

# LOOSE FILLINGS

## GOOD VIBRATIONS

This issue of *Loose Fillings* includes a remarkable story, the account of building and racing an early-1950s Ariel-powered special - written by the man who built and drove the car. His account is a valuable first-hand addition to our records of the Australian 500cc movement and an insight into the enthusiasm and determination of the people involved at that time. As well, in this issue we have news of the arrival from England of a Mk6 Cooper JAP for one of our most active competitors.

# MB500: BUILT IN THE SPIRIT

by Harry Mortlock

In the late 1930s I dabbled in motorcycle racing on an old Ariel. During the war the British motor magazines, which manufactured motorsport news where none really existed, launched the proposal for 500cc car racing - right up my alley, a mixture of cars and bikes. But "cheap racing" - not even I believed that.

When the war ended I was 22 and back in Australia, but I was back in England in 1948, and in the Goodwood pits I was watching Bira's and de Graffenreid's 4CLT Maseratis getting their race plugs, with the mechanics making no effort to cover the plug-holes from the dust. The man stand-

ing next to me caught my eye and raised an eyebrow. We got to talking. He was Colin Strang.

Of course we discussed 500s. The motoring press had given Strang's pioneer 500 extensive coverage, and with its apparently simple combination of Fiat chassis and live rear axle the car epitomised early 500 philosophy. He gave me much practical advice and encouragement, but he was careful to warn me that it was nowhere near as simple as it looked.

A year or so later it seemed I might for a change be spending some time in one place, namely Sydney. Local motorsport

identity "Doc" Bond offered me chassis parts from a Fiat 500 that had been bombed in Port Moresby: front cross-member with suspension, brakes and steering, but no steering box; rear cross member, rear axle, suspension and brakes. Chassis rails and cross-members were

Below: The MB500 at Tyresoles Corner leading into Pit Straight at Mt Druitt, October 1953. The photographs accompanying this article came from the archives of the Vintage Sports Car Club of Australia, through the generous assistance of Tim Shellshear.



mangled beyond repair and it was all rusty and dirty, but the essentials were there.

I could build the car at my mother's house in Randwick, but first I had to build a shed to work in, something more easily said than done at a time of widespread shortages of materials. I bought an old 41/2" lathe, a bench grinder, an electric drill and a vise; lathe, grinder and vise still grace my workshop to-day.

Central to my decision to go ahead was a neighbour, Orm Beale, a Sydney Technical College welding instructor, who did much of my welding at very reasonable rates, and hired me equipment to do less critical work myself. I had decided to use an Ariel Red Hunter engine and gearbox, mainly for cost but also because tuning bits were available from Art Senior, the veteran Ariel racer. I had a real stroke of luck when I met by chance Vic Lyons, who worked for the Sydney main Ariel agent. Vic helped me find what I wanted, and became so interested in 500s that he offered to prepare and maintain my engine and gearbox and act as number one pit crew. The one regret I have about those days is that I may not have made it clear just how much I appreciated his generous support.

The Fiat bits needed only cleaning, lubrication and primer. I contemplated my work with a sense of satisfaction, and experienced for the first time that essential fillip for the special builder – tangible evidence, however small, of progress.

My first major decision was whether to narrow the rear track, as with the Strang, which brought reduced weight, better handling and better appearance. But it was much simpler to retain original Fiat track and wheelbase so the rear suspension would line up without modification, and I settled for that, although I was never entirely happy with the appearance.

I cut up a Red Hunter frame, leaving just the lower cradle tubes and plates to carry engine, gearbox and oil tank. To this basic unit we welded wide transverse mounts to drop over the existing Fiat rear cross-member and over a new rectangular front cross-member which we could now position and weld in place. What turned out to be an inspired touch was to sit the mounting sub-frame on thick rubber strips, cut from what had probably been a conveyor belt, and hold the sub-frame onto the chassis with U-bolts. It worked, and I never had any failures due to vibration.

