The Talbot Manual

Technical Resource

Ignition System

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4 Talbot Ignition System

The Talbot Ignition System

General Description

The Talbot uses a conventional battery, coil and distributor system to fire the spark plugs. This is a highly reliable system, easy to maintain and having excellent starting performance.

The Distributor

The distributor is a Delco type driven by a skew gear off the camshaft and rotating in a clockwise direction. It has two sets of points, one controlling the front three cylinders and one the rear. This means that in addition to correct point gaps it is vital that the sets of points are synchronised with each other. Advance and retard is automatic via spring controlled bob weights in the base of the distributor. Lubrication of the bearings is via a cup greaser on the side (turn every 500 miles). The cam is lubricated by a felt pad which requires a few drops of oil once or twice a year.

Routine maintenance consists of setting/changing points and lubrication. From time to time it may be necessary to replace condenser, rotor arm, cap and leads.

The distributor showing cap and leads. Condenser is under distributor body. Greaser on the left

Cap removed showing rotor arm, cam and twin points

Rotor arm removed showing felt pad. Oil sparingly from time to time

Remove base plate by removing two spring clip screws

Base plate. Remove points by undoing marked screws (red arrows). The upper and lower screws on the right hold the base plate and should not be touched

A new set of points. It is necessary to saw off the square lug on the fixed contact

New fixed contact in place. Note adjustment screw

Setting the gap to 18 thou using adjustment screw

Automatic advance and retard weights and springs. Check for breakage or seizure

Condenser. Replace as required. Carry a spare

Interior of Delco cap. Check carbon button and brass contacts

Exterior of Delco cap showing impaling spikes. Seal cable exits with silicone to prevent water ingress

Modern distributor cap with push in leads

Modern ignition components and part numbers

Synchronising the Points

The two point set up of the Delco-Remy distributor means that the points have to open in synchronisation to get optimum engine performance. The first three cylinders are controlled by the set of points which are fixed to the base plate. They are adjusted by slackening the distributor pinch bolt and moving the distributor body. The rear three cylinders are controlled by the set of points that are moveable on the base plate. They are adjusted by slackening the two retaining screws and moving the eccentric screw.

Start by making sure both sets of points are gapped at 18 thou. Set number one cylinder at TDC on the firing stroke. The scribed mark on the flywheel should line up with the pointer on the rear of the engine block. If in doubt of your timing marks remove the rocker box and check position of the valves. Using a bulb check that the points break as the timing marks coincide. If this is not the case adjust by slackening pinch bolt and moving distributor body. Now rotate engine until number six cylinder is at TDC on the firing stroke. The other set of points should just be breaking. If they are not, adjust by removing distributor cap, slackening two screws on the base plate and rotating the eccentric screw. The points are now synchronised.

Checking TDC at the valves. Inlet and exhaust pushrods rotate

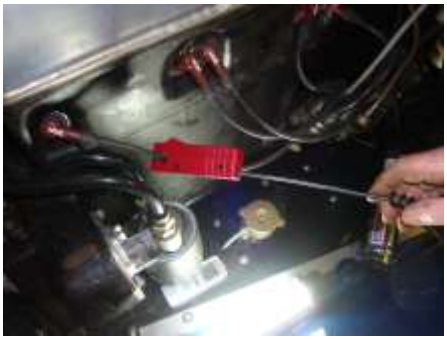
Slacken base plate retaining screws prior to adjustment.

Adjust by rotating eccentric screw

Set dynamically using strobe

This process can be done dynamically using a stroboscopic timing light. Connect this to a separate 12V power source and clip to plug lead 1. Run engine at idle and check that the timing marks line up. If there is any discrepancy adjust by moving distributor body as previously described. Now attach to plug lead 6 and repeat for the other set of points. Adjust by moving the base plate as previously described. The timing pointer on the Talbot is hard to strobe and it is easier to transcribe a TDC line to the flywheel and line up against the chassis member.

Strobe lead attached to plug lead 1



Transposed timing mark. Easier to line up on chassis member

Other Ignition Parts

Plugs should be gapped to 25 thou and checked as part of the regular service routine. Use copper grease on the threads to aid removal. Replace when worn.

Coils require no maintenance and work until they stop. Modern coils have a poor reputation for reliability so carry a spare.

The correct NGK plug: AB6 (gap to 25 thou)

IGNITION TIMING

By Michael Marshall

As a Talboteer, you will naturally wish your car to perform as intended by Georges Roesch and Clément Talbot Ltd. For this, it is ***essential*** that the ignition timing should be correct. If too retarded, the engine will waste power and run too hot; if too advanced, it will waste power and be needlessly rough. The procedure offered below is very simple, but before carrying it out owners of six cylinder Talbots must firstly attend to the setting of the two contact breakers. If your car is a six on which the original dual-contact distributor has been replaced by one of the single-contact type, or if you are dealing with a four cylinder model, then you can skip the section on *Setting the Points* and go straight to the *Timing Procedure*.

Setting the Points

The idea behind the introduction of the dual contact distributor was to reduce the wear on the points, and fatigue breakages of the spring, particularly on sixes when running at the higher engine speeds which were beginning to be employed from the later 1920s. For example, a 4 cylinder Austin Heavy Twelve trundling along at 35mph with its engine running at 2,000rpm requires 66 sparks per second, whereas the 6 cylinder Talbot 14/45 that sweeps serenely and elegantly past it at 50mph and 3,000rpm requires 150 sparks per second. With the three lobed cam and dual contact breakers the work is halved; each has to produce only 75 sparks per second. Whilst you have the additional hassle of having to set the pairs of points correctly with respect to one another, as explained below, a practical advantage of the dual system, as I've found out, is that if one of the springs should break and you haven't a spare, then you can usually limp home discretely and surprisingly smoothly on only three cylinders. Remember, even when out of order, it is still a Talbot!

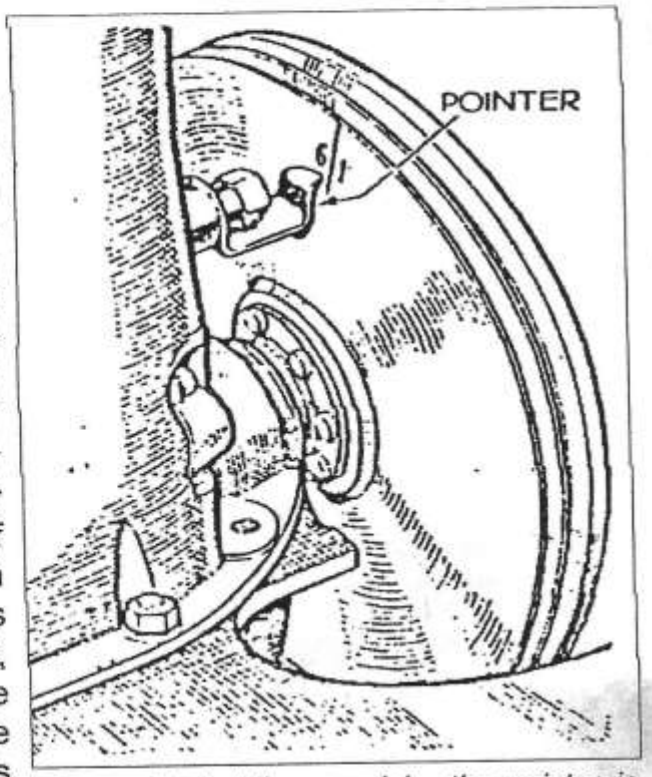
Above: The dual contact breakers fitted to 6 cylinder Talbot cars.

With the dual contact breaker system you must firstly satisfy yourself that with both set to the recommended .018", the interval between the opening of one set of points and the other is, as near as dammit, 60 degrees of rotation of the distributor shaft. Synchronising the points on the bench is not a simple matter, as the issue can be clouded by the amount of wear between the distributor shaft in the distributor body, the fit of the cam on the shaft and the play in the automatic advance mechanism. A degree of judgment and compromise is necessary, but you have to do the best you can. I'd be happy to explain how I do this on the bench using a 360 degree protractor, and the test bulb device described below - or you could have this done for you by a competent specialist.

Until this is done, there's little point in attempting to set the ignition timing because if the two pairs of points are not correctly set 60 degrees apart and the timing is correctly set for the pair generating the sparks for cylinders 1, 2 and 3, then it follows, as a logical certainty, that the timing of cylinders 4, 5 and 6 be wrong and the engine will waste power unnecessarily - a loss which, in the case of a 14/45, you can ill afford.

let's say No.1, where it creates a spark between the electrodes that (hopefully) fires the compressed charge of petrol vapour. (The item shown at C is the condenser, whose job it is to prevent sparking across the points themselves). By the time the primary circuit is made and broken again (this time by the second set of points) the rotor arm of the distributor will have moved on to direct the spark to cylinder No.5, and so on for Nos.3, 6, 2 & 4, producing that refined purr so familiar to Talboteers - especially those fortunate enough to drive a 14/45.

On early six cylinder Talbots, with the recommended contact breaker gap of .018", the points should be just breaking at the end of the compression stroke on No.1 cylinder when a mark on the flywheel is opposite the joint face between block and sump on the near side of the engine. On later models the setting point is indicated by a pointer attached to the rear of the block. If the engine has already been running you can assume that No.1 cylinder is at the end of its compression stroke when the rotor arm is pointing to the HT lead to No.1 cylinder. If not, or if the distributor has been removed, or you are not sure, simply remove the rocker cover and wiggle the rockers of No.1 cylinder. If they are free, indicating that both valves are seated, it is indeed at the end of its compression stroke and you can proceed. If not, simply give the engine one complete turn until the mark is correctly aligned again, pull out the distributor and re-insert it so that the rotor arm is pointing to No.1 HT lead with the distributor body lying parallel, i.e. with the two spring clips more or less equidistant from the side of the block.



