The Classic 'Y'

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The Newsletter of The M.G. "Y" Type Register

EDITORIAL

I have decided to reduce the normal content of *TCY* from eight to six pages, and this is the first. Nowadays there is relatively little new material coming to light for me to publish and it therefore seems sensible to try and prolong the life of *TCY* as much as possible by spreading out the publication of what I do receive or otherwise come by. There is another reason for the change - postal charges. Now I know that U.K. domestic second-class post has just gone down by 1p (amazing in itself!) but the catch was that many of the overseas rates have gone up, and these days nearly 65 per cent of *TCY*'s postal costs relates to copies sent abroad. Therefore, if there are only six pages an issue I can take advantage of the next-lower postal weight band and keep the postal expenditure to around what it was before.

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S.U. Electric Fuel Pumps

The first of two items we have for you in this issue on S.U. fuel pumps is taken from *Questions and Answers on Automobile Trouble Tracing* edited by E.Molloy and published by George Newnes Ltd., London. It was published in 1953 and has been sent in by Dave Mullen.

How would you set about locating trouble in the pump ?

If the pump is not heard to operate although there is petrol in the tank, disconnect the petrol delivery pipe from the pump; should petrol now be ejected from the pipe, the most likely cause of trouble is a sticking needle valve in the float chamber of the carburettor. Should, however, the pump still not respond, disconnect the supply union; if the pump now begins to function, the fault is most likely to be a choked supply line and this may be cured with the aid of compressed air. Dirty contacts may cause failure of the unit: these should be cleaned by holding them together and passing a piece of emery card between them. The contact gap should be 0.03 in. Failure of the points to operate may also be caused by a hardened diaphragm, or by obstruction of the roller by foreign matter. To rectify these faults, the pump should be stripped and cleaned.

What are the most likely causes of a noisy pump ?

If there is plenty of petrol in the tank, the most likely cause is an air leak on the suction side. To trace such a leak, disconnect the petrol pipe from the carburettor and allow the unit to pump petrol into an oil measure, with the end of the petrol pipe submerged in the petrol: air bubbles will indicate a leak.

Noisy operation may also be due to the petrol boiling before it reaches the pump: this is most likely to occur in hot weather after hard running. It is usually caused by the petrol pipe being positioned too near the exhaust pipe, and can often be cured by placing an asbestos shield between the pipes.

What fault would you suspect if the pump functions mechanically but does not deliver petrol?

A common cause of this fault is that a piece of dirt has become lodged beneath one of the valves. This can be removed by unscrewing the top union and lifting out the valve cage: when replacing, take care that the washers are fitted in their correct sequence (thin red fibre below the valve cage, thick orange one above it). A choked filter or obstruction to the inlet supply will cause the pump to run at a very high temperature, and if not cleared, will burn out the pump.

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Next, we have an article which first appeared in *T-Times*, the magazine of the Michigan Chapter of the N.E.M.G.T.R....

Trials and Tribulations of the S.U. Fuel Pump

The S.U. fuel pump as used on the M.G. and other British cars represents a maintenance and service challenge seldom equalled in automotive annals. After struggling for several years with one particularly recalcitrant unit, I would suggest that when the fuel pump quits pumping, throw it away and put in a new one. One may end up throwing it away anyway, if the frustrations of trying to repair it get out of hand, which is always a possibility. However, since some may wish to accept the challenge of trying to successfully repair an S.U. fuel pump, I will relate some of the many problems I found and solved while trying to service these units.

