

SECTION 12 - IGNITION

DESCRIPTION

1. The coil ignition system is waterproofed and fully tropicalized. The equipment comprises: a distributor, an ignition coil, a filter unit, junction box and six sparking plugs, connected by cables contained in screened flexible metallic conduits. Alternative marks of distributor or coil may be fitted. See DATA. The alternative items are interchangeable as complete units. The ignition equipment is screened and filtered to reduce electrical interference to radio services. VHF radio sets call for a high standard of vehicle suppression if full advantage of these sets is to be obtained; good maintenance of the electrical system is, therefore, essential. It should be remembered that even if a radio set is not fitted, the vehicle electrical system can cause interference to nearby radio sets. See Section 13, para 95.
2. The distributor (Fig 20(1)) is situated centrally on the exhaust side of the engine and is driven in a clockwise direction (looking down on the engine) by an extension of the oil pump driving shaft. Incorporated in the distributor and actuated by a three-lobed cam, is a contact breaker having two sets of contact points. One set of points is mounted on a movable plate to enable the contacts to be synchronized and it is essential that this plate is not disturbed during user servicing. To identify the movable plate securing screws, they are sealed with red paint.
3. The contact breaker is secured to a baseplate below which is an automatic advance mechanism. A centrifugal type speed limiter, which cuts out the ignition at an engine speed of 3,650 to 3,850 rev/min is embodied in the rotor.
4. As the distributor is waterproofed, special provision is made for ventilation, air being circulated through the distributor via two breather pipes (5) connected to the carburettor air inlet pipe (4).
5. The coil (Fig 21(4)) is a 12-volt unit mounted horizontally on the induction manifold. The coil is made suitable for the 24-volt supply by means of a ballast resistance connected in series with the coil. The resistance, which is housed in the junction box (19) is short-circuited at starting.
6. The filter unit (3) is bolted to a bracket on the induction side of the engine. It comprises two choke coils connected in series with the LT of the coil and two capacitors connected one across each coil and earth.
7. The 14 mm sparking plugs are of the three-piece screened type with a built-in resistor to prevent erosion of the plug points.

IGNITION SWITCH

8. The ignition switch, on the switchboard (Fig 56(24)) to the left front of the driver is a three position switch, ie, LOCK, ON and OFF. The lock position is provided for when an ignition key is used. The ignition key lock assembly is housed in the barrel of the switch. When the switch is moved to the lock position and the key removed, the ON or OFF switch positions cannot be selected. The ignition key can be removed with the switch in the OFF position, the switch can be moved to the ON or OFF position but not to the

lock position. When vehicles are not provided with the ignition key and key lock assembly, the lock position is not used. When the ignition switch is turned to the ON position, battery current is fed through the distribution box, generator panel, ignition switch, ballast resistance and filter unit to the coil. From the ignition switch, battery current is also fed through a circuit breaker to the generator warning light, oil pressure switch and light, starter switch, temperature gauge, fuel gauge and the instrument panel lights.

STARTER SWITCH

9. When the starter switch, situated on the switchboard is operated, the starter motor solenoid and hence the starter, are energized. At the same time, ballast resistance is short-circuited and the maximum available battery voltage (24v nominal) is applied to the coil. When the starter switch is released, the ballast resistance is inserted in the ignition circuit and the voltage applied to the coil is reduced to approximately 12-volts.

GENERATOR WARNING LIGHT

10. Located on the switchboard is a red warning light which should glow when the ignition is switched on and remain alight until the generator begins to charge the batteries. When the engine stops, the light glows again and remains alight until the ignition is switched off. A faulty lamp in the generator warning light will not affect the operation of the ignition system. The warning light will remain alight if the generator fording caps are removed from the generator panel (see Section 14, para 22). The circuit is protected by the 5A bridge type fuse in the generator panel.

SERVICING

Sparking plugs

11. The sparking plugs should be cleaned and checked by the vehicle mechanic (VM) at the initial servicing interval. Removal and replacement should be carried out by the crew. The correct gap is 0.015 to 0.018 inch.

