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YOU AND YOUR MOTOR CYCLE

Aubrey Thompson and Phil Drackett

Foyles Handbooks

YOU AND YOUR MOTOR CYCLE

Motor cycling and scootering have scaled new heights of popularity in recent years. For thousands of youngsters, a "two-wheeler" provides their first introduction to the joys of the open road – for many of their elders, the story is "once a motor cycling enthusiast, always a motor cycling enthusiast".

This book provides an introduction to a fascinating pastime for the youngsters – and a refresher course for the oldsters. The practical "know-how" has been supplied by a man who never rides on four wheels when two are available, Aubrey "Tommy" Thompson, Motor Cycle Manager of the Royal Automobile Club.

A well-known figure at all the major motor cycling events, he is also responsible for the administration of the RAC – ACU Learner Training Scheme for motor cyclists and scooterists, recognised everywhere as a major contribution towards Britain's road safety programme.

Every motor cyclist will find something of value in *You And Your Motor Cycle.*

General Editor: W. A. Foyle

Cover picture by Isle of Man photographer, W. N. C. Salmond, shows T.T. Marshal, Peter Crebbin, cranking his 650 c.c. Triumph over on a fast bend while trying out the BBC two-way radio equipment with which the machine is fitted.

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UNIFORM WITH THIS VOLUME

SPEEDWAY
MOTOR RACING

YOU AND YOUR CAR
(WITH LESLIE WEBB)

YOU AND YOUR MOTOR CYCLE

by

AUBREY THOMPSON

MOTOR CYCLE MANAGER
OF THE ROYAL AUTOMOBILE CLUB

and

PHIL DRACKETT

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BEFORE WE BEGIN

MOTOR CYCLISTS and scooterists get a pleasure from their travels which the majority of motorists, tucked stuffily behind the wheels of their "family" saloons, can never experience. It is the joy of the open road, of feeling free as air and, indeed, sometimes breathing fresh air. But not, of course, when following a heavy lorry belching clouds of black smoke!

There is in fact a zest to motor cycling which even advancing years rarely dim. Between members of the two-wheeler fraternity there is an affinity and friendship from which spring the hundreds of motor cycle and scooter clubs all over the country, catering for every form of activity and sport connected with motor cycling.

When two motor cyclists meet they always have common ground for discussion and in a few seconds they will be dissecting their machines – and other people's – avidly.

Most novice motor cyclists are youngsters, and it is because of this fact that this book was written.

Many of the hints we have included have been previously published in a series syndicated throughout the Kemsley group of newspapers, but new material has been added in order to present a balanced picture of motor cycling for the beginner.

It is also our hope that many experienced riders will find interesting and useful information within these pages.

Our thanks are due to that very keen enthusiast, Reg Ascott, for so kindly reading the typescript and making several suggestions which have now been incorporated in the "finished product"; and to "Jimmy" Wyld, of the Touring Department of the R.A.C., for so kindly checking the material in Chapters 11 and 12.

We are also grateful to B.S.A. Motor Cycles Limited, Amal Limited, Renold Chains Limited and Shell-Mex and B.P. Limited for their kind assistance and for permission to reproduce some of their technical drawings.

AUBREY THOMPSON
PHIL DRACKETT

1

BUYING A MACHINE – AND INSURING IT

1. For obvious reasons, many motor cyclists and scooterists buy second-hand machines and a high percentage of these are offered for sale privately.

If you are considering such a transaction you should, first of all, make sure that the machine has been fully-paid for by the person offering it for sale. Cases frequently come to our attention of motor cycles sold by someone who is not the owner, the machine still being the property of a hire-purchase company.

In such cases, the company is entitled to claim the machine from the person who has bought it. If this happens the only remedy for the unlucky buyer is to sue the seller – a lengthy and bothersome business. It's much easier to settle the question of ownership right at the start by insisting on production of a proper receipt.

2. The simple way to buy a 'bike is to pay cash. But in these days taxation and the high cost of living doesn't leave many of us with the wherewithal to pay for a machine in a lump sum. Most people, naturally enough, go in for hire-purchase as the answer to their difficulty. This does, however, mean paying a fairly high rate of interest so, if you are able to do so, it is often worth investigating the possibilities of borrowing money from your bank against some form of security or under the new loans schemes.

Assuming you do buy on hire-purchase, the finance company will not normally give any warranty as to the condition or age of the machine. If, therefore, the condition is not what was claimed or the age is incorrect it will not entitle

you to treat the agreement as at an end or to cease payment of the instalments as they fall due.

Remember too that if you attempt to buy a machine beyond your means and consequently become unable to meet the instalments it is very probable you will be involved in heavy loss.

3. Having mentioned some of the financial aspects of buying a motor cycle, we propose to highlight some of the points you should watch for in purchasing a second-hand machine.

First of all, you must decide the class of machine you want and how much you are able to pay. Then comes the fascinating business of studying advertisements, looking in showrooms and so on.

A good tip here is that if the machine offered is of a "series" type, that is to say, the model has been virtually unchanged by the manufacturers for several years, then potentially it is a good buy.

Before taking a closer look at the 'bike, ask to see the registration book. The number of previous owners may have great significance since a machine which has had many possessors is hardly likely to have been thought highly of by any of them.

4. The newcomer to motor cycling can be excused wondering if a two-stroke machine or a four-stroke is the best buy. In point of fact, a two-stroke is probably to be preferred for the beginner.

In a single-cylinder, two-stroke engine there are only three moving parts. What could be more simple? The two-stroke engine deserves recognition not only for its simplicity but also because it is so reliable and a glutton for hard work.

Generally it will be found that it does not develop quite so much power as a four-stroke of similar capacity. This slightly lower efficiency can be offset by advantages to be gained in other directions.

The two-stroke is most efficient in the smaller sizes, say, up to 200 c.c. Twenty-five years ago, the 172 c.c. Villiers

engine would do 55 m.p.h. and regularly competed in London – Lands End with a sidecar attached.

5. The running costs of a two-stroke machine are low, and there is nothing unusual in the rider of a 125 c.c. machine getting 125 miles to a gallon of petrol.

The two-stroke has what is termed good torque, which means that it pulls well at low speeds. On a hill an engine of this type will forge ahead evenly and smoothly and little gear-changing is necessary. The old-time two-strokes, when running light, had the annoying habit of firing unevenly, but this irregularity has largely been overcome in modern design.

The two-stroke is light on its own engine-bearings, gearbox and chains. There are diverging opinions on the susceptibility of the sparking-plug to "whiskering", and one school has it that this will not occur providing the owner takes ordinary commonsense precautions over oiling. The opposing school of thought says it has not been proved that "whiskering" is due to lubrication errors.

The platinum electrode plug is generally recognised as a remedy for "whiskering". Persistent "whiskering" where it occurs is generally most baffling to cure, and when cured it is very hard to say what actually cured it. Many people prefer to believe that it is never entirely cured and a spare plug is the only sure remedy.

6. We have already said that, size for size, the four-stroke engine has slightly better performance than the two-stroke.

To take an example, at peak revs a well-known water-cooled two-stroke twin develops 30 brake horsepower and its four-stroke overhead-valve equivalent produces 32 brake horsepower and upwards.

Actually, this example (the Scott) is of unusually large capacity. Since, as previously mentioned, the two-stroke is more efficient in smaller sizes, it is generally 250 c.c. and under, whereas the four-stroke machine predominates in the 250 c.c. to 1,000 c.c. range.

Obviously, then, the appeal of the four-stroke lies mainly

in its power output, its superior acceleration and its ability to maintain high speeds.

The majority of motor cyclists start their riding careers on something small and carry on to a larger machine, except possibly some older riders who dislike excessive weight and so stick to a smaller machine. But the two-stroke *v.* four-stroke situation can possibly best be summed-up by saying that the two-stroke is ideal for the man who wants a town runabout to take him to and from work and so on and is most definitely the best machine for the novice.

The four-stroke is for those who want maximum performance, intend to do a lot of foreign touring, or want to fit a sidecar combination for the family.

7. Having settled the question of two-stroke or four-stroke, inspected some likely-looking machines and perused the registration book of the one which has taken your fancy, there are still lots of points to look for before you make up your mind to buy.

A well-preserved finish is much to be desired in a second-hand machine, but you must examine it closely to make sure that the machine's finish is genuine and not "touched up" by the vendor with polish and a paint brush, disguising a multitude of sins.

Damaged bolt-heads and mudguards are good pointers to previous owners who may not have taken as much care of the machine as they should have done.

Nevertheless, do not be carried away by enthusiasm for the appearance of the machine and buy without examining other vital "organs" like the engine, frame, wheels, etc.

Remember that a man who took pride in the external appearance of his motor cycle may yet have neglected internal maintenance.

8. Start the engine and observe if it fires easily and regularly. Let it warm up and then see if it will answer to the throttle without undue mechanical noise. There are bound to be some noises with an old machine, but even if you are a novice you will be able to detect the "expensive" ones.

While the engine is running, take a look at the exhaust. If all is well, there should be little or no smoke while the engine is ticking over steadily.

Compression is the next thing to test, and if the exhaust has been emitting clouds of smoke and there is little compression, valve trouble is probably the answer. Or it may be a re-bore is necessary.

To test the compression, cut out the engine and with the throttle still open, put your weight firmly but slowly on to the kick-starter. The bigger engined machines should bear your weight for several seconds, the lightweights proportionately less. However, this test is not necessarily conclusive in two-stroke motor cycles.

9. The transmission must be checked. First look at the chains for signs of unreasonable wear. If the rollers show a tendency to rattle and the rear chain can be pulled well away from the sprocket, new chains will be wanted. If the sprockets show more curve on one side of the teeth than on the other, then that will be more expense. To check how long the rear chain is likely to last, spin the rear wheel in neutral. If it spins freely and quietly the chain is in good order.

Make sure the gears engage easily and quietly when the engine is running and that they stay in when the rear brake is gently applied. See if the clutch will take your full weight against the compression and see that it is free when the handlebar lever is operated. Try to bounce the engine over, watching for any sign of clutch slip.

10. Apparatus is necessary for a true test of frame distortion, but the intending buyer can at least make a visual inspection by trying to view the 'bike from as many different angles as possible. Damage to the front forks, which commonly arises from minor collisions, can usually be detected by standing directly in front of the machine and sighting along the line of the wheels.

You should also make sure the fork movement is free *but* not loose; that the bars swing from lock to lock smoothly;

and that with the front brake locked, a push forward on the bars doesn't cause the whole machine to "hunch up".

In general, these faults can be cured, but they give an indication that the machine as a whole may well have been neglected.

11. Next step after checking the frame and forks is to take a look at the wheels. Spin them to ensure that they run freely and quietly. Noises from the hubs – clicking and rumbling – indicate that new bearings are required.

Don't worry too much about a little sideplay – this can usually be adjusted.

However, while spinning the wheels, hold a stick or ruler against the rims to make sure that they (the rims) turn evenly. If there is any noticeable unevenness, say more than one-eighth inch, they will need attention.

12. Before finally buying, you should check all cables and minor controls. Remember that the cost of replacement for these is small, so a frayed cable should not materially influence you. Nevertheless, if you find a number of these minor blemishes in conjunction with one or two important faults then you should weigh them in the balance carefully.

Check that all the electrical equipment works, remembering that if the machine has been standing for some time it is hardly fair to expect a fully charged battery.

If you find the machine passes all your tests with, say, the exception of one major fault, it is an easy matter to add the cost of the probable repair to the price being asked and then decide if the 'bike is a good buy. Alternatively, you may be able to get the vendor to drop in price so as to cover the cost of the repair.

13. Third-party insurance is compulsory by law. If you knock a person down or otherwise injure any third-party, the law very sensibly requires that funds shall be available to meet any liability if the injured person successfully claims for compensation.

A year's cover for third-party risks costs around £2 for a

lightweight, £3 5s. for medium capacity machines and £4 10s. for heavyweights. This, of course, does not cover damage to the machine nor does it cover loss by theft, etc. You can insure for the risk of damage by fire or theft for approximately £1 more, and the extra outlay is well worth while.

Incidentally, accidental damage policies are usually subject to £5 excess (or more).

A comprehensive policy covers you for accidental damage to the machine as well as third-party, fire and theft risks.*

14. There are a number of points concerning insurance claims which are not always understood by riders. These include the liability or otherwise of companies to pay for parts damaged in an accident under a comprehensive policy.

The broad principle invoked amounts to this: there shall be no profit for the persons involved, or, in other words, only the damage shall be made good. To carry an example to extremes, the insurance companies are not prepared to provide new machines for old.

A more practical example occurs when, say, a mudguard and part of a sidecar are damaged by collision. The insurance company pays for the replacement of the mudguard and the panel of the sidecar, and both are painted in the original colour of the machine.

But the machine is maroon and maroon is a colour which fades quickly. So the new mudguard with the new paint and the new sidecar panel with new paint appear a different shade from the rest of the machine. Under such circumstances there is no obligation on the part of the insurance company to re-spray the whole of the machine so that it matches the replacement parts.

*The insurance rates quoted are the approximate rates prevailing at the time of writing but, in any case, they vary for different districts and according to the age and experience of the proposer, being increased as much as 100 per cent for an old machine and youthful rider, or a large (500 c.c.) machine and youthful rider.

2

LEARNING TO RIDE

1. Proud ownership of a motor cycle or scooter is not much use without the ability to control the machine safely and well on the road.

The RAC – ACU Training Scheme for Learner Motor Cyclists, which was evolved by the RAC in 1947, has now become the greatest single contribution to road safety that has yet been envisaged. This is primarily due to the sterling work which has been put in by members of some seventy clubs, who have unstintingly given their time and energies to the theoretical and practical instruction of the pupils.

The standardised course consists of twenty-four lessons over a period of twelve weeks, with the emphasis on practice as opposed to theory. A carefully planned series of short lectures includes the working principles of the motor cycle, essential maintenance to keep the machine in safe trim, and films on roadcraft.

The novice masters the art of handling his or her machine on a private training-ground and then graduates to quiet public roads, finally ending with instruction on busy main thoroughfares. Then the trainee takes the passing-out test for the special RAC – ACU Certificate of Proficiency, which proves a very high standard of riding skill.

2. The sixty-four-dollar question concerning the RAC – ACU Training Scheme is, of course, "How much will it cost me?" The short answer is usually eighteen-pence per lesson, which is paid to the Training Organiser upon enrolment.

Each training school has the whole-hearted co-operation of the police and the Local Road Safety Committee. The scheme also has the backing of the Ministry of Transport,

the Home Office, and the Royal Society for the Prevention of Accidents.

More than 10,000 riders have graduated under the scheme in the first ten years of its life, and there are more than sixty schools operating with nearly 200 machines, all of which have been provided free of charge, largely by manufacturers and dealers.

3. The Organiser arranges insurance cover for pupils taking part in the scheme, and the trainee is covered against personal accident risks while undergoing training either on the training-ground or the public highway. The trainee is also indemnified in respect of third-party liability when driving a club machine on the public highway, but must have his own policy when driving his own machine.

4. There is almost certainly a training school somewhere in your area (a full list is appended at the end of this chapter) and you can obtain detailed information by writing to:

The Motor Cycle Manager,
The Royal Automobile Club,
Pall Mall,
London, S.W.1.

One point – if you are under twenty-one you must obtain the written permission of your parent or guardian before you may be enrolled in the scheme.

5. Did you know that four out of every ten motor cyclists fail the Ministry of Transport test on their first attempt?

The percentage is not nearly so high amongst those who have trained under the RAC – ACU Scheme and gained the certificate of proficiency, since the standards for this are higher than for the Ministry of Transport test. Apart from anything else, the examiner on the road section of the RAC – ACU scheme follows behind the candidate on his own machine instead of waiting in one spot like the Ministry examiner. Gruelling though this may be at the time, it does give the candidate extra confidence for tackling the Ministry test.

6. If your turn for the Ministry of Transport test is in the offing, remember the following:

1. Ride your machine for at least an hour before reporting to the testing depot. This will enable you to become thoroughly familiar with your mount.
2. Arrive at least ten minutes before the test is due to commence.
3. Do not forget to take your insurance certificate with you and a current driving licence. The licence must be signed by you.
4. Set the throttle for a slightly faster tick-over than for normal economic running.
5. On the test observe all the hints given in Form DL68; in particular, avoid swinging out prior to a left-hand turn; glance to the rear before executing any manœuvre involving change of course or speed; and always go round the policeman in the centre of the road, whether real or imaginary.
6. Finally, make sure you have a thorough grasp of the Highway Code and the points of law relating to motor cycling.

7. Many of the anxieties of parents whose son has just bought his first motor cycle or whose daughter has a boy-friend with a motor cycle are quite needless when it comes to the subject of pillion-riding.

Rather surprisingly, the stability of a solo machine is increased when a pillion-passenger is carried.

However, there are some points which should be carefully noted. The passenger must be carried on a seat securely fitted behind the rider and foot-rests MUST be provided. The passenger must sit close behind the rider.

A common misapprehension is that the pillion-passenger should assist the rider by leaning to either side. This is definitely wrong, and to do so will affect the steering. Nor should the pillion-passenger give hand-signals—that is the task of the rider.

8. The majority of people learn to ride and take their test on solos. Those who do learn on sidecar outfits must be accompanied by a qualified driver until they pass their test. The law's requirement is that the companion must hold a current licence (NOT a provisional licence) to drive a motor cycle and must have held such a licence for at least two years OR have passed the driving test.

