Editor:
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" A L V I C "
The Magazine of the Alvis
Car Club, Victoria

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Extract from 'The Autocar', of May 2nd, 1941.

BIG AND GOOD

Two Alvis Open Models - a Speed Twentyfive and a 4.3 Litre.

WE might consider something big again, I suggest, there having been some variety lately in the direction of small stuff - and very interesting that type of machine always is. Apart from some special cases it is possible to visualise, one does not see a great deal of motoring being done these days in the bigger sports cars, though there is no reason why interest in the type should not be maintained, and , as a matter of fact, I know that quite a few people buy big sports cars even at the present time, often presumably laying them up for the duration.

Good material lying doggo seems a great pity, but if it weren't doing so in a private garage somewhere in the country it would be equally idle in a showroom, and probably in a good deal more dangerous position in present circumstances.

Not long ago I was able to try a couple of the big open Alvises, or Alvis, or Alvi, or whatever the plural really is, cars which, with all their power from a hearty size of engine, made one wish for a return to unlimited supplies of fuel again. One was a 1937 model Speed Twenty-five and the other a 1938 4.3-litre, and example of that biggest Alvis model introduced only a year or so before the war began, it will be remembered, and capable of great things.

The opportunity having arisen, in a sense I inevitably thought thoughts comparatively between the two machines. To even matters up as much as possible, I had a run in the Speed 25 first.

It was typically Alvis, a tribute which one can pay because whenever one gets behind the wheel of one of these cars - whether, as in the past, a comparatively new machine straight from the works, or one that has been in private hands and done a considerable mileage, it feels good. The sort of 'battleship' construction which, plus excellent finish, is apparent immediately you open the bonnet and will be remembered by anyone who has seen an Alvis chassis without the body, does count for a lot in ultimate durability.

Part Throttle

Driving the Speed Twenty-five and still more in the larger car, was a matter in the present conditions of using just some of the performance, B being reached from A in a strikingly shorter time than one is accustomed to making on the ordinary run of cars at the moment.

Both, as it happened, showed total mileage readings of 20,000-odd, both being offered for sale by the firm of Brooklands of Bond Street, who at the outbreak of war were the Alvis London distributors, and therefore specialists in the make. These were two of several examples they had at the time. The Speed Twenty-five, in point of fact, was sold very shortly after I tried it, providing an illustration of the remark made earlier to the effect that cars of this calibre are still changing hands. I believe that the figure put on it was £375, and that other similar cars are available from the same source, while the price of the 1938 4.3-litre, which is still available, is £775; the original list price of this model was £995.

As I have already suggested, the Twenty-five certainly could get over the ground, and was an extremely nice type of car to handle. Its control was not heavy, a criticism which could be advanced against some of the earlier types. I had not previously tried the open Speed Twenty-five, but a saloon of this model in 1938 whacked up a timed speed of 96-odd, and gave some remarkably good acceleration figures. It was interesting that when a week or so afterwards I found myself in the 4.3, although there was no question of being able to compare actual current performance data for the two machines, the contrast in performance between them, good as the 25 was considered individually, applied to a greater degree, I think, than might have been expected for a difference of little more than 800 c.c. in the engines.

Actually, the wheelbases of the Speed Twenty-five and the 4.3 sports tourer, which is on a short chassis compared with the corresponding saloon, are the same (10ft.4in.) and thus one had the effect, remembering the earlier run, of virtually the same car with a bigger engine. I let it do it only about twice, but the 4.3 will leap up to the 70 mark, and its natural speed is around that figure.

The top gear hill-climbing was remarkable, quite apart from what could obviously be done on the gears on something steep. The 4.3 shot up a hill I often use, which has tricky corners, taking it fast enough for these days on top, whereas most cars even of roughly similar type definitely prefer third at least.

