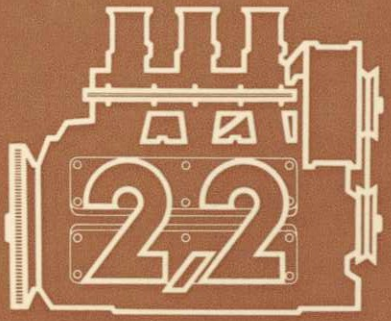
PORSCHE

911 T

OWNER'S MANUAL

USA



Type 911 T

4617.23 1,3 M VIII/70 Edition VIII/69
Specifications subject to change without notice
Printed in Germany

USA

Judging by the car you have chosen, you are a motorist of a special caste. Although you probably are no freshman when it comes to automobiles, we have compiled much useful information in the section entitled Operating Instructions with which you should become familiar before driving your Porsche.

Additionally, the remainder of this manual is equally important and we ask of you to devote your attention to it at your hour of leisure.

We wish you many miles of pleasure and accomplishments in your

PORSCHE



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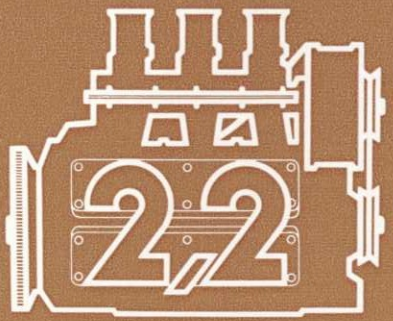
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PORSCHE

911 T

Operating Instructions



Because safe driving is important to you, we suggest that you read this carefully, maintain your Porsche properly and get into the habit of following the check list shown below each time you use your Porsche.

Before getting behind the wheel:

1 - Make sure that the tires are inflated properly.
2 - Watch the tread depth indicator on the tires. Look for bruises and wear.
3 - See that all windows are clean and unobstructed.
4 - Check that headlight and tail light lenses are clean.
5 - Check that all lights are functioning properly.
6 - Check turn signal lamps and indicator light (ignition on).

In the driver's seat:

1 - Position seat properly for easy reach of controls.
2 - Adjust inside and outside mirrors for unobstructed rear view.
3 - Fasten seat belts.
4 - Check brake warning light (ignition on).
5 - Check brake operation.
6 - Make sure that all doors are properly closed and locked.

And when you are on the highway:

1 - Always drive defensively. Expect the unexpected.
2 - Use signals to indicate turns and lane changes.
3 - Turn on headlights at dusk.
4 - Follow at a safe distance. A good rule of thumb is to allow a minimum of one car length for each 10 mph of speed.
5 - Reduce speed during night hours and inclement weather.
6 - Observe speed limits and obey highway signs.
7 - When tired, get off the highway, stop and take a rest.
8 - Use emergency lights when stalled or stopped for repairs.
9 - Pull hand brake lever when vehicle is stopped or parked.



This sticker assures your that your 1970 Porsche complies with all Federal Motor Vehicle Safety Standards which were in effect at the time the vehicle was produced.



The tires of your Porsche conform to the Federal Motor Vehicle Safety Standards.

When purchasing replacement tires, make sure that they show the same specifications for tire size, load carrying capacity etc. This also applies to Porsche recommended alternate replacement tires.

Starting Cold Engine

1. Shift into neutral.
2. Switch the ignition on.
3. Fully depress the accelerator pedal two or three times.
4. Slightly touch the accelerator pedal and turn the ignition key clockwise to the stop to engage the starter.

In cold weather it is of advantage to fully disengage the clutch when starting the engine to reduce the drag imposed upon the starter. If necessary, depress the throttle pedal a few times more than stated above in order to enrich the starting mixture even more.

Starting Warm Engine

1. Shift into neutral.
2. Switch the ignition on.
3. Keep the accelerator pedal in idling position or only slightly depressed, and engage starter.

Do not "pump" with the accelerator pedal unnecessarily since this squirts gasoline into the induction system and may flood the engine.

Note

The starter motor should not be operated longer than 15 – 20 seconds at a time. If the engine has failed to start, repeat the start procedure after resting about 20 seconds. Once the engine has started, release the ignition key without delay; the key will return into its normal position.

Break-In Rules

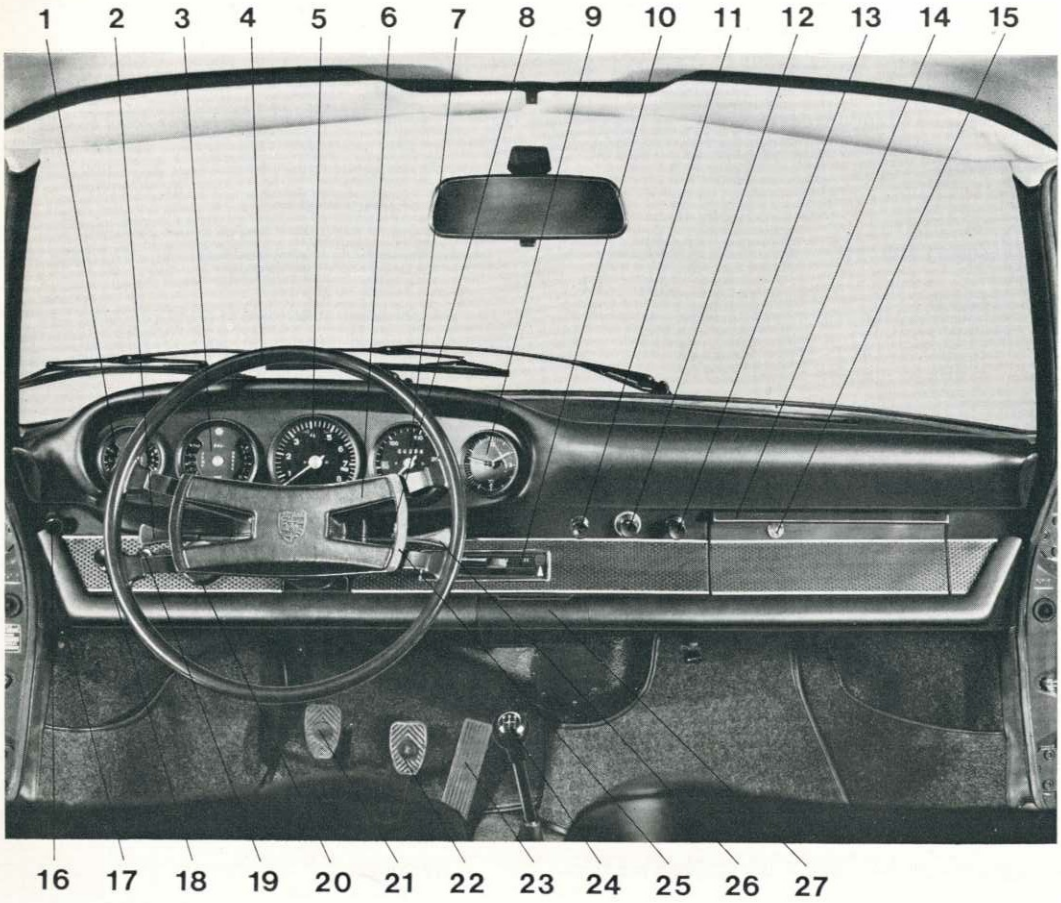
Continued excellence of performance and economy depend to a great degree upon the treatment and handling given during the first 600 miles of operation. It cannot be overemphasized that not only the engine will benefit from proper break-in, but the car as a whole. During this crucial period, the car must not be driven at full power over extended distances, nor should it be driven too slow (with the exeption of the 1st gear, do not drive at less than 1500 rpm if at all possible). The general rules are as follows:

1. Maximum engine speed during the first 600 miles must not be in excess of 5000 rpm.
2. Increase the maximum applied engine speed by 500 rpm between odometer readings of 600 and 1000 miles, meaning not to exceed 5500 rpm. Drive brisqly, change speeds frequently, use full throttle for short spurts only.
3. Increase maximum engine rpm to 6000 between odometer readings of 1000 – 1200 miles.
4. Bear in mind never to lug the engine with heavy throttle at low engine speeds, a rule which applies not only during break-in but at all times.
5. Upon reaching the odometer reading of 1200 miles, you can subject the car to full throttle operation.

A special distributor rotor with an integral governor prevents an overspeeding of the engine under load by limiting the engine speed to 6500 rpm. The red line on the tachometer dial serves as an optical limit-reminder.

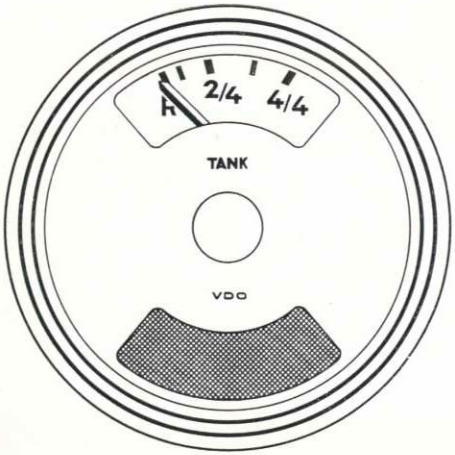
The Sportomatic transmission, when applicable, is described in the attached brochure.

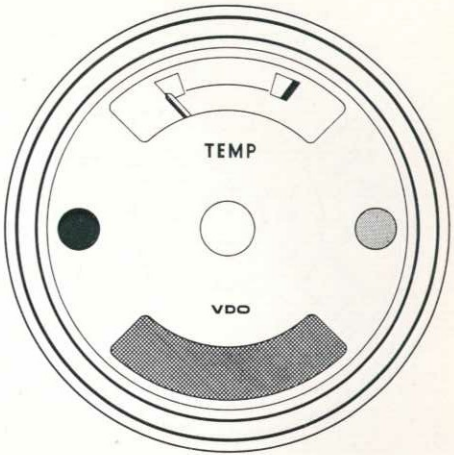
Instruments and Controls



Instrument Panel

1 Fuel gauge; small instrument cluster optional
2 Blinker, dimmer, headlamp flasher switch
3 Oil temperature gauge; large instrument cluster optional
4 Steering wheel
5 Tachometer
6 Horn ring
7 Speedometer
8 Trip mileage reset control
9 Clock
10 Heating and ventilating air control
11 Fog lamp switch (optional)
12 Cigarette lighter
13 Rear window heater switch
14 Glove compartment light
15 Glove compartment lock
16 Filler cap release
17 Front lid release
18 Light switch
19 Emergency flasher switch
20 Starter/ignition switch and steering lock
21 Clutch pedal
22 Brake pedal
23 Accelerator pedal
24 Gearshift lever
25 Auxiliary heater control (optional)
26 Wiper/washer switch
27 Ashtray





Instruments

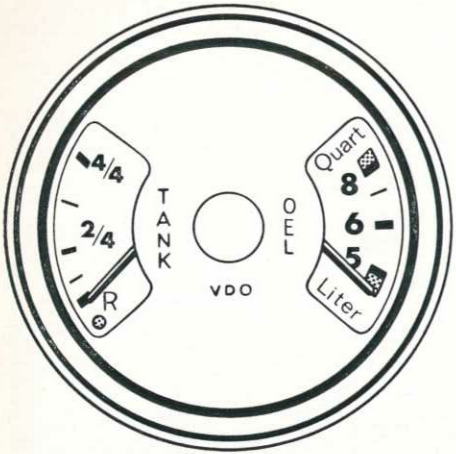
(monitor at all times)

Fuel Gauge

The fuel gauge has a control lamp which lights up when the fuel supply in the tank drops to approx. 1.6 US gals (6 ltr.).

Oil Temperature Gauge

The oil temperature indicator should stay within the white field. If the needle enters the red field, slow down and take car to a workshop to determine the cause of the overheating. Improper ignition timing or a slipping V-belt can cause excessively high oil temperatures.



Fuel and Oil Level Gauges

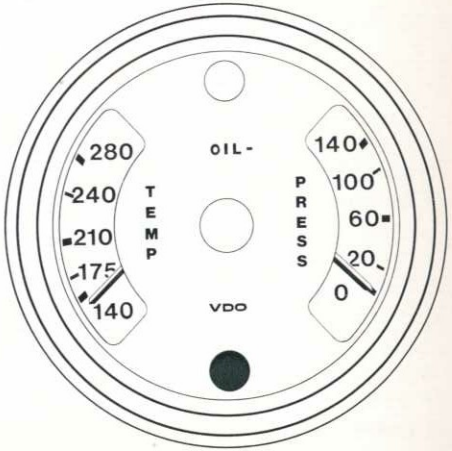
When the ignition is on, the two gauges show the amount of fuel and oil in the tanks.

The fuel gauge has a red warning lamp which lights up when the fuel level in the tank drops to about 1.6 US gallons (6 liters).

The oil level gauge is calibrated in liters. When reading the oil level gauge, the oil temperature should be at least 140° F (60° C). Make sure that the oil level never drops to below the 5-liter mark. When checking the oil level after the engine was shut off for a while, such as after a rest stop enroute, allow the engine to idle for about one-half minute before taking the reading.

Do not overfill the oil tank in excess of the 7-Quart mark since some of the oil could be drawn in by the carburetors. The oil level readings shown on the gauge may be checked with the dipstick (same procedure as for taking gauge readings; see page 50).

The lower dipstick mark indicates
5.3 US qts (5 liters)
The upper dipstick mark indicates
7.4 US qts (7 liters)

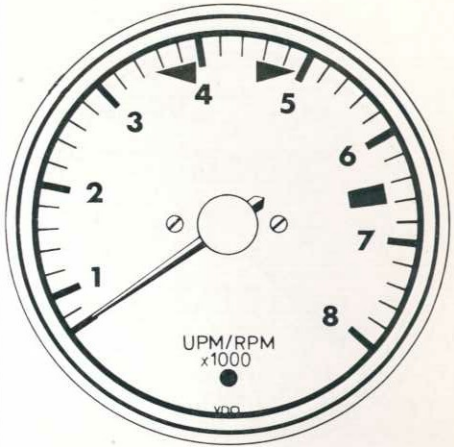


Oil Temperature and Pressure Gauges

The multi-gauge unit contains an oil temperature gauge, oil pressure gauge, alternator indicator lamp, and hand brake indicator lamp. The gauges and indicators work only when the ignition is turned on. The oil temperature gauge registers degrees Centigrade (° C); the oil temperature must not exceed a maximum of 265° F (130° C). If the temperature should exceed the limit, slow down and take car to a workshop to determine the cause of the overheating. Improper ignition timing or a slipping V-belt can cause excessively high oil temperatures.

The engine oil pressure should be read when engine is warm (oil temperature 80° C = 176° F) and running at 5,000 r.p.m. Oil pressure must not fall below 80 psi (5.5 atm) nor exceed 100 psi (7 atm). Pressure drop at idling speed with a warm engine is of no significance.

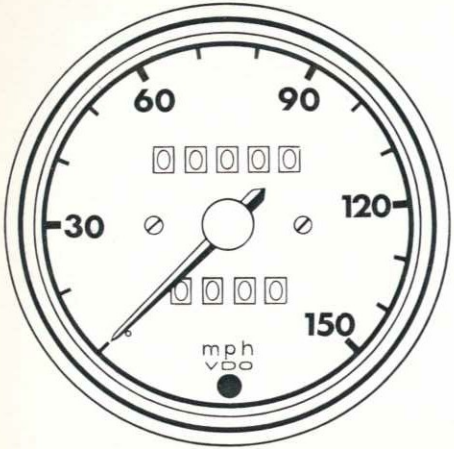
Should the oil pressure drop at speed, stop at once and check the oil level in tank. If the inspection reveals that there is a sufficient oil reserve in the oil tank, the cause of the malfunction will have to be determined and corrected by contacting the nearest authorized dealer. Should the pressure indicator suddenly indicated 140 psi (10 atm), it may be due to a broken circuit in the pressure sender requiring immediate attention and/or repair. Functions of the control lamps are explained in the section dealing with control lamps.



Tachometer

The transistorized tachometer operates on the pulse count principle and shows engine speed in revolutions per minute (rpm), working only when the ignition is switched on. A special distributor rotor with an integral governor limits the engine speed to 6500 rpm and prevents overspeeding the engine under throttle loads.

The red mark on the tachometer dial has been provided as an optical reminder. Also located on the tachometer dial are the control lamps for the directional signals and the high beam indicator.



Speedometer

The speedometer indicates speed in miles per hour. The odometer counts total miles driven and cannot be turned back by hand. The trip mileage counter, located in the lower part of the dial, can be turned back to zero at any time by a knob under the instrument panel. Also located on the dial face is a control lamp indicating that parking lights are on.



Clock

The electric clock is furnished as standard equipment. The clock is wound electrically as long as the battery is hooked up and in proper state of charge. The elapsed-time monitor needle (white) may be reset by turning the knob in the dial center; the time clock can be reset by first pushing the button in and then turning.

Control Lamps

Oil Pressure Control Lamp (green)

(Not furnished if large instrument cluster is used)

The oil pressure control lamp, located in the temperature gauge unit, goes on when the ignition is switched on; it goes off when the engine is started and proper oil pressure reached. Should the lamp light up while driving, it is an indication of a malfunction in the lubricating system in which case the car must be stopped at once and the oil level in the tank checked. If the oil level is normal, the cause of the malfunction will have to be determined and corrected in the nearest authorized dealer. However, occasional flickering of the control light at idling speeds, when the engine is at operating temperature, is of no significance.

Alternator Indicator Lamp (red)

The alternator indicator lamp indicates alternator operation, fan belt condition, and cooling blower operation. The lamp will light up as soon as the ignition is switched on, and will go off as engine speed increases. If the lamp should flicker or go fully on while driving, it may be an indication of a loose or broken fan belt necessitating adjustment or installation of a new belt. However, the cause may also lie in a defective voltage regulator in which case it will be necessary to have the defect corrected in a reputable shop equipped for this task.
The alternator indicator lamp is located in the oil temperature gauge unit or the large instrument cluster, respectively.

Directional Signal Indicator (green)

The directional signal indicators are located on the tachometer dial and light up in unison with the selected turn indicator. The pulse of the signal indicator lamp will be faster whenever a malfunction occurs, such as an inoperative front or rear blinker bulb.

High Beam Indicator (blue)

The high beam indicator lights up as soon as the headlamp high beams are switched on. The lamp is located in the lower part of the tachometer dial.

Parking Light Indicator (green)

The parking light indicator is located on the speedometer dial. The lamp lights up when the parking lights are switched on; it goes off automatically when the headlamps are switched on.

Handbrake Warning Lamp (red)

When the ignition is switched on with the handbrake on, the lamp will light to indicate this condition and will stay on until the handbrake is completely released.
The lamp is located in the oil temperature gauge unit or the large instrument cluster, respectively.

Control Pedals and Levers

Clutch Pedal

Proper pedal free travel is about $^{13}/_{16}$" to 1" (20 to 25 mm). To check, pull pedal away from the floorboard. (See page 75).

Brake Pedal

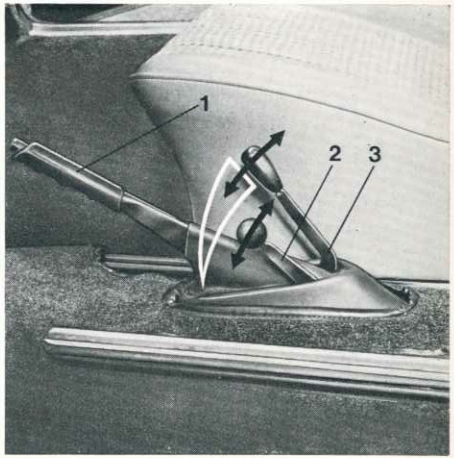
Since the brakes are self-adjusting, the brake pedal free travel will always be constant providing that the hydraulic brake system is free of air bubbles. Pedal free travel to the point of brake actuation may be 30 – 50 % of total brake pedal travel. Whenever the brake pedal can be pushed in farther than stated above, the brakes should be checked and, possibly, bled.

Hand Brake

The handbrake is set and automatically locked in position by pulling the lever up. The handbrake can be released by first pulling the lever up a bit, pushing the release button in, and at the same time lowering the lever to the "off" position.
To prevent a possible premature wear of the handbrake linings, a control lamp has been installed in the oil temperature gauge unit. The lamp goes off only after the handbrake has been fully released.

Heater Control Lever
(exhaust manifold heater)

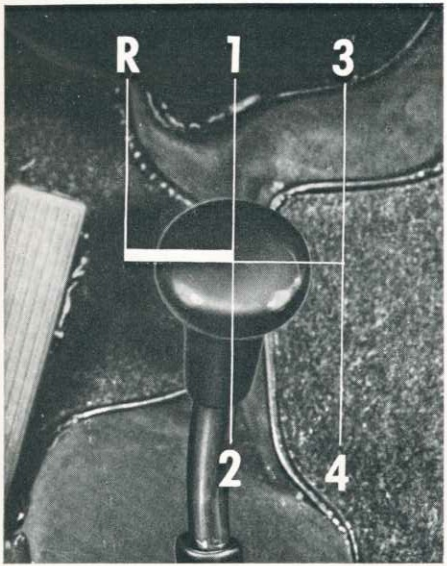
When the control lever is up, hot air flows into the car. When the lever is down, the flow of hot air is stopped.



1 Handbrake lever
2 Hand throttle lever
3 Heater control lever

Hand Throttle

The engine idle speed can be raised by pulling the lever up (such as for cold starting).



Four-speed Shift Pattern

1st gear – Straight forward
2nd gear – Straight back
3rd gear – Right forward
4th gear – Right rearward
Reverse – Left forward over the spring guide (but wait a few seconds after depressing the clutch pedal).

Shifting Gears

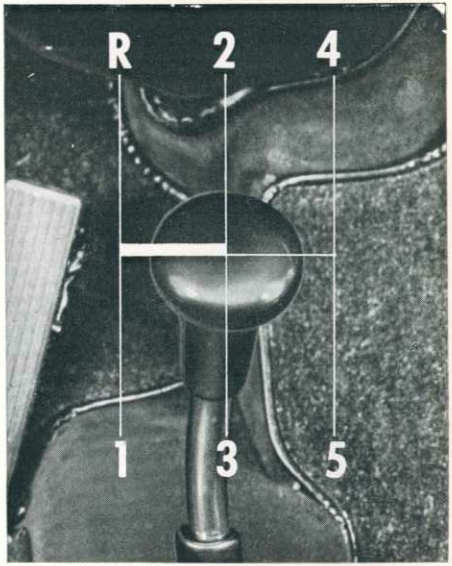
The fully synchronized transmisison permits shifting into any gear without manipulating the accelerator pedal or "double-clutching". Make sure that the clutch pedal is fully pushed in and the selected gear fully engaged. The following maximum engine speeds must not be exceeded when downshifting (applies to standard gear ratios only):

4-speed transmission

4th to 3rd gear = 4700 rpm
3rd to 2nd gear = 3900 rpm
2nd to 1st gear = 3400 rpm

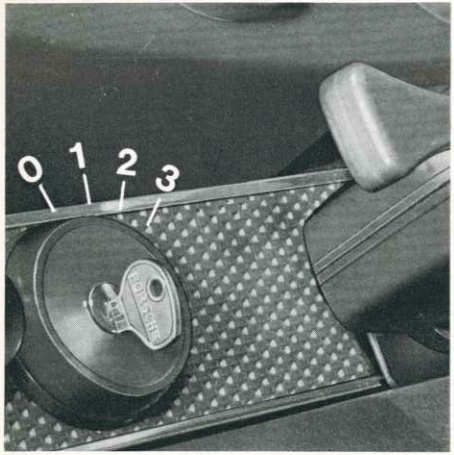
5-speed transmission

5th to 4th gear = 5300 rpm
4ht to 3rd gear = 4900 rpm
3rd to 2nd gear = 4400 rpm
2nd to 1st gear = 3700 rpm



Five-speed Shift Pattern

1st gear – Left rearward over the spring guide
2nd gear – Straight forward off the spring guide
3rd gear – Straight back
4th gear – Right forward
5th gear – Right rearward
Reverse – Left forward over the spring guide (but wait a few seconds after depressing the clutch pedal).



Starter and Ignition Switch

There are 4 key positions:

0 – Steering locked; all electric circuits wired through the ignition switch are turned off. With the ignition switch in this position, overnight parking ligths can be turned on on the left or right side of the car by moving the directional signal lever up or down.

1 – Steering unlocked. All electric circuits wired through the ignition switch are on, except for the brake/turn/back-up lights and the fresh air blower.

2 – Ignition on, steering unlocked. All electric circuits can be turned on. The red alternator lamp and the green oil pressure warning lamp come on as long as the engine is not running, and the handbrake warning light is on if the handbrake is applied.