The exception to this rule is where the sidecar is not designed to carry a passenger, i.e. a box-carrier. In such a case the driver need not be accompanied.

9. Driving a sidecar outfit is quite simple, but, just the same, the man used to riding a solo may experience some difficulty when first he turns to a combination.

The sidecar outfit is the safest vehicle on the road because of the non-skid qualities inherent in its design. Direct steering, weight distribution and other factors all render it less likely to skids than either two- or four-wheelers.

Nevertheless, the soloist taking up combination riding invariably tries to steer by those slight, more or less automatic body movements essential for the balance of a two-wheeler. This method of steering is useless with a combination, which must be steered quite simply by forcing the handlebars to turn and pointing the front wheel in the direction it is wished to travel.

10. The steering is the most important aspect of driving a combination for the first time, but the other main point which may arise is the tendency of the sidecar wheel to leave the road if a left-hand bend is entered at too great a speed.

It could happen, for example, in the circumstances where the driver is deliberately accelerating in order to let the machine "run round" the sidecar and, of course, the possibility is much greater if the sidecar is empty.

The lift can speedily be countered BY CLOSING THE THROTTLE.

11. A good tip for those driving a combination for the first time is to take the machine to a field, private road or other

quiet spot and drive it at a slow speed of, say, 10 m.p.h. While doing so, place one hand on one handlebar and operate the steering like an old-fashioned tiller.

This zig-zagging will soon improve your handling of the machine, particularly if you make frequent emergency stops to ensure that you find the brake and the clutch quickly and easily.

Later on you will be able to let the sidecar "run round" the machine on a right-hand corner by braking lightly. The same thing can be done on a left-hand bend by accelerating slightly—PROVIDING YOU HAVE CHANGED DOWN BEFORE GETTING TO THE BEND.

It follows that a left-hand bend must be approached slowly to allow for subsequent acceleration, whereas a right-hand bend may be approached faster for the subsequent braking.

RAC–ACU TRAINING SCHOOLS NEAR LONDON

BRENTFORD
(Brentford M.C.C.)
C. R. Dobney, Esq., 287, Boston Manor Road, Brentford, Middlesex.

CARSHALTON
(Carshalton M.C.C.)
C. E. Matten, Esq., 23, Edgehill Road, Mitcham, Surrey.

CHELMSFORD
(Chelmsford T.S.)
W. A. S .White, Esq., Warden, Rainsford Youth Centre, Rainsford Secondary Schools, Fox Crescent, Chelmsford, Essex.

CRYSTAL PALACE
(Crystal Palace T.S.)
H. E. Kite, Esq., 50a, Kneller Road, Brockley, S.E.4. (Tel.: TIDeway 6816 after 6.30 p.m.)

GREENFORD
(West Ealing M.C.C.)
F. E. Gardner, Esq., 16, Kings Avenue, Greenford, Middlesex.

GREENWICH
(Greenwich M.C.C.)
F. Martin, Esq., 2, Mona Road, Peckham, S.E.15.

HARRINGAY
(Harringay T.S.)
J. W. Hunt, Esq., Arlow House, Arlow Road, Winchmore Hill, N.21.

HARROW & WEMBLEY
(Sunbeam M.C.C.)
R. Sidey, Esq., 34, Great Smith Street, London, S.W.1.

HENDON
(Triumph Owners' M.C.C.)
A. E. Whatley, Esq., 16, Westfield Gardens, Kenton, Middlesex.

KINGSTON
(Kingston & D. M.C.C.)
H. Dutton, Esq., 28, Richmond Grove, Surbiton Hill, Surrey.

REDHILL
(Reigate & Redhill M.C.C.)
J. Cockshott, Esq., 45, Prince Albert Square, Redhill, Surrey.

ROCHESTER
(Rochester & Chatham M.C.C.)
R. N. McKenzie, Esq., 21 Warden Road, Rochester, Kent.

SHEPHERDS BUSH
(White City T.S.)
J. Adams, Esq., 66 Winchfield House, Highcliffe Drive, Roehampton, S.W.15.

East Acton & D. M.C.C.
D. Schwartz, Esq., 112, Lancaster Road, Notting Hill, W.11.

SLOUGH
(Farnham Royal M.C.C.)
B. Colehill, Esq., 2 Berry Field, Wexham Port, Slough, Bucks.

SOUTHEND
(Southend & D. M.C.C.)
R. E. Newham, Esq., 20, Snakes Lane, Southend, Essex.

WALTHAMSTOW
(Wolves M.C.C.)
D. King, Esq., 6a, Stanhope Road, Walthamstow, E.17.

WATFORD
(Watford Joint T.S.)
Mrs. P. L. Bass, The Bungalow, Rucklers Lane, King's Langley, Herts.

WILLESDEN
(Cricklewood M.C.C.)
V. J. Watts, Esq., 52, Thames Avenue, Greenford, Middlesex.

WIMBLEDON
(Wimbledon & D. M.C.C.)
R. W. Brown, Esq., 25, Glycena Road, Battersea, S.W.11. (Tel. BATtersea 8731.)

RAC–ACU TRAINING SCHOOLS OUTSIDE LONDON

ALDERSHOT
(Aldershot Training School.)
Mr. P. Squires, "Meadow View", 282, Frimley Road, Camberley Surrey.

BIRMINGHAM
(South Birmingham M.C.)
Mr. R. Eschborn, 18, Norton View, Grove Road, King's Heath, Birmingham, 14.

BOLTON
(*Bolton M.C.C.*)
Mr. J. Ratcliffe, 219, Ashworth Lane, Astley Bridge, Bolton, Lancs.

BRIGHTON
(*Bar-None M.C.C. (Sussex)*)
Mr. G. Harman, 85a, Western Road, Hove, Sussex.

BRISTOL
(*Bristol Training School*)
Mr. D. Tritton, 94, Durban Road, Patchway, Glos.

CAMBRIDGE
(*Cambridge Centaur M.C.C.*)
Mr. R. Clark, 72, Newmarket Road, Cambridge.

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(*Cardiff Eagle M.C.C.*)
Mr. J. F. Collishaw, 20, Heathfield Road, Gabalfa, Cardiff.

CHIPPENHAM
(*Wilts Border M.C. & L.C.C.*)
Mr. M. Hawkins, 15, Notton Park, Laycock, Nr. Chippenham, Wilts.

COVENTRY
(*Antelope M.C.C.*)
Mr. E. E. Howard, 16, Balliol Road, Wyken, Coventry.

(*Coventry Road Safety*)
Mr. M. J. Miles, Road Safety Officer, Council House, Coventry.

DERBY
(*Derby Phoenix M.C.C.*)
Mr. R. Smith, 20, Willn Street, Derby.

DONCASTER
(*Doncaster M.C.*)
Mr. M. W. Francis, 31, St. Agnes Road, Belle Vue, Doncaster.

EDINBURGH
(*Edinburgh St. George M.C.*)
Mr. R. Hardie, 13 Caledonian Place, Edinburgh, 11.

EXETER
(*West of England M.C.*)
Mr. R. P. Walford, Clovelly House, Bovey Tracey, Devon.

FOLKESTONE
(*Folkestone M.C.C.*)
Mr. C. S. Samuels, 20, Cheriton Road, Folkestone.

GLASGOW
(*Glasgow Speedway M.C.*)
Mr. J. Cuthbert, 31, Rannoch Street, Glasgow, S.4.

HAMILTON
(*Hamilton M.C.C.*)
Mr. W. Yates, 151, Quarry Street, Hamilton, Lanarks.

HULL
(*Hull Auto Cycle Club*)
Mr. C. Page, Hull Auto Cycle & L.C.C. Club House, 18, Hutt Street, Hull.

ISLE OF WIGHT
(*Isle of Wight M.C.C.*)
Mr. W. H. Smith, Sea Side, Rew Street, Gurnard, Nr. Cowes, I.O.W.

LEEDS
(*South Leeds M.C.*)
Mr. G. Kershaw, 41, Vesper Lane, Leeds, 5.

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(*South Liverpool M.C.*)
Mr. H. D. Cross, 207, Liverpool Road South, Maghull, Lancs.

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Mr. G. C. Ludlow, 2, Bromley Road, Brooklands, Sale, Cheshire.

(*Manchester Lambretta Club*)
M. R. Foster, 25, Dennison Avenue, Manchester, 20.

MIDDLESBROUGH
(*Middlesbrough M.C.*)
Mr. J. Graham, 15, Benton Road, Middlesbrough, Yorks.

NEWCASTLE
(*Newcastle & D. M.C.*)
Mr. G. A. Graham, 2, Ancaster Avenue, Longbenton, Newcastle-on-Tyne, 12.

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(*Newport & Gwent M.C.*)
Mr. H. E. Roberts, 106, Shaftesbury Street, Newport, Mon.

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(*Notts & District M.C.C.*)
K. Leek, 158 Basford Road, Old Basford, Nottingham.

OXFORD
(*Oxford Ixion M.C.*)
Mr. H. J. Wall, 33, Helen Road, Botley, Oxford.

PONTLLANFRAITH
(*Pontllanfraith A.C.*)
Mr. C. Addis, 18, Sir Ivors Road, Pontllanfraith, Mon.

POOLE
(*X.H.G. Tiger M.C.C.*)
Mr. K. Jolly, 6, Enfield Crescent, Oakdale, Poole.

PORTSMOUTH
(*Waterlooville M.C.C.*)
Mr. G. Domoney, 169 London Road, Portsmouth.

PRESTON
(*Preston & D. M.C.*)
Mr. J. Pedder, 48 Stocks Road, Preston, Lancs.

READING
(*South Reading M.C.C.*)
Mr. P. Lee, 13, Shirley Avenue, Reading.

ROCHDALE
(*Rochdale & D. M.C.*)
Mr. J. Hargreaves, 205, Milnrow Road, Rochdale, Lancs.

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(*Royton A.T.C. M.C.C.*)
Mr. R. Kenworthy, 31, Ferneyfield Road, Chadderton, Oldham, Lancs.

SCARBOROUGH
(*Scarborough and D.M.C.*)
Mr. J. Claxton, "Rowans", 1, Westover Road, Scarborough.

SOUTHAMPTON
(*Southampton & D. M.C.C.*)
Mr. W. F. Tardivel, 35, Oakbank Road, Southampton.

SPENBOROUGH
(*Spen Valley M.C.C.*)
Mr. J. H. Fenton, Low Royd, Low Moor, Bradford, Yorks.

STOKE-ON-TRENT
(*Potteries Clarion M.C.*)
Mr. J. Brandall, 123, Harpfield Road, Trent Vale, Stoke-on-Trent, Staffs.

STRETFORD
(*Stretford M.C.*)
Mr. B. N. Holmes, Flat 4, 1, Oakfield, Sale, Cheshire.

SWINTON
(*Swinton & D. M.C.*)
Mr. H. Rhodes, 118, Rake Lane, Clifton, Nr. Manchester.

WELLINGBOROUGH
(*Wellingborough M.C.*)
Mr. W. Ruddlesdin, 42, Northampton Road, Wellingborough, Northants.

WOLVERHAMPTON
(*Wolverhampton & D. M.C.C.*)
Mr. H. Healey, 138, Fairview Road, Penn, Wolverhampton.

WREXHAM
(*Wrexham M.C.*)
Mr. W. H. Gittens, 21, Heol-y-Plas, Cefn-Mawr, Wrexham.

3

ENGINE AND TRANSMISSION

1. A new engine in a new machine, or an engine which has been rebored or re-sleeved, will need to be nursed during the first 1,000 to 1,500 miles. This "running-in" period is one of the most important phases in the life of the engine.

During the first 500 miles it is best not to exceed half-throttle in any gear. If you try to put the engine through its paces too soon you will run the risk of seizure and other troubles which may have a lasting effect.

Avoid sudden and sharp acceleration, especially when the engine is pulling under load, and do not force the machine uphill in top gear when a change-down would ease the load.

A high road speed is NOT injurious in itself and can, in fact, be beneficial if the speed is reached without opening the throttle wide.

If the machine is a four-stroke, engine oil should be changed at the end of 250 miles and every 2,000 miles thereafter.

2. Engine efficiency depends on good compression—not necessarily at its best in a new engine. When the high spots on the bearing surfaces of the cylinder walls have been removed by a careful running-in period, then the compression should be at its best.

If the cylinder barrel has become scored or oval through wear or if the piston rings are faulty, attention is needed. The cylinder will have to be removed for a rebore or re-sleeved back to standard according to the depth of wear or scoring.

You can tell if the barrel has previously been rebored and oversize pistons fitted by looking at the crown of the piston.

The amount of oversize is stamped on the crown; for example, "plus 20", signifying twenty thousandths of an inch.

Reboring is the work of a specialist, who will also supply the correct piston and rings for the rebored cylinder.

3. How can you decide when it is necessary to replace the piston rings?

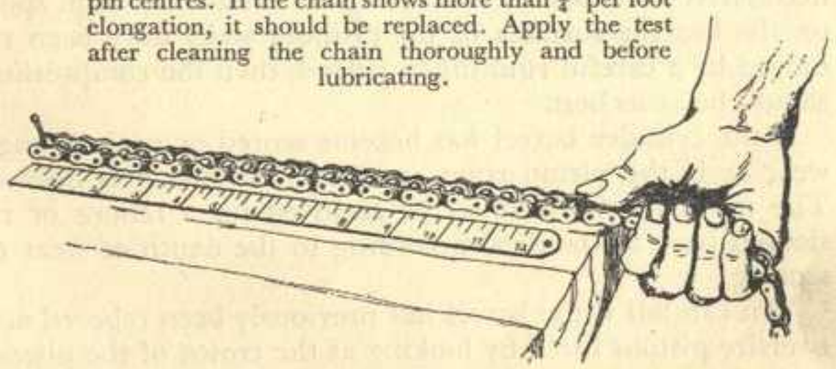
The answer is quite simple. A ring is O.K. if, firstly, the surface it presents to the cylinder walls is bright over the whole of its area; and, secondly, the gap between the ends is not more than three times that recommended by the engine makers as correct.

Removal of the old rings should not present any difficulty, but care should be taken not to damage the piston lands – the name given to the piston surface on either side of the grooves.

An old ring which is "gummed" by carbon deposit in its groove can be levered out with an electrician's screwdriver. In the remote eventuality of the piston being cast-iron, the ring can be freed by leaving the piston overnight in a solution of caustic soda.

Where the rings have to be broken out, the grooves MUST

A simple test for chain wear is to remove chain from machine, lay it on a flat surface and stretch to its fullest extent. Measure 24 pitches between bearing pin centres. If the chain shows more than $\frac{1}{4}$" per foot elongation, it should be replaced. Apply the test after cleaning the chain thoroughly and before lubricating.



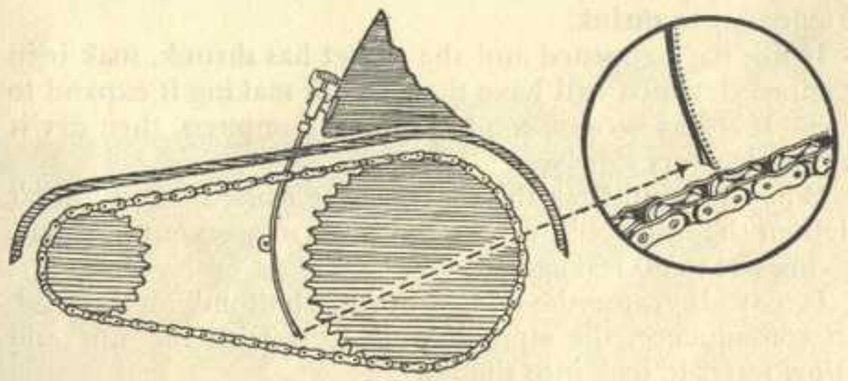
be cleaned up with a fine file or, better still, trued up on a lathe by a competent mechanic.

4. A new piston ring should fit easily in its groove. Before fitting, roll it around the groove and test with a feeler gauge. In a normal type of piston the ring should have 2–3 thousandths of an inch up-and-down movement.

If the ring is too thick it must be rubbed down. To do this, place a new piece of emery-cloth over a piece of plate glass and rotate the ring on it, taking care to keep the pressure even.

The next step is to check the ring-gap by placing the ring in the cylinder barrel and pressing it against the base of the piston. (The ring-gap MUST be checked at that point in the barrel were there is LEAST wear, and this is usually near the bottom of the piston travel.)

With drip-feed or breather lubrication, the feed should be arranged so that the oil drips on to the inner edges of the links on both sides of the chain. The oil should be fed on to the chain at a point inside the bottom run as near as possible to where it engages the driven wheel. Make sure the pipe is rigidly supported and that there is no danger of it becoming jammed between chain and wheel. As the oil feed will vary with oil temperature, it is preferable to have a separate supply tank for the chain feed, rather than a tapping from the main oil tank.



If the gap is less than stated in the instruction manual it must be increased (use a fine file), making sure that the ends of the ring are kept parallel. It is better for the gap to be too large rather than too small.

When replacing the rings, first slide the scraper ring over three strips of tin placed round the sides of the piston. If of the bevelled type, the bevelled side should be uppermost. When the other rings are in position, arrange the gaps so that they are roughly equidistant from each other.

