LOOK
LISTEN
DO IT BETTER

Delivery Inspection

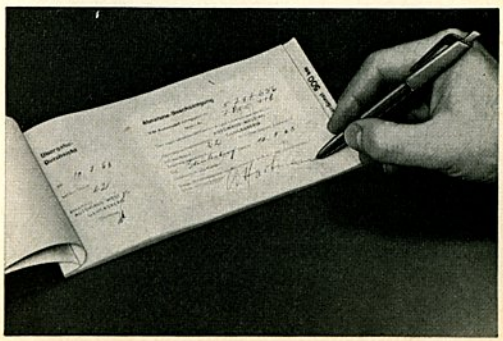
VOLKSWAGEN 1200

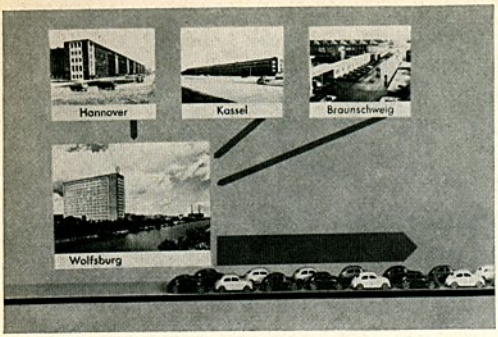
Slide Series № 21

DELIVERY INSPECTION - VOLKSWAGEN 1200

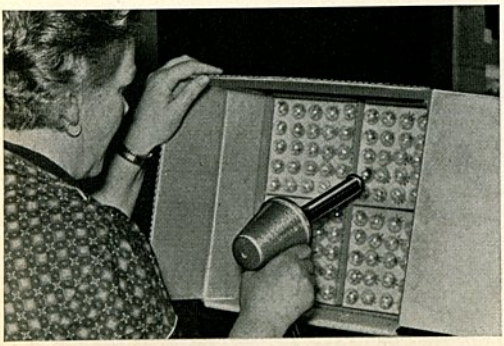
21/1 Thousands of Volkswagens are handed over daily to the customers. The new car must be "as clean as a new pin" when its owner receives the keys and the vehicle documents. Do not forget to attach importance to the handing over ceremony. All your efforts, however, will be in vain if the car is not completely reliable right from the beginning.

21/2 The customer who has chosen the Volkswagen has been convinced by its quality and reliability. He places his trust on these facts when he signs the Acceptance Certificate and by doing so confirms that he has received his car in **"perfect condition"**. Gentlemen, it is your responsibility to ensure that minor difficulties do not arise during the first 500 km (300 miles) which could disappoint the customer. To a great extent the customer's confidence in the Volkswagen and the VW service depends on your skill and constant thoroughness.



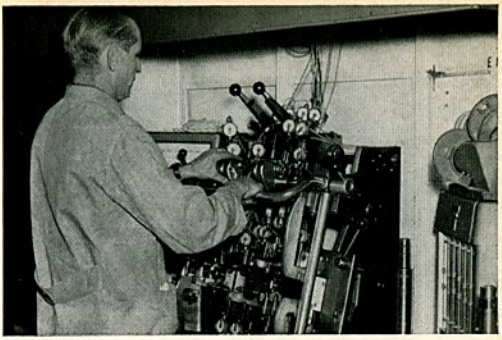


21/3 The Volkswagen still is a symbol of quality. It would be a mistake to assume that the increased production has rendered it impossible to build the individual car as thoroughly as beforehand. Quite the contrary. Due to the increasing production, the demands placed on precision have become even greater. The need for an exact adherence to the smallest tolerance was never so great as it is today. Our production is based on the most modern automation methods and nowhere else is the work carried out with more thoroughness and diligence than in the four plants in Wolfsburg, Hanover, Cassel and Brunswick which combine to manufacture the Volkswagen 1200.

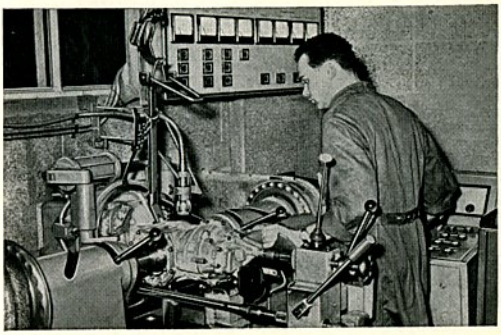


21/4 A few pictures showing the tasks of the more than 5,000 inspectors is an example of the numerous other checking operations which take place from the arrival of the material and sub-contracted parts to the finished vehicle on the line. This picture shows the inspection of sub-contracted parts: Bulbs which are in order light up when they are subjected to high-frequency current. Defective bulbs do not and they are rejected. This is an amazingly simple but efficient checking operation which can be carried out by reliable helpers.