To check and adjust sparking plugs (Dvr 1)

12. (1) Open the righthand side engine cover and release the cable elbows from the sparking plugs (Fig 23(12)).
- (2) Remove and clean the plugs.
- (3) Adjust the gap by carefully bending only the SIDE electrode. If the plug is dirty internally, REPORT.
- (4) Ensure that the mating surfaces of the plug, plug washer and cylinder head are clean.
- (5) Replace the plugs and washers, ensuring that they are tightly fitted. Replace the cable elbows.

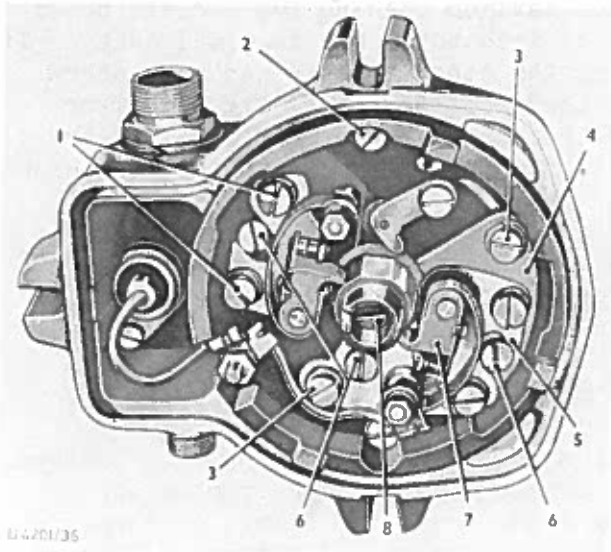
DISTRIBUTOR

To lubricate the distributor (Dvr 1)

13. (1) Slacken the swivel bolts and release the distributor moulding and screen from the body. The moulding and screen assembly of the Mk 2/1 distributor is secured by six captive type bolts.
- (2) Carefully withdraw the rotor.
- (3) Lightly smear the cam with approved lubricant if a Mk 2 distributor is fitted or renew the cam lubricating pad if a Mk 2/1 distributor is fitted.
- (4) Add one drop of clean oil to each pivot pin.
- (5) Add a few drops of clean engine oil to the top of the cam spindle. Do not remove the cam securing screw fitted to the Mk 2 distributor, there is a designed clearance through which the oil passes to the bearing.
- (6) Clean off all surplus oil. If oil contaminates the contact breaker points, the performance of the distributor will be seriously affected.
- (7) Replace the rotor ensuring that the moulded key is correctly engaged with the keyway in the cam. Push on carefully. To ensure correct engagement in the Mk 2/1 distributor, unequally sized flats are embodied in the bore of the rotor and on the camshaft.
- (8) Clean the distributor with a dry cloth and ensure that the carbon brush moves freely.
- (9) Ensure all mating faces are clean, lightly smear with sealing compound.
- (10) Carefully replace the distributor moulding and screen, do not damage the carbon brush. Tighten the securing nuts or bolts evenly.

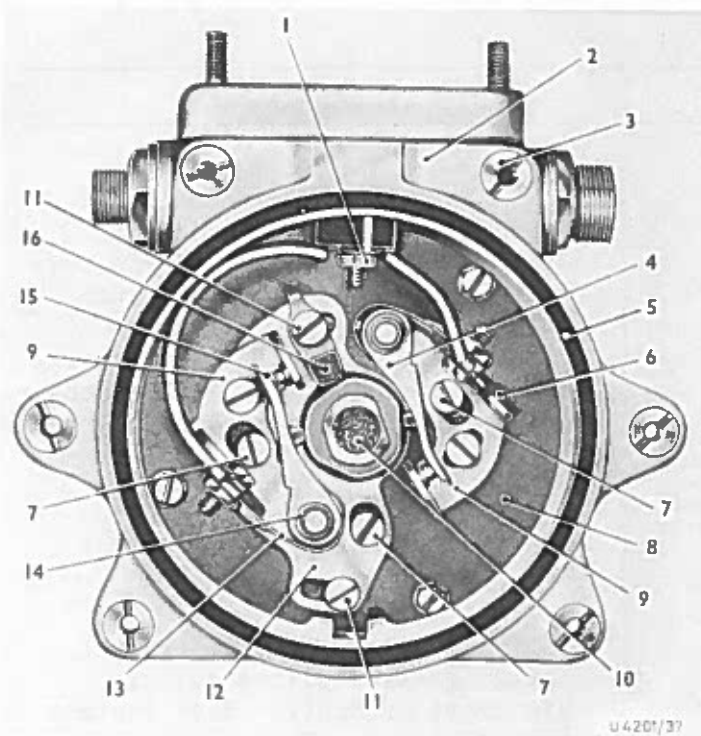
To check and adjust the distributor (VM)

