HONDA

CB/CD125 T & CM125 C Twins

124cc. 1977 to 1988

OWNERS WORKSHOP MANUAL

Haynes®

THE BOOK

Honda CB/CD125 T & CM125 C Twins Owners Workshop Manual

by Jeremy Churchill
with an additional chapter on the CB125 TD-J
by Penny Cox

Models covered
CB125 T. 124cc. June 1977 to April 1982
CB125 TD Super Dream/Deluxe. 124cc. February 1982 to December 1988
CD125 T Benly. 124cc. February 1982 to April 1985
CM125 C Custom. 124cc. February 1982 to March 1986

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About this manual

The purpose of this manual is to present the owner with a concise and graphic guide which will enable him to tackle any operation from basic routine maintenance to a major overhaul. It has been assumed that any work would be undertaken without the luxury of a well-equipped workshop and a range of manufacturer's service tools.

To this end, the machine featured in the manual was stripped and rebuilt in our own workshop, by a team comprising a mechanic, a photographer and the author. The resulting photographic sequence depicts events as they took place, the hands shown being those of the author and the mechanic.

The use of specialised, and expensive, service tools was avoided unless their use was considered to be essential due to risk of breakage or injury. There is usually some way of improvising a method of removing a stubborn component, providing that a suitable degree of care is exercised.

The author learnt his motorcycle mechanics over a number of years, faced with the same difficulties and using similar facilities to those encountered by most owners. It is hoped that this practical experience can be passed on through the pages of this manual.

Where possible, a well-used example of the machine is chosen for the workshop project, as this highlights any areas which might be particularly prone to giving rise to problems. In this way, any such difficulties are encountered and resolved before the text is written, and the techniques used to deal with them can be incorporated in the relevant section. Armed with a working knowledge of the machine, the author undertakes a considerable amount of research in order that the maximum amount of data can be included in the manual.

A comprehensive section, preceding the main part of the manual, describes procedures for carrying out the routine maintenance of the machine at intervals of time and mileage. This section is included particularly for those owners who wish to ensure the efficient day-to-day running of their motorcycle, but who choose not to undertake overhaul or renovation work.

Each Chapter is divided into numbered sections. Within these sections are numbered paragraphs. Cross reference throughout the manual is quite straightforward and logical. When reference is made 'See Section 6.10' it means Section 6, paragraph 10 in the same Chapter. If another Chapter were intended, the reference would read, for example, 'See Chapter 2, Section 6.10'. All the photographs are captioned with a section/paragraph number to which they refer and are relevant to the Chapter text adjacent.

Figures (usually line illustrations) appear in a logical but numerical order, within a given Chapter. Fig. 1.1 therefore refers to the first figure in Chapter 1.

Left-hand and right-hand descriptions of the machines and their components refer to the left and right of a given machine when the rider is seated normally.

Motorcycle manufacturers continually make changes to specifications and recommendations, and these, when notified, are incorporated into our manuals at the earliest opportunity.

We take great pride in the accuracy of information given in this manual, but motorcycle manufacturers make alterations and design changes during the production run of a particular motorcycle of which they do not inform us. No liability can be accepted by the authors or publishers for loss, damage or injury caused by any errors in, or omissions from, the information given.

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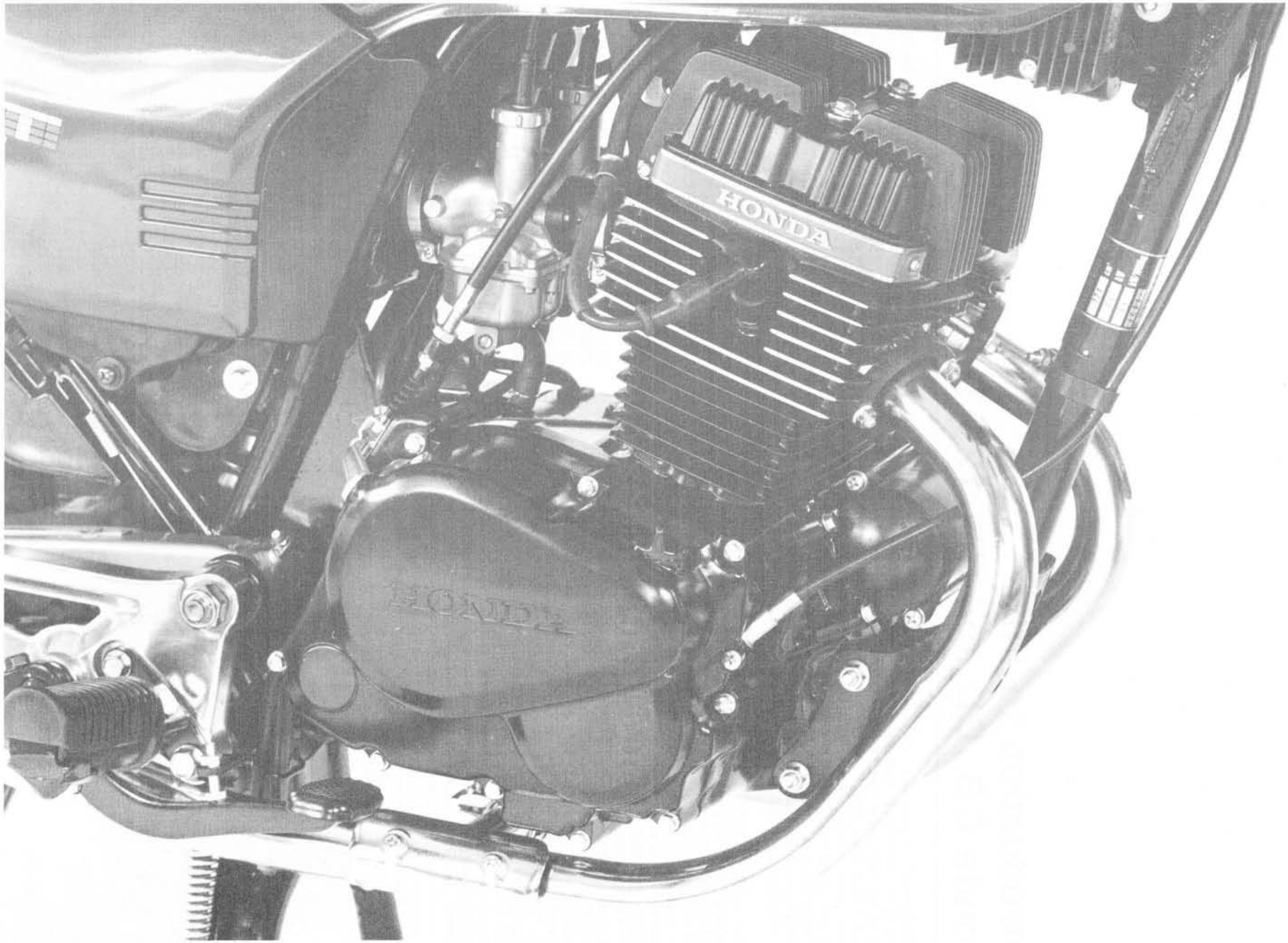
Left-hand view of the Honda CB125 TD-C

Left-hand view of the Honda CD125 T



Engine and gearbox unit of the Honda CB125 TD-C

Introduction to the Honda CB, CD and CM 125 Twins

When Honda introduced a 125 cc sports motorcycle into the UK in June 1977, it was felt by many to be not fast enough or big enough for the young rider, and yet too expensive for the commuter, especially when one considered that its price was very close to that of much larger machines. Events, however, proved them wrong as many young riders, who could not afford the cost of a 250 cc machine, were attracted by the new model's neat appearance and good performance; the CB125 remained a popular and successful machine up to 1982 when new legislation altered dramatically the situation for the learner rider.

The original CB125 T model offered good performance by the standards of other 125 cc machines, it claimed 16.5 bhp at 1100 rpm giving it a top speed of approximately 80 mph, but its most striking feature was undoubtedly the styling. Honda's new 'Eurostyle' theme was a departure from the traditionally American-orientated styling, and was welcomed by European riders.

With the exception of the CD125 T, of which only one model was imported, all machines described in this manual were modified slightly during their production runs. The only significant changes are mentioned in the Specifications Section of each Chapter or in the main text, where relevant; all other changes are confined to the styling, such as different paintwork and graphics. To assist the owner in identifying exactly a particular machine, this being essential when ordering replacement parts, given below is each model's full title, the frame numbers with which its production run started (and finished, where available) and the approximate dates of import. Note that the latter may not necessarily coincide with the machine's date of registration.

In early 1982 Honda introduced three new models to conform to the new legislation which restricted learners to machines of no greater than 125 cc capacity and a power output of 9 kW (12.2 bhp). These were the CB125 TD sports model, the CD125 T standard road model, and the CM125 C custom model.

All the new models are fitted with a restyled and updated version of the original CB125 T engine unit, electronic ignition having supplanted the original contact breaker ignition system and an electric starter having replaced the kickstart previously fitted. All the new models now have 12v electrics. Although the engine units are largely identical it is perhaps interesting to note that while all CB125 models retain the traditional (for Honda) 180° crankshaft, the CD125 T and CM125 C models employ a 360° crankshaft, the type favoured by many British manufacturers in previous years.

The CD125 T 'Benly' is a straightforward machine for the commuter incorporating features such as a constant velocity carburettor, fully-enclosed final drive chain, drum brakes, deep mudguards and fully shrouded front forks. The CM125 C model follows the currently popular vogue for factory custom machines with its stepped seat, small petrol tank and high handlebars. The CB125 TD 'Super Dream' has racer-orientated styling, new-pattern Comstar wheels, 'Pro-Link' rear suspension and a hydraulic front disc brake with the latest type of twin-piston caliper.

CB125 T	CB125 T–2000770 to 2026068	Jun '77 to May '78
CB125 T-2	CB125 T–2200424 to 2215829	May '78 to '80
CB125 T-A	CB125 T–2300011 to 2314525	1980 to 1981
CB125 T-B	CB125 T–2400014 on	Mar '81 to Apr '82
CB125 TD-C	JCO6–5000022 to 5012974	Feb '82 to May '86
CB125 TD-E	JCO6-5101755 on	May '86 to Aug '88
CD125 T-C	CD125 T–5000003 on	Feb '82 to Apr '85
CM125 C-C	JCO5–5000013 on	Feb '82 to Apr '85
CM125 C-F	JCO5–5100007 on	June '85 to Mar '86

Refer to Chapter 7 for details of CB125 TD-J model.

Model dimensions and weights

	CB125 T,T2,TA and TB	CB125 TD	CD125 T	CM125 C
Overall length	1980 mm (78.0 in)	2060 mm (81.1 in)	1970 mm (77.6 in)	2060 mm (81.1 mm)
Overall width	680 mm (26.8 in)	730 mm (28.7 in)	685 mm (27.0 in)	810 mm (31.9 in)
Overall height	1010 mm (39.8 in)	1070 mm (42.1 in)	1020 mm (40.2 in)	1130 mm (44.5 in)
Wheelbase	1275 mm (50.2 in)	1350 mm (53.1 in)	1280 mm (50.4 in)	1345 mm (53.0 in)
Seat height	770 mm (30.3 in)	775 mm (30.5 in)	744 mm (29.3 in)	750 mm (29.5 in)
Ground clearance	160 mm (6.3 in)	180 mm (7.1 in)	150 mm (5.9 in)	165 mm (6.5 in)
Dry weight	114 kg (251 lb)	124 kg (273 lb)	127 kg (280 lb)	127 kg (280 lb)

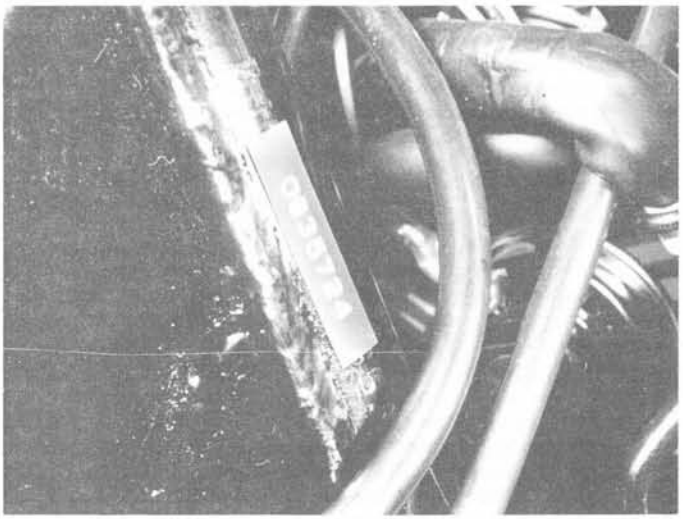
Ordering spare parts

When ordering spare parts for the Honda 125 twins, it is advisable to deal direct with an official Honda agent, who will be able to supply many of the items required ex-stock. It is advisable to get acquainted with the local Honda agent, and to rely on his advice when purchasing spares. He is in a better position to specify exactly the parts required and to identify the relevant spare part numbers so that there is less chance of the wrong part being supplied by the manufacturer due to a vague or incomplete description.

When ordering spares, always quote the frame and engine numbers in full, together with any prefixes or suffixes in the form of letters. The frame number is found stamped on the right-hand side of the steering head, in line with the forks. The engine number is stamped on the left-hand side of the crankcase, immediately in front of the gearchange lever shaft.

Use only parts of genuine Honda manufacture. A few pattern parts are available, sometimes at cheaper prices, but there is no guarantee that they will give such good service as the originals they replace. Retain any worn or broken parts until the replacements have been obtained; they are sometimes needed as a pattern to help identify the correct replacement when design changes have been made during a production run.

Some of the more expendable parts such as sparking plugs, bulbs, tyres, oils and greases etc., can be obtained from accessory shops and motor factors, who have convenient opening hours, and can often be found not far from home. It is also possible to obtain parts on a Mail Order basis from a number of specialists who advertise regularly in the motorcycle magazines.



Location of frame number

Location of engine number

Safety first!

Professional motor mechanics are trained in safe working procedures. However enthusiastic you may be about getting on with the job in hand, do take the time to ensure that your safety is not put at risk. A moment's lack of attention can result in an accident, as can failure to observe certain elementary precautions.

There will always be new ways of having accidents, and the following points do not pretend to be a comprehensive list of all dangers; they are intended rather to make you aware of the risks and to encourage a safety-conscious approach to all work you carry out on your vehicle.

Essential DOs and DON'Ts

DON'T start the engine without first ascertaining that the transmission is in neutral.

DON'T suddenly remove the filler cap from a hot cooling system – cover it with a cloth and release the pressure gradually first, or you may get scalded by escaping coolant.

DON'T attempt to drain oil until you are sure it has cooled sufficiently to avoid scalding you.

DON'T grasp any part of the engine, exhaust or silencer without first ascertaining that it is sufficiently cool to avoid burning you.

DON'T allow brake fluid or antifreeze to contact the machine's paintwork or plastic components.

DON'T syphon toxic liquids such as fuel, brake fluid or antifreeze by mouth, or allow them to remain on your skin.

DON'T inhale dust – it may be injurious to health (see *Asbestos* heading).

DON'T allow any spilt oil or grease to remain on the floor – wipe it up straight away, before someone slips on it.

DON'T use ill-fitting spanners or other tools which may slip and cause injury.

DON'T attempt to lift a heavy component which may be beyond your capability – get assistance.

DON'T rush to finish a job, or take unverified short cuts.

DON'T allow children or animals in or around an unattended vehicle.

DON'T inflate a tyre to a pressure above the recommended maximum. Apart from overstressing the carcase and wheel rim, in extreme cases the tyre may blow off forcibly.

DO ensure that the machine is supported securely at all times. This is especially important when the machine is blocked up to aid wheel or fork removal.

DO take care when attempting to slacken a stubborn nut or bolt. It is generally better to pull on a spanner, rather than push, so that if slippage occurs you fall away from the machine rather than on to it.

DO wear eye protection when using power tools such as drill, sander, bench grinder etc.

DO use a barrier cream on your hands prior to undertaking dirty jobs – it will protect your skin from infection as well as making the dirt easier to remove afterwards; but make sure your hands aren't left slippery. Note that long-term contact with used engine oil can be a health hazard.

DO keep loose clothing (cuffs, tie etc) and long hair well out of the way of moving mechanical parts.

DO remove rings, wristwatch etc, before working on the vehicle – especially the electrical system.

DO keep your work area tidy – it is only too easy to fall over articles left lying around.

DO exercise caution when compressing springs for removal or installation. Ensure that the tension is applied and released in a controlled manner, using suitable tools which preclude the possibility of the spring escaping violently.

DO ensure that any lifting tackle used has a safe working load rating adequate for the job.

DO get someone to check periodically that all is well, when working alone on the vehicle.

DO carry out work in a logical sequence and check that everything is correctly assembled and tightened afterwards.

DO remember that your vehicle's safety affects that of yourself and others. If in doubt on any point, get specialist advice.

IF, in spite of following these precautions, you are unfortunate enough to injure yourself, seek medical attention as soon as possible.

Asbestos

Certain friction, insulating, sealing, and other products – such as brake linings, clutch linings, gaskets, etc – contain asbestos. *Extreme care must be taken to avoid inhalation of dust from such products since it is hazardous to health.* If in doubt, assume that they *do* contain asbestos.

Fire

Remember at all times that petrol (gasoline) is highly flammable. Never smoke, or have any kind of naked flame around, when working on the vehicle. But the risk does not end there – a spark caused by an electrical short-circuit, by two metal surfaces contacting each other, by careless use of tools, or even by static electricity built up in your body under certain conditions, can ignite petrol vapour, which in a confined space is highly explosive.

Always disconnect the battery earth (ground) terminal before working on any part of the fuel or electrical system, and never risk spilling fuel on to a hot engine or exhaust.

It is recommended that a fire extinguisher of a type suitable for fuel and electrical fires is kept handy in the garage or workplace at all times. Never try to extinguish a fuel or electrical fire with water.

Note: *Any reference to a 'torch' appearing in this manual should always be taken to mean a hand-held battery-operated electric lamp or flashlight. It does* ***not*** *mean a welding/gas torch or blowlamp.*

Fumes

Certain fumes are highly toxic and can quickly cause unconsciousness and even death if inhaled to any extent. Petrol (gasoline) vapour comes into this category, as do the vapours from certain solvents such as trichloroethylene. Any draining or pouring of such volatile fluids should be done in a well ventilated area.

When using cleaning fluids and solvents, read the instructions carefully. Never use materials from unmarked containers – they may give off poisonous vapours.

Never run the engine of a motor vehicle in an enclosed space such as a garage. Exhaust fumes contain carbon monoxide which is extremely poisonous; if you need to run the engine, always do so in the open air or at least have the rear of the vehicle outside the workplace.

The battery

Never cause a spark, or allow a naked light, near the vehicle's battery. It will normally be giving off a certain amount of hydrogen gas, which is highly explosive.

Always disconnect the battery earth (ground) terminal before working on the fuel or electrical systems.

If possible, loosen the filler plugs or cover when charging the battery from an external source. Do not charge at an excessive rate or the battery may burst.

Take care when topping up and when carrying the battery. The acid electrolyte, even when diluted, is very corrosive and should not be allowed to contact the eyes or skin.

If you ever need to prepare electrolyte yourself, always add the acid slowly to the water, and never the other way round. Protect against splashes by wearing rubber gloves and goggles.

Mains electricity and electrical equipment

When using an electric power tool, inspection light etc, always ensure that the appliance is correctly connected to its plug and that, where necessary, it is properly earthed (grounded). Do not use such appliances in damp conditions and, again, beware of creating a spark or applying excessive heat in the vicinity of fuel or fuel vapour. Also ensure that the appliances meet the relevant national safety standards.

Ignition HT voltage

A severe electric shock can result from touching certain parts of the ignition system, such as the HT leads, when the engine is running or being cranked, particularly if components are damp or the insulation is defective. Where an electronic ignition system is fitted, the HT voltage is much higher and could prove fatal.

Tools and working facilities

The first priority when undertaking maintenance or repair work of any sort on a motorcycle is to have a clean, dry, well-lit working area. Work carried out in peace and quiet in the well-ordered atmosphere of a good workshop will give more satisfaction and much better results than can usually be achieved in poor working conditions. A good workshop must have a clean flat workbench or a solidly constructed table of convenient working height. The workbench or table should be equipped with a vice which has a jaw opening of at least 4 in (100 mm). A set of jaw covers should be made from soft metal such as aluminium alloy or copper, or from wood. These covers will minimise the marking or damaging of soft or delicate components which may be clamped in the vice. Some clean, dry, storage space will be required for tools, lubricants and dismantled components. It will be necessary during a major overhaul to lay out engine/gearbox components for examination and to keep them where they will remain undisturbed for as long as is necessary. To this end it is recommended that a supply of metal or plastic containers of suitable size is collected. A supply of clean, lint-free, rags for cleaning purposes and some newspapers, other rags, or paper towels for mopping up spillages should also be kept. If working on a hard concrete floor note that both the floor and one's knees can be protected from oil spillages and wear by cutting open a large cardboard box and spreading it flat on the floor under the machine or workbench. This also helps to provide some warmth in winter and to prevent the loss of nuts, washers, and other tiny components which have a tendency to disappear when dropped on anything other than a perfectly clean, flat, surface.

Unfortunately, such working conditions are not always available to the home mechanic. When working in poor conditions it is essential to take extra time and care to ensure that the components being worked on are kept scrupulously clean and to ensure that no components or tools are lost or damaged.

A selection of good tools is a fundamental requirement for anyone contemplating the maintenance and repair of a motor vehicle. For the owner who does not possess any, their purchase will prove a considerable expense, offsetting some of the savings made by doing-it-yourself. However, provided that the tools purchased meet the relevant national safety standards and are of good quality, they will last for many years and prove an extremely worthwhile investment.

To help the average owner to decide which tools are needed to carry out the various tasks detailed in this manual, we have compiled three lists of tools under the following headings: *Maintenance and minor repair, Repair and overhaul,* and *Specialized.* The newcomer to practical mechanics should start off with the simpler jobs around the vehicle. Then, as his confidence and experience grow, he can undertake more difficult tasks, buying extra tools as and when they are needed. In this way, a *Maintenance and minor repair* tool kit can be built-up into a *Repair and overhaul* tool kit over a considerable period of time without any major cash outlays. The experienced home mechanic will have a tool kit good enough for most repair and overhaul procedures and will add tools from the specialized category when he feels the expense is justified by the amount of use these tools will be put to.

It is obviously not possible to cover the subject of tools fully here. For those who wish to learn more about tools and their use there is a book entitled *Motorcycle Workshop Practice Manual* available from the publishers of this manual.

As a general rule, it is better to buy the more expensive, good quality tools. Given reasonable use, such tools will last for a very long time, whereas the cheaper, poor quality, item will wear out faster and need to be renewed more often, thus nullifying the original saving. There is also the risk of a poor quality tool breaking while in use, causing personal injury or expensive damage to the component being worked on.

For practically all tools, a tool factor is the best source since he will have a very comprehensive range compared with the average garage or accessory shop. Having said that, accessory shops often offer excellent quality tools at discount prices, so it pays to shop around. There are plenty of tools around at reasonable prices, but always aim to purchase items which meet the relevant national safety standards. If in doubt, seek the advice of the shop proprietor or manager before making a purchase.

The basis of any toolkit is a set of spanners. While open-ended spanners, with their slim jaws, are useful for working on awkwardly-positioned nuts, ring spanners have advantages in that they grip the nut far more positively. There is less risk of the spanner slipping off the nut and damaging it; for this reason alone ring spanners are to be preferred. Ideally, the home mechanic should acquire a set of each, but if expense rules this out a set of combination spanners (open-ended at one end and with a ring of the same size at the other) will provide a good compromise. Another item which is so useful it should be considered an essential requirement for any home mechanic is a set of socket spanners. These are available in a variety of drive sizes. It is recommended that the $\frac{1}{2}$-inch drive type is purchased to begin with as although bulkier and more expensive than the $\frac{3}{8}$-inch type, the larger size is far more common and will accept a greater variety of torque wrenches, extension pieces and socket sizes. The socket set should comprise sockets of sizes between 8 and 24 mm, a reversible ratchet drive, an extension bar of about 10 inches in length, a spark plug socket with a rubber insert, and a universal joint. Other attachments can be added to the set at a later date.

Maintenance and minor repair tool kit

Set of spanners 8 – 24 mm
Set of sockets and attachments
Spark plug spanner with rubber insert – 10, 12, or 14 mm as appropriate
Adjustable spanner
C-spanner/pin spanner
Torque wrench (same size drive as sockets)
Set of screwdrivers (flat blade)
Set of screwdrivers (cross-head)
Set of Allen keys 4 – 10 mm
Impact screwdriver and bits
Ball pein hammer – 2 lb
Hacksaw (junior)
Self-locking pliers – Mole grips or vice grips
Pliers – combination
Pliers – needle nose
Wire brush (small)
Soft-bristled brush
Tyre pump
Tyre pressure gauge
Tyre tread depth gauge
Oil can
Fine emery cloth
Funnel (medium size)
Drip tray
Grease gun
Set of feeler gauges
Brake bleeding kit
Strobe timing light
Continuity tester (dry battery and bulb)
Soldering iron and solder
Wire stripper or craft knife
PVC insulating tape
Assortment of split pins, nuts, bolts, and washers

Repair and overhaul toolkit

The tools in this list are virtually essential for anyone undertaking major repairs to a motorcycle and are additional to the tools listed above. Concerning Torx driver bits, Torx screws are encountered on some of the more modern machines where their use is restricted to fastening certain components inside the engine/gearbox unit. It is therefore recommended that if Torx bits cannot be borrowed from a local dealer, they are purchased individually as the need arises. They are not in regular use in the motor trade and will therefore only be available in specialist tool shops.

Plastic or rubber soft-faced mallet
Torx driver bits
Pliers – electrician's side cutters
Circlip pliers – internal (straight or right-angled tips are available)
Circlip pliers – external
Cold chisel
Centre punch
Pin punch
Scriber
Scraper (made from soft metal such as aluminium or copper)
Soft metal drift
Steel rule/straight edge
Assortment of files
Electric drill and bits
Wire brush (large)
Soft wire brush (similar to those used for cleaning suede shoes)
Sheet of plate glass
Hacksaw (large)
Valve grinding tool
Valve grinding compound (coarse and fine)
Stud extractor set (E-Z out)

Specialized tools

This is not a list of the tools made by the machine's manufacturer to carry out a specific task on a limited range of models. Occasional references are made to such tools in the text of this manual and, in general, an alternative method of carrying out the task without the manufacturer's tool is given where possible. The tools mentioned in this list are those which are not used regularly and are expensive to buy in view of their infrequent use. Where this is the case it may be possible to hire or borrow the tools against a deposit from a local dealer or tool hire shop. An alternative is for a group of friends or a motorcycle club to join in the purchase.

Valve spring compressor
Piston ring compressor
Universal bearing puller
Cylinder bore honing attachment (for electric drill)
Micrometer set
Vernier calipers
Dial gauge set
Cylinder compression gauge
Vacuum gauge set
Multimeter
Dwell meter/tachometer

Care and maintenance of tools

Whatever the quality of the tools purchased, they will last much longer if cared for. This means in practice ensuring that a tool is used for its intended purpose; for example screwdrivers should not be used as a substitute for a centre punch, or as chisels. Always remove dirt or grease and any metal particles but remember that a light film of oil will prevent rusting if the tools are infrequently used. The common tools can be kept together in a large box or tray but the more delicate, and more expensive, items should be stored separately where they cannot be damaged. When a tool is damaged or worn out, be sure to renew it immediately. It is false economy to continue to use a worn spanner or screwdriver which may slip and cause expensive damage to the component being worked on.

Fastening systems

Fasteners, basically, are nuts, bolts and screws used to hold two or more parts together. There are a few things to keep in mind when working with fasteners. Almost all of them use a locking device of some type; either a lock washer, locknut, locking tab or thread adhesive. All threaded fasteners should be clean, straight, have undamaged threads and undamaged corners on the hexagon head where the spanner fits. Develop the habit of replacing all damaged nuts and bolts with new ones.

Rusted nuts and bolts should be treated with a rust penetrating fluid to ease removal and prevent breakage. After applying the rust penetrant, let it 'work' for a few minutes before trying to loosen the nut or bolt. Badly rusted fasteners may have to be chiseled off or removed with a special nut breaker, available at tool shops.

Flat washers and lock washers, when removed from an assembly should always be replaced exactly as removed. Replace any damaged washers with new ones. Always use a flat washer between a lock washer and any soft metal surface (such as aluminium), thin sheet metal or plastic. Special locknuts can only be used once or twice before they lose their locking ability and must be renewed.

If a bolt or stud breaks off in an assembly, it can be drilled out and removed with a special tool called an E-Z out. Most dealer service departments and motorcycle repair shops can perform this task, as well as others (such as the repair of threaded holes that have been stripped out).

Spanner size comparison

Jaw gap (in)	Spanner size
0.250	$\frac{1}{4}$ in AF
0.276	7 mm
0.313	$\frac{5}{16}$ in AF
0.315	8 mm
0.344	$\frac{11}{32}$ in AF; $\frac{1}{8}$ in Whitworth
0.354	9 mm
0.375	$\frac{3}{8}$ in AF
0.394	10 mm
0.433	11 mm
0.438	$\frac{7}{16}$ in AF
0.445	$\frac{3}{16}$ in Whitworth; $\frac{1}{4}$ in BSF
0.472	12 mm
0.500	$\frac{1}{2}$ in AF
0.512	13 mm
0.525	$\frac{1}{4}$ in Whitworth; $\frac{5}{16}$ in BSF
0.551	14 mm
0.563	$\frac{9}{16}$ in AF
0.591	15 mm
0.600	$\frac{5}{16}$ in Whitworth; $\frac{3}{8}$ in BSF
0.625	$\frac{5}{8}$ in AF
0.630	16 mm
0.669	17 mm
0.686	$\frac{11}{16}$ in AF
0.709	18 mm
0.710	$\frac{3}{8}$ in Whitworth; $\frac{7}{16}$ in BSF
0.748	19 mm
0.750	$\frac{3}{4}$ in AF
0.813	$\frac{13}{16}$ in AF
0.820	$\frac{7}{16}$ in Whitworth; $\frac{1}{2}$ in BSF
0.866	22 mm
0.875	$\frac{7}{8}$ in AF
0.920	$\frac{1}{2}$ in Whitworth; $\frac{9}{16}$ in BSF
0.938	$\frac{15}{16}$ in AF
0.945	24 mm
1.000	1 in AF
1.010	$\frac{9}{16}$ in Whitworth; $\frac{5}{8}$ in BSF
1.024	26 mm
1.063	$1\frac{1}{16}$ in AF; 27 mm
1.100	$\frac{5}{16}$ in Whitworth; $\frac{11}{16}$ in BSF
1.125	$1\frac{1}{8}$ in AF
1.181	30 mm
1.200	$\frac{11}{16}$ in Whitworth; $\frac{3}{4}$ in BSF
1.250	$1\frac{1}{4}$ in AF
1.260	32 mm
1.300	$\frac{3}{4}$ in Whitworth; $\frac{7}{8}$ in BSF
1.313	$1\frac{5}{16}$ in AF
1.390	$\frac{13}{16}$ in Whitworth; $\frac{15}{16}$ in BSF
1.417	36 mm
1.438	$1\frac{7}{16}$ in AF
1.480	$\frac{7}{8}$ in Whitworth; 1 in BSF
1.500	$1\frac{1}{2}$ in AF
1.575	40 mm; $\frac{15}{16}$ in Whitworth
1.614	41 mm
1.625	$1\frac{5}{8}$ in AF
1.670	1 in Whitworth; $1\frac{1}{8}$ in BSF
1.688	$1\frac{11}{16}$ in AF
1.811	46 mm
1.813	$1\frac{13}{16}$ in AF
1.860	$1\frac{1}{8}$ in Whitworth; $1\frac{1}{4}$ in BSF
1.875	$1\frac{7}{8}$ in AF
1.969	50 mm
2.000	2 in AF
2.050	$1\frac{1}{4}$ in Whitworth; $1\frac{3}{8}$ in BSF
2.165	55 mm
2.362	60 mm

Standard torque settings

Specific torque settings will be found at the end of the specifications section of each chapter. Where no figure is given, bolts should be secured according to the table below.

Fastener type (thread diameter)	**kgf m**	**lbf ft**
5mm bolt or nut	0.45 – 0.6	3.5 – 4.5
6 mm bolt or nut	0.8 – 1.2	6 – 9
8 mm bolt or nut	1.8 – 2.5	13 – 18
10 mm bolt or nut	3.0 – 4.0	22 – 29
12 mm bolt or nut	5.0 – 6.0	36 – 43
5 mm screw	0.35 – 0.5	2.5 – 3.6
6 mm screw	0.7 – 1.1	5 – 8
6 mm flange bolt	1.0 – 1.4	7 – 10
8 mm flange bolt	2.4 – 3.0	17 – 22
10 mm flange bolt	3.0 – 4.0	22 – 29

Choosing and fitting accessories

The range of accessories available to the modern motorcyclist is almost as varied and bewildering as the range of motorcycles. This Section is intended to help the owner in choosing the correct equipment for his needs and to avoid some of the mistakes made by many riders when adding accessories to their machines. It will be evident that the Section can only cover the subject in the most general terms and so it is recommended that the owner, having decided that he wants to fit, for example, a luggage rack or carrier, seeks the advice of several local dealers and the owners of similar machines. This will give a good idea of what makes of carrier are easily available, and at what price. Talking to other owners will give some insight into the drawbacks or good points of any one make. A walk round the motorcycles in car parks or outside a dealer will often reveal the same sort of information.

The first priority when choosing accessories is to assess exactly what one needs. It is, for example, pointless to buy a large heavy-duty carrier which is designed to take the weight of fully laden panniers and topbox when all you need is a place to strap on a set of waterproofs and a lunchbox when going to work. Many accessory manufacturers have ranges of equipment to cater for the individual needs of different riders and this point should be borne in mind when looking through a dealer's catalogues. Having decided exactly what is required and the use to which the accessories are going to be put, the owner will need a few hints on what to look for when making the final choice. To this end the Section is now sub-divided to cover the more popular accessories fitted. Note that it is in no way a customizing guide, but merely seeks to outline the practical considerations to be taken into account when adding aftermarket equipment to a motorcycle.

Fairings and windscreens

A fairing is possibly the single, most expensive, aftermarket item to be fitted to any motorcycle and, therefore, requires the most thought before purchase. Fairings can be divided into two main groups: front fork mounted handlebar fairings and windscreens, and frame mounted fairings.

The first group, the front fork mounted fairings, are becoming far more popular than was once the case, as they offer several advantages over the second group. Front fork mounted fairings generally are much easier and quicker to fit, involve less modification to the motorcycle, do not as a rule restrict the steering lock, permit a wider selection of handlebar styles to be used, and offer adequate protection for much less money than the frame mounted type. They are also lighter, can be swapped easily between different motorcycles, and are available in a much greater variety of styles. Their main disadvantages are that they do not offer as much weather protection as the frame mounted types, rarely offer any storage space, and, if poorly fitted or naturally incompatible, can have an adverse effect on the stability of the motorcycle.

The second group, the frame mounted fairings, are secured so rigidly to the main frame of the motorcycle that they can offer a substantial amount of protection to motorcycle and rider in the event of a crash. They offer almost complete protection from the weather and, if double-skinned in construction, can provide a great deal of useful storage space. The feeling of peace, quiet and complete relaxation encountered when riding behind a good full fairing has to be experienced to be believed. For this reason full fairings are considered essential by most touring motorcyclists and by many people who ride all year round. The main disadvantages of this type are that fitting can take a long time, often involving removal or modification of standard motorcycle components, they restrict the steering lock and they can add up to about 40 lb to the weight of the machine. They do not usually affect the stability of the machine to any great extent once the front tyre pressure and suspension have been adjusted to compensate for the extra weight, but can be affected by sidewinds.

The first thing to look for when purchasing a fairing is the quality of the fittings. A good fairing will have strong, substantial brackets constructed from heavy-gauge tubing; the brackets must be shaped to fit the frame or forks evenly so that the minimum of stress is imposed on the assembly when it is bolted down. The brackets should be properly painted or finished – a nylon coating being the favourite of the better manufacturers – the nuts and bolts provided should be of the same thread and size standard as is used on the motorcycle and be properly plated. Look also for shakeproof locking nuts or locking washers to ensure that everything remains securely tightened down. The fairing shell is generally made from one of two materials: fibreglass or ABS plastic. Both have their advantages and disadvantages, but the main consideration for the owner is that fibreglass is much easier to repair in the event of damage occurring to the fairing. Whichever material is used, check that it is properly finished inside as well as out, that the edges are protected by beading and that the fairing shell is insulated from vibration by the use of rubber grommets at all mounting points. Also be careful to check that the windscreen is retained by plastic bolts which will snap on impact so that the windscreen will break away and not cause personal injury in the event of an accident.

Having purchased your fairing or windscreen, read the manufacturer's fitting instructions very carefully and check that you have all the necessary brackets and fittings. Ensure that the mounting brackets are located correctly and bolted down securely. Note that some manufacturers use hose clamps to retain the mounting brackets; these should be discarded as they are convenient to use but not strong enough for the task. Stronger clamps should be substituted; car exhaust pipe clamps of suitable size would be a good alternative. Ensure that the front forks can turn through the full steering lock available without fouling the fairing. With many types of frame-mounted fairing the handlebars will have to be altered or a different type fitted and the steering lock will be restricted by stops provided with the fittings. Also check that the fairing does not foul the front wheel or mudguard, in any steering position, under full fork compression. Re-route any cables, brake pipes or electrical wiring which may snag on the fairing and take great care to protect all electrical connections, using insulating tape. If the manufacturer's instructions are followed carefully at every stage no serious problems should be encountered. Remember that hydraulic pipes that have been disconnected must be carefully re-tightened and the hydraulic system purged of air bubbles by bleeding.

Two things will become immediately apparent when taking a motorcycle on the road for the first time with a fairing – the first is the tendency to underestimate the road speed because of the lack of wind pressure on the body. This must be very carefully watched until one has grown accustomed to riding behind the fairing. The second thing is the alarming increase in engine noise which is an unfortunate but inevitable by-product of fitting any type of fairing or windscreen, and is caused by normal engine noise being reflected, and in some cases amplified, by the flat surface of the fairing.

Luggage racks or carriers

Carriers are possibly the commonest item to be fitted to modern motorcycles. They vary enormously in size, carrying capacity, and durability. When selecting a carrier, always look for one which is made specifically for your machine and which is bolted on with as few separate brackets as possible. The universal-type carrier, with its mass of brackets and adaptor pieces, will generally prove too weak to be of any real use. A good carrier should bolt to the main frame, generally using the two suspension unit top mountings and a mudguard mounting bolt as attachment points, and have its luggage platform as low and as far forward as possible to minimise the effect of any load on the machine's stability. Look for good quality, heavy gauge tubing, good welding and good finish. Also ensure that the carrier does not prevent opening of the seat, sidepanels or tail compartment, as appropriate. When using a carrier, be very careful not to overload it. Excessive weight placed so high and so far to the rear of any motorcycle will have an adverse effect on the machine's steering and stability.

Luggage

Motorcycle luggage can be grouped under two headings: soft and hard. Both types are available in many sizes and styles and have advantages and disadvantages in use.

Soft luggage is now becoming very popular because of its lower cost and its versatility. Whether in the form of tankbags, panniers, or strap-on bags, soft luggage requires in general no brackets and no modification to the motorcycle. Equipment can be swapped easily from one motorcycle to another and can be fitted and removed in seconds. Awkwardly shaped loads can easily be carried. The disadvantages of soft luggage are that the contents cannot be secure against the casual thief, very little protection is afforded in the event of a crash, and waterproofing is generally poor. Also, in the case of panniers, carrying capacity is restricted to approximately 10 lb, although this amount will vary considerably depending on the manufacturer's recommendation. When purchasing soft luggage, look for good quality material, generally vinyl or nylon, with strong, well-stitched attachment points. It is always useful to have separate pockets, especially on tank bags, for items which will be needed on the journey. When purchasing a tank bag, look for one which has a separate, well-padded, base. This will protect the tank's paintwork and permit easy access to the filler cap at petrol stations.

Hard luggage is confined to two types: panniers, and top boxes or tail trunks. Most hard luggage manufacturers produce matching sets of these items, the basis of which is generally that manufacturer's own heavy-duty luggage rack. Variations on this theme occur in the form of separate frames for the better quality panniers, fixed or quickly-detachable luggage, and in size and carrying capacity. Hard luggage offers a reasonable degree of security against theft and good protection against weather and accident damage. Carrying capacity is greater than that of soft luggage, around 15 – 20 lb in the case of panniers, although top boxes should never be loaded as much as their apparent capacity might imply. A top box should only be used for lightweight items, because one that is heavily laden can have a serious effect on the stability of the machine. When purchasing hard luggage look for the same good points as mentioned under fairings and windscreens, ie good quality mounting brackets and fittings, and well-finished fibreglass or ABS plastic cases. Again as with fairings, always purchase luggage made specifically for your motorcycle, using as few separate brackets as possible, to ensure that everything remains securely bolted in place. When fitting hard luggage, be careful to check that the rear suspension and brake operation will not be impaired in any way and remember that many pannier kits require re-siting of the indicators. Remember also that a non-standard exhaust system may make fitting extremely difficult.

Handlebars

The occupation of fitting alternative types of handlebar is extremely popular with modern motorcyclists, whose motives may vary from the purely practical, wishing to improve the comfort of their machines, to the purely aesthetic, where form is more important than function. Whatever the reason, there are several considerations to be borne in mind when changing the handlebars of your machine. If fitting lower bars, check carefully that the switches and cables do not foul the petrol tank on full lock and that the surplus lengths of cable, brake pipe, and electrical wiring are smoothly and tidily disposed of. Avoid tight kinks in cable or brake pipes which will produce stiff controls or the premature and disastrous failure of an overstressed component. If necessary, remove the petrol tank and re-route the cable from the engine/gearbox unit upwards, ensuring smooth gentle curves are produced. In extreme cases, it will be necessary to purchase a shorter brake pipe to overcome this problem. In the case of higher handlebars than standard it will almost certainly be necessary to purchase extended cables and brake pipes. Fortunately, many standard motorcycles have a custom version which will be equipped with higher handlebars and, therefore, factory-built extended components will be available from your local dealer. It is not usually necessary to extend electrical wiring, as switch clusters may be used on several different motorcycles, some being custom versions. This point should be borne in mind however when fitting extremely high or wide handlebars.

When fitting different types of handlebar, ensure that the mounting clamps are correctly tightened to the manufacturer's specifications and that cables and wiring, as previously mentioned, have smooth easy runs and do not snag on any part of the motorcycle throughout the full steering lock. Ensure that the fluid level in the front brake master cylinder remains level to avoid any chance of air entering the hydraulic system. Also check that the cables are adjusted correctly and that all handlebar controls operate correctly and can be easily reached when riding.

Crashbars

Crashbars, also known as engine protector bars, engine guards, or case savers, are extremely useful items of equipment which can contribute protection to the machine's structure if a crash occurs. They do not, as has been inferred in the US, prevent the rider from crashing, or necessarily prevent rider injury should a crash occur.

It is recommended that only the smaller, neater, engine protector type of crashbar is considered. This type will offer protection while restricting, as little as is possible, access to the engine and the machine's ground clearance. The crashbars should be designed for use specifically on your machine, and should be constructed of heavy-gauge tubing with strong, integral mounting brackets. Where possible, they should bolt to a strong lug on the frame, usually at the engine mounting bolts.

The alternative type of crashbar is the larger cage type. This type is not recommended in spite of their appearance which promises some protection to the rider as well as to the machine. The larger amount of leverage imposed by the size of this type of crashbar increases the risk of severe frame damage in the event of an accident. This type also decreases the machine's ground clearance and restricts access to the engine. The amount of protection afforded the rider is open to some doubt as the design is based on the premise that the rider will stay in the normally seated position during an accident, and the crash bar structure will not itself fail. Neither result can in any way be guaranteed.

As a general rule, always purchase the best, ie usually the most expensive, set of crashbars you can afford. The investment will be repaid by minimising the amount of damage incurred, should the machine be involved in an accident. Finally, avoid the universal type of crashbar. This should be regarded only as a last resort to be used if no alternative exists. With its usual multitude of separate brackets and spacers, the universal crashbar is far too weak in design and construction to be of any practical value.

Exhaust systems

The fitting of aftermarket exhaust systems is another extremely popular pastime amongst motorcyclists. The usual motive is to gain more performance from the engine but other considerations are to gain more ground clearance, to lose weight from the motorcycle, to obtain a more distinctive exhaust note or to find a cheaper alternative to the manufacturer's original equipment exhaust system. Original equipment exhaust systems often cost more and may well have a relatively short life. It should be noted that it is rare for an aftermarket exhaust system alone to give a noticeable increase in the engine's power output. Modern motorcycles are designed to give the highest power output possible allowing for factors such as quietness, fuel economy, spread of power, and long-term reliability. If there were a magic formula which allowed the exhaust system to produce more power without affecting these other considerations you can be sure

that the manufacturers, with their large research and development facilities, would have found it and made use of it. Performance increases of a worthwhile and noticeable nature only come from well-tried and properly matched modifications to the entire engine, from the air filter, through the carburettors, port timing or camshaft and valve design, combustion chamber shape, compression ratio, and the exhaust system. Such modifications are well outside the scope of this manual but interested owners might refer to specialist books produced by the publisher of this manual which go into the whole subject in great detail.

Whatever your motive for wishing to fit an alternative exhaust system, be sure to seek expert advice before doing so. Changes to the carburettor jetting will almost certainly be required for which you must consult the exhaust system manufacturer. If he cannot supply adequately specific information it is reasonable to assume that insufficient development work has been carried out, and that particular make should be avoided. Other factors to be borne in mind are whether the exhaust system allows the use of both centre and side stands, whether it allows sufficient access to permit oil and filter changing and whether modifications are necessary to the standard exhaust system. Many two-stroke expansion chamber systems require the use of the standard exhaust pipe; this is all very well if the standard exhaust pipe and silencer are separate units but can cause problems if the two, as with so many modern two-strokes, are a one-piece unit. While the exhaust pipe can be removed easily by means of a hacksaw it is not so easy to refit the original silencer should you at any time wish to return the machine to standard trim. The same applies to several four-stroke systems.

On the subject of the finish of aftermarket exhausts, avoid black-painted systems unless you enjoy painting. As any trail-bike owner will tell you, rust has a great affinity for black exhausts and re-painting or rust removal becomes a task which must be carried out with monotonous regularity. A bright chrome finish is, as a general rule, a far better proposition as it is much easier to keep clean and to prevent rusting. Although the general finish of aftermarket exhaust systems is not always up to the standard of the original equipment the lower cost of such systems does at least reflect this fact.

When fitting an alternative system always purchase a full set of new exhaust gaskets, to prevent leaks. Fit the exhaust first to the cylinder head or barrel, as appropriate, tightening the retaining nuts or bolts by hand only and then line up the exhaust rear mountings. If the new system is a one-piece unit and the rear mountings do not line up exactly, spacers must be fabricated to take up the difference. Do not force the system into place as the stress thus imposed will rapidly cause cracks and splits to appear. Once all the mountings are loosely fixed, tighten the retaining nuts or bolts securely, being careful not to overtighten them. Where the motorcycle manufacturer's torque settings are available, these should be used. Do not forget to carry out any carburation changes recommended by the exhaust system's manufacturer.

Electrical equipment

The vast range of electrical equipment available to motorcyclists is so large and so diverse that only the most general outline can be given here. Electrical accessories vary from electric ignition kits fitted to replace contact breaker points, to additional lighting at the front and rear, more powerful horns, various instruments and gauges, clocks, anti-theft systems, heated clothing, CB radios, radio-cassette players, and intercom systems, to name but a few of the more popular items of equipment.

As will be evident, it would require a separate manual to cover this subject alone and this section is therefore restricted to outlining a few basic rules which must be borne in mind when fitting electrical equipment. The first consideration is whether your machine's electrical system has enough reserve capacity to cope with the added demand of the accessories you wish to fit. The motorcycle's manufacturer or importer should be able to furnish this sort of information and may also be able to offer advice on uprating the electrical system. Failing this, a good dealer or the accessory manufacturer may be able to help. In some cases, more powerful generator components may be available, perhaps from another motorcycle in the manufacturer's range. The second consideration is the legal requirements in force in your area. The local police may be prepared to help with this point. In the UK for example, there are strict regulations governing the position and use of auxiliary riding lamps and fog lamps.

When fitting electrical equipment always disconnect the battery first to prevent the risk of a short-circuit, and be careful to ensure that all connections are properly made and that they are waterproof. Remember that many electrical accessories are designed primarily for use in cars and that they cannot easily withstand the exposure to vibration and to the weather. Delicate components must be rubber-mounted to insulate them from vibration, and sealed carefully to prevent the entry of rainwater and dirt. Be careful to follow exactly the accessory manufacturer's instructions in conjunction with the wiring diagram at the back of this manual.

Accessories – general

Accessories fitted to your motorcycle will rapidly deteriorate if not cared for. Regular washing and polishing will maintain the finish and will provide an opportunity to check that all mounting bolts and nuts are securely fastened. Any signs of chafing or wear should be watched for, and the cause cured as soon as possible before serious damage occurs.

As a general rule, do not expect the re-sale value of your motorcycle to increase by an amount proportional to the amount of money and effort put into fitting accessories. It is usually the case that an absolutely standard motorcycle will sell more easily at a better price than one that has been modified. If you are in the habit of exchanging your machine for another at frequent intervals, this factor should be borne in mind to avoid loss of money.

Fault diagnosis

Contents

1 Introduction

This Section provides an easy reference-guide to the more common ailments that are likely to afflict your machine. Obviously, the opportunities are almost limitless for faults to occur as a result of obscure failures, and to try and cover all eventualities would require a book. Indeed, a number have been written on the subject.

Successful fault diagnosis is not a mysterious 'black art' but the application of a bit of knowledge combined with a systematic and logical approach to the problem. Approach any fault diagnosis by first accurately identifying the symptom and then checking through the list of possible causes, starting with the simplest or most obvious and progressing in stages to the most complex. Take nothing for granted, but above all apply liberal quantities of common sense.

The main symptom of a fault is given in the text as a major heading below which are listed, as Section headings, the various systems or areas which may contain the fault. Details of each possible cause for a fault and the remedial action to be taken are given, in brief, in the paragraphs below each Section heading. Further information should be sought in the relevant Chapter.

Starter motor problems

2 Starter motor not rotating

Fuse blown. Check the main fuse located behind the battery side cover.

Battery voltage low. Switching on the headlamp and operating the horn will give a good indication of the charge level. If necessary recharge the battery from an external source.

Neutral gear not selected.

Faulty neutral indicator switch or clutch interlock switch (where fitted). Check the switch wiring and switches for correct operation.

Ignition switch defective. Check switch for continuity and connections for security.

Starter button switch faulty. Check continuity of switch.

Starter relay (solenoid) faulty. If the switch is functioning correctly a pronounced click should be heard when the starter button is depressed. This presupposes that current is flowing to the solenoid when the button is depressed.

Wiring open or shorted. Check first that the battery terminal connections are tight and corrosion free. Follow this by checking that all wiring connections are dry, tight and corrosion free. Check also for frayed or broken wiring. Occasionally a wire may become trapped between two moving components, particularly in the vicinity of the steering head, leading to breakage of the internal core but leaving the softer but more resilient outer cover intact. This can cause mysterious intermittent or total power loss.

Starter motor defective. A badly worn starter motor may cause high current drain from a battery without the motor rotating. If current is found to be reaching the motor, after checking the starter button and starter relay, suspect a damaged motor. The motor should be removed for inspection.

3 Starter motor rotates but engine does not turn over

Starter motor clutch defective. Suspect jammed or worn engagement rollers, plungers and springs.

Damaged starter motor drive train. Inspect and renew component where necessary. Failure in this area is unlikely.

4 Starter motor and clutch function but engine will not turn over

Engine seized. Seizure of the engine is always a result of damage to internal components due to lubrication failure, or component breakage resulting from abuse, neglect or old age. A seizing or partially seized component may go un-noticed until the engine has cooled down and an attempt is made to restart the engine. Suspect first seizure of the valves, valve gear and the pistons. Instantaneous seizure whilst the engine is running indicates component breakage. In either case major dismantling and inspection will be required.

Engine does not start when turned over

5 No fuel flow to carburettor

No fuel or insufficient fuel in tank.

Fuel tap lever position incorrectly selected.

Tank filler cap air vent obstructed. Usually caused by dirt or water. Clean the vent orifice.

Fuel tap or filter blocked. Blockage may be due to accumulation of rust or paint flakes from the tank's inner surface or of foreign matter from contaminated fuel. Remove the tap and clean it and the filter. Look also for water droplets in the fuel.

Fuel line blocked. Blockage of the fuel line is more likely to result from a kink in the line rather than the accumulation of debris.

6 Fuel not reaching cylinder

Float chamber not filling. Caused by float needle or floats sticking in up position. This may occur after the machine has been left standing for an extended length of time allowing the fuel to evaporate. When this occurs a gummy residue is often left which hardens to a varnish-like substance. This condition may be worsened by corrosion and crystalline deposits produced prior to the total evaporation of contaminated fuel. Sticking of the float needle may also be caused by wear. In any case removal of the float chamber will be necessary for inspection and cleaning.

Blockage in starting circuit, slow running circuit or jets. Blockage of these items may be attributable to debris from the fuel tank bypassing the filter system or to gumming up as described in paragraph 1. Water droplets in the fuel will also block jets and passages. The carburettor should be dismantled for cleaning.

Fuel level too low. The fuel level in the float chamber is controlled by float height. The float height may increase with wear or damage but will never reduce, thus a low float height is an inherent rather than developing condition. Check the float height and make any necessary adjustment or renew the components as appropriate.

7 Engine flooding

Float valve needle worn or stuck open. A piece of rust or other debris can prevent correct seating of the needle against the valve seat thereby permitting an uncontrolled flow of fuel. Similarly, a worn needle or needle seat will prevent valve closure. Dismantle the carburettor float bowl for cleaning and, if necessary, renewal of the worn components.

Fuel level too high. The fuel level is controlled by the float height which may increase due to wear of the float needle, pivot pin or operating tang. Check the float height, and make any necessary adjustment or renew the components as appropriate. A leaking float will cause an increase in fuel level, and thus should be renewed.

Cold starting mechanism. Check the choke (starter mechanism) for correct operation. If the mechanism jams in the 'On' position subsequent starting of a hot engine will be difficult.

Blocked air filter. A badly restricted air filter will cause flooding. Check the filter and clean or renew as required. A collapsed inlet hose will have a similar effect.

8 No spark at plug

Ignition switch not on.

Engine stop switch off (where fitted).

Fuse blown. Check fuse for ignition circuit. See wiring diagram.

Battery voltage low. The current draw required by a starter motor is sufficiently high that an under-charged battery may not have enough spare capacity to provide power for the ignition circuit during starting.

Starter motor inefficient. A starter motor with worn brushes and a worn or dirty commutator will draw excessive amounts of current causing power starvation in the ignition system. See the preceding paragraph. Starter motor overhaul will be required.

Spark plug failure. Clean the spark plug thoroughly and reset the electrode gap. Refer to the spark plug section and the colour condition guide in Chapter 3. If the spark plug shorts internally or has sustained visible damage to the electrodes, core or ceramic insulator it should be renewed. On rare occasions a plug that appears to spark vigorously will fail to do so when refitted to the engine and subjected to the compression pressure in the cylinder.

Spark plug cap or high tension (HT) lead faulty. Check condition and security. Replace if deterioration is evident.

Spark plug cap loose. Check that the spark plug cap fits securely over the plug and, where fitted, the screwed terminal on the plug end is secure.

Shorting due to moisture. Certain parts of the ignition system are susceptible to shorting when the machine is ridden or parked in wet weather. Check particularly the area from the spark plug cap back to the ignition coil. A water dispersant spray may be used to dry out waterlogged components. Recurrence of the problem can be prevented by using an ignition sealant spray after drying out and cleaning.

Ignition switch shorted. May be caused by water, corrosion or wear. Water dispersant and contact cleaning sprays may be used. If this fails to overcome the problem dismantling and visual inspection of the switches will be required.

Shorting or open circuit in wiring. Failure in any wire connecting any of the ignition components will cause ignition malfunction. Check also that all connections are clean, dry and tight.

Ignition coil failure. Check the coil, referring to Chapter 3.

Capacitor (condenser) failure. The capacitor may be checked most easily by direct substitution with a replacement item. Blackened contact breaker points indicate capacitor malfunction but this may not always occur.

Contact breaker points pitted, burned or closed up. Check the contact breaker points, referring to Chapter 3. Check also that the low tension leads at the contact breaker are secure and not shorting out.

CDI unit defective. Refer to Chapter 3.

Pulser coil defective. Refer to Chapter 3.

9 Weak spark at plug

Feeble sparking at the plug may be caused by any of the faults mentioned in the preceding Section other than those items in paragraphs 1 and 3. Check first the contact breaker assembly and the spark plug, these being the most likely culprits.

10 Compression low

Spark plug loose. This will be self-evident on inspection, and may be accompanied by a hissing noise when the engine is turned over. Remove the plug and check that the threads in the cylinder head are not damaged. Check also that the plug sealing washer is in good condition.

Cylinder head gasket leaking. This condition is often accompanied by a high pitched squeak from around the cylinder head and oil loss, and may be caused by insufficiently tightened cylinder head fasteners, a warped cylinder head or mechanical failure of the gasket material. Re-torqueing the fasteners to the correct specification may seal the leak in some instances but if damage has occurred this course of action will provide, at best, only a temporary cure.

Valve not seating correctly. The failure of a valve to seat may be caused by insufficient valve clearance, pitting of the valve seat or face, carbon deposits on the valve seat or seizure of the valve stem or valve gear components. Valve spring breakage will also prevent correct valve closure. The valve clearances should be checked first and then, if these are found to be in order, further dismantling will be required to inspect the relevant components for failure.

Cylinder, piston and ring wear. Compression pressure will be lost if any of these components are badly worn. Wear in one component is invariably accompanied by wear in another. A top end overhaul will be required.

Piston rings sticking or broken. Sticking of the piston rings may be caused by seizure due to lack of lubrication or heating as a result of poor carburation or incorrect fuel type. Gumming of the rings may result from lack of use, or carbon deposits in the ring grooves. Broken rings result from over-revving, overheating or general wear. In either case a top-end overhaul will be required.

Engine stalls after starting

11 General causes

Improper cold start mechanism operation. Check that the operating controls function smoothly and, where applicable, are correctly adjusted. A cold engine may not require application of an enriched mixture to start initially but may baulk without choke once firing. Likewise a hot engine may start with an enriched mixture but will stop almost immediately if the choke is inadvertently in operation.

Ignition malfunction. See Section 9, 'Weak spark at plug'.

Carburettor incorrectly adjusted. Maladjustment of the mixture strength or idle speed may cause the engine to stop immediately after starting. See Chapter 2.

Fuel contamination. Check for filter blockage by debris or water which reduces, but does not completely stop, fuel flow or blockage of the slow speed circuit in the carburettor by the same agents. If water is present it can often be seen as droplets in the bottom of the float bowl. Clean the filter and, where water is in evidence, drain and flush the fuel tank and float bowl.

Intake air leak. Check for security of the carburettor mounting and hose connections, and for cracks or splits in the hoses. Check also that the carburettor top is secure and that the vacuum gauge adaptor plug (where fitted) is tight.

Air filter blocked or omitted. A blocked filter will cause an over-rich mixture; the omission of a filter will cause an excessively weak mixture. Both conditions will have a detrimental affect on carburation. Clean or renew the filter as necessary.

Fuel filler cap air vent blocked. Usually caused by dirt or water. Clean the vent orifice.

Poor running at idle and low speed

12 Weak spark at plug or erratic firing

Battery voltage low. In certain conditions low battery charge, especially when coupled with a badly sulphated battery, may result in misfiring. If the battery is in good general condition it should be recharged; an old battery suffering from sulphated plates should be renewed.

Spark plug fouled, faulty or incorrectly adjusted. See Section 8 or refer to Chapter 3.

Spark plug cap or high tension lead shorting. Check the condition of both these items ensuring that they are in good condition and dry and that the cap is fitted correctly.

Spark plug type incorrect. Fit plug of correct type and heat range as given in Specifications. In certain conditions a plug of hotter or colder type may be required for normal running.

. Contact breaker points pitted, burned or closed-up. Check the contact breaker assembly, referring to Chapter 3.

Ignition timing incorrect. Check the ignition timing statically and dynamically, ensuring that the advance is functioning correctly.

Faulty ignition coil. Partial failure of the coil internal insulation will diminish the performance of the coil. No repair is possible, a new component must be fitted.

Faulty capacitor (condenser). A failure of capacitor will cause blackening of the contact breaker point faces and will allow excessive sparking at the points. A faulty capacitor may best be checked by substitution of a serviceable replacement item.

Faulty CDI unit or pulser coil. Partial failure of either of these components can cause reduced ignition performance. See Chapter 3.

13 Fuel/air mixture incorrect

Intake air leak. See Section 11.

Mixture strength incorrect. Adjust slow running mixture strength using pilot adjustment screw.

Carburettor synchronisation.

Pilot jet or slow running circuit blocked. The carburettor should be removed and dismantled for thorough cleaning. Blow through all jets and air passages with compressed air to clear obstructions.

Air cleaner clogged or omitted. Clean or fit air cleaner element as necessary. Check also that the element and air filter cover are correctly seated.

Piston diaphragm split. CV carburettor only.

Cold start mechanism in operation. Check that the choke has not been left on inadvertently and the operation is correct. Where applicable check the operating cable free play.

Fuel level too high or too low. Check the float height and adjust as necessary. See Section 7.

Fuel tank air vent obstructed. Obstruction usually caused by dirt or water. Clean vent orifice.

Valve clearance incorrect. Check, and if necessary, adjust, the clearances.

14 Compression low

See Section 10.

Acceleration poor

15 General causes

All items as for previous Section.

Timing not advancing. This is caused by a sticking or damaged automatic timing unit (ATU) (where fitted). Cleaning and lubrication of the ATU will usually overcome sticking, failing this, and in any event if damage is evident, renewal of the ATU will be required.

Brakes binding. Usually caused by maladajustment or partial seizure of the operating mechanism due to poor maintenance. Check brake adjustment (where applicable). A bent wheel spindle or warped brake disc can produce similar symptoms.

Poor running or lack of power at high speeds

16 Weak spark at plug or erratic firing

All items as for Section 12.

HT lead insulation failure. Insulation failure of the HT lead and spark plug cap due to old age or damage can cause shorting when the engine is driven hard. This condition may be less noticeable, or not noticeable at all at lower engine speeds.

17 Fuel/air mixture incorrect

All items as for Section 13, with the exception of items 2 and 4.

Main jet blocked. Debris from contaminated fuel, or from the fuel tank, and water in the fuel can block the main jet. Clean the fuel filter, the float bowl area, and if water is present, flush and refill the fuel tank.

Main jet is the wrong size. The standard carburettor jetting is for sea level atmospheric pressure. For high altitudes, usually above 5000 ft, a smaller main jet will be required.

Jet needle and needle jet worn. These can be renewed individually but should be renewed as a pair. Renewal of both items requires partial dismantling of the carburettor.

Air bleed holes blocked. Dismantle carburettor and use compressed air to blow out all air passages.

Reduced fuel flow. A reduction in the maximum fuel flow from the fuel tank to the carburettor will cause fuel starvation, proportionate to the engine speed. Check for blockages through debris or a kinked fuel line.

Piston diaphragm split. Renew. CV carburettors only.

18 Compression low

See Section 10.

Knocking or pinking

19 General causes

Carbon build-up in combustion chamber. After a high mileage has been covered a large accumulation of carbon may occur. This may glow red hot and cause premature ignition of the fuel/air mixture, in advance of normal firing by the spark plug. Cylinder head removal will be required to allow inspection and cleaning.

Fuel incorrect. A low grade fuel, or one of poor quality may result in compression induced detonation of the fuel resulting in knocking and pinking noises. Old fuel can cause similar problems. A too highly leaded fuel will reduce detonation but will accelerate deposit formation in the combustion chamber and may lead to early pre-ignition as described in item 1.

Spark plug heat range incorrect. Uncontrolled pre-ignition can result from the use of a spark plug the heat range of which is too hot.

Weak mixture. Overheating of the engine due to a weak mixture can result in pre-ignition occurring where it would not occur when engine temperature was within normal limits. Maladjustment, blocked jets or passages and air leaks can cause this condition.

Overheating

20 Firing incorrect

Spark plug fouled, defective or maladjusted. See Section 8.

Spark plug type incorrect. Refer to the Specifications and ensure that the correct plug type is fitted.

Incorrect ignition timing. Timing that is far too much advanced or far too much retarded will cause overheating. Check the ignition timing is correct and that the advance mechanism is functioning.

21 Fuel/air mixture incorrect

Slow speed mixture strength incorrect. Adjust pilot air screw.

Main jet wrong size. The carburettor is jetted for sea level atmospheric conditions. For high altitudes, usually above 5000 ft, a smaller main jet will be required.

Air filter badly fitted or omitted. Check that the filter element is in place and that it and the air filter box cover are sealing correctly. Any leaks will cause a weak mixture.

Induction air leaks. Check the security of the carburettor mountings and hose connections, and for cracks and splits in the hoses. Check also that the carburettor top is secure and that the vacuum gauge adaptor plug (where fitted) is tight.

Fuel level too low. See Section 6.

Fuel tank filler cap air vent obstructed. Clear blockage.

Piston diaphragm split. CV carburettors only.

22 Lubrication inadequate

Engine oil too low. Not only does the oil serve as a lubricant by preventing friction between moving components, but it also acts as a coolant. Check the oil level and replenish.

Engine oil overworked. The lubricating properties of oil are lost slowly during use as a result of changes resulting from heat and also contamination. Always change the oil at the recommended interval.

Engine oil of incorrect viscosity or poor quality. Always use the recommended viscosity and type of oil.

Oil filter blocked. Clean filter.

23 Miscellaneous causes

Engine fins clogged. A build-up of mud in the cylinder head and cylinder barrel cooling fins will decrease the cooling capabilities of the fins. Clean the fins as required.

Clutch operating problems

24 Clutch slip

No clutch lever play. Adjust clutch lever end play according to the procedure in Chapter 1.

Friction plates worn or warped. Overhaul clutch assembly, replacing plates out of specification.

Steel plates worn or warped. Overhaul clutch assembly, replacing plates out of specification.

Clutch springs broken or worn. Old or heat-damaged (from slipping clutch) springs should be replaced with new ones.

Clutch release not adjusted properly. See the adjustments section of Chapter 1.

Clutch inner cable snagging. Caused by a frayed cable or kinked outer cable. Replace the cable with a new one. Repair of a frayed cable is not advised.

Clutch release mechanism defective. Worn or damaged parts in the clutch release mechanism could include the shaft, cam, actuating arm or pivot. Replace parts as necessary.

Clutch hub and outer drum worn. Severe indentation by the clutch plate tangs of the channels in the hub and drum will cause snagging

of the plates preventing correct engagement. If this damage occurs, renewal of the worn components is required.

Lubricant incorrect. Use of a transmission lubricant other than that specified may allow the plates to slip.

25 Clutch drag

Clutch lever play excessive. Adjust lever at bars or at cable end if necessary.

Clutch plates warped or damaged. This will cause a drag on the clutch, causing the machine to creep. Overhaul clutch assembly.

Clutch spring tension uneven. Usually caused by a sagged or broken spring. Check and replace springs.

Engine oil deteriorated. Badly contaminated engine oil and a heavy deposit of oil sludge and carbon on the plates will cause plate sticking. The oil recommended for this machine is of the detergent type, therefore it is unlikely that this problem will arise unless regular oil changes are neglected.

Engine oil viscosity too high. Drag in the plates will result from the use of an oil with too high a viscosity. In very cold weather clutch drag may occur until the engine has reached operating temperature.

Clutch hub and outer drum worn. Indentation by the clutch plate tangs of the channels in the hub and drum will prevent easy plate disengagement. If the damage is light the affected areas may be dressed with a fine file. More pronounced damage will necessitate renewal of the components.

Clutch housing seized to shaft. Lack of lubrication, severe wear or damage can cause the housing to seize to the shaft. Overhaul of the clutch, and perhaps the transmission, may be necessary to repair damage.

Clutch release mechanism defective. Worn or damaged release mechanism parts can stick and fail to provide leverage. Overhaul clutch cover components.

Loose clutch hub nut. Causes drum and hub misalignment, putting a drag on the engine. Engagement adjustment continually varies. Overhaul clutch assembly.

Gear selection problems

26 Gear lever does not return

Weak or broken centraliser spring. Renew the spring.

Gearchange shaft bent or seized. Distortion of the gearchange shaft often occurs if the machine is dropped heavily on the gear lever. Provided that damage is not severe straightening of the shaft is permissible.

27 Gear selection difficult or impossible

Clutch not disengaging fully. See Section 25.

Gearchange shaft bent. This often occurs if the machine is dropped heavily on the gear lever. Straightening of the shaft is permissible if the damage is not too great.

Gearchange arms, pawls or pins worn or damaged. Wear or breakage of any of these items may cause difficulty in selecting one or more gears. Overhaul the selector mechanism.

Gearchange arm spring broken. Renew spring.

Gearchange drum stopper damage. Failure, rather than wear, of these items may jam the drum thereby preventing gearchanging. The damaged items must be renewed.

Selector forks bent or seized. This can be caused by dropping the machine heavily on the gearchange lever or as a result of lack of lubrication. Though rare, bending of a shaft can result from a missed gearchange or false selection at high speed.

Selector fork end and pin wear. Pronounced wear of these items and the grooves in the gearchange drum can lead to imprecise selection and, eventually, no selection. Renewal of the worn components will be required.

Structural failure. Failure of any one component of the selector rod and change mechanism will result in improper or fouled gear selection.

28 Jumping out of gear

Detent assembly worn or damaged. Renew the damaged components.

Gear pinion dogs worn or damaged. Rounding off the dog edges and the mating recesses in adjacent pinion can lead to jumping out of gear when under load. The gears should be inspected and renewed. Attempting to reprofile the dogs is not recommended.

Selector forks, gearchange drum and pinion grooves worn. Extreme wear of these interconnected items can occur after high mileages especially when lubrication has been neglected. The worn components must be renewed.

Gear pinions, bushes and shafts worn. Renew the worn components.

Bent gearchange shaft. Often caused by dropping the machine on the gear lever.

Gear pinion tooth broken. Chipped teeth are unlikely to cause jumping out of gear once the gear has been selected fully; a tooth which is completely broken off, however, may cause problems in this respect and in any event will cause transmission noise.

29 Overselection

Pawl spring weak or broken. Renew the spring.

Stopper arm spring worn or broken. Renew the spring.

Selector limiter claw components (where fitted) worn or damaged. Renew the damaged items.

Abnormal engine noise.

30 Knocking or pinking

See Section 19.

31 Piston slap or rattling from cylinder

Cylinder bore/piston clearance excessive. Resulting from wear, partial seizure or improper boring during overhaul. This condition can often be heard as a high, rapid tapping noise when the engine is under little or no load, particularly when power is just beginning to be applied. Reboring to the next correct oversize should be carried out and a new oversize piston fitted.

Connecting rod bent. This can be caused by over-revving, trying to start a very badly flooded engine (resulting in a hydraulic lock in the cylinder) or by earlier mechanical failure such as a dropped valve. Attempts at straightening a bent connecting rod are not recommended. Careful inspection of the crankshaft should be made before renewing the damaged connecting rod.

Gudgeon pin, piston boss bore or small-end bearing wear or seizure. Excess clearance or partial seizure between normal moving parts of these items can cause continuous or intermittent tapping noises. Rapid wear or seizure is caused by lubrication starvation resulting from an insufficient engine oil level or oilway blockage.

Piston rings worn, broken or sticking. Renew the rings after careful inspection of the piston and bore.

32 Valve noise or tapping from the cylinder head

Valve clearance incorrect. Adjust the clearances with the engine cold.

Valve spring broken or weak. Renew the spring set.

Camshaft or cylinder head worn or damaged. The camshaft lobes are the most highly stressed of all components in the engine and are subject to high wear if lubrication becomes inadequate. The bearing surfaces on the camshaft and cylinder head are also sensitive to a lack of lubrication. Lubrication failure due to blocked oilways can occur, but over-enthusiastic revving before engine warm-up is complete is the usual cause.

Rocker arm or spindle wear. Rapid wear of a rocker arm, and the

resulting need for frequent valve clearance adjustment, indicates breakthrough or failure of the surface hardening on the rocker arm tips. Similar wear in the cam lobes can be expected. Renew the worn components after checking for lubrication failure.

Worn camshaft drive components. A rustling noise or light tapping which is not improved by correct re-adjustment of the cam chain tension can be emitted by a worn cam chain or worn sprockets and chain. If uncorrected, subsequent cam chain breakage may cause extensive damage. The worn components must be renewed before wear becomes too far advanced.

33 Other noises

Big-end bearing wear. A pronounced knock from within the crankcase which worstens rapidly is indicative of big-end bearing failure as a result of extreme normal wear or lubrication failure. Remedial action in the form of a bottom end overhaul should be taken; continuing to run the engine will lead to further damage including the possibility of connecting rod breakage.

Main bearing failure. Extreme normal wear or failure of the main bearings is characteristically accompanied by a rumble from the crankcase and vibration felt through the frame and footrests. Renew the worn bearings and carry out a very careful examination of the crankshaft.

Crankshaft excessively out of true. A bent crank may result from over-revving or damage from an upper cylinder component or gearbox failure. Damage can also result from dropping the machine on either crankshaft end. Straightening of the crankshaft is not possible in normal circumstances; a replacement item should be fitted.

Engine mounting loose. Tighten all the engine mounting nuts and bolts.

Cylinder head gasket leaking. The noise most often associated with a leaking head gasket is a high pitched squeaking, although any other noise consistent with gas being forced out under pressure from a small orifice can also be emitted. Gasket leakage is often accompanied by oil seepage from around the mating joint or from the cylinder head holding down bolts and nuts. Leakage into the cam chain tunnel or oil return passages will increase crankcase pressure and may cause oil leakage at joints and oil seals. Also, oil contamination will be accelerated. Leakage results from insufficient or uneven tightening of the cylinder head fasteners, or from random mechanical failure. Retightening to the correct torque figure will, at best, only provide a temporary cure. The gasket should be renewed at the earliest opportunity.

Exhaust system leakage. Popping or crackling in the exhaust system, particularly when it occurs with the engine on the overrun, indicates a poor joint either at the cylinder port or at the exhaust pipe/silencer connection. Failure of the gasket or looseness of the clamp should be looked for.

Abnormal transmission noise

34 Clutch noise

Clutch outer drum/friction plate tang clearance excessive.
Clutch outer drum/spacer clearance excessive.
Clutch outer drum/thrust washer clearance excessive.
Primary drive gear teeth worn or damaged.
Clutch shock absorber assembly worn or damaged.

35 Transmission noise

Bearing or bushes worn or damaged. Renew the affected components.

Gear pinions worn or chipped. Renew the gear pinions.

Metal chips jammed in gear teeth.This can occur when pieces of metal from any failed component are picked up by a meshing pinion. The condition will lead to rapid bearing wear or early gear failure.

Engine/transmission oil level too low. Top up immediately to prevent damage to gearbox and engine.

Gearchange mechanism worn or damaged. Wear or failure of certain items in the selection and change components can induce mis-selection of gears (see Section 27) where incipient engagement of more than one gear set is promoted. Remedial action, by the overhaul of the gearbox, should be taken without delay.

Loose gearbox chain sprocket. Remove the sprocket and check for impact damage to the splines of the sprocket and shaft.

Chain snagging on cases or cycle parts. A badly worn chain or one that is excessively loose may snag or smack against adjacent components.

Exhaust smokes excessively

36 White/blue smoke (caused by oil burning)

Piston rings worn or broken. Breakage or wear of any ring, but particularly the oil control ring, will allow engine oil past the piston into the combustion chamber. Overhaul the cylinder barrel and piston.

Cylinder cracked, worn or scored. These conditions may be caused by overheating, lack of lubrication, component failure or advanced normal wear. The cylinder barrel should be renewed or rebored and the next oversize piston fitted.

Valve oil seal damaged or worn. This can occur as a result of valve guide failure or old age. The emission of smoke is likely to occur when the throttle is closed rapidly after acceleration, for instance, when changing gear. Renew the valve oil seals and, if necessary, the valve guides.

Valve guides worn. See the preceding paragraph.

Engine oil level too high. This increases the crankcase pressure and allows oil to be forced past the piston rings. Often accompanied by seepage of oil at joints and oil seals.

Cylinder head gasket blown between cam chain tunnel or oil return passage. Renew the cylinder head gasket.

Abnormal crankcase pressure. This may be caused by blocked breather passages or hoses causing back-pressure at high engine revolutions.

37 Black smoke (caused by over-rich mixture)

Air filter element clogged. Clean or renew the element.

Main jet loose or too large. Remove the float chamber to check for tightness of the jet. If the machine is used at high altitudes rejetting will be required to compensate for the lower atmospheric pressure.

Cold start mechanism jammed on. Check that the mechanism works smoothly and correctly and that, where fitted, the operating cable is lubricated and not snagged.

Fuel level too high. The fuel level is controlled by the float height which can increase as a result of wear or damage. Remove the float bowl and check the float height. Check also that floats have not punctured; a punctured float will lose buoyancy and allow an increased fuel level.

Float valve needle stuck open. Caused by dirt or a worn valve. Clean the float chamber or renew the needle and, if necessary, the valve seat.

Poor handling or roadholding

38 Directional instability

Steering head bearing adjustment too tight. This will cause rolling or weaving at low speeds. Re-adjust the bearings.

Steering head bearing worn or damaged. Correct adjustment of the bearing will prove impossible to achieve if wear or damage has occurred. Inconsistent handling will occur including rolling or weaving at low speed and poor directional control at indeterminate higher speeds. The steering head bearing should be dismantled for inspection and renewed if required. Lubrication should also be carried out.

Bearing races pitted or dented. Impact damage caused, perhaps, by an accident or riding over a pot-hole can cause indentation of the bearing, usually in one position. This should be noted as notchiness when the handlebars are turned. Renew and lubricate the bearings.

Steering stem bent. This will occur only if the machine is subjected to a high impact such as hitting a curb or a pot-hole. The lower yoke/stem should be renewed; do not attempt to straighten the stem.

Front or rear tyre pressures too low.

Front or rear tyre worn. General instability, high speed wobbles and skipping over white lines indicates that tyre renewal may be required. Tyre induced problems, in some machine/tyre combinations, can occur even when the tyre in question is by no means fully worn.

Swinging arm bearings worn. Difficulty in holding line, particularly when cornering or when changing power settings indicates wear in the swinging arm bearings. The swinging arm should be removed from the machine and the bearings renewed.

Swinging arm flexing. The symptoms given in the preceding paragraph will also occur if the swinging arm fork flexes badly. This can be caused by structural weakness as a result of corrosion, fatigue or impact damage, or because the rear wheel spindle is slack.

Wheel bearings worn. Renew the worn bearings.

Loose wheel spokes. The spokes should be tightened evenly to maintain tension and trueness of the rim.

Tyres unsuitable for machine. Not all available tyres will suit the characteristics of the frame and suspension, indeed, some tyres or tyre combinations may cause a transformation in the handling characteristics. If handling problems occur immediately after changing to a new tyre type or make, revert to the original tyres to see whether an improvement can be noted. In some instances a change to what are, in fact, suitable tyres may give rise to handling deficiencies. In this case a thorough check should be made of all frame and suspension items which affect stability.

39 Steering bias to left or right

Rear wheel out of alignment. Caused by uneven adjustment of chain tensioner adjusters allowing the wheel to be askew in the fork ends. A bent rear wheel spindle will also misalign the wheel in the swinging arm.

Wheels out of alignment. This can be caused by impact damage to the frame, swinging arm, wheel spindles or front forks. Although occasionally a result of material failure or corrosion it is usually as a result of a crash.

Front forks twisted in the steering yokes. A light impact, for instance with a pot-hole or low curb, can twist the fork legs in the steering yokes without causing structural damage to the fork legs or the yokes themselves. Re-alignment can be made by loosening the yoke pinch bolts, wheel spindle and mudguard bolts. Re-align the wheel with the handlebars and tighten the bolts working upwards from the wheel spindle. This action should be carried out only when there is no chance that structural damage has occurred.

40 Handlebar vibrates or oscillates

Tyres worn or out of balance. Either condition, particularly in the front tyre, will promote shaking of the fork assembly and thus the handlebars. A sudden onset of shaking can result if a balance weight is displaced during use.

Tyres badly positioned on the wheel rims. A moulded line on each wall of a tyre is provided to allow visual verification that the tyre is correctly positioned on the rim. A check can be made by rotating the tyre; any misalignment will be immediately obvious.

Wheel rims warped or damaged. Inspect the wheels for runout as described in Chapter 5.

Swinging arm bearings worn. Renew the bearings.

Wheel bearings worn. Renew the bearings.

Steering head bearings incorrectly adjusted. Vibration is more likely to result from bearings which are too loose rather than too tight. Re-adjust the bearings.

Loose fork component fasteners. Loose nuts and bolts holding the fork legs, wheel spindle, mudguards or steering stem can promote shaking at the handlebars. Fasteners on running gear such as the forks and suspension should be check tightened occasionally to prevent dangerous looseness of components occurring.

Engine mounting bolts loose. Tighten all fasteners.

41 Poor front fork performance

Damping fluid level incorrect. If the fluid level is too low poor suspension control will occur resulting in a general impairment of roadholding and early loss of tyre adhesion when cornering and braking. Too much oil is unlikely to change the fork characteristics unless severe overfilling occurs when the fork action will become stiffer and oil seal failure may occur.

Damping oil viscosity incorrect. The damping action of the fork is directly related to the viscosity of the damping oil. The lighter the oil used, the less will be the damping action imparted. For general use, use the recommended viscosity of oil, changing to a slightly higher or heavier oil only when a change in damping characteristic is required. Overworked oil, or oil contaminated with water which has found its way past the seals, should be renewed to restore the correct damping performance and to prevent bottoming of the forks.

Damping components worn or corroded. Advanced normal wear of the fork internals is unlikely to occur until a very high mileage has been covered. Continual use of the machine with damaged oil seals which allows the ingress of water, or neglect, will lead to rapid corrosion and wear. Dismantle the forks for inspection and overhaul. See Chapter 4.

Weak fork springs. Progressive fatigue of the fork springs, resulting in a reduced spring free length, will occur after extensive use. This condition will promote excessive fork dive under braking, and in its advanced form will reduce the at-rest extended length of the forks and thus the fork geometry. Renewal of the springs as a pair is the only satisfactory course of action.

Bent stanchions or corroded stanchions. Both conditions will prevent correct telescoping of the fork legs, and in an advanced state can cause sticking of the fork in one position. In a mild form corrosion will cause stiction of the fork thereby increasing the time the suspension takes to react to an uneven road surface. Bent fork stanchions should be attended to immediately because they indicate that impact damage has occurred, and there is a danger that the forks will fail with disastrous consequences.

42 Front fork judder when braking (see also Section 54)

Wear between the fork stanchions and the fork legs. Renewal of the affected components is required.

Slack steering head bearings. Re-adjust the bearings.

Warped brake disc or drum. If irregular braking action occurs fork judder can be induced in what are normally serviceable forks. Renew the damaged brake components.

43 Poor rear suspension performance

Rear suspension unit damper worn out or leaking. The damping performance of most rear suspension units falls off with age. This is a gradual process, and thus may not be immediately obvious. Indications of poor damping include hopping of the rear end when cornering or braking, and a general loss of positive stability. See Chapter 4.

Weak rear springs. If the suspension unit springs fatigue they will promote excessive pitching of the machine and reduce the ground clearance when cornering. Although replacement springs are available separately from the rear suspension damper unit it is probable that if spring fatigue has occurred the damper units will also require renewal.

Swinging arm flexing or bearings worn. See Sections 38 and 39.

Bent suspension unit damper rod. This is likely to occur only if the machine is dropped or if seizure of the piston occurs. If either happens the suspension units should be renewed as a pair.

Abnormal frame and suspension noise

44 Front end noise

Oil level low or too thin. This can cause a 'spurting' sound and is usually accompanied by irregular fork action.

Spring weak or broken. Makes a clicking or scraping sound. Fork oil will have a lot of metal particles in it.

Steering head bearings loose or damaged. Clicks when braking. Check, adjust or replace.

Fork clamps loose. Make sure all fork clamp pinch bolts are tight.

Fork stanchion bent. Good possibility if machine has been dropped. Repair or renew stanchion.

45 Rear suspension noise

Fluid level too low. Leakage of a suspension unit, usually evident by oil on the outer surfaces, can cause a spurting noise. The suspension units should be renewed as a pair.

Defective rear suspension unit with internal damage. Renew the suspension units as a pair.

Brake problems

46 Brakes are spongy or ineffective – disc brakes

Air in brake circuit. This is only likely to happen in service due to neglect in checking the fluid level or because a leak has developed. The problem should be identified and the brake system bled of air.

Pad worn. Check the pad wear against the wear lines provided and renew the pads if necessary.

Contaminated pads. Cleaning pads which have been contaminated with oil, grease or brake fluid is unlikely to prove successful; the pads should be renewed.

Pads glazed. This is usually caused by overheating. The surface of the pads may be roughened using glass-paper or a fine file.

Brake fluid deterioration. A brake which on initial operation is firm but rapidly becomes spongy in use may be failing due to water contamination of the fluid. The fluid should be drained and then the system refilled and bled.

Master cylinder seal failure. Wear or damage of master cylinder internal parts will prevent pressurisation of the brake fluid. Overhaul the master cylinder unit.

Caliper seal failure. This will almost certainly be obvious by loss of fluid, a lowering of fluid in the master cylinder reservoir and contamination of the brake pads and caliper. Overhaul the caliper assembly.

Brake lever improperly adjusted.

47 Brakes drag – disc brakes

Disc warped. The disc must be renewed.

Caliper piston, caliper or pads corroded. The brake caliper assembly is vulnerable to corrosion due to water and dirt, and unless cleaned at regular intervals and lubricated in the recommended manner, will become sticky in operation.

Piston seal deteriorated. The seal is designed to return the piston in the caliper to the retracted position when the brake is released. Wear or old age can affect this function. The caliper should be overhauled if this occurs.

Brake pad damaged. Pad material separating from the backing plate due to wear or faulty manufacture. Renew the pads. Faulty installation of a pad also will cause dragging.

Wheel spindle bent. The spindle may be straightened if no structural damage has occurred.

Brake lever not returning. Check that the lever works smoothly throughout its operating range and does not snag on any adjacent cycle parts. Lubricate the pivot if necessary.

Twisted caliper support bracket. This is likely to occur only after impact in an accident. No attempt should be made to re-align the caliper; the bracket should be renewed.

48 Brake lever or pedal pulsates in operation – disc brakes

Disc warped or irregularly worn. The disc must be renewed.

Wheel spindle bent. The spindle may be straightened provided no structural damage has occurred.

49 Disc brake noise

Brake squeal. This can be caused by the omission or incorrect installation of the anti-squeal shim fitted to the rear of one pad. The arrow on the shim should face the direction of wheel normal rotation. Squealing can also be caused by dust on the pads, usually in combination with glazed pads, or other contamination from oil, grease, brake fluid or corrosion. Persistent squealing which cannot be traced to any of the normal causes can often be cured by applying a thin layer of high temperature silicone grease to the rear of the pads. Make absolutely certain that no grease is allowed to contaminate the braking surface of the pads.

Glazed pads. This is usually caused by high temperatures or contamination. The pad surfaces may be roughened using glass-paper or a fine file. If this approach does not effect a cure the pads should be renewed.

Disc warped. This can cause a chattering, clicking or intermittent squeal and is usually accompanied by a pulsating brake lever or pedal or uneven braking. The disc must be renewed.

Brake pads fitted incorrectly or undersize. Longitudinal play in the pads due to omission of the locating springs (where fitted) or because pads of the wrong size have been fitted will cause a single tapping noise every time the brake is operated. Inspect the pads for correct installation and security.

50 Brakes are spongy or ineffective – drum brakes

Brake cable deterioration. Damage to the outer cable by stretching or being trapped will give a spongy feel to the brake lever. The cable should be renewed. A cable which has become corroded due to old age or neglect of lubrication will partially seize making operation very heavy. Lubrication at this stage may overcome the problem but the fitting of a new cable is recommended.

Worn brake linings. Determine lining wear using the external brake wear indicator on the brake backplate, or by removing the wheel and withdrawing the brake backplate. Renew the shoe/lining units as a pair if the linings are worn below the recommended limit.

Worn brake camshaft. Wear between the camshaft and the bearing surface will reduce brake feel and reduce operating efficiency. Renewal of one or both items will be required to rectify the fault.

Worn brake cam and shoe ends. Renew the worn components.

Linings contaminated with dust or grease. Any accumulations of dust should be cleaned from the brake assembly and drum using a petrol dampened cloth. Do not blow or brush off the dust because it is asbestos based and thus harmful if inhaled. Light contamination from grease can be removed from the surface of the brake linings using a solvent; attempts at removing heavier contamination are less likely to be successful because some of the lubricant will have been absorbed by the lining material which will severely reduce the braking performance.

51 Brake drag – drum brakes

Incorrect adjustment. Re-adjust the brake operating mechanism.

Drum warped or oval. This can result from overheating, impact or uneven tension of the wheel spokes. The condition is difficult to correct, although if slight ovality only occurs, skimming the surface of the brake drum can provide a cure. This is work for a specialist engineer. Renewal of the complete wheel hub is normally the only satisfactory solution.

Weak brake shoe return springs. This will prevent the brake lining/shoe units from pulling away from the drum surface once the brake is released. The springs should be renewed.

Brake camshaft, lever pivot or cable poorly lubricated. Failure to attend to regular lubrication of these areas will increase operating resistance which, when compounded, may cause tardy operation and poor release movement.

52 Brake lever or pedal pulsates in operation – drum brakes

Drums warped or oval. This can result from overheating, impact or uneven spoke tension. This condition is difficult to correct, although if slight ovality only occurs skimming the surface of the drum can provide a cure. This is work for a specialist engineer. Renewal of the hub is normally the only satisfactory solution.

53 Drum brake noise

Drum warped or oval. This can cause intermittent rubbing of the brake linings against the drum. See the preceding Section.

Brake linings glazed. This condition, usually accompanied by heavy lining dust contamination, often induces brake squeal. The surface of the linings may be roughened using glass-paper or a fine file.

54 Brake induced fork judder

Worn front fork stanchions and legs, or worn or badly adjusted steering head bearings. These conditions, combined with uneven or pulsating braking as described in Sections 48 and 52 will induce more or less judder when the brakes are applied, dependent on the degree of wear and poor brake operation. Attention should be given to both areas of malfunction. See the relevant Sections.

Electrical problems

55 Battery dead or weak

Battery faulty. Battery life should not be expected to exceed 3 to 4 years, particularly where a starter motor is used regularly. Gradual sulphation of the plates and sediment deposits will reduce the battery performance. Plate and insulator damage can often occur as a result of vibration. Complete power failure, or intermittent failure, may be due to a broken battery terminal. Lack of electrolyte will prevent the battery maintaining charge.

Battery leads making poor contact. Remove the battery leads and clean them and the terminals, removing all traces of corrosion and tarnish. Reconnect the leads and apply a coating of petroleum jelly to the terminals.

Load excessive. If additional items such as spot lamps, are fitted, which increase the total electrical load above the maximum alternator output, the battery will fail to maintain full charge. Reduce the electrical load to suit the electrical capacity.

Regulator/rectifier failure.

Alternator generating coils open-circuit or shorted.

Charging circuit shorting or open circuit. This may be caused by frayed or broken wiring, dirty connectors or a faulty ignition switch. The system should be tested in a logical manner. See Section 58.

56 Battery overcharged

Rectifier/regulator faulty. Overcharging is indicated if the battery becomes hot or it is noticed that the electrolyte level falls repeatedly between checks. In extreme cases the battery will boil causing corrosive gases and electrolyte to be emitted through the vent pipes.

Battery wrongly matched to the electrical circuit. Ensure that the specified battery is fitted to the machine.

57 Total electrical failure

Fuse blown. Check the main fuse. If a fault has occurred, it must be rectified before a new fuse is fitted.

Battery faulty. See Section 57.

Earth failure. Check that the frame main earth strap from the battery is securely affixed to the frame and is making a good contact.

Ignition switch or power circuit failure. Check for current flow through the battery positive lead (red) to the ignition switch. Check the ignition switch for continuity.

58 Circuit failure

Cable failure. Refer to the machine's wiring diagram and check the circuit for continuity. Open circuits are a result of loose or corroded connections, either at terminals or in-line connectors, or because of broken wires. Occasionally, the core of a wire will break without there being any apparent damage to the outer plastic cover.

Switch failure. All switches may be checked for continuity in each switch position, after referring to the switch position boxes incorporated in the wiring diagram for the machine. Switch failure may be a result of mechanical breakage, corrosion or water.

Fuse blown. Refer to the wiring diagram to check whether or not a circuit fuse is fitted. Replace the fuse, if blown, only after the fault has been identified and rectified.

59 Bulbs blowing repeatedly

Vibration failure. This is often an inherent fault related to the natural vibration characteristics of the engine and frame and is, thus, difficult to resolve. Modifications of the lamp mounting, to change the damping characteristics may help.

Intermittent earth. Repeated failure of one bulb, particularly where the bulb is fed directly from the generator, indicates that a poor earth exists somewhere in the circuit. Check that a good contact is available at each earthing point in the circuit.

Reduced voltage. Where a quartz-halogen bulb is fitted the voltage to the bulb should be maintained or early failure of the bulb will occur. Do not overload the system with additional electrical equipment in excess of the system's power capacity and ensure that all circuit connections are maintained clean and tight.

HONDA CB, CD & CM125 TWINS

Check list

Daily (pre-ride) check

1 Check the engine/transmission oil level
2 Check the petrol level
3 Check the operation of the brakes
4 Check the tyre pressures and inspect the tyre tread for wear or damage
5 Check the electrolyte level in the battery
6 Check the primary controls for smooth and free operation
7 Check the correct operation of the lights and instruments
8 Lubricate and adjust the final drive chain

Monthly, or every 600 miles (1000 km)

1 Lubricate and adjust the final drive chain
2 Check the level of the brake hydraulic fluid – CB125 TD

Two monthly, or every 1250 miles (2000 km)

1 Change the engine/transmission oil

Four monthly, or every 2500 miles (4000 km)

1 Adjust the valve clearances
2 Adjust the cam chain tension
3 Check and adjust the contact breaker points and ignition timing
4 Clean and adjust the spark plugs
5 Clean the air filter element
6 Check and adjust the carburettor
7 Check the condition of the fuel pipe
8 Check the clutch for correct adjustment and smooth operation
9 Check the wear of the brake pads or shoes and adjust the brakes
10 Check the front and rear suspension
11 Check the condition of the wheels and wheel bearings
12 Check the battery electrolyte level
13 Check the lights for correct operation
14 Check all pivot points and controls for security, correct operation and lubrication

Eight monthly or every 5000 miles (8000 km)

1 Clean the oil filter screen
2 Change the damping oil in the front forks
3 Check the steering head bearings for adjustment

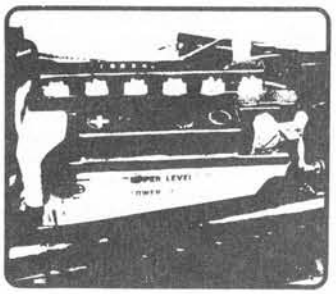
Annually or every 7500 miles (12 000 km)

1 Renew the spark plugs
2 Clean the petrol filter
3 Grease the speedometer and tachometer cables

Adjustment data

	CM125 C	CB125 TD	All others
Tyre pressures			
Front - solo	25 psi	25 psi	25 psi
Rear - solo	25 psi	28 psi	28 psi
Front - pillion	25 psi	25 psi	25 psi
Rear - pillion	36 psi	32 psi	40 psi

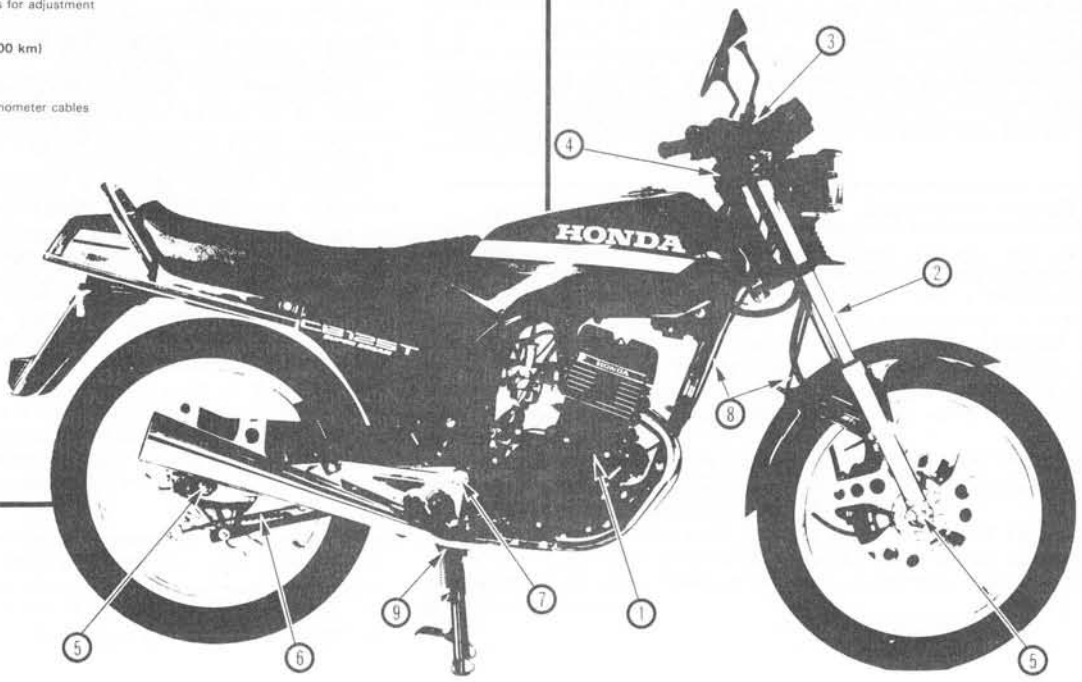
Spark plug type	
CB125 models	NGK CR8HS or ND U24FSR – U
CD and CM125 models	NGK CR7HS or ND U22FSR – U
Spark plug gap	0.6 – 0.7 mm (0.024 – 0.028 in)
Valve clearances (cold)	
Inlet and exhaust	0.05 mm (0.002 in)
Contact breaker gap	0.3 - 0.4 mm (0.012 - 0.016 in)
Tick-over speed	1200 - 1400 rpm



Ensure battery electrolyte level is kept between these marks.

Recommended lubricants

Component	Quantity	Type/viscosity
(1) Engine/transmission		SAE 10W/40 engine oil, API class SE
CD125 T and CB125 T, T2, TA and TB	1.5 lit (2.6 pt)	
CB125 TD	1.6 lit (2.8 pt)	
CM125 C	1.8 lit (3.2 pt)	
(2) Front forks		Automatic transmission fluid (ATF)
CB125 T, T2, TA and TB	110-115 cc (3.9-4.0 fl oz)	
CB125 TD	128 ± 2.5 cc (4.5 ± 0.09 fl oz)	
CD125 T	135-140 cc (4.7-4.9 fl oz)	
CM125 C	135 cc (4.7 fl oz)	
(3) Hydraulic disc brake	As required	SAE J1703, DOT 3 or 4
(4) Steering head bearings	As required	High melting point grease
(5) Wheel bearings	As required	High melting point grease
(6) Final drive chain	As required	Aerosol chain lubricant
(7) Swinging arm	As required	High melting point grease
(8) Control cables	As required	Light machine oil
(9) Pivot points	As required	General purpose grease



ROUTINE MAINTENANCE GUIDE

Routine maintenance

Refer to Chapter 7 for information relating to the CB125 TD-J model

Periodic routine maintenance is a continuous process which should commence immediately the machine is used. The object is to maintain all adjustments and to diagnose and rectify minor defects before they develop into more extensive, and often more expensive, problems.

Regular cleaning can be considered as important as mechanical maintenance. This will ensure that all the cycle parts are inspected regularly and are kept free from accumulations of road dirt and grime.

The various maintenance tasks are described under their respective mileage and calendar headings, and are accompanied by diagrams and photographs where pertinent.

It should be noted that the intervals between each maintenance task serve only as a guide. As the machine gets older, or if it is used under particularly arduous conditions it is advisable to reduce the period between each check.

For ease of reference, most service operations are described in detail under the relevant heading. However, if further general information is required this can be found under the pertinent Section heading and Chapter in the main text.

Although no special tools are required for routine maintenance, a good selection of general workshop tools is essential. Included in the tools must be a range of metric ring or combination spanners, a selection of crosshead screwdrivers, and two pairs of circlip pliers, one external opening and the other internal opening. Additionally, owing to the extreme tightness of most casing screws on Japanese machines, an impact screwdriver, together with a choice of large or small crosshead screw bits is absolutely indispensable. This is particularly so if the engine has not been dismantled since leaving the factory.

Daily (pre-riding) check

1 Check the engine/transmission oil level

Unscrew the combined filler plug and dipstick, which is situated to the front of the crankcase right-hand cover. Wipe off the dipstick using a clean, lint-free rag. Place the plug back in position, but do not screw it home; allow it to rest in position on the edge of the orifice. Remove the plug and note the level of the oil on the dipstick, which should be between the two level marks in the cross-hatched area. If necessary, top up using SAE 10W/40 engine oil to bring the oil level up to the upper mark on the dipstick. Note that if the machine has been ridden recently, it should be allowed to stand for a few minutes to allow the oil clinging to the internal surfaces to drain down into the sump. Note also that the machine should be on its centre stand and on level ground when the oil level is being checked.

2 Petrol level

Checking the petrol level may seem obvious, but it is all too easy to forget. Ensure that you have enough petrol to complete your journey, or at least to get you to the nearest petrol station.

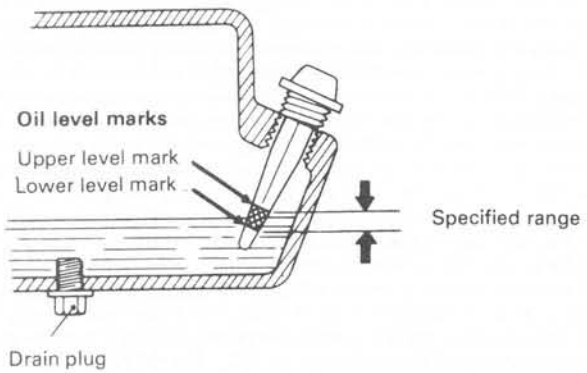
3 Brakes

Check that the front and rear brakes work effectively and without binding. Ensure that the rod linkages and the cables, as applicable, are lubricated and properly adjusted. Check the fluid level in the master cylinder reservoir of CB125 TD models, and ensure that there are no fluid leaks. Should topping-up be required, use only the recommended hydraulic fluid to specification SAE J1703, DOT 3 or 4.

4 Tyres

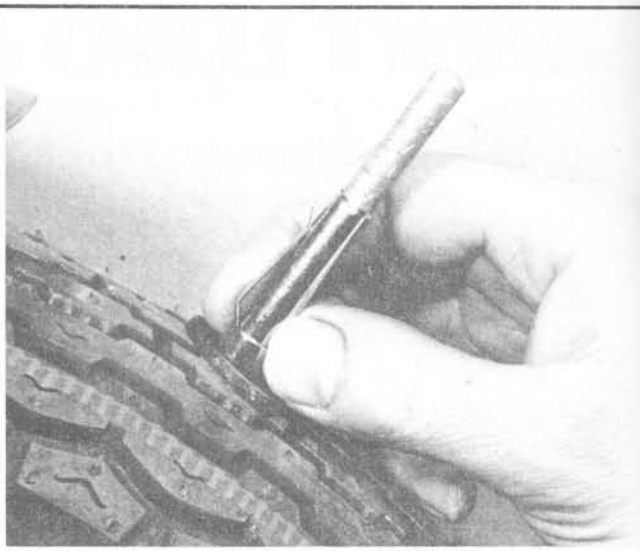
Check the tyre pressures with a gauge that is known to be accurate. It is worthwhile purchasing a pocket gauge for this purpose because the gauges on garage forecourt airlines are notoriously inaccurate. The pressures should be checked with the tyres cold.

	CM125 C	CB125 TD	Others
Front – solo	25 psi	25 psi	25 psi
Rear – solo	25 psi	28 psi	28 psi
Front – pillion	25 psi	25 psi	25 psi
Rear – pillion	36 psi	32 psi	40 psi



Engine/transmission oil level check

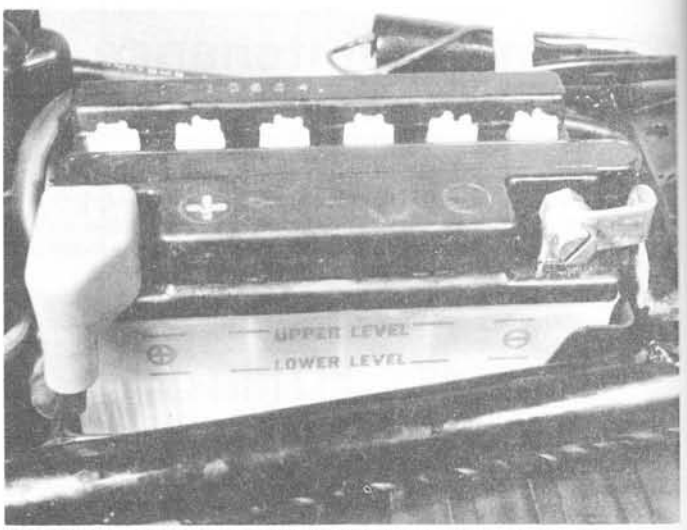
At the same time as the tyre pressures are checked, examine the tyres themselves. Check them for damage, especially splitting of the sidewalls. Remove any small stones or other road debris caught between the treads. When checking the tyres for damage, they should be examined for tread depth in view of both the legal and safety aspects. It is vital to keep the tread depth within the UK legal limits of 1 mm of depth over three-quarters of the tread breadth around the entire circumference. Many riders, however, consider nearer 2 mm to be the limit for secure roadholding, traction, and braking, especially in adverse weather conditions, and it should be noted that Honda recommend minimum tread depths of 1.5 mm (0.06 in) for the front tyre and 2.0 mm (0.08 in) for the rear.



Use gauge as shown to measure tyre tread depth

5 *Check the battery*

Remove the right-hand side panel or raise the seat, as appropriate, and check that the electrolyte levels are between the level marks on the battery casing. Top up with distilled water to the upper level if necessary. Check that the connections are clean and tight and ensure that the battery breather pipe is free from kinks and blockages.



Electrolyte level must be maintained between level marks on battery casing

6 *Controls*

Check the throttle and clutch cables and levers, the gear lever and the footrests to ensure that they are adjusted correctly, functioning correctly, and that they are securely fastened. If a bolt is going to work loose, or a cable snap, it is better that it is discovered at this stage, with the machine at a standstill, rather than when it is being ridden.

Check that the steering operates smoothly, without signs of notchiness. Also check that the front and rear suspension operate correctly.

7 *Lights and speedometer*

Check that all lights, flashing indicators, horn and speedometer are working correctly to make sure that the machine complies with all legal requirements in this respect.

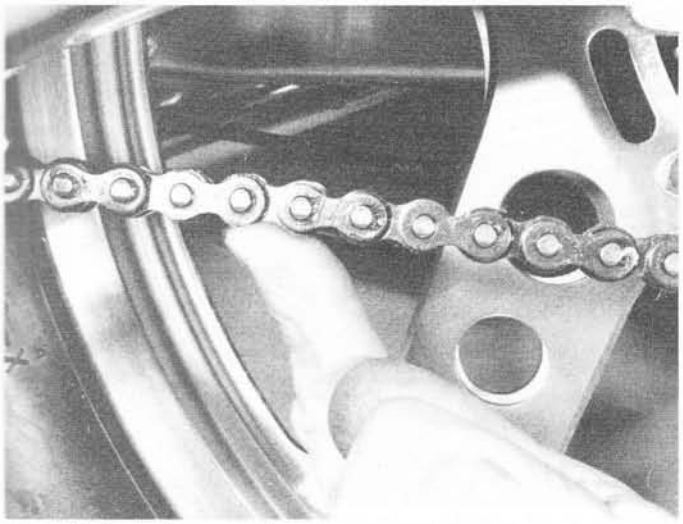
8 *Final drive chain*

Check that the final drive chain is properly lubricated and adjusted. Although it is not likely to be needed in the daily check, the full procedure is given here for easy reference. For any further details see Chapter 5, Section 19.

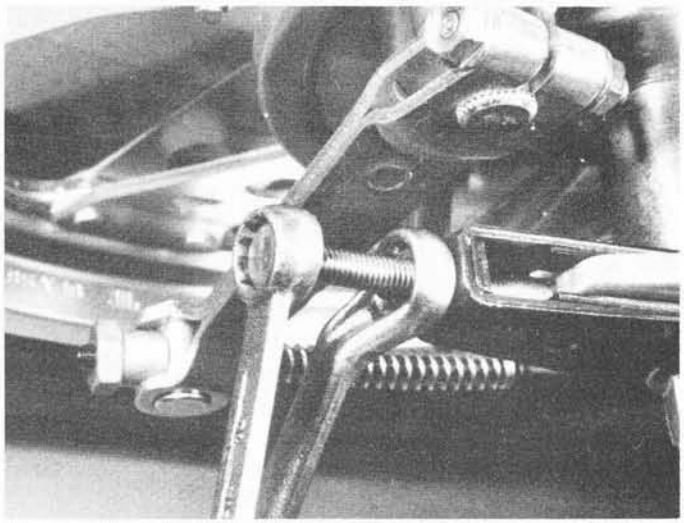
Lubrication is most effectively accomplished by the use of a special chain grease such as Linklyfe or Chainguard. This is however, a long and potentially messy process which should be made at intervals of 500 – 1000 miles depending on the use to which the machine is put. A better solution for daily maintenance is the use of one of the many proprietary chain greases applied with an aerosol can. This can be applied very quickly, while the chain is in place on the machine, and makes very little mess. It should be applied at least once a week, and daily if the machine is used in wet weather conditions. If the roller surfaces look dry, then they need lubrication. Engine oil can be used for this task, but remember that it is flung off the chain far more easily than grease, thus making the rear end of the machine unnecessarily dirty, and requires more frequent application if it is to perform its task adequately. Also remember that surplus oil will eventually finds it way on to the tyre, with quite disastrous consequences.

To adjust the chain, place the machine on its centre stand and check the tension midway between the sprockets on the lower run, removing the chaincase inspection cap (CD125 T only) to expose the chain. Slowly turn the back wheel, testing the chain tension at points all along the chain's entire length until the tightest spot is found. This is necessary due to the fact that chains never wear evenly. Chain tension should be 20 mm ($\frac{3}{4}$ in) with the chain at its tightest point, midway between the sprockets on the lower run. If adjustment is necessary, remove the split pin (where fitted) from the rear wheel spindle nut, slacken the spindle nut, and the sleeve nut on CD125 T models, and draw the spindle back by means of two drawbolt adjusters. Use the reference marks on the adjusters and the index marks on the swinging arm to ensure that the wheel spindle is pulled back by the same amount on both sides, thus preserving correct wheel alignment. Tighten the rear wheel sleeve nut (CD125 T models only) to a torque setting of 6.0 – 7.0 kgf m (43 – 51 lbf ft). The rear wheel spindle nut is tightened to 4.0 – 5.0 kgf m (29 – 36 lbf ft) on CB125 T, T2, TA, and TB models, to 5.5 – 6.5 kgf m (40 – 47 lbf ft) on CB125 TD and CM125 C models, and to 5.0 – 7.0 kgf m (36 – 51 lbf

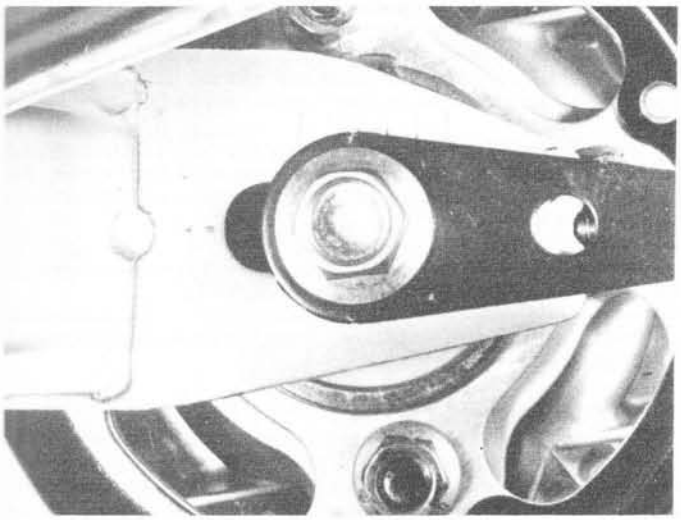
Aerosol spray is most convenient method of lubricating the chain



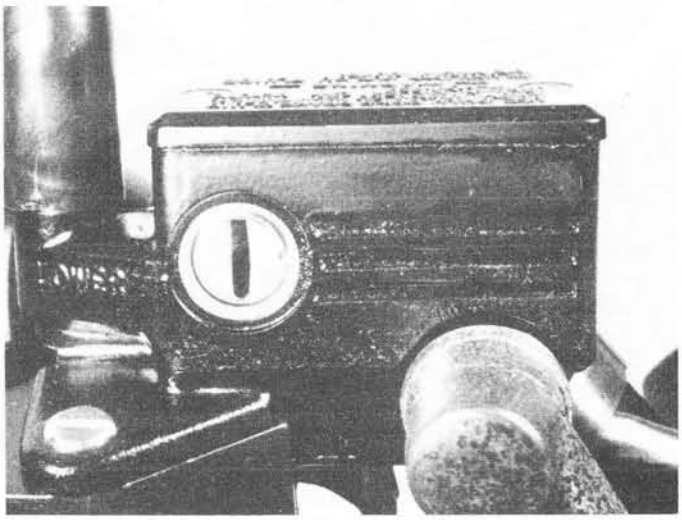
Check chain tension at position shown



Slacken adjuster locknut and rotate adjuster as necessary to obtain correct tension



Ensure that notch on adjuster is aligned with same index mark on each side



Brake fluid 'lower' level is marked on outside of master cylinder reservoir – do not allow fluid to drop below mark

ft) on CD125 T models. Where applicable, secure the nut with a new split pin, spreading securely its ends, then check, and reset if necessary, the rear brake adjustment.

Monthly, or every 600 miles (1000 km)

It is with the monthly inspection of the machine that the proper procedure of routine maintenance starts. The daily checks serve to ensure merely that the machine is in a safe and legal condition, and contribute little to maintenance other than to give the owner an accurate picture of what items need attention.

1 Lubricate and adjust the final drive chain

This task is described in full under the daily tasks and is included again to remind the owner that this would be a good interval to carry out a thorough lubrication of the chain, using Chainguard or Linklyfe, and to examine closely the chain and sprockets, looking for signs of excessive wear.

2 Check the brake fluid level – CB125 TD models only

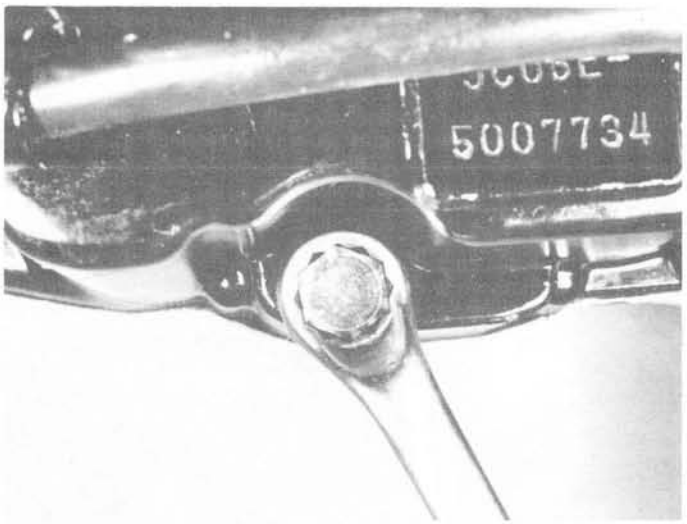
The brake fluid level is checked easily; refer to the sight glass set in the front face of the master cylinder body. The level must stay above the 'Lower' mark cast on the reservoir; remember that in any hydraulic brake system the level will drop gradually as the pads wear and more fluid is passed into the system to maintain pressure. Use only a good quality hydraulic fluid which meets the specification SAE J1703, DOT 3 or 4, topping up to keep the level above the 'Lower' mark; do not overfill the reservoir or fluid spillage will occur. If a rapid drop in the level is encountered, refer to the relevant Sections of Chapter 5 for instructions on rectifying the fault.

Two monthly, or every 1250 miles (2000 km)

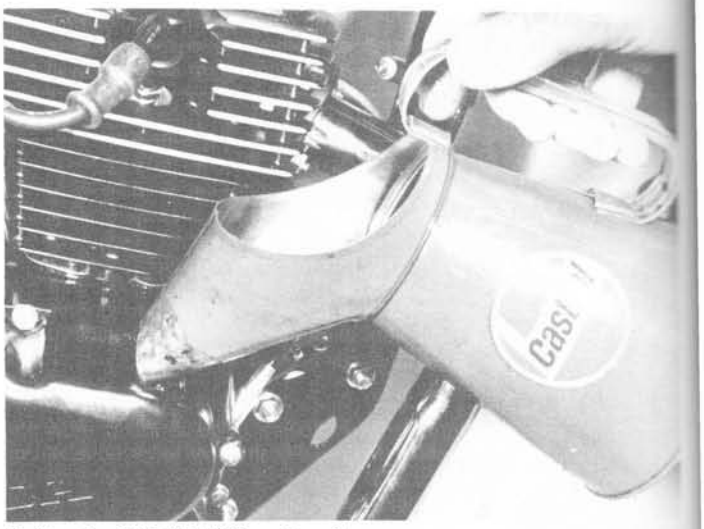
Commence the two-monthly tasks by repeating carefully the tasks listed under the daily and monthly headings, then carry out the following:

1 Change the engine/transmission oil

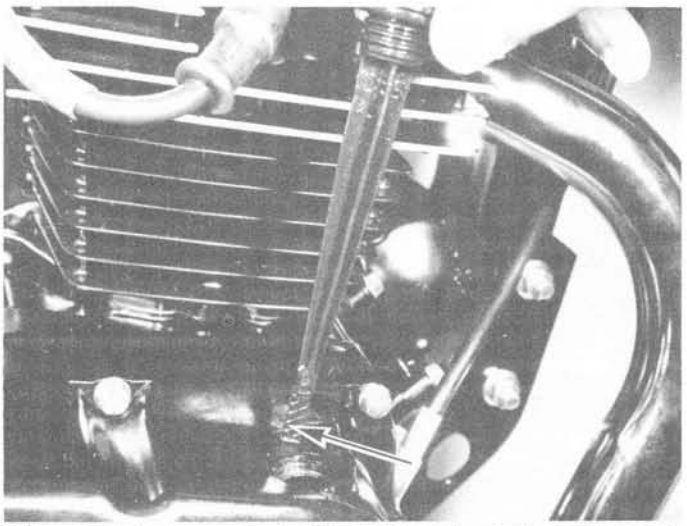
Warm the engine up to normal operating temperature by taking the machine for a short ride; this will thin the oil, allowing it to drain more quickly and completely. Place the machine on its centre stand on level ground and place a container of at least 2 litres (3.5 pints) capacity beneath the drain plug which is set in the crankcase left-hand side, at the front of the engine. Remove the filler plug/dipstick, then slacken and remove the drain plug. Allow the oil to drain fully; turning the engine over a few times only on the kickstart or starter motor to help to eject most of the residual oil.



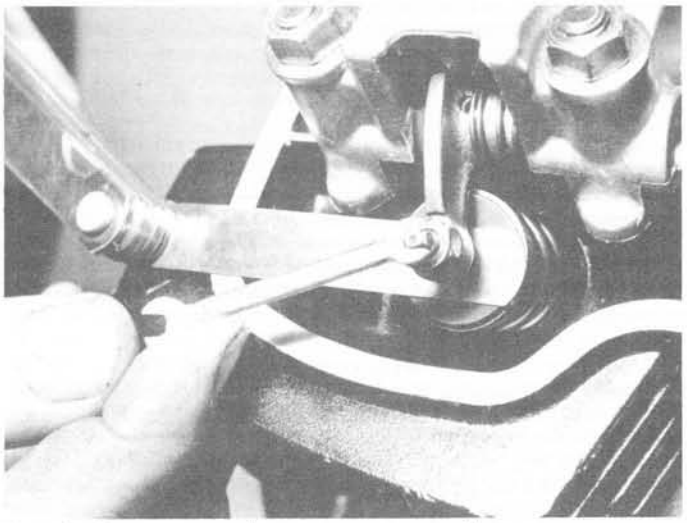
Release drain plug to allow oil to drain



Refill using SAE 10W/40 engine oil



Oil level must be at upper end of dipstick cross-hatched area (arrowed)



Use suitable spanner or pliers to rotate tappet adjuster

Renew the drain plug sealing washer if damaged and refit the drain plug, tightening it to a torque setting of 3.0 – 5.0 kgf m(22 – 36 lbf ft). Pour the specified amount of good quality SAE 10W/40 engine oil, API class SE, into the crankcase and refit the dipstick. Start the engine, run it for a few minutes, then stop the engine and check the oil level.

With the machine placed on its centre stand on level ground, and with the dipstick resting on the crankcase right-hand cover, not screwed into place, the level should be in the cross-hatched area between the level marks.

Four monthly, or every 2500 miles (4000 km)

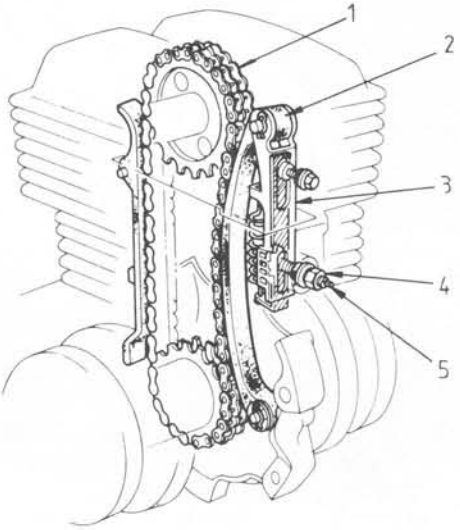
Repeat all the operations listed under the previous mileage/time headings, then carry out the following:

1 Adjust valve clearances

The engine must be cold for the valves clearances to be checked accurately. Place the machine on its centre stand on level ground, then raise or remove the seat, withdraw if necessary the sidepanels, and remove the petrol tank. Remove its two retaining bolts, then remove the cylinder head cover with its thick rubber gasket. Disconnect and remove both spark plugs. On CB125 T, T2, TA, and TB models, remove the two contact breaker inspection cover screws and remove the inspection cover and its gasket. On CB125 TD, CD125 T and CM125 C models, unscrew both inspection plugs set in the crankcase left-hand cover.

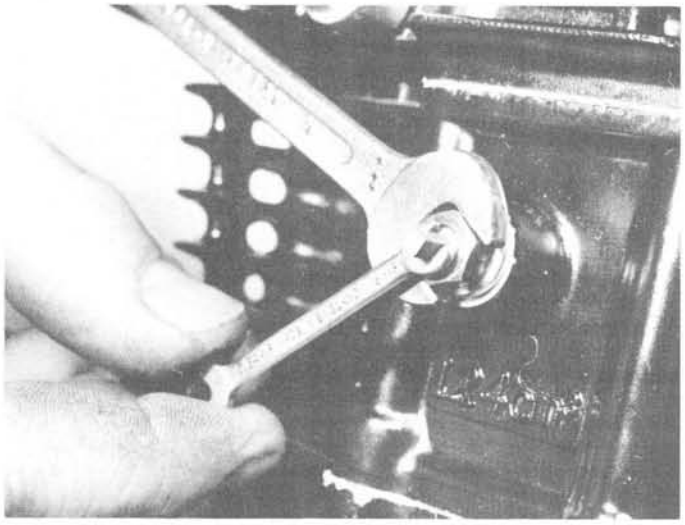
Rotating the engine anti-clockwise by means of a spanner applied to the alternator rotor retaining bolt, watch the machined slot in the camshaft left-hand end and the timing marks visible through the aperture in the contact breaker backplate (CB125 T, T2, TA and TB only) or through the upper inspection aperture (CB125 TD, CD125 T, CM125 C, only). When the 'T1' mark (CB125 T, T2, TA, TB, CD125 T, and CM125 C models) or 'TL' mark (CB125 TD only) is aligned with the fixed index mark on the crankcase left-hand cover, and the camshaft slot is in the 3 o'clock position, the left-hand cylinder is at TDC on the compression stroke, and the valve clearances are ready to be checked.

Using a 0.05 mm (0.002 in) feeler gauge, check the clearance between the top of each valve stem and its corresponding rocker. The feeler gauge must be a light sliding fit with the rocker and valve stem just nipping it. If adjustment is necessary slacken the locknut, and turn the small square-headed adjuster to obtain the correct setting. Tighten the locknut, holding the adjuster at the same time to prevent it from moving. Recheck the gap after tightening the locknut. When both inlet and exhaust valves are correctly set, rotate the engine one full revolution (360°) and realign the marks on the CD125 T and CM125 C models, and rotate the engine through 180° on the CB125 model to align the 'T2' mark (CB125 T, T2, TA, and TB models) or the

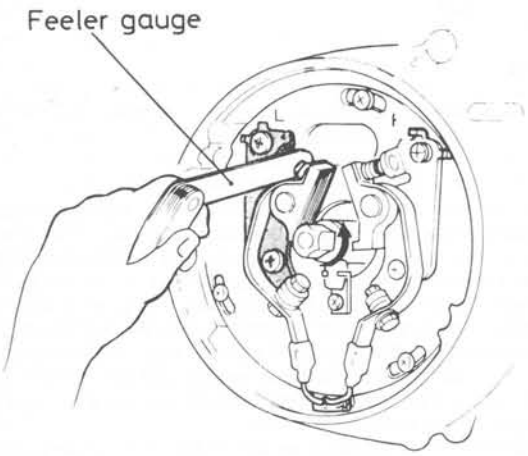


Cam chain tensioner

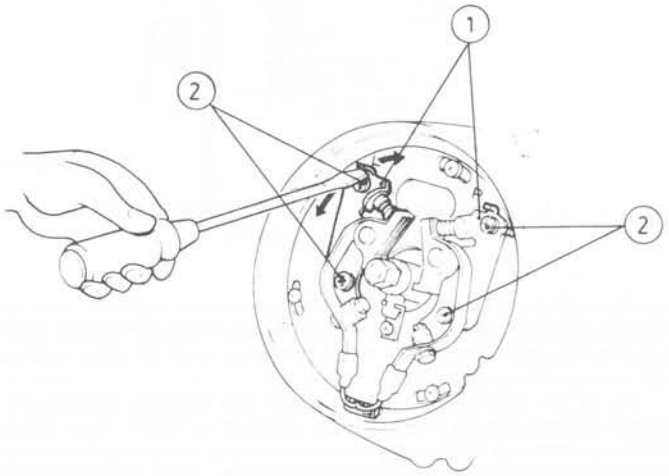
1 Cam chain
2 Tensioner blade
3 Tensioner
4 Locknut
5 Adjusting screw



Prevent cam chain tensioner adjuster stud from rotating while tightening locknut



Checking the contact breaker gap



Adjusting the contact breaker gap

1 Contact breaker backplate *2 Retaining screws – 4 off*

'TR' mark (CB125 TD only). The right-hand cylinder will now be at TDC on the compression stroke.

