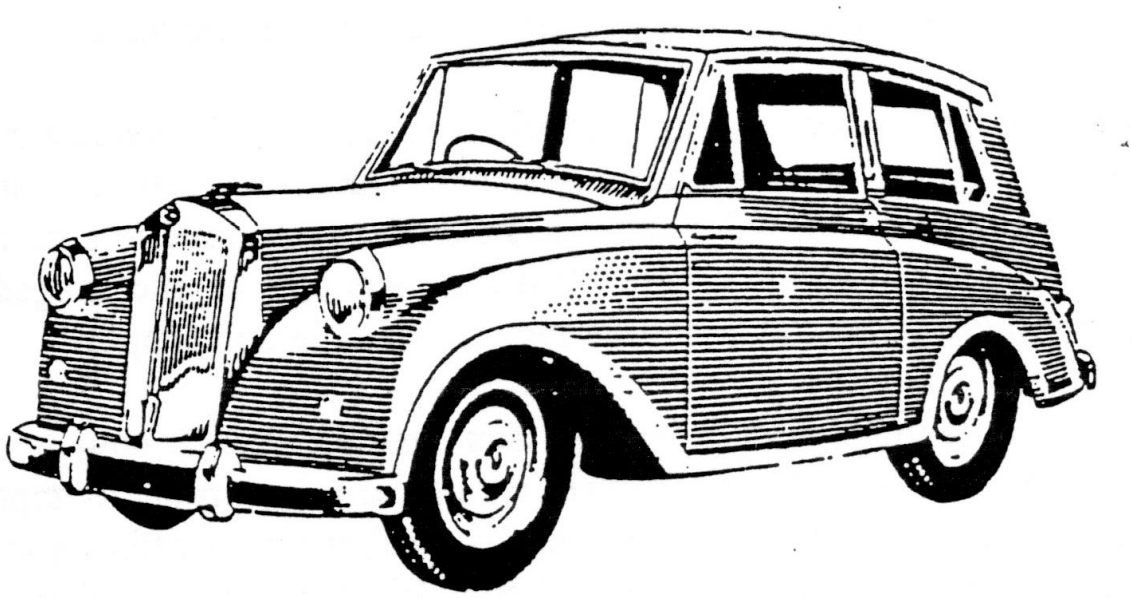


THE TRIUMPH MAYFLOWER CLUB

TECHNICALITIES: IGNITION, ELECTRICS & INSTRUMENTATION

February 2019 | Paul Burgess

CONTENTS

Dodgy Coil Get You Home – Flowerman, Flower Power, Winter 2004

If you suspect the ignition coil output is providing a weak spark through the distributor to the plugs and you do not have a spare coil to hand, try reducing the spark plug gaps to 5-6 thou. The weak output from the coil will manage to bridge the smaller plug gap and will more than likely get you home. This is only a get you home measure and then you can change your coil at your leisure.

A clue to a weak coil is that it becomes very hot in operation, I must add that it is normal for it to become warm when it is in good condition.

Bright sparks – Flower Power

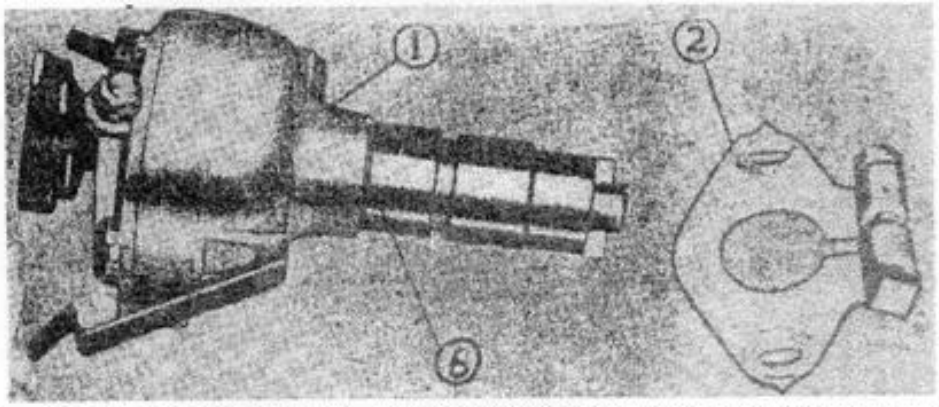
A problem that I found with my ignition system which may be of interest to other members. For quite some time I had been plagued by an irregular misfire, not constant, just the odd beat missed. Occasionally it would run on three cylinders and then go back onto four. Trying to adjust the tick over and carburettor was almost impossible.

I started with the distributor cap, checked for cracks or carbon tracks, nothing! I had a new one anyway so it was fitted just in case, still no improvement. Replaced all the leads with new wire centre type and replaced the plug connectors. Whilst in this area I replaced the points, rotor arm, condenser and insulating washers. Checked the gaps and tried again, still the same!!

Now, as you know, you can check the spark from each lead with a plug held against the block. When I did this three were good but one was quite poor. Yet when I moved the plug away from the block the quality of spark improved quite dramatically across the electrode gap and the gap between the plug body and the block (strange). Even allowing for the fact that the spark was at normal atmospheric pressure rather than that of the higher psi of a compressed cylinder, the effect was unusual.

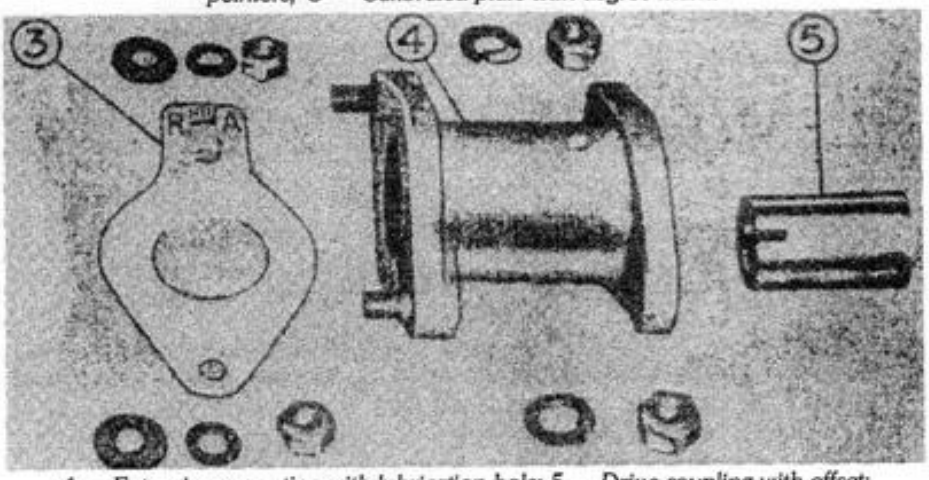
I dismantled the dizzy again, checked the balance weights and balance weight springs (there are two, one small and one large). When you replace them make sure you get them the right way round, it is critical to the auto advance/retard operation.

The breaker cam was removed and checked with a micrometer across the flats and cams. One was slightly worn. Could this be the cause? If any of the flats are worn the contact gap will vary each time it passes causing a misfire. A replacement was fitted but they are not that easy to find now.



1 — Distributor head with drive; 2 — Clamp which fits under distributor head showing timin pointers; 3 — Calibrated plate with degree marks

Inside the shaft of the distributor there are two phosphor bronze bearings which are also prone to wear over a period of time. This can be detected by pushing the rotor shaft from side to side and observing the movement and variance in the contact gap, there was some movement but not much.



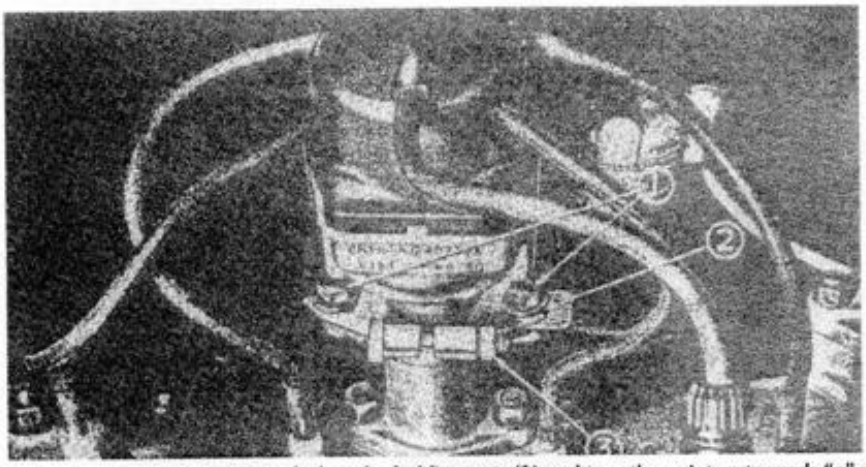
4 — Extension mounting with lubrication hole; 5 — Drive coupling with offset; 6 — Slip ring groove

I now considered drifting out the bushes and replacing them but discovered quite a large amount of movement which was changing the contact gap size on one of the rotors. The surprise was that the body of the distributor was moving in relation to the rota shaft. Closer examination revealed that there was a hair-line crack around the sweated joint between the aluminium head and the steel shaft. Unless the inside is very clean

it could well go un-noticed. A new distributor body was found, rebuilt and refitted. Off we went! No more misfires! Yippee!!

A point to watch is that you obtain the correct type of distributor body, it is important that it has a small groove around the top of the rotor shaft (1). If there is no groove the distributor can rise through the clamp during operation. This will cause misfiring, later followed by total failure as the drive coupling disengages. Do not forget to lubricate and keep clean the oil hole in the extension mounting to prevent the bushes wearing.

As a guide the timing is roughly set as the contact points break, when the piston is at top dead centre, with the adjustment plate in the midway position. This allows a few degrees either side for fine adjustment if required. A small plate below the distributor head is marked with a centre line and several degree marks to either side, marked "R" retard and "A" advance. This variation can be made by slackening the two small securing nuts (1) and moving the distributor head until the indicator shows 1, 2, 3, or 4 degrees advanced or retarded as required. It is wise to make this adjustment one degree at a time, after which the nuts should be tightened.

