



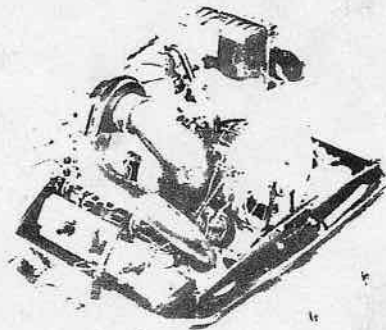
SERVICE

911

Carrera

DME

TEST PLAN



INFORMATION

TECHNIK

Printed in Germany

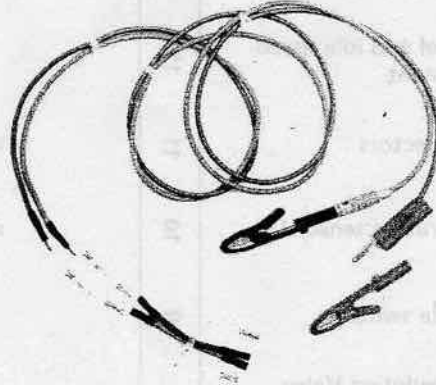
Test Requirements	Possible Causes of Fault														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Engine in perfect mechanical condition															
Battery charged															
See Test Point:															
Possible Faults															
Engine does not start/ hard to start	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Erratic idling	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Poor engine pickup	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Engine misfiring	x		x	x	x	x	x	x	x	x	x	x	x	x	x
High fuel consumption															
Poor engine output															

x = Check with a suitable tester!

TESTING REQUIREMENTS – DME 911

Testers and Tools Required for Testing DME (Digital Motor Electronics):

- 1 Oscilloscope, e. g. SUN or Bosch (or equivalent)
- 1 Volt- and ohmmeter (internal resistance at least 20 k-ohm/V)
- 1 Test lead (Bosch "L-Jetronic lead", No. 1684 463 093) (check lead for correct polarity in plug)
- 2 Control unit plug test leads, approx. 60 mm long, fitted with 2 insulated alligator clips and
- 2 Flat male plugs, N 17.457.2
- 1 Adapter test lead, consisting of:
- 4 Plug lugs N O 17.483.1 soldered with two approx. 10 cm long wires

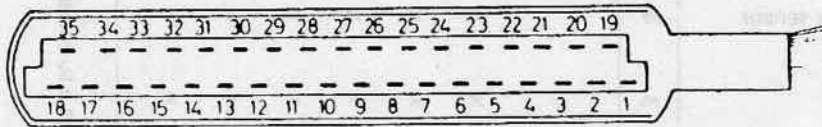


Always use test leads for testing.

GENERAL INFORMATION

Plug Terminal Designations

Control unit multiple pin plug, looking at plug terminals.



Plug on Throttle Switch

Disconnected throttle switch plug, looking at plug pins.

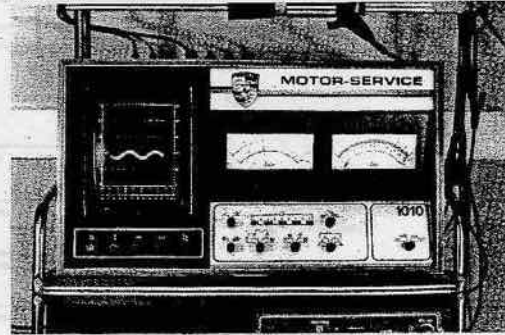


- Full load contact
- Ground
- Vacant

Working with Oscilloscope



Bosch Engine Tester Mot 300/400



SUN Engine Tester 1010

All sensor and ignition timing signals of Porsche cars can be checked with engine testers recommended by Porsche, namely SUN 1010/1080/1019 or Bosch Mot 300/400.

Since tester connections are made differently on cars depending on make of tester, always refer to supplier's instructions for correct tester connections.

However, since curve shape and signal voltage ratings for inductive sensors are not always included in engine tester manuals, we want to supply you with some information for making correct connections.

- Sensor Signals Which Can Be Tested:**
1. Reference mark sensor
 2. Speed sensor
 3. ABS wheel speed sensors
 4. Sensor coil signals from breakerless distributors
 5. Injection timing signals
 6. Injection consumption signal
 7. Reed contact function
 8. Speed control activation

Connections:

Bosch Mot 300/400: Use positive and negative leads (red and black terminals) for connection on sensors. Press the "Special" / "10 V" and "% " buttons on the oscilloscope.

SUN 1010/1080: Use single test leads of inductive clip term. 4 (blue and black). Blue and black terminals are connected on the sensor.

Set tester to: "Primary +" / "4 H" / "2 cyl." / "50 V".

Note: Screen is only calibrated in the primary position, i. e. voltage values can be read from scale.

Important! Only the blue tester lead must be connected via the L-Jetronic test lead for checking ti signals on fuel injectors. The black terminal must be connected on ground. Connect trigger clip on cylinder no. 1.

Note: With SUN 1080 the "coil test" button should be pressed during the test. Set right regulator underneath the scope adjusting cover to 25 V.

SUN 1019: Same as for SUN 1010, but connect green (term. 1) and blue (term. 15) terminals.

TESTING REQUIREMENTS – DME 911

It is important that the engine has reached operating temperature for the following tests, especially checking/adjusting idle speed and adjusting CO level. Intake pipes must not be allowed to heat up excessively, since then testing would produce wrong values and the engine could not be properly adjusted.

Operating temp. means: Engine temp. approx. 90 °C (195 °F)
 Intake air temp. approx. 15 to 35 °C (60 to 95 °F)
 All electric equipment turned off!

Testing Procedures:

USA Cars

Exhaust test in front of catalytic converter (special test probe); plug pulled off of oxygen sensor.

Check/adjust idle speed/CO.

Specifications:
0.6 to 1.0 % at 800 rpm

Accelerate briefly after each adjustment.
Connect oxygen sensor plug.

Connect term. B and C on test socket of control plate.

Check/adjust idle speed.

Specification: 790 – 810 rpm

Adjust idle speed with air control screw of throttle housing.

Accelerate briefly after each adjustment.

Remove bridge on test socket.

Accelerate briefly.

Recheck CO and idle speed.

Plug exhaust gas test connection.

Note: A defective relay with terminals 30 and 87 soldered together could be used to bridge terminals B and C on the test socket instead of the locally made test lead.

Note: Go through test points in given sequence, especially when cause of fault is found to be no start or poor engine running.

Test point 1 is especially important!

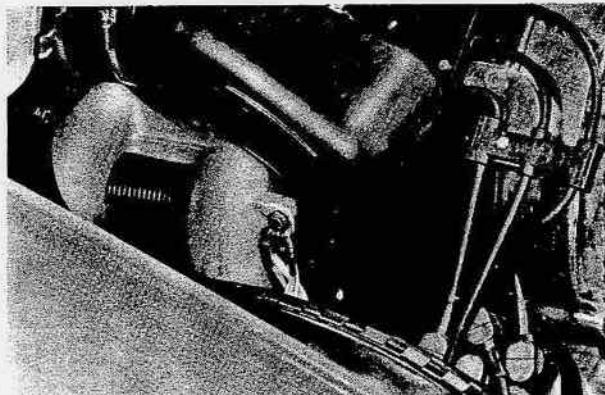
Check whether you are testing with the correct tester (setting) on the correct measuring point in conformance with the specified requirements.