Road Test Figures in 1938

When this edition was tested, in August 1938, the acceleration figure from 0 to 70 m.p.h., through the gears was 16.2 secs. as a mean figure, which certainly is warm. That car reached a stop-watch 103.45 m.p.h. over the $\frac{1}{4}$ mile with the screen lowered, and the acceleration figures were altogether out of the ordinary on top gear as well as the indirects. Also it reached a genuine 80 on third, 56 on second, and 37 on first gear. The ratios of the 4.3 tourer are top, 3.82. third, 5.46, second 7.75, and first 12.02 to 1.

It is interesting that in spite of the naturally superior acceleration, the bigger car of the two now tried showed less pinking on the present fuel than the Speed Twenty-five, and on that car it was not what you might call excessive. The 4.3 litre engine in particular was strikingly smooth, especially remembering its power output, which has been quoted as 123 b.h.p. at 3,600 r.p.m.

Equipment plus Performance

Besides performance, one finds everything on a car of this description in the way of detail equipment, including automatic chassis lubrication, permanent jacks, and a reserve petrol tap which can be operated from the driving seat. Also, Alvis are among the very few firms who continued in recent years to make a car in such a way that when you open the bonnet you can get at all the oddments.

The instrument board is still arranged on the separate dial plan, too, which wants a lot of beating and is many people's ideal, though I question whether, in this case, it is really justifiable to have the rev. counter immediately in front of the driver and the speedometer away on the far left. Starting was a matter of pressing the switch and putting the mixture control back to normal almost at once. The 25 had a coil for starting, running normally on a mag., while the 4.3 had coil ignition only.

Alvis certainly produced a first-rate example of a synchromesh gear box, and it is synchromesh which does not offend, for it does actually make changing about as quick as it can be with an ordinary lever, and , remember, these cars have the synchromesh on all four gears.

This particular example is quietly finished in black, matching, in fact, its unobtrusiveness as regards engine and exhaust. It was a beautiful combination of top and third gear potter car with rip-snorting acceleration and an obvious very high potential maximum, which, to my regret, for purely present general reasons, was not sampled.

" V. "

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Also, some rather glorious extracts from elsewhere in the same war-time issue of 'The Autocar', while should be of considerable bemusement value to us today:

Then and Now:

Motoring in the Midlands recently, I caught sight of Captain J.P. Black managing director of the Standard Company. He was evidently on his way from Coventry to his house in the heart of Warwickshire - and he was in a hurry. As a rule Captain Black does not seem to be in a hurry; his great achievements - and they are many - are due to a clear head and the ability to get things done by people who never question his judgement because they have learned from experience that he is invariably right.

"If all the good people were clever, and all the clever people were good,

The world would be nicer than we ever thought that it possibly could."

Honkers ??

One of the mysteries of our times is the motorist who honks either without thinking or because he must tell someone that he was been slightly inconvenienced. Two examples of silly honking were seen by me within one hour the other day. No. 1: A car was standing at the lights and as the amber came up, a woman pedestrian darted across the road. The motorist had not started to move, yet he had to honk. Why ??

No. 2: A fire engine was descending a hill on a wet surface when an obstruction caused the driver to apply his brakes, with the result that the vehicle skidded and stopped broadside on to any traffic. There was no traffic near at the moment, but before the driver could restart and get straight, a car which had been a hundred yards away did not slow down at once, although he must have seen the fire tender across the road - he merely honked and stopped suddenly. Why did he honk ??

We all know that unless we get off the mark quickly at traffic lights some fool behind will give us no more than five seconds' grace before honking.

The funny thing about it is that most honkers are not people who look like honkers should look if they are the fools we take them for.

Samuel Pepys, Motorist:

April 24:- Otto, Benz and Daimler, Germans all, did plan the internal combustion carriage that men might travel freely on their pleasures, and eke minister more swiftly to each other's service in the name of God.

Musing on such matters, I find my wife hath prepared a dish of tripe for luncheon. Which, there being come upon us a grate famine of onions, withouten which tripes do only put me in mind of soapsuds and of the flannel withall I wipe my beard after shaving, I am the more depressed.

