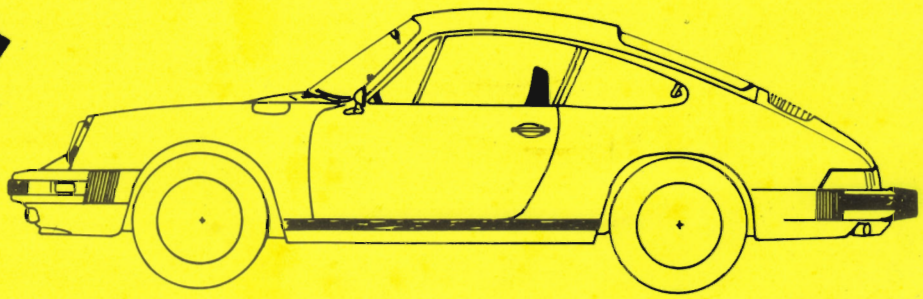
PORSCHE

912 E

Service-INFORMATION



MODEL 76

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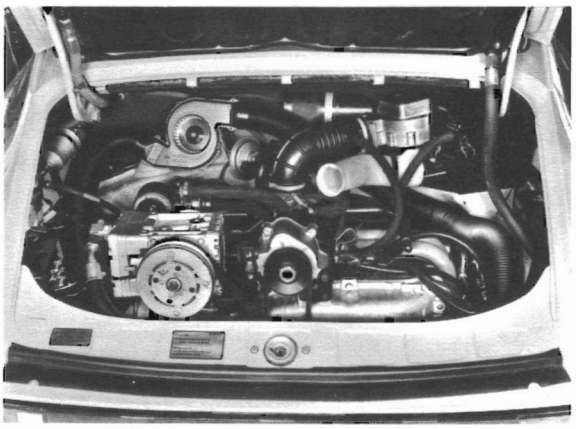
The Porsche 912 E . . .

. . . is equipped with . . .

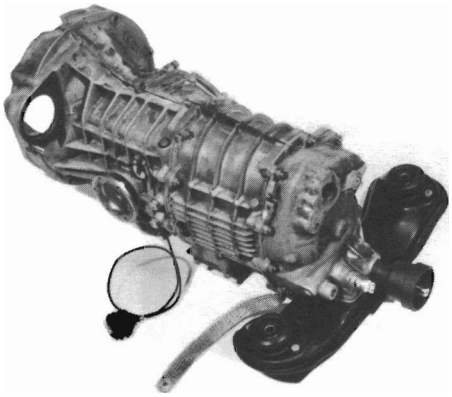
. . . a 2 ltr., 4 cylinder engine (similar to that in the Type 914). This motor has been fitted with the electronically controlled AFC fuel injection thermal reactors and exhaust gas recirculation.

The technical specifications are as follows:

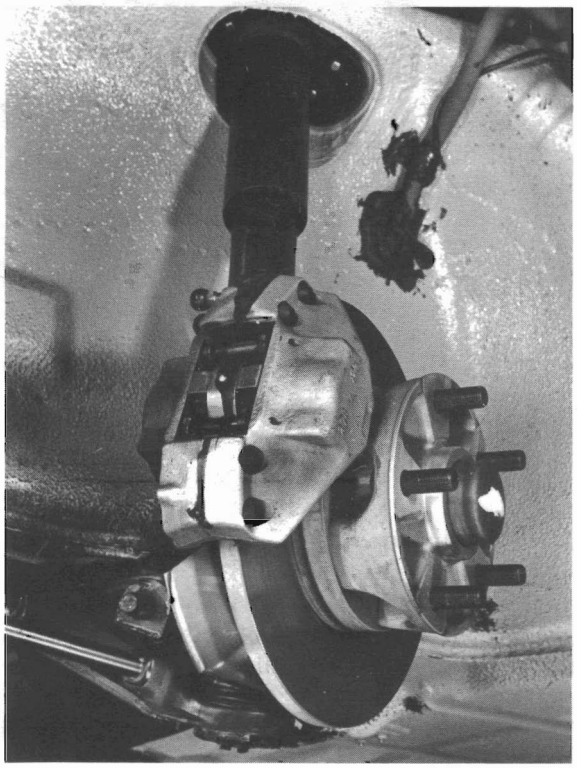


Capacity:	1971 cm^3
Stroke:	71 mm
Bore:	91 mm
Horse power: developed at:	86 hp/64 kW 4900 rpm
Torque: developed at:	98 lbft/133 Nm 4000 rpm

· . . a 5 speed transmission (based on transmission type 915) with modified transmission ratio and a newly designed clutch operation mechanism.



· . . a chassis like the 911, a dual-circuit brake system, disks brakes without "inner ventilation".



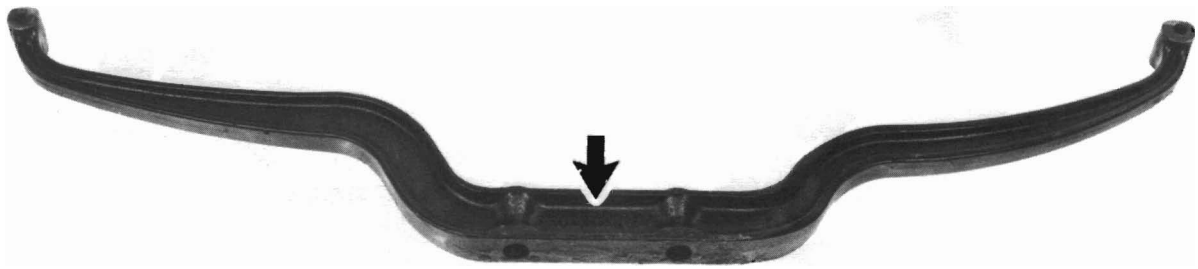
· . . bodywork similar to the 911 but with permanently fixed rear side windows as well as other minor changes.

10 CRANK CASE, CYLINDERS, ENGINE MOUNTS

The crank case and the cylinders are the same as in the engine type 914/2.0 ltr.

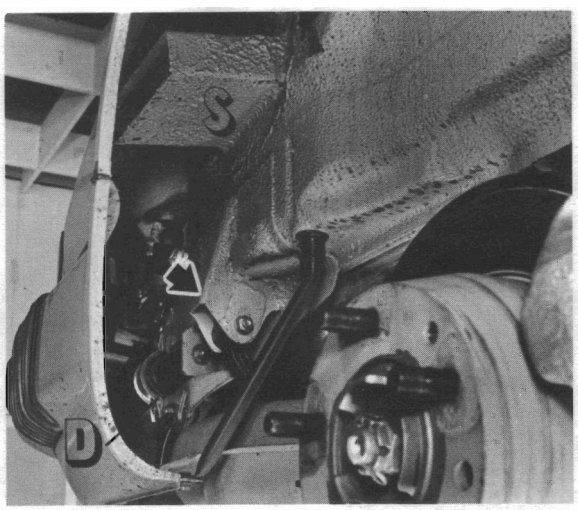
The following is new:

The engine mount.
It consists of a swung steel bar which is secured to the motor in the same way as in the 914.
The mounting points on the chassis were moved outwards to the wheel wells however.



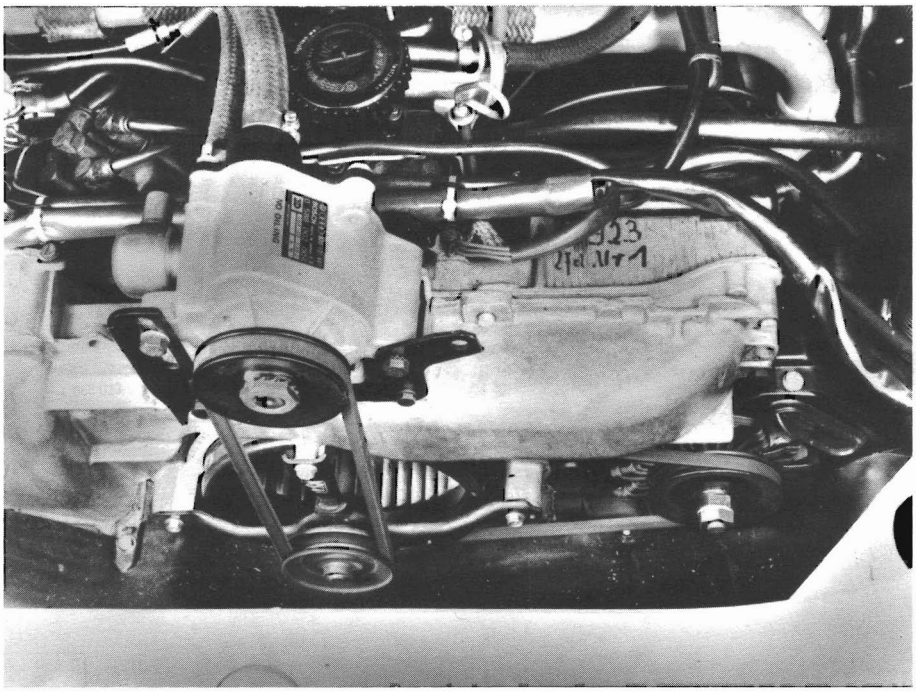
Warning:

When installing the motor mount, note that the casted in part number (arrow) is pointing toward the rear.



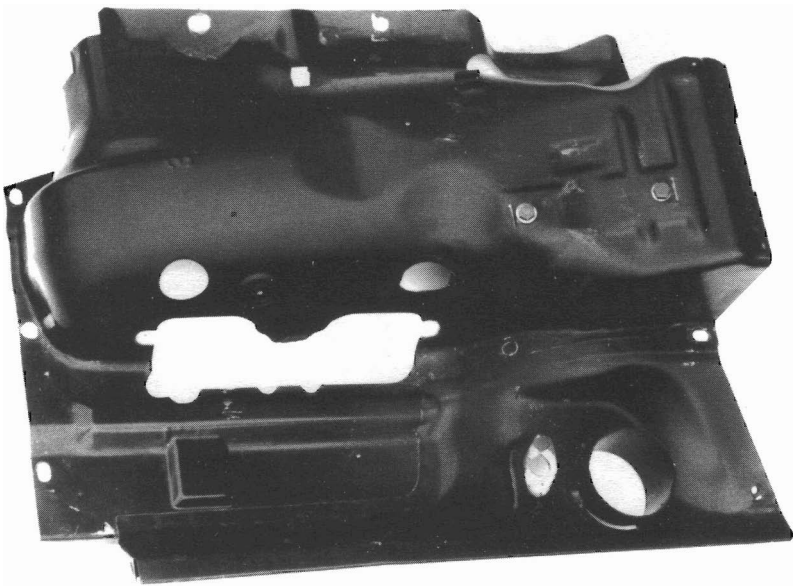
13 CRANK SHAFT DRIVE/PISTONS

All parts of the crank shaft *drive* are the same as in the basic motor. An additional fan-belt pulley is fitted to drive the secondary air injection pump. It is secured to the front of the air intake housing by means of a three-armed mounting block and is driven by means of a shaft from the center of the cooling fan.



