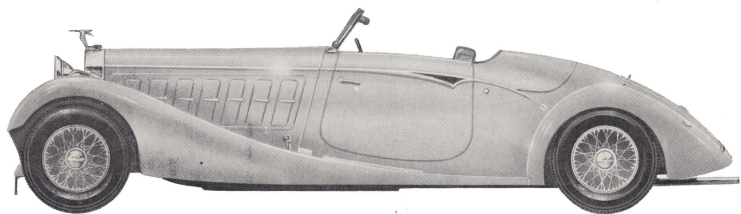


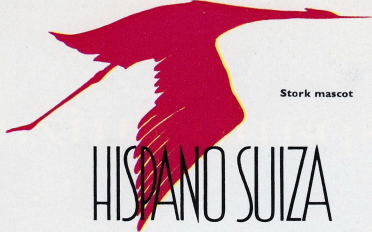
The V-12 Hispano-Suiza



NUMBER 3

TWO SHILLINGS

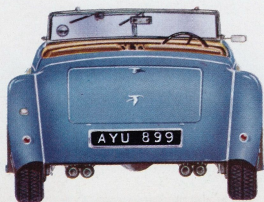
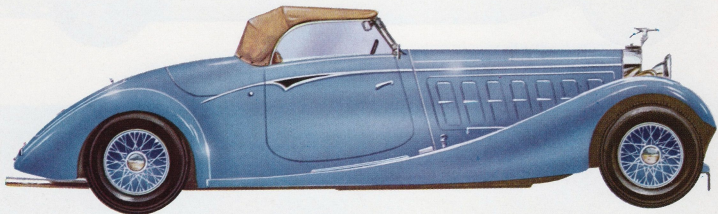
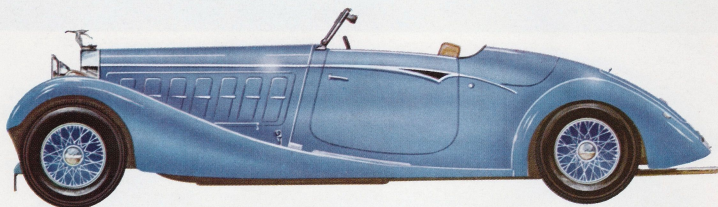
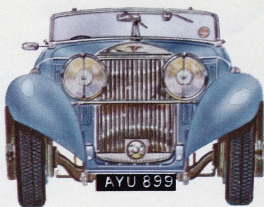
PROFILE PUBLICATIONS



Stork mascot

HISPANO SUIZA

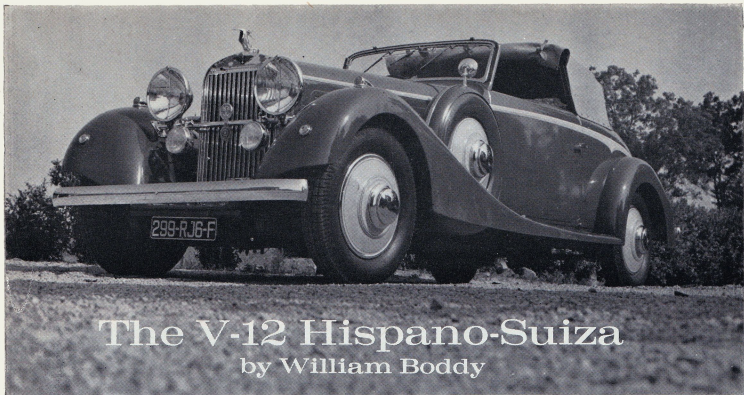
THE VI2, 11-3-LITRE HISPANO-SUIZA
TYPE 68-BIS, with 2-seater drophead coupé
coachwork by Saoutchik.
Owner: C. W. P. Hampton, Esquire.



Radiator badge



Printed in Great Britain.



The V-12 Hispano-Suiza

by William Boddy

A typical example of the V12 Hispano-Suiza, one of the last great luxury cars of its era; coachwork by Saoutchik.
(Photo: Mr. V. F. Mashek)

The Hispano-Suiza, first made in Spain at Barcelona but later a French car in its own right, was one of the great makes, a *grand marque*, during what is now called the Edwardian period of motoring history and it carried on this acclaim throughout the Vintage years, 1919–1930.

Before the First World War the 15.9 h.p. Hispano-Suiza 'Alphonso' with its long-stroke T-head four-cylinder engine was one the pioneer sporting cars, and fast for its size. After the Armistice of 1918 the famous 37.2 h.p. six-cylinder overhead camshaft Hispano-Suiza made its auspicious appearance, a luxury car beautifully finished and endowed with mechanical-servo-assisted four-wheel brakes at a time when most of the world's cars, no matter what you paid for them, had but back-wheel anchors and Rolls-Royce were not provoked into fitting the new-fangled front brakes until late in 1924.

Through fine road performance and enough racing successes to endorse its fame, the Hispano-Suiza (which had appeared first in Barcelona in the year 1906, as a 20/24 h.p. 3.7-litre chassis and also in 40 h.p. 7½-litre form, pioneering the afterwards-popular unit construction of engine and gearbox) sold in admittedly small numbers to discerning motorists who appreciated high-speed, good brakes and an excellent gear change, even if the gearbox provided only three forward speeds.

