used, this being a matter in which the Talbot has certainly not been inadequately equipped previously, whilst the dynamotor, a combined instrument for charging and dead silent starting, mounted at the front end of the crankshaft, is more powerful to deal with a cold engine in winter time. Carburettors also have come in for some attention to improve engine efficiency.

Similarity Throughout the Range

A point which it is desirable to emphasise is that really there is one basic design and style of construction running right through the range of cars, from the smallest up to the biggest, and, except as regards details, the various features are common to all the models. Thus, there is in each case a six-cylinder push-rod-operated overhead valve engine remarkable for its clean, finished appearance, as well as for the accessibility of the main components for routine attention. Then there is a separate four-speed self-change or sliding pinion gear box, torque tube-enclosed propeller-shaft, and half-elliptic front springs with cantilever rear springs.

Special points are the mounting of the radiator, which is attached to the engine and not, as more usually, to the frame, the ordinary rubber connections between cylinder block and radiator being eliminated, and the simplicity of the chassis from the point of view of lubrication. There is a one-shot system on all models attending to the various chassis bearings and even the spring leaves. Also, the gear box, whether of the self-



On the three-litre 95 chassis there is a new saloon with striking tail treatment.

ALVIS

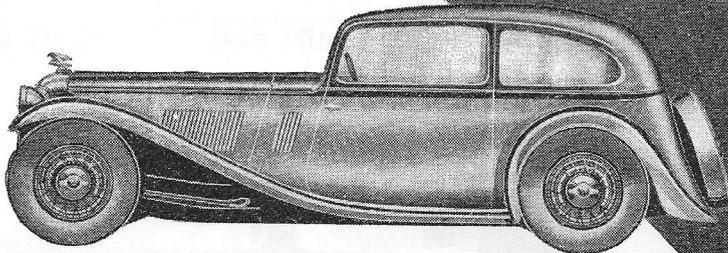
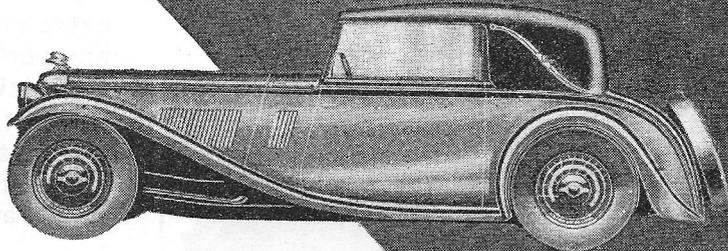
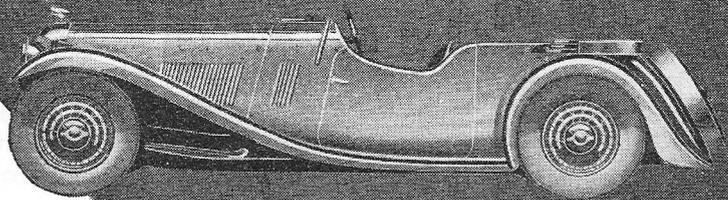
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With 4 Speed Synchro-mesh Gear Box
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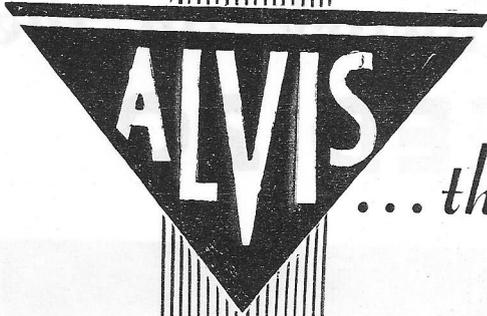
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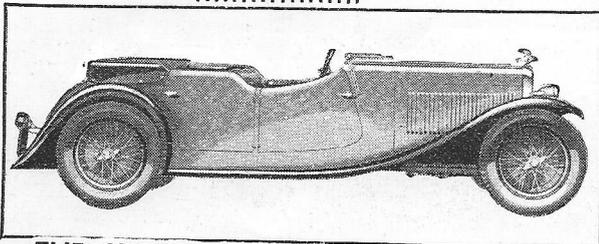
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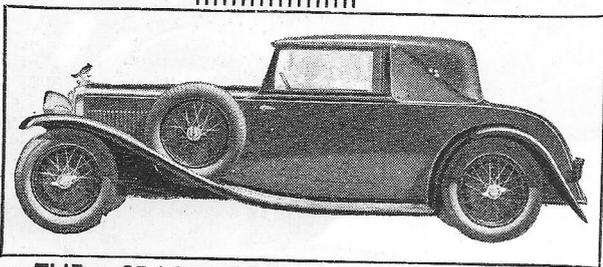
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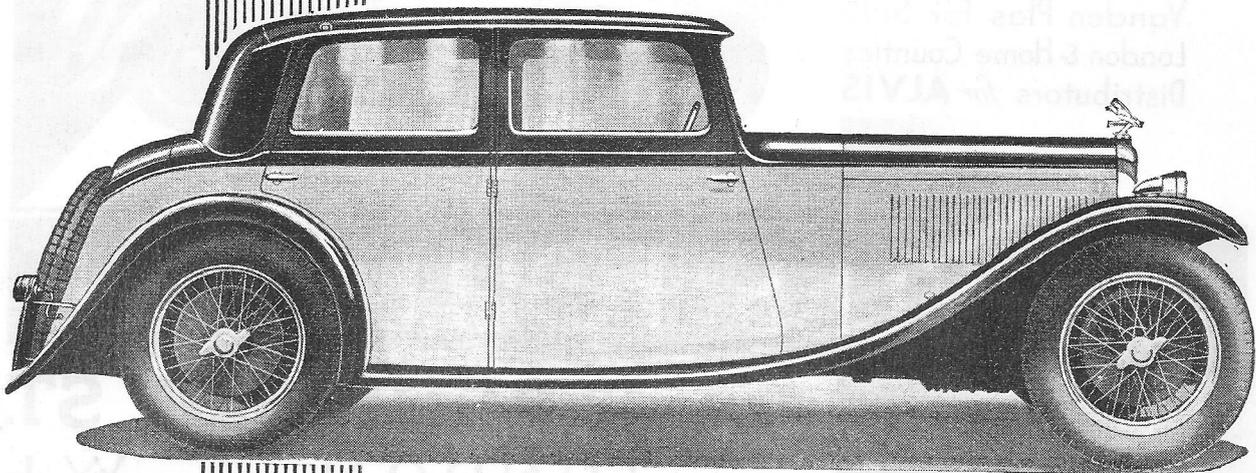
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ALVIS CAR & ENG. COMPANY, LTD.,
COVENTRY.



SALOON, with Sliding Roof ... £495

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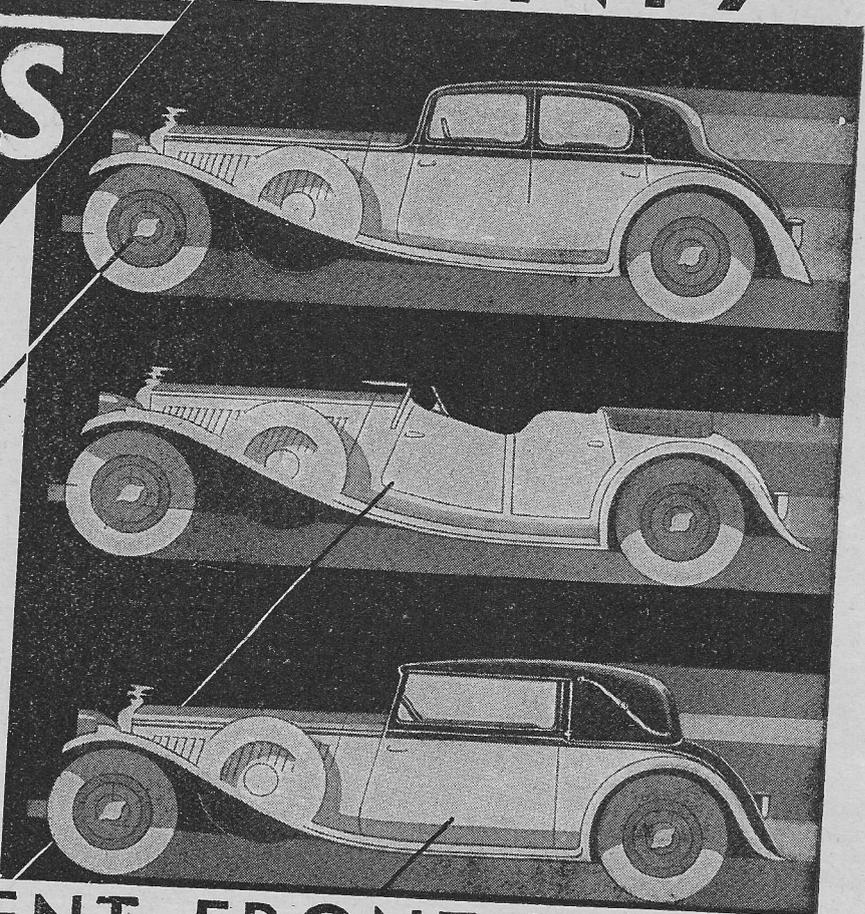
The Incomparable NEW 1934
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INDEPENDENT FRONT WHEEL
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SYNCHRO-MESH AND SILENT ON
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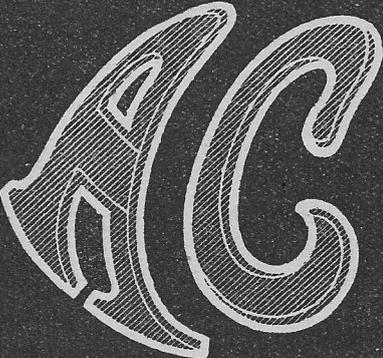
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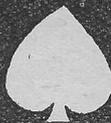
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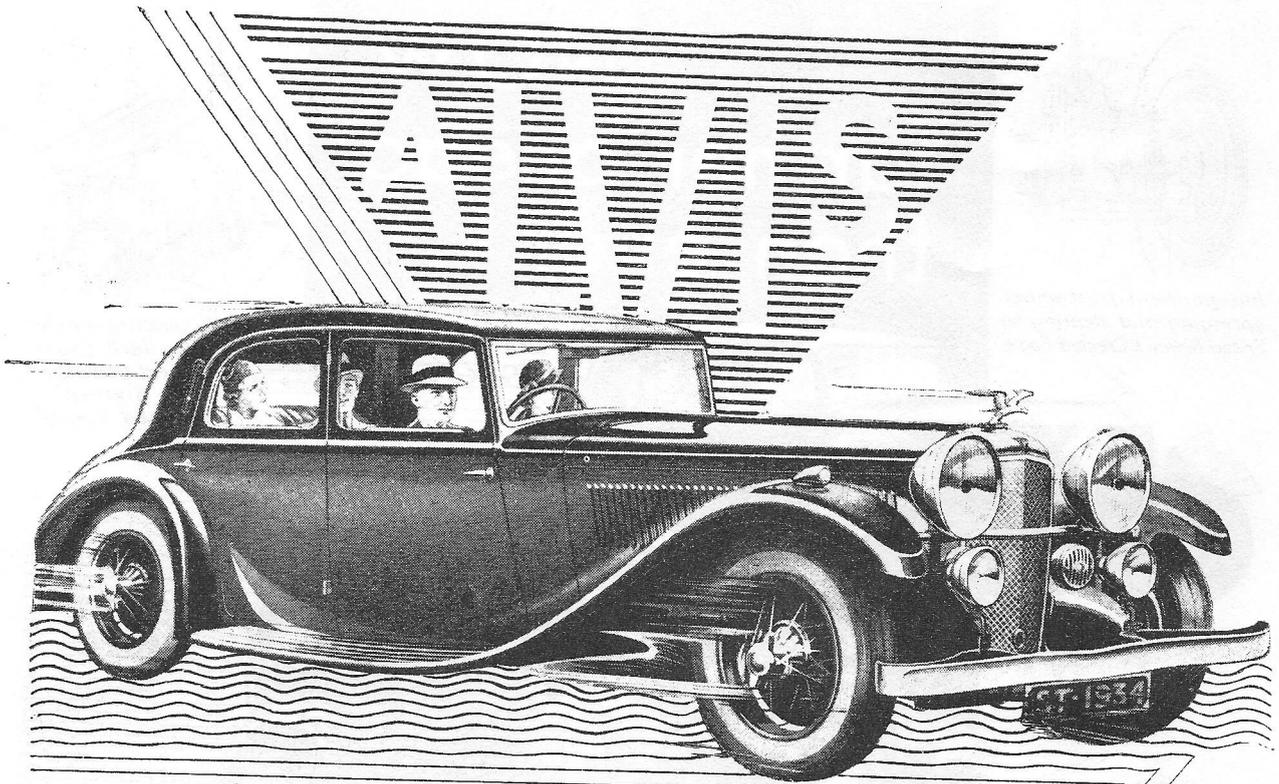
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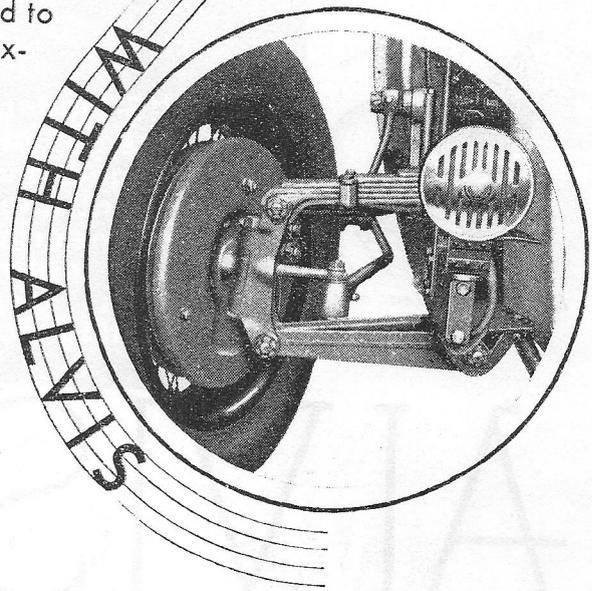
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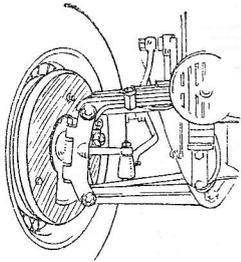
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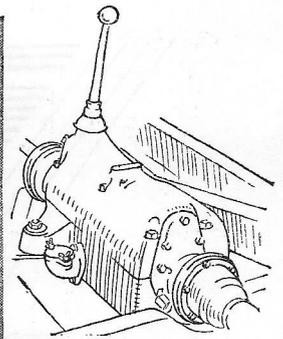
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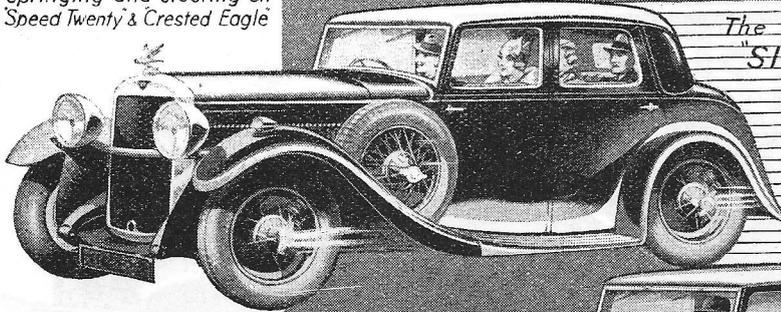


