

Distributor — 2 Litre Engine

DISTRIBUTOR

BOSCH 9230147001

To Remove

Disconnect battery.

Open and secure bonnet.

Release retaining clips and displace distributor cap.

Note: Secure the retaining clips in such a position that they do not foul the reluctor.

Chock front wheels, raise one rear wheel clear of the ground, engage top gear and release the parking brake.

Rotate the rear wheel in the normal direction of rotation until number 1 piston (flywheel end of engine) is on compression stroke i.e. Valves of number 4 cylinder rocking.

Locate the longer of two timing marks on crankshaft pulley and align it mid-way between the 40° and 80° BTDC marks on timing cover i.e. 60° BTDC. The rotor arm of the distributor should now align with the timing mark on the distributor body as shown in Fig. 1.

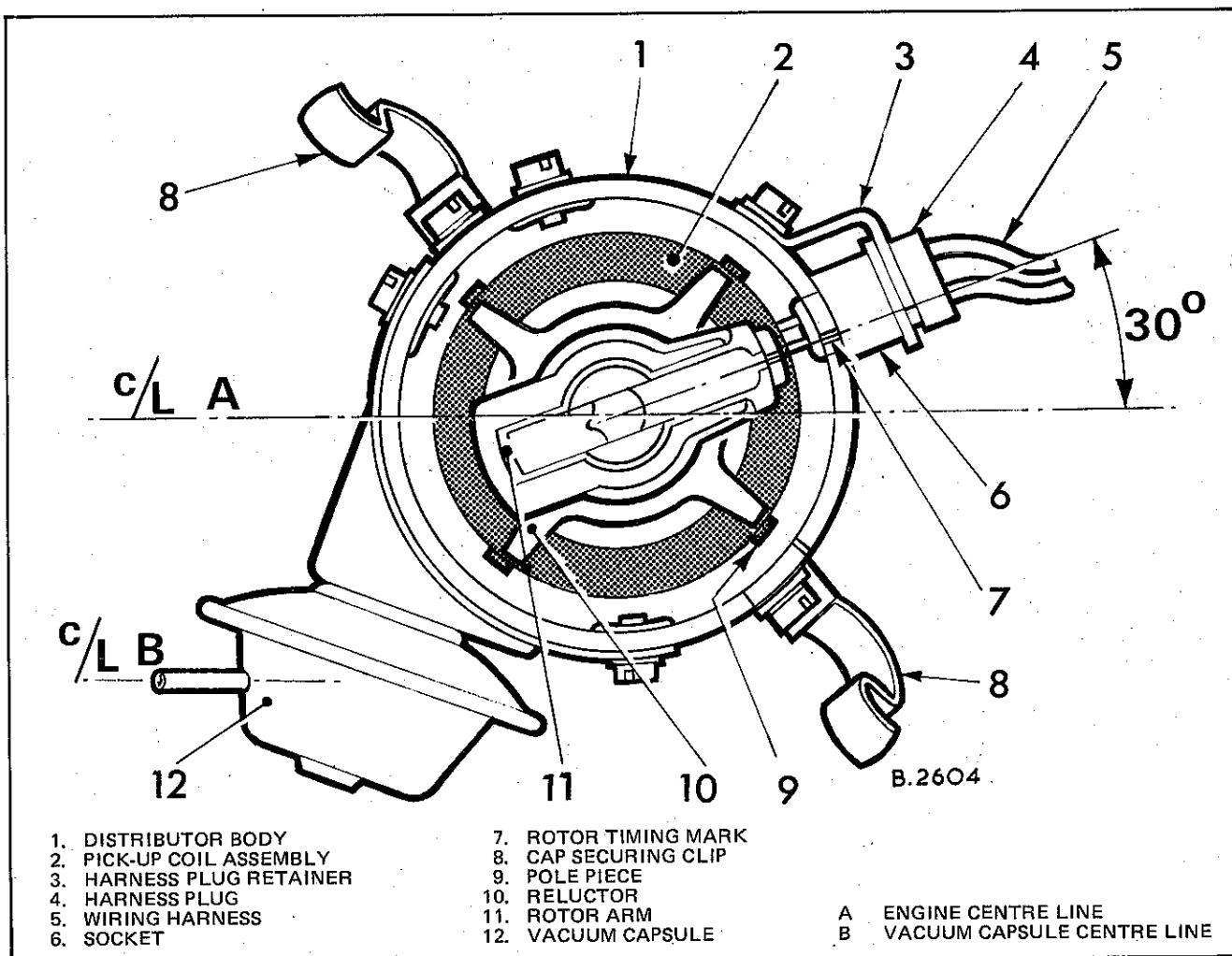


Fig. 1. Rotor position for distributor removal.

To assist timing when refitting, clean and clearly mark the crankshaft pulley and timing cover timing marks with chalk or similar substance.

Disconnect vacuum pipe at distributor and multi-plug of wiring harness.