V = voltmeter, Ω = ohmmeter, \equiv = oscilloscope, \otimes = test lamp,
 < = smaller than, > = larger than

CHECKING GROUND AND PLUG CONNECTIONS

A) Ground Points

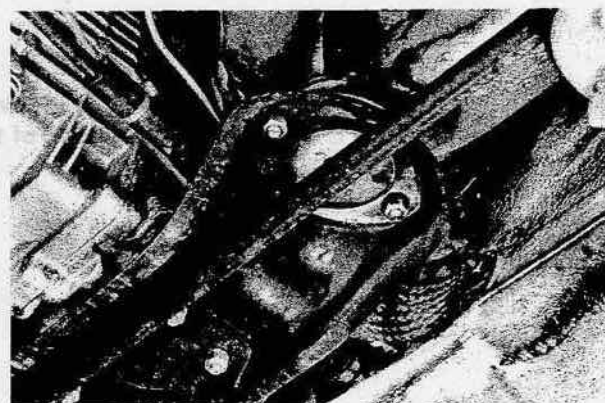
On intake pipe, cyl. no. 1



On fuel filter mount

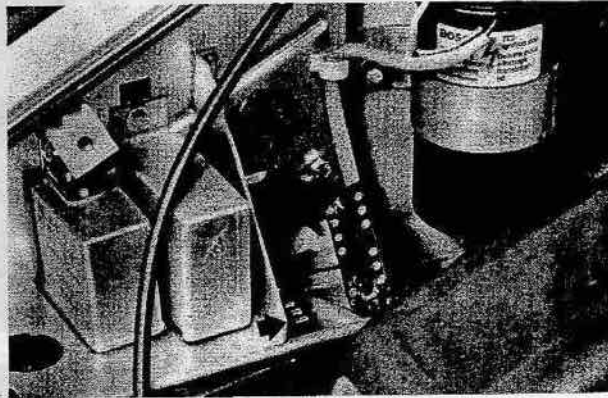


Ground strap between body and transmission/engine

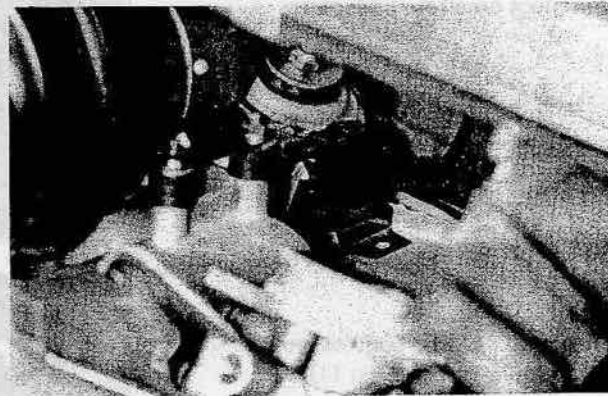


B) Plug Connections

In engine compartment on left side – 14 pin plug on control plate.

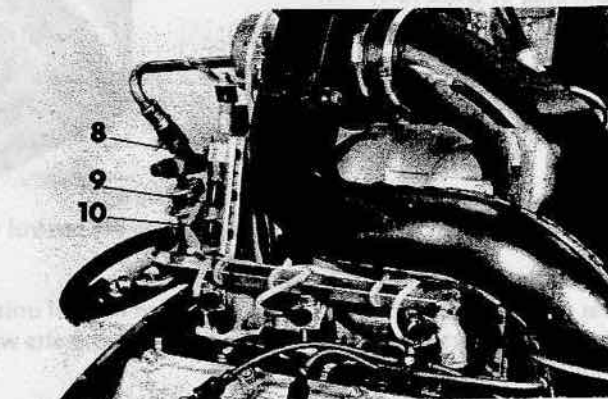


In engine compartment – 6 pin plug for DME on left front cross member.

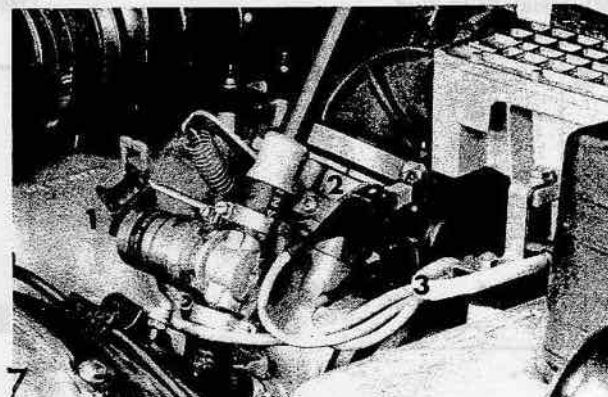


On left side of engine, below heater blower.

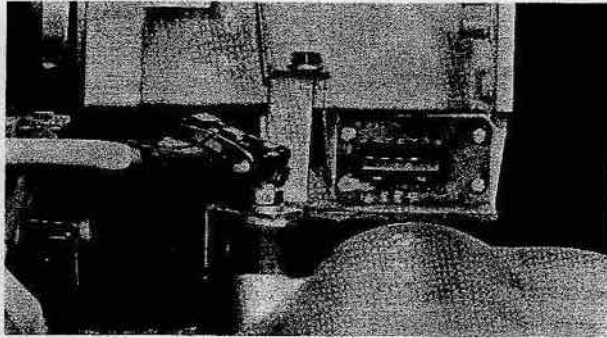
- 8 – Temperature sensor II (engine temperature)
- 9 – Speed sensor
- 10 – Reference mark sensor



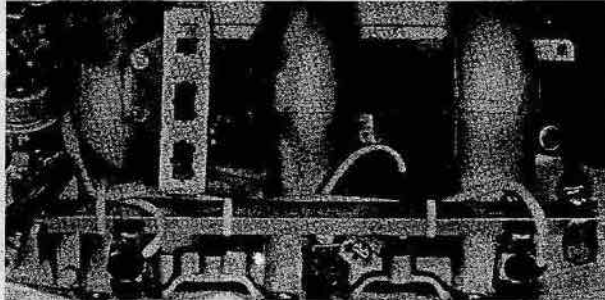
- 3 pin plug on air regulating valve (1)
- 2 pin plug on idle microswitch (2)
- 3 pin plug on throttle switch (3)



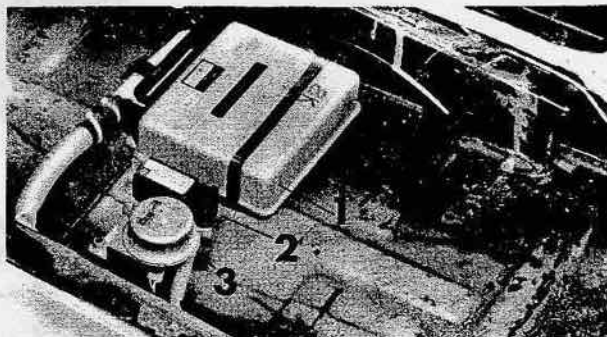
5 pin plug on air flow sensor.



2 pin plugs on all fuel injectors.



35 pin plug of DME control unit underneath left front seat (1).
 6 pin plug of DME relay (2).
 2 pin plug of high altitude switch (3).



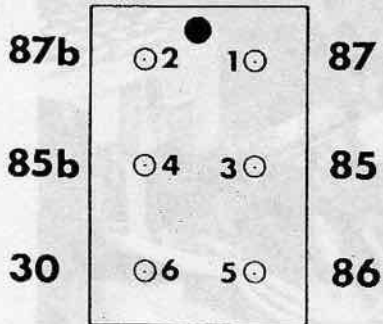
Note: Always turn off ignition before pulling off control unit plug!

Plug on the control unit is locked with a catch.

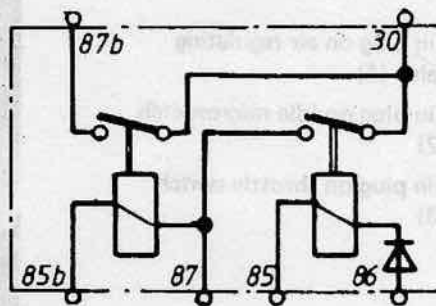
First unlock catch and then swing plug off of control unit.