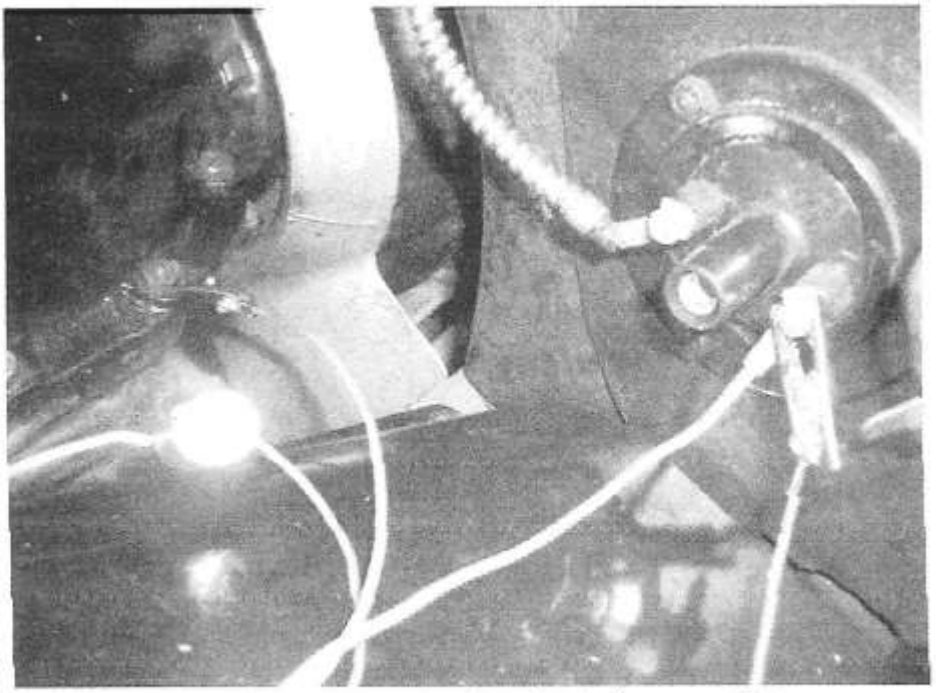
Above: Post 14h.p. models, the pointer is attached to the rear of the block. When aligned with the marker both number 1 and 6 cylinders are at top dead centre.

Above: For 14h.p. models, the mark on the flywheel is opposite the joint face between block and sump on the near side of the engine.

To set the ignition timing, remove the plugs so that you're not having to turn the engine against compression, turn the flywheel a little anti-clockwise so that its mark is a couple of inches from the sump ledge (or indicating finger), and attach one end of one of the wires (it doesn't matter which) of your device to the terminal on the coil which is connected to the distributor and the other to earth. There's absolutely no need to disturb any of the normal wiring.

Switch on the ignition. The bulb will not light up because the electricity is taking the easy way via the primary winding of the coil and the closed points to earth. Turn the engine slowly forward until the bulb lights up, indicating that the points have just opened (the primary circuit is broken and the electricity is now obliged to take the alternative route to earth though your test bulb). With this method the lighting up of the test bulb provides a true indication of the opening of the points and the sparking of the plug. *(Some have suggested the use of a multi-meter in place of the humble 'low-tech'*

bulb, but a multi-meter, though incredibly clever and accurate, operates by doing thousands of calculations per second and usually dithers before displaying the reading. We don't want a dithering digital display; we want an instantaneous visual indication of the opening of the points - quite literally at the speed of light!)



Above: The set up showing the bulb connections and the flywheel on top dead centre.

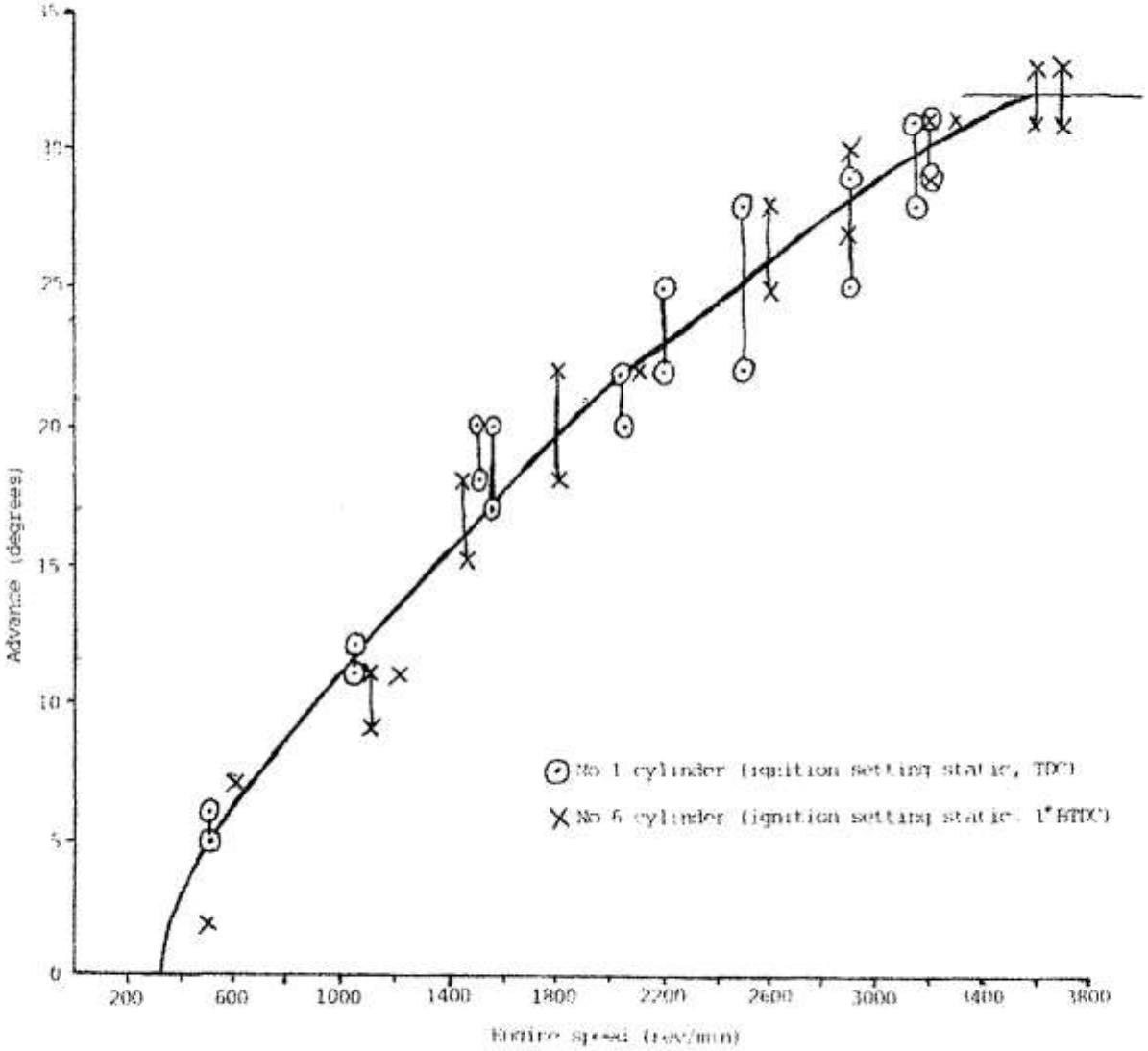
If the bulb doesn't light up until the mark on the flywheel has passed the datum indication then the timing is retarded, i.e. too late, so turn the body of the distributor anti-clockwise a little and try again (always turning the engine clockwise); if too soon, try with the distributor turned clockwise a smidgin. By trial and error you should soon get the bulb to illuminate when the flywheel mark comes opposite the datum. *(Of course, when turning the engine by hand at a mere fraction of a snail's pace the friction of the contact breakers will drag the cam to maximum 'retard', so that when the engine starts up, even at tick-over, the centrifugal force of the weights will take up the slop in the mechanism and advance the actual timing somewhat. I used to lose sleep over this, before concluding that the people at Barlby Road would most probably have allowed for this when determining the position of the timing mark on the flywheel).*

Next, retighten the distributor clamp, unclip your test bulb, pop in the plugs and go for a test drive. If all's well and with the car nicely warmed up I would suggest that when you return home you slacken the distributor clamp sufficiently to be able to turn the body by hand and, wearing a thick glove and with the hand throttle set to give a brisk tick-over, note the effect of turning it in either direction to get the fastest tick-over with the engine running smoothly, then retighten the clamp. Repeating the check with the test bulb will then show up any difference from the official setting. If you do find a significant difference I would very much like to know – see the final paragraph.

Having completed the procedure, I would recommend that you have the timing checked by stroboscope. This quick and elegant process is not that expensive. If done on a rolling road it takes account of the various mechanical uncertainties mentioned above and monitors what is actually happening under running conditions and under load. It can highlight any need for further tweaks to the timing, (also to the mixture setting) and check the correct operation of the automatic advance and retard mechanism, Again, if this should indicate an optimum timing that is significantly different to that represented by the original timing mark do let me know, as this information might allow us to establish more appropriate settings to suit the burning characteristics of the today's fuels, rather than those of the fuels for which the cars were designed some 75 years ago. I have fitted my car with manual control of ignition timing by a lever on the steering column so as to be able to check the operation of the auto-advance at various speeds on the road, and hope to report on this in a future article.

Talbot 105 Ignition Advance Curve

(Delco-Remy 650 KB distributor)



Timing measurements with Delco-Remy unit (650 KB). Vertical lines represent ignition scatter. Governor range 33° approximately (at crankshaft). Cut-off speed 1800 rev/min (3600 rev/min at crankshaft). Static ignition settings measured using small lamp across points.

SYNCHRONISE YOUR POINTS AND PURR LIKE A TRUE TALBOT!

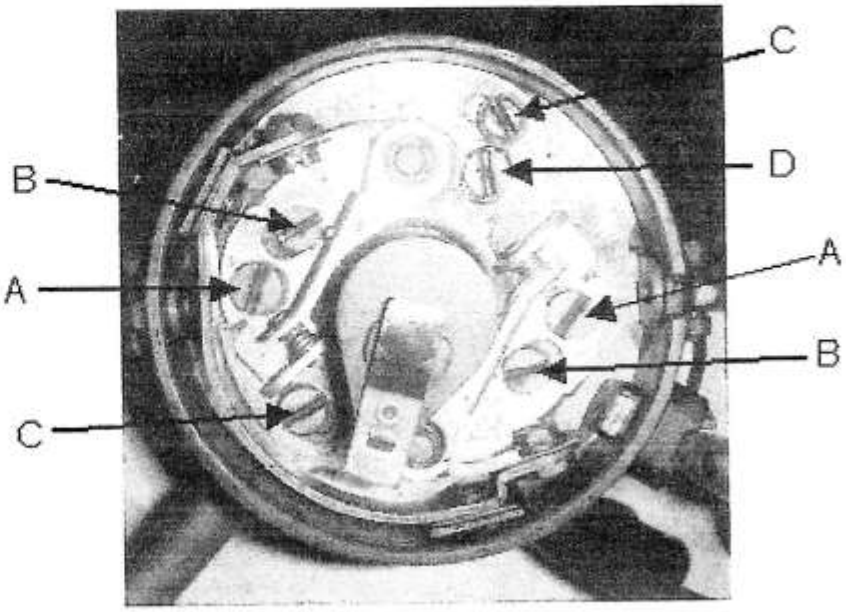
By Ian Potts

Following on from Michael Marshall's excellent article on ignition timing, I thought I would describe how I have synchronised my points for the last 37 years. It's always worked for me – so it might work for you as well!

