

SOME months back I tested Dave Degen's Barcelona-winning machine, and made some warning comments on the peculiarities of electronic revmeters and mentioned Krober in that connection. While I take back not a word of the general statements that I made, I can report that I have fitted a Krober on loan from Roy Baldwin to my road machine for a completely trouble-free period of several months. The response rate of the Krober is superb, and the movement is nicely damped. A large yellow needle fairly whistles up the rev scale when one accelerates hard in the lower gears, and the lag differences between the Krober and the standard Honda unit and also another unit that I had to hand, were big enough to matter.

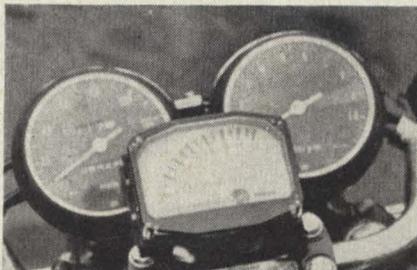
When I set out to test the claims to 2 per cent accuracy, I used an automotive Crypton test set and a special high accuracy portable unit made by Neptune Electronics of Wokingham. At 7,000 r.p.m. the Krober was over-reading by a mere 125 r.p.m., more than meeting the specifications. Strangely, the Honda CB750 unit was dead accurate between 6,000 and 8,500 r.p.m., but over-read considerably below that figure. The error curve of the Krober was quite consistent, unlike the two mechanical units. Both of the mechanical units had kinked calibration curves, and at lower r.p.m. were up to 12 per cent out.

With rapid acceleration in the first two gears on the CB750, the Krober read 8,500 r.p.m. while the standard unit indicated only 7,300 and 7,800 respectively. This is quite a surprise when you first find this out, but it is even more surprising when you repeat the exercise in the other gears. Third and fourth gears both showed lags of several 100 r.p.m., and only in fifth did the Honda unit and Krober track in unison over the 6,000-8,500 range. It would be difficult to find a better object lesson for throttle and rev-happy riders than a comparison of this kind.

Mounting the Krober is somewhat awkward. The ugly rectangular box holding the electronics and the movement must be mounted via a rubber isolated plate. The rubber isolation is achieved by forming the rubber side

WORD EATING DEPT.

Testing the Krober electronic revmeter



Krober fitted to the writer's Honda CB750

supports of the box as springs. Baldwin stresses that the guarantee is invalidated by removing the plate and the rubber from the unit, and waxes fervent to this end. The reasons for such caution are various, but from the beautiful behaviour of the movement it obviously makes sense to isolate it. The electronics are probably unaffected by vibration, but as some racing machines are quite appalling in this respect, the danger of joint weakening is probably the main item.

If anything goes wrong with a Krober treated with this precaution, Baldwin is perfectly happy to replace it under guarantee for quite a long time.

The design of the Krober is fairly standard: the pulses are picked up from across the contact breaker, and not by an inductive pickup round the plug leads. Needless to say, this means that any failure in the revmeter could easily lead to strange firing behaviour as leakage could then appear directly across the points. This certainly did not happen to me in 2,000 miles and a couple of months of riding in all weathers (including freezing fog on sheet ice: not usually recommended for big machines . . .) left me in no doubt of the workaday practicality of the instrument.

The Krober design is hardly likely to win prizes for the aesthetics of its lines: it

is a dumpy, awkward boxy unit that requires a fearful space to mount. To make the full comparison with other designs more comprehensive, I tried the Yazaki unit that I have normally mounted on the dashboard of my BMW. The Yazaki was far easier to mount, had better clarity of scale, and an equally rapid response rate. The accuracy at 8,000 r.p.m. was within 5 per cent, but the weatherproofing of the unit was vestigial. Motorcycles are *not* motorcars, and the design requirements do differ, this being a particularly appropriate example. Which brings me back to the Krober: the scale markings are not brilliant, in fact they are black on silver, unlike the delightful white on matt black of the old Bridgestone mechanical unit that was one of those used for comparative purposes, nor as effective as the simple white on black of the Yazaki, nor the green/white on black of the Honda units. The yellow pointer is fairly good on the Krober silver background, but lacks the definition of a red-tipped white needle moving over a matt background. It is also worth noting that I suffered badly from reflections on the Krober, to a lesser extent on the Yazaki and Noda units, and not at all on the Bridgestone unit, which had a very effective matt black surrounding both above and below the glass.

When mounting the Krober it is imperative that the unit be placed in such a position that it cannot hit anything even when the rubber yokes are fully distorted—as they would be over harsh bumps at speed.

The electrical requirements are minimal: a single blue lead coils out of the rear of the unit, and must be attached to the live side of the contact points: provision is made on the Krober electronic ignition system for a suitable take-off point. The earth side is attached to the mounting plate. For some systems, where reverse polarity is used, it is necessary to modify this wiring a little, and full instructions are provided with each instrument.

For night driving a bulb is provided which fully illuminates the black background and contrasting figures.

Continued on page 272

KROBER ELECTRONIC REV. COUNTER

FOR ACCURACY AND RELIABILITY

Also transistorised ignition system

New 1971 comprehensive catalogue 15p

BALDWIN RACING DEVELOPMENTS
109 MAIDSTONE ROAD - ROCHESTER - KENT

Telephone
MEDWAY
42902

KROBER

Continued from page 252

The other feature of which the road rider should be warned is that the high precision (better than 2 per cent) units are all 4-12,000 or at least start at some elevated figure. The lower precision units, apart from being a good bit cheaper, go from 0-8 or 10 or 12, or whatever you may require. This type of scale has great advantages for some uses.

A racing machine may be ridden to within a couple of hundred r.p.m. of a specified figure, or have a powerband only a thousand or two r.p.m. wide. This is the reason that 2 per cent accuracy is needed and, indeed, imperative, and also why such high precision units read only from 4 or even 8,000 up to the scale limit. This means that the scale is expanded enough for the rider actually to read it to the accuracy required. When riding my four on the track at elevated r.p.m. it caused me fervently to desire a scale running from 6 to 9,000 only . . .

but minutes later, on the road, to require one that read from 0-9,000 for the very different needs of road riding—however fast one might *wish* to travel.

A simple and easy way of mounting the Krober unit is to make up a plate with the four corners covering the handlebar mounting bolts. Then cut off these four corners with two cuts at right angles so that this mounting plate will be positively located by the four bolts, and the "ears" trapped by the bolts when screwed down. If you think that it might be better to just drill four holes for the bolts . . . try it; there is far less clearance than you might suppose.

Herr Krober is a very German businessman, and is a fierce defender of the results of his admittedly excellent workmanship. It is unfortunate that workmanship in the classical sense is becoming of less and less value in a world of integrated circuits, fail safe logic, and encapsulated solid state units. Nevertheless quality control becomes proportionately more important, as does the

basic design of any device. The design of the Krober could be better in a purely mechanical sense, and also the fail safe aspects of the pulse pickup could be improved by using an inductive pickup. Nevertheless the quality control exerted by this small German firm is of a very high order, and the final product works well, and goes on working well, in some cases in spite of its design and in others because of it.

It is a real pleasure to eat my words (see my Dresda track test) on the less welcome aspects of the current Krober electronic design: not a syllable do I retract on the general points made, but in the case of the Krober, several months of real usage (over a mileage that was probably greater than a complete season's racing for a busy rider), it worked faultlessly.

It is an admirable declaration of faith in his product that Roy Baldwin loaned me a unit in full confidence that it would be everything he claimed. It was.

M.R.W.