The control unit plug should only be tested if no faults were found on single plug connections in the engine compartment.

DME Relay Wire Plug

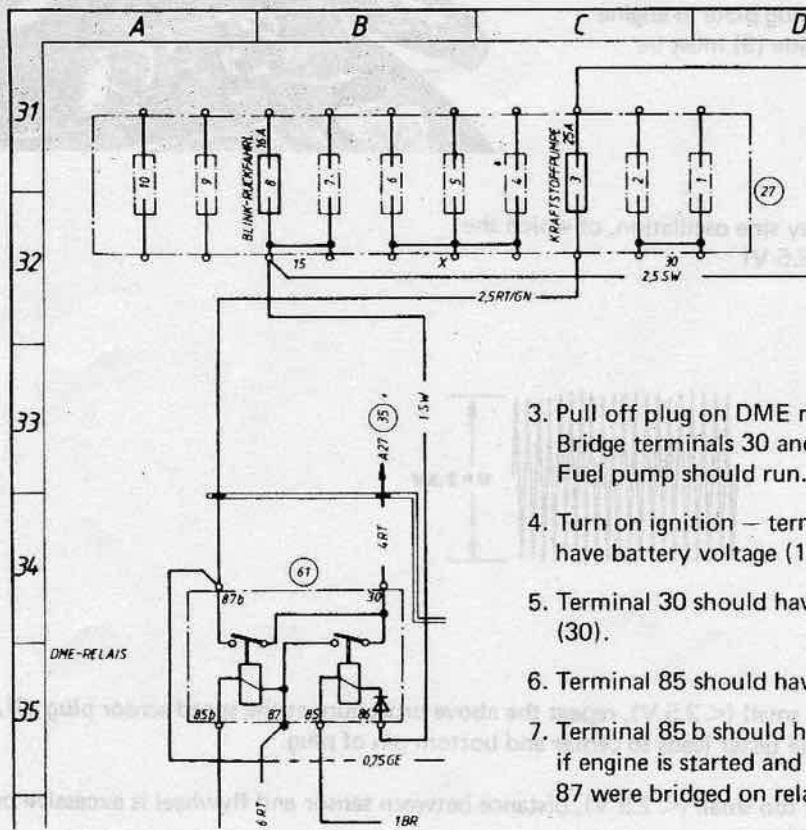
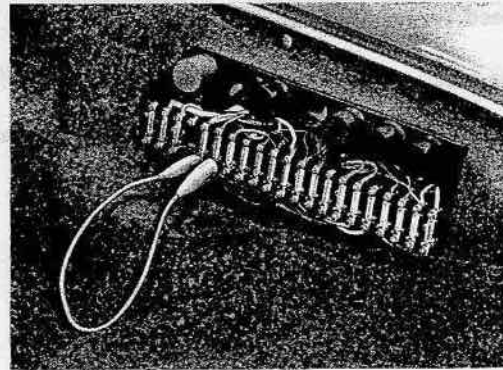


DME Relay Circuit



A) Fuel Pump (⊗)

1. Start engine – fuel pump should run while starting engine. If not, check:
2. Fuse no. 16 (16 amps).
Connect fuses 16 and 17 with a jumper wire.
Fuel pump should run.
If not, fuel pump or its power supply lead is defective.



3. Pull off plug on DME relay.
Bridge terminals 30 and 87 b on plug.
Fuel pump should run.
4. Turn on ignition – terminal 86 should have battery voltage (15).
5. Terminal 30 should have battery voltage (30).
6. Terminal 85 should have ground (31).
7. Terminal 85 b should have ground, if engine is started and terminals 30 and 87 were bridged on relay plug.

B) Control Unit Power Supply (V)

This test may only be made after no fault is found in the fuel pump test and the engine cannot be started.
Pull off plug on control unit. Turn on ignition (DME relay connected). Connect voltmeter on terminals 35 and 5, then terminals 18 and 5.
Display: battery voltage for both tests.
If no display: Pull off DME relay plug and bridge terminals 30 and 87 on plug.
Display: battery voltage.

9
9

Speed Sensor (≡)

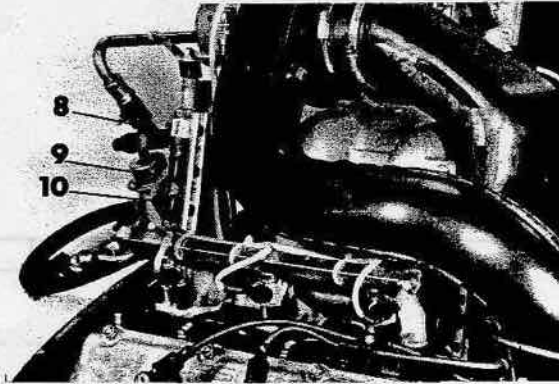
The speed sensor can best be tested with an oscilloscope.

A workshop oscilloscope will be required to have correct displays. Adjust oscilloscope to supplier's instructions.

Disconnect DME control unit plug under driver's seat.

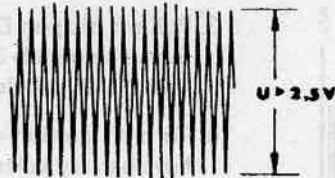
Connect oscilloscope tester leads on plug terminals 8 and 27 using proper test leads.

Speed sensor plug on plug plate in engine compartment on left side (9) must be connected.



Operate starter.

The screen must display sine oscillation, of which the amplitude must be $> 2.5 \text{ V}$!



If voltage signal is too small ($< 2.5 \text{ V}$), repeat the above procedure at the speed sensor plug (9), connecting oscilloscope tester leads to center and bottom pin of plug.

If voltage signal is still too small ($< 2.5 \text{ V}$), distance between sensor and flywheel is excessive or speed sensor is defective.

Distance between flywheel and sensor = $0.8 \pm 0.3 \text{ mm}$.

No display:

Check tester connections on plug.

Check sensor for breaks, spacing and dirt, replacing sensor if necessary.

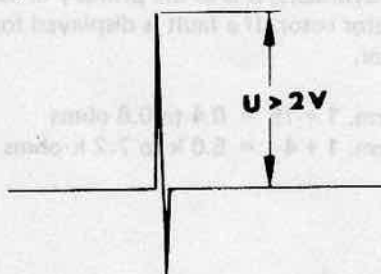
Sensor adjustment: see repair manual.

Reference Mark Sensor (≡)

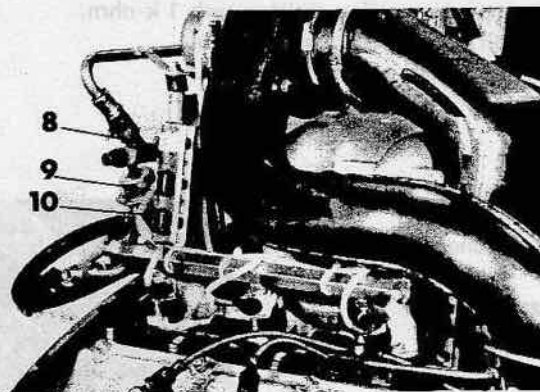
The reference mark sensor can best be tested with an oscilloscope.
Adjust oscilloscope as in test point 3.

Disconnect DME control unit plug under driver's seat.
Connect oscilloscope tester leads on plug terminals 25 and 26 using proper test leads.
Reference mark sensor plug on plug plate in engine compartment on left side (10) must be connected.

Operate starter: A single sine oscillation should appear on the screen.
It is important that the oscillation begins with a **positive** flank and the screen scale shows **> 2 V** with a starter speed of at least 200 rpm.
(Amount of signal amplitude depends on the starter speed.)