3 – Start – the starter motor is operated when the key is turned fully right. When the engine has fired, release the key at once to disengage the starter. It the key will spring back to the position "Ignition on".

The starter should not be operated for longer than 15 to 20 seconds at a time. If necessary, operate the starter a second time, but only after a short pause. The ignition must first be turned off: a starter repeat lock in the ignition switch is designed to prevent repeat operation of the starter while the engine is still turning.

The ignition key can only be withdrawn when in position "0".

If the steering lock was previously opened with the key, the lock will not engage in the "0" position until the key is withdrawn.

If key is left in steering/ignition lock at position 0, a buzzer will sound when the driver's door is opened.

Emergency flasher switch

All four turn signals will flash in when the emergency warning light switch is pressed. This warning system has been included to provide proper visual warning signals to approaching drivers when the car had to be stopped in traffic due to an emergency.

A bright red control lamp included in the switch indicates that the warning system is in operation, even if only one light should be blinking. This warning system can be switched on independently and without regard to the position of the ignition switch selector.

The normal directional indicators are automatically switched off when the emergency blinker signals are on.

Light Switch

The two-position pull-twist light switch controls parking lights, head lights, and instrument illumination. With the knob pulled out to first stop, parking lights are turned on. Pulling the knob to second stop turns the headlights on; high and low beams are controlled through the combination switch on the steering column.

Instrument Lights

Instrument lights go on automatically when parking lights or headlights are turned on.

The intensity of instrument illumination can be progressively varied from dim to bright by turning the light switch knob from extreme left to full right.



Combination Signal and Dimmer Switch

With the ignition switch in Position "0" and the directional signal lever in position for "right turn", the right front and rear parking lights will be on; in position for "left turn", the left front and rear parking lights will be on. This provision is for overnight parking on right or left side of the street.

Combination Signal and Dimmer Switch

Position of Main Light Switch Knob	Position of Dimmer Switch lever	Headlamp Beam Effect
Lights off (Stop 0)	Any spring-held position	No effect
	Hand-held at steering	High
Parking lights on (Stop 1)	Any spring-held position	No effect
	Hand-held at steering	Low beam
Headlights on (Stop 2)	Spring-held away from steering	High beam
	Spring-held at steering	Low beam
	Hand-held at steering	High beam

Lever positions (steering lock/ignition switch in "Ignition on" position):

Lever moved up (a definite resistance is felt)	Right turn indicator flashing
Lever moved down (a definite resistance is felt)	Left turn indicator flashing

If the lever is moved only as far as the point of resistance, the flashing turn indicator will operate only until the lever is released.

Lever moved formard (towards instrument panel)	High beam headlamps	Main light switch must be pulled out to 2nd position
Lever moved back (towards steering wheel)	Low beam headlamps	

The headlamps can be flashed by gently pulling the dimmer switch lever up from the low beam position towards the steering wheel. The headlamps will be on as long as the lever is kept up.

Cigarette Lighter

The heating coil in the lighter begins to heat up when the lighter is pushed in. As soon as it has started to glow it snaps away from its hold automatically and simply has to be pulled out.

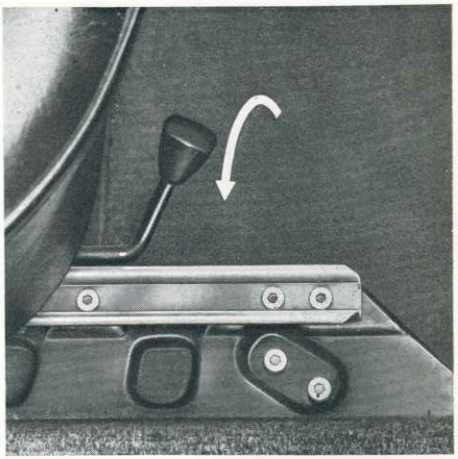
Rear Window Heating Switch

The electric rear window heating system can be switched on through a push-pull switch on the instrument panel. The heating element greatly reduces fogging or icing. A two-position push-pull switch is installed in cars which have a dual heating circuit (optional) in the rear window. When pulled out to first stop, the 100 watt heating circuit is energized; in the second stop, the 250 watt circuit is energized.

Reclining Seats

To adjust the position of the seat back rest, lean against the seat while pulling the release lever up (located at the back rest pivot). The back rest is always under spring tension and will return to the up position when the control lever is moved up.





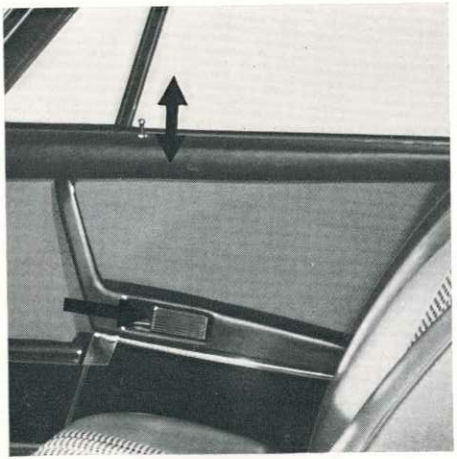
Seat Position

The seats can be adjusted forward and back by moving the release lever up and sliding the seat into the desired position; the release lever is located on the outer side of either forward seat cushion.



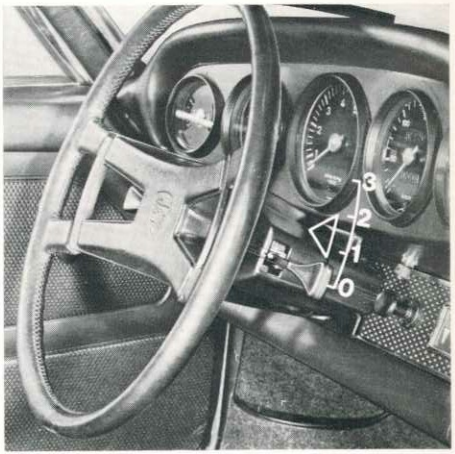
Backrest Lock

The passenger seat backrest can be tilted forward when pulled up from the locked position. The release knob is shown in the illustration.



Armrests with Door Release

The armrests, attached to the front door panels, contain a door release lever. To open the door from the inside, pull the lever out. Both doors can be individually locked by depressing lock buttons in the door ledges.

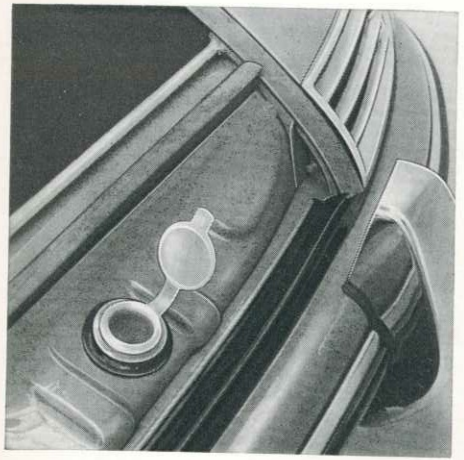


Combination Wiper/Washer Switch

The wiper/washer switch has four positions:

0 – Wipers turned off
1 – Approx. 3 wiper movements every 5 seconds
2 – Slow continuous action
3 – Fast continuous action

The electric windshield washer is actuated by pulling the lever towards the driver.



Continued dry operation of the windshield wipers will scratch the glass surface and should therefore be avoided. The wiper blades should be frequently checked and replaced at least once each year.

The washer reservoir is located in the forward compartment and holds approx. 2 US quarts of water.

During the cold season, please note our instructions for cold weather operation on page 39.

When the wiper switch lever is in Position 0, two washer stages can be switched on:

1st stage – Windshield is sprayed with washer solution.

2nd stage – Spray continues while wiper blades clear the windshield at high wiping speed, as in Pos. 3.

When the wiper switch is in Position 1 through 3, the washer control lever controls only the flow of the washer solution and does not affect the wiper speed. As soon as the washer control lever is released, it automatically returns into the "off" position stopping the flow of washer spray.

Fog Lamp Switch
(Optional)

Two fog lamps installed in the car are optional. The lamps are switched on through a push-pull switch and work in conjunction with parking lights or headlamp low beam. A red control light burns in the switch knob as long as the fog lights are on.



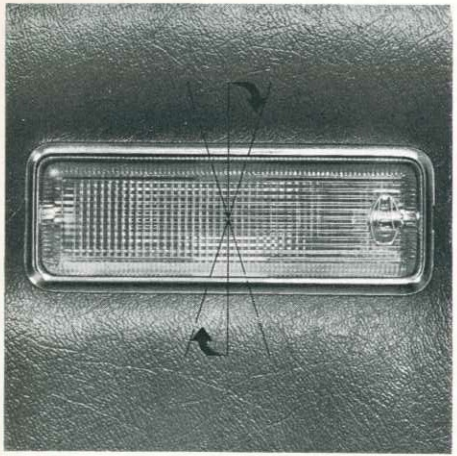
Interior Lights in Coupe Models

The above illustration shows the right interior light. The lamp lens tilts on a pivot to serve as a three-position switch, as follows:

a) Lamps switched off.

b) Lamps switched on.

c) Lamps light automatically when either door is opened.



Interior Light in Targa Models

The interior light in Targa models is arranged in the center of the roll-shield. The lamp lens tilts on a pivot to serve as a three-position switch, as follows:

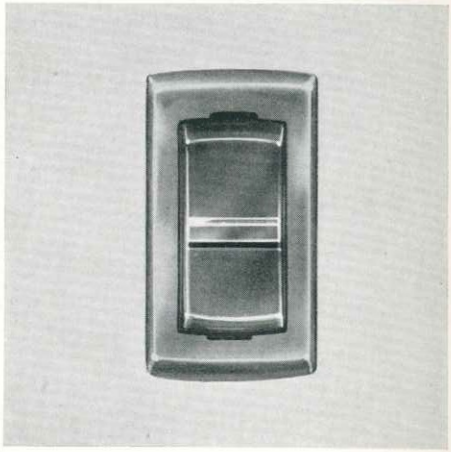
a – Lamp switched off.
b – Lamp switched on.
c – Lamp lights automatically when either door is opened.



Glove Compartment Light

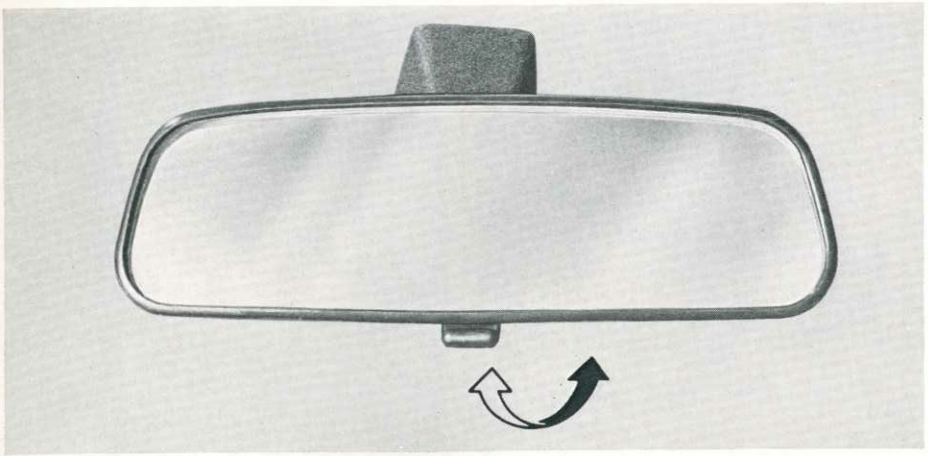
The lamp is located above the glove compartment. The lamp pivots in its axis to serve as a three- position switch, as follows:

The lamp is switched off with the lens in middle position.
When the lens is pushed forward, the lamp lights up when the glove compartment is opened.
When the lens is pushed rearward, the light stays on at all times.



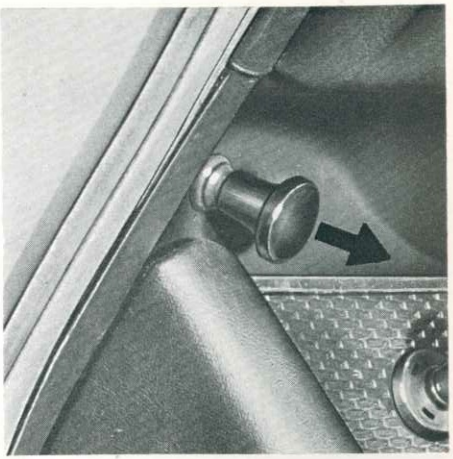
Electric Window Regulators (Optional)

Electric window regulators are optional in the Coupe models. The windows are regulated through tab switches located in the doors. Windows in both doors can be regulated from driver's side. The rear switch regulates the window on passenger's side. When the switches are pushed upward, the windows move up, when pushed down they move down.
The switch tabs move to OFF position when released.



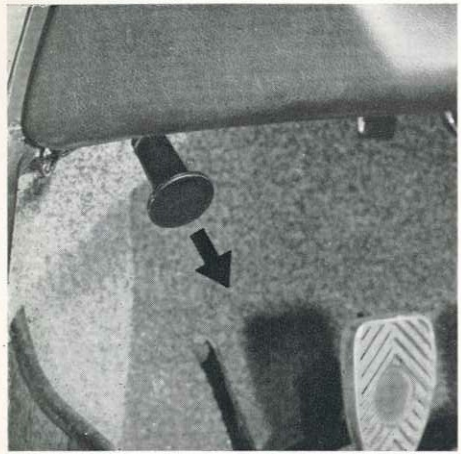
Non-glare Inside Rear View Mirror

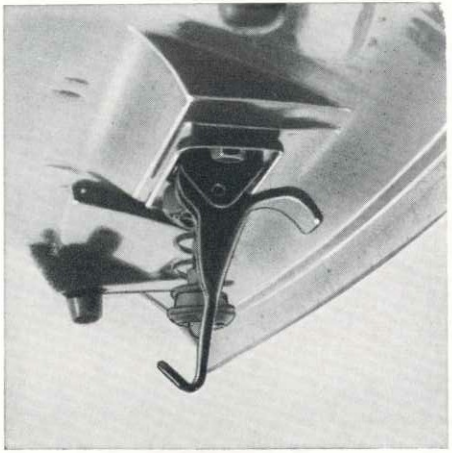
The mirror can be adjusted for night driving to reduce glare from lights behind the car by tilting a small knob at the bottom of the mirror frame.

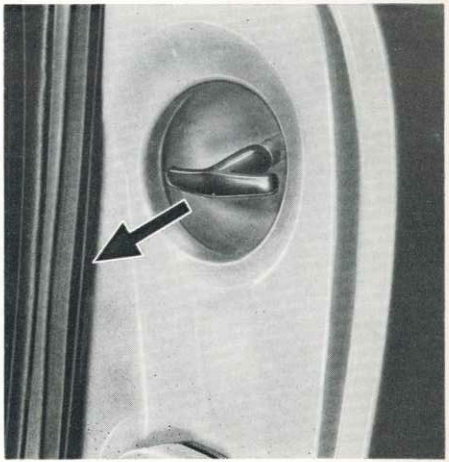


Tank Filler Cover

The tank filler neck is mounted within the front fender and has a hinged cover which can be opened from the inside only by pulling the release knob located on the left side of the instrument panel.







Front Lid Release

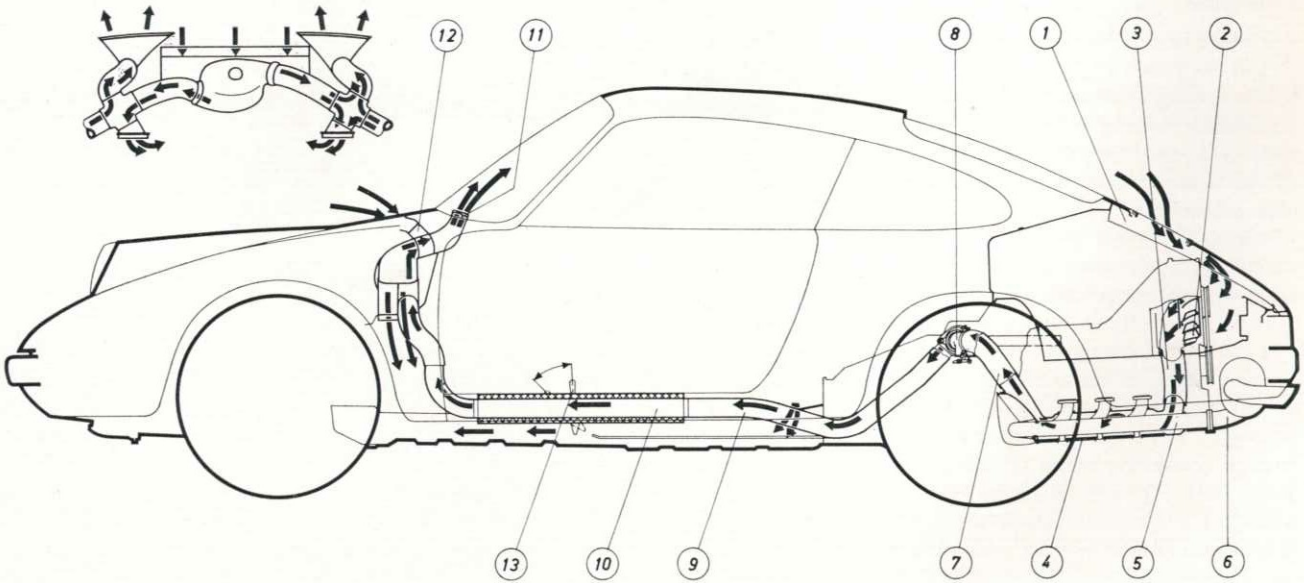
The front lid release knob is located under the left side of the instrument panel. The lid is opened by first pulling the release knob, then pushing back the safety catch under the lid. Spring tension keeps the lid in the open position.

Rear Lid Release

The release knob for the rear lid is located at the left rear door post behind driver's seat. The rear lid can be opened by pulling the release knob. Spring tension keeps the lid in the open position.

To close, push the lid down until the lock bolt snaps shut.

SCHEMATIC VIEW OF HEATING AND VENTILATING SYSTEM



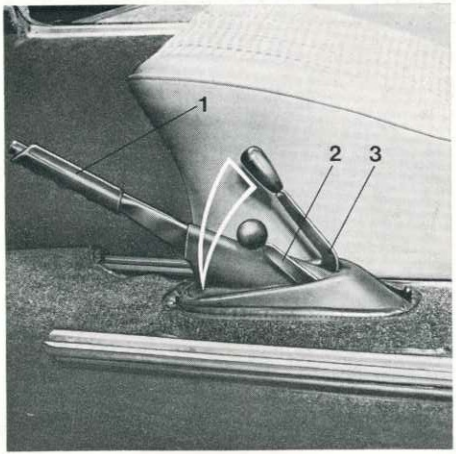
Heating System

Exhaust manifold heater is standard equipment.

Heater Controls (manifold heater)

Description

The entire fresh air mass enters through the grill in the rear lid ① where it is drawn in by the cooling air blower. Part of the air, as required for heating the passenger compartment, is diverted from the cooling air blower ② into a separate air duct ③ and into two heat exchangers ④ at the engine exhaust manifolds. The heat exchangers consist of sheetmetal jackets which enclose the exhaust pipes ⑤. All detachable joints within the exhaust system ⑥ have been arranged outside the heat exchangers. The entire engine exhaust system is located within the free air stream underneath the rear body section. The heating air flows from both heat exchangers through connecting hoses ⑦, air gates ⑧, guide ducts ⑨ and silencers (contained within the longitudinal chassis supports) ⑩, to outlets arranged in pairs within the passenger compartment.



Hot air outlets are provided for defrosting the windshield ⑪ and for the forward leg area. The air gates ⑧ are designed to permit a continuous flow of air through the heat exchangers, regardless whether the heat controls are turned on or off.

In addition, outside air may be used in the ventilating system ⑫ by entering through the vent in front of the windshield, bypassing the heating system.

Carburetor Preheating System

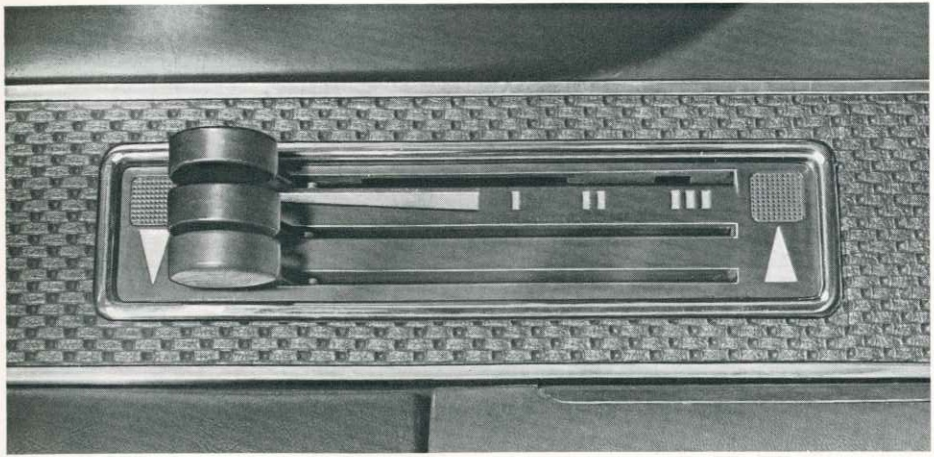
Hot air needed for preheating the carburetors is ducted from the interior heating ducts, that is, the carburetors can be preheated only when the heater is turned on.

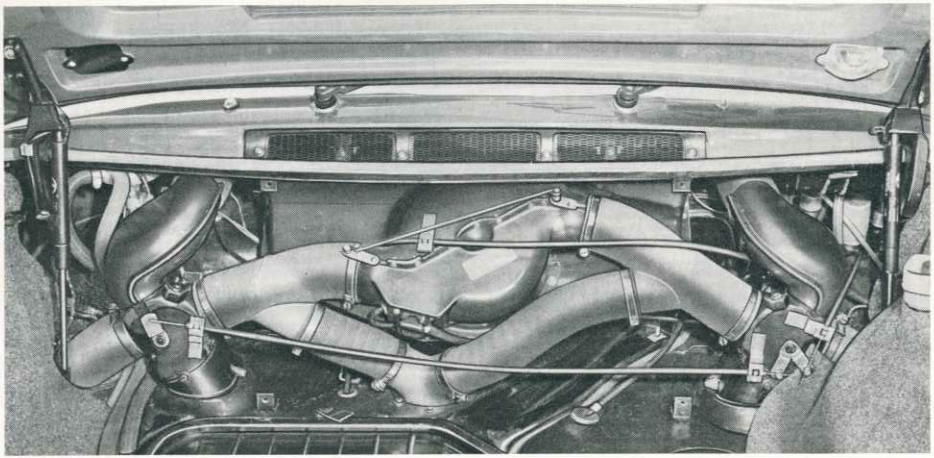
Operation

The flow of heating air is controlled by a lever ⑬ located adjacent to the handbrake lever. The heating air flows when the lever is moved to rear, and stops when the lever is moved forward. When the lever is moved, the action is transmitted to the air gates ⑧ through a cable. Should be cable break, both gates automatically stop the flow of hot air into the passenger compartment and let it out into the open.

Distribution of heating

air can be regulated by the lower lever in the control unit within the instrument panel. When the lever is at the left stop, all heating air flows downward; when the lever is in the center, the air flows into both the lower and upper interior areas; with the lever at the right stop, the heating air flows only upward.





Ventilating System

A three-speed ventilating blower and respective distributing ducts are located in the luggage compartment below the instrument section.

The upper lever in the control panel controls the fresh air gates and ventilating blower.

When the lever is at the left stop, air gates are closed. As the lever is moved to the right, the gates open and let fresh air into the passenger compartment through the inlet below the windshield as long as the car is moving. When the lever is pushed past the center position, the blower goes on. The blower can be set to positions I, II, and III, depending on the desired ventilating effect.

The middle lever regulates the distribution of air. When the lever is at the left, the air flow is directed to the leg area; in center position, the air flows to the lower and upper compartment areas; when the lever is moved to the right stop, air flow is directed upward only.

When the car is equipped with the auxiliary combustion heater, the above mentioned lever also regulates the flow of circulating heating air.

When the manifold heater is turned on, this lever will also regulate the flow of hot air coming from the heat exchangers in the same way as the regulation of fresh air flow.

Since the fresh air flow is controlled separately from the heating air flow, it is possible to mix and direct the flow of fresh air and manifold heat in any desired manner. When the auxiliary heater is turned on, the circulating hot air can be mixed with fresh outside air.

