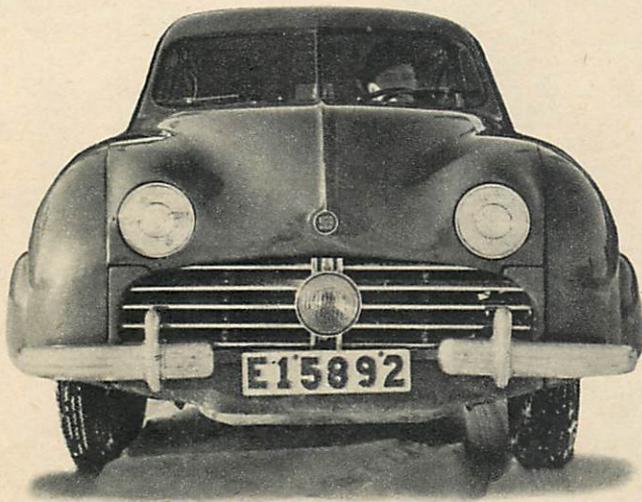


SWEDEN'S SAAB STORY

Without formula, without influence from external sources, Sweden's famed aircraft manufacturer now produces an outstanding economy car that combines sports roadability with comfortable seating for a small family . . .

By **CHARLES EWALD**
AUTO AGE European Correspondent



Smart frontal design allows excellent view from driver's seat.



ABOUT the only feature Sweden's modern economy car, the twin-cylinder, two-stroke engine front wheel drive SAAB '92', has in common with other cars is that *it* has four wheels.

The most extraordinary job on the road, it has among other oddities, no chassis, no rear axle, a battery under the floor of the luggage compartment, its motor placed transversely in front of and parallel with the front axles, its muffler in front of and radiator behind the engine.

Such a product could only be the result of unusual circumstances. And the circumstances were unusual. First of all, the manufacturer was a plane builder, uninfluenced by the formula respected since Henry Ford built his first car. Then, there were the Swedish winters and the effects of WW2 on the Swedish market.

Late in '45 the administrative council of privately-owned *Senksa Aeroplan Aktie Bolaget*, the Swedish aircraft company, was having a pow-wow at its plant in Linköping to decide on a supplementary product for peacetime production. Their aim was to assure continued employment to the large number of sheet metal workers

who had supplied Sweden with light bombers and jet fighters. Another plane wasn't the answer. Sweden already had Europe's *third* largest airforce. And SAAB was producing the "Scandia," a commercial plane similar to the DC-3.

"Why not make a car?" someone suggested.

A tempting idea. *Volvo* was the only Swedish company manufacturing cars and trucks. There were good export possibilities since neither Norway nor Denmark produced cars. The time was perfect for producing a new Swedish car.

German D.K.W.s, favored in Sweden since the "30s," had been cut out by Hitler's defeat. American cars were not in the popular light class.

SAAB officials made their decision: Produce a strong car, easy to operate, combining economy with good performance. They planned to cut costs by eliminating the luxury finish and limiting space providing comfortable seating for only four passengers.

Engineers, under the guidance of Gunnar Ljungström, the chief designer, started from scratch, ignoring the conventional techniques used in car design. They built their car "around" the passengers, concerning themselves, primarily, with the distribution of weight. Suspension springs were designed to occupy a minimum of space; engine and transmission were placed close to the driving wheels.

These jet-minded engineers, still conscious of passenger comfort and cautious not to give the job a 'next-decade' style, created a pear-shaped body that could easily slice through the atmosphere.

It became increasingly evident the car could not be built on a chassis, so Gunnar Ljungström, remembering the technique used by the French Citroen for its front wheel drive series, chose the 'Monocoque' body that could serve simultaneously for a framework. Once more, the lessons of aircraft design were freely applied. The two-door body was a closed shell supporting and protecting passengers, and, at the same time, providing the necessary

