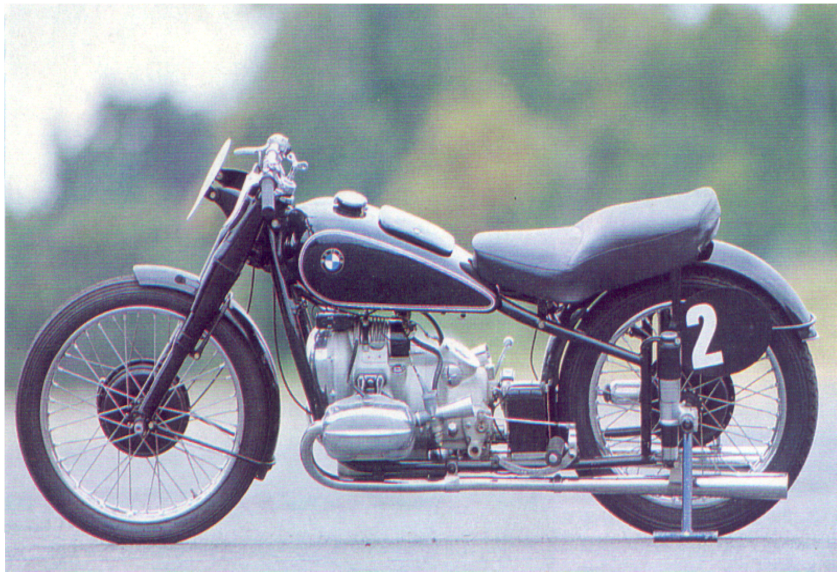
The BMW Club

Vintage & Classic News

Issue 14/2005

Exclusive - Ex-Tim Reid 1939 T.T. Machine to be shown at the Stafford Classic Show



EDITORIAL

I'm pleased to announce that BMW U.K. are loaning us the ex-Tim Reid 1939 TT machine for the Club stand at the forthcoming Stafford Classic Motorcycle Show. Superbly restored, this machine should be one of the finest ex-TT machines to be on display and has rarely been seen.

If you've had problems getting a Mobile Tradition catalogue from your official BMW dealer , I should have copies for sale at the show. In addition we should have an example of the electronic ignition/alternator system that has been developed by BT-H in conjunction with the Register.

While on about electronic ignition, there are good reasons to consider going over to this system especially after you have read the article by Ian Mac Donald on ATD units.

Although reputed to be very good (see article inside) the MZ system has come under criticism. A number of failures have occurred in the U.S.A. when used on racing machines. Communication with the manufacturers has also been variable. Our British made product is I believe superior and price wise about the same as the MZ one when postage from the E.U is taken in to account. Contact and help from BT-H is readily available. Come to the show and talk to Ray Hall who has been successfully testing units for the manufacturer.

VINTAGE & CLASSIC REGISTER DIARY FOR 2005

April 23rd/24th
International Classic Motorcycle Show.
Stafford County Show-ground.
Register Stand.

30th April/1st May
Vintage & Classic Register Gathering
Ilkley, Yorkshire.
Contact Eric Rance
01943 607358

21st/22nd May
Belvoir Castle Show
Woolsthorpe, Nr. Grantham, Lincs. Entry forms available now.
SEE DETAILS ON BACK COVER

May 29th
The Classic Bike Clubs Show, Stanford Hall, Nr. Lutterworth, Leics.
Entry forms available now.

June 16th – 20th
4th Vintage & Classic Register Rally, Llwyngwair Manor Holiday Park, Newport, Nr. Fishguard Pembrokeshire, S.Wales.

Continued on back cover.

A.T.D. UNITS & THEIR FOIBLES – findings from Ian MacDonald

R50-69S advance mechanisms

I would think that many bikes have had these units tweaked by someone at some time in their lives, even if only to replace the springs. They seem to be pretty tolerant to adjustment ie. the bike will run satisfactory, though perhaps far from optimum. I remember looking at a members R69S in Wales to find one spring anchor plate hanging loose and the spring hooked around the base plate! The loose anchor plate was shorting the case of the TO3 regulator on his alternator to ground on every camshaft rotation.

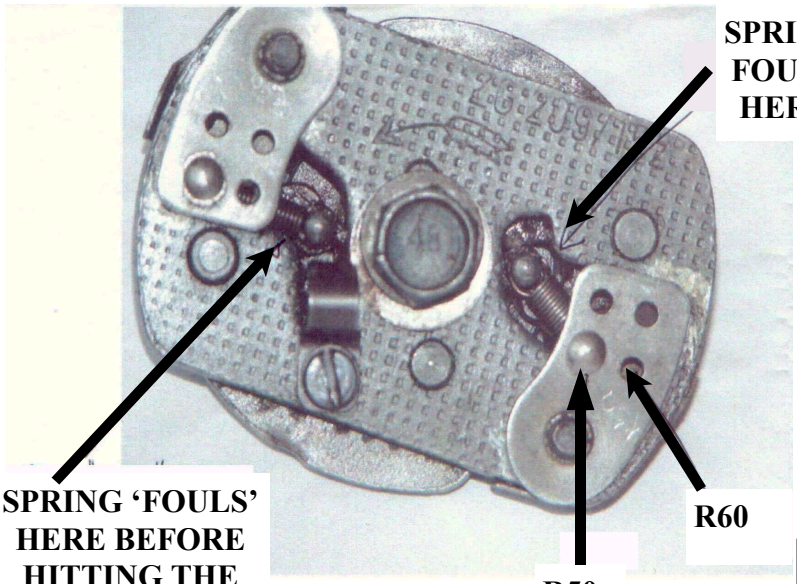
I recently ordered two new ATD springs from Ulis in Frankfurt. Their catalogue showed one spring for all models. (The BM parts list shows two, one 11mm long the other 9mm) Inspection of my R50 mechanism showed the springs were worn on one side, the one associated with the end stop position worse than the other. I made a jig to hold the ATD as it is installed on the camshaft of my bike and as I rotated it the cam both springs fouled the base plate in line with the worn portion of the spring before reaching the end stop ie full advance. From this fouling position to full advance the springs are drawn round the metal of the base plate rather than being extended further in a linear mode, - as I would expect a spring to be used. Was this a deliberate design feature to slow down the rate of advance ?? I think not given the tolerance of the overall engine timing. Searching the Internet found no detailed technical information on these mechanisms but I did find mention of a mechanical end stop used to set full advance more accurately than the original U spring. This showed a photo of *a /2* advance assembly where it can clearly be seen that the base plate is cut away at the places where the springs fowl on my assemblies. I have ground off the offending metal on an old base plate I had (used a Dremel miniature grinder) and reassembled it using the new springs operating in a totally linear mode but using the BM inverted 'U' spring as an end stop. Using this unit in both my R60 and R50 resulted in a better middle and top end performance on both engines, to the extent that the modified unit is now a permanent fixture. Both bikes now approach their original top speeds freely whereas before they took some time to move above 70.