It is some small comfort to perceive, our new handmaid serving me with the tripe, that she hath a saucy eye and withal a trim ankle.

Last night whenas I returned from cards at my lorde Cooke's, my carriage is stopped by a policeman who saith somewhat uncivilly that my back lamp doth not burn. Which, on proceeding rearwards, I find to be sad truth. I reason with him that a sennight since, some drunken sot doth back his carriage into mine outside the Dorchester. Which, my back lamp forming a portion of a special panel made in ye citie of Coventry recently blitzed by ye Luftwaffe, I am unable for all my pleadings to buy a fresh panel; and the rain, blowing in with much wind, hath doubtless seduced ye current to move by some false path, so that even with a neweth bulb it refuseth to burn.

The constable turning civil at my woe, I trust that he will not have me haled to ye court. This morning the man who tendeth my garden one forenoon in seven, proveth himself an ingenious fellow. Procuring some clear substance yclept Windowlite from a near building verily recently blitzed, wherein it covered ye damaged panes, he cutteth a strip and springeth it into place by reason of its flexibility, and nippeth the metal edges with ye pliers to maketh a firm grip. I trust to beheareth nonce more of this mishap.

Ahead:

General Motors Corporation announces that it will make no new models for 1943, but will continue with those of 1942.

The Question of an Inch:

Five motorists were each fined 10s. at Norwich for using rear lights which exceeded one inch in diameter.

PETROL VOLATILITY AND VAPOUR LOCKING

Owners of the earlier Alvis cars, particularly the Speed Twenties and the Vintage 12/50s and sixes, will be only too familiar with the distressing vapour locking which occurs in the Australian summer conditions. Owners know that this phenomenon happens, but a quick quiz around the Club revealed remarkable ignorance of the true causation.

Vapour locking is a function of the volatility of the petrol used. This term refers to the ability of a fuel to evaporate readily under the conditions normally found in the engine. The lighter the petroleum fraction, the more volatile it is, and the more easily it changes from the liquid form in the carburettor float chamber to the vapour gas in the intake ports.

There are four main ways in which volatility may affect engine performance. These are: Ease of starting, Carburettor icing, correct distribution and the vapour locking tendency.

In order to have ease of starting, petrol must have one fundamental quality - sufficient of the liquid must vapourise within the carburettor on the coldest morning and thus enable the engine to fire. A very volatile fuel will solve this problem, but a too volatile fuel will give too much vapourisation, which gives rise to vapour locking and icing, and may mean that the float chamber rapidly empties of the liquid and fills with the vapour. On starting, the carby. will thus be 'dry', and the engine will not start.

Carburettor icing occurs when a volatile fuel is used under certain atmospheric conditions. The rate at which the fuel evaporates in the carby. cools down the incoming air to such a low temperature that the water vapour it contains turns to ice, which is deposited in the carburettor. The upsets the balance of the carburettor to such an extent that the engine loses power, and may even stop altogether. Ice has been known to completely block up the carburettor bore and the intake porting. Icing occurs only in cold weather when the humidity in the air is high (i.e., the air is saturated with water vapour, and this is thus easily precipitated.).

Vapour locking is a much more common fault. It can be defined as a change in the performance of the fuel system resulting from the over-vapourisation of the fuel. The symptoms are most likely to occur if, after a prolonged period of high-speed driving or severe hill-climbing, or if the radiator is clogged or inefficient, the car becomes stationary for a few minutes, such as pulling in to a service station for petrol, or stopping at a road junction to consult a map or sign-posts. In these conditions, the fuel system temperatures rise rapidly, due to radiation of heat from the engine, and particularly the exhaust system. This is referred to as the 'soak' period. Petrol in the fuel lines or carburettor vaporises and a vapour lock is formed. This may result in uneven acceleration or to complete loss of power and the inability to start. Vapour lock can occur anywhere in the fuel system, and a pipe line near the rear petrol tank which passes close to an exhaust pipe or silencer must not be forgotten.