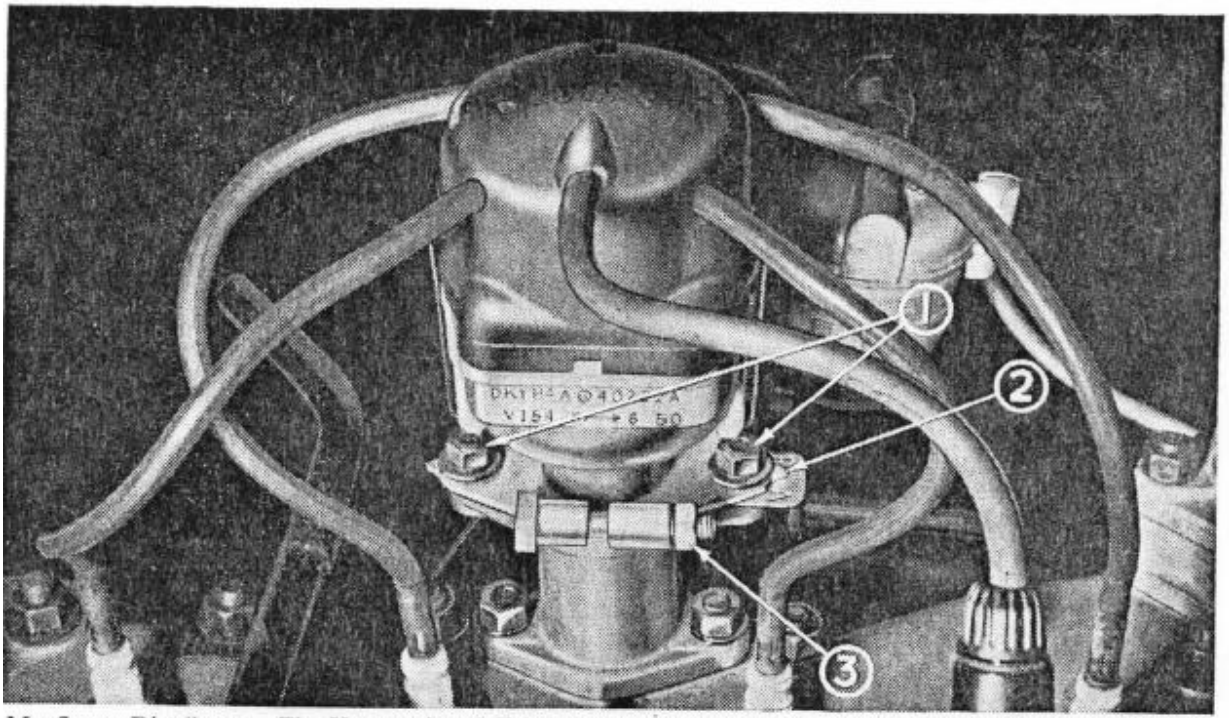


For small variations in ignition, slacken the holding nuts (1) and turn the pointers towards "a" or "R" as required. After slackening bolt nut (3) the distributor can be moved to any desired position

The ignition variation by this means is limited to the movement between the stops. The indicator plate is secured to the body of the distributor by means of a clamping bolt (3), while the pointer (2) is part of the plate secured by the two nuts. Loosening this clamping bolt (3) permits the distributor head to be moved through an unlimited range, this is useful when resetting the timing after a major alteration has been carried out.

Ignition Timing – Service Case Book, Standard Car Review, September 1952

I have been told that when my Mayflower engine is run in I could advance the ignition timing and that this would probably enable me to get a higher all out speed and even improved petrol consumption. Will you please advise which nuts I should slacken and which way to turn the distributor ?



Mayflower Distributor. The Vanguard and Triumph Renown distributors are the same but fitted in a different position owing to the o.h.v. engines, and are fitted with suction advance and retard mechanism (see text). For small variations of ignition slacken holding nuts 1 and turn pointers to advance the ignition towards "A" or towards "R" to retard it more. After slackening bolt nut 3 the distributor can be moved to any desired position of advance or retard, but this it not recommended for the use of anyone but an experienced mechanic.

T HIS is really a very simple operation and we reproduce here a close up of the ignition distributor head (top photo) from which to follow the directions for altering the timing and at the same time see exactly what happens.

It is difficult to lay down a hard and fast rule regarding ignition timing as so many factors affect this. For the best and most economical running the ignition should at all times be as far advanced as possible consistent with smooth running of the engine and the absence of that peculiar metallic noise known as pinking. There is, of course, a normal position for the timing at which setting the engine runs generally satisfactorily for average conditions, the normal variations brought about by faster or slower running on the Mayflower being looked after by the mechanical advance and retard mechanism, operated by centrifugal force moving two balance weights in the distributor head. This gives a more advanced ignition timing when the engine is running fast, and retards it slightly when running slowly.

Current models of Standard Vanguard and Triumph Renown have, in addition to this, a further advance and retard mechanism operated by suction from the inlet manifold, this Is not necessarily dependent so much on speed, as by the degree of negative pressure in the Induction pipe, thus if an engine is pulling hard, the ignition will slightly retard, whereas if running very light, say on a down slope with the throttle only slightly open, the suction in the manifold will be greater and the ignition will advance fully.

Now although this would seem to, make provision for all conditions, there are other factors which may make it desirable to vary this adjustment (which is affected in a similar manner on all Standard and Triumph models whether fitted with suction advance or not) to meet certain special conditions.

For example, slightly greater advance may be required by a very fast driver, who does not expect his engine to pull hard and so uses his gearbox to full advantage.

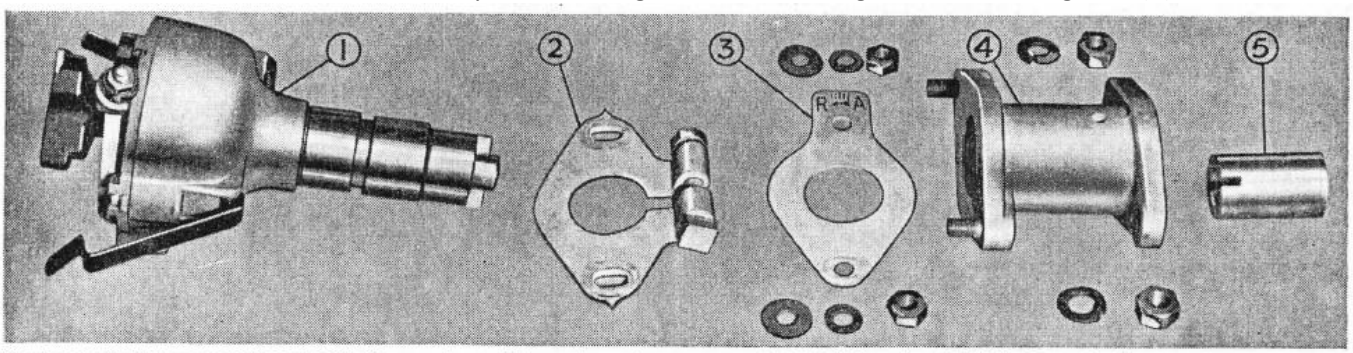
Improved octane fuel (which may be obtainable here before long) also needs more advanced ignition.

On the other hand, a very slow driver or poor octane fuel may require a slightly more retarded ignition. To cover this a simple device is provided for obtaining this variation if required.

A small plate below the distributor head is marked with a central position and several degrees to either side, and marked " R " (retard), " A " (advance), this variation can be made by slackening the two small securing nuts (1) and moving the distributor head until the Indicator shows 1, 2, 3 or 4 degrees of advance or retard as may be required. It is wise to move this adjustment only a degree at a time. The nuts are then tightened. The ignition variation by this means is strictly limited to the movement between the stops. The Indicator plate is secured to the body of the distributor by means of a clamping bolt (3) while the pointer (2) is part of the plate secured by two nuts (1). Loosening this clamping bolt (3) permits the distributor head to be moved bodily through an unlimited range, useful when resetting the timing after some major alteration has been made, such as the fitting of a new timing chain. The timing is then usually set roughly as contact points break with piston on top dead centre, with the adjustment plate at the midway position, thus allowing the few degrees either way for finer adjustment if required. Although this adjustment is limited it is generally preferable to use it as one knows exactly how much movement has been made and can restore it to the original setting if necessary.

If the distributor head will not move easily after the nuts (1) have been slackened it is probably due either to the indicator plates sticking together or to the fact that the limit of movement has already been made.

The distributor can be removed bodily from the engine after removing the two securing nuts (1).



Showing the distributor removed from the Mayflower engine and the securing and adjustment components separated to show their order of assembly.
1. Distributor head, with drive. 2. Clamp which fits under distributor head showing timing indicator pointers. 3. Calibrated plate with degree marks—ends of scale are marked " R " (retard) and " A " (advance), this plate is secured by the nuts shown on the extension mounting. 4. Extension mounting, note hole for oil to lubricate the drive if necessary. 5. Drive coupling offset so that it can only be fitted one way and so enable timing to be re-set easily after removal.

Dynamo Overhaul – John Williams, Practical Classics August 1983

Although dynamos can work satisfactorily for very long periods without attention they should be overhauled from time to time - a simple job requiring no special tools. The sequence of operations is shown in pictures and the dynamo receiving the treatment belongs to the MG Magnette ZB Varitone owned by *Practical Classics* editor Geoff Le Prevost. This Magnette has not run for a number of years but as far as we could tell the dynamo required no more than a thorough clean and a little lubrication.

The charging system will be properly tested and adjusted as necessary when it is reassembled in due course (and this may well be covered by a future article).

To remove the dynamo from the car disconnect the battery and then remove the terminals from the dynamo. Remove the nut and bolt on the quadrant which allows the belt to be tensioned and remove the belt (buy an extra fan belt before the job commences so that if you do fit a new belt you will still have a spare). Then remove the nut and bolt which secures the bracket at each end of the dynamo to the engine bracket and the dynamo can be removed to the bench.

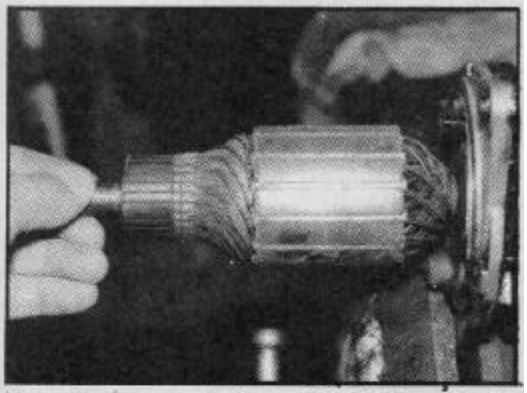
If you are taking the trouble to dismantle the dynamo it is worth fitting new brushes although this may not be essential; it may also be necessary to obtain new brush springs. The front bearing is unlikely to need replacement but if bearing wear is suspected obtain a new bearing anyway so that the job can be completed without interruption.

Having refitted the dynamo to the car make sure that the belt is neither too tight (which would place a considerable strain on the front bearing) nor too loose; the correct tension usually allows the belt about ½" of play at the centre of its longest run between pulleys. The workshop manual is usually specific about this, and note that a new belt will probably need further adjustment after 200-300 miles when it will have bedded-in to some extent.

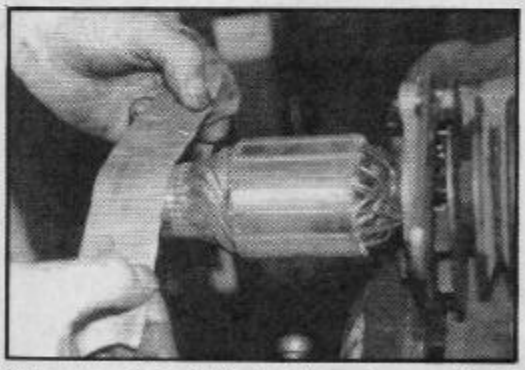
Start by cleaning the outside of the dynamo, then remove the two long screws (as Ted Landon demonstrates, left) which secure the end cover and the outer casing.

