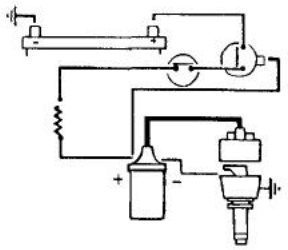
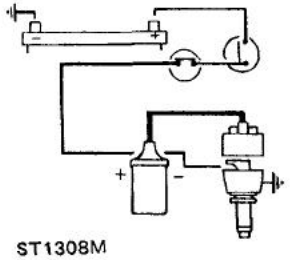
ault	Check	Test	Rectification
attery not being charged AUTION: The vehicle attery must never be isconnected while the ngine is running	1, 2, 3, 4, 5	**5. Alternator output** Connect a voltmeter across the battery terminals. Connect an ammeter into the alternator battery sensing circuit either at the battery terminal or solenoid. Switch on all loads (except wipers) for one minute. Run the engine at 3,000 rev/min and wait until the ammeter reading is stable.	
Varning light stays on	1, 2, 3, 4, 6, 7	(i) Ammeter reading Zero — Faulty alternator	Overhaul alternator
Varning light does not function hen ignition switched on	1, 2, 3, 4, 8, 9	(ii) Ammeter reading below 10A, voltmeter reading between 13.6 and 14.6V and battery in low state of charge	Bench test and overhaul
		(iii) Ammeter reading below 10A, voltmeter reading below 13.6V	Renew voltage regulator
		(iv) Ammeter reading above 10A, voltmeter reading above 14.6V	Renew voltage regulator
		6. Drive belt: Check the drive belt is not broken or slipping	Adjust or renew
		7. IND lead: Disconnect the IND lead from the alternator, start engine and run above idle speed. (i) Warning light stays on — Short circuit to earth between IND lead and warning light	Repair or renew
		(ii) Warning light goes out	Carry out Test *5*
		8. Warning **light bulb:** Check warning lamp bulb (i) Bulb faulty	Renew
		(ii) Bulb not faulty	Carry out Test 9
TEST EQUIPMENT Voltmeter 0 - 20 V moving coil Ammeter 5-0-60A moving coil Hydrometer		**9. Alternator plug connections:** Remove plug from alternator, switch on ignition and connect a voltmeter between earth and each terminal in turn. (i) Voltmeter reads 12V	Carry out Test *5*
		(ii) Voltmeter does not read 12V — cable circuits faulty	Check cable continuity; repair or renew
IGNITION SYSTEM			
Engine will not fire	10, 11, 12, 13, 14, 1	**10. Engine cranking speed:** Too low	See STARTING SYSTEM
		11. Sparking plugs: Check for dirty electrodes or incorrect gaps for faulty operation on pressure test equipment	Clean. set gaps or renew contact breaker distributors carry out Test 12
		12. Contact breaker points: Check for incorrect gap, burning or pitting	Clean, adjust or renew
		13. Distributor cap: Check for 'tracking' (thin lines of burned bakelite), ensure cap is clean and dry and that the centre brush moves freely with no excessive side movement and contacts the rotor arm.	Rectify or replace. Carry out Test 14. Rectify or replace. Carry out Test 14.

continued

ault	Check	Test	Rectification
GNITION SYSTEM		a. Connect 0 - 1 V voltmeter as in Test 15c, fit a jumper lead from earth to distributor body, with ignition on and contact breaker points closed: (i) Below 0.2V	Remake earth connections between distributor body and earth
		(ii) Above 0.2V — High resistance or open circuit in distributor	Checklrepair or renew contact breaker points, base plate screws earth lead or supply lead as necessary
		b. Connect 0 - 20 V voltmeter as in Test 15b, with ignition on and contact breaker points open: (i) Above 12 V — Continuity in primary windings of coil, supply line and ballast resistor if fitted	Carry out Test 15g
		(ii) Zero — open circuit feed to coil, open circuit primary windings, open circuit (iii) ballast resistor if fitted or short circuit in distributor or coil negative lead	Carry out Test 15f
		Connect 0 - 20 V voltage as in Test 15b, with ignition on and contact breaker points open. Remove coil negative lead from coil and recheck voltage: (i) Above 12V — Shortcircuit in coil, negative lead or distributor	Check contact breaker points correctly fitted, short circuit in condenser (or capacitor when ballast resistor fitted) or supply lead; repair or renew
		(ii) Zero — reconnectcoil negative lead	Carry out Test 15g
		Connect 0 - 20 V voltmeter between earth and coil positive terminal, with ignition on and contact breaker points closed: (i) Above 12V — Coil primary windings open circuit	Renew coil
		(ii) 11.5V - 12V without ballast resistor If result of Test 15f was above 12V 5V - 7V with ballast resistor L.T. circuit is satisfactory	Fault elsewhere
		(iii) Below 11.5V or zero without ballast resistor — Excessive resistance or open circuit supply to coil. Leaving the voltmeter connected to earth, work back through the supply circuit at the terminals on the ignition switch and solenoid until the resistance or open circuit is located	Rectifv and recheck
		(iv) Below 5V or zero with ballast resistor — Excessive resistance or open circuit in supply to coil	Carry out Test 15H
		Connect 0 - 20 V voltmeter between earth and the lead from the ballast resistor to the coil positive terminal, with the ignition on and contact breaker points closed: (i) 5V - 7V or above 12V — Fault in the ballast resistor to coil lead	Repair or renew lead then re-test
		(ii) Below 5V or zero — Excessiveresistance or open circuit between battery and coil	Carry out Test 15j
		Connect 0 - 20 V voltmeter between earth feed lead *to* ballast resistor, with ignition on and contact breaker points closed: (i) Above 12V — Faultin ballast resistor	Renew and re-test. If satisfactory fault elsewhere
		(ii) Zero or below 11.5V — Fault in supply circuit from battery. Leaving the voltmeter connected to earth, work back through the supply circuit at the terminals on the ignition switch and solenoid until the fault is located.	Rectify and re-test. If satisfactory fault elsewhere