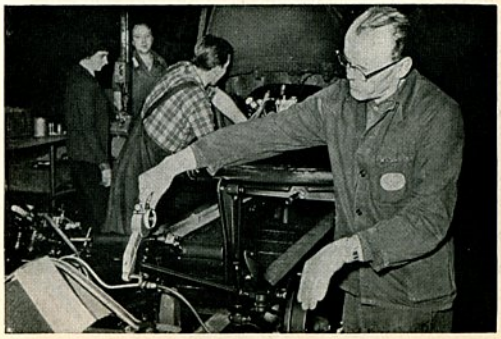
21/5 As opposed to this, the crankshaft has to be checked by a skilled man. The plant in Hanover is equipped with 6 of these measuring devices. In the course of 3 consecutive operations a total of 48 locations are checked. The crankshaft run-out is checked as well as the width and diameter of the ground bearing surfaces. The dial indicator recordings are transmitted to the cabinet situated beside the checking equipment and evaluated with the help of the red and green lights: all the lamps must be green before the crankshaft is released for assembly.



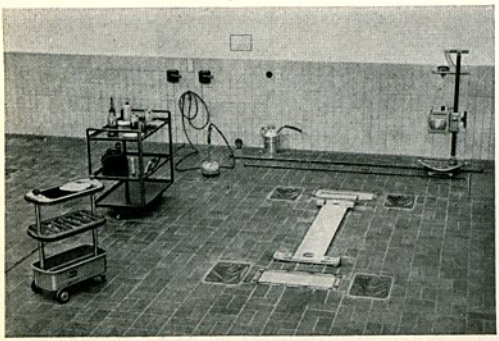
21/6 Here we see one of the 34 recording cabins for the transmissions in the Cassel plant. As shown here, each transmission is checked functionally and for silent operation before it is sent to Wolfsburg or Hanover. The inspector's trained ear is helped by a microphone which transmits the oscillation frequencies electronically to the recording instruments. Here you see the microphone above the transmission case.



21/7 We have already seen that electronic devices are used by the inspectors to identify even the smallest deviation on the recordings. On the final assembly line the torque wrench is usually used for checking the tightness of important connections on the frame. The man you see here is checking whether the brake line nuts are tightened as prescribed to between 1.5 and 2.0 mkg (11 and 14 ft. lbs.).



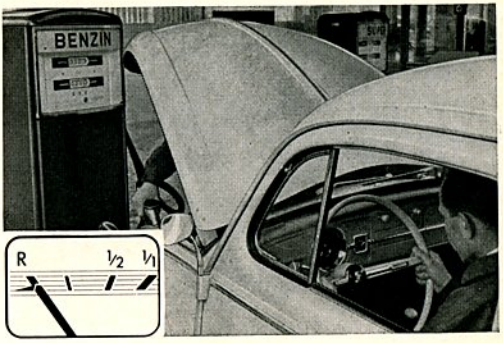
21/8 The final inspection makes rigid use of its right to ensure that only vehicles which are in perfect condition are passed. If the trained eye of the inspector sees a defect on the paint or in the equipment, the car is returned for repairs. Any vehicle which passes the inspection here can be supplied to the dealer. Since these checks are so thorough why cannot the Delivery Inspection be dropped? Firstly there are technical details which we shall deal with later on in the slide series; secondly, for transport reasons, certain operations cannot be carried out until the car reaches the dealership. Thirdly, despite mechanisation and the most thorough production methods there is the human element. To err is human. This can happen on the assembly line and in your workshop. The inspectors can also overlook something. The purpose of the Delivery Inspection is to ensure that the customer does not receive a car which is not quite in order.



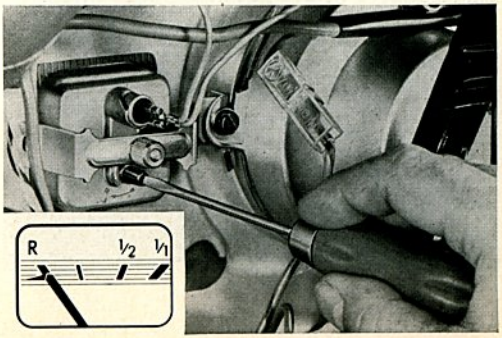
21/9 The Delivery Inspection has much in common with a Maintenance Service. The work bay is very similar to the Maintenance Service Stand: apart from the hoist, tools, various lubricants and cleansing materials etc. there should also be a tire inflator and a headlamp aiming device.

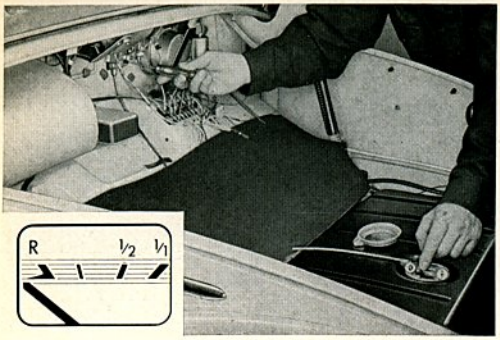
21/10 At first a few words about the sequence of the individual operations: it is true that the technical requirements call for a particular sequence but here too there is a certain tolerance. It is up to the VW dealerships to work out the sequence for themselves and to keep it within certain limits. The list in the Service Booklet serves only as an example. The important fact is that no operation is omitted. The following slides will show and tell us what to do during the Delivery Inspection.