5. The alternative to reboring as a "rejuvenation" process for badly worn cylinder barrels is re-sleeving or lining. A liner or sleeve is used when maximum reboring has already been undertaken or when it is necessary, as with racing cycles, to bring the barrel back to its original size.

Liners fitted in aluminium cylinders should be fairly thick – not less than one-eighth inch and preferably more. This thickness will considerably reduce the risk of distortion.

However, when used in an iron barrel, the liners may be as thin as one-sixteenth inch.

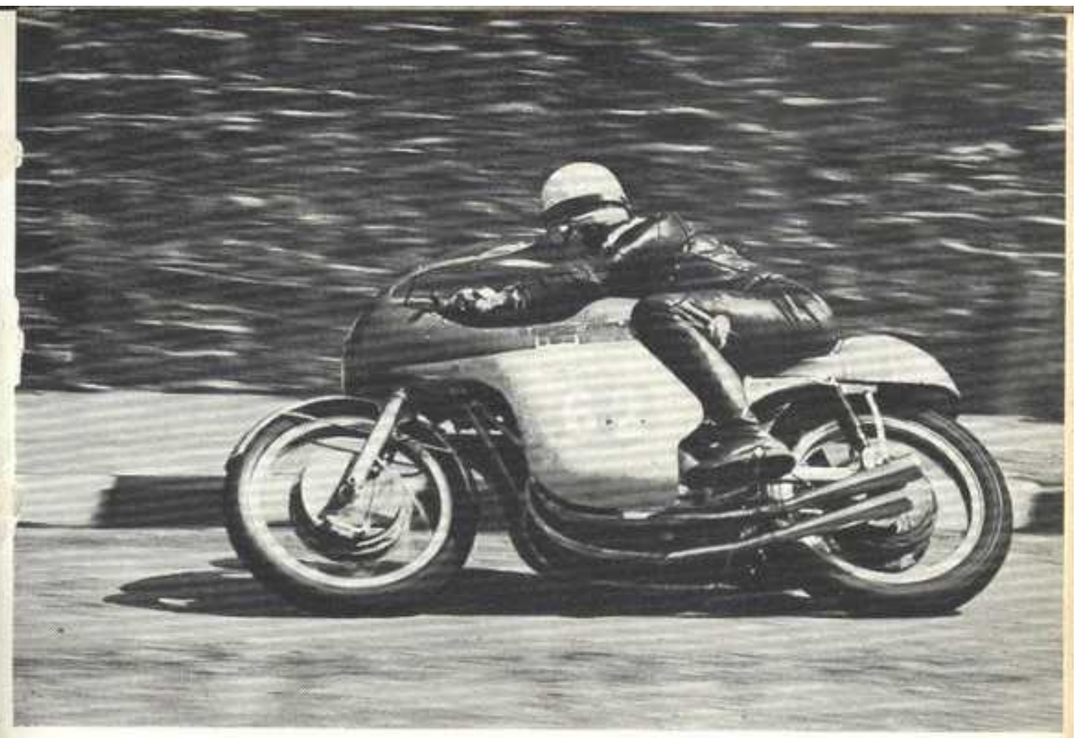
Your local motor cycle repairer will be pleased to give you advice on this question.

6. Gaskets should always be renewed if there is any doubt as to their condition. Cork gaskets will swell and become too big if the weather is very wet. On the other hand, during a long, dry period (unlikely in the British Isles!) they have a tendency to shrink.

If this has happened and the gasket has shrunk, soak it in engine oil, which will have the effect of making it expand to size. If it has become too big due to dampness, then dry it by heating very slowly.

When you put back the rocker cover make sure you don't tighten the nuts too much or the cover may go out of shape, giving rise to oil leakage.

It may also cause the domed nut to "bottom" on the stud. In consequence, the stud may unscrew with the nut and allow water to leak into the oil.

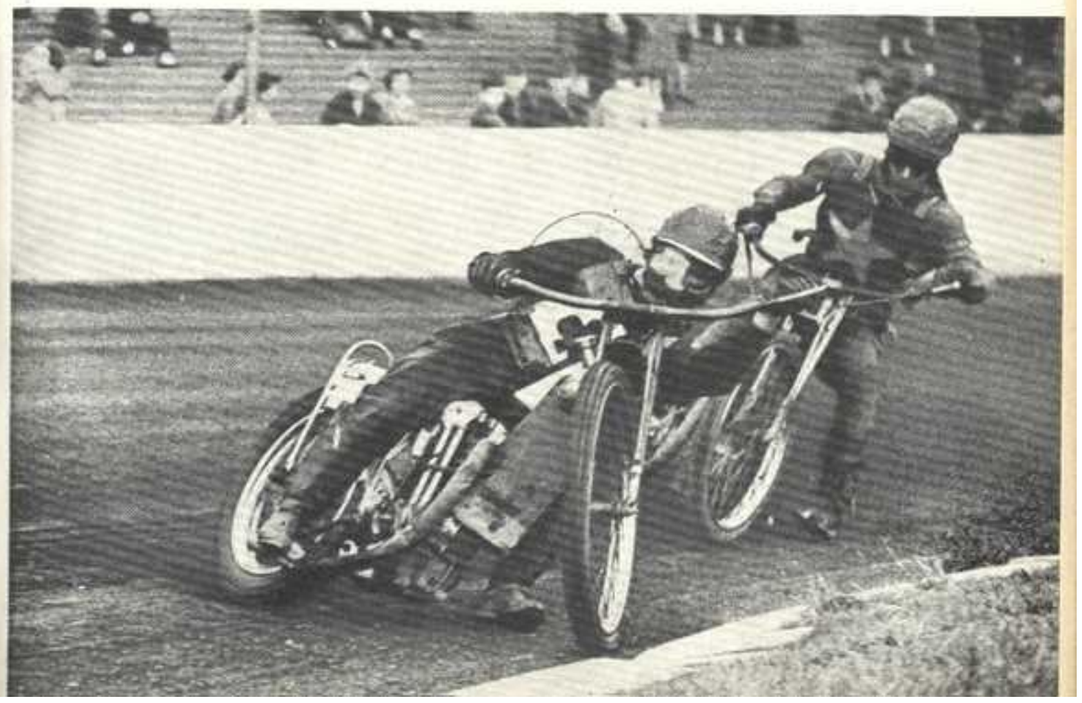


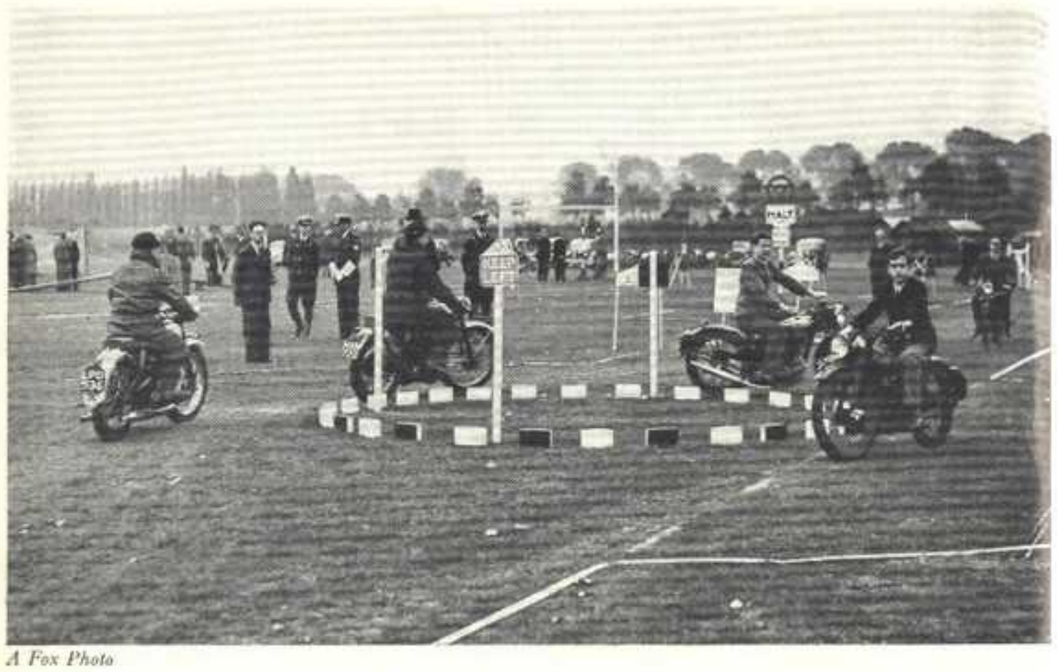
Courtesy: The Motor Cycle

Champion: Top British star, John Surtees, seen at speed in the 1958 Junior T.T. which he won. Odd spot: can you see his goggles sponge on its stretched elastic behind his knee? Surtees didn't know what had happened to it and had to call in the pits for fresh goggles.

Courtesy: Sunday Pictorial

Speedway: Peter Craven (on left) goes into a spectacular broadside on the first bend at his home track, Belle Vue, Manchester, as he defends his "Pic" Golden Helmet title against Swedish ace, Ove Fundin.





A Fox Photo

The Young Idea: Youthful beginners undergoing instruction from officials of the ACU, RAC and local motor cycle clubs. Full details of this remarkable scheme are given in Chapter 2: Learning To Ride.

Author at Work: "Tommy" Thompson supervises a session at the Crystal Palace Training Centre of the RAC-ACU Scheme for Learner Motor Cyclists—and Scooterists as you can see! More than ten thousand learners successfully graduated under this scheme in the first ten years of operation.

Photo: T. H. Everitt

7. When you fail to start your machine with a kick-start, the only answer is the "run-and-bump" start employed by racing motor cyclists pending the opportunity to investigate the trouble and put it right.

It is a method which momentarily places excessive strain on the transmission system and affects the chain, gear-box sprockets and tyres. Consequently, it should not be employed as the usual method of starting.

Before starting a single-cylinder four-stroke machine, it should be pulled backwards whilst in gear until the engine compression can be detected. This is called "pulling back on compression" and facilitates an easy start.

8. Worn and badly adjusted chains hardly improve the efficiency of your machine.

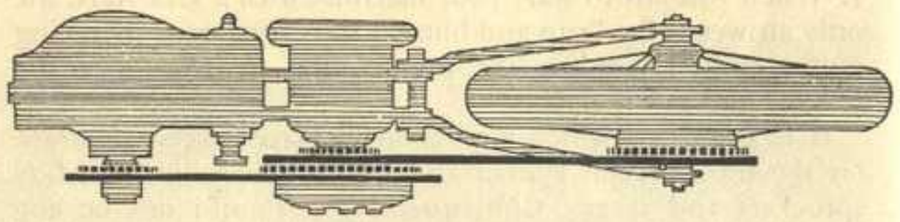
On the heavier orthodox motor cycles, slack in the primary chain is taken up by moving the gear-box to the rear on its pivotal mounting. When there is half-inch up-and-down movement in the chain at its tightest point between the sprockets, the gearbox is locked in position by tightening the appropriate nuts.

Similarly, the rear chain is adjusted for a three-quarter-inch up-an-down play, this time by moving the wheel either to the rear or forward, loosening the hub-nuts and screwing the wheel adjusters an equivalent number of turns. When the hub-nuts are tightened it is important to adjust the rear-brake setting and anchorage if necessary.

To detect an old chain without removing it, see if it can be pulled away from the teeth of the driven sprocket. To fit a new chain easily, first connect it to the old chain so that it can be pulled over the often inaccessible driving sprocket.

9. The orthodox motor cycle has a twist-grip fitted with a damping device. This device, which is controlled by means of a screw, can be adjusted so that the engine speed remains constant whilst hand-signals are being given – a very important factor from the safety point of view.

Scooters, however, are becoming increasingly popular and some of them have no damping device.



Chain wheels must be accurately aligned as mal-alignment will cause unnecessary and rapid wear of both chain and wheel teeth. Correctly aligned wheels are shown by a slight polishing of the inner links equally on both sides, whereas excessive wear on one side only shows that the wheels are out of true. A straight-edge placed across the sides of the teeth on the two wheels (as near the diameter as possible) should touch at four points. Check several times at different positions of rotation. Wheels which are excessively worn and of "hooked" appearance should be replaced—they wear out the chain.

Should your scooter be one of these, it is a simple job to fit a piece of sponge rubber between the end of the rubber grip and the drum. This will prevent the throttle shutting unintentionally.

10. The main and layshaft pinions of most modern gearboxes are in constant mesh, changes of gear being effected, not by altering the meshing order of the pinions, but by sliding dog-clutches which, operated by a foot or hand lever, transfer the drive from one set of pinions to another, so varying the ratio of reduction.

Difficulty in gear selection may be due to broken or worn dogs or, more usually, to lack of proper lubrication. Modern foot gear-change mechanism uses spring-loaded pawls to return the operating lever to a neutral position after a gear change has been made. A broken pawl-spring will make it difficult or, in some cases, impossible to get into or out of any one gear. The fault is generally obvious as soon as the kick-starter cover is removed and, in most instances, a new spring costing only a few pence can be fitted by the owner.

Before embarking upon repair work of this nature, make sure once again that the trouble is not just due to lack of oil or grease.

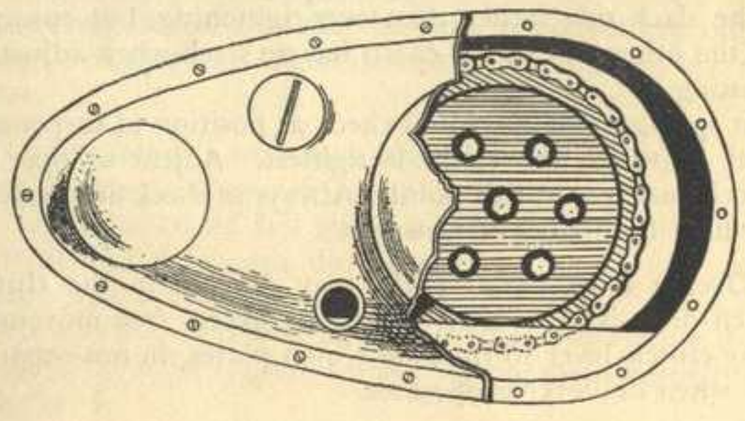
11. A question we are often asked is "Is it wise to increase the speed of a machine by fitting a larger driving sprocket so making the rear wheel turn round more times for a given number of engine revolutions than it is designed to do by the manufacturers?"

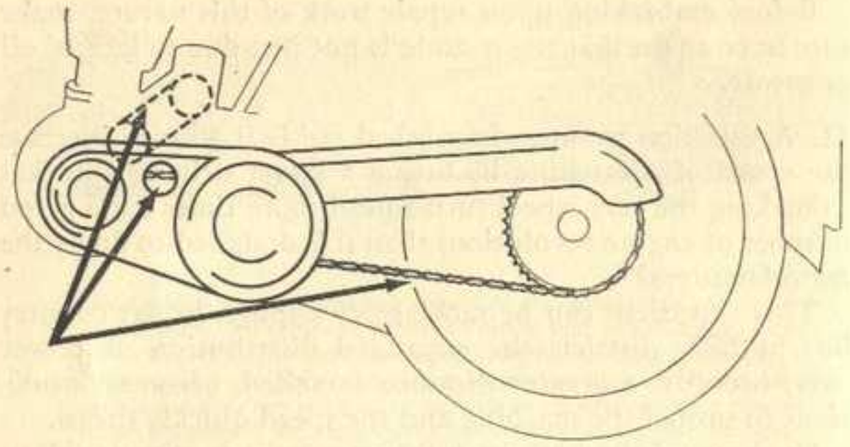
This expedient can be satisfactory enough in flat country but in hilly districts the expanded distribution of power over, literally, a greater distance travelled, becomes insufficient to propel the machine and the speed quickly drops.

On heavy duty work in hilly country it is wise to "drop a cog" or, in other words, use an engine sprocket with one or more teeth less than usual. The engine will perform better because the lower gear ratio permits it to rev faster and develop more power.

It is working more, but not necessarily harder, and often

With oil-bath lubrication, maintain the correct oil-level to ensure that the lower strand of the chain is submerged and continuously lubricated. The level should be checked with the machine off the stand and held vertically. Always ensure that the chaincase is oil-tight and change the oil when it becomes dirty or sludgy.





Chain adjustment must be correct and should be tested periodically as indicated in this chapter.

better all-round performance and fuel consumption will result.

12. After the initial bedding-down adjustment on a new chain, an oil-bath enclosed drive will run for a long time without requiring further attention.

An exposed rear chain needs adjusting more frequently and should be periodically checked for tension. The correct amount of up-and-down movement midway along between the sprockets is: rear, $\frac{3}{4}$ inch; primary, $\frac{3}{8}$ inch; magneto and similar, $\frac{1}{4}$ inch. Test at different points of rotation, erring on the slack side rather than over-tightening, but ensuring that the other run of the chain has no slack when adjusting or testing.

On spring-frame machines check at position of suspension travel in which the chain is tightest. Adjust so that the chain is just free at this point. Always re-check adjustments after final tightening of nuts, etc.

13. Over a long period faults may develop in the clutch. Clutch drag is very often caused by excess free movement at the clutch lever so that the clutch plates do not separate fully when the lever is operated.

There should be about $\frac{1}{8}$ inch free movement at the clutch lever when the clutch is fully engaged. If this free movement is not allowed the clutch may slip as a result.

