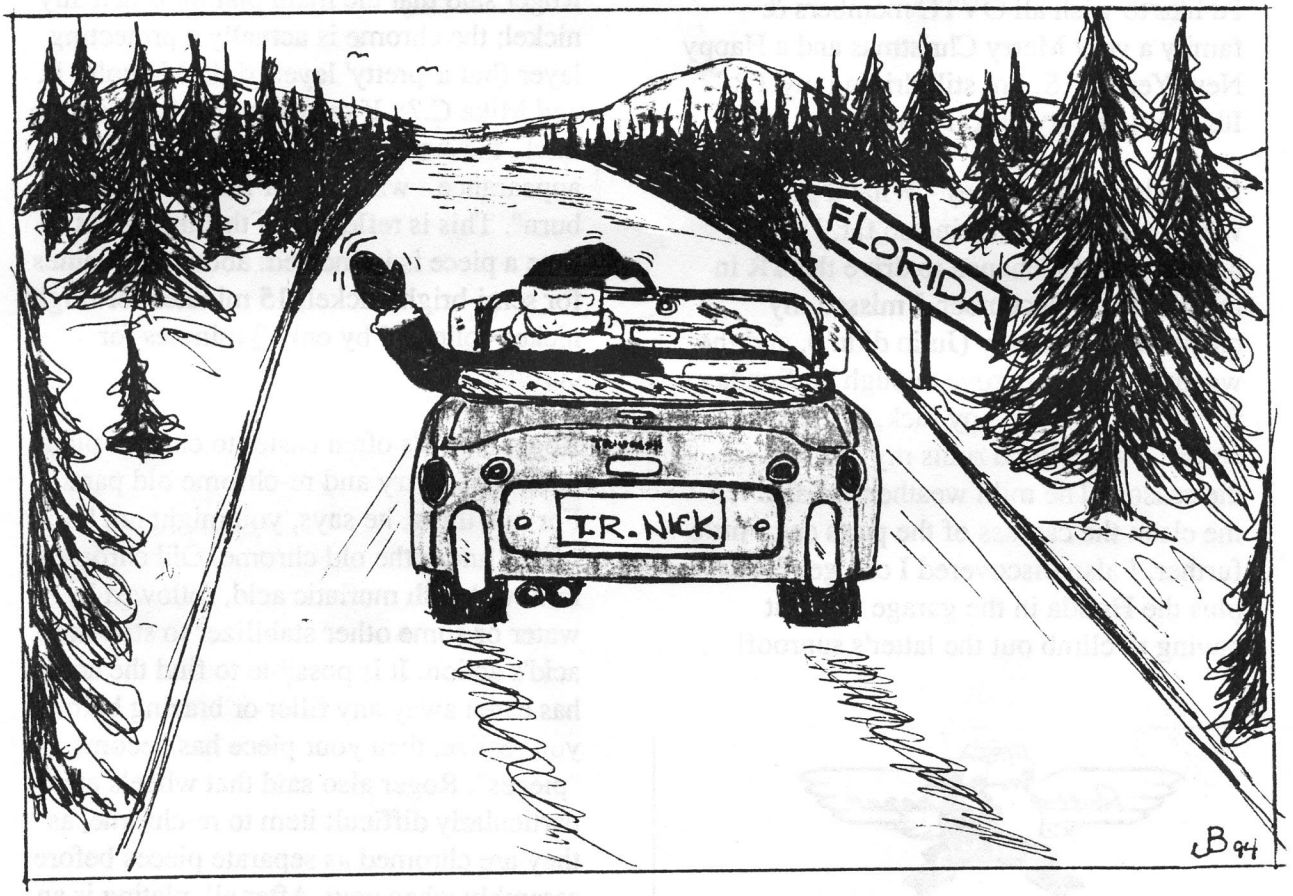
# OVERDRIVE

The Newsletter of the Ottawa Valley Triumph Club

*December, 1994*

## Merry Christmas




## and a Happy New Year !

*Cover: Julio provided the artwork for this month's cover, sowing his flare with a pen as well as a spanner.*

**Editor's Note:** (Julio) - The end of the old year is soon upon us. Looking back, I must say that we put in a full season of car shows, runs and sightseeing. A lot of that was due to the good weather - God must truly own a Triumph. We have lost some members this season, but we also signed up several new members into the club as well. The next year we hope will be justas good or maybe even better.