Remove distributor clamp bolt, slide out clamp plate and withdraw distributor from engine.

To Refit

Refitting is a reversal of the removal procedure noting the following.

Ensure that the 'O' ring fitted to the distributor body is sound and correctly positioned.

Ensure that the engine has not been turned since distributor removal.

The rotor arm turns approximately 30° anti-clockwise as the distributor drive gear engages with the camshaft gear. Allowance should be made for this when refitting the distributor.

With the rotor arm aligned with the timing mark on distributor body, check that the tooth of the reluctor is aligned with the pick-up coil pole piece. If necessary, rotate the distributor body to obtain this condition. Tighten the clamp bolt sufficiently to prevent the distributor moving, but do not fully tighten. This will permit fine adjustment later. The above setting will give an "Engine-Start" condition.

Final ignition timing must be carried out using a stroboscopic timing lamp.

Where an engine has been removed from the chassis for overhaul and it has been decided to fit the distributor before refitting the engine, take great care to avoid accidental damage to the distributor through contact with engine lifting apparatus or bulkhead of the vehicle.

In order to identify number 1 cylinder firing stroke following overhaul, remove the spark plug and turn the engine in the normal direction of rotation until compression is felt at the spark plug hole with a finger.

Note: Number 1 cylinder is located at the fly-wheel end of the engine.

IGNITION TIMING

To obtain maximum engine performance, the distributor must be correctly positioned to give accurate ignition timing.

Connect a suitable stroboscopic timing light to number 1 cylinder as per the manufacturer's instructions.

Connect a suitable tachometer to the engine.

Note: Some tachometers triggered by the coil L.T. are unsuitable for electronic ignition.

Start and run the engine until normal operating temperature is obtained. Check that the manual choke/fast idle control is inoperative and that the idle speed is as specified.

Note: If the timing is considerably displaced, it may be found that the engine stalls as the amount of choke is reduced during the warming up period, particularly if the timing is excessively retarded. If this happens, adjust the timing by rotating the distributor body relative to the engine (anti-clockwise movement advances the timing) until a consistent idle speed is obtained.

Stop engine.

Disconnect vacuum hose at distributor and plug the hose.

Loosen the clamping plate bolt sufficiently to allow the distributor to be rotated in its mounting.

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Ensure that the calibration marks are visible. Divisions at 4° intervals are provided with numbers as follows:

12°, 8° and 4° B.T.D.C., T.D.C.
(long mark — no number)
and 4° and 8° A.T.D.C.

Start engine.

Adjust the distributor body until the previously marked slot on crankshaft pulley strobes to Data ignition timing point. Turn the distributor body clockwise to retard the timing and anti-clockwise to advance it.

Note: As the timing is corrected to Data figure, engine idling speed may change appreciably. As the correct timing point is approached, check and if necessary reset the idling speed, before making final timing adjustment.

Tighten the distributor clamping bolt and recheck timing.

Stop engine and reconnect vacuum pipe.

Disconnect stroboscopic timing light and tachometer.

To Dismantle

Remove the distributor as described previously.

Remove the rotor arm.

Lift off anti-arcing shield.

Remove harness plug retainer.

Pull plug and harness assembly from distributor body. This will reveal a socket secured to the body by a setscrew. Remove the screw and pull the socket from its location on distributor body and prongs of pick-up coil assembly.

Remove two screws securing vacuum capsule to distributor, disengage the operating arm and remove capsule.

Using suitable circlip pliers remove the circlip from the distributor shaft, lift out the wavy washer and carefully prise off the reluctor. Recover the small round locating pin from the drive shaft.

Remove a further circlip which is recessed into the pick-up coil assembly.

Remove three screws securing the pick-up coil assembly to distributor body and lift out assembly.

Note: It may be necessary to slacken the spring clip securing screws approximately one turn to enable the pick-up coil assembly to be removed.

Scribe a line from the centre line of one of the drive gear teeth to a point halfway across the spindle to assist during re-assembly.

Support the drive gear, remove the roll pin and pull the gear from the shaft.

Support the collar and remove the roll pin. Remove the collar from the shaft followed by the steel washer, textolite washer and a further steel washer.

Ensure that there are no burrs on the shaft. Remove by stoning if necessary before removing the shaft and centrifugal advance assembly.

Withdraw the shaft and centrifugal advance assembly from the distributor body and recover the steel thrust washer from the shaft or distributor body.

Note: The shaft and centrifugal advance assembly and distributor body are not serviced. If it is necessary to renew these items, a replacement distributor must be obtained.

To Reassemble

Check the operation of governor weights and springs of the centrifugal advance mechanism.

Inspect all bearing surfaces and pivot pins for excessive wear or binding. If satisfactory, lubricate and check for freedom of movement.

Lubricate and install upper thrust washer on shaft assembly and slide assembly into distributor body.

Fit the steel washer, textolite washer and further steel washer to the drive shaft, position the collar and install the roll pin. The shaft should have 0.12 mm (0.005 in) end float measured between the collar thrust washers and distributor body.