If the voltage signal is too small ($< 2 V$), repeat the above procedure at the reference mark sensor plug (10), connecting oscilloscope tester leads to center and bottom pin of plug.
If the voltage signal is still too small ($< 2 V$), the distance between the sensor and reference mark is excessive or the reference mark sensor is defective.



No display:
Check tester connections on plug.
Check sensor for breaks, spacing and dirt, replacing sensor if necessary.
Sensor adjustment – see repair manual.

Ignition System (\equiv/Ω)

a) Secondary Image

Adjust secondary image on oscilloscope. Connect tester leads to supplier's instructions.



Note: If a fault is displayed for all cylinders, it is in the primary or secondary circuit between the ignition coil and distributor rotor. If a fault is displayed for only one cylinder, it is after the distributor rotor.

Primary resistance: term. 1 + 15 = 0.4 to 0.6 ohms
 Secondary resistance: term. 1 + 4 = 5.0 k to 7.2 k-ohms

b) Spark Plug Connectors (Ω)

Suppression resistor: 3 k-ohms
 Visual inspection for damage or burning.

c) Distributor (Ω)

Distributor rotor, distributor cap: suppression resistor each 1 k-ohm.
 Visual inspection for damage, dirt, wrong installed position.
 Check function of rotor advance weight.

d) Ignition Timing Check

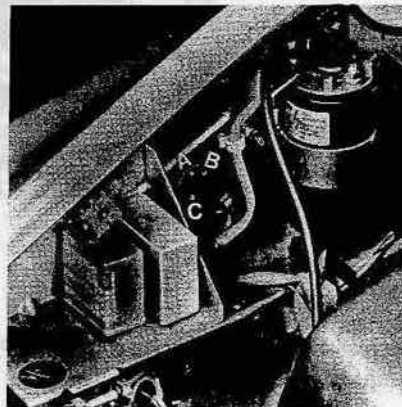
Ignition timing cannot be adjusted.
 The ignition timing can only be checked at idle speed.
 Engine at operating temperature.

Test Value:

Ignition timing at 800 \pm 40 rpm =
 3 \pm 3° after TDC

Control Value: 3800 \pm 100 rpm =
 25 \pm 3° before TDC

with bridged test connections B and C
 (full load contact).



Air Flow Sensor (V/ Ω)**A) Power Supply (V)**

Pull back plug seal of air flow sensor plug (plug remains connected). Connect voltmeter on terminals 3 and ground through back of plug.

Turn on ignition.

Display: 5 ± 0.5 volts

B) Voltage Drop on Sensor Plate Potentiometer (V)

Remove air cleaner. Connect voltmeter on term. 2 and ground.

Display: approx. 260 mV (0.260 V)

Press sensor plate to full load position with a non-metallic rod. Sensor plate must move easily, without hesitation.

Display: sensor plate in full load ~ 4.60 volts.

Turn off ignition. Pull off plug and install plug seal.

C) Intake Air Temperature Sensor I (Ω)

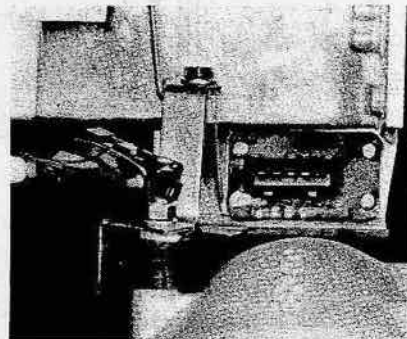
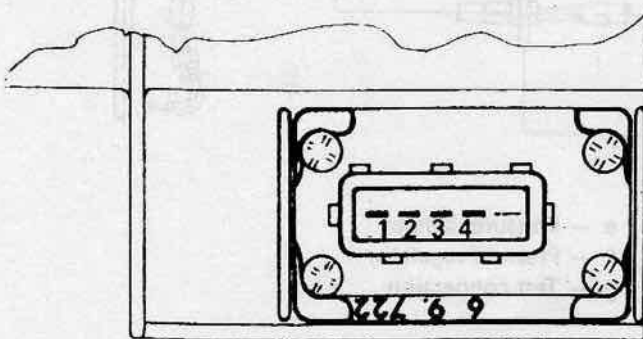
Pull off air flow sensor plug.

Connect ohmmeter on terminals 1 and 4 of air flow sensor (on control unit term. 6 – 22).

Display:	0 °C (32 °F)	= 4.4 to 6.8 k-ohms
	15 to 30 °C (60 to 85 °F)	= 1.4 to 3.6 k-ohms
	40 °C (105 °F)	= 1.0 to 1.3 k-ohms

Note: Temp. sensor with open circuit: richer mixture
Temp. sensor with grounded circuit: leaner mixture

It is important that intake air temperature be 15 to 35 °C (60 to 85 °F) for CO level adjustments.

Air Flow Sensor Plug Connections:

Fuel Pressure (Pressure Tester P 378)

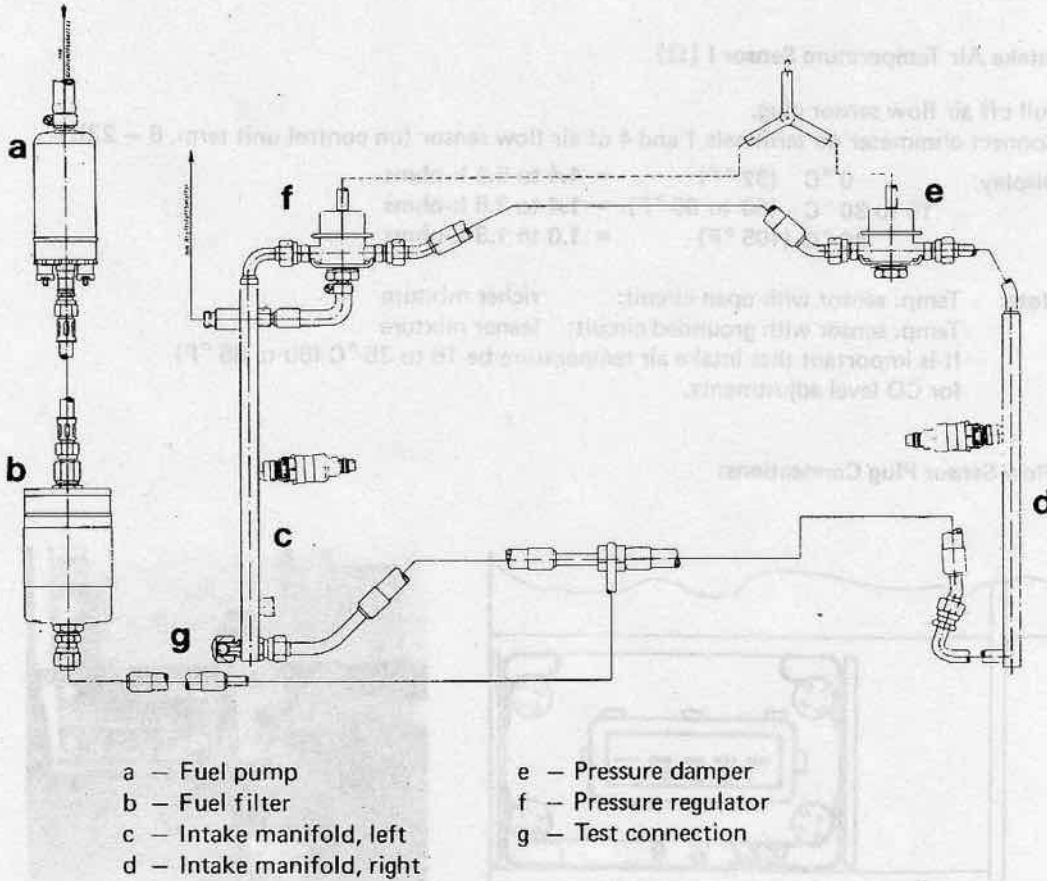
There is a cap nut on end of the cyl. no. 1 injection line.
 Unscrew cap nut, being careful that sealing ball does not fall out!
 Connect pressure tester P 378 on adapter.