Heater Controls
Auxiliary Combustion Heater
(Optional)

The auxiliary combustion heater is a recirculating unit for heating and ventilating the car's interior. It works independently from the exhaust manifold heater. The heater is located in the front part of the car and is accessible through the luggage compartment.

The heater draws air through the intake grill in front of the rear seats, heats it, and forces it out through the fresh air ducts in the forward part of the passenger compartment. The intake grill should never be covered with clothing or other objects since this would impair the heater function.

Air circulation is effected by an electric blower. The air is heated by passing through a heat exchanger in the heater. Heater combustion air is drawn through an inlet within the wheelhouse; combustion exhaust gases pass through a small silencer and are then discharged into the open.



Operating Instructions

The heater can be turned on through a push-pull switch in the instrument panel.

Prior to switching the heater on, it is necessary to turn the ignition key to the "radio" or "ignition on" position. When the heater is on, a control lamp lights up in the left part of the ventilation control panel.

The middle lever in the control panel controls the flow of heating air.

With the lever at the left stop, all air flows downward; with the lever in the center, warm air flow is directed to both the leg area and upper parts of the compartment; when the lever is moved to the right stop, the air flows upward only.

The heated air can be mixed with cold outside air by moving the upper lever to the desired position.

When the heater is switched off, the blower will continue to run for about 3 minutes. Should the heater not cool down sufficiently within that time due to relatively warm outside air, the cooling cycle will automatically repeat.

Caution

The combustion heater exhaust gases are as dangerous as those of the engine. Never run engine or auxiliary heater in a closed room.

For heater maintenance see page 86, technical data page 104.

Electric Sunroof (Optional)

On special request, the car can be equipped with an electrical sunroof. The sunroof is controlled through a spring-loaded toggle switch. Appropriate movement of the toggle brings the roof into the desired position. When released, the toggle returns to its neutral position and roof motion stops. The roof transport is equipped with a safety clutch which disengages the drive mechanism when certain resistance is met, thus excluding the possibility of accidental injuries.

Manual Operation

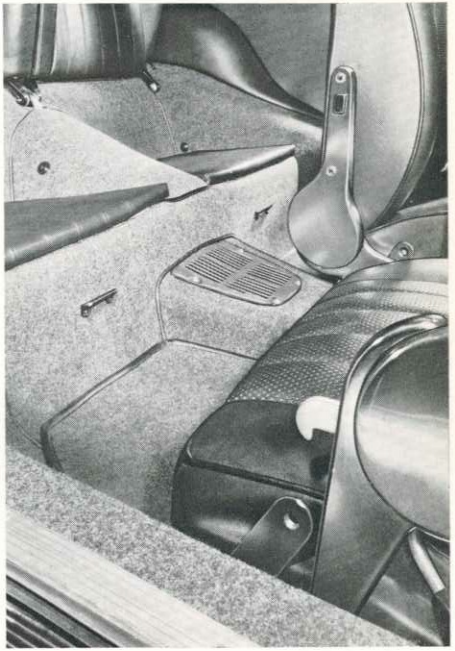
A hand crank has been provided for manual operation to cope with an unforeseen malfunction in the transport mechanism.

To move the roof manually, open the zipper above the rear window and remove plastic cap from the drive unit. Turn the now visible slotted screw with the screwdriver tip in the hand crank so that the roof slides back. Once it has come to its end position, it will be possible to unscrew the slotted screw. Before inserting the fork-end of the crank, remove spacers which were under the screw. Screw the knurled screw in the crank into the threaded hole in the transport shaft making sure that the tips engage in the shaft slots. The roof can then be moved by turning the crank. When the roof was in the half-way position, it will be better to turn the slotted screw so that the roof closes instead of moving back first.



Rear Side Windows

The rear side windows are hinged and swing out for added ventilation. To open, unlock the hinge by turning the arresting knob counter-clockwise and pushing the window outward to the desired position.



Safety Belts

Safety belt anchoring points for attaching front and rear seat belts have been incorporated in the body as a standard production feature.







Fastening the belt: Sit well back in your seat so that your body is supported by the seat-back. Grasp the buckle-tongue and pull the belt out of the reel until you can insert the tongue into the buckle.

Tightening the belt: Tighten the lap strap by pulling the belt between the buckle-tongue and the plastic-runner, until the belt holds you firmly without tension. After tightening a loop will form, and this can be flattened out by pulling the free end of the belt.

Opening the belt: At the end of your drive, or to release the belt quickly in an emergency, pull up the red lever on the buckle. This will open the safety-belt immediately.

The Porsche-Automatic-Safety-Belt combines safety with free movement of the body for sporting and comfortable driving. You can easliy move your body to reach the hand-brake, gearshift-lever, ashtray and radio. Should the webbing be suddenly withdrawn, the reel will lock automatically and contains the fastened person safe in its seat.

The combination of lap and shoulder-belt, the one-hand-operation of the buckle, and automatic elimination of all slack in the webbing further contribues to your safety.

The belt-construction is a harmonios addition to the luxurious interior of your Porsche.

The location of the buckle on the seat-frame ensures that no metall touches your body or clothing.



The Porsche-Automatic-Safety-Belt is maintenance-free. However should there be any reason for complaint kindly contact your authorized dealer.

Sit well – drive well: Automatically the reel takes up all slack in the webbing without impairing the comfort. Should you be thrown forward, the webbing-reel locks automatically and contains you safely in your seat.

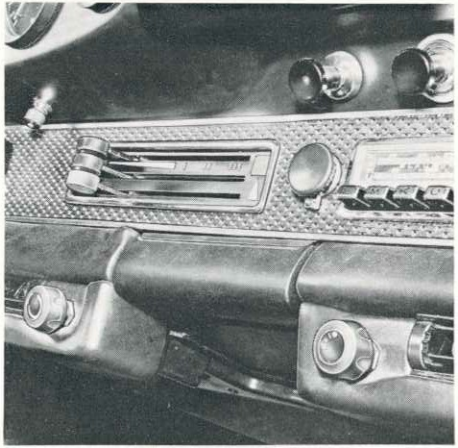
Air Conditioning
(Optional)

If installed, the air conditioner will ensure pleasant interior compartment temperature in hot weather. The system consists of the following components.

1. The compressor with an electromagnetic clutch, located in the engine compartment.
2. The condenser under the cooling air grill of the rear lid.
3. The evaporator with expansion valve and blower in the forward part of the car below the luggage compartment.
4. The control buttons in the instrument panel.
5. The hoses and tubing, and the cold air outlets.

The system is controlled by two rotary switches in the instrument panel. The cooling intensity can be progressively varied with the temperature switch (to the left of the ashtray):

Left stop – low cooling
Progressive right – increasing cooling effect
Right stop – maximum cooling



The blower switch (right of ashtray) has 4 positions:

Left stop – Blower OFF
Right turn – Blower ON
To position I – low speed
To position II – medium speed
To position III – maximum speed

By switching the blower on, the circuit to the electromagnetic clutch through the temperature switch is simultaneously energized.

The best interior cooling effect is achieved when the windows are closed and the ventilating air supply turned off. Both rotary switches must be turned right to stop. If the car previously stood in hot sun for a longer time, it is best to first evacuate the heat by opening the windows and switching the ventilating system and air conditioner on.

Once the desired temperature has been attained in the car's interior, the cooling output can be reduced or the fresh air ventilating system turned on.

If the windows fog up in relatively humid and cold weather, the cooling intensity or air transfer rate of the air conditioner should be reduced.

The cooling air is drawn in through the opening grill in front of the rear seats, and blown through the evaporator which removes the heat from it. The cooled air exits through outlets below the instrument panel. The air flow can be directed up, down, right, or left by means of pivoting louvers.

When the air blower is switched on, the electromagnetic compressor clutch is energized. Cooling efficiency of the air conditioner is dependent on the engine rpm. When high cooling effect is desired, engine speed must be therefore kept up, especially when driving in the city or congested traffic.
The adjusted temperature is kept constant by a thermosensor. The sensor is located between the cooling fins of the evaporator and regulates the temperature by switching the electromagnetic compressor clutch on and off.

Caution:

Should uncooled air be coming from the air conditioner outlets, switch the system off since further operation could lead to compressor damage.

The air conditioner works only when the engine is running.

It must only be operated when the lid of the engine compartment is closed.

For better comfort during transition periods with relatively high humidity (fogging windows), the air conditioner can be switched on together with the heating system, with the heater control lever in the ON position and the air flow control for DOWN.
This will dehumidify the air in the car and the windows will clear up. This adjustment provides the pleasant effect of cool upper compartment with warm air at the bottom.

Note:

The air conditioner must be switched on for a short time at least once each month.
This is especially true during the cold season when the air conditioner is not used.
To prevent bothersome cooling sensations, it is best to keep the air blower in switch position I. Periodic operation of the air conditioner is in the interest of seal lubrication at the crankshaft and expansion valve.

Location of Identification Plates

When ordering spare parts or submitting inquiries, always include the chassis, engine, and transmission serial numbers in your correspondence to ensure prompt and correct response.

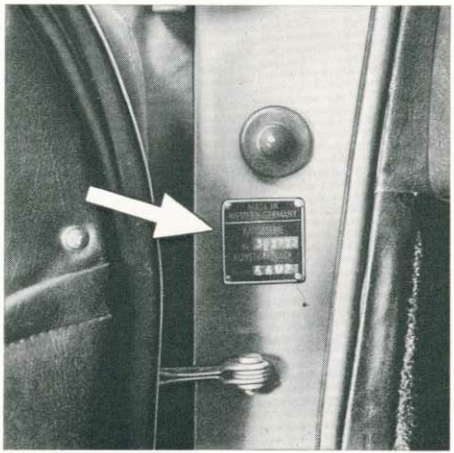
The chassis number is also found on the instrument panel so that the number is visible from outside the car.



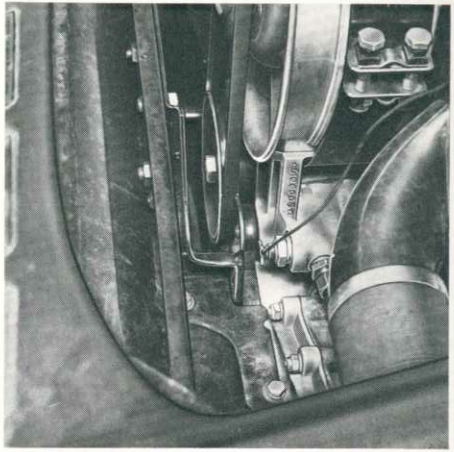
Chassis Serial Number



Nomenclature Plate



Paint Number



Engine Serial Number

Disc Brakes

When the brakes are applied, each brake pad is pressed hydraulically against its brake disc by a brake piston. The brake pads are self adjusting. The brake discs are protected against road spray and dirt by cover shrouds, although it still is possible that the brake pads and discs become wet when driving on wet highways. When driving on wet expressways or similar fast highways where the easy traffic conditions call for only infrequent use of the brakes, higher brake pedal pressures will be required for braking. Consequently, it will be of advantage to gently apply the brakes at not too long intervals when driving in environments mentioned above so that the discs and pads remain dry. Do not fail to run the brakes dry after the car has been washed.

Conditioning Brake Pads

Every vehicle equipped with disc brakes requires a certain runin-period. Care should be exercised during the first 100 – 150 miles. After that the brakes have reached their full errficiency.

Hints for Cold Weather Operation

1. Make sure that winter oil of proper specifications is put into the engine at time of the oil change. (See page 103).
2. Fill the windshield washer reservoir with a solution of 3 parts water to 1 part alcohol.
3. Treat the paint finish, chromed and aluminium parts with protective waxes or appropriate compounds (see information on car care, page 52 and so on).
4. Check electrical condition of battery at frequent intervals, including the level and specific gravity of electrolyte; coat battery terminals with grease. (See page 79).
5. You can keep the door locks from freezing by occasionally squirting a few drops of lock antifreeze (small dispenser furnished with car) into the locks; this is especially true in connection with a car wash.
6. Apply glycerine to rubber stripping located between the body and front trunk lid to keep these from freezing shut.
7. Check brake pads and linings, replace if necessary. (See page 70, etc).

Instructions for the Targa Convertible

Removing and Installing Folding Top

The folding top is secured to the roof bar by means of two pawls, and to the windshield frame by two locks, facilitating easy removal and installation. In this respect please note the following points:

Removing Folding Top:

General:

The folding top should be cleaned with a soft rag prior to removal to prevent chaffing in storage or transfering dust onto clothes. A good place to store the folded top is in the forward luggage compartment which should, therefore, be opened prior to removal of the top.

1. Insert both operating handles into the right and left lock receptacles located in the forward roof support bow; position both handles to point to the left and push in until they snap in place (Fig. 1).
2. Pull both handles downward and turn until they point to the right at an angle of approx. 45° (Fig. 2).
3. Continue to push one handle to the stop while gently lifting one roof side with the other hand in order to snap it out of the safety lock (Fig. 3). Do the same on the other side. Remove handles and put away.
4. Step out of the car. Holding the roof as shown in the illustration, push it up at the forward bow and remove with a forward motion (Fig. 4). At this time it is best to keep one foot in the car so as to have proper body support for the moment of weight shift when the top assembly slides out of the attaching pawls in the roof bar.
5. Place the roof with its rear edge on a soft support (such as both shoe caps as shown in the illustration) and apply simultaneous pressure to the middle of both bows (Fig. 5).
6. Fold the roof by applying light pressure to the sides (Fig. 6).

The roof may now be easily stowed away in the car (Fig. 7).

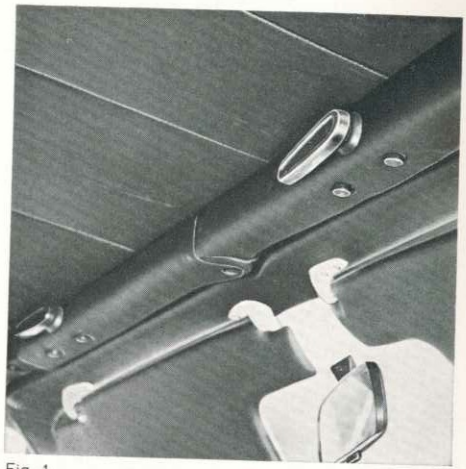


Fig. 1

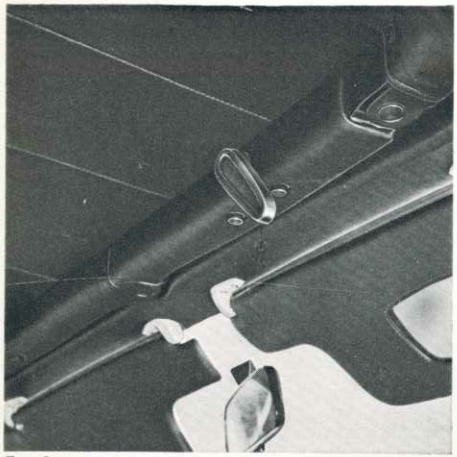


Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

Installing Folding Top:

1. Place the roof with its rear edge on a soft support (shoe caps) and pull sideways to unfold (Fig. 6, page 41).
2. Simultaneously push both pivoted bows outward to stress the cover (Fig. 5, page 41).
3. Guide the top assembly into the rear supporting pawls in the safety bar (Fig. 8) and push rearward until fully seated.
4. Applying light pressure from above, press the forward end of the top down to engage it in the safety locks (Fig. 9).
5. Insert both operating handles into the right and left receptacles located in the forward support bow; position both handles to point to the right at an angle of approx. 45° and push in until they snap in place (Fig. 2, page 41).
6. While pushing the top down with one hand, turn the handle to the left to stop (Fig. 10 and 11). Do the same on the other side.
7. Remove handles and put away.

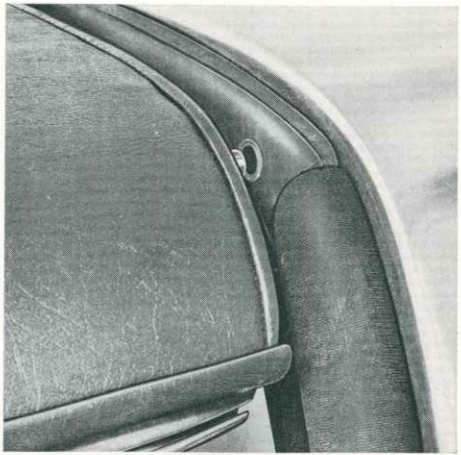


Fig. 8

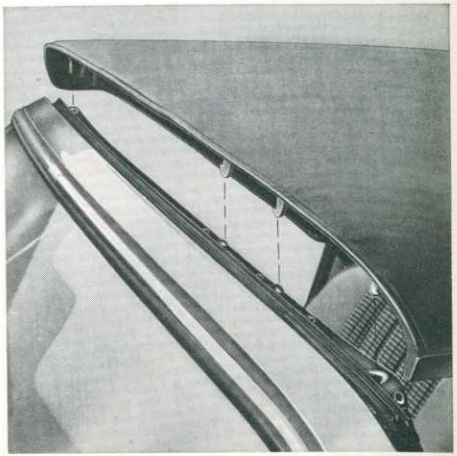


Fig. 9



Fig. 10



Fig. 11

Handling the Flexible Rear Window Panel

Opening and Closing Rear Window Panel

The rear window is made of flexible "Polyglas" and is opened or closed by a zipper. In this connection please note the following points:
The rear window shrinks in cold weather. Therefore the zipper must not be opened or closed under cold weather conditions.

Opening Rear Window Panel

General:
The rear window should be carefully cleaned with a soft rag prior to opening to prevent scratching.
Further we recommend covering the rear wall lining with a woollen rag prior to inserting the panel to prevent chaffing the rear window.

1. Button the protection cover behind the rear seats and possibly put a woollen rag over rear wall lining (Fig. 12).
2. Pull up both edges of the rear window panel, on the outside right and left behind the rollshield, to detach the burdock ribbon (Fig. 13).
3. Pull both tensioning levers, located in roof bar assembly, down to the stop (Fig. 14).
4. Open the rear panel zipper and return tensioning levers back into original position.
5. Stow away the rear window panel in the car as shown in Fig. 15.
6. The panel can be protected only through the use of the cover provided. The cover should be attached with the snap-on fasteners to receptacles provided on the body, as shown in illustrations 16 and 17. (Applying pressure from above, push the snap-on fasteners onto the ball studs in the body).

Tonneau cover for rear trunk (Optional)

On request a tonneau cover is available to cover the rear window panel and the rear trunk compartment at the same time. The tonneau cover is fastened to the body as shown in Fig. 18 and 19.



Fig. 12



Fig. 13

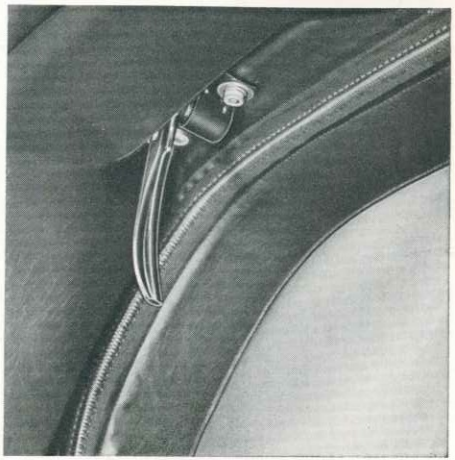


Fig. 14



Fig. 15



Fig. 16



Fig. 17

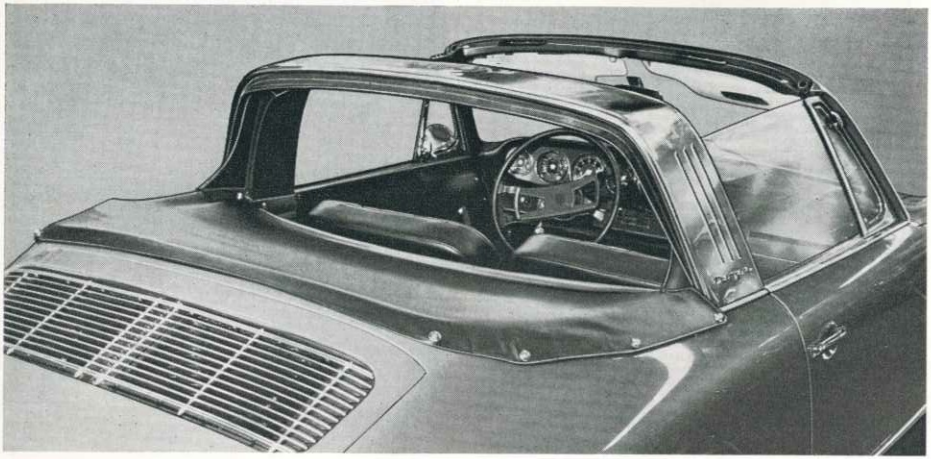


Fig. 18



Fig. 19

Closing Rear Window Panel

1. Unsnap panel cover fasteners (pull top part of fastener outward, as shown in the illustration 20).
2. Pull both tensioning levers, located in the roof bar assembly, down to stop (Fig. 14, page 43).
3. Close the zipper as shown in Fig. 21; when closing the zipper, lift the panel up with the other hand to ensure easy movement of the zipper lock.

DO NOT APPLY FORCE!

If the zipper should jam, move its lock slightly back and try again. The second zipper lock permits opening or closing the rear window panel from either side.

4. Push both tensioning levers up into original positions, slide both edges of the rear window panel, on the outside right and left, under the seal behind the roll-shield and press down to attach the burdock ribbon.

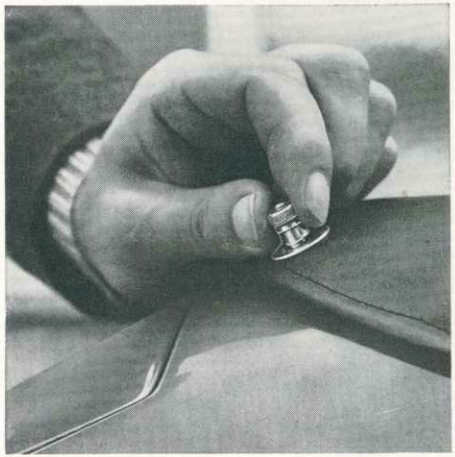


Fig. 20

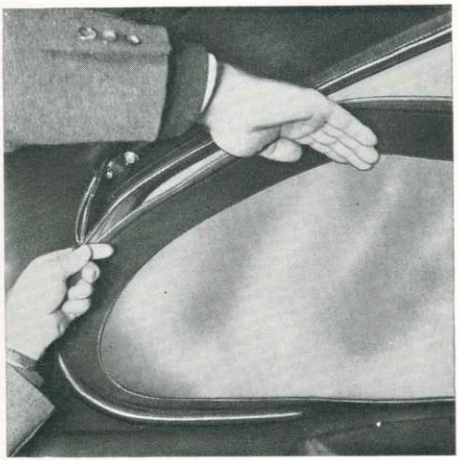
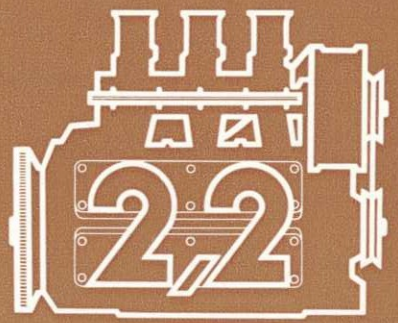


Fig. 21

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911 T

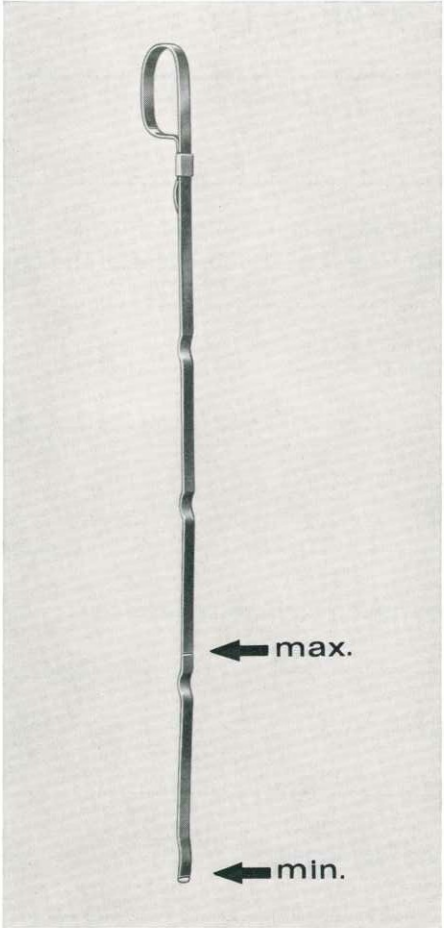
Care and Lubrication



LUBRICATION SCHEDULE, TYPE 911 T

600 miles	6,000 miles	**Service required**	Repeat every
●	●	Change engine oil and clean magnetic drain plugs every 6000 miles but at least twice each year, i.e., at the onset of the cold and warm seasons	6,000 miles
●	●	Change oil filter cartridge	6,000 miles
●	●	Clean oil strainer	6,000 miles
●	●	Lubricate pivot points on carburetor linkage	6,000 miles
●	●	Change transmission oil	12,000 miles
	●	Lubricate door and lid hinges	12,000 miles





Checking Engine Oil Level

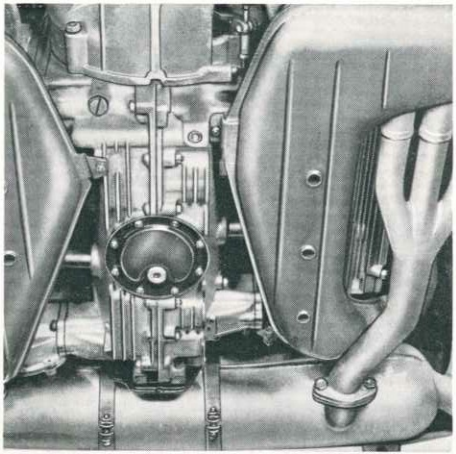
The oil level should be checked with the engine idling and the oil warm (at least 140° F or 60° C); the engine should be running at idle speed for about one-half minute prior to making the check so that the level can stabilize in the tank.