Pride cometh before a fall, however, and to my dismay I found that welding in the new cross-member had distorted one chassis rail. After much agonising, I decided to leave it as it was and get on with the job. The rest of the chassis work was straightforward, and almost all the panels were single-curvature in 20g or 22g aluminium, bent over anything convenient, including



Above: Harry Mortlock on the start line at Foley's Hill in March 1953, in typically informal surroundings. The MB500's time for the bumpy 500m hill was a respectable 23.46, against Ron Tauranac's 21.76 in the class-winning Ralt and Dick Cobden's new course record of 19.56 in his 1100 Cooper Mk5.

(when the women were away) the dining room table.

I used a 1930s Morris Minor steering box, with a Fiat drop-arm welded onto the stub of the Morris original after I made an adjustable dummy arm (no CAD in those days!) to find the right length for one-and-a-half turns lock to lock. Only a top craftsman like Orm Beale would win my trust for that welding job.

For the rear axle I shortened the half-shafts to about half their original length, turned them down, then pressed their inner ends into a length of alloy steel tube which carried a motorcycle sprocket and drum

brake. I cut the centre out of the Fiat housing, fitted extra ball races at the inner ends of the short axle tubes that remained, and added radius rods which were adjustable for chain tension. Unlike the Strang, there was no connecting structure between the left and right outer housings – all the bending loads were taken by the live axle assembly itself.

I replaced the Fiat single-acting shock absorbers with tubular ones, chosen because they looked about the right size. It turned out they were significantly heavier, and suspension travel was so limited the shockers had little work to do anyway. I tried to keep everything simple: there were no instruments, not even a tacho, and the handbrake was no more than a plain lever with no ratchet.

Everyone knows the "five-minute jobs" seem to go on forever, but eventually, after a coat of black duco and silver wheels by my old friend (and fellow special builder)

Les Durham, there she was in all her glory: the Mortlock/Beale "MB 500."

We gave the MB500 its first trials at Mt Druitt airstrip, probably about August 1952. Things were going well, in a modest way, when disaster struck. On one push-start the motor kicked back and the rear axle shaft promptly bent like a piece of liquorice. The "high tensile" tube from a reputable steelyard was probably boiler tube. The one advantage of its being so soft was that it was correspondingly fairly easy to straighten.

So we developed a starting procedure of leaving the ignition off until the engine was turning over freely, then switching on and gradually advancing the ignition, but even this was not always successful. After another bent axle I bowed to the inevitable and joined the two outer axle housings with a welded-up frame. Which, on Colin Strang's good advice, I should have done in the first place.

I also took this opportunity to fit a spring-loaded idler pulley as a tensioner for the rear chain.

The Ariel was on about 12:1 and ran on methanol, and we tackled an initial weak mixture problem by applying Art Senior's Methanol Maxim, "No hole too big, no mixture too rich." We checked the Amal Type 29 carburettor, the fuel lines, taps and breather, and, in particular, the two gauze filters. We opened up every potential restriction and, to our relief, one more problem had been solved.

Just to make sure, I fitted a cooling duct from the high-pressure area under the seat up to the cylinder head. Otherwise the Ariel ran well and proved most reliable. We never timed the MB's acceleration, but at best guess it was good for about 85 mph and a standing quarter mile in 19 seconds.

The gearbox was a close ratio four-speed Burman, an advantage once on the move but a distinct disadvantage for standing starts and slow corners. I would have preferred the wide standard ratios, but Vic had gone to so much trouble to get that special box that I didn't have the heart to say so.

The chain drive was standard Ariel. Surprisingly, given the car's extra weight over a motorcycle, the whole transmission line needed little attention.

On Colin Strang's advice I had kept the original Fiat front and rear springs as a starting point, expecting I would need to remove leaves to soften the suspension as I developed the car, but to my surprise this was not the case. The ride was certainly firm, and on a pot-holed surface (such as the Mt Druitt sweeper after the 24-hour race in early 1954) the car was unmanageable, but given a halfway decent surface the ride was fine, as was the steering and the handling. Looking back, I was barely aware of the car's handling, which says it

all. It was pretty close to neutral with easily-controlled throttle oversteer. On a loose surface it was terrific fun. The small Fiat brakes did not seem too much of a problem, just a matter of learning to brake a bit earlier than the competition. But I was in for a shock.