Normally, carburettor vapour lock is not serious, since it will eventually disappear if the fuel pump continues to deliver liquid fuel. Fuel pump or fuel line vapour lock, on the other hand, is critical because there is no escape for the vapour produced, and when the volume of vapour exceeds the maximum the pump can handle, the engine suffers a sort of 'heart attack'. The controlling factor is the relative volume of fuel vapour to liquid fuel at the temperature in the pump or line concerned.

It is possible to induce vapour lock in cars such as Speed Twenties by running them at full throttle on straight stretches of road, then stopping and allowing them to soak. They can also be driven up steep inclines in low gear. In the majority of cases it is harder to induce vapour lock by travelling at high speed than after travelling under load in low gear. The reason for this is fairly evident. On cars with minimum or no fan equipment, the radiator cools by the passage of cooler air being forced through the radiator by the speed of the car, and thus keeping the temperature within the engine compartment down. In slow speed loading, however, the air passing through the radiator is minimal and inefficient as an engine coolant. During the 'soaking' period, the increase in engine temperature is quite considerable, varying between 15 to 45°C, the average being about 30°C. On the average, maximum soak temperature is reached after 15 minutes, and after that period engines begin to cool down.

Alvis Ltd. gradually coped with this problem. The vintage cars , with a few exceptions, were not fitted with a fan, and relied purely on thermo-siphon cooling and water circulation. The introduction of the Vintage Six brought with it the use of a water pump. The 12/50s. ran hot as a consequence, but were designed to do so, with large water passages, and a fairly large radiator core area for the engine size to be cooled. The sixes greatly increased the engine cooling required, but only slightly enlarged the radiator. Thus the water pump was added to improve the water circulation and to improve the rate of cooling. This was not entirely successful, so that the last of the Vintage Sixes, particularly the Twenties, were fitted with small two-bladed belt-driven fans. The SA and SB Speed Twenties were not fitted with a fan, but had large V- core radiators. Why Alvis Ltd. dispensed with the fan is uncertain, but it is probable that the larger core, and the large air space around the engine was thought to reduce the need for a fan. This also was not entirely successful, for the SC Speed Twenty, along with an increase in cubic capacity, appeared with another small two-bladed fan, mounted incidentally, in a glorious and expensive alloy stanchion. This persisted into the SA 25.63 3½ Litre, but the later Speed 25s. were fitted with a 4 blade fan, and some 4.3 Litre models were fitted with 8 blades. As fan efficiency improved, the tendency to vapour locking decreased. At the same time, the radiation of engine heat onto the triple carburettors, with their lengthy fuel lines, and the proximity of the twin fuel pumps to the exhaust system, came under fire. The Factory began to fit aluminium shields beneath the carburettors to reflect heat back to the engine, and likewise away from the fuel pumps, and at the same time successfully cluttered a gloriously clean looking engine layout. With the SB 25.63 series, the position of the fuel pumps was altered to the opposite side of the engine to the exhausts, and fuel lines and some exhaust pipes were lagged with asbestos. All these measures were aimed at insulating fuel lines from engine and exhaust heat.

Should your vintage or PVT Alvis suffer from vapour locking (and I have had it happen on my modern Austin) the remedy should by now be apparent. Inspect the fuel system, and re-route lines if convenient so that they are not near the engine block or the exhuast system. If this is not feasible, fit thick asbestos impreg nated gaskets between the carburettor flange/s and the inlet manifolding, construct polished shields between lines and sources of heat, lag exhaust and/or fuel lines with asbestos, and ensure that the radiator is in good shape. If feasible, fit more or bigger blades to the fan. Scoops can also be constructed to blow cool radiator air onto the fuel system. The Grey Lady Three Litres made an attempt at this with their bonnet scoops.

Last, but not least, don't thrash your Alvis flat out for any length of time.