Check, and if necessary adjust, the valve clearances of the second cylinder using the same procedure as for the first pair of valves.

Refit the cylinder head cover checking that the sealing ring and sealing plugs are in good condition, and fit and tighten the bolts. If a torque wrench is available, tighten the cover retaining bolts to a torque setting of 0.8 – 1.2 kgf m (6 – 9 lbf ft). The petrol tank, sidepanels, and seat can be refitted now unless their removal is necessary to complete some other maintenance task. Do not fit the inspection covers or spark plugs.

2 *Adjust the cam chain tension*

With a spanner applied to the alternator rotor retaining bolt, rotate the engine anti-clockwise until the 'T1' mark (CB125 T, T2, TA and TB, CD125 T and CM125 C models) or the 'TR' mark (CB125 TD model) is aligned with the fixed index mark on the crankcase left-hand cover.

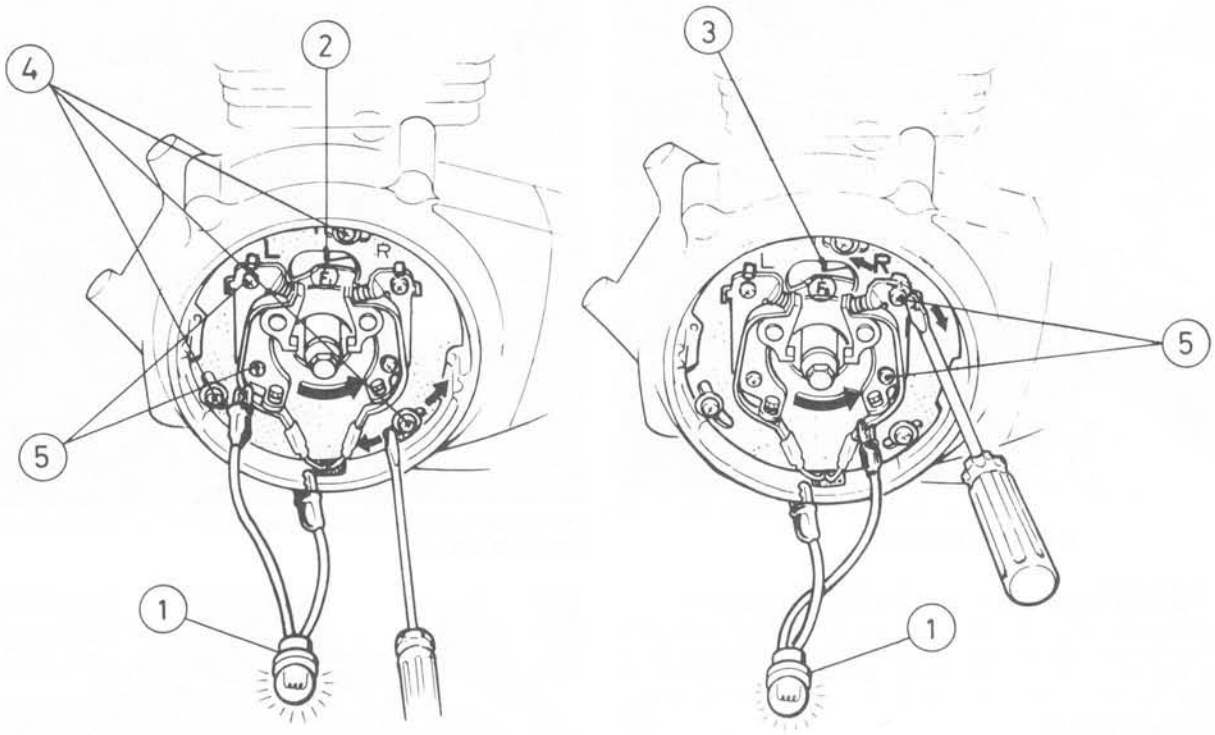
Slacken the cam chain tensioner locknut which protrudes from the rear of the cylinder barrel, then retighten the locknut. The tensioner assembly should position itself automatically to provide the correct tension as soon as the locknut is slackened. Note that when retightening the locknut, the adjuster stud must be prevented from rotating. Do not touch the tensioner bolt which protrudes from the rear of the cylinder head.

If repeated attempts to adjust the camchain tension fail to quieten a noisy camchain, the engine must be removed from the frame and the cylinder head and barrel removed, as described in Chapter 1 of this Manual, for the tensioner components and camchain to be examined for signs of excessive wear or damage.

3 *Check and adjust the contact breaker points and ignition timing – CB125 T, T2, TA, and TB models only*

Examine each set of points, looking for dirty, pitted or burnt contact faces. Light deposits may be removed using fine emery paper, but any severe deposits or deterioration will mean that the contact breaker set must be removed as described in Section 3 of Chapter 3 for cleaning or renewal.

When the contact faces are known to be in good condition, apply a spanner to the alternator rotor retaining bolt and rotate the engine anti-clockwise until each contact breaker set in turn is fully open. The gap should be 0.3 – 0.4 mm (0.012 – 0.016 in), and is measured using a feeler gauge of suitable thickness; the gauge should be a light sliding fit. Adjust the gap if necessary by slackening slightly the two screws



Adjusting the ignition timing

1 Test lamp
2 F1 index mark
3 F2 index mark
4 Backplate screw – 3 off
5 Screw – 4 off

which retain each contact breaker set to the main backplate and by inserting the flat blade of a screwdriver between the upper screw head and the appropriate adjusting lug. Tighten the two retaining screws and recheck the gap.

When the contact breakers are clean and correctly gapped, the ignition timing can be checked. The moment at which the contact breaker points separate can be determined using a bulb with two leads soldered to its contact. Connect one lead to the moving contact on the left-hand contact breaker assembly and the other lead to a good earth point on the engine. Note that if the lead ends are fitted with crocodile clips, connection and disconnection will be made more convenient. If a multimeter is available, this may be used in preference to the battery and bulb arrangement. Set the multimeter to the 0 – 10 volts dc scale, connect the negative probe to a good earthing point on the engine, and the positive probe to the **moving** contact of the contact breaker assembly. With the ignition switched on, it will be found that the bulb will light at the exact instant the points separate. In the case of the multimeter, a corresponding needle deflection will occur.

Rotate the engine anti-clockwise until the 'F1' mark is aligned with the fixed index mark on the crankcase cover, the marks being visible through the aperture in the contact breaker backplate. If the ignition timing is correct, the bulb will light or the meter needle deflect just as the two marks align. If the ignition timing is incorrect, slacken the three crosshead screws at the periphery of the contact breaker backplate. The whole backplate can then be rotated until the points commence to separate as the timing marks on the ATU coincide with the fixed index mark. If the timing is too early (advanced) rotate the backplate anti-clockwise and if the timing is too late (retarded), rotate the backplate clockwise, to remedy the situation.

Tighten securely the backplate retaining screws, and recheck the timing. Transfer the test bulb or meter to the right-hand contact breaker assembly and rotate the engine anti-clockwise through 180° until the 'F2' mark aligns. The bulb should light or the meter needle deflect as the two marks align. If not, slacken the two right-hand contact breaker assembly retaining screws and open or close the gap within the range of 0.3 – 0.4 mm (0.012 – 0.016 in) until the points separate at the correct time.

If the correct right-hand cylinder ignition timing cannot be obtained with the contact breaker gap within the set limits it will be necessary to return to the left-hand cylinder and to alter the gap of the left-hand contact breaker set as necessary within the set limits, noting that opening the gap will advance the ignition timing while closing the gap will retard the timing. Such an alteration to the left-hand contact breaker set should allow the backplate to be rotated sufficiently for the right-hand cylinder ignition timing to be set correctly. If not, one or both of the contact breaker assemblies must be renewed, depending on the degree of wear found on each.

If a stroboscope is available, an alternative test can be performed to check the accuracy of the ignition timing. Full details of this test will be found in Section 4 of Chapter 3.

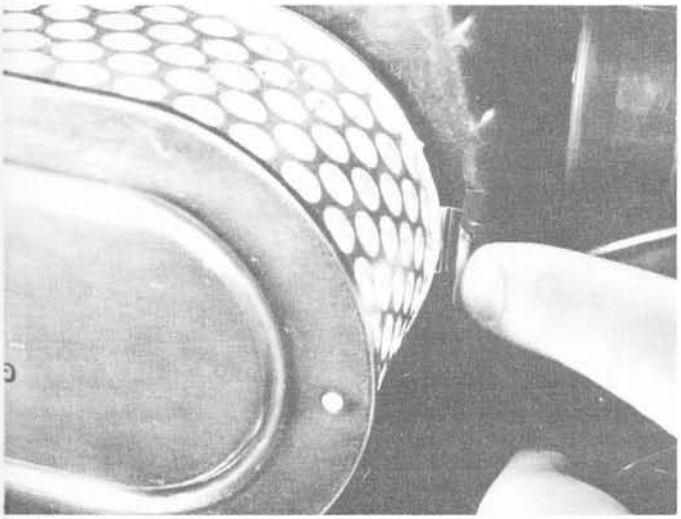
Before refitting the inspection cover, apply a small quantity of light oil or grease to the cam lubricating felt wick. **Do not** overlubricate, because excess oil may find its way onto the points, causing ignition failure.

4 *Clean and adjust the spark plugs*

Pull off the spark plug caps, and using the correct spanner, remove the plugs.

Before cleaning, compare the plugs with those shown in the spark plug condition chart in Chapter 3 to obtain an indication of the running condition of each cylinder. Clean both plugs, using a wire brush – the type used for cleaning suede shoes is ideal – and carefully clean the electrode faces with a strip of fine emery cloth or paper. Check the plug gap with a feeler gauge, adjusting it if necessary to within the range 0.6 – 0.7 mm (0.024 – 0.028 in). Make adjustments by bending the outer electrode, ensuring that the two electrode faces are kept square. On no account should the centre electrode be bent as this will only succeed in cracking the ceramic insulators, rendering the plugs useless. The spark plug must be of the correct length (reach) and grade.

When refitting the spark plugs, smear the threads with a little graphited grease; this will aid subsequent removal.



Air filter element is secured by a spring clip

5 *Clean the air filter element*

Detach the left-hand side panel (CD125 T and CM125 C) or both sidepanels (all CB125 models). Remove the three screws (CB125 TD and CM125 C) or the two nuts (CB125 T, T2, TA, and TB, and CD125 T) which secure the filter cover(s), withdraw the cover(s), and withdraw the spring(s) which secure the filter element(s). Withdraw the element(s).

The polyurethane foam type of element fitted to all models except the CB125 TD should be pulled off the supporting metal frame, noting that the CD125 T is fitted with an inner and outer foam sleeve, and examined for splits, holes, or other damage which will mean that it must be renewed. If the element is in sound condition, it should be washed out with a high-flashpoint solvent such as white spirit or methylated spirit. Petrol may be used, but precautions should be taken to prevent the risk of fire.

When the element is clean, dry it carefully and soak it with clean gear oil (SAE 80 or 90). Squeeze the foam carefully to remove the surplus oil, leaving the element only slightly oily to the touch. Do not wring out the element as this will damage the foam, necessitating the renewal of the element. Refit the element to its frame.

The dry, pleated paper elements fitted to the CB125 TD model are cleaned by tapping them gently on a wooden surface to dislodge the larger particles of dirt, then by blowing from the inside outwards with compressed air. If the elements are damp or oily, or if they are heavily clogged with dirt that cannot be removed as described above, they must be renewed. The same also applies if the paper is split or torn.

Refit the various components following the reverse of the dismantling procedure, ensuring that the element and cover are seated correctly to prevent the entry of unfiltered air to the engine. A light smear of grease around the sealing edges of the filter cover will help to achieve an airtight seal.

On no account run without the air filter attached, or with the element missing. The jetting of the carburettor takes into account the presence of the air filter and engine performance will be seriously affected if this balance is upset.

6 *Adjust the carburettor settings*

If rough running of the engine has developed, some adjustment of the carburettor pilot setting, tick-over speed and synchronization (CB 125 models only) may be required. If this is the case refer to Chapter 2, Sections 7, 8 and 9 for details. Do not make these adjustments unless they are obviously required, there is little to be gained by unwarranted attention to the carburettor.

Check that the choke mechanism is functioning correctly throughout its full movement, then lubricate all moving parts of the mechanism and the exposed length (where applicable) of the choke inner cable.

Open and close the throttle several times, allowing it to snap back under its own pressure. Ensure that it is able to shut off quickly and fully. On CD125 T and CM125 C models, check that there is 2 – 6 mm (0.08 – 0.024 in) free play measured at the inner flange of the rubber twistgrip; 10 – 15° of twistgrip rotation on CB125 models. If not, use the adjuster below the twistgrip to achieve the correct setting. See Chapter 2, Section 8 for full details. If there is any doubt at all about its condition, the throttle cable must be thoroughly examined and lubricated. Check the outer cables for signs of damage, then examine the exposed portions of the inner cables. Any signs of kinking or fraying will indicate that renewal is required. To obtain maximum life and reliability from the cables they should be thoroughly lubricated. To do the job properly and quickly use one of the hydraulic cable oilers available from most motorcycle shops. Free one end of the cable and assemble the cable oiler as described by the manufacturer's instructions. Operate the oiler until oil emerges from the lower end, indicating that the cable is lubricated throughout its length. This process will expel any dirt or moisture and will prevent its subsequent ingress.

Oiling a control cable

If a cable oiler is not available, an alternative is to remove the cable from the machine. Hang the cable upright and make up a small funnel arrangement using plasticene or by taping a plastic bag around the upper end. Fill the funnel with oil and leave it overnight to drain through. Note that where nylon-lined cables are fitted, they should be used dry or lubricated with a silicone-based lubricant suitable for this application. On no account use ordinary engine oil because this will cause the liner to swell, pinching the cable.

Check all pivots and control levers, cleaning and lubricating them to prevent wear or corrosion. Where necessary, dismantle and clean any moving part which may have become stiff in operation.

Complete carburettor maintenance by slackening the drain screw on the float chamber, turning the petrol on, and allowing a small amount of fuel to drain through, thus flushing any water or dirt from the carburettor. Tighten the drain screw again.

7 *Check the fuel pipe condition*

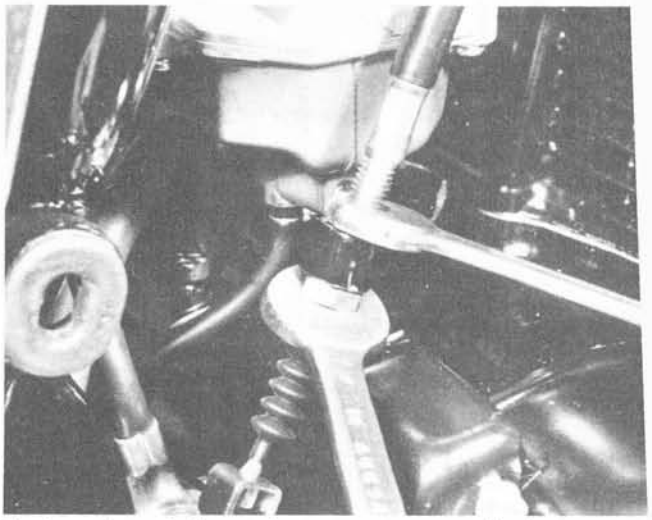
Give the pipe which connects the fuel tap and carburettor a close visual examination, checking for cracks or any signs of leakage. In time, the synthetic rubber pipe will tend to deteriorate, and will

eventually leak. Apart from the obvious fire risk, the evaporating fuel will affect fuel economy. If the pipe is to be renewed, always use the correct replacement type to ensure a good leak-proof fit. Never use natural rubber tubing because this will tend to break up when in contact with petrol, and will obstruct the carburettor jets.

8 Clutch adjustment

Accurate adjustment of the clutch cable is necessary to ensure efficient operation of the unit. There is no provision for adjustment of the clutch itself.

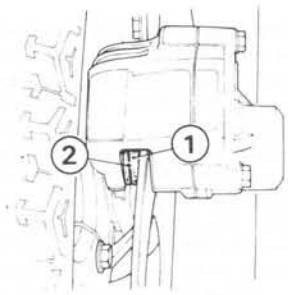
Normal adjustment is made using the cable lower end adjuster, at the operating arm on the crankcase cover. Slacken the locknut and turn the adjuster nut. This tensions the inner cable and reduces the free play at the handlebar lever. When the free play at the handlebar lever is between 10 – 20 mm (0.4 – 0.8 in), the adjustment is correct. Retighten the lower end locknut. Fine adjustment can be made at the handlebar lever stock.



Slacken adjuster locknut and rotate as necessary adjusting nut to obtain correct clutch cable free play

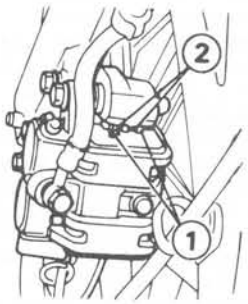
9 Check the condition of the brake pads or shoes, and adjust the brakes

Close periodic inspection of the brake pads and shoes is necessary to ensure continued braking efficiency. The regular checks every week will ensure that the brakes are kept in proper adjustment but it is advisable to remove the wheels in the case of drum brakes, or the pads, in the case of discs, to check the amount of friction material left. It should be noted that wear limit indicators are provided so that inspection is greatly simplified. On brake pads these take the form of a red groove which, when worn away by the removal of friction material, indicates the need for immediate renewal of the pads. On drum brakes, a pointer on the brake operating arm should not move beyond an arrow stamped into the brake backplate when the brake is fully applied. These marks, however, only indicate the thickness of remaining friction material and it is advisable, especially if there is any doubt about the efficiency of the brakes, to remove the pads or drum brake shoes for cleaning and examination. See Chapter 5, Sectior for the full pad removal and refitting procedure, and Sections 13 a 15 for the same Chapter for details of drum brake examination. P especial attention to cleaning any foreign material from pads or sho if they are sufficiently unworn to be re-usable, and ensure that t brake cam is properly greased on drum brakes. When dismantling t front brake caliper on CB125 T, T2, TA, and TB models, have ready new caliper cover gasket and moving pad sealing O-ring; these tv must be renewed whenever the caliper is dismantled.



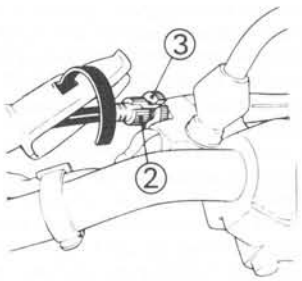
Front brake pad wear check – CB125 T, T2, TA and TB

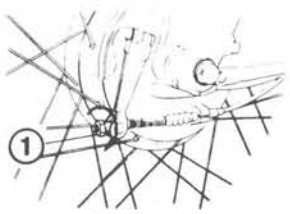
1 Brake pad *2 Wear line*



Front brake pad wear check – CB125 TD

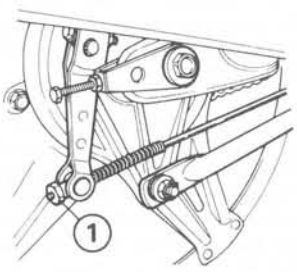
1 Direction of pad examination *2 Wear lines*





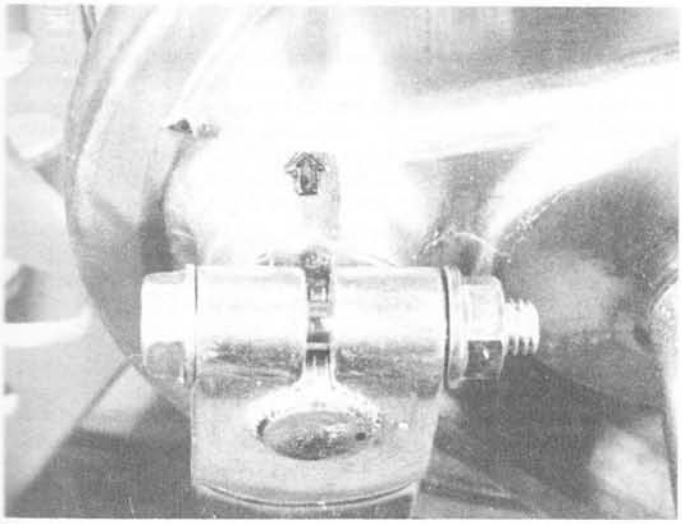
Front brake adjustment – CD and CM125

1 Adjusting nut *3 Locknut*
2 Adjusting screw

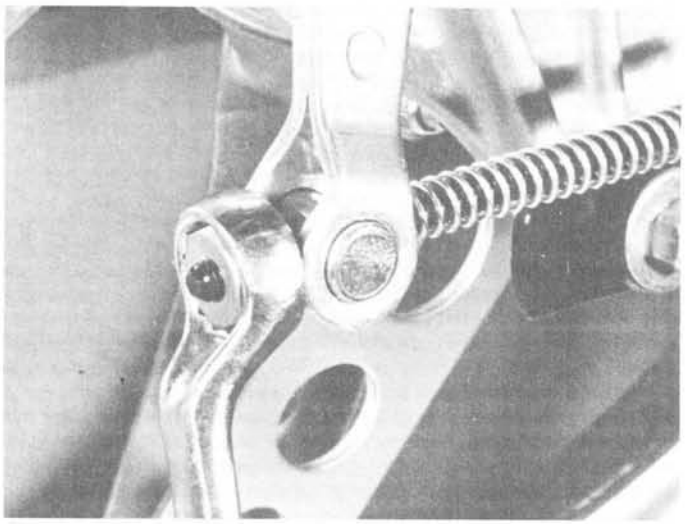


Rear brake adjusting nut

1 Adjusting nut



Rear brake wear indicator pointer and reference mark



Rotate adjusting nut to adjust rear brake

Adjustment of the front brake is not necessary on CB125 TD models; it is sufficient to ensure that the fluid level is maintained above the 'Lower' mark and that the brake pads are clean and within wear limits. On CB125 T, T2, TA and TB models, use the adjuster on the caliper body to provide 20 – 30 mm (0.8 – 1.2 in) of free play, measured at the handlebar lever tip. On CD125 T and CM125 C, rotate the adjusting nut at the brake cable lower end to provide 10 – 20 mm (0.4 – 0.8 in) of free play, measured at the handlebar lever end, reserving the handlebar adjuster for minor alterations.

Rear brake adjustment is made by rotating the adjusting nut at the rear end of the brake operating rod to provide 20 – 30 mm (0.8 – 1.2 in) free play, measured at the brake pedal tip. If the rear brake adjustment is altered, check that the stoplamp rear switch is adjusted so that the lamp lights just as the brake shoes are felt to engage the drum. The stoplamp switch is adjusted by rotating the plastic sleeve nut which retains it.

Complete brake maintenance by checking that the wheels are free to rotate easily, and then lubricate all exposed lengths of inner cable, all lever or linkage pivots, and the stoplamp switch. To prevent the risk of oil finding its way on to the tyres or the brake friction material do not oil excessively the brake components; a few drops of oil at each point will suffice.

10 Check the front and rear suspension

Ensure that the front forks operate smoothly and progressively by pumping them up and down whilst the front brake is held on. Any faults revealed by this check should be investigated further, because any deterioration in the handling of the machine can have serious consequences if left unremedied. Except for CD125 T models, check the condition of the fork stanchions. As with most current production machines, the fork stanchions are left exposed in the interests of fashion, and are thus prone to damage from stone chips or abrasion. Any damage to the stanchions will lead to rapid wear of the fork seals and can only be cured by renewing the stanchions. This is both costly and time consuming, so it is worth checking that the area below each dust seal is kept clean and greased. Remove any abrasive grit which may have accumulated around the dust seal lip. The above problems can be eliminated by fitting fork gaiters, these being available from most accessory stockists.

The rear suspension can be checked with the machine on the centre stand. Check that all the suspension components are securely attached to the frame. Check for free play in the swinging arm by pushing and pulling it horizontally.

On CB125 TD models only, stand the machine on its wheels and ask an assistant to bounce several times the rear of the machine up and down. Examine closely the suspension linkage, looking for free play or stiffness; any signs of corrosion or wear necessitate the removal of the swinging arm/suspension linkage assembly for cleaning and examination. On all models, if grease nipples are fitted to the swinging arm pivots, use a suitable grease gun to pump in grease until all the old grease is expelled and clean grease can be seen issuing from the sides of the pivot bearing. This latter task may involve the removal of the gearbox sprocket cover, but should never be neglected.

11 Check the condition of the wheels and wheel bearings

Comstar wheels

Comstar wheels should be checked at regular intervals to prevent the sudden appearance of dangerous faults. Examine the rim alignment to ensure that the wheel is not distorted and check the spoke blades for cracking and security. It should be noted that while Honda recommend that the wheel be renewed if any fault appears, or if the rim is distorted by more than 2.0 mm (0.08 in), some private engineering firms offer a limited repair service. It must be stressed, however, that this is a job for the expert only and should on no account be undertaken by the private owner.

Wire-spoked wheels

Place the machine on the centre stand so that the front wheel is raised clear of the ground. Spin the wheel and check the rim alignment. Small irregularities can be corrected by tightening the spokes in the affected area although a certain amount of experience is necessary to prevent over-correction. Any flats in the wheel rim will be evident at the same time. These are more difficult to remove and in most cases it will be necessary to have the wheel rebuilt on a new rim. Apart from the effect on stability, a flat will expose the tyre bead and walls to greater risk of damage if the machine is run with a deformed wheel.

Check for loose and broken spokes. Tapping the spokes is the best guide to tension. A loose spoke will produce a quite different sound and should be tightened by turning the nipple in an anti-clockwise direction. Always check for run out by spinning the wheel again. If the spokes have to be tightened by an excessive amount, it is advisable to remove the tyre and tube as detailed in Chapter 5. This will enable the protruding ends of the spokes to be ground off, thus preventing them from chafing the inner tube and causing punctures. The condition of the rear wheel can be checked in exactly the same way as described above.

To check a wheel bearing condition, grasp the wheel at its rim and try to move it to and fro at right angles to the normal direction of rotation. If any play at all is felt, the wheel concerned must be removed, dismantled and its bearings examined and replaced if necessary.

12 Check the battery

While the daily checks will serve to maintain the battery electrolyte levels, a more thorough check must be maintained to

prevent the occurrence of any obscure electrical faults. Check that the electrolyte levels are correct, that there is no sign of damage or deterioration to the plates of each cell, and that the battery breather pipe is free from kinks or blockages. If corrosion has formed on the terminals disconnect each one, scrape clean the wire terminal and the battery terminal post, and then smear each component with petroleum jelly (not grease) before reconnecting the battery leads and refitting the terminal rubber covers. Check that the battery is properly secured and that the fuses are in good condition.

13 Check the lights

Examine carefully the lights and all connections, removing all traces of dirt or corrosion from the bulbs, the bulb holders and the wire terminals. Check that the lamp units are securely fastened and that any rubber mountings are in good condition. Check that the headlamp is aimed correctly.

14 General checks and lubrication

Check around the machine, looking for loose nuts, bolts or screws, retightening them as necessary. Check the stand and lever pivots for security and lubricate them with light machine oil or engine oil. Make sure that each stand spring is in good condition. On CM125 C-F models, renew the side stand rubber pad if it is worn to, or beyond, the wear limit mark.

It is advisable to lubricate the handlebar switches and stoplamp switches with WD40 or similar water dispersant lubricant at regular intervals, and this is a convenient time to do it. This will keep the switches working properly and prolong their life especially if the machine is used in adverse weather conditions.

Eight monthly, or every 5000 miles (8000 km)

First carry out all the tasks listed under the previous mileage/time headings, then carry out the following:

1 Clean the oil filter screen

Drain the engine oil as described under the two-monthly/1250 mile service heading. On CB125 T, T2, TA, and TB models only, remove the right-hand exhaust pipe/silencer assembly, the right-hand footrest, and the kickstart lever. On CB125 TD, CD125 T, and CM125 C models, remove the complete exhaust system. On CB125 models, disconnect the tachometer cable.

Disconnect the clutch cable from its operating arm, slacken and remove the retaining screws and withdraw the crankcase right-hand cover. Rotate the crankshaft to align the three holes in the oil pump driven gear with the three holes in the pump outer cover. The three pump retaining screws will now be visible. Remove the screws and lift the complete oil pump unit away. If the screws are very tight an impact driver may be used as long as care is taken not to damage any part of the pump assembly. Note that there is insufficient clearance around the filter screen to allow its removal and refitting with the pump in situ. Pull the rubber retainer off the pump body and detach the filter screen.

Clean the filter screen carefully in clean petrol to remove any residual oil or debris. A small soft-bristled brush such as an old tooth brush is ideal for cleaning the filter screen. If the screen is found to be damaged in any way it must be renewed immediately. Clean out the rubber screen retainer and check it is not damaged.

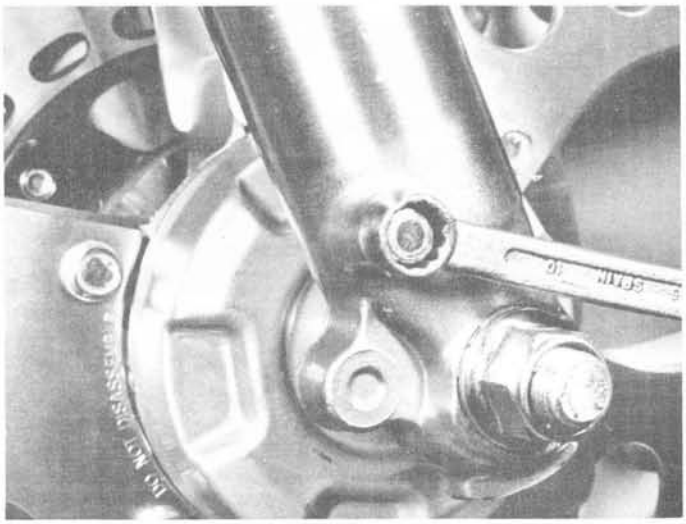
Refit the screen and retainer to the pick-up extension on the oil pump, noting that its wider end and notch should be positioned as shown in photo 35.7b in Chapter 1. Fit a new sealing O-ring to its recess in the crankcase wall and refit the oil pump, tightening securely the three screws. Refit the crankcase right-hand cover, using a new cover gasket, check that the drain plug has been refitted and tightened to the correct torque setting, then refill the engine with the correct amount of oil as described under the two monthly/1250 mile service heading. Refit all components removed in dismantling and remember to check the oil level after the engine has been run, adding oil if necessary, before the machine is taken out on the road.

The full operation of removing and refitting the crankcase right-hand cover is described in Sections 9 and 35 of Chapter 1, and further information on the lubrication system and oil pump can be found in Sections 12 and 13 of Chapter 2.

2 Change the fork oil

Drain and replenish the fork oil, working on one leg at a time so that the fork leg remaining undisturbed will support the weight of the machine.

Remove the fork top bolt and then place a drain tray under the drain plug of one fork. Remove the plug and allow the oil to drain out. The forks may be pumped up and down a few times to expel any residual oil. Fit and tighten the drain plug, ensuring that the sealing washer is in good condition and is not omitted. Replenish the fork leg with the quantity and grade of fluid specified, full details being given in the Specifications Section and Section 3 of Chapter 4.



Remove drain plugs to drain oil from fork legs

3 Check the steering head bearing adjustment

Place the machine on its centre stand on level ground and raise the front wheel clear of the ground by placing a suitable support under the crankcase.

Check the bearing adjustment by grasping the bottom of both fork lower legs, then pulling and pushing in a fore and aft direction; any free play should be felt between the fork bottom yoke and the frame head lug. Check for overtightened bearings by placing the forks in the straight ahead position and tapping lightly on one handlebar end; the forks should fall away smoothly and easily to the opposite lock, with no trace of notchiness.

To adjust the steering head bearings, slacken the large steering stem nut at the centre of the top fork yoke, then use a C-spanner to rotate as necessary the slotted adjuster nut immediately below the top yoke. As a guide to adjustment, tighten the slotted nut until a light resistance is felt, then back it off by $\frac{1}{8}$ turn. The object is to remove all discernible play without applying any appreciable preload. It should be noted that it is possible to apply a loading of several tons on the small steering head bearings without this being obvious when turning the handlebars. This will cause an accelerated rate of wear, and causes the machine to weave from side to side at low speeds. When adjustment is correct, tighten the steering stem nut to the recommended torque setting and recheck the adjustment.

Annually, or every 7500 miles (12 000 km)

The annual maintenance operation should be regarded as a minor overhaul. Carry out all the applicable tasks listed in the previous mileage/time service headings, then complete the following:

1 Renew the spark plugs

The manufacturer recommends that the spark plugs are renewed as a precautionary measure at this stage. Always ensure that plugs of the correct type and heat range are fitted, and that the gaps are set to the prescribed 0.6 – 0.7 mm (0.024 – 0.028 in) prior to installation.

2 Clean the petrol filter

If on draining the carburettor float chambers or on removing the petrol tap filter bowl, as applicable, the presence of water or dirt is

noted in the petrol, the tap must be removed as described in Section 3 of Chapter 2. The filter can be withdrawn for cleaning and in severe cases, the tank can be flushed out to remove the dirt or water.

3 *Grease the speedometer and tachometer cables*

Each cable is secured at its upper mounting by a knurled, threaded ring and at its bottom mounting by a single retaining screw in the speedometer drive gearbox, front brake backplate, or crankcase right-hand cover, as appropriate. Remove the cable by using a pair of pliers to unscrew the knurled ring, and a screwdriver to slacken and remove the retaining screw. It should then be possible to withdraw the cable carefully from its mountings and remove it from the machine. Remove the inner cable by pulling it out from the bottom of the outer. Carefully examine the inner cable for signs of fraying, kinking, or for any shiny areas which will indicate tight spots, and the outer cable for signs of cracking, kinking or any other damage. Renew either cable if necessary. To lubricate the cable, smear a small quantity of grease on to the lower length only of the inner. Do not allow any grease on the top six inches of the cable as the grease will work its way rapidly up the length of the cable as it rotates and get into the instrument itself. This will rapidly ruin the instrument which will then have to be renewed. Insert the inner cable in the outer and refit the cable.

Additional routine maintenance

Certain aspects of routine maintenance make it impossible to place operations under specific mileage or calendar headings, or may make necessary modification of the latter. A good example is the effect of a dusty environment on certain maintenance operations. In this case, the air cleaner element and chain maintenance intervals must be reduced considerably to prevent clogging of the former and accelerated wear of the latter. The problem of how to achieve the correct balance between too little maintenance, which will result in premature and expensive damage to the machine, and too much, is a delicate one which is unfortunately only resolved by personal experience. This experience is best gained by strict adherence to the specified mileage/time headings until the owner feels qualified to alter them to suit his own machine.

Some components will require inspection and attention at intervals dependent on usage rather than mileage or age. Three such tasks are given below:

1 *Renew the brake fluid – CB125 TD models only*

If the brake fluid is not completely changed during the course of routine maintenance, it should be changed at least every two years. Brake fluid is hygroscopic, which means that it absorbs mositure from the air. Although the system is sealed, the fluid will gradually deteriorate and must be renewed before contamination lowers its boiling point to an unsafe level.

Before starting work, obtain a full can of new SAE J1703, DOT 3 or 4, hydraulic fluid and read Chapter 5, Section 9. Prepare the clear plastic tube and glass jar in the same way as for bleeding the hydraulic system, open the bleed nipple by unscrewing it ¼ – ½ a turn with a spanner and apply the front brake lever gently and repeatedly. This will pump out the old fluid. Keep the master cylinder reservoir topped up at all times, otherwise air may enter the system and greatly lengthen the operation. The old brake fluid is invariably much darker in colour than the new, making it easier to see when the old fluid is pumped out and the new fluid has completely replaced it.

When the new fluid appears in the clear plastic tubing completely uncontaminated by traces of old fluid, close the bleed nipple, remove the plastic tubing and replace the rubber cap on the nipple. Top the master cylinder reservoir up to above the 'Lower' level mark, unless the brake pads have been renewed, in which case the reservoir should be topped up to its higher level which is the raised line cast on the inside of the reservoir body. Clean and dry the rubber diaphragm, fold it into its compressed state and refit the diaphragm and reservoir cover, tightening securely the two retaining screws.

Wash off any surplus fluid and check that the brake is operating correctly before taking the machine out on the road.

2 *Greasing the steering head bearings*

As already mentioned, the steering head bearings should be checked and adjusted at the eight-monthly/5000 mile inspection. If, however, they are not dismantled during routine maintenance or for accident repair they should be dismantled for examination and greasing every two years. The work necessary is described in Sections 5 and 6 of Chapter 4.

3 *Cleaning the machine*

Keeping the motorcycle clean should be considered as an important part of the routine maintenance, to be carried out whenever the need arises. A machine cleaned regularly will not only succumb less speedily to the inevitable corrosion of external surfaces, and hence maintain its market value, but will be far more approachable when the time comes for maintenance or service work. Furthermore, loose or failing components are more readily spotted when not partially obscured by a mantle of road grime and oil.

Surface dirt should be removed using a sponge and warm, soapy water, the latter being applied copiously to remove the particles of grime which might otherwise cause damage to the paintwork and polished surfaces.

Oil and grease is removed most easily by the application of a cleaning solvent such as 'Gunk' or 'Jizer'. The solvent should be applied when the parts are still dry and worked in with a stiff brush. Large quantities of water should be used when rinsing off, taking care that water does not enter the carburettors, air cleaners or electrics.

If desired a polish such as Solvol Autosol can be applied to the aluminium alloy parts to restore the original lustre. This does not apply in instances, much favoured by Japanese manufacturers, where the components are lacquered. Application of a wax polish to the cycle parts and a good chrome cleaner to the chrome parts will also give a good finish. Always wipe the machine down if used in the wet, and make sure the chain is well oiled. There is less chance of water getting into control cables if they are regularly lubricated, which will prevent stiffness of action.

Conversion factors

Length (distance)							
Inches (in)	X	25.4	= Millimetres (mm)	X	0.0394	= Inches (in)
Feet (ft)	X	0.305	= Metres (m)	X	3.281	= Feet (ft)
Miles	X	1.609	= Kilometres (km)	X	0.621	= Miles
Volume (capacity)							
Cubic inches (cu in; in^3)	X	16.387	= Cubic centimetres (cc; cm^3)	X	0.061	= Cubic inches (cu in; in^3)
Imperial pints (Imp pt)	X	0.568	= Litres (l)	X	1.76	= Imperial pints (Imp pt)
Imperial quarts (Imp qt)	X	1.137	= Litres (l)	X	0.88	= Imperial quarts (Imp qt)
Imperial quarts (Imp qt)	X	1.201	= US quarts (US qt)	X	0.833	= Imperial quarts (Imp qt)
US quarts (US qt)	X	0.946	= Litres (l)	X	1.057	= US quarts (US qt)
Imperial gallons (Imp gal)	X	4.546	= Litres (l)	X	0.22	= Imperial gallons (Imp gal)
Imperial gallons (Imp gal)	X	1.201	= US gallons (US gal)	X	0.833	= Imperial gallons (Imp gal)
US gallons (US gal)	X	3.785	= Litres (l)	X	0.264	= US gallons (US gal)
Mass (weight)							
Ounces (oz)	X	28.35	= Grams (g)	X	0.035	= Ounces (oz)
Pounds (lb)	X	0.454	= Kilograms (kg)	X	2.205	= Pounds (lb)
Force							
Ounces-force (ozf; oz)	X	0.278	= Newtons (N)	X	3.6	= Ounces-force (ozf; oz)
Pounds-force (lbf; lb)	X	4.448	= Newtons (N)	X	0.225	= Pounds-force (lbf; lb)
Newtons (N)	X	0.1	= Kilograms-force (kgf; kg)	X	9.81	= Newtons (N)
Pressure							
Pounds-force per square inch (psi; lbf/in^2; lb/in^2)	X	0.070	= Kilograms-force per square centimetre (kgf/cm^2; kg/cm^2)	X	14.223	= Pounds-force per square inch (psi; lbf/in^2; lb/in^2)
Pounds-force per square inch (psi; lbf/in^2; lb/in^2)	X	0.068	= Atmospheres (atm)	X	14.696	= Pounds-force per square inch (psi; lbf/in^2; lb/in^2)
Pounds-force per square inch (psi; lbf/in^2; lb/in^2)	X	0.069	= Bars	X	14.5	= Pounds-force per square inch (psi; lbf/in^2; lb/in^2)
Pounds-force per square inch (psi; lbf/in^2; lb/in^2)	X	6.895	= Kilopascals (kPa)	X	0.145	= Pounds-force per square inch (psi; lbf/in^2; lb/in^2)
Kilopascals (kPa)	X	0.01	= Kilograms-force per square centimetre (kgf/cm^2; kg/cm^2)	X	98.1	= Kilopascals (kPa)
Torque (moment of force)							
Pounds-force inches (lbf in; lb in)	X	1.152	= Kilograms-force centimetre (kgf cm; kg cm)	X	0.868	= Pounds-force inches (lbf in; lb in)
Pounds-force inches (lbf in; lb in)	X	0.113	= Newton metres (Nm)	X	8.85	= Pounds-force inches (lbf in; lb in)
Pounds-force inches (lbf in; lb in)	X	0.083	= Pounds-force feet (lbf ft; lb ft)	X	12	= Pounds-force inches (lbf in; lb in)
Pounds-force feet (lbf ft; lb ft)	X	0.138	= Kilograms-force metres (kgf m; kg m)	X	7.233	= Pounds-force feet (lbf ft; lb ft)
Pounds-force feet (lbf ft; lb ft)	X	1.356	= Newton metres (Nm)	X	0.738	= Pounds-force feet (lbf ft; lb ft)
Newton metres (Nm)	X	0.102	= Kilograms-force metres (kgf m; kg m)	X	9.804	= Newton metres (Nm)
Power							
Horsepower (hp)	X	745.7	= Watts (W)	X	0.0013	= Horsepower (hp)
Velocity (speed)							
Miles per hour (miles/hr; mph)	X	1.609	= Kilometres per hour (km/hr; kph)	X	0.621	= Miles per hour (miles/hr; mph)
Fuel consumption*							
Miles per gallon, Imperial (mpg)	X	0.354	= Kilometres per litre (km/l)	X	2.825	= Miles per gallon, Imperial (mpg)
Miles per gallon, US (mpg)	X	0.425	= Kilometres per litre (km/l)	X	2.352	= Miles per gallon, US (mpg)

Temperature

Degrees Fahrenheit = (°C x 1.8) + 32

Degrees Celsius (Degrees Centigrade; °C) = (°F - 32) x 0.56

**It is common practice to convert from miles per gallon (mpg) to litres/100 kilometres (l/100km), where mpg (Imperial) x l/100 km = 282 and mpg (US) x l/100 km = 235*

Chapter 1 Engine, clutch and gearbox

Refer to Chapter 7 for information relating to the CB125 TD-J model

Contents

Specifications

Engine

Type	Twin cylinder, air cooled, ohc
Capacity	124 cc (7.6 cu in)
Bore	44 mm (1.73 in)
Stroke	41 mm (1.61 in)
Compression ratio	9.4:1

Cylinder head

Thickness	72.75 – 72.85 mm (2.864 – 2.868 in)
Wear limit	72.60 mm (2.858 in)
Permissible gasket face warpage	0 – 0.05 mm (0 – 0.002 in)
Maximum gasket face warpage	0.1 mm (0.004 in)
Valve face width – inlet and exhaust	1.1 – 1.5 mm (0.04 – 0106 in)
Wear limit	1.8 mm (0.07 in)

Valve clearance (cold)	
Inlet	0.05 mm (0.002 in)
Exhaust	0.05 mm (0.002 in)
Valves and valve springs	
Valve stem OD:	
Inlet	5.450 – 5.465 mm (0.2146 – 0.2152 in)
Exhaust	5.430 – 5.445 mm (0.2137 – 0.2144 in)
Wear limit:	
Inlet	5.42 mm (0.2134 in)
Exhaust	5.40 mm (0.2126 in)
Valve guide ID:	
Inlet and Exhaust	5.475 – 5.485 mm (0.2156 – 0.2159 in)
Wear limit	5.50 mm (0.2165 in)
Valve stem to guide clearance:	
Inlet	0.010 – 0.035 mm (0.0004 – 0.0014 in)
Exhaust	0.030 – 0.055 mm (0.0012 – 0.0022 in)
Wear limit:	
Inlet	0.08 mm (0.003 in)
Exhaust	0.10 mm (0.004 in)
Valve seat width:	
Inlet and exhaust	1.0 mm (0.04 in)
Wear limit	1.5 mm (0.06 in)
Valve spring free length:	
Outer	36.45 mm (1.435 in)
Inner	29.90 mm (1.177 in)
Wear limit:	
Outer	35.5 mm (1.398 in)
Inner	29.0 mm (1.142 in)
Camshaft and rocker gear	
Cam lobe height:	
Inlet	28.094 mm (1.106 in)
Exhaust	27.675 mm (1.090 in)
Wear limit:	
Inlet	27.0 mm (1.063 in)
Exhaust	26.5 mm (1.043 in)
Camshaft journal OD	19.967 – 19.980 mm (0.7861 – 0.7866 in)
Wear limit	19.92 mm (0.7843 in)
Camshaft bush ID	20.063 – 20.083 mm (0.7899 – 0.7907 in)
Wear limit	20.20 mm (0.7953 in)
Maximum runout	0.05 mm (0.002 in)
Rocker arm spindle OD	9.978 – 9.987 mm (0.3929 – 0.3932 in)
Wear limit	9.17 mm (0.3610 in)
Rocker arm bore ID	10.0 – 10.015 mm (0.3937 – 0.3943 in)
Wear limit	10.1 mm (0.3976 in)
Cylinder barrel	
Cylinder bore ID	44.00 – 44.01 mm (1.7323 – 1.7327 in)
Wear limit	44.10 mm (1.7362 in)
Gasket face warpage – maximum	0.1 mm (0.004 in)
Pistons and piston rings	
Piston skirt OD	43.97 – 44.00 mm (1.7311 – 1.7323 in)
Wear limit	43.80 mm (1.7244 in)
Gudgeon pin bore ID	13.002 – 13.008 mm (0.5119 – 0.5121 in)
Wear limit	13.055 mm (0.5140 in)
Piston ring thickness – except CB125 TD models:	
Top and second	1.175 – 1.195 mm (0.0463 – 0.0470 in)
Wear limit	1.12 mm (0.0441 in)
Oil scraper	2.505 – 2.520 mm (0.0986 – 0.0992 in)
Wear limit	2.46 mm (0.0969 in)
Piston ring thickness – CB125 TD models only:	
Top and second	0.975 – 0.990 mm (0.0384 – 0.0390 in)
Wear limit	0.92 mm (0.0362 in)
Oil scraper	2.505 – 2.520 mm (0.0986 – 0.0992 in)
Wear limit	2.46 mm (0.0969 in)
Piston ring/ring groove clearance:	
Top and second	0.015 – 0.045 mm (0.0006 – 0.0018 in)
Wear limit	0.12 (0.0047 in)
Oil scraper	0 – 0.15 mm (0 – 0.0060 in)
Wear limit	0.17 mm (0.0067 in)

Piston ring end gap – installed:	
Top and second	0.15 – 0.35 mm (0.0060 – 0.0138 in)
Wear limit	0.5 mm (0.0197 in)
Oil scraper	0.2 – 0.5 mm (0.0079 – 0.0197 in)
Wear limit	0.7 mm (0.0276 in)

Crankshaft

Permissible runout	0 – 0.03 mm (0 – 0.0012 in)
Maximum runout	0.1 mm (0.0039 in)
Gudgeon pin OD	12.994 – 13.000 mm (0.5116 – 0.5118 in)
Wear limit	12.98 mm (0.5110 in)
Connecting rod small-end ID	13.016 – 13.034 mm (0.5124 – 0.5132 in)
Wear limit	13.08 mm (0.5150 in)
Connecting rod big-end clearance:	
Axial	0.10 – 0.40 mm (0.0040 – 0.0157 in)
Wear limit	0.60 mm (0.0236 in)
Radial	0.004 – 0.0012 mm (0.002 – 0.0005 in)
Wear limit	0.05 mm (0.002 in)

Primary drive

Type	Gear
Reduction ratio	3.833:1 (69/18)

Clutch

Type	Wet, multiplate
No of plates:	
Friction	5
Plain	4
No of springs	4
Friction plate thickness	3.0 mm (0.1181 in)
Wear limit	2.6 mm (0.1024 in)
Plain plate maximum warpage	0.2 mm (0.0079 in)
Spring free length	34.2 mm (1.3465 in)
Wear limit	33.1 mm (1.3032 in)

Gearbox

Type:	
Except CD125 T	5-speed constant mesh
CD125 T only	4-speed constant mesh

Gear ratios:	CB125 models	CD125 T model	CM125 C model
1st	2.769:1 (36/13)	2.846:1 (37/13)	2.864:1 (37/13)
2nd	1.882:1 (32/17)	1.777:1 (32/18)	1.777:1 (32/18)
3rd	1.450:1 (29/20)	1.272:1 (28/22)	1.333:1 (28/21)
4th	1.217:1 (28/23)	1.000:1 (25/25)	1.083:1 (26/24)
5th	1.083:1 (26.24)	N/App	0.913:1 (21/23)

Selector fork claw end thickness	5.00 – 5.07 mm (0.1969 – 0.1996 in)
Wear limit	4.70 mm (0.1850 in)
Selector fork bore ID	12.000 – 12.018 mm (0.4724 – 0.4731 in)
Wear limit	12.05 mm (0.4744 in)
Selector fork shaft D	11.976 – 11.994 mm (0.4715 – 0.4722 in)
Wear limit	11.96 mm (0.4709 in)
Kickstart pinion ID	18.020 – 18.041 mm (0.7095 – 0.7103 in)
Wear limit	18.07 mm (0.7114 in)

Final drive

Type	Chain and sprocket
Chain size	428 ($\frac{1}{2}$ in x $\frac{5}{16}$ in)

	CB125 T,T2, TA and TB	CB125 TD	CD125 T	CM125 C
Final reduction ratio	2.600:1	2.800:1	2.800:1	2.866:1
No of teeth	39/15	42/15	42/15	43/15

Torque wrench settings	kgf m	lbf ft
Crankshaft main bearing holder	1.0 – 1.4	7 – 10
Cylinder head retaining nuts	1.6 – 2.0	12 – 14.5
Cylinder head retaining bolts	1.0 – 1.4	7 – 10
Alternator rotor retaining bolt:		
CB125 T, T2, TA, and TB models	2.6 – 3.0	19 – 22
CB125 TD, CD125 T and CM125 C	5.5 – 6.5	40 – 47
Clutch centre retaining nut	4.0 – 5.0	29 – 36
Primary drive gear retaining nut	4.5 – 6.0	33 – 43
Camshaft sprocket retaining bolts	1.7 – 2.3	12 – 17
Crankcase fastening screws	1.0 – 1.4	7 – 10
Crankcase cover retaining screws	0.8 – 1.2	6 – 9
Cylinder head cover retaining bolts	0.8 – 1.2	6 – 9

Oil drain plug	3.0 – 5.0	22 – 36
10 mm engine mounting bolts	5.5 – 7.0	40 – 51
8 mm engine mounting bolts	2.0 – 2.5	14.5 – 18
Gearchange lever pinch bolt	0.8 – 1.2	6 – 9
Kickstart lever pinch bolt – CB125 T, T2, TA and TB models only	1.0 – 1.5	7 – 11
Exhaust front mounting nuts	0.8 – 1.4	6 – 10
Footrest mounting bolts – CD125 T and CM125 C models only	2.0 – 2.4	14.5 – 17
Exhaust balance pipe clamp bolt	2.0 – 2.4	14.5 – 17

1 General description

The engine/gearbox unit fitted to the Honda 125 twins described in this Manual is robust and well-proven. It is easy to work on and has no unduly complex features which create difficulties during dismantling and reassembly.

The basic engine/gearbox unit is similar for all the models described. The engine and gearbox components are housed in a single unit formed by the aluminium alloy crankcase castings, which are split vertically instead of horizontally. The cylinder head and cylinder barrel are also of light alloy, the latter incorporating steel liners in which the cylinder bores are machined.

In common with most machines in the Honda range, and with Japanese motorcycles in general, these models feature an overhead camshaft to operate the valve mechanism. The camshaft actuates each cylinder's pair of valves, one inlet and one exhaust, by means of rockers that bear directly on the camshaft. The camshaft is itself driven by an endless duplex roller chain which passes around a sprocket situated in the middle of the crankshaft. The chain is provided with a tensioner to compensate for wear, a rubber-faced spring steel blade which bears firmly against the chain along its rear run. A rubber-faced spring steel chain guide bears against the chain front run, keeping the chain firmly under control at all times. This method of valve operation is simple to maintain, is very reliable in service, and permits the engine to run safely at higher engine speeds than would be otherwise possible.

Lubrication is provided by a small trochoid oil pump feeding the major engine components. The lubricating oil is contained in the lower portion of the crankcase which forms a combined sump and oil bath for the gearbox components. The oil is picked up from the sump through a mesh filter screen attached to the oil pump, and is circulated around the engine by the pump, which is driven by gears from the crankshaft right-hand end.

The crankshaft is a pressed-up assembly comprising three main bearings, the outer two of which are ball journals, and two pairs of full-circle flywheels with the two connecting rods riding on needle-roller big-end bearings. No small-end bearings are fitted, the gudgeon pins riding instead directly in each connecting rod small-end eye. The alternator and ignition components are mounted on the crankshaft left-hand end, while the two gear pinions which provide the primary drive and oil pump drive respectively are mounted on the crankshaft right-hand end. From the crankshaft, drive is transmitted via a wet, multi-plate clutch to a constant-mesh gearbox which has four speeds on the CD125 T model, and five speeds on the CB125 models and the CM125 C.

The CB125 T, T2, TA and TB models are fitted with a kickstart only and the CB125 TD, CD125 T, and CM125 C models have an electric starter only. The starter motor, which is mounted on the engine front left-hand side, turns the crankshaft via a one-way clutch, chain and sprockets.

2 Operations with the engine/gearbox unit in the frame

The following items can be withdrawn for repair or renewal when the engine/gearbox unit is installed in the frame:

a) Cylinder head cover
b) Camshaft and rocker gear
c) Starter motor and drive components (where fitted)
d) Alternator and ignition components
e) Gearbox sprocket
f) Neutral indicator switch
g) Oil pump and filter screen
h) Clutch assembly and gear selector external components
i) Kickstart assembly (where fitted)

When carrying out several operations it is an advantage to remove the engine/gearbox complete to gain better access. This operation should take no more than an hour, working at a leisurely pace and without assistance.

3 Operations with the engine/gearbox unit removed from the frame

It will be necessary to remove the engine/gearbox unit from the frame in order to gain access to the following items:

a) Cylinder head and valves
b) Cylinder barrel and pistons
c) Cam chain and cam chain tensioner components
d) Crankshaft and main bearings
e) Gearbox components, including the selector drum and forks

4 Removing the engine/gearbnox unit from the frame

1 Removal of the engine/gearbox unit is made easier by raising the machine to an acceptable working height. If a hydraulic ramp is not available, use a stout table, bench or supported planks.

2 Place the machine securely on its centre stand and chock the front wheel with two blocks of wood. If the machine has been raised from the ground, check that it is secure. Steady with rope or straps if necessary.

3 Place a receptacle below the crankcase left-hand cover, remove the drain plug from the lower crankcase wall and the filler cap/dipstick from the crankcase right-hand cover. Drain the oil from the engine when it is warm; the oil will be thinner and so drain more quickly. Approximately 1.5 – 1.8 litres (2.6 – 3.2 pints) of oil should drain out. When the oil has drained check the condition of the drain plug washer, renewing it if necessary, and refit the drain plug. Tighten the plug to the recommended torque setting of 3.0 – 5.0 kgf m (22 – 36 lbf ft). Whenever possible, screw back in place, finger-tight, bolts and nuts after a component has been removed. This prevents loss and aids correct reassembly. Also have various clean containers to hand, into which can be put the numerous small components which have been detached.

4 Remove the sidepanels, raise or remove the seat, and remove the petrol tank. The sidepanels are each retained by three moulded prongs which engage in rubber grommets set in brackets on the frame, in the air filter casing, or in the base of the petrol tank, depending on the model being dismantled. Pull away each sidepanel, taking care not to damage the plastic moulding. On all CB125 models, unlock and raise the dual seat, propping it with a piece of wood. On the CD125 T and CM125 C models, the seat is retained by two bolts at the rear and by a prong at the front which engages underneath the petrol tank rear mounting. Note that the two bolts fitted to the CM125 C model also pass through the pillion grab handle to secure this firmly. Slacken and remove the two bolts, then lift the seat away.

5 Turn the petrol tap lever to the 'Off' position. Release tension on the fuel pipe by pinching together the 'ears' of the spring retaining clip, and prise off the fuel pipe. On all CB125 T, T2, TA and TB models and on the CD125 T model release the petrol tank rear by pulling back the strap and lifting the tank upwards at the back to disengage the rear mounting. On the CB125 TD and CM125 C models release the petrol tank rear by unscrewing the single bolt and lifting the tank upwards at the back. Then, on all models, raise the tank at the back and pull it carefully backwards. Put the tank to one side where it cannot be damaged accidentally. Check the condition of the tank mounting rubbers.

6 Disconnect the battery leads at their terminals by unscrewing the

single retaining nuts and bolts to prevent the risk of short circuits while the electrical components are disconnected. If the machine is to be idle for some time give the battery regular refresher charges as described in the relevant Section of Chapter 6 On all CB125 models the battery is removed by lifting it out of its tray under the seat and withdrawing it complete with its breather tube. On the CD125 T and CM125 C models the battery is retained in its carrier by a rubber strap on the former model and by a hinged metal bracket secured by a single bolt on the latter. Store the battery in a safe place where it cannot be damaged. On electric start models, unscrew the single nut and washer which secure the black-covered starter motor lead to the starter solenoid. A red-covered heavy gauge lead connects the solenoid to the battery positive (+) terminal. When the starter motor lead has been disconnected, carefully pull it away from the frame as far as possible, freeing any clamps or cable ties.

7 Remove the complete exhaust system. The exhaust pipes are each attached to the cylinder head exhaust ports by means of a flange that retains two split collars. Remove the two nuts retaining each flange, remove the flange and catch the collars as they drop free. On the CB125 T, T2, TA and TB models the two exhaust pipe/silencer assemblies are separate and each is bolted to the footrest mounting brackets by two bolts; the rearmost one also secures the pillion footrest on each side. On the CB125 TD, the CD125 T, and CM125 C models, the two exhaust pipe/silencer assemblies are joined by a balance pipe underneath the crankcase so it is easiest to remove them as a single unit. The rear mounting on the CB125 TD model consists of a single bolt on each side which passes through the pillion footrest bracket, the main footrest mounting bracket and through a bracket welded to each silencer. The CM125 C model uses a very similar arrangement, but incorporates a rubber mounting in the silencer mounting bracket, while the CD125 T model is fitted with two bolts on each side which pass through a tubular sub-frame loop, the rearmost bolt again securing the pillion footrest. With these latter three models use an assistant during removal. If working alone, release the mountings on one side first, then the other, and allow the exhaust system to drop slowly on to an old blanket or similar padding to protect the finish.

8 Detach the spark plug caps from the spark plugs, release the HT leads from their clamps and secure the leads out of the way over the frame top tube. Release the pinch bolt securing the kickstart lever (where fitted) to its splined shaft, then pull the lever off. Slacken the clutch cable adjusters' locknuts, then rotate the adjuster and adjusting nut to gain maximum cable free play. Slide up the rubber sleeve and disengage the cable lower end nipple from the clutch operating lever. On all CB125 models, remove the single screw which retains the tachometer cable lower end. The screw is often tight; use an impact screwdriver to release it.

9 Remove the footrests fitted to the CD125 T and CM125 C models. The footrest mounting bracket of the CD125 T and and CM125 C models is retained by two long bolts which are fitted from the left-hand side and pass horizontally through lugs on the bracket and through bosses cast in the crankcase underside. It is not necessary to remove the footrests on any CB125 model.

10 Remove the gearchange lever and gearbox sprocket cover. The gearchange lever on all models except the CB125 TD is retained by a pinch bolt; unscrew the pinch bolt and pull the lever off. Mark the lever and the shaft end to aid positioning on reassembly. On CB125 TD models, unscrew the bolt which secures the gearchange linkage pivot to the left-hand footrest bracket, mark the shaft end and the linkage front arm to aid correct refitting. Remove the linkage front arm pinch bolt then carefully detach the linkage assembly. The gearbox sprocket cover is retained by three screws which may be either conventional crosshead screws, or hexagon-headed screws depending on the model being dismantled. Remove the two bolts which secure the gearbox sprocket, rotate the sprocket retaining plate until it can be pulled off the output shaft splines, and then pull off the sprocket itself. If there is not sufficient slack in the chain to permit this, remove the split pin (if fitted) securing the rear wheel spindle nut, slacken the spindle nut, then unscrew the chain adjusters to gain the necessary free play. Disengage the sprocket from the chain. On CD125 T models only, slacken and remove the two bolts which secure the chaincase lower half to the swinging arm, and remove carefully the chaincase half to gain access to the engine lower rear mounting bolt.

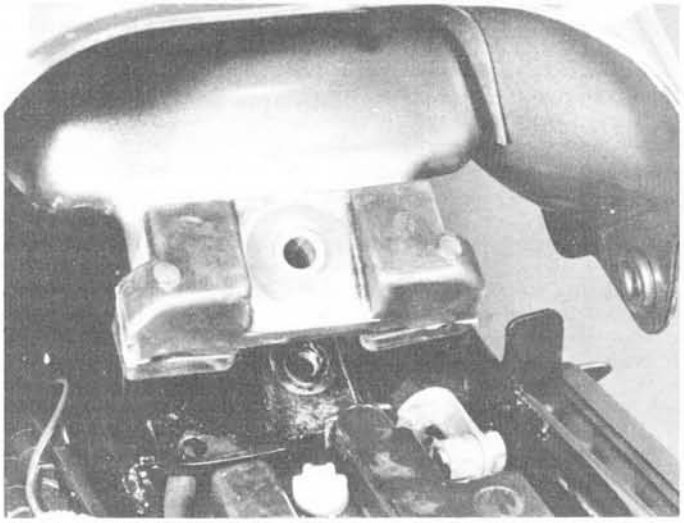
11 Remove the carburettor(s) as follows. On all CB125 models, disconnect the petrol pipe from the right-hand carburettor. On CB125 TD models only, disconnect the choke cable by slackening the single screw which secures the cable clamp to the left-hand carburettor then disengaging the cable end nipple from the choke operating arm. Unscrew each carburettor top and withdraw carefully the throttle valve assemblies; secure them to the frame top tube. Slacken the rubber intake adaptor and air filter hose clamps, then carefully pull each carburettor in turn backwards off its respective inlet stub until it can be manoeuvred out to the side. Do not bend the choke linkage as the carburettors are removed.

12 On CD125 T and CM125 C models disconnect the choke cable by slackening the single screw which secures the cable clamp to the carburettor body, then disengage the cable lower end nipple from the choke operating arm. On CD125 T models only, slacken the throttle cable lower adjuster locknut unscrewing the nut as far as possible to gain the maximum free play in the cable, then disengage the cable outer from the adjuster bracket and the cable end nipple from the throttle operating arm. Remove the two carburettor mounting nuts then slacken the air filter hose clamps so that the carburettor can be pulled backwards and manoeuvred out of the frame to one side. On CM125 C models only, as soon as sufficient clearance is obtained unscrew the carburettor top and withdraw carefully the throttle valve assembly. Pull the air filter hose away from the carburettor body and withdraw fully the carburettor.

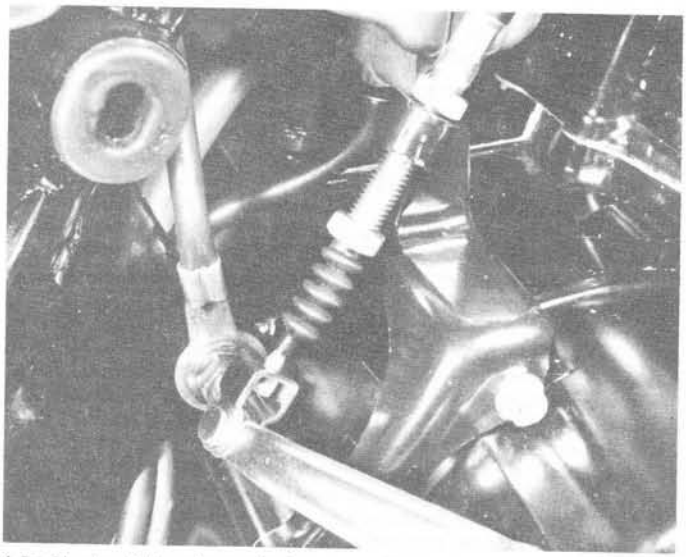
13 Trace the main generator lead (and ignition system wiring, where this is separate) from the crankcase up the rear downtube, releasing any cable securing straps or clamps. Disconnect at the snap connectors or multi-pin block connectors each individual wire or group of wires. On electric start models release the starter motor lead and hang this out to the left-hand side. Release the spring securing clip and pull off the crankcase breather hose from its stub on the crankcase.

14 Check that all components have been removed and all cables and wires disconnected that would hinder removal of the engine/gearbox unit. Secure all delicate components to the frame out of harm's way. The engine/gearbox unit is not particularly heavy and can be lifted clear of the frame by one person. Assistance, however, is most helpful.

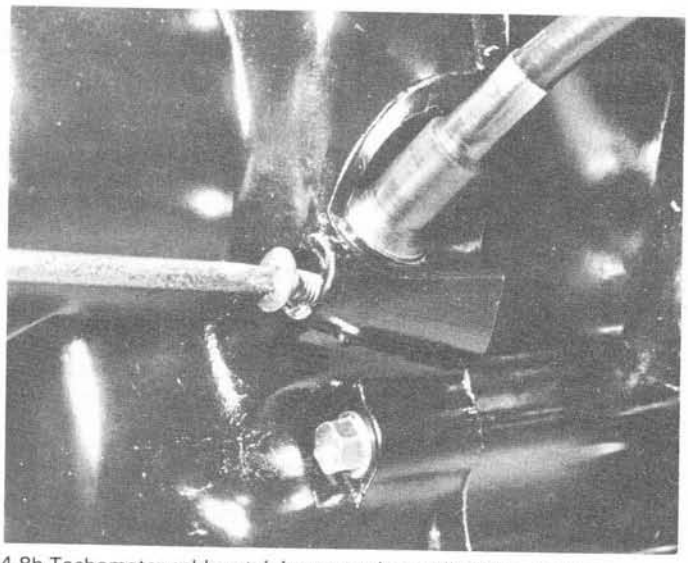
15 Slacken and remove all nine engine mounting bolts and nuts. The nut which secures the engine rear upper mounting bolt also retains the clutch cable adjuster bracket on the CB125 T, T2, TA and TB models, and retains the battery earth lead on electric start models. Remove first the right-hand plate of the cylinder head steady/engine top mounting, then remove the left-hand plate complete with the three bolts and the securing nuts. Tap out the four bolts which secure the engine front mounting. Tap out the engine rear lower mounting bolt, supporting the engine/gearbox unit at the front to ensure that it does not fall forward sharply. The engine rear upper mounting bolt should be then tapped out halfway. Moving round to the left-hand side of the machine, support as securely as possible the front of the engine/gearbox unit with one hand, then withdraw fully the remaining mounting bolt and support the rear of the unit with the other hand. Tilt the engine/gearbox unit up at the front to clear the frame front downtube and the rear mounting lugs, then lift the unit out to the left.



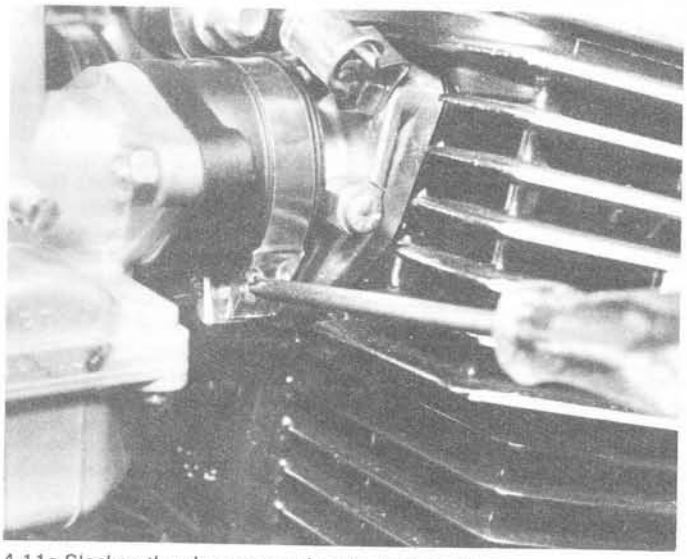
4.5 Lift or remove the seat to expose the petrol tank rear mounting



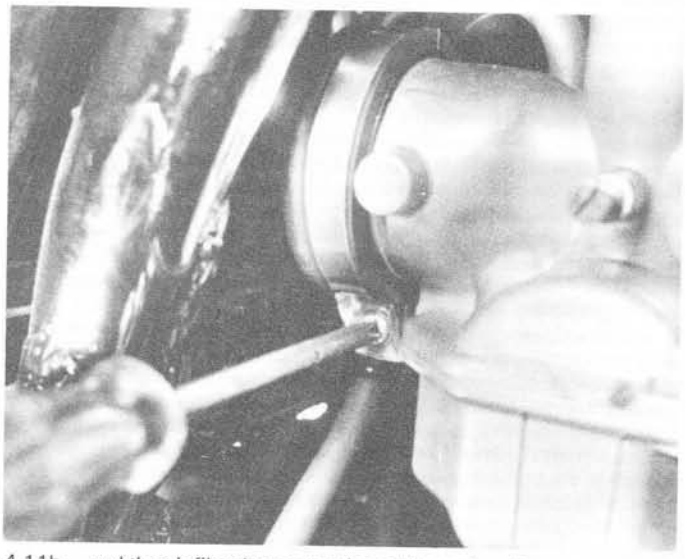
4.8a Slacken fully adjuster locknuts to release clutch cable



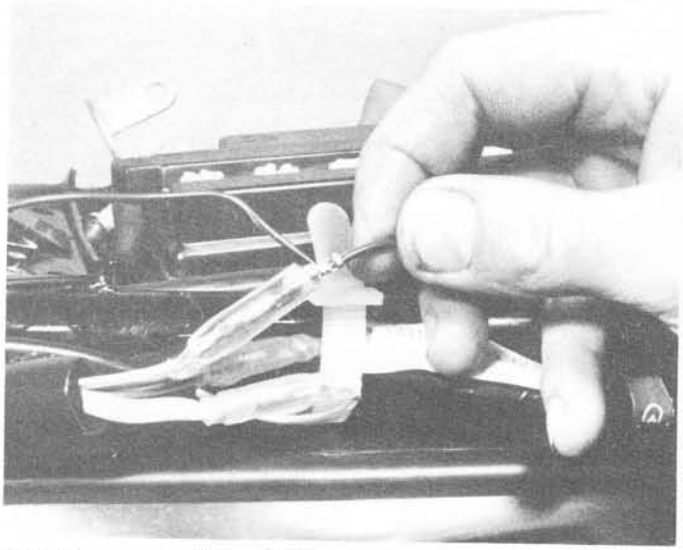
4.8b Tachometer cable retaining screw is usually tight – be very careful when unscrewing it



4.11a Slacken the clamps securing the intake adaptors ...

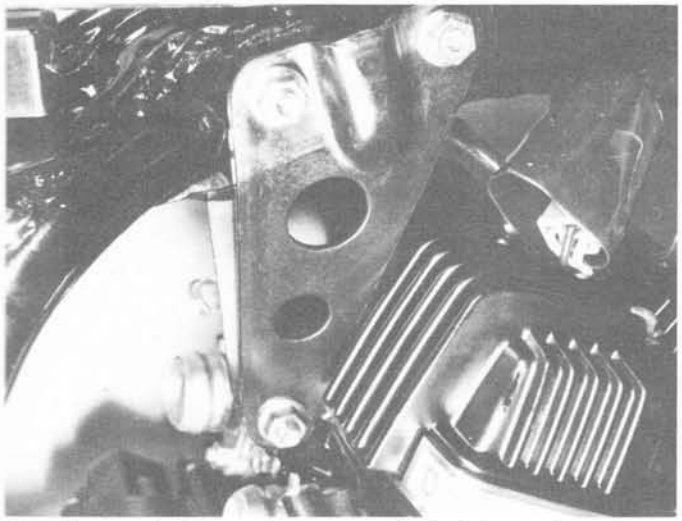


4.11b ... and the air filter hoses to release the carburettors

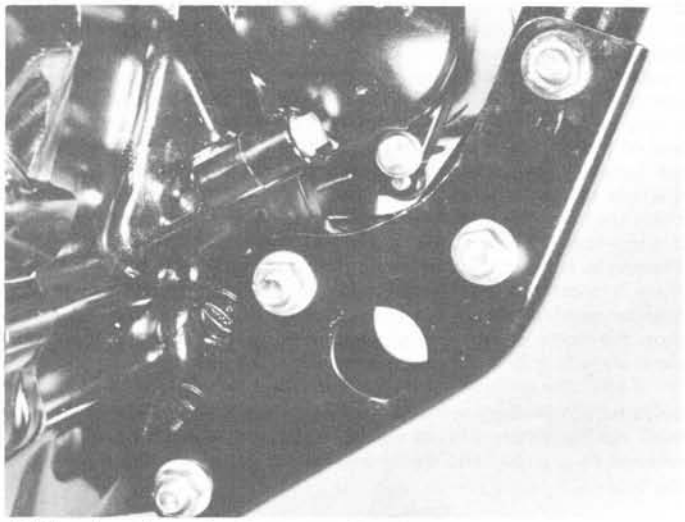


4.13a Disconnect wiring at individual snap connectors ...

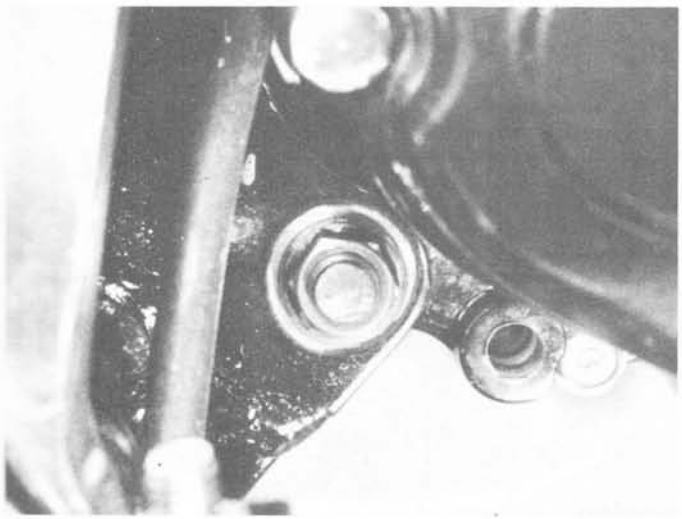
4.13b ... or the multi-pin block connectors



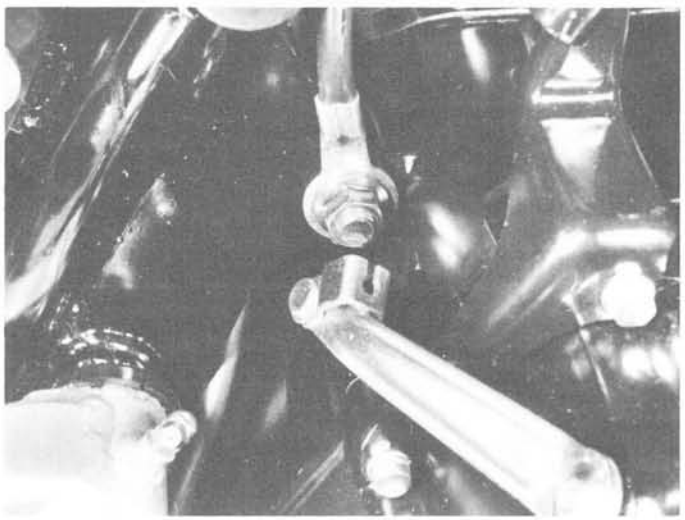
4.14a Remove first the engine top mounting/cylinder head steady assembly ...



4.14b ... then the engine front mounting plate ...



4.14c ... tap out the engine rear lower mounting bolt ...



4.14d ... and the engine rear upper mounting bolt – note battery earth lead (electric start models only)

5 Dismantling the engine/gearbox unit: preliminaries

1 Before any dismantling work is undertaken, the external surfaces of the unit should be thoroughly cleaned and degreased. This will prevent the contamination of the engine internals, and will also make working easier and cleaner. A high flash point solvent, such as paraffin (kerosene) can be used, or better still, a proprietary engine degreaser such as Gunk. Use old paintbrushes and toothbrushes to work the solvent into the various recesses of the engine castings. Take care to exclude solvent or water from the electrical components and inlet and exhaust ports. The use of petrol (gasoline) as a cleaning medium should be avoided, because the vapour is explosive and can be toxic if used in a confined space.

2 When clean and dry, arrange the unit on the workbench, leaving a clear area for working. Gather a selection of small containers and plastic bags so that parts can be grouped together in an easily definable manner. Paper and a pen will permit notes to be made and labels attached where necessary. A supply of clean rag is also required.

3 Before commencing work, read through the appropriate section so that some idea of the necessary procedure can be gained. When removing the various engine components it should be noted that great force is seldom required, unless specified. In many cases, a component's reluctance to be removed is indicative of an incorrect approach or removal method. If in any doubt, re-check with the text.

6 Dismantling the engine/gearbox unit: removing the cylinder head cover, camshaft and rocker gear

1 It is possible to remove the overhead camshaft and its rocker assembly without removing the engine from the frame. Remove the two bolts which secure the cylinder head cover, then remove the cylinder head cover. Check and note for renewal the retaining bolt rubber seals and the cylinder head cover rubber gasket. Remove both spark plugs. On CB125 T, T2, TA and TB models, remove the contact breaker inspection cover held by two screws to the crankcase left-hand cover. On CB125 TD, CD125 T, and CM125 C models, unscrew the two circular inspection plugs which are threaded in to the crankcase left-hand cover.

2 Removal of the rocker gear must be made with the camshaft in one particular position so that the least stress is placed on the various components. Rotate the crankshaft until the left-hand piston, seen through the spark plug hole, is at TDC with both valves closed. In this position both rockers will have free play and the slot in the camshaft left-hand end will be pointing backwards, parallel to the rocker cover mating surface.

3 Following in reverse the sequence shown in Figure 1.19 slacken evenly, a little at a time, the rocker carrier holder nuts and cylinder head bolts. Remove the nuts, bolts and washers.

4 Lift the two rocker carriers away individually. Note the four hollow

dowels, two longer and two shorter, and their respective positions.

5 Remove the camshaft sprocket retaining bolts, rotating the crankshaft to make possible access to the bolts. Pull the sprocket off the camshaft flange and displace the chain. Cutouts are provided in the sprocket to make this possible. To provide sufficient slack in the chain it may be necessary to slacken the cam chain tensioner locknut at the rear of the cylinder and pull the tensioner slide upwards, then tighten the locknut. The camshaft can now be manoeuvred from position, towards the right-hand side of the engine, whilst the sprocket and chain are held. The sprocket can then be wriggled free from the chain. If a top-end overhaul only is envisaged, the cam chain should not be allowed to fall into the cam chain tunnel because retrieval is difficult. Place a short rod or screwdriver through the chain and across the cylinder head, or secure the chain with a length of stiff wire. **Do not** drop the bolts or any foreign matter down the cam chain tunnel, particularly if only a top-end overhaul is to be carried out.

6 If difficulty is found in camshaft sprocket removal, extra clearance could be obtained by removing the camshaft bushes. The right-hand bush can be simply slid off the camshaft end; the left-hand bush is retained by a circlip and thrust washer. Note the locating dowels on the bushes.

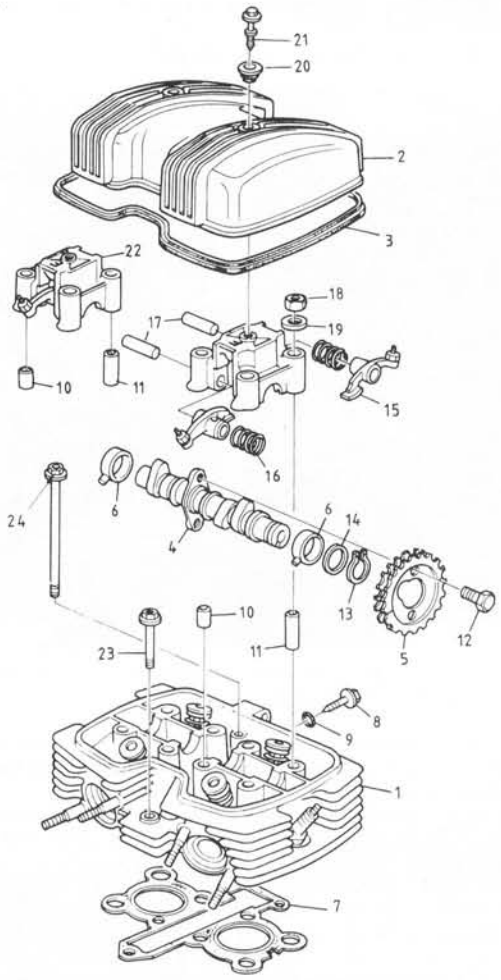
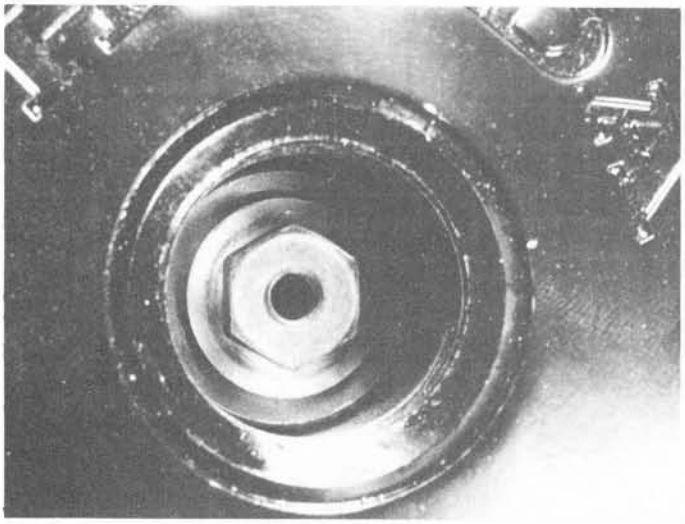
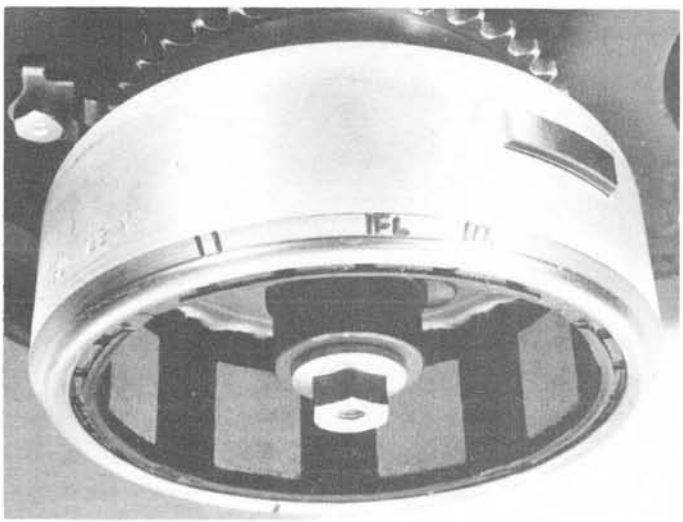


Fig. 1.1 Cylinder head and cover

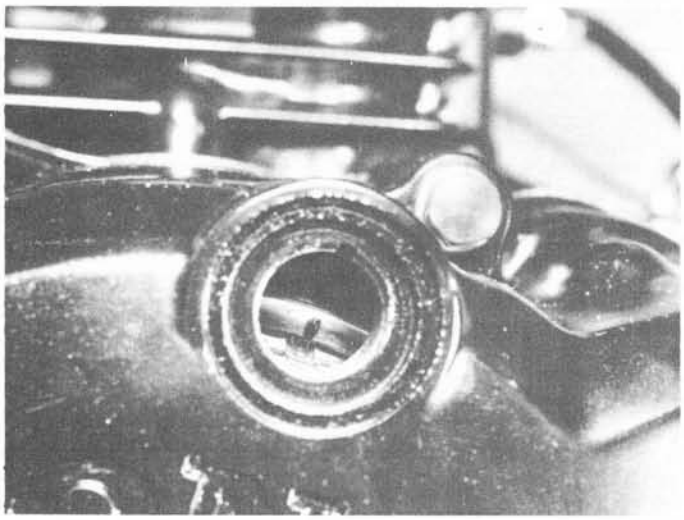
1 *Cylinder head*
2 *Cylinder head cover*
3 *Rubber gasket*
4 *Camshaft*
5 *Driven sprocket*
6 *Camshaft bush – 2 off*
7 *Cylinder head gasket*
8 *Tensioner locking bolt*
9 *O-ring*
10 *Hollow dowel – 2 off*
11 *Hollow dowel – 2 off*
12 *Bolt – 2 off*
13 *Circlip*
14 *Washer*
15 *Rocker arm – 4 off*
16 *Spring – 4 off*
17 *Rocker shaft – 4 off*
18 *Nut – 8 off*
19 *Washer – 8 off*
20 *Seal – 2 off*
21 *Bolt – 2 off*
22 *Rocker carrier/camshaft holder – 2 off*
23 *Bolt*
24 *Bolt – 2 off*



6.2a Rotate engine by applying spanner to alternator rotor retaining bolt ...



6.2b ... so that timing marks stamped on rotor rim (electric start models only) ...



6.2c ... are aligned with crankcase cover index mark

7 Dismantling the engine/gearbox unit: removing the cylinder head, cylinder block and pistons

1 While it is possible to remove the camshaft and rocker gear with the engine/gearbox unit in the frame, lack of clearance prevents cylinder head removal. The engine/gearbox unit must be removed first as described in Sections 4 and 6 of this Chapter.

2 Remove the cam chain tensioner locknut, the metal sealing washer and the rubber O-ring that are fitted to the adjuster stud at the rear of the cylinder barrel. Remove also the tensioner locking bolt and O-ring from the rear of the cylinder head. Push the tensioner assembly forwards into the cam chain tunnel until the adjuster stud is clear of the cylinder barrel casting.

3 Due to the type of cylinder head gasket used, it is possible that the cylinder head will be stuck firmly to the cylinder barrel joint face. Considerable care should be exercised when trying to separate these two components avoiding excessive force. Commence separation by working around the head, using a block of hardwood struck by a hammer. Place the block only on portions of the cylinder head which are well supported by webs, gussets or flanges. Move around the cylinder head progressively a number of times, taking care not to damage the fins.

4 When the cylinder head has been separated from the barrel, it can be lifted off the studs and put to one side with one hand, while the other catches the cam chain before it drops into the crankcase. Withdraw the cam chain guide from the front of the cylinder barrel by pulling it carefully upwards. Use a length of stiff wire to keep the cam chain from falling into the crankcase, secured in such a way that the chain is drawn tight. Note the four dowels fitted around the outer studs, and the correct position of the tubular seals over three of them. Remove any dowels that have stuck in the cylinder head, and refit them in their correct locations in the cylinder barrel top surface.

5 Rotate the engine until the pistons are at TDC, hand feeding the cam chain, to prevent it locking. Separate the cylinder block from the crankcase using a soft-headed mallet or a block of wood and a hammer. Care should be taken not to damage the fins and the temptation to use levers should be resisted at all times. Slide the cylinder block up and off the pistons, taking care to support each piston as the cylinder block becomes free. If a top end overhaul only is being carried out, place a clean rag in each crankcase mouth before the lower edge of each cylinder frees the rings. This will preclude any small particles of broken ring falling into the crankcase. Note the positioning, to the side and rear of the left-hand crankcase mouth, of the two hollow dowels. If the dowels are loose, remove them to avoid loss.

6 Prise the outer gudgeon pin circlip of each piston from position, then press the gudgeon pin out of the small-end eye through the piston boss. If the pin is a tight fit it may be necessary to warm the piston so that the grip on the gudgeon pin is released. A rag soaked in hot water and placed on the offending piston's crown should suffice. This will expand the piston bosses to allow the gudgeon pin to be pushed out.

7 If the gudgeon pin is still a tight fit, it can be lightly tapped out of position with a hammer and soft metal drift. **Do not** use excess force and make sure the connecting rod is supported during this operation or there is a risk of its bending.

8 The pistons may be lifted from the connecting rods once the gudgeon pins are clear of the small-end eye. As each piston is removed, scribe the cylinder identification inside the piston skirt at the front, in the form of the letter 'L' or 'R' as appropriate, as an aid to refitting.

9 Each piston is fitted with two compression rings and an oil control ring. It is wise to leave the rings in place on the pistons until the time comes for their examination or renewal to avoid confusing their correct order.

10 If the remainder of the engine is known to be in good condition and the dismantling work is being carried out only to renew a damaged or worn cam chain tensioner, there is a short cut which can be adopted.

11 By employing a length of wire with a suitably hooked end and a steady hand, it is possible to withdraw the R-clip and washer retaining the tensioner blade lower end. The blade can then be displaced sideways to free it from the locating pivot. This method of tensioner blade removal is, of course, only of benefit if the blade is in need of renewal, and the 'bottom end' of the engine unit does not require attention.

12 If the R-clip or washer is dropped into the crankcase and cannot be extracted, or if there is any difficulty in removing or refitting the blade, do not risk severe damage to the engine by using force or any other means of persuasion, but instead treat the matter as a worthwhile attempt and carry out the full dismantling and reassembly procedure described in the subsequent Sections of this Chapter to ensure that the tensioner blade is removed and refitted correctly.

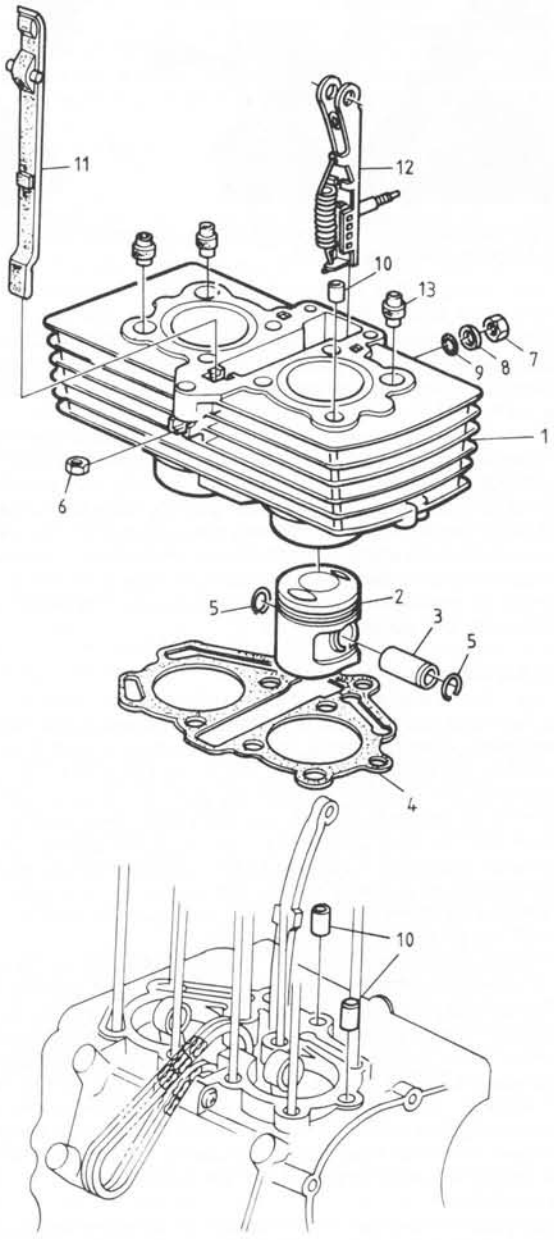


Fig. 1.2 Cylinder barrel and piston

1	*Cylinder barrel and piston*	8	*Sealing washer*
2	*Piston*	9	*O-ring*
3	*Gudgeon pin*	10	*Dowel – 4 off*
4	*Base gasket*	11	*Cam chain guide*
5	*Circlip – 2 off*	12	*Cam chain tensioner*
6	*Nut*	13	*Seal – 3 off*
7	*Locknut*		

7.6 Use pointed instrument as shown to prise out gudgeon pin circlip – note rag packing crankcase mouth

8 Dismantling the engine/gearbox unit : removing the alternator and ignition components, the starter components, and the neutral indicator switch

1 The components mentioned above can be removed with the engine/gearbox unit in the frame. It will be necessary only to remove the gearchange lever or linkage and the gearbox sprocket cover, as described in Section 4, before dismantling can commence. If, however, any electrical components are to be disconnected for repair or renewal, it will be necessary to remove the side panels, to raise or to remove the dual seat and to remove the petrol tank to disconnect the battery and to gain access to the connectors.

CB125 T, T2, TA, and TB models

2 Remove the contact breaker inspection cover held to the crankcase left-hand cover by two screws. Look closely at the contact breaker assembly. Identification is aided by the letters 'L' and 'R' which are etched into the backplate next to the respective contact breaker sets. Disconnect the contact breakers by pulling the wires off the spade terminal at the base of each set; the yellow wire leads to the left-hand set and the blue wire to the right. Mark the position of the contact breaker backplate in relation to the crankcase cover, using a sharp scribing tool or a centre punch, this will serve as a reference point which can be aligned on reassembly. Remove the three screws which retain the backplate, then lift it away.

3 Remove the screws which secure the crankcase left-hand cover, then withdraw the cover and its gasket as far as possible. Pull the wire off the neutral indicator switch and pull the sealing grommets out of their respective recesses in the crankcase. The cover is located by two dowels which must be inserted into their correct respective locations in the crankcase to avoid their loss. If the removal of the alternator stator is necessary, place the cover on a wooden surface so that it is firmly supported, then remove the three retaining screws, using an impact screwdriver. Withdraw the stator, noting carefully the way in which the separate contact breaker lead is routed between the stator coils and the cover.

4 If the engine is in the frame refit temporarily the gearchange lever and select top gear, then apply the rear brake to prevent the crankshaft from rotating by locking it via the transmission. If the engine has been removed from the frame, either place a strap wrench around the alternator rotor, or, if the cylinder head, barrel, and pistons have been removed, place a close-fitting metal bar through one of the connecting rod small-end eyes and allow it to bear down on wooden blocks placed each side of the connecting rod across the crankcase mouth. If this last method is used, be careful to use only a clean, smooth, metal bar and wooden blocks to prevent dirt or debris from falling into the crankcase, and never allow the metal bar to bear directly on the casting as the gasket face will be seriously damaged. With the crankshaft restrained remove the bolt which retains the ATU and the rotor, then lift the ATU away, noting the protrusion on its rear surface which engages with the rotor keyway.

5 Alternator rotor removal requires the use of a special tool. This takes the form of a metal bar with a 16 mm diameter thread cut in one end and a T-handle at the other. Use either Honda special tool PN 07933-2160000 or an ordinary 16 mm (thread size) metric bolt. Once the Honda tool or a suitable bolt has been acquired, screw the tool or bolt as far as possible into the internal thread in the centre of the rotor, then tighten it down by hand only. Using a hammer of suitable size, apply one or two smart taps to the head of the tool or bolt to jar the rotor free. While this method usually frees the rotor at the first attempt, it may be necessary to tighten further the tool or bolt, using mole grips or a spanner and to tap again on the head of the tool or bolt. Note that excessive force will not be required and should never be employed; furthermore note that due to the design and position of the rotor, the use of levers or an extractor of the two- or three-legged type is not recommended.

6 Once the rotor is free, place it in a clean plastic bag so that it will stay clean and free from dirt or metallic debris. Examine the rotor locating dowel pin closely; unless it is fixed very firmly in the crankshaft, remove it using a pair of pliers and store it so that it is not lost.

7 Remove the single bolt and retaining plate which secure the neutral indicator switch, then pull the switch carefully out of the crankcase. It will be a tight fit, due to the sealing O-ring fitted around its body to prevent oil leaks, and will require extremely careful handling if the light plastic moulding of the switch body is not to be cracked.

CB125 TD, CD125 T, and CM125 C models

8 Unscrew the two inspection plugs which are threaded into the crankcase left-hand cover. Remove the screws which secure the cover to the crankcase. These screws are of different lengths; use a cardboard template through which each screw can be pushed as it is removed, thus preserving the screws in their correct relative positions.

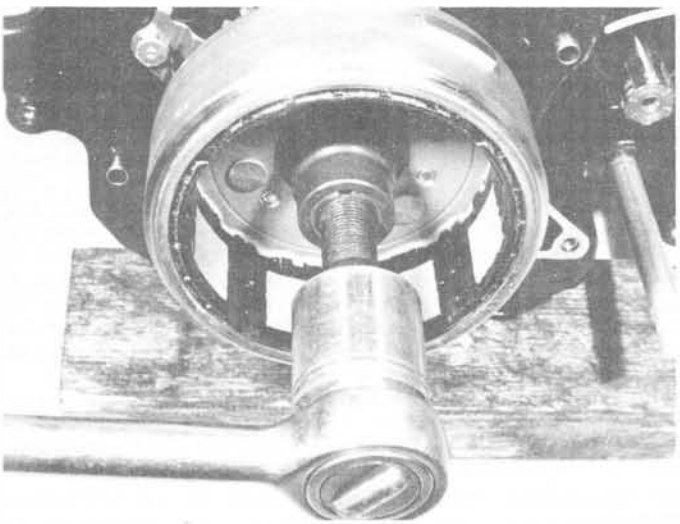
9 Due to the presence of two locating dowels set in the crankcase wall and to the powerful permanent magnets in the alternator rotor acting on the alternator stator coils, the cover is difficult to remove but will not require the use of excessive force to release it, and should never be levered away from the crankcase. Insert a finger through each of the inspection apertures to gain the necessary purchase and pull the cover away, tapping lightly with a soft-faced mallet around the periphery of the cover to break the seal. Remove the cover as far as possible, disengaging the electrical leads from the grommet set in the crankcase top surface.

10 If the removal of the alternator stator or of either of the ignition pulser coils is necessary, invert the cover and place it on a layer of cloth so that the cover is supported firmly and its painted finish cannot be damaged. Using an impact screwdriver or a socket spanner remove the screws or flanged bolts which retain the alternator stator, the ignition pulser coils, and the two metal cable clamps. Remove the components noting the way in which the wires are routed between the stator coils and the cover. CB125 TD models are fitted with two ignition pulser coils, the CD125 T and CM125 C are fited with one only.

11 The procedure for locking the crankshaft, releasing the rotor retaining bolt, and removing the rotor is described in paragraphs 4, 5, and 6 of this Section. The CB125 TD, CD125 T, and CM125 C models, however, are fitted with electronic ignition, therefore there is no ATU to be removed. The rotor puller recommended is Honda PN 07733-0020001. This tool is a simple cruciform shape which has four threaded ends of different diameters and thread pitches that can be used for several different tasks on many current Honda models. The thread size is 16 mm, the tool being used in exactly the same manner as described in paragaph 5 of this Section. An ordinary 16 mm thread size bolt can be used as an acceptable substitute.

12 Slacken and remove the single bolt which secures the starter motor driven sprocket guide plate and withdraw the guide plate, then pull both sprockets and the drive chain off the starter motor shaft and the crankshaft, as a single unit. Pull away the metal spacer plate with a gasket on each side of it, noting the two locating dowels. Unless these dowels are fixed firmly in the crankcase they should be removed and stored with the spacer plate and crankcase left-hand cover so that nothing is lost.

13 If desired, the starter motor lead can be disconnected from the starter motor by pulling back the rubber terminal cover and by unscrewing the nut and washer. Slacken and remove the two screws at each end of the starter motor using an impact screwdriver if necessary, and lift the starter motor away.
14 The neutral indicator switch should be removed as described in paragraph 7. It should be noted, however, that as the switch is completely covered by the spacer plate fitted to all electric start models, it cannot be reached until the crankcase left-hand cover, the alternator rotor, the starter motor drive components, and the spacer plate have been removed.



8.11 Alternator rotor can be removed using a 16 mm bolt as shown

9 Dismantling the engine/gearbox unit: removing the oil pump, clutch, and primary drive gear

1 The components listed above can be removed with the engine/gearbox unit in or out of the frame, but if the work is to be carried out in the frame, the following preliminary dismantling operations must be undertaken first. Drain the engine oil, remove the right-hand exhaust pipe/silencer assembly or the complete exhaust system, remove the kickstart lever (where fitted), disconnect the clutch cable, and disconnect the tachometer cable (where fitted). All these operations are described in full in Section 4 of this Chapter. On CB125 T, T2, TA and TB models, remove also the right-hand footrest which is secured to the right-hand footrest mounting bracket by a single bolt.
2 Remove the screws securing the crankcase right-hand cover. The ten screws are of different lengths so make a cardboard template of the cover through which each screw can be pushed to aid refitting. Secure the clutch cable bracket (where fitted) with the screws. Using a soft-faced mallet to tap lightly around the periphery of the cover to break the seal, pull the cover carefully away, taking care not to damage the sealing lips of the kickstart shaft oil seal as they pass over the splines of the kickstart shaft (where fitted). Have a suitable container ready to catch the small amount of residual oil that will be released as the cover is removed. The cover is located by two dowels; unless these are fixed firmly in the crankcase they should be removed for safe storage.
3 To remove the oil pump as a complete assembly, its three cross-headed countersunk retaining screws must be released. The cast alloy oil pump cover has two irregularly-shaped slots cut around the boss which supports the tachometer driving worm gear (CB125 models only) or three equally spaced circular holes (CD 125 T and CM125 C models); through these apertures will be seen the oil pump driven gear which has three large slots cut in it. Rotate the engine so that the apertures in the driven gear align with the apertures in the pump cover to expose the heads of the three retaining screws. Remove these screws using, if necessary, an impact screwdriver, taking care not to damage the oil pump body. Withdraw the oil pump assembly, noting the sealing O-ring. This O-ring must be renewed.
4 If the removal of the clutch and primary drive gear is necessary, the crankshaft, and on CB125 TD and CM125 C models only, the input shaft, must be locked so that the retaining nuts can be slackened. If the engine/gearbox unit is still in the frame, engage top gear and apply the rear brake, thus locking the crankshaft via the transmission; if the engine is removed from the frame this method can be used also, but the gearbox sprocket must be refitted temporarily on to the output shaft end and held firmly by an assistant using a holding tool. If the crankcase left-hand cover has been removed, but the alternator rotor is still in place, then a strap wrench can be placed around the rotor and held firmly by an assistant, thus locking the crankshaft, or if the cylinder head, barrels, and pistons have been removed, place a close-fitting metal bar through one of the connecting rod small-end eyes and allow it to bear down on wooden blocks placed on each side of the connecting rod across the crankcase mouth. The above methods are alternatives to the use of the manufacturer's service tools, several versions of which are available to hold the clutch outer drum.
5 On CB125 TD and CM125 C models the input shaft must be locked as well as the crankshaft when removing the clutch. If the first method of locking the crankshaft is to be used with the engine removed from the frame, lock the transmission as follows. Select top gear and refit the gearbox sprocket over the output shaft end. Acquire a length of scrap chain and run this around the sprocket. Pass both ends of the chain through a length of metal tubing, push the tubing as hard as possible against the sprocket, draw tight both ends of the chain, and lock the whole assembly together by pushing a slim metal bar through the links of both chain ends where they protrude from the tubing. The following instructions describe separately the removal of each assembly and will assume that the crankshaft (or input shaft) is locked.
6 To remove the primary drive gear, first pull out the oil feed quill and spring from the crankshaft right-hand end, then check that the pin inserted into a cross-drilling in the crankshaft end immediately behind the oil feed quill is positioned exactly in the middle of the crankshaft so that it cannot foul the threads of the primary drive gear retaining nut as it is unscrewed. Remove the primary drive gear retaining nut, then push out the pin and store it with the oil feed quill and spring so that it is not lost. Remove the Belville washer (note the word 'OUTSIDE' stamped on the washer) then pull off the thin oil pump drive gear and the primary drive gear, noting carefully which way round each is fitted.

Clutch removal – CB125 T, T2, TA and TB, CD125 T models

7 Lift out the clutch pushrod together with the cup in which it seats, then remove the four bolts which secure the clutch thrust plate, unscrewing them in a diagonal sequence until the clutch spring pressure is released. Lift off the thrust plate and its bearing, lift out the four clutch springs and place them to one side.
8 Remove the circlip which retains the clutch, then by holding two of the four clutch spring posts which protrude from the pressure plate through four holes in the clutch centre, withdraw as a single unit the clutch centre, the plain and friction plates and the clutch pressure plate. Note the thick metal spacer easily recognizable by its internal splines, fitted between the clutch centre and the clutch outer drum. The clutch outer drum can be removed by sliding it off the input shaft end. Discard the retaining circlip; this should never be re-used. A new circlip should be obtained and fitted on reassembly.

Clutch removal – CB125 TD and CM125 C models

9 Lift out the clutch pushrod together with the cup in which it seats, then slacken and remove the four bolts which secure the clutch thrust plate, unscrewing them in a diagonal sequence until the clutch spring pressure is released. Lift off the thrust plate with its bearing, and the four clutch springs, then put them to one side.
10 The clutch retaining nut is now exposed. It is a special, slotted nut which will require the use of a peg spanner to release it. This tool is available as a Honda service tool, 07716-0020100. If this is not available, fabricate a suitable tool from a length of thick-walled tubing. Refer to the accompanying illustration for details, cutting away the segments shown with a hacksaw to leave four tangs.
11 If the transmission has been locked by selecting top gear and applying the rear brake or by holding the gearbox sprocket with a fabricated tool, the nut can now be slackened. If, on the other hand the crankshaft has been locked, it will be necessary to devise some

means of holding the clutch centre while the nut is slackened. To achieve this, refit the four clutch springs over their respective posts and compress them by refitting and tightening down the four thrust plate bolts, each with a large diameter plain washer under its head to replace the thrust plate.

12 Slacken and remove the nut, then remove the Belville washer (note the word 'OUTSIDE' stamped on the washer). A second washer was found on the machine stripped for this manual. This washer was of approximately the same diameter as the Belville washer, and was stamped from flat, thin, metal.

13 Once the nut is released, the remaining clutch components can be removed as described in paragraph 8. On these models, the clutch outer drum rotates on a separate bush placed over the input shaft, and there is a thrust washer fitted between the bush and the input shaft right-hand bearing; remove both the bush and the thrust washer.

10 Dismantling the engine/gearbox unit: removing the kickstart assembly – CB125 T, T2, TA and TB models

1 The kickstart shaft assembly fitted to the earlier CB125 models can be removed as a single assembly with the engine/gearbox unit in or out of the frame, but it will be necessary first to remove the crankcase right-hand cover; a task which will require some preliminary dismantling if the engine is still installed in the frame. The work necessary is described in Section 9. If the kickstart idler gear is to be renewed, the engine/gearbox unit must be dismantled fully and the crankcases separated.

2 Using a stout pair of pliers, unhook the outer end of the kickstart spring and very carefully allow it to unwind to its relaxed position. Do not allow the spring to fly back or there is a risk of damage both to engine/gearbox components or to oneself. Lift the kickstart shaft assembly out of its housing, noting carefully the way in which the ratchet stop and the ratchet guide locate in their respective recesses in the crankcase wall.

11 Dismantling the engine/gearbox unit: removing the gear selector external components

1 If the engine/gearbox unit is installed in the frame, the gearchange lever or linkage must be removed and the preliminary dismantling operations listed in the first paragraph of Section 9 and described in Section 4 must be carried out. The crankcase right-hand cover and the clutch assembly must be removed also to gain access to the gear selector mechanism, as described in Section 9.

2 Slowly slacken the shouldered selector camplate detent arm pivot bolt, gradually releasing the pressure of its return spring until the pivot bolt, the detent arm (complete with its roller), and the return spring can be lifted away as a single assembly.

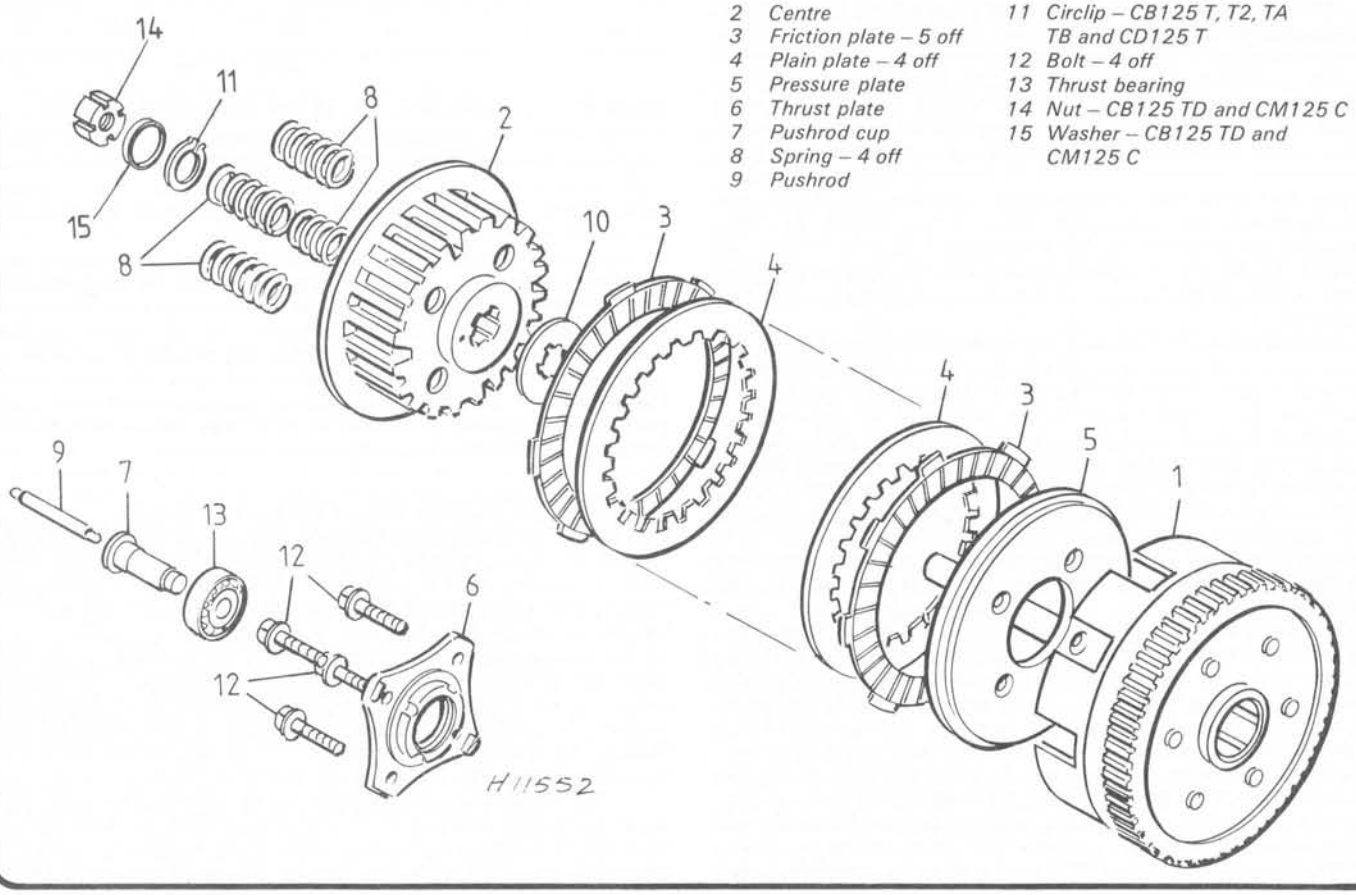
3 Remove the bolt from the centre of the selector complete, then carefully remove the camplate. Withdraw the selector and store them safely.

4 The gearchange shaft assembly comprises the shaft itself, with the gearchange return spring, and the selector pawl assembly incorporating the selector claw plate, the latter being spring loaded to keep it in firm contact with the selector pins; remove the shaft as a single assembly by pulling it out to the right and do not attempt to dismantle it. The two springs are available as separate replacement parts, but the shaft and selector pawl assembly are available only as a single unit.

5 The selector claw plate is spring-loaded and is slotted; it can be pushed back towards the shaft head until it is disengaged from the selector camplate. This means that, with care, it is possible to remove the gearchange shaft from behind the clutch, thus saving a great deal of time if the gearchange shaft alone is to be removed for repair or renewal.

Fig. 1.3 Clutch

1 *Outer drum*
2 *Centre*
3 *Friction plate – 5 off*
4 *Plain plate – 4 off*
5 *Pressure plate*
6 *Thrust plate*
7 *Pushrod cup*
8 *Spring – 4 off*
9 *Pushrod*
10 *Spacer*
11 *Circlip – CB125 T, T2, TA TB and CD125 T*
12 *Bolt – 4 off*
13 *Thrust bearing*
14 *Nut – CB125 TD and CM125 C*
15 *Washer – CB125 TD and CM125 C*



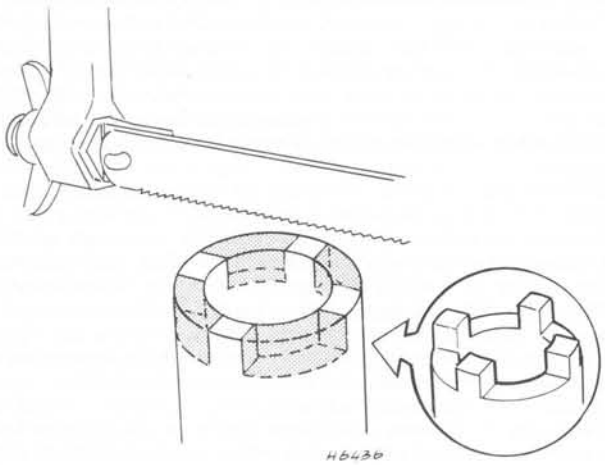


Fig. 1.4 Fabricated tool for releasing the clutch retaining nut

12 Dismantling the engine/gearbox unit: separating the crankcase halves

1 The crankcases can be separated only after the engine/gearbox unit has been removed from the frame and all the dismantling operations described in the preceding Sections of this Chapter have been carried out. Make a final check to ensure that all components have been removed which might hinder crankcase separation. Make up a cardboard template showing the position of the ten crankcase-securing screws; the screws can be pushed through the template for storage in their correct positions. Of these two are fitted from the left-hand side; depending on the model being dismantled the screws may be of the conventional crosshead type or they may have flanged hexagon heads, or there might be a combination of both.

2 Support the engine/gearbox unit on two wooden blocks so that the crankcase left-hand side is uppermost. Using an impact screwdriver or a slim socket and extension, remove the two crankcase screws. One screw is situated to the rear of the output shaft and the other is immediately in front of the crankcase mouth.

3 Invert the engine/gearbox unit, supporting it again on the wooden blocks, then slacken and remove the eight screws which are situated around the periphery of the crankcase casting.

4 Make a final check to ensure that the two crankcase halves are completely free and ready to be separated.

5 Using a soft-faced mallet, or a hammer and a wooden block, tap lightly around the joint area of the two crankcase halves to break the seal. Never use a metal hammer directly on the castings or any other component as the risk of damage is too great. Whichever method is employed, excessive force will not be necessary.

6 Grasping firmly the crankcase right-hand half, tap lightly and repeatedly all around the joint area and on the protruding right-hand ends of the crankshaft, the input shaft, and the selector drum. The regular, light, tapping will jar the components apart without any excessive force being necessary. When the crankcase right-hand half is loose enough, lift it away, using a sharp knife to release the gasket. Note the presence of the two large locating dowels; unless these are firmly fixed, remove them and store them safely. Check also that no thrust washers have stuck to the crankcase half.

7 If the crankcases are reluctant to separate, never be tempted to tap ever harder in an attempt to release them. Check again that all fasteners etc have been removed. It may be that corrosion has formed around the locating dowels, requiring the application of penetrating fluid to release the two castings. If the crankcase halves separate, but then stick, ensure that they are square to one another and not tying. If necessary, tap the two halves back together and start again. Never use levers between the mating surfaces to aid casing separation.

13 Dismantling the engine/gearbox unit: removing the crankshaft and gearbox components

1 Release the crankshaft centre main bearing holder from the crankcase left-hand half. The cast holder is secured to the casing by five 6 mm bolts and one 6 mm nut. Remove the retaining bolts and the single nut, grasp the crankshaft firmly and slide it from position complete with cam chain and cam chain tensioner blade. Manoeuvre the tensioner blade and connecting rods as necessary to clear the crankcase mouths. If the crankshaft left-hand mainshaft sticks in the left-hand main bearing, release the crankshaft with a sharp tap on its left-hand end, remembering to place a block of wood over the shaft end to prevent damage.

2 Detach the cam chain and the cam chain tensioner blade. Displace the R-clip and washer and remove the tensioner blade from its locating pin. The inner weight of the left-hand flywheel assembly must be positioned so that the cam chain can be displaced without being trapped between the flywheel weight and bearing holder. If the flywheel weight is positioned correctly the cam chain can be displaced to either side of the flywheel weight, between the tensioner blade locating pin and the forward guide blade locating slot.

3 Carefully slide out the selector fork shaft and then remove each fork in turn, marking each with a spirit-based pen on its uppermost face, ie the right-hand side, so that it is clearly identified to aid refitting. Store the forks on the selector shaft so that each is in its correct relative position. Withdraw the selector drum from its location in the crankcase.

4 Remove the gearbox clusters as a single unit, tapping gently on the output shaft left-hand end with a soft-faced mallet to release it from its bearing. Using the accompanying illustrations check that all gear pinions and thrust washers are present on each shaft and slip a rubber band over the end of each shaft to secure any components which might otherwise fall off and be lost.

14 Dismantling the engine/gearbox unit: removal of bearings and oil seals

1 Oil seals are easily damaged when disturbed and, thus, should be renewed as a matter of course during overhaul.

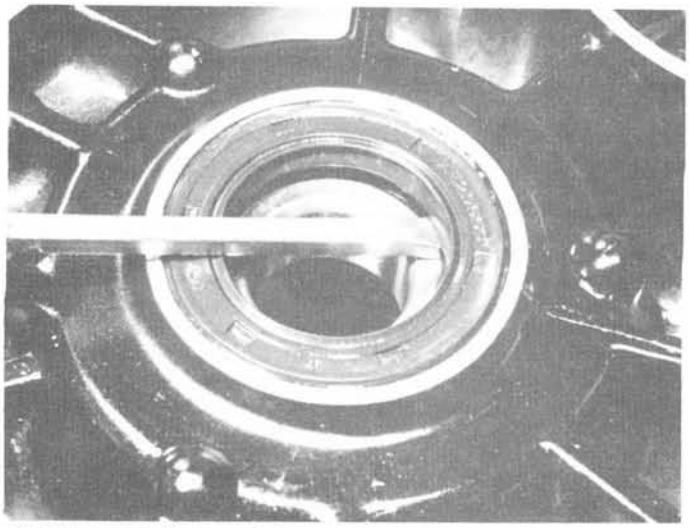
2 Prise them out of position with the flat of a screwdriver taking care not to damage the alloy seal housings.

3 The crankshaft and gearbox bearings are a press fit in their respective crankcase locations. To remove a bearing the crankcase casting must be heated so that it expands and releases its grip on the bearing so that the bearing can be drifted or pulled out.

4 To prevent distortion during heating the casting must be heated evenly to a temperature of about 100°C. The best way of doing this is to place it in an oven, but if an oven is not available, place the casting in a suitable container and carefully pour boiling water over it until it is submerged.

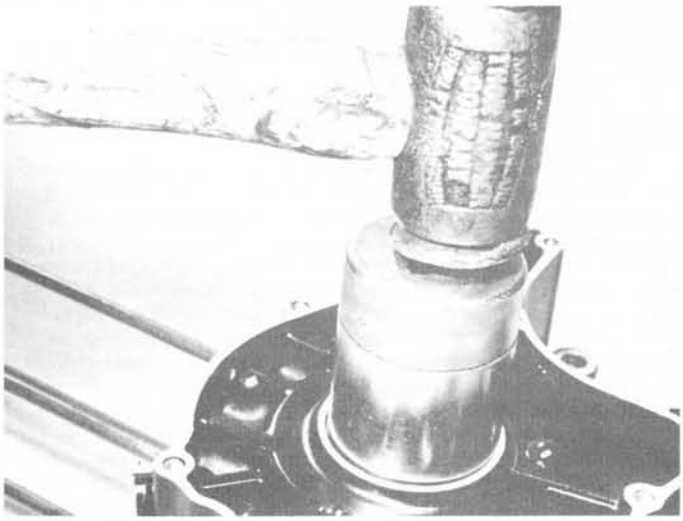
5 Once the casting is heated, tap the bearing out using a hammer and a suitable drift. If the bearing is to be used again, apply the drift only to the bearing outer race, where this is accessible, to avoid damaging the bearing balls. In some cases, it will be necessary to apply pressure to the bearing inner race during removal; in such cases inspect the bearing very closely for damage before using it again. When drifting a bearing from its housing it must be kept square to the housing to prevent it 'tying' in the housing with the resulting risk of damage. Where possible, use a tubular drift such as a socket spanner, which bears only on the bearing outer race. Where this is not possible, tap evenly around the outer race to achieve the same result.

6 In some cases, bearings are pressed into blind holes in the castings. Because of this access cannot be gained to drift them out in the normal manner. Bearing removal may be possible after heating the cases by knocking the cases, face downwards, on a wooden block, and so dislodging the bearings under their own weight. If this is not successful it is suggested that the cases be taken to a Honda Service Agent who will have the correct internally expanding bearing puller.



14.2 Use a suitable screwdriver to lever out oil seals as shown

14.4a Remove components such as crankshaft left-hand main bearing retaining plate which will prevent bearing removal



14.4b Tap out bearings as shown using a hammer and socket

15 Examination and renovation: general

1 Before examining the parts of the dismantled engine unit for wear it is essential that they should be cleaned thoroughly. Use a petrol/paraffin mix or a high flash-point solvent to remove all traces of old oil and sludge which may have accumulated within the engine. Where petrol is included in the cleaning agent normal fire precautions should be taken and cleaning should be carried out in a well ventilated place.

2 Examine the crankcase castings for cracks or other signs of damage. If a crack is discovered it will require a specialist repair.

3 Examine carefully each part to determine the extent of wear, checking with the tolerance figures listed in the Specifications section of this Chapter or in the main text. If there is any doubt about the condition of a particular component, play safe and renew.

4 Use a clean lint-free rag for cleaning and drying the various components. This will obviate the risk of small particles obstructing the internal oilways, and causing the lubrication system to fail.

5 Various instruments for measuring wear are required, including a vernier gauge or external micrometer and a set of standard feeler gauges. An internal and external micrometer will be required to check wear limits. Additionally, although not absolutely necessary, a dial gauge and mounting bracket is invaluable for accurate measurement of end float, and play between components of very low diameter bores – where a micrometer cannot reach. After some experience has been gained the state of wear of many components can be determined visually or by feel and thus a decision on their suitability for continued service can be made without resorting to direct measurement.

16 Examination and renovation: camshaft and rocker gear

1 The camshaft and rocker gear must be very closely inspected if engine oil changing at the correct intervals has been neglected or if the oil level has been allowed to fall too far, even if the engine is being dismantled for some other reason.

2 Examine the camshaft visually for signs of wear. The camshaft lobes should have a smooth surface and be entirely free from scuff marks or indentations. Wear will probably be most evident on the ramps of each cam and where the cam contour changes sharply. It is unlikely that severe wear will be encountered during the normal service life of the machine unless the lubrication system has failed, causing the case hardened surface to wear through. If necessary, check with the Specification given at the beginning of this Chapter and measure the cam height in each case. If any of the cams is below the service limit, the camshaft must be renewed.

3 The camshaft runs in two separate bushes; one fitted to each end journal. Examine the internal bearing surface of the bushes for any signs of damage or excessive wear. If such defects are found, renewal of the bushes is necessary. If no such signs are discovered, but internal wear is suspected, the bushes can be measured using an internal micrometer. The service limit for the bushes is 20.20 mm (0.7953 in). If the bushes prove to be worn beyond acceptable levels, the camshaft journals should also be examined and measured for wear. The service limit for the journals is 19.92 mm (0.7843 in).

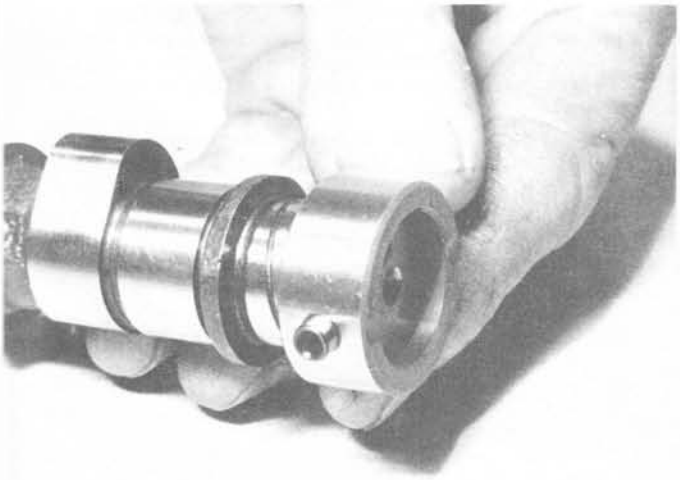
4 If signs of oil starvation such as dry, badly scored, bearing surfaces, deposits of burnt oil, or excessive heating (or 'blueing) on any component, are evident, the cause must be discovered. Examine closely the oil pump, as described in Chapter 2, to ensure that the oil is circulating correctly, and clean out the oilways in the crankcase castings, the cylinder barrel, the cylinder head, and the rocker carriers. Use compressed air to clean out any oilways that cannot be reached by other means.

5 Check the cam chain sprocket teeth for signs of hooking, chipping or any other wear or damage. While the upper camshaft sprocket is a separate item and easily renewed, the lower crankshaft sprocket is an integral part of the crankshaft. If the lower sprocket is damaged the crankshaft must be renewed.

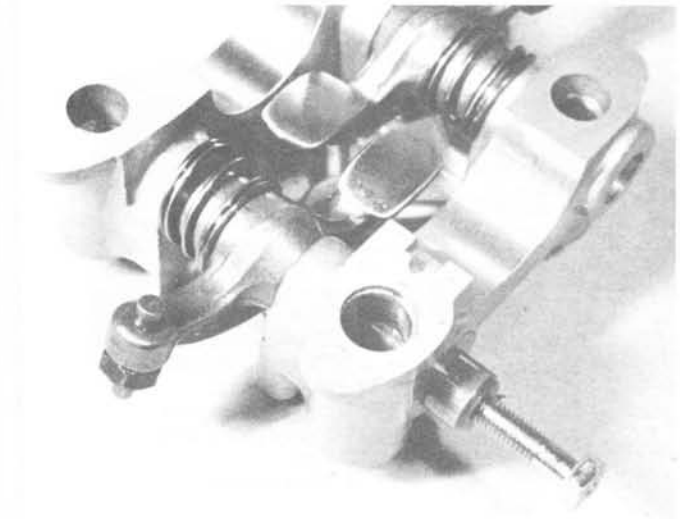
6 Dismantle the rocker carrier assemblies separately to prevent the accidental interchange of components. The various parts of each assembly should be kept in matched sub-assemblies for the same reason.

