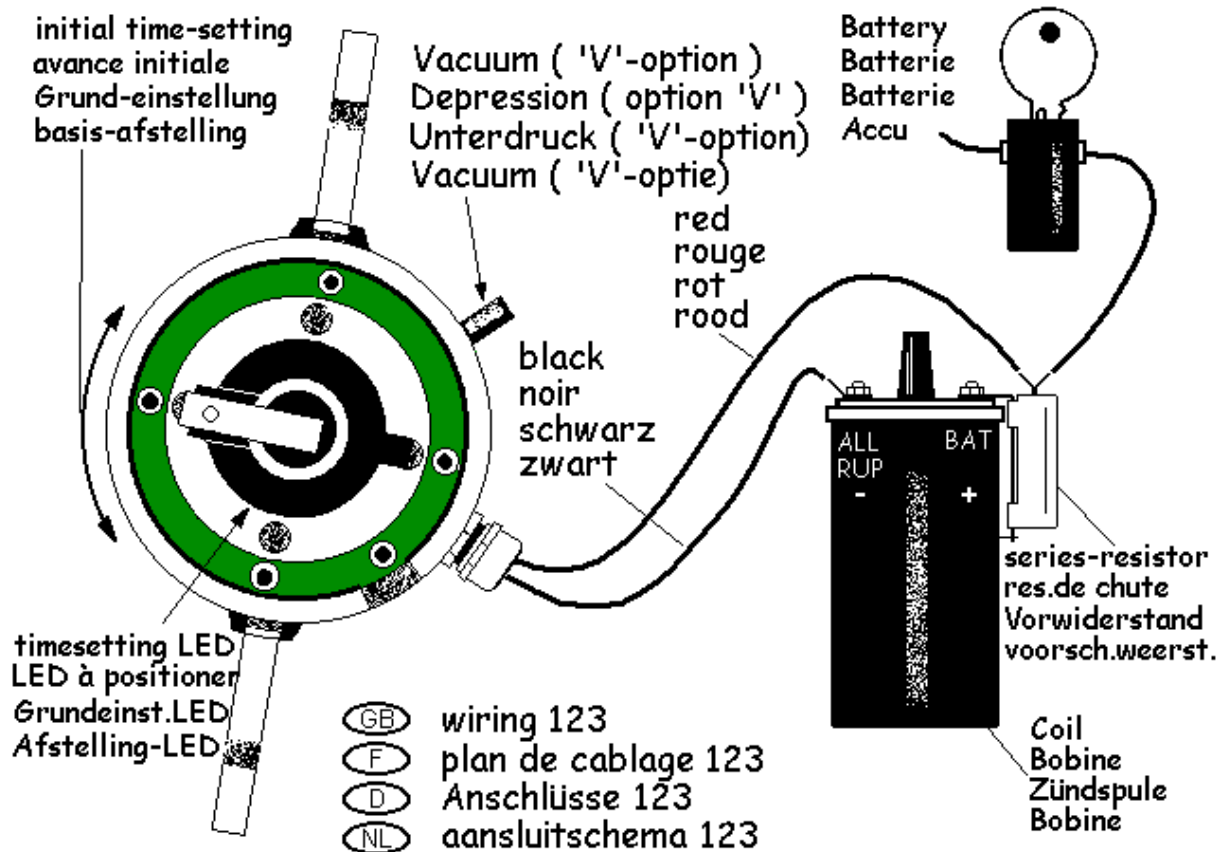


Mounting instructions for the '123ignition'

type : 123\MID-A-V

for : A-series MG-Midget/Austin Healey Sprite or similar

The 123 Midget distributor has been developed with a side entry distributor cap to prevent fowling of the steering column on in-line A series engines. The distributor can be fitted to any **negative earth only (!)** A series engine. For Mini owners and vehicles with performance A-series engines, a more comprehensive list of distributors can be downloaded from www.123ignition.nl . (see the 123\MINI installation manual)



IMPORTANT

Please read the entire instructions before you begin installation. If after reading you are unsure of the procedure to be followed, please ask someone who knows. Remember to work safely.

STEP 1: Find the static timing point

On the old distributor, note the position of the ignition wire to the number one cylinder. Number one is beside the radiator and the firing order is 1-3-4-2. Remove the distributor cap and turn the engine in its normal direction so that the rotor almost points to the number one cylinder position, ie the 2 o'clock position.

Now carefully turn the engine further until the timing mark (groove) in the crankshaft front pulley is next to the Top Dead Center (TDC) pointer timing marks adjacent to the front pulley. These will usually be seen to be a series of three, four or five pointed teeth.

The TDC tooth is the one, that the front pulley timing mark passes last when the crankshaft is rotated clockwise, and on some engines it will be seen to be a longer tooth. Confirm that the rotor-arm is also pointing to the HT-lead that feeds the number 1 cylinder spark plug ; this is the correct position of the engine for mounting the 123 ignition.

STEP 2: Out with the old, in with the new

You may wish to verify that the correct advance curve has been selected in your '123' : using a 5mm Allen wrench remove the hexagonal plug in the bottom face of the housing. Inside the hole you'll find a 16 position rotary switch. (marked '0' to 'F') Check the technical data below for the proper setting. Select the curve of your choice ; re-insert the plug and tighten securely.

Now remove the spark plug wires and coil wire from the old distributor-cap and remove the old cap. Disconnect the points wire from the coil. Loosen the clamp at the base of the distributor and pull the old unit out.

Now remove the distributor-cap from the '123' and carefully insert the '123' in the block, turning the rotor until the drive dog mates and the unit slips in the final +/- 5 mm of engagement. Rotate the '123' distributor body so that the cables come out conveniently, usually with the vacuum port pointing towards the number three or four cylinder.