D. MUIRDEN.

THE SIGNIFICANCE OF ENGINE NOISES

Unusual noise in an engine is to be regarded as serious because it is generally caused by heavy wear and tear or the incorrect operation of some engine component/s. Therefore, should a noise develop, its cause should be immediately investigated, and furthermore, everything should be done in initial design and assembly to minimise noise, so that new noises can be detected earlier.

Engine noises are of various types and include whistling, hissing, groaning and squeaking, rumbling and knocking. Whistling and hissing are caused mostly by the escape of air or gases under pressure, and call attention to the fact that some joint is faulty, or that a casting has developed a crack. Groaning and squeaking usually indicate excessive friction and consequent wear of surfaces which move other each other - they are caused by tight adjustment and unsatisfactory lubrication. Rumbling noise is one of the indications of torsional vibration. This is a peculiar trouble which can be very destructive, and it has been the cause of fracture and breakage of many crankshafts and connected parts. It occurs when the engine is run at a specific critical speed, i.e., at the speed when the frequency of the vibrations caused by the torque on the crankshaft synchronises with the natural frequency of the shaft. Engine designers can calculate the natural frequency of the shaft, and they try to design it so that there will be no critical speeds within the operating range of the engine. This can be done in theory, but there are often practical matters in production which can defeat the designer's desires.

A shaft may also have a critical speed lower than the normal running speed (i.e., below idling speed), so that it is subjected to torsional vibration every time it is brought up to speed, and although the periods are short, this vibration may still be harmful. In most cases, if an engine is run at a constant speed, or within a narrow range of speed, no trouble from torsional vibration will be experienced. However, it is always just possible that changing the running speed by only a few revs. per minute may create the critical speed, and the vibration may soon result in fracture of the shaft. Also, by making alterations, such as removing or adding the pulley, or balancing webs, or the attached flywheel, trouble may arise from the change in the natural frequency of vibration of the shaft.

Thus, if rumbling is heard, it should be referred to an expert. By means of a special device, the torsiograph, records may be taken to see if there is a dangerous period at or near normal running speeds. If so, some alteration, such as increasing the stiffness of the shaft, or altering the weight of the flywheel, must be made in order to raise or lower the critical speed. Special damping devices can also be fitted.

Knocking noises can be of several kinds. They may take the form of clicking, rattling, banging and heavy thumping, all of which usually arise from the sudden violent impact of one metal part against another. Repeated impact, even when light, can damage the parts and lead to breakdown. Hence, it is wise not to neglect any form of knocking - like pain in the body it is a warning signal - and should heavy banging or thumping develop, the engine must be immediately stopped before devastating breakages occur.

The most common causes of metallic knocking are wear of parts and increase of operating clearances, and slackness of fastenings.

Wear of valve tappets and rockers is commonly responsible for noisy valve operation. If the valves open easily, the knocking is likely to be only of a mild nature, but it may be very pronounced if they tend to stick or if they are hard to open when they are pressed down heavily on their seatings by high spring or exhaust gas pressure. This is one reason for thinking twice before fitting heavier valve springs. Excessive clearance at the tappets causes a tapping noise, hence its nomenclature, and re-adjustment will produce quietness. Rocker shaft bearings cannot be adjusted and require suitable bushing, or opened out bores and built-up shafts, coupled with adequate lubrication.

Undue wear of connecting rod bearings causes a heavy thumping, and this noise is also caused by a loose or ill-fitting flywheel key. Owing to the severe working conditions suffered by flywheels, there is a strong tendency for them to work loose, especially if they are not well fitted in the first place, and if this happens, the wheel is permitted to rock slightly on the shaft, with serious risk of cracking the flywheel boss and perhaps also the crankshaft. Unfortunately, such a knock is often hard to diagnose because the sound often emerges at a place some distance from the flywheel. Hence, when a knock occurs and the cause is not obvious, the flywheel should always be suspected. If the flywheel is felt to be tight, it does not necessarily follow that this cannot be the cause of the noise, because tight keys may fail to prevent flywheel hammering at speed if they do not fit accurately all along the sides, or bed accurately in the keyways. In one instance, after a mysterious knocking, after the keys had been found tight, the engine was completely overhauled, but to no avail. The noise persisted. Eventually, the keys were withdrawn, when it was found on close inspection that the keyways were distorted, and the keys had large worn areas although holding firm in its centre. The keyways were trued up and new keys fitted carefully, and the trouble was cured. When inspecting flywheel keys, one should look closely for reddish powder or rust-coloured grease - these are sure signs of wheel rocking and a warning that the keys require attention. The slight movement of the wheel on the shaft causes fine particles of metal to be removed and these become oxidised and reddened.