7 A clicking noise from the rocker area is the usual symptom of wear

in the rocker gear, which should not be confused with a somewhat similar noise caused by excessive valve clearances.
8 If any shake is present and the rocker arm is loose on its shaft, a new rocker arm and/or shaft should be fitted.
9 Insert a 5 mm screw into the threaded end of the rocker shaft; the shaft can now be withdrawn from the carrier. This will allow removal of the rocker arms and their end float control springs. Take care that each shaft remains with its original rocker arm.
10 Check the tip of each rocker arm at the point where the arm makes contact with the cam. If signs of cracking, scuffing or breakthrough in the case hardened surface are evident, fit a new replacement, check also that each rocker oilway is clear.
11 Check the thread of the tappet adjusting screw, the thread of the rocker arm into which it fits and the thread of the locknut. The hardened end of the tappet adjuster must also be in good condition.
12 Examination of the rockers and their shafts should be carried out on a general basis as already stated. If excessive wear is suspected, refer to the Service limits stated in the Specifications section of this Chapter, and renew components as necessary. Note that during reassembly, which is carried out by reversing the dismantling procedure, the rocker shafts should be lubricated with clean oil prior to being inserted in the carriers. Ensure the shafts are fitted correctly; the threaded end outermost.



16.3 Camshaft runs in separate bushes which can be renewed if worn



16.9a Using a 5 mm screw to extract rocker shafts

16.9b Check rockers for wear – be careful to return all components to their original positions

17 Examination and renovation: cylinder head, valves, valve seats and guides

1 It is best to remove all carbon deposits from the combustion chambers before removing the valves for inspection and grinding-in. Use a blunt ended chisel or scraper so that the surfaces are not damaged. Finish off with a metal polish to achieve a smooth, shining surface. If a mirror finish is required a high speed felt mop and polishing soap may be used. A chuck attached to a flexible drive will facilitate the polishing operation. Remember to pay equal attention to removing all traces of carbon from the ports.
2 Remove each valve in turn, using a valve spring compressor, and place the valves, springs, seats and collet halves in a suitable box or bag marked to denote inlet or exhaust and left and right as appropriate. Alternatively, tie-on labels, are ideal for identification purposes. Assemble the valve spring compressor in position on the cylinder head, and gradually tighten the threaded portion to place pressure on the upper spring seat. Do not exert undue force to compress the springs, the tool should be placed under slight load, and then tapped on the end to jar the collet halves free. Continue to compress the springs until the collet halves can be dislodged using a small screwdriver. Note that the valve springs exert considerable force, and care should be taken to avoid the compressed assembly flying apart. To this end, a small magnet is invaluable for retrieving the collet halves.
3 Before giving the valves and valve seats further attention, check the clearance between each valve stem and the guide in which it operates. Measure also the valve stem diameters. Measure the valve stem at the point of greatest wear and then measure again at right-angles to the first measurement. If the valve stem is below the service limit, it must be renewed. The valve stem/guide clearance can be measured with the use of a dial gauge and a new valve. Place the new valve into the guide and measure the amount of shake with the dial gauge tip resting against the top of the stem. If the amount of wear is greater than the service limit, the guide must be renewed.
4 To remove an old valve guide, place the cylinder head in an oven and heat it to about 150°C. The old guide can now be tapped out from the cylinder side. The correct drift should be shouldered, with the smaller diameter the same size as that of the valve stem and the larger diameter slightly smaller than that of the OD of the valve guide. If a suitable drift is not available, a plain brass drift may be utilised with great care. **DO NOT** use a blowtorch or other localised form of heat source to heat the cylinder head prior to valve guide removal. Heating in this way may cause irreparable damage due to warping. Each inlet valve guide is fitted with an O-ring to ensure perfect sealing. The O-rings must be renewed with new components. Install new valve guides by reversing the removal procedure, again heating the cylinder head to around 150°C. After installation of a new guide, the seat must be recut to centralise the seat on the guide axis (see paragraph 7).
5 After cleaning the valves to remove all traces of carbon, examine

the heads for signs of pitting and burning. Examine also the valve seats in the cylinder head. The exhaust valve and its seat will probably require the most attention because this is the hotter running of the two. If the pitting is slight, the marks can be removed by grinding the seats and the valves together, using fine valve grinding compound. Note that the valve seats must be recut, whenever new valve guides are fitted.

6 Valve grinding is a simple task. Commence by smearing a trace of fine valve grinding compound (carborundum paste) on the valve seat and apply a suction tool to the head of the valve. Oil the valve stem and insert the valve in the guide so that the two surfaces to be ground in make contact with one another. With a semi-rotary motion, grind in the valve head to the seat, using a backward and forward action. Lift the valve occasionally so that the grinding compound is distributed evenly. Repeat the application until an unbroken ring of grey matt finish is obtained on both valve and seat. This denotes the grinding operation is now complete. Before passing to the next valve, make sure that all traces of the valve grinding compound have been removed from both the valve and its seat and that none has entered the valve guide. If this precaution is not observed, rapid wear will take place due to the highly abrasive nature of the carborundum paste.

7 When deeper pit marks are encountered, it will be necessary to use a valve refacing machine and also a valve seat cutter, set to an angle of 45°. This course of action should be resorted to only in an extreme case because there is risk of pocketing the valve and reducing performance. For the same reason, never resort to excessive grinding; reduced engine efficiency will result. If there is any doubt about the condition of a valve or if the valve face width exceeds 1.8 mm (0.07 in) fit a new replacement. If, after recutting a valve seat in the cylinder head, the seat width exceeds 1.5 mm (0.06 in), the width should be restored to 1.0 mm (0.04 in) using 37.5° and 63.5° cutters or grinders. In view of the high cost of these items, and the expertise required for their successful use, it is suggested that the cylinder head be placed in the hands of an experienced agent for this work to be carried out.

8 Examine the condition of the valve collets and the groove on the valve stem in which they seat. If these is any sign of damage, new parts should be fitted. Check that the valve spring collar is not cracked. If the collets work loose or the collar splits whilst the engine is running, a valve could drop into the cylinder and cause extensive damage.

9 Check the free length of each of the valve springs. The springs have reached their serviceable limit when they have compressed to the limit readings given in the Specifications section of this Chapter.

10 Reassemble the valve and valve springs by reversing the dismantling procedure. Fit new oil seals to each valve guide and oil both the valve stem and the valve guide, prior to reassembly. Take special care to ensure the valve guide oil seal is not damaged when the valve is inserted. The springs are of variable pitch. Each **must** be fitted with the closer wound coils downwards, next to the cylinder head. Check that the split collets are located positively before the spring compressor is released. To ensure that the collets are firmly located, tap the top of each valve stem sharply with a hammer, taking care to strike squarely on the stem and not on the top seat (collar).

11 Check the cylinder head for straightness, especially if it has shown a tendency to leak oil at the cylinder head joint. Laying the cylinder head on a sheet of plate glass will show whether the head is distorted. If the amount of warpage is not too great, it may be machined flat. If the cylinder head is distorted badly, it is advisable to fit a new replacement. Most cases of cylinder head warpage can be traced to unequal tensioning of the cylinder head bolts by tightening them in incorrect sequence.

12 Make sure the cylinder head fins are not clogged with oil or road dirt, otherwise the engine will overheat. If necessary, use a wire brush. Check that no cracks are evident, especially in the vicinity of the holes through which the holding down studs and bolts pass, and near the spark plug threads.

13 Finally, check the condition of the threads of each spark plug hole. If damaged, this being caused most often by overtightening the spark plugs, the thread can be reclaimed by the use of a Helicoil thread insert. This is a cheap and effective method of repair that is offered by most Honda dealers.

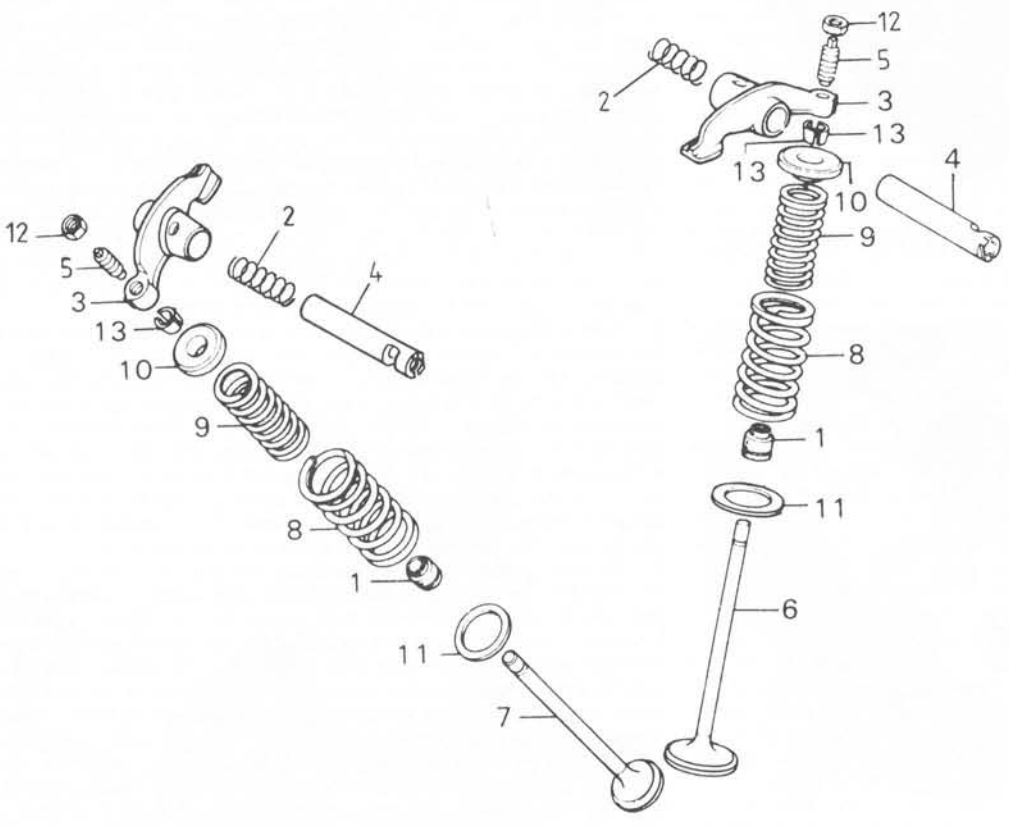
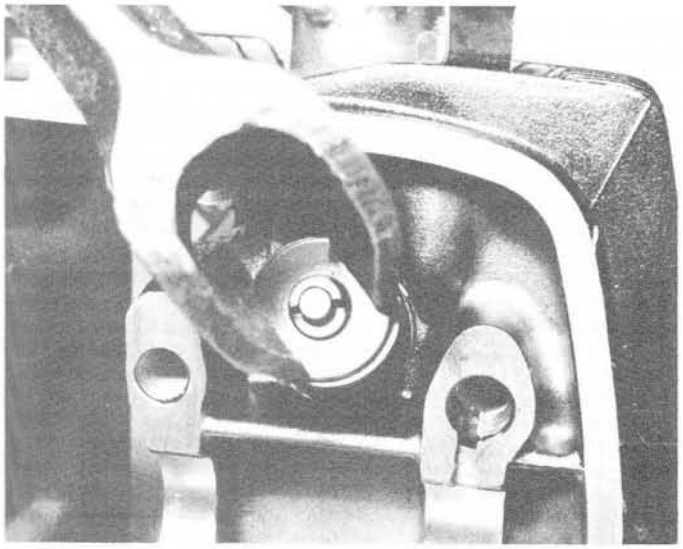
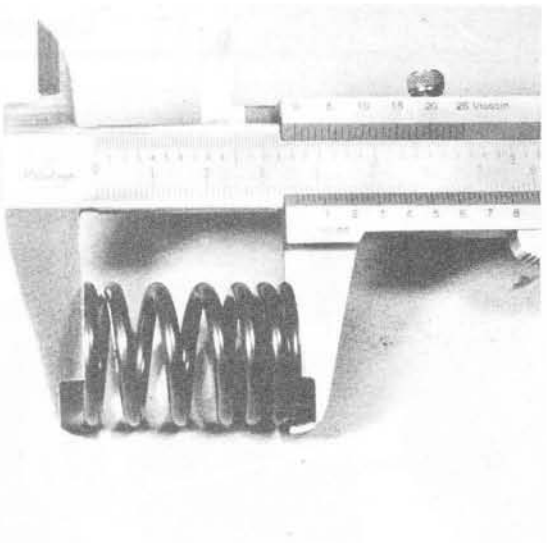


Fig. 1.5 Valve assembly

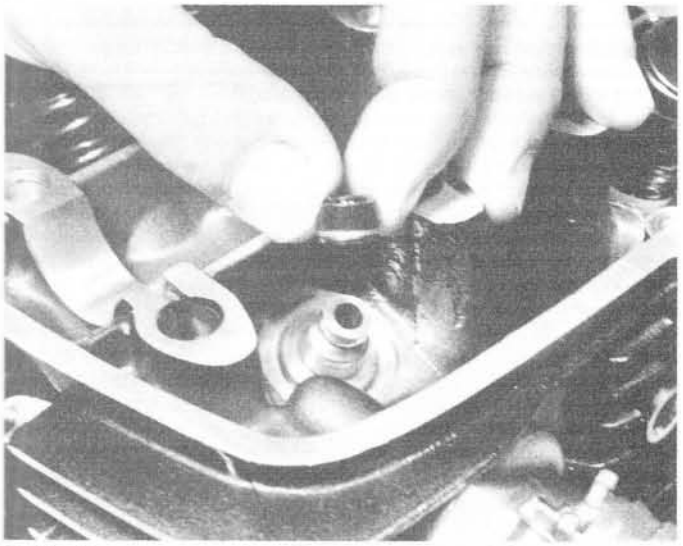
1 *Valve stem seal*
2 *End float control spring*
3 *Rocker arm*
4 *Rocker arm shaft*
5 *Adjusting screw*
6 *Inlet valve*
7 *Exhaust valve*
8 *Outer spring*
9 *Inner spring*
10 *Upper spring seat*
11 *Lower spring seat*
12 *Locknut*
13 *Collet halves*



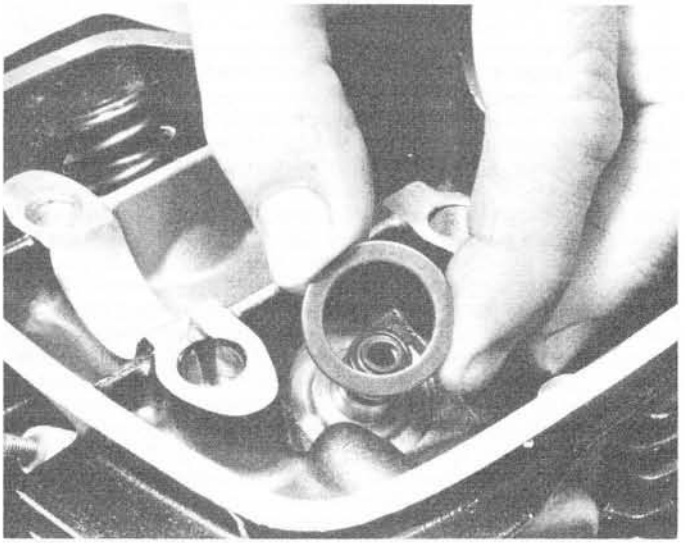
17.2 Use suitable tool to compress valve spring until collets can be removed



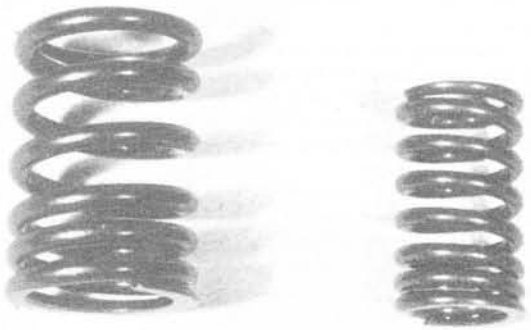
17.9 Measuring valve spring free length



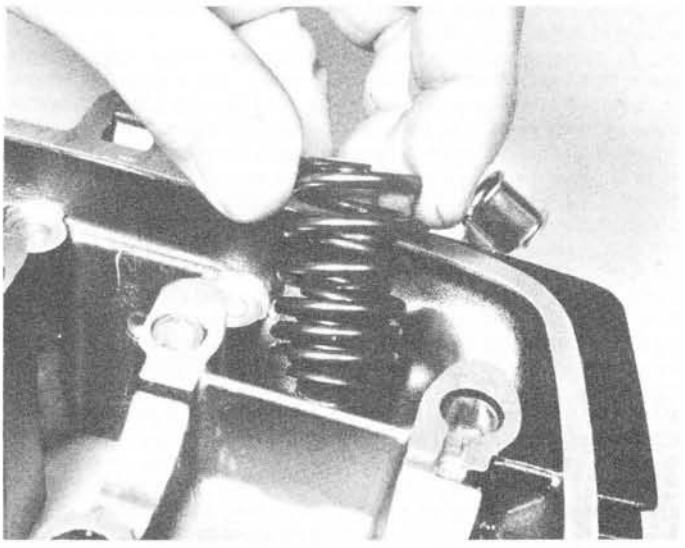
17.10a Always renew valve guide seals on reassembly



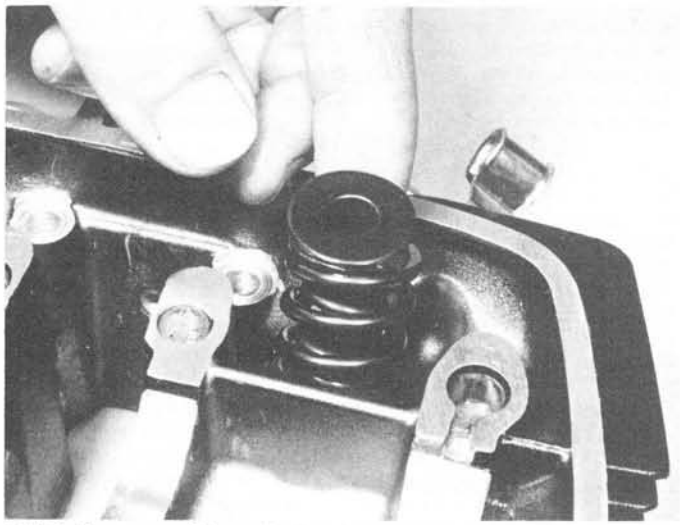
17.10b Do not omit valve spring seat



17.10c Valve springs are multi-rate – note closer spaced coils ...



17.10d ... which must be fitted downwards, next to cylinder head



17.10e Ensure retaining collar locates correctly on both springs

18 Examination and renovation: cylinder block

1 The usual indication of badly worn cylinder bores and pistons is excessive smoking from the exhausts and piston slap, a metallic rattle that occurs when there is little or no load on the engine. If the top of the cylinder bore is examined carefully, it will be found that there is a ridge approximately 15 mm (0.60 in) from the top, the depth of which will indicate the amount of wear which has taken place, the ridge marking the limit of travel of the piston top ring.

2 Measure the bore inside diameter at a point approximately 15 mm (0.60 in) below its top surface, both at right angles to the gudgeon pin axis and along it. These measurements should be repeated in the middle and at the bottom of the bore, giving a total of six measurements. If the block has been rebored previously, do not forget to compensate for this by adding the total amount of the rebore to the cylinder internal diameter standard measurement and wear limit given in the Specifications Section of this Chapter. If any of the measurements taken exceed the wear limit given the cylinder block must be bored out to take the next size of piston.

3 Note that Honda supply pistons and rings in four oversizes; +0.25 mm (0.010 in), + 0.05 mm (0.020 in), + 0.75 mm (0.030 in) and + 1.0 mm (0.040 in). If reboring is necessary, both cylinders must be bored out at the same time and to the same size, even if only one is damaged or worn.

4 If you are in any doubt about the cylinder bores' condition seek the advice of a Honda dealer.

5 To gain an approximate idea of the amount of wear that has taken place, find a set of feeler gauges and a piston that is either brand new or is known from measurements taken (see Section 19) to be within the specified wear limits. Insert the piston into the bore from the top, ensuring that the 'IN' mark is facing towards the rear of the barrel, and push it down until the base of the piston skirt is 20-25 mm ($\frac{3}{4}$-1 in) below the top surface of the bore. If it is possible to insert a feeler gauge thicker than 0.10 mm (0.004 in) between the forward side of the piston skirt (ie the thrust face) and the cylinder wall, the cylinder block should be considered worn and taken to a Honda dealer or similar expert for accurate measurement. Note that since the manufacturer does not give specific piston/cylinder clearance figures, this method must be considered a rough guide only, and any result must be subject to confirmation by an expert using the correct measuring equipment.

6 Check that the surface of each cylinder bore is free from score marks or other damage that may have resulted from an earlier engine seizure or a displaced gudgeon pin. A rebore will be necessary to remove any deep scores, irrespective of the amount of bore wear that has taken place, otherwise a compression leak will occur.

7 It must be noted that when fitting new piston rings to be run in a part-worn cylinder bore, the bore surface must be prepared first by glaze-busting. This is a process which involves the use of a cylinder-bore honing tool, usually in conjunction with an electric drill, to break down the surface glaze which forms on any cylinder bore in normal use. The prepared bore surface will then have a very lightly roughened finish which will assist the new piston rings to bed in rapidly and fully. Furthermore, the lip at the top of the bore, which will have been formed by the bore wearing, must be removed. If this is not done the new top ring will come into contact with the ridge and shatter. Most motorcycle dealers have glaze-busting equipment and will be able to carry out the necessary work for a small charge.

8 Make sure the external cooling fins of the cylinder block are not clogged with oil or road dirt which will prevent the free flow of air and cause the engine to overheat.

9 Finally, check the cylinder block to cylinder head mating surface for distortion by placing a straight-edge across several places on it and attempting to slide a 0.05 mm (0.002 in) feeler gauge between the straight-edge and mating surface. If the cylinder block is warped beyond this limit, grind it flat by placing a sheet of emery paper on a surface plate or sheet of plate glass and rubbing the mating surface against it, in a slow, circular motion. Commence this operation with 200 grade paper and finish with 400 grade paper and oil. If it is thought necessary to remove a substantial amount of metal in order to bring the mating surface back to within limits, obtain advice from a Honda service agent as to whether it is necessary to obtain a replacement block.

19 Examination and renovation: pistons and piston rings

1 Attention to the pistons and piston rings can be overlooked if a rebore is necessary, since new components will be fitted.

2 Examine each piston carefully. Reject pistons that are scored or badly discoloured as the result of exhaust gases by-passing the rings. Remove the piston rings by pushing the ends apart with the thumbs whilst gently easing the ring from its groove. Great care is necessary throughout this operation because the rings are brittle and will break easily, if overstressed. If the rings are gummed in the grooves, three strips of tin can be used to ease them free, as shown in the accompanying illustration.

3 Remove all carbon from the piston crowns, using a blunt scraper which will not damage the surface of the piston. Clean away carbon deposits from the valve cutaways and finish off with metal polish so that a smooth, shining surface is achieved. Carbon will not adhere so readily to a polished surface.

4 Small high spots on the back and front areas of the piston can be carefully eased back with a fine swiss file. Dipping the file in methylated spirit or rubbing its teeth with chalk will prevent the file clogging and eventually scoring the piston. Only very small quantities of material should be removed, and never enough to interfere with the correct tolerances. Never use emery paper or cloth to clean the piston skirt; the fine particles of emery are inclined to embed themselves in the soft aluminium and consequently accelerate the rate of wear between bore and piston.

5 Measure the outside diameter of the piston about 10 mm (0.4 in) up from the bottom of the skirt, at right angles to the line of the gudgeon pin. If the measurement is under the service limit, the piston must be renewed.

6 The piston ring grooves may have become enlarged in use, allowing the piston rings to have greater side float. If the clearance exceeds 0.12 mm (0.0047 in) for either the top ring or the second compression ring or 0.17 mm (0.0067 in) for the oil scraper ring, the piston is due for renewal. It is unusual for this amount of wear to occur on its own.

7 Piston ring wear is measured by removing the rings from the piston and inserting them, one at a time, in the cylinder bores, having previously established that the bore is within the specified wear limits (see Section 18); the test will be insufficiently accurate if carried out in a bore that is enlarged by excessive wear. Position each ring, using the piston skirt to push them into place squarely, so that they rest about 10 mm ($\frac{1}{2}$ inch) from the bottom of the bore, Measure the end gap with a feeler gauge, if it exceeds 0.5 mm (0.020 in) the rings require renewal. A replacement set of piston rings is comparatively inexpensive and it is considered good practice to renew them as a matter of course whenever the engine is completely dismantled; this is particularly important if the machine has covered a considerable mileage. Always renew both sets of rings at the same time.

8 Check that there is no build-up of carbon on the inside surface of the rings or in the grooves of the pistons. Any build-up should be

removed by careful scraping; a piece or broken old piston ring makes an ideal scraping implement.

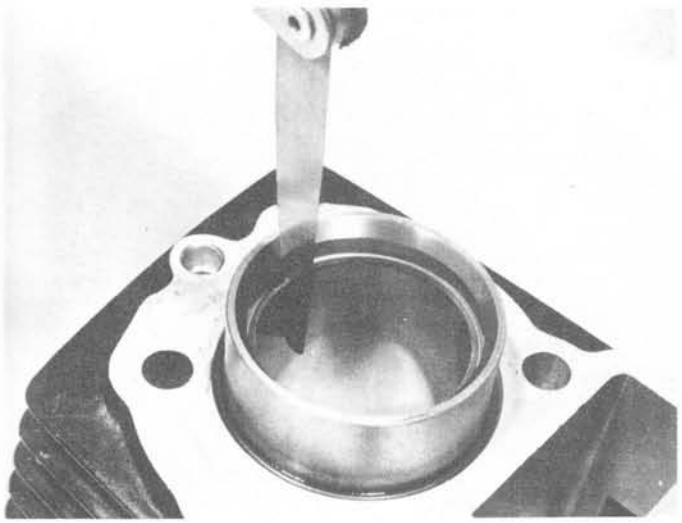
9 The piston crowns will show whether the engine has been rebored on some previous occasion. All oversize pistons have the rebore size stamped on the crown. This information is essential when ordering replacement piston rings.

10 Do not assume when fitting new rings that their end gaps will be correct. As with part worn rings, the end gap must be measured as described above. It may be necessary to enlarge the gap, in which case this should be done by the careful use of a needle file. With the rings checked, they should be refitted to the piston and then put to one side to await reassembly. If the piston rings are to be eased, they should be fitted only to the original piston.

11 Check the fit of the gudgeon pins in their respective pistons. This is normally a tight press fit; it is not unusual for a piston to require heating so that it expands to the point where the gudgeon pin can be removed or refitted. If the gudgeon pins feel slack, measure the overall diameter of each at several points along its length, and measure the internal diameter of the gudgeon pin bores in the piston bosses. If either gudgeon pin has worn at any point to less that its specified wear limit of 12.98 mm (0.5110 in) it must be renewed; similarly if the gudgeon pin bores of either piston have become enlarged beyond the wear limit of 13.055 mm (0.5140 in), then that piston must be renewed. Wear of this nature will be characterised by a light metallic rattle when the engine is running.

12 Finally, discard any circlips which have been disturbed during dismantling and examination; circlips should never be re-used. Remember to obtain new circlips and to fit them on reassembly.

19.6 Measuring piston ring/ring groove clearance



19.7 Measuring piston ring installed end gap

Fig. 1.6 Method of removing gummed piston rings

20 Examination and renovation: crankshaft and main bearings

1 The most likely areas of crankshaft failure are as follows. Main bearing failure, accompanied by a low rumbling noise as the engine is running, and big-end bearing failure, accompanied by a pronounced click or knock from the crankcases. In both the above cases the noise will increase gradually and will be accompanied by increasingly severe levels of vibration which will be felt through the frame and footrests. Fortunately the crankshaft is a robust assembly and the wear leading to such problems is unlikely to take place until a very high mileage has been covered, unless routine maintenance, in the form of regular oil changes, has been neglected.

2 Commence work by washing thoroughly the crankshaft to remove all traces of oil, then make a close visual inspection of the assembly. If any obvious signs of damage are encountered, for example bent or distorted mainshafts or connecting rods, damaged mainshaft threads, damaged cam chain sprocket teeth, or a cracked or damaged centre main bearing holder, take the assembly to a good Honda dealer for his advice; some damage may be reclaimed whereas in other cases the only solution will be the renewal of the crankshaft assembly.

3 To check the big-end bearings arrange the connecting rods in the TDC position. Grasp each rod in turn and pull it firmly upwards and then push downwards, making sure that any end float, which is intentional, is not mistaken for big-end play. Any discernible up-and-down movement will indicate that the bearing is worn and in need of renewal. **Do not** run the machine with a worn big-end bearing, otherwise there is risk of breaking the connecting rod or crankshaft. If the necessary equipment is available, clamp the crankshaft firmly in a suitable stand and set up a dial gauge so that its pointer rests against the connecting rod big-end eye. Measure the total up-and-down movement (radial clearance) of each big-end bearing in turn in a horizontal and vertical direction. If any of the measurements exceed the wear limit of 0.05 mm (0.00197 in) the bearing is worn out and must be renewed.

4 As stated, a certain amount of end float (axial clearance) is intentional and should be between 0.1 – 0.4 mm (0.00394 – 0.01575 in) in a new crankshaft. The maximum allowable is 0.6 mm. These measurements can be checked with a feeler gauge between the flywheel face and the side of the connecting rod big-end eye.

5 Check that each gudgeon pin is a tight press fit in its respective small-end eye; if any play is detected, measure the outside diameter of the gudgeon pin and the internal diameter of the small-end eye. If either is worn beyond the wear limit given, renewal of the component will be required.

6 Inspect closely each connecting rod, using a magnifying glass if necessary. Any signs of cracks, splits, or nicks, however minute, will mean that the crankshaft must be renewed to prevent the possibility of the connecting rod breaking while the engine is running.

7 With the crankshaft clamped securely, grasp firmly the centre main bearing holder and attempt to move it up and down, then from side to side, feeling for any traces of free play. As no specifications are provided by the manufacturer it must be assumed that, as for the big-end bearings, if any play can be felt the centre main bearing is worn. In such a case the crankshaft must be renewed although it is worth taking it to a good Honda dealer for his advice. The usual solution to the problem of a worn crankshaft is its renewal, as Honda do not offer

a service exchange scheme. This is likely to prove an expensive proposition and it is worth remembering that alternatives do exist. Several small engineering firms throughout the country now have the skill and the equipment to recondition crankshafts of this type, most of them advertising regularly in the national motorcycle press. A local Honda dealer may be able to recommend one of these, or may even offer his own exchange scheme in conjunction with such a firm.

9 The outer main bearings can be checked whilst still in position in the crankcase. Wash the bearings thoroughly to remove all traces of oil, then feel for free play by attemptng to move the inner race up and down, then from side to side. Lastly, hold the inner race and spin hard the outer race with the free hand. Any roughness caused by defects in the balls themselves or in the bearing tracks will be felt and heard immediately. If any signs of free play are found, or if the bearing is not free and smooth in rotation but runs roughly and slows down jerkily, it must be renewed.

10 Remove the bearings as follows. Using an impact screwdriver, slacken and remove the three countersunk screws which secure the left-hand main bearing retaining plate; these screws are likely to be very tight as a thread locking compound has been applied. Withdraw the retaining plate and the small O-ring behind it. The left-hand and right-hand main bearings can be removed as described in Section 14 of this Chapter.

11 To refit the bearings, heat the appropriate casting as described in Section 14, then place it on a clean, flat, wooden surface and carefully position the bearing so that it is absolutely square to the bore of its housing. Using a tubular drift such as a large socket spanner, tap the bearing into place against the shoulder machined to locate it, taking great care that it is kept absolutely square to its housing. The drift must bear only on the outer race of the bearing.

12 When the casting has cooled, fit a new oil seal to the outside of the left-hand main bearing, using again a tubular drift such as a large socket spanner which bears only on the hard outer circumference of the seal, to avoid the risk of distorting the seal as it is tapped into place. The sealing lips of the oil seal must face inwards, towards the bearing and the flat outer surface should be flush with the edge of the raised lip forming part of the seal housing.

13 Place a new O-ring in its recess in the crankcase wall; it is essential that this O-ring is renewed whenever it is disturbed as it plays a large part in maintaining the correct oil pressure. Carefully place the main bearing retaining plate in position, taking care not to disturb the O-ring. Apply a few drops of thread locking compound such as Loctite to the threads of each retaining screw, then refit and tighten securely the three screws, using an impact screwdriver.

14 Lubricate the main bearings with copious quantities of clean engine oil.

21 Examination and renovation: cam chain and tensioner components

1 Judging the condition of a cam chain is difficult and because there are no specifications provided by the manufacturer with which cam chain wear can be checked, renewal, as a matter of course, is recommended whenever an engine is dismantled. This is a reasonable course of action to take when one considers the severe damage that will inevitably result if a cam chain breaks while the engine is running.

2 The only guides to the state of wear of the cam chain are as follows: if the chain was rattling frequently before the engine was dismantled, and could not be quietened by adjustment of the tensioner, or if the tensioner was found to be near the limit of its adjustment range, the chain is too badly worn to be of further use. When the chain is removed from the crankshaft, inspect it closely, looking for obvious signs of damage such as cracked, broken, or missing rollers or fractured links. If any links appear to be stiff in action or unduly sloppy, the chain should be renewed. Fortunately, as the chain is totally enclosed, well lubricated and fully supported along the majority of its length, the problem of excessive wear is unlikely to arise until a considerable mileage has been covered.

3 The chain tensioner, like the chain, normally lives a trouble-free life. The mechanism should not, however, be neglected. Check the tensioner blade and the guide blade for wear and for separation of the rubber coating from the backing piece. No specifications are laid down for acceptable blade wear, but it is suggested that the components are renewed if wear has reduced the thickness of rubber to less than 50%. If the rubber has begun to separate from the blade, the component should be renewed as a matter of course.

4 The tensioner blade is secured to the tensioner assembly by a pin and two R-clips on the CB125 T and early CB125 T2 models, and by a headed pin and one R-clip on all other models. To separate the blade from the tensioner assembly, remove the R-clip and pull out the pin (complete with the second R-clip on the CB125 T and early CB125 T2 models). Detach the tensioner spring from the two parts of the tensioner assembly. Examine the individual parts of the tensioner assembly, renewing any component which is damaged in any way. Check that the two stamped arms of the assembly are free to slide easily over one another, polishing away any burrs or raised edges which might prevent this, and examine the spring, renewing it if in any doubt about its strength. Reassembly is a straightforward reversal of the dismantling sequence.

5 All of the tensioner components are available as individual replacement parts; if in doubt about the condition of any component, err on the side of safety and renew it.

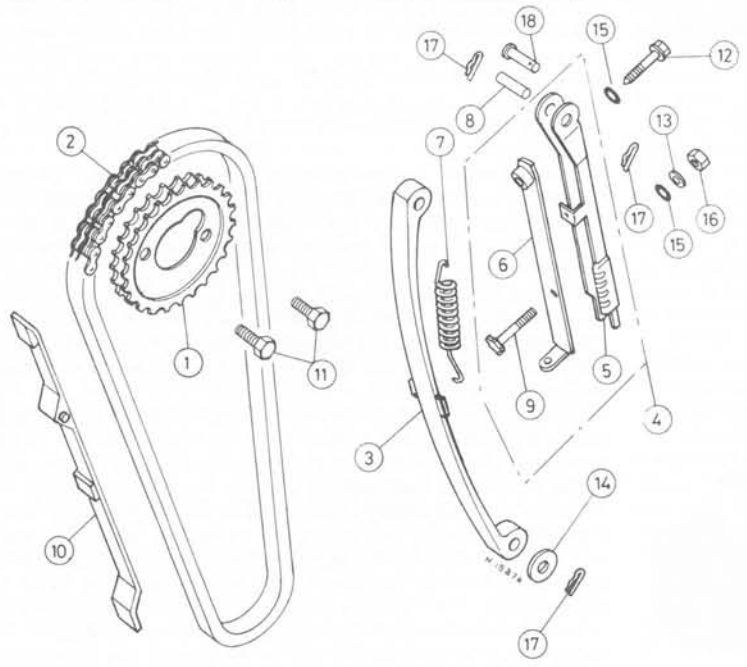


Fig. 1.7 Cam chain and tensioner

1 *Driven sprocket*
2 *Cam chain*
3 *Cam chain tensioner blade*
4 *Tensioner assembly*
5 *Tensioner body*
6 *Slider*
7 *Tensioner spring*
8 *Clevis pin – CB125 T and early CB125 T2 only*
9 *Adjusting bolt*
10 *Cam chain guide blade*
11 *Bolt – 2 off*
12 *Locking bolt*
13 *Washer*
14 *Washer – All models except CM125 C*
15 *O-ring – 2 off*
16 *Locknut*
17 *R-clip – 3 off CB125 T and early CB125 T2, 2 off late CB125 T2, CB125 TA, TB and TD, CD125 T and CM125 C*
18 *Headed clevis pin – late CB125 T2, CB125 TA, TB and TD, CD125 T and CM125 C*

22 Examination and renovation: starter clutch, drive chain and sprockets

1 Inspect the starter clutch. To check whether the starter clutch is operating correctly, fit the driven sprocket to the rear of the clutch and rotor. When rotated in a clockwise direction, as viewed from the sprocket side, the clutch should lock immediately, allowing power to be transmitted from the sprocket to the crankshaft. When rotated anti-clockwise, the sprocket should be free to run smoothly. If the movement is unsatisfactory, remove the sprocket from the clutch. The sprocket boss should be smooth, scoring or damage to the surface indicates that the rollers are similarly marked, and require further inspection.

2 The rollers, springs and plungers may be removed for examination with the clutch still attached to the rear of the rotor. Using a small, flat-bladed screwdriver, carefully push each plunger back against its spring tension until the roller can be removed. Then remove the springs and plungers. Signs of wear will be obvious and will necessitate renewal of the worn or damaged parts.

3 To dismantle the clutch further, the three countersunk, crosshead retaining screws must be removed. Using an impact driver, slacken and remove the three screws. The clutch outer unit and the backing plate can now be removed from the rear of the rotor. Note the single locating dowel pin between the rear of the rotor and the clutch outer unit. Examine the clutch outer unit for wear in the form of elongation or scoring of the roller housing. If worn badly, the clutch outer unit must be renewed.

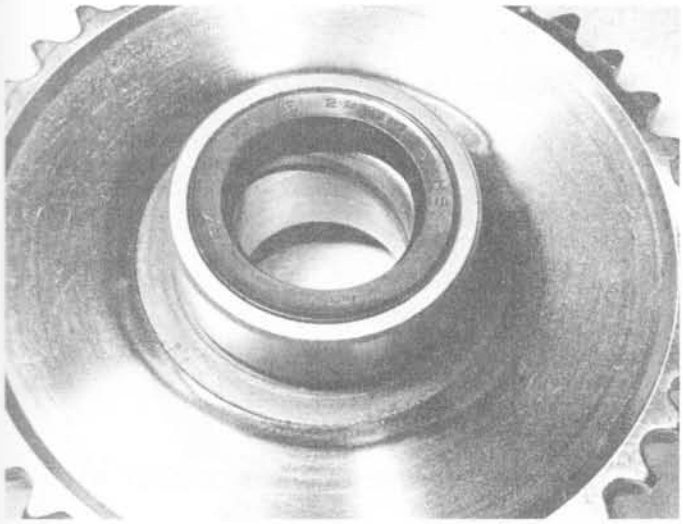
4 Upon reassembly, ensure the dowel pin is correctly located, and apply a small quantity of locking fluid to each of the three retaining screws. Retighten them fully using an impact driver. Reinstall the springs, plungers and the rollers using the same procedure as employed for their removal.

5 Inspect the drive and driven sprockets, looking for chipped, worn, broken or missing teeth. Examine the drive chain for damaged rollers or fractured links. Wear of an excessive nature is extremely unlikely on the sprockets or the chain, due to its fully enclosed situation and limited usage.

23 Examination and renovation: primary drive gears and oil pump drive gear

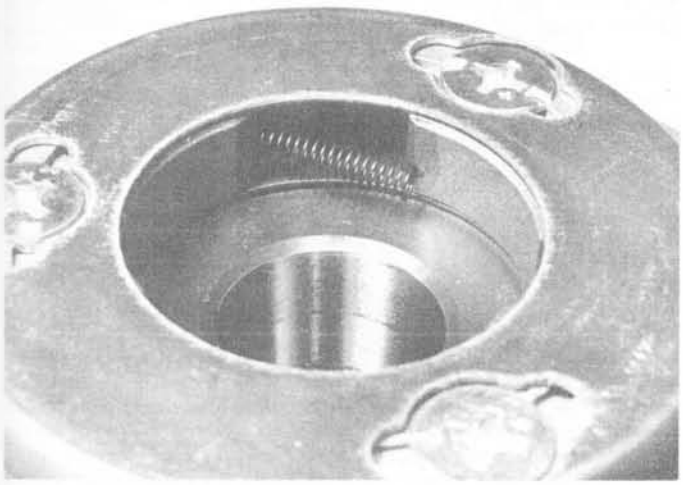
1 Examine the primary drive gears for chipped, broken or worn teeth. This type of damage cannot be rectified; the component must be renewed. The primary driven gear is riveted to the clutch outer drum. These two items are not supplied separately as replacements. If either the primary drive or primary driven gear require renewal, replace them as a pair.

2 The oil pump drive gear is fitted outboard of the primary drive gear on the crankshaft end. The examination and renovation procedures detailed for the primary drive gears apply equally to the oil pump drive gear.

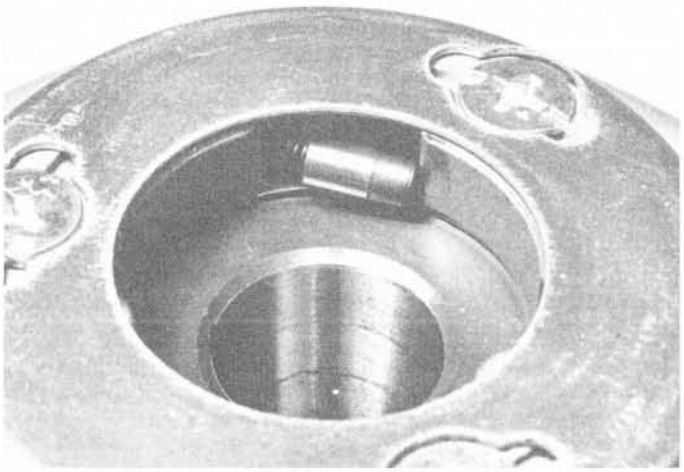


22.1 Both inner and outer surfaces of driven sprocket centre boss must be smooth and unworn

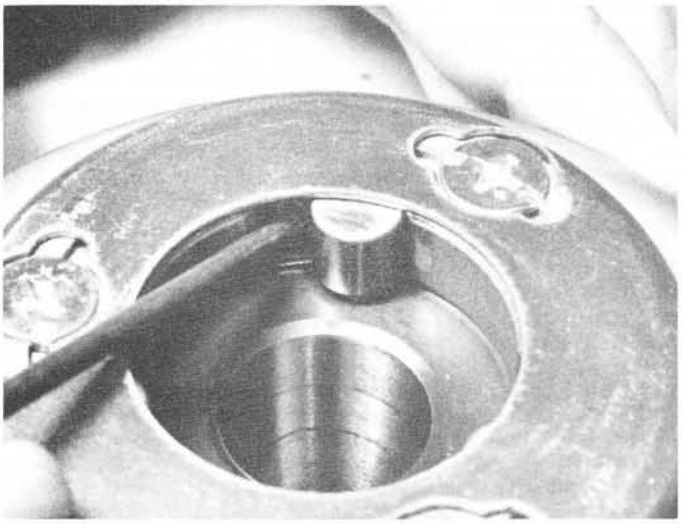
22.3 Use impact driver to release or tighten clutch retaining screws



22.4a Insert springs into recesses in clutch outer body ...



22.4b ... followed by plungers, which are refitted as shown



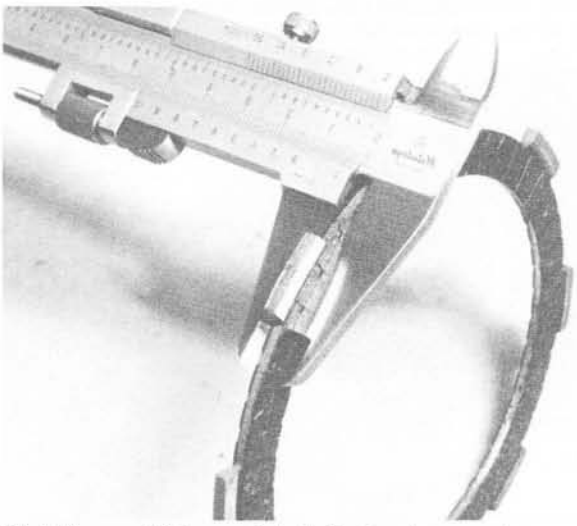
22.4c Use small screwdriver to push back spring and plunger while roller is inserted

24 Examination and renovation: clutch assembly

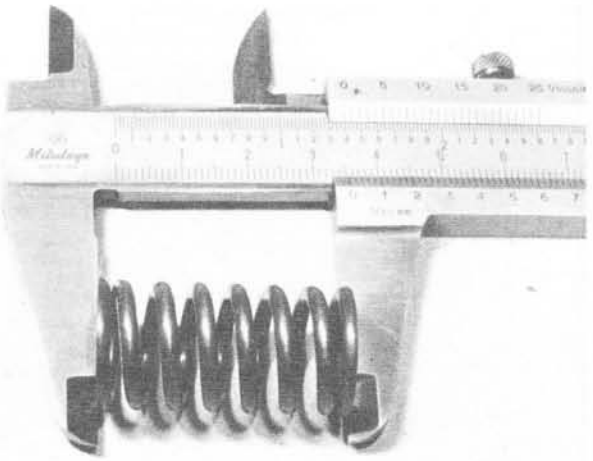
1 After a considerable mileage has been covered, the bonded linings of the clutch friction plates will wear down to or beyond the specified wear limit, allowing the clutch to slip.
2 Give the plain and the friction plates a wash with a petrol/paraffin mix and remove all traces of clutch insert debris.
3 The degree of wear is measured across the faces of the friction material, using a vernier caliper. If the plates have worn to 2.6 mm (0.1024 in) they should be renewed as a complete set, even if slipping is not yet apparent.
4 The plain plates should be free from scoring and signs of overheating, which will be apparent in the form of blueing. Check each plain plate for distortion, by laying it on a flat surface, such as a sheet of plate glass, and measuring any detectable gap with feeler gauges. The plates must be less than 0.2 mm (0.008 in) out of true; any more and judder and snatch may result. Replace the plates as a set if warpage is greater than the service limit stated.
5 Measure the uncompressed length of the clutch springs. Should the springs have taken a permanent set, down to a length of less than that given in the Specifications at the beginning of the Chapter, they should be renewed. Always renew clutch springs as a set.
6 Check the condition of the thrust bearing and the clutch operating pushrod and its seat. Excessive play or wear in these components will cause noise and lead to erratic operation.
7 Check the condition of the slots in the outer surface of the clutch centre and the inner surfaces of the outer drum. In an extreme case, clutch chatter may have caused the tongues of the inserted plates to make indentations in the slots of the outer drum, or the tongues of the plain plates to indent the slots of the clutch centre. These indentations will trap the clutch plates as they are freed, and impair clutch action. This will be shown in the form of clutch drag and slow disengagement during gear changes. If the damage is only slight the indentations can be removed by careful work with a file and the burrs removed from the tongues of the clutch plates in a similar fashion. More extensive damage will necessitate renewal of the parts concerned.
8 The clutch release mechanism attached to the inside of the right-hand outer cover is unlikely to wear. No attention is normally required, other than greasing prior to reassembly.

25 Examination and renovation: kickstart assembly – CB125 T, T2, TA and TB models

1 Check the condition of the kickstart components. If slipping has been encountered a worn ratchet and pinion will invariably be traced as the cause. Any other damage or wear to the components will be self-evident. If either the ratchet or pinion is found to be faulty, components must be replaced as a pair. Examine the kickstart return spring, which should be renewed if there is any doubt about its condition.
2 To eliminate the assembly, first slide out the return spring guide, then disengage the spring inner end from the hole in the shaft and remove the spring. This is followed by a large thrust washer, the kickstart pinion, noting the teeth on its reverse face, another thrust washer and a plain wire circlip. From the inner end of the shaft remove first the ratchet guide plate, then use a pair of circlip pliers to release the external circlip, whereupon the ratchet spring and the ratchet can be pulled off the shaft.
3 If necessary, the kickstart pinion bore ID may be measured; the wear limit will be found in the Specifications section at the front of this Chapter.
4 The components are refitted by reversing the dismantling sequence. Note that when refitting the ratchet to the shaft, the punch mark on each should be in alignment with the other. If this alignment is not correct, the kickstart will not operate correctly.
5 In general, kickstart mechanisms are reliable devices and do not wear quickly unless a malfunction occurs, or engine oil level is allowed to fall. Look for chipped or broken teeth and excessive wear, replacing the ratchet and the kickstart pinion if necessary.



24.3 Measure thickness of clutch friction plates as shown



24.5 Measuring clutch spring free length

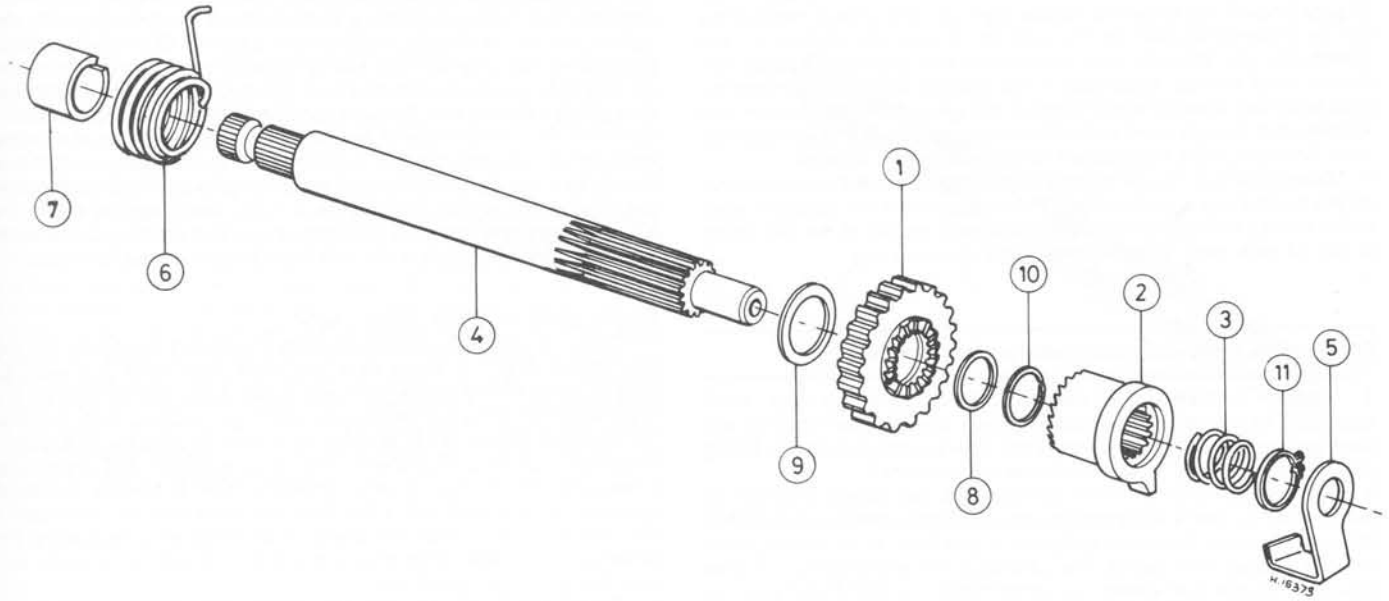


Fig. 1.8 Kickstart assembly – CB125 T, T2, TA and TB

1	*Pinion*	*4*	*Kickstart shaft*	*7*	*Return spring guide*	*10*	*Circlip*
2	*Ratchet*	*5*	*Ratchet guide plate*	*8*	*Thrust washer*	*11*	*Circlip*
3	*Ratchet spring*	*6*	*Return spring*	*9*	*Thrust washer*		

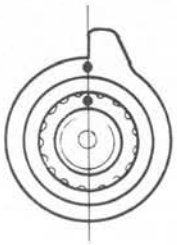


Fig. 1.9 Correct position of kickstart ratchet on shaft

26 Examination and renovation: engine cases and covers

1 The aluminium alloy casings and covers are unlikely to suffer damage through ordinary use. However, damage can occur if the machine is dropped, or if sudden mechanical breakages occur, such as the rear chain snapping.

2 Small cracks or holes may be repaired with an epoxy resin adhesive, such as Araldite, as a temporary expedient. Permanent repairs can only be effected by argon-arc welding, and a specialist in this process is in a position to advise on the viability of proposed repair. Often it may be cheaper to buy a new replacement.

3 Damaged threads can be economically reclaimed by using a diamond section wire insert, of the Helicoil type, which is easily fitted after drilling and re-tapping the affected thread. The process is quick and inexpensive, and does not require as much preparation and work as the older method of fitting inserts. Most motorcycle dealers and small engineering firms offer a service of this kind.

4 Sheared studs or screws can usually be removed with screw extractors, which consist of tapered, left-hand thread screws, of very hard steel. These are inserted by screwing anti-clockwise, into a pre-drilled hole in the stud, and usually succeed in dislodging the most stubborn stud or screw. If a problem arises which seems to be beyond your scope, it is worth consulting a professional engineering firm before condemning an otherwise sound casing. Many of these firms advertise regularly in the motorcycle papers.

27 Examination and renovation: gearbox components

1 Examine each of the gear pinions to ensure that there are no chipped or broken teeth and that the dogs on the end of the pinions are not rounded. Gear pinions with any of these defects must be renewed; there is no satisfactory method of reclaiming them.

2 It is not normally necessary to dismantle the gear clusters unless the sort of damage described above has occurred or a fault has become apparent on the gearbox shafts.

3 If damage or wear warrants dismantling of the clusters, it is advisable that the assemblies are studied prior to dismantling in order to eliminate the risk of incorrect reassembly; rough sketches should be made as each pinion, thrust washer, circlip etc is removed. Also strip and rebuild as soon as possible to reduce any confusion which may arise at a later date, and keep separate the components of the two shafts.

4 The accompanying illustrations and photographic sequence show how the clusters are arranged on their shafts. It is imperative that the gear clusters, including the thrust washers and circlips, are assembled in **EXACTLY** the correct sequence, otherwise constant gear selection problems will arise.

5 Check the gear selector fork support shaft for straightness by rolling it on a sheet of plate glass. A bent rod will cause difficulty in selecting gears and will make the gearchange particularly heavy. If measuring equipment is available, measure the outside diameter of the shaft at points all along its length. If it is worn at any point to less than the specified wear limit of 11.96 mm (0.4709 in) it must be renewed.

6 Examine the selector forks carefully, ensuring that there is no scoring or wear where they engage in the gears, and that they are not bent. Damage and wear rarely occur in a gearbox which has been properly used and correctly lubricated, unless very high mileages have been covered. If measuring equipment is available, check the internal diameter of each fork's shaft bore, which should not exceed 12.05 mm (0.4744 in). Similarly, measure the thickness of each claw end of each fork at the point which engages with its respective pinion groove. The claw ends should not be less than 4.7 mm (0.1850 in) thick. If any selector fork is found to be excessively worn, or if it is found to be bent (revealed by the signs of excessive heat, or blueing, resulting from the constant friction with the pinion) or otherwise damaged, it should be renewed.

7 The tracks in the selector drum, with which the selector forks engage, should not show any undue signs of wear unless neglect has led to under-lubrication of the gearbox. Check the tension of the gearchange arm selector lever, gearchange arm and drum stopper arm (detent arm) springs. Weakness in the springs will lead to imprecise gear selection. Check the condition of the gear stopper arm roller and the pins and change drum end with which it engages. It is unlikely that wear will take place here except after considerable mileage.
8 Examination of the gearchange components should be carried out on the general basis as described. If excessive wear is suspected, refer to the service limits given in the Specification section at the beginning of this Chapter and replace components as necessary.

28 Gearbox input and output shafts: reassembly

1 Having examined the components of each gearbox shaft assembly, or cluster, and having renewed any components that are damaged or worn, the gear clusters can now be rebuilt ready for fitting as a single assembly to the crankcase left-hand half.
2 When refitting the different components, pay careful attention to notes made on dismantling and use the illustrations which accompany the text to ensure that each component is refitted in its correct order and the correct way round. The photographic sequence which also accompanies the text shows the components of a CB125 TD gearbox being reassembled. The text describes the sequence of rebuilding for all models, and is divided into appropriate sub-sections where the sequence is markedly different in some way. Note that where the terms 'left-hand' and 'right-hand' are used, these refer to the left-hand and right-hand of each component as it would be when installed in the machine. Finally, take great care to lubricate all bearing surfaces with clean engine oil before components are installed.

Input shaft – all CB125 models and CM125 C models

3 Take the bare input shaft with its integral 1st gear (13T) and hold the shaft by its right-hand end. Take the 3rd gear pinion (20T on CB125 models, 21T on the CM125 C) and slide it over the shaft left-hand end with its selector dogs facing to the left. Slide the gear pinion down the shaft to rest against the 1st gear and secure it with first a splined thrust washer, then a circlip. The 4th gear pinion (23T on CB125 models, 24T on the CM125 C) is fitted next, with its selector fork groove towards the shaft right-hand end, and is secured against the 3rd gear pinion by a circlip.
4 Slide a splined thrust washer down to rest against the circlip, then fit the 5th gear pinion (24T on CB125 models, 23T on the CM125 C) with its selector dogs facing towards the shaft right-hand end. The 2nd gear pinion (17T on CB125 models, 18T on CM125 C) is then fitted over the shaft left-hand end and slid down to rest against the 5th gear pinion. Finally, fit the large plain thrust washer over the shaft left-hand end to rest against the 2nd gear pinion. Secure the various components by tightening a rubber band over the shaft left-hand end so that nothing can drop off.
5 On CB125 T, T2, TA, and TB models only, hold carefully the input shaft assembly by its left-hand end, then fit the larger plain thrust washer over the shaft right-hand end to rest against the 1st gear teeth, followed by the clutch mounting sleeve which is fitted with its integral kickstart driven gear (19T) next to the 1st gear teeth. Again, tighten a rubber band over the shaft right-hand end to prevent these two components from dropping off. Put the completed input shaft assembly to one side to await refitting.

Input shaft – CD125 T models only

6 Take the bare input shaft with its integral 1st gear (13T) and hold the shaft by its left-hand end. Fit the larger, plain, thrust washer over the shaft right-hand end to rest against the 1st gear teeth, followed by the clutch mounting sleeve which is fitted with its raised lip next to the 1st gear teeth. Tighten a rubber band over the shaft right-hand end to prevent these two components from dropping off, then hold the shaft by its right-hand end.
7 Take the 3rd gear pinion (22T) and slide it over the shaft left-hand end with its selector dogs facing to the left. Slide the gear pinion down the shaft to rest against 1st gear and secure it with first a splined thrust washer, then a circlip. The 4th gear pinion (25T) is fitted next with its selector fork groove towards the shaft right-hand end, and is secured with a circlip. Slide a splined thrust washer down to rest against the circlip, then fit the 2nd gear pinion (18T) with its selector fork groove and selector dogs facing towards the shaft right-hand end. Fit the thick spacer over the shaft left-hand end to rest against the 2nd gear pinion, noting that the input shaft spacer has a smaller internal diameter than its otherwise very similar counterpart on the output shaft left-hand end, making it impossible to interchange the two. Finally, fit the large, plain thrust washer over the shaft left-hand end to rest against the spacer, and secure all the components by tightening a rubber band over the shaft left-hand end so that nothing can drop off. Put the completed input shaft assembly aside to await refitting.

Output shaft – CB125 models only

8 Take the bare output shaft and hold it by its left-hand end. The 4th gear pinion (28T) is fitted over the shaft right-hand end with its selector dogs facing to the right and is slid down to butt against the shaft shoulder. Secure it with a splined thrust washer, then a circlip. The 3rd gear pinion (29T) is fitted next with its selector fork groove towards the shaft left-hand end. The 1st gear pinion (36T) rotates on a separate bush; the pinion's left-hand side is deeply recessed, whereas its right-hand side is flat. Push the bush into the pinion centre from left to right, so that the raised lip on the bush butts against the pinion left-hand side, then slide the pinion and bush as a single unit over the shaft right-hand end.
9 On CB125 T, T2, TA, and TB models only, slide a plain thrust washer over the shaft right-hand end to butt against the 1st gear pinion, followed by the kickstart idler gear (29T) which is fitted with its recessed face pointing to the left. Finally fit another plain thrust washer over the shaft right-hand end, noting that the two thrust washers cannot be confused as their internal diameters are markedly different and will match with only those parts of the shaft on which they are intended to fit. Tighten a rubber band over the shaft right-hand end. On CB125 TD models only, when the 1st gear pinion has been fitted, slide a thick spacer over the shaft right-hand end to butt against the 1st gear pinion, then secure the shaft components by tightening a rubber band over the shaft right-hand end. Note that the thick spacer fitted to the shaft right-hand end cannot be confused with its counterpart on the shaft left-hand end as its internal diameter is much smaller to match the diameter of the shaft at its installed position.
10 Holding carefully the output shaft by its right-hand end, place the 5th gear pinion (26T) over the shaft left-hand end with its selector fork groove towards the right and slide the gear pinion down the shaft to butt against the 4th gear pinion. This is followed by the 2nd gear pinion (32T) which is fitted with its flat surface facing to the right and is slid down the shaft to butt against the shaft shoulder. The last item to be fitted to the output shaft left-hand end is a thrust washer (on CB125 T, T2, TA, and TB models) or a thick spacer (on CB125 TD models). Tighten a rubber band over the shaft left-hand end to prevent anything from dropping off and put the output shaft assembly with the input shaft.

Output shaft – CM125 C models only

11 Take the bare output shaft with its integral 2nd gear and hold the shaft by its left-hand end. Place the 5th gear pinion (21T) over the shaft right-hand end with its selector dogs facing to the left, then slide the pinion down the full length of the shaft to butt against 2nd gear. The 4th gear pinion (26T) is fitted with its selector dogs facing to the right and is slid down to butt against the shaft shoulder. Secure the 4th gear pinion first with a splined thrust washer, then with a circlip. The 3rd gear pinion (28T) is fitted next with its selector fork groove towards the shaft left-hand end. The 1st gear pinion (36T) rotates on a separate bush; the pinion's left-hand side is deeply recessed, whereas its right-hand side is flat. Push the bush into the pinion centre from left to right, so that the raised lip on the bush butts against the pinion left-hand side, then slide the pinion and bush as a single unit over the shaft right-hand end. Finally, fit the thin spacer over the shaft right-hand end and secure the shaft components by tightening a rubber band over the shaft right-hand end. Put the completed output shaft assembly with the input shaft to await refitting.

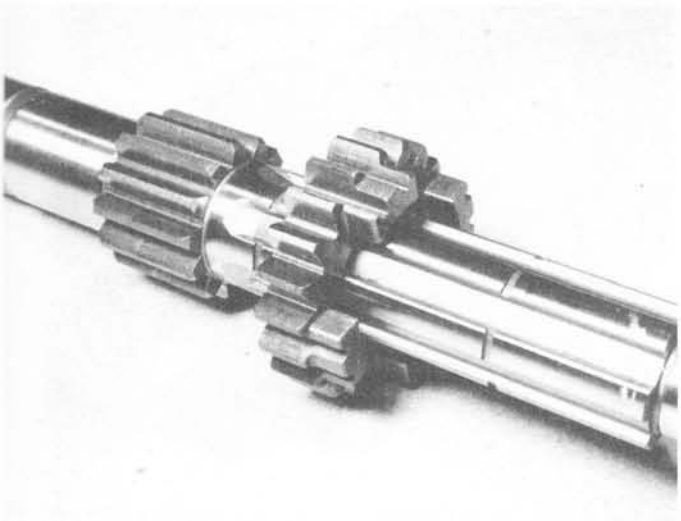
Output shaft – CD125 T models only

12 With the bare output shaft held by its right-hand end, note the circlip groove machined towards the left-hand end of the shaft raised,

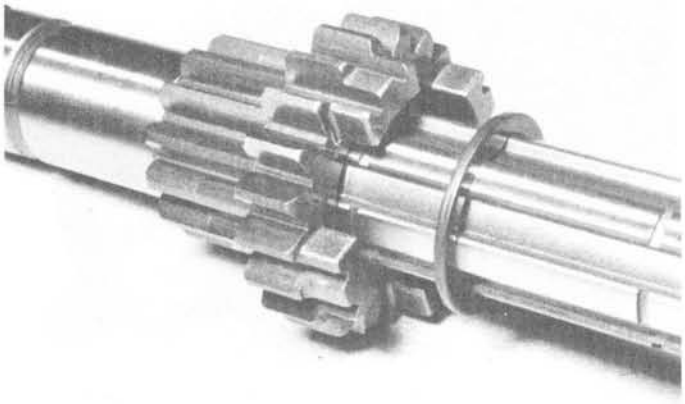
splined, centre section. Using a suitable pair of circlip pliers, fit a circlip into this groove, then place the 2nd gear pinion (32T) over the shaft left-hand end with its recessed surface facing to the left. Slide the pinion down the shaft to rest against the circlip, then fit the thick spacer and the plain washer. Secure these components by tightening a rubber band around the shaft left-hand end, then hold carefully the shaft assembly by its left-hand end.

13 Place the 4th gear pinion (25T) over the shaft right-hand end with its selector dogs pointing to the right and slide the pinion down the shaft to rest against the shaft shoulder. Secure the pinion with first a splined thrust washer, then a circlip. The 3rd gear pinion (28T) is then fitted with its selector fork groove towards the shaft left-hand end. The left-hand surface of the 1st gear pinion (37T) is flat; note that the pinion rotates on a separate bush which must be pushed through the pinion centre from left to right so that the raised lip on the bush butts against the pinion left-hand side. Fit the 1st gear pinion and its bush as a single unit, sliding them down the remaining length of the shaft to butt against the shaft splines, then complete output shaft assembly by fitting a plain thrust washer over the shaft right-hand end. A rubber band should be tightened over the shaft right-hand end to prevent any component from dropping off.

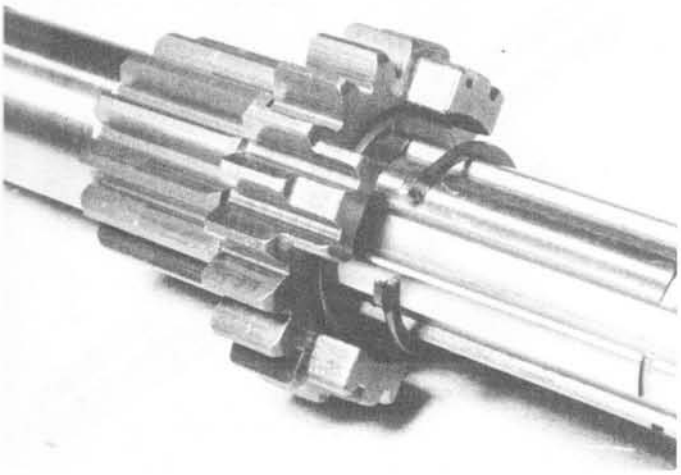
28.3a 1st gear is integral with the input shaft



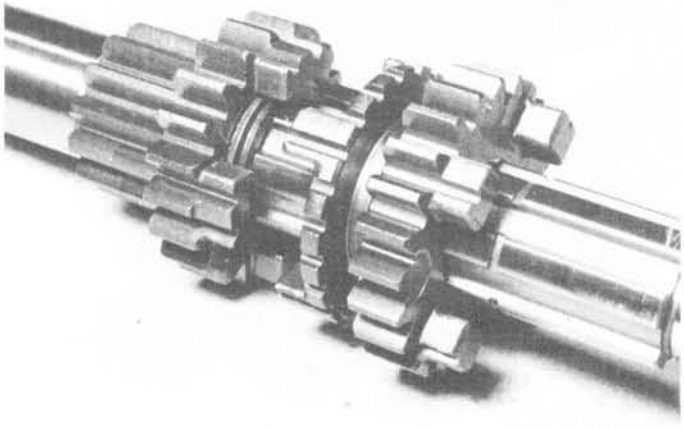
28.3b 3rd gear pinion is fitted as shown and is secured by ...



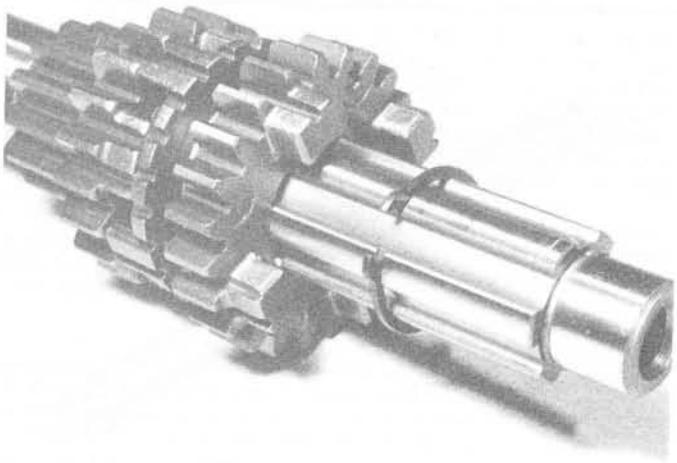
28.3c ... first a splined thrust washer ...



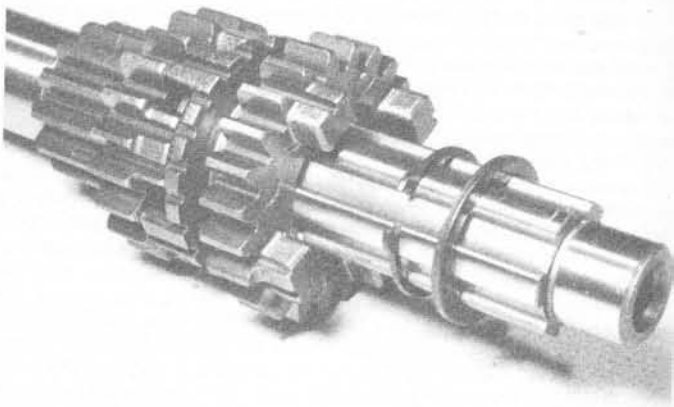
28.3d ... then a circlip



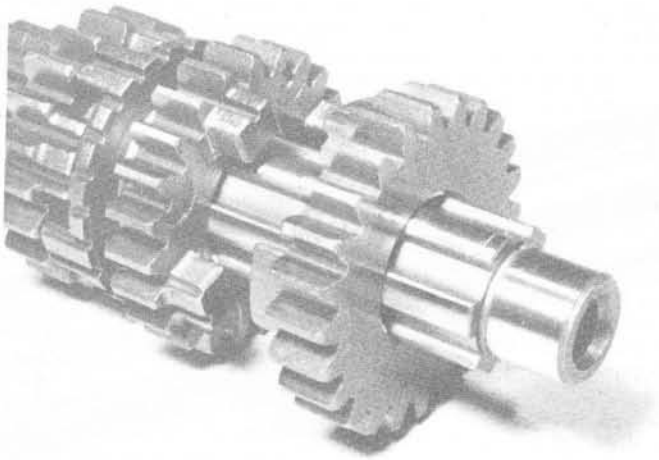
28.3e Slide 4th gear pinion on to shaft ...



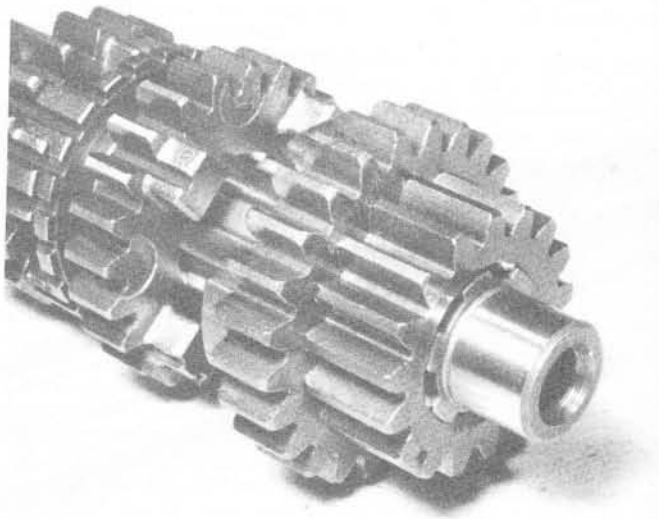
28.3f ... and fit circlip into groove shown



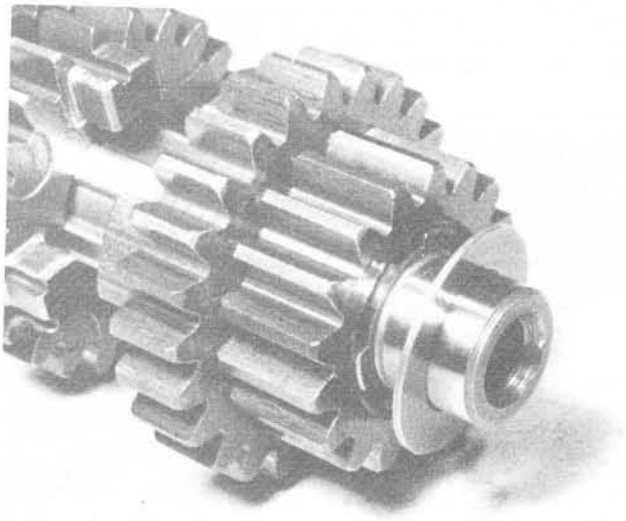
28.4a Splined thrust washer fits against circlip ...



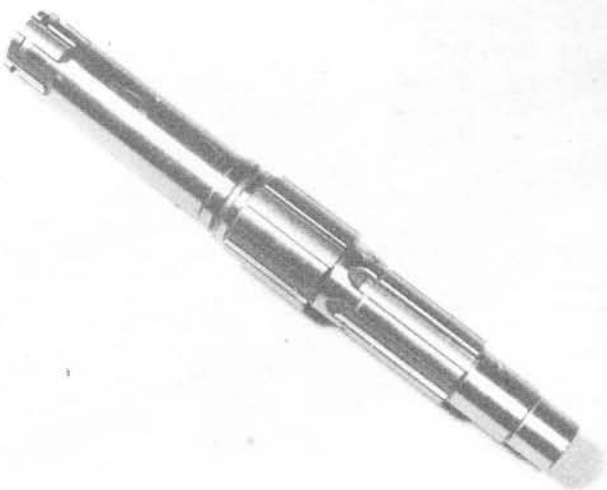
28.4b ... to locate correctly the 5th gear pinion



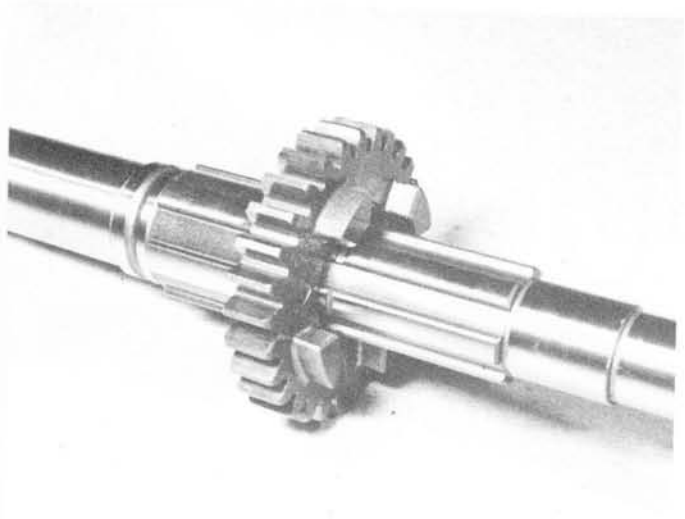
28.4c Refit the 2nd gear pinion ...



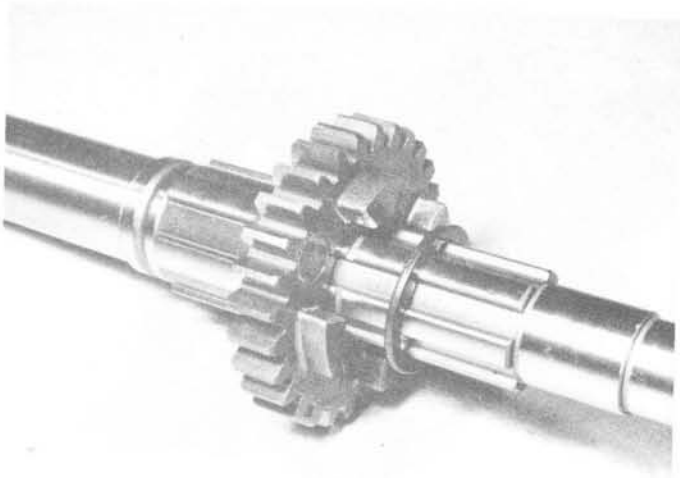
28.4d ... and the large, plain, thrust washer



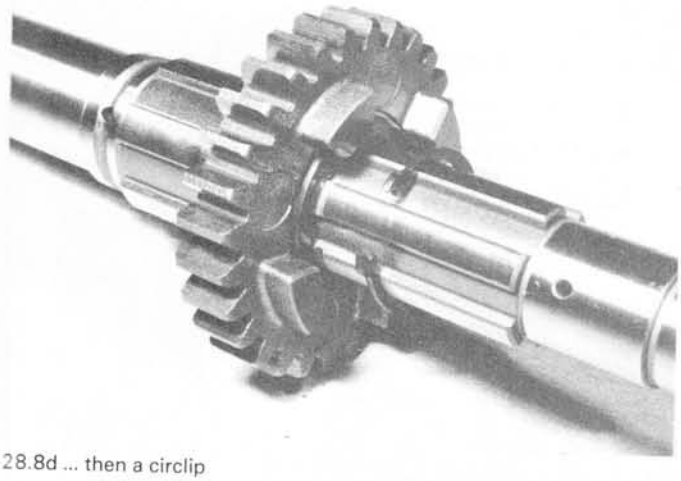
28.8a The output shaft left-hand end is splined to locate the gearbox sprocket



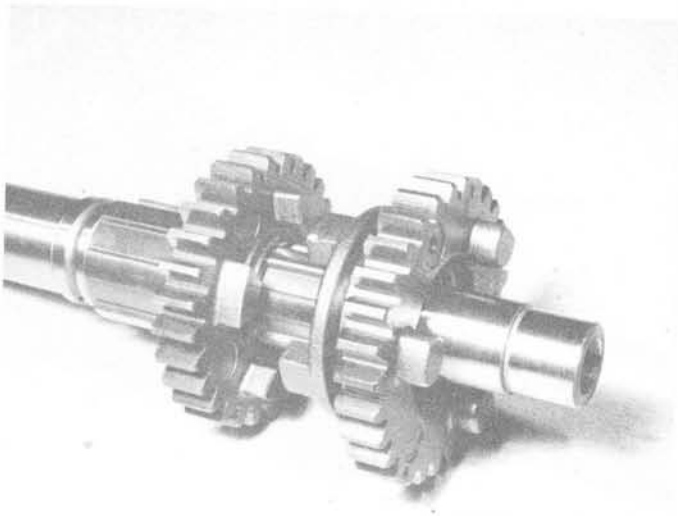
28.8b Fit the 4th gear pinion as shown and secure it with ...



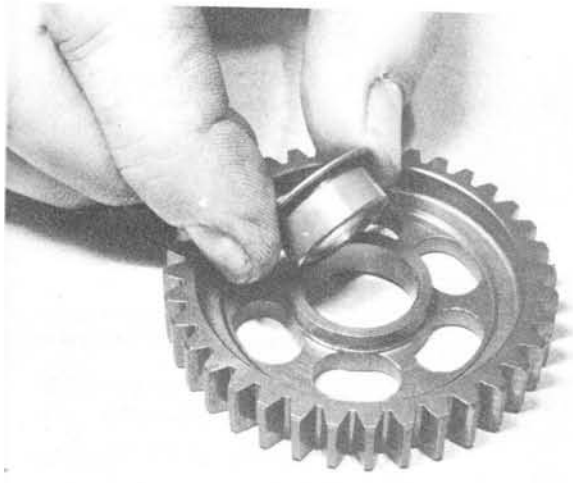
28.8c ... a splined thrust washer ...



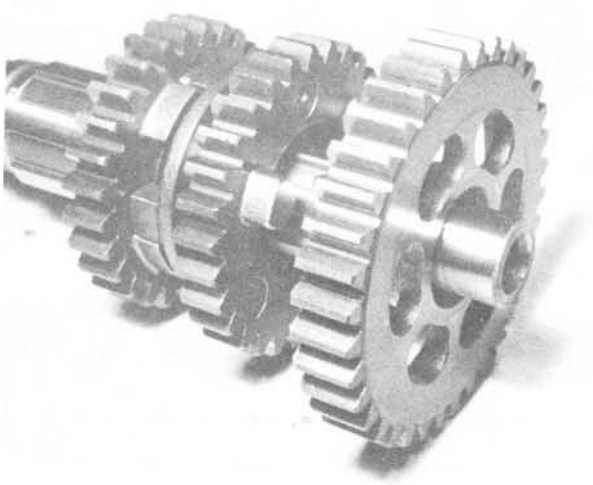
28.8d ... then a circlip



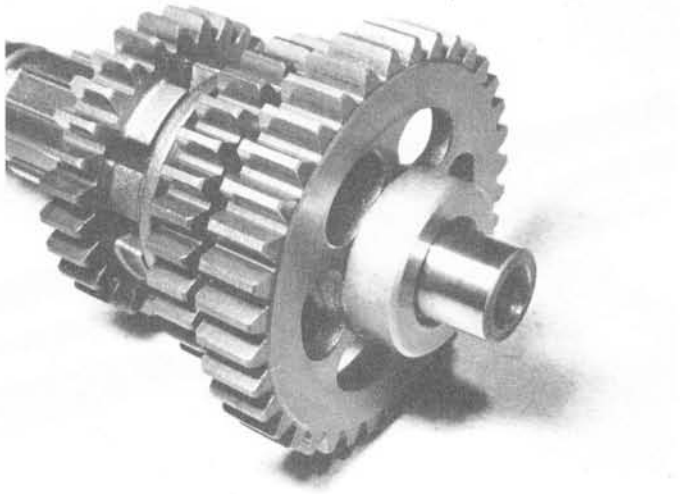
28.8e 3rd gear pinion is fitted as shown



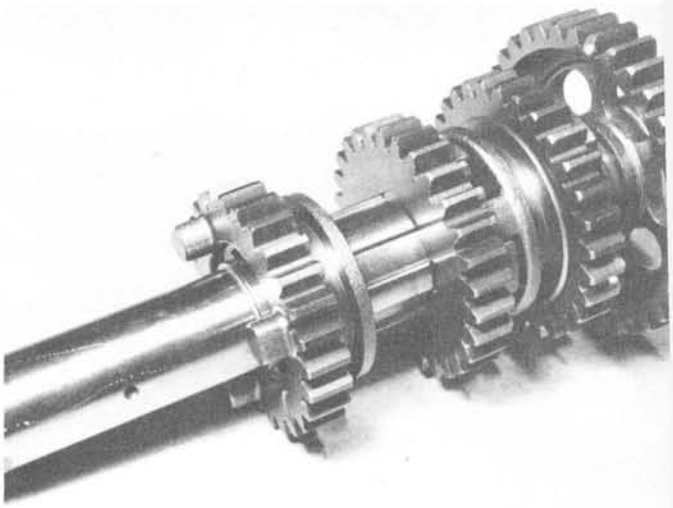
28.8f Insert separate bush as shown into 1st gear pinion ...



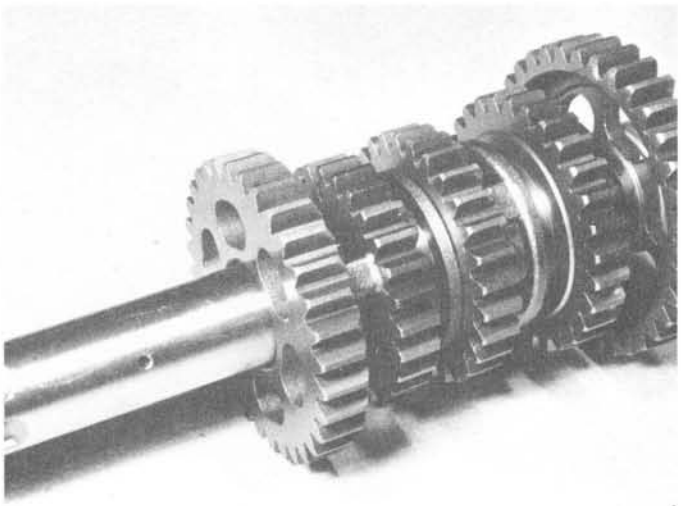
28.8g ... and fit pinion assembly to shaft



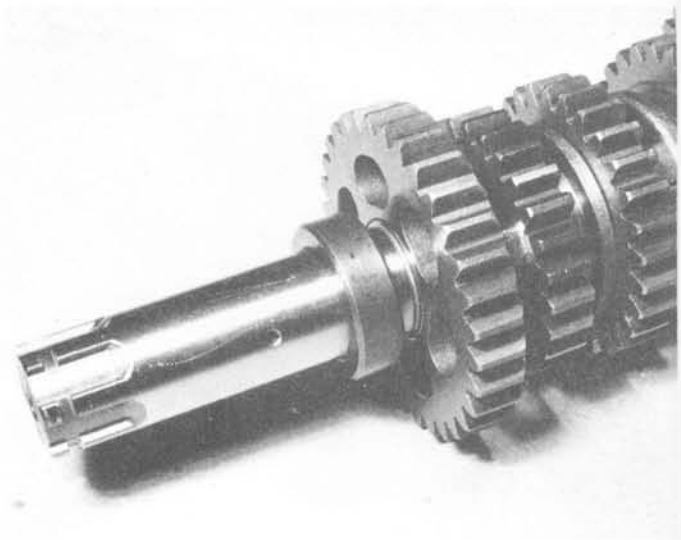
28.9 Thick spacer is last component to be fitted to shaft right-hand end



28.10a 5th gear pinion is fitted as shown over shaft left-hand end ...



28.10b ... and is followed by the 2nd gear pinion ...



28.10c ... and finally a thick spacer

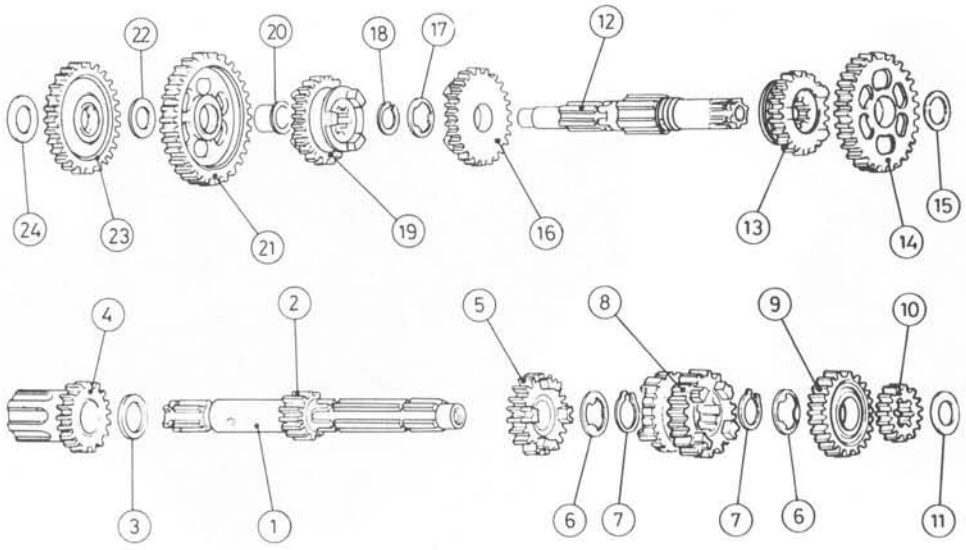


Fig. 1.10 Gearbox components – CB125 T, T2, TA and TB

1 *Input shaft*
2 *Input shaft 1st gear pinion*
3 *Thrust washer*
4 *Kickstart driven gear/clutch mounting sleeve*
5 *Input shaft 3rd gear pinion*
6 *Splined thrust washer – 2 off*
7 *Circlip – 2 off*
8 *Input shaft 4th gear pinion*
9 *Input shaft 5th gear pinion*
10 *Input shaft 2nd gear pinion*
11 *Thrust washer*
12 *Output shaft*
13 *Output shaft 5th gear pinion*
14 *Output shaft 2nd gear pinion*
15 *Thrust washer*
16 *Output shaft 4th gear pinion*
17 *Splined thrust washer*
18 *Circlip*
19 *Output shaft 3rd gear pinion*
20 *Bush*
21 *Output shaft 1st gear pinion*
22 *Thrust washer*
23 *Kickstart idler gear*
24 *Thrust washer*

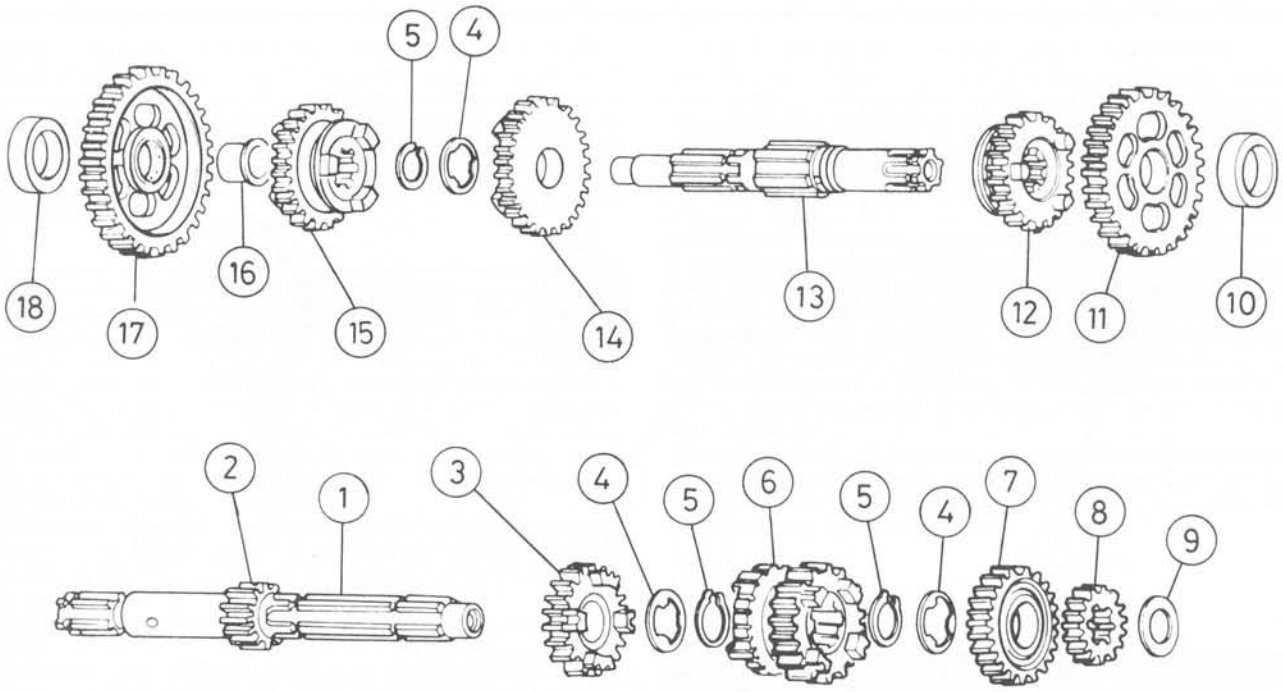


Fig. 1.11 Gearbox components – CB125 TD

1 *Input shaft*
2 *Input shaft 1st gear pinion*
3 *Input shaft 3rd gear pinion*
4 *Splined thrust washer – 3 off*
5 *Circlip – 3 off*
6 *Input shaft 4th gear pinion*
7 *Input shaft 5th gear pinion*
8 *Input shaft 2nd gear pinion*
9 *Thrust washer*
10 *Spacer*
11 *Output shaft 2nd gear pinion*
12 *Output shaft 5th gear pinion*
13 *Output shaft*
14 *Output shaft 4th gear pinion*
15 *Output shaft 3rd gear pinion*
16 *Bush*
17 *Output shaft 1st gear pinion*
18 *Spacer*

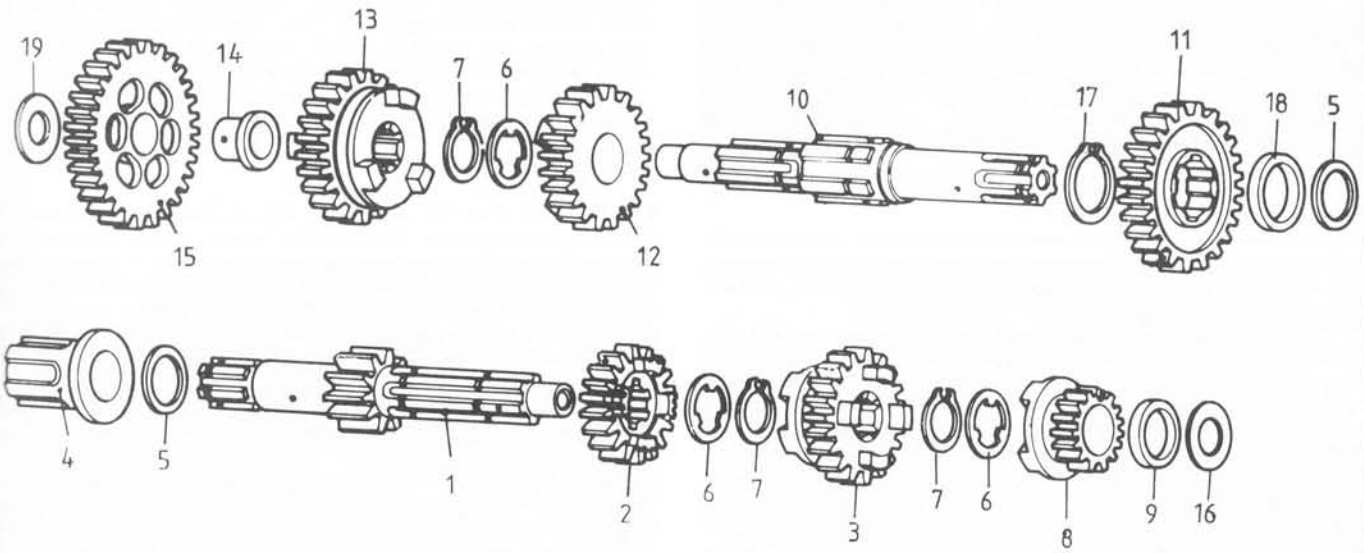


Fig. 1.12 Gearbox components – CD125 T

1 *Input shaft*
2 *Input shaft 3rd gear pinion*
3 *Input shaft 4th gear pinion*
4 *Clutch mounting sleeve*
5 *Thrust washer – 2 off*
6 *Splined thrust washer – 3 off*
7 *Circlip – 3 off*
8 *Input shaft 2nd gear pinion*
9 *Spacer*
10 *Output shaft*
11 *Output shaft 2nd gear pinion*
12 *Output shaft 4th gear pinion*
13 *Output shaft 3rd gear pinion*
14 *Bush*
15 *Output shaft 1st gear pinion*
16 *Thrust washer*
17 *Circlip*
18 *Spacer*
19 *Thrust washer*

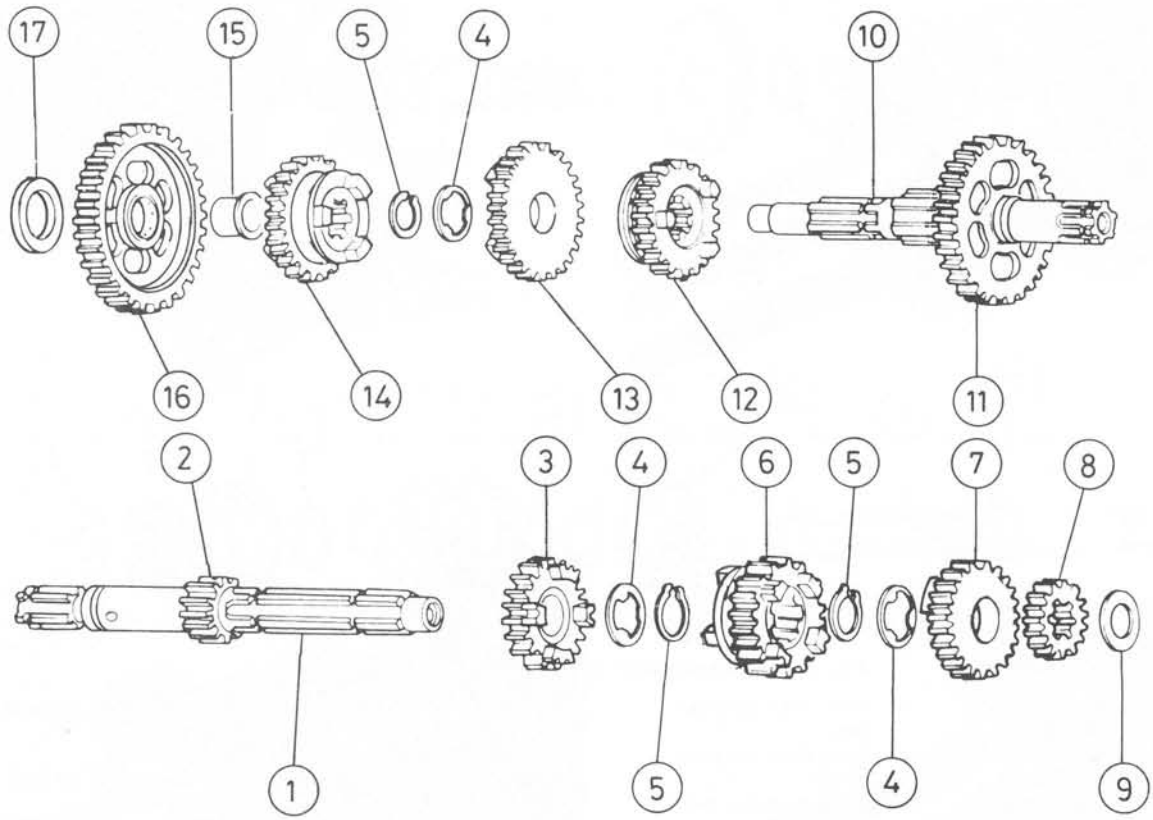


Fig. 1.13 Gearbox components – CM125 C

1 *Input shaft*
2 *Input shaft 1st gear pinion*
3 *Input shaft 3rd gear pinion*
4 *Splined thrust washer – 3 off*
5 *Circlip – 3 off*
6 *Input shaft 4th gear pinion*
7 *Input shaft 5th gear pinion*
8 *Input shaft 2nd gear pinion*
9 *Thrust washer*
10 *Output shaft*
11 *Output shaft 2nd gear pinion*
12 *Output shaft 5th gear pinion*
13 *Output shaft 4th gear pinion*
14 *Output shaft 3rd gear pinion*
15 *Bush*
16 *Output shaft 1st gear pinion*
17 *Spacer*

29 Engine reassembly: general

1 Before reassembly of the engine/gear unit, the various component parts should be cleaned thoroughly and placed on a sheet of clean paper, close to the working area.

2 Make sure all traces of old gaskets have been removed and that the mating surfaces are clean and undamaged. Great care should be taken when removing old gasket compound not to damage the mating surface. Most gasket compounds can be softened using a solvent such as methylated spirit, acetone or cellulose thinner. The type of solvent required will depend on the type of compound used. Gasket compound of the non-hardening type can be removed using a soft brass-wire brush of the type used for cleaning suede shoes. A considerable amount of scrubbing can take place without fear of harming the mating surfaces. Some difficulty may be encountered when attempting to remove gaskets of the self-vulcanising type, the use of which is becoming widespread, particularly as cylinder head and base gaskets. The gasket should be parted from the mating surface using a scalpel or a small chisel with a finely honed edge. Do not, however, resort to scraping with a sharp instrument unless necessary.

3 Gather together all the necessary tools and have available an oil can filled with clean engine oil. Make sure that all new gaskets and oil seals are to hand, also all replacement parts required. Nothing is more frustrating than having to stop in the middle of a reassembly sequence because a vital gasket or replacement has been overlooked. As a general rule each moving engine component should be lubricated thoroughly as it is fitted into position.

4 Make sure that the reassembly area is clean and that there is adequate working space. Refer to the torque and clearance setting whenever they are given. Many of the smaller bolts are easily sheared if overtightened. Always use the correct size screwdriver bit for the cross-head screws and never an ordinary screwdriver or punch. If the existing screws show evidence of maltreatment in the past, it is advisable to renew them as a complete set.

30 Reassembling the engine/gearbox unit: preparing the crankcases

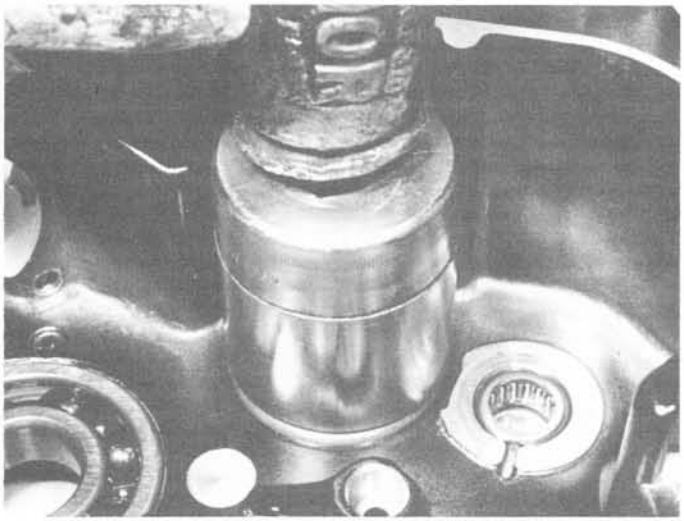
1 At this stage the crankcase castings should be absolutely clean and dry. Check particularly the threads into which the crankshaft securing bolts will be screwed. Crankshaft main bearing fitting is described in Section 20; if any other bearings are yet to be refitted, heat the casting as described in Section 14 of this Chapter and tap the bearing into its housing using a hammer and a tubular drift such as a socket spanner which bears only on the bearing outer race. Be careful to ensure that the bearing is kept absolutely square to its housing at all times.

2 Oil seals are fitted in a similar manner. Apply a thin smear of grease to the seal circumference to aid the task, then tap the seal into its housing using a hammer and a tubular drift which bears only on the hard outer edge of the seal, thus avoiding any risk of the seals being distorted. Tap each seal into place until its flat outer surface is just flush with the surrounding crankcase. This last point is particularly

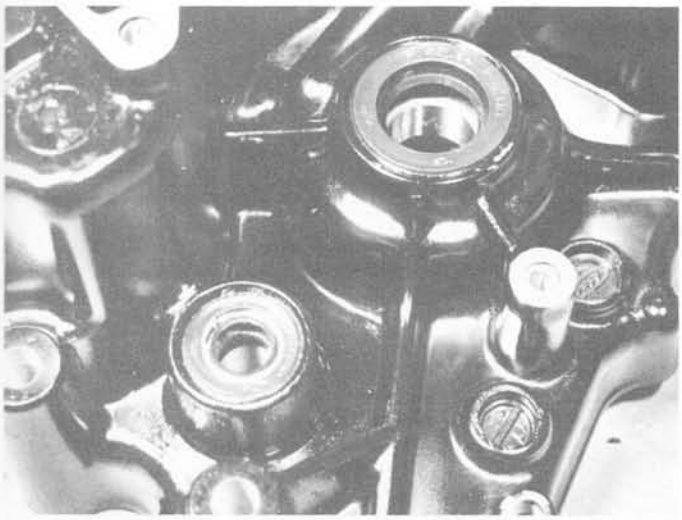
important on the output shaft seal, if an oilway is not to be blocked.
3 When all bearings and oil seals have been fitted, lightly lubricate the bearings with clean engine oil and apply a thin smear of grease to the sealing lips of each seal. Support the crankcase left-hand half on two wooden blocks so that its right-hand side is uppermost. Note that the casting must be raised from the work surface by a sufficient amount to allow the crankshaft and the output shaft left-hand ends to protrude when fitted.

31 Reassembling the engine/gearbox unit: fitting the crankshaft and gearbox components

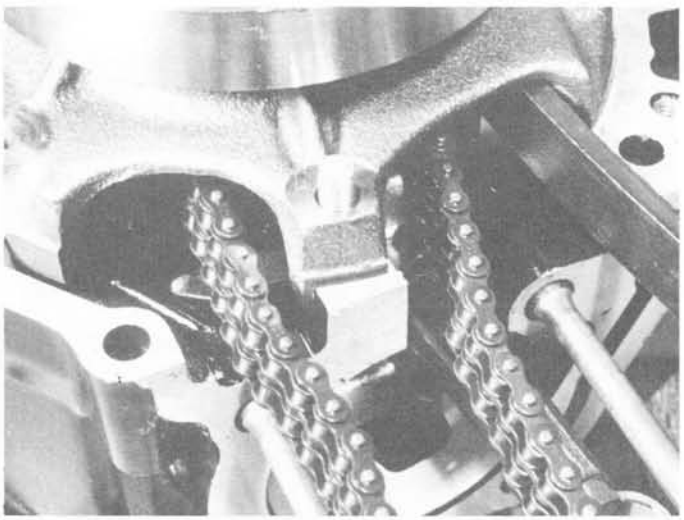
1 Refit the cam chain to the crankshaft sprocket. As noted during the removal of the chain (Section 13 of this Chapter), a certain amount of manoeuvring must take place to facilitate cam chain removal and refitting. Position the flywheel weights so that the cam chain can be passed either side of them between the cam chain tensioner blade locating pin at the rear of the cast retainer, and the guide blade locating slot at the front of the retainer.
2 Fit the assembly tensioner blade lower end over the locating pin and secure it with the plain washer and R-clip. The blade lower end is distinguishable from its upper end by the letter 'A' marked on the latter.
3 Guiding the left-hand connecting rod to prevent it from being damaged, carefully insert the crankshaft into the crankcase left-hand half. Rotate the centre main bearing holder so that the holder upper hole aligns with the stud set in the casing, and note that the cam chain front run must pass in front of this stud, while the chain rear run and the tensioner blade pass behind it.
4 Secure the bearing holder with the five retaining bolts and the single stud, noting that the single shorter bolt should be fitted in the hole at the bottom of the holder, opposite the stud. Locking compound must be used on the threads. Tighten the five bolts and the nut in a diagonal sequence and in stages, until the final torque setting of 1.0 - 1.4 kgf m (7 - 10 lbf ft) is reached. This will prevent distortion of the casing.
5 Check that the crankshaft is free to rotate smoothly and easily, then use a spout-type oil can to lubricate the big-end bearings and the centre main bearing with clean engine oil.
6 Place together the two gear clusters ensuring that all gear pinions are correctly meshed. Fit the two clusters to the crankcase left-hand half as a single unit, tapping the shaft ends lightly to seat them fully.
7 Check that the gear clusters are free to rotate smoothly and easily, then lubricate all bearing surfaces with clean engine oil.
8 Fit the neutral indicator switch contact to the left-hand end of the selector drum. Lubricate the selector drum with clean engine oil. Lower the drum, contact downwards, into the left-hand casing. Align the contact with the hole in the crankcase wall through which the neutral switch will pass.
9 Refit the selector forks one at a time, using the marks made on dismantling to ensure that each one is fitted the correct way round and in its correct position. Engage each fork's claw ends in its respective pinion groove, then rotate the fork so that its guide pin engages in the correct selector drum track. When all the forks are fitted, lubricate lightly the selector fork shaft and push it down through each selector fork shaft bore and into the locating hole in the crankcase. Lubricate the fork claw ends and guide pins, then check that the gearbox is operating correctly by rotating the selector drum to select each gear in turn. It will be necessary to rotate the input or output shafts to assist this. It is essential that any problems are rectified before reassembly work continues.
10 For those who, for whatever reason, do not have identifying marks or notes to assist in refitting the selector forks, note that the selector forks are marked by the manufacturer 'L', 'C' or 'R', identifying the left-hand, centre or right-hand fork.



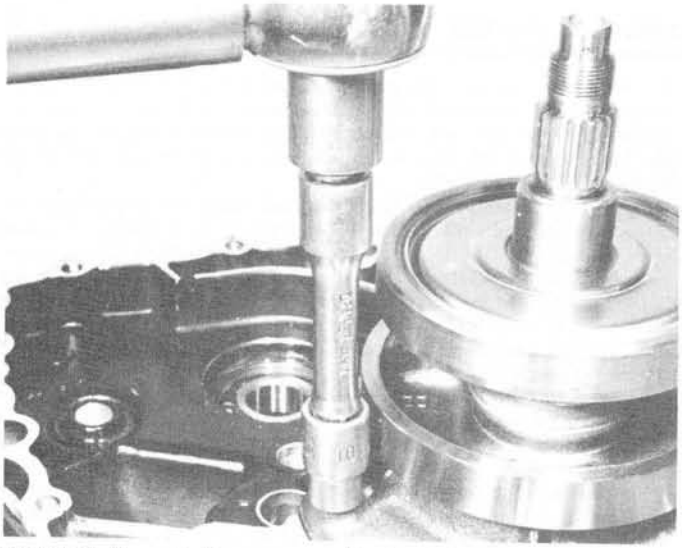
30.1 Using hammer and socket to tap bearings into place



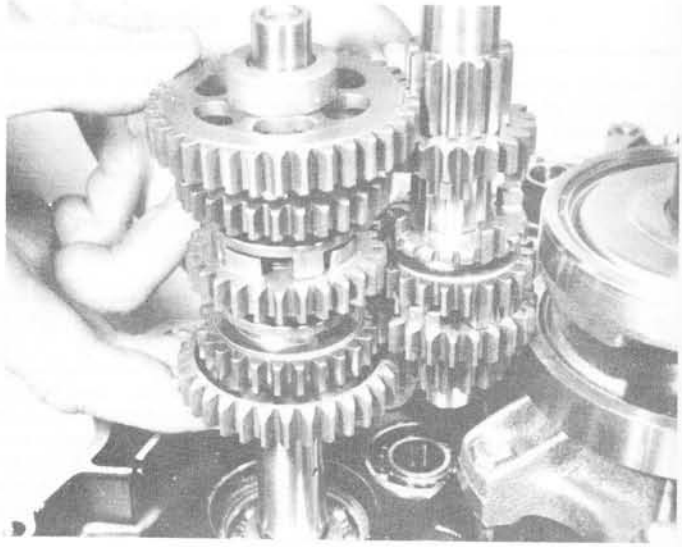
30.2 Only tap seals down until they are flush with surrounding crankcase – particularly applies to output shaft seal



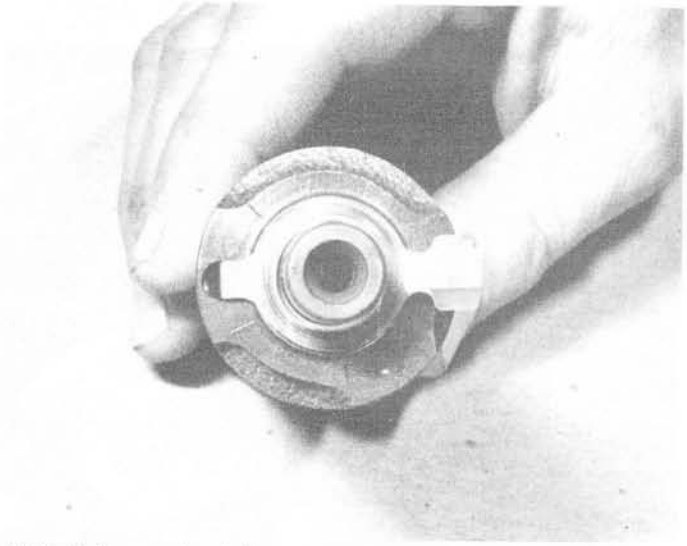
31.3 Ensure cam chain and tensioner blade are positioned correctly



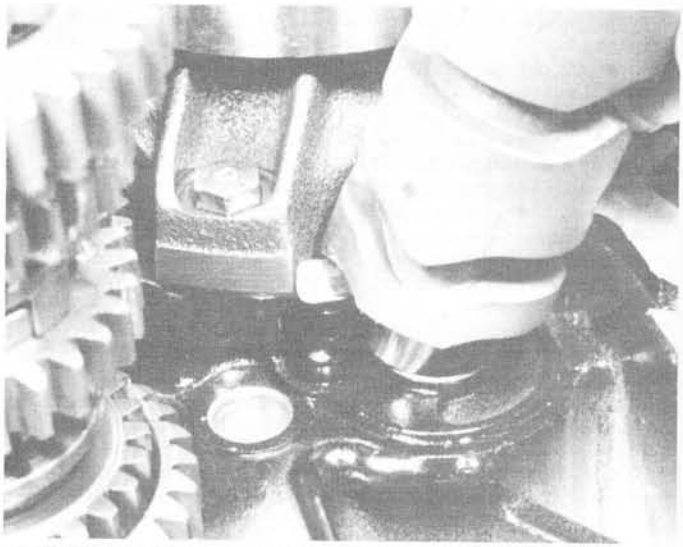
31.4 Apply thread locking compound before tightening main bearing holder bolts and nut to specified torque setting



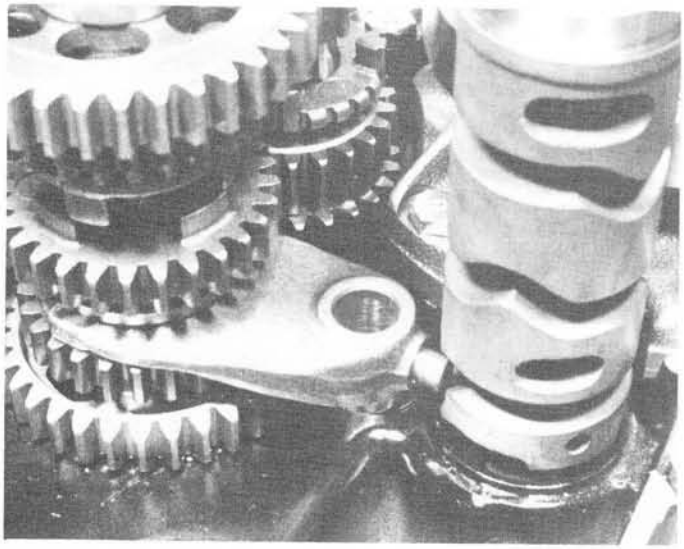
31.6 Fit gear clusters as a single unit



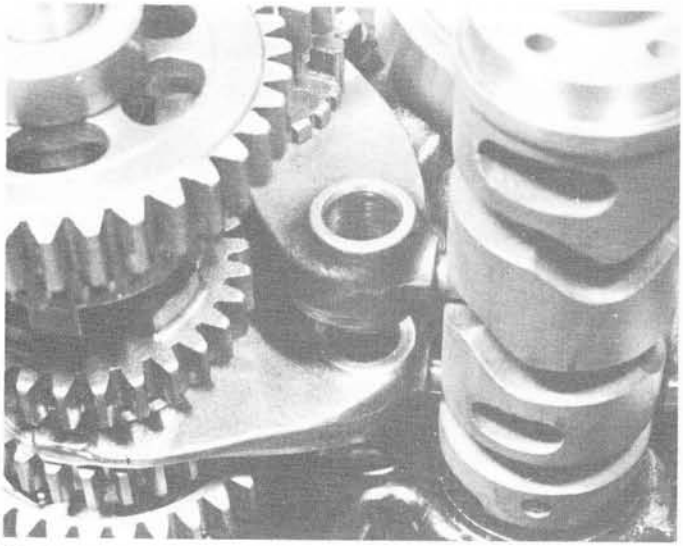
31.8a Refit neutral switch contact to selector drum



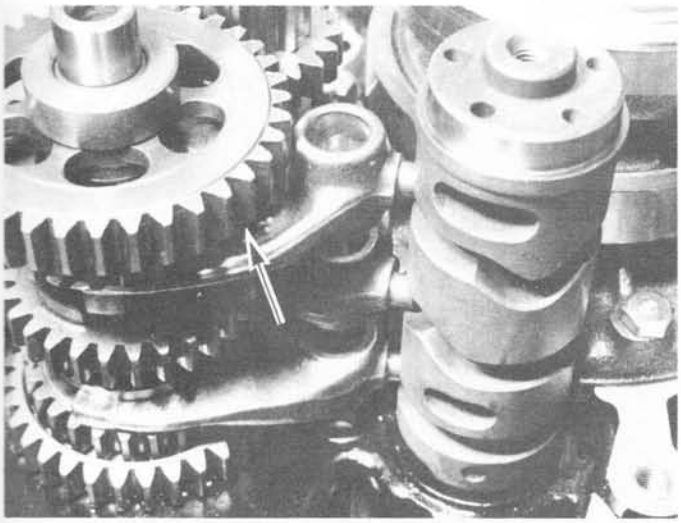
31.8b Align switch contact with switch when fitting selector drum



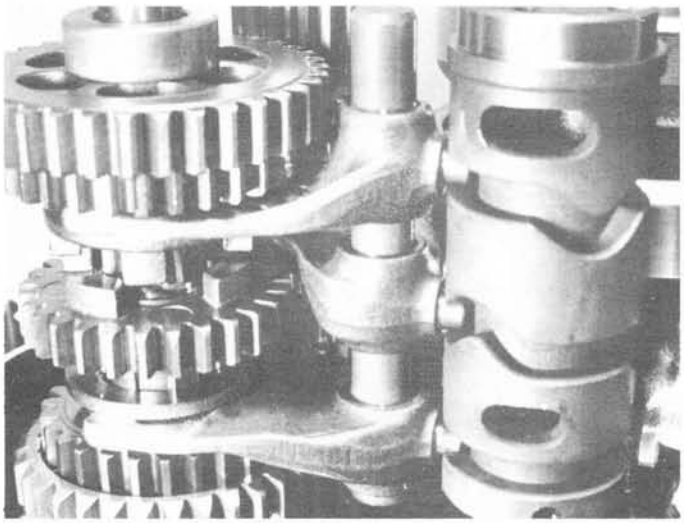
31.10a Refit left-hand selector fork; surface marked 'L' faces to left ...



31.10b ... centre selector fork, surface marked 'C' faces to left ...



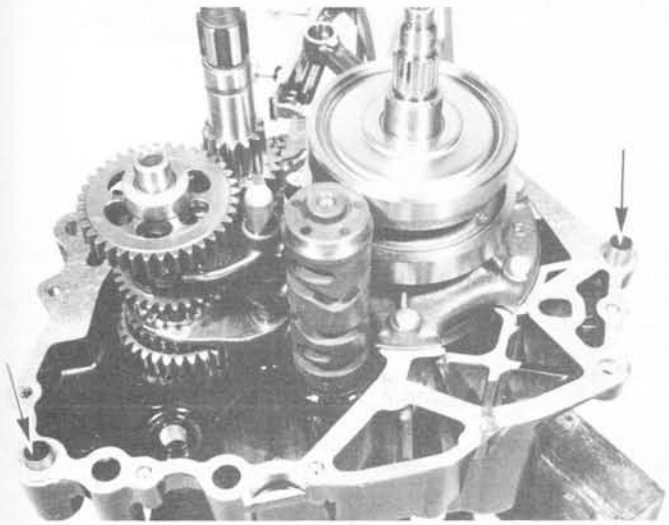
31.10c ... and right-hand selector fork; surface marked 'R' (arrowed) faces to right on all models except CM125 C



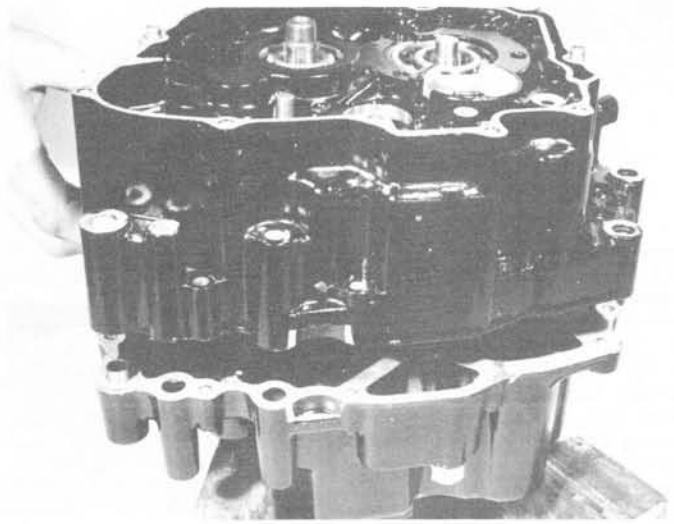
31.10d Insert selector fork shaft to complete gearbox reassembly

32 Reassembling the engine/gearbox unit: refitting the crankcase right-hand half

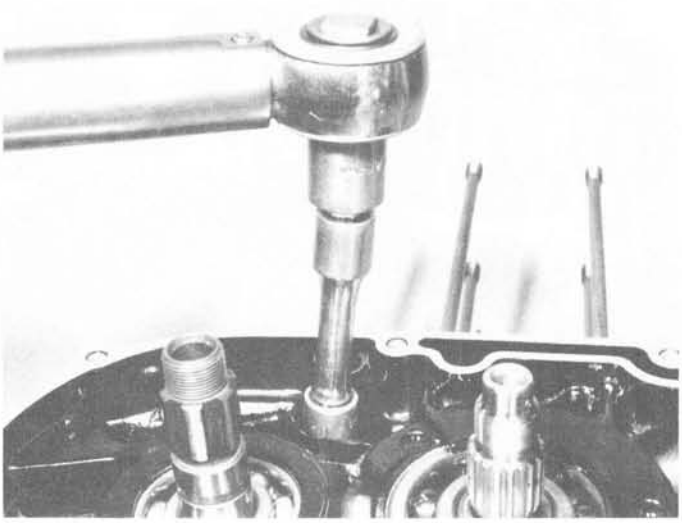
1 Check that nothing has been omitted from the crankcase and then lubricate thoroughly all working surfaces.
2 Fit the two crankcase locating dowels in the crankcase gasket surface. Fit a new gasket on the crankcase left-hand half; no jointing compound should be necessary.
3 Fit the crankcase right-hand half over the shaft ends and push the casting down into place. Give a few gentle taps with a soft-faced mallet to drive the crankcase half fully into place. Do not use excessive force, and be careful to ensure that the two crankcase halves are square to each other. If the crankcase right-hand half jams, pull it off and find out what is causing the problem before any damage is done.
4 When the crankcase halves have mated correctly insert the eight retaining screws then tighten the screws in small stages and in a diagonal sequence to a torque setting of 1.0 - 1.4 kgf m (7 - 10 lb ft).
5 Invert the engine/gearbox unit, taking care that the cam chain does not drop into the crankcase, then fit and tighten securely the two remaining crankcase screws.
6 When all crankcase screws have been tightened securely, check that the crankshaft is free to rotate smoothly, feeding the cam chain by hand to prevent it from jamming. Pull the chain tight and fasten its upper end so that it cannot fall back inside the crankcase. Check that the gearbox shafts are also free to rotate. If any undue stiffness or other problem is encountered the cause must be found and rectified before reassembly can continue.



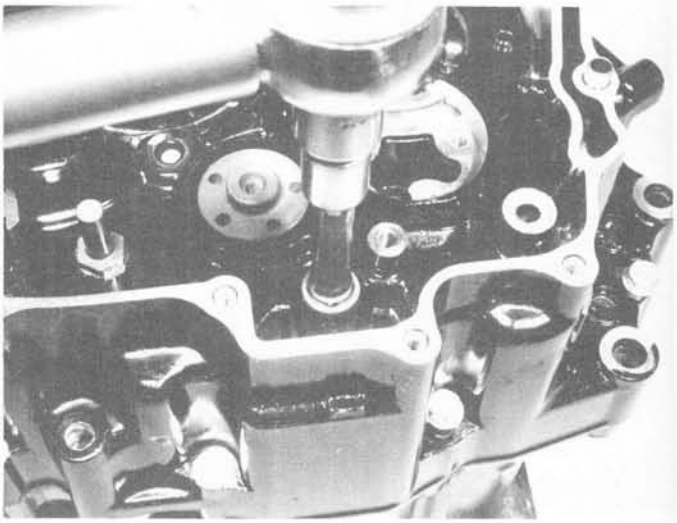
32.2 Always use a new gasket to seal crankcase joint – note two locating dowels (arrowed)



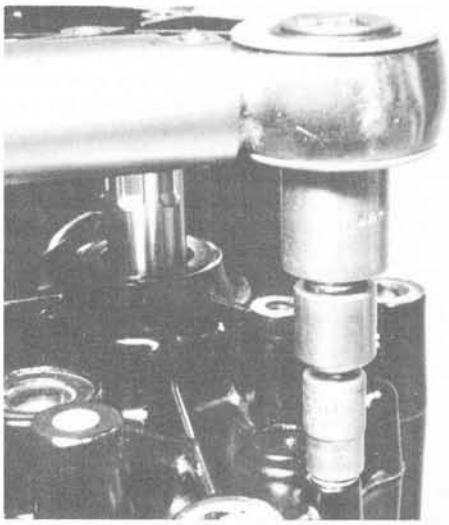
32.3 Lower crankcase right-hand half into place



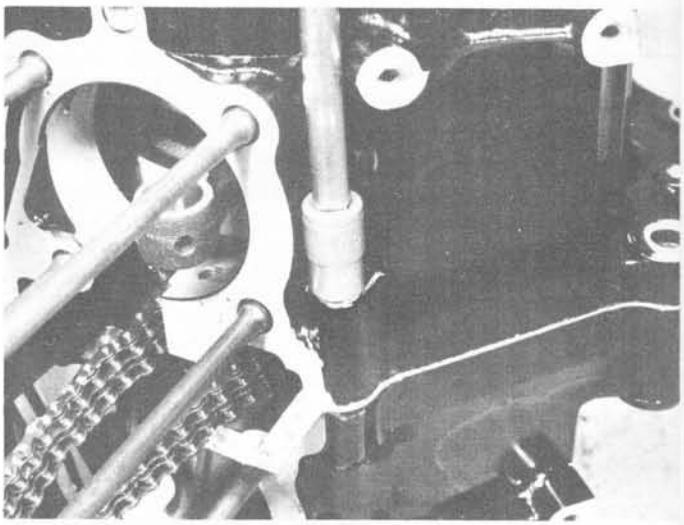
32.4a Using suitable attachments to reach those screws in recesses ...



32.4b ... tighten crankcase retaining screws to specified torque setting



32.5a Do not omit screws on crankcase left-hand side – to the rear of output shaft ...