I'd like to wish all OVTC members & family a very Merry Christmas and a Happy New Year. (P.S. I'm still driving my TR3. It's a little frosty, but it's great!)

**Editor's Note:** (John) - What a great winter we're (not) having so far. I'm still hoping to get a chance to drive the TR in the month of December. I missed my chance last Saturday (Julio didn't), and the weather didn't improve enough on Sunday for me to try. With any luck, it'll clear before it snows and ruins my chances for the season. The mild weather has also let me clean the carcass of the parts car a little further. I also discovered I can get 2 TR6s plus the Honda in the garage without having to climb out the latter's sunroof!



**Guest Speaker for November Meeting:**

All of us who attended the November meeting were treated to a surprise guest speaker - Roger Tanguay, from Zenith Plating. Roger gave us the lowdown on what's involved in electroplating, or 'chroming' for short. Today's cars aren't the chrome collections they once were, and the "chrome" we see is often chrome paint or shiny plastic. Granted, chrome plating is very heavy, and the front corner from a '59 Cadillac Roger had along was proof positive of that!

Roger said that the main plating is actually nickel; the chrome is actually a protecting layer (but a 'pretty' layer, right Malcolm B. and Mike C.?). If the chrome is applied too thick, the surface can become gray in appearance - what Roger terms "chrome burn". This is reflected in the amount of time a piece is immersed: about 45 minutes for semi-bright nickel, 15 minutes for bright nickel, followed by only 3 minutes for chrome.

Roger said it's often easier to chrome plain parts than to try and re-chrome old parts. For one thing, he says, you might not know what's under the old chrome. Old chrome is removed with muriatic acid, followed by water or some other stabilizer to stop the acid's action. It is possible to find the acid has eaten away any filler or brazing before you realize, then your piece has become "pieces". Roger also said that wheels are a particularly difficult item to re-chrome, as they are chromed as separate pieces before assembly when new. After all, plating is an electrical process, so there's no precise way of controlling how much chrome adheres to any area of an intricate surface. It's sort of like lightning - it takes the path of least resistance.

Now for the bottom line - the cost! Roger gave the following 'ball park' examples for TR6 parts:

Front Bumper - $175-$225
Rear - Centre - $150-$175
Rear - Ends - $80 - $90

Finally, as this is the time of year when we put our cars away, Roger recommended a coating of vaseline or paste wax to protect chromed surfaces from winter air and moisture. Thanks again to Roger Tanguay!



**Remainder of the November Meeting:**

**Joe Lashley:** It's become tradition for the new OVTC President to present the outgoing CEO with a plaque as a tribute for past service. This was true at the November meeting as Clive did the honours for Joe. This was especially fitting as Joe has agreed to take up a posting as general manager for the construction of native housing at a small inuit village up in the Territories. As Joe's posting is for 1 or 2 years, this'll keep him out of the action car-wise, but Joe said he's taking the entire month of September off in 1995 to take in several events: Watkins Glen, Stowe and/or Bronte Creek. You just can't keep a good Brit down!! So you see, the new plaque will serve Joe well as additional wall insulation up north! Best wishes, Joe, and thanks again!!

(*Unfortunately, I've just learned that Joe had to fly off to his new job before the Xmas party, but I'll make sure he stays in touch with the club through wife Doreen, who is remaining behind until May or June.*)

**Museum of Automotive Evolution:** Also at the November meeting, Clive handed me a copy of a letter the club received from the Central Ontario Automotive Historical Society, in Trenton, Ontario. The letter announces the upcoming opening of the Museum of Automotive Evolution, located at 175 Lahr Drive, just north of the 401 highway from Belleville. In the letter's own words: "Our unique museum will reveal the inner workings and mysteries of motive power and technology to novices or experts through application of skilled trades training and high quality presentations." The letter goes on to mention that it will have ample space to host automotive functions, rallies, lectures, and so on.