14. (1) Proceed as in para 13 (1 to 3).
- (2) Check contact breaker points for cleanliness, burning and gap setting.
- (3) If necessary, clean the contact points using a fine carborundum stone, the stoning must be done carefully ensuring the contact points are parallel. Do not use Emery Cloth or Glass Paper.



- 1 Contact plate securing screw
- 2 Base securing screw
- 3 Movable plate screw
- 4 Movable plate
- 5 Contact plate
- 6 Eccentric pin
- 7 Contact breaker lever
- 8 Cam securing screw

Fig 31 No. 1, Mk 2 Distributor contact breaker



- 1 Terminal
- 2 Body
- 3 Screwed insert
- 4 Contact breaker lever
- 5 Rubber sealing ring
- 6 Insulating strip
- 7 Eccentric pin
- 8 Base plate
- 9 Contact plate
- 10 Lubricating pad (spindle)
- 11 Movable plate screw
- 12 Movable plate
- 13 Control spring
- 14 Fibre bush
- 15 Contacts
- 16 Lubricating pad (cam)

Fig 32 No. 1, Mk 2/1 Distributor contact breaker

- (4) Check each contact breaker for maximum opening (Mk 2 distributor 0.010 to 0.012 inch, Mk 2 /1 distributor 0.019 to 0.021 inch). If necessary, adjust by releasing the contact plate securing screw and carefully turning the slotted eccentric pin (Fig 31(6)) or (Fig 32(7)). Do not disturb the moveable plate (Fig 31(4)) or (Fig 32(12)), as the two contact breakers are accurately synchronized.

Note: *The moveable plate securing screws are sealed with red paint. If the seal is damaged, it is an indication that synchronism may have been disturbed - Report.*

- (5) Reassemble as in para 13 (7) to (10).

15. All ignition components, screening and waterproofing should be checked, all connections must be tight, mating surfaces clean, free from paint, corrosion and lubricant. The screening leads free from damage or corrosion, metal to metal contact must be continuous. Junctions of screening, covers, components and mounting brackets must be clean and tight, ie, free from paint, corrosion and lubricant. Any defects which may affect the standard of suppression to be reported.

16. The following table indicates defects causing failure of the ignition system.

IGNITION FAULT FINDING TABLE

<i>Indication</i>	<i>Possible cause</i>
(1) Engine will not start	
(a) Warning lights illuminated	Loose or broken connections at switchboard, ignition junction box, filter unit, coil or distributor. Faulty ignition coil. Faulty distributor, eg, contact breaker, rotor or moulding. Faulty condenser. Faulty plugs, eg, dirty or incorrect gaps.
(b) Warning light not illuminated	Faulty ignition switch. Faulty connection at generator panel or switchboard.
(2) Engine starts but runs irregularly	Faulty plugs. Faulty HT lead(s), contact breaker points out of adjustment or dirty. Weak contact breaker spring. Faulty condenser. Faulty distributor, loose connection at switchboard, junction box, filter unit coil or distributor.
(3) Engine stops when starter switch is released	Open circuit in ballast resistor - see para 5.