21/11 It is usual to fill up with petrol before the Delivery Inspection starts. This gives us the opportunity of carrying out an important check: checking the fuel gauge. To do this the car must be on level ground. The customer must be in a position to rely on the fact that when the needle reads R there are at least 5 liters (1.1 Imp. galls.) in the tank. If after filling in 5 liters the needle is not dead on the reserve mark, we have to set the fuel gauge.

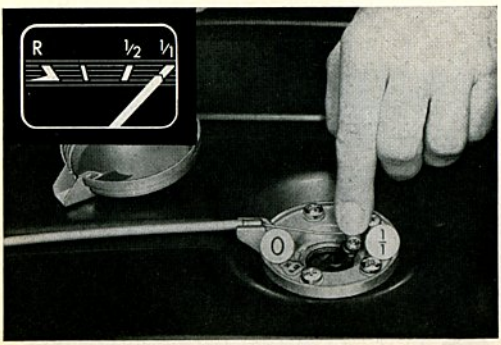


21/12 We remove the protection panel behind the instrument panel. With the help of a screwdriver we turn the slotted knurled nut and set the fuel gauge needle on the line R. A helper will have to observe the gauge during this operation. The next picture will show you how to check the fuel gauge when the tank contains an unknown quantity of fuel.



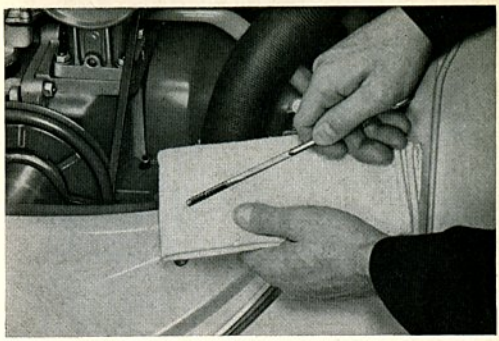


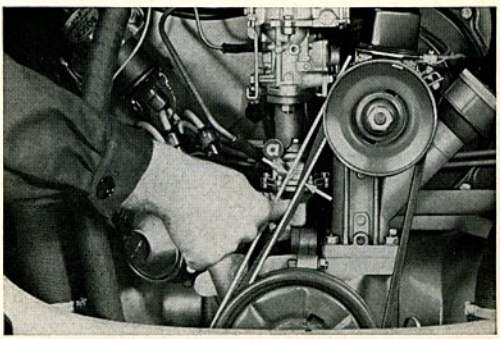
21/13 First of all we must remove the compartment lining and the tank unit cover plate. Again a helper observes the fuel gauge. We depress the float arm to the empty position, shown here as naught and turn the adjusting screw anti-clockwise until the needle clearly moves in the direction of R. We now turn the screw clockwise until the needle is positioned at the tapered end of the reserve.



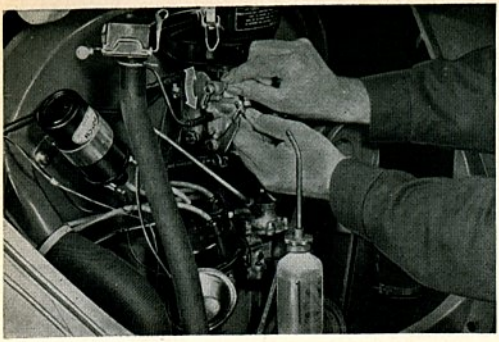
21/14 We now push the float arm forward as far as the stop. This is the position it will be in when the tank is full. This position is marked 1/1 on the picture. The gauge needle must also be on the 1/1 mark i. e., "full". Irrespective of the fuel level in the tank, a gauge set in this way will give correct readings and the customer can really rely on it.

21/15 We now drive on to the work bay and check the level of the engine oil. As you will know, for some considerable time the new engines have been filled with 2½ liters of oil (5.3 US pints; 4.4 Imp. pints). The oil level should be near the upper mark on the dipstick. Slight deviations are of no significance. The oil need only be topped up if the oil level is clearly nearer the lower mark. We then take a branded HD oil of the correct viscosity or a multi-grade oil. An inadequate oil level can indicate an oil leak. Consequently when the car is on the hoist later on we must check for signs of oil leaks on the engine.

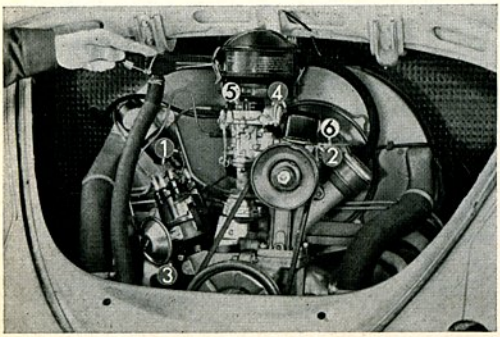




21/16 The fan belt tension can be checked by depressing the belt with the thumb. The dimension a is 1.5 cm (.6″). Everybody knows that the tension can be altered by removing or inserting spacer washers at the generator pulley. If the fan belt is damaged, it must be replaced.

