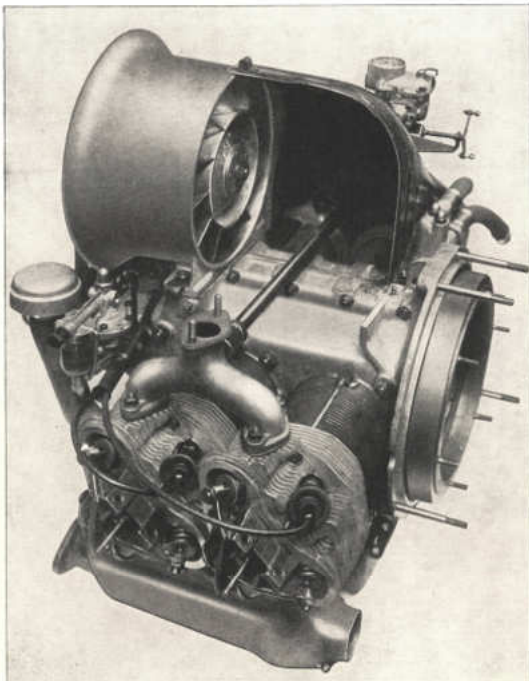




AJ



Tatraplan



A VIEW OF THE FINNED CYLINDERS WITH COWLINGS REMOVED



- AIR-COOLED ENGINE
- DEPENDABLE OPERATION

The air-cooled engine is an unorthodox feature in motor-car production, but its great advantages are obvious. For instance, there is no need to worry about looking for water for the radiator in hot weather and no trouble with its freezing-up in cold weather. The TATRAPLAN's air-cooling proved highly efficient even in tropical climate, thanks to its considerable temperature drop. The cooling-intensity adjusts itself to the engine speed.

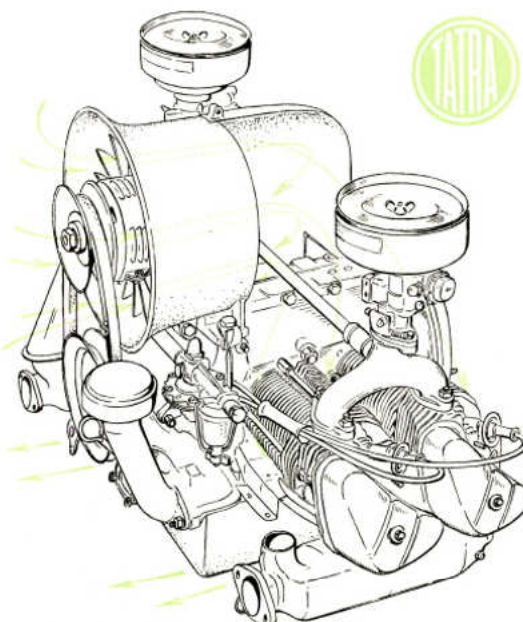
1

Every driver fully appreciates the advantages of an air-cooled engine. He knows the troubles involved in trying to prevent the freezing of water that might cause the engine block or the radiator to crack. He knows how difficult it is to decide whether to choose an anti-freeze which is expensive and often causes corrosion of the interior of the radiator or block, or whether water should be drained off every evening before putting the car into an unheated garage. Even if the garage is heated, the car must often be parked out of doors in frosty weather for long periods, when again there are worries about the car, although quite a lot of money has been spent on procuring a special radiator and bonnet muff. In summer it is no better. In hot weather or in tropics a long swift run, even on the flat ground may make the coolant boil so that under especially unfavourable conditions all water may evaporate, causing the engine to seize up or the bearings to melt. Long climbs to high altitudes are also treacherous, as in the rare atmosphere water boils at less than 194° F and prolonged climbing at wide throttle openings brings about a considerable overheating of the engine.

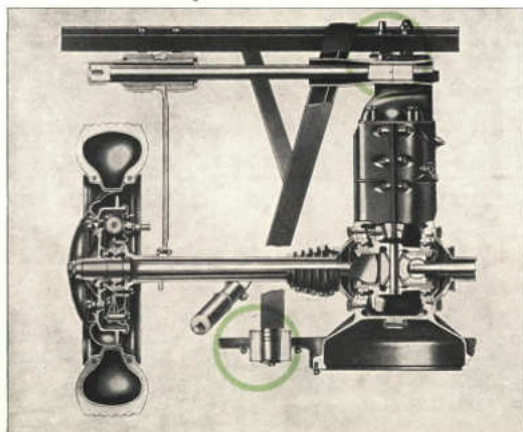
These troubles are unknown with the air-cooled engine of the TATRAPLAN car. The high-efficiency cooling blower forces an equal amount of air through the cowlings to the finned surface of all the four cylinders simultaneously, thus ensuring uniform and adequate cooling of the engine. Whether climbing hills in low gear or running at top speed on the flat, the cooling efficiency increases in conformity. The revolutions of the cooling blower increase in equal ratio to the increase in engine revolutions. In the tropics, where the temperature very often exceeds 122° F, the temperature drop in the case of water-cooled engines is only 90° F, i. e. the difference between outside temperature of 122° F and the boiling point of water. Whereas, air-cooled engines achieve a temperature drop of 240° F under the same conditions, i. e. the difference between the air-temperature of 122° F and the running temperature of a combustion engine which is about 356° F.

