

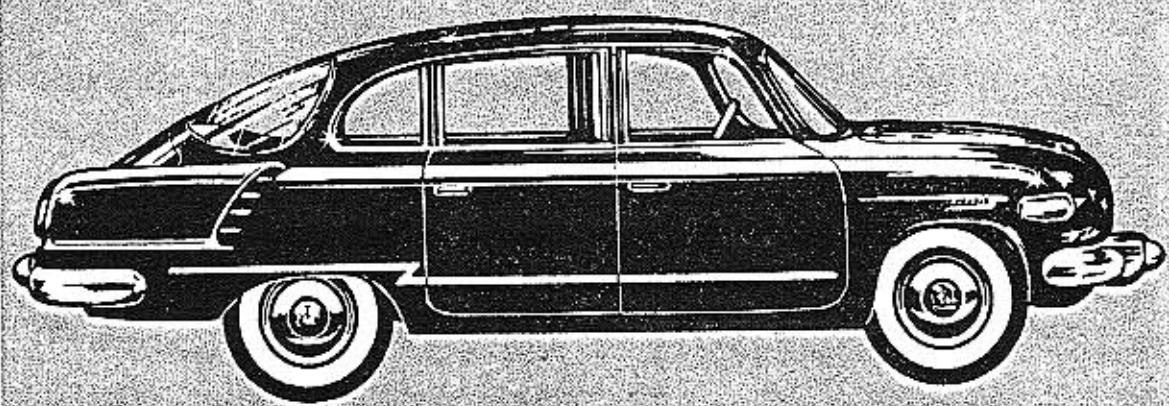
The logo for the Tatra 603 is centered on a black background. It features a white, horizontally-oriented oval shape with a pointed right end. Inside this oval, the text "TATRA 603" is written in a bold, black, sans-serif font. The oval is surrounded by several thin, white, curved lines that sweep across the frame, creating a sense of motion and aerodynamic flow.

TATRA 603

D r i v e r ' s M a n u a l



TATRA 603



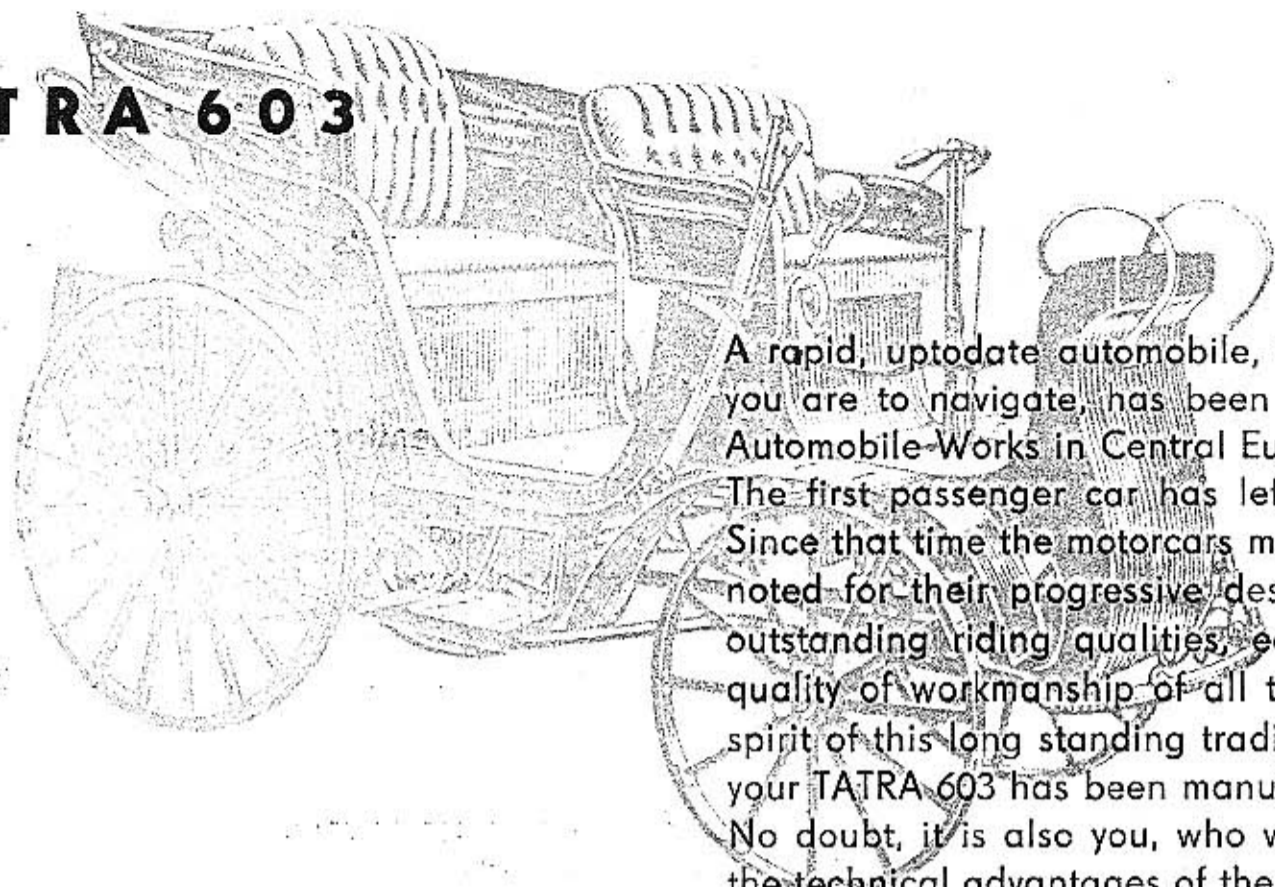
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ENCLOSURE: Lubricating chart and plan of maintenance
 Recommended lubricants (chart)
 Electric wiring diagram



A rapid, up-to-date automobile, the steering wheel of which you are to navigate, has been manufactured in the oldest Automobile-Works in Central Europe.

The first passenger car has left its gate in the year 1897. Since that time the motorcars mark TATRA have always been noted for their progressive design of high technical level, outstanding riding qualities, economy in running and the quality of workmanship of all the individual details. In the spirit of this long standing tradition the present automobile, your TATRA 603 has been manufactured.

No doubt, it is also you, who will soon learn to appreciate the technical advantages of the car, first of all the numerous advantages of the air-cooled engine, located in the rear of the vehicle. The carefully elaborated, and through long years of tests and development proven outer shape of the TATRA 603 body offers the least frontal area resistance. That is why the car achieves so effortlessly the maximum speed of 160 km/H with engine output 95 HP, while the competition cars of the world automobile production require engines of a much larger output and with much larger cylinder swept

volume in order to reach equal speed. The outstanding streamlining qualities of the car answer the question of the extraordinary low fuel consumption and thus the high economy of the vehicle even at high cruising speeds. You will therefore be in a position to travel not only fast and in comfort, but also at a relatively low cost.

How high will be the total running cost, and how long your car will offer its service to you in defect-less operation, that is not the question of the car only, but depends on you yourself as well.

Any machine can be spoilt very soon, if not properly operated. That is the case with a modern motorcar too, the more so, that it is a very complicated machine indeed. Do realize, that it always pays to keep to the instructions regarding correct operation of the car, that are contained in the present MANUAL.

Next to the correct handling, each motorcar requires regular lubrication and maintenance, which is the best protection against premature wear of component parts and individual mechanism of the car. The experience has shown such a care to be the most effective one, if done exactly according to the time plan prescribed by the manufacturers.

Non-planned, at random maintenance is usually one of the reasons of premature defects, that might have been easily eliminated. The time and labour invested in timely and cor-

regular lubrication and other maintenance operations as per the prescriptions from the manufacturing works will pay their dividends. The well lubricated and maintained car is dependable, safe, economic and will run thousands of miles without any defect whatever. During regular inspections it is usually possible to find out wear or functional fault in the time, when it is still possible to prevent a defect or at least make arrangements that repair is postponed considerably, in that the mechanism has been duly cleaned, lubricated, joints tightened or undue play eliminated.

When you yourself do not have time enough or experience sufficient in order to carry out the prescribed maintenance, do have them done in an expert shop or at the TATRA service station.

The designers of the car have tried their best to limit number of spots that require current running lubrication, adjustments or other maintenance work. The lubricated spots are constructed in such a way as to hold the maximum amount of lubricants. Some places are equipped with the so-called self-lubricating bearings, that are not lubricated in current running at all. Therefore, for many lubrication operations longer periods have been stated than is usual with other car marks. The prescribed term, however, are the maximal ones and must not be exceeded.

Lubrication and all the rest of the maintenance operations

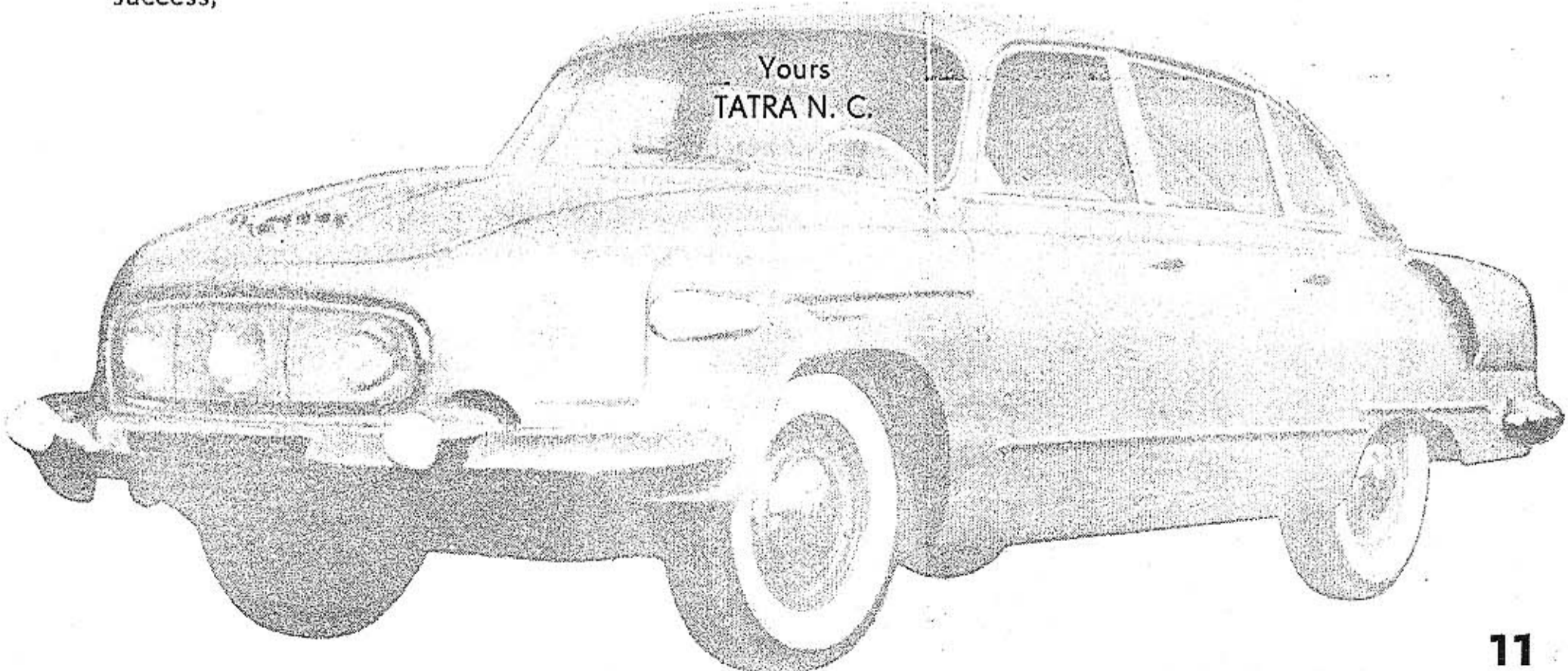
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closely relate one to the other; thus the factory has elaborated for you a survey time plan of all these necessary operations. The plan enclosed to the present Manual is based on extensive experience of the factory. It prescribes only operations essential and terms verified in practice on a large number of the TATRA 603 cars.

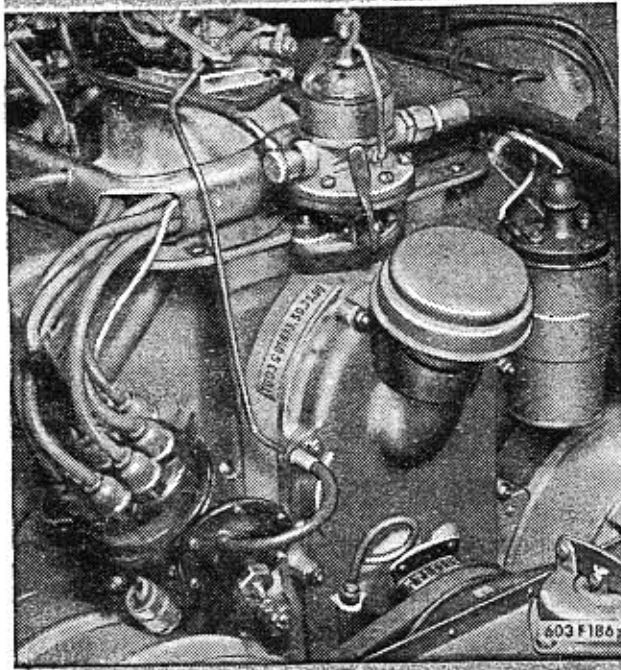
The correctly serviced and well maintained vehicle will always be your good and dependable help.

We wish you thousands miles of pleasure and a lot of success,

Yours
TATRA N. C.



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Location of the manufacturing numbers

The engine manufacturing number is embossed on the crankcase on the L. H. side next to the fuel pump. The manufacturing shield of the car is located in the front luggage boot (on the headlamps cover). The manufacturing numbers on the engine as well as on the shield in the luggage boot constitute several information as e. g.:

T 603 F 01833.50.75.59

indicates the following:

The first number (T 603 F) indicates the model of engine, the second one (01833) is the engine manufacturing number, the third one (50) denominates the engine serie, the fourth (75) bore of cylinders, and the fifth number indicates the year of manufacture. These manufacturing numbers are important especially when ordering replacement parts (hints for correct ordering of replacement parts are given in the Spare Parts List).

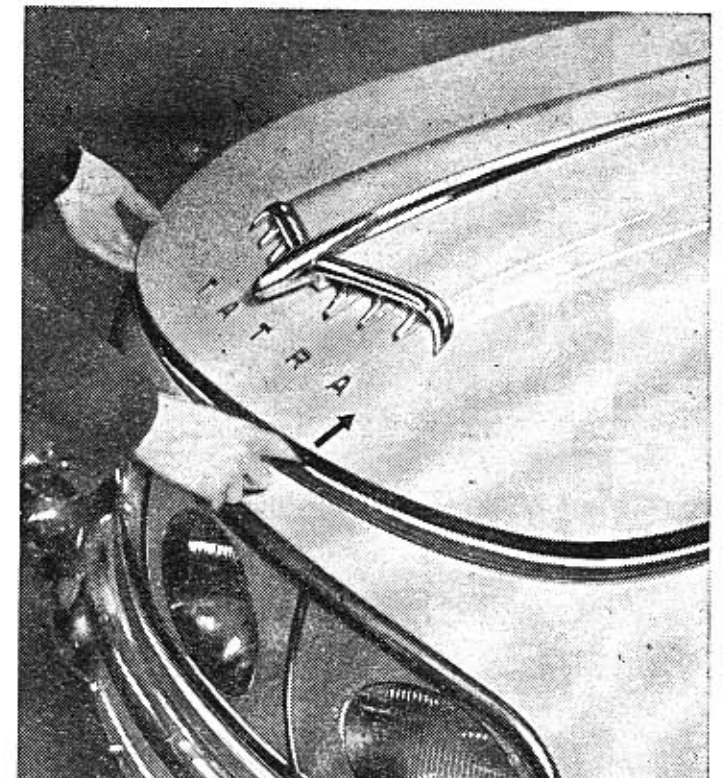
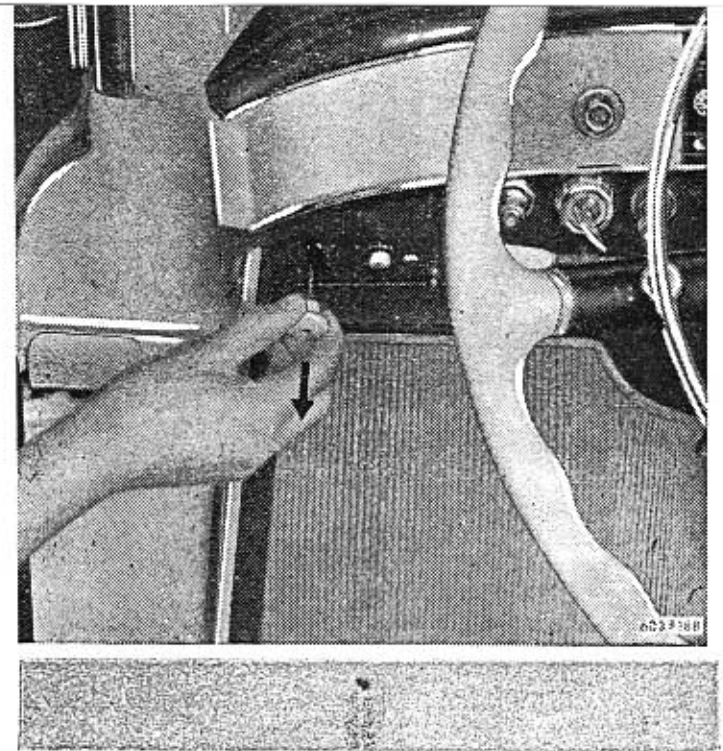


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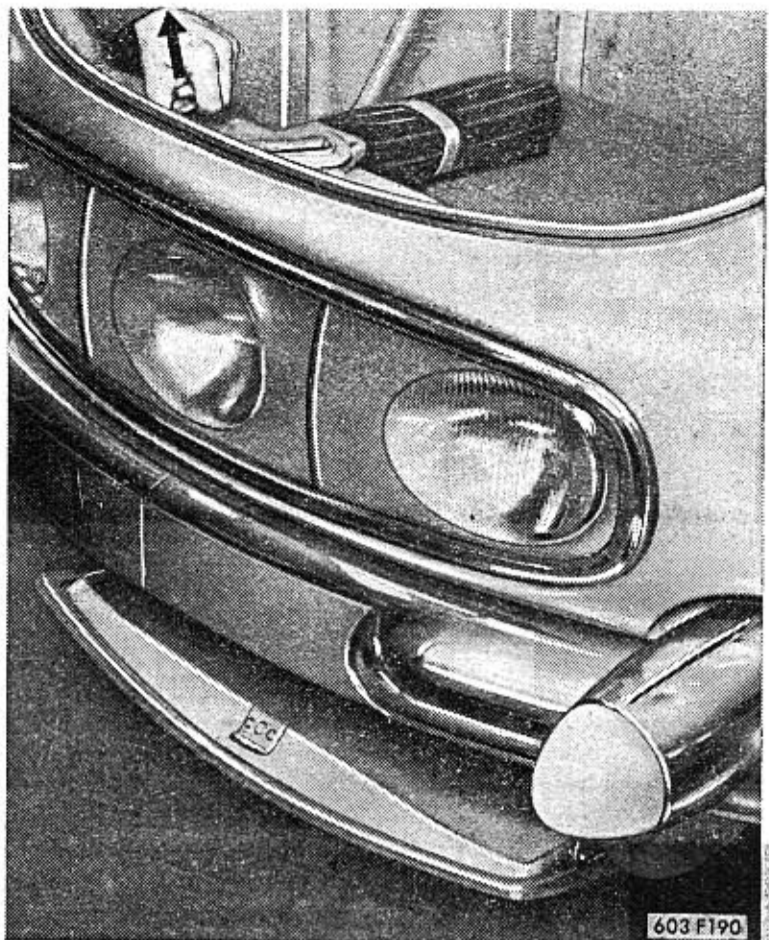
Luggage and accessories

Front luggage boot cover lock is released from the inside of the car by pulling out a button, located on the L. H. side under the fascia. After the lock has been released with the mentioned button, the cover lifts only a little. Release the cover completely in that fingers are put between the body and the partly released cover and the securing clip lever is pressed back. The location of the securing level is approximately over the second letter A of the chromium plated mark T A T R A. The purpose of the securing clip it is to eliminate opening of the luggage boot cover during driving, when improperly closed. When closing the cover, press energetically in order to enable the clip to slip into lock properly.

There is another smaller space for smaller luggage inside the the car behind the rear seats. There is a glove compartment on the R. H. side of the fascia for the driver. The spare wheel is kept in the front in its individual compartment under the front luggage boot, and is closed with its own cover. This cover is opened by pulling out of a knob, which is acces-



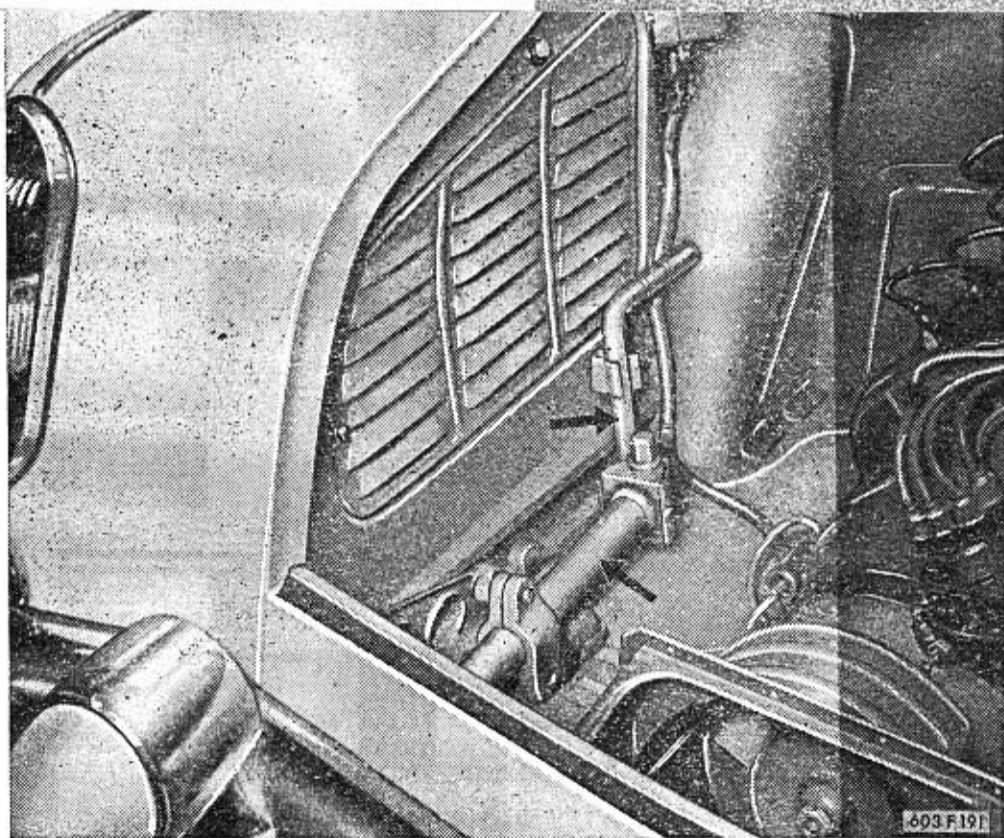
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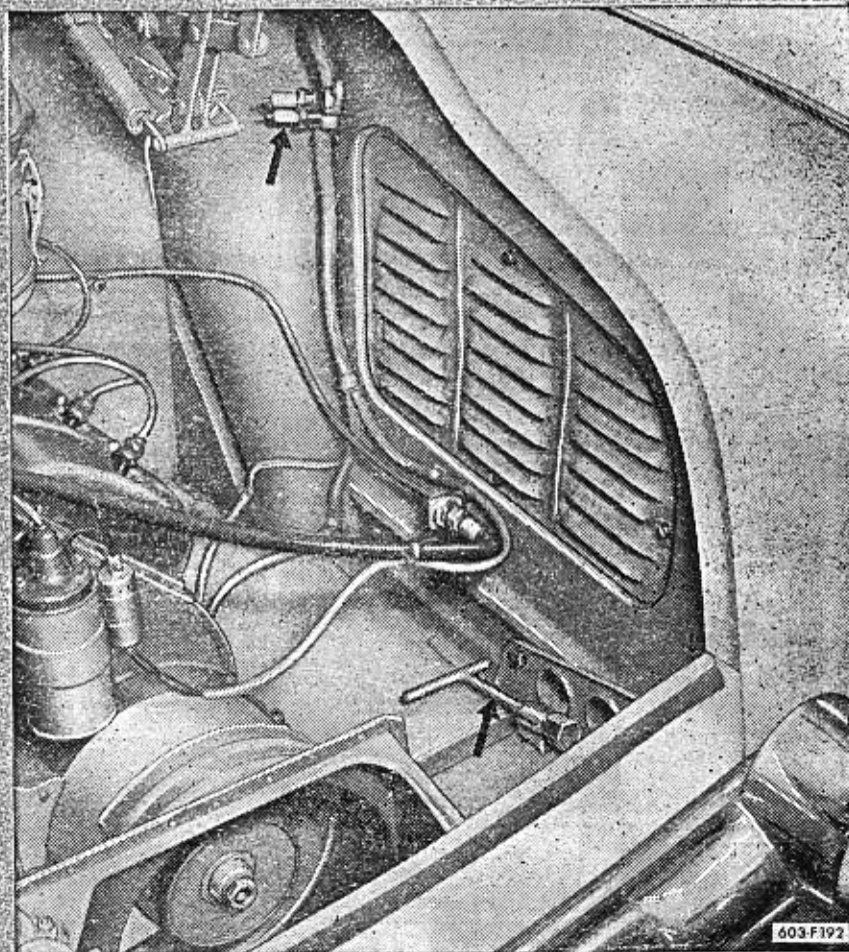
sible only after the front luggage boot cover has been lifted. The knob is located next to the luggage boot cover lock. Prior to taking out the spare wheel, tip-out the spring buffer which is in front of the wheel. After putting in the wheel do not forget to place back this spring buffer into its original position, as it secures the wheel in its right position and prevents it from moving about. The cover of the spare wheel compartment is locked by mere closing. The wheel-nut brace is located in a spring bracket under the spare wheel.



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The tool kit containing the most current hand tools is usually put into the front luggage boot; it finds its place, however, also in the spare wheel compartment. The car jack and the starting handle are fixed in their brackets on the L. H. side of the engine space, spare spark plugs and spark-plug box spanner being fixed on the R. H. side of the engine space.



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MAINTENANCE OF THE CAR

Before starting off

If you want to finish your daily tour safely and avoid any unnecessary annoyance during driving, do give your car several minutes time before starting off. Make sure about the following:

1. Level of oil in crankcase;
2. Fuel in fuel tank;
3. Correct contact of leads with spark plugs and ignition coil;
4. Play of steering wheel, the state of steering rod joints and the function of the steering mechanism;
5. The state of tyres and their pressure (also the spare wheel!);
6. Tightening of the wheel nuts (tighten well if found slackened);
7. Function of all the lights and traffic indicators;
8. That the number plate and the rear reflectors are clean;
9. That the set of tools and accessories is complete;
10. That all the necessary documents regarding the car as well as your own personal ones are about.



TATRA 603

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At the very beginning, starting the first mile's run with the car, the fate of the automobile is in your hands. During these first runs with the new car you yourself decide, whether it will acquire in fact all the good qualities, that have been predestined for it by its makers. There was a lot of the makers indeed, and they do master their job to the perfection, they are nothing, however, in the absence of your cooperation during the first period of the automobile's service life. The makers realize very well, that it is a matter of patience to let whatever smaller car pass you, when sitting behind the steering wheel of such a rapid car as is the TATRA 603. This annoying patience will pay fine dividends in the long run in its dependability, durability, economy and good road behaviour.

Never exceed the following maximum limits of speed when running-in the TATRA 603:

Kilometres run	Speed in kilometres with engaged gear			
	1st	2nd	3rd	4th
upto 500 km	20	35	55	80
from 500 to 1500 km	25	45	65	100
from 1500 to 3000 km	35	55	85	130

Running-in of a new car

During the running-in period, opening of the throttle valve is limited with a sealed stop-screw. After 3000 kilometres have been run with the car, the seal can be removed exclusively in the TATRA service station or in an authorized repair shop. (Otherwise the manufacturer will reject the guarantee!) During these first 3000 kilometres do avoid as much as possible roads with deteriorated surface and steep gradients in mountains. When negotiation of such a road is inevitable, tackle it slowly and with the utmost care. In no case should riding off-road and on unkept roads take place while running-in. Do handle all the installations and mechanism of the car very carefully during running-in, especially the gear shifting, steering and brakes.

When the first 100 kilometres have been finished, tighten well all the wheel nuts.

Kindly note, that during running-in, oil carries microscopic particles of metal from friction faces, which often cannot be retained even in an efficient oil cleaner. To prevent these particles from causing increased wear of components with their abrasive effect. In order to prevent this adverse phenomenon, it is necessary to exchange oil more often during the running-in period, than is customary in normal running conditions.

Exchange oil in running-in period in crankcase in the following maximum periods:

1st exchange after running 500 kilometres,

2nd exchange after running 1000 kilometres,

3rd exchange after running 2000 kilometres.

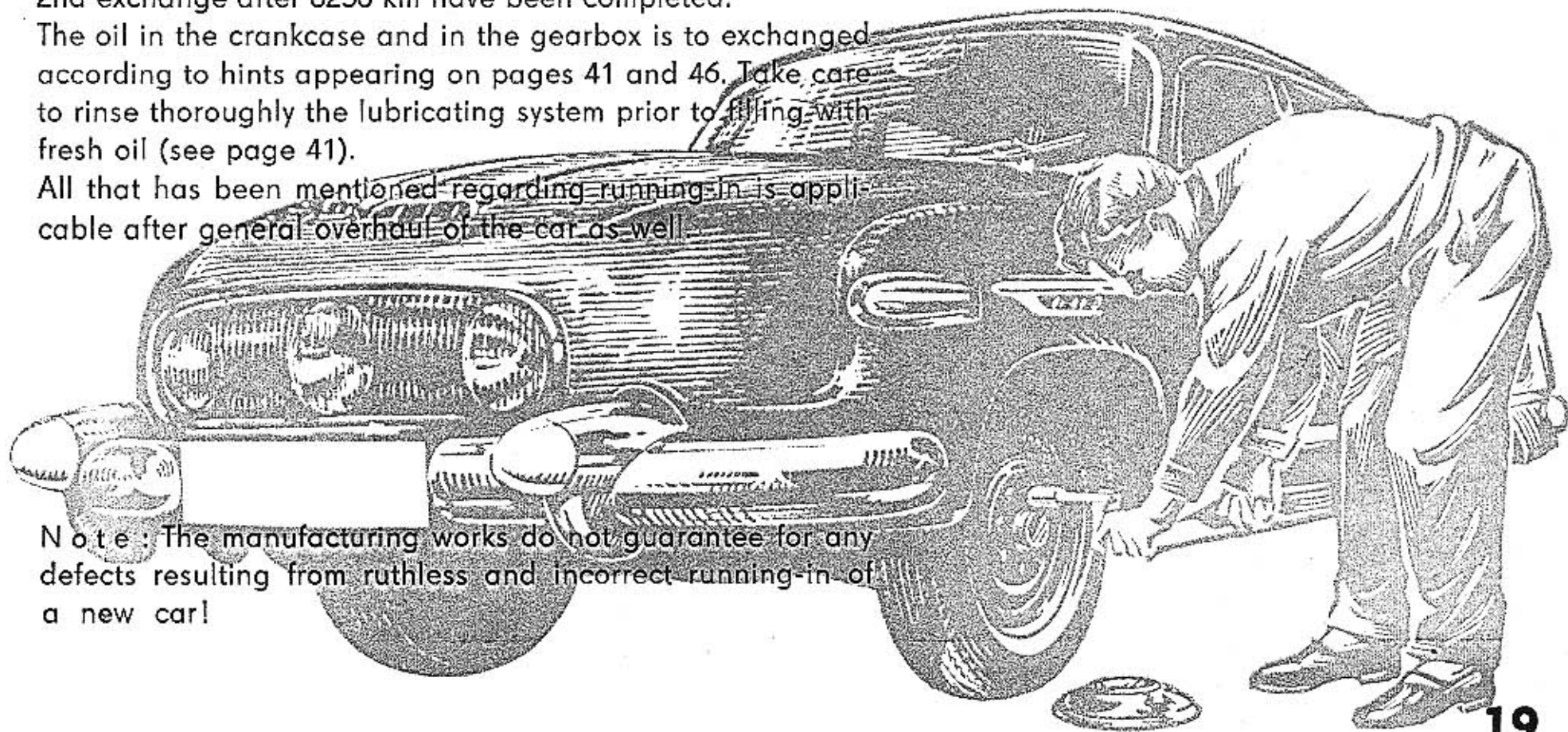
In the gearbox, exchange of oil should follow together with that of the rear axle housing:

1st exchange after 2000 km have been run,

2nd exchange after 6250 km have been completed.

The oil in the crankcase and in the gearbox is to be exchanged according to hints appearing on pages 41 and 46. Take care to rinse thoroughly the lubricating system prior to filling with fresh oil (see page 41).

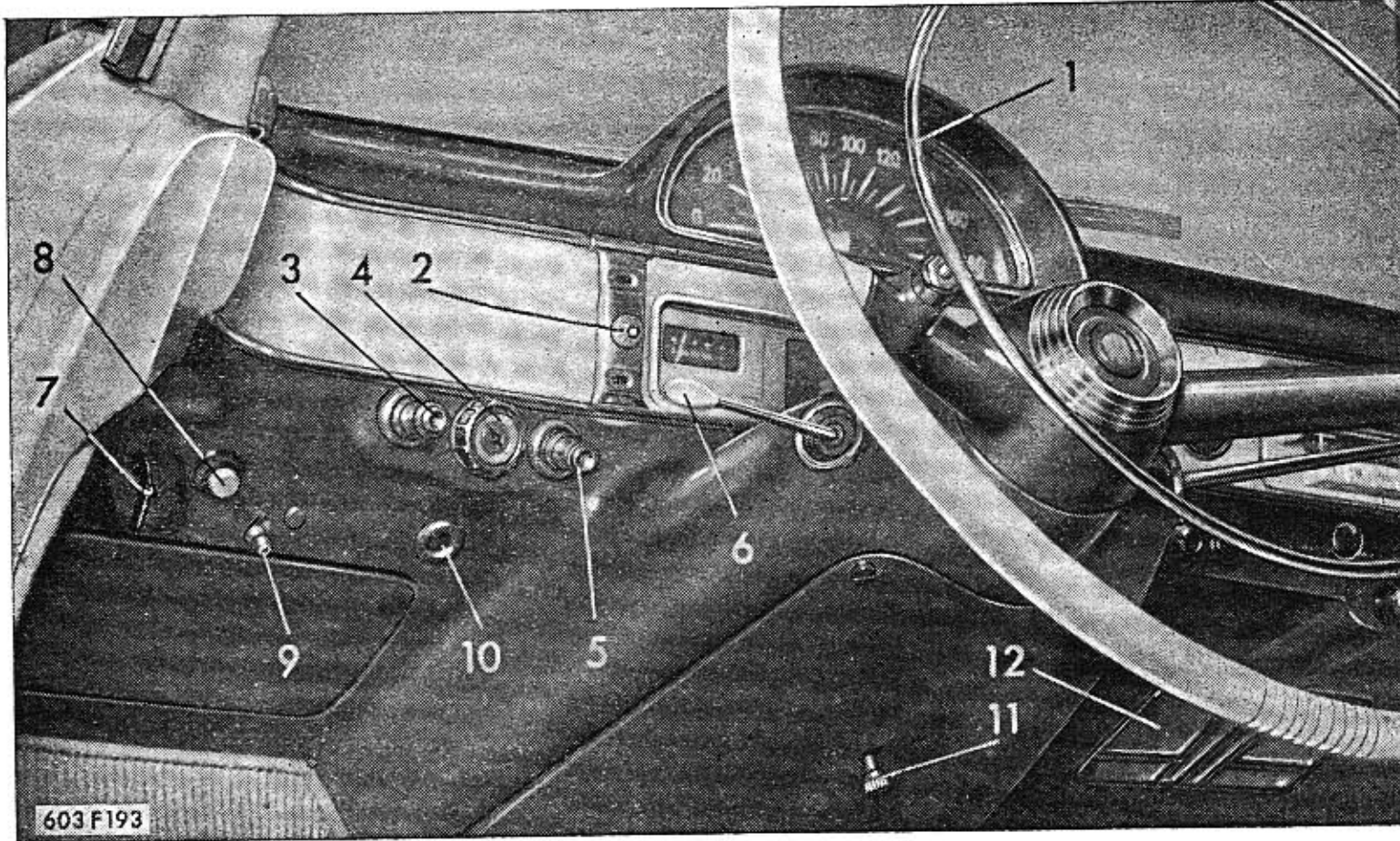
All that has been mentioned regarding running-in is applicable after general overhaul of the car as well.