Remove oil filler cap, pull out dipstick and wipe clean.
Reinsert the dipstick, wait a few seconds, then pull it out. The oil level must be between the maximum and minimum marks (see illustration).
(The oil level can also be checked according to outline on page 14 when an oil level gauge is installed in the car.)

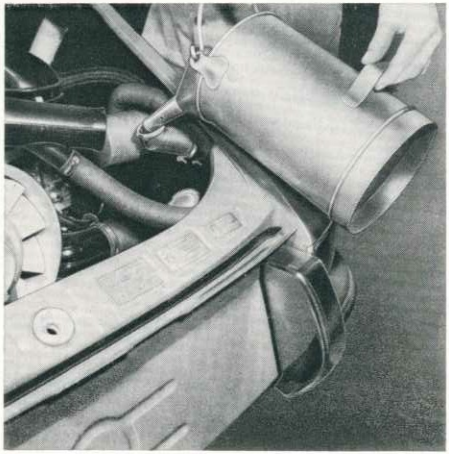
Changing Engine Oil

1. With engine at operating temperature, remove oil drain plug from the engine and the oil tank; open tank filler cap.
2. Drain oil completely.
3. Remove, clean, and reinstall oil strainer.





4. Change oil filter cartridge in accordance with instructions.
5. Clean and reinstall oil drain plugs, tighten properly.
6. Fill the oil tank with approximately 9.5 US quarts (9 liters) of premium grade HD oil.
7. Secure oil filler cap.
8. Start engine and allow oil to warm up to at least 140° F (60° C). While letting engine idle, check oil level reading on gauge. The engine must be allowed to idle until the indicator needle on the gauge has steadied itself (approx. 1/2 minute).
9. Stop engine and add the required amount of oil.



Cleaning Oil Strainer and Magnetic Drain Plug

To increase the filtering efficiency, a magnetic oil drain plug is mounted in the oil strainer cover. The strainer pre-cleans the oil which then has to pass by the magnetic element.

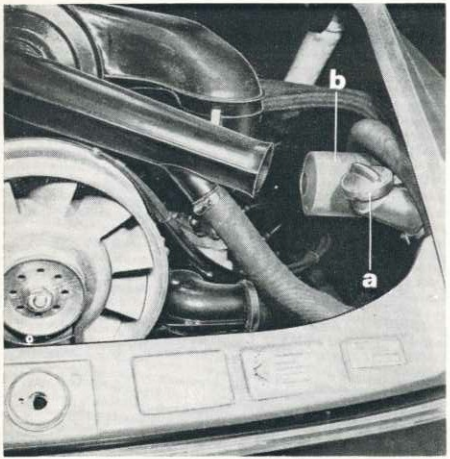
Oil Strainer

Removing:

1. Remove hex nuts from oil strainer cover.
2. Withdraw cover.
3. Withdraw strainer and gaskets.
4. Wash all parts in clean solvent.

Installation:

1. Check oil suction pipe for proper seating and attachment.
2. When cleaning the strainer make sure to remove all gasket remnants from the collar.
3. Install new gaskets on both sides of strainer.
4. Install strainer so that the orifice closely encases the oil suction pipe.
5. Remove gasket remnants from gasket seating area in cover.
6. Do not overtighten the nuts, especially when thicker gaskets are used, to prevent warping the cover.



a: Oil filler neck b: Oil filter

Changing Oil Filter Cartridge

The oil filter cartridge must be changed at mile intervals specified in the lubrication schedule on page 49. The change is accomplished by unscrewing the entire filter assembly (bowl) and replacing it with a new one, including a new gasket.

Care should be taken at installation of the new filter cartridge assembly not to overtighten it since this could make the subsequent removal very difficult.

1. Screw the filter cartridge assembly in until contact with gasket is made.
2. Tighten the assembly only by about one-half turn.
3. Start engine and check for leaks at the filter cartridge.

Changing Transmission Oil

1. Remove oil drain plug from the bottom of transmission housing.
2. Allow oil to drain completely.
3. Clean drain plug, reinstall, and tighten securely.
4. Wipe dirt from oil filler plug before removing it.
5. Fill transmission with approx. $2^1/_2$ US qts gear lubricant as specified in the lubrication schedule.
6. Check transmission oil level, reinstall oil filler plug and tighten securely. Oil level in the transmission should come up to the bottom of the oil filler orifice when the car is standing on a level floor.

Lubricating Gearshift Lever

1. Push up the rubber dust cover on gearshift lever.
2. Depress lever and lubricate ball joint with a few drops of engine oil.
3. Replace dust cover into original position.

Care of Coachwork

The finish on production line Porsches is of a high quality baked synthetic enamel. The color and enamel type designation is indicated on the identification plate attached to the forward door post. When corresponding with the factory on matters pertaining to the paint finish, make sure to include the identification numbers.

In daily use the car is exposed to many mechanical and chemical influencing factors as well as hot sun rays, rain, snow, and frost. The ultra-violet rays, the rapid temperature changes with rain, snow, industrial dust and chemical deposits attack the paint finish which can withstand this only through regular and proper care.

Car Washing

During the initial few weeks, the new car should be washed with clear water only. This is best accomplished by applying a fine water spray to the entire surface to first soften the dirt and remove the worst of it. Following this, clean the surface by using a soft sponge and plenty of water, rinse well, and then wipe dry with a chamois. Never attempt to wash or wax the car as long as the surface is hot from exposure to the sun or engine heat.

Since water will usually moisten the brakes when the car is washed, resulting in poor braking action or one-sided pulling, it is important to test the brakes whenever the car has been washed.

Dust should never be wiped off the car with a dry rag since the dust particles are sharp-edged and abrasive in nature and will rapidly dull the finish and cause scratches that may be difficult to repair.

Care of the Finish

It must first be pointed out that oils contained in the paint are the most important factors contributing to the elasticity of the finish. Because these oils are gradually lost as the time goes on, due to weather and similar causes, they must be replenished through regular and proper care of the finish. Proper cleaning and application of preservatives will result in high luster and provide a protective coating of lasting permanence. However, many of the marketed car polishes and waxes should be met with caution and we recommend the use of Porsche-approved products which are compatible with our enamels. Given proper care, the original finish will retain its brilliance for many years. The use of polishes is recommended but only after it becomes evident that the normal preservatives no longer accomplish the job.

Caution:

Keep silicone polishes off the windshield to avoid wiper smear in rain.

Polishing

It is advisable that repolishing of your car be entrusted into skilled hands of professionals acquainted with this work since a good degree of care and know-how is required. The finish must be polished with clean cotton until high luster is obtained, which should be done in small sections to ensure that the polish does not dry beforehand. A subsequent application of a wax preservative will give the finish a brilliant, long lasting gloss. Metallic paints are especially difficult to maintain and should always be given professional care.

Spots and Stains

Road tar, grease, oil, and insects cannot always be removed with soap and water alone and require special treatment. Spots of any sort should be removed without undue delay before they set and become difficult or impossible to remove.

Road Tar

Road tar should be immediately removed with tar remover since it may cause permanent stains if allowed to stay on for any length of time. Whenever tar removing solvents have been used on the finish, the cleaning should be followed up with a wax preservative.

Insects and Tree Sap

During the warm season, insects will accumulate on the forward surfaces of the body. Since these deposits are somewhat difficult to remove with sponge and water alone, a mild laundry soap solution may be applied. Tree sap accumulating when parking under trees can also be removed with a mild soap solution. Rinse the car thoroughly after cleaning and follow up with a wax preservative.

Upholstery Fabrics

Even though the upholstery fabrics in your Porsche are of top quality, they must be handled with proper care to prevent scuffing or bleaching in the process of cleaning, this being especially the case with fabrics of richer color shades or when removing stains with a water solution. If a vacuum cleaner is not at hand, the upholstery may be cleaned with a soft brush. More persistent stains may be cleaned with luke warm water or, if necessary, soap water solution. Grease and oil spots can be removed with commercial spot removers by using an undyed soft coth and rubbing the upholstery until dry.

Leather and Leatherette

The best way to clean leather and leatherette is by using a luke warm soapwater solution and a soft brush. Use sparse amounts of water avoiding soaking or drenching. Use a soft sponge to wipe each section completely dry after it has been cleaned. Clean the seams carefully, making certain that these areas have been cleaned evenly and well dried. When cleaning leather, it is advisable to follow up with a good leather preservative.

Chrome Trim

Chromed parts should first be washed with sponge and water, then dried with a soft cloth. Road tar must be removed with tar remover rather than knives or objects of that sort. By following up with a proven chrome preservative, a high and long lasting luster will be maintained. During the winter season as well as in coastal areas it will be of advantage to cover the chromed parts with a somewhat heavier coating of the preservative as protection against salty air and extended exposure to corrosive road dirt. If necessary, coat the parts with non-corrosive vaseline or other protective compound.

Rubber Weatherstripping

Rubber weatherstripping is used around the doors and windows. Given a certain amount of care, these rubber components will remain flexible and resilient; it is normal for rubber to lose these properties through aging which causes it to become hard and brittle. However, this process can be effectively countered and slowed through the application of talc powder and glycerine.

Caution:
Glycerine may damage the finish.

Cleaning Glass

Your Porsche is equipped with two types of glass, the windshield being of laminated safety glass and all other windows of tempered safety glass (Sekurit). The laminated glass consists of two layers of glass bonded together with a transparent layer of pliable plastic. When laminated glass is damaged, only the immediate impact area shatters leaving the rest of the surface intact to provide continued visibility through the windshield.

The thin layer of road dirt that accumulates on the glass surfaces consists, to a great extent, of tire abradings and fuel/oil deposits combined with dust and other deposits. The best way to clean the glass is by using luke warm water solution containing a small amount of alcohol or baking soda, and clean absorbent paper (also newspaper). If a chamois is used for polishing the glass, it should be one that is used exclusively for that purpose and which has been thoroughly cleaned prior to use. Contact with the painted surfaces must be definitely avoided, especially with polishes and preservatives.
It should be remembered not to engage the windshield wipers until the windshield has ben wetted by rain or the windshield washer.

Targa Roll Shield

The roll shield outer surface is made of stainless steel which normally requires no attention. In areas with heavy air pollution, it will do well to clean the roll shield with a commercial chrome preserver from time to time to remove any industrial fall-out.

Targa Folding Top

All pivots in the folding top are service free. The top cover is made of leatherette and is easily cleaned and maintained.
Cleaning is best accomplished with a lukewarm solution of soap and water applied with a soft brush. Upon removal of the dirt, rinse the top cover well with clear water and rub dry with a soft cloth.
We recommend to occasionally treat the top cover with a good commercial leatherette preserver, such as Karenol or equivalent.

Targa Rear Window Panel

The transparent rear window is made of "Polyglass", the mounting panel of leatherette; both can be cleaned with a soap-water solution. Upon cleaning, rinse the panel well with clear water and rub dry with a soft rag. More stubborn stains on the transparent panel can be removed with denatured alcohol. The mounting panel should be occasionally treated with a good commercial leatherette preserver, such as Karesol or equivalent.

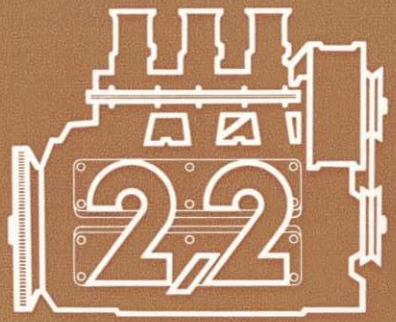
Protective Undercoating

The oil industry has developed undercoating and rust proofing materials of bitumen or wax base. Contrary to the conventional so-called "spray oil", these materials do not soften the undercoating sprayed on at the factory. Instead, they solidify and, upon drying, form a tough, pliable protective coat which has a beneficial effect on the undercarriage and various related component parts by protecting these against the effects of weather. We recommend that the undercarriage be treated with this preservative prior to the onset of the winter season as well as in spring.

PORSCHE

911 T

Maintenance and Adjustments



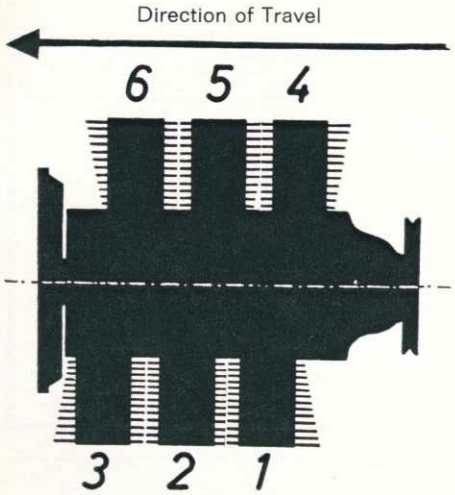
SERVICE SCHEDULE, TYPE 911 T

600 miles	6,000 miles	Service required	Repeat every
■	■	Check valve clearance.	12,000
	■	Check compression or pressure drop.	12,000
■	■	Check rocker arm shafts for tightness.	12,000
	■	Check breaker points, ignition timing, and spark plug gap. Lubricate breaker cam.	12,000
	■	Check carburetor adjustment with exhaust gas analyzer. Lubricate linkage.	12,000
■	■	Check generator V-belt tension.	12,000
	■	Remove brake pads, inspect, and measure wear. Check pressure rod clearance between brake master cylinder and brake pedal. Check hand brake and service brake. Inspect all lines, hoses, and hose terminals for damage. Check entire brake system for leaks. Check hydraulic fluid level in reservoir.	12,000
	■	Check all mechanical connections and joints in steering. Check dust boots in steering box for firm seating and serviceability.	12,000
■	■	Check front wheel bearing clearance, tire pressure, and tightness of wheel lug nuts.	12,000
■	■	Check battery. Check entire electrical system for defects.	12,000
■	■	Check micro switch, engine speed switch, and electromagnetic valve	6,000
■	■	Visually check for fuel and oil leaks.	6,000
	■	Change air filter cartridge.	6,000
	■	Check flame trap cartridge in crankcase breather and check hose connections for firm attachment.	6,000
■	■	Check clutch free play and pedal travel.	6,000
	■	Check wheel alignment, balance wheels *).	6,000

Note: These service intervals apply to normal use of the car. Tire and brake pad wear in particular depend to a large extend on driving methods, and should be examined at more frequent intervals if necessary.
At least once a year, before the cold season, a full service should be carried out.

*) When required, at additional cost.

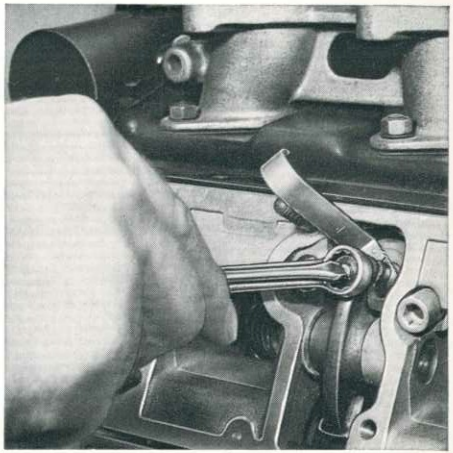
Cylinder Designation



Adjusting Valve Clearance (cold)

Valve clearance in cold engine:
Intake – .004" (0.1 mm)
Exhaust – .004" (0.1 mm)

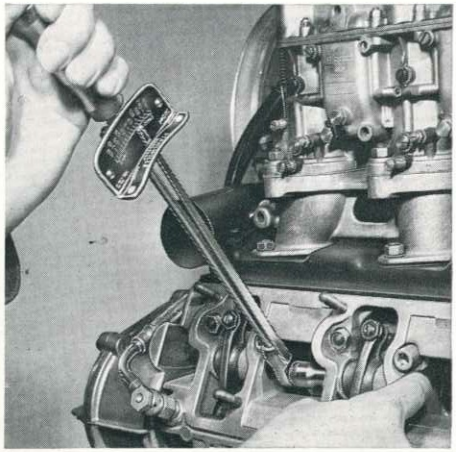
Excessive valve clearance results in a noisy engine and loss op power. Insufficient valve clearance causes poor performance and results in burned valves. Combustion flash-back through the valves can cause a carburetor fire. Consequently, we recommend that the valves be adjusted in at a Porsche Audi dealership. The valves should be adjusted only when the engine is cold.



The best way to adjust the valves is by following the firing order sequence, i. e. 1 – 6 – 2 – 4 – 3 – 5. When setting the valves of any cylinder make sure that the piston of that cylinder is on top dead center (TDC) of the compression stroke since the valves are closed when the piston is in that position. If the adjusting work is to be started at Cylinder 1, turn the crankshaft until both valves of that cylinder have closed and the TDC mark on the belt pulley is in line with the notch in the blower housing.

1. Remove rocker box covers.
2. Bring piston in Cylinder 1 to TDC on compression stroke.
3. Check valve clearance with a feeler gage.
4. Loosen hex adjusting nut (lock nut).
5. Adjust clearance by turning the adjusting screw with a screwdriver and, at the same time, holding the lock nut in place and checking the clearance with a feeler gage.
6. Tighten lock nut while holding the adjusting screw firmly in place.

7. Check the valve clearance again.
8. Repeat this procedure on all other valves in proper sequence.
9. When required, check rocker arm shafts for firm seating, spark plug condition, and cylinder compression.
10. Check rocker box cover gaskets and replace if defective. Reinstall rocker box covers.
11. Start engine and check covers for leaks.



Cleaning Spark Plugs

Spark plugs can be cleaned with a fine wire brush and blown clean with compressed air. The upper insulator should be wiped clean to prevent current leakage and misfiring.

Caution

The spark plug electrodes may be easily damaged. Cleaning should therefore be accomplished with appropriate care.

Rocker Arm Shafts

Checking Tightness

Remove rocker box cover and check rocker arm shaft retaining bolts for proper tightness using Allen wrench SW 8 or SW 5, as appropriate.

Proper torque when tightening the bolts on cold engine is 12 – 13 lbs-ft (1.7 – 1.8 mkp).

Checking Spark Plugs

After every 6000 miles of operation, the spark plugs must be removed and checked for condition, gap, and performance. The appearance of the electrodes and insulator is a good indicator of the condition of the engine. In general, the tell-tales are as follows:

Electrode and insulator - -

Medium brown:

Proper carburetion and spark plug in good condition.

Black:

Fuel mixture too rich, spark plug gap too wide, plug too cold.

Light grey:

Fuel mixture too lean, spark plug loose or leaking, valves not closing fully, plug too hot.

Oil wetted:

Oil sucked into combustion chamber due to worn cylinders or piston rings, plug misfiring.

Testing Cylinder Compression

Cylinder compression test is accomplished at crank-up rpm. To perform the test, first remove all spark plugs and then proceed with testing. Each cylinder should be allowed about 12 piston strokes (compression strokes). Cylinder pressure should be even on all cylinders and range between 130 and 155 psi (9 – 11 kg/cm^2). The test may be accomplished with a common compression tester.

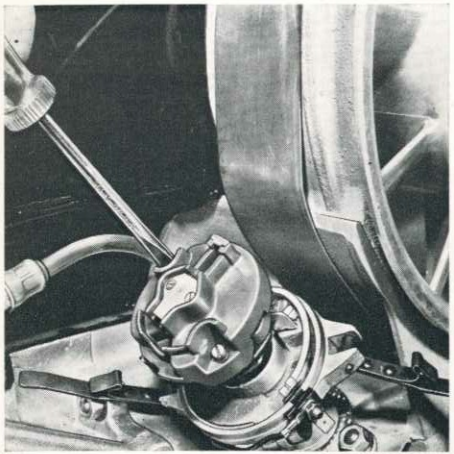
Perform compression test with fully open throttles and oil temperature not less than 140° F (60° C).

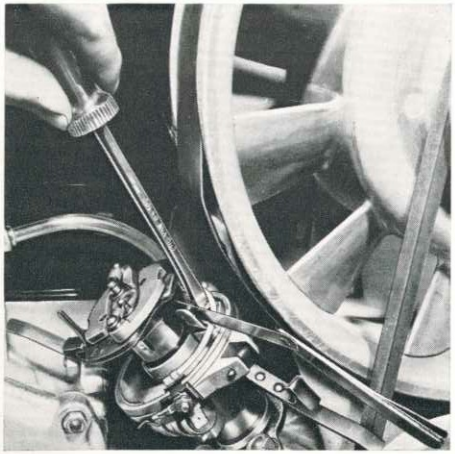
Lubricating Distributor Cam

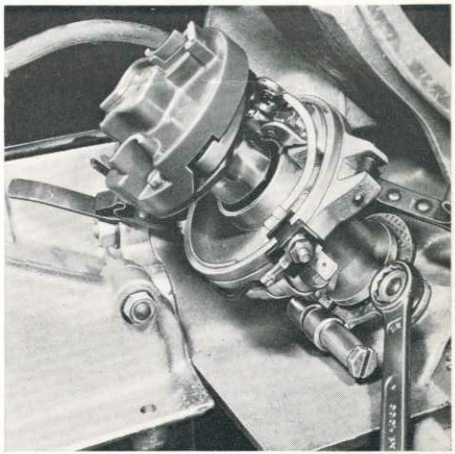
1. Remove distributor cap.
2. Withdraw rotor arm.
3. Remove water shield.
4. Thinly coat the cam with non-corrosive high temperature grease.

Note:

Do not allow grease or dirt to reach the contact breaker points. Dirty contact points will cause misfiring and quick contact erosion.







Adjusting Breaker Points

The first step in adjusting the ignition timing is to check, and readjust if necessary, the breaker point gap. Turn the crankshaft until a cam lobe of the distributor shaft has fully raised the breaker point arm.

Breaker point gap should be .016″ (0.4 mm), or dwell angle of 40 ± 3°.

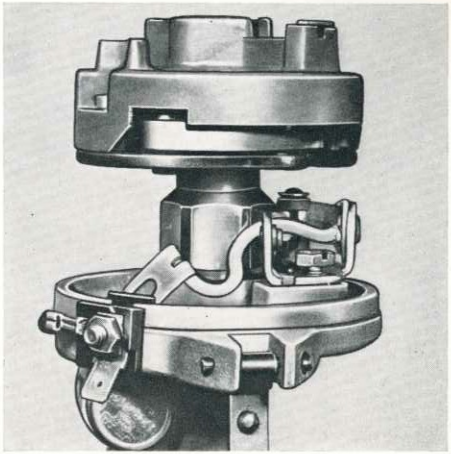
Before the breaker point gap can be reset, it will be necessary to unscrew the rotor to gain access to the front retaining screw of the breaker point plate. After loosening the retaining screw, adjust the breaker gap with a feeler gauge.

Replace the points if burned or pitted.

Replacing Breaker Points

It is necessary to remove the distributor when replacing the points.

1. Remove distributor cap, mark the position of the rotor.
2. Remove retaining nut from clamp at the distributor base and pull the distributor out.
3. Remove both breaker point plate retaining screws and loosen terminal screw of wire lead.
4. Install new points and adjust gap.
5. Reinstall distributor, positioning the rotor as marked in Point 1, above. Install nut with spring washer and tighten.

