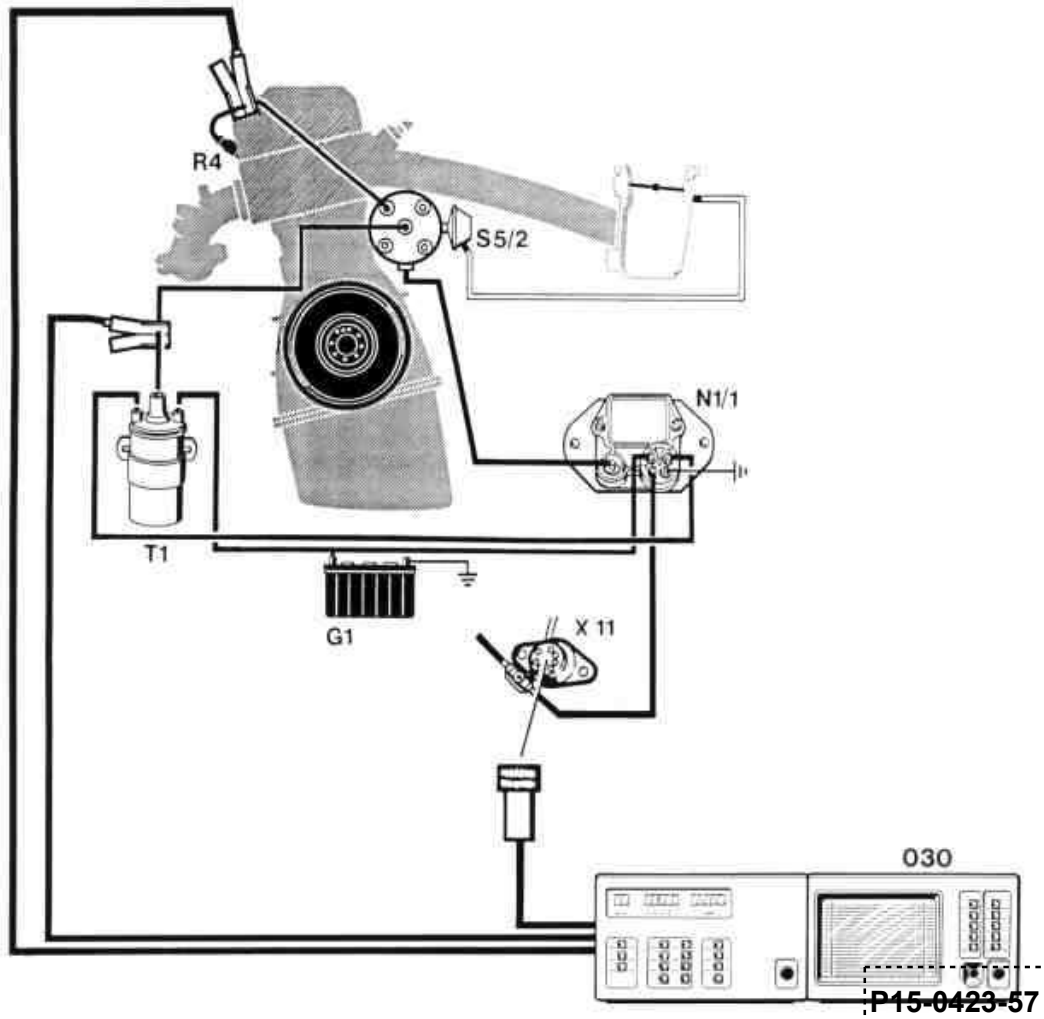
15-515 Testing ignition point

Preceding work:

Operation No. of operation texts and work units or standard texts and flat rates:

A. Vehicles with TSZ ignition system



G1	Battery	T1	Ignition coil
N1/1	Transistorized ignition (TSZ) control unit	X11	Diagnosis socket/terminal block terminal TD
R4	Spark plugs	030	Engine tester with oscilloscope
S5/2	Breakerless distributor		

Engine tester with oscilloscope (030) ..... connect to diagnosis socket (X11).