At Foley's Hill, above Mona Vale on Sydney's northern beaches, the routine was for all the entrants to make a run then wait in the car park at the top and come back down the hill as a group. On one occasion I decided to coast down. This was the first time I had braked from any speed without the benefit of going down through the gears, so I had not realised the engine was providing almost all the retardation. Now when I braked it felt like nothing was happening, and the handbrake was little better. It was clear I would be unable to stop in time and would end up in the crowd. Fortunately there was a steep earth bank of the left of the road and I was able to steer into this at an angle and dig the outside wheels into the soft dirt. We stopped eventually, but it was too close for comfort.

This unorthodox manoeuvre led to some comment, but that was the least of my worries. We tried everything to improve braking performance, without a lot of effect. Only much later did the penny drop. To fit the available space under the MB's nose I had shortened the brake pedal, and thereby greatly reduced the leverage. A different linkage would have fixed the problem. Later at Mt Druitt Alec Mildren congratulated me for taking the left-hander past the pits without braking. In fact I was braking as hard as I could, but I decided to keep this to myself.

So there it is. The MB conformed pretty well to the original 500 concept, but with professionally-built cars like Coopers becoming readily available the days of the amateur builder/racer were already numbered. As I ran the MB for only a short while before selling it, my costs per racing mile, particularly in terms of time and effort, were probably as high as those of Raymond Mays and the V16 BRM. So much for the dream of cheap racing. But we never really believed that, did we? And for me at least the wonderful memories of those far-off days are priceless.

*Harry Mortlock, the author of this story, was a service and commercial pilot and had a long career in aviation. Now retired, he lives in Melbourne. He is a long-time Velocette enthusiast and a former editor of Fishtail Downunder, the Australian Velocette club magazine. During 1953-54 he ran the MB500 at Mt Druitt, Parramatta Park and Foley's. It was later also raced at Mt Druitt in 1956 by an R. Barnard, but has since disappeared.*

## CLASSIFIEDS

**For sale:** BB Ariel, built '60-'61, Red Hunter engine, Norton box, complete spare engine plus engine and gearbox spares, new body panels. Chris Tracey, 02 6280 5285

**For sale:** 1958 Scarab/Triumph 650, extensive NSW history. Triumph pre-unit 650 twin engine/gearbox, early Ralt rack and wheels. Total restoration 2008-9, excellent condition, with on-board electric starter system. New aluminium body panels, quick release steering wheel, new BTH magneto, new brakes and tyres, good range of new and used spares. Nothing to spend, ready to race. Asking \$25,000. Terry Perkins, 0265 835765 or trp62129@hotmail.com

**For sale:** motoring and motorsport books and magazines, mostly US and European, email for 12-page list. Graham Howard. grimes@ix.net.au or 02 4787 8772

**For sale:** Waye 500, built in 1953, CAMS log book, JAP 500 dry-sump engine, Norton gearbox, roll bar fitted, new upholstery TT carburettor, Lucas magneto, eligible to run overhead cam Norton, ready to run, \$15,000 ono, Andrew Halliday 02 9888 6175

**For sale:** 12 volt roller starting system to get your air-cooled car fired up. New and unused. Comes with jump-leads, starter cable and button and "hockey stick" jack to raise the other rear wheel. Garry, 02 9958 3935, or gjsimkin@iprimus.com.au

**For sale:** Sidney Rudge, built mid-'50s by Len Sidney, 1938 4v Rudge 500, later JAP and Vincent. Ready to roll \$25,000, John Hazelden, 03 5968 4025

**For sale:** Walkem Vincent, converted mid-'50s by the constructor from his original 1952 Walkem Manx. Comes with Black Shadow(?) motor, all components and CAMS log book. \$50,000, Paul Zahra, z.oz@rocketmail.com

*Edited by Graham Howard,  
22 Bridges Street, Blackheath,  
NSW 2785 phone 02 4787 8772  
grimes@ix.net.au*

*Produced by Terry Wright,  
(tsrwright@gmail.com)*

*Published by Garry Simkin,  
28 McClelland Street, Willoughby,  
NSW 2068 phone 02 9958 3935,  
(gjsimkin@iprimus.com.au)*

## PROGRESS WITH THE EWING NORTON

Since writing about the Ewing Norton in Loose Fillings 13 (Autumn 2003) I can report that most of the car is in significantly better condition than it was - but still some way from completion. Before I talk about that restoration first I should recount the car's history.