With its reputation made and a Paris factory turning it out, the Hispano-Suiza was nevertheless in a difficult position as the Vintage years ran out. The financial slump of 1930 seriously restricted the demand for expensive, hand-made motor-cars. If sales were to be made of such vehicles, they had to be of top quality.

Having built gentlemen's motor carriages since 1919,

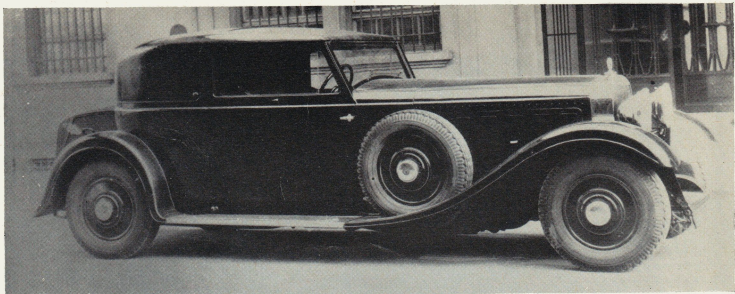
the old Spanish firm decided that survival depended upon making something which would once again be a motor-car out of the ordinary, an automobile to out Rolls Royce.

Marc Birkigt, the talented designer of the Vintage 37.2 and 45 h.p. six-cylinder Hispano-Suizas had, during the First World War, used the basic design of these later car power units to build a very well-known vee-eight aeroplane motor. This V8 Hispano-Suiza aero engine, although afflicted with teething troubles, was built by fourteen firms in its native France, not to mention seven others in America, England and Italy. Wolseley were one of the English companies to build these Hispano-Suiza engines and the Wolseley Viper was flown in SE5 and other aeroplanes and won

Marc Birkigt, 1878–1953.

(Photo Boissonnas)





This 9½-litre Kellner-bodied version of the V12 54/220 Hispano-Suiza was owned by André Dubonnet in 1933.

(Photo: Mr. C. W. P. Hampton)

fame at Brooklands track in Sir Alastair Miller's 11-litre Wolseley Viper racing giant.

So when Birkigt decided that by 1929 his fine six-cylinder cars were just about obsolete, he was conversant with vee engines. Thus it should not have occasioned too much surprise that the Hispano-Suiza which was to cause as much comment and excite as much praise during what we in England now call the post-vintage-thoroughbred period (1931-1940) as the Vintage Hispanos before it, had a vee twelve cylinder power unit.

The connection with the 1914-18 war is even closer than the foregoing may suggest, because, although Birkigt's production aero motors were V8s, before the end of hostilities he had on the drawing board, if not on the test bed, a V12 engine of the same bore and stroke, using a shaft-driven o.h. camshaft above each cylinder bank, and it was half this engine, in effect, which he had taken for his sensational 37.2 h.p. or 32 c.v. car engine.

The bore and stroke of this war-time aero motor were 100 × 140 mm. and in designing the great V12 car engine Birkigt used the same cylinder-bore size but also used a stroke of 100 mm., to give a 'square'

power unit with a swept volume of no less than 9,424 c.c. There was, however, one vital difference. Whereas up to that time, Birkigt had been a keen exponent of the single overhead camshaft operating directly on the vertical overhead valves, in his new V12 car engine he went over to push-rod and rocker valve gear. It may have been that the aim was quieter running. At all events, with the cylinder blocks at an angle of 60 deg. it was convenient to have the camshaft in the crankcase between them, and the comparatively short cylinder-stroke meant that the push-rods need not be very long and so were of decently light weight.

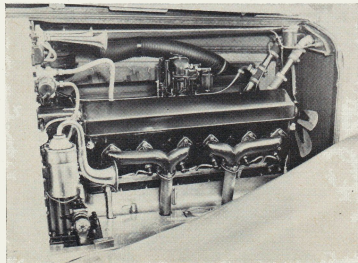
Let us examine the great V12 Hispano-Suiza in detail.

The Type 68 V12 Hispano-Suiza has been described by one authority as the most magnificent motor car ever to be built in series production, this writer adding that under the prevailing changed economy it is unlikely that anything like it will ever be catalogued again.

The engine had integral cylinder blocks and heads of aluminium alloy, finished in the old Hispano-Suiza tradition by enamelling under pressure. In these cylinder blocks the screwed-in liners were of hardened

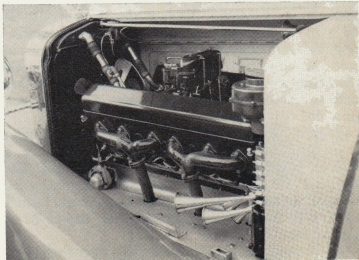
Off-side view of the 11.3-litre V12 engine. Note the downdraught carburettors between the cylinder blocks and the dual exhaust system.