Safety precautions ..... observe (15-505). Selector lever in position P or N. Apply parking brake.

Ignition point ..... test at specified engine speed with or without vacuum (see table).

Ignition point ..... set by turning distributor. Then re-test.

Flywheel vacuum advance ..... test at specified engine speeds (see table).

Commercially available testers

Engine tester (engine speed, dwell angle, ignition angle, oscilloscope, voltmeter	e. g. Bosch, MOT 002.02 Sun, 1019

Ignition point (TSZ) basic version

Engine	Type of fuel[3])	Distributor Bosch No.	Test and setting data [1]) of ignition point in °CS BTDC ± 1 without/with vacuum		Ignition point advance in °CS before TDC without vacuum			Vacuum advance of ignition point in °CS BTDC at	Installed value of ignition point in °CS BTDC at starting speed without vacuum
			4500/ min	Idling	Idling	1500/ min	3000/ min	4500/ min	
102.961	leaded	0 237 002 084 0 237 002 059	32 without	-	13 ± 3[4])	14-18	24-28	8-12	13
	unleaded		27 without	-	8 ± 3[4])	11-16	21-25	8-12	8
102.962 102.963	leaded	0 237 002 103	32 without	-	15 ± 3	16-21	26-30	8-12	15
	unleaded		27 without		10 ± 3	11-16	21-25		8
102.982 102.985	leaded	0 237 002 105	32 without	-	15 ± 3	18-22	26-30	8-12	15
	unleaded		27 without		10 ± 3	13-19	21-25		8
102.962 NV KAT	unleaded	0 237 002 103	-	15 with	-	17-21	28-32[2])	8-12 [2])	15
102.962 NV RÜF	leaded and unleaded								

See next page for footnotes.

Ignition point (TSZ) basic version

Engine	Type of fuel [3])	Distributor Bosch No.	Test and setting data [1]) of ignition point in °CS BTDC ± 1 without/with vacuum		Ignition point advance in °CS before TDC without vacuum			Vacuum advance of ignition point in °CS BTDC at	Set value of ignition point in °CS BTDC at starting speed without vacuum
			4500/ min	Idlling	Idling	1500/ min	3500/ min	3500/ min	
(AUS) 102.961 as of 1983	-	0 237 002 084	-	10 with	-	10-16	23-29	8-12	10
	unleaded								
(CH) (S) 102.961 as of 1983 102.962 1986	leaded	0 237 002 084	-	13 with	-	14-18	28-32	8-12	13
	unleaded			8 with		9-13	23-27	8-12	8
(J) 102.961 as of 1983	unleaded	0 237 002 098	-	8 with		13-17	25-29	14-18	8
(USA) 102.961 1984	unleaded	0 237 002 094	-	5 with	-	5-11	19-25	24-28	5
102.961 102.985 as of 1983		0 237 002 098				10-14	22-26	14-18	5

1) If normal-compression engines are operated with fuel of less than 98 RON (min. 88 MON) or low-compression engines with less than 92 RON (min. 82 MON), the ignition point should be retarded and adapted to the octane number of the fuel used. A reference value for this adjustment is: retard ignition point by 1-2 ° CS per 1 RON. The maximum retardation must not exceed 6° CS.
The ignition correction should be entered by hand on the "engine setting data" information plate.
This results in reduced performance and increased fuel consumption. In addition, the engine must not be operated at full load. The full ignition advance should be re-set as soon as fuel of the specified octane number is again available.

2) Test at 3500/min.

3) Vehicles with catalytic converter must be operated with unleaded fuel.

4) This value must be identical with and without vacuum when engine at normal operating temperature; check ignition advance in warming-up phase if necessary (15-543).

B. Vehicles with EZL ignition system