TATRA cars with air-cooled engines have been manufactured since 1923. The extraordinary efficiency and dependability of this system have been proved many times in practical tests, such as the All-Russian reliability trial on the Moscow-Leningrad-Moscow route in 1924, the world's most difficult road race Targa Florio in Sicily, 1925, the trip across Africa in 1930, the tour into the Australian bush in 1931 or the recently finished trans-continental journey of engineers Hanzelka and Zikmund across Africa from North to South and across both South and Central America from South to North.

The abundant experiences of years of tradition in design and production of air-cooled engines have been utilized in perfecting the air-cooling of the latest TATRAPLAN Model,



A SCHEME OF AIR-COOLING



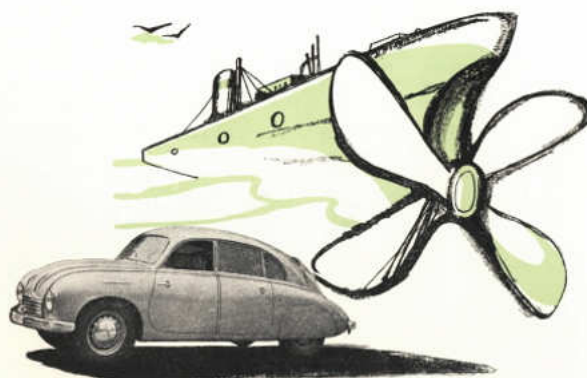
FLEXIBLE MOUNTING OF THE PROPULSION UNIT IN SILENT-BLOCS ATTACHED TO THE BODYWORK BULKHEAD

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PRAHA - CZECHOSLOVAKIA,

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WIRE: MOTOKOV PRAHA



- ENGINE IN THE REAR
- ECONOMICAL PROPULSION
- SILENT RUNNING

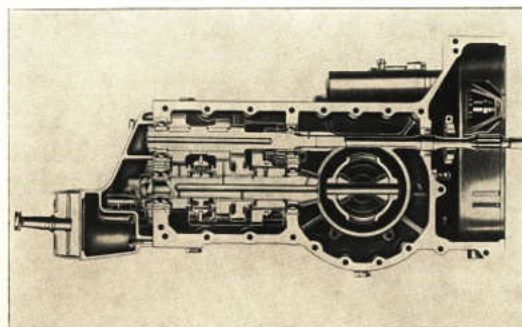
TATRA rear engined cars have established a sound reputation by now. Apart from the fact that the rear wheel drive presents a marvelous possibility for streamlining the car, this design has still other outstanding advantages. The engine forms a power unit which is readily accessible and easy to dismantle. There is no necessity for a propeller shaft which is decided inconvenience in the car's interior and is the source of undesirable noise and the cause of defects. Above all, there is neither engine noise nor exhaust fumes to bother the passengers.

2

In its production programme the TATRA factory has employed the rear-engined car design since 1934. It was not the intention to seek originality at any cost, but the sound engineering judgement that brought the TATRA factory to introduce this type of construction.

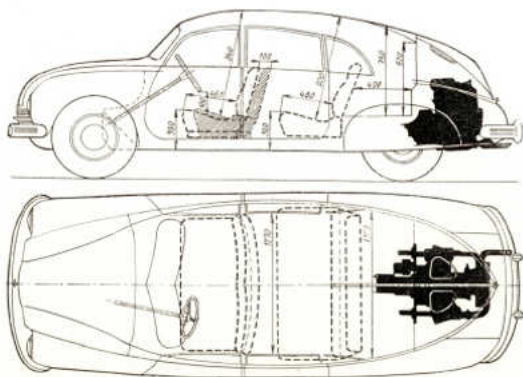
The new method of mounting the engine in the rear and doing away with the propeller shaft has brought about a number of advantages:

1. No efficiency loss in the universal joints of the propeller shaft.
2. No noise and vibrations often caused by propeller shaft being off balance or otherwise damaged.
3. No so-called tunnel running through the centre of the floor to inconvenience the passengers.
4. The possibility of seating the passengers fairly low and well forward of the rear axle, i. e. in the steadiest and the most comfortable part of the car.
5. Mounting the engine in the rear necessitated lengthening the car tail and shortening the front end, which automatically provided the opportunity for adopting functional streamlining on the TATRAPLAN car. Even the bottom of the car is quite smooth, without any protrusions.
6. By shortening the front end of the car the driver's visibility has been greatly improved.
7. Seats being placed low and moved forward, a very favourable inter-axle weight distribution has been achieved, stability improved, the centre of gravity lowered and the driving safety, especially on the turns greatly increased.
8. It was a foregone conclusion that tradition should result in the TATRA engine being fitted with a perfectly tested air-cooling system. The sucked-in air is led down from the top of the car where it is not dust-laden, so that it cannot cause, as with some other types, quick choking of air filters and thus a drop in performance, increase in fuel consumption and premature cylinder wear.
9. The whole power unit is readily accessible, easy to remove and is flexibly mounted on large silentbloks, so that neither noise nor exhaust fumes can bother passengers, while there is no possibility of any vibrations being transmitted to the bodywork. It is a well substantiated fact that running at more than 50 km/h (30 m. p. h.) the engine cannot be heard at all.