Ron Ewing was a railway engineer, living in the western suburbs of Sydney, when he built the Ewing Norton Special. He was an active Singer Car Club member and, rather incongruously, loved Buick straight eight motors. He had worked on various race cars using these motors, and built and raced one of his own. Around this time he also owned the Norton powered Cooper Mk5 now raced by the Halliday family in Sydney.

The 500cc Formula 3 category appealed to Ron so he decided to build his own car. A Norton International motor was used in a round tube frame. The front suspension featured a transverse leaf spring with lower wishbones and Renault Dauphine uprights, stub axles and drum brakes. Rear suspension was by swing arms, rubber springing & fabricated uprights and Renault 15 inch wheels were used all round. Rear braking was by a single central disc and XK120 Jaguar caliper. The gearbox was an upright Norton. A steel nose was fabricated using mudguards from a pre-war car of uncertain make. The cockpit sides were steel fuel tanks or aluminium panels depending on whether the car was being used for circuit racing or shorter hillclimbs. At the rear a fibreglass engine cover completed the car.

Ron first competed with the car at Mt Druitt in July '57. Over the next five years or so the car regularly ran at various venues in NSW - Foley's, Silverdale and NSW country hillclimbs, Castlereagh sprints, and races at Mt Druitt, Catalina and Warwick Farm. Ron was delighted with the car: after 10 years it was the first race car he'd been involved with that didn't boil all the time!

During this time the Ewing was continually being modified. The rear suspension was changed to bottom wishbones and transverse leaf spring, and it wasn't long before the car was a 500 no longer. Ron had a couple of mates who raced speedway cars running Harley/Norton motors. These consisted of a Harley Davidson twin crankcase, Norton ES2 pushrod o.h.v. heads and custom barrels. The Ewing was fitted with one of these engines. Later on the car is recorded as running at Catalina with a Vincent motor. In the mid sixties Ron started modifying the chassis to take a Skoda motor & VW gearbox. However he lost interest and took up sailing instead!

For the next 20 years the car's where-

abouts are uncertain but in the early 1980s it appeared in Melbourne in bits, but pretty much as Ron had finished with it. The car was rebuilt by Malcolm Thorne and was initially powered by a Norton ES2 500cc single. Subsequently the Harley Norton was rebuilt and the car ran with this motor till it was wrecked in a major blow up. The ES2 was re-installed, and this was still fitted when I bought the car after it had been sitting in Malcolm's shed for 16 years.

After establishing the Ewing's history and obtaining a CAMS Certificate of Description I stripped the car completely. I found that, sadly, the Ewing's condition was poor and that every component needed rebuilding. Now except for an engine and body most of that work has been done. The steering rack, gearbox, both suspensions and final drive have all been rebuilt.

The next major task is a motor. I have the basis of the Norton Harley twin and this is the engine that should be in the car. However that engine still need barrels to made from scratch, its camshafts and oil pumps have to be sorted and the cylinder heads rebuilt. The alternative is to fit one of the Norton ES2 500 singles that also came with the car. This would get the car finished sooner but it would not have a lot of performance as the chassis is relatively heavy.

Restoring the Ewing to this stage has been a drawn out process - life keeps getting in the way! Like Ron Ewing, to an extent, I have discovered other interests. Now rather than having the aim of completing the restoration and running the car I am just enjoying spending my available time working on the project and relearning old skills.

*Bob Morey*

Below, the Ewing under restoration in Bob Morey's workshop.

Right, constructor Ron Ewing at Mt Druitt, with the car in its early Norton-powered swing-axle form.