When Lori & I are down to 'Swellville' for the holidays, I'll make a point of finding out more on this, by visiting the museum or at the very least, calling the chairman, a Mr. George Wand. I'll be sure to pass the information on. Pat Mills mentioned to me at the meeting that there was an article on the Museum in the latest issue of Brian's *Old Autos* magazine, so I'll have that to run in next month's issue of *Overdrive.*

**OVTC Grille Badges:**

Clive informs me that the Grille Badges are nearly in. Call Clive at 820-7350 for yours. Cost - $40.

**February '95 Meeting:**

The February meeting will be held at Milano Auto Body (75 Aberdeen St., off Preston) on Monday, February 27, a half

hour early -- 7:00 p.m.! Joe Panuccio will be giving a talk on body work, painting, prepping, etc.

I don't know how many of you might've seen Joe on Regional Contact (CJOH TV) last month, but it featured Joe and his outstanding collection of vintage motorbikes, including his 1939 Triumph, his '42 Harley, and on. It was quite the show!



**"OIL DRIPS"**

- This just in! John Day had his car out last night (Dec. 7), putting him ahead of Julio for latest in the season. He even has witnesses - Pat & Brian Mills, Mike Crawford & Martin Harasek, who all think he's a little crazy. Lori's not alone in this department anymore!
- Speaking of Mike - he's got his bodyshell installed on a freshly-made jig at Brian's place, ready for reinforcing & detailing. The big move to concours condition has begun.
- Poor Mike can't seem to decide what colour to paint his car once it's all done. Maybe the other members (myself included) shouldn't keep changing his mind. (p.s. Mike - how about Maple Brown?)
- Gord Robertson has recently been over to John Day's for some donor parts for his TR6 project. No s_ _t - he's actually working on it! Boy, his XKE will be jealous of this!
- I guess Clive enjoyed seeing his car on the July cover that he hopes to do it again in '95 - same car, new snow!
- "Doc" Mills' workshop is slowly being finished, and hopefully all the OVTC misfits came come around and play again. Have the coffee ready, Pat!

**Classifieds:**

- Rob at Miniman has 2 Triumphs for sale at the moment:

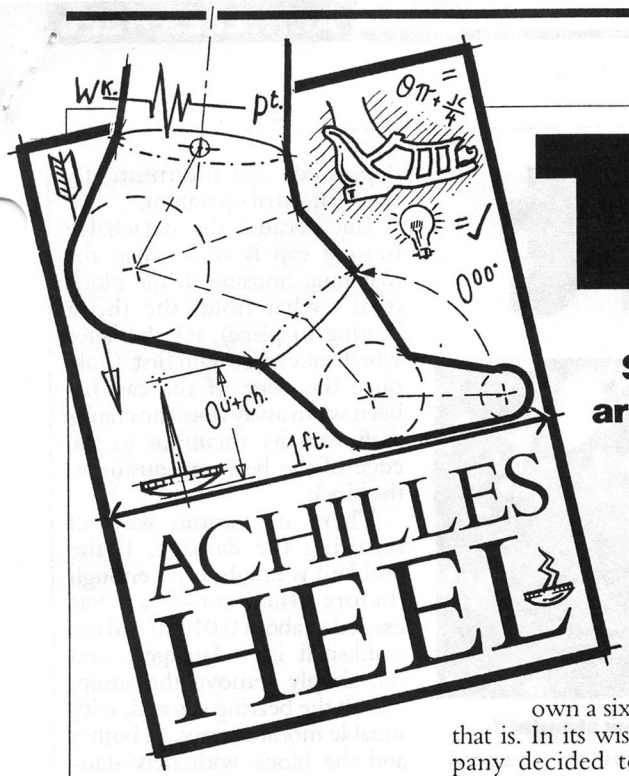
- A 1963 Vitesse (Alberta car); good body; second parts car included.
- A 1967 TR4A IRS (also Alberta car; with overdrive).

  Call Rob at 836-4283 for more details.

- 1974 TR6. Good condition. Asking $4,500. Call 489-4277 after 6.
- Various TR6 parts from my 1974 parts car: carpets (new), front bumper (rechromed), fiberglass rear fenders, etc., etc. Call John Day at 723-9876 for particulars.

**Technical article:**

All you TR6 owners will have difficulty sleeping after reading this month's article, if not wonder about how your own 'bottom end' is doing. Take a deep brreath, then read on!