Assembling a unit raises a few issues since the spring positions and tensions are totally adjustable.

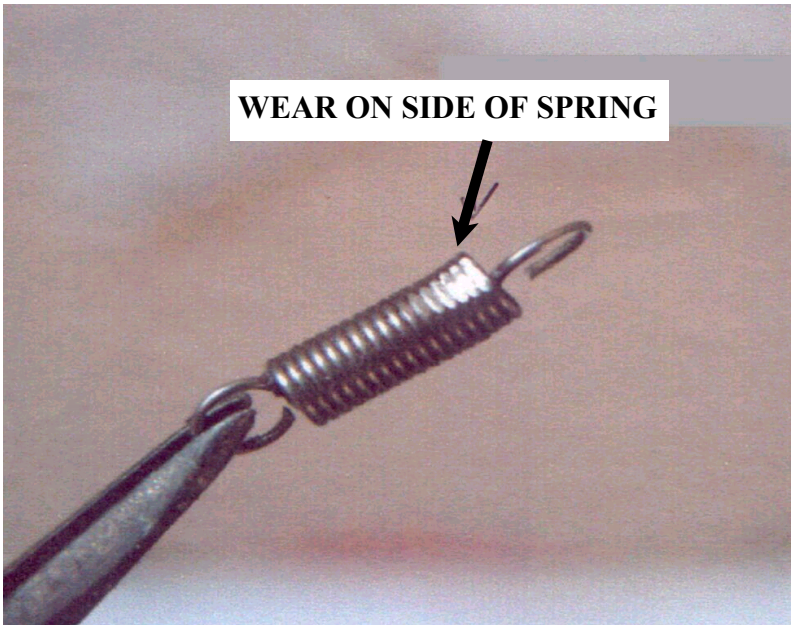
1. The old units offer 4 spring anchor positions on each anchor plate. I presume to enable their use on different engines.
2. The fixing screw mounting can vary about 1mm in all directions
3. The spring pre-set tensions are adjustable
4. End stop is adjustable but can be set reference to the full advance marks on the engine flywheel.

I set mine so that the springs were pre-tensioned very slightly to eliminate any backlash of play in the mechanism when set at zero advance and the spring extension when in advance was linear and did not foul any part of the base plate
Is there any assembly information on spring position and pre-set tensions?

Ian MacDonald – Scotland



Photos supplied by Ian Mac Donald



MICK BARR
INDEPENDENT
BMW SPECIALIST

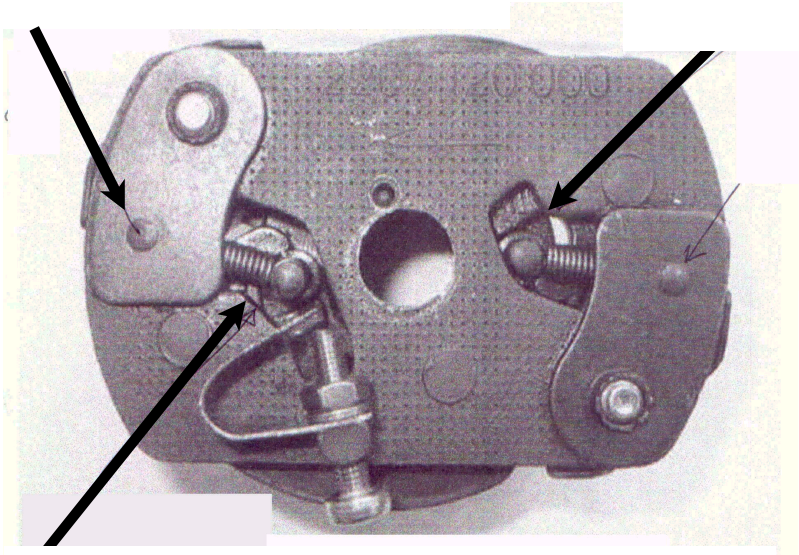
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ONE MOUNTING HOLE NOT FOUR OPTIONS AS OLDER TYPE.

SPRING ANCHOR PIN POSITIONED TO AVOID SPRING TOUCHING THE BASE PLATE



AREA WHERE SPRING FOULS ON MY R50 & R60

Incidentally the cost of a new ATD unit is 153 Euros and a coil 93 Euros (both plus postage from Germany) so all in all, well on the way to the cost of buying an electronic ign./alternator set up. Of course there's the condenser/points/dynamo/ regulator etc as well and... the hassle of setting the whole lot up! Ed.

'FIVE ALIVE' - Revitalising an Old Boxer by Mike Fishwick

Bing CV Carburettors on an R60/5

When the 'Five' series was introduced during late 1969, very few parts were carried over from the preceding Earles Fork range, such as the handlebar switchgear and - in the case of the two smaller models - the Bing slide carburettors. Perhaps these, too, should have been consigned to the dustbin of technical history, but they were to linger on until 1978 in R60/7 of the 'Seven' series.



Mike Sherlock's R60/5 had all the usual problems associated with old slide carburettors, with wear of the slide and body making the throttle action very heavy and the idle speed variable. Mixture adjustment at idle was erratic, and retention of accurate throttle synchronism all but impossible. When cold, the absence of a choke made pulling away a rather problematic procedure.