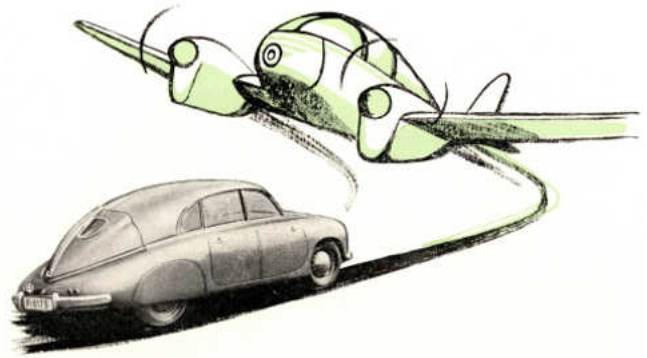


SECTIONAL VIEW OF THE GEARBOX SHOWING THE POWER TRANSMISSION FROM THE ENGINE TO THE REAR AXLE AS WELL AS THE ENGINE REAR MOUNTING ON SILENTBLOCS





TATRAPLAN THE WORLD'S SUPREME STREAMLINED CAR



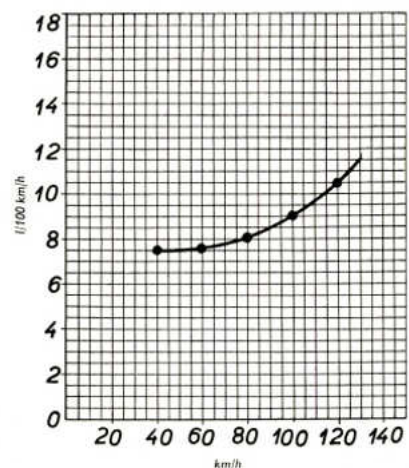
- AIRCRAFT STREAMLINING
- CONTRIBUTION TO SPEED

In achieving the perfect streamlining, the designers of the TATRAPLAN car employed the same methods and principles used in the design of aircraft - to achieve the least possible air drag. The experimental model underwent the most exhaustive tests in a wind tunnel, until the desired results have been achieved, culminating in a perfectly streamlined car with the maximum speed at the lowest fuel consumption and the most economical utilization of engine power even at the highest speeds, the air drag being practically reduced to the minimum.

3

At high speeds, air drag is the motorist's enemy No. 1. It increases at a rate of the square of the speed and easily consumes the greatest part of the engine power. If the designer wants to avoid continually increasing the engine power, the total weight of the car and fuel consumption, there is nothing else for it but to adopt the functionally streamlined shape which is already common in aircraft building and which offers the least resistance within the car's speed range. The day is long past, since the far protruding bonnet was admired and held as a proof of the high speed and sportive character of a car. On the contrary, the laws of aerodynamics require that part of the car before the windscreen to be shortened, and the tail end to be lengthened, as the only way in which the characteristics of streamlining may be used to full advantage.

These laws were applied by the TATRA motor-car factory when the first series-produced, fully streamlined TATRA 77 car was put on the market in 1934. That construction has continued to be improved in both mechanics and shape till the achievement of the latest Model called TATRAPLAN, the first functionally streamlined, series-produced motor-car. This exceptional, pioneering success was made possible by the fact that the designers in the TATRA factory made use of a quite different engineering technique on car design. They designed an air-cooled, flat four-cylinder engine to be mounted in the rear. Apart from other advantages, the elimination of the propeller shaft, the lowering of the seats and the consequent diminution of the frontal area of the car, the problem of creating a perfect, functionally streamlined shape has been solved. The TATRAPLAN's bodywork not only suits the strict laws of aerodynamics by its outlines but also meets all requirements of elegance and comfort. As a result the TATRAPLAN car with an engine of only 52 b. h. p., when fully loaded with four passengers attains a speed of 130 km/h (80.73 m. p. h.) at an average fuel consumption of 11 l/100 km (26 m. p. g.).



FUEL CONSUMPTION DIAGRAM



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- PERFECT SUSPENSION
- SMOOTH AND COMFORTABLE RIDE

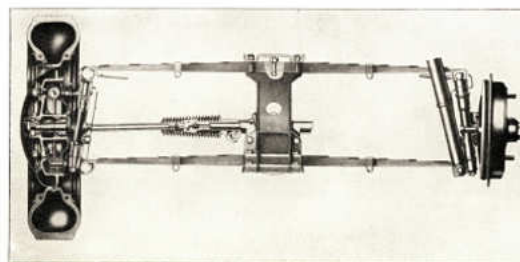
Nearly thirty years have elapsed since the TATRA factory introduced the independent suspension all-round. The suspension system has been brought to perfection with the TATRAPLAN Model by the use of torsion bars for the rear wheels, which ensure continual contact of wheels with the road surface. The car rides smoothly and steadily on any road surface, all unevenness and shock being taken up by the swinging wheels.