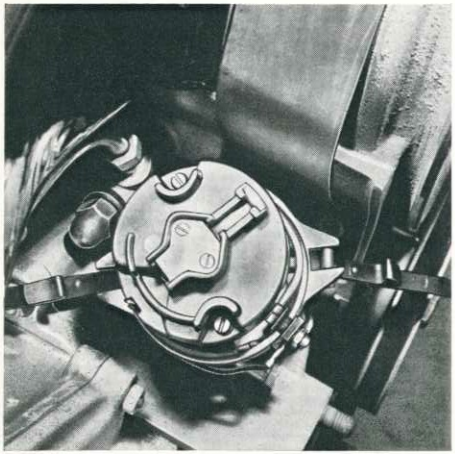


Ignition Timing

General

Ignition timing in Type 911 T-C engines is set at TDC.

To adjust timing, line up the TDC mark on the crankshaft pulley (Z1) with the notch in the blower housing.



Note:

After setting the ignition timing, check the adjustment with a stroboscope.

At 6000 rpm, the firing point should be 35° BTDC with engine running free or under load.

When adjusting the timing according to the above method, the basic setting may be disturbed although such changes will be negligible.

Basic Ignition Timing Adjustment

1. Align the TDC mark (Z1) on the crankshaft pulley with the notch in blower housing.
2. Remove distributor cap and rotor arm.
3. Loosen clamp screw at the base of distributor body.
4. Connect a 12 volt test lamp in series between Terminal 1 at the distributor, and the ground.
5. Switch the ignition on.
6. Turn the distributor body clockwise until the light goes out (contacts closed), then turn slowly counterclockwise until the points open and the light goes on again.
7. Tighten distributor clamp screw.
8. Reinstall rotor arm and distributor cap.
9. Check ignition timing while engine is running.

Lubricating Carburetor Linkage

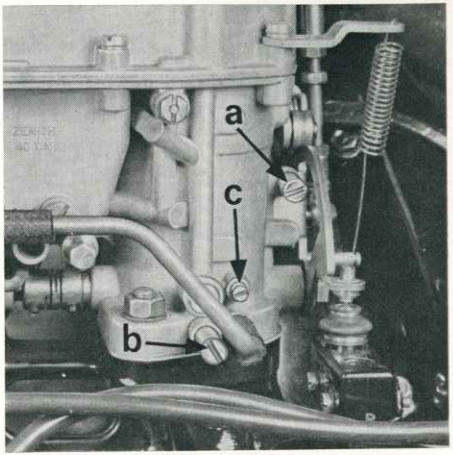
1. Lubricate all pivot points on left and right sides with 1 – 2 drops of engine oil while moving the throttle controls.
2. Lubricate accelerator pump rods.
3. Disconnect all ball joints, fill cups with high temperature grease, reconnect.
4. Move linkage back and forth to check for proper functioning.

Idle Speed Adjustment

Exact idle adjustment requires the application of special tools and should be performed by your authorized Porsche Audi dealer. The idling speed should be 850 – 950 rpm. When adujsting, run engine at a fast idle of about 1000 – 1200 rpm.

1. Warm up engine (oil temperature at least 140 ° F or 60 ° C).
2. Remove air cleaner and disconnect throttle linkage ball joints which connect the two carburetor assemblies.
3. Increase idling speed to about 1000 to 1200 rpm by turning idle speed stop screws on both sides, making sure that both screws are equally adjusted.
4. Adjust idle mixture screws in all carburetors so that engine idling is as smooth and fast as possible.

Note: The basic setting of the idle mixture screws is about $2^1/_2$ turns open.



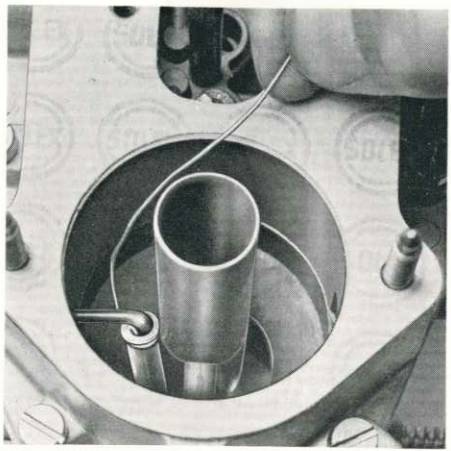
a Idle stop screw
b Idle mixture adjusting screw
c Idle air adjusting screw

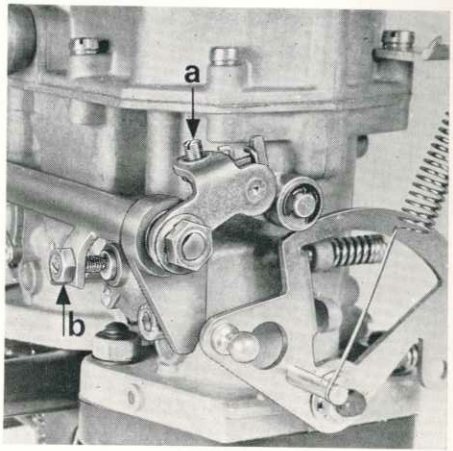
5. Place test gauge (Synchro-Test) on one carburetor throat and adjust gauge to bring indicator piston within the glass tube to about one-half height; do not reset the gauge once adjusted for the test.
6. Place the synchro-tester on the other carburetors. If necessary, readjust idle air adjusting screws so that the indicator plunger in the test gauge moves as high as in the first carburetor.

Note:
The idle air adjusting screws should be screwed out of the carburetor as little as possible. It may become necessary to screw all screws fully in and redo to basic adjustment.

7. Evenly turn both idle stop screws back until engine speed drops to idling.
8. Check the adjustment with the synchro-tester.
9. Reinstall air filter housing.
10. Readjust idle mixture adjusting screws so that the engine runs smoothly.
11. Adjust connecting linkage of both carburetors and reconnect.
12. Check injection quantity.
    The fuel quantity discharged by the accelerator pump should be 0.5 ± 0.1 cc. per pump stroke per nozzle.
13. If this is not the case, the injection quantity has to be readjusted by resetting the cam linkage.

a) Screw in the adjusting screw on the pump lever (a) until the three adjusting lugs on the accelerator pump shaft are approximately vertical.
b) Loosen the adjusting screws on the accelerator pump shaft (b).
c) Beginning with cylinders 1 and 4, screw in the adjusting screws until they just touch the pump plungers. Lock the adjusting screws in this position.
d) Measure injection quantity at cylinders 1 and 4. If too high, re-adjust both adjusting screws.
e) Now adjust the remaining accelerator pump adjusting screws as described in c) above. Measure the injection quantity and correct if necessary.





Checking micro switch

1. Connect a power supply cable with an electrical terminal on the micro switch.
2. Connect the second terminal through a test lamp to ground.
3. Switch on the ignition and operate the switch. When the operating knob is pressed down the test lamp must light. When the knob is released the test lamp should go out.
   If necessary replace the micro switch.

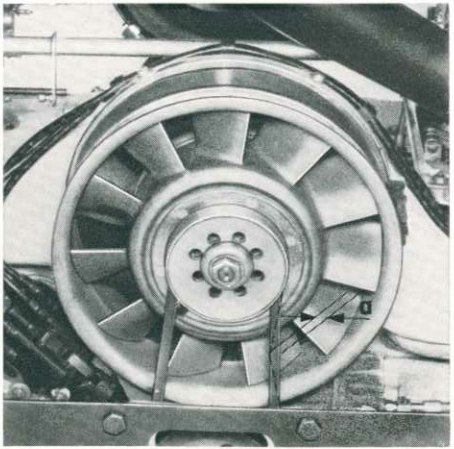
Checking engine speed switch

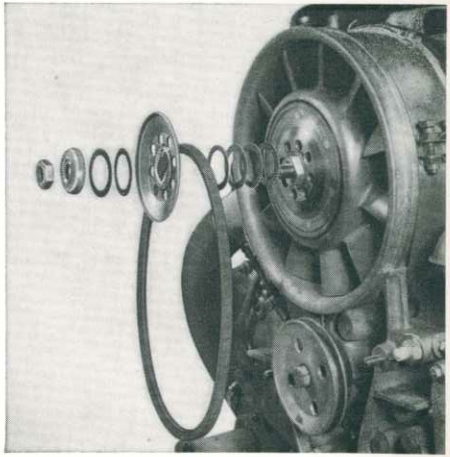
1. Connect a test lamp to terminal 30 b and ground.
2. Run the engine and accelerate. When engine speed exceeds approx. 1350 rpm the test lamp must light.
3. Release the accelerator; when engine speed falls below about 1300 rpm the test lamp should go out.
   If necessary replace the engine speed switch.

Checking electromagnetic valve

Connect a power supply cable to the electrical terminal on the solenoid valve. A clearly audible switching action (thicking sound) should be detected.
If necessary, replace the solenoid valve.







Adjusting V-Belt

The pulley retaining nut must be removed when the blower belt is to be removed or adjusted. Hold the generator pulley with the holder provided in the tool kit when loosening or tightening the pulley retaining nut.

Proper belt tension is attained by changing the proximity of both pulley halves in relation to each other. This is done by adding or removing spacers which are installed between the two pulley halves; spare spacers are kept between the outer pulley half and the retaining nut.

The belt tension is correct when the belt can be depressed by about 1/2 to 3/4 in (10 to 15 mm) under light thumb pressure (see "a" in above illustration). Recheck the adjustment after turning the crankshaft a few times.
Bear in mind that new belts stretch after the first miles of use. The tension should therefore be checked and adjusted within a short time of installation of a new belt.

Note:
Oily V-belts should be cleaned using a P-3 solution (commercial detergent) and thoroughly rinsing in clear water.

Never clean the belt in gasoline or petroleum solvents. When replacing a worn belt make sure that the replacement bears the designation Phoenix-Rhombus DA 9.5 x 710.

Changing V-Belt

To change the belt apply the same procedure as that for adjusting tension. Begin assembly by having 5 spacers between both pulley halves and work from there to gain proper belt adjustment by adding or withdrawing spacers.



Replacing Air Cleaner Cartridge

1. Remove both wing nuts and preheating hose.
2. Turn the top slightly to right and withdraw.
3. Take filter cartridge out.
4. Clean the inside of housing with an oiled cloth. Do not use shreeded rags or similar materials.
5. Check rubber seal in housing for damage.
6. Insert new filter cartridge.
7. Reinstall top, tighten wing nuts, reconnect preheating hose.

Cleaning Flame Trap Cartridge

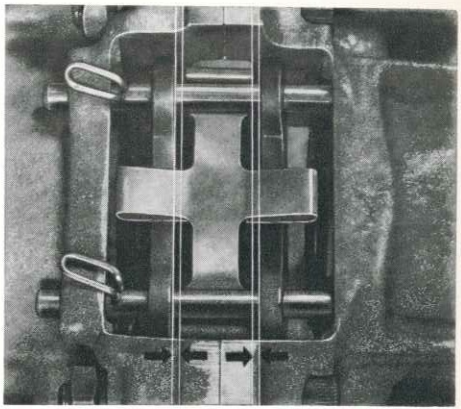
1. Detach breather hose which connects the oil tank with the air cleaner by pulling the hose off at the air cleaner.
2. Remove flame trap cartridge, clean in cleaning solvent, and blow through with compressed air.
3. Reinstall flame trap and reconnect breather hose.

Dual Circuit Disc Brakes

When the brakes are applied, each brake pad is pressed hydraulically against its brake disc by a brake piston. The brake pads are self-adjusting. The brake discs are protected against road spray and dirt by cover shrouds, although it still is possible that the brake pads and discs become wet when driving on wet highways. When driving on wet expressways or similar fast highways where the easy traffic conditions call for only infrequent use of the brakes, higher pedal pressures will be required for braking. Consequently, it will be of advantage to gently apply the brakes at not too long intervals when driving in environments mentioned above so that the discs and pads remain dry. Do not fail to run the brakes dry after the car has been washed. Despite the excellent fading resistance qualities of disc brakes, use engine braking power when descending long grades since overheating may damage the internal seals or cause the hydraulic fluid to boil which leads to the formation of vapor pockets rendering the brakes very ineffective.

When participating in competition events and desiring to facilitate better cooling for the brakes, it is permissible to remove the rear brake shrouds; the front disc shrouds, however, must never be removed.

Brake Pads



Brake pad wear will depend mainly upon the degree of usage, type of driving, and condition of the roads. We recommend that during the initial maintenance inspections a determination is made if the standard brake pads are adequate for the owner's way of driving. It may be expected that the pads will wear faster on dirty and wet roads (winter-serviced).

Various types of brake pads are available, such as for normal use or for competition. Competition brake pads wear slower but require higher pedal pressures. We suggest that competition brake pads be removed prior to the onset of the cold season and replaced with pads designed for normal use. Thickness of the pads should be checked during all preventive maintenance operations or whenever the wheels are taken off the car (visual check). The brake pads must be thick enough between the brake pad plate and the cross spring to allow a reserve for further wear (see illustration). The permissible wear limit has been reached once the brake pad plate comes to rest against the cross spring (brake pad thickness approx. 2 mm or .08″). We also suggest that the condition of the brake pads be checked prior to departure on long trips.

Replacing Brake Pads

Each car, must be equipped with brake pads of identical type and brand on all wheels. Even though it is permissible to replace individual pads under certain circumstances, we recommend that, in the least, the pads of a given axle be replaced altogether when the necessity to replace one pad alone should arise.

Caution:

Brake pads which were in use and are to be removed for any reason should be appropriately marked to ensure that they are installed in their original position upon reassembly.

1. Place car on stands and remove wheels.
2. Remove safety locks and retaining pins, depress spring and remove.
3. Mark pads prior to removing these, then remove.
4. Using a piston depressor, push pistons fully back. If the special tool is not available, the pistons may be pushed back with a piece of wood. Do not use other tools or improvisations for this purpose to avoid damaging the pistons or brake discs.

Note:

When the pistons are pushed back, hydraulic fluid is forced out of the cylinder and flows back into the reservoir. To prevent spillage from an overfilled or overflowing reservoir, drain some of it before pushing the pistons back. The scavenging tool used for this purpose should be completely clean and should not come in contact with anything but the hydraulic brake fluid.

5. Clean pad seating and supporting surfaces within the housing using denatured alcohol; do not use mineral solvents or sharp objects.
6. Check dust covers and safety rings for condition. Replace covers when hardened or porous.
7. Clean brake discs with fine-grade emery cloth.
8. Install new brake pads with retaining pins, springs, and safety locks. The brake pads must fit freely in their wells. If necessary, install new safety locks and cross springs.
9. Follow the same procedure on remaining brakes.

Note:

Use only replacement pads available at authorized Porsche parts service. Prior to driving the car, depress the brake pedal as far as it will go to bring the brake pistons and pads into their normal position. Afterwards, check hydraulic fluid level in the reservoir and replenish if necessary.

Conditioning Brake Pads

Every vehicle equipped with disc brakes requires a certain runin-period. Care should be exercised during the first 100 – 150 miles. After that the brakes have reached their full efficiency.

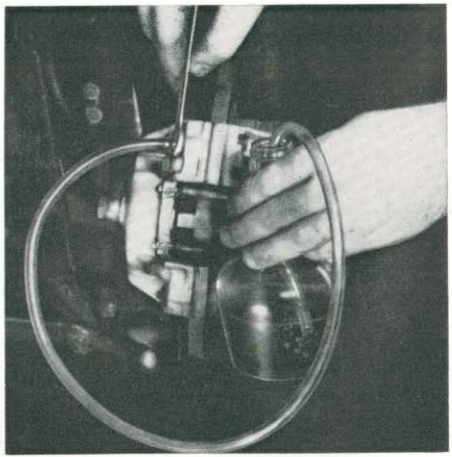
Bleeding Brake System

Subsequent to the accomplishment of any repairs in the brake system due to excessively long pedal travel combined with poor braking action, or due to unevenly pulling brakes, the particular brake system circuit (or both circuits, if necessary) must be bled with care. The work requires two mechanics and always is initiated at the farthest point from the brake master cylinder:

Rear wheel circuit:
1. Left rear wheel
2. Right rear wheel

Front wheel circuit:
1. Left front wheel
2. Right front wheel

Note:
When the hydraulic brake system has been drained, it should be first filled, as outlined below, and then bled. Open the bleeder valve by about one-half turn, depress brake pedal, close bleeder valve, and release brake pedal. The procedure must be repeated in this sequence until brake fluid begins to flow through the bleeder hose; this applies to all wheels and should be done in proper sequence as shown above. Having filled the hydraulic system with the brake fluid, proceed with the actual bleeding operation.



Bleeding Procedure

1. Remove dust cap from bleeder valve and attach bleeder hose.
2. Place the free end of the bleeder hose into a glass container which has some hydraulic fluid in it so that the hose can be submerged.
3. Quickly pump the brake pedal several times until pressure can be felt. Holding the pedal down, open the bleeder valve by about one-half turn and push the brake pedal all the way down. Do not release the pedal until the bleeder valve has been closed again.
   Repeat this procedure until bubbles cease to appear in the fluid at the end of the hose.
4. Remove bleeder hose and install dust cap.
5. Repeat the above on all other bleeder valves in the outlined sequence. Make sure that the brake fluid reservoir does not run dry since this would allow air to enter the system again.

Caution:
Hydraulic brake fluid will damage the paint finish.
Brake fluid which has been pumped out of the brake system must not be used again.

6. Check for proper effect of bleeding and absence of leaks by holding the brake pedal under pressure.
7. Replenish brake fluid in the reservoir.



Hydraulic fluid level in the reservoir must be checked at regular intervals and replenished whenever below the top mark. Due to the relatively large cylinder cross-section in the brake calipers, the brake fluid level in the reservoir will decrease at a much faster rate, due to brake pad wear, than one is used to observing in cars equipped with drum brakes. For replacement of brake fluid it is suggested that you see your authorized Porsche Audi Dealer.

If the hydraulic system has been completely drained for any reason, such as complete brake overhaul, and then refilled, it may become necessary to bleed the brakes again after a short test drive.

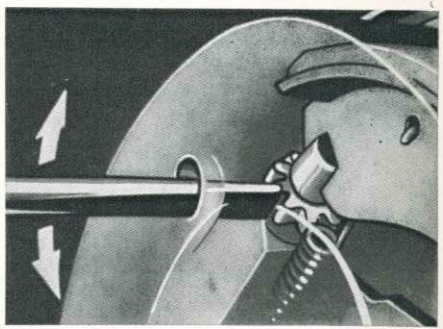
Since the brakes are self-adjusting, brake pedal free travel will remain constant at all times providing that the brakes are free of air. The pedal free travel represents approximately 30 – 50 % of the total pedal travel. Subsequent to installation of new brake pads, the pedal free travel will be somewhat longer until the pads have passed the conditioning period.

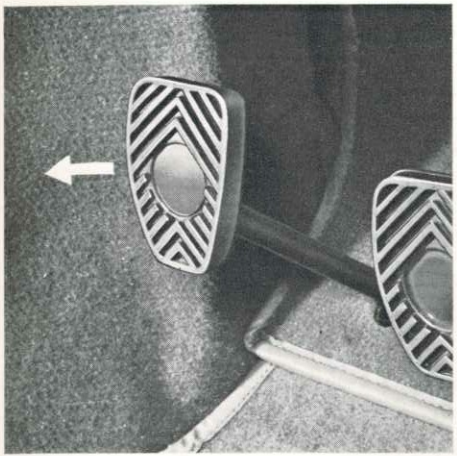
Adjusting Hand Brake

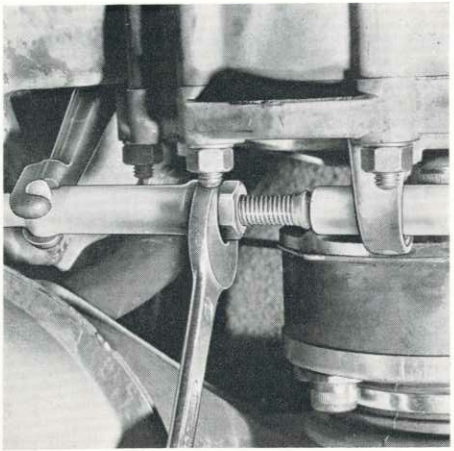
General

The hand brake is of the drum brake type. The action is mechanical and to rear wheels only.

1. To adjust the handbrake it is necessary to place the car on stands and remove the rear wheels.
2. Release handbrake and free rear brake discs by pushing all brake pads back.
3. Loosen cable lock nuts at the rear cable terminal and adjust the cable so that it is slack.
4. Insert a screwdriver through the access hole in the parking brake drum and turn adjusting spur wheel until the brake disc can no longer be turned by hand.
5. Adjust the brake cable at the rear cable terminal so that it just begins to pull and tighten both lock nuts.
6. Turn spur wheel to slacken parking brake so that the disc turns without drag, which normally requires backing off by about 6 – 8 teeth on the adjusting spur wheel.
7. Follow the same procedure on the opposite brake.
8. Check free travel of parking brake lever. Road test car to ensure that parking brake works evenly. Should one-sided pulling be encountered, slacken spur wheel of the respective brake to attain even action.
9. Prior to driving, depress brake pedal several times to bring the disc brake pistons and pads into their operating position. Check hydraulic fluid level in the reservoir.







Checking and Adjusting Clutch

Pedal Free Travel

Pedal free travel should be $^{13}/_{16}$ to 1 in. (20 to 25 mm). It is checked by moving the clutch pedal in direction of the arrow.

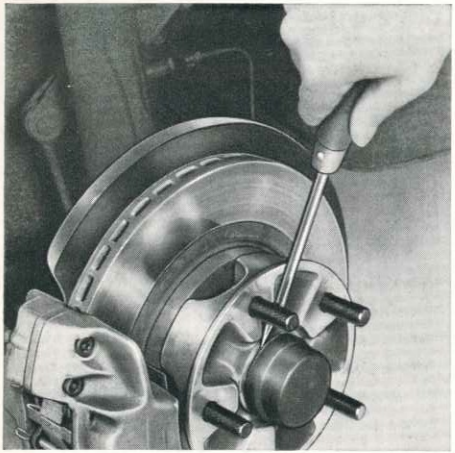
Adjusting Free Travel

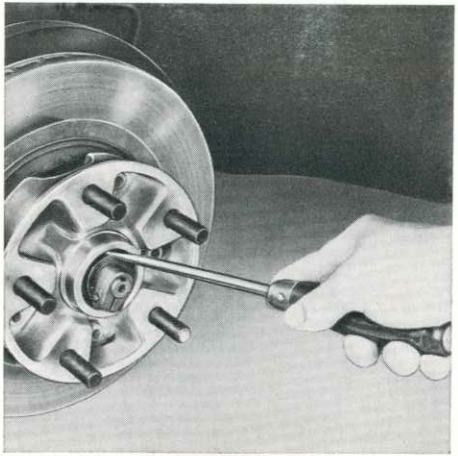
1. Loosen lock nut at cable rear terminal.
2. Turn adjusting nut until free travel of pedal is $^{13}/_{16}$ to 1 in. (20 to 25 mm); hold threaded cable end with pliers if necessary.
3. Tighten lock nut without moving the adjusting nut.

Checking and Adjusting Pedal Travel

The use of diaphragm-type clutch pressure plate necessitates an exact limiting of clutch pedal travel. This adjustment should be checked when the transmission is warm and the engine running at idle speed. Depress clutch pedal and check ease of shifting into reverse gear. If the adjustment is correct, the reverse gear will engage practically clash-free. The pedal travel stop is a piece of flat iron with an oval hole for adjustment, attached to the floorboard with two bolts.

1. Unsnap forward part of floormat.
2. Loosen both stop retaining bolts.
3. Move pedal stop up or down, as required, until locating the proper positon, i. e., when the reverse gear will engage practically clash-free.
4. Tighten pedal stop retaining screws.
5. Recheck pedal travel and fasten floormat.
6. Depress the clutch pedal as far as possible. In this position the outer sleeve should not contact its guide on the gearbox housing.





Adjusting Front Wheel Bearings

The front wheel bearings must be adjusted in close compliance with the following instructions to ensure long bearing life.

Checking

Front wheel bearings are properly adjusted when the thrust washer at the outer bearing will still yield sideways with the use of a screwdriver as illustrated above. Prior to checking rotate wheel several times. Adjusting and checking should be done only when the hub is cold.

Adjusting

1. Remove dust cap from hub and loosen Allen screw which locks clamp nut.
2. Tighten or loosen clamp nut until adjusted so that the thrust washer will still yield sideways with use of a screw driver as illustrated above. Spin wheel and recheck adjustment. Retighten Allen locking screw in clamp nut without moving the clamp nut from the adjusted position.

Adjusting Toe-In

Uneven wear found on one or more tires may be the result of improper toe-in adjustment. In such cases, the car must be taken to a Porsche Audi dealer equipped with an optical wheel alignment ramp to perform a proper check.