RODDERS

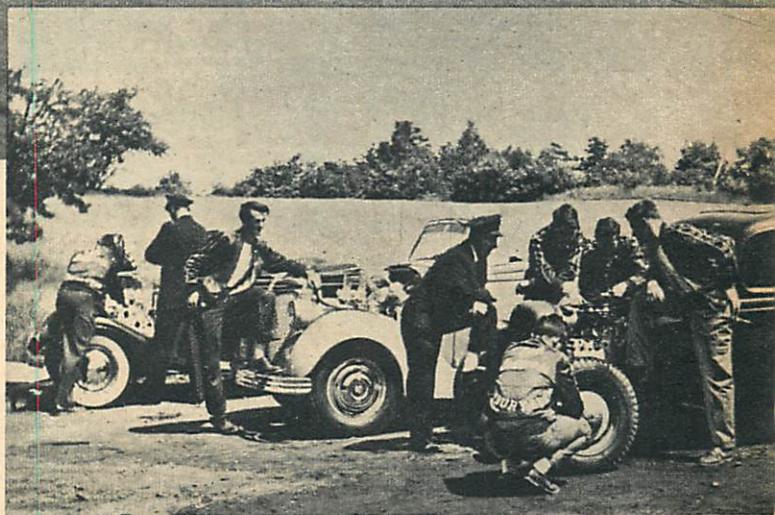


Paradise Mesa drag strip, San Diego, California. (Raymond La Joie)

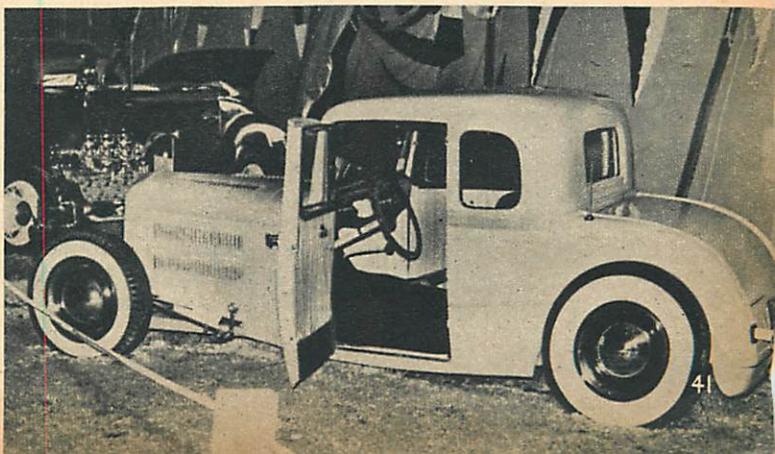
great many veterans, finding their dreams of luxurious post war cars with scintillating performance ruled out by the Detroit tin Barons, took matters in their own competent hands. One of the few benefits of the conflict was to interest large numbers of men in things mechanical. The services turned out many fine craftsmen who found a way to maintain their new-found skill in hot rodding.

Before long, sleek, very special machines were observed touring handily about the country. Lots of drivers, in their ineffectual stock cars, jeered at the late arrivals only to become converts as the home made bombs whizzed by them. Inevitably, owners of these specials wanted to test their cars against others of the same breed. In order to foster this competition, in addition to purely social motives, local clubs were formed. They in turn sponsored various meets. Some commendable feats of driving and auto construction came out of these early contests.

Things were looking up for the hot rodder until the press and the do-nothings somehow got their square heads together. Hot (Continued on page 57)



(Above) Police hold an inspection for Cam Snappers Hot Rod Club, Newburyport, Mass. (La Joie). (Below) Frank Lento, Carlsbad, Calif. built California Coupe for Bonneville Nationals. (Pitman)





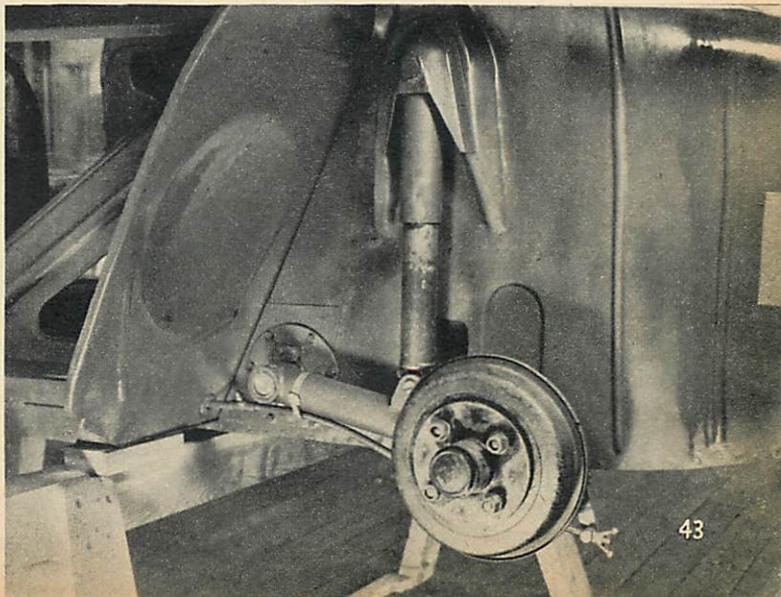
Fans who view NBC's popular "Foreign Intrigue" know this car for its dashing performance in various scenes. Production is about 4,000 per year.