Independent front wheel springing and steering on Speed Twenty & Crested Eagle

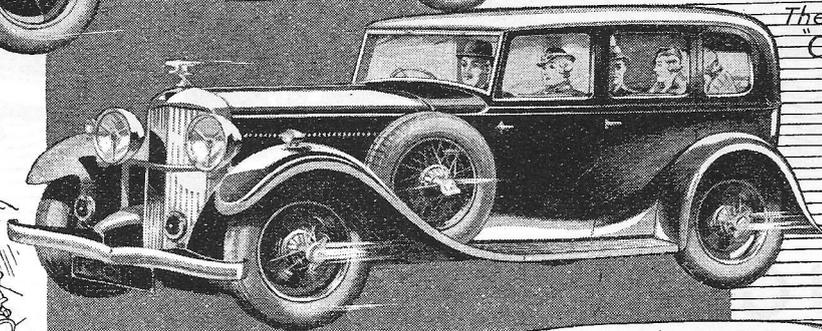
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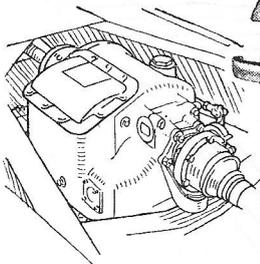
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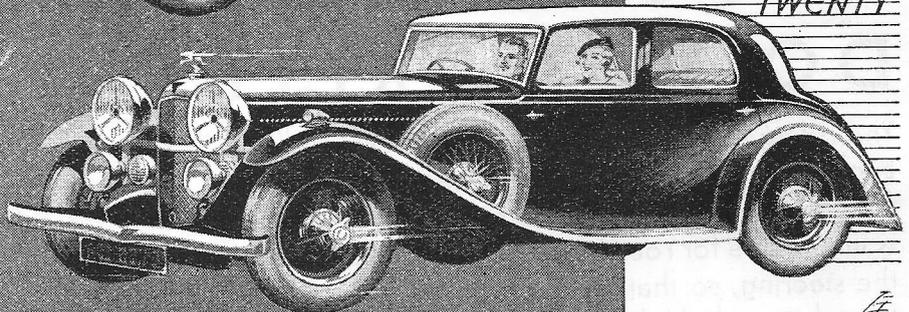
The "SIXTEEN"



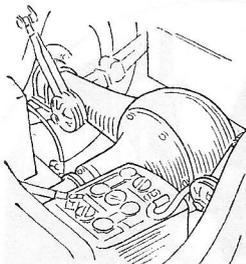
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Pre-selective self-changing Wilson Gearbox on "Crested Eagle" & optional on "Firefly"



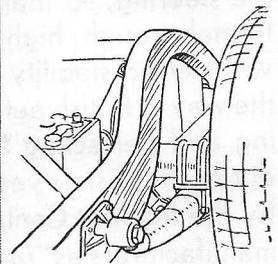
The "SPEED TWENTY"



Fully floating rear-axle on all Models

ALVIS leadership in automobile design has never yet been challenged, and the 1934 Models represent the highest standard of engineering excellence.

Every detail is the result of ceaseless research and practice in building nothing but the best.

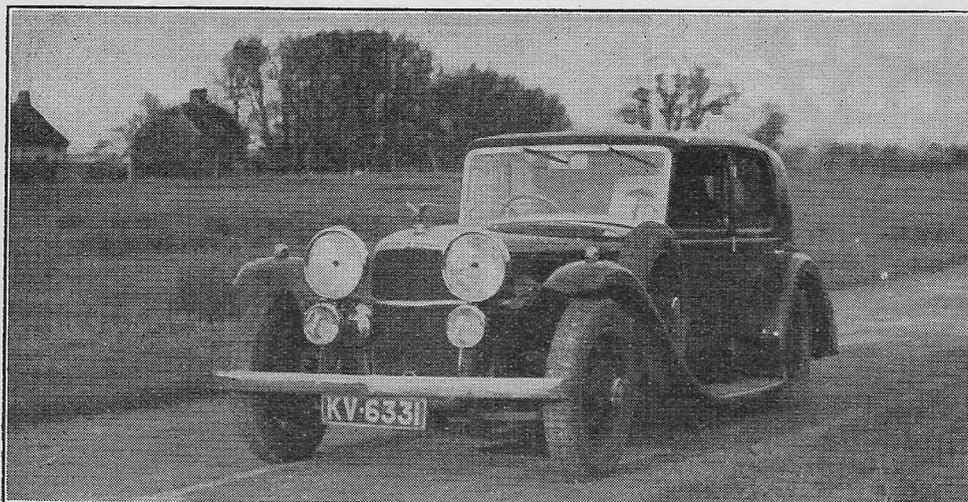


Long underslung springs with dropped chassis frame

ALVIS CARS

ALVIS CAR & ENGINEERING COMPANY LTD., COVENTRY

JANUARY 1934



THE ALVIS "SPEED TWENTY"

A High Cruising Speed and First-Class Road Holding at all Speeds are Features of 1934 Model with Independent Front Springing.

Brief Specification.

Engine: 6 cyl. bore 73 mm., stroke 100 mm., total capacity 2,511 c.c., detachable head. Push rod operated o.h.v., pump cooling, 4-bearing crankshaft. Three point rubber engine mounting. Dual ignition by coil and polar inductor magneto. Three S.U. carburettors.

Clutch: Single plate.

Gearbox: Separate. Central change, synchromesh on all four gears.

Transmission: Tubular propeller shaft, metal universals.

Rear Axle: Fully floating, with spiral bevel final drive.

Brakes: Alvis self-energising type.

Springs: Independent for front wheels with Alvis shock absorbers. Semi-elliptic at rear with Andre friction hydro-telecontrol.

Battery: Lucas 12 volt., 2 unit electrical system, dynamo positively driven.

Wheels and Tyres: Dunlop wheels, 19" rims. Dunlop 5.50 cord tyres.

Wheelbase: 10' 3".

Track: 4' 8".

Price: Chassis £600. Sports 4 seater £695. Drop head coupe 4 seater £825. Charlesworth saloon, as tested £825.

THE Alvis Company has always earned the respect of discerning motorists, partly for the extraordinary wearing quality of their products, and also for their pioneer work in incorporating unorthodox features of design ahead of other manufacturers.

Their "Speed Twenty" model is a case in point, for mechanically it has proved itself to be a car of extremely robust construction, while the latest edition includes in its specification the unusual—albeit generally accepted on

principle—system of independent springing of the front wheels, and a unique gear box in which all ratios are synchromesh.

Before going on to describe the behaviour of the car on the road during the short week-end it was placed at our disposal by the London Distributors, Messrs. Charles Follett, Ltd., a brief description of the Alvis suspension may be of interest to the mechanically minded reader.

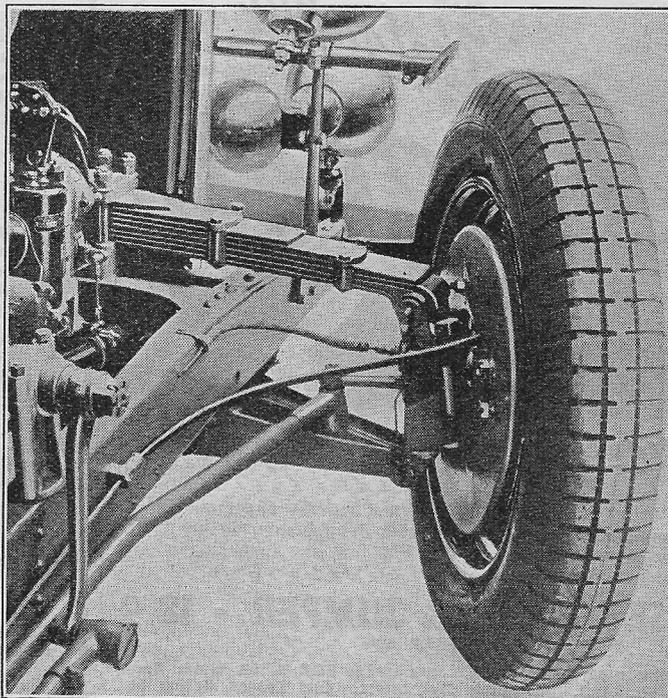
A single transverse spring is used, mounted at the centre on a rigid cross member of the chassis, formed by two U sections back to back and attached at the outside to forgings carrying the stub axles of the front wheels. These forgings are secured at their bases by rigid triangular radius members which

incorporate friction shock absorbers. Each wheel is steered independently, by means of track rods which run behind the engine.

On leaving Charles Follett's showrooms in Berkeley Street and joining the thick traffic of Piccadilly, we were immediately impressed with the smooth clutch and excellent vision, important factors in the handling of a car in such circumstances for the first time. Second gear can be used for getting away, if desired, while the low bonnet line enables both front wings to be clearly seen.

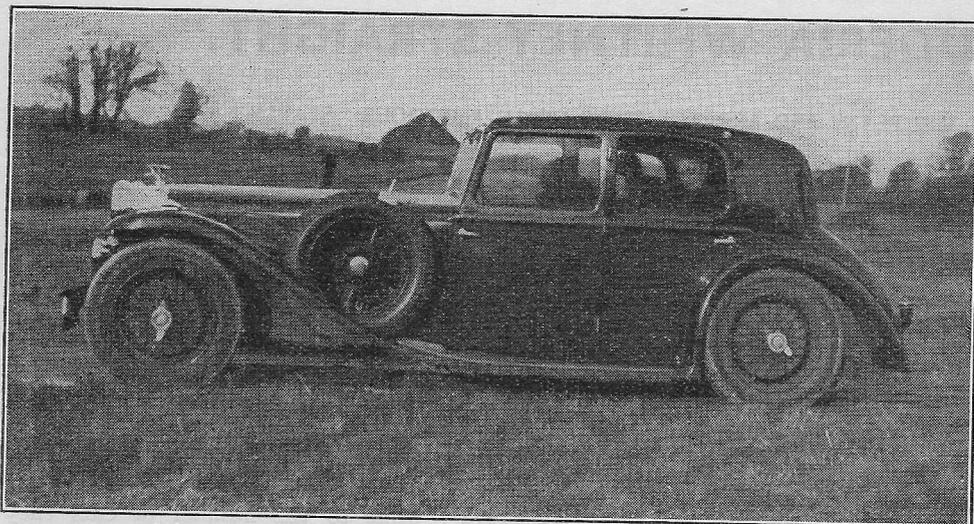
As the traffic thinned out we were able to give rein to the desire of the car to leap at any gap ahead, and the fierce acceleration was equal to every demand we made on it. These periods of acceleration grew longer and longer as suburban arterial roads were reached, and a touch of third

[Continued on page 185.]



The salient features of the Alvis independent springing are clearly shown in this close-up photograph.

THE ALVIS "SPEED TWENTY"—continued.