Overloading and pre-ignition are commonly regarded as causes of engine knocking; but it seems more correct to regard them as faults which aggravate existing knocks rather than causing them. Thus, if all parts are accurately adjusted and lubricated, and there is no slackness or lost motion anywhere, and provided that no moving part strikes against anything, metallic knocking and consequent noise cannot arise.

Another form of knocking, known as fuel knock or detonation is caused by the sudden rapid burning of fuel and a sharp rise of pressure in the combustion chamber. The main factor here is the quality of the fuel and a change to a higher octane rating will overcome the trouble. The fact, however, that knock will occur in one engine and not another with the same fuel, shows that other factors such as the shape of the combustion chamber and the compression ratio are important.

The difficulty of locating elusive noises and knocks can be much reduced by using some form of sound-detecting device. A simple stethoscope can be made with a metal rod about $\frac{3}{8}$" diameter and 3ft. long and a sheet-metal cylinder about 4" diameter and 4" deep. The rod is pointed at one end and prepared at the other for attachment to the bottom of the cylinder. The top of the cylinder is provided with a central ear and hand hole.

Excessive noise in the form of booms is frequently caused by poor exhaust gas silencing. The obvious cure is to fit good silencers.

Other miscellaneous noises can be caused by fabric threads or strips from a worn fan belt striking pulleys, body or engine walls etc. by centrifugal force, rattles from loose accesories or brackets, rubber or rubber-metal bushings in engine stabiliser bars or in engine mountings perishing and allowing metal to metal contact when engine revs. are suddenly altered, flexible oil or fuel lines thumping against cables or castings when sudden squirts of oil or fuel are pumped through them, squeaks and knocks from any worn or loose clevis or control rod attachment, over-run knocking from distributor advance-retard bob weights striking the body of the distributor or each other when the springs are weak or broken, a grinding noise when the automatic chain tensioner takes up another notch, or when the engine mounts have collapsed somewhat and allow the crankshaft pulley to scrape on the front cross member.

Specialists in the auto-tuning business have special equipment for ascertaining the relative condition of journals and bearings, valves, rings, and other parts without having to open up the parts. When utterly stumped, the expert's aid should be invoked for his diagnosis before lengthy dismantling is undertaken.