The end cover which carries the brushes and springs can now be lifted away.

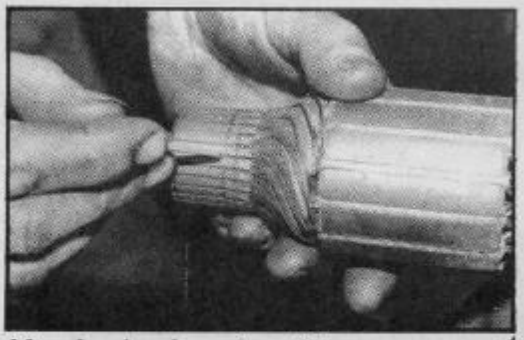
Having cleaned the inside of the end cover check the condition of the carbon brushes. If these are worn down to half of their original length it is worth replacing them. The brushes should move freely in their holders, the wires to the connectors should be undamaged, and the connections should be clean and tight. When new brushes are fitted or old but pitted brushes are to be re-used they can be bedded in by placing fine glass paper around the commutator and sliding each brush in turn into its holder; revolving the commutator by hand will then create the required curvature in the face of each brush. The brush springs should be capable of holding the brushes against the commuter but no effort should be made to increase their tension.



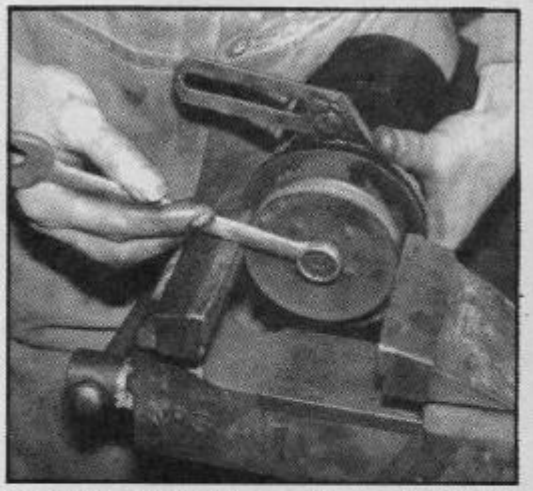
Here the outer casing (or yoke) which carries the field coils has been removed and if there is vertical movement at the commutator shaft it means that the bearing in the dynamo front cover is worn and should be replaced.



The commutator is likely to have become discoloured or perhaps slightly scored. This can be rectified as shown here by using very fine glass paper (never emery cloth).

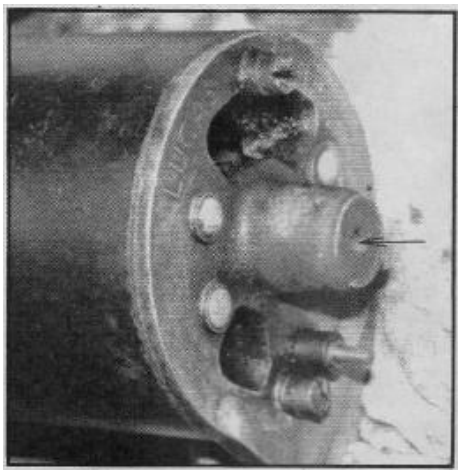


After cleaning the surface of the commutator the insulating strips between the copper segments will need to be cut back to about 1/32" below the surface ensuring that they are cut square. If this is not done the insulation will eventually stand clear of the copper segments thus preventing the brushes from making contact.



Even if the front bearing requires no attention it is worth removing the pulley in order to clean the front of the dynamo. Some pulleys are made of metal, others of bakelite, the latter can be held lightly in a vice but this should be done with care. Apply some releasing fluid to the nut a little while before you try to undo it, then, holding the pulley as shown here you should be able to undo the nut and slide the pulley off the shaft followed by a cooling fan, both of which fit over the key on the pulley shaft.

The front cover/bracket can be removed if it is necessary to change the bearing (which is not usual) – in this case it is a matter of removing the four rivets and using new rivets when reassembling. Screws or a circlip are used instead of rivets on some dynamos. The shaft can be driven out of the bearing using a mallet or hammer but take steps to protect the threads on the shaft. Note the order in which seals etc come apart and when fitting a new bearing remember to pack it with high melting point grease.



At the commutator end of the dynamo lubrication is by oil through the hole in the centre of the end cover (arrowed) inside of which is a felt pad which acts as a reservoir – make sure this area is clean and lubricate sparingly but at frequent intervals.

Lucas Generator Tests

For models: C39PV, C39Q, C40A, C40/1, C40AL, C40L, C40LQ, C42, C45PV-5, C45PV-6, C47, C48

The following tests should be carried out with a good quality Moving Coil Voltmeter. The meter should have a full scale deflection of at least 20 volts, with divisions suitable for taking readings to within 0.5 of a volt. A meter of this standard will be suitable for both 6 and 12-volt LUCAS equipped cars, trucks, etc., and 6 volt systems on motor cycles.

ALWAYS CHECK BATTERY CONDITION BEFORE COMMENCING TESTS

GENERATOR TESTS WITH THE MACHINE IN POSITION ON THE VEHICLE

Inspect generator mounting for tightness of bolts, etc.

Inspect the fan belt for correct tension, adjust if necessary. If worn or frayed fit a new belt. Make sure drive pulleys are correctly aligned.

If the belt and generator mounting are satisfactory and pulleys correctly aligned then proceed to Test 1.

Voltmeter Connections	Reading	Action
TEST 1. Disconnect leads from generator. Connect one lead of voltmeter to D terminal and the other to a good ground. Start engine and raise speed until generator is running at approx. 3,000 rev/mi n. When vehicle has a positive ground system positive meter lead must be grounded.	A. 2-4 volts as generator Is run up to charging speed (approx. 3,000 rev/ mln) (6 and 12 volt systems).	Armature and brush connections ok proceed to Test 2.
	B. Zero volts.	Examine brushes and make sure they are free in their boxes making good contact on the commutator. If still no reading fault is in **a**rmature which has to be replaced.
	C. Rising volts with rising speed.	Internal short between D and F terminals, examine field coils and rectify as necessary or fit replacement.
TEST 2. Connect meter as in. Test 1. Link terminals D and F on generator. Gradually speed up engine to fast "tick-over" speed. If an ammeter is used to link D and F, reading should not be more than* 2 amps, when normal voltage of system is registered on voltmeter. *2.5 for C42 with 4.5 ohm field.	A. Rising volts with rising speed—full scale reading at fast tick-over.	Generator in order, proceed to Test 3.
	B. 2 – 4 volts as engine is revved up (6 and 12 volts systems).	Open circuit in field coils, rectify as necessary or fit replacement.
	C. Zero volts.	Grounded field coils or field connection, rectify as necessary or fit replacement,
TEST 3. Reconnect leads of generator. Remove leads from D and F terminals at the control box. Connect one side of voltmeter to end of D lead, the other to a good ground, speed generator up to approx. 3,000 rev/mln.	A. 2 – 4 volts (6 and 12 volts systems).	D lead from generator to control box is in order, proceed to Test 4.
	B. Zero volts.	Rewire D lead which is open-circuited or earthed.
	C. Rising volts with rising speed.	Locate short between D and F cables.
TEST 4, Leave voltmeter connected as in Test 3. Join D and F wires together. Gradually speed up engine to fast "tick-over" speed.	A. Rising volts with rising speed.	Cables from generator to control box are in order. Proceed to Test 5 in Control Box Tests.
	B. Zero volts.	Earthed F lead.
	C. 2 – 4 volts (6 and 12 volts systems).	Open circuit in field lead between generator and control box.

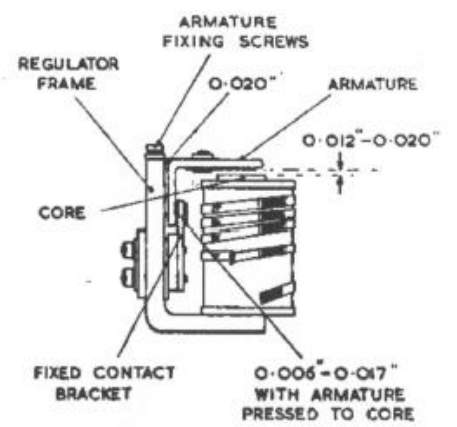
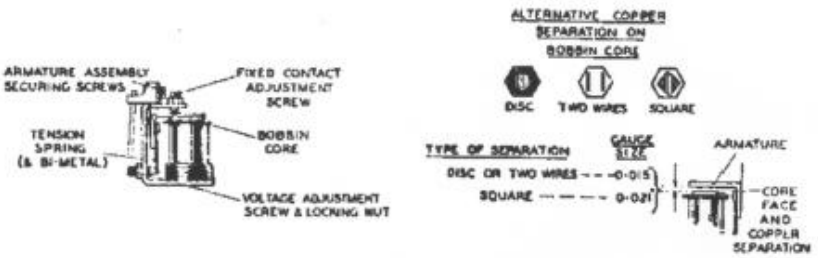
Lucas Control Box Tests

MODEL LRT9 REGULATOR--SINGLE CONTACT 2 BOBBIN TYPE
(Used with RF95, 96, RB106/1, MCR2, etc)

COMPENSATED VOLTAGE CONTROL TESTS WITH UNIT IN POSITION

On no account must these tests be made with the battery in circuit. To isolate the battery from the generator put a piece of dry card between the cut-out points. Remember the output of the generator, that is the current in amps, flowing from the generator to the battery is dependent on the state of charge of the battery. The generator will give a high output when the battery is in a low state of charge and a low output when the battery Is fully charged. Regulators must therefore always be set on open-circuit, a condition which is most easily obtained by inserting the piece of dry card as described above, alternatively, withdraw cables from 'A' and A1 terminals and join together temporarily.

Voltmeter Connection	**Reading**	**Action**
TEST 5, Reconnect generator leads to control box terminals D and F. Connect one lead of voltmeter to terminal A, the other to terminal E on the control box. Engine stationary.	A. Battery voltage	Regulator ground connection In good order. Proceed to Test 6.
	B. Less than battery voltage, or zero reading	Rectify bad ground or broken ground wire between terminal E and chassis
Test 6. Proceed to check regulator setting. Remove control box cover. Isolate the battery by placing a piece of dry card between cut-out contacts, alternatively, remove 'A' and A1 cables from terminals and join together temporarily. Connect one lead of voltmeter to terminal D (or frame of regulator) and the other lead to a good ground.	A. With generator running at approx. 3,000 rev/min voltage should remain constant within the following limits : ***Ambient Temp. 6 volt Equip. 12 volt Equip.*** 10°C 50°F} 8.0 – 8.5 16.0 – 16.5 20°C 68°F} 30°C 86°F } 8.0 15.5 –16.0 40°C 104°F}	Regulator in order. Proceed to Test 7
	B. Voltage remains constant, but outside the given limits.	Adjust regulator by turning the adjusting screw clockwise to increase or counter-clockwise to lower the setting. Check setting by raising speed from zero.
	C. Rising volts with rising engine speed up to 3,000 rev/min and beyond.	Check ' D ' and ' F ' leads for short circuit, if O.K. suspect broken shunt winding in regulator bobbin. The ground lead from control box terminal E is common to both shunt windings (regulator and cut-out). Hold a screwdriver near top of the bobbins and test for magnetic pull. If there Is pull on the one bobbin core and not on the other suspect open circuit on the latter. If no pull on either check for open circuited ground lead. Replace defective regulator.

