OPERATING INSTRUCTIONS

for

VW 1218

ELECTRONIC

FUEL INJECTION

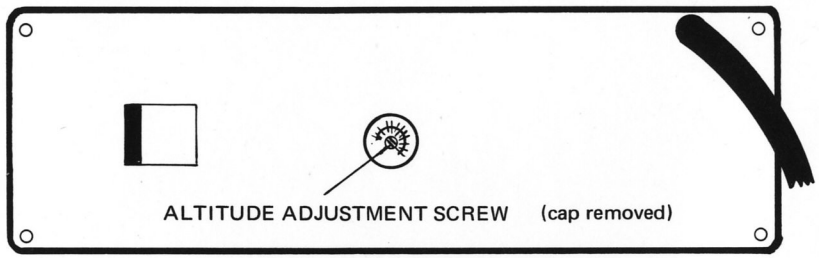
SYSTEM TESTER

CALIBRATION

Before using the tester, adjust it first to the local altitude above sea level. Your local Chamber of Commerce, airport, etc. will tell you what it is. To calibrate:

1) Remove plastic cap from back of tester.
2) You will see a scale and a screw head. Set the red side of the slot (marked with a red paint dot) to the local altitude. The scale is expressed in feet (ft) and meters (m). The figures on the foot scale must be multiplied by 1000 and those on the meter scale by 100.

Rear Panel



CONNECTING VW 1218 TO VEHICLE

1) Remove cable from terminal # 1 of the ignition coil to prevent starting of the engine.
2) Ignition switch "off."
3) Remove control unit.
4) Insert tester plug into control unit.
5) Insert multiple plug into tester plug.
6) Set tester type switch to type and year of vehicle being tested.
7) Set test selector switch to position # 1.
8) Switch on ignition and proceed with test sequence as indicated on the following pages.

Note: Test should preferably be performed at room temperature, but may also be performed anywhere between + 10°F and + 120°F.

If indicator light shows "not in order," correct defect before proceeding. After the defect has been corrected, the complete test (positions 1 - 16) must be repeated.

Warning: Under no circumstances may the engine be started while the VW 1218 tester is connected. This is to prevent permanent damage to the unit.

The VW 1218 tester only checks the electronic fuel injection system. Connected to the vehicle, the complete system can be checked except:

- Fuel pressure
- Auxiliary air valve
- Cold starting device

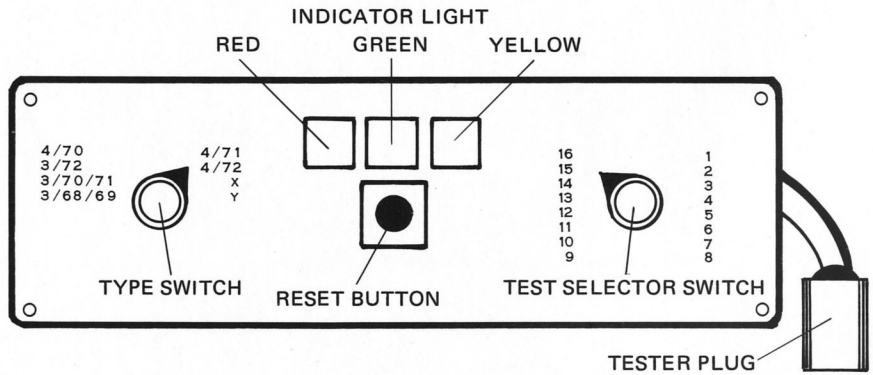
The VW 1218 checks all parts of the fuel injection against built-in specifications. It automatically shows by colored lights whether anything is wrong with the system.

Before you use the VW 1218 make sure that all basic engine adjustments are in order (valves, ignition timing, dwell angle, etc.).

With the VW 1218 tester the following vehicles may be checked:

Porsche Model 914	1970 through 1972
Volkswagen Type 3	1968 through 1972
Type 4	1970 through 1972

Front Panel



CONTROL PANEL OF THE VW 1218

Type switch: Turn switch to type and model year of the car you want to test.

Note:
Forget position X and Y on the type switch. They are marked for future use.

Reset button: When depressing the reset button, the test result is cancelled. After releasing the button, the test is repeated. In certain test positions, the reset button has to be kept depressed, allowing for additional checks. We explain all details further in the text.

Test selector switch: To select test positions 1 to 16.

Indicator lights: The red, green, and yellow lights show you the test results. For each test position, a certain light combination will light up. In the test procedure we will tell you what each light means.

TEST SELECTOR SWITCH IN POSITION # 1

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Current supply on terminal # 16	–	Green	No light	Plug loose in control unit or current relay defective	Secure plug in control unit. Check relay & connections (loose or corroded). Replace relay if necessary. Note: If vehicle does not start, check voltage on terminal # 24 with test light or similar. If no voltage, check cable & connections from # 24 to terminal # 87 on voltage supply relay.
Battery voltage (no-load test)	–	Green	Red	Voltage too low	Check for loose or corroded battery cable terminals, charge or replace battery.
Injectors with plug & cables	–	Green	Red & Green	Open circuit or poor connections	To exactly locate defect, turn selector switch to position # 3. The injectors are now activated and a non-operating injector can be felt. Repeat test in position # 1. Make sure plug of non-operating injector is secure. Check ground. If red & green lights are still on, bridge terminals in plug. Red & green still on, repair open circuit in cable . . . green light on: replace injector.