Safe speed is conveyed by the lines of the Alvis Speed Twenty Charlesworth saloon.

gear was sufficient to get by every vehicle we encountered.

But such driving methods, while amusing for a short time on a strange car, are by no means necessary for the Alvis to be appreciated. It is extremely flexible, providing the ignition is retarded, and will crawl about in top gear in the best town-carriage style. Acceleration on the direct drive is also good, and a depression of the throttle at 50 m.p.h. sends the car forward in an invigorating surge.

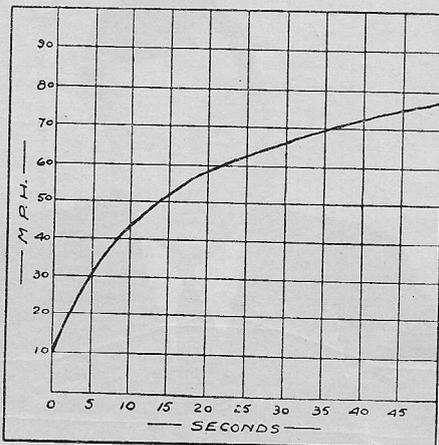
With regard to actual figures, the accompanying graph speaks for itself. It must be remembered, however, that the car we tested was fitted with a strongly made saloon body, so that an open car will give even better results.

Acceleration is assisted greatly by the new all-synchromesh gear box, which enables very quick changes to be made absolutely silently right up through the gears. Actually, there is a point at which, after a slight pause, each gear engages with a minimum of effort, but quick changes can be made at all times. Downward changes are deprived of the necessity of accurate speeding-up of the engine, a dab on the accelerator pedal being all that is required to give a silent, shock-less change of ratio. 40 m.p.h. and 60 m.p.h. are useful speeds at which to change up from second and third gears respectively, when fierce acceleration is required.

Timed over a dead-level quarter-mile by stop watch the Alvis Speed Twenty "Charlesworth" saloon registered a speed of 81.3 m.p.h. During the test the speedometer was found to be fairly optimistic, but the actual speed recorded is a very creditable one for a saloon car of

2,511 c.c. capacity and weighing 27 cwt.

On a good main road the Alvis cruised quite happily at a genuine 65 m.p.h. and gave the impression that it would maintain this speed all day if conditions allowed. This speed is restful for drivers and passengers alike. The driver has the benefit of rock steady steering, completely accurate, and without a trace of road shocks, while corners and curves merely give him an opportunity to show up the roadholding of the car at its best. Only on one occasion, when the car was cornered rather violently on a rough road, did the front wheels judder. At all other times, and on wet roads, the tail slid first in the approved manner.



The acceleration chart of the Alvis "Speed Twenty."

As for the passengers, seldom have we encountered a car which gives smoother riding. Hydro-telecontrol friction shock-absorbers are fitted, so that the suspension at the rear can be adjusted to suit varying speeds and road conditions. On an average macadam main road (as distinct from an arterial road), the rear passengers can read a newspaper at 65 m.p.h. Just try this on your own car, and the marvellous suspension of the Alvis will be brought home to you forcibly.

The brakes are fully in keeping with the high speeds of which the car is capable. Especially so is this noticed when braking hard from over 70 m.p.h. A fair amount of effort is required, but this just makes for accuracy, and the car slows down without a trace of pull on the steering, and without affecting the smooth riding of the car.

A word of praise is due to the lighting system. The headlamps are enormous Luvas P100's, and provide adequate illumination at any speed up to the car's maximum. If a reduction in light is required the usual switch on the steering wheel cuts out the headlamps and turns of two Lucas fog-lamps situated immediately below the headlights. These fog-lights are extremely effective, and illuminate the road surface for a long distance ahead without dazzling an on-coming driver. When a mist renders the powerful headlights useless, these fog lamps enable a fairly high speed to be maintained without danger.

The "Charlesworth" saloon body is a beautifully finished example of the coachbuilder's art. It is completely free from draughts, does not rattle, and the windows provide good ventilation without discomfort to the passengers. The seats are perfectly comfortable, so that the car is ideal for long distance touring. The rear passengers sit on a slightly higher level than those in front, which increases their vision of the road ahead. The internal fittings are luxurious, and include little cubby holes on each side of the rear panel, which are illuminated and contain a vanity set and a smoking outfit respectively. Finally, there is plenty of room for suit cases and luggage in the locker at the rear.

At £825 the Alvis "Speed Twenty" Charlesworth saloon should have a strong appeal for those who require a roomy, comfortable, fast, and hand made car which will give them years of pleasurable motoring.

DRIVING EDUCATION.

IT is of vital importance to owners of fast cars that they should be able to depend upon other road users doing the right thing. Such criminal faults as "filtering" into a main road without looking each way first could be largely eliminated, however, if new motorists

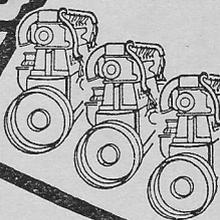
were taught to drive by trained experts, instead of just picking it up from a friend or relation.

It is for this reason that we are particular admirers of the work done by the British School of Motoring, and we attended recently at the opening of a new

tuition centre at Manchester. The guiding spirit of the school, Mr. S. C. H. Roberts, outlined their aims at the inaugural luncheon, and speeches were also made by the Chief Constable of Manchester, Major Godfrey, and Mr. Saxon Jefferis, the well known Manchester motor agent.

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**Giving Ourselves
"A Pat on the Back!"**

Just two letters chosen at random from the many congratulatory letters we receive, together with our assurance that they are genuine. Owners' opinions are likely to carry more weight where you are concerned rather than our claims as manufacturers, which, although perfectly justified and which we are in fact always ready to substantiate by demonstration, are nevertheless apt to be read with suspicion, particularly in view of the many exaggerated performance claims made nowadays.

From the owner of a new model:

"I am extremely pleased to be able to write and let you know that I like the new Colmore model even more than my previous Frazer Nash, which is saying a great deal. Looking back, I very much regret money spent on other sports cars costing much more than the Frazer Nash, which had only a very limited performance. Any fun I did get out of owning any of these cars was heavily discounted by the extraordinary number of engine revs. one had to use to cruise at 70 miles per hour, and by the very low geared steering, which definitely made them difficult to control on grease and very tiring on long runs. Your cars must easily be the safest cars in production to-day."

A. L. MARSHALL, Pontefract, 10.10.33.

From the owner of a second-hand model:

"It's always pleasant to realise ambitions, but when one does so, one generally feels disappointed afterwards. The Frazer is about the only thing I've met that is definitely much better than anything I've ever seen in print about it. The car seems to be definitely my ideal, and I find it hard to see why all other sports car makers don't go out of business in despair. I expect you get bored with nice things said about you, but I really can't find anything to criticise."

C. R. WASON, Edinburgh, 12.11.33.

Models available from £475 : 0 : 0 with standard equipment.

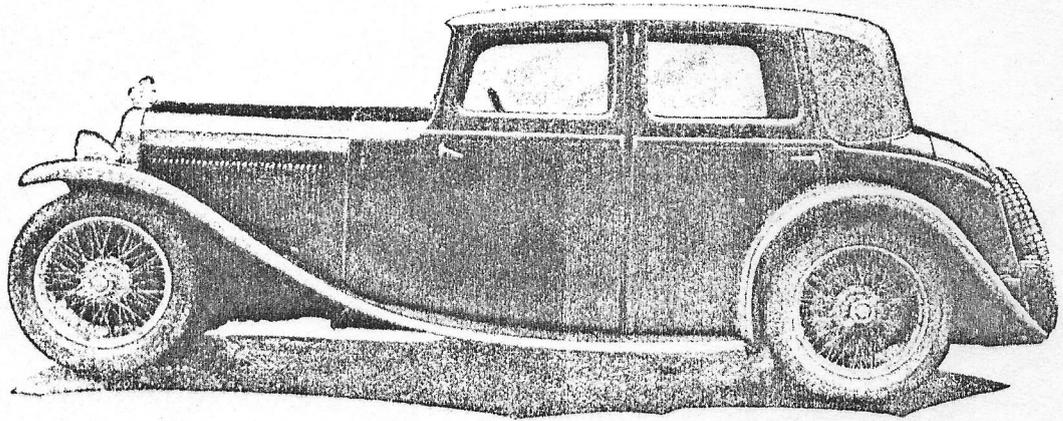
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RATIONALIZED ROAD TESTS

THE ALVIS FIREFLY TWELVE



A Well-built Four-cylinder Sports Car of High Performance.
Stability at Speed an Outstanding Feature

FOR many years Alvis cars have been famous both for performance and sturdy construction; the chassis is essentially one to stand very hard driving for long periods with a minimum of trouble. These characteristics are admirably exemplified in the four-cylinder Firefly Twelve model introduced about a year ago.

With a wheelbase of 9 ft. 10½ ins., and a comfortable four-door saloon body, the Firefly is by no means a small car; yet, with a rating of only 12 h.p., it is capable of a timed speed slightly in excess of 70 m.p.h. Furthermore, by a reasonably intelligent use of the gears an extremely high average speed can be set up. For example, in the course of a recent trial we found that it was comparatively simple to cover a 90-mile main-road run in a couple of hours without taking the slightest risks in villages, at cross-roads or other danger points.

High Speeds on the Gears

The safe limit recommended for engine revolutions is 4,500 r.p.m., the corresponding road speeds on the second and third gears being 55 m.p.h. and 37 m.p.h. respectively. As an experiment, we found that the engine would actually run up to 5,000 r.p.m. on these ratios. The acceleration graph reproduced on the following page shows that a lively performance can be obtained; thus from 10 m.p.h. it is possible to reach 40 m.p.h. in a matter of 15 seconds on the third gear ratio of 7.2 to 1.

As regards top gear performance it is obvious that a 1,496 c.c. engine pulling a car weighing nearly 30 cwt. cannot afford particularly good acceleration from low speeds, but higher in the range, when the performance of the average car is beginning to "fade away," the Alvis continues to accelerate with undiminished verve. Consequently, on the many occasions when it is necessary to slow to 40 m.p.h., while waiting an opportunity to overtake on a main road, the car quickly leaps to its normal cruising gait of 60-65 m.p.h. as soon as the course is clear.

We can justifiably refer to these speeds as suitable for normal cruising because they can be maintained without the feeling that the car is being over-driven. Sixty m.p.h.

actually represents an engine speed of 3,600 r.p.m. and can be held on the level with the throttle but little more than half-way open.

Another important factor which influences average speeds is the ease with which a car can be controlled. Here the Alvis shows to great advantage, the stability being such that even severe bends can be taken fast and in perfect safety. The response to the steering gear is extremely accurate so that one can follow the curve of a near-side kerb to within a few inches and never does the car attempt to break away from the true course.

A Good Driving Position

Accurate control is also facilitated by the excellent driving position. The bucket seat, when properly adjusted, brings the driver close to a fully raked steering wheel, the narrow rim of which can be held with the hands at "3 o'clock and 9 o'clock" positions and with the elbows close to one's sides. Furthermore, although the car is of low build, forward vision is unobstructed and the front wings can be seen without difficulty.

To secure the utmost stability on corners has involved the use of a fairly stiff springing system reinforced by Andre friction-type shock absorbers. Consequently, the suspension is not designed for low-speed pottering over indifferent road surfaces. It is seen at its best on a really fast main-road run,



A near-side view of the highly efficient o.h.v. four-cylinder engine showing the inclined S.U. carburetter.

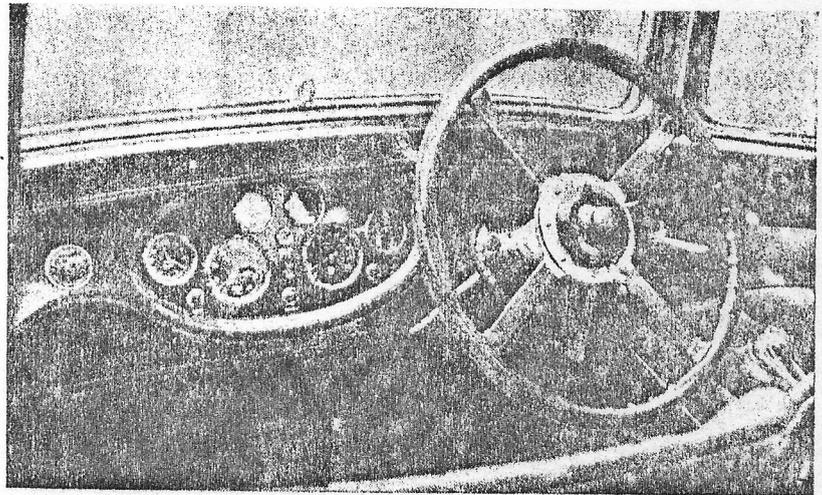
THE ALVIS FIREFLY TWELVE—Contd.

The brakes are of the special Alvis servo-shoe type and, while requiring a fairly high pedal pressure in an emergency, are extremely progressive and safe in action. In a tight corner one can literally stand on the brake pedal without risk of precipitating a swerve.