It was obvious that new carburettors were required, and rather than use the popular option of new Mikuni slide carburettors, we decided to fit a pair of used Bing 32 mm CV items.

At first glance this choice may appear strange, for the original carburettors were of 26 mm bore, and a smaller type such as the 28 mm size found on the R45 would seem more appropriate. A CV carburettor will, however, work well on a wide range of engine sizes, and the 32 mm type is more readily available.

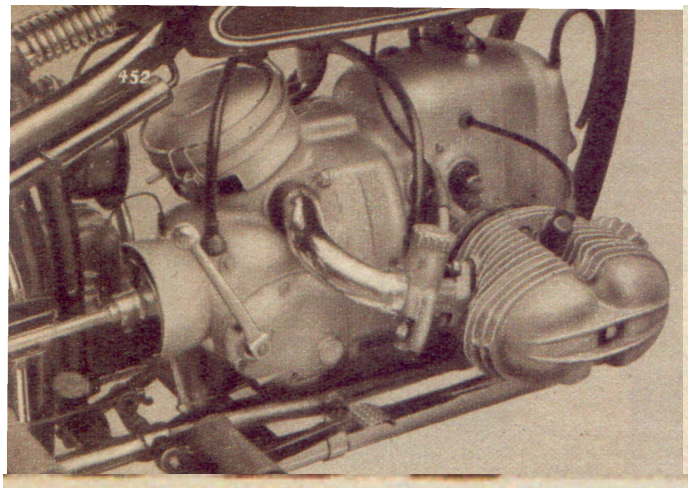
I was also aware that such a modification worked well, for it had been fitted by BMW to several hundred R60 models owned by the Greek Police, which usually refused to start on hot days! This was due to the carburettors absorbing heat from the cylinder heads, and boiling the fuel in the float chambers. This filled the carburettor's jet systems with vapour, so causing pinking while running, and preventing hot starting.

We had first-hand experience of this problem during a ride to Budapest for the 1986 FIM Rallie. Neither John Coleman's R60/7 nor Roger Pasoe's R90S would start after lunch, until we realised the cause, and first poured half a bucket of cold water over each carburettor! In Budapest we learnt of the Greek police problem from BMW engineer Harald Sehenk, John carrying out the modification on our return and being very satisfied with the result.

The basic cause is that Bing (and Dell'Orto) slide carburettors fit tightly onto the cylinder head inlet stub, their only protection from heat transfer being a thin plastic sleeve which makes only a token attempt to stem the flow of heat. By contrast, the CV carburettors are joined to the cylinder heads only by a rubber coupling, with no heat-conducting medium between them.

This, and the ability of a CV carburettor to provide optimum fuel atomisation at any throttle opening meant that their use had great appeal, being (compared to the Mikuni) made of better quality alloy and also preserving the Teutonic appearance. Other factors were their freedom from mechanical wear, and my familiarity with their settings and adjustment, not to mention a substantial saving in financial terms!

continued on page 14



The Georg Meier R68 B.M.W.

Experiences on Roads and Tracks with a 100 m.p.h. I.S.D.T. German Vase Team Machine

The official I.S.D.T. seals on the R68 cylinders and heads were still intact when the machine arrived at Dorset House

IT is no secret these days that the International Six Days' Trial has the elements of a race, rather than of a trial in the accepted sense of the term. The emphasis is on speed, on the need to beat the clock at check after check throughout the six hectic days. Schedules are high to the extent that the ordinary, everyday motor cyclist just could not hope to ride to them. With these facts in mind, one would imagine that at the end of the week engines would be the worse for wear, especially those tuned to the extent that they were, before the event, good for 100 m.p.h. and maybe a little more. Though speeds in the 100 m.p.h. region are talked of glibly these days, there are few motor cycles capable of achieving them. Personal experience last week with the 600 c.c. R68 B.M.W. ridden by Georg Meier in the recently concluded Austrian I.S.D.T. proved that, after the event, with the official seals on the cylinder heads and other components remaining intact, it was still good for "the ton." I clocked 100 m.p.h. with the model on several occasions.

The R68 was brought from Germany by Wiggerl Kraus, the famous racing man. It arrived spick and span, looking like a new model rather than the one I had seen a week or two ago in Austria plastered with mud from stem to stern. I wanted to discover two things : whether the R68 did, indeed, retain its former tune to the extent claimed by B.M.W.s; and how the machine handled over rough going. The R68 looks massive judged by almost any standards, and I have never looked upon it as the best of tools for an I.S.D.T.

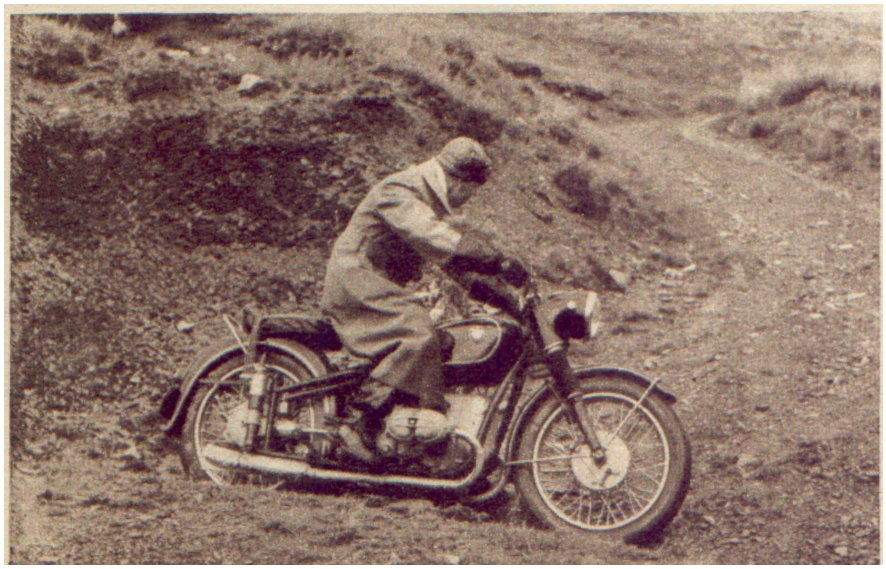
Therefore, for the purposes of experiment, I ran the B.M.W. from London to Llandrindod Wells, Radnorshire, and back and, while in Wales, played with the model on some of the Welsh I.S.D.T. sections, notably that between Abergwesyn and Tregaron. One had only to start the B.M.W. to be impressed with it. The