## THE LOG

Here we record those occasions where one of our cars fired-up in public. This installment of The Log is surprisingly brief, perhaps reflecting the colder time of the year.

● May 1, Rob Roy hillclimb, John Coffin (Robbins BSA), Graeme Noonan (Cooper Mk7 Norton, now with Concentric Amal, won class 30.25)

● May 28-29, Winton historic races, Brian Simpson (Derry Greeneklee's Mk9 Cooper JAP 1100)

● May 28-29, Lakeside races, Peter Burford (Kenner Triumph 650, regularity)

● August 4, Wakefield Park, private test day, Garry Simkin/Dave Williamson (Cooper Mk4 Vincent)

● August 7, Mt Cooperabung hillclimb, Kempsey NSW, Terry Perkins (Scarab Triumph 650)

● August 20, Cherryville South Australia, private test, Derry Greeneklee (David Reid's DAS Norton, first run for 40 years) Cooper JAP 1100)

● September 18, Bryant Park, John Coffin Robbins 500, David Palstra Newbounds Special and Graeme Noonan Cooper Mark VII

● September 24-25, Wakefield Park, John Gale, Mk4 Cooper JAP 1100, Derry Greeneklee, Cooper Mk6 JAP 500, Brian Simpson, Cooper JAP 1100, John Coffin, Robbins BSA 500, Andrew Halliday, Wayne 500



## BITS AND PIECES

- Australian specials, and all racing cars cars from the 1950s and earlier, were again a central part of Historic Sports & Racing Car Association's meeting at Wakefield Park, near Goulburn, on September 24-25. These cars had their own display area, and opportunities for non-racing track time.
- Derry Greeneklee chose to retire from racing in 2010, following his 80th birthday, and handed on his Mk9 Cooper JAP twin to Brian Simpson. Missing the hair-shirt pleasures of air-cooled ownership, he has now brought in from England a very straight Mk6 Cooper, chassis no. Mk6/12/52, which is presently fitted with a 500cc JAP single but which has a long earlier history with a supercharged 1100 JAP twin. He is also importing a Mk5 V-twin Cooper-JAP from South Africa.
- Forty years after it last ran, the Queensland-built mid-'50s Duck Anderson Norton special fired up again in August, in

the driveway of Derry Greeneklee's house in the Adelaide Hills. The DAS has been owned by David Reid since the late 1960s, and has recently been restored by the late Kevin Shearer and his son Michael, and its Norton engine rebuilt by Derry. Previously raced with the Manx engine from "Duck" Anderson's Norton, the car now has a 1950s pushrod ES2 Norton engine. It has a most interesting chassis, with a number of unique aluminium castings. These are used for its front wheels, for the arches which carry the front and rear transverse leaf springs, and for the hubs of the swing-axle rear suspension.

- David McKinney writes that a number of corrections and updates have come to light since his two-part story of New Zealand's air-cooled specials in *Loose Fillings* 33 and 34. Although late-build cars were omitted as being beyond LF's field of interest, it could have been mentioned that Lindsay Wogan lengthened and modified the Lloyd Special (covered in

LF33) and renamed it the Shrike, though subsequent owners reverted to the earlier usage. The NAT (LF33) was built from scratch by Neil (not Norman) Titheridge and raced with an Ariel Square Four engine. There is reason to believe the Satellite (LF33) could have been a descendant of an earlier, unraced, Ariel Special built by Titheridge.

- Leon Thomas, who with John Bruderlin formed the Sydney racing car manufacturer and speed-equipment supplier Lynx Engineering, died in April, aged 77. He and Bruderlin started an MG wrecking business in a small iron shed off Parramatta Rd, Concord, and in 1959-60, driving stripped, supercharged MGs, later fitted with distinctive fibreglass bodies, they dominated sports car classes in NSW sprints and hillclimbs. They withdrew from serious competition driving after Thomas was hospitalised following a big accident at Berrima hillclimb in November 1960.