Position the drive gear, collar uppermost, on the drive shaft and secure with roll pin ensuring that the previously scribed line aligns correctly.

Note: Do not support gear on its teeth when installing roll pin.

Install pick-up coil assembly and secure with set-screws.

Fit circlip, position locating pin, carefully engage reluctor and press into position.

Slide wavy washer over shaft and fit remaining circlip.

Fit harness socket into cut-out of distributor body ensuring that it engages with the two prongs of the pick-up coil assembly. Secure with screw.

Fit the plug and harness assembly and secure with retainer and screw.

Engage and secure the vacuum capsule and spacer assembly and check its operation.

Fit anti-arcing shield and rotor arm.

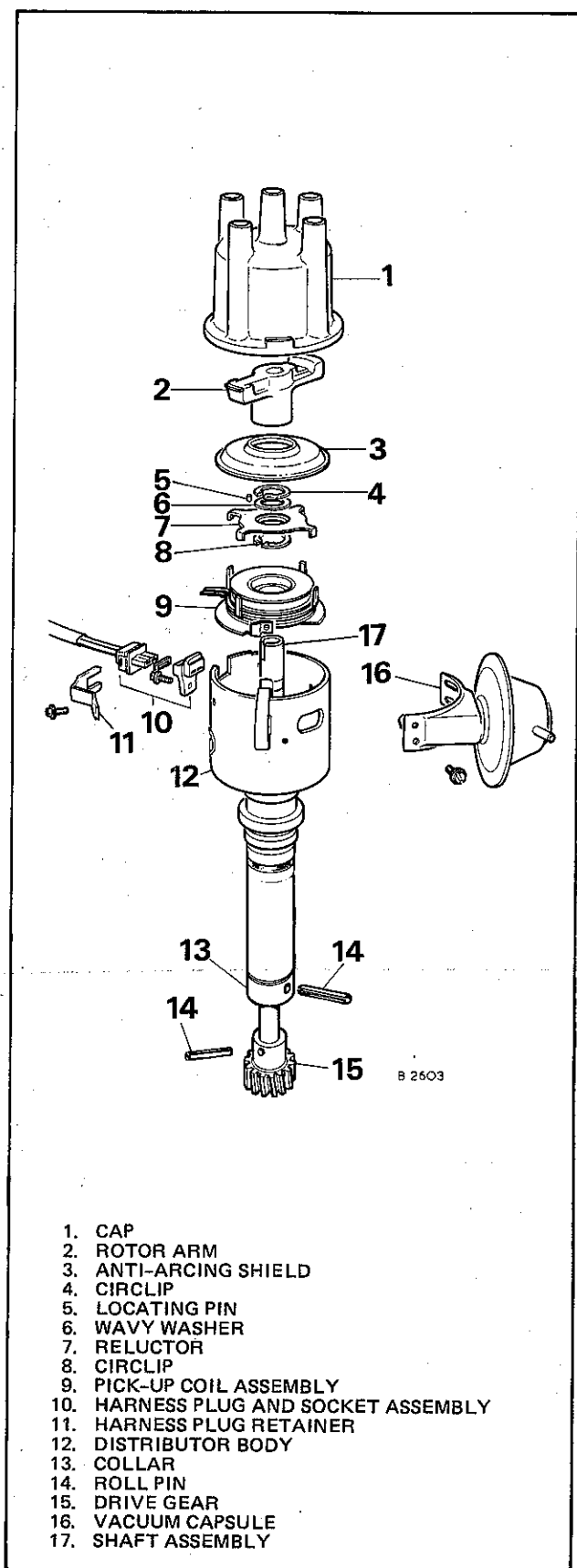


Fig. 2 Distributor details

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PICK-UP COIL RENEWAL**To Remove**

Remove the distributor as described previously.

Remove the rotor and anti-arcing shield.

Remove harness plug retainer.

Pull plug and harness assembly from distributor body. Removal of a further setscrew will release the socket which can then be removed from its location in the distributor body.

Release the vacuum capsule from distributor body, disengage operating arm and remove capsule.

Using suitable circlip pliers remove the circlip from the distributor shaft, lift off the wavy washer and carefully prise off the reluctor. Recover the small round locating pin from the drive shaft.

Remove a second circlip which is located in a recess in the pick-up coil assembly.

Remove the three screws securing the pick-up coil assembly and lift out of distributor body. It may be necessary to slacken the spring clip securing screws to remove the pick-up coil assembly.

Note: The pick-up coil assembly can only be renewed as a unit. The individual items are not serviced separately.

To Refit

Refitting is a reversal of the removal instructions.

AIR GAP

No air gap adjustment is provided on this distributor. If a fouling condition is encountered, this will be due to incorrect assembly or damage to component parts of the distributor. In the case of incorrect assembly the remedy is obvious. If damage is suspected, the relevant part or parts must be isolated and renewed.