engine fired on the first or second depression of the transverse-acting kick-starter. It did this all the time the machine was in my charge, irrespective of whether the engine was hot or cold, and irrespective of how hard it had been driven previously. When it was idling with the ignition lever set at full retard, the engine was virtually noiseless mechanically—this in spite of the machine's having successfully taken part in the I.S.D.T., remember. One could detect the power-stroke sounds, but nothing more. On full-ignition advance piston slap from one cylinder became just barely audible. This characteristic of mechanical quietness remained throughout. Engine idling was slow, and perfectly reliable, at all times.

When the machine was delivered, and when I set out for Llandrindod Wells, the tank was filled with 80-octane fuel. In these circumstances, the R68's performance was quite devastating. There was no pinking. At low engine speeds there was some roughness—roughness which could not be curbed by use of the ignition control. The point is, however, that the R68 is not meant to be ridden with the engine turning over at lowish speeds. The headlamp-mounted speedometer is calibrated to indicate the speeds at which gear changes should be made. These are 50 k.p.h. (31 m.p.h.) into second; 90 k.p.h. (56 m.p.h.) into third; 120 k.p.h. (74½ m.p.h.) into top. The best performance was achieved if these figures were slightly exceeded.

In other words, I found that if I was to have all the speed I could use at any given moment, the revs required to be in the region of peak. Thus, on the way to Wales, I drove the B.M.W. in racing fashion, snicking into third when the speed dropped to 100 k.p.h. (62 m.p.h.) and using second at all speeds (except ultra-low ones) below 90 k.p.h. (56 m.p.h.). In this way the ignition lever was never required. The speed performance was exceptional, but I was not riding as neatly as I would have wished. The twist-grip is of the drumless pattern and it suffered from the inevitable backlash of the type. This, coupled with the fact that the engine-speed clutch was rather fierce when spinning hard, made for harshness during downward changes.

Gear shifting on the B.M.W. is by means of a left-foot pedal which is moved up to change up and down to change down. An intriguing feature is the neutral indicator light which gleams in the





top of the headlamp when neutral is engaged. The brake pedal is situated on the right. The gear change was typically B.M.W., slightly heavy, and very slow if a "clonk" as the pinions engaged was to be avoided. The change was, indeed, too slow. Except when in towns and villages I felt that life was too short to spend so much of it with the clutch out and, in any case, one was losing useful engine r.p.m. On the open road, therefore, I put up with the clonk and pushed the pedal through. The gear box and transmission did not appear to object to such treatment. I have seen Meier ride on many occasions, and I know that he doesn't wait around for the clutch to stop!

Miles sped by, the straights and curves blurred beneath the B.M.W.'s flying wheels. The distance from London to Llandrindod is a few miles short of 200. I left the office at 2.30 p.m., spent some time playing around in Hyde Park, and, in spite of being on an unfamiliar route for most of the way, and having to stop for map consultations on several occasions, I was signing the visitors' register at my hotel at 6.30 p.m. after having garaged the model.

On several occasions I reached (according to speedometer) the magic 100 m.p.h. figure. It was not difficult to do. At that speed, there was entire absence of vibration or roughness. The high-rev velvety smoothness was one of the B.M.W.'s most attractive features. I wondered how much of this is due to the engine being mounted in rubber.

Handling in the upper eighties and the nineties was perfect. The handlebar is mounted forward of the steering axis and curved forward, so that the grips fall roughly on a line drawn across the centre lines of the fork stanchions. Steering is light and possesses the tautness that is a characteristic of pukka factory racers. The machine never drifted; it remained rock steady no matter how far it was heeled over. Straight-ahead steering was more than just hands-off at any speed on almost any surface. One had the impression that if the handlebar were given a violent wrench, the machine would recover instantaneously.