stiffening and load-supporting connection between the four wheels.

Overlapping steel was spot welded with local reinforcements around the windshield, windows and doors. To increase the strength and rigidity with a minimum of weight, the luggage compartment door was eliminated—the compartment may be reached from the inside. The rear seat backrest was weighted to stiffen the tail.

Look at any other 'aerodynamic' car. No matter how well planned it is, it is not completely aerodynamic because of the chassis with axles, a muffler and complicated structure which offers as much resistance as a brick wall. If you were to take the wheels off the SAAB '92' and place her on an icy slope, she'd slide to the bottom on her steel floor, a full length tray that is as air-minded as the visible parts of the car. This brings air resistance to a minimum and is essential in the small light-weight car. Moreover, it is a real advantage on Swedish roads in winter (see picture). Because (Continued on page 74)

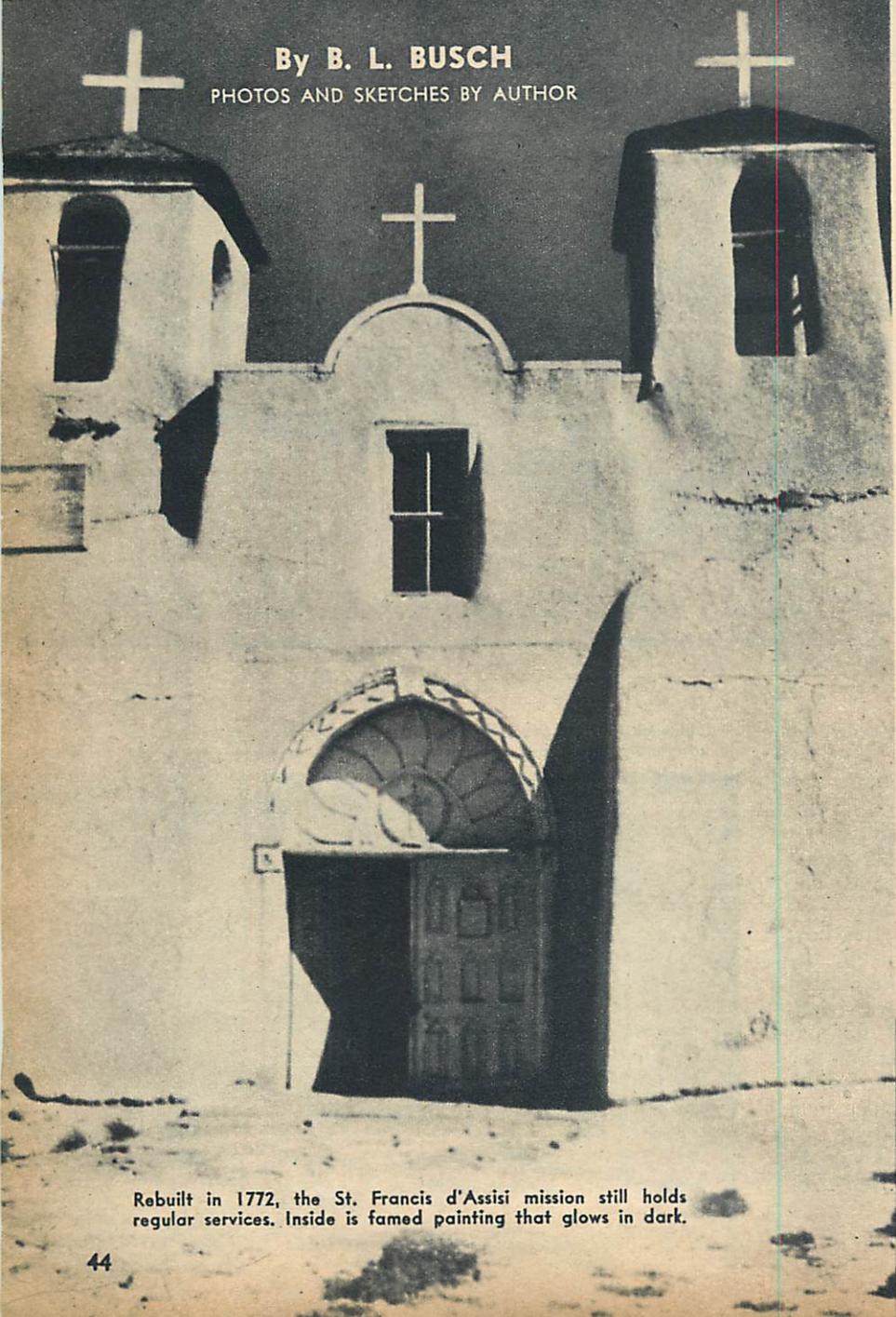
A double acting telescopic shock absorber and torsion bar provide excellent handling generally associated with sports cars. Easily seats four.