Test 6 (continued)  Diagram 1.	D. Reading approx. Half setting	Suspect regulator contacts not passing current causing the contacts resistor to be In circuit the whole time. To test, bridge the contacts with screwdriver. This closes the circuit between D and F and we should get rising volts with rising speed, thus proving the contacts are burnt or corroded.
	E. Voltage does not rise with engine speed, or is erratic	Check air-gap Settings Types MCR1, MCR2, RF95, 96, 97, RB106/1. Insert a 0.020" feeler gauge between the crank of the armature and the L- shaped frame, and 0.012-0.020" gauge between the top of the core and the underside of the brass shim on the armature. Loosen the screws holding the regulator armature to the top of the L-shaped frame. Press downwards and backwards. Tighten the screws and check that clearances are as shown in diagram 1.
 Diagram 2.		Types RF95/3, RBI 06/2, RB107 and RB10e. Slacken the fixed contact screw and unlock armature securing screws. Insert appropriate feeler gauge between armature and core face. Press armature down squarely against the gauge and re-tighten securing screws. With gauge In position, screw the fixed contact down until it just touches the moving contact and tighten lock nut, see diagram 2. Reset the voltage adjusting screw as described under 6B.
TEST 7. Remove card from between cut-out contacts. Connect voltmeter to terminal A on control box and a good ground. Engine stationary.	Battery voltage	Proving that circuit from battery through ammeter to A terminal is O.K. Proceed to Test 8.
TEST 8. Leaving voltmeter connected as for Test 7. Start engine and watch voltmeter.	A. As cut-out closes the reading should increase 0.5 to 1 volt above battery voltage, and increase to the regulator setting in Test 6.	Cut-out is in order. Proceed to Test 9
	B. No voltage or very low voltage Is recorded when cut-out points close	Clean and adjust cut-out contacts so that they meet correctly.
Test 9.	A. Cut-out points close when	Cut-out is in good order

Connect one lead of voltmeter to D terminal of regulator or to the regulator frame Itself. Other voltmeter lead to a good ground	voltage is within the following limits : 6 volt 12 volt 6.3-6.7 12.7-13.3	
	B. Cut-out points close outside above limits.	Adjust by turning adjusting screw in to increase or out to decrease the setting. Re-test with voltage rising from zero.
	C. Cut-out does not close.	Fit replacement unit.

THE FUNCTION OF THE FUSES IN THE AUXILIARY CIRCUITS IN 12 VOLT SYSTEMS

Two fuses are incorporated in RP95 control boxes. The main feed is via the ammeter to the A terminal of the control box, then through the series winding in the box to A1 terminal. Terminal A1 is also the feed to the ignition switch and from there to A3 via internal connections In the control box through the fuse to A4 terminal. Any accessories connected to A2 will work irrespective of the Ignition switch position. Accessories connected to A4 will operate only when the Ignition is switched on.

The system is similar on RF96, RB106 and RB106/2 control boxes, but the fuses are mounted on a separate base.

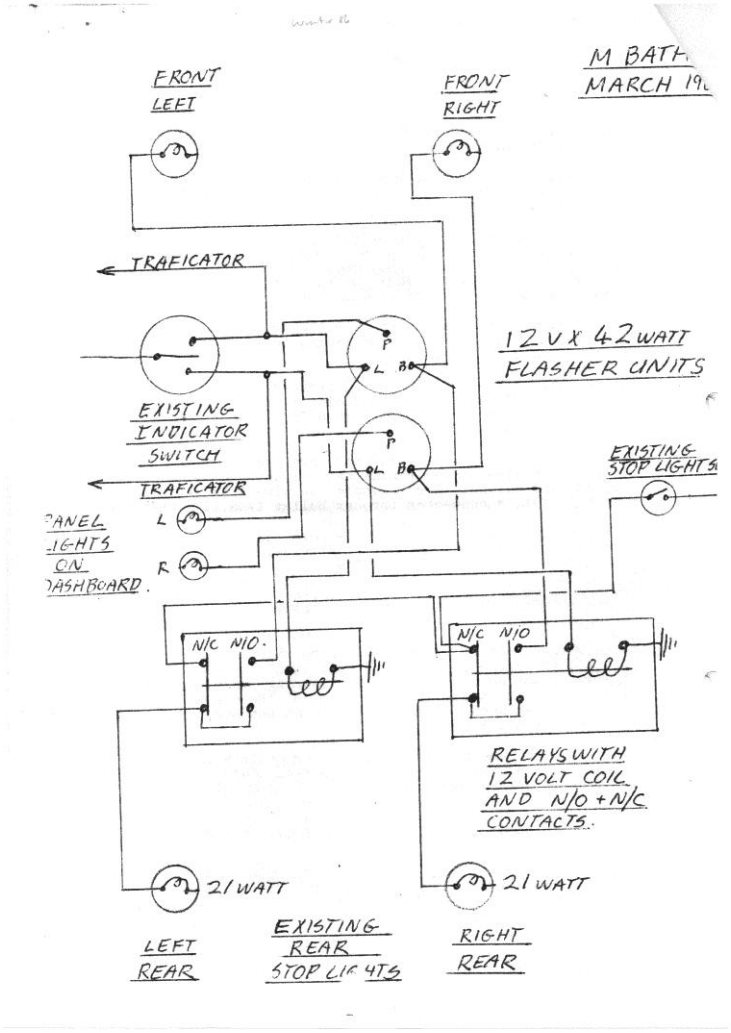
Concealed Flashers – Malcolm Bath, Flower Power Winter 1986

I have recently fitted flashing indicators to my 'flower but using the existing rear stop lights and front side lights. The associated wiring diagram shows the system, which I am sure can be installed by anyone who can wire up a spotlight to a switch.

Briefly the system consists of two Lucas 12V 42 watt flasher units and two relays (with bases) having 12 volt coils and normally open and closed contacts all fitted in the engine bay next to the voltage regulator/cut out. The relays can be obtained at any radio spares type shop. The interior of the two front side lights are replaced by the interiors used in the rear lights to give the 21/6W facility for side and flasher lights.

One new wire is run to the rear driver's side stop light terminal while the existing wire at this point is disconnected and a connector block is fitted. This then forms the supply to the passenger side rear light.

The existing cable connectors which are jumbled around the steering box area in the engine bay are used to interrupt and complete the wiring. For example the wire from the stop light switch is cut, a connector (proper bullet type like the original ones) is fitted and the wire extended to the relay as detailed.



The remaining cable end (which now serves the rear passenger side light) is also extended to the relay, thus using as much of the original wiring as possible.

The two interior panel indicator lights are fitted into the cardboard just above where the gear lever shaft goes through - very discrete!

The end result is an indicating system which retains the use of the trafficators, allows the stop lights to work normally (one will come on if the other is flashing) but is undetectable externally. It should also stop some of those near misses that seem to happen when the chap behind does not see the trafficator until almost too late!

I have covered the relays and indicator units with a six inch square by three inch deep cover made from quarter inch Perspex and finally sprayed matt black.

Adding Flashing Turn Indicators – M. Nicholls, Flower Power Summer 1993

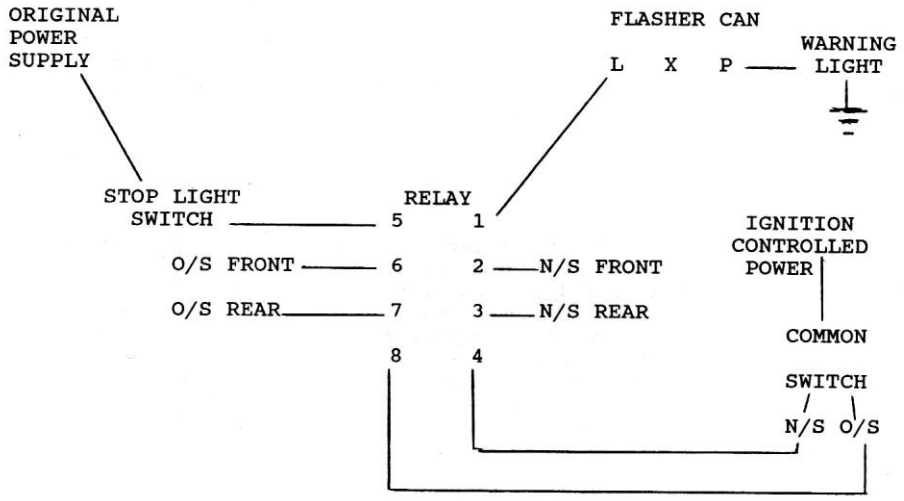
It was my aim to retain the old semaphore indicators in their original form and fit flashing indicators as well, although I did not want extra light fittings on the car. On looking through some old wiring diagrams I discovered that the early Morris Minors used a system whereby the front sidelights and the rear brake lights act as indicators. This system is still legal. The only change needed to the Mayflower is that the front side light bulb holders must be changed to take twin filament bulbs - the same holders as the rear lights, which are still available and do not cost a lot. The other bits required are a flasher can, some cable, a two position switch and a Morris Minor relay unit. It is also necessary to fit an indicator light on the dash if this is not incorporated in the switch.

The system can use the existing semaphore indicator switch if required and the existing semaphores can work with the flashers or can be disconnected. I wanted to have a completely independent system. The wiring is simple as can be seen from the diagram. The system allows the side lights and rear lights to work as normal, but when the indicators are used the rear brake light flashes to indicate the direction of turn independently of the other brake light and the second filament at the front will flash in the sidelight fitting. Note that white lenses must be retained for the front lights as amber side lights are now illegal.