Start engine and run at idle speed.
 Test pressure: 2.0 bar

Pull off vacuum hose on fuel pressure regulator.
 Test pressure: 2.3 to 2.7 bar

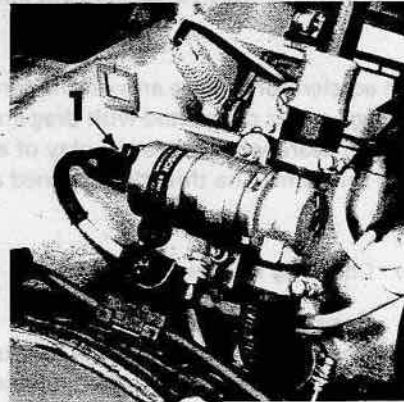
Squeeze return hose of pressure regulator tight slowly with a hose clamp.
 Pressure below 4 bar = check fuel filter/replace fuel pump.

If engine cannot be operated:
 Connect fuses 16 and 17 with a jumper wire — pump must run!
 Specified test pressure value: 2.3 to 2.7 bar



Air Regulating Valve (idle positioner)**Brief Test: Engine Idle Speed 800 rpm**

- A) Screw in throttle bypass screw completely when engine is running at steady idle speed. After brief deviation the idle speed must return to 800 rpm.
- B) Pull off electrical connector on air regulating valve.
Connect center connection of valve with 12 V supply. Connect an outer connection with ground.
Valve must turn against stop.
Exchange outer connections.
Valve must turn to other stop.
- C) Connect a new air regulating valve on the wire plug to check activation of the valve from the control unit.
The air regulating valve must vibrate noticeably (frequency activation) with engine running. If engine speed is boosted with the bypass screw, the air regulating valve must move in closing direction.
The air regulating valve must turn in opening direction when engine speed drops.



Throttle Switch – Idle (Coasting Fuel Shutoff)

A) An accelerator linkage arm on the throttle operates idle microswitch (7). This accelerator linkage arm is connected with drag arm (8) of the throttle shaft. A distinctive switching click will be heard when there is a play of approx. 1 mm travel between the accelerator linkage arm and drag arm. The throttle is opened after overcoming this play:

1. Checking Idle Switch Function

Engine idle speed:

Operate accelerator linkage carefully approx. 1 mm. The microswitch should open without the throttle opening, and there must be a definite increase in idle speed. Speed increase: ~ 500 rpm, ignition timing advanced (display: ~ 12° before TDC).

If nothing happens, check microswitch and its adjustment (see page 28).

2. Checking Activation of Control Unit

Engine idle speed:

Pull off plug on idle switch. Engine speed must increase considerably.

Speed increase: ~ 500 rpm, ignition timing advanced ~ 12° before TDC.

If nothing happens, check wire between idle switch plug and control unit plug for breaks according to wiring diagram. If necessary, replace control unit.

3. Checking Coasting Fuel Shutoff

Engine idle speed:

Bridge disconnected plug of idle switch with a jumper wire.

Accelerate engine to approx. 1300 rpm.

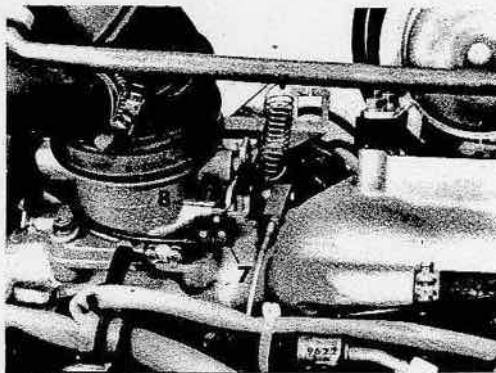
Engine begins to surge – coasting fuel shutoff.

If engine does not surge, check wire between idle switch plug and control unit plug for breaks according to wiring diagram. If necessary, replace control unit.

4. Connecting Ohmmeter on Throttle Switch – Idle

Display: 0 ohms.

Infinite ohms after open approx. 1° (on control unit plug term. 2 and ground).



B) Throttle Switch – Full Load Enrichment**1. Engine Idle Speed**

- a) Pull off plug on idle switch = engine speed boosted to approx. 1300 rpm and ignition timing advanced (display: $\sim 12^\circ$ before TDC).
- b) Pull off plug on throttle switch (full load contact). Bridge connections on plug with a jumper wire. Engine speed should drop by approx. 100 to 200 rpm and ignition timing will be retarded approx. 4 to 8° .

If nothing happens, check wire between throttle switch plug and control unit plug for breaks according to wiring diagram.

2. Connecting Ohmmeter on Throttle Switch – Full Load

Display: infinite ohms (switch open).

Set throttle switch to full load.

Display: 0 to 10 ohms (switch closed).

If not, replace throttle switch.

(On control unit plug term. 3 and ground.)



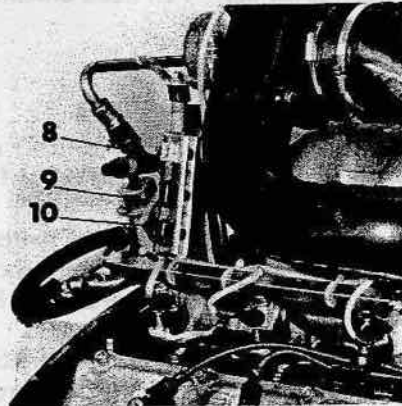
Engine Temperature Sensor II (Ω)

Disconnect plug of temperature sensor II on plug plate in engine compartment on left side (8).

Connect ohmmeter on plug and ground (on control unit plug term. 13 and ground).

Sensor Test Values:

at	0 °C (32 °F)	= 4.4 to 6.8 k-ohms
	15 to 30 °C (60 – 85 °F)	= 1.4 to 3.6 k-ohms
	40 °C (105 °F)	= 1.0 to 1.3 k-ohms
	80 °C (175 °F)	= 250 to 390 ohms
	100 °C (212 °F)	= 160 to 210 ohms
	130 °C (265 °F)	90 ohms



Important! 90 °C (195 °F) oil temperature is equal to a cylinder head (sensor) temperature of approx. 130 °C (265 °F) = ~ 90 ohm resistance.

If values are not reached, check temperature sensor wire for breaks or replace.

Note: Temp. sensor with open circuit – richer mixture.
Temp. sensor with grounded circuit – leaner mixture.



Fuel Injectors – Injection Timing (V/Ω/≡)**Fuel Injectors**

If engine can be operated, pull off injector plugs separately.

If fuel injectors are okay, engine speed must drop each time.

If engine cannot be operated, check:

Pull off injector plugs and turn on ignition.