4

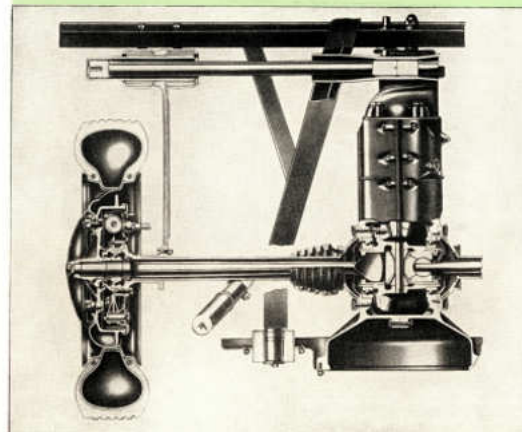
To what do we ascribe the particular advantages of independent wheel suspension? To assess them adequately let us cast back some decades to the earliest stage automobile manufacture. In those days the front axle was a solid and very heavy steel forging at either end of which were mounted the wheels and which was connected to the frame by a pair of half-elliptical, longitudinal springs. The rear axle consisted of the so-called bridge which was mostly an out-sized housing, in the centre of which the crown wheel and pinion together with the differential gear were enclosed. Through two hollow arms of the bridge passed the half-axles, fitted with wheels at their ends. Thus the whole rear axle was considerably heavy. The only parts of the car to be sprung were those mounted above the springs. Yet the unsprung components represented a high percentage of the total weight of the car, though the idea of good suspension requires the largest possible part of the car weight to be suspended. As long as the cars were heavy and slow-running, used only on high-roads, this disadvantage was not felt much. With increasing speed, decreasing weight of the vehicles and increasing demand of fast running ability even on roads far from being called first-class, this design ceased to fulfil all requirements, and suspension problems became very acute; new suspension systems and methods were sought which would reduce the unsprung weight to the minimum. Gradually, the construction of cars with independent suspension of both the front and rear wheels evolved, the wheels and tyres then being practically the only unsprung parts.

These achievements were generally acknowledged but despite their indisputable advantages the new suspension type was introduced very slowly as it meant a considerable increase in production costs. It was not till the last decade that independent suspension first found general acceptance and even then in most cases it was restricted to the front wheels only where its application was not so expensive.

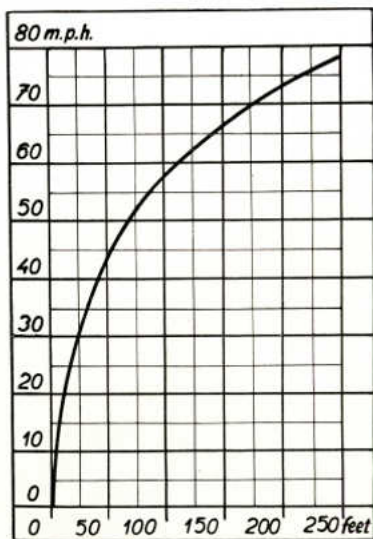
This, however was not the case with the TATRA factory. TATRA manufacturers did not hesitate to make financial sacrifices for something that meant an essential improvement in motoring and as early as 1923 TATRA made use of the independent rear wheel suspension on a new model fitted with an air-cooled engine. Two years later TATRA also adopted independent front wheel suspension and proved its enormous advantages in practice, when two of these cars took first and second prizes for their class, in the Targa Florio race in Sicily - one of the most difficult road racing events in the world. During the past 25 years, independent all-round suspension has been subject to continuous research, tests and improvements so that the present-day TATRAPLAN suspension, which consists of two superimposed leaf springs forming a parallelogram in front, and torsion bars and swinging half-axles in the rear, really represents the ultimate achievement in this field.



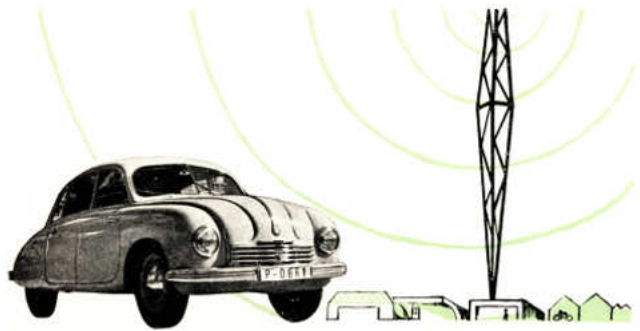
TATRAPLAN FRONT WHEEL SUSPENSION



TATRAPLAN REAR WHEEL SUSPENSION



A DIAGRAM OF BRAKING DISTANCES



- STABILITY
- FAST AND SAFE DRIVING

Without roadholding, such a fast car as TATRAPLAN would not be safe. The roadholding problem has been solved by an ingenious inter-axle distribution of weight so that the passengers could be seated most advantageously between both axles. Thus also a lower centre of gravity has been obtained in which even the weight of the engine has been taken into account. All these factors, together with the streamlined shape of the car and the independent wheel suspension all-round have given the TATRAPLAN an inherent stability even at the highest speeds.