Note: The manufacturing works do not guarantee for any defects resulting from ruthless and incorrect running-in of a new car!

Fascia of the car

The following installation is to be found on the L. H. side



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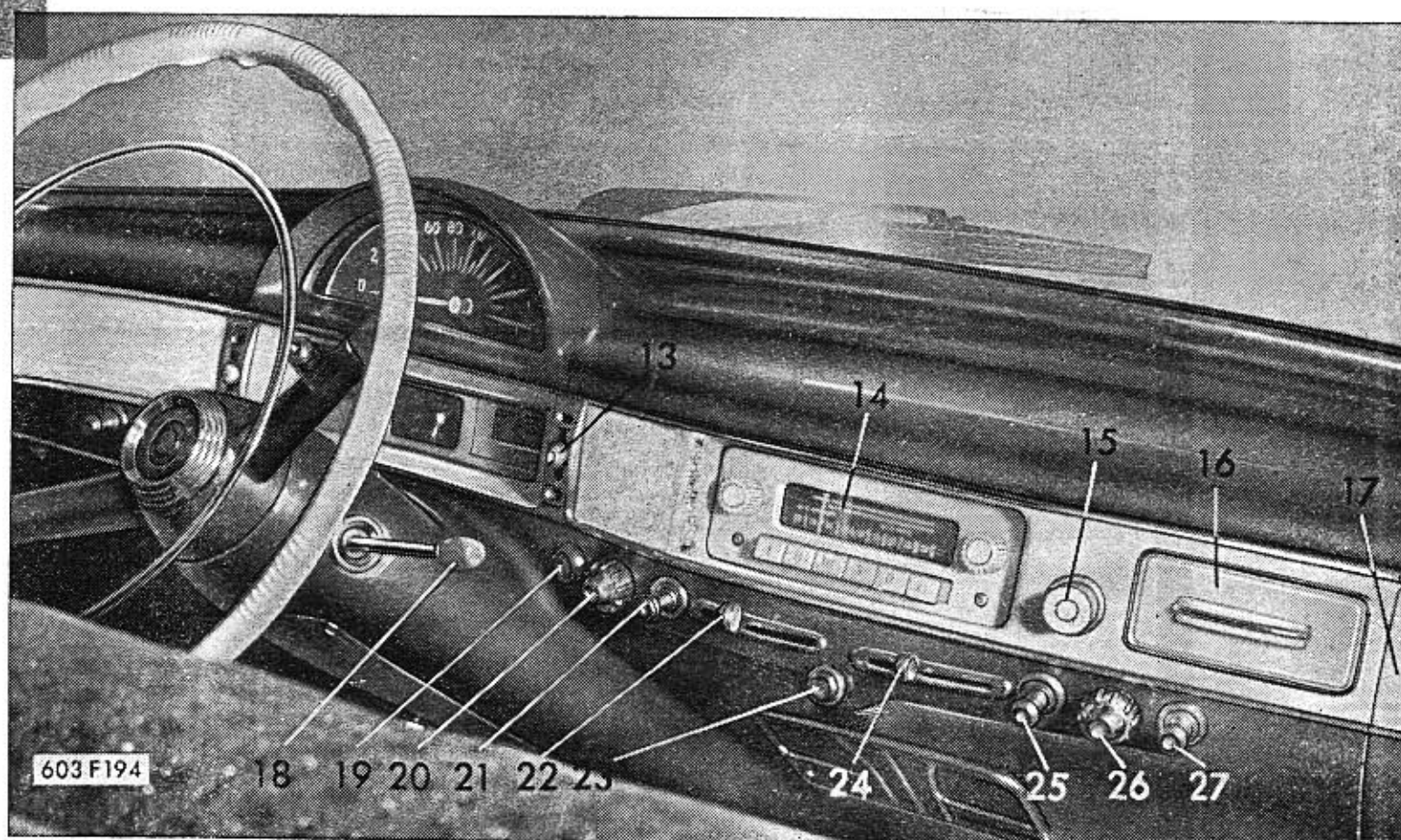
- 1 — Electric horn contact ring (horn switch).
- 2 — Blue pilot light of the headlamp main beam (the pilot light is on, when the headlamp main beam is switched on).
- 3 — Choke button (by pulling, the operating cable opens choke of the front carburetter).
- 4 — Switchbox (by pushing and turning in the switch-key, the ignition circuit is switched on).
- 5 — Button for control of air distribution under the seats.
- 6 — Flashing traffic indicators switch lever.
- 7 — Button for opening the front luggage boot cover.
- 8 — Press-button of the starter switch.
- 9 — Button of the fuse box lock (the box is opened by sliding the button upwards).
- 10 — Service light socket.
- 11 — Electric clock regulating knob (it is necessary to pull out a little before regulating is possible).
- 12 — Wireless set loudspeaker
- 13 — Heating pilot light (on, when heating in operation).
- 14 — Wireless set*) space in fascia is adapted for the additional assembly of wireless sets of various makes, the illustration shows TESLA set.
- 15 — Cigarette lighter.
- 16 — Ashtray.
- 17 — Glove compartment.
- 18 — Gear engaging lever.
- 19 — Middle headlamp switch.

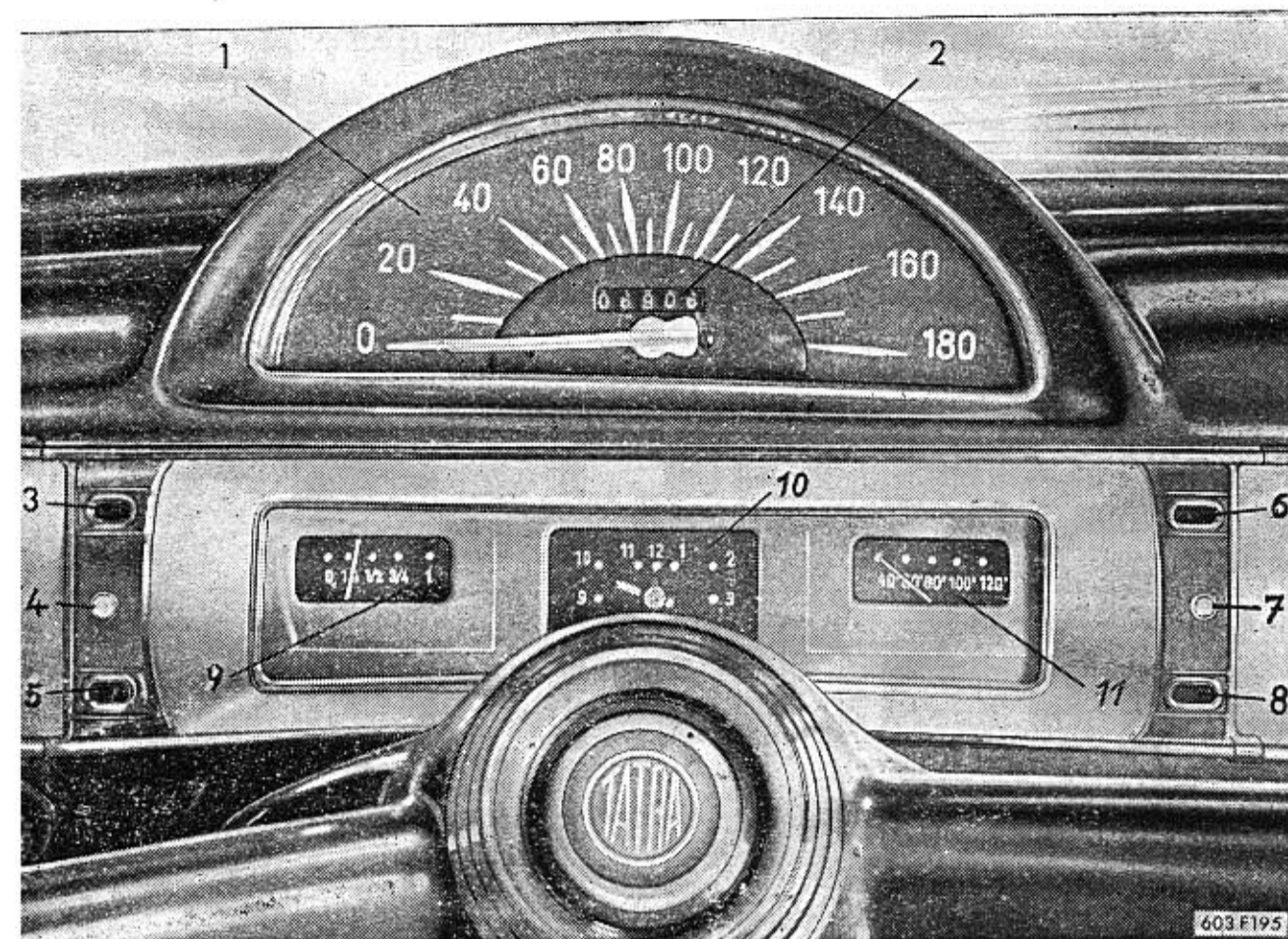
- 20 — Rheostat for regulating the intensity of fascia dials.
- 21 — Switch of the parking lamps and headlamps.
- 22, 23, 24 — Heating and ventilation switches (see page 36).
- 25 — Switch of foglamps (when mounted).
- 26 — Grooved button of the two-phase windscreen wipers LUCAS.
- 27 — Switch of the cabin ceiling light (besides, this light is automatically switched on when any door is opened).

*) The wireless set is operated according to the instruction delivered by the manufacturer of the set.

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The following installations are to be found on the R. H. side

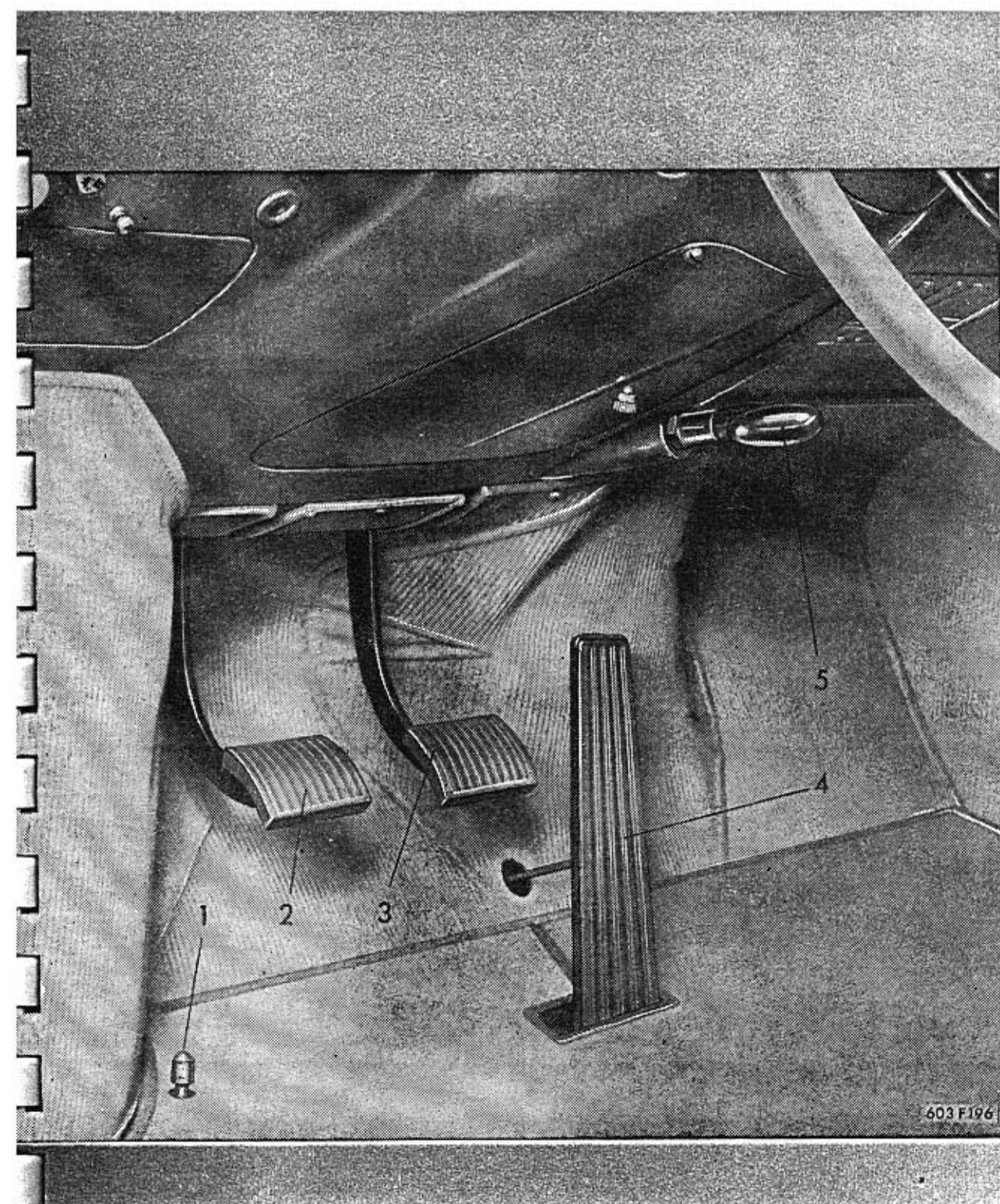




All the checking instruments are concentrated in front of the steering wheel in the drivers field of view

- 1 — Speedometer.
- 2 — Mileage recorder.
- PILOT LIGHTS:**
- 3 — Battery charging, red, (switched on, when ignition key is pushed in and the engine is not running or idling only).
- 4 — Head lights.
- 5 — of the L. H. flashing traffic indicator.
- 6 — green, of oil pressure (switches on a moment after the engine has started and signalizes, that the pressure lubrication of the engine is in operation).
- 7 — Heating — switched on, when heating in operation.
- 8 — of the R. H. flashing traffic indicator.
- 9 — Fuel gauge (shows level of fuel tank with switch key pushed in).
- 10 — Electric clock.
- 11 — Oil thermometer.

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Pedals and levers

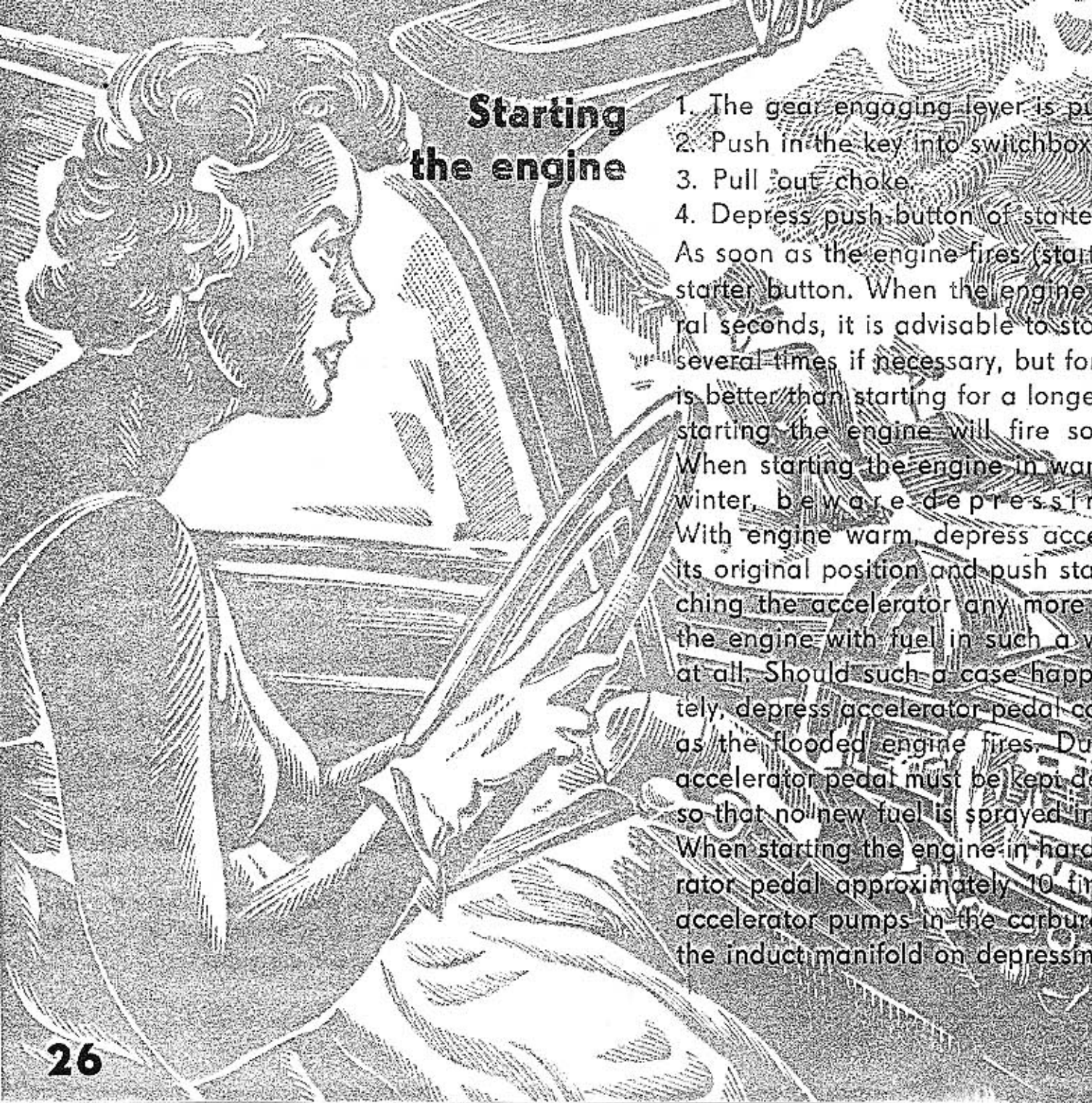
All of the operational pedals and levers are reached by the driver without altering the comfortable seating position of his body.

- 1 — Foot operated headlamp dipswitch.*)
- 2 — Clutch pedal.
- 3 — Brake pedal.
- 4 — Accelerator pedal.
- 5 — Parking brake lever grip (brake is applied by pulling out the handle towards the steering wheel).

To disengage the parking brake, twist grip to the L. H. side (to stop) and then press back to stop. If the grip is then released, it will return into its original position as it is spring-loaded.

*) Cars of previous manufacture employ a dipswitch lever, which is located on the L. H. side under the steering wheel, by which also the traffic indicators are governed.

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Starting the engine

1. The gear engaging lever is put into the neutral position.
2. Push in the key into switchbox.
3. Pull out choke.
4. Depress push-button of starter switch.

As soon as the engine fires (starts), release immediately the starter button. When the engine does not start within several seconds, it is advisable to stop starting and repeat even several times if necessary, but for short intervals only, which is better than starting for a longer period. By short repeated starting the engine will fire sooner.

When starting the engine in warm weather or even in mild winter, beware depressing the accelerator. With engine warm, depress accelerator first, then leave in its original position and push starter switch button, not touching the accelerator any more in order not to 'overflow' the engine with fuel in such a way, that it would not start at all. Should such a case happen, push-in choke completely, depress accelerator pedal completely and start as long, as the flooded engine fires. During starting, however, the accelerator pedal must be kept depressed in absolute peace, so that no new fuel is sprayed into the engine.

When starting the engine in hard frosts, depress the accelerator pedal approximately 10 times. There are mechanical accelerator pumps in the carburetters, that deliver fuel into the induct manifold on depressing of the accelerator pedal.

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To sufficiently warm-up engine before starting off is a very important matter. The wear of cylinders and the whole of the crankshaft mechanism is much larger with engine cold than that with engine warmed up to running temperature. That is why the engine should not be stressed fully prior to having been warmed up to its running temperature. This is especially important in winter, when oil is stiffened all over the lubrication system.

Let engine idle during the warming-up period in low revolutions only. It is very wrong to warm the engine at high revolutions as this will certainly ruin the engine. By correct warming up the service life of the engine will be greatly extended.

In warm summer weather it is sufficient to let the engine idle for a period of approximately 2 minutes. When temperatures are lower (spring, autumn), warm longer, in winter when a more severe frosts come, do warm up for at least 5 minutes. The choke should be pulled out during warming up of the engine only until it stops running irregularly. Unnecessary use of pulled out choke is detrimental to the engine, increases fuel consumption and the excessive fuel dilutes lubricating oil.

Warming up of the engine before starting off

Engaging gears

Engaging gears during driving:

1. Instantly release accelerator pedal.
2. Disengage clutch rapidly by depressing the clutch pedal.
3. Engage the required gear (up or down).
4. Engage clutch in that the clutch pedal is released.
5. Increase engine revolutions by depressing the accelerator pedal.

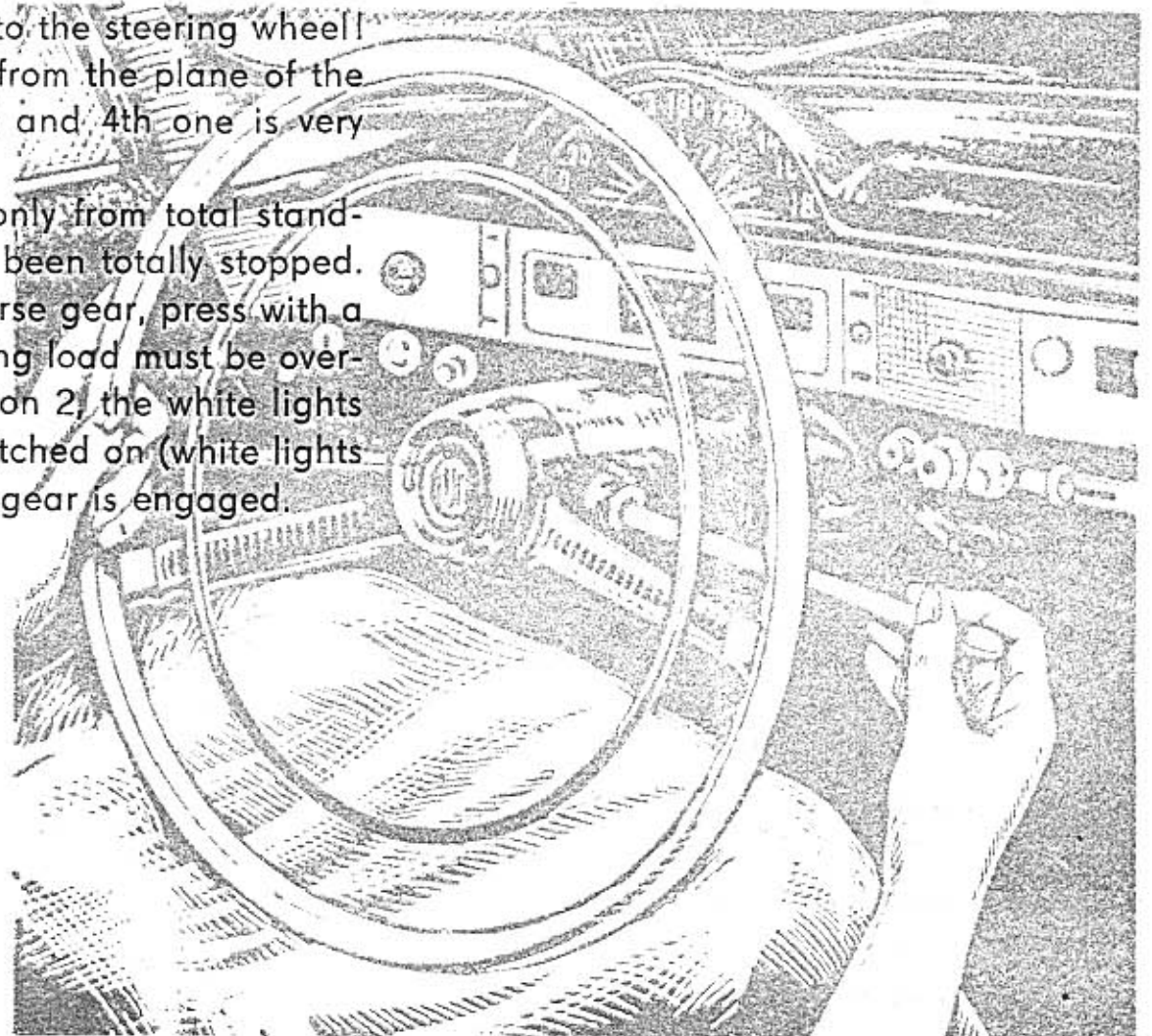
When changing gears down from 2nd speed to 1st or alternatively from 3rd speed to 2nd, a little increased effort must be exercised, and the 'sliding-in' of the gear takes an instant longer. When shifting gears from 3rd to 2nd the gear engaging lever in central position must not be pressed by force from the plane of the 3rd and 4th gear into the plane of the 2nd and 1st gear; it might easily happen, that the lever slides into the plane of reverse gear!! The correct engaging it is to shift the gear engaging lever from the position of the 3rd speed into the neutral (central) position, releasing it in this moment and thus letting it automatically slide into the plane of the 2nd and 1st gears by its own weight and only then shift unforcibly into the second gear.

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When engaging the 3rd gear from the 2nd one and the 4th gear from the 3rd one (or even the 3rd gear from the 4th), shifting can be done very rapidly indeed.

Shift the gear engaging lever paralelly with the steering wheel and in the central (neutral) position the lever must either be lifted or depressed vertically to the steering wheel! The travel of the gear engaging lever from the plane of the 1st and 2nd gears to that of the 3rd and 4th one is very short (approximately 3 cm).

The reverse gear is engaged only from total standstill of the car, i. e. when the car has been totally stopped. When shifting engaging lever into reverse gear, press with a little increased force, as the safety spring load must be overcome. When the switch key is in position 2, the white lights of the rear lamps are automatically switched on (white lights for reverse driving) as soon as reverse gear is engaged.

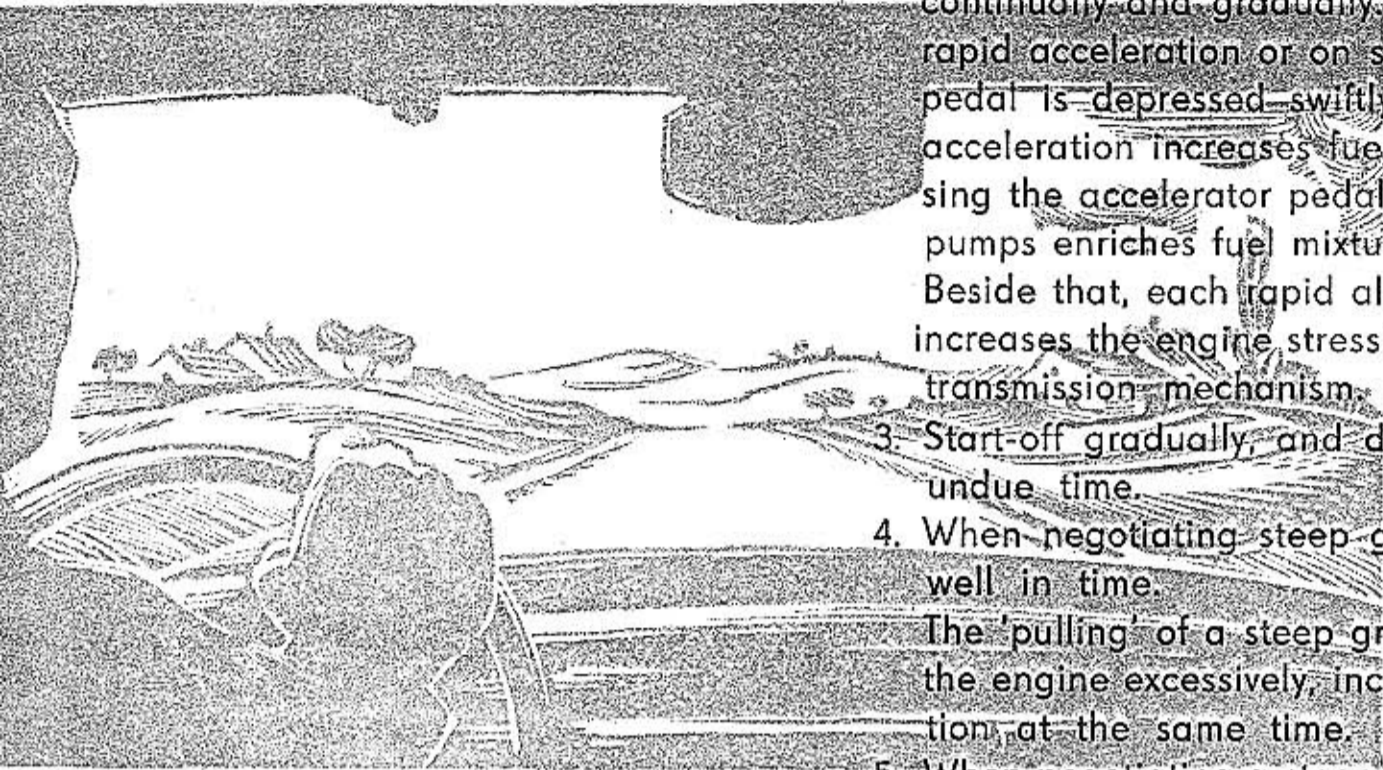


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Driving the car

The main rules of a rapid, safe and at the same time economic driving can be summarized into several points as follows:

1. Drive the car in the range of the so called "economic speed" as much as possible. In this range the fuel consumption is the lowest.
2. On normal driving the accelerator pedal is depressed continually and gradually. Only in necessary cases for rapid acceleration or on shifting gears, the accelerator pedal is depressed swiftly. Unnecessary and frequent acceleration increases fuel consumption, as on depressing the accelerator pedal, the carburettor acceleration pumps enriches fuel mixture with spray of additive fuel. Beside that, each rapid alteration of engine revolutions increases the engine stressing as well as stressing of the transmission mechanism.
3. Start-off gradually, and do not drive in low gears for undue time.
4. When negotiating steep gradients, engage lower gear well in time. The 'pulling' of a steep gradient in high gear stresses the engine excessively, increasing unduly fuel consumption at the same time.
5. When negotiating a steep downward gradient, do brake with the engine in the first place, in that lower gear is

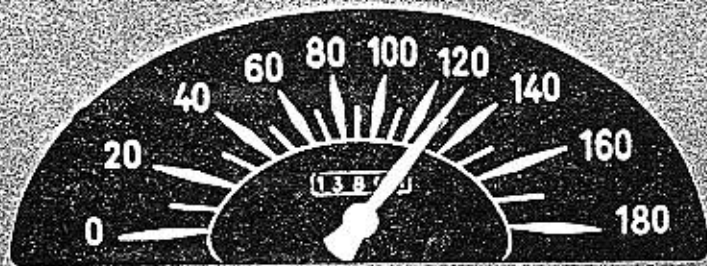


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engaged. The lower gear is engaged, the steeper gradient is being negotiated. The well known rule of an experienced motorist is applicable: 'When driving downhill, engage the very gear that would have to be engaged for going up this hill'. The lower gear is to be engaged before starting the descend if possible. When this is impossible, then brake well before shifting gears down.

6. Do not land tightly to the pavement, in order to avoid damage of the tyre walls.
7. Tackle curves at adequate speeds. The mighty excentric force at high speeds strains largely the tyres and some other components of the car.
8. Let the engine warm up to its running temperature before starting off; its most advantage temperature for running is shown on the oil thermometer — 70 to 80° C. When the oil temperature rises all at once over 100° C, discontinue driving and find out the reason. Make sure from time to time, whether the automatic running-temperature regulator works properly (see page 54).
9. Roads with deteriorated surface are to be navigated with extra care and at low speeds.

Even very fast driving on bad roads is well comfortable and pleasant for the passengers in the well sprung TATRA 603, but it definitely does not do any good to the car.



10. Warm engine is not stopped immediately after the car has been brought to a standstill. Let it idle for a while. The fans cool down the engine sufficiently, and thus creating of the so called "vapour" bubbles in the fuel line, which might cause difficulties in starting the engine later on is eliminated.

11. Remember that the economy and safety of the car depends to a large extent on the perfect maintenance of the car and its faultless mechanical condition.

At the beginning speed of traveling mainly according to the reading of the speedometer, as estimation of speeds might bring the driver into unpleasant situations. The car cruises so quietly and effortlessly, that even well experienced drivers estimate the speed to be much lower than is actually the case. In a car with engine in the front one gets accustomed very quickly to estimate correctly the speed of the car subconsciously according to the engine noise at different speeds. This change of engine noise at different speeds, however, in cars with engine located in the rear, especially in the TATRA 603, is not recorded by hearing, as practically no noise penetrates into the cabin from the engine.

There is no doubt, however, that you are bound to find out the excessive speed as soon, as you have started to take a curve, in which only the correct estimation of the actual speed is done both optically and psychologically. Such a

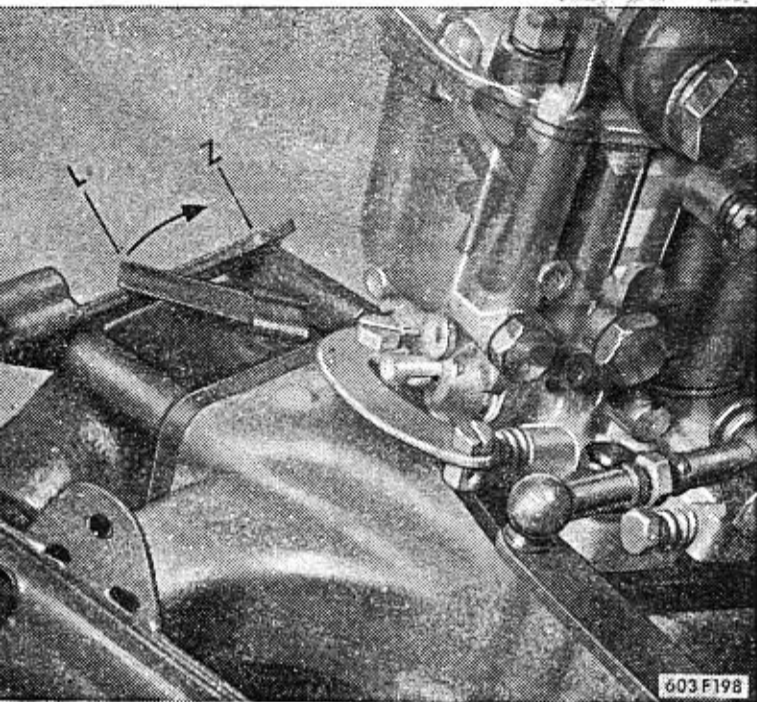
late realisation of facts can result fatally, if the driver is not in a position to take the curve even at such an increased speed. To brake is usually the worst a driver can do in such circumstances! The resulting skid which is bound to follow can be rectified only by a hundred-percent master of the art. The situation can only be solved by icy calmness, overlooking the screaming of tyres; progressive turning of the steering wheel (beware jerky handling of steering wheel!) and driving as under normal conditions, even at this excessive speed. You would be astonished to see the factory drivers take curves at incredible speeds with the standard TATRA 603 cars at absolute safety — they negotiate sharp curves at speeds that would bring normal drivers off road.