Comfortable Coachwork

The body is comfortably proportioned and there is a boot at the back for suitcases. The workmanship is of high order throughout. The fascia includes a clock, speedometer and revolution speed indicator, Hobson K.S. telegages for fuel and temperature, an oil pressure gauge and an ammeter. The switch for the lights is conveniently mounted at the top of the steering column, as are also hand controls for the throttle and ignition timing. A screw-type adjustment for the mixture (provided by an S.U. carburetter) is fitted to the fascia.

Space will not permit of describing the chassis in detail, so that it must suffice to remark that it is designed throughout for durability under hard driving conditions. In the engine, for example, one finds many excellent features such as overhead valves, ample water spaces, an aluminium alloy crankcase, generous bearings, a large sump, a



The neat fascia, right-hand brake lever, and the preselector gear lever. Timing, throttle and lighting controls are fitted above the steering wheel.

thorough lubrication system and light pistons and connecting rods. The front axle is a very sturdy job and the rear axle is of the fully floating type.

The car tested was fitted with an E.N.V.-Wilson self-changing gearbox which is listed as an extra costing £15. This gives the customary facility in gear control with quiet running on the indirect ratios. The alternative transmission is a normal

box with constant mesh gears for the third speed. Other practical points are a 14½-gallon rear tank (with reserve supply), a really accessible and powerful hand-brake lever, and a ready means for brake adjustment.

Summing up, the Alvis Firefly highly practical car with a performance quite exceptional for a 12 h.p. model. It has proved to be very popular with discriminating owner-drivers.

TABULATED DATA—ALVIS FIREFLY SALOON

CHASSIS DETAILS

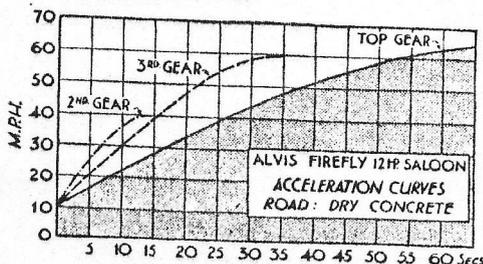
Engine : Four cylinders, push-rod operated overhead valves, coil ignition with automatic and manual timing ; 69 mm. by 100 mm. (1,496 c.c.) ; tax £12. Patented rubber mounting.

Gearbox : E.N.V.-Wilson self-changing type, four forward speeds ; ratios, 5.22, 7.21, 10.58 and 17.75 to 1.

Engine Speed : At 20 m.p.h. on top, 1,190 r.p.m.

PERFORMANCE

Petrol Consumption : Driven hard, with free use of the gears, 23 m.p.g. 14½-gallon rear tank.



Speeds on Gears : Top, 72 m.p.h. ; third, 55 m.p.h. ; second, 38 m.p.h. Minimum speed, top gear, 6 m.p.h.

Acceleration : From standstill, through the gears, 19 secs. to 50 m.p.h. ; 32 secs. to 60 m.p.h.

Tapley Performance Figures : Maximum pull in lb. per ton on gradient—top, 130 lb. ; third, 200 lb. ; second, 280 lb. Corresponding gradients climbable at a steady speed are

1 in 17, 1 in 11 and 1 in 8 respectively.

Brakes : Efficiency, 95 per cent. from 30 m.p.h. ; 85 per cent. from 50 m.p.h.

DIMENSIONS, Etc.

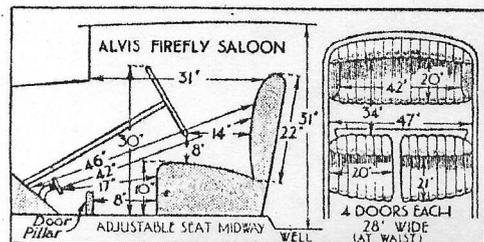
Wheelbase 9 ft. 10½ ins. ; track, 4 ft. 4 ins. ; overall length, 13 ft. 6 ins. ; width, 5 ft. 3 ins. ; Dunlop tyres, 30 ins. by 5.0 ins.

Turning Circles : Left and right, 40 ft. diameter.

Weight : With two up as tested, 29 cwt.

Price : With conventional gearbox, £495. Wilson box (as tested) £15 extra.

(Note—Brake Efficiency figures are measured by the Tapley meter and provide an accurate basis for comparisons. Tests are made using the pedal only. Corresponding stopping distances are : from 20 m.p.h., 14 ft. ; from 30 m.p.h., 31 ft. ; from 50 m.p.h., 98 ft.)



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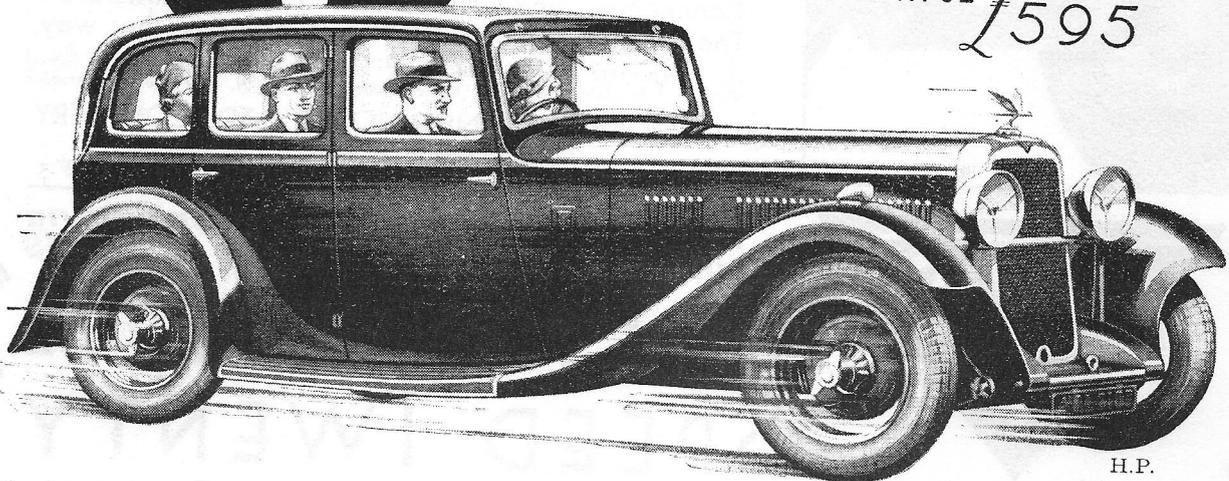
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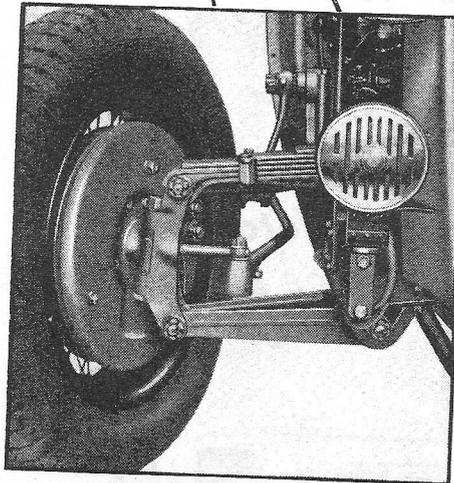
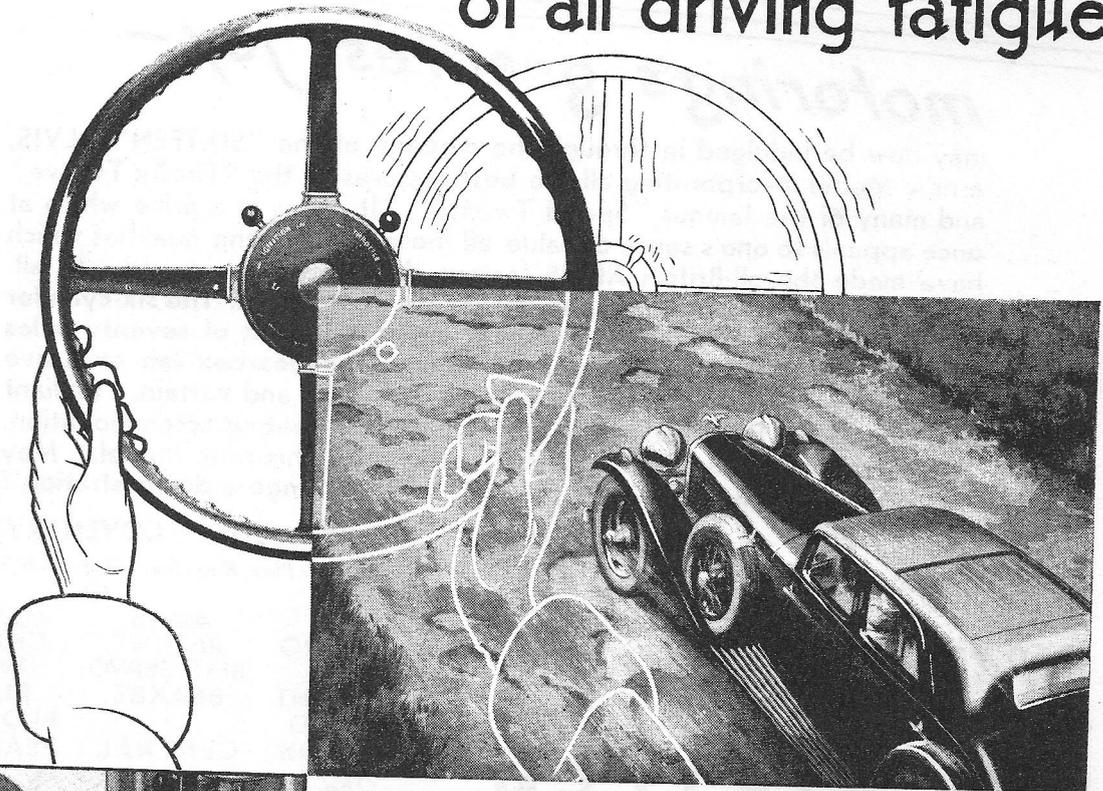
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demands the elimination
of all driving fatigue



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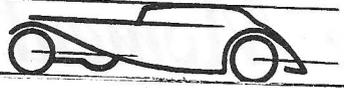


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H.P.

ALVIVACITY -



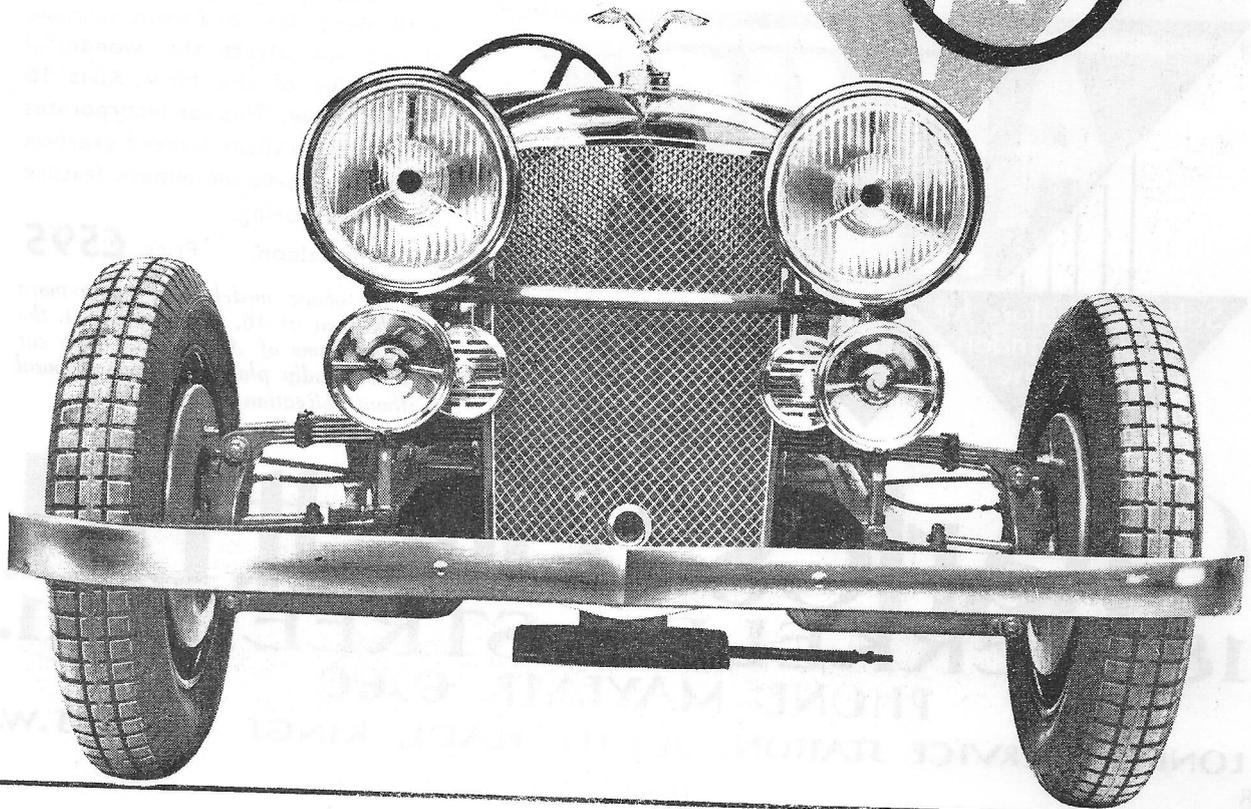
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is an unforgettable experience which brings relief from the commonplace. The joyous response to every mood, vivid acceleration without a tremor of vibration, speed in smoothness and silence, perfect suspension and ease of control . . . these are exclusive ALVIS features best expressed by the word "ALVIVACITY." Independent front wheel springing and steering, the latest advance in automobile practice, has been in production on ALVIS cars for the past six years, and is incorporated in all "Crested Eagle" and "Speed Twenty" Models. There is a wide choice of 1934 ALVIS Cars from £475. May we send you illustrated particulars and arrange a demonstration?