# Triumph c

**Six-cylinder Triumph engines are notorious for failure of their poorly designed crankshaft thrust bearings, but Chris Horton shows in full detail how the problem can be overcome once and for all**

IN THE VAST MAJORITY of engines the longitudinal movement of the crankshaft in the cylinder block is determined and then limited by a number of so-called thrust bearings (usually four crescent-shaped washers) set at right-angles to the main crankshaft bearing journals.

These thrust bearings have a small surface area, but they take only an intermittent load and even when the rest of any given engine is totally and utterly knackered it's rare to find similarly worn-out thrust bearings.

Unless you own a six-pot Triumph, that is. In its wisdom the company decided to retain some means of controlling the backward movement of the crankshaft as well as the forward movement, but at the same time it halved the working area of each thrust bearing surface by dispensing with those normally found each side of the main-bearing cap.

This meant it was now the single thrust bearing in the cylinder block at the rear of the crankshaft which did all the work, and because of its necessarily limited working area it tends to wear very quickly. And because the thrust bearing sits in a very shallow recess in the block, it doesn't take too much wear to reduce its thickness to the point where, assisted by the rotation of the crankshaft, it simply slides out past the bearing cap (which is its only retaining device) and drops into the sump.

In the longer term this means that the crankshaft end-thrust is now taken by the sharp edges of the bearing housing in the main bearing cap (leading to rapid wear of both the crankshaft and the housing), but of more concern is what happens to the forward thrust bearing.

Freed from its equally shallow recess in the front of the bearing housing by the extra forward movement of the crankshaft, it soon follows its partner into the depths of the sump, and suddenly you have a crankshaft which can now move backwards and forwards by up to a quarter of an inch.

It's easy to tell if your engine is affected. Quite apart from obvious grinding noises when the clutch is depressed, and the possible difficulty of engaging gears because the clutch won't release, the longitudinal movement of the crankshaft is often large enough to be measured with a ruler. The greater accuracy of a dial-test indicator can be useful in determining your exact course of action if the problem isn't yet too severe.

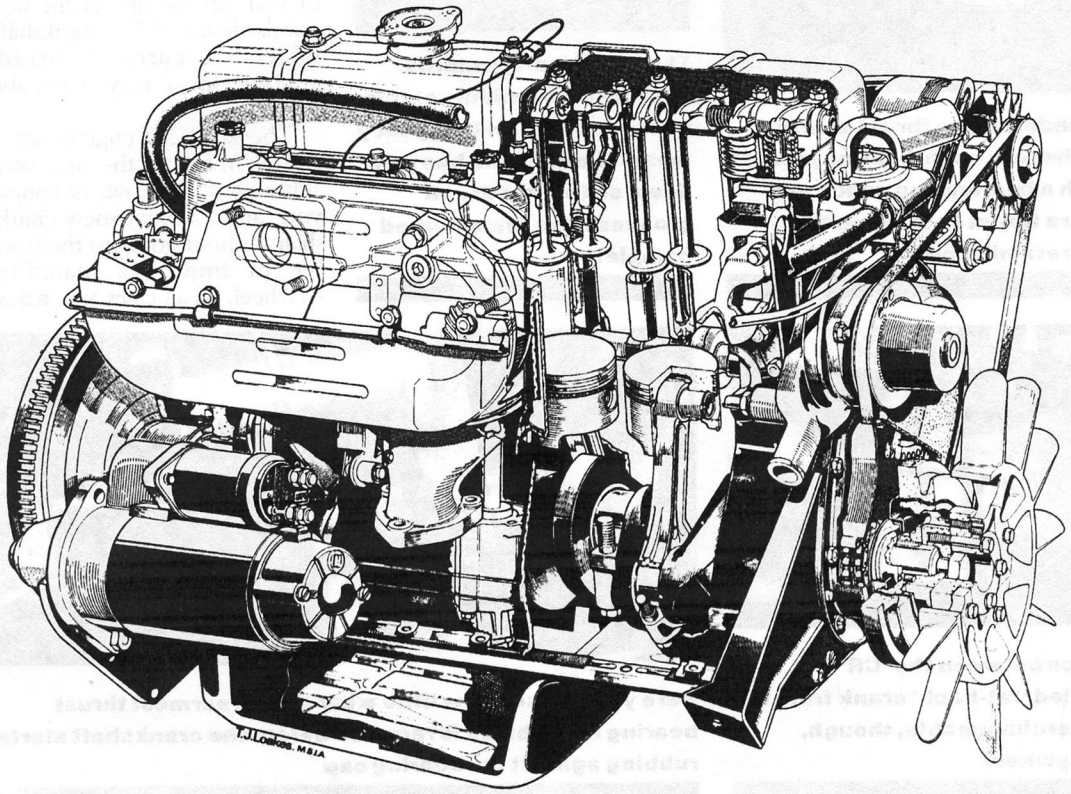
Assuming you're using a dial-test indicator (they can be hired if you don't have one), attach it to some convenient point at the front of the engine, near the crankshaft pulley, so that its measuring tip is actually touching the front face of the pulley.