Note:

Toe-in can be measured only when the car is standing on its wheels on level ground since readings taken on hoisted car will be erroneous. When measuring toe-in, the car must be empty at curb weight, i. e., with full gasoline tank.

Wheels

Tire Pressure

The tires should be inspected for proper pressure and unusual wear or damage such as cuts, broken cords, and punctures as part of every maintenance inspection, before departure on longer trips, and at every given opportunity.

Check tire pressure when the tires are still cold.

Nominal tire pressures are as follows:

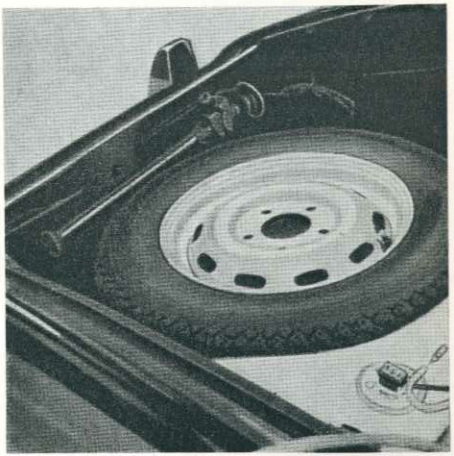
Front – 26 psi (1.8 atm)
Rear – 29 psi (2.0 atm)

Snow tire pressure:
Front – 29 psi (2.0 atm)
Rear – 32 psi (2.2 atm)

Make sure that your wheels are always well balanced. Hard braking or uneven tire wear may call for rebalancing the wheels.

Caution:

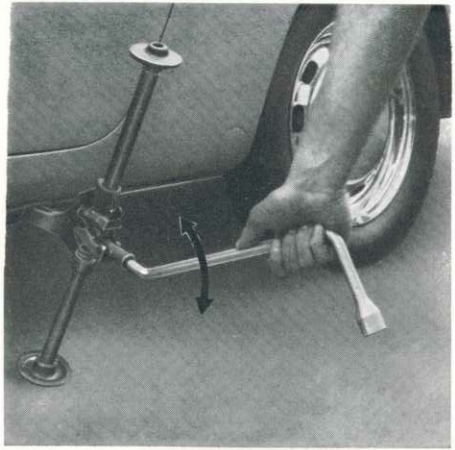
The tire pressure will increase progressively with increasing temperature; therefore, never let any air out of warm tires to meet cold tire pressure specifications.



Spare Wheel

The spare wheel is located under the front lid in the forward compartment. Remember to check the spare tire pressure when checking other wheels. The spare tire should be inflated to the same pressure as the rear wheels.







Changing Wheels

1. Set hand brake and shift into 1st gear or reverse.
2. Remove hub cap from the respective wheel.
3. Loosen wheel lug nuts.
4. Press upper lock pawl of jack down to unlock jacking mechanism.
5. Keeping pawl down, push jacking transport all the way down.
6. Insert the square jack arm into jacking point, which is located below the body and door center, while holding the jack with the round steel pad down.
7. Push round support pipe all the way down.
8. Insert jacking lever into round socket in the jack pawl.
9. Jack the car up by moving the jacking lever up and down until the respective wheel raises off the ground.
10. Remove wheel lug nuts and pull the wheel off hub.
11. Mount spare tire and lightly tighten wheel lug nuts making certain that the cone-shaped end of each lug nut fits well into its concaved counterpart in the wheel rim.
12. Place jacking lever between both catches of the upper lock pawl and jack fork and press down to lower the car to the ground.
13. While holding the jacking lever in that position, pull round pipe of jack all the way up and withdraw jack from jacking support.
14. Tighten every other wheel lug nut (starting at the valve in sequence 1 – 3 – 5 – 2 – 4) until all nuts have been securely tightened. Mount hub cap.



Electrical System

Note:
Running the engine with disconnected batteries will damage the alternator! This applies mainly to cars which were later equipped with a battery main switch.

Testing Batteries

General

The car is equipped with 2 batteries wired in parallel. Both batteries must be disconnected whenever electrical work is performed on the car.

Good engine starting depends upon good condition of the battery. In general, battery care is confined to the addition of distilled water, testing specific gravity of the electrolyte, and testing cell voltage.

The batteries are within the left and right wheelhouse and are accessible from the luggage compartment.

Adding Distilled Water

The level of the electrolytic solution contained in the battery decreases with time and use due to deterioration and evaporation of water contained in the electrolytic solution. The solution should be replenished only with distilled water. The electrolyte level should not be higher than the check bridge or the control neck. If the battery has none of the above reference points, keep the electrolyte level about $^1/_2$ inch above the top of the battery plates.

Testing Specific Gravity of Electrolyte

Specific gravity of the electrolyte is tested with a hydrometer calibrated in degrees Beaumè or p/cm³. The readings mean the following:

32° Be = specific gravity 1.285 p/cm³
= Battery fully charged
27° Be = specific gravity 1.230 p/cm³
= Battery half charged
18° Be = specific gravity 1.142 p/cm³
= Battery dead

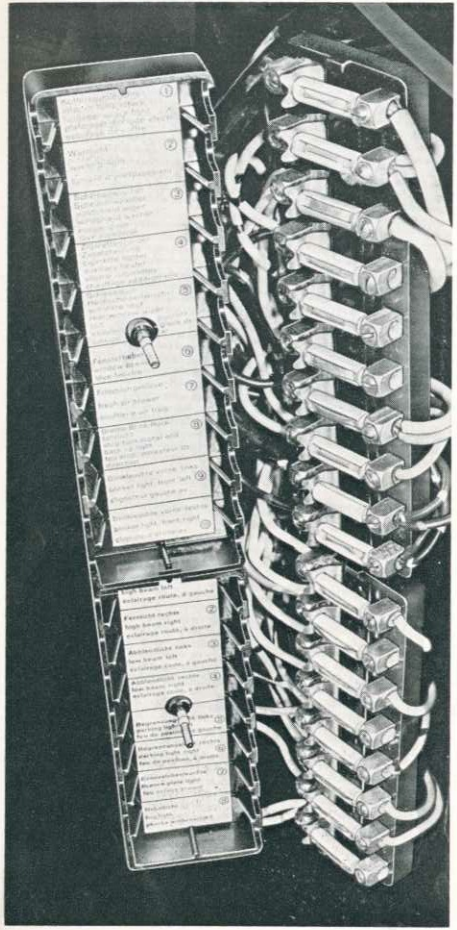
Testing Battery Voltage

We recommend that battery voltage be tested in an auto-electric shop which will have the proper instruments for this task.

Battery Care

1. The batteries must be firmly attached to the car.
2. Battery terminals and cable clamps must be kept clean. Corrosion and oxydation can be prevented by coating the terminals and clamps with vaseline or terminal grease.
3. The vent caps must be securely tightened to prevent spillage.
4. Spilled electrolyte must be rinsed off at once with a solution of soda (baking soda will do) to neutralize the solution and prevent damage to fabrics and metal.

Automotive batteries will lose their potency when not in use. Make sure that the batteries are charged at intervals of approx. 6 weeks if the car is not in operation for prolonged periods. A discharged battery allows a rapid formation of sulfates on the plates, leading to their deterioration.



Replacing Fuses

The fuses are located in the left front part of the luggage compartment next to the battery and are covered with a plastic cover.
The respective fuses are identified inside the cover.

The fuses are held in position by spring clamps and can be easily removed by hand.
A burnt fuse indicates an overload in the circuit and, therefore, the defect cannot be remedied by simply installing a new fuse. In such cases, the defect must be traced.
The patching of fuses with wire or foil is not permissible since it may cause serious damage to other electrical components. Always carry an assortment of spare fuses in the car.

Bulb Chart (12-volt system)

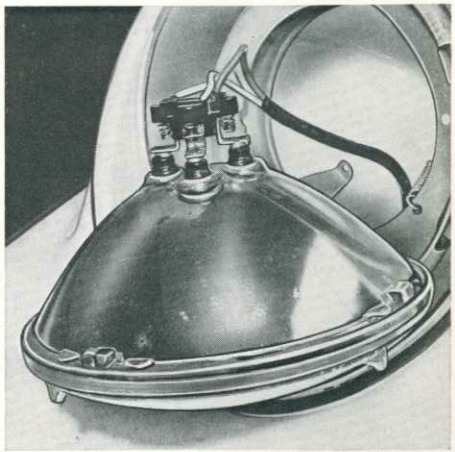
Headlamps	45/40 W (H1 55 W – optional)
Fog lamps	H3 55 W (USA 35 W) (optional)
Back-up lights	18 W
Stop lights	21/5 W
Turn signals	21 W
Interior lights	10 W
Luggage compartment	5 W
Parking lights	4 W
License plate lights	4 W
Instrument lights	2 W
Control lamps	2 W

Fuse Capacity

Fuse box I		**Fuse box II**	
Fuse	Amp.	Fuse	Amp.
①	5	①	8
②	16	②	8
③	25	③	8
④	16	④	8
⑤	16	⑤	5
⑥	25	⑥	5
⑦	25	⑦	5
⑧	16	⑧	16
⑨	5		
⑩	5		







Sealed Beam and Sealed Beam Type Headlamps

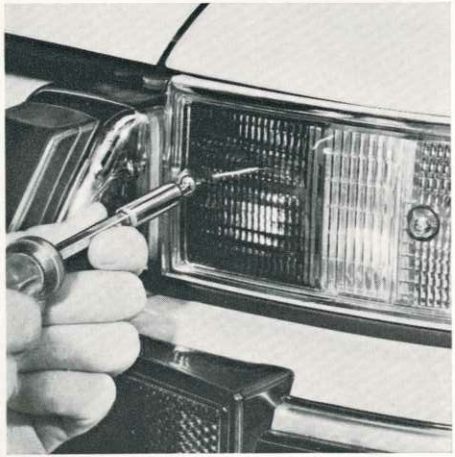
Replacing Light Units

1. Unscrew retaining screw and withdraw lamp rim.
2. Remove the 3 screws which secure the lamp unit retaining ring, remove retaining ring, and withdraw sealed beam unit.
3. Disconnect plug from rear of lamp. If sealed beam-type headlamps are installed the bulb must be exchanged.
4. Attach plug to rear of new lamp.
5. Insert sealed beam unit and retaining ring, tighten hold down screws.
6. Adjust head lamp.
7. Install lamp rim and tighten retaining screw.





Directional Signal, Parking, Back-up and Stop Lights





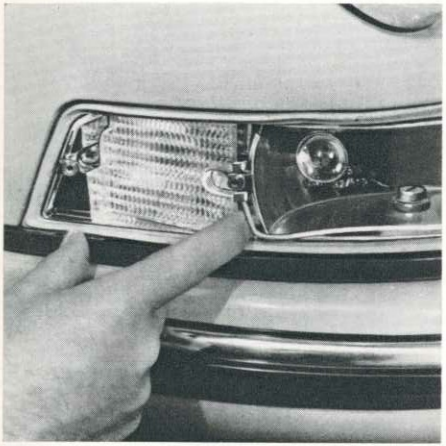
Replacing Bulbs

1. Remove the three Philips screws from lamp lens and remove lens.
2. Push bulb into holder and twist to the left (bayonet mount).
3. Exchange bulbs.

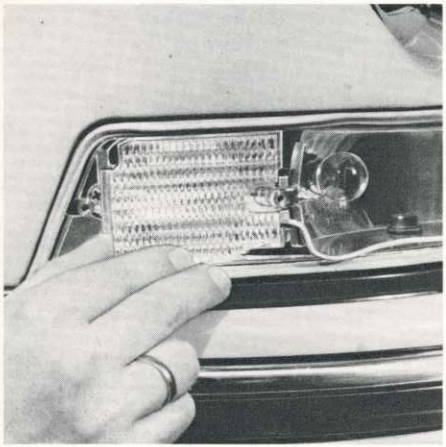
Note:

Keep glass bulb free of grease and dirt, hold it only through clean cloth or soft paper.

4. Insert bulb and turn to the right so that it snaps in position.
5. Install lamp lens and tighten the retaining screws evenly, alternating from one to the other.
6. Check lights for proper functioning.









Illuminated Side reflectors

To replace the bulbs remove reflecting glass. Pull glass away to outside.
To replace reflecting glass, push firmly under retaining spring until the other side can be inserted. Press glass until it is secure.

Fog Lamps

Replacing Bulbs

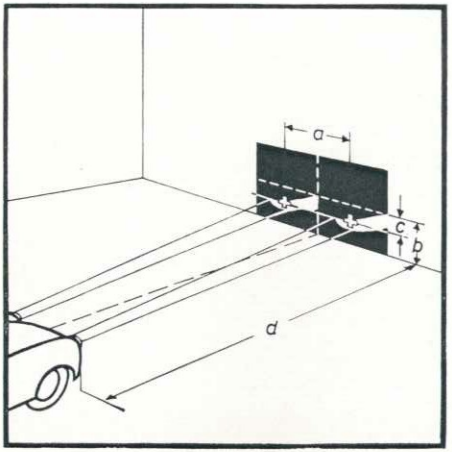
1. Unscrew rim retaining screw and take lamp assembly off.
2. Pull out bulb holder from the lamp (snap-fit).
3. Remove bulb by pushing it into holder and turning to the left (bayonet mount).
4. Exchange bulbs.

Note:
Keep glass bulb free of grease and dirt, hold it only through a clean rag or soft paper.

5. Push bulb into holder and turn to the right.
6. Insert bulb holder into lamp and push in firmly.
7. Install lamp assembly into base and tighten retaining screws.
8. Check fog lights for proper functioning.

Adjusting Headlamps

If a lamp aiming device is not at hand, the lights can be adjusted by projecting the beams onto a screen. The screen or aiming device, whichever is used, must be squared off with the vehicle's longitudinal axis. Basically, the luggage compartment must be empty, tires properly inflated, and the car weighted by one person or 155 lbs (70 kp) ballast. Once in this condition, the car should be rolled a few yards to allow the suspension to settle. The car should then be placed on level ground 197″ (5 m) from the screen. Each headlamp should be adjusted separately while the other one is covered.





Asymmetric Headlamps

Lateral Adjustment:
The lateral adjustment is correct when the bisecting lines of low beam projection and the diagonal of the asymmetric road shoulder sweep (upper perimeters of beam projection) fall onto the cross marked on the screen.

Vertical Adjustment:
The vertical adjustment is correct when the upper border of the low beam (line between dark and bright area of projection) extends horizontally to the left of the cross, along the aiming line, with the diagonal road shoulder sweep falling to the right of the cross.

a = distance between headlamp centers
b = height between ground and headlamp centers
c = 1% of the distance from the aiming screen (2″ or 50 mm)
d = distance from aiming screen to headlamp (197″ or 5 m)

When equipped with asymmetric headlamps and passing through countries with left-hand traffic, cover the asymmetric light outlet in the headlamp lenses with tape. This will prevent, to a degree, your blinding the oncoming traffic.

Sealed Beam and Sealed Beam-type Headlamps

(standard where required)

Screw "a" (lateral adjustment)
right turn = beam moves right
left turn = beam moves left

Screw "b" (vertical adjustment)
right turn = beam moves up
left turn = beam moves down

The headlamp rims have to be removed to gain access to the adjusting screws.

Recommended settings are to keep the low beam projection below center line of headlamps, with the left border of the beam to the right of headlamp centers on the screen. However, the adjustment should always be made in compliance with local laws.

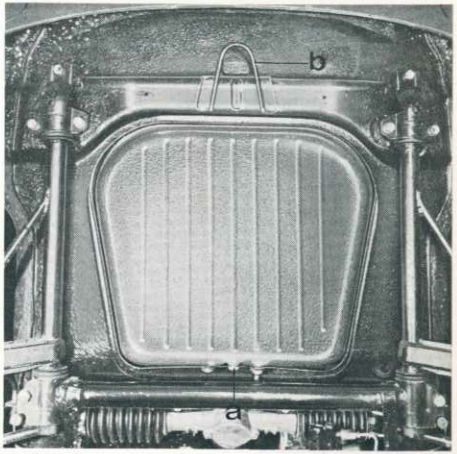


Tool Kit

The tool kit is standard equipment. It is located in the luggage compartment under the front lid. The tool kit contains all tools needed for roadside repairs or minor adjustments. The jack is also located in the front luggage compartment, i. e., in the extreme forward end under the cover mat.

Kit Contents
(subject to changes)

Spark plug wrench
Wheel nut wrench
5 open-end wrenches
Box-end wrench
Screwdriver
Philips screwdriver
Combination pliers
V-belt
Plastic bag with fuses
Belt pulley holder
Generator pulley wrench



a Fuel tank drain
b Towing hook

Towing Hook and Fuel Tank Drain

A towing hook, to which a towing rope can be attached, is located in the forward body underside.

To drain the fuel tank, remove undershield and unscrew drain plug "a" (open the fuel filler cap to let air in).

When reinstalling the drain plug, make sure that the gasket is in good condition.

Auxiliary Combustion Heater
(Optional)

Function Description

When the heater switch is pulled out, the control lamp lights up and the following heater components become energized:

Mixture pump, fuel pump, spark generator, glow/spark plug.

A fuel pump supplies fuel to the metering unit. A mixture pump draws the fuel/air mixture from the metering unit and forces it into the combustion chamber of the heat exchanger. The glow/spark plug ignites the mixture in the combustion chamber and the hot gases heat the walls of the heat exchanger and are then ducted into the open through an exhaust tube. When the heat exchanger reaches predetermined temperatures, the air blower is automatically switched on.
The glow plug is switched off resp. while the spark generator remains in operation.
The internal function switching is assumed by the thermo-switches which also provide overheat protection when air transfer through the heater should be reduced through obstructions (never cover the air intake in front of the rear seats).

Once the heater is switched off, the ventilating blower continues to run for about 3 minutes to cool the heat exchanger. Should the heat exchanger not cool down sufficiently due to warmer outside air, the three-minute cooling cycle will repeat automatically.

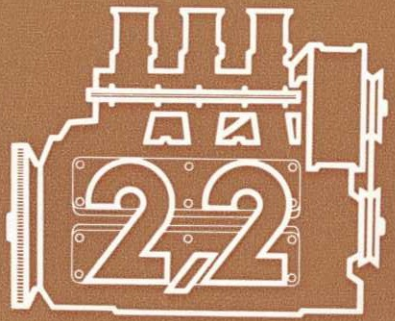
Periodic Maintenance

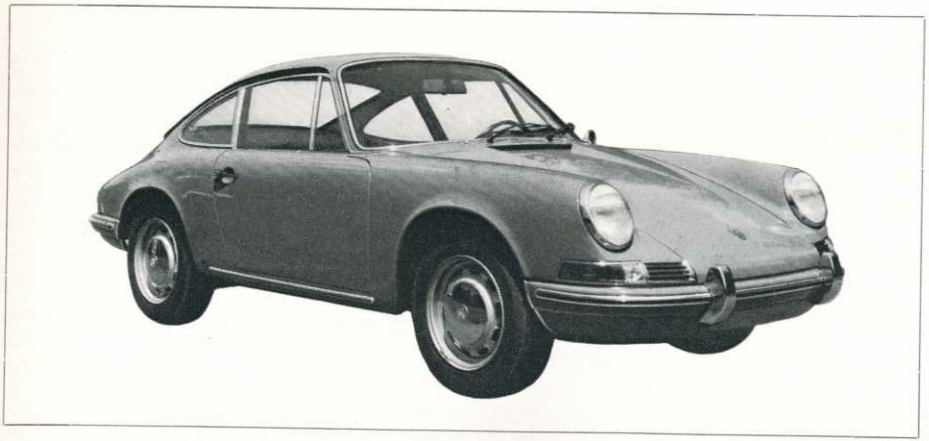
Prior to onset of the cool season, check and clean the glow/spark plug in the combustion chamber of the heat exchanger as well as the mixture supply line connector. The electrode gap in the glow/spark plug should be .08″ to .10″ (2 to 2.5 mm). In addition, it is necessary to clean the fuel jet in the metering unit and check all electrical connections including the main fuse. Make sure that all hoses leading to and from the heater are in good condition and no defects present in the exhaust pipe.
A well kept battery is also of importance to the combustion heater.

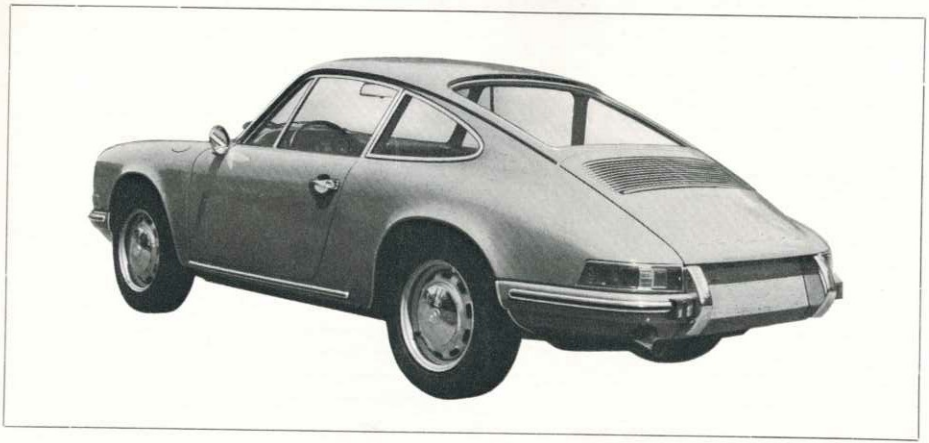
PORSCHE

911 T

General Description





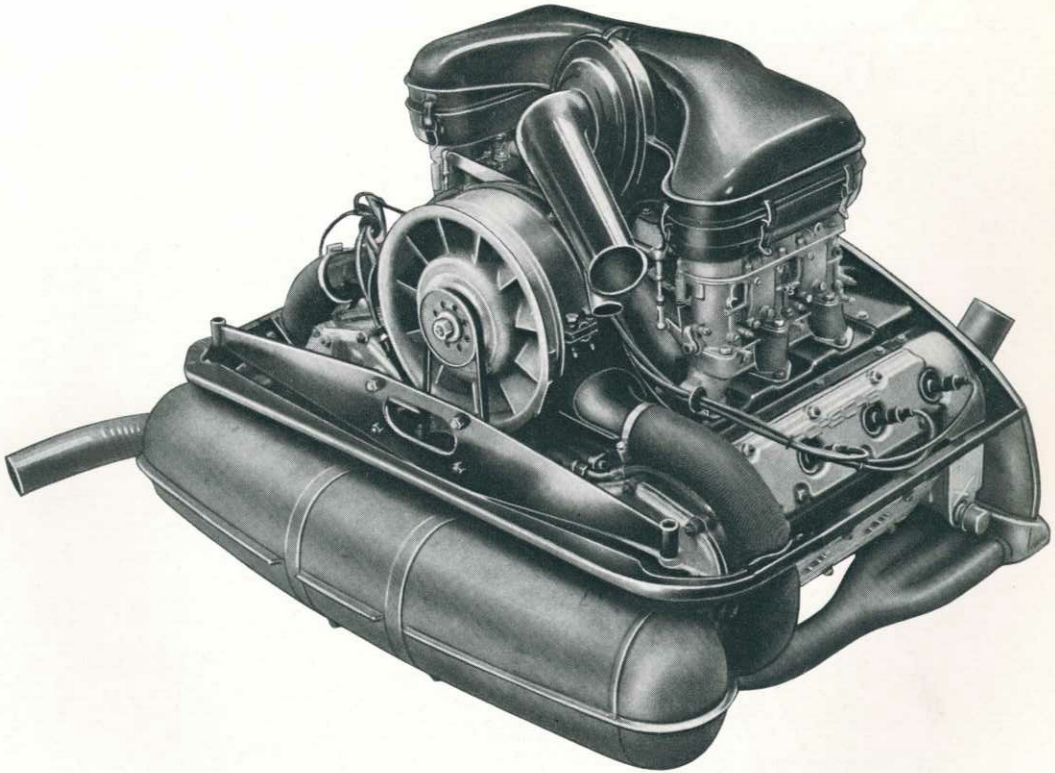


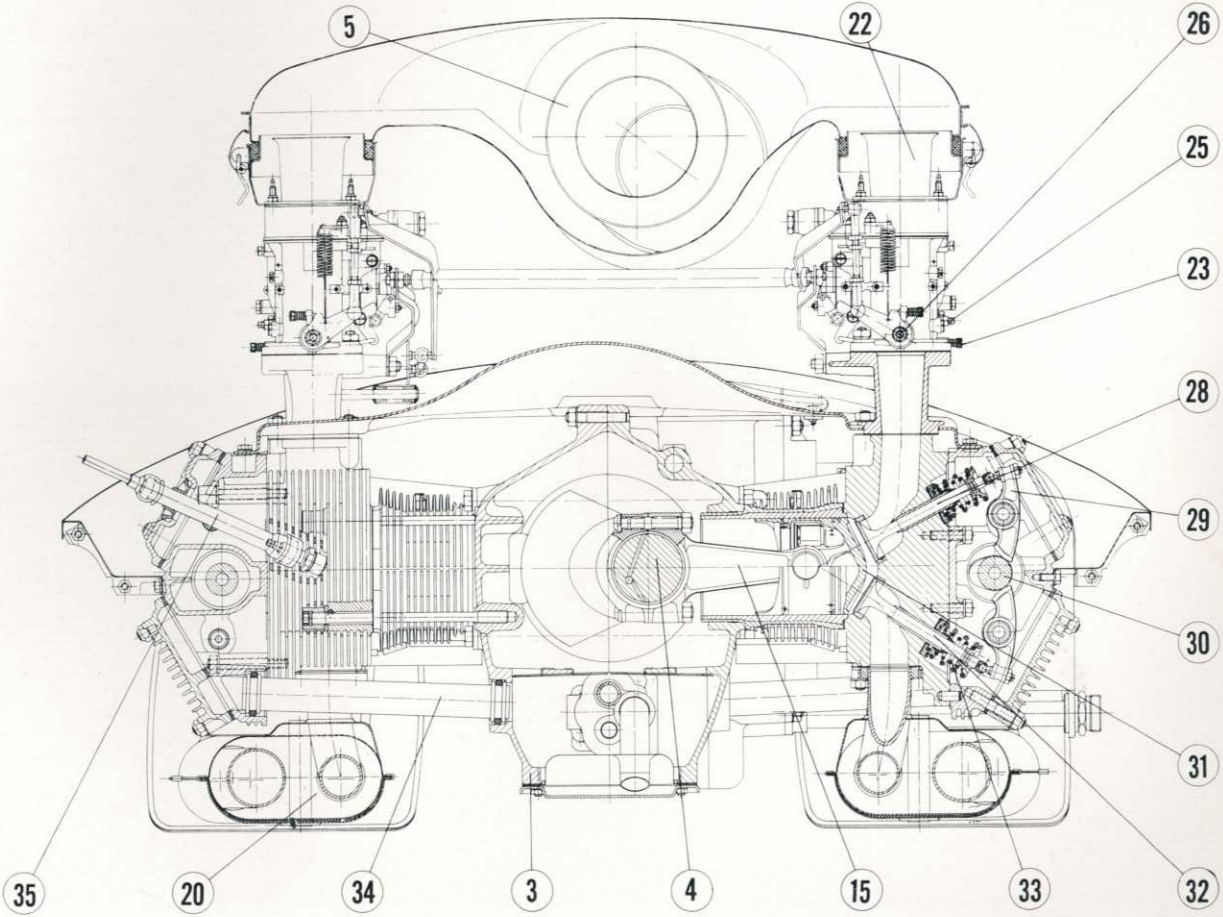
Type 911 T bodies are unitized assemblies available in coupe or convertible versions. The power train is located in the rear of car. Hydraulic disc brakes and independent torsion bar suspension on all wheels characterize the undercarriage. The individual components are described on the pages that follow.