Running in wintertime

To ensure perfect running in winter it is necessary to exchange summer grade oil for that suitable for winter in good time, adjust carefully brakes and keep batteries in perfect running order, as these are stressed to a much larger degree in winter than in summer.

The engine is equipped with the pre-heating device of the intake manifold with exhaust fumes. The pre-heating device lever is located on the engine in front of the front carburettor. For the wintertime this lever is set into its extreme position Z (in the driving direction). During summer the pre-heating device lever must be set in its extreme L position. The induct manifold may be preheated during wintertime with the exhaust fumes from the exhaust manifold. The pre-heating chamber 2 is screwed on to the induct manifold in front (on the flywheel side). During driving at temperatures of the ambient air over 0° C preheating has an adverse influence on the output of the engine and therefore it is cut off safely from its operation with a steel sheet screen 4, which is put between the induct manifold 5 and the insulating washer 3 behind the preheating chamber 2.

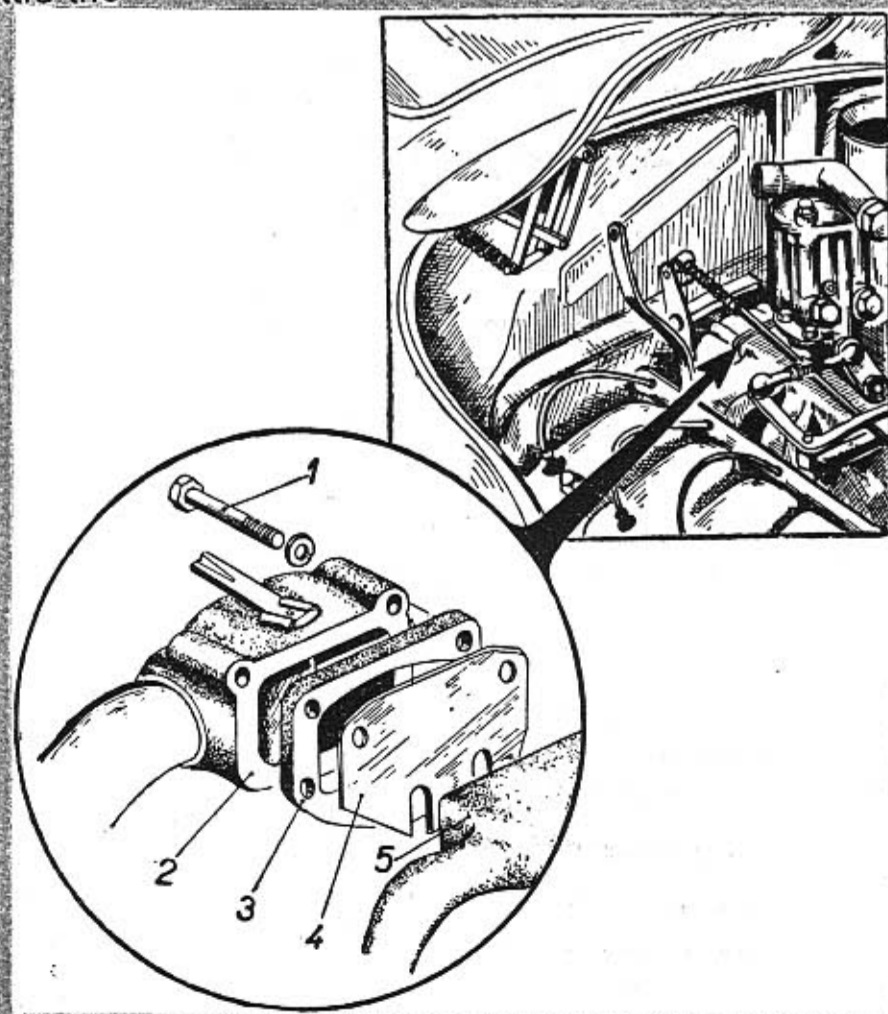
As soon as the temperature of the ambient air sinks below 0° C, it is necessary to unassemble the steel sheet screen 4. Both the top screws 1, fixing the preheating chamber 2 are completely unscrewed, the bottom screws are only slackened and the screen is slipped out upwards.



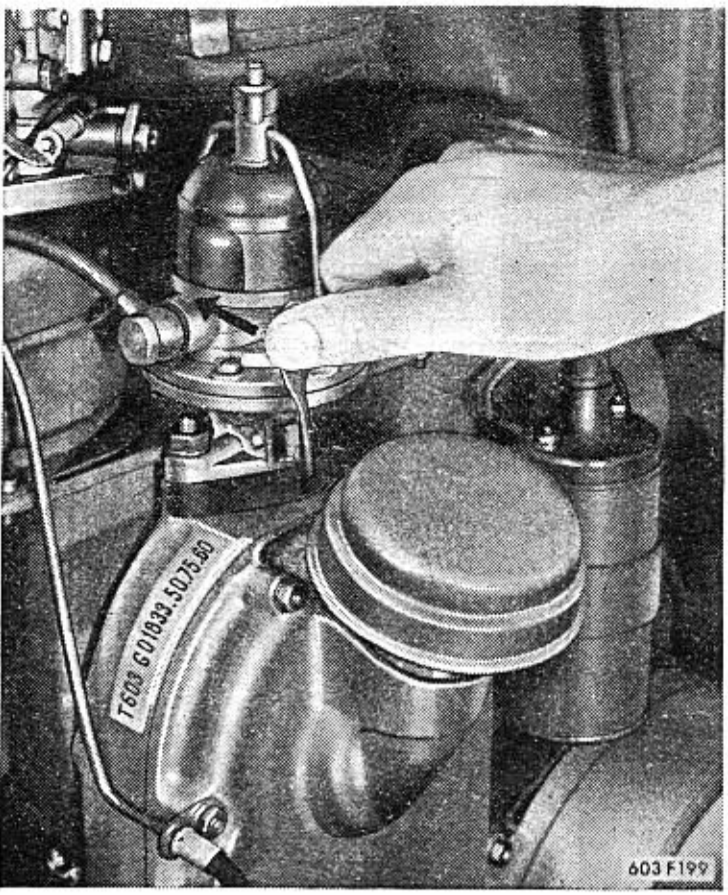
34

To start the engine at severe frosts, deliver petrol to carburettors with hand operated fuel pump. When no movement of fuel can be observed in the glass vessel of the pump, then the diaphragm of the pump is depressed with the lifter and driving cam. In such a case it is necessary to turn a little the engine crankshaft (with the starting handle or with the auxiliary switch of the starter, which is located in the engine space. The starting of the engine is much accelerated by hand priming of fuel to carburettor, especially if the engine has been out of running for a longer time.

When a very cold engine cannot be started after the choke has been pulled out, step out of the cabin, open the engine hood and put into operation by hand the choke of the rear carburettor. Then start the engine again with the auxiliary starting switch in the engine space.



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Heating and ventilation

Heating of the car is switched on by pulling the button 2. Red pilot light on the fascia will be switched on in a while after switching on of the heating, and will light until the heater is in operation.

After switching off the heating, the pilot light is in operation for a short time and then it is automatically switched off too. As long as the light is on, the heating must not be switched on again!

The heating switch has two positions: when pulled out by approximately half its travel, only the fan of the heating is put into operation, and cool air is led into the cabin. With button fully pulled out also the heating device is switched on and hot air starts to flow in.

Prior to switching on the heating, the regulation lever 1 must be set to its extreme left position, when the channel conducting hot air into the car is open. If the regulation lever is in a different position, the heater switch is blocked and cannot be switched on.

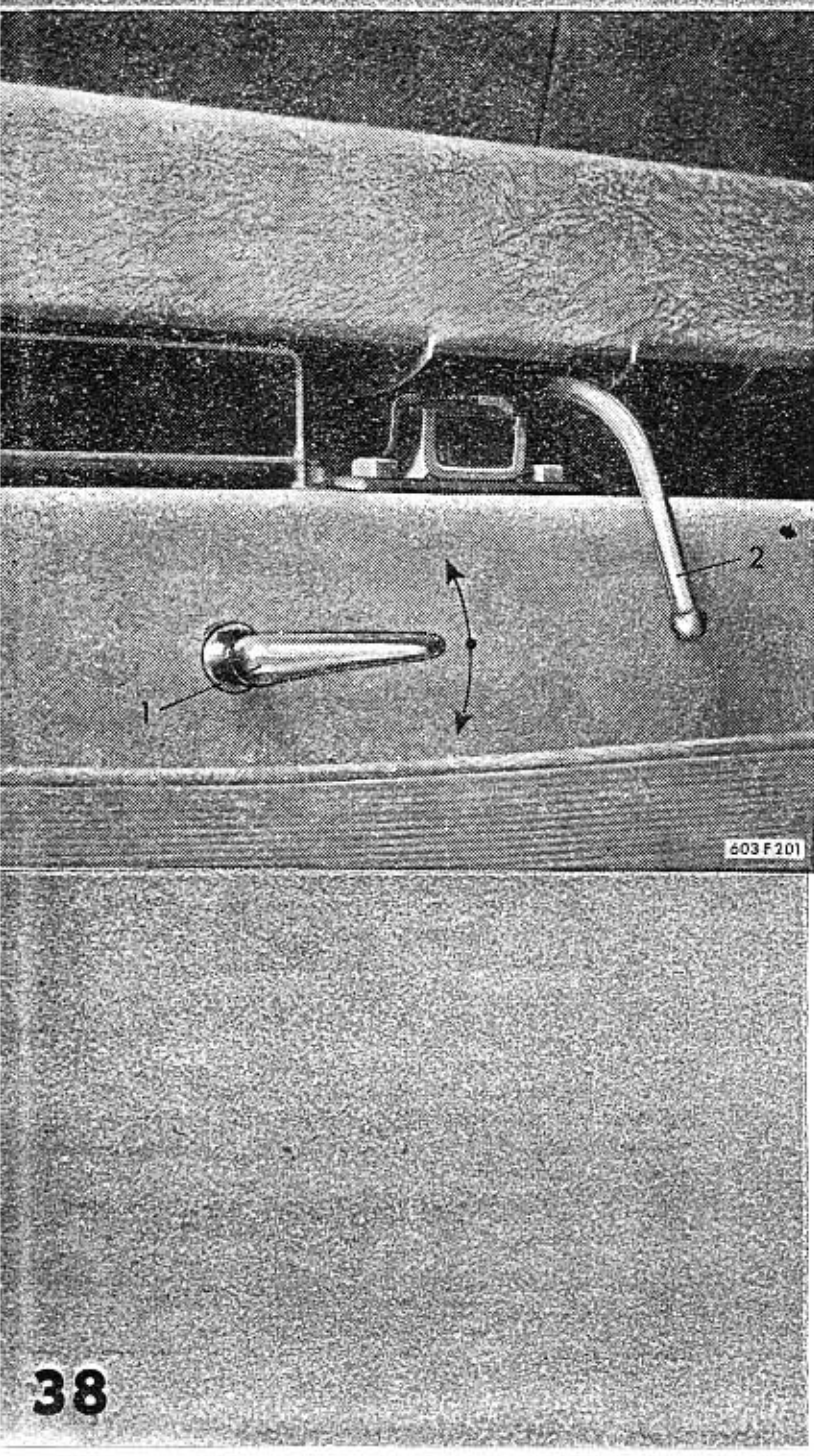
36

Should the pilot light not be on even after a longer time after the heater has been switched on or to the contrary, after switching off the heater the pilot light is on a long time, there is a defect in the heating system (see page 94). The levers 1 and 3 regulate ventilation of the car interior. The air intake is regulated with lever 1, air flow being done by dynamic overpressure in the intake channel to the heating device. This channel leads from the entrance orifice in the L. H. front mudguard. The efficiency of the ventilation can be increased by switching on the heating device fan (by pulling the switch button one half of its travel). If the regulating lever is set to the left, the air access is completely cut off.

The air intake is regulated with lever 3 and is conducted into the interior of the car through the channel over the luggage boot (from the front). This stream of air is conducted by channels and slits behind the windshield and efficiently prevents it from misting. When the regulating lever is set to the left, the air access is completely stopped. In the reverse extreme position of the lever the air intake is fully open.



In the middle under the front bench seat, there are two levers on the seat wall. Access of hot air is regulated with lever 1 to the interior of the car or onto the windshield. When the lever is set upwards, all the hot air is conducted onto the windshield. When the lever is set downwards, all the hot air is conducted into the interior of the car. In the semi-positions of the lever, the stream of hot air is divided partly to flow into the interior of the car and partly onto the windshield. Front seats are released with lever 2, if their adjustment is required.



There is a great wisdom in sayings. A very old Czech one says: "Lubricate well to go well." Each motorist should keep this saying well in mind in this atom age. With insufficient lubrication he may go several tens or even hundreds of miles, but these will be rather dear.

If you want to start off and safely finish the tour, do pay a little of your attention and care to regular lubrication of your car. Your car, the TATRA 603 does not require too much of your time for correct and thorough lubrication. It is, however, advisable to keep to the terms and working methods recommended by the manufacturing works. The terms are fixed on the basis of long years of careful tests with many cars of the same model.

In the vicinity of some lubrication spots layers of dust and mud deposit with time. Such impurities must of course not penetrate into the lubricated place. Therefore it is necessary to clean such a place thoroughly before lubricating as well as the lubricating nipples, closing lids of the filling necks and orifices, and the nearest surrounding faces. Also clean draining screws and plugs together with their surrounding faces. When exchanging or topping oil, make use exclusively of clean vessels and funnels equipped with fine strainers or gauze. There must be no impurities in the lubricants used!

LUBRICATION

**Cleanliness
before all**



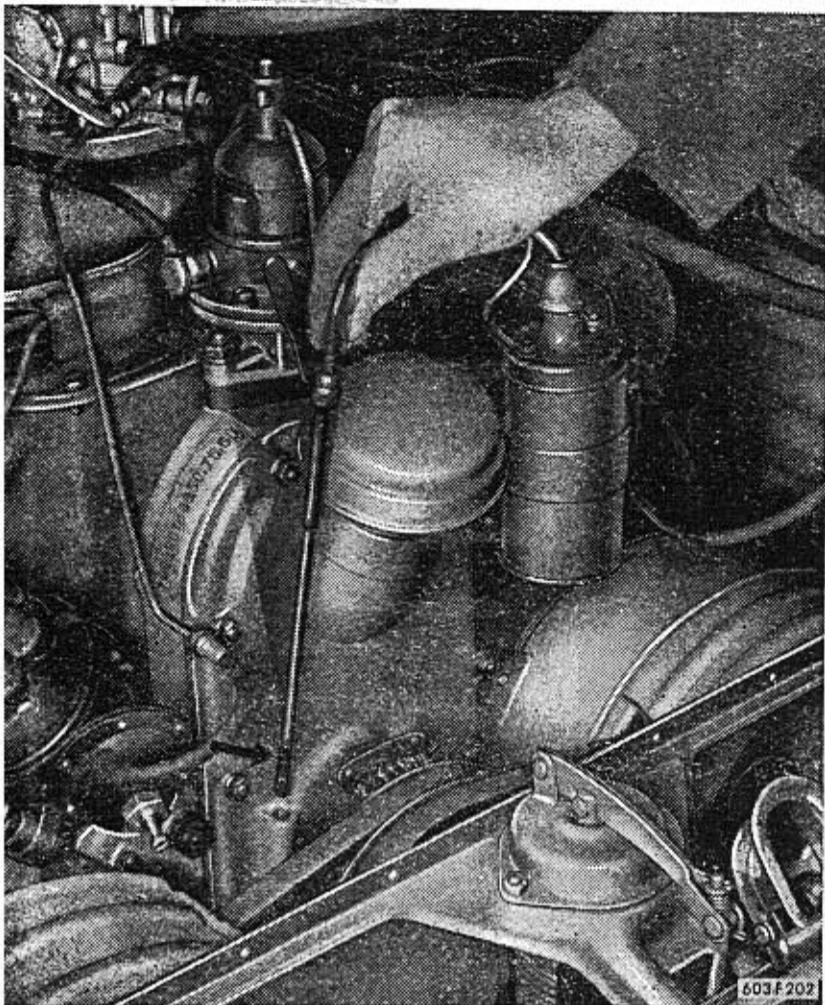
Topping oil

When topping oil in the periods between exchange of oil, make exclusively use of the identic mark and kind of lubricant that has already been filled previously. By mixing various kinds and brands of oil the whole filling is usually deteriorated as far as quality is concerned. When it is not sure that identic brand and kind of oil can be bought en route, it is advisable to take along the likely needed amount of oil.

The lids and covers of filling necks are all painted red so that they are conspicuous.

Topping of oil in engine.

Check oil level with oil dip stick, that is located in the rear part of the crankcase. The oil dip stick is pulled out, cleaned with cloth, stuck back and pulled out again. There is marked the minimum and maximum tolerable height of oil level in the crankcase on the stick. Oil must not be filled over the top mark of the dip stick, as connecting rods would throw too much oil during operation of the engine. The oil level in engine is to be checked regularly each day before starting the engine or only several minutes after the engine has been stopped, i. e. after the dispersed oil has settled down. Oil is topped only in such a case when its level is near to the minimum (under normal consumption of oil the filling will suffice without any additional topping to the next exchange of oil).



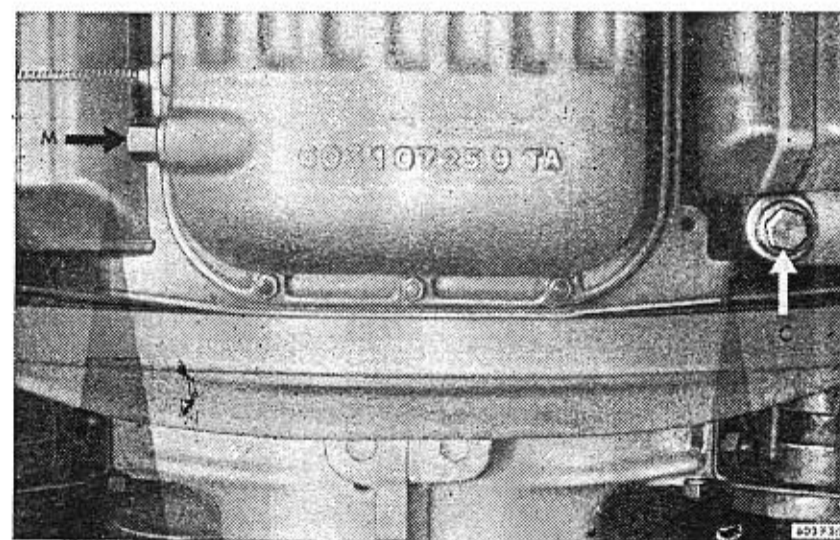
40

Unassemble middle part of the cover under engine, which is fixed with two wing nuts (in the rear, under the bumper). When nuts have been slackened, slide the cover a little to the rear and then take out downwards.

Oil is drained from the engine after draining screw M, located on the L. H. side wall of the crankcase, has been unscrewed (in the vicinity of the flywheel). Drain oil when it is still warm, at best soon after a longer run has been finished. Oil is drained also from the chamber of the strainer oil cleaner and the cleaner insert is cleaned too (see the following). There is a special draining screw C at the bottom of the cleaner chamber (to the R. H. side at the flywheel). Prior to each individual exchange of oil filling, the engine is to be rinsed thoroughly. Pour approximately 3 lit. of oil (same as that, used for filling after rinsing), and let engine run about 5 minutes — idling. Thus the complete lubrication system is rinsed. The rinsing oil may be drained into a clean vessel and let impurities settle. The engine is to be carefully rinsed also at the occasion of exchanging the summer oil for winter grade or when the original oil is exchanged for oil of a different mark or kind (different manufacturer).

When draining the rinsing oil, it is necessary to let it drip off well (at least 15 minutes). Only then screw in the draining screw and fill with fresh oil.

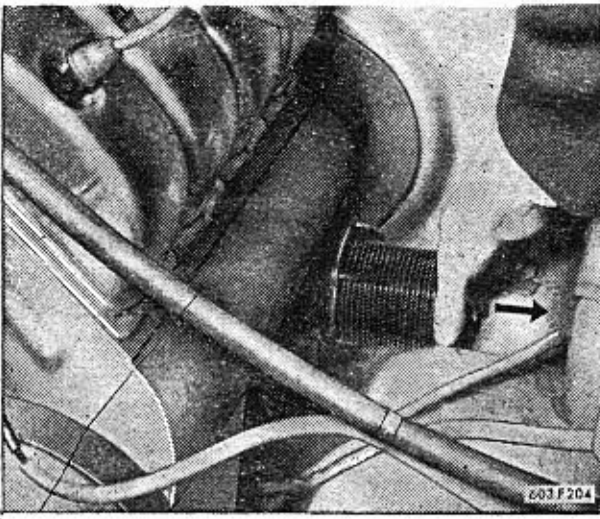
Exchange of oil in engine



M

C

41

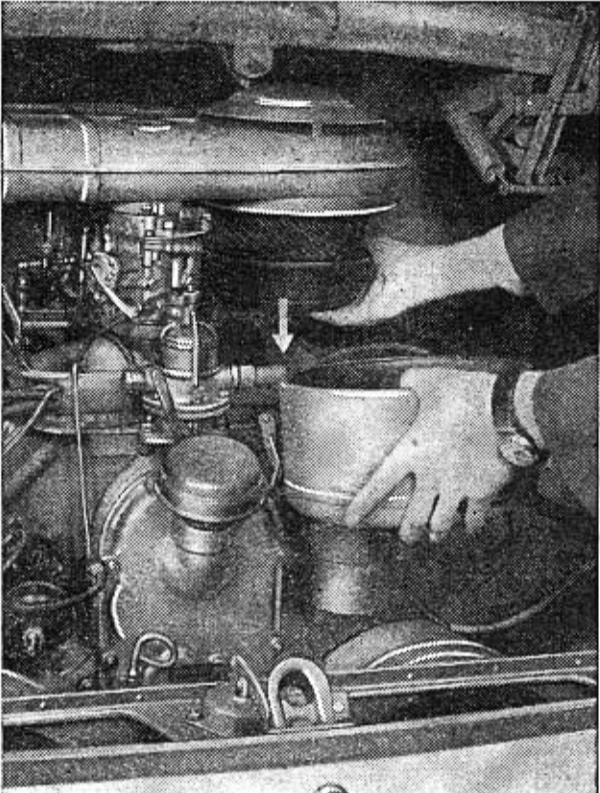


Cleaning the oil filter insert

The oil cleaner chamber is assembled in front on the R. H. side of the engine. There is access to the cleaner from the space under the engine cover.

At the occasion of each second exchange of oil in the crankcase, clean the strainer cleaning insert of the oil cleaner. The lid with insert are fixed with four nuts. Unscrew the nuts, take out insert with care and clean with fine brush dipped in petrol on both sides. Take care not to deform the strainer edges or to damage them in any other way, as the cleaner would then pass impurities into the lubrication system of the engine.

Clean also carefully the cleaner inside prior to assembly of the cleaner insert.



Exchanging oil in air cleaner

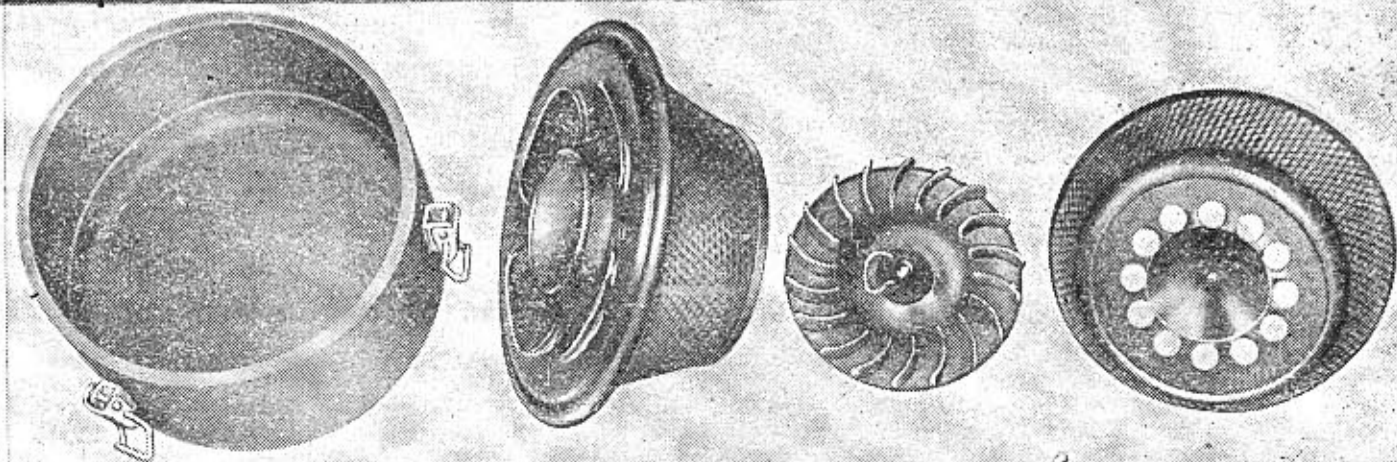
Oil in the air cleaner is exchanged regularly (at the occasion of each second exchange of oil in the crankcase). The cleaner is unassembled to its component parts in that all the three spring clips on its circumference are loosened, and the bottom vessel is pulled out together with the cleaner insert. Both the cleaner insert and the vessel inside are cleaned thoroughly with petrol. Fresh oil is filled into the vessel up to the pressed marks (when the cleaning insert is taken out). Oil must not be filled over the marks; when there is too much of oil in the cleaner, it dabbles out of the cleaner through the induct orifice in the moment the engine "fires" into the carburetter.

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Timely exchange of the oil grades in the crankcase and in the air intake cleaner is one of the conditions of the faultless winter running of the car.

The limit for exchange of summer oil for the winter grade is approximately the time, when the outside temperature sinks permanently under plus 5°C. In the Central-european climatic conditions this is the period between November and March. Do not forget to rinse carefully all the lubrication system of the engine on exchanging oil. Rinsing is to be done with the same kind of oil, that is going to be filled. Use the same kind of oil for winter and summer in the gearbox and in the rear axle housing.

Exchanging summer oil for winter grade oil



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Lubricating the distributor

The distributor shaft is lubricated with oil, after the screw 4c, marked in red paint has been unscrewed (Screwed on the distributor hub). Pour several drops of oil into the slot during the prescribed periods.*)

Further the felt insert (4a) in the distributor shaft is lubricated and the felt insert (4b), which lubricates the distributor cam. Both the parts are accessible after taking off the lid and arm of the distributor. The felt inserts must only be carefully wetted with fine oil to prevent spraying of oil during operation on contact points of the distributor or contact breaker, making them greasy.

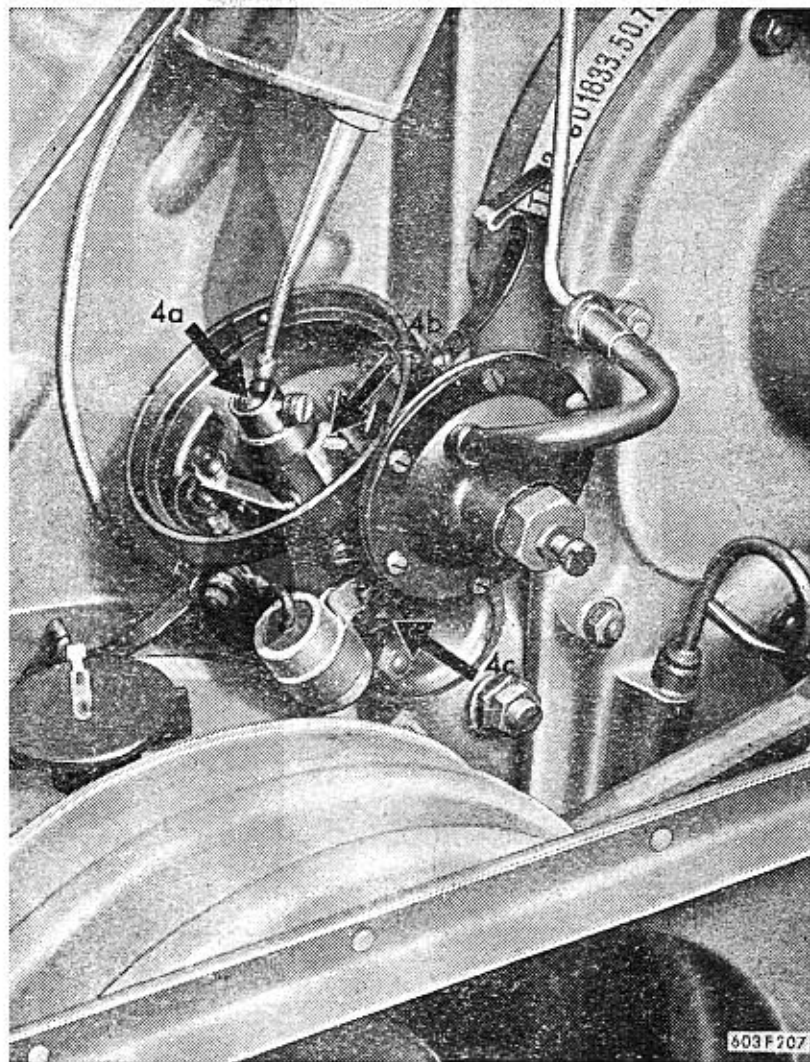
Lubricating cooling exhauster and dynamo generator

In one of the exhausters the dynamo generator is assembled. Both the pulley as well as the fan of cooling exhauster are located on the end part of the through shaft of the dynamo generator. The dynamo generator bearings are lubricated after the unassembly of the dynamo generator has been carried out in an expert shop. This exhauster does not require any other lubrication.

The bearings of the other exhauster (less dynamo generator) are lubricated in the same period as that of the dynamo generator (after unassembly of the exhauster).

Unassemble the pulley, the fan and the covers on both sides of the hub. Then fill bearing space with special consistent, heat-resisting grease.

*) On cars of previous production, the distributor shaft is lubricated by turning the lubricator lid, which is filled with consistent grease.



603 F 207

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Lubricating clutch disengaging mechanism bearing

The clutch disengaging mechanism bearing is lubricated with semifluid bearing grease. The lubricating nipple is located on the gearbox on the L. H. side next to the fluid cylinder for disengaging the clutch. After unassembly of the floor cover in the rear luggage compartment, access is gained to the lubricator (behind rear seats).

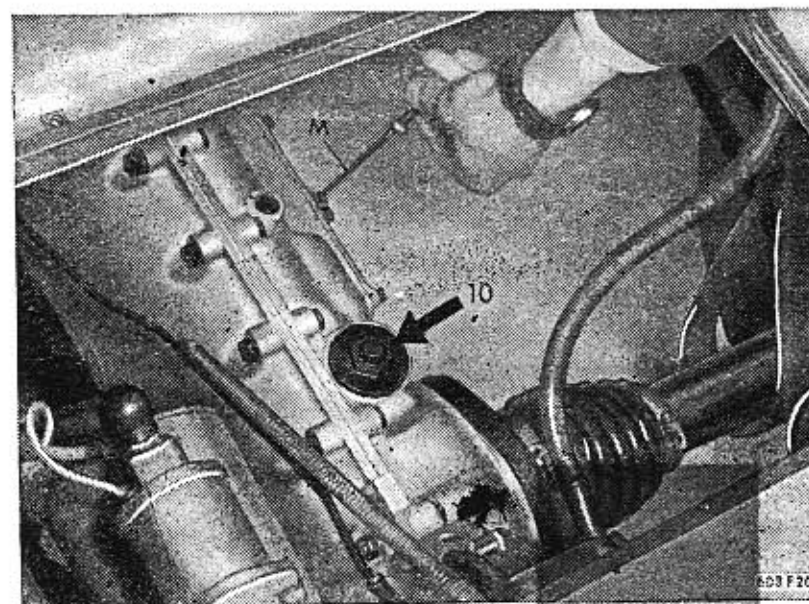
Checking and topping oil in gearbox

The gearbox and the rear axle housing have mutual oil filling. The filling orifice and the oil dip-stick are accessible after unassembly of the rear luggage compartment floor cover (behind the rear seats). The cover can be unassembled either with the upper tipping lid lifted or with rear seats rests tipped to the front.

There is a slot on the gearbox made for topping oil, which is closed with a threaded plug painted red (10). To check oil level in the gearbox, there is a dip stick pushed in, for checking the oil level (M), which is marked with gauge lines, showing the maximum tolerable oil level. The oil level checking must not be done directly after the engine has been stopped, as it takes some time before all the sprayed oil flows down into the sump. Oil is always topped to this maximum gauge line, and must not sink by more than 15 mm under the line.

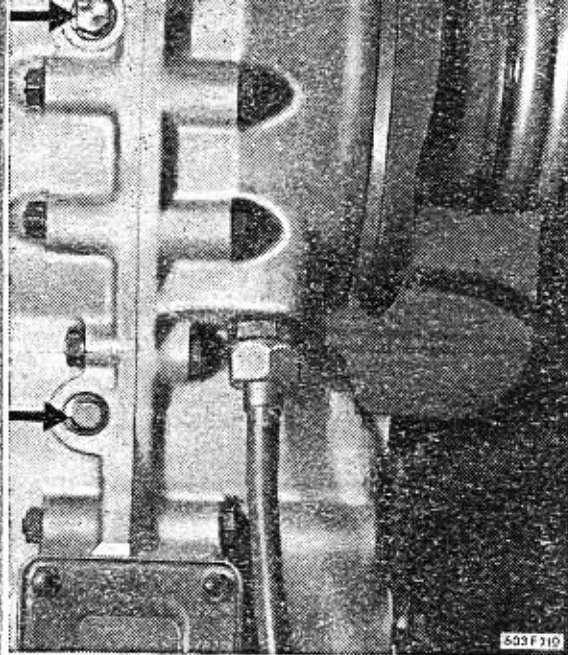


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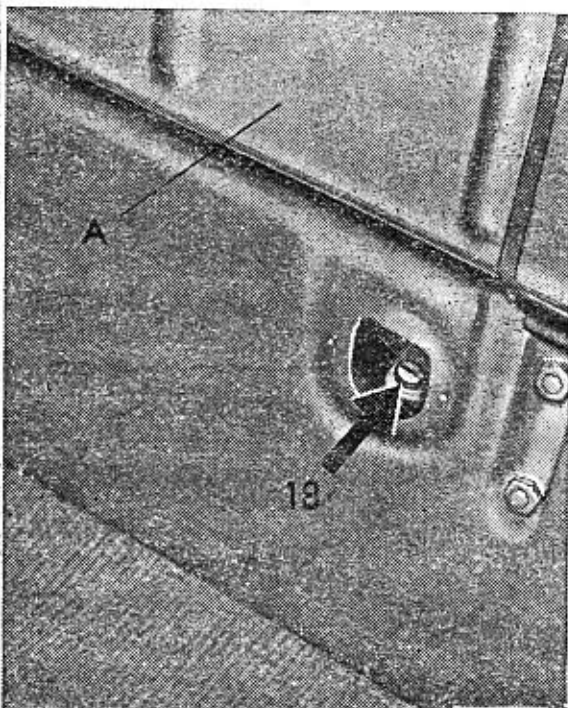
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Exchanging oil in gearbox

There is a draining screw (P) on the bottom of the gearbox for draining oil out of the gearbox and a further one (R) on the bottom of the rear axle housing (under the differential). Oil is filled into both these spaces through one mutual slot (which is located on the gearbox), but draining is to be done with both the draining slots. On exchanging oil in the gearbox and in the rear axle housing, rinse both the boxes in the same way as when rinsing the engine. Approximately 1 to 2 liters of oil are used for rinsing. Let rinsing oil drip out well, after rinsing has been finished. New oil is to be filled up to the upper gauge line of the dip stick.