32.5b ... and in front of crankcase mouth

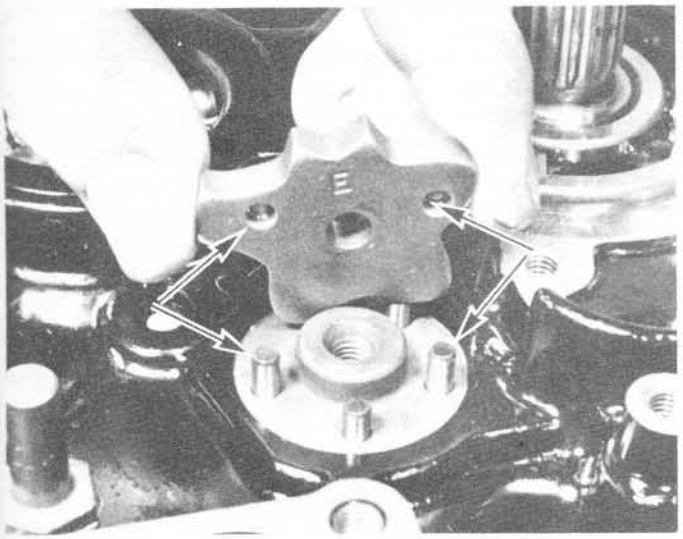
33 Reassembling the engine/gearbox unit: refitting the gear selector external components

1 To protect the sealing lips of the gearchange shaft oil seal, wrap a thin layer of tape around the shaft splines, or apply a thick layer of grease. Carefully push the gearchange shaft through the crankcases from right to left, rotating it so that it comes to rest with the return spring stop that is set in the crankcase wall protruding through the aperture in the selector pawl assembly. The two ends of the gearchange return spring should pass one on each side of the spring stop, as shown in the accompanying photograph.

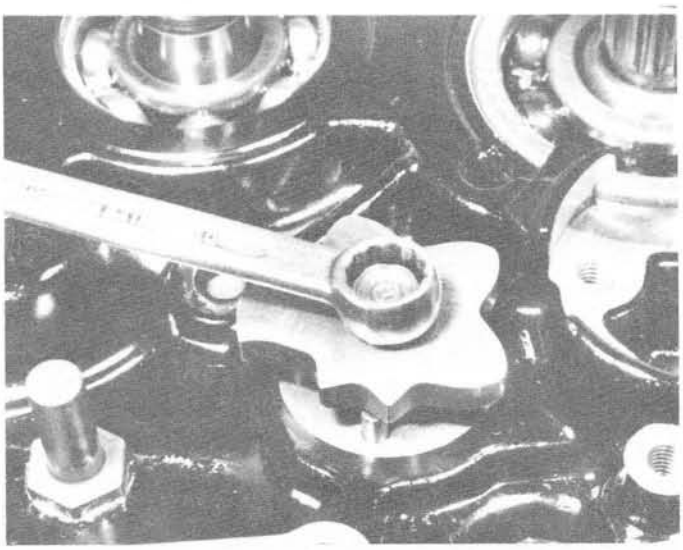
2 Insert the selector pins in their holes in the selector drum right-hand end. Push the pins firmly into place and note that two will be protruding slightly. Refit the camplate, aligning the two holes in its reverse face with the protruding pins. Apply thread locking compound to the camplate retaining bolt, then refit and tighten the bolt.

3 Fit together the detent arm and its spring and place them over the raised lug on the crankcase wall. Apply thread locking compound and then fit the shouldered bolt while holding the detent arm in place against spring pressure, and gradually tighten the bolt until the detent arm is supported on the bolt shoulder. Check that the arm pivots without stiffness and returns positively under spring pressure.

4 Refit temporarily the gearchange lever to check that all gears can be selected with relative ease. The gearchange action, when tried in this way, will always be much stiffer than when the engine is running and the correct amount of oil is present. If the action appears to be unduly stiff or awkward, and if one or more gear ratios cannot be selected at all, the cause must be found and rectified before assembly work can continue.

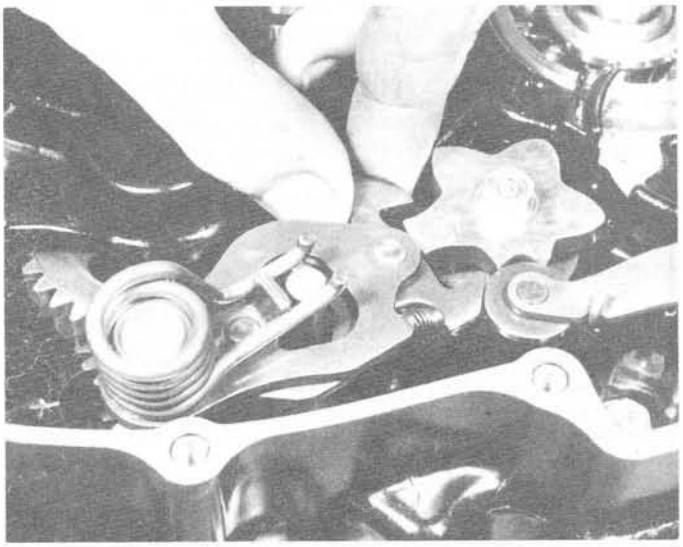


33.2a Holes in camplate rear face (arrowed) must engage on protruding pins (arrowed)

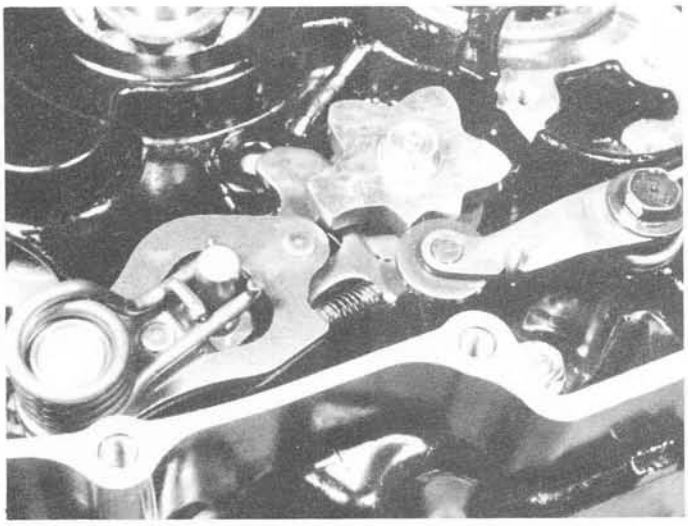


33.2b Apply thread locking compound to camplate retaining bolt

33.3 Check that detent arm is free to move after retaining bolt has been tightened



33.4a Gearchange shaft can be fitted after camplate and detent arm – press back claw plate to clear camplate ...



33.4b ... then push shaft fully into place and release claw plate – note position of gearchange return spring ends

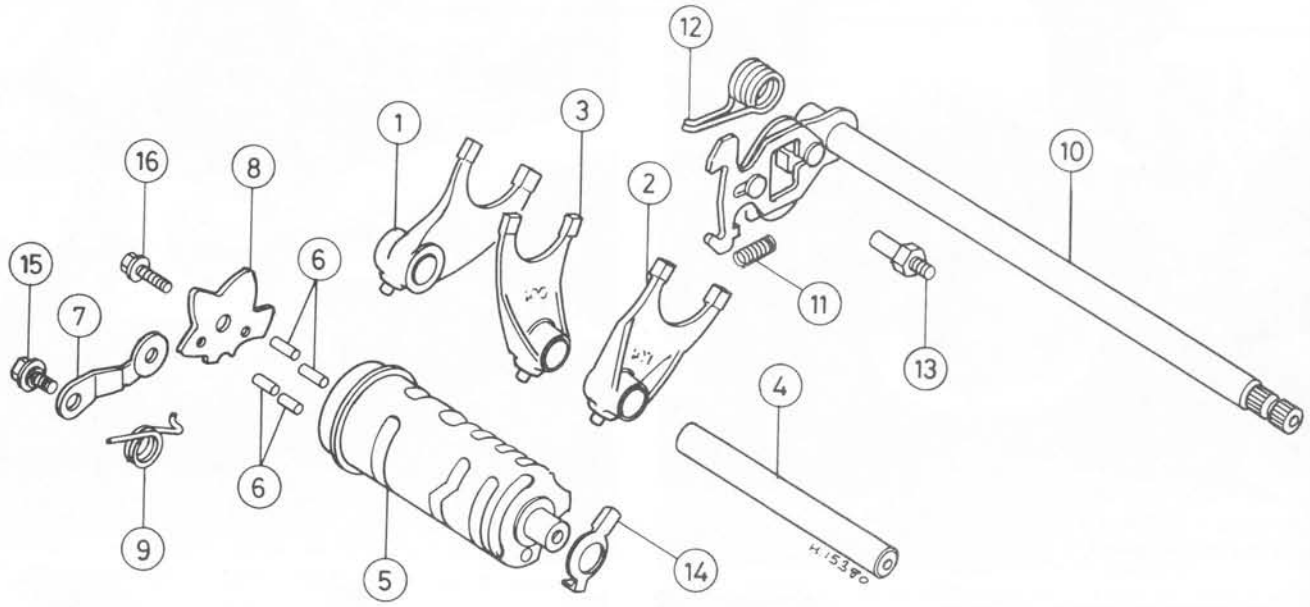


Fig. 1.14 Gear selector components – CB and CM125

1 *Right-hand selector fork*
2 *Left-hand selector fork*
3 *Centre selector fork*
4 *Selector fork rod*
5 *Selector drum*
6 *Selector pin – 4 off*
7 *Detent arm*
8 *Camplate*
9 *Return spring*
10 *Gearchange shaft*
11 *Spring*
12 *Return spring*
13 *Return spring stop*
14 *Neutral contact plate*
15 *Bolt*
16 *Bolt*

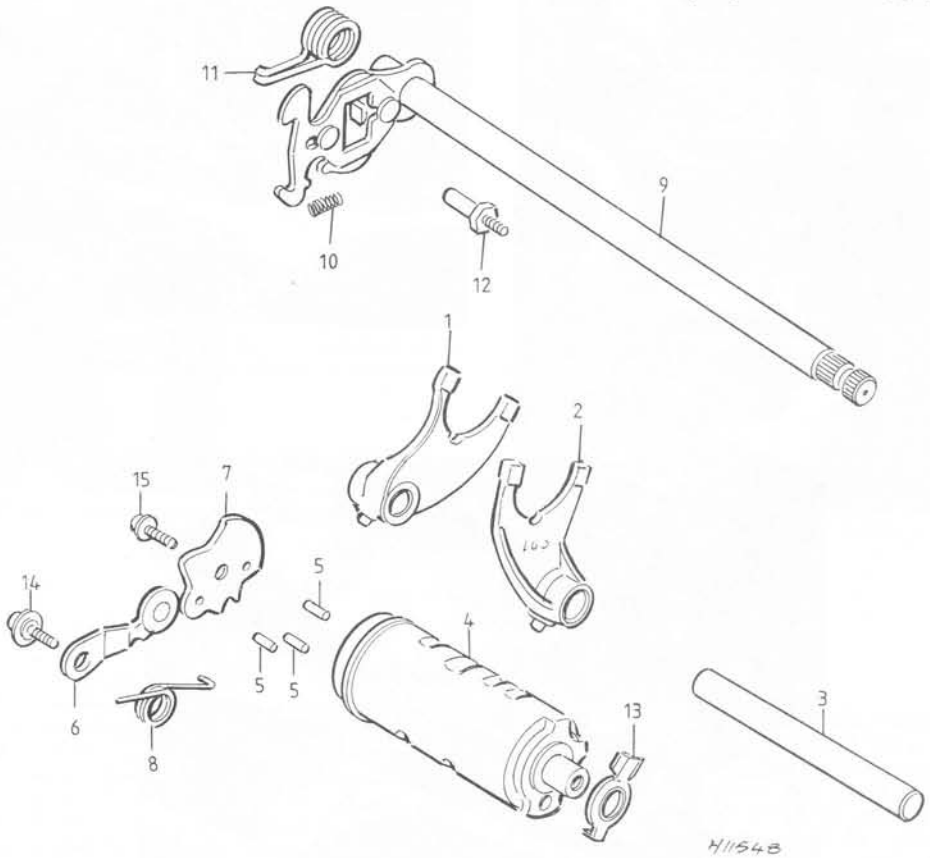


Fig. 1.15 Gear selector components – CD125 T

1 *Selector fork*
2 *Selector fork*
3 *Selector fork rod*
4 *Selector drum*
5 *Selector pin – 3 off*
6 *Detent arm*
7 *Camplate*
8 *Return spring*
9 *Gearchange shaft*
10 *Spring*
11 *Return spring*
12 *Return spring stop*
13 *Neutral contact plate*
14 *Bolt*
15 *Bolt*

34 Reassembling the engine/gearbox unit: refitting the kickstart assembly – CB125 T, T2, TA and TB models

1 Rebuild the kickstart assembly as described in Section 25, then offer up the assembly as a single unit, ensuring that the ratchet guide plate is correctly located in its groove in the crankcase wall, and that the ratchet stop is abutting correctly against the lug also cast in the crankcase wall.

2 Rotate the shaft as far as possible in an anticlockwise direction, checking that the assembly is functioning correctly. If all is well, return the shaft fully clockwise and, using a pair of pliers, bring the long, hooked, outer end of the return spring around in a clockwise direction and hook it over the return spring stop that projects from the crankcase wall.

35 Reassembling the engine/gearbox unit: refitting the clutch, primary drive and oil pump

1 On CB125 TD and CM125 C models, refit the large thrust washer over the clutch shaft (input shaft) , then lubricate and fit the bush over the shaft to rest against the thrust washer.

2 On all models, oil the clutch outer drum bush, then slide the outer drum on to the input shaft. Fit the thick metal spacer with its rounded surface facing outwards.

3 For ease of assembly, the clutch pressure plate, the clutch plain and friction plates, and the clutch centre should be assembled separately and offered up as a single unit. Place the clutch centre upside down on the work surface. If new friction plates are to be fitted, each should be coated with a light film of engine oil before assembly. Fit first a friction plate, then continue the assembly fitting plain and friction plates alternately to finish with a friction plate. Fit the clutch pressure plate, passing the four projecting pillars through the corresponding holes in the clutch centre, then align the projecting tongues on the friction plates to ensure that the assembly will slide easily into the clutch outer drum. Fit the whole clutch centre/pressure plate assembly into the clutch outer drum.

4 On CB125 T, T2, TA and TB models or on CD125 T models, secure the clutch assembly by fitting a new circlip. On CB125 TD or CM125 C models, refit the flat, plain, washer (if fitted), the Belville washer, noting that the surface marked 'OUTSIDE' must face outwards, and the slotted clutch centre retaining nut. Lock the input shaft by the method used on dismantling and tighten securely the retaining nut. The recommended torque setting is 4.0 - 5.0 kgf m (29 - 36 lbf ft).

5 On all models, refit the clutch springs, the clutch thrust plate and the four retaining bolts. Tighten the bolts evenly in a diagonal sequence and in two or three stages so that the spring pressure is applied evenly. Refit the clutch thrust bearing, the clutch pushrod cup, and the clutch pushrod.

6 Slide the primary drive gear on to the crankshaft using the marks or notes made on dismantling to ensure that it is refitted the correct way round. If no such marks or notes were made, ensure that the polished areas of the teeth, showing contact with the teeth of the clutch outer drum, are aligned with the teeth of the clutch outer drum. This is important to ensure that premature wear does not take place due to mismatched components being run together. Refit the thin oil pump drive gear in a similar fashion, then fit the Belville washer. Note that the surface marked 'OUTSIDE' must face outwards. When the washer is refitted, slid the small pin into its cross-drilling in the crankshaft end and position it exactly in the middle of the crankshaft so that its ends do not protrude. Refit the primary drive gear retaining nut. Lock the crankshaft by the method used on dismantling, then tighten the retaining nut to a torque setting of 4.5 - 6.0 kgf m (33 - 43 lbf ft). Finally, refit the oil feed quill and its spring in the crankshaft right-hand end, then check that the quill is free to slide in and out against spring pressure.

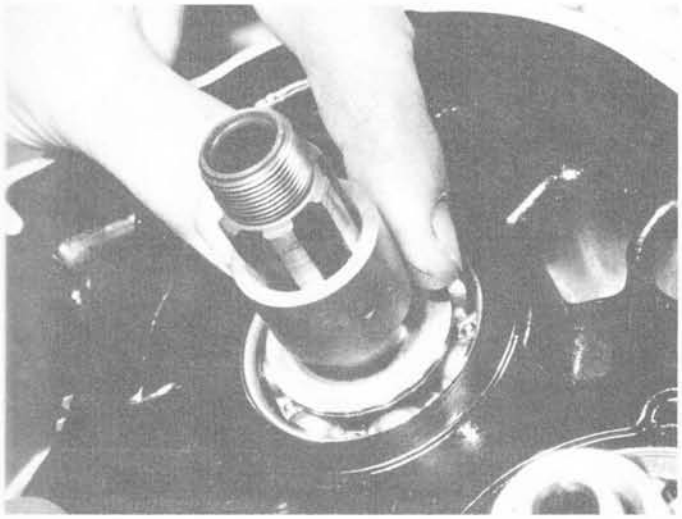
7 Fit the filter screen into its rubber retainer, then slip the retainer over the lower part of the oil pump, noting that its wider end and notch should be positioned as shown in photo 35.7b. Using a smear of grease to stick it in place, fit a new sealing O-ring to the recess in the raised boss which is set in the lower front corner of the crankcase. Always renew this O-ring or there is risk of losing oil pressure.

8 Offer up the oil pump, ensuring that the pump body fits securely into its locating recess and that the O-ring is not dislodged. Rotate the pump driven gear to align its teeth with those of the crankshaft-mounted drive gear. Rotate the engine so that the apertures in the driven gear align with those in the pump cover, then fit the three countersunk retaining screws. Carefully using an impact screwdriver, tighten the three screws evenly and securely. Rotate the engine to check that the oil pump is free to rotate with no binding or other tight spots.

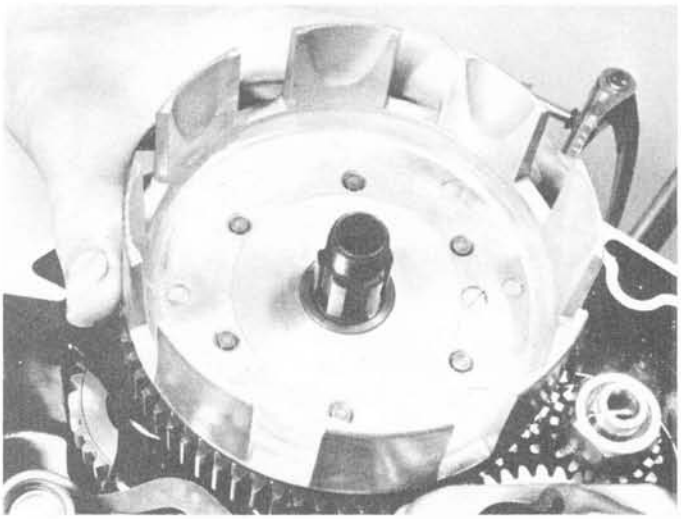
9 Place a new gasket over the right-hand engine cover locating dowels. Make a final check to ensure that all components are correctly fitted and that the working surfaces are lubricated with clean engine oil. Apply a smear of grease to the splines of the kickstart shaft and to the sealing lips of the kickstart shaft oil seal.

10 Offer up the crankcase right-hand cover and push it into place using firm hand pressure only. Where applicable, take great care to ensure that the sealing lips of the kickstart shaft oil seal are not damaged as the shaft splines pass through them; the application of grease to both surfaces will assist this. It may be necessary to rotate the engine until the tachometer drive components (where fitted) have aligned; check that the clutch operating arm is positoned correctly. It is permissible to seat the cover by applying a few gentle taps with a soft-faced mallet.

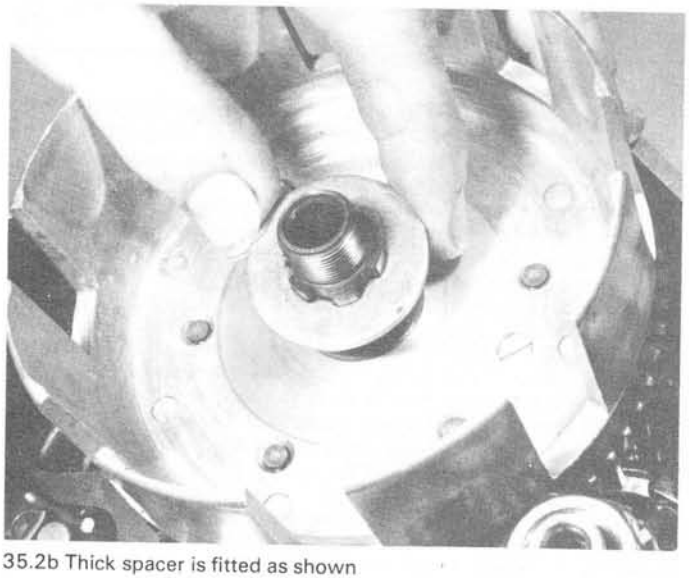
11 Fit the cover retaining screws and tighten them in two or three stages in a diagonal sequence. Do not forget the clutch cable bracket (where fitted).



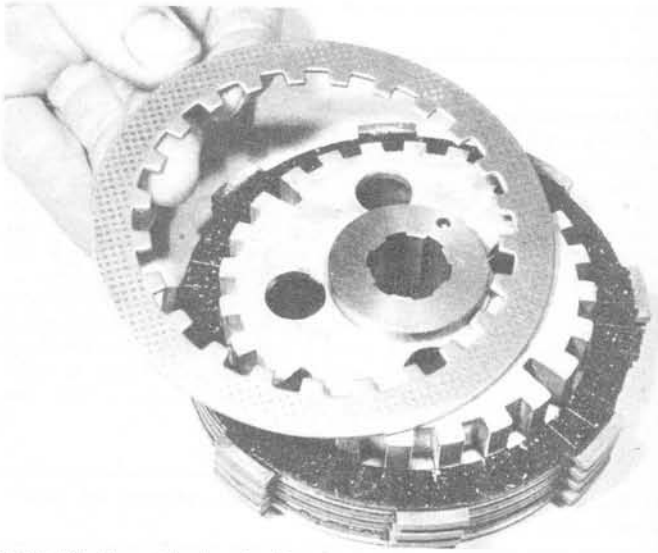
35.1 Fit large thrust washer, and lubricate bush before fitting



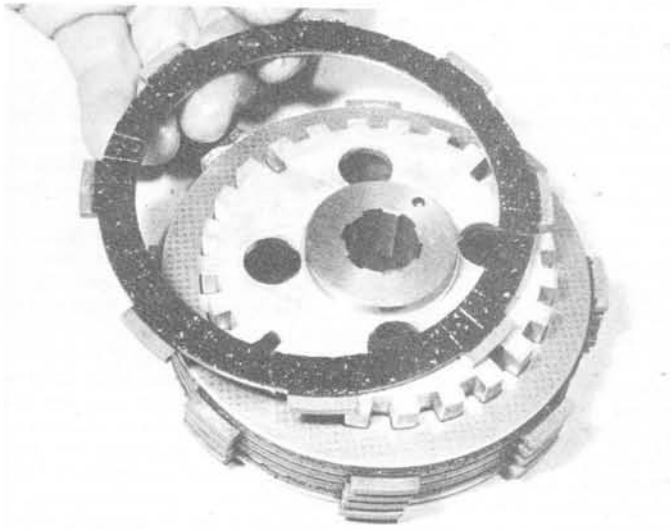
35.2a Place clutch outer drum over input shaft



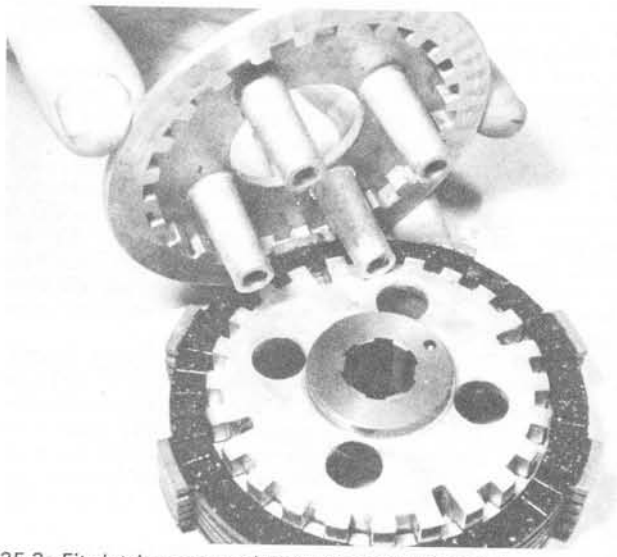
35.2b Thick spacer is fitted as shown



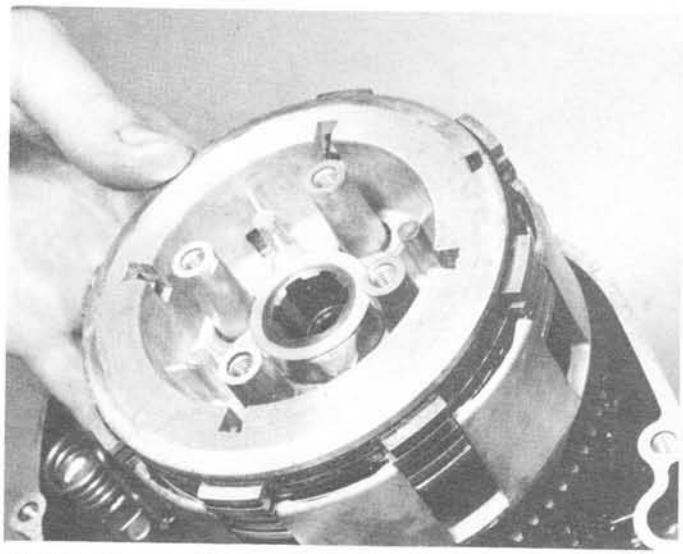
35.3a Fit alternately clutch plain plates ...



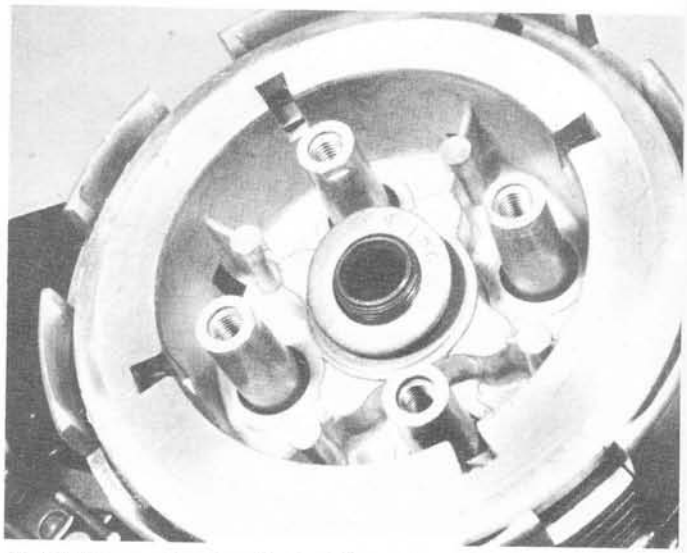
35.3b ... and friction plates to clutch centre



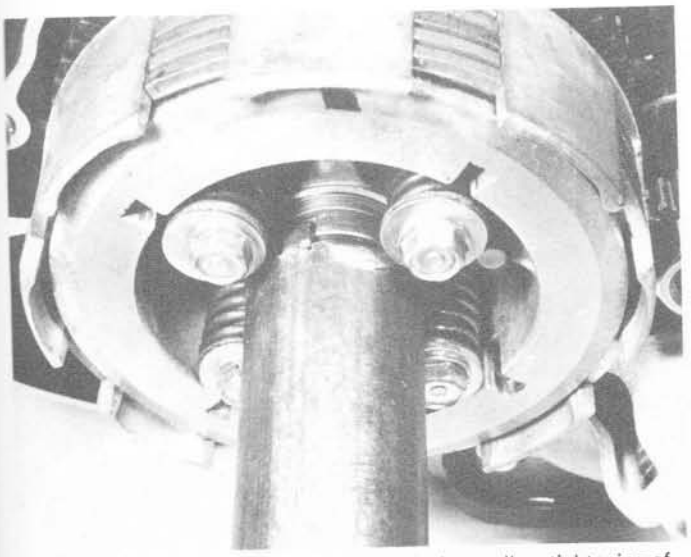
35.3c Fit clutch pressure plate to rear of clutch centre



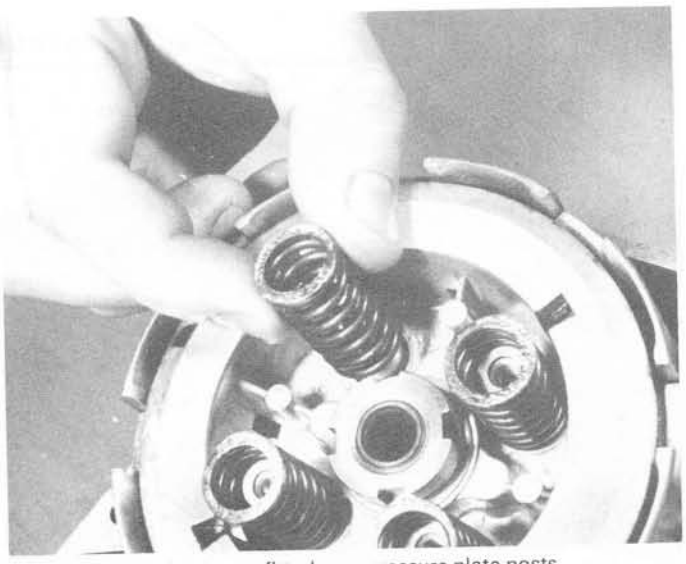
35.3d Place completed assembly in clutch outer drum



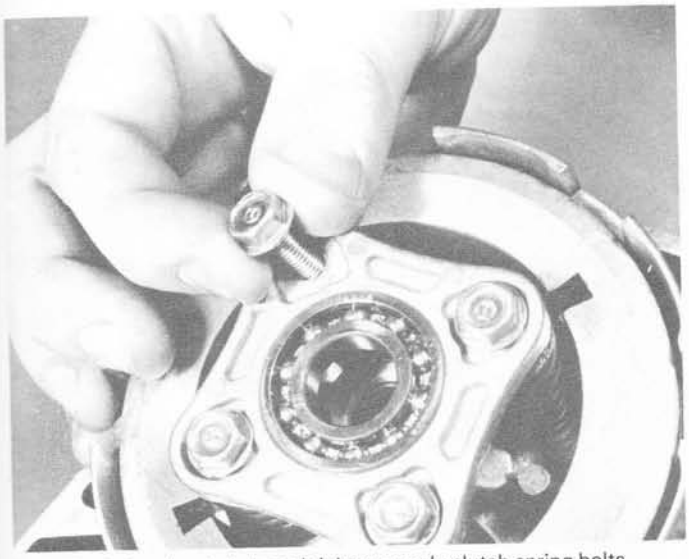
35.4a Where applicable, refit flat plain washer before refitting Belville washer



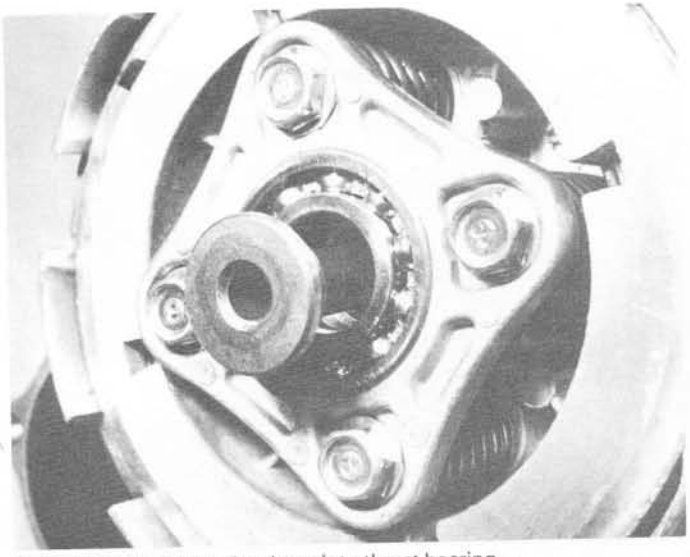
35.4b Temporarily refit clutch springs and bolts to allow tightening of the centre nut



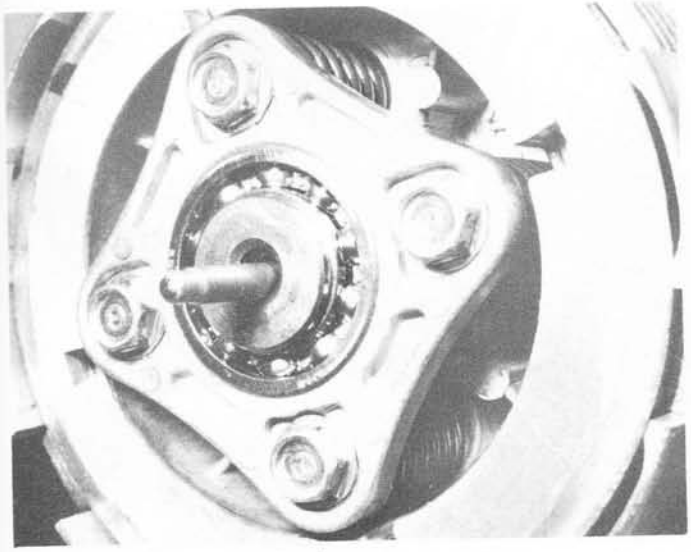
35.5a Clutch springs are refitted over pressure plate posts



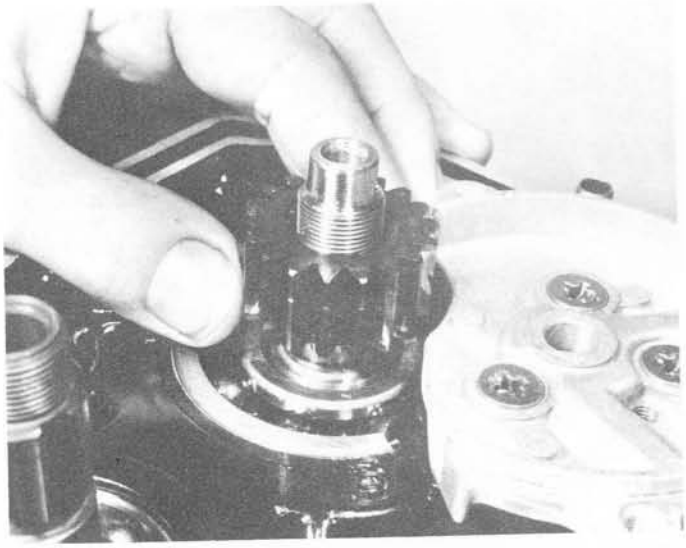
35.5b Position thrust plate and tighten evenly clutch spring bolts



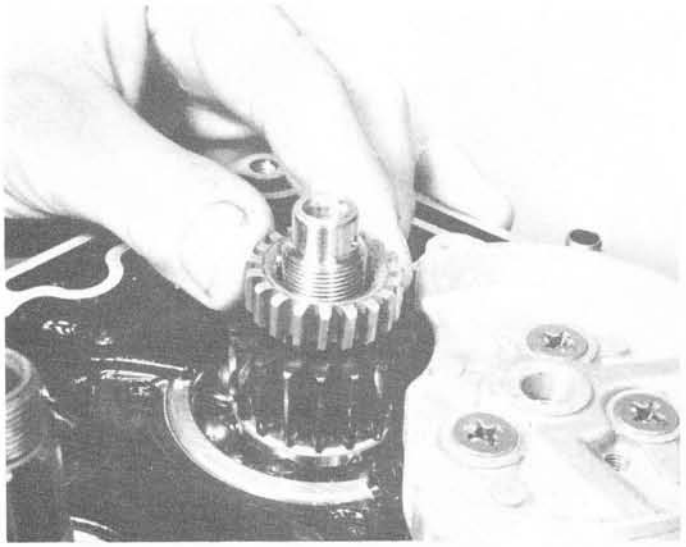
35.5c Insert clutch pushrod cup into thrust bearing ...



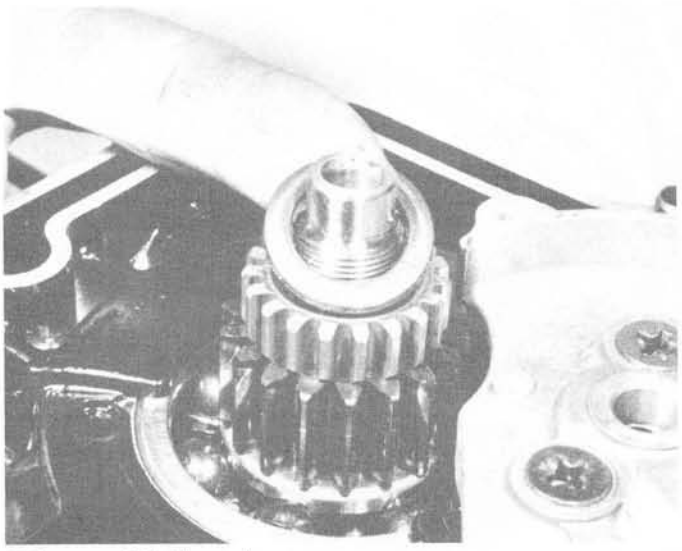
35.5d ... and refit clutch pushrod



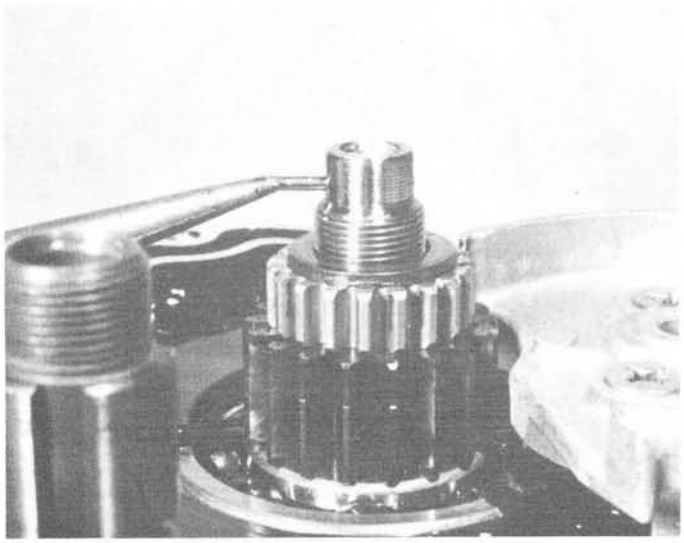
35.6a Slide primary drive gear on to the crankshaft ...



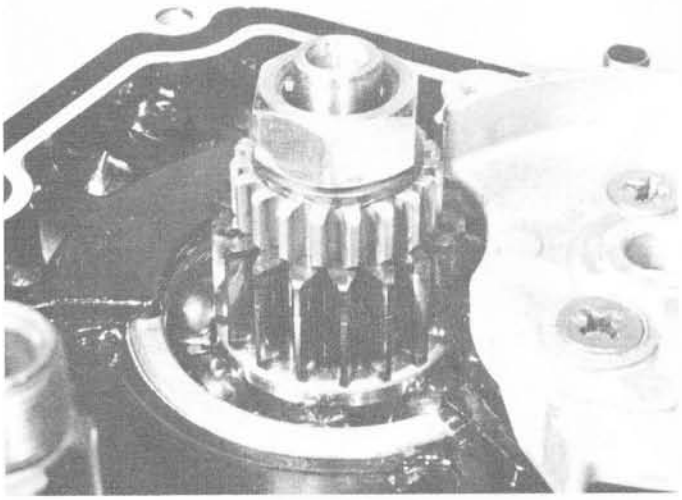
35.6b ... followed by oil pump drive gear ...



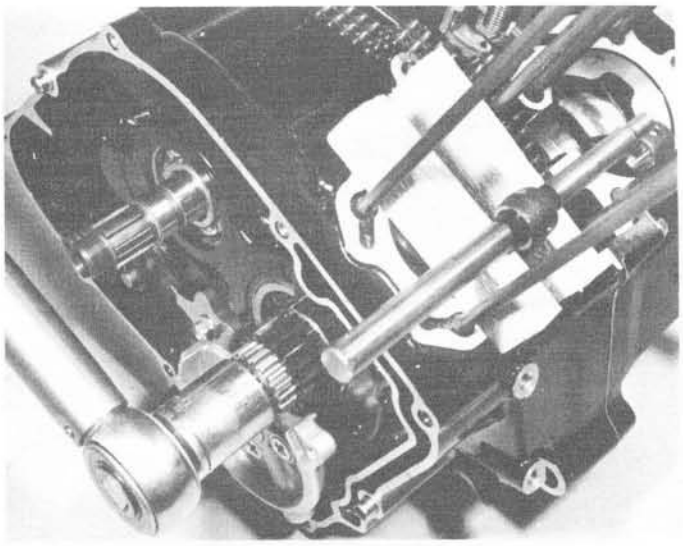
35.6c ... and Belville washer



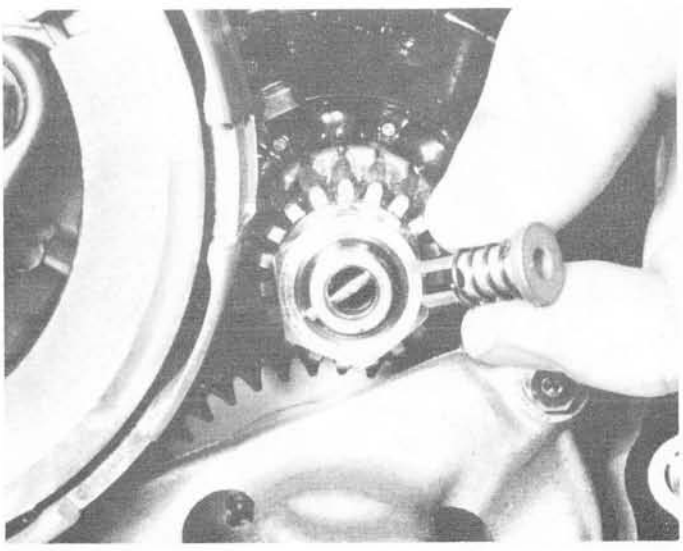
35.6d Do not forget to refit small pin ...



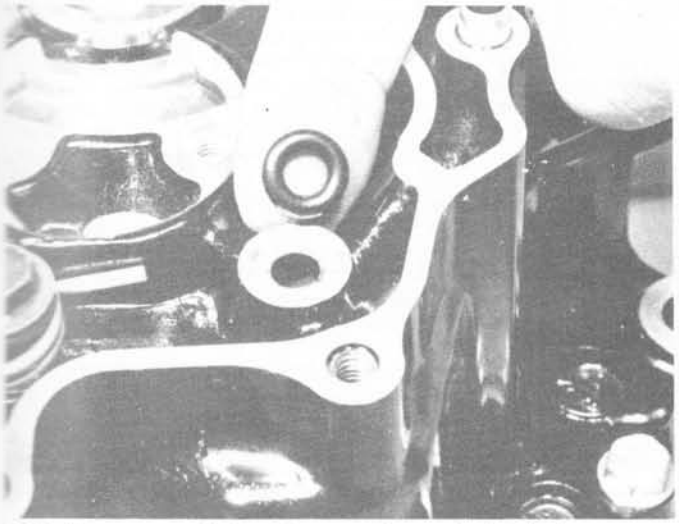
35.6e ... before screwing down retaining nut



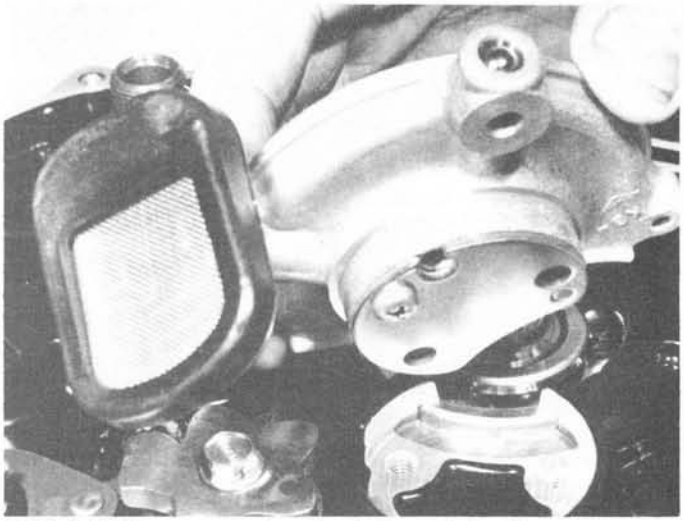
35.6f Crankshaft must be locked before retaining nut is released or tightened



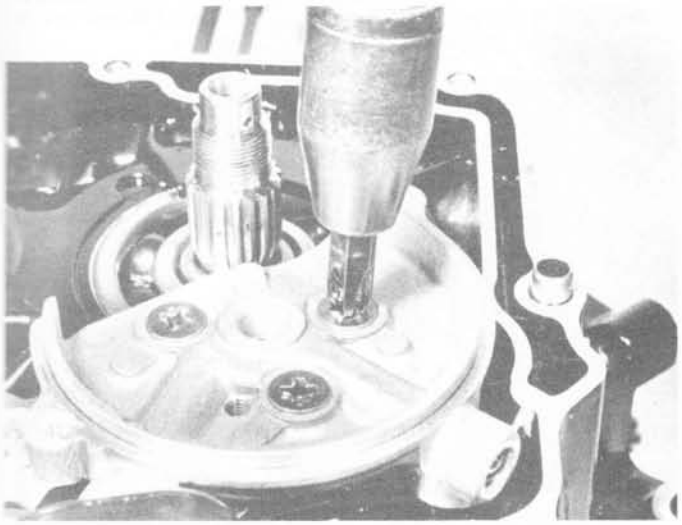
35.6g Do not omit oil feed quill and spring – check quill is free



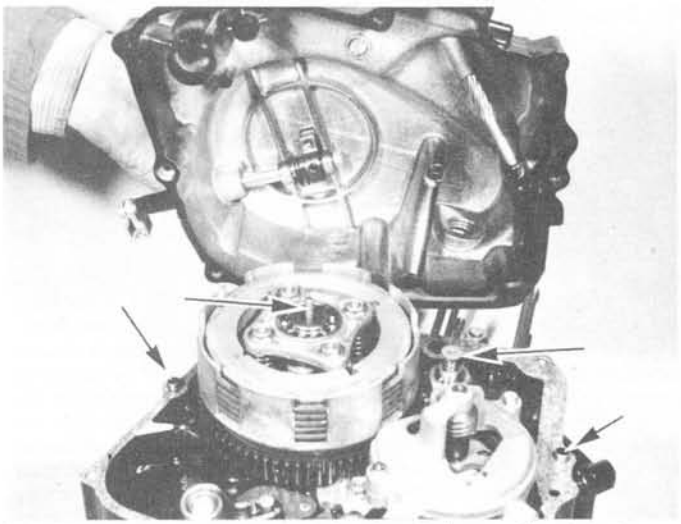
35.7a Always renew O-ring whenever oil pump is disturbed



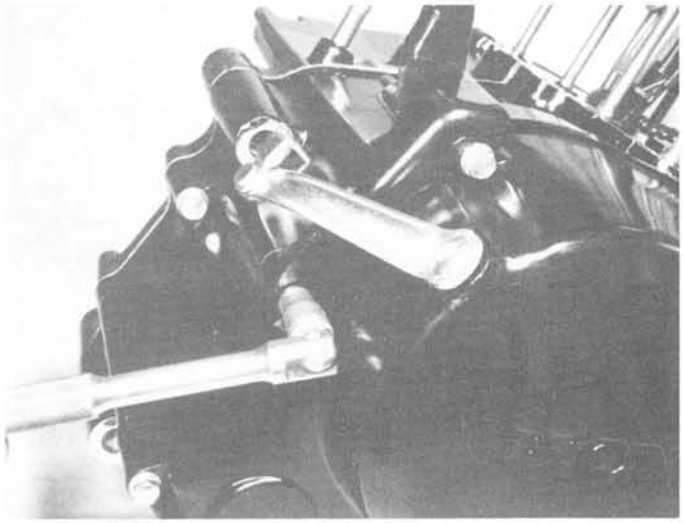
35.7b Refit filter screen and retainer before refitting oil pump assembly



35.8 Use impact driver to tighten pump retaining screws



35.9 Fit new gasket over two locating dowels (arrowed) and check that clutch pushrod and oil feed quill (arrowed) are in position



35.11 Do not omit clutch cable bracket (where fitted)

36 Reassembling the engine/gearbox unit: refitting the neutral indicator switch, starter components and the alternator and ignition components

CB125 T, T2, TA and TB models

1 Refit the neutral indicator switch in its bore in the crankcase wall; it is a simple push fit. Note the O-ring on the inner end of the switch body; if the O-ring is suspect it should be renewed or an oil leak may occur. Position the retaining plate which secures the switch body and refit and tighten the single shouldered bolt which retains the plate. Feed the neutral switch lead up through the rubber grommet in the crankcase wall.

2 Insert the alternator rotor locating pin into its crankshaft drilling. Refit the rotor, aligning its keyway with the pin and giving the centre of the rotor a gentle tap with a soft-faced mallet to seat it firmly. Refit the ATU, aligning the protrusion on its rear surface with the rotor keyway, then refit and tighten the rotor retaining bolt. Lock the crankshaft by the same method used on dismantling and tighten the rotor retaining bolt to a torque setting of 2.6 - 3.0 kgf m (19 - 22 lbf ft).

3 If the alternator stator was removed, it must now be refitted. Invert the crankcase cover and place it on a wooden surface so that it is firmly supported. The sealing grommet on the separate contact

breaker lead must be pressed firmly into its locating recess in the cover centre and the separate lead routed around the inside of the cover. Press the sealing grommet set around the stator and contact breaker leads into its recess in the rear wall of the cover. Offer up the stator, aligning the cutouts in its periphery with the stator retaining screw holes; take care not to trap the contact breaker lead which passes between the stator coils and the cover. Refit the retaining screws and use an impact screwdriver to tighten them securely.

4 Using a thin smear of grease to stick it in position, place a new crankcase cover gasket on the gasket surface. Offer up the crankcase left-hand cover and connect the neutral indicator switch lead at its snap connector, then press the cover firmly into position. Fit and tighten diagonally, in two or three stages, the cover screws. Press the main generator lead sealing grommet into its recess in the crankcase top surface.

5 Refit the contact breaker backplate, aligning the marks punched or scribed on dismantling thus restoring the ignition timing setting. Refit and tighten the backplate screws and connect the contact breaker wires to the spade terminal on the base of each contact breaker set; the yellow wire leads to the left-hand set and the blue wire to the right-hand set. The contact breaker gaps must be checked and reset and the ignition timing should be checked before the engine is started again; see Routine Maintenance.

CB125 TD, CD125 T and CM125 C models

6 Refit the neutral indicator switch as described in paragraph 1 of this Section, connect its lead and press the sealing grommet set around the lead into the recess in the crankcase wall.

7 Position the first crankcase cover gasket on the crankshaft gasket surface over the two dowel pins. Fit the spacer plate and the second gasket.

8 Fit the starter motor large driven sprocket over the crankshaft left-hand end with the oil seal facing outwards, then push the sprocket as far as possible down the length of the crankshaft end. Fit the driven sprocket retaining plate, noting that its two claws fit one on each side of the sprocket teeth, then refit and tighten securely the single retaining bolt.

9 Insert the rotor locating pin into its crankshaft drilling. Refit the alternator rotor, aligning its keyway with the locating pin. Rotate the starter driven sprocket in a clockwise direction to assist the clutch rollers in sliding on to the sprocket boss as the rotor and starter clutch assembly is pushed into place. Seat the rotor securely by giving its centre a gentle tap with a soft-faced mallet, then refit and tighten the rotor retaining bolt. Lock the crankshaft by the method used on dismantling and tighten the rotor retaining bolt to a torque setting of 5.5 - 6.5 kgf m (40 - 47 lbf ft). Check the starter clutch; it should be possible to spin easily and smoothly the driven sprocket in a clockwise direction, but the clutch should lock immediately the sprocket is rotated anticlockwise.

10 Check the condition of the O-ring on the starter motor boss, then apply a thin smear of grease to the O-ring. Connect the starter motor lead to the starter motor terminal, arranging the lead to run to the rear of the motor, behind the boss which protrudes from the starter motor body left-hand end, and slide the rubber terminal cover into position. Fit the starter motor, and secure it with the four retaining screws.

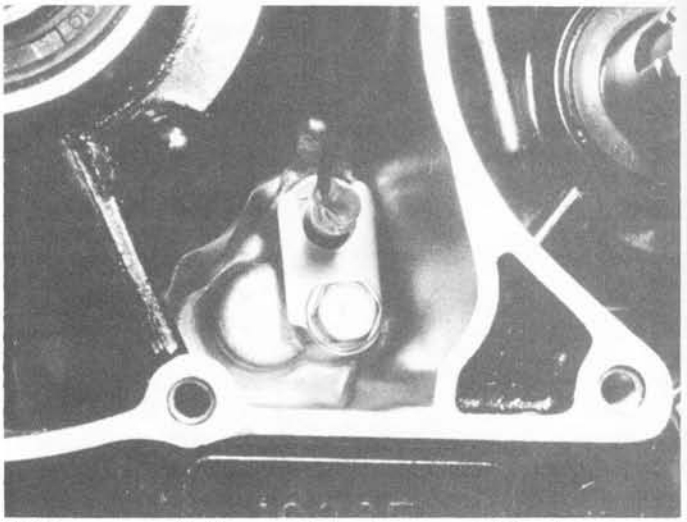
11 Engage the small drive sprocket on the starter chain, loop the chain over the alternator rotor, and engage it on the teeth of the large driven sprocket. The small drive sprocket is pushed over the starter motor shaft splines with its projecting boss facing towards the starter motor.

12 Refit the alternator stator and the ignition pulser coil(s). Invert the crankcase cover so that it is supported firmly. Refit first the ignition pulser coil that is furthest from the sealing grommet recess machined in the crankcase cover (CB125 TD only), then the alternator stator, then the second ignition pulser coil (on CB125 TD models only, the CD125 TC and CM125 C being fitted with only one pulser coil). It is important that the various components are fitted in the correct order to ensure that the wiring leads are routed correctly between the coils and the cover itself, but take care that the leads are not trapped as the retaining screws are tightened. Refit and tighten the cable securing clamps, then tighten securely all the retaining screws.

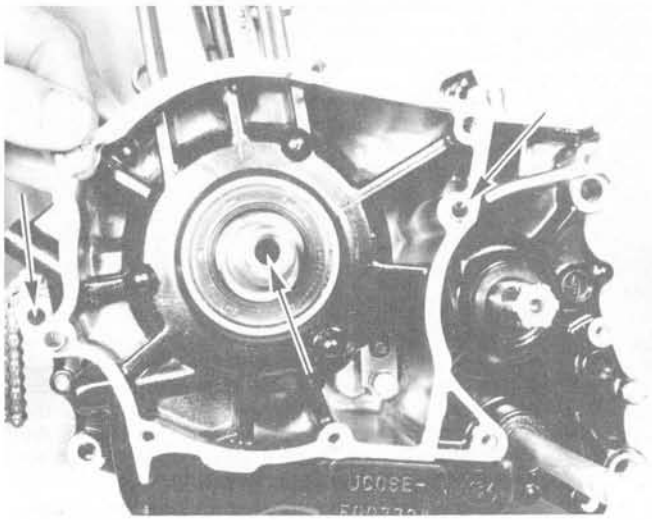
13 Offer up the crankcase left-hand cover. Push the cover into place using hand pressure only; do not use excessive force. Do not forget to press the starter motor lead into the clamp cast in the underside of the cover.

14 When the cover is fully seated, press the grommet set around the various wires into its recess in the crankcase top surface, then refit and tighten diagonally, in two or three stages, the cover retaining screws.

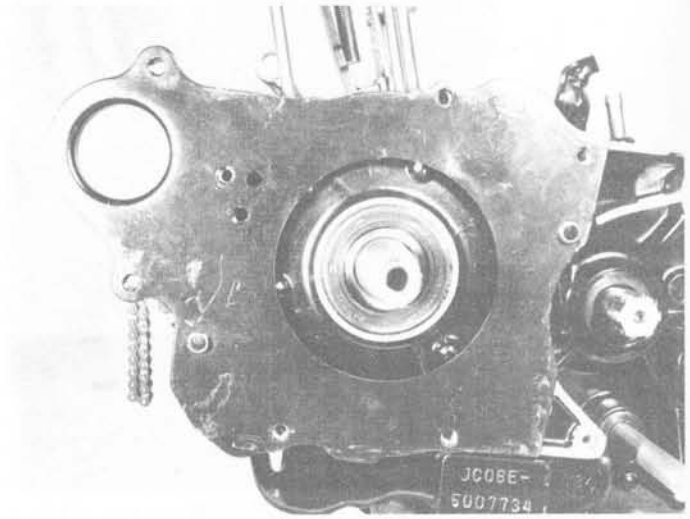
15 Do not refit the two inspection plugs until engine reassembly is complete and the ignition timing has been checked.



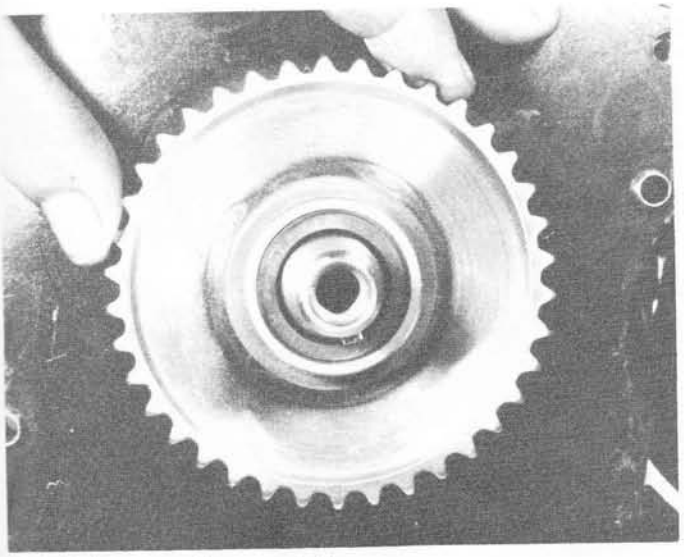
36.1 Insert neutral indicator switch and secure retaining plate



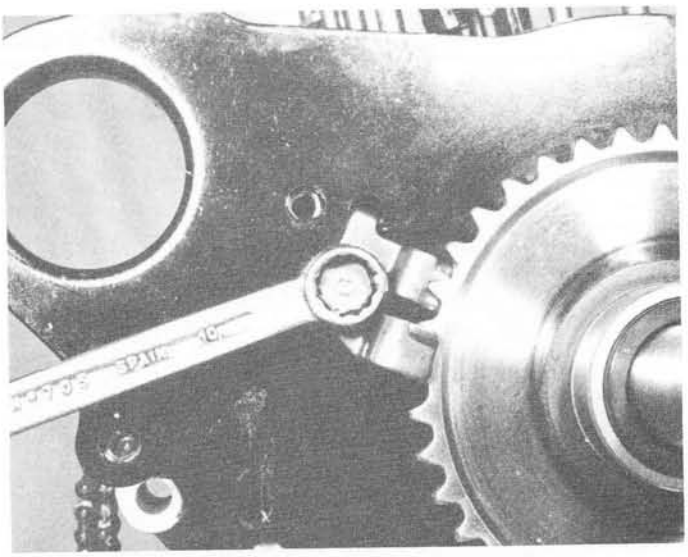
36.7a Fit new gasket over two locating dowels (arrowed) – note rotor key (arrowed)



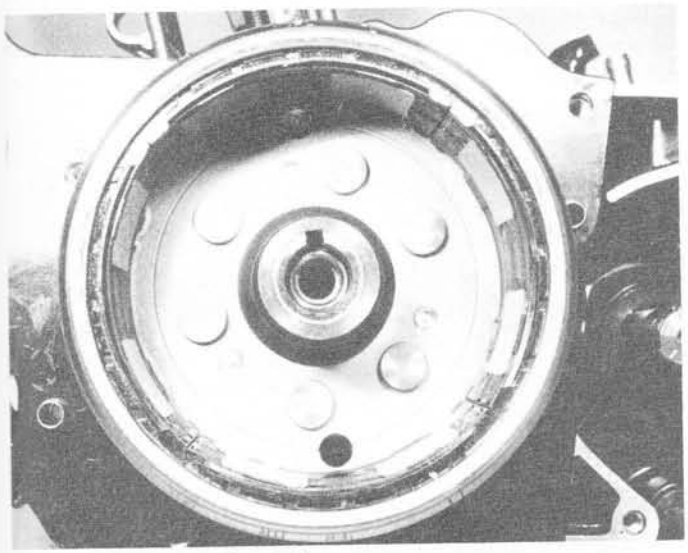
36.7b Spacer plate is also located by the two dowels



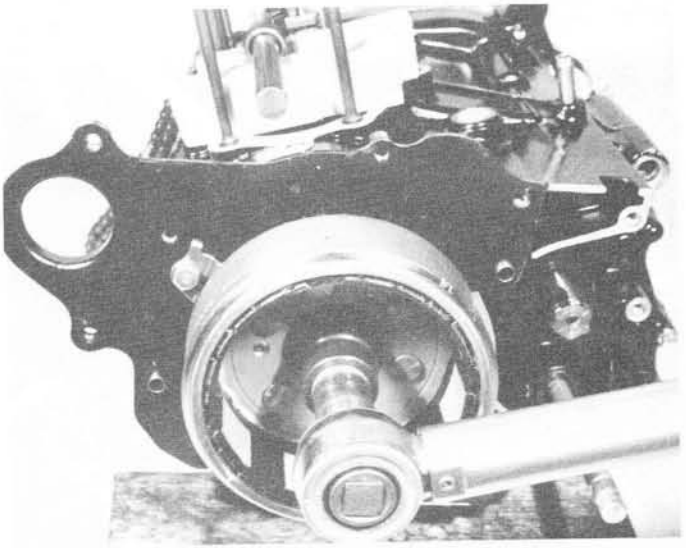
36.8a Refit starter driven sprocket ...



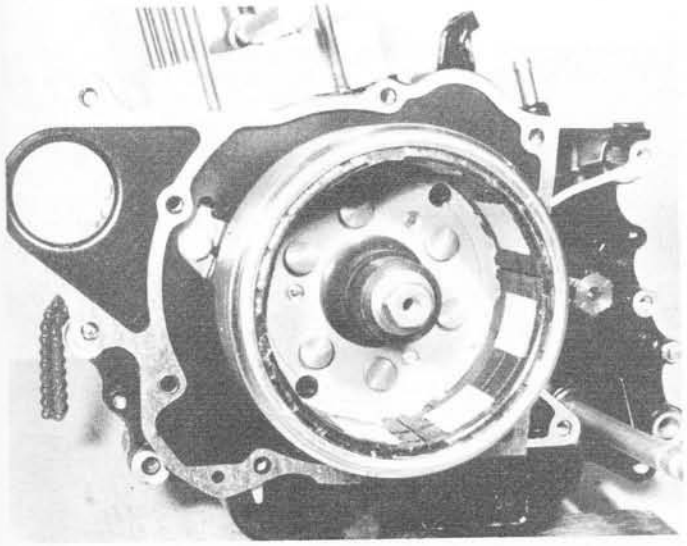
36.8b ... and fit as shown the sprocket retaining plate



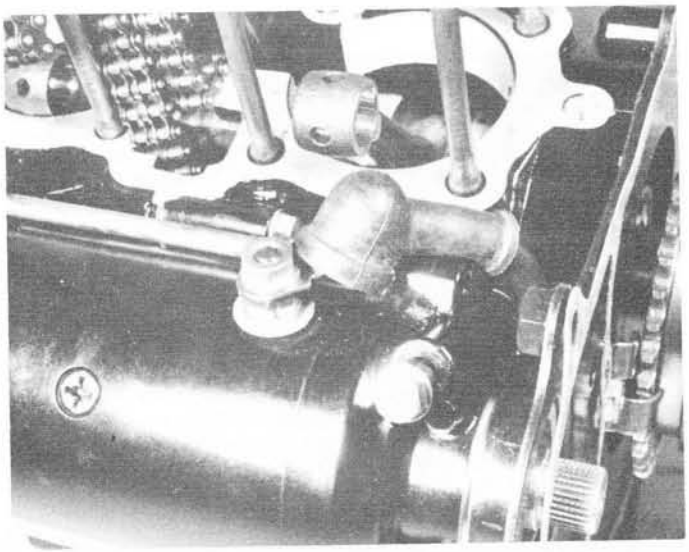
36.9a Align crankshaft key wth rotor keyway



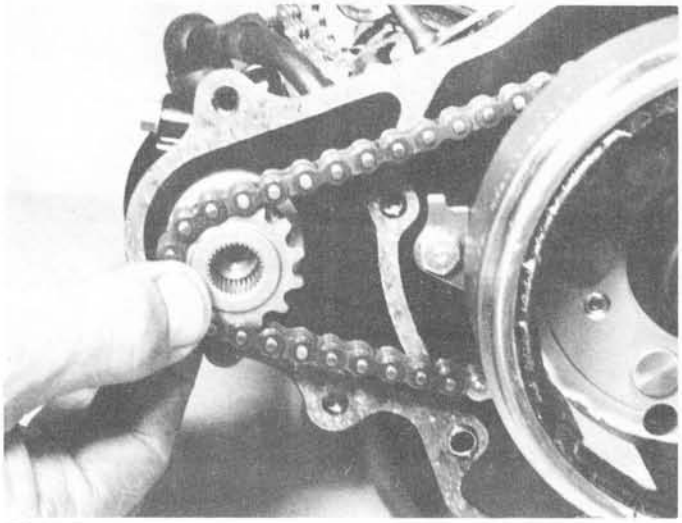
36.9b Lock crankshaft before tightening rotor retaining bolt



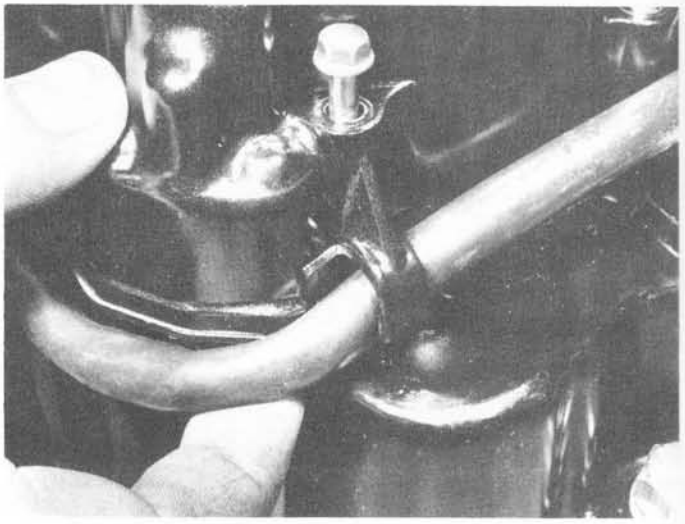
36.9c Do not omit to refit second gasket



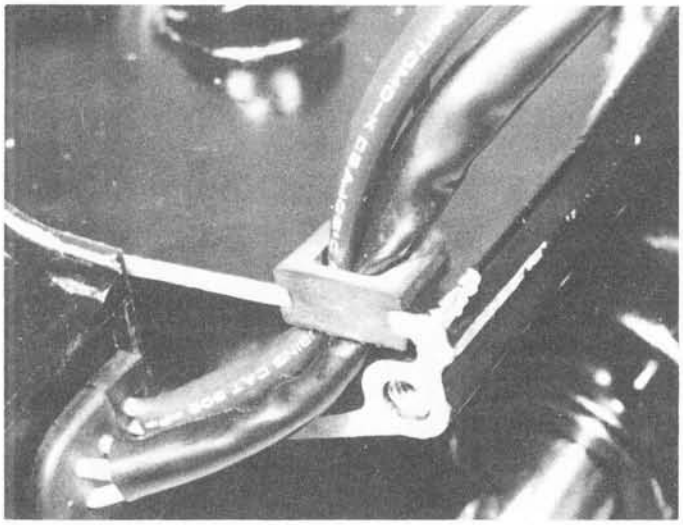
36.10 Connect starter motor lead before refitting starter motor



36.11 Engage chain first on driven sprocket, then push drive sprocket on to starter motor shaft



36.13 Engage starter motor lead in clamp before pushing cover into place



36.14 Push leads into grommet, insert grommet into crankcase recess

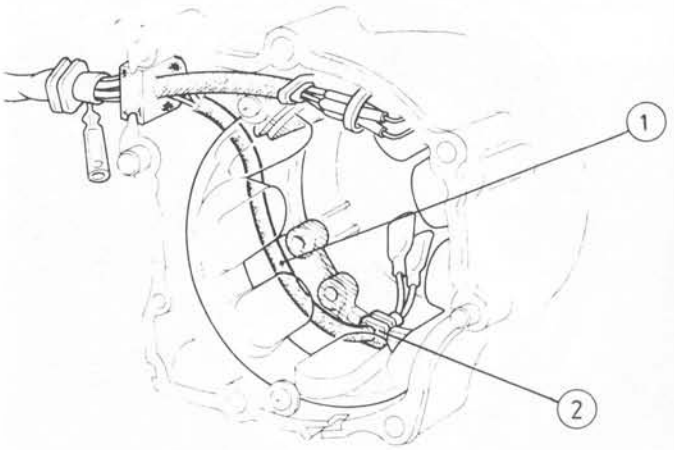


Fig. 1.16 Routing the contact breaker lead – CB125 T, T2, TA and TB

1 Contact breaker lead *2 Sealing grommet*

37 Reassembling the engine/gearbox unit: refitting the pistons, the cylinder block and cylinder head

1 Place the engine/gearbox unit upright. Take care that the cam chain does not fall back into the crankcase. If the short cut was adopted that is described in the latter part of Section 7 of this Chapter, the tensioner blade must be refitted now, following a reversal of the dismantling procedure. It is assumed that the tensioner assembly is attached to the blade upper end, and that the retaining R-clips are securely fastened; be very careful not to drop any component into the crankcase.

2 Before refitting the pistons it is advisable to pack temporarily the crankcase mouth with clean rag. If a circlip is misplaced it may fall into the crankcase and necessitate a further engine strip for its retrieval. Leave the rag in position until the cylinder block is lowered into position since a similar catastrophe can occur should the piston rings break as they enter the cylinder bores.

3 Before refitting the pistons, the piston rings must be refitted. The three-piece oil control ring should be fitted first one piece at a time, starting with the central spacer, then the lower side rail, and finally the upper side rail, ensuring that the side rails locate correctly on each side of the central spacer and do not project beyond the piston when pressed into the piston ring groove. The end gaps of the side rails are positioned at least 20 mm (0.8 in) away from each other. These components may be fitted either way up. The oil control ring must be fitted to the lowest of the three grooves on the pistons. The two compression rings should be fitted with the identification markings uppermost. If any difficulty is encountered in identifying the two top rings, it should be noted that the 2nd ring has a slightly tapered section and the top ring a parallel section, with slightly chamfered edges on the outer face. Arrange the ring end gaps away from each other as shown in the accompanying illustration.

4 Fit the pistons to their original connecting rods using the marks made on dismantling for identification (unless new pistons are being fitted of course), with the 'IN' mark on the crowns facing rearwards, towards the inlet port. The gudgeon pins should be a light sliding fit. If they prove a tight fit, warm the pistons first, to expand the metal. Do not forget to lubricate the gudgeon pins small-end eyes and the piston bosses before reassembly.

5 Use new circlips, **NEVER** re-use old circlips. Check that each circlip has located correctly in its groove and is positioned with the circlip ends away from the cut-out in the boss in the 6 o'clock position.

6 Fit a new cylinder base gasket over the holding studs; gasket compound must not be used. Refit the two hollow locating dowels to the rear and left-hand side of the left-hand crankcase mouth. If required piston ring clamps can be fitted to each piston to aid fitting of the cylinder block over the pistons. Ring clamps will aid this

operation but are by no means essential items. Position the pistons at TDC.

7 Refitting the cylinder block can be carried out by one person using ring clamps or a great deal of care and patience, but is easier when undertaken by two persons. Lubricate the cylinder bores and the piston rings thoroughly. Position the cylinder block above the pistons and, with a length of suitably bent wire, hook the cam chain up through the tunnel between the cylinder bores. Run a screwdriver or rod through the chain across the top of the barrel to prevent the chain falling free.

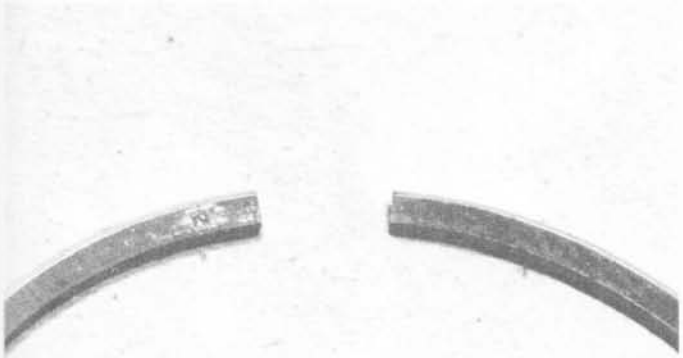
8 Carefully slide the cylinder block down until the pistons enter the cylinder bores. Keeping the pistons square to the bores gently ease the block further down until the rings are all engaged in their bores. Remove the ring clamps if they were used. Remove the rag padding from the crankcase mouths and push the block fully down onto the base gasket and dowels.

9 Insert the cam chain guide into the front of the tunnel, pushing it down until it seats securely in its locating recesses in the crankshaft centre main bearing holder and in the top surface of the cylinder block. If necessary use a torch to check that the guide blade lower end is fitted correctly.

10 Fit the four hollow dowels to the outer holding down studs. Note that although the dowels are all of the same length, those fitted to the rear left-hand and forward right-hand studs sit deeper in the cylinder block top surface. Note also that three of the dowels are fitted with tubular seals which must be renewed at this stage. The dowel not fitted with a seal is the forward, left-hand dowel. Place a new cylinder head gasket in position over the dowels. Use a thin smear of grease to stick the gasket in place.

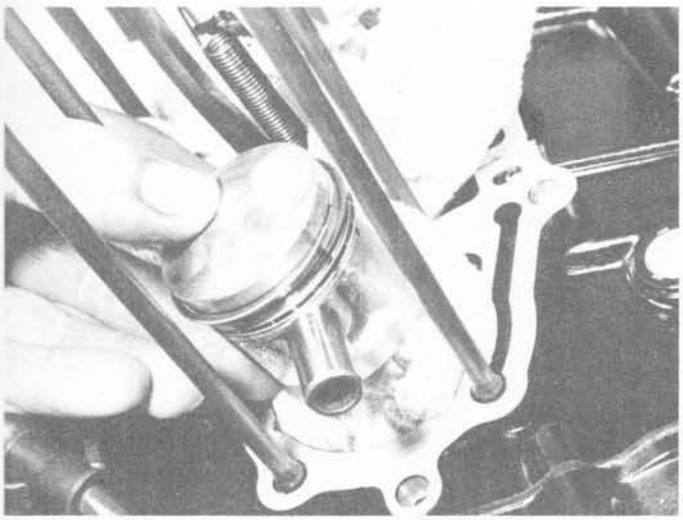
11 Position the cylinder head above the engine and, using the hooked wire, pull the cam chain up through the tunnel in the cylinder head and lower the head onto the cylinder block. Place a screwdriver through the chain again, across the cylinder head, then check that the head is settled correctly on the four locating dowels. Fix the cylinder head in position by refitting hand-tight the three small diameter retaining bolts. Do not tighten these bolts fully until the rocker carriers have been refitted and all the cylinder head and block retaining nuts and bolts are tightened in the correct sequence.

12 Swing back the cam chain tensioner assembly so that the adjuster stud passes into its aperture in the block rear face. Check the condition of the sealing O-rings fitted around the adjuster stud and the tensioner locking bolt. Refit the sealing O-ring, the plain washer, and the adjuster locknut to the adjuster stud protruding from the rear of the block, then fit the O-ring over the tensioner locking bolt and insert the locking bolt through the aperture in the rear of the cylinder head to screw into the tensioner assembly fixed arm. Ensuring that the O-ring fits neatly into the recess machined for it, tighten securely the tensioner locking bolt. Holding the tensioner blade and tensioner assembly at the blade upper end, pull the tensioner assembly upwards against spring tension as far as possible, then tighten the adjuster locknut. This will hold the tensioner blade at the flattest curve possible, thus gaining the maximum free play in the cam chain and easing the task of refitting the camshaft.

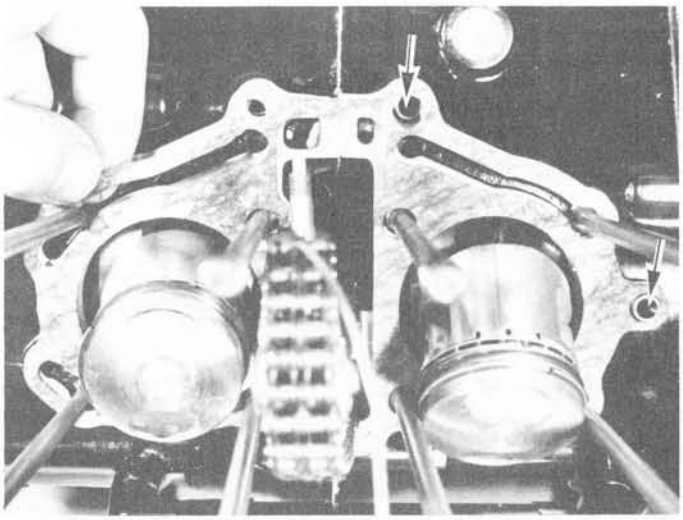


37.3 Note stamped letter identifying compression ring top surface

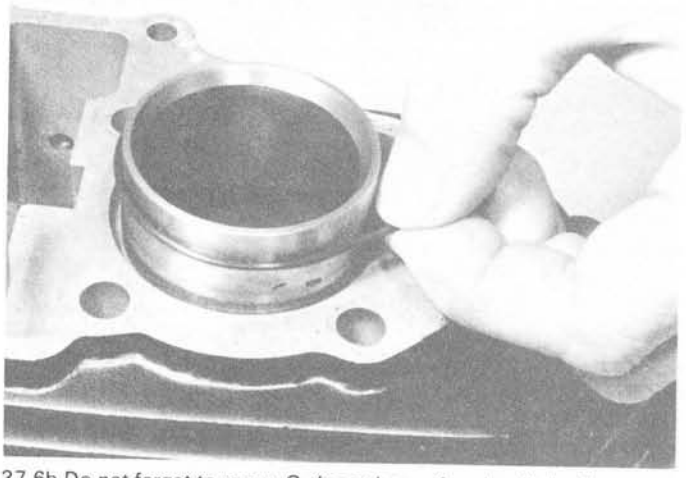
37.4a 'In' mark must face rearwards ...



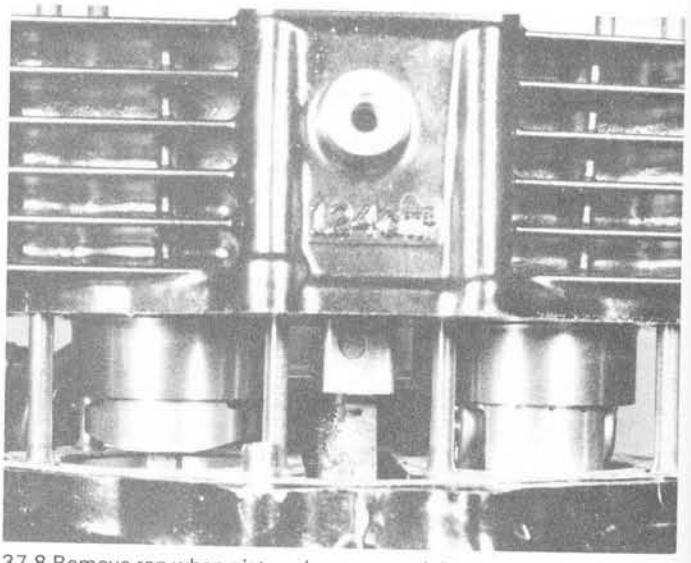
37.4b ... when pistons are refitted – note rag packing crankcase mouth



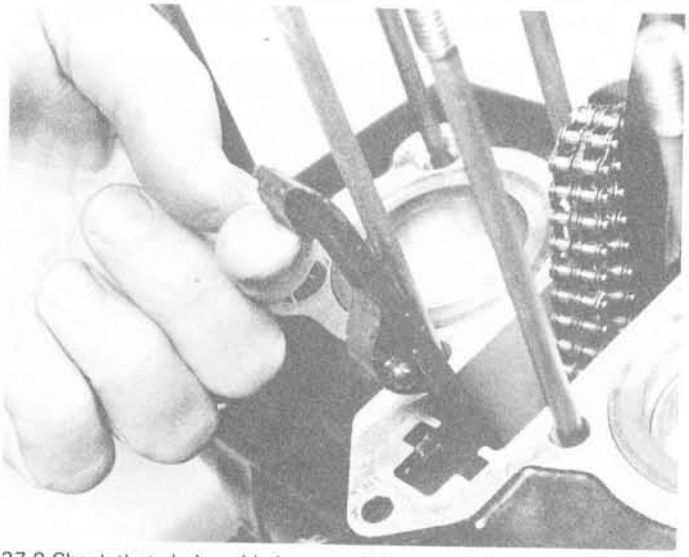
37.6a Fit a new gasket over two locating dowels (arrowed)



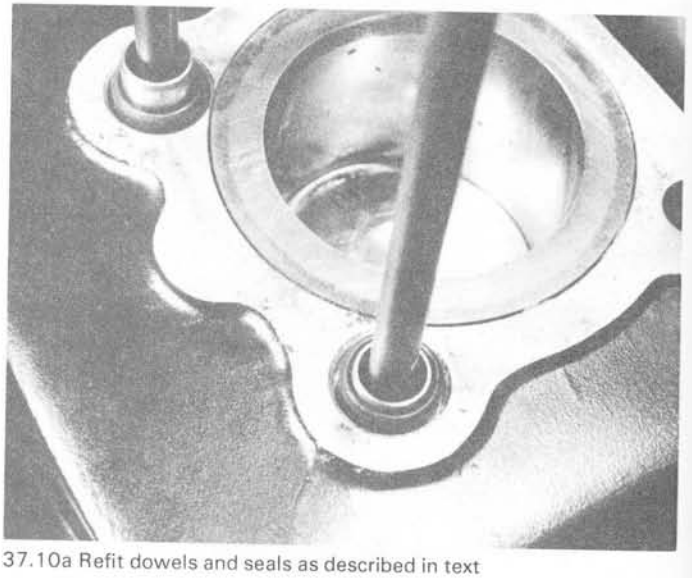
37.6b Do not forget to renew O-ring at base of each cylinder liner



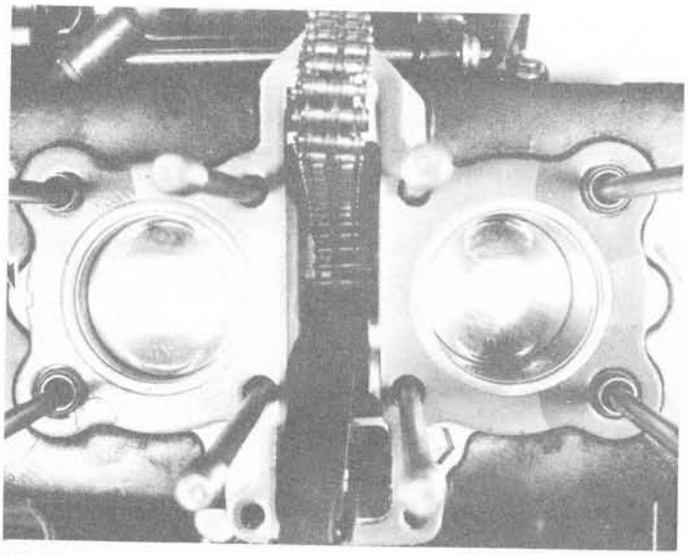
37.8 Remove rag when pistons have entered the cylinder bores



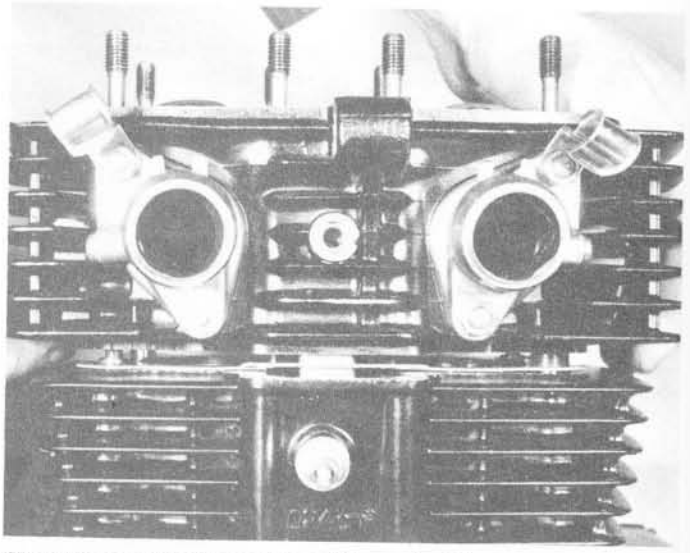
37.9 Check that chain guide is correctly located on refitting



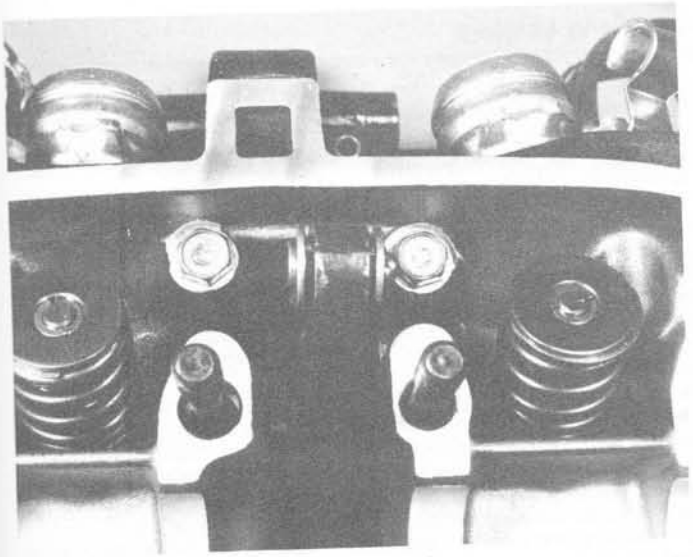
37.10a Refit dowels and seals as described in text



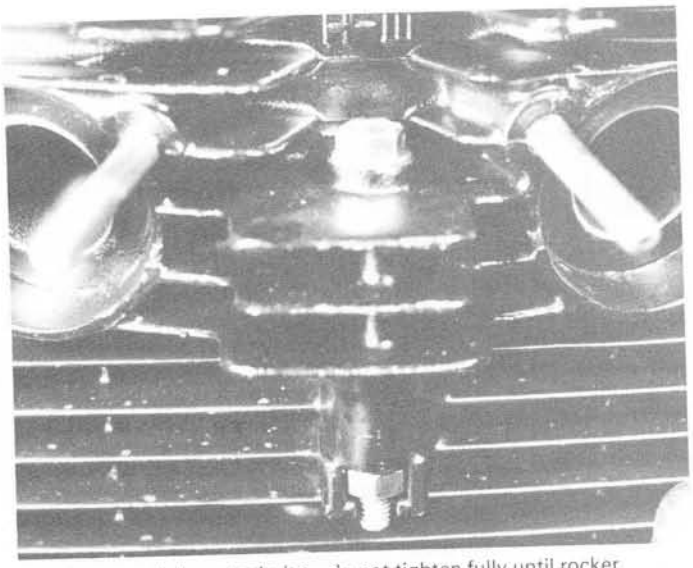
37.10b Always use new cylinder head gasket – note cutout (arrowed) on left-hand side to show correct fitting



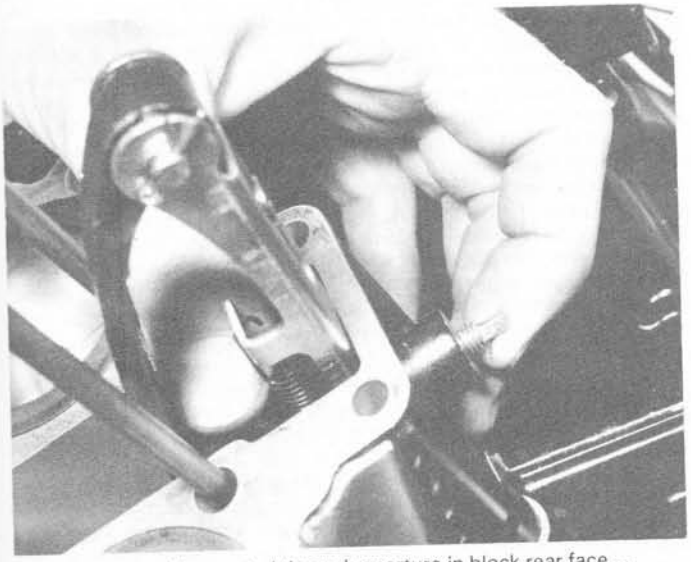
37.11a Lower cylinder head in position and retain ...



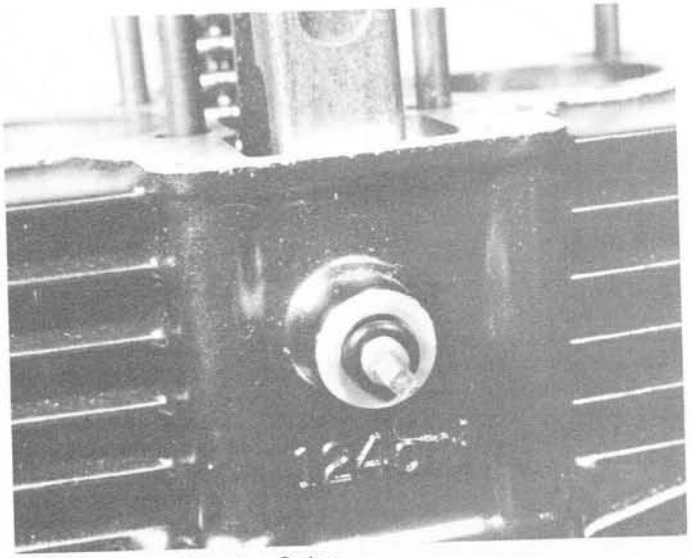
37.11b ... by fastening hand-tight only the three ...



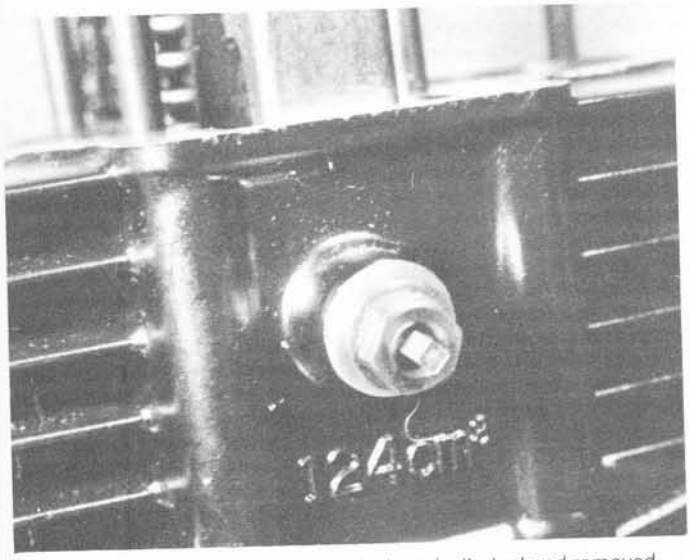
37.11c ... small diameter bolts – do not tighten fully until rocker carriers are refitted



37.12a Guide adjuster stud through aperture in block rear face ...



37.12b ... then refit sealing O-ring ...



37.12c ... plain washer and adjuster locknut (cylinder head removed for clarity)

37.12d Tighten securely tensioner locking bolt – note recess for O-ring

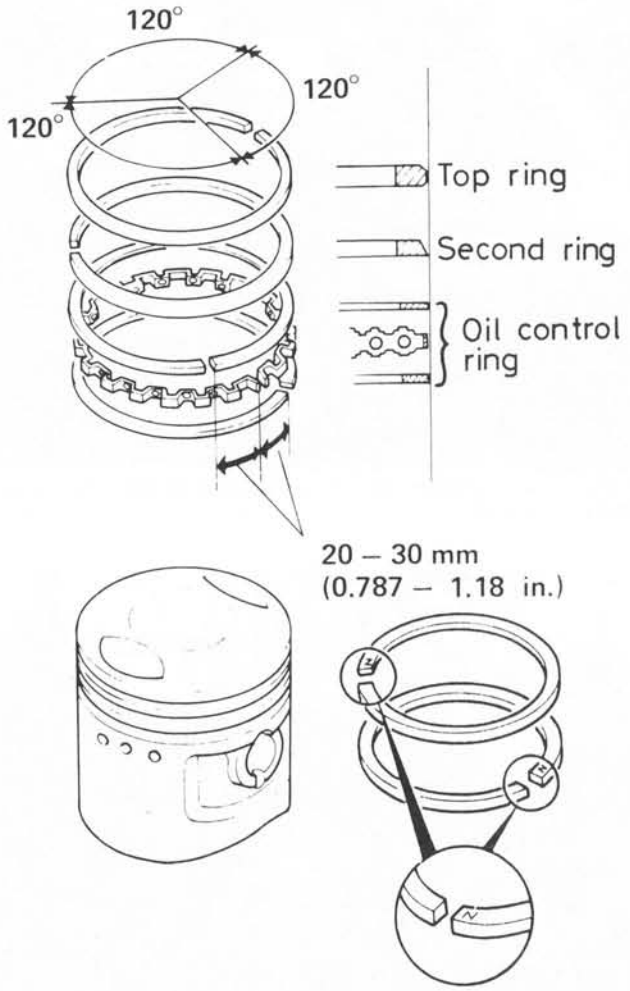


Fig. 1.17 Piston ring positioning

38 Reassembling the engine/gearbox unit: refitting the camshaft, rocker gear and cylinder head cover

1 Before reassembling the camshaft and sprocket in the cylinder head, refit the bushes to each camshaft end journal. The right-hand bush is a simple sliding fit on the end of the camshaft. The left-hand bush is retained by a thrust washer and circlip. If, as was found during dismantling, the bushes hinder camshaft movement, so making camshaft removal and refitting more difficult, the bushes can be refitted after camshaft installation. In practice it was found that camshaft refitting was far easier than camshaft removal, and could be carried out with the bushes in place. The manufacturer recommends that the bearing surfaces of the bushes and camshaft journals are coated with molybdenum disulphide before assembly to provide the necessary lubrication before the engine's own oil begins to circulate. If this is not available coat the bearing surfaces with copious amounts of clean engine oil.

2 Pull upwards on the screwdriver or rod which retains the cam chain to draw the chain tight, then apply a spanner or socket spanner (as appropriate) to the alternator rotor retaining bolt. Rotate the crankshaft in an anti-clockwise direction until the 'T1' mark (CB125 T, T2, TA, and TB, CD125 T, and CM125 C models) or the 'TL' mark (CB125 TD models) aligns with the index mark. On CB125 T, T2, TA and TB models the timing mark is stamped on the ATU, is visible through the aperture in the contact breaker backplate, and aligns with an index mark cast in the crankcase left-hand cover, while on all other models the timing mark is stamped on the rim of the alternator rotor, is visible through the smaller, top, inspection aperture in the crankcase left-hand cover, and aligns with an index mark formed by a notch in the upper edge of the aperture. Once these timing marks are aligned exactly, do not disturb the crankshaft until the camshaft, sprocket, and chain are secured, and make frequent checks to ensure that the timing marks are still in alignment.

3 While the method to be described is the manufacturer's recommended method, and was found to be easy in practice, it relies on the cam chain being sufficiently slack to allow clearance for the components to be inserted. It may be necessary to introduce variations to suit the peculiarities of the machine being rebuilt; for example, fitting the camshaft without its bushes, securing the camshaft and sprocket, and then fitting one camshaft bush at a time. Whichever method is employed, work slowly and methodically, and never risk damaging any components by losing patience and attempting to force a part into place.

4 The camshaft left-hand end is identified by the square-cut notch (and by the circlip groove machined in it, if the bushes have not been refitted yet); the camshaft sprocket has two dots stamped in its left-hand face. Hold the camshaft sprocket in the cam chain tunnel on the left of the chain with its two dots facing to the left and the offset cutout in the sprocket centre pointing upwards.

5 Holding the sprocket and chain together with one hand, very carefully slide the camshaft through from right to left, manoeuvring it to clear the cylinder head casting and to pass it through the sprocket. When the camshaft is fully in position, push it down into the cylinder head bearing surfaces, taking care to rotate each bush so that its protruding dowel pin fits into the recess in the cylinder head, then rotate the camshaft so that the square notch is in the 3 o'clock position, ie parallel with the cylinder head/cylinder head cover mating surface and facing to the rear.

6 Engage the camshaft sprocket on the chain so that with the crankshaft set in its correct position, with the cam chain pulled taut on its front run, and with the camshaft set in its correct position, an imaginary line running through the two dots and the camshaft centre is exactly parallel with the flat, machined, top surface of the cylinder head when the sprocket is lifted on to the camshaft. This will require a considerable degree of care and patience, but it is essential that the timing marks are aligned with absolute accuracy. Remember to check frequently that the positions of the crankshaft and camshaft have not altered, and be careful to keep the chain taut on its front run; the tensioner will take up any chain free play on the chain rear run.

7 Oil liberally the camshaft/cylinder head bearing surfaces. Apply a few drops of thread locking compound to the threads of one of the sprocket mounting bolts, then refit the bolt to the exposed sprocket hole, tightening it to a torque setting of 1.7 – 2.3 kgf m (12 – 17 lbf ft). Rotate the crankshaft anti-clockwise until the second sprocket mounting hole emerges and fit the remaining sprocket mounting bolt in the same way as the first. When fitting the first sprocket mounting bolt, note that if the valve timing marks are accurately aligned, the mounting bolt holes in the camshaft sprocket and the camshaft flange should align automatically.

8 Keep the front run of the chain taut, using fingers on the chain rear run and rotate the crankshaft further anti-clockwise through two full rotations. Align the crankshaft timing marks again and check that the valve timing marks align exactly. If necessary, remove the two sprocket mounting bolts and start again. It is essential that the valve timing is absolutely accurate if serious engine damage is to be avoided and if full performance is to be maintained.

9 Lubricate thoroughly the camshaft journals, bushes and lobes, then fill the trough beneath each pair of holes with clean engine oil. Lubricate the valve stems and springs and the rocker gear components. Note the four locating dowels which are fitted around the cylinder head studs; the two shorter dowels are fitted on the front row of studs, one on the extreme right-hand stud and the other on the inner left-hand stud, next to the cam sprocket. The two longer dowels are fitted on the rear row of studs, one on the extreme left-hand stud and one on the inner right-hand stud, also next to the cam sprocket.

10 Slacken off the tappet adjustment of all four rocker arms. Place the rocker carriers in position, noting that the 'F' mark must be fitted towards the front of the engine, and refit the eight securing nuts and their washers on the holding down studs. Tighten down the nuts, and the three previously fitted bolts evenly, in a number of steps, in the sequence given in the accompanying illustration. Tighten the eight nuts to a final torque setting of 1.6 – 2.0 kgf m (12 – 14.5 lbf ft) and the three bolts to a torque setting of 1.0 – 1.4 kgf m (7 – 10 lbf ft).

11 Check that the crankshaft timing marks are still aligned, then slacken the cam chain tensioner adjuster locknut. The tensioner assembly should drop sharply under spring tension as the tensioner

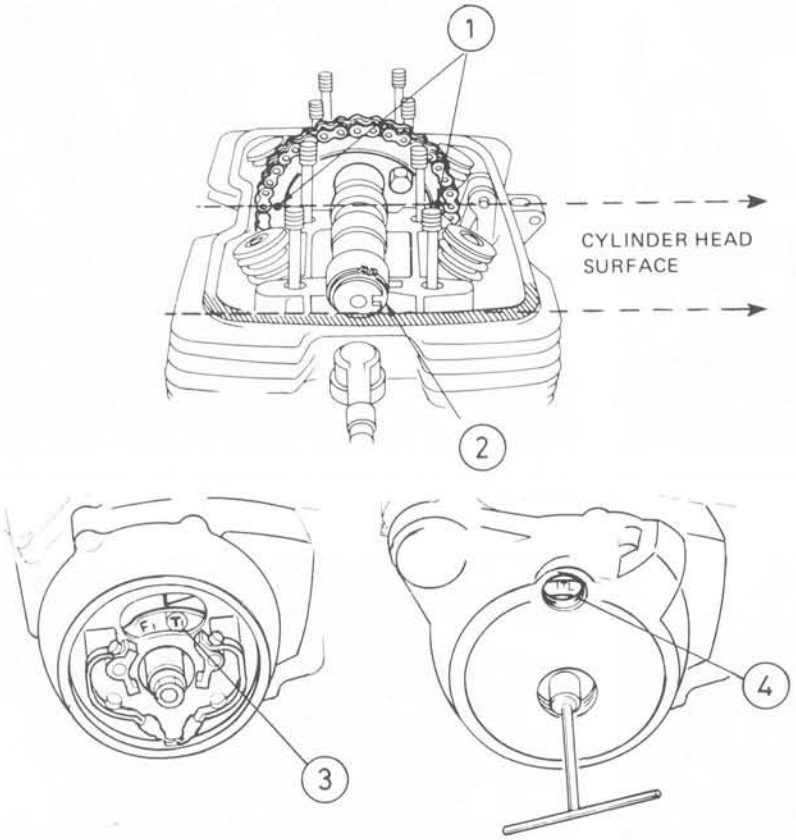


Fig. 1.18 Valve timing alignment marks

1 Sprocket alignment marks
2 Camshaft notch
3 Alignment mark – contact breaker models
4 Alignment mark – CDI models

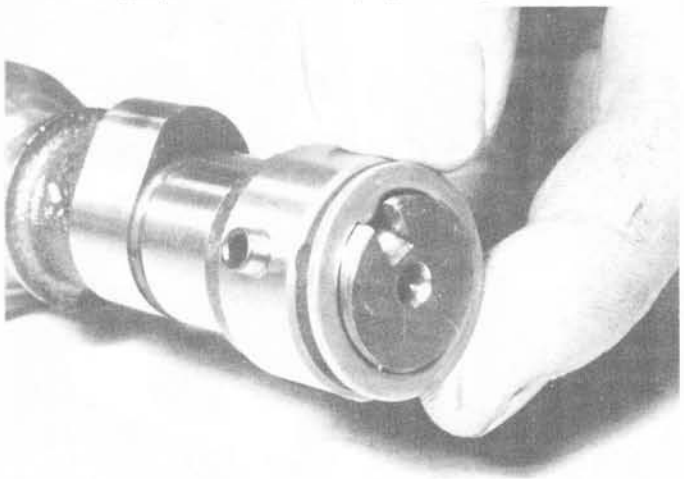
blade bends out to support the chain rear run and to take up any chain free play. Tighten securely the adjuster locknut.

12 Place the left-hand piston on TDC on the compression stroke, ie with the crankshaft timing mark aligned as described above and with the square notch machined in the camshaft left-hand and aligned exactly parallel with the cylinder head/cylinder head cover joint surface and pointing towards the rear of the cylinder head. Set the clearance on the left-hand inlet and exhaust valves to 0.05 mm (0.002 in) using a feeler gauge.

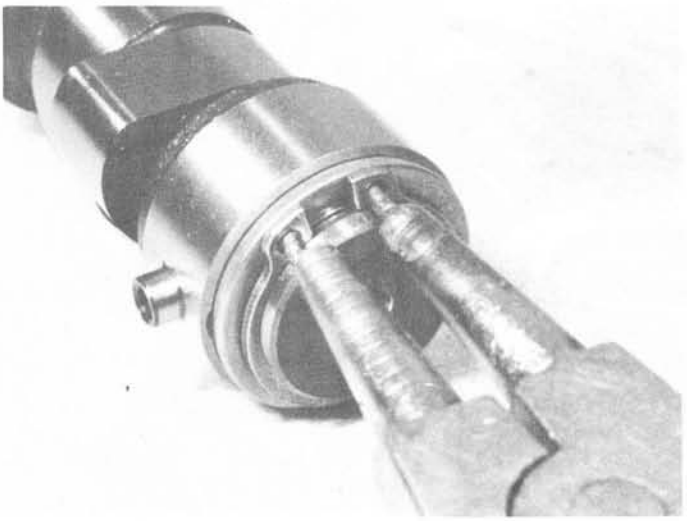
13 When the clearance is correct on one-valve hold the adjuster in position and tighten securely the adjuster locknut. Be careful not to overtighten the locknut as it is easy to damage the adjuster threads, rendering future adjustment very difficult. When the clearance is correct the gauge should be a fairly tight sliding fit. When the first valve has been set, repeat the above procedure on the second valve.

14 The right-hand cylinder is set to TDC on the compression stroke by rotating the crankshaft anti-clockwise through 180° on all CB125 models and through 360° on the CD125 T and CM125 C models until the crankshaft 'T2' mark (CB125 T, T2, TA, and TB models), the 'TR' mark (CB125 TD models) or the 'T1' mark (CD125 T and CM125 C models), is aligned with the crankcase cover index mark. Then the clearances of both valves of the right-hand cylinder can be set, also to 0.05 mm (0.002 in), by repeating the procedure described.

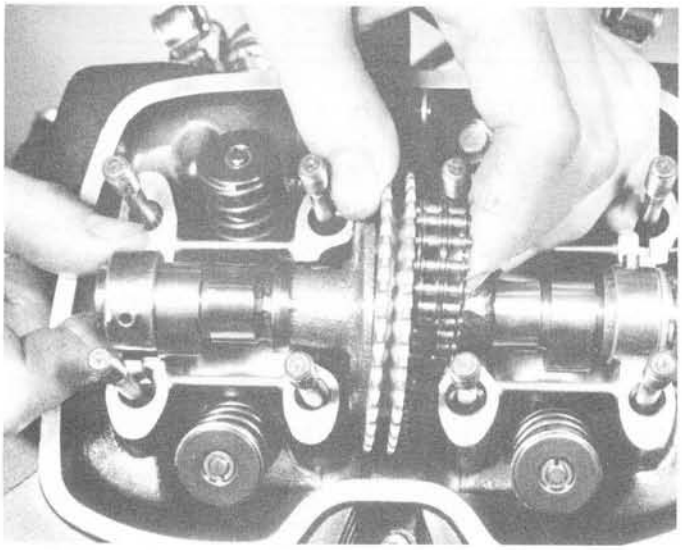
15 Fit the cylinder head cover gasket and refit the cylinder head cover. Secure the cover by means of the special bolts and rubber washers. Tighten the two special bolts to a torque setting of 0.8 – 1.2 kgf m (6 – 9 lbf ft). Refit the spark plugs. Do not risk damaging the spark plug threads by overtightening the spark plugs.



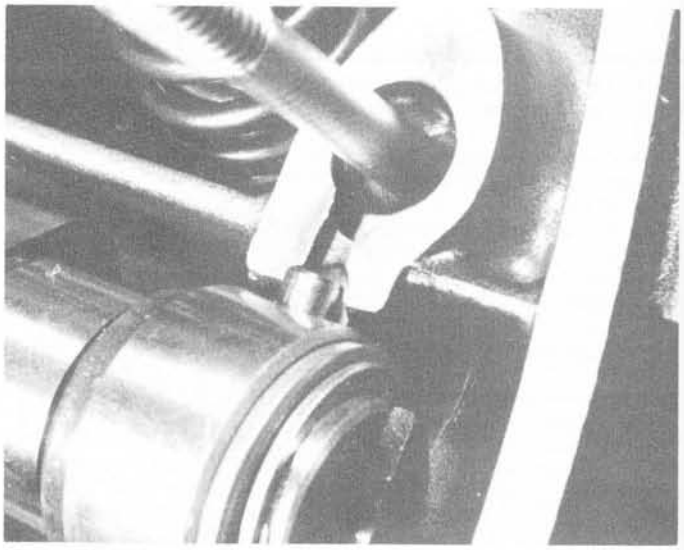
38.1a Camshaft left-hand bush is retained by a thrust washer ...



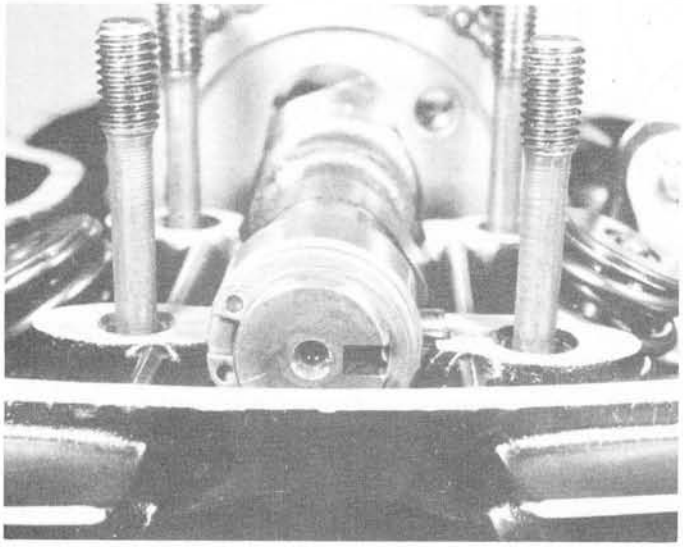
38.1b ... and a circlip



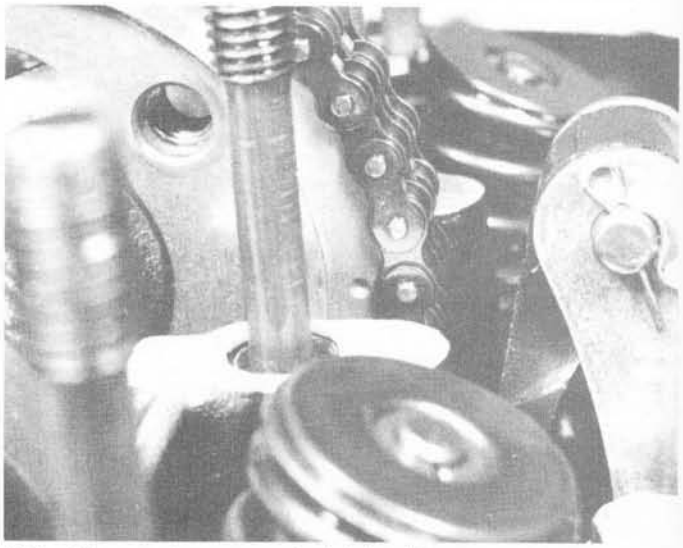
38.4 Camshaft, sprocket and cam chain must be manoeuvred into position



38.5a Dowel pins on camshaft bushes must locate in recesses provided



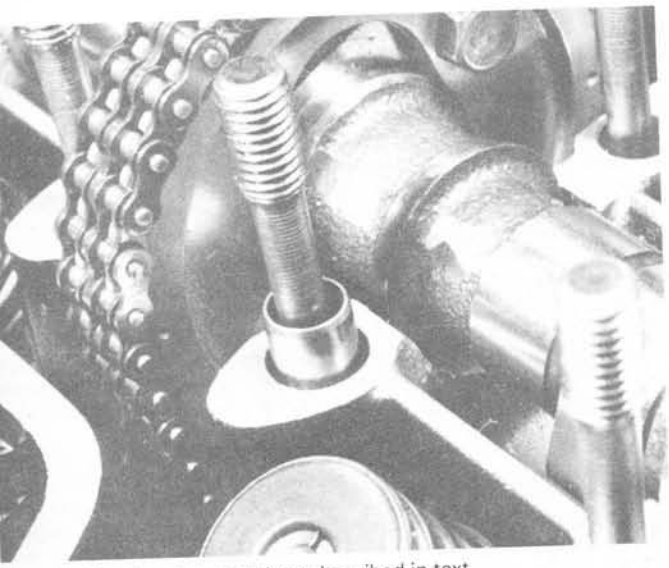
38.5b Rotate camshaft so that square notch is in position shown



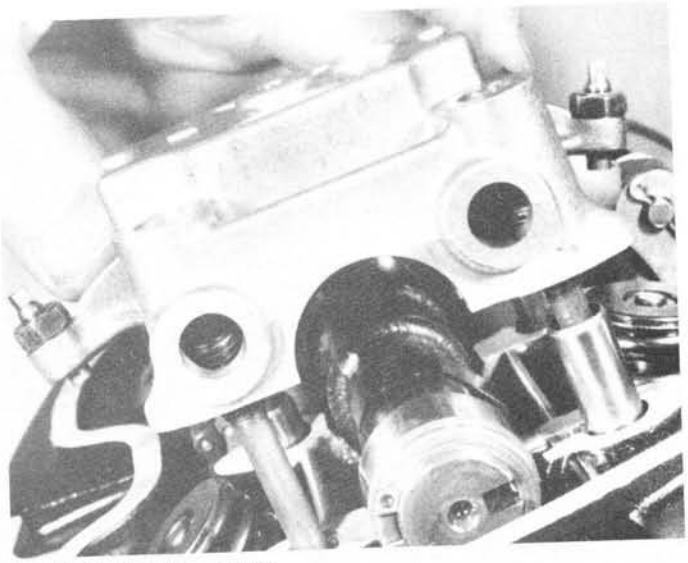
38.6a Align two slots on sprocket left-hand face ...

38.6b ... with cylinder head top surface (see text)

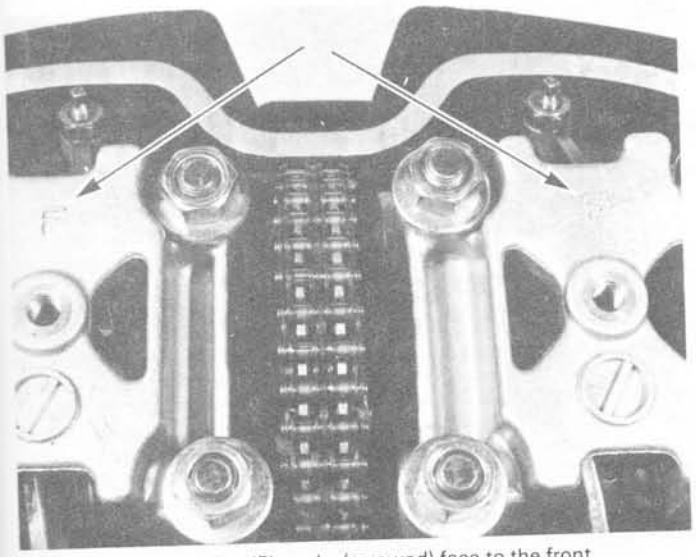
38.7 Apply thread locking compound to sprocket retaining bolts



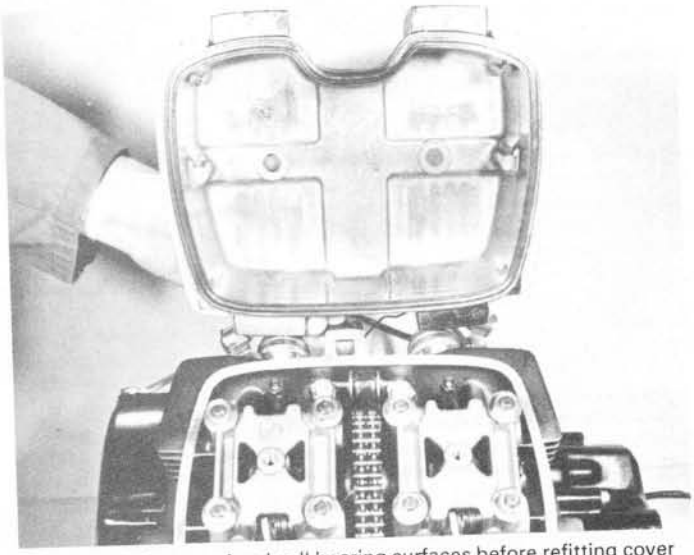
38.9 Position locating dowels as described in text



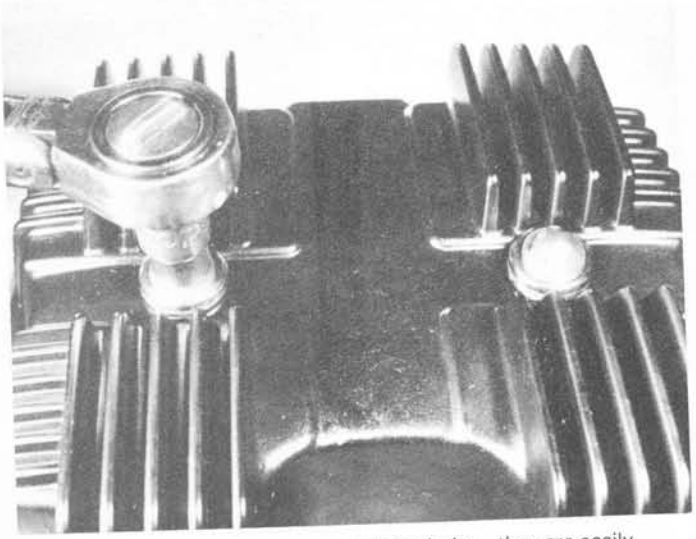
38.10a Refit rocker carriers ...



38.10b ... ensuring that 'F' marks (arrowed) face to the front



38.15a Lubricate copiously all bearing surfaces before refitting cover



38.15b Do not overtighten cover retaining bolts – they are easily sheared

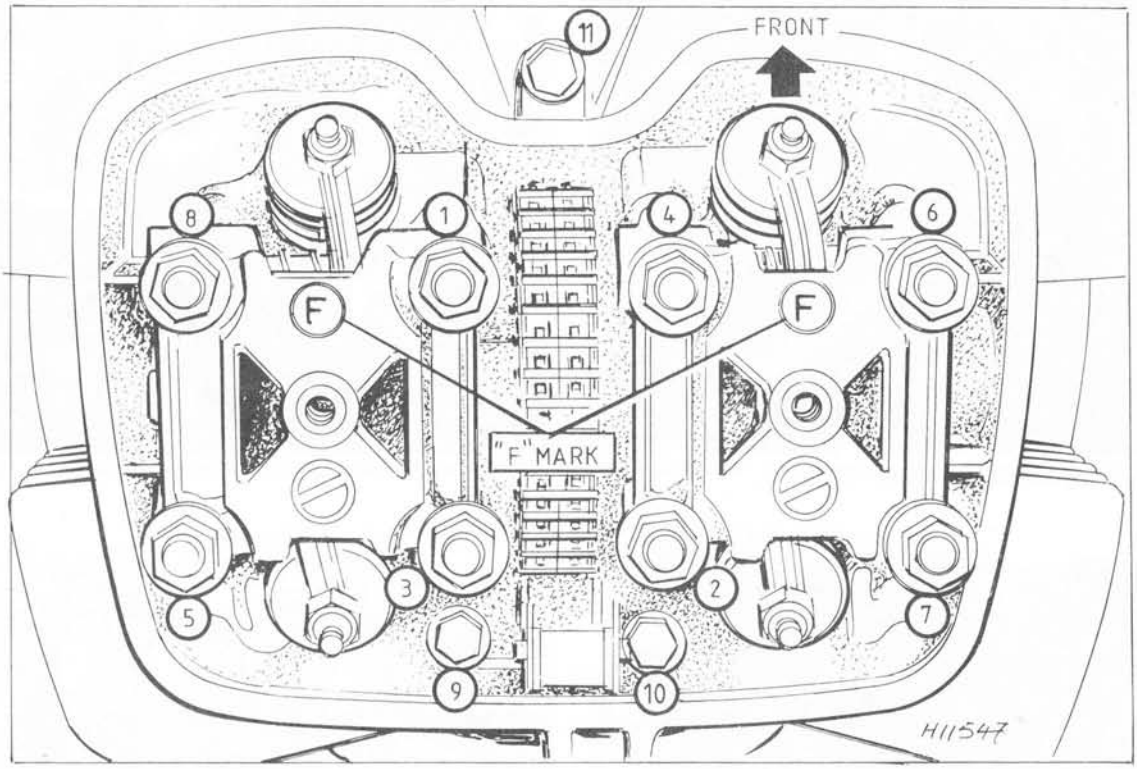


Fig. 1.19 Cylinder head nut and bolt tightening sequence

Note: Reverse this sequence for loosening

39 Refitting the engine/gearbox unit in the frame

1 Check that nothing has been omitted during the rebuilding sequences. It is better to discover any left-over components at this stage rather than just before the rebuilt engine is started.

2 If essential, the unit can be lifted by one person but assistance is useful. The unit is best fitted from the left-hand side, taking care not to topple the machine in the process.

3 With the engine held in position in the frame, insert the two larger diameter rear mounting bolts from the left-hand side of the machine. With these two bolts inserted, the engine will be supported sufficiently for it to be released from your grip. Fit the nut to the end of each bolt, ensuring that the earth lead or the clutch cable clamp is secured behind the nut of the upper bolt. **Do not** yet tighten the nuts on these bolts. Refit the engine front mounting plate to the base of the front downtube and, lifting the front of the engine slightly, insert the four bolts from the left-hand side of the machine and secure them with the four nuts. As before, do not tighten the bolts. Finally, reassemble the two plates of the cylinder head steady/engine top mounting and refit the three bolts from the left-hand side, and their retaining nuts.

4 When the engine mounting plates and all bolts and nuts have been refitted, tighten firmly but by hand only the retaining nuts of the five bolts which pass through both the crankcase or cylinder head castings and through the frame or the mounting plates. Check that the engine fits securely but without stress in its mountings, then tighten similarly the retaining nuts of the remaining four bolts. Tighten the two engine rear mounting bolts (10 mm) to a torque setting of 5.5 – 7.0 kgf m (40 – 51 lbf ft). The remaining seven (8 mm) mounting bolts are each tightened to a torque setting of 2.0 – 2.5 kgf m (14.5 – 18 lbf ft), but care must be taken to tighten first those three bolts which pass through the cylinder head or crankcase castings and the mounting plates, then the remaining four bolts which pass through the frame tubes and through the mounting plates.

5 Check that the crankcase breather hose is correctly routed so that it is not trapped or kinked, and is secured by the clips attached to the frame for this purpose, then push the hose back onto its stub on the rear of the crankcase top surface and secure it with its spring clip. Route the main generator lead (and ignition system wiring, where this is separate) up the frame rear downtube attaching it to the frame with the various cable clamps or ties provided. Reconnect the leads to the main wiring loom. On electric start models only, pass the starter motor lead underneath the rear of the engine/gearbox unit, then up behind it to fit between the swinging arm pivot and the rear of the engine/gearbox unit. On CB125 TD models, the lead then runs up in front of the air filter casing, passing between the carburettor air filter hoses, then between the air filter casing and the rear of the frame top tube to pass along the battery left-hand side until it reaches the starter solenoid. On CD125 T and CM125 C models, the lead passes across the frame from left to right, running between the air filter casing and the rear mudguard to emerge in the vicinity of the starter solenoid at the rear of the battery. Secure the lead to its solenoid terminal by tightening down the retaining nut and washer, then refit the solenoid terminal cover.

6 The carburettor(s) should then be refitted, following a reversal of the method used on removal. Be very careful to avoid damaging the carburettor(s) when manoeuvring into place, especially when working on CB125 models. The choke linkage consists of a thin metal strip which extends from the cable butterfly spindle of the right-hand carburettor; this is easily bent or distorted. Great care must be taken to ensure that the linkage engages correctly on the protruding D-shaped right-hand end of the left-hand carburettor butterfly spindle, and that the linkage is free to move without fouling any other component. When refitting the choke and throttle cables, ensure that the throttle valve is refitted the correct way round (where applicable), that the cables are routed properly without kinks and that they are correctly adjusted. Check also that any fasteners disturbed on carburettor removal are correctly secured so that the induction system is free from leaks, and that any petrol pipe unions are similarly secured to prevent petrol leakage.

7 Engage the gearbox sprocket on the chain and slide the sprocket over the splines of the output shaft. Refit the retaining plate. Apply a few drops of thread locking compound to the threads of each sprocket retaining bolt, then refit the the two bolts, tightening them securely. Adjust the chain as described in Routine Maintenance; do not forget to check, and to reset if necessary, the rear brake adjustment, and be careful to tighten securely all nuts and bolts and to fit a new rear wheel spindle nut retaining split pin (where fitted).

8 On CD125 T models only, refit carefully the chaincase lower half ensuring that it engages correctly with the guide channels in the upper half. Refit and tighten securely the two mounting bolts. On all models, refit the gearbox sprocket cover and tighten securely the three retaining screws, noting that the front lower screw also secures, on electric start models only, a clamp which retains the starter motor lead.

9 The gearchange lever is then refitted, using the marks made on dismantling to ensure that it is aligned correctly. Tighten the pinch bolt to a torque setting of 0.8 – 1.2 kgf m (6 – 9 lbf ft). On CB125 TD models only, align first the linkage front arm on the gearchange shaft, then position the linkage rear arm over the pivot boss and push the linkage assembly into position. It is advisable to smear a small quantity of grease over the pivot boss to ensure that the linkage is lubricated properly. If the linkage adjustment has not been disturbed, the lever will be positioned automatically in the correct position; if it has been disturbed, slacken the two locknuts and rotate the adjusting rod to bring the lever to the required position, but note that the linkage will function most efficiently when the front and rear linkage arms are each at an exact right angle to the adjusting rod. It may be necessary to move the linkage front arm around on the splines of the gearchange shaft to achieve the required result. Fit the front arm pinch bolt, tightening it to a torque setting of 0.8 – 1.2 kgf m (6 – 9 lbf ft), then fit and tighten securely the pivot retaining bolt and large plain washer. Check that the gearchange linkage is functioning correctly.

10 On CD125 T and CM125 C models only, refit the footrest/sidestand assembly, tightening the two retaining bolts to a torque setting of 2.0 – 2.4 kgf m (14.5 – 17 lbf ft).

11 Using a smear of grease to stick them in place, fit a new sealing ring to each exhaust port. The refitting of the exhaust system is the reversal of the removal procedure, but in the case of the CB125 TD, the CD125 T, and the CM125 C models, help is needed to manoeuvre the system into place as a complete unit. When in place check that the system is aligned correctly on its rear mountings, then tighten all four front retaining nuts to a torque setting of 0.8 – 1.4 kgf m (6 – 10 lbf ft). Noting that the pillion footrest mounting brackets have protrusions on their rear surfaces which must engage with corresponding protrusions on the silencer mounting brackets to position correctly the pillion footrest, refit the pillion footrests and tighten securely the exhaust rear mounting bolts.

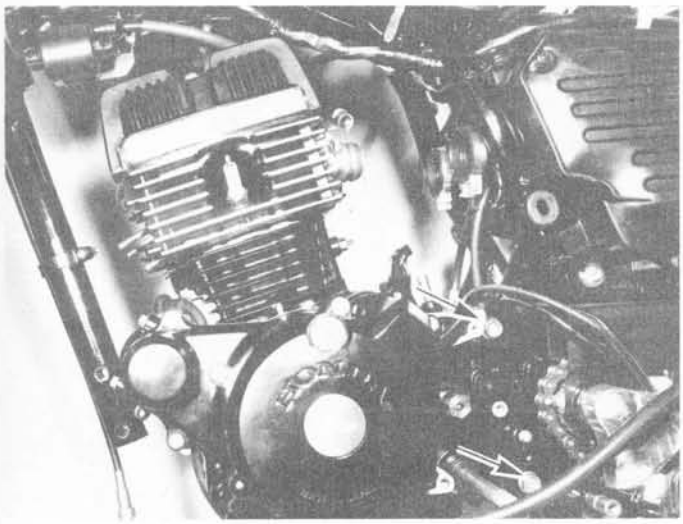
12 Engage each HT lead in its clamp bolted to the inlet manifold or inlet stubs, then refit the spark plug caps to the spark plugs. On CB125 models only, refit the tachometer cable into its housing in the front of the crankcase right-hand cover, noting that it may be necessary to rotate the engine to allow the cable inner to engage correctly with the tachometer driven gear. Secure the cable with its single retaining screw and check that the cable is routed clear of the exhaust pipes. On CB125 T, T2, TA, and TB models only, refit the kickstart lever, using the marks made on removal to ensure that the lever is correctly positioned. Tighten the kickstart lever pinch bolt to a torque setting of 1.0 – 1.5 kgf m (7 – 11 lbf ft).