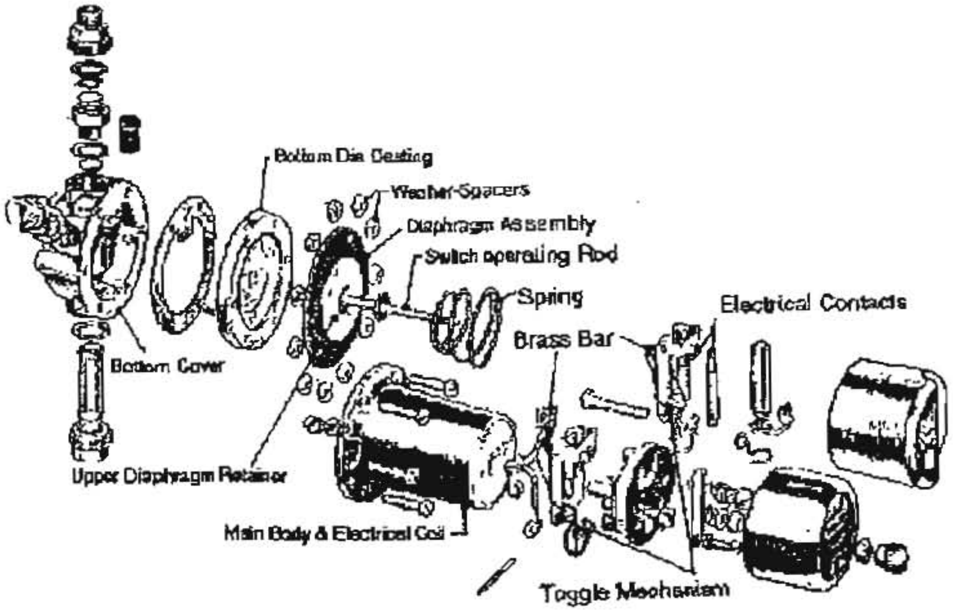
The electrical power in the S.U. pump is controlled with an over-centre toggle switch. A toggle switch system works very well when the force driving it is not directly related to the power the switch actually controls. For example, in operating a light switch the human power keeps pushing the lever until the light switches on or the end of the travel is reached. The human power does not care if the electricity goes off or on, it wants to see or feel the results. In the S.U. fuel pump, the same electrical power that drives the pump also powers the toggle switch that turns the electrical power on and off. Herein lie most of the operating difficulties of the S.U. fuel pump. If the power does not come on at the correct point, the pump stops. The correct point is just before the end of travel of the return spring. If the power does not go off at the correct point, the pump stops. The correct point is just before the plunger bottoms on the power stroke. This seems simple enough to the casual observer, but let us continue further.

In general, the instructions in the "T" Series service manuals are correct as far as they go, but need to give further information. The stroke on the S.U. pump is limited by the diaphragm pumping section. Referring to the diagram, plagiarized from the M.G. "T" service manual, the diaphragm assembly is pushed down by the spring into the bottom of the case which is the end of travel in this direction, and it is also the end of the stroke that actually pumps the fuel to the carburettor. No less than .010 inches before the diaphragm assembly reaches this end point, the toggle mechanism should have tripped over and closed the electrical contacts. With the contacts closed, the diaphragm assembly is pulled upward toward the electrical coil, compressing the drive spring, and will, if the power stays on, be actually pulled into contact with the coil base. The toggle mechanism should have opened the contacts and shut off the electrical power at least .010 inches before this contact between the diaphragm assembly and the coil body occurred. By considering the toggle mechanism travel between the contact make and break and the over-travel on each end of the diaphragm assembly travel, there is a need for a minimum of .075 inches of travel of the diaphragm assembly for the pump to operate. Keep in mind when checking this dimension that the bottom die-casting that clamps the diaphragm itself to the main body will move closer to the main body as the attaching screws are torqued. The diaphragm, being rubber, will slowly flow out of the clamped area, and subsequent torquing will reduce the diaphragm assembly travel by moving the bottom die-casting closer to the main body. This will reduce the available travel. Do not be marginal in this .075 inch measurement; it is a minimum.

If the diaphragm assembly travel is below the minimum required, look for interference problems. Does the bottom of the diaphragm assembly fit correctly into the bottom die-casting? There are variations on diaphragm assemblies, rod-ends that are too high or too big in diameter to fit into the mating contour of the bottom die-casting. It may be necessary to modify the bottom of the die-casting or the rod-end or both to get the required .075 inches of travel. When replacing a worn-out diaphragm it is recommended that these features and the overall height of the lower diaphragm assembly be compared between the old and new diaphragm assemblies. The upper diaphragm retainer may have to be bent down in height slightly to get the required travel if the bottom-end fitting process does not suffice.

Another item that can cause problems in the functioning of the pump is the straightness of the switch-operating rod. This rod is positioned on one end by its location in the diaphragm assembly. At assembly it should be centred in the hole that runs through the centre of the coil and pump body for the entire length. The toggle mechanism will try to centre it even if at free assembly the rod rubs against the side of the centre through-hole. In centring the bent rod, however, loads will be imposed on the toggle mechanism which will prevent it from operating within the required minimum operating stroke of .075 inches. Therefore, in addition to checking the rod for squareness to the diaphragm retaining plate with a square, the diaphragm assembly should be fully assembled with the spring, bottom cover and screws. The rod should be checked at the toggle-attaching thread end to be sure that it is not being forced against the side of the through-hole. If the rod is not free in the hole, it must be straightened.