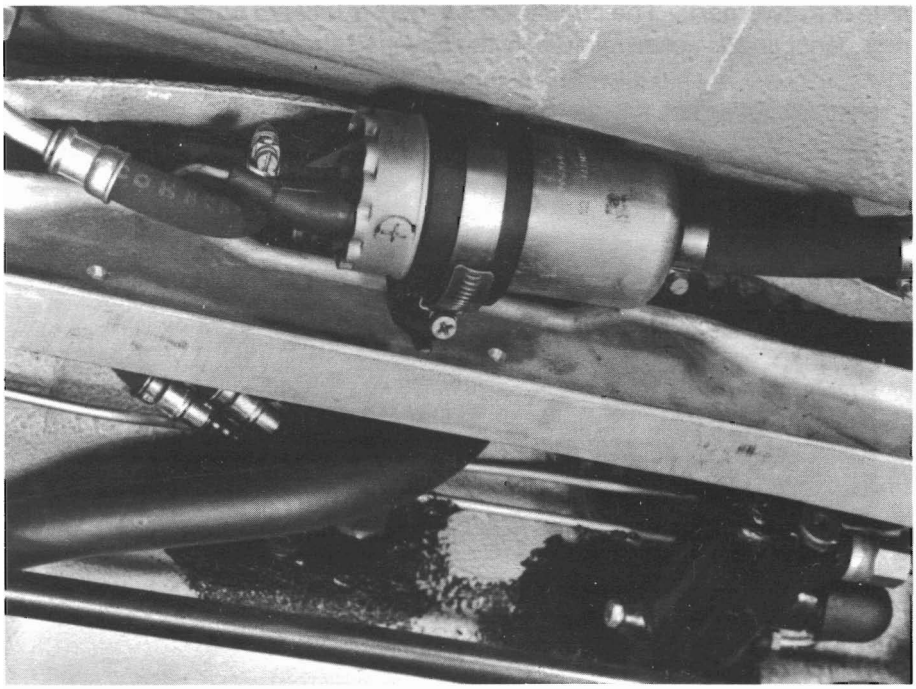
19 COOLING

The engine sheetmetal was changed to conform to the 911 engine compartment configuration.

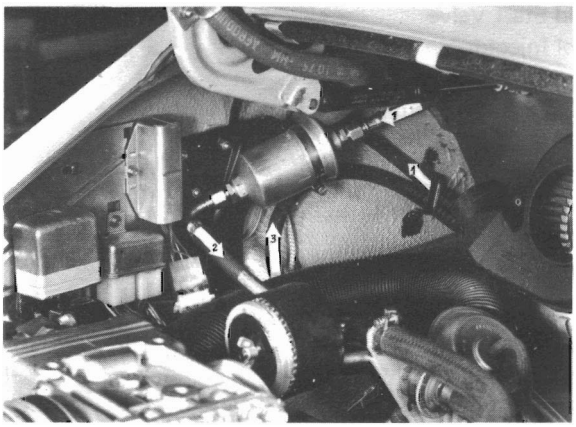


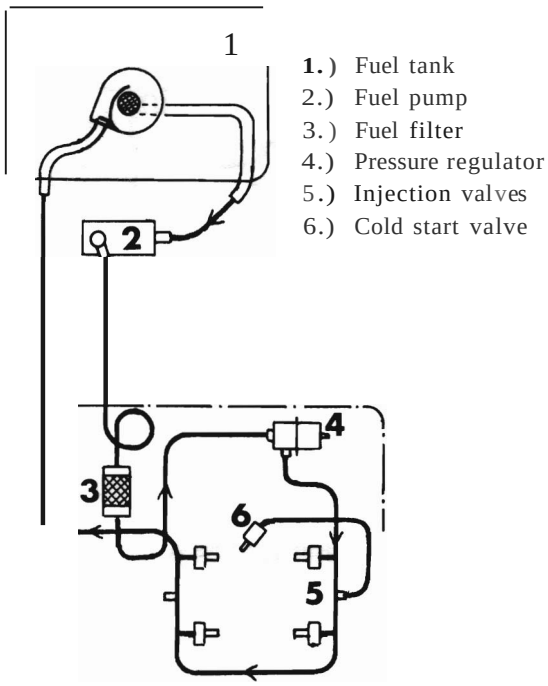
The 912 E is fitted with an 80 ltr. (incl. 8 ltr. reserve) fuel tank.

The fuel pump is mounted on the front axle auxiliary mount.



The fuel filter is the same as in the CIS injection It is secured to the left-hand wheel well in the engine compartment



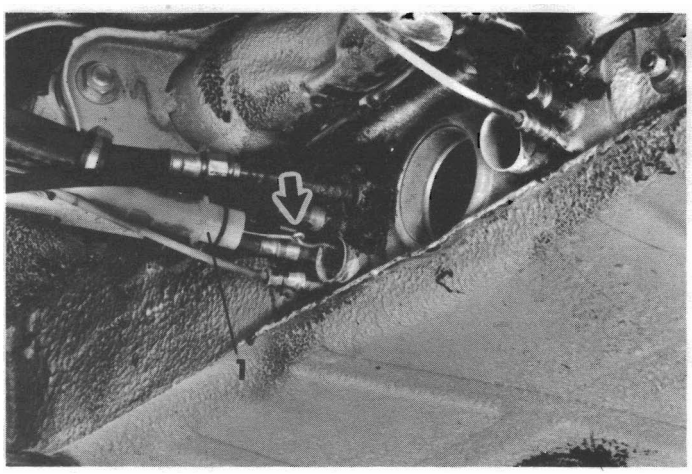


1.) Fuel tank
2.) Fuel pump
3.) Fuel filter
4.) Pressure regulator
5.) Injection valves
6.) Cold start valve

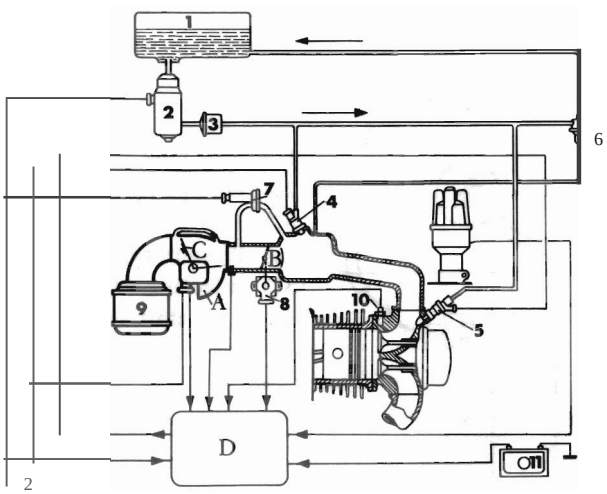
The Porsche 912 E is equipped with a motor that has a air flow controlled electronic fuel injection.

Before we describe this unit in detail, a few words about the accelerator cable.

The accelerator cable is in two parts. The connector (arrow) is located within the engine compartment behind the rear panel and is accessible when the cover to the guide channel is removed.



Construction and function of the ATC injection



The component parts

1 Fuel Tank
2 Fuel Pump
3 Fuel Filter
4 Cold Start Valve
5 Fuel Injector
6 Pressure Regulator
7 Auxiliary Air Regulator
8 Throttle Switch
9 Air Filter
10 Temperature Sensor II
11 Battery
12 Ignition Switch

A Intake-air Sensor
B Throttle valve
C Air Sensor Flap
O Control Unit

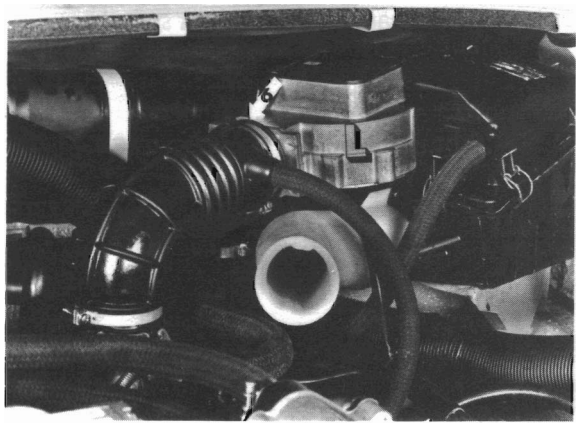
Principles of Operation

The amount of fuel that is to be used is determined by the volume of intake air and the speed of the motor.
The injector sequence is determined by the ignition distributor breaker points.
The fuel required for cold starting is injected by the electro-magnetic cold start valve.
Warm-up enrichment of the fuel mixture is via the auxiliary air regulator in conjunction with the temperature sensor I in the intake-air Sensor housing and the temperature sensor II in the cylinder head.
Fuel mixture enrichment for full load conditions is by means of a throttle switch.

Description

Intake-Air Sensor

The intake-air sensor is located **in** the engine compartment at the right-hand side between the air filter and the throttle housing (L).



Construction

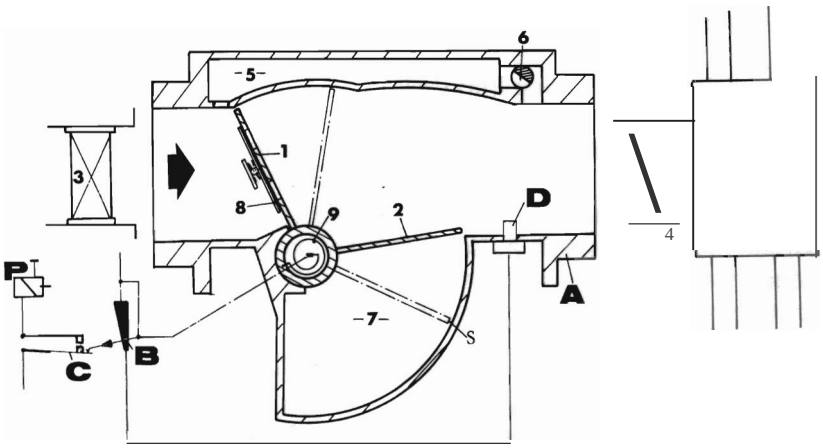
Aluminum housing (A)
with Bye-pass channel (5)
and Adjustment screw (6)

Air sensor flap (1)
with Back pressure valve (8)
and Damping vane (2)

Damping chamber (7)
Return spring (9)

Potentiometer (B)
with Pump contacts (C)

Temperature sensor I (D)



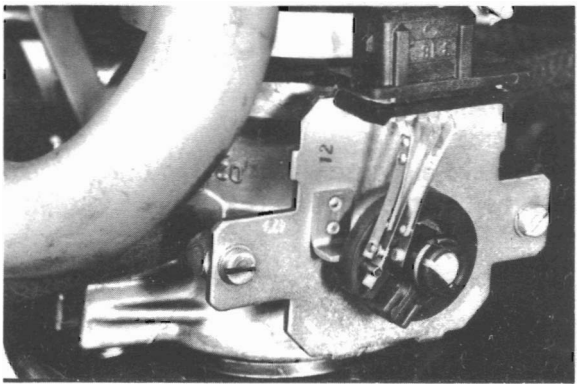
Operation

The volume of air that the motor can draw in is determined by the position of the throttle valve. The resultant air flow causes the sensor flap to deflect against the return spring. The flap deflection is transmitted via a shaft to the potentiometer which supplies a specific voltage to the control unit. The temperature sensor I is connected to the potentiometer and influences the control signal voltage. The injector which is activated by the control unit injects an exact amount of fuel appropriate to the volume of intake-air.
The damping vane is designed to minimize sensor flap hunting. The function is as follows: with increased deflection of the flap the damping vane is forced into the damping chamber. The resultant compressed air within the chamber can escape only through the release slit (S). Sudden movements and hunting is thereby reduced.
A fraction of the air intake is detoured around the sensor flap via the bye-pass channel. The fuel-air mixture for idle can be set by means of the adjusting screw (6).
A pump contact is located within the potentiometer. When the sensor flap is deflected open the pump contact is closed and the fuel pump started.

Problem condition:
Motor does not start; starting difficulties; low efficiency.

Troubleshooting:
Remove the plug connected to the potentiometer on the intake-air sensor. Connect an ohm meter between the contacts 6 and 9. Nominal value: 200 to 400 Ω. Measure between contacts 7 and 8. Nominal value: 120 to 200 Ω.

Throttle Switch



This switch provides the control unit with necessary information for mixture enrichment and full load conditions.

It is not necessary to adjust this switch.