13 Check that the engine oil drain plug has been refitted and fully tightened to a torque setting of 3.0 – 5.0 kgf m (22 – 36 lbf ft). **Do not** overtighten the drain bolt to compensate for a worn sealing washer; renew the washer to obviate the risk of oil leakage. Remove the combined filler plug/dipstick and add a good quality SAE 10W/40 engine oil in the following amounts: CB125 T, T2, TA and TB, and CD125 T models, 1.5 litre (2.6 pint); CB125 TD models, 1.6 litre (2.8 pint); and CM125 C models, 1.8 litre (3.2 pint). Refit the filler plug/dipstick.

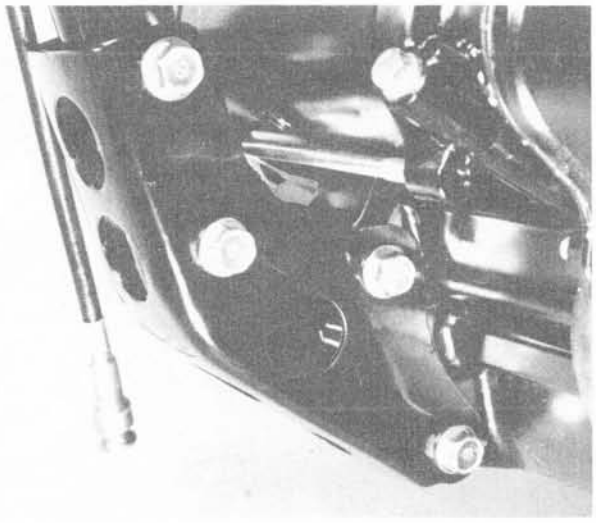
14 Refit the clutch cable in the cable adjuster bracket and engage the cable end nipple in the clutch operating lever. Making the necessary adjustment at the crankcase adjuster only, rotate the cable adjusting nut as necessary to give 10 – 20 mm ($\frac{1}{2}$ – $\frac{3}{4}$ in) free play, measured at the tip of the handlebar lever. When adjustment is correct, tighten securely the adjuster locknut. Use the handlebar adjuster for fine adjustment only.

15 Refit the battery ensuring that the breather pipe is free from kinks and is not trapped, and connect the battery leads to their respective terminals, the green or black wire going to the battery negative (-) terminal and the red wire going to the battery positive (+) terminal. Fasten securely the battery retaining strap (where fitted). Refit the petrol tank, ensuring that its rear mounting is correctly fastened, then push the petrol pipe back over the petrol tap spigot and secure it with its retaining spring clip. Turn the petrol tap to the 'On' or 'Res' position and check for petrol leaks. Refit carefully the two sidepanels, then lower or refit the dual seat.

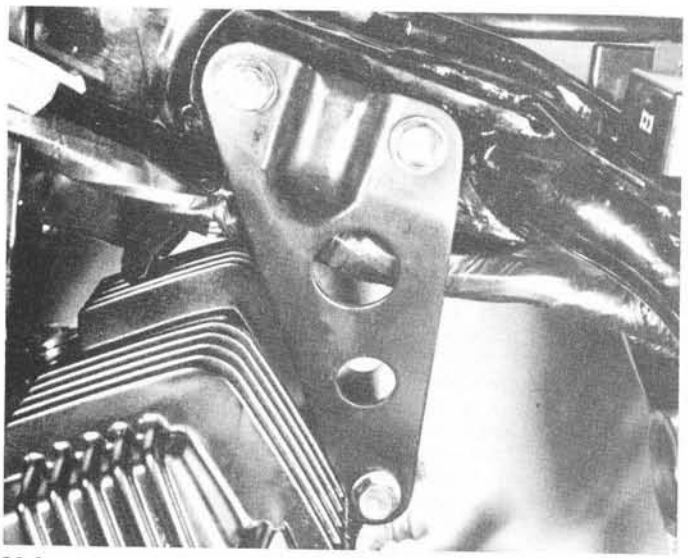
16 When working on CB125 T, T2, TA, and TB models, check and reset if necessary the contact breaker gaps. While it is possible to check statically the ignition timing, as described in the relevant Section of Chapter 3, if a strobe timing lamp is to be used, checking can take place only after the engine has been started and run for the first time. On all models, carry out a final check to ensure that the engine has the correct amount of oil, that all components have been refitted and securely fastened (except, of course, the inspection covers necessary to complete the ignition timing check), that all is functioning correctly and, where applicable, correctly adjusted, and that all electrical connections have been securely fastened. Switch on the ignition and check, as far as possible, that all electrical components are functioning correctly.



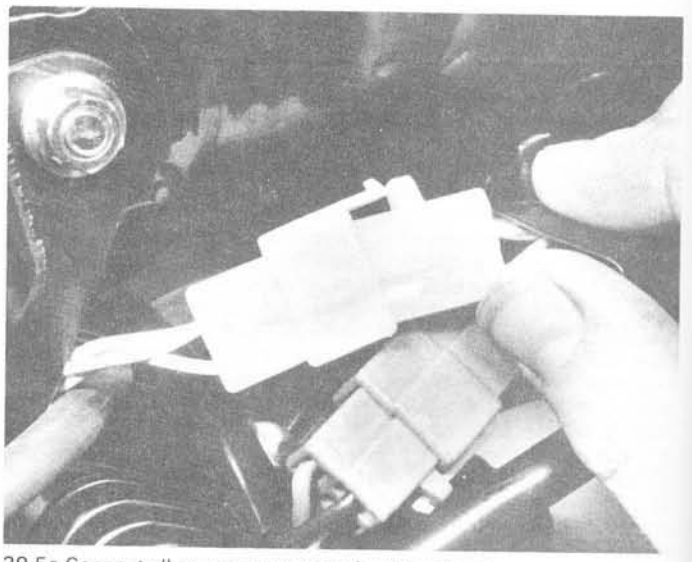
39.3a Install engine in frame and retain with two rear mounting bolts (arrowed)



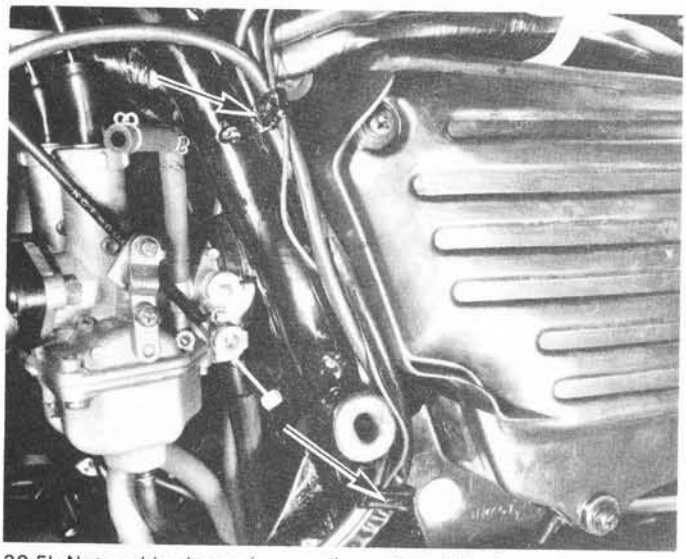
39.3b Install first engine front mounting plate ...



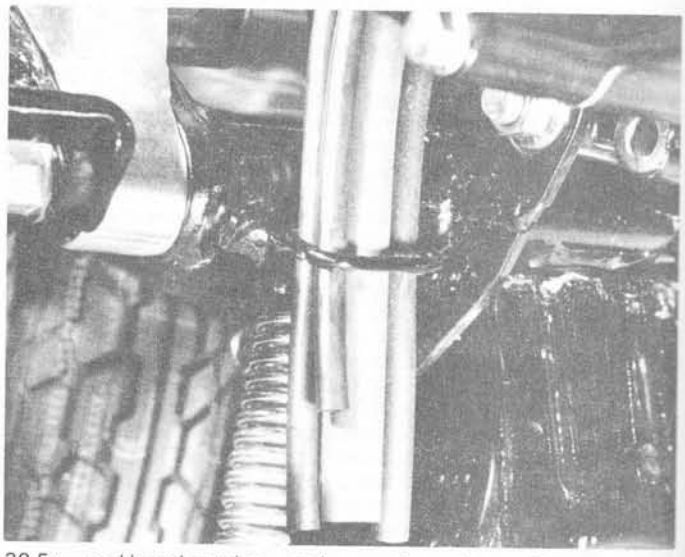
39.3c ... then engine top mounting/cylinder head steady assembly



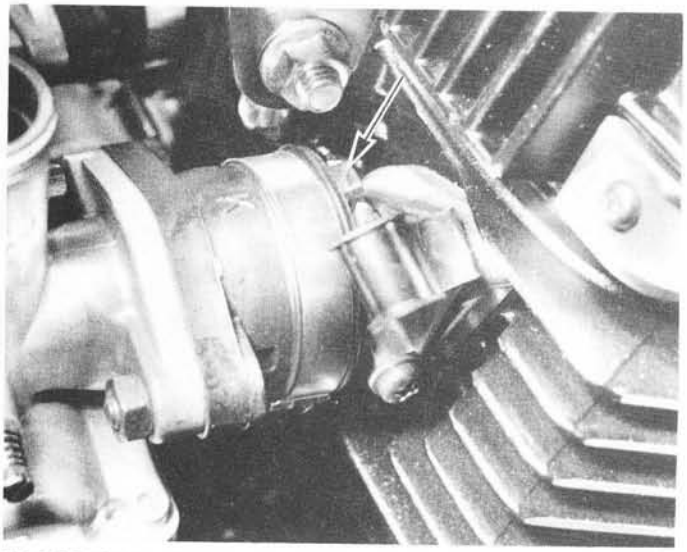
39.5a Connect all components to main wiring loom



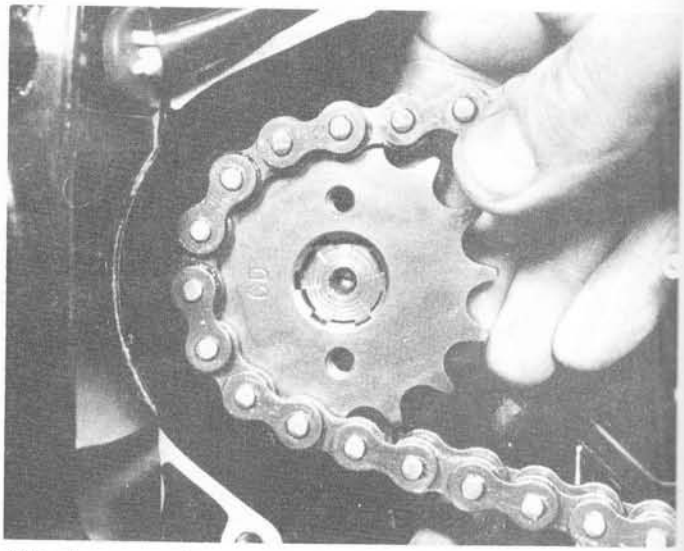
39.5b Note cable clamps (arrowed) securing wiring harness ...



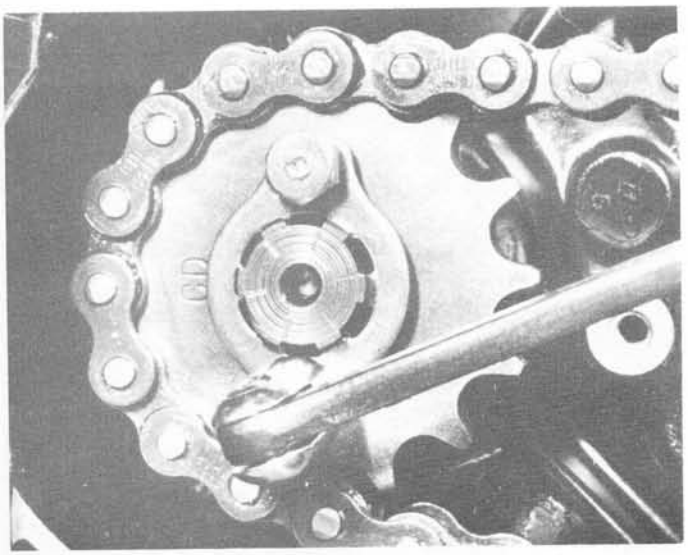
39.5c ... and breather tubes – make use of any clamps that are provided



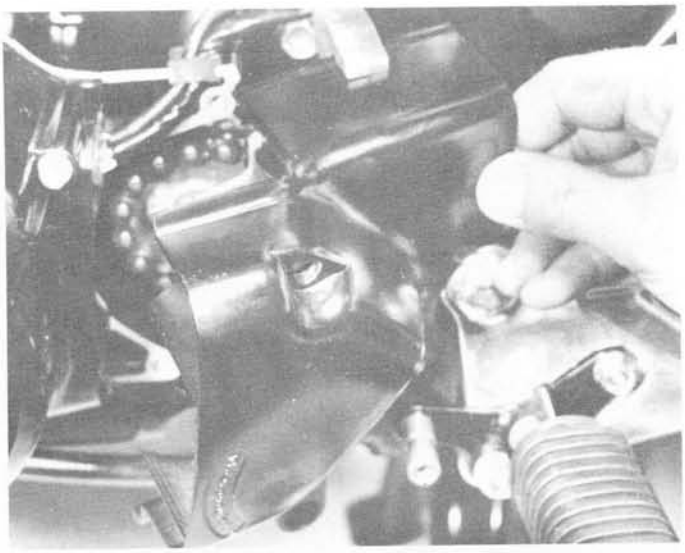
39.6 CB125 TD model – note protrusion (arrowed) on intake adaptor which is engaged between lugs on intake stub



39.7a Engage gearbox sprocket on chain and slide over output shaft end

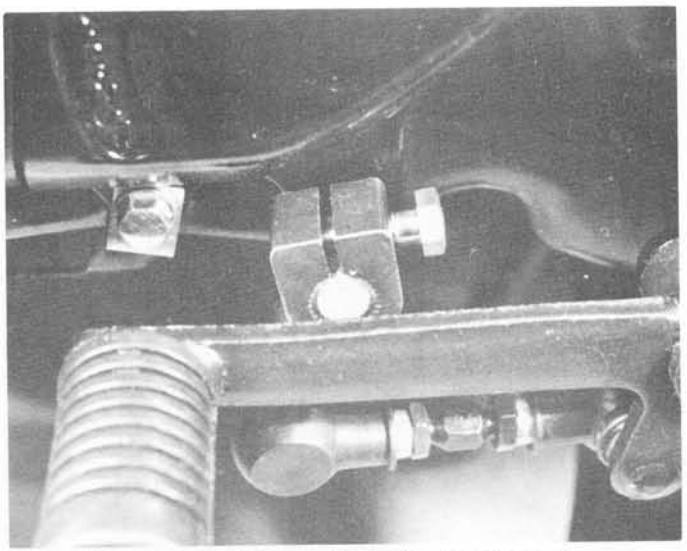


39.7b Refit locking plate and tighten securely retaining bolts; use thread locking compound

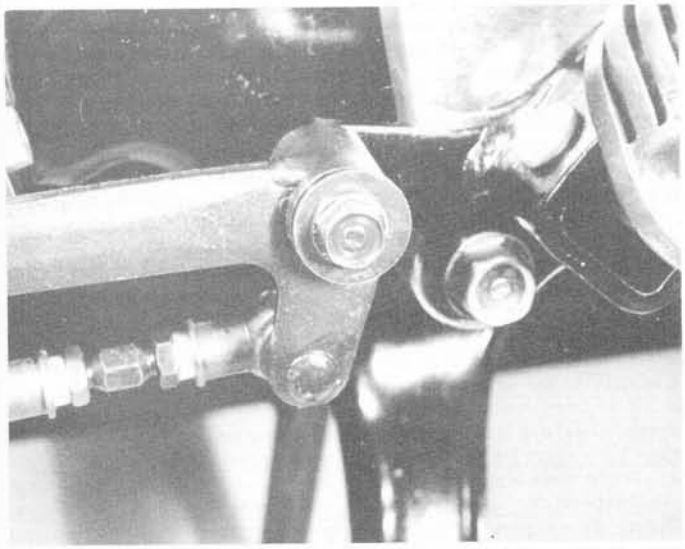


39.8a Refit gearbox sprocket cover

39.8b Note clamp retaining starter motor lead

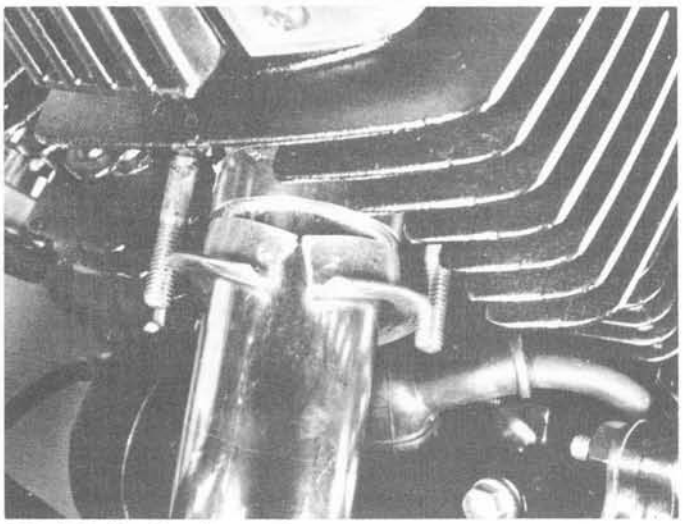


39.9a Refit gearchange linkage – tighten first the pinch bolt ...

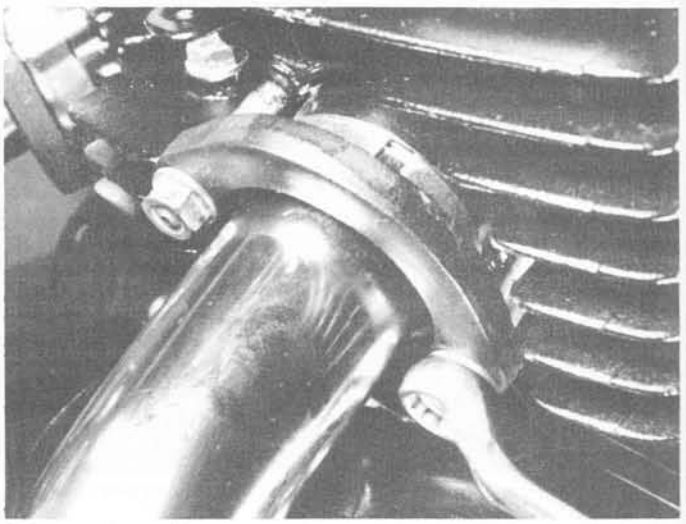


39.9b ... then lubricate and secure rear mounting – note linkage adjusting rod

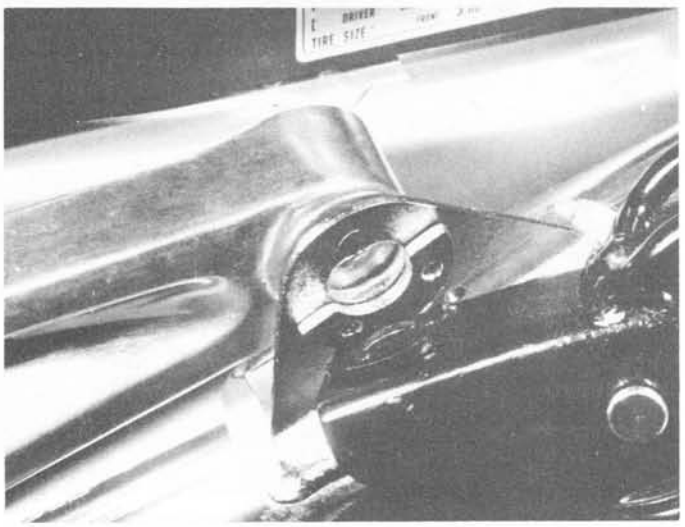
39.11a Always renew exhaust gaskets whenever exhaust is disturbed



39.11b Refit split collars as shown ...



39.11c ... then refit and secure the mounting flange



39.11d Note corresponding protrusions on silencer and pillion footrest mounting brackets

40 Starting and running the rebuilt engine

1 Attempt to start the engine using the usual procedure adopted for a cold engine. Do not be disillusioned if there is no sign of life initially. A certain amount of perseverance may prove necessary to coax the engine into activity even if new parts have not been fitted. Should the engine persist in not starting, check that the spark plugs have not become fouled by the oil used during reassembly. Failing this go through the fault finding charts and work out what the problem is methodically.

2 When the engine does start, keep it running as slowly as possible to allow the oil to circulate. Open the choke as soon as the engine will run without it. During the initial running a certain amount of smoke may be in evidence due to the oil used in the reassembly sequence being burnt away. The resulting smoke should gradually subside.

3 Check the engine for blowing gaskets and oil leaks. Before using the machine on the road, check that all the gears select properly, and that the controls function correctly.

4 Proceeding according to the instructions given in the relevant Sections of Chapter 3, check carefully the ignition timing as soon as the engine is warmed up enough to tick over smoothly. As soon as the ignition timing is known to be accurate, attention can be turned to the carburettor or carburettors, if this is warranted by the engine's performance. Only disturb the carburettor settings if absolutely necessary or if they are known to be incorrect. Usually the settings used before the engine was dismantled will be sufficient to ensure smooth running when it is started again. Remember that the machine should be taken out on the road for a journey of sufficient length to warm it up to normal operating temperature before fine tuning of the carburettors is attempted. Owners of CB125 models should note that the synchronization of the two carburettors is unlikely to have altered unless the throttle cable adjustment or throttle stop screw setting was disturbed during the course of removal and refitting.

5 As soon as then engine is properly warmed up, and before the machine is taken out on the road, the engine oil level must be checked. Place the machine on its centre stand on level ground, then remove and wipe clean the filler plug/dipstick. Place the dipstick in the filler orifice so that it rests on the crankcase surface; do not screw it in. The oil level should be in the cross-hatched area between the maximum and minimum level marks; add oil (or remove some, if necessary) to ensure that the correct amount is present. It is preferable to have the level as high as possible within the set limits. When the oil level is known to be correct, refit and tighten securely the filler plug/dipstick.

41 Taking the rebuilt machine on the road

1 Any rebuilt machine will need time to settle down, even if parts have been replaced in their original order. For this reason it is highly advisable to treat the machine gently for the first few miles to ensure oil has circulated throughout the lubrication system and that any new parts fitted have begun to bed down.

2 Even greater care is necessary if the engine has been rebored or if a new crankshaft has been fitted. In the case of a rebore, the engine will have to be run-in again, as if the machine were new. This means greater use of the gearbox and a restraining hand on the throttle until at least 500 miles have been covered. There is no point in keeping to any set speed limit; the main requirement is to keep a light loading on the engine and to gradually work up performance until the 500 mile mark is reached. These recommendations can be lessened to an extent when only a new crankshaft is fitted. Experience is the best guide since it is easy to tell when an engine is running freely.

3 If at any time a lubrication failure is suspected, stop the engine immediately, and investigate the cause. If any engine is run without oil, even for a short period, irreparable engine damage is inevitable.

4 When then engine has cooled down completely after the initial run, recheck the various settings, especially the valve clearances. During the run most of the engine components will have settled into their normal working locations. Check the oil level as it may have dropped slightly now that the various passages and recesses have filled.

Chapter 2 Fuel system and lubrication

Refer to Chapter 7 for information relating to the CB125 TD-J model

Contents

Specifications

	CB125 T	CB125 TD	CD125 T	CM125 C
Fuel tank				
Overall capacity	11.5 lit (2.5 gal)	14 lit (3.1 gal)	11 lit (2.4 gal)	12.5 lit (2.8 gal)
Reserve capacity	2.5 lit (0.5 gal)	1.5 lit (0.3 gal)	1.3 lit (0.3 gal)	1.5 lit (0.3 gal)
Fuel recommendation	Unleaded, or low-lead (minimum octane rating 91 RON/RM)			
Carburettor				
Make	Keihin	Keihin	Keihin	Keihin
ID number	PD26A-A/D(T) PD26A-C (T-2) PD26A-E (T-A) PD26A-F (T-B)	PD94A-A (-C) PD94B-A (-E)	VCO6B-A	PD56A-A (-C) PD56A-B (-F)
Main jet	88	98 (-C), 88 (-E)	95	98
Pilot (slow) jet	38	38	42	38
Needle clip position – from top	3rd	2nd	2nd	2nd
Pilot screw – turns out	$1\frac{1}{4}$	$1\frac{1}{4}$	$2\frac{1}{4}$	1
Float height	12 mm (0.47 in)	17 mm (0.67 in)	14 mm (0.55 in)	14 mm (0.55 in)
Idle speed	1400 ± 100 rpm	1300 ± 100 rpm	1200± 100 rpm	1200 ± 100 rpm
Air filter				
Type:				
Except CB125 TD models	Oiled polyurethane foam			
CB125 TD models	Dry, pleated paper			
Lubrication system				
Type	Wet sump, force fed			
Oil capacity:				
CB125, T2, TA and TB, CD 125 T models	1.5 litre (2.6 pint)			
CB125 TD models	1.6 litre (2.8 pint)			
CM125 C models	1.8 litre (3.2 pint)			
Oil filter	Gauze screen			
Oil pump				
Type	Trochoid			
Inner rotor/outer rotor clearance	0.15 mm (0.006 in)			
Service limit	0.2 mm (0.008 in)			
Outer rotor/housing clearance	0.15 - 0.18 mm (0.006 - 0.007 in)			
Service limit	0.25 mm (0.010 in)			
End clearance	0.01 - 0.07 mm (0.0004 - 0.003 in)			
Service limit	0.12 mm (0.005 in)			

1 General description

The fuel system comprises a petrol tank from which petrol is fed by gravity to the carburettor float chamber(s). The fuel flow is controlled by a petrol tap with a built-in filter, located beneath the tank on the left-hand side. The tap has three positions controlled by an integral lever. 'Off', 'On' and 'Reserve', the latter providing a reserve supply of fuel when the main supply is exhausted.

CB125 models are fitted with twin Keihin carburettors of the conventional concentric float, slide type, the CM125 C model is fitted with a carburettor of the same type and the CD125 T is fitted with a

single Keihin constant velocity (CV) type carburettor, otherwise known as a constant vacuum or constant depression carburettor.

A manually-controlled choke is fitted to all models to enable the mixture to be richened temporarily for cold starting. Air entering the carburettor passes through a moulded rubber intake tube into an air filter casing which contains an air filter element. On CB125 TD models the element is of the dry paper type, pleated to present the maximum surface area to the incoming air, while on all other models a polyurethane foam element is soaked in oil and mounted on a separate metal frame. On CB125 models two separate filter assemblies are fitted, one on each side of the machine to serve the individual carburettors, while on the single-carburettor CD125 T and CM125 C models a single filter assembly is fitted on the left-hand side of the machine, the filtered air passing to the carburettor via a short hose.

The exhaust system takes the form of twin integral exhaust pipes and silencers, these being separate assemblies on the CB125 T, T2, TA, and TB models, but linked by a balance pipe under the crankcase on the CB125 TD, CD125 T, and CM125 C models.

Lubrication is by the wet sump, pressure principle, in which oil is delivered under pressure from the sump, through a mechanical pump, to the working parts of the engine. The pump is of the trochoid type and is driven from the right-hand end of the crankshaft via a small drive gear pinion. Incorporated in the pump is the mesh-type filter screen. The engine oil is also shared by the primary drive, clutch and gearbox components.

2 Petrol tank: removal and refitting

1 Switch the petrol tap to the 'Off' position, release the spring securing clip by pinching together its two ends, then carefully pull the petrol pipe off the petrol tap spigot. A small screwdriver can be used to ease the pipe off without straining it.

2 On all CB125 models and CM125 C models, carefully pull away the plastic moulded sidepanels. These each have three moulded prongs on their rear surface which engage in rubber grommets set in the frame or air filter casing and in the base of the petrol tank.

3 On all CB125 models, unlock and raise the dual seat. On CD 125 T and CM125 C remove, the seat. It is held in place by two bolts. Slacken and remove the two bolts, then lift the seat up at the back and pull it backwards to disengage the seat front mounting.

4 On CB125 T, T2, TA and TB, and CD125 T models, the tank rear mounting consists of a rubber strap which must be pulled backwards to release the tank, while on CB125 TD and CM125 C models the tank rear mounting consists of a single bolt which must be slackened and removed. With the tank rear mounting released, raise the tank at the rear and pull it backwards off the two front mounting rubbers.

5 Check the condition of the tank mounting rubber, renewing any that are cracked, perished, or worn, and always store the tank in an upright position in a safe place whilst it is removed from the machine, well away from any naked lights or flames. Check that the tap is not leaking and that it cannot be accidentally knocked into the 'On' position.

6 To refit the tank, reverse the removal procedure. Move it from side to side before it is fully home, so that the front mounting rubbers engage with the guide channels correctly. If difficulty is encountered in engaging the front of the tank with the rubbers, apply a small amount of petrol to them to ease location. Ensure that the petrol pipe is correctly refitted and is fastened by its spring clip, then switch the petrol tap to the 'On' position and check for petrol leaks.

3 Petrol tap: removal, examination and refitting

1 Before removing the petrol tap detach the feed pipe from the carburettor and allow the contents of the tank to drain into a clean receptacle, with the tap turned to the 'Reserve' position. Alternatively, if the tank is only partially full, it can be removed and placed on one side, so that the fuel level is below the tap outlet; take care not to damage the tank paintwork.

2 The tap unit is retained by a gland nut to the threaded stub on the underside of the tank. To remove the tap, unscrew the gland nut fully and withdraw the tap unit. The filter column may be slid off the stand pipe, for cleaning. This should be done using a soft brush and clean petrol. If the filter screen has become perforated, it should be renewed.

3 Check the condition of the gland nut to tank sealing gasket. This will probably remain in position on the tank bottom as the tap unit is removed. If leakage had been apparent, prior to dismantling, renew the gasket.

4 The petrol taps fitted to the CB125 TD, CD125 T and CM125 C models contain an additional gauze filter which is fitted beneath the main tap body and is retained by a separate filter bowl. To gain access to the filter, check that the petrol tap is switched to the 'Off' position and unscrew the filter bowl by applying a close-fitting spanner to the hexagon on the underside of the bowl. Carefully prise out the sealing O-ring and withdraw the filter gauze, which can be cleaned and inspected as described above. Again, if the gauze is in any way damaged it should be renewed, as should the sealing O-ring. On reassembly, fit the gauze with its raised rib aligned with the similar rib on the petrol tap body, then press the O-ring carefully into place. Refit the filter bowl, tightening it by just enough to nip the O-ring; overtightening is not necessary and will result merely in damage to the filter bowl or even to the main tap body.

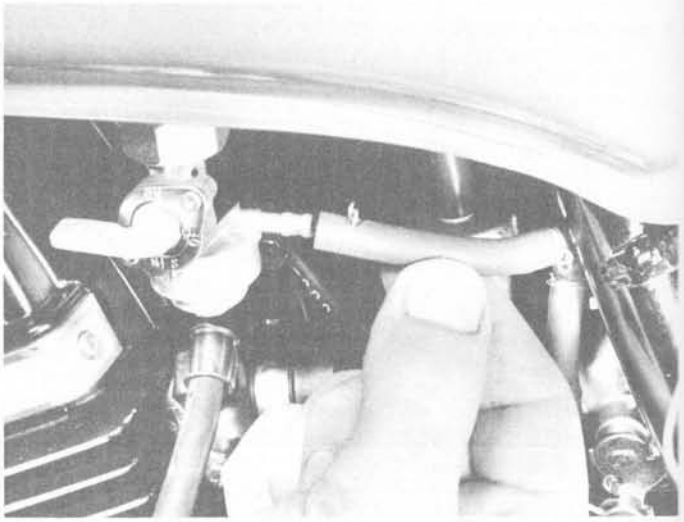
5 If the tap lever leaks, it must be renewed. It is not possible to dismantle the tap for repair. When reassembling the tap, reverse the dismantling procedure.

6 Check that the feed pipe from the tap to the carburettor is in good condition and that the push-on joints are a good fit, irrespective of the retaining wire clips. If particles of rubber are found in the carburettor, replace the pipe, since this is an indication that the internal bore is breaking up.

4 Petrol feed pipe: examination

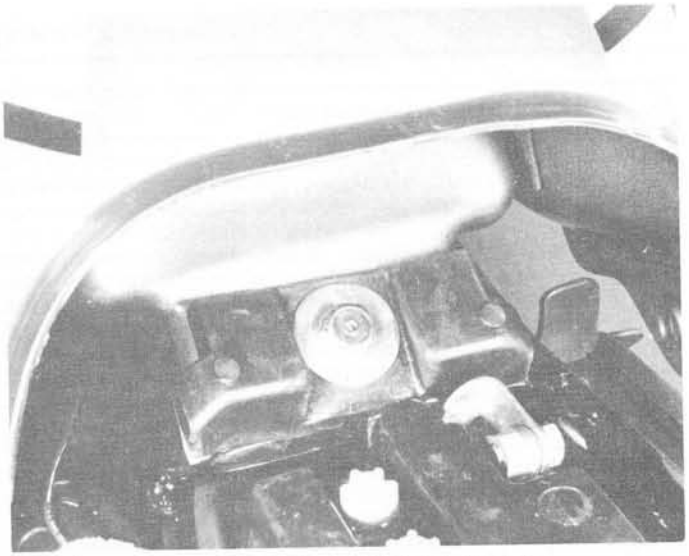
1 A thin-walled synthetic rubber feed pipe is used to convey fuel from the petrol tap to the float chamber union. It is only necessary to replace the pipe if it becomes hard and cracks or starts to split. Check that the wire retaining clips, fitted at each end of the pipe, have not worn through the pipe surface. It is unlikely that the retaining clips themselves should need renewing due to fatigue, because the main seal between the pipe and the unions is effected by an interference fit.

2 **Do not** replace a broken pipe with one of natural rubber, even temporarily. Petrol causes natural rubber to swell very rapidly and disintegrate, with the result that minute particles of rubber would easily pass into the carburettors and cause blockages of internal passageways. Plastic pipe of the correct bore size can be used as a temporary substitute but it should be replaced with the correct type of tubing as soon as possible since it will not have the same degree of flexibility.

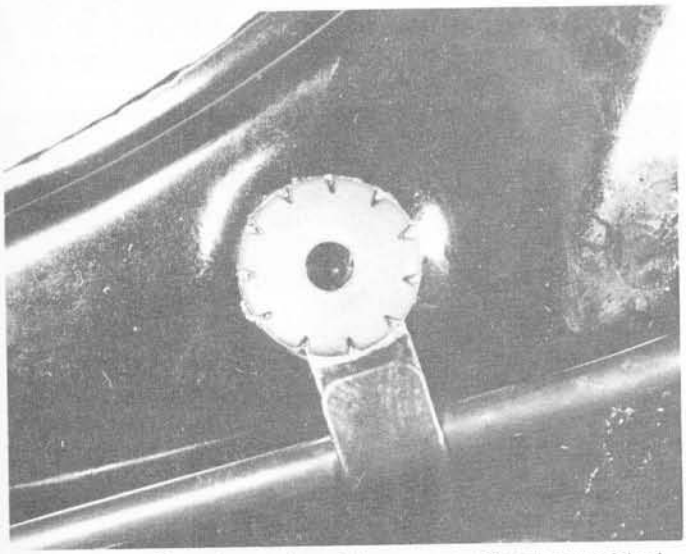


2.1 Petrol pipe is pulled off tap spigot after releasing spring clip

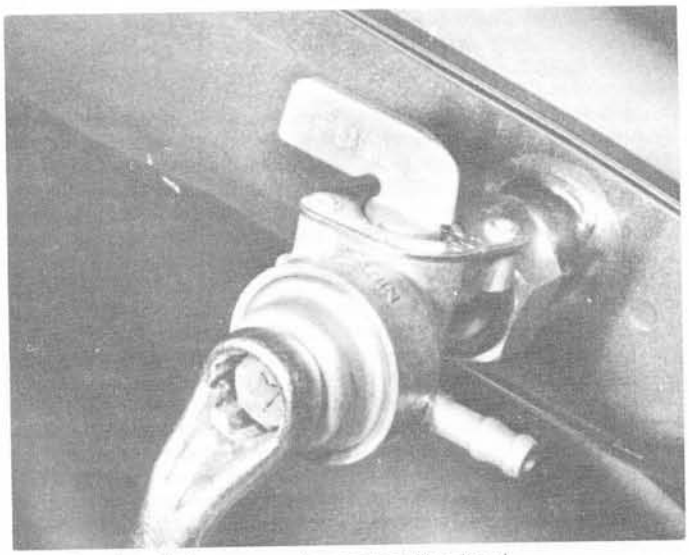
2.2 CB125 and CM125 C sidepanels engage petrol tank – remove before withdrawing tank



2.3 Raise or remove seat to expose tank rear mounting

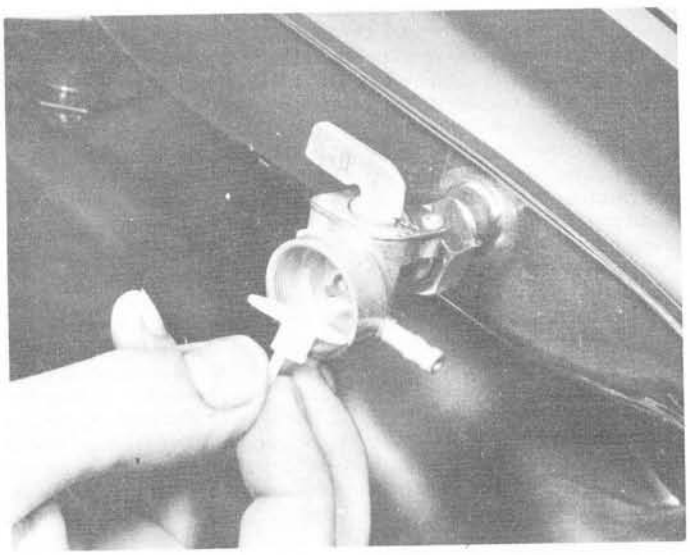


2.5 Check condition of mounting rubbers – renew if worn or perished



3.4a Use close fitting spanner to unscrew filter bowl ...

3.4b .. withdraw sealing O-ring ...



3.4c ... and remove tap filter gauze

5 Carburettors: removal and refitting

1 To gain the maximum clearance when working on the carburettors, remove the sidepanels, raise or remove the seat, and remove the petrol tank as described in Section 2 of this Chapter.

CB125 models

2 On CB125 TD models only, slacken the single screw which secures the choke cable clamp to the body of the left-hand carburettor, then disengage the choke cable lower end nipple. On all CB125 models remove the petrol pipe from one (or both, if desired) of the float chamber unions. Unscrew the carburettor tops, withdraw the throttle valve assemblies and hang them carefully over the frame top tube. Slacken the air filter hose clamps on CB125 TD models only, and also the intake adaptor clamps.

3 Pull the left-hand carburettor backwards until the rubber intake adaptor is disengaged from the cast inlet stub, then manoeuvre the carburettor out to the left. Disengage the choke linkage as soon as possible so that it is not damaged. Repeat the procedure, for the right-hand carburettor, but be careful not to bend the choke linkage.

4 If removal of the rubber intake adaptors or the cast inlet stubs from the cylinder head proves necessary note that the O-ring sealing each joint should be renewed to prevent induction leaks. When refitting, do not overtighten the retaining nuts. The intake adaptors are identical but must be fitted with the locating projection uppermost. The cast inlet stubs however, are handed and marked 'L' or 'R' to aid correct refitting. The vacuum take-off plugs should face outwards and downwards.

5 Refitting is a straightforward reversal of the removal procedure; fit first the right-hand carburettor, then the left-hand, taking care to engage the choke linkage on the protruding D-shaped right-hand end of the left-hand carburettor choke butterfly spindle. Note that the projection on the upper forward edge of each rubber intake adaptor must locate between the two cast lugs on each inlet stub to ensure that the carburettor is positioned upright. Tighten securely the adaptor/inlet stub clamps and, on CB125 TD models only, the air filter hose/carburettor clamps, then check that the choke linkage is free to move without fouling any other component.

6 Refit the throttle valve assemblies, noting that there is a raised pip on the inside of each carburettor body which must engage with the slot in the side of each valve to ensure that the valve is refitted the correct way round. Tighten securely the carburettor tops and use the adjuster underneath the twistgrip to provide sufficient throttle cable freeplay so that the grip can be rotated through approximately 10-15° before the slides begin to rise. If adjustment or synchronisation of the carburettors is necessary, refer to Sections 7, 8, and 9 of this Chapter before refitting the petrol tank and sidepanels.

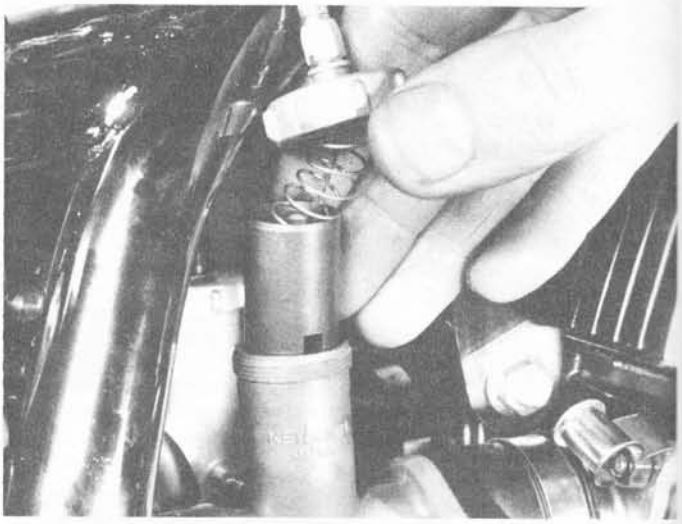
CD125 T and CM125 C models

7 With the seat, sidepanels, and the petrol tank removed from the machine, slacken the single screw which secures the choke cable clamp, release the cable outer from the clamp, and disengage the choke cable lower end nipple. On CD125 T models, slacken fully the adjuster locknut at each end of the cable, then screw in the twistgrip nut to gain the maximum freeplay in the cable and unscrew the adjuster at the carburettor top until the cable outer can be released and the cable inner slipped out through the slot in the adjuster bracket. Disengage the cable end nipple from the operating lever.

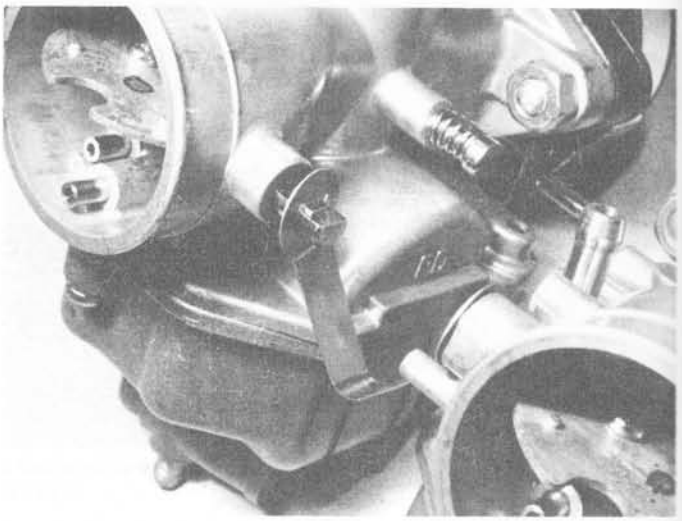
8 Slacken fully the clamp securing the air filter hose to the rear of the carburettor body and pull the air filter hose backwards to clear the carburettor. Remove the two intake manifold nuts and pull the carburettor off its mounting studs, trying not to disturb the separate induction spacer/heat shield. On CM125 C models only, unscrew the carburettor top as soon as adequate access is gained, and remove the throttle valve assembly. Remove the carburettor from the machine.

9 If removal of the induction spacer/heat shield or cast intake manifold is necessary, always renew as a matter of course the O-rings sealing the manifold/cylinder head joint and the gasket sealing the spacer/manifold joint to prevent induction leaks. On refitting, do not overtighten the manifold retaining nuts or omit the HT lead clamp fitted to each manifold upper mounting stud. Note that due to the offset position of the studs the manifold can be fitted only one way. The induction spacer is, of course, fitted with the heat shield projecting downwards.

10 Refitting the carburettor is a straightforward reversal of the removal procedure. Ensure that the air filter hose is engaged correctly on the carburettor body before the clamp is secured and tighten securely the carburettor retaining nuts; do not overtighten these nuts or there is a risk of distorting the carburettor body. If carburettor adjustment is required, refer to Sections 7 and 8 of this Chapter.



5.2 Exercise extreme caution when removing throttle valve assemblies



5.5 CB125 models – note method employed to connect choke linkage

6 Carburettors: dismantling, examination and reassembly

1 The CB125 and CM125 C models are fitted with conventional slide-type Keihin PD-series carburettors, while the CD125 T model is fitted with a constant velocity Keihin VC-series carburettor. The lower ends of the two carburettor types are identical, with the result that the procedure for removing and refitting the float chamber, float assembly, and jets is the same for all models; the difference between the two types is in the carburettor top ends. The following instructions are, therefore, divided into two sub-sections.

Slide carburettor

2 Detach the float chamber by inverting the carburettor and removing the three screws and spring washers that retain it to the main body. There is a sealing O-ring around the edge of the float chamber, which will remain in the float chamber.

3 Pull out the pivot pin from the twin float assembly. Lift away the floats and the float needle together, being careful that the small float needle does not drop free and become lost.

4 The main jet is located in the centre of the mixing chamber, between the twin floats. It is threaded into the base of the needle jet holder (in the central column). When unscrewing any jet, a close fitting screwdriver must be used to prevent damage to the slot in the soft jet

material. Unscrew and remove the main jet. Using a small close fitting spanner, unscrew and remove the needle jet holder from below (when inverted) the main jet.

5 Return the carburettor to its upright position and allow the needle jet to fall out. It may be necessary to use a hammer and a soft wooden probe to push the jet out from above.

6 Unscrew the slow (pilot) jet from its location in front of the central column. If the removal of the pilot mixture screw is necessary, screw it in until it seats lightly and count and record the number of turns necessary to achieve this so that the screw can be returned to its original position on refitting. Unscrew the mixture screw and remove it together with the spring, the plain washer, and the O-ring.

7 After an extended period of service, the throttle slide will wear and may produce a clicking sound within the carburettor body. Wear will be evident from inspection, usually at the base of the slide and in the locating groove. A worn slide should be renewed as soon as possible because it will give rise to air leaks which will upset carburation. If it is necessary to dismantle the throttle valve assembly, compress the valve upwards against spring pressure and pull the cable out of its recess in the valve and through the slot in the valve side. Using a suitable pair of pliers, withdraw the needle retaining spring clip, then tip out the needle with its small locating clip. Check that the needle is not bent by rolling it on a flat surface such as a sheet of plate glass. If it is bent it must be renewed. Always renew the needle and needle jet together.

8 Inspect the choke assembly. Wear is unlikely to take place until a very high mileage has been covered, which is fortunate as there are no replacement parts available with which it can be reconditioned. The exception to this is the CM125 C model, where the operating lever and return spring are available separately; in all other cases the complete carburettor assembly must be renewed. Check that the butterfly retaining screws are securely fastened, that the choke mechanism functions smoothly, and that there are no obvious signs of wear or damage; the most likely area of wear being in the fit of the spindle in the carburettor body.

9 Check carefully the carburettor body, the float chamber, and the carburettor top, looking for signs of damage such as cracks or splits, worn threads, and distorted mating surfaces. While it may be possible in some cases to repair such damage, for example by rubbing flat a distorted mating surface with a sheet of plate glass and fine emery paper, it will be necessary usually to renew the damaged component.

10 Check that the floats are in good order and not punctured. If either float is punctured, it will produce the wrong petrol level in the float chamber, leading to flooding and an over rich mixture. Because the floats are moulded from a plastic material, it is not possible to effect a permanent repair. In consequence, a new replacement must be fitted if damage is found. Flooding may be caused by an incorrect float height, rather than a damaged float. If this is the case refer to Section 8 for the adjustment procedure.

11 The float needle and needle seat will wear after lengthy service and should be closely examined with a magnifying glass. Wear usually takes the form of a ridge or groove, which will cause the float needle to seat imperfectly. If damage to the seat has occurred the carburettor body must be renewed because the seat is not removable.

12 Before the carburettor is reassembled, by reversing the dismantling procedure, it should be cleaned out thoroughly using compressed air. Avoid using a piece of rag since there is always risk of particles of lint obstructing the internal passageways or the jet orifices.

13 Never use a piece of wire or any pointed metal object to clear a blocked jet. It is only too easy to enlarge the jet under these circumstances and increase the rate of petrol consumption. If the compressed air is not available, a blast of air from a tyre pump will usually suffice. As a last resort, a fine nylon bristle may be used.

14 Do not use excessive force when reassembling a carburettor because it is too easy to shear a jet or some of the smaller screws. Furthermore, the carburettor is cast in a zinc-based alloy which itself does not have a high tensile strength. If any of the castings are damaged during reassembly, they will almost certainly have to be renewed.

Constant velocity carburettor

15 Once the carburettor has been removed from the machine, slacken and remove the three screws which retain the carburettor top casting, then remove the casting complete with the throttle mechanism. Very carefully peel away the rubber diaphragm from its locating groove in the carburettor body, then lift carefully the diaphragm and the throttle valve assembly out of the carburettor.

16 The remaining carburettor components can be removed, inspected, and refitted following the instructions given above for slide-type carburettors.

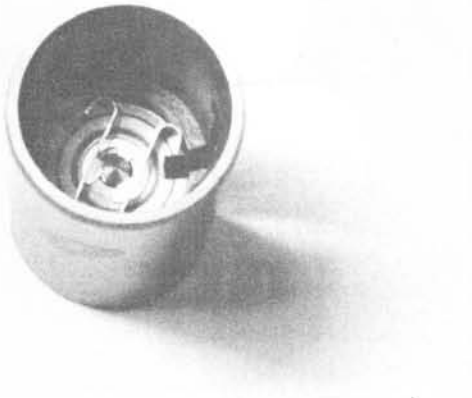
17 If it is necessary to dismantle the diaphragm/throttle valve assembly, slacken and remove the three small countersunk screws which secure the diaphragm retaining plate to the top of the throttle valve, then withdraw the retaining plate and peel the diaphragm away from its locating groove in the throttle valve. As the retaining plate is removed, the throttle pushrod and spring will be released; withdraw these, noting carefully which way round the pushrod is fitted. On examining the throttle valve it will be seen that there is a small grub screw set in its side; slacken and remove the grub screw to release the throttle needle retainer and the throttle needle from the bottom of the throttle valve.

18 Examine carefully the component parts of the throttle assembly looking for obvious signs of wear or damage; any such wear will necessitate the renewal of the component concerned. As with the choke operating mechanism, any wear means that the complete carburettor assembly must be renewed. The diaphragm, however, is available as a replacement part. To check a diaphragm, inspect it closely, with a magnifying glass if necessary, looking for splits or cracks and any other signs of perishing or wear. Hold it up to a strong light and check that there are no holes in it. If in doubt about its condition, renew the diaphragm.

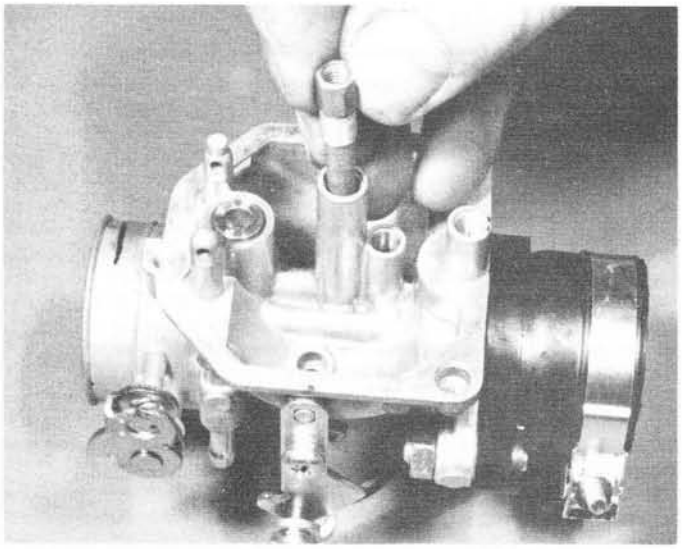
19 On reassembly, check that the throttle needle locating clip is fastened securely in its correct groove, then invert the throttle valve and insert the needle into its locating recess in the bottom of the valve body. Place the needle retainer over the needle, sliding it down into its recess in the throttle valve body and securing it with the grub screw. Tighten securely the grub screw but be careful not to overtighten it. Check that the screw does not protrude beyond the throttle valve body and be careful to polish away any raised burrs produced by screwing the grub screw into place.

20 Refit the diaphragm to the throttle valve, ensuring that the diaphragm moulded inner edge fits correctly into the groove in the throttle valve top surface, and insert the spring and pushrod into their locating recess in the throttle valve body. Note that the pushrod is divided by its retaining collar into two unequal lengths; the longer length must fit downwards to engage with the spring. Refit the diaphragm retaining plate over the pushrod shorter end, aligning the three holes for the retaining screws and the smaller hole with the air passage in the throttle valve. Check that the diaphragm is retained correctly, then refit and tighten carefully the three small countersunk retaining screws.

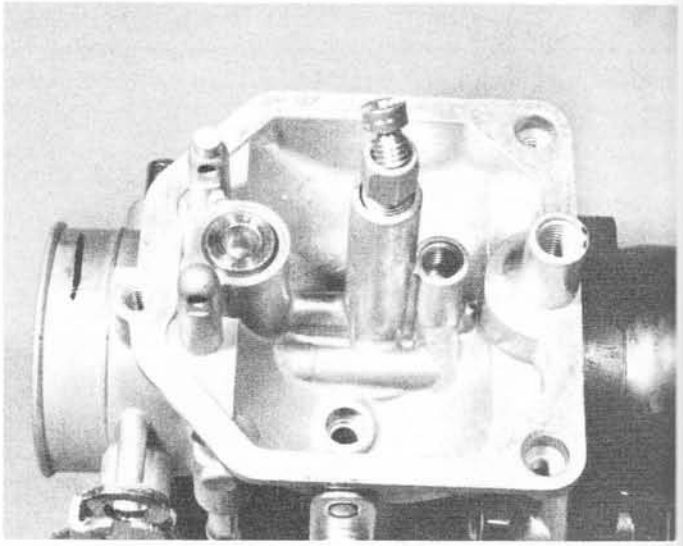
21 Insert the diaphragm/throttle valve assembly into the carburettor, aligning the shorter wide groove machined at the bottom of the throttle valve with the throttle stop screw. Press the diaphragm moulded outer edge into its locating groove in the top of the carburettor body, and check that the diaphragm is correctly fitted and that the throttle valve is free to move smoothly before refitting the carburettor top casting. Tighten securely the three retaining screws.



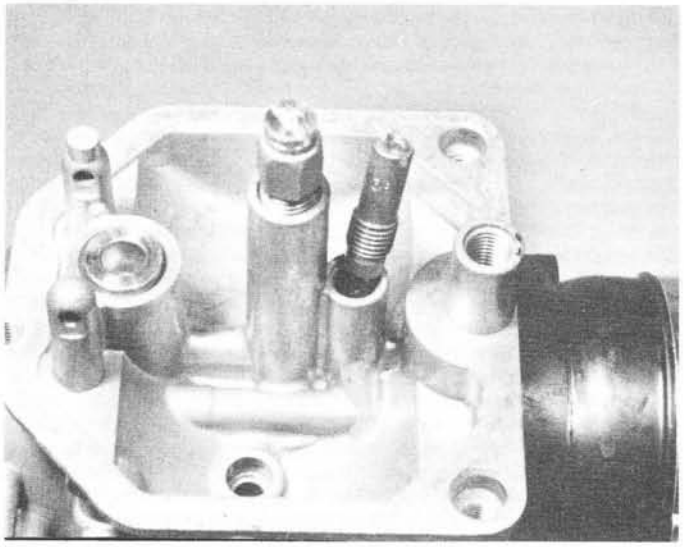
6.7 Note position of needle retaining spring clip inside the throttle valve



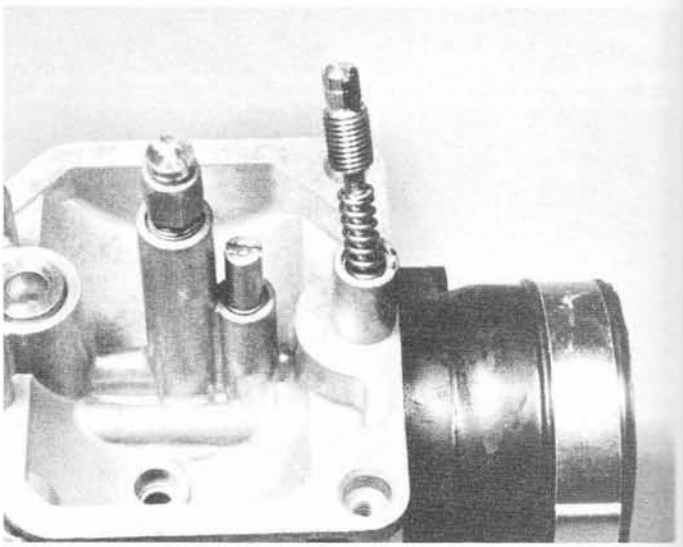
6.12a Needle jet holder screws into central column of carburettor body



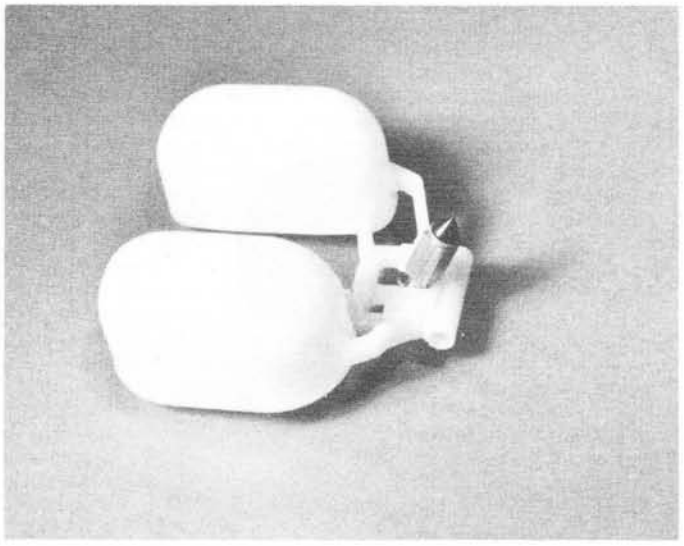
6.12b Main jet is screwed into needle jet holder



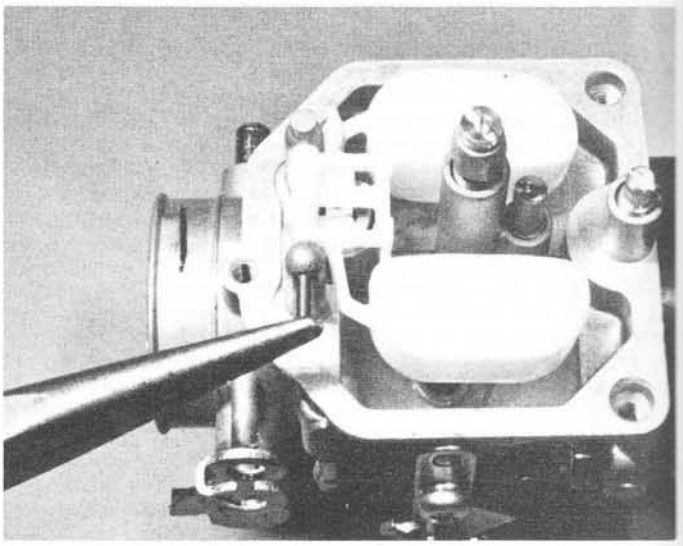
6.12c Slow (pilot) jet is located in front of central column



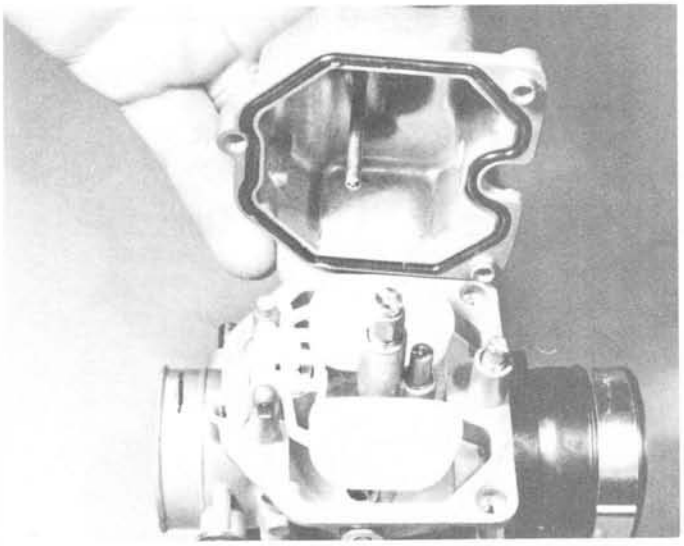
6.12d Screw in pilot mixture screw until it seats lightly, then unscrew specified number of turns



6.12e Float needle engages as shown in float assembly



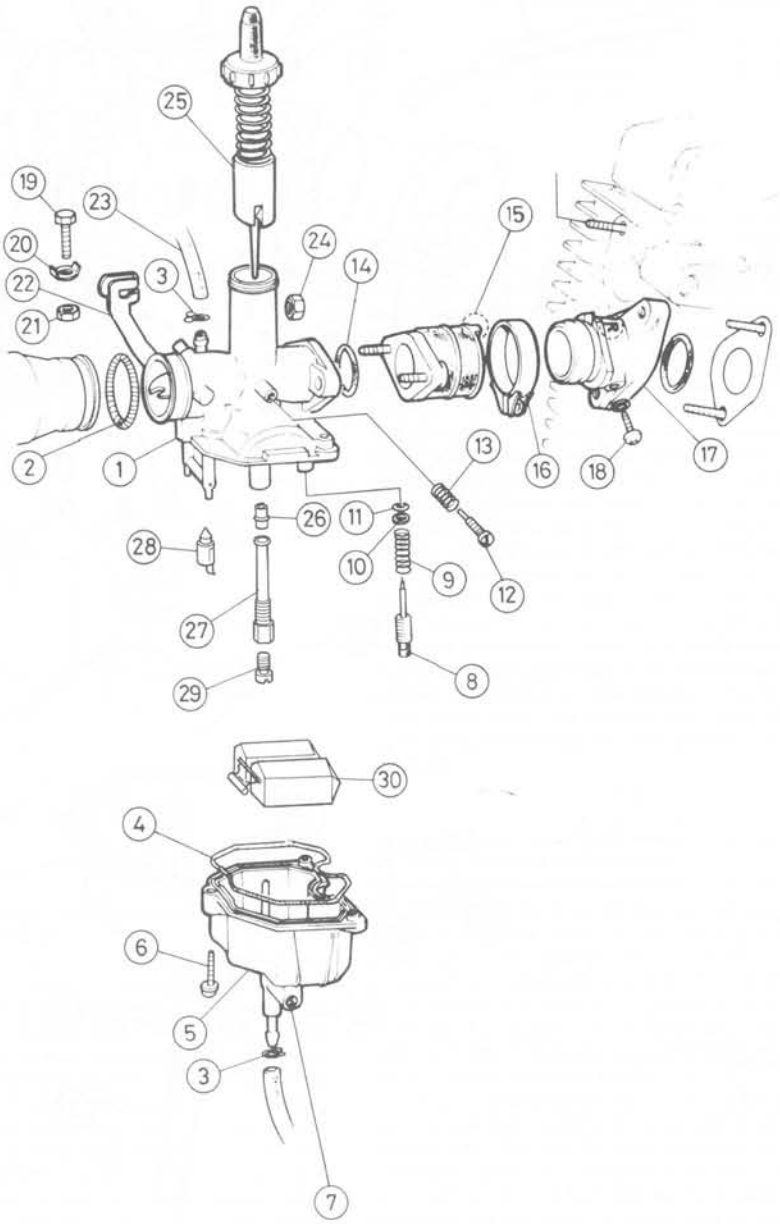
6.12f Insert pivot pin to secure float assembly



6.12g Check that O-ring is in good condition before refitting float chamber

Fig. 2.1 Carburettor – CB and CM125 models

1	*Carburettor*	16	*Clamp*
2	*Wire hose clip*	17	*Inlet stub*
3	*Pipe clip – 2 off*	18	*Screw*
4	*O-ring*	19	*Bolt*
5	*Float chamber*	20	*Tab washer*
6	*Screw and washer – 3 off*	21	*Nut*
7	*Drain screw*	22	*Choke operating arm*
8	*Pilot mixture screw*	23	*Fuel pipe*
9	*Spring*	24	*Nut – 2 off*
10	*Washer*	25	*Throttle valve assembly*
11	*O-ring*	26	*Needle jet*
12	*Throttle stop screw*	27	*Needle jet holder*
13	*Spring*	28	*Float needle*
14	*O-ring*	29	*Main jet*
15	*Inlet adaptor*	30	*Float*



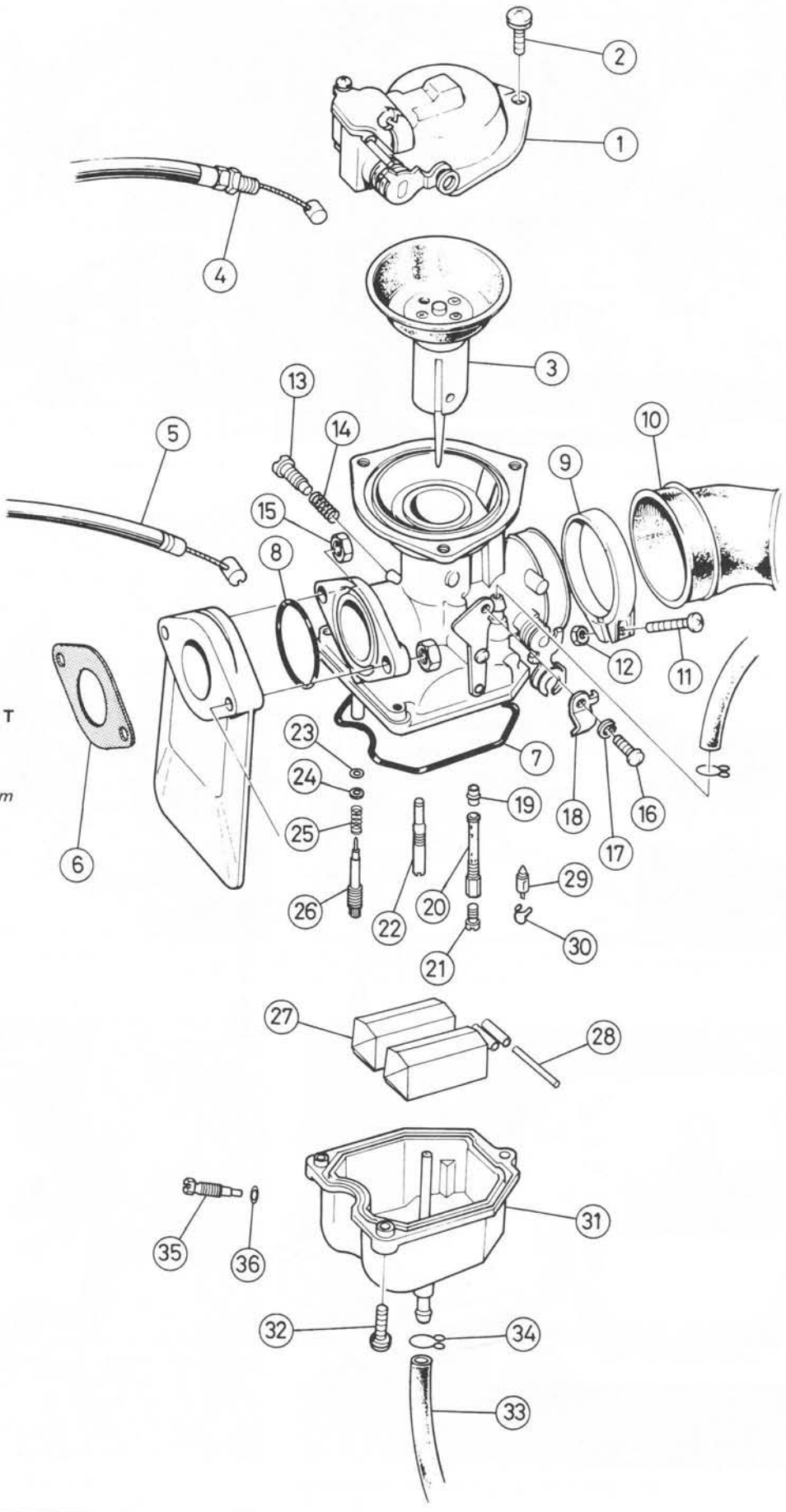


Fig. 2.2 Carburettor – CD125 T

1 *Carburettor top*
2 *Screw – 3 off*
3 *Throttle valve and diaphragm*
4 *Throttle cable*
5 *Choke cable*
6 *Gasket*
7 *O-ring*
8 *O-ring*
9 *Clamp*
10 *Air intake hose*
11 *Screw*
12 *Nut*
13 *Throttle stop screw*
14 *Spring*
15 *Nut – 2 off*
16 *Screw*
17 *Spring washer*
18 *Cable clamp*
19 *Needle jet*
20 *Needle jet holder*
21 *Main jet*
22 *Slow (pilot) jet*
23 *O-ring*
24 *Washer*
25 *Spring*
26 *Pilot mixture screw*
27 *Float*
28 *Pivot pin*
29 *Float needle valve*
30 *Clip*
31 *Float chamber*
32 *Screw and spring washer – 3 off*
33 *Hose*
34 *Hose clip*
35 *Drain screw*
36 *O-ring*

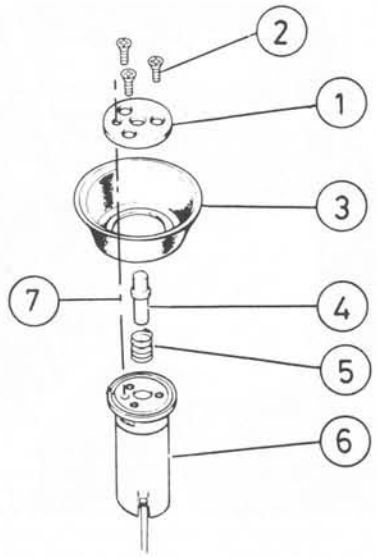


Fig. 2.3 Diaphragm/throttle valve assembly – CD125 T

1 *Retaining plate*
2 *Screw – 3 off*
3 *Diaphragm*
4 *Pushrod*
5 *Spring*
6 *Throttle valve*
7 *Alignment holes*

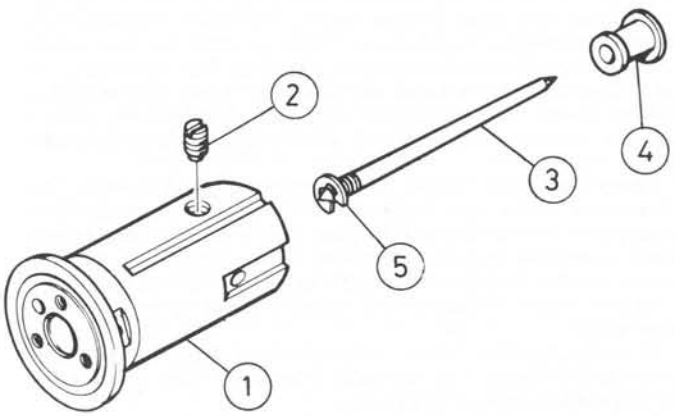


Fig. 2.4 Throttle valve components – CD125 T

1 *Throttle valve*
2 *Grub screw*
3 *Jet needle*
4 *Needle retainer*
5 *Needle clip*

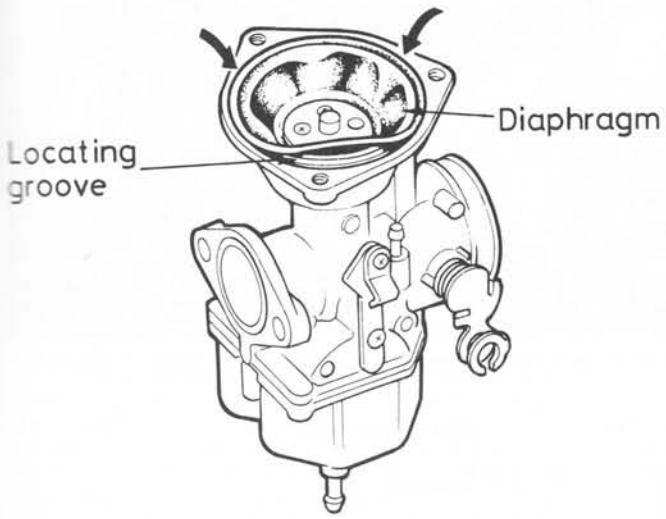


Fig. 2.5 Refitting the diaphragm – CD125 T

7 Carburettors: checking the settings

1 The various jet sizes, throttle valve cutaway (on slide type carburettors) and needle position are predetermined by the manufacturer and should not require modification. Check with the Specifications list at the beginning of this Chapter if there is any doubt about the types fitted. If a change appears necessary it can often be attributed to a developing engine fault unconnected with the carburettor(s). Although carburettors do wear in service, this process occurs slowly over an extended length of time and hence wear of the carburettor is unlikely to cause sudden or extreme malfunction. If a fault does occur check first other main systems, in which a fault may give similar symptoms, before proceeding with carburettor examination or modification.

2 Where non-standard items, such as exhaust systems, air filters or camshafts have been fitted to a machine, some alterations to carburation may be required. Arriving at the correct settings often requires trial and error, a method which demands skill born of previous experience. In many cases the manufacturer of the non-standard equipment will be able to advise on correct carburation changes.

3 As a rough guide, up to $\frac{1}{8}$ throttle is controlled by the pilot jet, $\frac{1}{8}$ to $\frac{1}{4}$ by the throttle valve cutaway, $\frac{1}{4}$ to $\frac{3}{4}$ throttle by the needle position and from $\frac{3}{4}$ to full by the size of the main jet. These are only approximate divisions, which are by no means clear cut. There is a certain amount of overlap between the various stages. The above marks apply only in part to constant velocity carburettors. The first and fourth stages are controlled in a similar manner. The second stage is controlled by the by-pass valve which is uncovered as soon as the throttle valve (piston) is opened. During the third stage the fuel passing through the main jet is metered by the needle jet working in conjunction with the piston needle (jet needle).

4 If alterations to the carburation must be made, always err on the side of a slightly rich mixture. A weak mixture will cause the engine to overheat which, particularly on two-stroke engines, may cause engine seizure. Reference to the chapter on the ignition system will show how, after some experience has been gained, the condition of the spark plug electrodes can be interpreted as a reliable guide to mixture strength.

8 Carburettors: adjustment

1 Before the carburettor can be adjusted correctly the float height must be checked, especially if flooding of the carburettor or excessive weakness (fuel starvation) has been encountered. Remove the carburettor(s) as described in Section 5 of this Chapter.

2 Remove the three float chamber screws, then remove the float chamber. Two types of float assembly may be encountered. The earlier type consists of two black plastic floats attached to a brass pivot arm; which can be adjusted easily. The later type is a one-piece assembly moulded in white nylon which cannot be adjusted; the only means of altering the float level is to renew the float unit, the float needle, or the needle seat. The needle seat, however, is not a separate item so the complete carburettor assembly must be renewed.

3 Position the carburettor air filter end upwards, so that the float assembly hangs from its pivot and is just in contact with the float needle without compressing its tip. Measure the distance between the

carburettor body gasket surface and the bottom of the float, comparing the figure obtained with that given in the Specifications Section of this Chapter. If adjustment is necessary and the earlier type of float assembly is fitted, bend very gently and carefully the brass tang situated between the two floats and against which the float needle bears, until the correct measurement is obtained. If the later one-piece type of float assembly is fitted, examine carefully the float assembly, the float needle, and the needle seat, using a magnifying glass if necessary. Renew any component which shows signs of excessive wear.

4 When the float height is accurately set, reassemble the carburettor(s) and fit them to the machine. If there is any doubt about the accuracy of other settings, for example the contact breaker gaps (where applicable), ignition timing, and tappet adjustment, all these must be checked and reset if necessary before the carburettor settings are altered. Start the engine and warm it up to normal operating temperature.

5 Stop the engine and screw the pilot mixture screw in until it seats lightly, then unscrew it by the exact number of turns given in the Specifications Section of this Chapter.

6 Restart the engine and allow it to idle, using the throttle stop screw if necessary to give a slow but smooth idling speed. Turn the mixture screw inwards $\frac{1}{4}$ turn at a time, noting its effect on the idling speed, then repeat the process, this time turning the screw outwards. The pilot mixture screw should be left in the position which gives the fastest consistent tickover. This is generally very close to the setting specified by the factory and given in the Specifications Section.

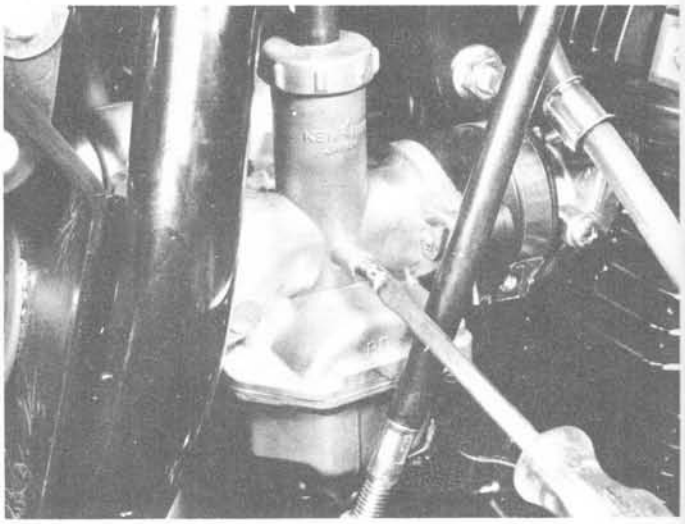
7 With the pilot mixture screw set, and if working on a CM125 C or CD125 T model, turn the throttle stop screw to obtain the recommended idling speed. As a tachometer is not fitted to these models, the idling speed must be approximated by finding the slowest speed at which the engine will tick over smoothly and reliably. Open and close the throttle a few times to ensure that the engine does not falter and stop, and check the throttle stop screw setting after taking the machine for a short test ride; it may be necessary to increase or to decrease slightly the idle speed.

8 Owners of CB125 models will find the task of setting correctly the pilot mixture screw requires great care and patience; listen very carefully to the engine, noting the slightest difference in its speed or exhaust note as the mixture screws are rotated. When setting the mixture screws, set first one screw, then repeat the process for the other, but remember that if the task appears to be beyond your capabilities the specified setting is close enough for all normal purposes. In such a case, leave the screws at the specified setting and take the machine to a Honda dealer for the carburettors to be set accurately by an expert; note that it is assumed the air filters, carburettors, the engine, and the exhausts are all standard equipment and in good condition. If it is necessary to alter the idling speed, be careful to turn each throttle stop screw by exactly the same amount and in the same direction; this is essential to preserve the synchronization of the two carburettors. If it is wished to check the carburettor synchronization, refer to Section 10 of this Chapter.

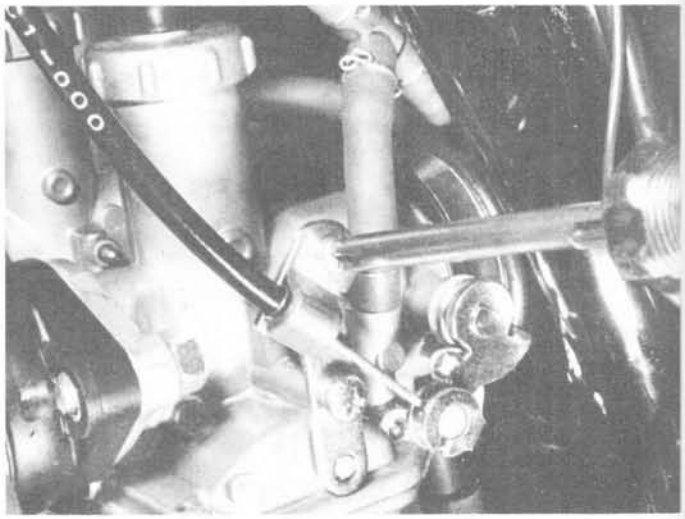
9 On CB125 TD models **do not** make idle speed adjustment on each cylinder individually by removing the spark plug cap from each spark plug in turn. This will damage the electronic ignition components.

10 Complete carburettor adjustment by adjusting the throttle cable and the choke cable (where fitted). On CD125 T and CM125 C models, refer to Routine Maintenance for adjustment. On CB125 models the task of cable adjustment is described briefly in Section 5 of this Chapter; as the task of throttle cable adjustment is so closely related to that of carburettor synchronisation, the full procedure of adjusting the throttle cable is given in Section 9 of this Chapter.

11 On models fitted with a cable-operated choke, the choke cable is adjusted as follows. Check that the choke knob situated below the instrument panel is pressed fully into its open (off) position, and slacken the single screw securing the choke cable clamp to the side of the carburettor body. Pull the cable outer slowly through the clamp towards the front of the machine, stopping when all but the slightest trace of free play has been eliminated from the exposed length of the cable inner, then tighten securely the retaining screw. Check the choke operation. Finally, note that a simple friction device is fitted at the choke cable handlebar end to permit the cable to be held in any desired position. To adjust the friction, pull the choke knob out to the fully closed position and peel off the rubber cover fitted over the cable retaining nut. Rotate the knurled adjuster to produce the desired amount of friction, then refit the rubber cover.



8.8 CB125 models – be careful to turn each throttle stop screw by exactly the same amount to preserve carburettor synchronization



8.11 Slacken cable clamp on carburettor body to adjust choke cable

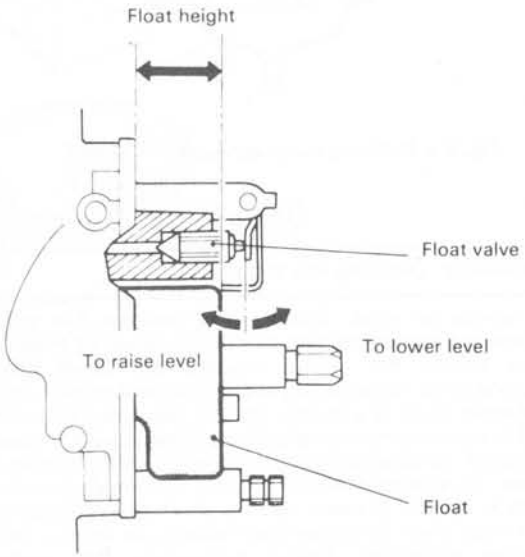


Fig. 2.6 Measuring the float height

9 Carburettor synchronisation – CB125 models

1 Carburettor synchronisation consists of ensuring that the throttle slides are at exactly the same height at idle speed, that both lift at exactly the same time when the throttle twistgrip is rotated, and that both are at the same height at any given engine speed, it is necessary to check this to ensure that both cylinders pull together and not against one another.

2 The symptoms of unbalanced carburettors are as follows: poor starting, erratic idling and poor throttle response, and generally reduced performance at all engine speeds. In addition, the level of vibration may increase and strange noises may be heard as various engine components are placed under greater stress.

3 The method recommended for synchronisation requires the use of vacuum gauges.

4 Vacuum gauge sets are now available from various suppliers who advertise regularly in the national motorcycle press; while they may be considered too expensive for the average owner, it is well worthwhile considering the purchase of a set if the owner is planning to move on to a larger capacity multi-carburettor machine and is planning to carry out his own maintenance. For those who do not have access to a vacuum gauge set, the machine can be taken to a Honda dealer for the carburettors to be synchronised by an expert using the necessary equipment.

5 Before carrying out synchronisation, check that contact breaker gaps (where applicable), ignition timing settings, tappet clearances, carburettor float levels, jet sizes, and the pilot mixture screw settings are all correct, also that the air filter elements are clean, that the exhausts are in sound condition, that the spark plugs are correctly gapped and working properly, and that the throttle cable is correctly routed with no kinks or sharp bends and is properly lubricated and working smoothly. This is because one cannot expect to gain the full benefit of carburettor synchronization if some faulty or maladjusted component is upsetting the remainder of the engine induction and exhaust system, or if the throttle cable is so badly damaged or worn that it cannot lift the slides at the same time, regardless of the settings in use.

6 Start the engine and warm it to normal operating temperature. Stop the engine, the remove the sidepanels, unlock and raise the seat, propping it with a piece of wood, and release the petrol tank rear mounting. Raise the rear of the tank as far as possible without straining the petrol pipe, then prop the tank in that position with a piece of wood. Check that there is adequate fuel in the tank and switch the tap to the 'Res' position. Slide up the rubber sleeve fitted over each throttle cable adjuster in each carburettor top and screw fully in the adjusters. Slacken fully the locknut fitted to the throttle cable twistgrip adjuster, then screw in the adjusting nut to gain the maximum free play in the cable.

7 Using an impact screwdriver, slacken and remove the vacuum gauge adaptor blanking plug from each of the cast inlet stubs. These blanking plugs are 5 mm screws; replace them by screwing in the vacuum gauge adaptors. Attach the hose from each gauge to one of the adaptors, then start the engine. If the gauges are fitted with adjustable damping valves, adjust the degree of damping until a steady reading is gained, but be careful to check that the instrument can respond quickly to throttle changes. Note the readings obtained, disconnect the hoses and attach each hose to the opposite adaptor. The readings should be the same; if a discrepancy is found in one particular gauge it must be noted and compensated for.

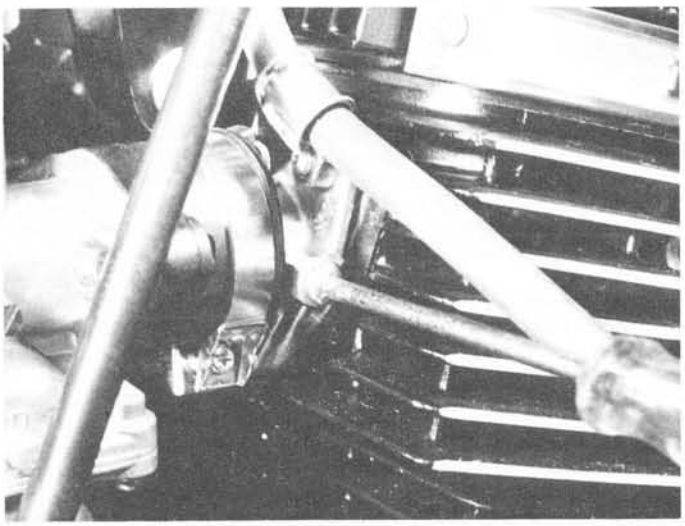
8 With all preliminary checks and preparations carried out, the task of synchronising can begin. With the engine idling smoothly, note the readings shown by the gauges. Rotate the throttle stop screws until the two readings are consistently identical; some careful work will be necessary to achieve this result. When both gauges show an identical reading, check that the idle speed shown by the tachometer is within the limits of the recommended idle speed given in the Specifications Section of this Chapter. If not, rotate both throttle stop screws by exactly the same amount and to achieve the recommended speed. Recheck the vacuum gauge readings and modify the screw settings until the readings are once more identical.

9 When the engine is idling smoothly and at the correct speed with both vacuum gauges showing the same reading, fully open and close the throttle once or twice. The engine should return to the same idle speed and vacuum reading; if not, stop the engine and examine closely the throttle cables. If any tight spots or other damage is causing the cables to lift the slides unevenly, the cable(s) should be renewed. If all is well, enlist the aid of an assistant for the next step, and stop the engine.

10 With one person operating the twistgrip and watching the tachometer reading, the other can watch the vacuum gauges and adjust the carburettors. Start the next step by rotating the adjusters in the carburettor tops until all but the slightest trace of free play from the junction box/carburettor top sections of the throttle cable is eliminated. Start the engine and recheck the idle speed and vacuum gauge readings; these should not have altered. Increase engine speed to 4000 rpm and note the new readings as soon as they have stabilised. A tolerance of up to 4.0cm Hg is permissible at this stage, but it is still better to have the two readings identical, adjustment being made by rotating the throttle cable adjuster in the carburettor tops. This requires care if it is to be carried out accurately. Avoid risk of engine damage through overheating by minimising the amount of time the engine spends at 4000 rpm; the correct adjustment takes time. Stop the engine and allow it to cool down before continuing.

11 When the vacuum gauges both show a reading that is consistently identical at 4000 rpm, with a difference of up to 4.0 cm Hg being acceptable at this engine speed, the carburettors can be considered synchronized. Close the throttle and allow the engine to return to its idle speed which should not have altered, nor the vacuum gauge readings at this speed. Stop the engine and replace the rubber sleeve which protects each carburettor top cable adjuster, taking care not to disturb the adjuster setting. Using the adjuster underneath the twistgrip, adjust the throttle cable so that the twistgrip can be rotated through 10-15° before the slides begin to lift. Tighten securely the adjuster locknut then fully open and close the throttle once or twice to settle the throttle cable and start the engine. Check that the vacuum gauge readings are still identical at idle speed and within the set limits at 4000 rpm. If all is not well, the fault is most likely to lie in the throttle cable.

12 When the carburettors are accurately synchronized, disconnect the hoses from the adaptors, remove the adaptors, then refit and tighten securely the blanking plugs. Return the petrol tank to its correct position and secure the tank rear mounting, then lower the seat and refit the sidepanels.



9.7 Remove blanking plug from each inlet stub to permit fitting of vacuum gauge adaptors

10 Air filter: dismantling and cleaning

1 Refer to Routine Maintenance, at the front of this Manual, for details of air filter cleaning.

2 Never run the engine with the air filter disconnected or with the element removed. Apart from the risk of increased wear due to unfiltered air being allowed to enter the engine, the carburettor is jetted to compensate for the presence of the air filter, and a dangerously weak mixture will result if the filter is omitted.

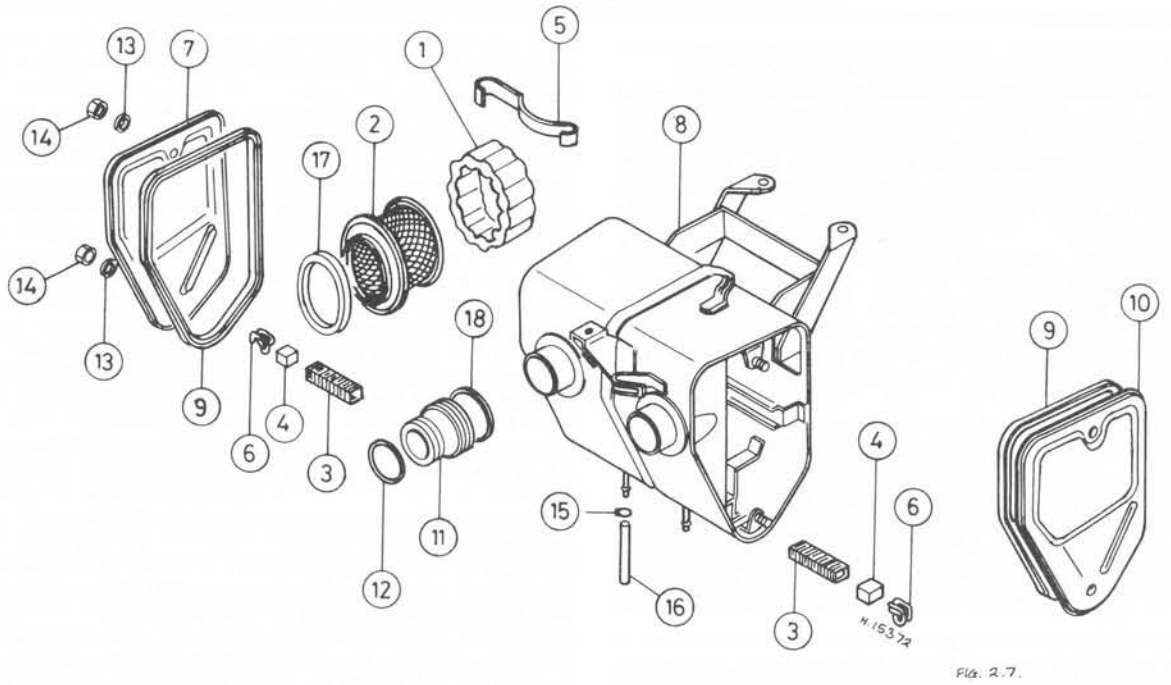


Fig. 2.7.

Fig. 2.7 Air filter – CB125 T, T2, TA and TB

1 *Element*
2 *Element frame*
3 *Damping block – 2 off*
4 *Damping block – 2 off*
5 *Spring clip*
6 *Spring clip*
7 *Cover*
8 *Casing*
9 *Seal*
10 *Cover*
11 *Inlet hose*
12 *Hose clamp*
13 *Washer*
14 *Nut*
15 *Pipe clip*
16 *Drain pipe*
17 *Seal*
18 *Hose clamp*

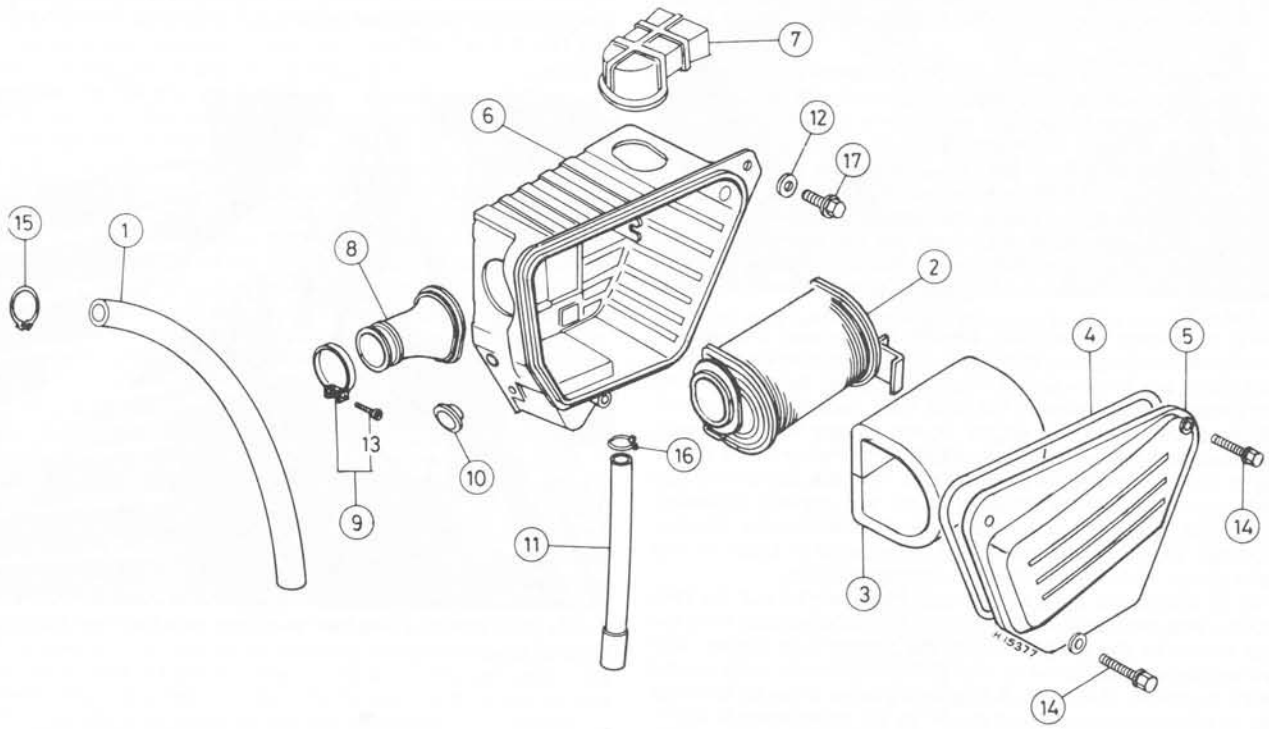


Fig. 2.8 Air filter – CM125 C

1 *Breather pipe*
2 *Element frame*
3 *Element*
4 *Seal*
5 *Cover*
6 *Casing*
7 *Air intake hose*
8 *Air outlet hose*
9 *Hose clamp*
10 *Plug*
11 *Drain plug*
12 *Washer*
13 *Screw*
14 *Bolt – 3 off*
15 *Pipe clip*
16 *Pipe clip*
17 *Bolt*

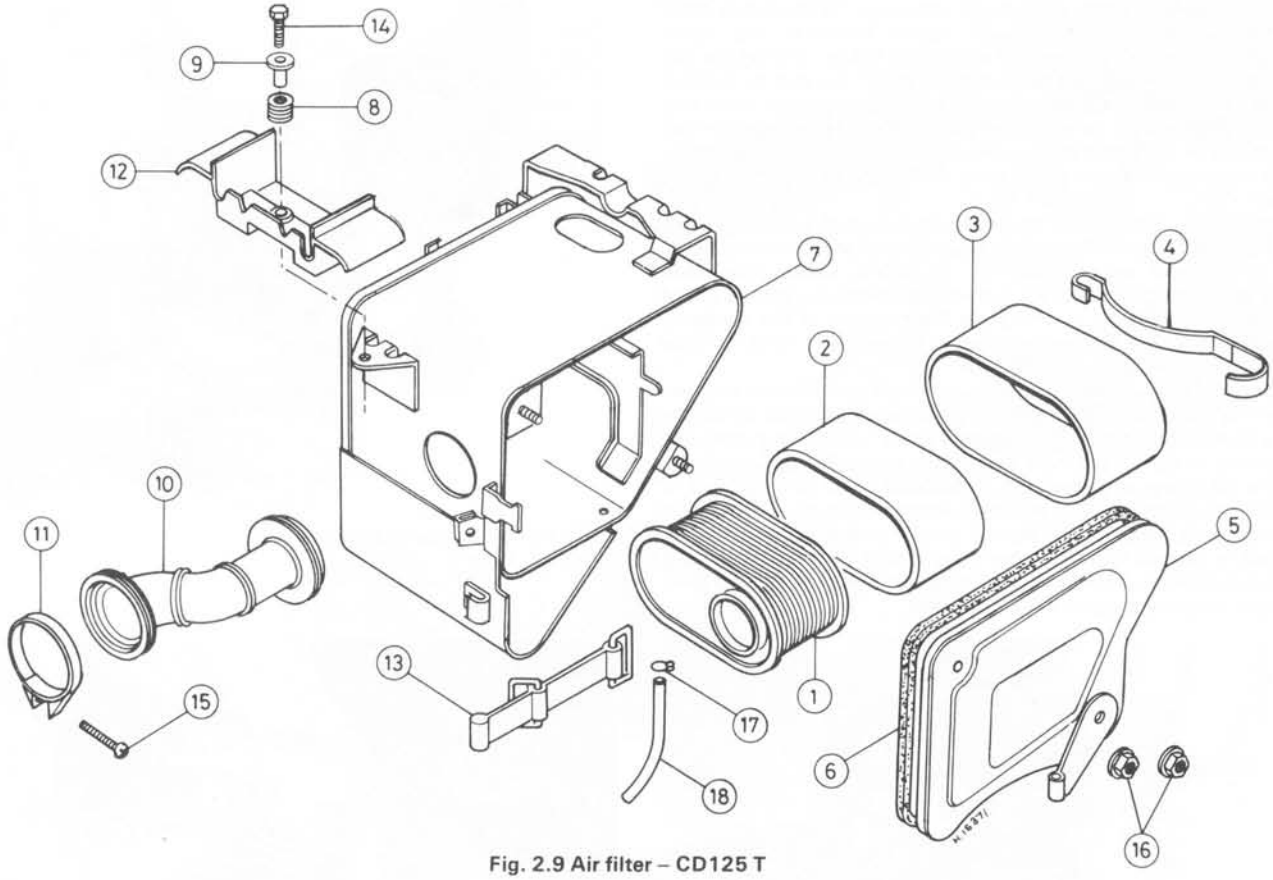


Fig. 2.9 Air filter – CD125 T

1 Element frame	*6 Seal*	*11 Hose clamp*	*15 Screw*
2 Element	*7 Casing*	*12 Mounting bracket*	*16 Nut – 2 off*
3 Element sleeve	*8 Grommet – 3 off*	*13 Security band*	*17 Pipe clip*
4 Spring clip	*9 Collar*	*14 Bolt – 3 off*	*18 Drain pipe*
5 Cover	*10 Inlet hose*		

11 Exhaust system: general

1 The exhaust system on a four-stroke motor-cycle will require very little attention, as, unlike two-stroke machines, it is not prone to accumulation of carbon. The only points requiring attention are the general condition of the system, including mountings and the chromium plating, and ensuring that the system is kept airtight, particularly at the exhaust port.

2 Air leaks at the exhaust port will cause mysterious backfiring when the machine is on overrun. To prevent this, make sure that the composite sealing ring is renewed each time the system is removed.

3 The removal and refitting of the exhaust system is described in full in Sections 4 and 39 of Chapter 1 of this Manual. As described above, the exhaust pipe/cylinder head gaskets should be renewed whenever the system is disturbed. Similarly, if it is necessary at any time to separate the balance pipe joint on CB125 TD, CD125 T, and CM125 C models, the gasket fitted to seal this joint should be renewed.

12 Oil pump and filter screen: examination and renovation

1 To gain access to the oil pump or to the filter screen some preliminary dismantling must be carried out, including the draining of the engine oil, followed by the removal of the crankcase right-hand cover. The work is described in Chapter 1, Sections 4 and 9. Note that the oil pump must be removed before the filter screen can be detached. Be careful to obtain a new oil pump/crankcase sealing O-ring and a new crankcase cover gasket before commencing work. If the oil pump is to be dismantled, obtain also a new oil pump end plate gasket. It is essential that the gaskets and seal are renewed whenever they are disturbed to maintain oil pressure and to prevent oil leaks.

2 Remove the end cover from the back of the pump unit; it is retained by a single crosshead screw. Note the hole in the cover and the corresponding locating pin in the rear of the pump body; these must align during reassembly. Remove also the end plate gasket. Shake out the inner and outer rotors.

3 If desired, the driving gear housing can now be separated. Slacken and remove the two 5 mm bolts, separate the two halves of the gear cover and remove the rotor drive shaft and the pump drive gear.

4 Wash all the oil pump components with petrol and allow them to dry before carrying out a full examination. Before part reassembling the pump for the various measurements to be made, check the castings for cracks or other damage, especially the pump end cover. Examine all the components, especially the rotors, for signs of scuffing and wear, or for signs of scoring, chipping or other surface damage which will occur if metallic particles find their way into the oil pump assembly. Renewal of the affected parts is the only remedy under these circumstances, bearing in mind that the rotors must always be renewed as a matched pair.

5 Reassemble the pump rotors and measure the clearance between the outer rotor and the pump body, using a feeler gauge. If the measurement exceeds the service limit of 0.25 mm (0.010 in) the rotor or the body must be renewed, whichever is worn. Measure the clearance between the outer rotor and the inner rotor, using a feeler gauge. If the clearance exceeds 0.2 mm (0.008 in) the rotors must be renewed as a set. With the pump rotors installed in the pump body, lay a straight edge across the mating surface of the pump body. Again with a feeler gauge measure the clearance between the rotor faces and the straight edge. If the clearance exceeeds 0.12 mm (0.005 in) the rotors should be renewed as a set.

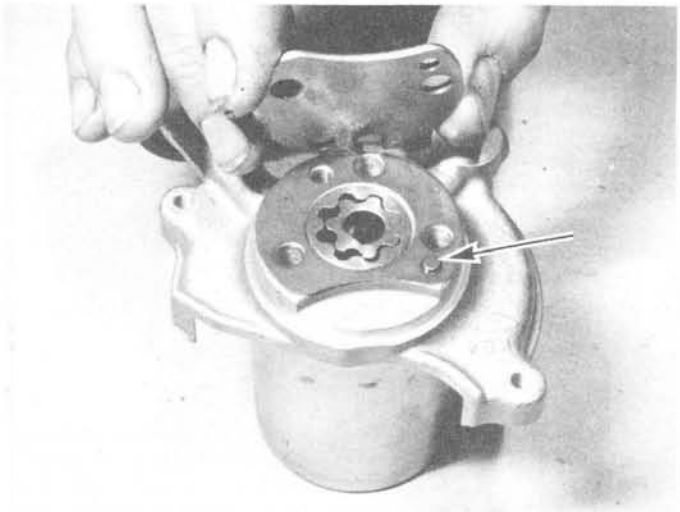
6 Reassemble the rest of the pump components by reversing the

dismantling procedure. The component parts must be absolutely clean upon reassembly, or damage will result. Lubricate the rotors thoroughly, removing them again if necessary, before refitting the end cover and gasket. Note that the locating hole in the end cover must correctly locate with the protruding pin on the pump body. Note also that there are two flats on the pump drive shaft. There are similar flats in the centre of the pump drive gear pinion and one flat in the centre of the inner rotor. With the pump drive shaft inserted correctly, all the flats will align.

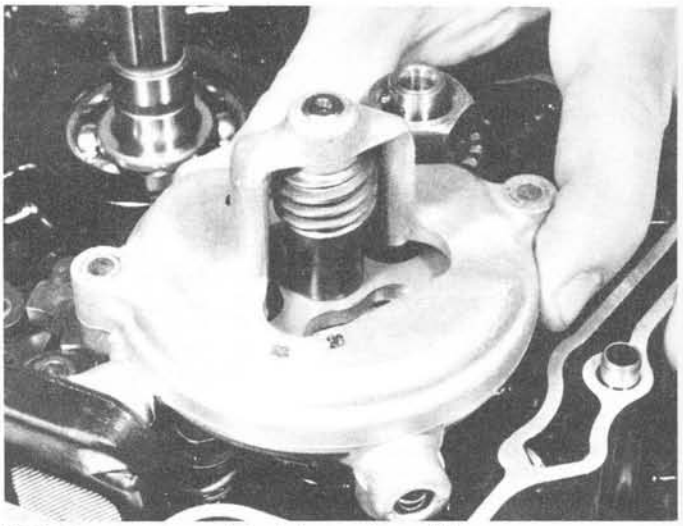
7 The oil pump filter screen should now be cleaned, prior to refitting the pump to the engine. The screen should be carefully washed out in clean petrol, and any residual oil or debris which may have accumulated, carefully removed. A small, soft bristled brush (ie an old tooth brush) is ideal for cleaning the filter screen. If the screen is damaged in any way it must be renewed immediately. Refit the filter screen to the pump pick-up extension.

8 Be careful to check that the filter screen rubber retainer is a secure fit, and that it is in good condition. The filter screen retainer should be fitted with its wider end on the drive gear side of the casting; note also the notch in its right-hand front corner (see photo 35.7b, Chapter 1). Refit the oil pump and crankcase right-hand cover as described in Section 35 of Chapter 1, then add the necessary amount of oil and refit the components removed or disturbed on dismantling, this work being described in Section 39 of Chapter 1. Be careful to renew the O-ring and gasket mentioned earlier in this Section and to check the oil level before the machine is taken out on the road.

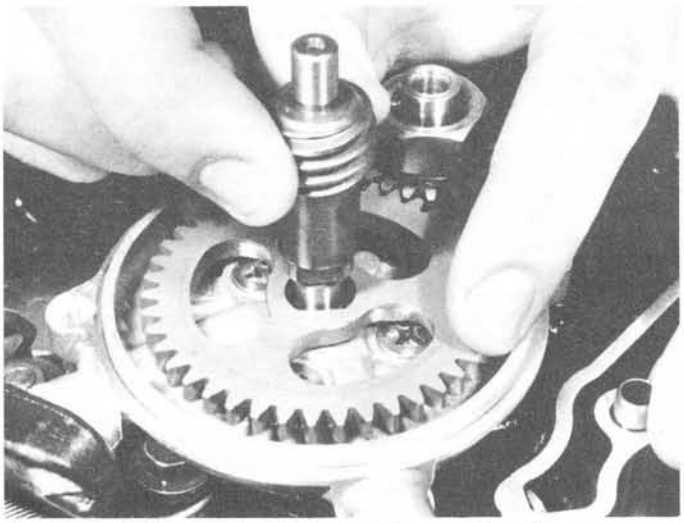
12.2a Remove single retaining screw ...



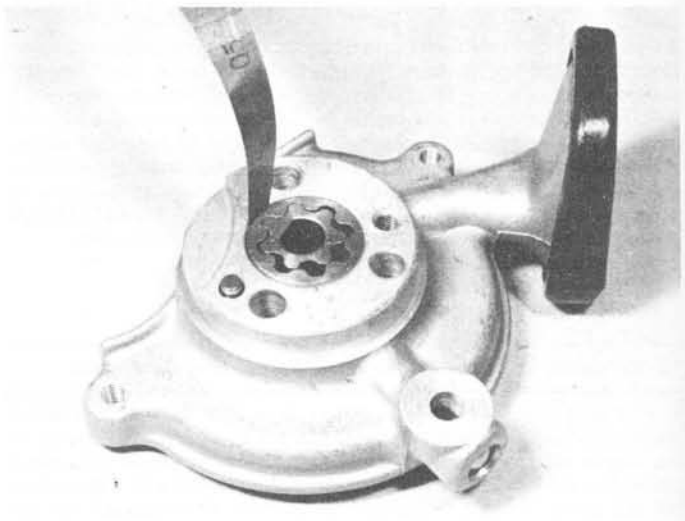
12.2b ... to release oil pump end cover. Note locating pin (arrowed)



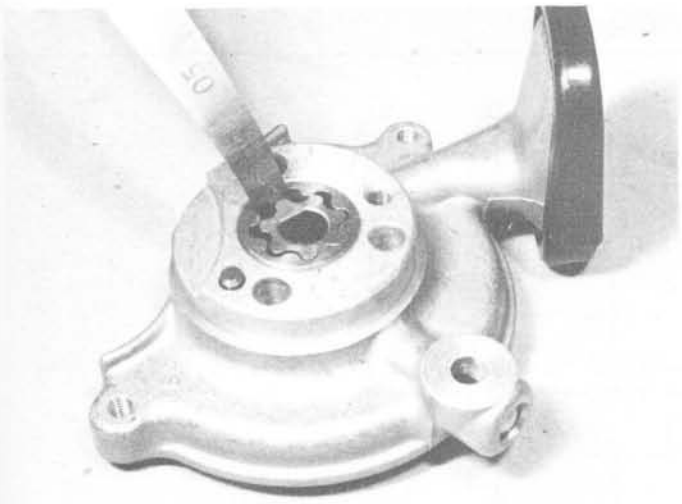
12.3a Remove two retaining bolts to release drive gear cover ...



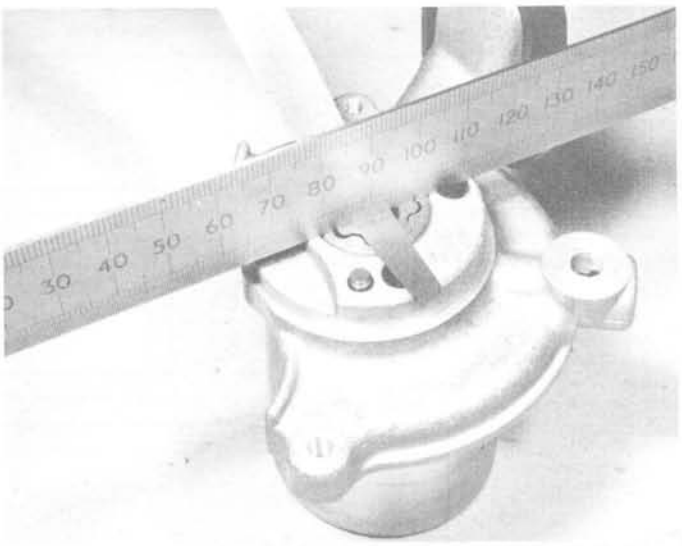
12.3b ... and withdraw drive shaft and drive gear. Note flats on shaft aligned with flats in drive gear centre



12.5a Measuring outer rotor/housing clearance



12.5b Measuring inner rotor/outer rotor clearance



12.5c Measuring rotor end clearance

12.7 Pump filter screen is clipped to pump body by rubber retainer

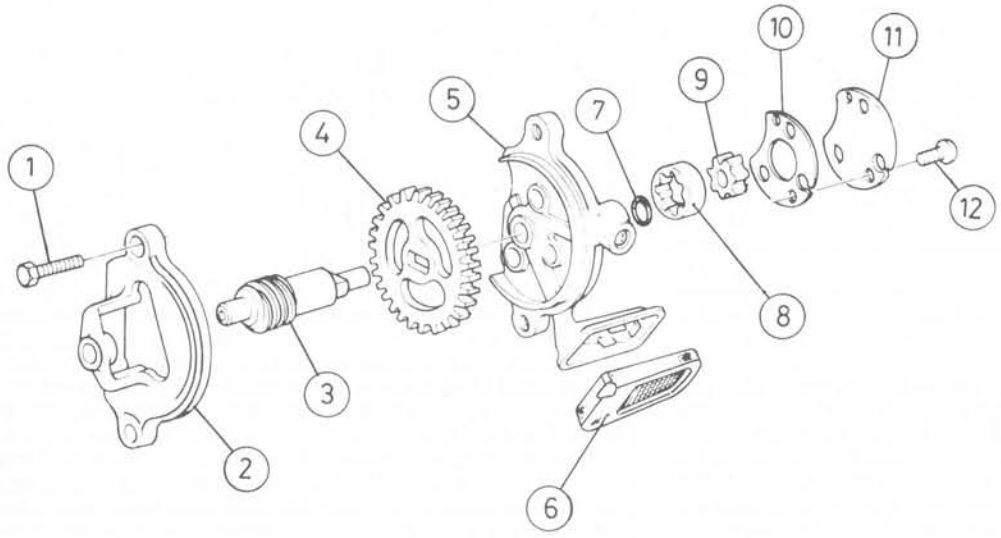


Fig. 2.10 Oil pump

1 *Bolt – 2 off*
2 *Pump body half*
3 *Rotor drive shaft*
4 *Drive gear*
5 *Pump body half*
6 *Filter screen*
7 *O-ring*
8 *Outer rotor*
9 *Inner rotor*
10 *Gasket*
11 *End cover*
12 *Screw*

Chapter 3 Ignition system

Refer to Chapter 7 for information relating to the CB125 TD-J model

Contents

Specifications

Ignition system type		
CB125 T, T2, TA and TB models	Coil and contact breaker	
CB125 TD, CD125 T and CM125 C models	CDI (Capacitor Discharge Ignition)	
Contact breaker gap	0.3 - 0.4 mm (0.012 - 0.016 in)	
Condenser capacity	0.22 - 0.26 microfarad	
Spark plugs		
Make	NGK	ND
Type - all CB125 models:		
Hot	CR7HS	U22FSR-U
Standard	CR8HS	U24FSR-U
Cold	CR9HS	U27FSR-U
Type - CD125 T and CM125 C models:		
Hot	CR6HS	U20FSR-U
Standard	CR7HS	U22FSR-U
Cold	CR8HS	U24FSR-U
Gap	0.6 - 0.7 mm (0.024 - 0.028 in)	

1 General description

Two types of ignition system are fitted to the machines described in this manual. The CB125 T, T2, TA, and TB models are fitted with a conventional contact breaker-triggered battery and coil system, while the CB125 TD, CD125 T, and CM125 C models are fitted with a capacitor discharge ignition system.

As the CB125 models employ a 180° crankshaft, ie with the pistons rising and falling alternately, two separate ignition circuits are fitted, using two sets of contact breaker points, and two ignition HT coils. A capacitor (condenser) is fitted into each circuit to prevent arcing across the points; this helps to reduce erosion due to burning.

The CDI system has the advantage of having no mechanical components, and therefore nothing to wear out or to be adjusted. The system is powered by a source coil built into the alternator stator.

The CB125 TD model is also fitted with a 180° crankshaft, and therefore employs two pulser coils and two CDI units, while the CD125 T and CM125 C models are fitted with only one of each.

Ignition timing advance on the CB125 T, T2, TA, and TB models is catered for by a conventional centrifugal automatic timing unit, the unit being mounted on the crankshaft left-hand end. On the CB125 TD, CD125 T, and CM125 C models, the advance is provided by separate circuits within the CDI unit, thus eliminating another mechanical component which is prone to wear.

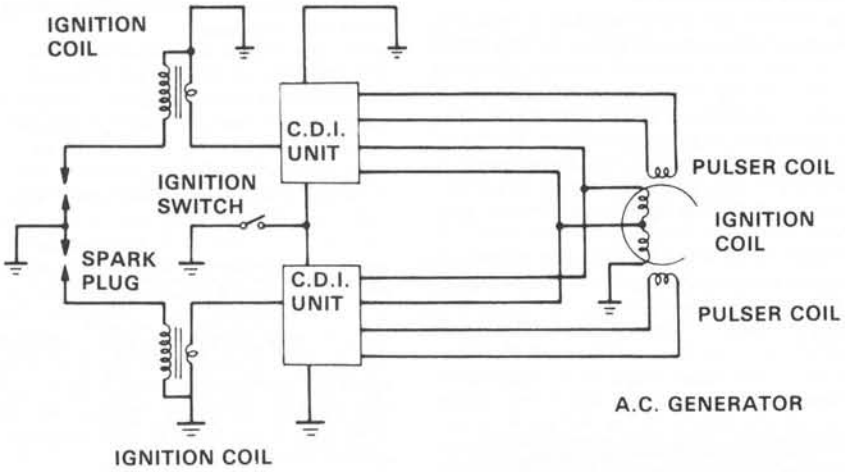


Fig. 3.1 Ignition system circuit diagram – CB125 TD

2 Contact breaker points: adjustment – CB125 T, T2, TA and TB models

Refer to Routine Maintenance for details of contact breaker adjustment.

3 Contact breaker points: removal and refitting – CB125 T, T2, TA and TB models

1 The contact breakers must be renewed if the contact faces are out of alignment or if they are seriously burnt, worn, or pitted. It is possible to dress the contact faces using an oilstone or a fine file, but if a substantial amount of material has to be removed to restore the contact face, the contact breaker set should be renewed as a matter of course. Note also that it may be necessary to renew a contact breaker set during the course of setting the ignition timing.
2 Disconnect the contact breaker lead by pulling the wire off the spade terminal at the base of the set to be removed, noting that a yellow wire leads to the left-hand set and a blue wire to the right-hand set. Applying a spanner to the hexagon head of the alternator rotor retaining bolt, rotate the engine anti-clockwise until the contact breaker is fully open. Remove the two screws which retain each contact breaker set to the backplate, and lift away the contact breaker.
3 If necessary, the moving contact arm can be removed from the remainder of the contact breaker by prising out the small circlip which retains the contact arm to its pivot post, and by slackening and removing the single bolt which secures the end of the contact arm return spring to the spade terminal post. Note carefully the position of the various components and insulating washers when removing this bolt, it is all too easy for them to be refitted wrongly, thus rendering inoperative the ignition system.
4 If the points are only slightly pitted, it is possible to restore them or dress them. The points should be dressed with an oilstone or fine emery cloth. Keep them absolutely square throughout the dressing operation, otherwise they will make angular contact on reassembly and rapidly burn away.
5 Refit the contacts by reversing the dismantling procedure, making sure that the insulating washers are refitted in the correct order. Apply a thin smear of grease to the pivot pin, prior to refitting of the moving contact arm.
6 Check, and if necessary, re-adjust the contact breaker gap when the points are fully opened, and then check the ignition timing following the procedure given in the next Section.

4 Ignition timing: checking and resetting

1 While the contact breaker-triggered ignition system of the CB125 T, T2, TA and TB models will require checking of the ignition timing at regular intervals during the course of Routine Maintenance as well as when tracing the cause of any fault that has arisen, the CDI system fitted to the CB125 TD, CD125 T and CM125 C models will only require checking when a fault arises which leads one to suspect a fault in the ignition system. Note also that while the contact breaker ignition components can be adjusted to set accurately the ignition timing, those of the CDI system cannot be adjusted; if a discrepancy is found, one or more components must be renewed.

CB125 T, T2, TA and TB models – static timing

2 Refer to Routine Maintenance for details of static ignition timing. If dynamic timing is to be carried out refer to the following paragraphs.

CB125 T, T2, TA and TB models – dynamic timing

3 An alternative method of checking the ignition timing is to use a strobe timing lamp, which has the advantage of producing a more accurate result since it is carried out with the engine running. An additional advantage is that the operation of the automatic advance/retard unit (ATU) can be checked.
4 First clean and set the contact breaker gaps. Connect the timing lamp, to the left-hand cylinder, according to the manufacturer's instructions. Note that if a battery is required to power the lamp it is best to obtain another battery, rather than to use the machine's battery, because stray impulses in the machine's electrical system can produce spurious readings. Start the engine and allow the machine to tick over at the recommended idle speed of 1300-1500 rpm. Aim the lamp at the aperture in the contact breaker backplate.
5 The 'F1' mark should be aligned with the fixed index mark; if not, slacken the three screws which secure the contact breaker backplate and rotate the backplate to align the marks. Note that the timing is advanced by rotating clockwise the backplate or by opening the contact breaker gap, and is retarded by rotating anti-clockwise the backplate or by closing the contact breaker gap. When the 'F1' mark is aligned exactly with the index mark, tighten securely the three screws, taking care that this does not disturb the timing. Increase engine speed to 3000 rpm and watch the timing marks, which should appear to move round smoothly until the 'F1' mark is replaced by the two parallel lines. These should align with the fixed index mark when full advance is reached at 3000 rpm. If all is well, stop the engine, but if full advance cannot be reached, or if the timing marks move erratically, there is a fault in the ATU.
6 When the timing is correct on the left-hand cylinder, connect the strobe lamp to the right-hand cylinder, restart the engine and repeat the above procedure. The 'F2' mark must now be aligned, of course, by opening or closing as necessary the gap of the right-hand contact breaker set. When the timing is known to be correct both at idle speed and at full advance, stop the engine and check the gap of the right-hand contact breaker set. If this is within the specified limits all is well, but if the gap is outside the limits, refer to Routine Maintenance and work accordingly to set accurately both the ignition timing and the contact breaker gaps.
7 If the use of the strobe reveals a fault in the ATU, refer to Section 13 of this Chapter for details of examination of this component.

CB125 TD, CD125 T and CM125 C models

8 Ignition timing on these models can be checked only with the engine running using a good quality Xenon-type strobe timing lamp.

9 Connect the strobe to the machine's left-hand cylinder following the manufacturer's instructions, noting that the machine's battery should not be used as a power source for the timing lamp since stray impulses in the machine's electrical system can affect the lamp, producing a spurious reading. Remove the smaller, top, inspection plug from the crankcase left-hand cover and start the engine. Allow the engine to tick over at the recommended idle speed and aim the lamp at the inspection aperture. Note that while the CD125 T and CM125 C models are not fitted with tachometers with which the idle speed can be checked accurately, the speed is approximately correct if the engine ticks over slowly, yet smoothly and reliably.

10 At the recommended idle speed the 'F2' mark (CB125 TD only) or 'F1' mark (CD125 T and CM125 C) must align exactly with the fixed index mark formed by a notch in the upper edge of the inspection aperture. If all is well, increase engine speed and watch the timing marks, which should move round smoothly until the 'F2' or 'F1' mark is replaced by two parallel lines, indicating that full advance has been reached. On CB125 TD models only, when the ignition timing of the left-hand cylinder is known to be correct, repeat the procedure on the right-hand cylinder to check also the ignition system components of that side.

11 If any discrepancy is revealed, the fault can lie only in the pulser coil or the CDI unit; refer to the appropriate Sections of this Chapter for details of inspection and renewal. Because there is no easy way of checking the idle speed on CD125 T and CM125 C models, and because no engine speed is given at which the full advance marks should align, the results of the ignition timing check may be open to some doubt. It is worthwhile to have an expert check your findings before wasting money on expensive ignition components.

5 CDI system: fault diagnosis – CB125 TD, CD125 T and CM125 C models

1 As no means of adjustment is available, any failure of the system can be traced to the failure of a system component or a simple wiring fault. Of the two possibilities, the latter is by far the most likely. In the event of failure, check the system in a logical fashion, as described below.

2 Remove the spark plug, giving it a quick visual check, noting any obvious signs of flooding or oiling. Fit the plug into the plug cap and rest it on the cylinder head so that the metal body of the plug is in good contact with the cylinder head metal. The electrode end of the plug should be positioned so that sparking can be checked as the engine is spun over using the kickstart.

3 **Important note.** The energy levels in the electronic systems can be very high. On no account should the ignition be switched on whilst the plug or plug cap is being held. Shocks from the HT circuit can be most unpleasant. Secondly, it is vital that the plug is in position and soundly earthed when the system is checked for sparking. The CDI unit can be seriously damaged if the HT circuit becomes isolated.

4 Having observed the above precautions, turn the ignition switch to 'On' and turn the engine over. If the system is in good condition a regular, fat blue spark should be evident at the plug electrodes. If the spark appears thin or yellowish, or is non-existent, further investigation will be necessary. Before proceeding further, turn the ignition off and remove the key as a safety measure.

5 Ignition faults can be divided into two categories, namely those where the ignition system has failed completely, and those which are due to a partial failure. The likely faults are listed below, starting with the most probable sources of failure. Work through the list systematically, referring to the subsequent sections for full details of the necessary checks and tests.

Total or partial ignition system failure

a) Loose, corroded or damaged wiring connections, broken or shorted wiring between any of the component parts of the ignition system
b) Faulty main switch
c) Faulty ignition coil
d) Faulty CDI unit
e) Faulty source coil
f) Faulty pulser coil

6 CDI system: checking the wiring – CB125 TD, CD125 T and CM125 C models

1 The wiring should be checked visually, noting any signs of corrosion around the various terminals and connectors. If the fault has developed in wet conditions it follows that water may have entered any of the connectors or switches, causing a short circuit. A temporary cure can be effected by spraying the relevant area with one of the proprietary de-watering aerosols, such as WD40 or a similar de-watering agent. A more permanent solution is to dismantle the switch or connector and coat the exposed parts with silicone grease to prevent the ingress of water. The exposed backs of connectors can be sealed off using a silicone rubber sealant.

2 Light corrosion can normally be cured by scraping or sanding the affected area, though in serious cases it may prove necessary to renew the switch or connector affected. Check the wiring for chafing or breakage, particularly where it passes close to part of the frame or its fittings. As a temporary measure, damaged insulation can be repaired with PVC tape, but the wire concerned should be renewed at the earliest opportunity.

3 Using the wiring diagram at the end of the manual, check each wire for breakage or short circuits using a multimeter set on the resistance scale or a dry battery and bulb wired as shown in the accompanying illustration. In each case, there should be continuity between the ends of each wire.