TEST SELECTOR SWITCH IN POSITION # 2

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Temperature sensor I with plug & cables (intake air distributor) open circuit only	–	Green	Red Steady	Open circuit or poor connections	Check plug connection. If light remains red, bridge terminals in plug. If light is still red, repair open circuit in cable. If you get a green light while bridging, replace sensor.
Temperature sensor II with plug & cables (cylinder head) open circuit only	–	Green	Red Blinking	Open circuit or poor connections	Check plug connection. If light continues to blink red, disconnect sensor wire and ground. If red blinking continues, repair open circuit in cable. If you get a green light while grounding, replace temperature sensor.
Temperature sensor I & II (characteristic curve) Note: Test may only be performed at cylinder head temperature below 110° F	Keep reset button depressed	Green	Yellow Steady	Sensor I defective	Replace sensor I.
			Yellow Blinking	Sensor II defective	Replace sensor II.

TEST SELECTOR SWITCH IN POSITION # 3

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Control unit & injectors with cables	–	Green	Red	Defect in control unit, short circuit in injector or short in injector cable harness	Establish which injector is not working (can be felt). Remove plug from defective injector, press reset button and release: Green light: replace injector Red light: replace control unit Red light stays on, eliminate short circuit in cable.

TEST SELECTOR SWITCH IN POSITION # 4 - 11

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Control unit*	–	Green	Red	Control unit defective	Replace control unit.

Note: Tests in position 5 & 6 should also be performed with the reset button depressed.
Green: in order. Red: not in order.

*In positions # 4 - 11 the following functions of the control unit are checked:

Position # 4 – Engine speed correction, pump control
5 – Basic compensation rich
6 – Basic compensation lean
7 – Engine speed correction, full load enrichment
8 – Acceleration/full load enrichment
9 – Start & warm-up enrichment
10 – Pump control
11 – Pump control

TEST SELECTOR SWITCH IN POSITION # 12 + 13*

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Pressure sensor with plug & cables	–	Green	Red	Defective pressure sensor or cable with plug	Check pressure sensor including connections. Eliminate fault at plug or cable. Check for water, dirt and oil in pressure sensor. Replace sensor if necessary.
Pressure sensor (Emission control)	Keep reset button depressed	Green	Red	See: repair instructions	Red light: repeat test with new pressure sensor. If light is green, the old pressure sensor is defective. If light still shows red, you may have extreme atmospheric conditions (e.g., very high or low atmospheric pressure). Note: Make sure tester is calibrated to local altitude.

*Note: Position # 13 is a precision test of the pressure sensor with regards to emission control.

TEST SELECTOR SWITCH IN POSITION # 14

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Cable from starter terminal # 50 to control unit (wire # 18)	–	Yellow	Yellow & Red	Open circuit	Check cable & connections (possible that cable on starter is loose). Look for disconnected cold starting device or modified wiring harness.
Distributor trigger contacts with plug & cable	Yellow: Crank engine 5 - 10 seconds. See note below*	Green after cranking	Yellow after cranking	Trigger contacts defective, or cable & plug open circuit	If test result after cranking is green, it is of no importance what lights were on while cranking. However, if test result after cranking is yellow it is important to know the light combination during cranking: If while cranking, the lights are yellow & red, the trigger contacts or cable with plug are defective. If while cranking, the light is yellow only, there is a short circuit in cable # 18 from terminal # 50 to the control unit. If test result is still yellow, perform battery load test, since battery voltage might drop too much while cranking.

*Note: After cranking do not turn off ignition or test is invalid. (Readings are cancelled.)
Since test is performed at cranking speed bouncing of the trigger contacts at high speed cannot be detected with the VW 1218.

TEST SELECTOR SWITCH IN POSITION # 15

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Pressure switch All 1968 & 1969 vehicles only	–	Green	Yellow	Open circuit, poor connections or defective pressure switch.	Check pressure switch, connections & cables. Replace pressure switch if necessary. Look for modified wiring harness.
Throttle valve switch contact strips All vehicles from 1970 & later	Yellow: Open throttle valve completely (Yellow light must come on when switch is turned to position # 15)	Changes from yellow to green	Yellow does not change to green	Open circuit or defective contact strips	Check throttle valve switch, cables and switch adjustment. Replace or adjust throttle valve switch as necessary. Note: The counting of the contacts is done by the tester. The test result is displayed by one change from yellow to green when in order. (Only the first 5 contacts are checked.)

TEST SELECTOR SWITCH IN POSITION # 16

TO CHECK	MANUAL OPERATION	IN ORDER	NOT IN ORDER	DIAGNOSIS	REPAIR INSTRUCTIONS
Throttle valve switch fuel cut-off All VW Type 3 & 4 and Porsche 914 vehicles	*Green: Open throttle valve wide Note: On VW Type 4 automatic, pull dashpot rod back	Changes from green to yellow	Green does not change to yellow	Open circuit, short circuit, improperly adjusted or defective throttle valve switch	Check throttle valve switch, switch adjustment and cables. Adjust or replace switch as necessary.
Throttle valve switch full load contact only for VW Type 3 vehicles from 1972 model year. See note below **	As above	Changes from green to yellow to green	Does not change from green to yellow to green	As above	As above
Fuel pump relay & fuel pump	*Green: Keep reset button depressed	Green	Yellow	Open circuit in pump relay or defective relay	Check fuel pump relay, cables, plug and connections. If pump does not operate (accoustical check) check pump.

*Green light must come on when switch is turned to position # 16

**Note: 1972 Type 3 vehicles manufactured for sale in California are equipped with an exhaust gas recirculation valve. It is located in the front right hand side of the engine compartment. Its function is checked as follows:

1. Engine temperature above 65 degrees F
2. Throttle valve switch in order (test # 15)
3. When the throttle valve switch is opened, the exhaust gas recirculation valve must click twice.

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