Problem condition:
Low engine power

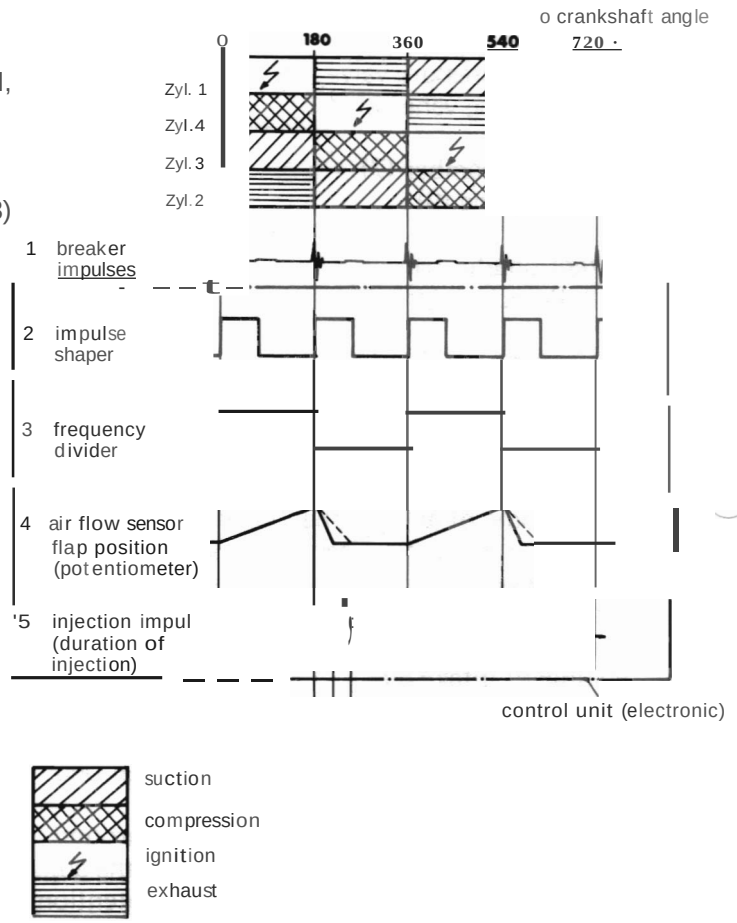
Troubleshooting:
Disconnect the wires from the switch and connect an ohm meter between contacts 3 and 18. Slowly open the throttle valve. The resistance must change from oo to 0 Ω.

Ignition Distributor

The ignition distributor provides the control unit with information concerning the speed of the engine (rpm) and sequence for activating the fuel injectors.

Operation

In addition to delivering impulses to the ignition coil, the contact breaker points also supply impulses to the control unit. Each impulse (1) is converted to a square wave (2) within the control unit. These square wave impulses are then presented to a gate (3) which provides a single pulse output for each sequence of four input pulses which are the result of two revolutions of the motor crank shaft. That is, following each revolution of the crank shaft all four fuel injectors have received an activating impulse (5). Thus the fuel injectors inject a definite amount of fuel independent from the position of the air sensor flap. The injected fuel is always half of the amount necessary for the correct fuel mixture. Since the crank shaft turns twice for each cycle, two injector sequences are put into operation thus each cylinder receives the full amount of fuel for each firing stroke.



Temperature Sensor I

The temperature sensor I is located in the intake air sensor housing and permanentely installed. It can not be replaced separately. Its function is to measure the temperature of the intake air and provide the control unit with the appropriate information.

Troubleshooting:
Similar to the intake-air sensor.

Temperature Sensor II

This sensor is located in the cylinder head. It provides the control unit with information concerning engine temperature and thus about the starting and warm-up enrichment.

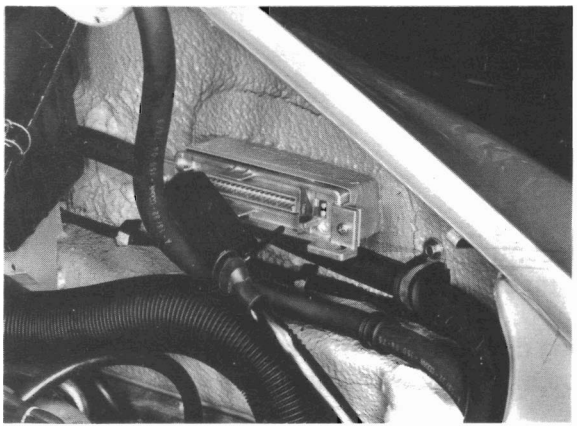
Problem condition: the motor does not start; warm starting difficulties; motor starts but stops again almost at once; fuel consumption too high; CO value is too high in slow running.

Troubleshooting:
Connect an ohm meter between temperature sensor **II** and ground.

Nominal value at 20°C/68°F motor and ambient temperature:
1.5 to 2 kΩ. When the motor temperature is above 80°CI176°F the value must be less than 300 Ω.

Control Unit

The control unit is located in the engine compartment within a cavity welded to the right-hand wheel well.



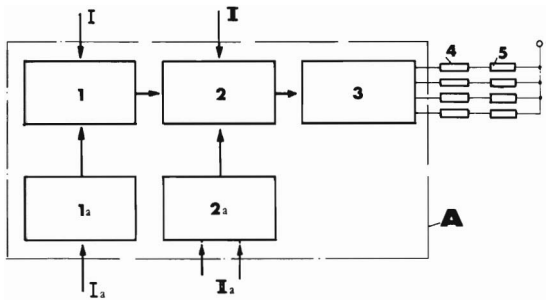
The control unit processes information concerning the following:

Volume of intake air
Temperature of intake air
Motor rpm
Motor temperature
Intake air sensor deflection (full load)

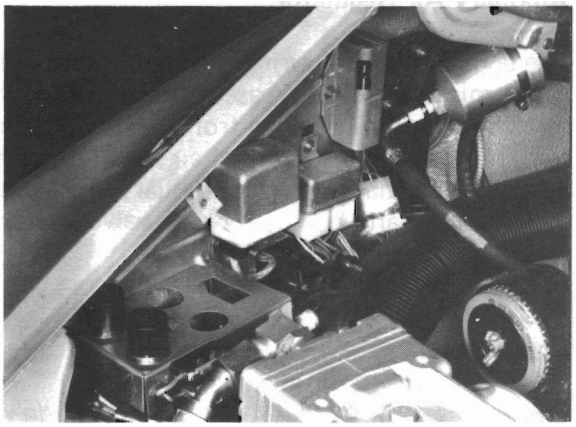
It determines and controls the injection sequence and duration.
The electronic control unit is composed of printed circuits and integrated circuit components.
It is fitted with approximately 80 components.
The printed circuit board is secured to the control unit and pressed into the socket until a spring snaps into place.

Code explanation:

A Control unit
1 Control multivibrator
1a Impulse and rpm divider
2 Multiplier stage
2a Warm-up enrichment
3 Output stage
4 Fuel injector
5 Series resistor
I Control voltage from intake-air sensor
Ia Control impulse from distributor contact breaker points
II Control signal from throttle switch
IIa Control voltage from starter switch/temperature sensor II



Fuel Injector



The volume of injected fuel is determined by the length of time the injector is open (i. e. the time of the impulse from the control unit).

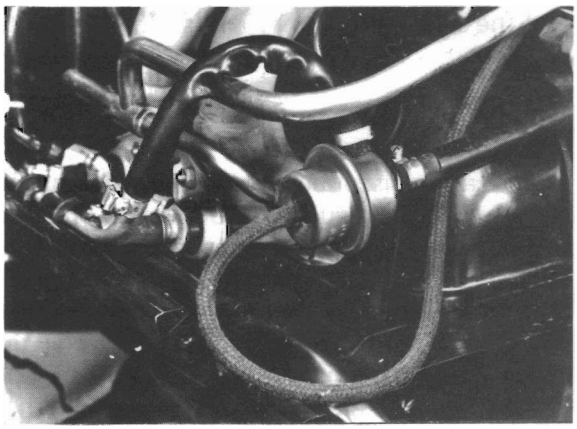
The injector is connected to + via the resistor (R). (The control signal from the control unit is of negative potential.)

Injection Sequence

All injectors are activated simultaneously, once for every crank shaft revolution.

Note:
The plug and socket assembly is so arranged that it can not be inadvertanly connected to an injector of the MPC injection.

Pressure Regulator



The pressure regulator regulates the pressure of the fuel in the ring supply line independent of the pressure in the vacuum line.

The spring chamber of the pressure regulator is connected to the intake air distributor via a hose.

Operation

By using this configuration the pressure of the fuel is adjusted independent of the vacuum in the intake air distributor.

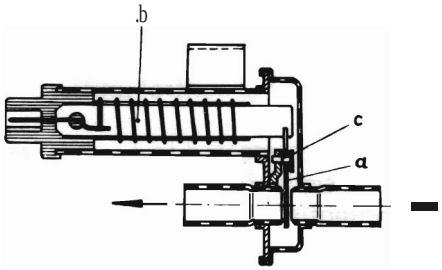
For example
High vacuum in the intake air distributor (idle operation) - low fuel pressure. Low vacuum in the intake air distributor (full load) - high fuel pressure.

This way, the difference between fuel pressure and intake air distributor pressure always remains the same for all load conditions of the engine.

Troubleshooting:
Connect a pressure gauge into the ring supply line. Disconnect the vacuum hose from the pressure regulator. Start the motor.
Nominal value: 2.5 bar (36.75 psi approx.)
Reconnect the hose — the fuel pressure must now be lower.

Auxiliary Air Regulator

The engine requires during the warm-up phase a richer mixture. The increased volume is determined by the control unit (signal from temperature sensor **II).** The additional volume of air required for this purpose is regulated by the auxiliary air regulator and detoured around the throttle valve into the intake air distributor.



Construction

The auxiliary air regulator consists of a slide valve and a bi-metal spring which is enclosed by an electrical heating coil.

Operation

If the engine is cold, the auxiliary air slide valve is fully open. When the ignition switch is turned on the heating coil starts to warm up. With increase in temperature the bi-metal spring becomes weaker and the slide valve slowly shuts off the air intake.

Troubleshooting:

Electrical: Disconnect the plug to the auxiliary air regulator. Connect an ohm meter. Nominal value: approx. 30.

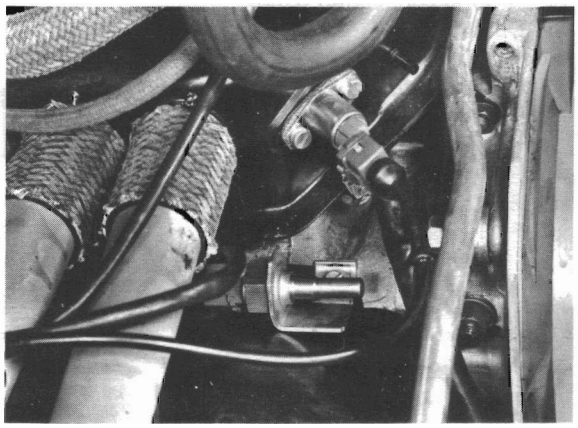
Mechanical: Remove hose from the intake manifold and throttle housing. Blow air thru from one side. If the motor is cold the air must flow freely. Switch on the ignition, continue to blow air thru and observe that the air flow becomes restricted with increase in temperature.

Cold Starting Valve

The cold starting valve is located in the intake air distributor and is activated by a thermo time switch which is located adjacent to the intake air distributor.

Troubleshooting:

Thermo switch: Engine temperature under 10°C/ 50°F. Remove the plug from the cold start valve and connect a test lamp. Disconnect the wire from contact 1 on the ignition coil. Operate the starter motor: the test lamp must initially be bright and then visibly darker within not less than 11 seconds.



Cold start valve: Connect a pressure gauge to the ring supply line.
Operate the starter motor in order to reduce the fuel pressure. Remove the plug from the cold start valve. Connect the cold start valve by means of extra wires to ground and contact 15 on the ignition coil. Turn on the ignition switch -- the fuel pressure must fall.

Here are a few tips concernig trouble free operation of engines equipped with AFC injection.

All air lines and hoses and the intake-air sensor must be absolutely air tight. The sensor flap must be able to move freely over its entire range and not stick at any point.
All electrical connections must be tight and free of corrosion.

Plug and socket color code:	Fuel injector:	white
	Cold start valve:	blue
	Thermo time switch:	brown
	Intake-air sensor:	black

When the vacuum line is disconnected, the fuel pressure must be about 36 psi.
Ignition timing and vaive adjustment must be correct.