5

The stability of a car depends on many conditions. First of all, on the low centre of gravity which, with the TATRAPLAN, has been obtained especially by mounting the engine in the rear; this solution has made the propeller shaft superfluous and thus enabled the seating benches to be placed very low and between both axles without interfering with the well-judged ground-clearance of the car. In this way also the over-all height of the car has been lowered and all the weight in general has been concentrated in the lowest position. Also the flat, four-cylinder engine with two pairs of horizontally opposed cylinders has contributed to the lowering of the centre of gravity.

Another important point for securing good roadholding is the correct weight distribution between both the front and rear axles. With TATRAPLAN, approximately 45 per cent of the car's weight is on the front axle and about 55 per cent on the rear axle. This ideal state of balance is hardly affected by the additional load of two or four occupants and considerably contributes to the good stability of the TATRAPLAN car.

To prevent a car "leaning" on the turns, properly designed suspension must not be too soft but must be adequate to keep the wheels in steady adherence to the ground even at full speed and on rough road surfaces. These requirements of good roadholding are met perfectly on the TATRAPLAN, particularly by the torsion bar springing in connection with the telescopic suspension dampers.

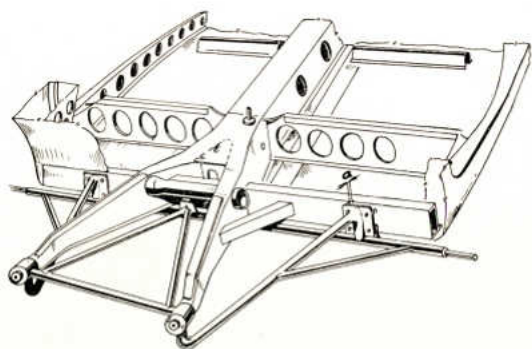
Even the brakes of a car are a decisive factor providing for good stability. Progressive and perfectly uniform braking action on all four wheels, which does not cause wheel-locking or other irregularities that could give rise to slipping or swaying, is very essential. The hydraulic brakes of the TATRAPLAN car are very efficient, easily adjusted, reliable in operation and, moreover, making the car highly stable during braking.



SKETCHES SHOWING BOTH THE TATRAPLAN AND A CONVENTIONAL DESIGN CAR ON A TURN



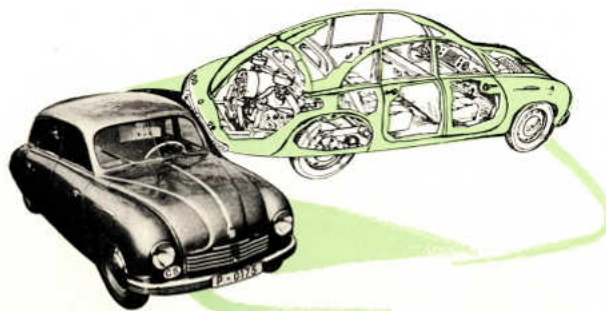
A PAIR OF SCALES ON WHICH BOTH THE FRONT AND REAR WHEELS OF THE TATRAPLAN CAR ARE PLACED



RUBBER MOUNTINGS FOR POWER UNIT SIMILAR TO THOSE
OF AN AIRCRAFT ENGINE

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WIRE: MOTOKOV PRAHA



- ALL-STEEL MONOCOQUE BODY
- SAFETY FOR PASSENGERS

Perhaps the most notable of the distinctive constructional features of the TATRAPLAN car is the all-steel monocoque body. Its special shell construction is of extraordinary strength and at the same time very light. The frame of the car is practically formed by the bodywork alone to which the axles are mounted as well as the engine in the rear and the fuel tank in the front. It is a kind of steel armour which gives absolute safety to the passengers under any circumstances.

6

Imagine the side members of the chassis as you know them on the conventional car being extended in height up to roof level and then connected at top and bottom by welded steel sheets, thus forming a large steel girder including the passenger compartment and all essential units of a car. That is a rough idea of the immensely increased safety and resistance to distortion of the monocoque bodywork in comparison with the conventional design, where the body and chassis are two separate units only held together by several screws.

In addition, the monocoque body, being of a shell construction as it is in the TATRAPLAN, means that the car is provided with double walls of steel sheets in practically its entire length, which guarantees really extra safety under any conditions. Moreover, this construction is considerably lighter in weight than that of the conventional types with the body mounted on the chassis, and eliminates the necessity of checking and tightening nuts and bolts connecting the body with the chassis which often are the cause of creaking, squeaking and other undesirable noises.

