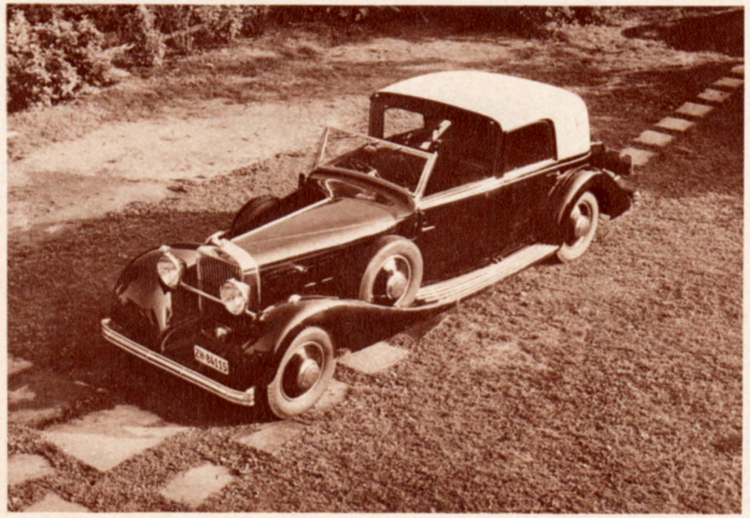

Restoring a classic

–the HISPANO-SUIZA K-6

by Hansjoerg Bendel

One morning, when I was descending from one of the lower passes in the north of Switzerland, I suddenly perceived a gleaming radiator with decidedly classic outline, that belonged to a black car standing in the back yard of a used-car dealer. I braked hard and backed into the used-car lot to get a closer view of the car. It was a large, four-door Hispano Suiza with Sedanca de Ville body by the Parisian coachbuilder, Saoutchik, well known for several rather eccentric post-war designs. I inspected the car closely and found, to my great surprise, that the body and hood were in reasonable condition, the interior decidedly well-kept, and that there was but very little rust on the chromium plated parts. Particularly the radiator was astonishingly good, gleaming with a freshness as if it had come straight from the factory. I decided to buy the car if I could, contacted the proprietor and found out that he was willing to let me have the car for a not too unreasonable sum. He told me that the car had an engine defect believed to be the rupture of the camshaft drive chain, but that otherwise the car was in good order. It had been used as the official car of a Swiss Bank up to about 6 months ago. I bought the Hisso and towed it away. The first town we crossed was flagged and the churchbells were ringing—even if it was not, perhaps, exactly for us, it delighted me greatly and I took it for a good omen in regard to the Hisso's future.

The Resurrection

At this point, I should introduce my friend who agreed to become my partner in the Hispano-adventure, and who, of course, helped me with towing: John is his name. John and I, as mentioned before, towed the car away across a slice of Switzerland (total distance circa 80 miles) which was no mean feat, considering the 2.1 tons of the Hisso (we weighed it later) cost us one as-good as-new towrope and confirmed the efficiency of the mechanical Servo Brake. More of this later. The car was then brought to the weekend home of my father-in-law, which is located on the lakeside and has the great asset of a large garage combined with a small workshop. Ideal for restoring the engine of the Hisso, but on the cold side, considering that we bought the car late in the autumn of 1954 and worked on it all through the winter weekends. Most of the time, the garage was at freezing point when we came, and about 5 degrees warmer when we left—I can assure you that getting into cold overalls was just the thing to make one start working fast.

The first thing we did was to clean the engine and then dismantle it. Since the camshaft drive was defective (we checked this and ascertained that turning the crankshaft failed to actuate the valve gear), we first had to dismantle the camshaft drive cover. To do this, you put the car on blocks, take bonnet and front chassis cowlings away, pull the dynamo outwards from the nose of the crankshaft (which has a dog clutch engaging with the dynamo), lift the radiator out and remove the front chassis cross member which, fortunately, is bolted to the side members. Thereupon we took the timing gear cover off and found. as suspected, that the camshaft is driven not by a chain but by a pair of gear wheels. The steel one on the crankshaft was perfect, but the camshaft gear wheel, made of a special laminated plastic called Resotex, was devoid of about one third of its teeth. This was not too bad, because I had previously been able to locate a French Specialist by the name of Moreau, who used to work at the Hispano factory; he proved to be an expert of really outstanding ability, and he stocks parts for most models of Hispanos still running today. He was able to supply a new camshaft drive wheel within a few days.