First select neutral, remove the distributor cap, rotor arm and all the spark plugs as well as the front valance so you can get at the starting handle.

Secondly set the gap of both sets of points to 18 thou (or if you are a true Talboteer to 0.45 mm). To alter the gap, turn the engine until the points are fully open, slacken screw A and adjust the gap using screw B. Tighten screw A and recheck the gap.

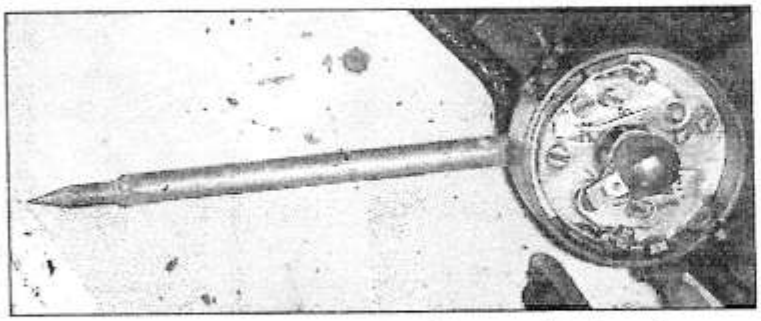
Having dealt with the above two points, we can now move on to dealing with the two points (groan, groan...)



Above: View of distributor showing adjusting screws and rotor arm pointing to plug number 6.

The idea is that you set the points that can't move to just open at TDC. You then rotate the engine 360° (the distributor only turning 180°) and move the other set of points so that they are just opening. You now have both number 1 and number 6 spark plugs firing at TDC so the distributor is synchronised. You can now rotate the distributor to set the ignition timing as detailed in Michael's article. You achieve all this by doing the following: (Note – always turn the engine clockwise so as to take up the slack in the drive gears and advance mechanism, don't turn it backwards)

Setting the points that can't move to just open at TDC.



Above: Pointer to aid distributor adjustment.

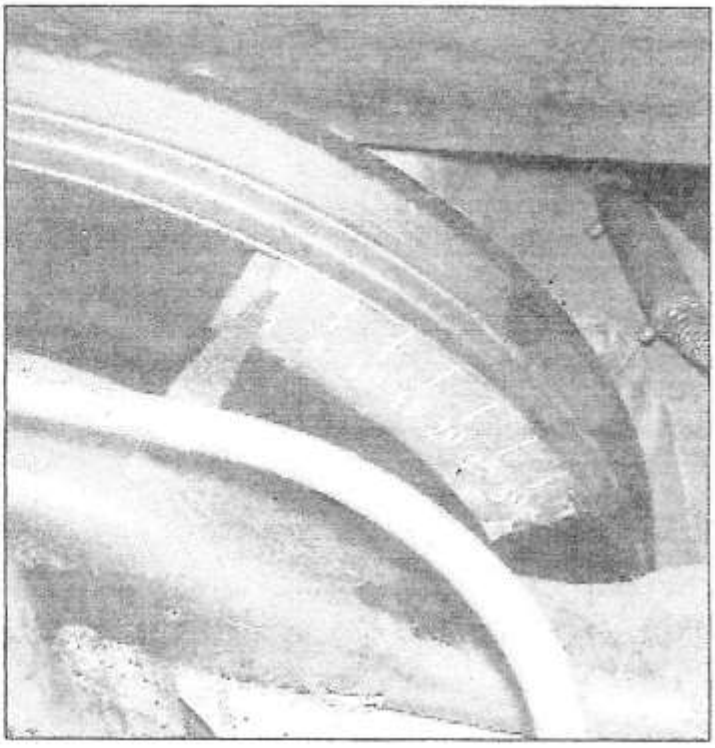
Slacken the distributor clamping bolt so you can turn the distributor. I always found it difficult to move the distributor a small amount until I welded a rod to an old grease nipple. Temporarily screwing this into the greasing point makes it very easy to adjust the distributor. (See picture left)

Turn the engine until it is at TDC with the rotor arm pointing to plug number 6. (I have always found it difficult to use the TDC marks provided on the post 14 h.p. models, especially with a stroboscope, as they are positioned directly behind the block. I have made up a small sheet aluminium pointer glued to the chassis cross member and pointing at a graduated sheet of paper stuck to the flywheel. The paper lasts surprisingly well, the one in the picture has been on for at least 6000 miles.

Attach your timing light bulb, rotate the distributor clockwise until the light goes out, then turn the distributor anti-clockwise until the light just comes on. The fixed points (which fire plug number 6) are now set at TDC. Check by rotating the engine TWO whole turns (i.e. one turn of the distributor) and seeing if the light comes on at TDC. Clamp the distributor so this setting does not change.

Setting the moveable points to open at TDC.

Rotate the engine ONE turn to TDC (the rotor arm should now point to plug number 1). Slacken the screws marked C. Use the screw marked D to adjust the synchronisation. Turn the screw until the timing light goes off, then turn it back until the light just comes on. Tighten the screws marked C. Rotate the engine and check that the timing light just comes on each time you reach TDC. You are now synchronised!



Above: Flywheel showing the pointer and graduated paper.

Slacken the distributor clamping bolt and set the points to be just opening 1° after TDC. The Rotax test data sheet for 1933/34 Talbot 105 reads: 'Automatic advance: retarded 1° at zero engine rpm, reaches TDC ignition at 200 - 250 rpm and finishes at 33° (max) or 30° (min) at 5000 rpm'. Has anyone got a Talbot that ticks over at 200 – 250 rpm?

I have to differ with Michael over his advice to turn the distributor by hand to get the fastest tick-over. I have always understood that at tick-over the carburetion is of poor quality because the butterfly is nearly closed leading to poor atomisation and fuel is drawn from the idling jet leading to poor distribution (as the fuel not introduced centrally). This means the rate of burn in the cylinders is slow, and the best spark timing is with a lot of ignition advance. At higher speeds when the main and compensating jets come into action the fuel charge is of better quality, needing less advance. Then one needs more advance for the usual reason as the engine speeds up further.

The correct setting for the timing is debatable. Modern fuels burn slower than the fuels the cars were designed for which implies the ignition should be advanced – but by how much? I tried doing some testing with a home-made performance meter (a magnetic pickup feeding engine speed into a computer) measuring acceleration over a range of speeds and with different ignition settings. The results were inconclusive and I found the car (a 75 saloon) ran just as well on the recommended settings. Perhaps I shouldn't be so tight and should visit a rolling road to find the optimum setting. If anyone has done this already, please let the club know so the information can be shared. As an aside I have been informed that the traditional way of tuning using plug colour is unreliable as modern petrol produces totally different colours.

I do a final check using a stroboscope. With the engine warmed up and idling evenly I attach the strobe to plug lead number 1 and observe the reading. I then move the strobe to plug lead number 6. If the points are synchronised the readings should be the same – if not I have to start all over again!

Lubrication

All bearings with hinge cap oilers should have eight to ten drops of light engine oil every 10,000 miles. Distributors with bronze or grey-iron bearings and grease-cups should have the grease-cups kept filled with medium cup grease and turned down one turn every 500 miles. With ball bearings keep the grease-cup filled with ball bearing grease, and turn down one turn every 1,000 miles. Distributors with high-pressure lubricating connections should be lubricated every 1,000 miles. Apply a small amount of vaseline to the breaker cam when lubricating the distributor. On the vacuum type distributor with the breaker plate supported by three balls, the balls and race should be lubricated with light engine oil every 5,000 miles. Avoid excessive lubrication.

Inspection

The cap should be removed at regular intervals and the contact points, rotor and cap examined. Check the high-tension wiring for grazed or damaged insulation and poor connections at the cap or plug. Replace if necessary. Replace the cap or rotor if they are cracked or show carbonised paths, indicating the secondary current is leaking to earth over the surface of the bakelite.

Contact Points

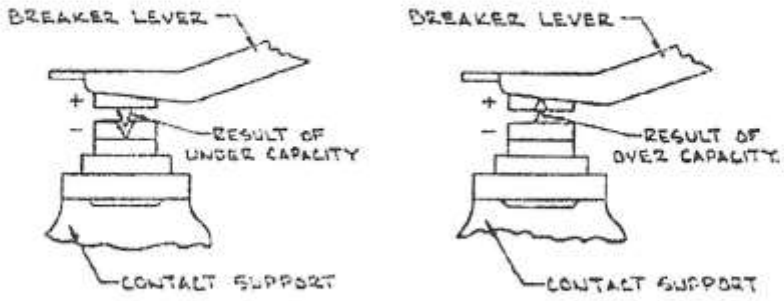


Fig. 13.—Pitted contact points caused by using condenser with incorrect capacity

Contact points, that are burned or pitted should be replaced or dressed with a clean fine-cut contact file. The file should not be used on other metals, and should not be allowed to become greasy or dirty. Never use emery cloth to clean contact points. Contact surfaces, after considerable use, may not appear bright and smooth, but this is not necessarily an indication that they are not functioning satisfactorily.

Oxidised Contact Points

These may be caused by high resistance or loose connections in the condenser circuit, oil or foreign materials on the contact surfaces, or most commonly high voltages. Check for these conditions where burned contacts are experienced.

The Contact Point Opening

This must be set to the proper limits. Points set too closely may tend to burn and pit rapidly. Points with excessive separation tend to cause a

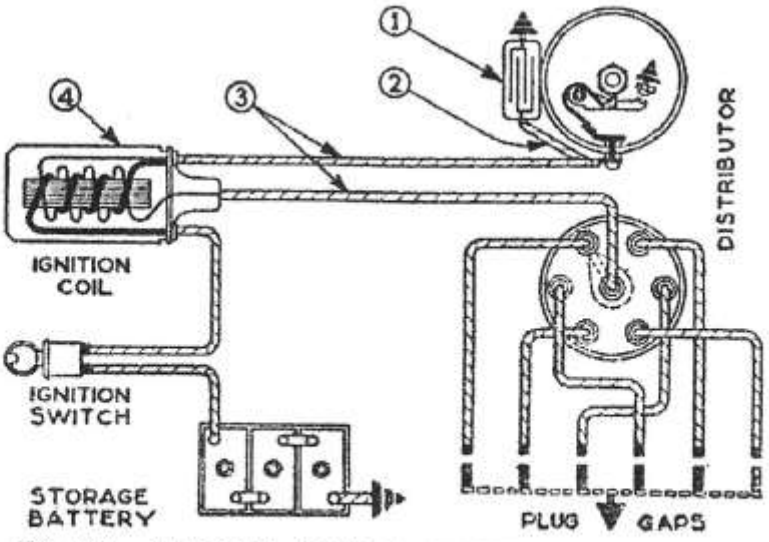


Fig. 14.—A typical ignition circuit and the various changes which can be made to correct point-pitting trouble

weak spark at high engine speed. The point opening of new points maybe checked with a feeler gauge. A feeler gauge is not so accurate on used points, owing to the roughness of used points. A dial indicator or a contact angle meter for checking the point opening of used points is more accurate. The cam or contact angle is the angle in degrees of cam rotation through which the points remain closed. The angle increases with decreased point opening. As the rubbing block of a new breaker arm wears in, rounding the corners of the rubbing surface, the contact angle increases. Therefore, with a new arm, set the contact angle about 3° less than with an arm worn by several thousand miles of operation. The angle given in the test specifications is subject to a variation of 2° plus or minus, depending on these conditions.