Topping oil in steering box

When the lid, that is located in the front luggage boot on the L. H. side (under the fuel tank) A, is unassembled, access to the steering box has been gained. Unscrew (18) through the slot and top oil into the box. Usually only a small amount of oil is necessary.

Lubricating with consistent grease

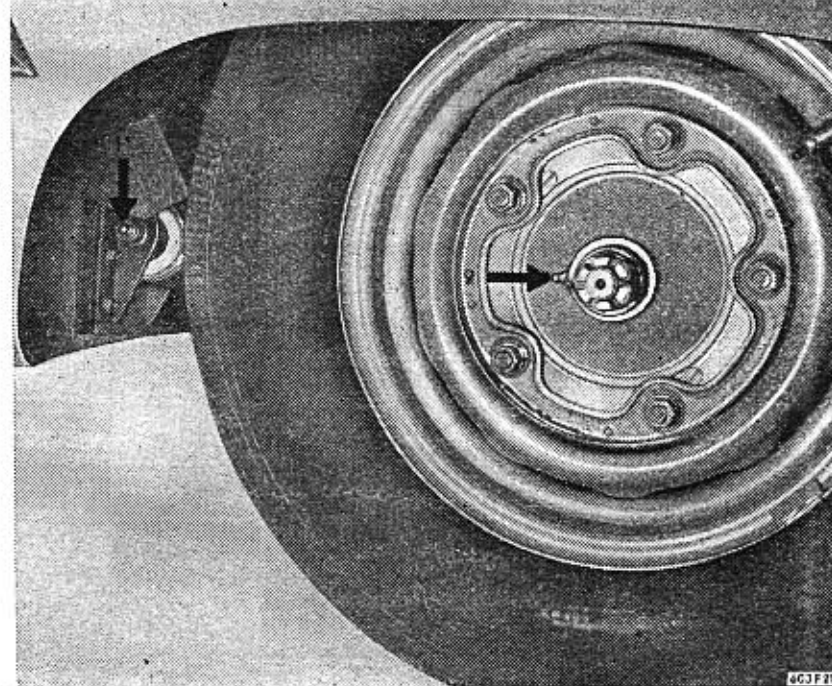
All the lubricating nipples are marked in light red paint on the latest execution of the TATRA 603 in order to make them conspicuous. It is necessary to clean thoroughly their vicinity prior to lubricating.

There is a filling of consistent grease in the hubs of the front and rear wheels, which is normally sufficient for 50 000 km (31 000 miles) driving. After this distance has been covered with the car, unassemble the hubs of the front and rear wheels, clean them thoroughly and after inspection of the hub bearings has been done to satisfaction, fill hubs with new consistent grease. It is very important to make use of the right quality of consistent grease meant for ball bearings of motorcars. The unsuitable consistent grease often solidifies during cold weather and its lubrication quality and effect is then totally insufficient.

During normal running lubrication, add consistent grease into wheel hubs after covering approximately each 25 000 km (15 600 miles).

There are lubricating nipples from the outside (9) in the rear wheel hubs, through which consistent grease is pressed into the hubs with grease gun. There are no lubricating nipples in the front wheel hubs; consistent grease is filled into the steel sheet closing lids, by which the center hole of the hubs are closed. The closing lid is only pushed on, and is taken out with the aid of a screwdriver. The consistent grease is added only if the closing lid is empty. Fill an empty closing lid only by half. If the lid were filled totally with consistent grease, the grease might press out the sealing ring on the other side of the hub, after the closing lid has been pressed on, and thus grease would penetrate into the brake. Lubricating nipples (11) of the joint hinges sliding arms are accessible from the space in front of the rear wheels (one lubricating nipple on each side of the car).

Lubricating wheel hubs and joint hinges of sliding arms



Lubricating brackets of hinged cranked arms

The hinged cranked arm of each front wheel is turn-mounted in a bush which is screwed to the body of the car from the bottom. The bush is filled with viscous transmission oil. When oil does not leak, the filling is topped only after approximately 12 500 kilometres (7800 miles) have been run. To top oil, use lubricating nipple (23), which is accessible under the car. This lubricating nipple is identical to the other nipples used for lubrication with consistent grease, but this one must not be filled with consistent grease! Oil of the prescribed kind is added with a current grease gun, which of course must be cleaned thoroughly prior to filling.

Lubricating the joints and steering bearings

Lubricate with consistent grease in the prescribed time intervals under the body of the car as follows: lubricating nipples (19) of the outside joints connecting steering rods with steering levers and the lubricating nipples (22) of the ball hinged arms joints. The lubricating nipple (14) of the joint connecting layshaft lever with steering rack is accessible from the inside of the car after unassembling the front inclined floor wall section, as well as the lubricating nipple (16) of the layshaft steering lever shaft bearings. At the same time also the bottom lubricating nipple (15) on the layshaft lever is accessible, with which both the ball joints are lubricated.

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Lubricating the parking brakes components

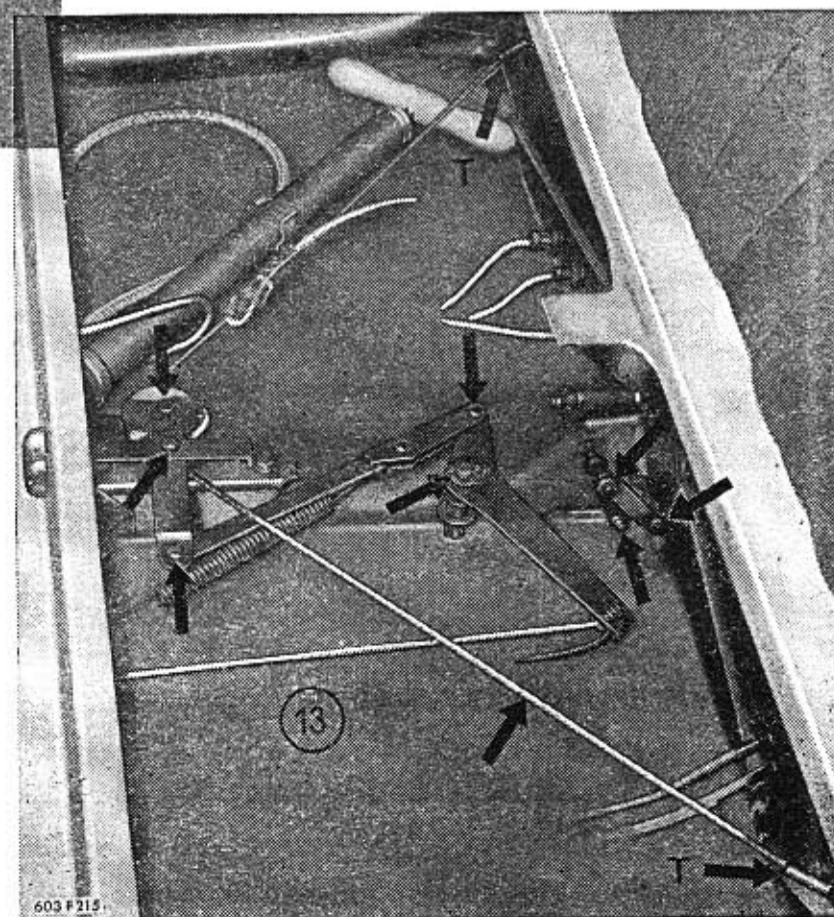
Clean the parking brake operating rod and smear it with a thin layer of grease.

In the space under the rear seat, lubricate with oil-can the equalizing mechanism pins and the cables of the parking brake. Apply grease with finger or a stick to the L. H. and R. H. side grommets (T) of the parking brake cable. Do not forget to clean the grommets and their surrounding faces prior to lubricating them.

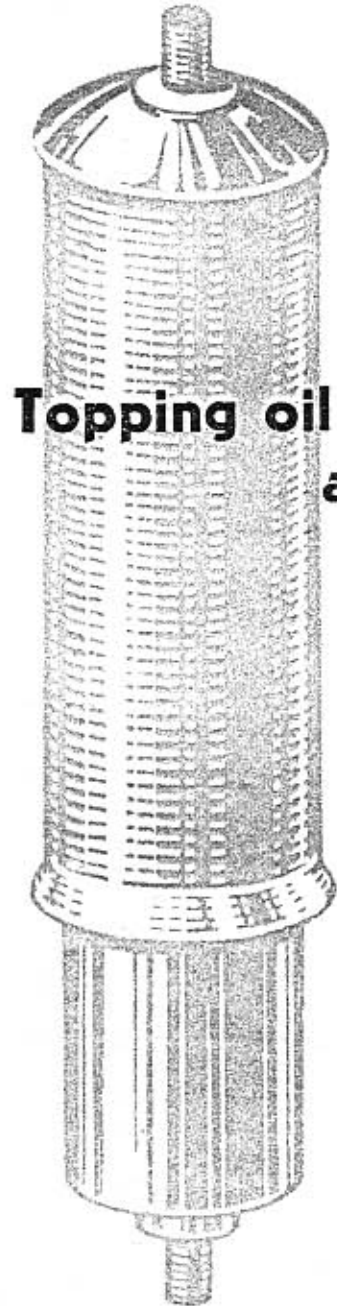
Lubricating the top telescopic support bearings

The telescopic support bearing of the front wheel comprises the oil telescopic shock absorber with turning pin and with the front coil cylindrical spring. This assembly operates at the same time in the function of semi-axle vertical pin and therefore there are ball bearings in the top part of the shock absorber. The bearing space is filled with viscous transmission oil. Oil is usually topped only at the occasion of cleaning and topping the shock absorbers.

The bearings are accessible from the front luggage boot, after the covering lids in the middle of the top silentblock hinges of the front shock absorber have been removed. The lids are only slid-in into the slots and can be taken out with the aid of a screwdriver. Oil is filled only so, that the bearing is filled with oil, but no more. The inspection plug for checking the oil level and topping oil in the shock absorber must always remain over the oil level.



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Topping oil in shock absorbers

When oil is leaking around the lid, then it is apparent, that either there is too much oil in the bearing space, or that the closing plug of the shock absorber is leaky, and thus damper oil is getting into the bearing space. The defect must be eliminated immediately, because the damper oil damages to a great extent rubber components of the silentblock.

The correct operation of telescopic shock absorbers depends on the right amount of the filled damper oil. In both the rear as well as front shock absorbers oil is not topped on current running lubrication. After finishing 25 000 km (15 600 miles), have both the front as well as rear shock absorbers unassembled in an expert shop or service station, and have them cleaned and filled with fresh damper oil.

If it is found out, that oil is leaking from the shock absorber, it is necessary to have it repaired and topped as soon as possible, because driving with a defective shock absorber is very unpleasant.

Lubricating the rear shock absorber joints

When exchange of damper oil is being done in the rear shock absorbers (after finishing 25 000 km – 15 600 miles), it is advantageous to have unassembled at the same time and cleaned as well as filled with consistent grease the bottom and top fixing joints of the shock absorbers. In regular inspections of the car check the rubber protecting bellows of the joints, that they are not damaged. The damaged bellows must be replaced for new ones. The respective joint is cleaned and filled with fresh consistent grease at the same time.

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MAINTENANCE and ADJUSTMENTS

ENGINE

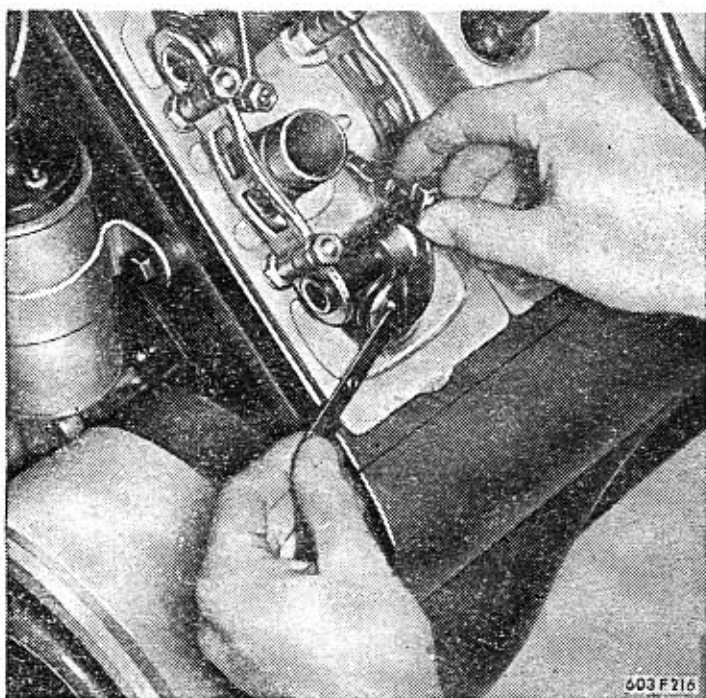
Checking and adjusting the valve play

The right adjustment of the valve play is extraordinarily important for the correct running of the engine, i. e. the gap between the valve stem face and the cylindrical face of the rocker arm. When this play is too large, the valves hammer, and besides, they do not stay open long enough as is prescribed, which will show in the decrease of the engine output. When this play is too small, the valves remain open too long or even do not mate their seats at all. Thus the function of the valves is defective and the engine output is decreased. Besides, the valve discs may get burnt either partly or completely.

For checking and adjusting the valve play it is necessary to unassemble the cylinder head covers. Each cover is fixed with one nut.

It is important to free the valve rockers while checking the valve play, so that they are not pressed by the valve gear rods and lifters, that are still under the pressure of the cam faces. Rotate slowly with the starting handle and observe opening and closing of the checked cylinder valves. Rotate with the handle until the exhaust valve closes and then the inlet one. After the inlet valve has closed, turn still by one quarter of revolution (90°).

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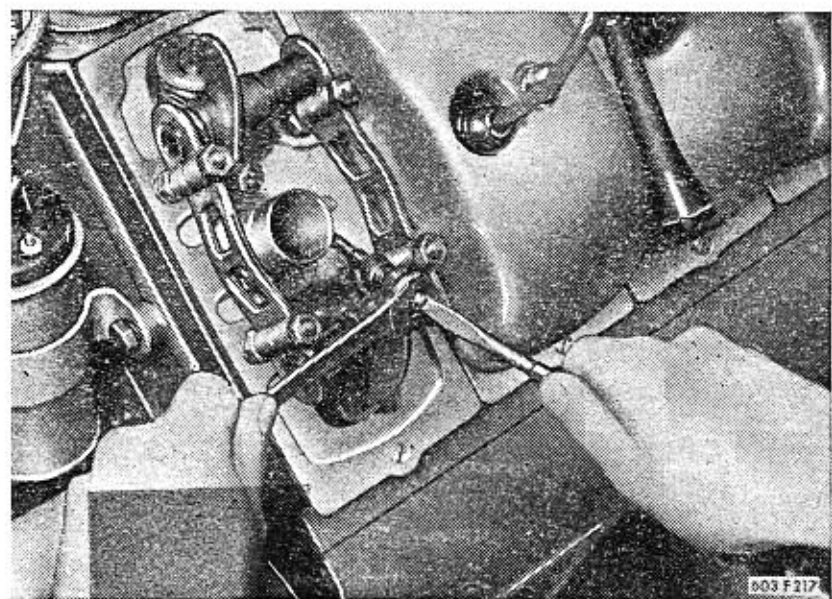


In this moment there should be a certain play between the stems of both valves and the rockers (of one cylinder head), so that the rockers can be easily moved within the range of the play.

In this position of the crankshaft a further pair of valves at another cylinder head will be equally free (in the same cylinder row). It is, however, more reliable to check gradually and adjust the valve play of one cylinder head after the other.

The play is checked with a feeler gauge (special valve play feeler gauge delivered with the accessories of the car). For the cold engine, the play of the inlet valves is prescribed to be 0,10 mm, of the exhaust ones 0,25 mm. The respective feeler gauge must pass tightly through the valve stem and the cylindrical face of the rocker arm.

When finding out, on checking the play, that it is necessary to adjust the play of one of the valves, slacken with spanner the securing nut, and turn with screwdriver the adjusting screw until the prescribed play is set according to the feeler gauge. Then hold the screw with screwdriver and tighten the securing nut. After the securing nut has been tightened thoroughly, check once more with feeler gauge whether the play has not altered due to tightening.



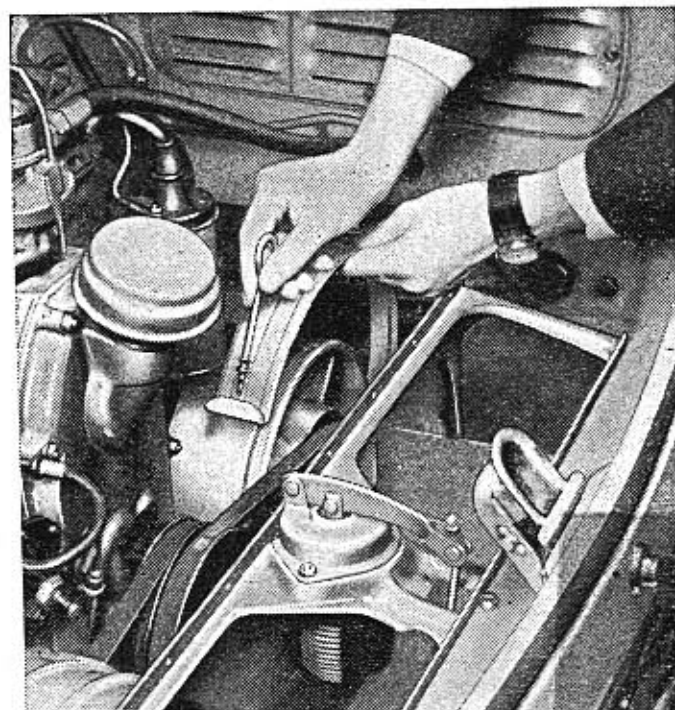
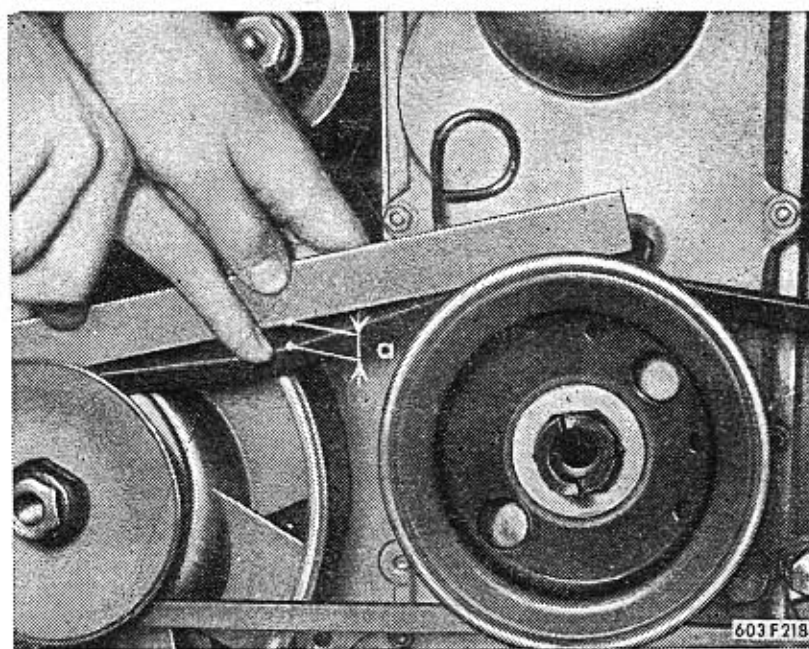
52

Tensioning fan belts

The fan belt is correctly spanned, if it can be sacked (bent) by approximately 10 to 15 mm (a) from the tangent by a fair hand pressure on the free part of the belt approximately in the middle between the both pulleys. The insufficiently tensioned belt slips. An excessively tensioned one gets worn too rapidly (it elongates and splits), and besides that the driving and driven parts' bearings (dynamo generator cooling exhaustor) are stressed unnecessarily and worn excessively. There are steel sheet covers over the driving fan belts, fixed with two screws that are equipped with wire eyes. Unassemble both these covers prior to tensioning the fan belts.

There are two faces for spanner on the circumference of the pulley shim. Hold the shim with spanner, hooked on these two faces, and with a second spanner unscrew the fixing screw. The belts are spanned in such a way, that one or more distance washers are taken off the shaft between both the pulley halves, and put on the outer side of the pulley. Thus the pulley halves come nearer each other and the fan belt operates in the groove at larger diameter. The result is identical to that of assembling a pulley of larger diameter.

After every taking-off of distance washers the fixing screw must be tightened well, and the crankshaft turned several times, so that the fan belt settles in the pulley groove. Only then check the tensioning of the belt.



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Exchanging fan belts

An excessively oiled belt may slip, even if correctly spanned. Neither does a split (damaged) fan belt ensure the faultless transmission of torque. Therefore check at every occasion the state of the fan belts, and exchange timely that one, which shows any trace of damage.

Only the original, special fan belts are to be used for replacement purposes, that are delivered by the factory! Never make use of current commercial quality fan belts, even if their length and section are identical. Special fan belts are made for the TATRA 603 cars, which are resistant against the influence of oil and air up to the temperature of 90° C. Current quality belts would deteriorate rapidly, as the fan belts of this car operate in the stream of hot air penetrating from the engine.

To exchange the belt, it is necessary to unassemble the cover over the belt and unassemble the belt pulley (as must be done for tensioning of the belt). The new assembled Vee belt must be tensioned correctly.

Checking thermostat function

When the metal bellows give way during running of the engine, a valve in the outlet channel of the cooling air will be tipped, and the air outlet remains permanently closed. Overheating of the engine is resulting, and makes itself apparent by a clear 'ringing' of engine, which will inform the driver about the defect in the engine cooling regulation.

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Should such a defect take place en route, secure the regulation valve so that it remains open. There is a circlip in the rod of the valve assembled for emergency case, which is put into the bottom slot, after the valve has been completely opened.

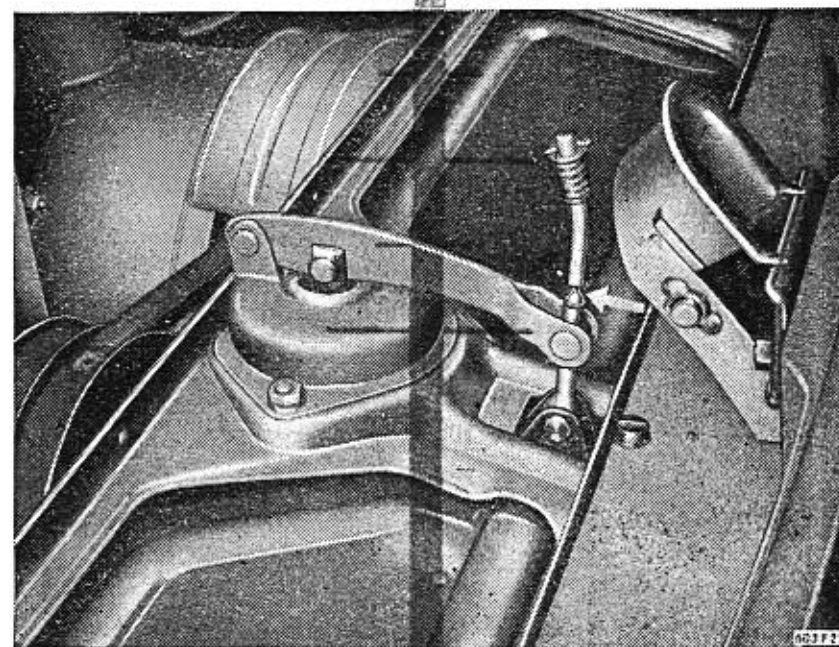
In summer it is possible to drive even a longer time with the thermostat out of operation. In winter, however, it is advisable to replace the defective thermostat for a new one as soon as possible. This is with view to the durability of the engine for which it is important that its temperature is automatically regulated.

For this reason check from time to time whether the regulation operates correctly. After a longer run step out of the car, open the engine cover and find out, whether the valve is totally open. Only in a while, after the engine has been stopped, the valve should slowly close.

With ambient air temperature over 15° C the regulation valve should be, with engine running, permanently fully open and must not prevent exit of hot air from the engine. At such higher temperatures of ambient air (during summertime) no hot air is to circulate in the engine space, as this would cause overheating of the engine. When the valve does not stay open during running of the engine, it is necessary to have the automatic regulation of cooling adjusted (repaired) in an expert shop.

59° F

15° C



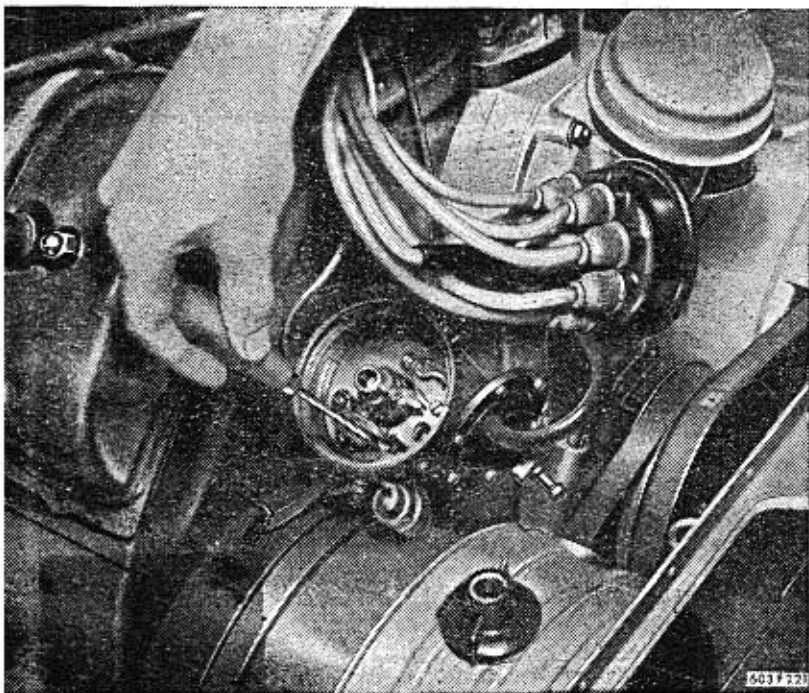
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Checking and setting the contact breaker



The contact breaker is accessible after unassembly has been done of the distributor cover. There is to be a gap of 0,2 to 0,4 mm between the completely open contact breaker contact points. The size of the gap is checked with feeler gauges (from the tool kit delivered with the car). Both the contact points must be even and clean. Burnt (uneven) contact points are repaired with special fine contact breaker file. With insufficient experience do not repair and ask assistance of an expert. Too much burnt contact points disclose defective operation of the condenser, which is assembled on the distributor. When the gap between the open contact points is found incorrect, slacken the securing screw of the fixed contact point and turn with screwdriver the adjusting excenter until the correct gap is gained (0,15 to 0,20 mm). Then tighten the securing screw firmly. Revolve the engine crankshaft several times with the starting handle, and then check again the contact breaker points gap.

No kind of grease or oil must penetrate on the contact points (e. g. oil from the felt lubricating insert of the contact breaker cam). When cleaning the contact points with a piece of cloth soaked in petrol, the distributor must not be closed prior to the complete evaporation of petrol, as otherwise the risk of an explosion is being run. Neither must it be forgotten to switch off ignition, before cleaning with petrol is started!



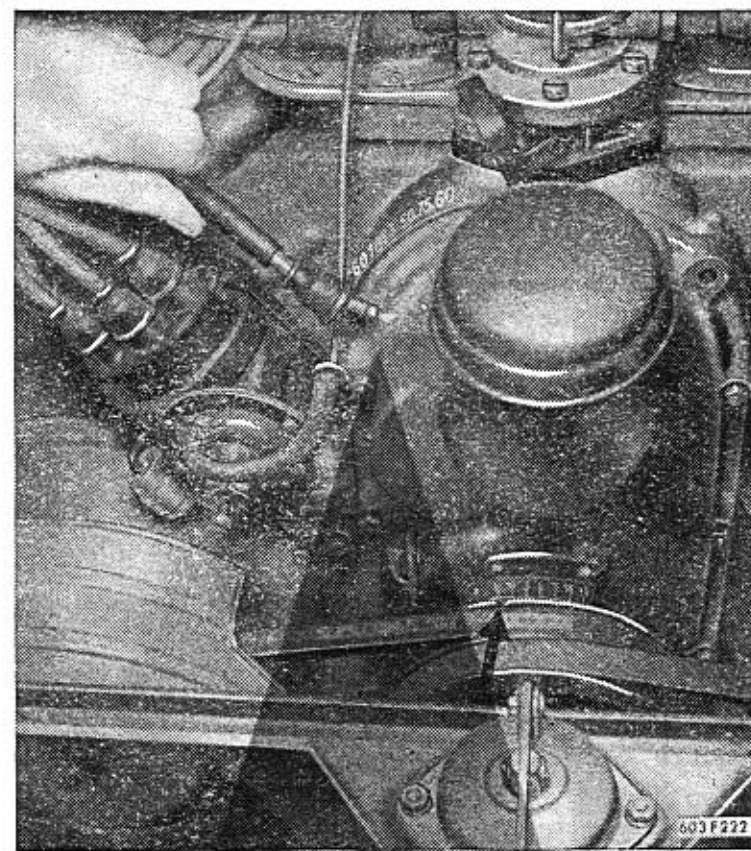
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The distributor is equipped with an automatic, underpressure and mechanical ignition advance regulation. The **basic** ignition advance (the ignition point) is adjusted for fuel 72 octane or more, to 13° before the T. D. C. of the piston, for fuels with lower octane to 10° before the T. D. C.

For the purpose of ignition advance setting control, there is a scale on the engine rear cover, and a gauge line on the edge of the pulley.

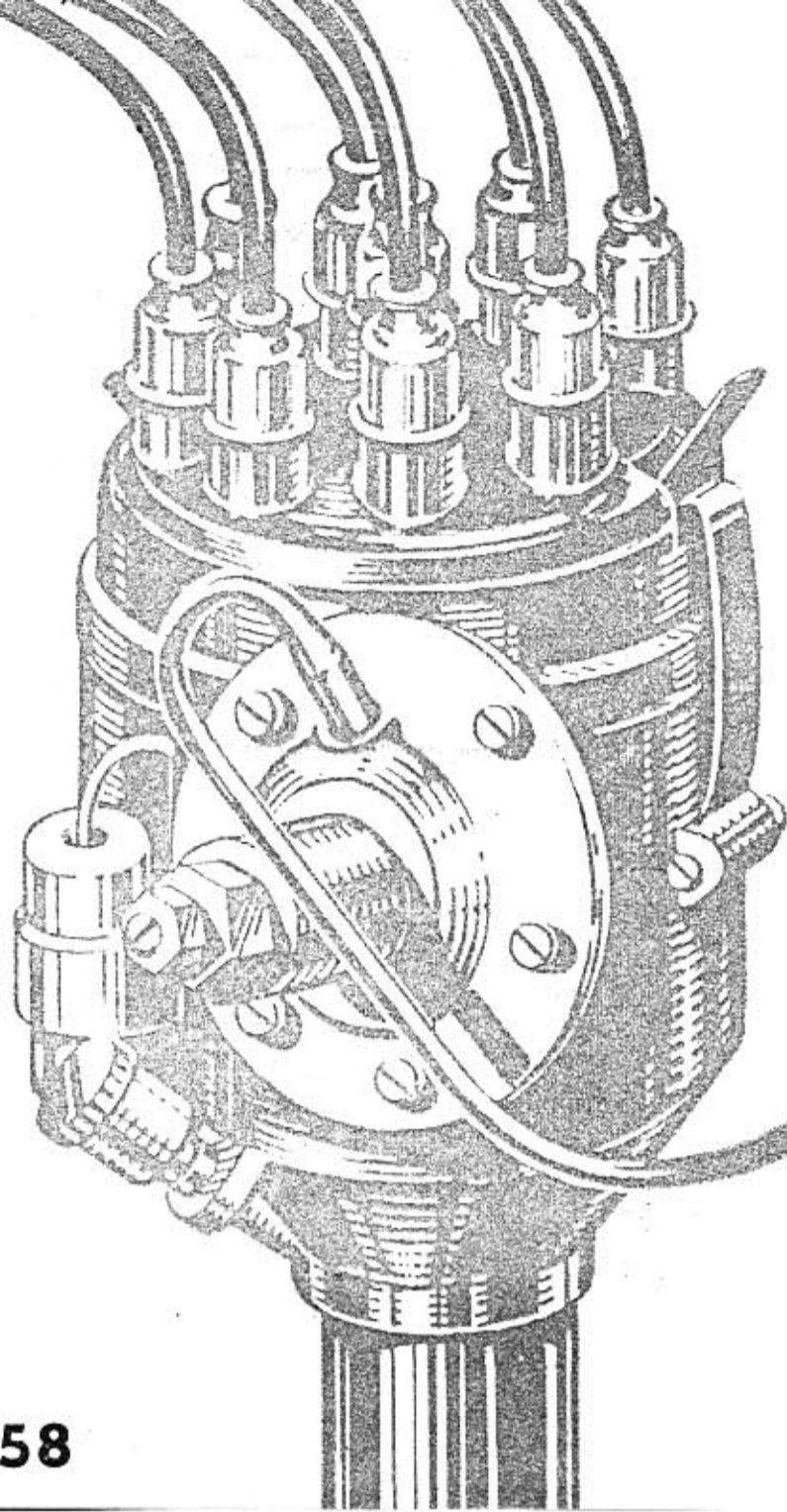
Both the gauge line and the scale are to be used for checking purposes of the ignition instant of the 1st cylinder only (i. e.) in the first cylinder at the flywheel on the R. H. side, when observing the engine in the driving direction. Therefore unscrew spark plug of the 1st cylinder head, connect it with its electric wire, and place the plug on a metal face of the engine. Then switch on ignition and revolve with the starting handle the engine crankshaft, until a spark is produced between the electrodes. In this instant the gauge line on the pulley should exactly point to the prescribed degree of the basic ignition advance, marked on the scale.

When this is not the case, revolve the engine crankshaft by two revolutions. Stop revolving in the instant, when the gauge line is nearing the start of the scale. Then pull out the wire from the middle connection in the distributor cover (lead of high tension current from the ignition coil), and holding the wire end in the distance of approximately 3 mm



**Setting
the ignition advance**

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from some metal part of the engine, slowly revolve the engine crankshaft with starting handle. Stop revolving immediately when a spark has been produced between the engine metal surface and the wire. In this instance the gauge line on the pulley should point to the prescribed degree of the basic ignition advance on the scale (before T. D. C.).

When incorrect setting of ignition advance is found out on checking, the gauge line on the pulley is set exactly against the prescribed grade of ignition advance on the scale, the small nut under the distributor bush is slackened and the whole distributor is slightly turned until a spark is produced between the electric wire and engine. In this position the distributor is to be fixed by tightening the small nut. Check correct setting once more prior to tightening the nut firmly. The distributor arm is turned anticlockwise (to the L. H. side). When the distributor is turned in the same direction, ignition advance is decreased; when turning in the opposite direction (to the R. H. side), the ignition advance is increased.

The unassembled distributor cannot be placed incorrectly on its assembly just for the fact, that the driving clutch at the end of the distributor shaft is assymetric, and fits in the right position only.