For idle and CO adjustment:
Idle is set by adjusting the screw on the throttle housing.
Nominal value: 925 ± 50 rpm

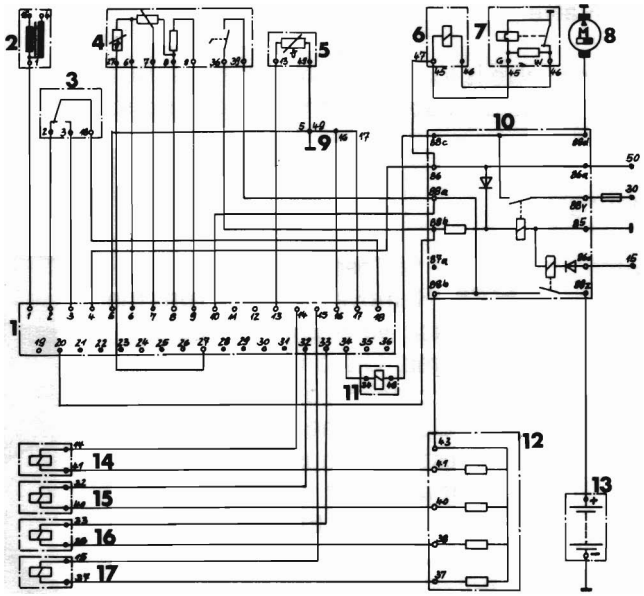
The CO value is factory adjusted by means of the bye-pass adjustment screw in the intake-air sensor housing. The position of this screw should be altered only when the nominal value of 0.5 - 1.2 % CO can not be obtained inspite of perfect working order of the engine.

The CO-adjustment screw is covered by a plug. (Part No. 923.606.991.01)

Plug color code:	Black:	Bosch setting
	Blue:	Production setting
	Red:	Service setting

CIRCUIT DIAGRAM FOR THE AFC INJECTION

1 Multipole plug
2 Ignition coil
3 Throttle switch
4 Intake-air Sensor
5 Temperature sensor II
6 Cold start valve
7 Thermo time switch
8 Fuel pump
9 Ground connection (Gnd)
10 Double relay
11 Auxiliary air regulator
12 Series resistor
13 Battery
14 Fuel injector cyl. 1
15 Fuel injector cyl. 2
16 Fuel injectorcyl. 3
17 Fuel injector cyl. 4



Test Values

4. Intake-air Sensor: pin 6 + 9 = 200 - 400 Ω
pin 7 + 8 = 120 - 200 Ω
pin 36 + 39 = 0 Ω
Air sensor flap = ∞ Ω
pin 27 + 6 = 8 - 11 k at 100C (50°F)
2 - 3 k at 20°C (68°F)
1 - 2 k at 50°C (122° F)

3. Throttle switch: pin 3 + 18, throttle open = ∞ to 0 Ω

5. Temperature sensor II: at approx. 20°C (68° F) approx. 2.5 kΩ
Pin 13 + 49 at approx. 80°C (176°F) below 300 Ω

6. Cold start valve: pin 45 + 46 = 4 Ω

7. Thermo time switch:

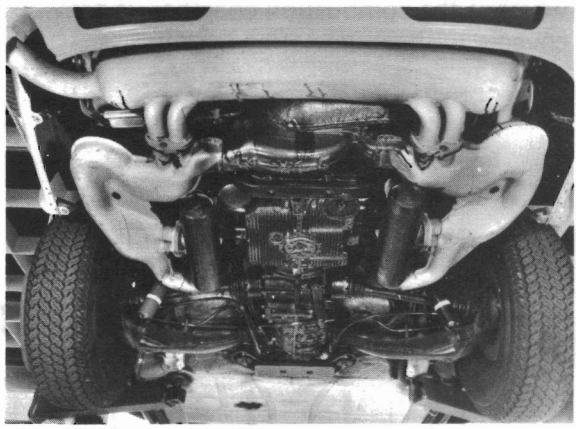
	below + 30°C (86° F)	above + 40°C (104° F)
Pin G + Gnd	25 - 40 Ω	50 - 80 Ω
Pin Wt Gnd	0 Ω	100 - 160 Ω
Pin G + W	25 - 40 Ω	50 - 80 Ω

10. Double relay: pin85+86b= 50 - 100 Ω

12. Seriesresistor: pin 43 + Gnd. = 5 - 7 Ω

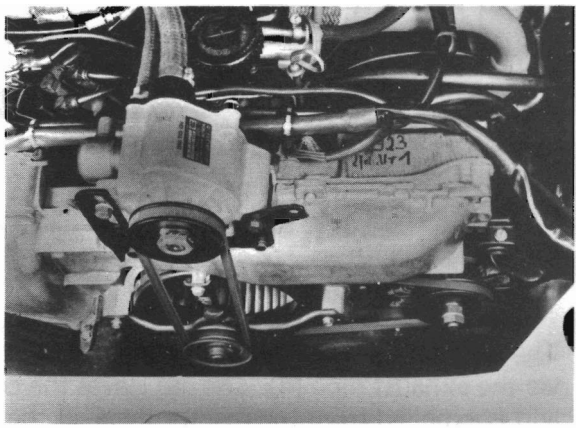
14. - 17. Fuel injector: pin 14 + 41/32 + 40/33/38115 + 37 = 2 - 3 Ω

The 912 E engines are equipped with a secondary air injection, thermal reactors and EGR. The muffler and heat exchangers are also new.



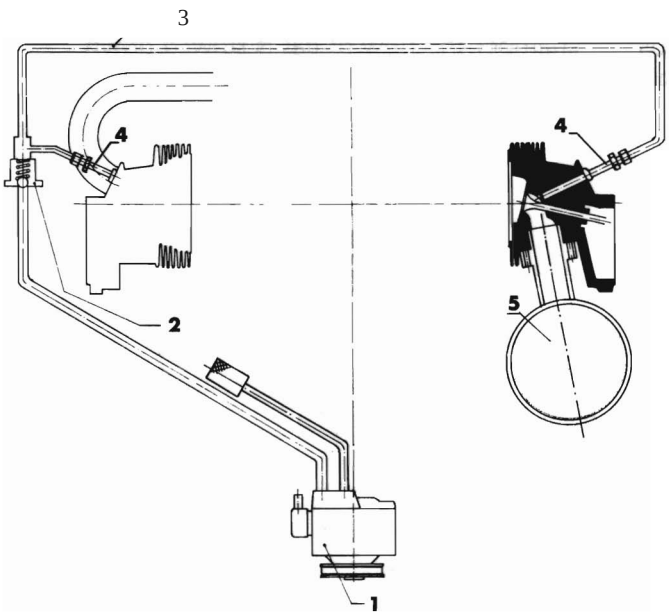
The secondary air injection and the thermal reactors are designed to reduce the CO and HC emission in the exhaust. The purpose of the EGR is to reduce the emission of nitric oxide (NO_X).

Secondary Air Injection



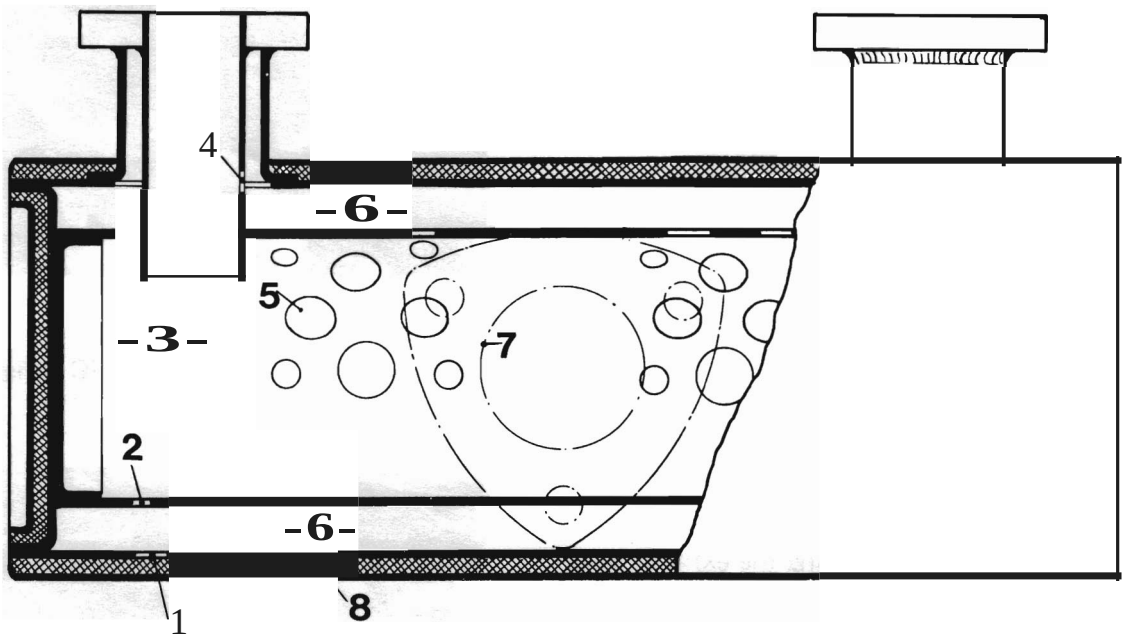
The air required for after burning the exhaust gases is supplied to the exhaust manifold by means of a motor driven air pump.

The air from the pump (1) is pumped via a back-up valve (2) and a distributor line (3) to the air injection valve (4) which is located immediately behind the exhaust valve. The exhaust gas after burning takes place in the thermal reactor (5).



Thermal Reactor

The thermal reactor mainly consists of two cylinders, one inside the other, (1) and (2). Cylinder 2, which is the combustion chamber, is provided with exactly defined holes (5). The outside wall is covered with an insulating material.



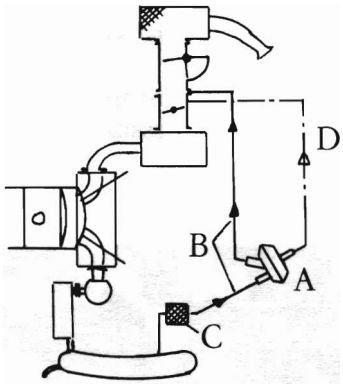
Operation

The hot exhaust gas which is mixed with the secondary air enters the reactor combustion chamber (3) via the exhaust pipe (4). The gas leaves the combustion chamber via the holes of the inner pipe (6) and is expelled from the reactor through the outlet port (7).

Due to the arrangement of the holes in the combustion chamber the flow of gas is slowed down. During this time the after burning process takes place.

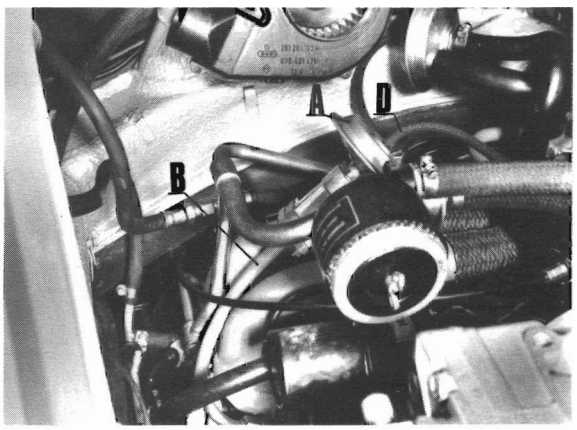
Exhaust Gas Recirculation (EGR)

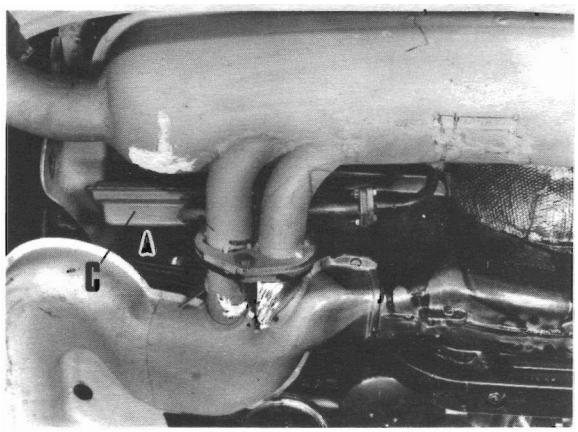
Exhaust gas recirculation is designed to reduce the nitric oxide emission (NO_X) in a particular load range of the engine.