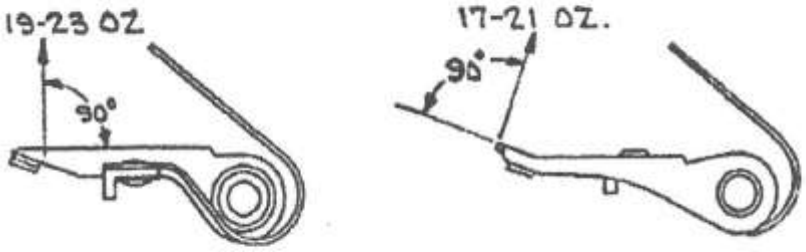


Fig. 12.—Measurement of contact-point pressure

Contact-Point Pressure

This should be measured as shown in Fig. 12 and must fall within the limits given. Weak tension will cause point chatter and ignition miss at high speed, while excessive tension will cause undue wear of the contact points, cam and rubbing block.

Timing and Synchronisation

Most cars have flywheel markings to facilitate timing the distributor to the engine. Due to individual differences in engines, the timing instructions supplied by the engine manufacturers should be followed. All ignition distributors with manually controlled spark should be timed in the full manual advance position to eliminate variations in the manual control linkage. Some distributors having vacuum-controlled spark have a 1/8-inch hole in the advance arm and clamp arm. On these cars it is necessary to align the holes with a 1/8-inch pin before timing.

IGNITION FAULTS

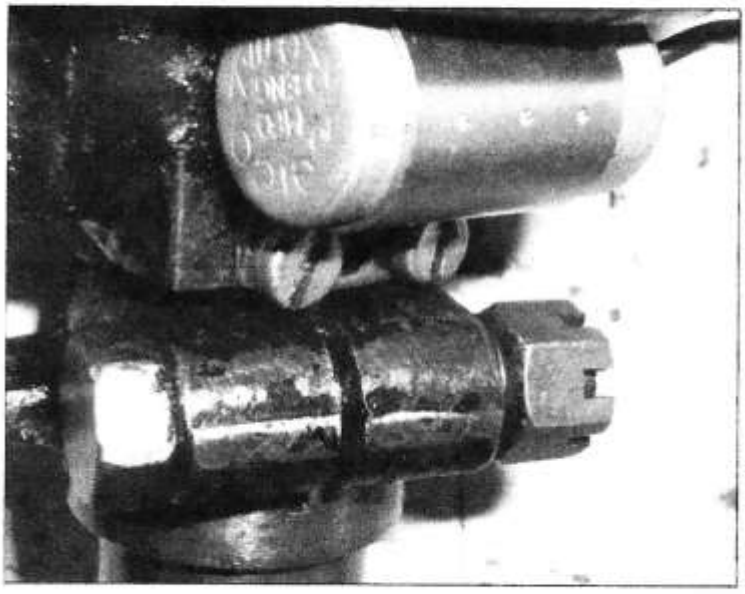
By Michael Marshall

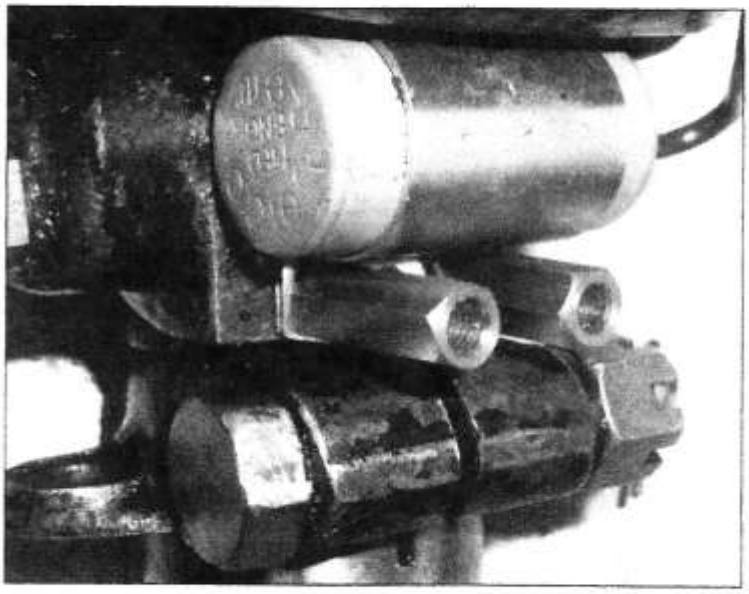
Ignition troubles are the cause of at least 75% of roadside breakdowns. They usually occur without warning on a quiet French road just as you are anticipating a good lunch, rushing for the ferry; or venturing across Dartmoor on a dark night - when they can be very difficult to resolve on the spot with the driving rain drenching the HT leads and water dribbling down the back of your neck from an umbrella carelessly handled by your companion; I write from experience.

The difficulty is that the causes of ignition problems are not usually visible. You can check oil levels, water hoses and clips and valve clearances etc. but apart from cleaning plugs, checking points and connections, there is little you can do to check the ignition system because the potential causes of failure of the leads, rotor arm, cap, condenser and coil are *internal*.

The only thing you can do is to carry a comprehensive kit of spares, including: clean plugs, points, rotor arm and condenser; a spare coil, and a spare distributor cap and cover pre-fitted with new clearly labeled HT leads. I don't like the horizontally split cover of the Delco-Remy distributor cap as I think the resulting gap invites the entry of damp air; certainly I have had to consign the D-R cap and leads to the airing cupboard to banish the damp much more frequently than with the Lucas type. For that reason I always now apply a liberal coating of electrical insulation and water repellent. This does make it very fiddly to keep all six leads impaled on their spikes for long enough to allow the cap to be secured; which is why I recommend that this be done at home, in comfort, and out of the rain. The stuff I use is Dow Corning DC-4 as used by F1 teams.

Thanks to Roesch's distrust of magnetos, we don't have to carry a spare mag. I converted my 1932 Riley Nine from mag. to Lucas coil ignition as per the 1933 specification, and always carry a spare distributor base plate with pre-set points and new condenser, which can be installed in less than a minute. The fact that I have never had occasion to fit this on the road in fifteen years is proof of the efficacy of this policy.





Above: Photographs above showing the two M4 securing screws replaced by two studs loctited to the body of the distributor on which you can 'hook' the spare condenser.

I would strongly recommend that you get hold of a spare Delco-Remy distributor base plate and fit it up with a pair of synchronized and gapped points. To change the condenser, which is mounted externally on the DR distributer, ***do resist the temptation to remove the two fixing screws*** which, as you have probably found out, are much more easy to remove than to replace due to the fact that they have to be inserted at an upwards angle by 'feel' into two holes which you can't see (the Talbot being a wide car) - especially in the conditions described at the end of the first paragraph, and when your back is playing up again. (If your back is not playing you up, it will do so the following morning). Provided your condenser is a push fit in its clip, you have only to slacken the two screws a little (but keeping them still engaged) to remove the old condenser, push in the new one and retighten.

If your old condenser (or the one you intend to fit) is fixedly attached to its clip you will obviously have to remove the two screws to change it. With this in mind I replaced the two M4 securing screws by two studs loctited to the body of the distributor on which you can 'hook' the spare condenser (in the dark and wearing gloves if need be) and then simply twirl on the two nuts. As you can see from the before and after photos, the nuts are made from ¼" A/F hex. steel bar and are 15mm long to aid both engagement of the threads and the twirling - after which they can be nipped-up with a 2BA spanner. I find this a much more satisfactory arrangement.

Unless I have forgotten anything, that leaves the coil, which can not only malfunction itself in a random way - especially when hot - but (I'm given to understand by others) can also generate excessive voltage 'spikes' that can precipitate the failure of the condenser, cap and HT leads. Coils do seem to be failing much more frequently than a few years ago, possibly because they really don't make them like they used to. I would certainly advise paying a higher price for a more highly rated so called 'sports coil' from an established manufacturer and, as with all of the components mentioned above, try them each out individually, one at a time, for a few weeks before including them in your traveling spares kit, hopefully, they will never be needed!

CONVERTING TO THE MODERN DISTRIBUTOR CAP

By Tony Ward

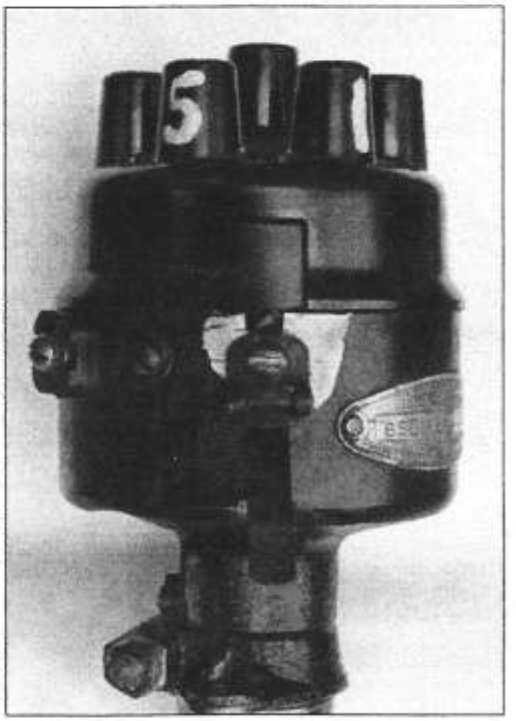
Well done to Ian Potts for his excellent article in Magazine 55 leading the way with an adaption to the rotor arm to make use of a modern six cylinder distributor cap Intermotor 44820. My preferred cap would be Lucas DDB702 if you can find one!