Lever the crankshaft as far back as it will go, reset the gauge, and move the crank as far forward as you can, at the same time observing the result on the gauge.

If the thrust bearings are in good condition you can expect to see no more than about 0.006 to 0.008in of movement, but it's not unusual to see up to 0.015 to 0.020in on an averagely poor six-cylinder engine.

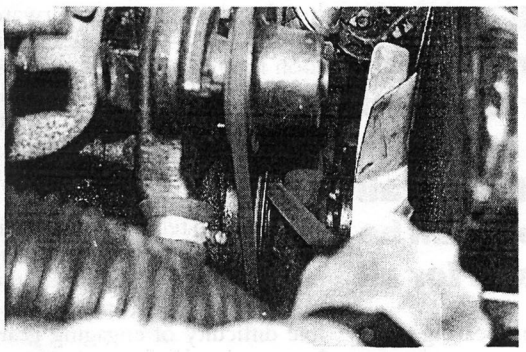
If there's more than 0.025in of movement it'll probably jump straight to as much as 0.25in suggesting immediately that at least one and possibly both of the thrust bearings are sitting in the bottom of the sump.

Once the rear thrust bearing has dropped out, the crankshaft will move forward to rub against the rear face of the thrust bearing housing in the main bearing cap each time the clutch pedal is

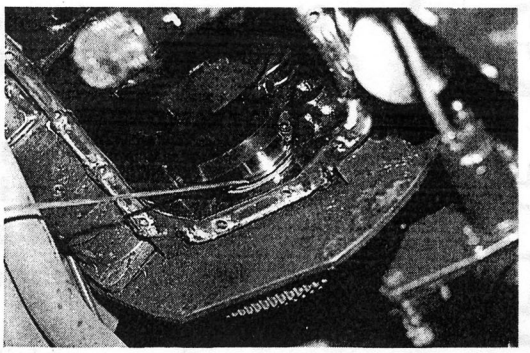


**This problem affects models fitted with the six-cylinder Triumph engine**

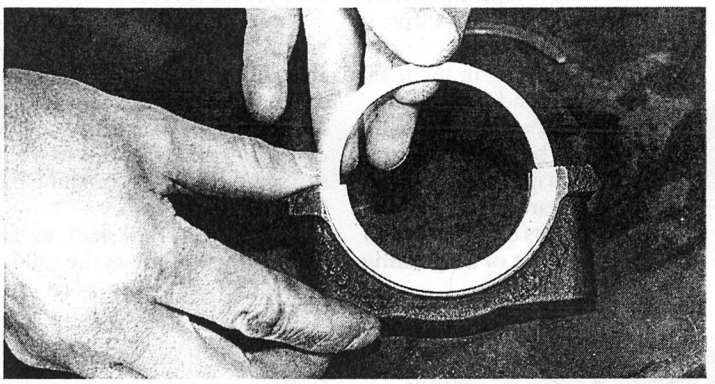
# rankshaft



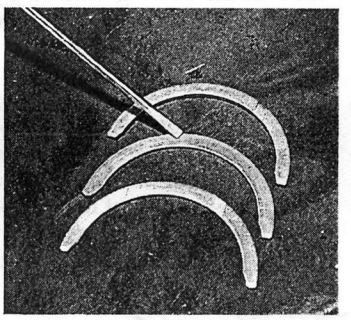
**You can easily check your Triumph's crankshaft for thrust bearing wear by levering it backwards and forwards at the pulley and measuring the movement (or end-float as it's known) with a dial-test indicator**



