

BRAKING BAD

By

Phillip White

Any person who regularly rides an old Springfield Chief will at some point have been into the third reel of their lives due to some road event where severe braking was required and it was revealed that there is none to speak of. There are historic reasons for this. America in the late twenties was a country of dirt roads and little traffic. Most if not all Early American bikes had no front brake at all, and when front brakes eventually made their debut many riders would disconnect them, fearing that application of a front brake on a dirt road covered in mud and horse crap would pitch them off. When Indian first advertised their new front brake they were at pains to assure purchasers that the brake had been designed to "Drag rather than Grab" And as we know, they certainly succeeded handsomely. There is an interesting parallel here, when Indian made Royal Enfield's first began to be imported to Europe a few decades ago, The importers complained of the feeble front brakes. The Manufacturers were surprised as In their Homeland; many riders also disconnected the front brake, feeling better able to navigate the 15 to 20 MPH obstacle courses, which constitute the average Indian Highway.

In contrast to the front brake on American machines, the rear brake was usually very good and by the late twenties U.S made bikes developed a distinct weight bias towards the rear, in part because of their long wheelbases. This gave a front to rear braking ratio of about 60/40 as apposed to European bikes, which were usually around 70/30.

So fast-forward to the present day. I have ridden a handful of Chiefs where the front brake actually worked well enough to avert an accident. The problem is that you wont get a second stop out of it. If you are on a mountain road the brake will quickly fade to uselessness. Some owners try adjusting up the cable to give the least wasted motion and maximum pull on the brake cam. What invariably happens is that the eggshell thin brake-backing plate will start to expand with the heat generated and will start to bind the brake, this in its turn generates more heat and quite quickly the brake will seize on.

Now enthusiasts have tried all sorts of upgrades over the years, the commonest being the installation of a disc brake. These work well of course, but it is my personal opinion that it is social suicide as far as the looks of the bike go, the disc belongs to a different era and bikes thus modified are no longer historic artifacts but "Specials" If the owner really is trying to create a "one Off " type bike such as a Bobber with the emphasis on performance than of course, no problem. For most of us, however, preserving the correct and Classic lines of our bikes is of paramount importance. And of course if you have a 1948 or later chief there is the question of the front wheel Speedo drive.

In the case of my own bike, which is a 1952 Black Hawk, I have suffered a number of near misses due to a bad or fading front brake. On one occasion on a "Great Race" event in the mountains I actually ran right off the road and dropped into a drainage ditch fortunately the ditch was narrow, deep and grassy and the old Chief just coasted to a stop on its crash bars. I could not believe that bike and rider had survived without a scratch and I determined there and then to do something about the poor front brake.

A German fellow called Schonfeld manufactures a wider brake drum and I obtained one of those. They work by using up the otherwise empty space between the circumference of the drum and the spokes allowing twice the width of braking surface. At first I used single leading shoe Triumph brake shoes, which gave an improvement from standard but still nothing to write home about. I wondered if the rather excellent Triumph/BSA twin leader from the late sixties could be made to work. Drawing both the original Indian Backing plate and overlaying with the Triumph type indicated that the idea was feasible although there was only about 5 degrees of rotation possible in axial placement before things started to foul.

For the idea to work there would have to be a new brake backing plate, which would look just like the original including provision for a Speedo drive. To make one off casting plug I used body filler inside and out on a standard 1950 type backing plate, adding extra bosses as required for the twin leading shoe mechanism. I also added extra thickness on the rim as I noticed with the standard set up; the back plate return is not deep enough to properly cover the edge of the drum, thus allowing water ingress. The 1948 type plate is not suitable as a pattern as the Speedo boss is too close to the fork leg to clear the telescopic fork I.E. you can use a 1950 plate on any Bike from 47 on but the reverse does not hold true, The 1948 plate is a one year only part. I had several castings made from the plug, all being heat treated to T6 to ensure maximum rigidity and toughness.

The next step was machining. I was very fortunate to engage the services of Doug Fraser from Emu Engineering. Doug is an old bike enthusiast and a toolmaker by trade. He has built his own engines from scratch and this project needed a man who could think outside the square. Without going into vast detail, the machining procedure used by BSA /Triumph could not be replicated because of the different topography of the Indian style of back plate. Suffice to say that Doug overcame the host of machining problems this Hybrid component presented and duly produced two complete back plates, one for test and one as a machining template if any more were to be produced.

Fitting to the bike presented no problems and the original cable anchor point remained unchanged. The actuating rod for the two cams runs roughly parallel with the ground. As can be seen from the photo, the new plate does not look radically different from standard and is not too far removed from the technology of the times. And the deepened skirt nicely covers the brake drum

The top cam boss is a new addition from standard and clears the abbreviated guard fitted from 1952 on. To fit this to a 1947 to 1951 bike would require drilling a 5/8" hole in the guard. If the brake set up were to revert to standard the hole could be plugged with an unobtrusive grommet. The Triumph twin leader type shoes cannot be skimmed for overall contact with the drum, as they do not have a fixed anchor point, they float in position and bed in with use so it was time to hit the road (literally as it turned out)