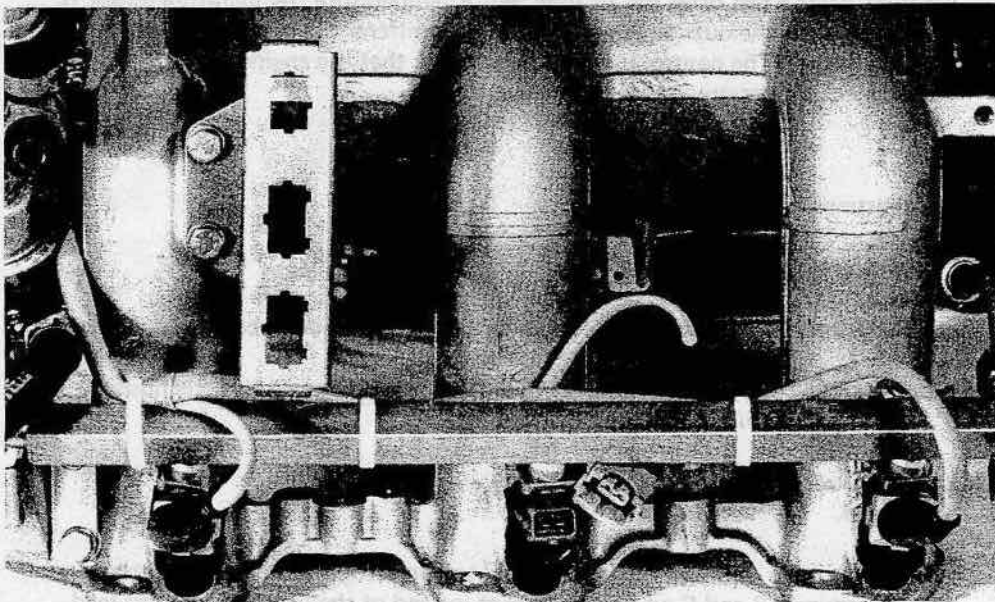
Connect voltmeter on ground and plug contacts.

Display: ~ 10 V

Connect L-Jetronic test lead (Bosch No. 1684 463 093) on plug connection of fuel injectors and an ohmmeter.

Check coil resistance.

Display: 2 to 3 ohms



A) CO Level Adjustment

Engine at operating temperature!

CO level is adjusted on the air flow sensor from the bottom. Use Special Tool 9156.
(See repair manual for removal of plug from adjustment bore.)

Adjusting values: at idle speed of 800 ± 20 rpm, with electric equipment switched off and measured in front of catalytic converter
0.6 to 1.0 % (Oxygen sensor disconnected).

(Install a new plug in bore after CO adjustment.)

Note: For CO level adjustments the engine should be run warm inside of the shop building – engine hood closed.
Make CO level adjustment quickly after engine has reached operating temperature (oil temperature 90°C , 195°F).
Make sure intake air temperature is between 15 and 35°C (60 and 95°F).

Checking CO level after test drive is not necessary.

Reason: After a test drive the air flow sensor temperature (temperature sensor I) will be equal to the outside temperature, i. e. a different temperature as that during the adjustment. The control unit is programmed, that the engine mixture will be leaned via a temperature sensor signal change.

B) Idle Speed Adjustment

Engine at operating temperature!

Bridge terminals B and C with jumper wire at test socket on left side of engine compartment.

Idle speed: Adjust to 800 ± 20 rpm with bypass air control screw on throttle housing, with all electric equipment switched off.

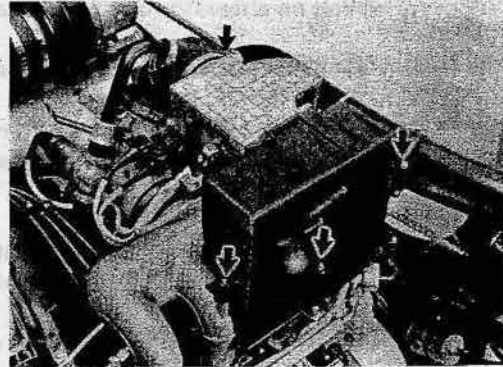
Remove bridge on test socket and accelerate briefly.
Recheck idle speed.

Note: A defective relay with terminals 30 and 87 soldered together could be used to bridge terminals B and C on the test socket instead of the locally made test lead.

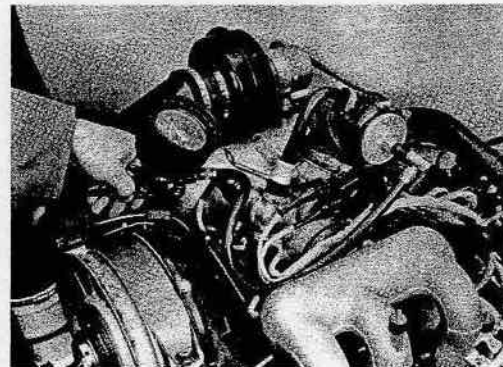
Leaks in Intake System

Check all connections after air flow sensor for tightness and leaks.

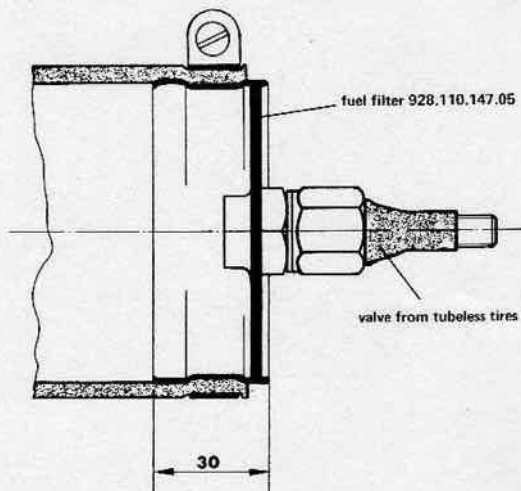
To check the intake air system for leakings take off air filter housing and air flow sensor.



Instead of the air flow sensor install self-made-tool * into the rubber tube. Press in about 0,3 bar air pressure. If there is an air leak you hear the air rush out and the pressure drops very fast.



* self made tool



Checking Function of High Altitude Switch
(for testing below 1000 meters (3,280 ft.) above sea level)

1. Check engine idle speed/CO level.
2. Disconnect plug of high altitude switch (under driver's seat).
This should not change the CO level.
3. Bridge plug connections with a jumper wire.
4. CO level should drop by approx. 1 % (at idle speed).
5. Connect ohmmeter on high altitude switch wire plug. Ohmmeter should display approx. infinite ohms (switch open). From about 1000 meters above sea level (3,280 ft.) the display should be approx. 0 ohms (switch closed).

Alternator, Regulator

Peak voltage of the alternator could cause engine misfiring.

Take off drive belt on alternator. Start engine and let it run briefly, since there will be no engine cooling.

If faults have been eliminated, check alternator and regulator.

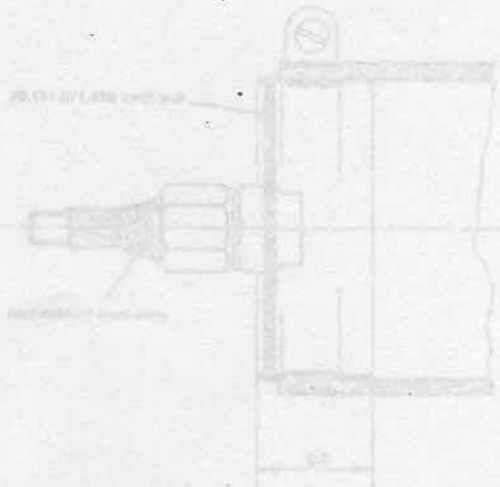
Charging voltage is checked on terminals D+ and 61.