By coincidence I was pondering this problem over the last winter months and realised there is another option to be considered, to move the cap on the Delco distributor body by 30 degrees. This would give a permanent solution without any further work and a spare cap would go straight on at anytime or anywhere.

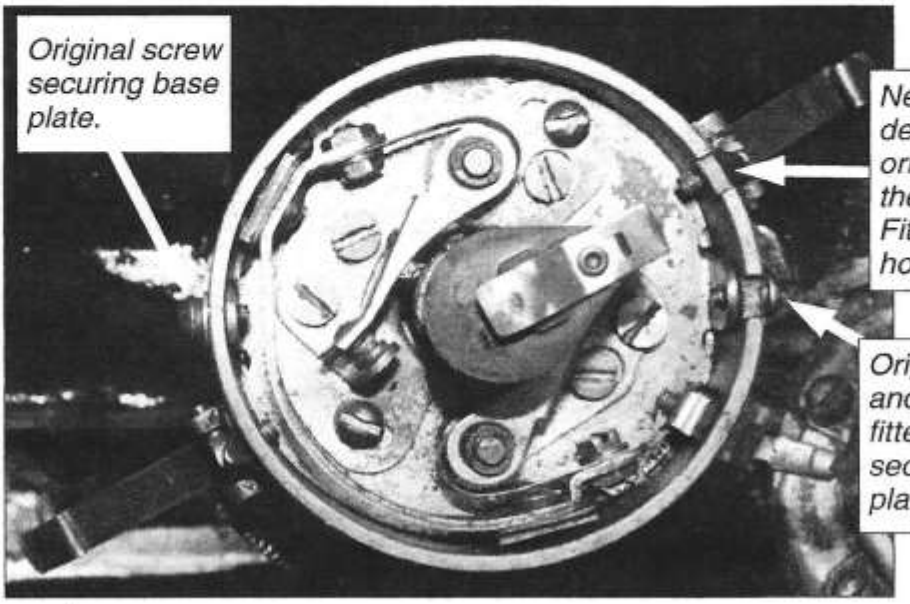
I have now carried out two successful conversions and outline the simple procedures as follows:

The straight forward task is to produce another 6.5 mm slot in the body of the distributor case 30 degrees north of the existing slot. This then creates a second task of moving the cap securing spring clips to suit.

- Removed the distributor from the engine and covered the points assembly with workshop tissue.
- Using a yellow marking out fluid and a scriber mark out accurately a base line through the centre line of the existing slot and centre of the rotor drive spindle across the body rim.
- Using a clear protractor mark out a new centre line at 30 degrees across the rim of the body giving a new slot position north of the existing slot. Next measure out 3.25 mm each side of the line giving the new slot position.
- This centre line then needs to be squared down the body sides to give new positions for the clamp screws and depth of slot.
- I used a junior hacksaw and Swiss files to produce the new slot with 2 off tapped 3 BA screws to attach the spring clips in their new positions, with new screws.
- Remember to return the two original screws and washers to secure the points' base plate to the body.
- Return the distributor to the engine and test with a new cap fitted!



Above: Showing the new cap in position with the adjacent spring clip, held with a new screw between leads number 5 and 1.

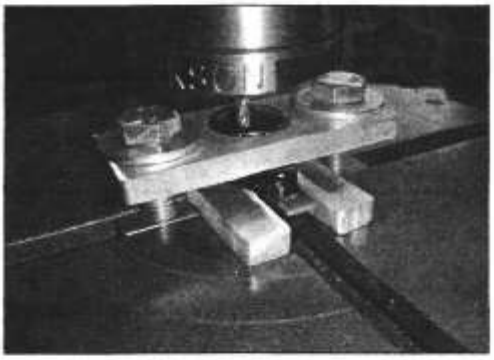


A SPARE DISTRIBUTOR CAP, ROTOR ARM, LEADS AND PLUG CAPS FOR £20.

By Ian Potts

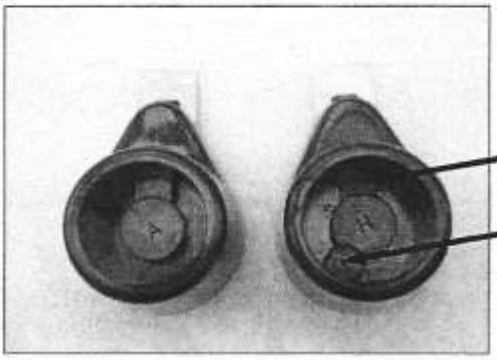
It is comforting to have a spare distributor cap and rotor arm in the tool box, but Talbot distributor caps are rare and expensive. There is a modern cap and rotor arm that fit, but the rotor arm is 30 degrees outwith the contacts in the cap. A common solution is to take two caps, slice the top off one and the bottom off the other, rotate the two parts by 30 degrees then glue them together. This is quite expensive and not that easy to do yourself.

John Boswell has come up with an alternative solution. The phrases 'lateral thinking' and 'it's obvious' spring to mind when presented with his solution. John simply removed the drive peg in the rotor arm (easily done with a minidrill) and then put in a new nylon peg 30 degrees from the original position. This peg is retained with epoxy glue. John has used this on his car for the last six years with no problems.



Above: Milling out the old peg.

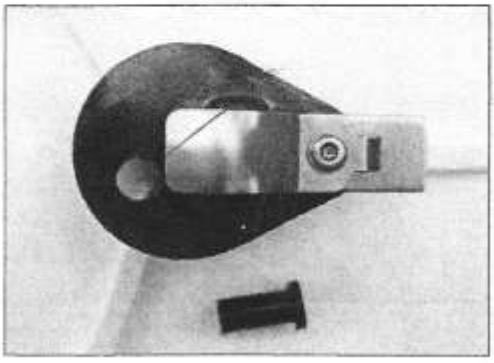
Keen to try out this idea I purchased a cap (Intermotor 44820) and rotor arm (Intermotor 47800), HT lead and plug caps using ebay. They arrived the next day and I set to work. As I have recently bought a milling machine with a rotary table I thought I would practice using it to gain experience, though this is overkill on such a simple project. I mounted the rotor arm on the rotary table and milled out the old peg.



Left: Original rotor arm on the left, modified arm on the right.

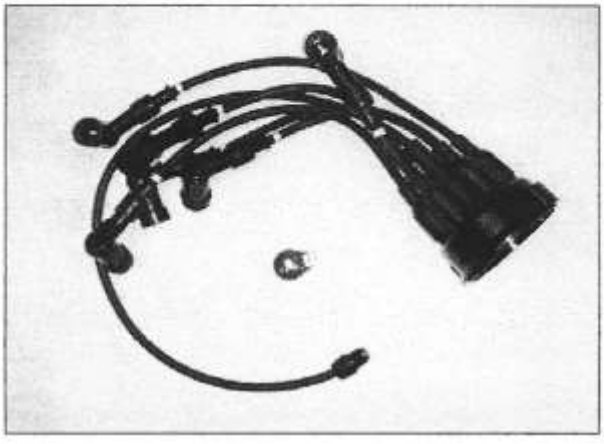
Drive peg removed

New drive peg



Right: Showing the hole in the rotor arm and the nylon peg.

I decided to fit a vertical peg as I thought this would be easier than a horizontal peg, though there is probably nothing in it. As a vertical hole 30 degrees from the original peg position would foul the contact spring, I rotated 210 degrees (180 + 30) and drilled a 11/64" diameter hole which was the width of the slot in my distributor. I then turned up a small nylon headed peg which is secured with Loctite in the hole. I then had to work out which plug lead went where. With the original rotor arm and cap fitted I turned the engine until the rotor arm was pointing to cylinder no. 1. I then fitted the new rotor arm and cap. The contact the rotor arm was now pointing towards became no. 1, with the rest being labeled 5, 3, 6, 2, 4 clockwise starting from number 1 as per the original distributor cap. I labeled the distributor leads to make it easy to fit in an emergency. It didn't take much time to do, it only cost £20 and it all worked perfectly. Just make sure you don't use the modified rotor arm with an original cap and vice-versa!



TALBOT ELECTRICS - CONDENSERS

By Ian Potts

Condensers.

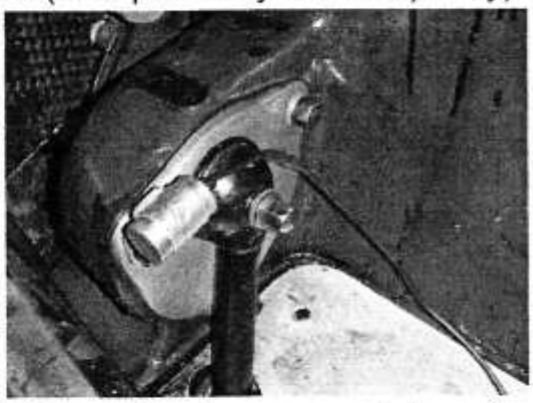
In recent years condensers have proved increasingly unreliable due to poorer quality, and the problem is exacerbated by the difficulty of testing condensers. Trawling the VSCC Technical Forum revealed that condenser problems are not just Talbot related. A condenser that has been used by several competitors is obtainable from www.swiftune.com and a condensed(!) version of the blurb on their website reads as follows:

'Swiftune has developed an all-new Competition Condenser for all engines running with conventional ignition points. Increasing the capacity of the condenser has resulted in a unit noticeably larger than the previous Lucas item meaning it is mounted outside the distributor, a significant advantage because condensers don't like heat!

Originally developed for A-Series based engines this condenser has eradicated all condenser related misfires and has proved very successful in a large variety of cars. The Competition Condenser kit consists of a condenser, P clip and wires with heat shrunk connections for the coil and earth and costs around £30'

Above: The Competition Condenser kit

This solution is expensive. However, new condensers can be faulty, and testing them is not that easy. I have heard of several people who, having problems that they think are condenser related, have fitted new condensers which still hasn't solved the problem. Only later do they discover that the problem actually is with the condenser, only the new spare that they fitted was also faulty! I prefer to carry several old (and probably better quality) condensers as spares. Each condenser is used for a few months to check it is in satisfactory condition before being relegated to the spares bag. This way when I substitute a spare condenser I know that it works. Use Michael Marshall's modification see page 20, so that you can easily change the condenser when its dark and raining, or do as I do and keep a spare condenser on a bracket with a long lead so that it is easy to substitute. Remember that a condenser needs a good earth if is to function satisfactorily, so I chose to mount the condenser on the cover plate on the front nearside of the engine.



Above: Condenser mounted on the cover plate.

Testing a condenser.