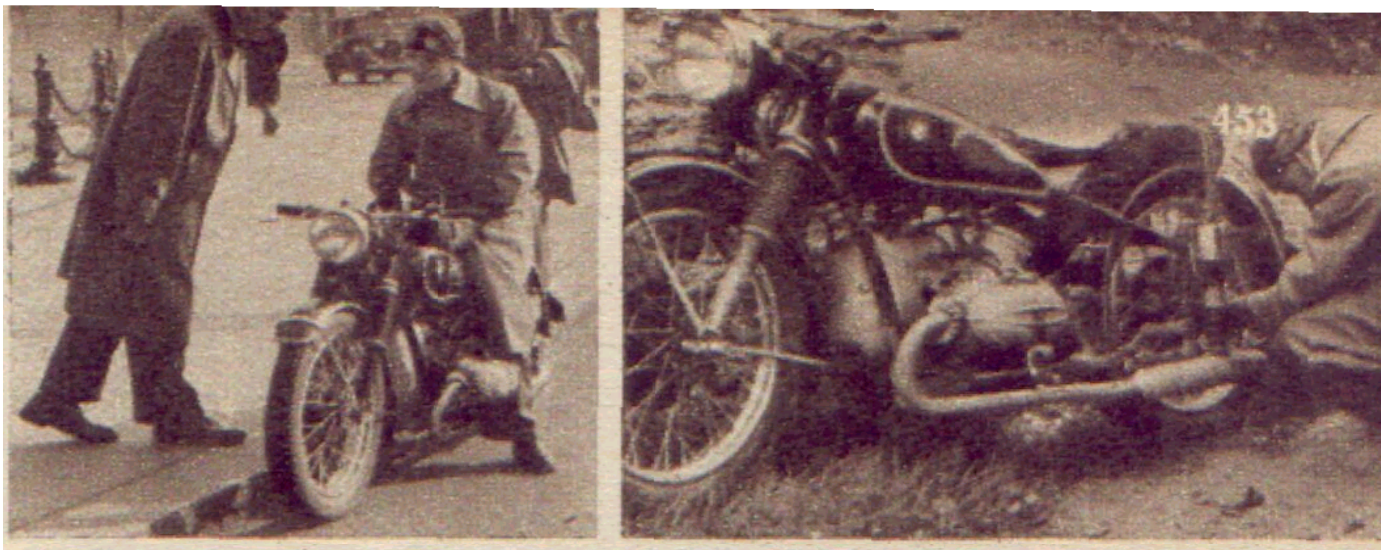
Potent Braking

Another racing-machine-like feature of the R68 is the twin-leading shoe front brake. When the machine arrived from Germany the brake was probably among the best in my experience. It went "off" slightly while I had the machine, though not to the extent that it was ever anything but a magnificent brake. The rear brake, too, was extremely potent.

The riding position was perfect for high-speed road work, the "reach" causing one to adopt a somewhat crouched position. The saddle pivots at the nose in usual B.M.W. fashion, and, with its soft, shaped top was very comfortable. Tank width between the knees is just right. The footrests are set well back so that the legs can take their fair proportion of the pull of wind pressure imposed on the body at high speeds.

When I arrived at Llandrindod, the machine was as clean as when I had started; not the merest trace of oil was apparent anywhere, although I had filled up with Pool petrol at Cheltenham and the engine working temperature appeared to have increased.

When I set out for Abergwesyn it was raining. My intention was to ford the three watersplashes and run over the Tregaron Pass. There was mud and to spare, and the splashes, especially the first one from the Abergwesyn side, were as deep as I have ever seen them. The more I played with the B.M.W. the more I liked it.



The journey from Buckingham Palace (left) to Wales (right), where the tyre pressures are being lowered near Abergwesyn, took the B.M.W. under four hours

In spite of the fact that it was now fitted with road tyres, the R68 handled on the rough in the most confidence-inspiring fashion. I set my stop watch, intending to time myself over the Pass between the I.S.D.T. checks, but quickly changed my mind when I swept round a curve and found the track blocked by a shut gate. That damped my ardour a good deal, and I decided to tone down the speed a shade.

The watersplashes gave the B.M.W. no trouble. How could they when the generator and ignition coil are enclosed in the engine castings, and the carburettor air intakes are sealed all the way to the air cleaner? On the mud, the machine did just what I wanted it to do. The rear-end seldom slid out and one could bank over with confidence. When the machine was deliberately slid, and the rear wheel moved over, say, a foot, it felt as though it were doing just that, and not sliding through three feet, which has been my impression with some machines.

Several Conclusions

On loose going, the R68 had less tendency to slide than most machines. What particularly impressed me was the stability when cross-gullies were taken at speed. My technique on cross-gullies is to charge them hard and blip the throttle to lift the front wheel over them. It is a very exacting technique, and if it is not properly timed, the gully is taken much too fast. My execution was faulty several times. The B.M.W. reared up and landed—crash! The fork bottomed but the machine was never for a second out of hand. Its handling propensities were well-nigh perfect for I.S.D.T. conditions. A little less weight would have been appreciated, but 390 lb is not over-heavy for a modern 600 c.c. o.h.v.

And so back to London, just as hard as the B.M.W. would motor. Although I rode it in such a way that I was accelerating hard or braking hard nearly all the time, and again clocked 160 k.p.h.-plus on several occasions, the exhaust pipes were still unblemished when I checked in at home; the engine was still oil tight, the tick-over as quiet as ever. My chief criticism after 500 miles was that the twistgrip (working against the pressure of two throttle return springs) was too heavy.

Several conclusions remained after my experience with Meier's machine. The first was that the B.M.W. seemed to be indestructible. The second was that, here was a motor cycle built regardless of cost, with quality as the sole consideration (the price in Britain is £600). Detail work is impeccable. Electrical equipment, so often the motor cycle's Achilles' Heel, is of the first quality. Everything that can be made integral, rather than as a separate part, is so made. The B.M.W. is a magnificent example of what a motor cycle should be.

THE GERMAN MOTORCYCLE INDUSTRY SINCE 1938.
by 'The Amateur Mechanic'

Part 1 - The R75 and the Kompressor

The above heading is the title of a report prepared in March 1946, by the Field Information Agency, Technical United States Group Control Council for Germany and details exactly what they found in German motorcycle factories at the end of the war. It makes fascinating reading. I should, at this stage, thank Brian Thomas for giving me the original copy of the report.
I found the sections dealing with R75 development and the supercharged racers particularly interesting and it is these that I have reproduced, verbatim, here;

Special Army Motorcycle Manufactured by BMW and Zundapp.

History.

Both BMW and Zundapp had already furnished side valve 2 cylinder-opposed, sidecar motorcycles to the German Army.

During the Belgium campaign, these machines were carrying as many as 8 men. The tyres were too small and failed, and the machines had insufficient traction in mud.

The Belgium Army Motorcycle made by the Belgium firm of F.N. (Fabrik National) had sidecar wheel drive that could be locked in or out, with no differential. On hard roads this was disconnected. This proved very interesting to the German Army and through this the conception of sidecar drive arose.

As a small vehicle for personnel, light weapons, liaison, convoy control reconnaissance etc. was becoming more necessary and gasoline was getting scarce the motorcycle sidecar "combination", was pushed. A sample of a sidecar lock-in or lock-out drive machine was made by BMW and the army liked it. The specification laid down required a 3-man crew at 100kg. (220lbs each), machine gun and ammunition equipment all totalling 450kg (995lbs). A vehicle was wanted that would operate on 0.8litres per km. fuel consumption (about 30 miles per gallon). It was to have a top speed of 50 miles per hour.