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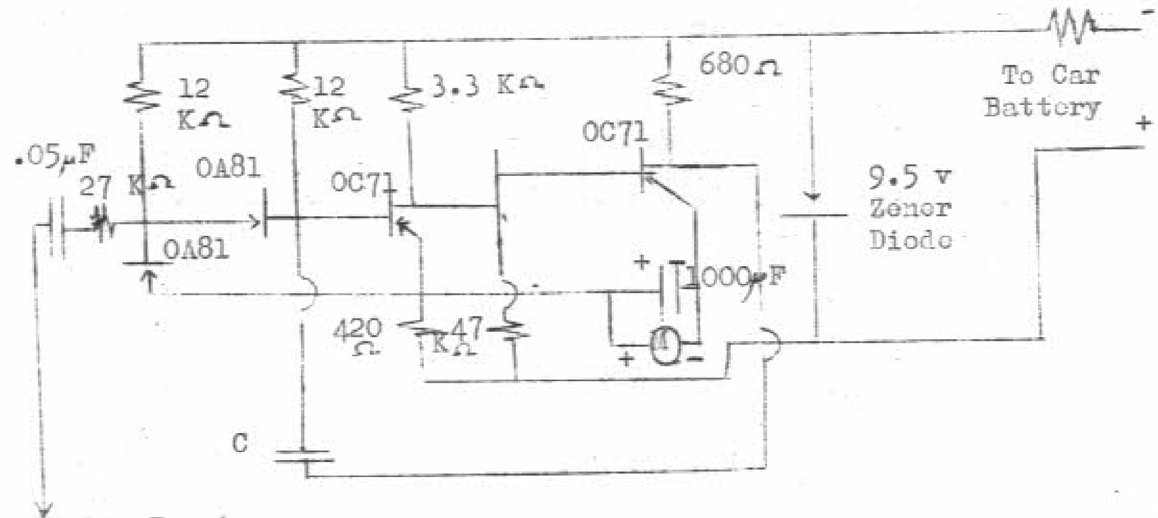
Damping of Torsional Vibration of Crankshafts:

There is often a form of in-built damping which helps avoid the effects of torsional vibration. This is caused by the vibrational movement of the piston rings in the cylinder bore. When a crankshaft vibrates torsionally, it causes the connecting rod to perform a forced oscillatory motion at the same frequency. This tends to dissipate the vibrational energy in frictional contact with the bore, and is somewhat absorbed by the oil film surrounding the rings. The amplitude of this motion in a six-cylinder engine such as the Three Litre, may be as much as 20 - 40 thou." at certain crank positions. The oil film is important in the dissipation of these vibrations, as is the number of rings, their type and the type of lubricant used.

There are a number of crankshaft dampers available which exploit a similar principle, using viscous fluids to reduce the amplitudes of vibrations. The prototype of these was introduced by Lanchester many years ago. It took the form of a ring, mounted inside a casing which was, in turn, attached to the crankshaft. The space between ring and casing was filled with oil, but because of the variation in viscosity with temperature of such oil, it was only partially effective. The modern version is filled with silicone fluid, the viscosity of which remains remarkably constant. The hydraulic damping effect is caused by the free outer casing rotating concentrically by centrifugal force, while the inner ring follows the eccentric 'whip' of the crankshaft. The difference in vibration amplitude between the two is absorbed into the fluid medium between them. In some devices, rubber is used instead of fluid, and the PVT Alvis type used a form of spring-loaded clutch plate, which slipped when a vibration 'period' occurred.

AN ACCURATE REV COUNTER



Note:

C = 0.2 to 0.25 F for 4 cylinder Car
C = 0.3 to 0.35 F 6 cylinder Car
M = 0.5 Milliammeter.

For Club members who are ardent do-it-yourself fans, here is a simple rev-counter circuit, which can be built for a few pounds. It has proved to be remarkably accurate if properly made and calibrated.

The components required are:

Resistors:

1 x 270 ohm
1 x 680 ohm
1 x 47 K-ohm
1 x 420 ohm
1 x 3.3 K-ohm
2 x 12 K-ohm
1 x 27 K-ohm

Transistors:

2 x OC 71

Capacitances:

1 x 0.05 micro-farads.
1 x 1000 micro-farads.
1 x 0.2 - 0.25 micro-farads for 4 cylinder car or 0.3 - 0.35 micro-farads for 6 cylinder car.

Diodes:

2 x OA81
1 Zener 9.5 volts.

1 x 0 - 5 ma. Milli-Ammeter.

Ideally, 1 milliamp will indicate 1000 revs. It is noteworthy that although silicon transistors are expensive they are much less sensitive to variation in temperature than are germanium transistors. Thus, silicon transistors should be used for greatest accuracy.

NOTE: This circuit is for 12 volt car systems only.

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REAR END SNATCH

Alvisgent (giving a lift after Club meeting):
" Did someone say "Stop" ??"
Friend: "Keep driving. She wasn't talking to you!"