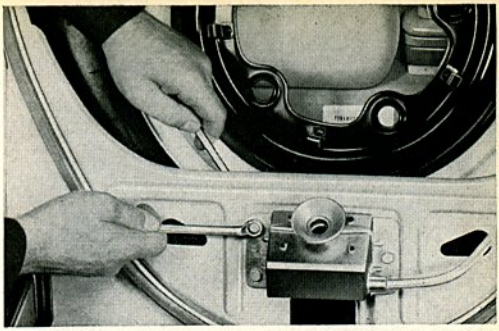


21/17 The automatic choke is of importance as regards easy starting — especially in winter — even transfers and correct idling with the engine cold und low fuel consumption. We lift the throttle lever and check the fast idle cam for free movement. If it is not free we apply a few drops of anti-corrosion oil to its bearings and move the cam to and fro a few times. The dual arrow indicates this movement. With the engine cold — depending on the outside temperature — the idling adjusting screw should engage in one of the upper notches in the fast idle cam.

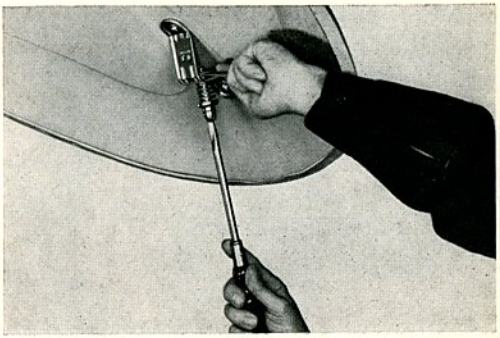


21/18 Even though this is not mentioned in the Service Booklet it does not take long to have o look into the engine compartment. For instance we should check the push-on connections shown here in white for tightness. No. 1 the ignition oil, No. 2 the generator, No. 3 the oil pressure switch and No. 4 the ceramic cover on the carburetor. The two black circles indicate 2 screws which should also be checked for tightness. No. 5 is the clamping screw for the air cleaner No. 6 is the connection of the regulator through which passes all the current for the ignition, lighting and battery. The mechanic's hand moves the pre-heating flap on the air cleaner. It should be free and in no event clamped in position.

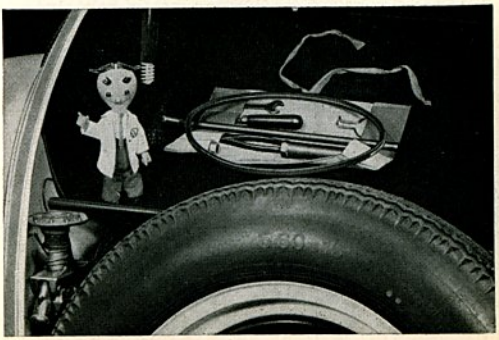
21/19 It should not be necessary to exert much pressure when pulling the front hood control knob nor should the hood jam. If considerable pressure is necessary, the cable may possibly break later on. If the hood is correctly aligned, the stiffness is then usually caused by the hood lock. After loosening the three screws we can move the lock so that the pin engages in the center of the lock.

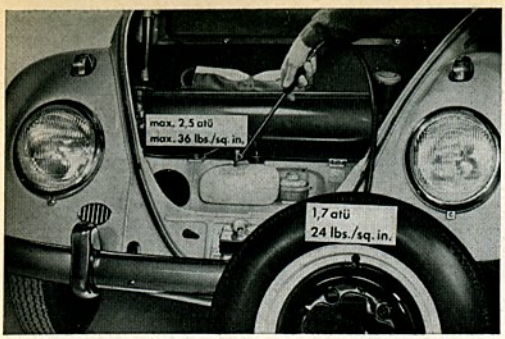


21/20 If due to maladjustment the pin is too short, it will be hard to release the lock. The hood will then require considerable pressure when closing it — a defect which will be a source of continuous annoyance to the customer later on. We can remedy this by loosing the pin nut and screwing out the pin slightly with a screwdriver.

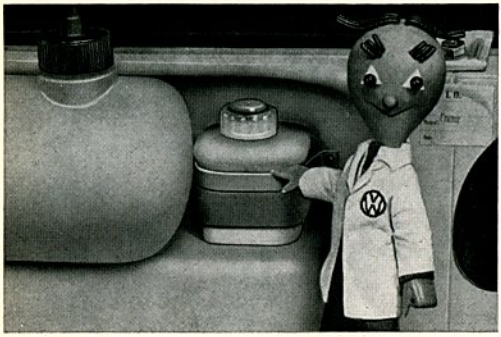


21/21 We should now carry out stock-taking under the front hood. Make sure that the spare wheel, jack, tool kit and spare fan belt are not missing. Check whether the tools are complete. Customers often complain later on that one or other of the wrenches was missing.