**It is possible – just – to fit new standard-type thrust bearings by removing the sump and the rear main-bearing cap. Far better, though, to do the job properly by removing and stripping the engine**



**Here you can see one of the standard-type thrust bearings which are fitted either side of the rear main-bearing journal in the block (top), together with a bearing cap which has been modified to accept an extra thrust bearing on the critical rear face. Note the two retaining pins**



**The standard-type thrust bearing in the middle of this photo shows how badly they wear. The material has worn down so far that the oil grooves have disappeared completely**

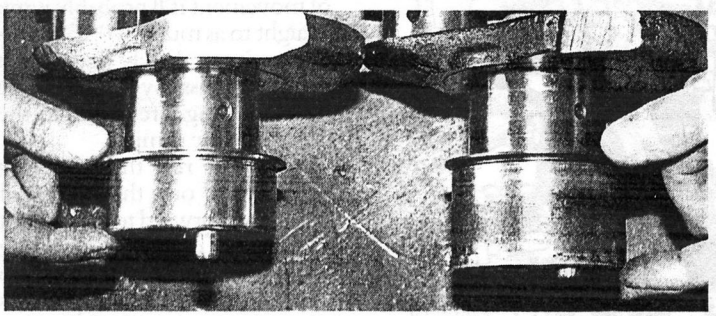
depressed, and intermittently during normal operation.

But because the detachable bearing cap is wider than the matching housing in the block (that's what holds the thrust bearing in place), it's the latter which takes the strain first. Only once the edge of the cap has been worn away does the crankshaft turn its attentions to the edge of the bearing housing in the block.

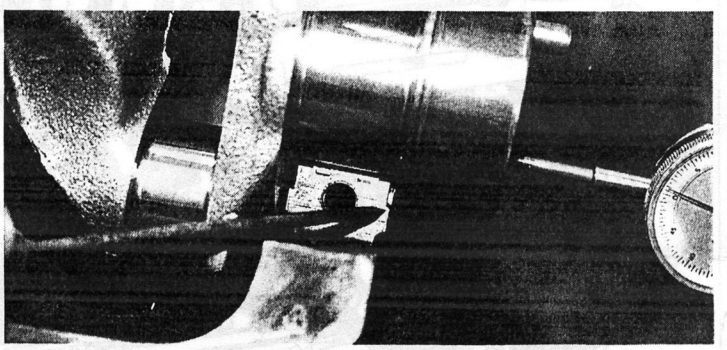
There are various ways of repairing the damage. If the problem is caught early enough (before the end-float has exceeded about 0.010in) and the crankshaft isn't damaged, you can simply remove the sump, unbolt the bearing cap and, with suitable modifications, fit both it and the block with new standard-type thrust bearings (available in several over-size thicknesses) to restore the end-float to between 0.006 and 0.008in.

Your options also depend, to a certain extent, on the exact engine in question. On the so-called 'CP' engine from the TR5 and earlier TR6, for example, you can either machine the thrust face of the crankshaft back to a good, flat surface, perpendicular to the bearing, and then have thicker thrust bearings made up in phosphor bronze – or you can use one of the new standard-size 'CR' crankshafts which are currently readily available for a very reasonable £90 or so.

The later 'CR' engines can be tackled in exactly the same way, although in this case, of course, you can fit a brand-new crankshaft without going to the trouble of finding a matching flywheel. In all cases any ▶▶▶

