

# THE BRITISH BIKE MECHANICS

# TRIALS TEST

SECTION BEGINS

WORDS: DERYK WYLDE

PHOTOS: MARY WYLDE

WHEN THE BRITISH MOTORCYCLE INDUSTRY began to falter, one of the members of the management team of Associated Motor Cycles at Plumstead suggested a sure-fire way of making the vital margins needed to keep the company afloat.

"Nearly every trials motorcycle that we sell," reasoned Bob Mains, sales manager, "is immediately modified by the new owner and made to look like our works trials bikes. The steel fore and aft number plates are removed from the front mudguard and replaced with an alloy combined trials number plate across the fork yokes. The centre stand is thrown away and a smaller high level unit is substituted for the low level exhaust pipe. A lot of owners change the oil tank for an alloy unit which fits between the engine plates above the gearbox. Some fit alloy rims to the wheels and alloy brake plates which they buy from Comerfords, along with the alloy oil tank and alloy silencer. A few even buy the smaller bolt-on subframe."

"Get to the point, Mains, what has all

this got to do with us?" queried the managing director.

"Well we could fit the high level pipe and small silencer ourselves. Fit the alloy oil tank, alloy rims and alloy brake plates, as well as make up alloy engine plates, all of which would be much cheaper to produce than the standard items. We needn't fit the steel front number plate or the centre stand, so we'll save money there as well!"

"And who on earth would buy a motorcycle with all the bits missing, Mains?"

"Well, all the trials riders for a start, and even though the machines would cost less to make, we could charge extra and sell them as works replicas. We would make more of a profit and get back the marker shave that BSA have won with their two-fifty..." Bob came to a halt as he realized he was talking to himself!

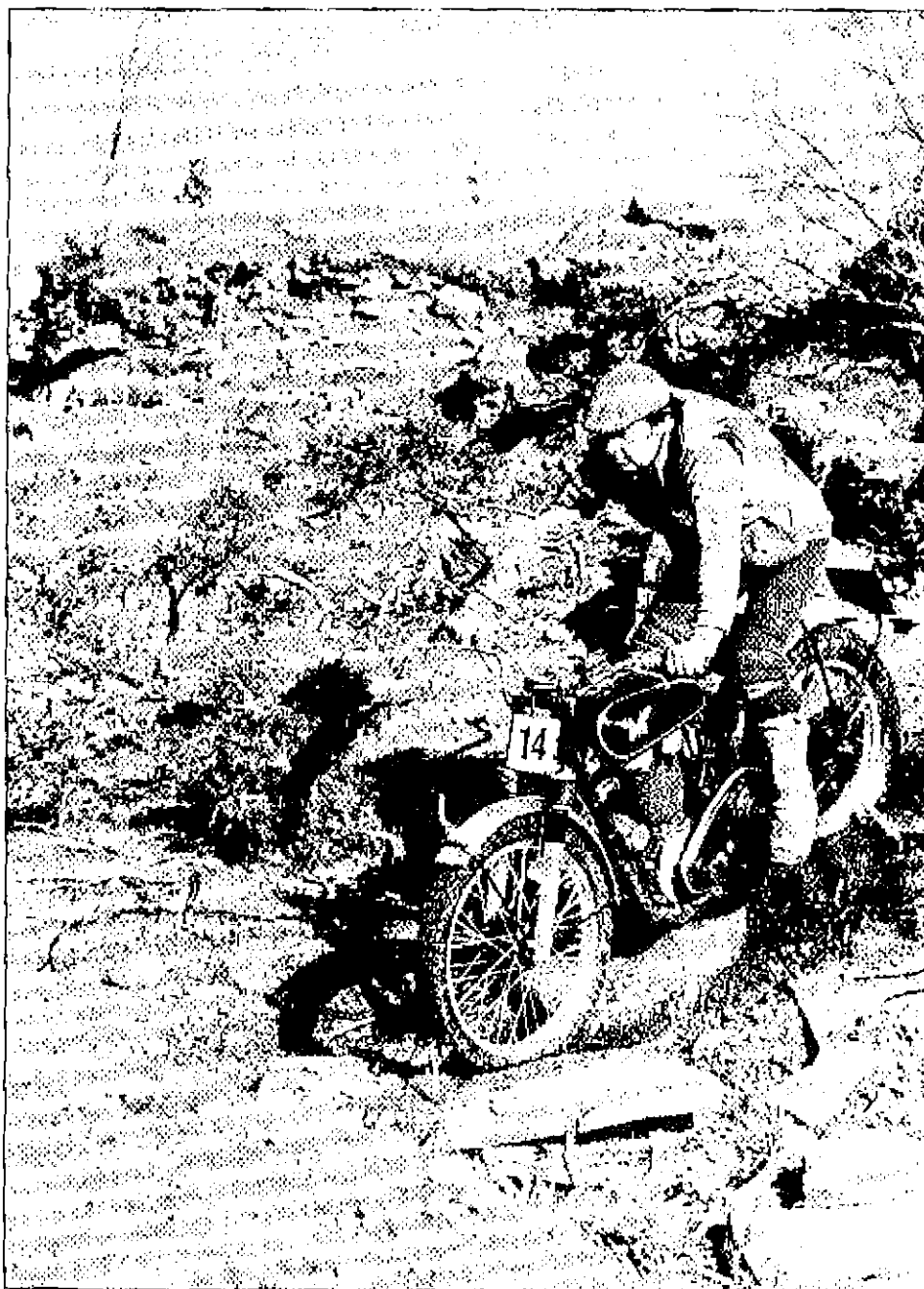
Today, anyone wishing to restore a trials bike, or even build one up from assorted spares in order to use it in competition, will find themselves on un-