Tests however showed it desirable to have a differential. But the machine handled better with both driving wheels locked together and driving than with only one wheel driving, and when a differential was tried, acceleration was accompanied by swerving. Zundapp designed a spur gear differential with unbalanced torque delivery to the wheels split up proportional to the C.G. location across the tread. This worked very successfully and the design was adopted with a 1:2.2 ratio, motorcycle wheel to sidecar wheel. Work in the mountains of Bavaria showed that the engine overheated on long mountain pulls and by going to overhead valve design the cooling area was increased by 80%. The Army had even had on test a forced cooled machine that looked good.

The BMW at first had a higher speed than was necessary, and to improve the grade ability, different cams and smaller valves were used. This changed the speed from 110km/hr to 80km/hr (50mph). The torque peak dropped in RPM from 3400 to 2600 and increased in torque to the required 10 meter-kilograms (70.2 ft.lbs).

Rear Drive.

The ring and pinion bevels in the rear drive of the motorcycle were followed by a pair of spur gears, putting the motorcycled wheel behind the sidecar wheel ahead of the sidecar propeller cross shaft. This gave stability against upsetting and also allowed the sidecar wheel to be sprung by means of a torsion tube around the sidecar wheel propeller cross shaft. In order to reduce the spring rate, this torsion tube was split longitudinally throughout its entire length at the top.

Sidecars.

There were two model sidecars, interchangeable. Zundapp made a torsion bar suspended body; BMW a leaf spring suspended body.

Forks.

The front forks were different. BMW used a plunger hydraulically damped fork. Zundapp used a parallelogram link type with a central hydraulic shock absorber with the springs in the fork sides actuated by enclosed rocker arms. The fork sides were stamped steel shells welded to make them oval section hollow tapered beams. It is said that this made them less vulnerable against damage than the sliding BMW fork and was to be adopted as standard if any more machines were ordered.

Frames.

The BMW frame was a bolted tubing triangulated frame of which the power plant made one member. The Zundapp frame was an atomic hydrogen and gas welded frame made of stampings welded to oval tapered tubes so as to form an integral hollow tube frame of very neat appearance but claimed to be expensive due to the large length of welding.

Engine.

The BMW engine was horizontally opposed while Zundapp inclined the cylinders in a slight 'vee' to gain ground clearance. They were 18 degrees above the horizontal. This is standard practice on other Zundapp engines.

BMW had a built up crankshaft single piece lower end connecting rods, with roller bearings. Zundapp used single piece crankshaft with split big end and roller bearings. Both models had a Norris generator on the front of the crankshaft, a Norris magneto driven by a gear above the camshaft and an oil pump driven by a gear below the crankshaft. BMW used a gear pump, Zundapp an oscillating and rotating plunger pump. Neither pump was below the oil level in the wet sump.

Transmission.

Both transmissions had introduced a jack shaft between the engine and transmission instead of driving the clutch directly into the main shaft. This jack shaft provided 2-ratio primary gear change for low-low or high ratio. BMW used helical constant mesh in this primary system; Zundapp used spur clash gear change for low-low. Both models had clash reverse driving through the lowest ratio only.

The Zundapp transmission only allowed 5 speeds forward and a reverse on the lowest ratio only, other possible combinations being blocked out.

Kick-starters.

Kick-starters worked for and aft through bevel gears, both models on the left hand side.

Brakes.

Brakes on both models were mechanical on the front wheel and hydraulic on the rear and sidecar wheel to get the proper equalising. The front brake has no cam but a lever, the fulcrum of which hangs in one shoe, the end in the other giving uneven pressure to the forward and trailing shoes. Brakes are interchangeable between BMW and Zundapp.

Blackout lighting was only accomplished through shields applied to the lights.

THE RACER MODEL 500cc

This model has a special 2 cylinder opposed engine with overhead camshaft, and a supercharger. It also has a shaft drive to the rear wheel, and is built with either a rigid or a spring frame.

The engine layout is generally conventional BMW design except the valve action, which is operated by

twin camshafts in each cylinder head operating the valves through rockers. Each pair of camshafts are geared together with a spur gear idler and one of them in each head is driven by a pair of spiral bevels from a cross shaft going all the way across the engine from one head to the other. This shaft is in turn driven by a pair of bevel gears from a jack shaft parallel to the crankshaft, which is driven by spur (or helical) gears from the crankshaft.

The Supercharger is driven through splines from the front end of the crankshaft. It is a "Cozette" vane type having sliding vanes carried in a dural rotor. The rotor is mounted off centre in a cylindrical magnesium housing. The vanes are held outwards by centrifugal force without springs. Vane cramping due to friction against the inside diameter of the case is reduced by letting the vanes come out against two steel rims or cups that are free to turn on ball bearings and support the vanes for a short distance at each end. The inlet and outlet ports of the supercharger are in the magnesium case between these steel cups.

The supercharger pumps mixture against a pressure relief valve, apparently exhausting into the atmosphere and the mixture thus regulated goes through long pipes to the cylinder head inlet ports which are behind the cylinder heads in order to let the hot exhaust ports come out ahead of the cylinder heads for cooling purposes. The carburettor is mounted on a flange directly on the supercharger housing. It is not clear to the writer whether the mixture blown through the supercharger relief valve is lost or in some way bi-passed back into the supercharger intake. The long intake pipes no doubt serve in some respect as inter-coolers

The frame on the racing model, similar to the conventional BMW frames, is of welded steel tubing. Most of the cast housings are in "Electron" magnesium alloy.

The wheels are very light, having dural rims apparently made of rolled or extruded section curled up and joined together in two places. Similar rims are to be seen on other international racing equipment and are well known. They are made in Italy. The brake drums are machined out of solid steel and are centrally located in the wheel. They have spoke flanges around the outside at each side. And the hub for the wheel bearings is integral with the drum.

The forks and the spring frame are special, being somewhat more elaborate than on conventional BMW models and rear wheel damping has been applied. This is attained by communicating from the rear wheel slipper by means of a lug through a single slot in each spindle to hydraulic damping means inside the frame slipper support spindle. Various types of forks and rear spring designs have apparently been experimented with, but basically they are all plunger forks and slipper type rear suspension designs.