continued

Fault	Check	Test	Rectification
GNITION SYSTEM		**14. H.T. Circuit**  ST1307M  ST1308M	
		a. Disconnect main H.T. lead from distributor cap, hold approximately 6 mm (¼ in) from a good earth, ensure contact breaker points are closed, switch on ignition and flick contact breaker points open.	
		(i) Good healthy spark — Main H.T. lead, condenser and coil satisfactorv	Carry out Test 14e
		(ii) Poor or no soark	Carry out Test 14b
		b. Replace main H.T. lead with a known good H.T. lead and repeat Test	
		(i) Good healthy spark — Original H.T. lead faulty	Renew main H.T. lead. Carry out Test 14e
		(ii) Poor or no soark	Carry out Test 14c
		c. Replace condenser with a known good one and repeat Test	
		(i) Good healthy spark — Original condenser faulty	Renew condenser. Carry out Test 14e
		(ii) Poor or no spark	Carry out Test 14d
		d. Replace ignition coil with a known good coil and repeat Test	
		(i) Good healthy spark — original coil faulty	Renew coil, refit original H.T. lead and condenser and repeat Tests 14a and b, or carry out Test 14e
TEST EQUIPMENT (A) Voltmeter 0 - 20V moving coil (B) Voltmeter 0 - 1V moving coil Ohmmeter		e. Hold loose end of main H.T. lead approximately 3 mm (⅛ in) from the rotor arm electrode. Ensure contact breaker points are closed, switch on ignition and flick points open	
		(i) Good healthy spark — Rotor arm shorting to earth	Renew rotor arm
		(ii) Very faint or no spark — Rotor arm insulation satisfactory	Carry out Test 15
		15. L.T. circuit continuity check:	
		a. Check battery voltage and state of charge	See STARTING SYSTEM
		b. Connect voltmeter 0 - 1V between earth and coil negative terminal with ignition on and contact breaker points closed:	
		(i) Below 0.2V	Carry out Test 15e
		(ii) Above 0.2V — Resistance or open circuit	Carrv out Test 15c
		c. Connect 0 - 1V voltmeter bttween earth and distributor L.T. terminal with ignition on and contact breaker points closed:	
		(i) Below 0.2V — Resistanceor open circuit between coil negative and distributor L.T. terminal	Renew lead
		(ii) Above 0.2V — Resistance or open circuit between earth and distributor L.T terminal	Carry out Test 15d

continued

ault	Checl	'est	Rectification
GNITION SYSTEM ontinued)		l. Connect voltmeter (B) as in Test 15C, fit a jumper lead from earth to distributor body, with ignition on and contact breaker points closed: (i) Below 0.2V	Remake earth connections between distributor body and earth
		(ii) Above 0.2V — High resistance or open circuit in distributor	Check/repair or renew contact breaker points, base plate screws earth lead or supply lead as necessary
		. Connect voltmeter (A) as in Test 15b, with ignition on and contact breaker points open: (i) Above 12V — Continuity in primary windings of coil, supply line and ballast resistor if fitted	Carry out Test 15g
		(ii) Zero — open circuit feed to coil, open circuit primary windings, open circuit ballast resistor if fitted or short circuit in distributor or coil –ve lead	Carry out Test 15f
		. Connect voltage (A) as in Test 15b, with ignition on and contact breaker points open. Remove coil –ve lead from coil and recheck voltage: (i) Above 12V — Short circuit in coil, –ve lead or distributor	Check contact breaker points correctly fitted, short circuit in condenser (or capacitor when ballast resistor fitted) or supply lead; repair or renew
		(ii) Zero — reconnect coil –ve lead	Carry out Test 15g
		g. Connect voltmeter (A) between earth and coil +ve terminal, with ignition on and contact breaker points closed: (i) Above 12V — Coil primary windings open circuit	Renew coil
		(ii) 11.5V - 12V without ballast resistor 5V - 7V with ballast resistor } If result of Test 15f was above 12V L.T. circuit is satisfactory	Fault elsewhere
		(iii) Below 11.5V or zero without ballast resistor — Excessive resistance or open circuit supply to coil. Leaving the voltmeter connected to earth, work back through the supply circuit at the terminals on the ignition switch and solenoid until the resistance or open circuit is located	Rectify and recheck
		(iv) Below 5V or zero with ballast resistor — Excessive resistance or open circuit in supply to coil	Carry out Test 15h
		h. Connect voltmeter (A) between earth and the lead from the ballast resistor to the coil +ve terminal, with the ignition on and contact breaker points closed: (i) 5V - 7V or above 12V — Fault in the ballast resistor to coil lead	Repair or renew lead then re-test
		(ii) Below 5V or zero — Excessive resistance or open circuit between battery and coil	Carry out Test 15j
		j. Connect voltmeter (A) between earth feed lead to ballast resistor, with ignition on and contact breaker points closed: (i) Above 12V — Fault in ballast resistor	Renew and re-test. If satisfactory fault elsewhere
		(ii) Zero or below 11.5V — Fault in supply circuit from battery. Leaving the voltmeter connected to earth, work back through the supply circuit at the terminals on the ignition switch and solenoid until the fault is located.	Rectify and re-test. If satisfactory fault elsewhere

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