certain territory. The difference between trials bikes as they are ridden and trials bikes as they appear in all the glossy restorations to catalogue or show standard, can be quite enormous. And these are not just cosmetic differences, either. How one should tune the engine, which gears to use, where to find spares — these are all questions which need to be answered.

As a guide to would-be restorers and riders, BBM has commissioned a series of group tests of machines currently in use in trials competitions. Each test will either be of a specific make or model and both expert and less than expert riders, who ride regularly in competition, have tried out the machines and given us their opinion. The results cannot form a definitive guide, since the basic skill in the sport is the ability to set up your machine to suit your capabilities, but a distillation of the comments and criticisms will give you a firm basis on which to draw your own conclusions.

The first of our series of tests was

# AJS & MATCHLESS



Neil Crossthwaite on the iron-motored Matchless rigid he has bought.

conducted with the assistance of the Yorks and Lanes Classic Bike Club on one of their trials courses near Silsden. An assortment of eight AJS and Matchless trialets was assembled and put through their paces over sections that had been used earlier in the day in a pre-65 competition. The results were interesting, to say the least.

Our test machines included early rigid motorcycles, in iron and alloy engines as well as 350 and 500cc versions, an early "long" springer (reputedly an ex-Gordon

Jackson model), a couple of the post-1958 "short" springers and a short-stroke machine, one of the last trials models built by AMC. The latter is, in fact, one of the last pair to be built at Plumstead: owned by Phil Clarkson, it has the last frame number and the penultimate motor while the other "last" bike, owned by Peter Ainley, has the final motor and penultimate frame.

Running the rule over the bikes, we found that the wheelbase of all of the rigids measured 53in, apart from Bill

Hill's machine which, with the axle right at the front of the adjustment slot, checked in at 52in. Since the bikes included a selection of the proper all-welded competition frames, as well as an earlier ex-WD version, theorists will argue that the lagged frame should be 54in with a ground clearance of 7in — but the ruler just would not agree! All of the test models had fork springs aided by either slightly heavier springs or small (usually an inch) pre-load packings, and all measured over 8in of ground clearance. No

# TRIALS

detriment to handling was noted in any case! All were fitted with the  $1\frac{1}{2}$ in stanchions and the alloy top yoke, rather than the  $1\frac{1}{4}$ in road stanchions.

Each of the springers measured exactly  $54\frac{1}{2}$ in, which made us look carefully at the Jackson model which should have been an inch longer. Sure enough, the front frame proved to be the later version, much as would be expected of a factory device! Surprisingly, Jacko's model had only the 9in of ground clearance one would expect from a '56 or '57 model. All the other springers measured up to the 19in claimed by the factory catalogue.

The factory bike has been restored but, as far as the riding position is concerned, it has been left in its original state. Consequently, it felt quite strange compared with machines set up for today's sections. The footrests were  $25\frac{1}{2}$ in ahead of the rear axle and 13in above the ground; the handlebars were almost flat. The rest of the bikes had their footrests between 16 and  $13\frac{1}{2}$ in from the rear axle and all were close to 12in off the ground.