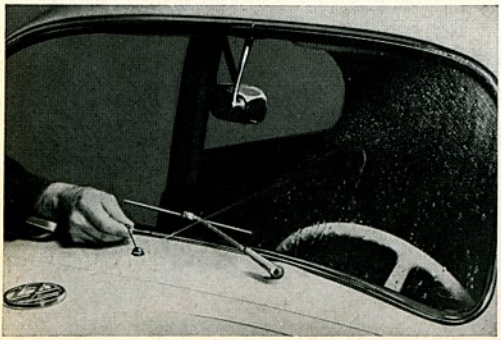




21/22 Fill the windshield washer container up to the top with clean water and pressurize it to 2.5 kg/sq. cm (36 p. s. i.). Make sure that the cap and the valve etc. are not leaking. Some dealerships fill in pure spirit in winter to prevent the washer from freezing. Now check the spare wheel pressure. It should be at least 1.7 kg/sq. cm (24 p. s. i.) or even slightly higher.

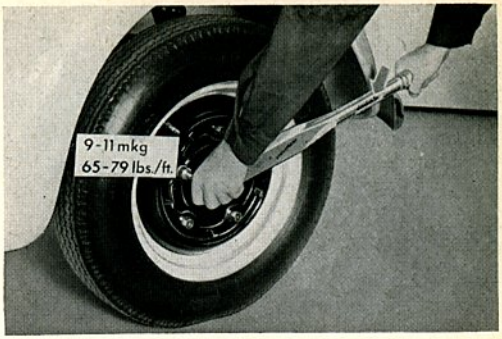


21/23 In the factory the brake reservoir is filled up to the upper edge of the mounting bracket. 3/4 full is sufficient. If the system requires topping up we use Genuine VW Brake Fluid or Lockhead brake fluid. After topping up we have to check the brake system for leaks later on when the car is on the hoist.

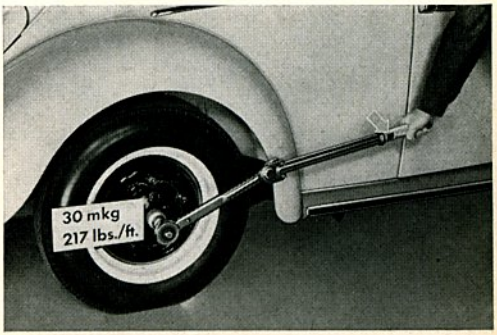


21/24 To prevent the jet of water from being blown away when driving fast, the jet should not be set too high. With the help of a pin we set the jet so that the jets of water hit the center of the windshield. We should also check whether the wiper arms are correctly adjusted and that they self-park.

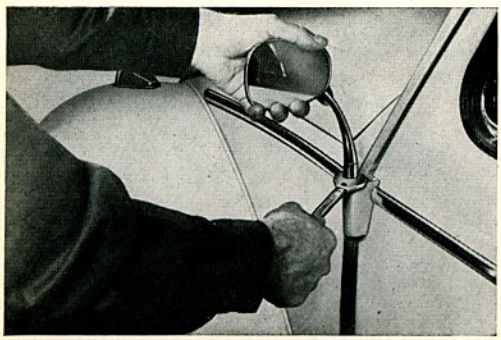
21/25 Just as we should retighten the wheel bolts after a certain time when the wheels have been changed, for safety reasons we must check the wheel bolts of new cars for tightness. Obviously we should not overtighten them to an extent that the owner cannot remove them later on. To this end we use a torque wrench and tighten the bolts to between 9 and 11 mkg (65 and 80 ft. lbs.).



21/26 Individual components of the rear suspension can also settle after assembly. Before handing over the vehicle we must check the rear axle shaft nuts for tightness. We remove the cotter pin and check that the nut has been tightened to 30 mkg (217 ft. lbs.). If the slot and the cotter pin hole do not coincide when 217 ft. lbs. has been reached, we must increase the torque until the hole and slot coincide. Never back off the nut as this would jeopardize the tightness of the brake drum. If a dealership carries out numerous Delivery Inspections or there is a large vehicle through put in the workshop the torque wrench shown here which is designed for between 30 and 40 mkg (217 and 290 ft. lbs.) is particularly suitable because it cannot be overloaded.

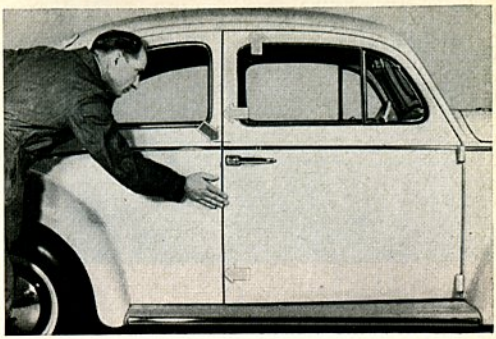


21/27 In the factory the tubeless tires are inflated to approximately 2 kg/cm² (28 psi). On the one hand this ensures perfect sealing between the new tires and the wheel discs and on the other hand the higher pressures protect the tires when the cars are transported by rail or ship over long journeys. During the Delivery Inspection we must reduce the pressure to the prescribed values. When fully laden and for fast driving on motorways the pressures should be 1.2 kg/cm² (17 psi) in front and 1.7 kg/cm² (24 psi) at the rear.