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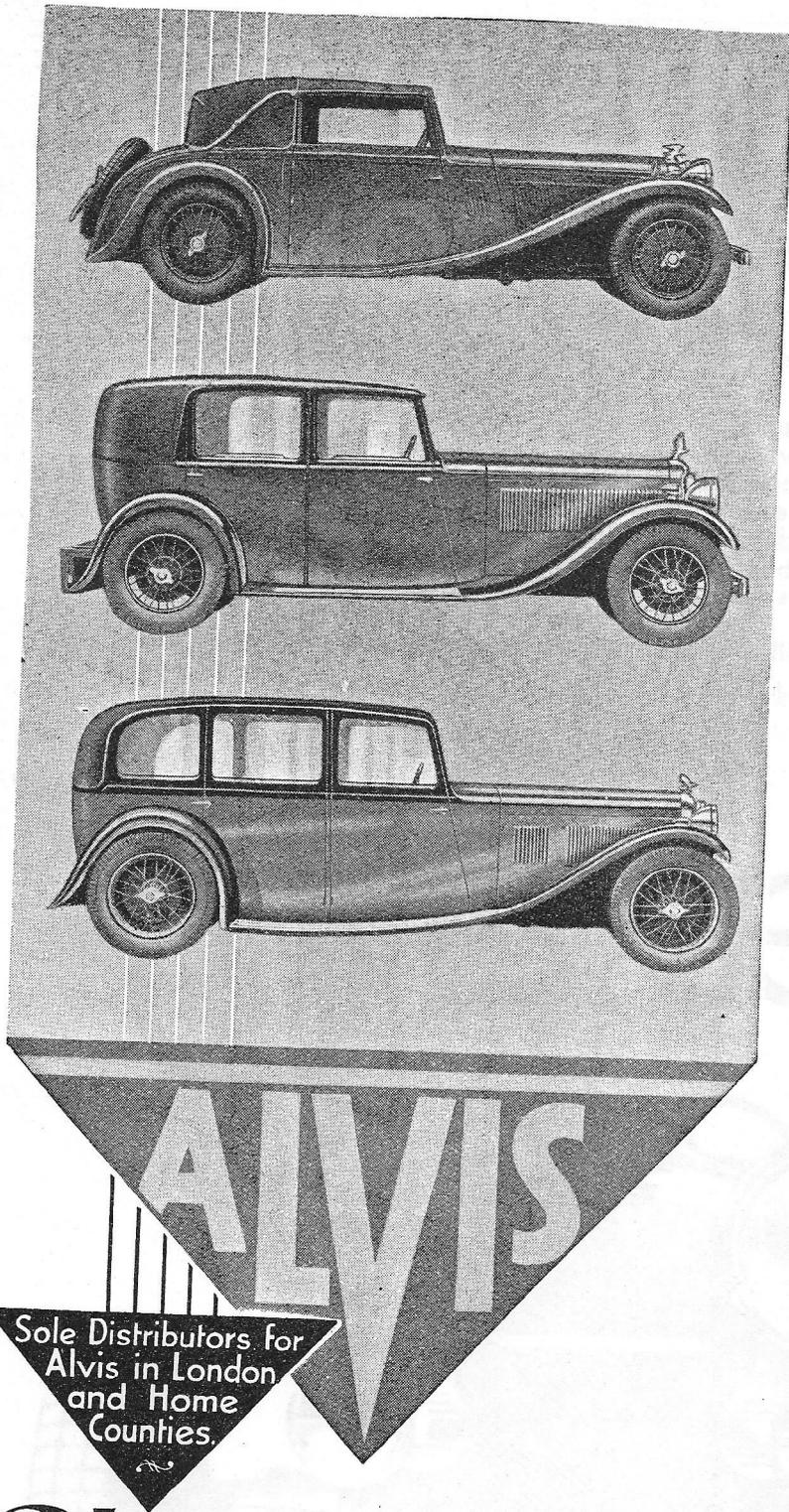
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"SPEED 20" ALVIS



MENTION OF "THE AUTOCAR," WHEN WRITING TO ADVERTISERS, WILL ENSURE PROMPT ATTENTION. 47

H.P.



The Car of the Moment

Above is a four-seater drop-head coupe on the Speed Twenty chassis with coachwork specially built to the design of Charles Follett. This car is equipped with 4-speed synchromesh gearbox, independent front wheel springing and steering and has an exceptionally brilliant performance on the road.

Price **£885**

The Crested Eagle four light Saloon (centre) has pre-selective self-change 4-speed gears, independent front wheel suspension and steering and a host of other fascinating features that make this car ideal for town or long distance touring

Price **£750**

Those who require a car capable of averaging high speeds combined with the docility of a town carriage should investigate the wonderful capabilities of the New Alvis 16 shown below. This car incorporates synchromesh silent 4-speed gearbox and every up-to-the-minute feature of 1934 motoring.

Six light Saloon. Price **£595**

All the above models and many more can be seen at 18, Berkeley Street, the London home of Alvis cars. Any car will be gladly placed at your disposal without obligation.

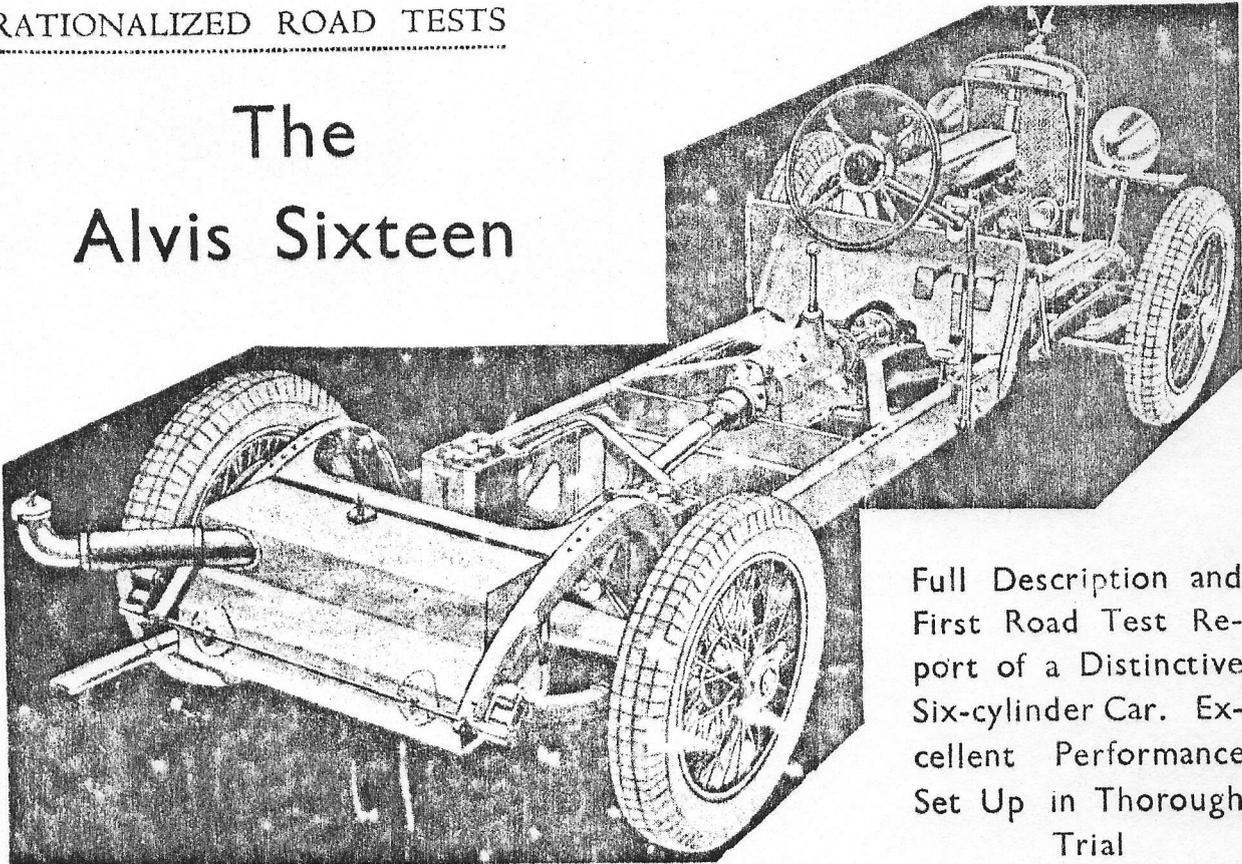
Charles Follett, Ltd.
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LONDON SERVICE STATION, JUBILEE PLACE, KINGS ROAD, S.W.

JULY 1934

RATIONALIZED ROAD TESTS

The Alvis Sixteen



Full Description and First Road Test Report of a Distinctive Six-cylinder Car. Excellent Performance Set Up in Thorough Trial

A chassis view which shows the stiff low-built frame to advantage.

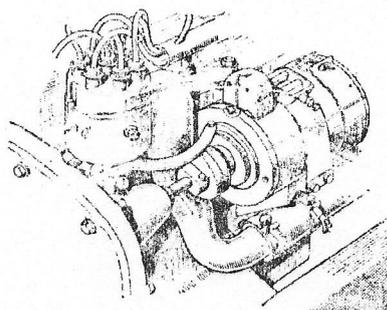
WHENEVER we set out on a test run with an Alvis product the standard by which the car is judged is automatically set higher than usual. One reason is that the Alvis Co. is a concern possessing an enviable reputation for producing really high-grade automobiles; another reason is the fact that, on a performance basis alone, the various models turned out by this factory are outstandingly good. The lessons learnt by many seasons' activities in the racing world have been remembered, so that characteristics such as speed, safety and performance have been fully developed.

A Sturdy Chassis

Cars such as the new Alvis Sixteen do not just "happen"; they are the result of many years of careful analysis and experimental work; the maker's claim that Alvis products are built to last is thoroughly justified. The most casual inspection of the 16 h.p. chassis should reveal to any experienced motorist the fact that efficiency, sturdiness and adequate strength are the dominating factors.

A few words concerning the general construction will not be out of place because, when driving a car

such as this Alvis model, the soundness of the whole chassis is reflected in the behaviour of the car on the road. Taking the frame as an example, the low platform height permitted by the upsweep of the side members over both the front and rear axles enables the centre of gravity to be kept very close to the ground, whilst the strength and rigidity of the assembly, provided by a cross-member situated under the dash and by a deep pressed-steel cross-tie aft, make the car steady at high speeds and always controllable. The engine is of sound design and,



The dynamo and the coil ignition distributor are neatly arranged.

what is just as important, is manufactured with a high degree of precision, such points of design as the provision of ample water spaces in the cylinder and cylinder head castings, beautifully finished connecting rods (with the white metal bearings die cast into position), and a full pressure lubrication system with filters of ample size are embodied in the layout. The special induction system utilizes three S.U. carburettors and provides a high power output, a marked degree of flexibility and economical running.

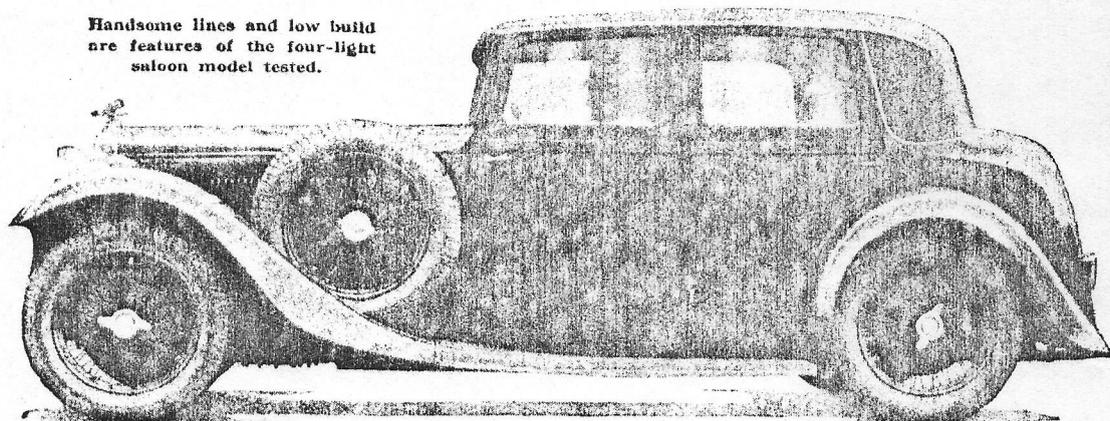
Synchronized Gear-change

The transmission is a fine piece of engineering, all four forward gears being of the constant-mesh type with double helical teeth. Synchronizing clutches are fitted throughout, the action of changing gear being therefore simplicity itself. And so one could go on throughout the chassis describing features which, while not markedly unorthodox, are sound in conception and display first-class workmanship.