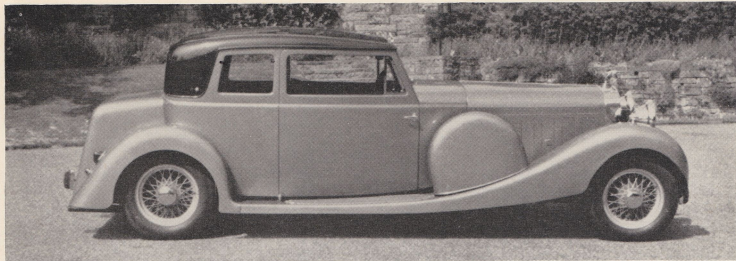
(Photo: Mr. Ronald Barker)



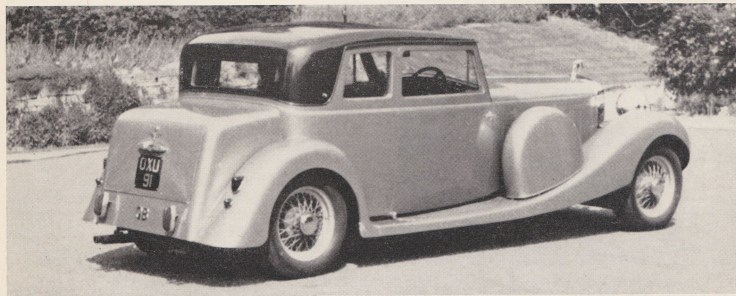
Near-side view of the V12 engine. Note the water pump at the front of the crankcase and the traditional stove-enamel finish.

(Photo: Mr. Ronald Barker)





These illustrations emphasise the enormous wheelbase length of the 54/220 model. In fact, four chassis lengths were available.
(Photos: Mr. C. W. P. Hampton)



nitralloy steel. Within the vee formed by the cylinder blocks the two-choke Hispano-Suiza carburettors were accommodated, while ignition was by two sets of sparking plugs in each cylinder fired independently by twin Scintilla magnetos.

The exhaust manifolding comprised two manifolds for each cylinder bank, these being vitreous enamelled. Lubrication and cooling were conventional, the latter system employing two circulatory pumps, one for each block, and a fan to stir water through the enormous radiator. The connecting rods were tubular. A power output of 220 b.h.p. at the modest peak crankshaft revolutions of 3,000 per minute was claimed for the original 9½-litre power unit, which had a compression-ratio of 6·0 to 1.

Chassis design was along the accepted lines of the late Vintage period. In other words, the frame was sprung on half-elliptic leaf springs, the whole chassis very rigid and well-suited to such a heavy fast motor-car. The drive from the engine went through a multi-plate clutch to the usual three-speed-and-reverse gearbox, which had gear ratios of 5·44, 4·10 and 2·72 to 1, although a lower set of ratios was available for cars carrying excessively heavy coachwork.

Final drive was by means of a torque-tube-enclosed

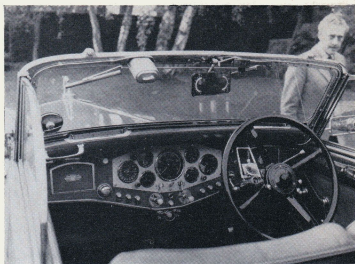
propeller shaft and, visualising a considerable variety of body styles on the new car, Hispano-Suiza contrived no fewer than four different lengths of chassis, respectively with wheelbases measuring 11 ft. 3 in., 12 ft. 2 in., 12 ft. 6 in., and 13 ft. 2 in. It must be remembered that individual coachbuilders still plied their trade in those times, and they were nicely accommodated by these four chassis varieties and by the lower gear ratios, which stemmed from a choice of four different back axle ratios, 2·72, 2·89, 3·0 and 3·3 to 1.

It was late in 1931 that the great V12 Hispano-Suiza made its appearance and at once it was hailed by those who could still afford such extravagant luxuries as one of the world's finest motor-cars. It was a car which possessed performance of an order which put it in the top flight, an automobile which was endowed with that impeccable Hispano-Suiza steering that contrives to make such huge cars feel much smaller than in fact they are to the person behind the steering wheel; although the new V12 turned the weighbridge at in the region of 2½ tons and was capable of very appreciably exceeding 100 m.p.h., the gearbox-driven mechanical brake servo, in conjunction with enormous ribbed brake drums on each

wheel, a legacy from the 37.2 h.p. Hispano-Suiza of 1919, provided adequate means of arresting the Type 68.

It was indeed a fine production and one entirely fitted to carry on the tradition of cars which had featured in novels in both England and France ('The Green Hat' by Michael Arlen and 'L'Homme à l'Hispano' by Pierre Frondaie) and which had in their time been the favoured motor-cars of the King of Spain and of the multi-millionaire Woolf Barnato, who afterwards bought the Bentley Motor Company.

Many people thought the horse-power estimate for the Type 68 of 220 b.h.p. conservative and certainly the V12 possessed very impressive acceleration from any pace up to about 80 m.p.h. in spite of its great weight. The new car made its début at the Paris Salon of 1931, a show where so many famous cars have had their first showing to the motor critics and where, in those days, the most remarkably optimistic confessions were exhibited side by side with vehicles intended for serious production. The big Hispano-



Driving compartment of C. W. P. Hampton's Type 68-bis. Note central tachometer, neatly grouped instruments and rear-view mirror incorporating altimeter and internal temperature thermometer. (Photo: Mr. Ronald Barker)

Suiza with its traditional radiator shape and winged badge was the proudest offering at this just-post-Vintage show.