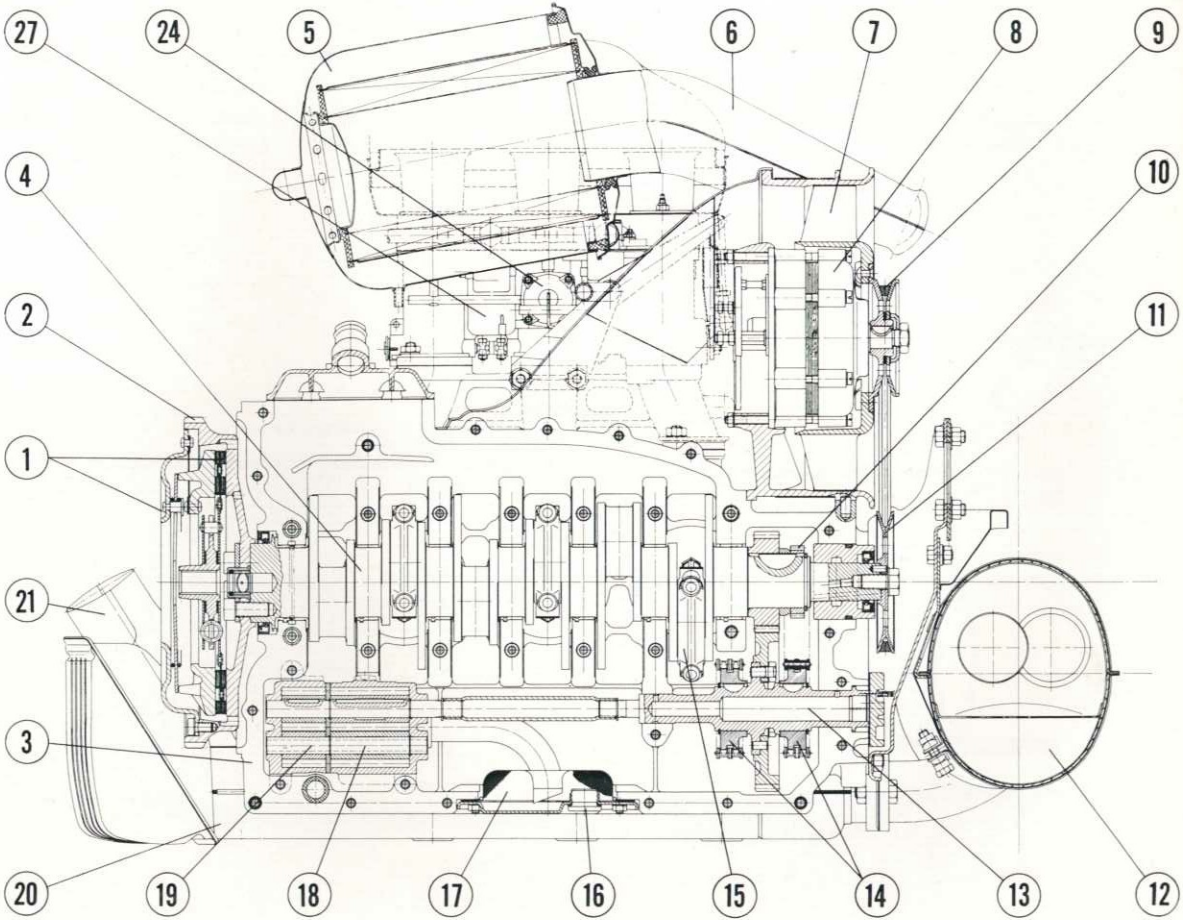
Engine

The engine is an aircooled, four stroke cycle, horizontally opposed six. The crankshaft is accomodated in a two piece light alloy crankcase and has eight plain journal bearings. The six cylinders are arranged in two banks of three cylinders each and mounted in horizontal position on the left and right side of the crankcase. The cylinders are held in place by the extensively finned, light alloy cylinder heads which are bolted to the crankcase by steel studs. The valves are nested in individual combustion chambers in an overhead "V" and are actuated through rocker arms and an overhead camshaft on each bank. Both camshafts, together with their rocker arms, are mounted in individual camshaft housings, each actuating the valves of a three-cylinder bank. The camshafts are connected with the crankshaft by means of chains running over an intermediate sprocket wheel. The chain tension is adjusted automatically and remains constant at all times. Mounted on each of the two cylinder banks is a triple-throat, downdraft carburetor. Engine lubrication is by a dry sump system. Two gear-type oil pumps are located in the crankcase; one pump draws oil from the oil tank and forces it to the lubrication points, whereas the second pump scavenges the oil draining from the lubrication points and returns it to the oil tank. A thermostatically controlled oil cooler maintains proper oil temperature in the engine. Oil pressure relief valves control the pressure in the lubricating system. Arranged in the oil return circuit is a full-flow oil filter which entraps foreign matter and cleans the oil. Mounted atop the engine block is an alternator which is driven by the crankshaft over a narrow V-belt. The impeller of the cooling air blower is mounted on the extended alternator shaft. Cooling air drawn by the blower is guided to the engine cooling points over deflector baffles. Part of the cooling air mass is routed to the exhaust manifold heat exchangers where it is heated; with the heat controls appropriately set, the hot air flows into the passenger compartment. A single disc, dry clutch is utilized.

1 Clutch and clutch plate
2 Flywheel
3 Crankcase
4 Crankshaft
5 Air cleaner
6 Air inlet
7 Blower impeller
8 Alternator
9 V-belt
10 Distributor drive gear
11 Crankshaft pulley
12 Exhaust muffler
13 Intermediate shaft
14 Camshaft drive sprockets
15 Connecting rod
16 Oil drain plug
17 Oil strainer
18 Oil scavenger pump
19 Oil pressure pump
20 Heat exchanger
21 Hot air outlet
22 Intake air horn
23 Idle mixture adjustment
24 Accelerator pump
25 Idle air adjustment
26 Throttle valve shaft
27 Float housing
28 Intake valve
29 Rocker arm
30 Camshaft
31 Piston
32 Exhaust valve
33 Valve spring
34 Oil drain tube
35 Suppressor



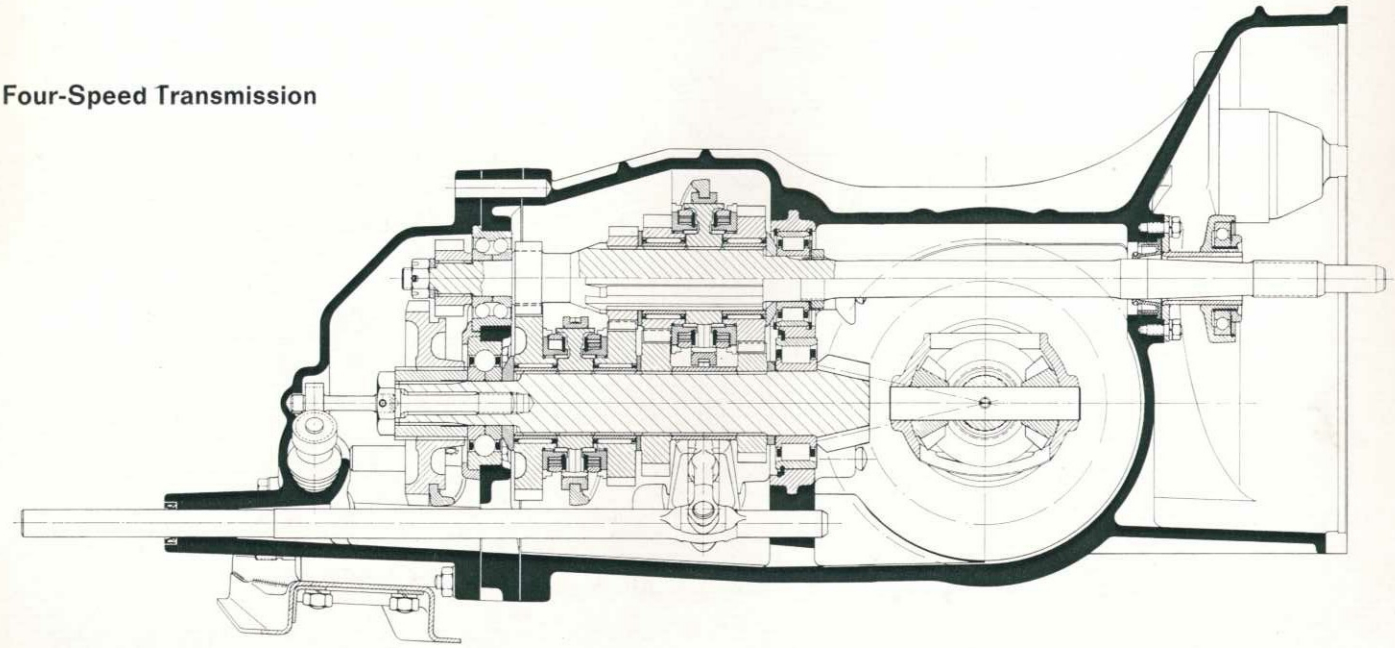

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Transmission

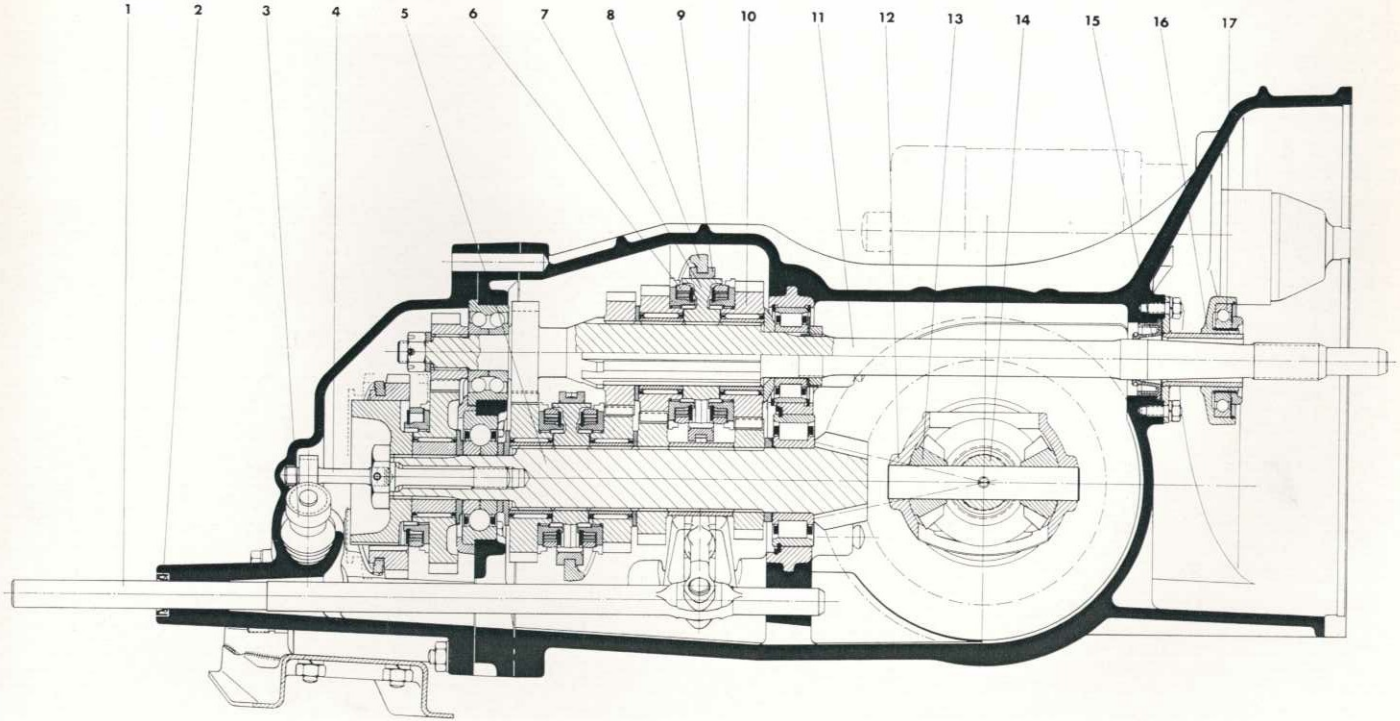
The transmission and differential are contained in a common housing. All forward gears are synchronized. When gears are shifted, a toothed sliding sleeve moves off the synchronizing ring running with the previously engaged gear, passes through the neutral position, and slides onto the synchronizing ring of the selected gear; the servo components provide an additional thrust to the synchronizing elements permitting rapid synchronization of the differing gear speeds for easy and fast shifting of gears. Once the speeds are synchronized, the toothed sliding sleeve moves on to engage the synchronizing drive ring thus making a positive mechanical connection between the selected gear and the pinion shaft.

Four-Speed Transmission



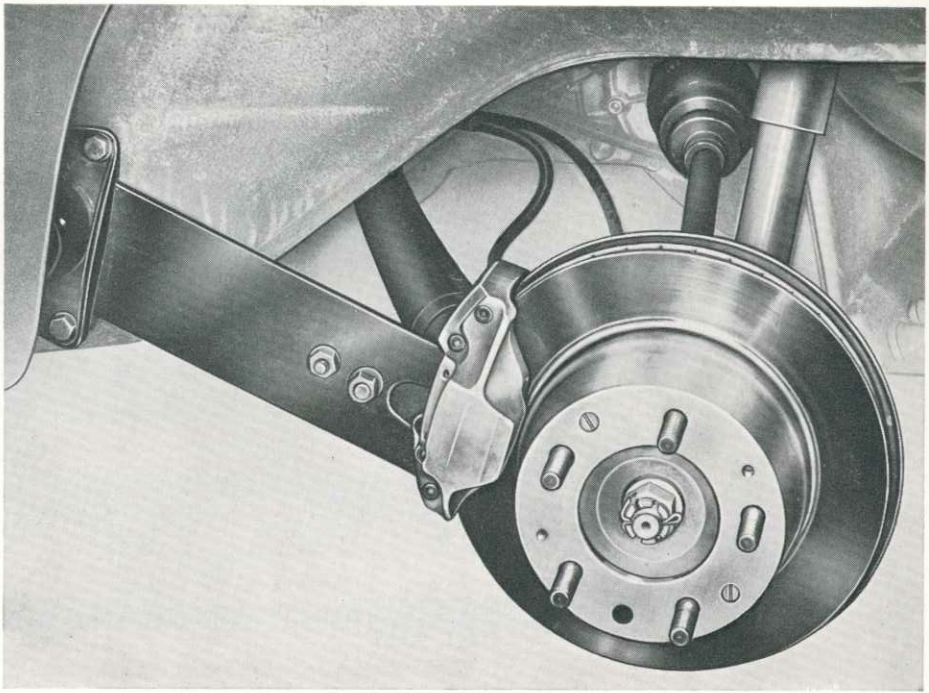
Five-Speed Transmission (Optional)

1 Shift rod
2 Oil seal
3 Tachometer drive
4 Gear shaft
5 Pinion shaft
6 Synchronizing ring
7 Spider
8 Selector fork
9 Sliding sleeve
10 Gear 1 (5th speed)
11 Input shaft
12 Differential housing
13 Differential pinion
14 Carrier shaft
15 Oil seal
16, 17 Clutch release bearing



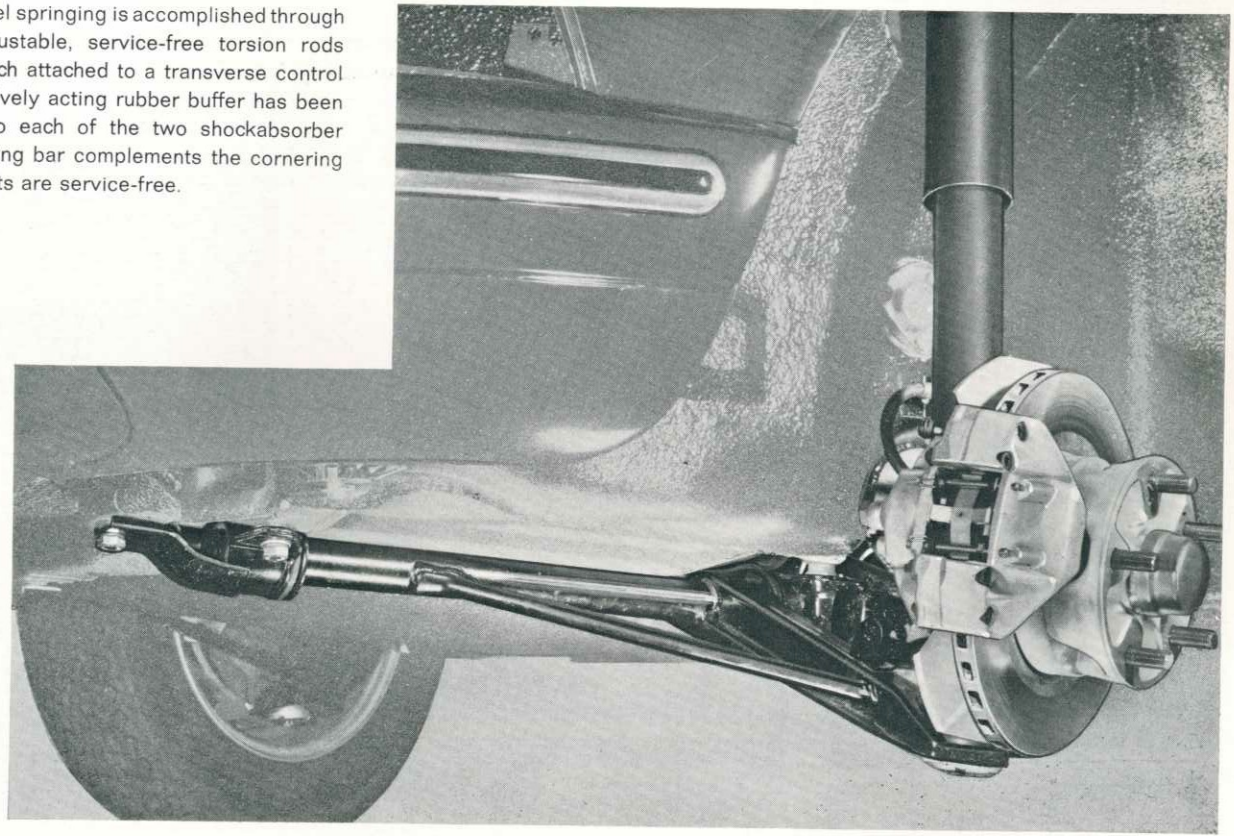
Rear Drive and Suspension

Both rear wheels are guided by triangulated control arms and driven over double-joint half axles. Each wheel is independently suspended. Springing is effected by a round transverse torsion bar on each side. A progressively acting rubber buffer has been incorporated into each of the two telescopic shockabsorbers to supplement springing of each wheel. Both torsion bars can be finely adjusted to specifications by virtue of a spline vernier arrangement between the two ends of each torsion bar. All joints are permanently lubricated and are service free.



Front Axle

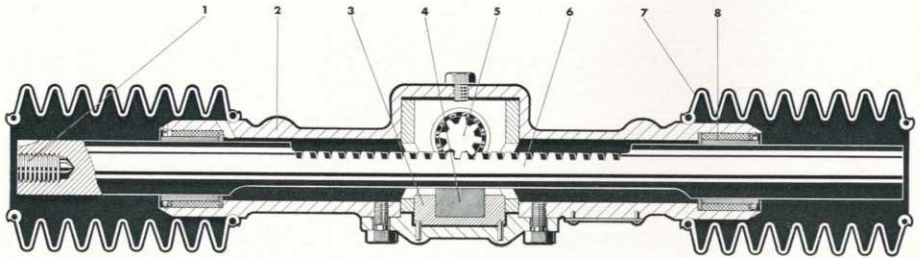
The independent front wheel suspension incorporates transverse control arms and shockabsorber struts. Front wheel springing is accomplished through longitudinal, adjustable, service-free torsion rods on each side, each attached to a transverse control arm. A progressively acting rubber buffer has been incorporated into each of the two shockabsorber struts. A stabilizing bar complements the cornering qualities. All joints are service-free.



Steering

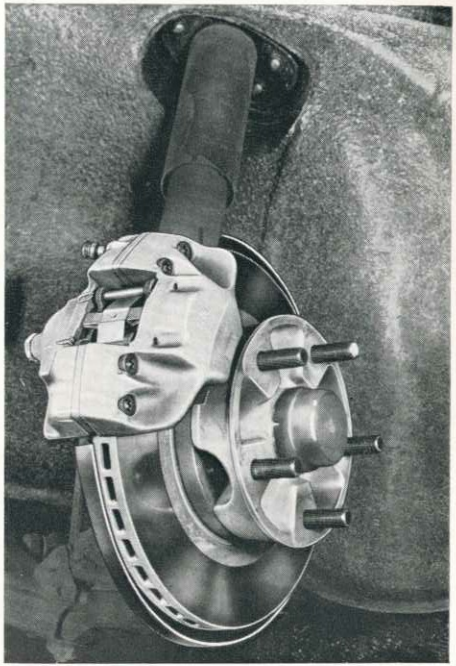
The positive action rack and pinion steering assembly lies in a symmetrical location of the front axle assembly. Movements of the steering wheel are mechanically transmitted to the steering pinion through an offset relay shaft running in two permanently lubricated universal joints. This arrangement, as compared with that of a solid steering post, is not only of technical advantage but also offers good protection against injuries resulting from possible mishaps.