The top diaphragm retainer on the diaphragm assembly must clear the pump body internal diameter. The diaphragm assembly is piloted in this diameter mainly by the diaphragm, but has the eleven little washer spacers also to hold it on centre if the diaphragm sags. With the washer spacers in place, move the unbolted diaphragm assembly from side to side in the pump body internal diameter. The top diaphragm retainer should clear the internal pump body diameter at all points. If it contacts the internal diameter before the washer spacers do, it will have to be turned down until it clears.



After the pump is completely reassembled except for the switch cover, check the toggle switch operation by prying the mechanism up against the drive spring with a very small screwdriver. Place the bit (which must be small enough to fit between the switch operation rod and the spring link that attaches to the brass bar that the operating rod screws into) of the screwdriver under the little brass bar and the screwdriver shank on top of the pump body. Slowly move the brass bar up until the electrical contacts open, then note the travel past this point until the stop is reached. Next, relax the force and allow the brass bar to return slowly toward its original position, measuring the travel past the point that the electrical contacts close. Both measurements should be .010 or more. The total throw cannot be adjusted, but is the result of earlier procedures. By turning the diaphragm mechanism relative to the body, the over-travel can be shifted from top to bottom. This should be done in order to optimize the pump operation, even though both over-travels exceed .010 inches. Maintaining the bottom cover and the body of the pump in the same relative position so that the pump body breather hole remains in a downward position at pump installation, rotate the diaphragm assembly so that the operating rod screws into the brass bar in the toggle mechanism to increase the over-travel past the contacts closed and the brass bar moving down. Screw the rod out of the brass bar to increase the over-travel in the contacts-open direction, the brass bar being pried upwards. Because the "points closed" or "at rest" positions are determined by the diaphragm assembly resting on the bottom die-casting, and its position is somewhat determined by the torque on the retaining screws along with the compression of the diaphragm, the over-travel should be biased toward the "at rest" position. It is desirable to have .005 inches more over-travel on the spring loaded at rest with the contacts-closed end than at the powered "points open" end. Rotating the diaphragm one hole changes the difference between the over-travels by .009 inches. AND, when you're satisfied with your adjustments, don't forget to loosen the screws and pull the diaphragm to "full up" position while tightening the screws. This is especially necessary as the last operation when assembling a new stiff diaphragm.

Dan Kimberlin

REGISTER NEWS

Jeremy Havard, of Willoughby, New South Wales (see *TCY146*) has come up with three "new discoveries" for our Register. These are:

Regtr. No.1325	chassis no. Y/T3338	eng. no. TL/13076	Colorado, U.S.A.
1326	Y/T3703		N.S.W., Australia.
1327	Y/T3862		N.S.W., Australia.

Y/T 3338 is currently being restored. The other two are owned by Gary Harding and, like many others of their breed, will eventually emerge as one hybrid, using the body and "spares" (including the i.d. plates) of '3862 and the chassis of '3703 (but with what engine?)

I recently received a letter from Mrs. Christina Woermann of Berlin to say that she and her husband had purchased Y/T/EX(U) 2740 (Register No.179). This is the car featured on pages 39 and 42 of my book (ex-Bernie Havel of [redacted], Michigan). I'd had a report that this car had been sold to someone in Switzerland some time ago; it then passed to another owner in Berlin before Mr. and Mrs. Woermann acquired it last year. This is just indicative of how Y/Ts now seem to travel the world with ease!

Roy Scopes, of [redacted], Suffolk, has brought me up to date on how his restoration of YB/1052 (Register No.1188) has been going these past few years. Well, 14 years to be precise! But it is far better to have the patience to do a thorough job than to rush things. The YB is now virtually finished and looks superb in dark green. Roy, incidentally, made a very good repair of the tricky steering column slip-ring mechanism.

Roy was also instrumental in telling Mike Smye of [redacted] about the Register. Mike owns YB/0649 (Register No.753). I last knew of this car when it was with Ian Davidson of Surrey and Mike has now been able to fill in details of its other, past, owners:

First reg'd 01/09/52 to Eustace Nugent Kitcat, London.
1956: Eustace Nugent Kitcat, Gloucestershire.
07/56: Frederick Cuff, [redacted] Glos.
1958: Ernest Bishop, [redacted], Somerset.
1958: Joyce Wills, [redacted], Somerset.
1958: Thomas Prole, [redacted], Somerset.
11/88: Ian Davidson, [redacted], Surrey.
08/95: Mike Smye, [redacted], Suffolk.

What a glorious name, Eustace Nugent Kitcat! Ian Davidson started the restoration of this car and Mike Smye finished it. Another one saved! And if the Register were ever to start awarding medals then one would surely go to Mike, for he actually sold a "T" Type (a TA) to buy this YB! Whatever next, people scrapping "T" Types to provide parts for "Y"s?