It helps to have a rough idea of how the ignition system works and what the condenser does. When the contact breaker points open, the magnetic field in the coil collapses inducing a high voltage (25,000+ volts) in the secondary windings which is passed by the distributor to the spark plugs. A voltage of the order of 250v is also induced in the primary windings, and the role of the condenser is to absorb this enabling a more effective collapse of the magnetic field leading to an improved high voltage output. The important point is that a condenser needs to be tested at around 250v for the test to be effective.

A condenser should not pass direct current. If it has an internal short circuit it will conduct and cause total failure of the ignition system. If it has gone open circuit then the ignition system might still function, but there will be poor running and power loss. The greatest difficulty is determining if there is a failure starting to develop in the condenser, and this may only be noticeable when the engine is developing full power.

A multimeter set to read resistance can provide limited information on the state of a condenser.

a. If the resistance is very low or zero, then the condenser is useless (the resistance should be hundreds of millions of ohms).

b. Further tests require an analogue meter, the type with a needle as opposed to one with a digital display. Connect the meter leads to the condenser (polarity does not matter). Initially the needle should kick slightly towards the low resistance end of the scale then, as the condenser charges up, the needle should move within a few seconds to indicate infinite resistance. Without touching the condenser leads, disconnect one lead and wait 30 seconds, then reconnect the lead. If the condenser has held its charge then the meter reading will still be infinite, however if it has lost charge the needle will kick towards the low resistance end as it absorbs a fresh charge.

The limitation of the multimeter is that it cannot read very high resistances, and it is not testing the condenser with the sort of voltages that are present in the ignition circuit. An instrument that can measure high resistances, because it produces high voltages, is called an insulation tester or megohmeter. The best known of these was the Megger, and now the term megger is used to describe any megohmeter. The high voltage in a megger was achieved by turning a handle linked to a generator; modern units use batteries and an inverter to produce the high voltage. They are expensive new, but they do turn up in auto-jumbles and car boot sales at quite reasonable prices.

Testing with a megger.

a. Ensure the condenser is dry

b. If there is a choice, select the 500 volt range on the megger. Don't use a higher voltage.

c. Connect the megger leads to the condenser. DO NOT touch the condenser as you may get an electric shock as well as misleading results.

d. Start up the megger.

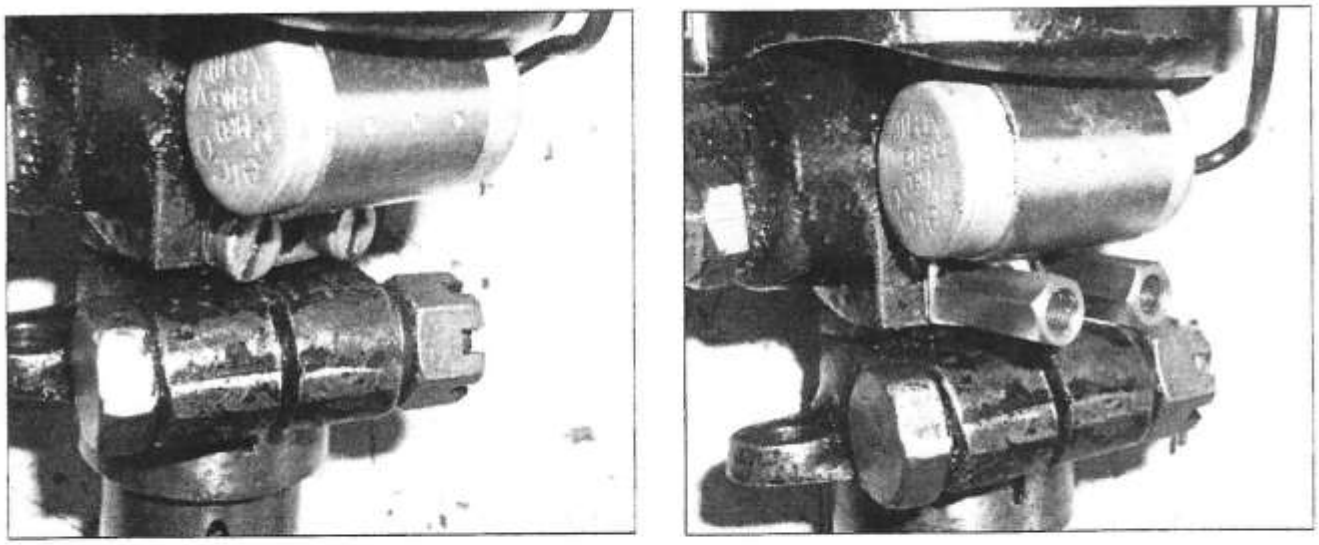
e. You should get a reading of not less than 10 megohms, rising within a few seconds to several hundred megohms as the condenser charges up. A stable reading should be obtained close to the maximum resistance.

If the initial reading is less than 10 megohms then the insulation in the condenser is failing, and the meter will continue to read a steady low value. If the initial reading is more than 10 megohms, but only shows a modest move towards the higher resistance end of the scale, then it is not holding its charge fully. Such a condenser may appear to allow the engine to function but it will not allow proper efficiency especially under load.

Perhaps the TOC should invest in a megger that travels to events with the gazebo and flag. Then we could all take turns testing our condensers – it would make a change from kicking tyres!

Extract from article published in July/August 2008 Magazine by Michael Marshall.

"I replaced the two M4 securing screws by two studs loctited to the body of the distributor on which you can 'hook' the spare condenser (in the dark and wearing gloves if need be) and then simply twirl on the two nuts. As you can see from the before and after photos, the nuts are made from ¼" A/F hex. steel bar and are 15mm long to aid both engagement of the threads and the twirling - after which they can be nipped-up with a 2BA spanner. I find this a much more satisfactory arrangement."

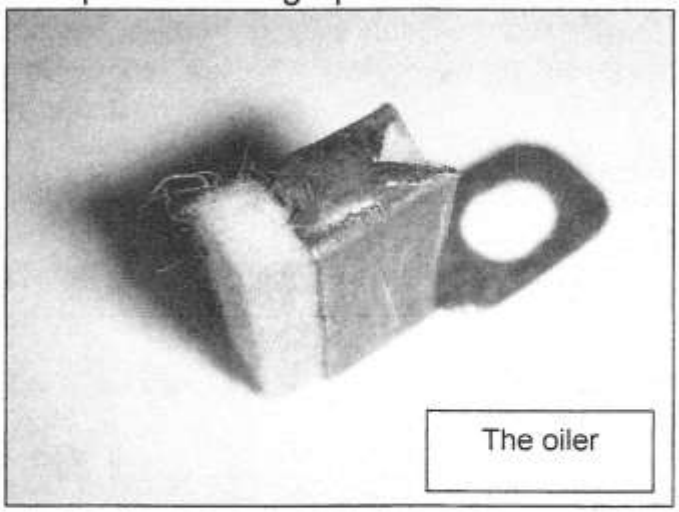


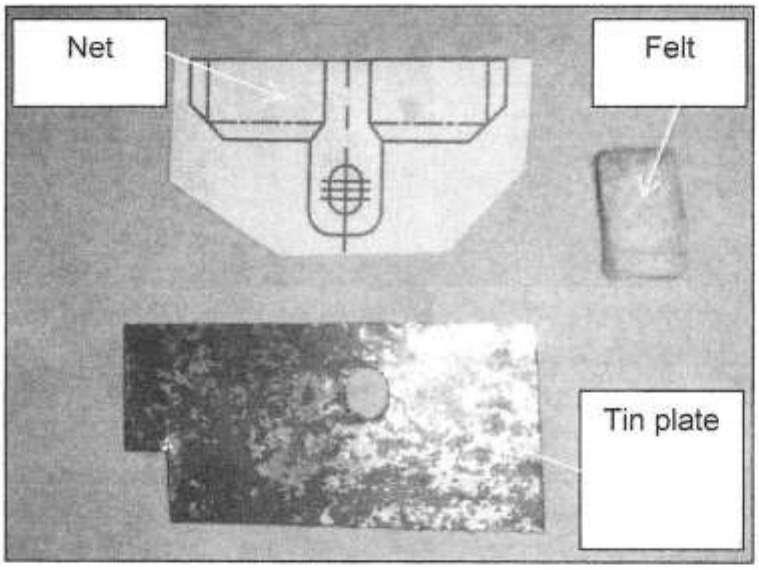
Above: The before and after photos, left shows the standard condenser mounting and right shows the hexagon steel bar for mounting the spare condenser.

A DISTRIBUTOR CAM LUBRICATOR

By Ian Potts

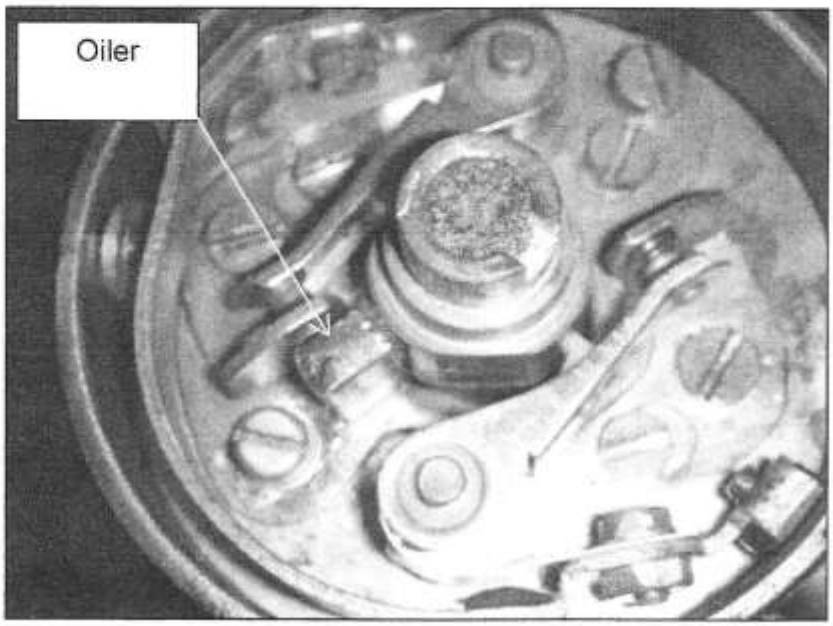
Because some members had problems with modern points closing up and because I had never been fully satisfied with just giving the distributor cam a smear of grease now and then, I had being doing some research into the problem. Now the internet is a wonderful tool for research, but anyone can post information and a lot of it is opinionated rubbish so you do have to be careful. However, when I found out that fibre heels on points were slightly porous and retained oil for lubrication whilst plastic heels didn't, I thought this seemed a sensible reason for modern heels wearing so quickly. I also discovered that some points with plastic heels had been sold that included a piece of oil felt that rubbed on the cam which, when soaked with oil, lubricated the cam. If some manufacturers had done this then maybe it was an idea worth pursuing.