Earlier that year, in association with skilled fabricator Peter Wilkins, they had formed Lynx Engineering, which marked a complete change of direction. Three Vincent-powered Lynxes appeared in 1960-61, with John Marston as the factory driver. The first of these cars has since been modified beyond recognition, the second survives and is being restored by Alan Toussaint in Victoria, and the third car, converted to Ford power by Marston, also survives. In total, Lynx produced between 15 and 20 beautifully-built rear-engined singleseaters, whose drivers included Kevin Bartlett, Peter Williamson and Bob Holden, this car later driven with great success by Colin Bond.

In the mid-1970s Thomas withdrew from Lynx and operated a series of deep-sea fishing boats for both commercial and charter sport fishing.

- Seattle (US) 500 advocate Tom Cecil, who launched and produced *The Tingler*, the North American equivalent of *Loose Fillings*, died in July. In younger days he had started to build one of the US-designed Dane 500s, which was to have a Triumph engine, and he had recently resumed work on the project. *The Tingler* was intended to bring together 500cc enthusiasts from all over the US, and to revive the 500cc F3 movement. Fellow Seattle 500cc enthusiast Ed Millman wrote, "Tom was a great motivator for me to keep my efforts up on my Cooper. He was a great friend and a vital link to all of us keeping the flame going."

Top left, Derek Greeneklee's sparkling Mk6 Cooper JAP shortly before shipping to Australia.

Left, the Duck Anderson Motors DAM Norton at Strathpine in Queensland in the mid-1950s, with a glimpse of its unique cast alloy front wheels.



Peter Becker has since advised he will carry on production of future issues of *The Tingler*. Peter's web site [www.vintageraceprep.com](http://www.vintageraceprep.com) is always worth a visit.

● Rob Williams' Arnott JAP 500, recently advertised in *Loose Fillings*, has returned to England after more than 50 years in New Zealand, and its new owner has already run in UK 500CC events. Before coming to New Zealand for Mike Artus in 1960, the car was modified by Ivor Bueb to lengthen its wheelbase. Artus ran it in club hillclimbs in the Rotorua/Bay of Plenty area, and it then lay idle for quite some time until it was bought by Ken Smith, who sold it to Kevin Moore. Moore raced it at Pukekohe for two years before selling it to Rob Williams in 1988, since when it has run in both hillclimbs and circuit races.

● *Loose Fillings* can be had either by email, or in the traditional printed form. Readers preferring it on paper can help by sending the occasional book of stamps to Garry. The electronic version is available in Australia through Garry Simkin at [gjsimkin@iprimus.com.au](mailto:gjsimkin@iprimus.com.au), in New Zealand through Ian Garmey, [garmey@xtra.co.nz](mailto:garmey@xtra.co.nz), and in the UK and Europe through James Holland, [james.holland@icap.com](mailto:james.holland@icap.com)

## AMAL CONCENTRIC FLOAT LEVELS

My Scarab /Triumph 650 runs a single Amal Mk1 Concentric carburettor. Since its restoration in 2007-08 most of the carburettor components have been replaced in the hope of eliminating what feels like a hesitation or fuel starvation on pickup. Reliable information on the correct fuel height was hard to find, and different methods were recommended. All the methods were 'dry' - the float bowl was removed from the carburetor - and target float heights were to be achieved with the float needle valve manually closed. As the float was non-adjustable plastic the only way to adjust the height was to raise or lower the needle valve seat, which was a tricky operation. In addition the 'dry' float height spec and the needle valve seat height varied depending on the age of the float bowl.

A recent Google search for more info led me to the web site of Burlen Fuel Systems, which owns SU and Amal in the UK. This site specifies the required fuel height and recommends the best method to obtain it. It also offers a new float for these carbs which is made from military-spec closed-cell construction which should prove unsinkable (I have had a new plastic float sink on first use.). These floats have stainless steel tangs to the float needle which can be adjusted to obtain the correct fuel height. An aluminium needle valve is also

available, to remove the possibility of the brass valve closing under its own weight before the float has risen far enough to press it shut.

The needle valve seat height is adjustable and should be set to the specifications before the fuel level height is adjusted. Height settings have varied over the years, and correct settings are included in an info sheet with purchase of the Amal Stayup Float and Needle valve kit. For float bowls manufactured since May 1986 the needle valve seat height should be 0.574".