SOUTHWEST ON A SHOESTRING

By B. L. BUSCH

PHOTOS AND SKETCHES BY AUTHOR



Rebuilt in 1772, the St. Francis d'Assisi mission still holds regular services. Inside is famed painting that glows in dark.



"IMAGINE looking over the edge of the world's largest canyon and sitting on a log that's 160 million years old."

"Remember that mysterious painting at Ranchos de Taos?"

"How about sitting on a jackrabbit big enough to saddle?"

Driving into the yard at home (Boulder, Colorado), all four of us felt drunk—scenery drunk, that is, after 2000 miles of sightseeing in three states. Thanks to our car, the entire 11-day trip had been so leisurely and economical, none of us felt either tired or broke.

When our plans for a Southwest holiday took shape, the Grand Canyon was our major goal. We compared costs of all kinds of transportation and agreed the *only way we could afford to go was by car*. That suited us because we've discovered spur-of-the-moment sidetrips, possible only by auto, often outshine so-called feature attractions. What's more, there's no need for expensive vacation wardrobes when you go by car.

Another money-saver was our timing. Since the peak season in parts of Arizona runs from January to April, while in New Mexico, summer months are most popular, we decided to go in October. We not only got lower, off-season rates, but didn't have to compete for highway space or places to eat and sleep. Also, the weather was ideal for traveling—warm days, cool nights and no rain.

Our car, a 1947 Chevrolet club coupe, was slicked up, checked all around, of course. The front tires were in good shape, but both rears were only fair. Since the spare rode horizontal in the trunk (under two layers of luggage and a third layer of dustproof garment bags), we hoped it wouldn't be needed. We shouldn't have worried for we had no trouble (rubber or mechanical), and the whole 2000 miles cost only \$36.43 for all car expenses: gas, oil, and one lube-job/oil change. The figure gets even

SOUTHWEST



CEREMONIAL
ENCLOSURE



NIGHT AND DAY



RAIN



Sweden's Saab Story

Continued from page 43

of this steel tray, the silencer was placed in front of the engine.

Even under the worst snow conditions, the SAAB '92' has ample traction. With the low floor, and to obtain power unit compactness, front wheel drive was used. When the car is carrying four passengers and luggage, 50 per cent of the weight is carried on the front wheels. With a lighter load, the center of gravity is even farther forward.

American cars with their powerful engines can disregard front wheel drive, but with the small car one can visualize how much energy is saved if he imagines himself trying to push a wheel barrel up a flight of stairs. It just won't work. But if he pulls the wheel barrow, he can climb the stairs. That's what front wheel drive does for small cars.

One word about the four-wheel independent spring system: it is a transverse torsion bar type operating with telescopic dampers strongly constructed.

The most unorthodox part of the car is the transversely mounted, two cylinder engine. The vertical twin was chosen because with its small overall length it can be mounted ahead of the front wheels. It's a two-stroke valveless, simple to manufacture and easy to maintain.