Adjustment is usually effected either by the cable adjuster and/or by an adjusting screw which is situated on the clutch rod actuating arm or on the gear-box casing.

Check by depressing the clutch lever and kicking down on the kick-starter. The clutch should be free. If it still drags after all attempts at adjustment, the clutch plates may be buckled or the springs may be unevenly tightened.

If the clutch has been neglected, it's quite possible for the push-rod to become damaged due to wear on its case-hardened extremities.

In such circumstances the rod will have become shortened. In an emergency a temporary repair can be made. This is done by cutting the rod in half and inserting a steel ball-bearing halfway along the push-rod tunnel between each piece of rod. Quite an effective makeshift job it is too!

Apart from damage to the push-rod, neglecting proper maintenance may result in clutch slip. This may not be noticed until the time comes when heavy demands have to be made on the machine; for instance, when accelerating rapidly or when using the indirect gears in hilly country.

Further wear must be prevented.

If the linings are loose or burnt or worn nearly down to the plates they must be renewed.

However, clutch slip may be due to oil getting on the linings. In this case, the clutch should be washed out with petrol.

14. Grease solvents are now available which are a great help when cleaning a dirty, oily motor cycle or scooter engine.

Using a bucket of hot water containing a small quantity of household detergent, the exterior of the engine can be cleaned with a washing-up mop.

You will find it is best to do this when the engine is still warm. It is most important to plug the carburettor intake beforehand.

If the motor cycle is in daily use it is advisable to polish once a week. A good quality wax or silicone polish should be used for the tank, mudguards and so on. Road tar adhering to the paintwork can be easily removed by wiping with a rag soaked in petrol.

4

STEERING

1. Perfect steering in a motor cycle or scooter is impossible unless the wheels are in perfect alignment. The rough-and-ready test of alignment is by sight.

A much more accurate check is the *kerb test*. Park the machine parallel to and touching a straight-edged kerb. You now have four check-points – two where the line of the wheel-rim bisects the kerb on the front wheel and two on the rear wheel.

If the wheels are in alignment, the distance between each of the four points on the rims and the edge of the kerb should be exactly equal.

Of course, it is no good carrying out the kerb test if you have tyres of different dimensions on front and rear wheels. Both tyres must be of the same size.

2. A variation of the kerb test should be used by motor cycle combination owners to make sure that sidecar and solo are aligned correctly.

The combination is placed with the wheels of the solo touching the kerb. A plank or similar straight-edge is placed parallel with the solo and firmly against the sidecar tyre. The distance from the kerb to the plank at the front end should be approximately $\frac{3}{4}$ inch less than the corresponding distance at the rear. If it is not, then the fitting of the sidecar should be adjusted accordingly.

All too often one sees combinations in which 'bike and sidecar are leaning towards one another. Again the sidecar is incorrectly fitted. Unladen, the 'bike should lean out from the vertical slightly so that when the sidecar has a load, the 'bike is exactly vertical.

Such alignment is essential to good steering and safety.

3. There are four factors contributing towards good steering apart from correct wheel and machine alignment. There must be no distortion in the frame of the machine nor perceptible play in wheel bearings. Tyre pressures should be as recommended.

There remain the important steering-head bearings which form the link between frame and forks. Play in these throws the front wheel out of alignment when cornering.

To detect this fault try to push the machine backwards and forwards with the front brake full on.

Wear in the bearings can easily be felt by placing a finger on the bearing housing.

In nine cases out of ten it is better to replace both ball-races and cups if worn rather than attempt an adjustment.

4. Side-play in the fork links is something to be looked for at regular intervals. There are normally washers between the fork links and the fork cross-members. These should be turnable but not loose.

In most cases, it will be found that one link has a positive connection to the spindle by means of a nut and shoulder, the others being threaded and lock-nutted to it.

To rectify any excessive side-play, the nuts should be slackened. The spindle can be screwed out, so decreasing play.

It is advisable to refer to the manufacturer's handbook before undertaking the operation, as different machines and models vary considerably.

5

BRAKING

1. Efficient brakes are just as essential or more so than an efficient engine.

Brake linings should be replaced before the braking surface has worn down level with the copper rivets.

Remove the old linings by first cutting the rivet heads on the inside of the brake-shoe with a cold chisel. Ensure that the new linings are the correct size. Clamp them tightly against the brake-shoe before drilling the rivet holes from the inside. Countersink the rivets to a depth of one-sixteenth inch below the surface and secure them by punching.

Finally, slightly chamfer the leading edge of each lining.

If you follow these instructions exactly, you should have a thoroughly professional job.

2. Over-zealous greasing of the brake-cam grease-nipple may result in grease penetrating through to the brake-drums. If it comes into contact with the brake-linings it can seriously impair efficiency.

If this happens you should remove the brake-shoes and clean the linings with petrol. Then scrub them lightly and evenly with a wire brush.

Another common fault results from rain-water finding its way into the front brake. Gentle application of the brake will dry it out and restore its efficiency.

3. As with any two-wheeled vehicle, the front brake is the best anchor for scooters. Nevertheless, it should be applied gradually and progressively in conjunction with the rear brake and not suddenly and violently.

Braking on dry roads is perfectly safe, but wet roads can make things a little tricky. One scooter firm recommends

slightly lower tyre pressures under these conditions. Clearly this will produce greater adhesion, which is so desirable with small wheels.

The brake pedal should be adjusted so that it can be depressed by the sole of the rider's shoe whilst the heel or instep pivots on the footboard or on a raised block.

Make sure there is ample slack in the front brake cable. If there is no slack the up-and-down movement of the front suspension may result in involuntary application and release of the front brake. Then – whoops!

4. Every winter many motor cyclists and scooterists come to grief on icy roads. The majority of these spills could be avoided.

By taking a tip from the trials rider and dropping tyre pressures to 10 lb. per square inch, greater road adhesion is obtained.

Next, the path chosen must be the best road-holding surface available – usually about eighteen inches from the kerb.

Thirdly, do not use the front brake and only use the rear brake lightly. It is preferable to drive in second gear and use the engine as a brake where possible.

Downhill gradients can be accomplished trials fashion by using bottom gear and lifting the exhaust valve.

At all times, the rear wheel must be lightly driven and it must not be allowed to freewheel.

Remember the foregoing advice, particularly in regard to tyres, refers only to driving in icy conditions. Under normal conditions, stick to normal riding methods and recommended tyre pressures.

6

TYRES AND WHEELS

1. "What type of tyre should I fit to my machine?" The question came from a young enthusiast. The answer depends entirely upon what sort of a motor cyclist you are.

In general, tyres with a diamond-pattern tread or lozenge-shaped studs are accepted as best for ordinary road work.

On the other hand, the enthusiast usually fits a ribbed tread on the front wheel for speedy travelling on the road. It lightens and steadies the steering just a little more than do studs.

2. For riding over rough country considerably lower pressure than normal is advised. This means a security bolt must be fitted to prevent the valve of the inner tube being torn out.

If you want to do this, fit the bolt about 6 inches forward of the tyre valve, or, if you want to use more than one bolt, space them evenly around the rim.

3. On a solo machine you are dependent upon your tyres for stability. They are the link between the road surface and the machine – and, therefore, *you*.

For freedom from skidding and for good road grip – braking, accelerating, or cornering – your tyre treads must be in good condition.

The more important tyre of the two is the front one. Back wheel skids are easy to correct, front ones are not.

To run with tyres which are nearly bald or which have had the sides ground away due to under-inflation is the falsest of economies.

4. Tyres should be inflated to the manufacturers' recommended pressures to ensure maximum mileage with satisfactory cushioning, stability and road-holding properties.

Under-inflation throws undue strain on the tyre-walls, while excessively high pressure causes rapid wear in the centre of the tread.

In the same way, sudden acceleration, or hard braking subjects the tread of the tyres to severe strain and wear is consequently accelerated.

Tyres are an expensive item and to a motor cyclist or scooterist, even more than to a car-driver, can cause great inconvenience by puncturing on the road.

Attention to pressures and to correct driving methods make a great deal of difference to the life of tyres.

5. It is generally accepted that slightly higher tyre pressures than normal are a help in fuel economy. This may be a point which greatly concerns anyone whose pocket is far from deep. However, it is foolish to carry over-inflation to extremes. By doing so tyre balance is destroyed and resilience reduced. The tyre bounces with the road undulations, there is more slip and more rapid tread wear, as already mentioned.

Over-inflation can also cause casing fractures and concussion bursts, but in this connection under-inflation is even more troublesome.

Under-inflation or flabbiness means that the tyre-casing is insufficiently supported by air pressure and in no condition to take the force of a blow with proper resistance.

So keep your tyres at recommended pressures except in extreme conditions (see "Braking") or when you are anxious to make every gallon of petrol count. With the latter aim in view you should limit your increase to two or three pounds.

6. It sometimes happens that a tyre deflates slowly for no apparent reason.

You should test the valve, the easiest method being with saliva. If a bubble appears, then the valve is defective.

It is a quick and simple test which will often save the tedious process of removing the wheel and checking the tube for a leak which just doesn't exist.

7. Many of the well-known tyre-care tips for cars apply equally well to motor cycles, but there are some modifications and amendments which the riders of two-wheelers should note.

Should the front tyre develop irregular or "stepped" wear, then interchange front and rear tyres. If this isn't practicable, then reverse the direction of rotation of the tyre. This will correct irregular wear and restore maximum resistance to tyre slip.

If a sidecar is used, then machine and "chair" must be in alignment (see "Steering").

When a pillion passenger is carried, the pressure in the back tyre should be increased. But *not* haphazardly. Members can get from the R.A.C. detailed information on pressures recommended for given loads for each size of tyre.

8. A first-class mechanic can remove a tyre with only one lever. The secret of how he does it will make it easier for Mr. Average to do the same job – with two.

The trick lies in freeing both beads of the tyre from the inner rim so that when the tyre lever is inserted the beads will be drawn down into the well of the wheel.

The tyre will then come away from the wheel quite easily.

After mending the puncture, the tube should be replaced and partially filled with air.

The art of replacing the tyre is the same as that of removing it. In other words, by endeavouring to keep the beads in the well, kinking and nipping can be prevented.

The important point to remember is to free the beads on both sides of the tyre. Some people think of freeing the outer bead but forget all about the inner one.

7

ELECTRICAL SYSTEM, WIRING AND LIGHTING

1. A bugbear to the motor cyclist is the vulnerability of cables and wiring due to much rougher usage than is experienced in a car, where similar components are better protected from the elements and from fraying and vibration.

There is something you can do about it which will save you expense and trouble.

Where possible, thread cables and wires either through polythene tubing or through rubber tubing of the type used for draught excluders. If this latter type is used for the rear-lamp wiring then the flap attached to it can be pierced and bolted to the rear mudguard.

For other parts of the machine, e.g. the control cables, thin polythene tubing will probably be found more satisfactory.

2. Because of its design, the motor cycle engine is exposed to rain and road grime. During cold or damp weather, obstinacy in starting may be caused by a damp or dirty high-tension cable from the magneto or mag-generator to the sparking plug.

The outside insulation of the plug may be coated with mud which provides a path for the high-tension current to leak to earth, diminishing the intensity of the spark at the plug point.

Parts affected in this way should be cleaned with a dry rag.

Additionally, the HT cable can perish and so cause a "short" to earth, especially if the cable is taped to the frame. Regular attention should be given to this point.

3. The R.A.C.'s annual statistics show that a surprisingly high percentage of motor cycle breakdowns are caused by

ignition and lighting failures. A large number of these could be avoided if ignition and lighting circuits were checked regularly at certain vulnerable points.

One is the magneto. Here the main point is to see that the pick-up brush or brushes are not unduly worn. If they are, they should be replaced. The HT lead should also be checked for wear, which will manifest itself by cracks in the rubber covering. A simple test is to flex the lead with the engine running. This will soon make matters obvious if fractures in the wire are causing momentary shorting.

The next check should be on the sparking plugs. Suppressors (which must by law be fitted to all machines manufactured after July, 1953) should be checked.

4. The fouling of plug points may be due to the wrong type of plug being used.

Sparking plugs are made in different thread sizes, various reaches and different temperature ranges to suit the characteristics of various makes and models. In consequence, if too much oil reaches the plug which is not "hot" enough to burn off the oil, the plug will become shortened by partly burnt oil.

Fitting a hotter plug should cure the trouble.

5. Possibly the most common fault of the two-stroke powered motor scooter is spark failure. This can usually be cured by replacing the plug with a new one. In any case, the plug should be taken out and cleaned every thousand miles.

Sand-blasting can be harmful since some sand may remain on the upper part of the body of the plug.

The plug gap should be set to ·018. As an easy guide, an ordinary postcard is approximately ·018 inch in thickness.

Remember that the central electrode must not be tampered with when the plug gap is being set.

6. Some simple cleaning jobs will greatly improve the efficiency of the electrical system. The HT slip-ring should be cleaned with a soft rag dipped in petrol. The stationary HT contact on the fly-wheel magneto should also be cleaned.

Any carbon dust should be removed from the dynamo commutator and the pick-up brushes should be checked.

Inspect all external wiring for cracked, heat-hardened or oil-soddened cables.

Dust should be cleaned from the bulbs of the head- and tail-lamps and from the head-lamp reflectors.

If the machine is equipped with a battery, the specific gravity should be checked when fully charged. The hydrometer should read approximately 1·3. (See "Battery Care.")

7. A few words on Advance and Retard. In theory the spark should occur at the top of the compression stroke. In practice, however, it is timed to occur slightly before the piston reaches top dead centre. The reason for this is that it takes an appreciable time for the compressed gas to become completely ignited and for the full force of the explosion to develop.

The majority of modern four-stroke engines are fitted with an automatic device which alters the timing of the spark in relation to engine speed. A fast-revving engine requires an earlier spark (advanced ignition) than it does when running at slow speeds.

The control mechanism consists of two spring-loaded weights which fly outwards when the speed of the gear pinion on which they are mounted increases. This movement is linked with the magneto and causes the contact breaker to act earlier in the piston stroke.

On no account must the control springs be tampered with. When a manual ignition control is fitted, the handlebar lever should be set in the retarded position for easy starting and advanced hereafter. *Don't* run the engine with the ignition fully retarded.

8. It isn't uncommon for motor cyclists to boast that they regularly inspect the electrical wiring of their machines. Yet when a breakdown occurs they find that a wiring fault was the cause of the trouble.

The reason is that too many of us make these checks very cursory ones indeed and check only the obvious places.

For instance, in the cases of motor cycles with pivoted-fork rear-springing, the tyre can come into contact with the tail-lamp cables secured under the mudguard. In the course of time, this constant contact will wear away the insulation.

So don't forget to look *under* the mudguard to make sure all is well. Another overlooked point is *inside* the head-lamp shell, where the cable harness clip may be rubbing against a cable with the same consequences.

9. Head-lamp failure is quite likely due to a poor connection between the shell of the head-lamp and the frame of the machine.

If this is the cause of failure, rust will be revealed at the attachment points if the lamp body is removed. This should be cleaned off and the points rubbed up with emery cloth to ensure a good metal-to-metal contact.

If this proves not to be the cause then check the battery earth lead, which is normally connected to a bolt beneath the seat. Here again the contact should be a good one otherwise the current cannot flow, the circuit being open.

10. About every 6,000 miles the commutator and brush gear should be inspected, an inspection which can be simply carried out by removing the commutator cover.

Owners of large four-strokes will see that the brushes are held in boxes by means of springs. It is essential that they make firm contact with the commutator.

Move each brush to see that it is free to slide in its holder. If it doesn't, take it out and clean with a petrol-moistened cloth. Make sure that the brushes are replaced in their original positions. If they are badly worn they should be renewed.

The key to efficient working is that the brush must be bedded properly to the commutator. If you replace the brushes in different positions after cleaning this will not happen.

In the same way, if you get new brushes it will probably be worth while asking the service depot to fit them, as they will be able to bed them down satisfactorily.

11. Every 3,000 miles, the setting of the contact breaker gap of the magneto should be checked. At the same time the contact breaker can be cleaned and lubricated. Single-cylinder machines usually have face cam type breakers and twins have ring cam type. The procedure differs.

In the face cam type, the cam face is lubricated from a wick contained in the base of the rotating contact breaker. Unscrew the contact spring and backing spring, remove the screw holding the wick and add a few drops of thin machine oil to the wick. Unscrew the contact breaker securing screw and remove the breaker. You will then be able to remove the operating tappet from its housing and smear it with machine oil. Finally, remove the face cam, clean it and smear both sides with grease.

In the ring cam type, the cam is supplied with lubricant from a felt strip on the inside of the contact breaker housing. Oil from the strip passes through a circular wick to the surface of the cam.

Take the breaker cover off and very gently lever the breaker from the shaft.

It will be necessary to remove the screw from the centre of the breaker to do this. Take off the cam ring, wipe the cam clean and grease both surfaces. Add a few drops of thin machine oil to the felt strip. Push aside the rocker-arm retaining spring, lift off the rocker arm and fill the grease-retaining groove around the pivot pin. Then replace the rocker arm, retaining spring and the cam in that order.

12. When you find HT cable showing signs of cracking or perishing, you should replace it with 7 mm. p.v.c.-covered or neoprene-covered rubber-insulated ignition cable.