The backbone of the TATRAPLAN's body is formed by an all-steel girder of a rectangular section which is forked in the rear and welded to the bodywork to form one unit. The power unit, i. e. the engine with the gearbox and the rear axle centre housing are mounted in the rear bifurcation. On generous silentbloks which perfectly isolate the engine from the bodywork, eliminating transmission of noise and any possible vibration.

Thus the TATRAPLAN's monocoque body of shell construction considerably helps to increase riding safety, durability while reducing the total weight of the car, being the best engineering conception fulfilling all these desiderata.

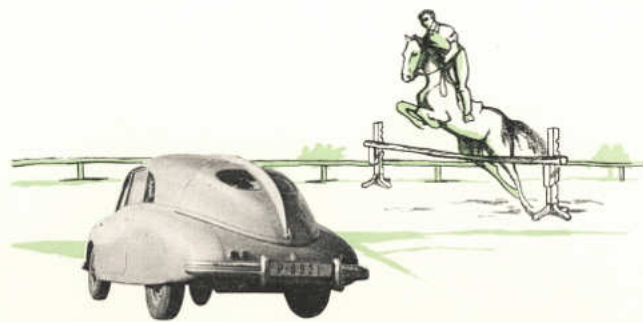


COMPLETE BODYWORK TO WHICH THE RESPECTIVE UNITS
OF THE CAR ARE MOUNTED





4 SNAPS OF THE HANZELKA-ZIKMUND JOURNEY

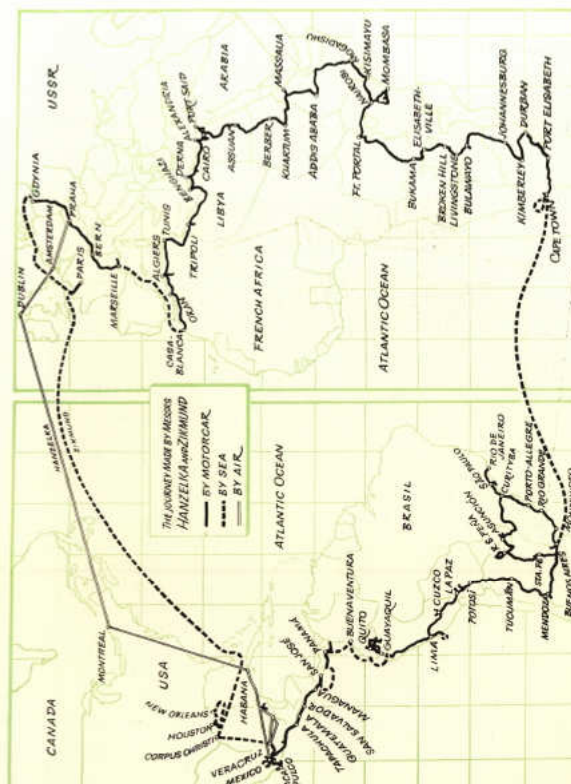


- AMPLE GROUND CLEARANCE
- FLAT OUT DOWN THE WORST ROADS

A smart and exclusive motor-car like the TATRAPLAN is naturally supposed to be an all-round performer, too. Just as it can fly like a bird along the fast motorways at more than 120 km/h (75 m. p. h.) so it must be fitted to ride over the worst of road surfaces. Its ample ground clearance enables the TATRAPLAN to perform over any terrain. All components are perfectly protected by being completely enclosed - underneath as well - in the bodywork.

7

It would be wrong to suppose that such a modern, streamlined car as the TATRAPLAN, is highly efficient only on perfect motorways. It is true that on such roads it can, thanks to its perfect streamlining, develop a full speed of 130 km/h (over 80 m. p. h.) with an average fuel consumption of 11 l/100 km (26 m. p. g.). But it would be unwise to limit the use of a modern car to certain kinds of road. With TATRAPLAN, all-round performance has been made a point of special consideration. Its air-cooled engine adapts this car to use in the tropics, where road surfaces cannot always be kept smooth. The TATRAPLAN is, therefore, provided with independent suspension all-round which enables it to maintain its high average cruising speed even on rough roads, without the passengers' comfort being impaired. In order this advantage might be used to the full and to facilitate cross country travel, the TATRAPLAN car has been given adequate ground clearance to enable it to ride safely over even quite high obstacles. Even if the underside does knock against anything, you need have no fear that any important components have been damaged or wrenched off or that the propeller shaft has been bent. The TATRAPLAN with its engine mounted in the rear, has no propeller shaft and the smooth fairing of the underside of its monocoque body, which is completely closed even underneath, protects all important car parts from damage. Therefore TATRAPLAN can be used equally well on rough tracks or across country as on fast motorways. The best proof of this is the success of the recently completed transcontinental journey of engineers Hanzelka and Zikmund, in the course of which they covered more than 63,000 km (39,000 miles) on highways and rough roads of the African and South American Continents.