To introduce the new model the late Charles Faroux, father of motoring journalists, drove one as fast as he could from Paris to Nice and back and straight into the Hispano-Suiza showrooms during the period of the Paris Salon, where it was alleged a large sheet of white paper was waiting to receive it. Over this sheet of paper the still-hot car was brought to rest, and it is said that for the period of the Exhibition not a drop of oil fell from it, proof of the most careful assembly and inspection of what was a very complicated piece of engineering.

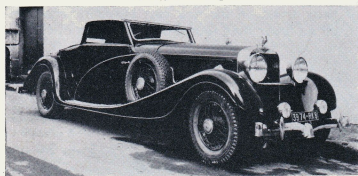
It was some time before the V12 Hispano-Suiza came to England, but early in 1934 one of these cars was the subject of a road-test report in the pages of *The Autocar*. They tried a car fitted with a Vanvooren drophead-coupé body, the weight of which was no less than 39 cwt. Using the highest of the available axle ratios, 2.7 to 1, the car lapped Brooklands track at 95 m.p.h. and was timed over the flying half-mile at fractionally over 100 m.p.h. As to acceleration, a mile-a-minute was accomplished from rest in 12 seconds, 80 m.p.h. was reached in a matter of 19 seconds and the top gear pick-up was truly astonishing, a steady 30 m.p.h. to 50 m.p.h. occupying only six seconds. Dropping into the middle speed, the time for this performance was reduced to a mere four seconds.

This ability to accelerate from a crawl to 80 or 90 m.p.h. very rapidly indeed and the ability of the 54/220 Hispano-Suiza to cruise effortlessly at any speed up to its maximum to a great extent undermined the arguments of those critics who maintained that the gear ratios of the three-speed gearbox were too widely spaced. Indeed, without dropping out of top gear, the closed V12 Hispano-Suiza was able to increase speed from 10 to 70 m.p.h. in a matter of 21 seconds, and would come down to walking pace in this same gear. Although *The Autocar* obtained only 100 m.p.h. from a coupé version on Brooklands

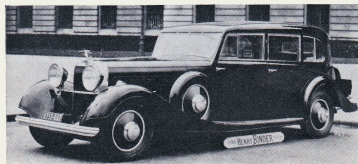


The ex-Dubonnet Hispano-Suiza as modernised by C. W. P. Hampton in 1955.

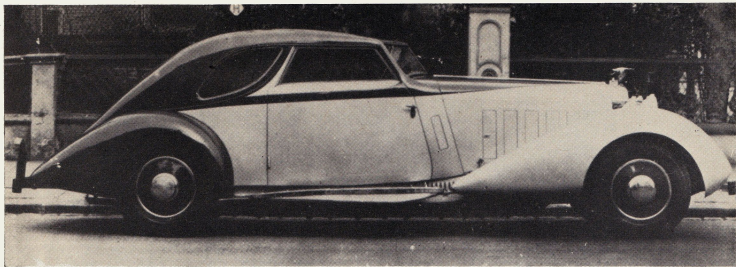
Below: A V12 coupé of the mid-thirties. Note the unusually styled front bumper.



No chassis lent itself better to spacious, elegant coachwork than the V12 Hispano-Suiza. This Type 68 long-chassis version carries a limousine body by Henry Binder of Paris.



(Photos: Mr. C. W. P. Hampton)



1933/34 9½-litre V12, thought to have been owned by Lord Rothschild. The exotic coachwork is probably by Figoni et Falaschi. (Photo: Mr. C. W. P. Hampton)

track, other examples were able to show a top speed of around 105–108 m.p.h. With such performance petrol consumption might have been anticipated in single figures; in fact, the big Hispano-Suiza returned 11 m.p.g.

By the time the car had become established in England the makers had decided to gild the lily and it is to the Type 68-bis that the foregoing performance figures refer. The difference was that the cylinder stroke had been increased by 20 mm. to 120 mm., so that the swept volume had gone up to the impressive capacity, for a post-Vintage or indeed, for a post-Edwardian production motor-car, of 11,310 c.c. This produced a maximum power output of 250 b.h.p. without taking the crankshaft speed beyond the previous modest 3,000 r.p.m.

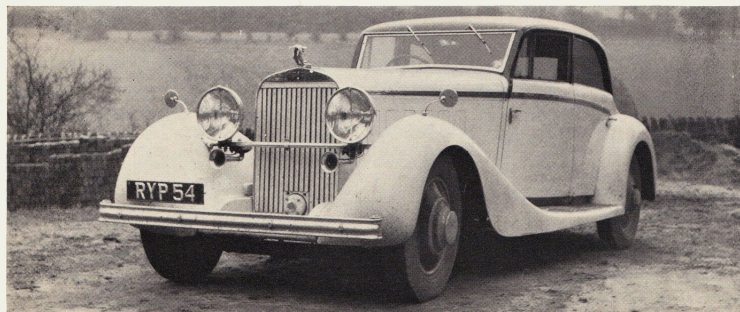
By 1934 the chassis price in England of the V12 was £2,750 and the Vanvooren coupé which the concessionaires used as the Press car and demonstrator was listed at a cool £3,500.