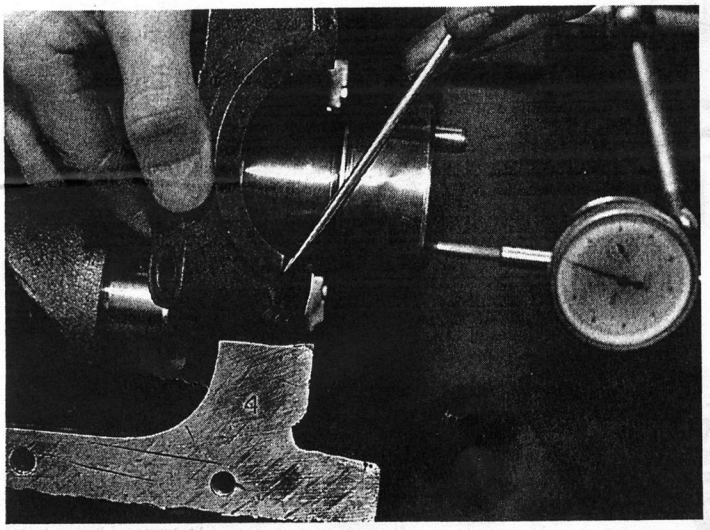


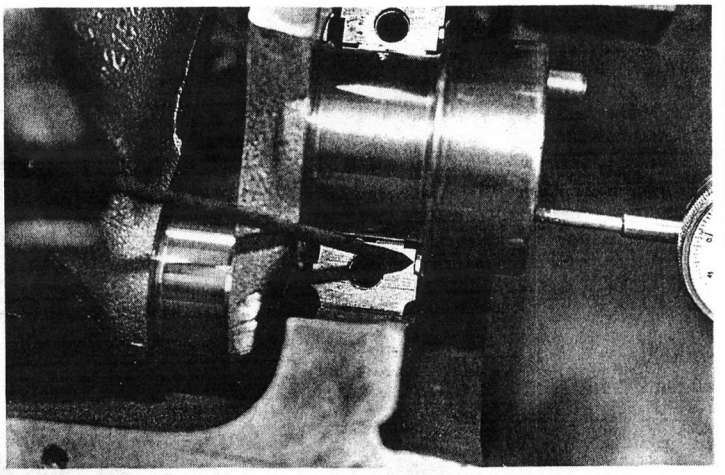
**This clearly shows the difference between the 'CR' crankshaft (left) and the so-called 'fat-back' crank from the earlier 'CP' engine. They are interchangeable, though, provided you fit the matching flywheel**



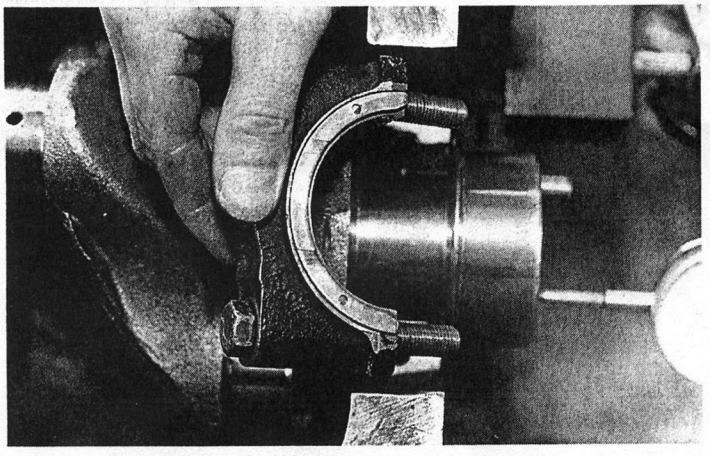
**Here you can see how little wear of the rearmost thrust bearing in the block is required before the crankshaft starts rubbing against the bearing cap**

**Once the rear edge of the bearing cap has been worn away (check with micrometer)...**

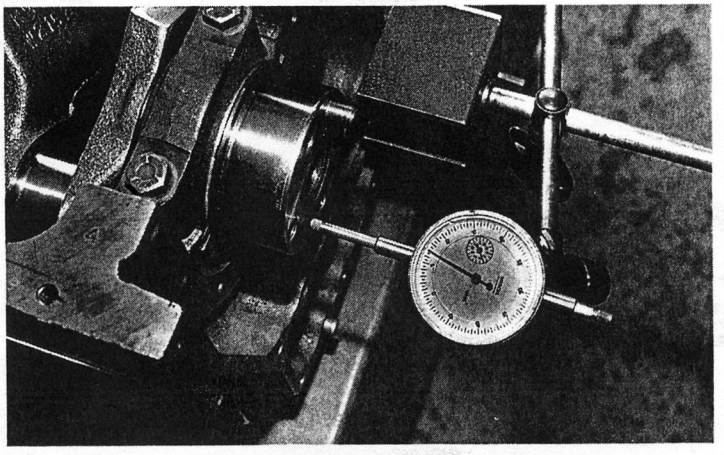




**...it's only a matter of time before the rearmost thrust bearing (already reduced in thickness, remember) drops out and the crankshaft starts grinding away the thrust-bearing retention face in the block itself**