After the replacement of the camshaft drive (timing of which was not too easy, since there were no markings at all), we took the cylinder head away. By the way: the engine of the car, which is a K 6 model, has 6 cylinders, bore 100 mm, stroke 110 mm (see data panel), has wet cylinder liners and pushrod operated overhead valves, twin ignition from two coils and one twelve-cylinder distributor with one horizontal spark plug on each side of the head. Quite classic, and we found that all the parts indicated a very high standard of detailed machining, executed with the greatest love for fine workmanship. Not too astonishing when it is remembered that the Hispano is the product of a once-famous aviation-engine factory and occupied a place that today is held exclusively by Rolls Royce.

Lifting the cylinder head away was not too easy, either, because it stuck to the block as if glued, but we managed it somehow and found that the bores and cast-iron pistons were in very good order. Cleaning and decarbonizing was all that was necessary here. The head, on the other hand, was found to be leaking. On the advice of M. Moreau we discovered that the pushrods pass through steel tubes pressed into appropriate holes machined vertically through the head. Several of these tubes were found to be badly corroded, so we had them pressed out and replaced by copper tubes, as on the later Hispano-models. Everything was then replaced, the inlet manifold (made of aluminum) was polished, the twin updraught Solex-Hispano carburetor checked and found in order, the radiator cleaned and resprayed, and finally the engine was flushed with special cleaning oil. And at last, the great day arrived when John put his foot on the starter switch, his hand on the steering-wheel-mounted levers for ignition-timing, hand throttle and starting carburetor. After a few turns of the crankshaft, the engine came to life and ran evenly and correctly on all cylinders, with blue flames sprouting out of the exhaust ports (we had not fixed the exhaust manifold because I wanted to see whether the firing was identical on all cylinders. It was.) To our joy, the engine behaved correctly, the oil pressure was 50 lbs/sq. in., and everything seemed to be in order.

The Snags

Don't think, however, that we encountered no snags. We did, more than once, and a short list will show that it is fun but not without difficulties to restore classic cars. First of all, the radiator: it leaked and seemed to be blocked, whereupon we sent it to a specialist firm to clean and re-solder it. They did, but they ruined the thermostat that automatically adjusts the metal shutter controlling the air flow through the radiator, and we barely managed to get a new one of adequate design and dimensions. Furthermore, the radiator was clean but was still leaking, and the socket for the lever that operates the shutter was placed the wrong way round; when the thermostat went hotter, it closed the shutter! Another snag: one of the previous owners had apparently tried to open the right-hand rear door without first unlocking it. Result: The door was blocked, and it took about six hours before we managed to get it open without destroying part of the body.

The Chassis

The chassis is notable for having box-section side members, rather unusual for a 1937 model, but definitely beneficial on such a long, heavy vehicle. Both axles are rigid and sprung by long half-elliptics. In front, there is a hydraulic shock absorber working on the track rod to damp out steering reactions (in other words, Hispano adopted this system before 1937, whereupon it was forgotten and rediscovered after the war by Mercedes-Benz for their model 300). The result is a light (bearing in mind the weight of the car) and very precise steering which provides first rate "feel" without undue vibration.

The gearbox has three speeds, the two upper ones being synchronized, and I must say that, although I am a multi-speeds addict, three speeds seem adequate for the high torque of the 5.2-litre engine. First gear is sufficient for brisk get-away and accelération up to about 30 mph, second is adequate up to 50 mph, and from 20 mph up to maximum speed, there is always ample reserve of power in third gear.

The brakes call for special comment since there is a mechanical Servo driven at right angles from the propshaft. In reality, the Servo unit is nothing else but a single-plate dry clutch which is engaged by depressing the brake pedal; the driven plate of the clutch is connected to the brake linkage and delivers a torque in proportion to the speed of the car and the pressure exerted on the brake pedal. The brakes proper are cable operated, and it is notable that the degree of braking can be very finely adjusted to the needs of the moment, without ever any tendency to unduly fierce braking or sideways-pulling. Braking effort is kept very small.