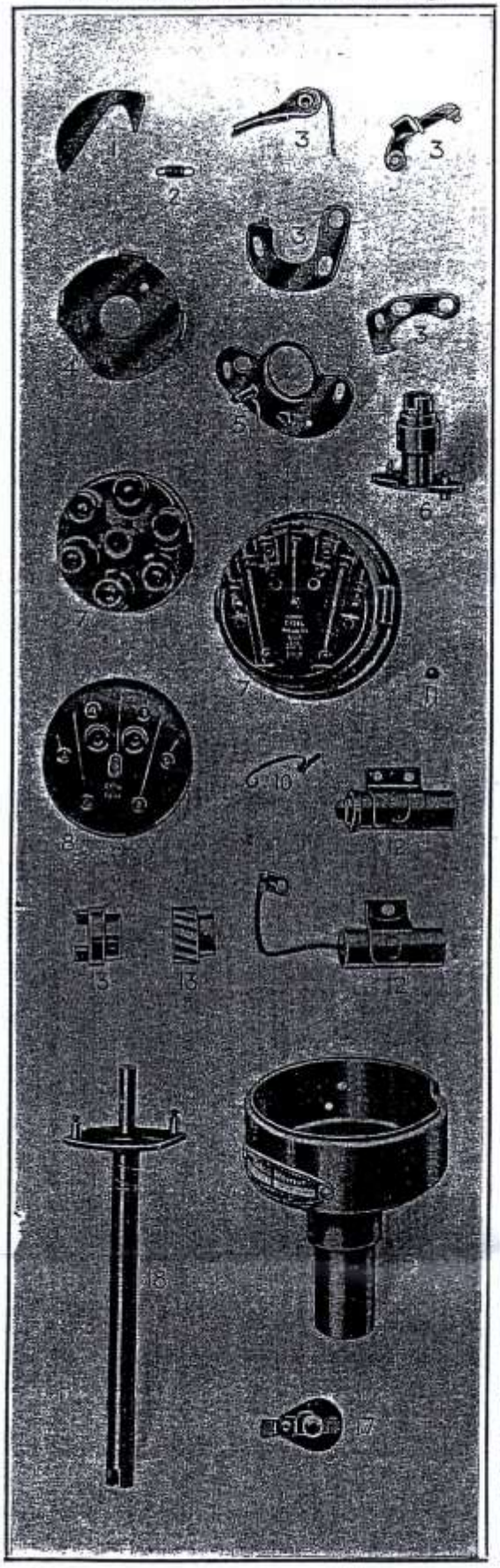


Turning the idea into practice turned out to be quite simple. I designed a net that could be bent up into a retainer for a bit of oil felt and fastened to one of the screws that located the points. I made the net out of thin card first to check it would bend up correctly, then made one out of thin sheet from an old baked bean tin. I slotted the screw hole to give some measure of adjustment. When making items like this where dimensions are not terribly important, I frequently print out the CAD design and glue it to the material, it saves a lot of marking out!

The oiler has now been in position for several thousand miles with no ill effect. It was adjusted to just rub on the cam and impregnated with engine oil. Whether it helps points problems or not I have absolutely no idea, but it seemed like a good thing to do and I enjoyed making it! If anybody wants to make one, the templates are on the forum in the magazine section under published technical articles. Print full size copies of the net as a PDF file which you can then stick to some sheet metal and cut out.



Illustrations of Typical Parts
Numbers refer to Column Headings



Car, Year and Model	Distributor No.	1 Advance Weight	2 Advance Weight SPG	3 Breaker Arm and Points (Set of)	4 Breaker Plate (Lower)
Leyland, 1938 (Late) Cub (Insulated return) Aluminium cylinder head	647GC*	829825	820508	DRH1530	1869583
„ 1938 (Late) Cub (insulated return) Cast iron cylinder head	647HA*	829825	820508	DRH1530	1869583
Meadows Engines, See British Power Boat					
Oldsmobile, 1934 6-cylinder	622S	821202	1856190	DRH556	826474
„ 1934 8-cylinder	662N	818222	822172	DRH560	1838624
„ 1935 6-cylinder	622Y	823595	818304	DRH556	826474
„ 1935 8-cylinder	662R	818222	818196	DRH560	1838624
„ 1936 6-cylinder	647C	1863143	820722	DRH567	1858564
„ 1936 8-cylinder	663K	1863143	1835699	DRH561	1853281
Oldsmobile, 1937–38 Series F. 6-cyl.	647F	1863143	823238	DRH1498	1866028
„ 1937 Series L, 8-cylinder	663W	1863143	827463	DRH1496	1865968
„ Truck 1936–37 Series C157 6-cylinder	645W	1863142	820722	DRH555	1847643
„ Truck 1937–38, C112–126–131–157 F130–155L–155H	647F	1863143	823238	DRH1498	1866028
„ 1938 Series L, 8-cylinder..	1110802	1863143	827463	DRH1499	865986
Packard, 1932-33 8-cyl. (Series 10) ..	5033453	5031369	5031372	†	5033462
„ 1934 8-cyl. (Series 11) ..		5031370	5031373		
„ 1934–35 Eight & Super Eight	662W	5031267	1850312	‡	1838624
„ 1936 Eight & Super Eight	662T	818222	1835699	DRH560	1838624
„ 1937 Series 115C	647E	1863143	823238	DRH1498	1866028
Pontiac, 1934–35 8-cylinder	663B	818222	822172	DRH561	1853281
„ 1935 6-cylinder	647A	818222	823238	DRH567	1858564
„ 1936 6-cylinder	647B	818222	823238	DRH567	1858564
„ 1936 8-cylinder	663H	818222	822172	DRH561	1853281
„ 1937–38 Series 26, 6-cylinder	647D	1866708	823238	DRH1498	1866028
„ 1937–38 Series 28, 8-cylinder	663X	812222	829567	DRH1496	1865968
Renault, 1936–38 12 h.p. 4-cyl. ..	635HB	821596	816800B 829532A	DRH556	826474
Reo, 1933–34–35 Flying Cloud	644M	818222	1835118	DRH555	821150
„ 1934 8-cylinder	663D	818222	825861	DRH561	1853281
„ 1933–34–35 Truck 8-cylinder ..	660K	818222	823238	DRH560	1838524
„ 1933–34–35–36 Truck 6-cylinder ..	643R	818222	820438	DRH555	821150
„ 1935 6-cylinder	643E	818222	820438	DRH555	821150
Studebaker, 1933 Model 56	622A	823595	818304	DRH562	826474
„ 1933 „ 92	662G	818222	1835118	DRH568	1838624
„ 1933 Models 73 and 82 ..	662H	818222	823238	DRH568	1838624
„ 1933–34 Commercial (6)	622B	823595	818304	DRH562	826474
„ Commander 8	662H	818222	823238	DRH568	1838624
„ 1934 President 8 ..	662M	818222	825861	DRH568	1838624
„ 1934–35 Truck 6-cylinder	644Y	818222	1835699	DRH555	821150
„ 1934–35 Truck (T-Series)	622B	823595	818304	DRH562	826474
„ 1935–36 President „ 1935 Commander	662M	818222	825861	DRH568	1838624
„ 1936–38 President ..	662M	818222	825861	DRH1506	1838624
„ 1936–37 Models 2W6 (4-ton), 2W7 (5-ton) ..	645J	818222	822172	DRH555	821150
„ 1937–38 Model J ..	649V	818222	825515	DRH1497	821150
Talbot, 1929–30 14–45	656Z	829825	829824	DRH554	1835522
„ 1930 AM70	656ZA	829825	1835699 DRH499	DRH554	1835522
„ 1930–37 AM Sports, AW 75, 65, 90 and 105	650KA 650KB	829825	1835699 DRH495	DRH554	1835522
„ 1931—36, AM Std., AY 75, AY 95, AV 95	656ZB	829825	1835118 824668	DRH554	1835522
„ 1930—36 Racer	656NA	818222	820438	DRH554	1835522
„ 1936–38 10 h.p.	635HE	821596	817261A 827929B	DRH556	826474
Trojan, 1926–33	372TM	—	—	DRH552	806485RC
„ 1934–38	372TQ	—	—	DRH556	826474

*Vacuum Control 1116007.

†Set comprises 2–5024368 and 2–5025835.

‡Set comprises 2–1842058, 1–1858484 and 1–1858486.