Construction:

The device consists of a diaphragm control valve (A), exhaust gas lines (8) with filter (C) and a vacuum control line (D)



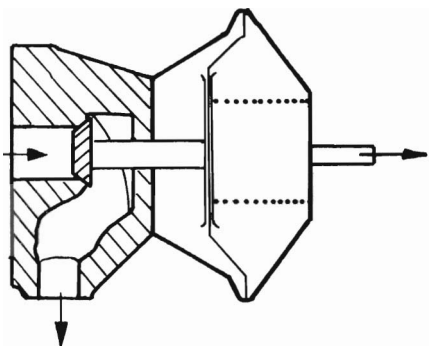


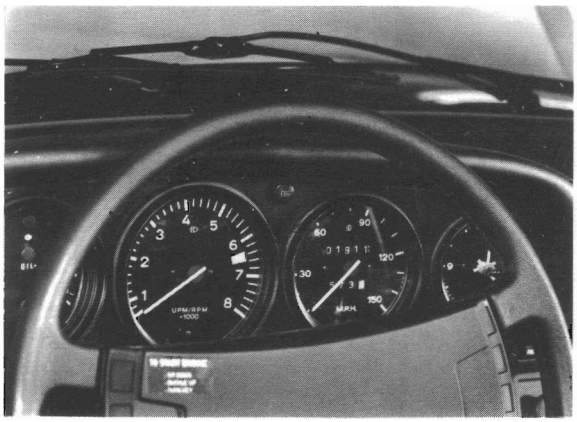
Operation

In the part-load range the control valve diaphragm is lifted by the vacuum in the control line. The valve opens and fresh air is mixed with a fraction of the exhaust gas.

This controlled "pollution" reduces the nitric-oxide concentration (NO_X) in the exhaust gas.

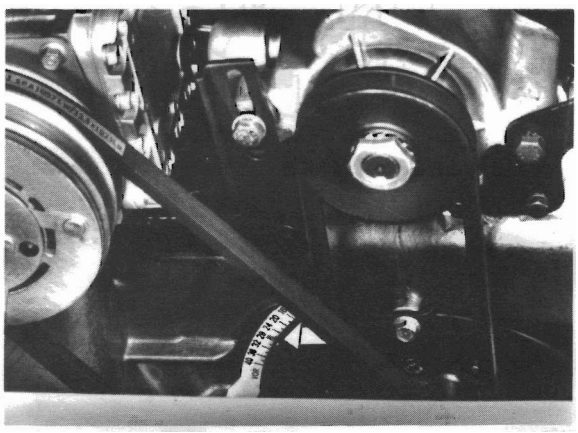
The function of the EGR system must be tested every 30,000 miles. A counting mechanism is fitted behind the speedometer which lights a warning lamp marked ''EGR'' when the 30,000 mile limit has been reached.





The 912 E motor is fitted with a battery ignition system.

Due to the installation of the secondary air injection pump, the observation hole for the timing marker is no longer accessible. The TDC marker (previously on the fan wheel) is now located on the fan-belt pully (arrow). An angle bracket which is secured to the air intake housing serves as reference point.



Technical Specifications: Ignition System

Firing order:	1-4-3-2
Dwell angle:	44° – 50°
Timing:	27° before TDC at 3500 rpm vacuum hose disconnected
Spark plugs:	Bosch W 175 M 30 ⟩ plug gap 0.7 mm Beru 175114/3 L ⟩

The distributor is fitted with a vacuum operated advance and retard mechanism. The vacuum hose for retarding is green.

Engine

Number of cylinders		4
Bore	mm/in.	94/3.70
Stroke capacity (actual)	mm/in.	71/2.80
	cm^3/cu.in	19711120.3
Compression ratio		7.6 : 1
Maximum horse power rating according to DIN 70020	HP/kW	90/66
Net power SAE J 245	HP/kW	86/64
developed at:	rpm	4900
Maximum torque	Kpm/Nm	141137
according to 01 N 70020		
Nett torque SAE J 245	Ibft/Nm	98/133
developed at:	rpm	4000
Maximum rpm	rpm	5500
Turn off revolutions of	rpm	5800 ± 100
rpm limiter in the control unit		

Valve clearance: (engine cold)

Intake	0.15 mm
Exhaust	0.20 mm
Engine weight kg/lbs	155/342

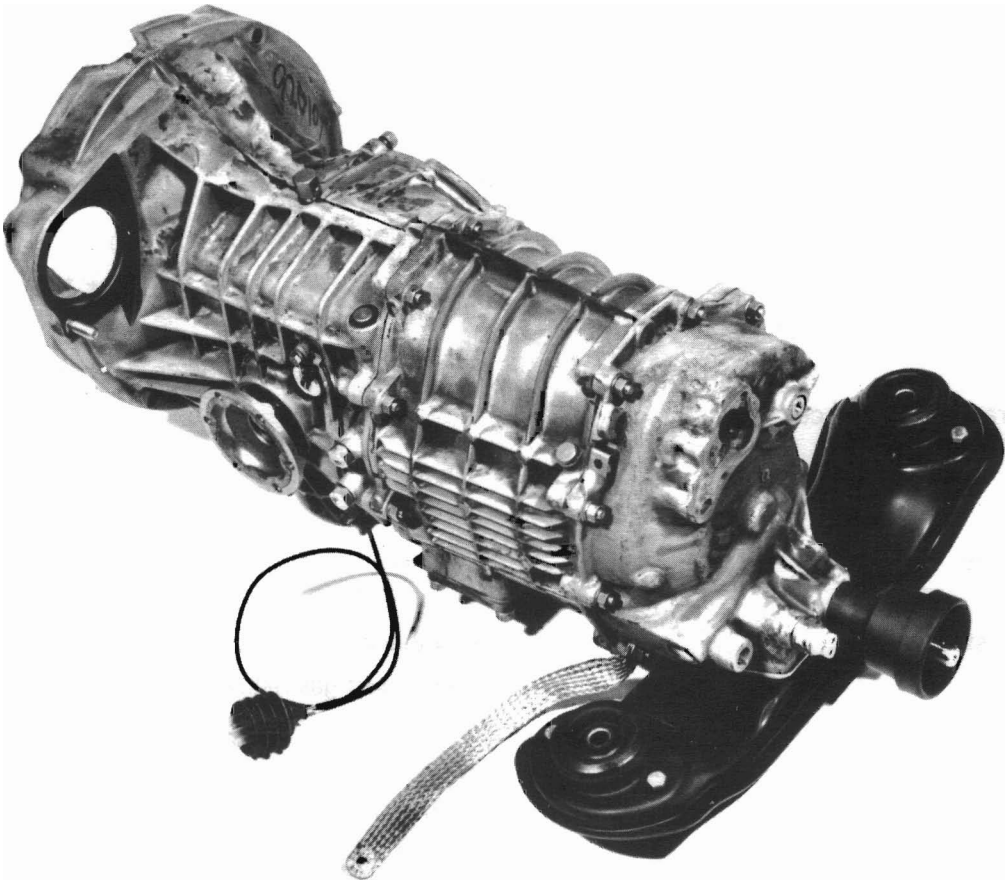
Emission system	Secondary air injection, thermal reactor and exhaust gas recirculation (EGR)
Fuel supply system	Electronically controlled fuel injection -AFC.
Fuel supply	Electric pump
Fuel octane count requirements	ROZ 91

Electrical equipment

Battery	12 V/44 A/hr.
Battery optional	12 V/66 A/hr.
Alternator	W 980 W, 70 A, 14 V (Bosch)

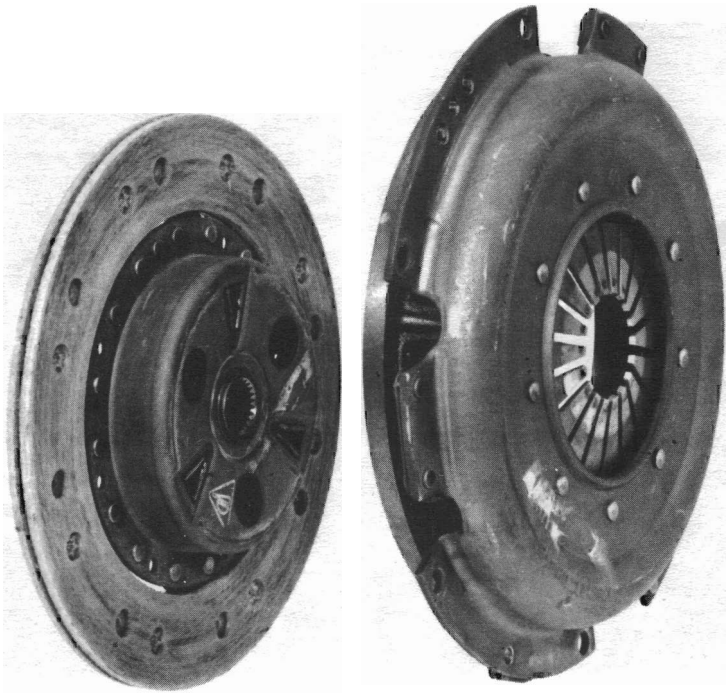
The 5 speed transmission 923/02 is a development of the transmission type 915/44 (5 speed transmission for the 911) and differs from it in the following points:

1. Clutch and clutch operation
2. Main shaft splines
3. Ring gear and pinion ratio
4. 4th. and 5th. gear ratio



Clutch pressure plate and disk.

The clutch is a single dry plate clutch of **pressed** design.

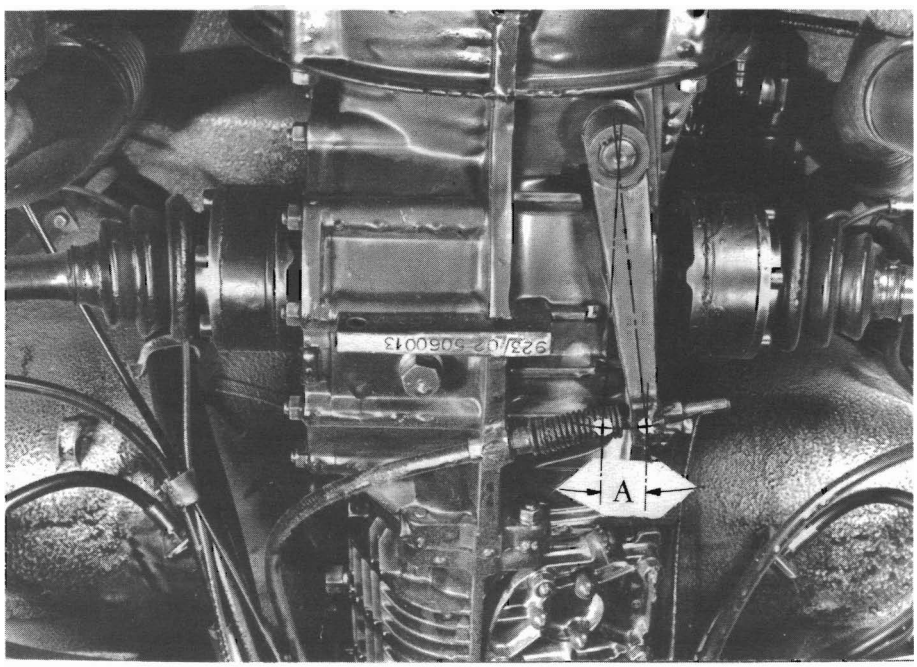


The clutch disk has 24 splines, unlike the 911 which has (SAE arrangement) 20 splines.

Description of the pressure plate:	M 215 K Sph
Description of the clutch disk:	215GUD
Plate pressure:	4903 - 5492 N (500 - 560 kp)

Clutch lever and cable

In order to obtain a reverse movement from the one on the 911 model, the lever was moved in the direction of the transmission housing.