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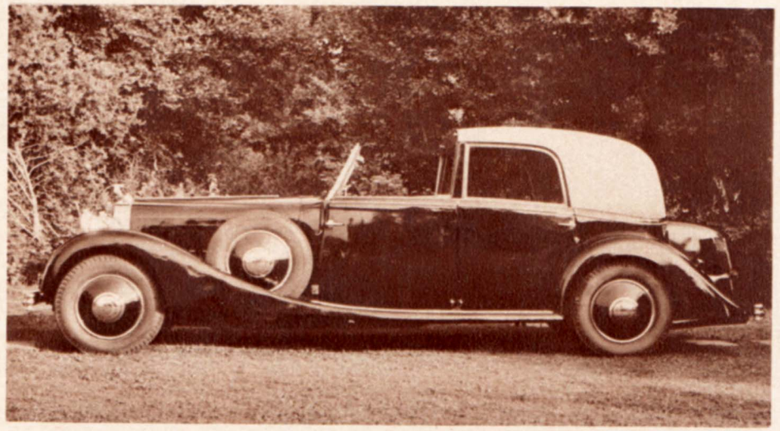
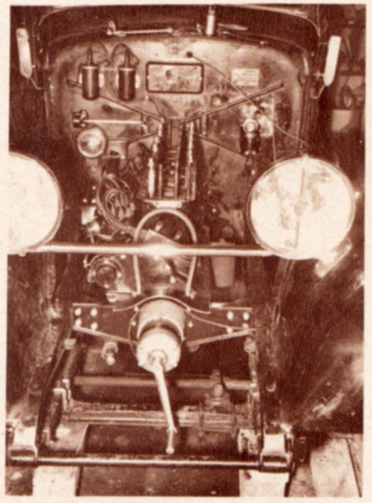
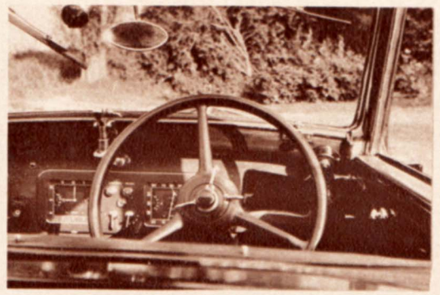


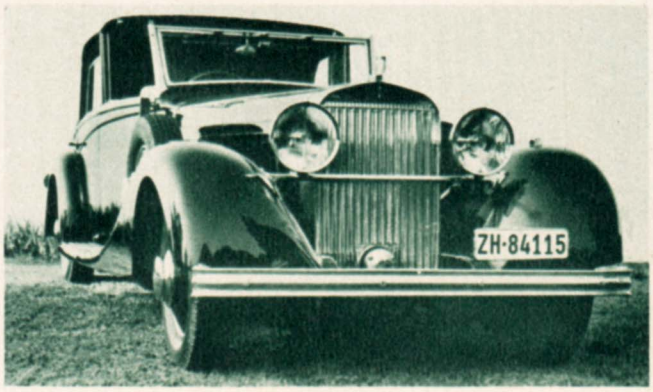
From the side, the huge size and adequate headroom of the six-cyl. Hispano Suiza can be appreciated.



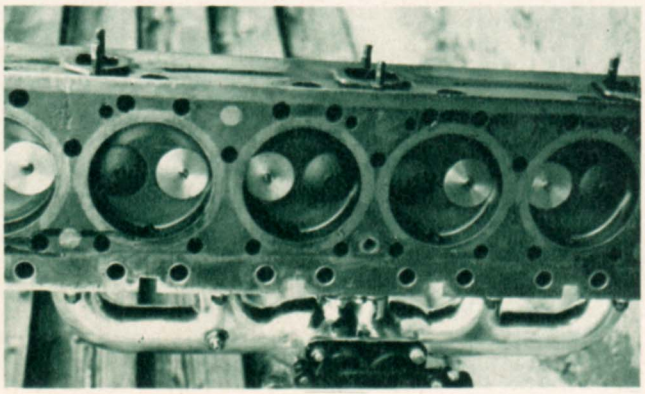
With radiator removed, the Dynastart unit is fully exposed. Note the hydraulic steering damper clamped to the axle beam.



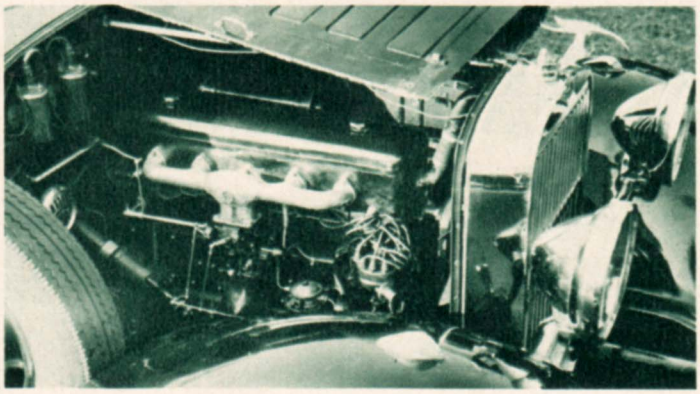
Shown at left is the very neat instrument layout and toggle operated windshield, hinged at the top.