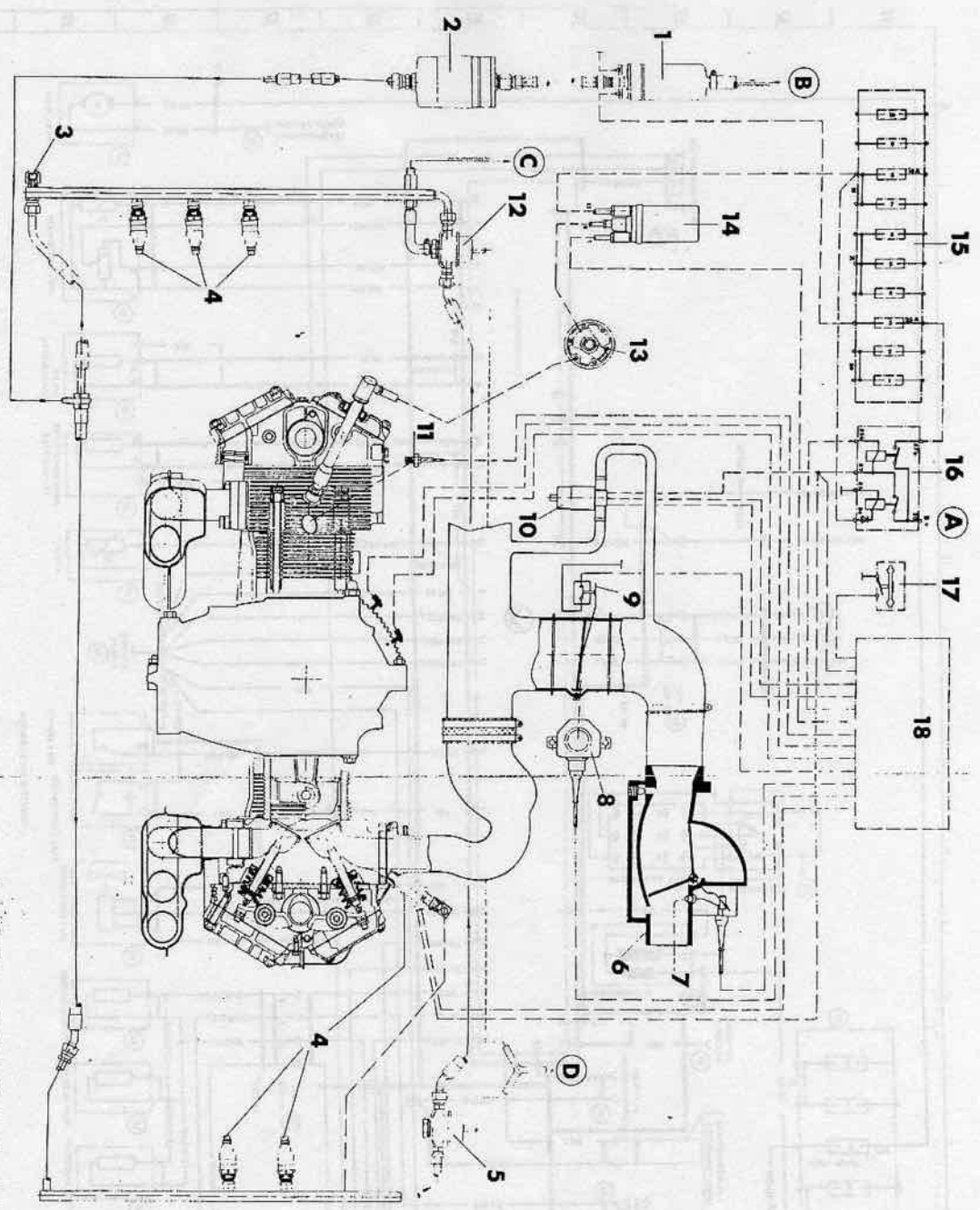
This requires removing the instrument cluster and connecting a voltmeter on the blue wire of the battery charge indicator lamp.

Turn on ignition: display ~ 1.0 to 2.0 volts

Start engine: display ~ 13.2 to 14.2 volts

Battery voltage must not drop when switching on electric equipment.





- 1 - Fuel pump
 - 2 - Fuel filter
 - 3 - Pressure test connection
 - 4 - Fuel injectors
 - 5 - Pressure damper
 - 6 - Air flow sensor
 - 7 - Temperature sensor I
 - 8 - Throttle switch Full throttle contact
 - 9 - Microswitch Idle speed contact
 - 10 - Air Regulating Valve (idle positioner)
 - 11 - Temperature sensor II in cylinder no. 3
 - 12 - Pressure regulator
 - 13 - Distributor
 - 14 - Ignition coil
 - 15 - Fuse box (10 fuses)
 - 16 - DME relay
 - 17 - High Altitude Switch
 - 18 - DME control unit
- A - Battery positive connection
 B - From fuel tank
 C - To fuel tank
 D - To throttle housing

TROUBLESHOOTING AND RESULTS

A) Misadjusted Idle Speed (Basic Air Regulating Valve Setting)

1. Speed $>$ 800 rpm

The jolt from coasting fuel shutoff cutting in becomes stronger the greater the deviation in speed from specified value.

2. Speed $<$ 800 rpm

In extreme cases engine will stop when switching on the air conditioner (insufficient air). Engine could stall when engine drops from high speed range into idle speed range.

B) Maladjusted CO Level

1. CO Level $>$ Specifications (% by Vol.)

Cold engine will begin to surge the greater the CO level deviation (from approx. 2.5 % by volume).

2. CO Level $<$ Specifications (% by Vol.)

Erratic idling is caused by insufficient CO level.
Problems accelerating from a stop (much too lean) in extreme cases.

C) Cylinder Head Temperature Sensor II

Temperature sensor II is very important for engine warm-up. Cylinder no. 3 is used for reference to the engine temperature state. With increasing resistance (cold) there is an increase in mixture richness.

1. Specified Resistance Value (Ω)

Engine $\approx 20^\circ\text{C}$ (room temperature) = 2.2 to 2.8 k-ohms
Engine at operating temperature (oil temp. $\approx 90^\circ\text{C}$) = ~ 90 ohms

(The cylinder head temperature is considerably higher than the oil temperature.)

Measure resistance on plug in engine compartment with engine stopped, or at DME control unit plug terminal 13 and ground.

2. Defect on Temperature Sensor II

The engine will stall quickly in overenriched state if plug falls off (is disconnected) or wire has a break, since the resistance = infinite ohms (equal to -30°C outside temperature) would be excessive.

If the plug is bridged, the engine will run again. However, cold start behavior will not be correct with a bridged plug.

3. Grounded sensor —

e. g. wire insulation rubbed off (resistance = 0 ohms).
The engine will not have rich mixtures = cold start and warm-up problems.

D) Speed and Reference Mark Sensors

Distance between speed sensor and flywheel teeth = 0.8 ± 0.3 mm.

1. Sensor Misadjustment

For example, approx. 2 mm distance for cold engine = longer starting time, increasing number of starts, perhaps starting not possible at freezing outside temperatures, engine runs normally during warm-up.

Sensor distance increases as engine temperature rises. Ignition starts to miss because of interconnection between reference mark sensor signals and speed sensor signals.

At operating temperature, engine could idle higher than normal.

For example, 3 mm sensor distance on cold engine = strong misfiring and poor acceleration from stop (engine stalls spontaneously).

E) Fuel Return Line

If the return line is bent (e. g. spiral guide not installed or broken), fuel pressure will rise and engine runs with an excessively rich mixture or stops due to overrichness.

Indications: CO level cannot be adjusted to specifications (with correct intake air and engine temp.).

Car surges when engine is cold.

Car hesitates.

Remedy: Check fuel pressure.

TROUBLESHOOTING AND RESULTS

F) Hot Start Problems

Perform leak test using pressure tester P 378.

Fuel pressure must not drop by more than max. 0.5 bar in 30 minutes when engine is warm.

1. Causes for Poor Hot Starts.
2. Pressure regulator leaks (→) – clamp return line to troubleshoot.
3. Check valve of fuel pump defective (→) – clamp pressure line to troubleshoot.
4. Fuel injectors leak (→) – check by clamping pressure and return lines.