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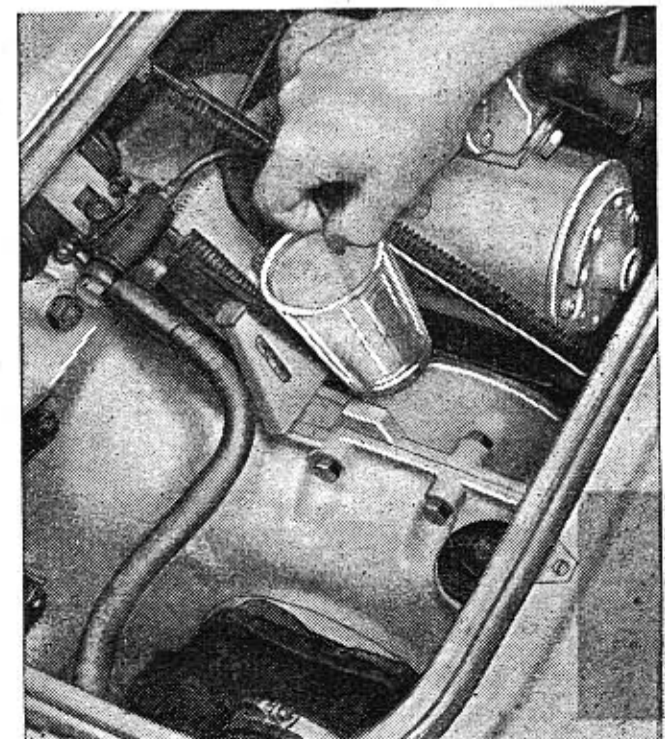
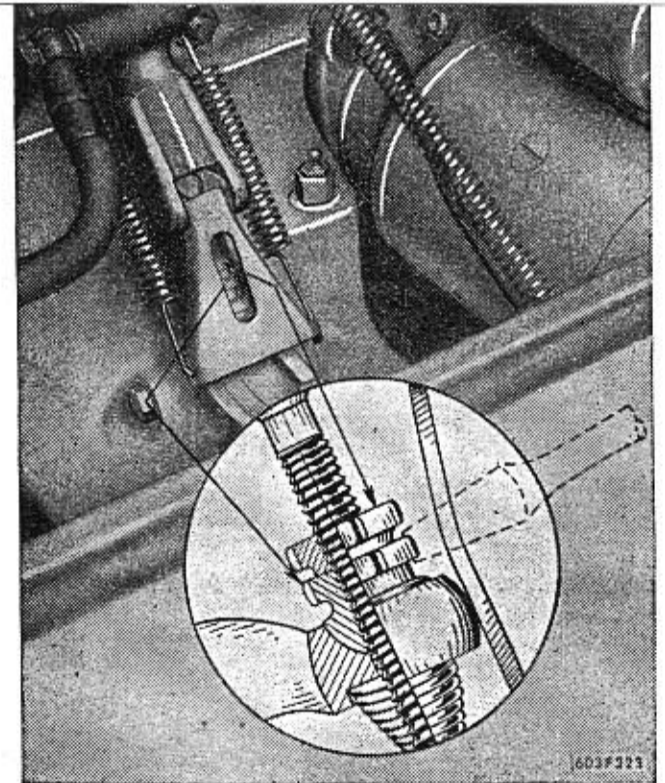
Adjusting the clutch

The clutch operating pedal should have a dead travel of approximately 20 to 25 mm. When the play (dead travel) of the pedal is larger or smaller, the clutch must be adjusted. The adjusting mechanism is accessible when the floor cover has been unassembled of the small luggage boot (behind the rear seats).

The dead travel of the clutch operating pedal is adjusted with the grooved nut (see part in circle), which is secured with another grooved nut. The safety grooved nut is slackened with a screwdriver, which is applied through the slot in the cover. Also the adjusting nut is screwed in or out with a screwdriver. By turning to the R. H. side the dead travel is enlarged, by turning to the L. H. side, the dead travel of the pedal is decreased.

The clutch disengaging mechanism is governed with fluid-pressure mechanism (i. e. hydraulically). Should air penetrate into the fluid mechanism, the clutch is not disengaged at all, respectively it is disengaged insufficiently. Then it is necessary to vent the leaked-in air in a similar way as bleeding of air in brakes is done (see page 71).

During venting of the clutch disengaging mechanism, the clutch operating pedal is depressed several times. The fluid clutch disengaging cylinder is assembled on the gearbox over the adjusting mechanism of the clutch and is also accessible after unassembly of the small luggage boot behind the rear seats. There is the same air venting screw on the cylinder as on the brake cylinders. The equalizing brake fluid cylinder is common for the brakes and the clutch operating mechanism (it is only divided with a transverse wall).



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CARBURETTERS

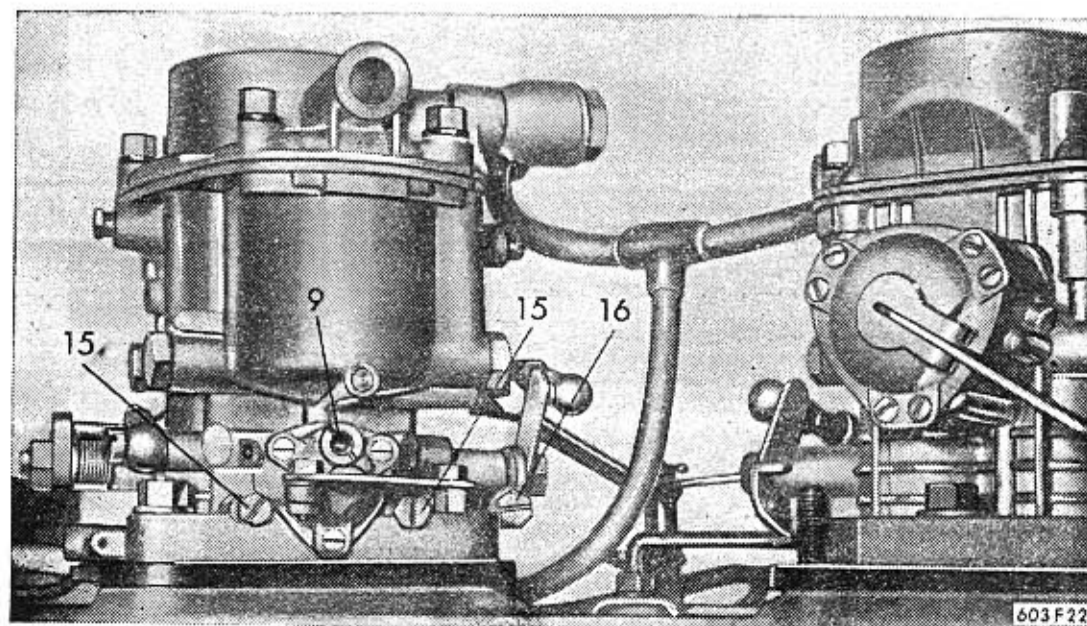
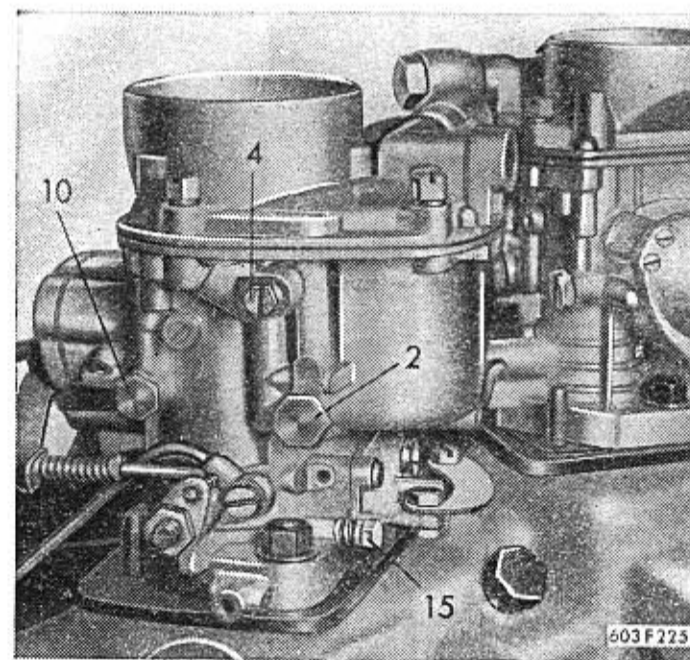
The TATRA 603 engine is equipped with two double down-draught carburetters mark JIKOV 30 SSOP. In each of the double carburetters, in fact two simple carburetters are joined, that have a mutual float chamber, acceleration pump, choke, enrichment arrangement and the intake flange for mounting the carburetter air cleaner. There are, however, two individual main dispersing systems in the double carburetter, two idling run systems, two throttle valves and two connecting flanges. Both the carburetters are turned in a slightly inclined angle in the induct manifold flanges, in order to attain equal induct manifold length to individual cylinders. The throttle valves of both the carburetters are connected with rods to each other and then with a mutual tie-rod system to the accelerator pedal.

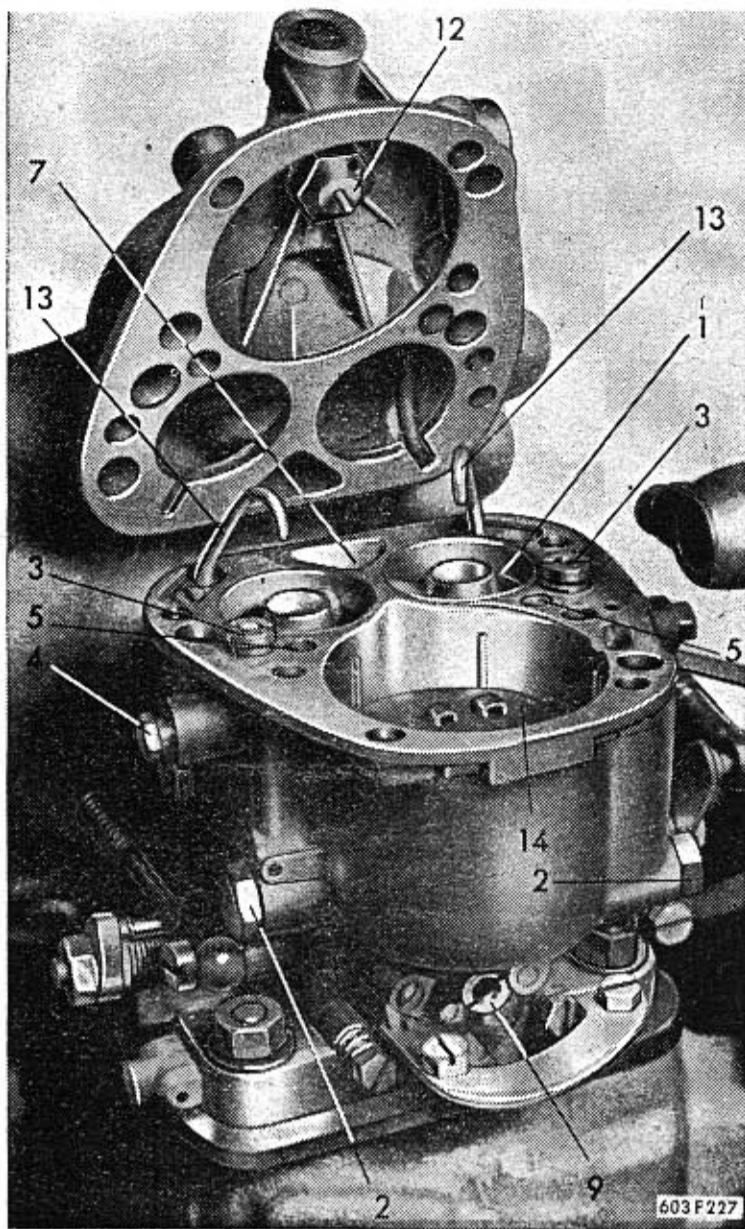
When starting the cold engine, the choke of the front carburetter is put into operation by pulling the respective button on the fascia, which is connected to the carburetter with cable. The rear carburetter choke is not connected to the cable, and thus is not operated by the button on the fascia. It is put into operation only in exceptionally severe frosts, when applied choke of the front carburetter is ineffective at starting the engine. (See page No 35). The choke is in fact a small carburetter of its own, which delivers very rich mixture to engine during starting. The composition of fuel mixture is influenced by the jet 8 and the jet

correction air bleed 9 (see illustrations on page No. 62). The prepared mixture is conducted through ports to both the flanges of the double carburetter. The choke function depends on the underpressure in the induct manifold; therefore do not depress accelerator when starting the cold engine with assistance of choke.

When the engine is idling, the engine receives the necessary mixture from an individual carburetter system composed of jet 4, pilot air bleed 5 and idling run screw 15, by which the richness of this mixture is regulated to a certain extent. The mixture for idling run of the engine is not so rich as that one for starting the engine, delivered by the choke, but it is richer than that, which the engine needs whilst operating under load. In each of the double carburetters there are two independent systems for idling run (each part having its own idling run system). The idling run revolutions (the necessary small basic opening of the throttle valves) are adjusted with one adjusting screw 16. The idling run carburetter adjustment is described on page No. 67.

TATRA 603





With engine partly or fully loaded, the fuel mixture is delivered by the main dispersion system of the carburettor. In each double carburettor there are two of these equal and independent systems. Each of these systems is composed of the main jet, screwed in carrier bolt 2, main jet correction air bleed 3, emulsion tube, venturi (difuser) 1, and injection lug. The main jet correction air bleed 3 is screwed into the thread of the top part of the emulsion tube and together with it into the carburettor body. Air bleeder 7 delivers additive air into the space between the venturi and the main channel wall of the carburettor. The main jets 2 and the main jet correction air bleeds 3 adjust the economic composition of the fuel mixture even at part load of the engine, when the accelerator pedal is not fully depressed yet.

When the engine is fully stressed, the fuel mixture gets enriched automatically with a device that is mutual for both the carburettor parts. This enrichment device is assembled in the acceleration pump. The device is mechanically connected with the throttle valves of the carburettor (by rod and lever of the acceleration pump). The richness of the mixture is determined by the jet 6 and the aid bleeder 7. The start of mixture enrichment depends on that, into which slot of the acceleration pump rod the split pin is fixed. The split pin should be (correctly) put in the

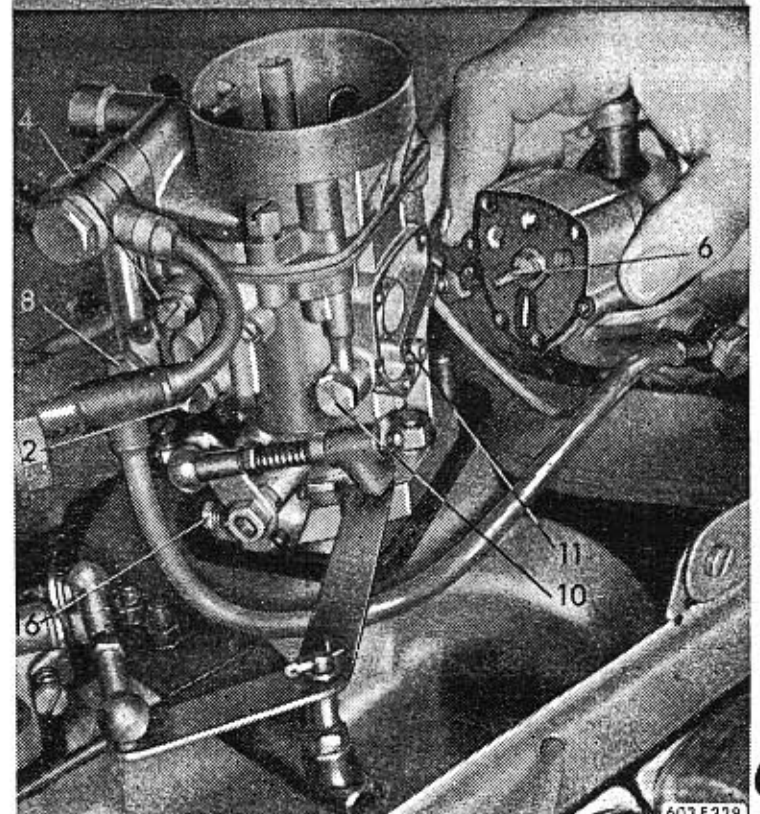
last slot. The original adjustment of the start of enrichment of the fuel mixture should not be altered, as thus also the amount of fuel sprayed by the acceleration pump is altered.

On depressing the accelerator pedal the mechanically operated diaphragm acceleration pump sprays with injectors 13 a smaller amount of fuel over the dispenser, enriches the mixture and enables thus a rapid alteration of low revolutions to high ones (acceleration). The jets 10 influence the amount of the sprayed fuel. Besides that the carburettor is equipped with a by-pass arrangement with jet 11, through which the fuel flows back into the float chamber, when the accelerator has been depressed slowly. Thus when the accelerator pedal is depressed slowly and gradually, no additive fuel is sprayed by the acceleration pump or only a negligible amount. By the slow and gradual depressing of the accelerator pedal the fuel consumption is thus decreased to a certain extent.

The sizes of all the adjusting elements and parts (jets, air bleeds, venturi) are given according to the results of many laboratory and practical tests. Any tampering with the original basic adjustment of the carburettors prescribed and done by the factory has detrimental consequences. By altering the original adjustment the fuel consumption is usually increased, and the running of the engine deteriorates either in low or high revolutions, respectively the altering from low to high revolutions etc.

When the normal adjustment of carburettors is not suitable in some extreme climatic conditions (e. g. in the tropics) or for some kinds of petrol, have the carburettors adjusted exclusively by the special TATRA 603 cars service or by the JIKOV carburettors service station.

Basic adjustment of carburetters (jets)





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Cleaning the carburetters (jets)

The basic adjustment of each of the two double downdraught carburetters JIKOV 30 SSOP is as follows:

1. Venturi (difusor)	19	
2. Main jet	135	
3. Main jet correction air bleed	480	} per two pieces each
4. Idling run jet	62	
5. Idling run correction air bleed	390	
6. Jet of enrichment	50	
7. Enrichment device air bleed	1,5	
8. Choke jet	225	
9. Choke air bleed	4,5	
10. Acceleration jet	42	(2 pieces)
11. By-pass jet	62	
12. Needle valve	2	

In the first column there are numbers indicated in brackets, by which the jets are marked on the illustrations (see page No. 61–63). The sizes of the jets and air bleeds are marked according to the ČSN standard. The marking of the calibrated slots is stated according to the amount of water (in cc), which flows through the slot at the head of 1 metre.

The carburetters do not require any current running cleaning in regular intervals, when pure and clean fuel is used. The most frequent cause of a faulty function of one of the carburetters is a part or complete stopping of one of the jets by impurities contained in the fuel, water in the float chamber or a leaky flange or some thread or pipe union.

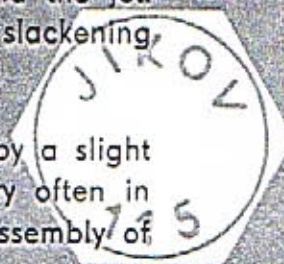
Stopped idling jet (4) causes irregular running of the idling engine, the engine stops when running in low revolutions and the warm engine starts with difficulty. There are two idling jets on each carburettor, which can be unscrewed from the outside.

Stopped mixture enrichment jet (6) will manifest itself in that the engine lacks sufficient power with accelerator pedal depressed, and the car does not reach higher speeds. With accelerator pedal totally depressed, the engine usually "fires" back into the carburettor.

To repair this defect, unscrew 3 screws fixing the acceleration pump (marked with gauge lines on the pump lid), take off carefully the pump and unscrew jet. The jet is to be taken out in the vertical position (with the jet upwards), to prevent falling off of the sealing ring, spring and valve of the enrichment device, which all are located behind the jet. Screw in and tighten with reason the cleaned jet, to prevent slackening of the valve seat.

Stopped by-pass jet (11) will make itself apparent by a slight increase of fuel consumption, that will not be observed very often in normal running. The by-pass jet is also accessible after unassembly of the acceleration pump.

Stopped acceleration jet (10) will show by firing of the engine back into the carburettor when accelerating (at rapid depressing of the accelerator pedal). Also the acceleration of engine will markedly deteriorate and especially the transition from low to high revolutions. The same influence is apparent with stopped injector slots (13). There are two acceleration jets in each accelerator, and they are accessible from the outside. There are also two injectors. Prior to the assembly of the injectors, unassemble the carburettor lid, which is fixed



with four screws. Each injector is fixed with one screw. Take out the injectors very carefully in order to prevent falling-off of the return valve ball.

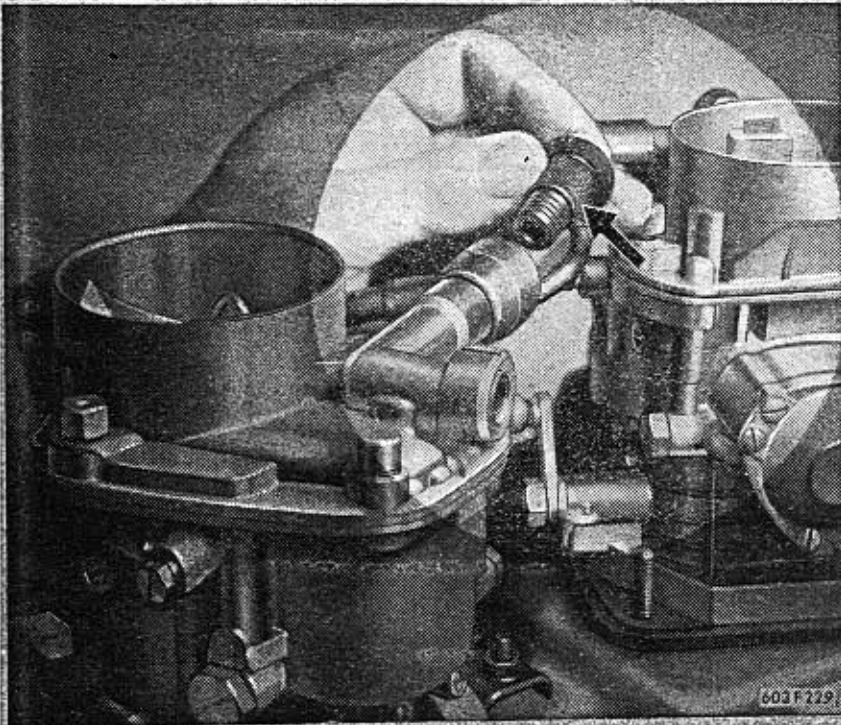
The stopped acceleration jet or injector is traced, when the oil air cleaner is unassembled, and the carburetter throttle valves are rapidly fully opened. When no additive fuel sprays from one of the injectors, the respective injector outlet slot or the respective jet is stopped.

All the rest of jets and air bleeds get stopped only exceptionally with impurities due to the fact that their slots are relatively large.

All the jet slots are cleaned exclusively by blowing. Never use wire for cleaning the jets, as the slots would be thus enlarged and the basic adjustment of the carburetter violated.

When fuel is flowing out of the carburetter, the needle valve (2) is usually leaky. The needle valve leakage is usually caused by impurities, that got stuck in the needle valve seat. To eliminate this defect unscrew the carburetter lid, unscrew the valve, wash it in pure, clean petrol and blow through. A damaged valve cannot be repaired and must be replaced with a new one.

When the fuel supply to carburetter is disconnected completely or partly, the fine cylindrical strainer in the bolt of the hollow supply screw is soiled with sludge most probably.

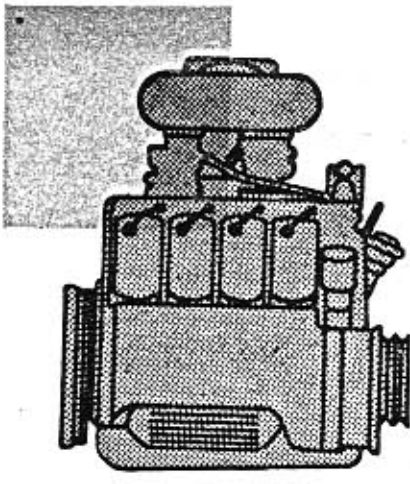


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The mixing ratios in the carburetter are correctly set in the factory by means of the respective jets. The originally employed set of jets must not be altered. The idling run is adjusted during current running only with the regulation screws (see illustration on page 61). There are two screws 15 in each of the carburetters for air intake regulation (mixture richness) and one adjusting screw 16 at the throttle valve. The engine is equipped with two double carburetters, so that totally there are four idling run systems. Consequently the adjustment of the idling run influences to quite an extent the total fuel consumption of the engine. The idling run of the engine is adjusted as follows:

1. Start the engine and let it run in low revolutions, until it gets warm to its normal working temperature.
2. Tighten a little the adjusting screws 16 on both the carburetters (tightening to be done equally on both carburetters), in order to increase slightly the engine revolutions.
3. Tighten totally all the screws 15 on both carburetters. Then slacken all the four screws 15 equally (each screw by the same number of threads), until the engine run starts to be jerky. Then all the screws are again tightened carefully and equally, always by a small part of revolution. During this operation the jerky running of the engine will disappear gradually, and the engine revolutions will increase slightly, until the running becomes regular. All the screws 15 on both the carburetters must be slackened by exactly the same number and part of revolutions (in thread) in order to achieve equally rich mixture supply to all the engine cylinders. When the fuel consumption is required to be in the optimal range, the screws 15 may be slackened from their position of total tightening only by 180 to 360° (all of them exactly equally).

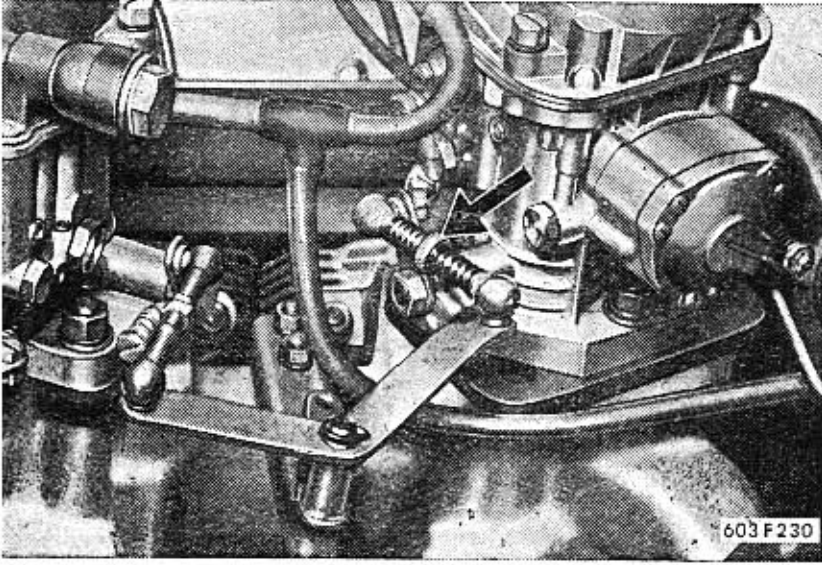
Adjustment of idling run



4. By screwing the screws 16 the revolutions of the engine are then decreased, until the lowest revolutions are obtained for the idling run (the engine must be running regularly without any trace of jerking and misfiring).
5. When the engine running is again jerky, after the revolutions have been decreased with screws 16, try to screw-in slightly all the screws 15. These screws must not be totally tightened of course, during operation of the engine, as all the air induct channels of the idling run system would be completely closed.

Adjusting the throttle valve rod

The correct adjustment of the rear carburettor throttle valve rod, respectively the length of this tie-rod is very important in order to obtain exactly equal timing of closing and opening of the throttle valves of both the carburetters. To adjust the tie-rod length, there is a grooved nut located on the connecting tie-rod, which is equipped with R. H. and L. H. thread. The connecting tie-rod is prolonged or shortened by screwing the nut to the R. H. or L. H. side. When the length of the connecting tie-rod is correctly adjusted, the adjusting screws of the throttle valve levers of both the carburetters must seat to stops. Make sure about this fact by depressing



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the accelerator pedal, slowly release it and then press with finger the throttle valve lever. When it is possible to move the lever of one of the throttle valves, it does not rest yet with its adjusting screw on the stop and consequently the length of the connecting tie-rod must be adjusted once more.

Prior to the definite adjustment of the throttle valve rod the correct adjustment of idling run of both the carburetters must be carried out. When adjusting the idling run, it is usually found necessary to alter the length of the connecting tie-rod so that it does not prevent the seating of the adjusting screw to stop.

Checking the choke function

During regular inspections of the engine make always sure, whether the choke of the rear carburettor closes completely (after the governing button on the fascia has been totally pushed in). Inspect also the closing of the hand operated choke of the front carburettor. Should any of them fail to close completely, the fuel consumption is considerably increased. It may also happen, that the choke remains completely open and cannot be closed at all. The cause of this defect is usually the fallen out safety ring at the end of the choke tie-rod in the carburettor. The plate at the tie-rod end slides and blocks the tie-rod with the choke piston.

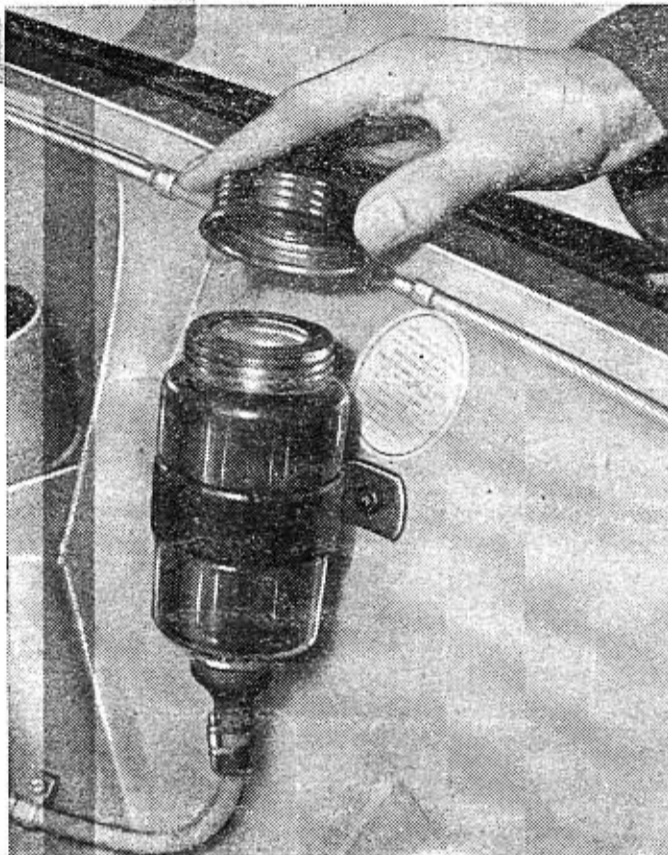
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BRAKES

The car TATRA 603 attains cruising speeds, that have been reached exclusively by some sports and racing cars of the same cubic capacity of cylinders only a short time ago. Speed has become the symbol of the present time. You too will drive rapidly. Your rapid and safe driving are, however, dependent of the perfect functional condition of the brakes of your car. The more rapid a car is, the more important are the dependable and efficient brakes. In large speeds the right efficiency of brakes are often the question of life and death for both the driver and passengers; the brakes need not fail at a fatal occurrence in result of an incidental situation that may easily happen on the road or a highway. It is sometimes bad enough, that the brakes act with a slightly less efficiency than the driver is used to. It is hazardous to depend on good luck or a mere chance, and consequently, it is reasonable to pay a little attention to the brakes of a rapid automobile.

Topping brake fluid

The brake fluid tank is located in the front, large luggage boot (on the L. H. side). The oil tank of the cars manufactured previously is divided into two spaces with a transverse wall; and supplies simultaneously both brake circuits as well as the hydraulic mechanism for clutch disengagement. Brake fluid must be topped over the transverse wall, so that both

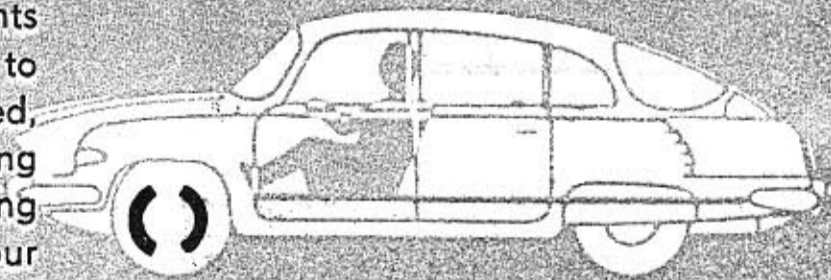


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the spaces are filled and topped! The cars of the latest production, that are equipped with a single-circuit brake system, employ a transparent oil container, which has no transverse wall any more. Check the braking fluid level in the equalizing container on each second oil exchange in engine crankcase (sump). Only the quality of fluid is used for topping, which has been prescribed by the factory. It is mostly prohibited to mix two different kinds of brake fluids, because each can be of different composition. A mixture of such fluids may be detrimental especially to the rubber sealing parts and components of the brake system. For the same reason it is not allowed to fill any kind of brake fluid into the braking circuit, neither is it allowed to fill any mark of this fluid until it has been tested in respect to its effect on the rubber components of the brake system (especially the sleeves, seals). Prior to filling brake fluid of a different mark to that originally filled, it is unconditionally necessary to drain the original filling from the complete braking system. Slacken the bleeding screws (venting screws) of the brake cylinders on all four wheels, and with repeated depressing of the brake pedal press out all the brake fluid from the braking system. (Similarly as done on venting — see the following). Then tighten the air bleeding screws, fill the equalizing vessel with spirit and drain after a few minutes. Spirit (alcohol) rinses all the braking system thoroughly, removing all the remnants of the originally filled fluid. Only then fill the braking system with a new brand of brake fluid and vent the wheel brakes.

When compressible air penetrates into the system, it causes a dangerous decrease of brake efficiency. The requi-

**Air bleeding the
brake system**

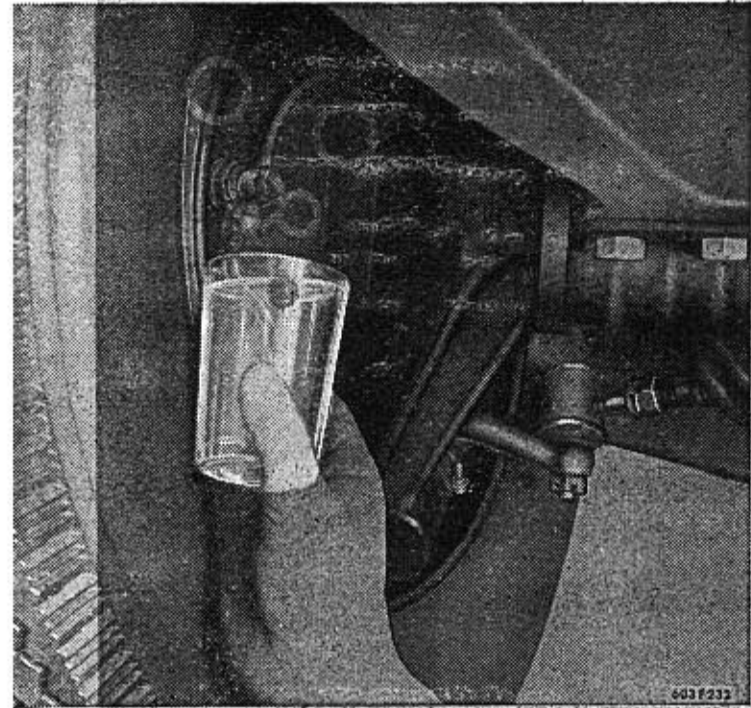


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red force is usually not obtained under such conditions by the normal depression of the braking pedal, unless the pedal is depressed by several rapidly repeated "pumping" of the pedal. This way of braking naturally requires a substantially longer time, and thus the stopping distance is much longer. Air penetrates most frequently into the braking system when it is omitted to top brake fluid in time, into the equalizing vessel, or it also may penetrate into the system through leaky joints of the tubing. Obviously, it also gets in, when any components of the braking system are dismantled. In such cases due venting of the whole system must be carried out without delay.