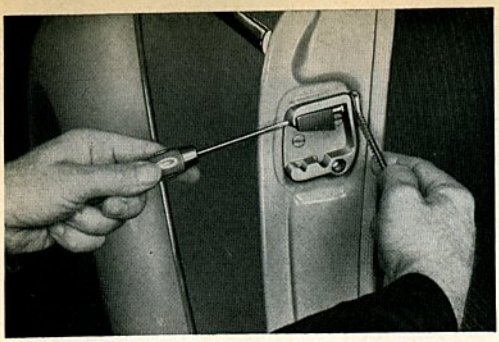


21/28 A 16 mm open-end wrench is one of the tools used during Delivery Inspections. It is required when fitting the exterior mirror. Do not use a 17 mm wrench as this will damage the chrome on the nut. We insert the mirror arm fully into the hinge pin and tighten the nut when the arm is at 90° to the axis of the car.

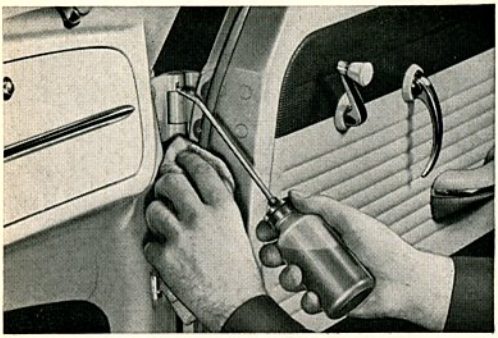
21/29 The quality of a car and its body design can be seen from the door fit and the smooth operation of the door lock. In this connection it is correct to say that our car is exemplary. During Delivery Inspections, however, we are obliged to check whether each car deserves this praise. A hand check will indicate whether the quarter panel and door are a flush fit. The three white arrows point to the door gap which should be as uniform as possible. The dark arrow points to the waistline. This shows us whether the door is set at the correct height. Variations in gap widths can be rectified by straightening the door by hand or, if necessary, by repositioning the door hinges. Incorrect flush fits can be remedied by adjusting the striker plate.



21/30 After we have convinced ourselves that the three striker plate mounting screws are tight we open and close the door a few times to check whether the door closes properly. The door must not rattle in the lock and the closing pressure must not be excessive as otherwise the door will tend to spring back when being closed.



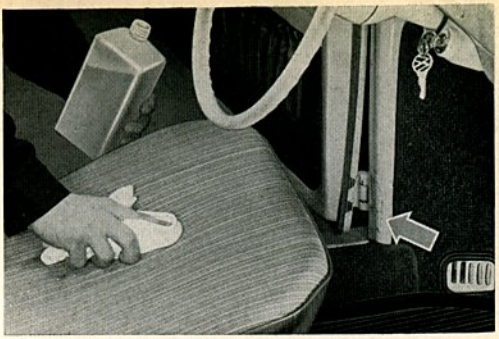
21/31 The closing pressure is regulated by adjusting the plastic wedge. After loosening the lock nut, the adjusting screw is turned with a screwdriver anti-clockwise if the door is loose and clockwise if the door jams. Between a quarter and half a turn is usually sufficient. Hold the adjusting screw when tightening the lock nut to prevent the adjustment of the wedge from altering.



21/32 As you will know the door hinges are no longer lubricated in the factory. This is done to prevent damage being caused by drops of oil. The hinges must now be oiled. Use a thin graphite penetrating oil and clean off the superfluous oil afterwards.

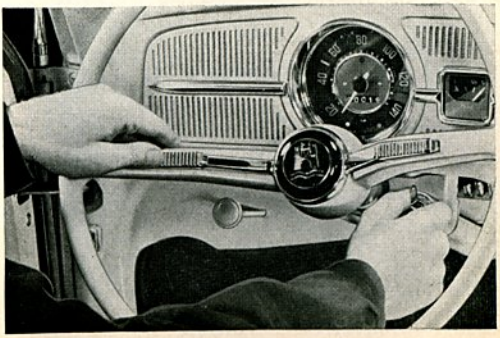
21/33 The windows and doors are also part of our programme. The door windows should move freely. It must be possible to lower them fully into the door. The arrow points to the door gap. The vent wings should also pivot freely but should neither be too free nor too stiff. They should be a flush fit with the weatherstrips when closed. It must be possible to depress the fastener button easily. The button should spring out immediately when the vent wing is closed. A stiff fastener can be remedied by straightening the retaining bracket.

21/34 Before the car leaves the assembly line it passes through the finishing line. Here the car is cleaned up and any traces of the preceding operations removed. Despite this we should examine the interior of the car carefully and remove any remaining adhesive or stains which were overlooked. Make sure that you do not overlook any split seams and you should also ensure that the door and panel trims are correctly fitted.