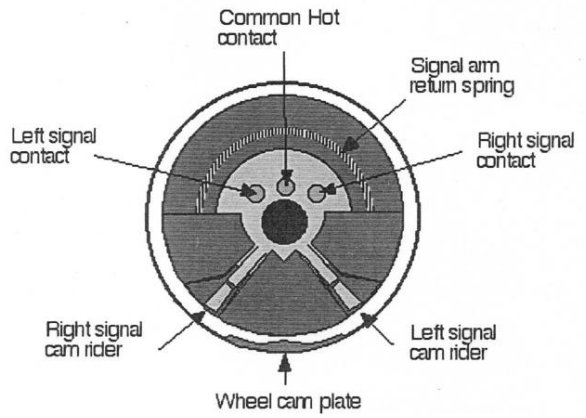
FITTING INSTRUCTIONS

- Disconnect the battery - MOST IMPORTANT.
- Use recognised cable colours to make fault finding easier later.
- Mount new units in convenient places & replace side light holders and bulbs with twin filament ones.
- Disconnect and tape up the wire from stop light switch to stop lights (green/purple). Leave the power to the switch alone (green).
- Disconnect cables to the stop lights at the snap connectors in the boot. Tape up disconnected wires.
- Run cable from the stop lamp switch (green/purple) to 5 on relay.
- Run a cable (green/purple) from O/S stop light to 7 on relay.
- Run a cable (g/p) from O/S front light (bright) to 6 on the relay.
- Run a cable (green/brown) from L on flasher can to 1 on relay.
- Run a cable (green/white) from O/S switch position to 8 on relay.
- Run a cable (green/yellow) from N/S stop light to 3 on relay.
- Run a cable (g/y) from N/S front light (bright) to 2 on the relay.
- Run a cable (green/yellow) from N/S switch position to 4 on relay.
- Run a cable (green) from common on switch to ignition controlled power accessory fuse (green).
- Run a cable(green) from X on flasher can to ignition controlled power accessory fuse (green).
- Run cable from P on flasher can to an indicator light in dash if your switch does not incorporate a built in light. There is a legal requirement for an indicator light.
- Finally - Check all connections, reconnect battery, and test.

If you haven't got your wires crossed you should now be a flasher.



TR3A Control Head Turn Signal Mechanism - Craig Landrum**,** Jan 4,2009

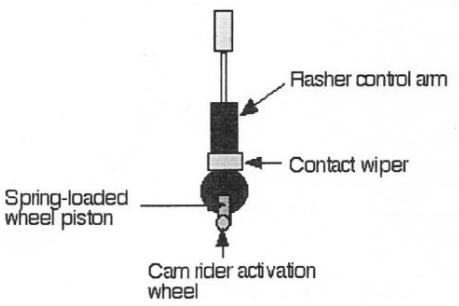


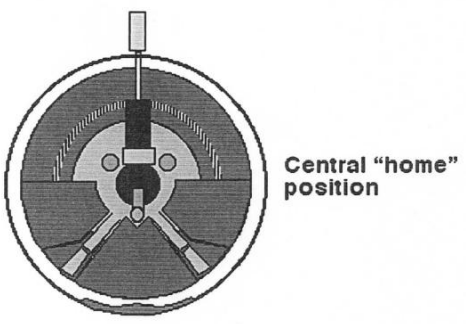
While correcting a horn problem, I had the occasion to disassemble and rebuild a TR3A control head. In the process I learned how the turn signal mechanism works – in particular the method by which the turn signal is turned off after the turn has been completed. I'll endeavour to explain the basics of this mechanism in this document. My terminology will likely differ from any professional manuals that detail the subject, but I hope to convey the basics.

Leaving out the rather simplistic horn contacts and horn button, the control head turn signal mechanism consists of three main components - the control head contact plate, the turn signal arm, and the wheel cam ring and plate. The control head plate and signal arm are attached to the stator tube and remain stationary, while the wheel ring and cam plate rotate with the steering wheel. The wheel cam plate is normally located at the 6 o'clock position when the steering wheel is in the straight ahead position.

The control head contact plate is black plastic or Bakelite and has three contact points – a common hot wire, the right turn signal contact, and the left turn signal contact. The central hot contact is connected to either the right or left turn signal contact by a spring loaded wiper plate located on the signal arm. In addition, there are two "cam riders" which have spring-loaded joints, allowing these riders to bend at the middle. The wheel cam ring and plate make contact with these cam riders to return the signal arm to the home position after completion of a turn.

The signal or flasher control arm is equipped with a small spring-loaded square piston on its bottom edge. At the end of this piston is a small metal wheel which provide for smooth operation of the arm and also presses against the inner ends of the cam riders when either the left or right signal is activated. When no signal is activated, this wheel rests in a " V " shaped area between the cam riders.

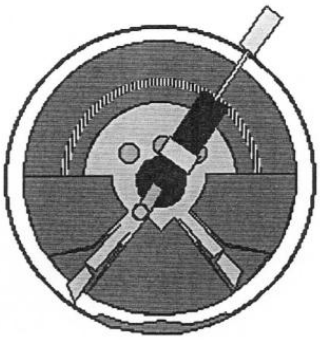




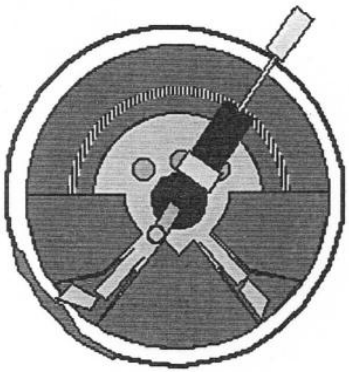
To illustrate how all this works, assume we elect to activate the right turn signal. The spring-loaded piston/wheel at the bottom of the signal arm moves clockwise and presses down on the top of the right turn cam rider. This forces the right signal cam rider outwards and also pushes the piston/wheel into the cam rider slot, holding the arm in the

rightmost position. Note that this also compresses right side of the signal arm return spring.

As the steering wheel is moved clockwise during the right turn, the wheel ring and cam plate move past the right cam rider that is being pressed outwards. Note that the left cam rider is loose in its slot and has no effect. Also note how the shape of the control plate cam rider slot allows the spring-loaded cam rider to bend in the middle. This allows the cam rider to "ride past" the cam when the wheel is moving right or clockwise.



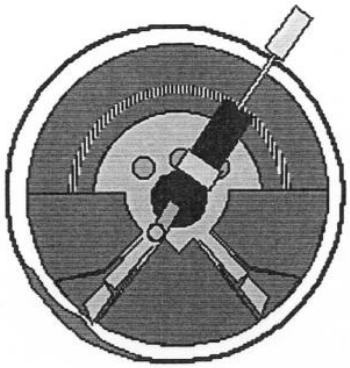
Right signal activated



Right turn in progress

When the turn has been completed, the wheel cam ring and plate move counter clockwise. However, when the plate again contacts the right cam rider, the shape of the slot will not allow the cam rider to bend. In this case, the rider is pushed upwards by the central raised area of the cam plate, compressing the spring-loaded piston/wheel.

As the cam rider presses upwards and pushes against the piston/wheel, the previously compressed signal arm return spring forces the signal arm back to the home position, allowing the wheel to come to rest in its central " V " shape rest area.



Right turn recovery

Problems associated with this mechanism

The most common problem associated with the turn signal mechanism is probably the inability of the signal arm to recover to the home position after a turn. As can be readily seen from the illustrations, the likely problem areas to examine are:

1. Spring-loaded square piston/wheel at the bottom of the signal arm. Is the spring broken or weak or missing or incorrect? There are two loose springs in the turn signal area of the control head - a small short spring the fits behind the wiper plate and ensures that the plate makes good contact with the common/left/right contact points; and a longer, more substantial spring the fits inside the signal arm and piston and supplies the pressure that forces the cam riders downward. Note that this is a substantial pressure - not light or "wimpy" - and it must push the piston/wheel out far enough into the cam rider slot to hold the arm in position during a turn.
2. Are the cam riders in the correct position and bending as they should? One end of each of the cam riders is sloped. This slope should point towards the bottom of the control head. In other words, the sloped side is what rides up the cam hump during the recovery stage of the turn. The flat side is what hits the hump during the turn and causes the cam rider to bend in the middle.
3. Are both signal arm return springs present and in position and intact? These two springs (one on each side of the signal arm) are threaded onto a half-circle of thick steel wire and supply the tension that forces the arm to return on its home position once the cam-rider has forced the piston/wheel upwards a sufficient amount to clear the top of the cam-rider slot. There are two small washers threaded onto this steel wire also - they rest against the side of the signal arm and the springs rest against the washers.
4. Is the wheel ring and cam plate present and intact? There should be a small gradual hump on the inside of the cam plate. It is this hump that forces the cam rider upwards during the recovery phase of the

operation. If this hump is worn down, it will not push the cam rider upwards a sufficient amount to push the piston/wheel above the top of the cam rider slot. In this case it may be possible to correct the problem by adding additional metal to the hump (silver solder perhaps?) or by slightly bending the cam plate inwards a bit.

If all of the springs, cams, and mechanisms appear in good working order, the problem is likely to be lubrication. Some light grease or oil on the top of the cam riders and the piston/wheel can help, as well as a drop of oil on the pivot point where the signal arm is joined to the control head contact plate.

Access To The Instrument Panel – Eddie Copson, Flower Power, Autumn 2004

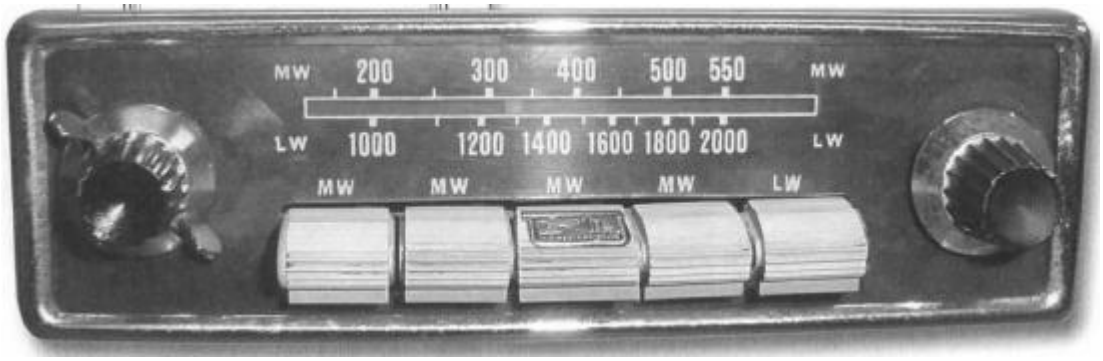
I have had this car for two years now and like everyone else must have had those four horrible brass wing nuts that secure the facia panel on and off so many times you would think that screwing them back on should be easy, not a bit of it.

Well here is a modification readers may want to try. Remove the first three or four threads with a 5mm drill. This helps to align the nut on to the screws. But beware you must screw a 2BA screw into the back of the wing nut because the drill will snatch and remove all the threads!

Run the screw through after drilling to realign any damaged threads.