There are two single-way brake cylinders in each front wheel, located horizontally one against the other. In the rear wheels there are only single cylinders with doubleaction, located at the top. In the brake of each wheel, only one air bleeding screw is provided. It is to be found in the front cylinder.

Prior to air bleeding, top brake fluid into the equalizing vessel. Then take off the protecting cap from the air bleeding screw of one of the brake cylinders and put rubber air bleeding hose on the screw. Pass the special spanner for air bleeding over the hose on the screw (this spanner is contained in the tools delivered with the car). The other end of the hose is put into a suitable, clean glass, which is filled partly with brake fluid. The end of the venting hose must be all the

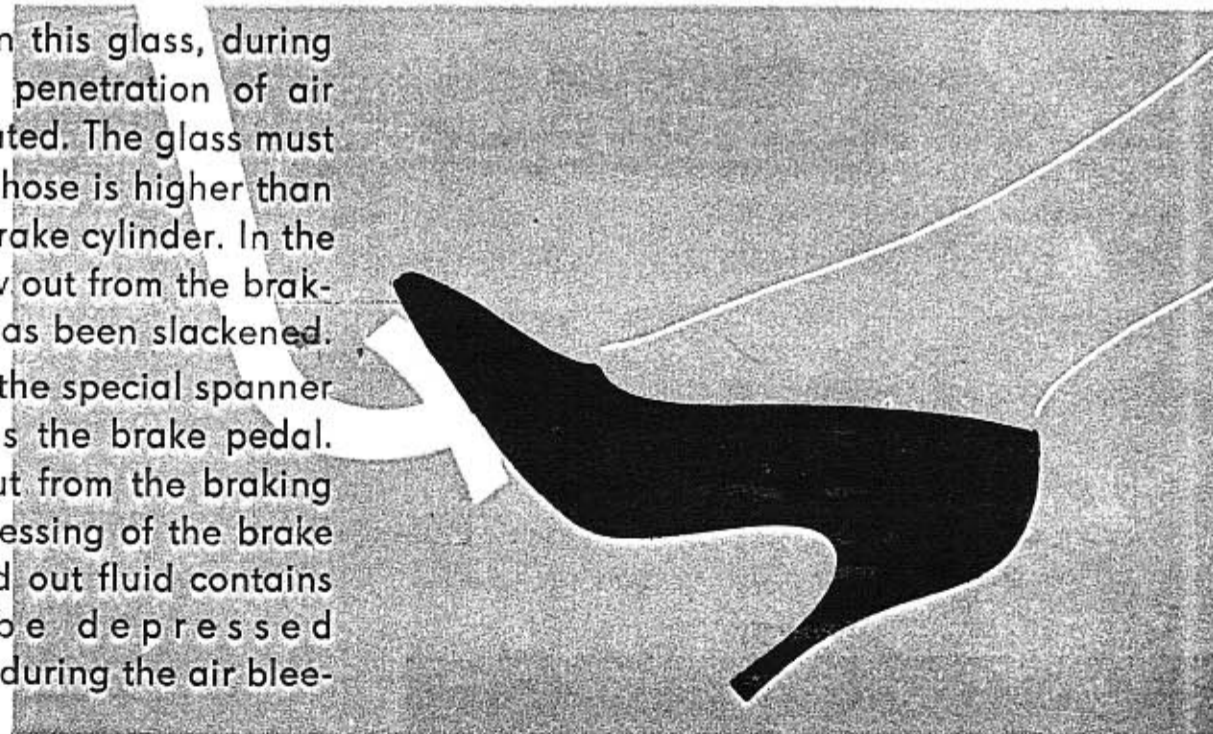


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time under the level of the brake fluid in this glass, during air bleeding, so that any possibility of penetration of air through the hose into the brake is eliminated. The glass must be placed so that the end of the venting hose is higher than the air bleeding screw of the respective brake cylinder. In the reverse case all the brake fluid would flow out from the braking system, after the air bleeding screw has been slackened. Then slacken the air bleeding screw with the special spanner mentioned. Ask your assistant to depress the brake pedal. Thus a little of brake fluid is pressed out from the braking system, containing air bubbles. The depressing of the brake pedal is repeated as long as the pressed out fluid contains air bubbles. The brake pedal must be depressed rapidly and released slowly during the air bleeding operation.

When pure brake fluid (bubblefree) starts to leak out, screw tightly the air bleeding screw. The air bleeding screw, however, must be tightened only in the instance, when your assistant is just depressing the brake pedal. Then bleed in the same way all the other brake cylinders.

During the operation of bleeding air from brake system, check from time to time the level of the brake fluid in the brake fluid equalizing vessel, so that air may not penetrate into the system through the empty vessel once more. Do not omit to place protective rubber caps on the tightened air bleeding screws. The basic rules mentioned above are applicable to their full extent for air bleeding of the hydraulically governed clutch disengaging mechanism (see page No. 59).



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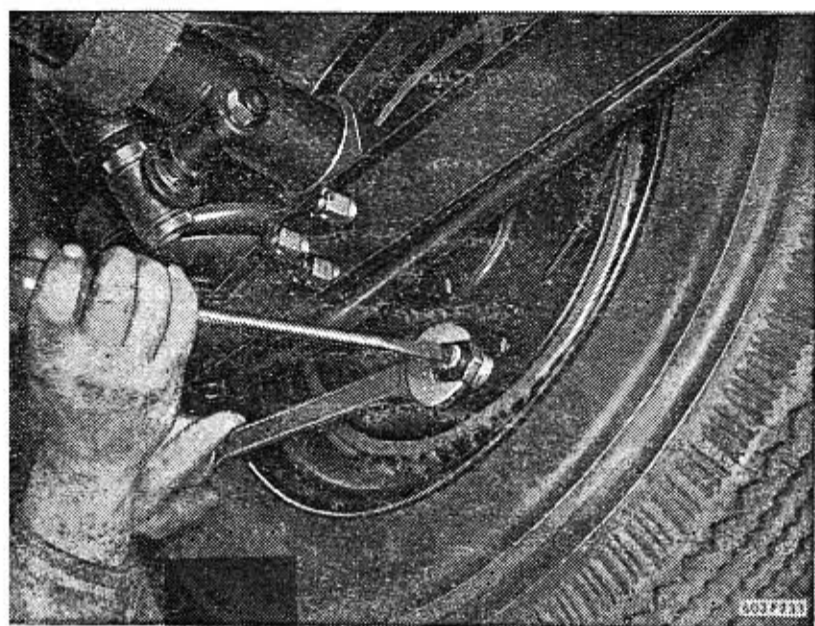
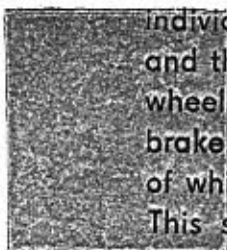
Adjusting the brake shoe play

After a longer period of running, the brake shoe lining gets worn a little. This wear will manifest itself by the increase of the dead travel of the brake pedal (when this is not due to air, that might have leaked into the system), in consequence of the increased play between the friction faces of the brake shoe lining and brake drum.

The play between the brake shoe linings and brake drums is adjusted individually in each wheel, starting with one side of the car (both wheels) and then the other one. Lift the car slightly with lifting jack and suspend wheels with wooden blocks (wheels to touch ground!). The rear wheel brake is adjusted at first with the hexagonal adjusting screw, the head of which is to be found in the rear bottom part of the brake back plate. This screw has a conical ending inside the brake, on which rest the hinges of the brake shoes.

Tighten well the adjusting screw, so that the brake shoes sit firmly on the brake drum (wheel cannot be revolved). Then start to slacken the adjusting screw gradually. After each partial slackening, hammer lightly with rubber mallet on the adjusting screw head and try to revolve the wheel. The screw is to be slackened only to allow free rotation of the wheel, i. e. until the brake shoes stop touching the brake drum surface.

Then unassemble wheel, and with a screwdriver put through the drum slot, slacken one or both the grooved regulation nuts of the brake cylinder. Slacken these nuts so, that the brake shoes sit firmly on the brake drum. Then depress with force the brake pedal twice or three times and press brake shoes still to the brake drum with the regulation nuts. The required play is then achieved by slackening the regulation nuts by approximately eight grooves (the securing spring will be embedded 8 times). The front wheel brake has no adjusting screw on the back plate, but is equipped with two single-action brake cylinders, each having



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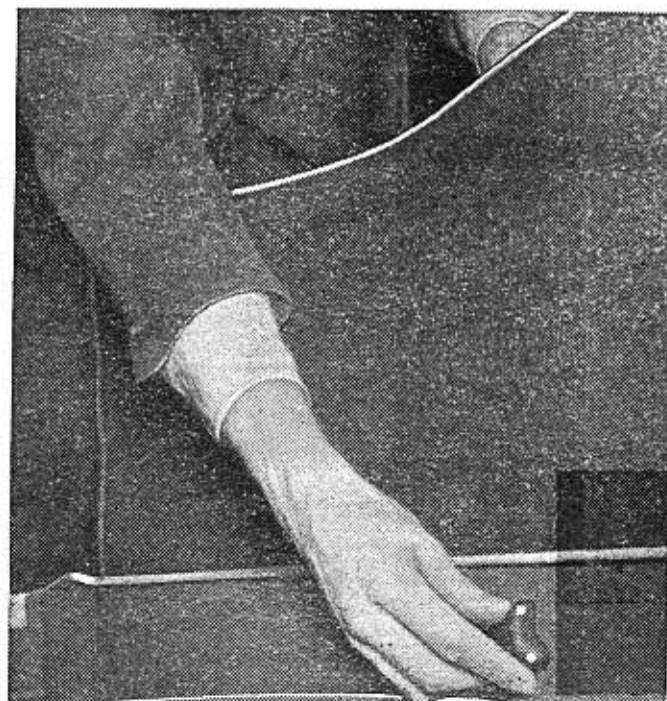
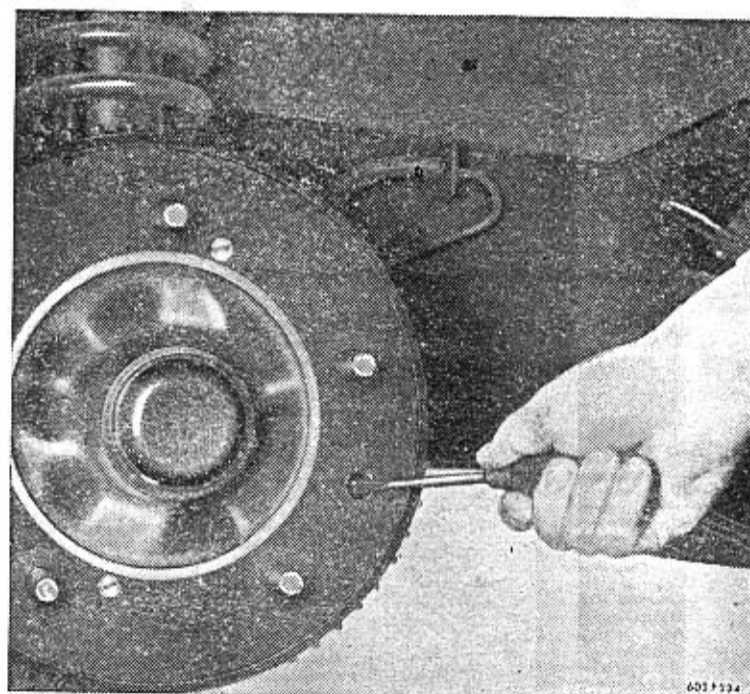
its own adjusting nut. When adjusting the front wheel brake, it is necessary, when slackening or tightening the adjusting nuts, to do so equally on both cylinders.

The dead travel of the brake pedal (free motion of the pedal until the moment the brakes start to operate) of the correctly adjusted brakes is approximately 20 to 25 mm. The prescribed play between shoe lining and the friction face is 0,3 mm.



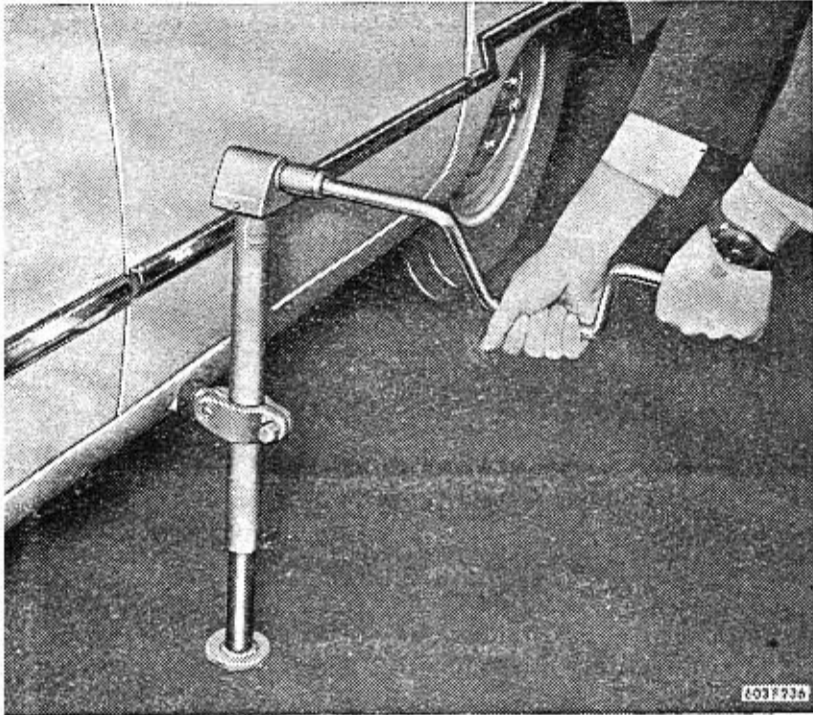
Adjusting the parking brake

The hand operated brake is adjusted in a very simple way by revolving the wing handle, located over the floor of the car in the middle of the cabin just in front of the rear seats. The hand operated parking brake is adjusted so that its function starts only after approximately 3/4 of the length of its tie rod has been julled out (i. e. it operates in its last 1/4 of travel). The grip is to be found under the steering wheel. When the brake starts to act sooner, the rear wheel brake shoes are open too wide, and the brakes heat too much during normal driving. The maximum travel of the grip (and tie rod) is limited with a buffer.



Exchanging wheels

The mechanical lifting jack of the automobile is placed in a bracket next to the engine. From the inside of the car take out sprung insert from slot for the jack and put jack shaft into slot which is located in the bottom longitudinal beam of the body. The spindle of the jack is operated with the wheel nut wrench. The jack lifts the whole side of the car, i. e. the front and the rear wheel of one side simultaneously. Prior to lifting the car with jack, apply parking brake. If the car is standing on a sloping street, it must be secured with suitable pieces of rock on both the front and rear wheel on that side of the car, that is not going to be lifted. Then take off carefully with the aid of a screwdriver the hub chromium plated cap. The wheel fixing nuts are to be slacked a little prior to lifting. With wheel lifted, same would turn, and thus slacking of fixing nuts would be much more difficult. The car is to be lifted as much as possible, so that the wheel may be taken out through the opening in the outside wall of the mudguard. Put in the new wheel and secure with nuts, tightening them only slightly. Then drop down the lifted car and now tighten all the fixing nuts very tightly with the wheel brace (cross-wise). Check with a dependable manometre the air pressure of the wheel just assembled and according to



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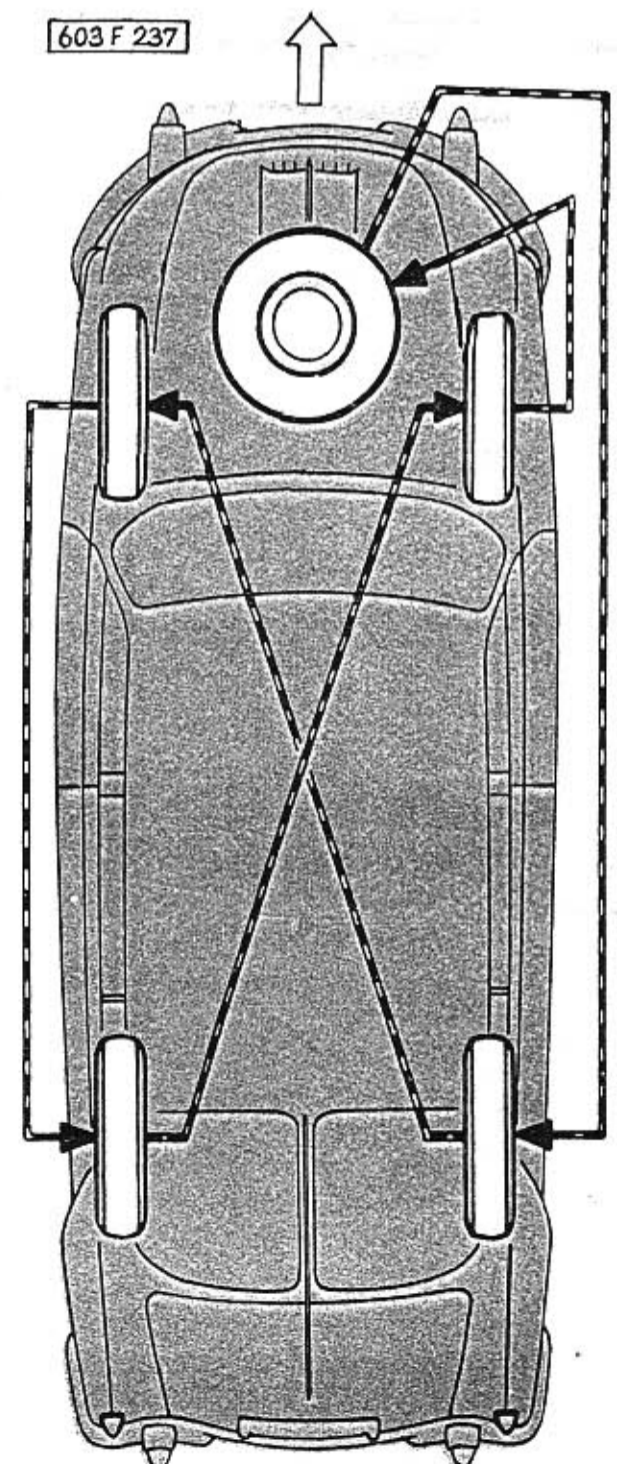
need either add pressure or bleed air to the prescribed pressure for tyres, as indicated on page 105.

After running approximately 100 km (62 miles) tighten once more all the fixing nuts of the exchanged wheel.

The defective tyre or tube should be handed over to an expert shop for repair. For a car so rapid, as is the Tatra 603, it is eminently important, that tyres and tubes are always repaired in an expert manner and absolutely dependably. Besides, it is necessary to balance the wheel with the repaired tyre or tube (at least statically).

The tyre designs are usually not worn equally. In order to obtain equal wear of tyre designs of all the four wheels, it is necessary to check wear of designs regularly and according to need exchange wheels (see scheme).

When the car is driven mostly with a part load only (i. e. when mostly less than 5 to 6 persons are forwarded in the car), the suspension of the car is not strained fully and therefore the springs cause the wheels to be more inclined from the vertical position. In such a case the outer halves of tyre designs get more worn than the inner halves. In this instance equal wear of tyres cannot result from mere exchanging wheels. It is necessary to unassemble the tyres from rims and turn them by 180° i. e. to turn the tyres so that their inner, less worn half becomes the outer one to wear. After turning the tyres in rims, have all the wheels balanced.



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Checking toe-in of wheels

The toe-in of wheels is very important for the roadholding qualities of a rapid car, especially as far as manouvrability is concerned. Wrongly adjusted toe-in of wheels results also in a rapid wear of tyres. There is a slight toe-in adjusted also on the rear wheels of the Tatra 603 car, beside that of the front wheels. Both must be checked regularly, and adjusted if necessary. For the fully engaged car with passengers and luggage (total weight 490 kg), a toe-in of 3 mm is prescribed for the front wheels, and 2 mm for the rear ones. The toe-in of the front as well as the rear wheels is checked in the usual method with a bar, toe-in gauge. It is measured either between the wheel rims or alternatively between the tyre walls. It is important to measure both in the front as well as in the rear in the identic height over floor (ground). To adjust the gauge to equal height, it is usually equipped with chains equally long on both sides. In service stations, the toe-in is usually measured with specially devised optical or mechanical gauges.

When checking and adjusting toe-in of the front or rear wheels, the car must be staying on a level plane and loaded so, that the distance of the body edge to the floor results in 245 mm. The data mentioned above are valable under these conditions only.

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When any deviation is found out on checking the wheels toe-in from the prescribed values, the correct toe-in of the front wheels is adjusted as follows:

1. Unassemble the slanting floor in the front part of the car interior (space of pedals). Then unassemble securing nuts at the inner ends of both the track rods.
2. Unassemble securing nuts at the outer ends of both of the track rods. By revolving both the rods, set the prescribed toe-in of the front wheels and then assemble and tighten all the securing nuts of both track rods.
3. After the securing nuts have been tightened firmly, check once more, and if necessary correct the toe-in to exact measure. The secure the securing nuts.

The toe-in of the rear wheels is adjusted by revolving the hexagonal heads of the excenter screws, on which the sliding arms of the rear semi-axles are hinged. Slacken first nuts on the opposite side of the screws. There is a mark on the screw head. The screw may be revolved only in the range of the bottom half of its pitch circle.

Fix thoroughly the nuts on the opposite side of the screws, after the toe-in adjustment has been carried out. It is the best to have the toe-in of both the front and rear wheels done in an expert workshop.

Adjusting wheel toe-in

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ELECTRIC INSTALLATION AND ACCESSORIES

Batteries

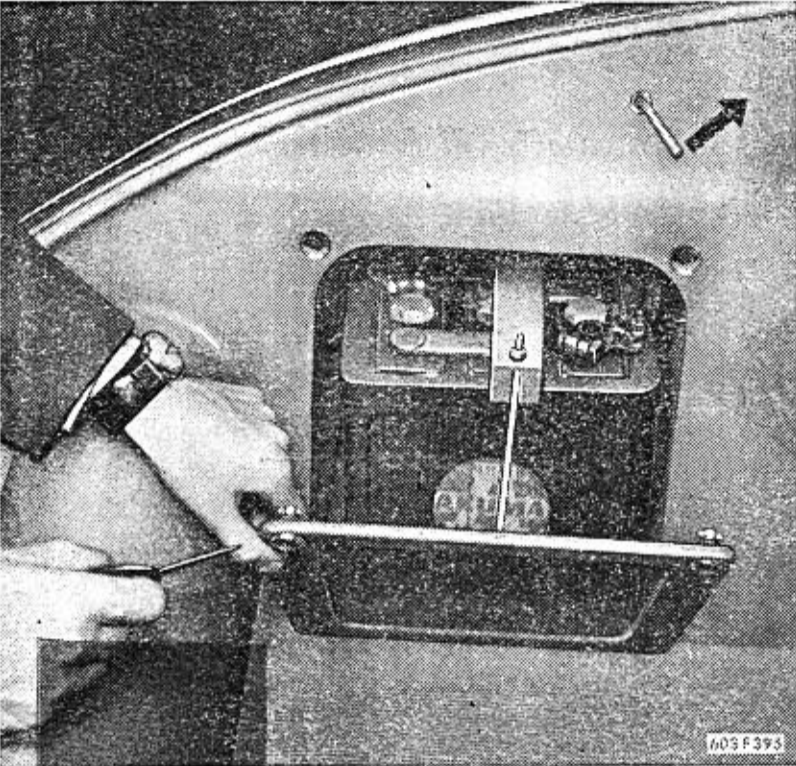
The Tatra 603 automobile is equipped with two identical lead batteries 6 V, 82 Ah, filled with electrolyte consisting of sulphuric acid and distilled water. The batteries are located in the free space of the front mudguards, over the wheels splash guards (one on each side).

The batteries are accessible from the front luggage boot, after unassembly of the side covers. The side cover is opened by turning the lock by 90° with a screwdriver. Then take out wooden holder (stirrup), holding the battery from the top, and push out battery from the box together with its wooden floor.

Battery switch

The so called battery switch is assembled in the front luggage boot space, over the R. H. side battery.

When the switch lever is turned in the direction of indicator backwards, the connection of the batteries plus pole to the car body is interrupted, so that all the electric appliances of the automobile are cut-off from electric current supply. Thus it is possible to carry out repairs of various electric installations, not risking the danger of causing a short-cut.



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Keep level of electrolyte approximately 15 mm over the top edge of battery plates. The level height must not be measured with a metal object, but only with a wooden stick or thin glass tube. Put the glass tube into the slot of a cell, close its top opening with finger and take out the tube. A column of electrolyte will remain in the tube, representing the level height over the battery plates. Return the electrolyte into that cell, from which it has been taken.

In summer the electrolyte evaporates and thus the cells must be topped with distilled water (in fact, only water gets evaporated, so that the density of the electrolyte increases in the cells). Fresh electrolyte is topped into the cells only in such cases, when it has leaked out in some way, i. e. was poured out (not evaporated!).

It is recommended to check from time to time the density of the electrolyte with a densitometre. According to the density of the electrolyte we can find out fairly accurately the charging of a battery as follows:

Density 32° Bé (specific weight 1,285 g/cc) — well charged.

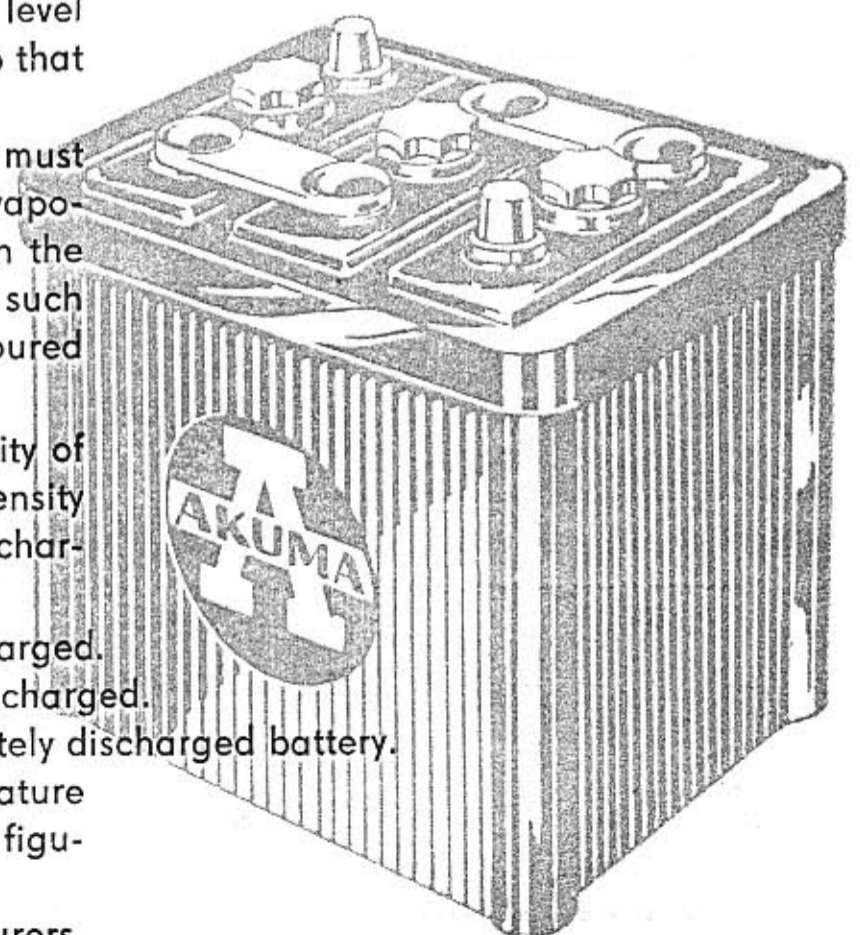
Density 27° Bé (specific weight 1,230 g/cc) — half discharged.

Density 18° Bé (specific weight 1,143 g/cc) — completely discharged battery.

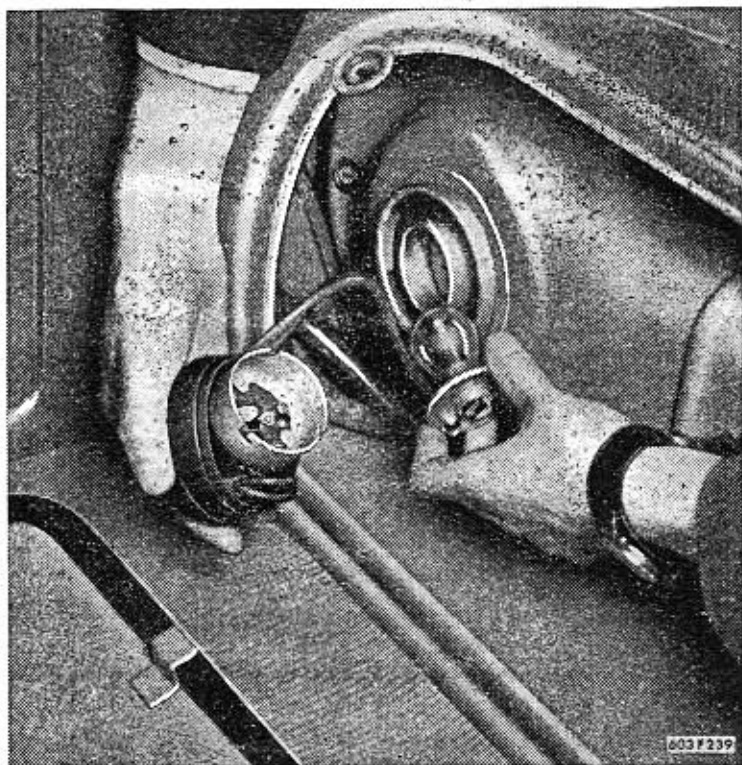
The mentioned values are valid for electrolyte at temperature 20°C. Consequently, for tropical countries a little lower figures are applicable (by approximately 2° Bé).

According to the prescription of the battery manufacturers,

Checking electrolyte in batteries



81



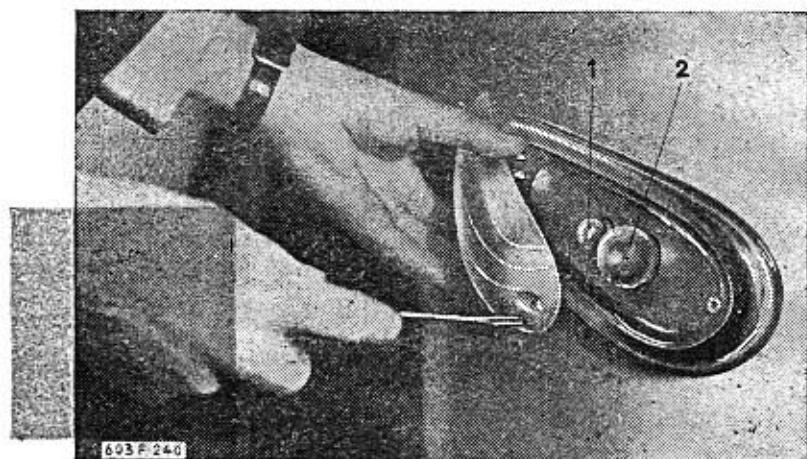
the electrolyte level should be checked regularly each fortnight during summer and once a month in winter. On checking the electrolyte, it is prohibited to make use of open fire for illuminating purposes, as there is the danger of explosion due to the explosive gases developed in the batteries.

The discharged or insufficiently charged batteries have to be handed over for expert charging (with electric current 8,2 A, 6,3 to 8,4 V, for a period of 13 hours).

Exchanging electric bulbs

To exchange electric bulbs in the main headlamps and in the central headlamp, open the cover, located in the bottom part of the front (large) luggage boot. The cover is opened by turning the locks by 90°. When the cover has been taken out, a good access has been gained to the headlamp reflectors. The bulbs are assembled in sockets fixed with lid, that are equipped with the so called bayonet (push-in-and-turn type) fixing. The socket is sealed with a rubber sleeve.

The main headlamps two-filament bulbs must always be correctly put in, so that the filament cover of the dipped beam inside the bulb is directed downwards (it is open upwards), otherwise the beam would dazzle the on-coming motorist, not illuminating the road properly. Some bulbs are



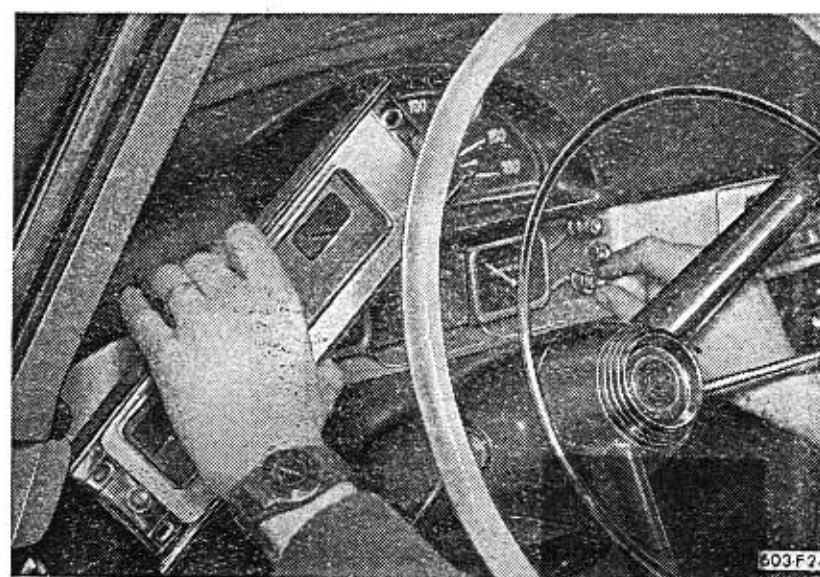
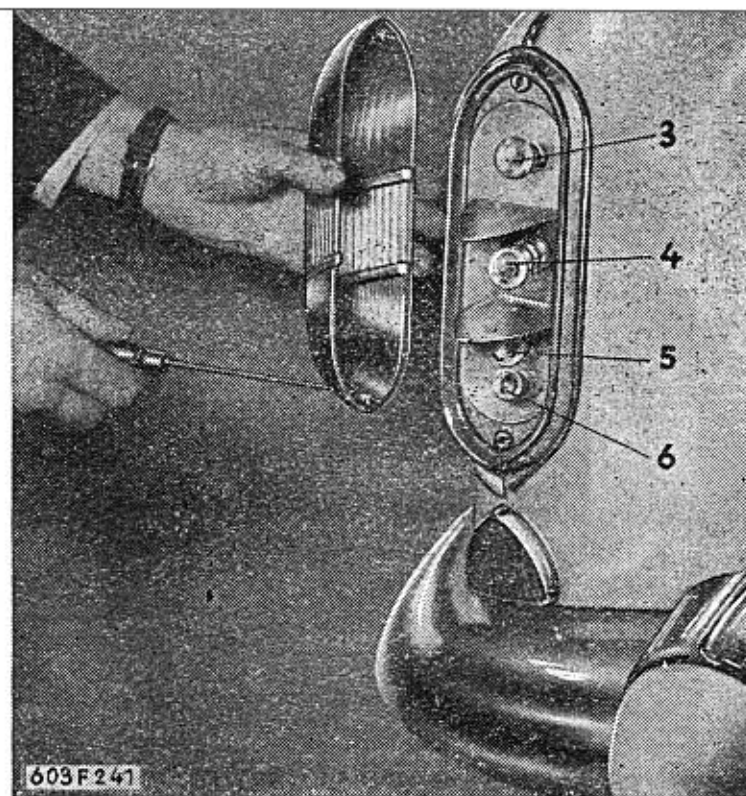
82

equipped with two fixing pegs of different size, so that they cannot be put into the bulb holder (socket) incorrectly.