Among the drawings forwarded to Washington there are details of the overall layout, frame assembly, engine assembly, front fork assembly, supercharger, rear spring suspension, and shock absorbers. A sample engine with its supercharger was also secured. No complete set of drawings of any one stage of development could be located and different drawings apply to different periods of the frequent changes made in this special model.

So, there you have it. I make no comment on the American authors command of the English language! Perhaps the most intriguing question coming out of the second report is what exactly happened to the supercharged engine shipped back to the States? As far as the drawings are concerned the report does go on to say that these were copied to the British authorities. I am led to believe that these drawings may now be held in the Bodlian Library in Oxford but, as you have to be a member to get access (and I am not a member), the trail has gone cold. Perhaps someone out there may be able to gain the necessary access and report their findings…

What The American's Thought of BMW in 1945.
by The Amateur Mechanic.

Part 2. The Model Range

Within the report detailed previously and prepared by the American Army in 1945 is a review entitled "The

Bayerische Motoren Werke A.G. – Munich Bavaria". It is this report I have reproduced verbatim below. Once again I must thank Brian Thomas for giving me the original document. I make no comment on the author's use of the English (American?) language!

The firm of BMW besides motorcycles have manufactured automobiles, stationary engines (based on their automobile and motorcycle engines) for use in generator sets, and aircraft engines. They have maintained a very excellent aluminium and magnesium foundry for permanent mould and sand castings. Most engine accessories were purchased. The designs of the firm have been characterised by their originality and excellence. Quality and performance has not been sacrificed for cost. A distinct effort seems to have been made to stick to basically standard designs, adding special valve gear etc. to produce super sports performance. The standard designs usually are good enough, and at the sacrifice of cost, to do the extra job.

International racing has been used as an advertising means to boost BMW as internationally outstanding. There is some indication however that models attaining success as specialised racing equipment were intended to eventually come on the market for sale in "replica" form

Their motorcycle line in recent years has contained five basically different models. The trend has been away from pressed steel frames, to atomic welded tubing frames. But there is indication that the bolted tubing triangulated frame used on the military model was so successful as to indicate a future trend. Mr Nick Rucker, director of the motorcycle development and sports car development division has made such a statement. The models, however, all characterise overhead valve engines, telescopic forks and shaft drive. They are;

1. A small single, basically simple.
2. A larger single, more appealing by its more elaborate design.
3. 4-twins having common chassis but different engines to suit distinct uses.
4. A special supercharged racing model, not produced for general sale.
5. A special Army machine having a power driven sidecar wheel.

There then follows a description of the various models. I'm sure you've already worked out the models referred to, but if not they are as follows;

No. 1 on the list above is the R23.
No. 2 is the R35
No. 3 the 4-twins are the R51, R61, R66 and R71
No. 4 the special Army machine is the R75

More from 'The Amateur Mechanic' in the next issue of the Newsletter including an article entitled – ' OLD BMW'S…… But with good suspension, tyres and brakes!

Report on the MBZ generator/ ignition system for older BMW's.
by Geoff Wooff

Living in a very rural location on the west coast of Ireland where the roads are narrow, rough, dirty and lacking in cats eyes and often little or no road markings, the use of a classic bike as everyday transport quickly shows up any deficiency in the lighting department. One dark and very wet evening about twelve months back I was making my way home. The 6 volt halogen headlight of my R50 was making no noticeable dent on the landscape. Something had to change!

This 1958 BMW is my most modem bike and I have tried to set it up for everyday use whilst making as few changes from original as possible. A 12 volt conversion *was* something I now desired. Malcolm's mention of the kits supplied by MBZ was my wake up call because I was also suffering an engine vibration period between 40 and 60 mph in top gear which after a full engine rebuild had hardly diminished. Much fiddling with the centrifugal advance bob-weight springs and resetting the timing up and down, still had the vibes!

So a new 12 volt alternator and electronic ignition kit looked like my next step. Duly ordered, on-line, it arrived for just under €400,00, The instructions were in German which should not be a problem as my wife is also from that country. However for domestic peace I down-loaded the English version from the MBZ web site (www.dvnamo-mz-b.de).

The instructions are very good and suggest that the whole operation will take two hours. It took me all day! I did deviate from the suggested method of bringing the HT leads down from the coils and into the engine case by drilling two 10mm holes in the small top cover. Instead I very slightly filed back the front edge of the "small top cover" in the centre where the 'D' section grommet fits so that there is just enough room for the HT leads and the wiring harness to enter the top of the engine. This was far less invasive and is not noticeable. All the electronics, coils etc., are hidden in the gap between the petrol tank inner sides and the only thing which is partly visible is the regulator/rectifier which is under the rear tank mount and is hardly noticeable. So cosmetically it all looks right.

The new 12 volt horn *was* obtained at the local motor factors and mounts in the same place as the old one, it's black, it works and would offend only the purist I chose a 60/55 watt H4 headlamp bulb as 1 have a new Bosch headlamp obtained from Martin Kornhas. Now I can see in the dark! The electronic advance has greatly improved the engine vibration period, it is still there between 40 and 60 mph but within tolerable limits.

The MBZ instructions do not specify a battery capacity and I started with a small 5ah. unit but the lights would dim down at tick over. I have now fitted a I2ah which is a tight fit but balances the system well. Exide No. EB12AL-A2.

The system has been in place now for a year and has given no trouble other than a small learning curve regarding starting procedure With the old magneto I could flood the Carburettors for a cold start and one or two kicks would be all that was needed. The electronic ignition gives a smaller sharper spark which does not hold up so well if the carburettors are flooded over much. So 1 try starting the engine with no flooding and if that does not work then two quick tickles on each side is needed. Hot starting is almost always a one kick affair.

I now always ride with the lights on and have added bar-end indicators with 18 watt bulbs. I feel safer but my bar end mirrors had to go so I obtained a pair of headlamp mounted mirrors from Craig Vechorik These are stainless steel copies of the Albert items and are not cheap at S150.00 plus shipping but I find them very good.