G) Accelerator Linkage Adjustment

1. Transmission Reversing Lever

Play of long accelerator linkage on the transmission reversing lever must be at least 1 to 2 mm, since otherwise idle switch might not always close depending upon adjustment. Press lower lever slightly toward rear of car (see page 28).

H) Idle Switch

Defective switch (open circuit) will cause excessively high idle speed (approx. 1200 rpm) and advanced ignition timing ($\sim 12^\circ$ before TDC).

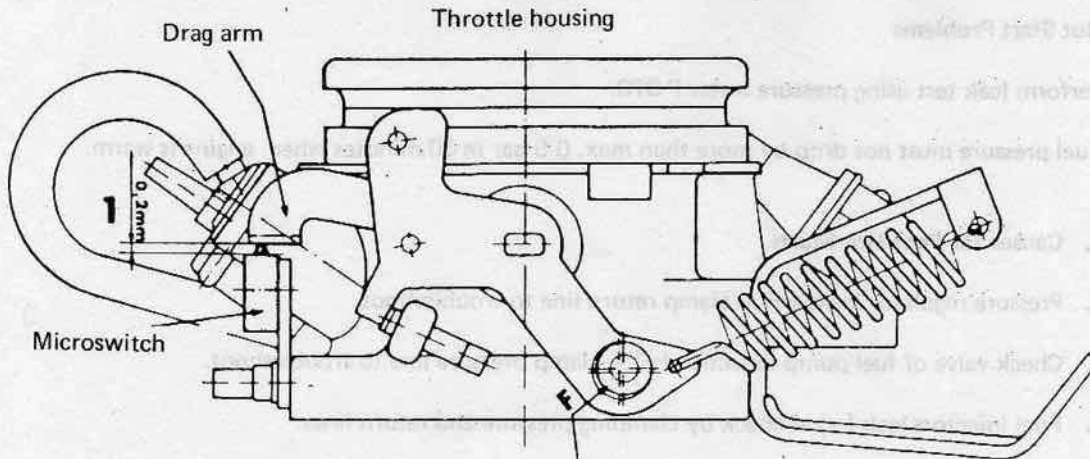
Also possible:

- a) Set engine speed > 5000 rpm, then let car coast until below 4000 rpm, then accelerate = delayed pickup (lack of power).
- b) Slow acceleration on cold engine with approx. 1° throttle gap, engine surges (coasting fuel shutoff).

I) Spark Plug Wear Limit

The wear limit worldwide for Carrera is a 1.3 mm electrode gap. (Electrode gap for new spark plug = 0.7 mm.)

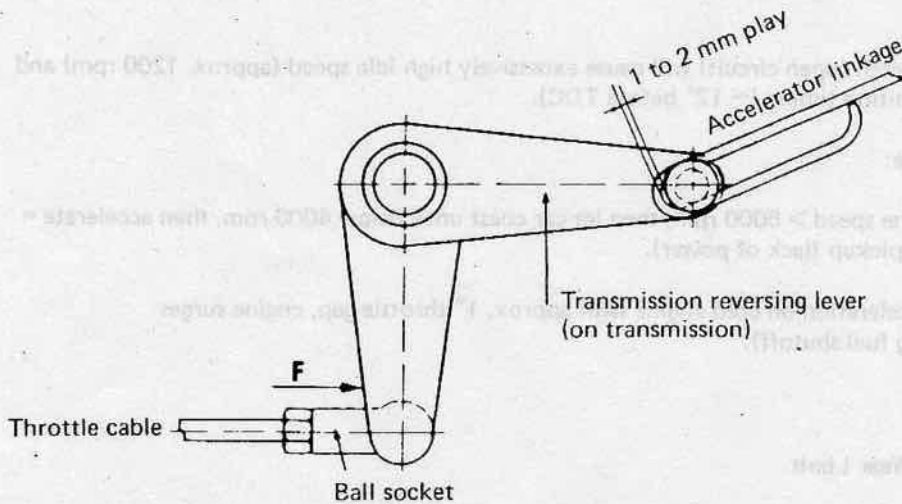
IDLE CONTACT ADJUSTMENT – 911 Carrera



Press drag arm in this direction and then adjust distance between drag arm and microswitch to 0.2 mm with a feeler gauge blade.

- 1 Distance of 0.2 mm is required to prevent drag arm from damaging the microswitch when decelerating quickly (impact).

Throttle housing is designed in such a manner that the microswitch will always switch before the throttle opens. No special adjustment is necessary.



Press bottom of reversing lever in direction of rear end of car (\vec{F} = light thumb pressure), so that play is removed from the throttle cable.

Then adjust play between accelerator linkage and reversing lever to approx. 1 – 2 mm on the ball socket accordingly.

28

Control unit plug connection

DME relay 87

Ground

Ground

Injection time signal

Injection time signal

Temperature sensor II

Test connector A

Tachometer/Up shift indic.

Bridge to ground (Californien)

Air flow meter 9 (3)

Speed sensor

Air flow meter 7 (2)

Air flow meter 6 (4)

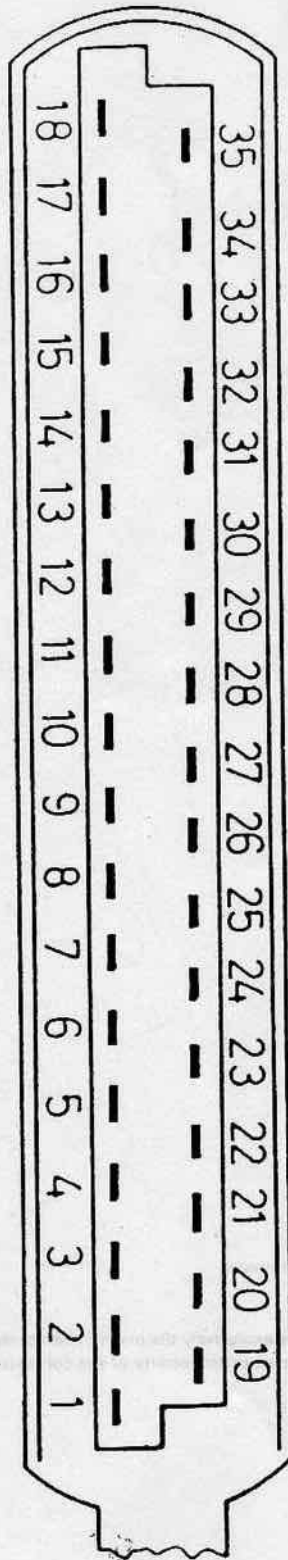
Ground

Starter 50

Full throttle switch 3

Idle speed switch 2

Ignition coil 1



DME relay 87

Idle positioner 3

Idle positioner 5

Air condition on/off

High altitude switch

Speed sensor

Reference mark sensor

Reference mark sensor

Oxygen sensor

Shield-oxygen sensor wire

Air flow meter 22 (1)

Tachometer/Up shift indic.

DME relay 85 b

Ground

Control unit plug connection

DME relay E7

DME relay E7

Idle position 3

Ground

Idle position B

Ground

Injection time signal

Injection time signal

Temperature sensor II

Test connector A

Air condition control

Temperature/Up fuel valve

High stroke switch

Bridge to ground (Cylinder head)

Speed sensor

Air flow meter B (1)

Reference mark sensor

Close sensor

Dr.-Ing. h. c. F. Porsche
Aktiengesellschaft

Air flow meter T (2)

Postfach 40 06 40
D-7000 Stuttgart 40

Air flow meter B (2)

Service Division
Technical Service Department
Edited by Service Training School

Ground

Ground 50

Print: Beck & Co. Nachfolger, D - 7254 Hemmingen
11/1984

Full stroke switch 2

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Ignition coil 1