**The solution, apart from (frequently) renewing the standard-type thrust bearings before they become too badly worn, is to modify the bearing cap to take a phosphor bronze thrust bearing which is simply pinned into place**



**If you've done your sums properly the new thrust bearing should give you a crankshaft end-float of between 0.006 and 0.008in. Here it's been set to an ideal 0.007in. Note the edge of the new thrust bearing in the bearing cap**

damage to the engine block and the crankshaft bearing caps is usually repairable, and you are unlikely to have to try finding replacements (as a matched set, of course) unless they really have been trashed.

So how is it done? With the block upside down on the bench, a new or good second-hand crankshaft is laid into position in a new set of shell bearings and a pair of standard thrust bearings slid into their housing. Then, without adding the bearing cap, the end-float is measured and recorded.

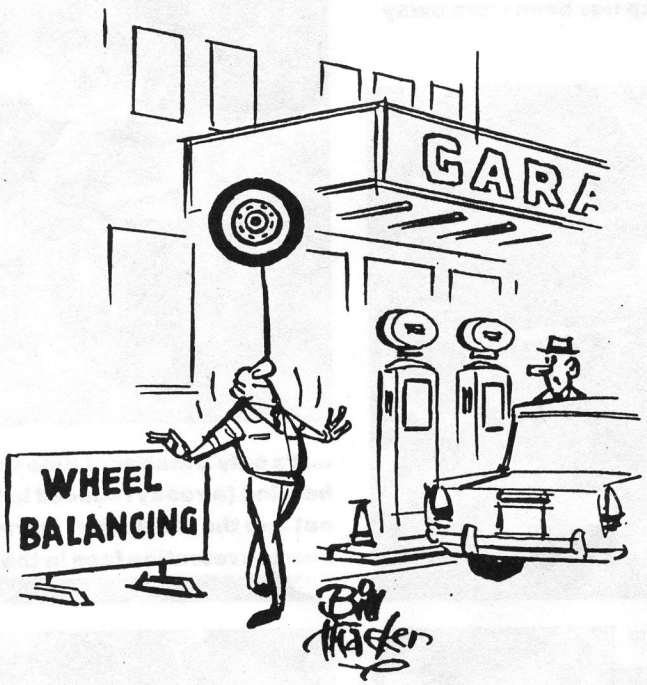
Let's say for the sake of argument that it was 0.015in. What you must now do is subtract the required end-float, in this case 0.007in, from the actual figure (0.015in) to determine the extra thickness of the thrust washer needed to return the end-float to its specified limits. Thus here we need an extra 0.008in, and we can achieve that by selectively installing one or more over-sized thrust bearings.

Now comes the really clever bit which should prevent the problem from recurring. Once you have selected the thrust washers to sit in the block it's a good idea to have them and the block itself drilled front and back to accept tiny locating pins. Made of brass, these sit just below the surface of the bearing material and are themselves held in position by the crankshaft's thrust bearing faces.

Next you have the rear face of the bearing cap machined to take a standard-type thrust bearing of the appropriate thickness (again easily worked out once you know the depth of the housing) which, by sharing the load with the one already in the block, will considerably extend its life expectancy. The idea is not to go too far into the cap, simply to clean up any damage on the edges and allow the fitting of a thrust bearing of suitable thickness from the range of 'standard' over-sizes.

If the engine has been running without the standard thrust bearings for any length of time, you'll probably find that the crankshaft has gouged its way into the edge of the block and bearing cap, and in this case rather more serious engine modifications are required.

What you have to do is strip the block bare apart from the main bearing caps, and then have this assembly line-bored to eradicate the damaged area and restore a circular groove deep enough to allow the fitting, top and bottom, of specially made (and much thicker) phosphor bronze thrust bearings. Again these are pinned into place and, being much harder-wearing than the standard type, should last more or less indefinitely. Simple when you know how, isn't it?




***OTTAWA VALLEY TRIUMPH CLUB***
***95 Chippewa Avenue***
***Nepean, Ontario K2G 1Y3***

Pat & Brian MILLS
53 Etterick Crescent
NEPEAN, ONTARIO
K2J 1E9

95/06