Need Help Tuning Your Car Radio? – Flower Power, Spring 2006

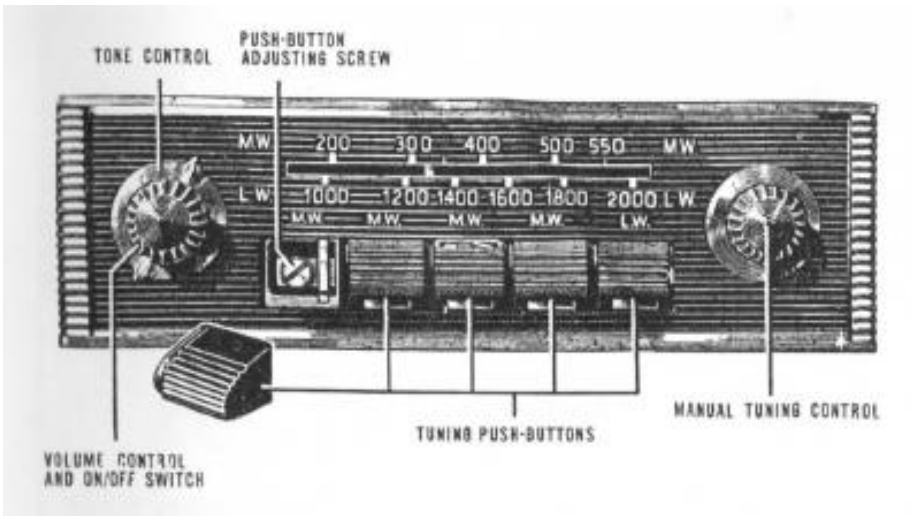
The Smiths Radiomobile MW/LW Model 4200 was recommended by Standard Triumph as the most appropriate receiver for the Mayflower. Here are the operating instructions.



SMITHS RADIO

The controls of these receivers are easy to operate. Nevertheless, read the instructions carefully so that you can get the best results from your His Master's Voice automobile radio.

OPERATING INSTRUCTIONS: MODEL 4200 (12 volt,) MODEL 4201 (6 volt)



THE CONTROLS for these receivers are shown in the illustration above.

THE COMBINED VOLUME CONTROL AND ON/OFF SWITCH is on the left of the five push buttons. This control switches the receiver on when turned clockwise and progressive rotation of the control increases the volume.

Turning the control fully anti-clockwise will switch off the receiver. Allow about 40 seconds for the receiver to warm-up' after switching on.

THE TONE CONTROL is concentric with the Volume Control and On/Off Switch and provides selective tone correction for reproduction of either speech or music, by four separate tone settings. The control is turned fully anti-clockwise for speech and fully clockwise for music, the two intermediate settings being provided to suit individual taste.

THE MANUAL TUNING CONTROL is on the right of the push buttons and provides completely variable station selection. A feature of this control is that the knob will not engage the tuning mechanism until it is pressed in; otherwise the knob will idle. This prevents accidental disturbance of a station setting previously selected by a push-button.

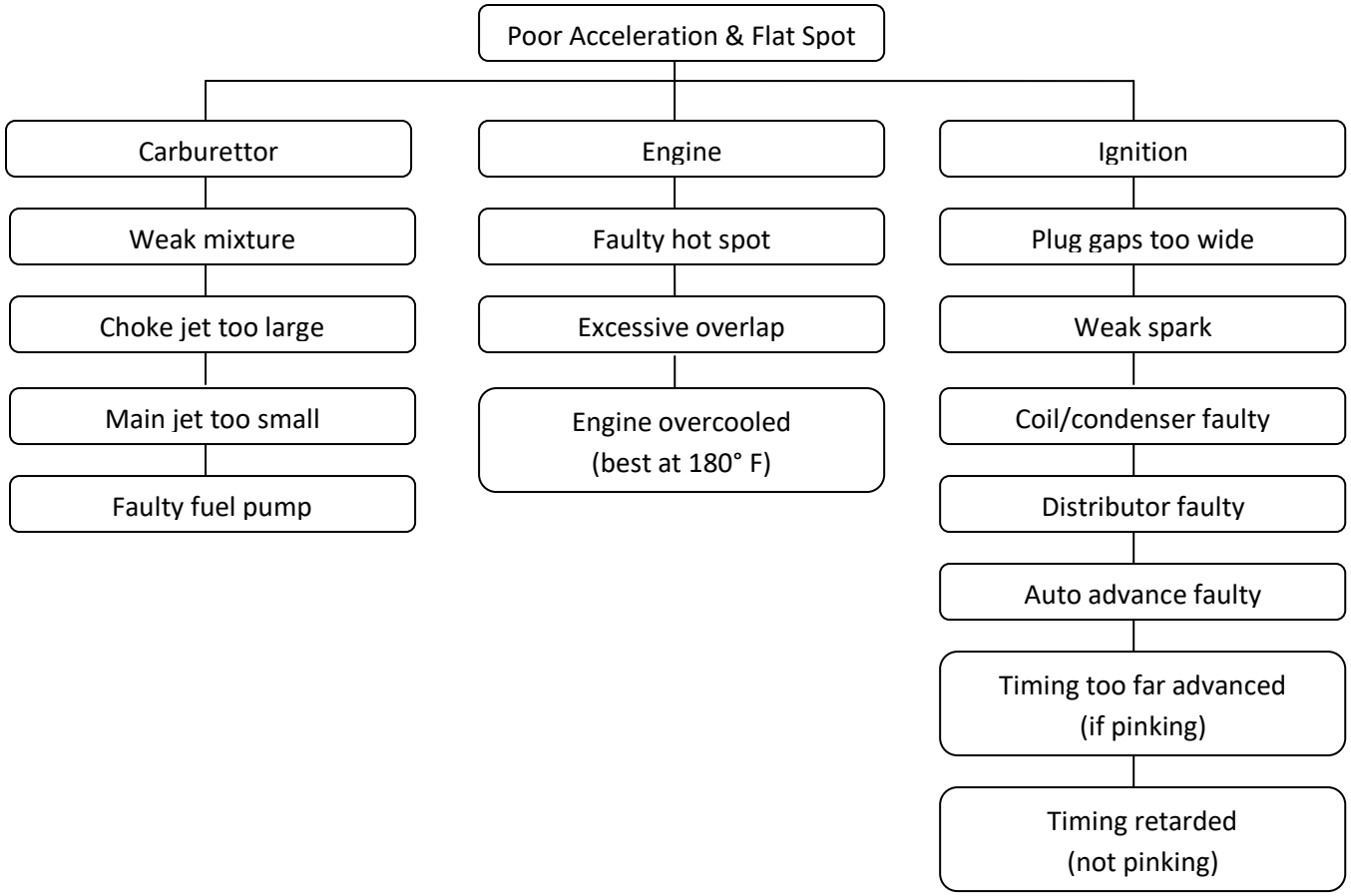
THE FIVE TUNING PUSH BUTTONS provide automatic tuning of five stations preselected from the Medium and Long wavebands. The right hand button provides for one station on the Long waveband, the four remaining buttons being employed for Medium Wave pre-selection. The indication MW (Medium Wave) or LW (Long Wave) is marked on the Tuning Scale immediately above each pushbutton. Wave-change switching is automatically effected when a button is pressed for any pre-selected station.

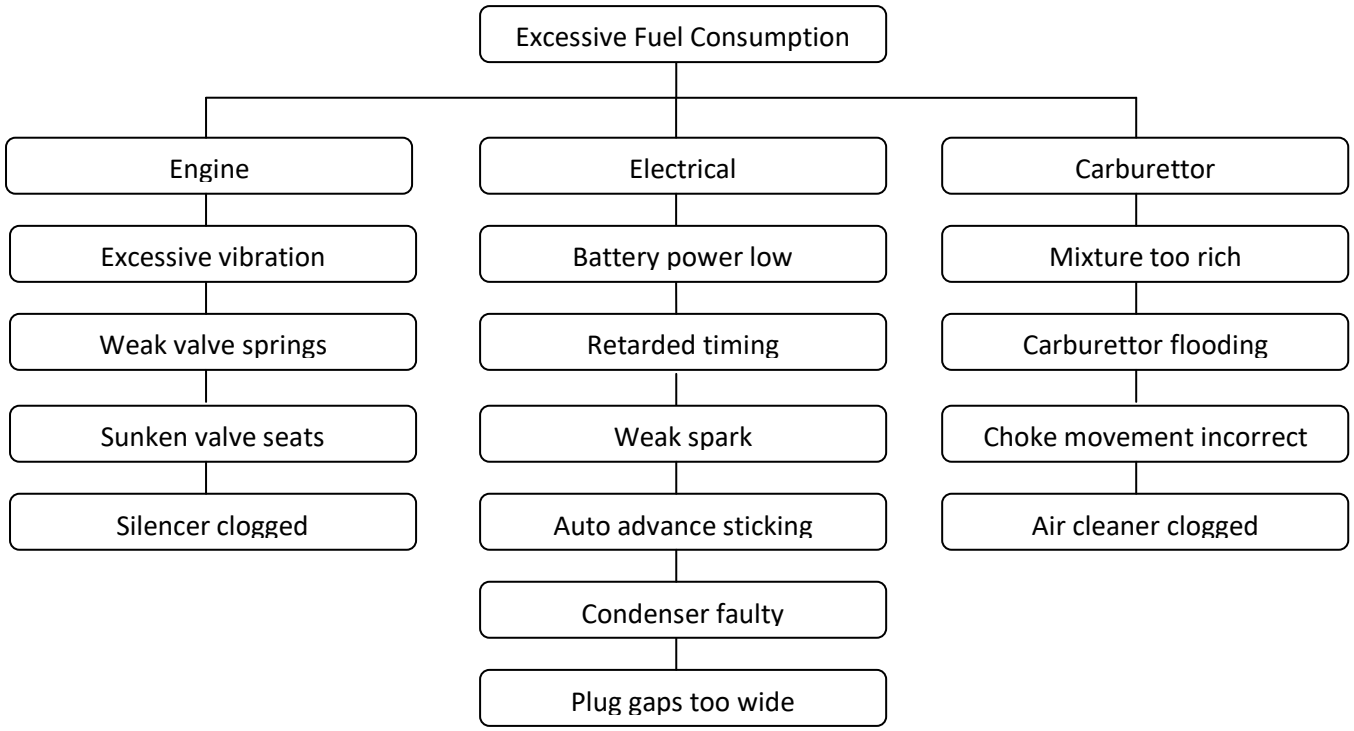
THE TUNING SCALE is divided into two sections — Medium Wave and Long Wave and is calibrated in wavelengths. The tuning pointer has a horizontal traverse and is viewed through a narrow window between the two scale sections. Illumination of the Tuning Scale is by means of edge-lighting.