Bulbs of the position lamps (on the front mudguards) are exchanged after unassembly of the lamp covers. The covers are fixed with two screws. Each lamp contains two bulbs: the first one (1) 12 V, 5 W is used for position light proper, the second one (2) 12 V, 35 W for the flashing direction indicator. When exchanging bulbs in the rear combined lamps, it is also necessary to unassemble the lamp covers, which are screwed on from the outside. The bracket (bulb socket base plate) with bulbs remain fixed on the mudguard. There are four bulbs: 12 V, 5 W (5) for the tail light, 15 W (3) for the brake light, 15 W (6) for the flashing direction indicator and 15 W (4) for reversing white light.

It is necessary to unassemble the covering frame over the instruments in order to exchange a defective bulb of a pilot light on the fascia. The covering frame is fixed on each side by one ornamental screw, which is located in the middle between the colour pilot lights. When the frame has been unassembled, also the suffite bulbs illuminating the speedometer dial are accessible as well as those illuminating the clock, thermometer and fuel gauge.

Only those bulbs are assembled into lamps, which are identical in kind and input to those originally assembled by the factory.



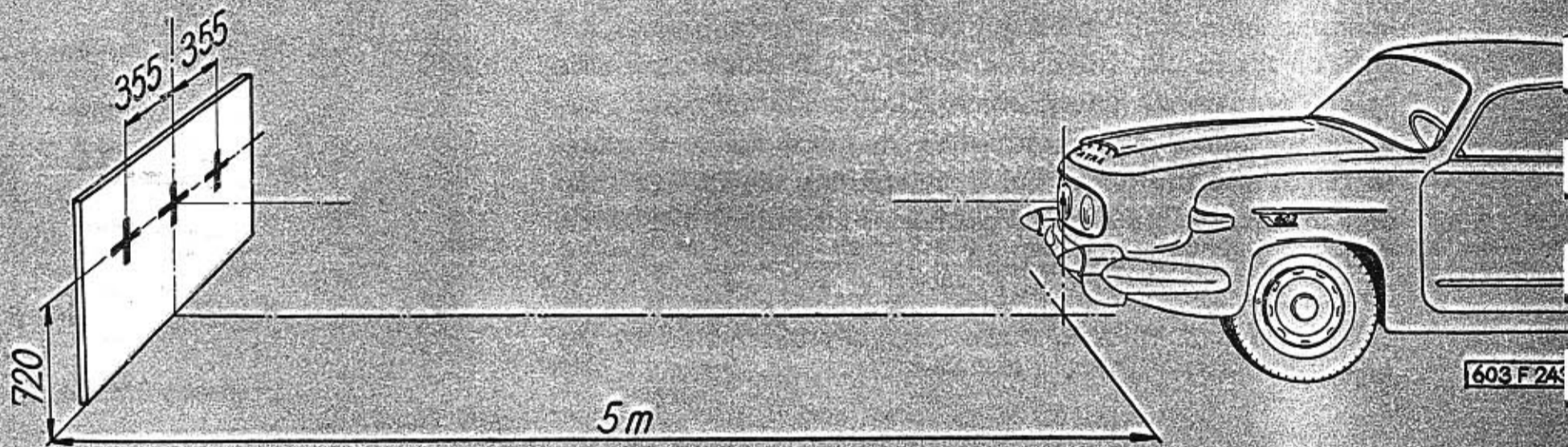
83

Adjusting the headlamps beams

The safety of a rapid night driving is dependent in the first place on the correct adjustment of the headlamps beams. The task of the headlamps is to illuminate the road ahead in the best possible way, but they must not dazzle the oncoming motorists.

Each headlamp of the Tatra 603 car can be adjusted with three screws, which are equally covering the circumference of the fixing holder. These adjusting screws enable tipping of the headlamp reflector as well as its turning to sides. The screws are accessible after the cover in the front luggage (large) boot has been opened.

The headlamps are adjusted at the best during darkness or in a dark room. The PAL headlamps of an empty (unloaded) car are adjusted according to lines drawn on a suitable wall or on a simple, wooden, black painted board (see illustration). The prolonged longitudinal axis of the car must be



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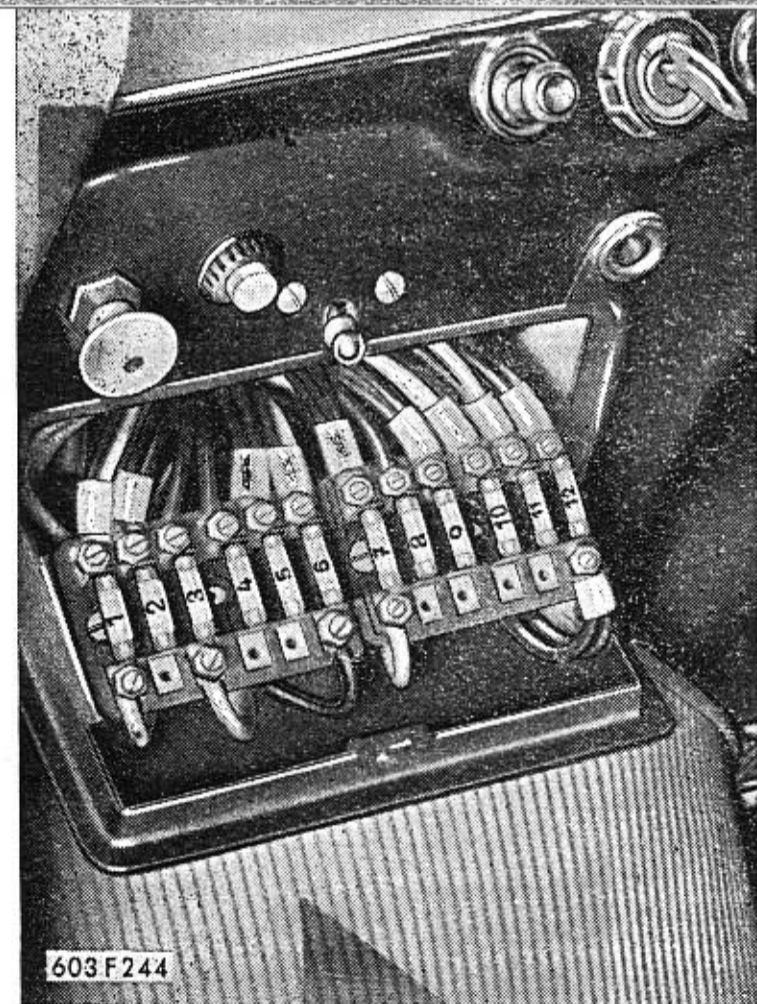
exactly in the plane of the middle control cross and must be also exactly perpendicular to the control wall. Also the ground on which the car is standing must be horizontal. Then put-in headlamps main beam, and by turning the headlamps with adjusting screws, try to point the light cone centers (the intensive light discs) produced by the individual headlamp, exactly into the middle of the control crosses on the control wall. Adjust each headlamp individually and separately, covering the rest in a suitable way, so that they do not distract your attention.

Special headlamps producing asymmetric light are adjusted according to the prescriptions of their manufacturers.

Location and connection of fuses

The main fuse box is assembled in the bottom part of the fascia to the L. H. side of the steering wheel. The fuses are assembled from the inside on the detachable lid of the box. The lock of the lid is opened by pressing the lock button upwards. All the appliances with the exception of the heating, are secured with the current peg-type fuses, of which there are altogether 12 pieces. (No. 11 is 15 A, all the rest are 8 A). The following circuits are secured with the individual fuses:

- 1 — Main beam — L. H. side headlamp, main beam pilot light



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- 2 — Main beam — R. H. side headlamp, center headlamp
- 3 — Dipped beam — L. H. side headlamp, both reversing white lights in the rear (tail) lamp
- 4 — Dipped beam — R. H. side headlamp
- 5 — L. H. side rear and position light, luggage boot light
- 6 — R. H. side rear and position light, number plate light, engine space light
- 7 — Ignition (of engine), starter (button)
- 8 — Starter motor (button)
- 9 — Windscreen wiper, instruments light
- 10 — Lubrication pilot light, fuel gauge light, direction indicators pilot light
- 11 — Cigarette lighter (rear), cabin light, horn
- 12 — Cabin light, brake lights, clock, service lamp socket, cigarette lighter on fascia, map reading light (on the back rest of the front seats).



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Besides that, there is a further small fuse box containing two fuses 15 A under the glove compartment. The fuses secure the independent petrol heating of the car, mark EBERSPAECHER, which is assembled under the front seat.

There is a further fuse securing the circuit of heating in a small box directly on the heater proper (next to the terminals base plate). Thus the heating of the car is secured altogether with three fuses.

There is a detachable cover over the fascia in the total width of the car, which is fixed with one screw on each side. After the cover has been unassembled, there is a good access gained to all the instruments and especially to the switches that are located in the middle under the cover. On the L. H. side there is the electromagnetic switch for horns, in the middle the bimetal contact breaker for the flashing direction indicators, and on the R. H. side the electromagnetic switch governing cabin illumination.

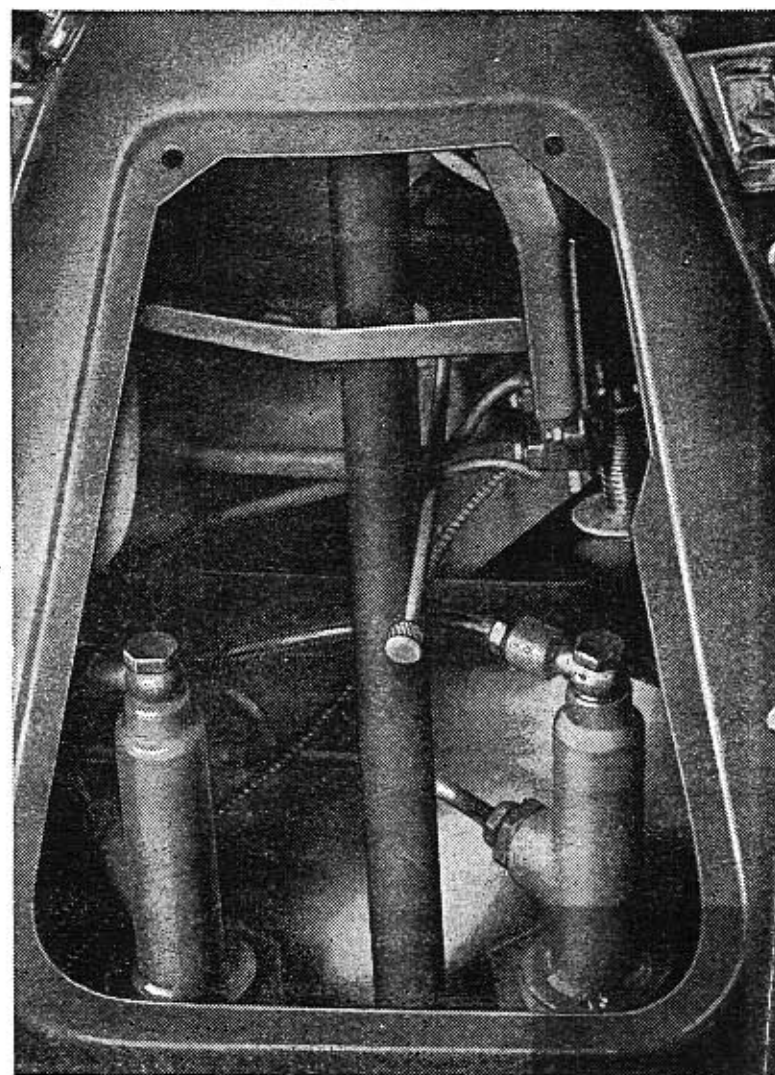
The electromagnetic switches are employed in the leads to horns and to cabin illumination in order to eliminate burning of the contact points on the steering wheel and in the door switches. Current is lead to these switches of low tension, the electromagnetic switches switching on current circuit of higher intensity, needed for the horns and cabin illumination.

Access to installation under the steering wheel

There is a lid under the steering wheel in the column cover. Acces is gained to the main fluid cylinder of the clutch release mechanism (to the left) and to the main brake fluid cylinder of the brake system (to the right), after unassembly of the lid has been carried out. Pressure switch of the brake lights is assembled on the main brake cylinder. In the L. H. side upper part of this space is located the flashing direction indicator switch.

In the top R. H. side space (on the gear engaging mechanism) is located the reversing lights switch, which switches on only on engaging of the reverse gear.

Acces to electromagnetic switches



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MAINTENANCE OF THE BODY

Washing the body



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The nice appearance of a new automobile is maintained for a long time only by correct and regular cleaning of the inside as well as outside of the car. The outer enamel of the body will lose its bright high polish, if it is not expertly maintained, and if exposed to the detrimental influence of dust and other dirt for too long periods. The clean, well serviced and maintained car is the best recommendation of a good driver.

Never wipe the layer of dust, mud and other dirt from the car body dry, but always exclusively with running clean water. For washing of the TATRA 603 body warm water must not be used. For the normal washing make use of a soft sponge for the body proper and a soft brush for drying of the enamelled parts of the body and a soft cloth for polishing. All the mentioned aids must be kept clean and used only for the operations they are meant for.

At first spray with a mighty jet of water the bottom part and all the most dirty places of the body. Only then start spraying all the less soiled parts, i. e. the outer parts of the coachwork. For this operation use a less mighty jet of water, and if possible dispersed to sides. The jet of water should not be sprayed in direct right angle on the body face, but always under a sharp angle. After spraying adjust the water jet to

MAINTENANCE OF THE BODY

Washing the body

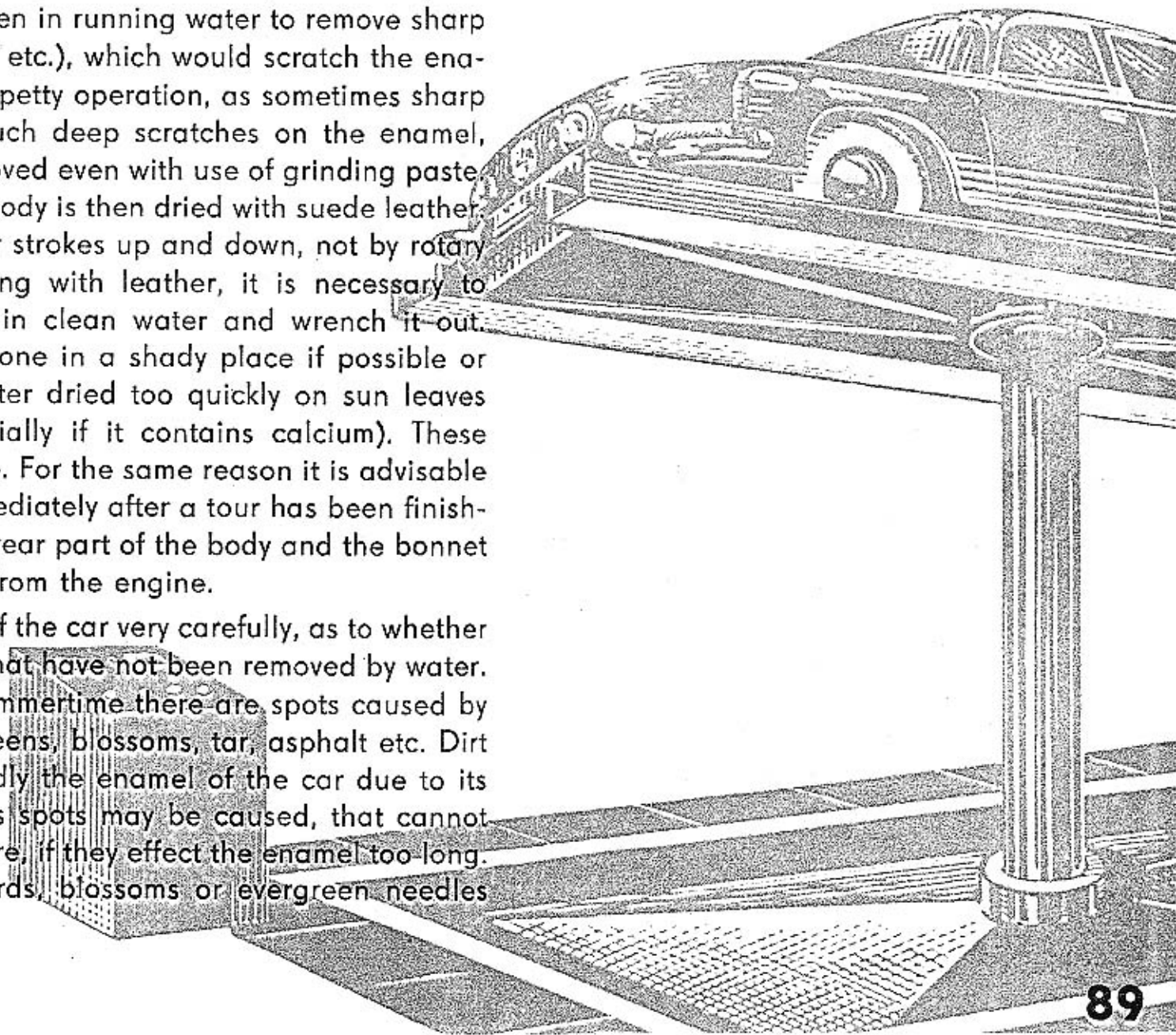
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be still less strong, and wash the whole body with soft sponge. Wash the sponge often in running water to remove sharp particles (grains of sand etc.), which would scratch the enamel. Do not neglect this petty operation, as sometimes sharp grains of sand cause such deep scratches on the enamel, that they cannot be removed even with use of grinding paste. The thoroughly washed body is then dried with suede leather. This is done with regular strokes up and down, not by rotary movements. During drying with leather, it is necessary to wash the leather often in clean water and wrench it out. Washing of the car is done in a shady place if possible or in a washing room. Water dried too quickly on sun leaves sometimes spots (especially if it contains calcium). These spots are hard to remove. For the same reason it is advisable not to wash the car immediately after a tour has been finished, when especially the rear part of the body and the bonnet are considerably warm from the engine.

Inspect the whole body of the car very carefully, as to whether there are no spots left, that have not been removed by water. Especially during the summertime there are spots caused by birds, needles of evergreens, blossoms, tar, asphalt etc. Dirt of this kind affects rapidly the enamel of the car due to its chemical influence. Thus spots may be caused, that cannot ever be removed any more, if they effect the enamel too long. The spots caused by birds, blossoms or evergreen needles



are to be removed with warm water and soap (soap flakes). Tar and asphalt are removed by dissolving in kerosene or turpentine, then the spot is to be washed with warm water and at last sprayed with cold water.

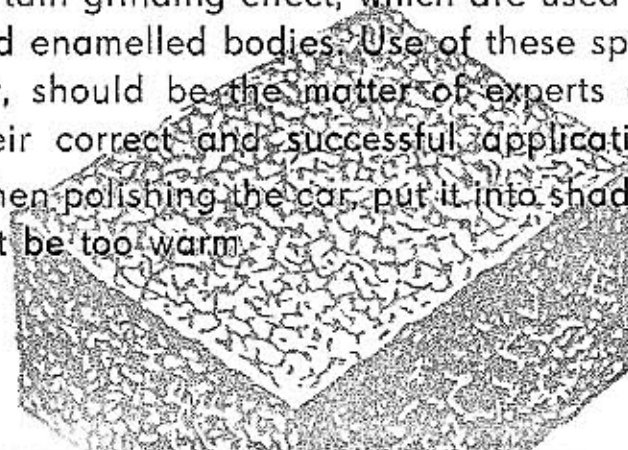


Polishing the body



The well washed and dried body of the car is polished with clean, soft flannel cloth. To maintain the high lustre of the enamel of a new car, make use of special liquid polishes or polishing pastes of well proven marks. Use them in accordance with the instructions given by their manufacturers. The special polished for motorcar bodies have usually a double effect: The polished face gets a brilliant lustre in the first place, and the thin layer of polish, that remains on the polished face protects to some extent the enamel of the body against detrimental effects of dust and other dirt. Besides that, there are also manufactured special polishes with a certain grinding effect, which are used for old, worn or stained enamelled bodies. Use of these special polishes, however, should be the matter of experts only, who guarantee their correct and successful application.

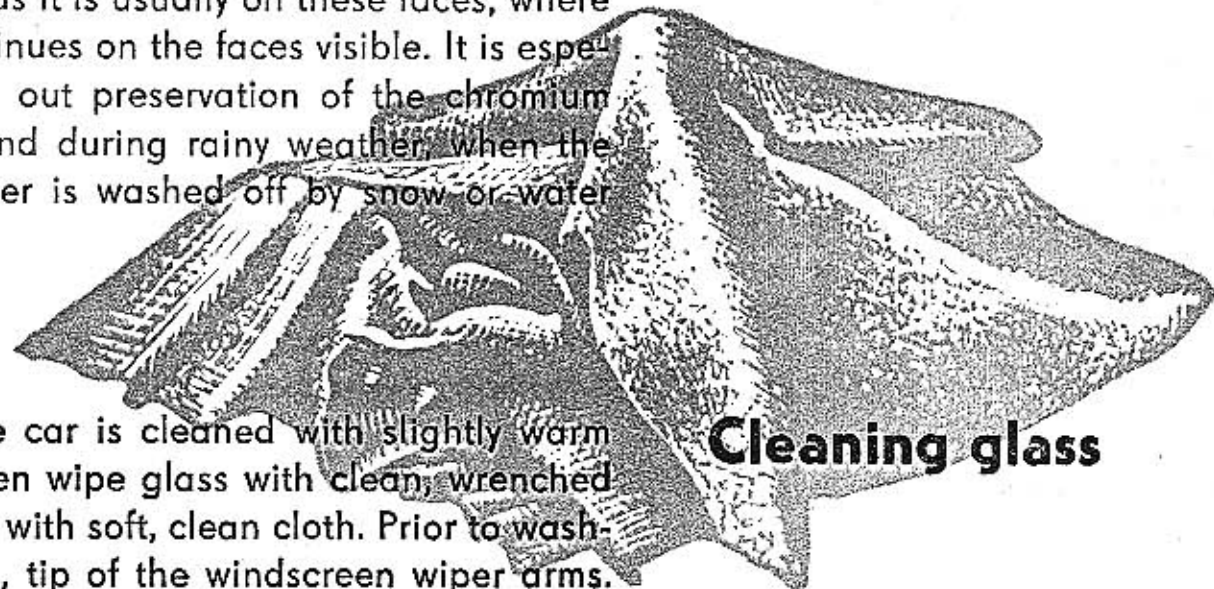
When polishing the car, put it into shade, and the body must not be too warm.



The chromium plated components are washed with a spray of water as well, and dried with suede leather. After they have been dried, the chromium plated components and parts are to be polished with a clean flannel cloth. Then apply with clean cloth a layer of special preserving vaseline or special preserving wax, manufactured for this purpose.


Even the best quality chromium plating is prone to corrosion with time, if not cleaned regularly and duly preserved. It is necessary to clean and preserve carefully even those faces of the chromium plated components and parts that are not visible from the outside, as it is usually on these faces, where corrosion starts and continues on the faces visible. It is especially important to carry out preservation of the chromium plated parts in winter and during rainy weather, when the protective preserving layer is washed off by snow or water rather soon.

Preserving the chromium plated components



The window glass of the car is cleaned with slightly warm water and a sponge. Then wipe glass with clean, wrenched suede leather and polish with soft, clean cloth. Prior to washing the front windscreen, tip of the windscreen wiper arms. Much soiled glass is cleaned with alcohol, solution of ammonia with water or with warm water and soap.

Cleaning glass



Cleaning the textile upholstery

It is incorrect to clean the window glass dry, e. g. with newspapers or raw cotton. Glass gets scratched and with time its transparency suffers.

When cleaning glass, clean the rubber inserts of windscreen wiper arm as well, together with the arms and joints. Defective or hard rubber inserts should be replaced with new ones.

The seat and backrest textile upholstery are cleaned the best from dust with a vacuum cleaner. When there is no vacuum cleaner available, unassemble the seats and backrests from the car, beat them lightly and then brush thoroughly with a hard bristle brush. Then brush also the cloth-covered walls and ceiling of the cabin.

Stains on the upholstery textile material are cleaned with current cleaning mediums (according to the cause of the stain). Many a stain can be removed e. g. with a solution of ammonia in water in the ratio 1:4, which is smeared into the stained place with a piece of clean gauze or cloth and let dry. Stains caused by sugar are removed with warm water, fat stains with soap, ink and rust with lemon juice or citric acid, stains caused with oil paint with turpentine etc.

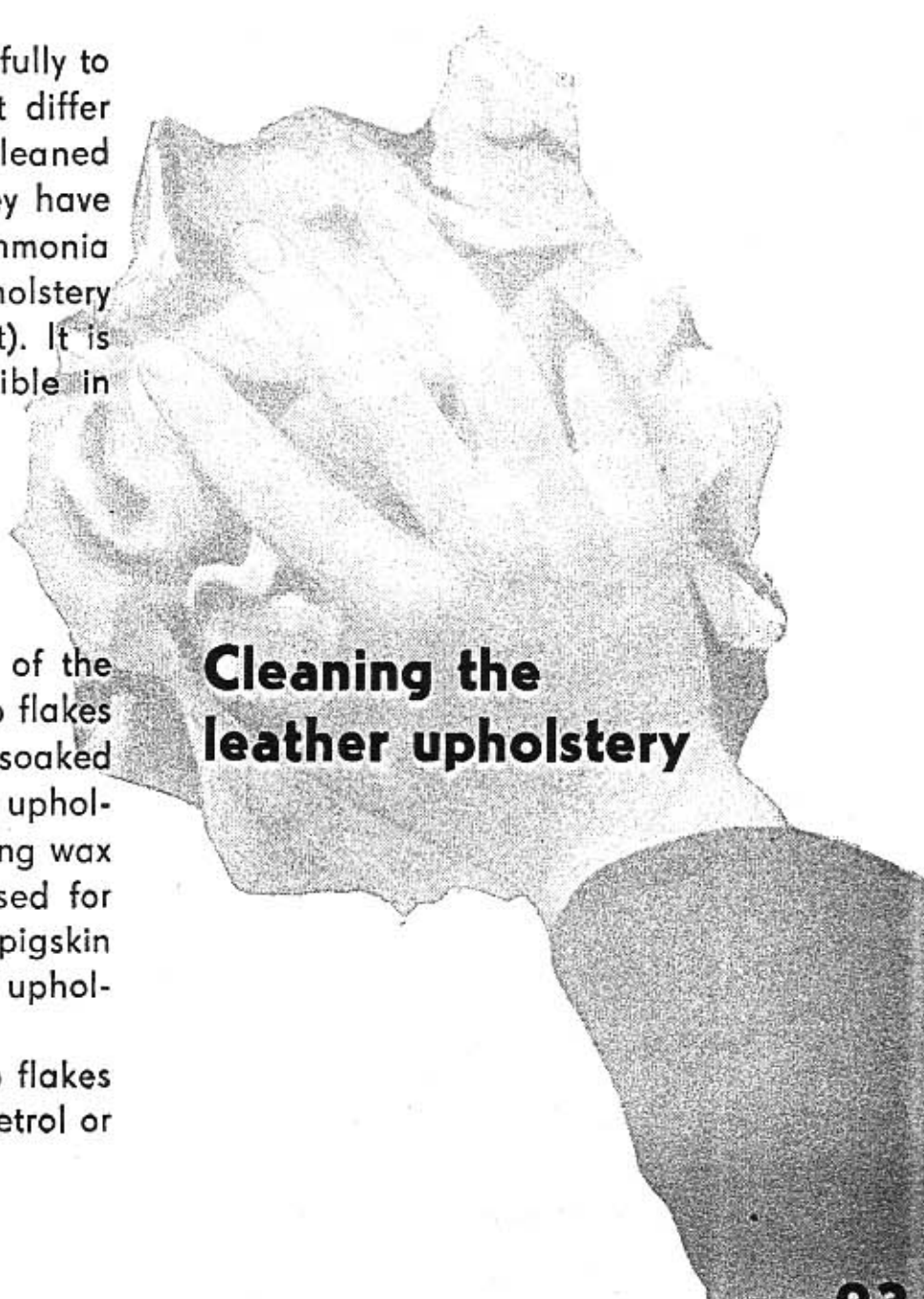
Prior to cleaning the stains, remove thoroughly all dust from the cloth, as otherwise a „map“ would be created around the cleaned spot, which it is very difficult to remove later on.

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The cleaning medium must be smeared well and carefully to eliminate creation of „maps“ or too light spots that differ considerably from the surrounding. All the places cleaned with whatever cleaning medium should be (after they have dried) cleaned once more with a light solution of ammonia in water. Direct sunrays are very detrimental to the upholstery cloth (as well as to the enamels to a certain extent). It is therefore advisable to park the car always if possible in shady places.

Cleaning of the leather upholstery or leather parts of the cloth upholstery is done with solution of soap or soap flakes in water. Then wipe upholstery still with a clean cloth soaked in clean water and let dry well. The cleaned leather upholstery is preserved with a thin layer of special preserving wax for leather or fluid bee-wax. Wax should not be used for preserving of pigskin upholstery, as it sticks in the pigskin pores and cannot be removed from them. The leather upholstery is cleaned once or twice a year.

Stains on leather are usually cleaned only with soap flakes dissolved in water. They are not to be cleaned with petrol or similar mediums, as these leave permanent traces.



Cleaning the leather upholstery

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DEFECTS OF THE INDEPENDENT PETROL HEATING

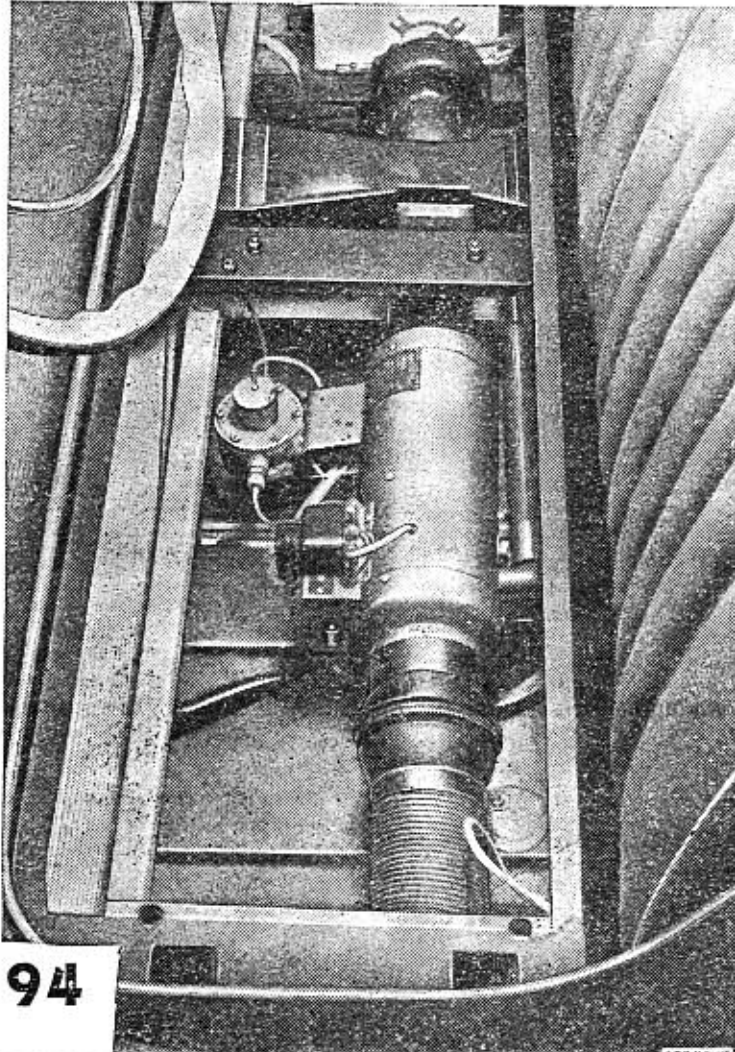
The heating apparatus of the independent petrol heater mark EBERSPAECHER B 3 is assembled in the space under the driver's seat. During operation of the heating defects may arise, which are in most of the cases due to impurities contained in petrol: In such a case the heating does not operate or alternatively it cannot be stopped at all.

Heating out of operation

When the heating apparatus does not operate at all, check in the first place fuse (3) on the heating apparatus proper. This fuse is located in a small fuse box next to the terminal base plate of the heating apparatus. The fuse gets blown only when the apparatus is overheated.

When the heating stops its operation spontaneously during driving, and the heater fan feeds only cool air into the car cabin, try to switch off the heater and switch it on again in approximately 2 minutes time (do not switch on sooner, than the pilot light of the heater is switched off). When air is not warm even after this new switching on of the heater, it is necessary to look for the cause of the defect (most probably the jet will be found stopped).

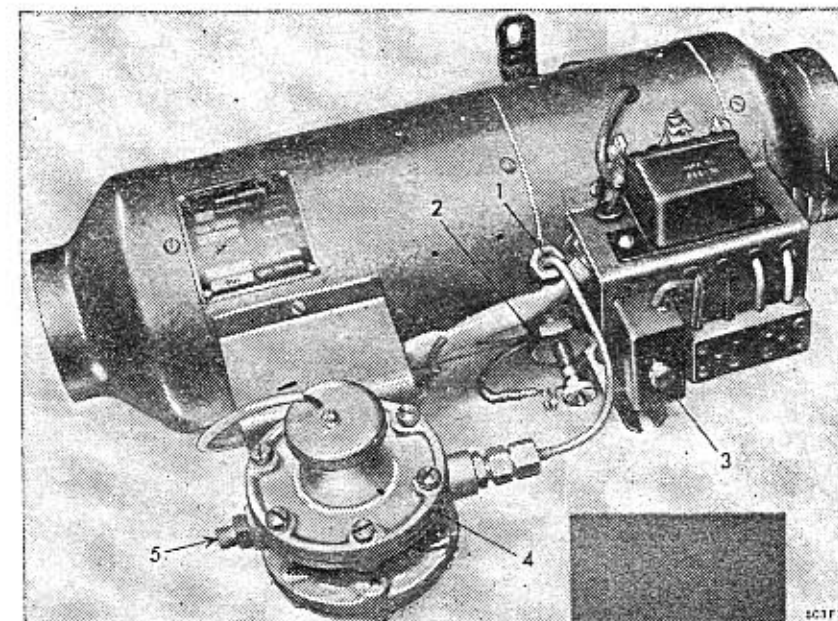
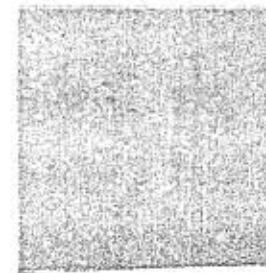
In order to get access to the jet, disconnect fuel delivery tube on the top of the heating apparatus, the pipe union (1) is connected into the slot next to the hot plug (2). At the end



of the pipe there is a jet under the pipe union with hole dia 0,25 mm. The jet hole is carefully cleaned with a wire dia 0,2 mm and then blown through. When the heater does not operate even after cleaning of the jet has been carried out, screw out the hot plug (2) and check, whether it glows, after the heater has been switched on. (For testing purposes the hot plug is connected to the electric wire and placed on a car body face. If it is found in order, have the heating apparatus checked and repaired in an expert repairshop. On checking, the hot plug may not be connected to whichever electric wire of the car, but only to the correct one (the plug is fed with current 6 V!). Beware holding the plug in hand — it is very hot!

Heating apparatus stopped with snow or mud

When transversing snow-drifts, it can happen that snow penetrates into the intake or exhaust pipes of the independent petrol heater, which lead under the car. Snow stops the orifices, causing stopping of the heater operation. In such a case the stopped pipe must be taken out (it is connected to the heater with a rubber connector) and snow knocked out carefully. The pipes may also get stopped with mud, that was splashed into them.