Reverting to our trial, we noticed at once that entry and exit to and from the car saloon body are rendered easy, because, despite a fashionably low roof, the floor is proportionately

THE ALVIS SIXTEEN—Contd.

Handsome lines and low build are features of the four-light saloon model tested.



low and the doors are wide. Again, the seats themselves are large enough to enable even a big passenger to be really comfortable whilst there is sufficient leg room for a 6-ft. driver to sit close to the wheel.

A mixture control enables the engine to be started from cold almost instantaneously. Although the transmission is planned on what might almost be termed orthodox lines, i.e., a single plate clutch being coupled to a four-speed centrally controlled gearbox with the final drive by an open propeller shaft, the manner in which these components operate is really remarkable.

The "All-synchro" Gearbox

As already mentioned, the gearbox is of the synchromesh variety and so any necessity for finesse in driving—at least so far as gear shifting is concerned—is avoided. No matter what the relative speed of the engine and road wheels happens to be, it is impossible to scrape a gear providing the clutch pedal is depressed fully and the lever is moved with reasonable gentleness. It is quite unnecessary to double declutch when changing down as synchronizing devices are sufficiently powerful to take control at any speed and, furthermore, the lever actuation is not rendered unduly heavy.

During our test we tried experimentally the effect of engaging top gear when coasting with the engine merely idling at a road speed of over 60 m.p.h. The moment the gear lever was moved a very slight whirr indicated that the synchronizing clutch was doing its work, and then top gear went in without a sound, the engine being speeded up so soon as the clutch was re-engaged. Downward changes

are best effected by keeping the accelerator fully depressed and gently but firmly pushing the lever through into the required gear when the engine automatically increases its speed during the time the clutch is withdrawn.

Speed and Performance

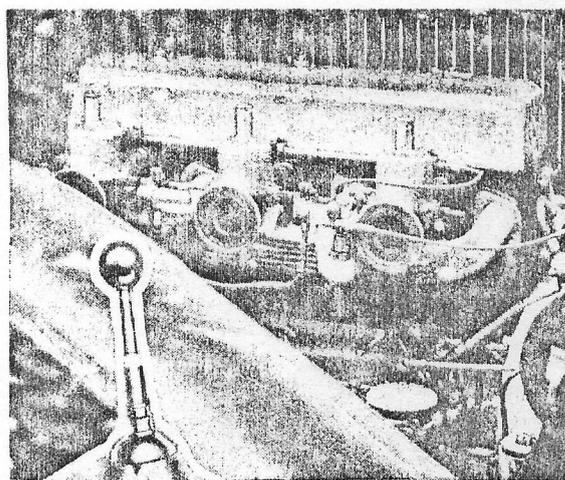
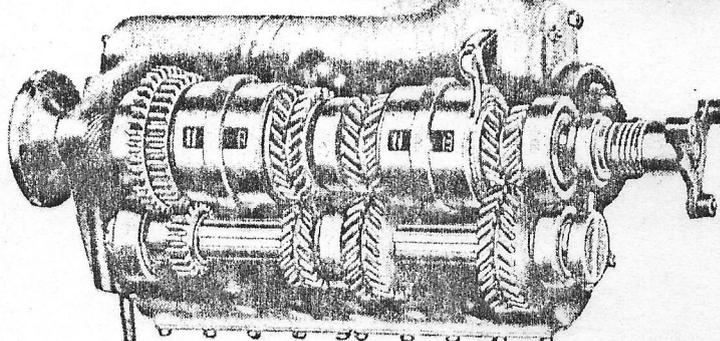
In the matter of speed and performance generally this Alvis model lives up to its reputation. As it is capable of approximately 75 m.p.h. on dead level going on top gear and 55 m.p.h. on third, one is able to put up very high averages over long distances, and it does not seem to

matter very much whether the highway be flat or hilly. When it is realized that a steady speed of about 30 m.p.h. can be maintained up a gradient of 1 in 8 in third and 40 m.p.h. on a grade of about 1 in 11½ on top, the performance characteristics will be better understood.

It is, of course, quite unnecessary to change down for every gradient of 1 in 8 encountered on a run because such hills can usually be surmounted in the stride of the car on top, but as the gearbox is so easy to handle, one instinctively feels inclined to make full use of the indirect ratios.

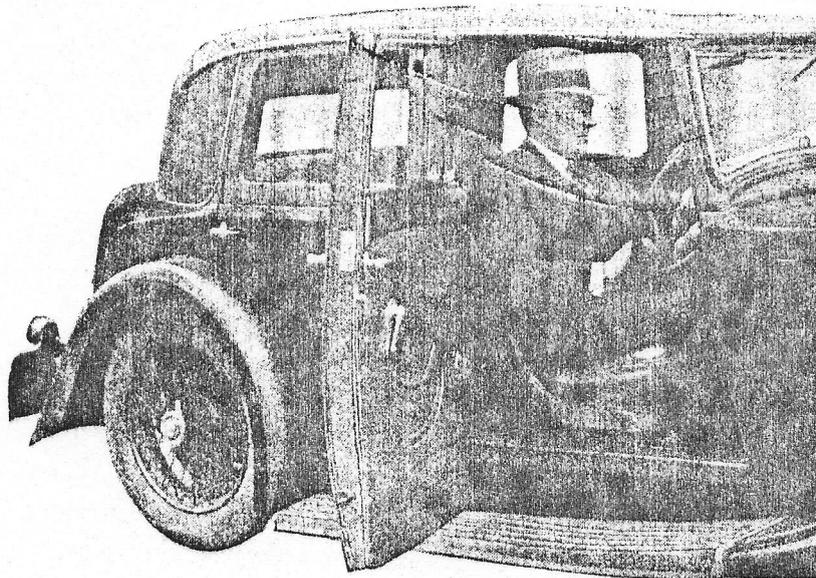
It is not an easy matter to give an

(Below) The special gearbox is fitted with constant-mesh helical gears throughout and a synchronized engagement is provided for each of the four forward speeds, as shown in this sectioned view.



(Above) The 2,148 c.c. six-cylinder engine is fitted with overhead valves and three S.U. carburetors.

THE ALVIS SIXTEEN—Contd.



The coachwork is planned on comfortable lines and the driving position is excellent. Note the steep rake of the steering wheel.

ideal cruising speed for a car such as this Alvis, because the power unit and indeed the whole chassis, seems to be quite happy at almost any speed within the range. Touring at 40 m.p.h. is neither more nor less pleasant than cruising at 60 m.p.h. or over, and as the suspension at any rate of travel above a mere crawl is very good, the comfort factor is not materially affected by travelling quickly. One might indeed stress the merits of the suspension. Without being harsh at the low end of the speed range, the accurate control and general steadiness of the car when running all out with the speedometer needle well beyond the 70 m.p.h. mark show that a happy compromise in spring strength and damping effect has been struck.

The rear springs are set as wide apart as possible, with the result that rolling is very largely eliminated and, although corners can be negotiated at such speeds that all the tyres scream their protest, there is but the merest suspicion of heeling movement caused by the centrifugal action. The front springs are not at all hard,

yet steering seems to be unaffected by road inequalities, there is practically no "kick" in the steering wheel itself, and during our trial we were unable to detect any trace of "wobble" or "shimmy" despite the fact that pot-holed roads were taken at a fast pace on many occasions. Only at low speeds, such as when manoeuvring into a parking place or when negotiating a line of thickly congested traffic is the steering inclined to be rather heavy.

The Braking System

The pedal applies internal expanding shoes within 1.4 ins. diameter ribbed drums on all four wheels, the lever being coupled up to the same shoes by a simple linkage. That the retarding action is sufficient for all purposes may be gathered by making reference to the figures given in the tabulated data; to obtain an emergency pull up, however, requires a fair effort to be exerted on the pedal. On the other hand, the applied pressure and retarding action are excellently balanced so that the effect is increased in direct propor-

TABULATED DATA

CHASSIS DETAILS

Engine: Six cylinders; overhead valves operated by push rods; coil ignition; 67.5 mm. by 100 mm. (2,148 c.c.); tax, £17.

Gearbox: Four forward speeds, all silent, all synchromesh. Ratios, 5.22, 7.49, 10.59 and 16.44 to 1.

PERFORMANCE

Speeds on Gears: Top, 74 m.p.h.; third, 55 m.p.h.; second, 39 m.p.h. Minimum speed on top gear, under 6 m.p.h.

Acceleration: Standstill to 60 m.p.h. through the gears, 22 secs.

Tapley Performance Figures: Maximum pull in lb. per ton—top, 190 lb.; third, 270 lb.; second, 380 lb. Corresponding gradients climbable at a steady speed are 1 in 11½, 1 in 8 and 1 in 5½ respectively.

Braking Efficiency: Measured by Tapley meter, using the pedal only, 94 per cent. from 20 m.p.h.; 86 per cent. from 50 m.p.h. Corresponding stopping distances are 14 ft. from 20 m.p.h., 32 ft. from 30 m.p.h., 62 ft. from 40 m.p.h. and 108 ft. from 50 m.p.h.

Petrol Consumption: When driven hard, 19 m.p.g.

DIMENSIONS, Etc.

Leading Measurements: Wheelbase, 9 ft. 10½ ins.; track, 4 ft. 4 ins.; overall length, 13 ft. 11½ ins.; width, 5 ft. 2½ ins.

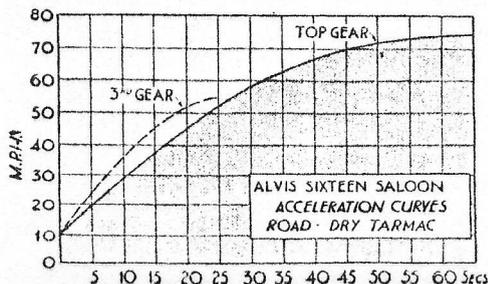
Turning Circles: Left and right, 41 ft. diameter.

Weight: With driver and equipment aboard as tested, 1 ton 11½ cwt.

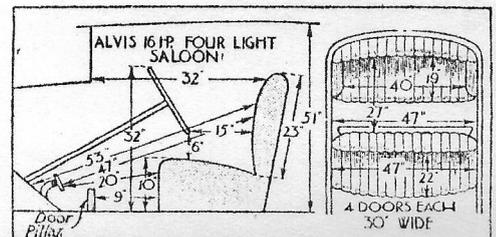
Price: Four-light saloon, £595.

tion to the physical effort applied on the pedal or the lever. It is possible instantly to adjust all four brakes whilst the car is in motion, if desired, merely by turning a knob which protrudes above the floor of the driver's compartment.

Altogether, then, this new Alvis is a worthy addition to the range of cars already in production at the company's works in Coventry. Well equipped, beautifully finished and of up-to-date design, the price of £595 is moderate considering the quality of the chassis and coachwork.



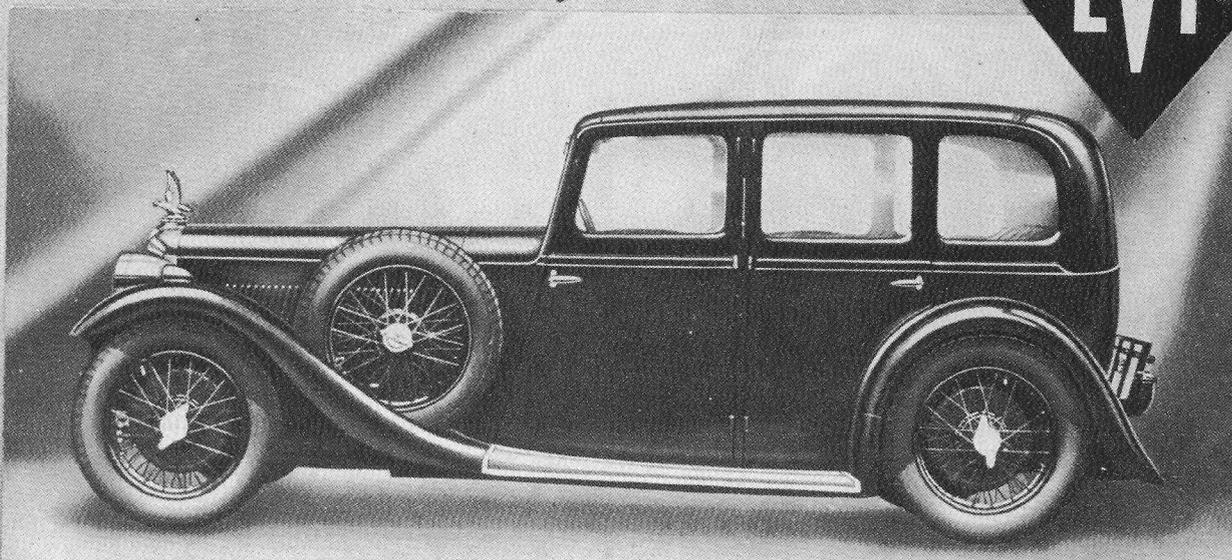
(Left) Graphs drawn from the acceleration figures obtained on top and third gears. (Right) the interior dimensions of the four-light saloon.