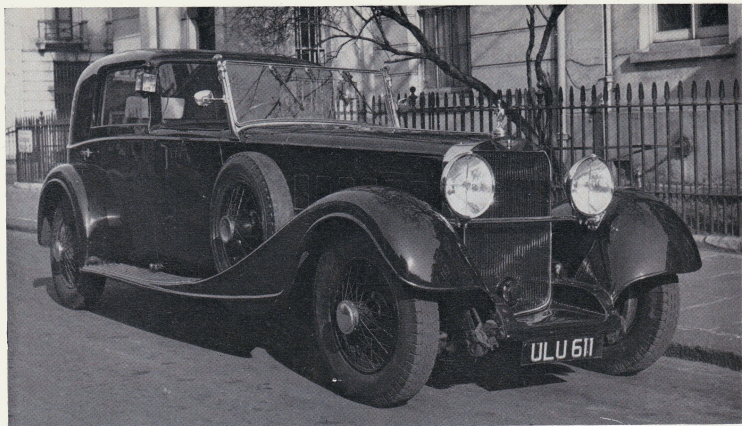
The V12 Hispano-Suiza remained in production until the Munich crisis in 1938. It needed very few modifications during its production run of eight years.

Later models had ignition by twin Scintilla Vertex magnetos instead of using the four coils of the earliest Type 68 cars. Incidentally, the sump held as much as 3½ gallons of lubricant and the valve timing differed from that adopted by Birkigt for the 37.2 h.p. Hispano-Suiza only in much earlier opening of the exhaust valves. The exhaust valves, which were on the outside of the heads, opened 60 deg. before b.d.c. and closed 5 deg. after t.d.c., while the inlet valves, conveniently situated to be fed by the carburettors within the engine's vee, opened at 7 deg. after t.d.c. and closed 45 deg. before b.d.c. The tappet clearances (hot) for the V12 engine were 14-thou. inlet and 18-thou. for the exhaust.

There was nothing unique about a vee-twelve engine for use in an automobile when the Type 68 Hispano-Suiza made its début in 1931, but it is worth remembering that it was not until 1936 that Rolls-Royce replaced their six-cylinder in-line engine with the V12 Phantom III. This was perhaps the most silky and silent automobile ever built, but its 7.3-litre engine was deliberately intended to give these results, whereas the Hispano-Suiza V12, while extremely flexible and

David Scott-Moncrieff's Type 68 Chapron-bodied car, originally built for Marcel Boussac, which effectively portrays the large radiator area and famous stork mascot of the late pre-war Hispano-Suiza. (Photo: Mr. Ronald Barker)





A stately Berline-de-Ville, with carriage auxiliary lamps, on the 1933 Type 68 chassis.

(Photo: Col. J. R. Buckley)

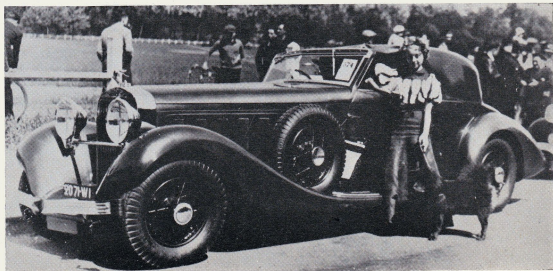
quiet, delivered its performance with a trace of arrogance, so that whereas the English car was luxury personified, the car from France was of more sporting aspect. And, of course, Rolls-Royce never disclose the power developed by their automobile engines, so that there is no direct comparison to be made with the 250 b.h.p. so easily produced by the Type 68-bis Hispano-Suiza. In 1937 the Rolls-Royce Phantom III chassis cost £1,900.

In England the V12 with the winged-badger became sought after by wealthy collectors and Peter Hampton managed to maintain two immaculate specimens in captivity at his home and motor house in Sussex (the latter reputed to be larger than the former!): a Type 68 12 ft. 2 in. two-door coupé registered OXU 91 and a Type 68-bis two-seater registered AYU 899. And at the Royal Aircraft Establishment, Farnborough, they have a nicely-preserved SES in flying trim, with a Viper V8 engine, fore-runner of the V12 Hispano-Suiza aero engine on which the automobile V12 power unit of 1931 may be said to have been based.

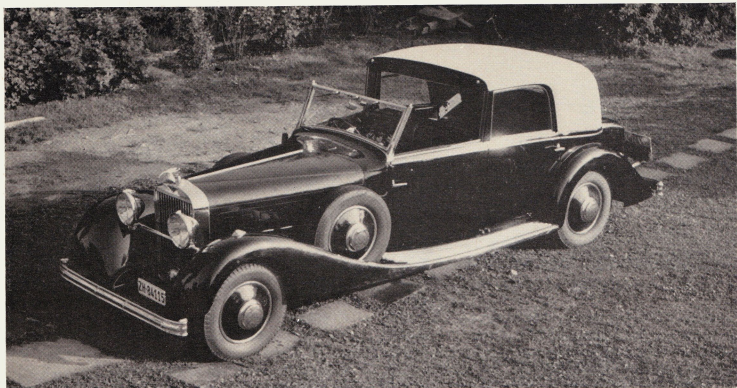
The V12 was not the only model produced by the famous French company in the post-vintage period, although it was by far the most impressive.