Distributor Parts

5 Breaker Plate (Upper)	6 Cam	7 Cap or Cap Base	8 Cap Cover	9 Cap Cover Screw	10 Cap Spring Clip	11 Cap Carbon Button	12 Condenser	13 Gear or Coupling	16 Housing	17 Rotor	18 Shaft
—	DRH1443	824987	820133	803912	834069	821604	829979A	809673	DRH1483	820445	DRH1478
—	DRH1443	824987	820133	803912	834069	821604	829979A	809673	DRH1480	820445	DRH1444
—	817258	822465	—	—	816801	821604	1864706	1856192	1856196	816774	1856197
—	1836891	1837494	—	—	1836913	821604	1869706	809673	1837496	1836893	1840026
—	817258	822465	—	—	816801	821604	1841630	1859325	1859316	816774	1859319
—	1859691	1837494	—	—	1836913	821604	1869706	809673	1837496	1836893	1850948
—	1862716	824735	—	—	1871828	821604	1869706	1859325	1862711	820445	1862713
—	1862887	1837494	—	—	1836913	821604	1869705	809673	1862893	1836893	1841397
—	1869568	824735	—	—	1871838	821604	1869704	1859325	1866482	820445	1866881
—	1866706	1837494	—	—	1836913	821604	1869704	1859325	1866701	1836893	1866703
—	1863537	824735	—	—	1871838	821604	1861709	1859325	1863539	820445	1863536
—	1869568	824735	—	—	1871838	821604	1869704	1859325	1866482	820445	1866881
—	1866706	1837494	—	—	1836913	821604	1869704	1859325	1866894	1836893	1866703
—	1850309	1848820	1848819	1848822	5033459	809445	1848826	5010508	5036460	1848824	5025298
36904	1857898	1857894	1857892	824394	1836913	821604	1869707	809673	1857589	1836893	1857596
36904	1848193	1857894	1857892	824394	1836913	821604	1869706	809673	1862263	1836893	1839018
—	1869568	824735	—	—	1871838	821604	1869704	—	1866019	820445	1866021
—	1853642	1837494	—	—	1836913	821604	1869705	819741	1853643	1836893	1853645
—	1858558	824735	—	—	1871838	821604	1869705	1858578	1858553	820445	1858555
—	1858558	824735	—	—	1871838	821604	1869705	1858578	1862247	820445	1862248
—	1853642	1837494	—	—	1836913	821604	1869705	819741	1862241	1836893	1862243
—	1867181	824735	—	—	1871838	821604	1869704	1858578	1866161	820445	1866886
—	1866456	1837494	—	—	1836913	821604	1869704	819741	1866454	1836893	1866458
—	818794	821589	—	—	816801	821604	1842806	809673	DRH1216	816774	818302A
—	822627	824735	—	—	834069	821604	1869704	809673	1844058	820445	1844542
—	1855514	1837494	—	—	1836913	821604	1869705	809673	1855516	1836893	1855511
36904	1836891	1838131	1838133	803912	1836913	821604	1869706	809673	1839151A	1836893	1838091
—	822627	824735	—	—	834069	821604	1869704	809673	1844058	820445	824738
—	822627	824733	—	—	834069	821604	1869704	1841699	822622AV	820445	824738
—	817258	822465	—	—	816801	821604	1869706	821865	1843414	816774	1840345
36904	1836891	1839016	1844661	824394	1836913	821604	1869706	826276	1841879	1836893	1841170
36904	1836891	1839016	1844661	824394	1836913	821604	1869706	826276	1841879	1836893	1839456
—	817258	822465	—	—	816801	821604	1869706	821865	1840348	816774	1840345
36904	1836891	1844639	1844661	824394	1836913	821604	1869706	826276	1841878	1836893	1839456
36904	1836891	1854390	1854433	824394	1836913	821604	1869706	826276	1841879	1836893	1839456
—	821472	824735	—	—	834069	821604	1869704	809673	822622	820445	1844542
—	817258	822465	—	—	816801	821604	1869706	821865	1840345	816774	1840345
36904	1836891	1854390	1854433	824394	1836913	821604	1869706	826276	1841879	1836893	1839456
36904	1836891	1854390	1854433	824394	1836913	821604	1869706	826276	1841879	1836893	1839456
—	821472	824735	—	—	834069	821604	1869704	—	822622	820445	1828121
—	823236	824987	820133	803912	834069	821604	1869704	1842541	822622	820445	1839968
20455	829822	824987	820133	803912	834069	821604	1842806	—	829817A	820445	829819
20455	829822	824987	820133	803912	834069	821604	1842806	—	829817B	820445	1838932
20455	829822	824987	820133	803912	834069	821604	1842806	—	829817B	820445	1838932
20455	829822	824987	820133	803912	834069	821604	1842806	—	829817B	820445	829819B
20455	822607	824987	820133	803912	834069	821604	1842806	—	829817AC	820445	1838932B
—	DRH1234	821589	—	—	816801	821604	1842806	809673	DRH1309	816774	DRH1238
—	On Shaft	DRH192	DRH188	185RY	834069	—	1842806	—	205RY	201RY	182RY
—	DRH1030	DRH192	DRH188	185RY	834069	—	1842806	—	DRH1034	201RY	DRH1031

DELCO-REMY-HYATT

DIVISION OF GENERAL MOTORS LTD

GROSVENOR ROAD

Telegrams :
DELREMHYAT
SOWEST, LONDON

Telephones :
VICTORIA 6242

Telex : VIC. 9134

Dear Sir,

We wish to thank you for your enquiry of the 15th inst., concerning the Delco Remy Distributor fitted to your 1932 Talbot 18h.p. model 90 Sports Tourer and note the model in question is the 656Z

We would however point out that the type656Z? Delco Remy Distributor was initially used on the 1929-30 model 14-45 Talbot and the 1932 model 90 used the type 650KB Distributor.

For your information the advance curve of the model 656Z? Distributor now fitted to your engine is as follows. Automatic starts at 350 erpm giving 5^0 advance, intermediate advance 42.5^0 at 2000 erpm, and maxil-re advance 63^0 at 3600 erpm.

With regard to the model 650KB (check the makers number) initially fitted to this engine the characteristics were as follows: Automatic starting at 300-400 erpm, advancing to 20^0 at 1500 erpm and giving a maximum advance of 30^0 at 3500 erpm.

Trusting that this information will be of assistance to you.

We are,
Yours faithfully,

Supervisor,
Parts & Accessories Sales.

AC-Delco
Division of General Motors Ltd.
DUNSTABLE · BEDS · ENGLAND
also at WEST BAY ROAD · SOUTHAMPTON · HANTS.

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DUNSTABLE 1166
SOUTHAMPTON 74411

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ALE/DMR.

F.S.Williamson, Esq.,
10, Boxhill Walk,
Abingdon,
Berks.

5th July, 1954.

Dear Sir,

We thank you for your letter of June 23rd concerning the Delco Remy distributor fitted to your 1931 Talbot 90.

The type 656ED fitted to your vehicle is not recommended for this application, this being designed for an early Talbot car, model 14/45. For your information we are enclosing herewith a print of the advance curve of this distributor.

On Talbot 90 cars, two distributors were fitted. Between 1930-1934 the AW90 model used type 650 KB, while the 1931-1934 AY90 model used a 656 ZB. We are enclosing prints of the advance curve of both these model distributors and you will note that they differ somewhat from the 656 ED.

However, by manipulation of the advance weight springs, it may be possible for you to adjust the advance to that of the correct distributor. We are also enclosing herewith a copy of our booklet dealing with Delco Remy coil ignition which you may find to be of assistance.

Please do not hesitate to contact us if you have any difficulty and we trust that our enclosures will prove of interest.

Yours faithfully,

A.L.Eisler.
Parts Sales Dept.

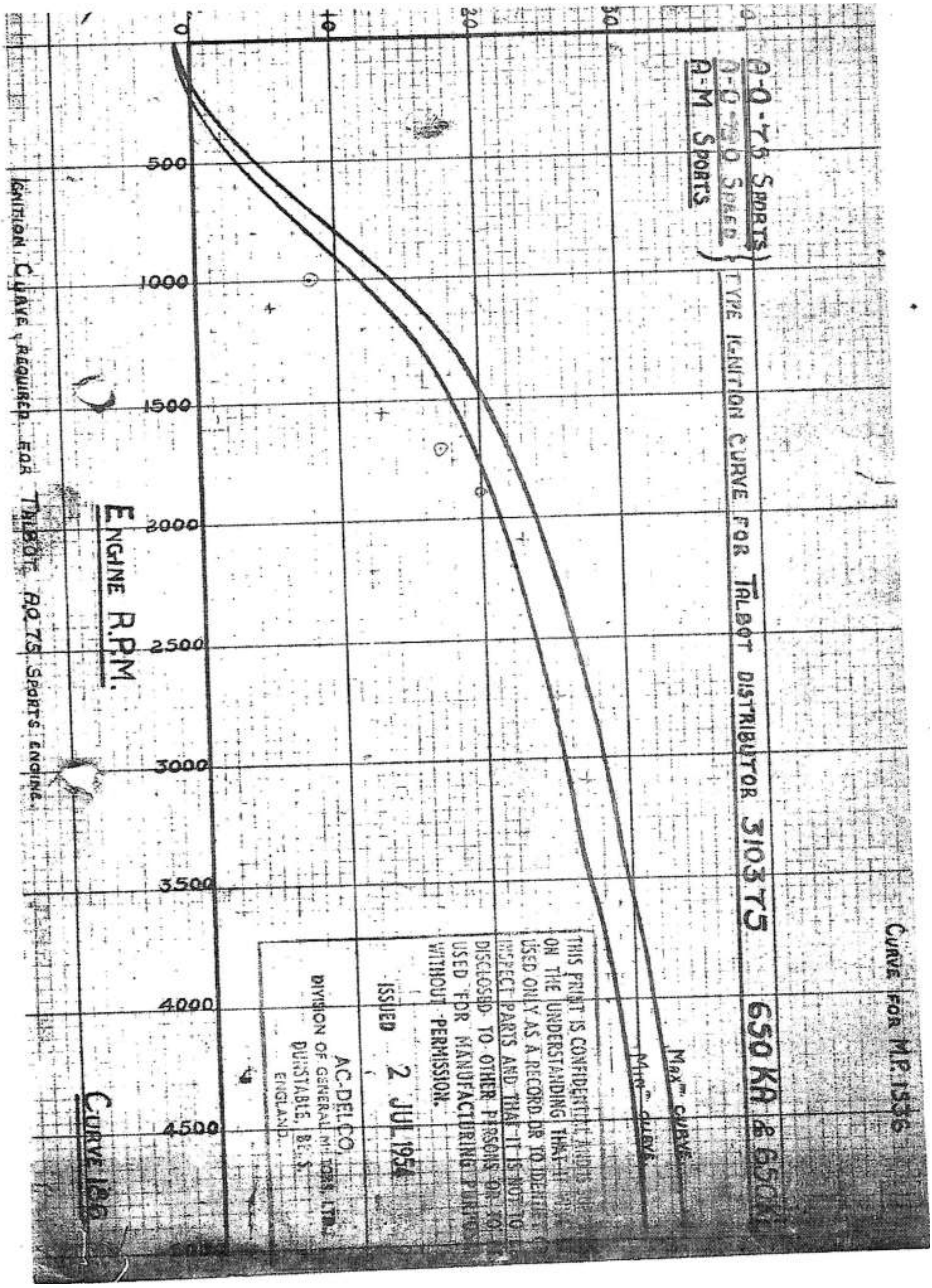
AC-Delco
DIVISION OF GENERAL MOTORS LIMITED

ANNUAL HOLIDAYS 1954

Please note that these works will close for the 1954 Summer Holiday from 5.00 p.m. Friday 16th July to 7.30 a.m. Tuesday 3rd August 1954.

No goods will be received during this period except by previous arrangement.

...ATLETT, D. BENSON BROWNE, W. F. EDWARDS, C. N. FAULCONBRIDGE, (General Manager, AC-Delco)
... E. HILL (U.S.A.), E. S. HOGLUND (U.S.A.), A. W. PORTER (U.S.A.), W. SWALLOW, G. N. VANSITTART.


CURVE FOR M.P.1536
A-0-75 SPORTS
A-0-90 SPEED
A-M SPORTS
TYPE IGNITION CURVE FOR TALBOT DISTRIBUTOR
650 KA
MAXm CURVE
MINm CURVE
ISSUED 2 JUL
AC-DELCO,
DIVISION OF GENERAL MOTORS LTD.
DUNSTABLE, BEDS.
ENGLAND.
ENGINE R.P.M.
IGNITION CURVE REQUIRED FOR TALBOT AO.75 SPORTS ENGINE.
0
10
20
30
500
1000
1500
2000
2500
3000
3500
4000
4500