The factory bike felt a good deal longer and heavier than the other machines, mainly because the footrests put the rider's centre of gravity further forward, with a greater proportion of the weight on the front forks. It was harder, as a consequence, to flip through the tighter turns one finds today, but would certainly have been much more stable on long muddy hills and cross-country going. What an interesting insight it gave into the contrast between pre-65 trials sections currently used and those actually used before that crucial year!

The bikes set up for modern use fell into two distinct categories: those that suited the experts and those that suited the less adventurous rider. The differences proved to be in two essential areas, engine tune and gearing. Even on some of the rigid-framed bikes, the two experts on our team — Terry Wright who normally rides an Lufield and Neil Crusthwaite who alternates between an Ariel and a highly competitive BSA C15T — were able to ride all of the chosen sections with ease and then branch off on their own up a steep bank with a slight overhang.

The owners of the bikes admitted that they had no idea their machines were capable of such a climb and they were quite obviously impressed with the performance. The crux of the matter, Terry and Neil agree, was that this kind of feat

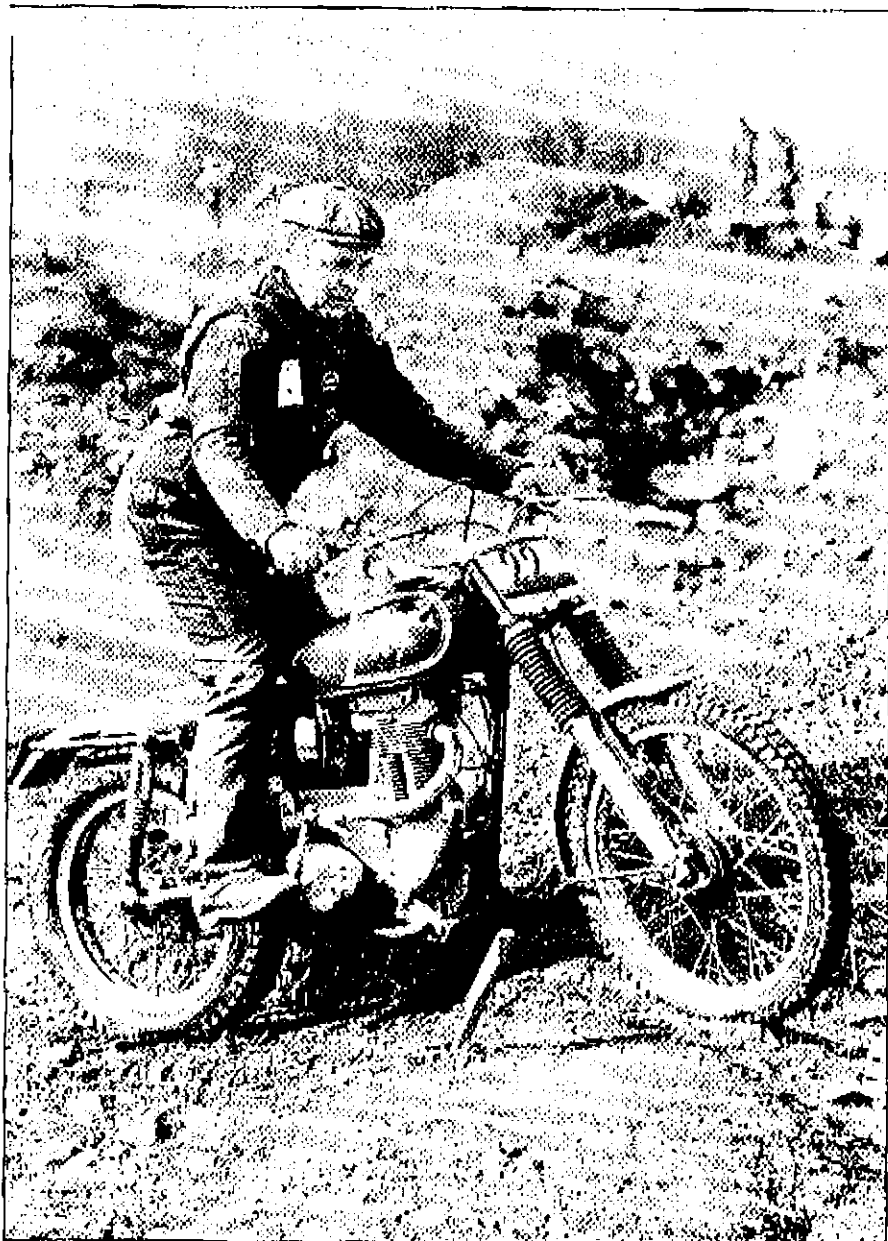


Bob Parker puts his immaculate 1960 AJS 16C into a section with a sharp rise.