To do this, remove the metal washer and moulded terminal from the defective cable. Thread the new cable through the terminal and cut back the insulation for about a quarter-inch or so. Pass the exposed strands through the metal washer and bend them back radially. Finally, screw the terminal into the pick-up moulding.

13. If the horn of your machine fails or doesn't give a satis-

factory sound, the trouble may be due to an outside factor. Most likely of these is a loose connection somewhere or a short circuit in the wiring of the horn. Other possible causes are a discharged battery or a loose horn-mounting.

A loose horn-mounting will not prevent the horn functioning altogether, but it may well cause the sound to be vaguely reminiscent of someone being choked to death!

One of the more obvious places for a bad connection which, nevertheless, is frequently overlooked is the horn-push securing-strap. It is essential that this is in good electrical contact with the handlebars.

14. Night driving outside built-up areas can only be a pleasure if your machine is equipped with an efficient head-lamp which is correctly set and focused.

The head-lamp should be set so that when the machine carries its normal load, the driving beam is projected straight ahead and parallel with the road surface. You can set your beam by drawing a horizontal chalk line the same height as the centre of the lamp from the ground on a smooth blank wall.

The machine (carrying normal load) should be placed 2 feet away from and pointing towards the wall. The beam will throw its light on to the wall and the area of concentrated light must be adjusted up or down until it is bisected by the chalk line.

15. The use of a spotlight on a motor cycle usually means the addition of a control switch. Normally, this will be the usual "on-off" type fitted to the handlebars. This can be a little tricky to operate if the rider is wearing thick gauntlets.

However, an RAC member recently proffered a solution to this problem which seems to fill the bill admirably. He purchased from a local store a push-button switch of the type sold for table-lamps and connected this to the casing of the head-lamp.

Now when he needs to use the spotlight, brief contact with the button puts it on and another push switches it off – no trouble and no fumbling. It's inexpensive to fit as well.

16. Drivers of machines of up to 250 c.c. can lighten the lamp load on their machines if they consider it necessary by fitting lower-wattage bulbs to the rear-lamps.

Such machines are exempt from the general requirement of a minimum bulb power of 6 watts for each rear-lamp.

8

BATTERY CARE

1. When the machine is in use, the motor cycle generator will maintain the battery in a charged condition. Topping up with distilled water once a month is important, and after a short time all surplus liquid should be removed by siphoning or shaking out. (Note: Only in case of Varley type.)

If the battery tends to lose capacity after long service, top up once or twice with sulphuric acid instead of distilled water (1·100 s.g.).

See that the battery is clean and dry and that all exposed metal parts are lightly greased with vaseline.

When standing idle a battery must be given a freshening charge at least once a month. Six hours at 1 amp is recommended.

2. To check the specific gravity of a battery use a small-volume hydrometer, which will give the specific gravity of the acid in each cell from which a sample is taken. *Do not* take measurements immediately after topping-up the cells as the electrolyte will not have mixed properly. To take the sample, tilt the battery, thus bringing the electrolyte above the separators.

When the cell is fully charged the reading should be just below 1·3. If any cell should give a reading startlingly different from the others, acid has probably been spilled or has leaked from that particular cell.

Alternatively, there may be a short circuit between the plates and you should have the battery checked by a service depot.

3. During the winter months care must be taken not to impose an undue load on the battery. For example, a fog- or

spot-lamp should not be coupled direct to the battery but connected through an extra dip switch. The fog-lamp and the head-lamp can then be used independently.

In the same way, if you wish to use electrically heated gloves during cold weather, do remember that it is unfair to expect the battery to carry the load of continuous head-lamp use in conjunction with such gloves.

These cautions are, of course, primarily for soloists, since those with sidecars can carry a larger battery better able to tackle heavy loading.

4. Night-parking presents a problem to many motor cyclists. You can save your battery and also avoid inconvenience to other road-users by parking off the highway whenever possible. However, should it be necessary to park on the highway (particularly if the machine is a combination) then care should be taken to position as close as possible to the kerb on the left-hand side of the road.

The solo machine must have a white light to the front, a lamp showing red to the rear and a red rear reflector. Motor cycles with a sidecar must have two lamps showing a white light to the front, two showing red to the rear and two red rear reflectors. In the Metropolitan Police area this law has been relaxed on certain roads and parking without lights is permitted.

There is another exception to the regulations which is of benefit to those experiencing breakdowns. If a solo is being wheeled by a person on foot as near as possible to the left-hand side of the highway, no lights are required.

9

FUEL SYSTEM, CARBURETTOR AND ECONOMY

1. Plenty of advice is bandied about for car owners on the subject of petrol and the most suitable grades to use. But no one seems to care about the poor old motor cyclist. So here are just one or two pointers which may help you.

First of all in using petroil, it is absolutely essential that petrol and oil are mixed thoroughly. In no case should oil be allowed to go into the tank first, as it may clog the carburettor.

Secondly, if you have a two-stroke machine, you are not likely to benefit from using premium grades of petrol. In fact, the shortest and best advice is use ordinary petrol and save money.

If, however, you own a four-stroke you will find it pays to use premium grades. You will almost certainly get "pinking" if you try to get away with ordinary petrol.

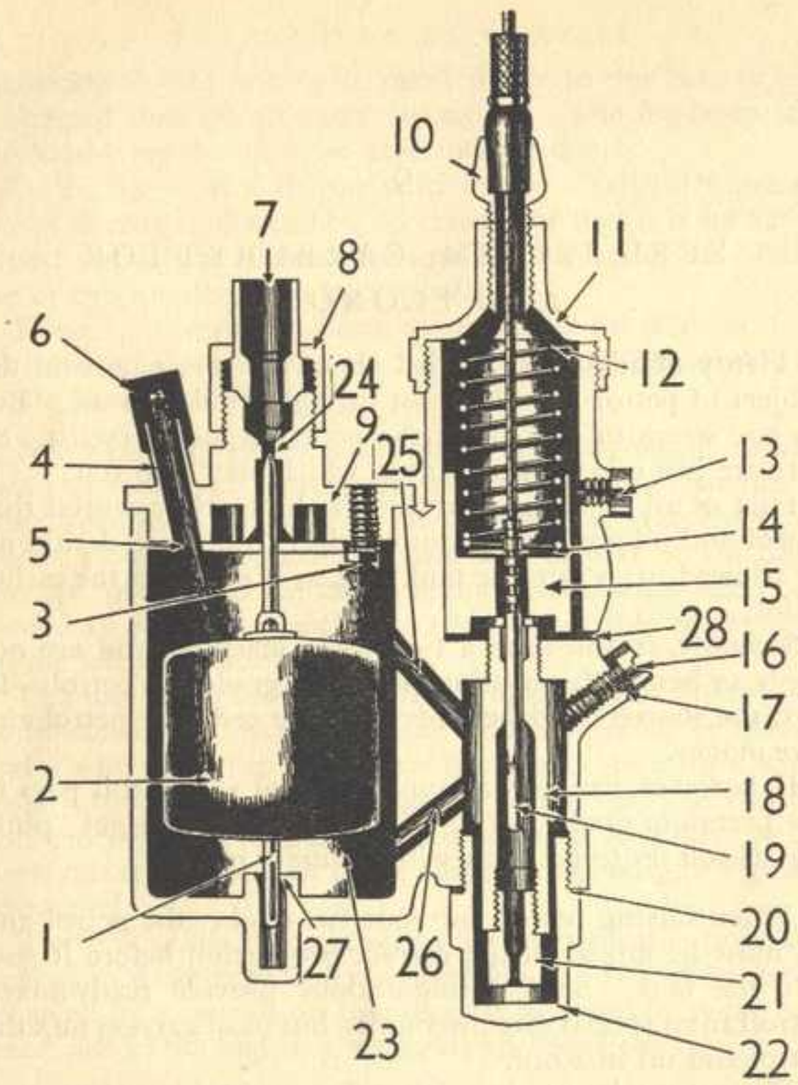
2. When buying petroil for your two-stroke, the petrol and oil must be mixed in the correct proportion before it goes into the tank. Some filling-stations provide ready-mixed petroil from special dispenser units, but most garages mix the petrol and oil in a can.

The proportion varies with different machines from one part oil and sixteen petrol to one part oil and twenty-five petrol. It is important to obtain the recommended mixture.

Too much oil will foul the plug at slow speeds and too little will result in over-heating and rapid wear.

During the running-in period, a slightly increased amount of oil is necessary.

Oil containing graphite particles is particularly beneficial and the recommended quantity usually less.



Carburettor: The drawing shows a popular type of Amal Carburettor. The key to the parts is as follows: (1) float needle; (2) float; (3) tickler spring screw; (4) tickler bush; (5) tickler spring; (6) tickler; (7) petrol pipe union nipple; (8) petrol pipe union nut; (9) float chamber cover (top feed); (10) cable adjuster; (11) mixing chamber top; (12) throttle spring; (13) throttle valve location screw; (14) jet needle clip; (15) throttle valve; (16) feed hole screw; (17) feed hole washer; (18) needle jet; (19) jet needle; (20) jet plug washer; (21) main jet; (22) jet plug; (23) float chamber; (24) petrol feed needle seat; (25) air release passage from jet chamber to float chamber; (26) petrol feed passage from float chamber to main jet; (27) the illustration shows the float and needle as one piece but if the needle is separate, the float has a spring bow at this point to hold the needle in a groove; (28) drain hole from mixing chamber to liberate any excess petrol due to flooding.

On a long downhill stretch an occasional burst of the throttle is necessary to ensure engine lubrication.

3. Something which is very likely to happen in the early stages of ownership of a two-stroke machine is that the rider will inadvertently make the petroil-air mixture so rich that the engine will not fire.

This can result from flooding the carburettor and/or using the strangler when the engine is hot. Excessive flooding at any time or the machine being left leaning over with the petrol tap on – in other words, leaning so that neat petroil can flow into the engine – will result in the engine not firing.

Wheeling the machine a few yards with the throttle wide open may ventilate the engine sufficiently to clear the trouble. Should the engine still be loth to fire then other steps must be taken.

4. If wheeling the machine with throttle open fails to make the engine fire, then the drain-plug near the bottom of the crankcase should be removed and the machine pushed a few yards.

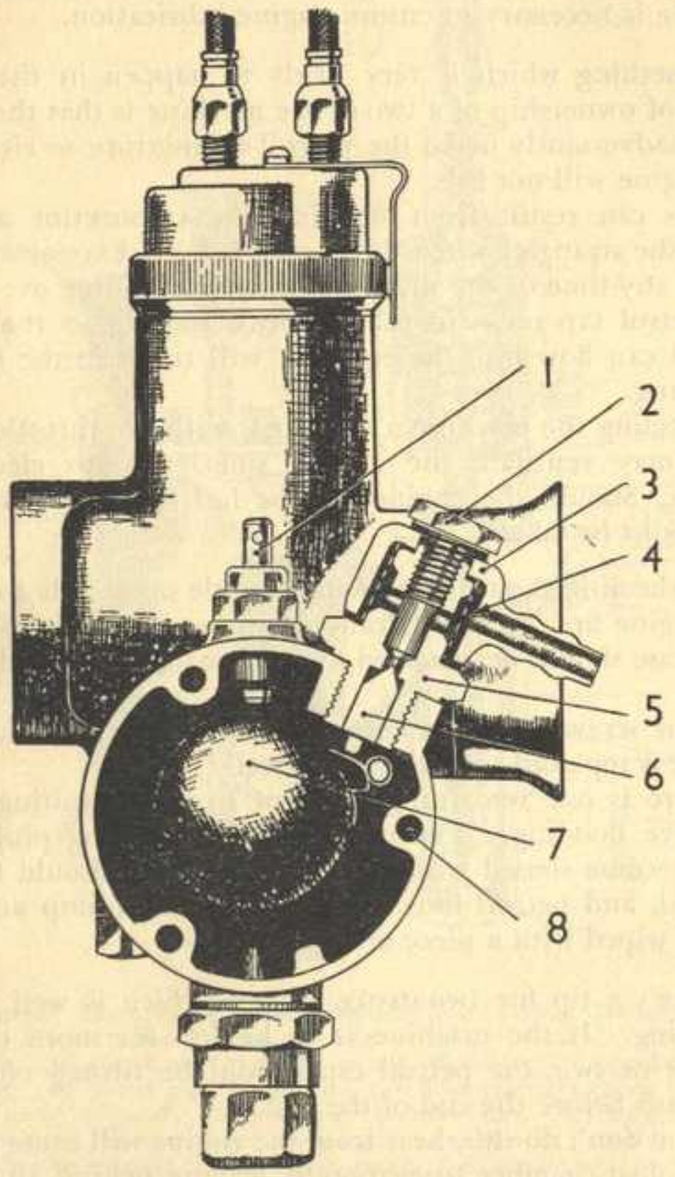
Then screw the plug home tightly, taking care that the washer is replaced. All should be well.

There is one remaining cause of trouble resulting from excessive flooding. The points of the sparking plug may have become soused with petroil. The plug should be unscrewed, and petroil blown out with a tyre pump and the points wiped with a piece of rag.

5. Here's a tip for two-stroke owners which is well worth following. If the machine is to be left for more than a minute or two, the petroil tap should be turned off some 300 yards before the end of the run.

If you don't do this, heat from the engine will cause petrol in the float-chamber to evaporate, leaving behind an excess of oil.

The heat drives off the lighter and more volatile fractions in the petrol – the easy-starting fractions. By leaving the



Section through Float Chamber: This drawing of another type of Amal Carburettor shows: (1) tickler; (2) banjo bolt; (3) banjo; (4) filter gauze; (5) needle seating; (6) needle; (7) float; and (8) side cover screws.

float-chamber more or less empty, we only have to turn on the tap to have petroil of the correct proportion – which ensures the easiest possible start.

6. Can you expect improved performance from your machine by using high-octane fuel? There are varying opinions on this, but although some of the petrol companies insist otherwise, the majority view seems to be that of most manufacturers, i.e. that it all depends on the compression ratio of the machine.

In other words, the top quality fuels are primarily intended for machine with a compression ratio about 8 to 1 and above. Other grades of petrol are likely to cause pinking in such machines.

7. Banging in the exhaust may be caused by too weak a pilot mixture when the throttle is closed or nearly closed. It may also be caused by too rich a pilot mixture or by an air leak into the exhaust system.

In the case of Amal carburettors (fitted to the majority of motor cycles), the cause is that the mixture has not fired in the cylinder but has fired in the hot silencer.

If the banging occurs when the throttle is wide open or nearly so, the trouble is due to ignition and not to carburation.

8. Carburettor tuning – in other words, the adjustment of the carburettor to ensure that the mixture of petrol and air is in the correct proportion – is extremely important.

A rich mixture (where there is excess of petrol) can be detected by a "soot" deposit on the plug points. A weak mixture will tend to make the points a whitish colour and will result in over-heating, burnt-out valves and "blueing" of the exhaust pipe.

To correct either of these, the mixture can easily be varied. In most standard carburettors the tapered needle controlling the main supply of petrol may be raised or lowered in relation to the throttle slide, which controls the flow of air. Usually there are five notches, the normal position for the needle being the middle notch of these five. Lowering it

below this middle notch will weaken the mixture and raising it above will enrich the mixture.

9. Remember that you cannot have performance *and* petrol economy. One must be sacrificed for the other when tuning the carburettor. Careful adjustment of the pilot air screw on the Amal carburettor can greatly improve miles per gallon, particularly if a lot of town work is indulged in. Violent acceleration should be avoided in the interests of economy and the engine should be nursed by dint of a gradual turning upwards of the twist-grip.

10. Irregular engine-running is often due to dirt or water in the carburettor. All the carburettor parts should be removed and cleaned carefully with a soft rag. Under no circumstances should you use abrasives in this operation.

If the main jet is blocked, try to blow the obstruction out. If this fails do *not* use wire. You will find that the jet thread is the same as that on your pump. Screw the tyre pump to it and air pressure should do the trick.

When re-assembling the carburettor fit new fibre washers. The old ones are likely to be hard and brittle, which leads to petrol seepage.

11. Excessive petrol consumption by a new machine may be due to flooding caused by impurities in the petrol tank lodging on the float needle seat and preventing the valve from closing. On the other hand, if the machine has had several years of use, flooding may be caused by a worn float needle valve. High petrol consumption will also be apparent if the throttle needle jet has worn. It may be remedied or improved by lowering the needle in the throttle. Alternatively, the remedy is to replace the needle jet.

12. It cannot be emphasised too strongly that for efficient carburation the level of fuel in the float-chamber should be as the carburettor manufacturers advise. A good average is for the fuel level to be one-sixteenth of an inch below the level of the jet.

Too high a level will result in a rich mixture and consequently heavy fuel consumption. Too low a level will mean

difficult starting and probably overheating. The one will present difficulties during the winter months and the other could well spoil your summer jaunts.

In the standard Amal carburettor the fuel level is determined by the manufacturer and is not adjustable. A change of fuel level results only from damage or wear, and the remedy is obvious.

13. Motor cyclists with a much better mileage per gallon are not troubled by petrol economy considerations to the same extent as the car owner. Even so, extra miles to the gallon do not come amiss. The well-publicised economy hints for cars apply equally well to motor cyclists, i.e. a maximum speed of 38 to 40 m.p.h. and an ideal mean of about 35; plenty of top gear work and no violent acceleration (as already mentioned); free running; tyres on the hard side; clean plugs and the ignition advanced as far as the engine will accept without pronounced pinking.