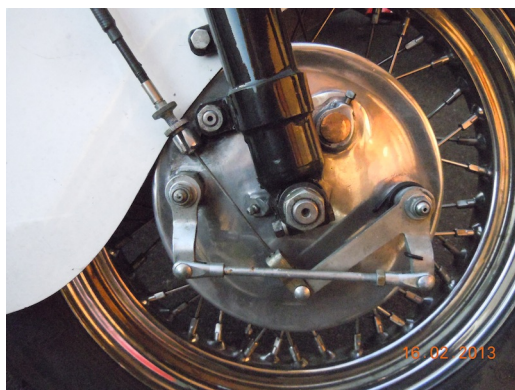
The first kilometer of the first test ride proved a major disappointment. There was virtually no braking effect at all! However repeated applications of the lever continued to bed the shoes and by the 2-kilometer mark the brake was as good as any Chief I have ridden. As the miles rolled on so the braking power continued to increase. I removed the brake for inspection and found zero problems, but the shoes were only half bedded in. As earlier readers may recall, the Iron Riders shipped a few bikes to Perth a year or so back for a Nullabor crossing. As I reported in my article concerning that trip, the Twin Leading Shoe brake saved my bacon twice, once on a suburban Street when a suddenly swerving van revealed a large and stupid dog dragging its stake and chain randomly around the road. A

second event when a mob of big red kangaroos bounced out of the scrub in front of me as was powering along at around 120 kph

On my return to Melbourne I once again dismantled the brake and inspected it and the rest of the front end for problems but found nothing. To my surprise the shoes still had a little bedding in to do, due I suppose, to the fact that apart from my emergency Stops there had been little cause to use the brakes crossing Oz. I deglazed the shoes and adjusted the pull rod to the cams to ensure equal contact, something that one has to do to a normal triumph/ BSA twin leader in service. I took the bike out on my normal test circuit and kept applying the brake as hard as possible. The car hating City of Yarra where I live has covered all the long streets in my area with vicious little speed humps. I absent-mindedly jumped one of these at around 70 kph whilst applying the front brake. The reduction of load on the front end was enough to lock the wheel solid and down I went in a tremendous shower of sparks accompanied by the sound of a hundred steel trash cans hitting the deck. The aptly named crash bars did their job and I suffered not a scratch. A couple of bystanders helped me right the bike; I thumbed the starter and vamoosed, taking my red face with me.

So in closing, was it worth the trouble and expense? The answer is a resounding yes! To my eye the bike has kept its timeless looks and the extra sense of security experienced in Melbourne's increasingly heavy traffic is wonderful, also mountain roads are big fun again. The telescopic Chiefs are relatively good handling bikes and I can finally get some mild middle age fun without fear of being unable to stop if I overcook things in the Twisties. There are a few things to watch out for however. Firstly I have to remain aware that standard chiefs cannot stop like this so they must be given their space. Secondly the twin leader-actuating arm is much longer than the original. It precisely lines up with the cable due to its different location but the standard chief brake lever has less travel but considerably more leverage than its English counterpart. The upshot being that the feel of the brake is extraordinarily light for the force it puts out. I am getting used to it but the brake would have a lot more feel with the standard pommy lever.

I am very happy to have upgraded my bike this way. Though I can replicate these brakes quite easily (Just add money) I have no plans at this time for doing so. The reason is public liability insurance. I would have to sell a number of brakes to justify the Premium and really can't be bothered. I am prepared however, to sell the intellectual property and hardware, which includes the pattern, a complete brake and a few heat-treated castings. If any business minded enthusiast wants to run with this, I can be contacted through the club.



Please note this original article printed 2 years ago in Smoke Signals

IMPROVING 1946-53 FRONT BRAKES & YOUR SAFETY

This is an issue I have discussed in the previous article” **Did Gilroy Copy Springfield Indians to much**”. So the Gilroy can be improved by larger master cylinder, floating disc rotors and better pads but what about your Springfield model? Pre 1946 models can be improved by emailing, and using, Indian Service’s Richard Schonfields brake kit, he makes a Twin Leading shoe version that looks very similar to the original and doubles if not triples the efficiency of the brakes. At around \$1650 you get a complete brake backing plate and drum almost 1/3 deeper brake area again so more area and more efficiency makes it lots safer.



What about your post 1945 model? I have come up with a brilliant idea for these models that will help the braking for these as well, if you have a, virtually, as new brake plate or not cracked as most are, you can purchase a new front drum that is deeper and fits all your bearings, stub axle etc. with a new set of special shoes (wider) and a pair of new brake springs for \$800 this will enable you to improve the pathetic standard brake to approximately 60% better efficiency, the advantage is it all looks stock, plus the added advantage of being easy to buy shoes from your Triumph dealer (LF Harris pre- 1988)



But what if you want more you say, I can offer help soon, there is a solution being developed for those who do think a old Chief looks completely out of place with a disc brake, I personally think these look ugly on a early machine & are usually fitted when people are taking an economical solution, and can't you tell !

There is a Twin leading shoe front brake which is developing by me that will offer the ultimate in braking. I have ridden my 1947 Chief with a prototype fitted and it is possible to lock the front wheel at 60 mph quite easily, this is on par with modern braking in current modern motorcycles. It uses the same deeper brake drum but unlike the single leading shoe version mentioned above does look visually different as the brake arms are positioned externally, there is zero room to fit them internally especially with 1948 type that has a speedo gearbox on the brake plate. Costing on this version is ongoing but \$2,000 seems to be the price range. This too uses parts that are easily available from your Triumph dealer. Provided is a complete brake plate and drum ready to fit your bearing and stub axle into and then shorten your brake cable and your ready to go.

(note) Proto-type Triumph variant fitted to 1947 Chief



Philip Pilgrim will be making the non-vented version similar to Phillip White's version but with a boss cast on the brake plate to replace the separate backing plate spacer, this give more rigidity, less flexing and no lengthy bedding in process. T.L.S Brakes are available very soon for sale at approx \$2,000 with drum, patterns having been made & castings will be on hand by the end of November ready for machining, all Triumph brake parts are available at Union Jack Motorcycles (03) 94996428