The 6½- and 8-litre six-cylinder models persisted up to 1933, but they rightly belong to the Vintage era. By 1931 Hispano-Suiza had absorbed the Ballot concern, which had originally built engines for Delage and other French car manufacturers and later made some very nice cars of its own, notably the 2-litre range. To tie in with this allegiance a 4½-litre Hispano-Suiza power unit was installed in a Ballot chassis (the gearbox had a central change-speed lever, which offended the purists almost as much as the similar gear change on the first vintage Rolls-Royce Twenty chassis!). This model was called the Junior.

After a few years this lesser-Hispano was replaced by the 30/120 h.p. car. This had a bore and stroke of



In their day, these cars won many top awards in Beauty Contests, graced by elegant women. This 1933/34 Type 68-bis is said to be owned today by Charles A. Chayne, Vice-President of General Motors Inc. (Photo: Mr. C. W. P. Hampton)

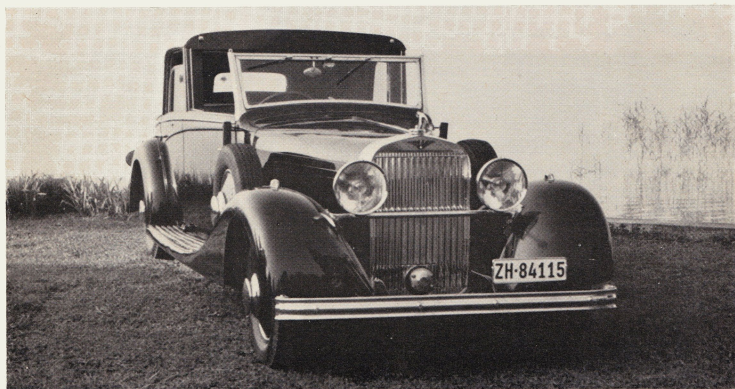


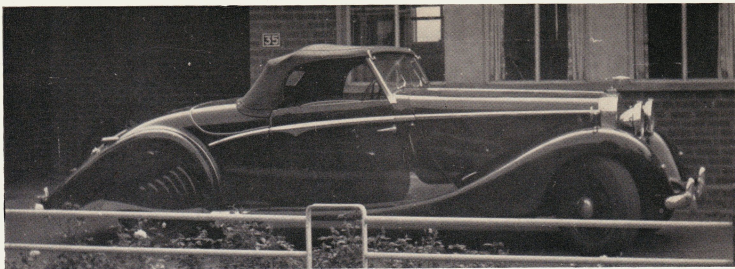
Above and below: Almost as elegant as the V12, the long chassis 30/120 lent itself to specialised coachwork like this Sedanca-de-Ville.
(Photos: Mr. Morin Scott)

its six-cylinder engine of 100×110 mm., giving a capacity of 5.2 litres. Alas, the central gear lever persisted, as indeed it did on the V12 cars, which had synchromesh on top and second gears. This 30/120 h.p. Hispano-Suiza had push-rod-operated overhead valves and ignition by twin coils, and the valve timing was closely related to that which Birkigt had worked out for the overhead camshaft $6\frac{1}{2}$ -litre car. A demonstrator 30/120 h.p. model came to England, with a pillarless Vanvooren saloon body, which turned the scales at 35 cwt. This was late in 1934, the car giving performance figures of 0-50 m.p.h. in 12.2 seconds, 0-60 m.p.h. in 19.6 seconds, and a top speed over a

timed $\frac{1}{4}$ -mile of just below 83 m.p.h. This was achieved with the long-wheelbase chassis pulling a top gear of 3.65 to 1. Needless to say, the gearbox contained but three forward speeds; 30-50 m.p.h. occupied 8.6 seconds in top, but the time was reduced to 5.8 seconds if the 5.4 to 1 middle gear was used. The price of this saloon model was £1,895 in England in 1934; a short-chassis version of the 30/120 h.p. car was available with an axle-ratio of 3.4 to 1, which would perhaps have reached 90 m.p.h.

In whatever guise it was made, the Hispano-Suiza was a car beautifully finished beneath the bonnet and possessed of good performance and a high degree of





A Saoutchik three-seater body, with 'dickey' behind the hood, on the 1938 30/120 chassis.

(Photo: Dr. L. B. Paling)

refinement. During the hey-day of the 6½-litre model a similar overhead camshaft 27 h.p. version had been offered to those discerning enough to crave an Hispano, but not sufficiently wealthy to run one of the 6½-litre or 8-litre models. This was made at the Barcelona factory but in the mid-nineteen-thirties this became uneconomical to produce and its 85 × 110 mm. overhead camshaft engine was replaced by a push-rod overhead valve 80 × 100 mm. 3-litre power unit rated at 20 h.p.

It is happier, however, to regard the great V12 as the swan-song of the Hispano-Suiza. By 1939 the Paris factory was given over to aero-engine manufacture. The post-war Hispano was a front-wheel-drive V8 of between 3- and 4-litres and it was shown at the Geneva Motor Show in 1946. The suspension was of new conception.

The car remained afterwards at the Paris factory until about November 1958, when it was broken up without the knowledge of Maurice Heurteux, the President of Hispano-Suiza, who, six months later, offered it as a gift to Morin Scott, the President of 'Les Hommes à l'Hispano'. Too late, alas!