As previously pointed out, the carburettor throttle and needle jet may become worn and this will affect fuel economy. When carrying out experiments with the carburettor (see No. 11) the needle should only be altered one notch at a time and the machine tested between each alteration.

14. One of the most prevalent misconceptions connected with motor cycling and scootering is that the fitting of a windscreen reduces mileage per gallon. Experiments have shown that a carefully fitted screen actually improves performance by improving the aerodynamic lines of machine and rider. In no way does the windscreen impair the steering characteristics of the machine.

When fitted, the top edge of the screen should be slightly below the eye level of the rider. At speeds in excess of 25 m.p.h., a forward current of air will carry dust, flies and rain over the rider's head.

15. We were told recently of an ingenious repair which a fellow motor cyclist carried out in an emergency, an example of quick thinking which is certainly worth passing on. What

happened was that the plastic fuel pipe on his machine split. He had no spare and was nowhere near a garage. But he had one priceless asset – his wife as a pillion passenger. And she had a bottle of nail varnish.

A hasty application of the contents of the bottle, and then he bound the pipe with some asbestos string from his tool-kit. The result was a workmanlike job which lasted out the journey home and, indeed, looked good for many more miles.

16. An inadequate or blocked fuel supply is quite a frequent cause of breakdowns. To check this press down the priming pin or tickler of the carburettor (see diagram page 58). If there is no flow of fuel inspect the tank. If the supply is insufficient then take a look at the petrol cock to ascertain if it is partly closed. Turn it on full.

If the small air vent hole in the filler cap of the petrol tank is blocked, petrol will not flow from the tap. If the fuel pipe is blocked, turn off the petrol cock at the tank, disconnect the pipe at the carburettor and tank, clean out and replace.

17. If trouble is traced to water in the fuel, you should deal with it as follows:

Drain off the fuel at the carburettor base. Then clean the jet and float chamber. The fuel pipe and the filter should also be thoroughly cleaned. The fuel in the tank should be drained off to make sure of getting rid of all the water.

Finally, the tank should be refilled, *but* by straining the fuel through a fine-mesh gauge, which will effectively prevent the water getting into the tank again.

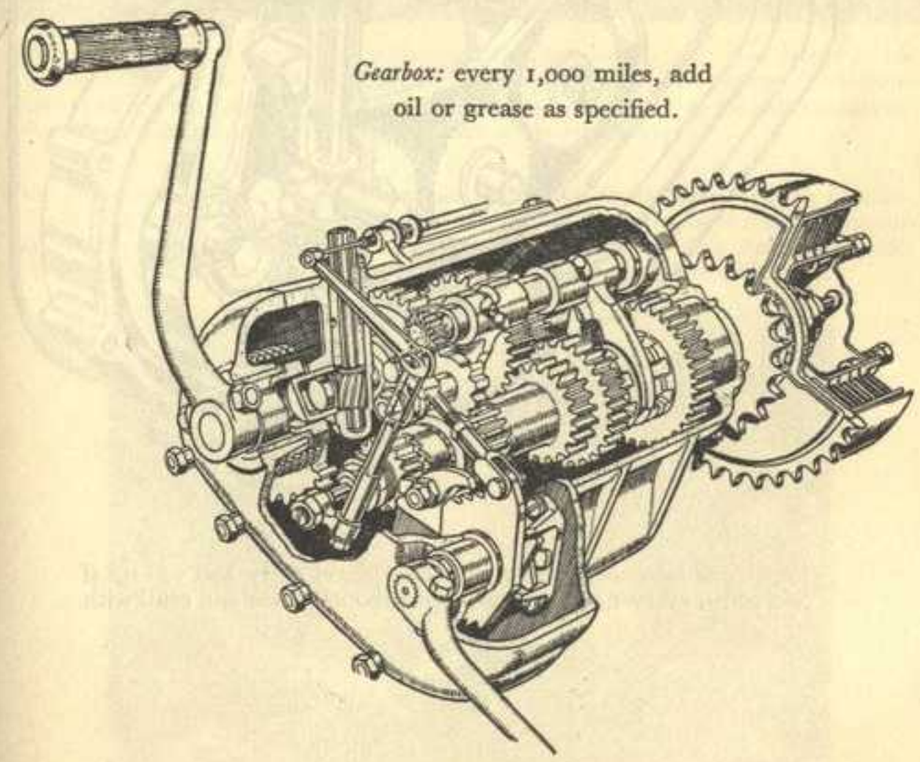
10

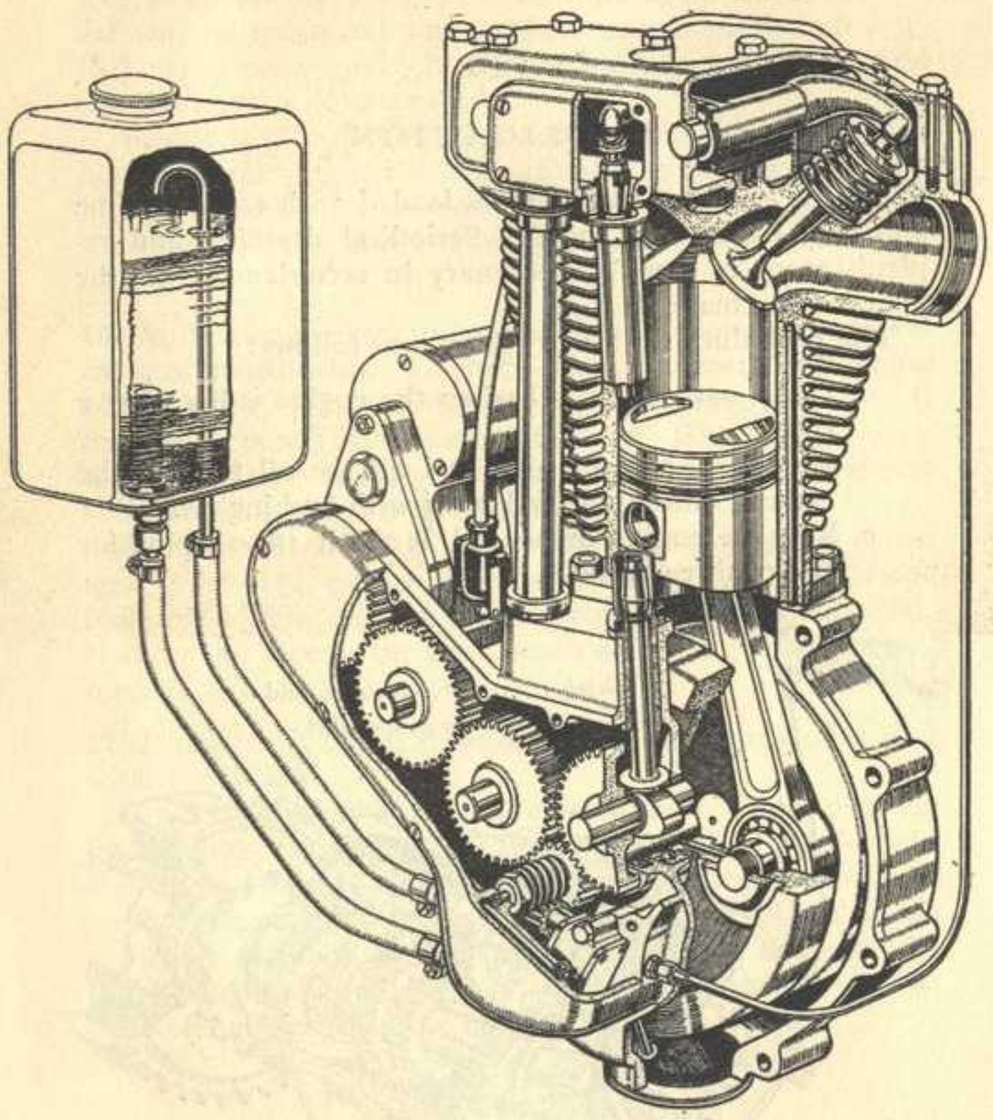
LUBRICATION

1. Engine oil after use becomes loaded with carbon grime and tiny particles of metal. Periodical draining and replenishment is therefore necessary in accordance with the maintenance manual.

The procedure for a four-stroke is as follows:

a. Drain out the old oil when the engine is hot after a run.
b. Replace the drain plug and fill the oil tank to the maker's minimum level mark with flushing oil.
c. Run the engine in neutral at about 1,000 r.p.m. for two or three minutes.





Engine and lubrication system: inspect oil-level daily and top up if necessary; every 1,500 miles, or thereabouts, drain and refill with fresh oil.

Rescue by Radio: Thousands of motor-cyclists and scooterists have been helped by the Radio Rescue Service of the RAC which operates in London, Birmingham, Manchester and at all of the big agricultural shows and sporting events. Two-way radio communication brings a skilled mechanic speedily to the scene of the breakdown.

Fox Photos

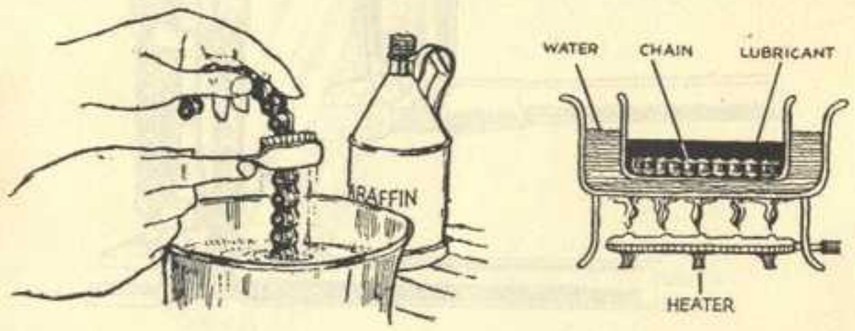
Motor Cycling Hazard: A Norton combination is put to unusual use as Maurice Hudlass, Chief Engineer of the RAC uses it as a stand for a Radar Speed Meter. In the interests of member-motorists and motor cyclists, Mr. Hudlass was conducting experiments on the Cromwell Road Extension, London, to determine how accurate the machine was.

Thrills and Spills: This remarkable action sequence by A. B. Cole Jnr. shows a pile-up during a meeting at Crystal Palace. . .

. . . No. 78 was able to dodge the trouble but while he was doing so, three other riders passed him. Fortunately no one was badly hurt.

d. Stop the engine and drain the flushing oil from the engine and tank.
e. Clean all filters while the oil is draining.
f. Replace drain plug and filters.
g. Refill the tank with the correct grade of oil to maker's maximum level mark.

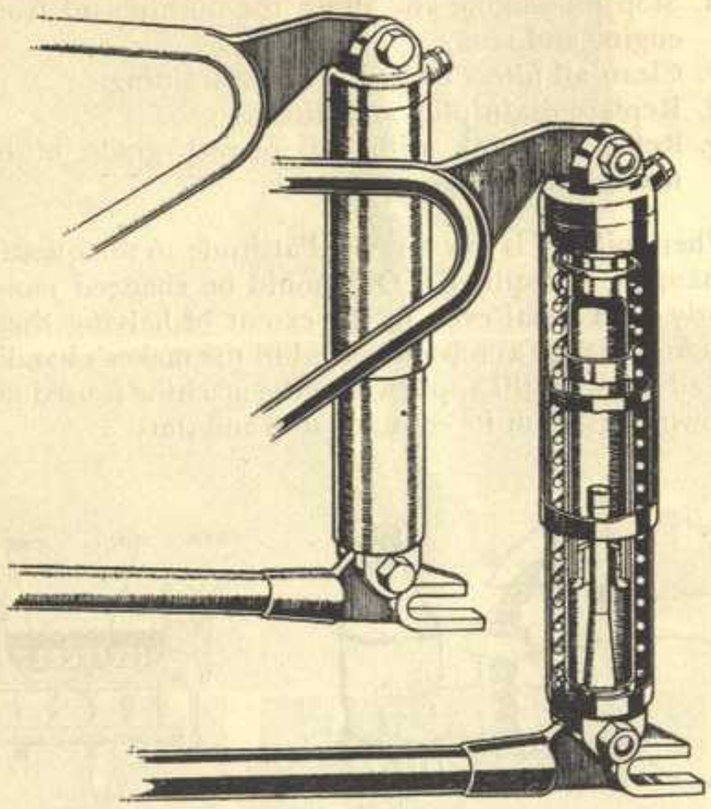
2. When mileage is low a revised attitude to the question of oil-changing is required. Oil should be changed more frequently than usual even to the extent of halving the mileage before change as recommended in the maker's handbook. This advice will still apply where the machine is used mainly for town work with its constant stop-and-start.



An exposed chain which is not fitted with an efficient oil-feed must be removed from the machine every 1,000 miles (or more often in bad weather), immersed in a paraffin bath and scrubbed perfectly clean as described here.

3. Failure to lubricate the chains regularly will accelerate wear. The primary chain is enclosed and normally lasts much longer than the final drive chain, which is usually exposed to rain and road grit.

Removal of the chain every thousand miles is recommended. Clean the chain in paraffin and when dry immerse in a shallow bath of candle tallow, which should first be made viscous by warming. This allows the tallow to penetrate inside the rollers. There are preparations on the



Rear suspension: Every 5,000 miles check each leg for oil content and top up if necessary.

market for cleaning chains, but Renold Chains advocate paraffin.

When refitting the chain, lap the free ends over the rear sprocket and the spring link will slide in easily. Ensure that the spring clip is pressed home with the closed end facing the direction of travel of the chain.

4. Telescopic front forks have been widely adopted by motor cycle manufacturers, and in many cases hydraulic damping is incorporated. An adjustment is provided and the only maintenance likely to be required, apart from a

Front forks: Every 5,000 miles check each leg for oil content, drain off and top up.

routine check-up on the tightness of nuts and bolts, is attention to the oil level in the hydraulic damping system.

If, after considerable mileage, the forks appear to develop excessive up-and-down movement, this may be an indication that the oil supply requires replenishing.

The usual method is to remove the large hexagon-headed cap at the top of the forks and also the small drain plug at the bottom of each leg. When all the oil has drained out, the plugs are replaced and the recommended grade of engine oil (usually 5 A oz – 142 c.c.) is poured into each leg. On no

account must the fork legs be filled right up to the top, or the forks will be quite unable to function.

5. Well-lubricated control cables rarely give any trouble. A dry inner cable has a tendency to become rusty and operation of the control levers becomes stiff and hard. The result will be, at best, a frayed cable, or, more likely, the severance of a nipple.

If the twist-grip throttle cable nipple pulls out, an emergency repair can be effected by changing over the air control cable to the throttle slide. It may be a sloppy fit, and if so, the free play should be taken up by winding a few turns of copper wire between the ferrule and the cable adjuster.

A rider preparing for a long tour is well advised to tape spare control cables in position – particularly a spare clutch cable.

6. The quickest temper-frayer and worst time-waster we ever encountered in our younger motor cycling days was trying to fit new rubber grips to the handlebars. We wrestled and struggled and swore and still the darn things wouldn't go on. Then, one day, an old hand gave us a tip, a tip we are passing on to you now. Lubricate the handlebars with soap before fitting the grips. You will be amazed at how easily they slide on. Lubrication had occurred to us, of course, but we could only think of oil, which obviously doesn't do rubber any good. But soap does the trick. Try it yourself. It works equally well if you are fitting rubber foot-rests.

7. Even though the experienced rider can judge his road speed with considerable accuracy, the law requires the machine to be fitted with a speed recording instrument showing a margin of accuracy of plus or minus ten per cent. This regulation applies to all motor cycles and scooters, with the exception of those of less than 100 c.c. or those first registered before October 1, 1937.

The speedometer must be maintained in good working order. Periodical attention should be given to the lubrication of the inner cable of the speedometer drive. The drive

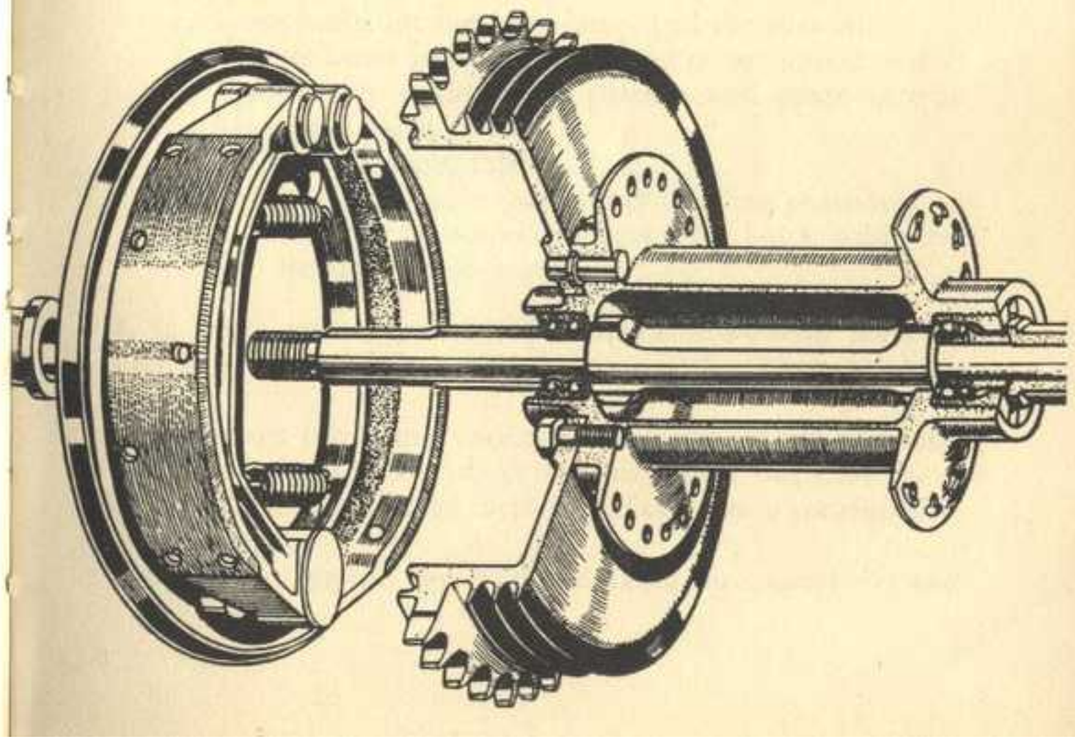
gear-box should be positioned in such a way so as to avoid kinking of the flex drive, otherwise the cable will fracture at this point.