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- SPACIOUSNESS - COMFORT
- ENJOYABLE RIDE

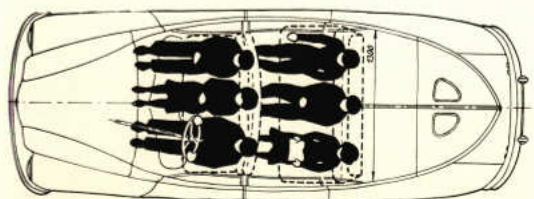
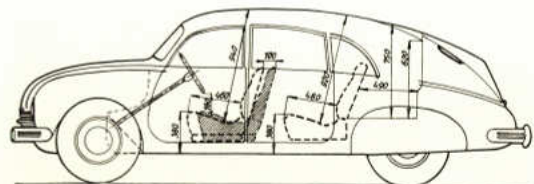
Not only because of its streamlining and speed, but also because of its riding comfort the TATRAPLAN car is often compared with an airplane. The bench-type seats are placed between both axles, in the steadiest part of the car. They are very broad, well cushioned and richly upholstered, the front seats being fully adjustable. Deep side windows and windscreen provide clear visibility and increase the pleasure of a fast ride.

8

With motor-cars of orthodox design - with the engine mounted in the front - the designer has no other choice than to place the rear seats above the rear axle or only slightly forward, so that if not the seat itself, then at least the back-rest is above the rear axle, i. e. in the least favourable position for bump-free riding comfort. In addition, the width of the rear seat usually has to be narrowed by the so-called valances of the rear wheels which on both sides protrude on the inside of the bodywork, restricting space and impairing riding comfort. But that is not all. The propeller shaft from the engine at the front to the rear axle of the car is carried in the so-called tunnel, which bulges along the whole floor length of the car, more or less hampering leg room, and incommoding the passengers.

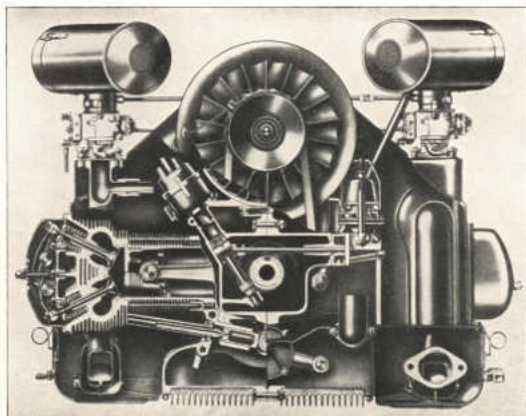
It is quite different in the case of the TATRAPLAN with its engine mounted in the rear. The seats have been placed forward, right in between both axles, making riding much more comfortable and steady. The rear bench which is in no way narrowed by the rear wheel valances, offers full comfort for three adults. The bench type front seat seating two and adjustable for height and rack to suit the driver, is very commodious and, should need arise, can accomodate three persons abreast. As the gear shifting lever is attached to the steering column under the steering wheel and the hand-operated brake lever is at the side below the facia panel, there is ample unimpeded leg room for the front crew. Both the front and rear seats are softly cushioned and their shape has been designed with the greatest care so that the driver as well as the passengers are not tired even during a long ride.

Riding in a TATRAPLAN car gives satisfaction in other ways, too. You can travel without feeling crowded, quite safely at high speed and at low cost. Thanks to the relative low weight of the car and especially to the low air drag co-efficient, fuel consumption is surprisingly low; at a maintained speed of 60 km/h (37 m. p. h.) it is less than 8 l. p. 100 km (35 m. p. g.) rising to 11 litres (26 m. p. g.) at speeds exceeding 120 km/h. (75 m. p. h.). It is a pleasure to own a car combining perfect travelling comfort and extremely low fuel consumption.



INSIDE DIMENSIONS OF THE BODY





SECTIONAL VIEW OF THE ENGINE.

MOTOKOV LIMITED

PRAHA - CZECHOSLOVAKIA,
P. O. BOX: 7965
WIRE: MOTOKOV PRAHA



- MODERN • ELEGANT
- PURPOSEFUL

Products of truly progressive manufacture must not only be technically advanced but also aesthetically perfect and suitable for the required purposes. All these elements are combined in the TATRAPLAN car. For unique design, modern eye-pleasing appearance, as well as highly purposeful and comfortable interior plan, the TATRAPLAN car meets all the desiderata of an up-to-date car by the most exacting customer.

9

Purposeful elegance - is the nearest to an adequate description of the lines of the TATRAPLAN car. Without sacrificing any of the principles of good taste and comfort, the designers fashioned a style of bodywork of exceptionally attractive appearance which at the same time scrupulously conforms to the modern science of streamlining. It is this streamlining - which in the TATRAPLAN has been raised from excellent to perfection - that is the secret of high speed and unmatched operative economy.

It goes without saying that such a modern car as TATRAPLAN is provided with independent suspension all-round. In the past few years most well known makes - owing to production difficulties and increased production costs - have introduced independent suspension of the front wheels only. The TATRA factory, benefitting from manufacturing experiences of the past 25 years and its modern engineering technique and production methods, has been able to bring independent suspension all-round to perfection.

Another exclusive feature of the TATRAPLAN car is its air-cooled engine which eliminates all the usual troubles associated with topping up the radiator in hot weather and having the water freeze in cold weather.