more fascinating than before

The NEW "Silver Eagle"

ALVIS

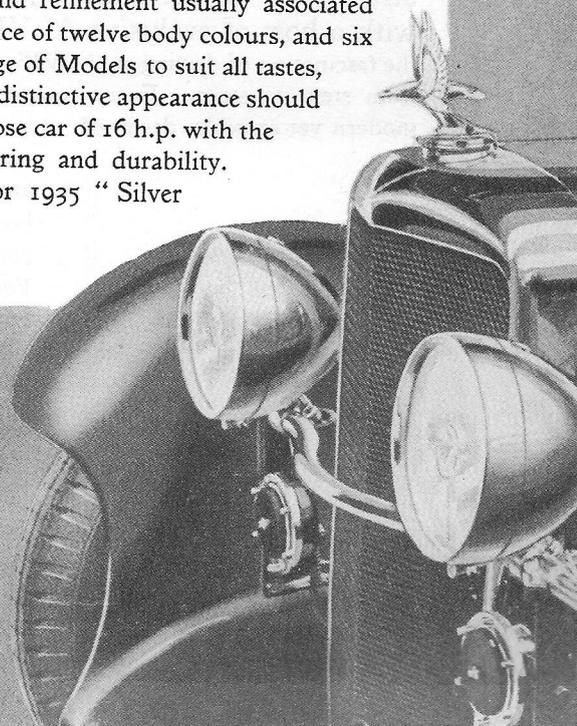


FAST, safe, and easy to drive, this all-purpose car is generously proportioned, affording luxurious and roomy accommodation to all passengers. The 1935 "Silver Eagle" is an entirely new Model, with a six-cylinder engine, rated at 16.95 h.p., which provides silent, sustained speed, with the flexibility demanded by modern road conditions. It incorporates many new and unique ALVIS features, including the patent all-silent all-synchromesh four-speed gearbox. Effortless, silent changes up or down with certainty increase the pleasure of driving this powerful car. Low built to hold the road in comfort and safety, and with powerful self-energising brakes and Marles-Weller steering; long-distance driving may be undertaken with negligible effort. Coachwork is of the highest order, and every detail of interior finish and equipment will inspire a pride of ownership at all times. Best quality leather upholstery is used throughout, with deep pile carpets and burr walnut cabinet work, which give the interior the comfort and refinement usually associated with more costly cars. There is a choice of twelve body colours, and six shades for the upholstery. A full range of Models to suit all tastes, with closed, coupé, and open bodies of distinctive appearance should meet a popular demand for an all-purpose car of 16 h.p. with the ALVIS reputation for sound engineering and durability. For full specification, please write for 1935 "Silver Eagle" Brochure.

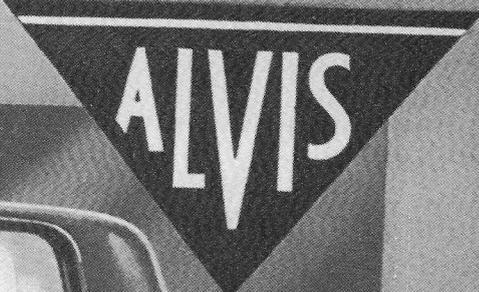
6 LIGHT SALOON £598
4 LIGHT SALOON £598
4 STR. COUPÉ £598
4 STR. SPORTS £585
CHASSIS £485
ALL EX WORKS

Eagle" remains unchanged

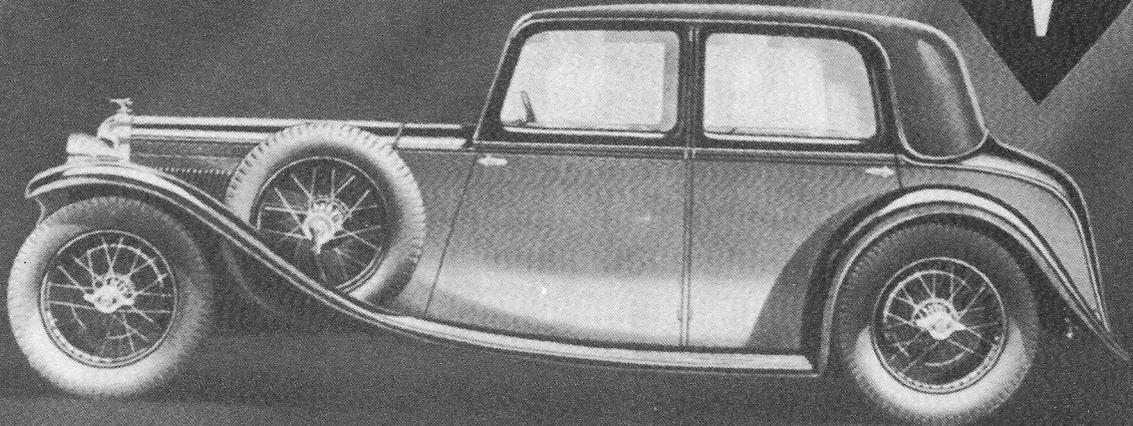
with coachwork of imposing appearance and faultless finish has received the unqualified approval of connoisseurs of motoring who are satisfied only with the best. With 16.95 h.p. and 20 h.p. engines, the "Crested Eagle" offers a choice of horsepower from £750, and each Model incorporates the well-proved ALVIS system of independent front wheel springing and steering. For town or country use there is a Four-light Saloon, Six-light Saloon, and Seven-seater Limousine.



The NEW "Firebird"



ALVIS



No other car gives such a performance at anywhere near the price as this new ALVIS Model. Developed from the well-known 12/50 Model, the new engine rated at 13.22 h.p. has an increased capacity which provides a much greater reserve of power, higher maximum speed and improved acceleration. Moderately rated, economical to run and maintain, it nevertheless possesses all those big-car features which are exclusive to ALVIS design. A big feature of the specification in a car so economically priced, is the inclusion of the ALVIS patent all-silent, all-synchromesh four-speed gearbox, as fitted to the famous "Speed Twenty" Model. With this gearbox a greatly enhanced road performance is possible, and it is difficult to believe that a four-cylinder engine can produce such effortless power, such thrilling speed up to 75 m.p.h. with smoothness, comfort, and safety. Semi-elliptic springs of exceptional length, and scientific bracing of the new chassis frame contribute largely to the riding comfort and road-holding qualities at all speeds. Superb suspension, with Marles-Weller steering and ALVIS patent self-energising brakes ensures perfect control, and entirely eliminates driving strain even on the longest journey. The new fourteen horsepower "Firebird," with a host of exclusive ALVIS features unobtainable in any other car, offers all the fascination of driving an ALVIS at a remarkably low price. Examine the chassis and specification from stem to stern. Every component reflects the genius of ALVIS engineering. Coachwork is modern yet sensible, designed to give maximum visibility and comfort. Interior dimensions are unusually generous, and all controls are conveniently placed. With all bodies there is a choice of twelve colours, and six for the upholstery. For full specification, please write for 1935 "Firebird" Brochure.

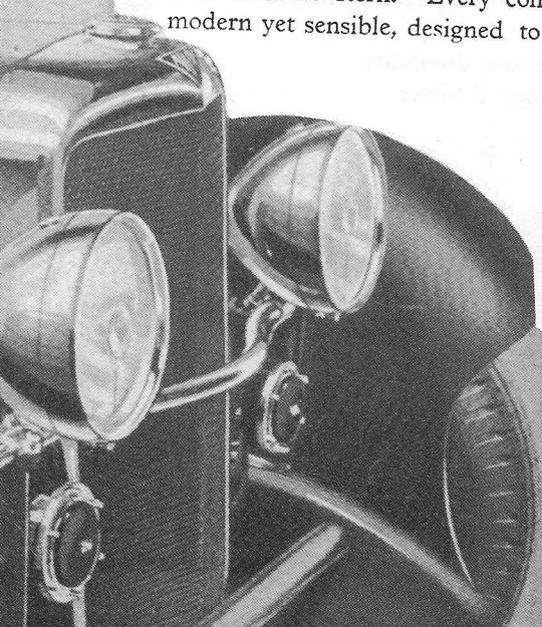
4 LIGHT SALOON £510

4 STR. COUPÉ £510

4 STR. SPORTS £490

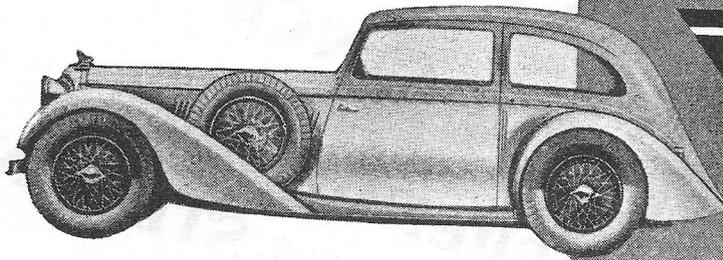
CHASSIS £410

ALL EX WORKS



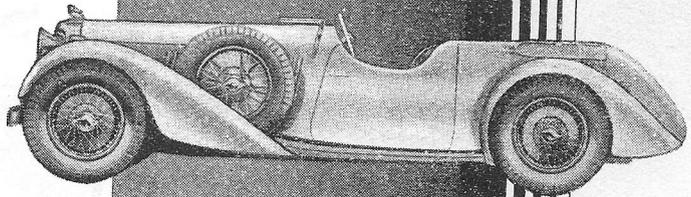
*"ALVIVACITY"
in its most
economical form*

Coachwork for the Connoisseur-



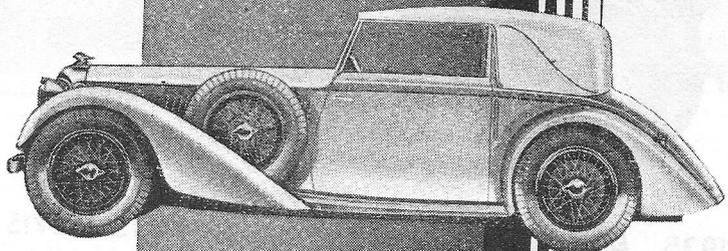
In conjunction with Vanden Plas, Ltd., Charles Follett has designed this beautiful coachwork.

Above you see a Sports Saloon gracefully streamlined and luxuriously equipped throughout - - - Price £895.



Centre is the ever popular open four-seater that makes a special appeal to the sporting driver - - - Price £775.

Below, is undoubtedly the prettiest drop-head coupe yet designed, a car that cannot fail to please the most critical owner.
Price £895.



The above cars have silent synchro-mesh mechanism on all four ratios, exceptional luggage-carrying capacity and a special "no-draught" ventilation system.

Sole Distributors for Alvis in London and Home Counties

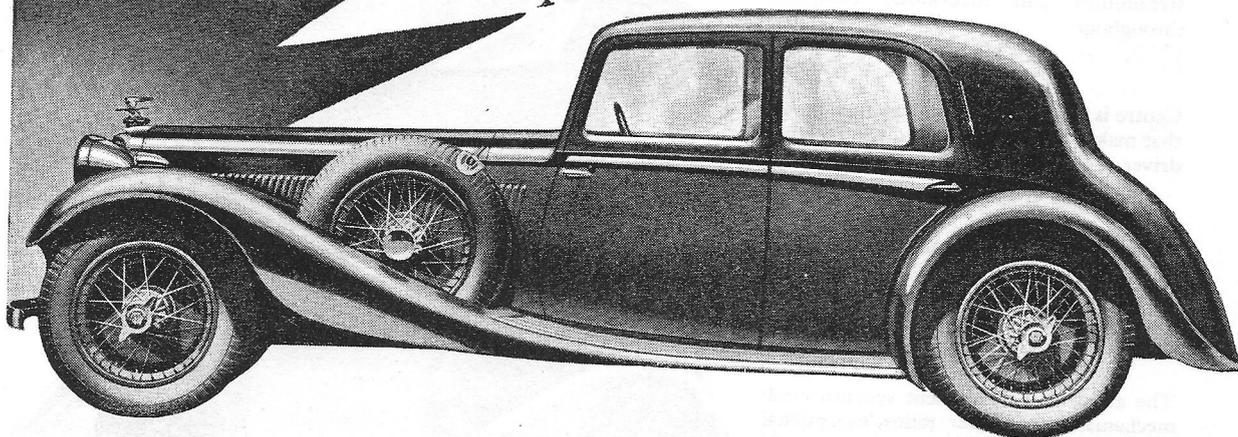
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ALVIS**1935 FIVE POINT
PROGRAMME****BEAUTY****REFINEMENT****PERFORMANCE****INDEPENDENT
SPRINGING & STEERING****ALL SYNCHRO-MESH
GEARBOX****1935 MODELS & PRICES****THE NEW 14 h.p. "FIREBIRD"**

Four-Light Saloon	-	£510
Four-seater Coupe	-	£510
Four-seater Sports	-	£490

THE NEW 16 h.p. "SILVER EAGLE"

Six-Light Saloon	-	£598
Four-Light Saloon	-	£598
Four-seater Coupe	-	£598
Four-seater Sports	-	£585

THE NEW 20 h.p. "SPEED TWENTY"