I showed the MBZ system to Bob Porecha in London last May and he was quite impressed. So I now have a system that has many advantages, one being that replacement bulbs for the important lamps can be obtained at any service station. Downsides are; the horn is a higher pitch, the generator and neutral warning lights are a little too bright at night, and not quite so easy to start the engine. This last point I do find strange as I have a Lucas-Rita electronic ignition on a Velocette which starts first kick every time.

*REVITALISING AN OLD BOXER CONTINUED FROM PAGE 4……..*The first requirement was to design some new inlet stubs to match the 32 mm carburettors to the R60 cylinder heads. These were beautifully manufactured by SW Section member Don Rolling.

The carburettors were cleaned and rebuilt, using new needles, needle jets, and float needles etc. to the settings used by the R65. This means 45 pilot jets, 145 main jets, and 2.64 needle jets, with the needle fitted in its number 4 (highest and therefore richest) position.

At this point we found that the 'pattern' diaphragms Mike had purchased were made of a rather stiff plastic compound, rather than the very flexible nitrile rubber items originally fitted. In this case they were sufficiently stiff to hold the pistons at full travel, and so were replaced by genuine BMW items - at a price! We were once able to buy diaphragms identical to the originals at about 50 pence each, as spares for the Stromberg 150 and 175 CD carburettor used by Rootes, Triumph, Jaguar and SAAB cars, but these have now been consigned to history.

Removal of the old inlet stubs gave no problems, a Stilson wrench being applied to them while the heads were still hot. The new stubs were given a coating of Loctite 245 to seal the threads and prevent them becoming loose.
The only problem encountered in fitting the CV carburettors concerned connecting their inlet elbows to the air filter, as the 1980 model R80 elbows we had obtained were the usual tight fit.
The problem was easily resolved by simply cutting away the enlarged section intended to fit over the air filter intake ferrules. The elbows were then joined to the air filter by rubber couplings, in the same manner as is found on a post-1981 model. They are therefore easier to fit, and also have the advantage that the carburettor is mounted on rubber at both ends.

We had decided to use the 1981-84 type of throttle cable assembly, in which the twist grip operates a single cable, joined to separate cables from each carburettor by a junction box. On both my 1981 twins I found that while the cable running around the steering head stretched appreciably, the individual carburettor cables did not, so enabling excellent throttle synchronism to be maintained for thousands of miles. Why BMW reverted to twin cables in 1984 has always been a mystery to me. The single cable was connected to the original twist grip in place of the usual lower cable, and the upper cable entry sealed with silicone rubber.

The R60 carburettors are not fitted with chokes, cold starting enrichment being provided by the time-honoured means of 'tickler' buttons to depress the floats and so increase the float chamber levels. We therefore obtained a pre-1981 choke lever, which mounted to the side of the air filter housing, as was used on the larger models. This control is typical of BMW and Megura at their best, moving each solid inner cable in a straight line by means of individual rack and pinion gear drives.

After fitting new fuel pipes and setting the float chamber levels - using the point at which fuel just begins to drip as the datum - we were ready to go. The engine started at the first prod of the starter button, then the carburettors were adjusted to give a slow and reliable idle, with an even pickup. As with the rest of this conversion, it was so easy that we began to wonder if we had missed something!

On his first ride Mike was amazed by the ease with which the engine now pulled at low speeds, the increased power at higher speeds, and the 'feel' that somehow he was riding a newer, bigger, and generally better machine. These — and other less obvious benefits - are due to the maintenance of a high air velocity beneath the carburettor pistons, providing optimum fuel atomisation and also imparting the incoming charge with a high degree of turbulence as it enters the combustion chambers. Unlike slide carburettors, in the CV type this velocity is unaffected by excessive throttle opening or failing engine speed.

This results in improved fuel consumption and virtual freedom from pinking, not to mention the destructive high-speed detonation to which the R60 engine is so susceptible. This problem is due to a combination of poor atomisation, low turbulence, and the high compression ratio (9.25:1) of these engines. In extreme cases it can cause severe erosion damage to both pistons and cylinder heads, particularly in the lower areas of the combustion spaces.

The R65 settings also contribute, as the original carburettors provided a mixture which was excessively rich at the best of times, even without considering the effect of worn needles and needle jets. The R65 settings, incidentally, are also shared by the early R80G/S and R8077 models, being the basis for their fabled blend of performance, economy, and smooth running.

These settings will provide similar advantages to the R45, and the later R80 variants, including the Paralever R80GS. My friend Dave Pearce, for example, found that his Paralever GS improved its fuel consumption from 38 mpg to 50 mpg, had improved throttle response, and also pulled better throughout the range

The R50/5 would also benefit from this modification, and it is highly probable that the 'self adjusting' nature of CV carburettors will permit this smaller engine to also operate on 32 mm carburettors. The R45, for example, runs very well on R65 carburettors, although this is due more to their leaner settings than the larger 32 mm bore. The R45 28 mm carburettors would also suit the R50/5, and in either case the R65 settings would again be suitable, but with a reduction in main jet size to 123, or perhaps even 105.

This modification is certainly worth adopting, and although some enthusiasts ma) feel that it degrades the neo-classic nature of these machines, we thought that the appearance had been enhanced by the CV carburettors, due to their peculiarly BMW appearance. For those who are more concerned with originality I would suggest use of the older CV carburettors, on which the vacuum dome has a square flange and is retained by four screws, so following the appearance of the R75/5.

Regardless of personal views, one thing is definite - Mike's 'Five' is now alive!

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Most members will be aware that Eric Rance has sold his beautiful R50/Steib outfit due to ill health. Well, it has found a great new home in the above museum that is run by Stephen Johns. Stephen informs me, that along with his other exhibits, it will be used on a regular basis. Watch out for it at some of our events. Perhaps the

2005 EVENTS CONTINUED

24th July
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Stanford Hall, Nr. Lutterworth,
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3rd September
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Motorcycle Show
Details from Bill Rodgers
Tel. 01526 834480

September
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