Cleaning the air induct channel screen

In the heating apparatus that is assembled in the space under the front seat, the intake of air is done through an air induct channel, leading from the entrance orifice located in the L. H. side mudguard. There is a screen in front of the heating apparatus in the induct tube, preventing penetration of dirt and impurities into the apparatus.

The screen may get totally clogged in the course of time, especially with insects, that are sucked into the intake channel. By clogging of the screen, access of air into the heating apparatus is prevented, and serious defects by result. To eliminate this unnecessary break-down of the heating system, it is necessary to check and clean regularly the induct channel screen.

It is rather difficult to prescribe an exact interval for cleaning, as clogging with insects (to give an example) depends greatly on the frequency and length of driving during evening and night hours, when there is the most of insects in the air. In any case do clean the screen very carefully at the beginning of winter, i. e. before the heating apparatus starts its main season of operation. During summer check the state of the screen during servicing of the car, after finishing each 6250 km (approx. 3,600 miles).

The screen is located in the spherical chamber, that is assembled on the L. H. side of heating apparatus (under the front seat). The screen spherical chamber is connected to the air induct channel with a rubber flexible hose. To gain access to the screen chamber, it is necessary to take out the front seat (bench type). Then slacken the fixing nut of the flexible hose clamp, take out hose from the chamber neck and unassemble the spherical chamber together with the screen from the heating apparatus intake flange. Only then is it possible to pull out of the spherical chamber the screen proper. Clean the screen thoroughly and clean the chamber inside as well.



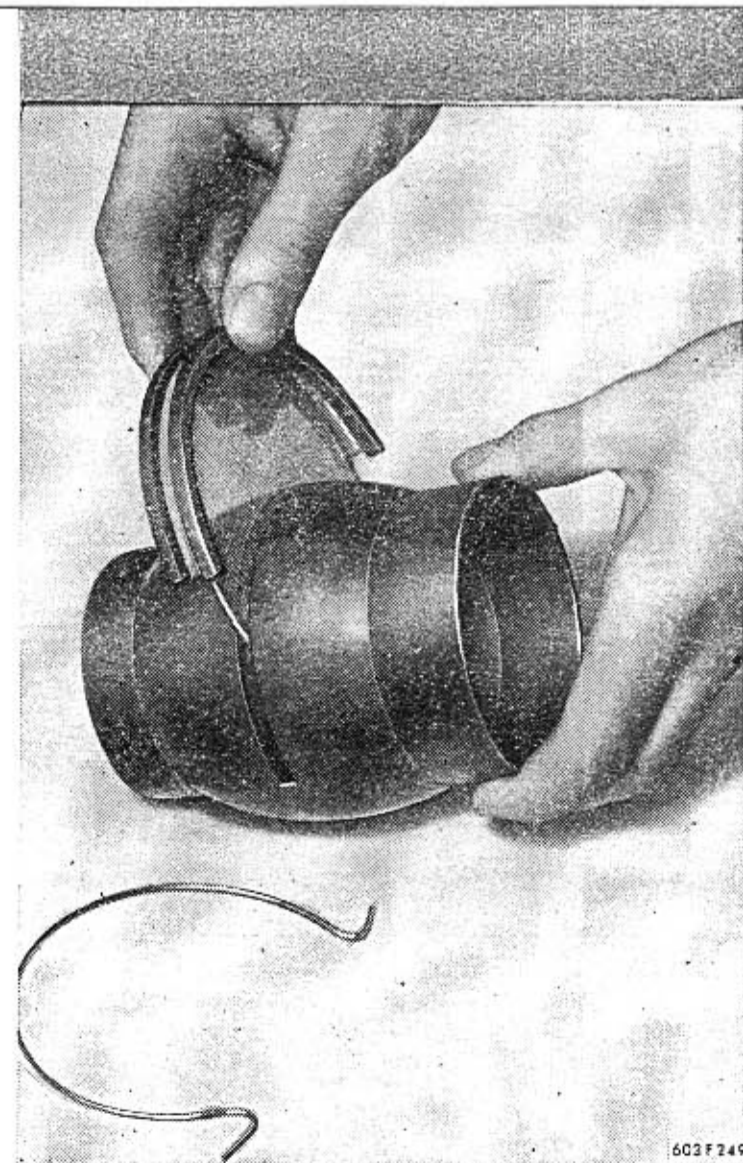
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Heating apparatus cannot be switched off

During operation of the heating apparatus, the respective pilot light is on, on the fascia (red light). After the heating has been switched off, the pilot light is still on for approximately 2 minutes. During this period (of about 2 minutes) the heating apparatus must not be switched on again!

It may happen, that the pilot light does not cease to light even after the period of 2 minutes after the heating has been switched off, but continues to light. The cause of this defect is usually the leaky electromagnetic valve in the fuel supply line to the heating body. The leaky valve does not close fuel supply completely, and thus the flame in the heater continues to burn with heater switched off.

In such an instance it is necessary to take out the bench type front seat, disconnect fuel supply line from the reduction valve (4) box on the heating apparatus and close the tube in an auxiliary manner (e. g. with a wooden peg). Then the flame in the heater will go down soon, and the pilot light will be switched off. A leaky or defective valve can be repaired only in an expert repairshop.



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TECHNICAL DATA

Overall length	5065 mm
Overall width	1910 mm
Overall height (of unloaded car)	1530 mm
Ground clearance of the loaded car	200 mm
Wheelbase	2750 mm
Wheel track — front wheels	1430 mm
rear wheel	1400 mm
Width of seats (both in front and rear)	1460 mm

Weights

Kerb weight*)	1470 kg \pm 5 %
Payload	490 kg
Total weight of car*)	1960 kg
Stresses on axles of a fully laden car:	
Front axle	880 kg
Rear axle	1080 kg

*) according to ČSN standard 30 0030.

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The TATRA cars are equipped with standard or so called mountain gears. The mountain gears differ from the standard ones in the transmission ratio of the 3rd and 4th speed gears and therefore some of the driving qualities differ too.

Roadworthiness of the car

Maximum speed of the fully laden car on level road (at 5000RPM):	Gearing	
	Standard	Mountain
1st speed	45 km/H	45 km/H
2nd speed	70 km/H	70 km/H
3rd speed	107 km/H	95 km/H
4th speed	162 km/H	150 km/H
Maximum climbing ability of the fully laden car (at maximum torque):		
In reverse gear	32 %	32 %
In 1st gear	33 %	33 %
In 2nd gear	20 %	20 %
In 3rd gear	11 %	13 %
In 4th gear	7 %	8 %

Minimum turning circle 14 metres

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Fuel consumption and consumption of lubricants

Touring fuel consumption of a fully laden car on level road (according to the ČSN 30 0510 standard) at a constant speed of 115 km/H	13 lit/100 km
Average petrol consumption per hour of the independent petrol heating apparatus (mark Eberspächer) approx.	270 to 300 cc
Average oil consumption approximately	0,12 lit./100 km
Average lubricatin consistent grease approximately	0,20 kg/1000 km

Motor

Engine model	Tatra 603 b
Kind	four-stroke, petrol engine independent cylinder barrels in two inclined rows at the angle of 90°
Arrangement of cylinders	
Cooling of the engine	air-cooling with forced air circulation, two exhaustors and automatic regulation of working temperature
Number of cylinders	8

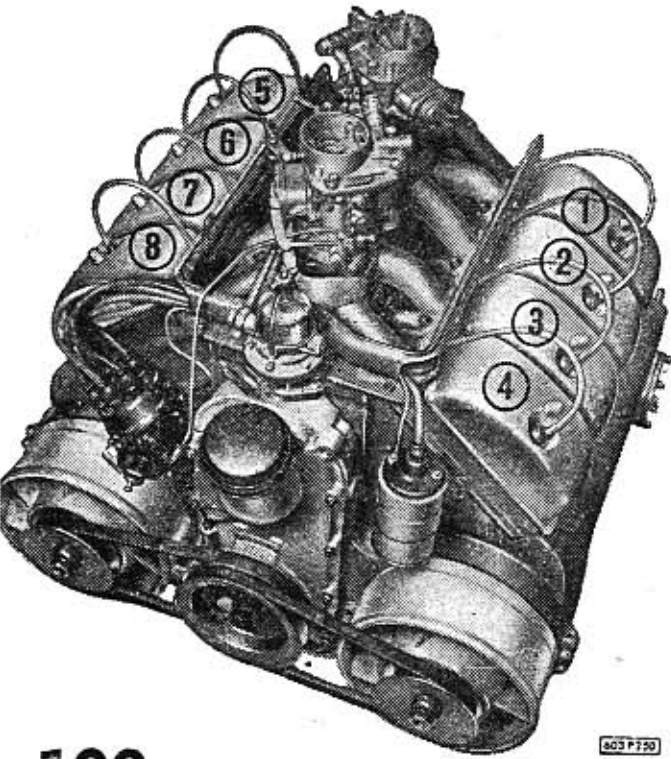
100

Cylinder bore	75 mm
Piston stroke	70 mm
Swept volume	2472 cc
Compression ratio	1 : 6,5
Engine output	95 HP
Revolutions at maximum output	4800 RPM
Maximum revolutions of the engine	5000 RPM
Weight of engine (less clutch)	173 kg
Weight of engine per 1 HP output	1,82 kg/HP
Arrangement of valves	OHV system
Play of valves with engine cold	
Induct valve	0,10 mm
exhaust valve	0,25 mm
Lubrication on engine	forced, circular with gear pump
Oil pressure	4 atm. at 4000 RPM
The green pilot light switches off at sinking of the oil pressure to approximately	1,8 atm.
Oil cleaner	strainer type
Carburetters:	
No. of carburetterst employed	2 double, down-draught
Mark	JIKOV 30 SSOP (with turbulent inserts)



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Electric installation of the engine



Adjustment of the carburetters and employment of jets is indicated on page No. 64

Air cleaner

Ignition

Ignition coil

Distributor

Primary adjustment of ignition point

Ignition order

Spark plugs

Dynamo generator

oil system

battery system with automatic regulation of ignition advance
PAL-MAGNETON CED 01/12 V
manuf. No. M. R. 4107
(12 V ČSN standard 304121)
PAL MAGNETON 02-9208.603
anticlockwise turning with under-pressure ignition advance regulation.

13° before TDC (for fuel with octane No. 72 or higher) 10° before TDC (for fuel with octane No. less than 70)

1-3-6-2-7-8-4-5

PAL 14/175 (ČSN standard 30 4143)

PAL MAGNETON 02-9144.12,
12 V, anticlockwise revolutions direction (when observing on the sprocket)

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System

dry, single-plate, built-in in the fly-wheel

Clutch

Governing of clutch

with a foot operated pedal and hydraulic pressure transmission

System:

with spur gears with helical teeth (for forward driving), engaged with dog clutches; all four forward gears are synchromeshed

Gearbox

Number of speeds

four forward
one reverse

Transmission ratios:

1st gear
2nd gear
3rd gear
4th gear
Reverse gear

Transmission	
standard	mountain
1 : 3.545	1 : 3.545
1 : 2.265	1 : 2.265
1 : 1.450	1 : 1.631
1 : 0.960	1 : 1.041
1 : 3.428	1 : 3.428

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Rear axle

Kind	Pivoted semi-axes independently sprung
Suspension of the rear axle	Coil springs, shock absorbers hydraulic, telescopic
Permanent transmission ratio in rear axle	1 : 4.1

Front axle and steering of the vehicle

Kind of axle	independently assembled trailing cranked arms, independently sprung
Suspension	coil springs; shock absorbers hydraulic, telescopic
Kind of steering	rack and pinion
Front wheels toe-in	3 mm
Inclination of front wheel	1°
Center inclination of king pin (with car fully loaded)	8° 30'
Backward inclination of king pin (with car fully loaded)	0°
Turns of steering wheel from lock to lock	2,5 revolutions

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Angle of wheels with steering wheel on lock
Total range of turning angle

outside wheel 26°
inside wheel 32°
58° (of each wheel)

Wheels
Dimension of rims
Kind of tyres and tubes

star shaped
4,50 E x 15
special tyres for speeds upto 170 km/H (with adequate tubes)

Prescribed size and mark of tyres

6,70—15 BARUM EXTRA SPORT

Prescribed tyre pressure

For use
on normal roads on highways

front tyres
rear tyres

2.0 atm. 2,2 atm.
2.3 atm. 2.5 atm.

Wheels and tyres

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BRAKES

Foot operated service brake	hydraulic, acting on all four wheels
Dia. of the main brake cylinder	22 mm
Dia. of wheel brake cylinders	25,5 mm
Dia. of brake drums	275 mm
Total effective braking area	1266 square cm
Parking brake	mechanical, operated by a pull-out handle, located under the fascia. Acts only on rear wheels
Prescribed brake fluid	ATE Lockheed Blue Original

Coachwork of the car

Number of seats	self-supporting body, four-door (sedan) execution.
Capacity of the luggage boot in the front approx.	6
Capacity of the luggage boot in the rear approx.	0,361 cubic metres
Heating of the car	0,142 cubic metres independent, petrol heating apparatus mark Eberspächer, model B3

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Voltage	12 V
Pole earthed (i. e. connected to the car body mass)	minus pole
Interference elimination	1st grade (according to the ČSN standard 36 3015)
Batteries	two, 6 V/82 AH (ČSN standard 30 4251)
Voltage regulator	PAL-MAGNETON 12 V/200 W (ČSN standard 30 4232)
Switchbox	PAL 02-9440.31 (BGG 01)

The electric installation of the engine is given on page 102.

Capacity of the fuel tank	50 lit.
Filling of oil in sump	6,5 lit.
out of which maximum filling of the oil sump according to marking on dip stick	4,0 lit.
in the air cleaner	0,4 lit.
In the gearbox and rear axle housing (together)	3,5 lit.
In the front shock absorbers, each	0,69 lit.

Electric installation

Capacity of individual containers

In the rear shock absorbers, each
Contents of brake fluid in the
brake system
Contents of fluid in the hydraulically
operated clutch disengaging
mechanism

0,3 lit.

0,74 lit.

0,14 lit.

Veteran
service

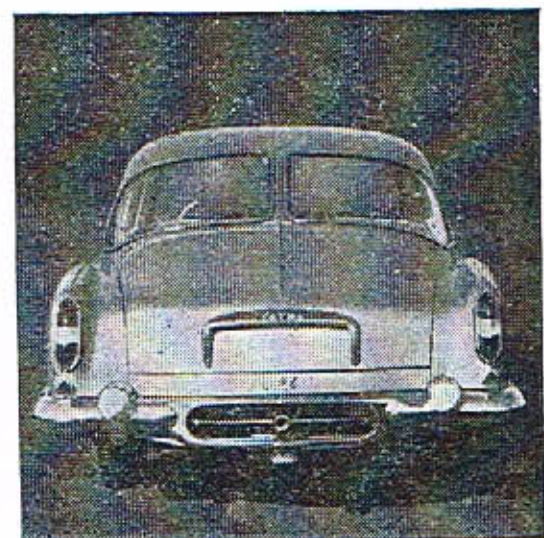
Aktuální nabídka
www.veteranservice.cz



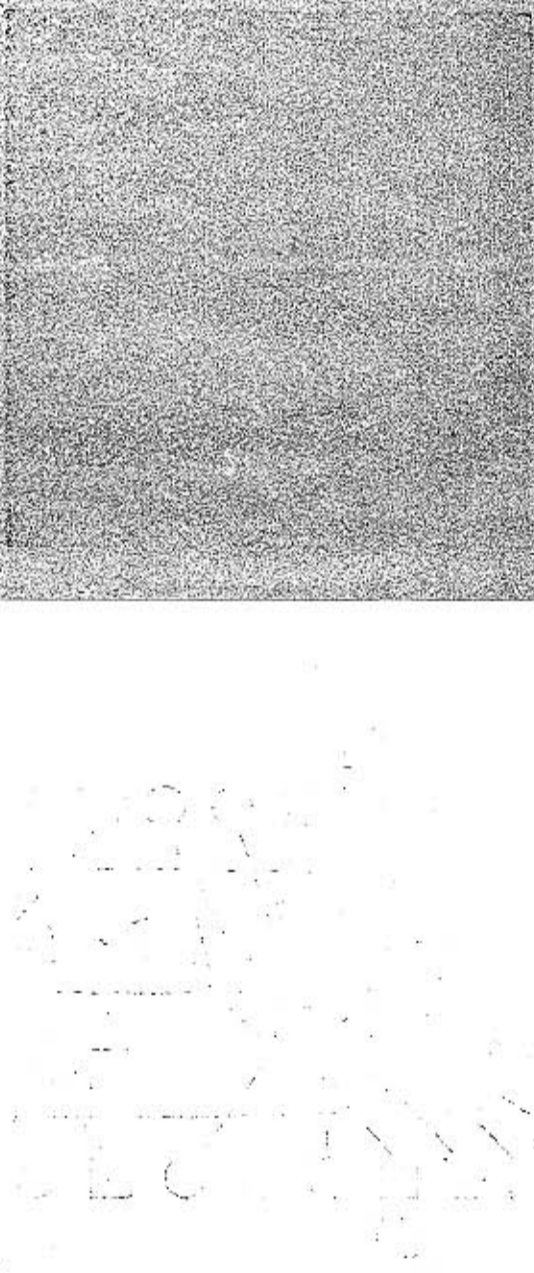
Výroba dobového příslušenství, profilových těsnění
na historická vozidla a náhradních dílů na vozy Aero a Tatra

The prescribed kinds and recommended marks of oils and
other lubricants see enclosure.

TATRA 603



Electric wiring diagram



(Key to illustration for the Tatra 603 Driver's Manual, II. Edition.)

Electric Wiring Diagram:

1 - Parking lamps w/ front flasher locifiers; 2 - Batteries; 3 - Headlamps; 4 - Centre headlamp; 5 - Centre headlamp switch; 6 - Horns; 7 - Battery cut out; 8 - Fuel tank float; 9 - Fuel gauge; 10 - Lucas two-stage wiper switch; 11 - Wiring for Lucas windscreen wipers; 12 - Oil pressure switch; 13 - Green oil pressure warning lamp; 14 - Switch; 15 - Front luggage compartment lamp; 16 - Starter button switch; 17 - Electromagnetic servoswitch; 18 - Horn contact ring (button) on steering wheel; 19 - Blue country beam warning lamp; 20 - Fuses in fuse box; 21 - Cigar lighter; 22 - Dome light switch (on dashboard); 23 - Dome lamp; 24 - Electromagnetic servoswitch; 25 - Dome light door switches; 26 - Electric clock; 27 - Inspection lamp switch; 28, 29 - Flasher trafficator warning lamps; 30 - Foot operated dipswitch; 31 - Ruby battery charge warning lamp; 32 - Instrument light control rheostat; 33 - Instrument light; 34 - Headlamp switch; 35 - Ignition switch; 36 - Switch; 37 - Reading lamp (on rear side of front seat); 38 - Cigar lighter; 39 - Radio receiver wiring; 40 - Stop light switch; 41 - Ventilation fan; 42 - Interference suppressor condenser; 43 - Independent petrol car heater; 44 - Heater warning lamp; 45 - Heater switch; 46 - Heater fuses (1.5 A); 47 - Flasher trafficator switch (under steering wheel); 48 - Interference suppressor condensers (for cars fitted with PAL MAGNETON dynamo only; 49 - Voltage regulator; 50 - Flasher circuit breaker; 51 - Starter motor; 52 - Automatic reversing light switch; 53 - Interference suppressor condenser; 54 - Dynamo; 55 - Third load (for Bosch dynamo only); 56 - Engine compartment lamp; 57 - Contact switch; 58 - Starter button switch (in engine compartment); 59 - Ignition distributor; 60 - Ignition coil; 61 - Interference suppressor condenser; 62 - Ignition coils; 63 - Rear number plate light; 64 - Combination tail lamps; 65 - Rear flasher trafficator; 66 - Reversing lamp; 67 - Stop light; 68 - Tail light.

The small slightly turned figures and letters indicate the terminal numbers of the respective consumers to which the cables are connected.

*) In case of 1960 production cars and onwards the dome lamp is fitted with a single bulb and the servoswitch 24 is omitted.

**) Some cars are fitted with a three-way switch box fitted with a key which also replaces the function of the change-over switch 34, instead of the switch 35. The respective modification of the wiring is indicated by a dashed line.

Note:

The data contained in this Operators Manual are valid for cars Tatra 603 starting with manufacturing No. 00681. The technical data, description and illustrations indicated in the Manual are given without any liability for the constructional execution or accessories of the delivered car. This is due to the fact, that the manufacturers are constantly improving their products, so that it is necessary to reserve the right for them of alternations, which come along with the further technical development of the manufactured automobiles.

Driver's Manual of the Automobile Tatra 603

2nd issue 1961

By Z. V. Kleinhampl, pictures by A. Chromela

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- Clean the carburetters, tighten their fixing screws (of the carburetter lids and flanges).
- In case of need clean thoroughly strainer in the fuel cleaner in the fuel delivery pump.
- Check the state of the rubber protective bellows of the ball joints of shock absorbers. Replace defective bellows for new ones.

After finishing 12 500 km (7800 miles) of driving:

- 7 Unassemble lid in the rear luggage boot floor and lubricate clutch disengaging mechanism bearing (see page No. 43).
- Check and according to need adjust dead travel of the clutch operating pedal (see page No. 59).
- 10 Exchange oil in gearbox and in the rear axle housing (see page No. 46).

When running in of a new car or of a car just after an overhaul, up to finishing the first 6250 km (3900 miles), oil is exchanged in the gearbox in shorter intervals (see page No. 19).

- Check through the slot in the floor of the rear luggage boot whether the fixing nuts of the exhaust pipes flanges are thoroughly tightened.

The belt lubricating insert in the distributor shaft as well as the felt insert for lubricating the contract breaker cam is to be maintained with fine oil (see page No. 44).

Lubricate with oil-can the following lubrication spots:
Hinges of the front luggage boot and of the engine bonnet (the lugs are to be cleaned with petrol, they are, however, not lubricated).
Hinges of doors, hinges of the spare wheel box.
Joints and pins of the tie rods of carburetters, accelerator pedal, regulation of engine cooling, bearings of operating pedals (and check at the same time their joints).

- 13 Parking brake lever pins, pins of the balancing mechanism and the steel cable (in the space under the rear seats) (see page No. 49).
- 17 Unassemble the lid on the bottom cover (under the steering wheel) and smear with finger a little of consistent grease into the forks of the ball joints of the gear engaging lever mechanism and on the lever of the direction indicators switch.

Put with finger or a stick a little of consistent grease into the R. H. and L. H. side grooves of the parking brake steel cable (from both sides of the grooves). Prior to this operation, however, clean the grooves and their vicinity thoroughly.

- 22 Lubricate with grease run the ball joints of the L. H. side and R. H. side hinged arms of the front wheel (under the body: — under the telescopic hinge — see page No. 48).
- 23 Top thick transmission oil into the bearings of the cranked hinged arms of the front wheels. This lubrication spot is lubricated with a grease gun (see page No. 48).

Have the axial play of the hinged cranked arms of the front wheels checked and in case of need adjusted in an expert shop.

- Inspect the rubber protective bellows of the bottom fixing joints of the rear telescopic shock absorbers. Damaged ones are to be replaced for new, faultless ones (after the joints have been cleaned thoroughly and lubricated — see page No. 30).
- Unassemble brake drums, blow through with compressed air the brake shoes, clean and inspect the effective braking surfaces of the brake drums and brake shoe linings. An excessively worn brake shoe lining is to be replaced with new one (on both brake shoes of a wheel at the same time).

Check and adjust according to need:

- Contact points gap of the contact breaker (see page No. 56).
- Toe-in of the front wheels as well as that of the rear wheels (see page No. 78).
- Check the function of all the electric installation and of all the electric appliances of the car.

Clean the metal guides of the door glasses.

- Rubber door weatherstrips are powdered with talcum.
- Check tightening of oil screws and nuts accessible under the car (with car jacked or placed over an assembly shaft (tunnel)).
- Have at least the static balancing of wheels checked in an expert service station or shop.
- Check wear of tyres design and exchange wheels to achieve an approximately equal tyres design wear (see page No. 77).

Having finished 25 000 km (15 600 miles) driving do the following maintenance operations:

- 18 Inspect level of oil in the steering box and top if necessary (see page No. 46).
- 9 Fill up with grease gun consistent grease in rear wheel hubs (there are lubricating nipples on the hubs — see page No. 47).
- 20 Unassemble lids of the front wheel hubs (see page No. 47) and fill them with consistent grease by half only.
- 5 Fill special grease into the cooling exhaustor hub (less dynamo generator). This grease must be heat-resistant (see page No. 46). Lubricate slightly with oil the pulley pins and guides of the front bench-type seat.

Put about 5 drops of fine machine oil into the lubricating holes on the both sides of the electric-motor which drives the heating and ventilating fan.

- Replace all spark plugs for new ones.
- Clean carefully the fans of the running and distributing boxes the cooling exhaustors.
- Have the following operations done in a service station or in an expert shop:

Clean carefully the cooling ribs of cylinder barrels and cylinder heads.

- Unassemble both the front and the rear shock absorbers, take them apart, clean carefully and fill with fresh damper oil.

Unassemble the bottom and the top fixing joints of the rear shock absorbers, clean the individual components, and an assembly fill joints with fresh consistent grease.

- Having assembled the front shock absorbers, filled with fresh damper oil, top oil in the space of the top bearings of the telescopic front wheels supports (see page No. 49).
- Unassemble and take apart the dynamo generator, clean the collector, exchange the brushes, fill the bearings with special consistent grease and test the dynamo generator function.
- Unassemble and check the starter motor, especially as far as the brushes are concerned as well as the collector. Check the function of the gear engaging mechanism joints and in case of need adjust them accordingly. Test and adjust play if necessary.
- Joints of the hinged arms and the steering levers.
- In the steering transmission mechanism.

Having finished 50 000 km (31 000 miles) of driving do the following maintenance operations:

Unassemble and take apart the front and rear wheel hubs: clean and fill with fresh consistent grease (see page No. 47). The covering lids of the front wheel hubs are to be filled by one half only.

- 14 Unassemble the front slanting floor section, and lubricate with grease gun (see page No. 48):
- The top ball joint, connecting the layshaft lever with the steering rack.***
- 15 The bottom lubricating nipple on the layshaft steering lever (both the ball joints of the steering track rods are lubricated with this lubricating nipple at the same time).
- 16 Lubricating nipple of the layshaft steering lever shaft bearing (consistent grease will penetrate through the hollow stalk into the other one which is a needle bearing.***)

Connecting joints and tie-rod pins as well as the pins of the accelerator lever and the gear engaging mechanism pins (which are accessible after unassembly of the front slanting section of floor has been carried out), are lubricated with oil-can.

The parking brake operating rod is slightly smeared with consistent grease.

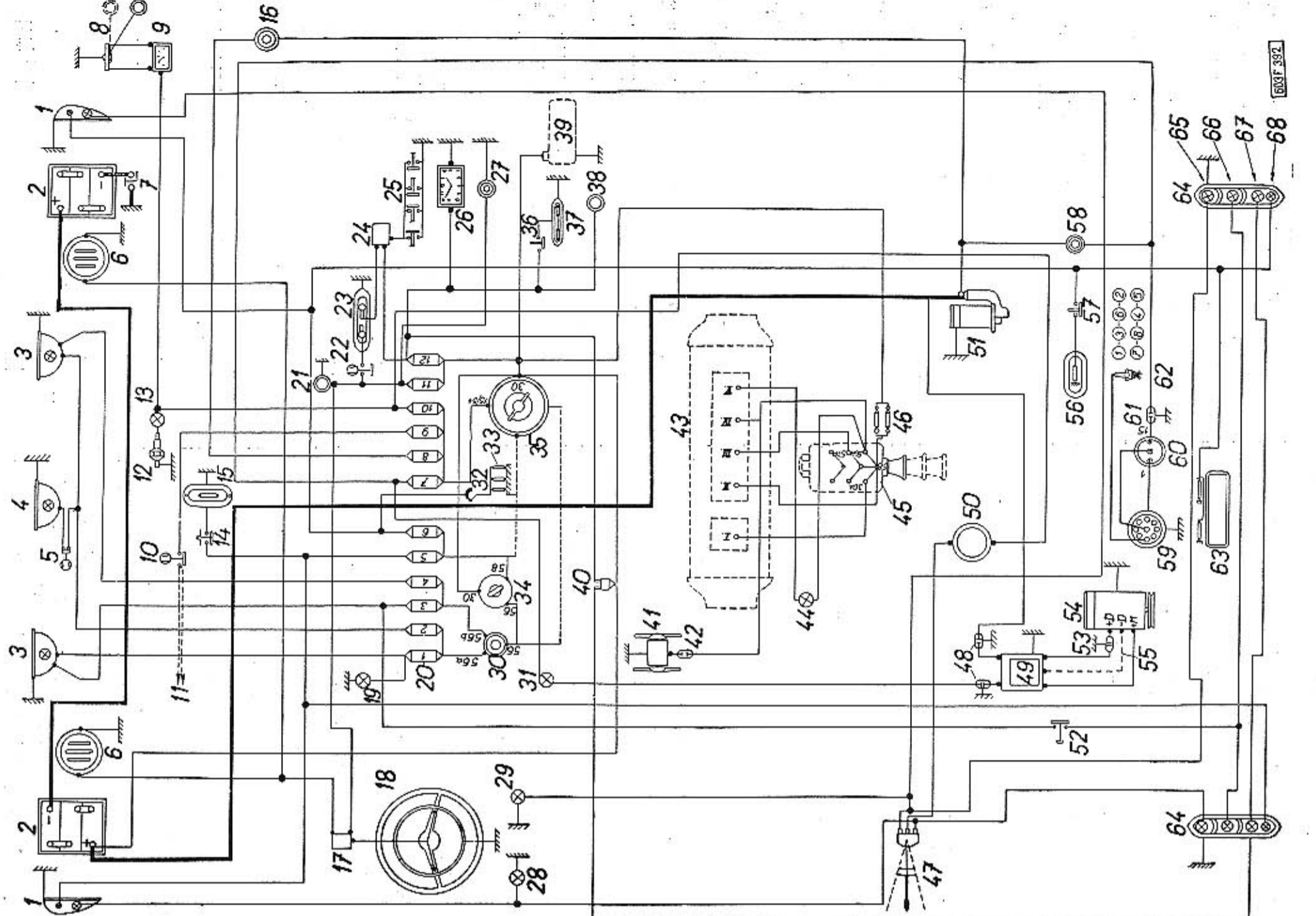
- Unassemble the bottom lid of the engine crankshaft and clean the lid and strainer of the oil pump.
- Make sure that the rubber and leather bellows (of all the track rods, steering levers etc. as well as on the front and rear axles etc.) are tight and undamaged. The loose or damaged ones are to be replaced with new ones.
- Have the following operations done in a service station or in an expert shop:
- Unassemble cylinder heads and cylinder barrels, carry out decarbonization of the cylinder head and pistons, exchange piston rings, check the tightness of valves (and in case of need grind), exchange the silicone rings (if damaged).
- Test the distributor in an expert shop by aid of testing apparatus (and in case of need adjust duly).
- Check fixing of gearbox in the rear flexible silamblock hinge.
- Inspect seals of the transverse wall in front of the engine (and replace the damaged ones).
- Lubricate the speedometer flexible driving shaft.

*) This unusually uneven period, constitutes 1/8th of the longest prescribed maintenance term, which is 50 000 km (31 000 miles), and one half of the nearest long term. Therefore it is suitable to carry out, together with the operations to be done in short terms also those with longer terms, and in this way the number of service days is eliminated to the minimum.

***) The brake drum is fixed to the wheel hub with two screws with sunk, flat head.

****) This lubricating nipple is accessible after unassembly of the round lid in the middle of the rear wall of the front (large) luggage boot on the Tatra 403 of previous production.

*****) On cars of previous production, this lubricating nipple is accessible after unassembly of the oval lid in the floor of the front (large) luggage boot.



Lubrication chart and plan of maintenance

Both in the lubrication chart as well as in the survey of maintenance operations to be done, equal marking for terms and identic numbers of lubricated spots are used. The time terms indicate first a survey of lubricating operations to be done, followed by a survey of adjusting and maintenance operations marked with black discs (●).

Hatched discs (◐) mark those operations, that are to be done by a service station or an expert repairshop.

The time terms of lubrication and maintenance operations are indicated according to the finished kilometres (miles) and mostly in such a way, that each following term is a multiple of the preceding one. That means, that it is necessary to carry out all the operations prescribed for all the preceding shorter terms together with that operation, prescribed for whichever longer term.

There is only a brief survey of the individual lubrication and maintenance operations. Some of the operations are described in more detail in the manual; in such a case the number of the respective page is indicated in the survey (in brackets).

Make exclusively use of the correct kinds of oils and consistant greases according to the table of recommended lubricants (see appendix).

Each day before starting off.

- 1 Check and in case of need top oil in crankcase (sump) (see page No. 40).
- Check fuel level in the fuel tank, and make a perfunctory inspection of the car, i. e. making sure everything is in order (see page No. 16).
- Check by hearing the heated engine run, as to wheather no unusual noises are to be heard (knocking of valves, bearings or gudgeon pins, timing of valves etc.).



In winter each 1000 to 1500 km (650 to 1000 miles) of driving:
In summer each 1500 to 2000 km (1000 to 1300 miles) of driving:

- 1 Exchange oil in crankcase sump (see page No. 41). Before each exchange of oil and before filling with oil of a different type or mark, rinse the engine with at least 3 lit. of oil (see page No. 41).

During running-in of a new car or after an overhaul up to finishing the first 2000 km (1300 miles) exchange oil in shorter periods (see page No. 19).

During every second exchange of oil (in crankcase):

- 2 Unassemble and clean the strainer type oil cleaner insert (see page No. 42).
- 3 Exchange oil in the air cleaner (see page No. 42). Wash both the insert and the cover of the cleaner in petrol.
- 7 Unassemble lid in the rear luggage boot floor and lubricate clutch disengaging mechanism bearing (see page No. 45).
- Check oil level and according to need top with brake liquid the equalizing brake fluid vessel, which is located in the front luggage boot (see page No. 70).
- Inspect the state of all the tyres and check their pressure. The tyres are inflated according to data indicated on page No. 105.
- Test and according to need adjust brakes — both the service brake and the parking one (see page No. 74 and 75).



After finishing 6250 km (3900 miles)* driving:

- 4 Lubricate the distributor bearing (see page No. 44). Lubricate under the body with grease gun, using the prescribed consistant grease the following lubricating spots:
 - 19 The ball joint, connecting the L. H. side and the R. H. side steering levers with the steering rod (see page No. 48).
 - 11 The joint hinges of the L. H. side and the R. H. side sliding arms (see page No. 47). There are identic lubricating nipples on all the lubricating spots to be lubricated with a grease gun.
 - Check and in case of need adjust valve play (see page No. 51).
 - Check state and tensioning of the exhaustor fan belts. Slackened fan belts have to be tensioned correctly.
 - Inspect the state of electrolyte in the batteries and in case of need top distilled water into the cells. Check voltage of cells and desity of electrolyte (see page No. 81).
 - Clean the battery terminals, preserve them with consistant grease and tighten well. The batteries surface should be cleaned and wiped to dry state.
 - Clean the stainer in the air induct channel on the heating apparatus (see page No. 96).
 - Wash with petrol the oil cooling radiators. Then spray engine with warm water from the top. Oil cooling radiators are to be sprayed with water from the sides.
- Water must not penetrate into the oil aircleaner, nor into the distributor or on the condenser.
- Test spark plugs' tightness, clean them, check the gap between electrodes of the spark plug, respectively adjust to 0,6 mm.