could only be tried out on the bikes whose gearing was relatively low and motor felt sharp enough. Checking revealed that one of the bikes had a 14 tooth engine sprocket, two had 15 tooth ones, while the standard, as supplied, was 17 and most of the others were either on 16 or 17. We didn't remove the primary case from the factory bike, but it felt like an 18 tooth sprocket, at least. Not all of the bikes had trials gearboxes but, since we only tried them on sections (and the only difference between a trials box and a road

box is that fourth gear is a lot further away from third), it made no difference on one of our test days that we never even got into top!

Equally, all of the models suitable for experts had a sharper power response, so the skilled rider could get right on line, tweak the throttle and get over an obstacle or out of a tight spot. Motors set on the traditional soft tune of low compression and small choke tube carburetors were quite unstoppable and felt as though they could chuff on indefinitely, even if it



*Normally an Ariel man, John Craven tries a 1962 Matchless G3C for the test.*

my 500 down, though, and use it for closed trials on smaller circuits."

An interesting point was that few of our riders realized that the so-called road pistons (AMC part no 018925), fitted when they couldn't find the catalogued trials pistons (AMC part no 018301), were of exactly the same compression ratio as the latter components! Although of a different construction, both trials and road pistons shared the same bore dimensions, gudgeon pin size and compression ratio of 6.3 to 1 and, in 1952, both were increased to 6.5 to 1. Four years later, however, the road model went to 7.5 to 1, while the trials machine stayed at 6.5 to 1, and in 1962 a further change was made when the road model adopted the short-stroke motor.

The trials bike continued, however, with the long-stroke engine right up until the last year of production when it too was fitted with the new power unit. Sad to say then, most of the riders who have fitted road pistons to get more power have been deluding themselves; in point of fact, most of the soft motors in the test had compression plates fitted.

The real change to the degree of tune appears to have coincided with the almost total disappearance of the Amal Monobloc carburettor. The Monobloc seems to suffer far more from body wear, caused by the action of the throttle slide, than the older separate reservoir models, such as the 2/6. In all but two of the test machines, Amal Concentric Mk1 carburettors have been substituted and in each of those that I checked, the bore size had been increased over the Monobloc type 376 at  $1\frac{1}{2}$ in, to a 28mm unit. I would have expected marginal difference in the increase, it is less than 8 per cent by volume.

Many of the machines one sees today have been built up using spares from a variety of sources and I suspect that the test motors with the snappiest performance had actually been built around old WD bottom ends. They had slightly lighter flywheels and delivered just that extra bit of zip required by the experts. More significantly, there are a lot of these parts around.

I was surprised to hear Neil Crosswaite expressing as little enthusiasm as he did for the short-stroke motor in Phil Clarkson's bike. "It ought to be a lot snappier for today's use. The gearing is fine but the power just doesn't come in quickly enough, so you have to keep it

meant knocking down a house that stood in the way. On the other hand, they would not pick up quickly and that meant the rider had to approach obstacles without losing momentum, often sacrificing the chance of getting the line just right.

This was clearly demonstrated by Howard Midgley riding a soft rigid 350: twice he lost grip and stopped on a section with a tight turn followed by a sharp climb. On his 500, which has a much sharper state of tune, he was able to get round the turn and then, when he gave

it some throttle, the bike pulled him round and soared up the climb. After trying it several times on each machine, Howard's conclusion was that the soft motor just let the bike fall into the turn, which meant putting your feet down and losing drive and grip long before the section ended. "I reckon that's made my mind up," he said, "I'll keep the 350 on higher gearing and use it for the long-distance trials where you get a lot of muddy green lane work and you need reliable stump pulling power. I'll gear

# TRIALS

more on the boil and you can't react quickly enough if you get a bit off line." Bill Hill, who normally rides a rigid 350 with a relatively soft motor, found the short-stroke a bit of a handful and was happier with his own machine. He enthused about the springing but thought he would still prefer the rigid because the handling from the shorter wheelbase required less effort. Most riders, in fact, were pleasantly surprised at the impression of stability that the rigids conveyed.