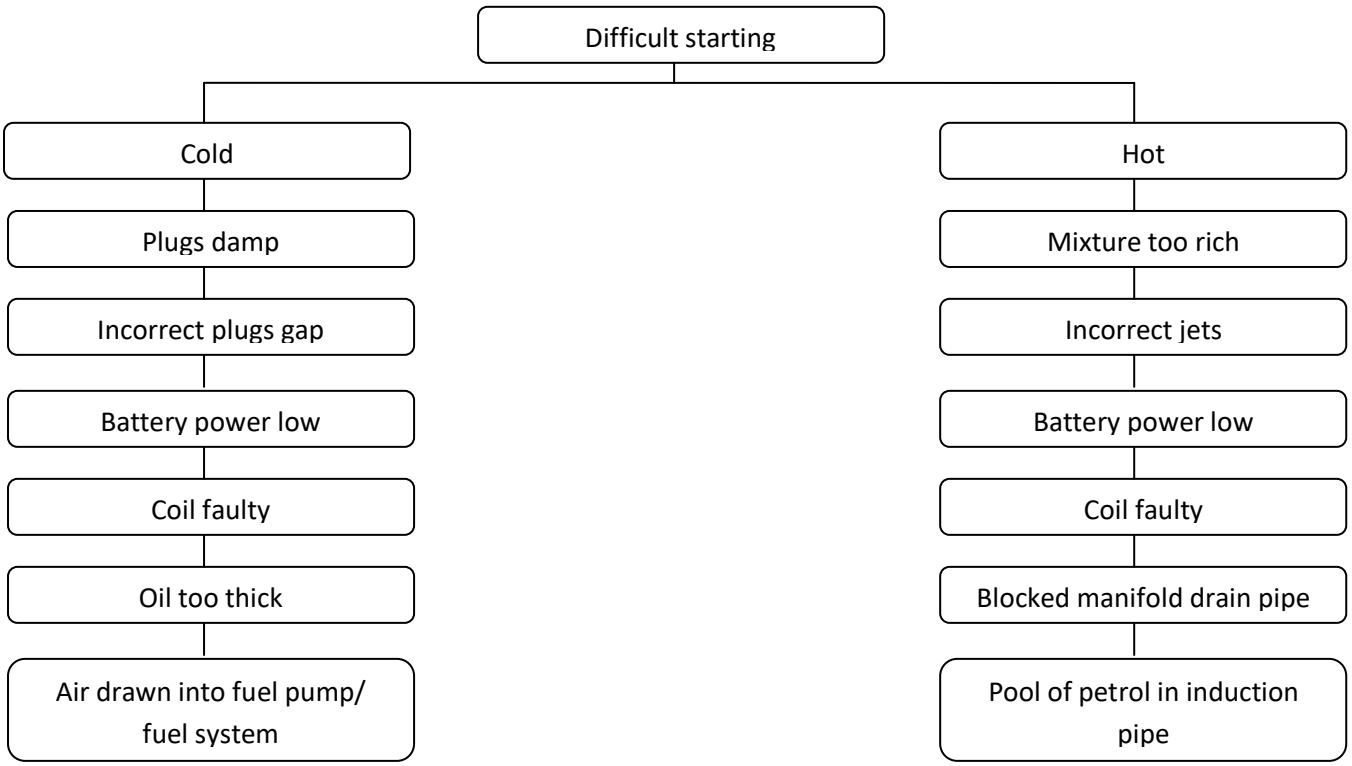
TO SET UP THE TUNING PUSH BUTTONS

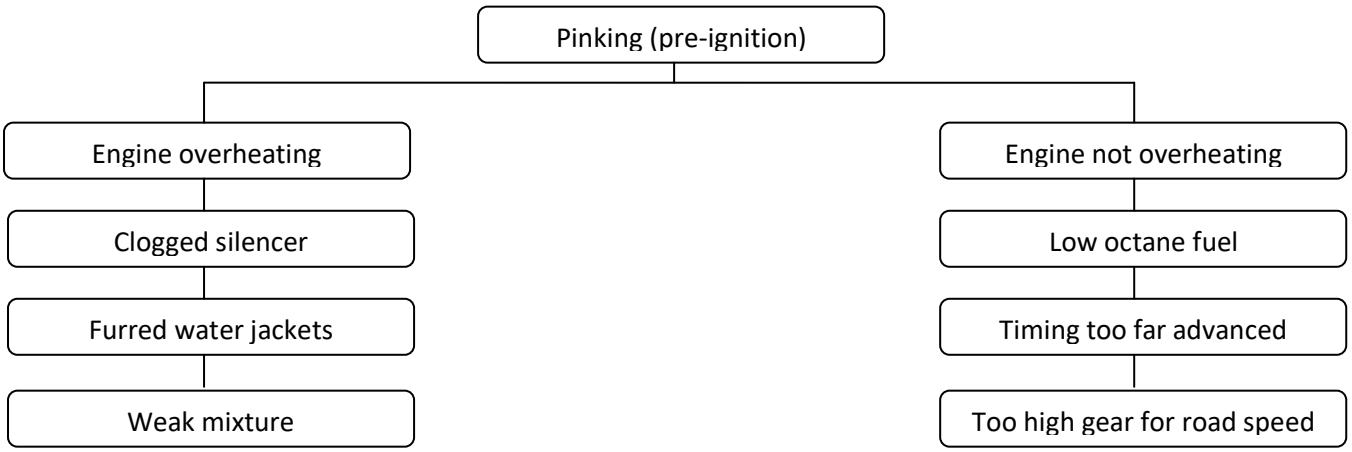
1. Select the waveband required by pressing the appropriate push-button.
2. Tune in the desired station by means of the Manual Tuning Control as described previously.
3. With the station accurately tuned-in, remove one of the push buttons by simply pulling outwards. A lip is provided on the underside of each button to facilitate removal.
4. Insert edge of small coin in screw-slot of button plunger and unscrew (i.e: anti-clockwise) about half a turn.
5. Push the plunger as far as it will go, release and retighten by means of screw slot.
6. Replace the button, which is now set to the desired station and independent of manual tuning. Proceed in the same manner for the remaining buttons.

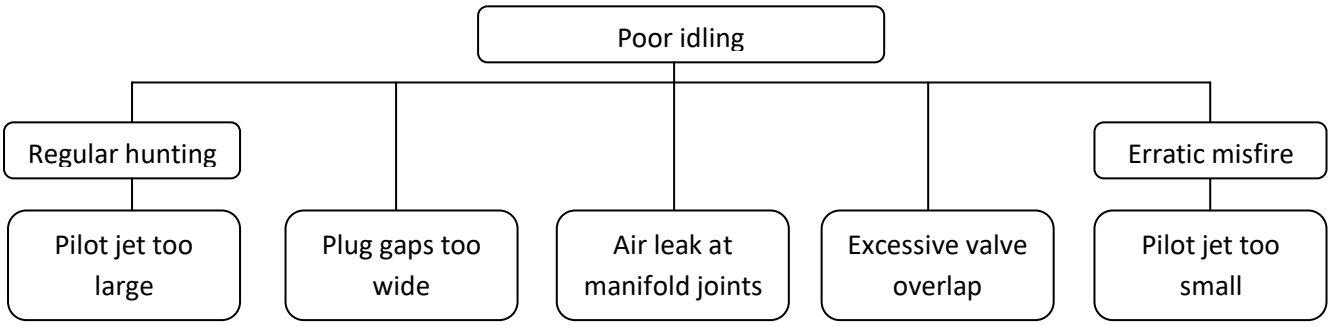
Fault Diagnosis Flow Charts For Engine & Carburettor – Flower Power Summer 1990

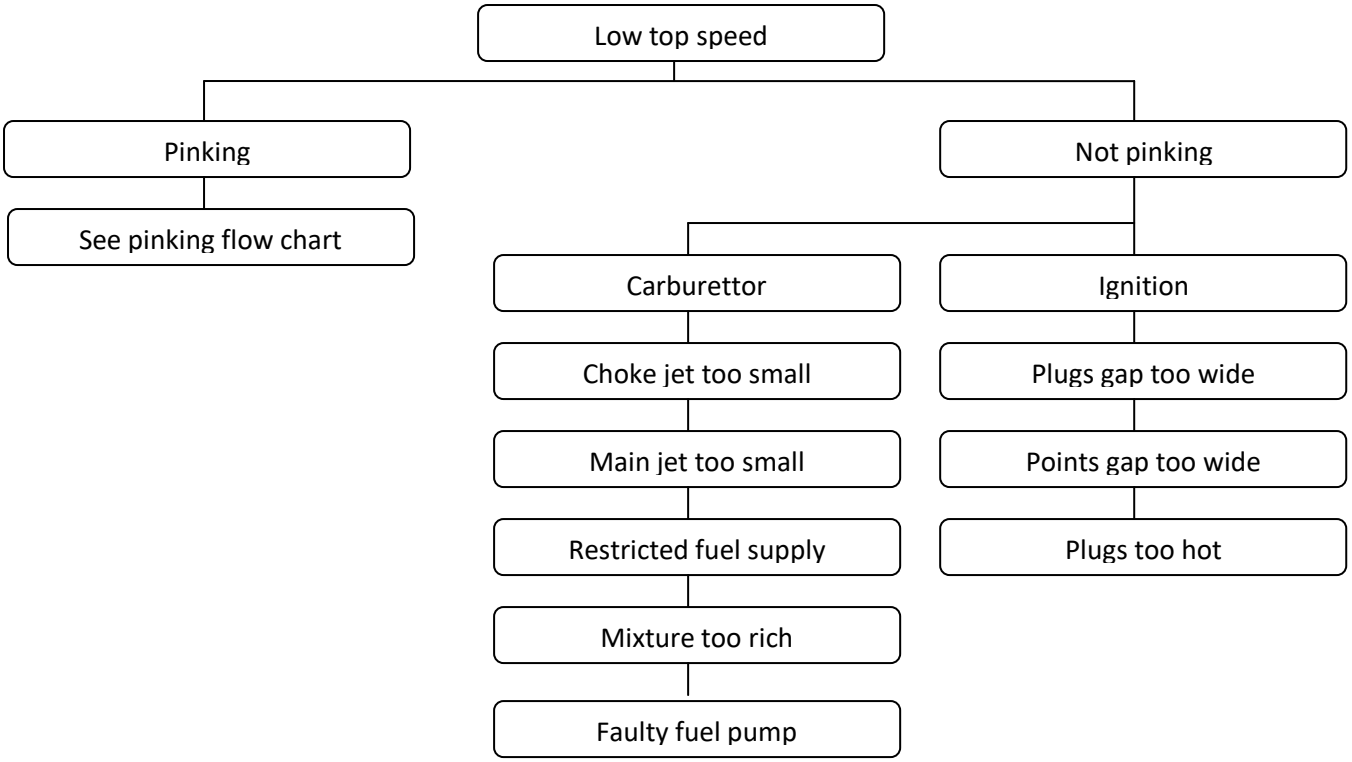





Difficult starting
Cold
Plugs damp
Incorrect plugs gap
Battery power low
Coil faulty
Oil too thick
Air drawn into fuel pump/ fuel system
Hot
Mixture too rich
Incorrect jets
Battery power low
Coil faulty
Blocked manifold drain pipe
Pool of petrol in induction pipe


Pinking (pre-ignition)
Engine overheating
Clogged silencer
Furred water jackets
Weak mixture
Engine not overheating
Low octane fuel
Timing too far advanced
Too high gear for road speed