The end result, a beautifully restored car, ready for another 19 years of reliable service.



Simple combustion chambers show none of the design intricacies of some modern supersquish-quench heads.



The "pushrod" ohv Hispano engine was perhaps not as glamorous as the earlier overhead camshaft models.

Of course, there is always a mechanical connection between the brake pedal and the brakes, so that even in case of failure of the Servo unit (though almost impossible), the brakes can be applied.

(Ed. note: the 1931 Pierce-Arrow had a similar braking system, made by the Stewart-Warner Co., and a hydraulic steering damper, made by Bendix.)

All the controls are very carefully engineered, a case in point being the throttle linkage which is devoid of crude, badly designed solutions so often found on the average car; on the Hisso, the throttle linkage relies exclusively on shafts and connecting rods, with proper lubrication points where frictional movement occurs. The throttle spindle of the carburetor is properly driven by a shaft running alongside the engine, which ends in a dog clutch good for at least 10 bhp. All other controls are equally well designed, and although Hissos were frequently chauffeur-driven, it must always have been a temptation for the owner to drive himself.

Detail Design

There are other examples of the thought applied to details: There is no dipstick, but a float, which bears a vertical rod passing through an aperture in the crankcase and sliding in a guide graduated in litres. Sump capacity can thus always be ascertained without getting dirty hands. Of course, there is the possibility of dirt getting into the crankcase across the aperture; solution: there is a protective metal tube embracing the guide, which can be turned to completely close the aperture and protect the graduated slide. The water pump is not driven by a fan belt but from a shaft driven from the camshaft timing gear, that carries the drive for the distributor. Even if the fan belt should fail, the Hisso can still be driven home without the risk of overheating. The wheels are of wire-spoke pattern with Rudge-type hubs undone by means of a special tool. As shown in the photographs, the spokes are shrouded by wheel discs; in order to make the valve caps easily accessible, there are small doors in the wheel-discs behind which the valve caps are hidden, the doors being easily pushed aside with a finger.

All this detail work has, of course, cost money and weight. With 145 bhp on tap (and I believe that its actual performance today is not appreciably below this) in a car not meant to be raced, the performance can be classed as very satisfactory. It is, in any case, adequate for passing 95 per cent of the normal traffic, and sweeping by astonished owners of modern saloons or sedans is one of the joys that ownership of such an "old" car provides.

I must say that both John and I, as well as more remote helpers who frequently offered their assistance, think that it was worth the effort. Personally, I love to drive the car, particularly in fine weather with the front-part of the roof open. (P.S.: When you know how, opening and closing the roof can be effected within five minutes; our first try took us just under half an hour.) Mileage is not too bad; for 100 kilometers, the car consumes about 24 litres, which works out at about 9 miles per US-gallon. Not too economical, but for driving in Hisso-style, I think it's fair.

The car has now done about 2500 miles since we finished the overhaul of engine, chassis and body, and the only mechanical breakdown we have had so far was a failure of the screen wiper. We believe, therefore, that we have restored not only the proper functioning and the good looks of this elegant classic, but also its reliability to the high level becoming its illustrious name.

"Les Hommes á l'Hispano"

And for those who like to know, there is a Club of Hispano owners, called "Les Hommes á l'Hispano", that distributes Hispano literature and information, has a very beautiful Hispano Club pin, and is presided over by Mr. Morin Scott at 3 Cranlew Mews, London SW 7. They would heartily welcome new US addicts to the famous make. ●

Brief Specifications

Model—K6, built in 1937 at the Bois Columbe factory near Paris.

Engine—6 cyl. in line, 100 x 110 mm, 5180 cc. Max bhp 145 at 3000 rpm (approx.). Pushrod operated ohv, wet cyl. liners, cast-iron pistons, dual ignition.

Chassis—Box section frame rails, rigid axles with semi-elliptic springs. Mechanical brakes and servo booster.

Body—5/7 seater Sedanca de Ville (with partition) by Saoutchik of Paris. Finish, black.

Dimensions—Wheelbase 147.6 in., tread 65 in., o.a. length 217 in., width 72 in. Weight without fuel 4600 lbs. Tires 160 x 450 mm. Top speed 85 mph. (approx.).