The clutch cable is 2080 ± 1.5 mm long and has a diameter of 3.0 mm. The cable housing is secured to one of the mounts on the transmission housing.

The distance of travel for the lever (dim. A) is 18.0 ± 1.5 mm.

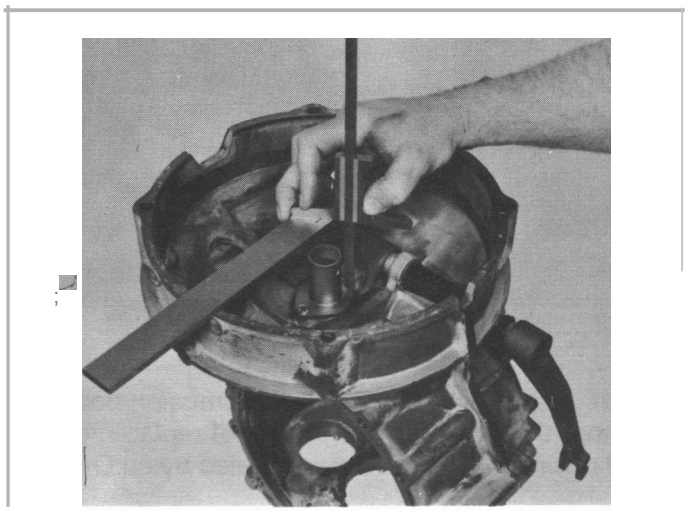
Clutch pedal free movement is 15 ± 5 mm.

Adjustment of the lever and fork

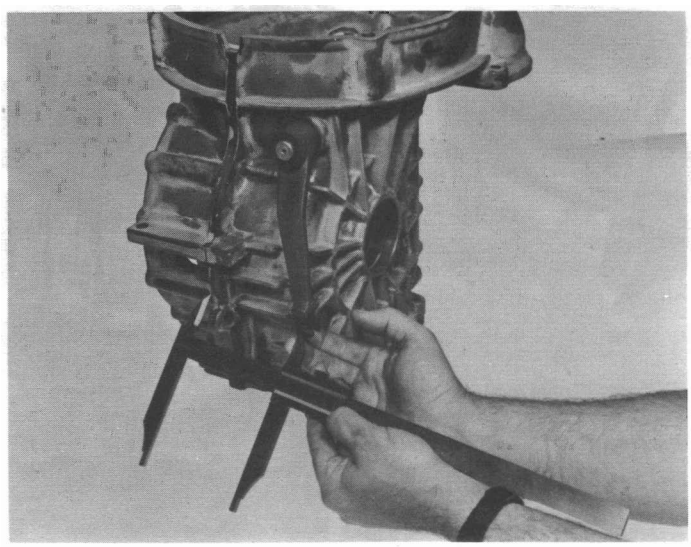
The lever and the fork must be correctly located in order to assure correct operation.

The dimensions are as follows:

From the mating surface on the transmission housing to the lever is 71 mm.



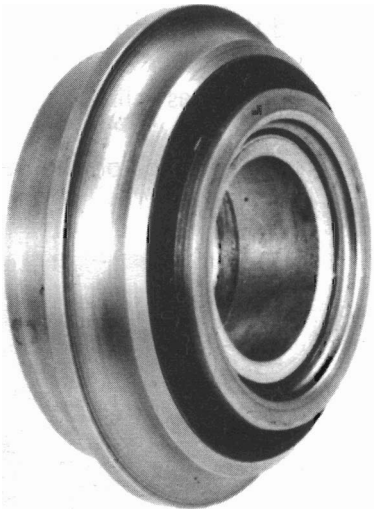
Without altering the 71 mm dimension, measure the distance from the transmission housing (in the area of the clutch cable mounting point) to the semi-circular depression for the lever.
This dimension must be 101 mm. If necessary, move the lever on its splines.



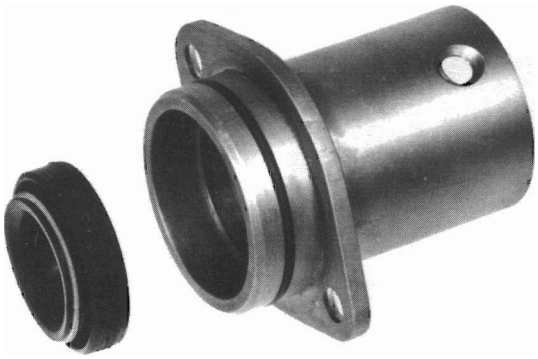
Throw out bearing and guide

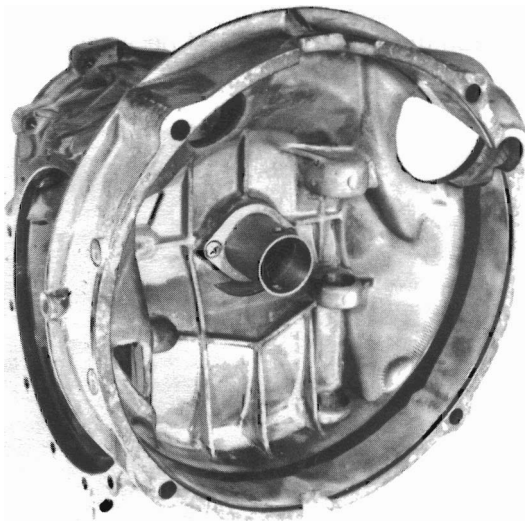
Throw out bearing:

The bearing is maintenance free and must not be dismantled.



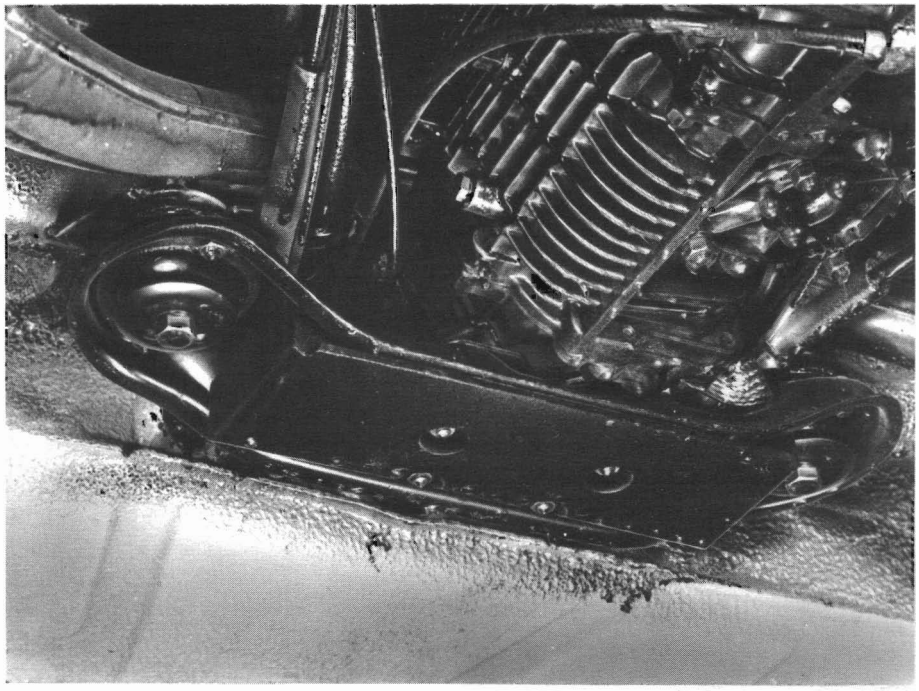
The guide sleeve for the throw out bearing is bolted to the transmission housing.
The main shaft oil seal is held within the guide sleeve (for ease of replacement of seal).
The space between transmission housing and guide sleeve is sealed by an O-ring.





Transmission Mounts

Attached to the transmission mount is a dampening material to reduce engine and transmission vibrations and noise.



35 SHAFTS/GEARS

Main Shaft

The main shaft is also provided with 24 splines.

Gear-pair for 4th and 5th gear

As previously mentioned, the transmission ratio for the 4th and 5th gear in the transmission unit 923/02 is different from that in the 915/44 transmission unit.

The ratio differences for the two transmission units are as follows:

	Type 923/02		915/44	
1st gear	11/35	i = 3.1818	11/35	
2nd gear	18/33	i = 1.8333	18/33	
3rd gear	23/29	i = 1.2609	23/29	
4th gear	26/25	i = 0.9615	26/26	i = 1.000
5th gear	29/21	i = 0.7241	28/23	i = 0.8214

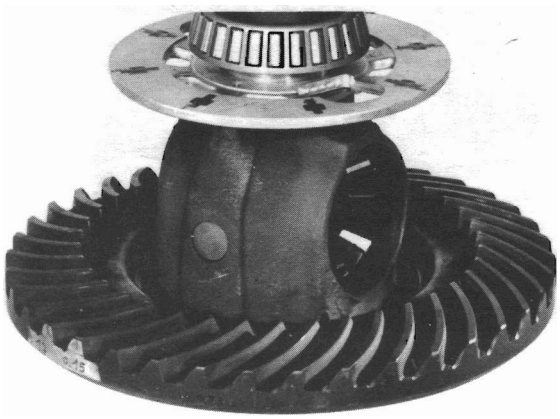
Ring gear and pinion

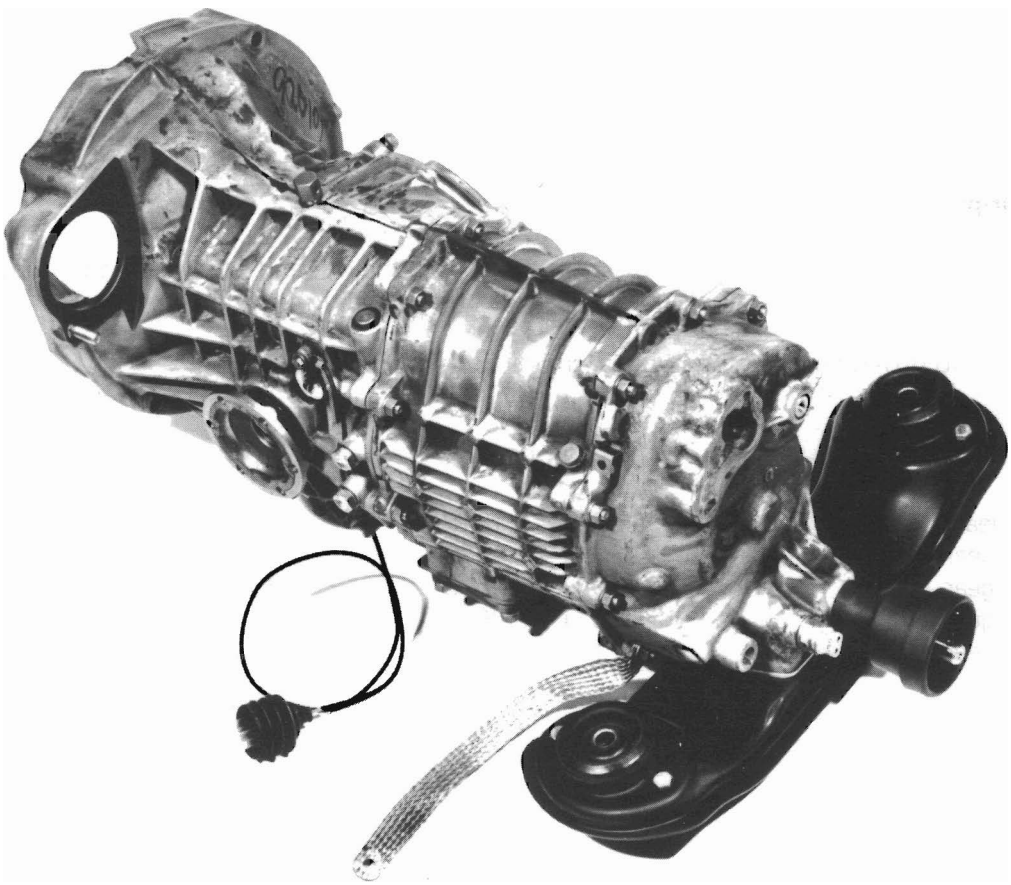
The ratio of ring gear and pinion is also different in the 923/02.