1 Threaded joint socket
2 Steering housing
3 Adjusting nut
4 Pressure block
5 Steering pinion
6 Steering rack
7 Rubber boot
8 Bushing



Brakes

The service brake (foot brake) is of the hydraulic disc type acting on all four wheels and incorporating automatic self-adjustment. The parking brake is mechanically operated and acts on rear wheels only; the parking brake is of the drum type and represents a separate system.



Body

The all-steel body is welded to the underbody forming a unitized assembly. The doors are attached to the forward door posts on concealed hinges. The outside door locks match the ignition key. The doors can be locked from the inside by depressing a lock button atop each door ledge, but to prevent a lockout, the doors cannot be locked from the outside by pushing the lock button down and slamming the door shut; locking from the outside is possible only with the key.

The front and rear lids are mounted on concealed hinges. The front lid lock release is located on the left side of the instrument panel. The rear lid release is accomodated in the rear door post. A safety catch in the front lid prevents an accidental wind-lifting of the lid at speed when the lid lock should malfunction for any reason.

The windshield is made of laminated glass. All other windows, except the soft rear window panel in the Targa, are made of tempered glass. The individual front bucket seats are fully reclining and slide on rails secured to the floor.

The individual rear seats have folding backrests which make into a luggage platform when folded down.

Electrical System

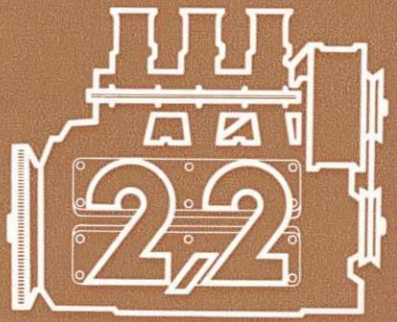
An alternator provides electric current for the 12 volt system. Engine starting is through a solenoid-controlled starter motor. Battery ignition is utilized.

The back-up lights are switched on automatically whenever reverse gear is engaged.

PORSCHE

911 T

Technical Data



Engine

Number of Cylinders	6
Bore	3.3 in. (84 mm)
Stroke	2.60 in. (66 mm)
Displacement, actual	134 cu.in. (2195 cc)
Compression Ratio	8.6:1
Horsepower Rating	142 SAE HP (125 DIN HP) at 5800 rpm
Maximum Torque (SAE and DIN ratings)	148 ft-lb (18 mkp) at 4200 rpm
Specific Power Output	65 SAE HP/ltr (57 DIN HP/ltr)

Design Specifications

Engine Type	Horizontally opposed, four-stroke-cycle six
Cooling	Air cooled
Cylinders	Individual, grey cast iron liner with finned light alloy jacket
Cylinder Head	Light alloy
Number of Valves, per cylinder	1 intake, 1 exhaust
Valve Arrangement	Overhead, in "V"
Valve Actuation	OHC, 1 camshaft per cylinder bank
Camshaft Drive	Chain
Crankshaft	Forged, with 8 main bearings
Connecting Rod Bearings	Plain bearings (tri-metal)
Blower Drive	V-belt, over alternator (V-belt = Phönix Rhombus DA 9.5 x 710)
Alternator-to-engine-Ratio	Approx. 1,3
Air Volume	Approx. 43,5 cu.ft./sec (1230 ltr/sec) at 5800 crankshaft rpm
Engine Lubrication	Dry sump system
Fuel Pump	1 electrical
Fuel supply	2 triple throat carburetors

Electrical System

Operating Voltage	12 volts
Battery Capacity	2 batteries of 36 Ah each
Radio Noise Suppression	Remote suppression, in accordance with German requirements VDE 0879/Part 1
Alternator Output	Maximum 55 amps @ 14 volts AC (770 watts)
Ignition Type	Battery; capacitive discharge system
Firing Order	1 - 6 - 2 - 4 - 3 - 5
Ignition Timing	35° BTC @ 6000 rpm
Spark Plugs	BERU 240/14/3; 250/14/3 P; BOSCH W 230 T 30; W 250 P 21
Spark Plug Gap	.024" (0.6 mm)

Power Train

Engine Location	At rear, behind rear axle
Clutch	Single plate dry disc
Transmission	Porsche, servo-lock synchronization
Number Gears	4 forward, 1 reverse (5-speed transmission optional)
Gearshift Location	Floor-mounted
Final Drive	Spiral bevel pinion and differential
Drive Ratio	7:31, i=4.428
Rear Axle Drive	Over double joint half axles
Gear Ratios	Refer to transmission diagrams (pages 107 and 108)

Chassis and Suspension

Frame	Welded assembly, sheetmetal box-section, unitized with body
Front Suspension	Independent front suspension with transverse control arms and shockabsorber struts or optional hydropneumatic struts
Front Wheel Springing	1 round, longitudinal torsion bar per wheel
Rear Suspension	Independent rear suspension with triangulated control arms
Rear Wheel Springing	1 round, transverse torsion bar per wheel
Shock Absorbers	Double action hydraulic shockabsorbers front and rear

Service Brake	Hydraulic, dual circuit discs on all four wheels, in the Comfort Group with vented discs
Parking Brake	Mechanical, duo-servo drum type, to rear wheels only
Effective Brake Disc Diameter	Front 9.25″ (235 mm), rear 9.61″ (244 mm); Comfort Group – front 8.98″ (228 mm)
Braking Area (Service Brake), per wheel	Front & rear 8.14″ (52.5 cm^2); Comfort Group – 11.8 sq.in. (76.0 cm^2)
Total Effective Braking Area (Service Brake)	32.55 sq.in. (210 cm^2); Comfort Group 39.84 sq.in. (257 cm^2)
Parking Brake Drum Diameter	7.09 in. (180 mm)
Total Effective Braking Area (Parking Brake)	26.35 sq.in. (170 cm^2)
Wheel Rims	$5^1/_2$ J x 15; optional 6 J x 15 or $5^1/_2$ J x 14
Tires (type)	165 HR 15; optional 185/70 VR or 185 HR 14
Steering	ZF rack & pinion
Steering Ratio	1 : 17.78 in center
Wheel Camber (DIN curb weight)	Front 0 ± 20′; Rear – 50′ ± 20′
Toe-in (DIN curb weight)	Front ± 0°; Rear 0° ± 10′ each wheel
Caster (DIN curb weight)	5° 50′ ÷ 6° 20′

Climbing Ability

Weight Conditions (partly laden)

	4-speed-transmission	5-speed-transmission
1st gear	Max. gradient: 69 %	69 %
2nd gear	29 %	33 %
3rd gear	16 %	20 %
4th gear	9 %	13 %
5th gear		9 %

Filling Capacities

Engine	Approx. 9.5 US qts (9 liters) premium quality HD oil, SAE 10 = below + 5° F (– 15° C) SAE 20 = from + 5° F to 32° F (– 15° C to 0° C) SAE 30 = above 32° F (0° C)
Transmission and Differential	Approx. 2.6 US qts (2.5 liters) SAE 90 hypoid gear lubricant
Fuel Tank	16.4 US gals (62 liters) including approx. 1.6 US gals (6 liters) reserve Required octane rating: 96 octane (premium fuel)
Hydraulic Fluid Reservoir	Approx. 7 fl.oz. (0.2 ltr)
Windshield Washer Reservoir	Approx. 2.1 US qts (2 ltrs)

Dimensions

Wheelbase		89.29″ (2268 mm)	
Track, front	53.62″ (1362 mm),	with rims 6 J x 15	54.09″ (1374 mm)
		with rims 5½ J x 14	53.70″ (1364 mm)
rear	52.87″ (1343 mm),	with rims 6 J x 15	53.35″ (1355 mm)
		with rims 5½ J x 14	52.95″ (1345 mm)
Overall Length		163.9″ (4163 mm)	
Overall Width		63.39″ (1610 mm)	
Overall Height (car empty)		51.97″ (1320 mm)	
Ground Clearance (car loaded)		5.91″ (150 mm)	
Turning Circle (approx)		35.1′ (10.7 m)	

Auxiliary Combustion Heater

Calorific Output (approx)	10,000 BTU (2500 kcal/h)
Fuel Consumption (approx)	15 fl.oz./h (0.44 ltr/h)
Air Flow	3880 cu.ft./h (110 m³/h)
Heating Air Temperature (approx)	185° F (85° C)
Power Draw (approx)	70 watts
Operating Voltage	12 V

Weights

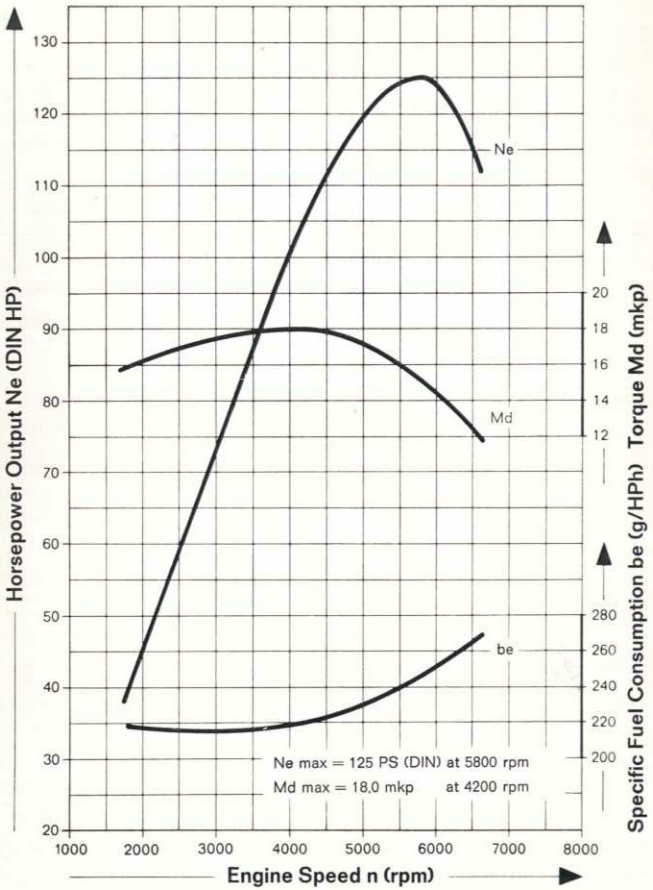
DIN Curb Weight	2249 lbs (1020 kp)
Total Permissible Weight	3086 lbs (1400 kp)
Maximum Axle Load, front	1323 lbs (600 kp) *
rear	1852 lbs (840 kp) *

* Do not exceed total permissible weight.

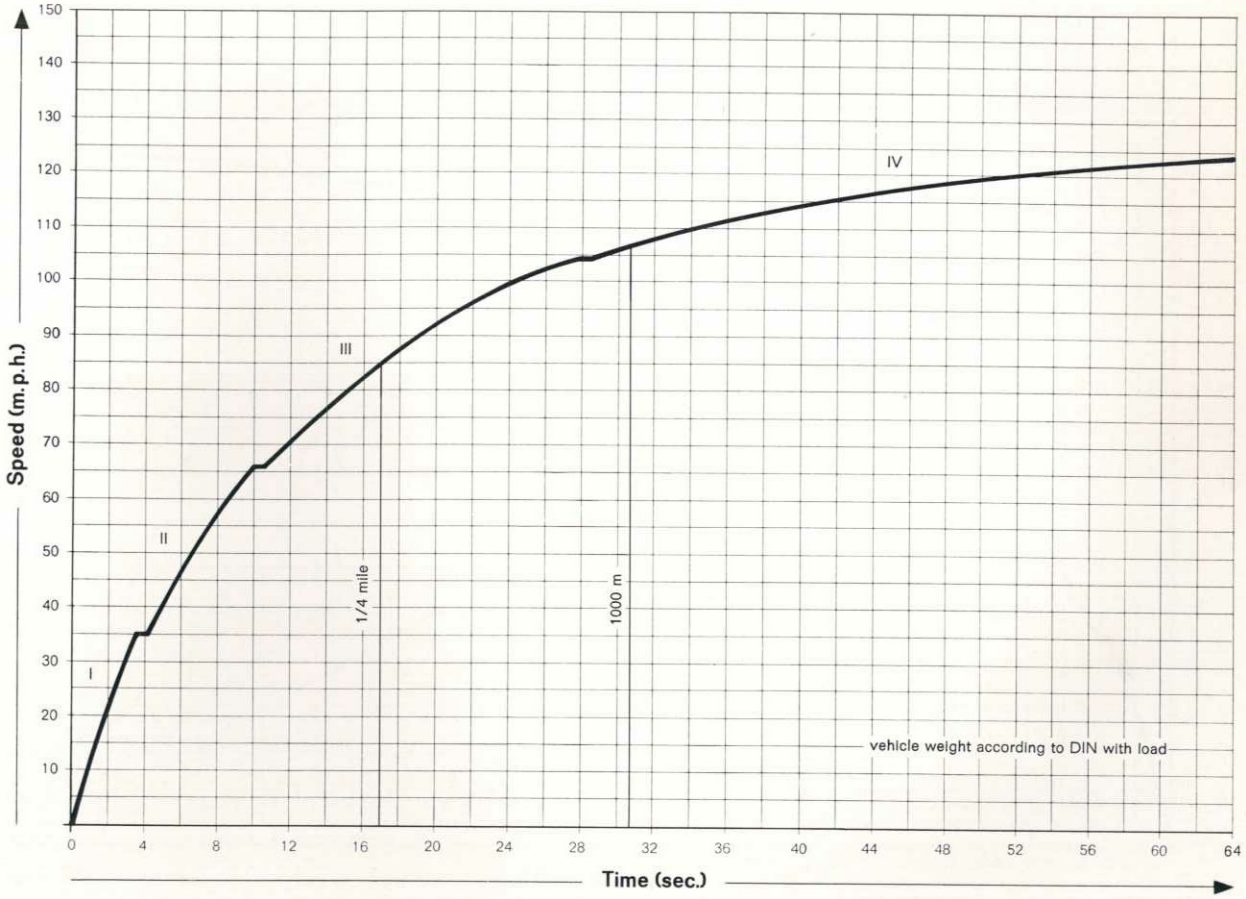
Performance

Maximum Speed	128 mph (205 km/h)
Power/Weight Ratio (DIN curb weight + driver)	16.9 lbs/SAE HP (8.7 kp/DIN HP)
Nominal Fuel Consumption (DIN)	26 mpg US (9 ltr/100 km)
Engine Oil Consumption	1.5–2.0 US qts per 600 mi.

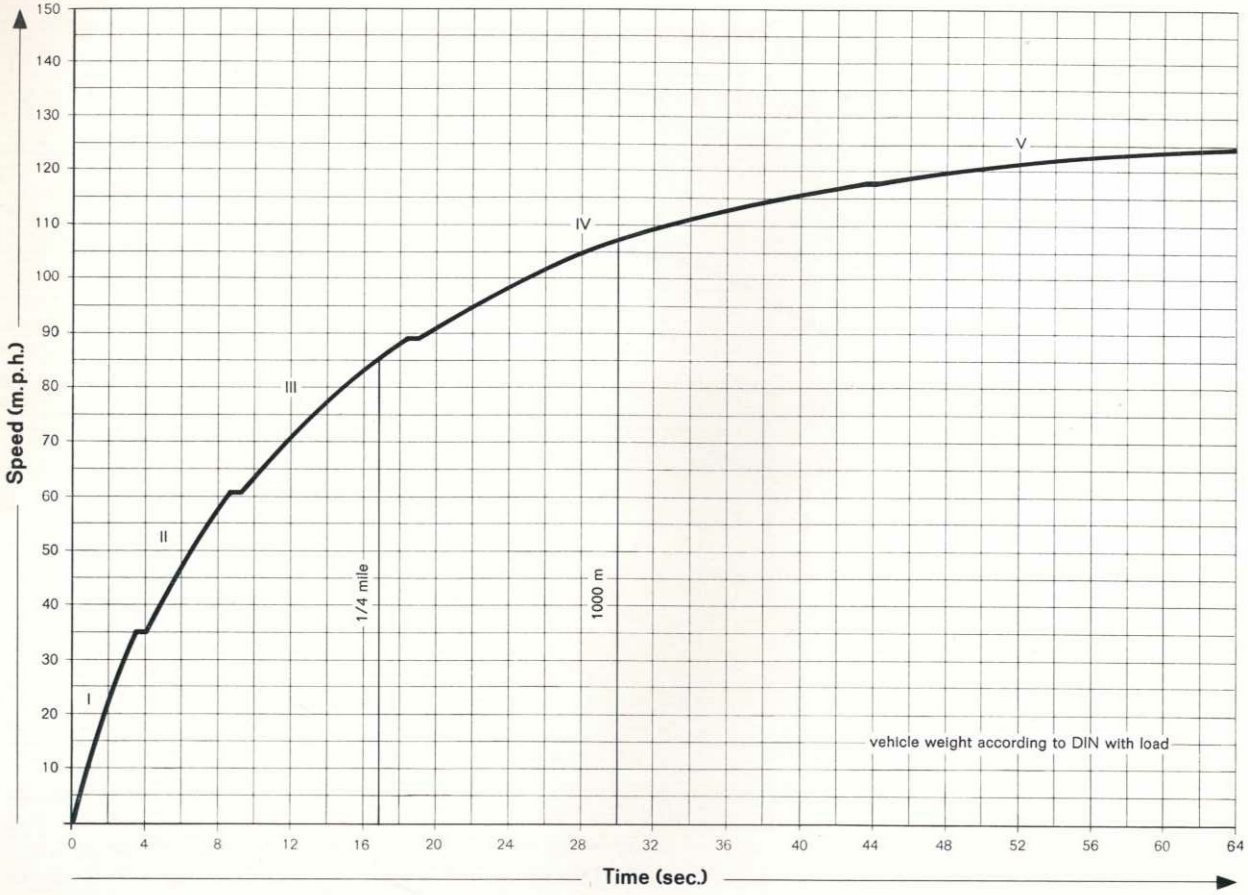
Engine Type 911 T-C Full-power Performance



Acceleration Curve Type 911 T (4-speed-transmission)



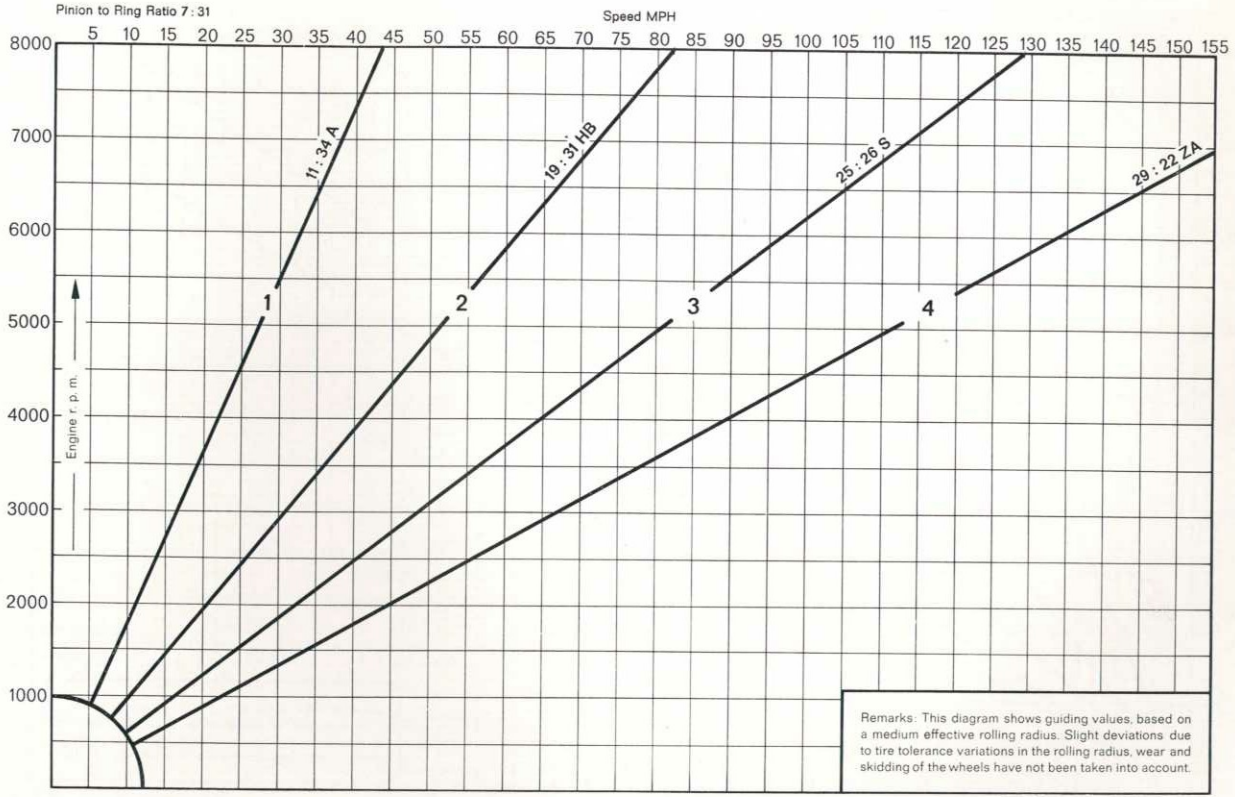
Acceleration Curve Type 911 T (5-speed-transmission)



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Transmission Diagram

(4-speed-transmission)

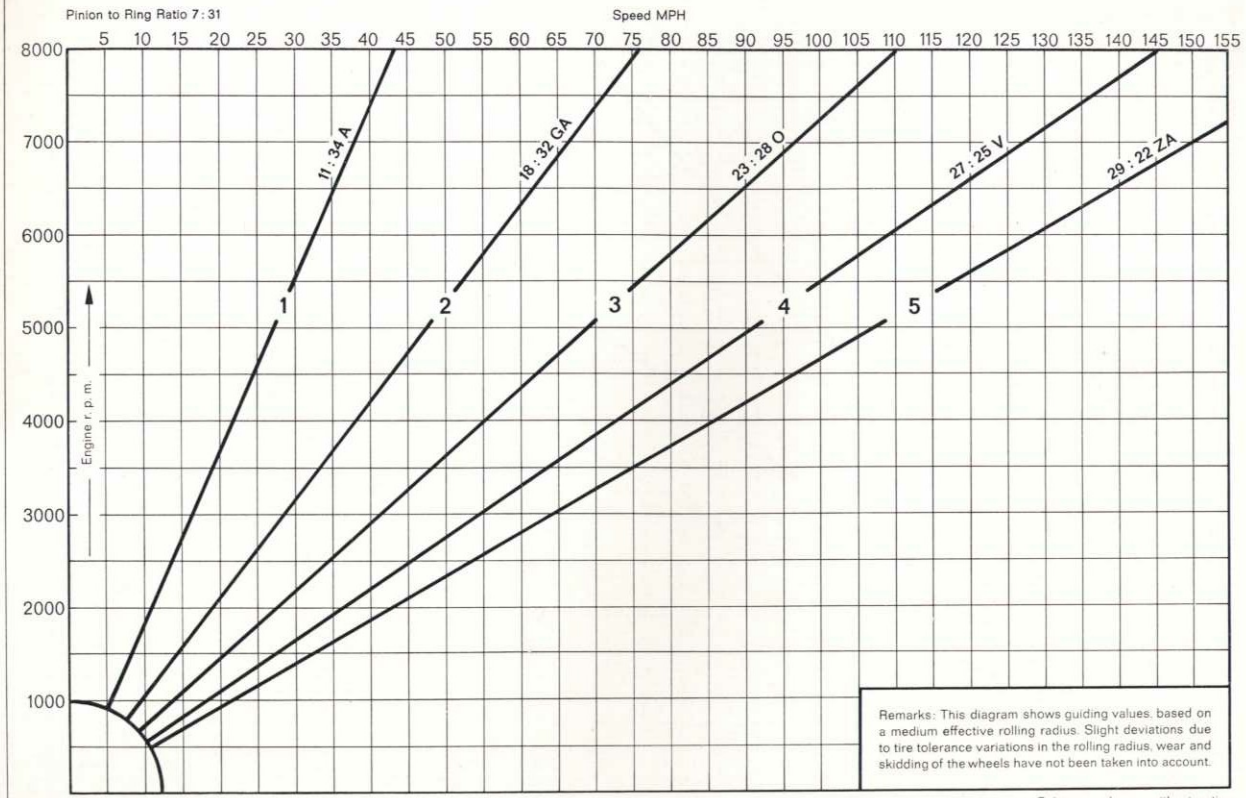


Subject to change without notice

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Transmission Diagram

(5-speed-transmission)



Remarks: This diagram shows guiding values, based on a medium effective rolling radius. Slight deviations due to tire tolerance variations in the rolling radius, wear and skidding of the wheels have not been taken into account.

Subject to change without notice

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