If necessary, the drive gear can be repositioned on the shaft to accommodate a different rotational position. To do this, remove the '123' and carefully remove the retaining spring from the drive gear, then use a small punch to tap out the pin and re-assemble at an angle more suitable to your needs.

STEP 3: Static timing the '123'

Connect the red wire to the BAT (positive) terminal of the ignition coil, according to the schematic. For now, do NOT connect the black wire. Turn on the ignition. Slowly turn the housing of the '123' in a clockwise direction until the green LED just lights up. In the A-series engined Midget there is not a good direct view of the distributor and so it is usual to use a mirror to get a clear view of the distributor and then the LED will be clearly seen.

The LED shines through one of the four holes in the aluminum disc below the rotor. While turning, also press the rotor in a clockwise direction, to remove any free play in the drive.

Finally, tighten the '123' securely, as it is also the electrical ground of the '123'. Turn off the ignition.

STEP 4: Finish the wiring

Connect the black wire to the negative terminal of the ignition coil, according to the schematic.

Connect the spark plug leads in the proper sequence to the cap, starting with the wire for the number one cylinder at the position pointed to by the rotor of the '123', usually the 2 o'clock position. The firing order is 1-3-4-2 and rotation is counter clockwise.

Also connect the high voltage wire from the coil to the center position of the cap. Attach the cap to the distributor. Route the red and black wire well away from the high voltage leads and away from moving parts, using tie-wraps or other suitable means. Connect the vacuum-tube from the carburetor to the vacuum port on the '123'.

STEP 5: Start and test drive

You can now start your engine. If you have worked accurately, your ignition should be adjusted well enough to take a test drive. To achieve ultimate accuracy a fine adjustment using a stroboscope should be performed.

(check the dynamic timing data in 'technical data')

Disconnect the vacuum-tube whilst fine-tuning.

Enjoy your 123ignition!

TIPS

- Do NOT disconnect ANY electric wire, when the engine is running. This is bad practice when using high-tech electronic systems, such as the 123ignition.
- Sparks are much stronger with a 123ignition : use good quality sparkplug leads, and a good coil. The primary resistance should **not** be lower then 1 ohm ! A-series engines do not need such coils to operate properly.
- Resistor-core silicone ignition-leads are the better choice! Do not use solid core wire, these send out quite a lot of electromagnetic noise that interfere with electronic devices.
- Mistrust old coils : they all look alike, but you can't see if they have been overheated many times! Buy a new one, now you know that this will not be overheated anymore...
- Fresh spark plugs to go with the new coil and wires will ensure optimum ignition performance
- Replace the cap and rotor every 30.000 km. Here is ordering info :

Bosch side-entry cap ref. nr. : 1.235.522.332

Bosch rotor ref. nr. : 1.234.332.024

TUNING

In the table presented below, you can see that the 16 curves are divided in four groups of four curves. Each group has a different maximum advance (28, 30, 32 & 34 degrees), and the 4 curves within each group have different rates of advance up to 2000 rpm.

Assume you want to tune your engine, and you know the maximum advance for this engine is 30 degrees. The first curve you should choose is curve '4', and if that works well, step to curve '5' for improved throttle response.

If curve '5' is an improvement, you may try curve '6', but listen carefully for evidence of knock under heavy load. If curve 6 is an improvement, select curve 7 and again listen carefully for evidence of knock under heavy load. If knock is detected, step back to the last curve. Engines run under sustained knock conditions can be severely damaged!

If you have any doubt about tuning, please seek advice from a knowledgeable engine tuner.

Technical data

Operating voltage	4,0 to 15,0 Volts, negative earth only
RPM range	600 to 7000 rpm
Temperature	-30 to 85 degrees Celsius
Coil engines	stock coil or "High Energy"-coil, primary resistance not below 1 ohm. All MG Midget- & Austin Healey Sprite- engines ; advance-curves selectable by a switch in the bottom of the housing

Curve (switch setting)	Advance 500-1000 rpm*	Advance @ 2000 rpm*	maximum @ 5000 rpm*
0	10,0	14,5	28
1	10,0	16,7	28
2	10,0	18,4	28
3	10,0	20,2	28
4	10,0	16,3	30
5	10,0	17,6	30
6	10,0	19,4	30
7	10,0	21,1	30
8	10,0	16,2	32
9	10,0	18,1	32
A	10,0	20,3	32
B	10,0	22,9	32
C	10,0	17,0	34
D	10,0	20,4	34
E	10,0	22,1	34
F	10,0	23,9	34

* degrees advance and engine speed both relate to the crankshaft

vacuum-advance	0 to 14 degrees from 5 to 10 inch Hg
dwll	microprocessor controlled, depending on coil current
current-timeout	after +/- 1 second. If the engine is not running, the current is switched off to prevent overheating of the coil
spark balance	software controlled, better then half a degree crankshaft
wiring	red = +12 Volt black = '-' of the coil

LUCAS Service number	123/Mini curve number	Application and/or Engine Number
40561	F	Midget MK I , 1961, 948 cc, Engine no. 9CG ; distributor-type DM2P4
40919	6	Midget MK II , 1962-1966, 1098 cc, Engine no. 10DG ; distributor-type 25D4
40819	C	Non vacuum only ; Midget MK III, 1967 & 1968, 1275 cc Engine no. up to 12CC/Da/H11638 ; distributor-type 23D4
41198	0	Midget MK III , 1969-1974, 1275 cc, Engine no. from 12CC/Da/H11639 on ; 12CE & 12V ; distributor-type 25D4
41270	0	Midget MK III , 1969-1974, 1275 cc, Engine no. from 12CC/Da/H11639 on ; 12CE & 12V ; distributor-type 25D4