923/02 K : T	7 : 31	i = 4.4285
915/44 K : T	8 : 31	i = 3.8750

Speedometer Drive

The Type 912 E vehicles are equipped with an electronically controlled speedometer.
Impulses from a magnetic disk which is mounted on the differential housing activate a reed relay.
From there the impulses are fed to the speedometer.





Transmission (5 speed transmission)

Vehicle type	912 E
Clutch	Single dry disk clutch
Pressure plate	M 215 K Sph
Pressure N (kp)	4903 - 5492 (500 - 560)
Clutch disk	215 GUD
5 speed manual transmission	Porsche - synchro-lock transmission
Transmission Type	923/02
Ratio: 1st gear	11/35 i=3.1818
2nd gear	18/33 i = 1.8333
3rd gear	23/29 i = 1.2609
4th gear	26/25 i = 0.9615
5th gear	29/21 i = 0.7241
Reverse gear	12/21-20/38 i = 3.3250
Final drive	Spiral conical gear Differential (Oerlikon-gearing)
Final drive ratio K/T	7/31 i = 4.4285
Limited slip differential	ZF
Slipping factor 40 %	
Oil quantities:	
Transmission with differential	3.0ltr.
Transmission oils	EP oil, Mil 2105 B standard, SAE 90

Transmission number - Range - Model year 1976

Sample serial No. (7 digits)		5 0 6 0001	
Type of aggregate	Transmission type	Model year	Serial No.
5	0	6	0001
5 = for a 4 cyl. motor	0= 5 gears 923	6 = 1976	0001 to 8000

The suspension and brake system in the 912 E is the same as in the 911 models except for a few minor details.

Front axle	independently suspended wheels on A-arms and struts, one torsion bar for each wheel. Rack and pinion steering with safety column. Safety steering wheel with padding, stabilizer bar 16 mm dia.
Rear axle	independently suspended wheels on A-arms, torsion bar suspension for each wheel.
Wheels/Tyres	Steel rims 5112 J x 15 fitted with 165 HR 15 tyres.
Brakes	hydraulic, dual-circuit disk brakes, with solid disks.

Vehicle alignment specifications

The following specifications are valid for empty weight according to **DIN** 70020 (i. e. Vehicle including full fuel tank, spare wheel and tool kit).

Front axle

Hight alignment:

Center of wheel to center line of torsion bar	99 **mm** ± 5 **mm**	3.90 in
Maximum difference from left to right	5mm	0.2 in
Total to-in (pressed 15 kp)		
Difference angle at a 20° turning angle	0° to 30'	
Camber (with wheels straight ahead)	0° 30' ± 10'	
Maximum camber difference from left to right	10'	
Caster	6° 5' ± 15'	

Rear axle

Hight alignment:

From center of torsion bar to center of wheel	37 mm ± 5 mm/I.45 in
Maximum difference from left to right	8mm
To-in per wheel	20' - 20'
Maximum difference from left to right	10'
Camber	0° ± 10'
Maximum difference from left to right	20'

As previously mentioned, the front and rear suspension is identical to the Type 911.

Shock absorbers - rear

Either one of two types of shock absorbers, 80ge or Woodhead, are used in production.

Shock absorber color code:

80ge	black, with yellow test band
Woodhead	blue, with yellow test band

Wheels and Tyres

Production

Wheel rims	front and rear	5 1/2 J x 15 (steel)
Tyres	front and rear	165 HR 15

Option

Wheel rims	front and rear	5 1/2 J x 14 (LM rims forged)
Tyres	front and rear	185 HR 14
Spare wheel		Inflatable tyre on a steel rim 5 1/2 J x 15, with a compressor or air tank

Winter Tyres

Front and rear	165 SR 15 MS or *185170* SR 15 MS on standard rims 5 1/2 J x 15

Note:

Wheel rims: All rims have a ''J'' horn contour on the inner and outer side (e. g. 51/2J x 15 H2)

Tyres: All tyres are tubeless

Tyre pressures (cold):

	barometric pressure	(kp/cm^2)	PSI	
Front	2 bar	2	29	Also for winter tyres
Rear	2.35 bar	2.4	34	
Reserve (maximum)	2.0 bar	2.0	29	

Hydraulic system/Brake failure warning device/
Hand brake warning light

As in the 911, the master brake cylinder is fitted with a brake failure warning *device*. In the event of failure in one of the brake circuits a warning lamp "BRAKE" is illuminated on the dash-board.

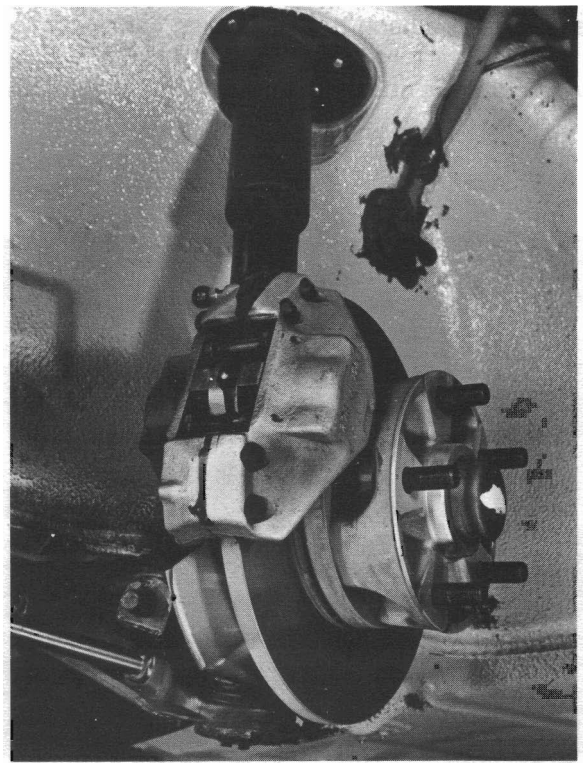
The "BRAKE" warning light also serves as a hand brake warning light.

The hand brake warning lamp which was previously located in the combination instrument is no longer used.

Brake disks and calipers

The 912 E is fitted with brake disks without ventilation on both front and rear axles.

(Refer to technical specifications for dimensions and minimum brake pad thicknesses).



Commencing with Mod. 76, a type "A" brake caliper is installed on the front axle on all vehicles including **911** 'so

	Front	Rear
Brake pads	Jurid 231 **GH**	Textar TP 22 **HH**
Pad thickness	**10 mm**	IOmm

Front suspension - steering

Wheel suspension	Independently suspended wheels on A-arms and struts, one torsion bar for each wheel.
Torsion bar diameter	18.8 mm/0.74 in.
Stabilizer dia.	16 mm/0.63 in.
Shock absorber	Double acting hydraulic shock absorber
Manufacturer	Boge/color coded: black with yellow test band
Steering gear	ZF rack and pinion
Steering wheel dia.:	
Standard	400 mm115.75 in.
Optional	380 mm114.96 in.
Steering ratio in the center (steering wheel angle to wheel angle)	17.78 : 1
Turning circle dia.	10.9 mtr.l36.76 ft.
Steering wheel turns from stop to stop	3.1
Steering friction (measured on steering flange with tie rods disconnected)	0.8 to 1.4 Nm (8 to 14 kpcm)

Rear suspension

Wheel suspension	Independently suspended wheels on A-arms, one torsion bar for each wheel
Torsion bar diameter	23 mm/0.9 in.
Stabilizer	
Shock absorbers	Double acting hydraulic shock absorbers
Manufacturer	Either Boge or Woodhead
Woodhead	Blue with yellow test band
Boge	Black with yellow test band
Spring plate adjustment (inclination)	
for standard models	40°
and for models with air conditioning	40° 30′

1° spring plate inclination = approx. 8 to 9 mm (0.3 to 0.35 in.) change in hight of vehicle.

Foot brake	Hydraulic, dual circuit disk brakes with brake failure warning light
Tandem master cylinder	
Bore diameter	19.05 mm/0.75 in.
Stroke	18113 mm/0.7110.51 in.
Ratio at footbrake peddal	5.4 : 1
Free *travel:* movement-rod/piston	1 mm/0.39 in.
Front wheel brakes	
Brake disk O-dia.	Solid disk - 282 mm111 .10 in.
Thickness new	12.7 mm/0.5 in.
Minimum thickness after machining *)	11 .5 mm/0.45 in.
Brake caliper piston dia.	48 mml1.89 in.
Pad thickness	10 mm/0.39 in.
Wear limit	2.0 mm/0.079 in.
Clearance	0.2 mm/0.0079 in.
Pad surface area for each wheel	76 cm^2 111 .78 sq. in.
Rear wheel brakes	
Brake disk O-dia.	Solid disk - 290 mml11.4 in.
Thickness new	10.5 mm/0.41 in.
Minimum thickness after machining *)	9.5 mm/0.374 in.
Wear limit	9.0 mm/0.354
Clearance	0.2 mm/0.0079 in.
Pad surface area for each wheel	52.5 cm^2/8.1375
Hand brake	Mechanical on both rear wheels
Hand brake drum dia.	*180 mml7.086* in.
Wear limit dia.	181 *mml7.126* in.
Brake shoe width	25 mm/0.98 in.
Effective brake area per wheel	85cm^2 113.175sq. in.
Wear limit for brake lining	2.0 mm/0.079 in.

*) The brake disk must be symmetrically machined, the same amount on both sides of the disk.

Over-all dimensions

Length	*mm/in.*	4291/168.94
Width	*mm/in.*	*16101 63.39*
Hight	*mm/in.*	*13401 52.76*
Wheel base	*mm/in.*	2271/ 89.41
Track width: front	*mm/in.*	*13601 53.54*
Track width: rear	*mmlin.*	*13301 52.36*
Road clearance	mm/in.	*1801* 7.10

Weight (DIN 70020)

	kg	lbs.
Empty weight	1160	2258
Total weight	1400	3087
Axle load front	600	1323
rear	815	1797
Maximum load capacity	240	529
Maximum roof load including luggage carrier (Coupe only)	35	77

Fuel and Lubricants

Engine	The correct oil level is determined by the dip-stick as described in the operating instructions	Types of oil according to A IP classification SD for example: Summer SAE 30 Winter SAE 20 for continuous temperatures from - 15°C to O°C, e. g. 20 W 20. SAE 10 W for continuous temperatures under -15°C.
Oil capacity with filter change		3.5 ltr. approx.
Transmission incl. differential		3.0 ltr. transmission oil according to MIL-L 2105 B, SAE 90

Fuel tank capacity	80 ltr. inc!. 8 ltr. reserve
Brake fluid reservoir	0.2 ltr. approx.
Windshield washer tank	8.0 ltr. approx.

Performances

Top speed km/h (mph)	178 (110.6)
Acceleration 0 - 100 km/h s	13.5
km for standing start s	34.0 0 IN empty weight plus 1/2 load

Hill climbing ability 5 speed transmission

1st gear	50%
2nd gear	27 %
3rd gear	17 %
4th gear	11 %
5th gear	7%

Chassis number range Model 76

Sample serial number
(10digit)

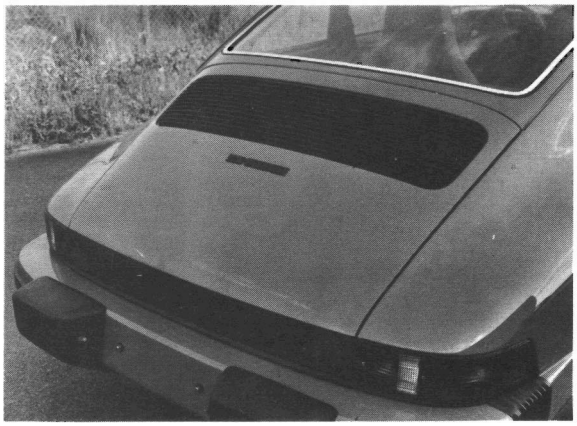
912	6	O	O	0001
Vehicle type	Model year	Motor	Body	Serial No.
	6 = 1976	O= 912 E/2 ltr.	O= Coupé	0001 - 9999

The body on the 912 E is identical to that of the 911 Models.