Incidentally, the bulb used to illuminate the face of the speedometer is prone to burning out, and it is wise to carry a spare.

Nowadays wheel sizes vary in diameter, and it is therefore advisable to ensure that a correct replacement instrument and drive gear-box are obtainable when this becomes necessary.

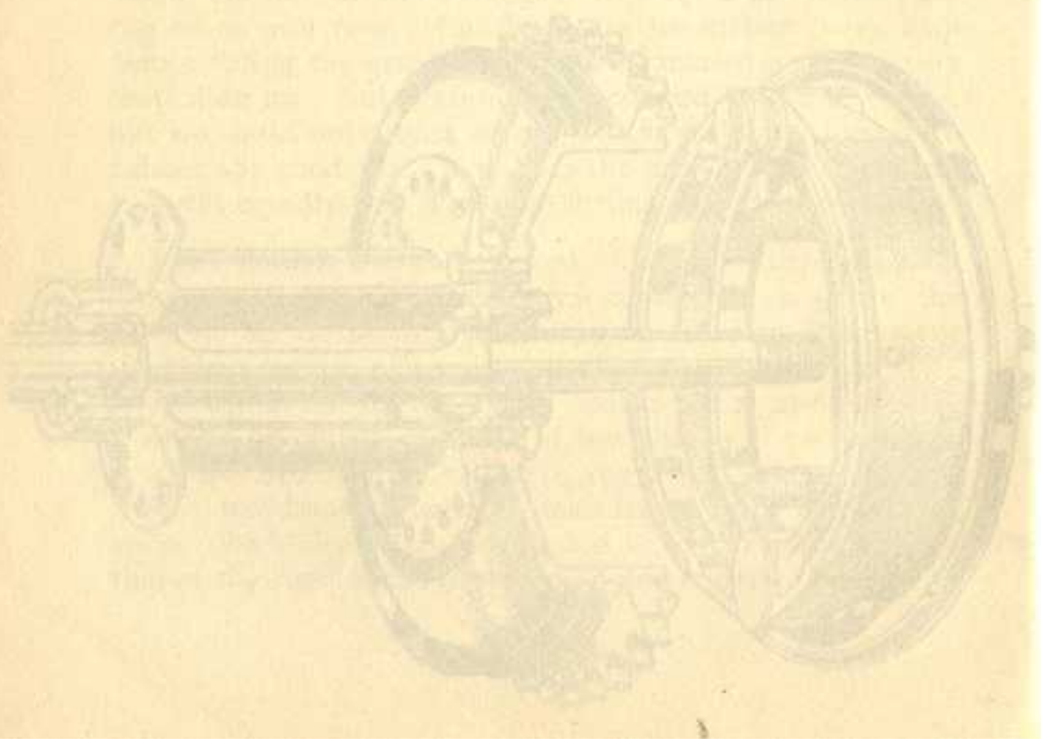
8. From time to time in "Do-It-Yourself" columns, "gimmicks" are published demonstrating how to improvise tools and accessories. Now, we are not against "gimmicks" on principle, but in general such improvisations are not satisfactory. For example, one idea submitted suggested that those plastic containers which squirt lemon juice could be

Brake and hub bearings: inject small quantities of grease by means of grease gun every 1,000 miles.



used as pressure containers or, in other words, oil-cans. The idea is ingenious and doubtless works quite well. Yet if you intend to maintain your machine yourself it will pay to invest in a good oil-can which will not easily damage and will give you twenty years or more of good service.

This line of thought can be extended to all tools and equipment used on the machine. Good-quality articles will ultimately save you pounds in the little maintenance jobs which they will enable you to do easily and efficiently. A motor cyclist's best friend can be his tool-kit, and quality rather than quantity is likely to prove most valuable.



11

ON THE ROAD–AT HOME

1. We motor cyclists are, as a class, pretty resourceful chaps and most of us will attempt to tackle all but the most serious roadside breakdowns.

Before setting out on tour the wise motor cyclist satisfies himself that his machine is in first-class condition *and* stows the following items in a readily accessible place in his pannier equipment:

1. A spare sparking plug (two of them if the machine is a twin).
2. A complete tool-kit (including electrician's pliers and feeler gauges).
3. Spare chain links and chain rivet extractor.
4. Spare bulbs for the head-lamp and the rear-lamp.
5. A spare inner tube, which should be well protected.
6. Tyre repair outfit, with patches and spare canvas. Also spare valve cores.
7. Roll of insulating tape.
8. A spare clutch cable (preferably taped in position).
9. A small box of standard nuts and bolts, solderless nipples and grease-gun.

2. It is not uncommon to experience trouble with the pannier equipment whilst on tour owing to the fixings working loose.

There are too many variations in types of machine and fittings to give specific advice on this point, but time spent in securely fixing luggage carriers will often save considerable delay later on.

Before setting off, check all the fixing nuts and bolts and

if any appear worn or damaged, replace them. Tighten all others securely.

If you are fitting panniers for the first time, remember to site them as low as possible in order to lower the centre of gravity and as far forward as possible so as to avoid "tail-wag".

3. The question of fitting a rear-view mirror to the offside handlebar of a solo motor cycle or scooter is a topical and controversial one. Many favour a mirror, but should you decide to fit one you must remember that the picture is much smaller than that seen with the unaided eye and may frequently be distorted due to vibration.

In general, it is best to follow the sound advice of the Highway Code and glance behind before you signal, move off, change course, overtake or turn. And, as the Code so rightly emphasises, this advice should be followed even when a mirror is fitted. In other words, the mirror should be supplementary to the rearward glance and not a replacement for it.

4. Attractive mascots are often to be seen on the front of motor cycles and scooters, but it is important to note that if you are intending to place one on your own machine you should make sure that it is not in such a position that it will endanger others in the event of a collision. This precaution is required by law, although other attachments such as pennants, flags and spot-lights are not included in this requirement.

The front number-plate fitted longitudinally on the mudguard can quite easily injure a person upon impact. In this connection it is worth while noting that it is legal for the front number-plate to have index letters and registration number on *one side only*, providing that the number-plate faces to the front. In this position it is far less likely to constitute a danger.

5. A comfortable riding position is essential for everyone. Owners of auto-cycles and mopeds are particularly favoured

in this respect. The saddle and handlebars can usually be varied quite simply. As with most pedal cycles, the saddle is normally secured by two nuts which can be loosened to enable the saddle to be adjusted to the most comfortable position and then tightened again.

The handlebars, secured either by a locking-ring or a bolted clip, can be similarly adjusted. Attention to these apparently minor details will considerably reduce fatigue and in consequence the risk of accident.

6. Protective headgear is very much in the news these days, as witness the recent discussions and pronouncements of medical authorities. It is obviously advisable that motor cycle and scooter riders should wear crash-helmets, and it should be just as obvious that the helmets should conform to certain standards.

The law now prohibits the sale of spurious helmets to the public. All safety-helmets must now bear the British Standard Institute Kite Mark 2001.57. Look for this inside the sweat-band when buying a helmet.

In choosing one make sure that it is a comfortable fit and that the weight is evenly distributed around your skull. A fitted peak protects the eyes from rain and glare and adds greatly to the comfort of the rider.

7. Riders of two-wheelers often complain that the average book of road maps, including those published in the handbooks of the motoring organisations, are too bulky for convenient handling when on tour.

The upshot of their complaints has been the publication by the RAC of a 64-page Road Map of Great Britain and Ireland designed especially for motor cyclists and scooterists. The maps, which cover every section of the British Isles, are printed in blue and black on white for easy reference and form a slim, handy-sized volume which will slip easily into the pocket or pannier-bag.

RAC members get the benefit of a reduced price of 2s. 6d., but the charge to non-members is only 4s. for a book which, to quote that hoary old phrase, "fills a long-felt want".

8. Goggles misting up can be a great nuisance when on the road. There are now obtainable a number of special de-misting preparations which when smeared on the goggles go a long way towards preventing the trouble.

Alternatively, a strong solution of household detergent smeared on the lenses, allowed to dry and then polished with a dry cloth, will be beneficial.

9. However well a nipple is soldered to the control cable the time comes when sheer strain pulls it out of the control lever. Naturally, this usually happens while on the road.

The machine can usually be made roadworthy again by fitting a solderless nipple to the cable, and so it is worth while carrying a supply of these in your tool-bag.

If the nipple has not been lost it can be reamered out and the cable re-threaded. The ends of the cable strands should then be bent back with a pair of thin-nosed pliers so that they are just like fish-hooks. This will usually be sufficient to hold the cable long enough for you to reach home or, at least, the nearest garage.

10. Riding in wintry conditions can be a little terrifying for the novice. Here are a couple of valuable tips:

1. Emulate the trials rider and keep your feet up. By putting your feet down you sacrifice a lot of the necessary controlling balance and you are also likely to lose, whether consciously or not, a great deal of your own self-confidence. In such circumstances you are more prone to skid.
2. Don't try to whip past a car which is signifying intention to turn. It is dangerous to do so at any time, but under winter conditions a sudden swerve or crash-stop will lead to disaster. A driver to beware of is the man who, in all good faith, may be flashing his direction indicators preparatory to turning, unaware that you are riding beside him. So caution and anticipation at all times.

11. One of the most important items of equipment carried by an RAC patrol is a first-aid outfit, and you would probably be surprised to learn how many times he is called upon to use it. Yet – a patrol may not always be handy when an accident occurs. By accident, we do not necessarily mean a serious collision, although the advantage of someone being present with first-aid knowledge and equipment is obvious in such a contingency.

But in motor cycling so many accidents of a minor nature can occur. Cuts and burns when doing repairs, cuts and bruises when you stop for a wayside picnic and the kiddy goes off to play.

So the sensible motor cyclist carries a first-aid kit. The well-known manufacturing chemists, Cuxson, Gerrard and Co., Ltd., have produced, in conjunction with the RAC, a pocket-pack which is available at most chemists and contains ten first-aid items including burn dressings, bandages, plasters and antiseptic cream. It also contains a twelve-page booklet on first-aid specially written for road users by a famous surgeon.

12

ON THE ROAD–ABROAD

1. Going abroad used to be a tremendous adventure – and a very complicated one if you wanted to take a car or a motor cycle. But through the years, red tape has gradually been cut and more and more people take a holiday awheel on the Continent.

Carnets (or customs documents) and triptyques are no longer required in most European countries and at the time of writing only Great Britain, Italy, Spain and Portugal still insist on this formality. By the time you read this it is hoped that they too will have fallen in line.

However, if you are a member of a motoring organisation you can get all the latest "gen" from them, and for a modest 35s. they will supply all necessary documentation, make your sea and air bookings and so on. This method of going abroad also has the advantage that it entitles you to the benefits of their Continental breakdown services.

2. If you wish to make your own arrangements, there are a number of ferry services to the Continent which will take motor cycles, the principal ones being:

British Railways
(Central Motor Car Booking Office),
P.O. Box 29,
Victoria Station,
London, S.W.1.

Townsend Channel Ferry,
78, Leadenhall Street,
London, E.C.3.

Silver City Airways, Ltd.,
62, Brompton Road,
London, S.W.3.

Air Charter, Ltd.,
21, Wigmore Street,
London, W.1.

Bergen Lines, Ltd.,
21, Cockspur Street,
London, S.W.1.

Bookings for the Zeeland Steamship Company (via Harwich and Hook of Holland) can be effected through your motoring organisation, through Wm. H. Muller and Co., Greener House, 66/68, Haymarket, London, S.W.1, or through Continental Ticket and Information Bureau, British Railways, Eastern Region, Liverpool St. Stn., London, E.C.2.

3. You will need a passport. These cost 30s. and last for five years. A wife may be included on her husband's passport and children under sixteen can also be included. Photographs are required and there are many firms specialising in passport photos. The actual passport application may be made either to your local Labour Exchange or to one of the main Passport Offices whose addresses we give here:

Petty France,
London, S.W.1.

India Building,
Water Street,
Liverpool, 2.

4, Buchanan Street,
Glasgow, C.1.

4. If you are travelling to a country which has abolished carnets then you should complete Form 29 C (Sale), obtainable from H.M. Stationery Office. You will also require a registration book or, alternatively, a motoring organisation identification form.

If the country of your destination does still demand carnets you can still make your own arrangements, but for the sake of £1 15s. you would be well advised to let one of the motoring organisations do the necessary paper work for you.

5. A full British driving licence is sufficient for most European countries except West Germany, Spain and Portugal, Denmark and Greece. If you are going to one of these, then you will require an International Driving Permit (complete with two passport-size photographs), which is again obtainable from your motoring organisation.

6. Most important – *do not forget insurance cover.* The vast majority of countries require motoring tourists to have a "Green Card" as evidence of cover. This is obtainable from your insurance company.

In general, British insurance companies require additional premiums for foreign touring in the case of motor cycles and scooters. They insist that they are always notified when the machine is taken abroad.

7. If you intend camping whilst on holiday, the RAC will issue a Camping Carnet for 2s. This is your passport to many official camp-sites and also enables you, in France, to camp in the State Forests.

8. Money may be the root of all evil, but you won't get very far on the Continent (or in Britain either for that matter) without it.

At the time of going to press, the basic sterling travel allowance is £100 per head (£70 for children under twelve) and £15 for a motor cycle. If you are going to Scandinavia an additional £250 is permitted.

There is no limit to the amount of foreign currency which may be taken out of Britain but £10 per head is the limit for sterling.

It is safest to take the bulk of your money in the form of Cook's Travellers' Cheques. They are extremely easy to use and you can cash them almost anywhere, for the name of

Thomas Cook is known throughout the world. Providing you comply with a few simple precautions, this method is completely safe.

If your cheques should be lost or stolen, Cook's will refund their value in full. When these cheques have been signed by you, they cannot be cashed by anyone else.

Depending upon current rates of exchange, it may sometimes be more profitable to buy foreign currency here. Nevertheless, it is risky to carry large sums of money with you and we would advise the Travellers' Cheques in preference to this. Moreover, in France hotel bills paid by Travellers' Cheques are often reduced by 10 per cent.

9. In some countries, notably France and Italy and also in Yugoslavia, there are special cut-price petrol rates for tourists. You should certainly take advantage of these concessions as they mean a considerable saving in the cost of your petrol. Concession coupons are obtainable, in the case of France, from Credit Lyonnaise and all French banks in Britain; in the case of Italy, from the Swiss Bank Corporation, Lower Regent Street, London, S.W.1, or at the frontier; and in the case of Yugoslavia, from the Yugoslav National Tourist Office, 143, Regent Street, London, W.1.

Incidentally, when you are buying petrol on the Continent try always to find a station selling known brands. Some foreign petrol is pretty deadly stuff, as owners of two-strokes, in particular, may find to their cost.

10. Many manufacturers now issue Continental Spares Kits on a sale-or-return basis. This is an idea well worth considering, especially if your holiday tour is likely to take you off the beaten track where spares of any kind may be extremely difficult to get. And the advantage of this scheme is that you pay only for the items you use plus, in most cases, a small handling charge.

If you belong to a motoring organisation you can take advantage of their Continental Assistance Service. They will fly parts to you if necessary and, in the event of a major "prang" or breakdown, will arrange for shipment back

home, including payment of the freight charges from the scene of the "crime" to the nearest port of embarkation.

11. One of the main bugbears of British motor cyclists and scooterists going abroad is the fact that the majority of countries drive on the right and not on the left, as here.

It is a good idea to fit a mirror on the sidecar so placed that you are given a view of the road ahead. This will greatly reduce the risk of collision when you overtake, since it will obviate the necessity of edging some way out of the traffic stream to see your position or, alternatively, constantly referring to your passenger.

12. Elsewhere in this book we have talked about correct alignment of the machine and sidecar. But in travelling on the Continent there is an important variation to his advice.

If you are in country where the rule of the road is drive on the right, then you will probably make things easier for yourself if you re-align the machine so that it is in a vertical position instead of leaning slightly outwards.