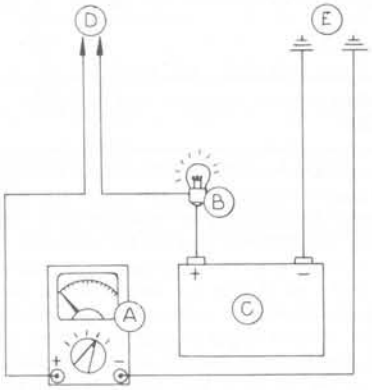


Fig. 3.2 Continuity check testing equipment

A Multimeter
B Bulb
C Battery
D Positive probe
E Negative probe

7 CDI system: checking the ignition switches – CB125 TD, CD125 T and CM125 C models

1 The ignition system is controlled by the ignition switch or main switch, which is housed at the centre of the instrument console. The ignition switch has six terminals and leads, of which two are involved in controlling the ignition system. These are the IG terminal (black/white lead) and the E terminal (green lead). The two terminals are connected when the switch is in the 'OFF' position and prevent the ignition system from functioning by shorting the CDI unit to earth.

2 If the operation of the switch is suspect reference should be made to the wiring diagram at the end of this book. The switch connections are shown in diagrammatic form and indicate which terminals are connected in the various switch positions. The wiring from the switch can be traced back to the respective connectors where test connections can be made most conveniently.

3 The purpose of the test is to check whether the switch connections are being made and broken as indicated by the diagrams. In the interests of safety the test is made with the machine's battery disconnected, thus avoiding accidental damage to the CDI system or the owner. The test can be made with a multimeter set on the resistance scale, or with a simple dry battery and bulb arrangement, as shown in the accompanying line drawing. Connect one probe lead to

each terminal and note the reading or bulb indication in each switch position.

4 If the test indicates that the black/wire lead is earthed irrespective of the switch position, trace and disconnect the ignition (black/white) and earth (green) leads from the ignition switch. Repeat the test with the switch isolated. If no change is apparent, the switch should be considered faulty and renewed.

5 If the ignition switch works normally when isolated, the fault must lie in the black/white lead between the CDI unit and the ignition switch.

8 Ignition HT coil: location and testing

1 The ignition HT coil is a black plastic sealed unit that is identified easily by the HT lead protruding from it. The CB125 T, T2, TA and TB models are each fitted with two HT coils which are mounted on separate brackets and bolted to each side of the frame top tube immediately behind the steering head. The CB125 TD model is also fitted with two HT coils, which are mounted on a common bracket and bolted to the left-hand side of the frame top tube immediately behind the steering head. The CD125 T and CM125 C models are fitted with a single coil which has two HT leads protruding from it, the coil being bolted to the left-hand side of the frame top tube, immediately behind the steering head. It follows that it will be necessary on all models to remove the petrol tank to gain access to the coil.

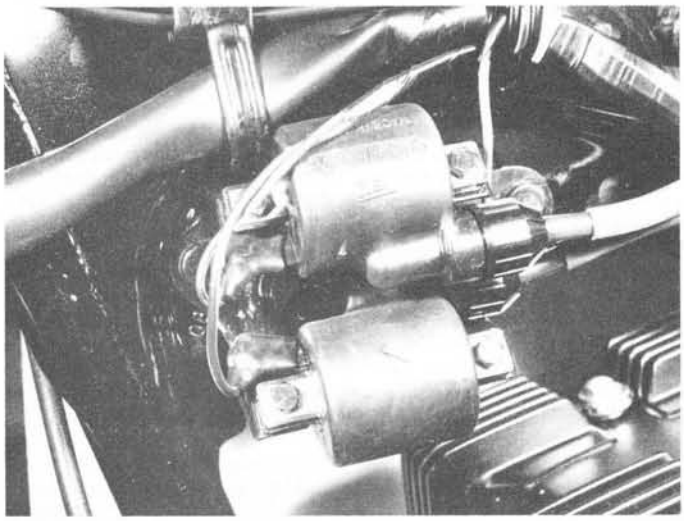
2 If a weak spark and difficult starting cause the performance of the coil to be suspect, it should, in general, be tested by a Honda service agent or an auto-electrical expert. They will have the necessary appropriate test equipment. It is, however, possible to perform a number of basic tests, using a multimeter with ohms and kilo ohms scales. The primary winding resistance should be checked by connecting one of the meter probe leads to the low tension wire or connector terminal and earthing the other against the coil mounting lug or earth wire. The results specified by the manufacturer are as follows:

Ignition HT coil primary winding resistance:
CB125 T, T2, TA and TB (blue or yellow to black/white) - continuity must exist
CB125 TD (spade terminal to earth) – 0.2 – 0.4 ohm
CD125 T and CM125 C (black/yellow to earth) – 0.5 – 0.6 ohm

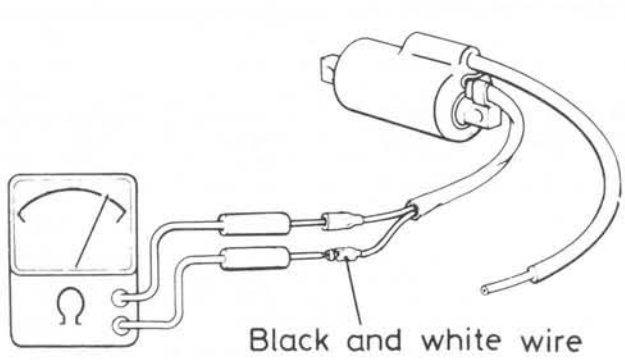
3 To measure the resistance of the coil secondary winding, switch the meter to the kilo ohms scale and unscrew the spark plug cap from the HT lead. Check the resistance between the HT lead and paired lead as listed below.

Ignition HT coil secondary winding resistance:
CB125 T, T2, TA and TB (black/white to HT lead) - continuity must exist
CB125 TD (HT lead to earth) 3.5 – 4.5 K ohm
CD125 T and CM125 C (HT lead to HT lead) 7 – 9 K ohm

4 Should any of these checks not produce the expected result, the coil should then be taken to a Honda service agent or auto-electrician for a more thorough check. If the coil is found to be faulty, it must be replaced; it is not possible to effect a satisfactory repair.



8.1 Location of ignition HT coils – CB125 TD



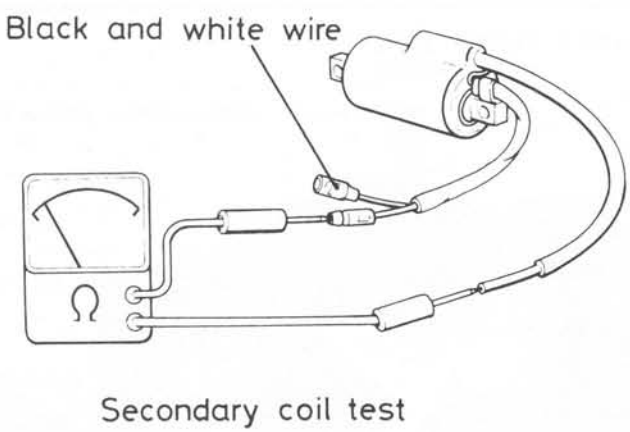


Fig. 3.3 Ignition coil test – CB125 T, T2, TA and TB

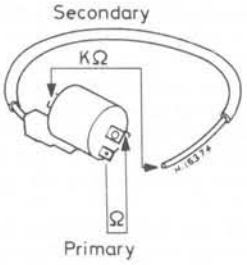


Fig. 3.4 Ignition coil test – CB125 TD

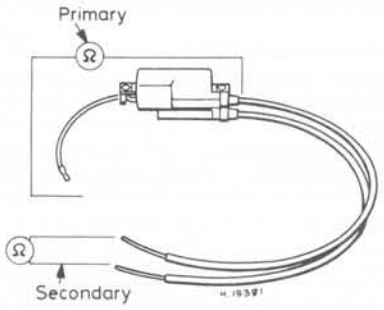


Fig. 3.5 Ignition coil test – CM125 C and CD125 T

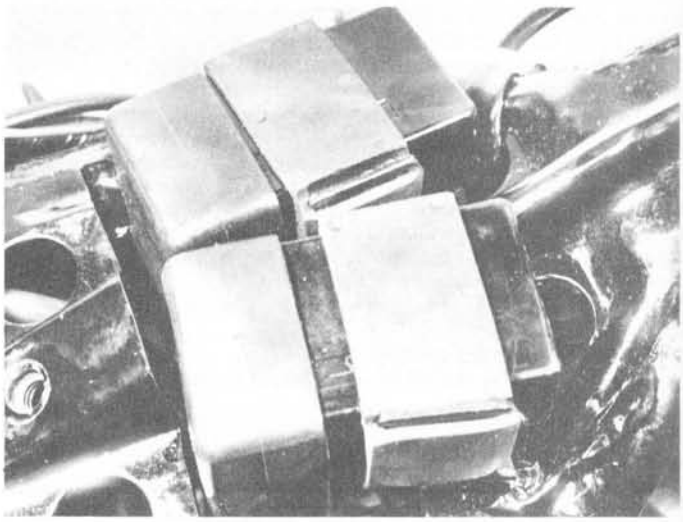
9 CDI unit: location and testing – CB125 TD, CD125 T and CM125 C models

1 The CDI units fitted to the CB125 TD, CD125 T and CM125 C models take the form of sealed black metal or plastic boxes that are rubber-mounted to protect them from the effects of vibration and are connected to the main wiring loom by two multi-pin block connectors. The two CDI units fitted to CB125 TD models are to be found side by side on top of the frame tubes immediately in front of the petrol tank rear mounting. On CD125 T and CM125 C models the single CDI unit is fitted rear of the battery, above the winker relay.

2 To remove a CDI unit, disengage it from its rubber mounting and pull off the two connector blocks. Handle the unit carefully at all times as it is delicate and cannot be repaired; renewal is the only solution to a faulty CDI unit. On the subject of testing, Honda advise against the use of any test meter other than the Sanwa Electric Tester (Honda part number 07308-0020000) or the Kowa Electric Tester (TH-5H), because they feel that the use of other devices may result in inaccurate readings. No information is available for the CM125 C-F model, which uses a different unit.

3 Most owners will find that they either do not possess a multimeter, in which case they will probably prefer to have the unit checked by a Honda Service Agent, or own a meter which is not of the specified make or model. In the latter case, a good indication of the unit's condition can be gleaned inspite of inaccuracies in the readings. If necessary, the CDI unit can be taken to a Honda Service Agent or auto-electrical specialist for confirmation of its condition.

4 The test details are given in the accompanying illustration in the form of a table of meter probe connections with the expected reading in each instance. If an ordinary multimeter is used the resistance range may be determined by trial and error. The diagram illustrates the CDI unit connections referred to in the table. For owners not possessing a test meter the unit or the complete machine can be taken to a Honda Service Agent for testing.



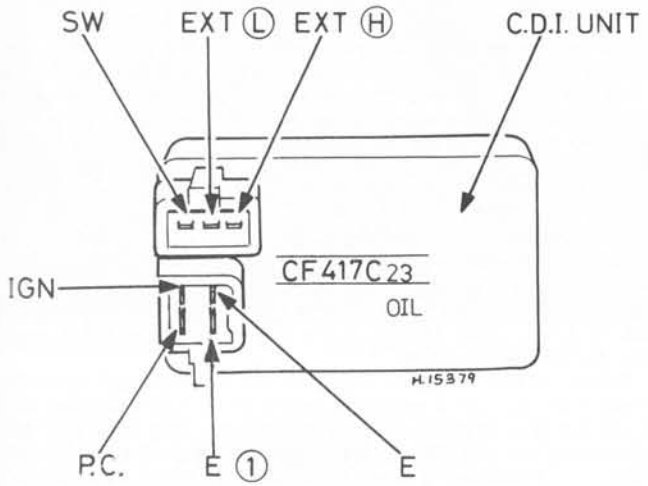
9.1 Location of CDI units – CB125 TD

RANGE: SANWA: x KΩ
KOWA: x 100Ω

	(1) Green E	(2) Green/White E	(3) Blue/Yellow PC	(4) Black/Yellow IGN	(5) Blue EXT	(6) White EXT	(7) Black/White SW
(1) Green E		0	0.5–50	∞	∞	0.3–30	1–100
(2) Green/White E	0		0.5–50	∞	∞	0.3–30	1–100
(3) Blue/Yellow PC	0.5–50	0.5–50		∞	∞	1–100	2–200
(4) Black/Yellow IGN	∞	∞	∞		∞	∞	∞
(5) Blue EXT	∞	∞	∞	∞		∞	10–1000
(6) White EXT	∞	∞	∞	∞	∞		∞
(7) Black/White SW	∞	∞	∞	∞	∞	∞	

Fig. 3.6 CDI unit test

Test table – CD125 T and CM125 C-C



:kΩ

Tester + / Tester −	SW	EXT Ⓗ	EXT Ⓛ	PC	E ①	E ②	IGN
SW		∞	∞	∞	∞	∞	∞
EXT Ⓗ	10 — 1,000		∞	∞	∞	∞	∞
EXT Ⓛ	∞	∞		∞	∞	∞	∞
PC	2 — 200	∞	1 — 100		0.5 — 50	0.5 — 50	∞
E ①	1 — 100	∞	0.3 — 30	0.5 — 50		0	∞
E ②	1 — 100	∞	0.3 — 30	0.5 — 50	0		∞
IGN	∞	∞	∞	∞	∞	∞	

Test table – CB125 TD

Fig. 3.6 CDI unit test (continued)

10 CDI source coil: location and testing – CB125 TD, CD125 T and CM125 C models

1 The CDI unit is powered by a source coil that is built into the alternator stator. While testing can be carried out without removing the crankcase left-hand cover or the alternator stator, if it should prove necessary at any time to gain access to the source coil, it will be necessary to remove the cover and stator, the work necessary being described in Section 8 of Chapter 1. The task of refitting these components is described in Section 36 of Chapter 1.

2 If the source coil proves to be faulty it must be renewed; this involves, however, the renewal of the complete stator assembly of which the source coil is an integral part. The only alternative is to find a very skilled auto-electrical specialist who may be able to rewind the coil to the necessary standard. Before renewing anything have a Honda Service Agent check your findings.

3 To test the source coil, trace the main generator lead from the crankcase top surface up and disconnect the blue and the white wires at their individual snap connectors. With a multimeter set to the appropriate resistance scale, measure the resistances as follows:

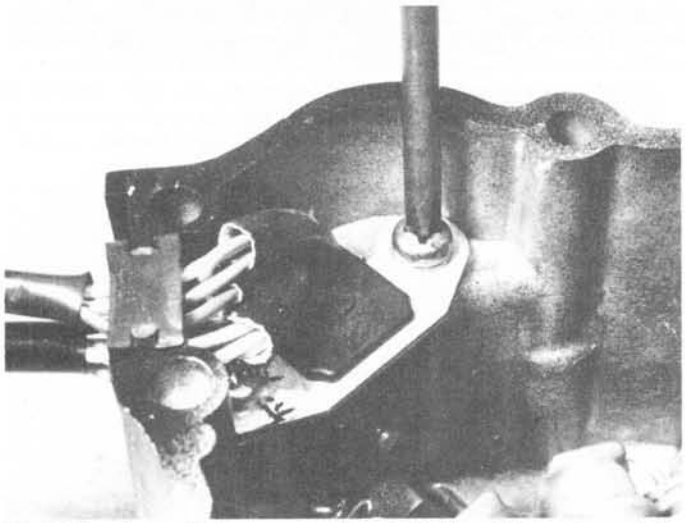
CDI source coil resistance:
- Blue to white:
  - CB125 TD model only – 3.5 – 6.0 ohm
  - CD125 T and CM125 C-C models – 90 ohm
- White to earth:
  - CB125 TD model only – 270 – 390 ohm
  - CD125 T and CM125 C-C models – 305 ohm
- Specifications not available for CM125 C-F model

4 If the readings obtained differ appreciably from those given, the coil must be considered faulty and renewed, but as mentioned above, do have your findings confirmed by an expert before pursuing such an expensive course of action.

11 CDI pulser coil: location and testing – CB125 TD, CD125 T and CM125 C models

1 Remembering that while CB125 TD models are fitted with two pulser coils, the CD125 T and CM125 C models are fitted with only one pulser coil each. The coil(s) are mounted on the inside of the crankcase left-hand cover adjacent to the alternator stator and are removed as described in Section 8 of Chapter 1; the task of refitting the coils being described in Section 36 of Chapter 1.

2 If a pulser coil is suspected of being faulty, it can be renewed as a separate component. Unfortunately the information necessary to test accurately these coils was not available at the time of writing; testing can be carried out, therefore, only by substituting a new pulser coil assembly for the suspect unit. In the event that this should prove necessary, it is recommended that the machine is taken to a Honda dealer for all other components to be checked accurately on the correct test equipment before the pulser coil assembly is disturbed.



11.1 CDI pulser coil(s) are mounted on the inside of the crankcase left-hand cover

12 Condenser: location and testing – CB125 T, T2, TA and TB models

1 The condensers fitted into the ignition circuit are mounted back to back to form a single metal cylinder with an integral mounting bracket. The unit is mounted on the rear of the air filter casing on the left-hand side. Once the left-hand sidepanel has been removed the unit is identified easily by the two wires, one blue (left-hand circuit) and one yellow (right-hand circuit), which lead to it. To remove the unit, disconnect the two wires then slacken and remove the two retaining bolts. When refitting the condenser, check that the mounting bracket and the air filter casing mating surfaces are quite clean, as this fitting provides the condenser earth connection. Tighten securely the two bolts.
2 If the engine proves difficult to start, or misfiring occurs when the engine is hot, it is possible that the condenser is at fault. To check, separate the contact breaker points by hand when the ignition is switched on. If a spark occurs across the points and they have a blackened and burnt appearance, the condenser can be regarded as unserviceable.
3 It is not possible to check the condenser without the appropriate equipment. In view of the low cost involved, it is preferable to fit a new replacement and observe the effect on engine performance.

13 Automatic timing unit (ATU): examination – CB125 T, T2, TA and TB models

1 Fixed ignition timing is of little advantage as the engine speed increases, and it is necessary to incorporate a method of advancing the timing by centrifugal means. A balance weight assembly located behind the points, linked to the points cam, is used on these models. A centre fixing bolt holds the unit secure, permitting the cam to move by means of this linkage and so advance the ignition timing.
2 If ATU remove is required the work necessary is described in Section 8 of Chapter 1; the task of refitting the ATU is described in Section 36 of Chapter 1. Access to the ATU can be gained by removing the contact breaker backplate, after marking the backplate to preserve the original ignition timing setting, and unscrewing the alternator rotor retaining bolt. The ATU can be manoeuvred through the aperture in the crankcase left-hand cover so that there should be no need to follow the full procedure laid out in Chapter 1.
3 The balance weights must move freely on their pivots and be rust-free. The tension springs must also be in good condition. Keep the pivots lubricated and make sure the balance weights move easily, without binding.
4 If any malfunction or breakage has occurred, renew the complete unit; no component parts are available separately. If the unit is in good condition, lightly oil it and slide it back into position, ensuring the locating pin on its rear face correctly locates with the slot in the rotor centre.

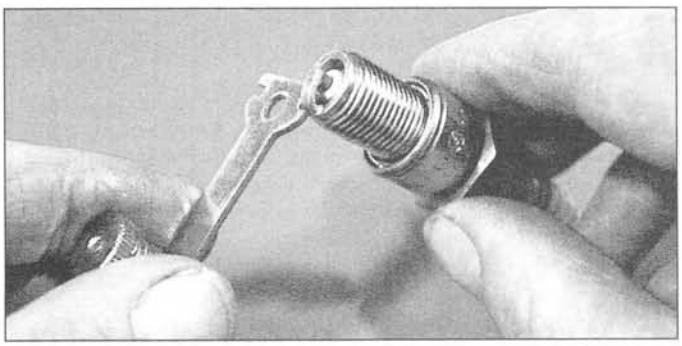
14 Spark plugs: checking and resetting the gap

1 The CB125 models are all fitted as standard with NGK CR8HS spark plugs, and the CD125 T and CM125 C models are fitted as standard with NGK CR7HS spark plugs. In most operating conditions the standard plug should prove satisfactory. However, alternatives are available to allow for varying altitudes, climatic conditions, and the use to which the machine is put. Note, however, that the advice of an authorised Honda dealer or similar expert should be sought before the plug heat range is altered from standard.
2 It is advisable to carry a new spare sparking plug of the correct type on the machine, having first set the electrodes to the correct gap, in the unlikely event of plug failure.
3 The correct electrode gap is 0.6 - 0.7 mm (0.024 - 0.028 in). The gap can be assessed using feeler gauges. If necessary, alter the gap by removing the outer electrode, preferably using a proper electrode tool. **Never** bend the centre electrode, otherwise the porcelain insulator will crack, and may cause damage to the engine if particles break away whilst the engine is running.
6 Before refitting a spark plug into the cylinder head coat the threads sparingly with a graphited grease to aid future removal. Use the correct size spanner when tightening the plug otherwise the spanner may slip and damage the ceramic insulator. The plug should be tightened by hand only at first and then secured with a quarter turn of the spanner so that it seats firmly on its sealing ring.
7 Never overtighten a spark plug otherwise there is risk of stripping the threads from the cylinder head, especially as it is cast in light alloy. A stripped thread can be repaired without having to scrap the cylinder head by using a 'Helicoil' thread insert. This is a low-cost service, operated by a number of dealers.

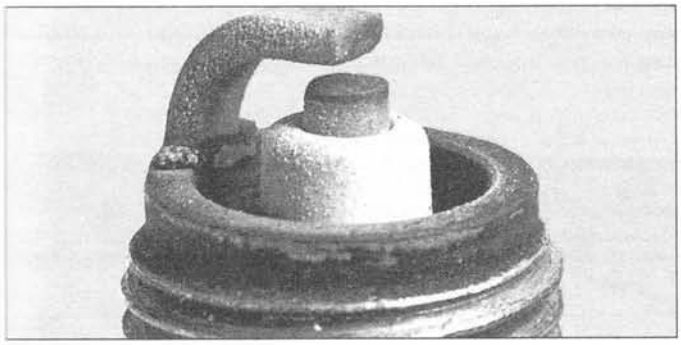
15 Spark plug (HT) lead and suppressor cap: examination

1 Erratic running faults and problems with the engine suddenly cutting out in wet weather can often be attributed to leakage from the high tension lead and spark plug cap. If this fault is present, it will often be possible to see tiny sparks around the lead and cap at night. One cause of this problem is the accumulation of mud and road grime around the lead, and the first thing to check is that the lead and cap are clean. It is often possible to cure the problem by cleaning the components and sealing them with an aerosol ignition sealer, which will leave an insulating coating on both components.
2 Water dispersant sprays are also highly recommended where the system has become swamped with water. Both these products are easily obtainable at most garages and accessory shops. Occasionally, the suppressor cap or the lead itself may break down internally. If this is suspected, the components should be renewed.
3 Where the HT lead is permanently attached to the ignition coil it is recommended that the renewal of the HT lead is entrusted to an auto-electrician who will have the expertise to solder on a new lead without damaging the coil windings.
4 When renewing the suppressor cap, be careful to purchase one that is suitable for use with resistor spark plugs.

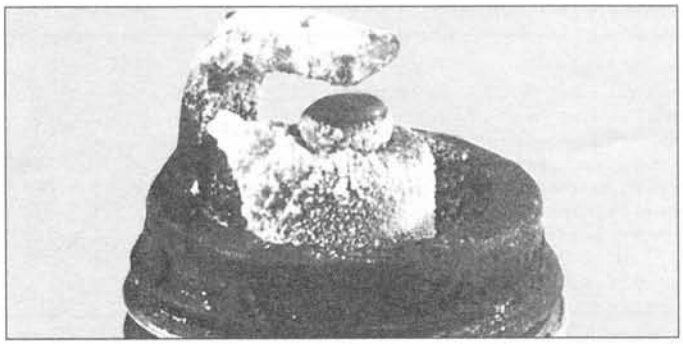
Electrode gap check - use a wire type gauge for best results



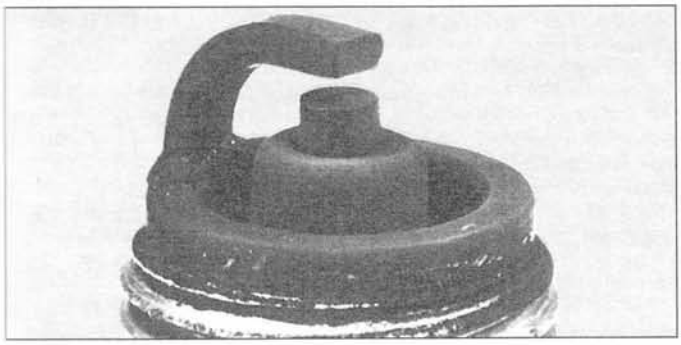
Electrode gap adjustment - bend the side electrode using the correct tool



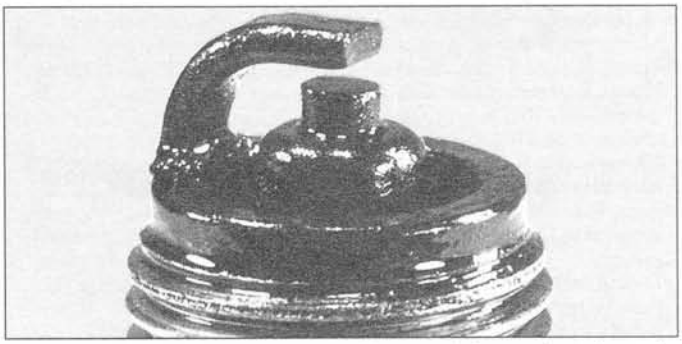
Normal condition - A brown, tan or grey firing end indicates that the engine is in good condition and that the plug type is correct



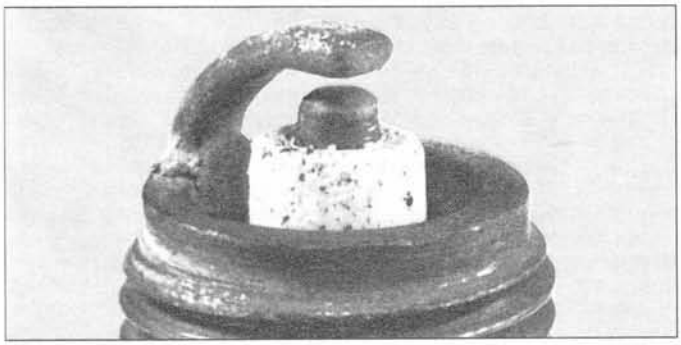
Ash deposits - Light brown deposits encrusted on the electrodes and insulator, leading to misfire and hesitation. Caused by excessive amounts of oil in the combustion chamber or poor quality fuel/oil



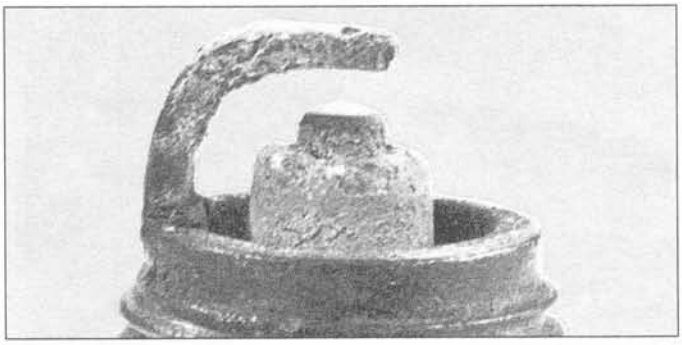
Carbon fouling - Dry, black sooty deposits leading to misfire and weak spark. Caused by an over-rich fuel/air mixture, faulty choke operation or blocked air filter



Oil fouling - Wet oily deposits leading to misfire and weak spark. Caused by oil leakage past piston rings or valve guides (4-stroke engine), or excess lubricant (2-stroke engine)



Overheating - A blistered white insulator and glazed electrodes. Caused by ignition system fault, incorrect fuel, or cooling system fault



Worn plug - Worn electrodes will cause poor starting in damp or cold weather and will also waste fuel

Chapter 4 Frame and forks

Refer to Chapter 7 for information relating to the CB125 TD-J model

Contents

Specifications

Frame

Type	Open diamond, engine used as a stressed member

Front forks

	CB125 T, T2, TA and TB	CB125 TD	CD125 T	CM125 C
Type	Oil damped telescopic			
Travel	115 mm (4.5 in)	140 mm (5.5 in)	115 mm (4.5 in)	140 mm (5.5 in)
Oil capacity (per leg)	110 – 115 cc (3.9 – 4.0 fl oz)	128 ± 2.5 cc (4.5 ± 0.09 fl oz)	135 – 140 cc (4.7 – 4.9 fl oz)	135 cc (4.7 fl oz)
Oil type	Automatic transmission fluid (ATF)			
Fork spring free length	479.6 mm (18.88 in)	529.0 mm (20.83 in)	482.0 mm (18.98 in)	552 mm (21.73 in)
Wear limit	470.6 mm (18.53 in)	513.1 mm (20.20 in)	472.6 mm (18.61 in)	535.4 mm (21.08 in)
Fork stanchion bend (max)	0.2 mm (0.008 in)			
Fork stanchion (OD):				
Except CM125 C	30.915 – 30.950 mm (1.217 – 1.218 in)			
CM125 C only	30.950 – 30.975 mm (1.218 – 1.219 in)			
Wear limit:				
Except CM125 C	30.870 mm (1.215 in)			
CM125C only	30.895 mm (1.216 in)			
Lower leg ID:				
Except CM125 C	31.042 – 31.104 mm (1.222 – 1.225 in)			
CM125 C only	31.040 – 31.080 mm (1.222 – 1.224 in)			
Wear limit:				
Except CM125 C	31.165 mm (1.227 in)			
CM125 C only	31.140 mm (1.226 in)			

Rear suspension

Type:				
Except CB125 TD model	Pivoted fork, two coil spring, hydraulically damped shock absorbers			
CB125 TD only	Pivoted fork, 'Pro-Link' rising rate suspension system			
	CB125 T, T2, TA and TB	**CB125 TD**	**CD125 T**	**CM125 C**
Travel	64 mm (2.5 in)	95 mm (3.7 in)	64 mm (2.5 in)	75 mm (3.0 in)
Spring free length	181.9 mm (7.161 in)	136.9 mm (5.390 in)	182.6 mm (7.190 in)	209.5 mm (8.248 in)

Wear limit	178.7 mm (7.035 in)	132.8 mm (5.228 in)	180.0 mm (7.087 in)	203.2 mm (8.000 in)
Swinging arm bush/pivot shaft clearance	0.2 – 0.3 mm (0.008 – 0.012 in)			
Wear limit	0.5 mm (0.020 in)			

Torque wrench settings	kgf m	lbf ft
Front and rear wheel spindle nuts:		
CB125 T, T2, TA, and TB models	4.0 – 5.0	29 – 36
CB125 TD and CM125 C models	5.5 – 6.5	40 – 47
CD125 T model only	5.0 – 7.0	36 – 51
Steering stem nut	6.0 – 7.0	43 – 51
Fork lower leg drain bolts	0.7 – 0.9	5 – 6.5
Handlebar clamp bolts	2.0 – 2.5	14.5 – 18
Top yoke pinch bolts	0.9 – 1.3	6.5 – 9
Bottom yoke pinch bolts	2.0 – 2.5	14.5 – 18
Fork top bolts	2.5 – 3.0	18 – 22
Damper rod Allen bolts	2.5 – 3.0	18 – 22
Swinging arm pivot bolt:		
Except CB125 TD models	4.0 – 5.0	29 – 36
CB125 TD models only	5.5 – 6.5	40 – 47
Suspension unit fasteners:		
Except CB125 TD models	3.0 – 4.0	22 – 29
CB125TD models only	2.5 – 3.5	18 – 25
Suspension linkage pivot bolts – CB125 models only	4.5 – 5.5	33 – 40
Brake pedal pinch bolt – CB125 TD models only	1.9 – 2.3	14 – 17
Rear brake torque arm nuts	2.0 – 2.5	14.5 – 18
Front mudguard mounting bolts	0.8 – 1.2	6 – 9
Rider's footrest mounting bolts:		
CB125 TD (front) and CB 125 T, T2, TA, and TB (10 mm)	3.0 – 4.0	22 – 29
CB125 TD (rear – 8 mm)	2.0 – 2.5	14.5 – 18
CD125 T and CM125 C	2.0 – 2.4	14.5 – 17
Pillion footrest mounting bolts	4.0 – 4.8	29 – 35

1 General description

The models covered by this manual utilise a frame of open diamond type, being a composite tubular structure with a pressed-steel spine. The engine unit is bolted between the spine and the downtube to form a structural part of the frame. The front forks are of traditional telescopic design, being controlled by hydraulic dampers. Rear suspension is provided by a swinging arm fork, pivoting on replaceable bushes, and controlled by two hydraulically damped, suspension units, except for the CB125 TD model, on which the pivoted fork acts on a single suspension unit via a linkage. The linkage increases progressively the rate at which the suspension unit spring is compressed, providing compliant suspension around the static load position and increasingly stiff suspension as the fork moves further through its travel.

2 Front fork legs: removal and refitting

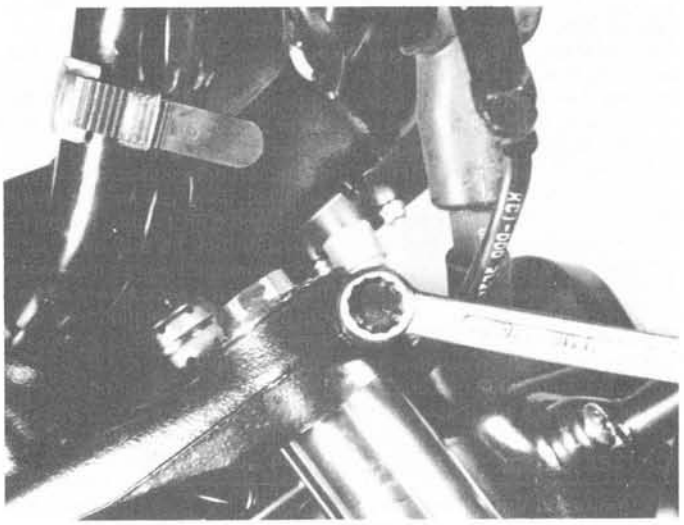
1 Place the machine on its centre stand on level ground, check that it is firmly supported, and remove the front wheel and the brake caliper (where fitted) as described in Sections 4 and 7 of Chapter 5. Slacken and remove the front mudguard retaining bolts and remove the front mudguard. Remove the cover (where fitted) placed over the bottom yoke pinch bolts.

2 Slacken fully the pinch bolts securing the fork leg in both the top and bottom fork yokes and withdraw the leg by pulling it downwards out of the yokes. If corrosion obstructs removal of the leg, apply a liberal quantity of penetrating fluid, allow time for it to work, then release the leg by rotating it in the yoke as it is pulled downwards. In extremely stubborn cases, tap smartly on the head of each fork top bolt using a hammer and a hard wooden drift. It is permissible to open up the split clamp of each yoke by removing fully the pinch bolt and working the flat blade of a screwdriver into the clamp. Exercise extreme caution when doing this, as the clamps can be overstressed and broken easily.

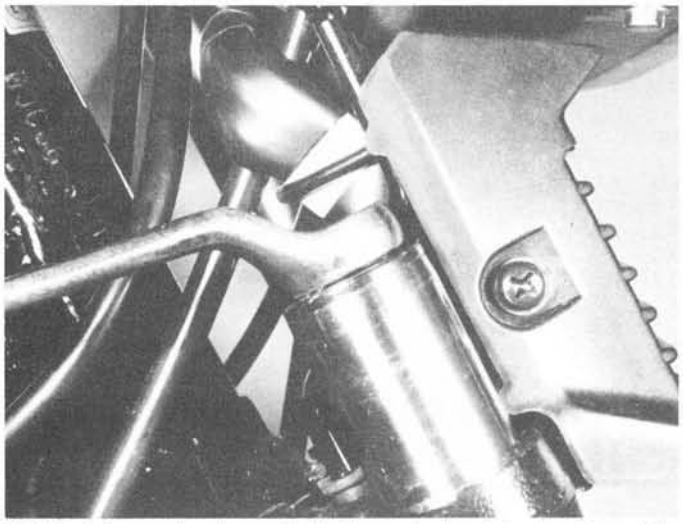
3 On refitting, check that the upper length of each stanchion is clean and polished, and that all traces of dirt and corrosion have been removed. Apply a thin smear of grease to ease the passage of the stanchion through the yokes and to inhibit the formation of corrosion. When the stanchion is in position, ie with its top end flush with the upper surface of the top yoke so that the fork top bolt is standing proud, tighten both pinch bolts by just enough to retain the leg.

4 Refit the mudguard and front wheel but before tightening finally the various fasteners, push the machine off its stand and apply the front brake, then bounce the machine a few times to settle the front suspension components. Tighten first the front wheel spindle nut to the specified torque setting and then tighten the mudguard mounting bolts and lower and upper yoke pinch bolts to the specified torque setting. It is essential to tighten the fasteners from the wheel spindle upwards so that the front forks are clamped securely but without stress.

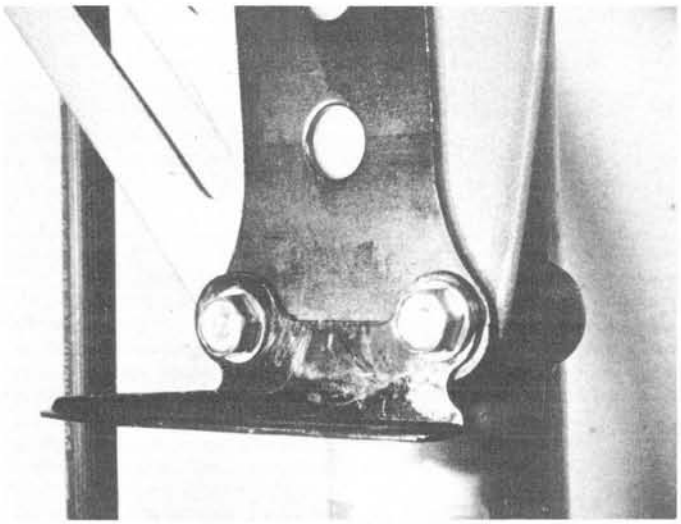
5 Complete the refitting of the front wheel and (where applicable) the brake caliper components, then adjust the front brake and check that the front wheel is free to rotate, that the speedometer functions correctly, and that the front brake and front forks are working efficiently before taking the machine out on the road.



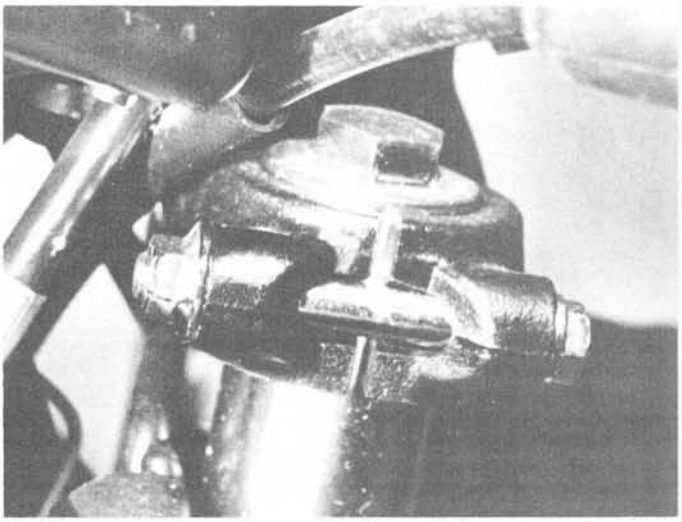
2.2a Slacken fork yoke pinch bolts to release fork leg



2.2b Fork leg can be clamped in bottom yoke to retain stanchion while fork top bolt is slackened



2.4 Note correct position of water channel inside mudguard – CB125 TD only



2.3 Top surface of stanchion must be flush with top yoke as shown

3 Front fork legs: dismantling and reassembly

1 With the fork legs removed from the machine as described in Section 2 of this Chapter, each fork leg can be dismantled in turn. Work on each leg separately to prevent components from each leg becoming mixed. It will be necessary to use a vice at various stages of fork leg dismantling and reassembly; the jaws of the vice must be padded with wooden or soft alloy covers to prevent damage to the component being held.

2 Clamp the stanchion upper end in the vice, taking care not to distort the stanchion or to mark its surface, then unscrew the fork top bolt. Slide out the fork spring, noting carefully which way round it is fitted. Invert the leg over a suitable container and allow the oil to drain out, pumping the stanchion to eject as much oil as possible.

3 Clamp the fork lower leg at its wheel spindle lug. Remove the Allen bolt screwed into the bottom of the lower leg. The Allen bolt retains the damper rod; if this rotates it will be impossible to release the Allen bolt. To hold the damper rod, grind a coarse taper on one end of a suitable length of wooden dowel and insert this down the stanchion to rest on the damper rod head. Apply pressure via the dowel to retain the damper rod and unscrew the Allen bolt. Note the copper sealing washer underneath the Allen bolt head. Pull the stanchion and damper rod out of the fork lower leg. Invert the stanchion to tip out the damper rod and rebound spring, and invert the lower leg to tip out the damper rod seat.

4 On all CB125 models and the CM125 C, carefully prise the rubber dust seal away from the upper end of the fork lower leg. This exposes a large wire circlip which can be removed using a suitable screwdriver. The fork oil seal is removed by levering it from position using a screwdriver or tyre lever from which all the sharp edges have been removed. Take care not to damage the fork lower leg casting. If the seal is exceptionally tight, pour boiling water over the lower leg so that the casting expands enough to release the seal, but take great care to prevent personal injury when handling any heated components. With the seal removed, the back-up ring (CB125 TD and CM125 C models only) can be removed also.

5 On CD125 T models, the chromed, tubular oil seal holder must be drifted upwards off the fork lower leg without damaging the seal holder or the fork lower leg casting. Obtain a piece of hard wood that has a chisel-shaped end; a soft-alloy or brass drift would serve also. After drifting off the seal holder, prise out, or drift out from underneath, the dust seal fitted inside the seal holder. Use a suitable screwdriver to release the large wire circlip and prise out or drift out from underneath the fork oil seal.

6 To reassemble the fork leg insert the back-up ring (CB125 TD and CM125 C models only) into the fork lower leg. Apply grease to the outer circumference of the new oil seal and tap it into the fork lower leg using as a drift a large socket spanner which bears only on the seal outer edge. Tap the seal down until the circlip groove machined in the fork lower leg is exposed, then refit the circlip. Pack the area above the oil seal with grease, then refit the dust seal. On CD125 T models only, place the oil seal holder on a working surface and install the oil seal, the retaining circlip and the dust seal as described above, then clamp the fork lower leg in the vice and tap the seal holder down on to the lower leg. Place a piece of wood across the top of the seal holder to prevent damage and fit the holder so that the drain hole drilled in it is facing to the rear of the fork leg.

7 Refit the rebound spring to the damper rod and insert the damper rod assembly into the stanchion, allowing it to slide down so that the damper rod protrudes from the stanchion lower end. Place the damper rod seat over the damper rod end, apply a light film of fork oil to the stanchion and insert it into the lower leg, taking care not to damage the dust seal or oil seal as the stanchion passes through them. Press the stanchion fully into the lower leg until it bottoms.

8 Using the wooden dowel used on dismantling or the fork spring to retain the damper rod, refit the Allen bolt and copper washer. Use thread locking compound to secure the Allen bolt. Tighten securely the bolt, if possible to a torque setting of 2.5 – 3.0 kgf m (18 – 22 lbf ft). Check that the stanchion moves easily and freely throughout its full travel.

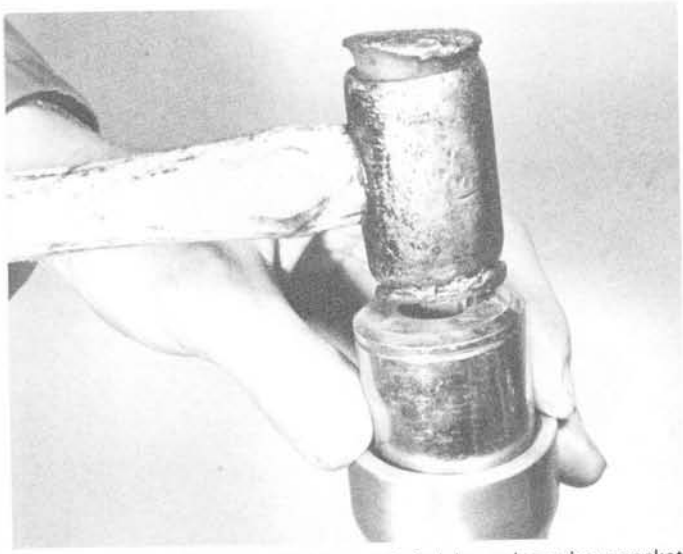
9 The amount of fork oil required for each leg of the various models is given in the Specifications Section of this Chapter; be careful that exactly the same amount of oil is poured into each leg. Refit the fork spring with the closer-spaced coils to the top, then refit the fork top bolt, tightening it to a torque setting of 2.5 – 3.0 kgf m (18 – 22 lbf ft). On all models prevent the onset of corrosion by smearing grease over the exposed surface of the stanchion.

3.4a Prise dust seal out of fork lower leg as shown

3.4b Circlip is removed using a screwdriver

3.4c Take care not to damage lower leg casting when removing oil seal

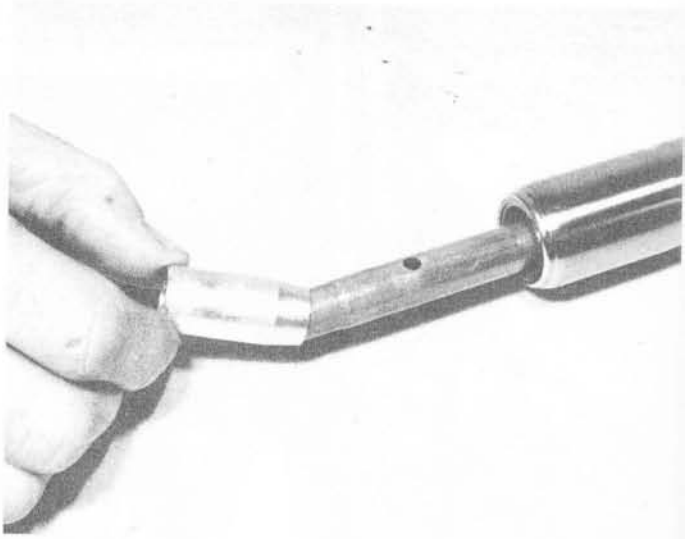
3.6a Insert oil seal back-up ring into fork lower leg – CB125 TD and CM125 C only



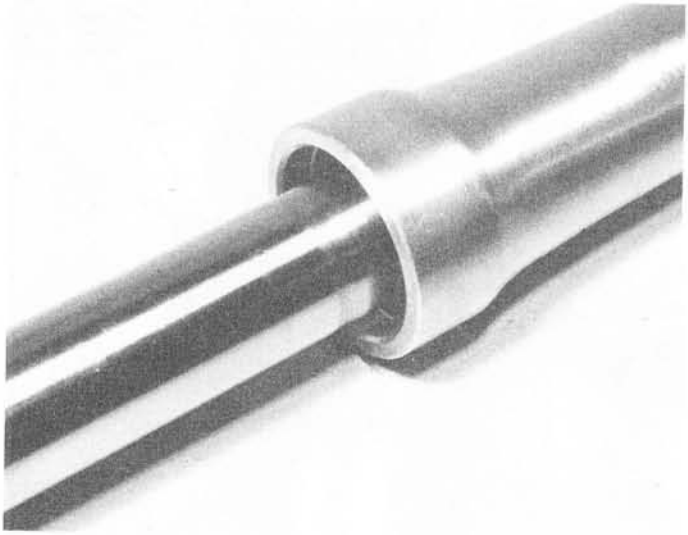
3.6b Fork oil seal must be fitted square in fork lower leg using a socket to drift it into place

3.6c Secure fork oil seal with the large circlip

3.7a Refit rebound spring to damper rod and insert rod into stanchion



3.7b Damper rod seat fits over damper rod lower end

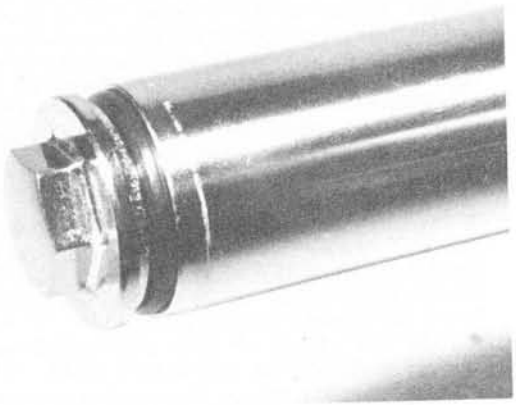


3.7c Insert stanchion into fork lower leg – do not damage seal

3.8a Tighten securely damper rod Allen bolt – do not omit copper washer

3.8b Dust seal is pressed firmly into fork lower leg

3.9a Fork springs are refitted with closer-spaced coils to the top



3.9b Check condition of O-ring before tightening fork top bolt

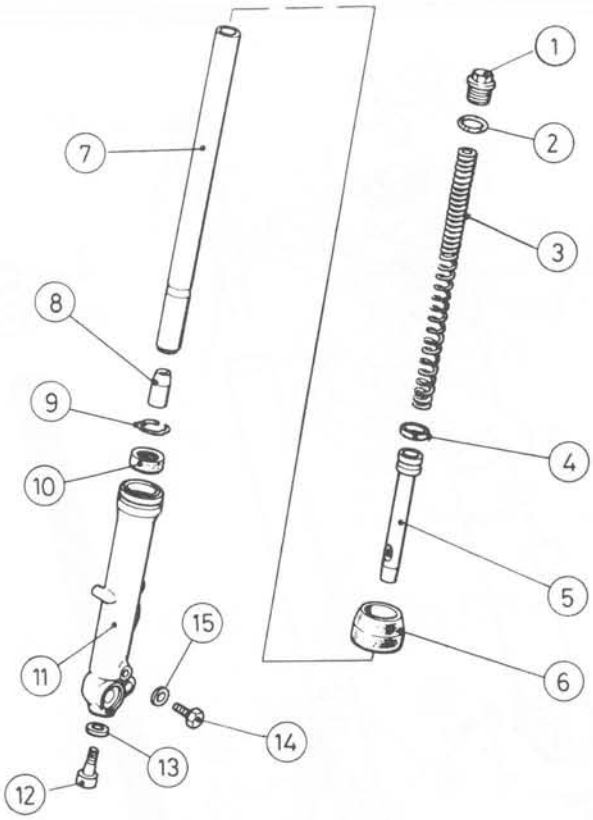


Fig. 4.1 Front forks – CB125 T, T2, TA and TB

1 *Top bolt*
2 *O-ring*
3 *Fork spring*
4 *Damper rod piston ring*
5 *Damper rod*
6 *Dust seal*
7 *Stanchion*
8 *Damper rod seat*
9 *Wire circlip*
10 *Oil seal*
11 *Lower leg*
12 *Allen bolt*
13 *Sealing washer*
14 *Drain bolt*
15 *Sealing washer*

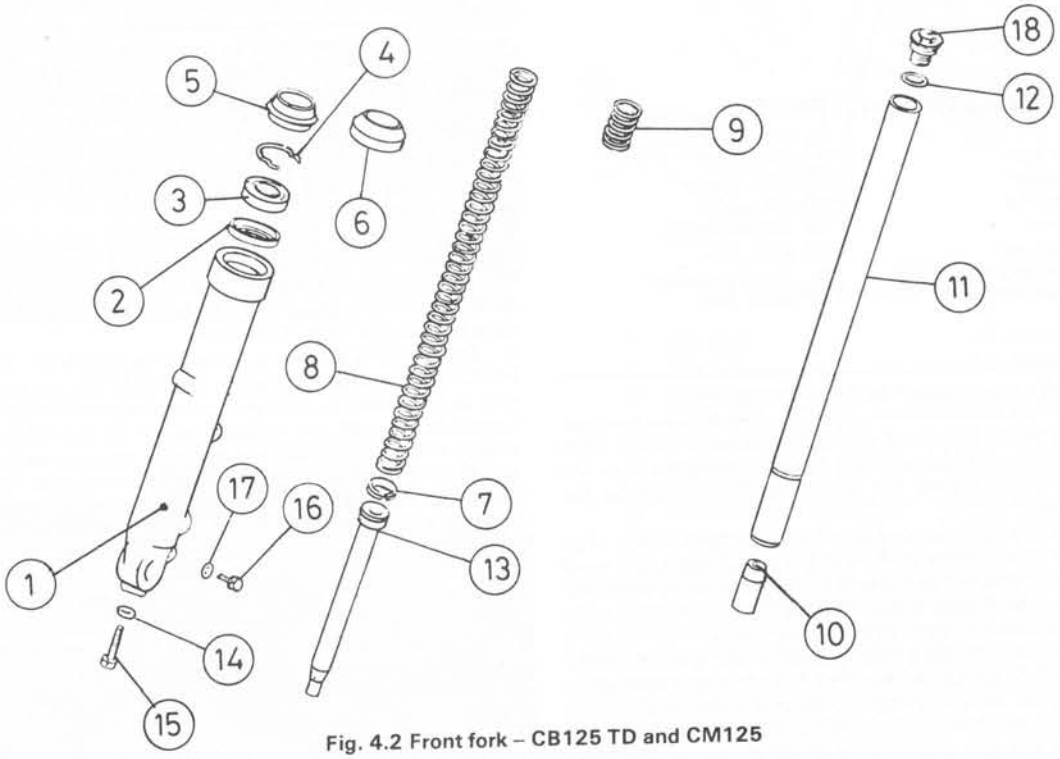


Fig. 4.2 Front fork – CB125 TD and CM125

1 *Lower leg*
2 *Back-up ring*
3 *Oil seal*
4 *Wire circlip*
5 *Dust seal – CB125 TD*
6 *Dust seal – CM125*
7 *Damper rod piston ring*
8 *Fork spring*
9 *Rebound spring*
10 *Damper rod seat*
11 *Stanchion*
12 *O-ring*
13 *Damper rod*
14 *Sealing washer*
15 *Allen bolt*
16 *Drain bolt*
17 *Sealing washer*
18 *Top bolt*

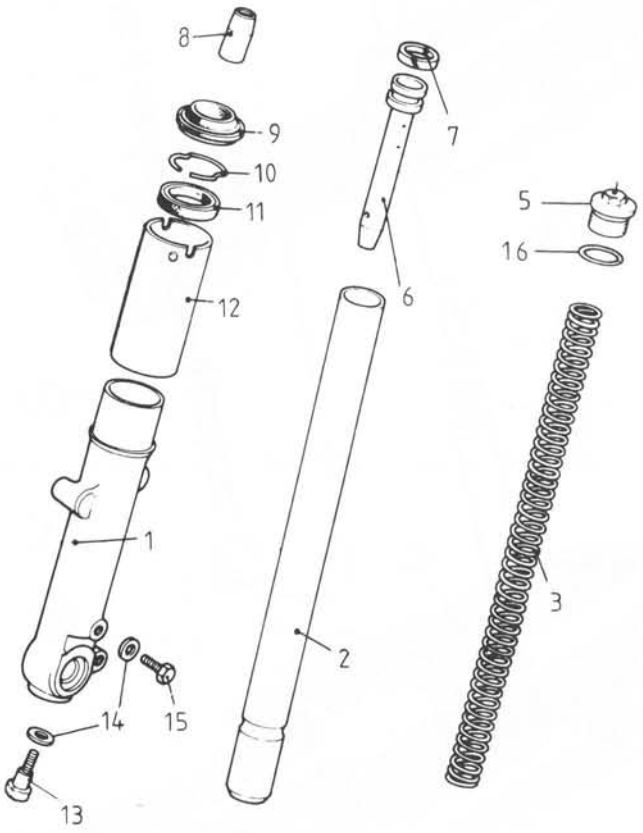


Fig. 4.3 Front forks – CD125 T

1 Lower leg	*9 Dust seal*
2 Stanchion	*10 Wire circlip*
3 Fork spring	*11 Oil seal*
5 Top bolt	*12 Oil seal holder*
6 Damper rod	*13 Allen bolt*
7 Damper rod piston ring	*14 Sealing washer*
8 Damper rod seat	*15 Drain bolt*

4 Front fork legs: examination and renovation

1 Carefully clean all the fork components then examine closely each part. Any obvious signs of damage will require the renewal of the faulty component as repairs are not a practical proposition for the average owner.

2 The front forks are not provided with bushes. The fork legs slide directly against the hard chrome surface of the stanchions and if wear occurs, the stanchion and/or the lower fork will have to be renewed. Wear normally occurs only after a very considerable mileage has been covered and can be detected by a juddering sensation when the front brake is applied. A slack steering head assembly will give the same effect, so this should always be checked first and adjusted if necessary, before condemning the forks. If excessive wear is suspected, refer to the service limits for the internal diameter of the lower leg and the outside diameter of the fork stanchion as given in the Specifications section at the front of this Chapter.

3 Wear is often visually apparent in the form of scuffing or break-through of the chrome surface of the fork stanchions. Check the stanchions in particular for scoring over the length which enters the oil seal. Bad scoring here will damage the oil seal and lead to fluid leakage. If evidence of damage of this nature is apparent, the stanchion in question must be renewed. In extreme cases the fork lower leg will have to be renewed as well.

4 If small pits have been formed in the stanchion surface by *corrosion, they can be filled by degreasing thoroughly the stanchion* and by filling the pits with Araldite. When the filler has set hard, use a piece of fine emery paper to rub down and to restore the original surface. If such damage is found, it is worthwhile fitting a pair of gaiters to cover completely the stanchion for future protection.

5 It is rarely possible to straighten forks which have been badly damaged in an accident, especially if the correct jigs are not available. It is always best to err on the side of safety and fit new replacements, especially since there is no easy means of checking to what extent forks have been overstressed. The fork stanchions can be checked for straightness by rolling them on a flat surface. Any misalignment will immediately be obvious.

6 If damping action is lost, the piston ring around the damper piston should be renewed; it is catalogued as a separate item. Check that the small holes in the damper tube are not blocked and if no substantial improvement is shown when the forks are reassembled and refilled, renew the complete damper assembly.

7 The fork springs will take a permanent set, that is, become somewhat compressed, after lengthy service. In this case, the fork action will become spongy, necessitating renewal of the springs. The correct spring lengths are given in the Specifications section of this Chapter. Always renew fork springs as a pair.

8 Check that the dust excluder rubbers are not split or worn where they bear on the fork stanchions. A worn excluder will allow the ingress of dust and water which will damage the oil seal and eventually cause wear of the fork stanchions. Similarly examine, and renew if necessary the O-ring fitted around the fork top bolt and the copper washer fitted around the damper rod Allen bolt. Discard the fork oil seal, oil seals should never be reused and should be renewed as a matter of course whenever they are disturbed.

5 Steering head assembly: removal and refitting

1 Commence operations by removing the front wheel and (where applicable) the brake caliper as described in Sections 4 and 7 of Chapter 5. Remove the front mudguard and both fork legs as described in Section 2 of this Chapter. It is advisable to remove the petrol tank to protect its finish, this task involving the raising or removal of the seat and the removal of the sidepanels as described in Section 2 of Chapter 2. At the very least, protect the tank by covering it with a thick blanket or similar padding.

2 Disconnect the battery to prevent the risk of short circuits, then disconnect the speedometer cable (and tachometer cable, where fitted) by unscrewing the knurled ring securing the cable to the base of the instrument. Disconnect the horn by pulling off its wires from the terminals on the rear of the horn.

3 On all CB125 models, remove the two bolts which secure the headlamp/instrument mounting bracket to the top yoke, noting that it will be necessary to first pull away the plastic cover fitted over the handlebar clamps and ignition switch of the CB125 TD model to expose these bolts. Press the assembly forwards at the top until it can be raised to disengage the bracket bottom ends from their rubber mountings in the bottom yoke. Although there should be sufficient free play, it may be necessary to disconnect some of the electrical components such as the ignition switch so that the complete headlamp/instrument assembly can hang down to one side of the steering head area. Slacken and remove the steering stem nut and washer, then lift the handlebar/top yoke assembly upwards off the steering head and pull it backwards to rest on the frame top tubes. Again, there should be sufficient slack to permit this, but care must be taken to release any cable or wiring clamps which might hinder the work, and not to stretch or distort any control cable or wiring lead. Move all components just far enough to clear the steering head area.

4 On the CD125 T and CM125 C models, remove the steering stem top nut and washer, then carefully lift upwards the handlebar/top yoke assembly and pull it backwards clear of the steering head area to rest on the frame top tubes. This will release the headlamp mounting brackets and permit the headlamp assembly to hang down to one side of the steering head area. Take great care to release any control cable or wiring clamps or ties which might otherwise hinder the work and be careful to avoid stretching or overstressing any of the cables or electrical leads.

5 On all models, once the steering head area is clear, support the

bottom yoke with one hand and unscrew the slotted adjusting nut, then pick out the top cone. Carefully pick out all the steel balls from the top race, placing them in a suitable container. Place a large plastic bag around the bottom yoke and carefully lower it from the steering head, catching the balls of the lower race as they drop clear into the bag. Note that there are 21 balls in each race.

6 With the bottom yoke removed, any ancillary components that have remained in place on it can be removed as described. Refer to the next Section which relates to examination and renovation of the steering head bearings, before reassembly.

7 On reassembly, refit first the metal washer, then the sealing washer on to the steering stem, then slide the bottom bearing cone down the length of the stem on to its locating shoulder. Drive the cone into place using a long tubular drift which bears only on the cone inner edge to avoid damaging the polished bearing track. Similarly, refit the top and bottom bearing inner races, or cups, using a tubular drift (such as a large socket spanner). Apply a liberal quantity of grease to all three bearing surfaces, to the steering stem, and to the inside of the steering head.

8 Place the bearing balls in position noting that there are 21 in each race; this number will leave a gap for one more ball which is essential. If the balls are packed tightly they will skid against each other rather than roll, thus producing premature wear. Place the balls on the bottom bearing cone and the top bearing inner race, using plenty of grease to stick them in place. Press the top bearing cone down onto the balls of the top bearing, taking care not to dislodge any of the balls, then very carefully pass the steering stem up through the steering head and top bearing cone, again taking care not to dislodge any of the balls. Support the bottom yoke with one hand and screw down the slotted bearing adjuster nut to secure the complete assembly.

9 Using a pin spanner or a C-spanner, tighten down the adjusting nut until it seats lightly then rotate the bottom yoke through its full movement to settle the bearings and to check that they are correctly installed. Slacken off the adjuster nut by approximately $\frac{1}{8}$ of a turn to provide the correct initial setting for bearing adjustment. Wipe off any surplus grease.

10 The remainder of the reassembly work is a straightforward reversal of the dismantling procedure described above. Take care to connect any electrical components that were disconnected on dismantling and to ensure that all electrical leads and control cables are routed correctly. Tighten securely all nuts and bolts, but do not forget to check the steering head bearing adjustment as described in Routine Maintenance before tightening finally the steering stem top nut.

11 Finally, check that all electrical components are functioning and, that the speedometer (and tachometer, where applicable), the front forks, the front brake, and the steering are all working properly before taking the machine on the road.

5.3 Ignition switch cover is removed by pulling it away from retaining grommet

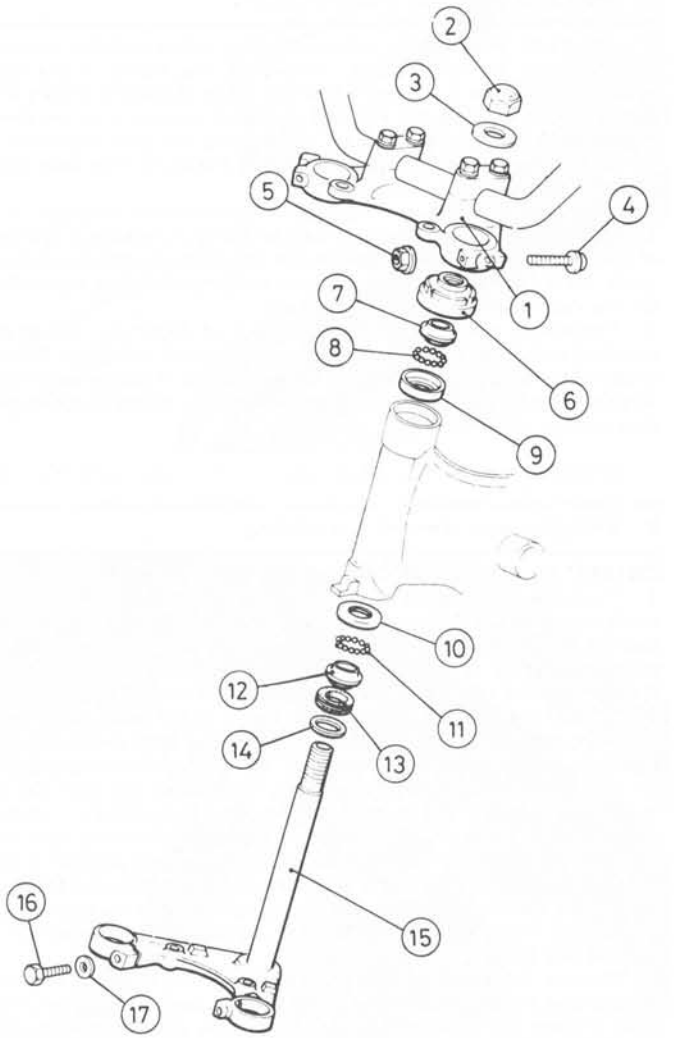


Fig. 4.4 Steering head assembly

1 Top yoke	*10 Bottom cup*
2 Top nut	*11 Bottom bearing balls – 21 off*
3 Washer	*12 Bottom cone*
4 Pinch bolt – 2 off	*13 Sealing washer*
5 Nut – 2 off	*14 Washer*
6 Adjusting nut	*15 Bottom yoke*
7 Top cone	*16 Pinch bolt – 2 off*
8 Top bearing balls – 21 off	*17 Washer – 2 off*
9 Top cup	

6 Steering head bearings: examination and renovation

1 Carefully clean the steering head bearing components. Examine the bearing tracks of the cups and cones for indentation, cracks, or chipping, and for any other wear or damage. The bearing tracks must be smooth and polished; renew any of the cups or cones that are found to be in any way damaged.

2 If the steel balls are marked or discoloured, they should be renewed as a complete set. Each race holds 21 $\frac{3}{16}$" (No 6) steel balls.

3 The bearing inner races or cups can be drifted from position in the steering head by passing a long metal drift through the steering head lug. The bottom bearing cone can be tapped off the steering stem. Do not damage the sealing washer and flat metal washer under the bottom cone.

4 Renew the sealing washer fitted beneath the bottom bearing cone if it is damaged; it is essential to keep moisture and road dirt out of the bearings.

7 Frame: examination and renovation

1 The frame is unlikely to require attention unless accident damage has occurred. In some cases, renewal of the frame is the only satisfactory remedy if the frame is badly out of alignment. Only a few frame specialists have the jigs and mandrels necessary for resetting the frame to the required standard of accuracy, and even then there is no easy means of assessing to what extent the frame may have been overstressed.
2 After the machine has covered a considerable mileage, it is advisable to examine the frame closely for signs of cracking or splitting at the welded joints. Rust corrosion can also cause weakness at these joints. Minor damage can be repaired by welding or brazing, depending on the extent and nature of the damage.
3 Remember that a frame which is out of alignment will cause handling problems and may even promote 'speed wobbles'. If misalignment is suspected, as a result of an accident, it will be necessary to strip the machine completely so that the frame can be checked, and if necessary, renewed.

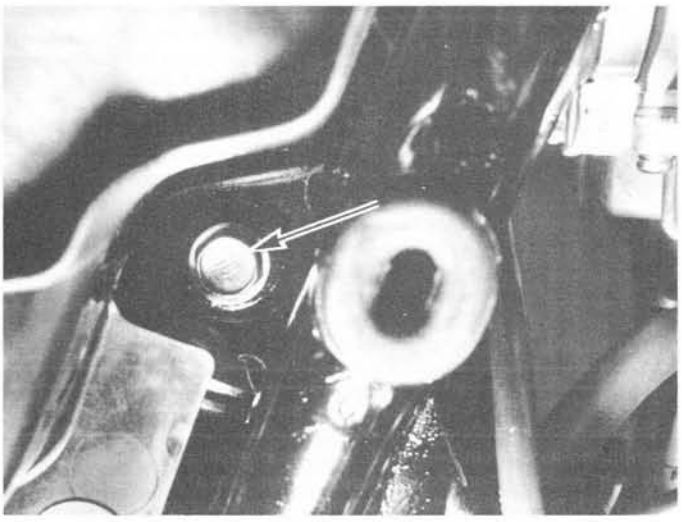
8 Swinging arm: removal and refitting

CB125T, T2, TA and TB, CD125T and CM125C models

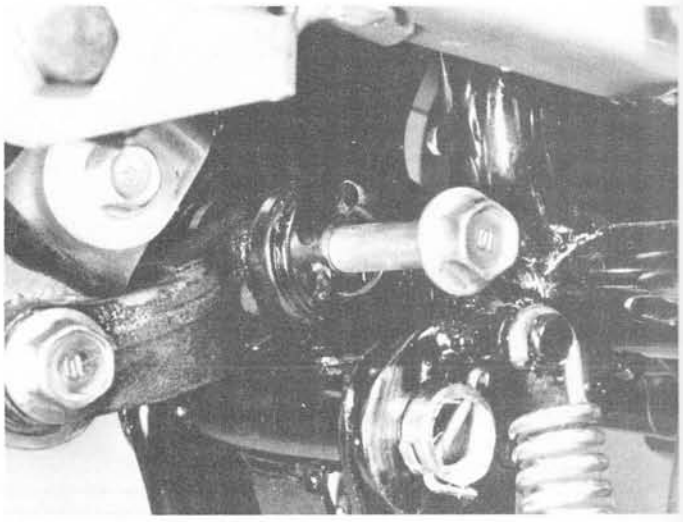
1 Place the machine on its centre stand on level ground. Work is made much easier if the exhaust system is removed, and also the footrest mounting plates on the CB125 models only, although it is not strictly necessary to remove any of these items.
2 Remove the rear wheel as described in Section 16 of Chapter 5. On CD125T models only, remove both halves of the chainguard, each half being retained by two bolts, then unscrew the large sleeve nut and withdraw the sprocket carrier assembly. Allow the chain to hang down on to a sheet of paper so that it does not pick up any dirt. On all models, slacken and remove the chromed dome nuts which secure the suspension unit bottom mountings and withdraw the units from the lugs on the swinging arm, noting the exact number and position of the thick washers fitted behind the nuts. Remove the chainguard fitted to the CB125 models, this being retained by one bolt and the suspension unit bottom mounting, and that fitted to the CM125 C model which is held by two bolts.
3 Remove the swinging arm pivot bolt retaining nut and washer, then remove the pivot bolt. If the bolt is stuck in place due to corrosion, apply a liberal quantity of penetrating fluid, allow time for it to work in, then tap out the bolt using a hammer and a long metal drift. Note that the bolt passes through both footrest mounting plates on the CB125 and CM125 C models, and through the pillion footrest/exhaust mounting subframe loop on the CD125 T model.
4 When the pivot bolt is removed, withdraw the swinging arm from the machine.
5 Reassembly is the reverse of the dismantling procedure. Ensure that the pivot bolt is completely free from corrosion, smear grease along its length and pack grease into the recesses through which the bolt must pass. Refit the swinging arm and retain it by pushing the bolt into place, not forgetting to pass it through the footrest mounting plates or subframe loop, as appropriate, if these were disturbed. Refit the pivot bolt retaining nut and washer, then tighten the nut to the recommended torque setting. Check that the swinging arm moves easily throughout its full travel.
6 Complete the remainder of the reassembly work, tightening the rear suspension unit mounting nuts to the recommended torque setting. When the rear wheel is refitted, adjust the chain and rear brake as described in the relevant Sections of Chapter 5.

CB125 TD models only

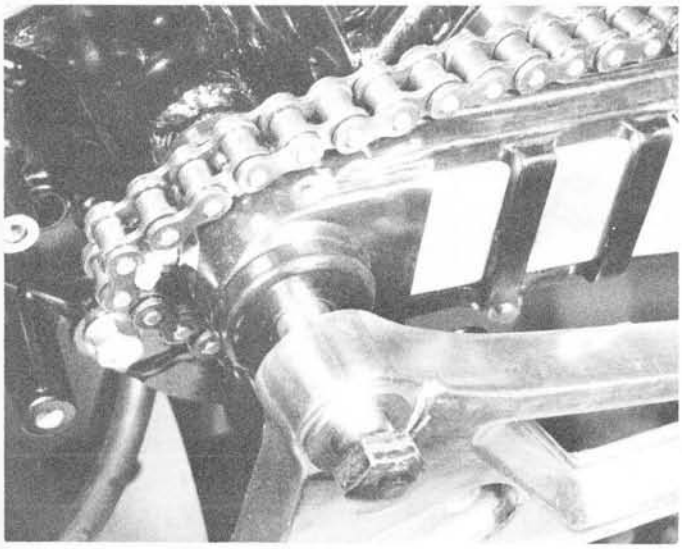
7 Place the machine on its centre stand on level ground. Remove both sidepanels. Work is made much easier if the exhaust system is removed and if the footrest plate mounting bolts are removed, although neither of these tasks is strictly necessary.
8 Remove the rear wheel as described in Section 16 of Chapter 5, then remove the chainguard which is retained by two bolts. Slacken and remove the bolt which retains the suspension unit top mounting to the frame, the bolt which retains the linkage front arm to the frame, and the swinging arm pivot bolt retaining nut and washer.
9 Withdraw the pivot bolt. If this is stuck in place with corrosion, apply a liberal quantity of penetrating fluid, allow time for it to work, then tap out the bolt using a hammer and a long metal drift. Pull the swinging arm/ suspension assembly away from the machine.
10 With the complete assembly removed, slacken and remove the various nuts and pivot bolts to separate the linkage front arm from the linkage rear arm, the suspension unit bottom mounting from the rear arm, and the rear arm from each side of the swinging arm, noting carefully the positions of the sealing caps and bushes.
11 Reassemble the linkage using the accompanying photographs and illustrations as a guide. Apply a liberal quantity of molybdenum disulphide grease to each metal sleeve, pivot bush, and pivot bolt, and ensure that the sealing caps are refitted correctly to each pivot assembly. Ensure all fasteners are tightened to the recommended torque settings. Check that the linkage moves easily and freely before offering up the completed assembly to the machine.
12 Coat the swinging-arm pivot bolt with grease, and pack grease into the recesses through which the bolt must pass. Check that the suspension assembly is correctly aligned, then push through from right to left the swinging arm pivot bolt, the linkage front arm pivot bolt and the suspension unit top mounting bolt. Refit the retaining nuts and washers, then tighten the nuts to the recommended torque settings.
13 The remainder of the reassembly procedure is a straightforward reversal of the dismantling procedure. Ensure that the swinging arm does not foul the rear brake light switch, and ensure that the chain and rear brake are adjusted correctly on refitting the rear wheel.



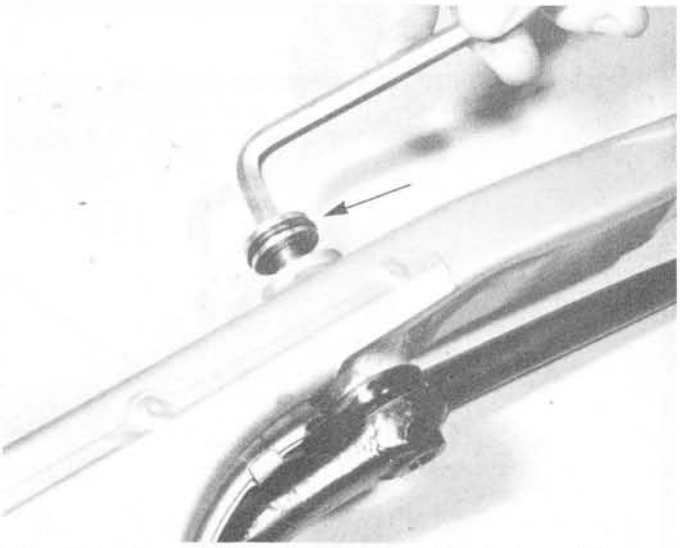
8.8a Remove suspension unit top mounting bolt (arrowed) ...



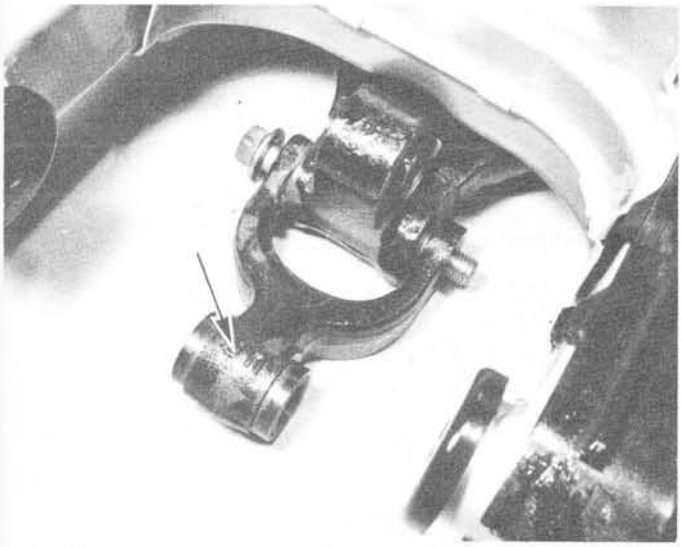
8.8b ... and linkage front arm/frame mounting bolt



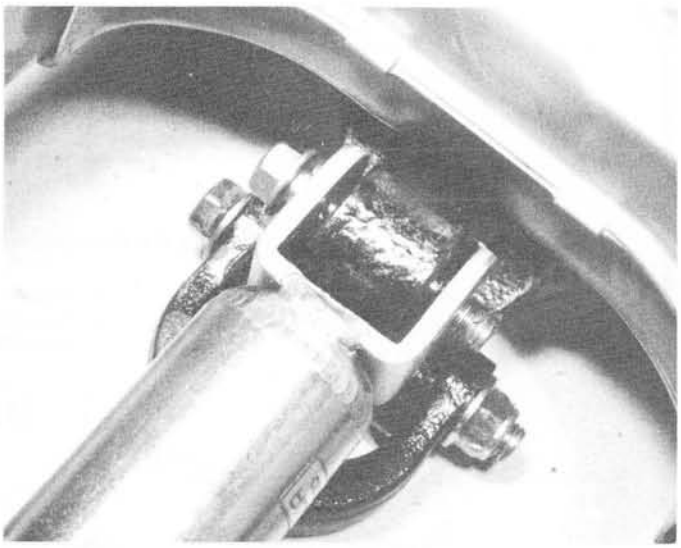
8.9 Footrest mounting plates need not be removed unless so desired



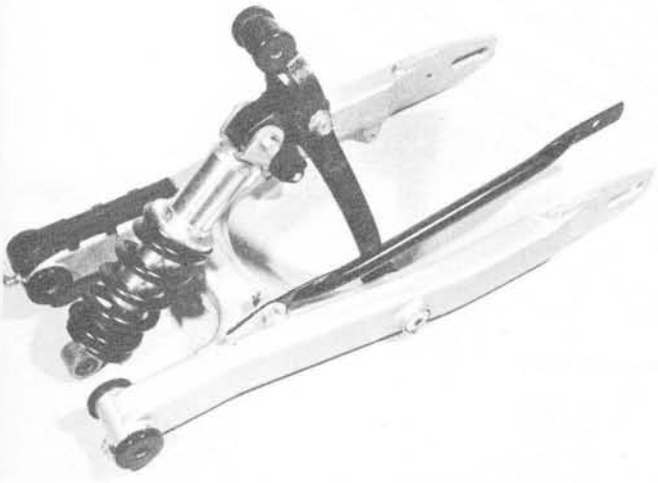
8.11a O-rings (arrowed) must be in good condition before refitting



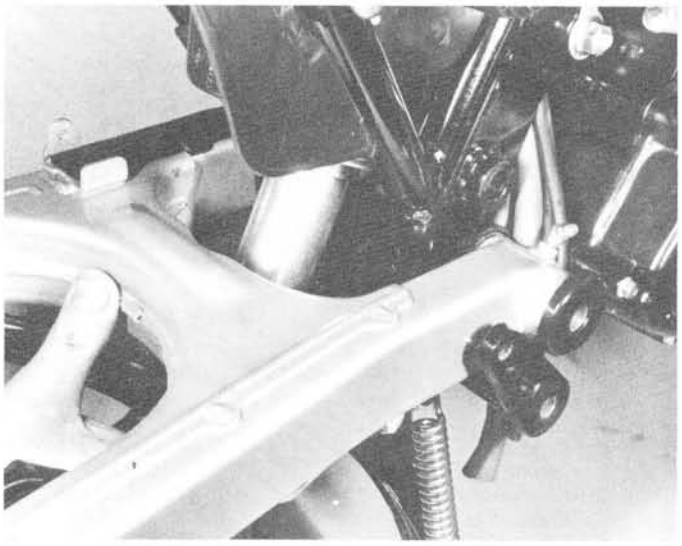
8.11b Note 'Up' marking (arrowed) cast on linkage front arm to show correct position



8.11c Refit suspension unit to linkage rear arm



8.11d The completed suspension linkage/swinging arm assembly ...



8.11e ... is refitted to the frame as a single unit

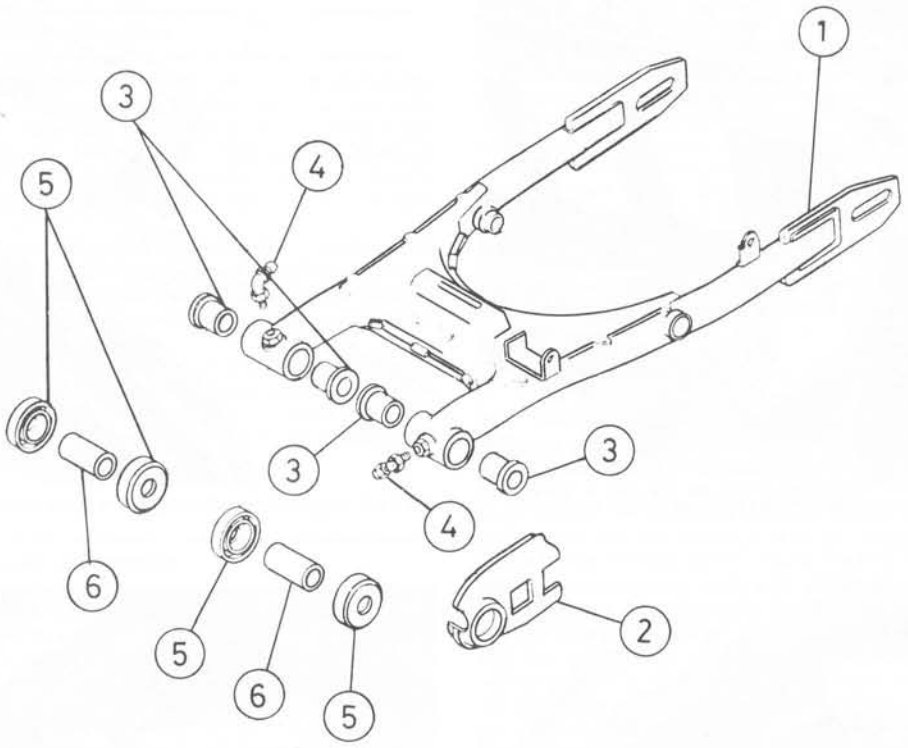


Fig. 4.5 Swinging arm – CB125 T and CM125 C

1 *Swinging arm*
2 *Chain guide – CB125 TD and CM125 C only*
3 *Bush – 4 off*
4 *Grease nipple – 2 off – CB125 TD and CM125 C only*
5 *Dust cap – 4 off*
6 *Sleeve – 2 off*

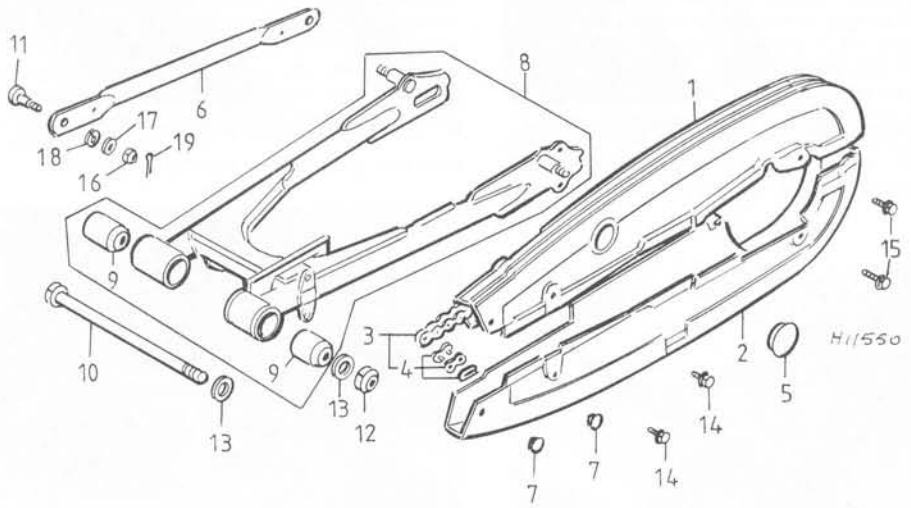


Fig. 4.6 Swinging arm – CD125 T

1 *Chaincase upper half*
2 *Chaincase lower half*
3 *Final drive chain*
4 *Master link*
5 *Inspection plug*
6 *Torque arm*
7 *Plug – 2 off*
8 *Swinging arm*
9 *Bush – 2 off*
10 *Pivot bolt*
11 *Bolt*
12 *Nut*
13 *Washer*
14 *Bolt and washer – 2 off*
15 *Bolt and washer – 2 off*
16 *Nut*
17 *Washer*
18 *Spring washer*
19 *Split pin*

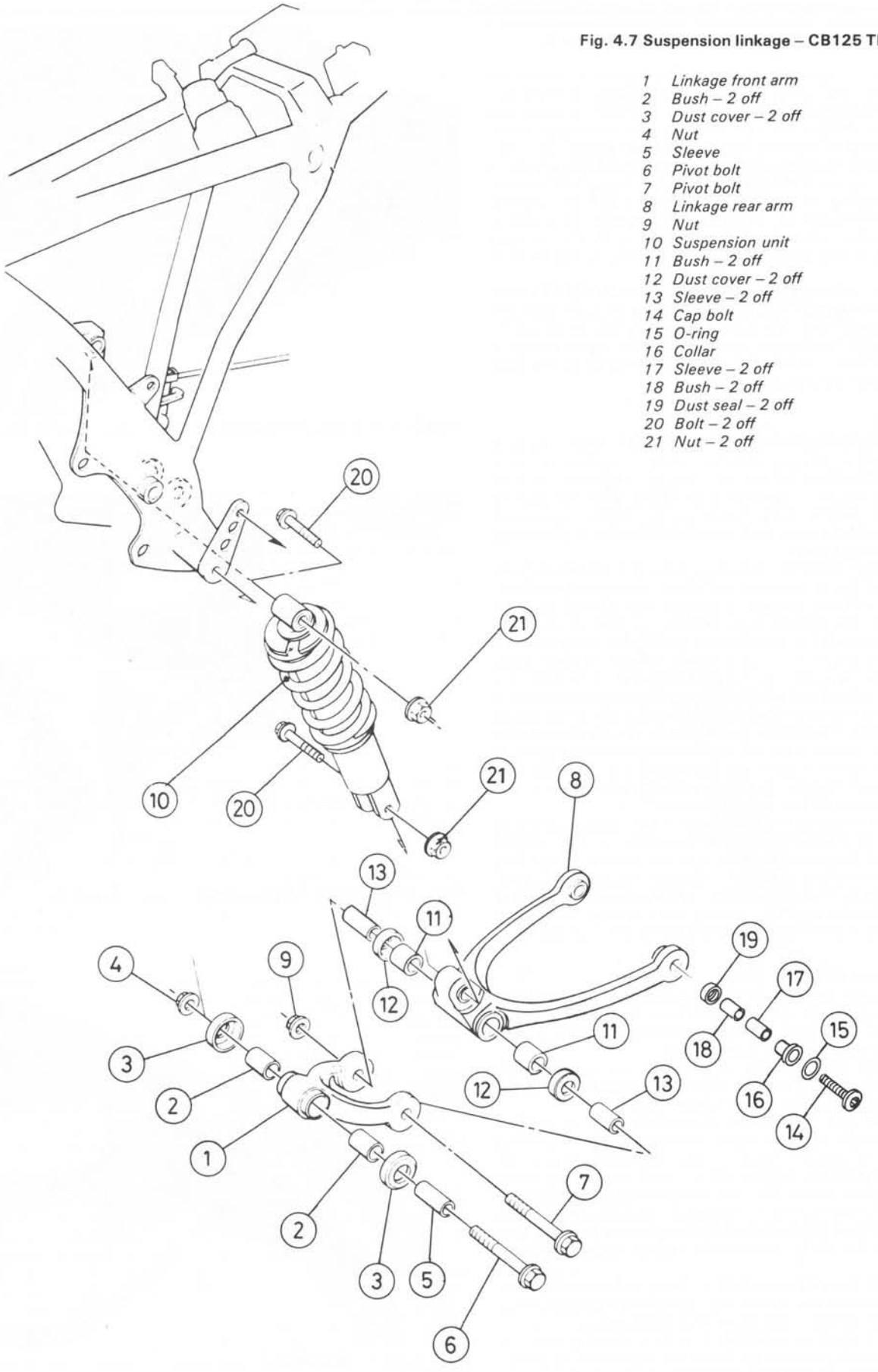


Fig. 4.7 Suspension linkage – CB125 TD

1 *Linkage front arm*
2 *Bush – 2 off*
3 *Dust cover – 2 off*
4 *Nut*
5 *Sleeve*
6 *Pivot bolt*
7 *Pivot bolt*
8 *Linkage rear arm*
9 *Nut*
10 *Suspension unit*
11 *Bush – 2 off*
12 *Dust cover – 2 off*
13 *Sleeve – 2 off*
14 *Cap bolt*
15 *O-ring*
16 *Collar*
17 *Sleeve – 2 off*
18 *Bush – 2 off*
19 *Dust seal – 2 off*
20 *Bolt – 2 off*
21 *Nut – 2 off*

9 Swinging arm and suspension linkage: examination and renovation

1 The swinging arm pivots on shouldered bushes (CB125 and CM125 C models) or bonded rubber bushes (CD125 T) pressed into the cross-member at the end of each fork arm, which are supported by a pivot shaft running through the frame down tube box-section. Worn swinging arm pivot bearings will give imprecise handling, with a tendency for the rear end of the machine to twitch or hop. The play can be detected by placing the machine on its centre stand, and with the rear wheel clear of the ground, pulling and pushing on the fork ends in a horizontal direction. Any play will be magnified by the leverage effect. In the UK, excess play will cause the machine to fail the DOT test.

2 The 'Pro-Link' suspension linkage fitted to the CB125 TD model pivots on four separate bearings which consist of an outer bush and an inner metal sleeve; none are fitted with grease nipples. Check for wear by standing the machine on its wheels and pushing up and down on the seat; any free play will be evident immediately in the poor quality of the suspension movement.

CD125 T model

3 The bonded rubber bushes are an interference fit in the swinging arm mounting bosses, and are unlikely to wear or deteriorate until a high mileage has been covered, but wear may occur between the bush inner sleeves and the pivot, especially if the retaining nut has become loose. In normal service there should be no relative movement between the inner bushes and shaft; the fork movement is allowed by flexing of the bonded rubber.

4 Inspect the bush rubber for damage or separation from both inner and outer sleeves. Check also that the inner sleeves have not been moving on the shaft. If damage is evident the bushes must be renewed. Driving the bushes from position is unlikely to prove successful, particularly if they have been in position for a long time and corrosion has taken place. Removal is accomplished most easily using a fabricated puller as shown in the accompanying illustration. The puller sleeve should have an internal diameter slightly greater than the outside diameter of the bush outer sleeve. If possible use a high tensile nut and bolt because these will be better able to take the strain during use. New bushes may be drawn into place using the same puller. If difficulty is encountered in removing old bushes it is recommended that the swinging arm fork be returned to a Honda Service Agent, who can bring his expertise to bear on the problem.

5 After fitting new bushes the swinging arm fork may be refitted to the machine by reversing the dismantling procedure. No lubricant should be used on the bushes because they are made of rubber. The shaft should be lubricated to prevent corrosion between the shaft, bush inner bearings and frame members. A thick waterproof grease is recommended. On final assembly, ensure that the pivot shaft nut is tightened to a torque setting of 4.0 to 5.0 kgf m (29 – 36 lbf ft).

CB125 models and CM125 C model

6 The swinging arm bearings consist of an outer bush pressed into the swinging-arm or linkage arm mounting boss, bearing on an inner metal sleeve which is clamped in place by the pivot bolt. Any wear is usually found between inner and outer bushes.

7 To examine the pivot bearings, remove the dust excluder caps from each end of the bearing housing. Note the presence of the lipped sealing rings in the caps. Push out the inner bush.

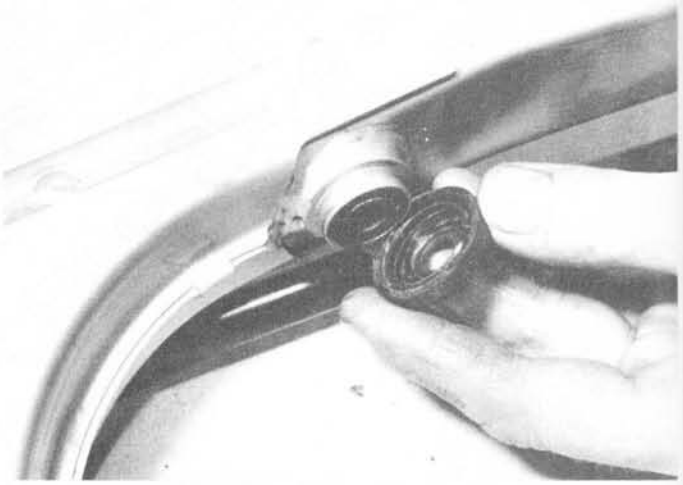
8 Wash the inner and outer bushes carefully in petrol or another solvent. Do not remove the outer bushes from position in the bearing housing unless they need renewal as they are made of a brittle material that will probably fracture while being drifted out. When drifting in new bushes, ensure that they enter their housing squarely. Use a soft wood or hard rubber pad between the bush and drive, to prevent chipping. Check the pivot shaft for straightness by rolling it on the edge of a dead flat surface. If the shaft is bent it must be renewed or straightened.

9 Check carefully the sealing caps (or O-rings, where fitted); these must be in sound condition to prevent the entry of dirt into the bearing; renew them if there is any doubt about their condition.

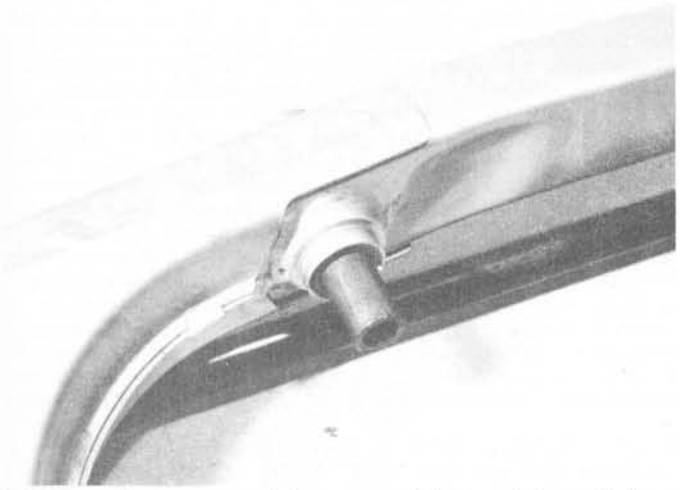
10 On reassembly, coat all components with a liberal quantity of molybdenum disulphide grease and refer to the accompanying photographs and illustrations as well as the instructions given in the relevant part of Section 8 of this Chapter.

9.7a Swinging arm pivot bearing inner bush can be pressed out ...

9.7b ... as can CB125 TD suspension linkage inner bushes



9.9 Bearing sealing caps or O-rings must be in good condition – renew if worn or damaged



9.10 Coat all components with recommended grease before refitting

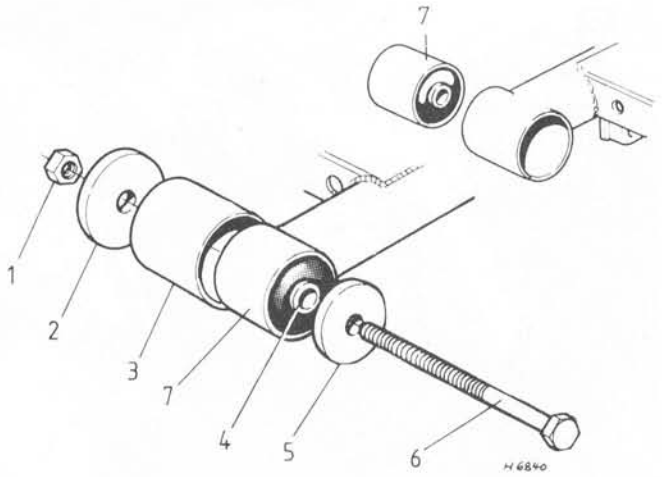


Fig. 4.8 Swinging arm bush removal tool

1 Nut
2 Thick washer
3 Sleeve
4 Swinging arm
5 Thick washer
6 Bolt
7 Bush

10 Rear suspension units: removal, examination and refitting

CB125 T, T2, TA and TB, CD125 T and CM125 C models

1 Remove the suspension units by removing the chromed dome mounting nuts, then pull the unit sideways off its mounting lugs. On CM125 C models pull away the pillion grab rail fitted to the top mounting. Note carefully the position and number of the plain metal washers fitted next to the unit mounting eyes.

2 Refitting is the reversal of the above procedure. Refit the washers in their original positions and tighten the retaining nuts to a torque setting of 3.0 – 4.0 kgf m (22 – 29 lbf ft).

CB125 TD model

3 With the machine placed on its centre stand, remove the sidepanels, then remove the suspension unit mounting bolts and the linkage front arm/frame pivot bolt. Swing the linkage backwards and downwards to permit the suspension unit to be manoeuvred downwards to clear the machine.

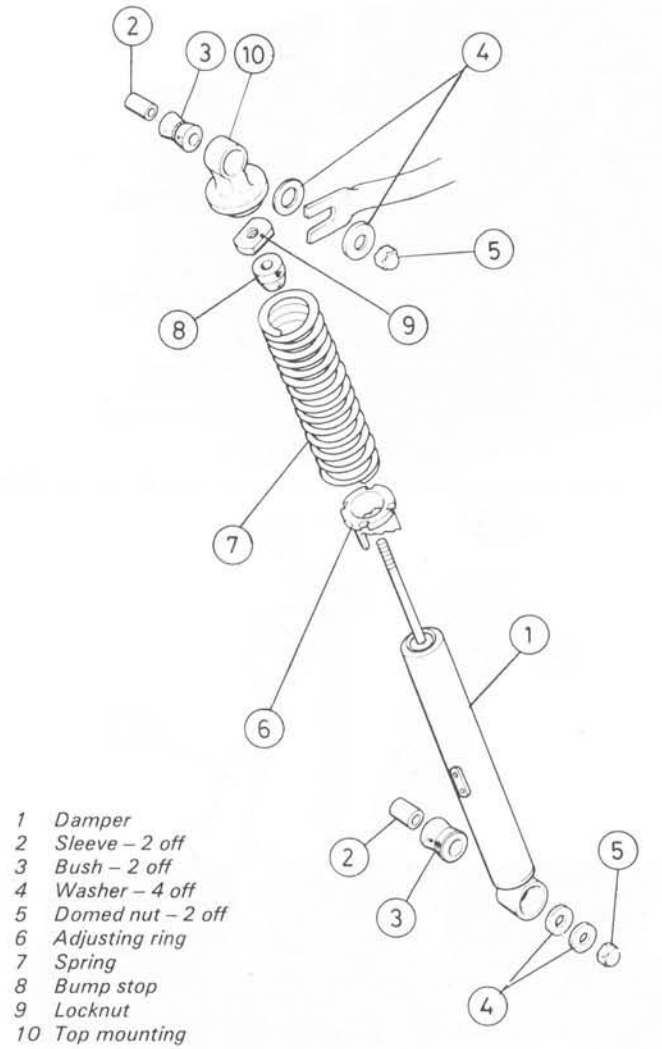
4 Refitting is a reversal of the removal procedure; coat the bolts with molybdenum disulphide grease before they are inserted. Tighten the pivot bolt retaining nut to a torque setting of 4.5 – 5.5 kgf m (33 – 40 lbf ft) and the suspension unit mounting bolts to a torque setting of 2.5 – 3.5 kgf m (18 – 25 lbf ft).

All models

5 There is no means of draining the units or topping up, because the dampers are built as a sealed unit. If the damping fails or the units begin to leak, the complete damper assembly must be renewed. This applies equally if the damper rod has become bent. It is, however, possible to renew the springs independently of the sealed damper units. Removal of the spring however, does entail the use of some means of compressing safely the spring so that the spring retainer (CB125 TD only) or the suspension unit top mounting eye (CB125 T, T2, TA and TB, CD125 T and CM125 T) can be released.

6 To compress the spring, clamp the suspension unit at its bottom mounting in a vice and enlist the aid of an assistant to pull down the spring while the spring retainer is prised out, or while the unit top mounting eye is unscrewed, as appropriate. Note that in the latter case a slim spanner can be passed between the coils of the spring to slacken the locknut, while a bar is passed through the mounting eye to provide the necessary leverage for unscrewing it.

7 Examine the mounting bushes; if these are damaged or worn they must be renewed. Two types are fitted, the first comprising a separate metal sleeve surrounded by a rubber sleeve, and the second comprising a bonded rubber bush. The first type is removed and refitted easily, by pushing out both metal and rubber sleeves as separate items, while the second type is removed and refitted using the method described in Section 9 of this Chapter for CD125 T swinging arm pivot bushes.



1 Damper
2 Sleeve – 2 off
3 Bush – 2 off
4 Washer – 4 off
5 Domed nut – 2 off
6 Adjusting ring
7 Spring
8 Bump stop
9 Locknut
10 Top mounting

Fig. 4.9 Rear suspension unit – CB125 T, T2, TA and TB

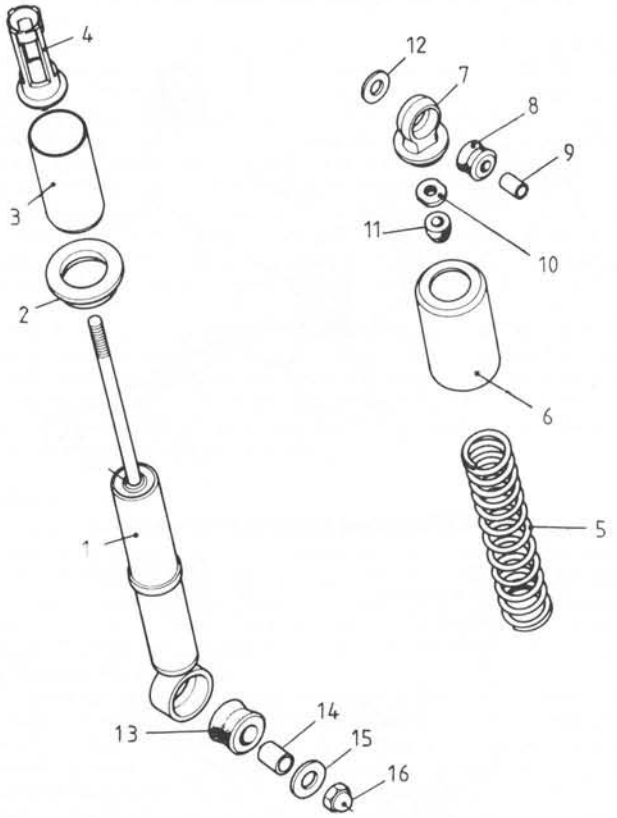


Fig. 4.10 Rear suspension unit – CD125

1	*Damper*	9	*Sleeve*
2	*Spring seat*	10	*Locknut*
3	*Lower shroud*	11	*Bump stop*
4	*Spring guide*	12	*Washer*
5	*Spring*	13	*Bush*
6	*Upper shroud*	14	*Sleeve*
7	*Top mounting*	15	*Washer*
8	*Bush*	16	*Domed nut*

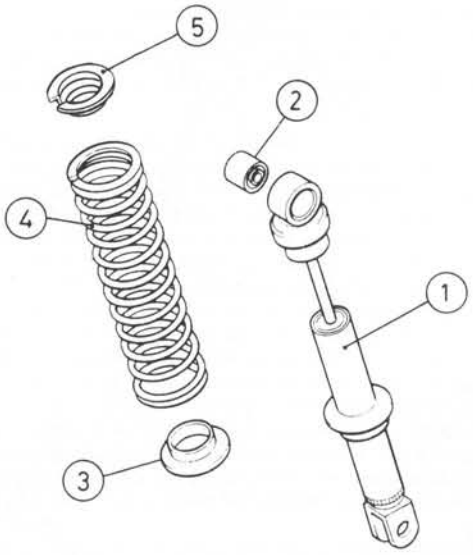


Fig. 4.12 Rear suspension unit – CB125 TD

1	*Damper*	4	*Spring*
2	*Bush*	5	*Spring retainer*
3	*Spring seat*		

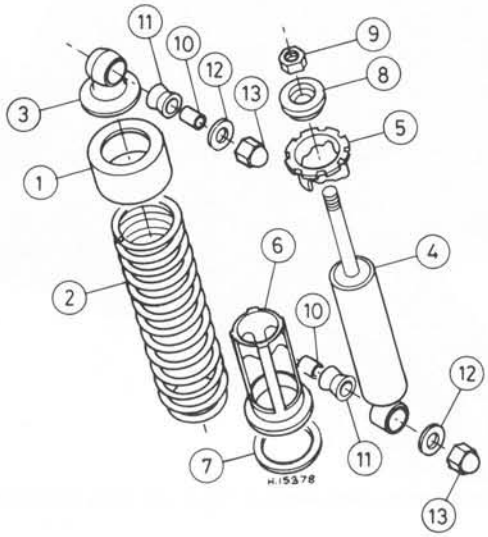


Fig. 4.11 Rear suspension unit – CM125

1	*Shroud*	8	*Bump stop*
2	*Spring*	9	*Locknut*
3	*Top mounting*	10	*Sleeve – 2 off*
4	*Damper*	11	*Bush – 2 off*
5	*Adjusting ring*	12	*Washer – 2 off*
6	*Spring guide*	13	*Domed nut – 2 off*
7	*Spring seat*		

11 Footrests, stands and controls: examination and renovation

1 The footrests are mounted either on a bracket bolted to the underside of the crankcase or on separate mounting plates mounted to each side of the frame. Maintenance is restricted to ensuring that all mounting bolts are securely fastened to the correct torque settings given in the Specifications Section of this Chapter, and that all pivot points (where applicable) are lubricated and the retaining clevis pins are securely fastened.

2 The stands are pivoted on brackets which extend from the footrest bracket or from the main frame. At regular intervals (see Routine Maintenance) examine the pivots and if necessary, dismantle them for cleaning and greasing. Check that the stand return springs are in good condition. Owners of CB125 models should note that a sidestand is available as an optional extra.

3 Gearchange levers and brake pedals require very little attention, check that the retaining pinch bolts are securely fastened to the correct torque setting and that all pivot points are kept well lubricated. If necessary, dismantle the lever so that its pivot (where applicable) can be cleaned and greased.

4 If any of the footrests, stands, or controls require renewal at any time, the individual components of each assembly are available from Honda dealers. Repairs are possible to reclaim accident damage eg a bent footrest bracket. Remove the damaged component from the machine and ensure that all parts such as footrest rubbers, that might be damaged by heat are removed, then heat the component to a dull cherry red before straightening it. Repaint the component when it has cooled; note that chromed components will be badly marked by such repairs and must be either rechromed after straightening or renewed, as desired.

5 The condition of any of the above components should not be taken for granted; regular maintenance is essential to prevent the loss of machine control which would occur if any of these components should fail while in use.

12 Speedometer and tachometer head: removal, examination and refitting

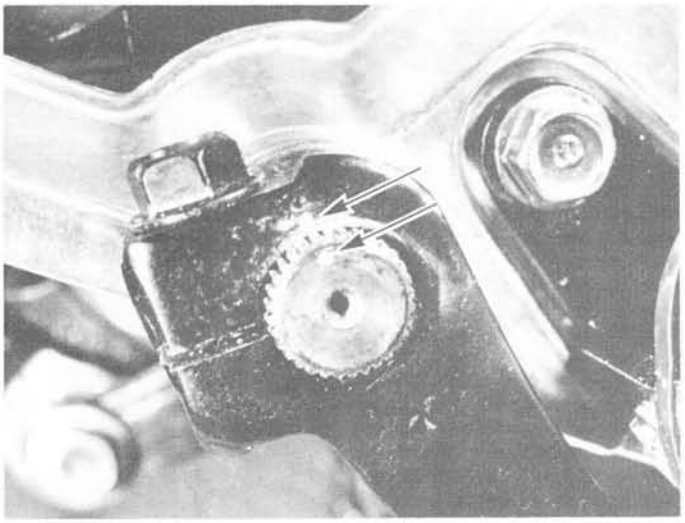
1 The speedometer (and tachometer, where fitted) is bolted either to a separate bracket that is bolted to the fork top yoke, or to the

headlamp bracket. To remove the unit, unscrew the knurled, threaded ring which secures the drive cable to the instrument base, then slacken and remove the two domed nuts and plain washers which fasten the instrument to its mounting bracket. Pull the instrument upwards until the warning lamp rubber holders can be prised out of their sockets. Refitting is the reverse of the above procedure.

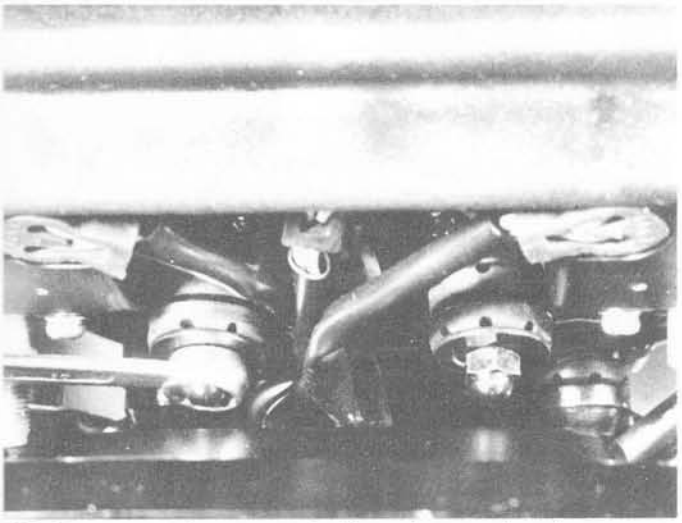
2 On CB125 TD models only, the speedometer and tachometer are housed together in a plastic casing which is removed and refitted as described above. The two halves of the casing are fastened by six self-tapping screws; slacken and remove these screws to release the casing top half, then slacken and remove the two standard screws which secure each instrument to the casing bottom half. Withdraw the instruments and pick out the white plastic casing centre section.

3 Apart from defects in either the drive or drive cable, a speedometer or tachometer which malfunctions is difficult to repair. Fit a replacement or alternatively entrust the repair to a competent instrument repair specialist. A further alternative is to obtain a speedometer from a breaker who may have perfectly good instruments with scratched cases and glass etc.

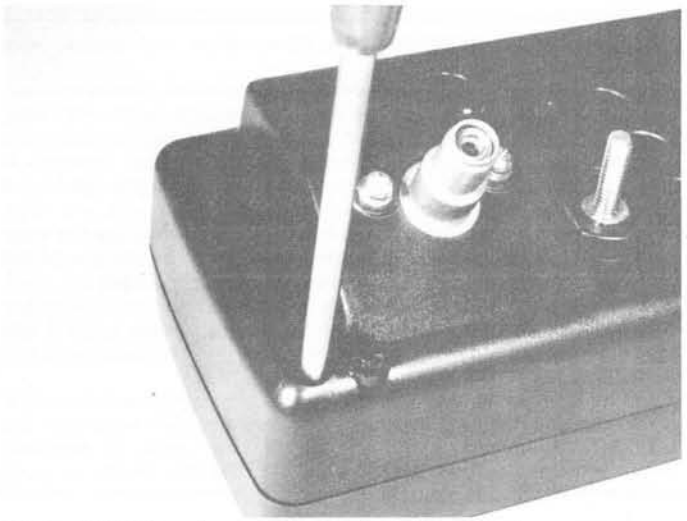
4 Remember that a speedometer in correct working order is a statutory requirement in the UK. Apart from this legal necessity, reference to the odometer reading is the most satisfactory means of keeping pace with the maintenance schedules.



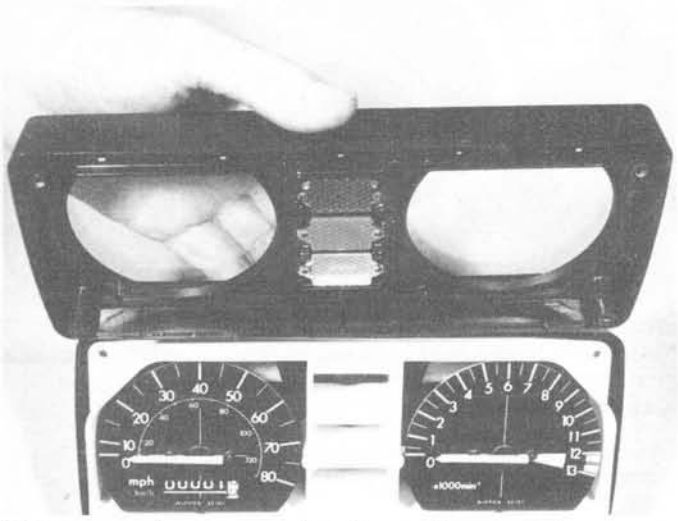
11.3 Align two punch marks (arrowed) to position correctly brake pedal on refitting



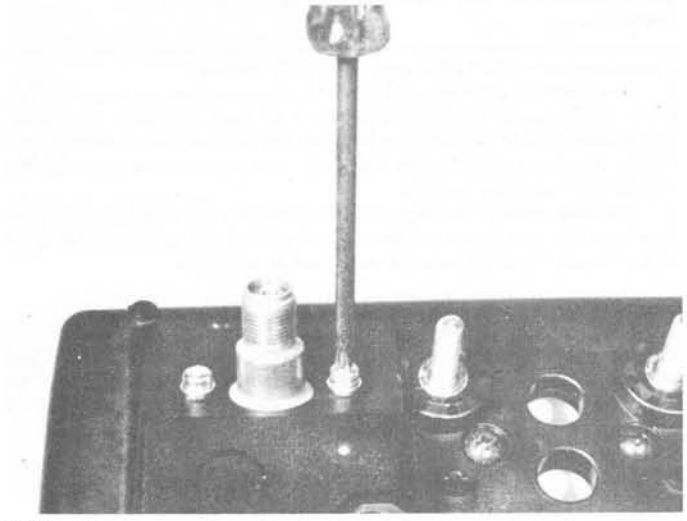
12.1 Remove two dome nuts and plain washers to release instrument from its mounting bracket



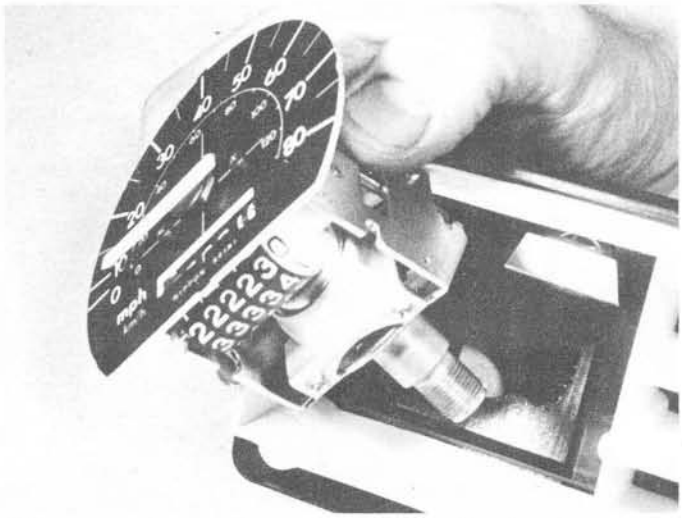
12.2a CB125 TD only – remove the six black self-tapping screws ...



12.2b ... so that instrument casing halves can be separated ...



12.2c ... then remove two standard screws ...



12.2d ... to release speedometer (or tachometer) head

13 Speedometer and tachometer drive cables: examination and maintenance

1 It is advisable to detach the speedometer and tachometer drive cable from time to time in order to check whether it is adequately lubricated and whether the outer cable is compressed or damaged at any point along its run. A jerky or sluggish movement at the instrument head can often be attributed to a cable fault.
2 To grease the cable, uncouple both ends and withdraw the inner cable. After removing the old grease, clean with a petrol soaked rag and examine the cable for broken strands or other damage.
3 Regrease the cable with high melting point grease, taking care not to grease the last six inches closest to the instrument head. If this precaution is not observed, grease will work into the instrument and immobilise the sensitive movement.
4 If an inner cable should break without damaging the outer cable, it can be renewed as a separate item on all models except for the CB125 TD tachometer cable. Grease the inner cable as described above whenever a new cable is fitted, and be very careful to route correctly the cable on refitting.

14 Speedometer and tachometer drives: location and maintenance

Speedometer – CD125 T and CM125 C models

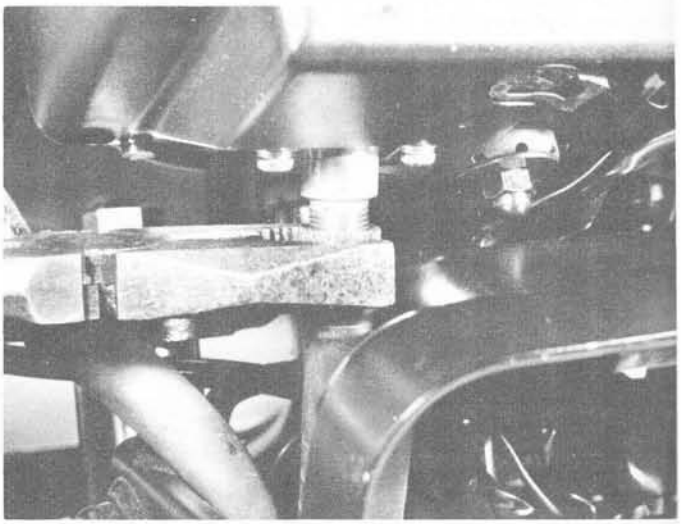
1 The speedometter drive is fitted in the front brake backplate. The drive rarely gives trouble provided it is kept properly lubricated. Lubrication should take place whenever the front wheel is removed for wheel bearing inspection or renewal, and consists of packing the recess with suitable greease.
2 Examine closely the large oil seal, renewing it if damaged or worn, and note the two thrust washers fitted behind the speedometer drive gear, should the drive gear be removed at any time.

Speedometer – CB 125 models

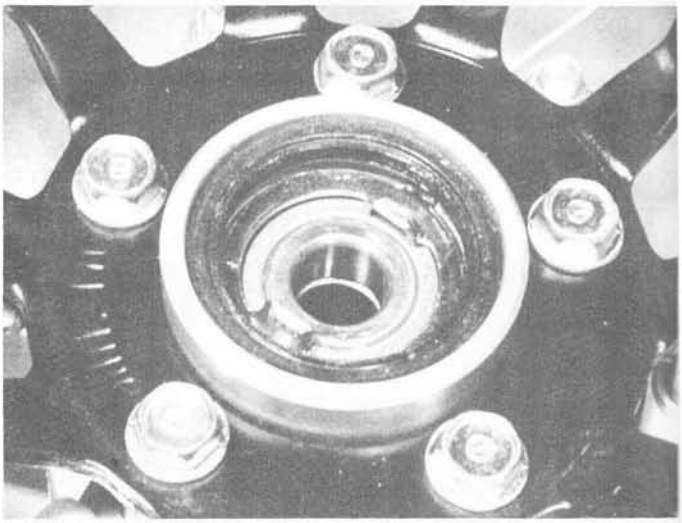
3 The speedometer drive gearbox is mounted on the front wheel, on the hub right-hand side on CB125 T models, and on the hub left-hand side on CB125 T2, TA, TB and TD models. The gearbox must be regarded as a sealed unit which cannot be repaired and requires no maintenance, except for the CB125 T2, TA and TB models where the drive gear and thrust washers are available as separate items.
4 A speedometer drive ring is fitted in the hub. On CB125 T models it is removed by slackening and removing the three screws from the hub right-hand side so that the drive ring cover and drive ring can be lifted out of the hub recess. On CB125 T2, TA, TB and TD models, prise out the dust seal set in the hub left-hand side and pick out the drive ring.

Tachometer – CB125 models

5 The tachometer is driven by a worn gear from the oil pump drive shaft, the worm gear being housed in the crankcase right-hand cover. No maintenance is necessary, other than to check that all is in order whenever the crankcase cover is removed.
6 The drive gear is retained only by the fit of the oil seal at its upper end with the surrounding crankcase cover. If damaged or worn the gear can be pulled from its housing, or levered out from inside. Always fit a new oil seal whenever it is disturbed in this way.



13.2 Use suitable pliers to release or tighten drive cable upper end



14.4 CB125 T2, TA, TB and TD – prise out dust seal to release speedometer drive ring

Chapter 5 Wheels, brakes and tyres

Refer to Chapter 7 for information relating to the CB125 TD-J model

Contents

Specifications

Wheels

Type:		
CB125 T, CD125 T, CM125 C	Chromed steel rims, steel wire spokes	
CB125 T2, TA, TB	'Comstar', steel spoke blades	
CB125 TD	'Comstar', alloy spoke blades	
Rim diameter:	**Front**	**Rear**
CB125	18 in	18 in
CD125 T	17 in	17 in
CM125 C	18 in	16 in
Rim maximum runout:		
Axial	2.0 mm (0.0787 in)	
Radial	2.0 mm (0.0787 in)	
Wheel spindle maximum warpage	0.2 mm (0.0079 in)	

Brakes

Type	**Front**	**Rear**
CB125 T, T2, TA, TB	Disc, mechanical	Drum
CB125 TD	Disc, hydraulic	Drum
CD125 T, CM125 C	Drum	Drum
Brake disc thickness:		
CB125 T	5.0 mm (0.1969 in)	
CB125 T2, TA and TB	4.0 mm (0.1575 in)	
CB125 TD	4.9 - 5.1 mm (0.1929 - 0.2008 in)	
Wear limit:		
CB125 T and TD	4.0 mm (0.1575 in)	
CB125 T2, TA and TB	3.0 mm (0.1181 in)	

Brake disc maximum runout	0.30 mm (0.012 in)
Master cylinder – CB125 TD only:	
Bore ID	14.000 - 14.043 mm (0.5512 - 0.5529 in)
Wear limit	14.055 mm (0.5534 in)
Piston OD	13.957 - 13.984 mm (0.5495 - 0.5506 in)
Wear limit	13.940 mm (0.5488 in)
Caliper - CB125 TD only:	
Bore ID	30.230 - 30.280 mm (1.1902 - 1.1921 in)
Wear limit	30.290 mm (1.1925 in)
Piston OD	30.148 - 30.198 mm (1.1869 - 1.1889 in)
Wear limit	30.140 mm (1.1866 in)
Front drum brake – CD125 T, CM125 C:	
Drum ID	140 mm (5.5118 in)
Wear limit	141 mm (5.5512 in)
Rear drum brake – all models	
Drum ID	130 mm (5.1181 in)
Wear limit	131 mm (5.1575 in)
Brake shoe friction material – all models	
Standard thickness	4.0 - 4.3 mm (0.1575 - 0.1693 in)
Wear limit	2.0 mm (0.0787 in)

Tyres

	CB125 T, T2,TA,TB	CB125 TD	CD125 T	CM125 C
Size:				
Front	2.75 x 18-4PR	3.00S18-4PR	3.00 x 17-4PR	3.25S18-4PR
Rear	3.00 x 18-4PR	3.25S18-4PR	3.00 x 17-6PR	110/90-16-4PR

	CB125,T2,TA,TB, CD125 T	CB125 TD	CM125 C
Pressures (cold):			
Front – solo	25 psi (1.75 kg/cm²)	25 psi (1.75 kg/cm²)	25 psi (1.75 kg/cm²)
Rear – solo	28 psi (2.00 kg/cm²)	28 psi (2.00 kg/cm²)	25 psi (1.75 kg/cm²)
Front – pillion	As solo	As solo	As solo
Rear – pillion	40 psi (2.80 kg/cm²)	32 psi (2.25 kg/cm²)	36 psi (2.50 kg/cm²)
Manufacturer's recommended minimum tread depth:			
Front	1.5 mm (0.06 in)		
Rear	2.0 mm (0.08 in)		

Torque wrench settings

	kgf m	lbf ft
Front and rear wheel spindle nuts:		
CB125 T, TA and TB models	4.0 - 5.0	29 - 36
CB125 TD and CM125 C models	5.5 - 6.5	40 - 47
CD125 T model only	5.0 - 7.0	36 - 51
Sprocket carrier sleeve nut – CD125 T only	6.0 - 7.0	43 - 51
Rear brake torque arm nuts	2.0-2.5	14.5 - 18
Rear sprocket retaining bolts or nuts:		
Except CB125 TD	5.5 - 6.5	40 - 47
CB125 TD only	6.0 - 7.0	43 - 51
Drum brake cam lever pinch bolt	0.8 - 1.2	6 - 9
Brake disc retaining nuts:		
CB125 T, T2, TA and TB - 6 mm nuts	1.0 - 1.4	7 - 10
CB125 TD - 8 mm nuts	2.7 - 3.3	19.5 - 24
Brake caliper mounting bolts - CB125 TD only	3.0 - 4.0	22 - 29
Brake caliper mounting bolts - CB125 T, T2, TA and TB only:		
Front mudguard/caliper pivot clamp mounting bolts – 6 mm	0.8 - 1.2	6 - 9
Caliper pivot/splashguard mounting bolt or nut – 8 mm	2.0 - 2.5	14.5 - 18
Brake caliper/mounting bracket axle bolts - CB125 TD only:		
Upper bolt	2.5 - 3.0	18 - 22
Lower bolt	2.0 - 2.5	14.5 - 18
Brake caliper bleed nipple – CB125 TD only	0.4 - 0.7	3 - 5
Master cylinder clamp bolt	0.8 - 1.2	6 - 9
Brake hose union bolts	2.5 - 3.5	18 - 25

1 General description

The CB125 T, CD125 T and CM125 C models are fitted with wheels of conventional design in which a chromed steel rim is laced to an aluminium alloy hub by steel spokes. The CB125 T2, TA and TB models are fitted with Honda's own 'Comstar' wheels in which an aluminium alloy rim is attached to an aluminium alloy hub by ten pressed-steel spoke plates; the spoke plates being bolted to the hub and riveted to the rim. The CB125 TD model is fitted with a modified version of the 'Comstar' wheel in which the pressed-steel spoke plates are replaced by six aluminium alloy spoke plates.

The CD125 T and CM125 C models are fitted with drum brakes of the conventional single-leading shoe type at front and rear, the front brake being cable operated and the rear being rod operated. All CB125 models have disc front brakes, but whereas the CB125 T, T2, TA, and TB models employ a brake that is mechanically actuated via a cable, that fitted to the CB125 TD model is hydraulically actuated and uses a twin-piston sliding caliper. The rear brake is a rod-operated single leading shoe drum on all models.