The two-stroke power motor, developed by Pierre Hugon in 1858, is ideal for a small car and could conceivably replace the four-stroke motor used in larger cars, not only because it replaces a 40-piece movement with a three-piece one, but because per cylinder, the power of the two stroke is 1.5 to 1.6 times that of the four stroke.

The SAAB came up with a real honey: a 764 cc displacement; a stroke bore ratio of 0.95/1; and the two cylinders set parallel to each other, each with its own ignition system—no distributor required—and at a slight forward inclination.

The carburetor engine was used with piston-controlled ports. The well-known Schnurle scavenger system was employed; scavenging air is compressed in the crankcase, lubrication is effected by mixing 4% oil with the gasoline.

THE clutch, an ordinary single-plate type, and the gearbox have been connected in the conventional manner, directly to the fly-wheel end of the engine. The gearbox provides three forward speeds—two of them with synchromesh engagement—and reverse. Between the clutch and gearbox is found a free wheel, wonderful for traffic where the unevenness of 'two-pot' running is normally felt, but which can be put out of operation at any time.

As we mentioned, the radiator is be-

hind. The disposition of the latter permits the connection of a specially-designed air conditioning system.

Drive is transmitted from the differential to the front wheels by means of a shaft with two joints, the outer one a double type giving constant angular velocity irrespective of the angle of deflection.

The point of flexure of the outer joint lies approximately in line with the steering spindle. The outer joints are protected by a bellows-shaped rubber covering which does not rotate with them.

Two more details attract attention: the way in which gasoline is fed from the rear tank to the carburetor by means of a diaphragm fuel pump activated by crankcase pressure variations rather than the usual eccentric mechanism, and, the second, the engine mountings, the rear portion carried on rubber, the forward part supported by a single-leaf spring. This practically eliminates the vibration normally associated with two stroke.

Add to this the single shell body, heat and sound insulated through walls, floor and roof.

HERE are details of interest to the car driver: brakes are Lockheed hydraulic (8" drums) allowing safe emergency stops at 60 mph; wheels are easy to remove with a screw jack inserted in a socket on either side of the body rail and with the aid of the pliable springs, the car may be raised to allow the wheels to drop below the fenders; the instrument panel, well planned with an eye to the driver's line of vision, features a

push-pull light switch—one pull: parking lights; two: headlights; and, when indicators are out, a green warning light.

Surprisingly enough for a country where there is left side of the road driving, the steering wheel is located on the left.

BUT the master touch for a two-cylinder car developing only 24 horse power and doing 40 miles to the gallon is the comparatively speedy starting power. The driver will find that in nine seconds his speed will increase from 0 to 30 mph and in third gear. Twenty-three seconds later he will be doing 50 mph. From 55 to the car's top speed—70 mph—the two-stroke will vibrate slightly. Not exciting performance, but good for only 24 horse power.

So far as stability is concerned, the car will do almost anything. Rolf Melde, Chief of SAAB's testing department, drove the '92' on a deserted highway at 55 mph swerving the car from one side of the road to the other, without trouble.

Regarding swerving, only a 1¼ turn of the wheel will carry the car from one side of the road to the other thanks to the unusually light, fast-acting rack and pinion steering.

The opinion of this reporter is that with the SAAB '92', Sweden has an excellent sports car and doesn't know it. If that two-cylinder, 24 hp car can do 55 so easily and consume only one gallon per 40 miles, what couldn't it do with a souped-up motor? Its road-holding ability has been proved tops.

But it will be a long time before we see any new developments, for the demand in Sweden is so great that at present the car is not being exported—and production figures estimate an average output of 4,000 a year.

At present, the price is too high for export—9,000 kronas or 1,700 dollars—but SAAB officials are confident it will be lower soon.

Oh, in case you're looking for the spare wheel, better give up. It's a magician's trick. Pull a lever inside and from under the gas tank in the rear, a trap opens revealing the wheel. Clever?