The 30/120 Hispano-Suiza in drophead coupé form.

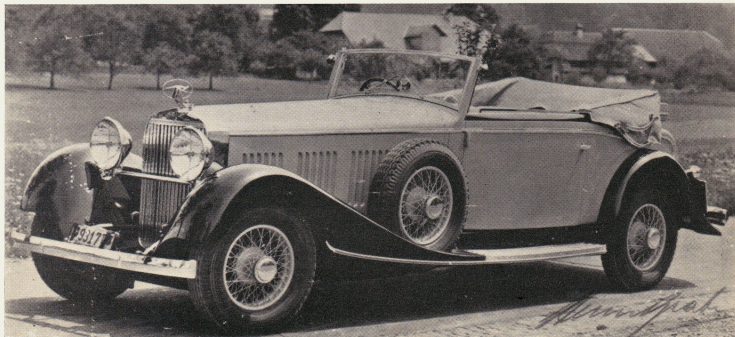
It was the very exciting Pegaso which I saw being made when I was conducted round the old Barcelona home of Hispano-Suiza after the war. Even that did not last very long, and soon Pegaso were back to concentrating on building their very fine heavy trucks.

© William Boddy, 1966.

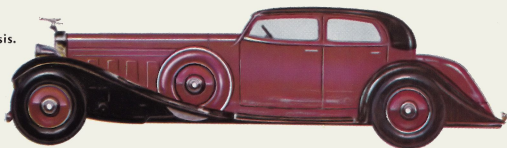
SPECIFICATION: HISPANO-SUIZA V12

ENGINE: Twelve cylinders in two banks of six, forming a 60 deg. vee. *Tipo 68:* 100 × 100 mm. bore and stroke, 9,424 c.c. *Tipo 68-bis:* 100 × 120 mm., 11,310 c.c. Overhead valves operated by push-rods and rockers. Aluminium cylinder blocks and integral fixed alloy cylinder heads. Steel cylinder liners. Tubular connecting rods; light-alloy pistons. Pressure lubrication. Cooling by a water pump for each cylinder block, and fan. 5.0 to 1 or 6.0 to 1 compression-ratio. **Ignition:** dual Scintilla magnetos firing two sets of sparking plugs on later engines, battery and four coils on early Tipo 68 engines. Two twin-choke Hispano-Suiza carburetors. Main jets 160, pilot jets 70. **Firing order:** 1R, 6L, 5R, 2L, 3R, 4L, 6R, 1L, 2R, 5L, 4R, 3L. **Valve timing:** Inlet opens 7 deg. a.t.d.c., inlet closes 45 deg. a.b.d.c., exhaust opens 60 deg. b.b.d.c., exhaust closes 5 deg. a.t.d.c. **Tappet clearances:** Inlet 0.014 in., exhaust 0.018 in., engine hot. **Power output:** 190 b.h.p. at 3,000 r.p.m. on 5.0 to 1 compression ratio, 220 b.h.p. at 3,000 r.p.m. on 6.0 to 1 compression ratio from Tipo 68 engine. 250 b.h.p. at 3,000 r.p.m. from Tipo 68-bis engine.

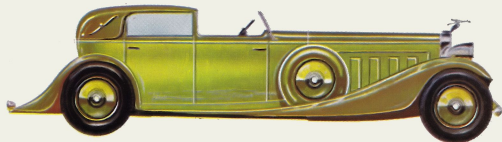
(Photo: Mr. C. W. P. Hampton)



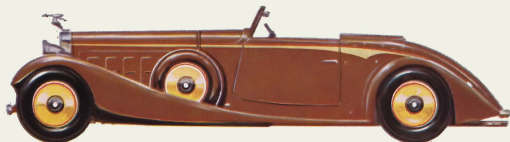
Sports Saloon by Vanvooren on light chassis.



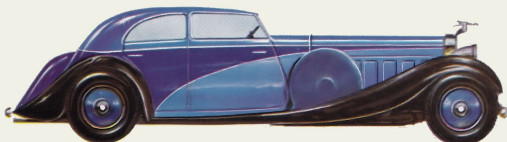
Coupé de Ville by Kellner
on normal chassis.



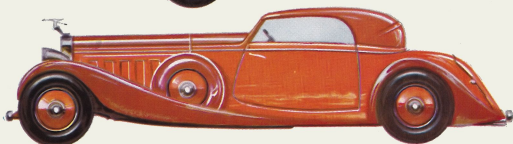
Drophead Coupé by Saoutchik
on light chassis.



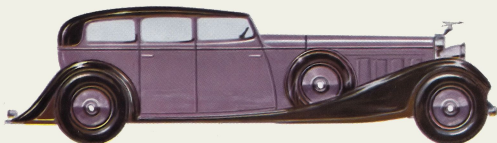
'Aerodynamique' Sports Saloon
by Franay on light chassis.



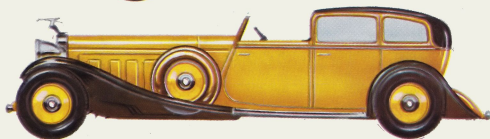
Cabriolet three-seater by
Million Guiet on short chassis.