2 Front wheel: examination and renovation – wire spoked wheels

1 The wheel can be checked whilst in place on the machine after it has been raised clear of the ground. Make the machine as stable as possible, if necessary using blocks beneath the crankcase as extra

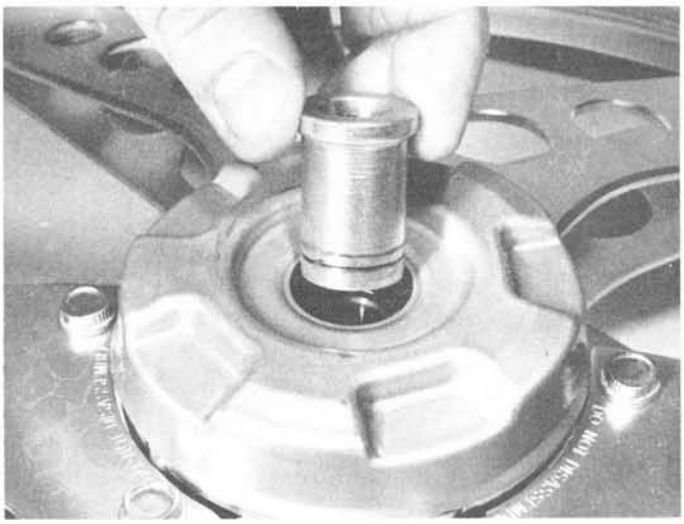
support. Spin the wheel and ensure that there is no brake drag. If necessary, remove the disc pads (disc brake models) or slacken the brake adjuster (drum brake models) until the wheel turns freely. In the case of rear wheels it is advisable though not essential, to remove the final drive chain.
2 Slowly rotate the wheel and examine the rim for signs of serious corrosion or impact damage. Slight deformities, as might be caused by running the wheel along a curb, can often be corrected by adjusting spoke tension. More serious damage may require a new rim to be fitted and this is best left to an expert. Where light alloy rims are fitted corrosion is less likely to be a serious problem, though neglect can lead to quite substantial pitting of the alloy.
4 Assuming the wheel to be undamaged it will be necessary to check it for runout. This is best done by arranging a temporary wire pointer so that it runs closer to the rim. The wheel can now be turned and any distortion noted. Check for lateral distortion and for radial distortion, noting that the latter is less likely to be encountered if the wheel was set up correctly from new and has not been subject to impact damage.
5 The rim should be no more than 2.0 mm (0.08 in) out of true in either plane. If a significant amount of distortion is encountered check that the spokes are of approximately equal tension. Adjustment is effected by turning the square-headed spoke nipples with the appropriate spoke key. This tool is obtainable from most good motorcycle shops or tool retailers.
6 With the spokes evenly tensioned, any remaining distortion can be pulled out by tightening the spokes on one side of the hub and slackening the corresponding spokes from the opposite hub flange. This will allow the rim to be pulled across whilst maintaining spoke tension.
7 If more than slight adjustment is required it should be noted that the tyre and inner tube should be removed first to give access to the spoke ends. Those which protrude through the nipple after adjustment should be filed flat to avoid the risk of puncturing the tube. It is essential that the rim band is in good condition as an added precaution against chafing. In an emergency, use a strip of duct tape as an alternative; unprotected tubes will soon chafe on the nipples.
8 Should a spoke break a replacement item can be fitted and retensioned in the normal way. Wheel removal is usually necessary for this operation, although complete removal of the tyre can be avoided if care is taken. A broken spoke should be attended to promptly because the load normally taken by that spoke is transferred to adjacent spokes which may fail in turn.
10 Remember to check wheel condition regularly. Normal maintenance is confined to keeping the spokes correctly tensioned and will avoid the costly and complicated wheel rebuilds that will inevitably result in neglect. While cleaning the machine do not neglect the wheels. If the rims are kept clean and well polished many of the corrosion related maladies will be prevented.

3 Front wheel: examination – Comstar wheels

1 Place the machine on its centre stand, with a block under the sump, so that the front wheel is clear of the ground.
2 Spin the wheel and check for rim alignment by placing a pointer close to the rimmed edge. If the total radial or axial alignment variation is greater than 2.0 mm (0.08 in) the manufacturer recommends that the wheel is renewed. This policy is, however, a counsel of perfection and in practice a larger runout may not affect the handling properties excessively.
3 Although Honda do not offer any form of wheel rebuilding facility, a number of private engineering firms offer this service. it should be noted however, that Honda do not approve of this course of action.
4 Check the rim for localised damage in the form of dents or cracks. The existence of even a small crack renders the wheel unfit for further use unless it is found that a permanent repair is possible using arc-welding. This method of repair is highly specialised and therefore the advice of a wheel repair specialist should be sought.
5 Inspect the spoke blades for cracking and security. Check carefully the area immediately around the rivets which pass through the spokes and into the rim. In certain circumstances where steel spokes are fitted electrolyte corrosion may occur between the spokes, rivets and rim due to the use of different metals.

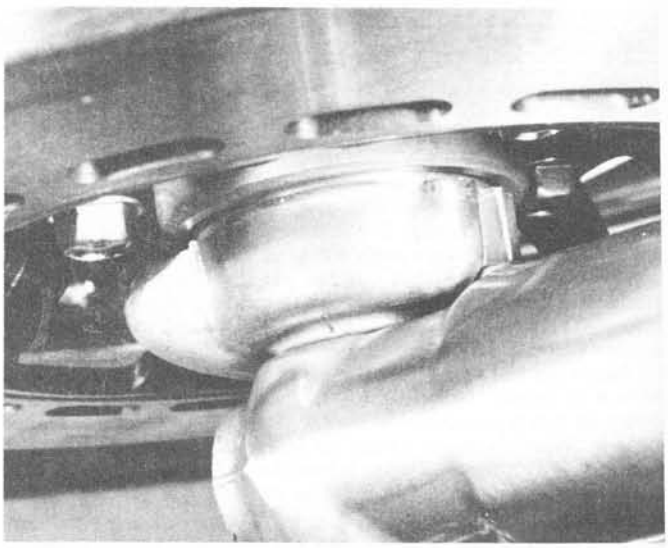
4 Front wheel: removal and refitting

1 Place the machine on its centre stand on firm level ground and place a wooden box or similar support under the crankcase to raise the front wheel from the ground. Remove the single speedometer cable retaining screw and pull the cable out of its recess in the front brake backplate or speedometer gearbox (as applicable).
2 On CD125 T and CM125 C models only, unscrew the brake adjusting nut from the end of the brake cable, then disengage the cable outer from the brake backplate and pull the cable inner away from the brake operating arm. Remove the spindle nut securing split pin (where fitted). Slacken and remove the wheel spindle nut and washer, tap out the spindle using a hammer and a suitable drift, and withdraw the wheel from the forks.
3 On CB125 models only, wedge a piece of wood between the brake pads to prevent the brake pads from being displaced should the brake lever be applied inadvertently while the wheel is removed.
4 On reassembly, insert the spacer into the dust seal in the hub right-hand side (left-hand side on CB125 T models only), then refit the speedometer gearbox or brake backplate (as appropriate), ensuring that the tangs of the speedometer drive ring align with the slots in the gearbox driven gear or hub bearing boss. Check that the wheel spindle is clean and completely free from corrosion, then smear grease along its length to prevent the formation of corrosion. Offer up the wheel to the forks, guiding the brake disc between the pads, where applicable.
5 On CD125 T and CM125 C models, ensure that the lug cast on the fork left-hand lower leg engages with the slot in the brake backplate. On the CB125 D model only, a lug cast on the fork left hand lower leg must engage between two raised ribs cast on the top surface of the speedometer gearbox. Fit one plain washer on to the wheel spindle and push the spindle into place. Refit the second plain washer and the spindle nut. On CB125 T, T2, TA, and TB models, rotate the speedometer gearbox until its bottom edge is horizontal. Tighten the spindle nut to the specified torque setting and fit a new split pin, reconnect the speedometer cable and tighten securely the retaining screw, noting that it will be necessary to spin the wheel so that the drive engages correctly.
6 On CD125 T and CM125 C models reconnect the brake cable. Adjust the brake until there is 10-20 mm (0.4 - 0.8 in) of free play at the handlebar lever tip. On all CB125 models, bring the brake pads firmly into contact with the disc by applying lightly and repeatedly the brake lever until full braking pressure is restored.
7 Check that the wheel is free to rotate easily, that the speedometer and front brake function correctly before taking the machine out on the road. On CD125 T and CM125 C models only, if the front brake feels spongy, slacken the spindle nut, apply hard the front brake lever to centralise the brake shoes and backplate on the drum, then retighten the spindle nut to the recommended torque setting while maintaining the pressure on the lever. Repeat the brake adjustment.

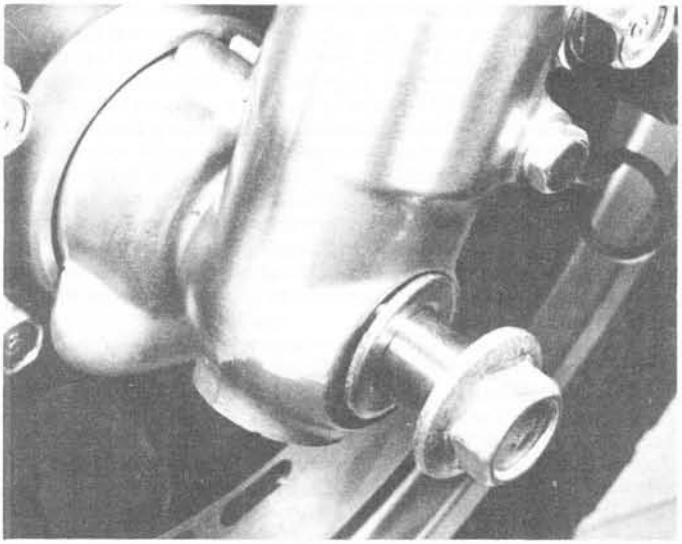


4.4a Do not omit hub spacer

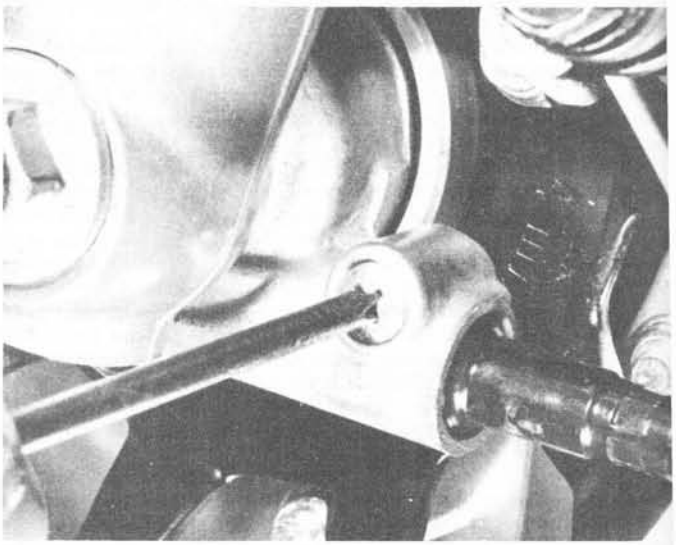
4.4b Speedometer drive tangs must engage with cutouts in speedometer driven gear



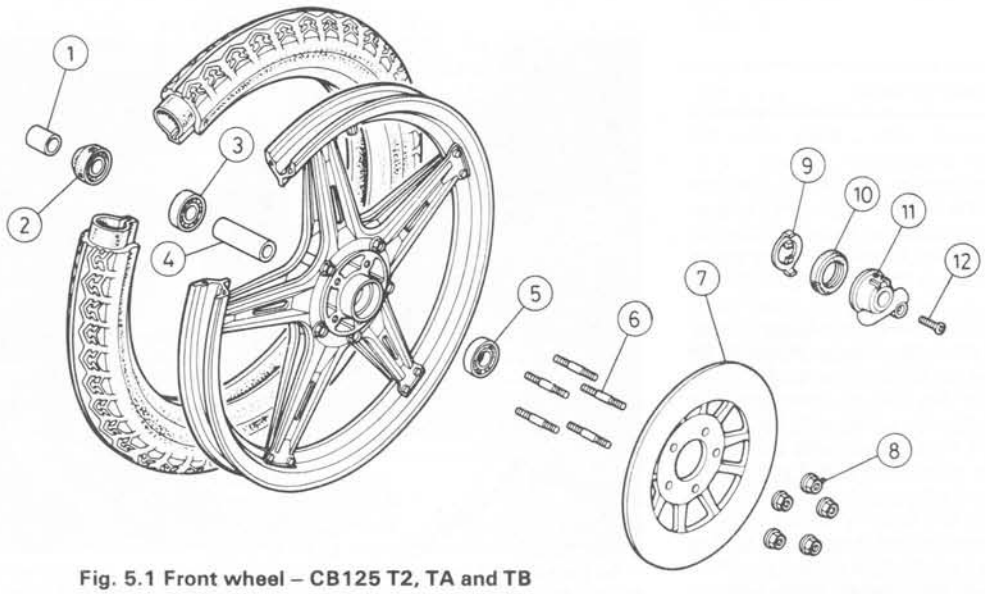
4.5a Lug on fork lower leg must engage with two raised ribs on speedometer gearbox



4.5b Insert wheel spindle: do not omit plain washer



4.5c Insert drive cable and tighten securely cable retaining screw



1 *Right-hand spacer*
2 *Dust seal*
3 *Right-hand bearing*
4 *Spacer*
5 *Left-hand bearing*
6 *Stud – 5 off*
7 *Brake disc*
8 *Nut – 5 off*
9 *Drive plate*
10 *Dust seal*
11 *Speedometer gearbox*
12 *Screw*

Fig. 5.1 Front wheel – CB125 T2, TA and TB

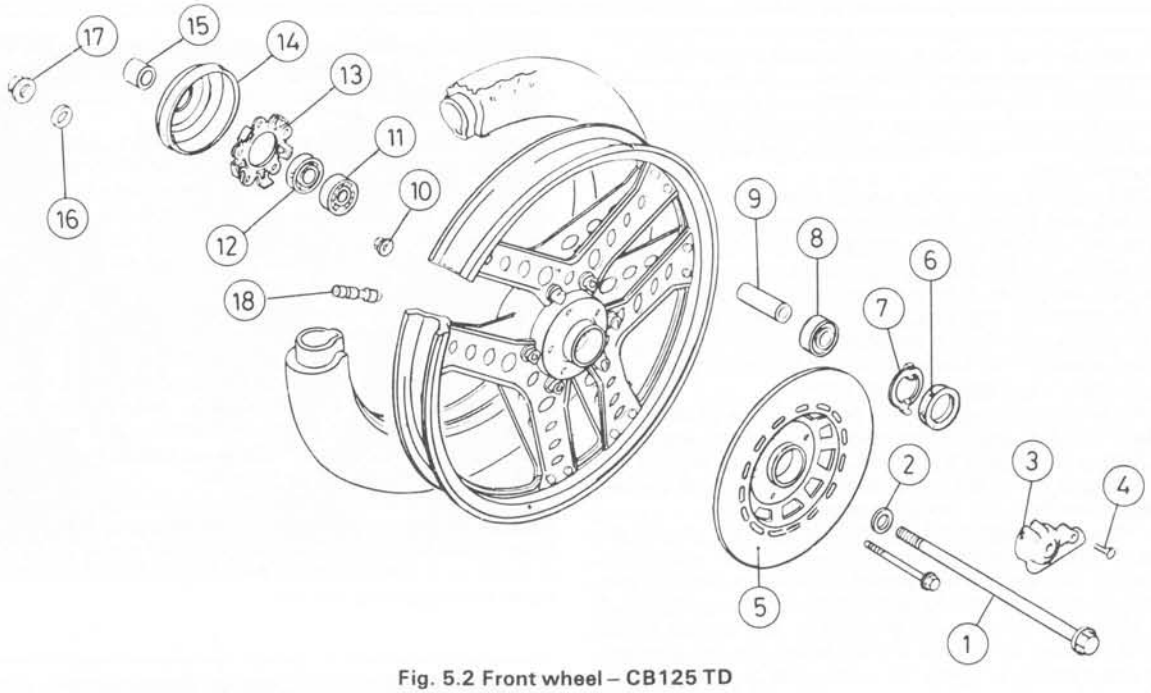


Fig. 5.2 Front wheel – CB125 TD

1 Wheel spindle	*6 Dust seal*	*11 Right-hand bearing*	*15 Right-hand spacer*
2 Washer	*7 Drive plate*	*12 Dust seal*	*16 Washer*
3 Speedometer gearbox	*8 Left-hand bearing*	*13 Flange*	*17 Nut*
4 Screw	*9 Spacer*	*14 Wheel cover*	*18 Tyre valve*
5 Brake disc	*10 Nut – 5 off*		

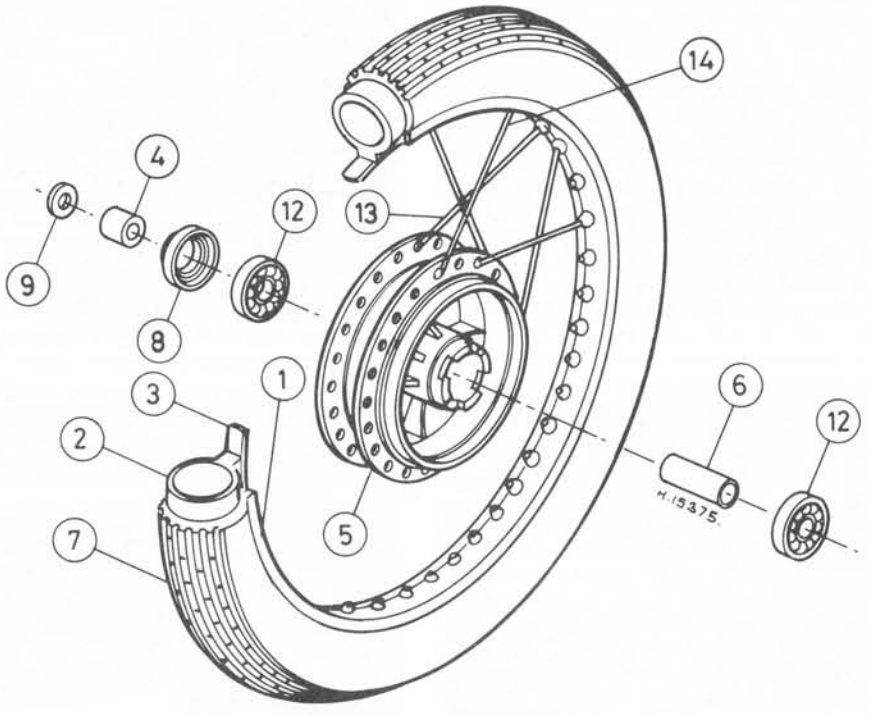


Fig. 5.3 Front wheel – CD125 T and CM125 C

1 Rim	*5 Hub*	*9 Washer*	*12 Wheel bearing – 2 off*
2 Inner tube	*6 Spacer*	*10 Washer*	*13 Spoke set*
3 Rim tape	*7 Tyre*	*11 Split pin*	*14 Spoke set*
4 Right-hand spacer	*8 Dust seal*		

5 Front wheel bearings: removal, examination and refitting

1 Remove the front wheel from the machine as described in the previous Section. On machines equipped with a drum brake, withdraw the brake backplate from the hub left-hand side and the spacer from the hub right-hand side.

2 On CB125 T models, remove the spacer from the hub left-hand side then slacken and remove three screws threaded into the hub right-hand side and withdraw the speedometer drive ring cover and drive ring. On CB125 T2, TA, TB, and TD models, remove the spacer from the hub right-hand side, then lever carefully away the dust seal from the hub left-hand side and withdraw the speedometer drive ring. On CB125 TD models only, detach the cover from the hub right-hand side by inserting a screwdriver blade into one of the slots in the cover and levering against one of the spoke plate bolts.

3 Position the wheel on a work surface with its hub well supported by wooden blocks so that enough clearance is left beneath the wheel to drive the bearing out. Ensure the blocks are placed as close to the bearing as possible, to lessen the risk of distortion occurring to the hub casting whilst the bearings are being removed or fitted.

4 Place the end of a long-handled drift against the upper face of the lower bearing and tap the bearing downwards out of the wheel hub. The spacer located between the two bearings may be moved sideways slightly in order to allow the drift to be positioned against the face of the bearing. Move the drift around the face of the bearing whilst drifting it out of position, so that the bearing leaves the hub squarely.

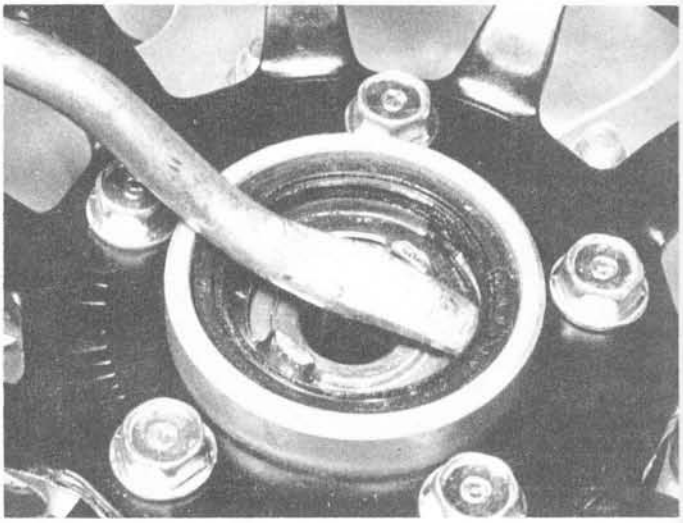
5 With the one bearing removed, the wheel may be lifted and the spacer withdrawn from the hub. Invert the wheel and remove the second bearing, using a similar procedure to that used for the first. The dust seal which fits against the right-hand bearing (left-hand bearing on CB125 T models only), will be driven out as the bearing is removed. Check the seal for damage, hardening or perishing. It is advisable to renew all seals as a matter of course if the bearings are found to be defective.

6 Remove all the old grease from the hub and bearings, giving the latter a final wash in petrol. Check the bearings for signs of play or roughness when they are turned. If there is any doubt about the conditions of a bearing, it should be renewed.

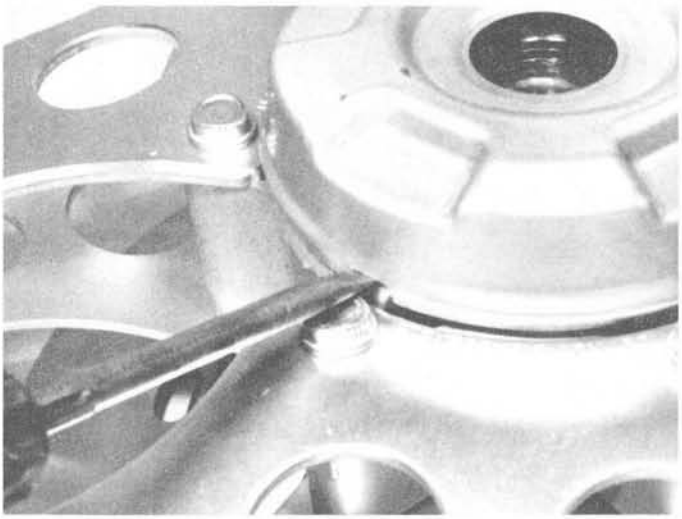
7 If the original bearings are to be refitted, then they should be repacked with the recommended grease before being fitted into the hub. New bearings must also be packed with the recommended grease. Ensure that the bearing recesses in the hub are clean and both bearings and recess mating surfaces lightly greased to aid fitting. Check the condition of the hub recesses for evidence of abnormal wear which have been caused by the outer race of a bearing spinning. If evidence of this happening is found, and the bearing is a loose fit in the hub, then it is best to seek advice from a Honda Service Agent or a competent motorcycle engineer. Alternatively a proprietary product such as Loctite Bearing Fit may be used to retain the bearing outer race; this will mean, however, that the bearing housing must be carefully cleaned and degreased before the locking compound can be used.

8 With the wheel hub and bearing thus prepared, proceed to fit the bearings and central spacer as follows. With the hub again well supported by the wooden blocks, drift the first of the two bearings into position. To do this, use a soft-faced hammer in conjunction with a socket or length of metal tube which has an overall diameter the same as that of the outer race of the bearing, but which does not bear at any point on the bearing sealed surface or inner race. Tap the bearing into place against the locating shoulder machined in the hub, remembering that the sealed surface of the bearing must always face outwards. With the first bearing in place, invert the wheel, insert the central spacer and pack the hub centre no more than $\frac{2}{3}$ full with high-melting point grease. Fit the second bearing, using the same procedure as given for the first. Take great care to ensure that each of the bearings enters its housing correctly, that is, square to the housing, otherwise the housing surface may be broached.

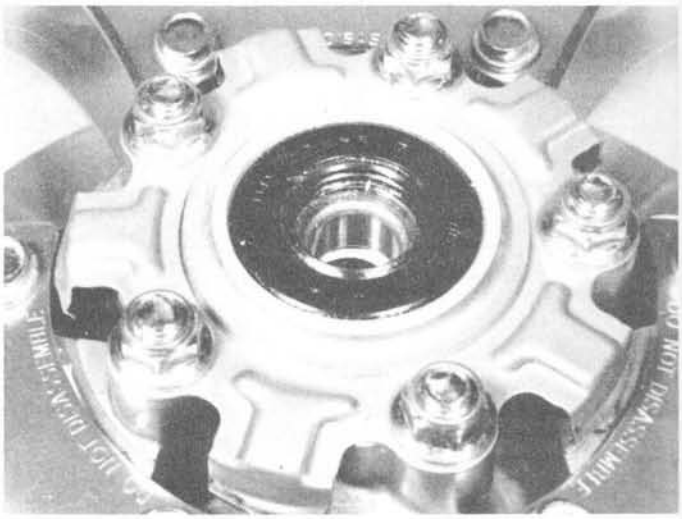
10 With the bearings refitted, the remainder of the hub components are refitted following the reverse of the dismantling procedure. Dust seals should be fitted in the way described above for bearing fitting. If in doubt as to the position of any component, refer to the appropriate figure accompanying the text.



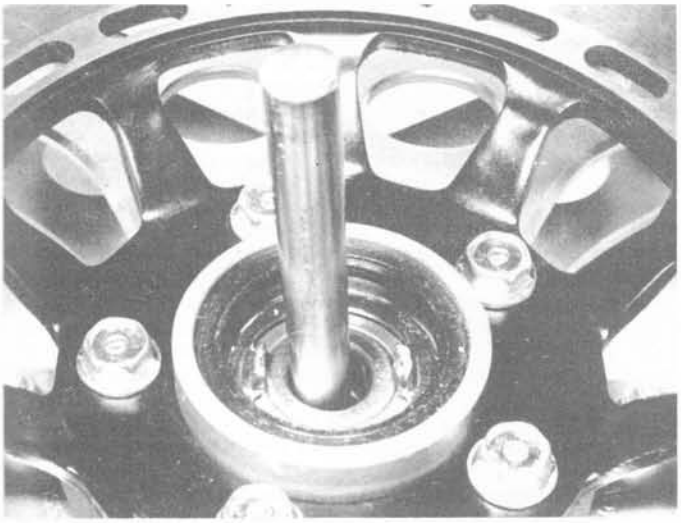
5.2a Ensure hub is not damaged when levering out oil seals



5.2b Prise cover as shown from hub right-hand side ...



5.2c ... to expose bearing, oil seal, and brake disc securing nuts – CB125 TD only



5.4 Pass drift through hub to tap out opposite bearing

6 Front brake disc: examination, removal and refitting – CB125 models

1 The brake disc can be checked for wear and for warpage whilst the front wheel is still in the machine. Using a micrometer, measure the thickness of the disc at the point of greatest wear. If the measurement is much less than the recommended service limit then the disc should be renewed. Check the warpage (runout) of the disc by setting up a suitable pointer close to the outer periphery of the disc and spinning the front wheel slowly. If the total warpage is more than 0.30 mm (0.012 in), the disc should be renewed. A warped disc, apart from reducing the braking efficiency, is likely to cause juddering during braking and will also cause the brake to bind when it is not in use.

2 The brake disc should also be checked for bad scoring on its contact area with the brake pads. If any of the above mentioned faults are found, then the disc should be removed from the wheel for renewal or for repair by skimming. Such repairs should be entrusted only to a reputable engineering firm. A local motorcycle dealer may be able to assist in having the work carried out.

3 To detach the disc, first remove the wheel by following the procedure given in Section 4 of this Chapter. The disc is retained in position by four studs on the CB125 T model and by five studs on CB125 T2, TA, and TB models, each stud having a shakeproof nut, and by five bolts on the CB125 TD model, these bolts passing through the hub to be secured by five nuts.

4 On CB125 TD models only, place a screwdriver blade in a convenient slot in the cover clipped on to the hub right-hand side, then lever against one of the spoke plate bolts to dislodge the cover. On all models, slacken and remove the disc retaining nuts and withdraw the disc. Refitting is the reverse of the above, but when tightening the retaining nuts, avoid placing any stress on the disc by tightening the nuts evenly and in a diagonal sequence. Secure to the recommended torque setting.

7 Front disc brake: pad renewal and adjustment – CB125 models

Mechanically-operated brake

1 To renew the pads, first remove the front wheel as described in Section 4 of this Chapter, then slide up the rubber sleeve fitted over the brake cable adjuster on the caliper body, slacken the adjuster locknut and screw in fully the adjuster to gain the maximum free play in the cable.

2 Remove the three bolts securing the caliper cover, remove the cover and its gasket, checking that the ratchet spring remains in place inside the cover, then pull the ratchet/brake arm mechanism out of the caliper and allow it to hang down on the end of the cable. Pull out the thrust plate and the moving pad. On CB125 T models, a caliper cover bolt can be screwed into the rear of the pad to assist removal. The fixed pad has a locating pin protruding from its rear face which passes through a rubber grommet set in the caliper body; push on the pin with a screwdriver or similar implement to eject the fixed pad, taking care not to damage the grommet.

3 Carefully remove all traces of corrosion and dirt from all components, paying particular attention to the sides of the aperture in which the sliding pad is fitted. Check that the caliper is free to swing easily on its pivot; refer to Section 12 of this Chapter if any stiffness is encountered. Discard the caliper cover gasket and sliding pad sealing O-ring; these should be renewed whenever they are disturbed. Check that the brake cable, brake arm mechanism, and ratchet assembly are free from corrosion and working correctly; refer to Section 12 if any faults are discovered.

4 If the pads are to be renewed, the worn items may now be discarded. If, however, the pads were removed for cleaning or examination this should now be done. Using a fine wire brush that is completely free from oil and grease, remove all traces of dirt and corrosion from both pads. Take great care to fully clean the side of the sliding pad so that it can move freely, and examine the friction surface of both pads. Any particles of foreign matter embedded in the friction material may be picked out with a sharp-pointed instrument, and areas of glazing may be eased down with emery cloth, but any contamination of the friction material by oil or grease can only be cured by renewal of the pads, irrespective of the amount of friction material remaining.

5 Reassembly will require the purchase of a small quantity of grease which is produced specifically for use in disc brake components. Ordinary high-melting point grease must not be used inside the caliper as it will melt and contaminate the brake pads. Silicone- or PBC-based grease only may be used. Apply a thin smear of this grease to the rear of the fixed pad, to the thrust plate and to the sides of the aperture in which the sliding pad is fitted. Fit a new O-ring to the sliding pad and apply a thin smear of grease to the pad periphery, taking great care not to let any grease onto the friction material. Apply grease to the brake cable inner and to the brake arm mechanism/ratchet assembly.

6 Insert the fixed pad into the caliper body, passing its locating pin through the rubber grommet set in the caliper body, then refit the front wheel as described in Section 4 of this Chapter. Insert the moving pad into the caliper body, taking care not to damage the O-ring, then press firmly on the rear of the moving pad until both pads are in firm contact with the brake disc.

7 Rotate the moving pad, on CB125 T models only, until the punch mark on the pad metal backing aligns with a punch mark on the caliper body at about the 11 o'clock position; on CB125 T2, TA and TB models, rotate the moving pad to align the hole drilled in the pad metal backing with the hole for the caliper cover bolt at about the 8 o'clock position. Refit the thrust plate, aligning its protruding lug with the cutout in the caliper body. Remove the ratchet from the brake arm mechanism and use a suitable screwdriver to rotate anti-clockwise the adjuster bolt until resistance is encountered. This should be 3-4 full turns if the pads were worn to the red line; if the bolt is at all stiff to turn, it must be removed for cleaning and greasing, or renewal. Refit the ratchet and fit the brake arm mechanism/ratchet assembly, inserting the pin on the rear of the brake arm into the hole in the moving pad metal backing. Check that the ratchet spring is in place on the inside of the caliper cover, ensure that all components are greased, and refit the cover with a new gasket. Tighten the cover retaining bolts to a torque setting of 0.8 - 1.4 kgf m (6 - 10 lbf ft).

8 To adjust the brake, unscrew the cable adjuster until all free play has just been eliminated from the cable, noting that the adjuster must be unscrewed no further than is necessary, then screw the adjuster back in by 2 - 3 full turns and tighten the adjuster locknut. Apply lightly the brake handlebar lever about 10 times to enable the automatic adjusting mechanism to set itself. When full lever pressure is restored, there should be 20 - 30 mm free play, measured at the handlebar lever tip. If necessary, slacken the adjuster locknut and rotate the adjuster until the lever free play is correct. Tighten the locknut, slide down the adjuster rubber, and check that the front wheel is free to rotate easily with no trace of brake drag.

Hydraulically-operated brake

9 The hydraulically-operated disc brake requires no adjustment during the course of its life, and little maintenance other than regular inspection of the amount of friction material remaining on the pads.

This is described in the Routine Maintenance Section at the beginning of this Manual.

10 Removal of the pads for renewal or for inspection and cleaning is a relatively simple operation which can be carried out without disturbing any of the brake hose connections. Slacken and remove the two fork lower leg/caliper mounting bracket bolts and withdraw the caliper from the machine. Carefully invert the caliper without twisting the brake hose. Push the caliper mounting bracket towards the main caliper body as far as possible, slacken and remove its securing bolt, from the back of the caliper body, then withdraw the pad retaining pin locking plate and pull out the two pad retaining pins. Withdraw the pads.

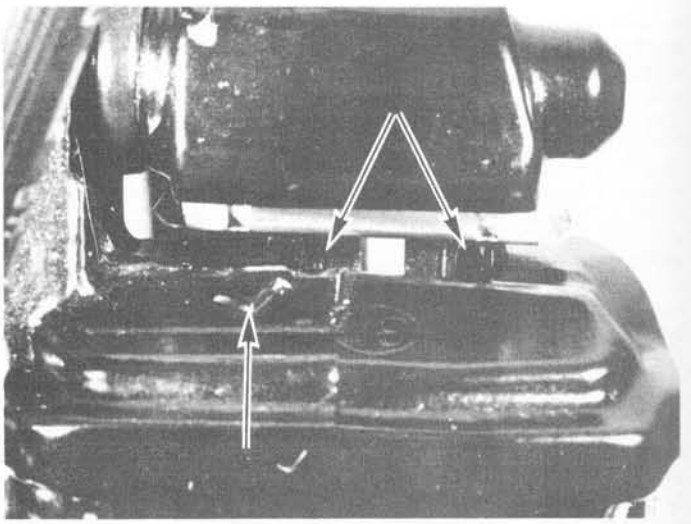
11 If the pads are to be renewed, the old items may now be discarded. If, however, the pads have not yet worn down to the red inscribed wear limit marks, they should now be cleaned thoroughly, using a fine wire brush that is completely free of oil or grease. Remove all traces of road dirt and corrosion from both the pads and from the caliper assembly. Be especially careful to use a sharply-pointed instrument to clean out the groove in each of the pad friction surfaces and to pick out any particles of foreign matter embedded in the friction material. Examine the surface of each pad. Any areas of glazing may be eased down with emery cloth, but any contamination of the friction material by oil or grease can only be cured by renewal of the pads, irrespective of the amount of friction material remaining.

12 Obtain a small amount of silicone- or PBC-based brake caliper grease and apply a thin smear of this grease to the brake pad retaining pins. Check that the caliper mounting bracket slides easily on the two axle bolts and that the rubber grommets around these axle bolts are in good condition. If new pads are to be fitted, the caliper pistons must now be pushed back as far as possible into the caliper bores to provide the clearance necessary to accommodate the unworn pads. It should be possible to do this with hand pressure alone. If any undue stiffness is encountered the caliper assembly should be dismantled for examintion as described in Section 12 of this Chapter. While pushing the pistons back, maintain a careful watch on the fluid level in the handlebar reservoir. If the reservoir has been overfilled, the surplus fluid will prevent the pistons returning fully and must be removed by soaking it up with a clean cloth. Take great care to prevent fluid spillage.

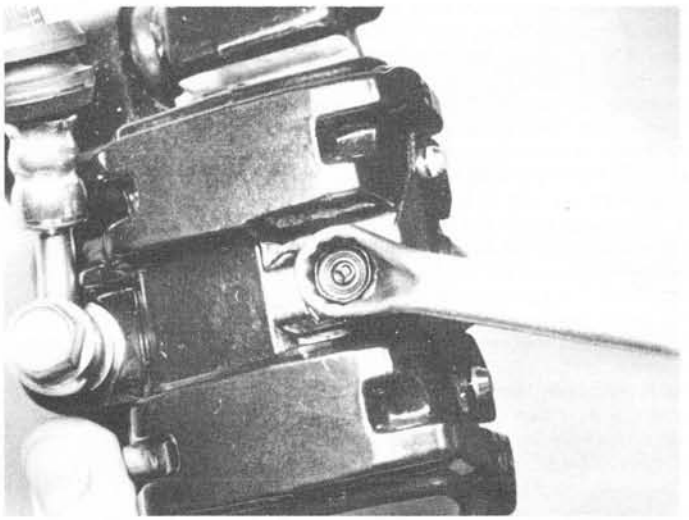
13 Apply a thin smear of caliper grease to the outer edge and rear surface of the moving pad. Take care to apply caliper grease to the metal backing of the pad only and not to allow any grease to contaminate the friction material. Carefully fit the pad anti-rattle spring, ensuring that it is correctly located, and insert the moving pad into its aperture in the caliper mounting bracket. Check that the pad is free to slide in the mounting bracket then refit the second pad and insert the two pad retaining pins. Refit the pad pin locking plate, ensuring that it engages correctly on the heads of the pins, and tighten securely its retaining bolt.

14 Replace the caliper assembly on the machine, taking care not to twist the brake hose, and ensure that the brake pads and the caliper mounting bracket are aligned correctly on the brake disc and on the fork lower leg. Replace the caliper mounting bracket/fork lower leg mounting bolts, tightening them to a torque setting of 3.0 - 4.0 kgf m (22 - 29 lbf ft). Apply the front brake lever gently and repeatedly to bring the pads firmly into contact with the disc and to restore full brake pressure, beingg careful to watch the fluid level in the handlebar reservoir. Do not let the level drop below the 'Lower' level mark on the reservoir or there is a risk of air entering the system. New hydraulic brake fluid of the correct type must be added, if necessary, to prevent the level dropping below this point. If new brake pads have been fitted the level should be restored, by topping-up if necessary, to the upper level mark formed by a raised line cast on the inside of the reservoir. Clean and dry the rubber diaphragm, fold it into its compressed state, then refit the diaphragm and cover, tightening securely the two retaining screws.

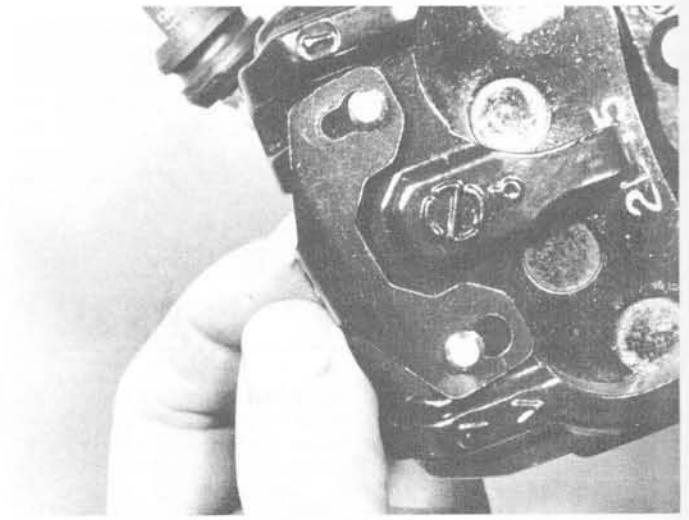
15 Before taking the machine out on the road, be careful to check for fluid leaks from the system, and that the front brake is working correctly. Remember also that new pads, and to a lesser extent, cleaned pads will require a bedding-in period before they will function at peak efficiency. Where new pads are fitted use the brake gently but firmly for the first 50 - 100 miles to enable the pads to bed in fully.



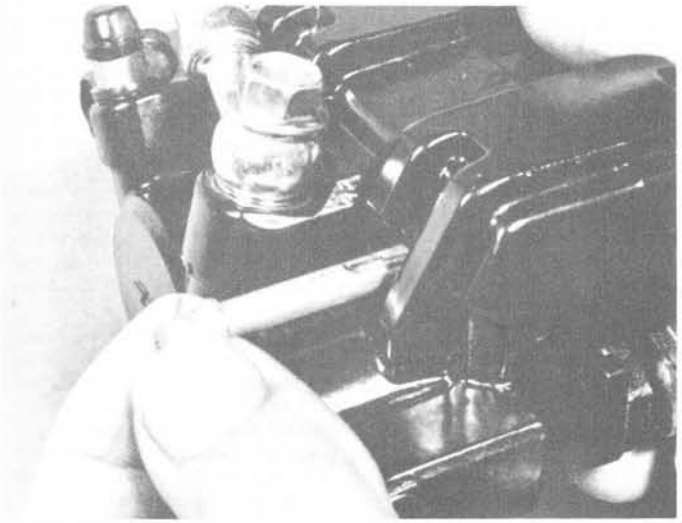
7.9 Position of pad wear limit marks (arrowed) is shown by mark cast on caliper body – CB125 TD only



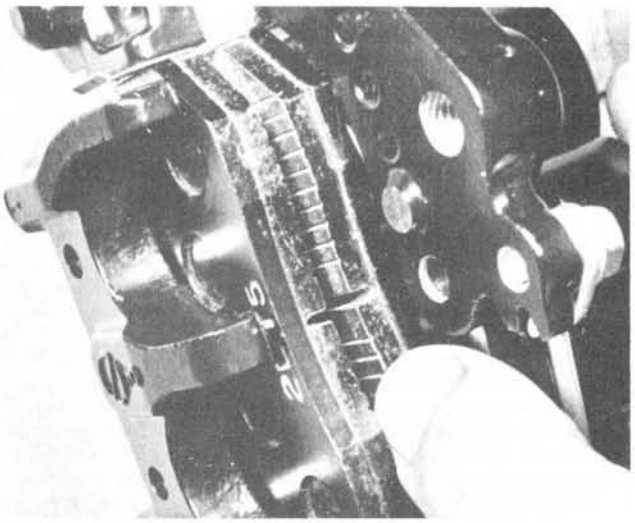
7.10a Pad retaining pin locking plate is secured by a single bolt



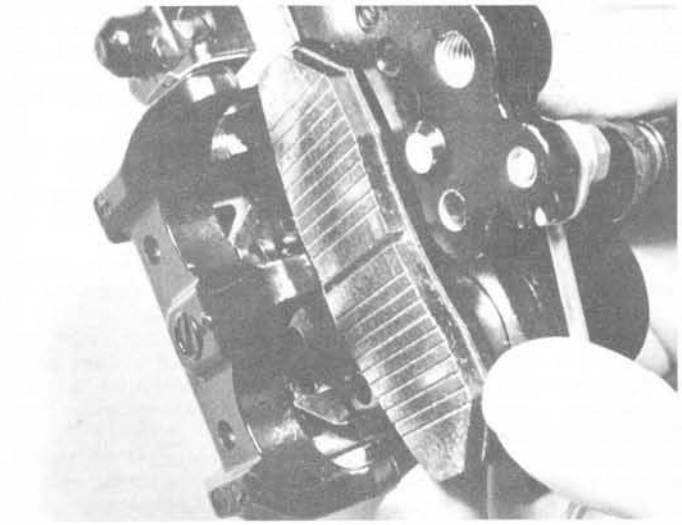
7.10b Disengage locking plate from ends of pad retaining pins ...



7.10c ... and withdraw retaining pins ...

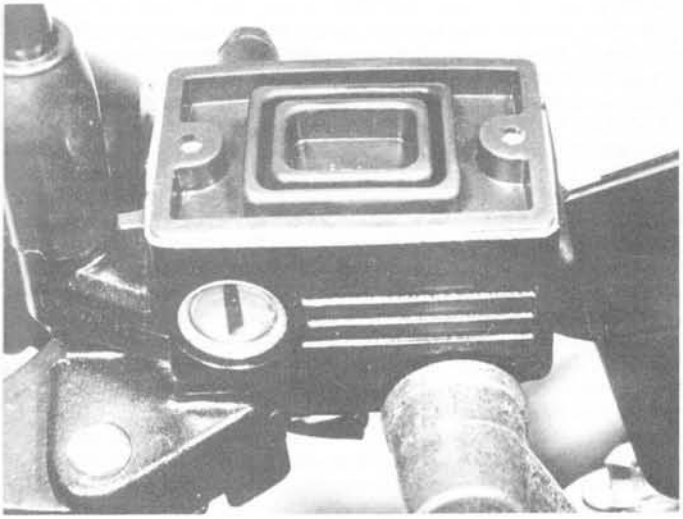


7.10d ... to release brake pads



7.13 Check that pads are located correctly on refitting

7.14a Only top up to upper level (arrowed) if new brake pads are fitted



7.14b Diaphragm must be clean, dry and folded as shown before cover is refitted and retaining screws tightened securely

8 Hydraulic disc brake: general – CB125 TD model

1 The disc front brake fitted to the CB125 TD model is, as previously mentioned, of the hydraulically-operated type. A number of precautions must be taken when dealing with such a system, to avoid the disastrous consequences of brake failure.

2 The hydraulic system must be kept free from air bubbles. Any air in the system will be compressed when the brake lever is operated instead of transmitting braking effort to the disc. It follows that efficiency will be impaired, and given sufficient air, can render the brake inoperative. If any part of the hydraulic system is disturbed, the system must always be bled to remove any air. See Section 9 for details. It is vital that all hoses, pipes and unions are examined regularly and renewed if damage, deterioration or leakage is suspected.

3 Hydraulic fluid is specially formulated for given applications and must always be of the correct type. A fluid conforming to SAE J1703, DOT 3 or 4 may be used. On no account should any other type of oil or fluid be used. Old or contaminated fluid must be discarded. It is dangerous to use old fluid which may have degraded to the point where it will boil in the caliper creating air bubbles in the system. Note that brake fluid will attack and discolour paintwork and plastics. Care must be taken to avoid contact and any accidental splashes washed off immediately.

4 Cleanliness is more important with hydraulic systems than in any other single area of the motorcycle. Dirt will rapidly destroy seals, allowing fluid to leak out or air to be drawn in. Water, even in the form of moist air, will be absorbed by the fluid which is hygroscopic. Fluid degraded by water has a lowered boiling point and can boil in use. The master cylinder and any cans of fluid must be kept securely closed to prevent this.

9 Bleeding the hydraulic brake system – CB125 TD model

1 The method of bleeding a brake system of air and the procedure described below apply equally to either a front brake or rear brake of the hydraulically actuated type.
2 If the brake action becomes spongy, or if any part of the hydraulic system is dismantled (such as when a hose is replaced) it is necessary to bleed the system in order to remove all traces of air. The procedure for bleeding the hydraulic system is best carried out by two people.
3 Check the fluid level in the reservoir and top up with new fluid of the specified type if required. Keep the reservoir at least half full during the bleeding procedure; if the level is allowed to fall too far air will enter the system requiring that the procedure be started again from scratch. Refit the reservoir cover to prevent the ingress of dust or the ejection of a spout of fluid.
4 Remove the dust cap from the caliper bleed nipple and clean the area with a rag. Place a clean glass jar below the caliper and connect a pipe from the bleed nipple to the jar. A clear plastic tube should be used so that air bubbles can be more easily seen. Place some clean hydraulic fluid in the glass jar so that the pipe is immersed below the fluid surface throughout the operation.
5 If parts of the system have been renewed, and thus the system must be filled, open the bleed nipple about one turn and pump the brake lever until fluid starts to issue from the clear tube. Tighten the bleed nipple and then continue the normal bleeding operation as described in the following paragraphs. Keep a close check on the reservoir level whilst the system is being filled.
6 Operate the brake lever as far as it will go and hold it in this position against the fluid pressure. If spongy brake operation has occurred it may be necessary to pump rapidly the brake lever a number of times until pressure is achieved. With pressure applied, loosen the bleed nipple about half a turn. Tighten the nipple as soon as the lever has reached its full travel and then release the lever. Repeat this operation until no more air bubbles are expelled with the fluid into the glass jar. When this condition is reached the air bleeding operation should be complete, resulting in a firm feel to the brake operation. If sponginess is still evident continue the bleeding operation; it may be that an air bubble trapped at the top of the system has yet to work down through the caliper.
7 When all traces of air have been removed from the system, top up the reservoir and refit the diaphragm and cover. Check the entire system for leaks, and check also that the brake system in general is functioning efficiently before using the machine on the road.
8 Brake fluid drained from the system will almost certainly be contaminated, either by foreign matter or more commonly by the absorption of water from the air. All hydraulic fluids are to some degree hygroscopic, that is, they are capable of drawing water from the atmosphere, and thereby degrading their specifications. In view of this, and the relative cheapness of the fluid, old fluid should always be discarded.
9 Great care should be taken not to spill hydraulic fluid on any painted cycle parts; it is a very effective paint stripper. Also, the plastic glasses in the instrument heads, and most other plastic parts, will be damaged by contact with this fluid.

10 Master cylinder: examination and renovation – CB125 TD model only

1 The master cylinder and hydraulic fluid reservoir form a combined assembly which is clamped to the right-hand side of the handlebars. The moving parts consist of a piston and cup assembly which is operated directly by the handlebar brake lever. The piston and cup assembly is usually reliable and longlasting, but if worn, will reduce brake efficiency considerably due to lost hydraulic pressure. Such wear is normally indicated by a fluid leak around the brake lever end of the master cylinder, but can also be revealed by the spongy feel of the brake lever caused by the entry of air into the system past the defective seals. Such wear must be rectified instantly by carrying out the following procedure.
2 Disconnect the stop lamp front switch by pulling the two wires from the switch terminals. Place a clean container beneath the caliper unit and run a clear plastic tube from the caliper bleed nipple to the container. Unscrew the bleed nipple by one full turn and drain the system by operating the brake lever repeatedly until no more fluid can be seen issuing from the nipple.
3 Position a pad of clean rag beneath the point where the brake hose joins the master cylinder. This simple precaution is essential to prevent brake fluid from dripping onto, and therefore damaging, any plastic and painted components located beneath the hose union once the union bolt is removed. Detach the rubber cover from the head of the union bolt and remove the bolt. Once any excess fluid has drained from the union connection, wrap the end of the hose in rag or polythene and then attach it to a point on the handlebars.
4 Remove the brake lever by unscrewing its shouldered pivot screw and locknut, remove the reservoir cover and diaphragm, then slacken and remove the two clamp bolts and withdraw the master cylinder assembly.
5 Use the flat of a small screwdriver carefully to prise out the rubber dust seal boot. This will expose a retaining circlip which must be removed using a pair of circlip pliers which have long, straight jaws. With the circlip removed, the piston and cup assembly can be pulled out. Be very careful to note the exact order in which these components are fitted.
6 Note that if a vice is used to hold the master cylinder at any time during dismantling and reassembly, its jaws must be padded with soft alloy or wooden covers and the master cylinder must be wrapped in soft cloth to obviate any risk of the assembly being marked or distorted.
7 Place all the master cylinder component parts in a clean container and wash each part thoroughly in new brake fluid. Lay the parts out on a sheet of clean paper and examine each one as follows.
8 Inspect the unit body for signs of stress failure around both the brake lever pivot lugs and the handlebar mounting points. Carry out a similar inspection around the hose union boss. Examine the cylinder bore for signs of scoring or pitting. If any of these faults are found, then the unit body must be renewed.
9 Inspect the surface of the piston for signs of scoring or pitting and renew it if necessary. It is advisable to discard all the components of the piston assembly as a matter of course as the replacement cost is relatively small and does not warrant re-use of components vital to safety. If measuring equipment is available, compare the dimensions of the master cylinder bore and the piston with those given in the Specifications Section of this Chapter and renew any component that is worn to beyond the set wear limit. Inspect the threads of the brake hose union bolt for any signs of failure and renew the bolt if in the slightest doubt. Renew each of the gasket washers located one either side of the hose union.
10 Check before reassembly that any traces of contamination remaining within the reservoir body have been removed. Inspect the diaphragm to see that it is not perished or split. It must be noted at this point that any reassembly work must be undertaken in ultra-clean conditions. Particles of dirt entering the component will only serve to score the working points of the cylinder and thereby cause early failure of the system.
11 When reassembling and fitting the master cylinder, follow the removal and dismantling procedures in the reverse order whilst paying particular attention to the following points. Make sure that the piston components are fitted the correct way round and in the correct order. Immerse all of these components in new brake fluid prior to reassembly and refer to the figure accompanying this text when in doubt as to their fitted positions. When refitting the master cylinder assembly to the handlebar, position the assembly so that the reservoir will be exactly horizontal when the machine is in use. Tighten the clamp top bolt first, and then the bottom bolt, to a torque setting of 0.8 - 1.2 kgf m (6 - 9 lbf ft). Connect the brake hose to the master cylinder, ensuring that a new sealing washer is placed on each side of the hose union, and tightening the hose union bolt to a torque setting of 2.5 - 3.5 kgf m (18 - 25 lbf ft). Finally, replace the rubber union cover.

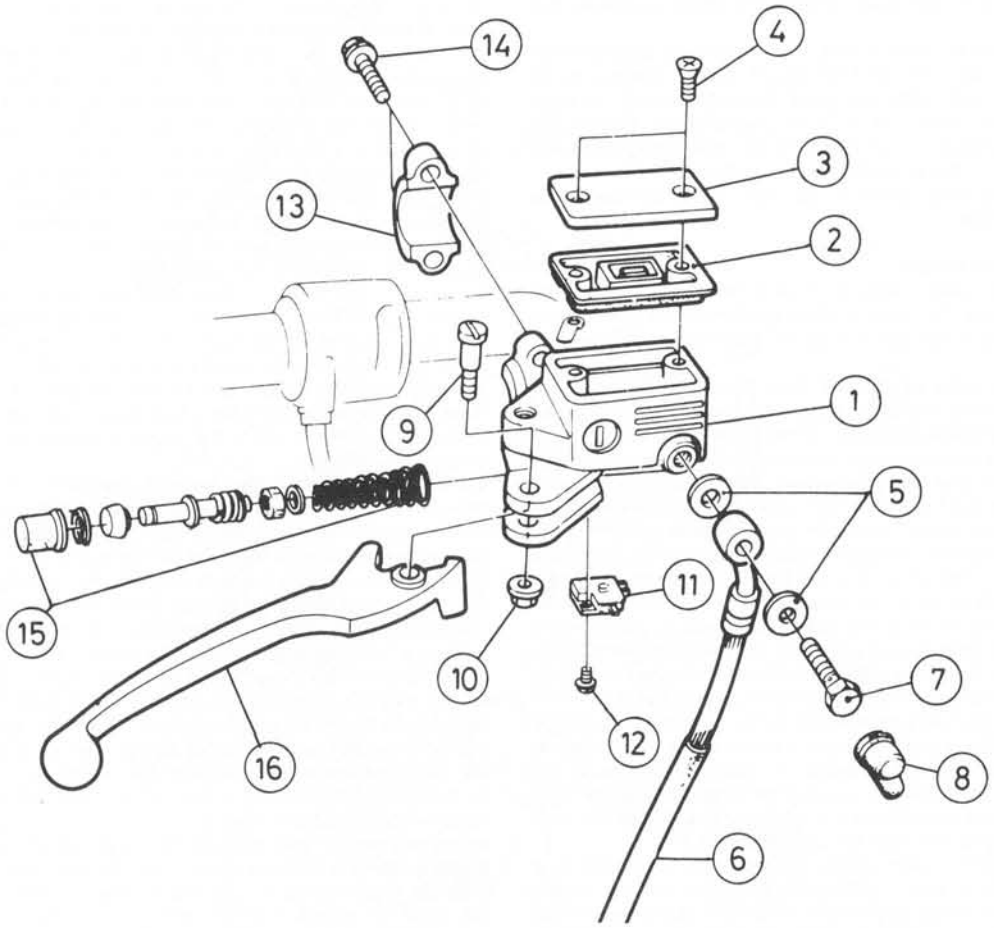


Fig. 5.4 Front brake master cylinder – CB125 TD

1 *Master cylinder*
2 *Diaphragm*
3 *Top cover*
4 *Screw – 2 off*
5 *Sealing washer – 2 off*
6 *Hydraulic hose*
7 *Banjo union bolt*
8 *Rubber boot*
9 *Pivot screw*
10 *Nut*
11 *Brake light switch*
12 *Screw*
13 *Handlebar clamp*
14 *Bolt – 2 off*
15 *Piston assembly*
16 *Brake lever*

12 Bleed the brake system after refilling the reservoir with new hydraulic fluid, then check for leakage of fluid whilst applying the brake lever. Push the machine forward and bring it to a halt by applying the brake. Do this several times to ensure that the brake is operating correctly before taking the machine for a test run. During the run, use the brakes as often as possible and on completion, recheck for signs of fluid loss.

11 Hydraulic brake hose: examination and renovation – CB125 TD models

1 An external flexible brake hose is used as a means of transmitting hydraulic pressure to the caliper unit once the front brake lever is applied.

2 When the brake assembly is being overhauled, or at any time during a routine maintenance or cleaning procedure, check the condition of the hose for signs of leakage, damage, deterioration or scuffing against any cycle components. Any such damage will mean that the hose must be renewed immediately. The union connections at either end of the hose must also be in good condition, with no stripped threads or damaged sealing washers. Do not tighten these union bolts over the recommended torque setting of 2.3 - 3.5 kgf m (18 - 25 lbf ft) as they are easily sheared if overtightened.

12 Disc brake caliper: examination and renovation – CB125 models

1 In the case of either of the two types of disc brake fitted to the machines described in this Manual, should loss of braking power or other symptoms indicate a fault in the caliper, then the caliper must be removed from the machine for dismantling, as far as this is possible. Dismantling of either type of caliper must be preceded by its removal from the machine and by the removal of the pads. This operation is described in the relevant paragraphs of Section 7 of this Chapter.

Mechanically-operated caliper

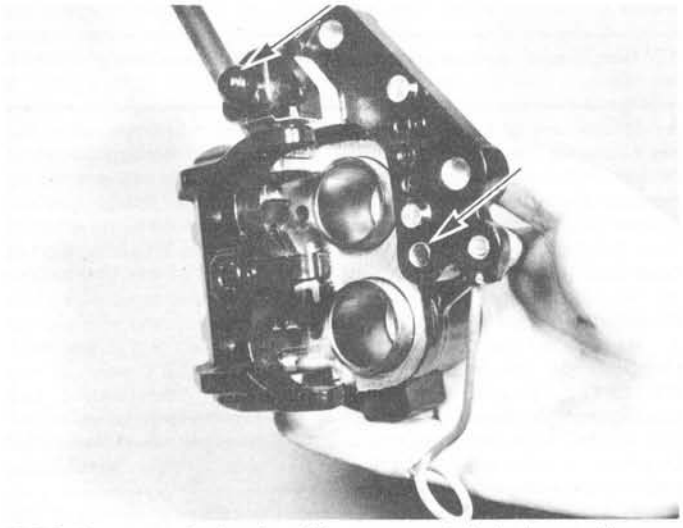
2 Remove the two bolts which retain the mudguard and caliper pivot clamp to the fork lower leg, and the bolt (CB125 T only) or nut (CB125 T2, TA and TB) which retains the caliper pivot and splashguard. Compress the coil spring and slip the large barrel nipple out of the brake arm mechanism to disengage the brake cable. Unscrew the cable adjuster to release the cable from the caliper body, and withdraw the caliper assembly.

3 Withdraw the pivot clamp and pull the caliper pivot out of the caliper body. If these components are immovable due to corrosion, soak them in penetrating fluid before driving out the pivot with a hammer and a suitable drift.

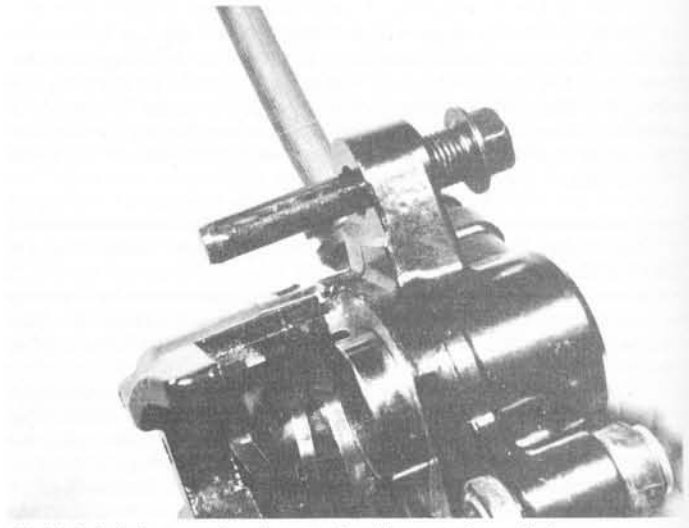
4 Carefully clean all components. Inspect carefully each component, renewing any that is worn, damaged, or badly corroded; repairs are not possible.
5 On reassembly, refit all components in the reverse of the dismantling sequence, apply silicone- or PBC-based caliper grease to all moving components, especially the pivot bearing surfaces. Always renew the O-rings fitted at each end of the pivot bearing. Tighten the pivot/splashguard retaining nut or bolt and the two mudguard/pivot clamp retaining bolts to the specified torque setting.
6 Follow the instructions given in Section 7 to complete the reassembly of the caliper.

Hydraulically-operated caliper

7 Remove the two caliper axle bolts and withdraw the caliper mounting bracket. Prise the three rubber grommets off the caliper body and press out the metal sleeve fitted in the caliper body around the lower axle bolt.
8 The pistons must now be ejected from the caliper bores. The simplest way of achieving this is to apply repeatedly the front brake lever, using normal hydraulic pressure to force the pistons out. If this method is used, wrap a piece of clean rag around the caliper to prevent the pistons falling clear and being damaged. Take great care to catch the escaping hydraulic fluid in a clean container and to prevent any of the fluid from splashing on to plastic or painted metal components. When the pistons have been displaced, drain all surplus hydraulic fluid into the container by pumping gently the front brake lever, and then disconnect the hydraulic hose by unscrewing the caliper union bolt. An alternative to the above method will require a source of compressed air. Attach a length of clear plastic tubing to the bleed nipple, placing the tube lower end in a suitable container. Open the bleed nipple by one full turn and pump gently on the front brake lever to drain as much fluid as possible from the hydraulic system. When no more fluid can be seen issuing from the bleed nipple, tighten it down again, withdraw the plastic tube and disconnect the hydraulic hose at the caliper union. Wrap a large piece of cloth loosely around the caliper and apply a jet of compressed air to the union orifice. Be careful not to use too high an air pressure or the pistons may be damaged.
9 When each piston has been removed, it should be placed in a clean container to ensure that it cannot be damaged and the piston seals should be picked out of the caliper bores and discarded. Wrap the exposed end of the hydraulic hose in clean rag or polythene to prevent the entry of dirt. Note that if the pistons cannot be ejected using either of the above methods, the caliper assembly must be detached from the machine and taken to a motorcycle dealer for expert help. It is possible, however, that the piston surfaces and caliper bores are so badly damaged by corrosion that the only satisfactory solution will be the renewal of caliper and pistons as a single unit.
10 Clean the caliper components thoroughly, only in hydraulic brake fluid. **Never** use petrol or cleaning solvent for cleaning hydraulic brake parts otherwise the rubber components will be damaged. Discard all the rubber components as a matter of course. The replacement cost is relatively small and does not warrant re-use of components vital to safety. Check the pistons and caliper cylinder bores for scoring, rusting or pitting. If any of these defects are evident it is unlikely that a good fluid seal can be maintained and for this reason the components should be renewed. If measuring equipment is available, compare the dimensions of the caliper bores and the pistons with those given in the Specifications Section of this Chapter, renewing any component that is worn to beyond the set wear limit.
11 Inspect the shank of each axle bolt for any signs of damage or corrosion and clean or renew each one as necessary. Remove the bleed nipple and check that it has not become blocked. Check the condition of the nipple sealing cap and renew it, if necessary.
12 Assemble the caliper unit by reversing the dismantling sequence. Note that assembly must be undertaken under ultra-clean conditions. Particles of dirt will score the bearing surfaces of moving parts and cause early failure.
13 When assembling the unit, pay attention to the following points. When fitting a new piston seal, take care to ensure that it is not twisted on its retaining groove. Apply a generous amount of new brake fluid to the surface of each caliper bore and to the periphery of each piston before pushing the piston slowly into position whilst taking care not to damage the piston seal. Refit the outer piston seals, again taking care that each is correctly seated. Lubricate lightly the sliding surface of each axle bolt with brake caliper grease and refit the rubber grommets and the metal sleeve in their correct locations. Offer up the caliper mounting bracket, then fit the two axle bolts and tighten them to the recommended torque setting. Check that the mounting bracket slides freely and press it as far as possible towards the caliper body.
14 Refit the brake pads and refit the caliper assembly to the fork leg by following the procedure given in Section 7 of this Chapter. Before reconnecting the brake hose union to the caliper, check the condition of the two gasket washers located one either side of the union. Renew these washers if necessary and then fit and tighten the union bolt to a torque loading of 2.5 - 3.5 kgf m (18 - 25 lbf ft).
15 Refill the master cylinder reservoir with new hydraulic brake fluid and bleed the system by following the procedure given in Section 9 of this Chapter. On completion of bleeding, carry out a check for leakage of fluid whilst applying the brake lever. Push the machine forward and bring it to a halt by applying the brake. Do this several times to ensure that the brake is operating correctly before taking the machine out on the road.



12.7 Caliper mounting bracket slides on two axle bolts (arrowed)



12.11 Axle bolts must be clean and well greased on refitting

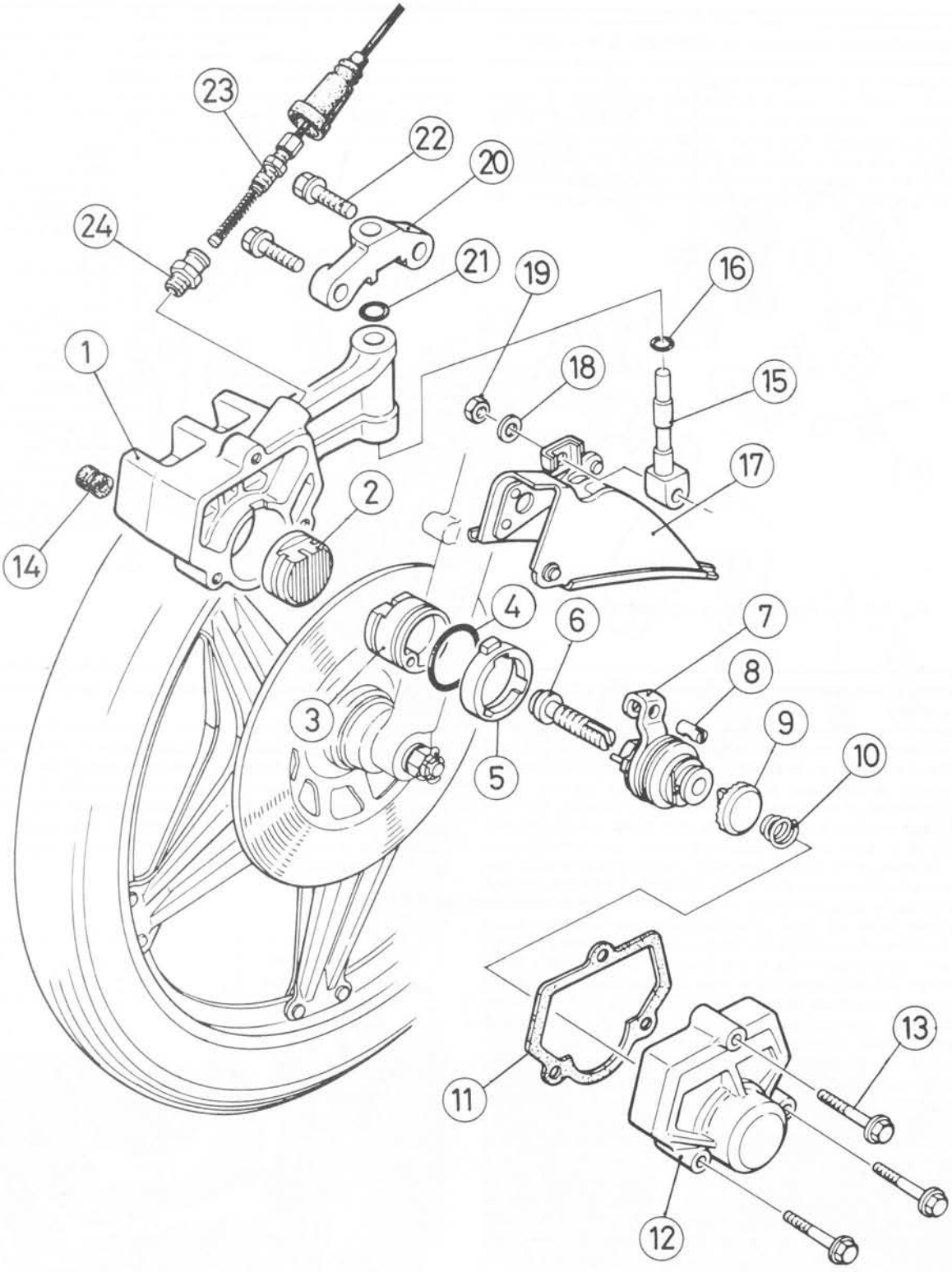
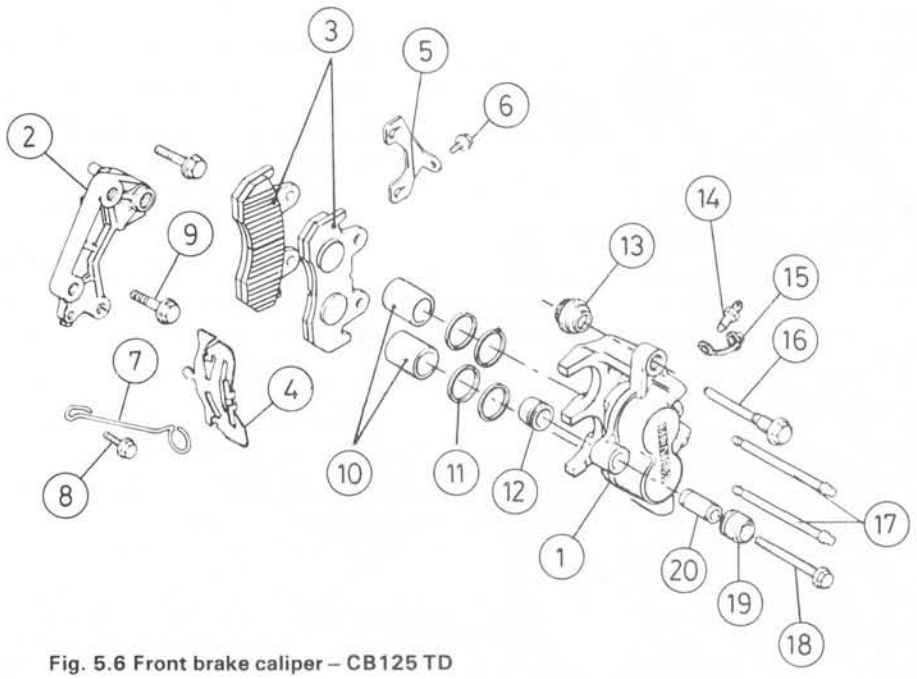


Fig. 5.5 Front disc brake – CB125 T2, TA and TB (CB125 T similar)

1 *Caliper*
2 *Brake pad – fixed*
3 *Brake pad – sliding*
4 *O-ring*
5 *Thrust plate*
6 *Adjusting shaft*
7 *Brake arm mechanism*
8 *Cable trunnion*
9 *Ratchet*
10 *Spring*
11 *Gasket*
12 *Caliper cover*
13 *Bolt – 3 off*
14 *Dust seal*
15 *Pivot shaft*
16 *O-ring*
17 *Splashguard*
18 *Washer*
19 *Nut*
20 *Pivot clamp*
21 *O-ring*
22 *Bolt – 2 off*
23 *Operating cable*
24 *Cable adjuster*



1 Caliper
2 Mounting bracket
3 Brake pads
4 Anti-rattle spring
5 Locking plate
6 Bolt
7 Cable guide
8 Bolt
9 Bolt – 2 off
10 Piston – 2 off
11 Piston seal – 4 off
12 Grommet
13 Grommet
14 Bleed nipple
15 Bleed nipple cap
16 Axle bolt
17 Pad retaining pin – 2 off
18 Axle bolt
19 Grommet
20 Metal sleeve

Fig. 5.6 Front brake caliper – CB125 TD

13 Front drum brake: examination and renovation – CD125 T and CM125 C models

1 The brake backplate can be withdrawn from the hub after the front wheel has been removed as described in Section 4 of this Chapter.
2 Examine the brake drum surface for signs of scoring or oil contamination, either of which will impair braking efficiency. Remove all traces of dust, preferably using a brass wire brush, taking care not to inhale any of it, as it is of an asbestos nature, and consequently dangerous. Remove oil or grease deposits, using a petrol soaked rag.
3 If deep scoring is evident, due to the linings having worn through to the shoe at some time, the drum must be skimmed on a lathe, or renewed. Whilst there are firms who will undertake to skim a drum whilst fitted to the wheel, it should be borne in mind that excessive skimming will change the radius of the drum in relation to the brake shoes, therefore reducing the friction area until extensive bedding in has taken place. Also full adjustment of the shoes may not be possible. If in doubt about this point, the advice of one of the specialist engineering firms who undertake this work should be sought.
4 If fork oil or grease from the wheel bearings has badly contaminated the linings, they should be renewed. There is no satisfactory way of degreasing the lining material, which in any case is relatively cheap to replace. It is false economy to try to cut corners with brake components; the whole safety of both machine and rider being dependent on their condition.
5 The linings are bonded to the shoes, and the shoes must be renewed complete with the new linings. Examine the linings to determine whether they are thin or unevenly worn; if this is the case, they should be renewed. The linings are approximately 4 mm (0.158 in) thick when new and should be renewed when reduced to the service limit of 2.0 mm (0.079 in).
6 To remove the brake shoes, first remove the brake operating arm and its return spring, from the splined end of the brake operating cam. Straighten out and remove the split pin, and remove the plain washer which it retains. The split pin and washer retain the brake shoes to the pivot post on the brake backplate. Using a stout pair of pliers, release the brake shoe return springs. The two brake shoes can now be lifted clear of the brake backplate. An alternative method of removal, more useful if the original shoes are to be refitted, is described below.
7 Remove the split pin and plain washer. Fold the shoes together until the spring tension is relaxed, and then lift the shoes and springs off the brake backplate.
8 Fitting new shoes is a direct reversal of the procedure given in paragraph 6. Note that before refitting existing shoes, roughen the lining surface sufficiently to break the glaze which will have formed in use.
9 The brake operating cam can be displaced for greasing prior to reassembly, after removing the actuating arm. No further attention is normally required. Note the alignment marks on the cam splined end, and on the arm. These must align on reassembly. Note also the lining wear indicator which fits on the splined end of the cam prior to the operating arm. The internal splines of the wear indicator are interrupted at one point by a flat; this flat must engage with the cut-out in the splines on the cam end.

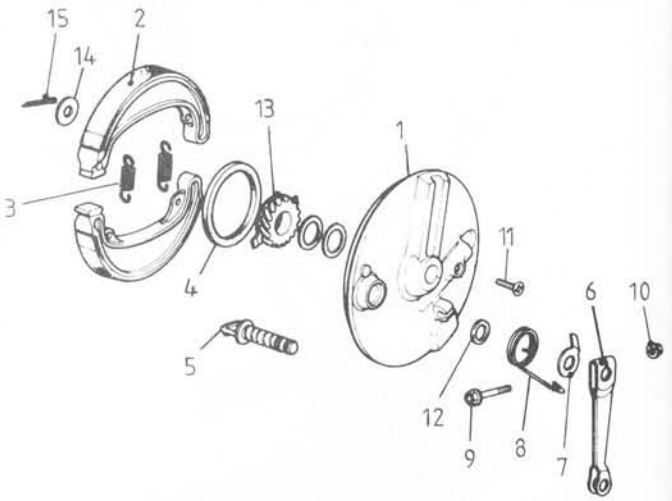


Fig. 5.7 Front brake assembly – CM125 C and CD125 T

1 Brake backplate
2 Brake shoe – 2 off
3 Return spring – 2 off
4 Dust seal
5 Operating cam
6 Operating lever
7 Wear indicator
8 Return spring
9 Bolt
10 Nut
11 Screw
12 Dust seal
13 Speedometer drive gear
14 Washer
15 Split pin

14 Rear wheel: examination and renovation

The rear wheels are identical in design and construction to those fitted to the front. Refer, therefore, to Section 2 or to Section 3 of this Chapter, whichever is relevant to the type of wheel fitted to the machine being worked on, for details of examination and renovation techniques.

15 Rear brake: examination, renovation and adjustment

The drum brake fitted to the rear wheel of all models is essentially similar in design and construction to the unit fitted to the front of the CD125 T and CM125 C models. Refer, therefore, to Section 13 of this Chapter for details of examination and renovation techniques. One basic difference between the two units is that the rear brake is rod-operated and the slightly different technique of adjustment that is therefore required is described in Section 16 of this Chapter.

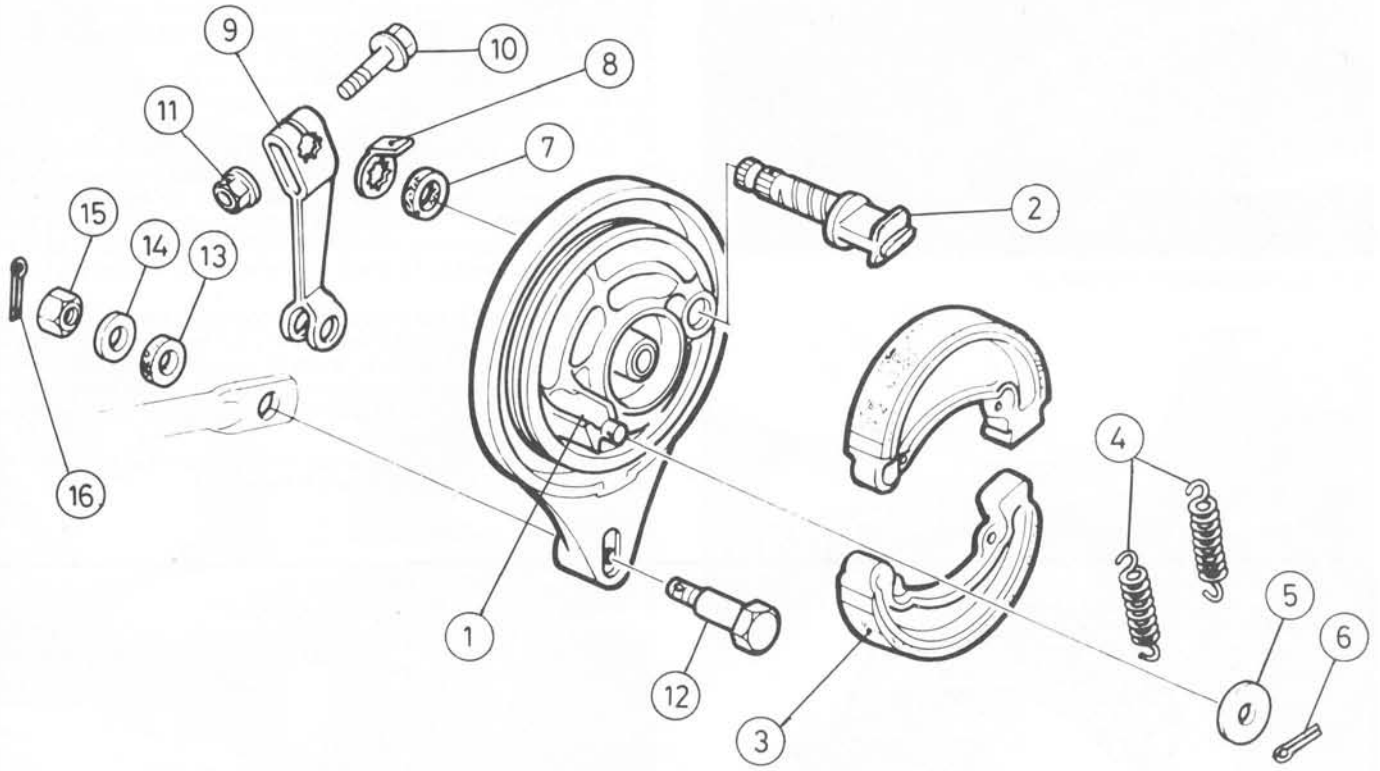
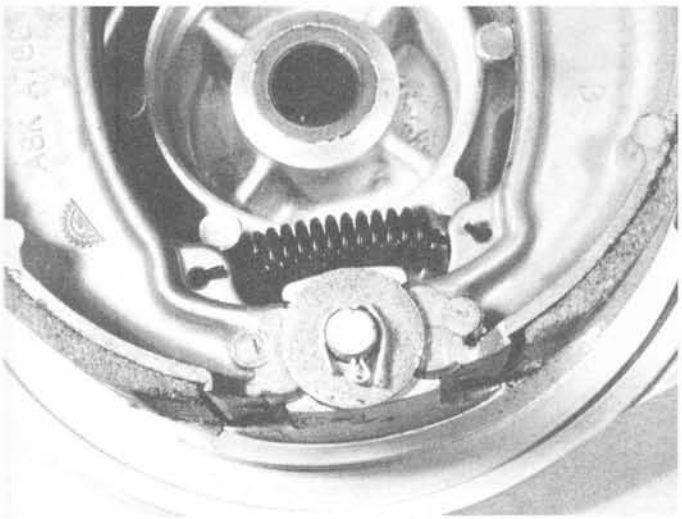
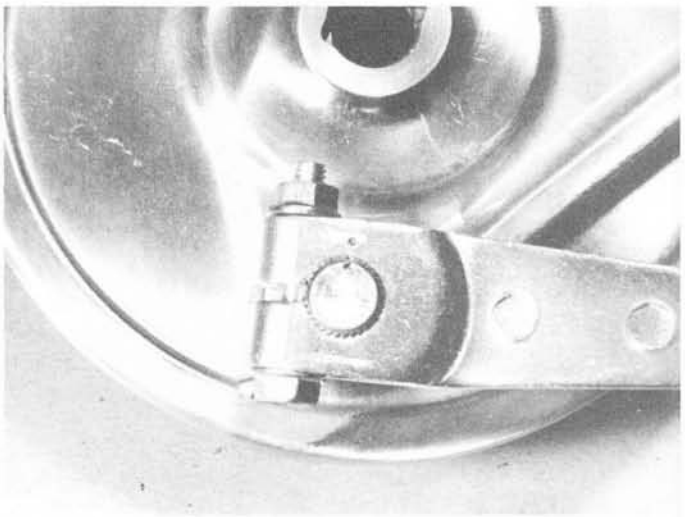


Fig. 5.8 Rear brake assembly

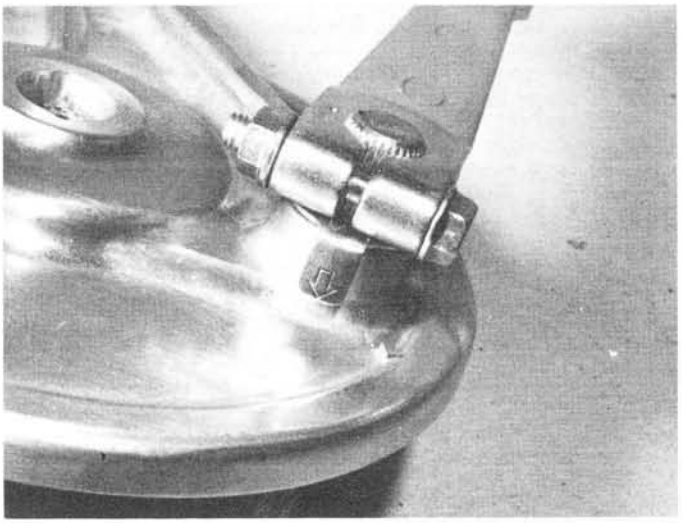
1	*Brake backplate*	5	*Washer*	9	*Operating lever*	13	*Damping rubber*
2	*Operating cam*	6	*Split pin*	10	*Bolt*	14	*Washer*
3	*Brake shoe – 2 off*	7	*Dust seal*	11	*Nut*	15	*Nut*
4	*Return spring – 2 off*	8	*Wear indicator*	12	*Bolt*	16	*Split pin*



15.1a Secure brake shoes with plain washer and split pin as shown



15.1b Align punch marks on refitting operating arm to brake cam



15.1c Do not omit wear indicator tab

16 Rear wheel: removal and refitting

1 Place the machine on its centre stand on level ground and unscrew the adjusting nut from the rear end of the brake operating rod. Remove the R-clip or split pin from the brake torque arm bolt. Remove the retaining nut, metal washer, and the rubber washer from the torque arm bolt, then remove the torque arm from the brake backplate. Withdraw the wheel spindle nut retaining split pin (where fitted), remove the spindle nut, then withdraw the spindle, catching the chain adjusters and the wheel right-hand spacer as they are released.

2 On CD125 T models only, once the right-hand spacer has been removed, pull the wheel to the right, away from the cush-drive vanes, and manoeuvre it out to the rear of the machine.

3 On all other models, lower the wheel to the ground and roll it forward until the drive chain can be disengaged. Manoeuvre the wheel out to the rear of the machine.

4 Refitting is a straightforward reversal of the removal procedure. Do not omit to refit correctly the chain adjusters and spacer as the spindle is inserted. Before tightening the spindle nut the chain must be adjusted as described in Section 19 of this Chapter and the rear brake torque arm and operating rod must be refitted. Tighten all nuts to the specified torque setting. Fit a new spindle nut retaining split pin (where applicable).

5 Adjust the rear brake by rotating as necessary the adjusting nut to give 20 - 30 mm (0.8 - 1.2 in) of free play, measured at the brake pedal tip, before the rear brake starts to engage. If the adjustment is altered significantly from the original setting, check that the stop lamp lights just as the pedal free play is taken up and the brake is beginning to engage.

6 The stop lamp rear switch is adjusted by rotating as necessary the plastic sleeve nut to alter the switch height.

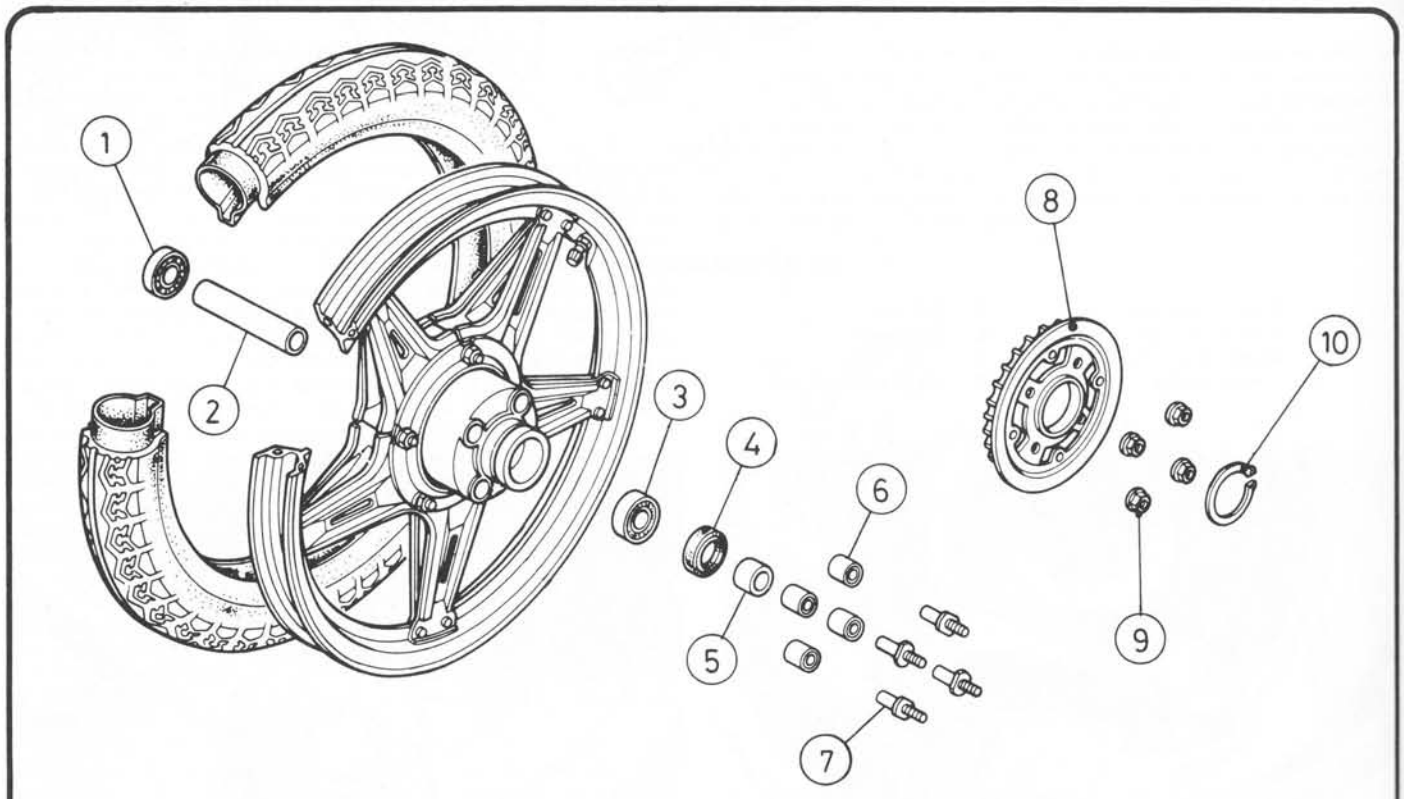
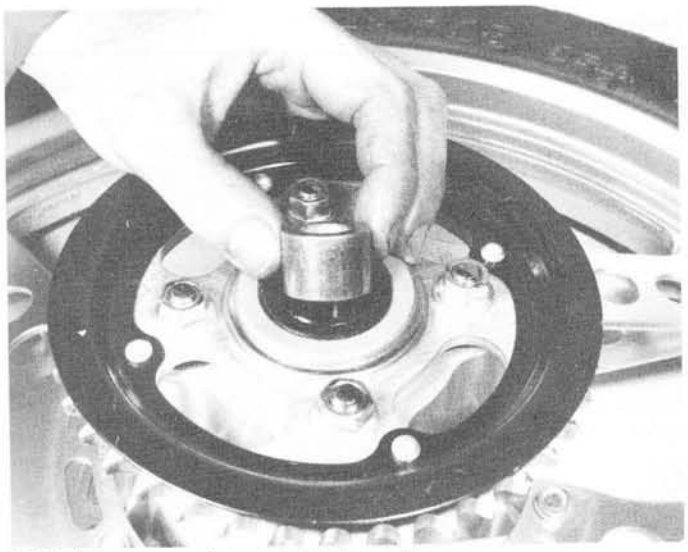
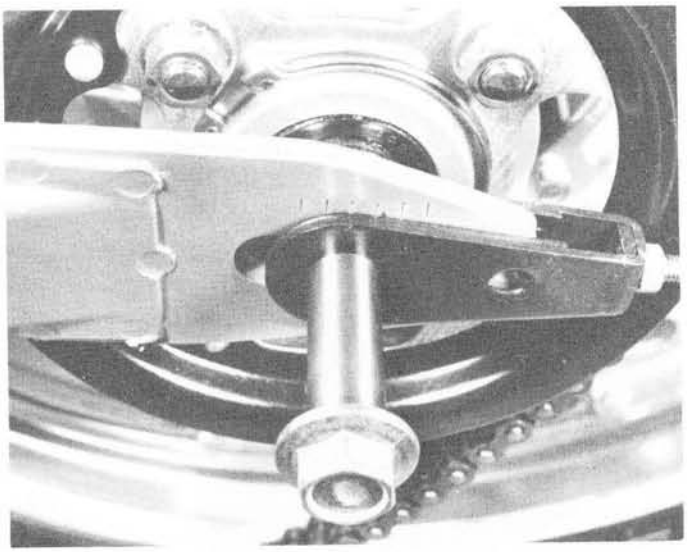


Fig. 5.9 Rear wheel – CB125 T2, TA and TB

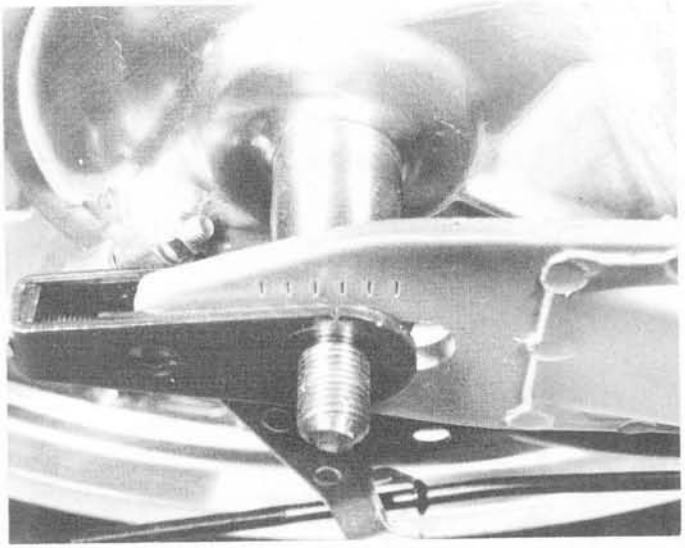
1 *Right-hand bearing*
2 *Spacer*
3 *Left-hand bearing*
4 *Dust seal*
5 *Left-hand spacer*
6 *Cush drive rubber – 4 off*
7 *Sprocket mounting stud – 4 off*
8 *Sprocket*
9 *Nut – 4 off*
10 *Circlip*



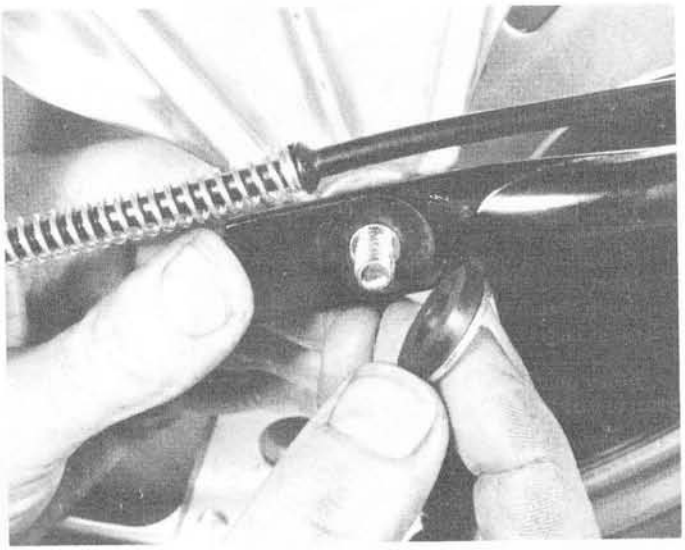
16.4a Insert spacer into hub left-hand side



16.4b Refit wheel and push spindle through ...



16.4c ... not forgetting the hub right-hand spacer and chain adjuster



16.4d Note metal and rubber washers fitted to brake torque arm mounting

16.4e Secure split pins by fitting as shown

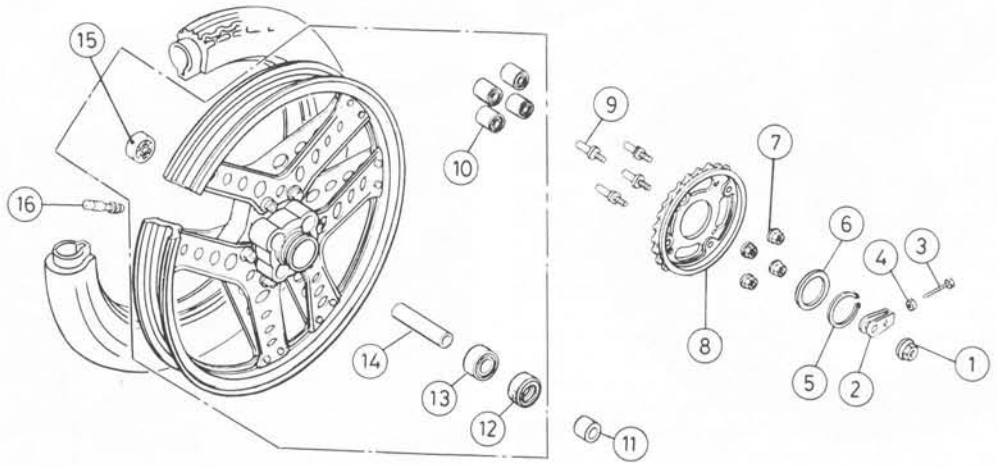


Fig. 5.10 Rear wheel – CB125 TD

1 Nut
2 Chain adjuster
3 Bolt
4 Nut
5 Circlip
6 Washer
7 Nut – 4 off
8 Sprocket
9 Sprocket mounting stud – 4 off
10 Cush drive rubber – 4 off
11 Left-hand spacer
12 Dust seal
13 Left-hand bearing
14 Spacer
15 Right-hand bearing
16 Tyre valve

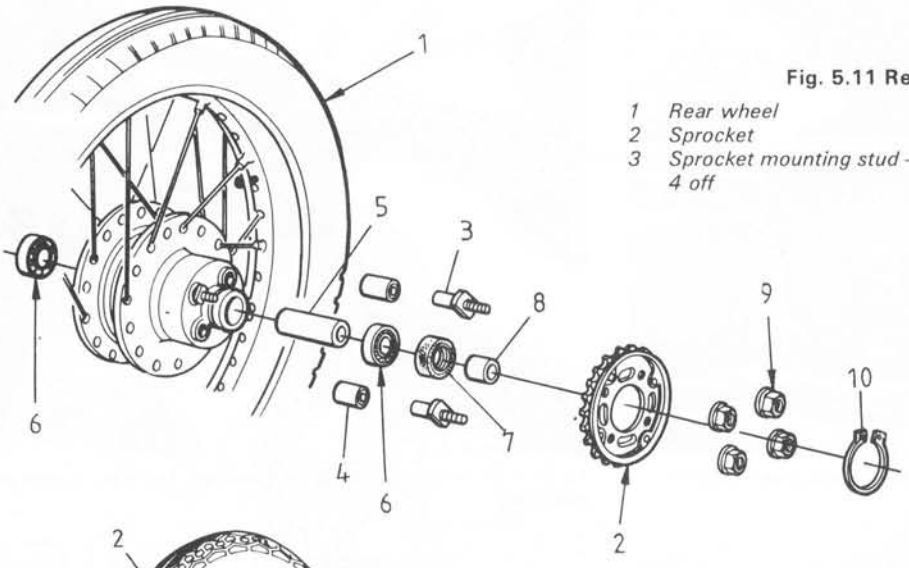


Fig. 5.11 Rear wheel – CM125 C

1 Rear wheel
2 Sprocket
3 Sprocket mounting stud – 4 off
4 Cush drive rubber – 4 off
5 Spacer
6 Bearing – 2 off
7 Dust seal
8 Left-hand spacer
9 Nut – 4 off
10 Circlip

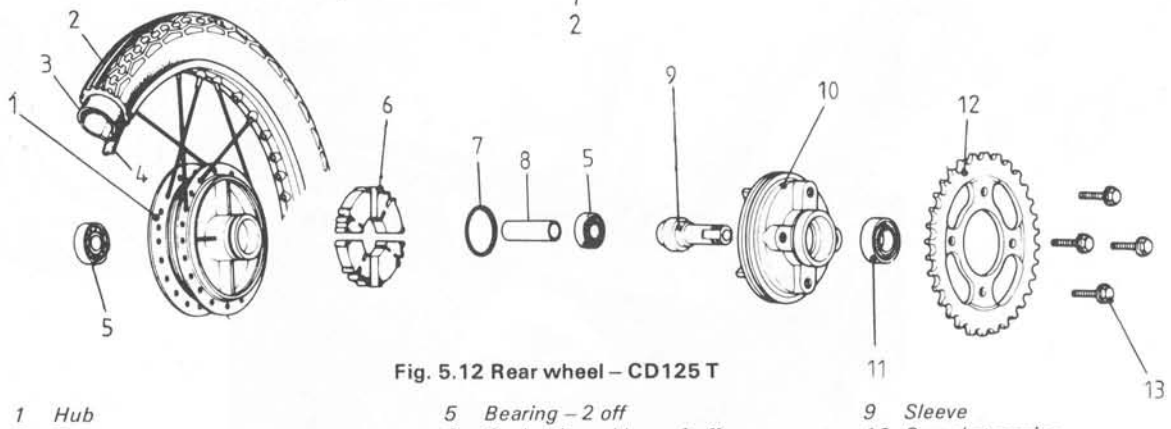


Fig. 5.12 Rear wheel – CD125 T

1 Hub
2 Tyre
3 Inner tube
4 Rim tape
5 Bearing – 2 off
6 Cush drive rubber – 4 off
7 O-ring
8 Spacer
9 Sleeve
10 Sprocket carrier
11 Sprocket bearing

17 Rear wheel bearings: removal, examination and refitting

1 Remove the rear wheel from the machine as described in the previous Section, then withdraw the brake backplate from the hub right-hand side. On all models except the CD125 T, remove the spacer from the hub left-hand side.

2 The front and rear hubs are basically identical in design and construction; refer, therefore, to Section 5 for overhaul procedure.

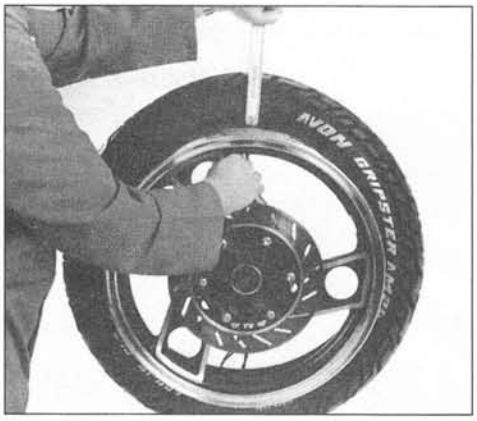
Tyre changing sequence - tubed tyres

A Deflate tyre. After pushing tyre beads away from rim flanges push tyre bead into well of rim at point opposite valve. Insert tyre lever adjacent to valve and work bead over edge of rim.

Use two levers to work bead over edge of rim. Note use of rim protectors B

C Remove inner tube from tyre

When first bead is clear, remove tyre as shown D



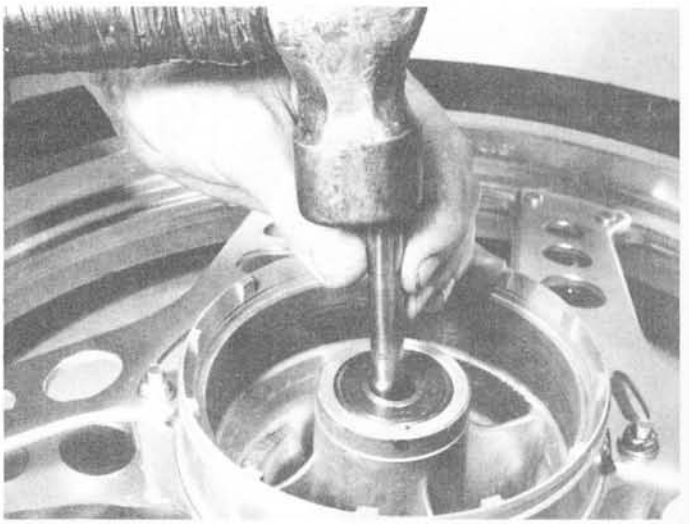
E When fitting, partially inflate inner tube and insert in tyre

Work first bead over rim and feed valve through hole in rim. Partially screw on retaining nut to hold valve in place. F

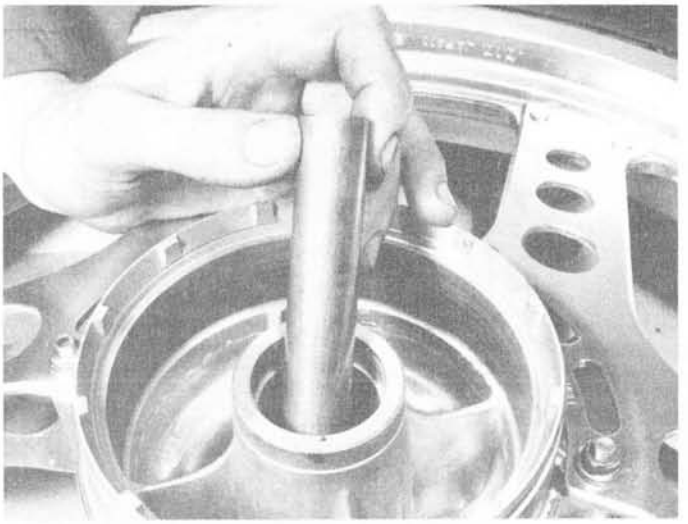
G Check that inner tube is positioned correctly and work second bead over rim using tyre levers. Start at a point opposite valve.

Work final area of bead over rim whilst pushing valve inwards to ensure that inner tube is not trapped H

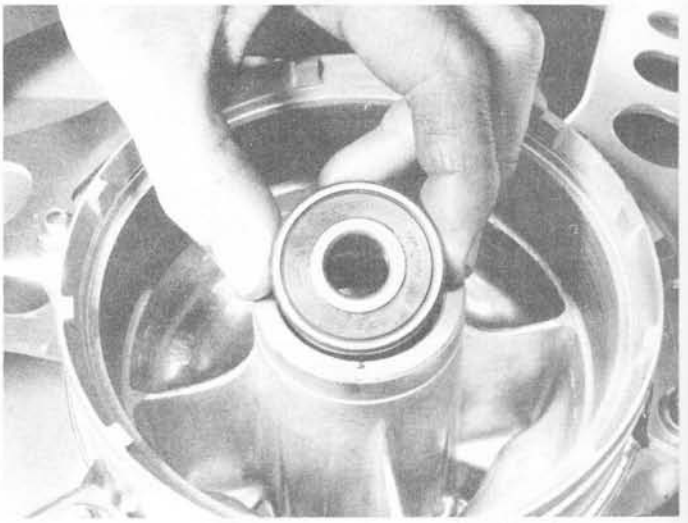
17.2a Lever out oil seals as shown – take care not to damage hub casting



17.2b Pass drift through hub to tap out opposite bearing as shown



17.2c Do not omit central spacer on reassembly



17.2d All wheel bearings are refitted with sealed surface facing outwards

17.2c Use hammer and socket as shown to drift bearings (and oil seals) into place

18 Rear sprocket and cush drive: removal, examination and renovation

1 All models are fitted with a cush drive arrangement in the rear hub which allows a small amount of movement between the hub and the drive sprocket to help damp out transmission shock loads.

2 On the CD125 T model, the cush drive unit comprises four synthetic rubber buffers housed in recesses cast in the hub. The sprocket carrier has four cast vanes which engage with slots in the rubbers when the wheel is in position in the frame.

3 On all CB125 models and the CM125 C model four pins at the rear of the sprocket pass into individual bonded rubber bushes in the wheel hub.

4 To remove the sprocket, remove first the rear wheel as described in Section 16 of this Chapter. On CB125 models and the CM125 C model, remove the large circlip which secures the sprocket. On CB125 TD and CM125 C models only, remove the thrust washer behind the circlip. Withdraw the sprocket. If the sprocket mounting pins are corroded into the cush drive bushes, remove the four nuts and lift away the sprocket, leaving the pins in place.

5 On CD125 T models only, remove the four retaining bolts and detach both halves of the chaincase. Remove the large sleeve nut which retains the sprocket carrier, disengage the chain from the

sprocket and hang the chain over the swinging arm. Withdraw the sprocket carrier assembly from the swinging arm, then unscrew the four sprocket retaining bolts and remove the sprocket.

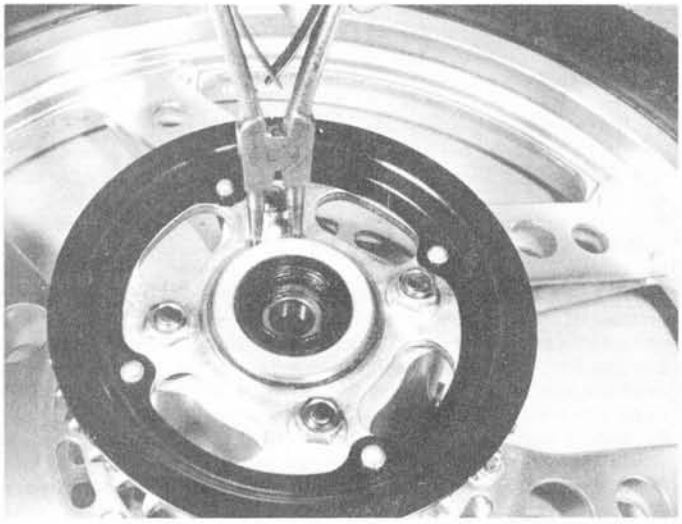
6 The sprocket should be renewed if the teeth are hooked, chipped, broken or badly worn. It is considered bad practice to renew one sprocket on its own; both final drive sprockets should be renewed as a pair, preferably with a new final drive chain. If this recommendation is not observed, rapid wear resulting from the running of old and new parts together will necessitate even earlier replacement on the next occasion.

7 The rubber blocks of the CD125 T models' cush drive assembly should be examined for signs of damage or general deterioration. Pay particular attention to the blocks' condition if there has been harshness or roughness in the transmission, especially when pulling away from a standstill or opening and closing the throttle. Renew the rubbers as a set if there is any doubt about their condition; there should be no difficulty in removing or refitting them.

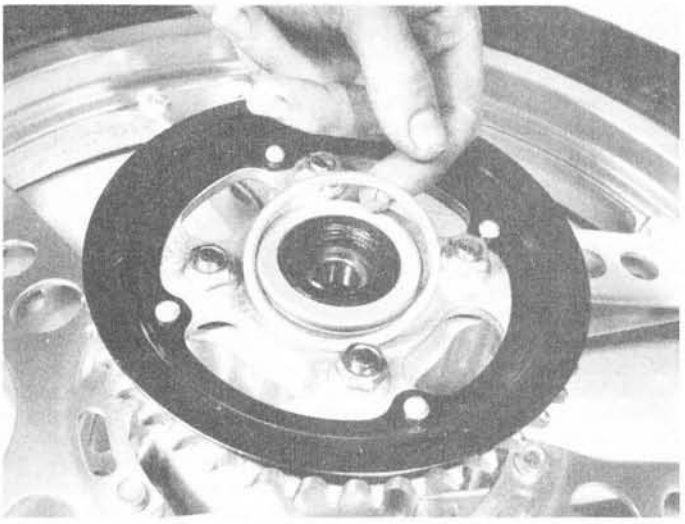
8 The bonded rubber bushes of the cush drive unit fitted to all CB125 models and the CM125 C model are an extremely tight fit in the hub. If they have become compacted or the bonded bush centres are damaged (as shown by the locating pins jamming in position), they should be renewed. It is extremely unlikely that this operation can be performed at home due to the tight fit on the bushes. In all probability, any attempt to dislodge them will result in the inner metal sleeve tearing out of the rubber, making subsequent removal difficult. For this reason it is suggested that the wheel should be taken to a Honda Service Agent who will have the equipment necessary to extract the old bushes and fit the new ones.

9 The CD125 T model has an additional bearing located in the sprocket assembly which supports the sprocket sleeve through which the wheel spindle fits. In common with the wheel bearings, this bearing is of the ball journal type. When wear occurs in the bearing, the sprocket will give the appearance of being loose on its mounting bolts. The bearing is a tight press fit in the sprocket assembly centre and must be drifted from position in the same way as described for the wheel bearings in Section 5 of this Chapter. Wash out the bearing to remove all traces of old grease and then examine it carefully. If the bearing has any play or runs roughly, it must be renewed. If the bearing is not to be renewed, it should be repacked with high melting point grease and refitted in its housing. Ensure it is fitted with the integral oil seal facing outwards.

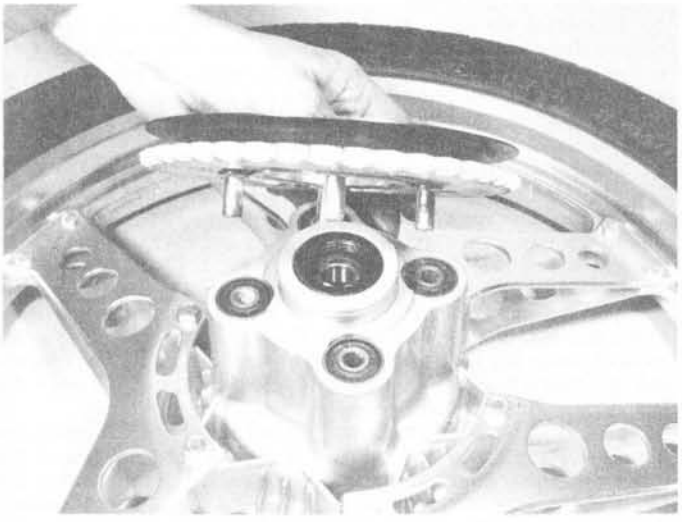
10 In all cases, reassembly is a straightforward reversal of the dismantling procedure. On the CB125 and CM125 C models it is important that the recesses in the rear of the sprocket are engaged correctly by the milled flats on each cush drive pin. Tighten the sprocket retaining nuts or bolts to a torque setting of 6.0 - 7.0 kgf m (43 - 51 lbf ft) on CB125 TD models, and to 5.5 - 6.5 kgf m (40 - 47 lbf ft) on all other models.



18.4a Use circlip pliers to remove sprocket retaining circlip



18.4b Remove large thrust washer (where fitted) ...



18.4c ... then lift away the sprocket assembly

19 Final drive chain: examination, lubrication and adjustment

1 With the exception of the CD125 T model, the final drive chain is fully exposed apart from the protection given by a short chainguard along the upper run, and if not properly maintained will have a short life. A worn chain will cause rapid wear of the sprockets and they too will need renewal.

2 A simple check can be carried out to assess the amount of wear that has taken place in the chain. With the chain fully lubricated and adjusted as described later in this Section, attempt to pull the chain backwards off the rear sprocket. If the chain can be pulled clear of the sprocket teeth it must be considered worn out and should be renewed, in conjunction with the sprockets. A more accurate measurement of chain wear involves removing the chain from the machine, both checks requiring the removal of the chaincase on CD125 T models.

3 Disconnect the chain at its split connecting link and pull the entire length of the chain clear of the sprockets. Note that refitting the chain is greatly simplified if a worn-out length is temporarily connected to it. As the original chain is pulled off the sprockets, the worn-out chain will follow it and remain in place while the task of cleaning and examination is carried out. On reassembly, the process is repeated, pulling the worn-out chain over the sprockets so that the new chain,

or the freshly cleaned and lubricated chain, is pulled easily into place.
4 To clean the chain, immerse it in a bath containing a mixture of petrol and paraffin and use a stiff-bristled brush to scrub away all traces of road dirt and old lubricant. Take the necessary fire precautions when using this flammable solvent. Swill the chain around to ensure that the solvent penetrates fully into the bushes and rollers and can remove any lubricant which may still be present. When the chain is completely clean, remove it from the bath and hang it up to dry.
5 To assess accurately the amount of wear present in the chain, it must be cleaned and dried as described above, then laid out on a flat surface. Compress the chain fully and measure its length from end to end. Anchor one end of the chain and pull on the other end, drawing the chain out to its fullest extent. Measure the stretched length. If the stretched measurement exceeds the compressed measurement by more than $\frac{1}{4}$ in per foot, the chain must be considered worn out and be renewed.
6 Chain lubrication is best carried out by immersing the chain in a molten lubricant such as Chainguard or Linklyfe. Lubrication carried out in this manner must be preceded by removing the chain from the machine, cleaning it, and drying it as described above. Follow the manufacturer's instructions carefully when using Chainguard or Linklyfe, and take great care to swill the chain gently in the molten lubricant to ensure that all bearing surfaces are fully greased.
7 Refitting a new, or freshly-lubricated, chain is a potentially messy affair which is greatly simplified by the substitution of a worn-out length of chain during removal. The new chain can then be connected to the worn-out length and pulled easily around the sprockets. Refit the connecting link, ensuring that the spring clip is fitted with its closed end facing the normal direction of travel of the chain.
8 Chain adjustment is necessary to take up wear in the multitude of bearing surfaces present in the chain. As this wear does not take place evenly along the length of the chain, tight spots will appear which must be compensated for when adjusting the chain. Place the machine securely on its centre stand with the transmission in neutral. Find the tightest spot in the chain by revolving the rear wheel and pushing upwards on the bottom run of the chain, midway between the front and rear sprockets, testing along the entire length of the chain, checking via the chaincase inspection hole on CD125 T models. When the tightest spot has been found, measure the total amount of up and down movement available. This should be 20 mm (0.8 in).
9 To adjust the chain, withdraw the securing split pins from the wheel spindle retaining nut (where fitted) and from the brake torque arm securing nut, then slacken both nuts by just enough to permit the rear wheel assembly to be moved. Slacken the large sleeve nut (CD125 T models only) and chain adjuster locknuts and tighten the adjuster bolts to draw the spindle backwards to the point where the chain is correctly tensioned. Note that the swinging arm fork ends are marked with a series of vertical lines and that each adjuster has a notch cut in it to provide a reference point. These marks are provided to assist in preserving accurate wheel alignment and are used by ensuring that the notch in each adjuster is aligned exactly with the same index mark stamped in each fork end. A final check of accurate wheel alignment can be made by laying a plank of wood or drawing a length of string parallel to the machine so that it touches both walls of the rear tyre. Wheel alignment is correct when the plank or string is equidistant from both walls of the front tyre when tested on both sides of the machine. Note that if the front tyre is of smaller section than the rear, the plank or string will not touch the walls of the front tyre, as shown in the accompanying illustration. The task of preserving correct rear wheel alignment is made easier if care is taken to draw the spindle back in small stages, turning each adjuster bolt by exactly the same amount.
10 When the chain is correctly tensioned, apply the rear brake to centralise the shoes on the drum, and tighten the large sleeve nut (CD125 T only), the spindle retaining nut, and the torque arm retaining nut to the torque settings given in the Specifications Section of this Chapter. Refit, where applicable, the nut securing split pins. Remember that if the chain tension has been altered significantly, the rear brake and stop lamp rear switch adjustment will also require resetting. These should be checked as a matter of course before taking the machine on the road.
11 Note that replacement chains are now available in standard metric sizes from Renold Limited, the British chain manufacturer. When ordering a new chain, always quote the size, the number of chain links and the type of machine to which the chain is to be fitted. All the machines featured in this Manual use a 428 ($\frac{1}{2}$ x $\frac{5}{16}$ in) size chain, the number of links varying between 112 – 120, depending on for which model the chain is being ordered, and depending on what size of sprocket is fitted.

20 Tyres: removal, repair and refitting

1 At some time or other the need will arise to remove and replace the tyres, either as a result of a puncture or because replacements are necessary to offset wear. To the inexperienced, tyre changing represents a formidable task, yet if a few simple rules are observed and the technique learned, the whole operation is surprisingly simple.
2 To remove the tyre from either wheel, first detach the wheel from the machine. Deflate the tyre by removing the valve core, and when the tyre is fully deflated, push the bead away from the wheel rim on both sides so that the bead enters the centre well of the rim. Remove the locking ring and push the tyre valve into the tyre itself.
3 Insert a tyre lever close to the valve and lever the edge of the tyre over the outside of the rim. Very little force should be necessary; if resistance is encountered it is probably due to the fact that the tyre beads have not entered the well of the rim, all the way round. If aluminium rims are fitted, damage to the soft alloy by tyre levers can be prevented by the use of plastic rim protectors.
4 Once the tyre has been edged over the wheel rim, it is easy to work round the wheel rim, so that the tyre is completely free from one side. At this stage the inner tube can be removed.
5 Now working from the other side of the wheel, ease the other edge of the tyre over the outside of the wheel rim that is furthest away. Continue to work around the rim until the tyre is completely free from the rim.
6 If a puncture has necessitated the removal of the tyre, reinflate the inner tube and immerse it in a bowl of water to trace the source of the leak. Mark the position of the leak, and deflate the tube. Dry the tube, and clean the area around the puncture with a petrol soaked rag. When the surface has dried, apply rubber solution and allow this to dry before removing the backing from the patch, and applying the patch to the surface.
7 It is best to use a patch of self vulcanizing type, which will form a permanent repair. Note that it may be necessary to remove a protective covering from the top surface of the patch after it has sealed into position. Inner tubes made from a special synthetic rubber may require a special type of patch and adhesive, if a satisfactory bond is to be achieved.
8 Before replacing the tyre, check the inside to make sure that the article that caused the puncture is not still trapped inside the tyre. Check the outside of the tyre, particularly the tread area to make sure nothing is trapped that may cause a further puncture.
9 If the inner tube has been patched on a number of past occasions, or if there is a tear or large hole, it is preferable to discard it and fit a replacement. Sudden deflation may cause an accident, particularly if it occurs with the rear wheel.
10 To replace the tyre, inflate the inner tube for it just to assume a circular shape but only to that amount, and then push the tube into the tyre so that it is enclosed completely. Lay the tyre on the wheel at an angle, and insert the valve through the rim tape and the hole in the wheel rim. Attach the locking ring on the first few threads, sufficient to hold the valve captive in its correct location.
11 Starting at the point furthest from the valve, push the tyre bead over the edge of the wheel rim until it is located in the central well. Continue to work around the tyre in this fashion until the whole of one side of the tyre is on the rim. It may be necessary to use a tyre lever during the final stages.
12 Make sure there is no pull on the tyre valve and again commencing with the area furthest from the valve, ease the other bead of the tyre over the edge of the rim. Finish with the area close to the valve, pushing the valve up into the tyre until the locking ring touches the rim. This will ensure that the inner tube is not trapped when the last section of bead is edged over the rim with a tyre lever.
13 Check that the inner tube is not trapped at any point. Reinflate the inner tube, and check that the tyre is seating correctly around the wheel rim. There should be a thin rib moulded around the wall of the tyre on both sides, which should be an equal distance from the wheel rim at all points. If the tyre is unevenly located on the rim, try bouncing the wheel when the tyre is at the recommended pressure. It is probable that one of the beads has not pulled clear of the centre well

14 Always run the tyres at the recommended pressures and never under or over inflate. The correct pressures are given in the Specifications Section of this Chapter.
15 Tyre replacement is aided by dusting the side walls, particularly in the vicinity of the beads, with a liberal coating of french chalk. Washing up liquid can also be used to good effect, but this has the disadvantage, where steel rims are used, of causing the inner surface of the wheel rim to rust.
16 Never replace the inner tube and tyre without the rim tape in position. If this precaution is overlooked there is a good chance of the ends of the spoke nipples chafing the inner tube and causing a crop of punctures.
17 Never fit a tyre that has a damaged tread or sidewalls. Apart from legal aspects, there is a very great risk of a blowout, which can have very serious consequences on a two wheeled vehicle.
18 Tyre valves rarely give trouble, but it always advisable to check whether the valve itself is leaking before removing the tyre. Do not forget to fit the dust cap, which forms an effective extra seal.

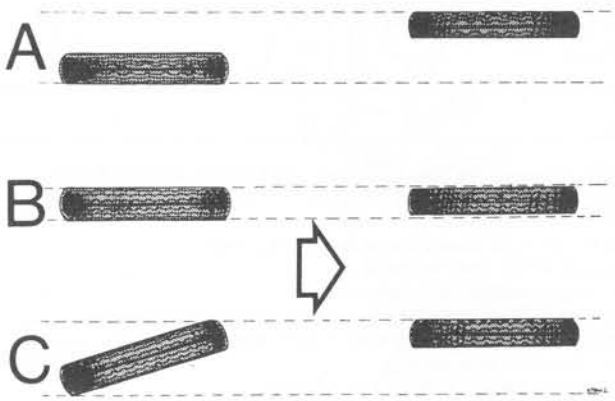


Fig. 5.13 Method of checking wheel alignment

A and C – Incorrect *B – Correct*

21 Valve cores and caps

1 Valve cores seldom give trouble, but do not last indefinitely. Dirt under the seating will cause a puzzling 'slow-puncture'. Check that they are not leaking by applying spittle to the end of the valve and watching for air bubbles.
2 A valve cap is a safety device, and should always be fitted. Apart from keeping dirt out of the valve, it provides a second seal in case of valve failure, and may prevent an accident resulting from sudden deflation.

22 Wheel balancing

1 It is customary on all high performance machines to balance the wheels complete with tyre and tube. The out of balance forces which exist are eliminated and the handling of the machine is improved in consequence. A wheel which is badly out of balance produces through the steering a most unpleasant hammering effect at high speeds.
2 Some tyres have a balance mark on the sidewall, usually in the form of a coloured spot. This mark must be in line with tyre valve, when the tyre is fitted to the inner tube. Even then the wheel may require the addition of balance weights, to offset the weight of the tyre valve itself.
3 If the wheel is raised clear of the ground and is spun, it will probably come to rest with the tyre valve or the heaviest part downward and will always come to rest in the same position. Balance weights must be added to a point diametrically opposite this heavy spot until the wheel will come to rest in ANY position after it is spun.
4 Although balance weights are not made available specifically for these models, most good motorcycle dealers or tyre ftting specialists will be able to provide weights in a range of sizes. On machines equipped with Comstar wheels, the weights are clipped to the rim central flange, while on wire-spoked wheels, the weights are clamped around the head of a convenient spoke.

Chapter 6 Electrical system

Refer to Chapter 7 for information relating to the CB125 TD-J model

Contents

Specifications

	CB125 T, T2, TA and TB	CB125 TD, CD125 T, and CM125 C
Electrical system		
Voltage	6	12
Earth	Negative	Negative
Alternator output @ 5000 rpm	0.0864 kW	0.15 kW
Battery		
Make	Yuasa	Yuasa
Type	6N6-3B	12N9-4B-1
Capacity	6Ah	9Ah
Fuse	20A	15A
Starter motor		
Brush length	–	11 – 12.5 mm (0.4331 – 0.4921 in)
Wear limit	–	5.5 mm (0.2165 in)
Brush spring pressure	–	550 ± 5g (1.2128 ± 0.0110 lb)
Wear limit	–	400 g (0.882 lb)
Commutator mica depth	–	0.5 – 0.8 mm (0.197 – 0.0315 in)
Wear limit	–	0.2 mm (0.0079 in)
Bulbs		
Headlamp	6V, 35/35W	12V, 45/40W
Parking lamp	6V, 4W	12V, 4W
Stop/tail lamp	6V, 21/5W	12V, 21/5W
Turn signal lamps	6V, 10W	12V, 21W
Instrument illuminating lamps	6V, 3W	12V, 3.4W
Main beam warning lamp	6V, 1.7W	12V, 3.4W
Turn signal warning lamp	6V, 1.7W	12V, 3.4W
Neutral indicator lamp	6V, 3W	12V, 3.4W

1 General introduction

The 6 volt electrical system fitted to the CB125 T, T2, TA and TB models is powered by a crankshaft mounted alternator situated behind the crankcase left-hand cover. Output from the alternator is fed to a combined regulator/rectifier unit where it is converted from alternating current (ac) to direct current (dc) by the rectifier section, and the system voltage is regulated to 7-8 volts by the electronic voltage regulator.