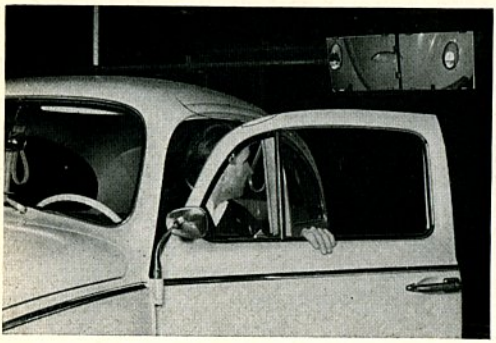


21/35 We now check the seat adjustment. It must be possible to move both seats effortlessly over the complete adjustment range. If the seats do not move freely, a small quantity of grease can be applied to the runners. We should also check the rake adjustment. The little Service Man points out the seat adjustment mechanism. A small amount of grease will ensure easy operation.

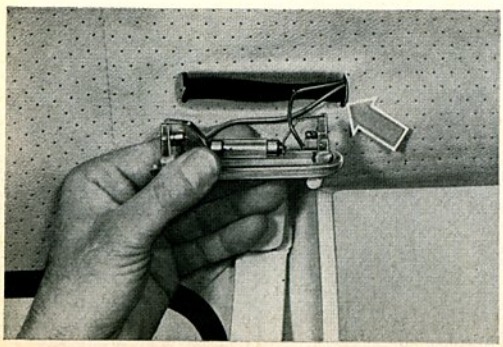
21/36 We switch on the ignition: the generator and oil pressure warning lights must come on. We start the engine: both lights should go out and thereby indicate that the generator is charging and that the oil pressure is sufficient. We depress the horn lever — the horn is in order. We must also ensure that the steering is locked when the key is removed at the "Halt" position and that the lock disengages again.



21/37 We now switch on the flashing indicators and the lights. When the flasher relay ticks the green dual arrow must light up. With the parking lights switched on the instrument panel lighting must come on. It must also be possible to regulate the panel lighting by turning the knob. When the headlights are switched on we check the dimmer switch. On high beams the blue warning light must light up.

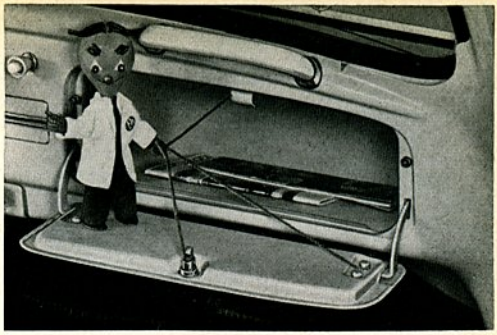


21/38 It is also important to know that all the rear lights are working correctly. With the help of a mirror as shown here it is possible to check the rear lights without the assistance of a helper.

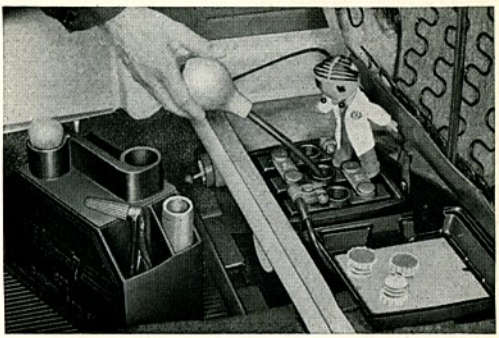


21/39 The interior light must be correctly grounded if it is to function correctly. The mounting screws provide the door contact switches with a good connection. If the interior light does not function when the switch is in the continuous lighting position we first of all check whether the spring contact on the right-hand lower edge of the light housing is perhaps insulated by the headlining. The headlining must be cut away sufficiently at the location indicated by the arrow.

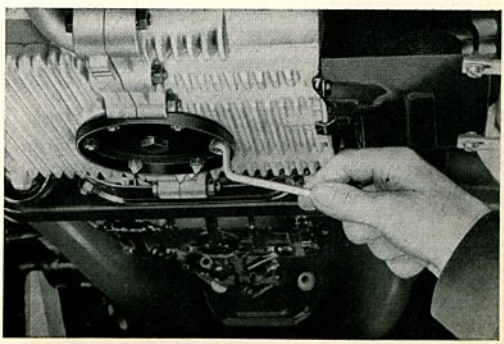
21/40 The Volkswagen is renowned for its workmanship. VW owners are, consequently, very critical. It is quite understandable that customers feel annoyed if the glove compartment lid jams or does not fit properly. It is very easy to check this during the Delivery Inspection. An incorrectly fitted lid can be remedied by loosening the hinge screws. If the lid is stiff, the metal tongue can be bent accordingly. A drop of oil applied to the lock often has the same effect.

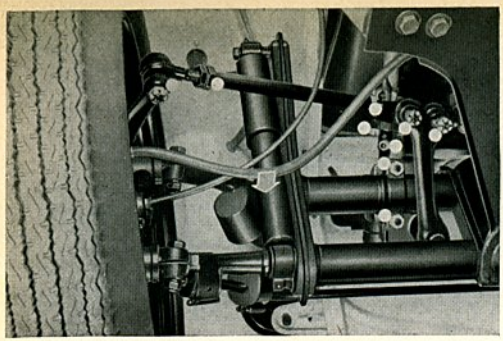


21/41 Weeks may elapse between the manufacture of the car and the Delivery Inspection. Consequently the acid level may drop in the meantime. Even though this is not mentioned in the Service Booklet, the acid level in the battery should also be checked during the Delivery Inspection and topped up with destilled water, if necessary.