SAAB 92 SPECIFICATIONS

Engine 2 cyl, 2-stroke, 80x76 mm, 764 cc, valveless
Compression ratio 6 to 1, 24 hp at 3,800 rpm
Transmission 3 speed gear box with steering column change, synchro mesh on top and 2nd; free wheel fitted
Suspension Transverse torsion bars at front. Trailing arms and transverse torsion bars at rear. Telescopic hydraulic shock absorbers
Wheels Steel disc fitted with 5.00x15 in. low pressure tires
Dimensions Wheelbase 8 ft. 1 in. Track 3 ft. 10 in. Overall length 12 ft. 11½ in. Overall width 5 ft. 5 in. Height 4 ft. 8 in. Ground clearance 7 in. Turning circle 36 ft. Weight 1,540 lbs.
Brakes Lockheed hydraulic with 8 in. drums
Tank capacity 7¾ gallons
Electrical equipment 6 volt Bosch 80 to 90 ampere-hour battery. Two coil ignition, battery located in tail

day). A third Jaguar moved to fourth. In third place came the first of the three Cunninghams. And these four cars ran in that order to the finish at 4:00 p.m. Sunday.

OUT of the finishing twenty-six cars, half were under 2 litres, while eight of these finishers were under one litre (one of these won the Index)—truly an astonishing feat for such tiny engines! All the small cars were French, so the French manufacturers fared well.

England with her Jaguars had a victory never before experienced at Le Mans, while the two Austin-Healeys were second and third in their category, and Frazer-Nash coupe won its class.

Germany could claim a class win and second for the two Porsches, its only cars to finish.

Italy, such a threat with her numerous Lancias, Ferraris, Alfas, OSCAS, and one Fiat V-8, had the miserable luck to see only one car cross the line—a Ferrari in fifth place.

Probably the most remarkable showing of all was made by the 2½ litre French Gordini. In spite of its comparatively small engine it finished sixth and led eight other finishers which had engines up to twice its size.

And so, the twenty-first and best running of the Twenty Four Hours of Le Mans ended for another year.

Next June the losers will be back again to try their luck once more; and of course, the 1953 winners will return to defend their laurels!

Imported Best Sellers

Continued from page 8

600 per cent over the previous year (due to price cuts and sterling devaluation); went up another 70 per cent in 1951 and a further 100 per cent in 1952.

3. Among utilitarian passenger imports, Hillman's 600 per cent plus sales increase in 1950 coincided with the time when the Rootes Group really began to get things organized in the U. S. The 66 per cent drop for Morris Minors in 1951 probably was a natural phenomenon compensating for the fantastic rise of the previous year; while Ford's terrific 1950 recovery stemmed from introduction of the vastly superior Zephyr and Consul models.

4. The gathering momentum of European car sales is vividly clear from the figures for the first five months of 1953. Assuming the proportion of this year's sales remains more or less constant, most of the top 18 can expect a more prosperous twelvemonth than at any time since the freak conditions of 1948. For instance, MG may reach nearly 7,800 enthusiasts; Jaguar about 4,250; Ford close on 5,000—the biggest increase over 1952 for any importer.

5. Perhaps, the most significant thing is the sales increase of luxury cars such as Rolls-Royce and Bentley (not included in chart) which cost two or three

times as much as their nearest Detroit competitors in the big car class. To May 30 this year, Rolls-Royce sales were four more than for the entire year 1952, while Bentley's sale of 18 cars during this period could mean a 1953 total of about 36, representing a 30 per cent increase.

6. Sales of the fabulous rear-engine Porsche (an expensive car for its size) have risen by more than 800 per cent in three years, and during the first five months of 1953 were about 80 per cent higher than for the whole of 1952. Tucker, it would seem, had the right idea; but then so has Renault of France.

The 18 makes reviewed in the chart actually represent only about a third of the total number of different European automobiles currently (or formerly) imported into the U. S. Not included are: Alvis, Alfa-Romeo, Aston-Martin, Bandini, Bentley, Borgward-Hansa, Bristol, Cisitalia, Citroen, Connaught, Daimler, Delahaye, Ferrari, Fiat, Frazer-Nash, Giau, Hotchkiss, Jensen, Jowett, Lan- chester, Lancia, Lea-Francis, Maserati, Mercedes-Benz, OSCA, Pegaso, Siat and Talbot (French). Imports on these makes since 1948 are from 87 (for the luxury Bentley) down to single exam- ples. They therefore would add little to the significance of the chart.

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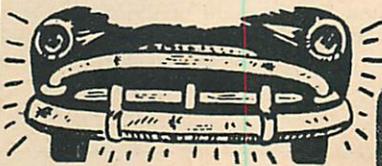
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