The 12 volt electrical system fitted to the CB125 TD, CD125 T and CM125 C models is essentially the same as that described above but includes a starter motor and drive components.

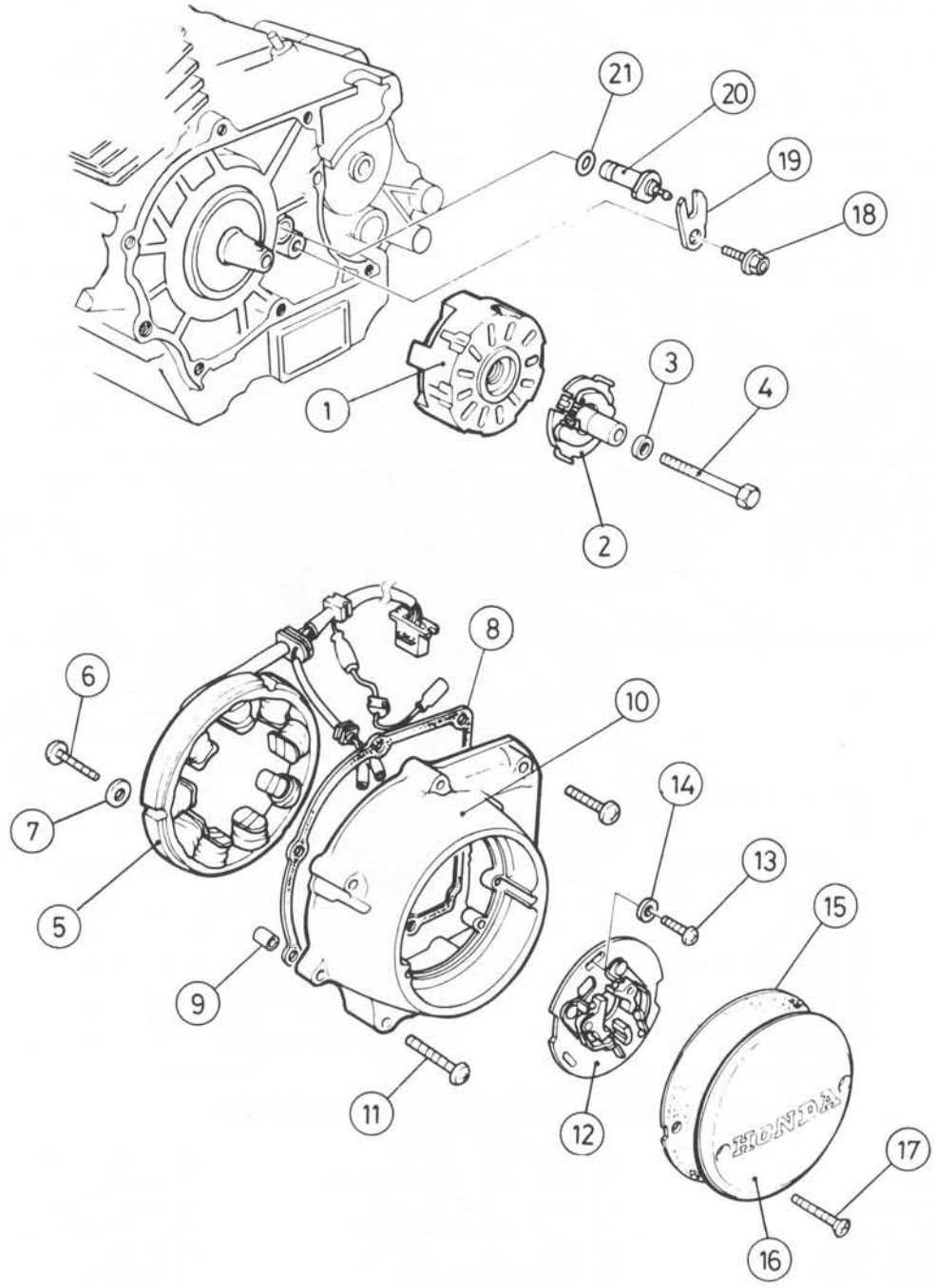


Fig. 6.1 Alternator – CB125 T, T2, TA and TB

1 *Rotor*
2 *ATU*
3 *Spacer*
4 *Bolt*
5 *Stator*
6 *Screw – 3 off*
7 *Washer – 3 off*
8 *Gasket*
8 *Dowel*
10 *Left-hand casing*
11 *Screw – 5 off*
12 *Contact breaker assembly*
13 *Screw – 3 off*
14 *Washer – 3 off*
15 *Gasket*
16 *Inspection cover*
17 *Screw – 2 off*
18 *Bolt*
19 *Retaining plate*
20 *Neutral switch*
21 *O-ring*

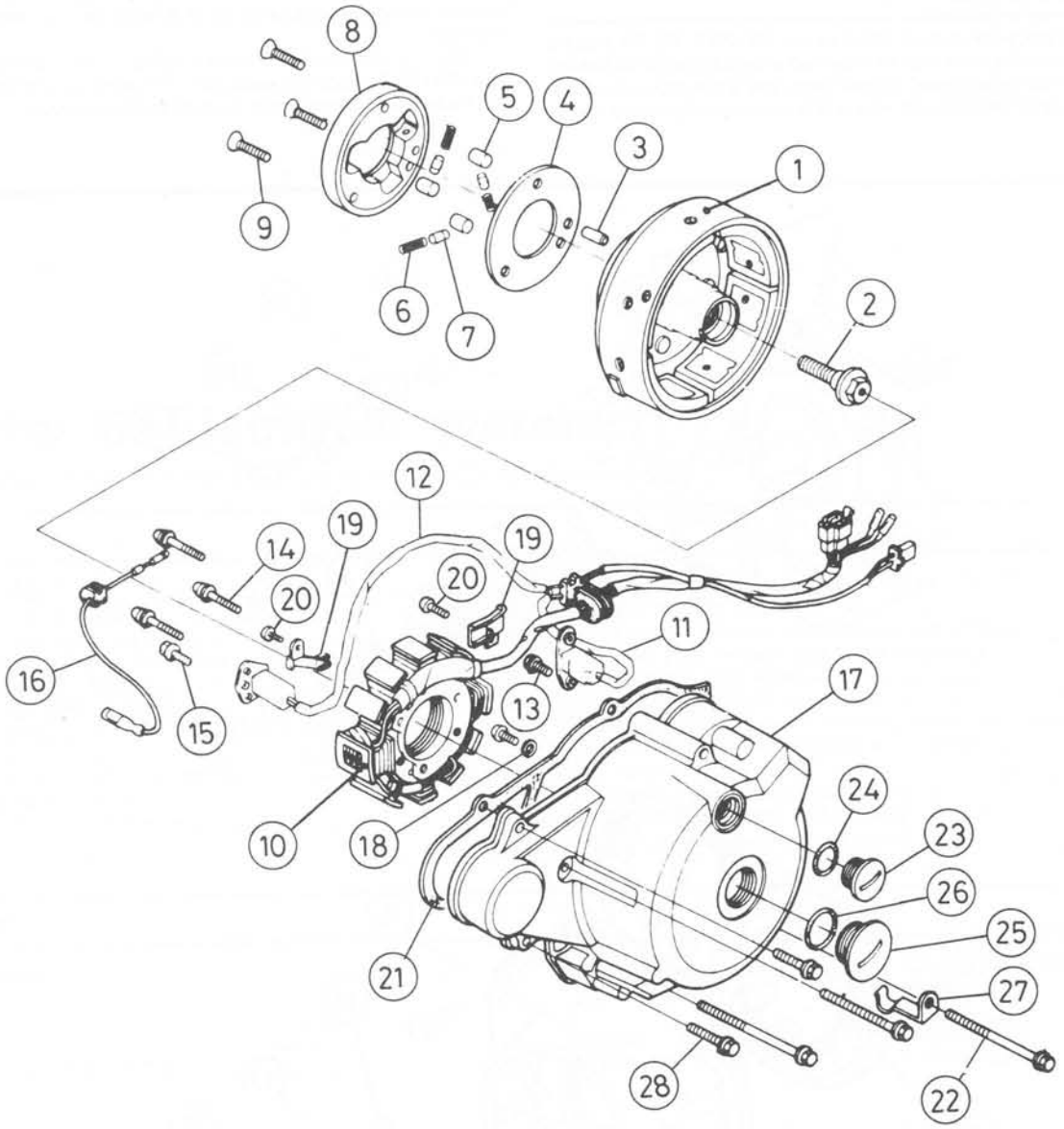


Fig. 6.2 Alternator – CB125 TD, CM125 C and CD125 T

1 *Rotor*
2 *Bolt*
3 *Dowel pin*
4 *Backing plate*
5 *Roller – 3 off*
6 *Spring – 3 off*
7 *Pin – 3 off*
8 *Starter clutch*
9 *Screw – 3 off*
10 *Stator*
11 *Pulser coil*
12 *Pulser coil – CB125 TD only*
13 *Screw – 2 off*
14 *Screw and washer – 3 off*
15 *Bolt – 2 off*
16 *Neutral switch wire*
17 *Left-hand casing*
18 *Washer – 2 off*
19 *Wiring clamp – 2 off*
20 *Screw – 2 off*
21 *Gasket*
22 *Bolt – 3 off*
23 *Inspection plug*
24 *O-ring*
25 *Inspection plug*
26 *O-ring*
27 *Cable clamp*
28 *Bolt – 3 off*

2 Testing: the electrical system

1 Simple continuity checks, for instance when testing switch units, wiring and connections, can be carried out using a battery and bulb arrangement to provide a test circuit. For most tests described in this chapter, however, a pocket multimeter should be considered essential. A basic multimeter capable of measuring volts and ohms can be bought for a very reasonable sum and will prove an invaluable tool. Note that separate volt and ohm meters may be used in place of the multimeter provided those with the correct operating ranges are available. In addition, if the generator output is to be checked, an ammeter of 0-5 amperes range will be required.
2 Care must be taken when performing any electrical test, because some of the electrical components can be damaged if they are incorrectly connected or inadvertently shorted to earth. This is particularly so in the case of electronic components. Instructions regarding meter probe connections are given for each test, and these should be read carefully to preclude accidental damage occurring.
3 Where test equipment is not available, or the owner feels unsure of the procedure described, it is strongly recommended that professional assistance is sought. Errors made through carelessness or lack of experience can so easily lead to damage and need for expensive replacement parts.
4 A certain amount of preliminary dismantling will be necessary to gain access to the components to be tested. Normally, removal of the seat and side panels will be required with the possible addition of the fuel tank and headlamp unit to expose the remaining components.
5 At the time of writing no information is available to enable the owner to check accurately the alternator output or voltage regulator/rectifier unit performance when working on a CD125 T or CM125 C model. In the event of a fault occurring in the electrical system of either of those models, it is recommended that the machine is taken to a Honda dealer for the components to be tested and repaired or renewed, as applicable. Note, however, that those owners with the necessary equipment can gain some idea of the state of the various components by following the relevant tests given for CB125 TD components; the three models are fitted with very similar electrical systems and the test results should be basically the same.

3 Wiring: layout and examination

1 The wiring harness is colour-coded and will correspond with the accompanying wiring diagram. When socket connectors are used, they are designed so that reconnection can be made in the correct position only.
2 Visual inspection will usually show whether there are any breaks or frayed outer coverings which will give rise to short circuits. Occasionally a wire may become trapped between two components breaking the inner core but leaving the more resilient outer cover intact. This can give rise to mysterious intermittent or total circuit failure. Another source of trouble may be the snap connectors and sockets, where the connector has not been pushed fully home in the outer housing, or where corrosion has occurred.
3 Intermittent short circuits can often be traced to a chafed wire that passes through or is close to a metal component such as a frame member. Avoid tight bends in the lead or situations where a lead can become trapped between casings.

4 Charging system: checking the output

1 Warm the engine up to normal operating temperature then place the machine on its centre stand on level ground. Unlock and raise the seat, or remove the sidepanel, as appropriate, to expose the battery terminals and, where fitted, the starter solenoid switch terminals. Unplug the multi-pin block connector joining the regulator/rectifier to the main wiring loom, remove from either part of the connector the black wire terminal, then rejoin the two connector block halves, to

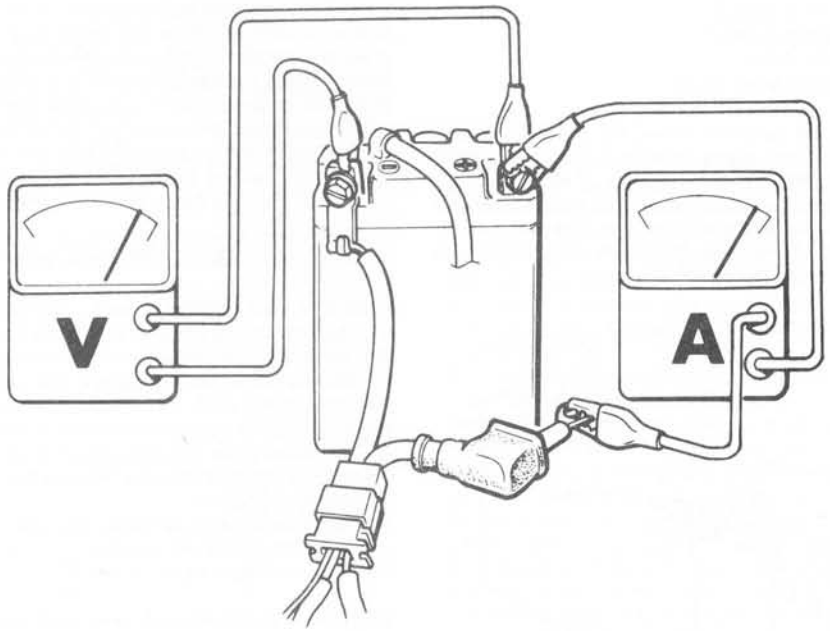


Fig. 6.3 Charging system output check – CB125 T, T2, TA and TB

disconnect the regulator/rectifier black wire while retaining the functions of the remainder of the unit.
2 On CB125 T, T2, TA and TB models, disconnect the battery positive (+) terminal, and on CB125 TD models disconnect the light-gauge red wire from the solenoid switch terminal, leaving the heavy gauge battery/solenoid switch red lead securely connected to the solenoid switch terminal. Connect a suitable voltmeter across the battery terminals, and an ammeter across the battery positive lead, making the instrument connections as shown in the relevant accompanying illustration. Start the engine.
3 With the main lighting switch in the 'Off' position note the readings obtained at the following engine speeds:

CB125 T, T2, TA and TB models – daytime output

Engine speed	Charging current	Battery terminal voltage
Not more than 1,600 rpm	–	6.8V
5000 rpm	At least 4.0A	7.8V
10000 rpm	Not more than 8.0A	8.8V

CB125 TD models – daytime output

Engine speed	Charging current
5000 rpm	At least 9.0A
10000 rpm	Not more than 15.0A

4 Keep to a bare minimum the amount of time the engine is run at the higher speeds, to avoid the risk of damage.
5 Switch the main lighting switch to the 'On' position and switch the parking lamp/dip switch to the 'H' position on CB125 T, T2, TA and TB models so that the headlamp is switched on to main beam; on CB125 TD models only, switch to 'H' the main lighting switch and switch to 'LO' the dip switch. Start the engine and note the readings taken at the following engine speeds:

CB125T, T2, TA and TB models – night time output

Engine speed	Charging current	Battery terminal voltage
Not more than 2,200 rpm	–	6.8V
5000 rpm	At least 2.3A	7.2V
10000 rpm	Not more than 5.0A	8.8V

CB125 TD models – night time output

Engine speed	Charging current
5000 rpm	At least 4.0A
10000 rpm	Not more than 10.0A

6 If the readings obtained are as given above, the charging system is functioning correctly and the fault, if any, must lie in the battery itself or in the way the machine is used, eg excessive use of electric starter or other electrical components. If the readings are not satisfactory, the fault lies in the alternator, the regulator/rectifier unit, the switches, or in the wiring between them. Check the individual components as described in the subsequent Sections of this Chapter.

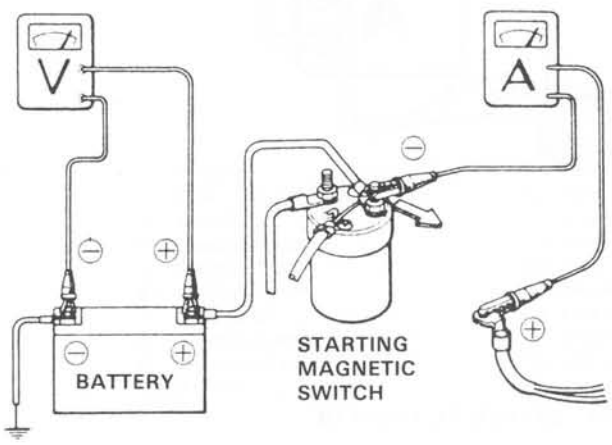


Fig. 6.4 Charging system output check – CB125 TD

5 Alternator stator coils: testing

1 The alternator coils can be tested, using a multimeter or ohmmeter of suitable range, without removing the alternator stator from the machine. Trace the main generator lead from the crankcase top up to the multi-pin block connector joining it to the main wiring loom or to the regulator/rectifier unit, as appropriate. Separate the connector.
2 Using the meter, check for continuity between all three yellow wires, testing the wires in pairs, then check that there is no continuity between each yellow wire and any suitable earth point on the frame or engine castings.
3 If one or more of the yellow wires is isolated from its fellows, or if one of the wires is shorting to earth, the stator must be considered faulty and renewed, although repairs may be attempted by an auto-electrical expert. Check that the fault is not due to a broken wire that may be repaired easily by the owner.
4 Stator removal and refitting is described in Sections 8 and 36 of Chapter 1.

6 Regulator/rectifier unit: testing

1 The regulator/rectifier unit is a heavily finned, sealed metal unit that is mounted under the seat to the rear of the petrol tank on CB125 T, T2, TA and TB models, on the frame right-hand side to the rear of the steering head on CB125 TD and CM125 C models, and behind the left-hand sidepanel to the rear of the battery on CD125 T models.
2 The rectifier section and the regulator section of the regulator/rectifier unit may be tested independently or as a single unit, depending on the model being worked on. Refer to the appropriate sub-section below for the necessary information.

Rectifier test – CB125 T, T2, TA and TB models

3 The rectifier is composed of six diodes which will only allow current to flow in one direction. In the event of a fault developing in the unit it will probably be because of a breakdown in one of the diodes, hence current will flow the other way through that diode. Using a multimeter connect the probes to the wire colour connections shown below. Using the same connections swap over the multimeter probes. The meter reading should only show continuity in the normal direction, with very light resistance being indicated. With the meter leads transposed much greater resistance should be indicated in the reverse direction. If any of the twelve checks does not produce the correct result that diode is faulty and the complete unit must be renewed.

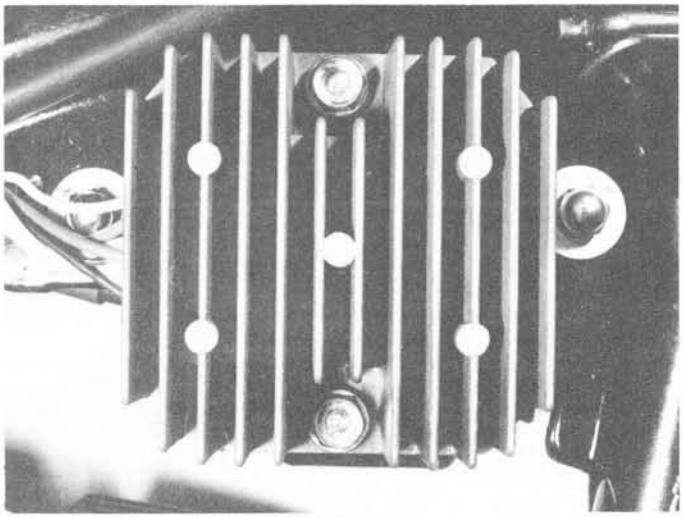
Green wire to each yellow wire
Red/white wire to each yellow wire

Rectifier and regulator test – CB125 TD model

4 This test must be carried out using a Sanwa SP-10D electrical tester unit set to the kilo ohms scale; an ordinary multimeter or ohmmeter can be used but may not give exactly the same readings, and any findings obtained using such an instrument must be confirmed by a Honda dealer using the correct equipment before the unit is condemned.
5 Disconnect the regulator/rectifier unit at its two multi-pin block connectors and test the unit, making the connections as shown in the accompanying chart.
6 If any discrepancy is found, the unit must be considered faulty and renewed; no repairs are possible. It is advisable, however, to have any findings confirmed by an expert.

Regulator performance test – all models

7 Raise the seat or remove the sidepanel to expose the battery terminals. Connect a multimeter or a voltmeter set to the 0 – 20 volts dc scale across the battery terminals, the meter negative (-) terminal to the battery negative (–) terminal and the meter positive (+) terminal to the battery positive (+) terminal. Start the engine.
8 The regulator should divert current to earth when the battery voltage reaches 7 – 8 volts on CB125 T, T2, TA and TB models, or 14 – 15 volts on CB125 TD models. If the regulator unit is found be to faulty it must be renewed as repairs are not possible.



6.1 Regulator/rectifier unit – CB125 TD

UNIT: kΩ

Tester (+) / Tester (–)	A (Y)	B (Y)	C (Y)	D (Bl)	E (R)	F (G)
A (Y)		∞	∞	∞	0.5 –10	∞
B (Y)	∞		∞	∞	0.5 –10	∞
C (Y)	∞	∞		∞	0.5 –10	∞
D (Bl)	30 –70	30 –70	30 –70		30 –100	30 –70
E (R)	∞	∞	∞	∞		∞
F (G)	0.5 –10	0.5 –10	0.5 –10	1 –10	2	

Y ..... Yellow
Bl ..... Black
R ..... Red
G ..... Green

Fig. 6.5 Rectifier test – CB125 TD

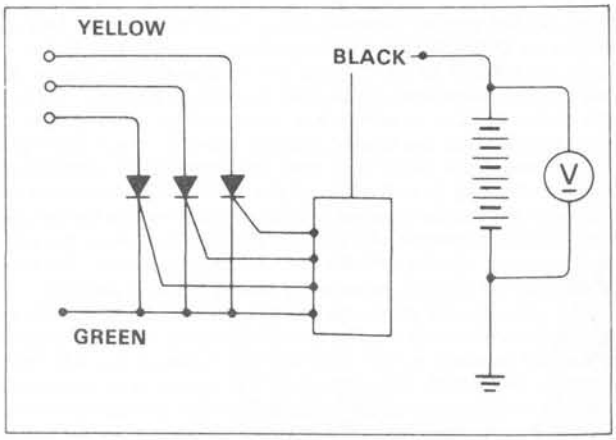
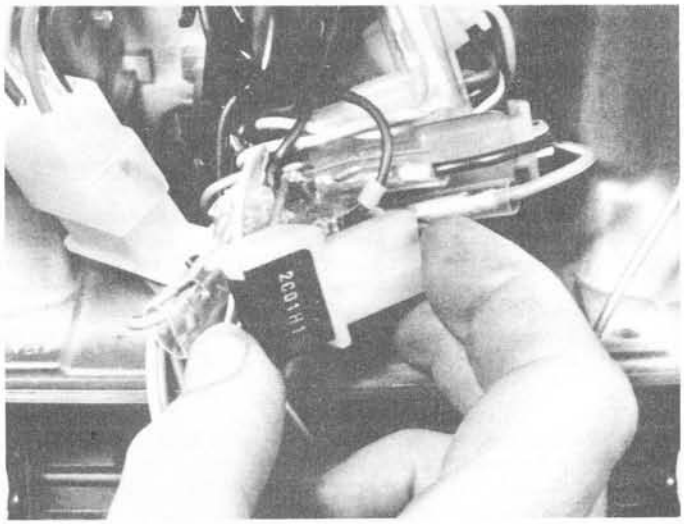


Fig. 6.6 Voltage regulator test

7 Silicone diode: testing – CB125 TD, CD125 T and CM125 C models

1 The silicone diode is a small sealed unit fitted in the headlamp shell attached to the frame left-hand side beneath the petrol tank on CB125 TD and CM125 C models, and to the front of the air filter casing. Its function is to prevent current flow reversal in the starter interlock circuit. It is connected by a two-pin block connector.
2 To test the unit, use a multimeter or ohmmeter to check for continuity between the two terminals, first in one direction then in the other, reversing the meter connections to carry out the second test.
3 There should be continuity in one direction, usually marked by an arrow on the exterior of the unit, but not in the other. If continuity is not found at all, or is found in both directions, the diode must be renewed, repairs are not possible.



7.1 Silicon diode is retained in plastic holder

8 Battery: examination and maintenance

1 On CB125 models the battery is housed in a tray beneath the seat and is retained in position by the seat base. On CD125 T and CM125 C models, the battery is housed in a tray located behind the right-hand sidepanel and is retained in position by a rubber strap (CD125 T) or a hinged metal bracket that is locked by a single bolt (CM125 C).
2 The transparent plastic case of the battery permits the upper and lower levels of the electrolyte to be observed without disturbing the battery by removing the side cover. Maintenance is normally limited to keeping the electrolyte level between the prescribed upper and lower limits making sure that the vent tube is not blocked. The lead plates and their separators are also visible through the transparent case, a further guide to the general condition ot the battery. If electrolyte level drops rapidly, suspect over-charging and check the system.
3 Unless acid is spilt, as may occur if the machine falls over, the electrolyte should always be topped up with distilled water to restore the correct level. If acid is spilt onto any part of the machine, it should be neutralised with an alkali such as washing soda or baking powder and washed away with plenty of water, otherwise serious corrosion will occur. Top up with sulphuric acid of the correct specific gravity (1.260 to 1.280) only when spillage has occurred. Check that the vent pipe is well clear of the frame or any of the other cycle parts.
4 It is seldom practicable to repair a cracked battery case because the acid present in the joint will prevent the formation of an effective seal. It is always best to renew a cracked battery, especially in view of the corrosion which will be caused if the acid continues to leak.

5 If the machine is not used for a period of time; it is advisable to remove the battery and give it a 'refresher' charge every six weeks or so from a battery charger. The battery will require recharging when the specific gravity falls below 1.260 (at 29°C – 68°F). The hydrometer reading should be taken at the top of the meniscus with the hydrometer vertical. If the battery is left discharged for too long, the plates will sulphate. This is a grey deposit which will appear on the surface of the plates, and will inhibit recharging. If there is sediment on the bottom of the battery case, which touches the plates, the battery needs to be renewed. Prior to charging the battery refer to the following Section for correct charging rate and procedure. If charging from an external source with the battery on the machine, disconnect the leads, or the rectifier will be damaged.
6 Note that when moving or charging the battery, it is essential that the following basic safety precautions are taken:

(a) Before charging check that the battery vent is clear or, where no vent is fitted, remove the combined vent/filler caps. If this precaution is not taken the gas pressure generated during charging may be sufficient to burst the battery case, with disastrous consequences.
(b) Never expose a battery on charge to naked flames or sparks. The gas given off by the battery is highly explosive.
(c) If charging the battery in an enclosed area, ensure that the area is well ventilated.
(d) Always take great care to protect yourself against accidental spillage of the sulphuric acid contained within the battery. Eyeshields should be worn at all times. If the eyes become contaminated with acid they must be flushed with fresh water immediately and examined by a doctor as soon as possible. Similar attention should be given to a spillage of acid on the skin.

Note also that although, should an emergency arise, it is possible to charge the battery at a more rapid rate than that stated in the following Section, this will shorten the life of the battery and should therefore be avoided if at all possible.
7 Occasionally, check the condition of the battery terminals to ensure that corrosion is not taking place, and that the electrical connections are tight. If corrosion has occurred, it should be cleaned away by scraping with a knife and then using emery cloth to remove the final traces. Remake the electrical connections whilst the joint is still clear then smear the assembly with petroleum jelly (NOT grease) to prevent recurrence of the corrosion. Badly corroded connections can have a high electrical resistance and may give the impression of complete battery failure.

9 Battery: charging procedure

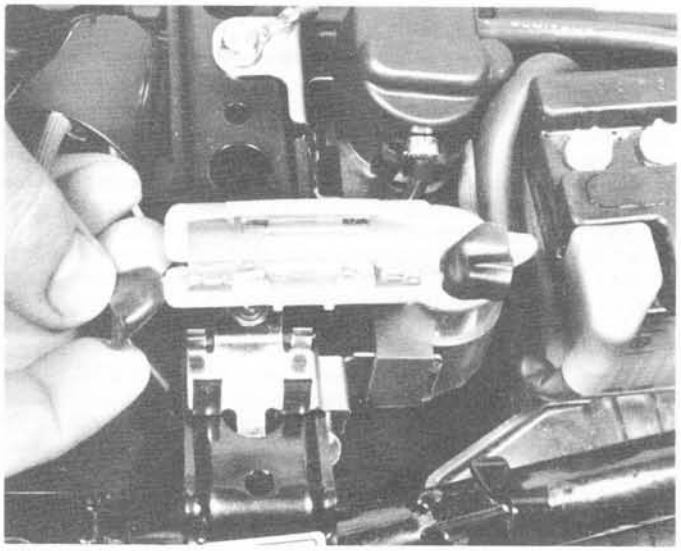
1 When the machine is used on the road it is unlikely that the battery will require attention other than routine maintenance as the generator will keep it fully charged. However if the machine is used for a succession of short journeys only, mainly during the hours of darkness when the lights are in full use, it is possible that the output from the generator may fail to keep pace with the heavy electrical demand, especially if the machine is parked with the lights switched on. Under these circumstances it will be necessary to remove the battery from time to time to have it charged independently.
2 The normal maximum charging rate for any battery is 1/10 the rated capacity. Hence the charging rate for the battery fitted to the CB125 T, T2, TA and TB models is 0.6 amp, while for that fitted to the CB125 TD, CD125 T and CM125 C models it is 0.9 amp. A slightly higher charge rate may be used in emergencies, but this should never exceed 1 amp.
3 Ensure that the battery/charger connections are properly made, ie the charger positive (usually coloured red) lead to the battery positive (+) terminal and the charger negative lead (usually black or blue) to the battery negative (-) terminal. Refer to the previous Section for precautions to be taken during charging. It is especially important that the battery cell cover plugs are removed to eliminate any possibility of pressure building up in the battery and cracking its casing. Switch off the charger if the cells become overheated, ie over 45°C (117°F).
4 Charging is complete when the specific gravity of the electrolyte rises to 1.260 – 1.280 at 20°C (68°F). A rough guide to this state is when all cells are gassing freely. At the normal (slow) rate of charge this will take between 3 – 15 hours, depending on the original state of charge of the battery.
5 If the higher rate of charge is used, never leave the battery charging for more than 1 hour as overheating and buckling of the plates will inevitably occur.

10 Fuse: location, function and renewal

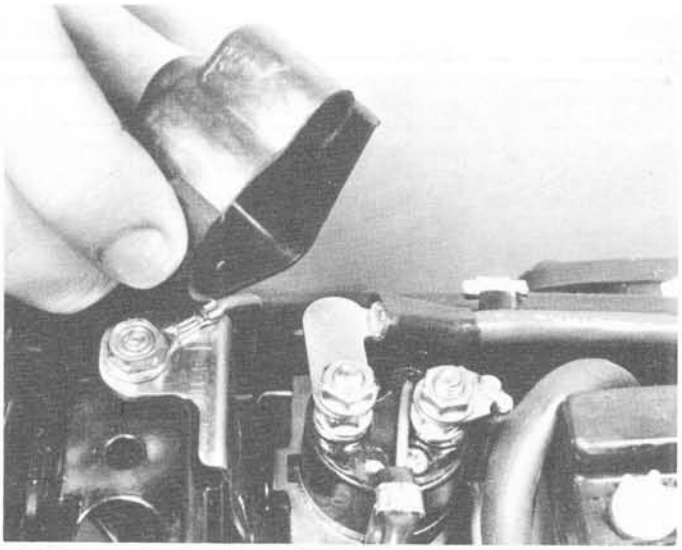
1 The electrical system is protected by a fuse of 15 or 20 amp rating as appropriate. It is retained in a plastic casing set in the battery positive lead and is found behind the right-hand sidepanel on all models except the CB125 TD, where it is to be found to the rear of the battery, underneath the seat. A spare fuse is supplied on CD125 T and CM125 C models, the spare being attached to the sidepanel on the former, and clipped alongside the fuse casing in the latter.
2 The fuse is fitted to protect the electrical system in the event of a short circuit or sudden surge. It is, in effect, an intentional 'weak line' which will blow in preference to the circuit burning out.
3 Before replacing a fuse that has blown, check that no obvious short circuit has occurred, otherwise the replacement fuse will blow immediately it is inserted. It is always wise to check the electrical circuit thoroughly, to trace the fault and eliminate it.
4 When a fuse blows while the machine is running and no spare is available, a 'get you home' remedy is to remove the blown fuse and wrap it in silver paper before replacing it in the fuseholder. The silver paper will restore the electrical continuity by bridging the broken fuse wire. This expedient should **never** be used if there is evidence of a short circuit or other major electrical fault, otherwise more serious damage will be caused. Replace the 'doctored' fuse at the earliest possible opportunity to restore full circuit protection. It follows that spare fuses that are used should be replaced as soon as possible to prevent the above situation from arising.

11 Starter solenoid switch: location – CB125 TD and CM125 C models

1 A starter solenoid is fitted for two reasons. Firstly, the current drawn by the starter motor is very high which requires the use of proportionately heavy cables to supply current from the battery to the motor. Running such heavy cables directly to the conveniently placed handlebar start switch would be cumbersome and impractical. Second, because the demands of the starter motor are so high, as short a cable as possible is used to minimise volt drop in the circuit. If the starter will not operate, first suspect a discharged battery. This can be checked by trying the horn or switching on the lights. If this check shows the battery to be in good shape, suspect the starter switch which should come into action with a pronounced click. It is located close to the battery, to which it is connected by a heavy duty cable. Before condemning the starter solenoid, carry out the following tests.
3 Disconnect the earth lead from the negative (-) terminal of the battery and move it well clear of the terminal. Remove the rubber cover from the starter solenoid and disconnect the low tension lead at the connector. Unscrew and remove the two nuts from the solenoid and disconnect the leads from the threaded terminals. Remove the starter solenoid from its retainer by sliding it out of position.
4 The solenoid coil should be tested by connecting a battery across the solenoid coil terminals. The low tension wire runs to one terminal, the second terminal is that to which the heavy duty cable from the battery is connected. On connecting the battery a pronounced click should be heard as the contacts close. Maintain the power so that the contacts remain closed, and check for continuity across the two heavy duty terminals. This should be done with a multimeter set to the resistance function. If continuity does not exist, there is evidence that the starter solenoid has failed.



10.1 Fuse is fitted in plastic holder



11.1 Starter solenoid switch – CB125 TD model

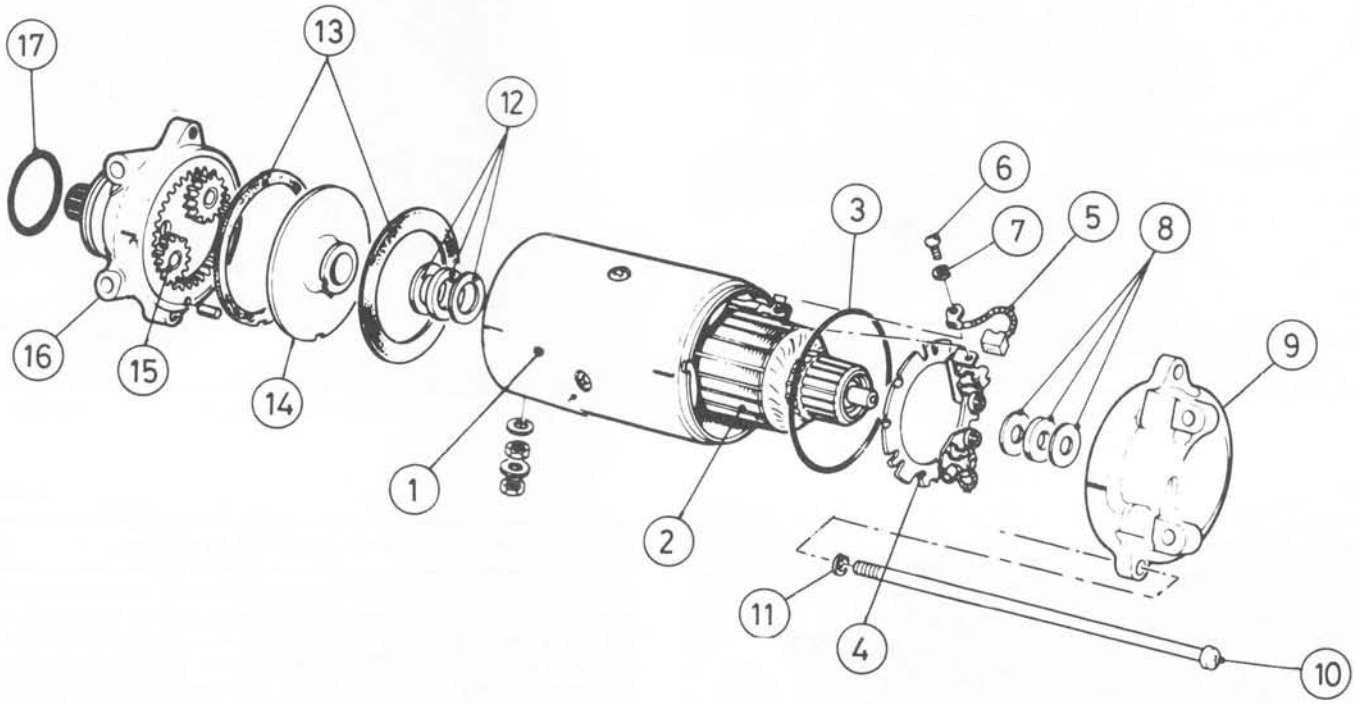


Fig. 6.7 Starter motor

1 Casing	*7 Spring washer*	*13 Gasket*
2 Armature	*8 Shims*	*14 End plate*
3 O-ring	*9 End cover*	*15 Drive gears*
4 Brush backplate	*10 Screw – 2 off*	*16 Gear housing*
5 Bush – 2 off	*11 Spring washer – 2 off*	*17 O-ring*
6 Screw	*12 Shims*	

12 Starter motor: removal, examination and refitting

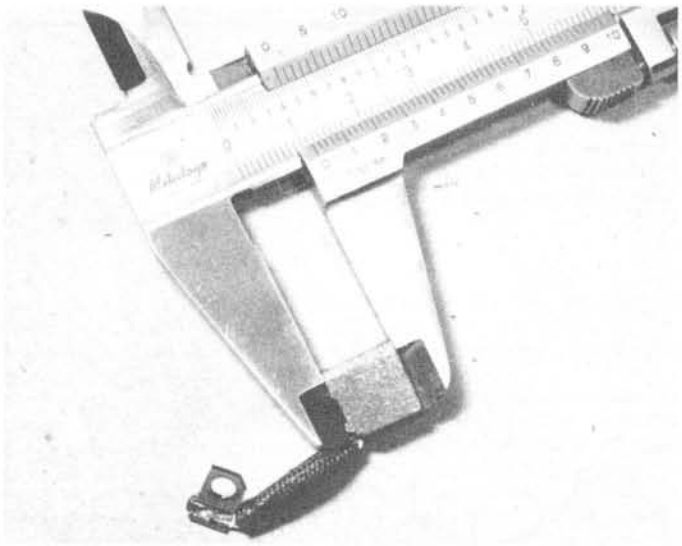
1 The removal of the starter motor is described in Section 8 of Chapter 1; note that while the motor can be removed without disturbing any other component, the crankcase left-hand cover must be removed to facilitate the refitting of the motor. Refitting is described in Section 36 of Chapter 1.

2 The parts of the starter motor most likely to require attention are the brushes. The end cover is retained by the two long screws which pass through the lugs cast on both end pieces. If the screws are withdrawn, the end cover can be lifted away and the brush gear exposed.

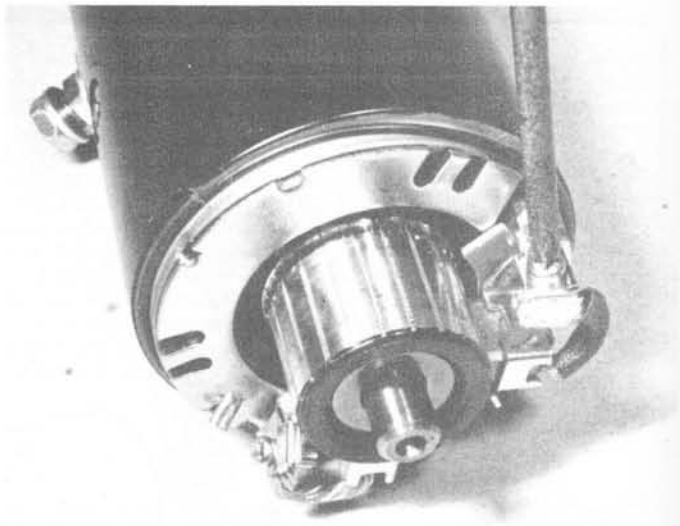
3 Lift up the spring clips which bear on the end of each brush and remove the brushes from their holders. The minimum allowable brush length is 5.5 mm (0.2165 in). If the brush is shorter it must be renewed.

4 Before the brushes are refitted, make sure that the commutator is clean. Clean the commutator with a strip of glass paper. Never use emery cloth or 'wet-and-dry' as the small abrasive fragments may embed themselves in the soft copper of the commutator and cause excessive wear of the brushes. Finish off the commutator with metal polish to give a smooth surface and finally wipe the segments over with a methylated spirit-soaked rag to ensure a grease-free surface. Check that the mica insulators, which lie between the segments of the commutator, are undercut. The standard groove depth is 0.5 – 0.8 mm (0.2 – 0.3 in), but if the average groove depth is 0.2 mm (0.0079 in) or less, the armature should be renewed or returned to a Honda Service Agent for re-cutting.

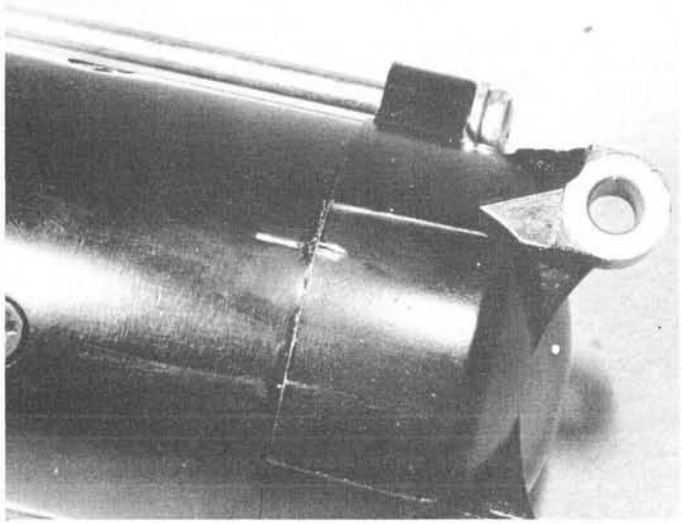
5 Replace the brushes in their holders and check that they slide quite freely. Make sure the brushes are replaced in their original positions because they will have worn to the profile of the commutator. Check, and if necessary, renew the O-ring fitted behind the brush holder mounting plate. Refit the end cover, noting the washers which fit on the end of the armature and aligning the marks on the end cover with those on the starter motor body. Tighten securely the end cover retaining screws.



12.3 Measuring the starter motor brush length



12.5a Refit the brushes and tighten the terminal screws



12.5b Align the mark on the end cover with that on the motor body

13 Headlamp: bulb renewal and beam alignment

1 In order to gain access to the headlamp bulbs, it is necessary first to remove the rim, complete with the reflector and headlamp glass. The rim is retained by two crosshead screws which pass through the headlamp shell just below the two headlamp mounting bolts.

2 The headlamp bulb is retained by a spring loaded holder on CB125 TD, CD125 T and CM125 C models. To release the holder, depress and twist it in an anti-clockwise direction. The holder, spring and bulb may now be lifted from position. On CB125 T, T2, TA and TB models, release the holder, twist the bulb and free it from the holder.

3 The parking lamp or pilot bulb is a bayonet fitting in a holder that is pushed into a rubber grommet set in the headlamp reflector unit.

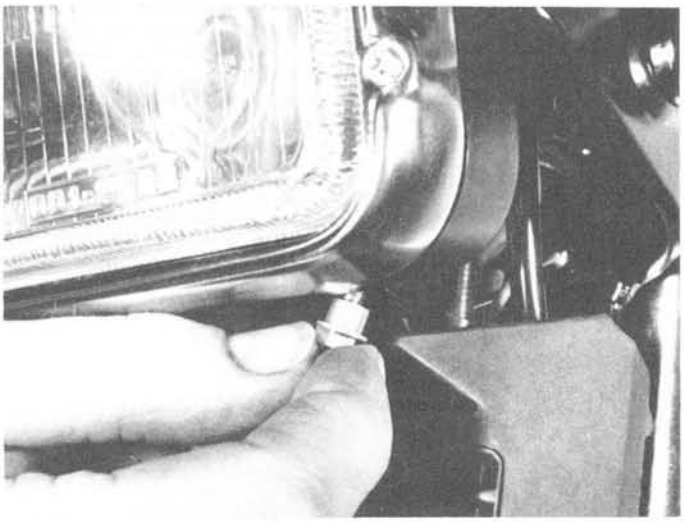
4 Beam height adjustment is effected by tilting the headlamp shell after the mounting bolts have been loosened slightly. The horizontal alignment of the beam can be adjusted by altering the position of the screw which passes through the headlamp rim. The screw is fitted at the 9 o'clock position when viewed from the front of the machine. Turning the screw in a clockwise direction will move the beam direction towards the right-hand side when viewed from a normal riding position.

5 To obtain the correct beam height, place the machine on level ground facing a wall 25 feet distant, with the rider seated normally.

The height of the beam centre should be equal to that of the height of the centre of the headlamp from the ground when the dip switch is in the dip beam position. Furthermore, the concentrated area of light should be centrally disposed. Adjustments in either direction are made by rearranging the angle of the headlamp, as described in the preceding paragraph. Note that a different beam setting will be needed when a pillion passenger is carried. If a pillion passenger is carried regularly, the passenger should be seated in addition to the rider when the beam setting adjustment is made.

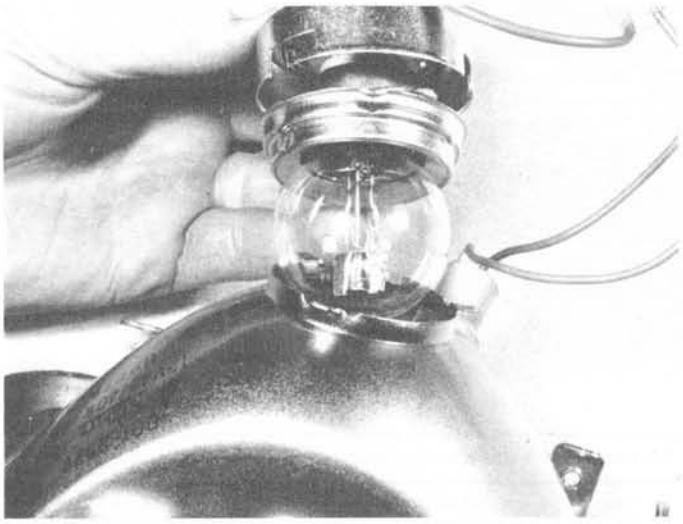
14 Stop/tail lamp: bulb renewal

1 The combined stop and tail lamp bulb contains two filaments, one for the stop lamp and one for the tail lamp.
2 The offset pin bayonet fixing bulb can be removed after the red plastic lens cover and its retaining screws have been removed.
3 The bulb has offset pins so that it can be refitted only the correct way.



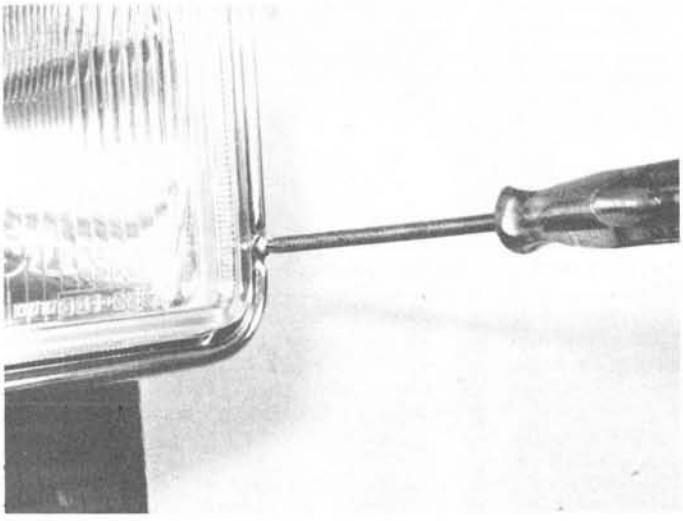
13.1 Headlamp assembly is retained by two screws

13.2a Depress bulb holder and twist anti-clockwise to release

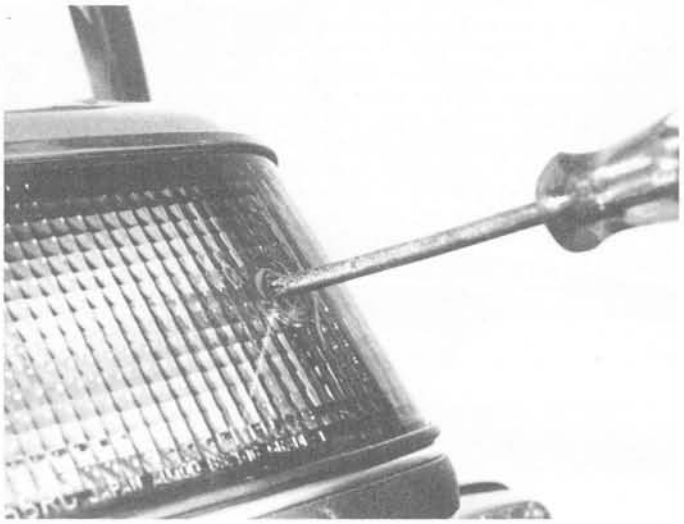


13.2b Tang on bulb rim engages in cutout in reflector lip

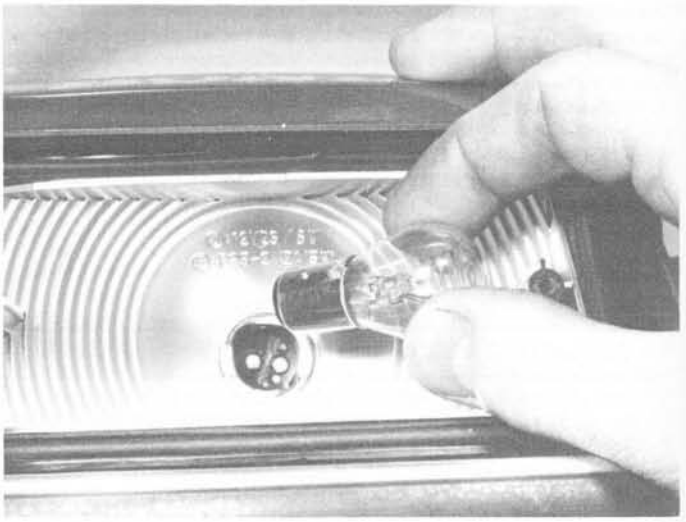
13.3 Parking lamp bulb assembly is a push fit in reflector



13.4 Adjusting headlamp beam horizontal alignment



14.2 Unscrew two screws to release tail lamp lens



14.3 Stop/tail lamp bulb has two offset pins

15 Turn signal lamps: bulb renewal

1 The plastic lenses fitted to the turn signal lamps are retained in various ways; on CB125 TD and CD125 T models, one screw retains each lens, on CB125 T, T2 and CM125 C models two screws retain each lens, and on CB125 TA and TB models the lenses are clipped in place and are removed by inserting a suitable screwdriver blade or coin in the slot provided and rotating it to unclip the lens.
2 To remove the bulb, press in and twist; they are a conventional bayonet fitting. Be careful to purchase bulbs of only the correct rating.

16 Instrument illumination and warning lamps: bulb renewal

1 The bulbs are either of the conventional bayonet type (CB125 T, T2, TA and TB models) or the capless type (CB125 TD, CB125 T and CM125 C models); both types are pressed into the base of their respective instrument or warning lamp casings and retained by a rubber bulbholder which is a push fit.
2 Refer to Section 12 of Chapter 4 for instructions on removing the instruments from the fork top yoke. Each instrument only need be raised enough to permit the extraction of the bulb and holder. The capless type of bulb is pulled away from the holder and is pushed into place on refitting.

17 Stop lamp switches: adjustment and testing

1 All models have a stop lamp switch fitted to operate in conjunction with the rear brake pedal. The switch is located immediately to the rear of the crankcase, on the right-hand side of the machine. It has a threaded body giving a range of adjustment.
2 If the stop lamp is late in operating, turn the adjuster nut in a clockwise direction so that the switch rises from the bracket to which it is attached.
3 If the lamp operates too early, the adjuster nut should be turned anti-clockwise so that the switch body is lowered in relation to the mounting bracket.
4 As a guide, the light should operate after the brake pedal has been depressed by about 2 cm ($\frac{3}{4}$ inch).
5 A stop lamp switch operated by the front brake is also fitted. The switch is fitted in the brake lever stock and is non-adjustable. Should failure occur the switch should be renewed.
6 The switches are easily tested by using a multimeter or a dry battery and bulb test circuit to check that continuity exists when the lever or pedal is applied and the switch is extended.

18 Horn: location and testing

1 The horn is mounted on the bottom yoke or on the headlamp bracket via a flexible metal strip retained by a single bolt. No maintenance is required other than regular cleaning to remove road dirt and occasional spraying with WD40 or a similar water dispersant spray to minimise internal corrosion.
2 If the horn fails to work, first check that the battery is fully charged. If full power is available, a simple test will reveal whether the current is reaching the horn. Disconnect the horn wires and substitute a 6 or 12 volt bulb (as applicable). Switch on the ignition and press the horn button. If the bulb fails to light, check the horn button and wiring as described elsewhere in this Chapter. If the bulb does light, the horn circuit is proved good and the horn itself must be checked.
3 With the horn wires still disconnected, connect a fully charged 6 or 12 volt battery (as applicable) directly to the horn. If it does not sound, a sharp tap on the outside may serve to free the internal contacts. If this fails, the horn must be renewed as repairs are not possible.
4 At the rear of the horn there is a small crosshead screw and locknut. This is the volume adjusting screw and its locknut, and the screw may need adjustment from time to time to compensate for wear inside the horn.
5 To adjust the horn, slacken the locknut, depress the horn button (with the ignition switched on) and screw the adjuster in or out to obtain maximum horn volume.

19 Turn signal relay: locations and testing

1 Except for the CM125 C-F, which is fitted with a rectangular black plastic unit, all models are fitted with a cylindrical metal relay. It is rubber mounted and located under the seat on all CB125 models, or behind the right-hand side panel on CD125 T and CM125 C models.
2 If the turn signal lamps cease to function correctly, there may be any one of several possible faults responsible which should be checked before the relay is suspected. First check that the lamps are correctly

mounted and that all the earth connections are clean and tight. Check that the bulbs are of the correct wattage and that corrosion has not developed on the bulbs or in their holders. Any such corrosion must be thoroughly cleaned off to ensure proper bulb contact. Also check that the turn signal switch is functioning correctly and that the wiring is in good order. Finally ensure that the battery is fully charged.

3 Faults in any one or more of the above items will produce symptoms for which the turn signal relay may be blamed unfairly. If the fault persists even after the preliminary checks have been made, the relay must be at fault. Unfortunately the only practical method of testing the relay is to substitute a known good one. If the fault is then cured, the relay is proven faulty and must be renewed. Fortunately relay failure is a rare occurrence.

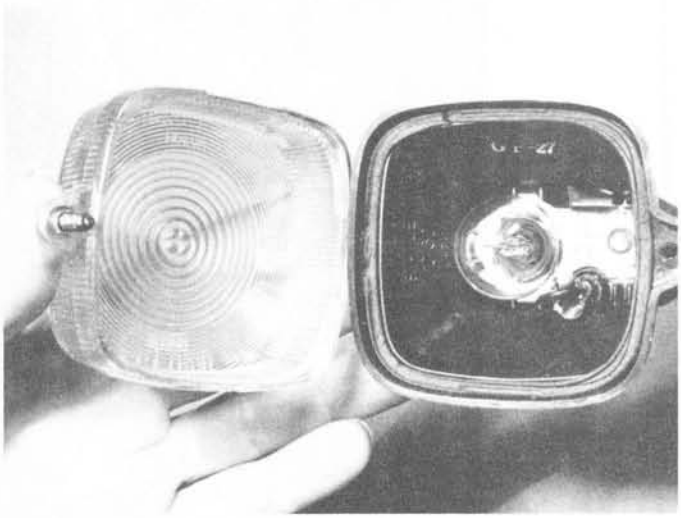
20 Ignition switch: removal and refitting

1 The ignition switch is bolted to the front fork top yoke by two bolts or screws. To remove the switch withdraw the headlamp unit from its shell and disconnect the switch lead at its block connector.

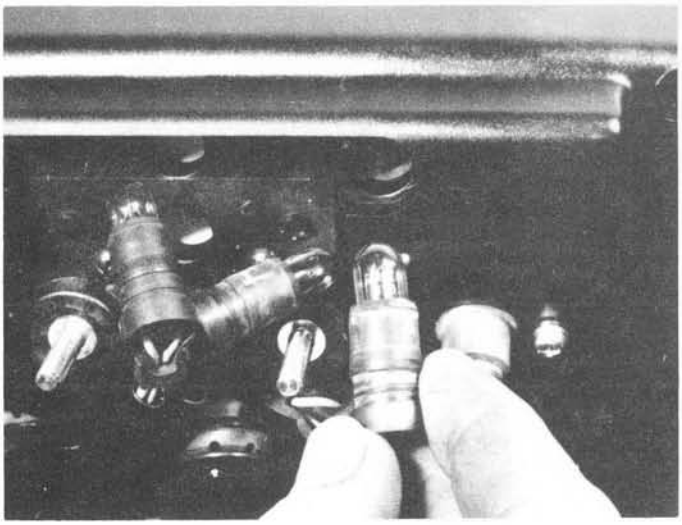
2 Unclip the black plastic switch cover (CB125 TD and CM125 C models only) or remove the two screws which secure the switch cover and detach the cover (CB125 T, T2, TA and TB models). Remove the two screws and withdraw the switch.

3 If the ignition switch is proven faulty it must be renewed. Although it is possible to dismantle such switches to clean the contacts, this is a delicate task and is not always successful in the long run.

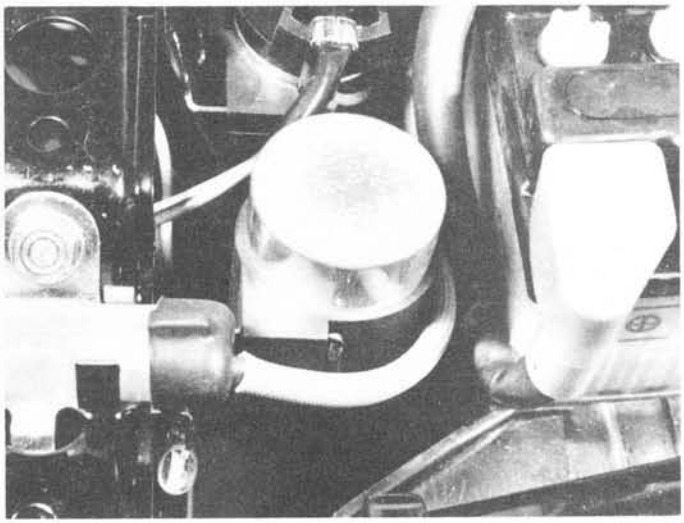
15.1a Release turn signal lamp lens – CB125 TD shown ...



15.1b ... to remove bulb



16.1 Instrument bulb holders are a push fit in instrument base



19.1 Location of turn signal relay – CB125 TD model

21 Switches and connectors: testing and repairs

1 In the event of any electrical fault, attention should be directed at the switch contacts and wiring connections in the circuit concerned. After long periods, these may become badly corroded, setting up a high resistance in the circuit and impairing the operation of the component controlled by them. If a multimeter is available, each switch connection and its associated wiring can be tested with the meter set on resistance.

2 The colour wiring diagrams at the end of this Chapter show the various switches in diagrammatic form, the lines denoting which contacts are connected in the various positions. With the machine's battery disconnected, check each of the relevant switch positions. When the two leads being checked are connected, the meter should indicate a completed circuit, with no discernible resistance, when the switch is in the 'On' position for that particular circuit.

3 The switch contacts can be kept clean and free of corrosion by using one of the proprietary switch cleaning fluids now available in aerosol form. These fluids can be injected into the switch body by means of the extension nozzle provided, and require that little or no dismantling is carried out. This form of preventative maintenance is especially useful during winter, when the switches are most prone to corrosion.

4 In the event that a switch unit fails completely, little can be done to effect a satisfactory repair. The handlebar switches can be dismantled to a certain extent, but repair is limited to cleaning the switch contacts with fine abrasive paper, where access is possible. In many instances, renewal will be the only course of action.

Left-hand view of the Honda CB125 TD-J

Chapter 7 The CB125 TD-J model

Contents

Specifications

Note: specifications are given only where they differ from those in the preceding chapters. If the information required is not shown below, refer back to the CB125 TD-E specifications.

Model dimensions and weights

Dry weight	126 kg (278 lb)

Specifications relating to Chapter 1

Valve clearance – cold

Inlet and exhaust	0.08 mm (0.003 in)

Specifications relating to Chapter 2

Carburettor	
Make	Keihin
ID number	VE26B-A
Main jet	82
Pilot (slow) jet	35
Pilot screw – turns out	1 1/2
Float height	18.5 mm (0.73 in)
Idle speed	1300 ± 100 rpm

Specifications relating to Chapter 3

Spark plug	
Hot type	NGK CR6HS or ND U20FSR-U
Standard type	NGK CR7HS or ND U22FSR-U
Cold type	NGK CR8HS or ND U24FSR-U

Specifications relating to Chapter 5

Tyre pressures – cold	
Front	28 psi (2.00 kg/cm²)
Rear:	
Solo	28 psi (2.00 kg/cm²)
Pillion	32 psi (2.25 kg/cm²)

Specifications relating to Chapter 6

Electrical system	
Alternator output @ 5000 rpm	0.18 kW
Bulbs	
Licence plate lamp	12V, 5W

1 Introduction

The CB125 TD-J model was introduced in June 1988 and supersedes the CB125 TD-E covered in the previous chapters of this manual. Apart from the use of constant velocity carburettors instead of the slide type instruments fitted to the TD-E model, changes have been kept to a minimum. Cast alloy wheels are fitted, instead of the previous Comstar type, and carry tubeless tyres. Detail changes have been made to the instruments, switchgear and controls.

Information will be found in this chapter where it differs from that given in Chapter 1 to 6 for the TD-E model. Refer first to this chapter for a particular procedure, if none is given the task will be substantially the same as that given in the main chapters of this manual.

The TD-J can be easily identified by its cast wheels and unpainted engine unit; previous models had Comstar-type wheels and black-painted engine castings. The initial engine and frame numbers are JCO6E-5100002 and JCO6-5300002 respectively.

2 Routine maintenance: schedule revisions

1 The maintenance intervals, as specified by the manufacturer, differ from the previous model's schedule shown in the Routine maintenance section of this manual. With the exception of carburettor adjustment, which is covered in this chapter, all tasks are described in the main part of this manual.

2 Apart from the daily (pre-riding) check, which is unchanged, the maintenance schedule is as follows:

Every 600 miles (1000 km)
Lubricate and adjust the final drive chain

Six monthly or every 2500 miles (4000 km)
Change the engine/transmission oil
Adjust the valve clearances
Adjust the cam chain tension
Clean and adjust the spark plugs
Clean the air filter element
Check the carburettor settings
Check the petrol pipe condition
Clean the petrol filter
Check the clutch adjustment
Check the condition of the brake pads and shoes and adjust the brakes
Check the front and rear suspension
Check the wheel and tyre condition
Check the battery
Check the lights

Annually or every 5000 miles (8000 km)
Repeat all previous maintenance operations then carry out the following:
Renew the spark plug
General checks and lubrication

Eighteen monthly or every 7500 miles (12 000 km)
Repeat all previous maintenance operations then carry out the following:
Renew the air cleaner element
Clean the oil filter screen
Check the steering head bearing adjustment
Change the front fork oil

Two yearly
Renew the brake fluid
Greasing the steering head bearings

Additional routine maintenance
Cleaning the machine

3 Clutch: removal, examination, renovation and refitting

Removal

1 If the engine is in the frame the engine oil must first be drained (see Routine maintenance) and the clutch and tachometer cables disconnected (see Chapter 1.4).

2 Remove its ten retaining bolts, together with the clutch cable bracket, and withdraw the clutch cover; note that it may be necessary to use a soft-faced mallet to tap around the cover to break the seal. Have a container ready to catch any residual oil from the cover as it comes free. Unless stuck firmly in the crankcase or cover, retrieve the two dowel pins for safekeeping. Note that the headed pushrod may come away with the cover and should also be retrieved for safekeeping. Peel off and discard the cover gasket; a new gasket should be used on reassembly.

3 Slacken the four thrust plate retaining bolts evenly and in a diagonal sequence until spring pressure is released; the thrust plate assembly can then be removed. Remove the four clutch springs from their posts.

4 The clutch retaining nut is of the slotted type and will require either the Honda service tool or a fabricated peg spanner to permit its removal. Also the clutch centre must be prevented from rotating whilst the nut is slackened. Details of the peg spanner and methods of locking the clutch are given in Chapter 1.9, paragraphs 10 and 11.

5 After the retaining nut has been slackened, remove it and its washer and then withdraw the complete clutch assembly from the input shaft.

Examination and renovation

6 Examination and renovation details can be found in Chapter 1.24 noting that on the TD-J model an anti-judder spring and spring seat are fitted to the plate assembly. Check both for breakage or wear and renew if necessary.

7 The release mechanism consists of a release lever housed in the clutch cover and the short headed pushrod. Check both for signs of excessive wear on their points of contact. The thrust plate contains a thrust bearing retained by a circlip. Renew the bearing if it has broken up or become noisy in use.

Reassembly

8 Fit the thrust washer over the end of the input shaft followed by the outer drum bush. Lubricate the bush surface and then slide the outer drum over the bush. Fit the splined washer over the shaft end, with its rounded surface facing outwards.

9 The clutch plate assembly should be built up on the bench as follows and installed as a single unit. Commence by installing the spring seat and anti-judder spring over the splined clutch centre, noting that the anti-judder spring must be fitted as shown in the

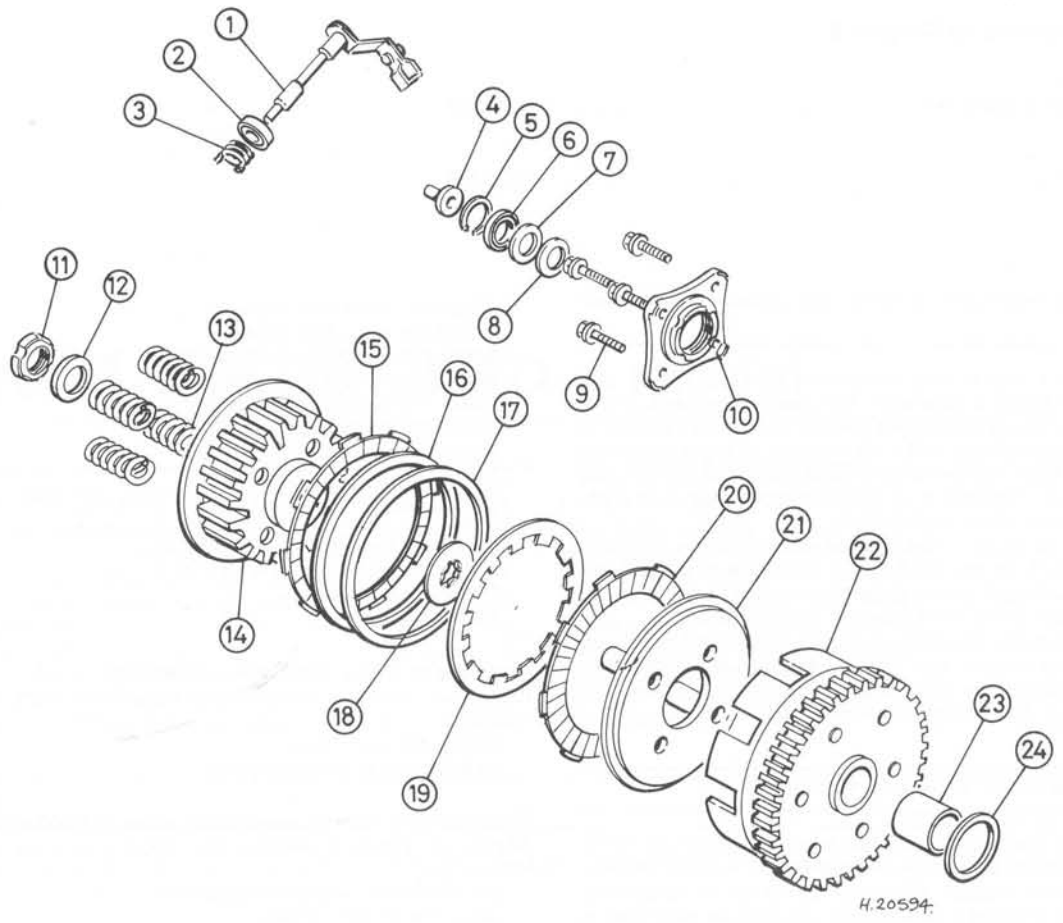


Fig. 7.1 Clutch

1 *Release lever*
2 *Oil seal*
3 *Spring*
4 *Headed pushrod*
5 *Circlip*
6 *Thrust bearing*
7 *Thrust washer*
8 *Collar*
9 *Bolt – 4 off*
10 *Thrust plate*
11 *Nut*
12 *Washer*
13 *Spring – 4 off*
14 *Centre*
15 *Special friction plate*
16 *Spring seat*
17 *Anti-judder spring*
18 *Splined washer*
19 *Plain plate – 4 off*
20 *Friction plate – 4 off*
21 *Pressure plate*
22 *Outer drum*
23 *Bush*
24 *Thrust washer*

accompanying illustration. Next fit the special friction plate (identified by its larger internal diameter) over these two components. Fit the remainder of the plates alternately, starting with a plain plate, taking care to align the friction plate tongues exactly. If fitting new plates note that they should be lightly lubricated with the recommended oil during assembly. Finally, install the pressure plate and fit the assembly into the outer drum.

10 Fit the washer to the end of the input shaft and secure the assembly with the clutch nut. Lock the clutch assembly using the same method employed on removal and tighten the nut securely. If the necessary tools are available, tighten the nut to the specified torque setting.

11 If dismantled, the thrust plate components should be assembled in the order shown in the accompanying illustration. Install the four springs over their posts and fit the thrust plate and retaining bolts. Tighten the bolts evenly and in a diagonal sequence. Lubricate and refit the headed pushrod.

12 Place a new cover gasket in position, fit the two dowel pins and install the clutch cover. Use the palm of the hand to seat the cover, noting that it may be necessary to rotate the tachometer drive gear slightly for it to engage properly. Fit the clutch cable bracket and the ten casing bolts, tightening them evenly and in a diagonal sequence.

13 Reconnect the clutch and tachometer cables and adjust the clutch cable as described in Routine maintenance. Replenish the engine/gearbox oil.

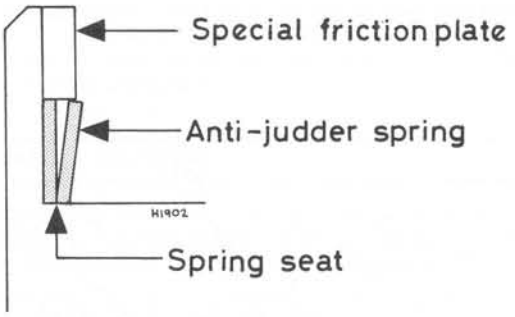


Fig. 7.2 Correct fitting of clutch anti-judder spring

4 Carburettors: removal and refitting

Note: *petrol is extremely flammable, especially when in the form of vapour. Take all precautions to prevent the risk of fire and read the Safety first! section of this manual before starting work.*

1 Remove both side panels, and the petrol tank to gain maximum access to the carburettors. Details of petrol tank removal are given in Chapter 2, Section 2.

2 Working from the right-hand side of the machine, release the choke cable from its securing clamp on the choke bracket and remove the cable nipple from the operating lever. Slacken both throttle cable adjusters sufficiently for them to be disconnected from the throttle pulley. Tie the cables to the frame top tube, out of harm's way.

3 Fully slacken the worm-drive clips around the air filter hoses and the intake adaptor stubs. The carburettors can then be pulled back towards the air filter until they are free of the intake stubs, and withdrawn from the left-hand side of the machine.

4 If necessary, the intake stubs can be removed from the cylinder head by removing their four retaining nuts and pulling them off the studs. Inspect the O-ring at each cylinder head/intake stub joint; if in any doubt about their condition they must be renewed to ensure a gas-tight seal between the two components. Similarly, the rubber intake stubs should be undamaged and the vacuum take-off plugs should be securely tightened.

5 Refitting is simply a reversal of the removal procedure. Ensure that a gas-tight seal is made at all hose connections and that the throttle and choke cables are readjusted as described in Section 8.

6 Turn the fuel tap to the On position and check for fuel leaks.

5 Carburettors: dismantling, examination and reassembly

Note: *Petrol is extremely flammable, especially when in the form of vapour. Take all precautions to prevent the risk of fire and read the Safety first! section of this manual before starting work.*

1 Always work on one carburettor at a time or place the dismantled components in clearly marked containers so that the left and right-hand components are not inadvertently transposed. Note that it is not necessary to separate the carburettors during the normal course of dismantling, only for access to the fuel and air unions; if required refer to Section 6.

2 Remove the four screws securing the vacuum chamber top and remove the top, complete with the cable bracket on the right-hand carburettor. Lift out the return spring and withdraw the combined diaphragm/throttle valve unit, being careful to peel the diaphragm edge off the carburettor body. Using an 8 mm socket spanner push the plastic jet needle holder downwards and rotate it anticlockwise through 90°. The jet needle, spring and needle holder can then be withdrawn from the throttle valve.

3 Remove its four screws and withdraw the float chamber. Using a pair of pointed-nose pliers pull out the float pivot pin and remove the float; lift the float needle valve out of its seating.

4 The main jet is screwed into the top of the needle jet holder in the centre of the carburettor body. Remove using a close-fitting screwdriver to prevent damage to the soft brass jet. The needle jet holder can then be unscrewed. Note that the needle jet is a press fit in the body and if removal is required it must be pushed out from the top of the carburettor using a soft wooden rod. Located next to the needle and main jet pillar is the pilot (slow) jet; this can be unscrewed from the body if required. The pilot screw is located at the front lower edge of the carburettor and can be unscrewed after recording its present position. Record the number of turns necessary to screw the pilot screw in until it seats lightly. Make a note of this as a guide to reassembly and then fully unscrew and remove the screw, complete with its spring, washer and O-ring.

5 Examine the throttle valve surface and the corresponding bore in the carburettor for wear or scoring. Hold the diaphragm up to a light source and check that there are no holes or splits in it. If damage to either the throttle valve or diaphragm is discovered note that the two components are combined and must be renewed as a unit. Roll the jet needle on a flat surface to check it for straightness and check it for scoring or ridges. Renew the needle if damaged; attempts should not be made to straighten it. Note that it is good practice to renew the needle and needle jet as a pair.

6 Blow through all the jets and passages using compressed air. Never use a piece of wire to clear a jet because this will almost certainly cause damage to the jet passages. Examine the carburettor casting for cracks or other damage.

7 Check the floats for leakage and the float needle valve for wear. Wear of the needle valve usually takes the form of a groove around its tip, often with corresponding wear shown on the needle seat. Note that if the needle seat is severely worn renewal of the carburettor body will be required.

8 Thoroughly clean the carburettor components and reassemble in the reverse of the dismantling order. When refitting the pilot mixture screw remember to screw it out to the previously noted position, leaving final adjustment until the machine is running. Before the float chamber is refitted refer to Section 8 and check the float height.

9 When refitting the throttle valve/diaphragm align the diaphragm tab with the cutout in the carburettor surface and ensure that its edge fits into the groove provided. Insert the return spring and fit the vacuum chamber top; hold the valve in the raised position whilst the top is being secured as this will prevent the diaphragm becoming pinched.

10 If attention to the choke shaft or plunger valve is required it will be necessary to slacken the two shaft securing screws and pull the shaft free from the carburettor castings from the right-hand side. Take care to catch the small spring as the shaft is withdrawn. Unscrew and remove the choke plunger cap to release the spring and plunger valve. Check the valve and its seat in the carburettor for wear or scoring; renew if excessive damage is discovered.

11 When fully reassembled refit the assembly to the machine as described in the previous section.

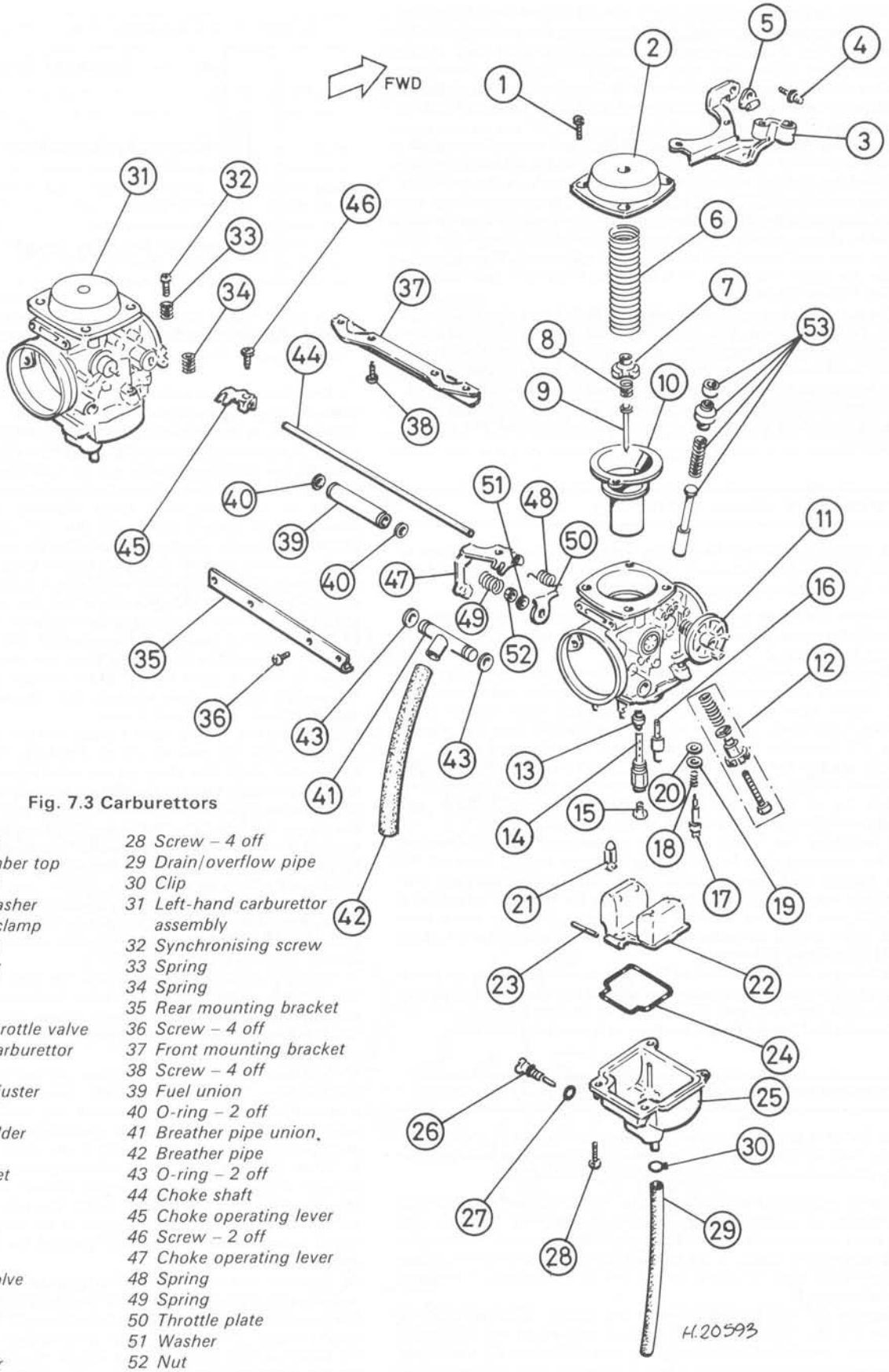


Fig. 7.3 Carburettors

1 *Screw – 4 off*
2 *Vacuum chamber top*
3 *Cable bracket*
4 *Screw and washer*
5 *Choke cable clamp*
6 *Return spring*
7 *Needle holder*
8 *Spring*
9 *Jet needle*
10 *Diaphragm/throttle valve*
11 *Right-hand carburettor body*
12 *Idle speed adjuster*
13 *Needle jet*
14 *Needle jet holder*
15 *Main jet*
16 *Pilot (slow) jet*
17 *Pilot screw*
18 *Spring*
19 *Washer*
20 *O-ring*
21 *Float needle valve*
22 *Float*
23 *Pivot pin*
24 *O-ring*
25 *Float chamber*
26 *Drain screw*
27 *O-ring*
28 *Screw – 4 off*
29 *Drain/overflow pipe*
30 *Clip*
31 *Left-hand carburettor assembly*
32 *Synchronising screw*
33 *Spring*
34 *Spring*
35 *Rear mounting bracket*
36 *Screw – 4 off*
37 *Front mounting bracket*
38 *Screw – 4 off*
39 *Fuel union*
40 *O-ring – 2 off*
41 *Breather pipe union*
42 *Breather pipe*
43 *O-ring – 2 off*
44 *Choke shaft*
45 *Choke operating lever*
46 *Screw – 2 off*
47 *Choke operating lever*
48 *Spring*
49 *Spring*
50 *Throttle plate*
51 *Washer*
52 *Nut*
53 *Choke plunger assembly*

6 Carburettors: separation

Note: *Petrol is extremely flammable, especially when in the form of vapour. Take all precautions to prevent the risk of fire and read the Safety first! section of this manual before starting work.*

1 Note that it is not normally necessary to separate the carburettors, only for attention to the fuel and air unions or for thorough cleaning of the castings. Proceed by removing the carburettors as described in Section 4.
2 Slacken the choke shaft screws and slide the shaft out from the right-hand side, remembering to catch the small spring which will drop clear. Note that it is not absolutely necessary to remove the shaft completely, it is possible to slide it just clear of the left-hand carburettor body. Screw the synchronising screw inwards until it seats lightly, recording the number of turns necessary to do so, and then fully unscrew it. Retrieve the two springs from the synchronising mechanism. Remove the eight screws retaining the carburettors to the rear and front mounting brackets.
3 Very carefully pull the two units apart noting that some resistance may be felt by the O-rings around the unions.
4 On reassembly use new O-rings on the unions and coat them lightly with a smear of oil. Fit the two carburettors together, fitting the throttle shaft spring and synchronising springs at the same time. Assemble the front and-rear mounting brackets, tightening their screws evenly. Reconnect the choke shaft and tighten its screws securely.
5 Check that the throttle shaft operates correctly and then set the synchronising screw to its original position by screwing it in lightly and then unscrewing it to the previously noted position. Check that the throttle valves align with the edge of the bypass hole, located at the bottom of the carburettor bore. The right-hand valve can be brought into alignment by turning the throttle stop screw and the left-hand valve, by the synchronising screw. Note that this adjustment only serves to set up the carburettor synchronisation from scratch; fine adjustment must be made when the machine is running by using a set of vacuum gauges (see Section 7).
6 Refit the carburettors to the machine as described in Section 4.

7 Carburettors: synchronisation

Note: *Petrol is extremely flammable, especially when in the form of vapour. Take all precautions to prevent the risk of fire and read the Safety first! section of this manual before starting work.*

1 Carburettor synchronisation must be checked whenever the adjusting screw setting has been altered or if uneven running is experienced. For accurate synchronisation it is necessary to use two good quality vacuum gauges. If these are not available it is advisable to entrust the job to an authorized Honda dealer who will have the necessary equipment and experience in its use.
2 Prior to checking the synchronisation it is important that the following engine settings are checked and if necessary adjusted, otherwise it will not be possible to obtain smooth running. Check the ignition timing, spark plug gaps, valve clearances, float height, pilot screw setting and throttle cable adjustment.
3 Run the engine until it has reached its normal operating temperature. Stop the engine and remove the sidepanels, unlock and raise the seat. Disconnect the petrol tank rear mounting and raise the tank rear end as far as the fuel pipe will permit. Prop the tank up in this position using a block of wood. Check that there is adequate petrol in the tank and turn the tap to the Res position.
4 Remove the vacuum gauge adaptor plugs from each intake stub and attach the gauges, following the manufacturer's instructions. As a preliminary check of the gauges run the engine and note the reading shown on each gauge. Stop the engine and swap over the two gauges, before restarting the engine and checking the readings again. Each gauge should show the same reading for the left and right-hand carburettors. Any difference indicates an inaccuracy in the gauges which must be compensated for when carrying out the actual test.
5 With all checks carried out start the engine and set the idle speed to 1300 rpm using the throttle stop screw. Note the gauge readings. The actual figure shown is not important but the difference between cylinders should not exceed 4 cm Hg. If adjustment is required turn the synchronising screw to bring the reading for the left-hand carburettor into alignment with the right-hand unit's reading. Raise the engine speed slightly and recheck the readings, then return to idle speed and recheck the gauge readings and the idle speed.
6 When the setting is correct stop the engine and disconnect the vacuum gauge equipment. Check that their sealing washers are in good condition and refit the vacuum gauge adaptor plugs. Refit the petrol tank, seat and sidepanels.

8 Carburettors: adjustment

Note: *Petrol is extremely flammable, especially when in the form of vapour. Take all precautions to prevent the risk of fire and read the Safety first! section of this manual before starting work.*

Float height

1 Remove the carburettors from the machine (see Section 4) and remove the four screws securing the float chamber. Remove the chamber, taking care not to damage its sealing O-ring.
2 Position the carburettor on its side, air filter end upwards (see Fig. 2.6) so that the float hangs from its pivot and just touches the float needle, without actually compressing its tip. Measure the distance between the gasket face and the bottom of the float; this measurement should be as shown in the specifications section of this chapter. If an incorrect float height is indicated, note that the plastic construction of the float prevents adjustment of the float tang as on the older brass type float. An incorrect float height can only be attributed to a worn needle valve and seat or by dirt on the valve face. Check the valve condition as described in Section 5.

Pilot screw adjustment

3 The pilot screws are located at the front of the float chambers. Note that adjustment should not normally be required, and will only be necessary if the setting has been disturbed through dismantling or if poor running is experienced.
4 Screw each screw in until it seats lightly and then unscrew to the number of turns specified. This is the initial setting specified by the manufacturer and serves as a basis for fine adjustment. With the engine running at normal temperature check, and if necessary adjust, the idle speed. Working on one carburettor at a time turn the pilot screw inwards by a 1/2 turn until the engine begins to falter, then repeat this by turning the screw outwards. The correct position will be midway between the two, at the point which gives the fastest consistent tickover. Repeat the process on the other carburettor. When adjustment is complete reset the idle speed to the specified amount. *Do not make this adjustment by disconnecting one of the spark plug caps; such action will cause irreparable damage to the ignition system.*

Idle speed adjustment

5 Adjustment is made using the large black knob situated at the front lower edge of the right-hand carburettor. With the throttle cable correctly adjusted and the engine running at normal operating temperature rotate the adjuster knob to obtain the specified idle speed. Note that this controls both carburettors; individual tickover screws are not fitted.

Cable adjustment

6 Throttle cable adjustment is correct if there is 2 - 6 mm (0.08 - 0.24 in) free play in terms of twistgrip rotation. Use the opening cable adjuster situated immediately beneath the twistgrip if adjustment is required. If more adjustment is required than is available at this adjuster, screw the adjuster fully inwards and make adjustment at the adjuster bracket mounted on the carburettor.
7 Although the choke control has been repositioned on the left-hand handlebar, the cable can be adjusted as described in Chapter 2, Section 8. The outer cable clamp will be found on the cable bracket fitted to the right-hand carburettor top. Note that due to the different design of the operating lever the friction control is no longer fitted.

9 Ignition system components: modification

1 The ignition source coil, CDI units and HT coils have all been modified on the CB125 TD-J model. Their locations, however, remain unchanged from the earlier models described in Chapter 3.
2 Unfortunately no test results are available for the modified

components, and it follows that if a fault is suspected testing can only be made by the substitution of a known good component. Alternatively it is suggested that testing be entrusted to an authorized Honda dealer who will have the correct test equipment.

10 Speedometer and tachometer head: removal and refitting

Follow the procedure given in Chapter 4, Section 12 for the CB125 TD models, noting that if removal of the speedometer instrument is required the tripmeter knob must first be disconnected. Remove the screw from the end of the knob and pull the knob out of the instrument housing. The speedometer can then be lifted out of the casing centre section.

11 Front wheel: general

Removal and refitting

1 Refer to Chapter 5, Section 4, noting that there are no washers under the spindle head or nut.

Bearing removal and refitting

2 Remove the wheel from the machine and remove the spacer from the hub right-hand side. Withdraw the speedometer drive gearbox and prise out the hub left-hand dust seal to permit removal of the speedometer drive ring.
3 Drift out the wheel bearings as described in Chapter 5, Section 5, from paragraph 3 onwards.

12 Wheels: examination

1 Check each wheel for signs of cracking or chipping, particularly at the spoke roots and the edge of the rim. As a general rule, cracks will cause stress points which may lead to sudden failure under heavy load, although small nicks or chips can be radiused out with a fine file and emery paper (No 600 - 1000) to relieve the stress. If in any doubt about the wheel's condition it should be taken to an authorized Honda dealer or a wheel specialist for a proper assessment of its condition.
2 The wheels are coated in lacquer to prevent corrosion. If this lacquer flakes off the bared aluminium alloy will corrode and a whitish grey oxide will form over the unprotected area. In this event, carefully clean off the oxide and apply a new coating of lacquer.
3 Check the wheel radial and axial runout as described for the Comstar type wheel in Chapter 5, Section 3. Note that if excessive runout is found the wheel must be renewed; repairs are not possible. It is worth checking, however, that this is not due to worn wheel bearings before resorting to renewal.

13 Front brake disc: removal and refitting

1 Remove the wheel from the machine. The disc is secured to the hub left-hand side by five special Allen-headed bolts. Fasten the bolts to the specified torque setting on refitting.
2 Disc examination details can be found in Chapter 5, Section 6.

14 Tubeless tyres: removal and refitting

1 It is strongly recommended that should a repair to a tubeless tyre be necessary, the wheel is removed from the machine and taken to a tyre fitting specialist who is willing to do the job or taken to an official dealer. This is because the force required to break the seal between the wheel rim and tyre bead is considerable and considered to be beyond the capabilities of an individual working with normal tyre removing tools. Any abortive attempt to break the rim to bead seal may also cause damage to the wheel rim, resulting in an expensive wheel replacement. If, however, a suitable bead releasing tool is available, and experience has already been gained in its use, tyre removal and refitting can be accomplished as follows.
2 Remove the wheel from the machine. Deflate the tyre by removing

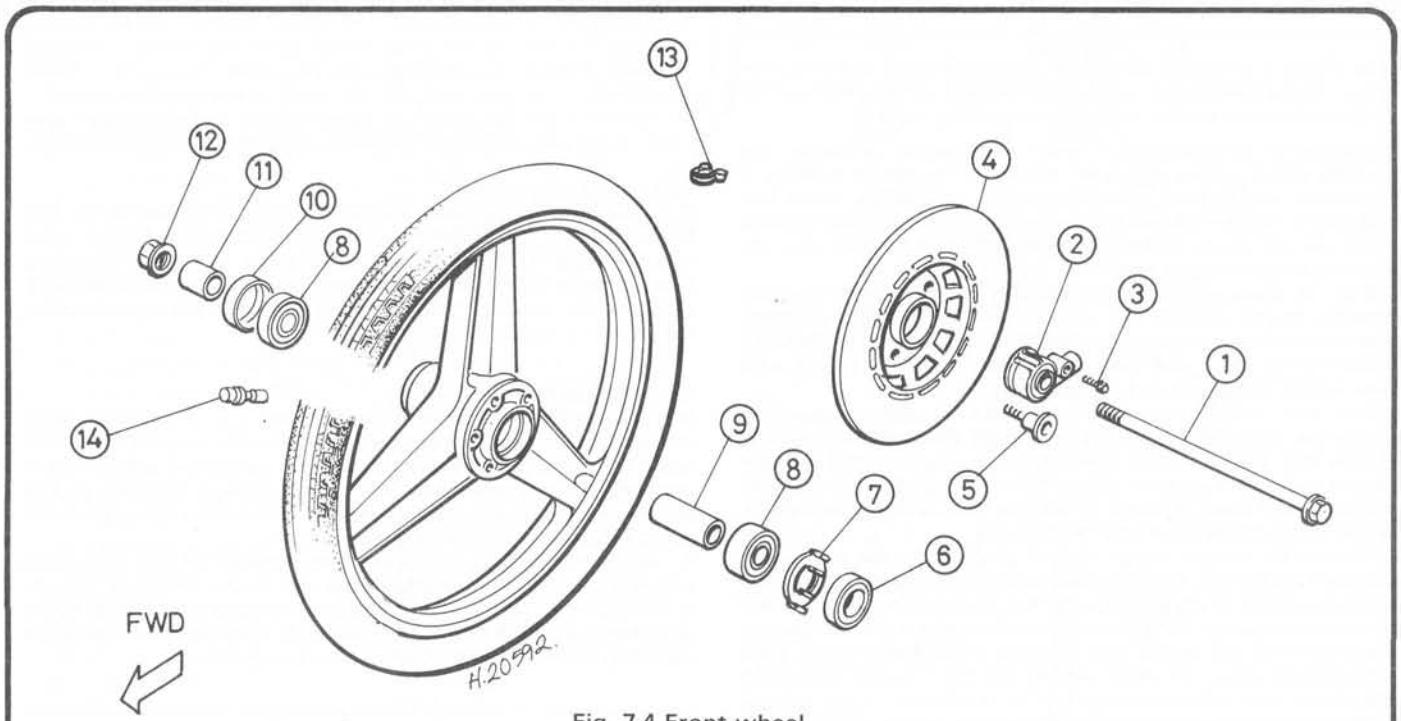


Fig. 7.4 Front wheel

1 *Wheel spindle*
2 *Speedometer drive gearbox*
3 *Screw*
4 *Brake disc*
5 *Allen bolt – 5 off*
6 *Dust seal*
7 *Speedometer drive ring*
8 *Wheel bearing – 2 off*
9 *Spacer*
10 *Dust seal*
11 *Right-hand spacer*
12 *Nut*
13 *Balance weight – as required*
14 *Tyre valve*

the valve insert and when it is fully deflated, push the bead of the tyre away from the wheel rim on both sides so that the bead enters the centre well of the rim. As noted, this operation will almost certainly require the use of a bead releasing tool.

3 Insert a tyre lever close to the valve and lever the edge of the tyre over the outside of the wheel rim. Very little force should be necessary; if resistance is encountered it is probably due to the fact that the tyre beads have not entered the well of the wheel rim all the way round the tyre. Should the initial problem persist, lubrication of the tyre bead and the inside edge and lip of the rim will facilitate removal. Use a recommended lubricant, a diluted solution of washing-up liquid or french chalk. Lubrication is usually recommended as an aid to tyre fitting but its use is equally desirable during removal. The risk of lever damage to wheel rims can be minimised by the use of proprietary plastic rim protectors placed over the rim flange at the point where the tyre levers are inserted. Suitable rim protectors may be fabricated very easily from short lengths (4 - 6 inches) of thick-walled nylon petrol pipe which have been split down one side using a sharp knife. The use of rim protectors should be adopted whenever levers are used and, therefore, when the risk of damage is likely.

4 Once the tyre has been edged over the wheel rim, it is easy to work around the wheel rim so that the tyre is completely free on one side.

5 Working from the other side of the wheel, ease the other edge of the tyre over the outside of the wheel rim, which is furthest away. Continue to work around the rim until the tyre is freed completely from the rim.

6 Refer to the following Section for details relating to puncture repair and the renewal of tyres. See also the remarks relating to the tyre valves in Section 16.

7 Refitting of the tyre is virtually a reversal of the removal procedure. If the tyre has a balance mark (usually a spot of coloured paint), as on the tyres fitted as original equipment, this must be positioned alongside the valve. Similarly, any arrow indicating direction of rotation must face the right way.

8 Starting at the point furthest from the valve, push the tyre bead over the edge of the wheel rim until it is located in the central well. Continue to work around the tyre in this fashion until the whole of one side of the tyre is on the rim. It may be necessary to use a tyre lever during the final stages. Here again, the use of a lubricant will aid fitting. It is recommended strongly that when refitting the tyre only a recommended lubricant is used because such lubricants also have sealing properties. Do not be over generous in the application of lubricant or tyre creep may occur.

9 Fitting the upper bead is similer to fitting the lower bead. Start by pushing the bead over the rim and into the well at a point diametrically opposite the tyre valve. Continue working round the tyre, each side of the starting point, ensuring that the bead opposite the working area is always in the well. Apply lubricant as necessary. Avoid using tyre levers unless absolutely essential, to help reduce damage to the soft wheel rim. The use of the levers should be required only when the final portion of bead is to be pushed over the rim.

10 Lubricate the tyre beads again prior to inflating the tyre, and check that the wheel rim is evenly positioned in relation to the tyre beads. Inflation of the tyre may well prove impossible without the use of a high pressure air hose. The tyre will retain air completely only when the beads are firmly against the rim edges at all points and it may be found when using a foot pump that air escapes at the same rate as it is pumped in. This problem may also be encountered when using an air hose on new tyres which have been compressed in storage and by virtue of their profile hold the beads away from the rim edges. To overcome this difficulty, a tourniquet may be placed around the circumference of the tyre, over the central area of the tread. The compression of the tread in this area will cause the beads to be pushed outwards in the desired direction. The type of tourniquet most widely used consists of a length of hose closed at both ends with a suitable clamp fitted to enable both ends to be connected. An ordinary tyre valve is fitted at one end of the tube so that after the hose has been secured around the tyre it may be inflated, giving a constricting effect. Another possible method of seating beads to obtain initial inflation is to press the tyre into the angle between a wall and the floor. With the airline attached to the valve additional pressure is then applied to the tyre by the hand and shin, as shown in the accompanying illustration. The application of pressure at four points around the tyre's circumference whilst simultaneously applying the airhose will often effect an initial seal between the tyre beads and wheel rim, thus allowing inflation to occur.

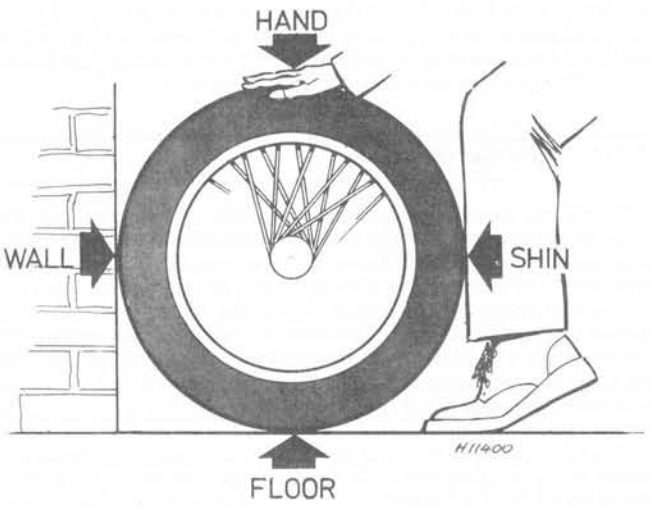


Fig. 7.5 Method of seating the beads on tubeless tyres

11 Having successfully accomplished inflation, increase the pressure to 40 psi and check that the tyre is evenly disposed on the wheel rim. This may be judged by checking that the thin positioning line found on each tyre wall is equidistant from the rim around the total circumference of the tyre. If this is not the case, deflate the tyre, apply additional lubrication and reinflate. Minor adjustments to the tyre position may be made by bouncing the wheel on the ground.

12 Always run the tyre at the recommended pressures and never under or over-inflate. The correct pressures for various weights and configurations are given in the Specifications Section of this Chapter.

15 Tubeless tyres: puncture repair and tyre renewal

1 The primary advantage of the tubeless tyre is its ability to accept penetration by sharp objects such as nails etc without loss of air. Even if loss of air is experienced, because there is no inner tube to rupture, in normal conditions a sudden blow-out is avoided. If a puncture of the tyre occurs, the tyre should be removed for inspection for damage before any attempt is made at remedial action. The temporary repair of a punctured tyre by inserting a plug from the outside should not be attempted. Although this type of temporary repair is used widely on cars, the manufacturers strongly recommend that no such repair is carried out on a motorcycle tyre. Not only does the tyre have a thinner carcass, which does not give sufficient support to the plug, the consequences of a sudden deflation are often sufficiently serious that the risk of such an occurrence should be avoided at all costs.

2 The tyre should be inspected both inside and out for damage to the carcass. Unfortunately the inner lining of the tyre – which takes the place of the inner tube – may easily obscure any damage and some experience is required in making a correct assessment of the tyre condition.

3 There are two main types of tyre repair which are considered safe for adoption in repairing tubeless motorcycle tyres. The first type of repair consists of inserting a mushroom-headed plug into the hole from the inside of the tyre. The hole is prepared for insertion of the plug by reaming and the application of an adhesive. The second repair is carried out by buffing the inner lining in the damaged area and applying a cold or vulcanised patch. Because both inspection and repair, if they are to be carried out safely, require experience in this type of work, it is recommended that the tyre by placed in the hands of a repairer with the necessary skills, rather than repaired in the home workshop.

4 In the event of an emergency, the only recommended 'get-you-home' repair is to fit a standard inner tube of the correct size. If this course of action is adopted, care should be taken to ensure that the cause of the puncture has been removed before the inner tube is fitted. It will be found that the valve hole in the rim is considerably larger than the diameter of the inner tube valve stem. To prevent the ingress of road dirt, and to help support the valve, a spacer should be fitted over the valve.

5 In the event of the unavailability of tubeless tyres, ordinary tubed tyres fitted with inner tubes of the correct size may be fitted. Refer to the manufacturer or a tyre fitting specialist to ensure that only a tyre and tube of equivalent type and suitability is fitted, and also to advise on the fitting of a valve nut/spacer to the rim hole.

16 Tubeless tyres: tyre valves

1 It will be appreciated from the preceding Sections that the adoption of tubeless tyres has made it necessary to modify the valve arrangement, as there is no longer an inner tube which can carry the valve core. The problem has been overcome by fitting a separate tyre valve which passes through a close-fitting hole in the rim, and which is secured by a nut and locknut. The valve is fitted from the rim well, and it follows that the valve can be removed and replaced only when the tyre has been removed from the rim. Leakage of air from around the valve body is likely to occur only if the sealing seat fails or if the nut and locknut become loose.
2 The valve core is of the same type as that used with tubed tyres, and screws into the valve body. The core can be removed with a small slotted tool which is normally incorporated in plunger type pressure gauges. Some valve dust caps incorporate a projection for removing valve cores. Although tubeless tyre valves seldom give trouble, it is possible for a leak to develop if a small particle of grit lodges on the sealing face. Occasionally, an elusive slow puncture can be traced to a leaking valve core, and this should be checked before a genuine puncture is suspected.
3 The valve dust caps are a significant part of the tyre valve assembly. Not only do they prevent the ingress of road dirt in the valve, but also act as a secondary seal which will reduce the risk of sudden deflation if a valve core should fail.

17 Turn signals: bulb renewal and relay

Turn signal lamps

1 The turn signal lenses are retained to the lamp body by an ear on their inner face which engages a projection on the lamp body. Gently lever the lens free of its retainer to gain access to the bulb. On reassembly the lens should simply clip back into position.

Turn signal relay

2 The turn signal relay takes the form of a plastic square-shaped unit located under the seat, next to the battery. It is held in a rubber mounting and can be removed once its two wire terminals have been detached.
3 Preliminary testing of the unit can be carried out as described in Chapter 6, Section 19, although substitution with a known good component is the only definite means of testing.

18 Licence plate lamp: bulb renewal

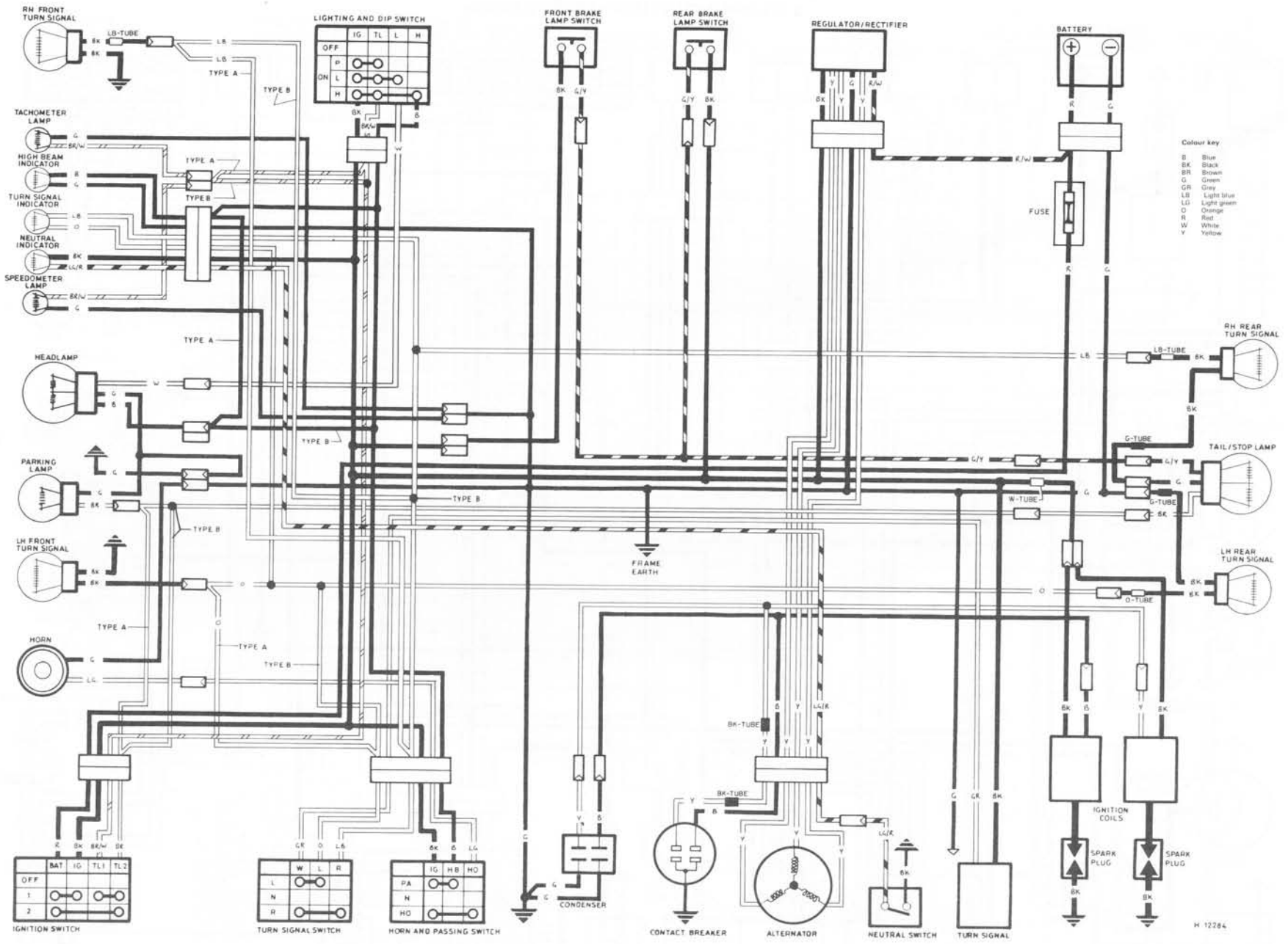
1 The lens is retained by two screws which once removed can be carefully pulled free of its gasket. The bulb is a simple bayonet fitting in its bulbholder.
2 Always ensure that the gasket is in good condition before refitting the lens and wipe the lens external surface clean.

19 Handlebar switches: modification

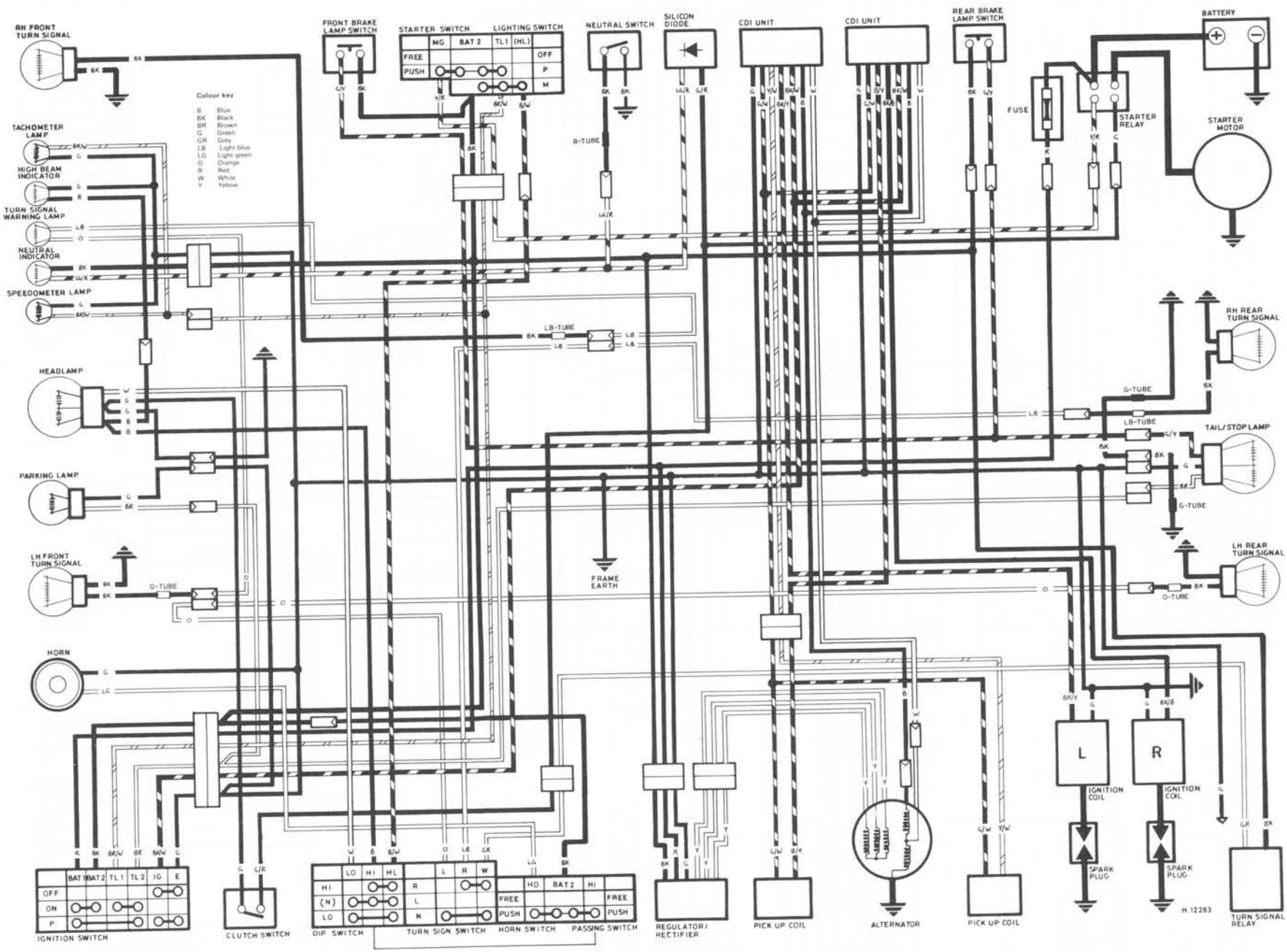
Modified handlebar switches are fitted, the right-hand switch now incorporating an engine stop switch. If the switch is suspected of being faulty its black/white and green wires should be disconnected at their connectors and a multimeter connected between the two wires from the switch. There should be no continuity shown with the switch in the Run position and the reverse shown when the switch is moved to the Off position. If the results are not as indicated, the switch halves should be separated and the switch contacts cleaned.

20 Horns: location

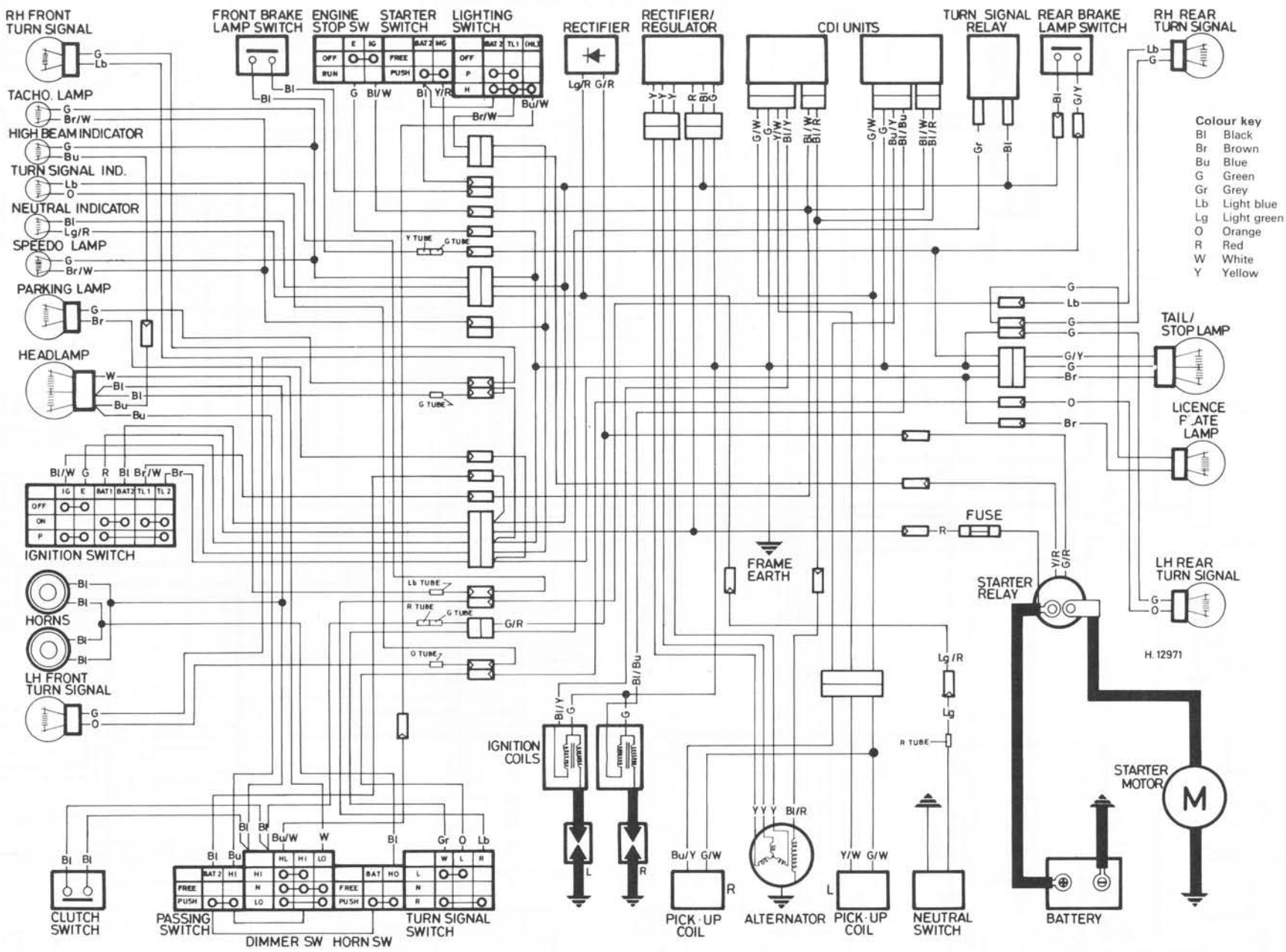
1 Twin horns are fitted to the TD-J model. A single bolt retains both horns to their mounting bracket on the bottom yoke. Note that the plastic cover must first be removed to gain access to the mounting bolt.
2 If failure is suspected, the horns can be tested as described in Chapter 6, Section 18.



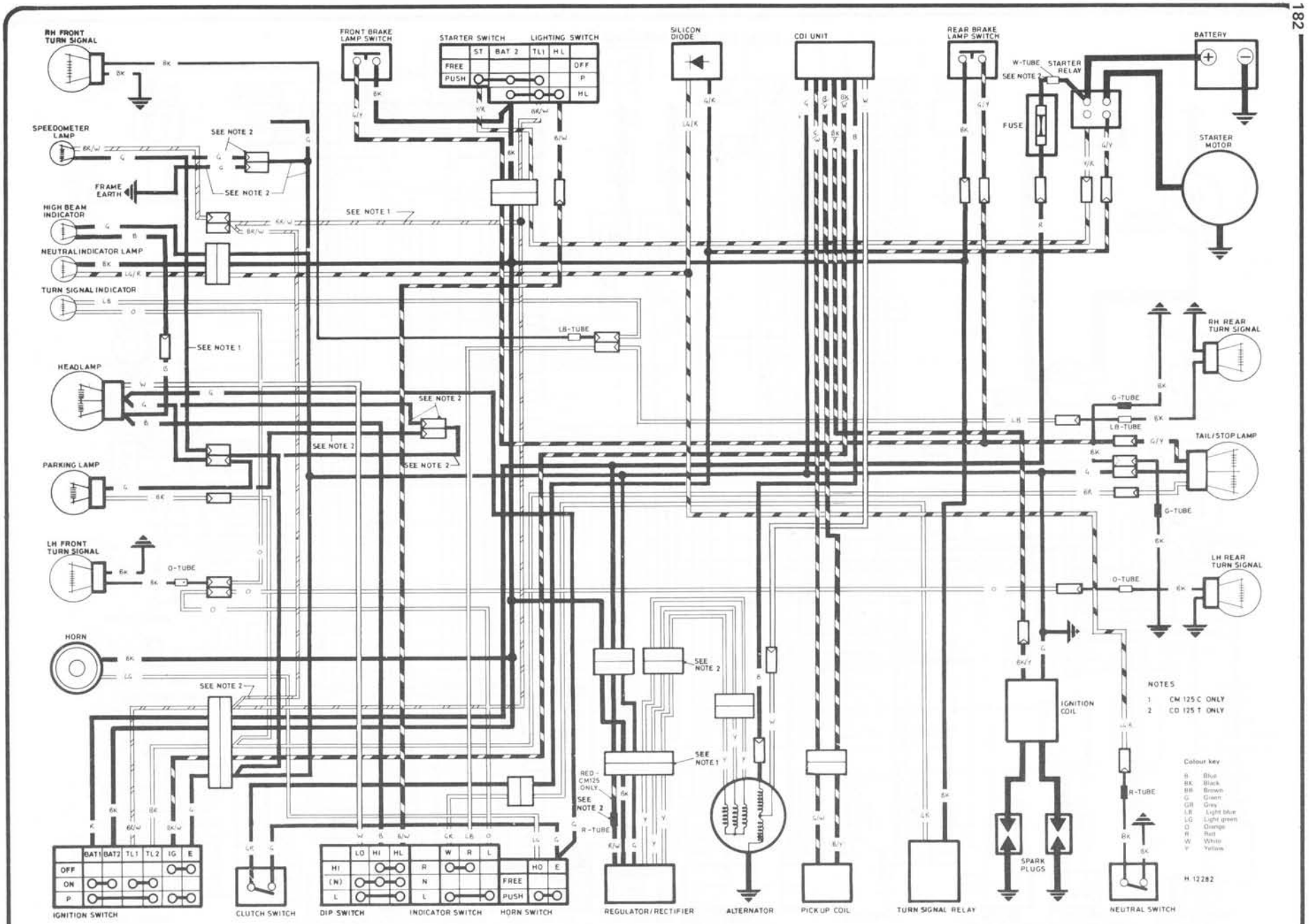
Wiring diagram – CB125 T, T2, TA and TB



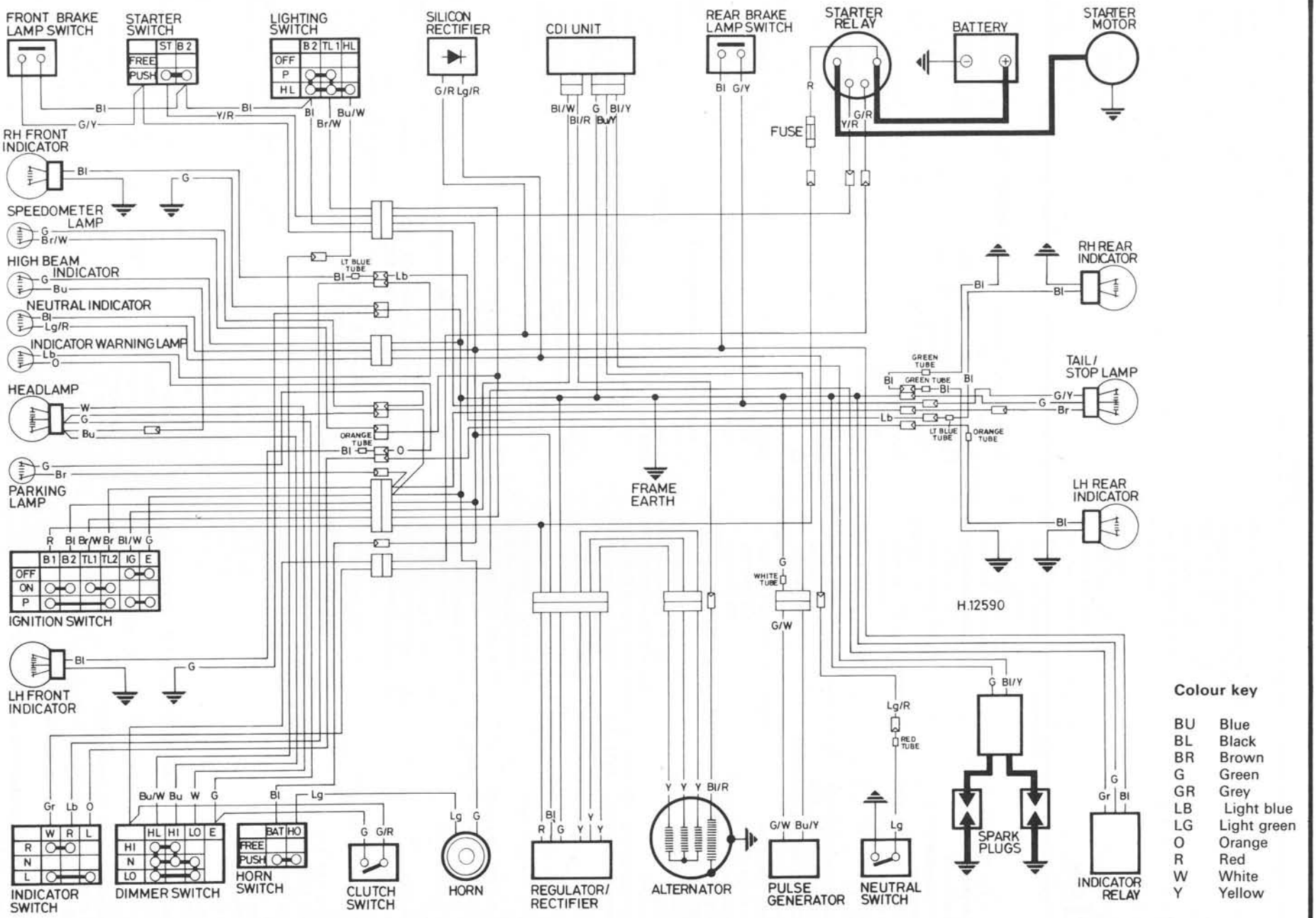
Wiring diagram – CB125 TD-C and TD-E



Wiring diagram – CB125 TD-J



Wiring diagram – CD125 T and CM125 C-C



Wiring diagrams – CM125 C-F

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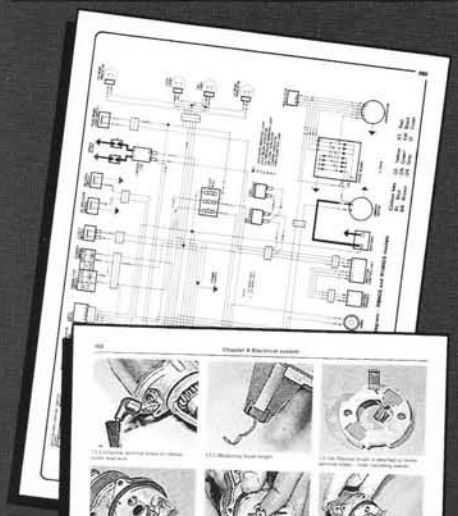

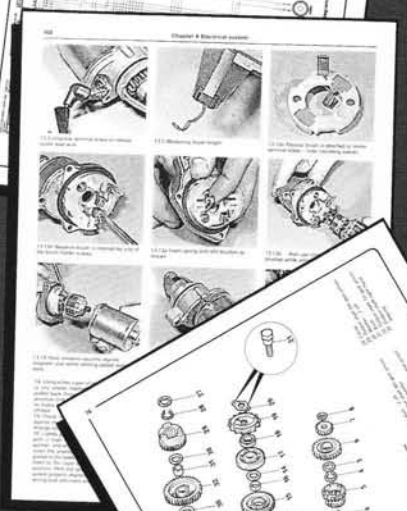

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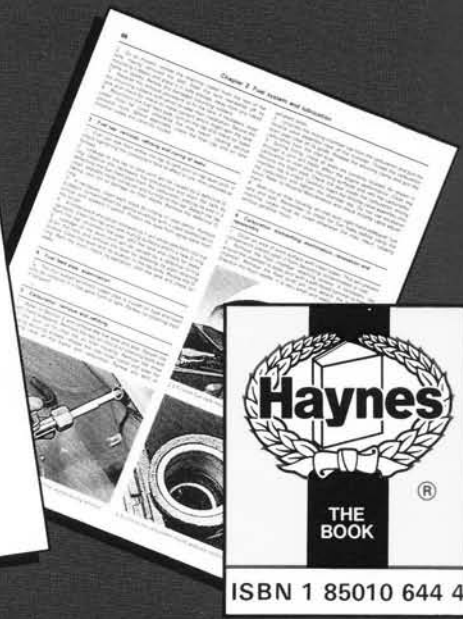

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