Closing angle (dwell angle) (transistorized ignition system)

Identification: blue ignition coil, two series resistances and transistorized switchgear.

Engine	Closing angle (dwell angle) testing and **adjusting value** at idle[1])	Change between idle and 3000/min
116, 117	30—34°	max ± 3°

[1]) When installing new or adjusting used breaker points, adjust closing angle (dwell angle) according to bold-face value ± 1°.

A. Standard version

Firing point (for normal and low compression engines)

Engine	Ignition distributor Bosch order no.	**Adjusting value**[1]) of firing point **without** vacuum at 3000/min	**Test values** ignition adjustment **with/without** vacuum			Vacuum adjustment after		**Installation value** of ignition distributor at starting speed **without** vacuum
			idle[2])	1500/min	3000/min	„retard" at idle	„advance" at 3000/min	
116	0 231 302 001 0 231 401 001 0 231 402 001 0 231 402 004 0 231 402 006	**34°**[3])	TDC±2°	16—20°	34°	8—12°		10° before TDC
			with vacuum					
	0 231 403 001 0 231 403 005 0 231 403 009	**30°**[4])	TDC±2° with	15—19° without	30° without		8—12°	
117	0 231 403 003 0 231 403 004 0 231 403 008	**30°**[4])						

[1]) If normally compressed engines are operated with fuel under 98 RON (min 88 MON), adjust firing point in direction of „retard" and match to octane rating of fuel used. A reference value for this adjustment is: set firing point back by 1—2° crank angle per 1 RON. Max setback should not exceed 6° crank angle.
Attention!
Taking firing point back is considered an **„emergency measure"**. Reduced input and increased fuel consuption will result. In addition, the engine cannot be fully loaded. **As soon as fuel with specified octane number is available, set again to full advance.**

[2]) Switch off air conditioner.

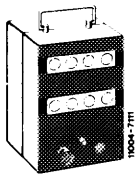
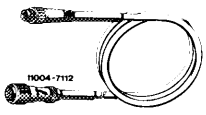
[3]) On engines with retard adjustment, check specified idle speed with vacuum after adjusting firing point.

[4]) Pull-off both vacuum lines for ignition adjustment when setting firing point. After setting firing point, test specified firing point at idle with vacuum.

B. National version (J) (USA)

Engine	Ignition distributor Bosch order no.	**Adjusting** value of firing point **with** vacuum at idle	**Test values** ignition adjustment **with** vacuum 1500/min	3000/min	Vacuum adjustment after „retard" at idle	„advance" at 3000/min	**Installation value** of ignition distributor at starting speed **without** vacuum
(J) Identification: Information plate with yellow printing on cylinder head cover. **Up to introduction of model year 1976**							
116	0 231 403 001 0 231 403 005	**TDC**	16–20°	28–32°	8–12°	8–12°	10° before TDC
117	0 231 403 003 0 231 403 004						
(USA) Identification: green/black information plate in English on cross member in front of radiator.							
Model year 1970/71							
116	0 231 302 002 0 231 401 002	6° after TDC	TDC±1°	30–38°	12–18°	–	10° before TDC
Model year 1972							
117	0 231 401 003 0 231 402 002	5° after TDC	11–15°	18–22°	10–14°	–	7° before TDC
Model year 1973							
117	0 231 402 007 0 231 402 002 0 231 402 005	5° after TDC	10–14°	18–22°	10–14°	–	7° before TDC
Model year 1974							
117	0 231 403 006 0 231 403 007	5° after TDC	10–14°	18–22°	10–14°	–	7° before TDC
Model year 1975							
117	0 231 404 002	TDC	10–16° **without** vacuum	18–23°	6–10°	8–12°	8° before TDC

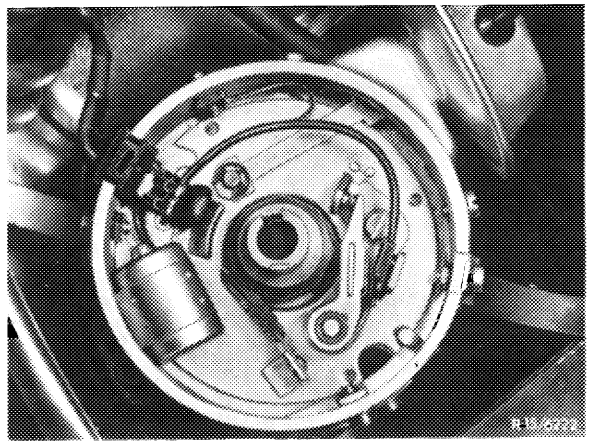
Special tools

Digital tester		001 589 54 21 00
Connecting cable		000 589 04 90 00

Conventional tools

CO measuring instrument, revolution counter, stroboscope, oscilloscope

Checking and adjusting closing angle (dwell angle)



1 Measure closing angle at idle.

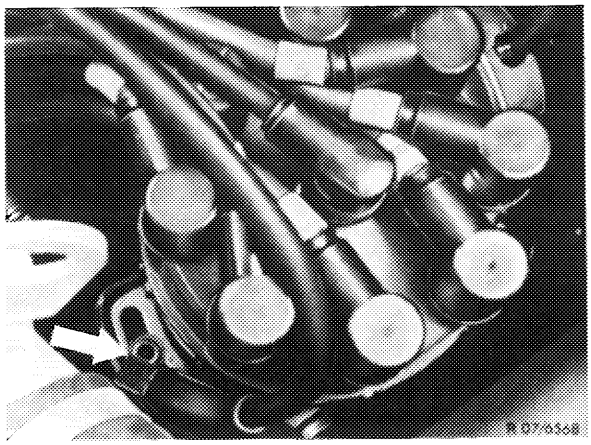
2 Measure closing angle change between idle and 3000/min, max change ± 3°.

3 Adjust closing angle, if required, or renew breaker points (07.5–505).

Closing angle can be adjusted for used contacts.

Large closing angle – small contact gap.
Small closing angle – large contact gap.

Checking and adjusting firing point



4 Measure firing point with stroboscope or digital tester at specified speed with or without vacuum.

5 Loosen ignition distributor attachment (arrow) and set adjusting value of firing point by turning ignition distributor.

Clockwise = retard
Counterclockwise = advance

Screw down ignition distributor and check firing point.

6 Check centrifugal and vacuum adjustment of ignition distributor. For this purpose, run through specified test values with or without vacuum adjustment.