The choice of tyre can obviously affect the way a bike feels, too, in the early moments of a test, and it was interesting to note that most of the test bikes were shod with Pirelli MT43 rear tyres. Everybody was using 1.00 x 18 covers and there were hard stories of the few stalwarts who, having retained 19in rear wheels for

*Phil Clarkson with his ex-works Ajay, reputedly ridden by Gordon Jackson.*



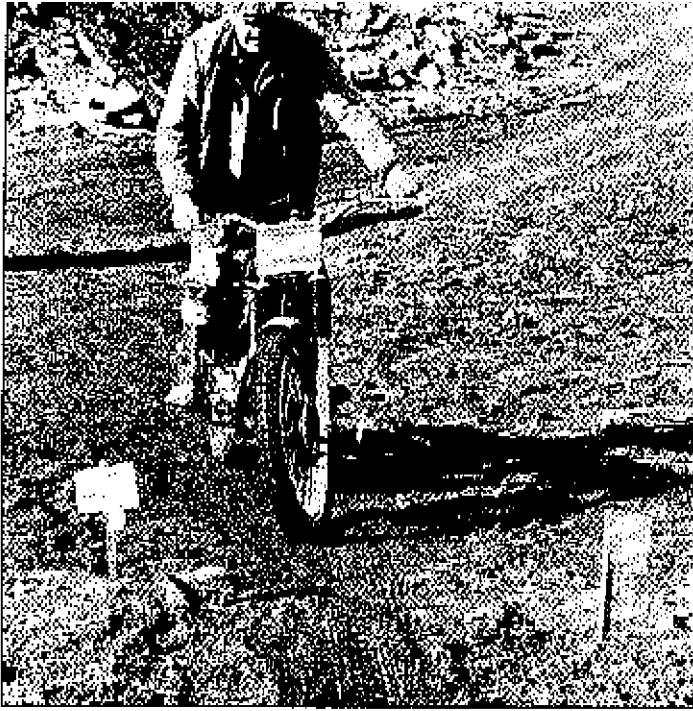
*Phil Clarkson again, with a 1964 AJS. Phil won the springer class in the trial before the test.*

*The factory bike felt longer and heavier than the others, mainly because the footrests put the rider's centre of gravity further forward.*

the sake of originality, had tried fitting them with the 4.00 x 19 so-called trials tyres imported from the Far East. "Alright on the road, but no grip at all on the rough!" was the only printable comment I could elicit.

Most of the riders questioned had tried the new sticky Michelin XI tyres on their own, or friends', bikes and found them to be a distinct disadvantage. One had tried them on a Norton 500T rigid trialer and described the tyres as "Bloody lethal!". You need a light, modern machine with extremely supple suspension to make full use of the rubber's sticky potential.

Summing up his impressions of all eight models, Terry Wright said, "Anyone just watching trials probably won't realize how different the bikes can be. I suppose the changes that have evolved in



*Howard Midgley tries a section on his soft motorised 350 A.S. "I'll keep this for longer distance trials", he concluded.*

the crankcase grounds. You can get away with the lack of clearance on a climb by keeping the power on and the front wheel light, but there is absolutely nothing you can do over the drops.

"For today's events you need completely different characteristics to those of the soft motors: when you are used to tweaking the throttle to pull the bike upright, it's frightening to find it starting to fall into a turn and nothing happening. You just keep on falling! I've had silly stops on sections that I wouldn't even look at on my own bike 'cos they seem too easy."