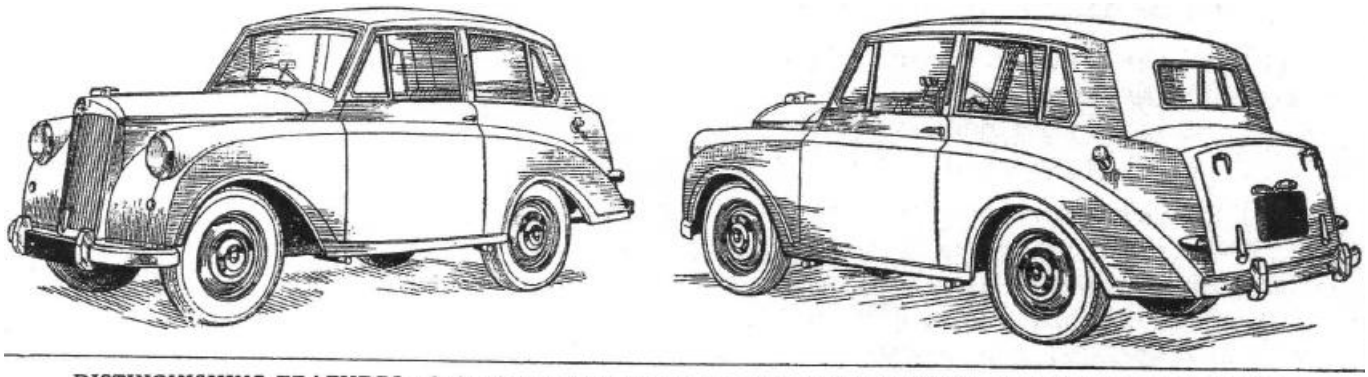

Poor idling
Regular hunting
Pilot jet too large
Plug gaps too wide
Air leak at manifold joints
Excessive valve overlap
Erratic misfire
Pilot jet too small



Trader Service Data No 180 – Motor Trader 1951, Flower Power Spring 1988

Triumph Mayflower Type 1200T 1950 - 51

Manufacturers: Standard Motor Co., Ltd., Banner Lane {Regd. Offices), Coventry.
Sales and Service: Fletchamstead Highway, Coventry.



DISTINGUISHING FEATURES—Only change in outward appearance has been fitting of block lenses to headlamps

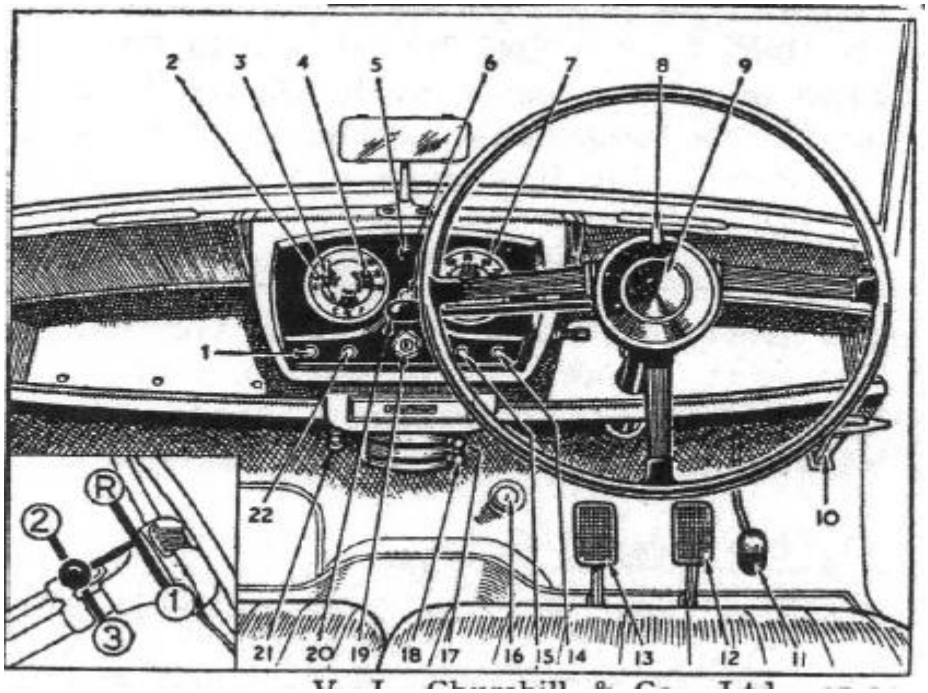
Introduced at the 1949 Earls Court Motor Show, the Mayflower came into production in May, 1950. Original in styling, the car has an integral chassis and body. Independent front suspension with coil springs, a side-valve engine based on that of the pre-war Standard Ten, and a transmission on the same lines as the Standard Vanguard. Engineering changes introduced since the car was first produced are listed here.

Commission numbers (car serial numbers) starting at 1, prefixed TT and suffixed D L , indicating body type, are stamped on a plate on the near side of the scuttle under the bonnet. Engine serial numbers, also starting at 1, prefixed TT and suffixed E, are stamped on a boss at the offside rear of the engine below the oil filler. Engine and car numbers do not necessarily correspond.

American S. A. E. threads and hexagons are used throughout, except on some proprietary components.

Instruments and Controls:

1. Choke
2. Petrol gauge
3. Oil pressure gauge
4. Water temperature gauge
5. Ignition warning light
6. Heater motor switch
7. Speedometer
8. Trafficator switch
9. Horn push
10. Handbrake
11. Accelerator
12. Brake pedal
13. Clutch pedal
14. Starter switch
15. Screenwiper switch
16. Dipper switch
17. Heater air control
18. Demister control
19. Lighting and ignition switch
20. Gear lever
21. Scuttle ventilator control
22. Panel and roof lamp switch



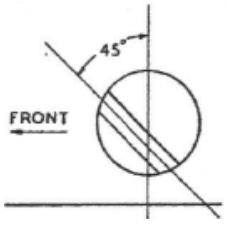
IGNITION

Anti-clockwise distributor with centrifugal advance, spigoted in drive housing bolted to cylinder head, and retained by clamp plate, which is slotted for timing adjustment. Plate between clamp plate and housing has timing scale.

Set contact points to break 2 deg (about one tooth on flywheel) before T. D.C. T.D.C. mark on flywheel cannot be seen with bell-housing in place, but fan pulley is drilled, with pointer on timing cover.

Distributor driven by offset dog pinned to top of long vertical drive shaft, which runs in flanged bush in crankcase below skew drive gear, and engages with oil pump shaft at lower end. Combined skew drive gear and fuel pump eccentric retained on centre of shaft by loose pin located by spring clip. Upward end thrust of shaft taken by horseshoe collar bolted to bridge-piece with shims (.003, .005, .007 and .010in thick) to give slight side play in shaft.

To extract drive shaft, remove distributor and fuel pump (to release push rod, which is spring-loaded towards eccentric and supported in steel bush at eccentric end). Remove bridge-piece and thrust collar together. Lift shaft until spring clip can be removed and pin extracted. Draw shaft out upwards through skew gear.



When refitting shaft, assemble with skew gear and lower into mesh with camshaft when crankshaft is at T.D.C. 1/4, so that slot at top is in position shown in sketch.

When refitting thrust collar (if it has been separated from bridge - piece) note that ground face fits towards skew gear. Before tightening setscrews, insert .003in shim or feeler between thrust faces to ensure slight end-float. Make sure, also, that shaft does not bind in collar.

ENGINEERING CHANGES

	Comm. No. (Prefix TT)
Longer rear springs fitted, with new spring plates and longer stroke shock absorbers	451
Rear springs stiffened (thicker leaf substituted)	928
Oil relief valve changed, ball to plunger. New plug	1356 E
Camshaft, and distributor drive gear, changed from casting to forging. Must be replaced together	1408 E
Rear spring changed, ten leaves to eight thicker leaves	3071
Oil bleed holes in con rod big ends deleted	3215 E
Headlamps changed to double dip, with block lenses and 42/36 watt bulbs	3264
Fuel pump with hand primer introduced	3407 E
Wheels with larger offset (1.125in instead of .63in) introduced. Track increased	5535*
Engine front mounting to frame, bolts changed to studs. Slotted mountings introduced (interchangeable)	6010 E
Fan and pulley changed, integral to separate. *New assembly must be used with new dynamo*	6109 E†
New (higher output) dynamo and new control box introduced. *New control box must not be used with old dynamo, but new dynamo can be used with old control box*	6155 E‡
Oil level in rear axle raised to bottom of filler threads. Dipstick deleted	6813
Manifold clamps strengthened. Longer studs	Pending
Differential gear and pinion thrust washers introduced	Pending
Screenwiper, more powerful motor introduced. *New drive (steel pinions) must be fitted with new motor*	Pending

* Except comm. Nos. 5547-5552.
† At comm No. 6131 (chassis).
‡ At comm No. 6134 (chassis).

BODY DETAILS

For access to instrument wiring detach millboard trim panels on either side of panel, and detach moulded cover (four thumb-nuts behind). Disconnect oil gauge pipe and speedo drive, and choke and starter wires at engine end. Pull out knobs and wires, and detach inner panel (six screws and cage nuts), taking care not to damage temperature gauge tubing.

Screen wiper drive accessible after removal of inner instrument panel.

ELECTRICAL DATA
Lucas Equipment

	Model	Service No.
Dynamo : early	C39PV	22250F
later	C39PV	22258A
Starter : early	M35G-1	25034
later	M35G-1	25022E
Starter switch	ST19/1	764401
Lighting and ignition switch	PRS2	31194
Control box : early ...	RF98/2	37048A
later ...	RB106-1	37138A
Battery	GTW7A	—
Distributor...	DKYH4A	40232
Coil	Q12	45020
Headlamps : early : N/S...	F700Mk3	30835
O/S...	F700Mk3	30836
block lens ...	F700Mk3	50949
Side lamps	489	52139
Stop/tail lamps	488	53211
Number plate lamp ...	467/2	53093
Trafficators	SF34N	54039
Screenwiper	CR5	75064
Horns : high note	WT614	69012
low note	WT614	69011
Fuse box : early	SF4	37134A
later	SF6	37132A

BULBS

	Voltage	Wattage	Lucas No.
Headlamps :			
home n/s	12	36/36	300
home o/s	12	36	162
double dip... ...	12	42/36	354
export r.h.d. ...	12	36/36	300
export l.h.d. ...	12	36/36	301
Side lamps	12	6	989
Stop/tail lamps ...	12	6/24	353
Number plate lamps :			
either	12	6	989
or	12	4	994
Ignition warning and panel lamps ...	12	2.2	987
Trafficators (festoon)	12	3	256
Interior lamp (festoon)	12	6	254

FUSES

Accessories	35 amperes	FA35
Horns	50 amperes	FA50

TRIUMPH MAYFLOWER WIRING DIAGRAM