Sports Saloon	-	£850
Four-seater Coupe	-	£850
Four-seater Sports	-	£700

16-95 h.p. and 20 h.p. "CRESTED EAGLE"

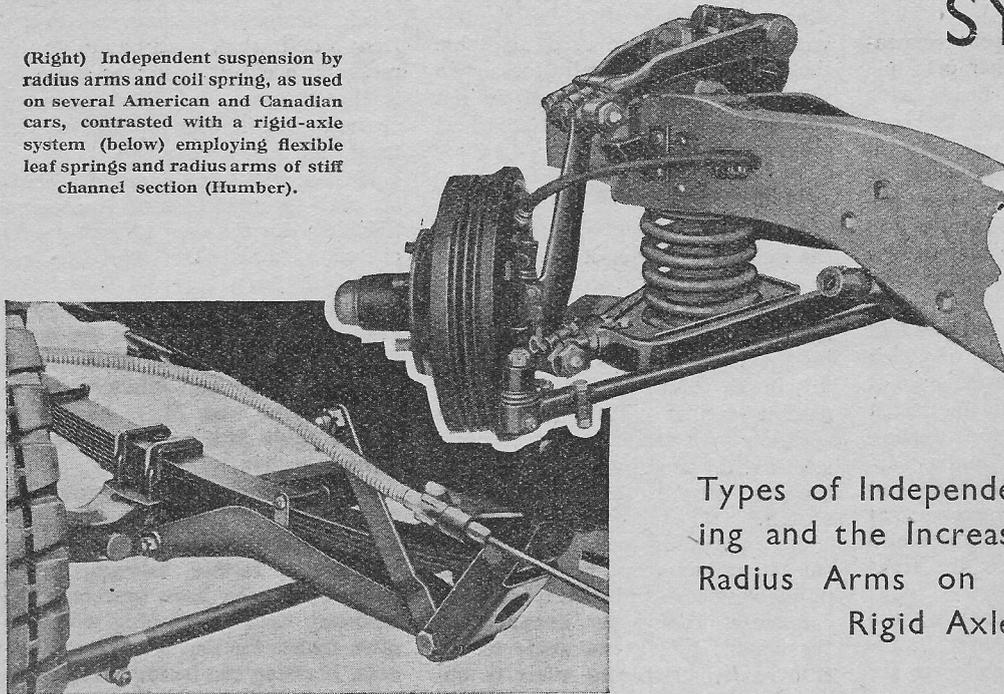
Four-Light Saloon	-	£750
Six-Light Saloon	-	£750
Seven-seater Limousine	-	£850

THE 1935 ALVIS is better than ever. To the many well-proved exclusive features have been added further refinements and improvements which make this thoroughbred car still more desirable. Three entirely new engines develop increased power with a silence and degree of smoothness hitherto unobtainable. New ideas in chassis construction, suspension, and coachwork all contribute towards the furtherance of an ideal in making nothing but the best. ALVIS performance, with every feature proved to enhance the pleasures of motoring, keeps the 1935 ALVIS in the forefront of the world's best cars. Before you buy your next car, see and try a new ALVIS. There is no substitute! 1935 Brochures for each Model are now available. ALVIS CAR & ENG. CO., LTD., COVENTRY.

London Showrooms: 18, Berkeley Street, W.1.

NEW FRONT SUSPENSION SYSTEMS

(Right) Independent suspension by radius arms and coil spring, as used on several American and Canadian cars, contrasted with a rigid-axle system (below) employing flexible leaf springs and radius arms of stiff channel section (Humber).



BY THE
TECHNICAL
EDITOR

Types of Independent Springing and the Increasing Use of Radius Arms on Cars with Rigid Axles

AN outstanding feature of the Olympia Show this year is to be the large number of new methods of front suspension. It has become generally agreed that a further improvement in riding comfort is largely dependent upon the extent to which front spring flexibility can be increased. Contrary to what might be supposed, the riding experienced in the rear seat is very strongly influenced by the characteristics of the front springing.

In what I may call the "conventional" system, for lack of a better name, the front springs cannot be made nearly so flexible as those at the rear owing to the presence of the steering gear. Greater flexibility increases the range of front-axle movement relative to the chassis and so tends to upset the steering mechanism, part of which is located upon the frame while the other part moves with the axle.

Two Popular Methods

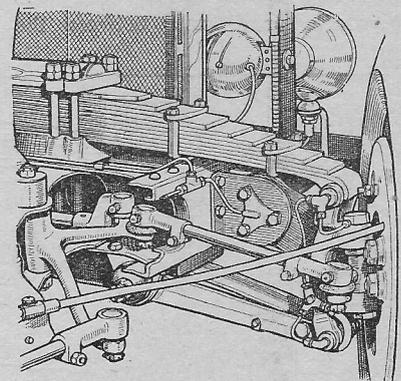
To overcome these difficulties two schemes are popular for 1935 models and are to be much in evidence at the Show. These are: First, the independent system in which the wheels are mounted in such a way as to avoid the use of a rigid axle, and, secondly, a development of the conventional plan in which axle movements are definitely prescribed by a pair of radius arms, the springs func-

tioning simply as springs. I ought, perhaps, to explain that in the conventional system the semi-elliptics locate the axle and resist brake reactions in addition to their primary springing function.

It is interesting to notice that out of the 54 car manufacturers taking space at Olympia, 15 will show models with independent springing and 12 will have examples of the radius-arm system applied to the rigid axle.

The independent systems can themselves be subdivided into a number of different types. The general plan is to support each front wheel (or, rather, the steering head carrying the wheel) by transverse arms pivoted to the steering head and to the chassis. These arms work up and down like hinges against some form of spring—leaf, coil or torsion bar as the case may be.

In addition to carrying the direct and transverse loads, the arms, or levers, must provide sufficient strength to withstand the horizontal forces, produced by road shocks or by braking, which tend to push the wheel rearwards. In some cases, such as the Buick, the necessary rigidity is secured by making the transverse arms of wishbone shape, so attaining a strong triangulated effect. In other cases (the Sunbeam Dawn, for example), the transverse links are employed simply for direct



A fine example of independent suspension by transverse leaf spring and radius arms: the Alvis Speed Twenty.

loading, a separate arm (running rearwards from each steering head to a pivot on the frame) being used to withstand all horizontal forces. There are many variants; for example, a transverse leaf spring may take the place of one of the transverse arms supporting the steering head, as in the Alvis.

Importance of Frame Rigidity

Yet another scheme is to use a longitudinal or trailing linkage, as exemplified by several Singer chassis. Here transverse strength is obtained by using very substantial pivots for the links and by a reinforced frame construction. Incidentally, in any system of independent springing it is very important that the front end of

NEW FRONT SUSPENSION SYSTEMS—Contd.

the frame should be extremely rigid in order to ensure stability and absence of wheel wobble.

The famous Lancia front suspension represents yet another principle in which the steering heads slide upon vertical guides under the control of enclosed coil springs. An intermediate type of suspension is found in the Hudson Axleflex system; conventional semi-elliptics are used, but the axle is articulated, i.e., formed from three components connected by "hinges."

Yet another design for independent springing is the Dubonnet, of which there will be at least one example at Olympia. This is unique in that it permits the whole of the steering mechanism to be carried by the chassis frame. A casing containing a coil spring is hinged to the framework at each side for steering purposes and carries a lever on which the front wheel is mounted.

Another point of interest to the technically minded motorist is the way in which the steering gears are arranged on cars with independent springing. Owing to the variation in the track, or distance between the

wheels, which occur with many such systems, the ordinary rigid track rod cannot be employed. Consequently, various methods are used to divide the steering gear centrally (or in two places) so that the linkage is not affected by up-and-down front wheel movements.

Radius Arms for Axle Location

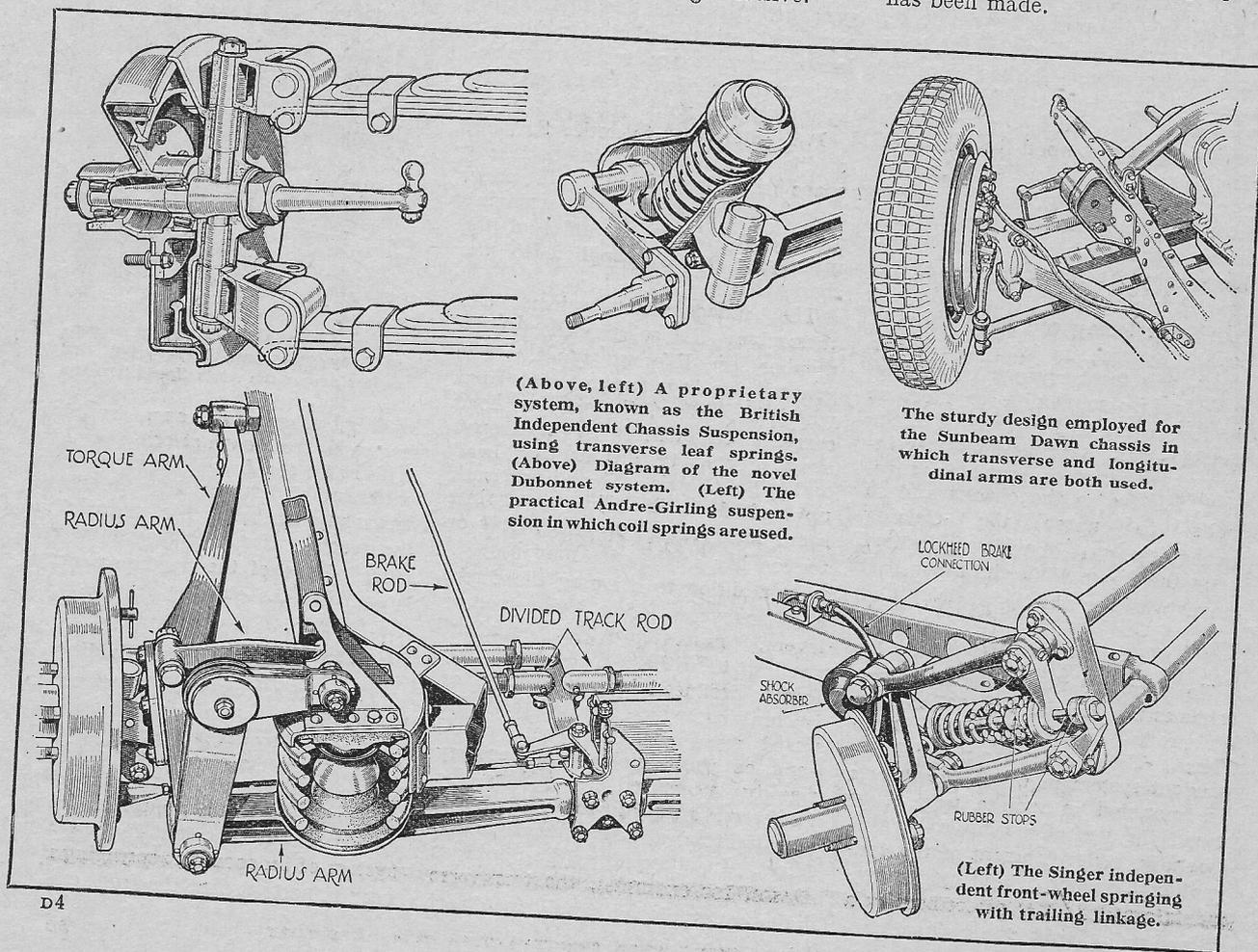
Returning to the plan of improving the rigid-axle system of front suspension by locating the axle with radius arms, it will be realized that this enables braking reactions to be resisted by the rigid arms, whereas usually the brake forces tend to twist the flexible springs. Consequently, in addition to a beneficial effect upon steering, the use of radius arms tends towards smooth braking without snatch.

An interesting point is that substantial radius arms, fitted to pivots of adequate size and stiffness, tend to counteract rolling on corners. If the chassis tilts at an angle to the front axle, a twisting effect is imposed upon the arms, in resisting which they tend to prevent the tilt, or roll, from becoming excessive.

In the Rolls-Royce and the 3½-litre Bentley chassis the hydraulic shock absorbers are connected to the front axle in such a way as to give a radius arm effect. Another example is the Humber, in which arms of channel section were applied to the front axle just a year ago.

Makers who have adopted a similar plan for 1935 include Armstrong Siddeley (for the new 17 h.p. sports chassis), Lanchester (for the remodelled 18 h.p. car) and Talbot (for the new 3½-litre chassis). Radius arms have also been used for some time on certain models of the Alfa-Romeo, Delage and Minerva, while Aston-Martin and M.G. have employed cable fittings to resist brake torque reaction.

In conclusion, it is interesting to notice that by increasing the flexibility of the front springs and moving the engine farther forward, many makers claim to have overcome the tendency towards pitching which so often makes the rear seat uncomfortable. If riding can be improved without prejudice to stability and accurate steering, then definite progress has been made.



(Above, left) A proprietary system, known as the British Independent Chassis Suspension, using transverse leaf springs. (Above) Diagram of the novel Dubonnet system. (Left) The practical Andre-Girling suspension in which coil springs are used.

The sturdy design employed for the Sunbeam Dawn chassis in which transverse and longitudinal arms are both used.

(Left) The Singer independent front-wheel springing with trailing linkage.