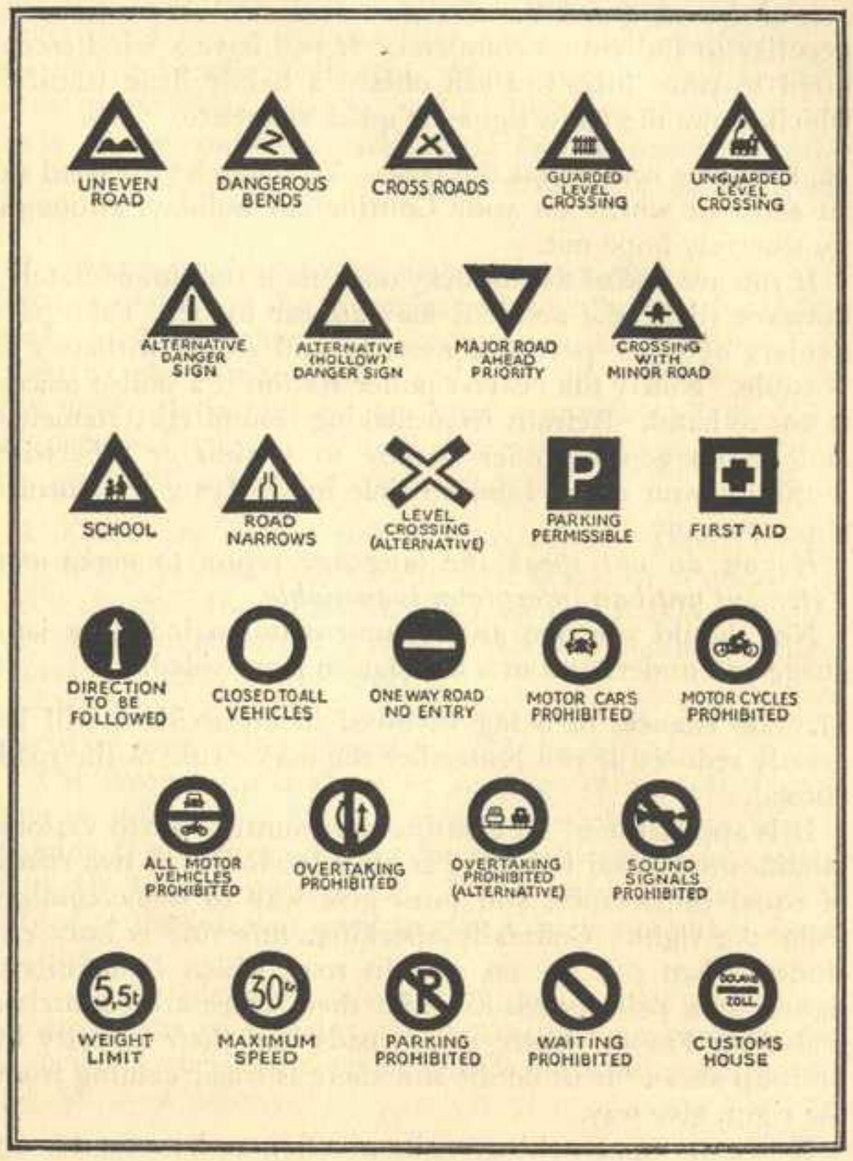
13. Before you leave, do make sure your machine is in good trim, particularly tyres, brakes and steering. Check all the items in your tool-kit and take instruction book, wiring diagram and so on, if possible. If you suffer a serious breakdown which you cannot cope with yourself, a foreign mechanic will bless any information you can give him concerning a machine he is probably not familiar with. Do make sure that you have a torch or a portable lamp: trouble often comes at night – or so it seems to us.

14. In France, the use of yellow-tinted headlights is compulsory, although foreign visitors are exempt from these regulations. However, when in Rome – you can't expect the Romans to know you are a foreign visitor when you are approaching them at speed in the dark, so cadmium bulbs (or yellow discs, supplied free by the R.A.C.) should be fitted.

Incidentally, do remember if you are taking a combination that the International Motor Regulations require two lights to be shown in front, one on the right and one on the left.

Your rear light should illuminate both the number plate and the "GB" plate.

15. The danger and warning signals we show below have been adopted internationally on the roads abroad. Whilst



the signs themselves are easily recognisable by their shapes, colouring is not always entirely uniform. But, in general, the principle is that a sign with the colour red predominating indicates prohibition, while a sign with blue predominating means that something is permitted (thanks be). There are, of course, a number of signs not shown here which are peculiar to individual countries. If you have a windscreen fitted to your 'bike you can obtain a handy little transfer which shows the main signs for quick reference.

16. Let's not beat about the bush. You may be involved in an accident whilst on your Continental holiday, although we sincerely hope not.

If you are one of the unlucky ones, then stop immediately, however slight the accident may appear to be. Take particulars of other parties concerned and secure witnesses if possible. Notify the nearest police station if a police officer is not to hand. Refrain from making committal statements and on no account offer money to victims or otherwise prejudice your case. Lose no time in notifying your insurance company.

If you do not speak the language refuse to make any statement until an interpreter is available.

Nor should you sign any document unless it is in a language you understand or a translation is provided.

17. The chances of being involved in an accident will be greatly reduced if you remember the major rule of the road abroad.

It is applicable in all Continental countries (with various modifications) and it is that at an intersection of two roads of equal importance, you must give way to traffic coming from the right. Generally speaking, this rule is only excluded when you are on a main road which is definitely signed as a priority road. Even then, there are countries, including France, where main roads lose their priority in built-up areas. If in doubt and there is traffic coming from the right, give way.

If you are approaching an intersection and encounter an

inverted triangle sign, with or without the word "Halt" or "Stop" on it, you are on a non-priority road and must give way to traffic on the road you will be crossing, whether it is from the right or left.

18. Few countries have a general speed limit applicable everywhere, but most make it an offence not to adjust speed to road and traffic conditions. Most countries have built-up area speed limits, usually marked by signs similar to our own. Some countries, particularly France, sometimes omit to mark the end of the restricted areas with de-restriction signs.

19. Take a good road map with you. In general, sign-posting is well done in the countries which really cater for tourist traffic as far as main roads are concerned. But when you want to take to side roads – and as in this country many of the most interesting and beautiful places are off the main highways – then you will need a map which shows more than the principal towns and trunk roads.

20. There are several points to remember about foreign hotels and restaurants. Continental breakfast is usually an extra charge. Dinner is often charged as well as accommodation for a single night – even if you don't want the meal. Check this point before booking.

Also make sure of charges before booking – they often fluctuate from prices quoted in guide-books, etc.

The normal tip is about 15 per cent of the bill. When this is included in the bill as a service charge no further tipping is necessary – except for specially requested services and for luggage-porters, etc. When only 10 per cent is added to the bill it is usual to give a small amount in excess of this.

For more detailed information on foreign hotels and other aspects of Continental touring we recommend that you obtain the RAC Continental Handbook, price 10s. 6d. (6s. 6d. to members).

21. Finally, don't spoil your holiday by some breach, acci-

dental or otherwise, of the Customs regulations. These vary from country to country on the importation of such things as radios and cameras, and it is best to find out the situation before you leave.

And if you are taking a camera of foreign manufacture with you, take the bill as well. It will save awkward questioning from our own British Customs upon your return.

13

A TIP IN TIME

1. For the benefit of those whose technical knowledge is limited, here is a list of simple precautionary steps to avoid being stranded through some minor fault:

1. Check your tyres and tyre pressures.
2. Lubricate exposed cables and generally go over the machine with an oil-can and grease-gun. Do not forget to verify the oil level in the gear-box.
3. Check oil in chain case and lubricate rear chain.
4. Clean and re-set the sparking plug points – a spare plug should always be carried.
5. Test the steering-head for up-and-down play and satisfy yourself that the front forks are in order.
6. Check the battery.
7. Make sure the magneto and dynamo are clean.
8. A spare clutch cable often saves annoying delay.
9. Have a look at your brakes for wear and check the adjustment.

2. If no attention is given to the chromium plating on your machine it will soon become pitted and show signs of rust. You should clean all chromium-plated surfaces regularly with a damp chamois leather and polish with a dry duster.

To reduce the tendency to tarnish during the winter months, it is a good plan to apply one of the proprietary chrome protecting compounds now on the market, using a soft cloth to do so. These compounds leave an almost invisible film which is impervious to moisture.

Alternatively, a mixture of petrol and oil in the proportion 4 : 1 respectively should be lightly brushed on the surfaces. A thin film of protective oil is left when the petrol vaporises.

3. It is advisable from time to time to get rid of the carbon deposits which build up in the exhaust pipe.

There are all sorts of methods for getting rid of this carbon, but we think you will find one of the two which follow to be most suitable:

1. Leave overnight in a gentle solution of caustic soda.
2. Ask your local garage to sandblast the pipe. It will cost only a shilling or two.

4. In cleaning the exhaust pipe with a solution of caustic soda, the ideal mixture is 1 pound of soda to 3 gallons of hot water. Great care should be taken to ensure that the solution does not splash on the chromium plating or aluminium.

A stick should not be used to clear blockages, as damage to the baffles in the silencer expansion chamber may result. It is an offence to drive a motor cycle not fitted with an efficient silencer.

5. A new "tribe" of two-wheel adherents has emerged in recent years, the riders of scooters and mopeds. Like everyone else whose mode of transport depends upon the internal combustion engine, the newcomers experience difficulty in starting from time to time. This may be the result of various factors:

1. Air-leaks in the induction system. Check the cylinder-head bolts and all nuts for tightness.
2. Over-flooding of the carburettor. Turn off the petrol and spin the engine. If this is not effective, the float chamber needle valve may be stuck open. It should be removed and cleaned.
3. Poor connections. Check all connections for tightness and good contact.

6. Two out-of-the-way tips which will be helpful when you are doing maintenance jobs on the 'bike are these:

Stand the machine on a large sheet of corrugated paper with the corrugations uppermost. Then, if any nuts, bolts, or small parts, drop to the floor they will be caught in the

corrugations and you will be saved an exasperating search for them.

An aid to easy removal of the sparking plugs is the application of a little graphited grease to the threads. This is most valuable if the plugs screw directly into a light-alloy cylinder head which can so easily be damaged if you are forced to wrestle and wrench the plug in an effort to get it free.

7. There seems to be some confusion on the legal position regarding speedometers. Briefly, there is no need to fit a speedometer if (*a*) the machine was first registered before October 1, 1937, or (*b*) the engine capacity does not exceed 100 c.c.

8. "Do-it-yourself" jobs on motor cycles and scooters are much simplified with the correct tools. A necessity is a good hammer, but not just any type of hammer.

The most useful type is what is called a ball-peen or engineer's general purpose hammer. When choosing it, pick one of medium weight. For most effective use it should be held well down the shaft with loose wrist. The hammer will then do the work and not you.

Soft metals like brass or copper bruise easily and a steel hammer is not suitable for such work. You should therefore include a hammer with a rawhide or copper face in your tool-kit. If you have not and do not want to go to the expense of buying one, place a suitable piece of wood over the soft metal surface before using a steel hammer. This will prevent bruising.

9. The novice may be surprised to find that balls in the wheel bearings are not tightly packed. If the machine is second-hand he may think this a fault and insert additional balls. This is wrong. Overcrowding can result in chipping of the balls or pitting of cups and cones. The spares list should tell you how many balls are required in each bearing.

10. A most ingenious idea for those without garages or room

to build one was forwarded by a reader of these hints when they were published as a newspaper series.

A box-like frame just larger than the solo or combination is covered with weatherproof sheeting.

This "garage" is then attached by means of a ring and a pulley to a post with a horizontal arm. When the machine is wanted a pull on the rope lifts the "garage" clear. In other words, a semi-permanent structure which saves all the bother of using a weatherproof sheet which has to be carefully folded when taken off or securely tied when it is put on. But erect the edifice in your garden – the local council is likely to object if you use one of their lamp-posts for the job!

14

THE SPORT

1. Probably because the average age is less than that of motorists, a far greater number of motor cyclists and scooterists are interested in the sporting aspect of their hobby than are car owners.

The controlling body of motor cycle sport in this country is the Auto-Cycle Union, whose head office is at 83, Pall Mall, London, S.W.1 (Telephone: Whitehall 4022-3). There are local centres all over the country.

For those riders who want to enter for competitions, the best idea is to join a club affiliated to the Union through a local centre. A competitor must have been registered as a member of a club at least twenty-one days before any competition in which he takes part. Competitors must be over sixteen years of age. (Note: This also applies to sidecar passengers.)

2. There is a wide variety of motor cycle competitions. The different types of meeting recognised by the A.C.U. include Races (whether Road, Track, Speedway, Grass or Hill Climb); Scramble (or Moto Cross) meetings; Trials; Rallies; and Motor Cycle Football meetings. So there is something to suit everybody within the framework of recognised motor cycle sport.

3. Riders whose ambitions go beyond the boundaries of closed club events must apply to the A.C.U. for either national registration or international registration, according to the type of event they wish to enter.

A competition is International when it is open to drivers of more than one nation and is inscribed on the annual International Sporting Calendar. A National Competition, which used to be known as Open, is confined to riders legally

domiciled in British territory for at least two years prior to the competition.

4. The A.C.U. publishes annually an Official Pocket Handbook. This lists important fixtures and also contains names and addresses of secretaries of affiliated clubs.

5. This country is well served for motor cycle sport venues (including speedway stadiums, although this branch of the sport is not so popular as in the boom years just after World War II).

The principal circuits in England and Wales are: Crystal Palace (London); Brands Hatch (Kent); Thruxton (Hampshire); Castle Combe (Wiltshire); Silverstone (Northamptonshire); Aintree (Liverpool); Oulton Park (Cheshire); Mallory Park (Leicestershire); Cadwell Park (Lincolnshire); Shrubland Park (Suffolk); Snetterton (Norfolk); Aberdare Park (Glamorgan); Hawkstone Park (Shropshire); Scarborough (Yorks); and Blandford (Dorset).

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USEFUL PUBLICATIONS

1. The motor cyclist and scooterist is extremely well catered for by the technical press. There are a number of excellently produced specialist newspapers, magazines and periodicals, of which the best known are *The Motor Cycle, Motor Cycling, Motor Cycle News, Motor Cyclist Illustrated, Power and Pedal, Scooter and Three-Wheeler,* and *Scooter World.* Details of these are given in the following section. There are also a number of publications produced by local centres of the A.C.U., affiliated clubs and so on.

2. *Motor Cycling:* The oldest and one of the biggest sellers in this field, it was founded in 1902. It is published every Thursday and costs 9d. Edited by Bob Holliday, it covers every aspect of motor cycling from touring to racing and strongly supports the RAC – ACU Learner Training Scheme. (Editorial: Bowling Green Lane, London, E.C.1; Telephone Terminus 3636.)

3. *Motor Cycle:* The friendly but keen rival of *Motor Cycling,* was founded a year later, also costs 9d. and also is published every Thursday. The similarity does not end there, because *Motor Cycle* too deals with every aspect of the business – sport, touring and maintenance. The editor is Harry Louis. (Editorial: Dorset House, Stamford Street, London, S.E.1; Telephone Waterloo 3333.)

4. *Motor Cycle News:* The third and youngest of the "big" motor cycle weeklies differs from the other two in that it is published in newspaper format. It costs 4d. every Wednesday, and although it carries news on all motor cycle matters it has particular appeal for followers of the sporting side. The editor is Cyril Quantrill, who also covers motor cycle

sport for the *Evening Standard*. (Editorial: Newspaper House, Broadway, Peterborough; Telephone Peterborough 5533.)

5. *Motor Cyclist Illustrated* (incorporating *Mopeds and Scooters*): A glossy monthly, newly arrived on the scene (1958), it is published on the second Wednesday of every month and costs 1s. 6d. Does not attempt to compete with the weeklies on news coverage but takes full advantage of its unique position with features and reviews. Douglas Armstrong, an experienced motoring journalist, is editor. (Editorial: Hulton House, Pemberton Row, Fleet Street, London, E.C.4.)

6. *Practical Motorist and Motor Cyclist:* Monthly, 1s. 3d. Although not entirely devoted to two-wheelers, as the title indicates, it does carry expert advice on the repair and maintenance of motor cycles and motor-assisted bicycles. Editor: F. J. Camm. (Editorial: Tower House, Southampton Street, Strand, London, W.C.2; Telephone Temple Bar 4363.)

7. There are three principal monthly magazines concentrating on scooters and mopeds.

Scooter and Three-Wheeler: Edited by Cyril Ayton, it costs 1s. and is published on the third Friday of every month. Apart from general scooter, three-wheeler and moped news it gives wide coverage of sporting events. (Editorial: 8, New Street Square, London, E.C.4; Telephone Fleet Street 0664 and 9701.)

8. *Power and Pedal* (with *The Scooter*): Published on the 27th of every month, price 6d. Technical and social news and comment on mopeds and scooters. Edited by Frank R. Fair (Editorial: 113, Temple Chambers, Temple Avenue, London, E.C.4; Telephone Fleet Street 1454.)

9. *Scooter World:* Published on the 1st of each month, price 1s. Covers anything and everything of interest to the scooter owner. Editor: Jon Stevens. (Editorial: 13, Lifton Place, Leeds, 2; Telephone Leeds 24659.)

10. The publishers of *Motor Cycling* and *Motor Cycle*, Temple Press and Iliffe respectively, also publish a number of motor cycling books, details of which should be obtained from them direct. There are also a number of useful pamphlets and booklets on maintenance, etc., published by the various accessory manufacturers and oil companies.

So there we are. And we would like to sign off with the wish that many, many happy miles of motor cycling lie ahead of you. . . .