From the view point of the conventional motor-car design, mounting the engine in the rear has been another revolutionary change, even though the TATRA factory has made successful use of this design with its cars produced in series since 1934.

From the very beginning of automobile production - since 1897 - TATRA cars have been in the lead of technical progress and to-day they shape the course which automobile designing will follow in the years to come. TATRAPLAN is a car which is ahead of its time.

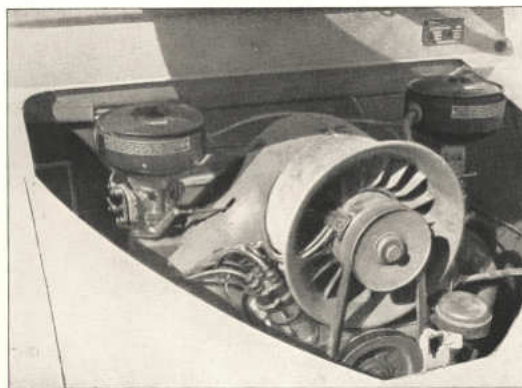
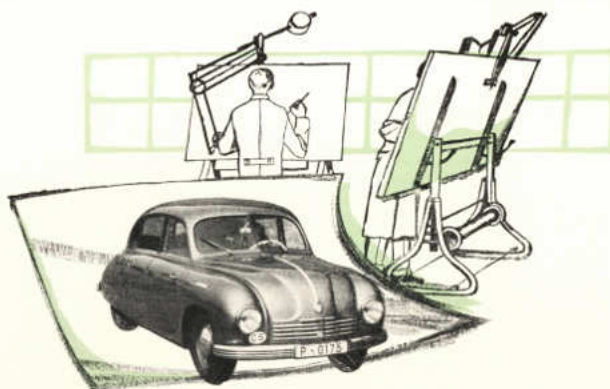


PHOTO OF THE ENGINE MOUNTED IN THE CAR, WITH THE OPENED REAR BONNET





APART FROM THE MAIN LUGGAGE BOX SMALL ARTICLES CAN BE LIKEWISE STORED UP UNDER THE FRONT HOOD



- A HOST OF MINOR IMPROVEMENTS
- PROVE ADVANCED DESIGN

Continuous development of engineering and production technique requires the designer's careful investigation of new technical possibilities. This holds good especially in the case of car on which ever greater demands are being made. A number of minor improvements - beginning with the gear change lever on the steering column, down to the modern floor heating equipment-demonstrate the fulfilment of the designers' efforts to equip the TATRAPLAN with all that may be required of a modern car.

10

Apart from the main advantages of the TATRAPLAN car, such as the air-cooled engine mounted in the rear, independent wheel suspension with torsion bars and the perfectly streamlined shape, no minor details have been neglected which make for more pleasant and comfortable riding, or which facilitate servicing. Of course the TATRAPLAN car has a steering column gear-change, by which the four-speed gearbox with three synchromesh speeds is easily controlled. The richly and tastefully equipped fascia panel carries all important instruments such as speedometer, electric clock, reliable engine oil telethermometer, cigar lighter and ash-tray. Space is also provided for a radio set. In winter, efficient heating by warm air preheated by the exhaust pipe is employed. The preheated air enters through the floor of the front compartment and serves for heating the interior, while it is also led through two slits to the windscreen for de-frosting. The heating intensity may be regulated. Adequate luggage accommodation is provided for. The main stowage space is behind the rear bench back-rest, which can easily be tilted to make the space accessible. Smaller luggage can be placed under the lockable front bonnet where two spare wheels (one delivered as standard) are also located. The rear engine bonnet is lockable, too. Both of the front doors are fitted with locks.

The „one-shot“ lubrication system, an indispensable feature for good and easy car maintenance, is foot-operated from the driver's seat. By a single compression of the pedal all points are reliably lubricated, facilitating servicing and at the same time reducing the wear of the car parts.

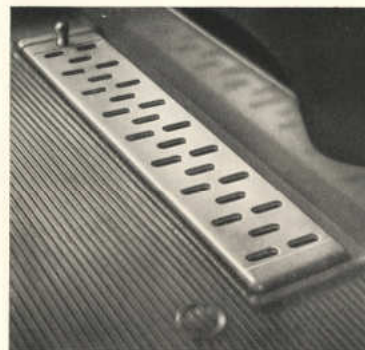
All board instruments are fitted with indirect lighting which can be switched off, and also the engine space under the bonnet is lit automatically on lifting the bonnet.

Even such an unpleasant affair as the replacement of a wheel in case of a punctured tyre, is greatly facilitated on the TATRAPLAN car. The jack bracket can be easily inserted into its respective sleeve fitted on either side of the bodywork, which is normally plug-covered and invisible. A few movements of the jack lever, and one side of the car can be easily lifted to the necessary position.

All which implies that the TATRAPLAN car was designed by practicality-minded motorists.



INSTRUMENT PANEL



HEATING IS REGULATED BY MEANS OF A SLIDE PLACED IN THE FLOOR SPACE