The correct fuel height for all ages of Mk1 Float bowls is 0.17" to 0.25" (4.33mm to 6.35mm) from the top of the bowl. To measure this I first placed a mark on the outside of the bowl 5.33mm from the top of the bowl. Next I drilled a hole in a spare float-bowl drain plug and inserted a small piece of clear tubing which was routed vertically alongside the height mark on the outside of the fuel bowl. When the fuel tap is turned on the fuel in the tubing will rise to the same level as the fuel inside the float bowl, and you can make adjustments accordingly. Start the engine to ensure the fuel level remains correct with the engine running.

I can add that after getting the float level right, the Scarab's low-speed hesitation has gone.

*Terry Perkins*

## SEVEN SECRETS FOR BREAKING CLUTCH CABLES

*By semi-retired Cooper mechanic D. Tweaks.*

By definition motorcycle engine racing cars use motorcycle gearboxes and clutches. The big difference is that on the bike, the clutch is hand operated, whereas in the car it is foot operated. It requires Samson-like strength to pull the nipple off a clutch cable by hand, whereas it's absolutely no problem at all when you use a left foot drop kick on the clutch pedal. The following seven suggestions will guarantee a successful clutch cable breakage every time.

Tip No. 1. If you are really serious about breaking a few clutch cables, forget about a pedal stop. Pedal stops are a nuisance - you have to keep adjusting them, and they are deliberately located down in the foot well to make them hard to get at. So there you go: if you want to set a new Australian record for breaking clutch cables, don't worry about limiting the clutch pedal travel with a stupid pedal stop. Just wind it down out of the way, lean on the pedal, and let the cable take up the slack.

Tip No. 2. Clutch slip on a bike clutch can be a problem. The easiest way to fix this is to wind the clutch springs in just about as far as they will go. This is a sure fix for clutch slip. It also guarantees the

clutch will not free properly, and more important, it means that when you depress the clutch pedal, the clutch springs will be nearly coil bound - and the nipple will immediately pop off the cable. Score so far - two cables!

Tip No.3. When installing the clutch cable make sure it has as many twists and turns and bends in it as you can organize. If it's a bit long, don't worry about shortening it. Who wants to mess around heating the soldering iron again? Just wind the extra cable length around the carburettor or something. Every extra bend you can devise adds a bit more friction. Make the rotten cable work for a living!

Tip No.4. Always use throttle wire for making clutch cables. It's lighter, cheaper and easier to work with. Never use nylon-lined heavy-duty clutch cable. Why waste time running around the town looking for the proper low-friction stuff when you could be out at the track enjoying yourself breaking clutch cables!

Tip No.5. Don't worry too much about how you solder the nipples on the cable. Just poke the cable through the hole and dob on some solder. Easy! Why mess around splaying the protruding cable out of the nipple to make sure it can't pull through easily? That's counterproductive, and takes up TV time!

Tip No.6. Always silver solder the nipples. Brilliant! - get the nipple and the cable red hot with the oxy torch, and the silver solder flows beautifully. Of course, once you get everything hot enough, the fine hardened strands of cable will never be the same again! After a couple of dozen racing changes, your newly heat-treated cable will break, one lap before the end of its next race. When you're out in front by a mile! Betcha!

Tip No.7. Last tip Don't worry about the mechanics of the clutch activation. The guys who made the gearbox worked all that out, because that was their job! Sadly, some didn't get it quite right. On some gearboxes, particularly the Norton AMC, the push rod activating lever is very short, and the cable has to change its angle of pull as the short lever moves through its operating arc. This is a really good setup for breaking cables, because if the nipple is rigidly fixed in the lever, the cable has to bend to accommodate the angle change. So if you are really serious about breaking as many clutch cables as you can in one lifetime, never modify the original set up to let the nipple swivel. Never!...

Now: Get out there and break some clutch cables! Attaboy!...

(And if you ever see a red faced Chas McGurk bending over a Cooper - please don't ask him if he's just broken another clutch cable!)