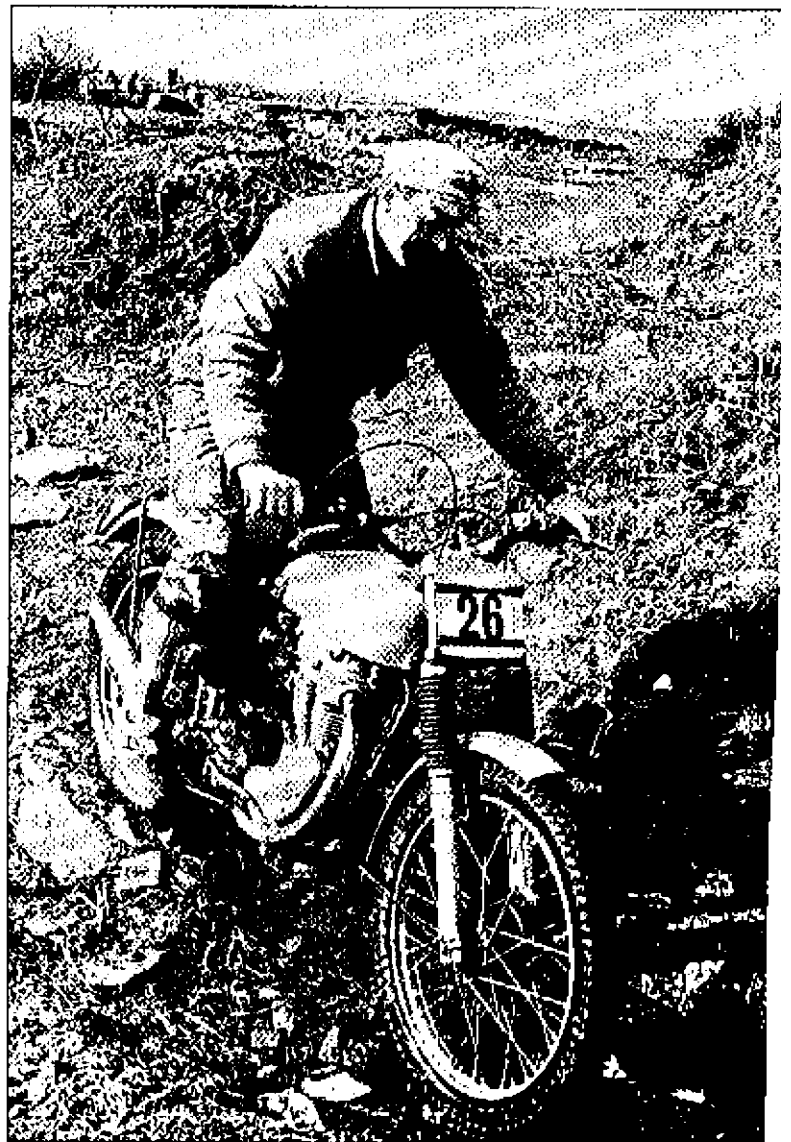
Everyone agreed that as well as enjoying themselves, they had learnt something new. The opportunity to try other bikes with different gearing, or footrests a shade further back or forward, and to

*"Anyone just watching trials won't realize how different the bikes can be . . . the changes reflect the way trials competitions have evolved."*

the bikes' handling characteristics reflect the way in which trials competitions themselves have altered. A rigid with a soft motor must be unbeatable on the long muddy slots and climbs that were such a feature of early trials, but as soon as you get on to steps and bumpier going, they are almost unridable compared with the springer. Every section that needed a fast approach was like a game of Russian roulette on the rigids -- the back wheels hop around so much.

"I can understand now why our club has always insisted on putting the rigids in a separate class of their own. The springers opened up the chance to use sections with bigger rock steps and sharper drops over banks, but I had forgotten just how abruptly a rigid stops when you try to take it over the edge of a drop and

*Terry Wright tries a 1954 Matchless 500 rigid. "A good rideable bike", was his comment.*





*Bill Hill tries his own 350 rigid after riding all the other rigids. "I might just drop the gearing a bit more", he thought, "But then again it did win the club's rigid championship last year - so I might not!"*

then go back and try your own bike out, certainly gives pause for thought. Comparing notes on the results with the tape measure alone, caused a few surprises. For example, every one of the AMC models tested had handlebars that were 33in wide, yet several of us would have wagered a liver that one of the bikes, which proved to have a slightly tight head bearing, had much narrower bars.

Some of the bikes had noticeably lighter controls, either as a result of making up the cables with a lighter gauge wire or because a better choice of cable routing had been made. Greater attention with the oil can can also make a big difference! It was obvious that everyone found the power response, steering and general handling were better on those machines.

Nor all the comments made were com-

## AJS & MATCHLESS

### TRIALS TEST

END OF SECTION

plimentary. Trying to find words that would cause as little offence as possible, Neil Crosswaite described one motor as having "very good engine braking," which put me in mind of an American road test I once read of an early Citroen 2CV. "The braking takes a little getting used to," the tester reported. "Whereas applying the brakes at over 50mph does not give a great sense of retardation, it most certainly doesn't make the car go any faster."

Our next group test will feature eight Royal Enfield Bullet trials bikes, including one of Terry Wright's machines and a highly original 1954 model. That was the year that Bob Mann won the West of England trial on a sprung AMC and thereby sounded the death knell for the production rigid trials bike.