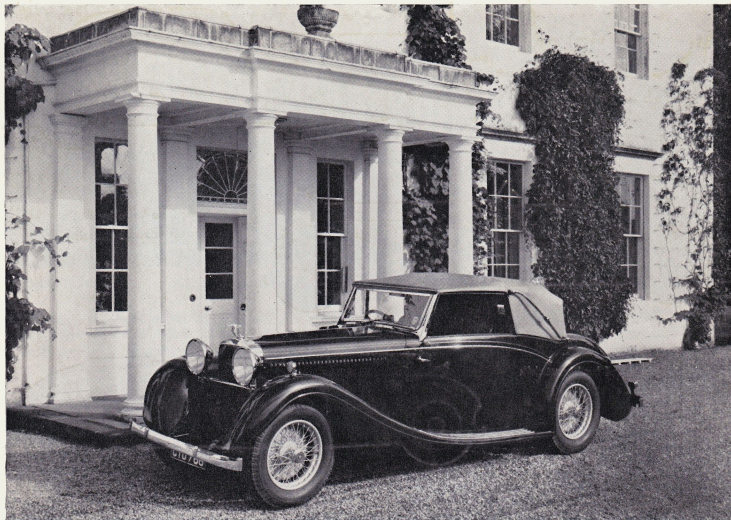


Sedanca Limousine-de-Ville by
Letourneur et Marchand on long chassis.



Coupé Limousine-de-Ville by
Binder on normal chassis.





A very rare Hispano-Suiza model—the Hispano-Ballot Type 26. This is probably the sole example to be imported into Britain. Now owned by Lord Doune, it is a 1934 example with coachwork by Lancefield of London. (Photo: Norval Ltd.)

GEARBOX: Three forward speeds and reverse controlled by central lever. Ratios (with 2.7 to 1 axle ratio), 2.7, 4.1 and 5.44 to 1.
AXLE RATIOS: 2.7, 2.89, 3.0 or 3.3 to 1.
WHEELBASE: 11 ft. 3 in., 12 ft. 2 in., 12 ft. 6 in. or 13 ft. 2 in.
WEIGHT: (coupé body), 4,880 lb.
CHASSIS PRICE: £2,750.

PERFORMANCE: Tipo 68-bis with coupé body and 2.7 to 1 axle ratio: 0-50 m.p.h. in 9.4 sec., 0-60 m.p.h. in 12.0 sec., 0-70 m.p.h. in 15.0 sec., 0-80 m.p.h. in 19.0 sec. Maximum speed, 108 m.p.h. Fuel consumption, 10-11 m.p.g.

SPECIFICATION: HISPANO-SUIZA 30/120

ENGINE: Six cylinders in-line, detachable cylinder head. 100 × 110 mm. bore and stroke, 4,900 c.c. Overhead valves operated by push-rods and rockers. Dual battery and coil ignition.

GEARBOX: Three forward speeds and reverse, controlled by central lever. Ratios 3.65, 5.40 and 7.25 to 1.

AXLE RATIOS: 3.4 to 1 or 3.65 to 1.

WHEELBASE: 11 ft. 3 in. Track: 4 ft. 9 in.

WEIGHT: (Saloon body), 35 cwt.

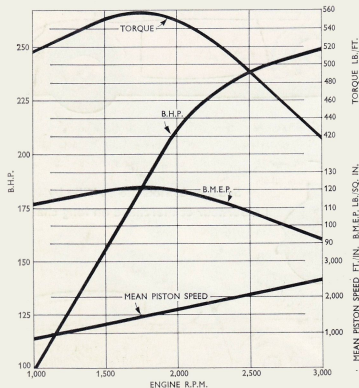
PRICE: (in 1935 with saloon body), £1,895.

PERFORMANCE: 0-50 m.p.h. in 12.2 sec., 0-60 m.p.h. in 19.6 sec., 30-50 m.p.h. in 8.6 sec. in top gear, 5.8 sec. in second gear. Speed over timed quarter-mile, 82.95 m.p.h.

PETROL TANK CAPACITY: 22 gallons.

FUEL CONSUMPTION: 14-17 m.p.g.

TURNING CIRCLE: 46 ft.



Power curves for the 11.3-litre Hispano-Suiza (AUTOCAR COPYRIGHT)

SPECIFICATION: BALLOT HISPANO-SUIZA TYPE 26

ENGINE: Six cylinders in line, 90 × 120 mm. (4,560 c.c.). Maximum engine speed, 2,800 r.p.m. Aluminium monobloc cylinders. Overhead valves operated by shaft-driven overhead camshaft. Pump cooling. Thermostat control. Water in circulation, 22 litres. Scintilla dynamo driven from nose of camshaft. Tubular connecting-rods.

CHASSIS: Half-elliptic suspension. Hispano-Suiza mechanical-servo four wheel brakes. Multi-plate clutch. Three-speed and reverse gearbox. Final drive by torque tube. Fuel feed by Autoflux fuel pump from 95-litre petrol tank.

DIMENSIONS: Wheelbase, 11 ft. 6½ in. Track, (front), 4 ft. 6½ in. (rear), 4 ft. 8 in. Overall length, 15 ft.

MAKERS: Etablissements Ballot, 27 and 39, Boulevard Brune, Paris.