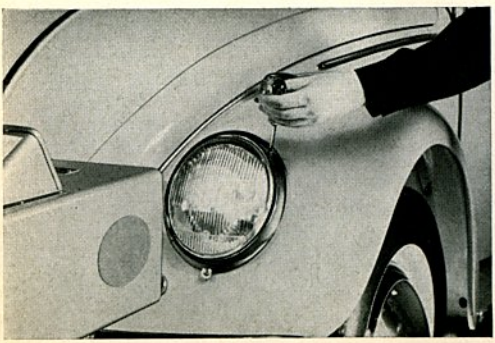
21/42 We cannot have a clear conscience about passing on the car to the Sales Department until we have examined the car from underneath. There is no need to check every nut and bolt — this is done during the 500 km (300 miles) Inspection. It is sufficient to carry out a visible check. Obviously we use tools if we discover an oil leak as indicated here by the oil strainer.





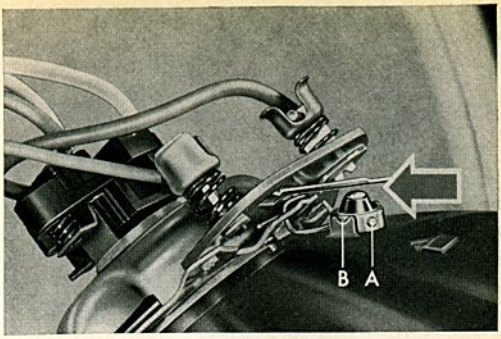
21/43 Obviously the factory pays the closest attention to ensuring that all the nuts on the steering and tie rods are correctly secured. As far as safety is concerned, double checking does no harm. The screw connections are marked in white here. Please check the brake line connections and note the position of the front brake hoses. The arrow indicates that the VW 1200 brake hoses should always be arched towards the front so that they will not rub against any part when the wheels are locked.

21/44 We now raise the vehicle and check the wheels by hand for even running. A slight brake drag is of no importance. If severe brake drag cannot be remedied by depressing the brake pedal heavily a few times the wheel brake has to be adjusted. If the rear wheels bind we should convince ourselves that the hand brake is fully released.



21/45 The headlamps are set with the help of optical devices on the assembly line. Since the suspension settles when the vehicle is driven on the roads, the inclination of the headlamps is consequently effected. It is, therefore, necessary that the headlamp adjustment is checked before the vehicle is handed over and corrected if necessary.

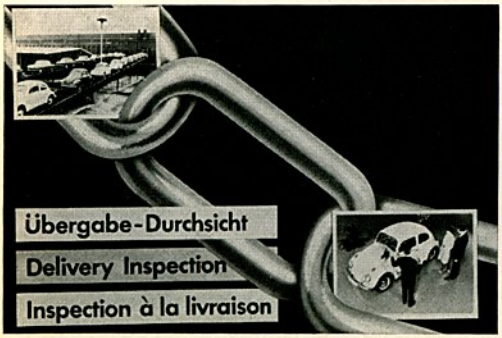
21/46 We must also ensure that the parking lights are in order. A defective bulb is not always the cause of the trouble. In this case the bulb has been incorrectly fitted. The locating pin on the bulb base marked A should be situated in the depression in the reflector marked B. This bulb will not light up because as indicated by the arrow the metal tongue does not contact the bulb.



21/47 We have now nearly completed the Delivery Inspection. We now merely have to check the paintwork and chrome parts and set the idling adjustment when the engine has reached operating temperature. Is the car now ready for delivery? No, because we still do not know if the engine, clutch, transmission and brakes are operating efficiently. To check this we shall have to carry out a short road test.

21/48 The car should be driven in the individual gears during the road test so that the engine, clutch, transmission and brakes can be tested. The heating and the heater control flap adjustment should also be checked. It is a prerequisite that the road test is carried out by a man who is familiar with the Volkswagen.

21/49 The road test can be omitted if the dealer has test equipment which permits the roadtest to be carried out with the help of this equipment. In this firm the road test is carried out on an indoor test line. The engine, clutch und transmission are checked on the performance stand seen in the foreground. The brakes are then tested on the roller test stand where the headlamps are also checked. The manner in which the car is road tested depends on the local conditions. The important fact is that the car is tested before it is handed over to the customer. Furthermore it is also important that sufficient time is allocated for the Delivery Inspection so that there will be time afterwards to eliminate defects which have become apparent during the road test.



21/50 With the Volkswagen 1200 we offer the customer one of the best cars. Quality-wise our car will continue to be in a leading position. You too can help us to keep this lead. The factory has included your work in the production process. The Delivery Inspection is the workshop's first customer service and at the same time the last link in the Inspection chain.

585.312.20