The following are new on the 912 E

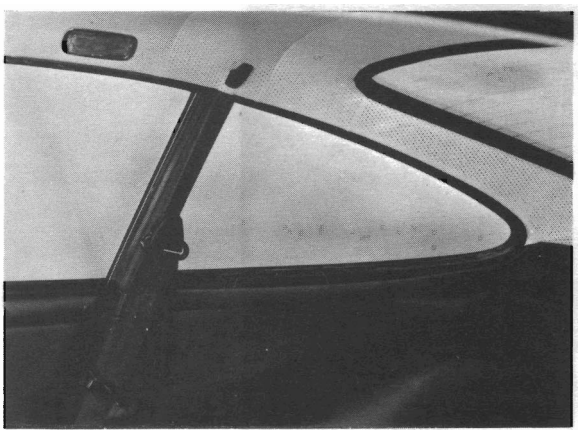
- Model identification on rear lid
- Rear-side windows permanent installed
- Nylon velour carpet
- Seats: Center stripe in Scotch plaid, Tweed or braided material

The external differentiating mark is the number identification on the rear lid.



The rear-side windows are permanently installed. The former side windows are available as an option.

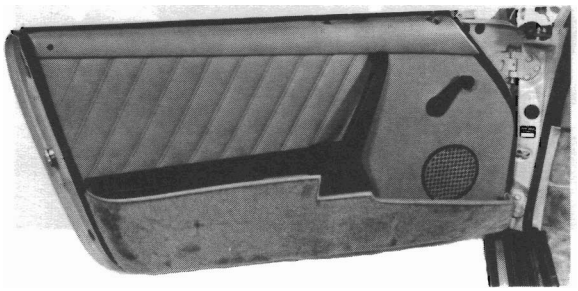
The single-stage heated rear-window is standard equipment.



The 912 E interior upholstery consists of a nylon velour carpet, synthetic leather seat upholstery. center stripe of Scotch plaid, Tweed or braided materials.

As for the Type 911 Model 76, a radio with two speakers, one in the right and one in the left door, can be installed.

The speakerperforation on the dash board was removed.



Door locking push button

The safety push button for locking the door has been changed from 8 mm to 6.5 mm thickness. This ensures easier opening with the key during variations in temperature.

Rear cross-member - Engine compartment

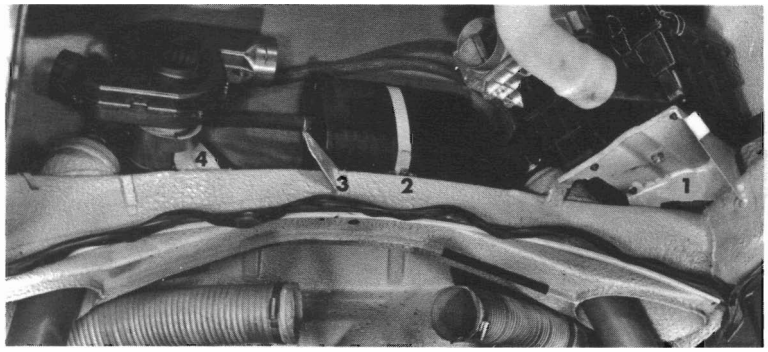
Various fittings and attachments are mounted on the rear cross-member:

for air filter with intake-air sensor

2 for active carbon container

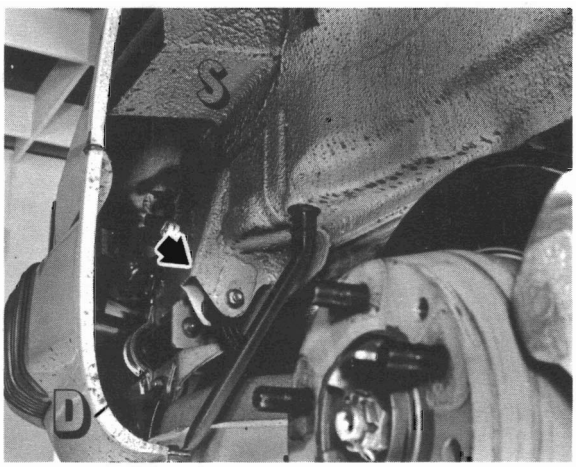
3 for the deceleration valve

4 for the heating blower motor



Motor mountIRight-hand wheel well

The motor mount - left and right - is welded to the main body members (arrow)



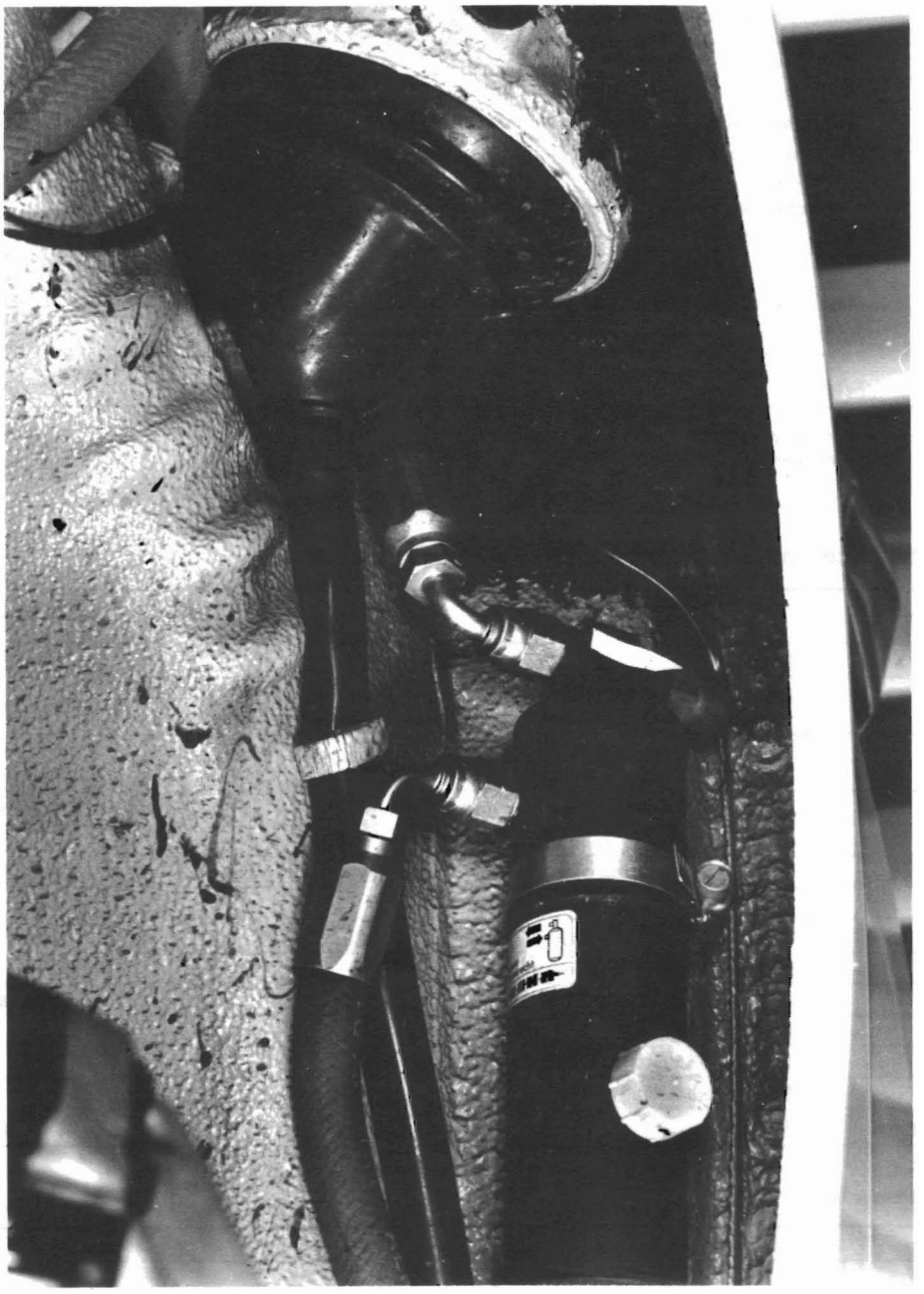
Located in the right-hand wheel well is a compartment for the AFC control unit (5).

Also illustrated in the picture is one of the dampers for the safety bumpers (D).

87 Air conditioning unit

The air conditioning unit fitted in the vehicle type 912 E is equipped only with one condenser which is secured to the engine lid.

Located on the receiver dryer is a thermo switch (electrical switch) which disconnects the compressor clutch and the air conditioning unit when the freon temperature is too high. When the temperature of the freon drops the compressor clutch and the air conditioning unit are turned on again.



I. Required Maintenance for the Emission Control System 912 E

Required at 1,000 miles		Required every 5,000 miles	Required every 15,000 miles
Change	Engine oil	Change	Change
Replace	Engine oil filter	Replace	Replace
Check + adjust	Valve clearance (at 5,000 miles, recommended for maximum engine life, but not necessary to keep the Emission Control Warranty in effect)	Check + adjust (at 5,000 miles only)	Check + adjust
Adjust	V-belts (including V-belt for air pump) check tension and condition		Adjust or replace if necessary
	Spark plugs		Replace
	Ignition distributor: ignition points		Replace
	dwell angle and timing		Adjust with electronic equipment
	Ignition wiring, distributor cap and rotor		Check visually, replace if necessary
	Fuel filter		Replace
	EGR system (reset EGR mileage counter)		Check Visually *)
	EGR system filter (reset EGR mileage counter)		Replace *)
Check Visually	Evaporative control system (incl. fuel cap, tank and connections)		Check Visually
	Crankcase ventilation hoses (control valve: Check)		Check visually *)
	Exhaust system		Check for damage
Check + adjust	Engine idle and exhaust emission (CO)		Check + adjust
	Air cleaner filter element (at least after two years)		Replace
	Air pump, control valves, air injection hoses and connections		Check
	Filter element for air pump		Replace

Regular maintenance of the Emission Control System at 15,000 mile intervals is necessary to keep your Emission Control System Warranty valid. *) Additional service every 30,000 miles.

II. Required Maintenance and Lubrication Service 912 E

Required at 1,000 miles		Required every 15,000 miles
	Door hinges	Lubricate
	Door weatherstrips: Remove rubber residue from contacting areas and coat with talcum powder or other suitable rubber lubricant	Maintain
Change	Transmission oil	Check and correct Change every 30,000 miles
	Windshield washer, operation and fluid level	Check and correct
Check + adjust	Front wheel bearing play	
	Front axle: Steering gear, tie-rod connections and rubber boots	Check for tightness and leaks
Check + adjust	Clutch pedal free play	Adjust
	Brake system, all lines and hoses (incl. wear and leaks)	Check
Check	Operation of lights, horn, wipers and washer	Check
Check	Headlight adjustment	Check and correct
	Ignition / steering lock and buzzer alarm	Check
	Safety belt warning light and buzzer alarm	Check
	Battery electrolyte level	Check
Check + correct pressure	Tires	Check and correct pressure

During road or dynamometer test

Check	Braking, clutch, steering, heating, ventilation systems	Check
Check	All instruments, control and warning lights	Check

The recommended service intervals apply under normal driving conditions. If you drive mainly in dusty areas, check the air cleaner element more often and replace if necessary. The condition of oil, and wear-and-tear items (such as tires, brakes, clutch lining) depend greatly on the amount of driving and on driving habits. Therefore, oil and wear-and-tear items should be checked more frequently, and if necessary replaced at shorter intervals. Also, the battery electrolyte level should be checked more often. A complete maintenance and lubrication service should be performed at least once a year, preferably before the winter. The same applies to protective undercoating for the vehicle.

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Customer Service

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